

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-HI-1(251)	2007	9	13

STRUCTURAL NOTES

DESIGN SPECIFICATIONS:

A. AASHTO LRFD Bridge Design Specifications, 2004 including up to current 2006 interim revisions.

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. Steel pipes shall conform to ASTM A 53, Type E or S, Grade B.
G. All anchor bolts, washers and nuts shall be ASTM F 1554, Grade 36 hot-dip galvanized after fabrication, unless noted otherwise.
H. 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"
All others: 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 (1½) times the diameter of the bars (for non-bundled bars), one and one-half (1½) times the maximum size of the course aggregate or one and one-half (1½) 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 (1½) inches below finish surface 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 existing 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.

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 (¾) 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. No. 692-7586).
H. Contractor shall submit a confined space safety program to the State three (3) weeks prior to commencing with work. Contractor shall provide one set of air monitoring devices for the State during construction inside the box girder. Such devices shall meet all OSHA standards.

SYMBOLS AND ABBREVIATIONS

Detail or Section designation → **XXX**
Sheet No. Section is cut or Detail Location → **XXX|XXX** → Sheet No. Detail is drawn

Abut. Abutment
AB Anchor Bolt
Alum. Aluminum
Approx. Approximate

Baseline
Bal. Balance
Beg. Begin, Beginning
Blk. Block
Bm. Beam
Bot. Bottom
Brg., Brgs. Bearing, Bearings

☼ Cl., Clr.
Col. Conc.
Cont. Cont.
CR Corrosion Resistant
Det. Detail
Dia., ø Diameter
D.I. Drain Inlet
Dim. Dimension
Dwg., Dwgs. Drawing, Drawings
EA, Ea, ea. Each
E.F. Each Face
E.W. Each Way
Elec. Electrical
Elev. Elevation
Exist. Existing
Exp., (E) Expansion
F.F. Front Face
Fin. Finish
Ftg. Footing

Ga. Galv.
G.D.I. Gr.

Horiz. HS
H.W. Headwall
Hwy. Highway
I.B. Inbound
Irr. Irrigation

Jt. Joint

LC Length of Curve
L.F., Lin. Ft. Linear Feet
Lg. Long
Longit. Longitudinal
L.S. Lump Sum
Light Std. Lighting Standard

Gage, Gauge
Galvanized
Grated Drain Inlet
Grade

No., #
N.T.S.

O.B. Outbound
o.c. On Center
O.D. Outside Dimension
o/s, O/S Offset

P.C. Point of Curvature
PL Plate

R Radius
Rdwy Roadway
Ref. Reference
Reinf. Reinforcement
Req'd Required

Sect. Sht.
Spcs. Spaces
Spcd. Spaced
Spcg. Spacing
Sta. Station
Std. Standard
Str. Straight
Struct. Structural
Symm. Symmetrical

T&B Top and Bottom
Thk. Thick, Thickness
T.O.F. Top of Footing
TS Tubular Steel
Typ. Typical

Var. Varies
Vert. Vertical

w/ With


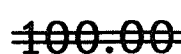
INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
S1	INDEX TO DRAWINGS, ESTIMATED QUANTITIES, STRUCTURAL NOTES and SYMBOLS and ABBREVIATIONS
S2	LAYOUT PLAN and ABUTMENT PLANS, ABUTMENT NOS. 1 & 2
S3	ABUTMENT ELEVATIONS SHOWING ABUTMENT LUMBER BLOCKING, NEW CONCRETE DIAPHRAGM and PEDESTAL and LUMBER BLOCKING DETAILS
S4	ABUTMENT NO. 1 CONCRETE DIAPHRAGM BOLSTER and PEDESTAL RETROFIT DETAILS
S5	ABUTMENT NO. 1 CONCRETE DIAPHRAGM BOLSTER and SOFFIT ACCESS DETAILS

ESTIMATED QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY
206B.1000	Structure Excavation	L.S.	L.S.
206B.2000	Structure Backfill	L.S.	L.S.
501.1000	8"ø Double Extra-Strong Steel Pipe	L.S.	L.S.
501.2000	10"ø Extra-Strong Steel Pipe	L.S.	L.S.
502.1000	Abutment Lumber Blocking	L.S.	L.S.
503.1000	Abutment Diaphragm Bolster (f'c = 5,000 psi)	L.S.	L.S.
503.2000	Abutment Pedestal (f'c = 5,000 psi)	L.S.	L.S.
677.1000	Soffit Access Door	L.S.	L.S.

LEGEND FOR AS-BUILT POSTINGS

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

SURVEY PLOTTED BY	DATE
DRAWN BY	AUG 2006
DESIGNED BY	AUG 2006
QUANTITIES BY	AUG 2006
CHECKED BY	AUG 2006

dbf/lus2/ksg/st/vire-luno-001

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INDEX to DRAWINGS, ESTIM. QUANTITIES
STRUCTURAL NOTES and ABBREVIATIONS
INTERSTATE ROUTE H-1 SEISMIC RETROFIT
Lunalilo-Vineyard On-Ramp
F.A.I.P. No. BR-HI-1(251)

Scale: As Noted Date: Aug. 2006

SHEET No. S1 OF 5 SHEETS