

SURVEY PLOTTED BY _____	DATE _____
DRAWN BY _____	DESIGNED BY _____
NOTED BY _____	QUANTITIES BY _____
CHECKED BY _____	NO. _____

TS-1.DWG
08/21
08/16/99
c:\dwg\6102-01\struct

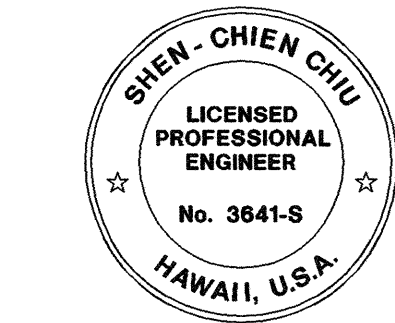
SUMMARY OF ESTIMATED QUANTITIES			
ITEM NO.	ITEM	ESTIMATED QUANTITY	UNIT
202.0100	SAND BLAST OF CONCRETE COVERS FOR ROCKER COLUMNS (KAUMOALII STREAM BRIDGE)	L.S.	L.S.
401.0510	ASPHALT CONCRETE PAVEMENT – MIX V (KAUMOALII STREAM BRIDGE)	14	TONS
401.0520	ASPHALT CONCRETE PAVEMENT – MIX V (WAIPUNAHINA BRIDGE)	14	TONS
501.0100	STRUCTURAL STEEL – GALVANIZED, FOR END BLOCKS (4,800 LBS.) (KAUMOALII STREAM BRIDGE)	L.S.	L.S.
501.0200	STRUCTURAL STEEL – PIPE, FOR STOPPERS (2,000 LBS.) (WAIPUNAHINA BRIDGE)	L.S.	L.S.
503.6000	CONCRETE FOR SHEAR BLOCKS AND NEW ROCKER COLUMNS (KAUMOALII STREAM BRIDGE)	18	C.Y.
503.6100	CONCRETE FOR SHEAR BLOCKS, SEAT EXTENSIONS FOR PIPE STOPPERS, NEW BACKWALLS, AND WINGWALLS (WAIPUNAHINA BRIDGE)	110	C.Y.

GENERAL STRUCTURAL NOTES

1. General Specifications: State of Hawaii Department of Transportation, Standard Specifications for Road, Bridge, and Public Work Construction, 1994, and special provisions specification prepared for this contract.
2. Design Specification: ASSHTO LRFD, Bridge Design Specification, First Edition, 1994.
3. Contractor shall verify all dimensions, elevations and conditions shown for the existing bridges. Any discrepancies between field dimensions and plan dimensions shall be immediately reported to the engineer prior to the fabrication or installation of any parts that are related to the dimensions in dispute.
4. In the event certain features of the construction are not fully shown on drawings, or called for in the notes or specifications, their construction shall be of the same character as for similar conditions that are shown or called for. The construction shall be reviewed and approved by the Engineer.
5. Removal or cutting of concrete and steel in slabs and girders will not be allowed unless shown on the drawings, or approved by the Engineer in writing.
6. The Contractor shall provide all measures to protect the existing structures, workmen, and other persons during construction. Such measures shall include, but are not limited to, shoring and support of existing bridges, shoring for excavation, bracing for forms and scaffolding, shoring for construction equipment.
7. Design Loads:
- (A) Dead Loads: Weight of existing bridge
Concrete = 160 PCF
Steel = 490 PCF
A/C paving = 20 PSF Wearing surface
- (B) Earthquake (EQ): A (Acceleration Coefficient) = 0.41
Seismic performance category = D
Soil profile type = 1
8. Materials
- (A) Existing deck slabs, abutments, piers, walls, and footings are assumed to have f'c of 3000 PSI concrete.
- (B) Existing reinforcing steel assumed to consists of steel of intermediate grade, deformed bars with fy=40 KSI.
- (C) New concrete for seat extensions, creep blocks, and rocker columns have f'c=4000 PSI.
- (D) New reinforcing steel shall conform to ASTM A615, grade 60.
- (E) All rolled shapes, bars, stirrups, and plates shall conform to ASTM A36 steel, and shall be zinc hot-dip galvanized in accordance with ASTM A123 unless otherwise noted.
- (F) High strength, low alloy structural steel of a weldable quality conforming to ASTM A588 shall be used whenever fy=50 KSI is indicated for a steel member.
- (G) Welding electrodes shall conform to E70XX series or equivalent.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(48)	1999	4	15

- (H) Bolts shall conform to ASTM A325N. All bolts, nuts washers and shop welds shall be zinc hot-dip galvanized.
9. Reinforcement:
- (A) The minimum clear cover, measured from the surface of the concrete to the face of any reinforcing bar, shall be as follows:
- (1) Concrete cast against Earth 3"
- (2) Formed concrete exposed to earth and weather 2"
- (3) Beam – clear to tie or stirrup . . . 1 1/2"
- (4) Column – clear to tie or spiral 2"
- (5) Abutment, piers and retaining wall 2"
- (6) Others . . In accordance with AASHTO Standard Specifications for Highway Bridges.
- (B) Reinforcing bars shall be detailed in accordance with ACI manual of standard practice for detailing reinforced concrete highway structures, unless otherwise noted.
- (C) Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of the bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.
- (D) All dimensions relating to reinforcing bars (eg, spacing of bars, etc) are to centers of bars, unless otherwise noted.
10. Reference drawings for projects SDR 3(13) and SDR 3(14) have been used to prepare these plans. The contractor shall verify dimensions, member configurations, and member sizes prior to ordering and fabricating materials for the project. Conditions may be different than those shown.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
Shen-Chien Chiu

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL STRUCT. NOTES
SUMMARY OF ESTIMATED QUANTITIES

SEISMIC RETROFIT OF VARIOUS BRIDGES
VICINITY OF NORTH OF PAAULO
FEDERAL AID PROJECT NO. BR-019-2(48)

Date: August 16, 1999

SHEET No. TS-1 OF 15 SHEETS