

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHTO LRFD Bridge Design Specifications, Second Edition, 1998
Guardrail loads are based on TL-2 for posted speed limit of 35 mph.

MATERIALS:

- A. Reinforced Concrete: $f'c$ = 4000 psi @ 28 days, unless noted otherwise
- B. Reinforced Steel:
Reinforcing bars shall conform to ASTM A615, grade 60
Welded wire fabric (WWF) shall conform to ASTM A497, WWF shall be furnished in sheets and galvanized after fabrication.
- 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, nuts and washers 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 Reinforcing Steel Welding Code AWS D 1.4.
- H. Epoxy bonding compound to bond fresh concrete to hardened concrete shall conform to ASTM C881, Type V, Class C. Provide grade 2 for horizontal surfaces and grade 3 for vertical surfaces. Epoxy shall be moisture insensitive before, during and after cure.
- I. Epoxy used for grouting dowels shall conform to ASTM C881, Type IV, Class C, grade 2 or 3. Epoxy shall be moisture insensitive before, during and after cure.
- J. Elastomeric joint sealer shall conform to ASTM C920, Type S or M, grade NS, Class 100/50 and use T.

CONSTRUCTION REQUIREMENTS:

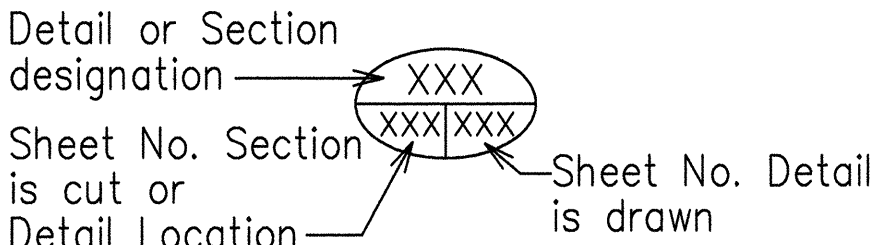
- A. Refer to Hawaii Standard Specifications for Road, Bridge and Public Works Construction, (Hawaii 1994 edition and Special Provisions).
- B. Except as noted otherwise, all vertical dimensions are measured plumb.
- C. For steel reinforcing , stagger all splices where possible.
- D. Steel reinforcing shall be supported, bent and placed as per the ACI Detailing Manual, 1994.
- E. For cast-in-place concrete, minimum reinforcement cover:
Concrete cast against earth: 3"
Walls: 2"
- F. At time concrete is placed, reinforcing shall be free from mud, oil latance or other coatings adversely affecting bond capacity.
- G. Reinforcement, dowels and other embedded items shall be positively secured before pouring. Any expansion bolts, dowels, powder actuated studs, self-drilling fasteners, attached to the existing crm wall and used to support the reinforcing or ground wires, shall be galvanized, stainless steel or non-metallic.
- H. Minimum clear spacing between parallel bars shall be one and one-half (1*) times the diameter of the bars (for non-bundled bars). But in no case shall the clear distance between the bars be less than one and one-half (1*) times the maximum size of the course aggregate.
- 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.

REFERENCE:

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

GENERAL:

- A. 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.
- B. In the event of over-excavation, the space between the footing or footing key and ground shall be filled with a minimum of Class D concrete at the Contractor's expense at no cost to the State.
- C. Unless noted otherwise, chamfer all exposed concrete edges three-quarters (*) of an inch.



⊗ - * Bearing Abutment Seat Line

⊙ - Boring No. & Designation

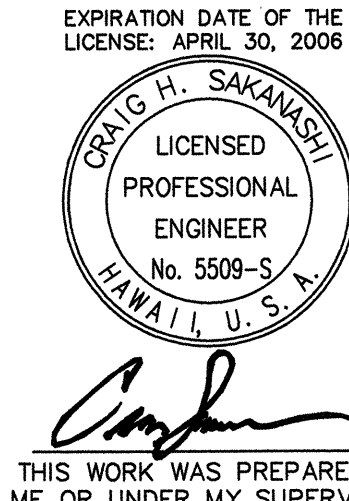
Abut.	Abutment
AC	Asphaltic Concrete
Adj.	Adjacent
Alt.	Alternate
Approx.	Approximate
Az.	Azimuth
*	Baseline
Bal.	Balance
Bet., Btwn.	Between
B.F.	Both faces
B.F.E.	Bottom Footing Elevation
Bk.	Back
Blt.	Bolt
Bm.	Beam
B, Bot., Bott.	Bottom
Br.	Bridge
Brg., Brgs.	Bearing, Bearings
B.V.C.	Beginning of Vertical Curve
*	Center Line
Cant.	Cantilever
C.F.	Cubic Feet
CiP	Cast in Place
C.I.P.	Cast Iron Pipe
Cl., Clr.	Clear
Col.	Column
Conc.	Concrete
Conn.	Connection
Const.	Construction
Cont.	Continuous
CRM	Cement Rubble Masonry
C.Y., Cu. Yd.	Cubic Yards

Det.	Detail
Dia., *	Diameter
Dim.	Dimension
Dwg., Dwgs.	Drawing, Drawings
EA, Ea., ea.	Each
E.F.	Each Face
Elec.	Electrical
El., Elev.	Elevation
Emb.	Embankment
E.P.	Edge of Pavement
Eq.	Equal
Est.	Estimated
E.W.	Each Way
Exc.	Excavation
Exist.	Existing
Exp., (E)	Expansion
Ext.	Exterior
(F)	Fixed
F'c	Specified Strength of Concrete
F'ci	Strength of Concrete at Time of Initial Prestress
F.F.	Front Face
Fig.	Figure
Fin.	Finish
Fin. Gr.	Finish Grade
Ftg.	Footing
Ga.	Gage, Gauge
Galv.	Galvanized
Gir., G	Girder
G.R.P.	Grouted Rubble Paving
Gr.	Grade
Grd.	Ground
(H)	Hinge
Horiz.	Horizontal
HS	High Strength
Ht.	Height
Hwy.	Highway

SYMBOLS AND ABBREVIATIONS

I.B.	Inbound	R	Radius
I.F.	Inside Face	Rdwy	Roadway
In.	Inch	Ref.	Reference
Int.	Interior	Reinf.	Reinforcement
Inv.	Invert	Ret.	Retaining
		Req'd	Required
		R.F.	Rear Face
		Rt.	Right
		R/W	Right Of Way
Jt.	Joint	S	South
L	Length	S.B.	Southbound
LBS., lb., lbs.	Pound, Pounds	Sect.	Section
L.F., Lin. Ft.	Linear Feet	SF	Square Feet
Lg.	Long	Shldr.	Shoulder
Longit.	Longitudinal	Sht.	Sheet
L.S.	Lump Sum	Sp.	Space
Lt.	Left	Spd.	Spaced
Ltg. Std.	Lighting Standard	Spcg.	Spacing
		Spec.	Specification
Max.	Maximum	Sprd.	Spread
Mech.	Mechanical	Sta.	Station
Min.	Minimum	Std.	Standard
Misc.	Miscellaneous	Stirr.	Stirrup
N	North	Str.	Straight
N.B.	Northbound	Struct.	Structural
N.F.	Near Face	Symm.	Symmetrical
No., #	Number		
N.T.S.	Not To Scale		
O.B.	Outbound	T	Top
o.c.	On Center	Temp.	Temporary
O.G.	Outside Girder	Thk.	Thick, Thickness
Opn'g	Opening	T.O.D.	Top Of Deck
o/s, O/S	Offset	Tot.	Total
		Transv.	Transverse
		Typ.	Typical
P.B.	Pull Box		
P.C.	Point of Curvature	Var.	Varies
P.C.C.	Portland Cement Concrete	V.C.	Vertical Curve
Perf.	Perforated	Vert.	Vertical
PG-()	Prestressed Girder-(Type)		
PL	Plate	W	West
P/S	Prestressed Strands	w/	With
Pvmt.	Pavement	W.W.	Wingwall

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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES AND SYMBOLS
AND ABBREVIATIONS

KUAMOO ROAD RETAINING WALL
IN THE VICINITY OF M.P. 1.1
PROJECT NO. 580A-01-02

SCALE: AS NOTED DATE: September 2005

SHEET No. S-1 OF 8 SHEETS