FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	256	524

ABBREVIATIONS:

A		
	Abut.	Abutment
	A.B.	Anchor Bolt
	A.F.F.	Above Finish Floor
	Alt.	Alternate
	Approx.	Approximate
B		
	℄	Base Line
	Bm.	Beam
	B.F.	Bottom of Footing, Back Face
	Bot.	Bottom
	Btwn.	Between
C		
	C.I.P.	Cast-in-place
	C.J.	Construction Joint
	C.M.U.	Cement Masonry Unit
	℄	Center Line
	Clr.	Clear
	Col.	Column
	Conc.	Concrete
	Conn.	Connection
	Const.	Construction
	Cont.	Continue
	Ctrs.	Centers
D		
	Dbl.	Double
	Det.	Detail
	Dia.	Diameter
	Dim.	Dimension
	D.L.	Drain Line
	Dwg.	Drawing
E		
	Ea.	Each
	E.F.	Each Face
	E.J.	Expansion Joint
	El.	Elevation
	Eq.	Equal
	E.S.	Each Side
	E.W.	Each Way
	Exp.	Expansion
	Ext.	Exterior
	Exist.	Existing
F		
	Fdn.	Foundation
	F.F.	Finish Floor
	Fin.	Floor
	Flr.	Finish
	Ftg.	Footing
G		
	Ga.	Gauge
	Galv.	Galvanized
H		
	(H)	Horizontal Reinforcement
	Hgr.	Hanger
	Horiz.	Horizontal
I		
	I.D.	Inside Diameter
	I.F.	Inside Face
	Info.	Information
	Int.	Interior
	Interm.	Intermediate
J		
	Jt.	Joint

ABBREVIATIONS (cont.):

L	Lbs.	Pounds
	Lt.	Left
	L.L.H.	Long Leg Horizontal
	L.L.V.	Long Leg Vertical
M	Longit.	Longitudinal
	Max.	Maximum
	M.B.	Machine Bolt
	Min.	Minimum
	Misc.	Miscellaneous
N		
	No.	Number
	NTS	Not To Scale
O		
	O.C.	On Center
	O.D.	Outside Diameter
	O.F.	Outside Face
	O.H.	Opposite Hand
	Opn'g.	Opening
	Opp.	Opposite
P		
	P.C.	Precast
	Pl.	Plate
	Pt.	Point
	P.S.	Prestressed
	P.S.G.	Pavement Seat Grout
R	Rad.	Radius
	Ref.	Reference
	Reinf.	Reinforced, Reinforcement
	Req'd	Required
	Rt.	Right
	R.W.	Retaining Wall
S	Sched.	Schedule
	Sect.	Section
	Shld.	Shoulder
	Sht.	Sheet
	Sim.	Similar
	Sl.	Slope
	Spa.	Spacing, spaces
	Specs.	Specifications
	S.O.G.	Slab-on-Grade
	Sq.	Square
	S.S.	Stainless Steel
	Std.	Standard
	Stiff.	Stiffener
	Stirr.	Stirrup
	Stl.	Steel
	Struct.	Structural
	Symm.	Symmetrical
T		
	T℄B	Top and Bottom
	Thk.	Thick
	Thru.	Through
	T.O.D.P.	Top of Drilled Pier
	T.O.F.	Top of Footing
	T.O.G.B.	Top of Grade Beam
	T.O.S.	Top of Structural Slab
	T.O.S.S.	Top of Structural Steel
	T.O.T.B.	Top of Tie Beam
	T.O.W.	Top of Wall
	Transv.	Transverse
	Typ.	Typical
U		
	U.O.N.	Unless Otherwise Noted
V		
	(V)	Vertical (Reinforcement)
	Vert.	Vertical
W	w/	With
	Wd.	Wood
	W.L.	Water Line
	W.P.	Working Point

ORIGINAL PLAN

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

NOTE BOOK
No.



EXPIRES 4/30/16

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APRIL 30, 2016
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABBREVIATIONS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. SI-1 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 257	524

GENERAL STRUCTURAL NOTES:

GENERAL:

1. All Materials Provided and Work Performed Shall Conform to the Requirements in the Drawings, the Hawaii Standard Specifications for Road and Bridge Construction (2005 Edition), the Standard Specifications for Public Works Construction (1986 Edition) and Special Provisions.
2. Contractor Shall Verify Site Conditions Before Commencing with Work.
3. Contractor Shall Verify the Location of Existing Utility Lines and Notify the Respective Owners Before Commencing with Work.
4. Unless Otherwise Noted, Vertical Dimensions are Measured Plumb.
5. Standard Detail Drawings Refer to Structures in General Except for Modifications as may be Required for Special Conditions. For Such Modifications, Refer to Corresponding Detailed Drawings.
6. Contractor Shall Provide Measures Necessary to Protect the Structure During Construction. Such Measures Shall Include, but not Limited to, Bracing, Shoring for Loads Due to Construction Equipment, Winds, Seismic, Stream Flow, etc.
7. Contractor Shall be Responsible for Excavation and Dewatering Permit Requirements and Procedures Including Lagging, Shoring and Protection of Streets and Utilities, Including Treatment and Discharge of Pumped Water.
8. Contractor Shall be Responsible for Coordinating the Work of all Trades and Shall Check all Dimensions. Discrepancies Shall be Called to the Attention of the Engineer and be Resolved Before Proceeding with the Work.
9. Contractor Shall Comply with Construction Permits for this Project. In Addition, the Contractor Shall Comply with Applicable Laws of the Federal, State, and County Governments.
10. Shop Drawings Required by the Specifications Shall be Submitted to the Engineer for Review Prior to Fabrication.

DESIGN CRITERIA:

1. AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications, 6th Edition, 2012.
2. AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition, 2011.
3. State of Hawaii "Design Criteria for Bridges and Structures" Dated, August 8, 2014.

DESIGN DATA:

1. Live Loads:
   - (a) Pedestrian/Bicycle Load. . . . . 0.075 KSF (On Shoulders)
   - (b) Vehicle Load. HL-93
2. Additional Dead Loads:
   - (a) Future Utility Loads. . . . . 0.150 KLF (Each Side of Bridge)
   - (b) Future Wearing Surface. . . . . 0.025 KSF
3. Seismic:
   - (a) Peak Ground Acceleration Coefficient, PGA. . . . 0.18
   - (b) Seismic Design Category. C
   - (c) Importance Category. . . . . Essential
   - (d) Site Class. . . . . D
4. Bridge Railing Test Level: TL-4

FOUNDATION EXCAVATION AND DEWATERING:

1. Temporary Shoring and Dewatering, if Required, Shall be Considered Incidental to Structural Excavation.

FOUNDATION:

The Foundation Design was Based on Recommendations Contained in the Geotechnical Engineering Exploration Report by Geolabs, Inc. dated February 17, 2015. Contractor may Obtain a Copy of the Report at the State of Hawaii, Department of Transportation - Highways Division Upon Request.

1. Abutment Walls/Wing Walls:
   - (a) Static Lateral Earth Pressures:
     - Active Earth Pressure (Level Backfill) = 36 PCF
     - At-rest Earth Pressure (Level Backfill) = 53 PCF
   - (b) Dynamic Lateral Earth Forces:
     - Level Backfill = 7.1 x H^2 Pounds Per Foot (Rectangular Distribution)
   - (c) Soil Bearing Pressure:
     Service Limit State: 4 KSF
     Strength Limit State: 6 KSF
     Extreme Event Limit State: 12 KSF
2. Structural Backfill:
   - (a) Structural Backfill Shall be in Accordance with the Requirements for Structural Backfill Material A as Indicated in Section 703.20 of the Hawaii Standard Specifications for Road and Bridge Construction (2005) and the Special Provisions.
   - (b) Placement of the Structural Backfill Shall be in Accordance with the Standard Specifications and the Special Provisions.
   - (c) Standard Backfill on the Back Face of the Abutment Shall not be Placed Until the Bridge Concrete Topping has been Poured and has Attained 28-day Concrete Compressive Strength.

CONCRETE:

1. Schedule of Structural Concrete 28-day Minimum Strength:

Prestressed Girders.	9,000 PSI with W/C Ratio of 0.40 max.
Bridge Deck Slab.	4,500 PSI with W/C Ratio of 0.40 max.
Drilled Shafts.	4,500 PSI with W/C Ratio of 0.40 max.
Pile Caps, Approach Slab, Columns Abutments, Walls, Pier Caps	4,000 PSI with W/C Ratio of 0.40 max.
Railings, Barriers.	4,000 PSI with W/C Ratio of 0.40 max. (2)
All Other Concrete.	4,000 PSI with W/C Ratio of 0.40 max.

2. Concrete Mixes Shall be Submitted to the Engineer for Review.
3. Concrete Admixtures Containing Chlorides or Chloride Salts Shall not be Used.
4. Tetraguard AS20 Shrinkage Reducing Admixture, Eclipse Plus Shrinkage Reducing Admixture, or an Approved Equal Shall be Included in the Concrete Mix for the Concrete Topping Slab and Concrete Bridge Railings. The Dosage Shall be in Accordance with Manufacturers Recommendations. Addition of Shrinkage Reducing Admixture Shall be Approved by the Manufacturer.
5. A Migrating Corrosion Inhibiting Admixture Shall be Included in the Concrete Mix for all Concrete. The Dosage Rate Shall be in Accordance with Manufacturer's Recommendation. Addition of Corrosive Inhibiting Admixture Shall be Approved by the Manufacturer.

REINFORCING STEEL:

1. Reinforcing Bars Shall be ASTM A706, Grade 60, Unless Shown Otherwise.
2. Reinforcing Splices Shall be Made Only Where Indicated on the Drawings.
3. Reinforcing Bars, Anchor Bolts, Dowels and Other Embedded Items are to be Securely Tied in Place Before Concrete Pour.
4. Reinforcing Bar Bends Shall be Made Cold.
5. Reinforcement Shall be Detailed in Accordance with AASHTO LRFD Bridge Design Specifications, 6th Edition, 2012, Including Subsequent Interim Revisions, Unless Otherwise Noted.
6. Welding of Reinforcing Steel is not Permitted, Unless Otherwise Shown on the Drawings. Welding of Reinforcing Steel Shall Conform to the Latest Edition of AWS D1.4 "AWS Structural Welding Code-Reinforcing Steel" of the American Welding Society. Deformed Reinforcing Bars to be Welded Shall Conform to ASTM A706, Grade 60.
7. Unless Otherwise Noted, the Covering Measured From the Surface of the Concrete to the Face of Reinforcing Bars Shall be as Follows:
   - (a) Deck Top Bars. . . . . 2 1/2" Clear
   - (b) Deck Bottom Bars . . . . . 1 1/2" Clear
   - (c) Railing and Parapets. . . . . 2" Clear
   - (d) Formed Surfaces Exposed to Earth and Weather. . . . . 2" Clear
   - (e) Bottoms and Side of Footings Where Concrete is Deposited on Grade. . . . . 3" Clear
   - (f) Bent Caps. . . . . 3" Clear
   - (g) Cast walls . . . . . 2" Clear
   - (h) Drilled Shafts. . . . . 4" Clear
   - (i) All Others. . . . . 2" Clear
8. Minimum Clear Spacing Between Parallel Bars Shall Be 1 1/2 Times the Diameter of the Bar, but in No Case Shall the Clear Distance Between Parallel Bars be less than 1 1/2 Times the Maximum Size of the Coarse Aggregate, or 1 1/2 Inches.
9. Dimensions Relating to Reinforcing Bars (E.G. Spacing of Bars, etc.) are to Center of Bars, Unless Otherwise Noted.
10. Reinforcing Bars Shall be Securely Tied at Intersections and Lap Spliced Except Where the Spacing of the Intersections is Less than 12 Inches in Each Direction, in Which Case Alternate Intersections Shall be Tied.

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

IZZAT H. HASAEN * LICENSED PROFESSIONAL ENGINEER No. 15129 * HAWAII, U.S.A.

EXPIRES 4/30/16

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APRIL 30, 2016
PFF CONSULTING ENGINEERS LIC. EXP. DATE

DATE	REVISION
(2) 5/18/15	Add Material Property

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. S1-2 OF 103 SHEETS

ADD. 257

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	258	524

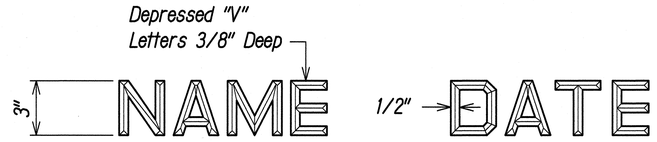
GENERAL STRUCTURAL NOTES (Cont.):

STRUCTURAL STEEL AND MISCELLANEOUS METAL:

1. Structural Steel Shall Conform to ASTM A992, Unless Otherwise Noted. Steel Tubes Shall Conform to ASTM A500, Grade B. Structural Pipes Shall Conform to ASTM A53, Grade B. Plates Shall Conform to ASTM A36.
2. Structural Steel and Miscellaneous Metal Shall be Hot Dip Galvanized After Fabrication. Holes (Other than Stainless Steel) Shall be Punched Before Galvanizing.
3. Anchor Bolts and Threaded Rods and Other Hardware Including Nuts and Washers Which Connect Steel to Concrete Shall Conform to ASTM A307, A325N (Type 1), A449, (Type 1) and A36 as Noted and be Hot Dip Galvanized.
4. Thru Bolts for Guardrail Connections Shall Conform to Guardrail Specifications, Galvanize Unless Otherwise Noted.
5. Welds Shall be in Conformance with the Structural Welding Code AWS D1.1:2000 of the American Welding Society. Electrodes for A36, A500 and A992 Shall be E70.
6. Stainless Steel Plates, Bars, Rods, Anchor Bolts and Shapes Shall be Type 316 or 316L. Welding of Stainless Steel Shall be in Accordance with the the Latest Edition of AWS D1.6 "Structural Welding Code - Stainless Steel".
7. Stainless Steel Threaded Rods and Nuts Shall Conform to ASTM A276, Type 316L.

DRILLED SHAFT NOTES:

1. The Contractor Shall Refer to the Special Provisions, Section 511 - Drilled Shafts and the Following Notes:
2. Excavation and Drilling Operations Shall be Monitored by the Engineer.
3. Concrete for Drilled Shafts Shall Have f'c = 4,500 psi. Concrete for Drilled Shaft Load Test Shall Have f'c = 4,500 psi.
4. Concrete Shall be Placed within 24 Hours After Excavating Each Drilled Shaft. Placement of Concrete Shall Not Start without Approval of the Engineer.
5. Drilled Shaft Tip Elevations Shown on the Drawings Shall be Used for Bid Quantities. The Actual Tip Elevations Shall be Determined by the Engineer After Completion of Load Test and Review of the Load Test Report.
6. Construction of Drilled Shafts Shall be Performed and Scheduled in Such a Manner to Prevent Collapse of Drilled Shaft Excavations. Premature Loading of Concrete in Drilled Shafts Before the f'c is Obtained Shall be Avoided to Prevent Conditions that May Reduce the Capacity of the Drilled Shafts.
7. Contractor Shall Take Adequate Measures to Limit the Temperature of Concrete at Time of Placement to Not Exceed 90° F.
8. Reinforcing Steel:
   A. Longitudinal Bars Shall be Spliced in Accordance with Standard Specifications Section 602.
   B. Splices for Transverse Spirals Shall be 12" Minimum Welded Lap Slices.
   C. Non-Corrosive Spacers Shall be Used to Align, Position, and Maintain Proper Clear Cover Distances to the Reinforcing Bars.
   D. Reinforcement Shall be Deformed Bars Conforming to ASTM A706, Grade 60.



Use Correct Name Of Bridge — Date Of Year Built

Note:

1. Name and Date Shall Be Placed at the Trailing End Post on Each Side of the Roadway.
2. Exact Details and Spacing of Letters and Figures and Location Shall be as Directed by the Engineer. Gothic Letters and Figures Approximating Dimensions Shown will be Acceptable if Approved by the Engineer.
3. The Name of Bridge Shall be "Wakea Street Overpass".

TYPICAL DETAIL OF LETTERS AND FIGURES AT CONCRETE END POST

Not To Scale

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY Jorge LI	10/03/12
	QUANTITIES BY Ahmad Ashour	10/03/12
No.	CHECKED BY Ahmad Ashour	10/03/12

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

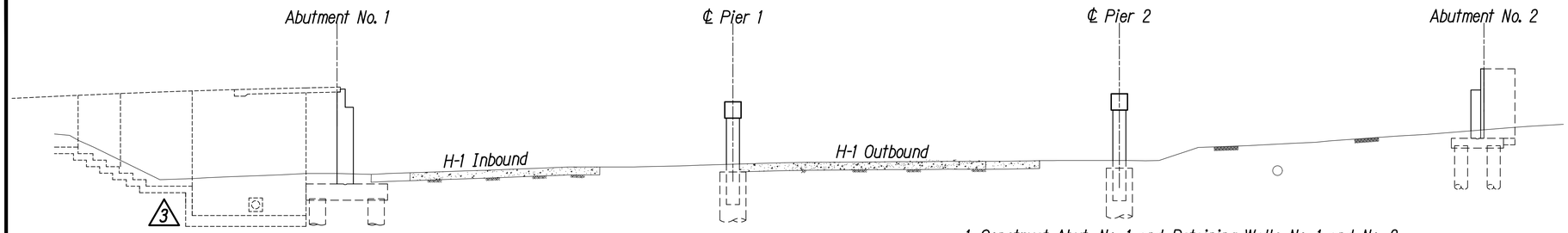
STRUCTURAL GENERAL NOTES (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

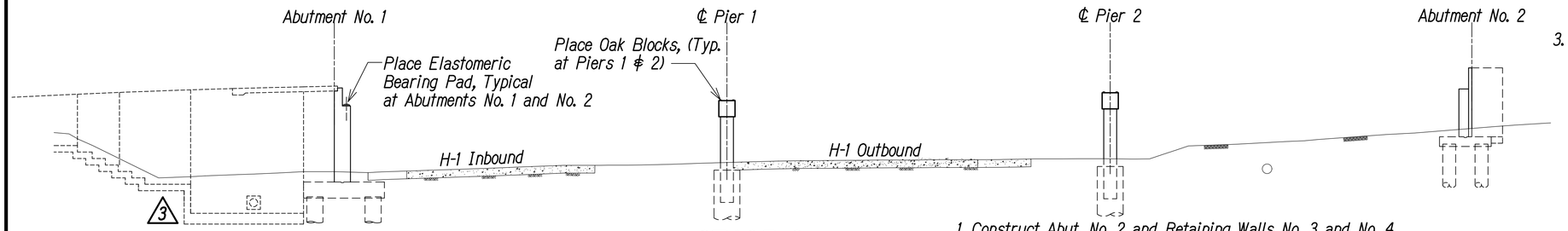
SHEET No. S1-3 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	259	524



1. Construct Abut. No. 1 and Retaining Walls No. 1 and No. 2.
2. Construct Piers and Pier Caps (1 and 2)

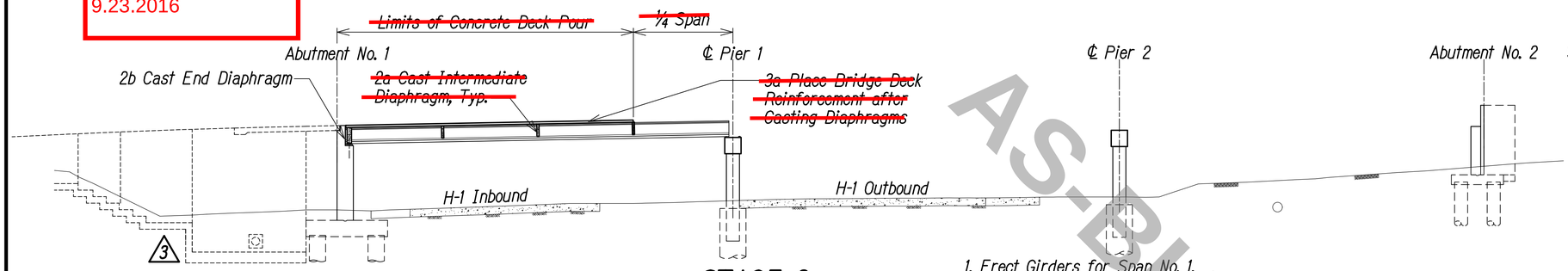
STAGE 1
Not to Scale



1. Construct Abut. No. 2 and Retaining Walls No. 3 and No. 4.

STAGE 2
Not to Scale

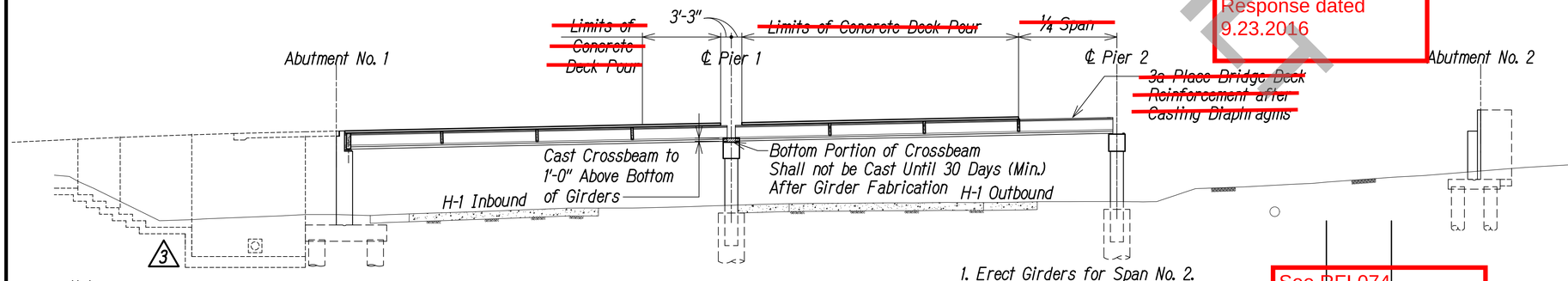
See RFI 074 Response dated 9.23.2016



1. Erect Girders for Span No. 1.
2. ~~Construct Intermediate and End Diaphragms.~~
3. ~~Cast Deck Concrete as Shown.~~

STAGE 3
Not to Scale

See RFI 074 Response dated 9.23.2016



1. Erect Girders for Span No. 2.
2. ~~Construct Intermediate Diaphragms and Portion of Crossbeams.~~
3. ~~Cast Deck Concrete as Shown.~~

STAGE 4
Not to Scale

See RFI 074 Response dated 9.23.2016

Note:
No Live Load shall be allowed on the Spans until the Compressive Strength of the Top Portion of the Crossbeams has Reached 3000 PSI (Min.).

PROPOSED CONSTRUCTION SEQUENCE:

1. The Bridge Shall be Constructed in General Conformance with the Construction Sequence Indicated on This Plan. The Contractor Shall Develop and Submit a Detailed Traffic Control Plan for Review and Approval by the Engineer in Accordance with Section 645 of Standard Specification.
2. Construction of Abutment Backwalls need not be Completed Prior to Erection of Girders, provided there are no Impacts to Traffic.
3. Erect Girders for Span No. 1, Span No. 2 and Span No. 3 only at Night during off Peak Hours from 10:00 PM to 4:00 AM the Following Morning. Traffic on H-1 Inbound Lanes may be Closed when Erecting Girders in Span No. 1. Traffic on H-1 Outbound Lanes may be Closed when Erecting Girders in Span No. 2. Work on the Bridge shall be performed only during Off Peak Hours. A Maximum of 1 Traffic Lane in either the Inbound or Outbound Direction but not at the same Time, will be Allowed Closed during Off Peak Hours.
4. Suitable Precautions shall be taken to Provide for Safety of Traffic and Motorists, and to Prevent Water and Other Construction Materials and Debris from Falling onto the Highway below.
5. The Contractor shall Submit a Work Plan that Addresses Work Zone Safety, and Environmental Protection. The Engineer shall Review and Approve the Plan Prior to the Start of any Construction.

AS-BUILT

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1"=20'

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

DATE	REVISION
3/10/17	Revised Wall Layout

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROPOSED CONSTRUCTION SEQUENCE (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

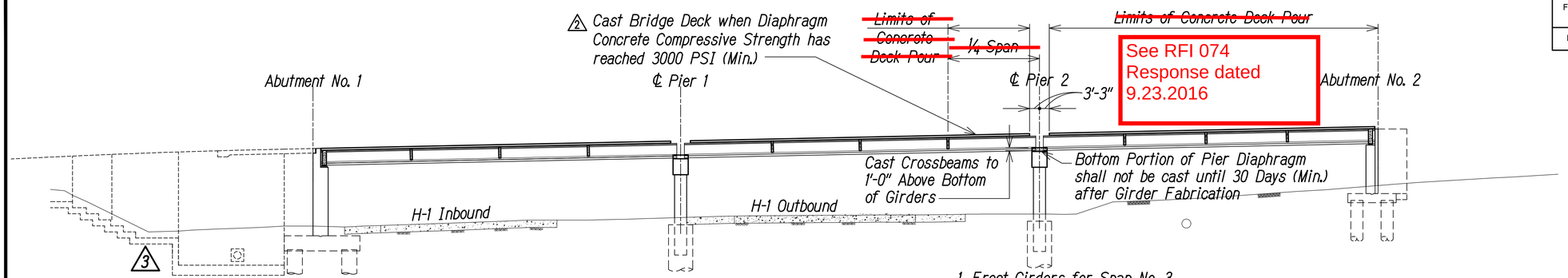
SHEET No. SI-4 OF 103 SHEETS

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

"AS-BUILT"

C.O. 259

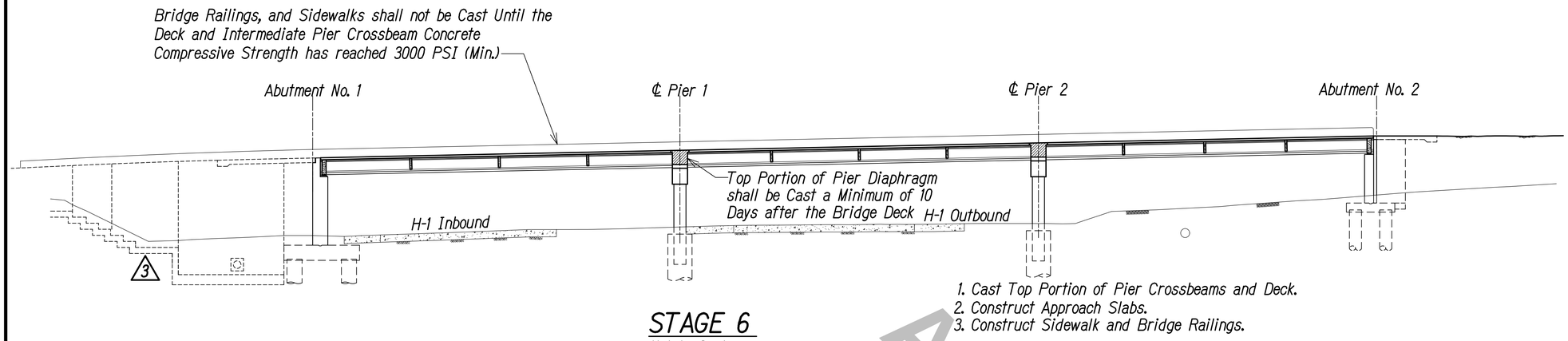
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD.260	524



See RFI 074 Response dated 9.23.2016

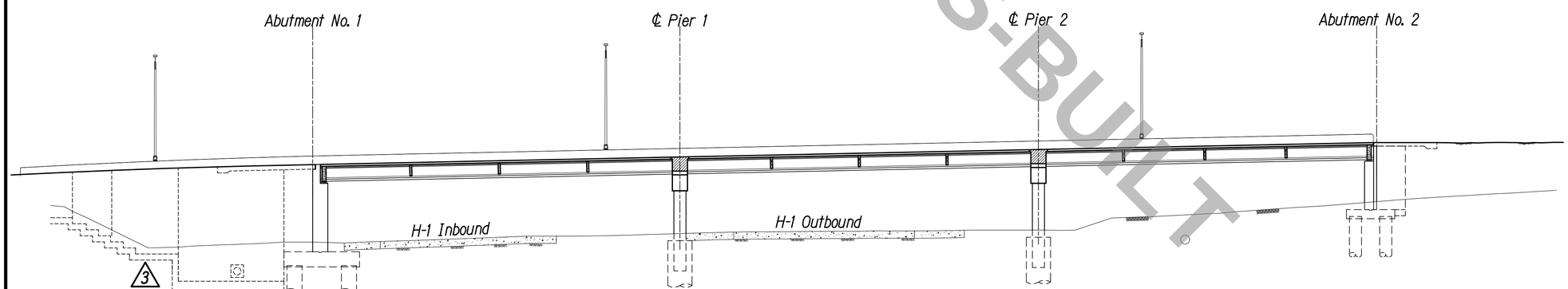
STAGE 5
Not to Scale

1. Erect Girders for Span No. 3.
2. Construct Intermediate and Abut. No. 2 End Diaphragms and Portion of Pier No. 2 Crossbeam.
3. Cast Deck Concrete as Shown.



STAGE 6
Not to Scale

1. Cast Top Portion of Pier Crossbeams and Deck.
2. Construct Approach Slabs.
3. Construct Sidewalk and Bridge Railings.



STAGE 7
Not to Scale

1. Install Light Poles, Utilities and Miscellaneous Items.

AS-BUILT

3	3/10/17	Revised Wall Layout	
2	5/18/15	Remove Reference to Deck Panel	
	DATE	REVISION	

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

LICENSED PROFESSIONAL ENGINEER No. 15129 IZZAT H. HASAYEN HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
PKPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PROPOSED CONSTRUCTION SEQUENCE (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. S1-5 OF 103 SHEETS

"AS-BUILT"

C.O. 260

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 261	524

True North
Scale: 1"=20'

Reference RFI 230 Response

Reference RFI 193 response

Reference RFI 193 response

End of Approach Slab (See Sheet S3-8)

End of Approach Slab
℄ Sta. 7+50

End of Approach Slab
℄ Sta. 7+71.02

Overhead Street Light
℄ Sta. 7+65.00

Retaining Wall No. 2 (See Sheet S9-2)

Bridge Railing Type 1 (See Sheet S8-1)

Overhead Street Light
℄ Sta. 9+7.00

Edge of Deck

Overhead Street Light
℄ Sta. 10+84.00

Retaining Wall No. 3 (See Sheet S9-6)

Wakea Street

STOP

Retaining Wall No. 1 (See Sheet S9-1)

End of Approach Slab

WAKEA STREET OVERPASS

Az. 181°00'00"

Slope 2%

Slope 2%

Shoulder 6'-4"
Lane 12'
Lane 12'
Lane 12'
Lane 12'
Shoulder 6'-4"
Sidewalk 6'-0"

-0"
-2"

7+00
8+00
9+00
10+00
11+00
℄ 12+00
14+00
15+00
16+00

Bridge Railing Type 2 (See Sheet S8-1)

Edge of Deck

Abutment #2 (See Sheet S3-3)
Az. 218°33'32"

Retaining Wall No. 4 (See Sheet S9-6)

Pier #1 (See Sheet S4-1)
Az. 218°33'32"

Pier #2 (See Sheet S4-2)
Az. 218°33'32"

℄ Curve Data
Δ 20°0'0"
Δ/2 10°0'0"
Δ/4 5°0'0"
Radius: 500.00
Tangent: 88.16
Chord: 173.65
Length: 174.53

R=532.333'

R=461.667'

Abutment #1 (See Sheet S3-1)
Az. 218°33'32"

Abutment #1
℄ Sta. 8+06.01
(Back of Abutment Wall)

PI Sta 6+93.01

PC Sta 7+29.90
R=500.00

EVC Sta 8+20

PT Sta 9+04.44
R=500.00

℄ Sta 9+31.34
Pier 1

℄ Sta 10+55.01
Pier 2
5

Abutment #2
℄ Sta. 11+66.76
(Back of Abutment Wall)

End of Approach Slab
℄ Sta. 12+06.00

End of Approach Slab
℄ Sta. 12+53.59

AS-BUILT

BRIDGE LAYOUT PLAN
Scale: 1"=20'

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1"=20'

	DATE	REVISION
5	6/14/17	Moved Pier No. 2
2	5/18/15	Adjust Leader

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No. 15129
HAWAII, U.S.A.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE LAYOUT PLAN

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)
Scale: 1"=20' Date: January 20, 2015

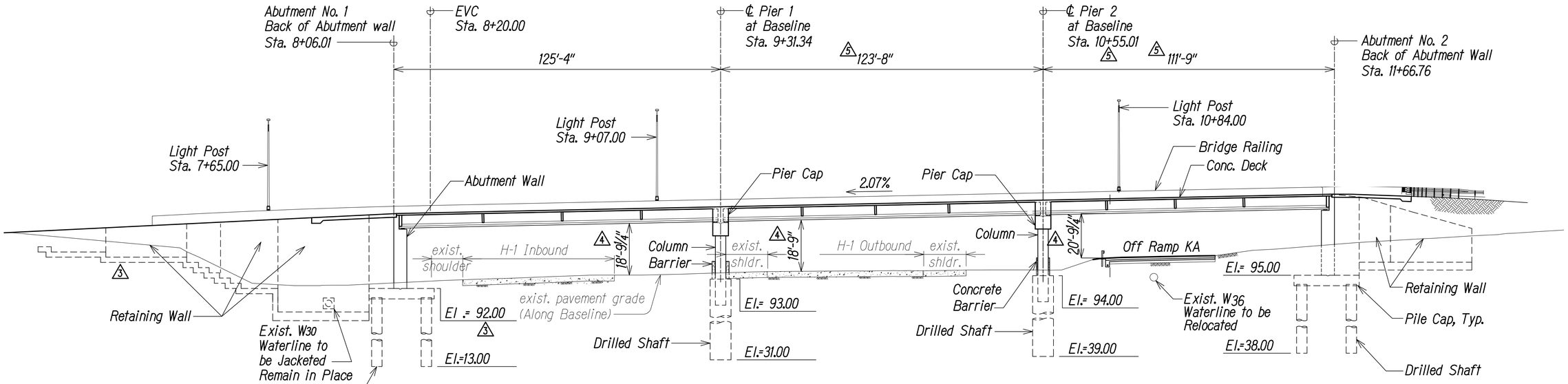
SHEET No. S2-1 OF 103 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
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"AS-BUILT"

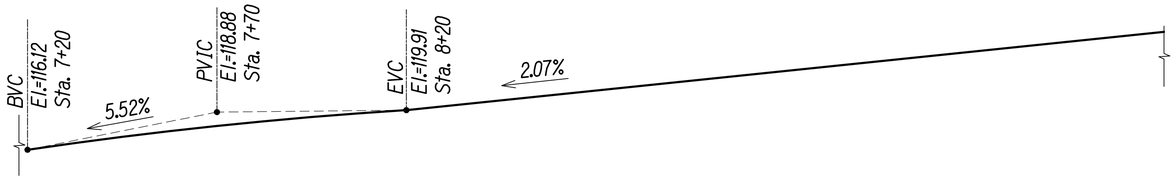
C.O. 261

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	262	524



BRIDGE ELEVATION ALONG BASELINE

Scale: 1"=20'



ROADWAY VERTICAL PROFILE

AS-BUILT

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HAWAII, U.S.A.
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GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1"=20'

DATE	REVISION
5 6/14/17	Moved Pier No. 2
4 3/10/17	Update Min Vertical Clearance

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. S2-2 OF 103 SHEETS

"AS-BUILT"

C.O. 262

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	263	524

Revised Approximate Location of Load Test Shaft per RFI 073 Response Dated 9.26.2016

℄ Pier No. 1
Az.218°33'32"

℄ Pier No. 2
Az.218°33'32"

Approx. Location of Trial Drilled Shaft, Confirm Location With the Engineer in the Field

Exist. Light Pole to be Relocated

True North
Scale: 1"=20'

Retaining Wall No. 3
Az. 218°33'32"

Retaining Wall No. 2

20'-0" Typ.

Edge of Deck Above

40'-0"

Pier No. 1
3'-6"ø Columns, Typ.

Pier No. 2
3'-6"ø Columns, Typ.

Shaft Cap (Abutment Footing)

5'ø Shaft, Typ.

6'ø Shaft, Typ.

Edge of Deck Above

Reinf. Concrete Jacket

Shaft Cap (Abutment Footing)

24" Drain

Az. 218°33'32"

Retaining Wall No. 1

24" RCP CL. III
34.00 LF

Retaining Wall No. 4

36" Waterline (Sheet W-3)

△3 Exist. W_{30} to be Replaced and Jacketed

~~Approx. Location of Load Test Drilled Shaft, Confirm Location With the Engineer in the Field~~

Az. 257°36'50"

Abut. No. 1
Back Wall
℄ Sta. 8+06.01

Pier No. 1
℄ Sta. 9+31.34

Pier No. 2
℄ Sta 10+55.01

Abut. No. 2
Back Wall
℄ Sta. 11+66.76

AS-BUILT

New SDMH TYPE "A"
STA. 69+98.63 H-1 FREEWAY
O/S 104.23 RT.
TOP = 93.45+/-
INV = 85.93+/-
SEE STANDARD DETAIL H-03
PER RFI 67 RESPONSE DATE
9.19.2016

NEW GDI TYPE 1A-9
STA. 69+76.71 H-1 FREEWAY
O/S 130.22 RT.
TOP = 92.00
INV = 86.50
SEE STANDARD DETAIL H-08
PER RFI 67 RESPONSE DATE
9.19.2016

FOUNDATION PLAN
Scale: 1"=20'

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1"=20'

	DATE	REVISION
△5	6/14/17	Moved Pier No. 2
△3	3/10/17	Revised W_{30} Alignment, Revised Shaft and Wall

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE FOUNDATION PLAN

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

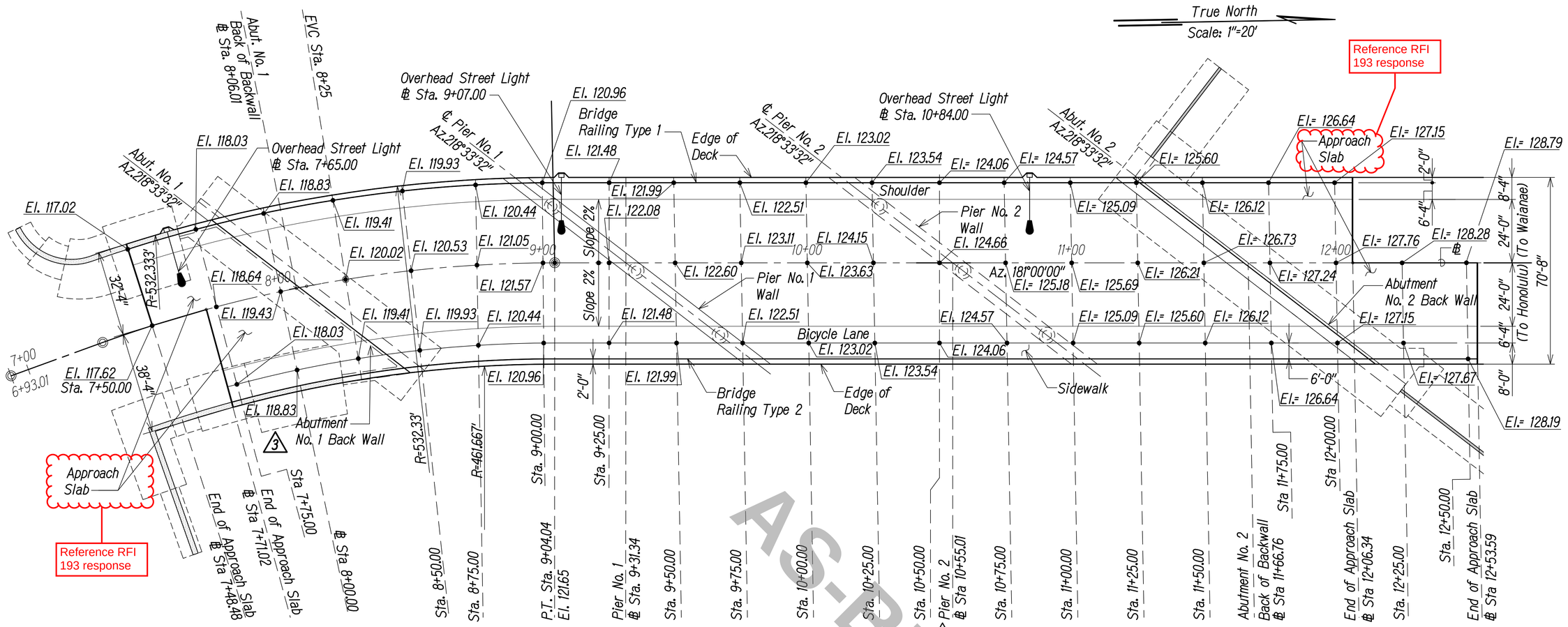
Scale: Date: January 20, 2015

SHEET No. S2-3 OF 103 SHEETS

"AS-BUILT"

C.O. 263

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	264	524



AS-BUILT

Curve Data

Δ 20°0'0"
Δ/2 10°0'0"
Δ/4 5°0'0"
Radius: 500.00
Tangent: 88.16
Chord: 173.65
Length: 174.53

BRIDGE DECK PLAN

Scale: 1"=20'

Notes:

1. All Elevations at Top of Roadway.

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1"=20'

	DATE	REVISION
5	6/14/17	Moved Pier No. 2
3	3/10/17	Revised Wall Layout

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No. 15129
HAWAII, U.S.A.

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STATE OF HAWAII
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HIGHWAYS DIVISION

BRIDGE DECK PLAN

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

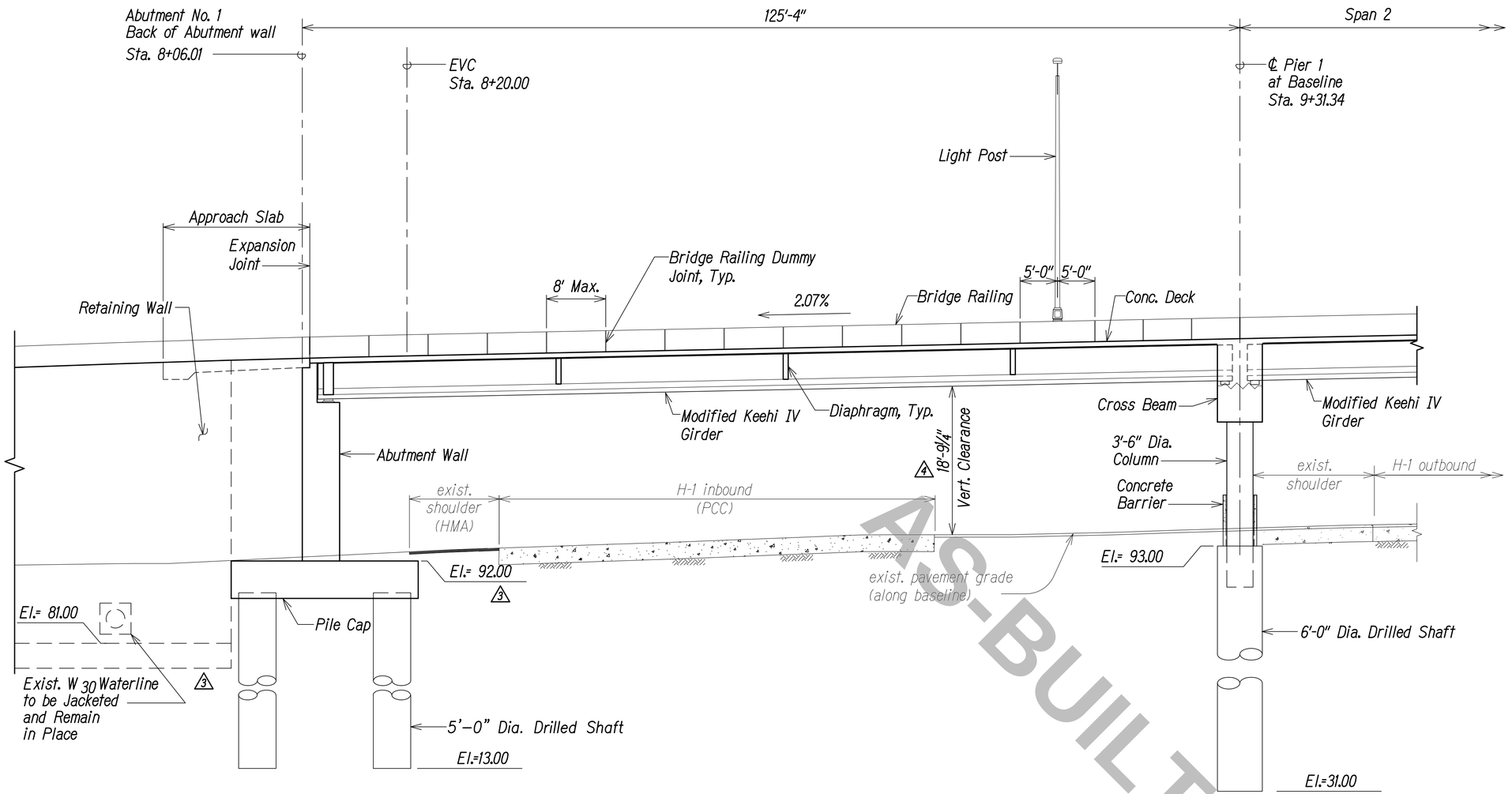
SHEET No. S2-4 OF 103 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
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C.O. 264

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	265	524



AS-BUILT

LONGITUDINAL SECTION-SPAN 1

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

GRAPHIC SCALE:

8' 0 8' 16'

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

	DATE	REVISION
3	3/10/17	Revised Wall Layout
4	3/10/17	Update Min Vertical Clearance

ORIGINAL PLAN
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No. 15129
HAWAII, U.S.A.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LONGITUDINAL SECTION (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

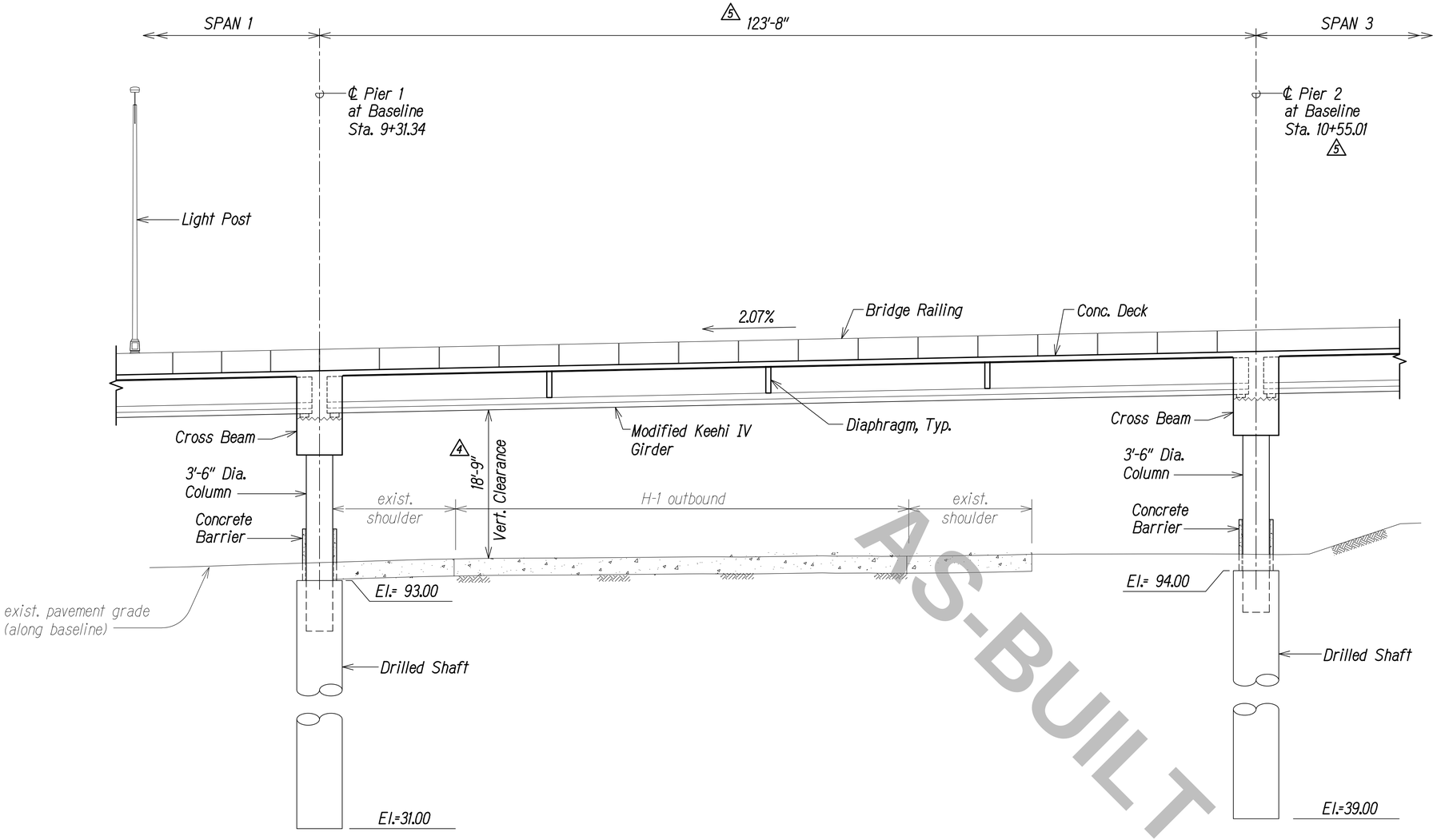
Scale: Date: January 20, 2015

SHEET No. S2-5 OF 103 SHEETS

"AS-BUILT"

C.O. 265

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	266	524



LONGITUDINAL SECTION-SPAN 2

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

AS-BUILT

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DRAWN BY
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CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

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EXPIRES 4/30/18

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GRAPHIC SCALE:
8' 0 8' 16'
SCALE: 1/8"=1'-0"

DATE	REVISION
5 6/14/17	Moved Pier No. 2
4 3/10/17	Update Min Vertical Clearance

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LONGITUDINAL SECTION (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

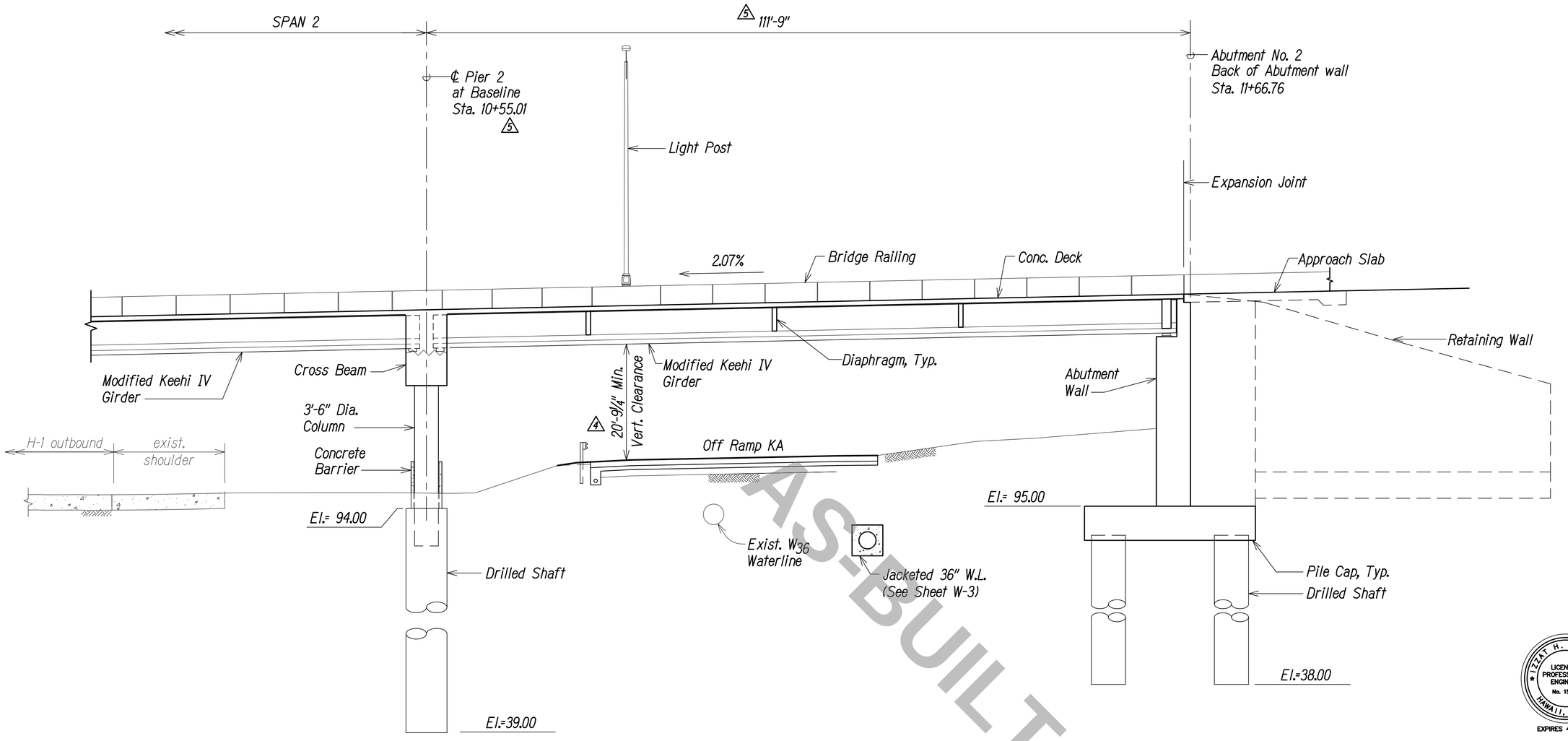
Scale: Date: January 20, 2015

SHEET No. S2-6 OF 103 SHEETS

"AS-BUILT"

C.O. 266

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	267	524



AS-BUILT

LONGITUDINAL SECTION-SPAN 3

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

GRAPHIC SCALE:

8' 0 8' 16'

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

	DATE	REVISION
5	6/14/17	Moved Pier No. 2
4	3/10/17	Update Min Vertical Clearance

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/18

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STATE OF HAWAII
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HIGHWAYS DIVISION

LONGITUDINAL SECTION (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

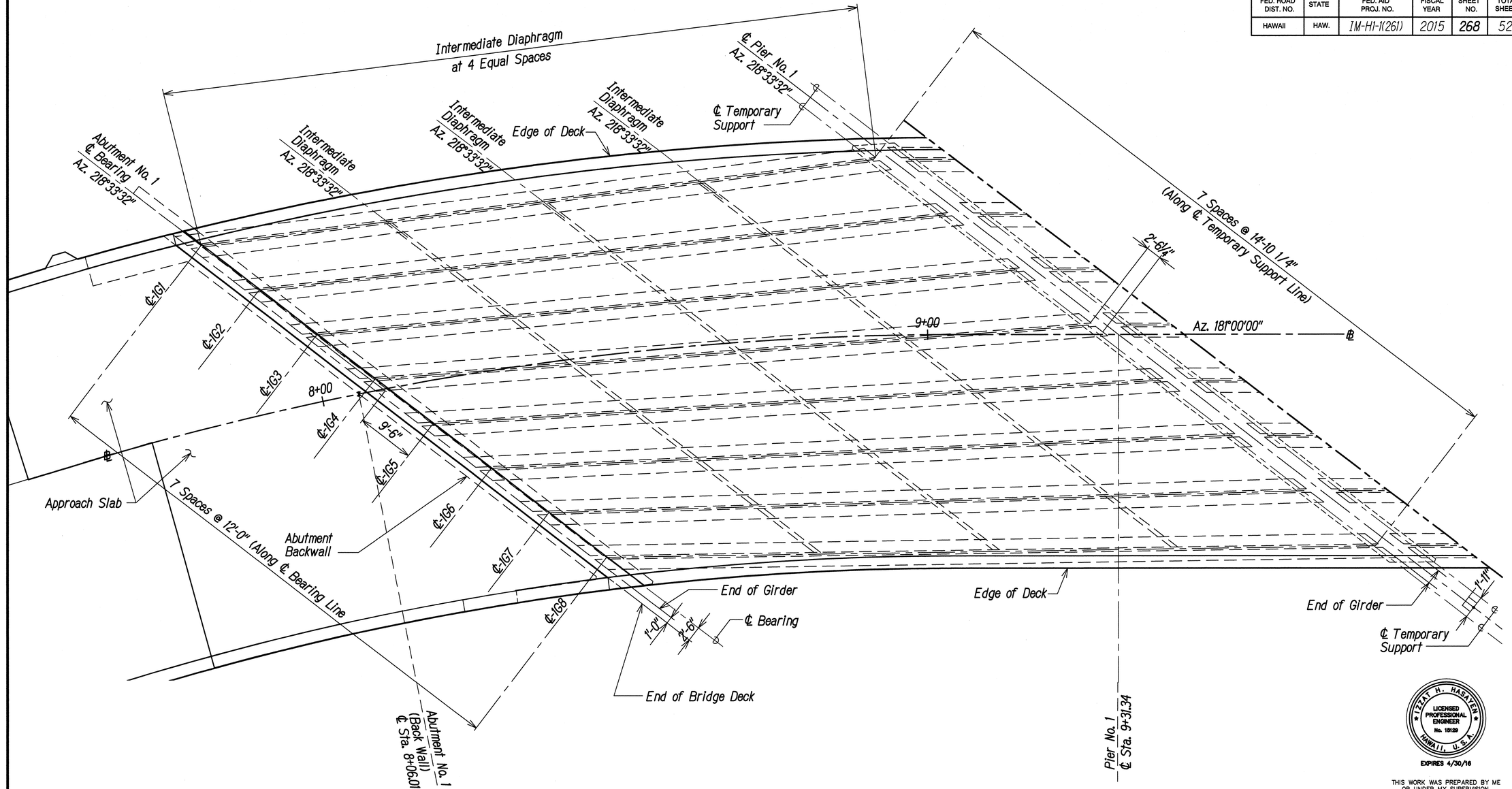
SHEET No. S2-7 OF 103 SHEETS

ORIGINAL PLAN
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No.

"AS-BUILT"

C.O. 267

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	268	524



DECK FRAMING PLAN-SPAN 1

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

GRAPHIC SCALE:

8' 0 8' 16'

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

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HIGHWAYS DIVISION

GIRDER LAYOUT AND BRIDGE DECK FRAMING PLAN (1)

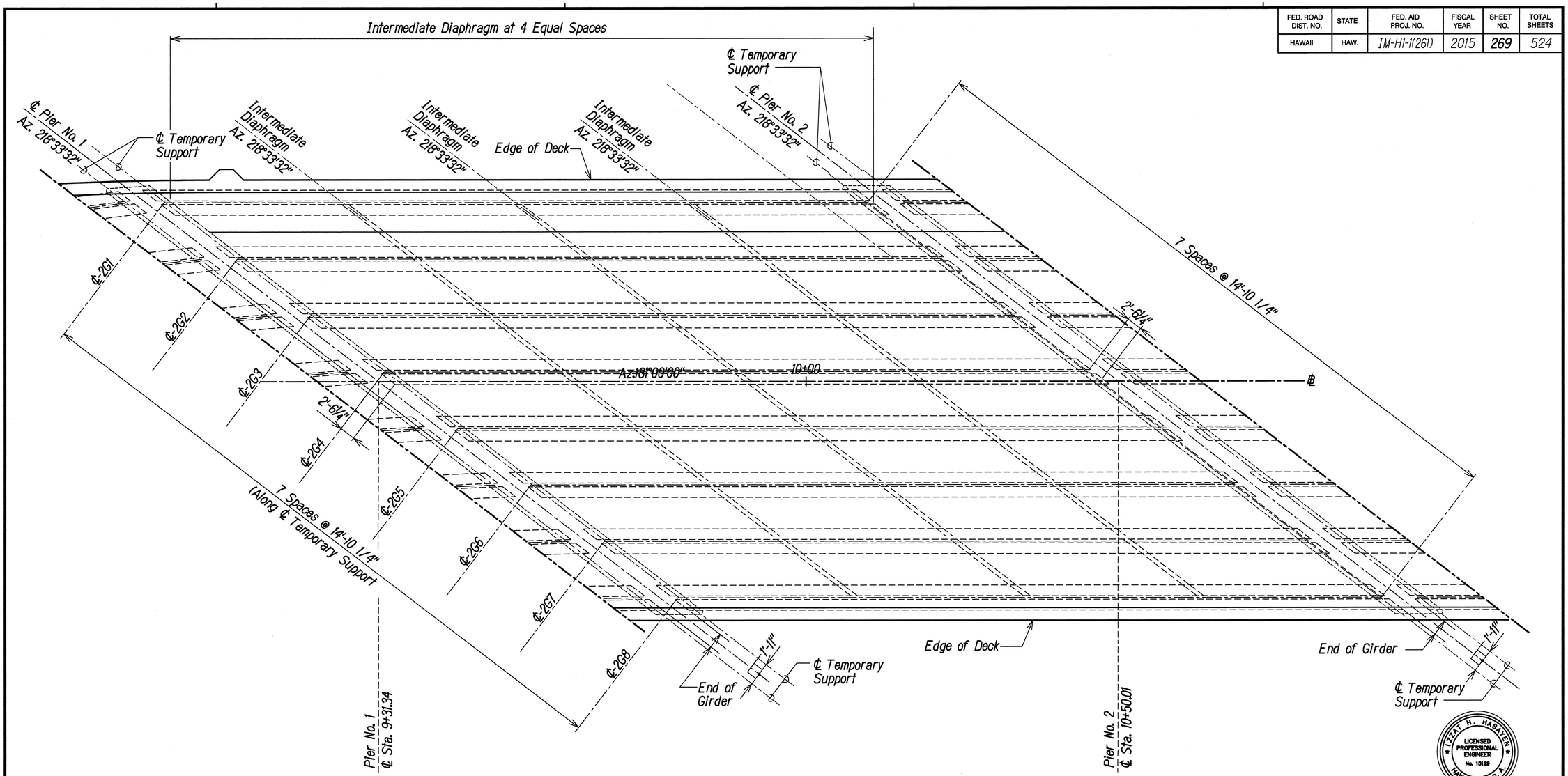
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/8" = 1'-0" Date: January 20, 2015

SHEET No. S2-8 OF 103 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	269	524



DECK FRAMING PLAN-SPAN 2

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

GRAPHIC SCALE:

8' 0 8' 16'

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

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No. 15129
HAWAII, U.S.A.
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HIGHWAYS DIVISION

GIRDER LAYOUT AND BRIDGE DECK FRAMING PLAN (2)

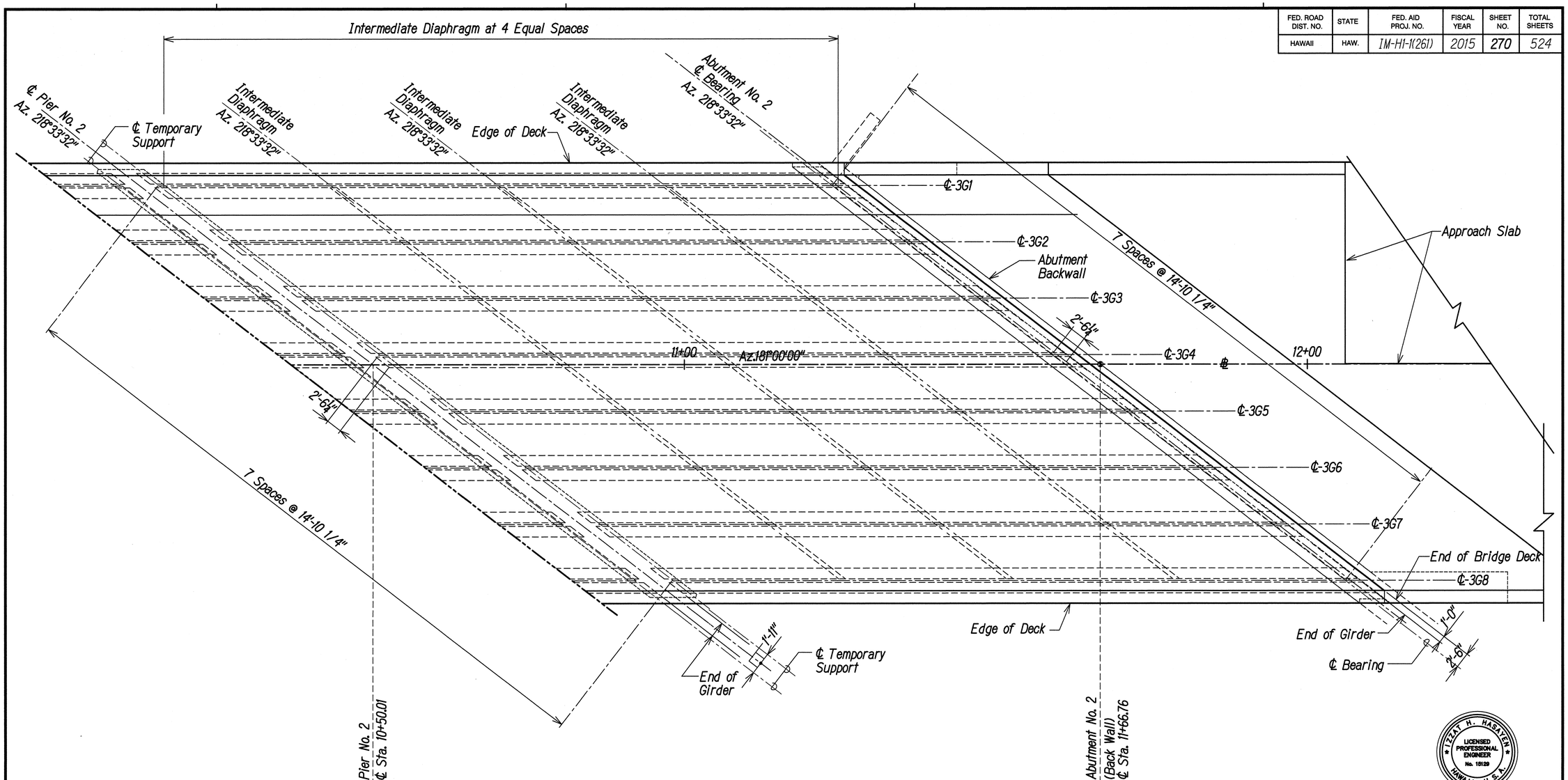
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/8" = 1'-0" Date: January 20, 2015

SHEET No. S2-9 OF 103 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
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QUANTITIES BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	270	524



DECK FRAMING PLAN-SPAN 3

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

GRAPHIC SCALE:

8' 0 8' 16'

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

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

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No. 10129
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HIGHWAYS DIVISION

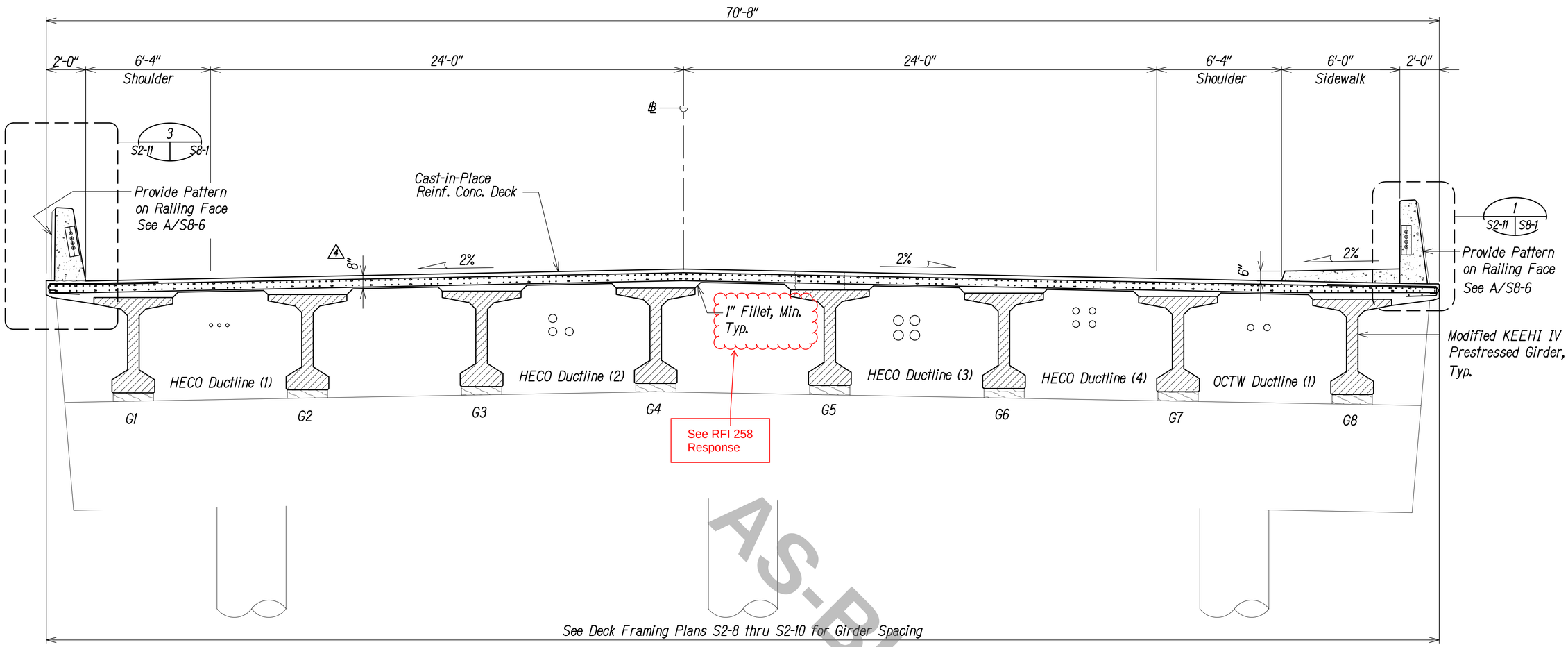
GIRDER LAYOUT AND BRIDGE DECK FRAMING PLAN (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/8" = 1'-0" Date: January 20, 2015

SHEET No. S2-10 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	271	524



AS-BUILT

Notes:

1. See Sheet S6-3 - S6-6 for Deck Reinforcing Details.
2. See Electrical Sheet for Duct Size and Layout.
3. See Sheet S6-7 - S6-8 for Duct Bank Details.
4. Deck Section Shown Normal to Base Line.

BRIDGE TRANSVERSE DECK SECTION OVER PIERS 1&2

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

GRAPHIC SCALE:

2' 0' 2' 4' 6'

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

DATE	REVISION
4 3/10/17	Update Deck Thickness

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE TRANSVERSE DECK SECTION (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

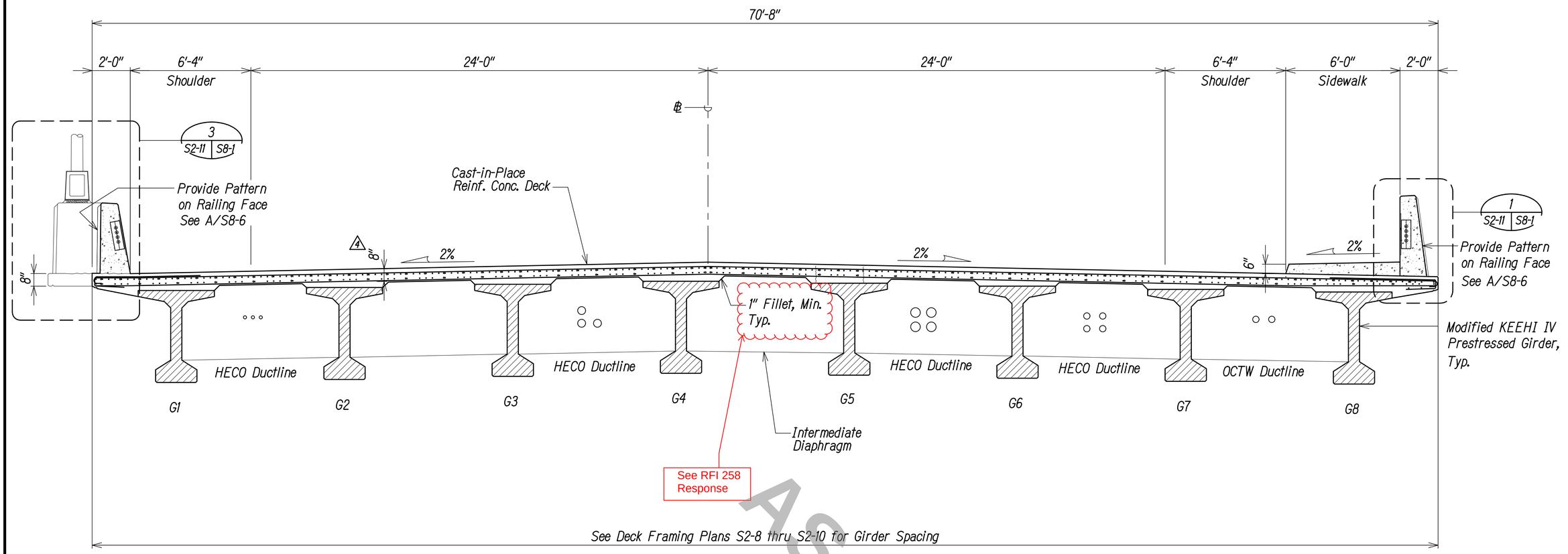
SHEET No. S2-11 OF 103 SHEETS

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

"AS-BUILT"

C.O. 271

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	272	524



AS-BUILT

Notes:

1. *See Sheet S6-3 - S6-6 for Deck Reinforcing Details.*
2. *See Electrical Sheet for Duct Size and Layout.*
3. *See Sheet S6-7 - S6-8 for Duct Bank Details.*
4. *Deck Section Shown Normal to Base Line.*

BRIDGE TRANSVERSE TYPICAL DECK SECTION IN SPAN 1, SPAN 2, & SPAN 3

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

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

ORIGINAL PLAN | NOTE BOOK No.

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No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/18

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PKPFF CONSULTING ENGINEERS — APRIL 30, 2018 LIC. EXP. DATE

GRAPHIC SCALE:
2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

DATE	REVISION
4 3/10/17	Update Deck Thickness

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE TRANSVERSE DECK SECTION (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

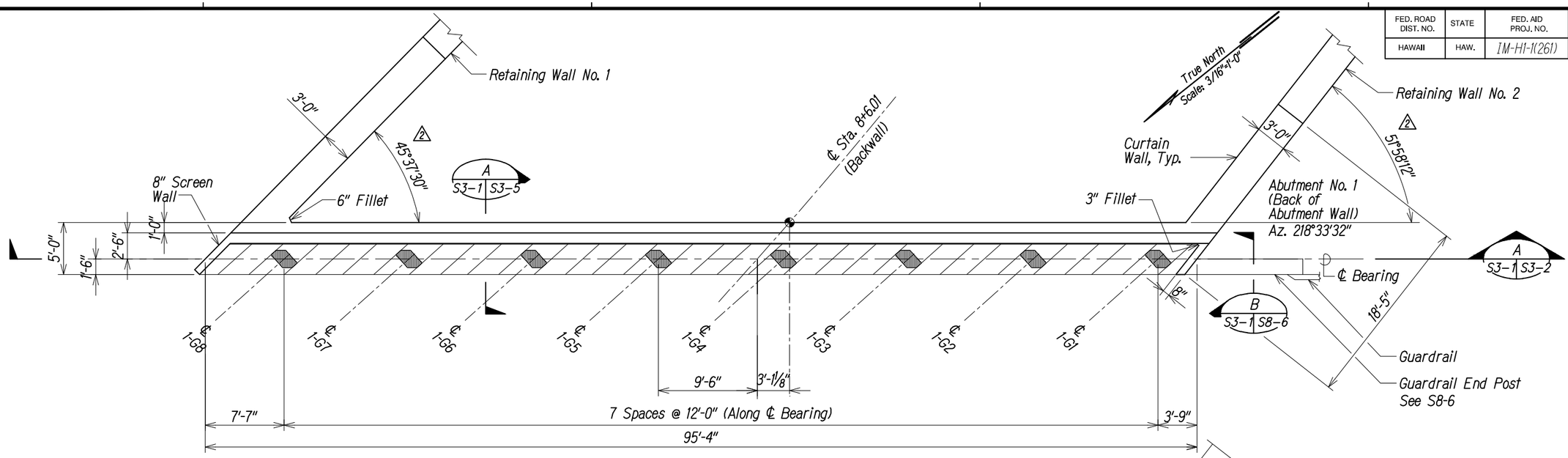
Scale: Date: January 20, 2015

SHEET No. S2-12 OF 103 SHEETS

"AS-BUILT"

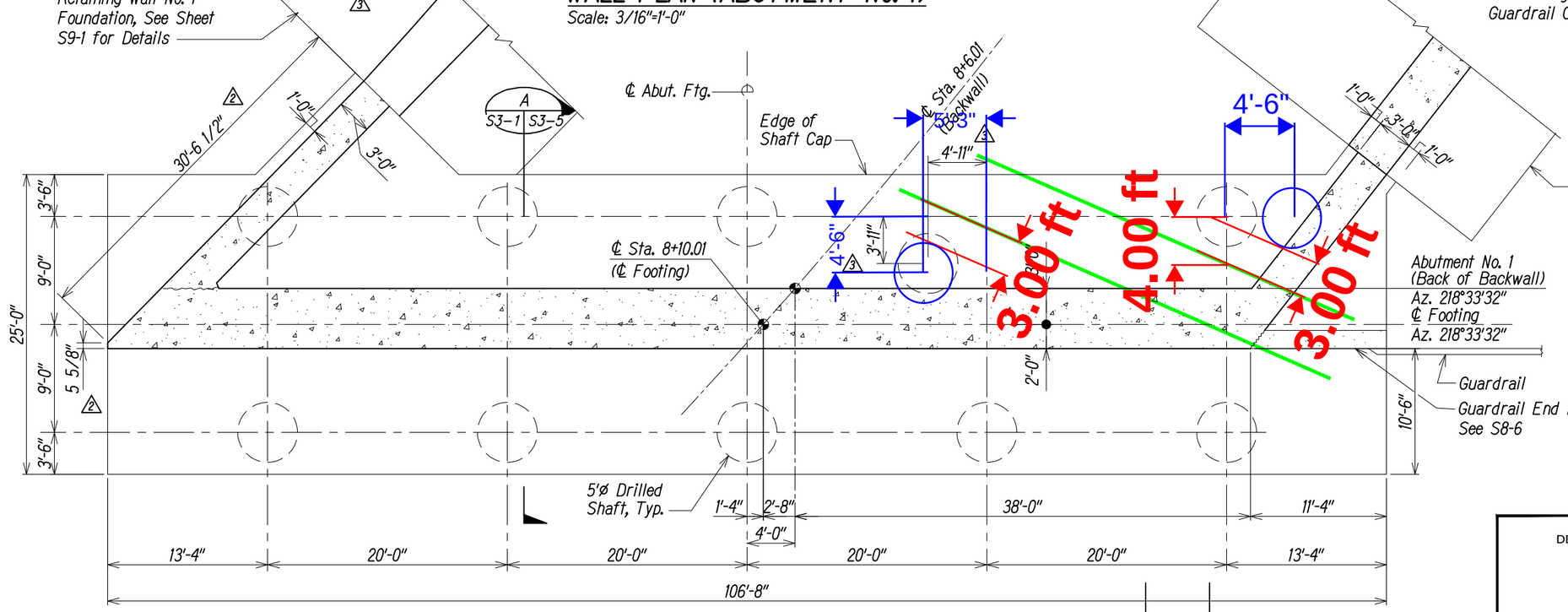
C.O. 272

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 273	524



WALL PLAN (ABUTMENT No. 1)

Scale: 3/16"=1'-0"



SHAFT CAP PLAN (ABUTMENT No. 1)

Scale: 3/16"=1'-0"

RFI 211

Note:
See Sheet S3-7 for Curtain Wall Reinforcing details. See S8-4 for Guardrail Connection Details.

GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

IZZAT H. HASAYEN — LICENSED PROFESSIONAL ENGINEER — No. 15129 — HAWAII, U.S.A.
EXPIRES 4/30/18

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

DATE	REVISION
3/10/17	Revised Shaft ℄ Wall Layout
5/18/15	Update Curtain Wall Location

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABUTMENT NO. 1
PLANS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 3/16"=1'-0" Date: January 20, 2015

SHEET No. S3-1 OF 103 SHEETS

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

"AS-BUILT"

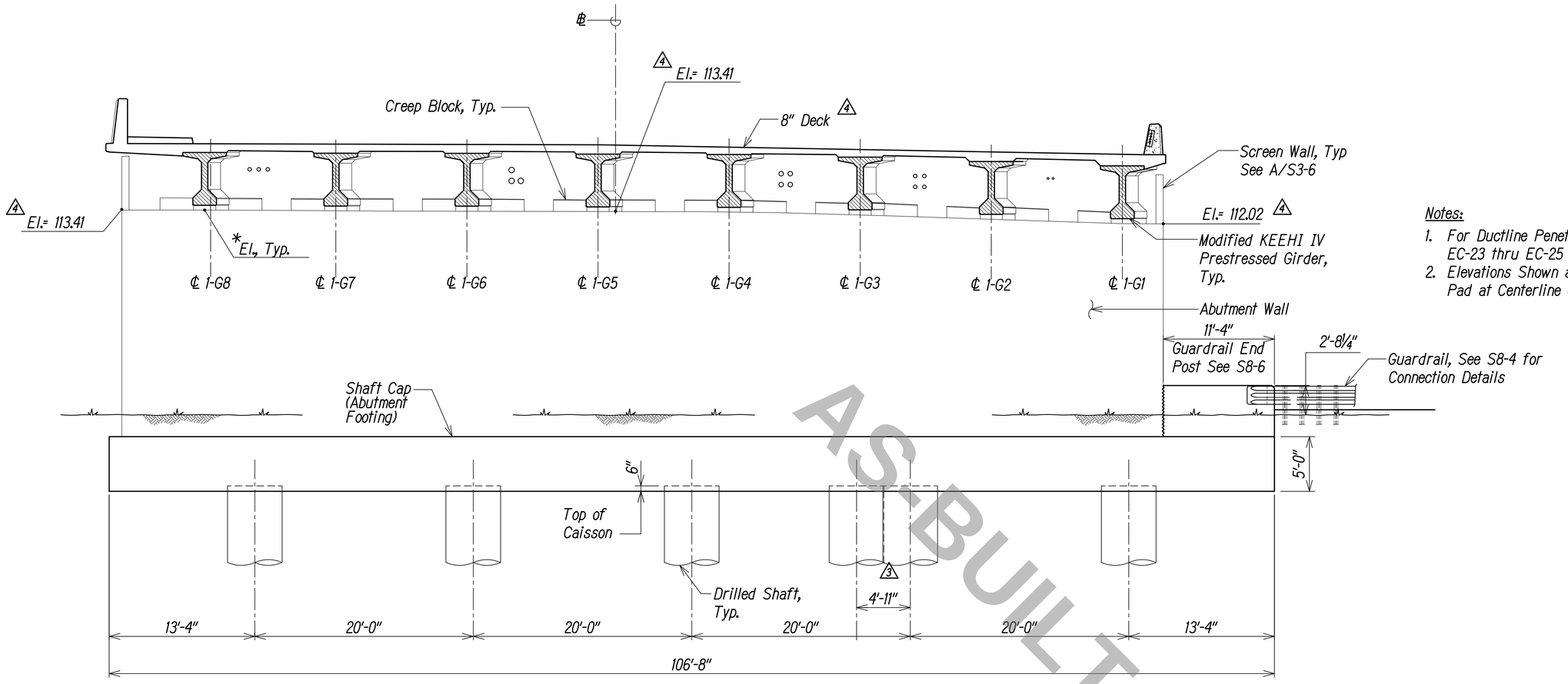
C.O. 273

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	274	524

ABUTMENT ELEVATION SCHEDULE

	G1	G2	G3	G4	G5	G6	G7	G8
Abutment 1	112.23	112.64	113.04	113.42	113.50	113.50	113.51	113.52

* See Note 2.



ABUTMENT NO. 1 ELEVATION - SECTION A

Scale: 3/16"=1'-0"

S3-1 S3-2

- Elevation Shown Looking Normal to ℄ of Bearing.
- Shown Looking Back on Station.

Notes:

1. For Ductline Penetration Details see EC-23 thru EC-25 and EE-1 thru EE-9.
2. Elevations Shown are at Top of Grout Pad at Centerline of Bearing.

AS-BUILT

LICENSED PROFESSIONAL ENGINEER
IZZAT H. HASAYEN
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

	DATE	REVISION
3	3/10/17	Revised Shaft Layout
4	3/10/17	Update Deck Thickness and Elevations

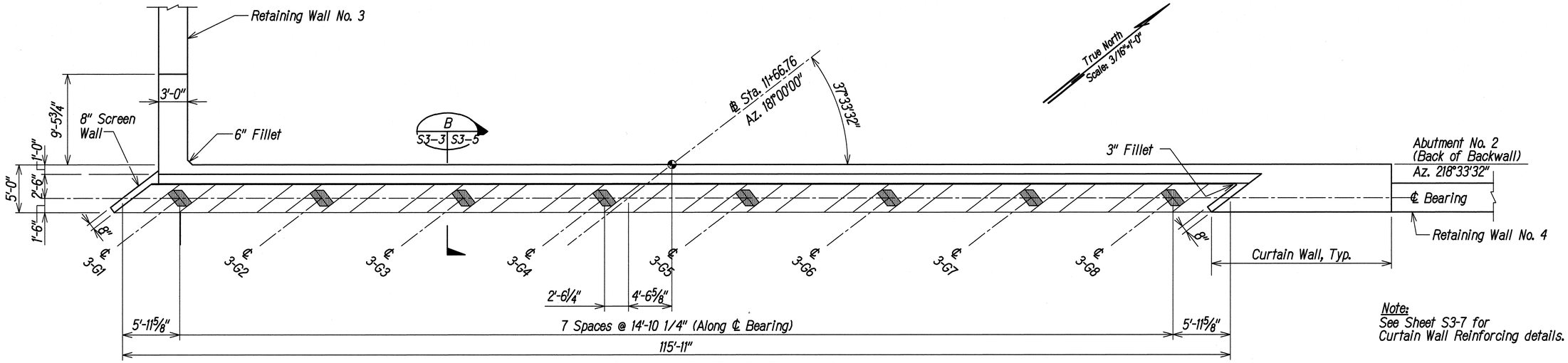
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ABUTMENT NO.1
ELEVATION
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)
Scale: Date: January 20, 2015

SHEET No. S3-2 OF 103 SHEETS

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

C.O. 274

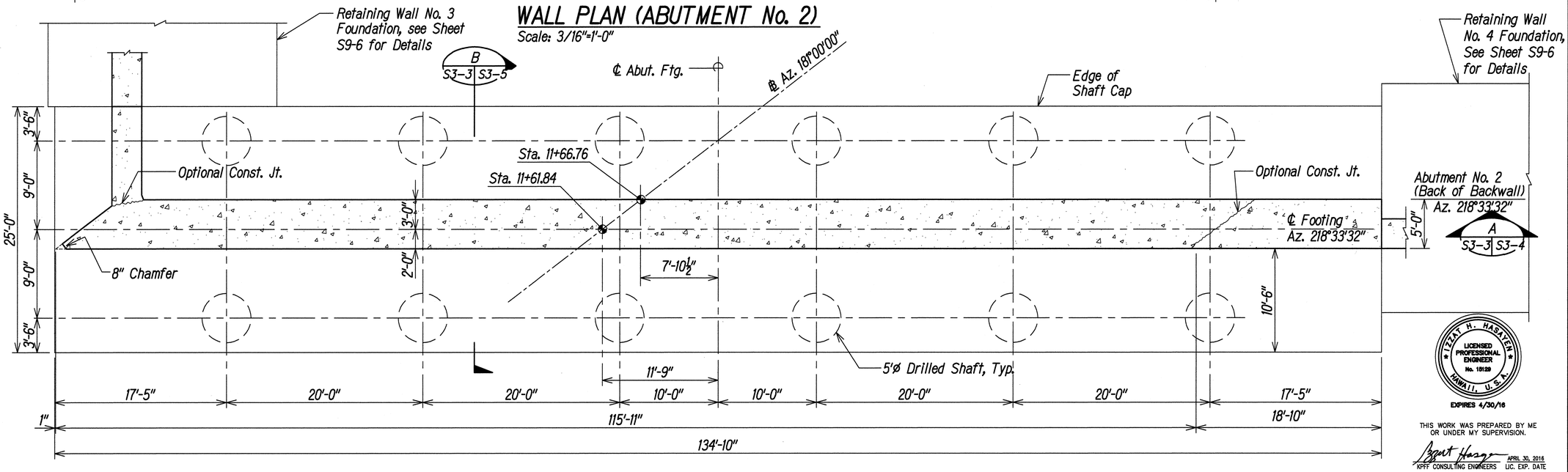
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	275	524



Note:
See Sheet S3-7 for Curtain Wall Reinforcing details.

WALL PLAN (ABUTMENT No. 2)

Scale: 3/16"=1'-0"



SHAFT CAP PLAN (ABUTMENT No. 2)

Scale: 3/16"=1'-0"

GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

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

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No. 15129
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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABUTMENT NO. 2
PLANS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 3/16" = 1'-0" Date: January 20, 2015

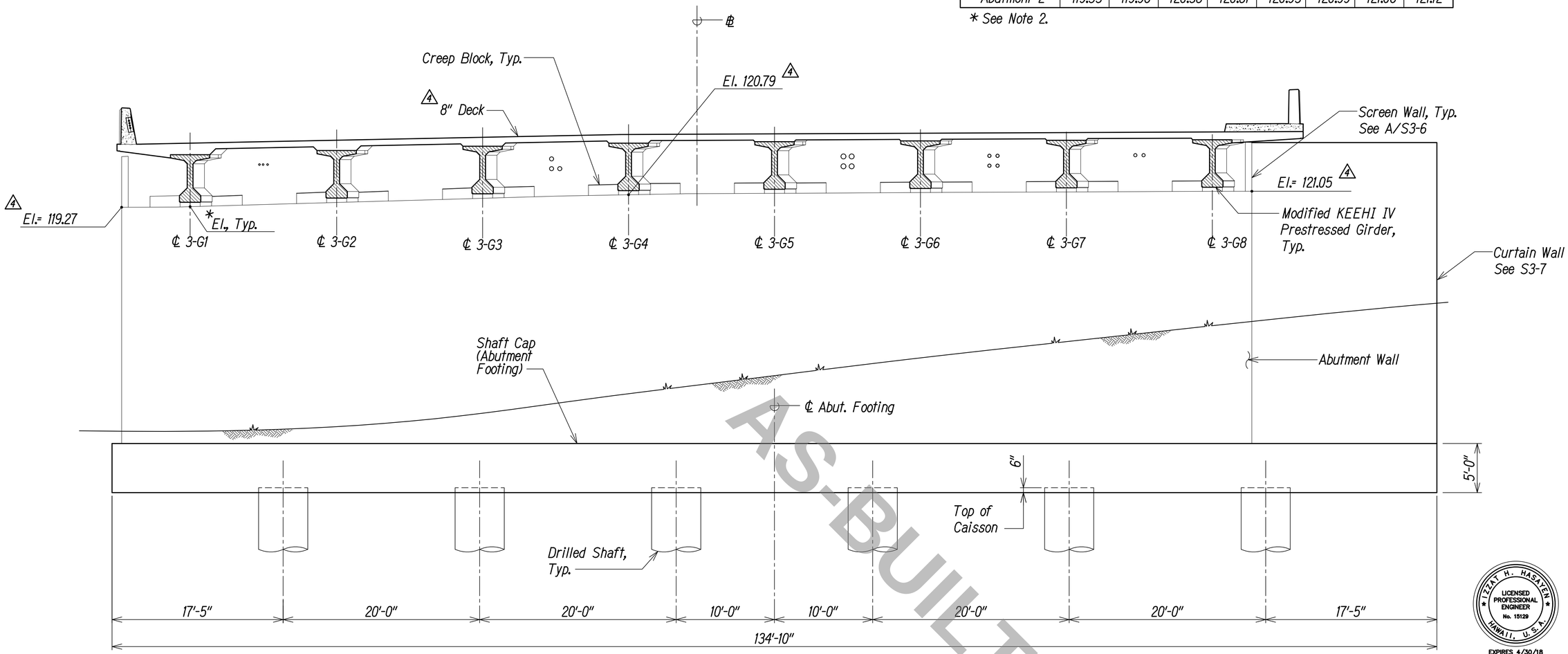
SHEET No. S3-3 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	276	524

ABUTMENT ELEVATION SCHEDULE

	G1	G2	G3	G4	G5	G6	G7	G8
Abutment 2	119.53	119.96	120.38	120.81	120.93	120.99	121.06	121.12

* See Note 2.



AS-BUILT

Notes:

1. For Ductline Penetration Details See EC-23 thru EC-25 and EE-1 thru EE-9.
2. Elevations Shown are at Top of Grout Pad at Centerline of Bearing.

ABUTMENT NO. 2 ELEVATION - SECTION A

Scale: 3/16"=1'-0"

- Elevation Shown Looking Normal to ℄ of Bearing.
- Shown Looking Ahead on Station.

S3-3 | S3-4

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No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

DATE	REVISION
4 3/10/17	Update Deck Thickness and Elevations

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABUTMENT NO. 2
ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

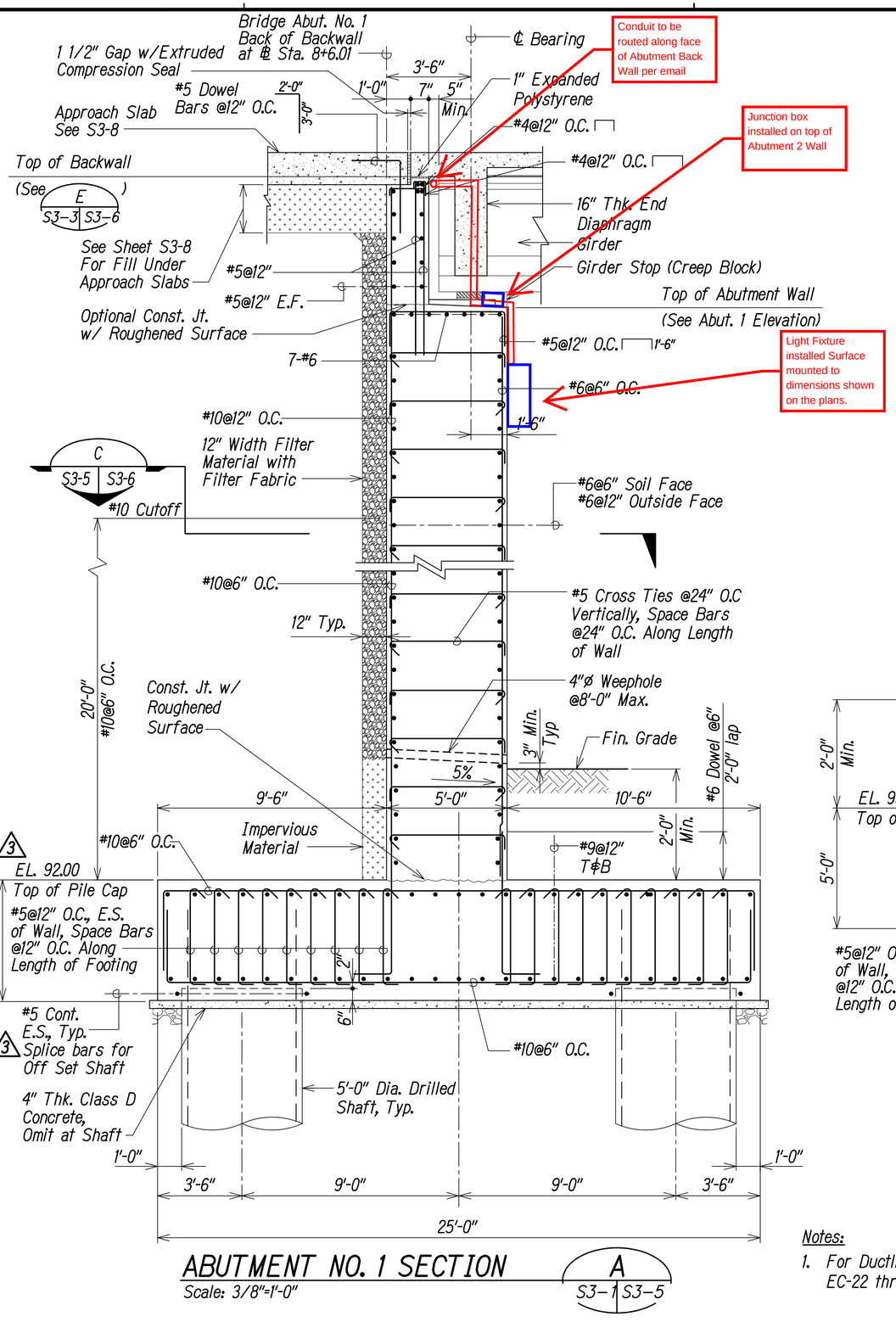
SHEET No. S3-4 OF 103 SHEETS

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

"AS-BUILT"

C.O. 276

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	277	524

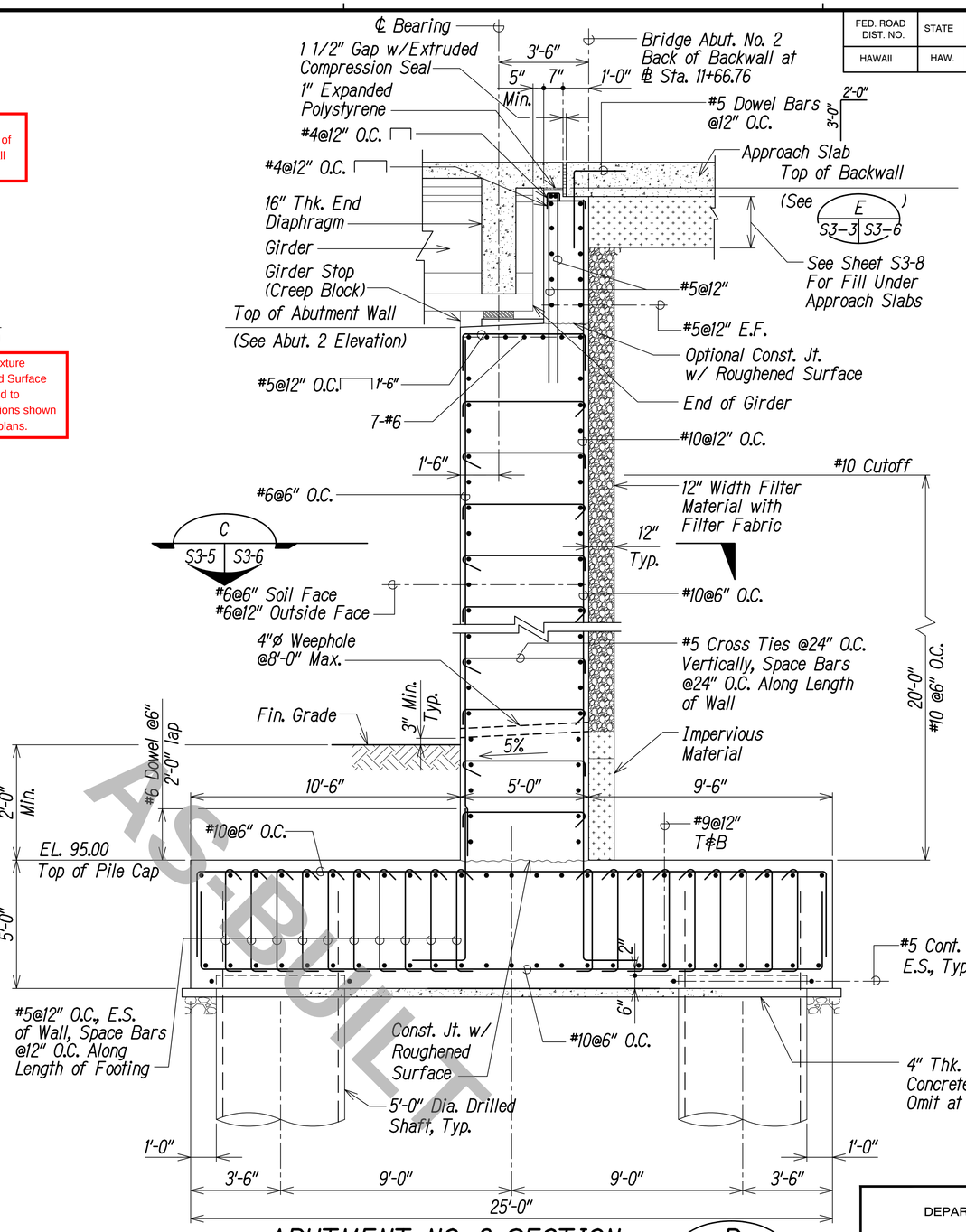


ABUTMENT NO. 1 SECTION — A (S3-1 S3-5)
Scale: 3/8"=1'-0"

Conduit to be routed along face of Abutment Back Wall per email

Junction box installed on top of Abutment 2 Wall

Light Fixture installed Surface mounted to dimensions shown on the plans.



ABUTMENT NO. 2 SECTION — B (S3-3 S3-5)
Scale: 3/8"=1'-0"

AS-BUILT

GRAPHIC SCALE:
2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

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IZZAT H. HASAYEN
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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KPFF CONSULTING ENGINEERS — APRIL 30, 2018 LIC. EXP. DATE

Notes:
1. For Ductline Penetration Details see EC-22 thru EC-24 and EE-1 thru EE-11.

DATE	REVISION
3/10/17	3 Revised Shaft Layout

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABUTMENT DETAILS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: Date: January 20, 2015

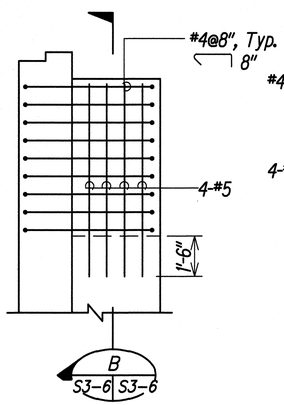
SHEET No. S3-5 OF 103 SHEETS

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

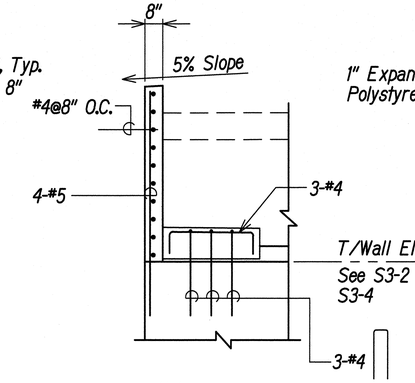
"AS-BUILT"

C.O. 277

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	278	524

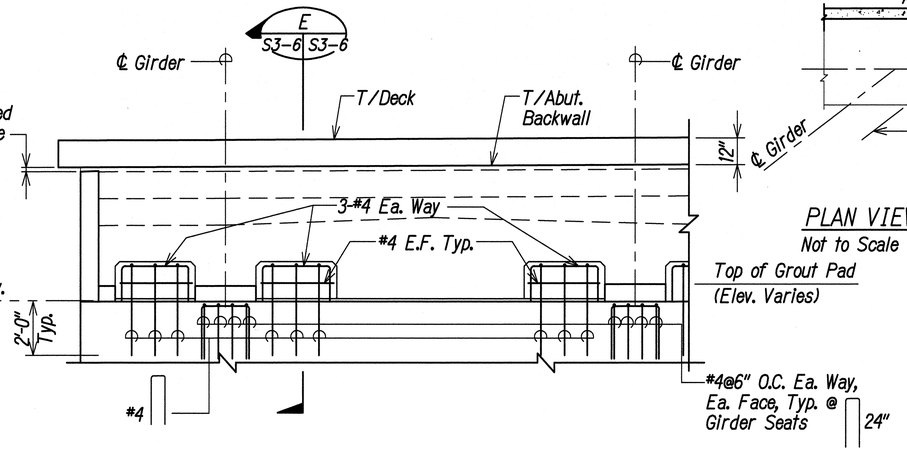


DETAIL A
Scale: 3/8"=1'-0"
S3-4 S3-6

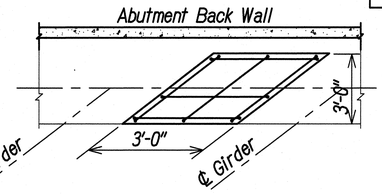


Note:
1. Abutment Reinforcement not shown for clarity.

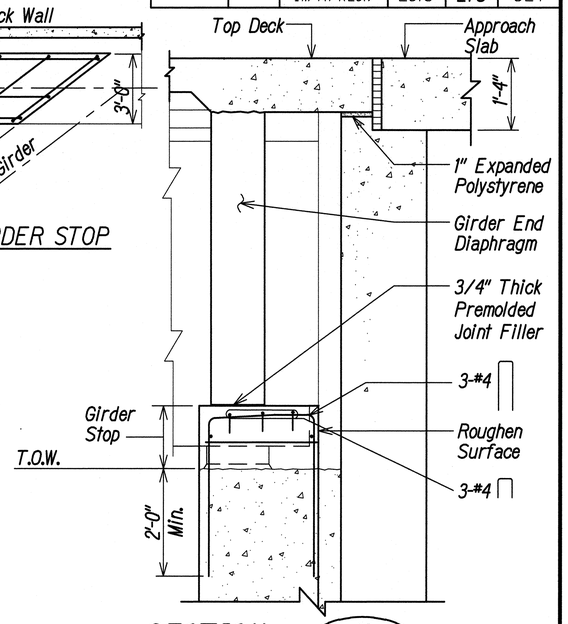
SECTION B
Scale: 3/8"=1'-0"
S3-6 S3-6



TOP ELEVATION OF ABUTMENT BACKWALL
Not to Scale
D
S3-6 S3-6

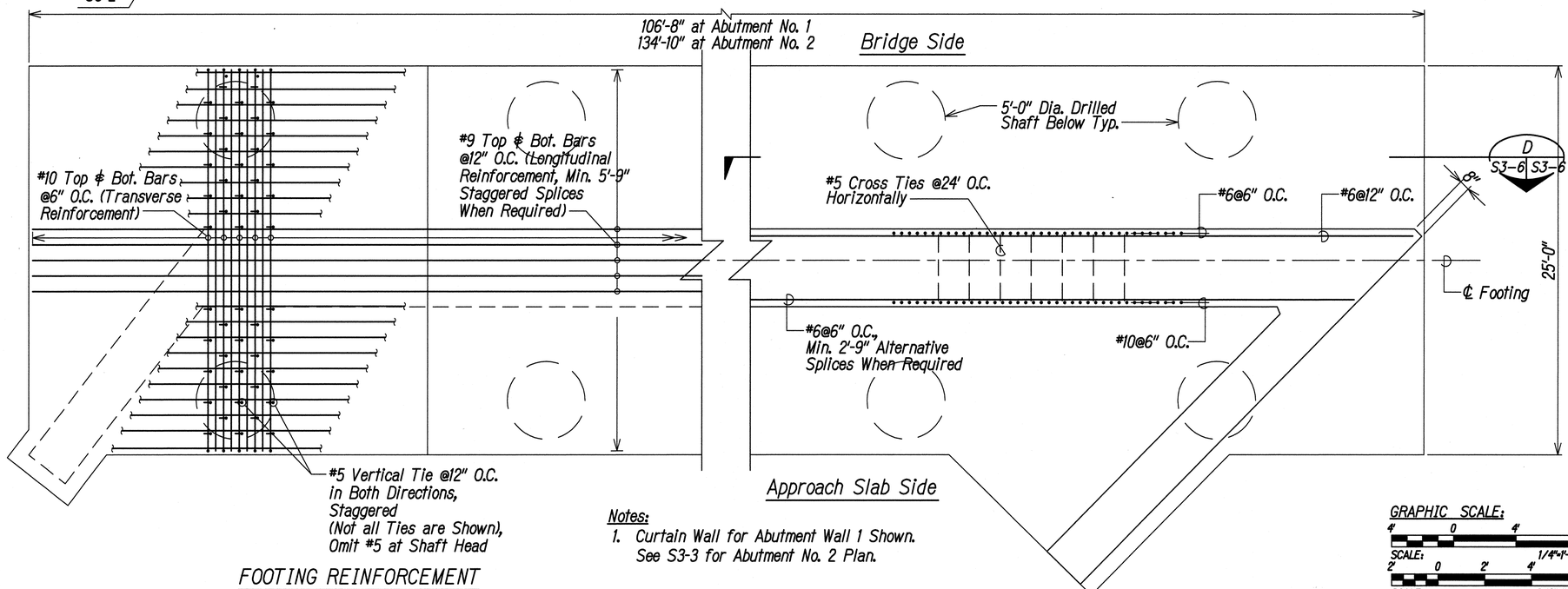


PLAN VIEW OF GIRDER STOP
Not to Scale



SECTION E
Scale: 3/4"=1'-0"
S3-6 S3-6

S3-2



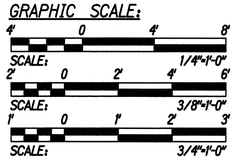
FOOTING REINFORCEMENT

Notes:
1. Curtain Wall for Abutment Wall 1 Shown. See S3-3 for Abutment No. 2 Plan.

SECTION C
Scale: 1/4"=1'-0"
S3-5 S3-6

ABUTMENT WALL REINFORCEMENT

GRAPHIC SCALE:



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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APRIL 30, 2016
KFK CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

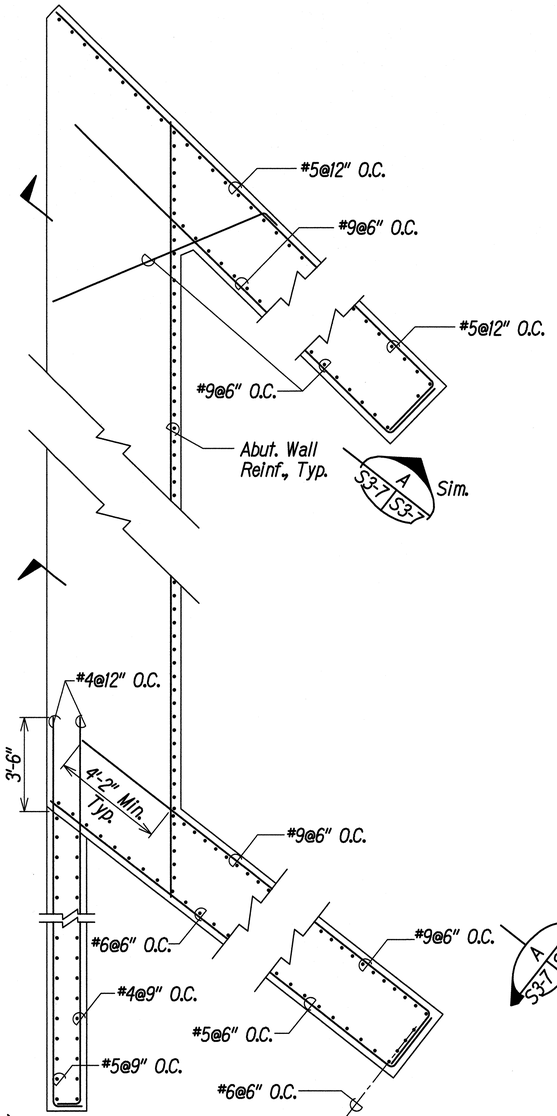
ABUTMENT DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

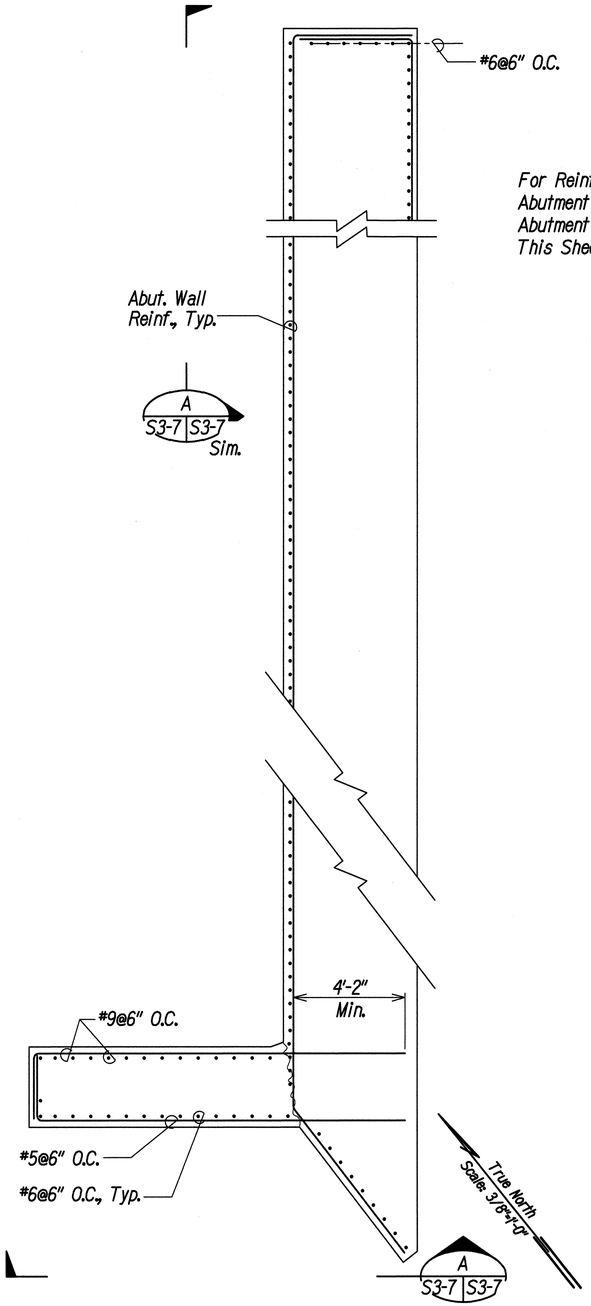
Scale: As Shown Date: January 20, 2015

SHEET No. S3-6 OF 103 SHEETS

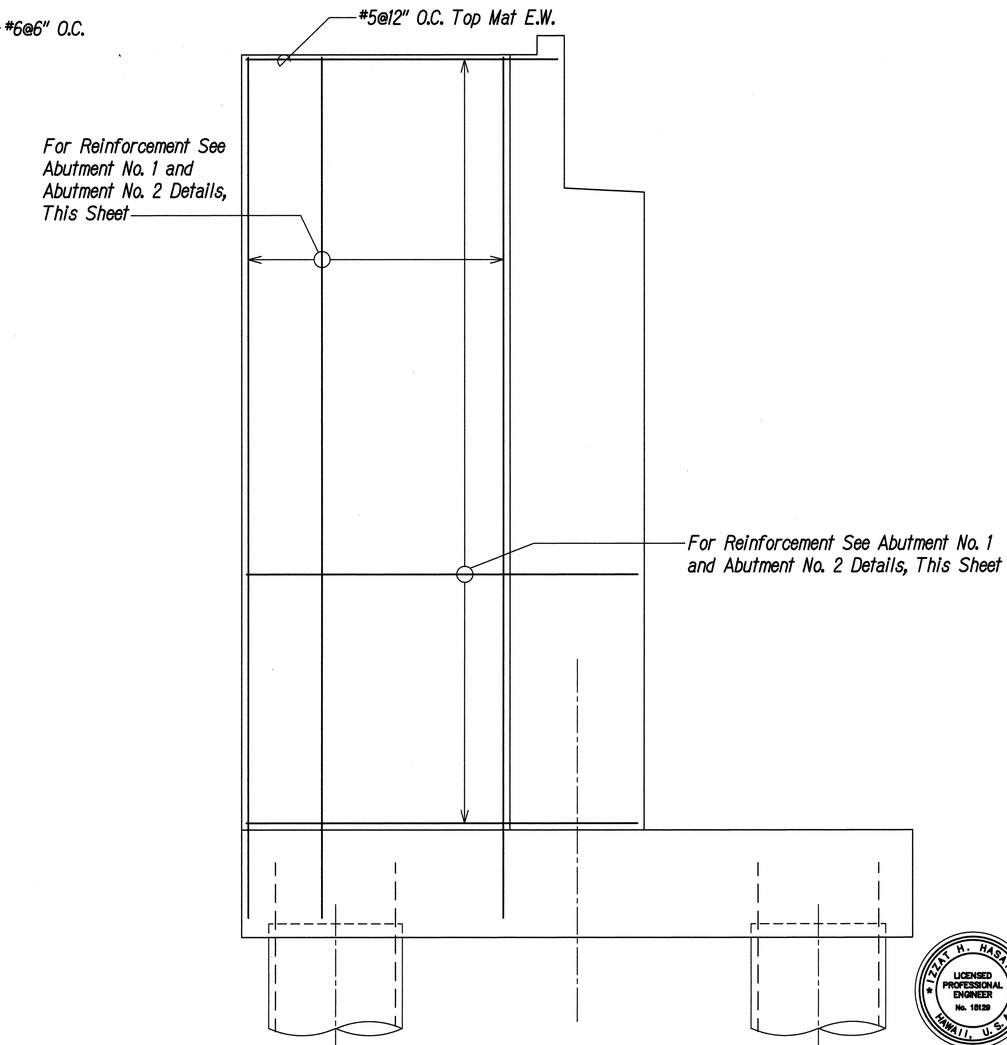
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	279	524



ABUTMENT NO. 1
Scale: 3/8"=1'-0"



ABUTMENT NO. 2
Scale: 3/8"=1'-0"



CURTAIN WALL ELEVATION
Not to Scale

A S3-7 S3-7

Notes:

1. Only Retaining Wall Reinforcement Shown Here.
2. See S9-3 for Barrier Reinforcement Details at Top of Curtain Walls.

GRAPHIC SCALE:
2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 18129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

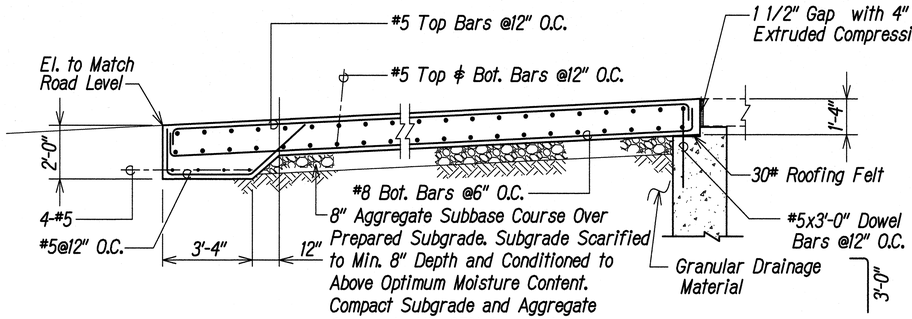
ABUTMENT CURTAIN WALL DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

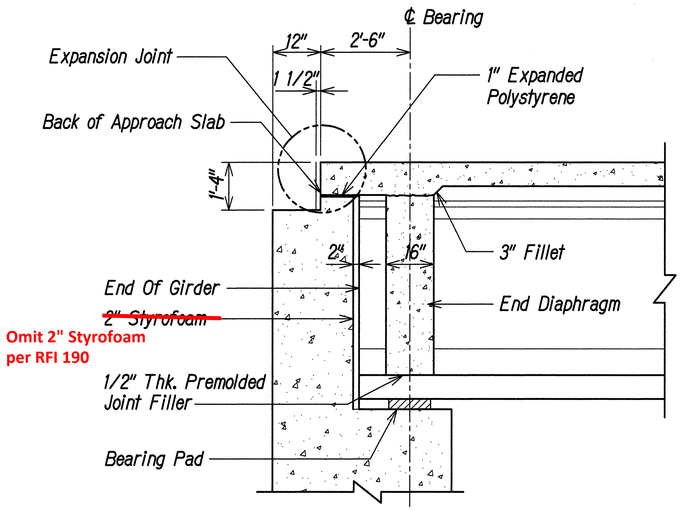
SHEET No. S3-7 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	280	524



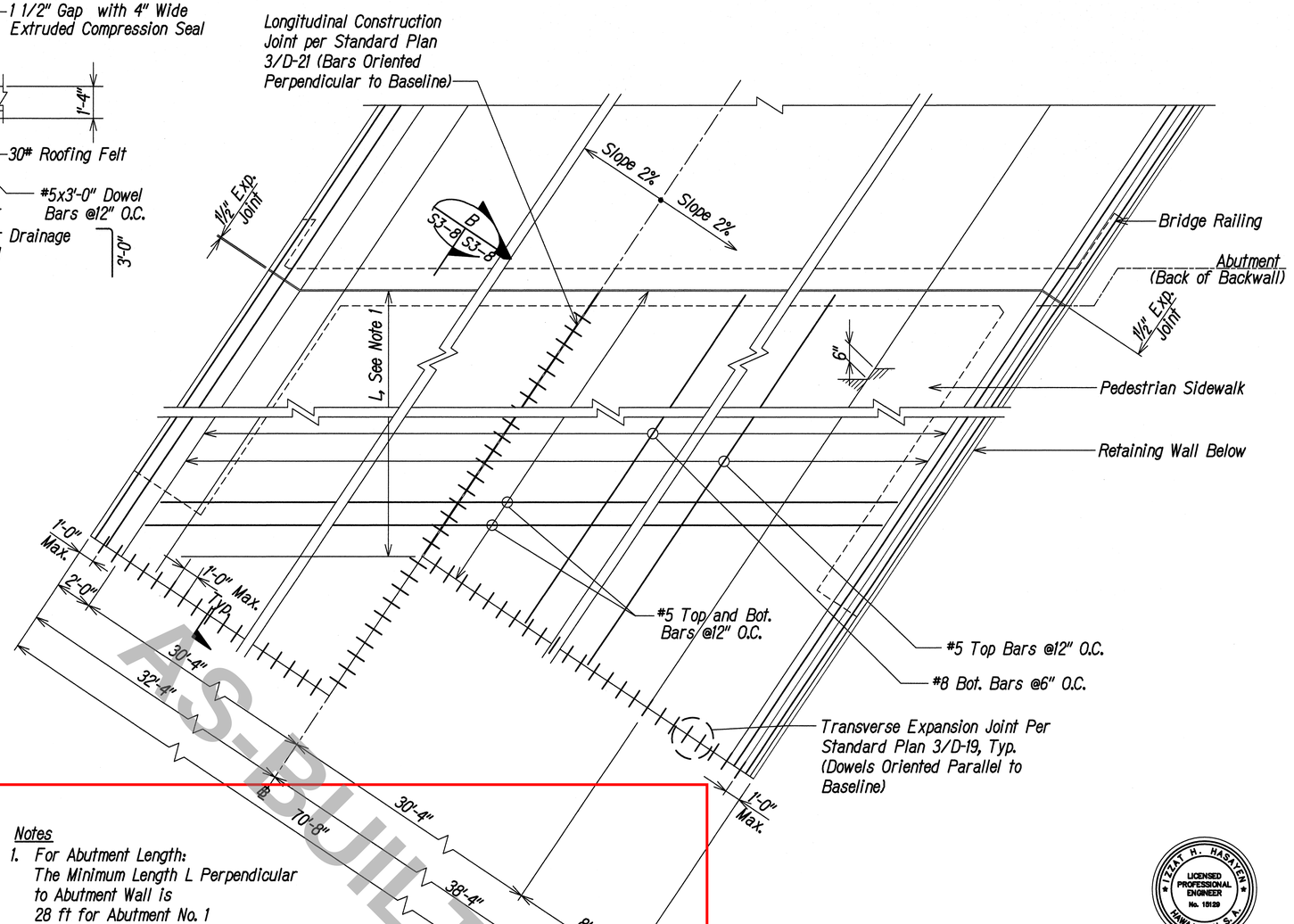
SECTION B
Scale: 3/8"=1'-0"

S3-8 | S3-8



Omit 2" Styrofoam per RFI 190

ROADWAY EXPANSION JOINT AT ABUTMENTS
Scale: 1/2"=1'-0"



AS-BUILT

Notes
1. For Abutment Length:
   The Minimum Length L Perpendicular to Abutment Wall is
   28 ft for Abutment No. 1
   25 ft for Abutment No. 2
2. See EC-1 thru EC-24 and EE-1 Thru EE-9 for Concrete Encased Ductline Location.
3. Provide 30# Roofing Felt at Bottom of Approach Slab where Concrete Encased Ductline is Less Than 8" from Slab.
4. Abutment No. 1 Shown. Abutment No. 2 Similar.

APPROACH SLAB PLAN A
Not to Scale

S3-8 | S3-8

Reference RFI 193 response for new approach slab and manhole cover detail for Abutment 1 and 2

GRAPHIC SCALE:

2' 0 2' 4'
SCALE: 1/2"=1'-0"
2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

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LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.
EXPIRES 4/30/16

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APRIL 30, 2016
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

APPROACH SLAB SECTION AND EXPANSION JOINT DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

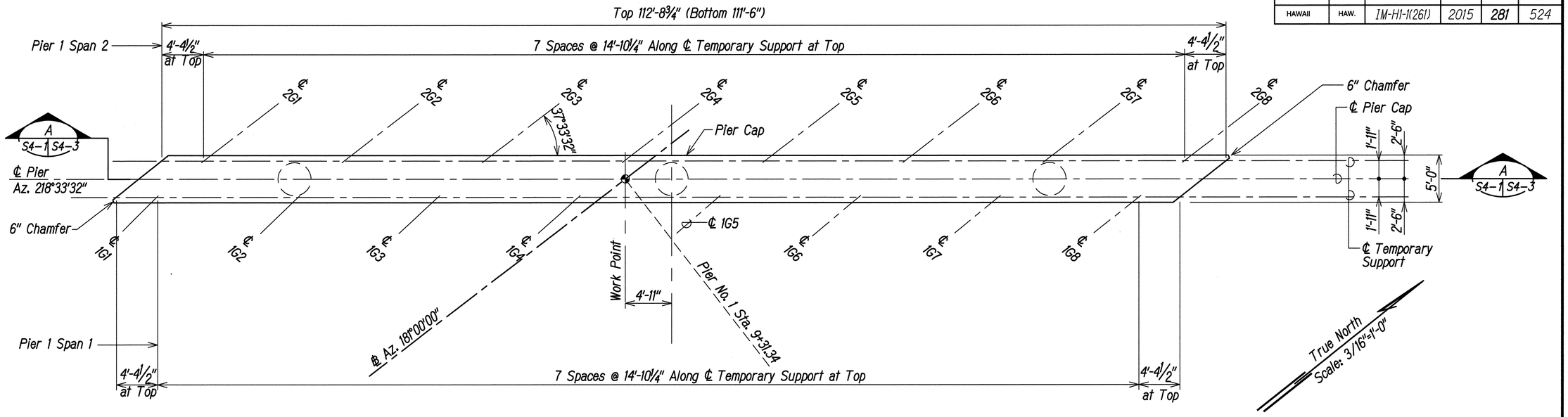
Scale: As Shown Date: January 20, 2015

SHEET No. S3-8 OF 103 SHEETS

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

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	281	524



PIER CAP PLAN - PIER No. 1

Scale: 3/16"=1'-0"

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

GRAPHIC SCALE:

4' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.

EXPIRES 4/30/16

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APRIL 30, 2016
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

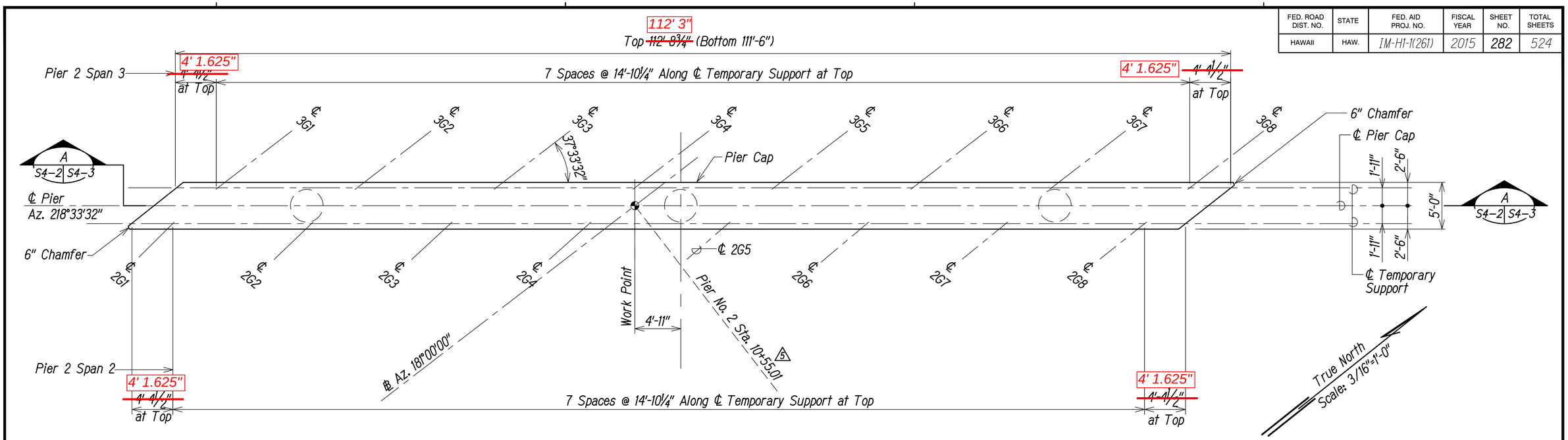
PIER NO. 1 PLAN

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 3/16" = 1'-0" Date: January 20, 2015

SHEET No. S4-1 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	282	524



DIMENSION REVISED BY RFI 148

PIER CAP PLAN - PIER No. 2

Scale: 3/16"=1'-0"

AS-BUILT

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

LICENSED PROFESSIONAL ENGINEER
IZZAT H. HASAYEN
No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/18

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

KPFF CONSULTING ENGINEERS — APRIL 30, 2018 LIC. EXP. DATE

GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

DATE	REVISION
5 6/14/17	Moved Pier No. 2

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIER NO. 2 PLAN

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. S4-2 OF 103 SHEETS

"AS-BUILT"

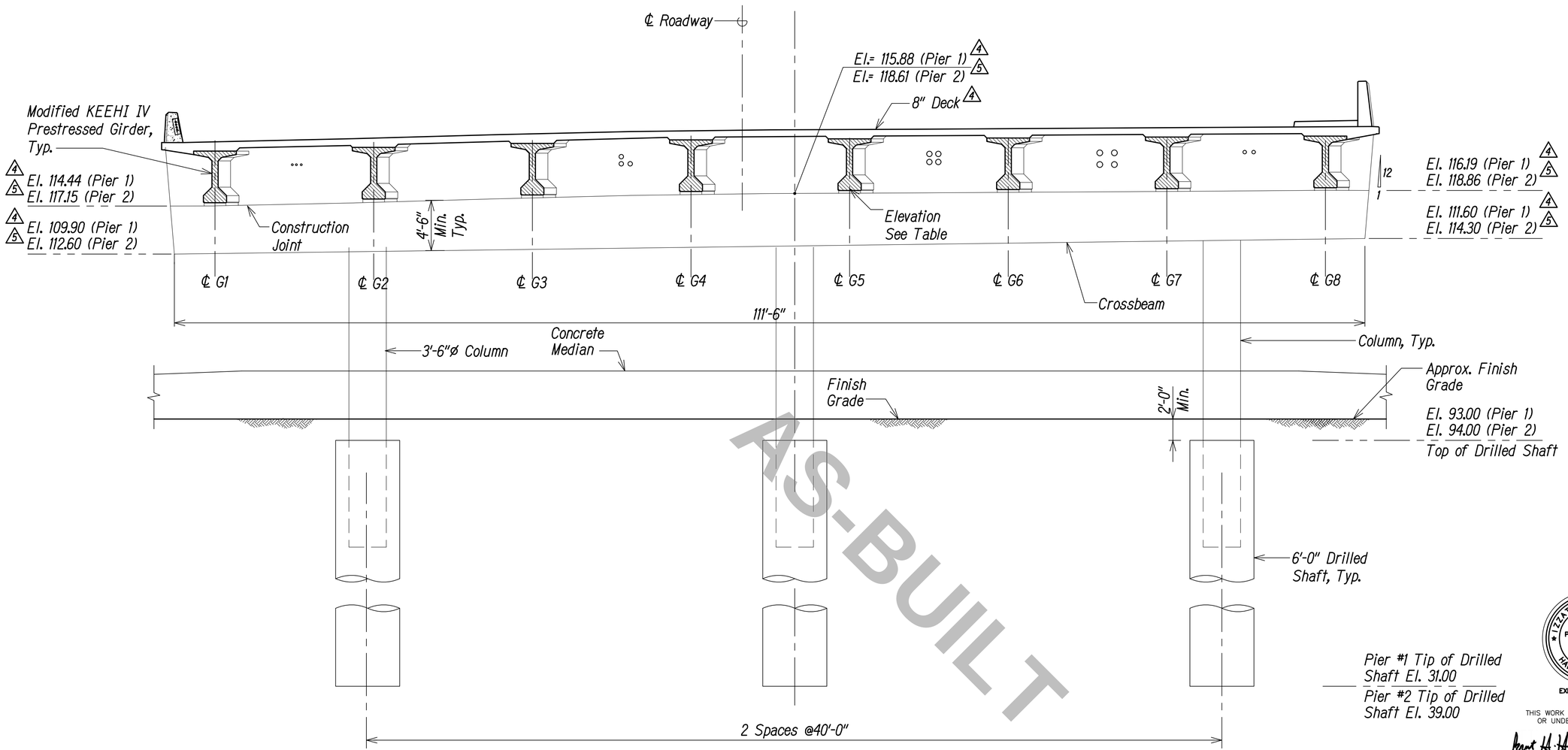
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	283	524

Notes:

1. Elevations are on Top of Temporary Oak Block Support or Girder Bottom at Centerline of Bearing.
2. The Top of Oak blocks Shall Be Kept Flat to Place Girder.
3. For Ductline Penetrations See EC-23 thru EC-25 and EE-1 thru EE-9.

④ PIER ELEVATION SCHEDULE

		G1	G2	G3	G4	G5	G6	G7	G8
PIER 1	Span 1	114.90	115.31	115.74	116.16	116.28	116.35	116.41	116.47
	Span 2	115.15	115.57	115.99	116.42	116.54	116.60	116.66	116.73
PIER 2	Span 2	117.58	118.00	118.42	118.85	118.99	119.03	119.10	119.16 ⑤
	Span 3	117.69	118.12	118.54	118.97	119.09	119.15	119.21	119.28



AS-BUILT

PIER ELEVATION

Scale: 3/16"=1'-0"

A: S4-1 | S4-3; S4-2

Note:
Elevation Shown Normal to ℄ Pier.

GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

	DATE	REVISION
⑤	6/14/17	Moved Pier No. 2
④	3/10/17	Update Deck Thickness and Elevations

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER No. 15129 * HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
AKPFF CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIER ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: Date: January 20, 2015

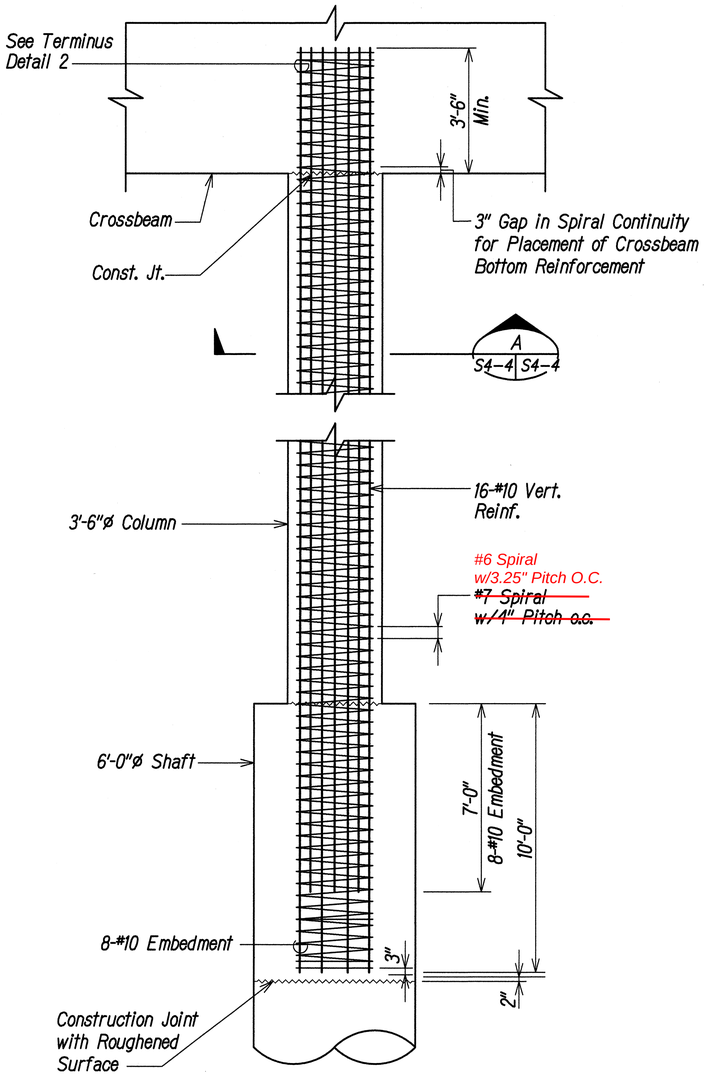
SHEET No. S4-3 OF 103 SHEETS

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

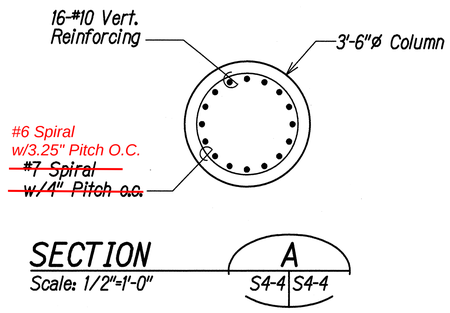
"AS-BUILT"

C.O. 283

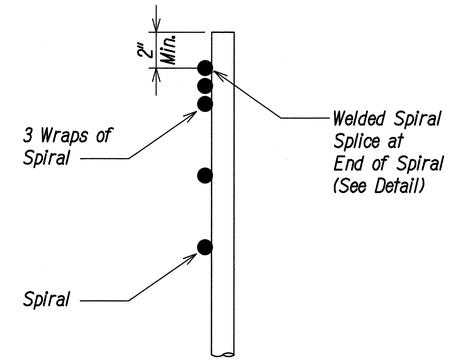
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	284	524



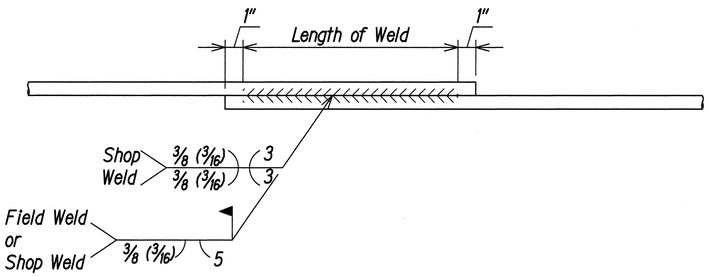
COLUMN DETAIL
Scale: 3/8"=1'-0"



SECTION A
Scale: 1/2"=1'-0"
S4-4 S4-4



TERMINUS DETAIL 1
Not to Scale
S4-4 S5-1,S5-2



WELDED SPIRAL SPLICE DETAIL 2
Not to Scale
S4-4 S5-1,S5-2

Notes on Spirals:
1. Spirals Shall be Fabricated from #6 Deformed Reinforcing Bars (ASTM A706).
2. Welded Splices Only, Except as Noted.
3. Where the Spiral Terminates, Weld the Spiral Tail Back onto Itself, See Welded Spiral Splice Detail.

Note:
Field Welding shall not be Performed within Top and Bottom 5 ft. of Column Clear Height.

GRAPHIC SCALE:
2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

AS-BUILT

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 18129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS
APRIL 30, 2016
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COLUMN DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

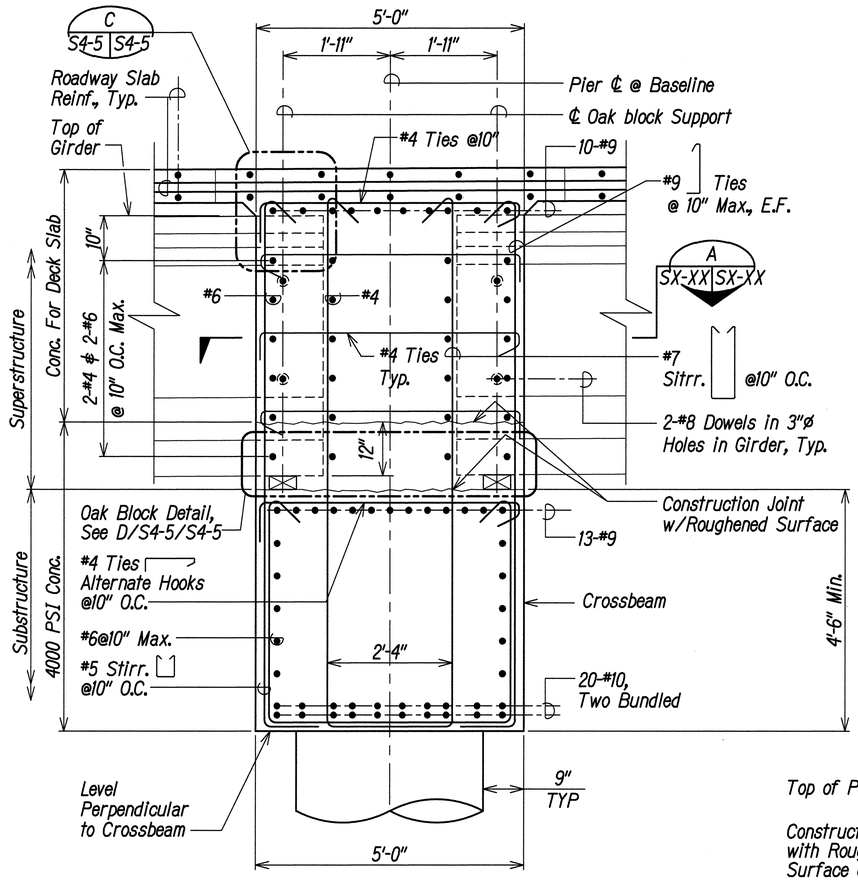
Scale: As Shown Date: January 20, 2015

SHEET No. S4-4 OF 103 SHEETS

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

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	285	524

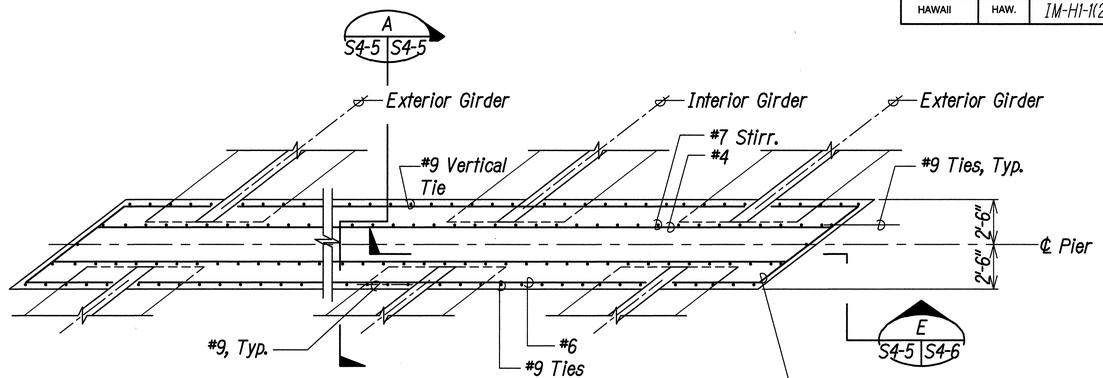


CROSSBEAM SECTION A

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

S4-5 | S4-5

S4-6

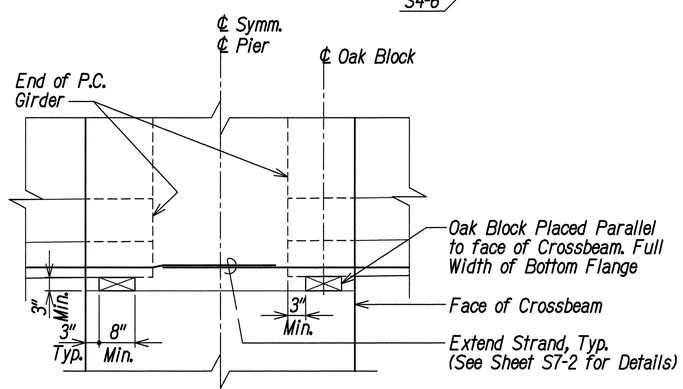


PLAN - SECTION B

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

S4-5 | S4-5

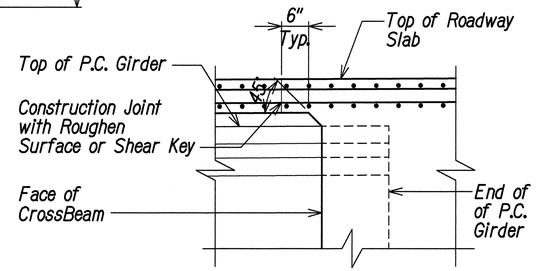
S4-6



OAK BLOCK DETAIL D

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

S4-5 | S4-5



DETAIL C

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

S4-5 | S4-5

Notes:

1. Girders Shall be Held Rigidly in Place when Diaphragms are Placed. Contractor Shall Provide Lateral Bracing for Stability.
2. Extended Strands and Girder Reinforcing not Shown for Clarity.
3. Longitudinal Dimensions are Normal to Skew.
4. For Concrete Placement Procedure see "Superstructure Construction Sequence" Pheet.
5. Oak Block Shall be From Northern Red Oak or Douglas Fir - Larch Select Structural. The Aspect Ratio (Height/Width) of the Oak Blocks at the Girder Centerline Shall not Exceed 1.0.

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

GRAPHIC SCALE:

4' 0 4' 8'
SCALE: 1/4"=1'-0"

2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CROSSBEAM DETAILS (1)

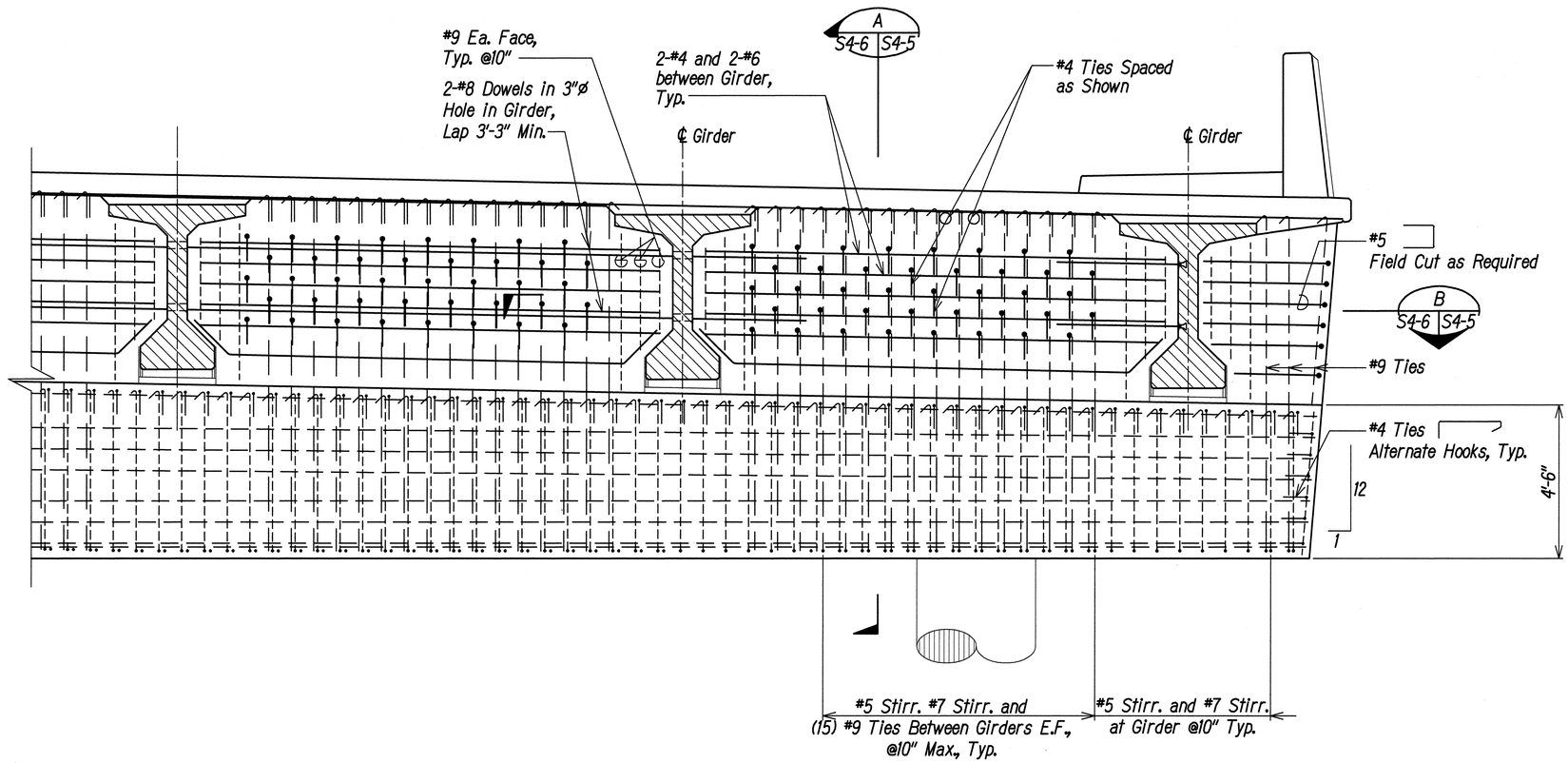
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown — Date: January 20, 2015

SHEET No. S4-5 OF 103 SHEETS

285

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	286	524



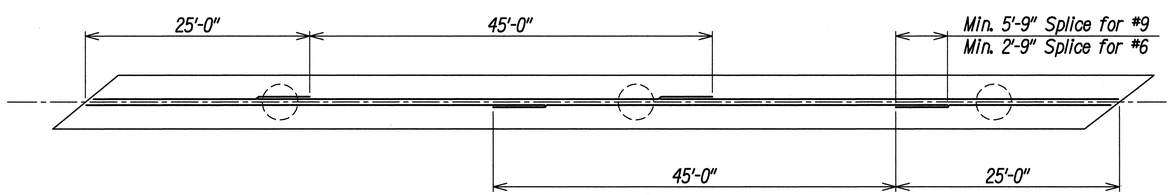
EL. END/PIER DIAPHRAGM

E
S4-5 S4-6

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

NOTES:

1. Adjust Reinforcing Spacing Around Duct Bank Holes, Without Reduction of Reinforcement.
2. Girder and Deck Reinforcement not Shown for Clarity.



ALTERNATIVE SPLICE DETAIL PLAN

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

LICENSED PROFESSIONAL ENGINEER
No. 18129
IZZAT H. HASAYEN
HAWAII, U.S.A.
EXPIRES 4/30/16

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2016
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

GRAPHIC SCALE:
2' 0 2' 4'
SCALE: 1/2"=1'-0"

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CROSSBEAM DETAILS (2)

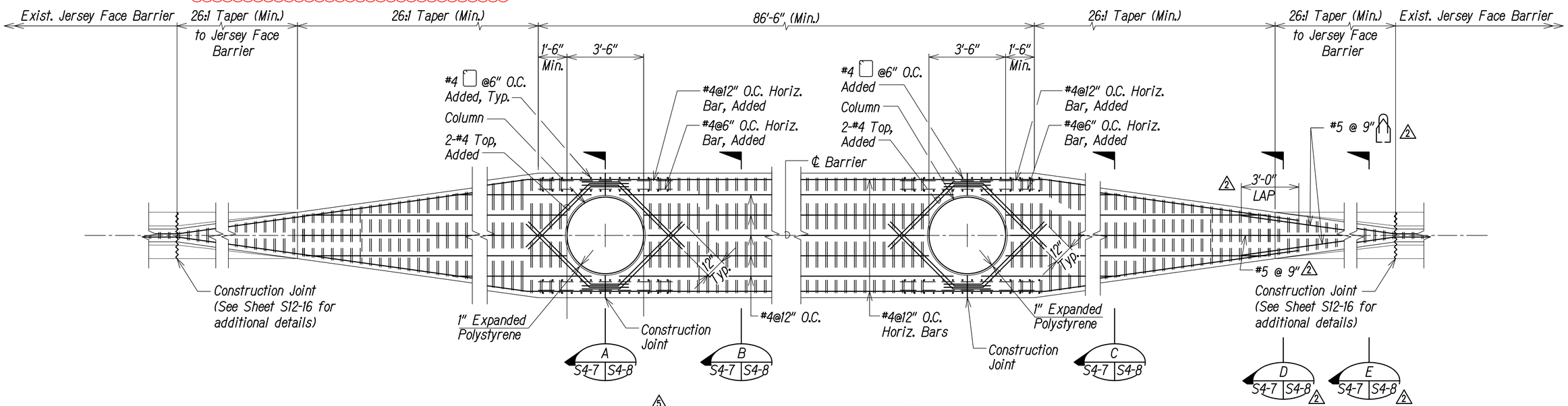
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/2" = 1'- 0" Date: January 20, 2015

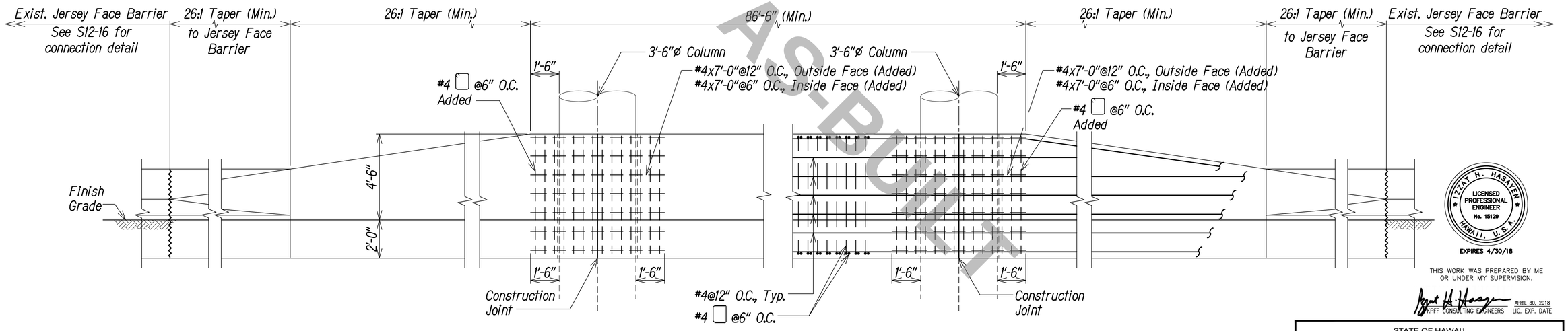
SHEET No. S4-6 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 287	524

See RFI 209 Response dated 7/27/18



5 PIER No. 1 BARRIER - PLAN (A S4-7 | S4-7)
Not To Scale



5 PIER No. 1 BARRIER - ELEVATION (B S4-7 | S4-7)
Not To Scale

	DATE	REVISION
5	6/14/17	Moved Pier No. 2
2	5/18/15	Add New Section Cuts for Clarity

IZZAT H. HASAYEN — LICENSED PROFESSIONAL ENGINEER — No. 15129 — HAWAII, U.S.A. — EXPIRES 4/30/18

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APRIL 30, 2018
KKPFF CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIER BARRIER PLAN AND ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not To Scale — Date: January 20, 2015

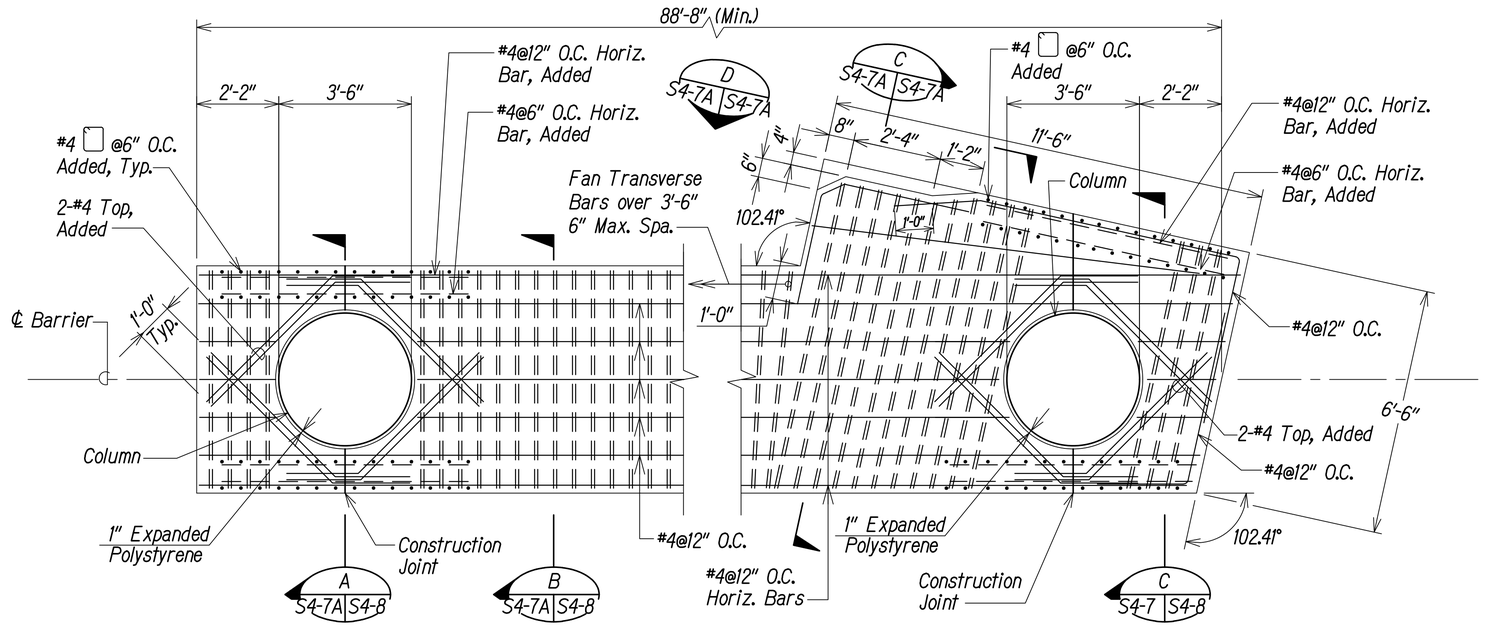
SHEET No. S4-7 OF 103 SHEETS

ADD. 287

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

AS-BUILT
"AS-BUILT"

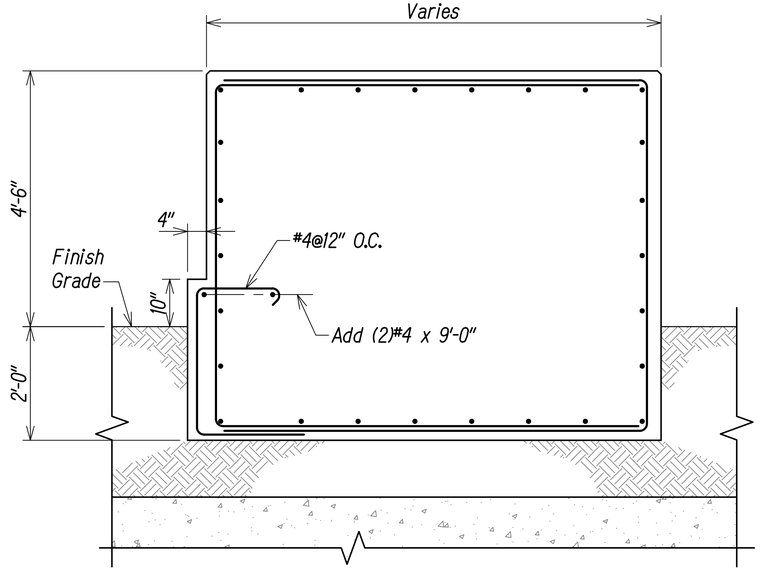
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 287	524



PIER No. 2 BARRIER - PLAN

Not To Scale

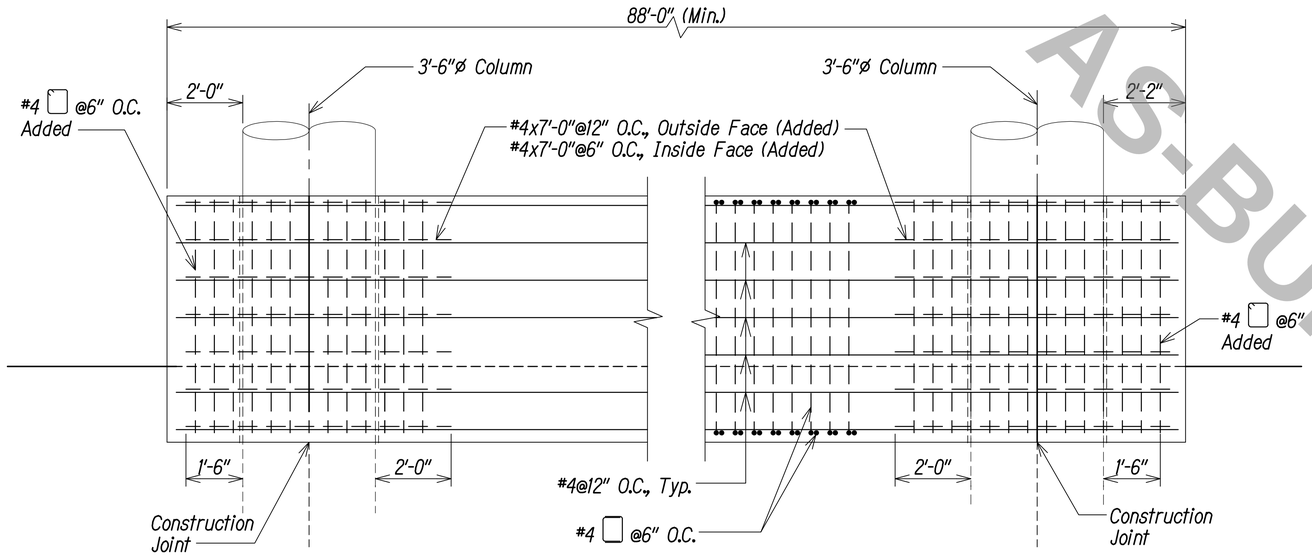
A S4-7A S4-7A



SECTION

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

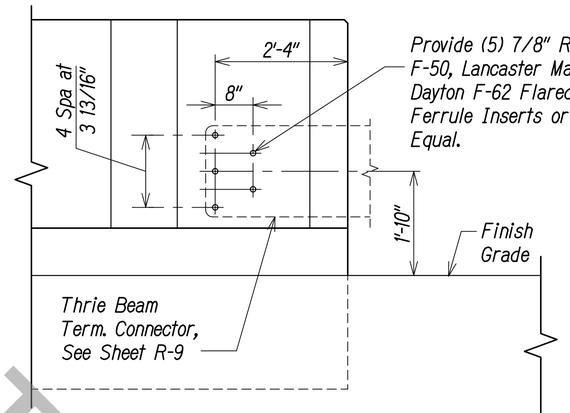
C S4-7A S4-7A



PIER No. 2 BARRIER - ELEVATION

Not To Scale

B S4-7A S4-7A



ELEVATION

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

D S4-7A S4-7A

AS-BUILT

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2018
PKFF CONSULTING ENGINEERS — LIC. EXP. DATE

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

DATE	REVISION
5 6/14/17	New Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

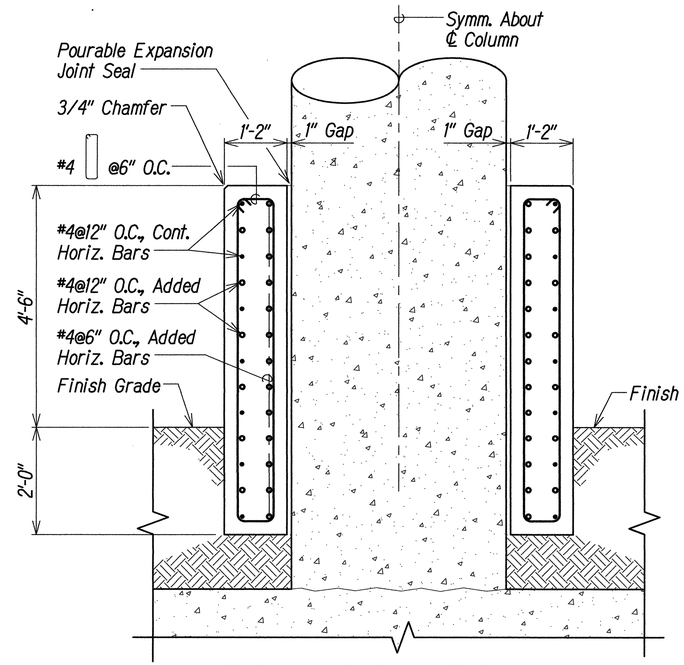
PIER No. 2 BARRIER PLAN AND ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not To Scale Date: January 20, 2015

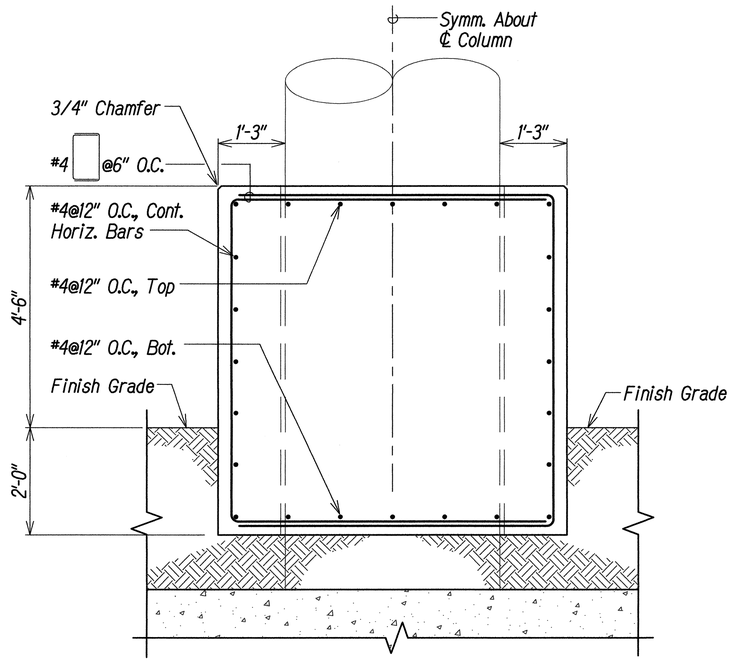
SHEET No. S4-7A OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 288	524

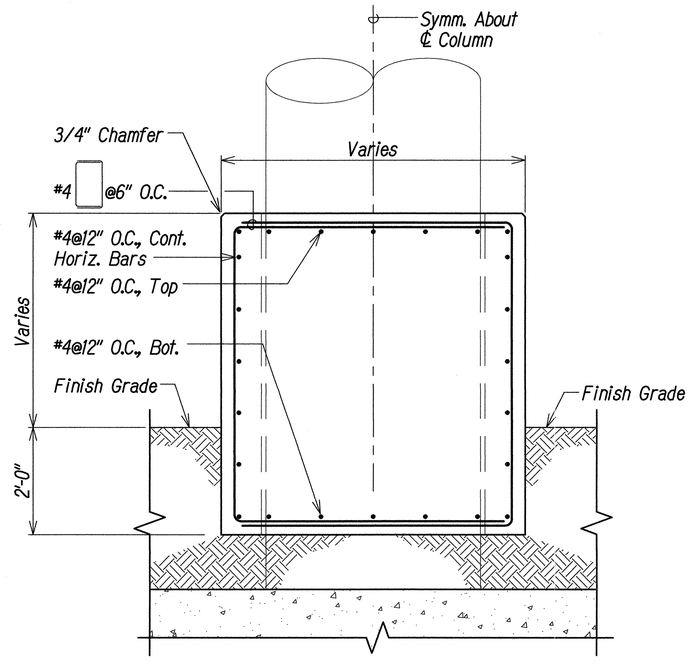


TYPICAL SECTION AT TANGENT

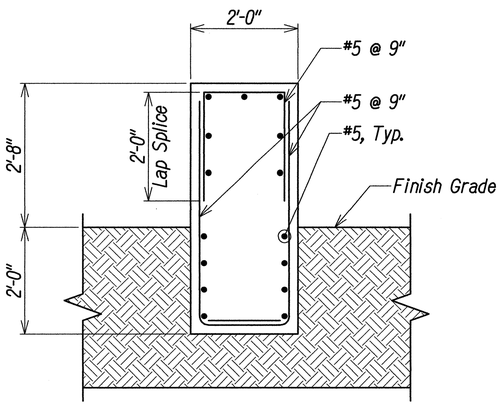
DETAIL A — Scale: 3/4"=1'-0" — S4-8 | S4-8



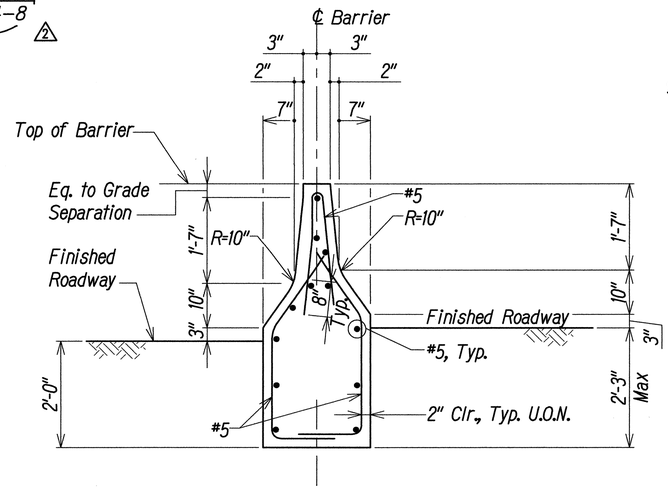
SECTION B — Scale: 3/4"=1'-0" — S4-7 | S4-8



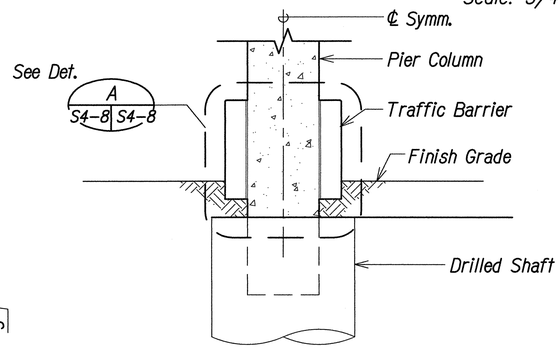
SECTION C — Scale: 3/4"=1'-0" — S4-7 | S4-8



SECTION D — Not to Scale — S4-7 | S4-8 (2)



SECTION E — Not to Scale — S4-7 | S4-8 (2)



SECTION A — Scale: 1/4"=1'-0" — S4-7 | S4-8 (2)

GRAPHIC SCALE:

1' 0 1' 2' 3' — SCALE: 3/4"=1'-0"

4' 0 4' 8' — SCALE: 1/4"=1'-0"

IZZAT H. HASAFEN — LICENSED PROFESSIONAL ENGINEER — No. 10129 — HAWAII, U.S.A. — EXPIRES 4/30/16

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2015
PBR CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIER BARRIER DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown — Date: January 20, 2015

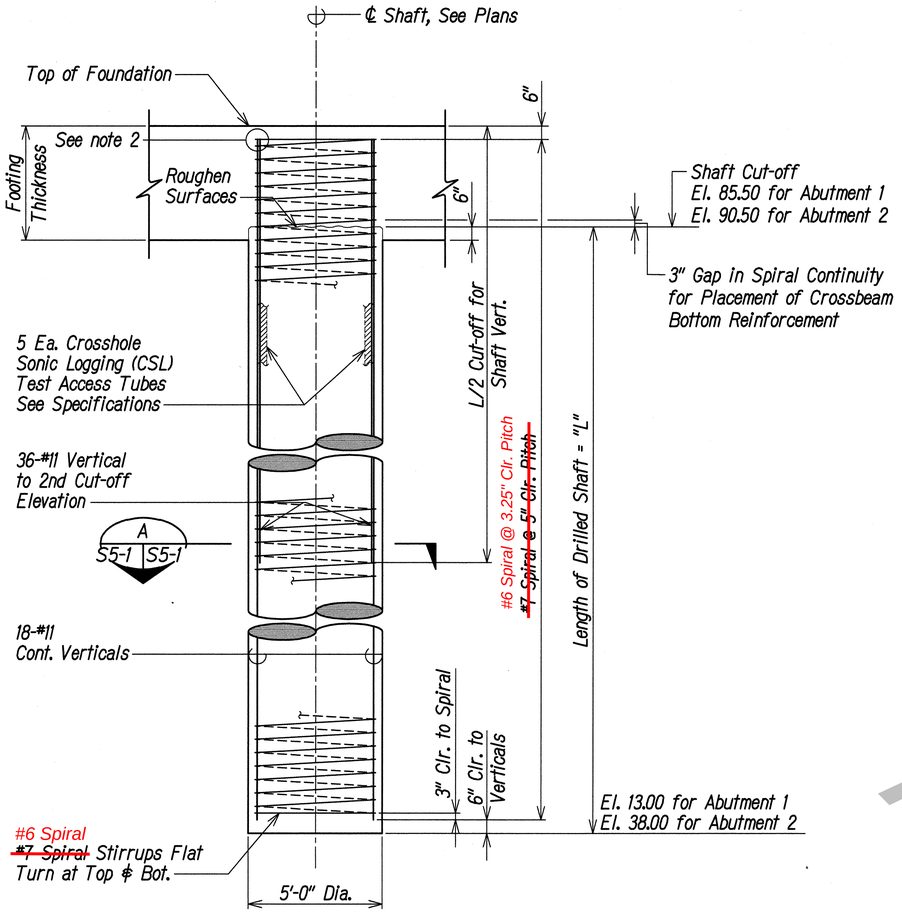
SHEET No. S4-8 OF 103 SHEETS

DATE	REVISION
5/18/15 (2)	Add New Sections for Clarity

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

ADD. 288

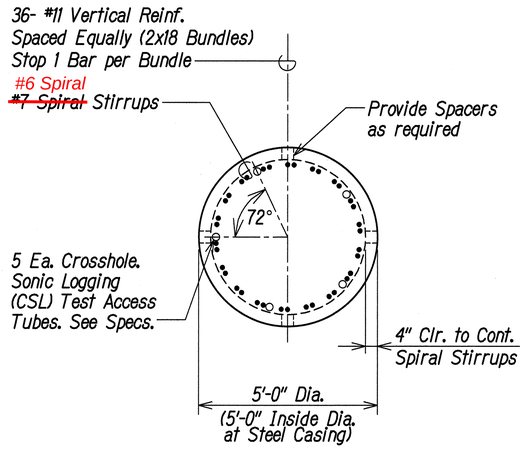
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	289	524



5'-0" DIA. DRILLED SHAFT ELEVATION

Not To Scale

A
S5-1 S5-1



5'-0" DIA. SHAFT DETAIL/PLAN

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

1
S5-1 S5-1

Notes:

1. Contractor is Advised that Temporary Casing May be Required Due to Potential Caving in of Side Walls During Drilled Shaft Installation.
2. See Sheet S4-4 for Spiral Terminus and Splice Detail.
3. See Sheet S2-2 for Shaft Elevation.

AS-BUILT

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

GRAPHIC SCALE:

2' 0 2' 4'

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/16

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APRIL 30, 2016
HOFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

5' DRILLED SHAFT DETAILS

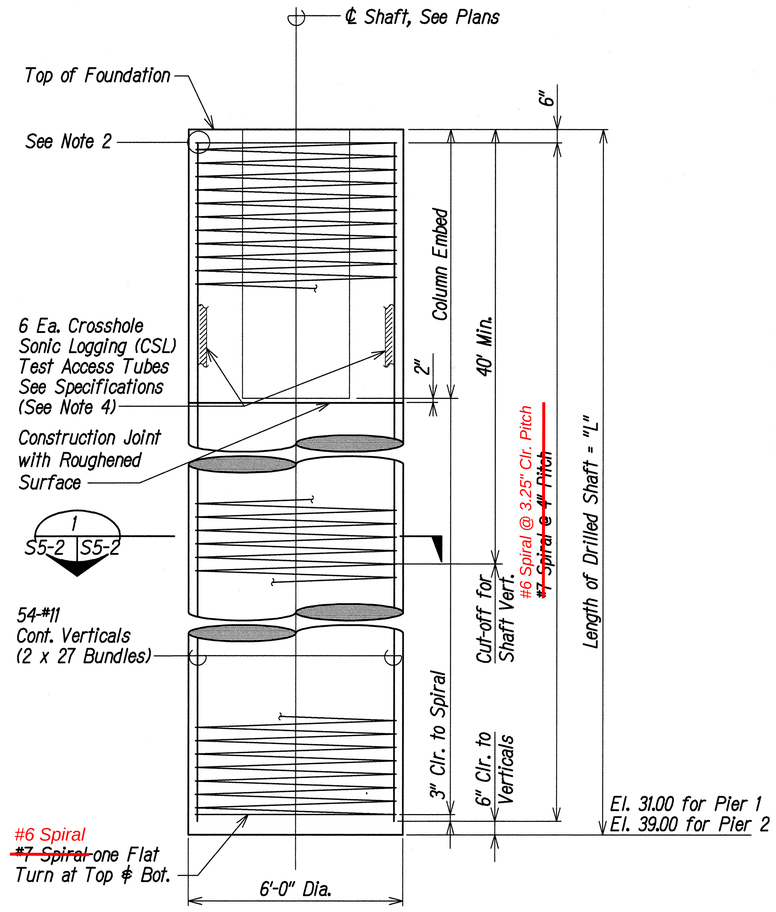
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/2" = 1'-0" Date: January 20, 2015

SHEET No. S5-1 OF 103 SHEETS

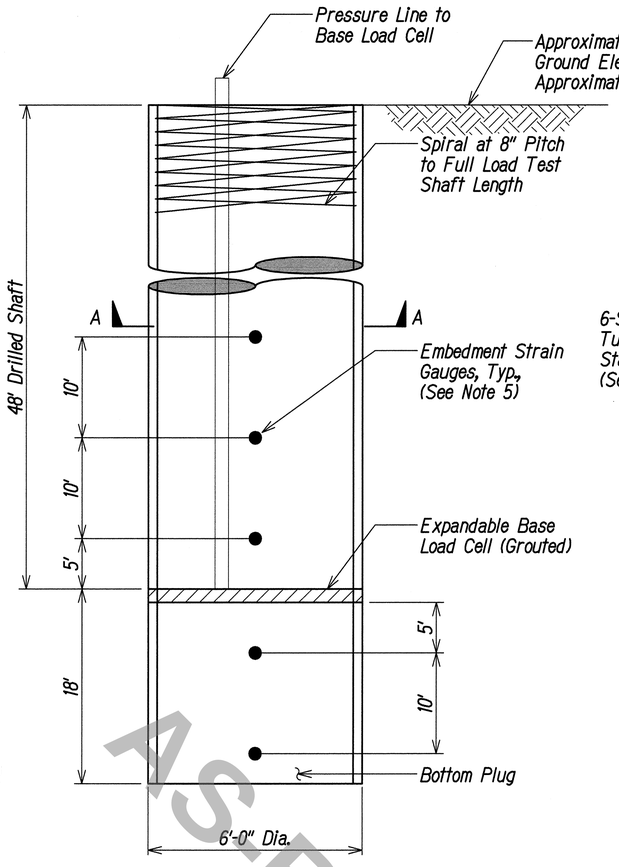
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	290	524



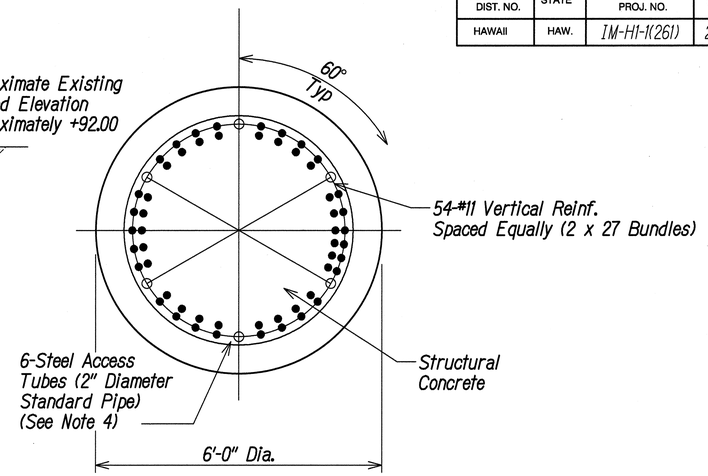
6'–0" DIA. DRILLED SHAFT ELEVATION (A)

Not To Scale — S5-2 | S5-2

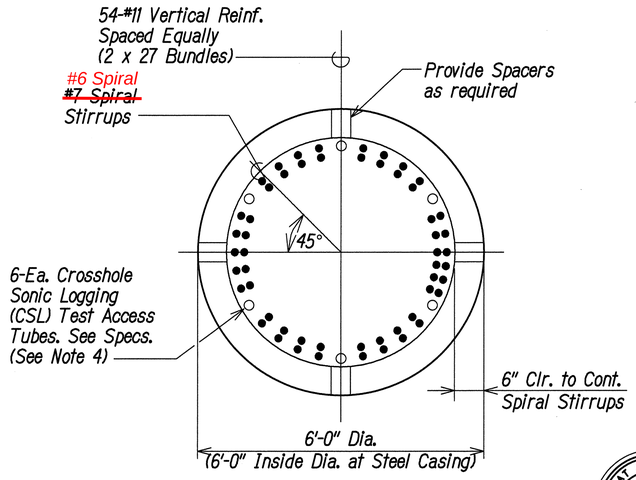


6'–0" DIA. DRILLED SHAFT LOAD TEST (B)

Not To Scale — S5-2 | S5-2



SECTION A–A



6'–0" DIA. SHAFT DETAIL/PLAN (1)

Scale: 1/2"=1'-0" — S5-2 | S5-2

Notes:

1. Contractor is Advised that Temporary Casing May be Required Due to Potential Caving In of Side Walls During Drilled Shaft Installation.
2. See Sheet S4-4 for Spiral Terminus and Splice Detail.
3. See Sheet S2-2 for Shaft Elevation.
4. Crosshole Sonic Logging Tubes Shall Extend Min 3'-6" Above Top of Shaft. Cut to Top of Shaft Upon Completing Shaft Construction.
5. Place 2 Embedment Strain Gauges 180 Degrees Apart at each Elevation Indicated on Drilled Shaft Load Test.

AS-BUILT

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

GRAPHIC SCALE:

2' 0 2' 4'

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

LICENSED PROFESSIONAL ENGINEER No. 10128 IZZAT H. HASAYEN HAWAII, U.S.A.

EXPIRES 4/30/16

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APRIL 30, 2016

PB PFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

6' DRILLED SHAFT DETAILS

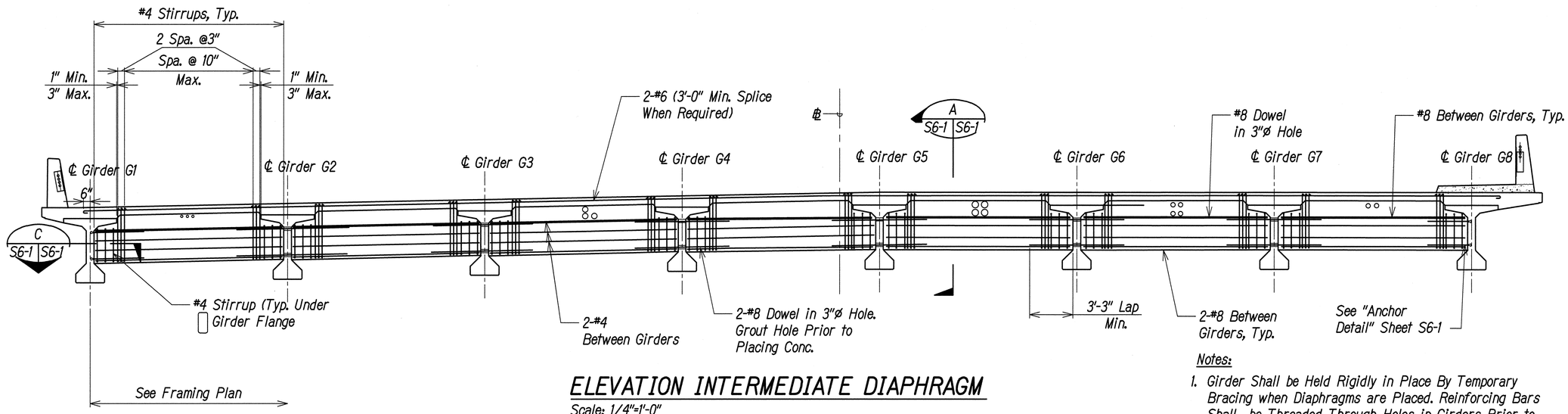
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1\2" = 1'-0" Date: January 20, 2015

SHEET No. S5-2 OF 103 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	291	524



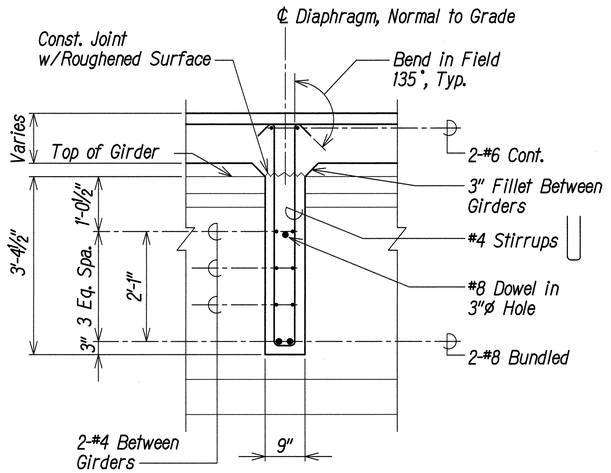
ELEVATION INTERMEDIATE DIAPHRAGM

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

- Elevation Shown Normal to ℄ Diaphragm.
- Shown Looking Ahead on Station.

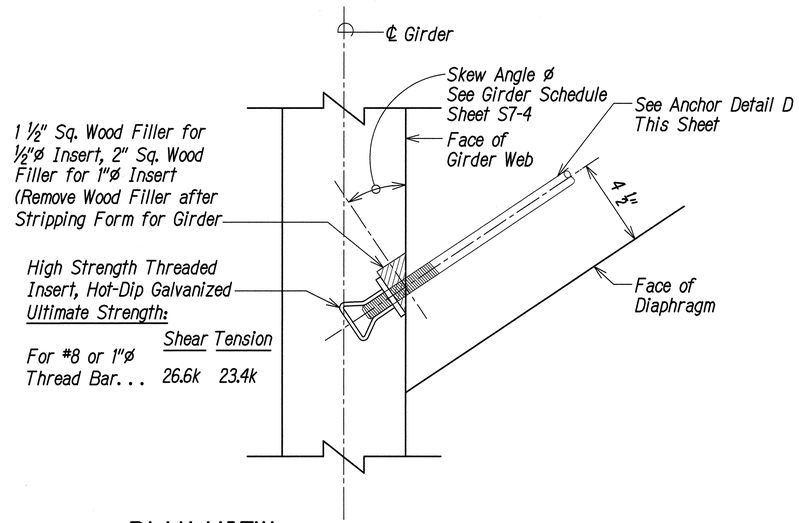
Notes:

1. Girder Shall be Held Rigidly in Place By Temporary Bracing when Diaphragms are Placed. Reinforcing Bars Shall be Threaded Through Holes in Girders Prior to Placing of Exterior Girders.
2. Longitudinal Dimensions are Normal to Skew.
3. See Electrical Conduit Details for Openings on Diaphragm. Adjust Reinforcing When Conflict with Utility Holes, but no Reduction on Reinforcement.



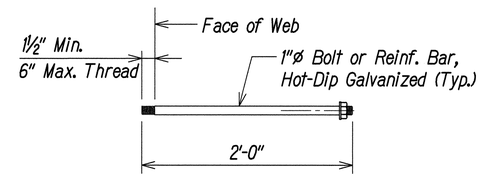
SECTION A

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



PLAN VIEW THREAD INSERT DETAIL C

Not To Scale



ANCHOR DETAIL D

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

GRAPHIC SCALE:

4' 0 4' 8'
SCALE: 1/4"=1'-0"

1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

1' 9" 6" 3" 0 1'
SCALE: 1 1/2"=1'-0"

IZZAT H. HASAFEN — LICENSED PROFESSIONAL ENGINEER — No. 10129 — HAWAII, U.S.A.
EXPIRES 4/30/16

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APRIL 30, 2016
KFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INTERMEDIATE DIAPHRAGM DETAILS

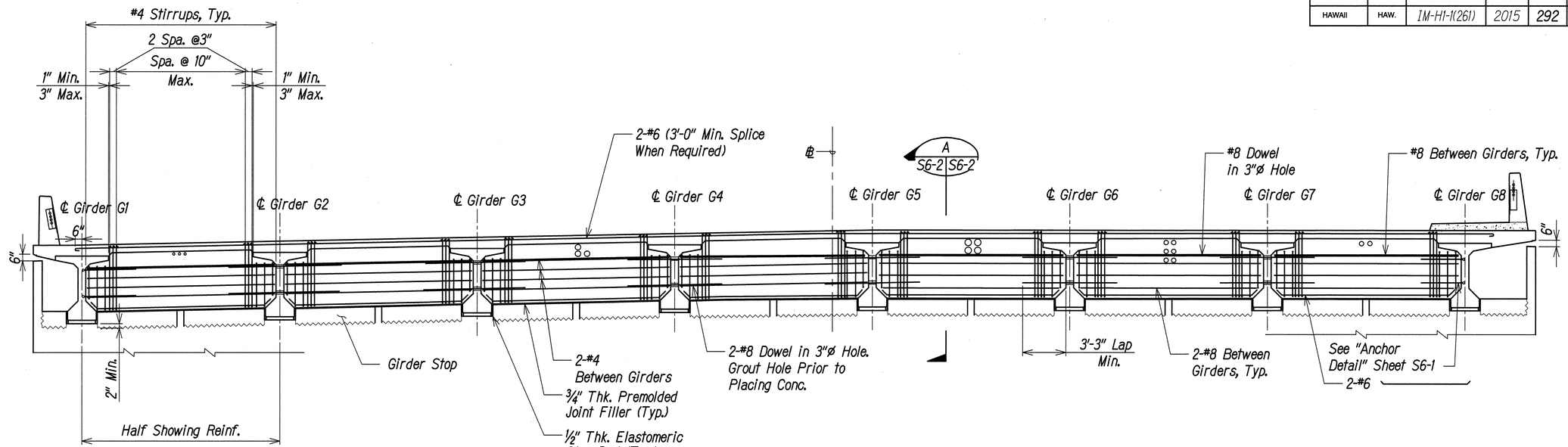
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S6-1 OF 103 SHEETS

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

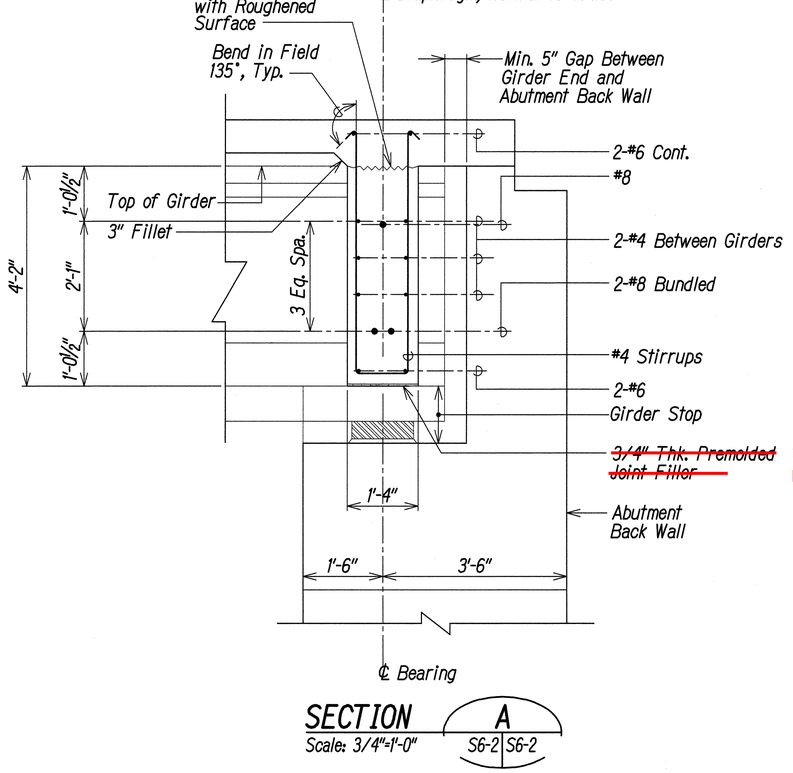
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	292	524



ELEVATION END DIAPHRAGM

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

- Elevation Shown Normal to ℄ Diaphragm.
- Shown Looking Ahead on Station.
- Diaphragm at Abutment No. 2 Shown, Similar at Abutment No. 1.



SECTION A

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

S6-2 S6-2

Notes:

1. Girder Shall be Held Rigidly in Place By Temporary Bracing when Diaphragms are Placed. Reinforcing Bars Shall be Threaded Through Holes in Girders Prior to Placing of Exterior Girders.
2. Longitudinal Dimensions are Normal to Skew.
3. See Electrical Conduit Details for Openings on Diaphragm. Adjust Reinforcing When Conflict with Utility Holes, but no Reduction on Reinforcement.

GRAPHIC SCALE:

4' 0 4' 8'
SCALE: 1/4"=1'-0"

1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

AS-BUILT

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END DIAPHRAGM DETAILS

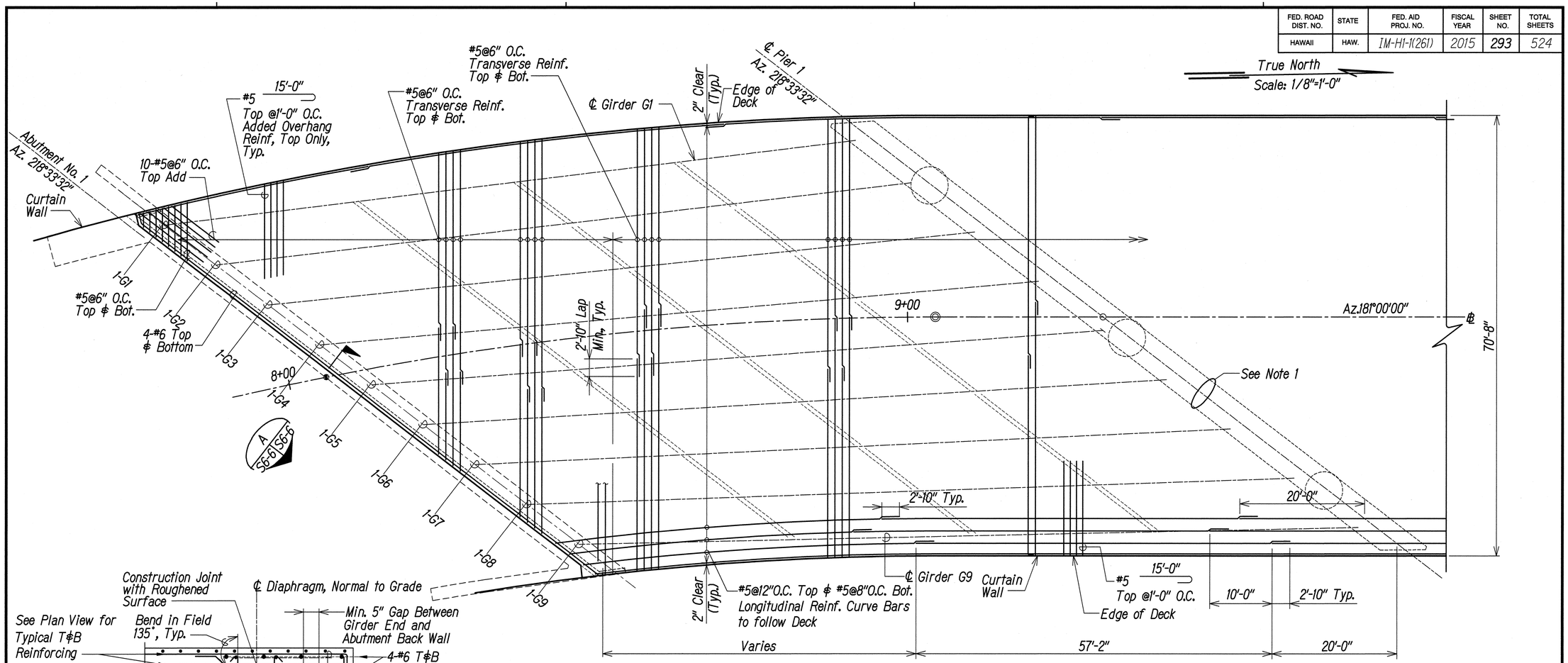
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S6-2 OF 103 SHEETS

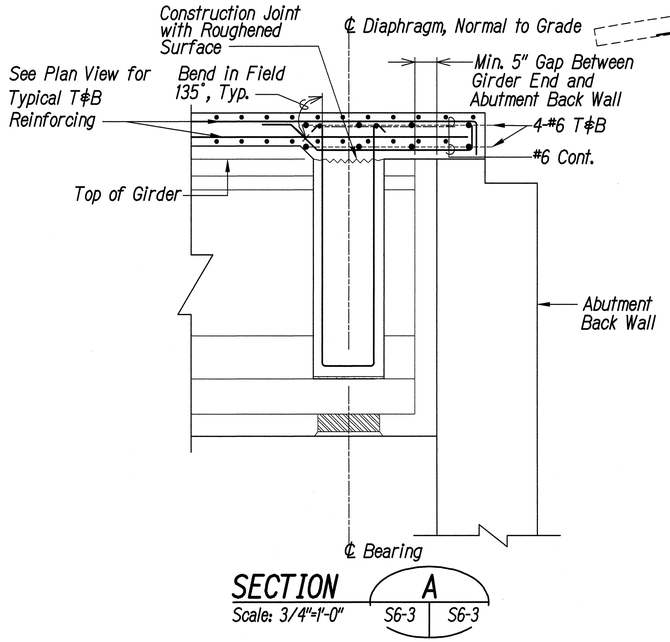
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	293	524



BRIDGE DECK TYPICAL REINFORCING (1)

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



SECTION A

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

S6-3 | S6-3

Notes:

1. For Additional Reinforcing over Piers refer to Sheet S6-6.
2. Additional Reinforcing for Bridge Railings not Shown for Clarity.
3. Adjust Longitudinal Reinforcement to Miss Girder Stirrups.
4. See Sheet S1-4 for Deck Pouring Sequence.

GRAPHIC SCALE:

8' 0 8' 16'
SCALE: 1/8"=1'-0"
1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

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

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LICENSED PROFESSIONAL ENGINEER
No. 10129
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

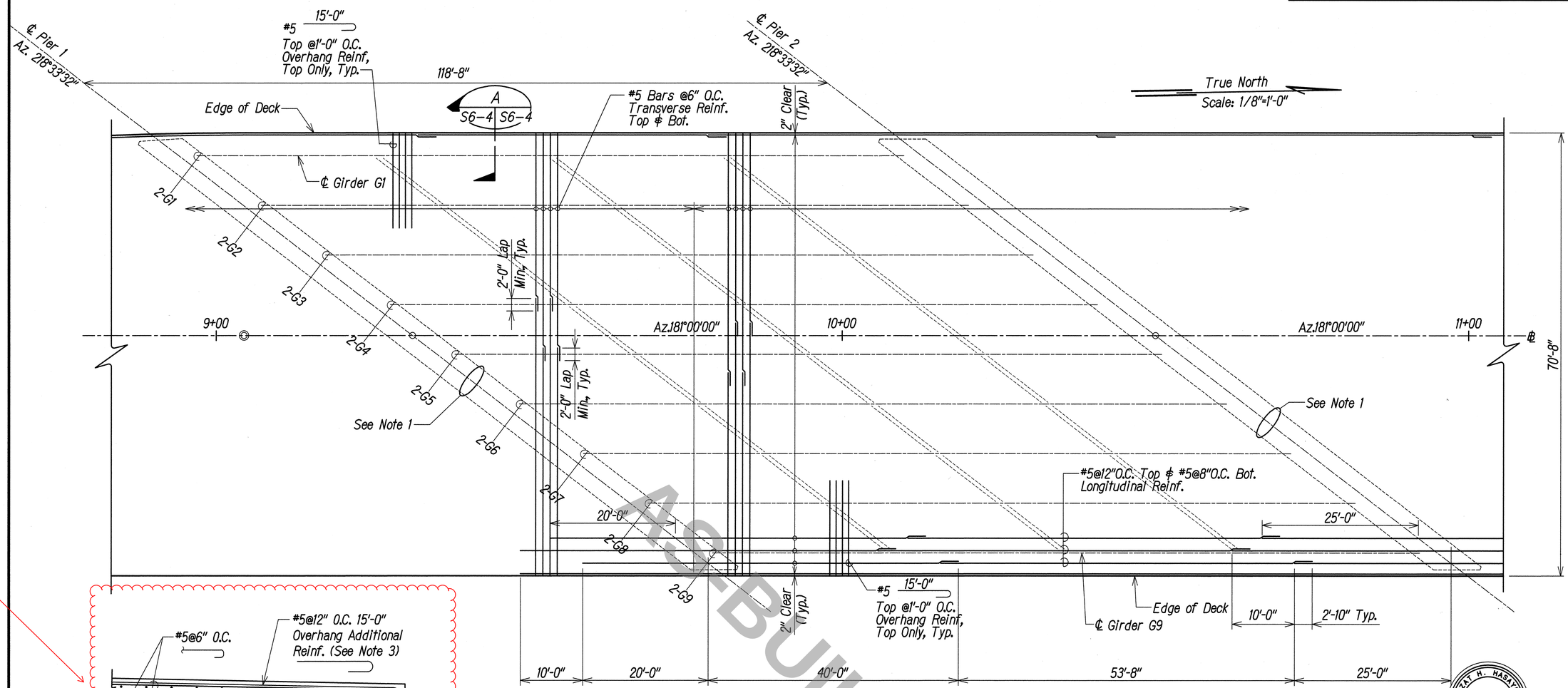
BRIDGE DECK REINFORCING (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S6-3 OF 103 SHEETS

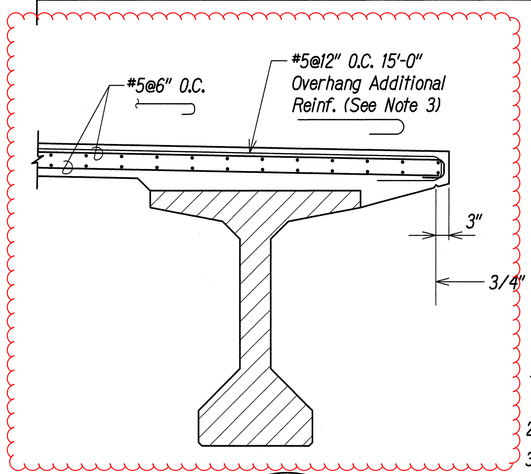
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	294	524



BRIDGE DECK TYPICAL REINFORCING (2)

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

See RFI 273 response



SECTION A

Scale: 3/4"=1'-0" S6-4 S6-4

Notes:

1. For Additional Reinforcing over Intermediate Piers refer to Sheet S6-6.
2. Rotate Hook as Necessary to Provide Specified Concrete Cover.
3. Additional Reinforcing for Bridge Railings not Shown for Clarity.
4. Adjust Longitudinal Reinforcement to Miss Girder Stirrups.

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

GRAPHIC SCALE:

8' 0 8' 16'
SCALE: 1/8"=1'-0"

1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

IZZAT H. HASAN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE DECK REINFORCING (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

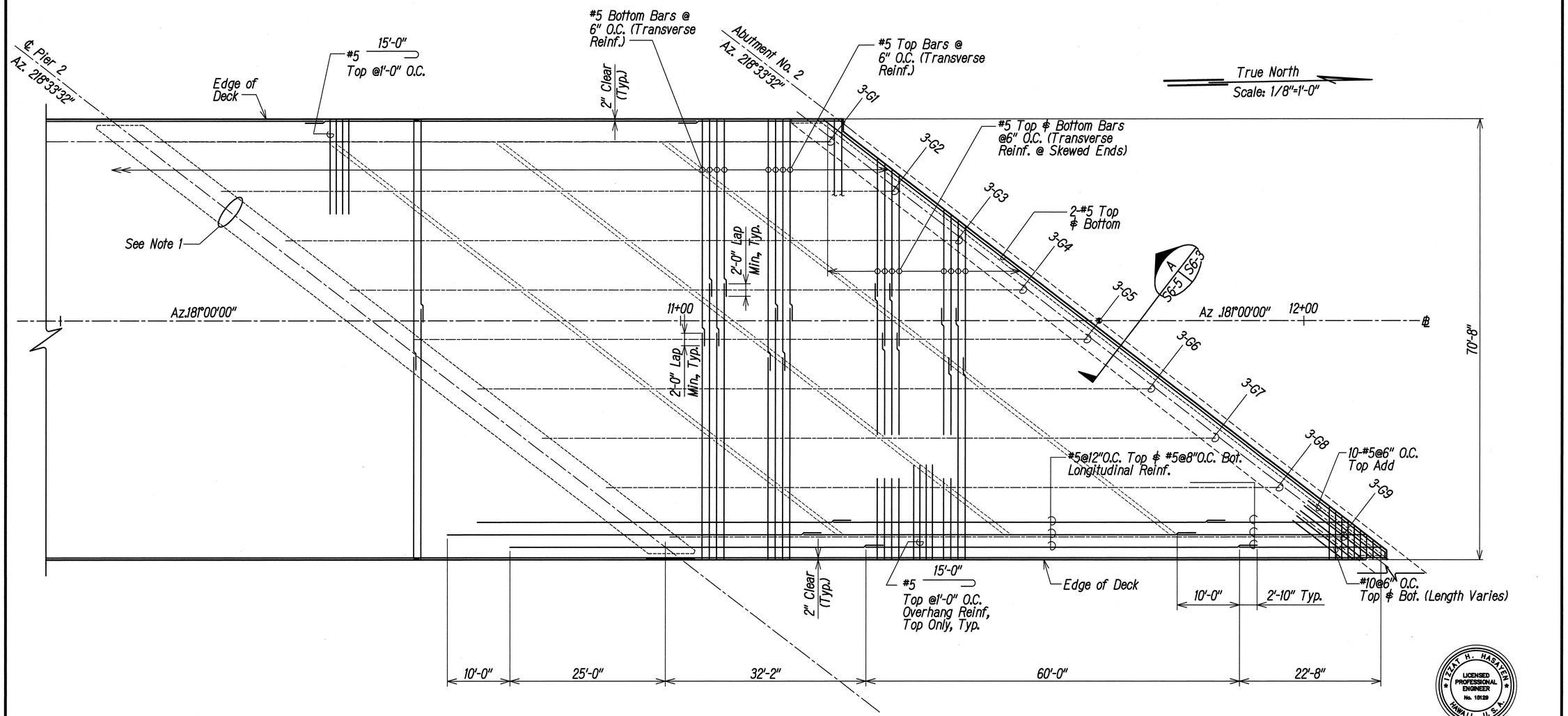
Scale: As Shown Date: January 20, 2015

SHEET No. S6-4 OF 103 SHEETS

AS-BUILT

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	295	524



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

ORIGINAL PLAN
NOTE BOOK
No.

Notes:

1. For Additional Reinforcing over Piers Refer to Sheet S6-6.
2. Additional Reinforcing for Bridge Railings not Shown for Clarity.
3. Adjust Longitudinal Reinforcement to Miss Girder Stirrups.

BRIDGE DECK TYPICAL REINFORCING (3)

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

GRAPHIC SCALE:
8' 0 8' 16'
SCALE: 1/8"=1'-0"

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 19139
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

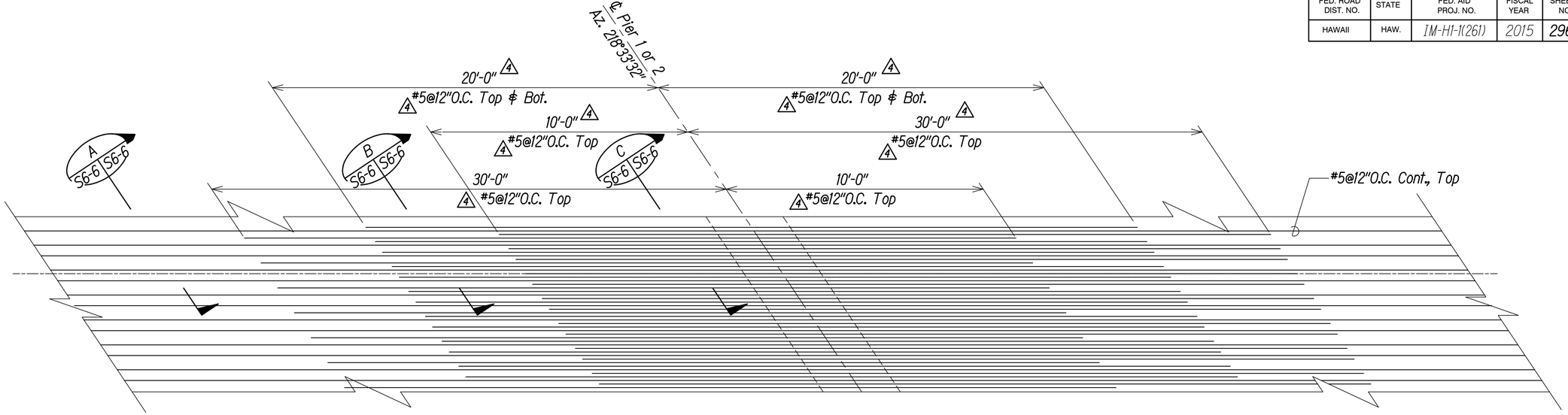
BRIDGE DECK REINFORCING (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: 1/8" = 1'- 0" Date: January 20, 2015

SHEET No. S6-5 OF 103 SHEETS

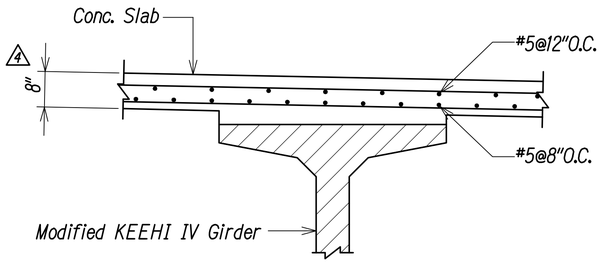
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	296	524



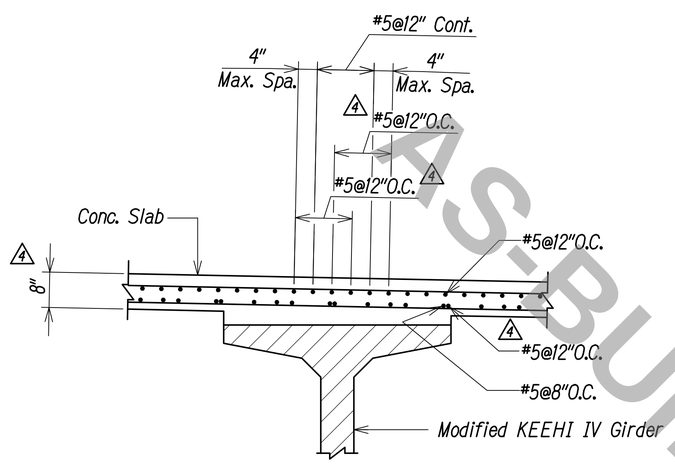
Note:
Bottom Mat Not Shown for Clarity.

DECK LONGITUDINAL REINFORCING AT PIERS

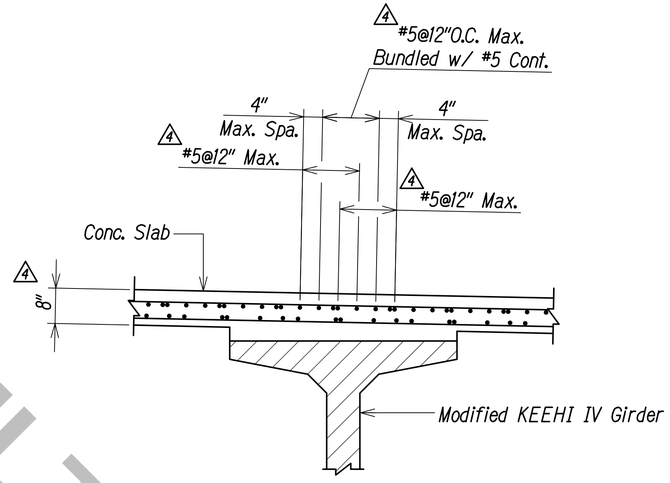
Not to Scale



SECTION A (S6-6 | S6-6)
Scale: 3/4"=1'-0"



SECTION B (S6-6 | S6-6)
Scale: 3/4"=1'-0"



SECTION C (S6-6 | S6-6)
Scale: 3/4"=1'-0"

AS-BUILT

Notes:
1. See Sheets S6-3, S6-4, and S6-5 for Typical Deck Reinforcing.

GRAPHIC SCALE:
1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

DATE	REVISION
4 3/10/17	Revisions to Accommodate a Thickened Deck

IZZAT H. HASAYEN
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No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DECK REINFORCING OVER GIRDERS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: Date: January 20, 2015

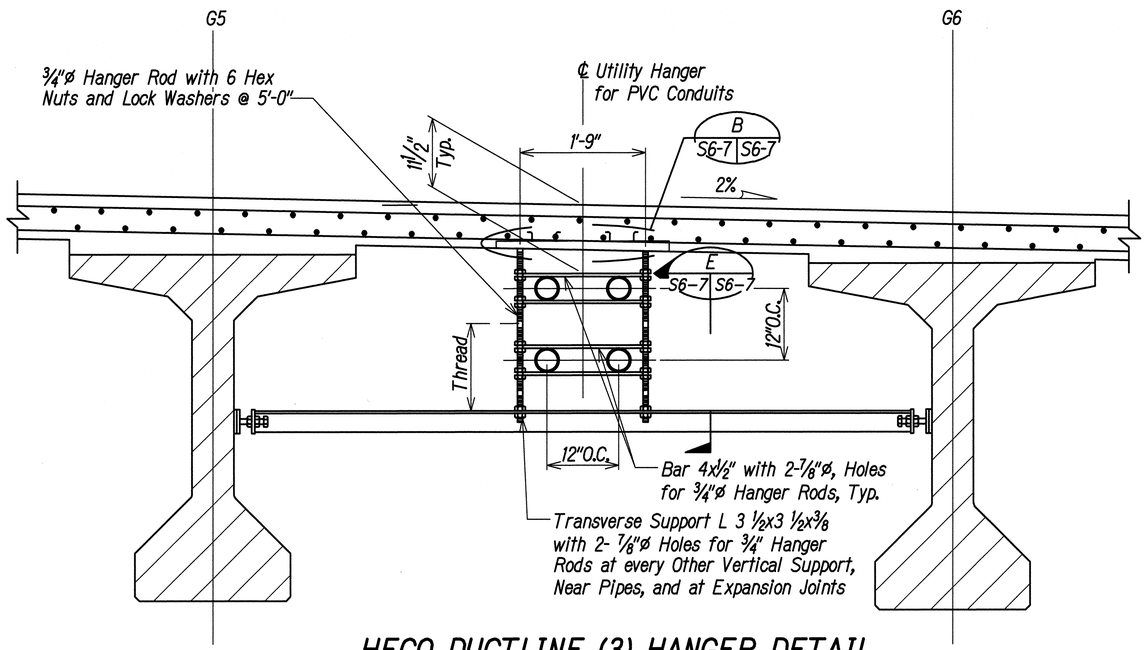
SHEET No. S6-6 OF 103 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY DATE
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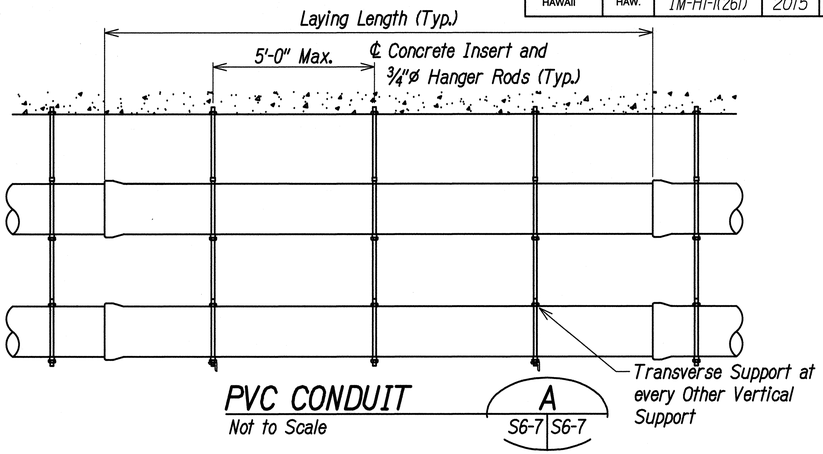
"AS-BUILT"

C.O. 296

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	297	524



HECO DUCTLINE (3) HANGER DETAIL
Scale: 1"=1'-0"



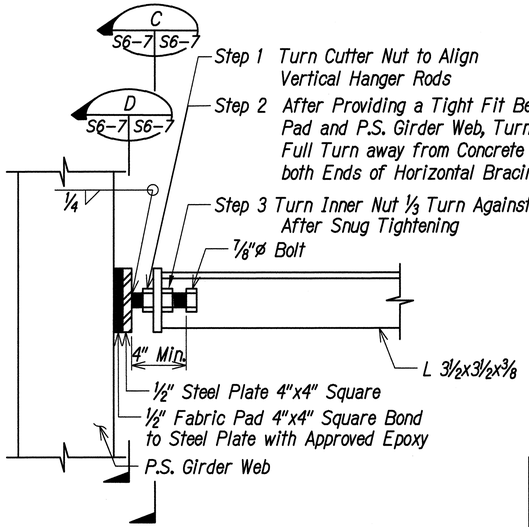
PVC CONDUIT
Not to Scale

A S6-7 | S6-7

DETAIL
Scale: 3"=1'-0"

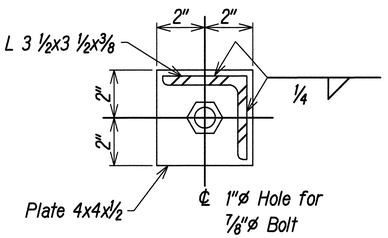
B S6-7 | S6-7

* Cooper B-Line B22-1-24SS, Powerstrut PS 349-2 ft.-SS, Unistrut P3256SS or Approved Equal (Typ.) with Spring Nut. Chase Threads on Hanger Rod for Thread Compatibility with Spring Nut. Insert to be Installed Level Longitudinally and Transversely. Place Insert to Provide for Transverse Adjustment of Hanger Rods. Hanger Rods shall not be Within 2" of the End of the Insert. Two Inserts may be Used to Accommodate Superelevation.



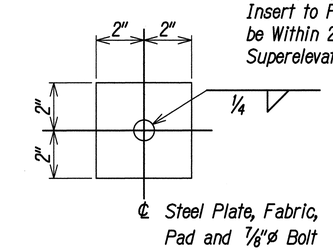
DETAIL
Not to Scale

1 S6-7 | S6-7



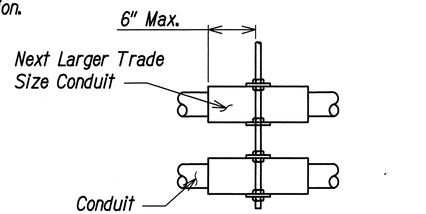
SECTION
Not to Scale

C S6-7 | S6-7



SECTION
Not to Scale

D S6-7 | S6-7



VIEW
Scale: 1"=1'-0"

E S6-7 | S6-7

Part	Material Specification
Hanger Rods	ASTM A276 Type 316 Stainless Steel
Nuts & Washers	ASTM F593 Type 316 Stainless Steel
Plates	ASTM A240 Type 316 Stainless Steel
Angles	ASTM A276 Type 316 Stainless Steel
Bolts	ASTM F593 Type 316 Stainless Steel

Notes:

1. HECO Ductline (3) Shown. Similar for Other Ductline.
2. See EE-1 thru EE-9 for Duct Turning Details.
3. Locate the Duct in the Middle of Two Girders.
4. Set Position of Expansion Fitting Based on Manufacturer Recommendations and Temperature at Time of Installation
5. Expansion Fittings shall be Installed every 100'-0" Max. and shall Accommodate 5.1 Inches of Movement. The Design Temperature Range is 125° (-15° to 110°).
6. See Electrical Plans for Conduit Deflection Fitting Detail.

GRAPHIC SCALE:

1' 6" 0 1' 2'
SCALE: 1"=1'-0"

4" 0 4" 8"
SCALE: 3"=1'-0"

IZZAT H. HASAIEN * LICENSED PROFESSIONAL ENGINEER No. 15129 * HAWAII, U.S.A.

EXPIRES 4/30/16

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KFFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT BANK STRUCTURAL DETAILS (1)

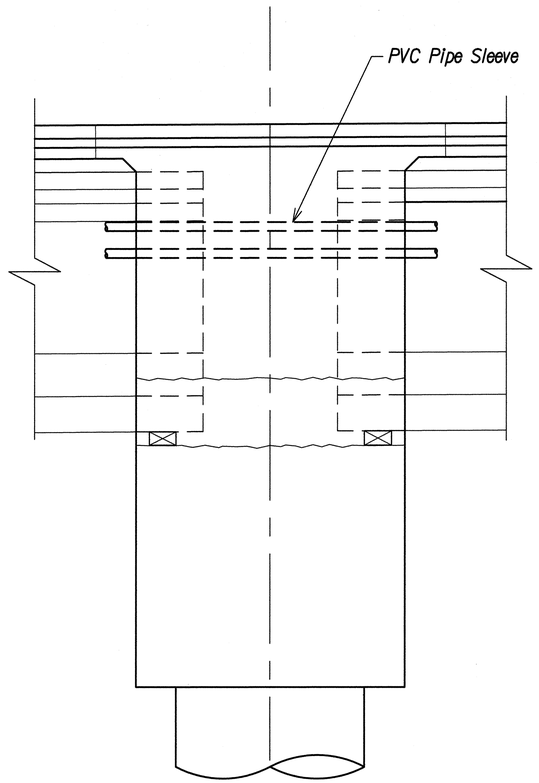
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S6-7 OF 103 SHEETS

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

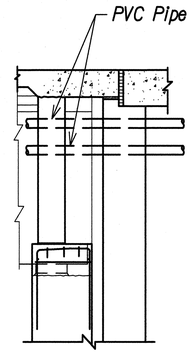
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	298	524



DUCT BANK CROSSBEAM PENETRATION DETAIL A

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

S6-8 | S6-8



DUCT BANK ABUTMENT PENETRATION DETAIL B

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

S6-8 | S6-8

Notes:

1. Heco Ductline (3) shown. Similar for Other Ductlines.
2. PVC Pipe Sleeves Shall be the Next Size Larger Trade Size Conduit. Adjust Reinforcement Without a Reduction in Reinforcement.
3. See EE-1 thru EE-9 for Duct Turning Details.

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

GRAPHIC SCALE:

1' 0 1' 2' 3'

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

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER No. 10129 * HAWAII, U.S.A.

EXPIRES 4/30/16

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APRIL 30, 2016

KFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT BANK STRUCTURAL DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 3/4" = 1'-0" Date: January 20, 2015

SHEET No. S6-8 OF 103 SHEETS

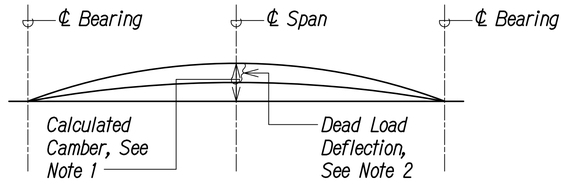
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	299	524

PRESTRESSED GIRDER NOTES:

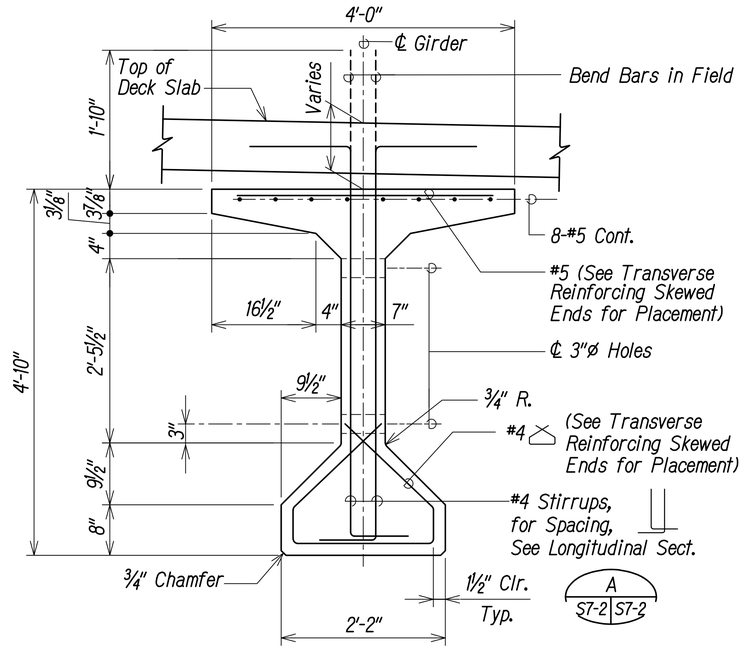
1. Concrete shall have a Minimum Ultimate 28 Day Compressive Strength (f'_c) of 9000 Psi. Minimum Compressive Strength before release of Strands (f'_{ci}) is 7500 PSI.
2. Prestressing Strands are 0.6 Inch Diameter, 7 Wire Low-Relaxation Steel Strands (Area = 0.217 in^2) with an Ultimate Strength of 270 KSI, and shall Conform to ASTM A416.
3. Total Long Term Losses due to Creep, Shrinkage, Elastic Shortening and Relaxation of Steel Determined per AASHTO LRFD, Bridge Design Specifications, Fifth Edition, 2010, Section 5.9.5.
4. Strands shall be released in such a Manner as to Minimize Lateral Eccentricity.
5. Care shall be taken during Curing, Transportation and Erection to avoid any Lateral Deflection of the Girder.
6. Lifting Devices or other Embedded Items used to Lift and Transport the Girders shall be located as Shown on Plan Section A. The Girder Supplier shall Submit Details Indicating the Adequate Type, and Location of Lifting Devices for Approval. Approval by the Engineer does not relieve the Contractor of his Responsibilities if the Girder is Damaged due to Failure of the Lifting Devices.
7. Reinforcing Steel to Conform to ASTM A615 Grade 60, Unless Otherwise Noted.
8. Strand Pattern shall be Symmetrical about the Longitudinal Centerline of the Girders.
9. The Contractor shall Submit the Proposed Strand Pattern and Releasing Sequence to the Engineer for approval.
10. The Contractor shall Incorporate all Holes, Inserts, and other Embedded Items Required in Girders during Fabrication of the Girders.
11. End of Girder shall be Plumb after Erection.
12. Top of Concrete Seat shall be within One-sixteenth of an inch of the Theoretical Elevation and Slope Indicated.
13. For Modified KEEHI IV Girders, the Contractor shall measure and Record Slippage of Strands. Slippage is the amount of Movement that a Point on the Strand at the end of the Girder Recedes into the Member after Detensioning. For Slippage Monitoring Purposes, prior to Detensioning, Reference Marks shall be made on the Strands not more than two inches from the Surface of the Member end. The Movement of the Reference Mark shall be Measured to One-sixteenth of an inch.
14. After Detensioning, the Strand Reference Marks shall be Preserved to Permit Measurements of Strand Movement to the Time the Strands are made Flush with the Member. The Contractor shall Submit his Proposed Method of Strand Slippage Measurement with the Shop Drawings. The Engineer will Monitor the Contractor's Method of Measurement and the Slippage Values Obtained.
15. Measurement and Recording of Slippage of Strands shall be Incidental to Modified KEEHI IV Girders.
16. Contractor is Responsible to Provide Adequate Lateral Bracing of Girders During all Phases of Construction Including Transporting, Placing, Erecting and Casting of other Members.

GIRDER CAMBER NOTES:

1. The Calculated Camber Includes the Effect of the Initial Prestress Force and the Weight of the Girder after Removal from the Bed. Negative Values shown for Calculated Camber Indicate a Net Upward Deflection. The Calculated Camber Value has been Multiplied by Applicable Factors provided in PCI Handbook 6th Edition Table 4.8.4.1 to approximate the Effect of Camber Growth and Concrete Creep. The Actual Camber shall not exceed the Calculated Camber by more than One inch.
2. The Dead Load Deflection Includes the Combined Effects of the Weight of Slab, Haunches, Diaphragms and Superimposed Dead Load as Applicable. See Table on Sheet S7-4.
3. Contractor shall Camber the Deck Form Work as required to Account for the Calculated Dead Load Deflection in order to provide the Specified Finish Deck Elevations.
4. All Cambers and Deflections are in inches.



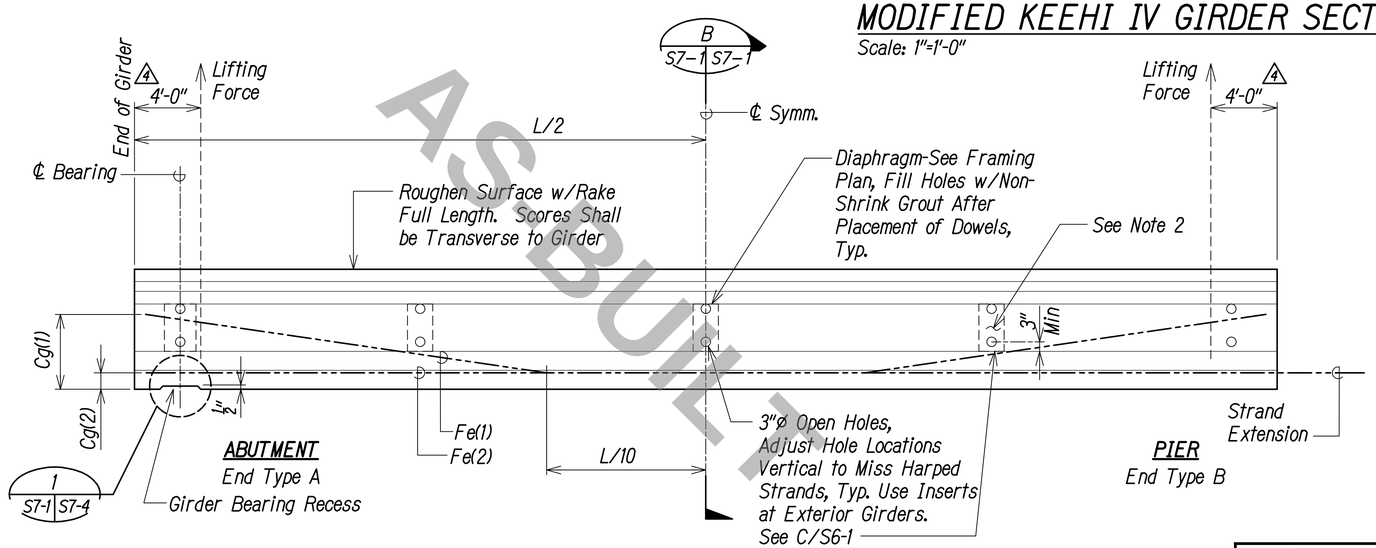
GIRDER CAMBER DIAGRAM
Not To Scale



MODIFIED KEEHI IV GIRDER SECTION B

Scale: 1"=1'-0"

S7-1 S7-1



MODIFIED KEEHI IV GIRDER LONGITUDINAL SECTION A

Not To Scale

S7-1 S7-1

AS-BUILT

GRAPHIC SCALE:

1' 6" 0 1' 2'

SCALE: 1"=1'-0"

Notes:

1. Prestressing Strands not shown for Clarity.
2. Apply Approved Retardant for ¼" Etch to Sideforms or ¼" roughened Surface Treatment by Approved Mechanical Method at Face of Webs Connecting to Diaphragms.

	DATE	REVISION
4	3/10/17	Update Lifting Point

SURVEY PLOTTED BY — DATE
DRAWN BY
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QUANTITIES BY
CHECKED BY
ORIGINAL PLAN
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No.

IZZAT H. HASAYEN — LICENSED PROFESSIONAL ENGINEER — No. 15129 — HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GIRDER DETAILS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

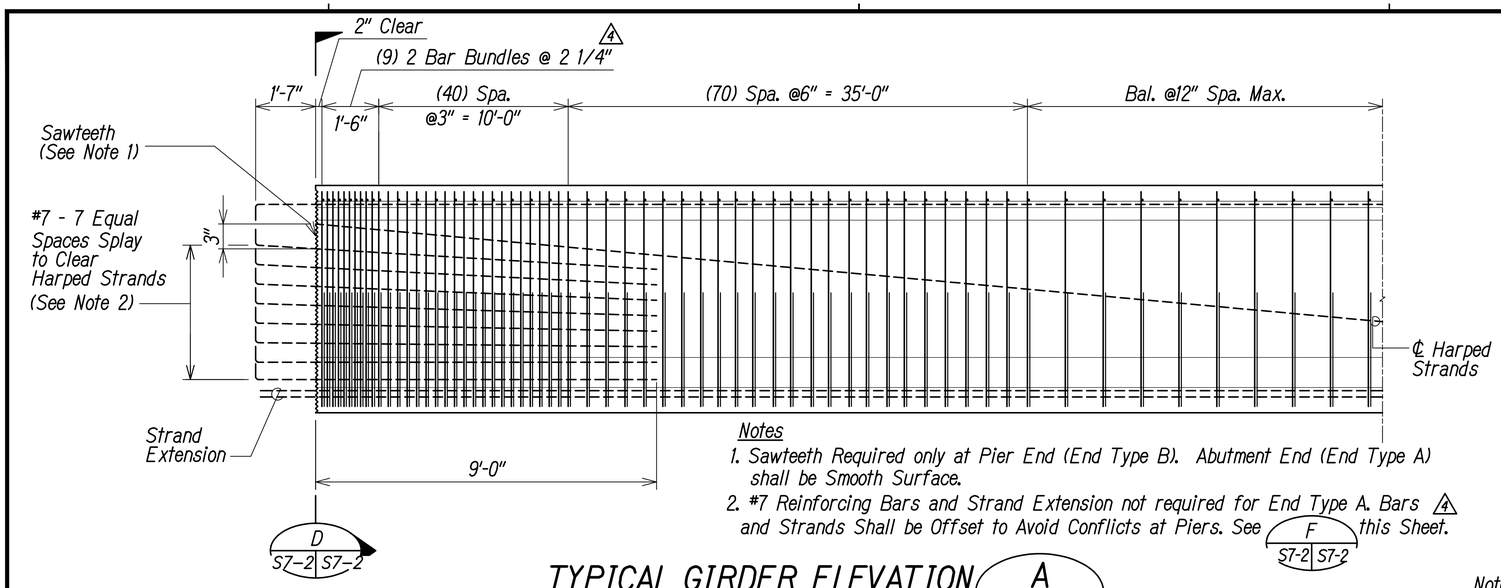
Scale: Date: January 20, 2015

SHEET No. S7-1 OF 103 SHEETS

"AS-BUILT"

C.O. 299

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	300	524

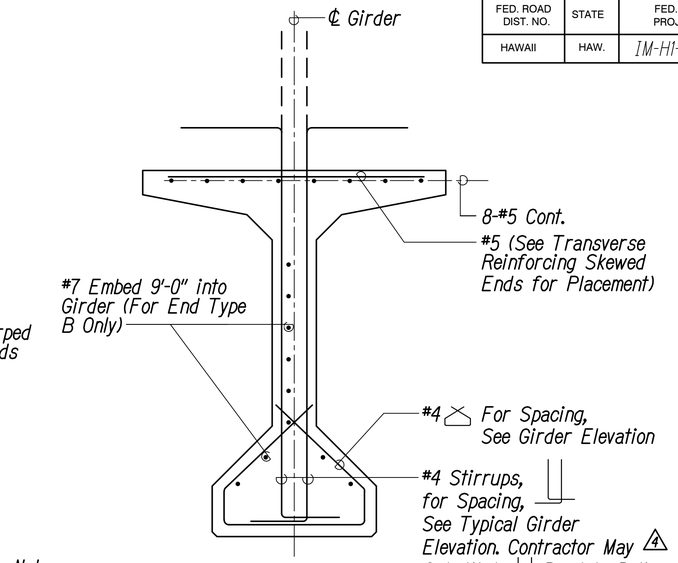


Notes

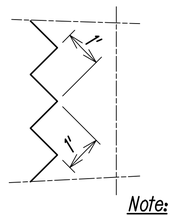
1. Sawteeth Required only at Pier End (End Type B). Abutment End (End Type A) shall be Smooth Surface.
2. #7 Reinforcing Bars and Strand Extension not required for End Type A. Bars and Strands Shall be Offset to Avoid Conflicts at Piers. See F S7-2 S7-2 this Sheet. 4

TYPICAL GIRDER ELEVATION — A (S7-2 S7-2)

Not To Scale



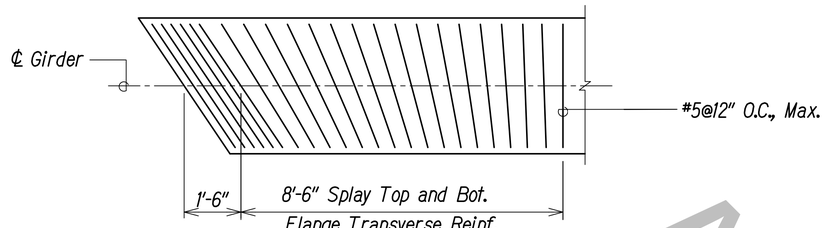
Note:
Prestressing Strands not Shown for Clarity, for Balance of Reinf. Info see S7-1.



Note:
Remove for Ends at Abutments.

SAWTOOTH DETAILS — C (S7-2 S7-2)

Not To Scale

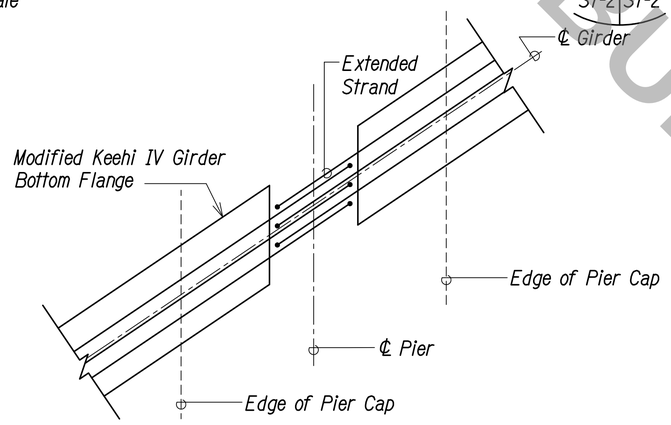


Notes:

1. Only Transverse Reinf. Shown
2. Refer to Typical Girder Elevation Transverse Reinforcement Spacing.

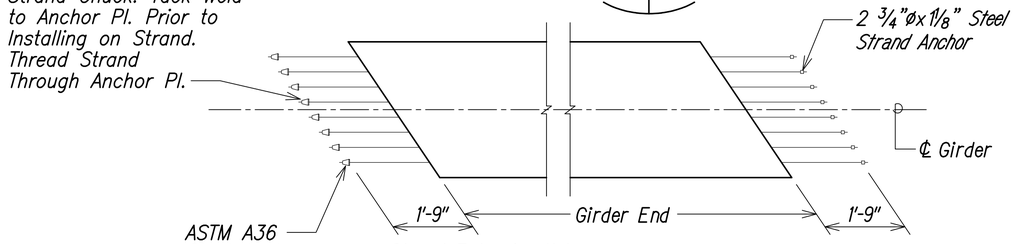
TRANSVERSE REINFORCING SKEWED ENDS — B (S7-2 S7-2)

Not To Scale



GIRDER END VIEW — D (S7-2 S7-2)

Scale: 1" =1'-0"



Strand Extension Notes:

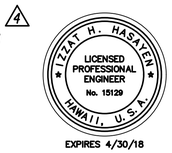
1. Anchor Strand with Two Piece Wedges Before Girder Erection. Verify Wedges are Seated Tightly Immediately Before Placing Diaphragm Concrete.

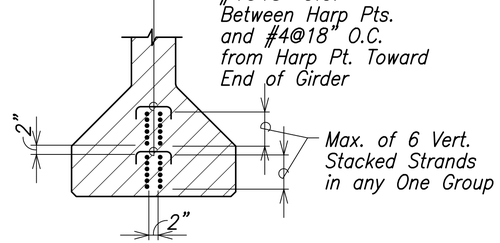
ALTERNATE #1

2. Extend Eight Straight Strands of Prestressing at Girder End Type B. Extended Strands Shall be Symmetric About ℄ of Girder and not Conflict with Adjacent Girder. See F S7-2 S7-2

ALTERNATE #2

4





BUNDLED PRESTRESSING REINFORCEMENT DETAIL — E (S7-2 S7-2)

Scale: 1"=1'-0"

TYPICAL GIRDER END DETAIL (PLAN) — F (S7-2 S7-2)

Scale: 1"=1'-0"

STRAND EXTENSION DETAIL — G (S7-2 S7-2)

Not To Scale

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APRIL 30, 2018
PKPFF CONSULTING ENGINEERS LIC. EXP. DATE

GRAPHIC SCALE:
1' 6" 0 1' 2'
SCALE: 1"=1'-0"

DATE	REVISION
4 3/10/17	Update Stirrup and Strand Layout

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GIRDER DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. S7-2 OF 103 SHEETS

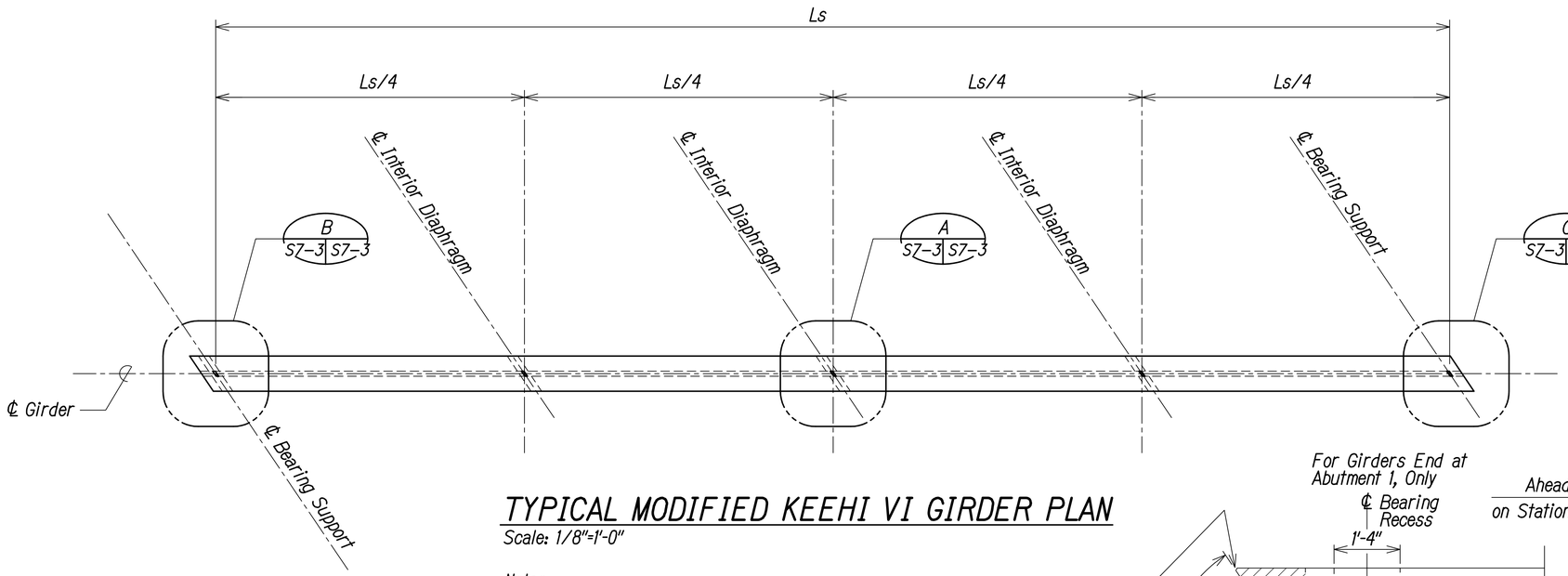
ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY DATE
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

AS-BUILT

"AS-BUILT"

C.O. 300

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	301	524

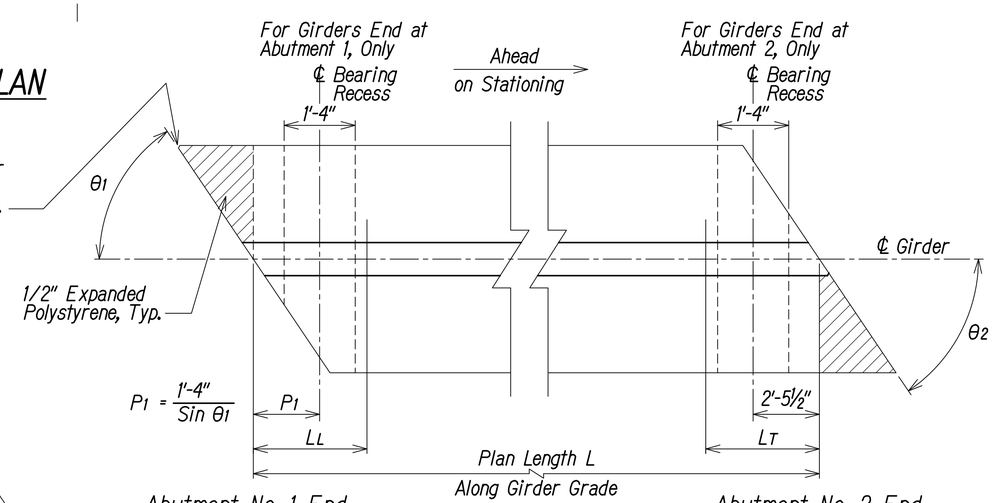


TYPICAL MODIFIED KEEHI VI GIRDER PLAN

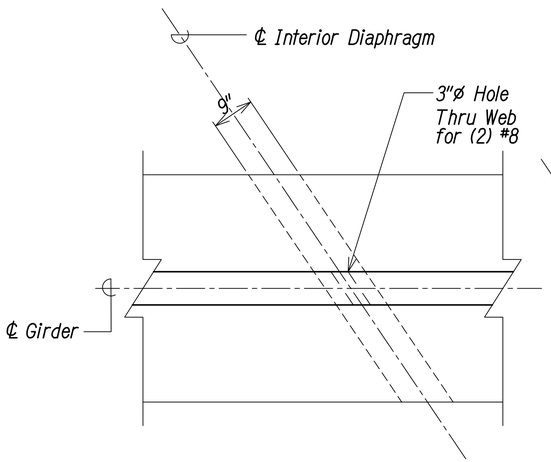
Scale: 1/8"=1'-0"

Notes:
1. For Exterior Girders Omit Holes, Use Inserts Shown on S6-1.

Notes:
1. At Diaphragm Location, Apply Approved Retardant for 1/4" Etch to Side Forms or 1/4" Roughened Surface Treatment by Approved Mechanical Method. Omit at Exterior Face of Exterior Girders.
2. See Intermediate Diaphragm Details for Anchor Bars on Exterior Girders.



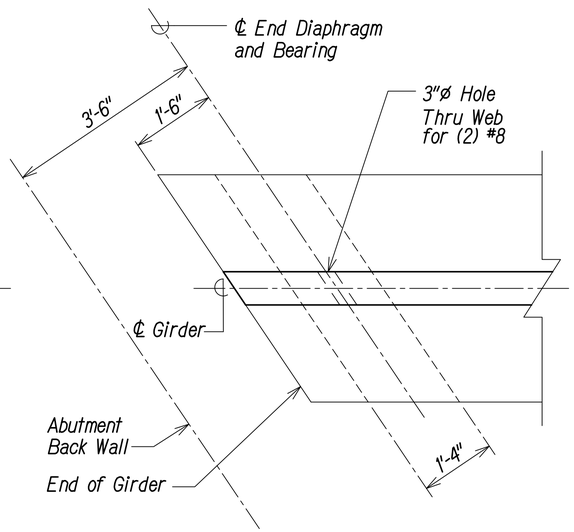
NOTE:
LL and LT are Shipping Support Locations at Leading and Trailing Ends, Respectively.
LL and LT = 5 ft.



DETAIL A

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

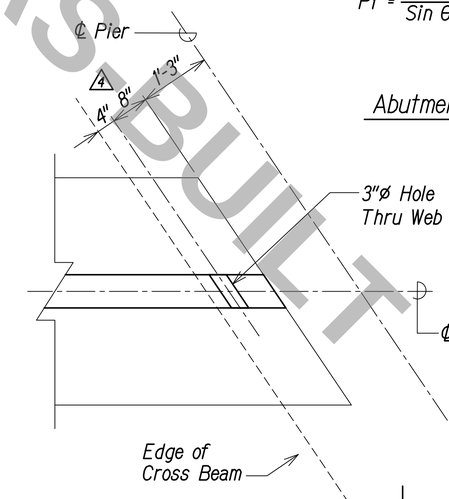
S7-3 | S7-3



DETAIL B

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

S7-3 | S7-3



DETAIL C

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

S7-3 | S7-3

BEARING RECESS DETAIL D

Not to Scale

S7-3 | S7-3

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KPFF CONSULTING ENGINEERS — APRIL 30, 2018 LIC. EXP. DATE

GRAPHIC SCALE:

8' 0 8' 16'
SCALE: 1/8"=1'-0"

1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

DATE	REVISION
4 3/10/17	Update Detail C

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GIRDER DETAILS (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

SHEET No. S7-3 OF 103 SHEETS

ORIGINAL PLAN
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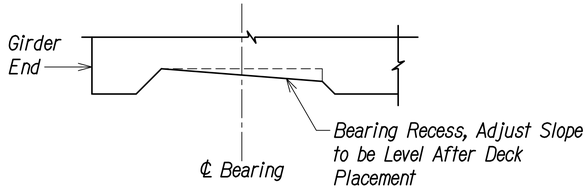
AS-BUILT

"AS-BUILT"

C.O. 301

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	302	524

Girder Mark	Plan Length Along Girder Grade (ft)	Angle Between Girder ℄ and Pier ℄		End 1 Type	End 2 Type	Girder Slope	No. Straight Strands	Straight Strands Jacking Force (kips)	Straight Strand Eccentricity to Girder Bottom (in)	No. Harped Strand	Harped Strand Jacking Force (kips)	Harped Strand Eccentricity to Girder Bottom at Mid Span (in)	Harped Strands Eccentricity to Girder Bottom at Girder End (in)	Calculated Camber at 40 Days (in)	Calculated Camber at 120 Days (in)	Calculated Dead Load Deflection (in)
		Θ1 (Deg)	Θ2 (Deg)													
	L							Fe (2)	cg (2)		Fe (1)		cg (1)			
Span 1																
G1	114.16	44.80	44.80	A	B	2.14%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.448	-5.148	2.363
G2	116.25	43.78	43.78	A	B	2.10%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.526	-5.238	2.315
G3	118.39	42.80	42.80	A	B	2.09%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.599	-5.323	2.424
G4	120.55	41.85	41.85	A	B	2.09%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.668	-5.402	2.396
G5	122.76	40.94	40.94	A	B	2.09%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.731	-5.476	2.455
G6	124.99	40.06	40.06	A	B	2.10%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.789	-5.524	2.870
G7	127.25	39.21	39.21	A	B	2.12%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.839	-5.601	3.061
G8	129.53	38.39	38.39	A	B	2.11%	34	1494.00	5.375	18	791.00	6.0	46.0	-4.882	-5.651	2.939
Span 2																
G1	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	1.767
G2	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	2.011
G3	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	2.009
G4	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	2.000
G5	119.59	37.56	37.56	B	B	2.09%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	2.000
G6	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	2.004
G7	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	2.000
G8	119.59	37.56	37.56	B	B	2.07%	30	11318.28	4.875	14	615.20	5.0	48.0	-3.781	-4.376	1.772
Span 3																
G1	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.600
G2	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.795
G3	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.795
G4	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.718
G5	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.718
G6	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.876
G7	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.877
G8	106.44	37.56	37.56	B	A	2.07%	24	1054.62	4.375	12	527.31	5.0	48.0	-2.618	-3.030	1.691



GIRDER BEARING RECESS — 1 (S7-1 | S7-4)

Not To Scale

AS-BUILT

	DATE	REVISION
5	6/14/17	Moved Pier No. 2
4	3/10/17	Revisions to Accommodate Thickened Deck

IZZAT H. HASAYEN — LICENSED PROFESSIONAL ENGINEER — No. 15129 — HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GIRDER DETAILS (4)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: Date: January 20, 2015

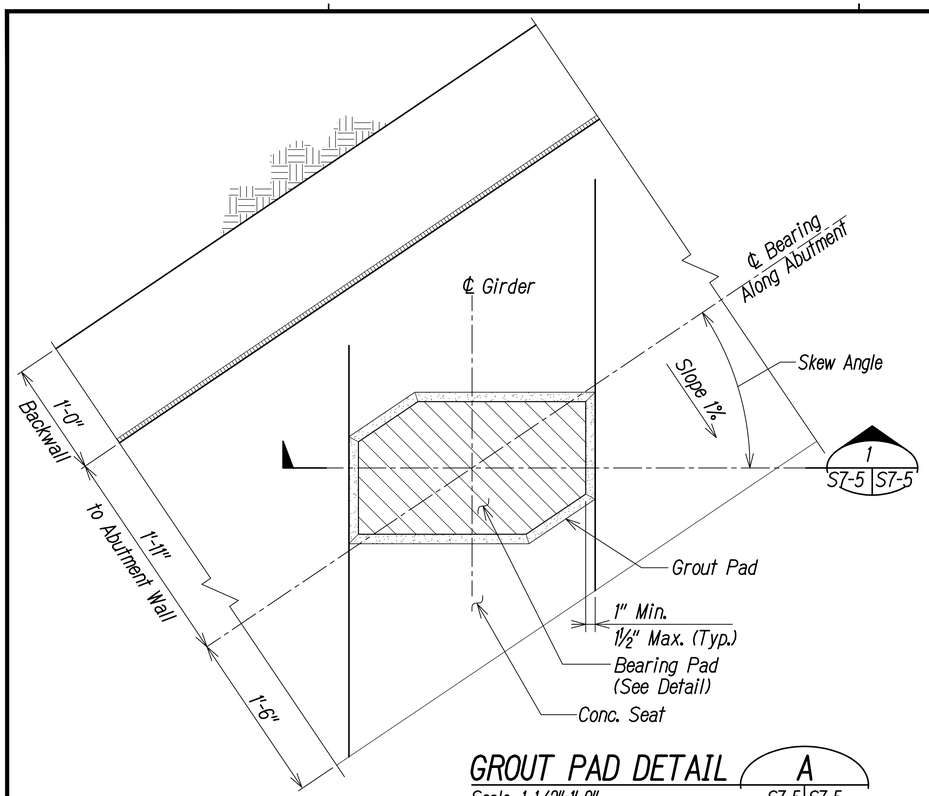
SHEET No. S7-4 OF 103 SHEETS

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

"AS-BUILT"

C.O. 302

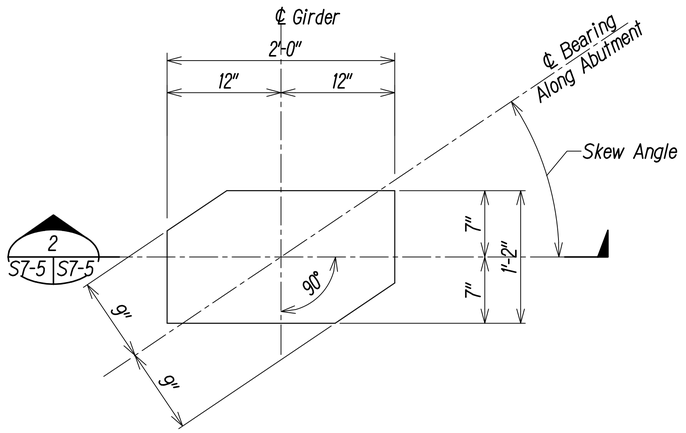
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	303	524



GROUT PAD DETAIL A

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

S7-5 | S7-5

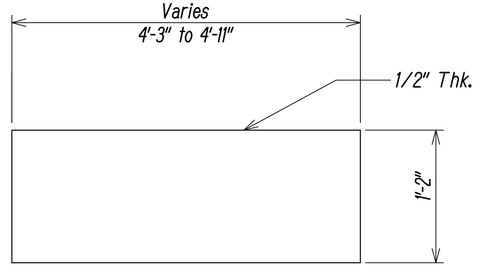


ELASTOMERIC BEARING PAD B

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

S7-5 | S7-5

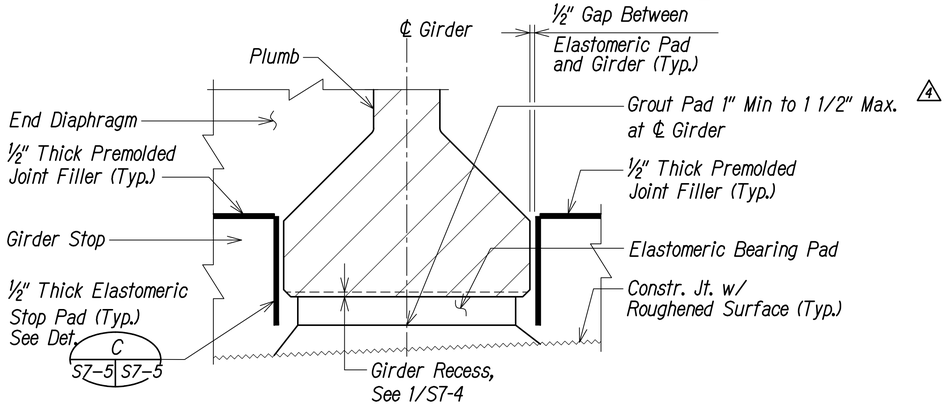
Durometer Hardness = 60(±)



ELASTOMERIC STOP PAD ELEVATION C

Not To Scale

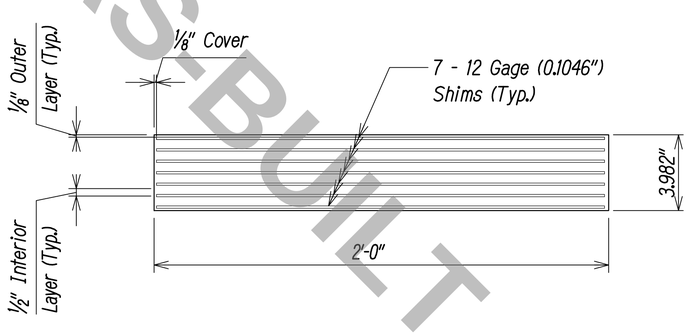
S7-5 | S7-5



SECTION 1

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

S7-5 | S7-5



SECTION 2

Scale: 3"=1'-0"

S7-5 | S7-5

AS-BUILT

GRAPHIC SCALE:

1' 9" 6" 3" 0 1'

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

6" 4" 2" 0 6"

SCALE: 3"=1'-0"

Notes:

1. Girder Stops Shall be Constructed after Placement of Prestressed Girders.
2. Elastomeric Pads Between Girder and Girder Stops shall be Placed after Constructing the Girder Stops. The Pads shall be Coated with Approved Cementitious Adhesive Prior to Installation.
3. Bearing Pad Shall be Level After Placement.
4. Elastomeric Stop Pads Shall Conform to the Requirements of the Specifications, Section 712-09(C) Elastomeric Bearing Pad.

	DATE	REVISION
⚠4	3/10/17	Update Grout Pad Thickness

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LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BEARING DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

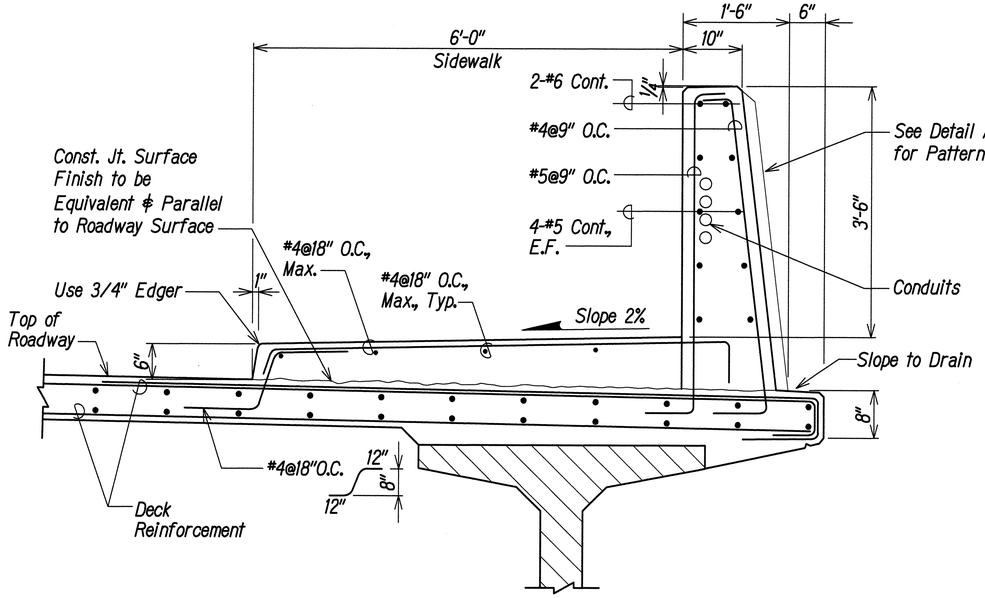
SHEET No. S7-5 OF 103 SHEETS

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

"AS-BUILT"

C.O. 303

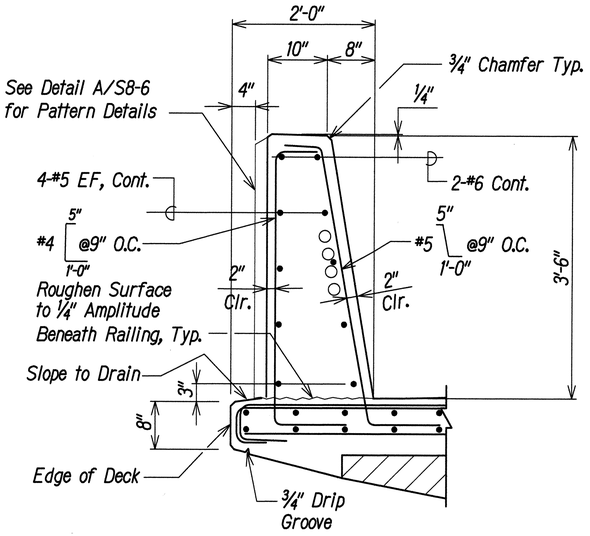
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	304	524



TYPICAL SIDEWALK AND TYPE 2 BRIDGE RAILING SECTION — 1 (S8-1 | S8-1)

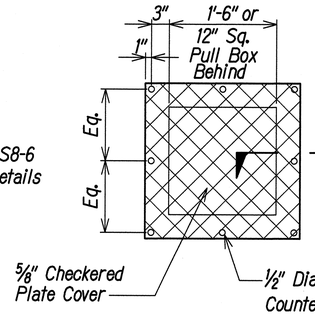
Scale: 1"=1'-0"

S2-11, S2-12

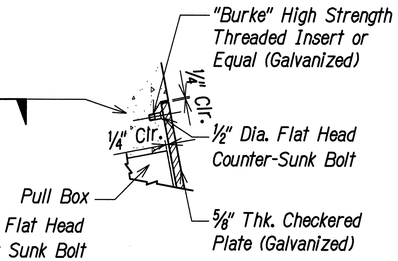


TYPICAL BRIDGE RAILING SECTION - TYPE 1 — 3 (S2-11, S2-12, S8-1 | S8-1)

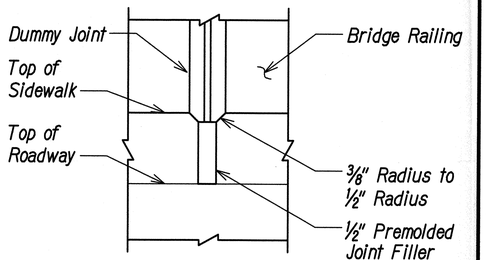
Scale: 1"=1'-0"



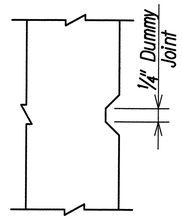
SECTION A — S8-1 | S8-1



ANCHORAGE DETAIL



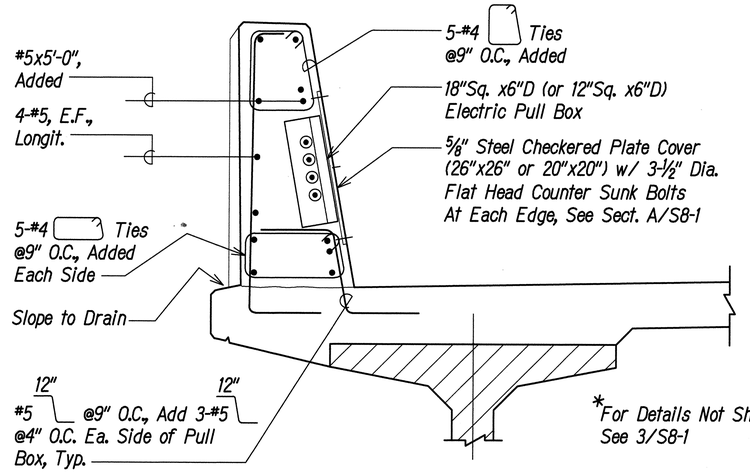
SIDEWALK JOINT DETAIL ELEVATION



DUMMY JOINT DETAIL PLAN

JOINT DETAIL — 4 (S8-1 | S8-1)

Not to Scale



PULL BOX COVER AT BRIDGE RAILING — 2 (S8-1 | S8-1)

Scale: 1"=1'-0"

Notes:

1. Pull Box Cover and Additional Reinforcement Similar at Sidewalk Side Railing.
2. Barrier Continuous Between Roadway Expansion Joints. Construction Joints with Shear Keys are Permissible at Dummy Joint Locations. Construction Joints Between Dummy Joints Shall not be Permitted.
3. The Maximum Spacing Between Dummy Joints is 8'.
4. See Light Base Section on Sheet S8-2 for Details at Overhead Street Light.

GRAPHIC SCALE:

1' 6" 0 1' 2'

SCALE: 1"=1'-0"

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

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER * No. 10129 * HAWAII, U.S.A. *

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

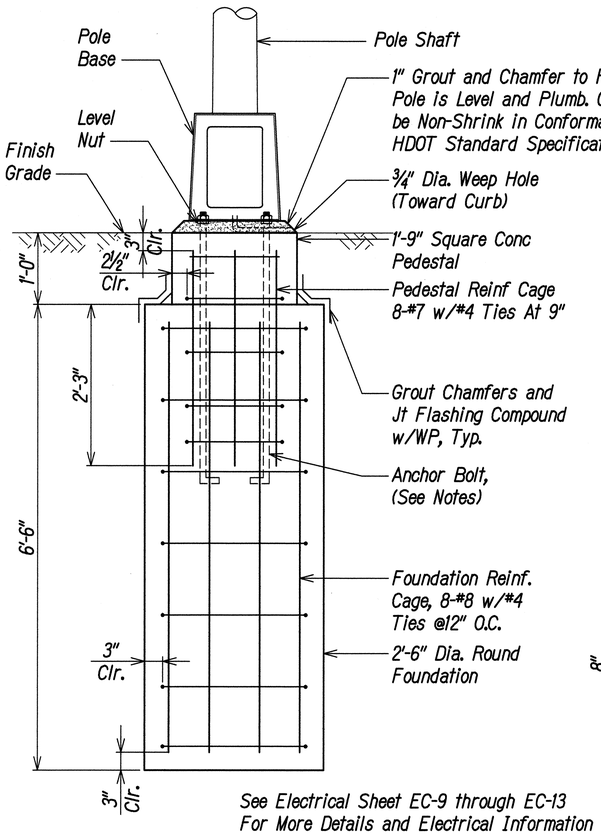
BRIDGE RAILING AND SIDEWALK DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown — Date: January 20, 2015

SHEET No. S8-1 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	305	524

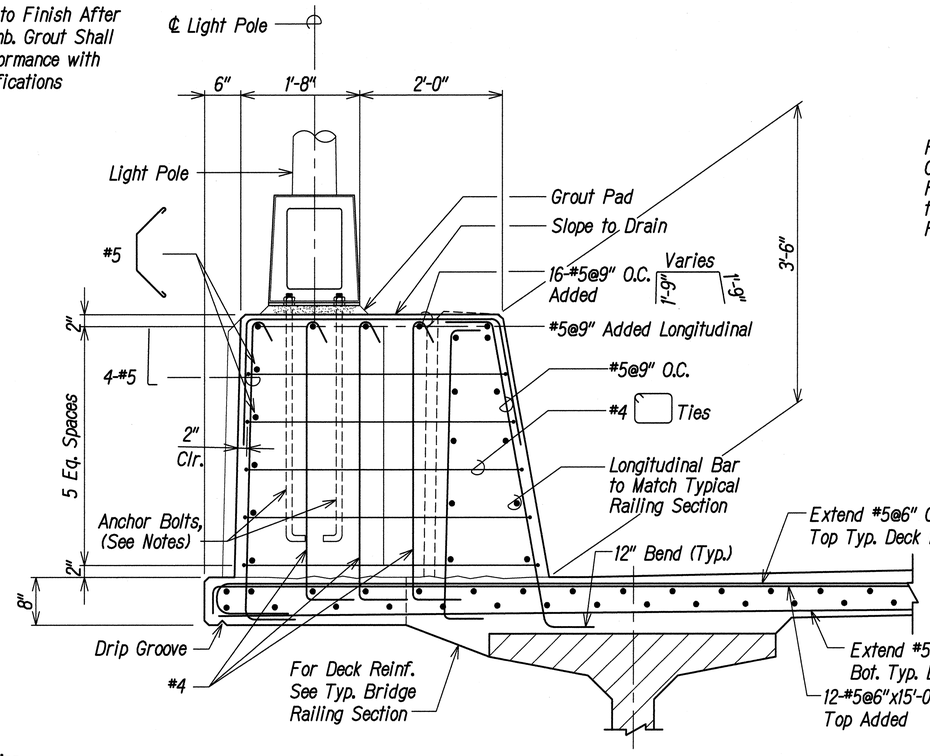


See Electrical Sheet EC-9 through EC-13
For More Details and Electrical Information

CONCRETE LIGHT STANDARD BASE ELEVATION FOR TYPE ISW AND BGR

Scale: 1"=1'-0"

1 | S8-2 | S8-2

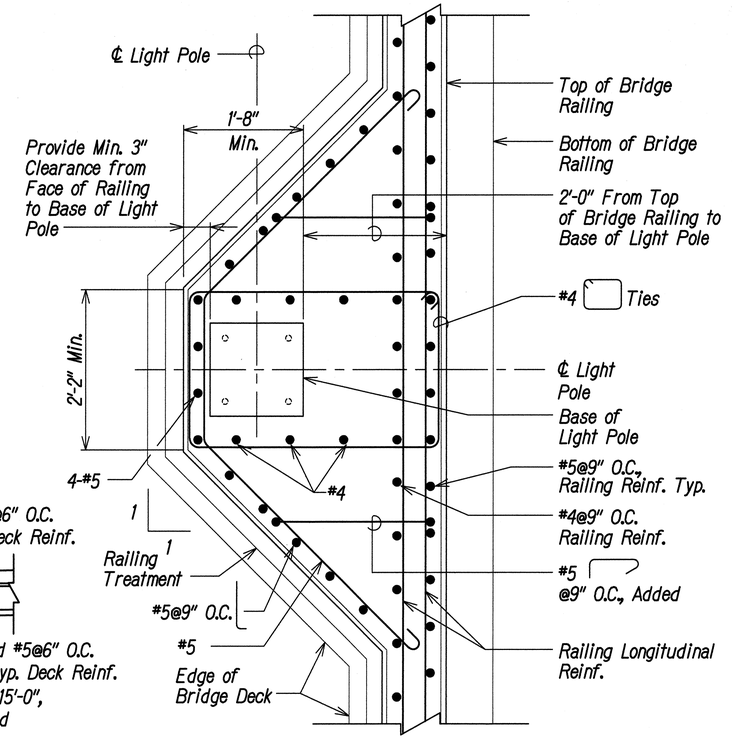


* For Details Not Shown See 3/S8-1.

LIGHT BASE SECTION

Scale: 1"=1'-0"

3 | S8-2 | S8-2

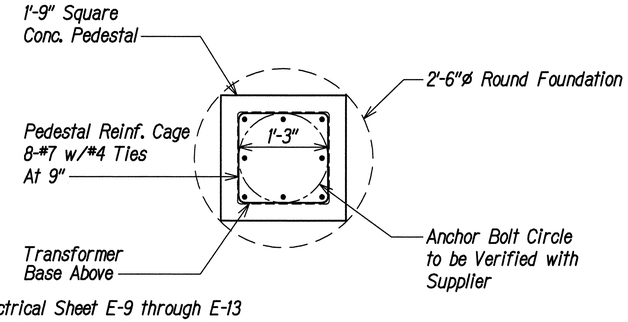


Note:
For Balance of Reinforcing, See 3/S8-2

LIGHT BASE PLAN

Scale: 1"=1'-0"

4 | S8-2 | S8-2



See Electrical Sheet E-9 through E-13
For More Details and Electrical Information

TYPICAL LIGHT STANDARD CONCRETE BASE SECTION

Not to Scale

2 | S8-2 | S8-2

Notes:

1. Anchor Bolt Size and Embedment to be Verified with the Light Pole Manufacturer.
2. Anchor Bolts Shall be Provided by Light Pole Manufacturer. Contractor Shall Coordinate Scheduling to Prevent Delays.

GRAPHIC SCALE:

1' 6" 0 1' 2'

SCALE: 1"=1'-0"

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STATE OF HAWAI'I
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HIGHWAYS DIVISION

LIGHT POLE DETAILS (1)

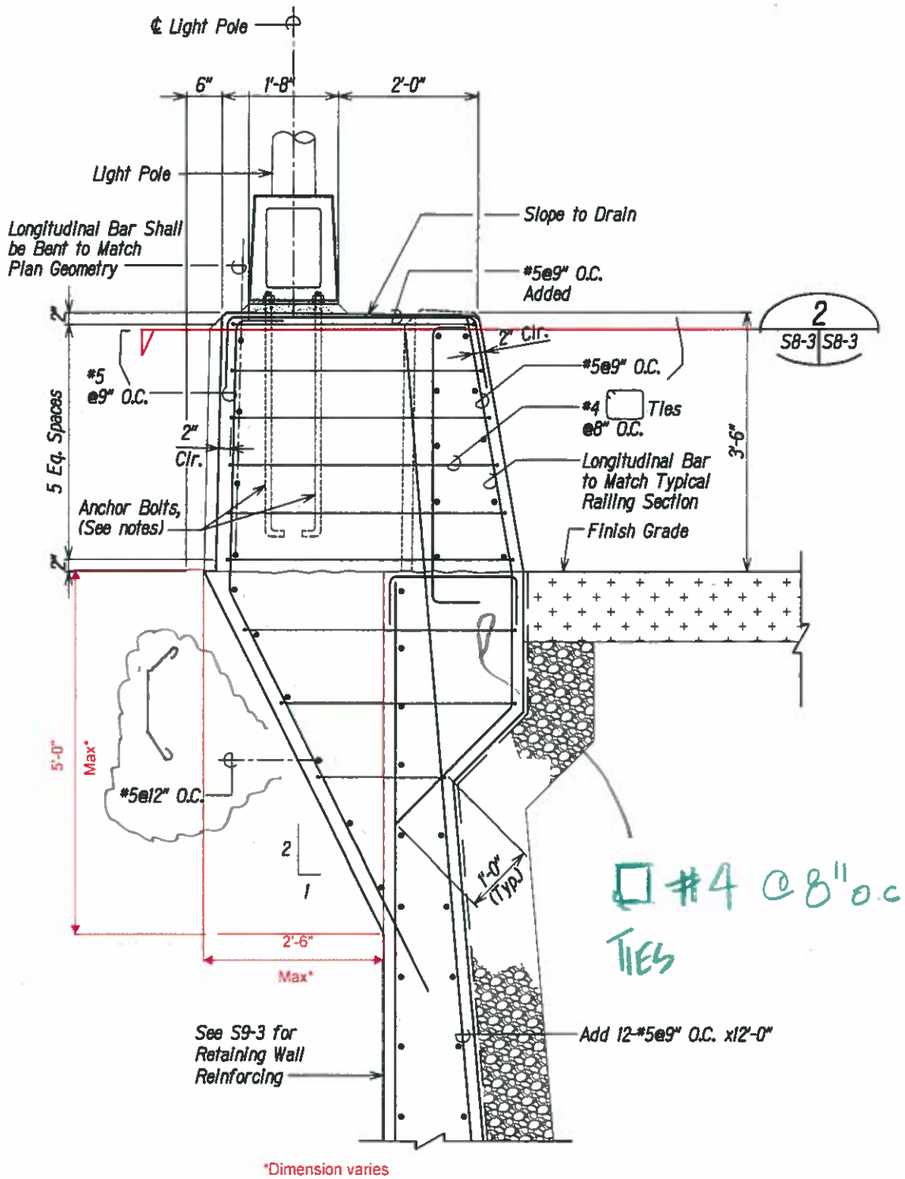
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown — Date: January 20, 2015

SHEET No. S8-2 OF 103 SHEETS

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

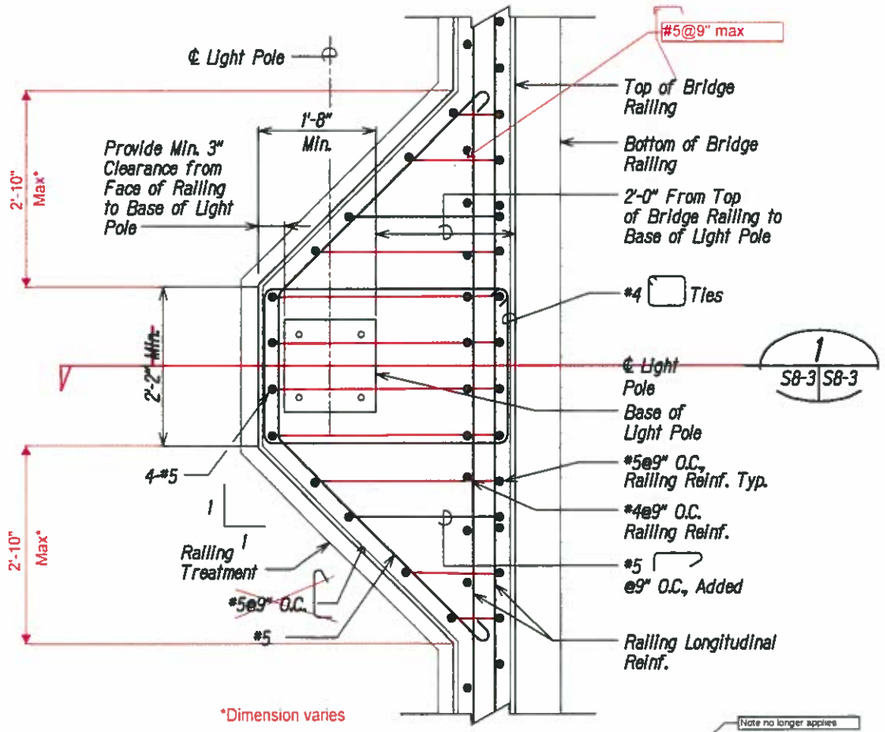
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	306	524



LIGHT BASE SECTION ON RETAINING WALL

Scale: 1"=1'-0"

1 | S8-3 | S8-3



Note:
~~For Balance of Reinforcing, See 3/S8-2~~

LIGHT BASE- PLAN

Scale: 1"=1'-0"

2 | S8-3 | S8-3

Notes:

1. Anchor Bolt Size and Embedment to be Verified with the Light Pole Manufacturer.
2. Anchor Bolts Shall be Provided by Light Pole Manufacturer. Contractor Shall Coordinate Scheduling to Prevent Delays.

GRAPHIC SCALE:

SCALE: 1"=1'-0"

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

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KMF CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHT POLE DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

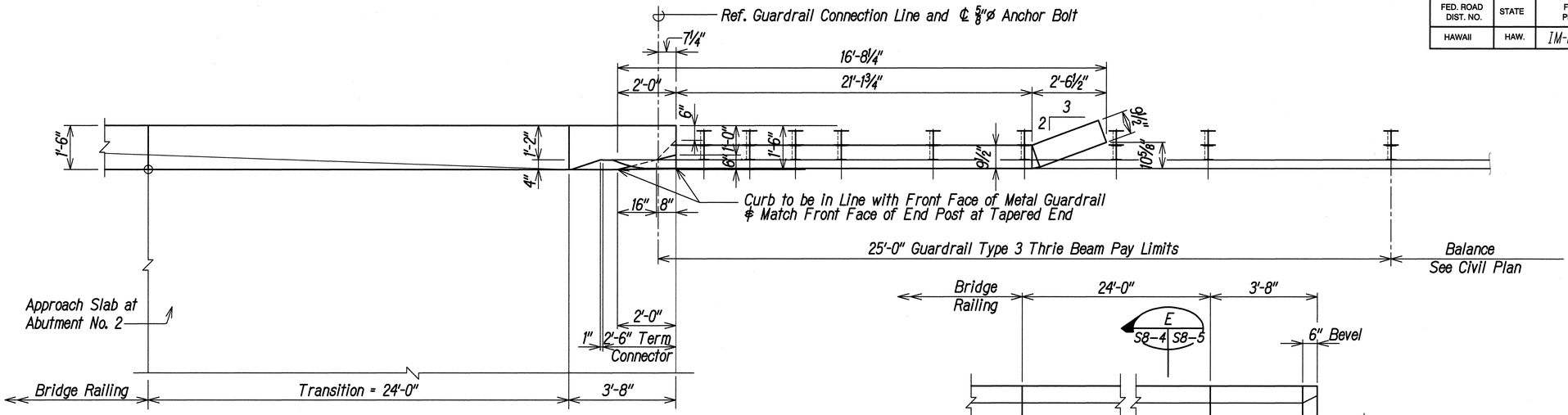
SHEET No. S8-3 OF 103 SHEETS

Page 5

"AS-BUILT"

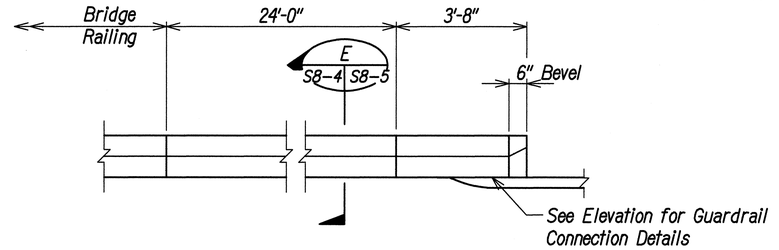
306

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	307	524



TYPE 1 BRIDGE RAILING TRANSITION PLAN

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

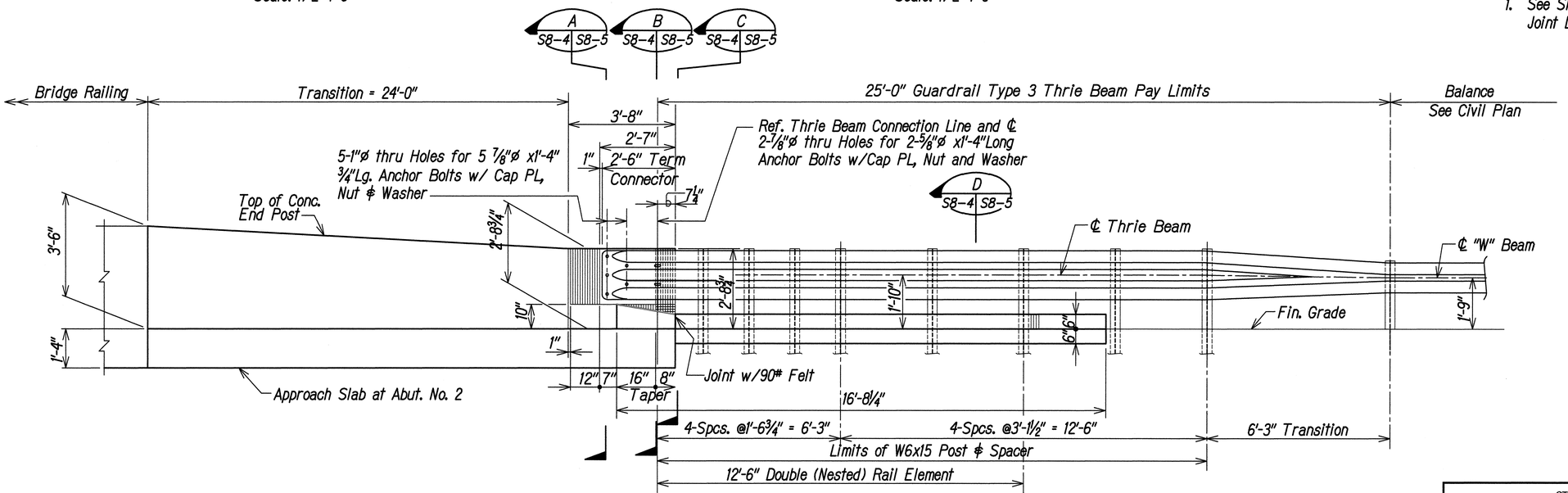


TYPE 2 BRIDGE RAILING TRANSITION PLAN

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

Notes:

1. See Sheet S8-1 for Dummy Joint Details and Spacing.



BRIDGE RAILING TRANSITION/END POST PLAN AND ELEVATION

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

Note:

See Sheet R-9 for the Beam Terminal Connector Details.

GRAPHIC SCALE:

2' 0 2' 4'

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

ORIGINAL PLAN | NOTE BOOK No.

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

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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

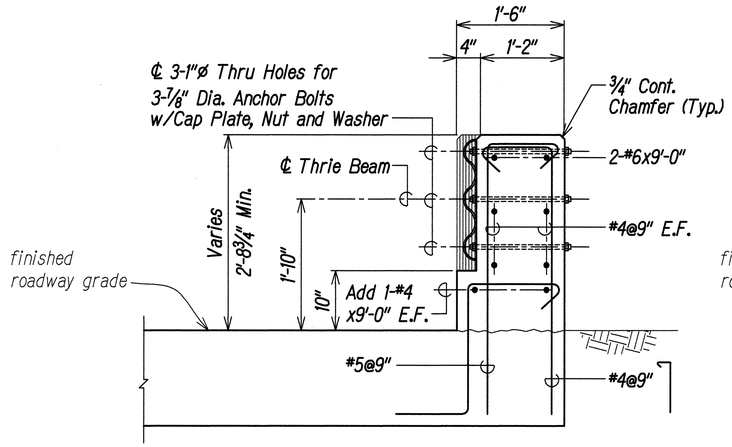
END POST AND GUARDRAILS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/2" = 1'- 0" Date: January 20, 2015

SHEET No. S8-4 OF 103 SHEETS

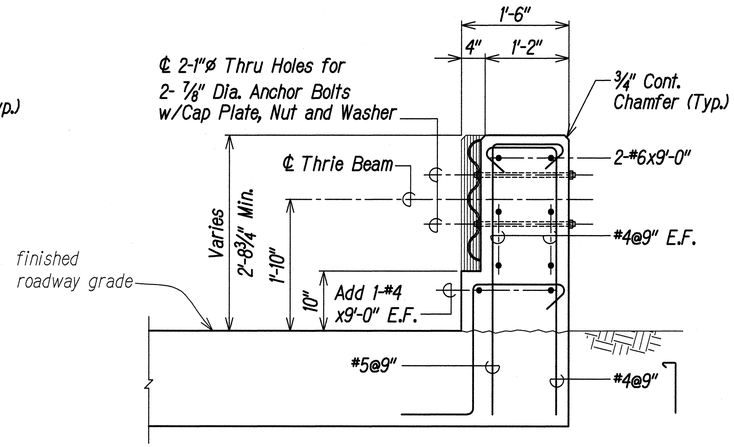
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	308	524



TYPE 1
BRIDGE RAILING/END POST SECTION A

Scale: 1" = 1'-0"

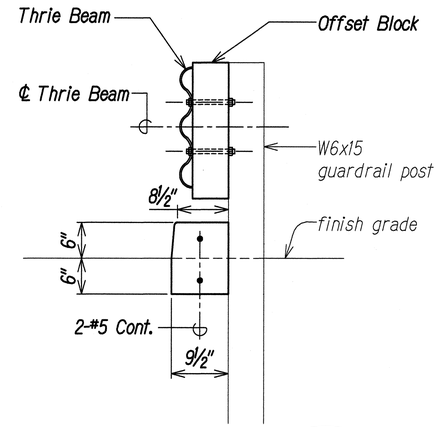
S8-4 | S8-5



TYPE 1
BRIDGE RAILING/END POST SECTION B

Scale: 1" = 1'-0"

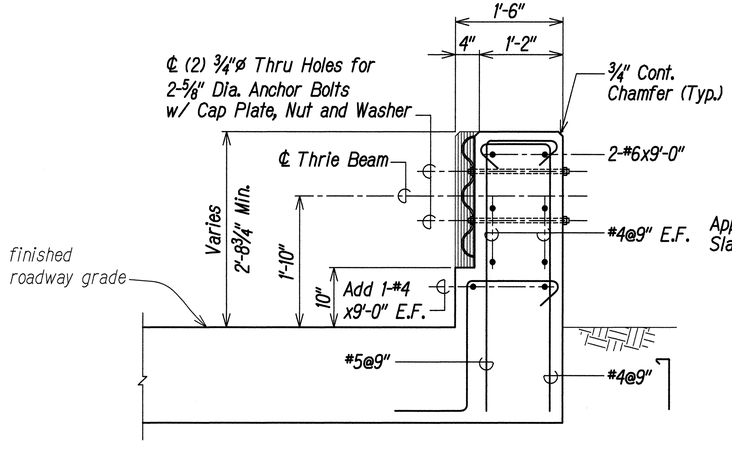
S8-4 | S8-5



SECTION D

Scale: 1" = 1'-0"

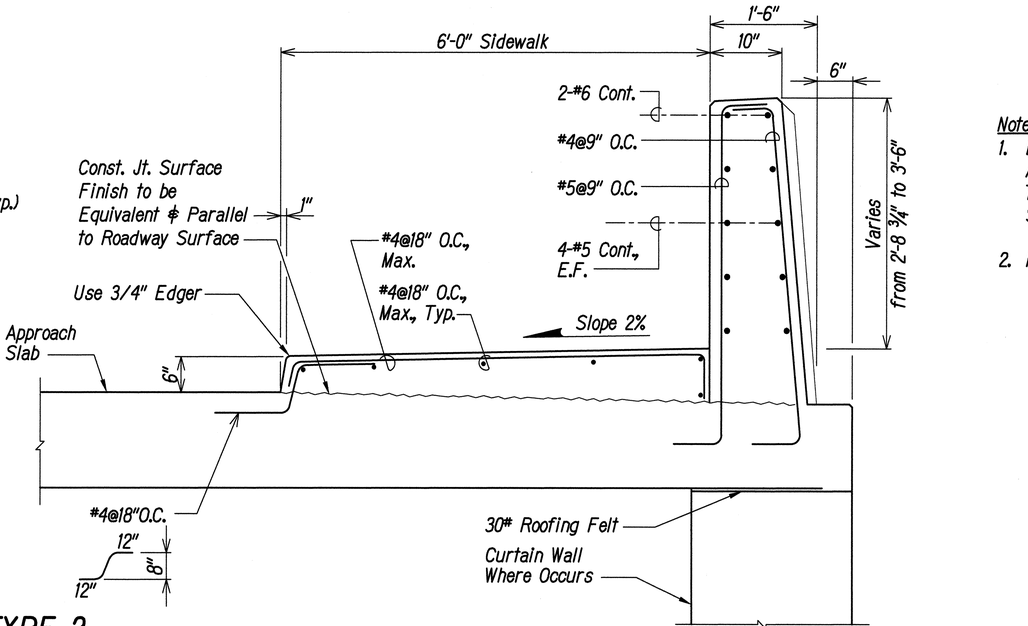
S8-4 | S8-5



TYPE 1
BRIDGE RAILING/END POST SECTION C

Scale: 1" = 1'-0"

S8-4 | S8-5



TYPE 2
BRIDGE RAILING/END POST SECTION E

Scale: 1" = 1'-0"

S8-4 | S8-5

GRAPHIC SCALE:

1' 6" 0 1' 2'

SCALE: 1"=1'-0"

Notes:

1. Bridge Railing Transition/End Post on Approach Slab Shown. Bridge Railing Transition/End Post on Retaining Wall Similar.
2. For Approach Slab Detail see Sheet S3-8.

LICENSED PROFESSIONAL ENGINEER
No. 10129
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HAWAII, U.S.A.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST AND GUARDRAILS (2)

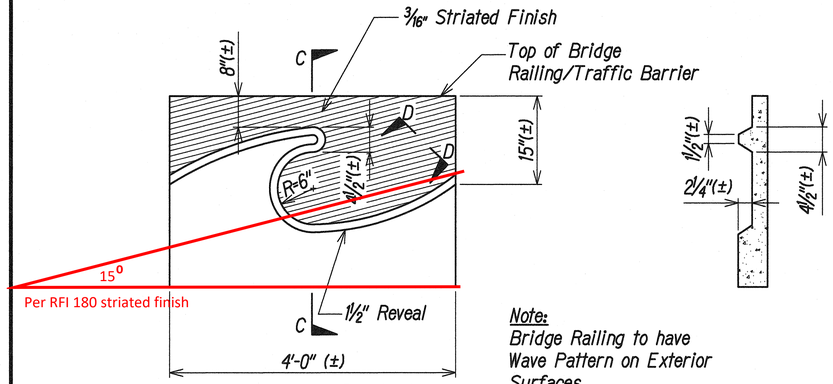
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1" = 1'-0" Date: January 20, 2015

SHEET No. S8-5 OF 103 SHEETS

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

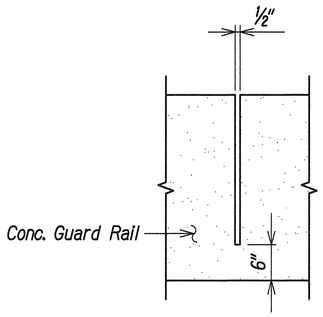
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	309	524



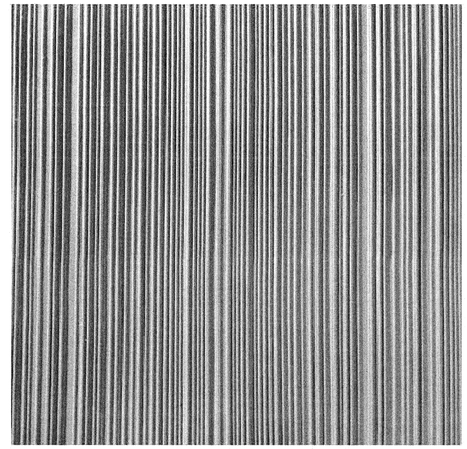
Hatched Areas are Recessed 2¼" (±) in Concrete.

Note:
Bridge Railing to have Wave Pattern on Exterior Surfaces.

SECTION C

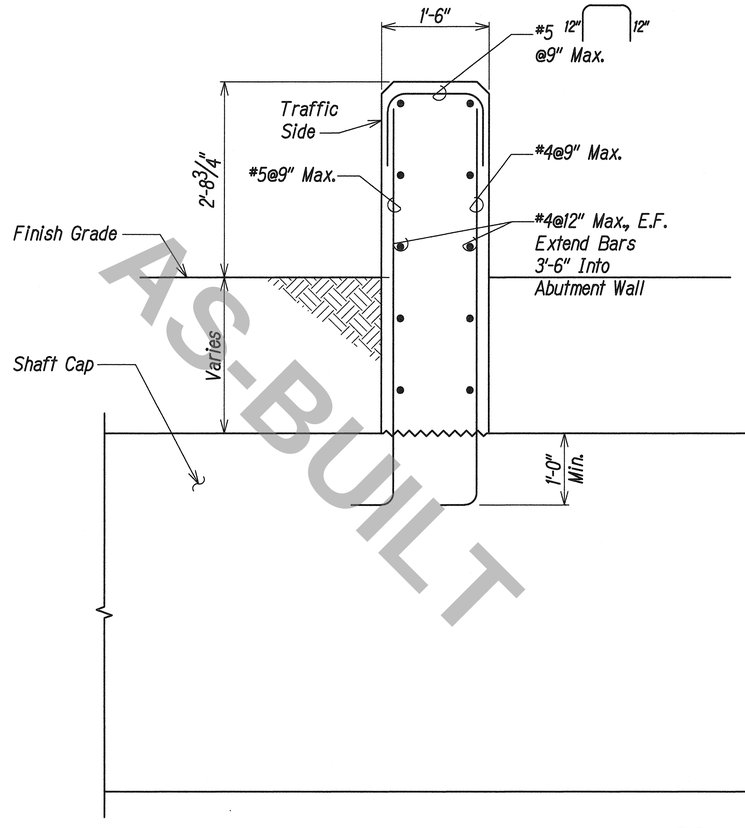


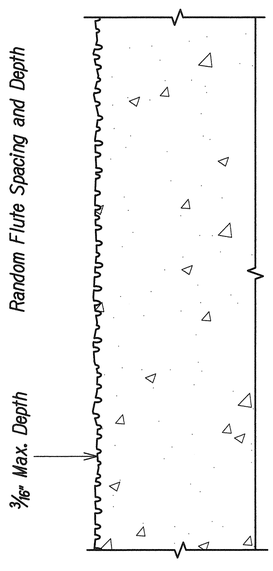
OPEN JOINT DETAIL B
Not To Scale
S8-6 | S8-6



3/16" STRIATED FINISH TEXTURE 1
Not To Scale
S8-6 | S8-6

WAVE PATTERN DETAIL A
Not To Scale
S8-6 | S8-6
S8-1





3/16" STRIATED FINISH TEXTURE TYPICAL SECTION D
Not To Scale
S8-6 | S8-6

GUARDRAIL END POST SECTION B
Not To Scale
S3-1 | S8-6

AS-BUILT

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

LICENSED PROFESSIONAL ENGINEER
IZZAT H. HASAYEN
No. 16129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

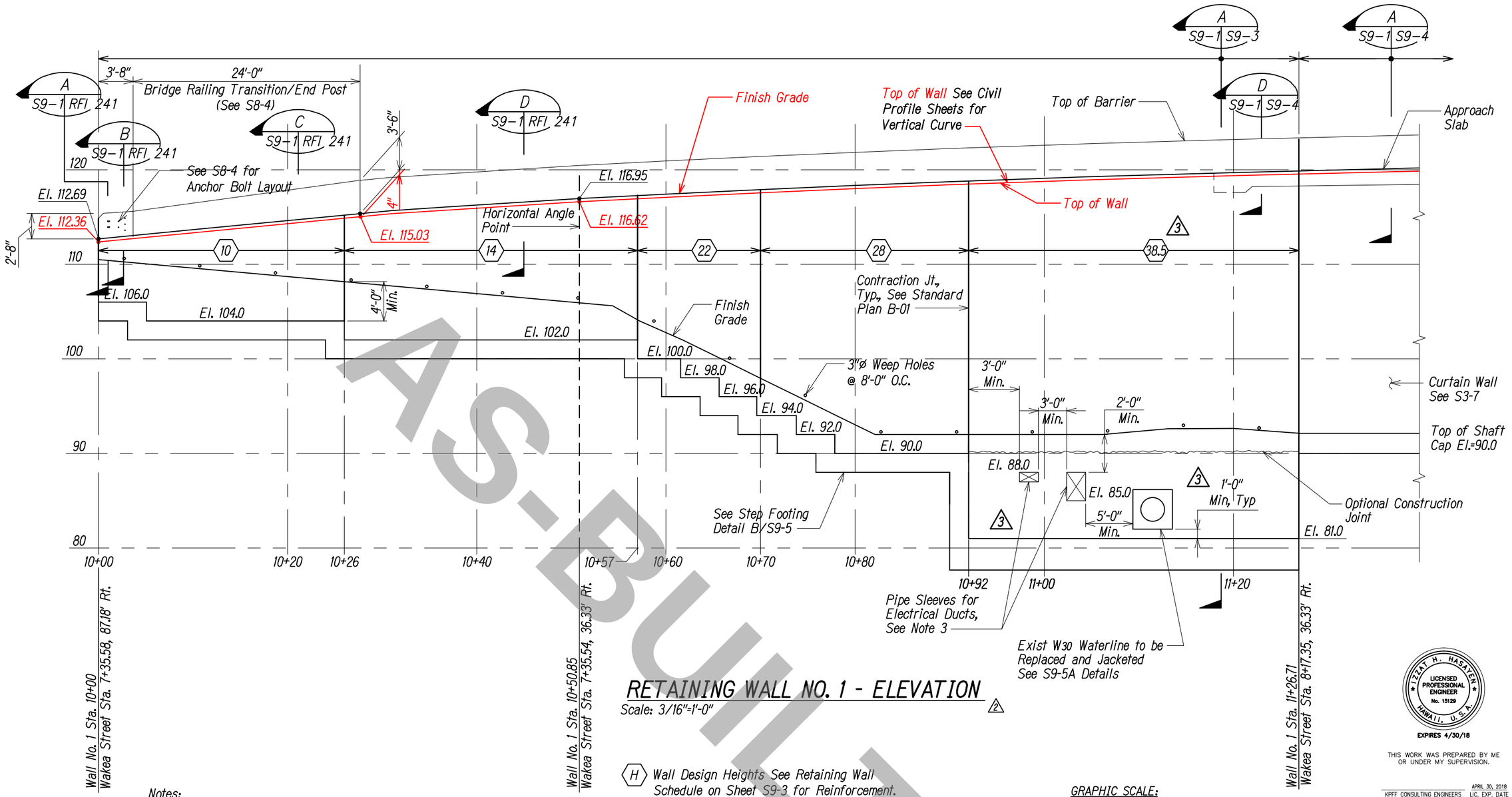
MISCELLANEOUS DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not To Scale Date: January 20, 2015

SHEET No. S8-6 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 310	524



RETAINING WALL NO. 1 - ELEVATION

Scale: 3/16"=1'-0" (2)

(H) Wall Design Heights See Retaining Wall Schedule on Sheet S9-3 for Reinforcement.

Notes:

1. See Civil Drawings for Horizontal and Vertical Curve Wall Alignment.
2. Minimum Cover on Toe of Footing Shall be 4'-0" Between Stations 10+00 Thru 10+50.25.
3. Duct Bank to be Constructed After Construction of The Retaining Wall. See Sheet ED7 for Duct Bank Location, EA Sheets for Duct Bank Geometry, and S9-5 for Reinforcing.

GRAPHIC SCALE:

4' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

	DATE	REVISION
(3)	3/10/17	Revised Wall Layout
(2)	5/18/15	Update Wall Length

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER No. 15129 HAWAII, U.S.A.

EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL NO. 1
ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

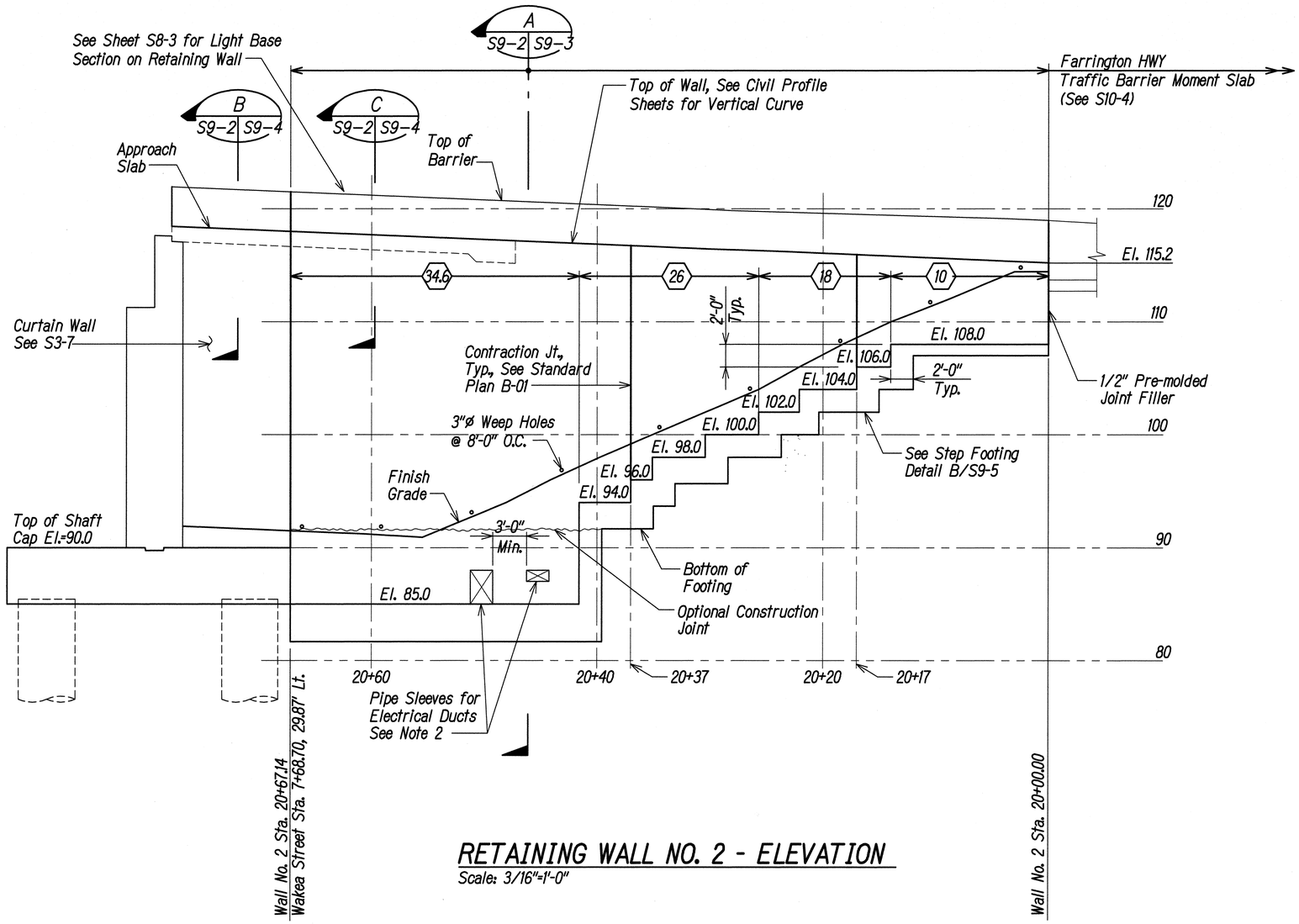
Scale: 3/16"=1'-0" Date: January 20, 2015

SHEET No. S9-1 OF 103 SHEETS

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

AS-BUILT
"AS-BUILT"
C.O. 310

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	311	524



RETAINING WALL NO. 2 - ELEVATION

Scale: 3/16"=1'-0"

Notes:

1. See Civil Drawings for Horizontal and Vertical Curve Wall Alignment.
2. Duct Bank to be Constructed After Construction of The Retaining Wall. See Sheet ED-7 for Duct Bank Location, EA Sheets for Duct Bank Geometry, and S9-5 for Reinforcing.

(H) Wall Design Heights See Retaining Wall Schedule on Sheet S9-3 for Reinforcement.

GRAPHIC SCALE:

4' 0 4' 8' 12'

SCALE: 3/16"=1'-0"

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

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LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

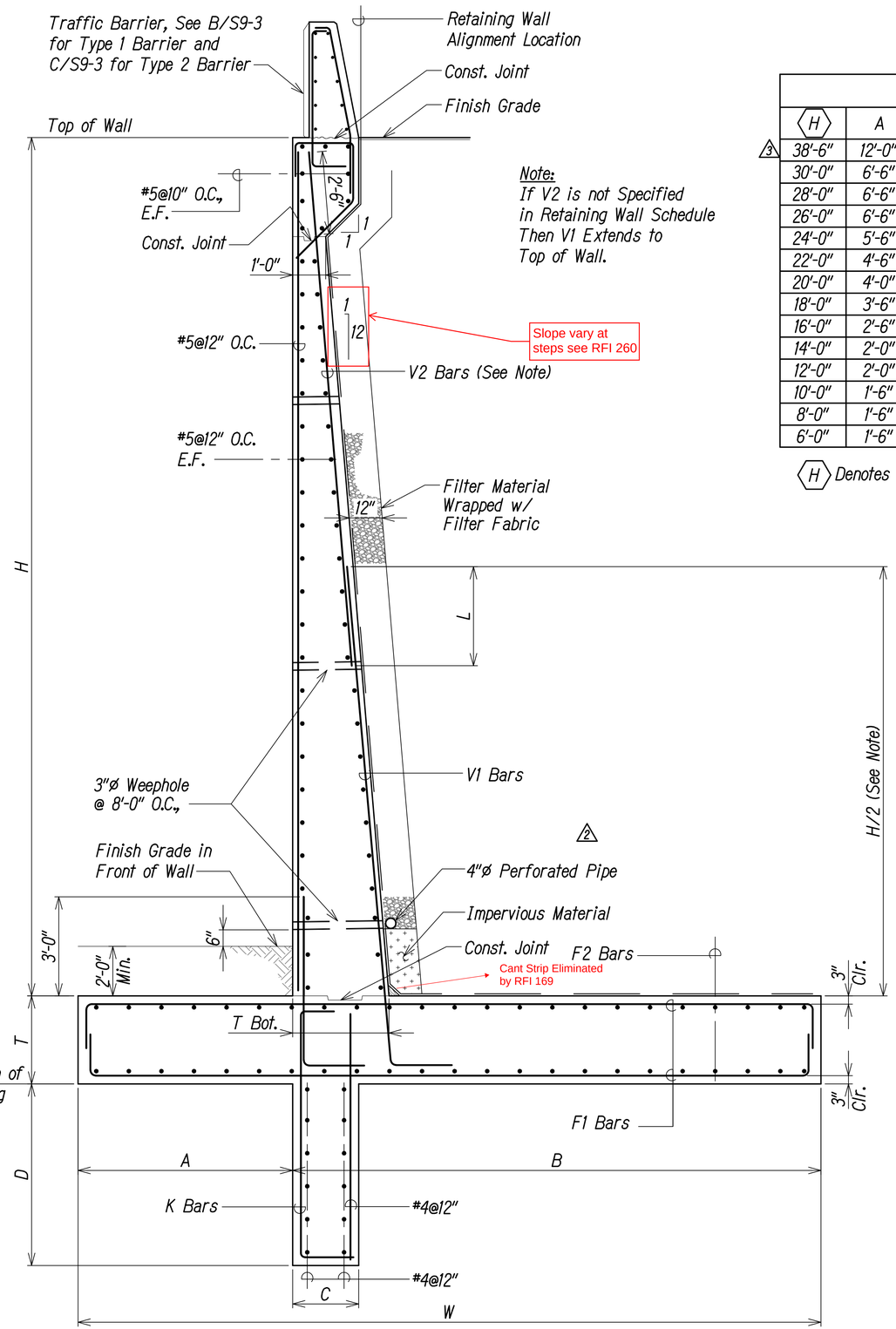
RETAINING WALL NO. 2 ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 3/16" = 1'-0" Date: January 20, 2015

SHEET No. S9-2 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 312	524



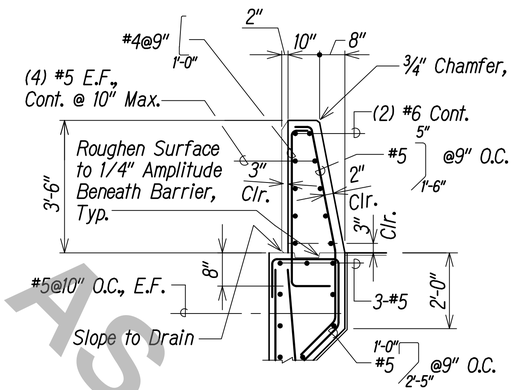
Note:
If V2 is not Specified in Retaining Wall Schedule Then V1 Extends to Top of Wall.

RETAINING WALL SCHEDULE

⟨H⟩	A	B	C (in)	D	W	T	T Bot.	F1	F2	V1	V2	K	L (in)
38'-6"	12'-0"	17'-0"	24	6'-6"	29'-0"	4'-6"	3'-10"	2#11@9"	#8@12"	2#11@9"	#11@9"	#6@9"	48
30'-0"	6'-6"	18'-0"	24	6'-0"	24'-6"	3'-6"	3'-6"	#10@6" T&B	#7@12" T&B	#10@6"	#7@12"	#6@9"	42
28'-0"	6'-6"	17'-0"	24	6'-0"	23'-6"	3'-0"	3'-4"	#10@6" T&B	#6@12" T&B	#10@6"	#7@12"	#6@9"	42
26'-0"	6'-6"	16'-0"	24	5'-6"	22'-6"	2'-8"	3'-2"	#9@6" T&B	#6@12" T&B	#9@6"	#5@6"	#6@9"	36
24'-0"	5'-6"	15'-0"	18	5'-6"	20'-6"	2'-8"	3'-0"	#9@6" T&B	#6@12" T&B	#9@6"	#5@6"	#5@9"	36
22'-0"	4'-6"	13'-0"	18	5'-0"	17'-6"	2'-4"	2'-10"	#9@8" T&B	#5@12" T&B	#8@6"	#5@6"	#5@9"	30
20'-0"	4'-0"	12'-0"	18	5'-0"	16'-0"	2'-4"	2'-8"	#9@9" T&B	#5@12" T&B	#8@8"	#6@8"	#5@9"	30
18'-0"	3'-6"	9'-6"	18	5'-0"	13'-0"	2'-0"	2'-6"	#7@8" T&B	#5@12" T&B	#7@8"	#6@8"	#5@9"	30
16'-0"	2'-6"	8'-0"	18	4'-6"	10'-6"	2'-0"	2'-4"	#7@9" T&B	#5@12" T&B	#7@9"	#6@9"	#5@9"	24
14'-0"	2'-0"	7'-0"	18	4'-6"	9'-0"	1'-9"	2'-2"	#6@8" T&B	#5@12" T&B	#6@9"	#6@9"	#5@9"	24
12'-0"	2'-0"	7'-0"	12	2'-6"	9'-0"	1'-9"	2'-0"	#6@9" T&B	#5@12" T&B	#6@9"	See Note	#4@12"	
10'-0"	1'-6"	6'-0"	12	1'-6"	7'-6"	1'-0"	1'-10"	#6@9" T&B	#4@12" T&B	#5@9"	See Note	#4@12"	
8'-0"	1'-6"	5'-0"	12	1'-6"	6'-6"	1'-0"	1'-8"	#5@9" T&B	#4@12" T&B	#5@9"	See Note	#4@12"	
6'-0"	1'-6"	5'-0"	-	-	6'-6"	1'-0"	1'-6"	#5@9" T&B	#4@12" T&B	#5@12"	See Note	-	

△3

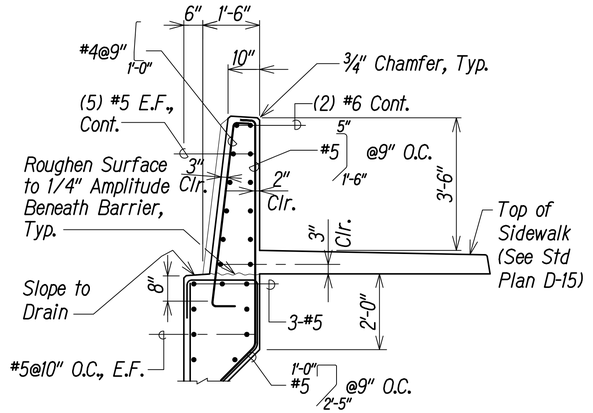
⟨H⟩ Denotes Wall Height



TYPE 1 TRAFFIC BARRIER ABOVE RETAINING WALL DETAIL B

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

S9-3 | S9-3



TYPE 2 TRAFFIC BARRIER ABOVE RETAINING WALL DETAIL C

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

S9-3 | S9-3

RETAINING WALL SECTION A

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

S9-1 | S9-2 | S9-3

GRAPHIC SCALE:

2' 0 2' 4'

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/18

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KPFF CONSULTING ENGINEERS — APRIL 30, 2018 LIC. EXP. DATE

DATE	REVISION
△3 3/10/17	Revised Wall Layout
△2 5/18/15	Remove Waterproofing Membrane

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL DETAILS AND SECTIONS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: 1/2"=1'-0" Date: January 20, 2015

SHEET No. S9-3 OF 103 SHEETS

ORIGINAL PLAN | NOTE BOOK | No.

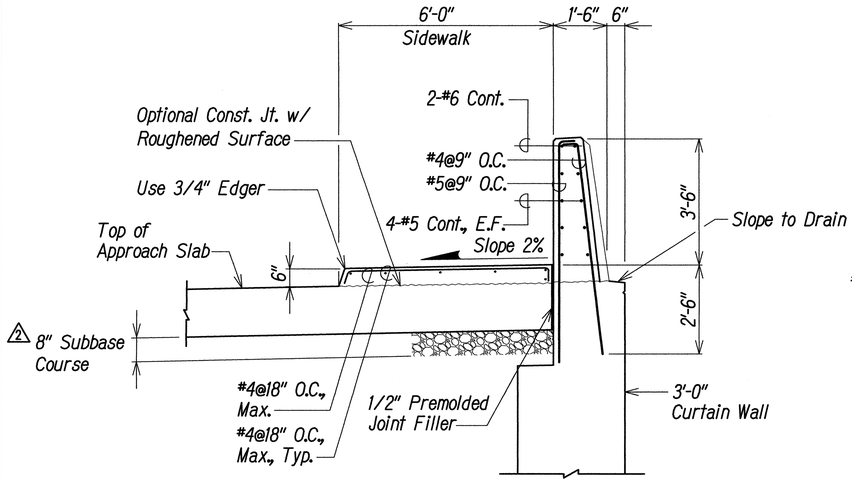
SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

AS-BUILT

"AS-BUILT"

C.O. 312

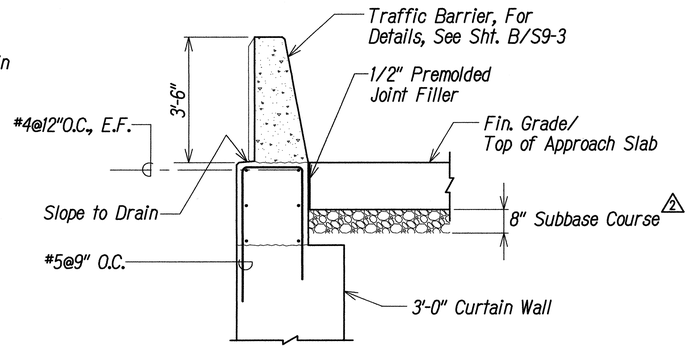
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 313	524



SECTION AT CURTAIN WALL — A

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

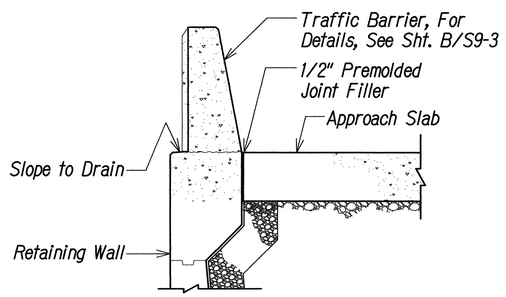
S9-1 | S9-4



SECTION — B

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

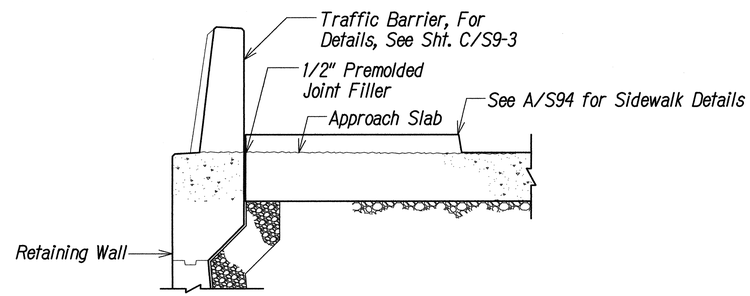
S9-2 | S9-4



SECTION AT APPROACH SLAB TYPE 1 BARRIER — C

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

S9-2 | S9-4



SECTION AT APPROACH SLAB TYPE 2 BARRIER — D

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

S9-1 | S9-4

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

GRAPHIC SCALE:

2' 0 2' 4'

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

DATE	REVISION
2 5/18/15	Correct Subbase Thickness

IZZAT H. HASAFEN
LICENSED PROFESSIONAL ENGINEER
No. 18129
HAWAII, U.S.A.

EXPIRES 4/30/16

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APRIL 30, 2016
OFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL DETAILS AND SECTIONS (2)

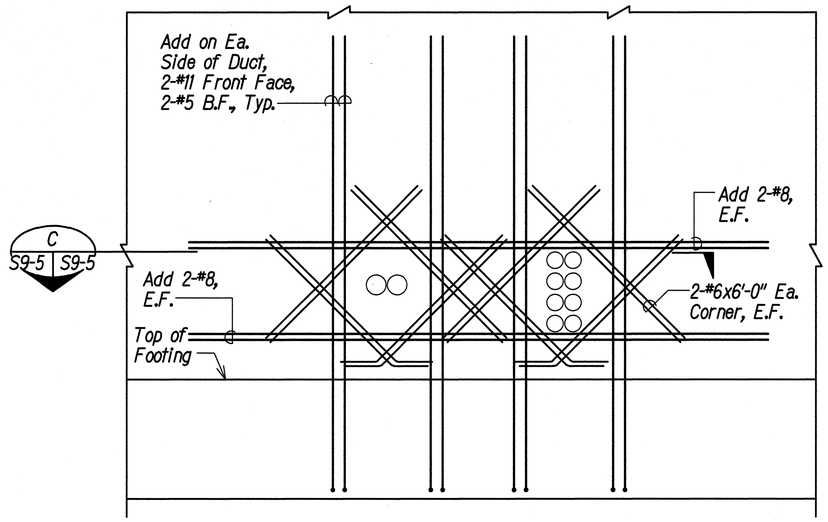
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/2"=1'-0" Date: January 20, 2015

SHEET No. S9-4 OF 103 SHEETS

ADD. 313

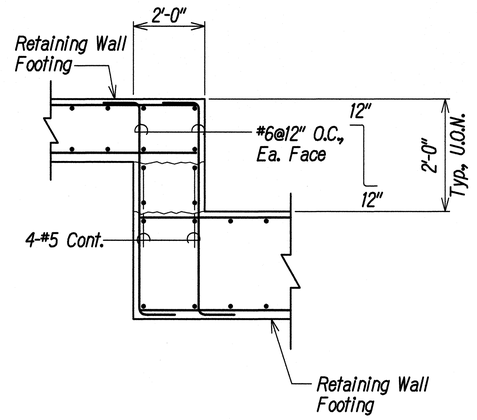
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	314	524



ELECTRICAL DUCT PENETRATION DETAIL

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

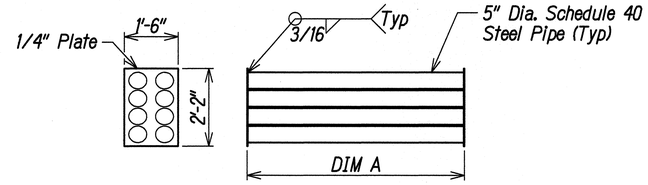
A S9-5 S9-5



STEP FOOTING DETAIL

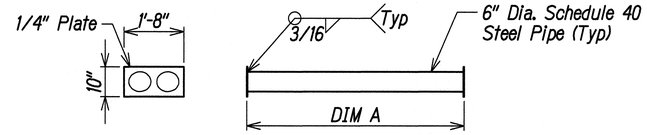
Scale: 1/2"=1'-0"

B S9-5 S9-5



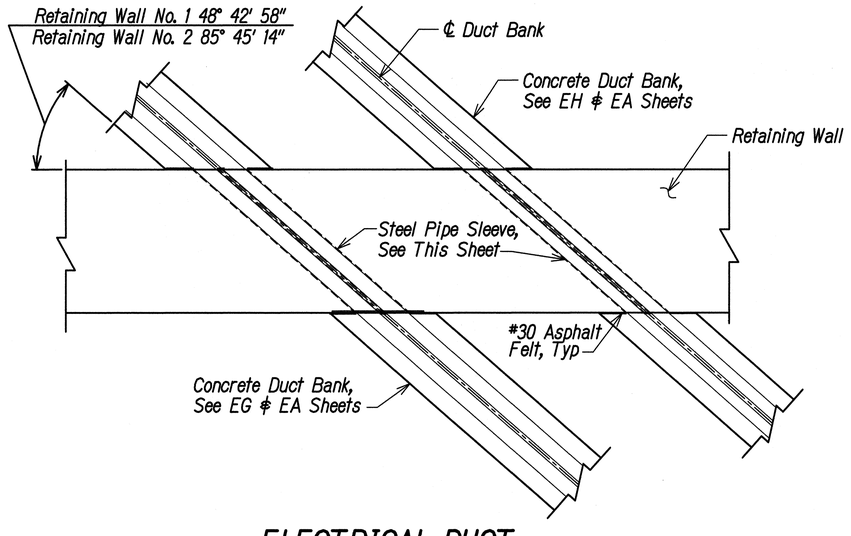
8 - 4"ø DUCT GROUP SLEEVE

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



2 - 5"ø DUCT GROUP SLEEVE

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



ELECTRICAL DUCT PENETRATION SECTION

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

C S9-5 S9-5

Notes:

1. Steel Pipe Sleeves Shall be Galvanized After Fabrication in Accordance with AASHTO M111.
2. See EG and EA Sheets for Duct Bank Locations.
3. See Sheet S9-3 for Typical Reinforcement Details.

PIPE SLEEVE TABLE	
Location	Dim. A
Retaining Wall No. 1	6'-0 3/4"
Retaining Wall No. 2	4'-0 1/8"

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

LICENSED PROFESSIONAL ENGINEER No. 10128 IZZAT H. HASAYEN HAWAII, U.S.A.
EXPIRES 4/30/16

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APRIL 30, 2016
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GRAPHIC SCALE:

2' 0 2' 4'
SCALE: 1/2"=1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

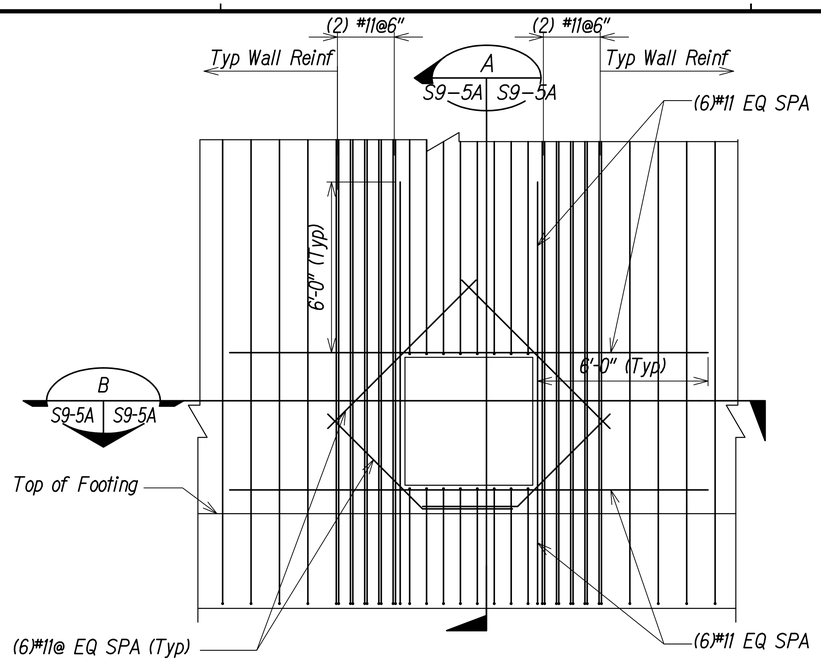
RETAINING WALL DETAILS AND SECTIONS (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

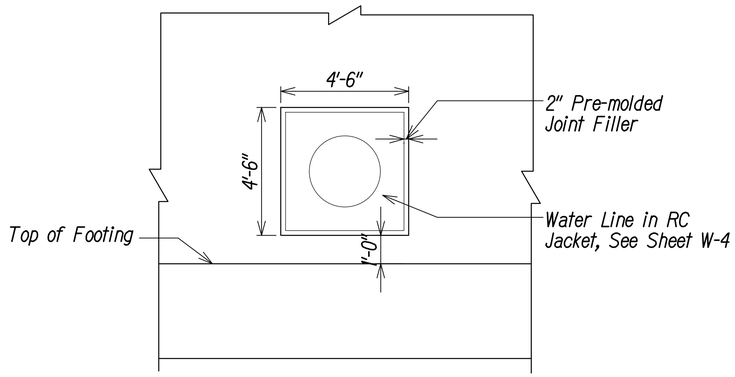
Scale: 1/2" = 1'-0" Date: January 20, 2015

SHEET No. S9-5 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	314A	524



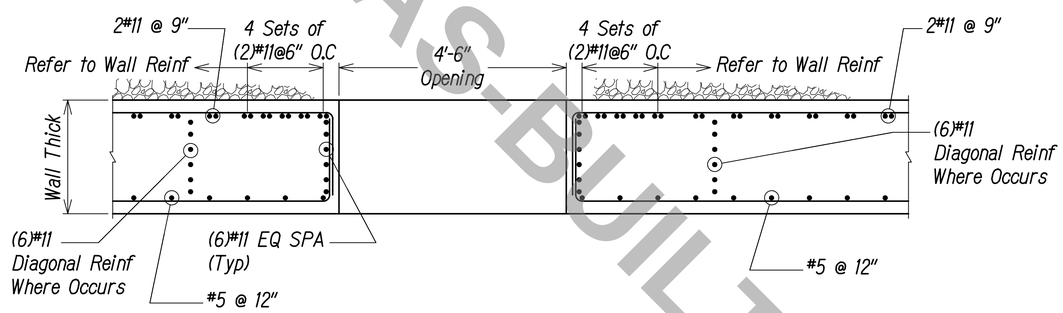
Water Line Opening Detail
(Not to Scale)



Water Line Opening
(Not to Scale)

Note:
For Balance of Reinforcement in Retaining Wall See S9-3.

A S9-5A S9-5A SECTION
(Not to Scale)



B S9-5A S9-5A SECTION
(Not to Scale)

AS-BUILT

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

DATE	REVISION
3/10/17	3 New Sheet for Water Line Opening

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL DETAILS AND SECTIONS (3A)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

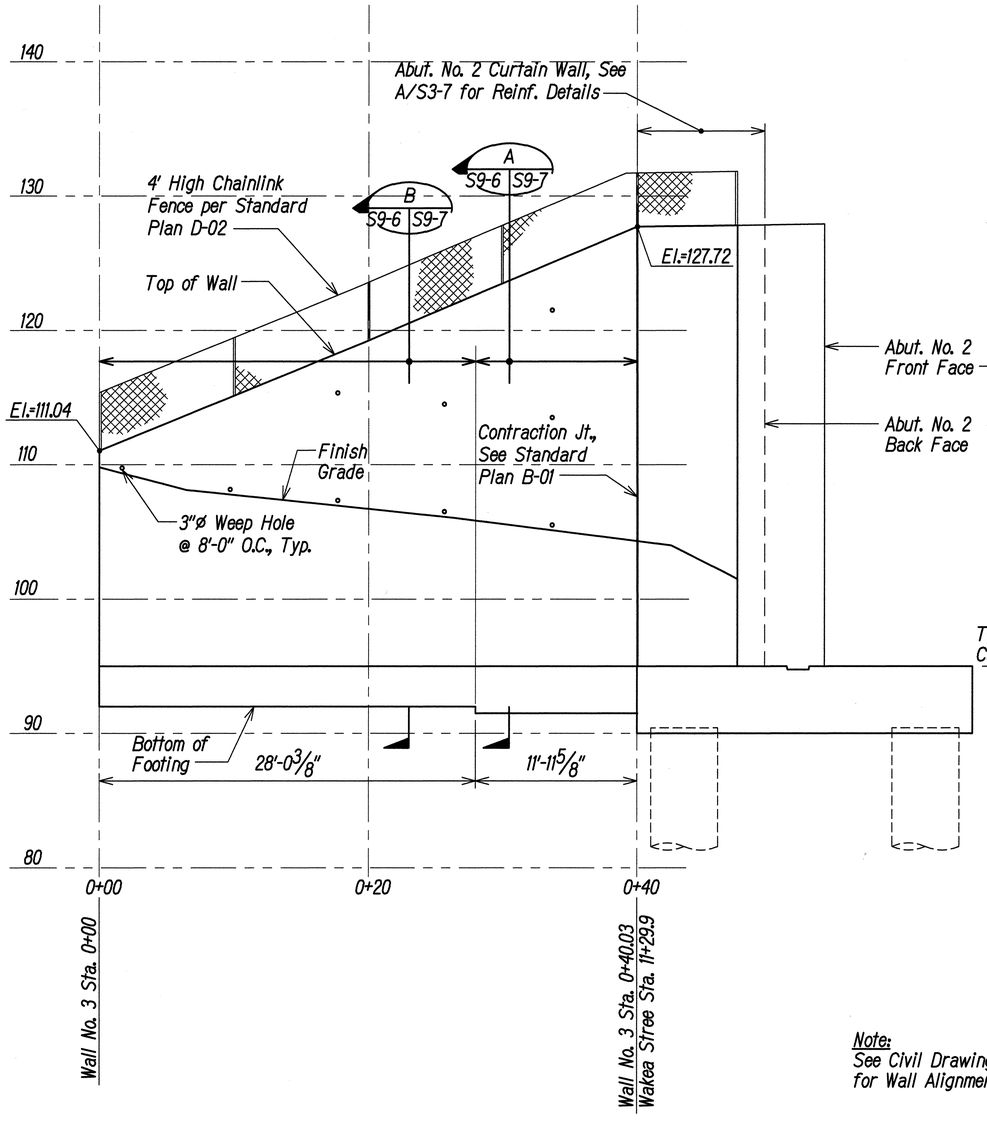
Scale: Date: January 20, 2015

SHEET No. S9-5A OF 103 SHEETS

C.O. 314A

"AS-BUILT"

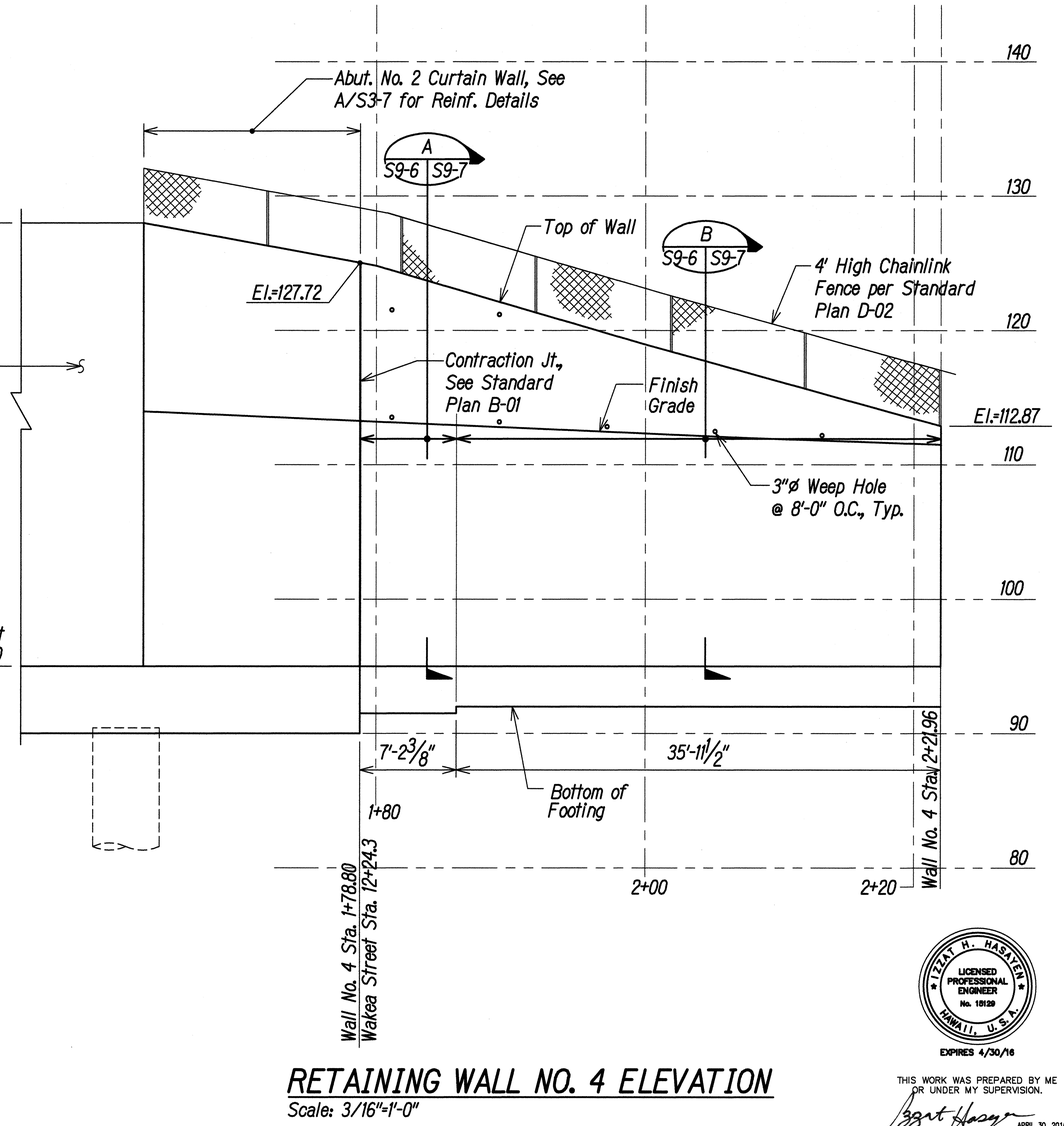
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	315	524



Note:
See Civil Drawings for Wall Alignment.

RETAINING WALL NO. 3 - ELEVATION

Scale: 3/16"=1'-0"



RETAINING WALL NO. 4 ELEVATION

Scale: 3/16"=1'-0"

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GRAPHIC SCALE:
4' 0 4' 8' 12'
SCALE: 3/16"=1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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HIGHWAYS DIVISION

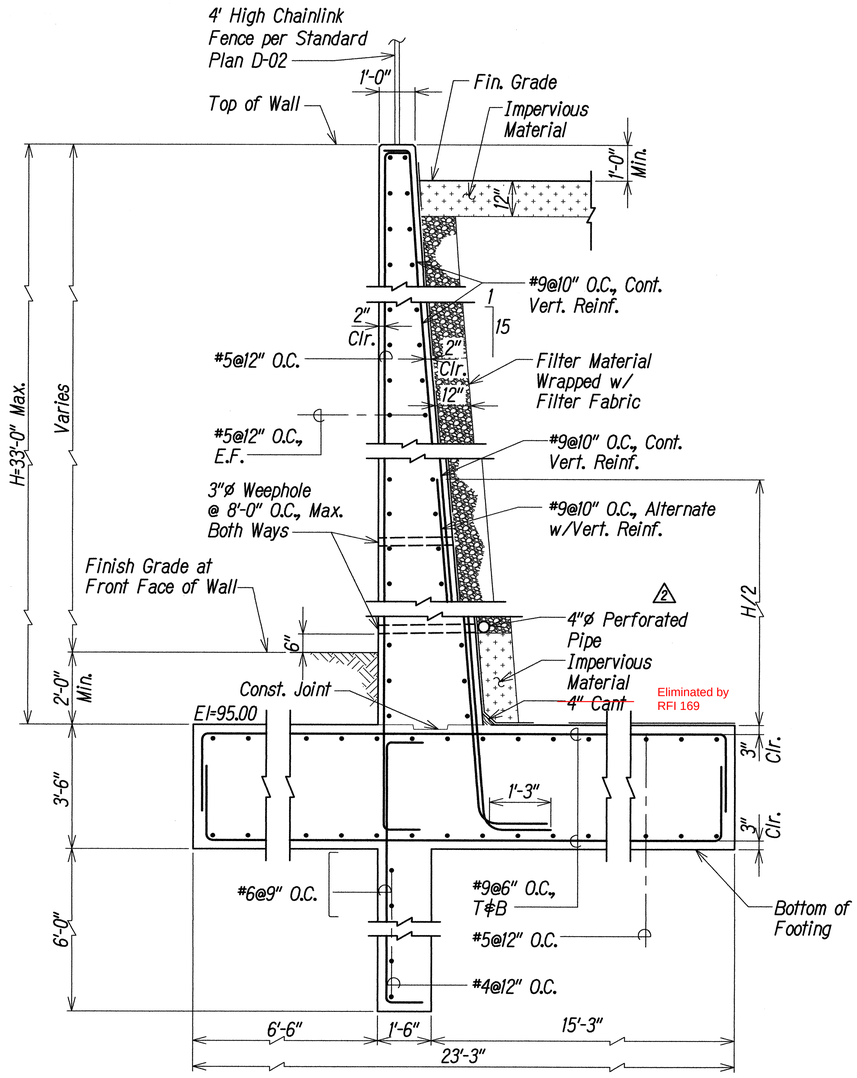
RETAINING WALL NO. 3 & NO. 4 ELEVATIONS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 3/16" = 1'-0" Date: January 20, 2015

SHEET No. S9-6 OF 103 SHEETS

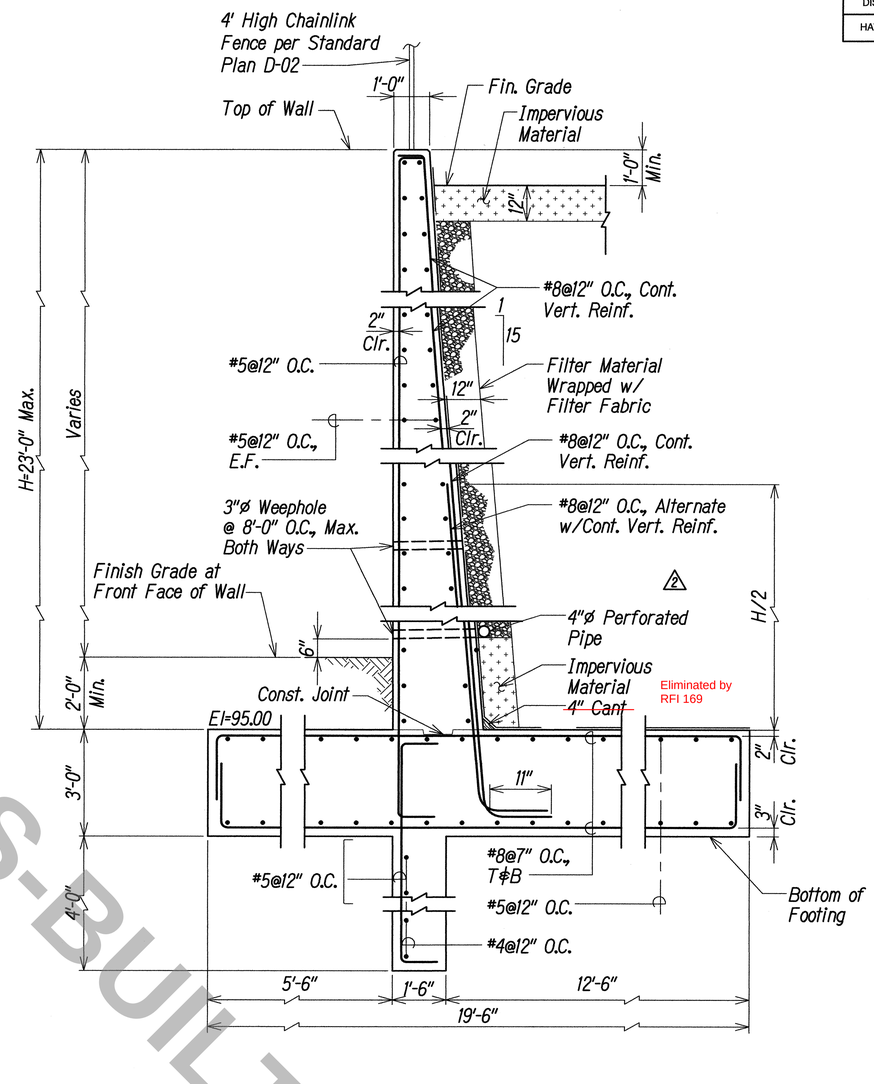
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HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 316	524



RETAINING WALL SECTION A

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

S9-6 | S9-7



RETAINING WALL SECTION B

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

S9-6 | S9-7

AS-BUILT

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GRAPHIC SCALE:

2' 0 2' 4'

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

DATE	REVISION
2 5/18/15	Remove Waterproofing Membrane

STATE OF HAWAII
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RETAINING WALL NO.3 & NO.4 SECTIONS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/2"=1'-0" Date: January 20, 2015

SHEET No. S9-7 OF 103 SHEETS

"AS-BUILT"

ADD. 316

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	317	524

SOIL NAILED SLOPE GENERAL NOTES

1. Design Specifications:
   AASHTO LRFD Bridge Design Specifications 6th Edition 2012 with Interim Specification, and in Accordance with Procedures Contained in Federal Highway Administration Geotechnical Engineering Circular No. 7 "Soil Nail Wall" Dated March 2003 Report No. FHWA 0-IF-03-017.
2. Soil Nails Shall be #10 Epoxy Coated Threaded Bar Conforming to ASTM A 615 Grade 75 and ASTM A934.
3. Shotcrete Shall Have a 28-day Compressive Strength of f'c=4000psi.
4. See Project Special Provisions for Grout Requirement.
5. See Project Special Provisions for Geocomposite Drain Requirement.
6. Structural Steel Shall be ASTM A36 Unless Otherwise Noted. All Structural Steel Shall be Hot-Dipped Galvanized After Fabrication.
7. Welded Wire Fabric Shall Conform to ASTM A82.
8. Shear Studs Shall conform to ASTM A108, Grades 1010 Thru 1020.
9. Concrete Cover for Reinforcement Cast Against Earth Shall be 3", For Other Conditions Shall be 2" Unless Otherwise Noted.
10. Concrete Behind the Bearing Plate Shall be Ground to a Flat Finish Meeting the Requirement of 15 Degree Drilling Direction of the Soil Nails.
11. The Estimated Basalt Elevation is Based on Limited Geotechnical Data. The Actual Elevations may Differ from Those Shown on the Drawings. If it is Determined that the Basalt Elevation is Deeper than Shown, Contact Engineer for Updated Soil Nail Embedment Lengths.
12. Contractor Shall Submit Soil Nail Layout for Review Prior to Construction of Soil Nailed Slope.

SOIL NAILED SLOPE CONSTRUCTION SEQUENCE

1. Contractor Shall Select Working Area to Fit His/Her Daily Capacity. Where Soil Nailed Slope is to be Constructed, Prepare the Slope by Removing Trees, Roots, Loose Soil and Other Unsuitable Material.
2. Contractor Shall Survey and Stake Out Locations of all Soil Nails Prior to Drilling.
3. Install The Pre-Production Test Nail Prior to Drilling or Installing any Production Nails. Testing Record Shall be Approved by Engineer, See Sheet S9-12 for Test Nail Detail.
4. Excavate Existing Soil for the Initial Lift of Soil Nails and Temporary shotcrete facing installation.
5. Drill and Install Soil Nails for Initial Lift.
6. Layout Composite Drainage Mat and Reinforcing for Temporary Shotcrete Facing.
7. Install Temporary Shotcrete Facing and Required Anchor Plates and Hardware at Soil Nail Heads.
8. Repeat Steps 4-7 in Sequenced Lifts from the Top of Wall Downward for Subsequent Soil Nail and Temporary Shotcrete Installations.

   8a. If Field Conditions Require the Soil Nails to be Installed After the Installation of the Temporary Shotcrete Facing, the Contractor Shall Field-Locate the Waler Bars Prior to Drilling Operations for Soil Nails. Drill Holes for Soil Nails Without Damaging this Embedded Reinforcement.

9. After all Temporary Shotcrete Lifts Have Been Completed, Install the Reinforcement for the Permanent Facing.
10. After a Minimum of 24 Hours of Curing of the Temporary Shotcrete, Place Shotcrete for Permanent Facing and Sculpted Shotcrete (Rock) Finish in Accordance to the Project Special Provisions.

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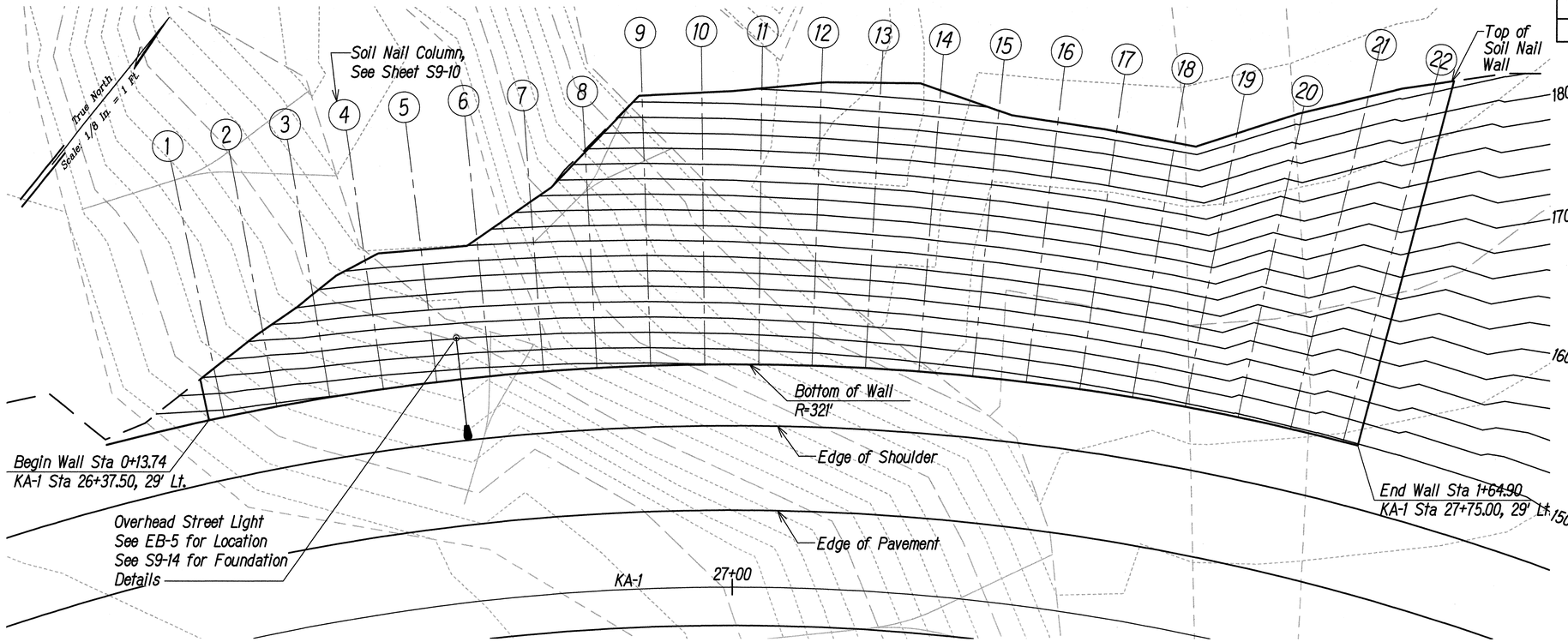
STATE OF HAWAI'I
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HIGHWAYS DIVISION

SOIL NAILED SLOPE GENERAL NOTES

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)
Date: January 20, 2015

SHEET No. S9-8 OF 103 SHEETS

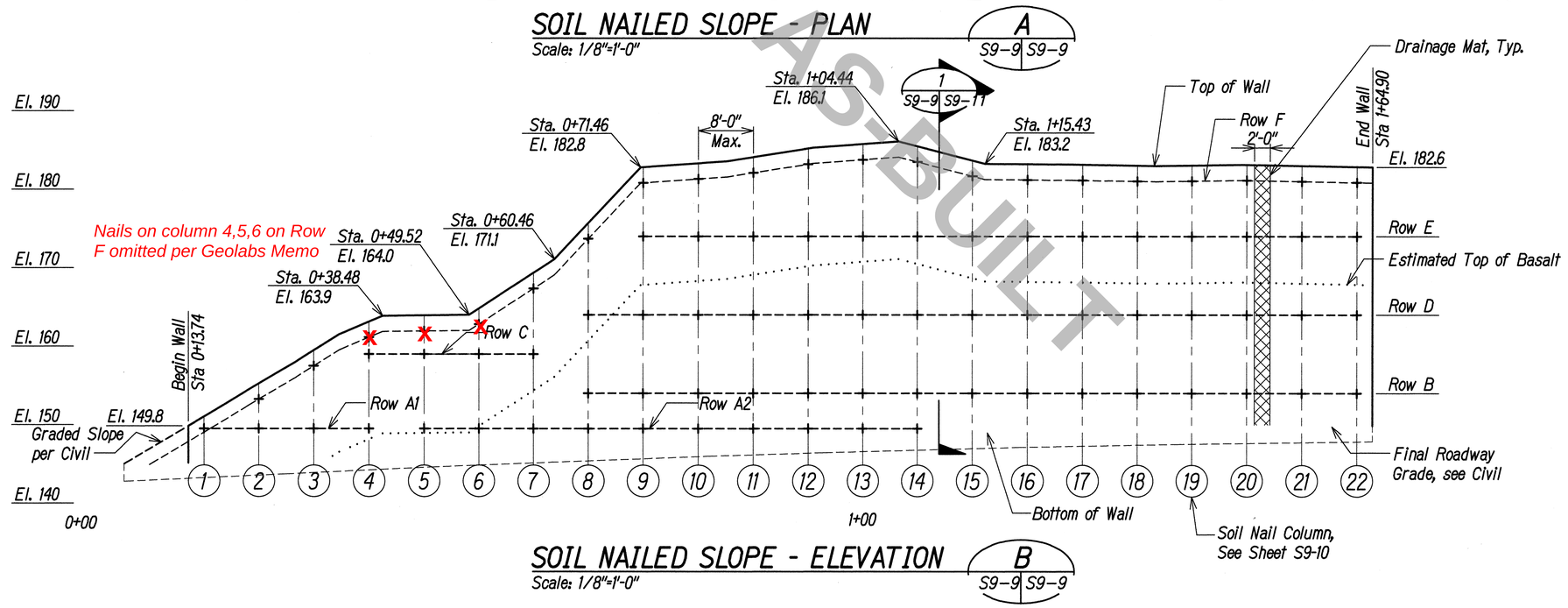
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	318	524



SOIL NAILED SLOPE - PLAN

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

A S9-9 | S9-9



SOIL NAILED SLOPE - ELEVATION

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

B S9-9 | S9-9

AS-BUILT

GRAPHIC SCALE:

8' 0 8' 16'

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

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SOIL NAILED SLOPE PLAN AND ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/8" = 1'-0" Date: January 20, 2015

SHEET No. S9-9 OF 103 SHEETS

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"AS-BUILT"

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HAWAII	HAW.	IM-HI-1(261)	2015	319	524

Soil Nail Slope Alignment	
Column #	Wall Station
Begin Wall	0+13.74
1	0+15.74
2	0+22.75
3	0+29.76
4	0+36.76
5	0+43.77
6	0+50.78
7	0+57.79
8	0+64.79
9	0+71.80
10	0+78.81
11	0+85.82
12	0+92.82
13	0+99.83
14	1+06.84
15	1+13.85
16	1+20.85
17	1+27.86
18	1+34.87
19	1+41.88
20	1+48.88
21	1+55.89
22	1+62.90
End Wall	1+64.90

Row	Elevation	Inclination Angle	Soil Nail Length (Ft)
A1	149.5	15°	20
A2	149.5	15°	10
B	154.0	15°	10
C	159.0	15°	20
D	164.0	15°	10**
E	174.0	15°	20
F	Varies*	15°	20

* Elevation Shall be 2'-0" Below Top of Wall
** Column 8 Shall be 20ft Long.

SOIL NAIL PLAN LAYOUT NOTES:

1. Soil Nail Columns Shall be Oriented in Plan Such that they are Perpendicular to the Roadway Centerline.
2. Soil Nails shall be Installed Parallel to Soil nail Column Lines. Nails May Have a Planar Skew Relative to the Face of Wall.
3. Wall Station is Given at the Bottom of Wall. See Plan on S9-9 and Section 1 on Sheet S9-11.

SOIL NAIL SCHEDULE — A
Not To Scale — S9-10 | S9-10

ORIGINAL PLAN
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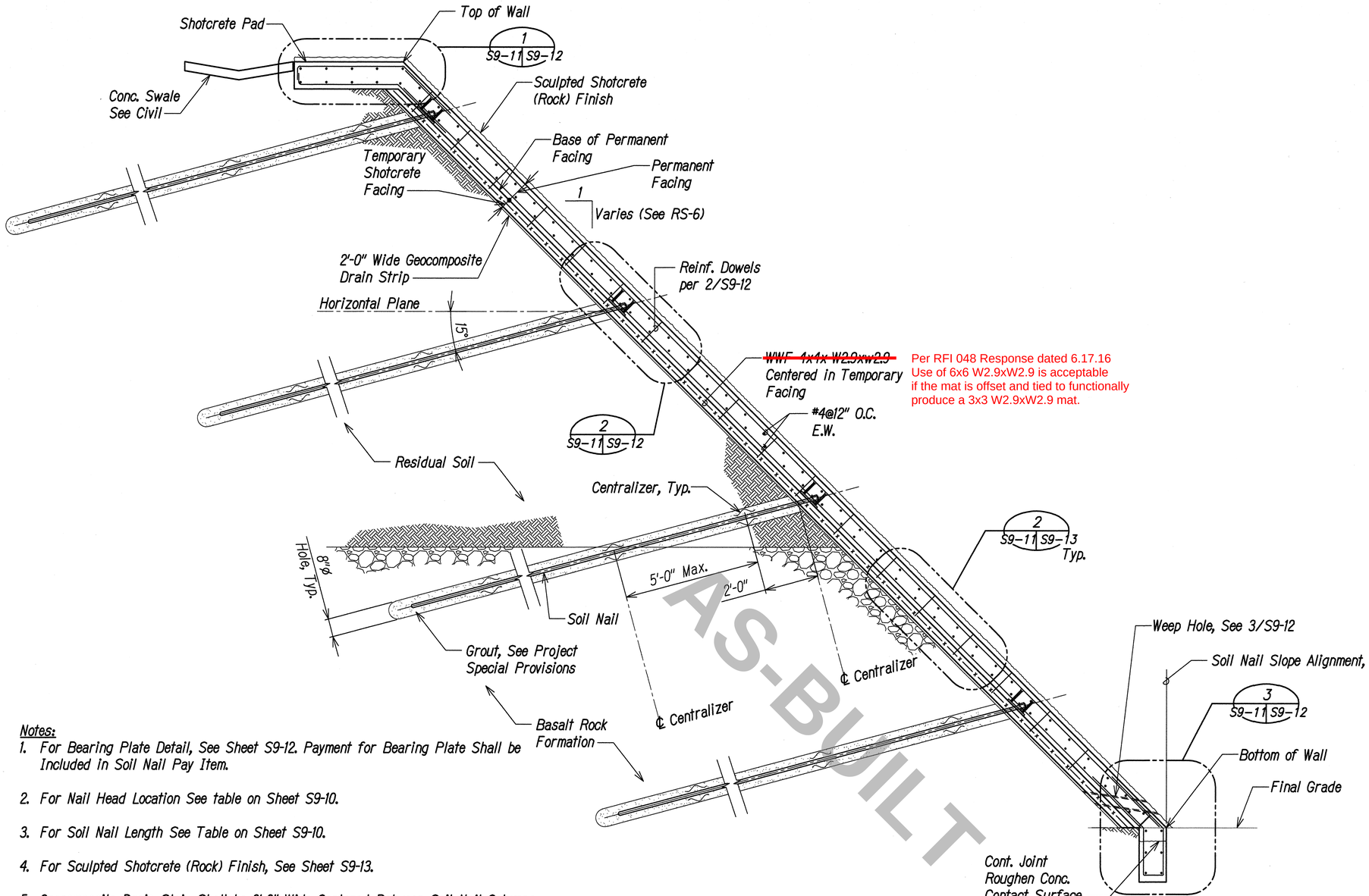
SOIL NAIL SCHEDULE

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not to Scale Date: January 20, 2015

SHEET No. S9-10 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	320	524



Per RFI 048 Response dated 6.17.16
Use of 6x6 W2.9xW2.9 is acceptable
if the mat is offset and tied to functionally
produce a 3x3 W2.9xW2.9 mat.

AS-BUILT

Notes:

1. For Bearing Plate Detail, See Sheet S9-12. Payment for Bearing Plate Shall be Included in Soil Nail Pay Item.
2. For Nail Head Location See table on Sheet S9-10.
3. For Soil Nail Length See Table on Sheet S9-10.
4. For Sculpted Shotcrete (Rock) Finish, See Sheet S9-13.
5. Geocomposite Drain Strip Shall be 2'-0" Wide Centered Between Soil Nail Columns.
6. Weep Hole Shall be Centered at the Geocomposite Drain Strip.
7. Drain Connection to Weephole as per Manufacturer's Recommendations.
8. Reinforcing Lap Splices:
   WWF: Lap 8" Min.
   #4 Reinf: 2'-0" Min., U.O.N.
   Stagger Splices, Submit Splice Locations for Review Prior to Placement.

TYPICAL SECTION SOIL NAILED SLOPE

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

1 / S9-9 | S9-11

GRAPHIC SCALE:
2' 0 2' 4'
SCALE: 1/2"=1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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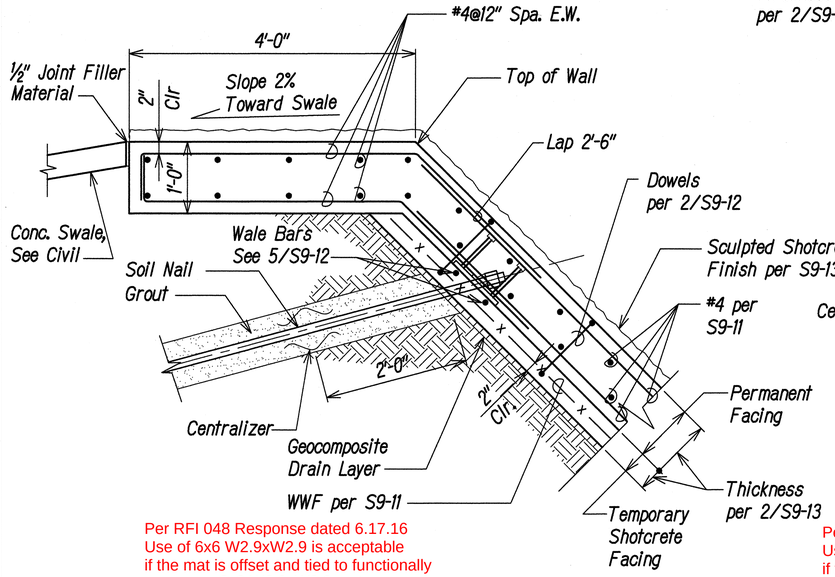
TYPICAL SECTION
SOIL NAILED SLOPE
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: 1/2" = 1'-0" Date: January 20, 2015

SHEET No. S9-11 OF 103 SHEETS

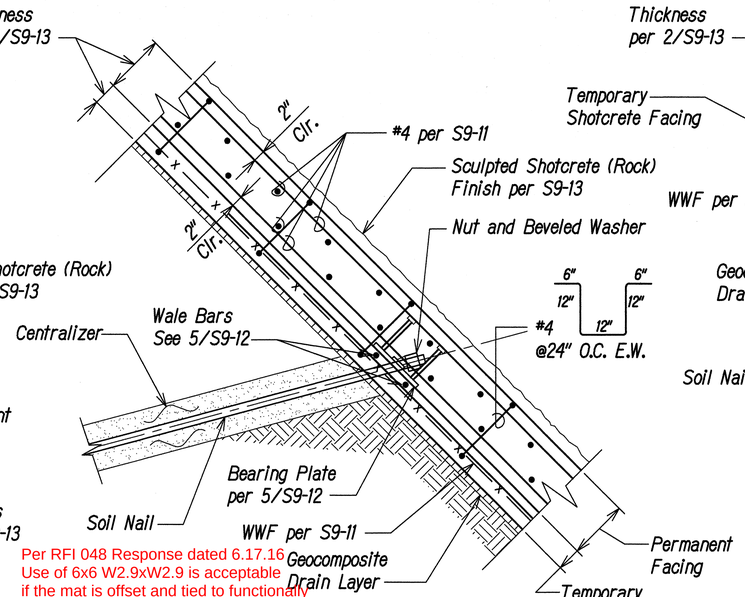
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HAWAII	HAW.	IM-HI-1(261)	2015	321	524



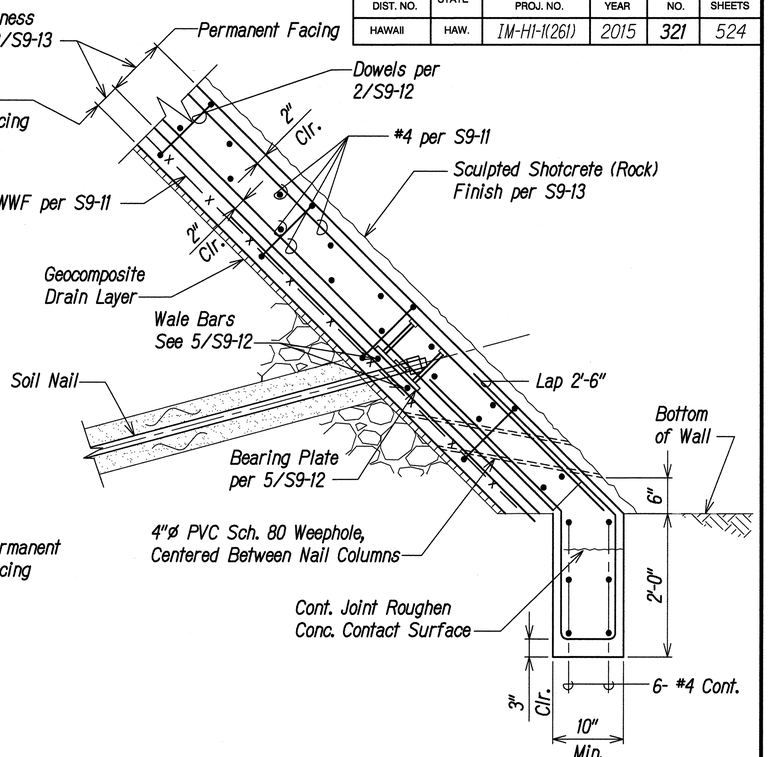
Per RFI 048 Response dated 6.17.16
Use of 6x6 W2.9xW2.9 is acceptable if the mat is offset and tied to functionally produce a 3x3 W2.9xW2.9 mat.

DETAIL 1
Scale: 1"=1'-0" — S9-11 S9-12

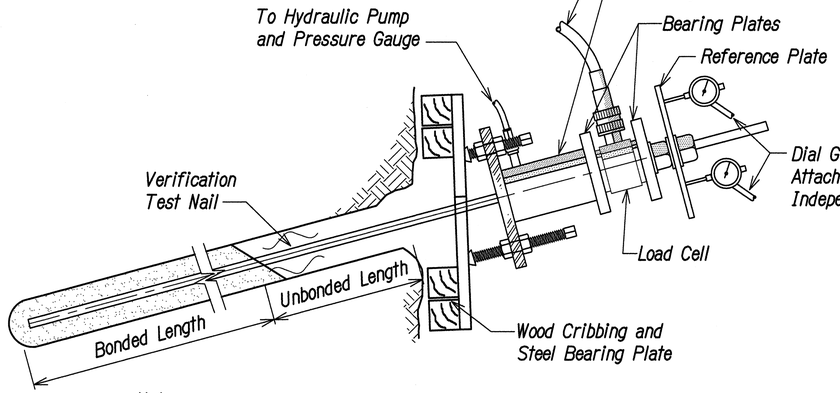


Per RFI 048 Response dated 6.17.16
Use of 6x6 W2.9xW2.9 is acceptable if the mat is offset and tied to functionally produce a 3x3 W2.9xW2.9 mat.

DETAIL 2
Scale: 1"=1'-0" — S9-11 S9-12



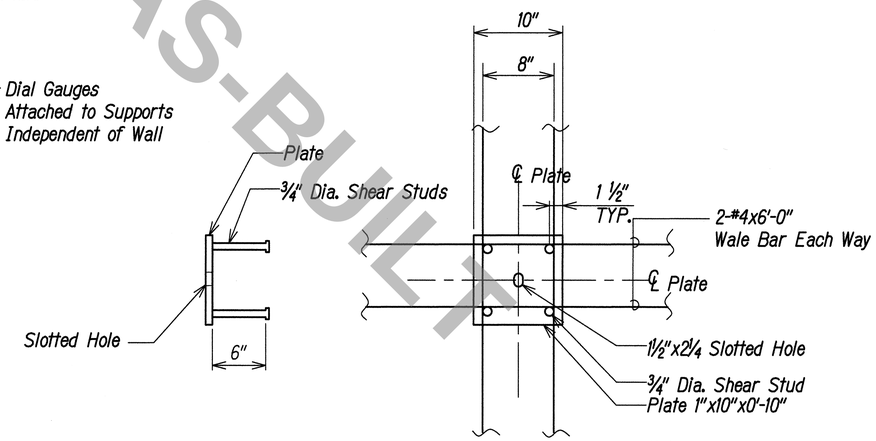
DETAIL 3
Scale: 1"=1'-0" — S9-11 S9-12



Notes:

1. Bare Bars May be Used for Sacrificial Test Nails.
2. Proof Test Detail is Same Except Load Cell is not Required.
3. The Pre Production Load Test Soil Nail Shall be a Sacrificial Soil Nail.
4. Contractor Shall be Responsible for Test Apparatus and Equipment.

VERIFICATION TEST SOIL NAIL DETAIL 4
Scale: 1"=1'-0" — S9-8 S9-12



Note: Galvanize Anchor Assembly.

BEARING PLATE DETAIL 5
Scale: 1 1/2"=1'-0" — S9-11 S9-12

GRAPHIC SCALES:

1" 6" 0 1" 2"
SCALE: 1"=1'-0"

GRAPHIC SCALE:

1" 9" 6" 3" 0 1"
SCALE: 1 1/2"=1'-0"

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SOIL NAILED SLOPE DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

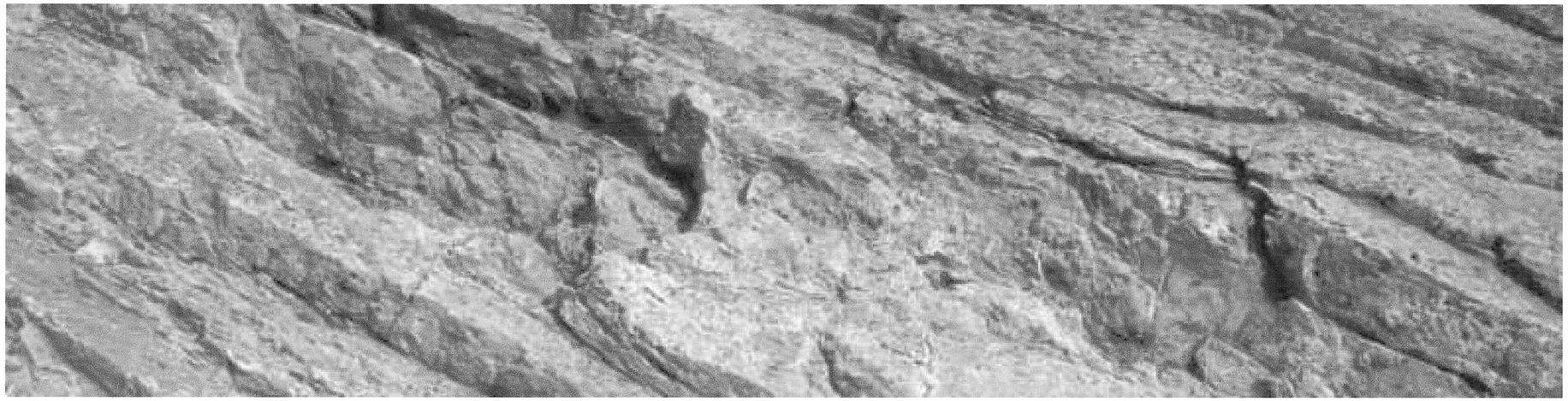
Scale: As Shown — Date: January 20, 2015

SHEET No. S9-12 OF 103 SHEETS

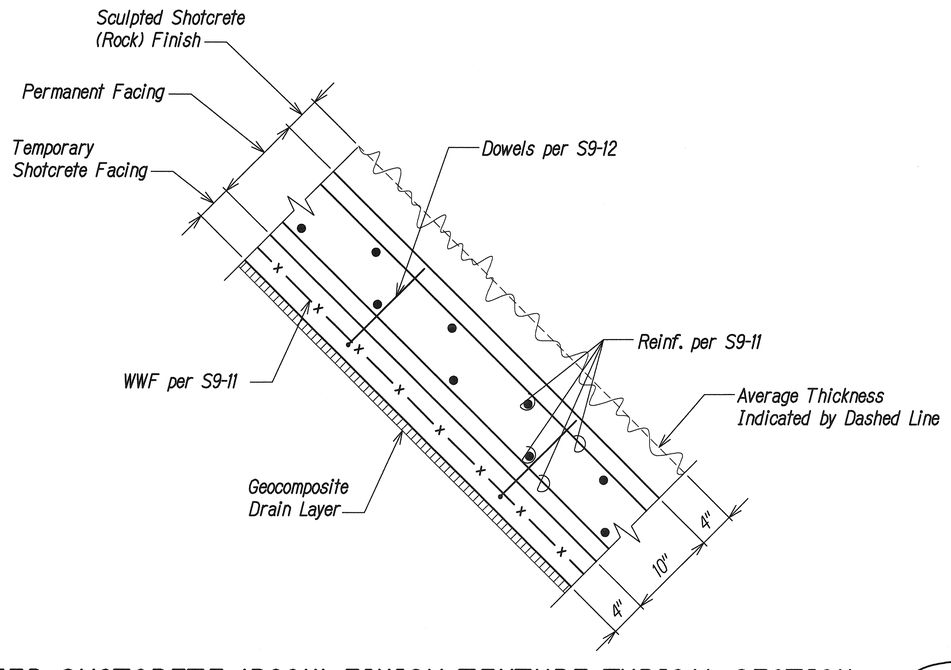
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AS-BUILT
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HAWAII	HAW.	IM-HI-1(261)	2015	322	524



SCULPTED SHOTCRETE (ROCK) FINISH TEXTURE 1
Not To Scale S9-13 | S9-13



SCULPTED SHOTCRETE (ROCK) FINISH TEXTURE TYPICAL SECTION 2
Not To Scale S9-11 | S9-13

Notes:

1. Sculpted Shotcrete (Rock) Finish Texture Photo Shown on This Sheet Represents Required Finish of Soil Nailed Slope That Contractor Shall Provide on the Exposed Surface of the Permanent Facing. See Section 628 of the Standard Specifications. For Additional Requirements See Section 658 of Special Provisions.
2. Max 4" Sculpted Shotcrete (Rock) Finish Texture Thickness Shall Vary max. 2" (±) From Theoretical Average Thickness Line Shown.
3. Geocomposite Drain, WWF, Dowels, Concrete and Reinforcing Steel, Incidental to Shotcrete Pay Item.

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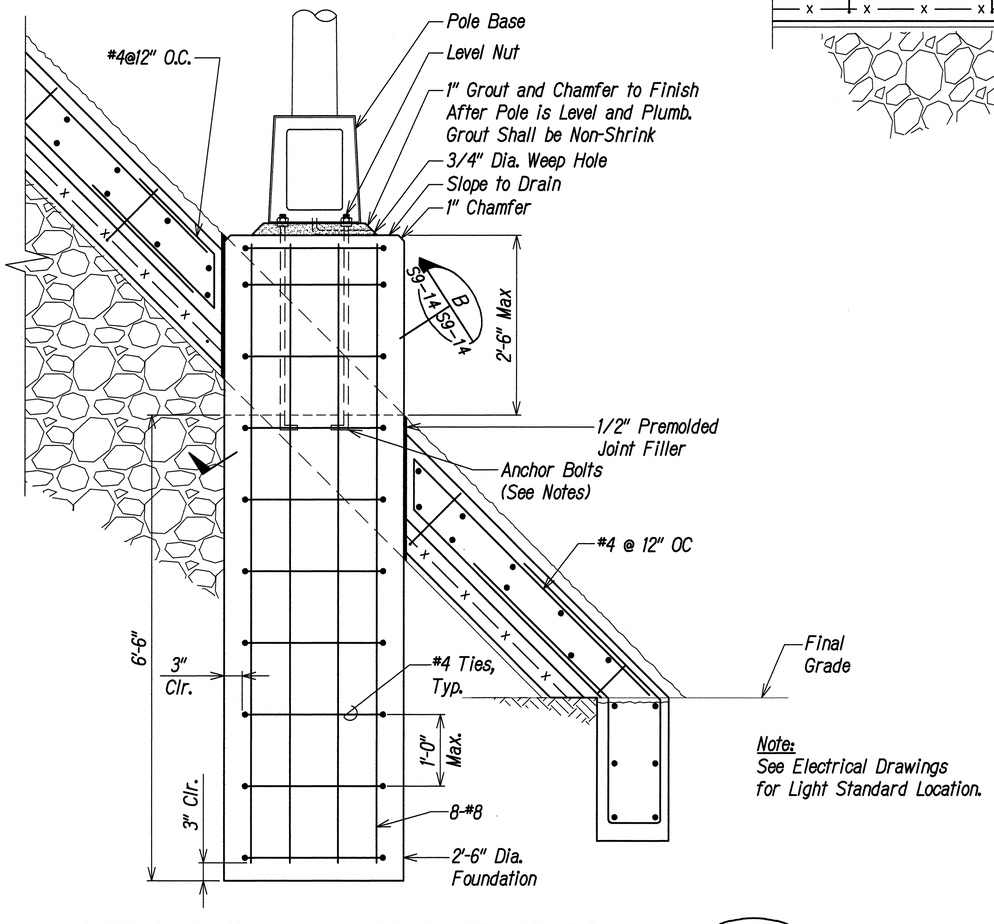
SOIL NAILED SLOPE DETAILS

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

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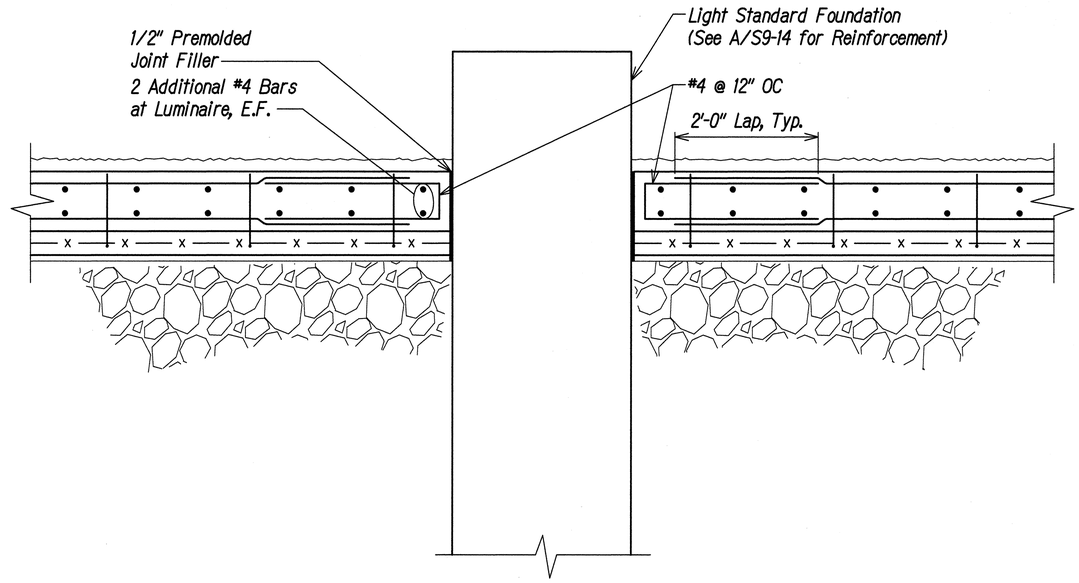
SHEET No. S9-13 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	323	524



SOIL NAIL WALL AT LIGHT STANDARD A
Scale: 1"=1'-0" S9-14 | S9-14

Note:
See Electrical Drawings
for Light Standard Location.



SOIL NAILED SLOPE SECTION B
Scale: 1"=1'-0" S9-14 | S9-14

Notes:

1. For Typical Soil Nail Wall Reinforcing Details See S9-11.
2. Temporary Shotcrete Facing and Soil Nails Shall be Installed Prior to Installation of Light Standard Foundation.
3. Temporary Casing Shall be Used During Construction of Light Standard Foundation.
4. Anchor Bolt Size and Embedment to be Verified by Light Pole Manufacturer.
5. Anchor Bolts Shall be Provided by Light Pole Manufacturer. Contractor Shall Coordinate to Prevent Delays.
6. For Additional In Formation See Electrical Sheets EC-9 Through EC-13.

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GRAPHIC SCALE:
1" 6" 0 1' 2'
SCALE: 1"=1'-0"

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DEPARTMENT OF TRANSPORTATION
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SOIL NAILED SLOPE AT LIGHT STANDARD

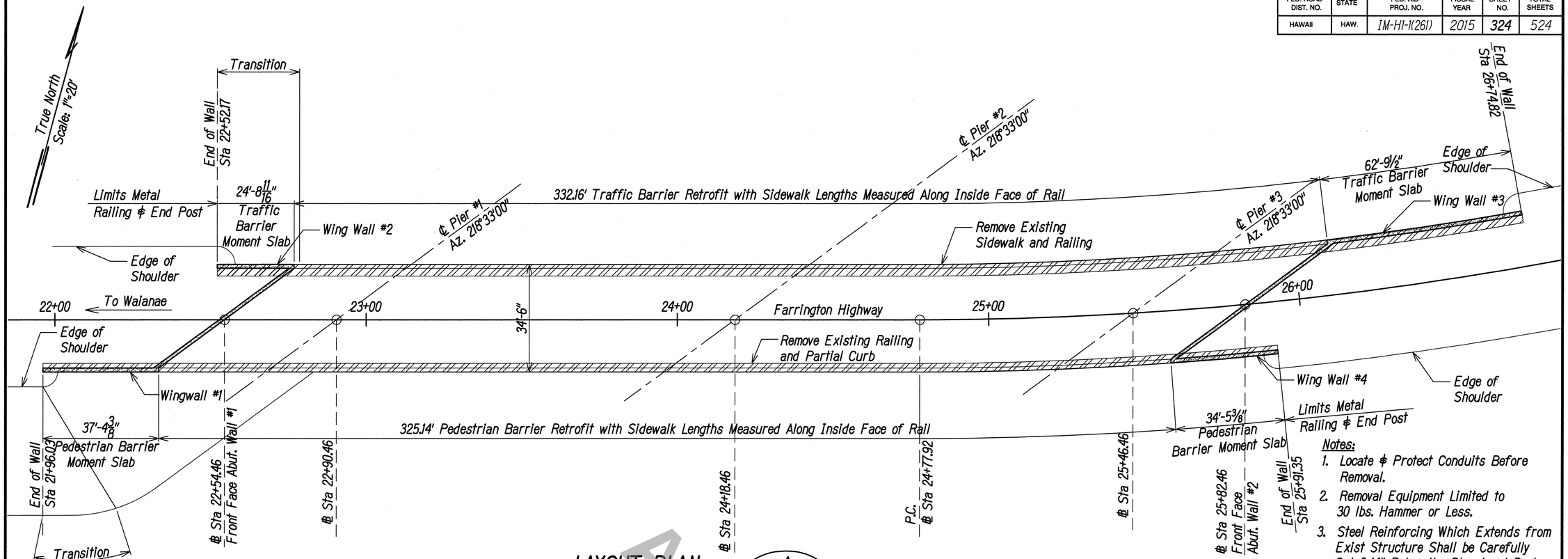
INTERSTATE ROUTE H-1
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(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1" = 1'-0" Date: January 20, 2015

SHEET No. S9-14 OF 103 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
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	QUANTITIES BY	
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	324	524



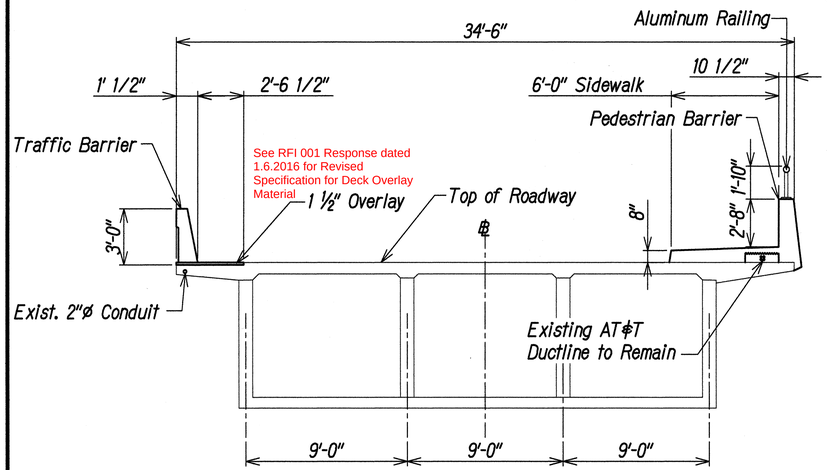
LAYOUT PLAN — A

Scale: 1/16"=1'-0"

S10-1 | S10-1

Notes:

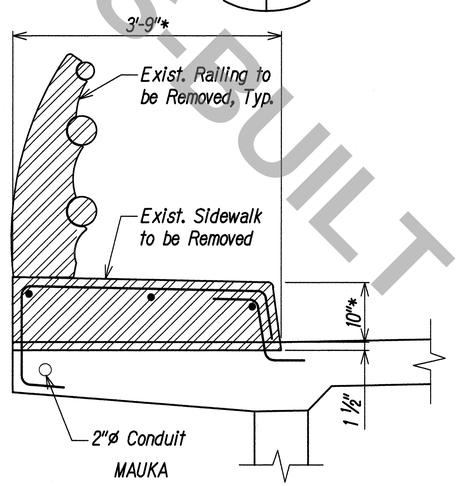
1. Locate ℄ Protect Conduits Before Removal.
2. Removal Equipment Limited to 30 lbs. Hammer or Less.
3. Steel Reinforcing Which Extends from Exist Structure Shall be Carefully Cut 3/4" Below the Structural Deck and Patched with Grout per Section 712.04.

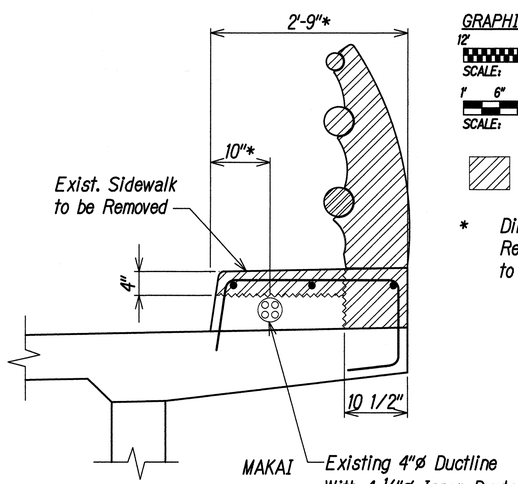


TYPICAL SECTION RETROFIT — B

Not to Scale

S10-1 | S10-1





RAILING REMOVAL ON BRIDGE — C

Scale: 1"=1'-0"

S10-1 | S10-1

GRAPHIC SCALES:

12' 0 12' 24'
SCALE: 1/16"=1'-0"

1' 6" 0 1' 2'
SCALE: 1"=1'-0"

Removal Extents

* Dimensions Based on Record Drawings. Contractor to Verify.

ITZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 18128
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

ORIGINAL PLAN | NOTE BOOK | No.

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

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION RAILING RETROFIT REMOVAL (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

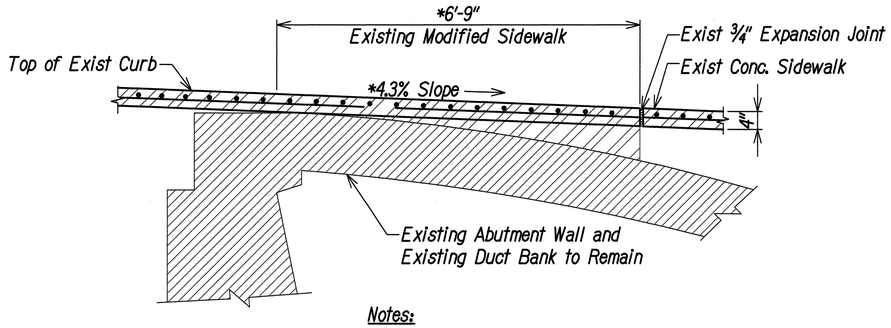
Scale: As Shown — Date: January 20, 2015

SHEET No. S10-1 OF 103 SHEETS

AS-BUILT

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	325	524

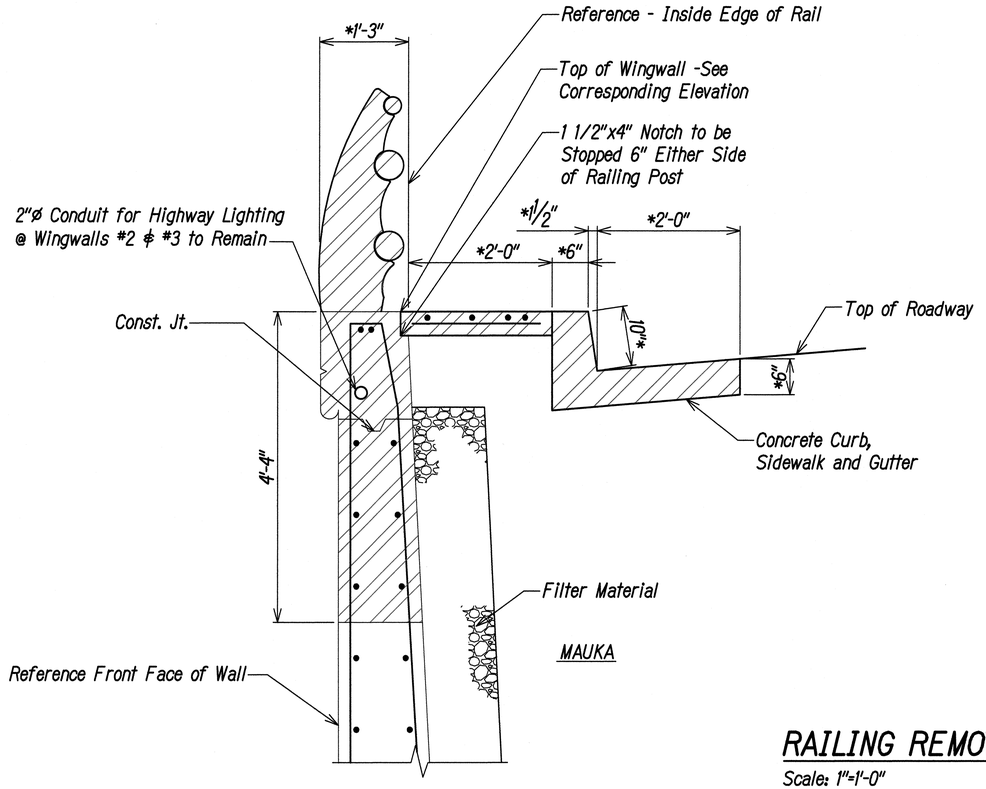


Notes:
1. Remove Existing Sidewalk to Existing Abutment Wall and Existing Duct Bank.

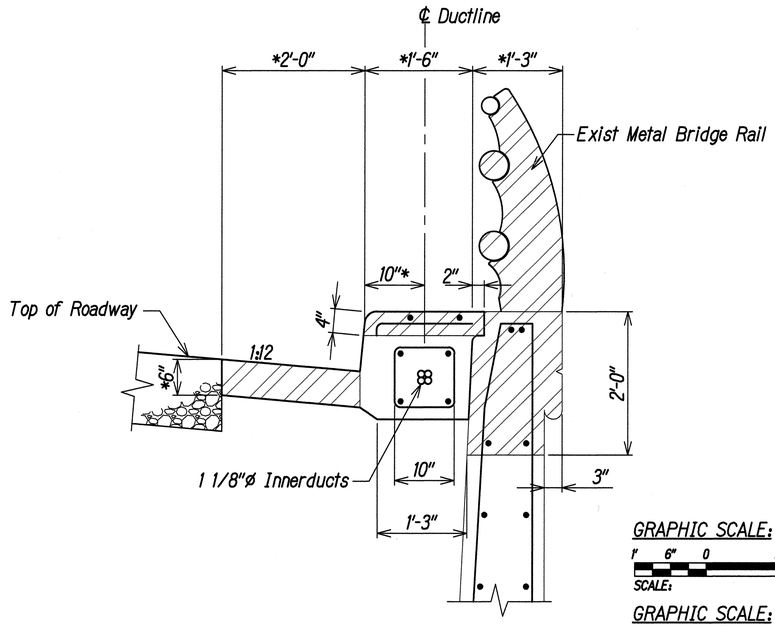
EXIST. MAKAI SIDEWALK AT EXIST. DUCTLINE

A S10-2 | S10-2

Scale: ¾"=1'-0"



MAUKA



MAKAI

RAILING REMOVAL ON WING WALLS

B S10-2 | S10-2

Scale: 1"=1'-0"

Notes:
1. Removal of Farrington Highway Sidewalk Shall be Completed in Accordance with Special Provisions.

Removal Extents

* Dimension Based on Record Drawings. Contractor to Verify.

GRAPHIC SCALE:
1' 6" 0 1' 2'
SCALE: 1"=1'-0"

GRAPHIC SCALE:
1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER * No. 18139 * HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION RAILING RETROFIT REMOVAL (2)

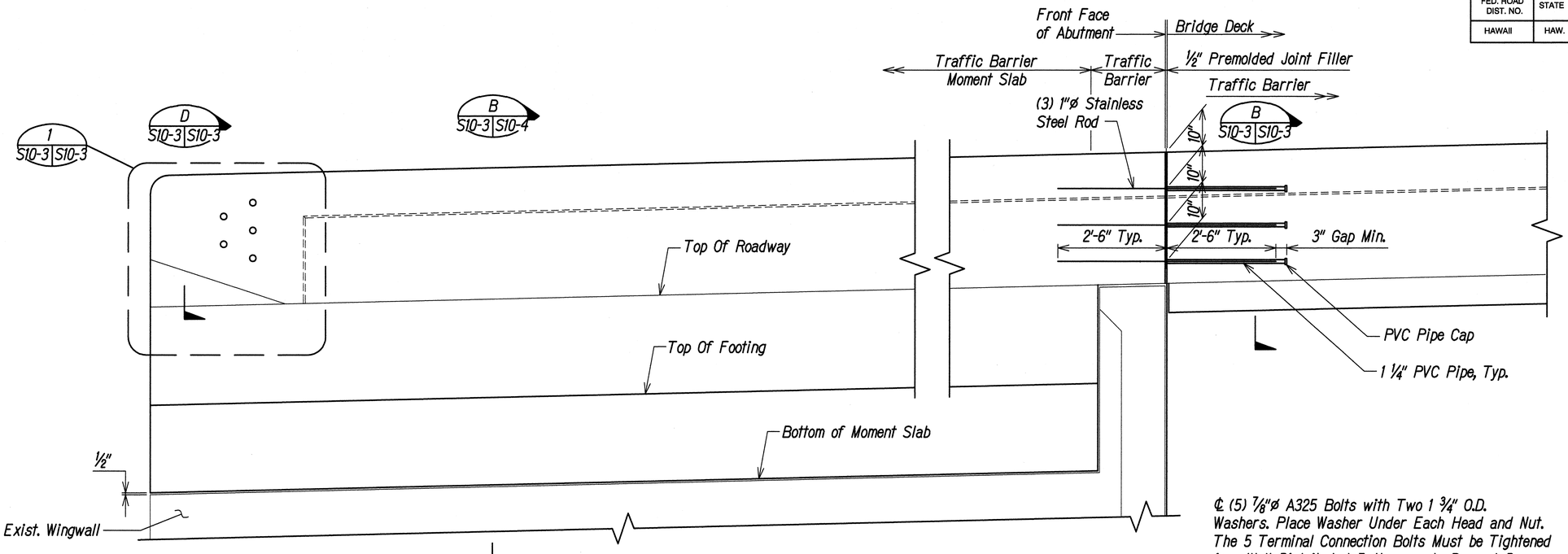
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S10-2 OF 103 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	326	524

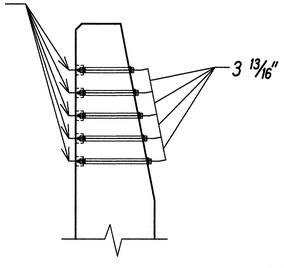


ELEVATION-TRAFFIC BARRIER MOMENT SLAB AT WING WALL #2

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

A S10-3 | S10-3

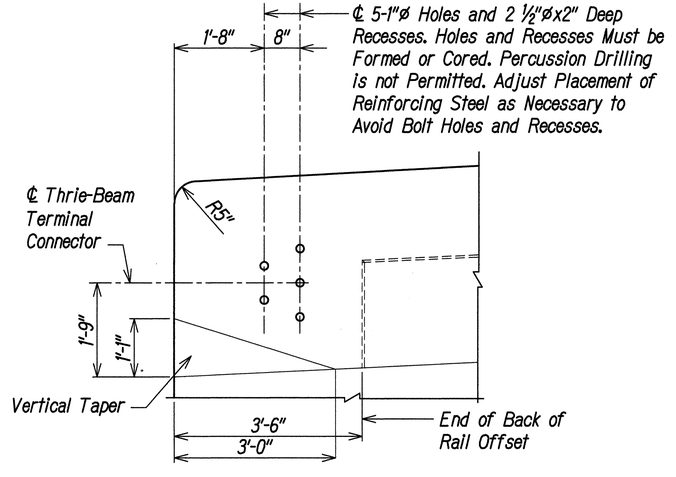
℄ (5) ⅞"ø A325 Bolts with Two 1 ¾" O.D. Washers. Place Washer Under Each Head and Nut. The 5 Terminal Connection Bolts Must be Tightened in a Well Distributed Pattern so to Prevent Damage or Distortion of the Thrie-Beam Connection and the MBGF Transition. Bolts Must be Cut Off After Installation so as to Extend no More Than ¾" Beyond Nut. End of Cut-Off Bolt Must be Painted with Zinc-Rich Paint



SECTION

Not to Scale

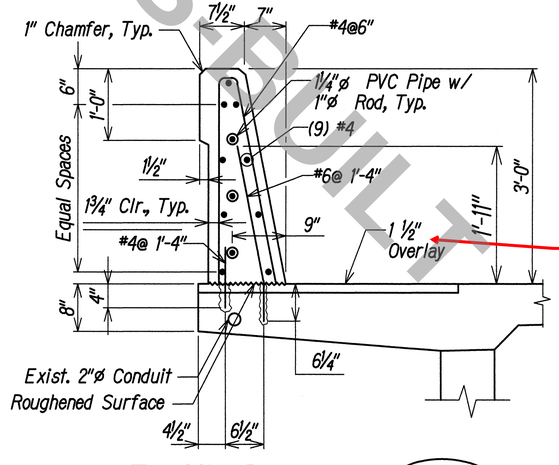
D S10-3 | S10-3



ELEVATION

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

1 S10-3 | S10-3



See RFI 001 Response dated 1.6.2016 for Revised Specification for Deck Overlay Material

Traffic Barrier

Scale: 1"=1'-0"

B S10-3 | S10-3

Note: See S8-1 for Dummy Joint Details and Spacing

AS-BUILT

IZZAT H. HASAEN
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HAWAII, U.S.A.
EXPIRES 4/30/16

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GRAPHIC SCALE:

1" 0 1' 2' 3'
SCALE: 3/4"=1'-0"

1' 6" 0 1' 2'
SCALE: 1"=1'-0"

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION TRAFFIC BARRIER RETROFIT (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

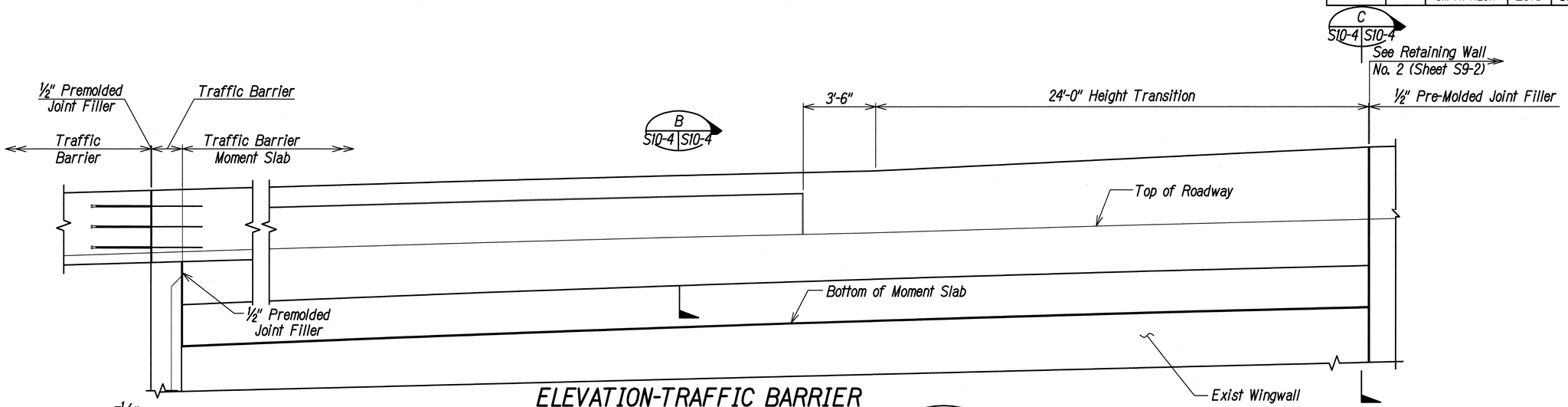
SHEET No. S10-3 OF 103 SHEETS

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

NOTE BOOK | No.

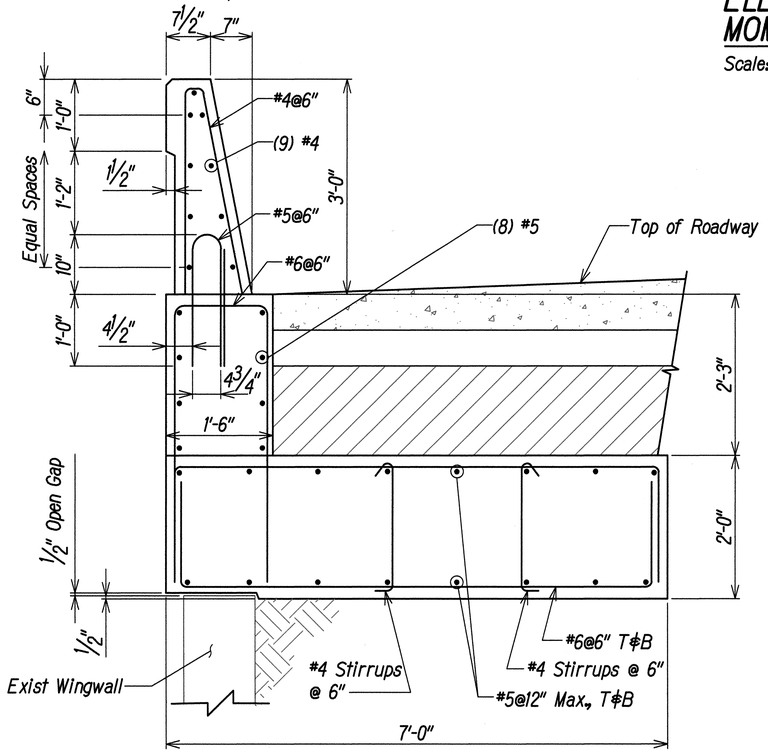
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	327	524



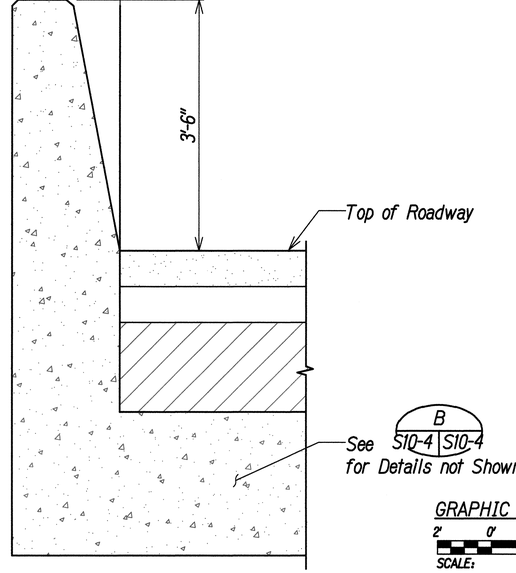
ELEVATION-TRAFFIC BARRIER MOMENT SLAB AT WING WALL #3 A S10-4 S10-4

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



TRAFFIC BARRIER MOMENT SLAB B S10-3, S10-4 S10-4

Scale: 1"=1'-0"



TRAFFIC BARRIER C S10-4 S10-4

Scale: 1"=1'-0"

Notes:

1. Restore PCC Pavement with Full Panels; 15'x12' Ea. Approx. (Contractor to Verify)
2. Restoration of Roadway Pavement Shall be Paid as Part of Traffic Barrier Moment Slab.

GRAPHIC SCALE:

2' 0' 2' 4' 6'
SCALE: 3/8" = 1'-0"

1' 6" 0 1' 2'
SCALE: 1"=1'-0"

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER No. 15129 * HAWAII, U.S.A.
EXPIRES 4/30/16

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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

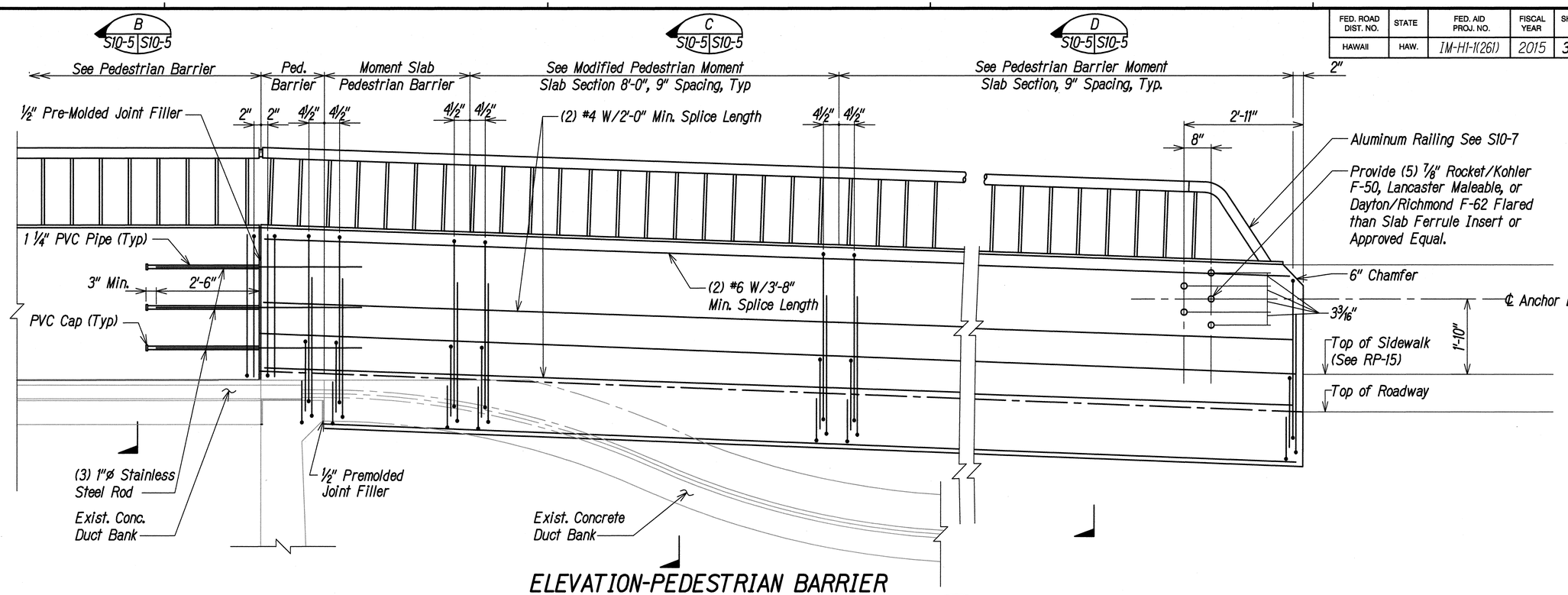
FARRINGTON HWY SEPARATION
TRAFFIC BARRIER RETROFIT (2)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S10-4 OF 103 SHEETS

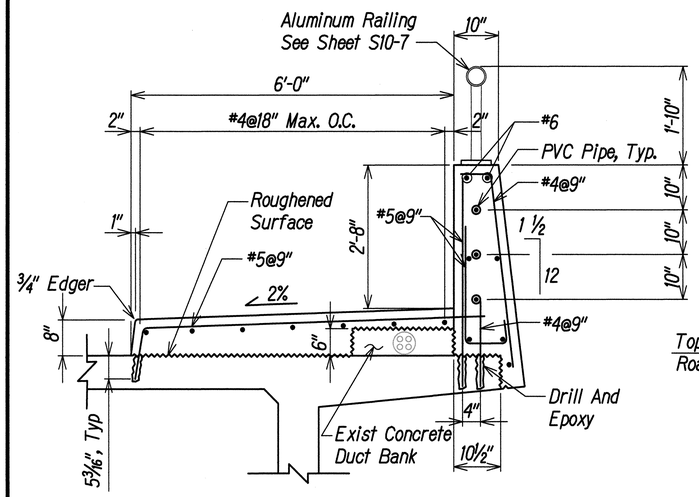
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	328	524



ELEVATION-PEDESTRIAN BARRIER MOMENT SLAB AT WING WALL #1 (A S10-5 | S10-5)

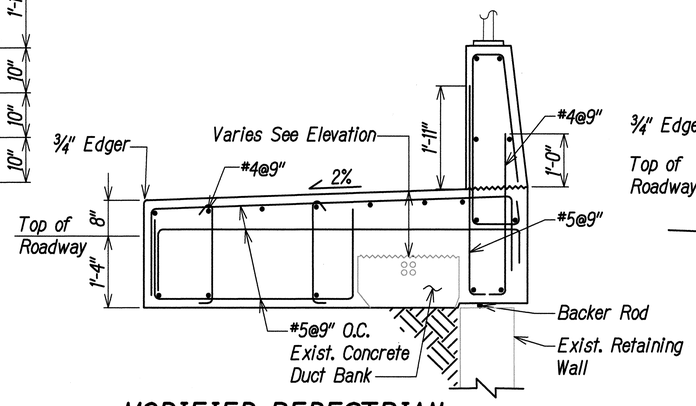
Scale: ¾"=1'-0"



PEDESTRIAN BARRIER (B S10-5, S10-6 | S10-5)

Scale: ¾"=1'-0"

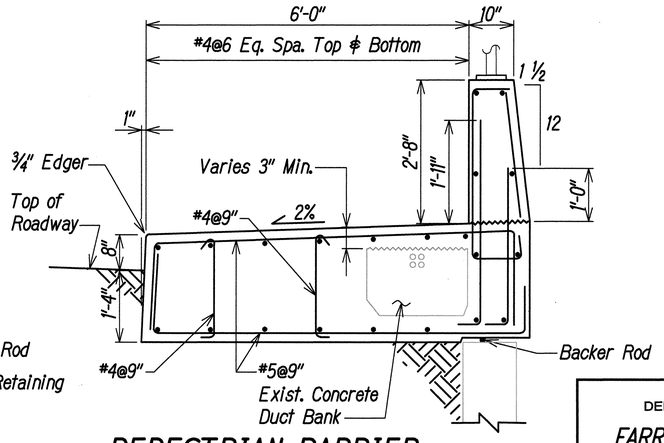
Note: See S8-1 for Dummy Joint Details and Spacing Requirements.



MODIFIED PEDESTRIAN MOMENT SLAB (C S10-5, S10-6 | S10-5)

Scale: ¾"=1'-0"

For Details not Shown see Pedestrian Barrier Moment Slab Typical Section



PEDESTRIAN BARRIER MOMENT SLAB (D S10-5, S10-6 | S10-5)

Scale: ¾"=1'-0"

Note: See S8-1 for Dummy Joint Details and Spacing Requirements

GRAPHIC SCALE:

1' 0 1' 2' 3'

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

IZZAT H. HASAYEN
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EXPIRES 4/30/16

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STATE OF HAWAI'I
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HIGHWAYS DIVISION

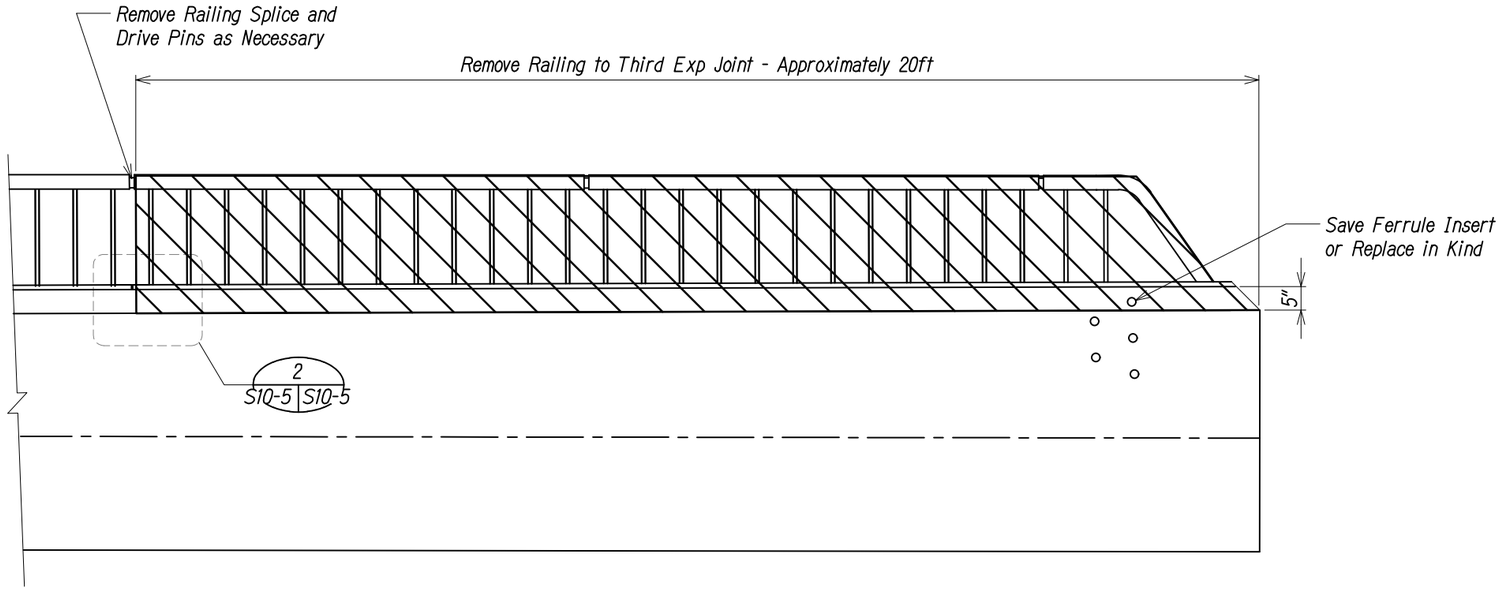
FARRINGTON HWY SEPARATION
PEDESTRIAN BARRIER RETROFIT(1)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: ¾" = 1'-0" Date: January 20, 2015

SHEET No. S10-5 OF 103 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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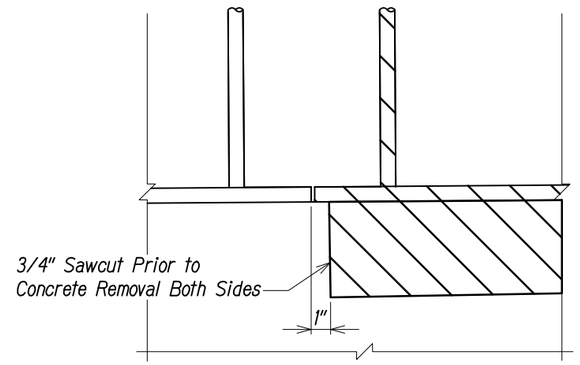
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	C.C.O. 328	524



ELEVATION – FARRINGTON HIGHWAY RAILING REMOVAL EXTENTS

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

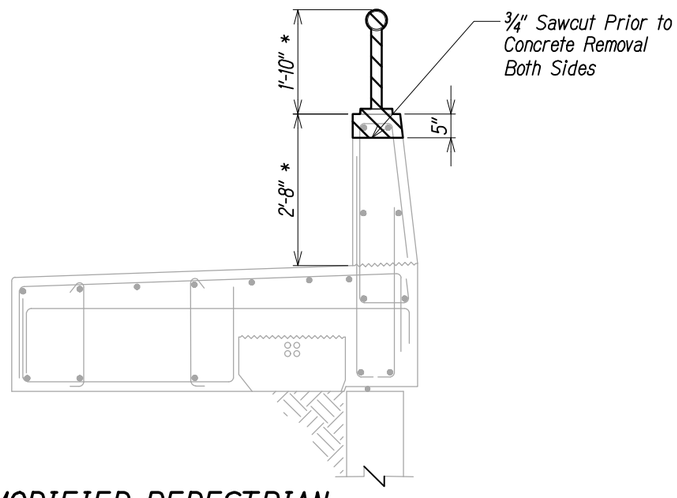
1 / S10-5 | S10-5



DEMOLITION DETAIL

Scale: 3"=1'-0"

2 / S10-5 | S10-5



MODIFIED PEDESTRIAN MOMENT SLAB

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

A / S10-5 | A10-5

Demo Extents

Notes:

1. Hatch Lines Indicate Removal Limits.
2. Save and Clean Existing Rebar and Guardrail Inserts.
3. Clean and Roughen all Surfaces in Contact with New Concrete.

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

DATE	REVISION
4/27/20	Deleted Sections D Moment Slabs. Reduced Length of Aluminum Railing. Added Demolition Detail.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION PEDESTRIAN BARRIER RETROFIT(1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Date: January 20, 2015

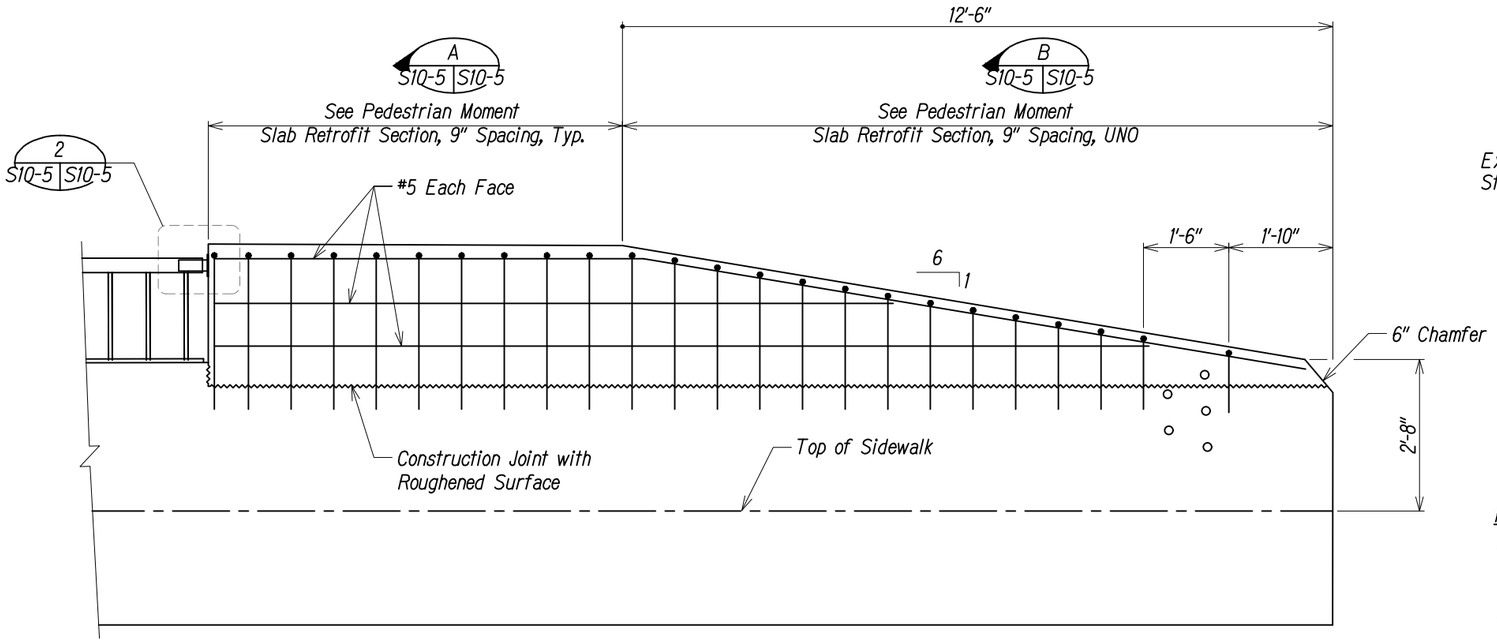
SHEET No. S10-5 OF 103 SHEETS

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

"AS-BUILT"

C.C.O. 328

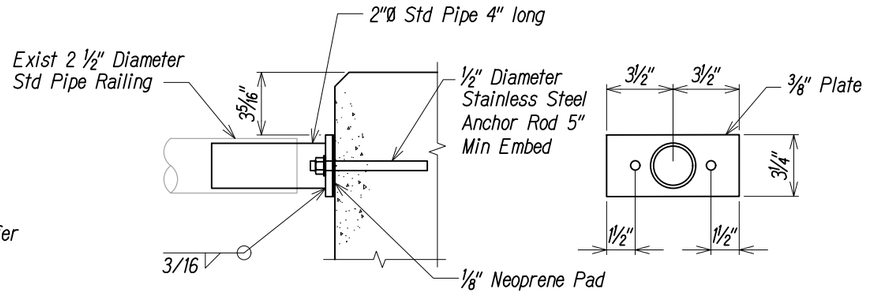
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	C.C.O. 328 S-1	524



ELEVATION – FARRINGTON HIGHWAY RAILING RETROFIT

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

1
S10-5 | S10-5



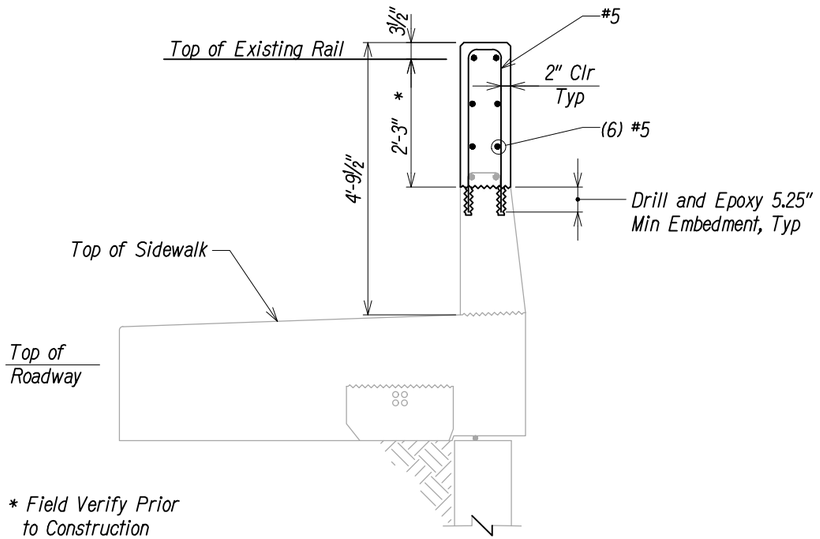
RAILING CONNECTION PLATE

Scale: 3"=1'-0"

2
S10-5 | S10-5

Railing Notes:

1. Railing Connection Plate, Including Std Pipe Shall Conform to ASTM B221-6005-T5, 6005A-T5 or ASTM B241-6061-T6.
2. Aluminum Plate Shall be Given a Clear Anodic Coating at Least 0.0006" Thick, and Shall be Sealed to Meet the Requirements of ASTM B580 and Have a Uniform Finish.
3. Welding of Aluminum Shall Conform to Std Spec Section 715.03.
4. Stainless Steel Anchor Rods Conform to ASTM F593B. Stainless Steel Nuts and Washers Shall Conform to ASTM F594. Insert (1) Nylon Washer Between Aluminum Plate and Each Stainless Steel Washer.

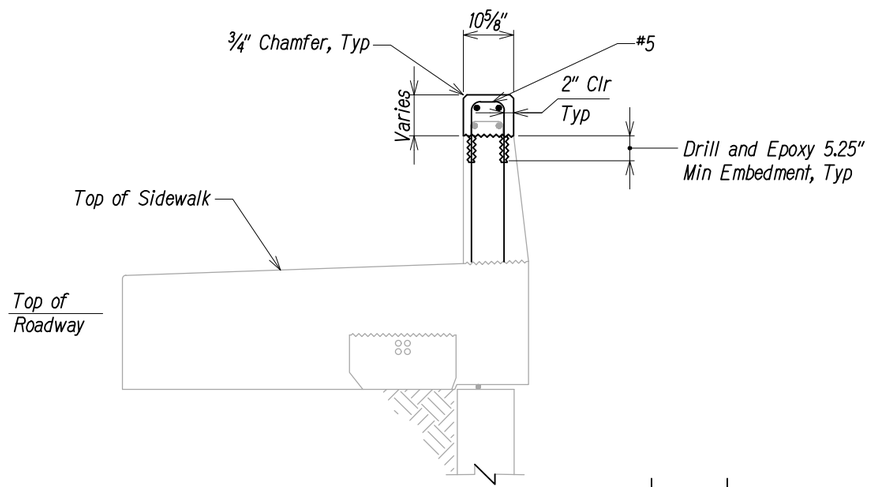


* Field Verify Prior to Construction

PEDESTRIAN MOMENT SLAB RETROFIT

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

A
S10-5 | S10-5



PEDESTRIAN MOMENT SLAB RETROFIT

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

B
S10-5 | S10-5

DATE	REVISION
4/27/20	Added Sheet

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No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/18

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APRIL 30, 2018
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION
PEDESTRIAN BARRIER RETROFIT(1)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale:
Date: January 20, 2015

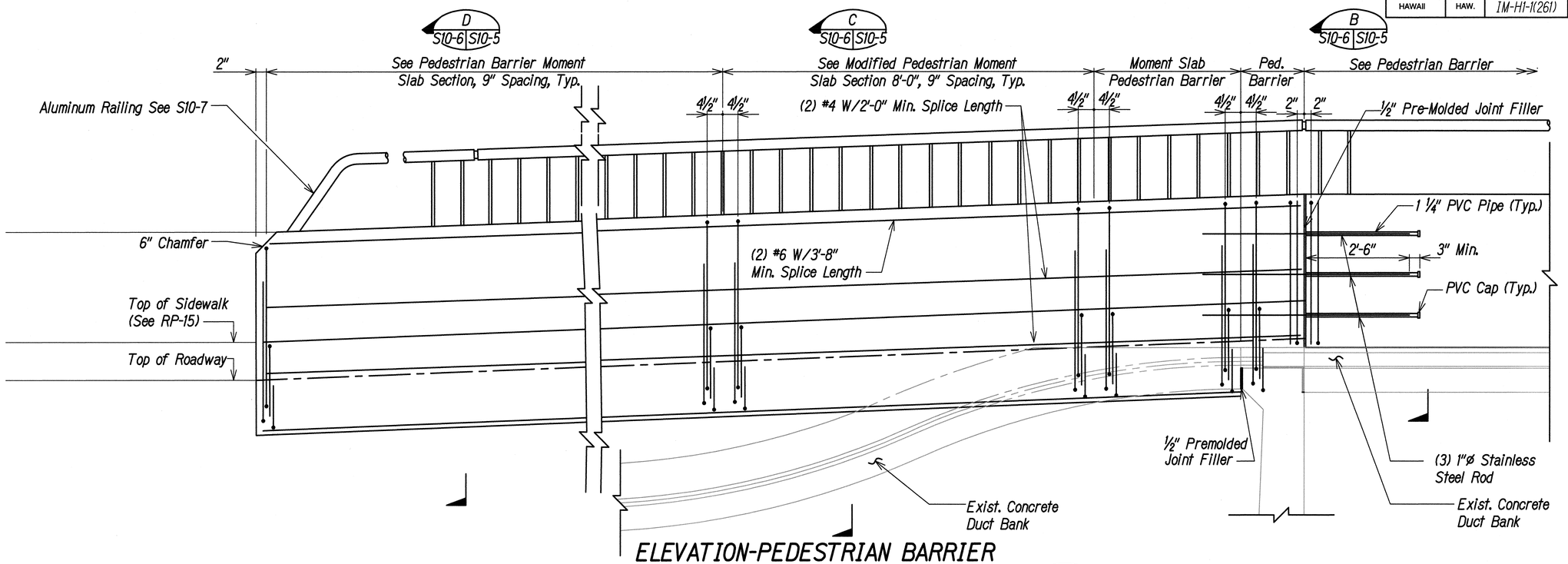
SHEET No. S10-5 OF 103 SHEETS

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

"AS-BUILT"

C.C.O. 328 S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	329	524



ELEVATION-PEDESTRIAN BARRIER MOMENT SLAB AT WING WALL #4

Scale: ¾"=1'-0"

A
S10-6 S10-6

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

GRAPHIC SCALE:
1' 0 1' 2' 3'
SCALE: 3/4"=1'-0"

IZZAT H. HASSAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

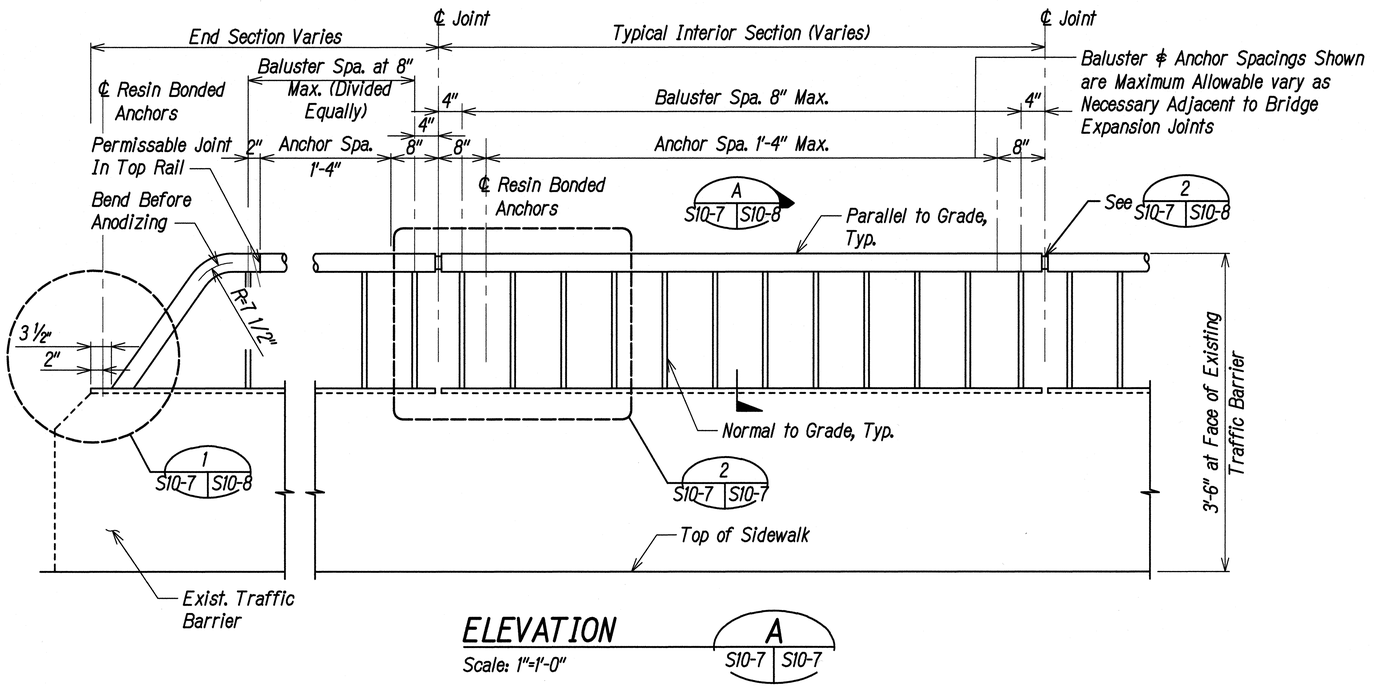
STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION
PEDESTRIAN BARRIER RETROFIT(2)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: ¾" = 1'-0" Date: January 20, 2015

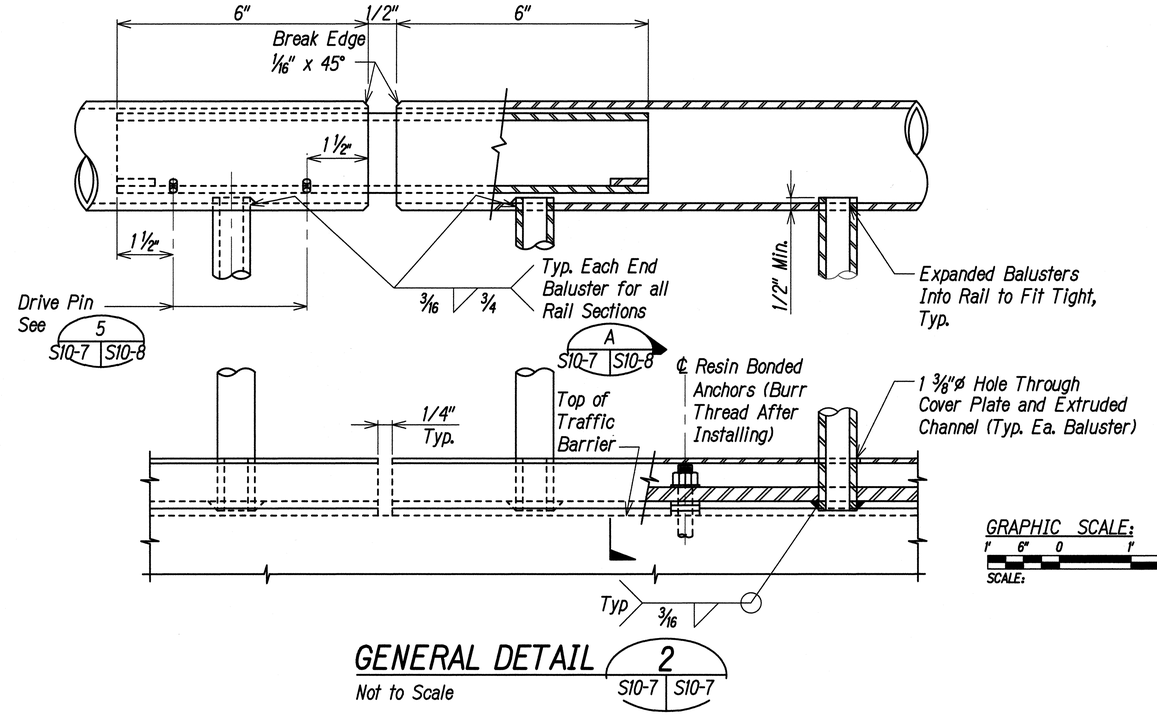
SHEET No. S10-6 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	330	524



ELEVATION A S10-7 S10-7

Scale: 1"=1'-0"



GENERAL DETAIL 2 S10-7 S10-7

Not to Scale

GRAPHIC SCALE:
1' 6" 0 1' 2'
SCALE: 1"=1'-0"

Notes:

1. *Pipe Railing, Pipe Railing Splices, Cover Plates and Bottom Extruded Channels shall be bent to the Horizontal Curve where the Radius of Curvature is less than 200 feet.*
2. *Shop Drawings of Railing shall be Submitted for Approval Showing Complete Dimensions and Details of Fabrication and Including an Erection Diagram. Material being used shall be Specified in the Shop Drawings.*
3. *Cutting shall be done by Sawing or Milling and all Cuts shall be True and Smooth. Flame Cutting will not be permitted.*
4. *Welding of Aluminum shall Conform to Std. Spec. Section 715.03.*
5. *All Aluminum parts shall be Given a Clear Anodic Coating at least 0.0006" Thick, and Shall be Sealed to meet the Requirements of ASTM B 580 and shall have Uniform Finish.*
6. *Pipe Rolling, Pipe Balusters, Pipe Rolling Splices, Cover Plates and Bottom Extruded Channels shall be Adequately Wrapped to Insure Surface Protection During Handling and Transportation to the Job Site.*

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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APRIL 30, 2016
KPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

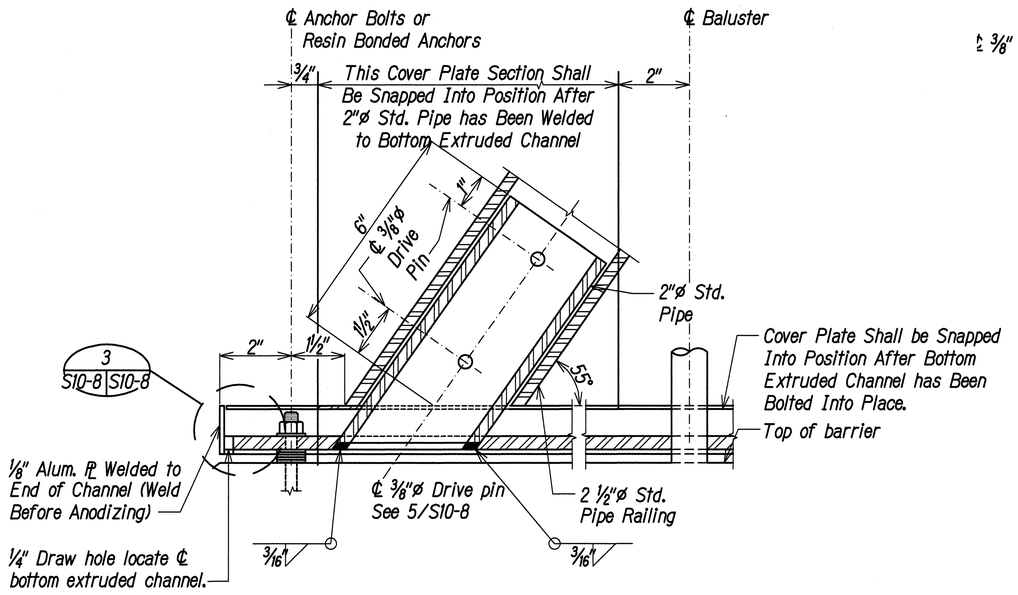
FARRINGTON HWY SEPARATION ALUMINUM PEDESTRIAN RAILING (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

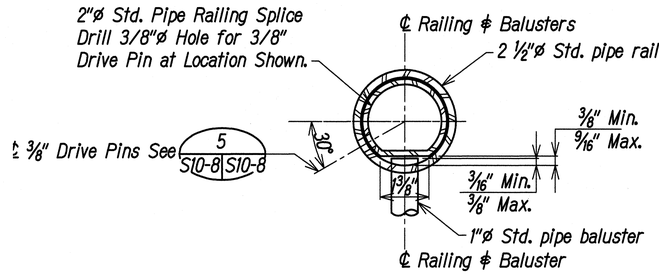
Scale: As Shown Date: January 20, 2015

SHEET No. S10-7 OF 103 SHEETS

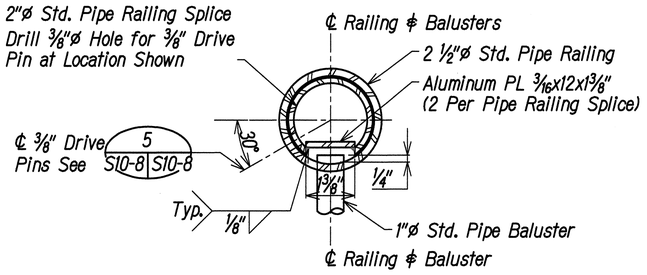
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	331	524



Detail 1 — Scale: 6"=1'-0" — S10-7 | S10-8

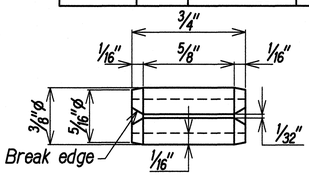


OPTION 1



OPTION 2

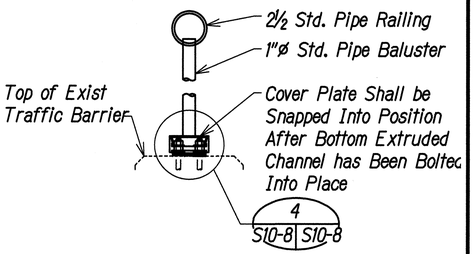
Detail 2 — Scale: 6"=1'-0" — S10-7 | S10-8



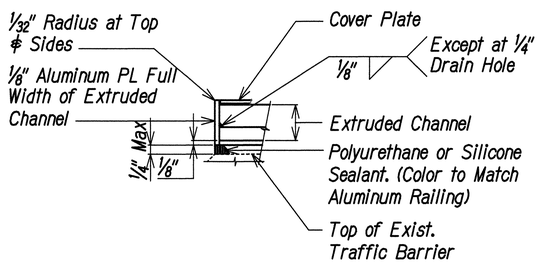
- Slotted type spring (Ansi B18.8.2)

- Locate Drive Pins on Opposite Side of Traffic. Drive Pins Shall be Driven Flush with the Outside Face of the Railing.

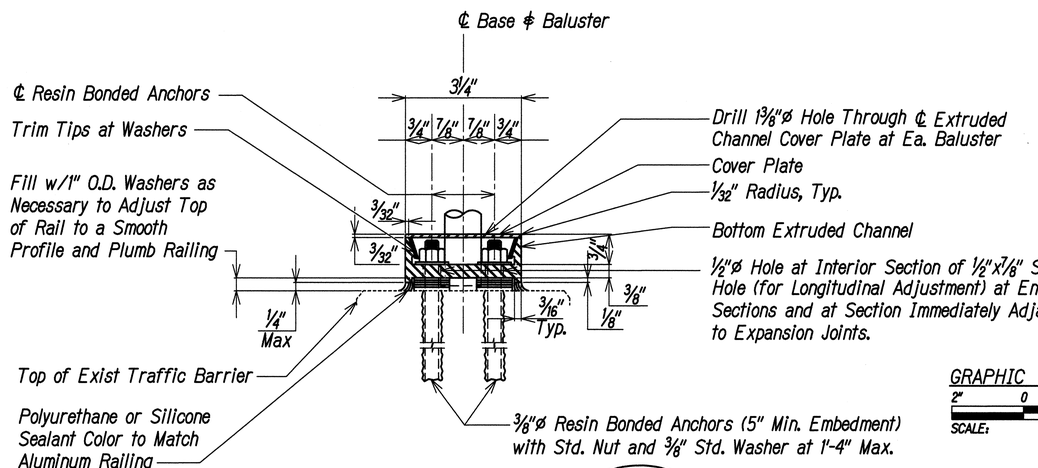
Detail 5 — Scale: 6"=1'-0" — S10-7, S10-8 | S10-8



SECTION A — Scale: 6"=1'-0" — S10-7 | S10-8



Detail 3 — Scale: 6"=1'-0" — S10-8 | S10-8



RAILING ATTACHMENT DETAIL 4 — Scale: 6"=1'-0" — S10-8 | S10-8

GRAPHIC SCALE: 2" 0 2" 4" — SCALE: 6"=1'-0"

IZZAT H. HASAIEN * LICENSED PROFESSIONAL ENGINEER * No. 10139 * HAWAII, U.S.A.
EXPIRES 4/30/16

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KFFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HWY SEPARATION ALUMINUM PEDESTRIAN RAILING (2)

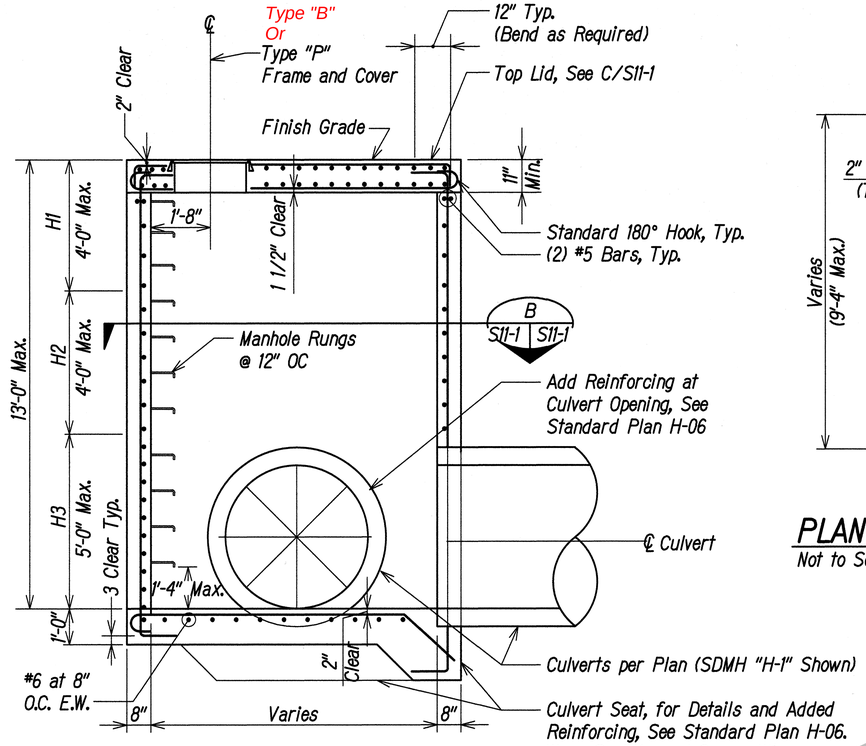
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 6" = 1'-0" Date: January 20, 2015

SHEET No. S10-8 OF 103 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	332	524

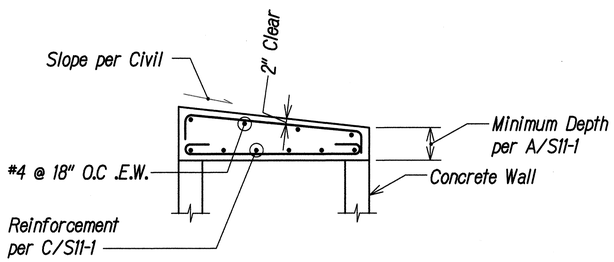


TYPICAL SDMH SECTION

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

A — S11-1 | S11-1

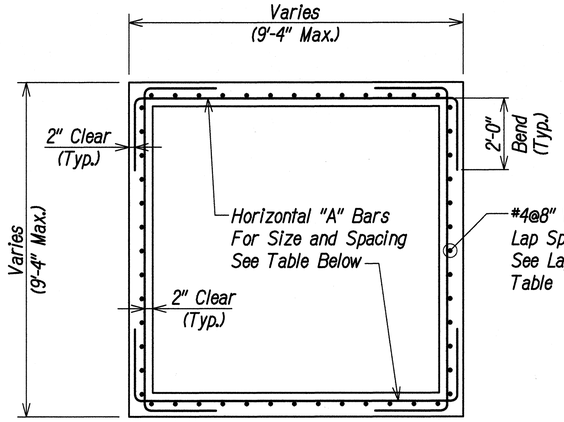
S11-2, S11-3, S11-4, S11-5



TYPICAL SECTION AT SLOPED MANHOLE LID

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

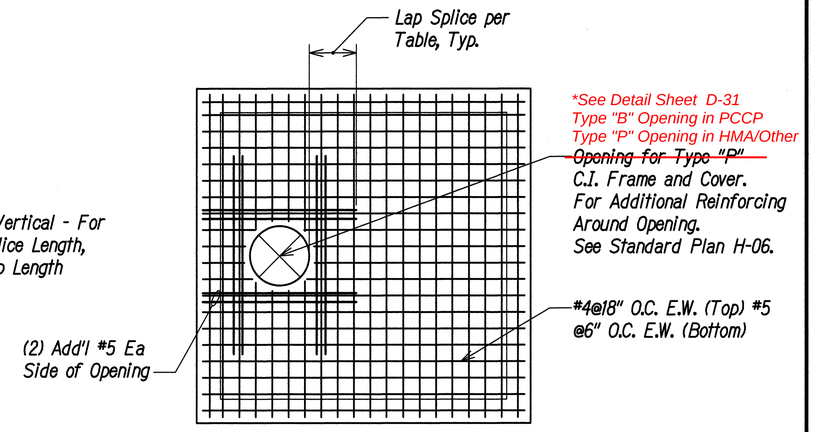
D — - | S11-1



PLAN VIEW OF WALL SECTION

Not to Scale

B — S11-1 | S11-1



TOP SLAB REINFORCING PLAN

Not to Scale

C — - | S11-1

Horizontal "A" Bars For Storm Drain Manhole ⊕ Grated Drain Inlet	
SDMH/GDI Depth from Finished Grade	Horizontal "A" Bars
H1 0'-0" to 4'-0"	#5 at 10"
H2 4'-1" to 8'-0"	#5 at 8"
H3 8'-1" to 13'-0"*	#5 at 6"
* For Manholes Deeper than 13'-0", See A/S11-2.	

Bar Lap Splice Length Table		
Bar	Vertical Lap Length	Horiz. Lap Length
#4	2'-2"	2'-9"
#5	2'-8"	3'-5"
#6	3'-2"	4'-2"

General Notes:

1. General Criteria:
   a. At-rest Horizontal Pressure - 73 pcf
      (2 to 1 Sloping Backfill, above Groundwater)
   b. At-rest Vertical Pressure - 58 pcf
      (2 to 1 Sloping Backfill, above Groundwater)
   c. Live Load Surcharge (equivalent Height of Soil)
      For H = 0' to 5'; heq = 4'-0"
      For H = 5' to 20'; heq = 3'-0"
2. Exposure Factor (For Crack Control) = 1.0 for Class 1 exposure.
3. Concrete Shall be Class BD, 3,750 PSI Compressive Strength at 28 Days.
4. Reinforcing Steel Shall be Deformed Bars, ASTM A615, Grade 60.
5. Type "P" C.I. Manhole Frame and Cover and Rungs Shall Conform to Standard Plan H-07.
6. Indicates Step in Top of Concrete.
   Indicates Change in Slope of Top of Concrete.
7. Contractor Shall Coordinate Invert and Finish Elevations with Civil Drawings.

AS-BUILT

GRAPHIC SCALE:

2' 0 2' 4'

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

IZZAT H. HASAYEN
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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MANHOLE DETAILS AND SECTIONS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

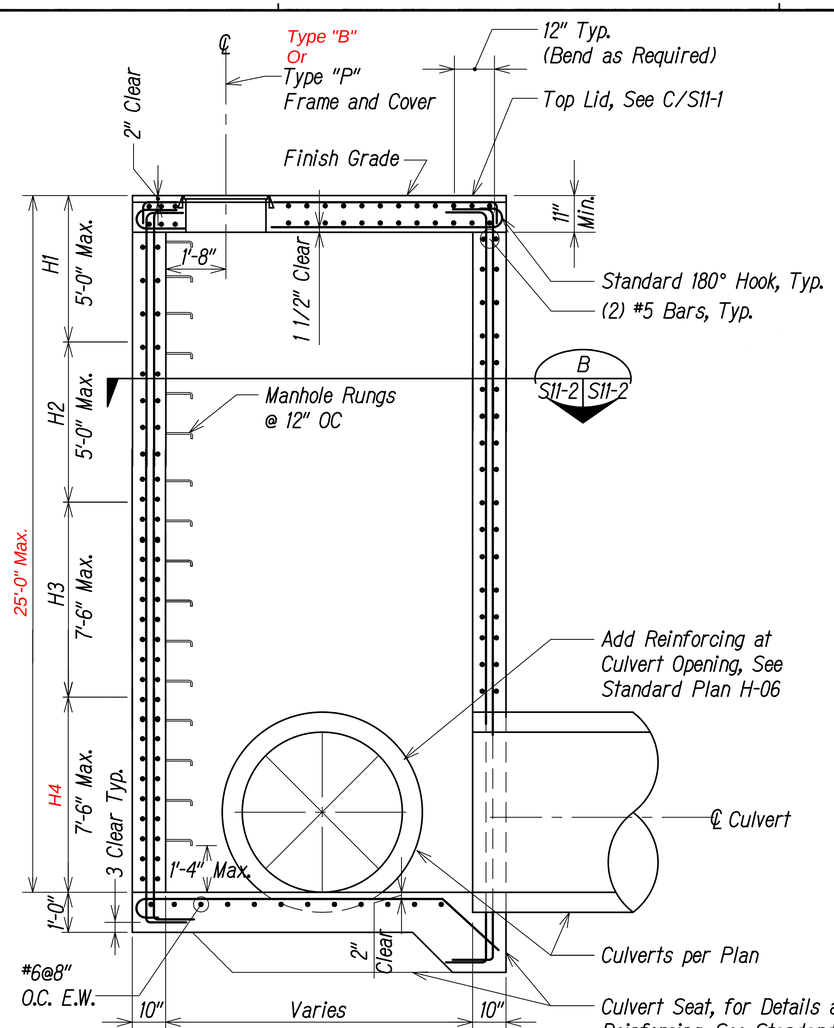
Scale: As Shown Date: January 20, 2015

SHEET No. S11-1 OF 103 SHEETS

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

"AS-BUILT"

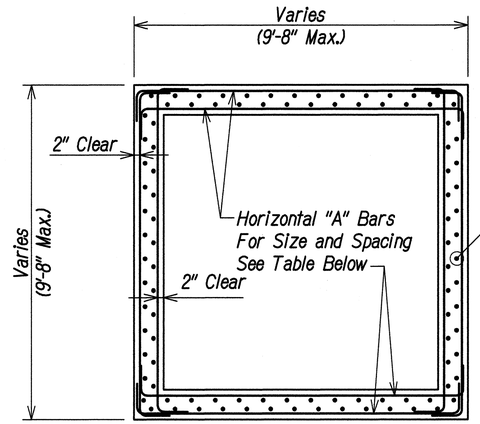
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	333	524



SDMH SECTION

Scale: NTS

A
S11-1 S11-2



PLAN VIEW OF WALL SECTION

Not to Scale

B
S11-2 S11-2

Horizontal "A" Bars For Storm Drain Manhole & Grated Drain Inlet	
SDMH/GDI Depth from Finished Grade	Horizontal "A" Bars
H1 0'-0" to 5'-0"	#5@12"
H2 5'-1" to 10'-0"	#5@9"
H3 10'-1" to 17'-6"	#5@6"
H4 17'-7" to 25'-0"	#6@6"

General Notes:

1. See S11-1 for Notes.

AS-BUILT

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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NPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

GRAPHIC SCALE:

2' 0 2' 4'

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

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MANHOLE
DETAILS AND SECTIONS (2)

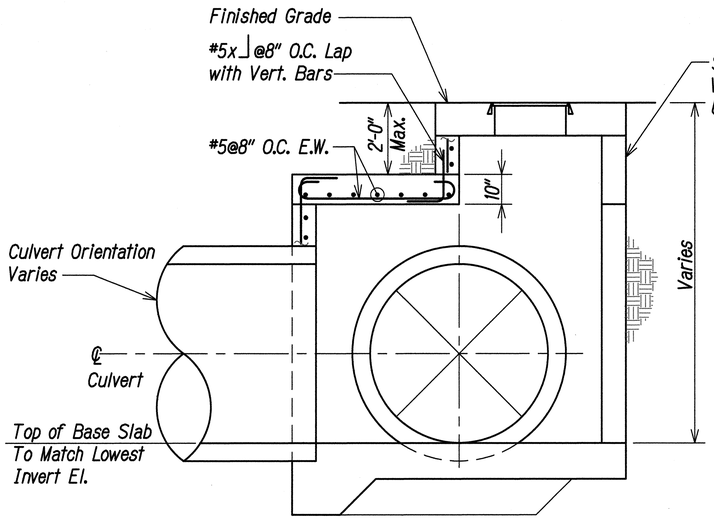
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

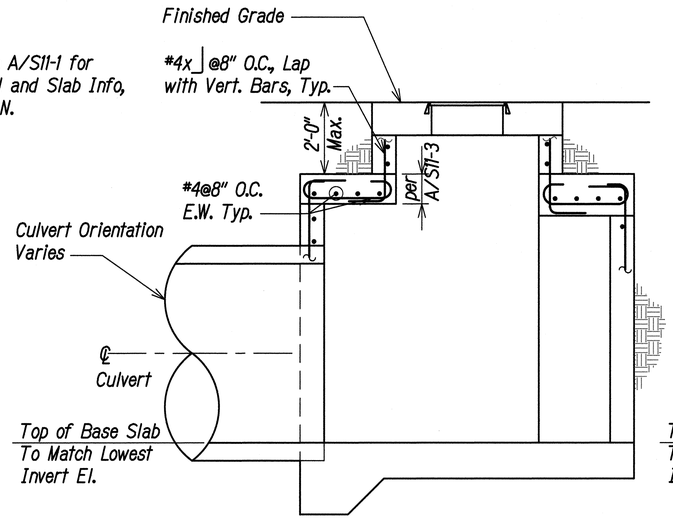
Scale: As Shown Date: January 20, 2015

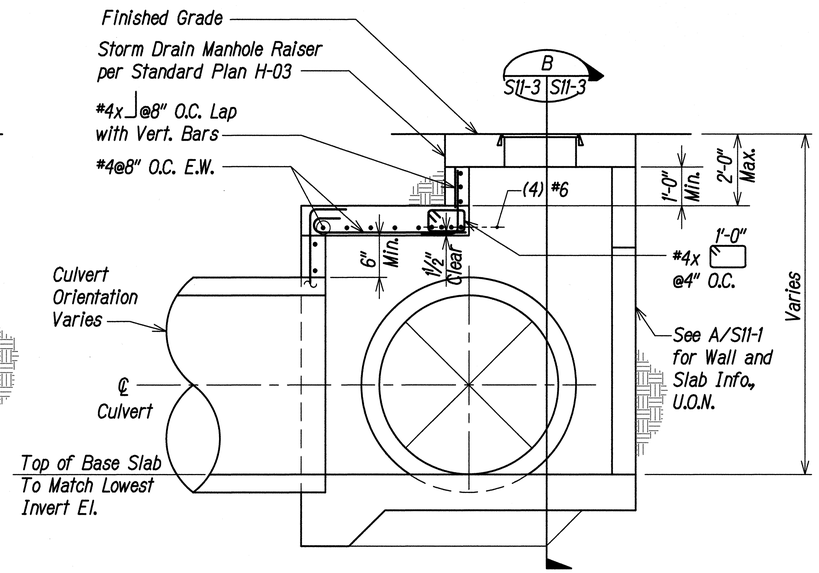
SHEET No. S11-2 OF 103 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	334	524







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

A: S11-5 | S11-3

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

B: S11-4 | S11-3 → S11-5

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

C: S11-4 | S11-3 → S11-5

Structural Notes:

1. See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.

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

GRAPHIC SCALE:

2' 0 2' 4'

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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Izzat Hasayen — APRIL 30, 2016
KPFF CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

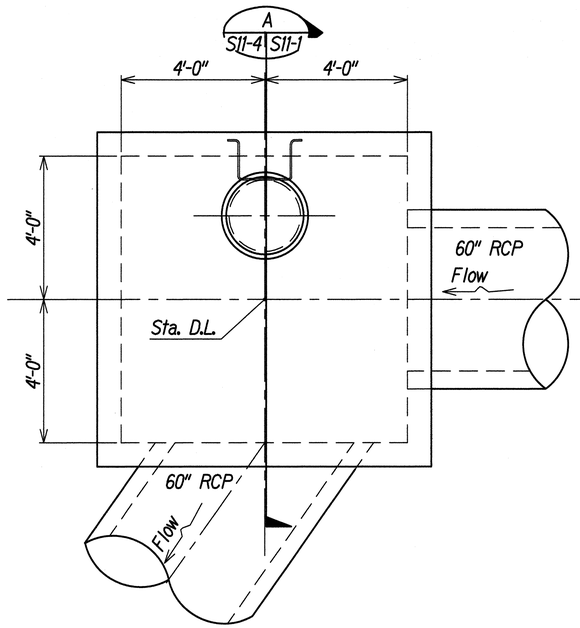
MANHOLE DETAILS AND SECTIONS (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: ½" = 1'-0" Date: January 20, 2015

SHEET No. S11-3 OF 103 SHEETS

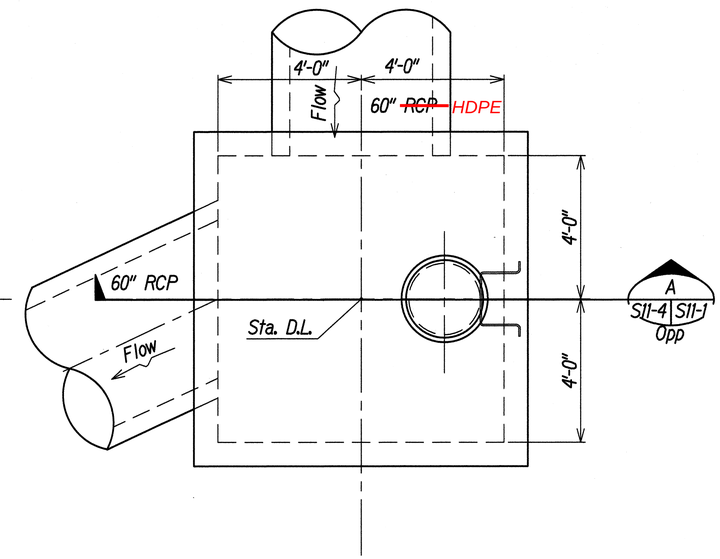
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	335	524



SDMH-"H-1" PLAN VIEW

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

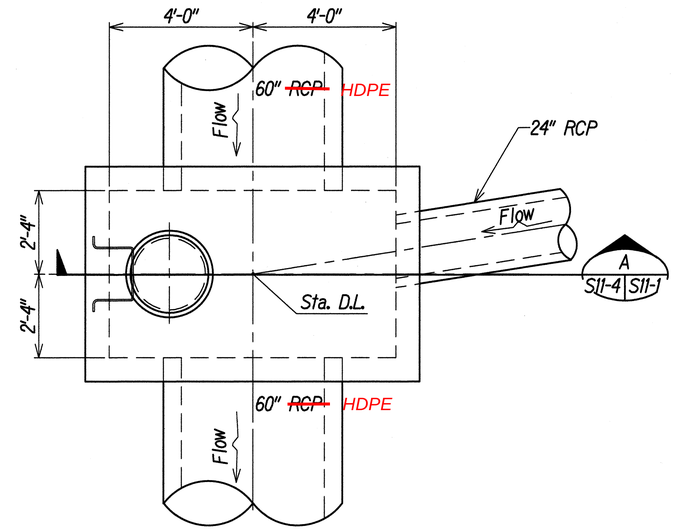
A | D-4 | S11-4



SDMH-"H-2" PLAN VIEW

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

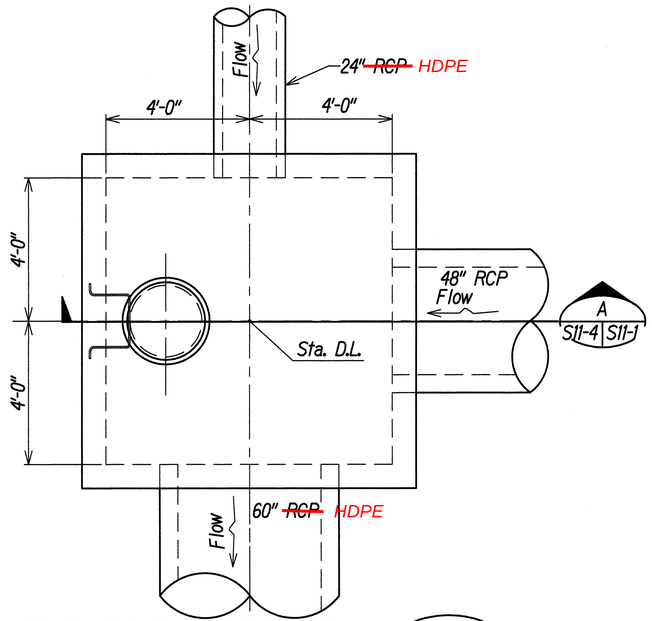
B | D-4 | S11-4



SDMH-"H-3" PLAN VIEW

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

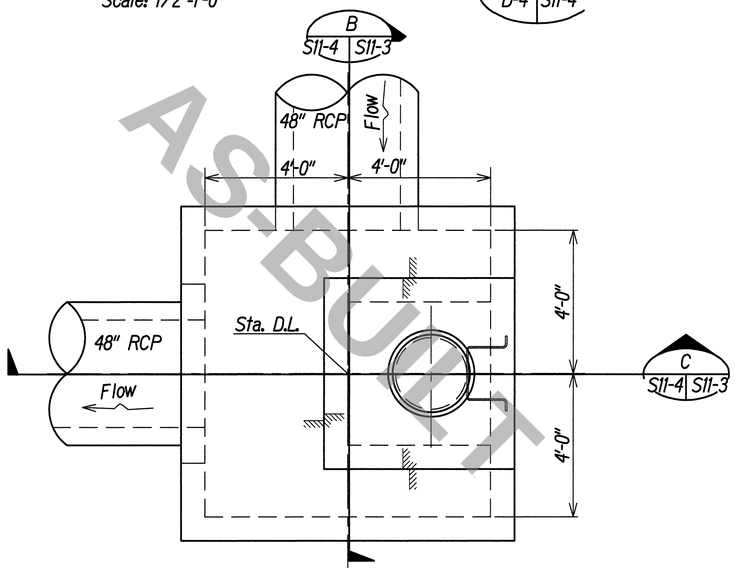
C | D-4 | S11-4



SDMH-"H-4" PLAN VIEW

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

D | D-2 | S11-4



SDMH-"H-5" PLAN VIEW

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

E | D-2 | S11-4

AS-BUILT

Structural Notes:

1. *See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.*

LICENSED PROFESSIONAL ENGINEER
No. 15129
IZZAT H. HASAYEN
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

GRAPHIC SCALE:

2' 0 2' 4'

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MANHOLE DETAILS AND SECTIONS (4)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: 1/2" = 1'-0" Date: January 20, 2015

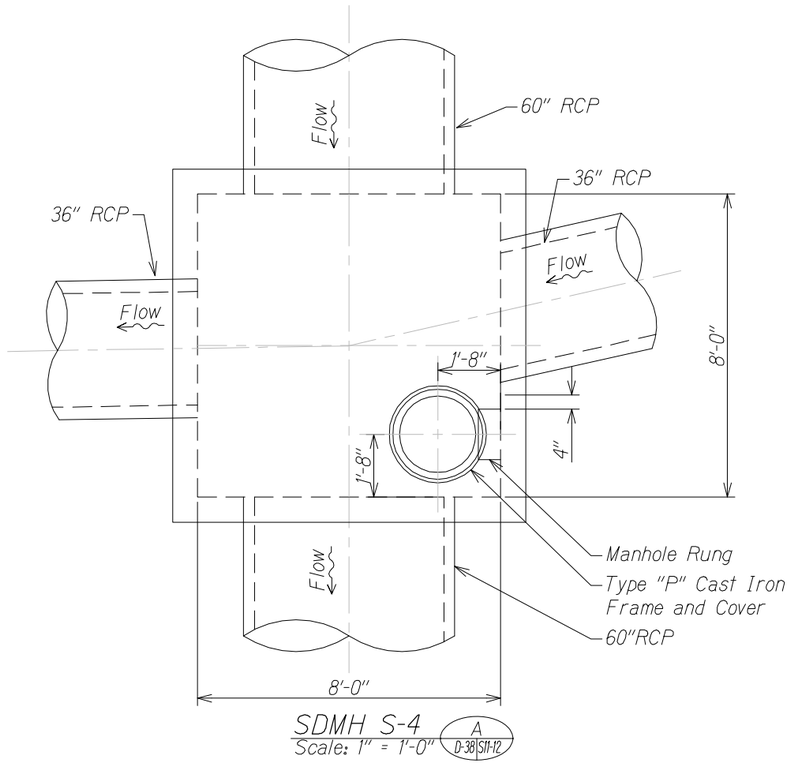
SHEET No. S11-4 OF 103 SHEETS

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

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	S11-12	524

C.O. 335S-1



SDMH S-4 (A, D-38 S11-12)
Scale: 1" = 1'-0"

AS-BUILT

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

GRAPHIC SCALES:
1' 0.5' 0 1' 2'
SCALE: 1" = 1'-0"

MANHOLE DETAILS
Scale: 1" = 1'-0"

LANCE S. OYAMA
LICENSED PROFESSIONAL ENGINEER
NO. 5309-C
HAWAII, U.S.A.

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APRIL 30, 2020
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MANHOLE DETAILS

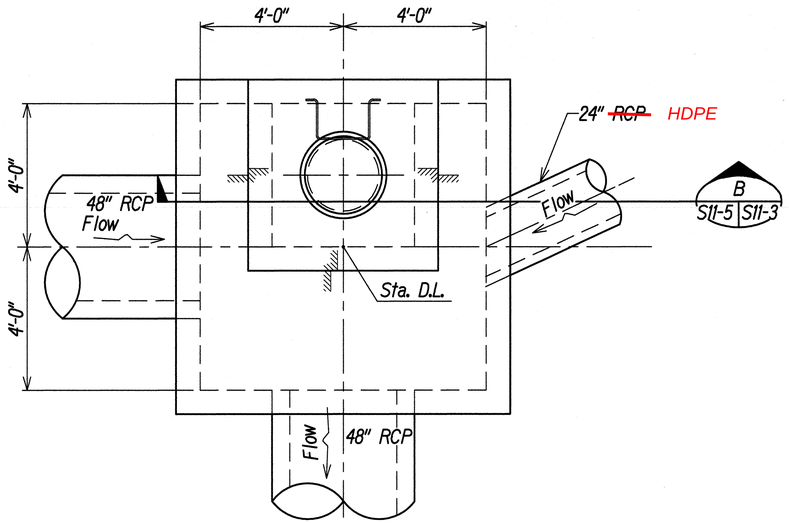
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)
Scale: Not to Scale Date: January 20, 2015

DATE	REVISION

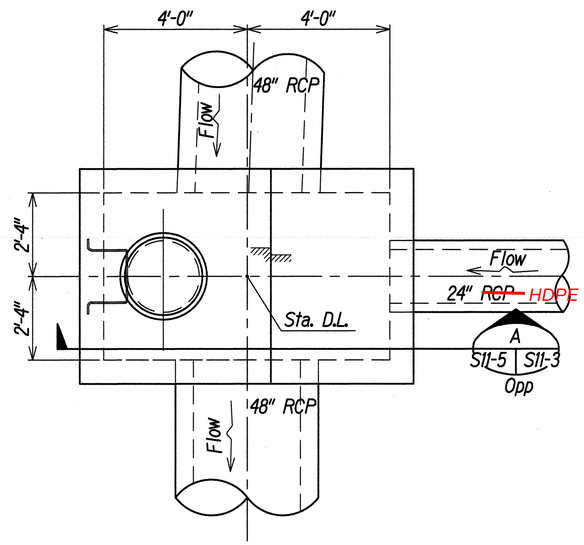
SHEET No. S11-12 OF 11 SHEETS

"AS-BUILT"

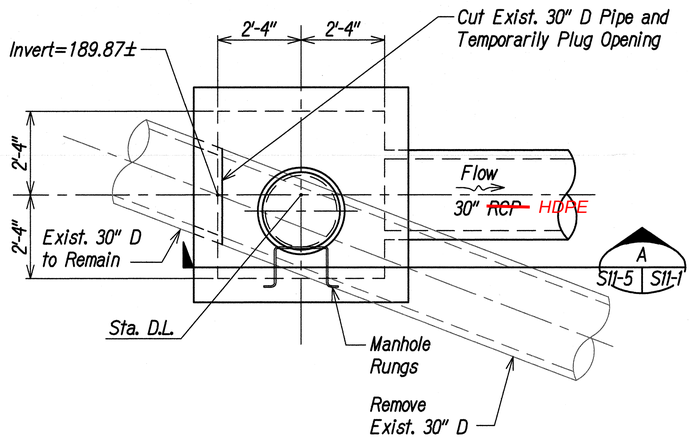
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	336	524



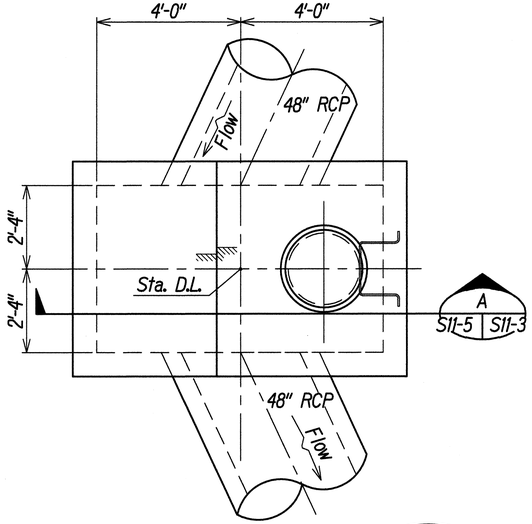
SDMH-"H-6" PLAN VIEW — A (D-11 | S11-5)
Scale: 1/2"=1'-0"



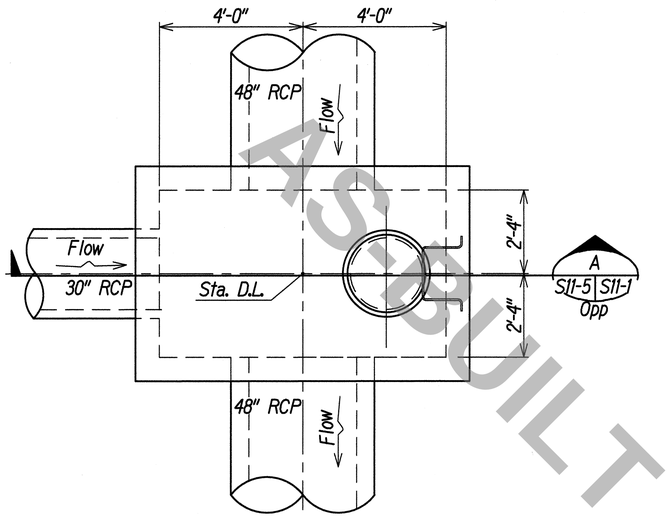
SDMH-"H-7" PLAN VIEW — B (D-11 | S11-5)
Scale: 1/2"=1'-0"



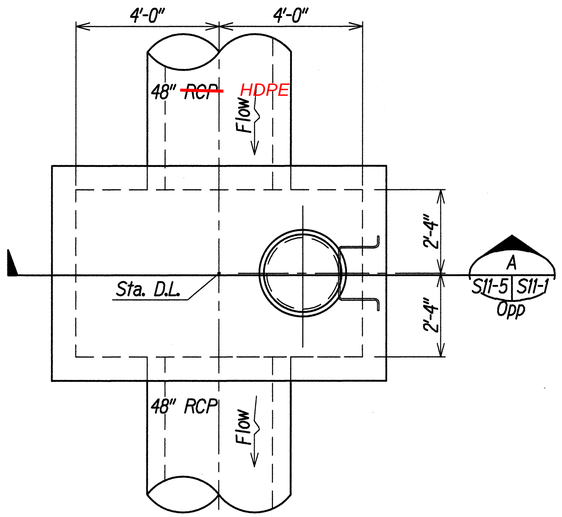
SDMH-"H7-1" PLAN VIEW — E (D-11 | S11-5)
Scale: 1/2" = 1'-0"



SDMH-"H-8" PLAN VIEW — C (D-11 | S11-5)
Scale: 1/2"=1'-0"



SDMH-"H-9" PLAN VIEW — D (D-11 | S11-5)
Scale: 1/2"=1'-0"



SDMH-"H-10" PLAN VIEW — F (D-11 | S11-5)
Scale: 1/2"=1'-0"

GRAPHIC SCALE:
2' 0 2' 4'
SCALE: 1/2"=1'-0"

AS-BUILT

Structural Notes:

1. *See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.*

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MANHOLE
DETAILS AND SECTIONS (5)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

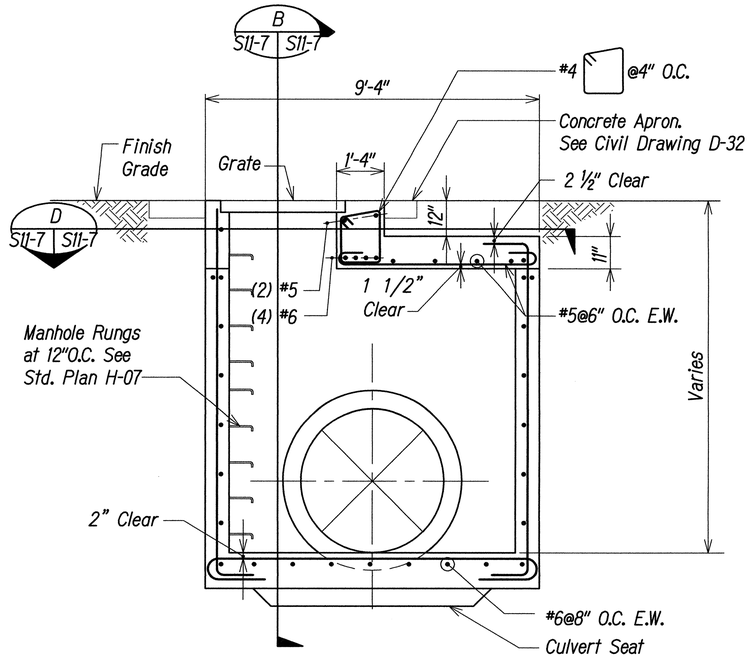
Scale: 1/2" = 1'-0" Date: January 20, 2015

SHEET No. S11-5 OF 103 SHEETS

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

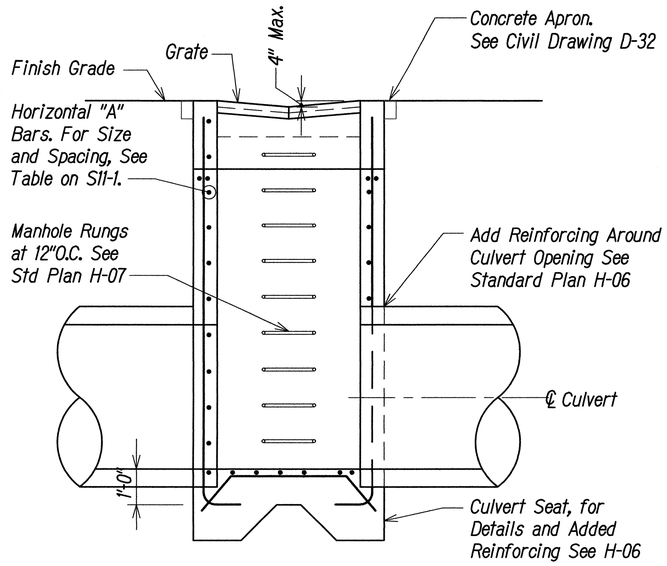
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 337	524



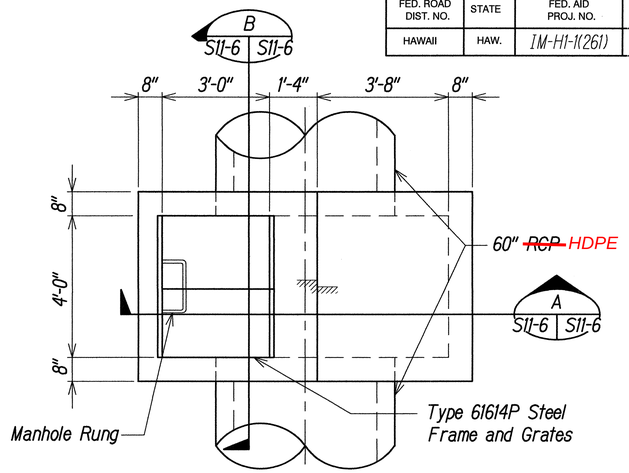
GDI-"H-2" & "H-4" MODIFIED TYPE "61614" - SECTION A

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



GDI-"H-2" & "H-4" MODIFIED TYPE "61614" - SECTION B

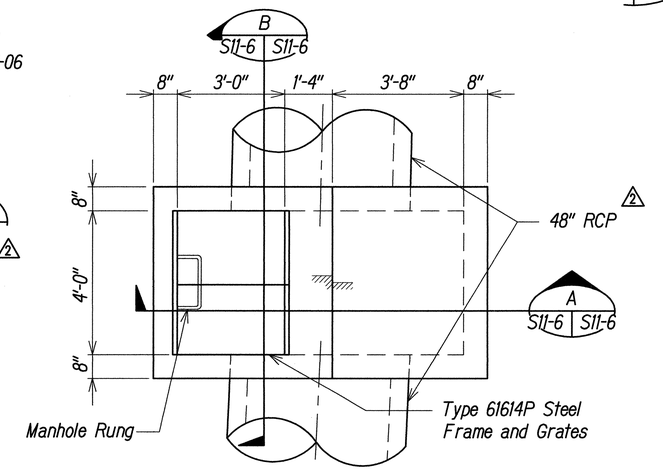
Scale: 1/2"=1'-0"



GDI-"H-2" MODIFIED TYPE "61614" - PLAN

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

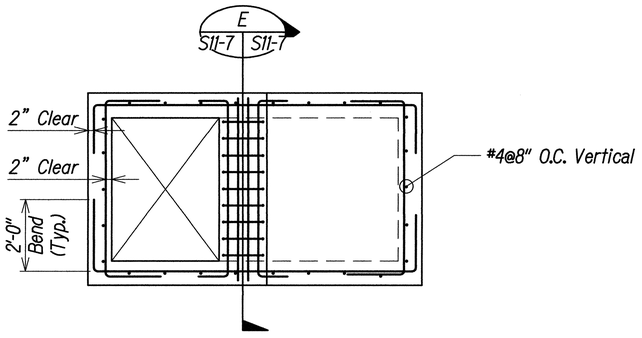
C D-4, S11-6 S11-6



GDI-"H-4" MODIFIED TYPE "61614" - PLAN

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

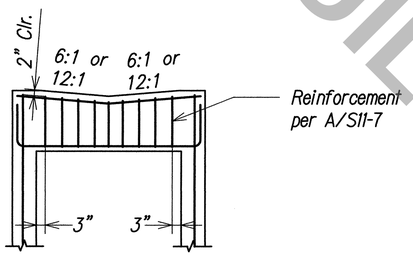
F D-11, S11-6 S11-6



LID PLAN

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

D S11-6 S11-6



SECTION OF BEAM REINFORCING

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

E S11-6 S11-6

AS-BUILT

Structural Notes:

1. See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.

GRAPHIC SCALE: 2' 0 2' 4' SCALE: 1/2"=1'-0"

	DATE	REVISION
2	5/18/15	Update Section Title

IZZAT H. HABAYEB * LICENSED PROFESSIONAL ENGINEER No. 15129 HAWAII, U.S.A. EXPIRES 4/30/16

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APRIL 30, 2016
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRATED DROP INLET DETAILS AND SECTIONS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: 1/2"=1'-0" Date: January 20, 2015

SHEET No. S11-6 OF 103 SHEETS

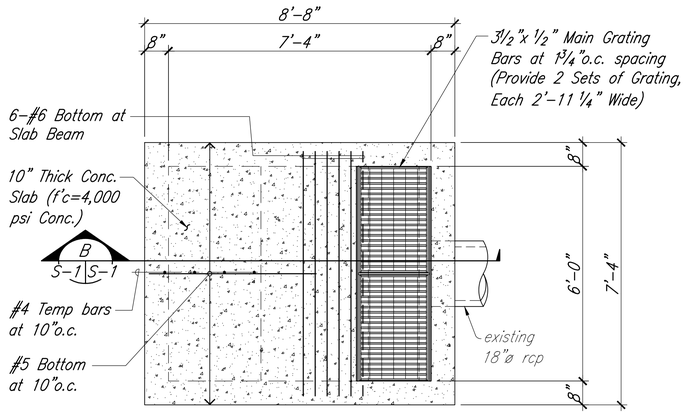
ADD. 337

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

"AS-BUILT"

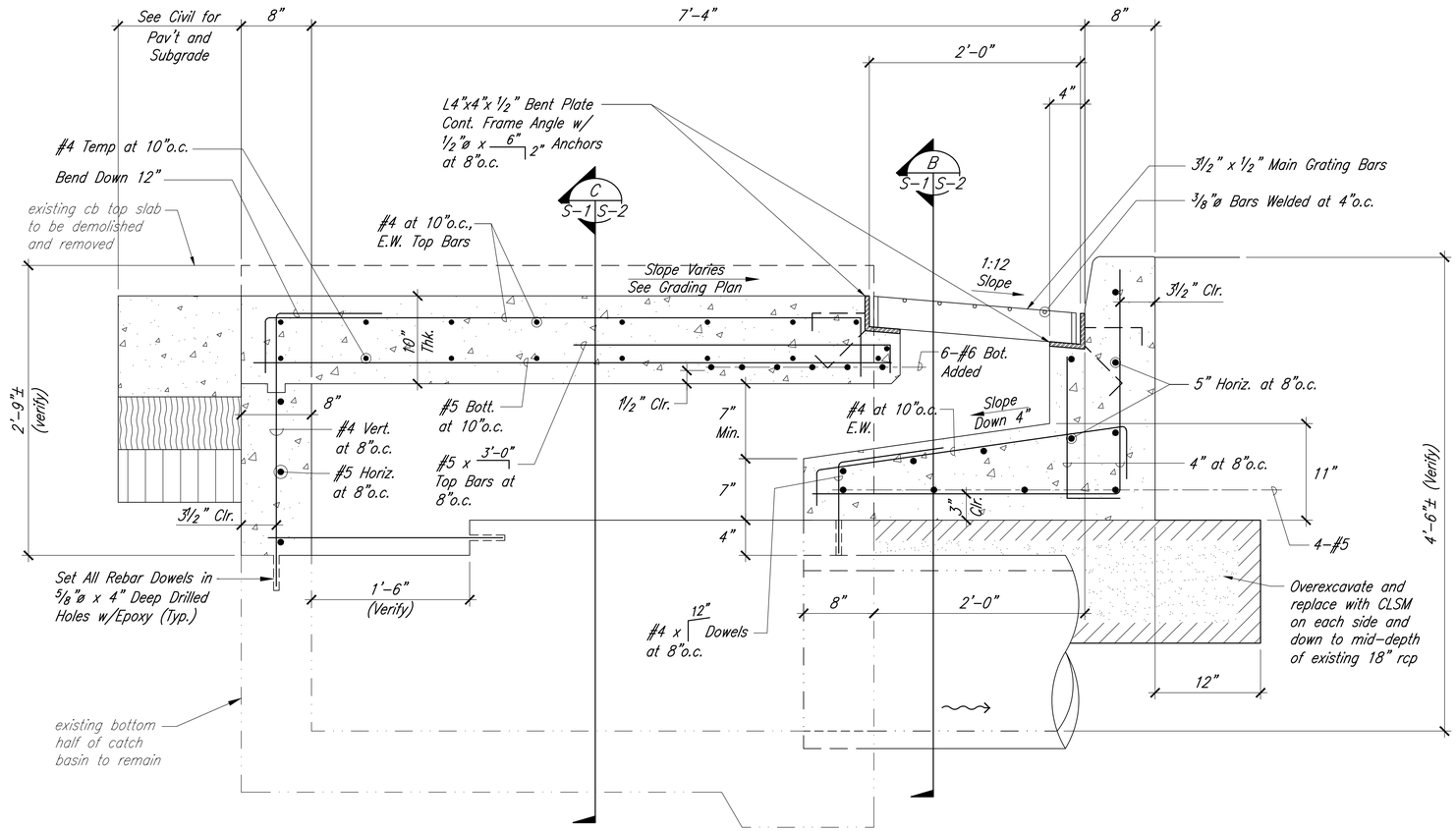
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015		524

C.O. 337S-1



A S-1 S-1 **TOP SLAB FRAMING PLAN DETAIL**

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



B S-1 S-1 **SECTION AT RENOVATED CB TO GRATED DRAIN INLET**

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

General Notes:

1. The contractor shall verify all field dimensions and conditions prior to starting work. All discrepancies shall be promptly reported to the engineer.
2. All omissions or conflicts between the various elements of the working drawings and/or specifications shall be brought to the attention of the engineer before proceeding with any work so involved.
3. Unless specifically detailed elsewhere, contractor shall follow typical details on this sheet.

Concrete:

1. All concrete work shall conform to ACI 318-05.
2. Secure all anchors, inserts, etc. and verify all grooves, slots, and finishes prior to placing concrete.
3. 48 hours prior to the pouring of any structural concrete, the contractor shall notify the engineer so an inspection can be made of all forms and reinforcing steel.
4. 28-day compressive strength and maximum aggregate size of concrete shall be class A concrete as follows:

	Strength (PSI)	Max. Aggregate
All structural concrete	4,000	¾"

5. Maximum water/cement ratio shall be ≤ 0.45.

Reinforcing Steel:

1. Unless otherwise indicated on plans and/or schedule, all reinforcing steel shall be high strength grade deformed bars which shall conform to the standard of ASTM A615 Grade 60. Design fy = 60 KSI.
2. Reinforcing shall be spliced only as shown or noted. Splices at other locations shall be approved by the engineer. Unless otherwise noted all continuous bars in walls and slabs shall be lapped 40 bar diameters (but not less than 24") at all splices, corners, and intersections.
3. Provide dowels in footings the same size and number and in the same location as vertical wall reinforcing. Dowels shall have a minimum protection equal to standard lap splices unless otherwise shown.
4. All reinforcing steel and other inserts shall be secured in position prior to placing concrete.
5. Minimum concrete protection for reinforcing steel unless otherwise shown:

Concrete Cast Against Earth	3"
Top Bars In Bottom Slab or Reinforcing	1 ½"
Top And Bottom Bars In Top Slab	1 ½"
Wall – Interior And Exterior	2"

AS-BUILT

ORIGINAL PLAN | NOTE BOOK | No.

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

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APRIL 30, 2020 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRATED DRAIN INLET DETAILS AND SECTIONS (4)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex) Phase 2
Federal Aid Project No. IM-H1-1 (261)

Scale: As Noted Date: Nov. 15, 2018

DATE | REVISION

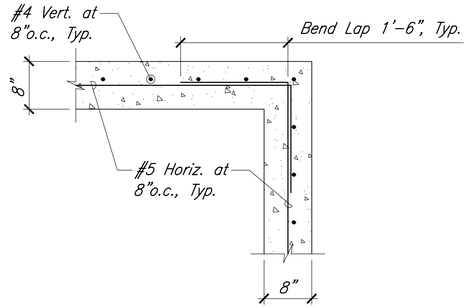
SHEET No. S11-12 OF 11 SHEETS

C.O. 337S-1

"AS-BUILT"

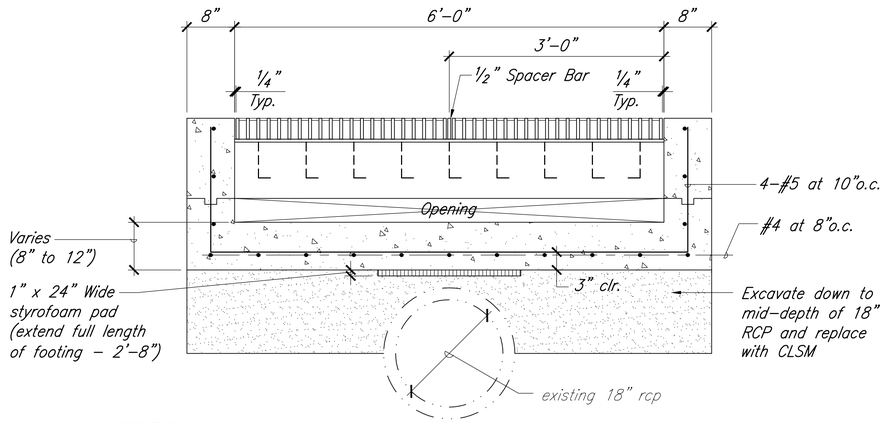
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015		524

C.O. 337S-2



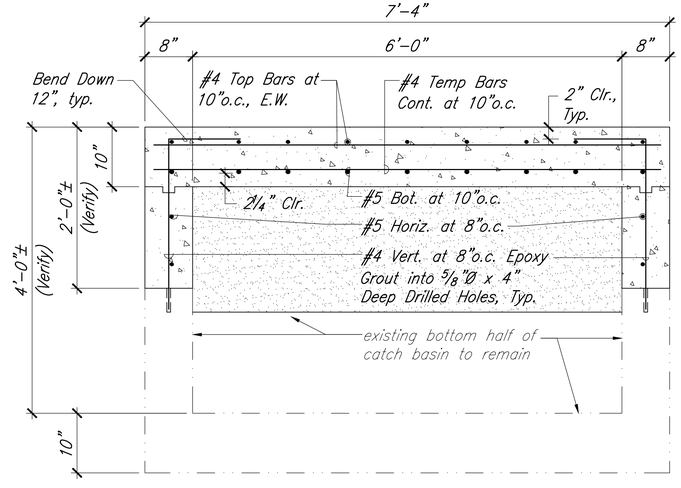
A S-2 | S-2 TYP. WALL CORNER REINF. DETAIL

Scale: 1" = 1'-0"



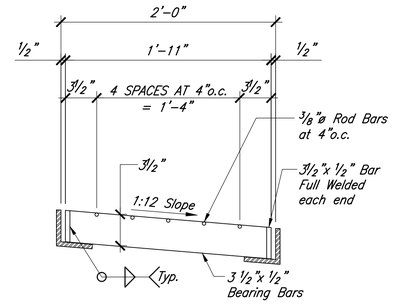
B S-2 | S-2 SECTION

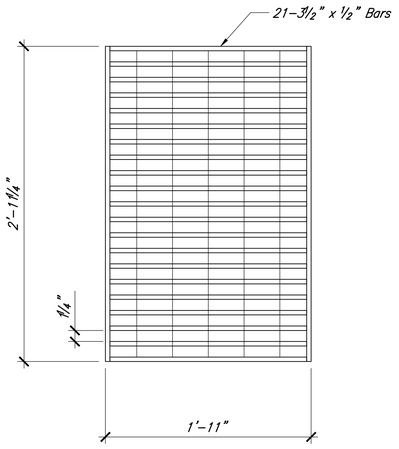
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C S-2 | S-2 SECTION

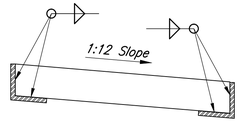
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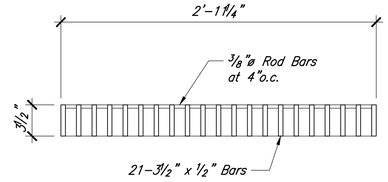


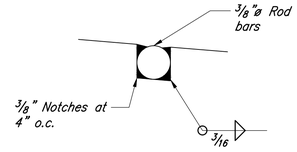
D S-1 | S-1 GRATING DETAIL

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



Condition at Spacer Bar





SCALE: NTS

General Grating Notes:

1. See Detail B/S-1 for grating support frame details.
2. All grating and frames shall be hot dipped galv. after fabrication.
3. Anchors welded to frame support angles shall be ASTM A307 steel.
4. All steel grating and frames shall be ASTM A36 steel.
5. All welds shall be 3/8" U.O.N.

AS-BUILT

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

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LICENSED PROFESSIONAL ENGINEER
No. 4529-S
HAWAII, U.S.A.

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APRIL 30, 2020
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRATED DRAIN INLET
DETAILS AND SECTIONS (5)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex) Phase 2
Federal Aid Project No. IM-H1-1 (261)

Scale: As Noted Date: Nov. 15, 2018

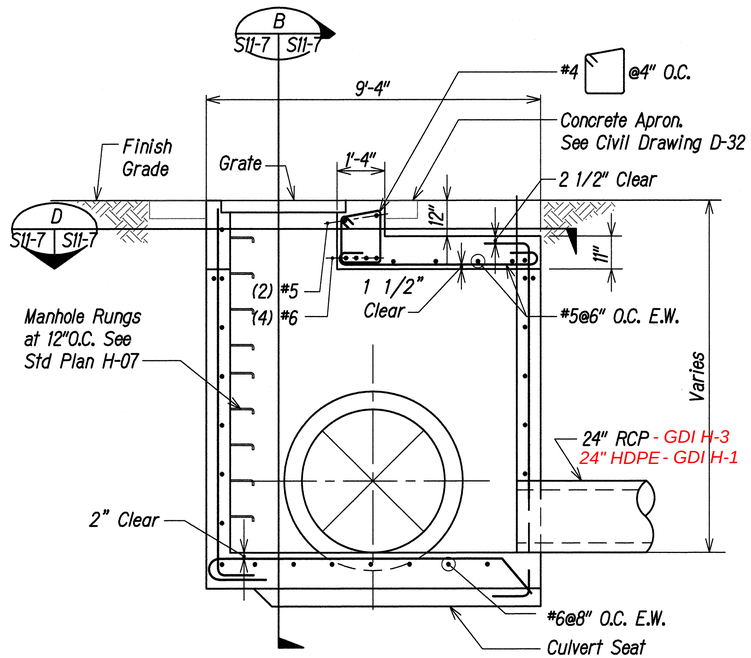
DATE	REVISION

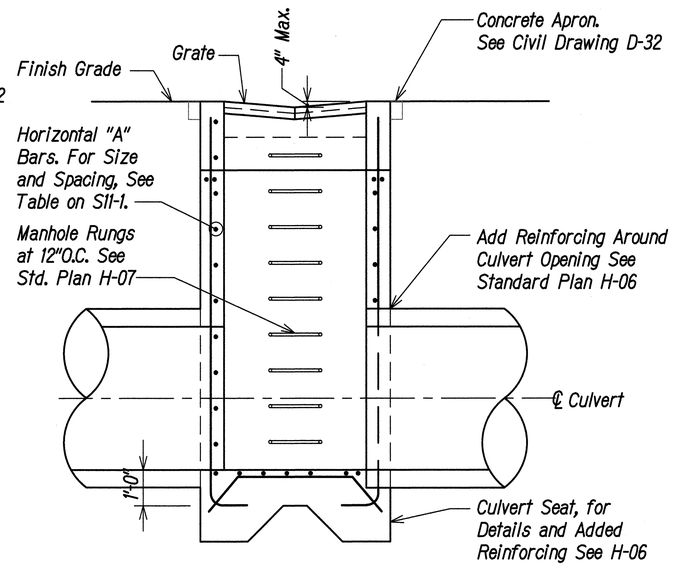
SHEET No. S11-13 OF 11 SHEETS

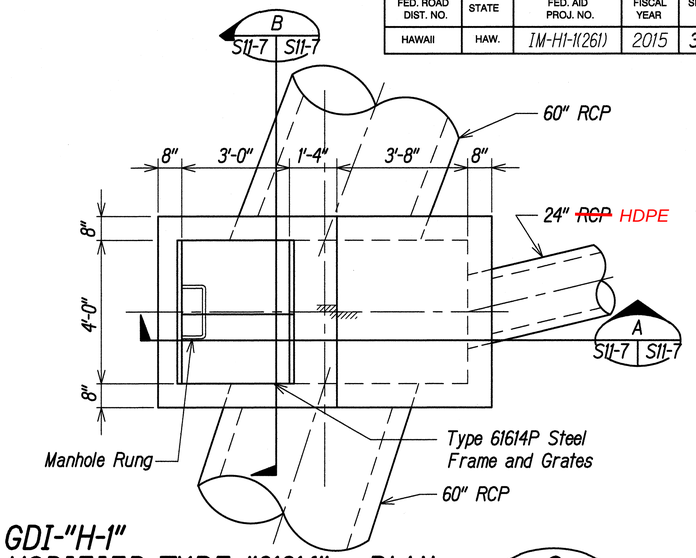
C.O. 337S-2

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(261)	2015	338	524



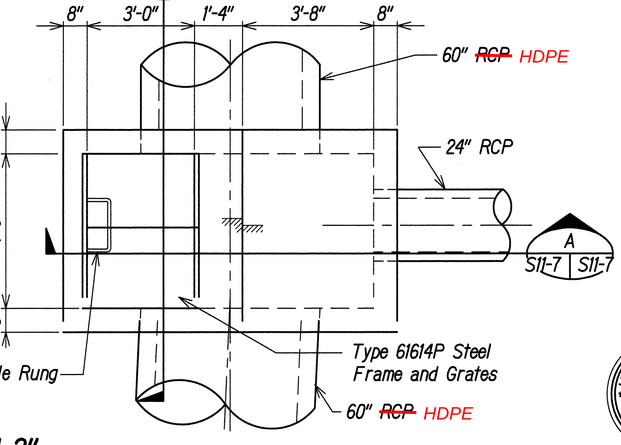




GDI-"H-1" MODIFIED TYPE "61614" - PLAN

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

C D-4, S11-7 S11-7



GDI-"H-3" MODIFIED TYPE "61614" - PLAN

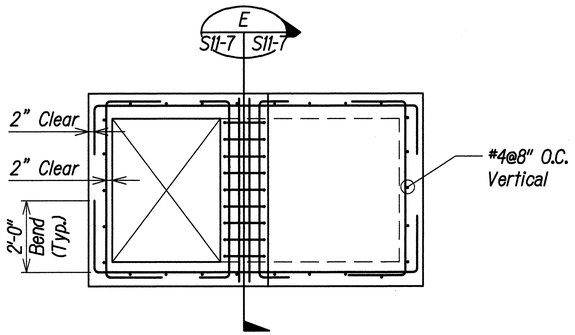
Scale: 1/2"=1'-0"

F D-4, S11-7 S11-7

GDI-"H-1" & "H-3" MODIFIED TYPE "61614" - SECTION A

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

A S11-7 S11-7



LID PLAN

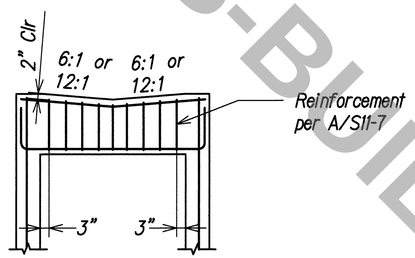
Scale: 1/2"=1'-0"

D S11-7 S11-7

GDI-"H-1" & "H-3" MODIFIED TYPE "61614" - SECTION B

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

B S11-7 S11-7



SECTION OF BEAM REINFORCING

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

E S11-7 S11-7

AS-BUILT

ORIGINAL PLAN | NOTE BOOK | No.

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

Structural Notes:

1. See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.

GRAPHIC SCALE:

2' 0 2' 4'
SCALE: 1/2"=1'-0"

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER * No. 10129 * HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
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HIGHWAYS DIVISION

GRATED DROP INLET DETAILS AND SECTIONS (2)

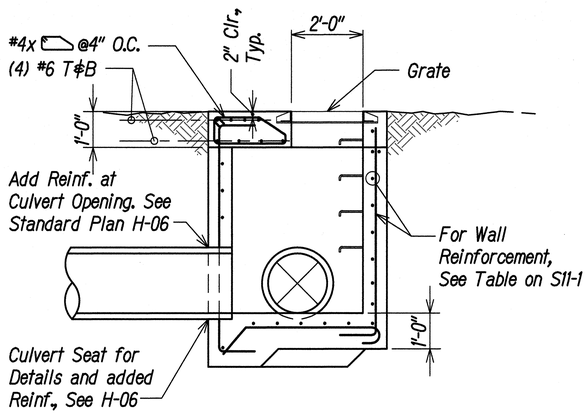
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: 1/2" = 1'-0" Date: January 20, 2015

SHEET No. S11-7 OF 103 SHEETS

"AS-BUILT"

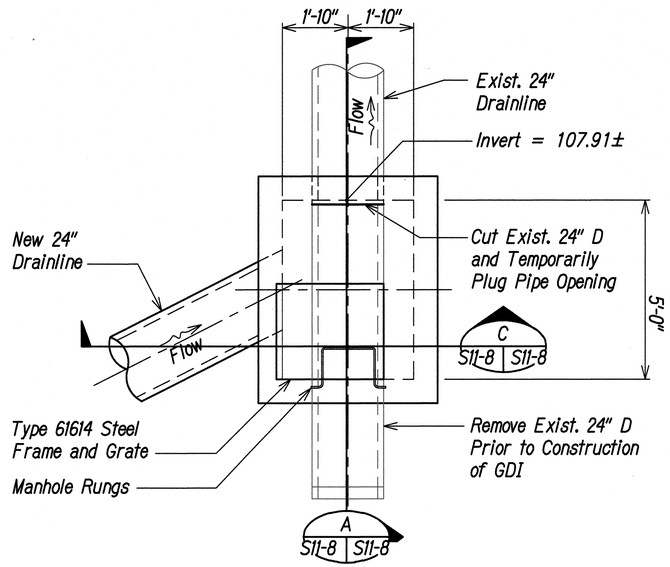
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	339	524



GDI-"J-1" MODIFIED TYPE "61614" - SECTION

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

A | S11-8 | S11-8



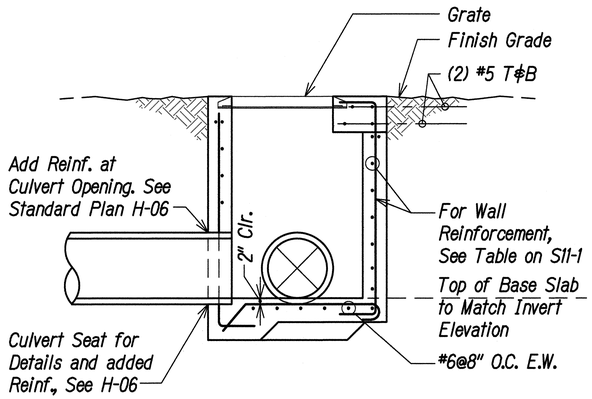
GDI-"J-1" MODIFIED TYPE "61614" - PLAN

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

B | D-9, S11-8 | S11-8

Structural Notes:

1. See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.



GDI-"J-1" MODIFIED TYPE "61614" - SECTION

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

C | S11-8 | S11-8

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

GRAPHIC SCALE:

2' 0 2' 4'

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.

EXPIRES 4/30/16

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KFFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

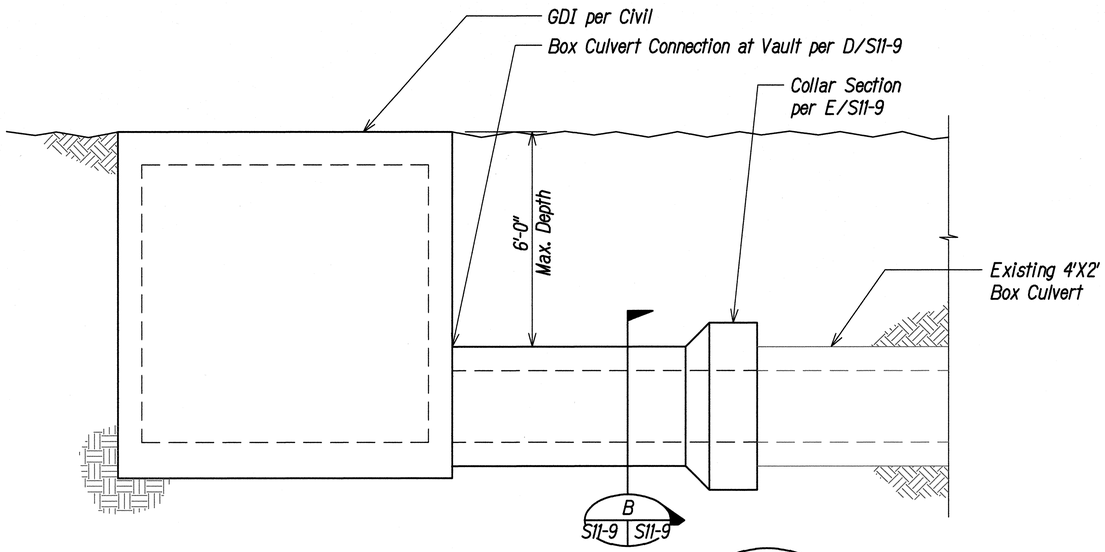
GRATED DROP INLET DETAILS AND SECTIONS (3)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: ½" = 1'-0" Date: January 20, 2015

SHEET No. S11-8 OF 103 SHEETS

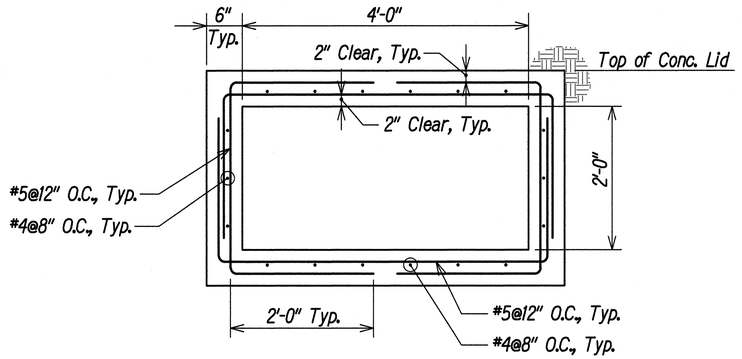
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	340	524



GD1-"A-1"

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

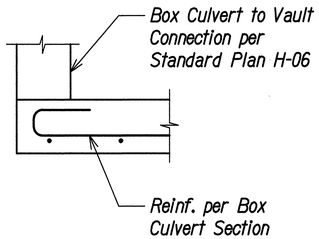
A
D-5, S11-9 | S11-9



CIP BOX CULVERT SECTION

Not to Scale

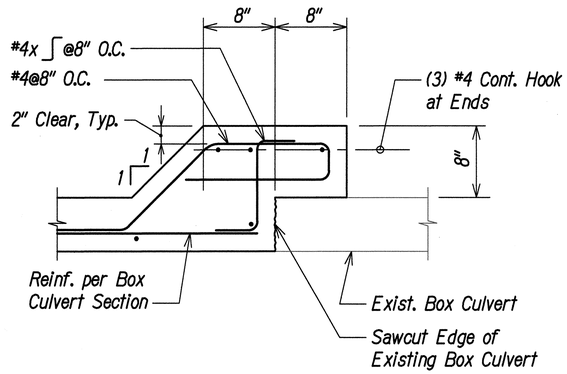
B
S11-9 | S11-9



CIP BOX CULVERT TO VAULT CONN DETAIL

Not to Scale

D
S11-9 | S11-9



EXISTING TO CIP BOX CULVERT COLLAR SECTION

Not to Scale

E
S11-9 | S11-9

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

GRAPHIC SCALE:

2' 0 2' 4'

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.
EXPIRES 4/30/16

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

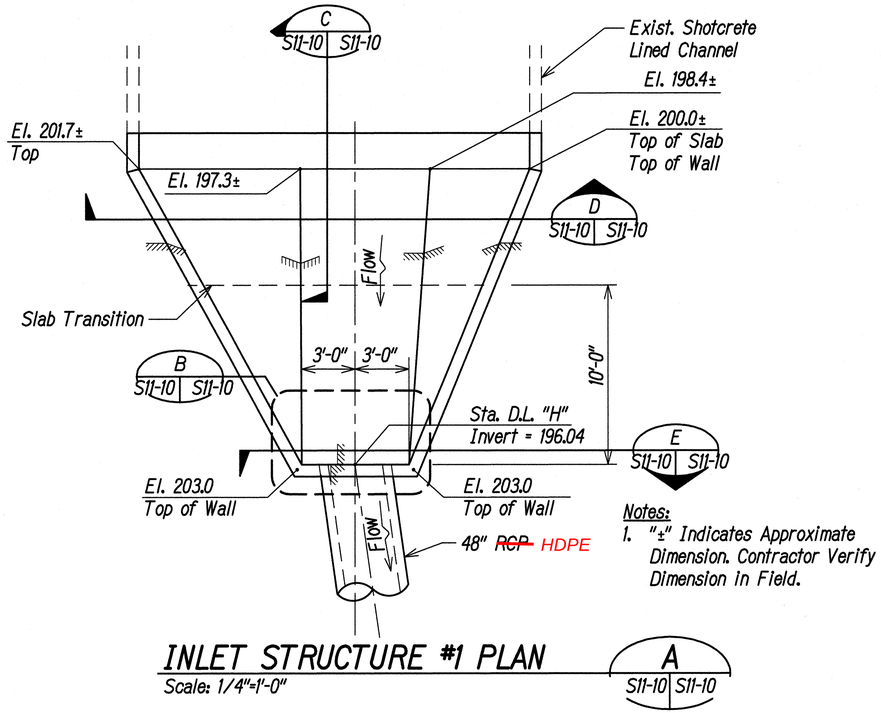
BOX DRAIN
DETAILS AND SECTIONS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

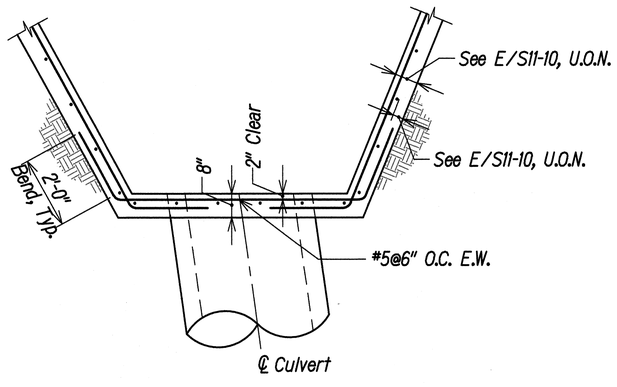
SHEET No. S11-9 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	341	524



Notes:
1. "±" Indicates Approximate Dimension. Contractor Verify Dimension in Field.

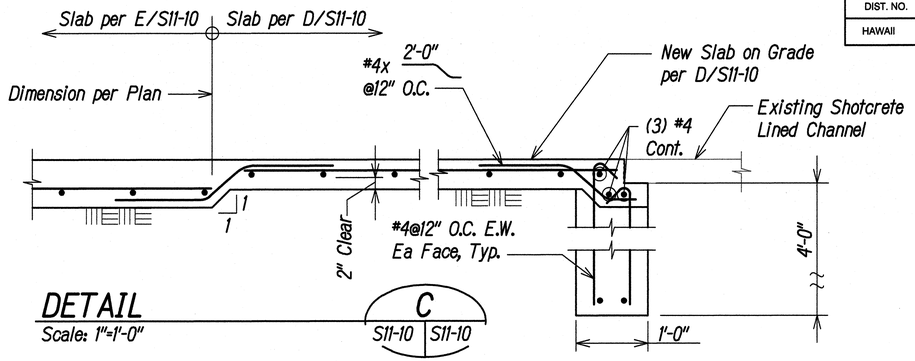
INLET STRUCTURE #1 PLAN
Scale: 1/4"=1'-0" — A S11-10 S11-10



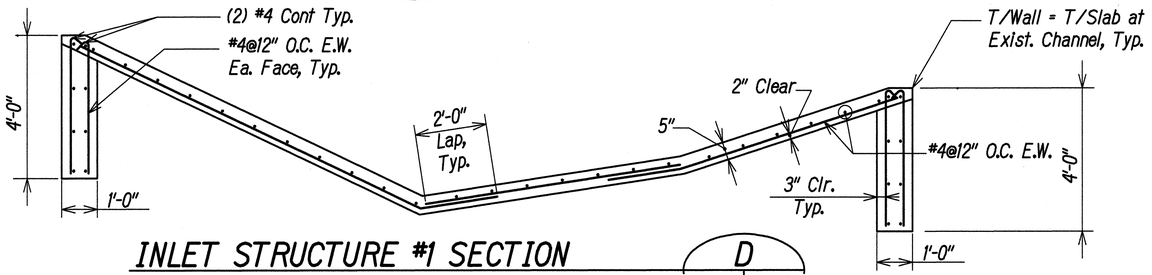
PLAN VIEW OF INLET STRUCTURE #1
Not to Scale — B S11-10 S11-10

Structural Notes:

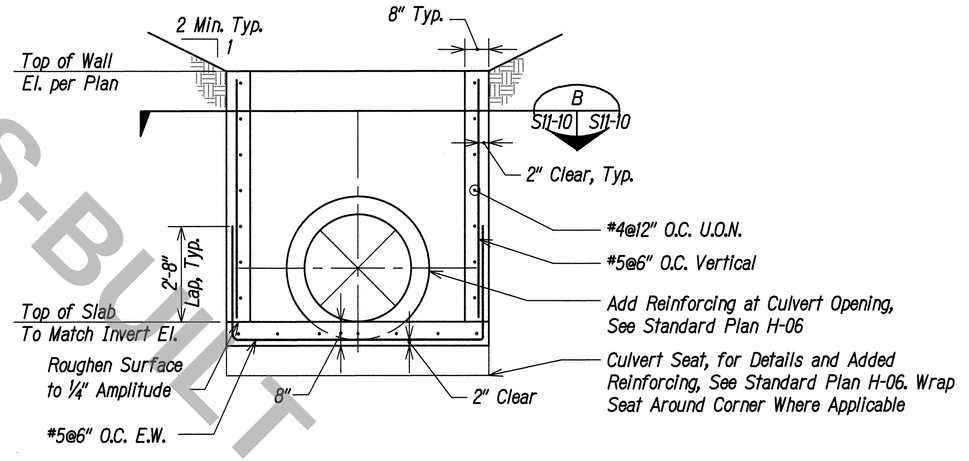
1. Reinforcing Steel This Sheet Shall be Deformed Bars ASTM 615 Grade 40, Field Bend as Required.
2. See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.



DETAIL
Scale: 1"=1'-0" — C S11-10 S11-10



INLET STRUCTURE #1 SECTION
Scale: 1/2"=1'-0" — D S11-10 S11-10



INLET STRUCTURE #1 SECTION
Scale: 1/2"=1'-0" — E S11-10 S11-10

GRAPHIC SCALE:

2' 0 2' 4'
SCALE: 1/2"=1'-0"

4' 0 4' 8'
SCALE: 1/4"=1'-0"

AS-BUILT

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INLET
DETAILS AND SECTIONS (1)

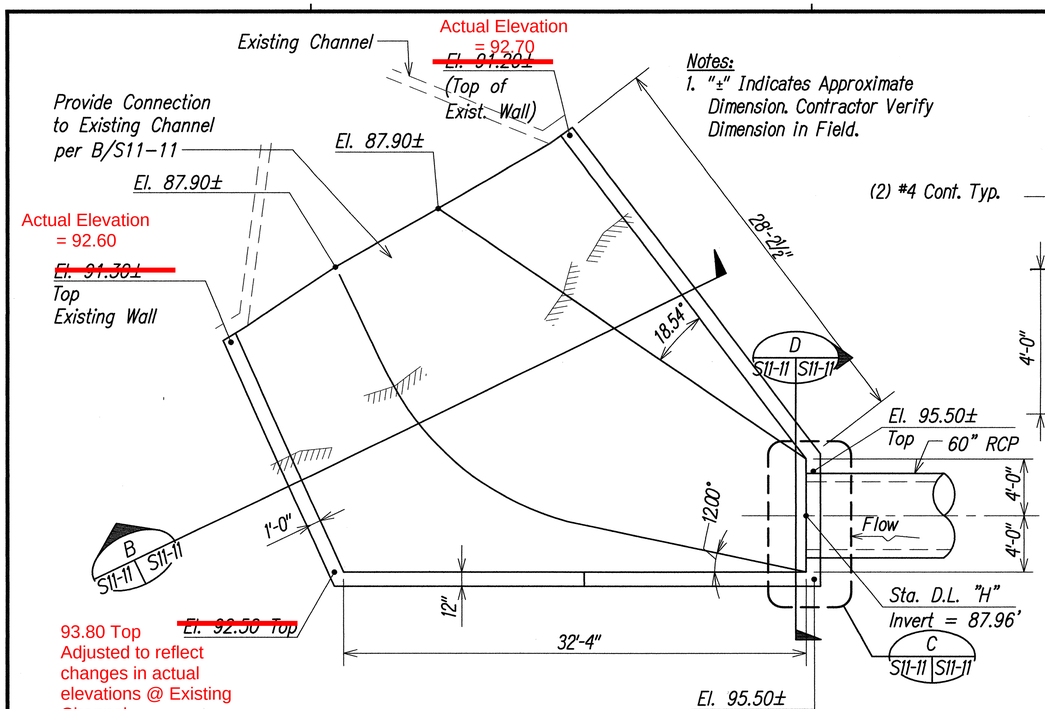
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

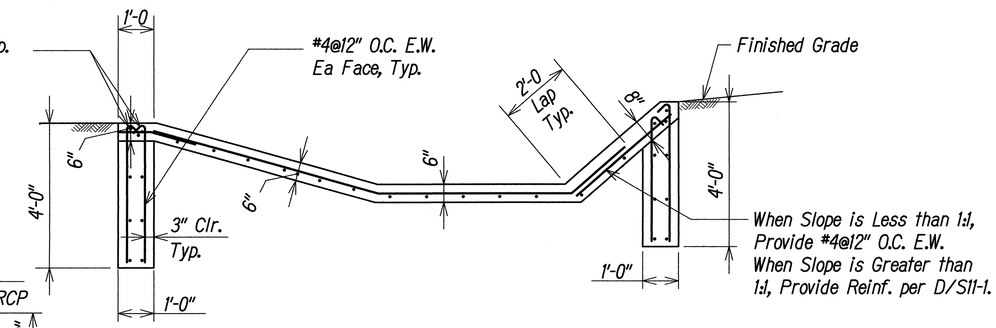
SHEET No. S11-10 OF 103 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	ADD. 342	524

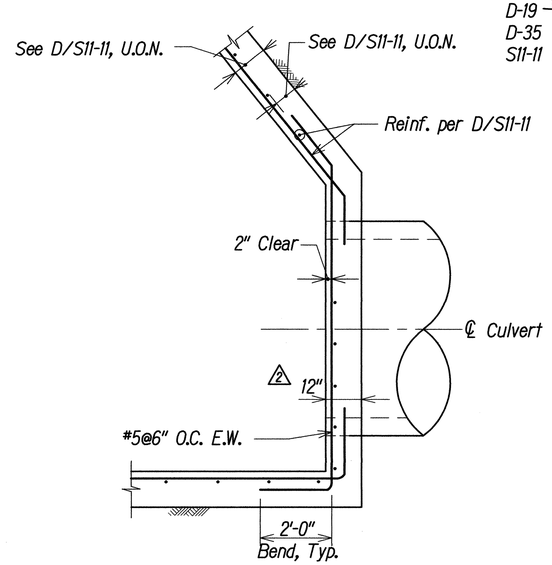


Notes:
1. "±" Indicates Approximate Dimension. Contractor Verify Dimension in Field.

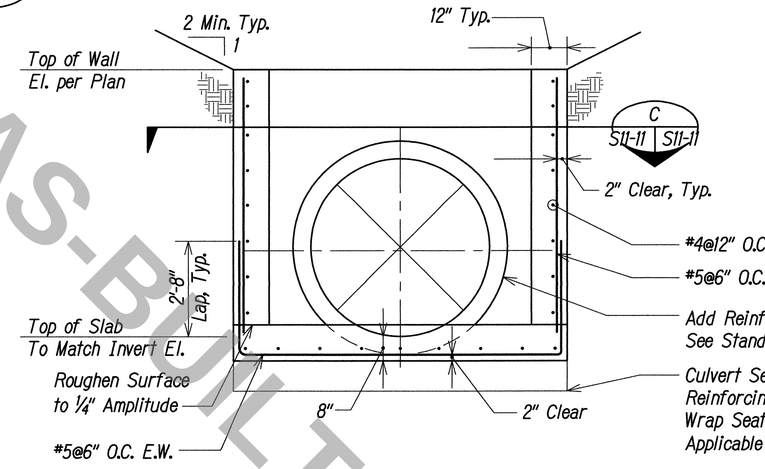


OUTLET STRUCTURE #2 SECTION B
S11-11 | S11-11
Not to Scale

OUTLET STRUCTURE #2 PLAN A
D-4, D-19, D-35, S11-11
Scale: 1"=5'-0"



PLAN VIEW OF OUTLET STR #2 C
S11-11 | S11-11
No Scale



OUTLET STRUCTURE #2 SECTION D
S11-11 | S11-11
Scale: 1/2"=1'-0"

Structural Notes:

1. Reinforcing Steel This Sheet Shall be Deformed Bars ASTM 615 Grade 40, Field Bend as required.
2. See Sheet S11-1 and S11-2 for General Notes and Typical Manhole Details.

AS-BUILT

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

ORIGINAL PLAN
NOTE BOOK
No.

GRAPHIC SCALE:
2' 0 2' 4'
SCALE: 1/2"=1'-0"

DATE	REVISION
2 5/18/15	Update Wall Thickness

LICENSED PROFESSIONAL ENGINEER No. 10129 IZZAT H. HASAYEN HAWAII, U.S.A.
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APRIL 30, 2016
PARSONS BRINCKERHOFF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
OUTLET
DETAILS AND SECTIONS (1)
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)
Scale: As Shown Date: January 20, 2015

SHEET No. S11-11 OF 103 SHEETS

"AS-BUILT"

ADD. 342

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	343	524

GENERAL NOTES

1. Design Specifications:
   (A) The AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminares and Traffic Signals, 5th Edition, 2011 Interim Revisions.
   (B) The State of Hawaii Department of Transportation Highways Division "Design Criteria for Bridges and Structures", 2014.

2. Loads:
   (A) Basic Wind Speed: 105 mph
   (B) Recurrence Interval: 100 Years
   (C) Fatigue Importance Factor, IF, has Been Based on Fatigue Category I for Sign Structures.
   (D) Sign Structures Have Been Designed for a Truck Induced Gust Based on a Truck Speed of 20 mph Over the Posted Speed.
   (E) Galloping and Natural Wind Gusts Have Been Considered for Cantilevered Sign Structures.
   (F) Natural Wind Gusts Have Been Considered for all Sign Structures.

3. Materials:
   (A) All Material and Workmanship Shall be in Accordance with the Requirements of the State of Hawaii Department of Transportation Standard Specifications for Road and Bridge Construction Dated 2005 and Amendments.
   (B) All Concrete Strengths Shall be as Noted Below:

Item No.	Structural Parts	Classes of Concrete	Specified Compressive Strength f'c (28 Days)
(1)	Footings	-	4,500 psi
(2)	Pedestals	-	4,500 psi

   See Hawaii Department of Transportation Standard Specifications Section 511 for Drilled Shaft Concrete.

   All Concrete with a 28 Day Compressive Strength of 4,000 psi or Greater Shall Have a Maximum W/C Ratio of 0.45.

   (C) All Connection Bolts Shall be Zinc Coated and Conform to ASTM A325 Bolts Unless Otherwise Noted.
   (D) Anchor Bolts Shall be Zinc Coated and Conform to AASHTO M314-105 Bolts Unless Otherwise Noted.
   (E) Aluminum Members and Surfaces in Contact with Structural Steel Shall be Isolated with Neoprene Material as Approved by the Engineer.
   (F) Reinforcing Shall Conform to AASHTO M31 Grade 60 (ASTM A615 Grade 60) Unless Otherwise Noted.
   (G) Structural Steel Shall be AASHTO M270 Grade 50 (ASTM A709 Grade 50) Zinc Coated Unless Otherwise Noted.
   (H) Zinc Coating Shall Conform to AASHTO M111 or AASHTO M232.

4. Additional Requirements for Sign 11:
   (A) All Butt Joint Welds Shall be Full Penetration Groove Welds with Back-Up Plates of 1/4" Minimum Thickness.
   (B) The Back-Up Plates For All Full Penetration Welds Shall be Welded Continuously to the Joined Pieces. This Can be Done by Either a Continuous Fillet Weld on the Back Side of the Piece, or by a Continuous Weld in the Root of the Full Penetration Weld, Unless Otherwise Noted.
   (C) Sign Panels as Shown in The Contract Plans Shall be Installed With the Sign Structure or Immediately After the Sign Structure is Erected.
   (D) Fabricate Beam to Provide a Smooth Parabolic Camber. See Camber Diagram. Do Not Shim at Bolted Splices.
   (E) Fabricate Post Straight.
   (F) Materials Specifications:

All Structural Steel Except as Otherwise Noted	ASTM A572 Grade 50
Anchor Bolts	ASTM F1554 Grade 105
Handhole Cover Screws	ASTM F593 Grade 1
Splice Bolts	ASTM A325
Sign Bracket Rods	ASTM A36 or A307 Grade C
Mounting Beam Bolts	ASTM A325
Cover Plates	ASTM A36

   (G) All Bolts, Rods, and Related Hardware Shall be Zinc Coated After Fabrication per AASHTO M232.
   (H) Steel Surfaces Shall be Zinc Coated After Fabrication in Accordance with AASHTO M111.
   (I) Posts, Base Plates, Beams and Splice Plates are Main Load-Carrying Tension Members or Tension Components of Flexural Members and Shall Meet the Longitudinal Charpy V-Notch Requirements of AASHTO M270 Temperature Zone 1. Non-Destructive Test Acceptance Criteria to Conform to Tensile Members with Cyclic Load.

   The Contractor Shall Submit for the Engineer's Approval a Written Plan for Visibly Marking the Material so That it Can be Traced. These Marks Shall Remain Visible at Least Through the Fit-Up of the Main Load-Carrying Tension Members. The Marking Method Shall Permit the Engineer to Verify: (1) Material Specification Designation, (2) Heat Number, and (3) Material Test Reports to Meet any Special Requirements.

   For Steel in Main Load-Carrying Tension Members and in Tension Components of Flexural Members, the Contractor Shall Include the Heat Numbers on the Reproducible Copies of the As-Built Shop Plans.

   (J) All Welding Shall be Done to Minimize Distortion. Permissible Monotube Dimension Variations for Outside Dimensions, Wall Thickness, Length, Straightness*, Squareness of Sides, and Twist Shall be in Accordance with Section 11 of ASTM A500 (*Parabolically-Cambered Sign Bridge Beams Excluded).
   (K) Where Civil Plans Show Existing Buried Utilities in Vicinity of Foundation, Pothole to Verify Utilities Will not Conflict with Foundation.

5. General:
   (A) See General Notes on S1-2 for Additional Information.
   (B) All Sign Support Posts Shall be Outside of the Clear Zone or Shielded by an Appropriate Traffic Barrier System. The Traffic Barrier System Shall be Submitted to the Engineer for Approval.
   (C) The Contractor Shall use Templates While Installing the Anchor Bolts. Anchor Bolts Shall be Vertical.
   (D) Excavation and Backfill Shall be Considered Incidental to the Cost of the Sign Foundation.
   (E) Unless Otherwise Noted all Truss Members Shall be Welded all Around at Joints with 3/16" Fillet Weld.
   (F) Apply One Coat of Zinc Coated Metal Primer and Three Coats of Weather Proof Dark Green Enamel Over Zinc Coating Conforming to the Specifications to all Structural Steel Members. Submit Coating to the Engineer for Approval.

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

IZZAT H. HASAYEN * LICENSED PROFESSIONAL ENGINEER * No. 10129 * HAWAII, U.S.A.
EXPIRES 4/30/16

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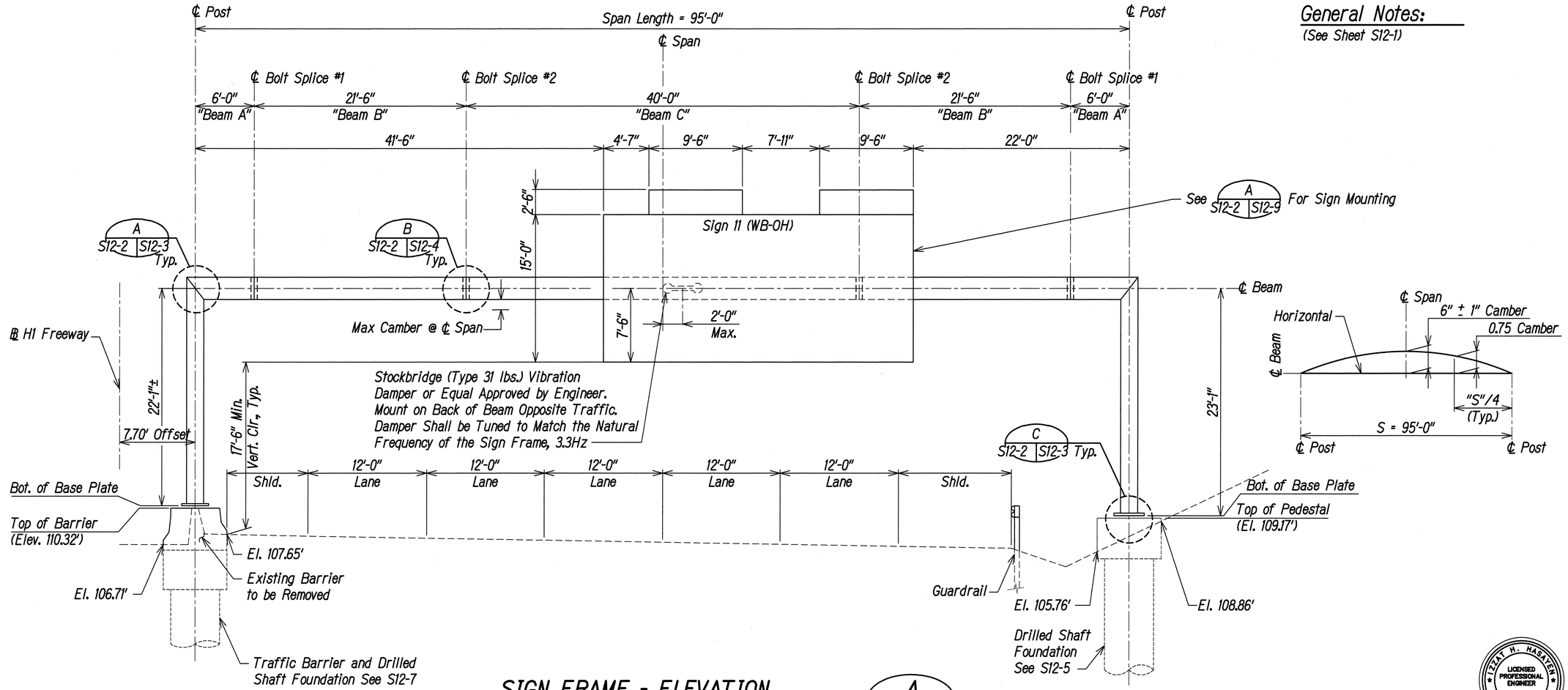
STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN FRAME NOTES

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)
Date: January 20, 2015

SHEET No. S12-1 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	344	524



SIGN FRAME - ELEVATION

A S12-2 | S12-2

Not to Scale
Sta. 75+40.08 H1 Freeway
Looking Back on Stationing

General Notes:

(See Sheet S12-1)

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

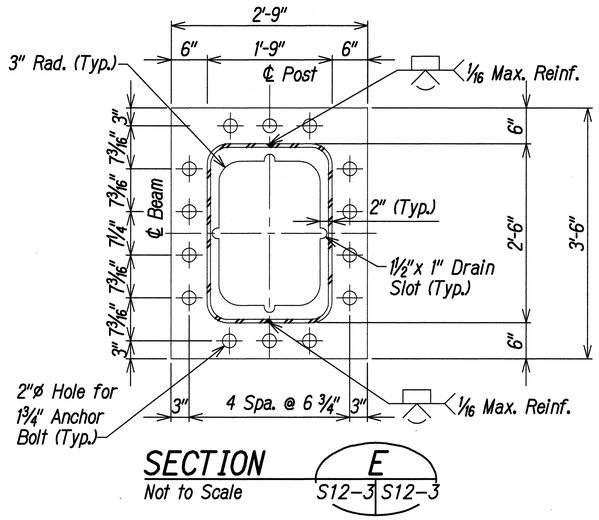
SIGN 11 FRAME ELEVATION

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

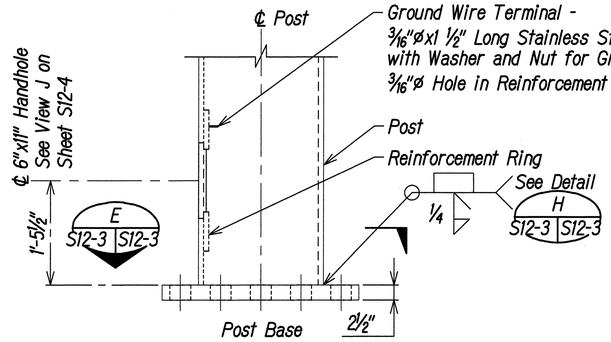
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SHEET No. S12-2 OF 103 SHEETS

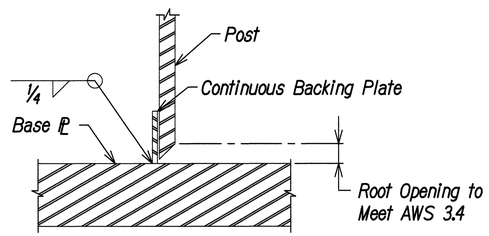
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	345	524



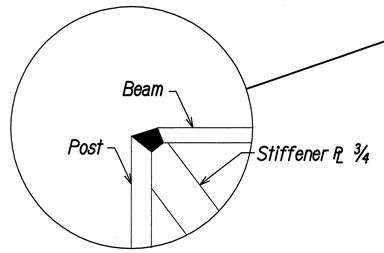
SECTION E
Not to Scale S12-3 | S12-3

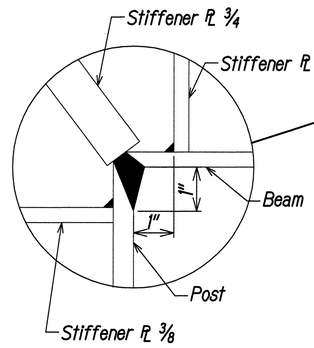


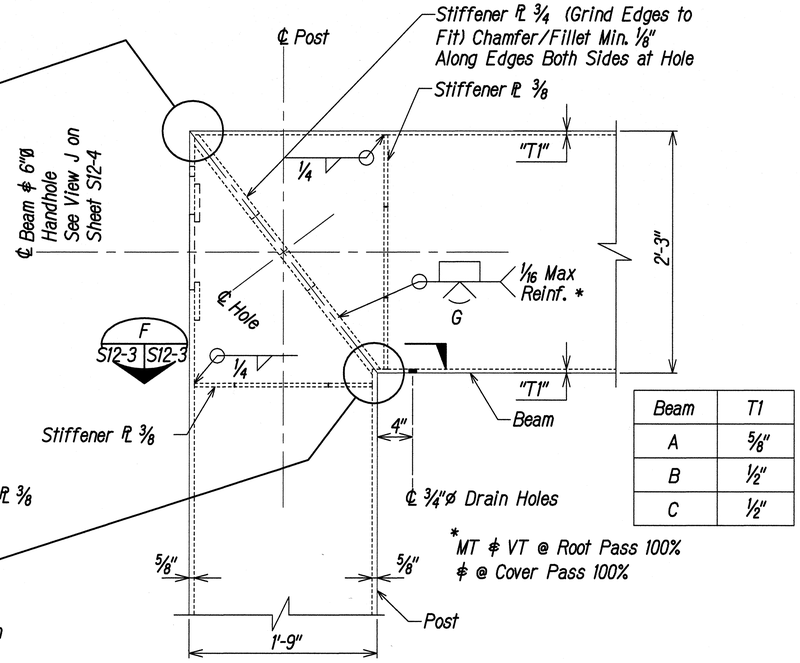
DETAIL C
Not to Scale S12-2 | S12-3



DETAIL H
Not to Scale S12-3 | S12-3



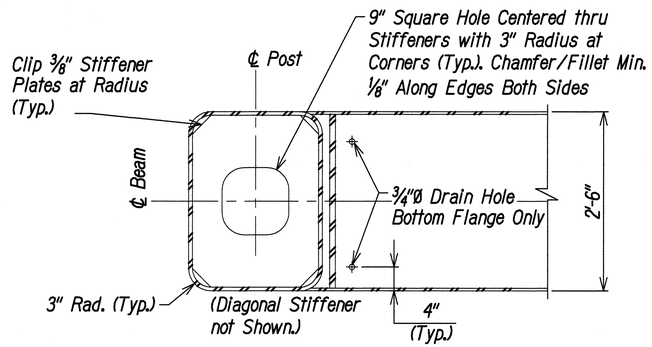




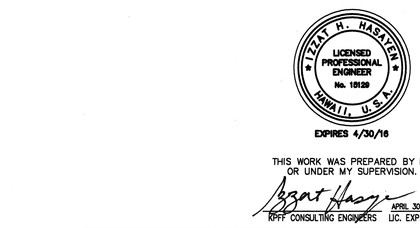
Beam	T1
A	⅝"
B	½"
C	½"

* MT ⌀ VT @ Root Pass 100%
⌀ @ Cover Pass 100%

DETAIL A
Not to Scale S12-2 | S12-3



SECTION F
Not to Scale S12-3 | S12-3



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APRIL 30, 2016
KFFT CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN 11 STRUCTURAL DETAILS (1)

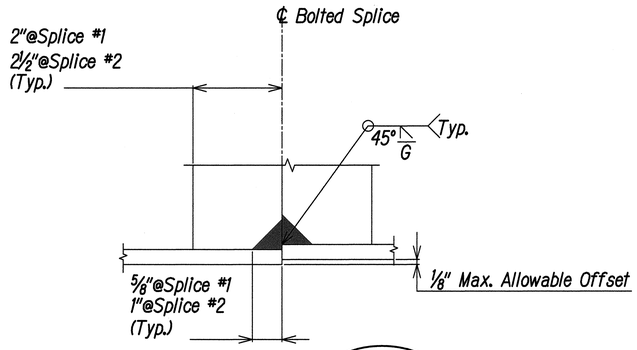
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not to Scale Date: January 20, 2015

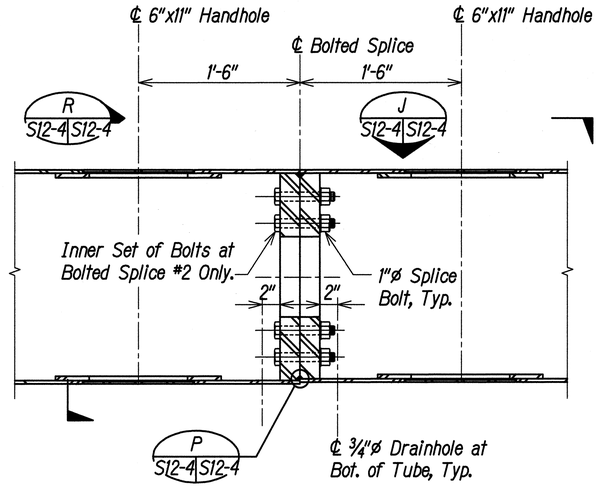
SHEET No. S12-3 OF 103 SHEETS

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

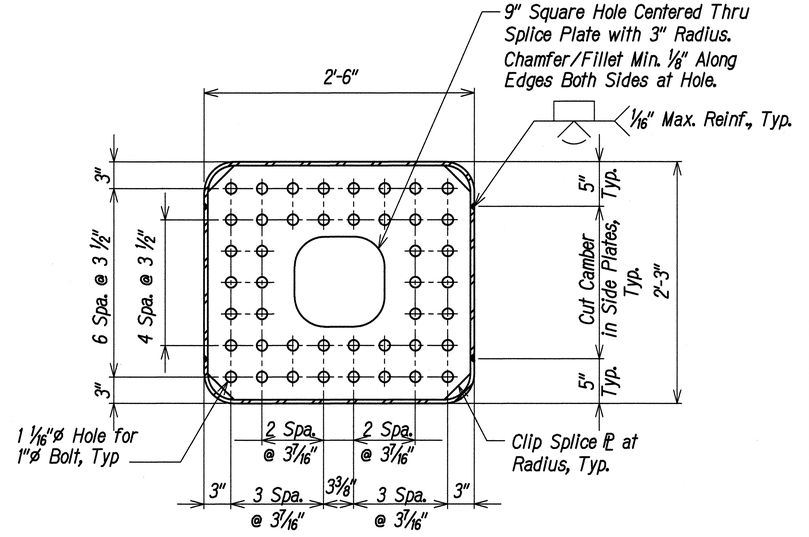
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	346	524



DETAIL P
Not to Scale
S12-4 | S12-4

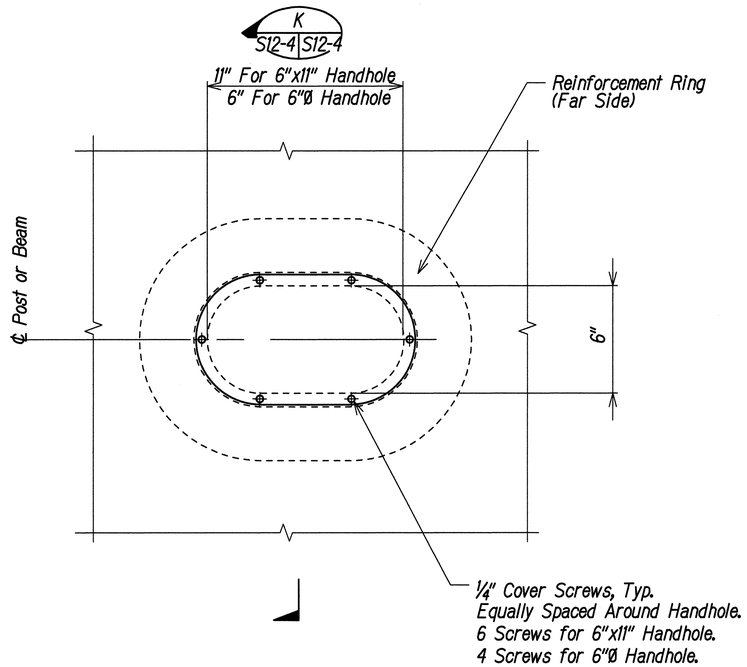


DETAIL B
Not to Scale
Section Thru Beam
Bolted Splice #2 Shown.
Bolted Splice #1 Similar.
S12-2 | S12-4

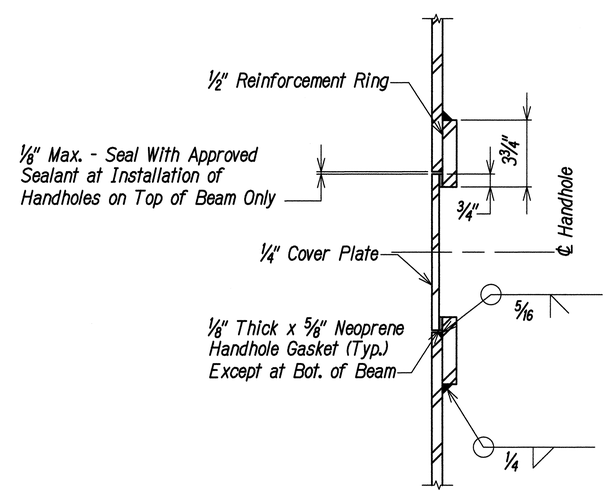


SECTION R
Not to Scale
S12-4 | S12-4

Handholes Not Shown for Clarity.
Inner Set of Bolts at Bolted Splice #2 Only.



VIEW J
Not to Scale
6"x11" Handhole Shown.
6"ø Handhole Similar.
S12-4 | S12-4



SECTION K
Not to Scale
S12-4 | S12-4

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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HIGHWAYS DIVISION

SIGN 11 STRUCTURAL DETAILS (2)

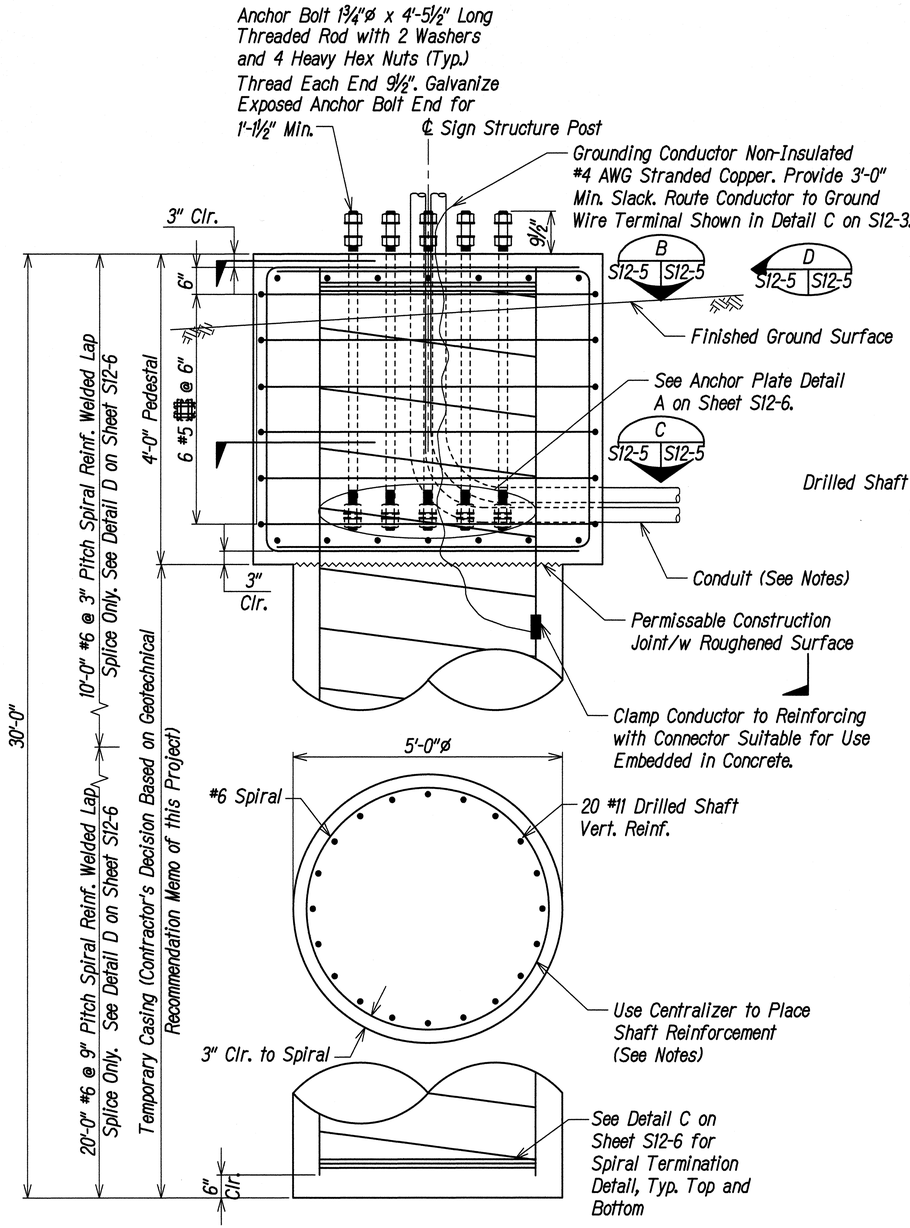
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not to Scale Date: January 20, 2015

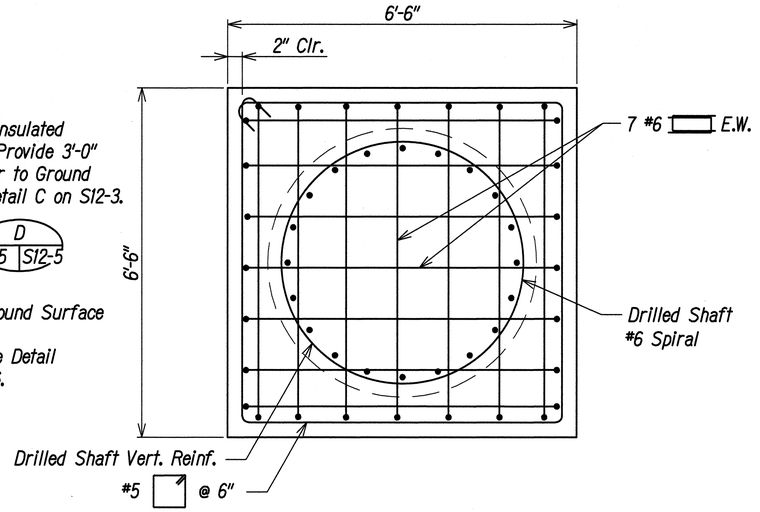
SHEET No. S12-4 OF 103 SHEETS

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

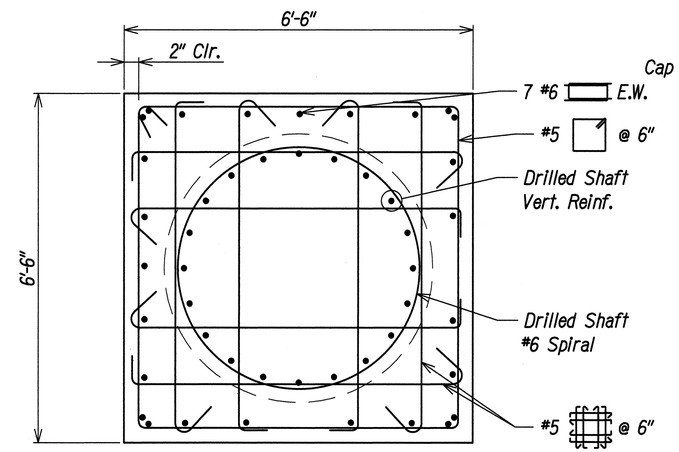
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	347	524



DRILLED SHAFT FOUNDATION ELEVATION A
Not to Scale — S12-2 | S12-5

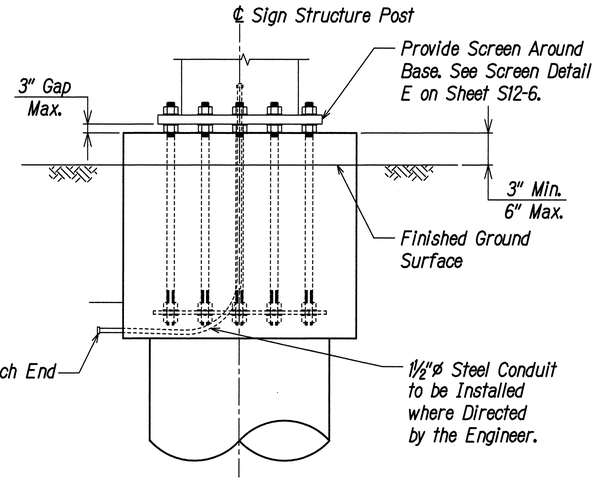


SECTION B
Not to Scale — S12-5 | S12-5



SECTION C
Not to Scale — S12-5 | S12-5

NOTES:
1. Total Number of Conduits Into Pole Foundation Shall be as Indicated on Lighting Plans. Conduit Shall Slope Away From Pole Foundation. Conduit Shall Stub-Out 5'-0" Minimum.
2. Grounding Conductor Shall be Bonded to Sign Support as Directed by the Engineer.
3. Adjust the Bar Spacing by 2"±, if Necessary to Avoid Conflicting with the Conduits. The Maximum Spacing Shall be Less Than or Equal to 8".
4. The Contractor Shall Include Centralizer Details in Drilled Shaft Plan that is Required Prior to Construction.
5. Drilled Shaft Vertical Reinforcing Shall be Placed so That it Does not Conflict with the Anchor Bolts and Anchor Plates.
6. Use a Template to Locate and Secure Anchor Bolts in Place During Foundation Installation. For Details, see Anchor Bolt Array Detail B on Sheet S12-6.



VIEW D
Not to Scale — S12-5 | S12-5

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

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

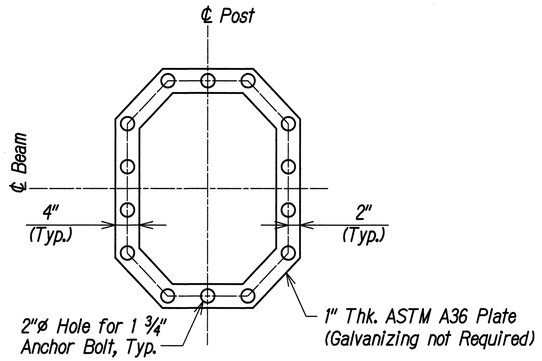
SIGN 11 FOUNDATION DETAILS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not to Scale Date: January 20, 2015

SHEET No. S12-5 OF 103 SHEETS

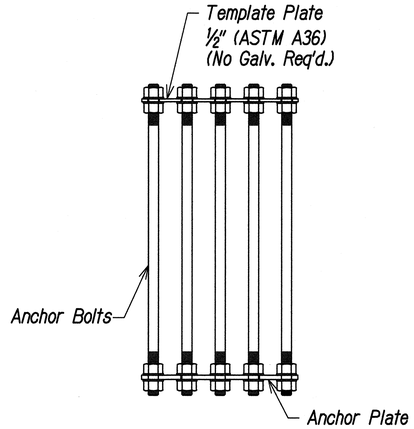
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	348	524



ANCHOR PLATE DETAIL A

Not to Scale — S12-5 | S12-6

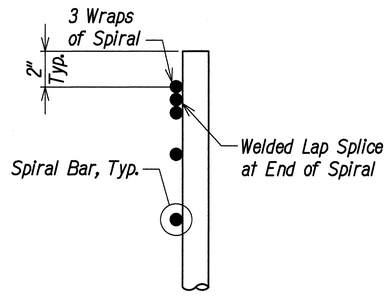
For Anchor Bolt Pattern See Sign Frame Base Plate on Sheet S12-3.



ANCHOR BOLT ARRAY DETAIL B

Not to Scale — S12-5 | S12-6

Ship the Anchor Bolt Array Assembly as a Complete Unit.

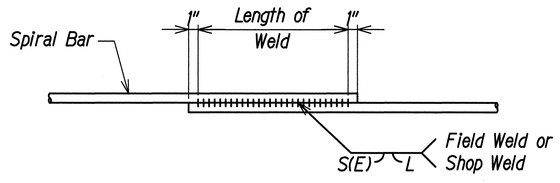


SPIRAL TERMINATION DETAIL C

Not to Scale — S12-5 | S12-6

Notes on Spirals:

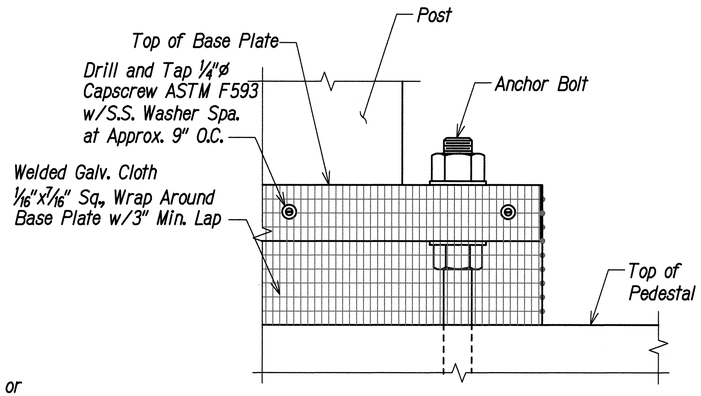
1. Spirals Shall be Fabricated From #6 Deformed Reinforcing Bars (ASTM A706 Grade 60).
2. Use E80XX Electrodes.
3. Use Welded Splices Only, Except as Noted.
4. Where the Spiral Terminates, Weld the Spiral Back onto Itself.
5. Field Welding Shall not be Performed Within Top and Bottom 5'-0" of Shaft Clear Height.



WELDED LAP SPLICE DETAIL D

Not to Scale — S12-5 | S12-6

Deformed Bar	Weld Dimensions (In.)		
	S	E	Length (L)
#6	3/8	3/16	5



SCREEN DETAIL E

Not to Scale — S12-5 | S12-6

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

LICENSED PROFESSIONAL ENGINEER No. 10129 IZZAT H. HASAYEN HAWAII, U.S.A.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

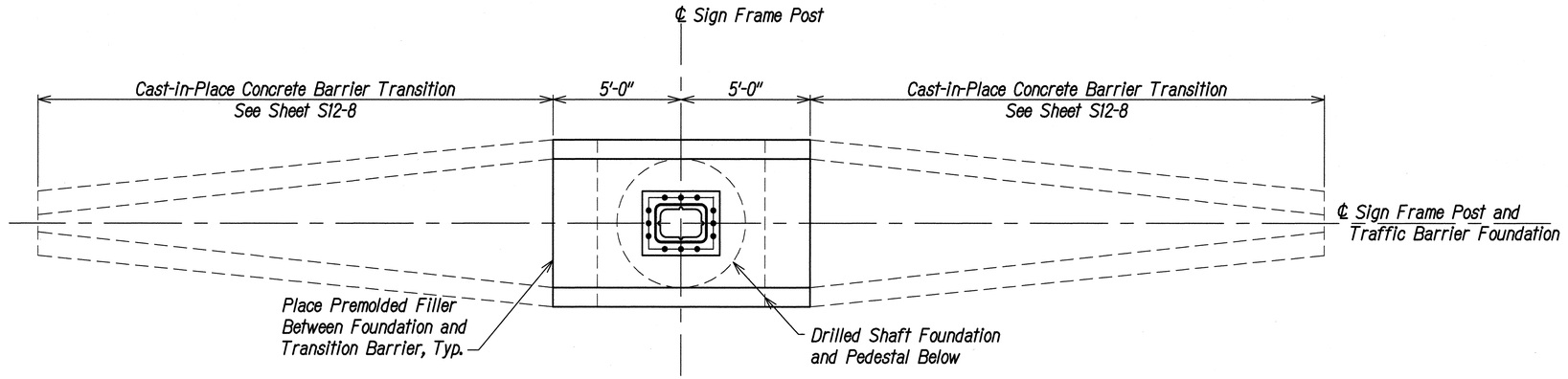
SIGN 11 FOUNDATION DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not to Scale Date: January 20, 2015

SHEET No. S12-6 OF 103 SHEETS

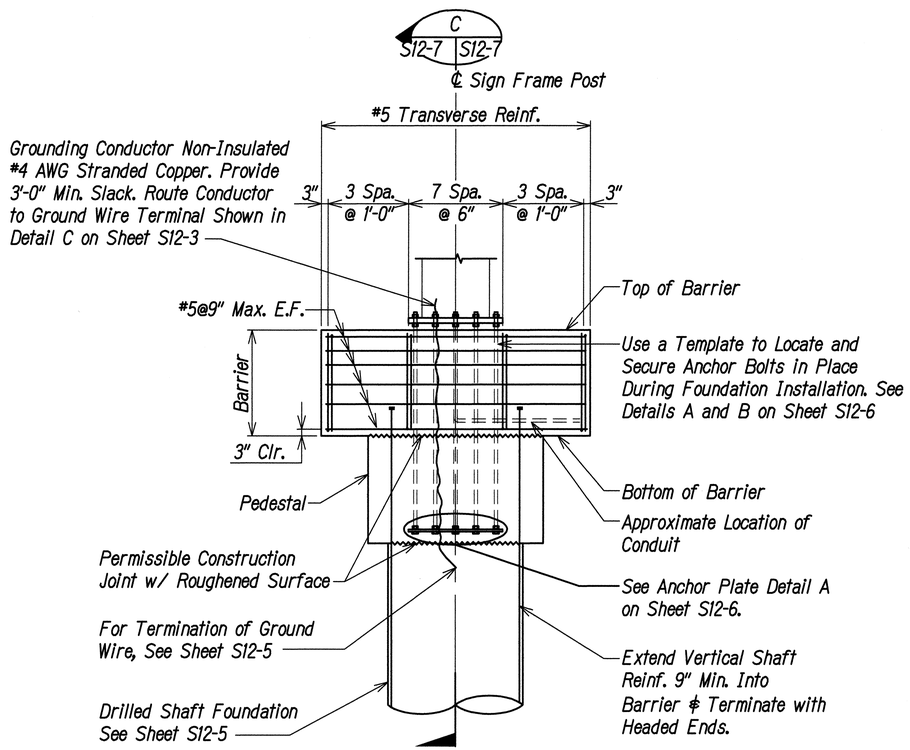
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	349	524



TRAFFIC BARRIER PLAN

Not to Scale

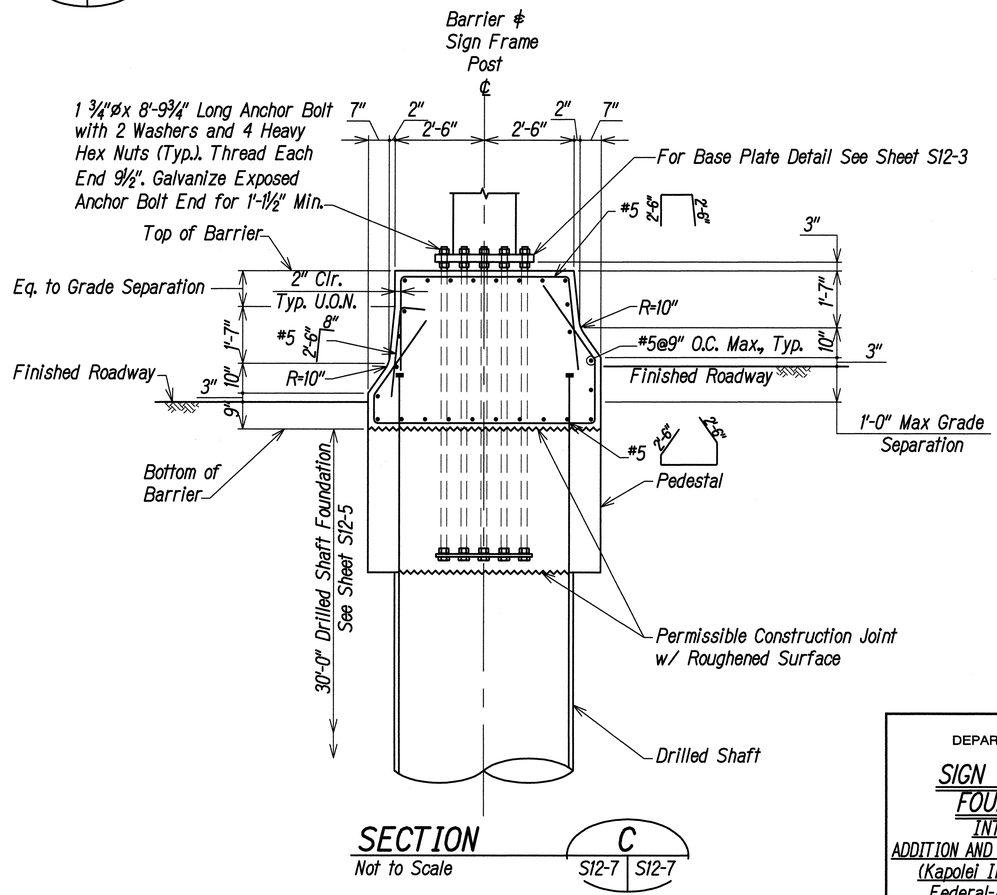
A S12-7 | S12-7



TRAFFIC BARRIER ELEVATION

Not to Scale

B S12-7 | S12-7



SECTION

Not to Scale

C S12-7 | S12-7

SURVEY PLOTTED BY
DRAWN BY
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QUANTITIES BY
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DATE

ORIGINAL PLAN
NOTE BOOK
No.

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No. 10129
HAWAII, U.S.A.
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HIGHWAYS DIVISION

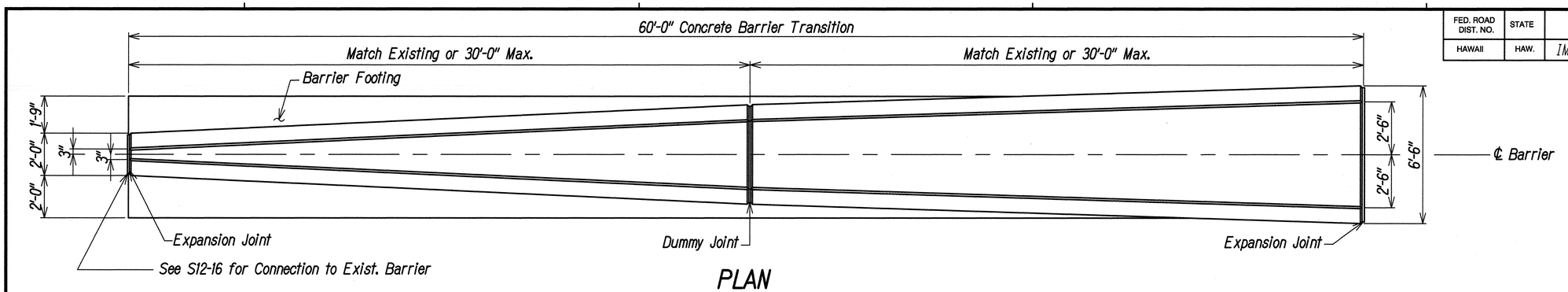
SIGN 11 TRAFFIC BARRIER FOUNDATION DETAILS 1

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

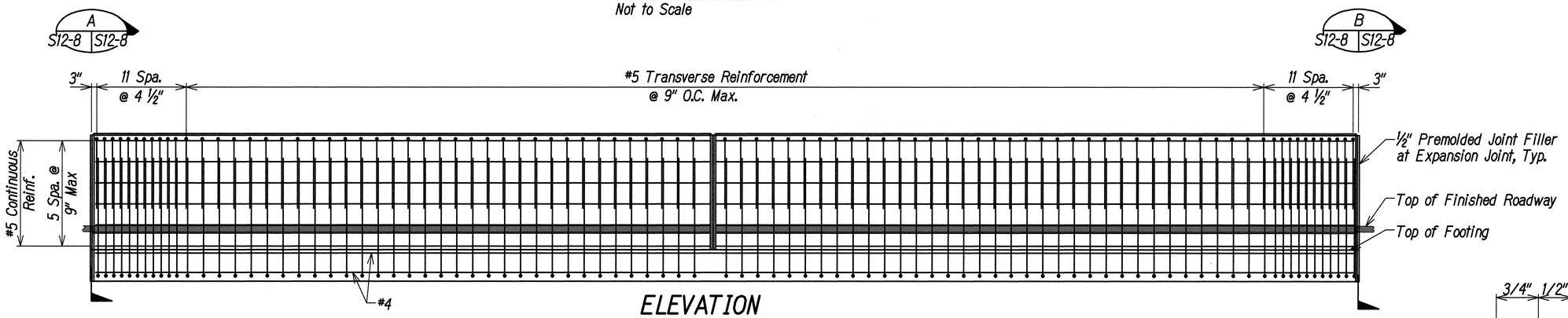
Scale: Not to Scale Date: January 20, 2015

SHEET No. S12-7 OF 103 SHEETS

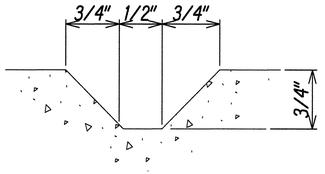
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	350	524



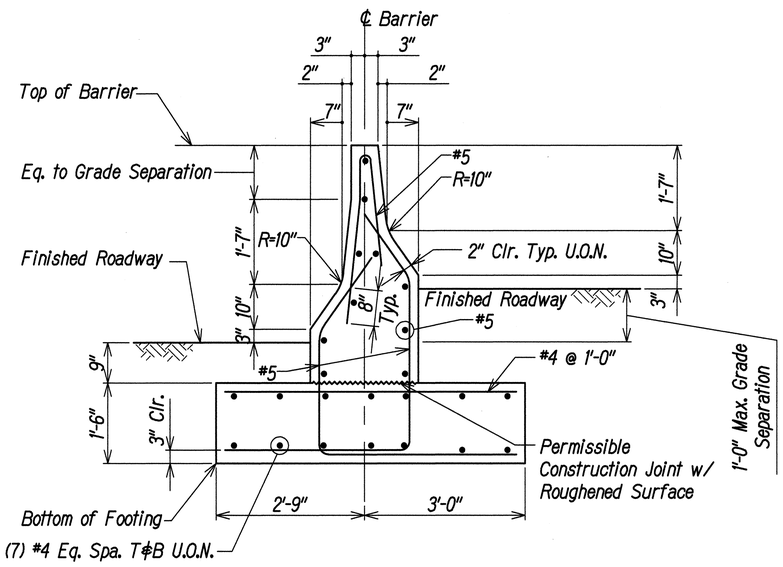
PLAN
Not to Scale



ELEVATION
Not to Scale

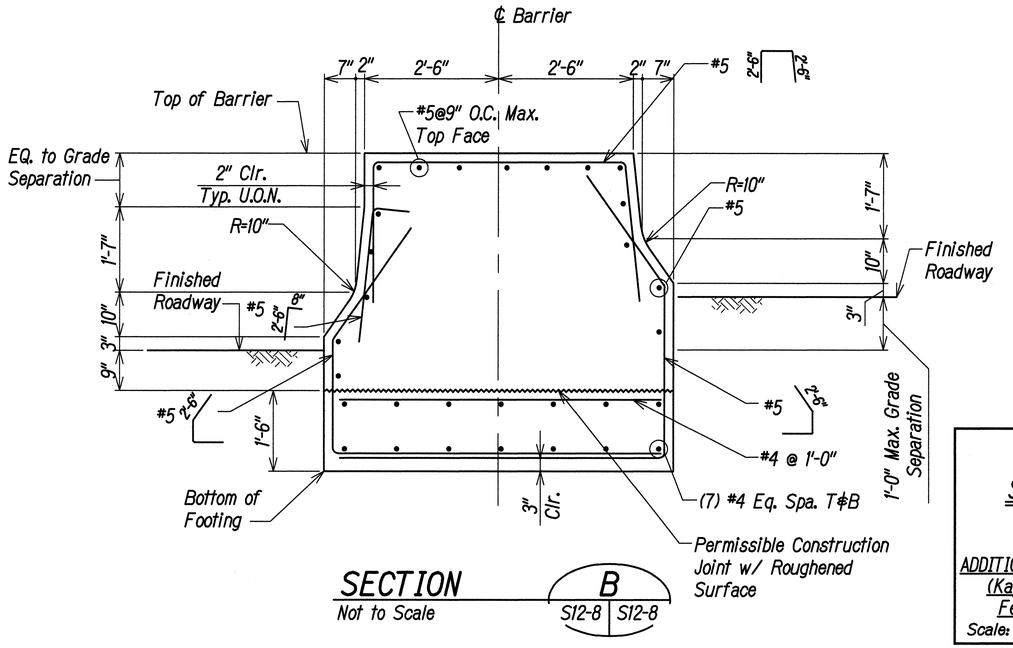


DUMMY JOINT
Not to Scale



SECTION
Not to Scale

A
S12-8 S12-8



SECTION
Not to Scale

B
S12-8 S12-8

IZZAT H. HASAN
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No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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HIGHWAYS DIVISION

SIGN 11 TRAFFIC BARRIER FOUNDATION DETAILS 2

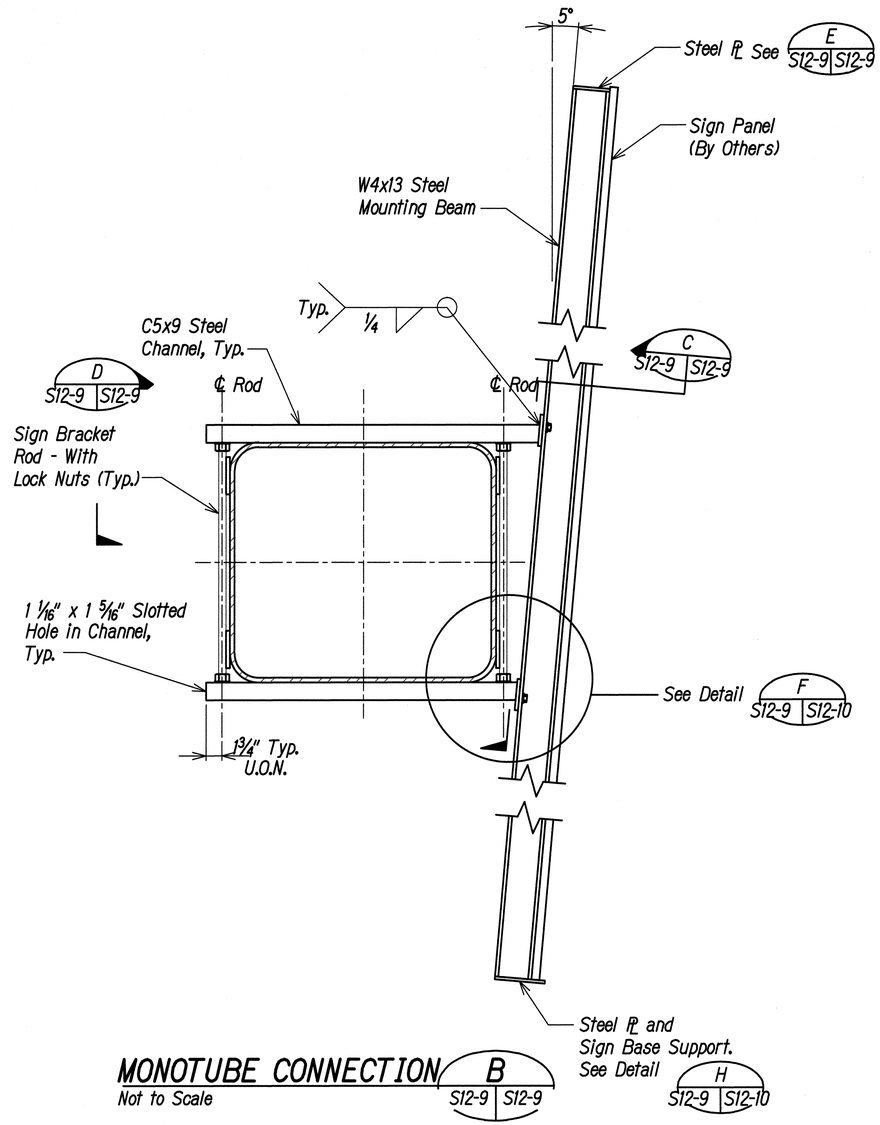
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS (Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: Not to Scale Date: January 20, 2015

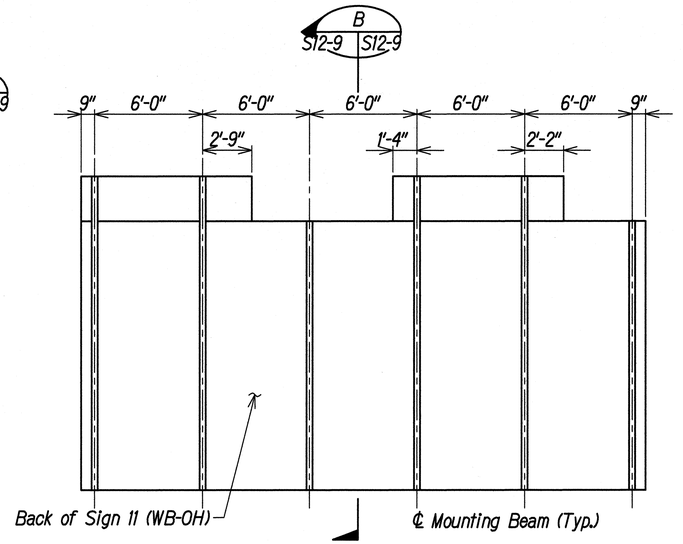
SHEET No. S12-8 OF 103 SHEETS

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

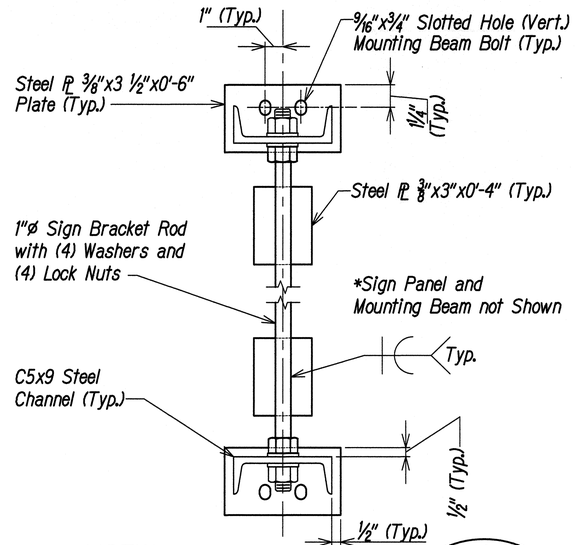
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	351	524



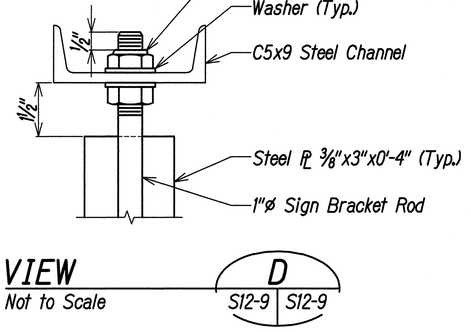
MONOTUBE CONNECTION B
Not to Scale — S12-9 S12-9



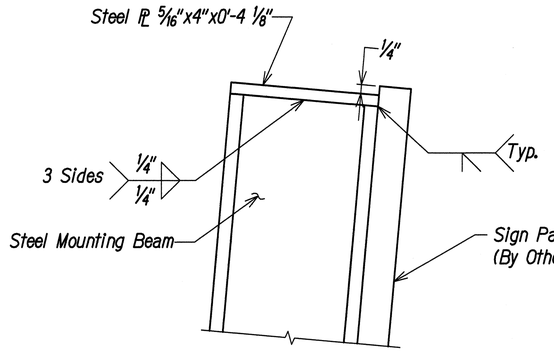
MOUNTING BEAM PLACEMENT A
Not to Scale — S12-2 S12-9



VIEW C
Not to Scale — S12-9 S12-9



VIEW D
Not to Scale — S12-9 S12-9



DETAIL E
Not to Scale — S12-9 S12-9

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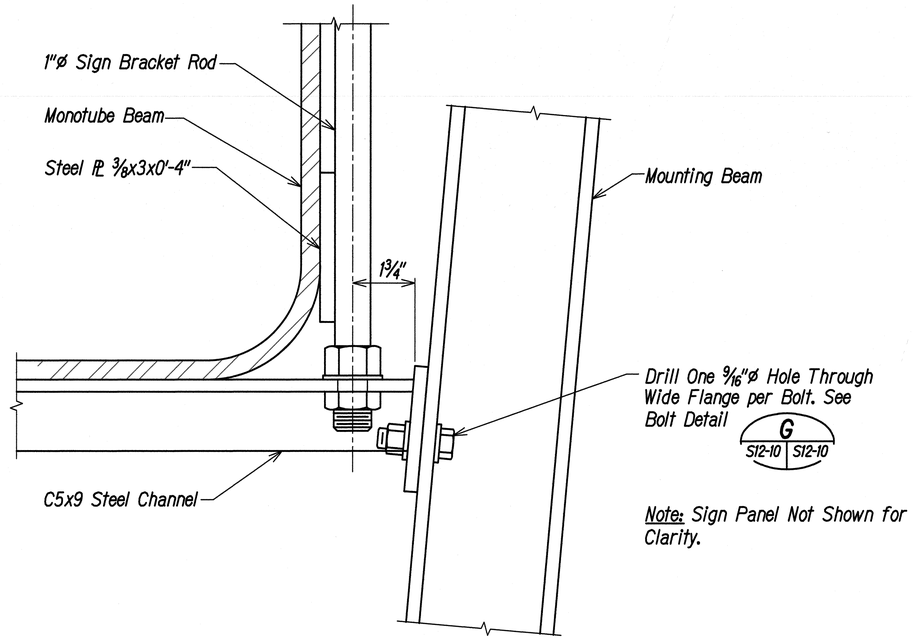
SIGN 11 MOUNTING DETAILS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: ~~Not~~ to Scale Date: January 20, 2015

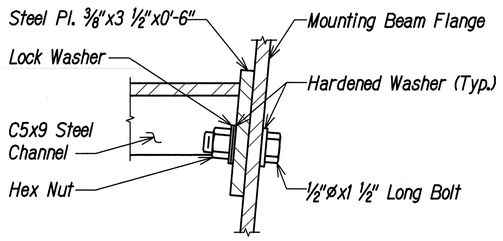
SHEET No. S12-9 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	352	524

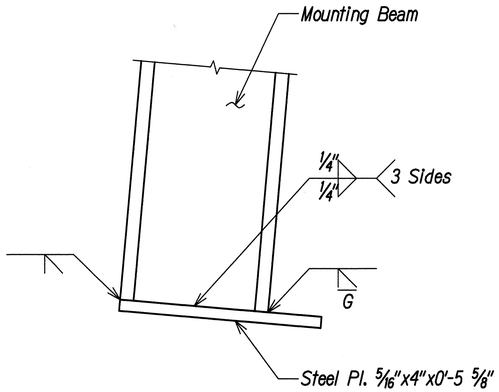


Note: Sign Panel Not Shown for Clarity.

DETAIL F
Not to Scale
S12-9 | S12-10



BOLT DETAIL G
Not to Scale
S12-10 | S12-10



Note: Sign Panel Not Shown for Clarity.

DETAIL H
Not to Scale
S12-9 | S12-10

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY DATE
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LICENSED PROFESSIONAL ENGINEER
No. 10129
IZZAT H. HASAYEN
HAWAII, U.S.A.
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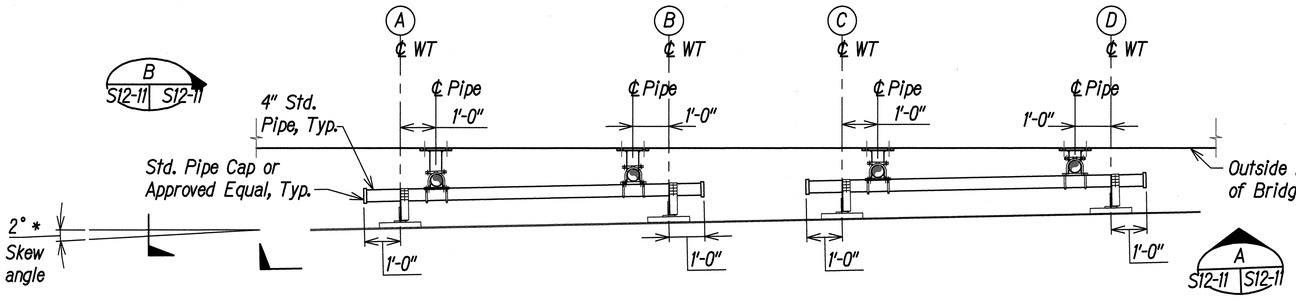
SIGN 11 MOUNTING DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

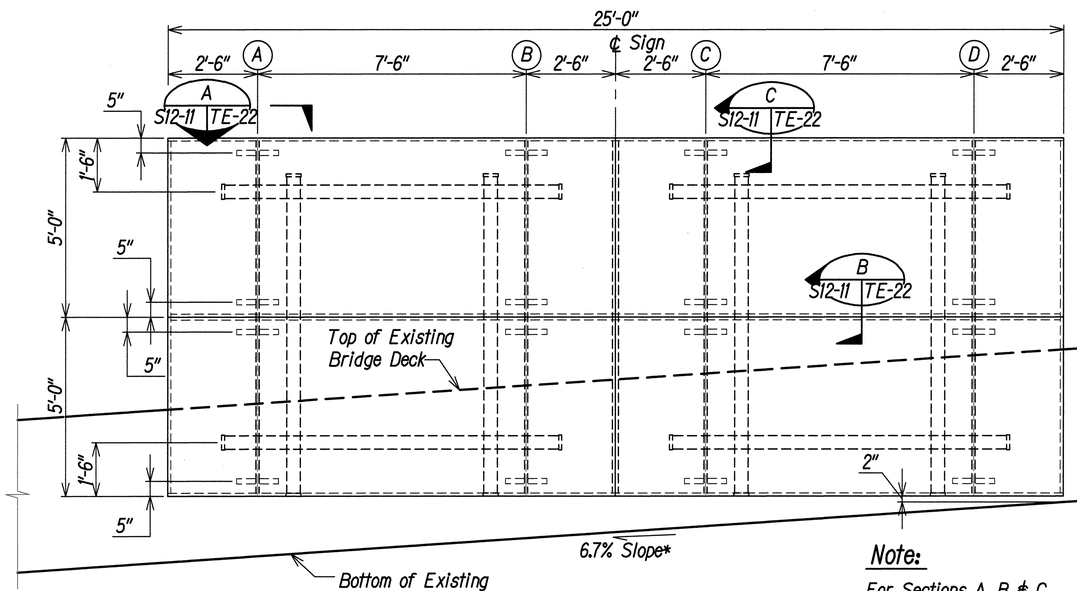
Scale: Not to Scale Date: January 20, 2015

SHEET No. S12-10 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	353	524

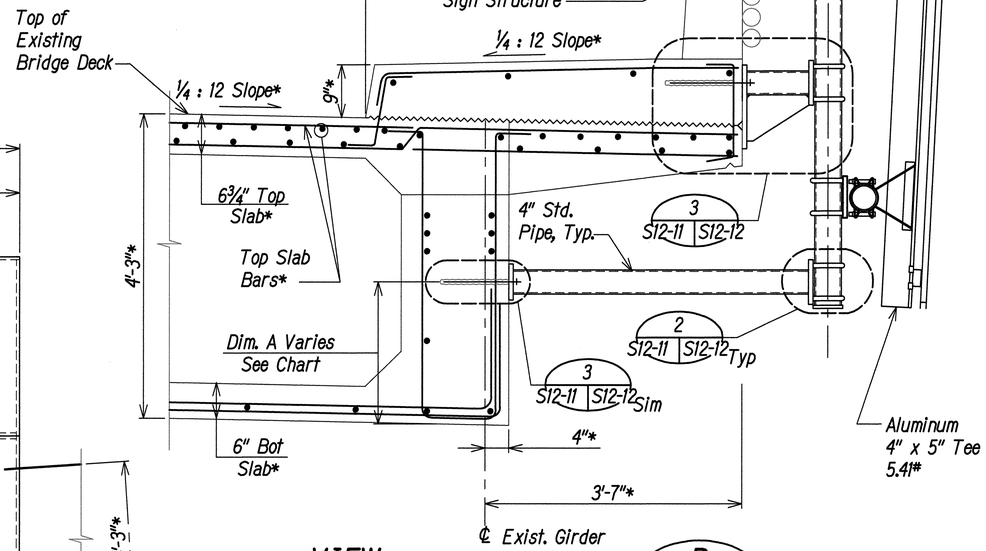


TOP VIEW
Scale: 1/2"=1'-0"



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

Note:
For Sections A, B & C, see HDOT Standard Plan TE-22



VIEW
Scale: 1"=1'-0"

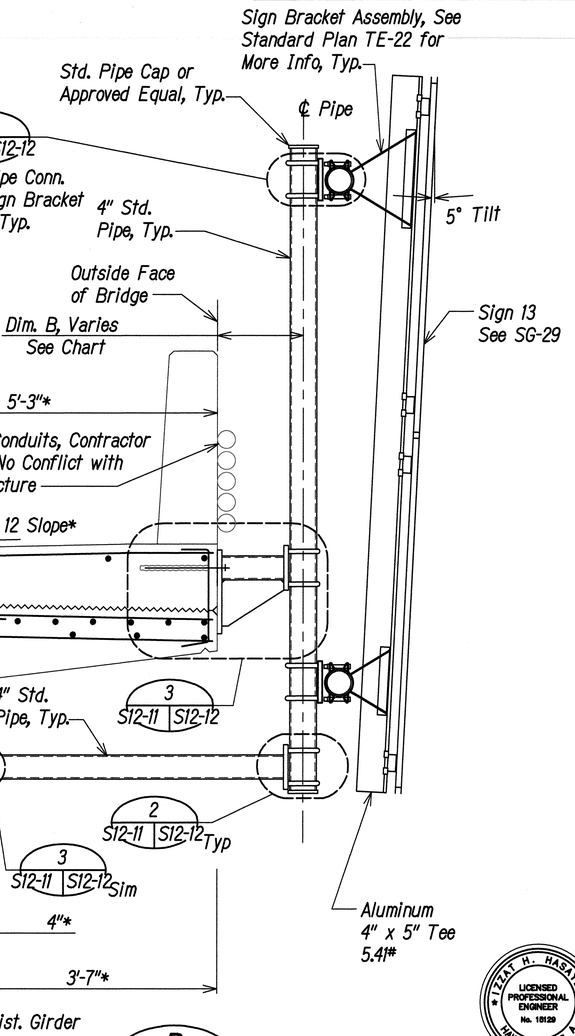


CHART		
Grid Line	Dim. A*	Dim. B*
A	2'-0"	1'-2 3/8"
B	1'-7 ½"	11 ¼"
C	1'-2"	9 1/8"
D	9 ½"	6"

GRAPHIC SCALE:
2' 0 2' 4'
SCALE: 1/2"=1'-0"
1' 6" 0 1' 2'
SCALE: 1"=1'-0"

* Dimensions Shown are Based on As-Built Drawings. Contractor to Verify Dimensions in Field Prior to Sign Installation.

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

TEAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 10129
HAWAII, U.S.A.
EXPIRES 4/30/16

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HIGHWAYS DIVISION

BRIDGE MOUNTED SIGN (1)

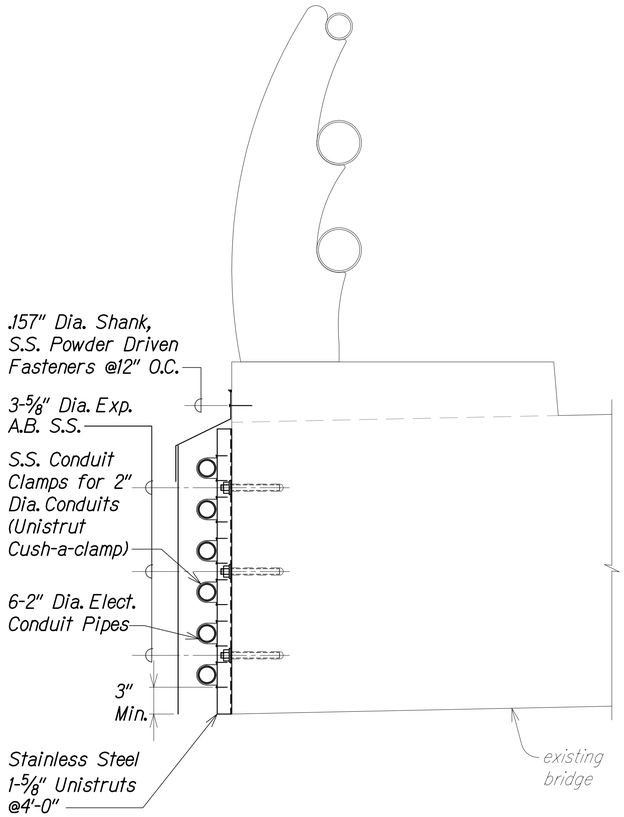
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S12-11 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015		524

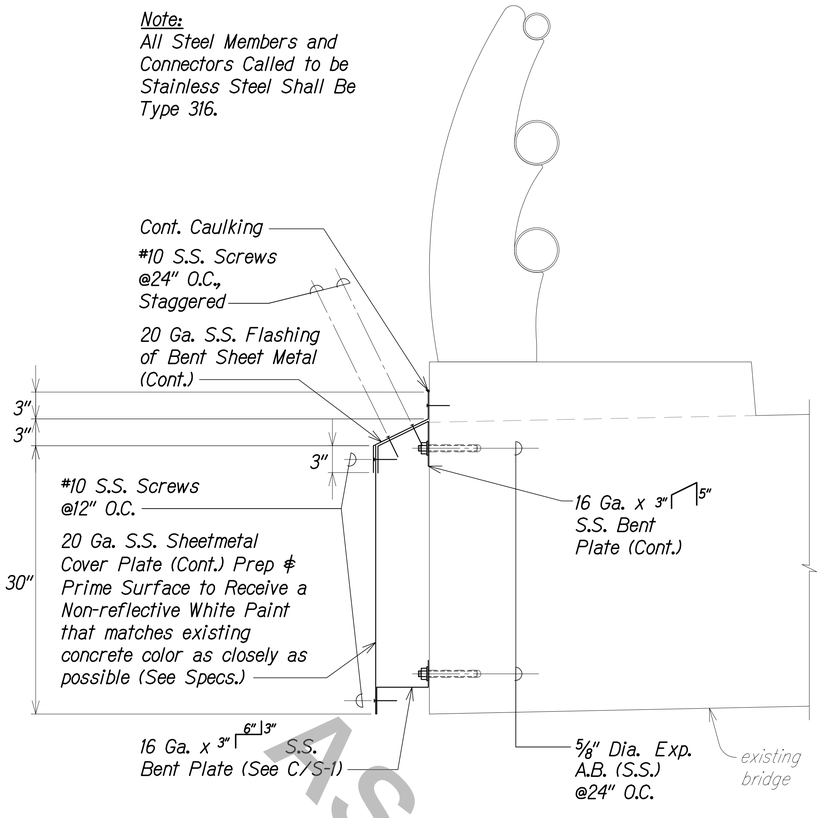
C.O. 353 S-1



CONDUIT SUPPORT DETAIL A

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

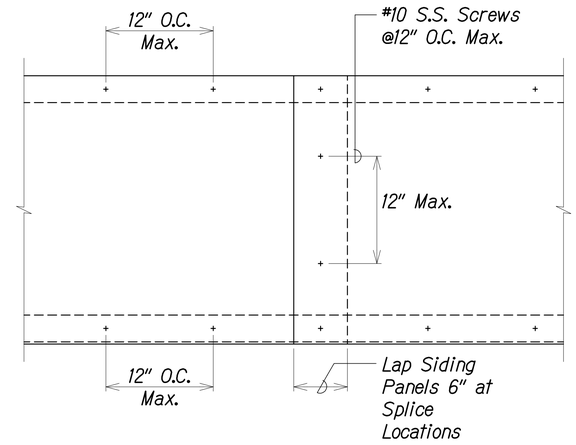
S-1 | S-1



PROTECTIVE COVER SHIELD DETAIL B

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

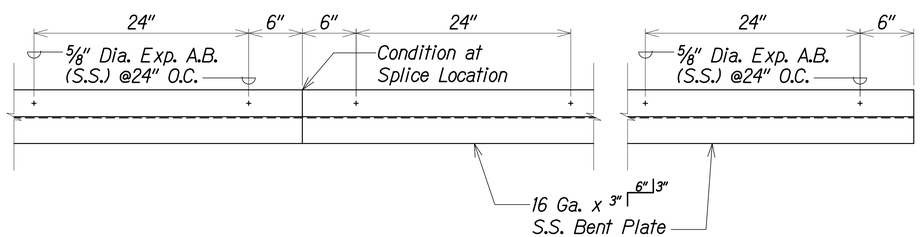
S-1 | S-1



SIDING PANEL CONN. DETAIL D

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

S-1 | S-1



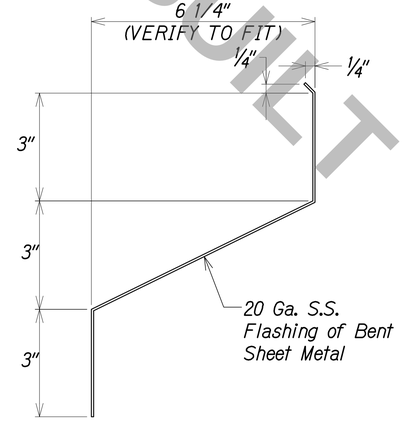
INTERMEDIATE AND SPLICE LOCATIONS

END CONDITION

BENT PLATE ANCHORAGE DETAIL C

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

S-1 | S-1



FLASHING DETAIL E

Scale: 6" = 1'-0"

S-1 | S-1

GRAPHIC SCALES:

2" 0 1' 2"
SCALE: 1½"=1'-0"

½" 0 3" 6"
SCALE: 6"=1'-0"

HOWARD K.C. LAU
LICENSED PROFESSIONAL ENGINEER
No. 4529-S
HAWAII, U.S.A.

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SLSH & ASSOC., INC. — APRIL 30, 2020 LIC. EXP. DATE

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

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE MOUNTED CONDUIT DETAIL

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Noted Date: Nov. 16, 2018

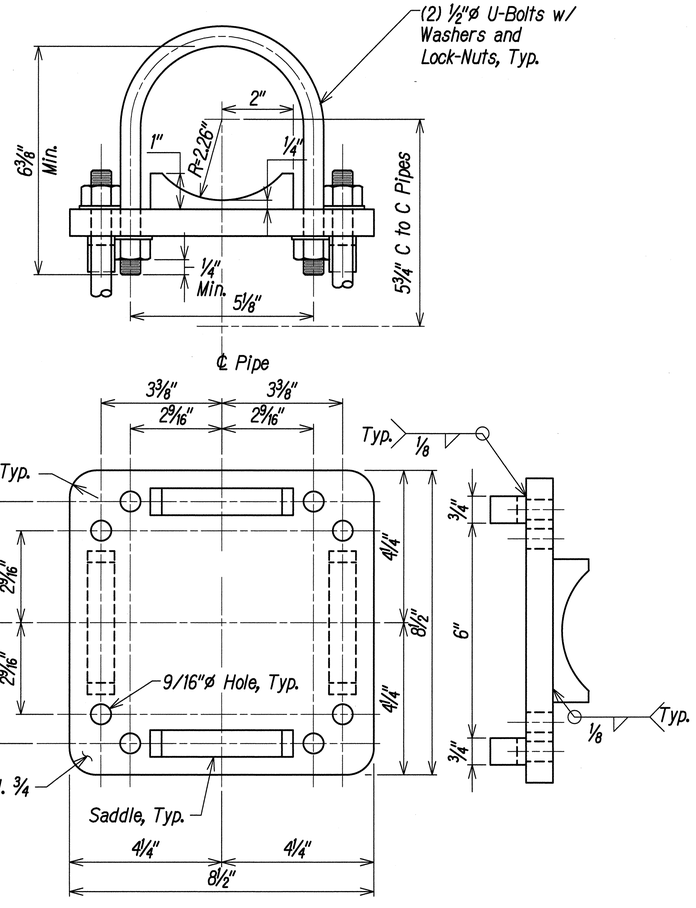
SHEET No. S12-17 OF 103 SHEETS

AS BUILT

"AS-BUILT"

C.O. 353 S-1

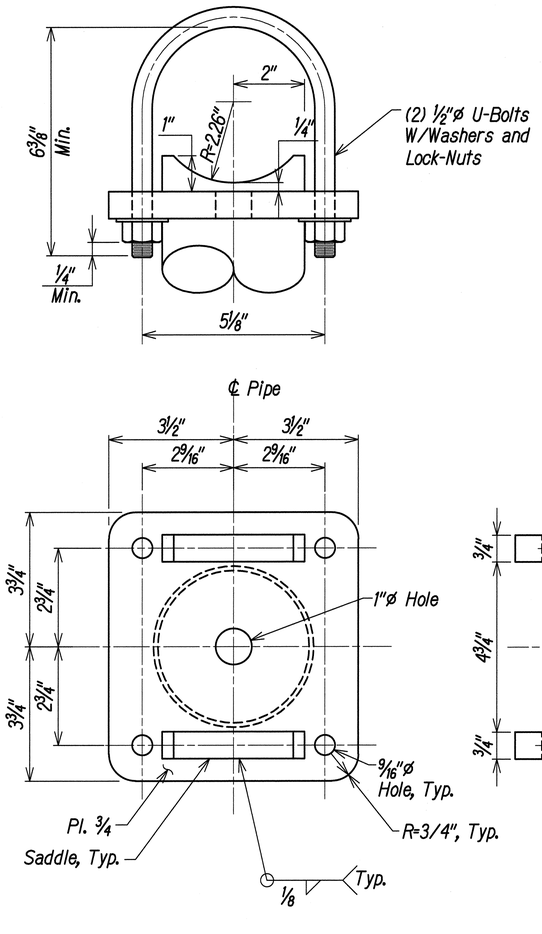
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	354	524



DETAIL 1

Scale: 6"=1'-0"

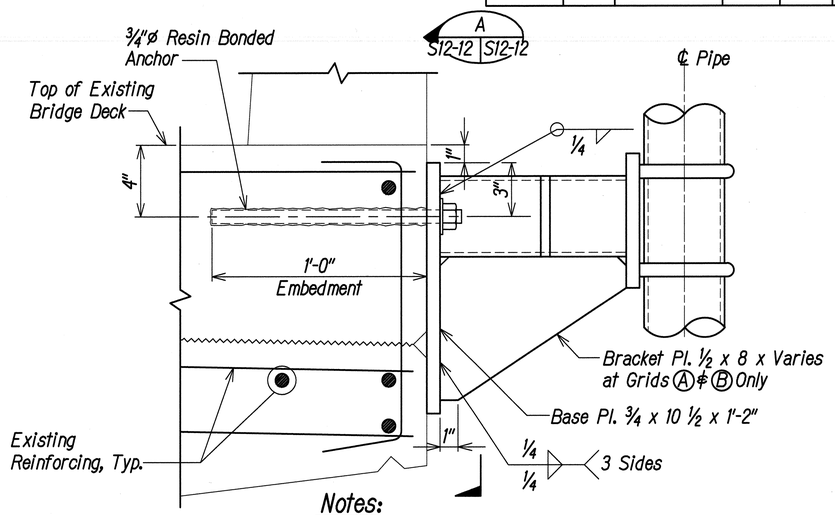
S12-11 | S12-12



DETAIL 2

Scale: 6"=1'-0"

S12-11 | S12-12



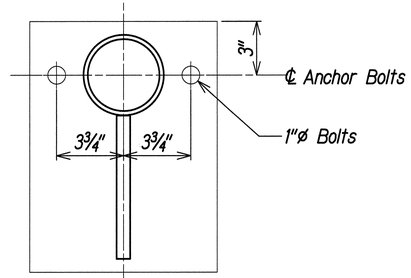
Notes:

1. No Bracket Plate at Sim. Conditions.
2. Base Pl. ¾x10 ½"x7" at Sim. Condition.
3. Contractor to Verify Location of Existing Reinforcing to Avoid Contact with Drilling for Embeds.

DETAIL 3

Scale: 3"=1'-0"

S12-11 | S12-12



VIEW A

Scale: 3"=1'-0"

S12-12 | S12-12

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EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

GRAPHIC SCALE:
4" 0 4" 8"
SCALE: 3"=1'-0"

GRAPHIC SCALE:
2" 0 2" 4"
SCALE: 6"=1'-0"

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE MOUNTED SIGN (2)

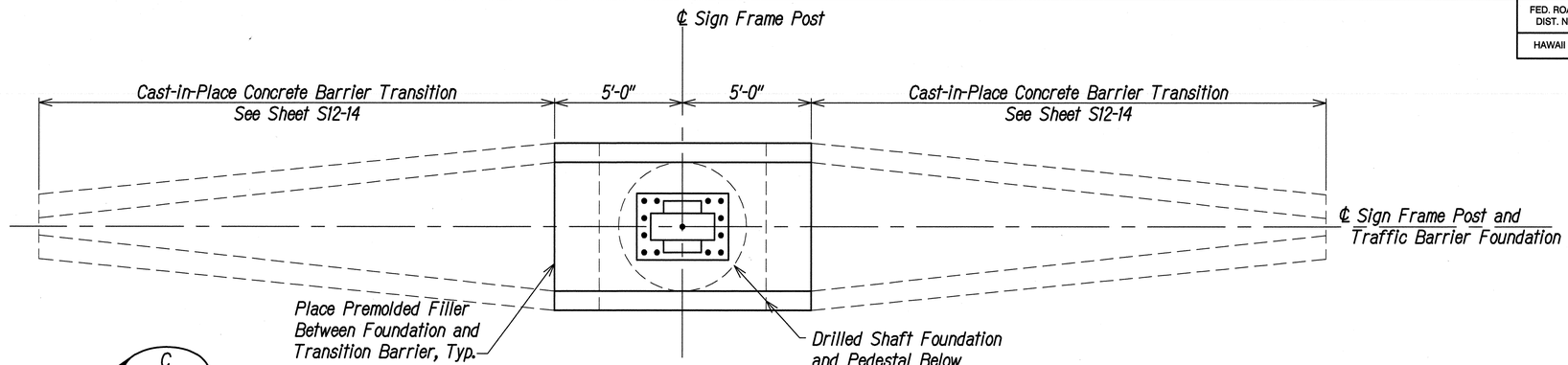
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As Shown Date: January 20, 2015

SHEET No. S12-12 OF 103 SHEETS

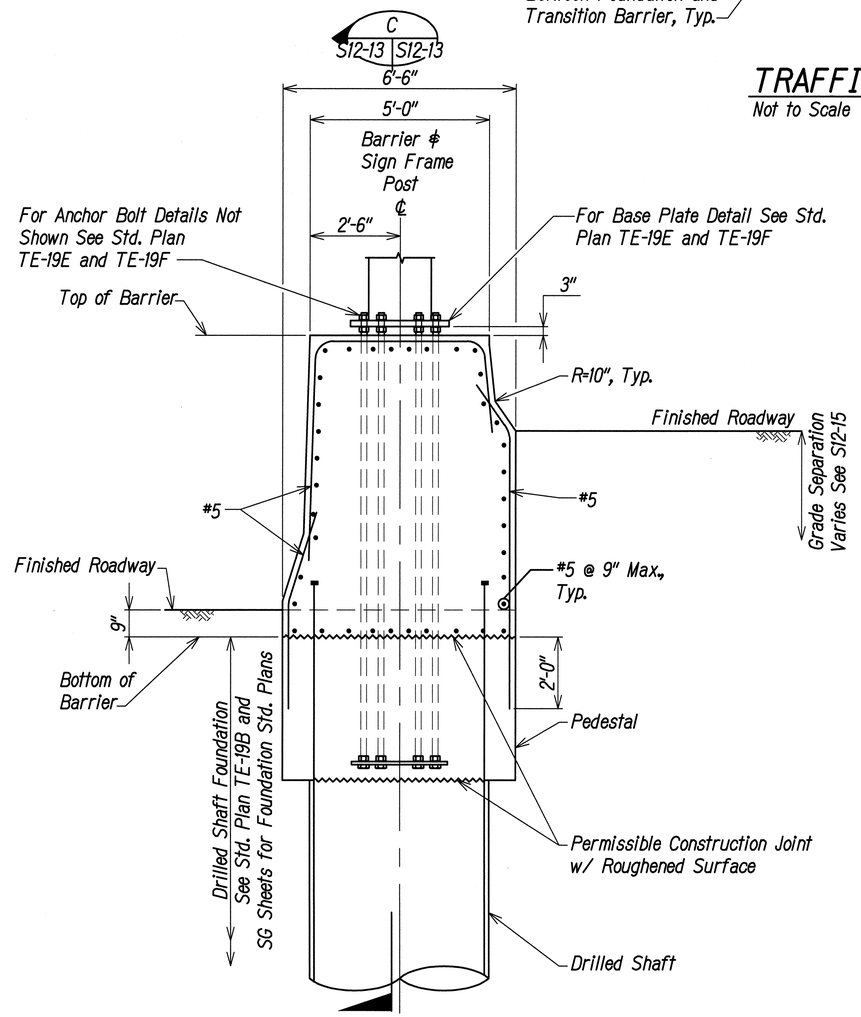
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	355	524



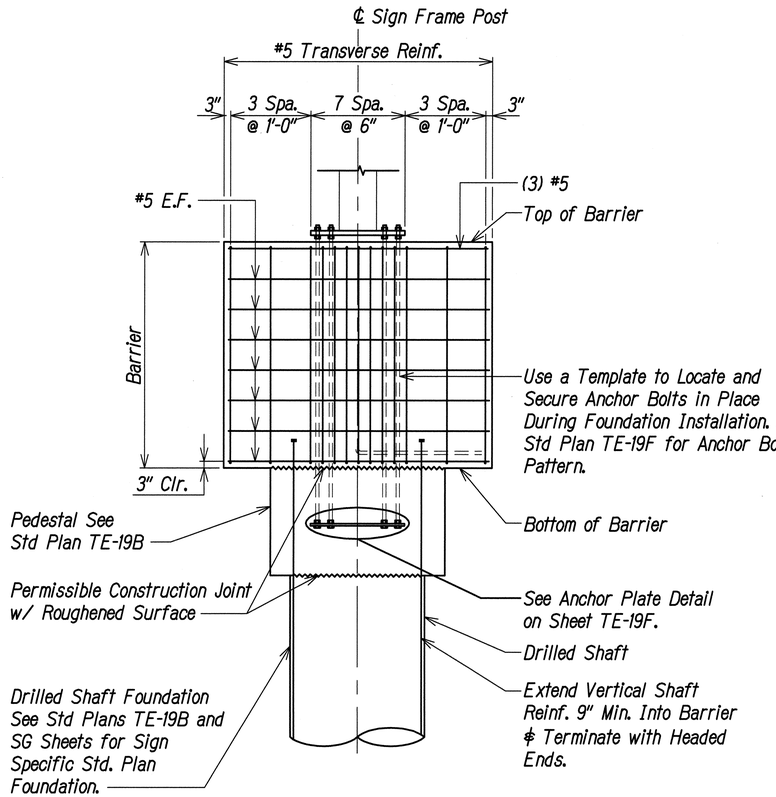
TRAFFIC BARRIER PLAN (A)

Not to Scale



SECTION (B)

Not to Scale



TRAFFIC BARRIER ELEVATION (C)

Not to Scale

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

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APRIL 30, 2016
KFF CONSULTING ENGINEERS — LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

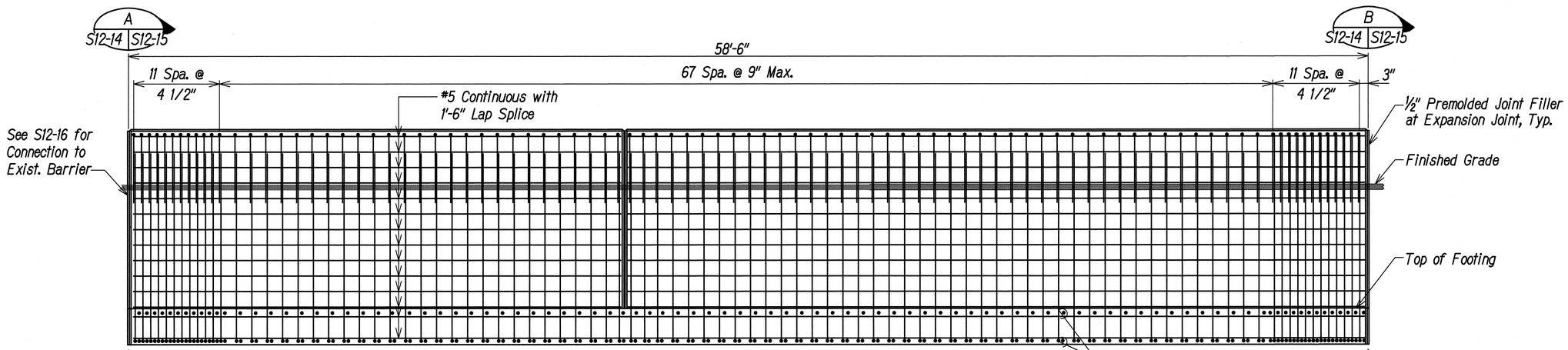
SIGN FRAME ON TRAFFIC BARRIER FOUNDATION DETAILS (1)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

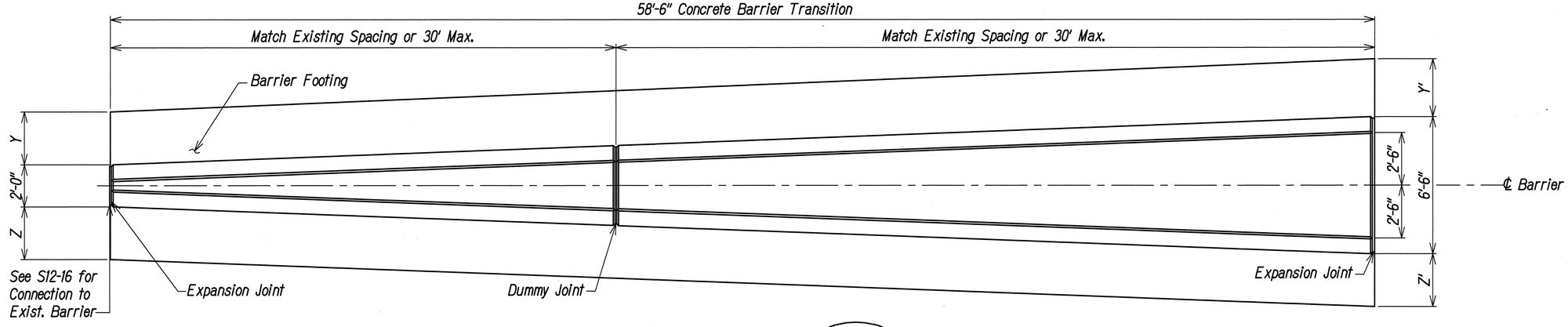
Scale: Not To Scale — Date: January 20, 2015

SHEET No. S12-13 OF 103 SHEETS

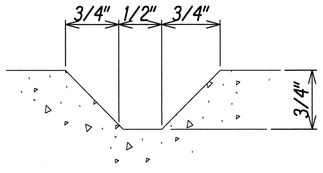
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	356	524



ELEVATION A
Scale: 3/8"=1'-0"
S12-14 | S12-14



PLAN B
Scale: 3/8"=1'-0"
S12-14 | S12-14



DUMMY JOINT
Not to Scale

Notes:
1. Sign 12 Shown, Similar at Other Signs. See Table on S12-15 for Y, Y', 2, and 2' Dimensions.

GRAPHIC SCALE:
2' 0 2' 4' 6'
SCALE: 3/8"=1'-0"

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

IZZAT H. HASAN
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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

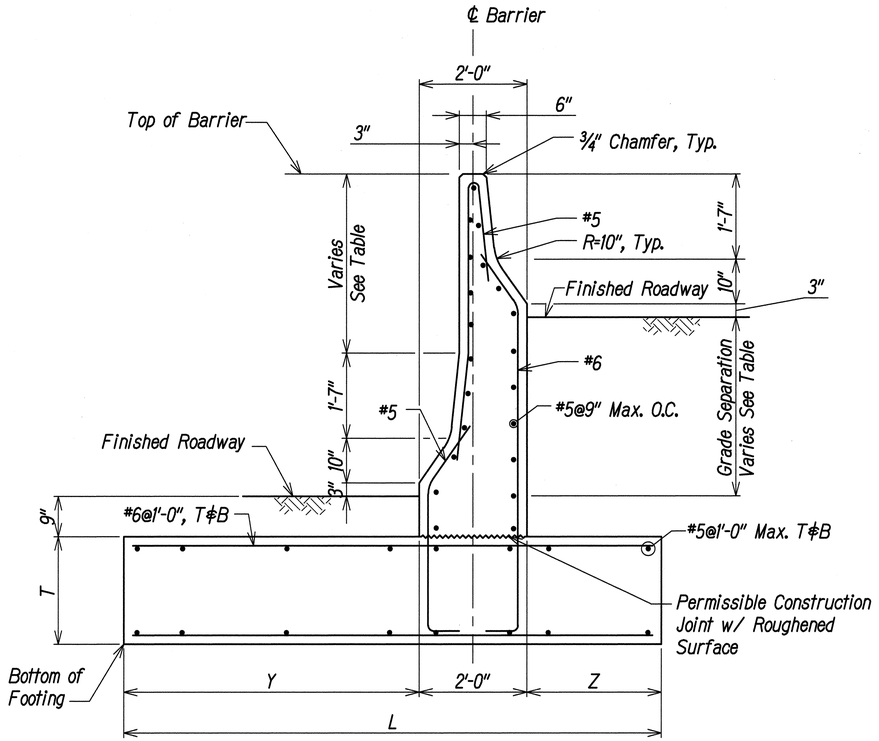
SIGN FRAME ON TRAFFIC BARRIER FOUNDATION DETAILS (2)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: As shown Date: January 20, 2015

SHEET No. S12-14 OF 103 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	357	524

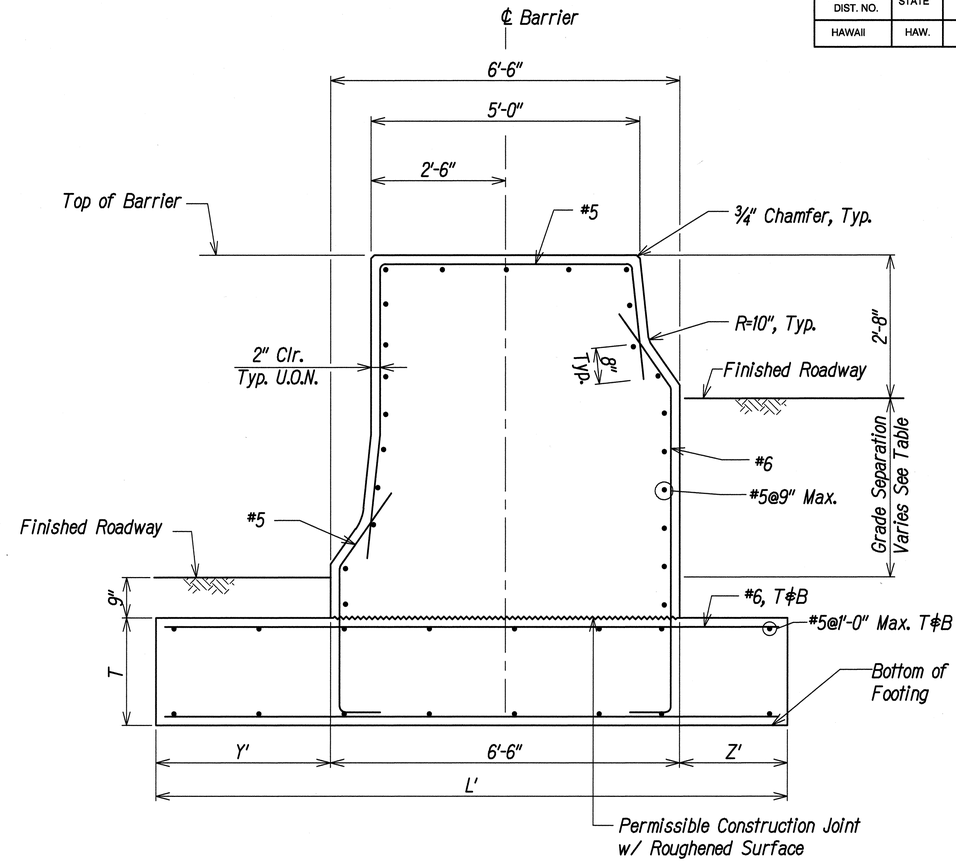


SECTION A

Scale: ¾"=1'-0"

S12-14 | S12-15

Sign 12 Shown.
Similar at Other Signs.



SECTION B

Scale: ¾"=1'-0"

S12-14 | S12-15

Sign 12 Shown.
Similar at Other Signs.

Reference Sign Location	Estimated Difference in Grade*	Footing						
	X	Y	Y'	Z	Z'	L	L'	T
Sign 12	3.36 FT.	3'-6"	2'-6"	2'-6"	2'-6"	8'-0"	11'-6"	1'-9"
Sign 14	4.53 FT.	5'-6"	3'-3"	2'-6"	2'-6"	10'-0"	12'-3"	2'-0"
Sign 15	4.81 FT.	5'-6"	3'-3"	2'-6"	2'-6"	10'-0"	12'-3"	2'-0"
Sign 18	2.20 FT.	2'-0"	2'-0"	1'-9"	1'-9"	5'-9"	10'-3"	1'-6"

* If Actual Grade Exceeds the Estimated Grade Contact the Engineer.

GRAPHIC SCALE:

1' 0 1' 2' 3'

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

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EXPIRES 4/30/16

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APRIL 30, 2016
PPF CONSULTING ENGINEERS LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN FRAME ON TRAFFIC BARRIER FOUNDATION DETAILS (3)

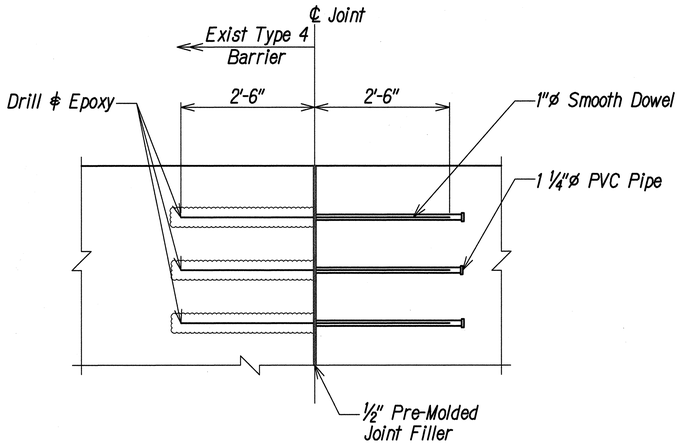
INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-H1-1 (261)

Scale: ¾" = 1'-0" Date: January 20, 2015

SHEET No. S12-15 OF 103 SHEETS

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

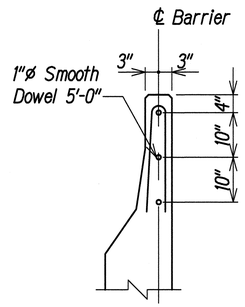
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(261)	2015	358	524



BARRIER CONNECTION DETAIL — A

Scale: ¾"=1'-0"

S12-16 | S12-16



SECTION — B

Scale: ¾"=1'-0"

S12-16 | S12-16

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

GRAPHIC SCALE:

1' 0 1' 2' 3'

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

IZZAT H. HASAYEN
LICENSED PROFESSIONAL ENGINEER
No. 15129
HAWAII, U.S.A.

EXPIRES 4/30/16

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KPFF CONSULTING ENGINEERS — APRIL 30, 2016 LIC. EXP. DATE

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN FRAME ON TRAFFIC BARRIER FOUNDATION DETAILS (4)

INTERSTATE ROUTE H-1
ADDITION AND MODIFICATION OF FREEWAY ACCESS
(Kapolei Interchange Complex), Phase 2
Federal-Aid Project No. IM-HI-1 (261)

Scale: ¾" = 1'-0' Date: January 20, 2015

SHEET No. S12-16 OF 103 SHEETS