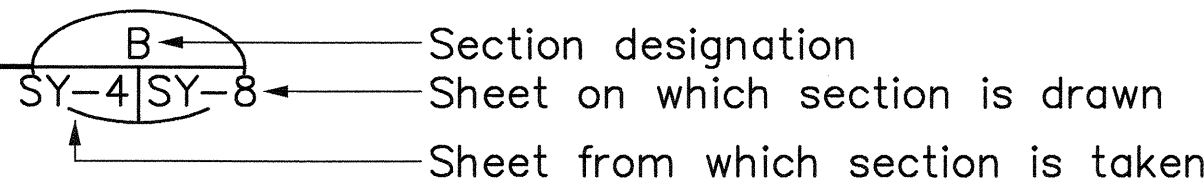


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	219	325

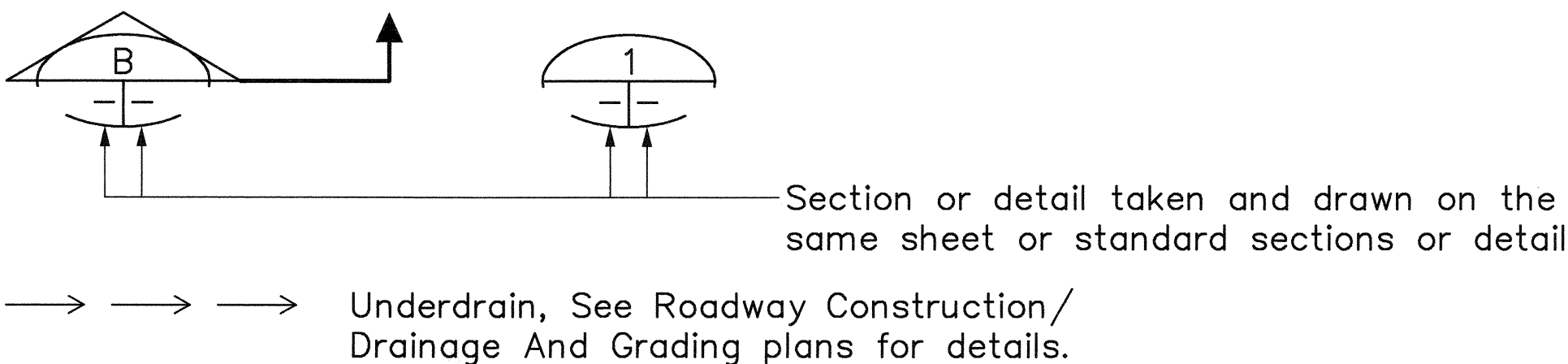
LEGEND:

- Facilities abandoned or removed
- Facilities to be abandoned when new facilities are installed.
- ☒ Junction box, Signals
18"Wx24"Lx12"D
- ☐ Pullbox Communications, existing
- ☐ Pullbox Communications, in grade
See Sht. No. SY-9 for details.
- ☐ Pullbox Electrical, existing
- ☐ Pullbox Signals, existing
- ☒ Pullbox Signals, in grade
See State Std. Plan No. TE-41 and Sht. No. SY-9 for details.
- ☐ Pullbox Street Lighting, see electrical plans for details.
- ☒ Pullbox Traffic Bearing
See Sht. No. SY-11 for details
- ←○ Street lighting standard and foundation
- Duct, existing
- Duct
- Conduit, direct buried
- Conduit type (C, communications; L, street light; P, power; S, signals)
- Conduit size (in inches)
- C4S Rigid galvanized steel conduit indicator (S, if required)
- I1.5 Innerduct size (in inches)
- Innerduct indicator (I, innerduct required, -, innerduct not required)
- Existing conduit type (C, communications; L, street light; P, power; S, signals)
- S3 Existing conduit size (in inches)
- A Duct section. See Sht. No. SY-10 for details.

SECTION



DETAIL

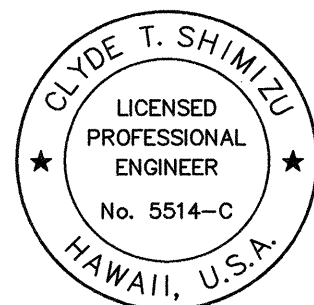


ABBREVIATIONS:

- AC Asphalt concrete
- ACB Asphalt concrete base
- AG Aviation gas
- AGGR. Aggregate
- BCT Breakaway cable terminal
- Baseline
- C Communication
- CCTV Closed circuit television
- CRM Cement rubble masonry
- CT Cable television
- DB Direct buried
- E Electric
- EB Encased buried
- Exist. Existing
- G Gas
- GRP Grouted rubble paving
- HH Handhole
- HT-TP Transpac land cable
- Hwy. Highway
- JF Jet fuel
- JB Junction box
- JTS Joint trunking cables
- MH Manhole
- NPW Non-potable water
- N.T.S. Not to scale
- Pavt. Pavement
- P Power
- PB Pullbox
- P.C. Point of curvature
- P.C.C. Point of compound curvature
- P.I. Point of intersection
- P.O.T. Point on tangent
- P.T. Point of tangency
- RGS Rigid galvanized steel
- S Sewer, Signals
- SD Storm drain
- SL Street light
- Sta. Station
- T Telephone
- TC Traffic controller
- W Water
- WM Water meter
- WV Water valve

NOTES:

- The Contractor shall verify the presence of existing aerial utilities which may conflict with construction activities and shall coordinate with the utility company for temporary relocation, as necessary.
- The underground pipes, cables or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities and exercise proper care in excavating the area.
- When the existing utility is in conflict with the proposed utility, the Contractor shall notify the Engineer. The Engineer will determine if relocation is necessary.
- Whenever connection of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines to verify their locations and depths prior to excavation for the new lines.
- All existing utilities, whether or not shown on plan, shall be protected at all times during construction unless otherwise noted. Any damage to them shall be repaired and paid for by the Contractor. Personnel injury resulting from contact with the existing utilities shall be the Contractor's responsibility.
- The Contractor shall restore all existing facilities to the satisfaction of the Engineer including restoration of fences, guardrails, landscaping, irrigation, etc., in areas used for staging, stockpiling and construction.
- When excavating near walls, fences, utility poles, guardrails, street lighting poles and other improvements, the Contractor shall protect, support, secure and take all other precautions to prevent damaging these improvements.
- Materials:
A. All reinforcing steel shall be ASTM designation A615 grade 60, unless otherwise noted.
B. All concrete shall be class B, unless otherwise noted.
- Pullboxes are referenced by station to the centerline of structure.
- Surfaces of existing concrete against which concrete is to be placed shall be thoroughly cleaned of surface laitance and other material foreign to concrete.
- The spacing between ducts of different sizes shall be in accordance with the spacing requirements of the larger duct. For spacing requirements between different utility systems see "Title-VI Public Utilities Commission, rules for construction of underground electric and communication systems, General Order No. 10". See sheet no. SY-10 for duct section details.
- When existing guardrails are to be temporarily removed in order to facilitate construction, the Contractor shall be responsible for public vehicular and pedestrian safety in accordance with the Specifications Section 606 "Guardrail".
- Steel plates for covering trenches shall have skid resistant surface.
- Thread and cap at each end all unused sleeves through structure and all conduits that do not terminate in a pullbox or junction box.
- Conduit sizes shown are the minimum inside diameter required.
- See Special Provisions for use of expansion fittings.



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**SYSTEMS LEGEND,
ABBREVIATIONS & NOTES**

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

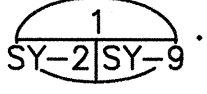
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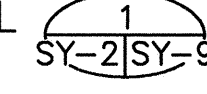
SHEET NO. SY-1 OF 11 SHEETS

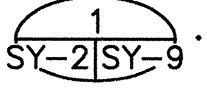
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	220	325

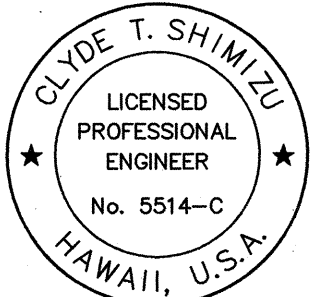
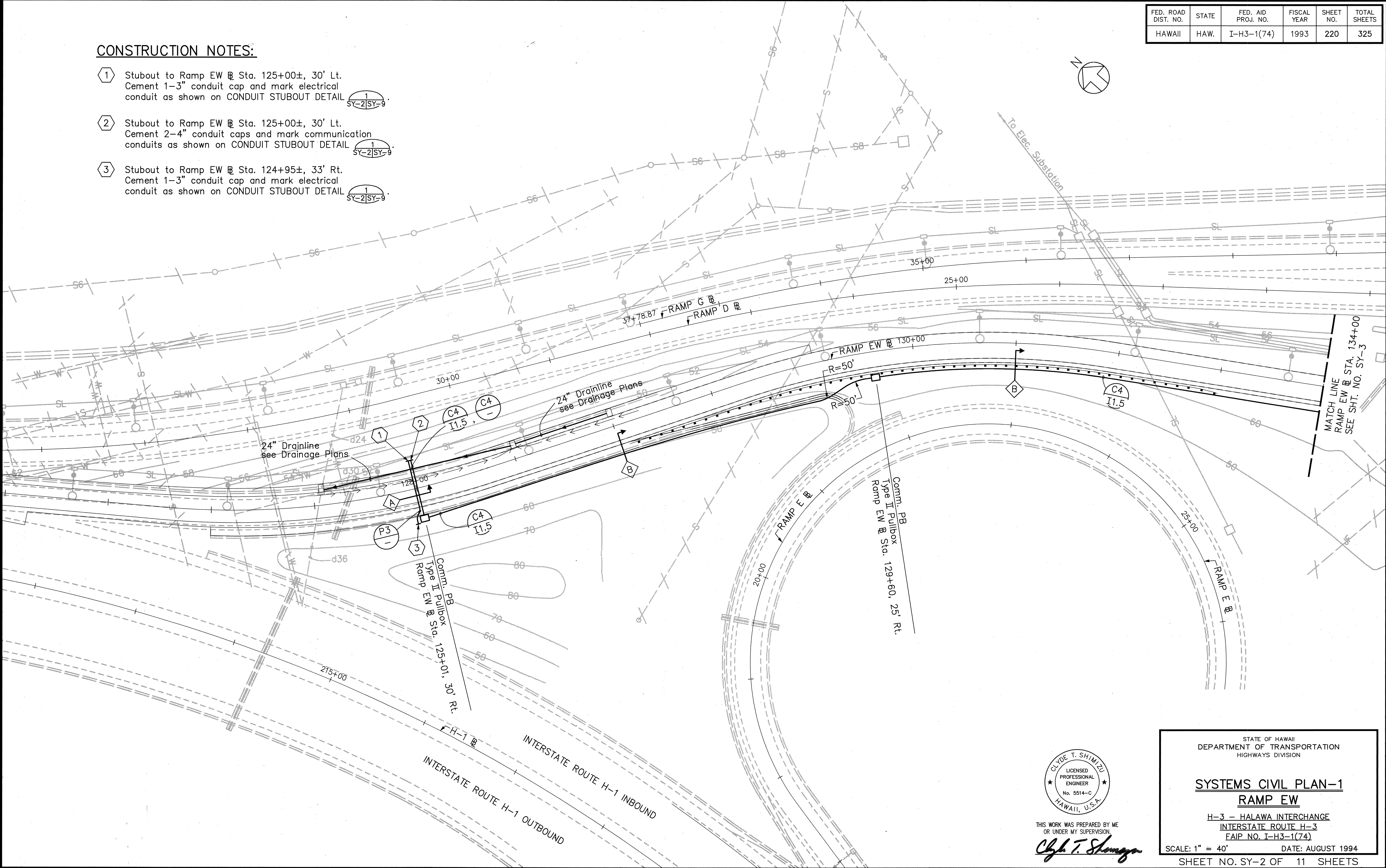
CONSTRUCTION NOTES:

- 1

Stubout to Ramp EW @ Sta. 125+00±, 30' Lt.
Cement 1-3" conduit cap and mark electrical conduit as shown on CONDUIT STUBOUT DETAIL 
- 2

Stubout to Ramp EW @ Sta. 125+00±, 30' Lt.
Cement 2-4" conduit caps and mark communication conduits as shown on CONDUIT STUBOUT DETAIL 
- 3

Stubout to Ramp EW @ Sta. 124+95±, 33' Rt.
Cement 1-3" conduit cap and mark electrical conduit as shown on CONDUIT STUBOUT DETAIL 



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SYSTEMS CIVIL PLAN-1
RAMP EW

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: 1" = 40' DATE: AUGUST 1994

SHEET NO. SY-2 OF 11 SHEETS

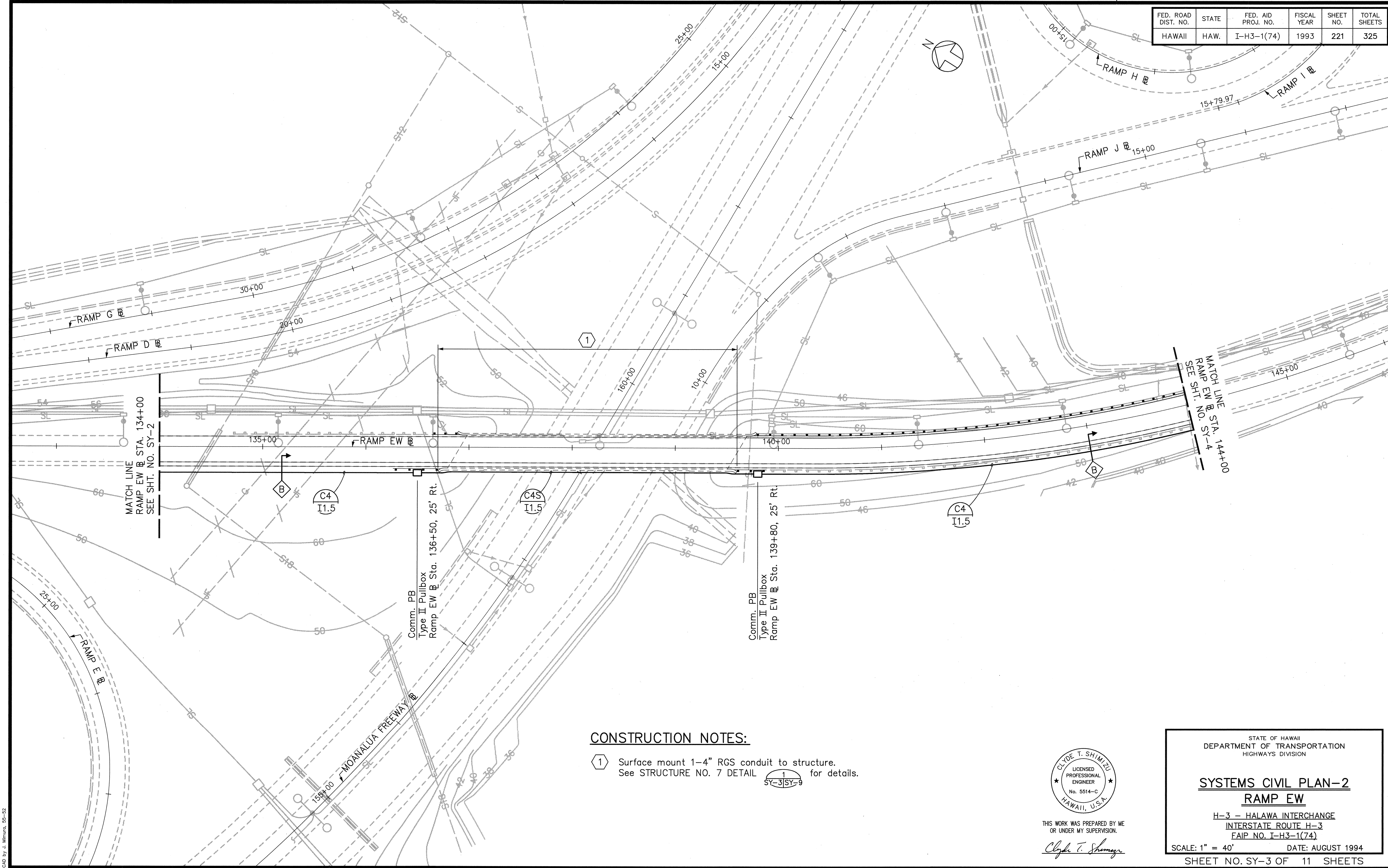
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
TRACED BY		
DESIGNED BY		
CHECKED BY		
No.		

CAD by J. Mima, 95-52

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	221	325

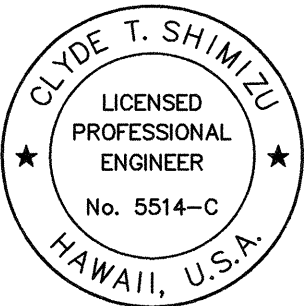
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

CAD by J. Minura, 55-52



CONSTRUCTION NOTES:

- 1 Surface mount 1-4" RGS conduit to structure. See STRUCTURE NO. 7 DETAIL SY-3/SY-9 for details.



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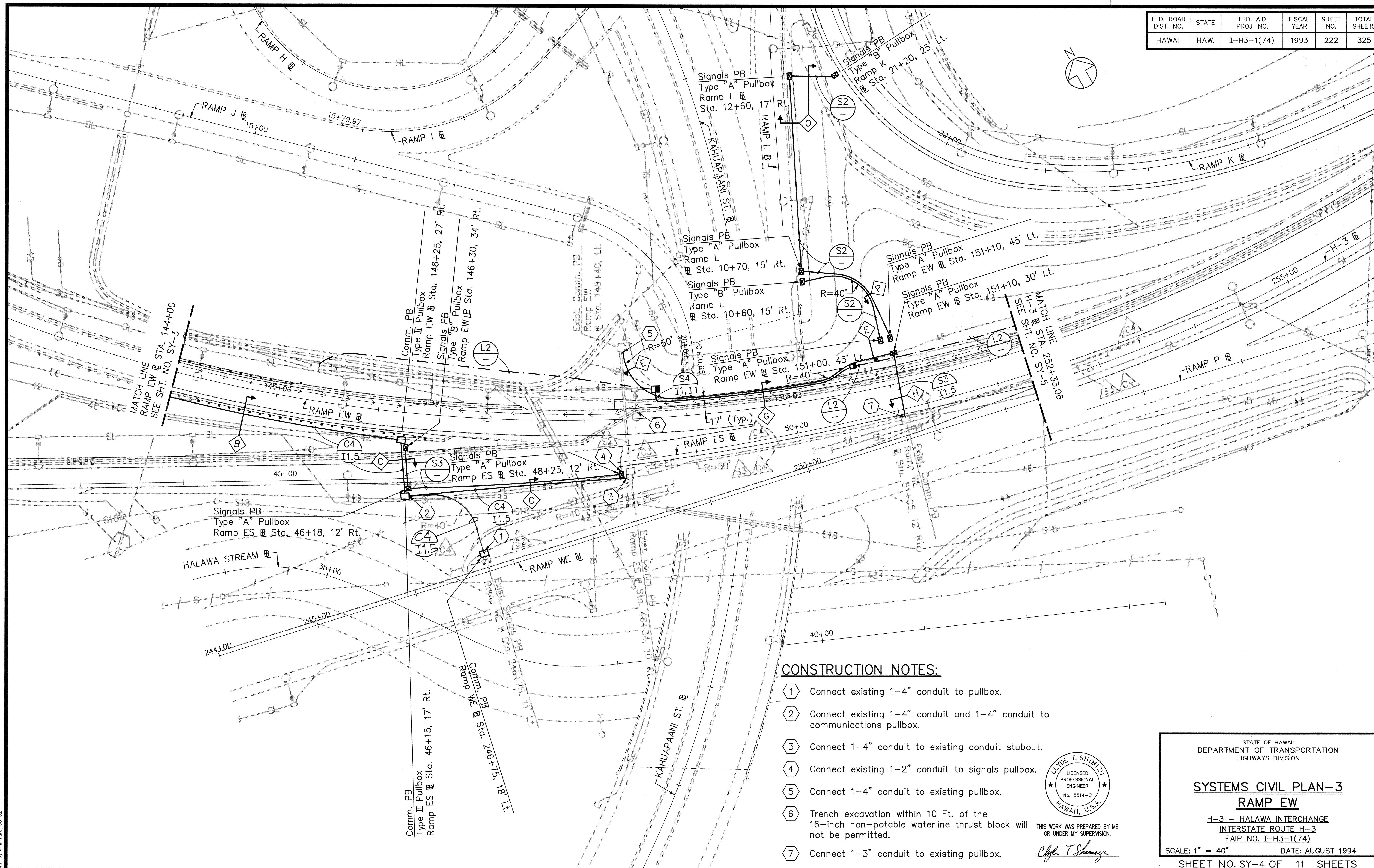
Clyde T. Shimizu

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYSTEMS CIVIL PLAN-2
RAMP EW
H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

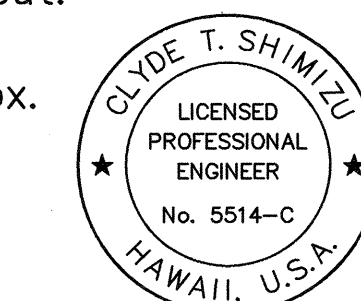
SCALE: 1" = 40'
DATE: AUGUST 1994
SHEET NO. SY-3 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	222	325



CONSTRUCTION NOTES:

- 1 Connect existing 1-4" conduit to pullbox.
- 2 Connect existing 1-4" conduit and 1-4" conduit to communications pullbox.
- 3 Connect 1-4" conduit to existing conduit stubout.
- 4 Connect existing 1-2" conduit to signals pullbox.
- 5 Connect 1-4" conduit to existing pullbox.
- 6 Trench excavation within 10 Ft. of the 16-inch non-potable waterline thrust block will not be permitted.
- 7 Connect 1-3" conduit to existing pullbox.



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SYSTEMS CIVIL PLAN-3 RAMP EW

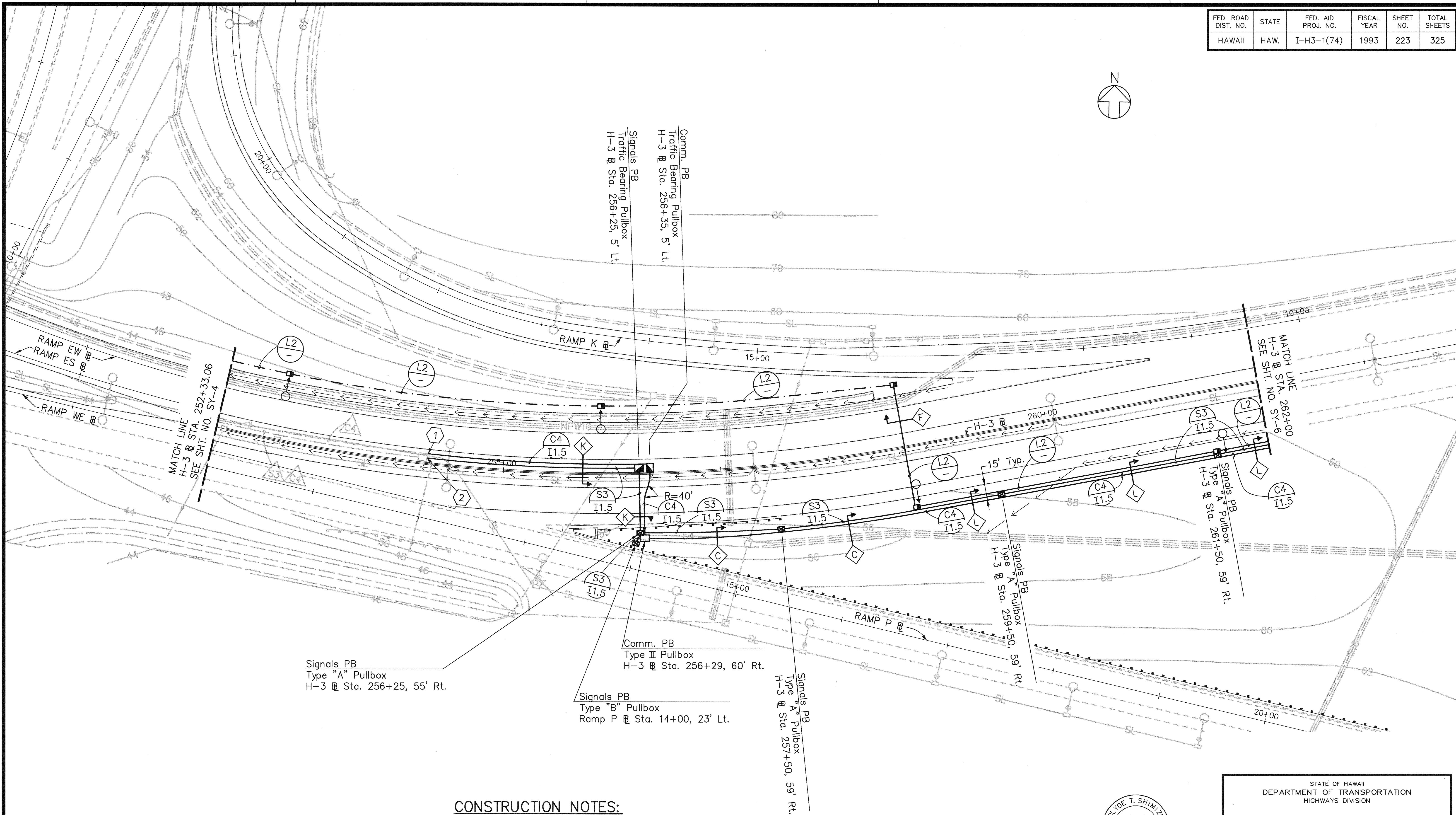
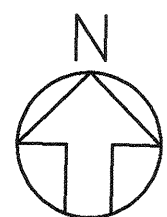
H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: 1" = 40' DATE: AUGUST 1994

SHEET NO. SY-4 OF 11 SHEETS

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NOTE BOOK	DRAWN BY	
QUANTITIES BY	DESIGNED BY	
CHECKED BY		
No.		

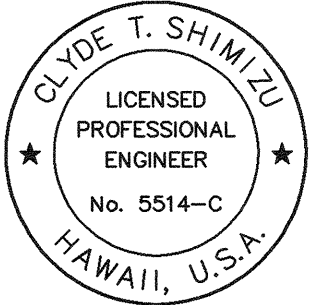
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HAWAII	HAW.	I-H3-1(74)	1993	223	325



CONSTRUCTION NOTES:

- ① Connect 1-4" conduit to existing conduit stubout.
- ② Connect 1-3" conduit to existing pullbox.

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



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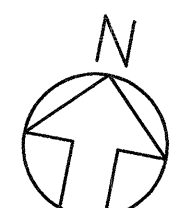
SYSTEMS CIVIL PLAN-4
INTESTATE ROUTE H-3

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: 1" = 40' DATE: AUGUST 1994

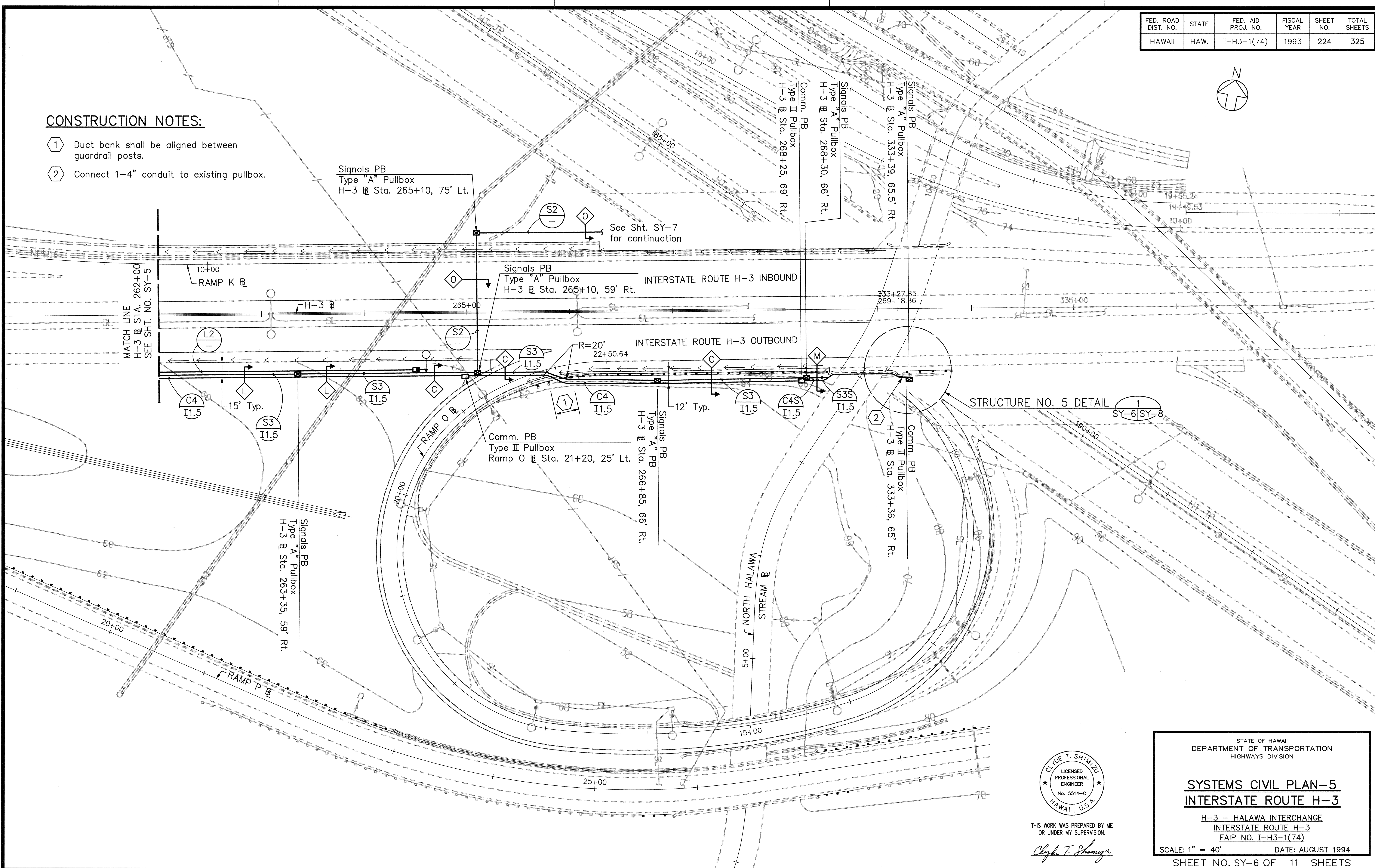
SHEET NO. SY-5 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	224	325

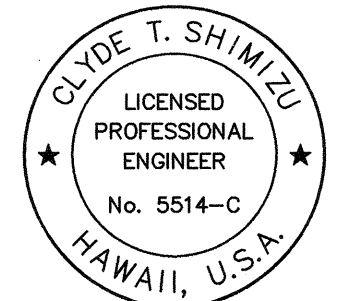


CONSTRUCTION NOTES:

- ① Duct bank shall be aligned between guardrail posts.
- ② Connect 1-4" conduit to existing pullbox.



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
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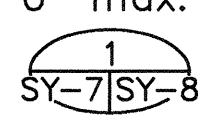
SYSTEMS CIVIL PLAN-5
INTERSTATE ROUTE H-3

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

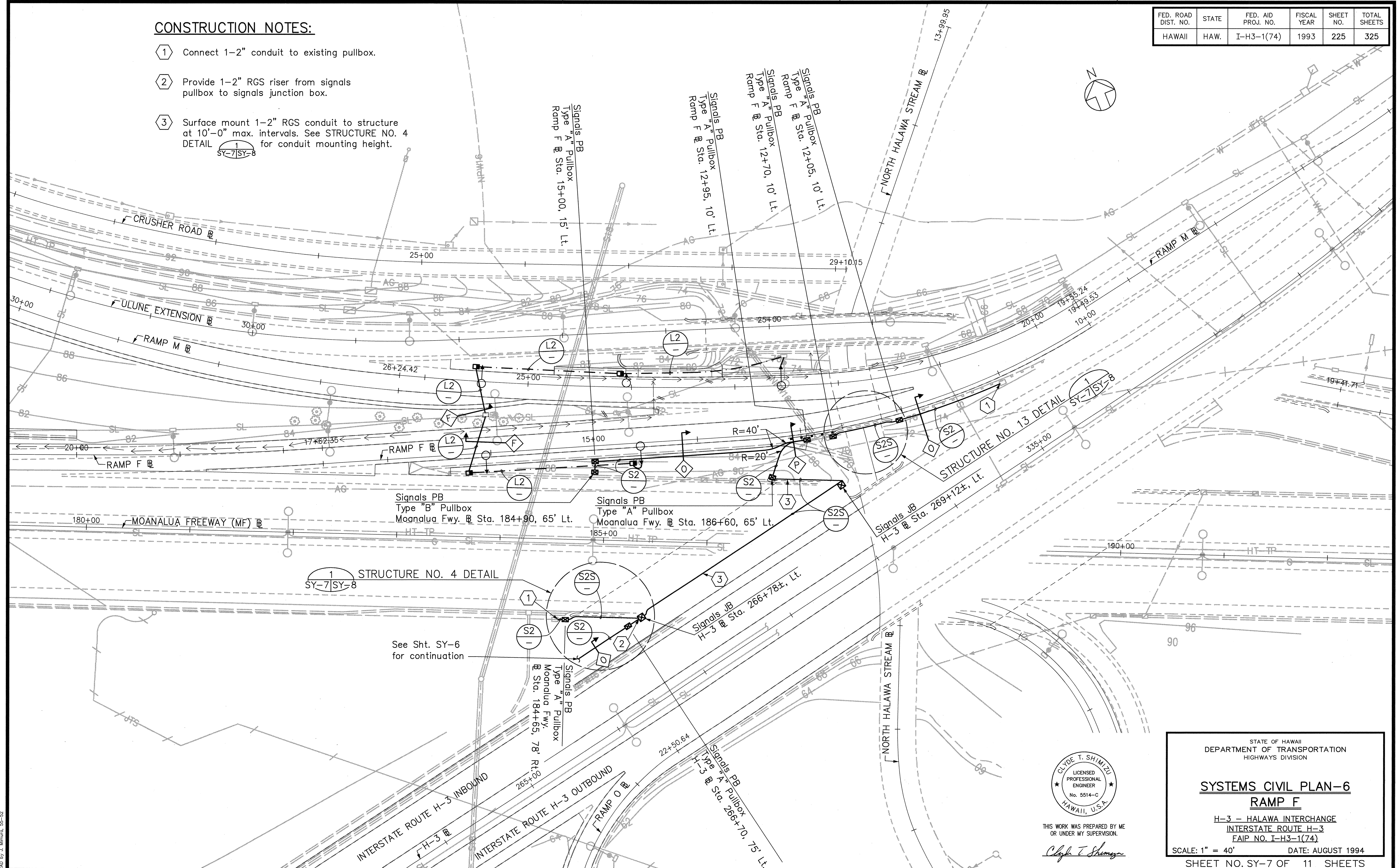
SCALE: 1" = 40' DATE: AUGUST 1994

SHEET NO. SY-6 OF 11 SHEETS

CONSTRUCTION NOTES:

- 1 Connect 1-2" conduit to existing pullbox.
- 2 Provide 1-2" RGS riser from signals pullbox to signals junction box.
- 3 Surface mount 1-2" RGS conduit to structure at 10'-0" max. intervals. See STRUCTURE NO. 4 DETAIL  for conduit mounting height.

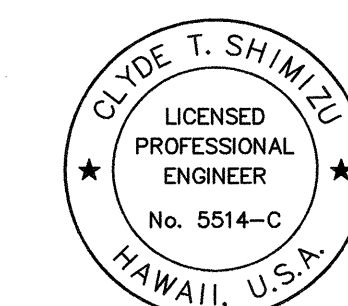
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HAWAII	HAW.	I-H3-1(74)	1993	225	325



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

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Last Saved: G:\HALAWA\SYSTEMS\SY07A.dwg 11/19/94 at 11:18



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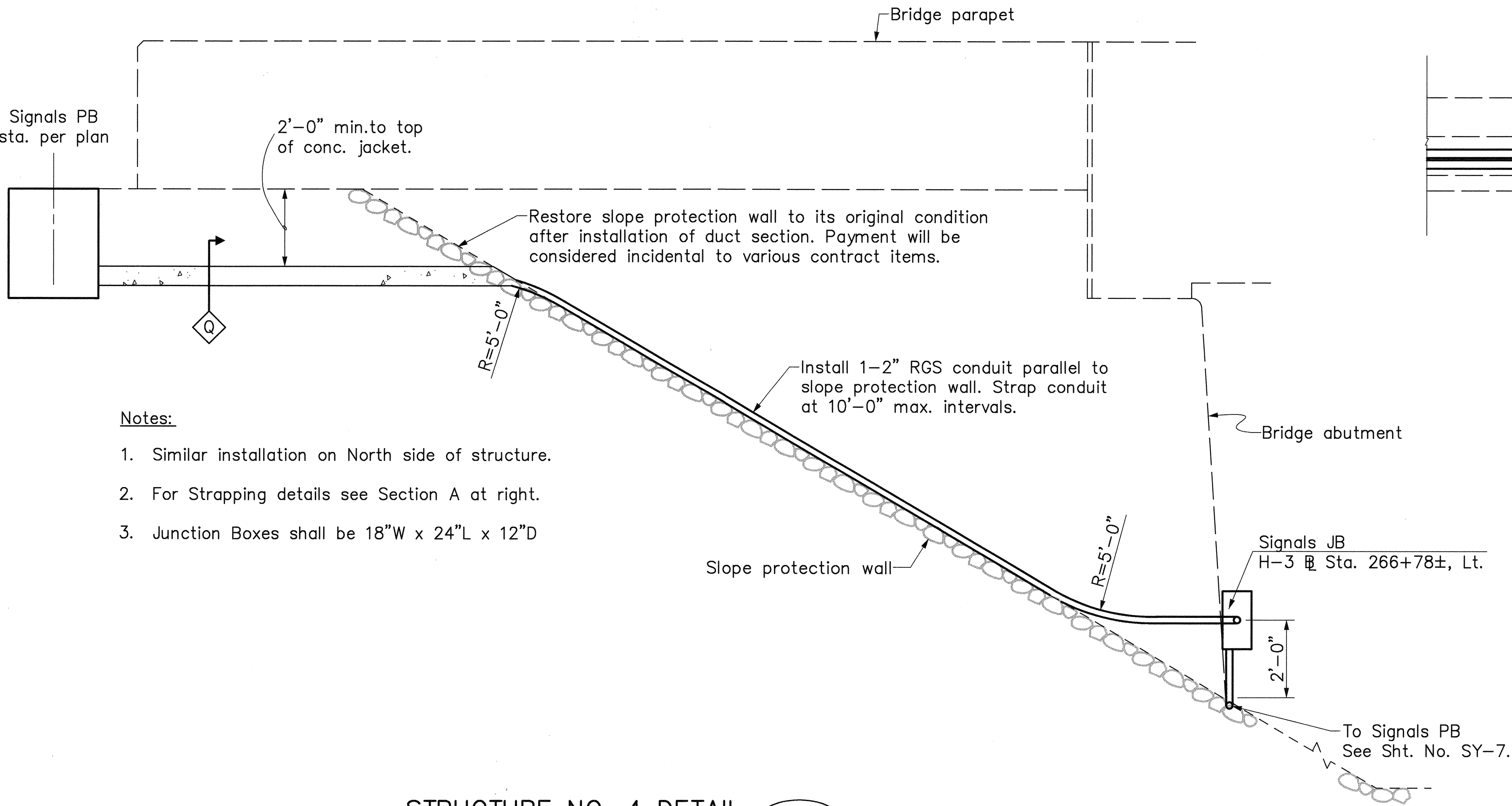
SYSTEMS CIVIL PLAN-6 RAMP F

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

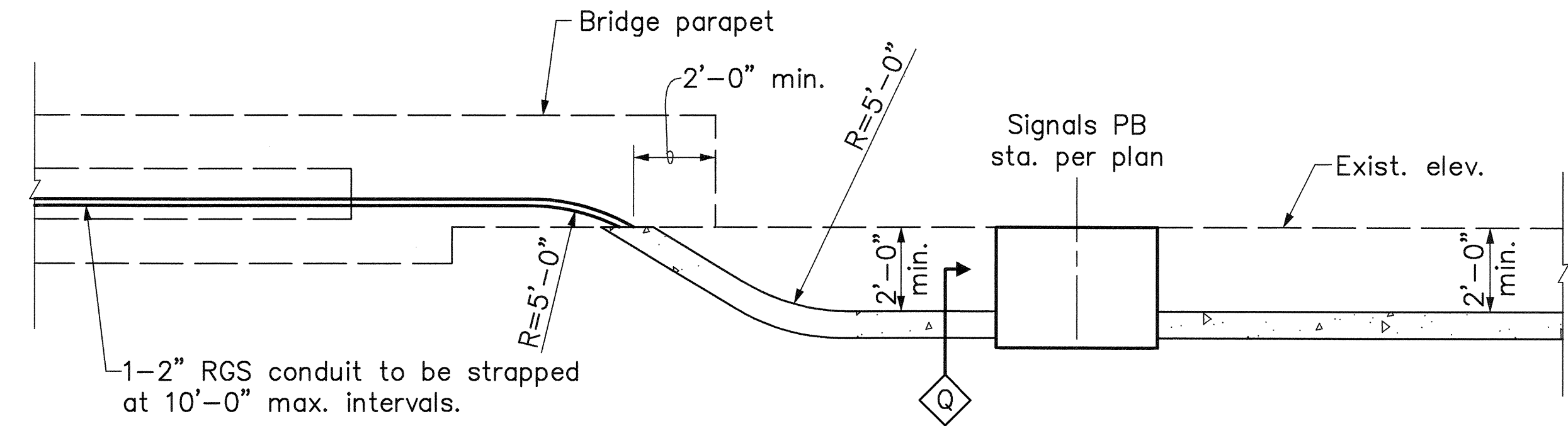
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SHEET NO. SY-7 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	226	325

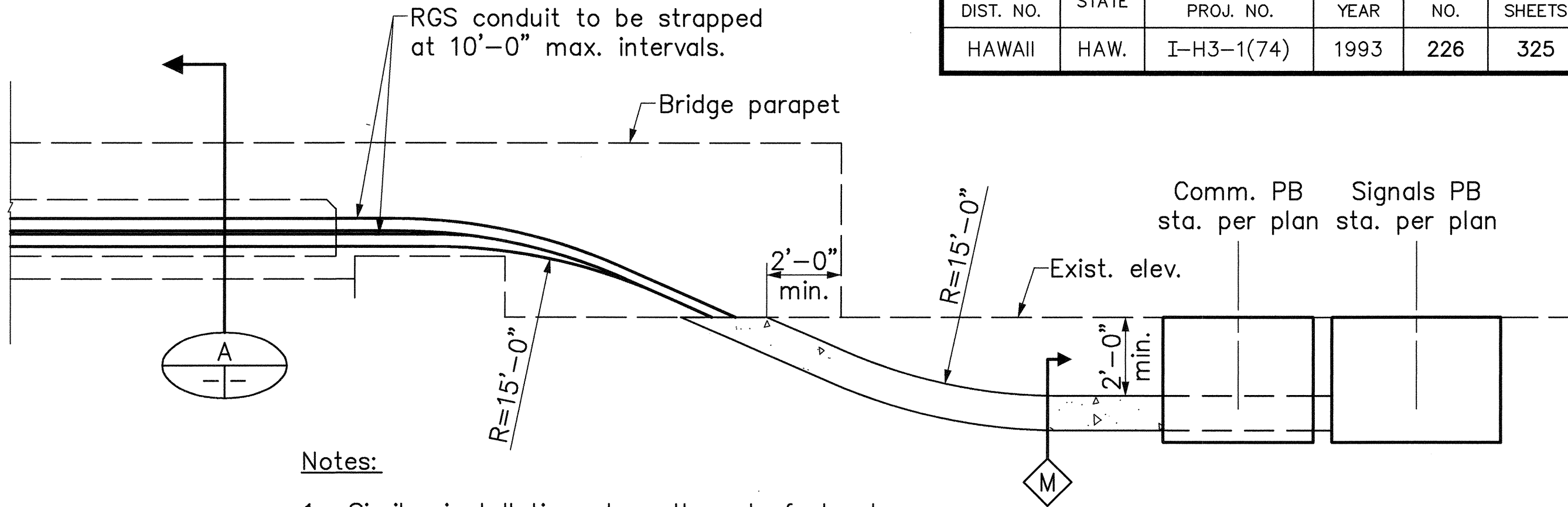


STRUCTURE NO. 4 DETAIL
WEST ABUTMENT
Scale: 1"=2'-0"



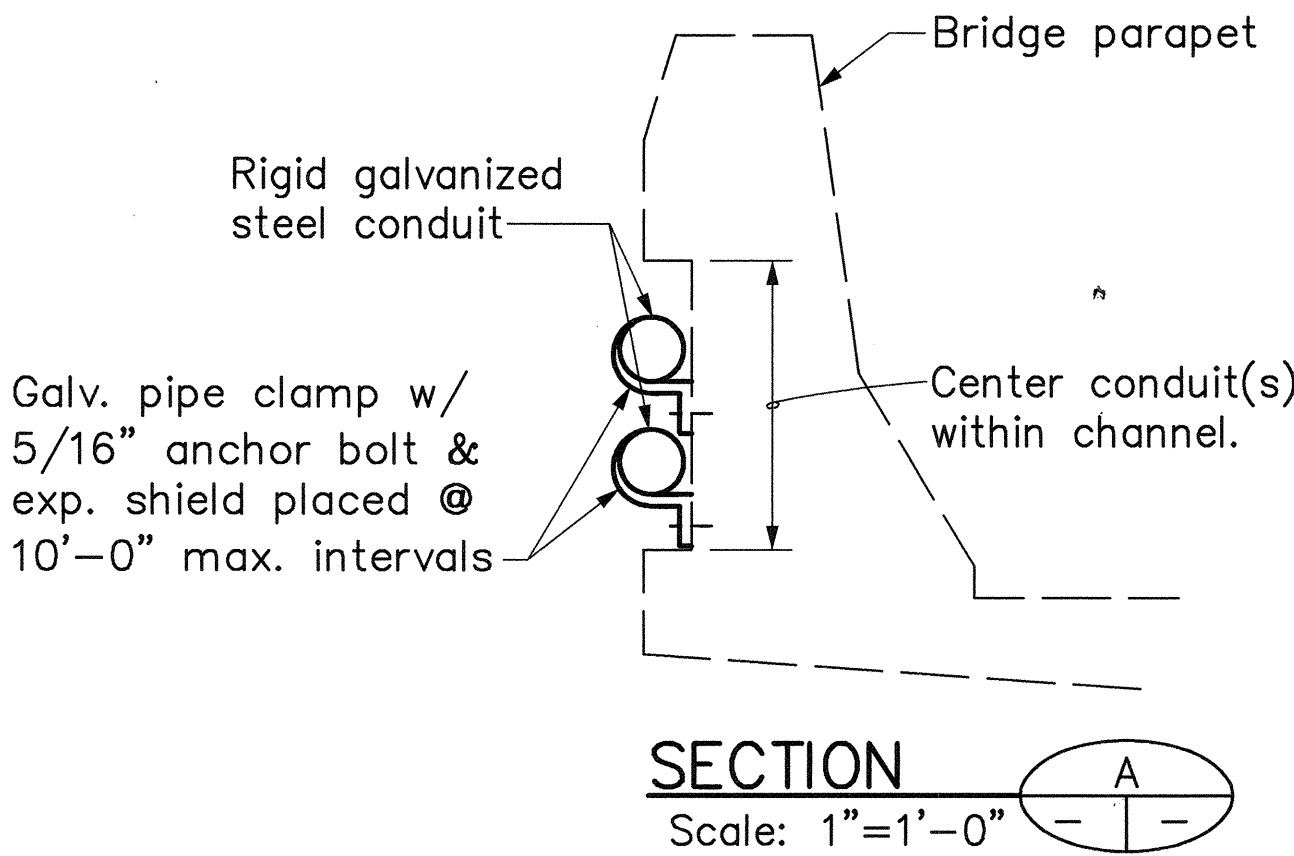
- Notes:
1. Similar installation at west end of structure.
 2. For Strapping details see Section A at right.

STRUCTURE NO. 13 DETAIL
Scale: 1"=3'-0"

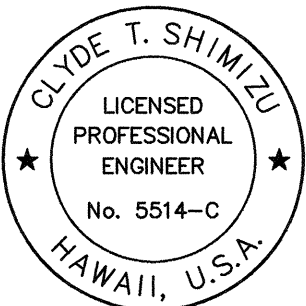


- Notes:
1. Similar installation at south end of structure.
 2. For Strapping details see Section A below.

STRUCTURE NO. 5 DETAIL
Scale: 1"=3'-0"



SURVEY PLOTTED BY	DATE
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QUANTITIES BY	
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HIGHWAYS DIVISION

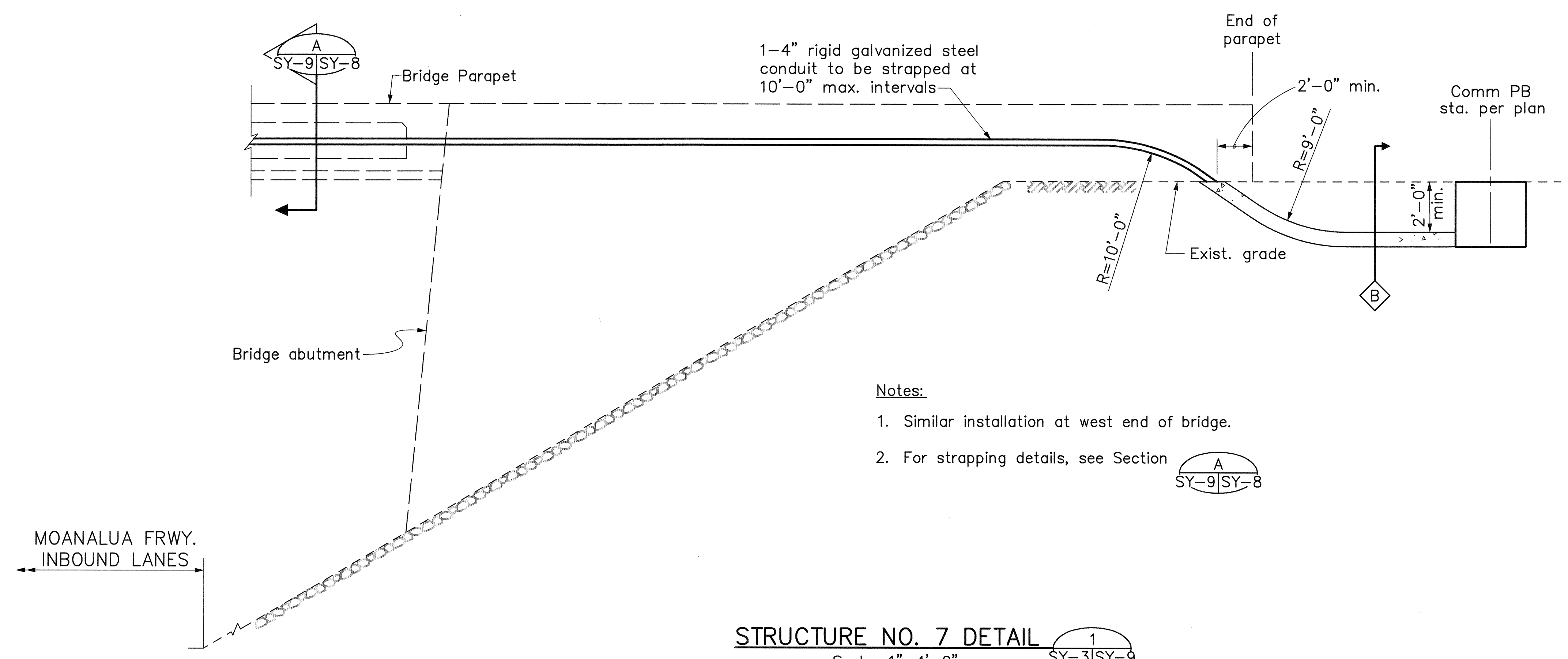
SYSTEMS DETAILS – 1
STRUCTURE NOS. 4, 5 & 13

H-3 – HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: AS SHOWN DATE: AUGUST 1994

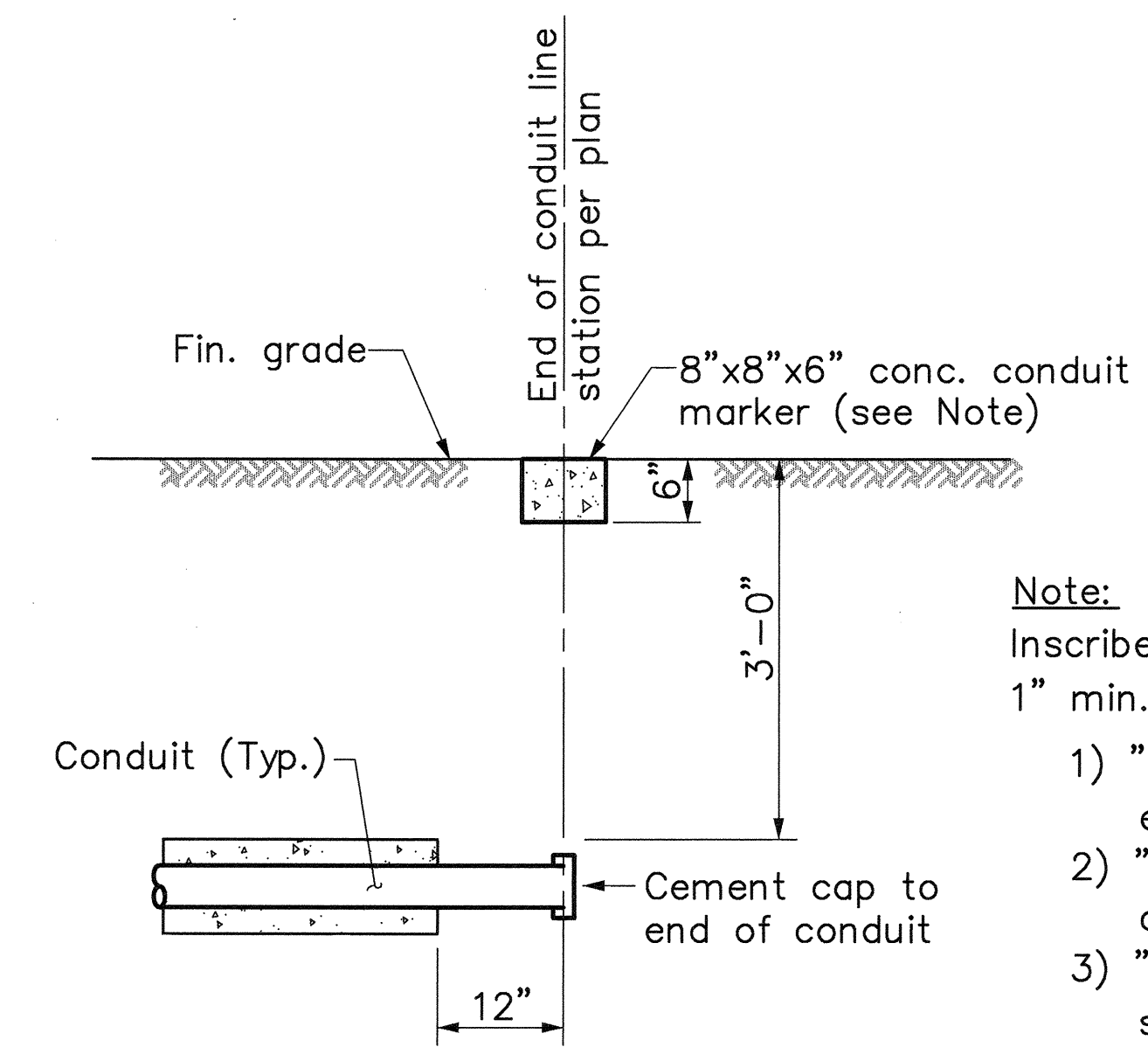
SHEET NO. SY-8 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	227	325



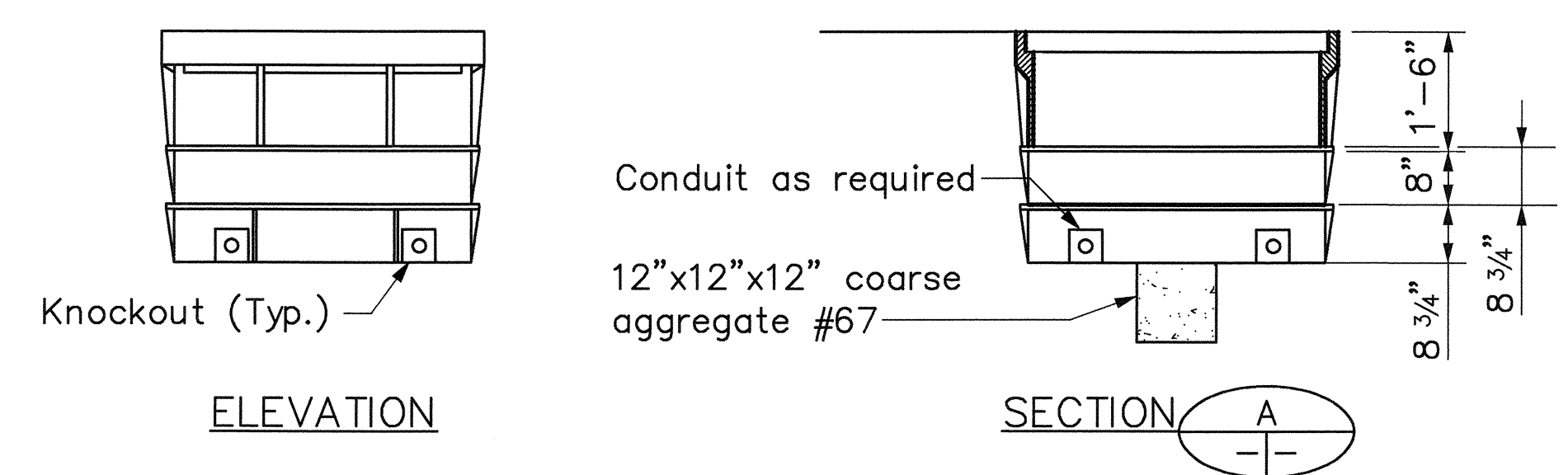
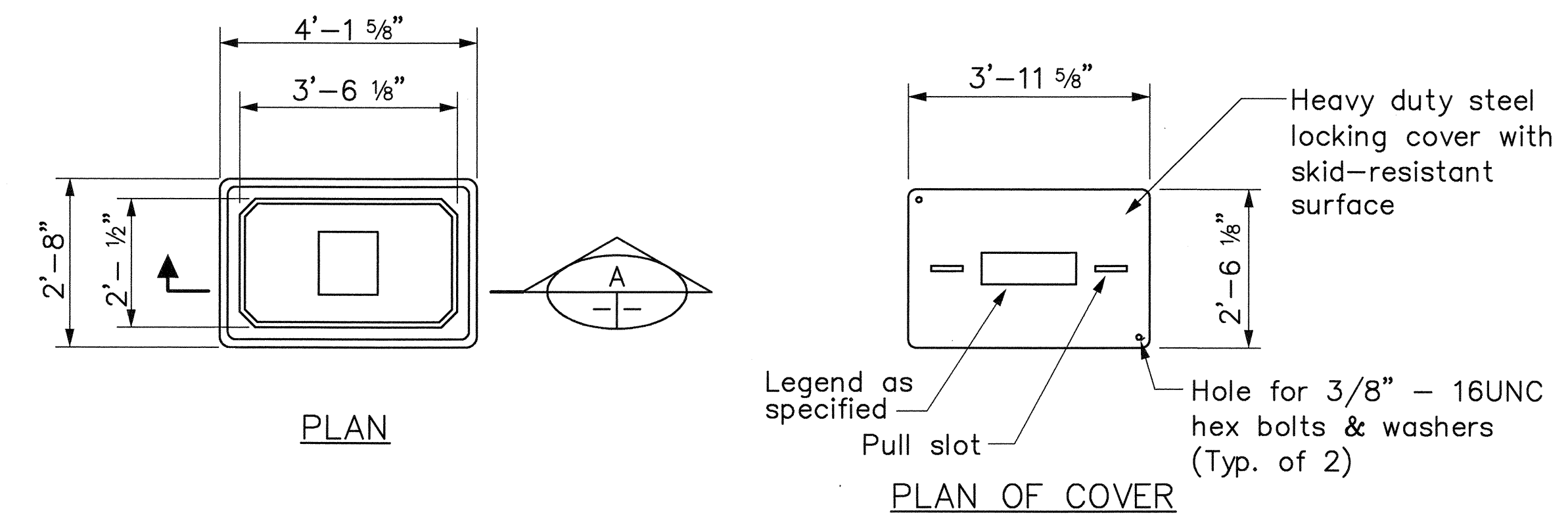
- Notes:**
1. Similar installation at west end of bridge.
 2. For strapping details, see Section SY-9|SY-8

STRUCTURE NO. 7 DETAIL
Scale: 1"=4'-0"
SY-3|SY-9



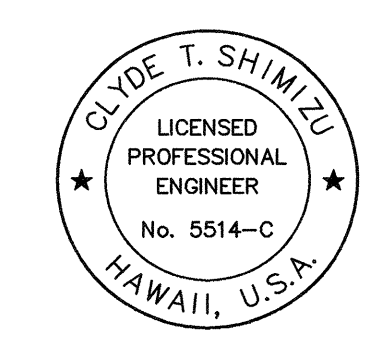
- Note:**
Inscribe conc. conduit marker with 1" min. ht. letters as follows:
- 1) "Elec. conduit below" for electric conduits.
 - 2) "Comm. conduit below" for communication conduits.
 - 3) "Signal conduit below" for signal conduits.

CONDUIT STUBOUT DETAIL
N.T.S.
SY-2|SY-9



COMMUNICATION AND SIGNALS PULLBOX
TYPE II PULLBOX DETAIL
N.T.S.

- Note:**
Boxes shall be polymer concrete, fiberglass reinforced. Provide stacked boxes with appropriate knockouts to accommodate required number and sizes of conduits.



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SYSTEMS DETAILS - 2
STRUCTURE NO. 7 & DETAILS

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: AS SHOWN DATE: AUGUST 1994
SHEET NO. SY-9 OF 11 SHEETS

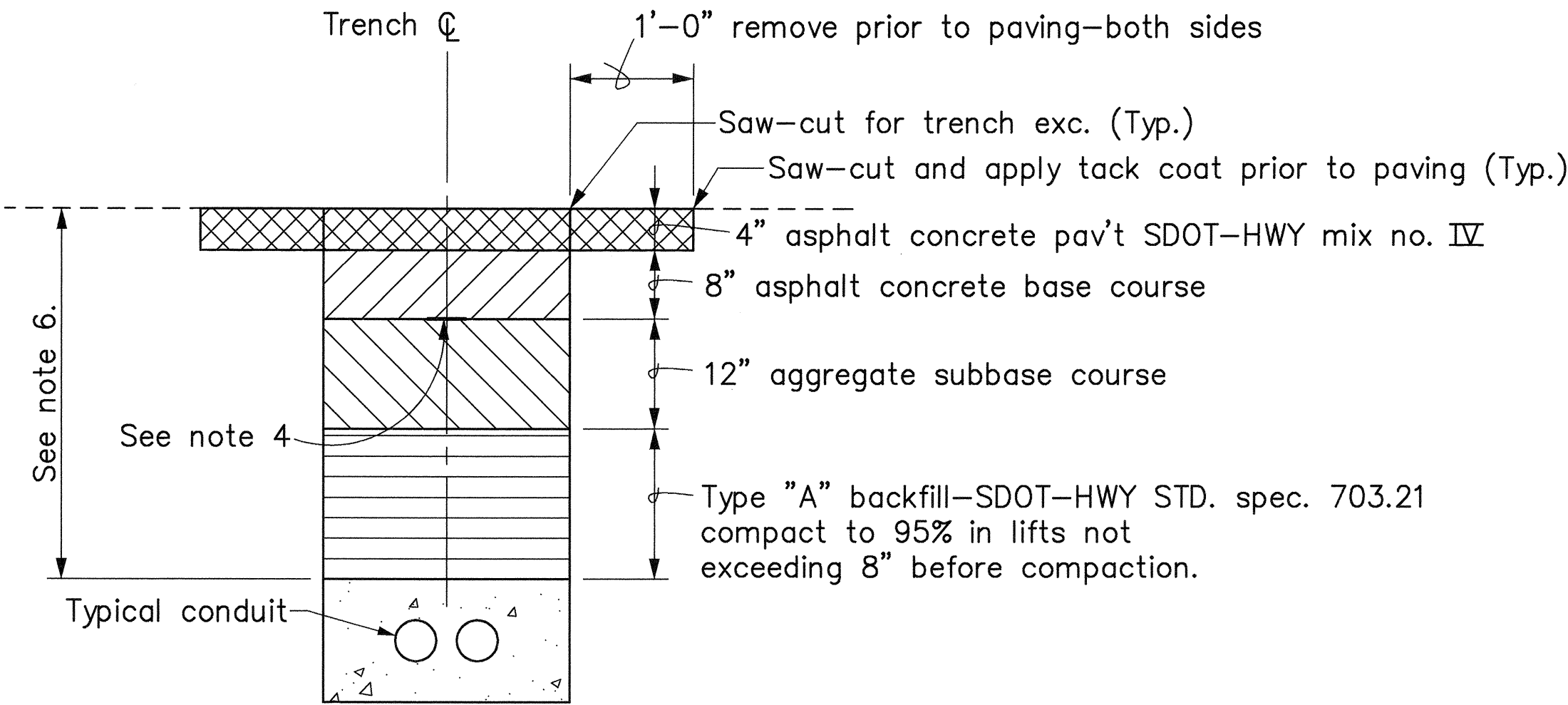
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DRAWN BY: _____
CHECKED BY: _____
NOTE BOOK DESIGNED BY: _____
QUANTITIES BY: _____
No. _____

GAD by J. Mirona, 55-52

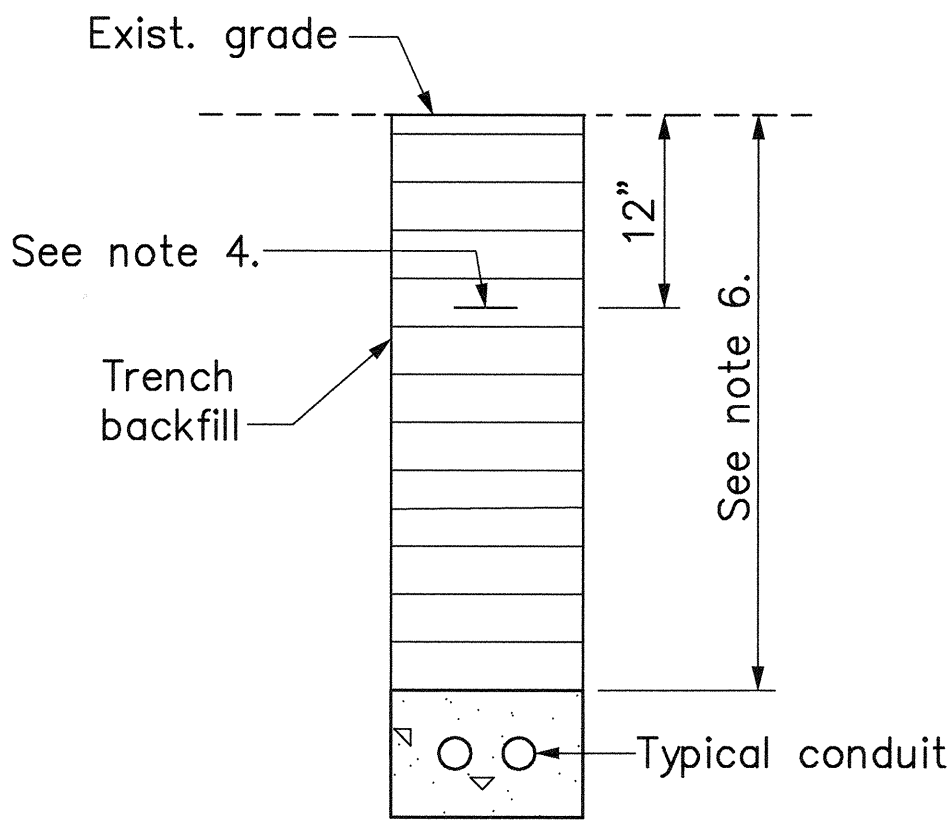
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HAWAII	HAW.	I-H3-1(74)	1993	228	325

Notes:

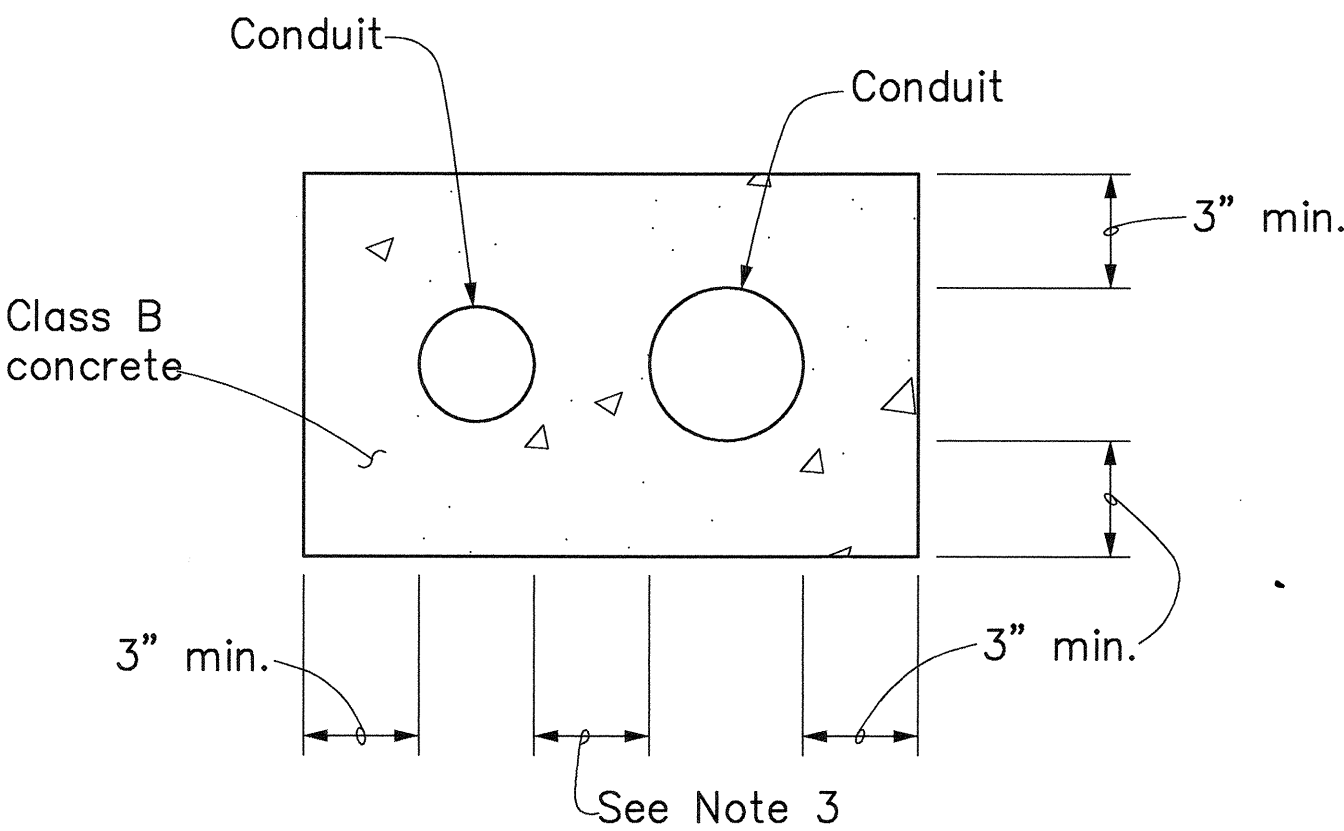
- Conduits to be designated by utility and size (ID). The following abbreviations will be used:
C4 for 4" communications conduit
P3 for 3" electric conduit
S2 for 2" signals conduit
L2 for 2" lighting conduit
All conduits to be PVC schedule 40, unless noted.
- Communications, electric, and signals conduits encased with 3" minimum class B concrete jacket per details hereon.
- Provide 2" minimum separation between conduits of same utility. Provide 3" minimum separation between electric conduits and other utility conduits.
- Install 8 mil. thick brightly colored plastic warning tape 4" wide, entire length. Tape should have continuous metallic backing and corrosion resistant foil core. Appropriate message, as determined by the engineer, shall be repeated approximately every ten feet.
- A.C. pavement, base course, and subbase course to match existing thickness or the minimum thickness shown, whichever is greater.
- 3'-0" minimum except at pullbox locations. Conduits may be raised to 2'-0" minimum at pullbox locations.



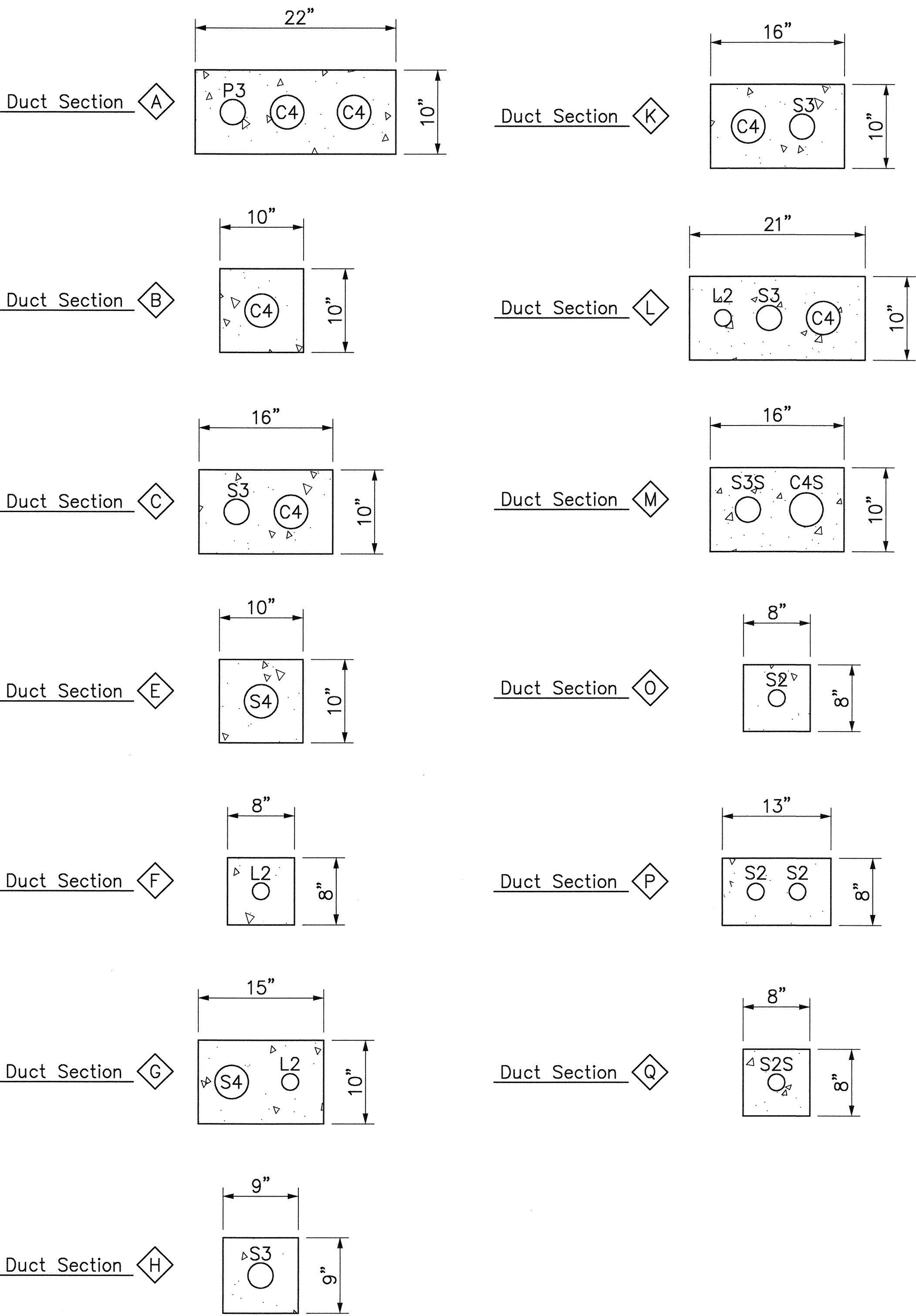
TRENCH REPAVEMENT DETAIL
N.T.S.



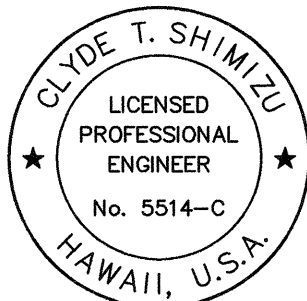
TYPICAL UTILITY TRENCH DETAIL
(FOR NON-PAVED AREAS ONLY)
Scale: 1"=1'-0"



TYPICAL CONCRETE ENCASED SECTION DETAIL
N.T.S.



DUCT SECTIONS
N.T.S.



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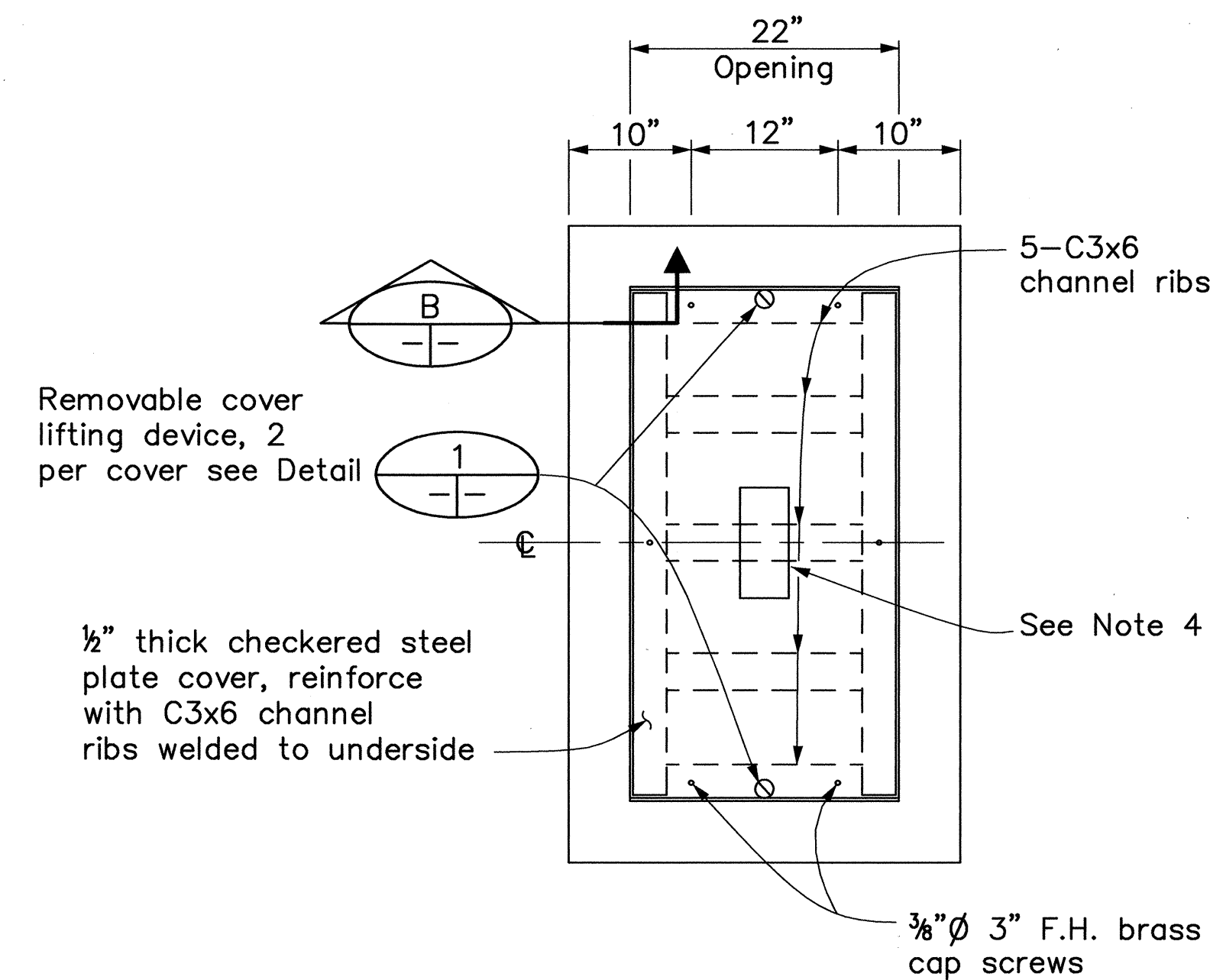
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYSTEMS DETAIL-3

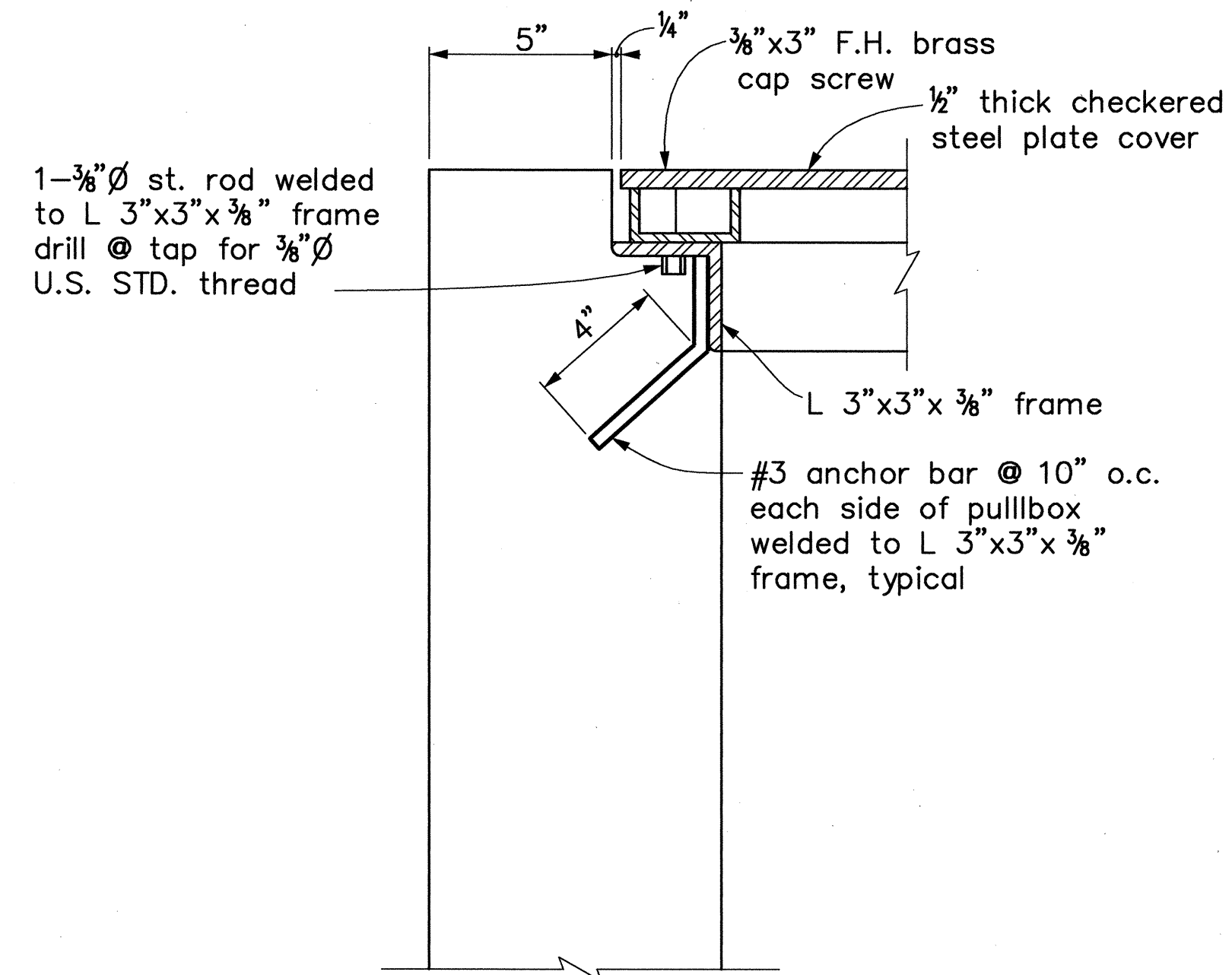
H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: AS SHOWN DATE: AUGUST 1994
SHEET NO. SY-10 OF 11 SHEETS

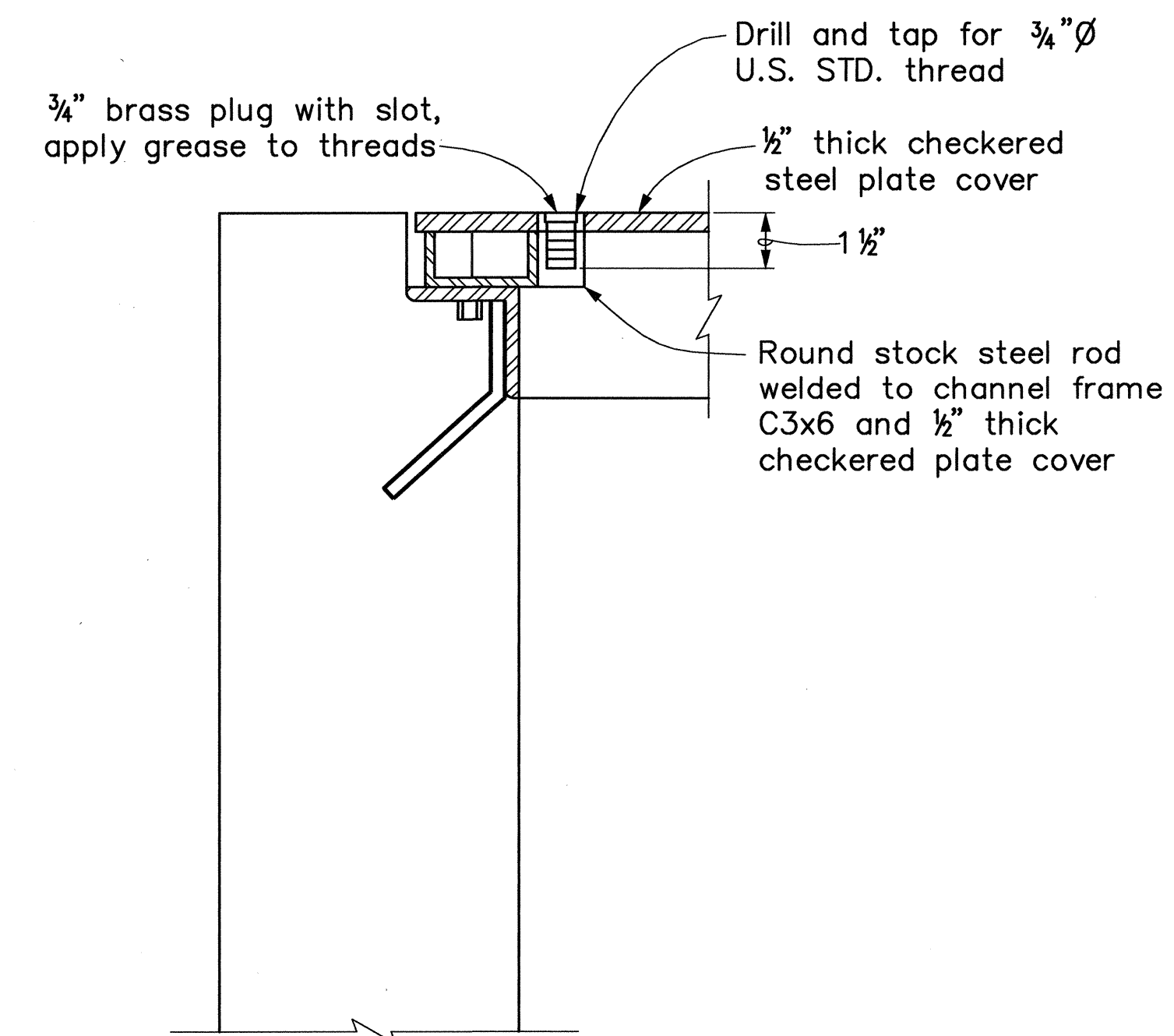
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(74)	1993	229	325



TRAFFIC BEARING PULLBOX PLAN
SCALE: 1" = 1'-0"



SECTION B
SCALE: 3" = 1'-0"



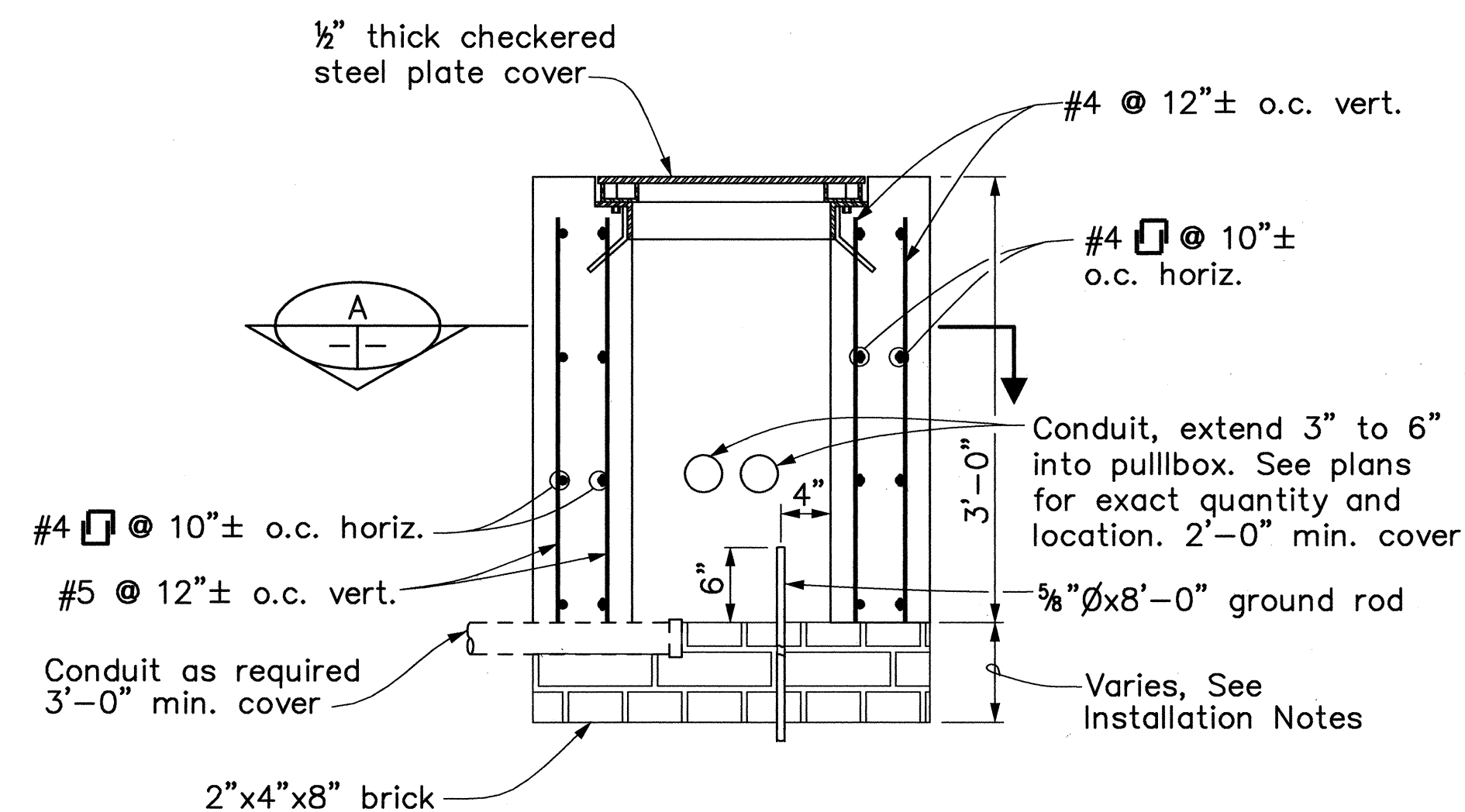
REMOVABLE COVER LIFTING DEVICE DETAIL
SCALE: 3" = 1'-0"

GENERAL NOTES:

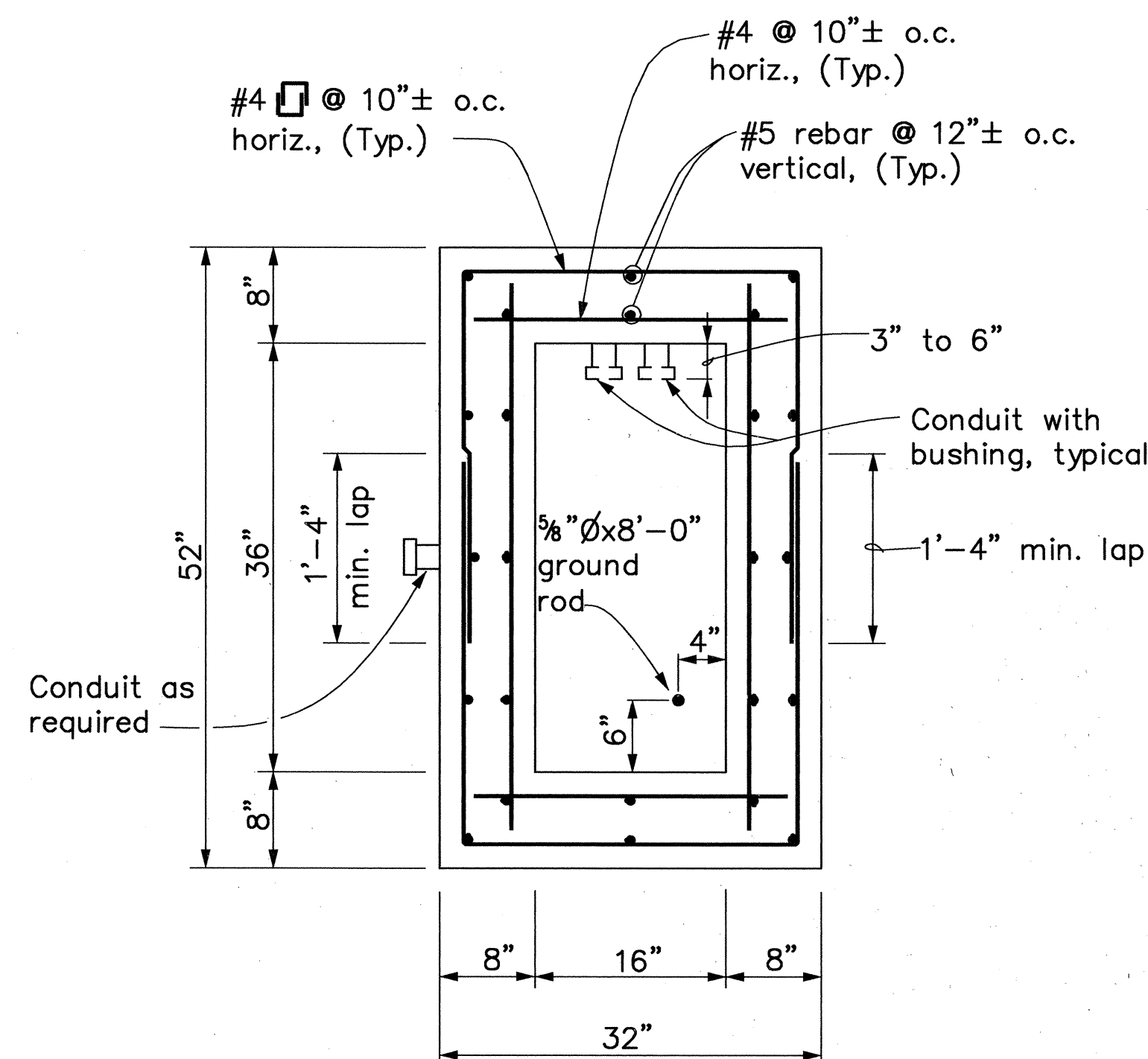
- Design:
Concrete: $f'_c = 3,000$ psi, $f_c = 1,200$ psi
Reinforcing Steel: ASTM A615 Grade 60, $f_s = 24,000$ psi
Live Load: AASHTO HS-20-44 loading.
- Top of pullbox shall match new and/or existing grades unless otherwise shown or noted on plans of the project concerned.
- Conduits: For number, size and exact location of conduit entrances refer to project drawings.
- Labels for pullbox covers shall read as follows:
COMM DATA for Communication Pullboxes—Data Only
COMM 120V for Communication Pullboxes—Maximum 120V
COMM 240V for Communication Pullboxes—240V
HDOT 120V for HDOT Electric Pullboxes—Maximum 120V
HDOT 240V for HDOT Electric Pullboxes—240V

INSTALLATION NOTES:

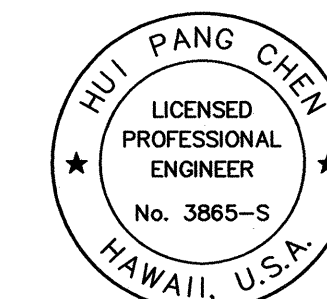
- The minimum layers of bricks to be used shall always be at least one (1) layer lower than the lowest conduit entering the pullbox. At no time, however, shall there be less than two (2) layers of bricks on each installation. Height of bricks shall not exceed 1'-0".
- Leveling or raising of boxes to grade must be done at brickwork section using cement mortar. The permanent installation of wooden wedges to accomplish this purpose will not be accepted.
- The pullbox must sit on 1" bed of grout laid on top of the bricks or on the precast section to transfer the load evenly.
- Contractor shall install a 5/8" diameter by 8'-0" long ground rod in all new installations.



SECTION AT TRAFFIC BEARING PULLBOX
SCALE: 1" = 1'-0"



SECTION A
SCALE: 1" = 1'-0"



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

Hui Pang Chen

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYSTEMS DETAIL-4

H-3 - HALAWA INTERCHANGE
INTERSTATE ROUTE H-3
FAIP NO. I-H3-1(74)

SCALE: AS SHOWN DATE: AUGUST 1994

SHEET NO. SY-11 OF 11 SHEETS

ORIGINAL
PLAN
DATE
DRAWN BY
TRACED BY
DESIGNED BY
CHECKED BY
No.