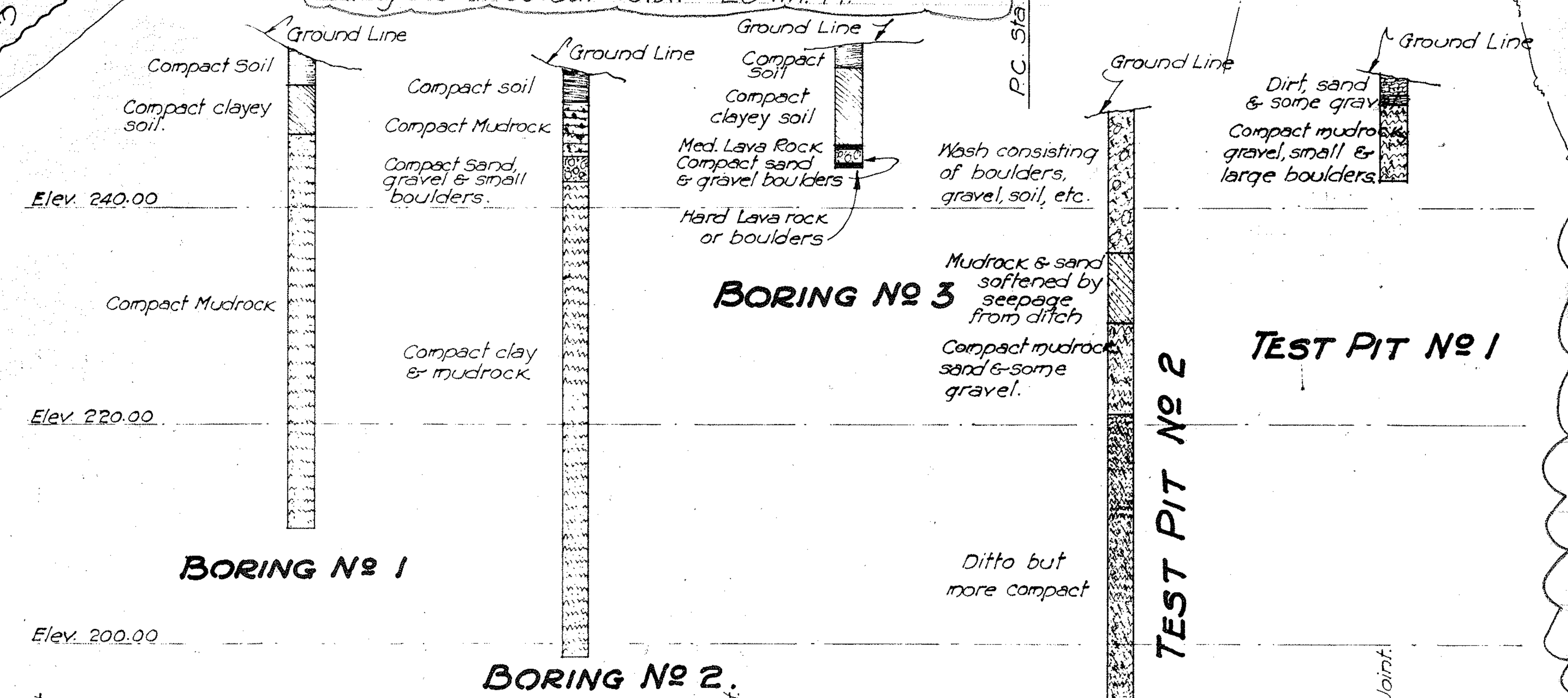
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-72	1972	27	43

Exact location of GRP swale and new drain holes to be determined by the engineer.
Note: Clean all existing 4"ϕ deck drain pipes. Incidental to drilling deck drain holes.
Slope 1" per ft. min. along axis of swale
Existing grade line
12" GRP
TYPICAL SECTION-GRP SWALE
Scale: 1/4" = 1'-0"
Abut. repair - see sht. # 3 & 4.
10 New 4 ϕ drains as located. Drill hole thru deck.
OLD ROAD
True North
Scale 1" = 20'
Reconstruct concrete railing Approx. 6 lin. ft.
Existing C.R.M. Paved Invert
NOTE RE-EMBANKMENTS.
Placing of embankment in layers and rolling shall conform with the specifications therefor; roller being used as long as there is clearance for its height.
Toe of fill
Warp GRP as required
G.R.P. Swale
Top of Bank
Edge of Pav't.
Shoulder Line
Reconstruct 2'-0" section of existing conc. rail.
Remove existing silt-hatch area. Incidental to G.R.P.
Construct 1'-6"X4'-0" high CRM cut-off wall & backfill
℄ of Roadway
To Honolulu
℄ of Guard Rail
Warp GRP as required
GRP Swale
Beginning of Bridge Sta. 36+56.48
RIGHT
LEFT
Hatched area washout. Use imported borrow to restore to approx. plan grade lines. 185 cu. yds.
Stream
LAYOUT OF BRIDGE. Scale: 1" = 20'
Repair & patch various locations along concrete railing as directed. Total - 20 lin. ft.
PC Sta. 39+65.23
3" Tile drains - Located as shown
End of Bridge Sta. 41+47.98
To Schofield
A3 115°20'
Expansion Joint
Boring No 1
Boring No 2
Boring No 3
Test Pit No 1
Test Pit No 2
℄ O.R.&L. Co. Track



Ground Line
Compact Soil
Compact clayey soil
Elev. 240.00
Compact Mudrock
Elev. 220.00
Elev. 200.00
BORING No 1
Compact soil
Compact Mudrock
Compact Sand, gravel & small boulders
Compact clay & mudrock
BORING No 2.
Compact Soil
Compact clayey soil
Med. Lava Rock Compact sand & gravel boulders
Hard Lava rock or boulders
BORING No 3
Wash consisting of boulders, gravel, soil, etc.
Mudrock & sand softened by seepage from ditch
Compact mudrock sand & some gravel.
Ditto but more compact
TEST PIT No 2
Dirt, sand & some gravel
Compact mudrock gravel, small & large boulders
TEST PIT No 1

GENERAL NOTES.

Dead Load:– Concrete at 150# per cu. ft.

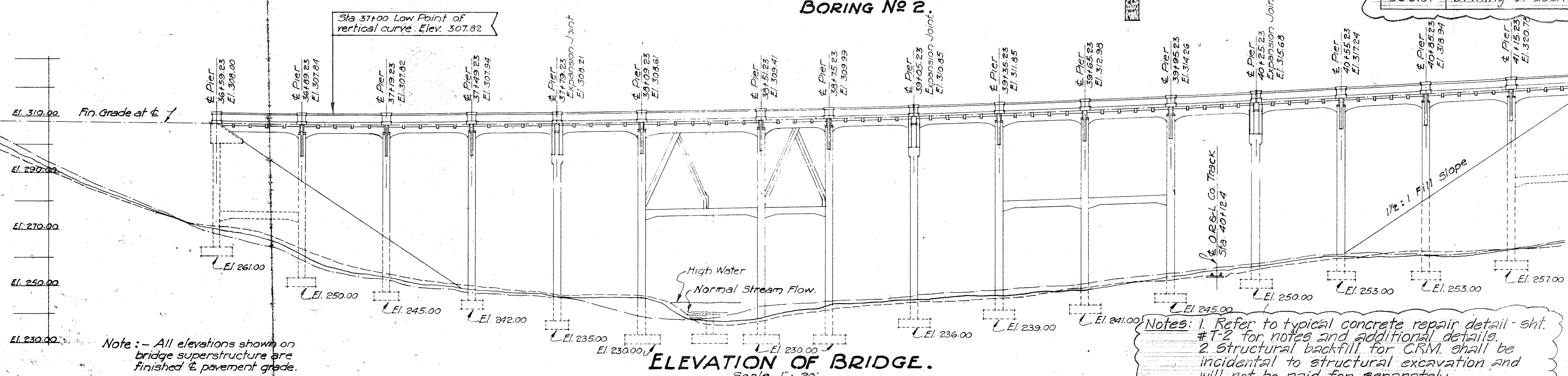
Live Load:– Train of 15 Ton trucks in three traffic lanes, spacing of trucks as per diagram with 30% allowance for impact.

Concrete:– Class "A" (1:2:4 mix) with all exposed edges chamfered 3/4" unless otherwise noted. Allowable compression 650# per sq. inch.

Reinforcing Steel:– Allowable tensile stress 16,000# per sq. inch. All steel to be round or square deformed bars of approved design, square twisted bars not to be considered deformed. All dimensions relating to reinforcement are to centers of bars unless otherwise noted. Where splicing of reinforcement is necessary bars are to be lapped 40 diameters & splices are to be staggered. Main longitudinal bars in girders cannot be spliced. No allowance will be made in the quantities for extra weight of steel required for splices. Unless otherwise noted the minimum covering measured from the surface of concrete to the face of any steel shall be not less than 2 1/2" in abutments and abutment footings; 2" in beams, girders & handrails and 1 1/4" in slabs. Steel to be held rigidly & accurately in place before and during placing of concrete.

ITEMS OF REPAIR AND ESTIMATED QUANTITIES

ITEM No	DESCRIPTION	UNIT	QUANTITY
640.08	Repairs to Kipapa Bridge with shotcrete and/or Hand-Placed Mortar - Types 1, 2 and 3	S.F.	15
612.92	Grouted Rubble Paving for Kipapa Bridge	C.Y.	14
508.91	Cement Rubble Masonry for Kipapa Br.	C.Y.	2
206.91	Structure excavation for CRM at Kipapa Bridge	C.Y.	3
646.11	Repairs to concrete Railing at Kipapa Br.	L.F.	28
203.91	Imported borrow	C.Y.	185
650.01	Drilling of deck drain holes at Kipapa Br.	Ea.	10



Sta. 37+00 Low Point of vertical curve. Elev. 307.82
Fin. Grade at ℄
Fin. Grade at ℄ + 6.40%
El. 310.00
El. 290.00
El. 270.00
El. 250.00
El. 230.00
High Water
Normal Stream Flow.
1 1/2 : 1 Fill Slope
℄ O.R.&L. Co. Track Sta. 40+12.4
El. 261.00
El. 250.00
El. 245.00
El. 242.00
El. 235.00
El. 230.00
El. 236.00
El. 239.00
El. 241.00
El. 253.00
El. 257.00

Note:– All elevations shown on bridge superstructure are finished ℄ pavement grade.

ELEVATION OF BRIDGE.

Scale 1" = 20'

Notes: 1. Refer to typical concrete repair detail - sht. #T-2 for notes and additional details.
2. Structural backfill for CRM. shall be incidental to structural excavation and will not be paid for separately.

THIS DRAWING IS IN PART ORIGINAL CONTRACT PLANS OF EXISTING KIPAPA BRIDGE FOR INFORMATION AND GUIDANCE TO REPAIR WORKS.

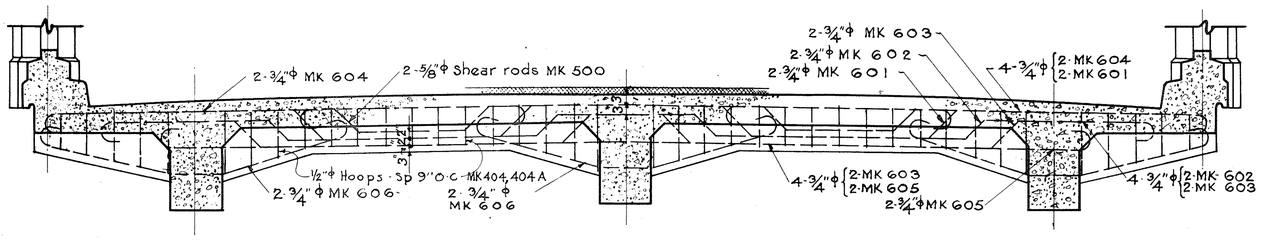
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

REHABILITATION AND REPAIRS TO KIPAPA BRIDGE

PROJ. No HWY-0-01-72 NOV. 1971

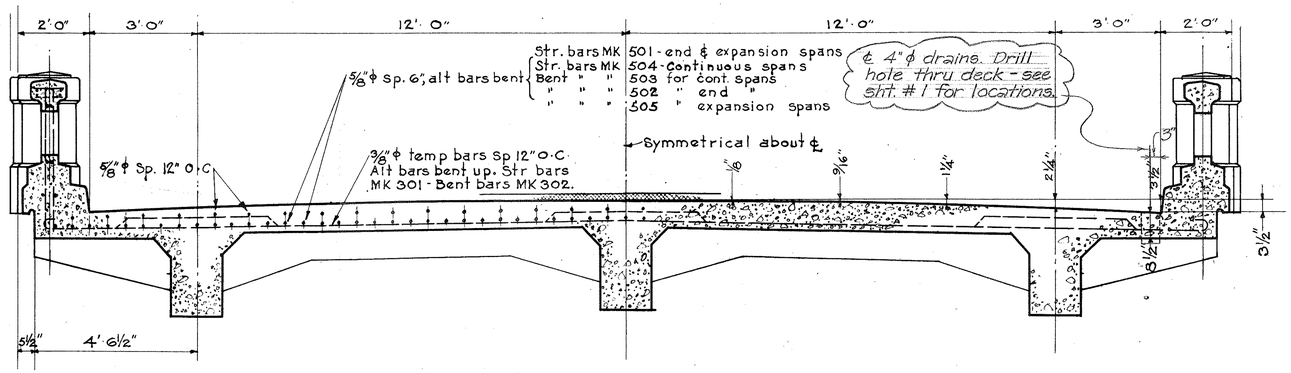
SHEET No. 1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-72	1972	28	43



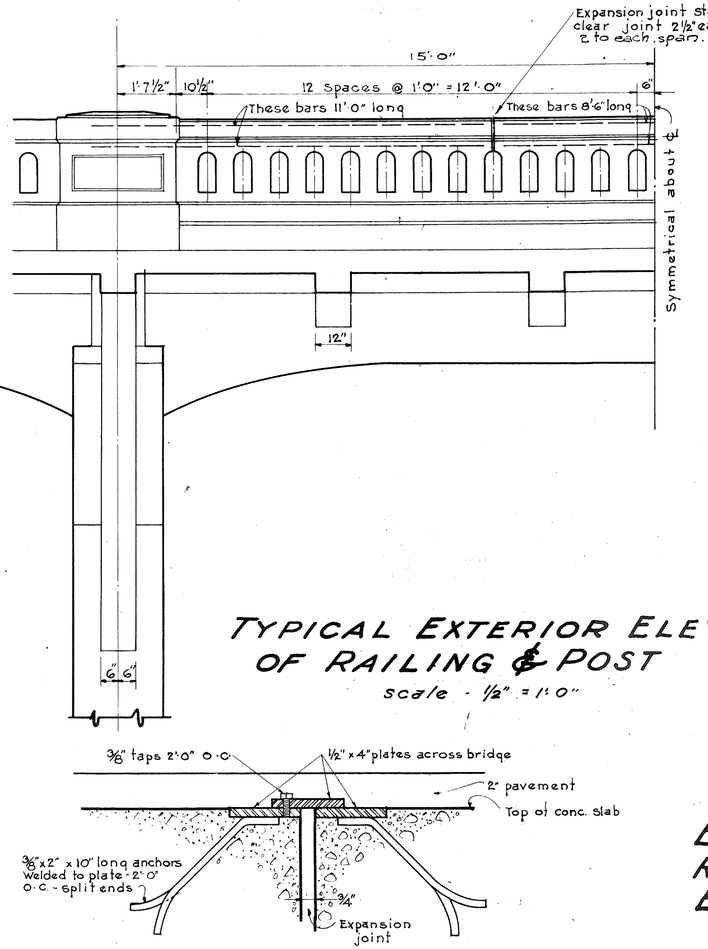
TYPICAL BEAM REINF. THRUOUT ENTIRE BRIDGE

Scale - ½" = 1'-0"



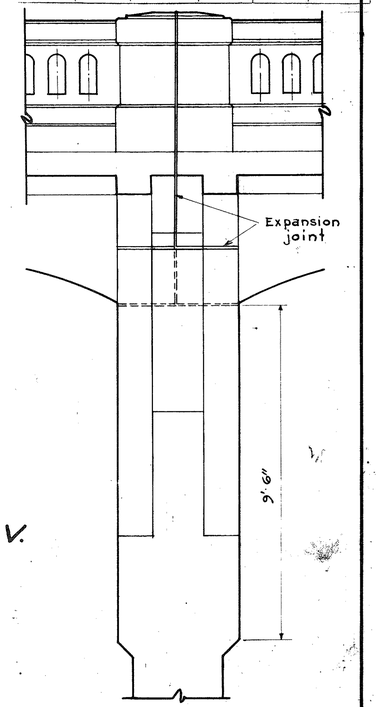
TYPICAL SLAB REINF. THRUOUT ENTIRE BRIDGE

Scale - ½" = 1'-0"



TYPICAL EXTERIOR ELEV. OF RAILING & POST

Scale - ½" = 1'-0"

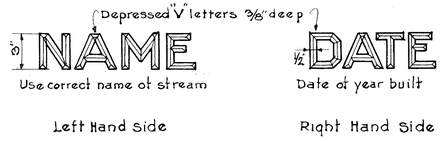


EXTERIOR ELEV. OF RAILING & POST AT EXPANSION JOINT

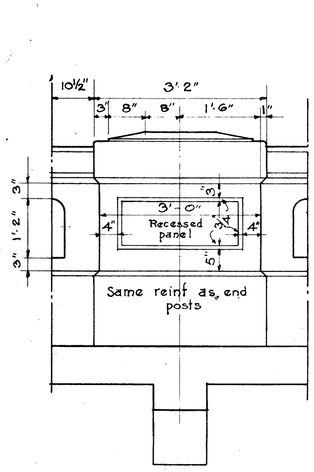
Scale - ½" = 1'-0"

TYPICAL DETAIL FOR EXPANSION JOINTS

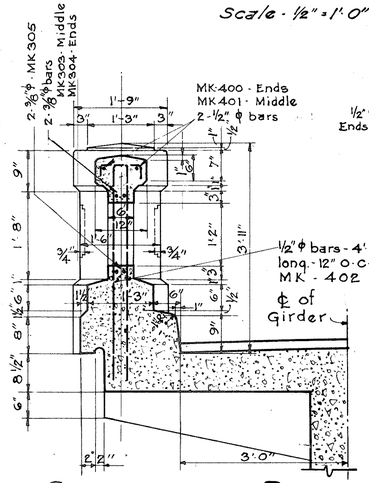
Scale - 3" = 1'-0"



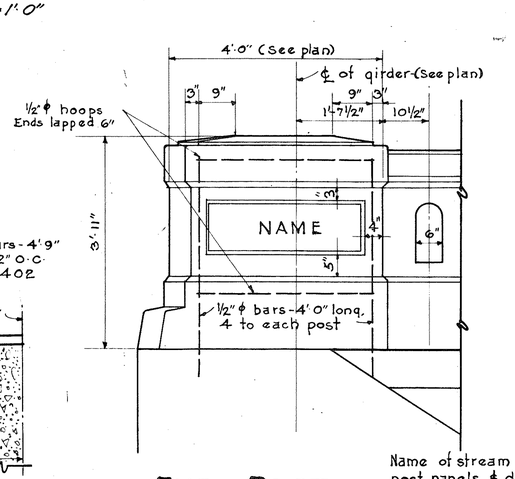
DETAIL OF LETTERS & FIGURES AT BOTH APPROACHES



INTERMEDIATE POST



SECTION OF RAIL



END POST

RAILING DETAILS

Scale - ¾" = 1'-0"

Name of stream to be placed in left end post panels & date in right end post panels on entering bridge, using standard block letters three inches in height.

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STATE OF HAWAII
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HIGHWAYS DIVISION

REHABILITATION AND REPAIRS TO KIPAPA BRIDGE

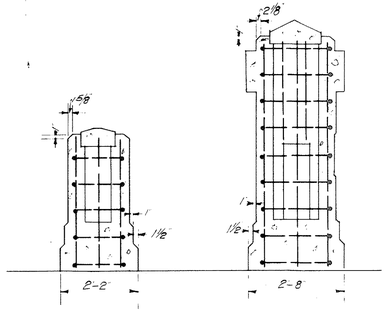
PROJ. NO. HWY-0-01-72 A.P. NOV., 1971

SHEET No. 2 OF 4 SHEETS

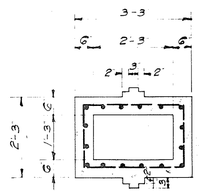
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-0172	1972	29	43

Hawaii Hwy. E-7-F 1992 15A 16

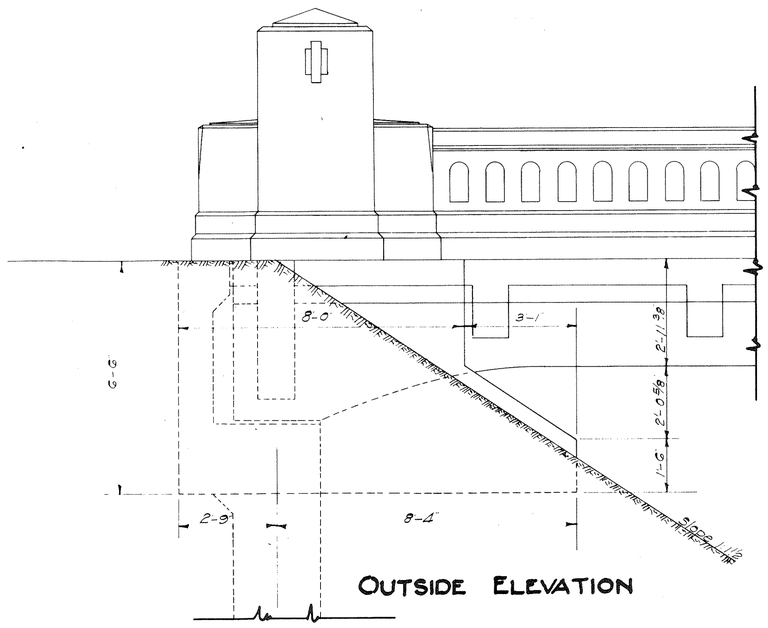
This sheet constitutes a revision of sheets #1265.15 & #1265.19 It supersedes the corresponding details on these sheets



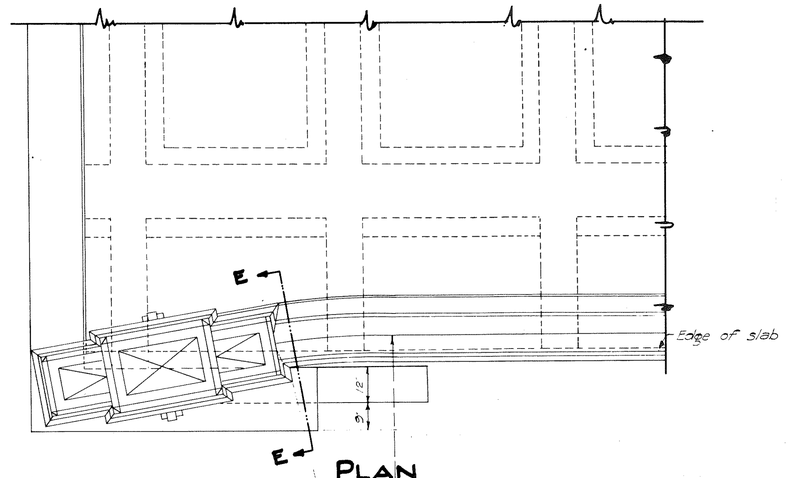
SECTION F-F SECTION B-B



SECTION D-D

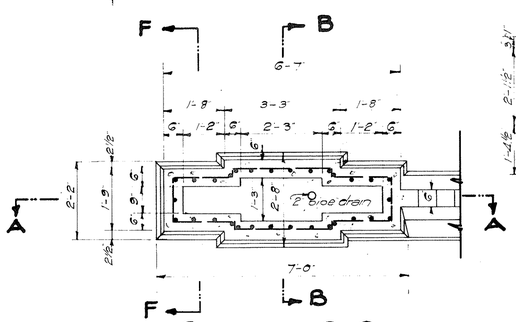


OUTSIDE ELEVATION

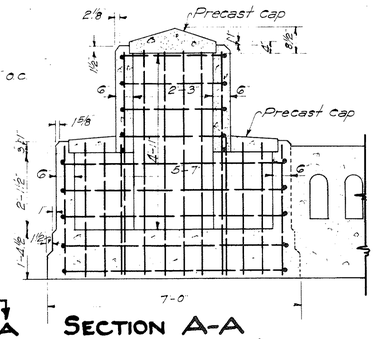


PLAN

NOTE:- All bars 3/8" Horizontals 3' o.c. verticals spaced as shown.



SECTION C-C

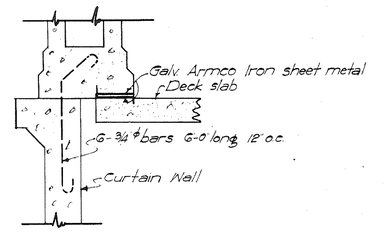


SECTION A-A

SECTION E-E

Surface crack (RIGHT) - conc. bracket. Chip & patch.

INSIDE ELEVATION



DETAIL SHOWING ANCHORAGE OF END POST TO CURTAIN WALL & EXPANSION JOINT BETWEEN END POST & DECK

QUANTITES FOR ONE END POST

	conc (cu Yds)	steel (Lbs)
Revised End Post	2.53	114
Original End Post	1.80	47
Difference	1.33	67

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REHABILITATION AND REPAIRS TO KIPAPA BRIDGE

PROJ. NO HWY-0-01-72 NOV., 1971

SHEET No. 3 OF 4 SHEETS

Architectural Design By B.C.D 3/33
Engineering Design By N.R.B.
Traced By N.C.Y.

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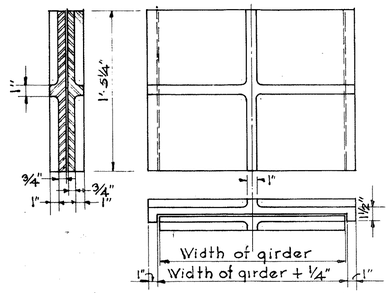
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-72	1972	30	43

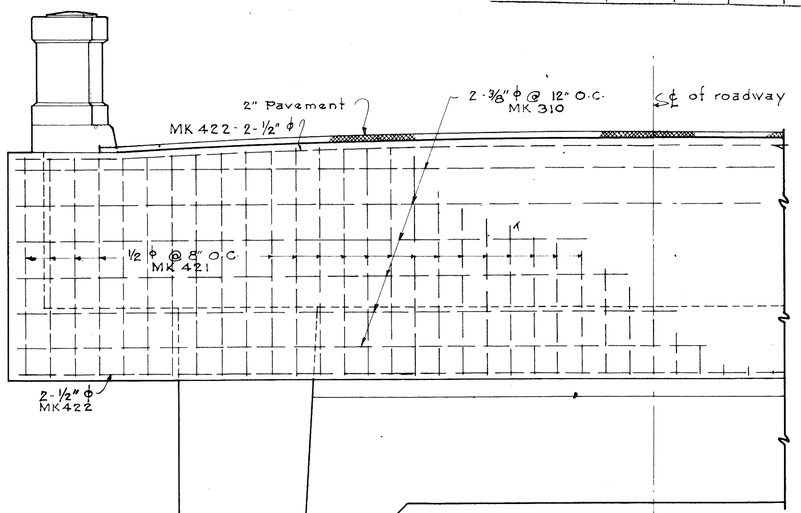


Plates to be Phosphor Bronze with all bearing surfaces milled to true planes. Immediately before placing plates all bearing surfaces shall be treated with graphite.

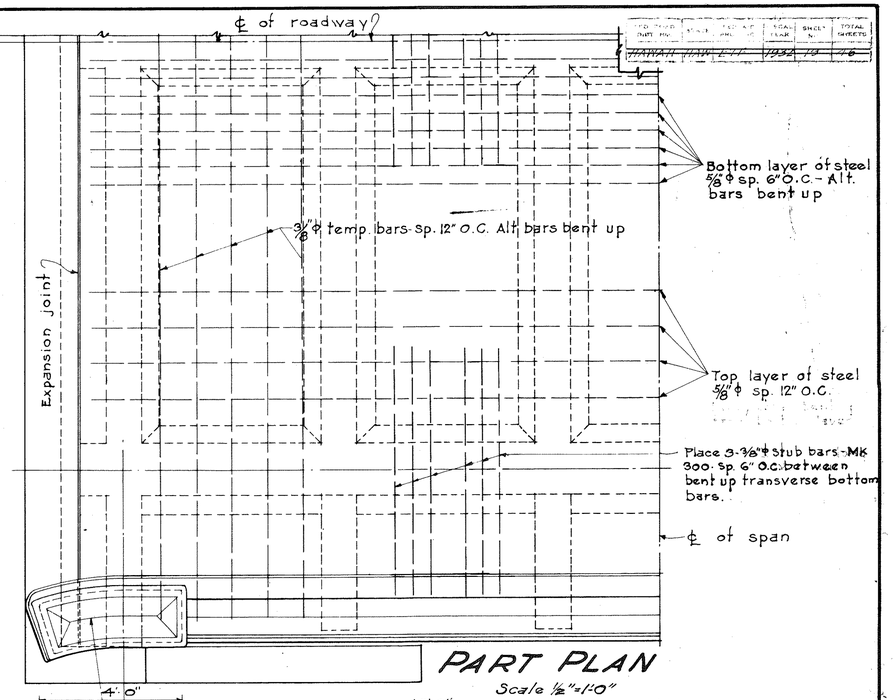
EXPANSION PLATES

Scale - 1½" = 1'-0"

24 PAIR REQUIRED

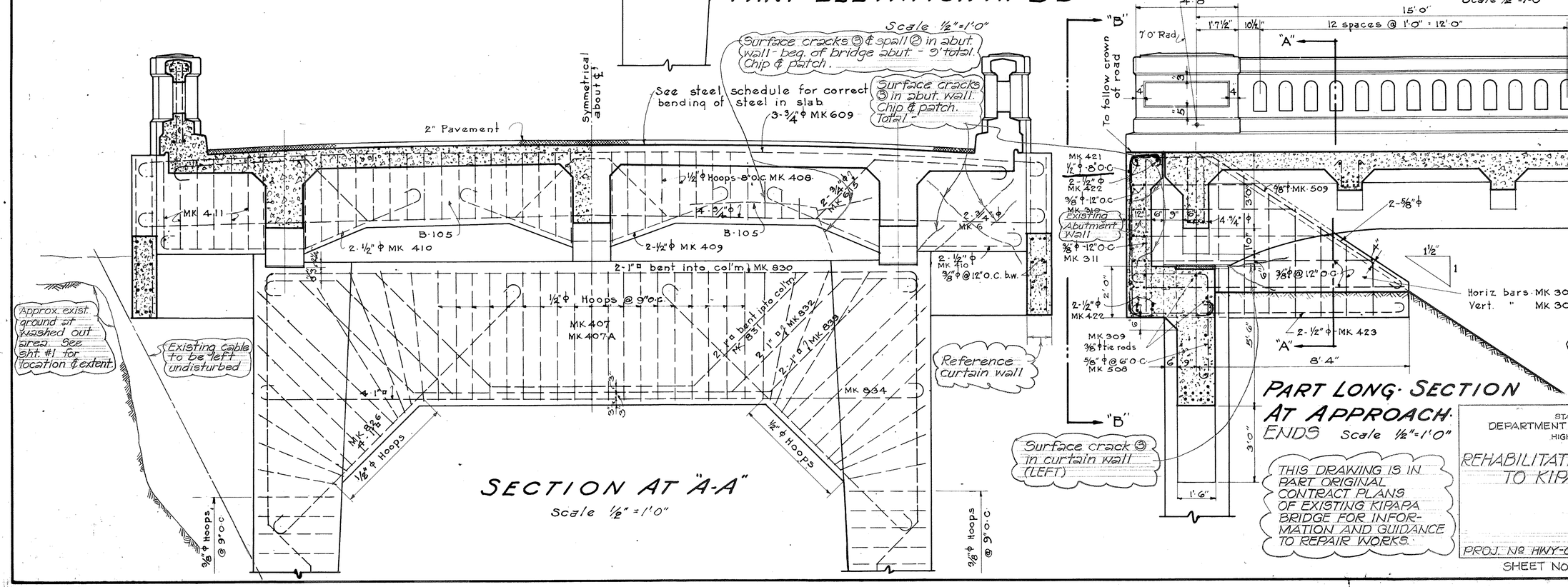


PART ELEVATION AT "B-B"



PART PLAN

Scale ½" = 1'-0"



SECTION AT "A-A"

Scale ½" = 1'-0"

PART LONG. SECTION AT APPROACH ENDS

Scale ½" = 1'-0"

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REHABILITATION AND REPAIRS TO KIPAPA BRIDGE

PROJ. NO. HWY-0-01-72 NOV., 1971

SHEET NO. 4 OF 4 SHEETS