

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	65A-01-09M	2010	8	11

GENERAL STRUCTURAL NOTES

GENERAL SPECIFICATIONS:

1. State of Hawaii Department of Transportation, Hawaii Standard Specifications for Road and Bridge Construction, 2005 and Special Provisions.

DESIGN SPECIFICATIONS - AASHTO:

1. AASHTO LRFD Bridge Design Specifications, 2007 with 2008 interim revisions.

DESIGN SPECIFICATIONS - AASHTO:

1. Dead Loads: Concrete, 160 pcf
Structural Steel, 490 pcf
2. Pedestrian: 50 plf & 200 lb concentrated on rails
Live Loads: 50 plf & 200 lb. concentrated on posts

MATERIALS:

1. Concrete: Class A
2. Reinforcing Steel: ASTM A 615, Grade 60
3. Structural Steel, Shapes & Plates: ASTM A 36
4. HSS Round Tubes: ASTM A 500, Grade B
5. Welded Wire Fabric: ASTM 185
6. Bolts: ASTM A 325
7. Epoxy for bolts: ASTM C 881, Type IV, Grade I, Class C
8. All structural steel, HSS round tubes, welded wire fabric, anchor bolts, nuts and washers shall be hot-dip galvanized after fabrication, unless noted otherwise. All galvanizing shall conform to Hawaii Standard Specifications, Section 501.03 (G).
9. All welding shall be conform to ANSI/AASHTO/AWS D1.5, 2002.

CONSTRUCTION METHODS:

1. Refer to Hawaii Standard Specifications for Road, Bridge and Public Works Construction, Hawaii 2008 edition, and Special Provisions.
2. Except as noted otherwise, all vertical dimensions are measured plumb.
3. For concrete finish, see Special Provisions.
4. For steel reinforcing , all splices shall be staggered where possible.
5. Steel reinforcing shall be supported, bent and placed as per the ACI Detailing Manual, 1994.
6. For cast-in-place concrete, minimum reinforcement cover, unless shown otherwise:
Concrete cast against earth: 3"
Walls: 2"
7. At the time concrete is placed, reinforcing shall be free from mud, oil laitance or other coatings adversely affecting bond capacity.
8. Reinforcement, dowels and other embedded items shall be positively secured before pouring.
9. All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.
10. No joints within 12" of posts.
11. Remove existing bolts one-fourth inch (1/4") below existing concrete surface. Patch holes with epoxy ASTM C 881, Type VI, Grade I, Class III, colored to match existing concrete surface.
12. Removal of bolts and epoxy repair shall be considered incidental to Item No. 202.1000.

REFERENCE:

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

GENERAL:

1. All items noted incidental will not be paid for separately.
2. The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing with any work. Locations of utilities shown are approximate.
3. The Contractor shall verify all grades, andgles and dimensions in the field before commencing with any work.
4. 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 the Contractor's own expense, to the satisfaction of the Engineer. He 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.
5. Unless noted otherwise, chamfer all exposed concrete edges three-quarters (3/4) of an inch.
6. Providing, locating, drilling and epoxying of bolts shall be considered incidental to Item No. 507.3521, and shall not be paid for separately.

SYMBOLS AND ABBREVIATIONS

Detail or Section designation
Sheet No. Section is cut or Detail Location
Sheet No. Detail is drawn

⊗ - Bearing Abutment Seat Line

⊙ - Boring No. & Designation

AB Anchor Bolt
Abut. Abutment
at&t Exist. underground telephone cable
Alum. Aluminum
Approx. Approximate

Ⓢ Baseline
Bal. Balance
Beg. Begin, Beginning
Bet., Btwn. Between
B.F. Back Face
B.F.E. Bottom Footing Elevation
Bk. Back
Blf. Bolt
Bm. Beam
B, Bot., Bott. Bottom
Br. Bridge
Brq., Brqs. Bearing, Bearings
B.V.C. Beginning of Vertical Curve

Ⓢ Center Line
cdi Exist. Concrete Drop Inlet
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
CR Corrosion Resistant
C.Y., Cu. Yd. Cubic Yards

Def. Detail
Dia., ∅ Diameter
Diag. Diagonal
Dim. Dimension
Dwg., Dwgs. Drawing, Drawings

E East
EA, Ea., ea. Each
E.F. Each Face
Elec. Electrical
emh Exist. Electric Manhole
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 Exist. Grated Drop Inlet
gdi Girder
G.R.P. Grouted Rubble Paving
Gr. Grade
Grd. Ground
(H) Hinge
Horiz. Horizontal
HS High Strength
Ht. Height
Hwy. Highway

I.B. Inbound
ID Inside Dimension
I.F. Inside Face
In. Inch
Int. Interior
Inv. Invert

Jt. Joint

L Length
LBS., lb., lbs. Pound, Pounds
LC Length of Curve
L.F., Lin. Ft. Linear Feet
Lg. Long
Longit. Longitudinal
L.S. Lump Sum
Lt. Left
Ltg. Std. Lighting Standard
Max. Maximum
Mech. Mechanical
Min. Minimum
Misc. Miscellaneous

N North
N.B. Northbound
N.F. Near Face
No., # Number
N.T.S. Not To Scale

O.B. Outbound
o.c. On Center
OD Outside Dimension
O.G. Outside Girder
Opn'g Opening
o/s, O/S Offset
P.B. Pull Box
P.C. Point of Curvature
P.C.C. Portland Cement Concrete
Perf. Perforated
PG-() Prestressed Girder-(Type)
PL Plate
plf Pounds per Linear Foot
pp Exist. Power Pole
P/S Prestressed Strands
Pvmt. Pavement

R Radius
Rdwy Roadway
Ref. Reference
Reinf. Reinforcement
Ret. Retaining
Req'd Required
R.F. Rear Face
Rt. Right
R/W Right Of Way

s* Sewer Line # inches diameter
S South
S.B. Southbound
Sect. Section
SF Square Feet
Shldr. Shoulder
Sht. Sheet
smh Exist. Sewer Manhole
Spc. Space
Spcd. Spaced
Spcg. Spacing
Spcs. Spaces
Spec. Specification
Sprd. Spread
Sta. Station
Std. Standard
Stirr. Stirrup
Str. Straight
Struct. Structural
Symm. Symmetrical

t Exist. underground telephone cable
T Top
Temp. Temporary
Thk. Thick, Thickness
tmh Exist. Telephone Manhole
T&B Top & Bottom
T.O.D. Top Of Deck
Tot. Total
tp Exist. Telephone Pole
Transv. Transverse
TS Tube Steel
Typ. Typical
Var. Varies
V.C. Vertical Curve
Vert. Vertical

W West
w/ With
w* Water Line # inches diameter
W.W. Wingwall

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**GENERAL STRUCTURAL NOTES and
SYMBOLS and ABBREVIATIONS**
KANEHOE BAY DRIVE
KOKOKAHI OVERPASS REPAIR
Project No. 65A-01-09M
Scale: As Noted Date: Mar, 2009
SHEET No. 01 OF 4 SHEETS