

STRUCTURAL GENERAL NOTES

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	65B-01-01M	2001	37	58

A. MATERIALS

Unless otherwise noted

- Concrete shall be Class A, $f'c=3,000$ psi. (Except Concrete Fill Indicated Below – "Foundation")
- Reinforcing steel shall be ASTM A 615 Grade 60.

B. REINFORCEMENT

- The minimum covering measured from the surface of the concrete to the face of any reinforcing bar shall be as follows, except as otherwise noted:
 - Retaining Walls – 2"
 - Concrete cast against and permanently exposed to earth – 3"
- Reinforcing shall be detailed in accordance with the latest editions of CRSI's "Placing Reinforcing Bars" and "Manual of Standard Practice" and the "ACI Detailing Manual" unless otherwise noted.
- Minimum spacing between parallel bars shall be 2 1/2 times the diameter of bars (for non bundled bars), but in no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.

C. FOUNDATION

- Spread footings for Retaining Walls shall be Class A and excavated and poured neat against undisturbed ground. In case of over excavation, space between footing and ground shall be filled with concrete at the Contractor's expense and as directed by the Engineer. The minimum quality of the concrete fill shall be Class D.

D. CONSTRUCTION METHODS

- See Hawaii Standard Specifications for Road and Bridge Construction 1994 and Special Provisions.

E. GENERAL

- All items noted incidental will not be paid for separately.
- The Contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work.
- Except as otherwise noted on drawings, all exterior corners and re-entrant angles 90° or less in concrete work shall be chamfered 3/4" x 3/4".
- For concrete finish see Standard Specifications and/or Special Provisions. Shop drawings for textured rock finish shall be submitted for the engineers approval prior to ordering.
- Standard Detail Drawings refer to all structures in general except for modifications as may be required for special conditions. For such modifications refer to corresponding detailed drawings.

F. DESIGN SPECIFICATIONS

- "A.A.S.H.T.O. L.R.F.D. Bridge Design Specification," First Edition, 1994, and its 1996 and 1997 Interim Revisions.

G. RETAINING WALL DESIGN DATA

Soil Values	Extreme Event Limit State	Strength Limit State	Service Limit State
Bearing Pressure	12,000 psf	7,200 psf	4,000 psf
Coefficient of Sliding	0.72	0.62	0.52
Passive Pressure	815 pcf	408 pcf	204 pcf

- Active pressure (2:1 slope condition)
Horizontal component =54 p.c.f.
Vertical component =12 p.c.f.
- Seismic Acceleration Coefficient =0.18
- Cohesion =400 p.s.f.
- Unit weight of backfill =120 p.c.f.

Note: Retaining walls were designed in accordance with recommendations contained in "GEOTECHNICAL ENGINEERING EXPLORATION MOKAPU SADDLE ROAD SLOPE STABILITY. KANEOHE, OAHU, HAWAII, PROJECT NO. 65B-01-01M" and Dated December 27, 2000 By Geolabs, Inc.

H. CRITICAL ITEM LIST

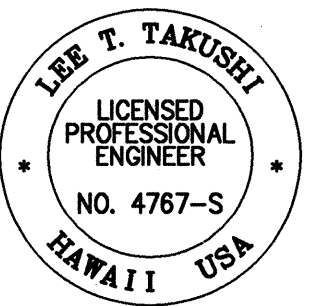
- Textured rock finish shall match the adjacent GRP texture and color.
- The Contractor shall use Licensed Structural Engineer and Licensed Geotechnical Engineer with minimum 8-year experience to provide an earth retention system design. See Specification Section 206 for details. (Note: Contractor Has Option to Remove Earth Retention System or Leave in Place)
- Maximum bolt circle diameter for light poles on the top of the retaining walls shall be 14 inches.

ABBREVIATION LIST

#	Pound or Reinforcement Mark
A.B.	Anchor Bolts
A.C.	Asphalt Concrete
ACI	American Concrete Institute
Approx.	Approximate
ASTM	American Society for Testing and Materials
℄	Baseline
B.S.	Both Side
Bot.	Bottom
℄	Centerline
C.J.	Construction Joint
Clr.	Clear
Conc.	Concrete
Cont.	Continuous
CRSI	Concrete Reinforcing Steel Institute
D.P.W.	Department of Public Works
Dia.	Diameter
Dwgs.	Drawings
E.F.	Each Face
E.S.	Each Side
Eq.	Equal
Elect.	Electrical
Elev.	Elevation
Exist.	Existing
E.J.	Expansion Joint
Ftg.	Footing
GRP	Grouted Rubble Paving
H.P.	High Point
Horiz.	Horizontal
Ht.	Height
Jt.	Joint
Max.	Maximum
Min.	Minimum
No.	Number
O.C.	On Center
p.c.f.	Pounds per cubic foot
p.s.f.	Pounds per square foot
PVC	Polyvinyl Chloride
Reinf.	Reinforcement, Reinforcing
R/W	Retaining Wall
Sht.	Sheet
Spcg.	Spacing
Specs.	Specifications
Sq.	Square
Sta.	Station
T, t	Thick
T.W.	Top of Wall
Vert.	Vertical
W.W.F.	Welded Wire Fabric

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STRUCTURAL GENERAL NOTES

Mokapu Saddle Road Slope Stability
Vicinity of Mikiola Dr. to Kahinani Pl.
Project No. 65B-01-01M
Scale: As Noted Date: May, 2001