FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-HI-I(225)	2000	7	37

INDEX TO DRAWINGS

STRUCTURAL NOTES

DESIGN SPECIFICATIONS:

A. AASHTO LRFD Bridge Design Specifications, 1994

MATERIALS:

A. Reinforced Concrete: Class A, unless otherwise noted
B. Reinforced Steel: ASTM A 615, Grade 60
C. Admixture in concrete: See Special Provisions
D. All expansion and premolded joint filler shall be incidental to concrete and will not be paid for separately.
E. All structural steel shall be ASTM A 36 hot-dip galvanized after fabrication.
F. All anchor bolts, washers and nuts shall be ASTM A 325 hot-dip galvanized after fabrication, unless noted otherwise.
G. All welding shall be in accordance with the current edition of Bridge Welding Code ANSI/AASHTO/AWS D 1.5

CONSTRUCTION METHODS:

A. Refer to Hawaii Standard Specifications for Road, Bridge and Public Works Construction, 1994 Edition and Special Provisions.
B. Except as noted otherwise, all vertical dimensions are measured plumb.
C. For steel reinforcing, stagger all splices where possible.
D. Steel reinforcing shall be supported, bent and placed as per the ACI Detailing Manual, 1994.
E. For cast-in-place concrete, minimum cover for main reinforcing steel:
Concrete cast against earth: 3"
Walls: 2"
F. At time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings adversely affecting bond capacity.
G. Reinforcement, dowels and other embedded items shall be positively secured before pouring.
H. Minimum clear spacing between parallel bars shall be one and one-half ($1\frac{1}{2}$) times the diameter of the bars (for non-bundled bars), one and one-half ($1\frac{1}{2}$) times the maximum size of the course aggregate or one and one-half ($1\frac{1}{2}$) inches.
I. All dimensions relating to reinforcing bars (e.g. spacing of bars, etc.) are to centers of bars unless noted otherwise.
J. All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.
K. All existing reinforcing and anchor bolts that can be incorporated in the new work shall be bent or cut as required and cleaned before being utilized in the new work.
L. All existing reinforcing and anchor bolts that cannot be incorporated in the new work shall be completely removed or removed to a minimum depth of one and one-half ($1\frac{1}{2}$) inches below finish grade and the area patched with mortar.
M. Existing structure shown by dotted lines. Removal of existing concrete shall be done in such a manner as to preclude any damage to the existing structures. Large vibratory type of equipment will not be permitted in the removal operation, nor for drilling of holes. Only small vibratory hand tools accepted by the Engineer will be allowed. Any damage to the exisiting structure due to the Contractor's operation or negligence shall be repaired at his expense with no cost to the State.
N. Epoxy fill for dowels shall be "Double Cartridge" type. Epoxies that require manual measuring or mixing shall not be allowed.
O. For those concrete diaphragm bolsters extending to the top of box girder, Contractor, with Engineer's approval, may pour concrete to a maximum of 6" from the box girder deck slab soffit and hand pack the remaining gap.
P. For cable and pipe restrainer cored holes, Contractor, with Engineer's approval, may use larger first hole when coring through existing structure than the second hole.

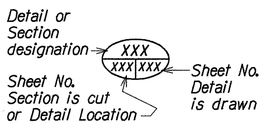
REFERENCE:

A. Refer to Standard Plans for additional details and notes not covered by details and typical drawings.

GENERAL:

A. All items noted incidental will not be paid for separately.
B. The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing with any work.
C. The Contractor shall verify all grades and dimensions in the field before commencing with any work.
D. The Contractor shall be solely responsible for the protection of adjacent property, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at no cost to the State.
E. The Contractor shall conduct his work in such a manner and provide such temporary shoring or other measures as may be necessary to insure the safety of all concerned and to protect existing structures.
F. Unless noted otherwise, chamfer all exposed concrete edges three-quarters ($\frac{3}{4}$) of an inch.
G. As-built plans for existing structures are available from the Highways Design Branch located at the Department of Transportation, Highways Division, Room 609, 601 Kamokila Boulevard, Kapolei, Hawaii, 96707 (Ph. #: 692-7586).

SYMBOLS AND ABBREVIATIONS



Abut.	Abutment	℄	Center Line	Ga.	Gage, Gauge	Max.	Maximum	Sect.	Section
AB	Anchor Bolt	Cl., Clr.	Clear	Galv.	Galvanized	Min.	Minimum	Sht.	Sheet
Alum.	Aluminum	Col.	Column	G.D.I.	Grated Drain Inlet	MP	Mile Post	Spcs.	Spaces
Approx.	Approximate	Conc.	Concrete	Gr.	Grade			Spcd.	Spaced
		Cont.	Continuous			No., #	Number	Spcg.	Spacing
℄	Baseline	CR	Corrosion Resistant	Horiz.	Horizontal	N.T.S.	Not To Scale	Sta.	Station
Bal.	Balance	Det.	Detail	HS	High Strength			Std.	Standard
Beg.	Begin, Beginning	Dia., ø	Diameter	H.W.	Headwall			Str.	Straight
Blk.	Block	D.I.	Drain Inlet	Hwy.	Highway	O.B.	Outbound	Struct.	Structural
Bm.	Beam	Dim.	Dimension			o.c.	On Center	Symm.	Symmetrical
Bot.	Bottom	Dwg., Dwgs.	Drawing, Drawings	I.B.	Inbound	O.D.	Outside Dimension		
Brg., Brgs.	Bearing, Bearings	EA, Ea., ea.	Each	Irr.	Irrigation	o/s, O/S	Offset	T℄B	Top and Bottom
		E.F.	Each Face					Thk.	Thick, Thickness
		E.W.	Each Way	Jt.	Joint	P.C.	Point of Curvature	T.O.F.	Top of Footing
		Elec.	Electrical			PL	Plate	TS	Tubular Steel
		Elev.	Elevation	LC	Length of Curve			Typ.	Typical
		Exist.	Existing	L.F., Lin. Ft.	Linear Feet	R	Radius		
		Exp., (E)	Expansion	Lg.	Long	Rdwy	Roadway	Var.	Varies
		F.F.	Front Face	Longit.	Longitudinal	Ref.	Reference	Vert.	Vertical
		Fin.	Finish	L.S.	Lump Sum	Reinf.	Reinforcement		
		Ftg.	Footing	Light Std.	Lighting Standard	Req'd	Required	w/	With

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY KSG	NOV 1998
NOTE BOOK	TRACED BY AHF, SF, SA	NOV 1998
	DESIGNED BY AHF, SF, SA	NOV 1998
	QUANTITIES BY DCO	NOV 1998
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SEISMIC RETROFIT
STRUCTURAL NOTES and ABBREVIATIONS
SEISMIC RETROFIT for LUNALILO-VINEYARD OFF-RAMP, MAKIKI VIADUCT and PALAMA SEPARATION
Fed. Aid Proj. No. BR-HI-I(225)

Scale: As Noted Date: Jul, 1999

SHEET No. S1 OF 25 SHEETS