

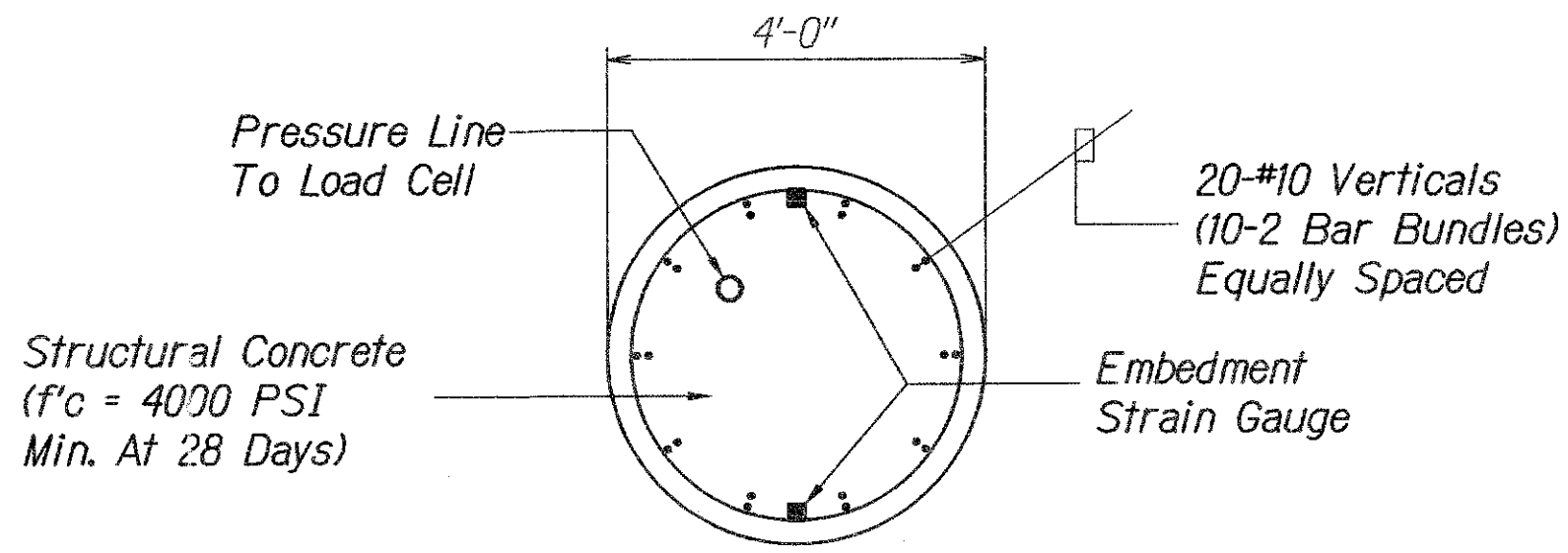
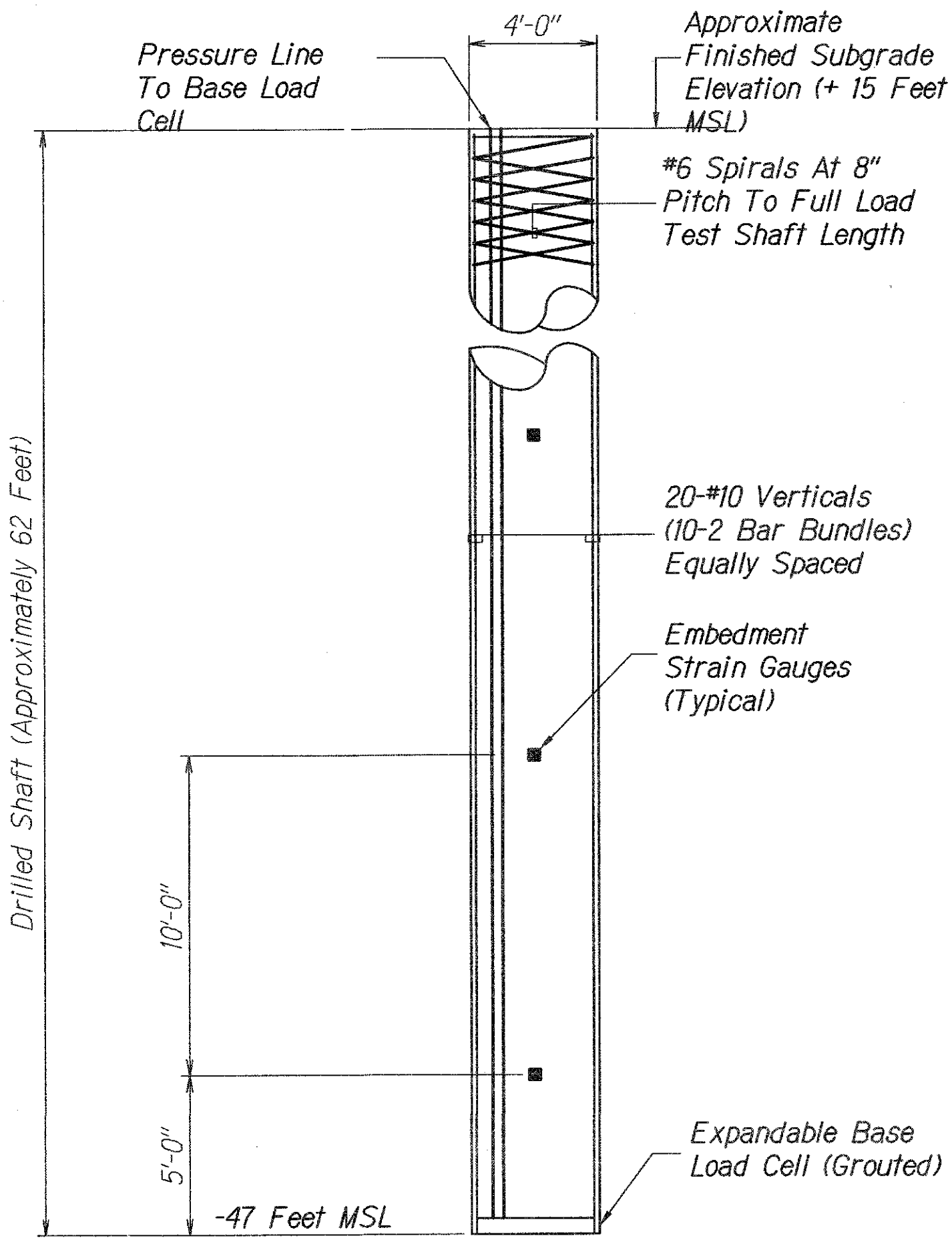
Index To Drawings

Draw No.	Description
S-1	Index To Drawings, Abbreviations, Summary Of Estimated Quantities, Drilled Shaft Load Test Detail
S-2	Structural Notes
S-3	Bridge Plan, Longitudinal Section / Elevation
S-4	Typical Bridge Deck Section, Existing Bridge Demolition Plan
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S-6	Abutment No. 1 And 2 Elevations, Wing Wall Detail
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S-9	End Post Type "a" Detail
S-10	End Post Type "b" And "c" Detail
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S-13	Pedestrian Walkway Ramp Sections, Approach Slab Sections

ABBREVIATIONS

Ø	Diameter	Lb., Lbs.	Pound, Pounds
#	Number Or Pound	L.f.	Linear Feet
		L.s.	Lump Sum
Ab.	Anchor Bolt	Max.	Maximum
Ac.	Asphalt Concrete	Min.	Minimum
Az.	Azimuth	No., *	Number
Bot., Bott., B	Bottom	N.F.	Near Face
C.J.	Construction Joint	N.T.S.	Not To Scale
Cl.	Centerline		
C.G.	Center Of Gravity	O.C.	On Center
Clr., Cl.	Clear		
Conc.	Concrete	Pcf	Pounds Per Cubic Feet
Cont.	Continuous	Pl., P L	Plate
C.y.	Cubic Yard	Psf	Pounds Per Square Feet
		Psi	Pounds Per Square Inch
Dbt.	Double	Pvc.	Polyvinyl Chloride
Def.	Detail		
D.I.	Ductile Iron	R, Rad.	Radius
Dia.	Diameter	Rebar	Reinforcing Bar
Dn.	Down	Ref.	Reference
Dwg.	Drawing	Reinf.	Reinforced, Reinforcing, Reinforcement
E.f.	Each Face	R.o.w.	Right-of-way
E.J.	Expansion Joint		
Elev., El.	Elevation	Sht.	Sheet
E.w.	Each Way	Sl.	Slope
Exp.	Expansion	Sta.	Station
F.b.	Flat Bar	Std.	Standard
F.f.	Far Face	Stirr.	Stirrup
G	Girder	Sym., Symm.	Symmetrical
Galv.	Galvanized	S.s.	Stainless Steel
G.j.	Grooved Joint		
		Thk., Th.	Thick
		Typ.	Typical
Horiz., H	Horizontal	Vert., V	Vertical
In.	Inch	W/	With
Jt.	Joint		
K	Kips		
Ksi	Kips Per Square Inch		

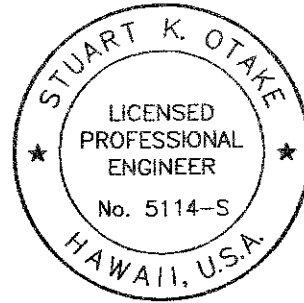
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	54	81



Note:  
The Engineer May Relocate  
The Expandable Base Load  
Cell In The Field, As Required.

SECTION

DRILL SHAFT LOAD TEST DETAIL  
Not To Scale



4/30/2014  
MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
NOTE: Contractor to check and verify dimensions at job before proceeding with work.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>INDEX TO DRAWINGS, ABBREVIATIONS, SUMMARY OF ESTIMATED QUANTITIES</b> KAMEHAMEHA HIGHWAY REPLACEMENT OF KOKOLOLIO STREAM BRIDGE Federal Aid Project No. BR-083-1(50) Scale: As Noted Date: August 2004
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Summary Of Estimated Quantities

Item No.	Contract Item	Quantity	Unit
202.0440	Removal Of Existing Bridge	1.s.	1.s.
206.6100	Structure Excavation For Bridge Abutments And Wingwalls	410	c.y.
206.7200	Structure Backfill For Bridge Abutments And Wingwalls	110	c.y.
206.8000	Filter Material	2	c.y.
503.1090	Concrete In Abutments (including Wing Walls)	1.s.	1.s.
503.1091	Concrete In Topping	1.s.	1.s.
503.1092	Concrete In Approach Slabs (including Pedestrian Walkway Ramps)	1.s.	1.s.
504.7400	18-inches Prestressed Planks	1.s.	1.s.
507.1501	Metal Railing	90	l.f.
507.7000	Aesthetic Bridge Railing (including End Post)	134	l.f.
507.7001	Concrete Jersey Barrier (including End Post)	67	l.f.
511.0100	Furnishing Drilled Shaft Drilling Equipment	1.s.	1.s.
511.0200	Obstructions	40	hour
511.0300	Load Test	1	each
511.0400	Trial Shaft	1	each
511.0500	Standard Shaft Excavation	320	l.f.
511.0600	Special Shaft Excavation	240	l.f.
511.0700	Drilled Shaft - (48-inch Diameter)	560	l.f.
511.0800	Coring For Integrity Testing	110	l.f.
602.0090	Reinforcing Steel In Bridge (including Wing Walls, Approach Slabs, And Pedestrian Walkway Ramps)	1.s.	1.s.

Depressed "V"  
Letters 3/8" Deep

NAME YEAR

Use Correct Name Of Bridge

Year Built

- Note:
- Name And Date Shall Be Placed At The Trailing End Post On Each Side Of The Roadway.
  - 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.
  - The Name Of Bridge Shall Be "Kokololio Stream Bridge."

TYPICAL DETAIL OF LETTERS AND FIGURES AT CONCRETE END POST

Not To Scale



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	55	81

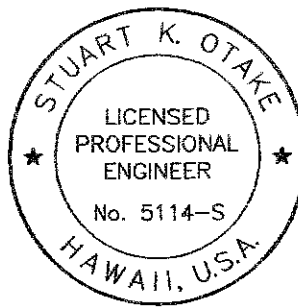
STRUCTURAL NOTES

1. General Specifications: Hawaii Standard Specifications For Road, Bridge, And Public Works Construction, 1994, Together With Special Provisions Prepared For This Contract.
2. Design Specifications: Aashto Lrfd Bridge Design Specifications, 2nd Edition, 1998, Including Subsequent Interim Revisions.
3. Loads:
- A. Dead Loads:
1. An Allowance Of 25 Psf (from Curb-to-curb) Has Been Provided For In The Design For Future Wearing Surface.
2. An Allowance Of 150 Plf (at Each Side Of The Bridge) Has Been Provided For In The Design For Future Utilities.
- B. Live Load: HI-93
- C. Seismic Load: Acceleration Coefficient = 0.17  
seismic Performance Zone = 2  
importance Category = Critical Bridge  
soil Profile Type I (s = 1.0)
- D. Railing Test Level = T1-2
4. Materials:
- A. Minimum Concrete Compressive Strength (at 28 Days):
1. Concrete Topping = 5,000 Psi
2. All Other Concrete = 4,000 Psi. Concrete Shall Have 0.45 Maximum Water Cement Ratio.
- B. All Reinforcing Steel Shall Conform To Astm A615, Grade 60, Unless Otherwise Noted.
- C. All Pipe Sections Shall Conform To Astm A53 (type E), Grade B, And Be Hot-dip Galvanized After Fabrication.
- D. All 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 Latest Edition Of Aws D1.6 "structural Welding Code - Stainless Steel."
- E. Stainless Steel Reinforcing Bars Shall Be Aisi 316L Grade Conforming To Astm A955 Grade 60.
- F. Stainless Steel Clad Reinforcing Bars Shall Be Aisi 316L Grade Conforming To Astm A955 Grade 60 And Have An Average Cladding Thickness Of 0.04 Inch. The Ends Of Stainless Steel Clad Dowels Shall Be Sealed With Epoxy As Per Section 11 Of Astm A755.
- G. 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, Concrete Jersey Barrier, And Aesthetic Bridge Railing. The Required Dosage Shall Be 96 Ounces Per Cubic Yard Of Concrete. Addition Of Shrinkage Reducing Admixture Shall Be As Recommended By The Manufacturer.
- H. For Materials Of Prestressed Planks, See Applicable Prestressed Plank Notes.
- I. Thru Bolts For Guardrail Connection Shall Conform To Aashto M164 (astm A325), Unless Otherwise Noted.
- J. A Corrosion Inhibiting Admixture Shall Be Included In The Concrete Mix For All Concrete Except The Drilled Shafts. The Corrosion Inhibiting Admixture Shall Contain A Minimum Of 30% Calcium Nitrate By Mass And Shall Be Added At A Dosage Rate Of 4.0 Gallons Per Cubic Yard Of Concrete. The Admixture Shall Be Rheocrete Cni Calcium Nitrite-based Corrosion Inhibitor, Dci S Corrosion Inhibitor, Or An Approved Equal. Addition Of Corrosion Inhibiting Admixture Shall Be As Recommended By The Manufacturer.
5. Reinforcement:
- A. Unless Otherwise Noted, The Covering Measured From The Surface Of The Concrete To The Face Of Any Reinforcing Bars Shall Be As Follows:
1. Deck Top Bars = 2" Clear (with Tolerances Of -0 Inch And + 3/8" Inch)
2. Deck Bottom Bars = 1-1/4" Clear
3. Railings And Parapets = 2" Clear
4. Formed Surfaces Exposed To Earth And Weather = 2" Clear
5. Bottom And Sides Of Footings And Where Concrete Deposited On Grade = 3" Clear
6. Drilled Shafts = 3" Clear (to Spirals)
- B. Minimum Clear Spacing Between Parallel Bars Shall Be 1-1/2 Times The Diameter Of The Bar (for Non Bundled Bars) Or 1-1/2 Times The Diameter Derived From The Equivalent Total Area Of The Bars (for Bundled Bars), But In No Case Shall The Clear Distance Between The Parallel Bars Be Less Than 1-1/2 Times The Maximum Size Of The Coarse Aggregate Or 1-1/2 Inches.
- C. All Dimensions Relating To Reinforcing Bars (e.g. Spacing Of Bars, Etc.) Are To Center Of Bars, Unless Otherwise Noted. Reinforcing Bars Shall Be Detailed In Accordance With Aashto Lrfd Bridge Design Specifications, 2nd Edition, 1998, Including Subsequent Interim Revisions, Unless Otherwise Noted.
- E. Reinforcing Bars Shall Be Securely Tied At All Intersections And Lap Splices Except Where The Spacing Of The Intersections Is Less Than 12 Inches In Each Direction, In Which Case Alternate Intersections Shall Be Tied.
- F. Deformed Reinforcing Bars To Be Welded Shall Conform To Astm A706, Grade 60. Welding Of Deformed Reinforcing Bars Shall Be In Accordance With The Latest Edition Of Aws D1.4 "structural Welding Code - Reinforcing Bars."

6. General Construction Notes:
- A. See Standard Specifications And Special Provisions.
- B. All Items Noted Incidental Will Not Be Paid For Separately.
- C. Standard Detail Drawings Refer To All Structures In General, Except For Modifications As May Be Required For Special Conditions. For Such Modifications, Refer To The Corresponding Detailed Drawings.
- D. The Contractor Shall Comply With All Construction Permits For This Project. In Addition, The Contractor Shall Comply With All Applicable Laws Of The Federal, State And County Governments.
- E. Unless Otherwise Noted, All Vertical Dimensions Are Measured Plumb.
- F. The Contractor Shall Verify All Site Conditions Before Commencing With Work.
- G. The Contractor Shall Verify The Location Of All Underground Utility Lines And Notify The Respective Owners Before Commencing The Work Of Excavation Or Drilled Shafts.
- H. For Concrete Finish, See Standard Specifications.
- I. Unless Otherwise Noted, All Exposed Concrete Edges Shall Be Chamfered 3/4" X 3/4".
7. Prestressed Plank Bearing Surface:
- A. Prestressed Plank Bearing Surface Shall Be Smooth And Sloped To Match The Finish Roadway Slope.
- B. Prestressed Planks Shall Be Set On A Fresh Layer Of Mortar To Insure Full Bearing.
- C. Prestressed Plank Shelf Elevations Shall Be Verified By The Contractor. Shelf Elevations Shall Take Into Consideration The Concrete Topping Thickness, Prestressed Plank Thickness, Roadway Slope, And The Calculated, Or If Available, The Actual Camber Of The Prestressed Planks.
8. Foundation Excavation And Dewatering:
- A. Temporary Shoring (such As Interlocking Steel Sheetpile Cofferdams) And Dewatering May Be Required For Foundation Excavations. The Contractor Shall Refer To The Geotechnical Engineering Exploration Report By Geolabs, Inc. Dated July 25, 2003for Its Recommendations.
- B. Temporary Shoring And Dewatering, If Required, Shall Be Considered Incidental To Structure Excavation.
9. Foundation:
- these Foundation Notes Were Based On Recommendations Contained In A Geotechnical Engineering Exploration Report By Geolabs, Inc. Dated July 25, 2003. The Report Shall Be Considered As Part Of The Construction Documents And Its Recommendations Shall Be Implemented Unless Otherwise Directed By The Geotechnical Engineer. Contractor May Obtain A Copy Of The Report At The State Of Hawaii, Department Of Transportation - Highways Division Upon Request.
- A. 4'-0" Diameter Drilled Shafts:
1. The Compressive Load Capacity For The Drilled Shafts Are From Friction Between The Concrete Shaft And The Surrounding Soils And Rock Formation. The Following Compressive Load Capacity Were Used For Design Of The Abutments:
- Strength Limit State = 450 Kips
- Extreme Event Limit State = 750 Kips
2. The Uplift Load Capacity For The Drilled Shafts Are From A Combination Of Friction Between The Concrete Shaft And The Surrounding Soils And Rock Formation And From The Self Weight Of The Shaft. The Following Uplift Load Capacity Were Used For Design Of The Abutments:
- Strength Limit State = 350 Kips
- Extreme Event Limit State = 630 Kips
3. The Lateral Load Resistance For The Drilled Shafts Is Based On The Stiffness Of The Surrounding Soil, The Stiffness Of The Shaft, Allowable Deflection At The Top Of Shaft, And The Induced Moment In The Shaft. The Foundation Loads, Lateral Deflection And Maximum Induced Moments For The Drilled Shafts, Based On A Fixed Against Rotation Boundary Condition At The Top Of The Drilled Shaft, Are As Follows:
- A) Longitudinal Lateral Load:
- 1) Strength Limit State:
- Longitudinal Shear Load At Top Of Shaft = 80 Kips
- Longitudinal Moment At Top Of Shaft = 1,840 Ft-kips
- Longitudinal Lateral Deflection = 0 Inches
- Maximum Induced Moment = 1,005 Ft-kips
- 2) Extreme Event Limit State:
- Longitudinal Shear Load At Top Of Shaft = 100 Kips
- Longitudinal Moment At Top Of Shaft = 1,680 Ft-kips
- Longitudinal Lateral Deflection = 2.6 Inches
- Maximum Induced Moment = 1,850 Ft-kips
- B) Transverse Lateral Load:
- 1) Extreme Event Limit State:
- Transverse Shear Load At Top Of Shaft = 38 Kips
- Transverse Lateral Deflection = 0.3 Inches
- Maximum Induced Moment = 319 Ft-kips

4. The Drilled Shaft Estimated Tip Elevations Shown On The Plans Are Based On The Boring Data. The Actual Tip Elevations Could Change Due To Varying Subsurface Conditions. The Geotechnical Engineer Of Record Shall Be Present During The Drilling Operation To Determine That The Actual Subsurface Conditions Are Consistent With The Conditions Assumed For Design. Based On The Geotechnical Engineers Recommendations, The Tip Elevations Could Change. The Contractor Shall Make Provisions For Extension Of The Reinforcing Steel Cages For The Drilled Shafts To Account For Variations In The Final Tip Elevations.
5. The Contractor Shall Exercise Care In Drilling The Shaft Holes And In Placing Concrete Into The Holes. Cobbles And Boulders Were Encountered In Several Of The Borings Drilled For This Project. Therefore, Difficult Drilling Conditions Likely Will Be Encountered At The Site And Should Be Expected. The Drilled Shaft Contractor Will Need To Have The Appropriate Equipment And Tools To Drill Through These Types Of Natural Obstructions, Where Encountered. Appropriate Measures Will Also Be Needed To Avoid Dislodging Boulders Into The Drilled Shaft Hole During The Drilling And Shaft Installation Process.
6. The Existing Bridge Footings May Be Encountered During Drilling Operations. The Drilled Shaft Contractor Will Need To Have The Appropriate Equipment And Tools To Drill Through The Existing Bridge Footings If Encountered.
7. The Drilled Shafts Are Designed To Be Embedded Into The Basalt Formation Encountered At Greater Depths. Therefore, Coring Into The Dense Basalt Formations Encountered In The Borings Will Be Required.
8. Due To The Potential For Presence Of Shallow Groundwater Zones And Loose To Medium Dense Coralline Materials Encountered In The Borings, Cave-in Of The Material May Occur During The Drilling Operation. To Reduce The Potential For Caving In Of The Holes, Temporary Casing Will Likely Be Needed.
9. Drilling Shall Not Be Conducted By Methods Utilizing Drilling Fluids Unless Approved By The Engineer.
10. Concrete Placement By Tremie Methods Is Recommended During Construction Of The Drilled Shafts. The Concrete Shall Be Placed Promptly After Completion Of Drilling (within 24 Hours) To Reduce The Potential Of Caving In Of The Sidewalls. The Concrete Shall Be Placed In A Suitable Manner By Displacing The Water In An Upward Fashion From The Bottom Of The Drilled Hole.
11. The Geotechnical Engineer Of Record Shall Be Present During The Trial Shaft Program To Evaluate The Contractor's Method Of Drilled Shaft Installation And To Evaluate The Subsurface Materials Encountered; During The Installation And Performance Of The Instrumented Load Test On The Drilled Shaft; And At The Site To Observe The Drilling And Installation Of Drilled Shafts During Construction.
- B. Abutment And Wing Walls:
1. Static Lateral Earth Pressures:
- Active Earth Pressure (level Backfill) = 40 Pcf
- At-rest Earth Pressure (level Backfill) = 58 Pcf
2. Dynamic Lateral Earth Forces:
- Level Backfill = 7 X H Psf (rectangular Distribution)
3. Lateral Load Resistance Of Abutment Fills:
- Extreme Event Limit State = 4 Ksf/inch (1.25 Inches Maximum Deflection)
- C. Structural Backfill:
1. Structural Backfill Shall Be In Accordance With The Requirements For Structure Backfill Material A As Indicated In Section 703.20 Of The Hawaii Standard Specifications For Road, Bridge, And Public Works Construction, 1994 And The Special Provisions.
2. Placement Of The Structural Backfill Shall Be In Accordance With The Standard Specifications And The Special Provisions.
3. Structural Backfill On The Backface Of The Abutment Shall Not Be Placed Until The Bridge Concrete Topping Has Been Poured And Has Attained It's 28-day Concrete Compressive Strength.

DATE	DESIGNED BY	CHECKED BY
NO.	NO.	NO.



4/30/2014  
MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
NOTE: Contractor to check and verify dimensions of job before proceeding with work.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STRUCTURAL NOTES**

**KAMEHAMEHA HIGHWAY**  
**REPLACEMENT OF KOKOLOLO STREAM BRIDGE**  
**Federal Aid Project No. BR-083-1(50)**

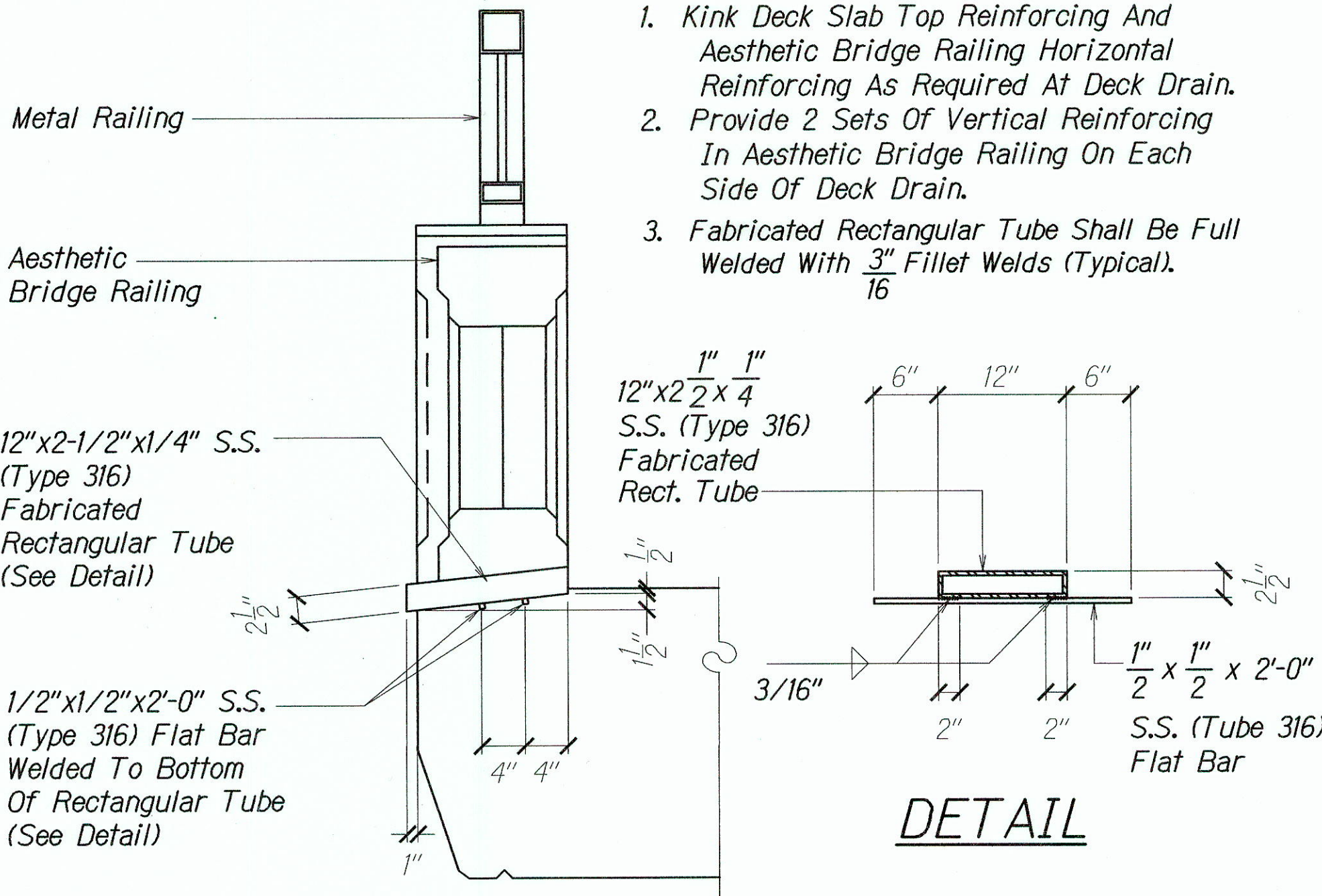
Scale: As Noted Date: August 2004

SHEET No. **8-2** OF **13** SHEETS



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	56	81

- Notes:**
- Kink Deck Slab Top Reinforcing And Aesthetic Bridge Railing Horizontal Reinforcing As Required At Deck Drain.
  - Provide 2 Sets Of Vertical Reinforcing In Aesthetic Bridge Railing On Each Side Of Deck Drain.
  - Fabricated Rectangular Tube Shall Be Full Welded With 3/16" Fillet Welds (Typical).

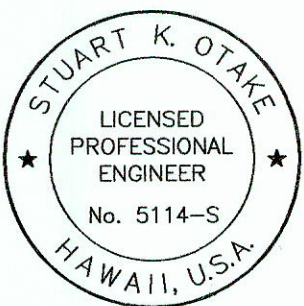


**TYP. DECK DRAIN DETAIL**  
Scale: 1"=1'-0"

### DRILLED SHAFT DETAIL

	50-Year Flood	100-Year Flood
Flood Elevation	10.00'	10.60'
Flow (Q)	760 cfs	950 cfs
Invert (Upstream Side)	5.00'	5.00'
Available Freeboard (Upstream Side)	4.75'	4.15'
Invert (Downstream Side)	4.05'	4.05'
Available Freeboard (Downstream Side)	2.10'	1.50'

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



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**BRIDGE PLAN, LONGITUDINAL SECTION/ELEVATION**

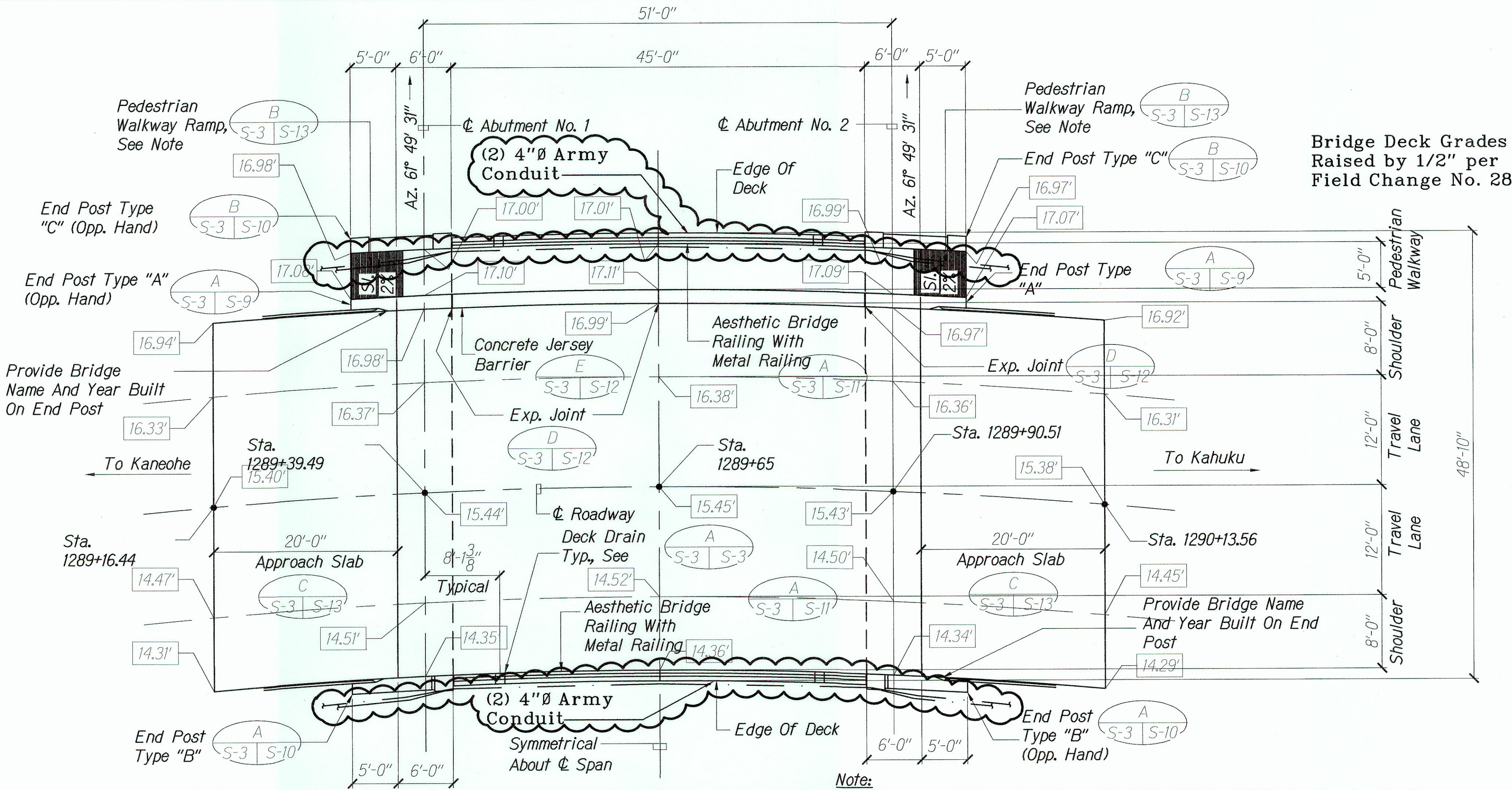
KAMEHAMEHA HIGHWAY

REPLACEMENT OF KOKOLOLIO STREAM BRIDGE

Federal Aid Project No. BR-083-1(50)

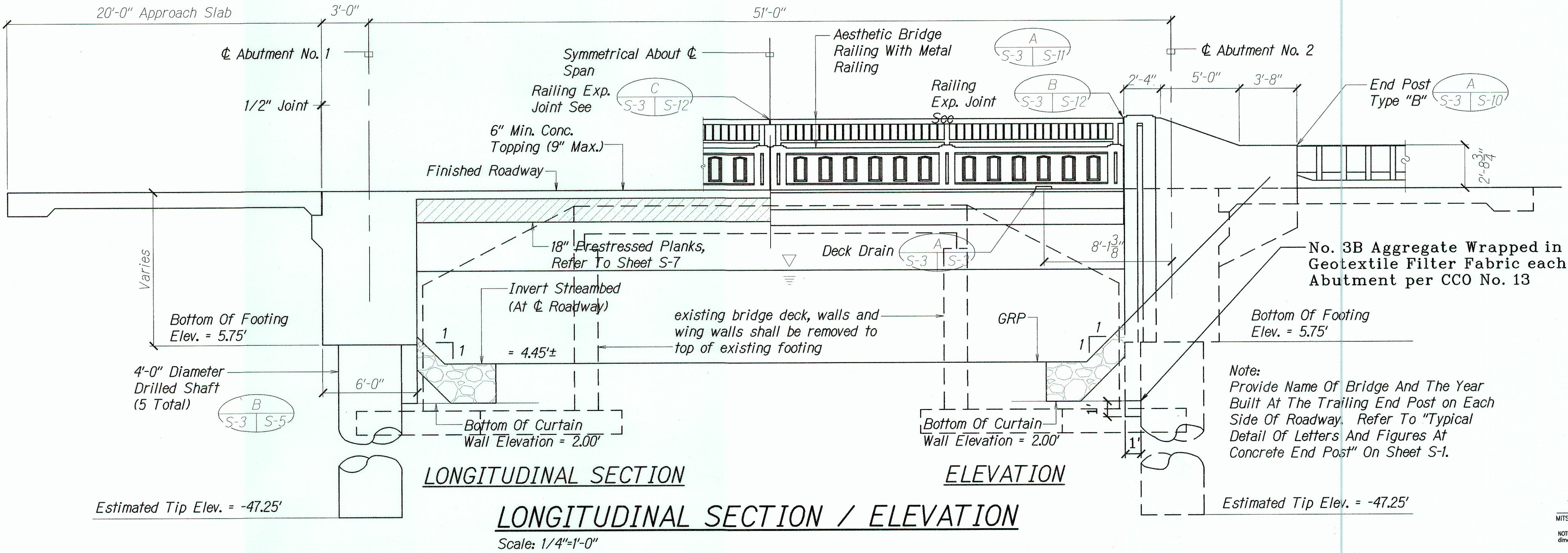
Scale: As Noted      Date: August 2004

4/30/2014  
MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
NOTE: Contractor to check and verify dimensions at job before proceeding with work.



**BRIDGE PLAN**  
Scale: 1/8"=1'-0"

- Note:**
- Pedestrian Walkway And Ramp Shall Be Finished With An Abrasive Coating As Indicated In 503.03 (MX3)(6) Of The Standard Specs.
  - Metal Railing Shall Be Curved To Follow Roadway Curvature. Refer To Civil Drawings For Roadway Curve Data.



**LONGITUDINAL SECTION / ELEVATION**  
Scale: 1/4"=1'-0"

Estimated Tip Elev. = -47.25'

**Note:**  
Provide Name Of Bridge And The Year Built At The Trailing End Post On Each Side Of Roadway. Refer To "Typical Detail Of Letters And Figures At Concrete End Post" On Sheet S-1.

Bottom Of Footing Elev. = 5.75'

No. 3B Aggregate Wrapped in Geotextile Filter Fabric each Abutment per CCO No. 13

existing bridge deck, walls and wing walls shall be removed to top of existing footing

18" Prestressed Planks, Refer To Sheet S-7

Invert Streambed (At Centerline Roadway)

Bottom Of Curtain Wall Elevation = 2.00'

Bottom Of Footing Elev. = 5.75'

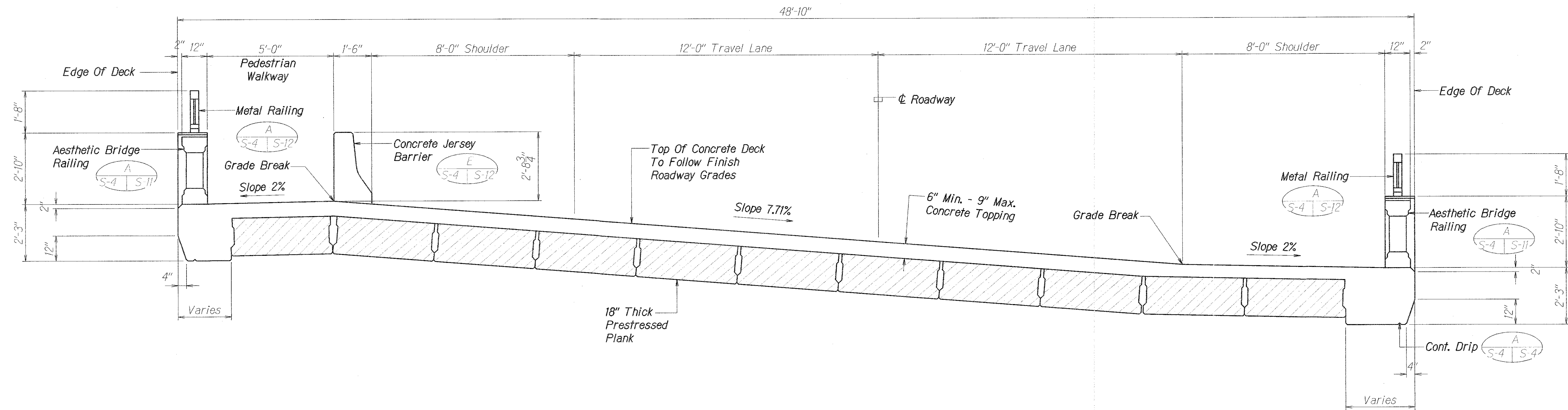
4'-0" Diameter Drilled Shaft (5 Total)

Estimated Tip Elev. = -47.25'

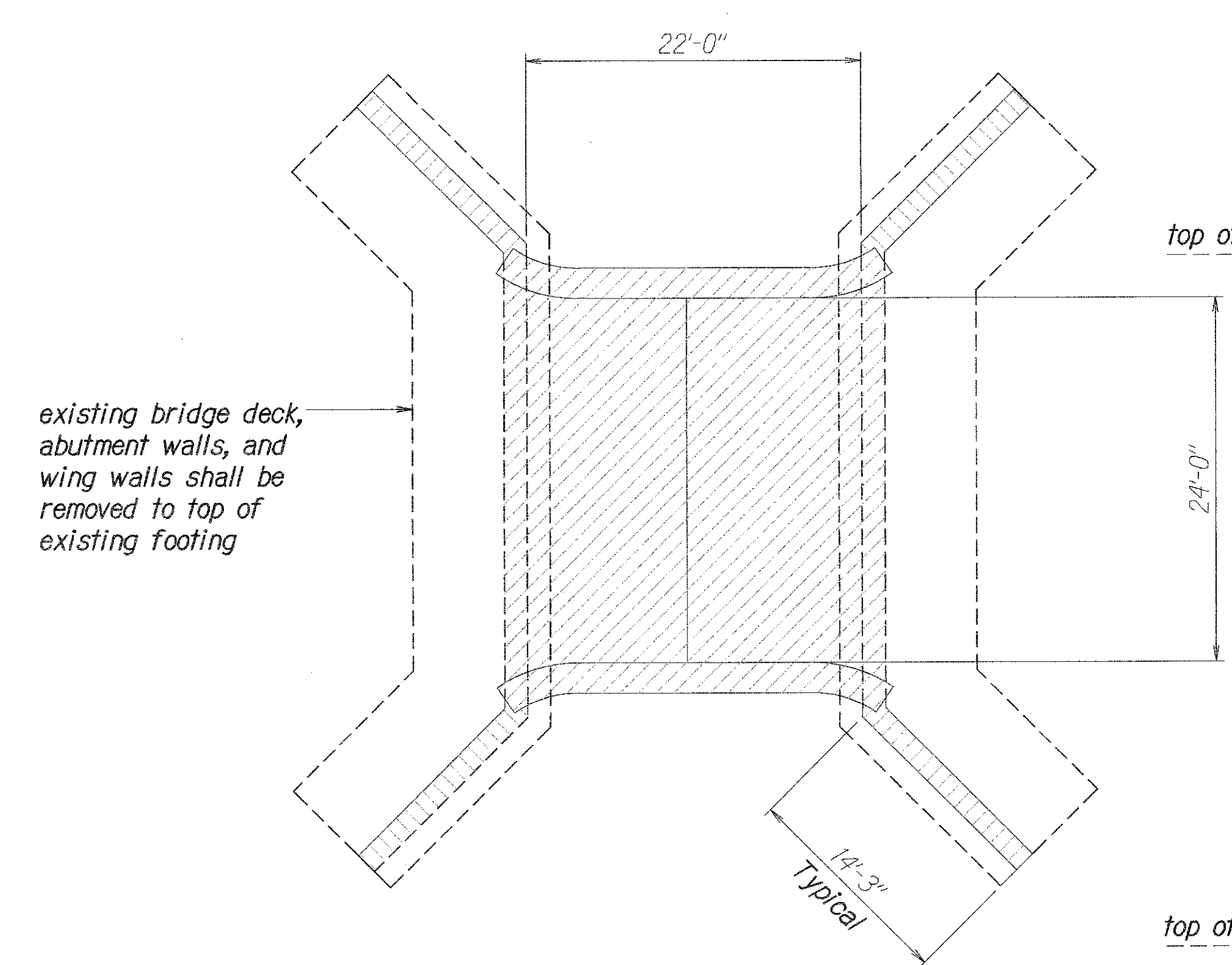
SURVEY PLOTTED BY	DATE
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	



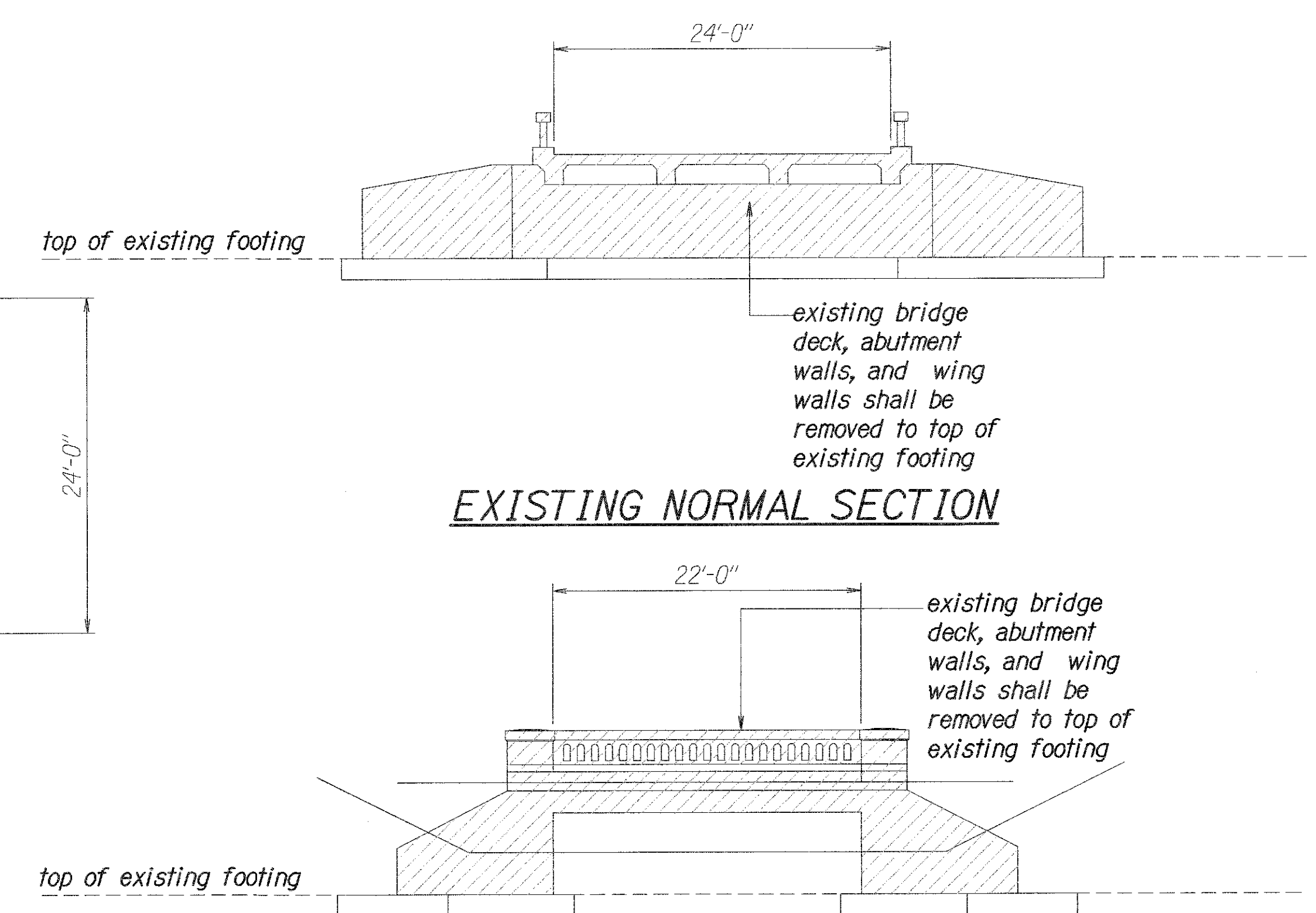
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	57	81



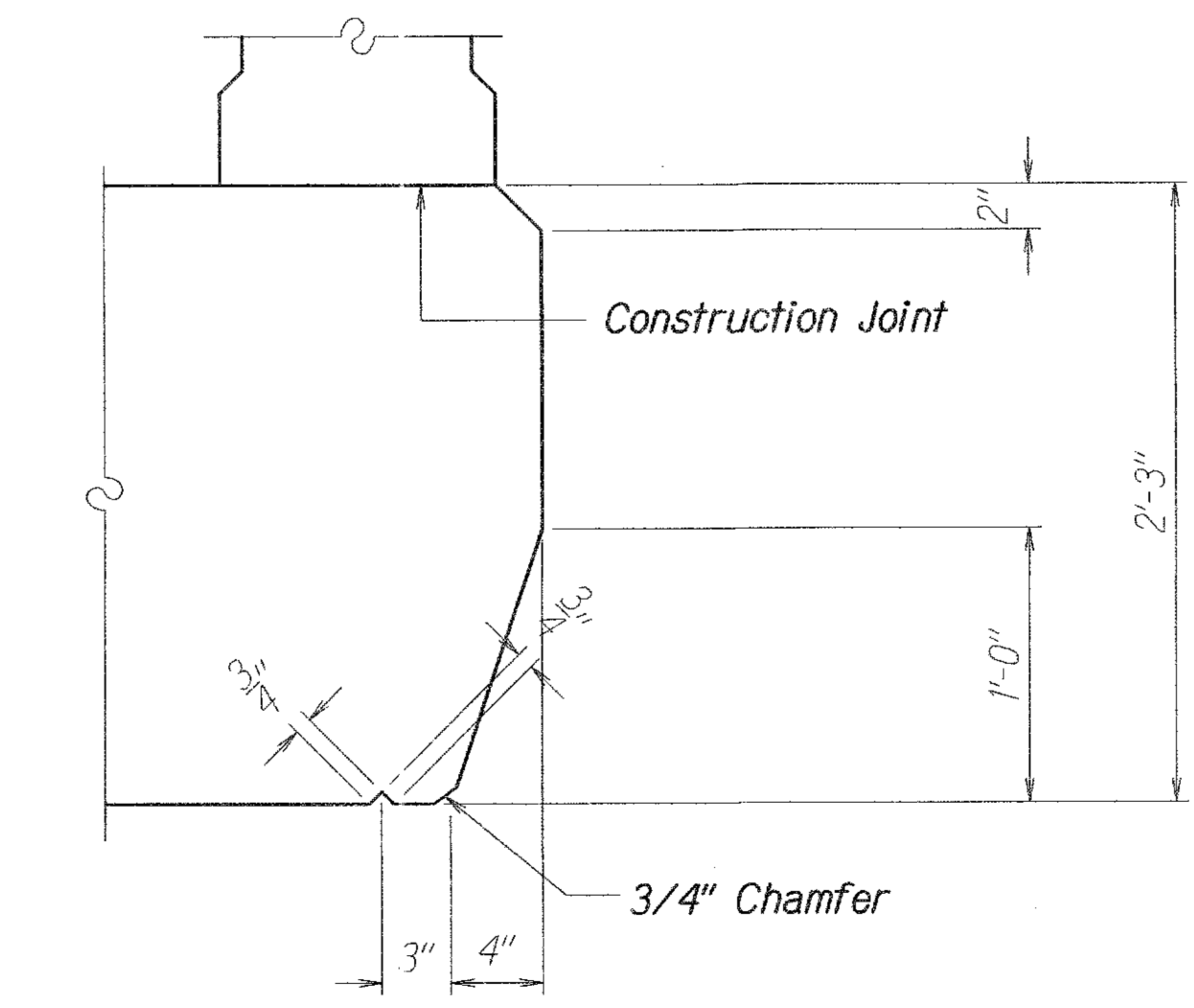
**TYPICAL BRIDGE DECK SECTION**  
Scale: 1/2"=1'-0"



**EXISTING BRIDGE PLAN**



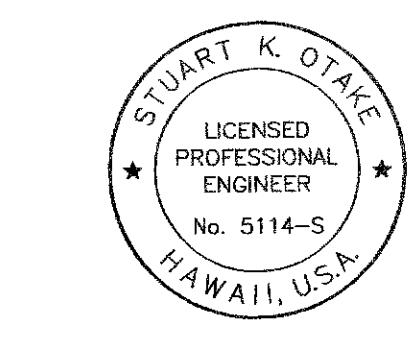
**EXISTING LONGITUDINAL ELEVATION**



**CONT. DRIP DETAIL**  
Scale: 1-1/2"=1'-0"

**EXISTING BRIDGE DEMOLITION PLAN**  
Scale: 1/8"=1'-0"

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
DESIGNED BY	
QUANTITIES BY	
NOTES BY	
NO.	



4/30/2014  
MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
NOTE: Contractor to check and verify dimensions of job before proceeding with work.

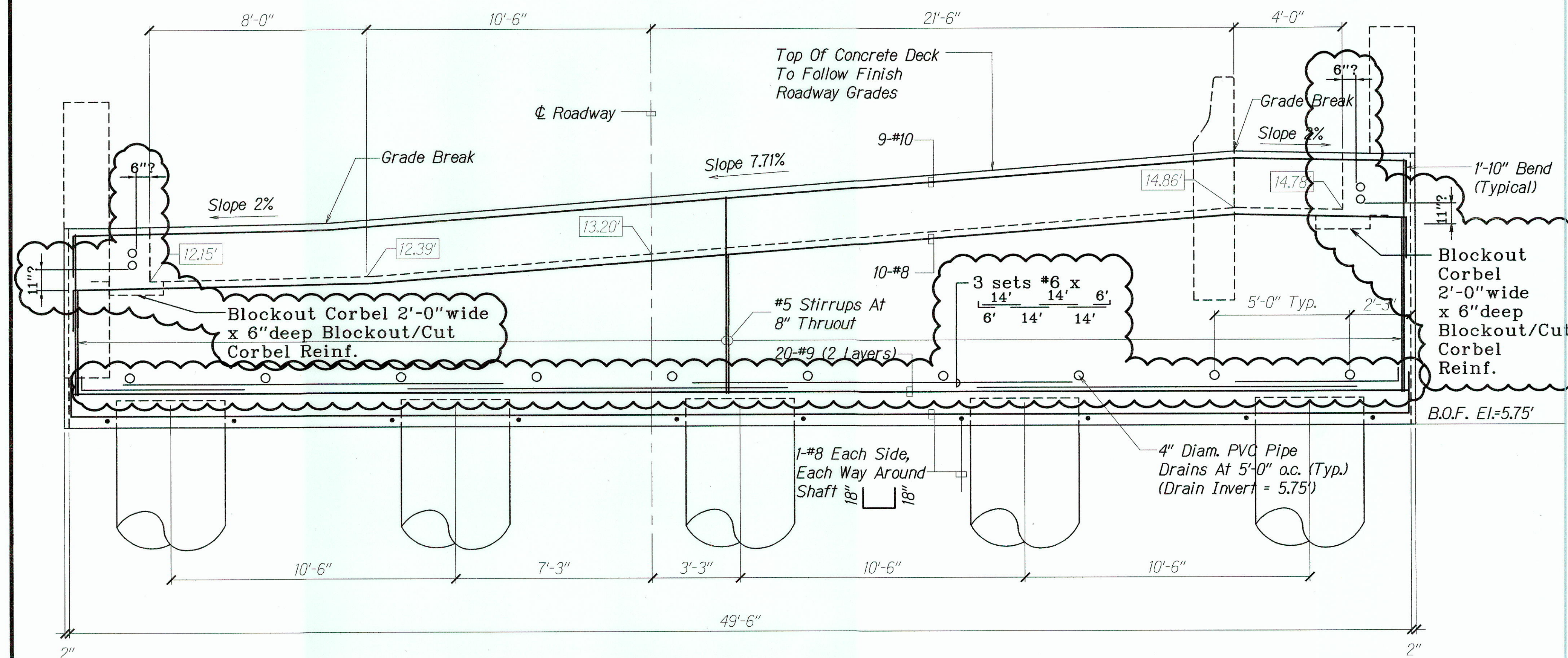
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**TYPICAL BRIDGE DECK SECTION.**  
**EXISTING BRIDGE DEMOLITION PLAN**  
KAMEHAMEHA HIGHWAY  
REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
Federal Aid Project No. BR-083-1(50)  
Scale: As Noted Date: August 2004  
SHEET No. **8-4** OF **13** SHEETS







FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	59	81



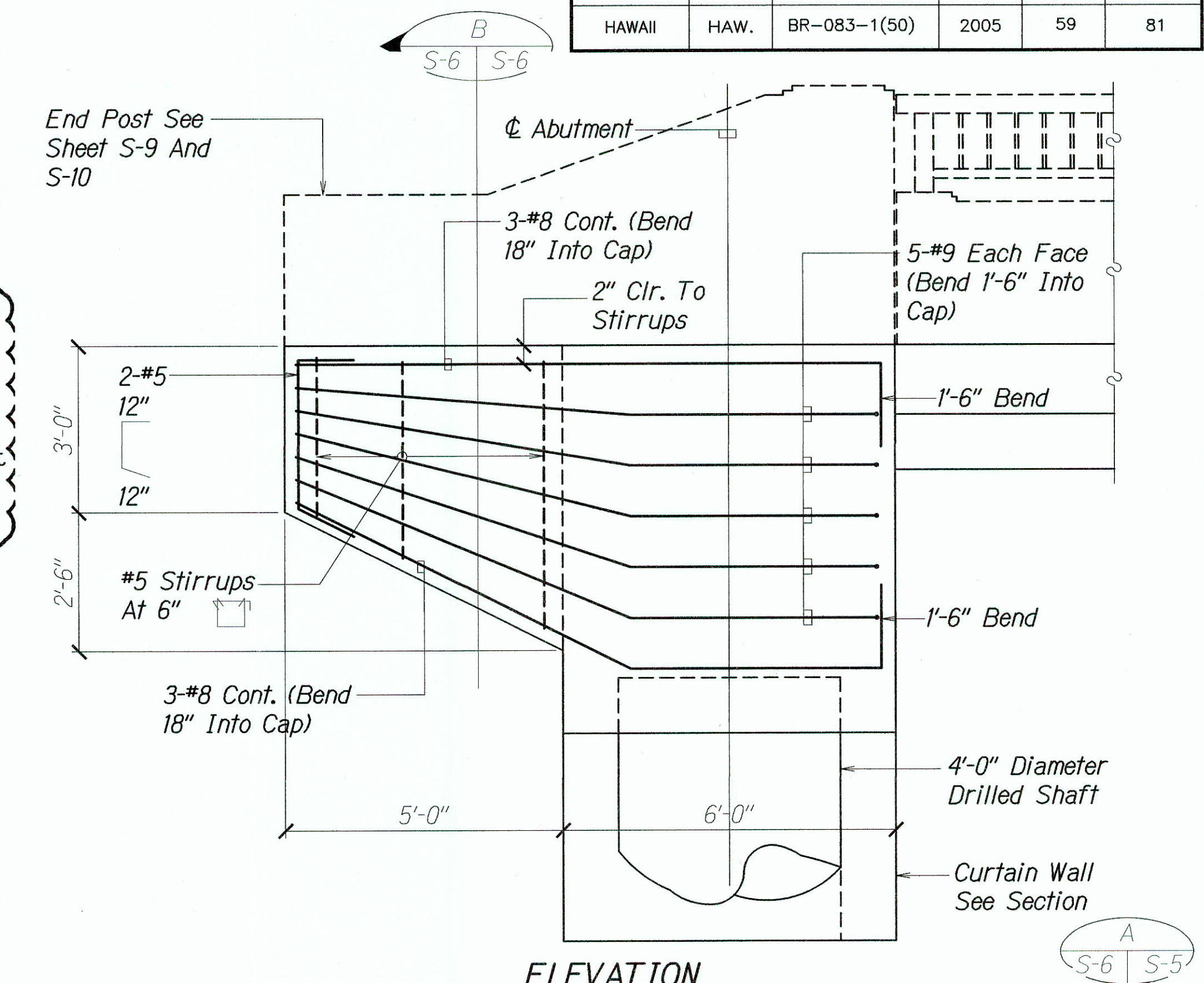
00.00' Denotes Shelf Elevation

### ABUTMENT NO. 1 ELEVATION

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

Note:

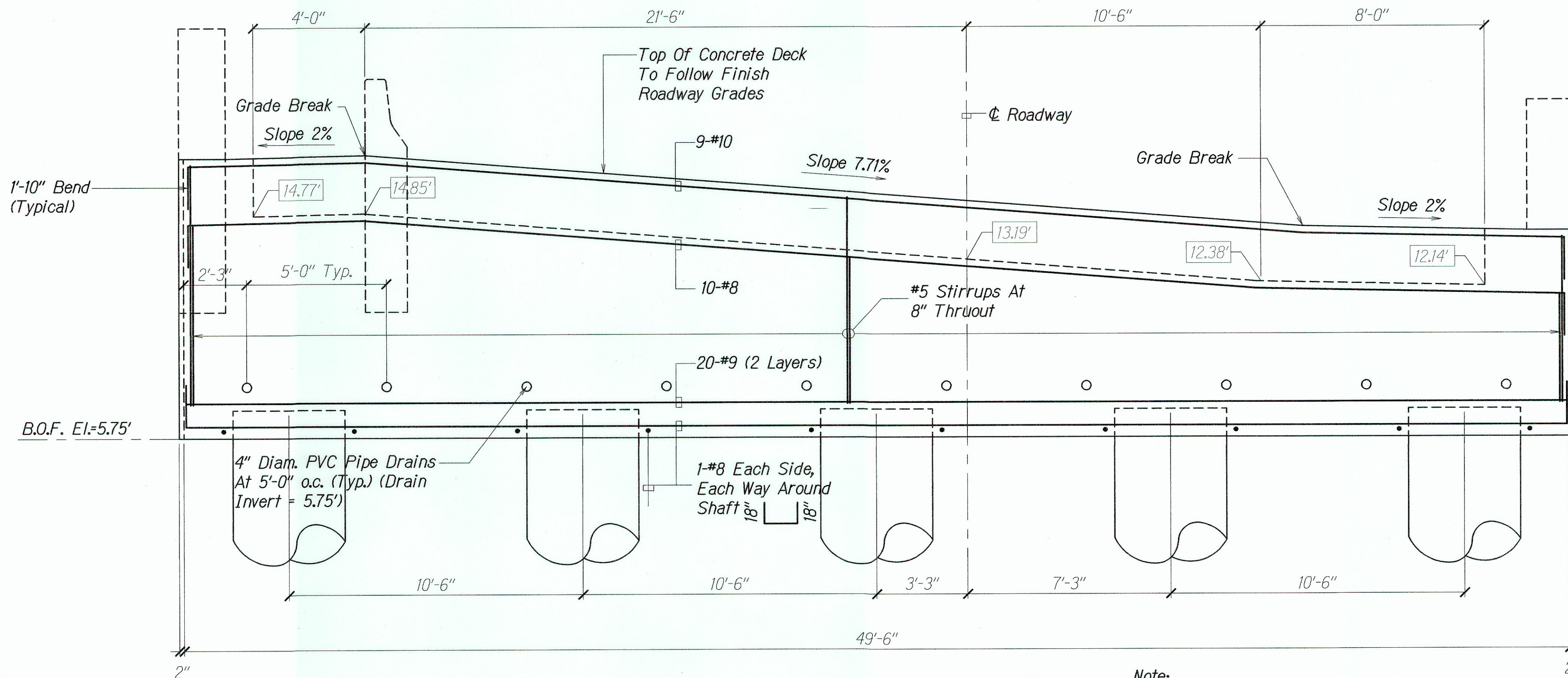
1. Curtain Wall Not Shown For Clarity.
2. #10 Horizontal Bars In Side Faces Not Shown For Clarity



ELEVATION

### WING WALL DETAIL

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



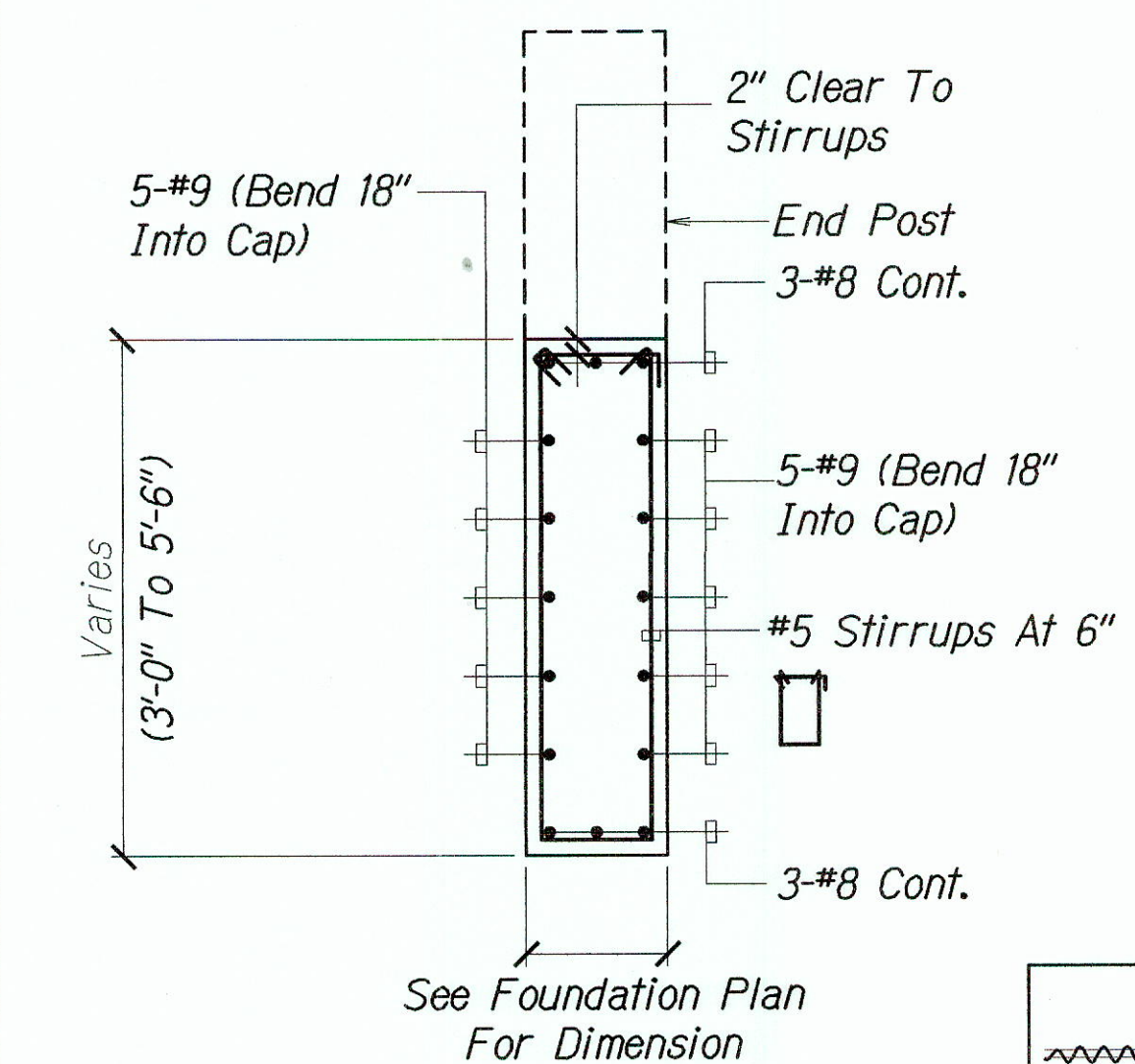
00.00' Denotes Shelf Elevation

### ABUTMENT NO. 2 ELEVATION

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

Note:

1. Curtain Wall Not Shown For Clarity.
2. #10 Horizontal Bars In Side Faces Not Shown For Clarity

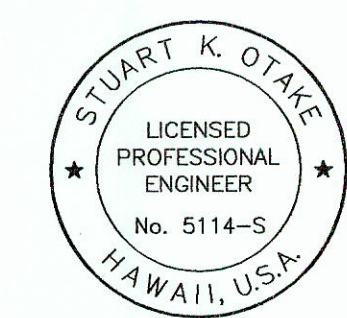


### SECTION

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

#### LEGEND FOR AS-BUILT POSTING

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



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**ABUTMENT NO. 1 AND 2 ELEVATIONS,  
AND WING WALL DETAIL**  
KAMEHAMEHA HIGHWAY  
REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
Federal Aid Project No. BR-083-1(50)  
Scale: As Noted Date: August 2004

SHEET No. 8-6 OF 13 SHEETS

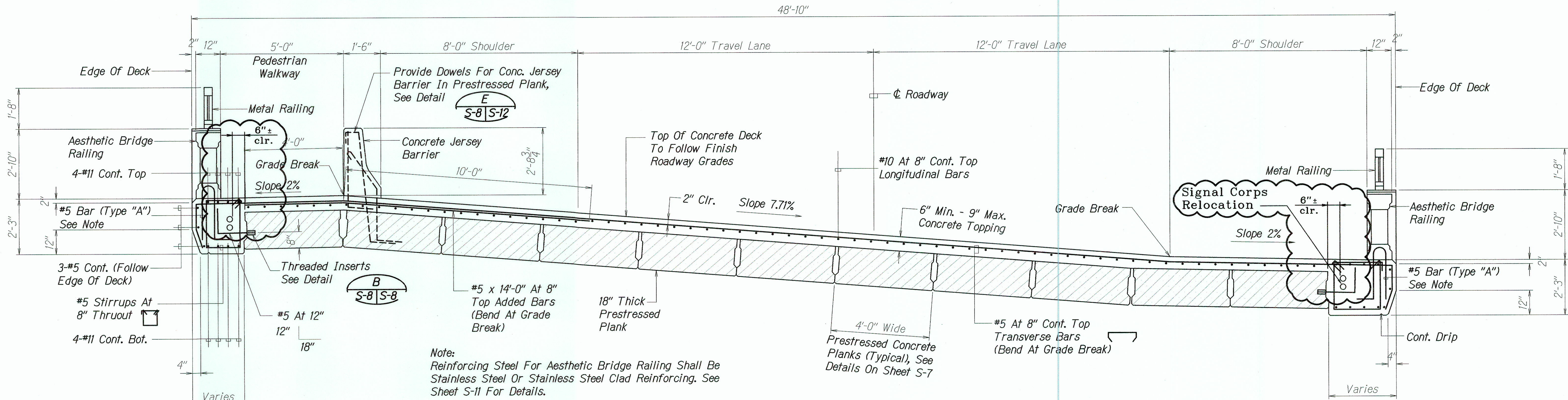
"AS-BUILT"





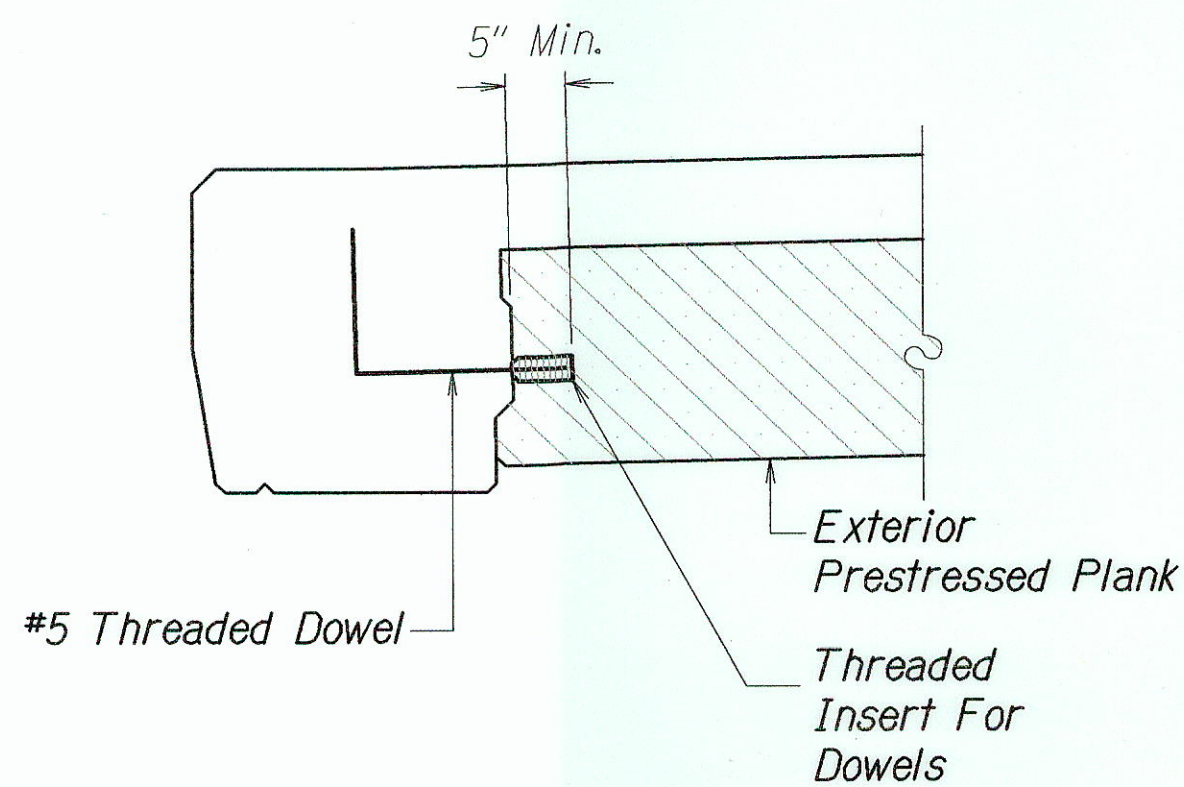


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	61	81



Note:  
Reinforcing Steel For Aesthetic Bridge Railing Shall Be  
Stainless Steel Or Stainless Steel Clad Reinforcing. See  
Sheet S-11 For Details.

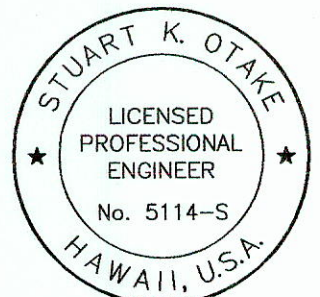
**A**  
**S-7 | S-8** **NORMAL DECK SECTION**  
Scale: 1/2"=1'-0"



Allowable Tension = 2.5 Kips  
Allowable Shear = 1.5 Kips

**B**  
**S-7, S-8 | S-8** **THREADED INSERT DETAIL**  
Not To Scale

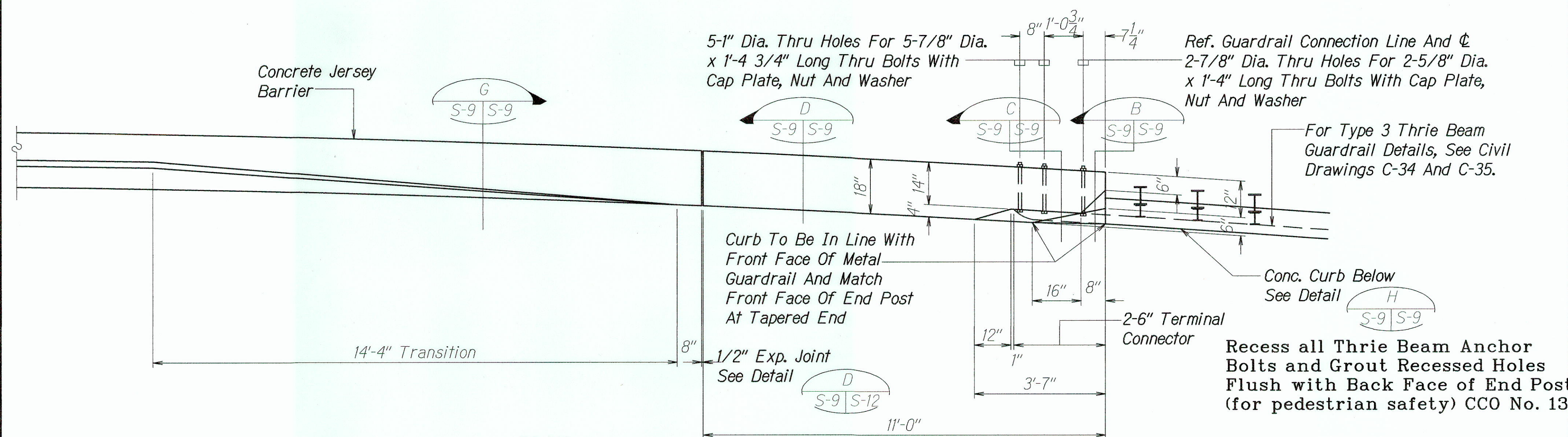
**LEGEND FOR AS-BUILT POSTING**  
 Squiggly line for as-built deletion  
 Double line for as-built deletion  
 Roadway Text for as-built posting



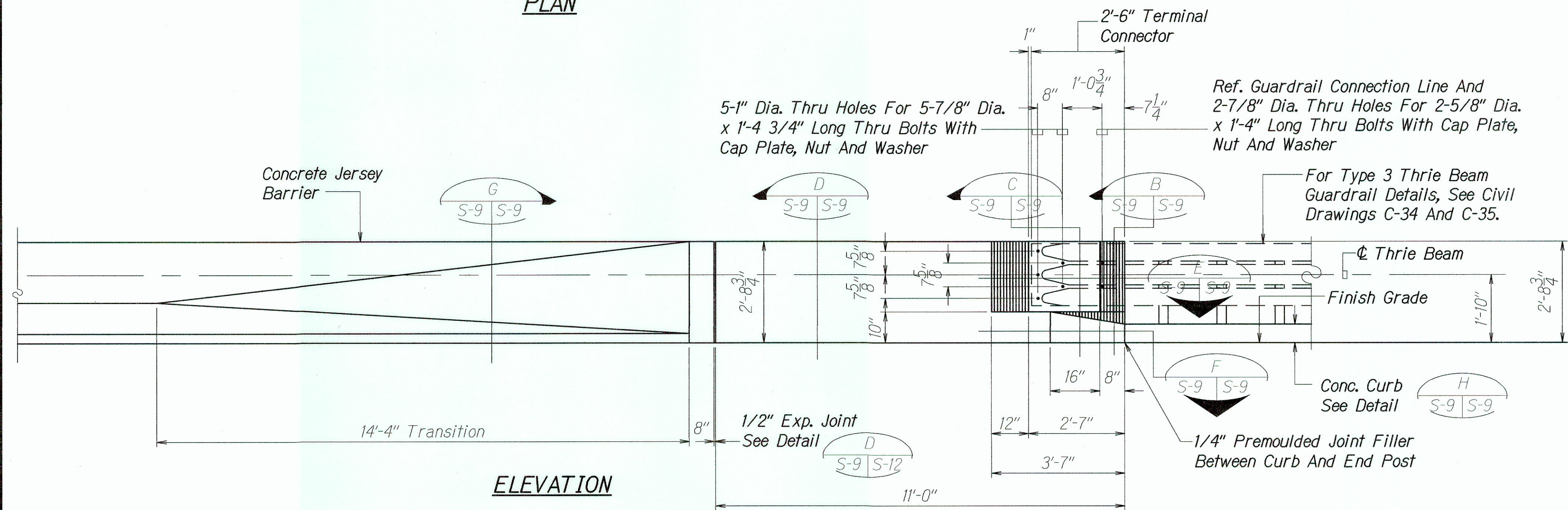
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**NORMAL DECK SECTION, THREADED INSERT DETAIL**  
KAMEHAMEHA HIGHWAY  
REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
Federal Aid Project No. BR-083-1(50)  
Scale: As Noted Date: August 2004



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	62	81

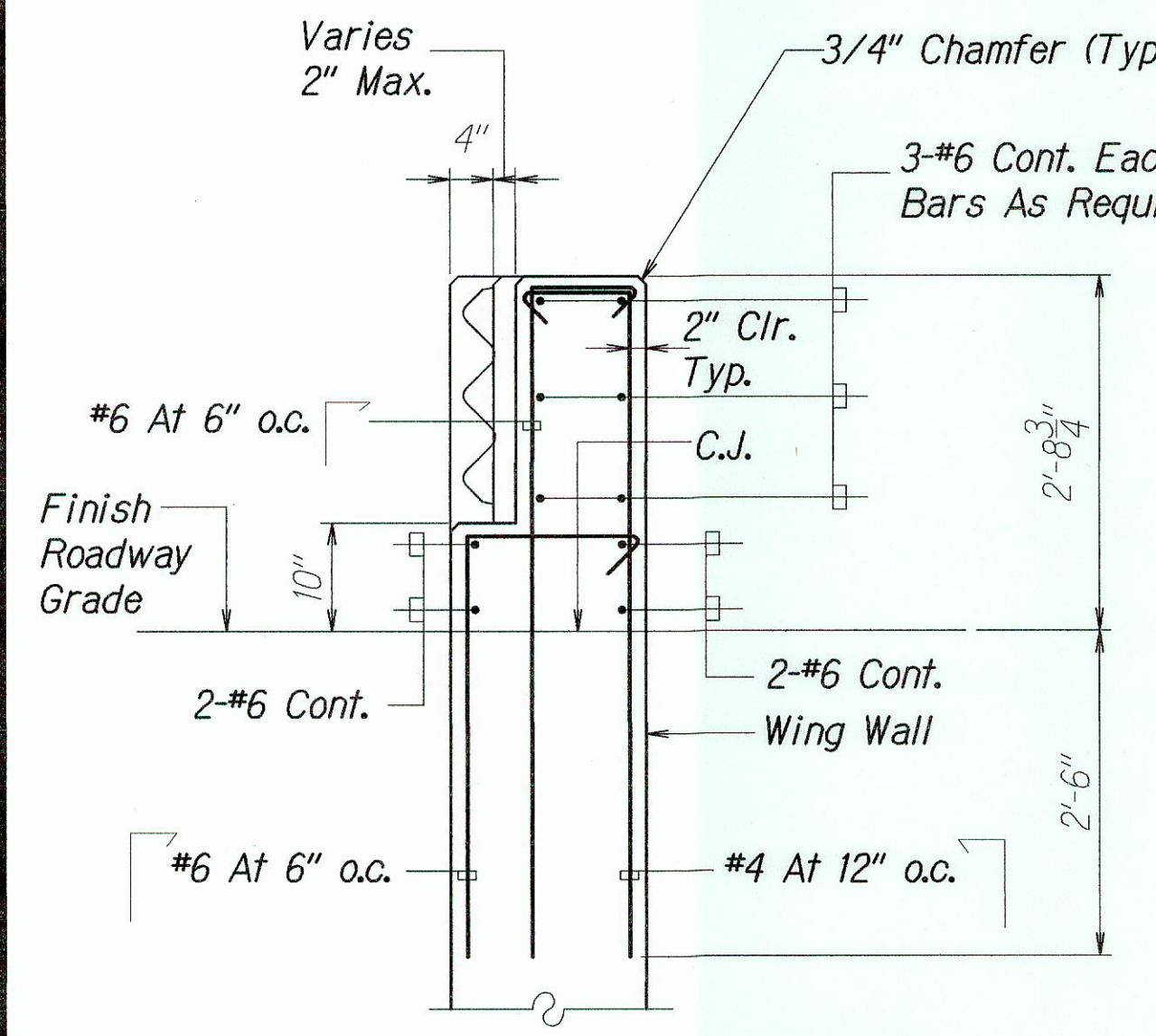


PLAN

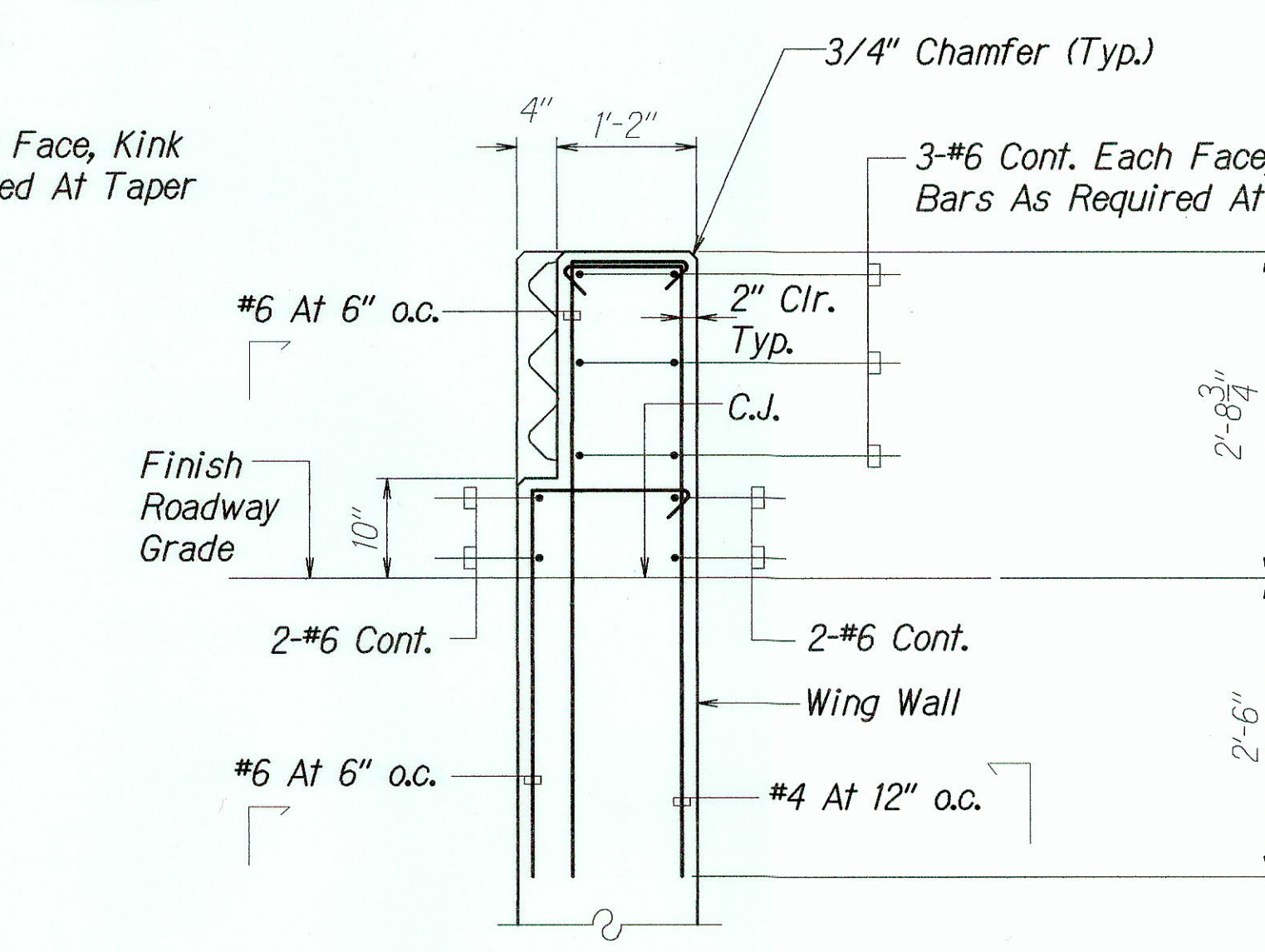


ELEVATION

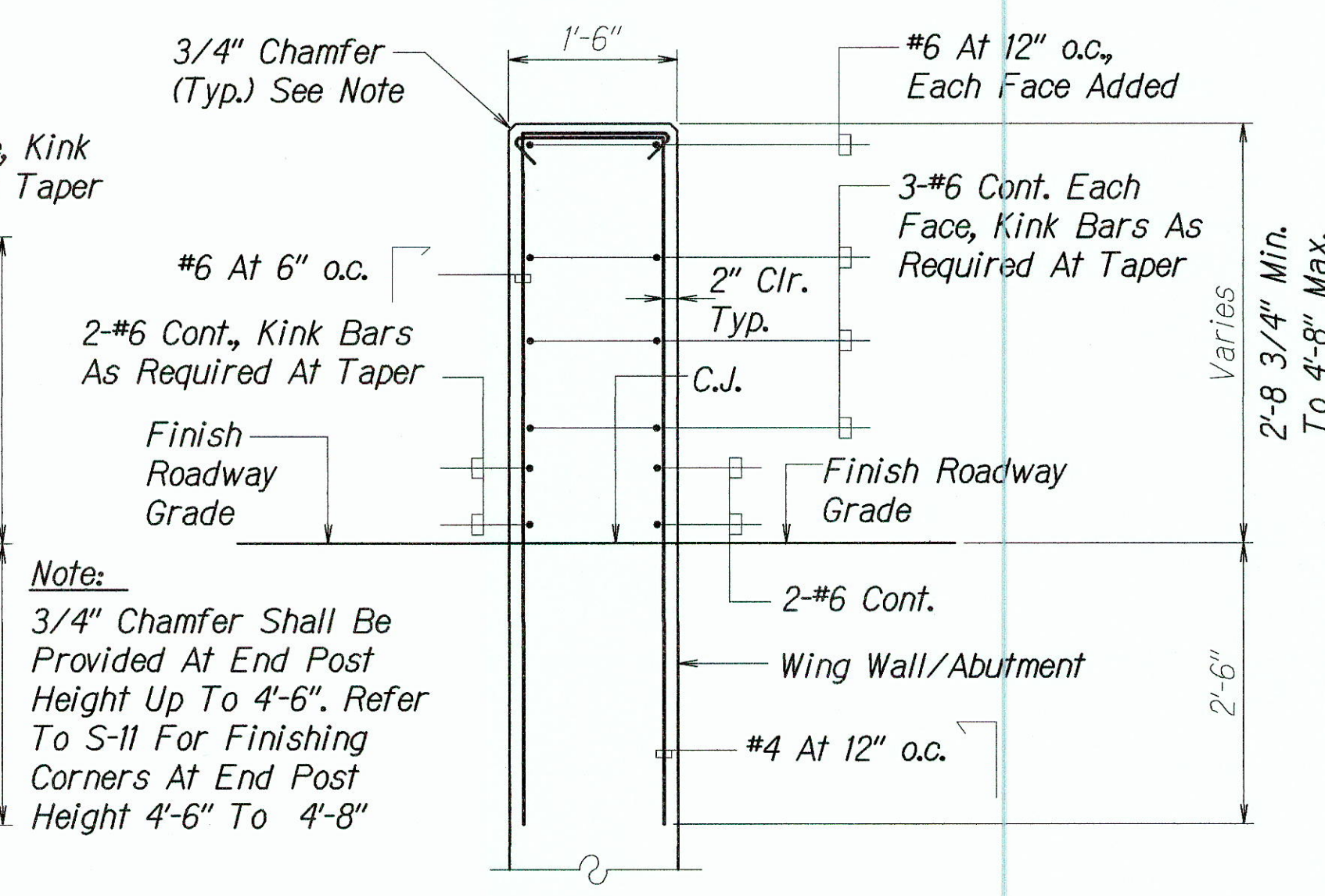
END POST TYPE "A"  
Scale: 1/2"=1'-0"



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

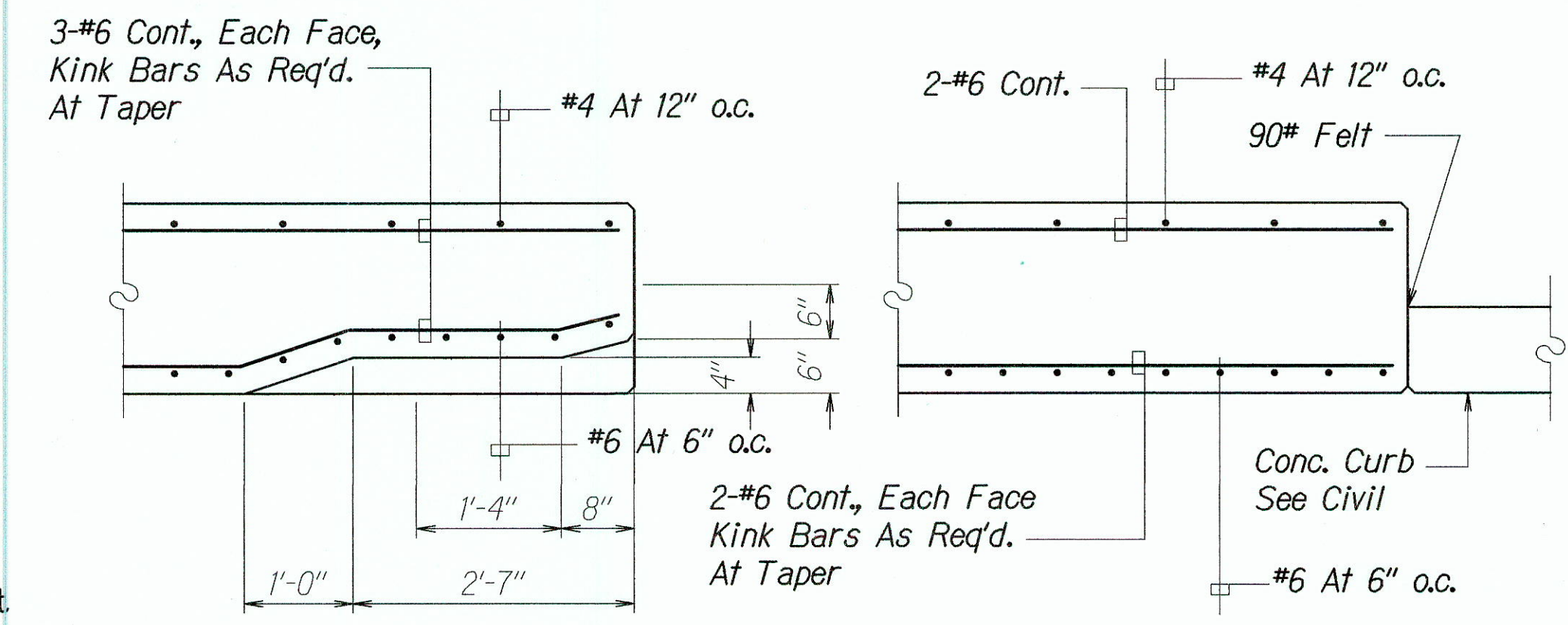


SECTION C  
Scale: 3/4"=1'-0"



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

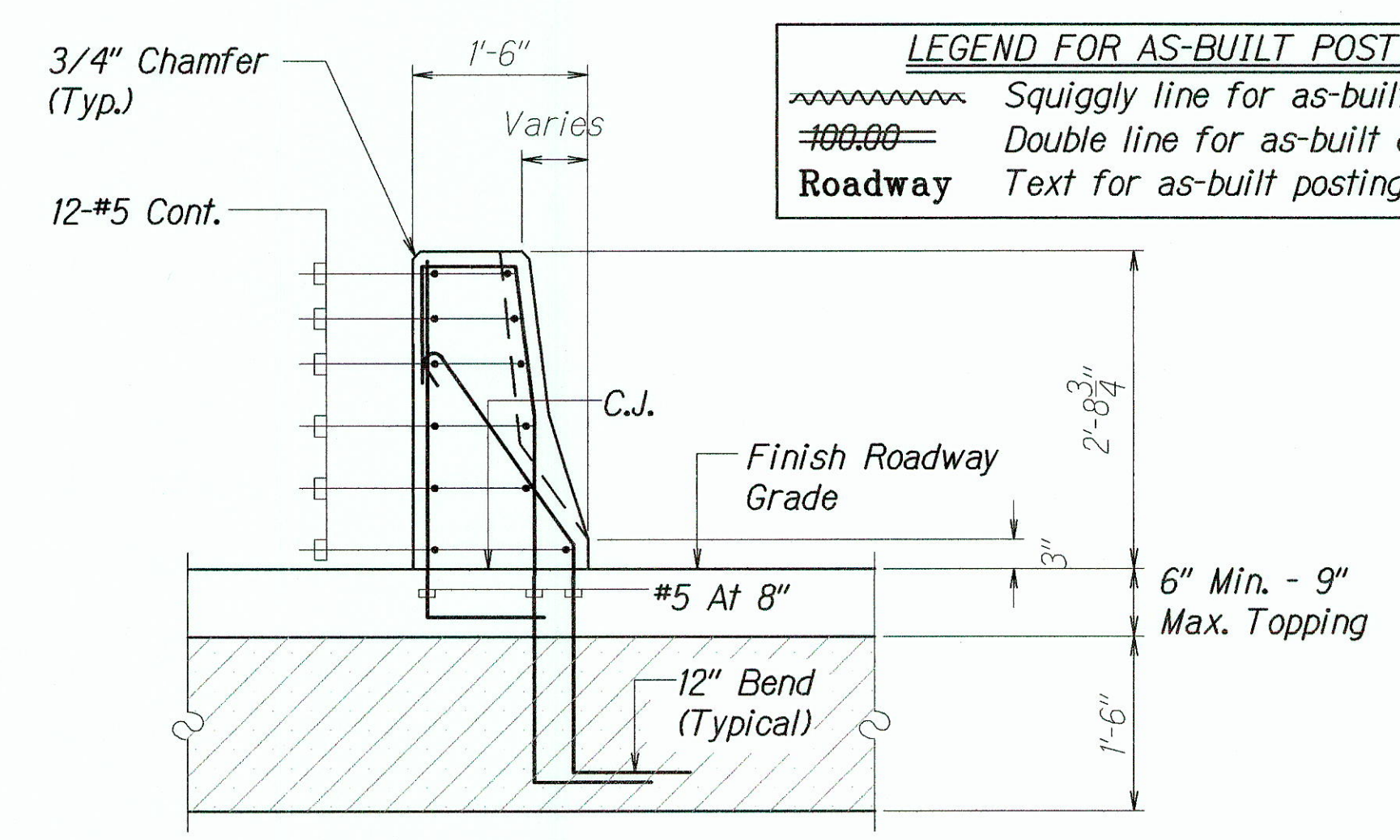
Note:  
3/4" Chamfer Shall Be Provided At End Post Height Up To 4'-6". Refer To S-11 For Finishing Corners At End Post Height 4'-6" To 4'-8"



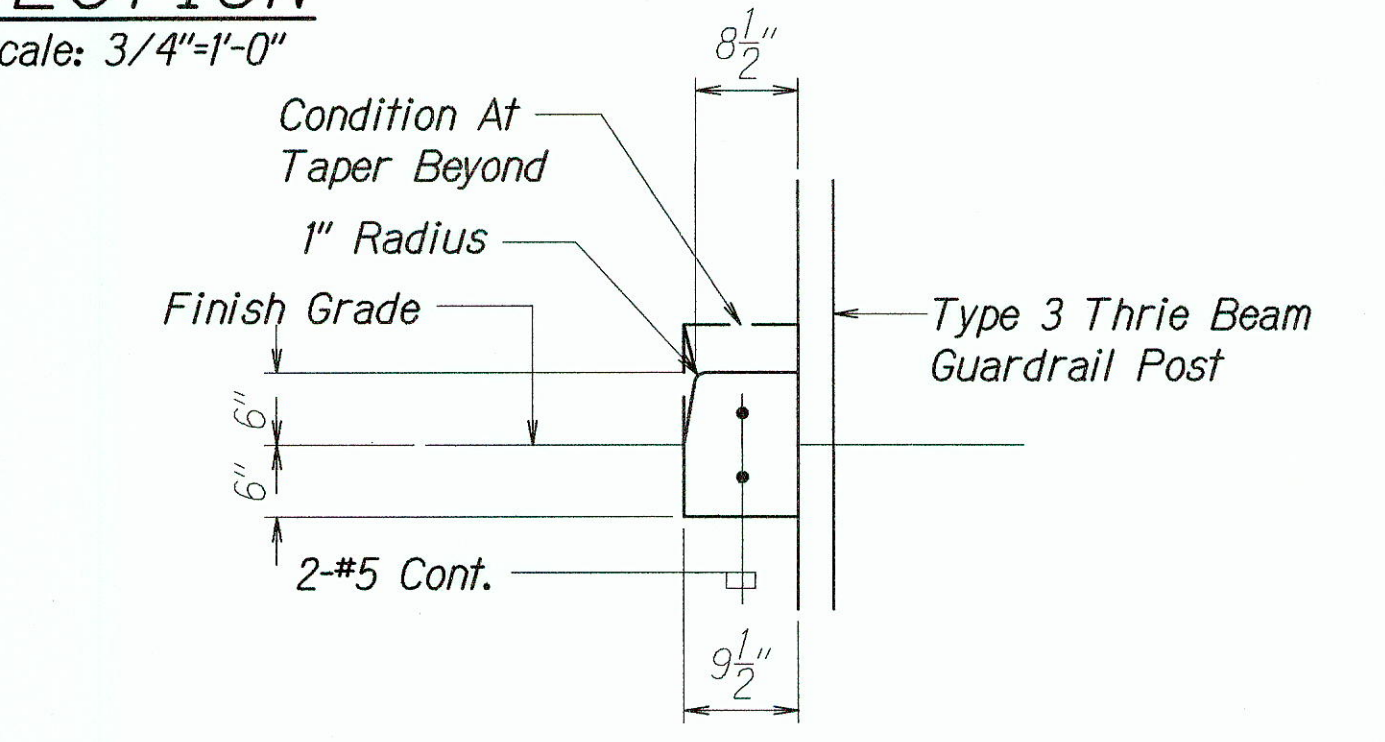
SECTION E  
Scale: 3/4"=1'-0"

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

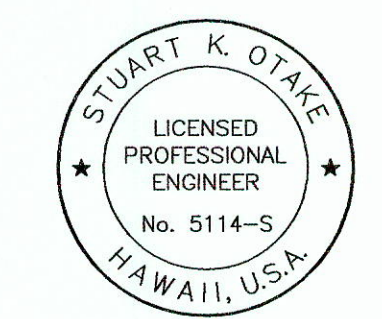
LEGEND FOR AS-BUILT POSTING  
Squiggly line for as-built deletion  
Double line for as-built deletion  
Text for as-built posting



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



CONC. CURB DETAIL  
Scale: 3/4"=1'-0"



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

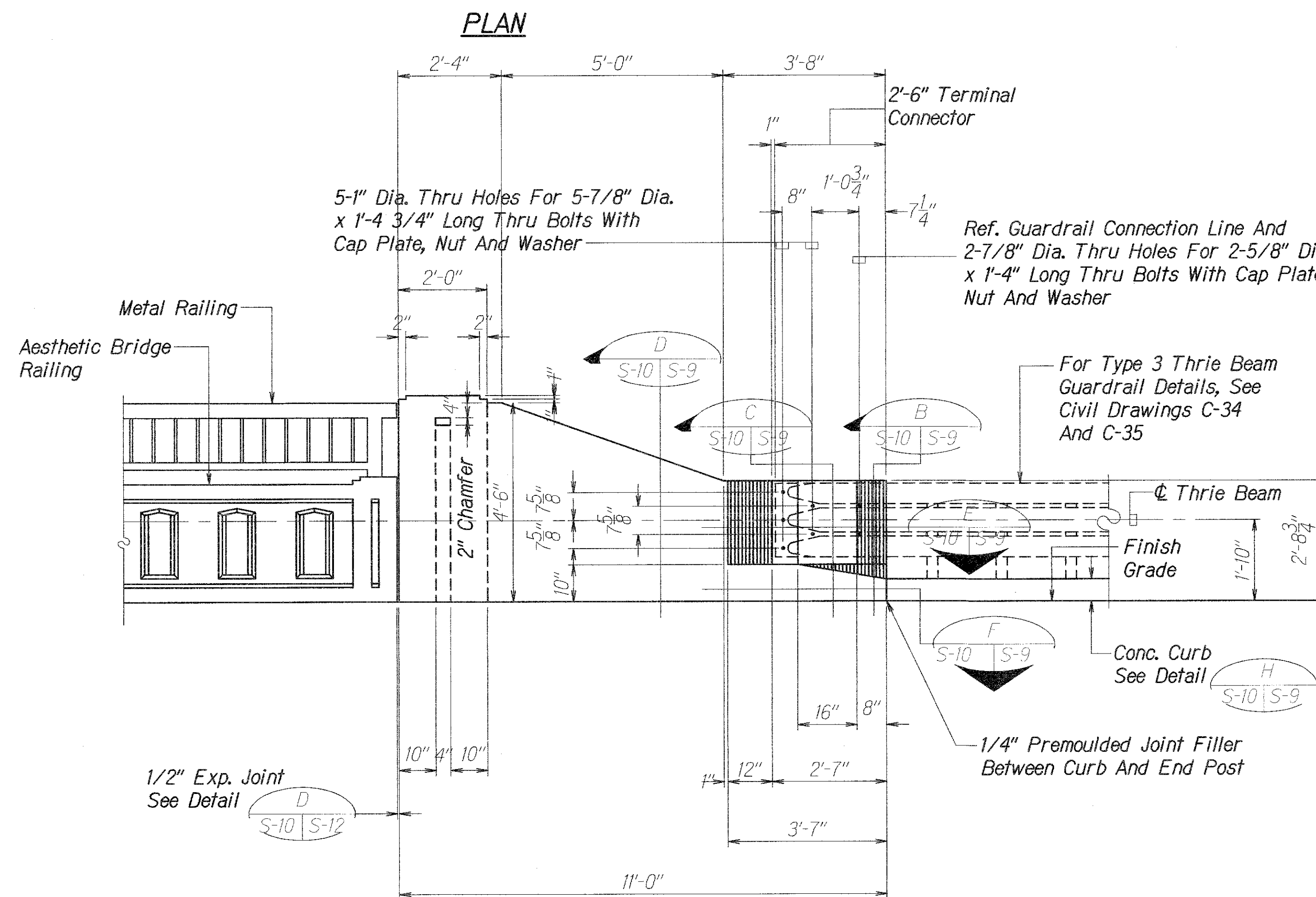
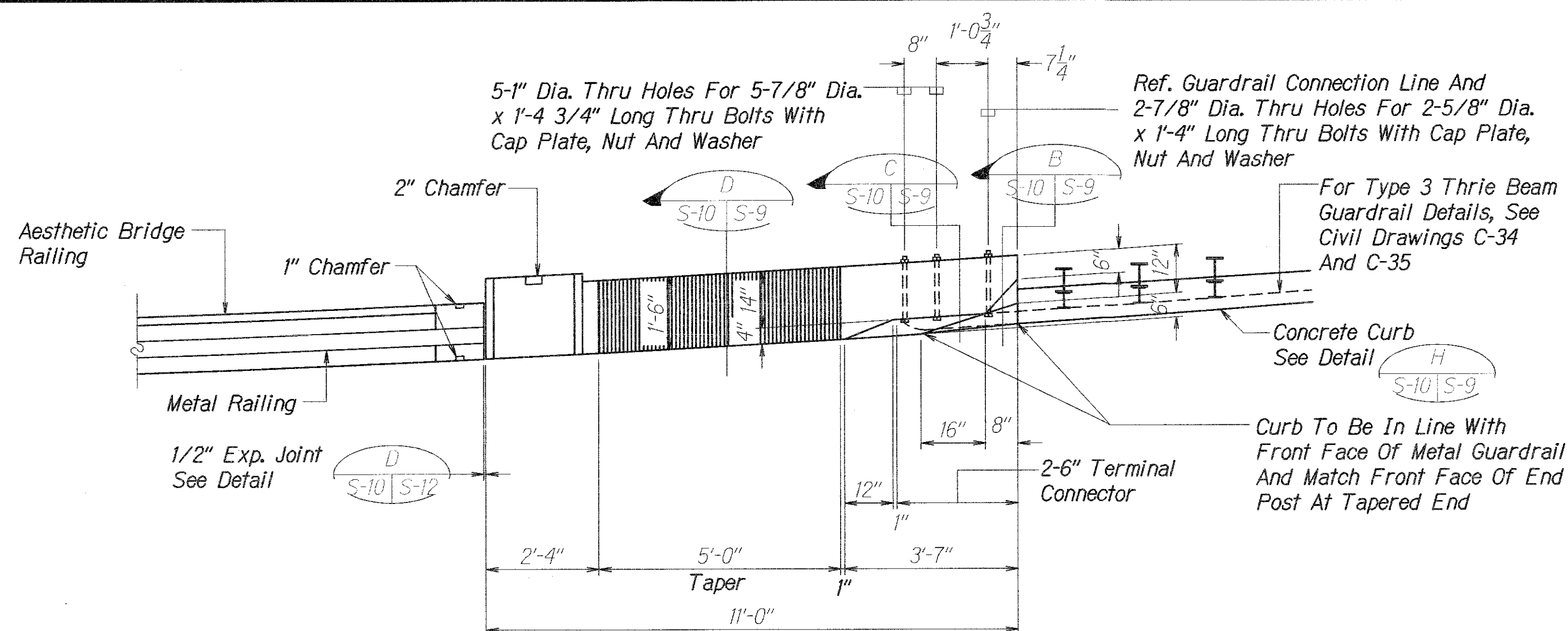
**END POST TYPE "A" DETAIL**

KAMEHAMEHA HIGHWAY  
REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
Federal Aid Project No. BR-083-1(50)  
Scale: As Noted Date: August 2004

4/30/2014  
MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
NOTE: Contractor to check and verify dimensions at job before proceeding with work.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	63	81



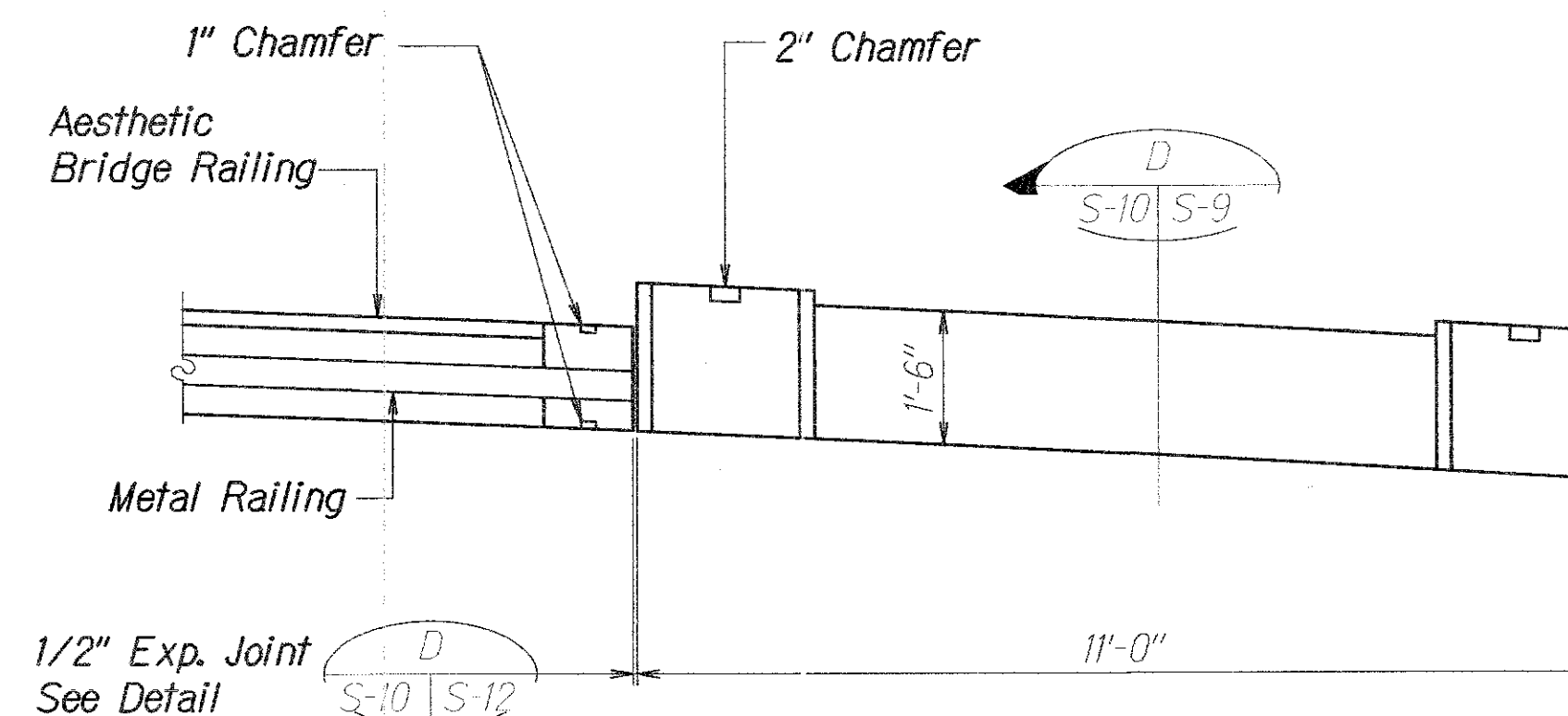
ELEVATION

END POST TYPE "B"

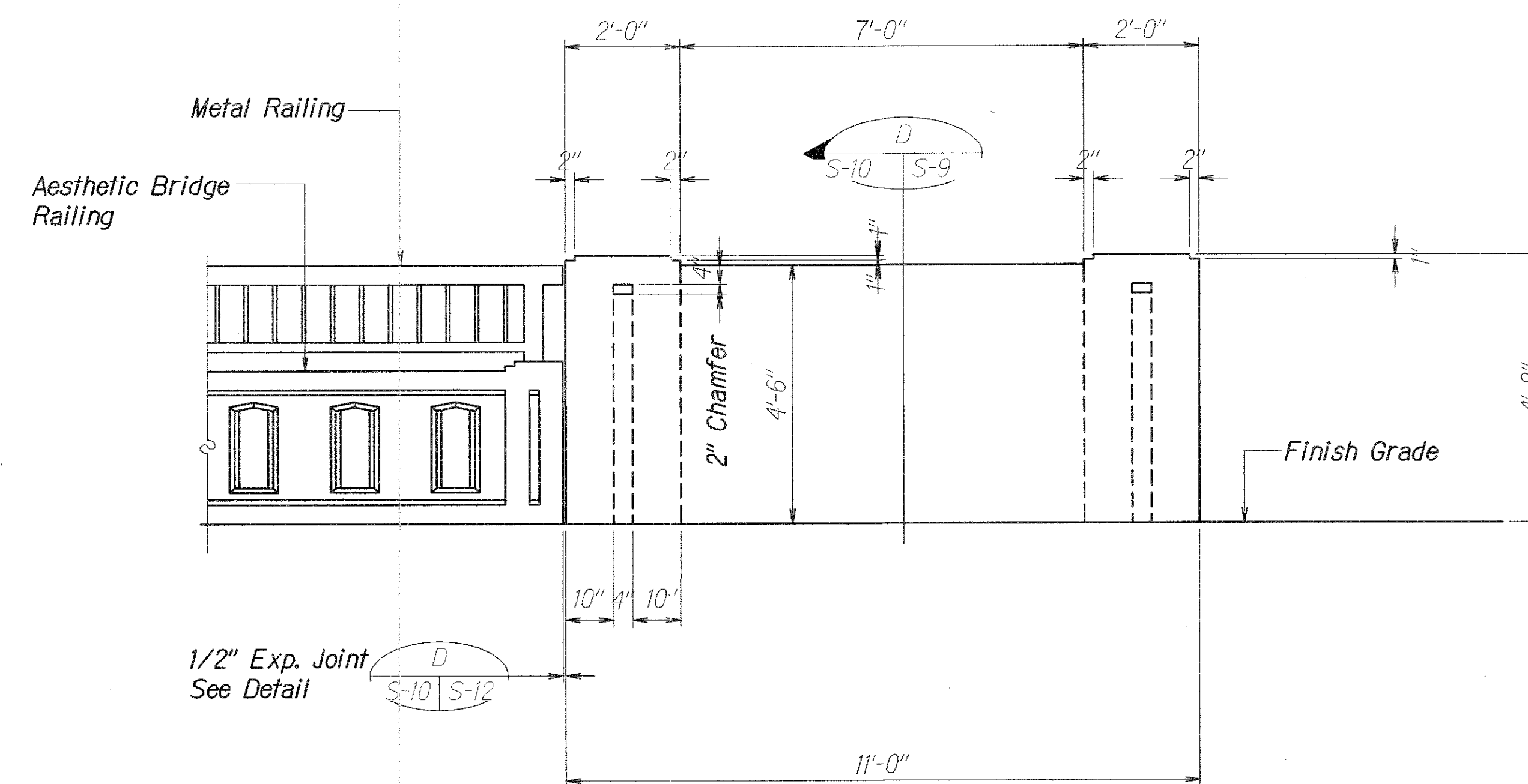
Scale: 1/2"=1'-0"

**Note:**

Reinforcing Steel For The Aesthetic Bridge Railing Shall Be Stainless Steel Clad Reinforcing. Reinforcing Steel For End Post Type "B" And Type "C" Shall Conform To ASTM A615, Grade 60.



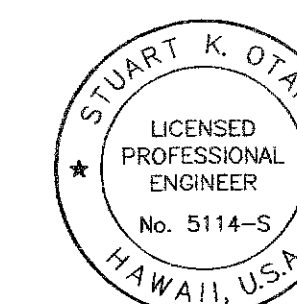
PLAN



ELEVATION

END POST TYPE "C"

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



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**END POST TYPE "B" AND "C" DETAIL**

KAMEHAMEHA HIGHWAY  
REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
Federal Aid Project No. BR-083-1(50)  
Scale: As Noted Date: August 2004

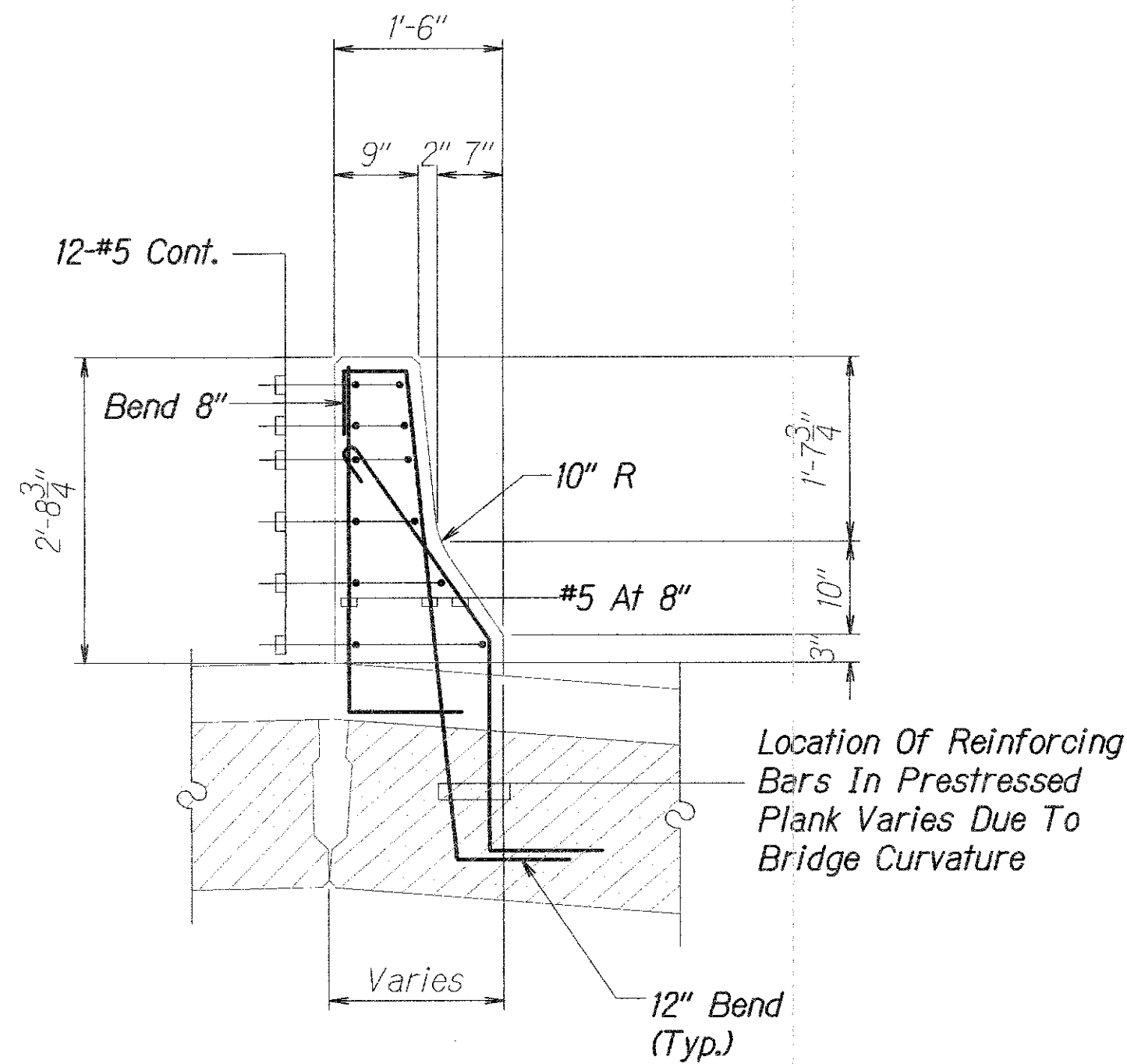
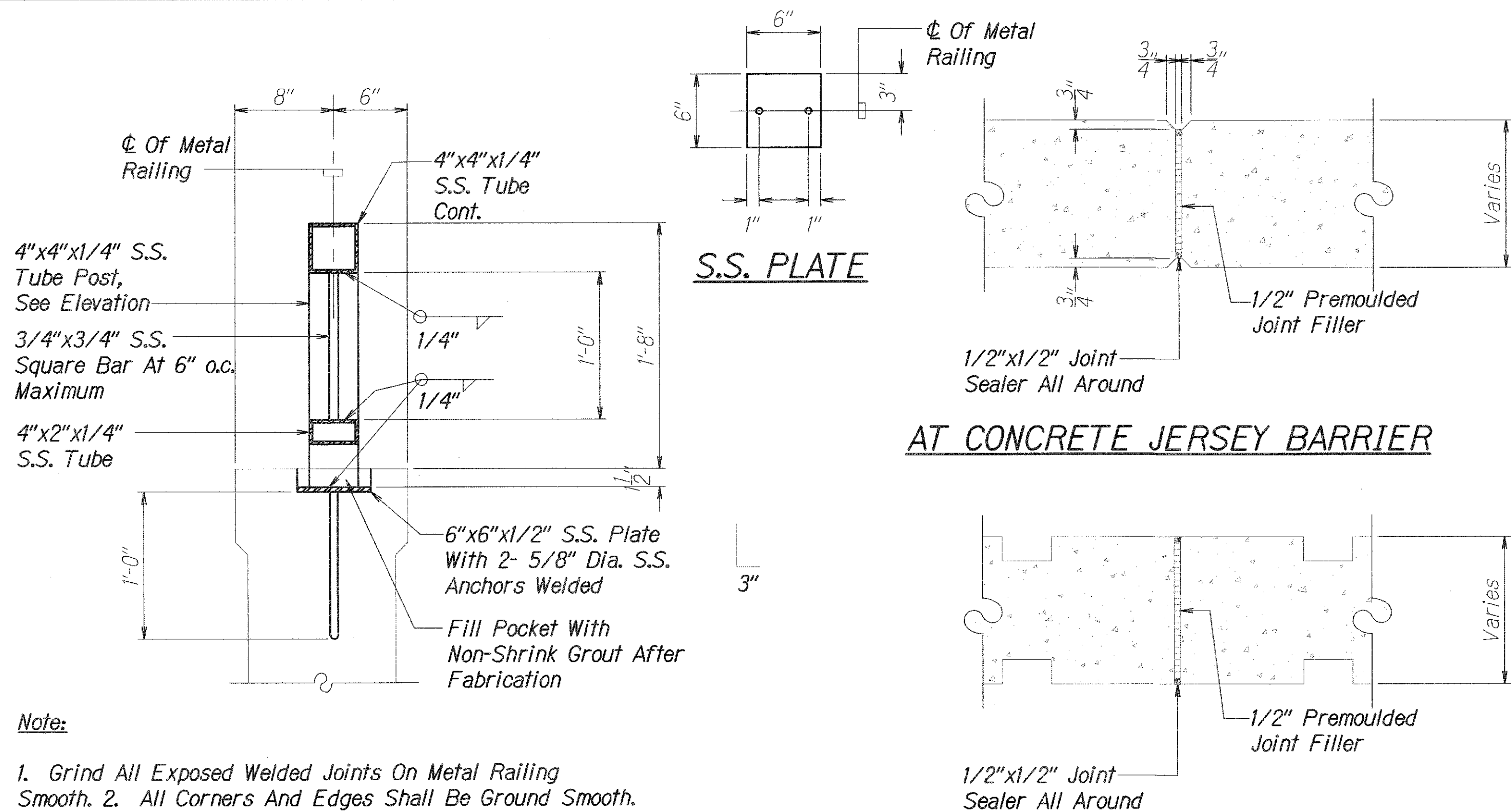
SHEET No. **S-10** OF **13** SHEETS







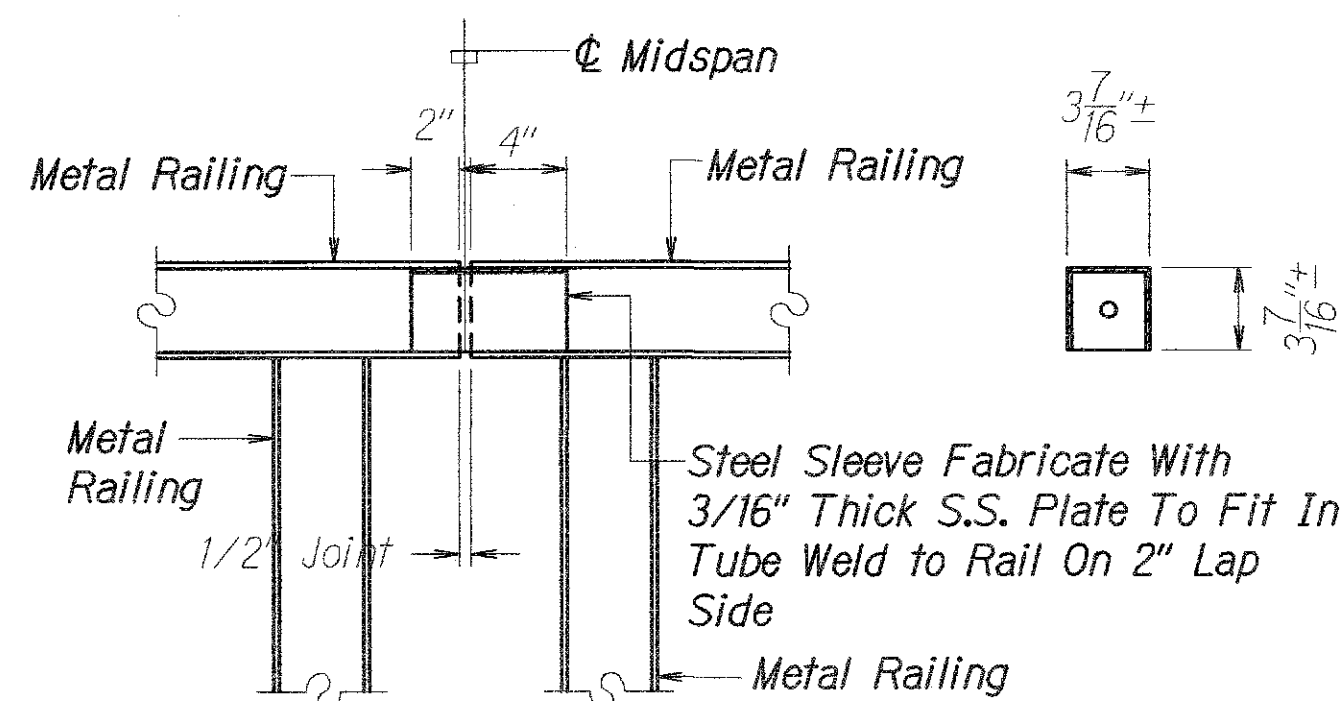
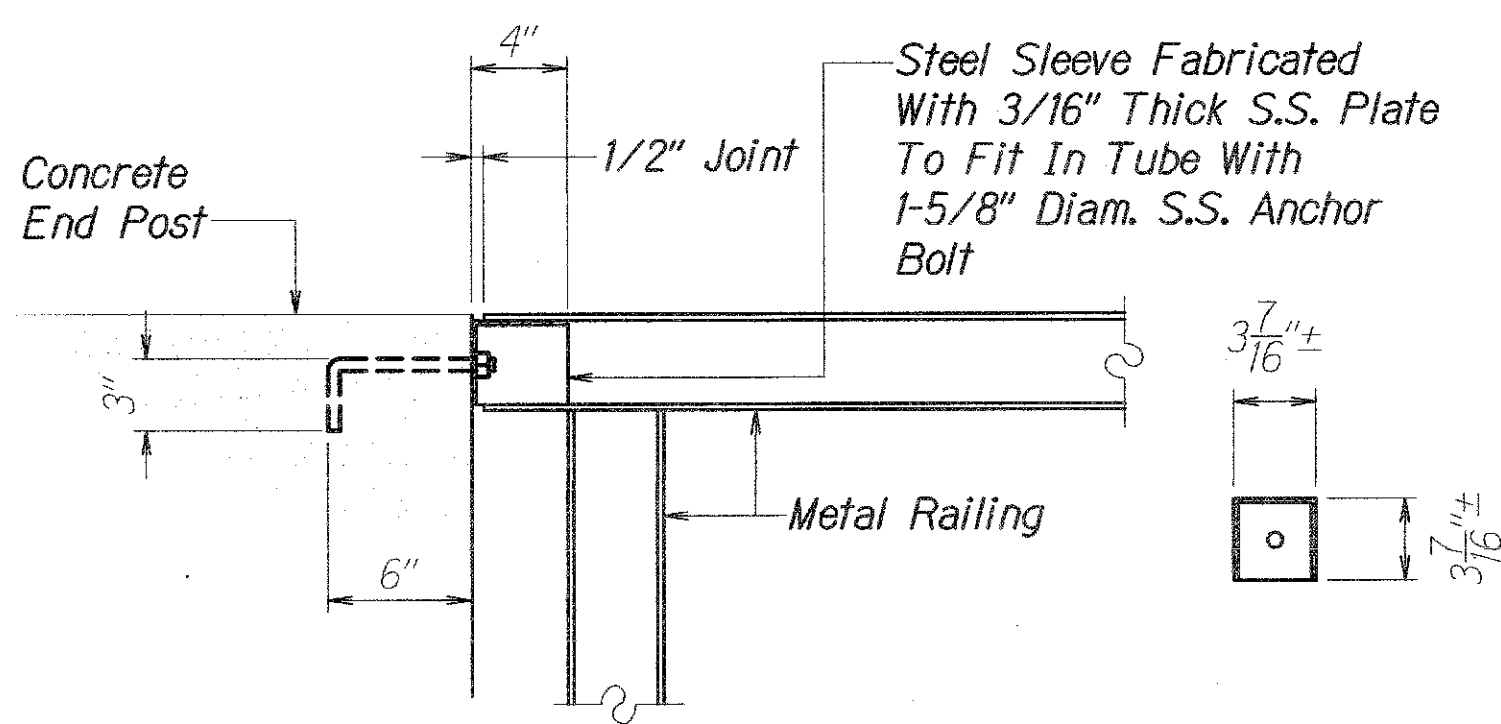
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	65	81



**METAL RAILING DET.**  
Scale: 1 1/2"=1'-0"

**SECTION AT EXPANSION JOINT (E.J.)**  
Scale: 1 1/2"=1'-0"

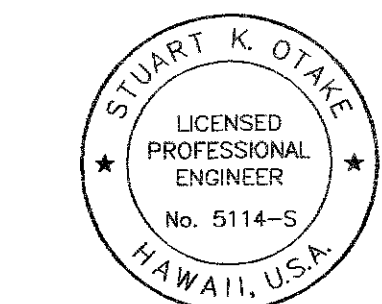
**CONCRETE JERSEY BARRIER SECTION**  
Scale: 3/4"=1'-0"



**METAL RAILING EXPANSION JOINT DETAIL**  
Scale: 1 1/2"=1'-0"

**METAL RAILING EXPANSION JOINT DETAIL**  
Scale: 1 1/2"=1'-0"

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
NO.	_____



4/30/2014  
MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
NOTE: Contractor to check and verify dimensions at job before proceeding with work.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**METAL RAILING DETAILS,  
EXPANSION JOINT DETAILS**

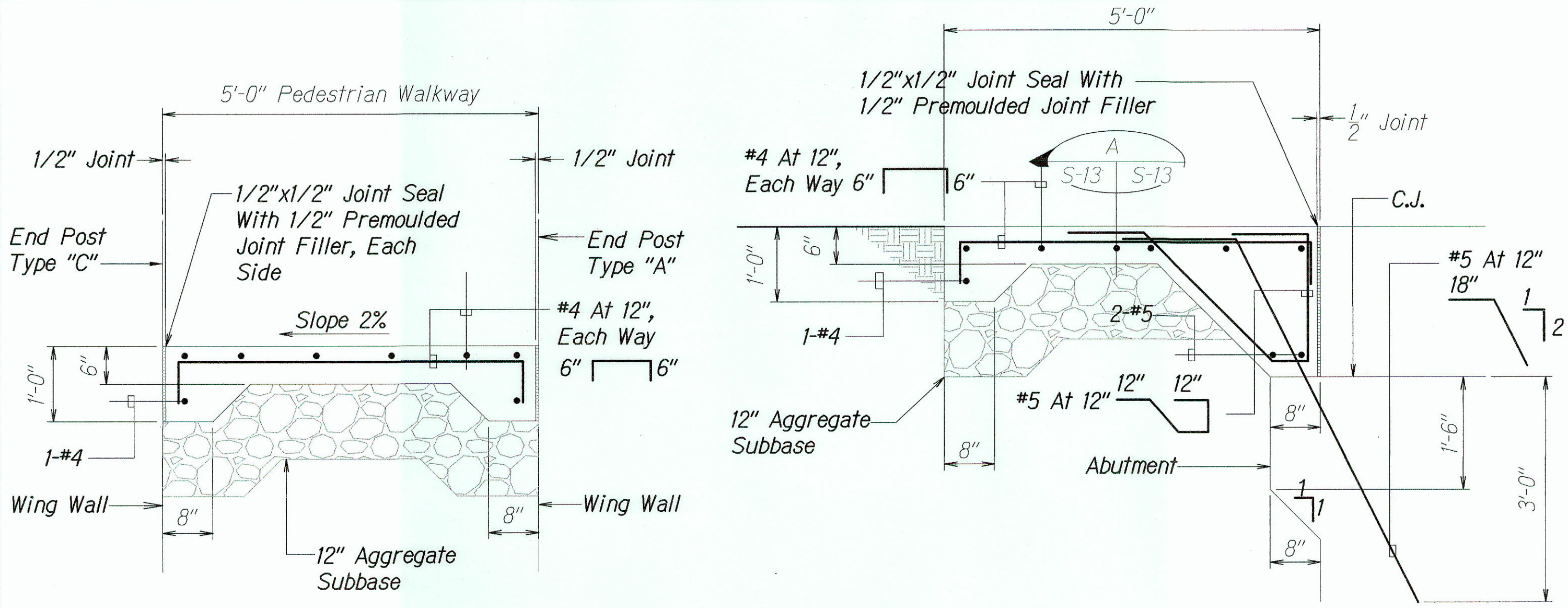
KAMEHAMEHA HIGHWAY  
REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
Federal Aid Project No. BR-083-1(50)  
Scale: As Noted Date: August 2004

SHEET No. **S-12** OF **13** SHEETS

**65**



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(50)	2005	66	81



**PEDESTRIAN WALKWAY RAMP SECTION**

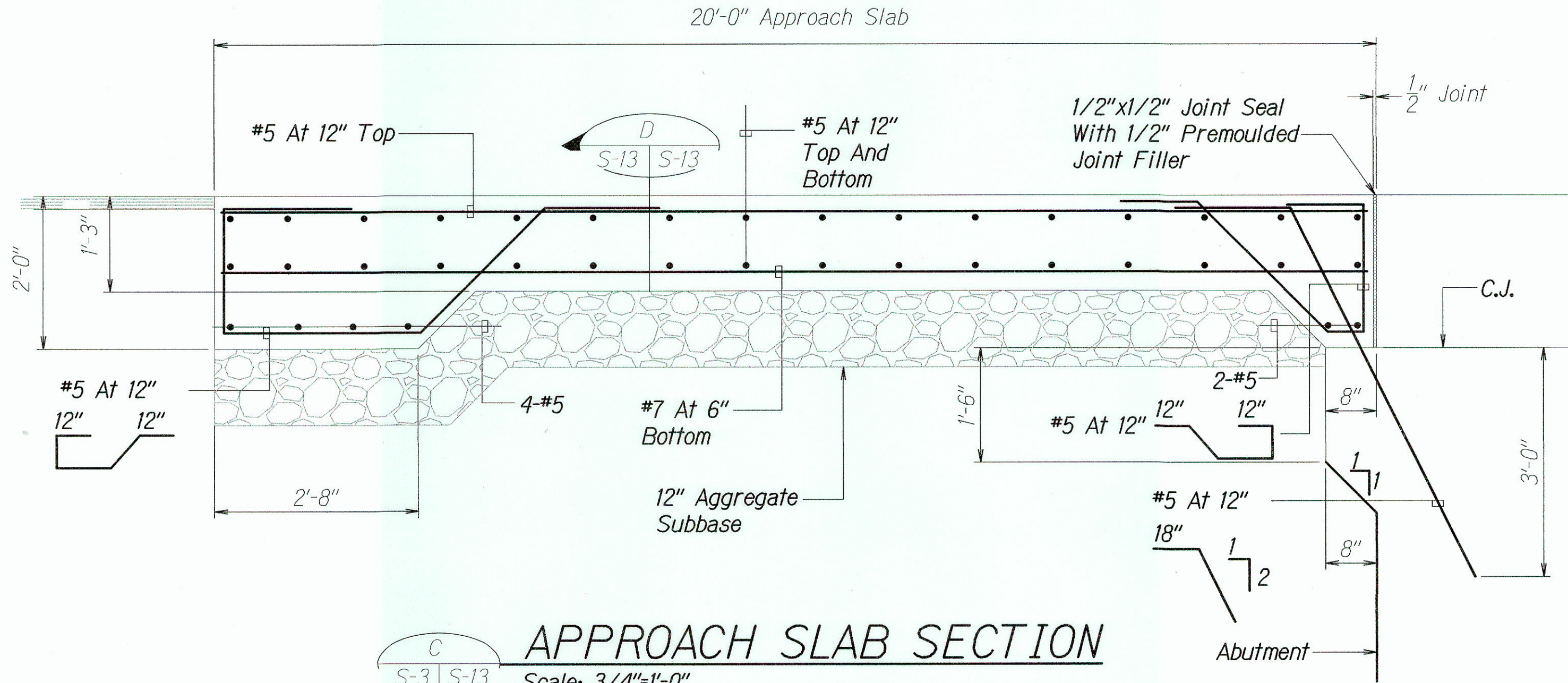
A  
S-13 S-13

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

**PEDESTRIAN WALKWAY RAMP SECTION**

B  
S-3 S-13

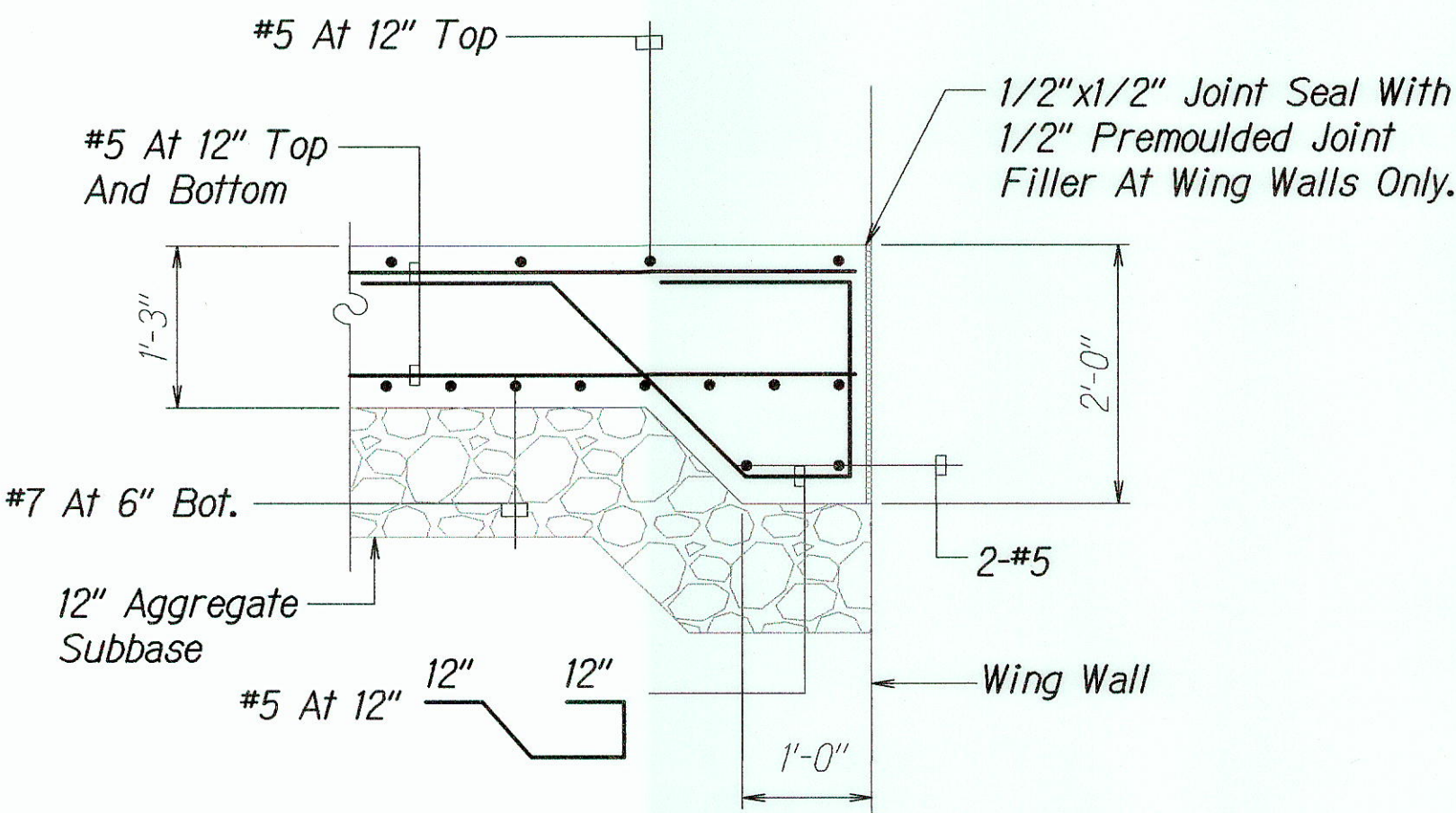
Scale: 3/4"=1'-0"



C  
S-3 S-13

**APPROACH SLAB SECTION**

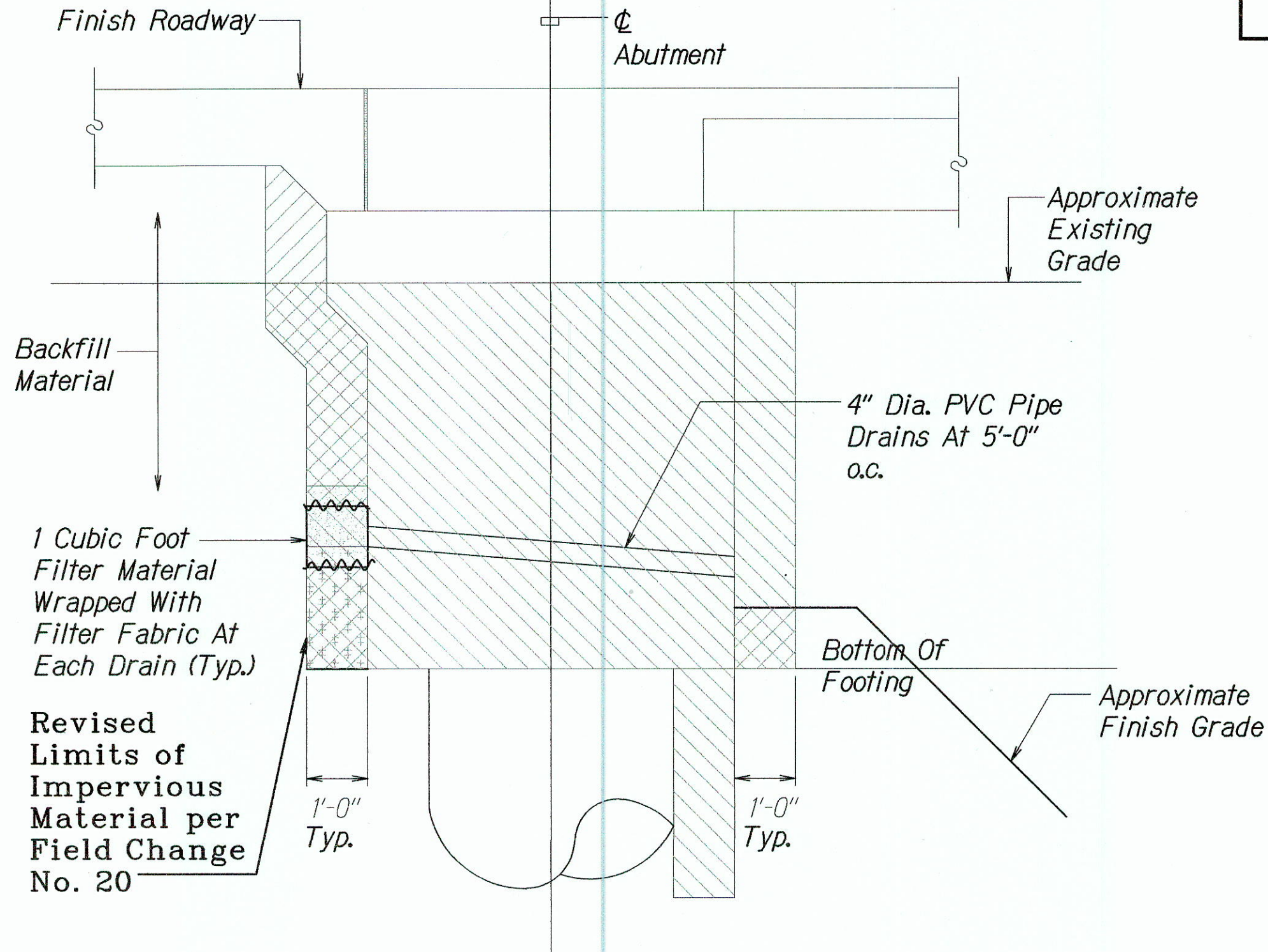
Scale: 3/4"=1'-0"



D  
S-13 S-13

**SECTION**

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



- Structural Excavation
- Structural Backfill
- Filter Material
- Impervious Material

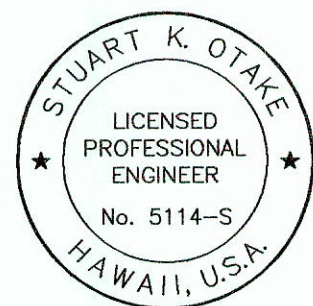
Note:

- 4" Diameter PVC Pipe Drains Shall Be Incidental To Concrete.
- Structural Backfill On The Backface Of The Abutment Shall Not Be Placed Until The Bridge Concrete Topping Has Been Poured And Has Attained It's 28-Day Concrete Compressive Strength.

**TYPICAL STRUCTURAL EXCAVATION AND BACKFILL PAY LIMITS**

Not To Scale

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



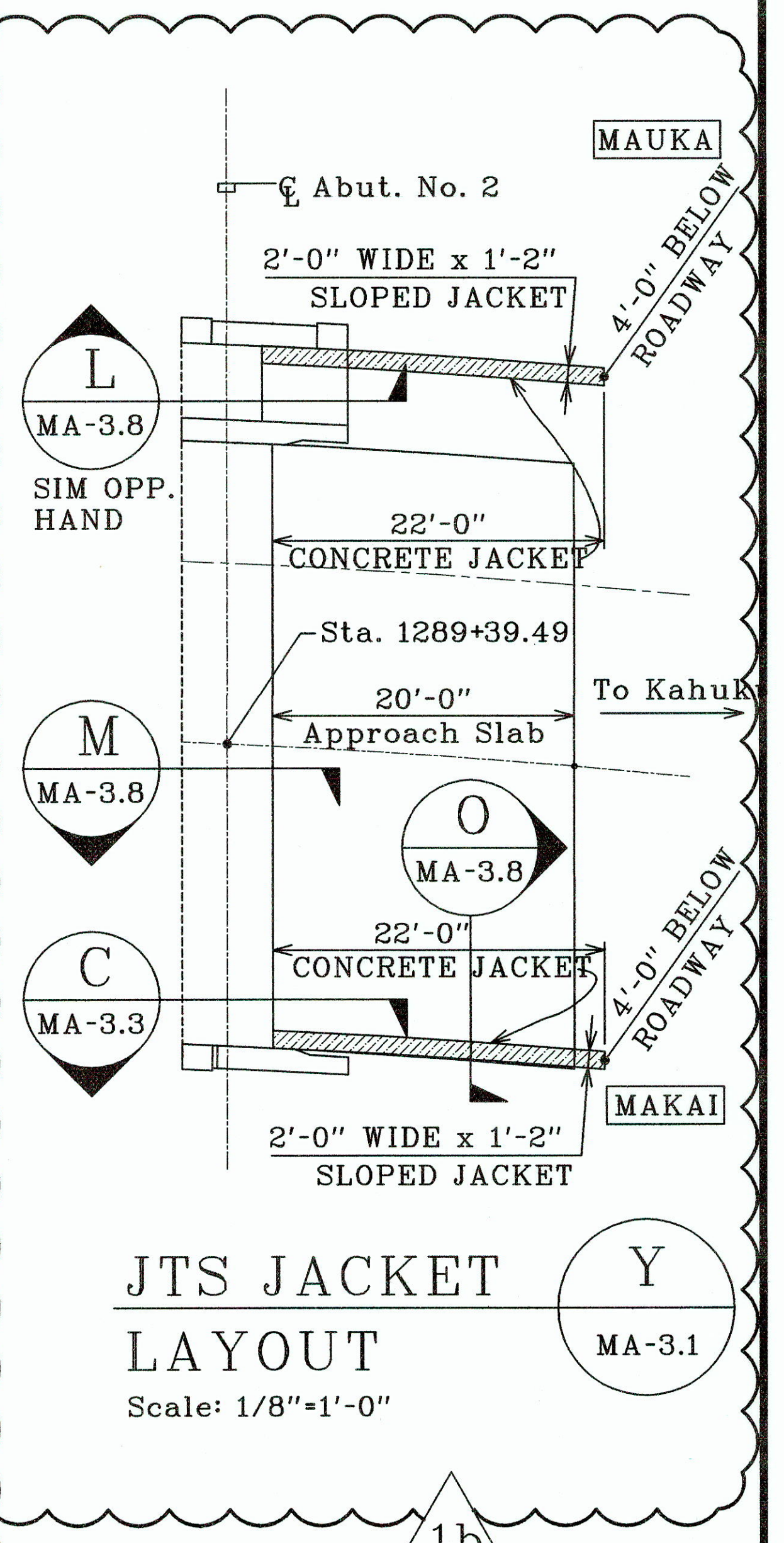
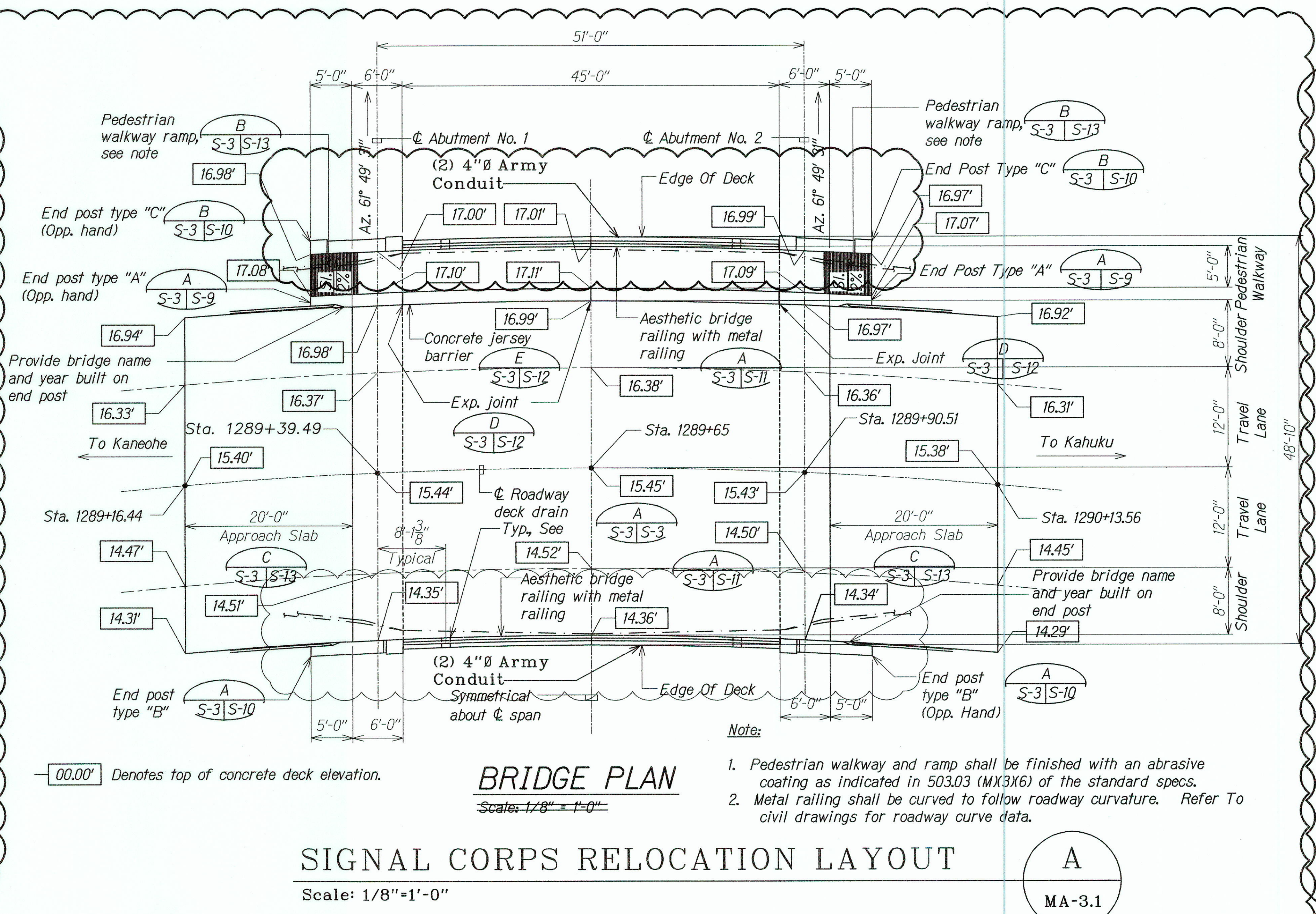
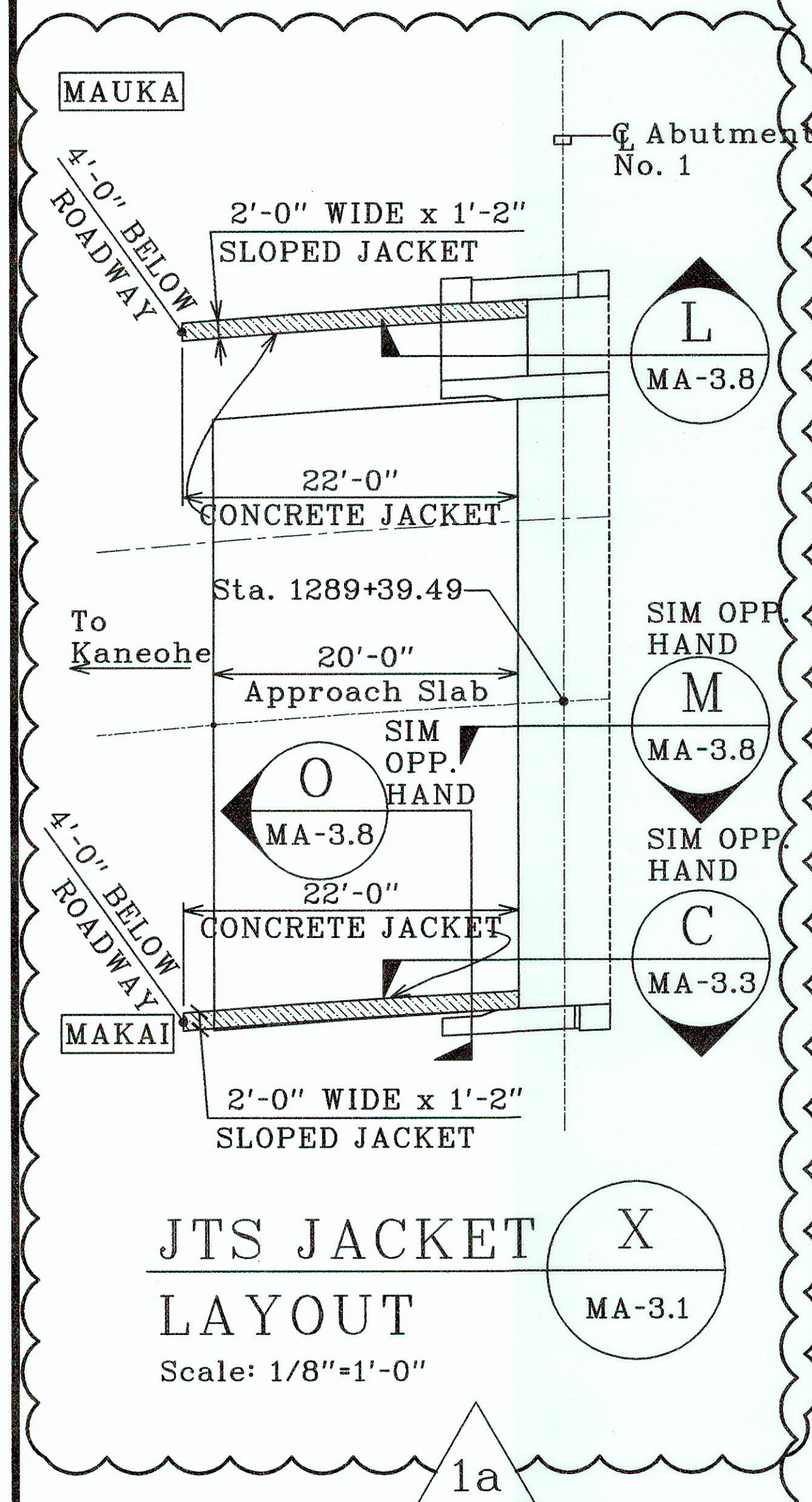
4/30/2014  
 MITSUNAGA & ASSOCIATES, INC. EXP. DATE  
 NOTE: Contractor to check and verify dimensions at job before proceeding with work.

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**PEDESTRIAN WALKWAY RAMP SECTIONS,  
 APPROACH SLAB SECTIONS**  
 KAMEHAMEHA HIGHWAY  
 REPLACEMENT OF KOKOLOLO STREAM BRIDGE  
 Federal Aid Project No. BR-083-1(50)  
 Scale: As Noted Date: August 2004

SHEET No. **S-13** OF **13** SHEETS

**"AS-BUILT"**





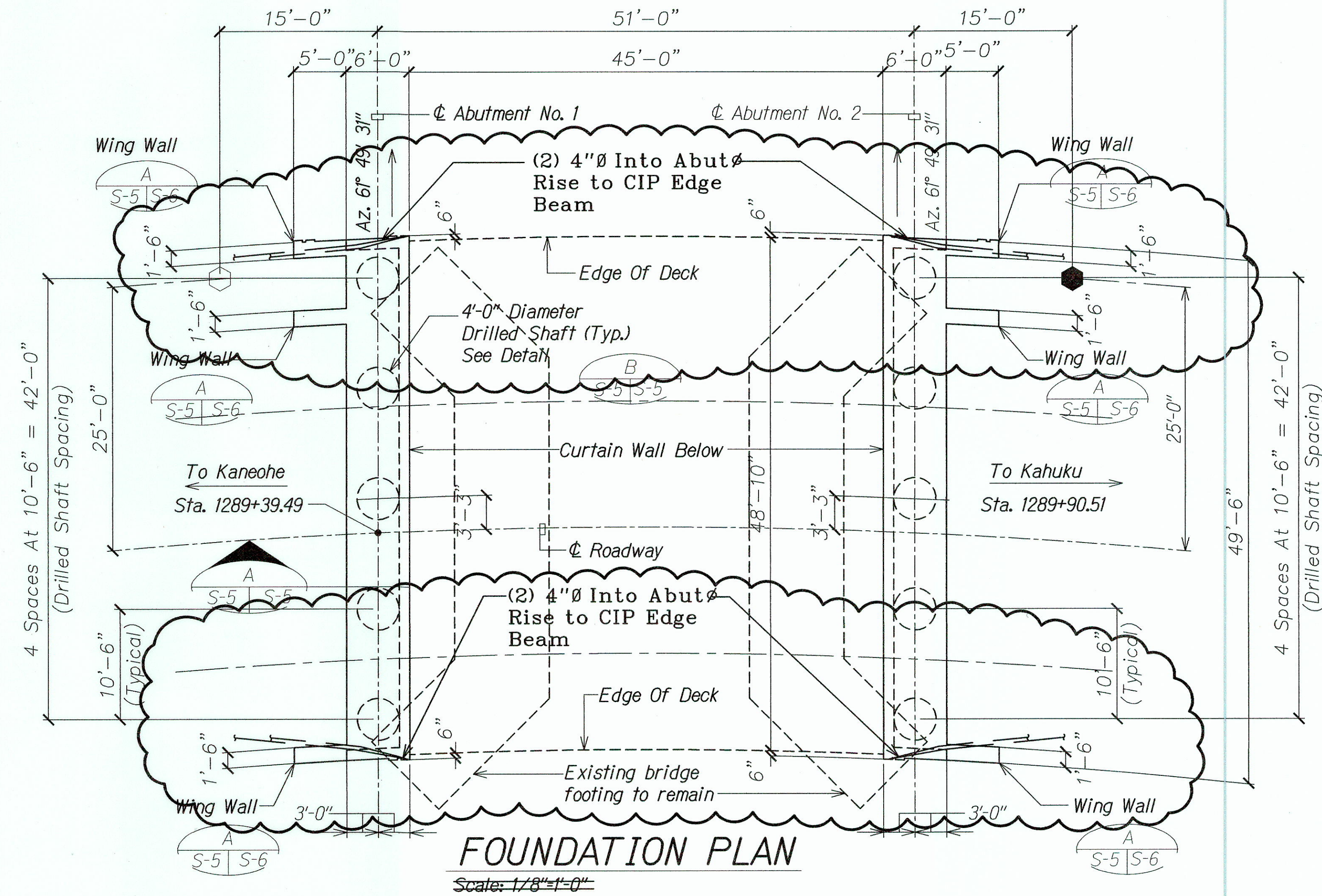
- 1a =SW REVISION 2/7/07 : ADDED DETAIL X/MA 3.1
- 1b =SW REVISION 2/7/07 : ADDED DETAIL Y/MA 3.1

- NOTES TP SKETCH MA-3:**
- SIGNAL CORPS (EXISTING) LINES HAVE BEEN TONED AT SOUTH/WEST SHOULDER. SEE ECS EMAILED INFORMATION 8/30/06, 10/24/06.
  - NEW PRECAST MANHOLES (AT EITHER END OF THE PROJECT LIMITS) SHALL BE CONNECTED WITH (4) - 4" CONDUITS.
  - SKETCH MA-3 PROVIDES CONDUIT CONFIGURATION AT THE NEW BRIDGE. ADJUST REBAR TO SUIT CONDUITS.

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

MA-3.1 SIGNAL CORPS JTS RELOCATION	DESCRIPTION SIGNAL CORPS RELOCATION LAYOUT	Mitsunaga and Associates, Inc.		By: S. Williams	Checked:
		PROJECT KAMEHAMEHA HIGHWAY-REPLACEMENT OF KOKOLOLO STREAM BRIDGE		Job No. 0921-01-6	
		FAP No. BR-063-1 (50)		Date: 1-25-07	Sheet MA-3.1 of 9





SIGNAL CORPS RELOCATION  
LAYOUT AT ABUTMENTS

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

B

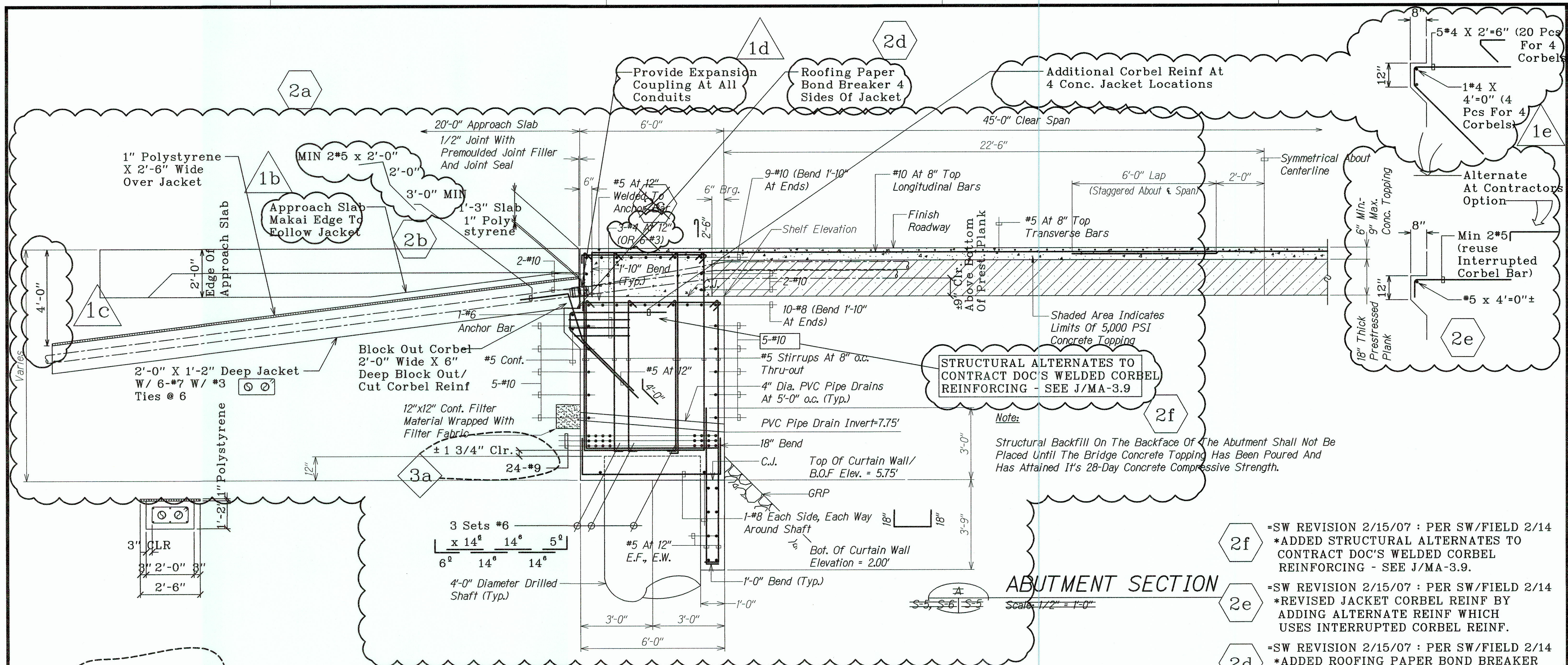
MA-3.2

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

<div style="font-size: 24pt; font-weight: bold;">MA-3.2</div> <div style="font-weight: bold;">SIGNAL CORPS JTS RELOCATION</div>	<div style="font-weight: bold;">DESCRIPTION</div> <div style="font-weight: bold;">SIGNAL CORPS RELOCATION LAYOUT AT ABUTMENTS</div>	<div style="font-weight: bold;">Mitsunaga and Associates, Inc.</div>	<div style="font-weight: bold;">By:</div> <div>S. Williams</div>	<div style="font-weight: bold;">Checked:</div>
		<div style="font-weight: bold;">PROJECT</div> <div style="font-weight: bold;">KAMEHAMEHA HIGHWAY-REPLACEMENT OF KOKOLOLO STREAM BRIDGE</div>	<div style="font-weight: bold;">Job No.</div> <div>0921-01-B</div>	<div style="font-weight: bold;">Date:</div> <div>1/25/07</div>
		<div style="font-weight: bold;">FAP No. BR-083-1 (50)</div>	<div style="font-weight: bold;">Sheet</div> <div>MA-3.2</div>	<div style="font-weight: bold;">of</div> <div>9</div>

"AS-BUILT"





3a SW REVISION 2/21/07:  
CLARIFY ABUT #1 REBAR  
CLEARANCE  
RE: RF1 \*094- REBAR  
EL=5.75+1+1.75=6.90

1e -SW REVISION 2/7/07 : ADDED CONC. JACKET CORBEL REINF.

1d -SW REVISION 2/7/07 : ADDED NOTE "PROVIDE EXPANSION COUPLING AT ALL CONDUITS".

1c -SW REVISION 2/7/07 : ADDED DEPTH TO JACKET = 4'-0"

1b -SW REVISION 2/7/07 : ADDED NOTE "APPROACH SLAB MAKAI EDGE TO FOLLOW JACKET".

1a -SW REVISION 2/7/07 : CLARIFIED TITLE AS "CONDITION SHOWN IS MAKAI APPROACH SLAB EDGES".

### SIGNAL CORPS RELOCATION - DETAIL SECTION AT ABUTMENT

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

(CONDITION SHOWN IS  
MAKAI APPROACH SLAB  
EDGES)

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

- 2f =SW REVISION 2/15/07 : PER SW/FIELD 2/14  
\*ADDED STRUCTURAL ALTERNATES TO CONTRACT DOC'S WELDED CORBEL REINFORCING - SEE J/MA-3.9.
- 2e =SW REVISION 2/15/07 : PER SW/FIELD 2/14  
\*REVISED JACKET CORBEL REINF BY ADDING ALTERNATE REINF WHICH USES INTERRUPTED CORBEL REINF.
- 2d =SW REVISION 2/15/07 : PER SW/FIELD 2/14  
\*ADDED ROOFING PAPER BOND BREAKER PER SW DISCUSS W/ DOT/GC.
- 2c =SW REVISION 2/15/07 : PER SW/FIELD 2/14  
\*ADDED 6-#3 BAR ALTERNATE PER FIELD CONDITION. DISALLOWED SINCE #3 NOT APPROVED. 2/16/07
- 2b =SW REVISION 2/15/07 : PER SW/FIELD 2/14  
\*REVISED JACKET CORBEL TO USE INTERRUPTED CORBEL REINF.
- 2a =SW REVISION 2/15/07 : PER SW/FIELD 2/14  
\*REVISED JACKET CORBEL TO USE INTERRUPTED CORBEL REINF.

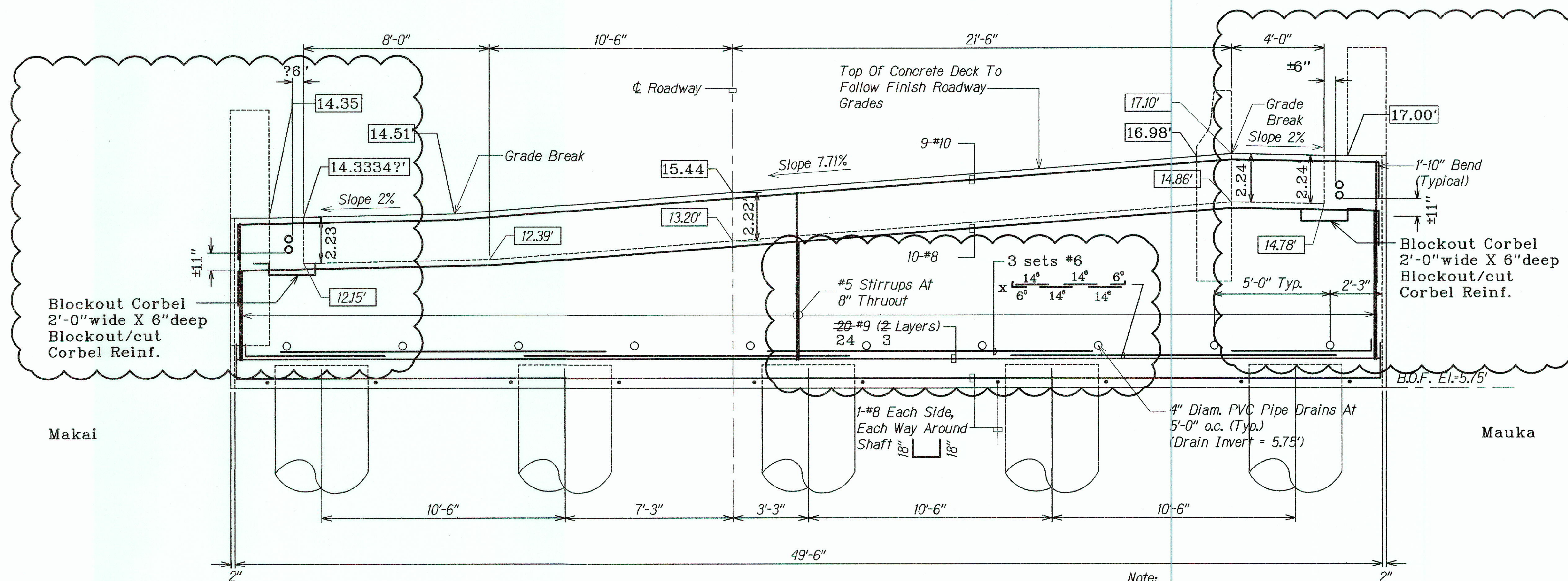
<b>MA-3.3</b> SIGNAL CORPS JTS RELOCATION	DESCRIPTION SIGNAL CORPS RELOCATION DETAIL SECTION AT ABUTMENTS	<b>Mitsunaga and Associates, Inc.</b>	
		PROJECT KAMEHAMEHA HIGHWAY-REPLACEMENT OF KOKOLOLO STREAM BRIDGE FAP No. BR-083-1 (50)	By: S. Williams Checked: Job No. 0921-01-8 Date: 1-25-07 Sheet MA-3.3 of 9

"AS-BUILT"

66S-3

2-7-07 SW REVISIONS  
2-15-07 SW REVISIONS  
2-21-07 SW REVISIONS





00.00' Denotes Shelf Elevation

### ABUTMENT NO. 1 ELEVATION

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

Note:

1. Curtain Wall Not Shown For Clarity.
2. #10 Horizontal Bars In Side Faces Not Shown For Clarity.

### SIGNAL CORPS RELOCATION-CONDUIT CONFIGURATION AT ABUTMENT No. 1

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

D

MA-3.4

#### LEGEND FOR AS-BUILT POSTING

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

MA-3.4

SIGNAL CORPS  
JTS RELOCATION

DESCRIPTION  
SIGNAL CORPS  
RELOCATION-  
CONDUIT  
CONFIGURATION AT  
ABUTMENT No. 1

Mitsunaga and Associates, Inc.

PROJECT

KAMEHAMEHA HIGHWAY-REPLACEMENT  
OF KOKOLOLO STREAM BRIDGE  
FAP No. BR-083-1 (50)

By: S. Williams

Checked:

Job No.  
0921-01-8

Date:  
1-25-07

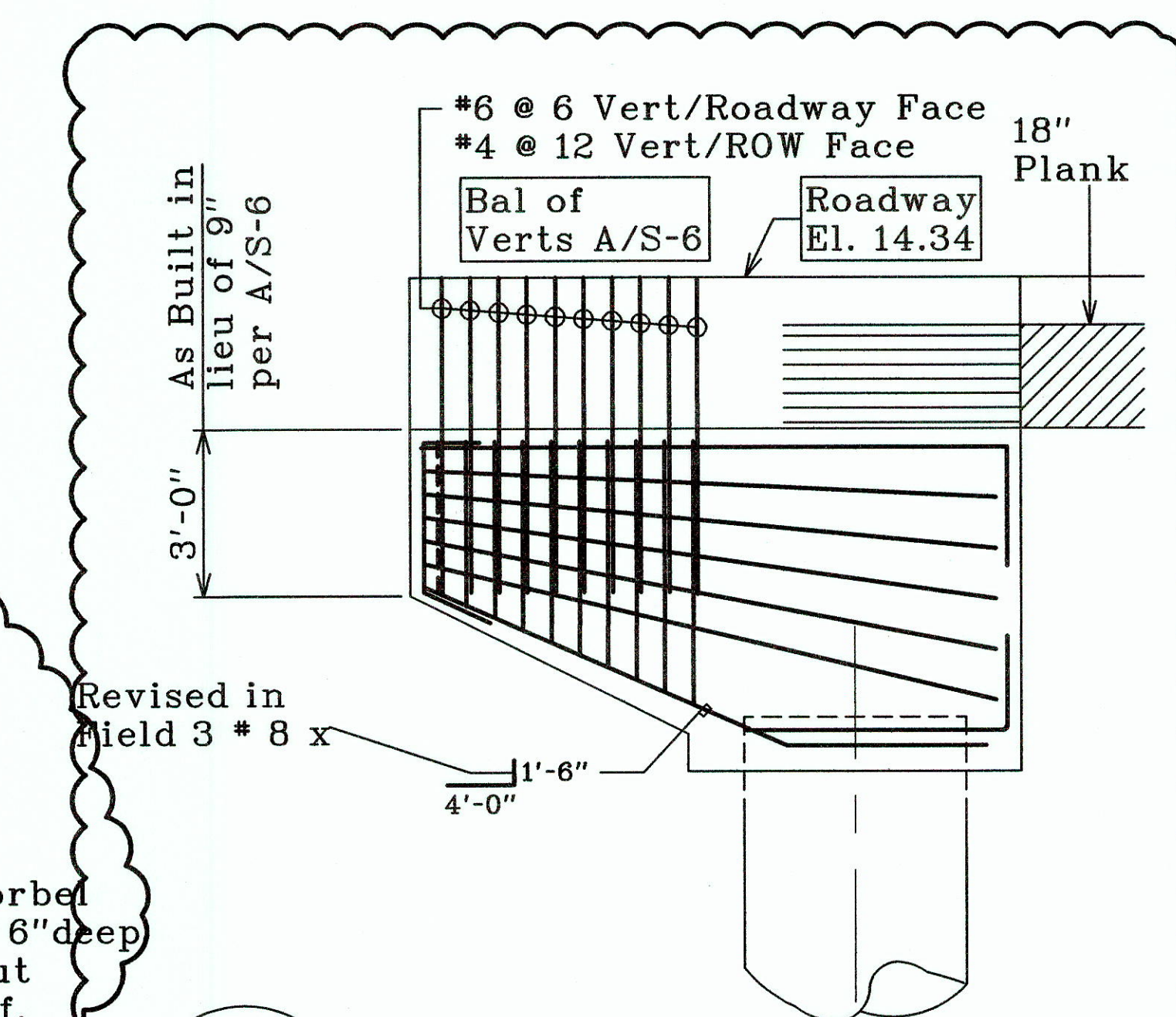
Sheet  
MA-3.4  
of 9

"AS-BUILT"

66S-4

2-7-07 8W REVISIONS





As Built in lieu of 9" per A/S-6

3'-0"

#6 @ 6 Vert/Roadway Face  
#4 @ 12 Vert/ROW Face

Bal of Verts A/S-6

Roadway El. 16.99  
El. 17.09

18" PLAN

3e



2  
MA-3.5

MAUKA WINGS  
KAHUKU ABUT. ONLY

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

E  
MA-3.5

**LEGEND FOR AS-BUILT POSTING**

	Squiggly line for as-built deletion
	Double line for as-built deletion
<b>Roadway</b>	Text for as-built posting

## MA-3.5

## SIGNAL CORPS JTS RELOCATION

DESCRIPTION  
SIGNAL CORPS  
RELOCATION-  
CONDUIT  
CONFIGURATION AT  
BAPTIST No. 2

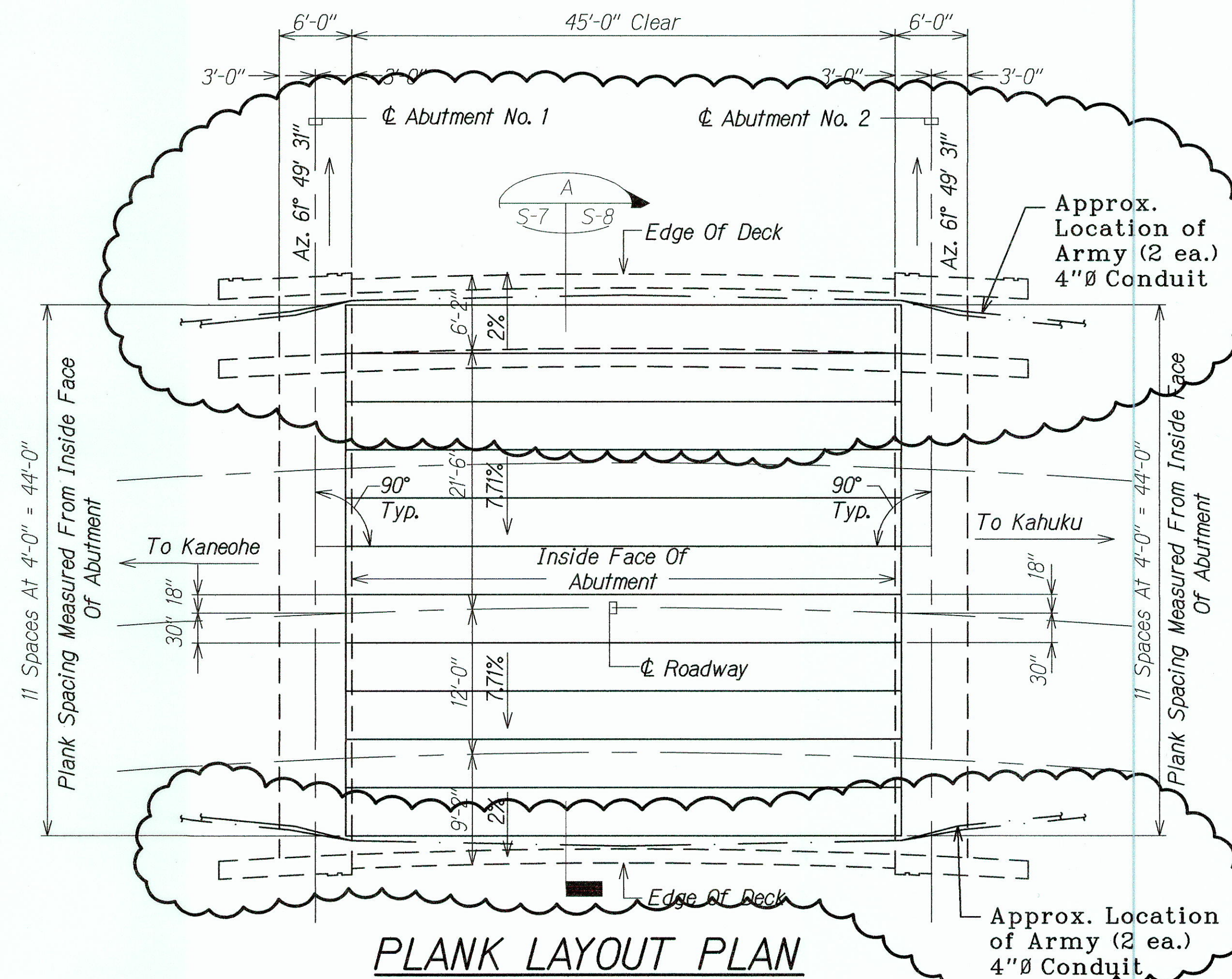
**Mitsunaga and Associates, Inc.**

**PROJECT**

**KAMEHAMEHA HIGHWAY-REPLACEMENT  
OF KOKOLOLO STREAM BRIDGE  
FAP No. BR-083-1 (50)**

By: S. Williams	Checked:
Job No. 0921-01-S	
Date: 1-25-07	Sheet MA-3.5 of 9





# SIGNAL CORPS RELOCATION-CONDUIT CONFIGURATION AT PLANKS Scale: 1/8"=1'-0"

F  
MA-3.6

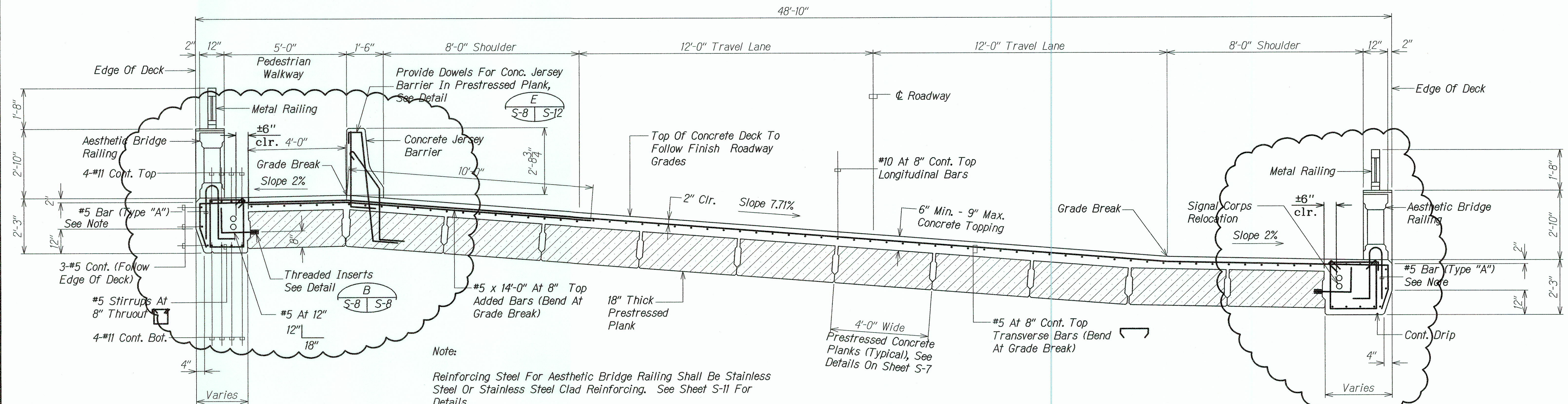
LEGEND FOR AS-BUILT POSTING	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

<b>MA-3.6</b>	DESCRIPTION SIGNAL CORPS RELOCATION- CONDUIT CONFIGURATION AT PLANKS	Mitsunaga and Associates, Inc.		By: S. Williams	Checked:
		PROJECT KAMEHAMEHA HIGHWAY-REPLACEMENT OF KOKOLOLO STREAM BRIDGE FAP No. BR-083-1 (50)		Job No. 0821-01-8	Sheet MA-3.6 of 9

"AS-BUILT"

66-S-6





Note:

Reinforcing Steel For Aesthetic Bridge Railing Shall Be Stainless Steel Or Stainless Steel Clad Reinforcing. See Sheet S-11 For Details.

### NORMAL DECK SECTION

## SIGNAL CORPS RELOCATION-CONDUIT CONFIGURATION AT BRIDGE DECK

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

G

MA-3.7

#### LEGEND FOR AS-BUILT POSTING

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

**MA-3.7**

SIGNAL CORPS  
JTS RELOCATION

DESCRIPTION  
SIGNAL CORPS  
RELOCATION-  
CONDUIT  
CONFIGURATION  
AT BRIDGE DECK

**Mitsunaga and Associates, Inc.**

PROJECT

**KAMEHAMEHA HIGHWAY-REPLACEMENT  
OF KOKOLOLO STREAM BRIDGE  
FAP No. BR-083-1 (50)**

By: S. Williams Checked:

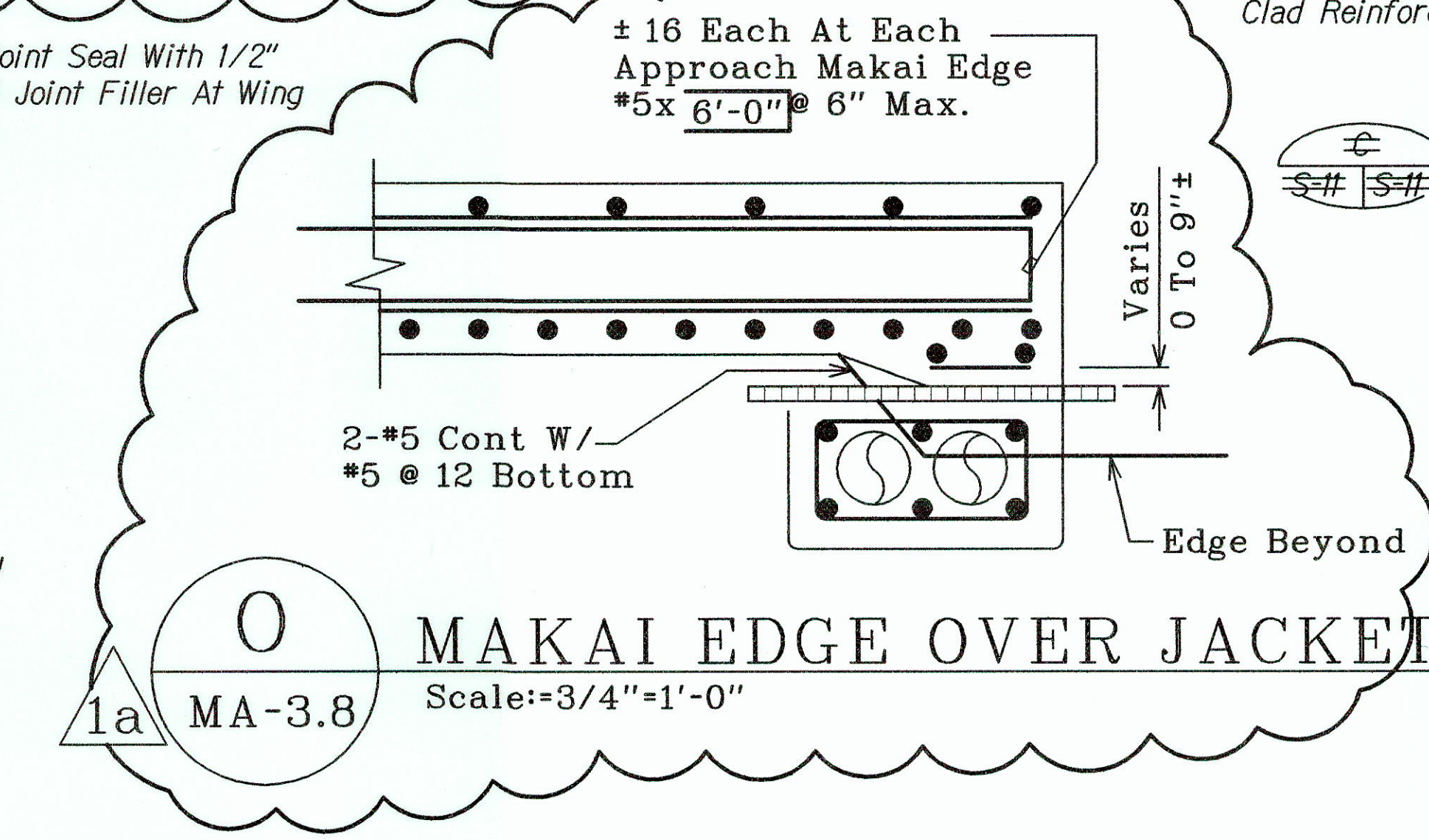
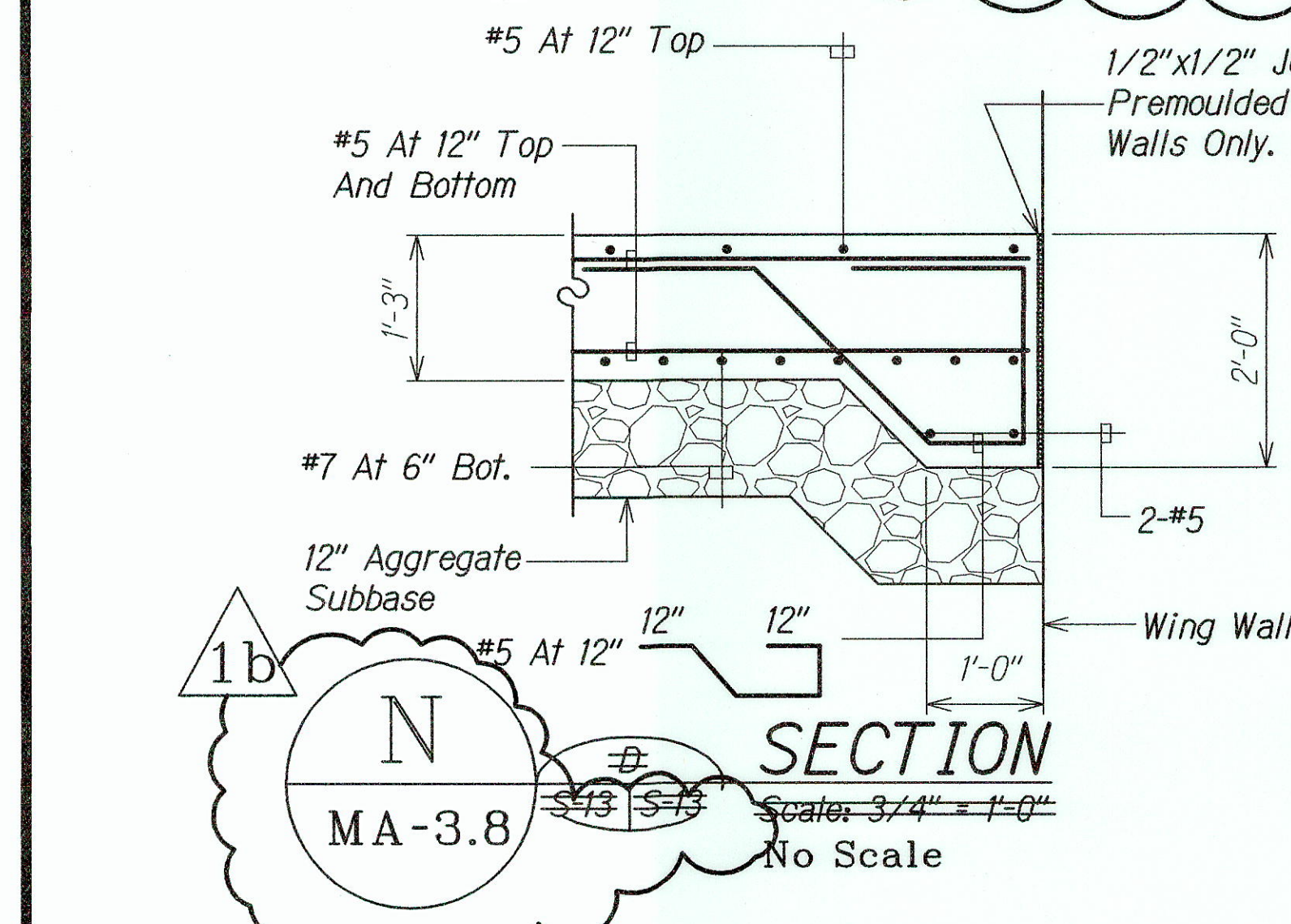
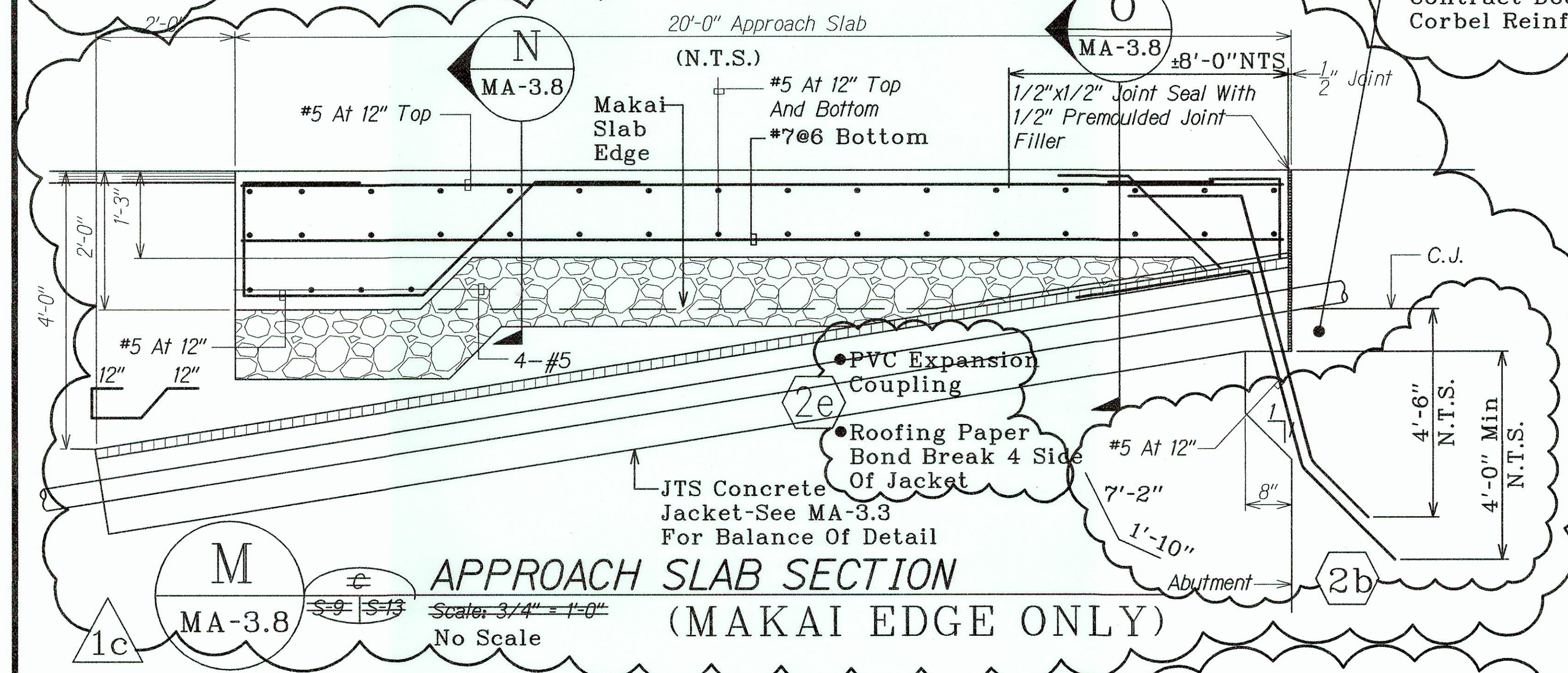
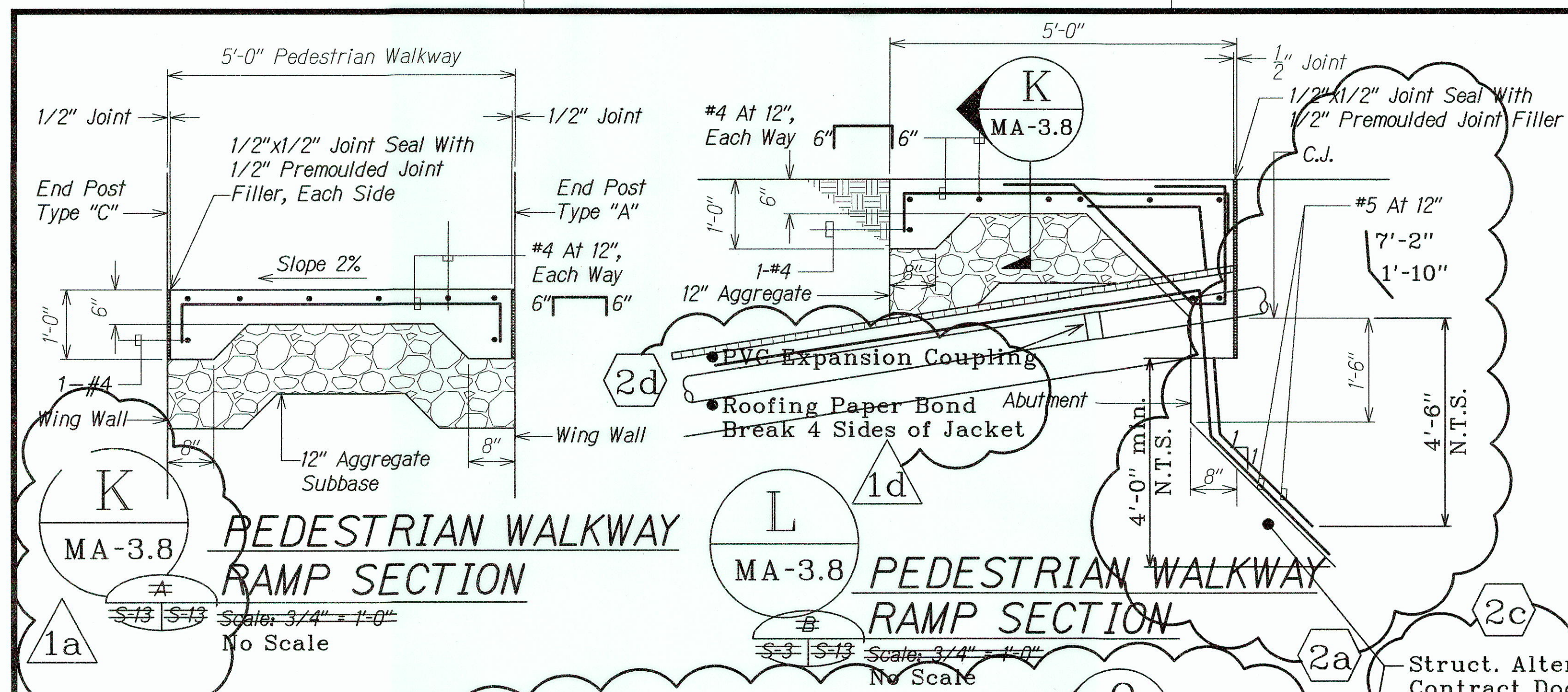
Job No.  
0921-01-8

Date:  
1-25-07 Sheet  
MA-3.7  
of 9

**"AS-BUILT"**

**66S-7**





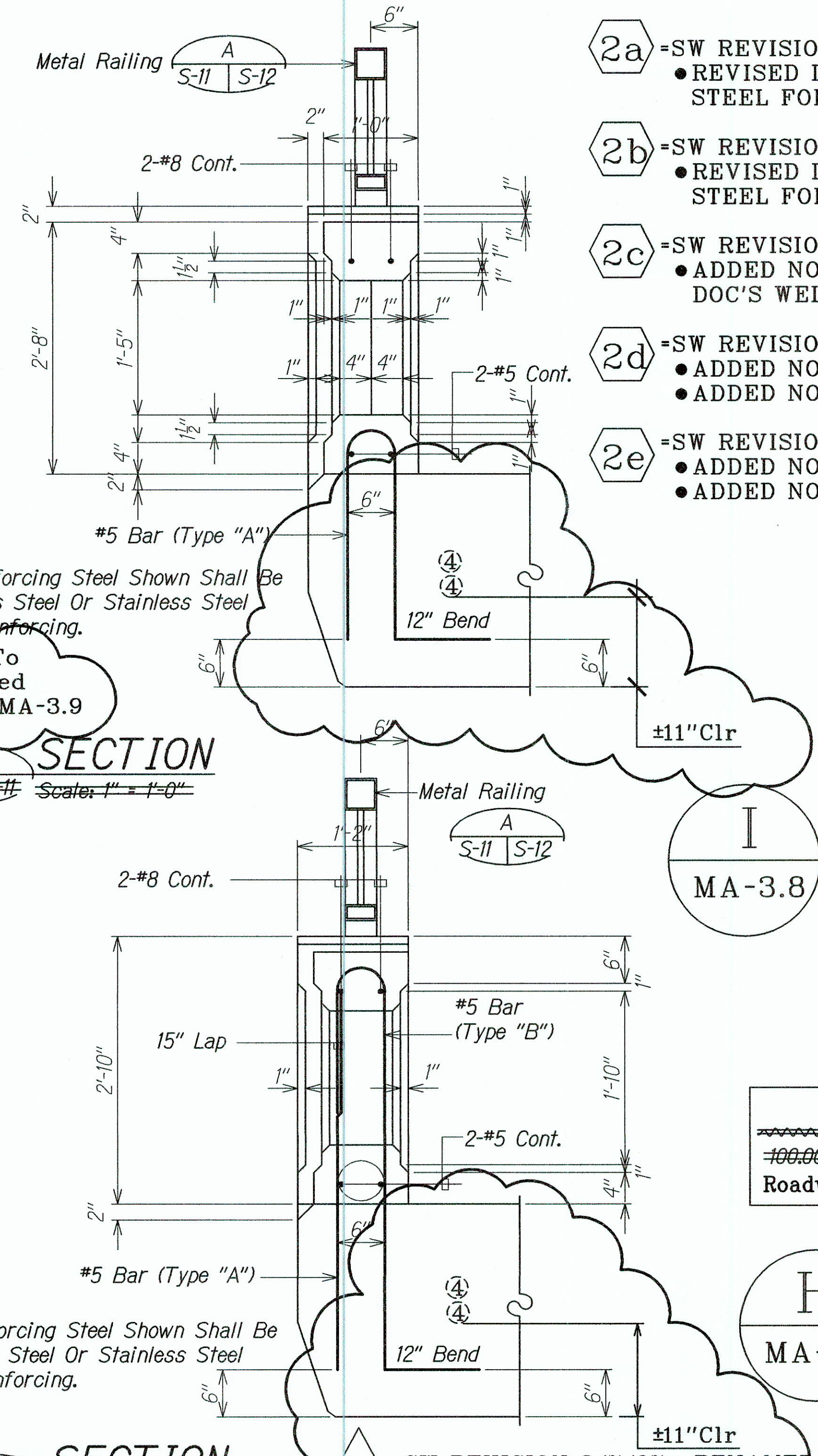
Note:  
All Reinforcing Steel Shown Shall Be Stainless Steel Or Stainless Steel Clad Reinforcing.

Struct. Alternates To Contract Doc's Welded Corbel Reinf. See J/MA-3.9

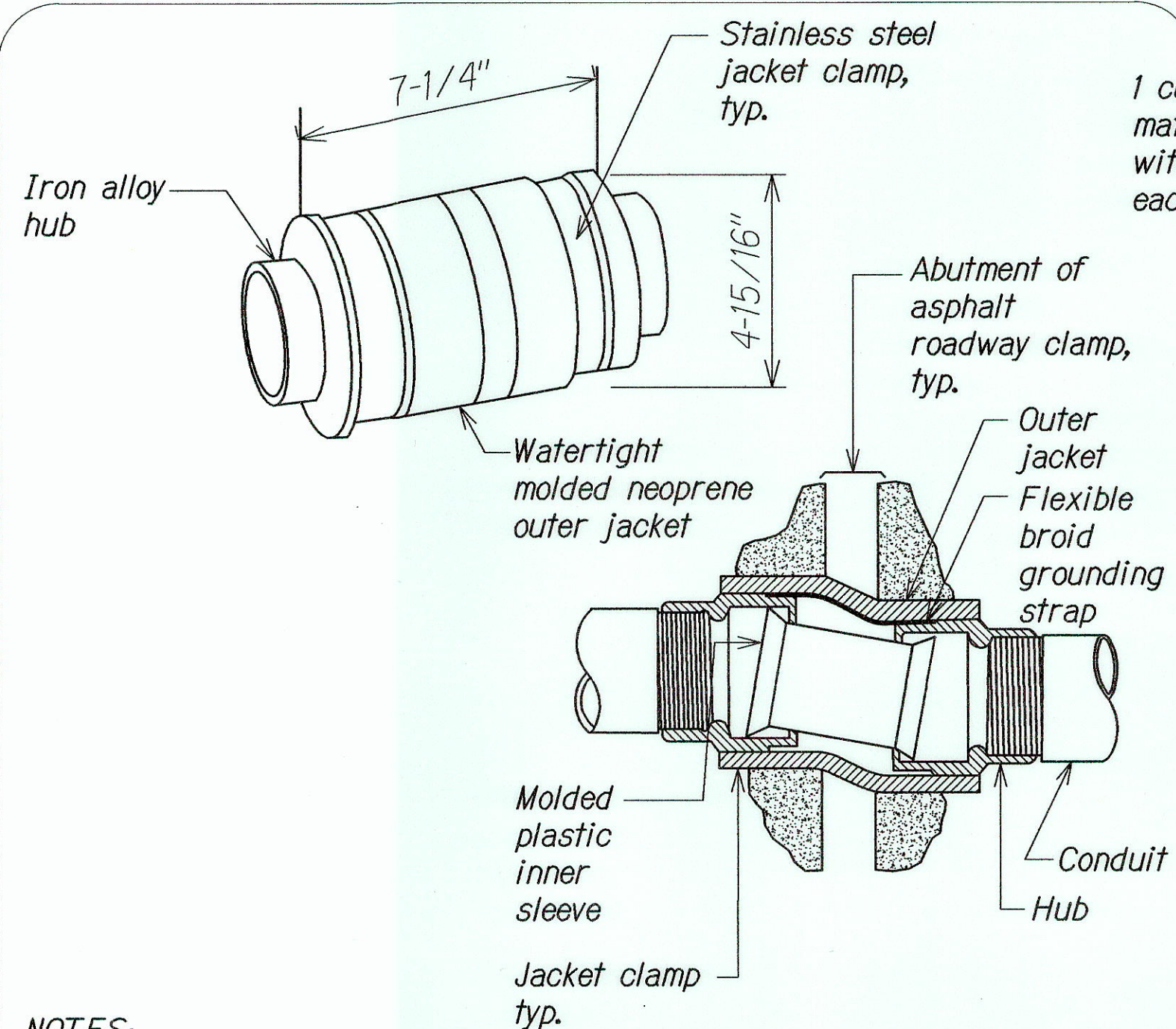
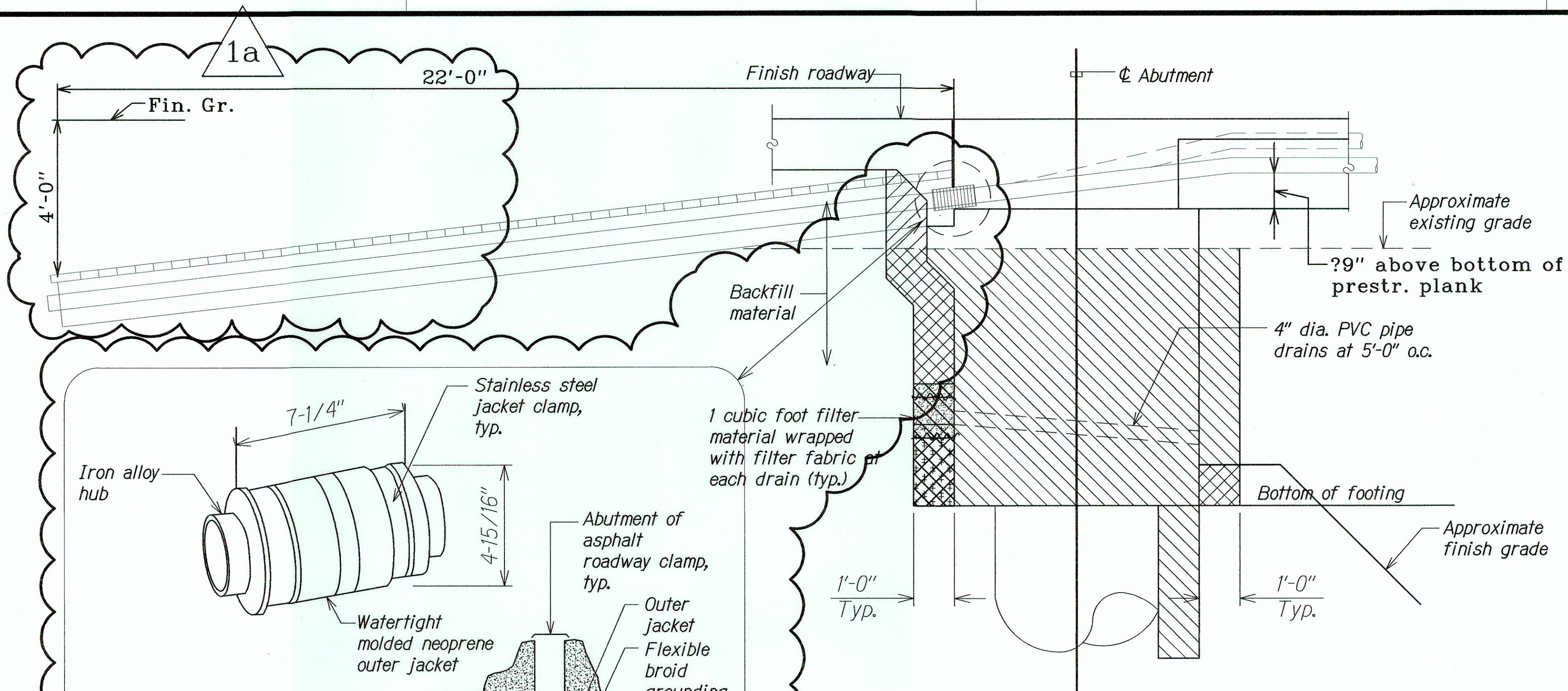
**SECTION**  
Scale: 1" = 1'-0"

Note:  
All Reinforcing Steel Shown Shall Be Stainless Steel Or Stainless Steel Clad Reinforcing.

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







**NOTES:**

1. Coupling shall be suitable for use while embedded in concrete.
2. Coupling shall accommodate the following range of movement without collapsing or fracturing the conduit:
  - a) Axial expansion or contraction up to 3/4".
  - b) Angular misalignment of the axes of the coupled conduits in any direction to 3/4".
3. Provide adapters for use of PVC conduits as required.

**TYPICAL EXPANSION/DEFLECTION COUPLING DETAIL**

3a

3a

=SW REVISION 2/21/07: CLARIFY/ADDED CONDUIT EXPANSION COUPLING DETAIL

1a

=SW REVISION 2/7/07 : ADDED JACKET LENGTH =22'-0" ADDED JACKET DEPTH =4'-0"

- Structural excavation
- Structural backfill
- Filter material
- Impervious material

**Note:**

1. 4" diameter PVC pipe drains shall be incidental to concrete.
2. Structural backfill on the backface of the abutment shall not be placed until the bridge concrete topping has been poured and has attained it's 28-day concrete compressive strength.

**TYPICAL STRUCTURAL EXCAVATION AND BACKFILL PAY LIMITS**

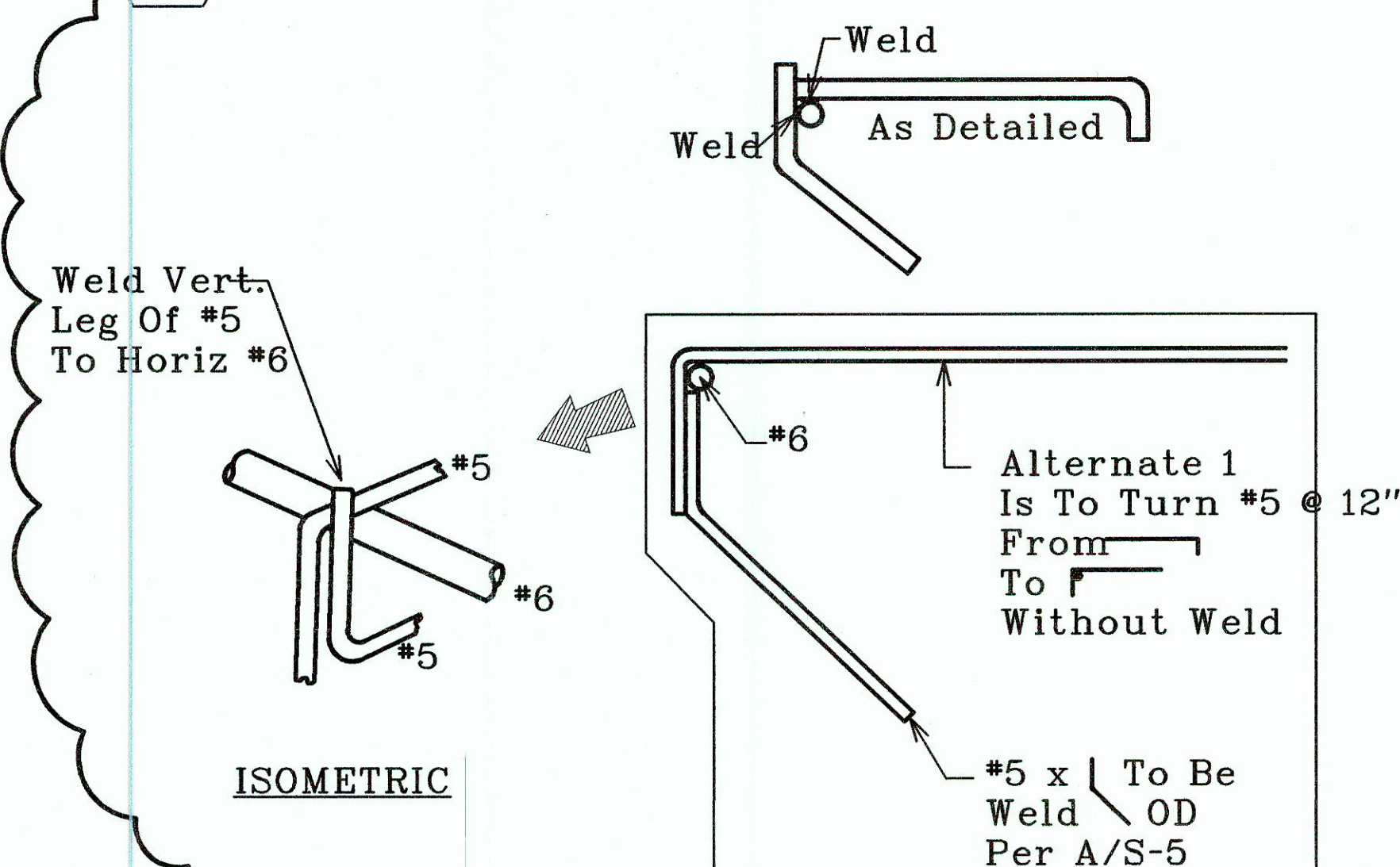
Not To Scale

**CONDUITS AT ABUTMENT EXCAVATION**

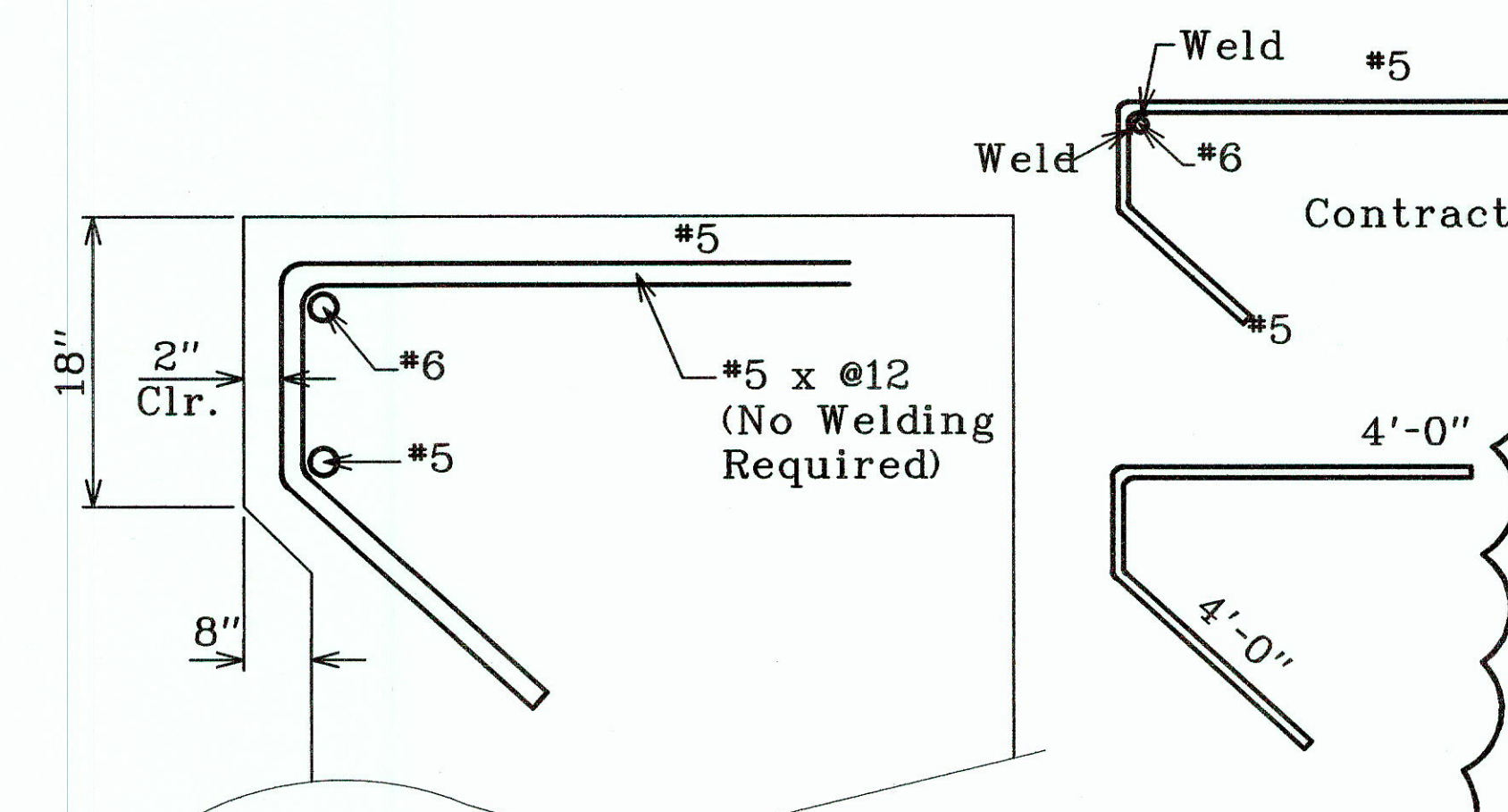
No Scale

2a

**Structural Alternate 1: To Contract Detail A/S-5**



**Structural Alternate 2: To Contract Detail A/S-5**



2a

=SW REVISION 2/15/07: PER SW/FIELD 2/14/07 ADDED STRUCTURAL ALTERNATES TO CONTRACT DOC'S WELDED CORBEL REINF. IN ORDER TO ACCOMMODATE TOP DOWN FIELD WELDS 2/15/07

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

**MA-3.9**

SIGNAL CORPS  
JTS RELOCATION

DESCRIPTION  
**CONDUITS AT ABUTMENT EXCAVATION**

**Mitsunaga and Associates, Inc.**  
PROJECT  
**KAMEHAMEHA HIGHWAY-REPLACEMENT OF KOKOLOLO STREAM BRIDGE**  
FAP No. BR-083-1 (50)

By: S. Williams  
Checked:  
Job No. 0921-01-8  
Date: 1-25-07  
Sheet MA-3.9 of 9

**"AS-BUILT"**

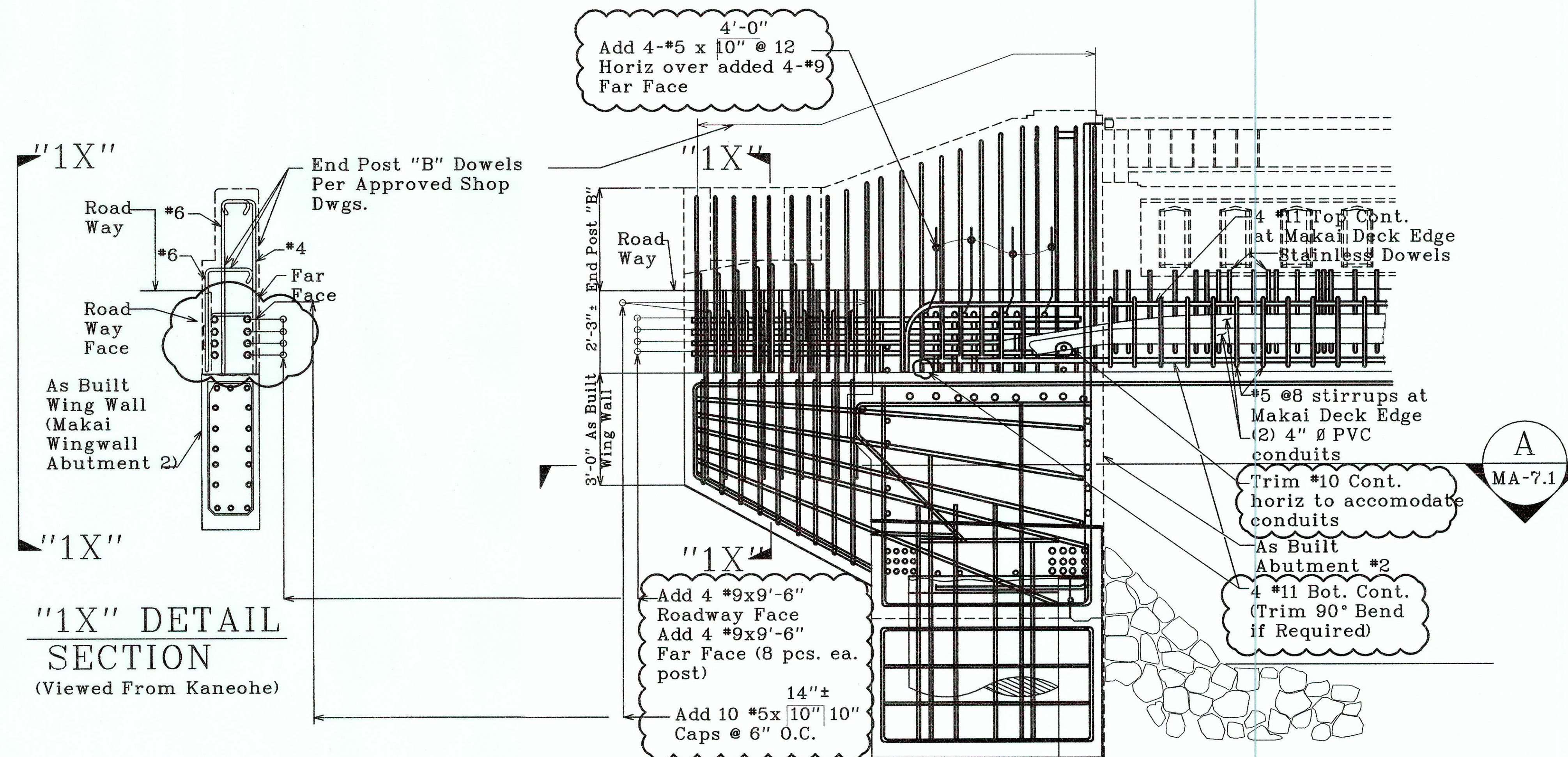
**665-9**

2-7-07 SW REVISIONS  
2-15-07 SW REVISIONS  
2-21-07 SW REVISIONS









"1X" DETAIL  
SECTION  
(Viewed From Kaneohe)

1  
MA-7.2  
ADDED END POST REINF. - SECTION  
MAKAI END POST "B"-ABUTMENT 2 (Kahuku Apprch)  
Scale: 1/2"=1'-0"

LEGEND FOR AS-BUILT POSTING  
~~~~~ Squiggly line for as-built deletion  
= Double line for as-built deletion  
Roadway Text for as-built posting

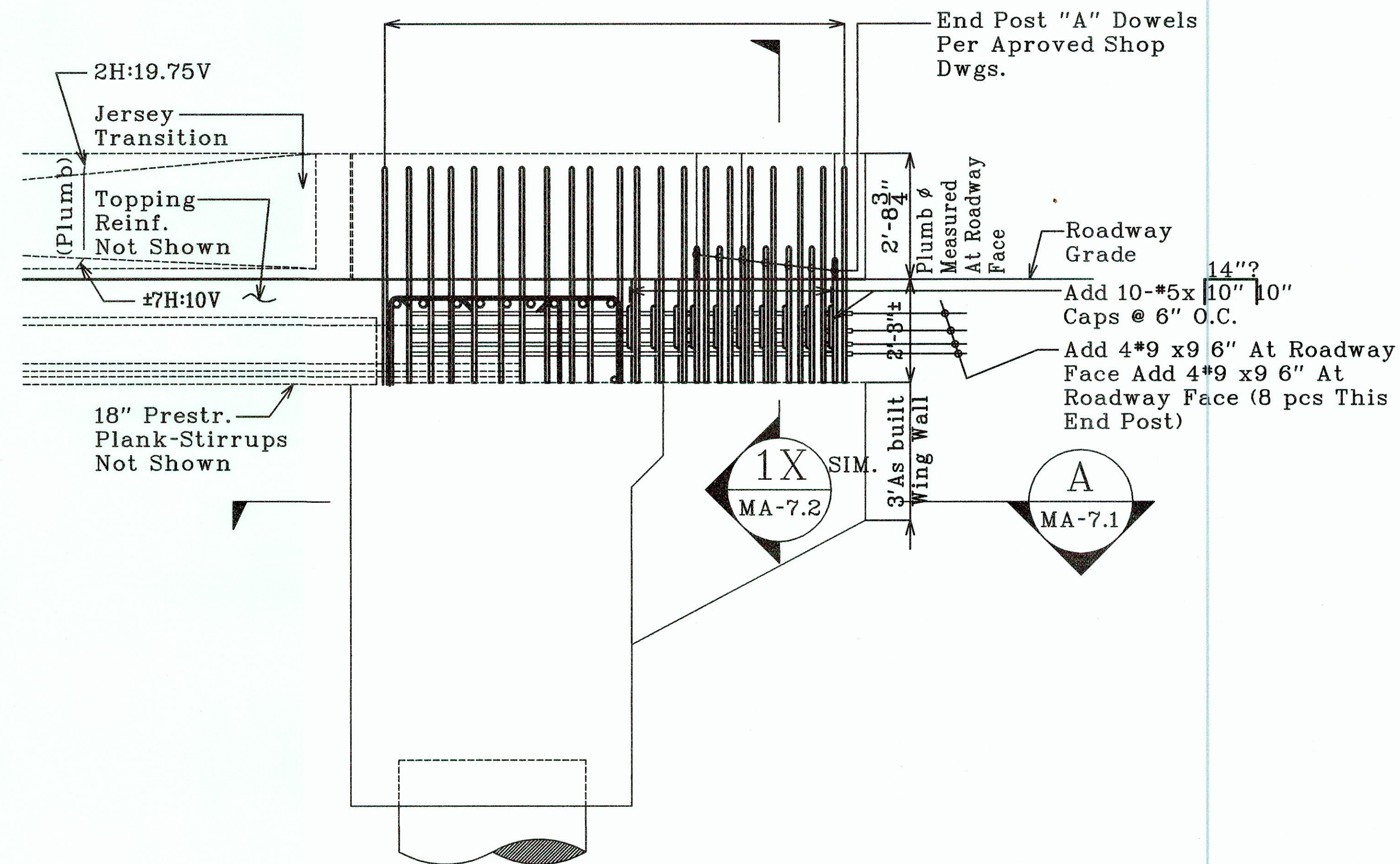
|  |   |  |   |
|--|---|--|---|
| <b>MA-7.2</b><br>REINSE END POST REINF.<br>FOR AS-BUILT WINGWALLS<br>AT ABUTMENT 2 | DESCRIPTION<br>ADDED END POST<br>REINF.-SECTION<br>MAKAI END POST<br>"B" ABUTMENT 2 | <b>Mitsunaga and Associates, Inc.</b><br>PROJECT<br>KAMEHAMEHA HIGHWAY-REPLACEMENT<br>OF KOKOLOLO STREAM BRIDGE<br>FAP No. BR-083-1 (50) | By:<br>S. Williams<br>Checked:<br>Job No.<br>0921-01-8<br>Date:<br>3/15/07<br>Sheet<br>MA-7.2<br>of 3 |
|--|---|--|---|

AS-BUILT

66S-11

FC 23-2





2 ADDED END POST REINF. - SECTION  
 MA-7.3 JERSEY BARRIER END POST "A" ABUTMENT 2 (Kahuku Approach)  
 Scale: 1/2"=1'-0"

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

|                         |                  |                                       |             |          |
|-------------------------|------------------|---------------------------------------|-------------|----------|
| <b>MA-7.3</b>           | DESCRIPTION      | <b>Mitsunaga and Associates, Inc.</b> | By:         | Checked: |
|                         | ADDED END POST   | PROJECT                               | S. Williams |          |
|                         | REINF. - SECTION |                                       | Job No.     |          |
|                         | JERSEY BARRIER   |                                       | 0621-01-8   |          |
| REVERSE END POST REINF. | END POST "A"     | <b>KAMEHAMEHA HIGHWAY-REPLACEMENT</b> | Date:       | Sheet    |
| FOR AS-BUILT WINGWALLS  | ABUTMENT 2       | <b>OF KOKOLOLO STREAM BRIDGE</b>      | 3/15/07     | MA-7.3   |
| AT ABUTMENT 2           |                  | <b>FAP No. BR-083-1 (50)</b>          |             | of 3     |

"AS-BUILT"



EXPANSION JOINT  
x 1/2" D/S12

END POST "A"

7'-8"  
TO EDGE  
OF DECK

JERSEY BARRIER

7'-8"  
TO EDGE  
OF DECK

START JERSEY TRANSITION  
STA.1289 + 43.90 O/S 20LT  
(STA.1289 + 86.40 AT ABUT 2)

END JERSEY TRANSITION  
STA.1289 + 57.75 O/S 20LT  
(STA.1289 + 72.75 AT ABUT 2)

R=593.69  
ROADWAY  
FACE OF  
JERSEY

PRESTR  
PLANK B-3

A

JERSEY LAYOUT AT PLANK B-3

MA-8

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

CL SYMM

CL ABUT 1

TOP OF BARRIER

SLOPE 2H:19 3/4V

PLUMB

SLOPE 7H:10V

TO KANEHOE  
ROADWAY

PLUMB  
FACE

A

MA-8

#5 x 8"  
CAP @ 8  
SEE  
BELOW

2" CLR

1'-7 3/4"  
AT ROADWAY FACE

3" 10"

18"

ADD 3 SETS  
#5 x 18"

PRESTR PLANK B-3

ADD 11-SETS #5 x 12" W/ VARYING CAPS

ADD 3 "TYP"  
SETS W/  
VARYING  
CAPS

ADD 3 "TYP"  
SETS W/  
VARYING  
CAPS

ADD 3 "TYP"  
SETS W/  
VARYING  
CAPS

ADD 24-#5 x 8" "TYP" JERSEY REINF.

PLUMB 14 14 13 7/8 13 1/2 13 12 5/8 12 1/4 11 7/8 11 1/2 11 10 5/8 8 10 1/4 9 3/4 9 1/4 8 3/4 8 1/2 8 1/4 7 3/4 7 1/4 6 3/4 6 1/4 5 3/4 5 1/4

PLUMB 8 10 1/4 9 3/4 9 1/4 8 3/4 8 1/2 8 1/4 7 3/4 7 1/4 6 3/4 6 1/4 5 3/4 5 1/4

22'-6" FACE OF ABUT TO CENTER OF SPAN

1

MA-8

JERSEY ELEVATION - ADDED DOWEL OUTS REQD

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

CL SYMM

Notes To MA-8 :

1. Bend (or Cut) Jersey Dowel outs at Prestr Plank B-3.
2. Add 70 sets #9 Jersey Bars Sets Per 1/MA-8.
3. Outside Face Vertical Jersey Reinf - See Assoc Steel Appvd Shop Dwgs.

LEGEND FOR AS-BUILT POSTING

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

MA-8

JERSEY BARRIER  
ADDED DOWEL  
OUTS REQD

DESCRIPTION

JERSEY LAYOUT  
AT PLANK B-3  
JERSEY ELEVATION  
- ADDED DOWEL  
OUTS REQD

Mitsunaga and Associates, Inc.

PROJECT

KAMEHAMEHA HIGHWAY-REPLACEMENT  
OF KOKOLOLO STREAM BRIDGE  
FAP No. BR-083-1 (50)

By: S. Williams

Job No. 0921-01-6

Date: 3-18-07

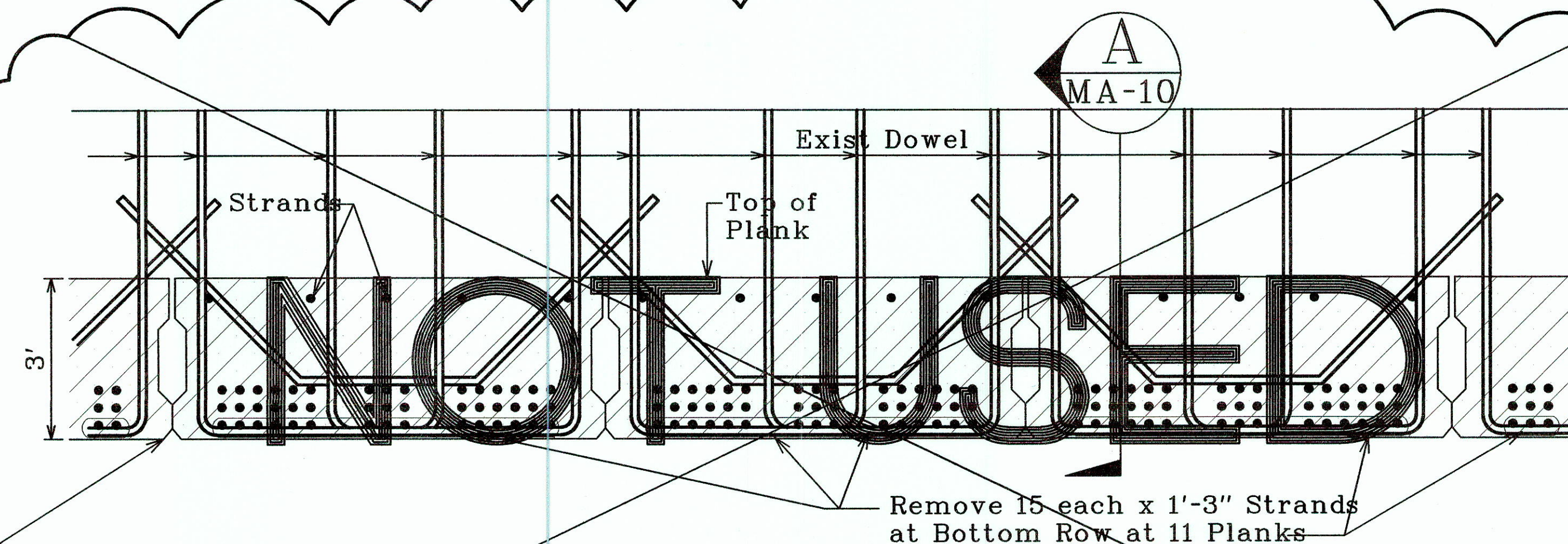
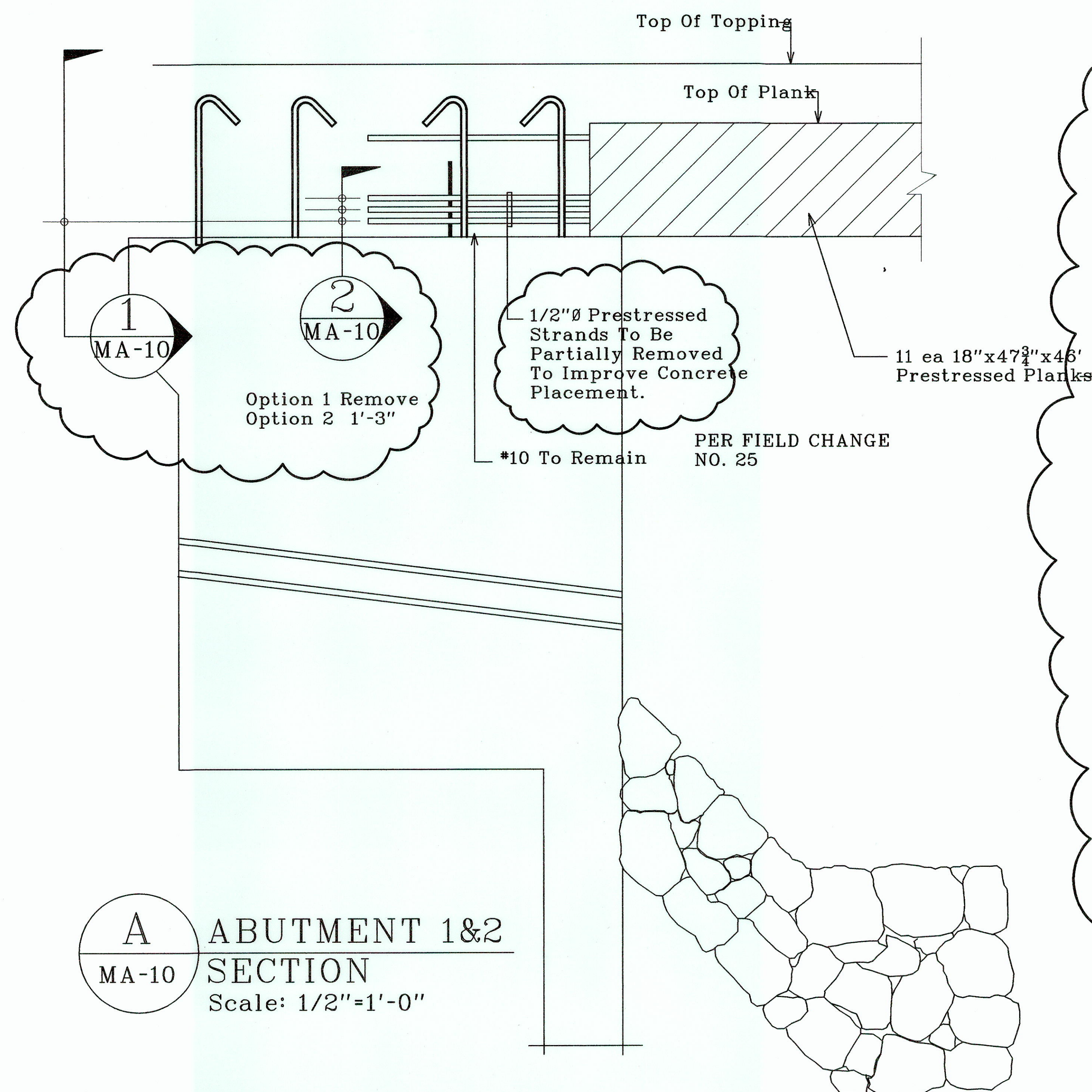
Sheet MA-8 of 1

"AS-BUILT"

665-13

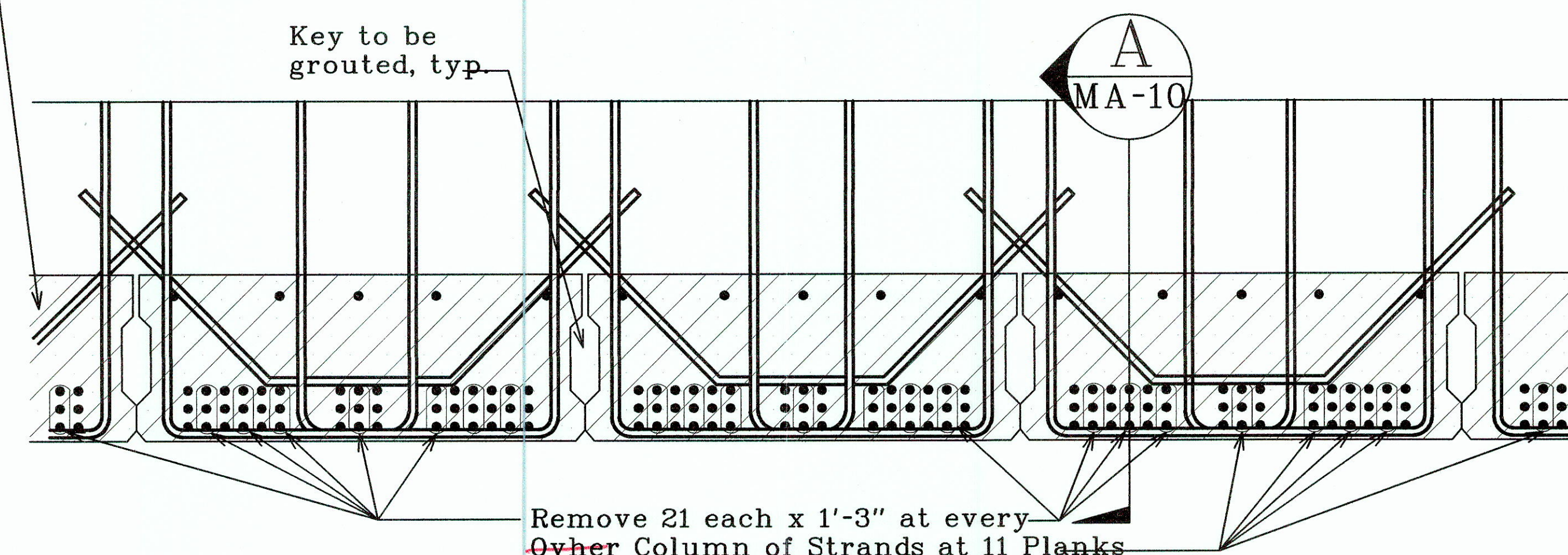
FC 24-1





1 MA-10

OPTION 1 : PARTIALLY REMOVE  
THE BOTTOM MOST ROW OF STRANDS  
Scale: 1/2"=1'-0"



2 MA-10

OPTION 2 : PARTIALLY REMOVE  
EVERY OTHER COLUMN OF 3 EA STRANDS  
Scale: 1/2"=1'-0"

Notes To Sketch MA-10

- Contract Details on S-7 Require "Extend All (50) Strands (at 11 ea. Prestressed planks) 3'-0" Min. (Frayed).
- Per Field Observations 3/20/07; The Above Contract Detail will not permit Concrete Placement/Consolidation
- To Improve Concrete Placement Remove Portions of Strands as shown Above. Added Costs results.

LEGEND FOR AS-BUILT POSTING

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

MA-10

PARTIALLY REMOVE  
STRANDS TO IMPROVE  
CONCRETE  
PLACEMENT

DESCRIPTION  
ABUT 1&2 SECTION

OPTION 1 Remove Bottom most ROW  
 OPTION 2 Remove Every Other Column

Mitsunaga and Associates, Inc.

PROJECT

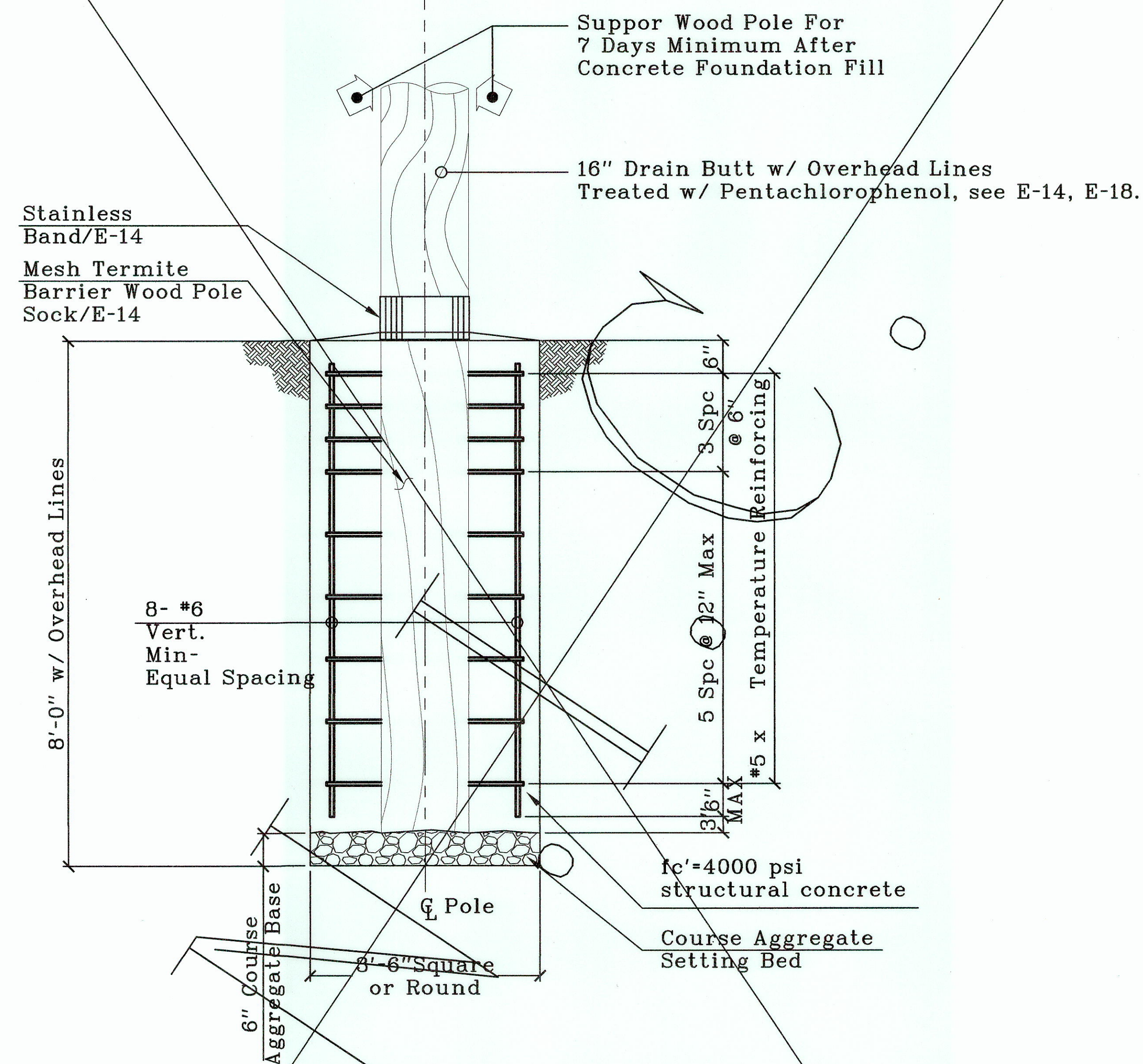
KAMEHAMEHA HIGHWAY-REPLACEMENT  
OF KOKOLOLO STREAM BRIDGE  
FAP No. BR-083-1 (50)

By: S. Williams  
 Checked:  
 Job No. 0921-01-S  
 Date: 3-22-07  
 Sheet MA-10 of 1

"AS-BUILT"

665-14

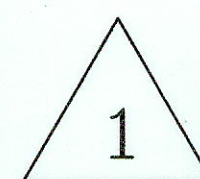




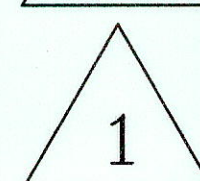
# STREET LIGHT/WOOD POLE BASE N.T.S. SEC 1/E-13

## NOTES TO SKETCH MA-12:

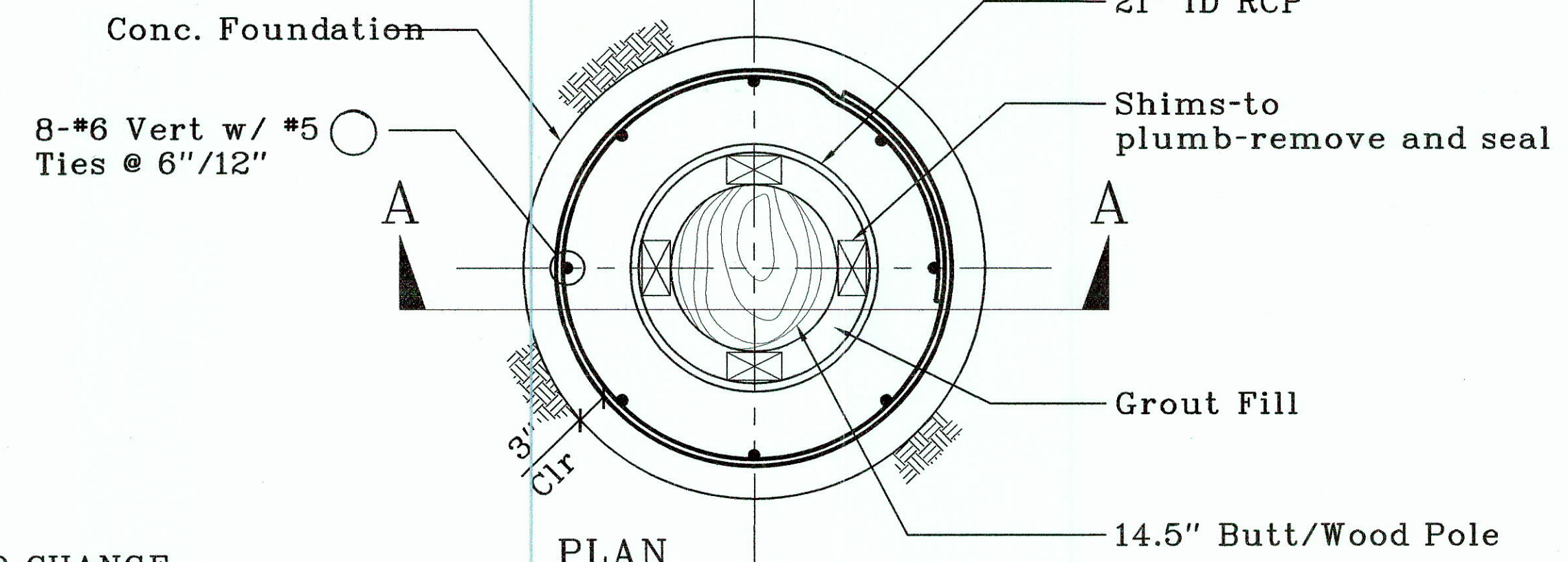
1. This sketch is in response  
to subm. 131 12/07/06



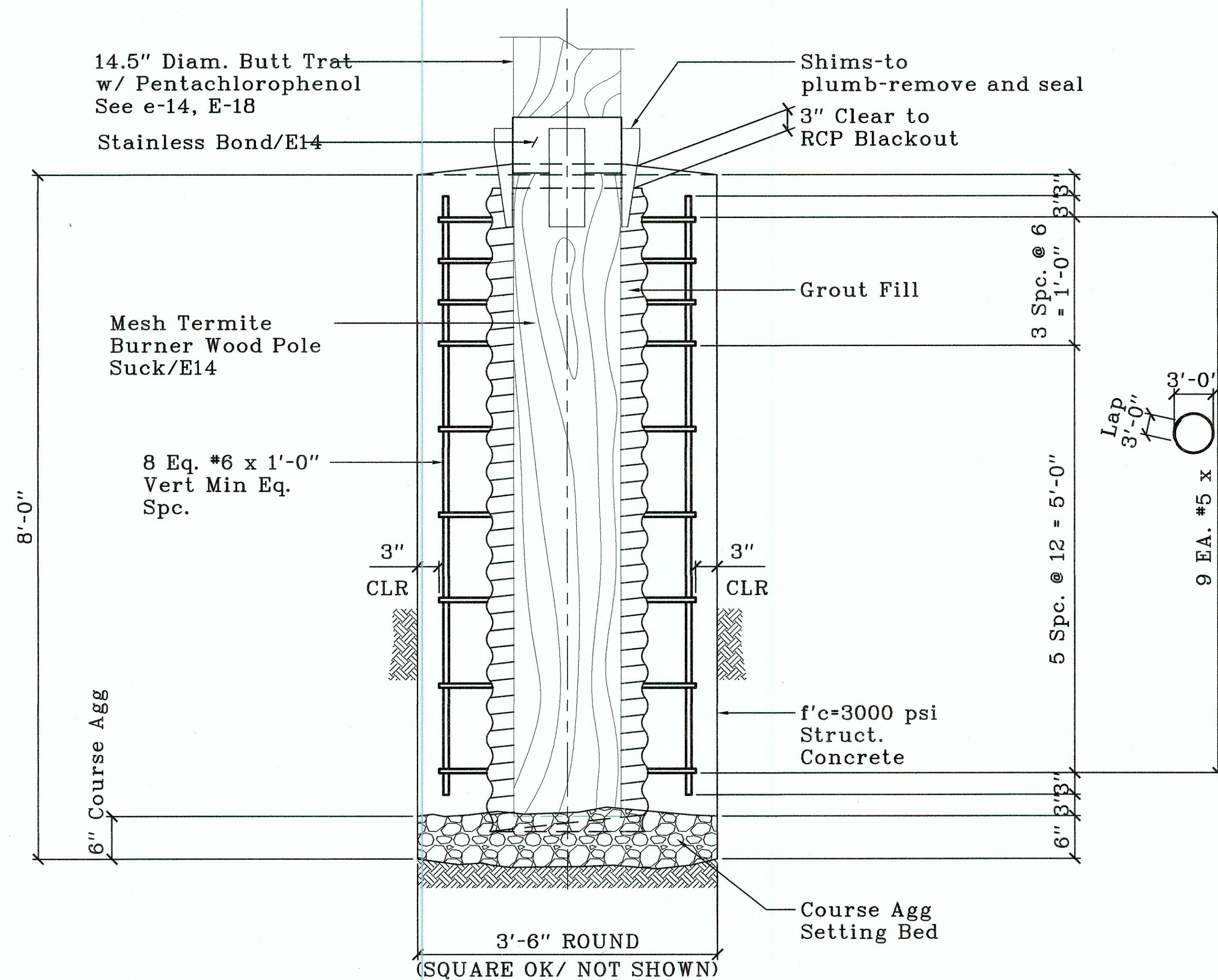
Revised per Geotech review 4/25/07



Struct Intent Re: Steel Blockout Option (4/27/07)



PER FIELD CHANGE  
NO. 25



## 24" I.D. RCP B.O. OPTION SCALE: 1/2" = 1'-0"

### LEGEND FOR AS-BUILT POSTING

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

MA-12

PERMANENT POLE  
FOUNDATION

### DESCRIPTION

STRUCTURAL  
RECOMMEND POLE  
FOUNDATION IN  
LIEU OF SUB 131

Mitsunaga and Associates, Inc.

### PROJECT

KAMEHAMEHA HIGHWAY REPLACEMENT  
OF KOKOLOLO STREAM BRIDGE  
FAP No. BR-083-1 (50)

By: S. Williams Checked:

Job No. 0821-01-8

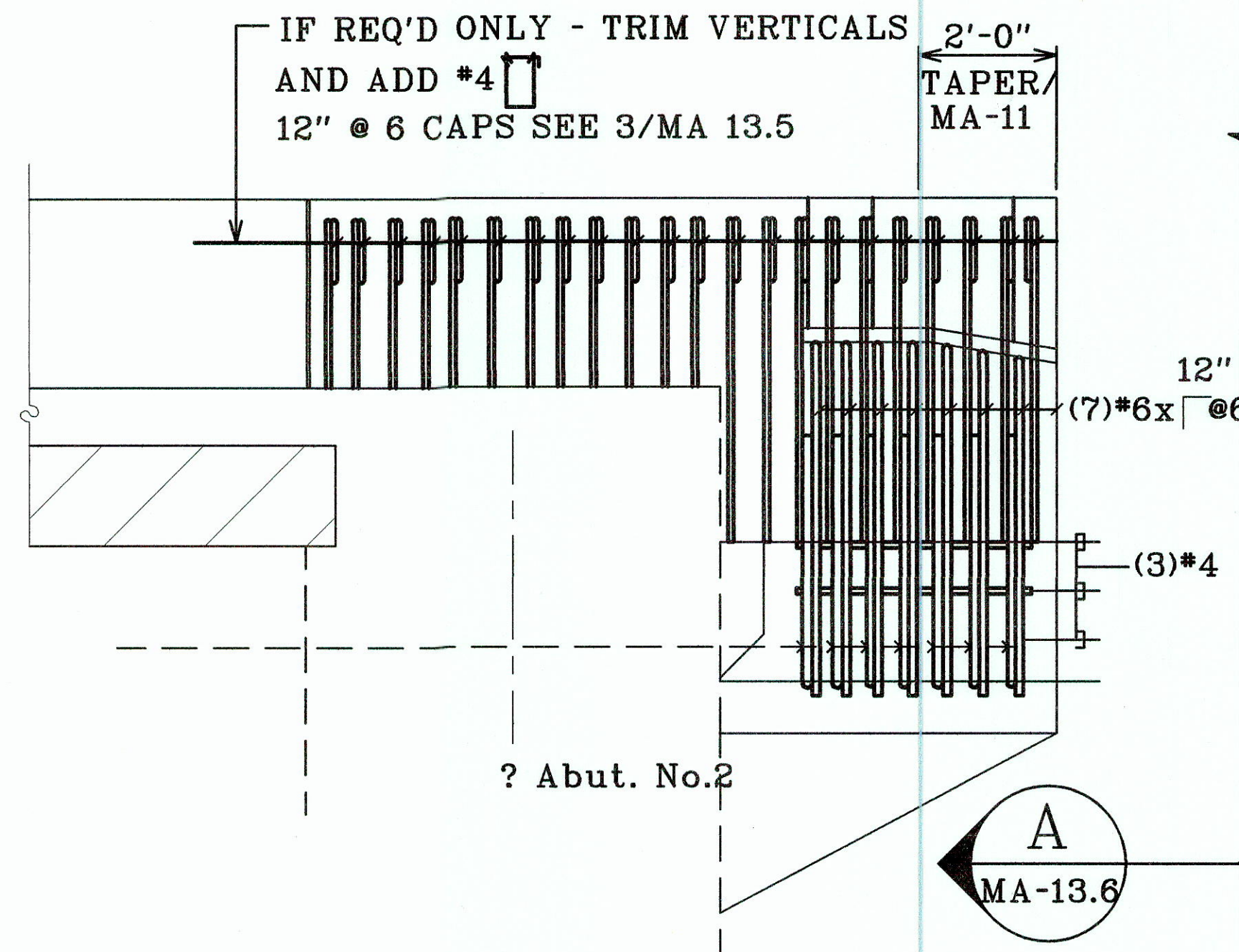
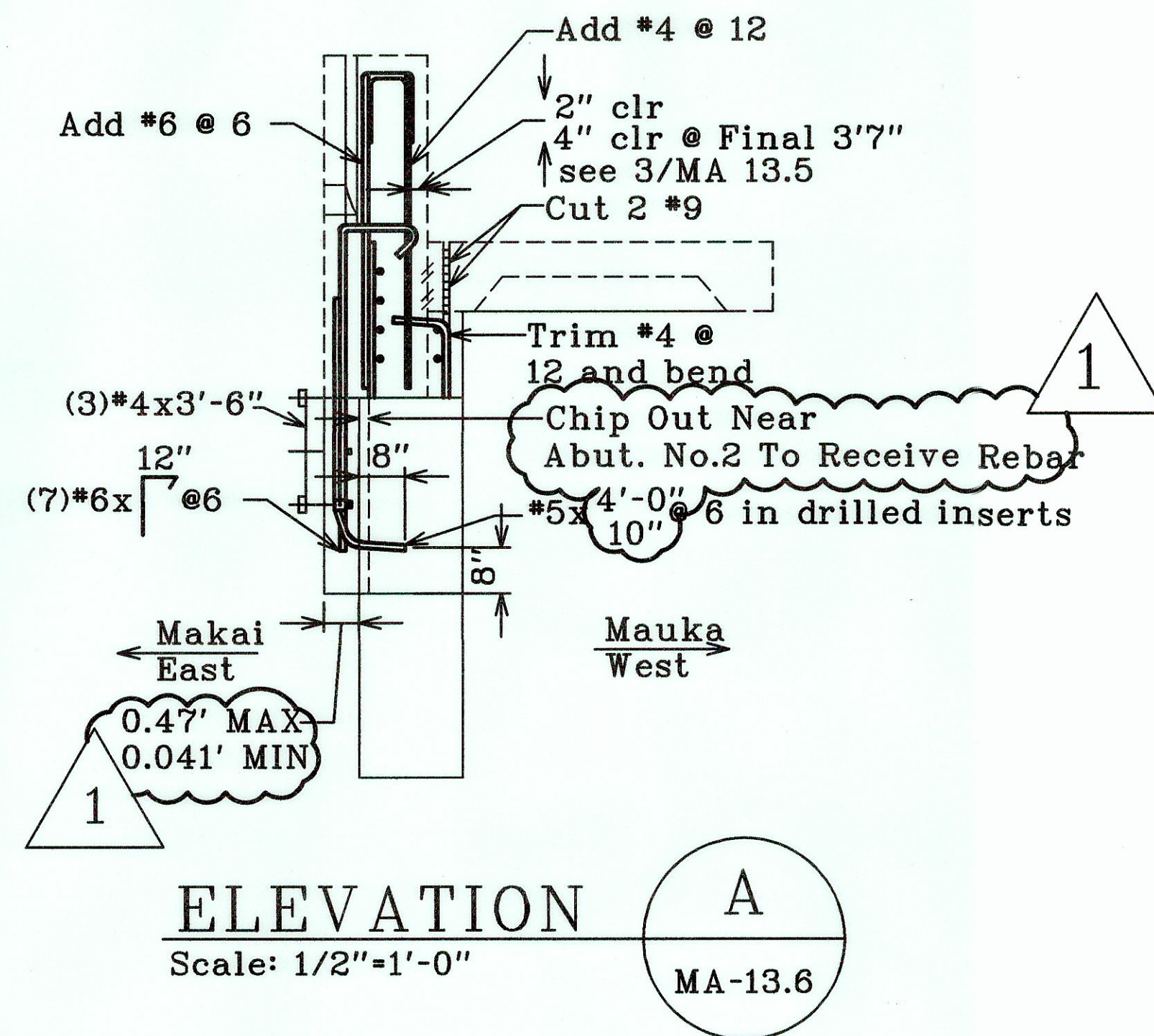
Date: 1-20-07

Sheet MA-12  
of 1

"AS-BUILT"

665-15





1 CORRECTIONS BY SW 4/26/07

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

|                |  |  |              |             |          |
|----------------|--|--|--------------|-------------|----------|
| <b>MA-13.6</b> | DESCRIPTION  | <b>Mitsunaga and Associates, Inc.</b>                    |              | By:         | Checked: |
|                | ADJUST GEOMETRY AND REBAR AT JERSEY POST "A" (KAHUKU APPROACH) | PROJECT  |              | 8. Williams |          |
|                | REBAR ADJUSTMENTS FOR RFI 102 AND RFI 103                      | KAMEHAMEHA HIGHWAY-REPLACEMENT OF KOKOLOLO STREAM BRIDGE |              | Job No.     |          |
|                |  | FAP No. BR-083-1 (50)                                    |              | 0821-01-8   |          |
|                |  | Date:  | Sheet        |             |          |
|                |  | 4-24-07  | MA-13.6 of 6 |             |          |

"AS-BUILT"