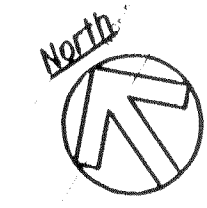
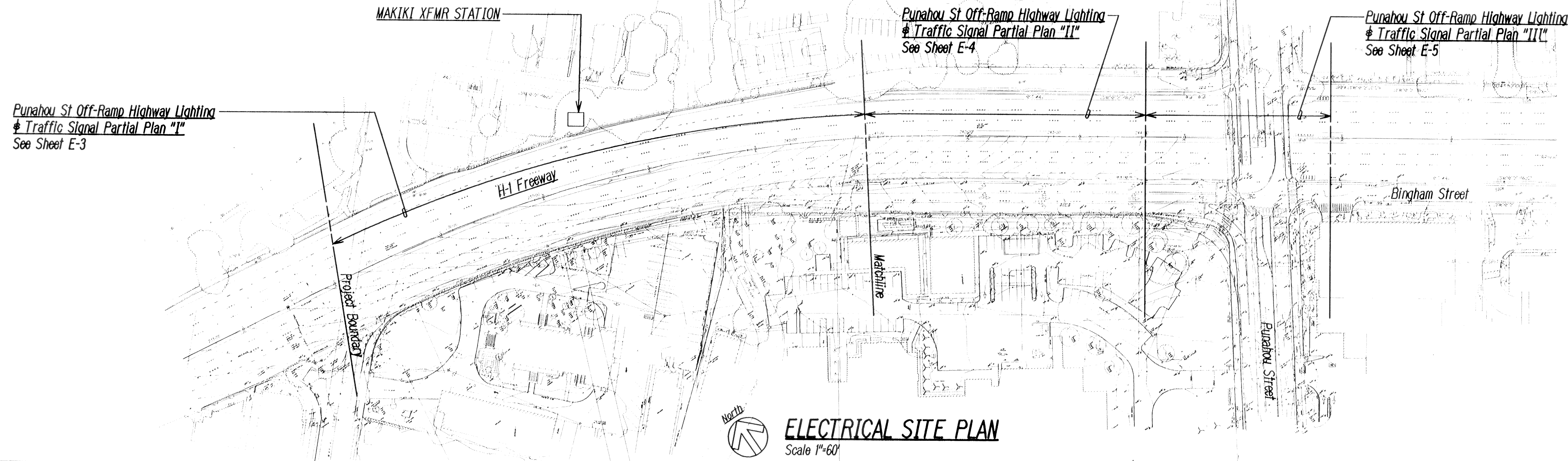


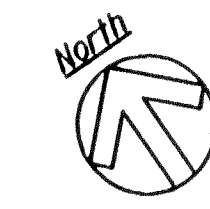
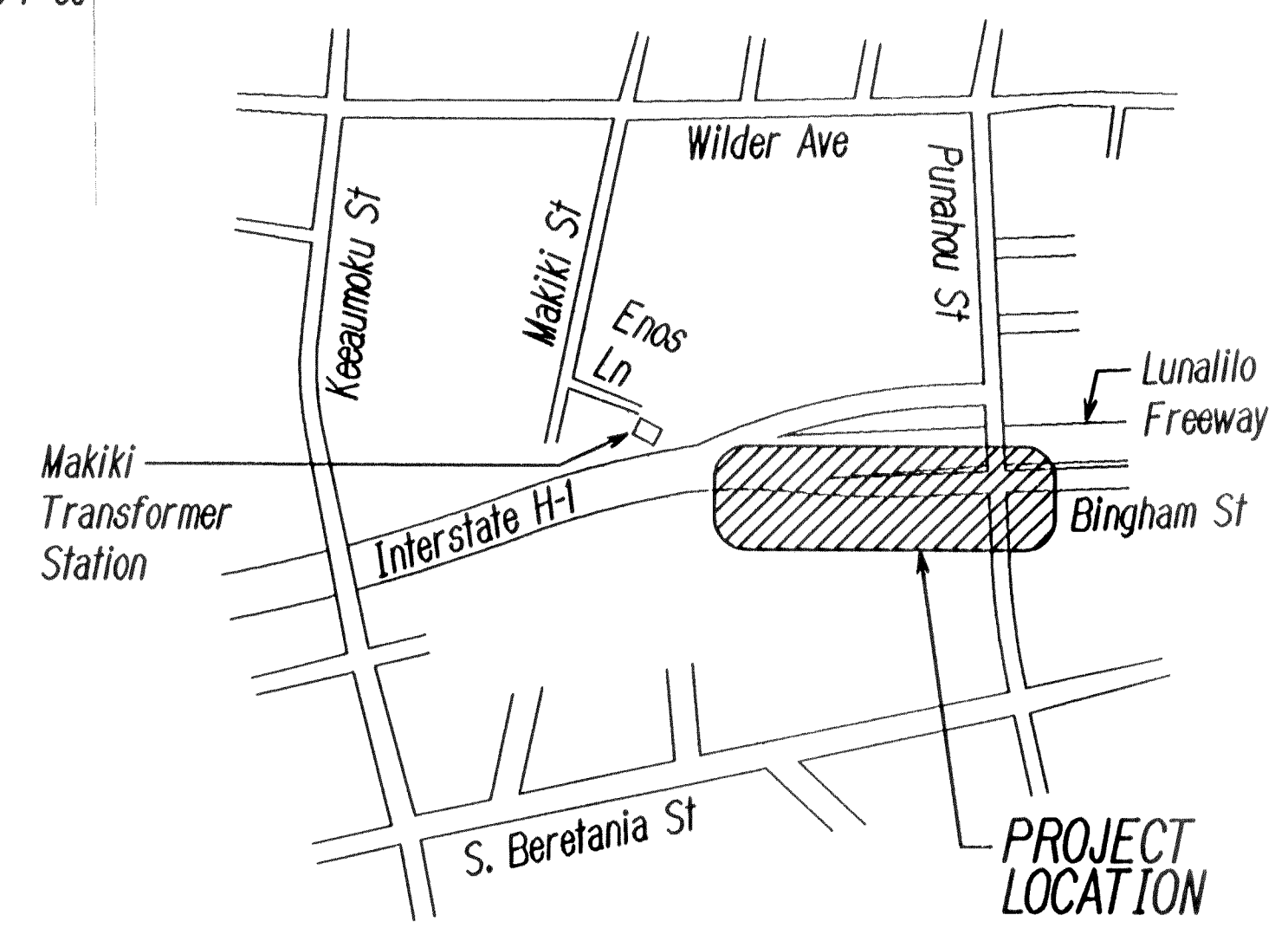
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	51	84



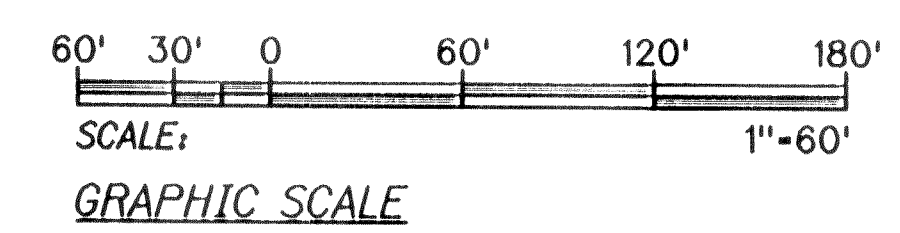
**ELECTRICAL SITE PLAN**  
Scale 1"=60'

**ELECTRICAL SYMBOLS**

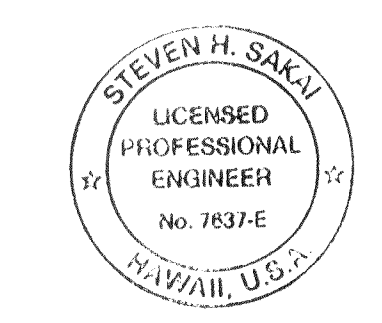
Symbol	Description	Symbol	Description
	Standard 12" RYG Traffic Signal Head		Type "A" Highway Light Pullbox, See Det A/E-16
	Standard 12" RYGA Traffic Signal Head		Elec Pullbox, See Det A/E-15
	Pedestrian Signal Head		Type "A" Traffic Signal Pullbox, See Det A/E-16
	Pedestrian Pushbutton; Arrow Indicates Sign Direction		Type "B" Traffic Signal Pullbox, See Det B/E-16
	Programmed Visibility 12" RYGA Traffic Signal Head		Type "C" Traffic Signal Pullbox, See Det C/E-16
	Detector Loop, See Sheet E-7		Cast Aluminum J-Box Flush Mounted In Conc Barrier Unless Indicated Otherwise
	Type I Signal Standard; Pole "A" Indicated; 10' Height Unless Indicated Otherwise		exst pullbox, see plan
	Traffic Signal Heads Mounted on Type II Mast Arm Standard; Pole "B" with 20' Mast Arm and 10' Spacing Between Traffic Signal Head Indicated		Traffic Signal Ductline and Designator; Indicates Type "3E" Duct Section with "3E" Duct; See Sheet E-8 for Conduit Designation & Typ Duct Sections
	exst utility pole		Highway Light Ductline and Wiring
	exst street light (c & c)		exst tel ductline and wiring
	exst highway light (state)		exst elec ductline and wiring
	exst parking lot light		exst overhead elec/signal lines
	HECO 2'X4' Pullbox By HECO		exst overhead elec lines
	Highway Light, 250W HPS Luminaire, Pole & Bracket Arm, Mounted on Conc Barrier Unless Indicated Otherwise, See Det A/E-10		exst overhead telephone lines
	Parking Lot Light, 70W HPS Luminaire, Pole & Bracket Arm, See Det A/E-11		exst highway light ductline and wiring
	Electrical Connection		exst traffic signal ductline and wiring
	Remove Exst Exposed Conduit & Wiring		exst exposed highway light conduit & wiring
	Exposed Conduit & Wiring		Remove exst wiring; Cap ends of exst highway light ducts & Abandon-In-Place
			Remove exst wiring; Cap ends of exst traffic signal ducts & Abandon-In-Place
			exst HTCO manhole



**LOCATION MAP**  
Not To Scale



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
CHECKED BY	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	



THIS WORK WAS PREPARED BY ME  
UPON THE BASIS OF THE FOLLOWING DATA:  
*Steven H. Sakai*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

LOCATION MAP, ELECTRICAL SYMBOLS  
AND ELECTRICAL SITE PLAN  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. 1M-HI-1(232)  
Scale: As Noted Date: 4/28/00

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	52	84

General Utility Notes

- The Location of Overhead and Underground Utility Facilities Shown on the Plans are from Existing Records with Varying Degrees of Accuracy and are not Guaranteed as Shown. The Contractor shall Exercise Extreme Caution Whenever Construction Crosses or is in Close Proximity of Underground Lines and shall Maintain Adequate Clearance when Operating Equipment within or under any Overhead Lines.
- The Contractor shall be Liable for any Damage to Hawaiian Electric Co. Facilities and shall Immediately Report such Damages to Hawaiian Electric Co.'s Trouble Dispatcher at 543-7874.
- The Contractor is to Comply with the Directions of the State of Hawaii Occupational Safety and Health Law (DOSH).
- For Verifying the Location of Underground Lines and for Assistance in Providing Proper Support and Protection of the Underground Lines, the Contractor is to Contact Hawaiian Electric Co. Underground Division at 543-7345 a Minimum of 72 Hours in Advance.
- All Hawaiian Electric Co. Overhead and Underground Facilities Shown on these Plans or whose Approximate Locations within the Project Boundaries have been Made Known by any Reasonable Means at any Time to the Contractor shall be Protected at all Times by the Contractor During Construction. Costs for the Damages to Hawaiian Electric Co. Facilities may be Borne by the Contractor. This Repair Work shall be Done by Hawaiian Electric Co. or by the Contractor Under Hawaiian Electric Co.'s Supervision.
- The Contractor shall notify the Construction Management Dept. Two Weeks Prior to Work on Hawaiian Electric Co. Facilities at 548-5668.
- Should it Become Necessary Due to the Contractor's Work (E.G. Construction Method, Schedule, Etc.), any Work Required to Relocate Hawaiian Electric Co. or Hawaiian Telephone Co. Facilities shall be Done by the Respective Utility Co. The Contractor shall be Responsible for Coordination and Cost.
- For Pole Bracing Instructions, the Contractor shall Call the Hawaiian Electric Co. District Superintendent (Koolau 261-6084, Waiiau 543-4223, Ward 543-7745) and Hawaiian Telephone Co. Construction Supervisor (546-3381) a Minimum 72 Hours in Advance.
- When Trench Excavation is Adjacent to Existing Structures or Facilities, the Contractor is Responsible for Properly Sheeting and Bracing the Excavation and Stabilizing the Existing Ground to Render it Safe and Secure From Possible Slides, Cave-ins, and for Properly Supporting Existing Structures and Facilities with Beams, Struts, or Underpinning to Fully Protect it from Damage. Any Damage to Existing Facilities or Structures shall be Borne Solely by the Contractor.
- For Field Location of Hawaiian Telephone Co. Facilities, Contact Hawaiian Telephone Outside Plant Engineering Section, a Minimum of Five Working Days in Advance, Prior to Start of Excavation. The Contractor shall Obtain an Excavation Permit and Toning Request from Hawaiian Telephone's Excavation Permit Section Location at 3239 Ualena St, Third Floor, Two Weeks Prior to the Start of Construction.
- The Contractor shall be Liable for any Damages to Hawaiian Telephone Co. Facilities and shall Immediately Report such Damages to Hawaiian Telephone's Repair Section at #611 or to the Excavation Permit Section at 483-8085 During Normal Working Hours.

Traffic Signal Notes

- The locations of the Traffic Signal Standards, Traffic Signal Standards w/Mast Arms, Pedestrian Push Buttons, Traffic Controller, Pullboxes, Conduits and Loop Detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.
- All splicing shall be done in the pullboxes.
- Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.
- A solid #8 bare copper wire shall be pulled with the traffic signal control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
- All Traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
- The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
- Should any defect be encountered during the warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense to the State. All repairs shall be done as soon as possible.
- All traffic signal work shall conform to the requirements of the "Manual On Uniform Traffic Control Devices For Streets And Highways", Federal Highway Administration (1988) and Amendments.
- Locations of traffic markings and markers (lane lines, Stop lines, crosswalk, etc.) shown on the plans shall be verified with the Engineer prior to the installation of the traffic signal system.
- The Contractor shall notify the Traffic Signals & Technology Division, Department of Transportation Services, City & County of Honolulu, (phone no. 523-4589) two weeks prior to commencing any work on the traffic signal system.
- The Department of Transportation Services, City & County of Honolulu, will assist the Engineer in Construction inspection for the traffic signal system. The Contractor shall notify the Traffic Signals & Technology Division, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (phone no. 523-4589).
- Connecting into existing traffic signal system and making all necessary adjustments shall not be paid for separately, but considered incidental to the various traffic signal contract items.
- All conduits between pullboxes and Traffic Signal Standards shall not be paid for separately but considered incidental to the various contract items.
- All Signal-Drop Cables (Type 5 cable) from the various types traffic signal head on the traffic signal standards and mast arms to the pullboxes shall not be paid for separately but considered incidental to the traffic signal head.
- After installing the cables in the conduits, the Contractor shall duct seal all conduits in the controller cabinet, pullboxes and standards with an Engineer approved product. The cost for duct sealing the conduits shall not be paid for separately but considered incidental to the various contract items.

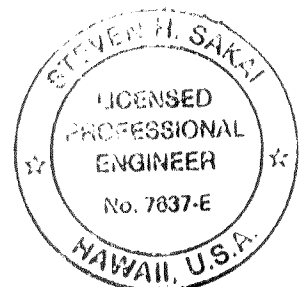
Dept. of Transportation Services -  
Traffic Signals & Technology Division Notes:

- The Contractor shall Notify the Traffic Signals & Technology Division, Department of Transportation Services, Three (3) Working Days Prior to Commencing Work on the Traffic Signal or Fiber Optic Systems (Phone: 523-4589).
- The Traffic Signal and Fiber Optic Systems shall be Kept Operational During Construction. Any Relocation or Changeover Required shall be Approved by the Traffic Signals & Technology Division, Department of Transportation Services, and Performed and Paid for by the Contractor.
- The Contractor shall be Responsible for any Damages to Existing Traffic Signal and Fiber Optic Facilities, Including the Traffic Signal Interconnect System and any and all Damages to these Facilities shall be Repaired by the Contractor at his Cost in Accordance with the Requirements of the City and County of Honolulu.

General Electrical Notes

- All Electrical Work shall be New Unless Indicated Otherwise.
- Existing Electrical Equipment shall Remain Unless Indicated Otherwise.
- "Remove" Indicates "Remove and Dispose in a Lawful Manner".
- Before any Existing Electrical Wiring is Removed, Verify Usage of Wiring to Ensure that Required Services are not Interrupted.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	



THIS WORK WAS PREPARED BY ME  
ON UNDER MY SUPERVISION  
*[Signature]*

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
NOTES
INTERSTATE ROUTE H-1 PUNAHOU ST. OFF-RAMP IMPROVEMENTS F.A.I. Project No. 1M-HI-1(232)
Scale: As Noted Date: 4/28/00
SHEET No. E-2 OF 18 SHEETS

**Notes:**

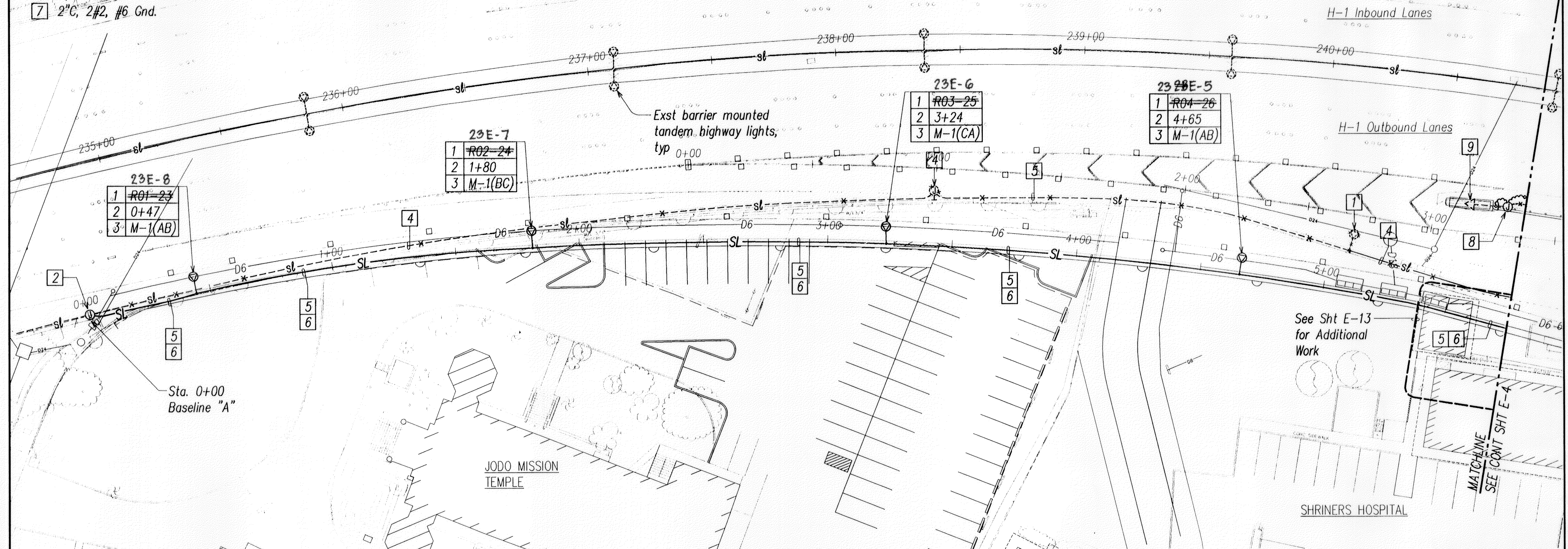
- 1 De-energize Exst. Ckt M-1 at Exst Makiki Xfmr Station (See Sht E-1 for Location). Disconnect Exst. Wiring & Remove & Dispose Exst Highway Lighting Standard. Exst Signs on Exst Standard to be Relocated, See Civil Dwg.
- 2 Intercept Exst Conduit & Wiring with Cast Aluminum 10"H x 18"W x 4"D J-Box. Splice Exst Wiring to New Wiring.
- 3 Not Used.
- 4 Equip. to be Demolish with Exst Conc Barrier Wall.
- 5 Concealed in Conc Barrier Wall. Provide Expansion Coupling at Expansion Joints per Det E/E-11. See Struct Dwg for Expansion Joint Locations.
- 6 2"C, 3#2, #6 Gnd.
- 7 2"C, 2#2, #6 Gnd.

- 8 6"Sq X 4"D J-Box, WP, Cast Aluminum Fully Gasketed J-Box, Mtd +24" Above Finish Grade.
- 9 De-energize Exst Flasher Ckt at Exst Pump Station. Remove Exst Flasher Std for Demolition of Exst Crash Attenuator. Provide Galv Steel Anchor Bolts to Match Exst & Reinstall Exst Flasher Std on Concrete Backup. See Detail on Sheet E-17.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	53	84

**General Notes:**

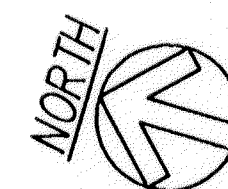
Contractor Shall Keep Exst Hwy Lighting Operational During Non-Daylight Hours Until New Hwy Lights Become Operational. Contractor shall Provide Temporary Lighting if the Exst Hwy Lts are De-energized before the New Hwy Lights are Operational. Plans for the Temporary Hwy Lighting System shall be submitted to the Engineer for Approval. The Temporary Highway Lighting System shall Meet the AASHTO Illumination Requirements for Freeways. The Design and Construction of the Temporary Highway Lighting System shall be Considered Incidental to the Various Highway Lighting Contract Items.



**HIGHWAY LIGHT LEGEND:**

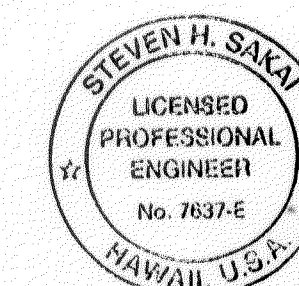
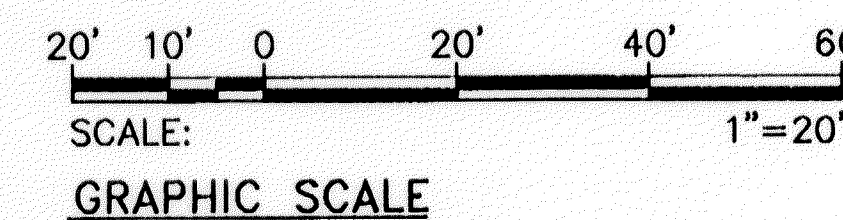
1	1
2	0+47
3	B

- 1 = Highway Light No.  
2 = Station No. (Baseline "A")  
3 = Ckt No.



**PUNAHOU ST OFF-RAMP HIGHWAY LIGHTING AND TRAFFIC SIGNAL PARTIAL PLAN "I"**

SCALE: 1"=20'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**PUNAHOU ST OFF-RAMP HIGHWAY LIGHTING AND TRAFFIC SIGNAL PARTIAL PLAN "I"**  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. IM-H1-1(232)

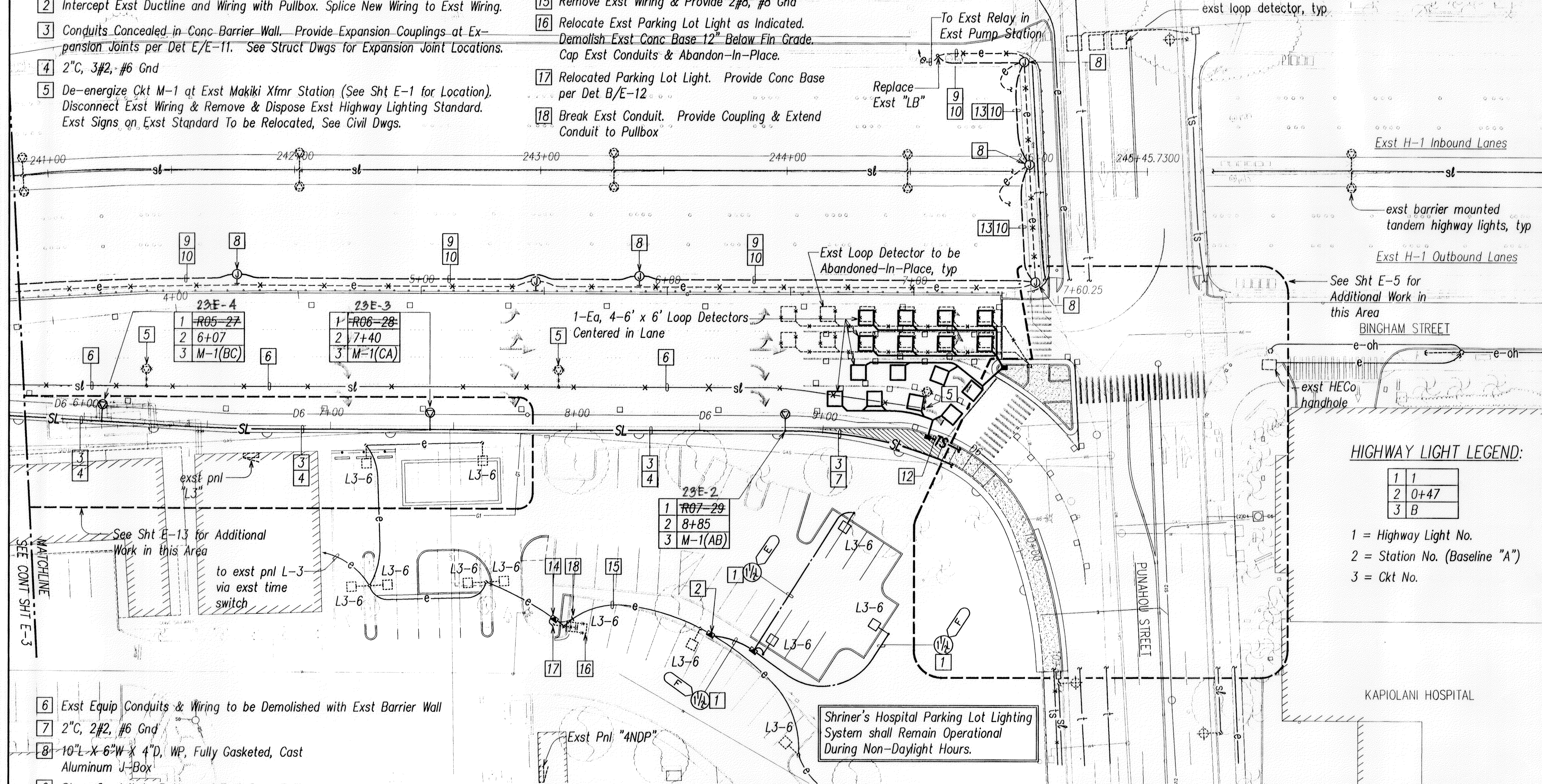
Scale: As Noted Date: 4/28/00  
SHEET No. E-3 OF 18 SHEETS

**"AS-BUILT"**

Notes:

- 1 1-1/2"C, 2#8 & #8 Gnd
- 2 Intercept Exst Ductline and Wiring with Pullbox. Splice New Wiring to Exst Wiring.
- 3 Conduits Concealed in Conc Barrier Wall. Provide Expansion Couplings at Expansion Joints per Det E/E-11. See Struct Dwgs for Expansion Joint Locations.
- 4 2"C, 3#2, #6 Gnd
- 5 De-energize Ckt M-1 at Exst Makiki Xfmr Station (See Sht E-1 for Location). Disconnect Exst Wiring & Remove & Dispose Exst Highway Lighting Standard. Exst Signs on Exst Standard To be Relocated, See Civil Dwgs.
- 14 Intercept Exst Ductline with Pullbox
- 15 Remove Exst Wiring & Provide 2#8, #8 Gnd
- 16 Relocate Exst Parking Lot Light as Indicated. Demolish Exst Conc Base 12" Below Fin Grade. Cap Exst Conduits & Abandon-In-Place.
- 17 Relocated Parking Lot Light. Provide Conc Base per Det B/E-12
- 18 Break Exst Conduit. Provide Coupling & Extend Conduit to Pullbox

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	54	84

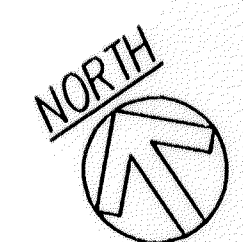


HIGHWAY LIGHT LEGEND:

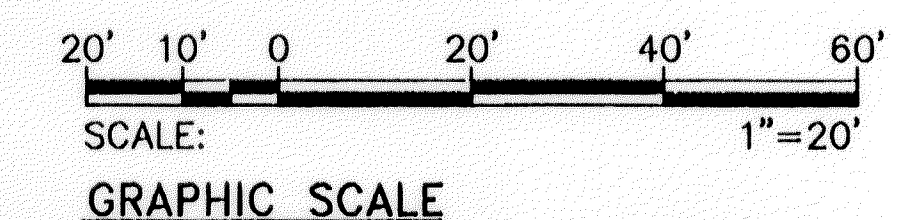
1	1
2	0+47
3	B

- 1 = Highway Light No.  
2 = Station No. (Baseline "A")  
3 = Ckt No.

- 6 Exst Equip Conduits & Wiring to be Demolished with Exst Barrier Wall
- 7 2"C, 2#2, #6 Gnd
- 8 10"L-X 6"W X 4"D, WP, Fully Gasketed, Cast Aluminum J-Box
- 9 Strap Conduit to Bottom of Exst Conc Railing with Two-Hole PVC Coated Steel Straps
- 10 1"C PVC Coated GRS, 2#8, #8 Gnd
- 11 Not Used
- 12 2"C, 1-2/C #14, 2"C, Pullwire
- 13 Strap Conduit to Top of Exst Conc Deck with Two Hole PVC Coated Steel Straps



**PUNAHOU ST OFF-RAMP HIGHWAY LIGHTING AND TRAFFIC SIGNAL PARTIAL PLAN "II"**  
SCALE: 1"=20'



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**PUNAHOU ST OFF-RAMP HIGHWAY LIGHTING AND TRAFFIC SIGNAL PARTIAL PLAN "II"**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. IM-H1-1(232)

Scale: As Noted Date: 4/28/00  
SHEET No. E-4 OF 18 SHEETS

DATE	DESIGNED BY	CHECKED BY
ORIGINAL PLAN	TRACED BY	NOTE BOOK
QUANTITIES BY		

LAST SAVE: 05/24/00 @ 09:57:26 BY: ON PLOT SIZE: 11x20  
C:\PROJECTS\2000\HAWAII\H1\232\AS-BUILT

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	55	84

General Notes:

- Contractor shall keep Exst Traffic Signal System Operational. Contractor shall Provide Temporary Traffic Signal System (Including Microwave Vehicle Detectors) as Required if the Exst Traffic Signal Equipment are Removed Before the New Traffic Signal Equipment are Operational. Temporary Work shall be Acceptable to the Engineer & Traffic Signals & Technology Division, D.T.S. Inspector. Cost for the Temporary Traffic Signal System shall be Considered Incidental to the Various Traffic Signal Items.
- See Sht E-6 for Phasing Diagrams, Conduit & Wiring Schedule & Signal Head Legend; Sht E-4 for Loop Detectors on Off-Ramp
- Coordinate Controller Phasing Modifications with Engineer & D.T.S. - Traffic Signals & Technology Division Inspector. Controller Phasing Modifications by D.T.S. - Traffic Signals & Technology Division.

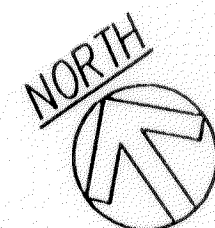
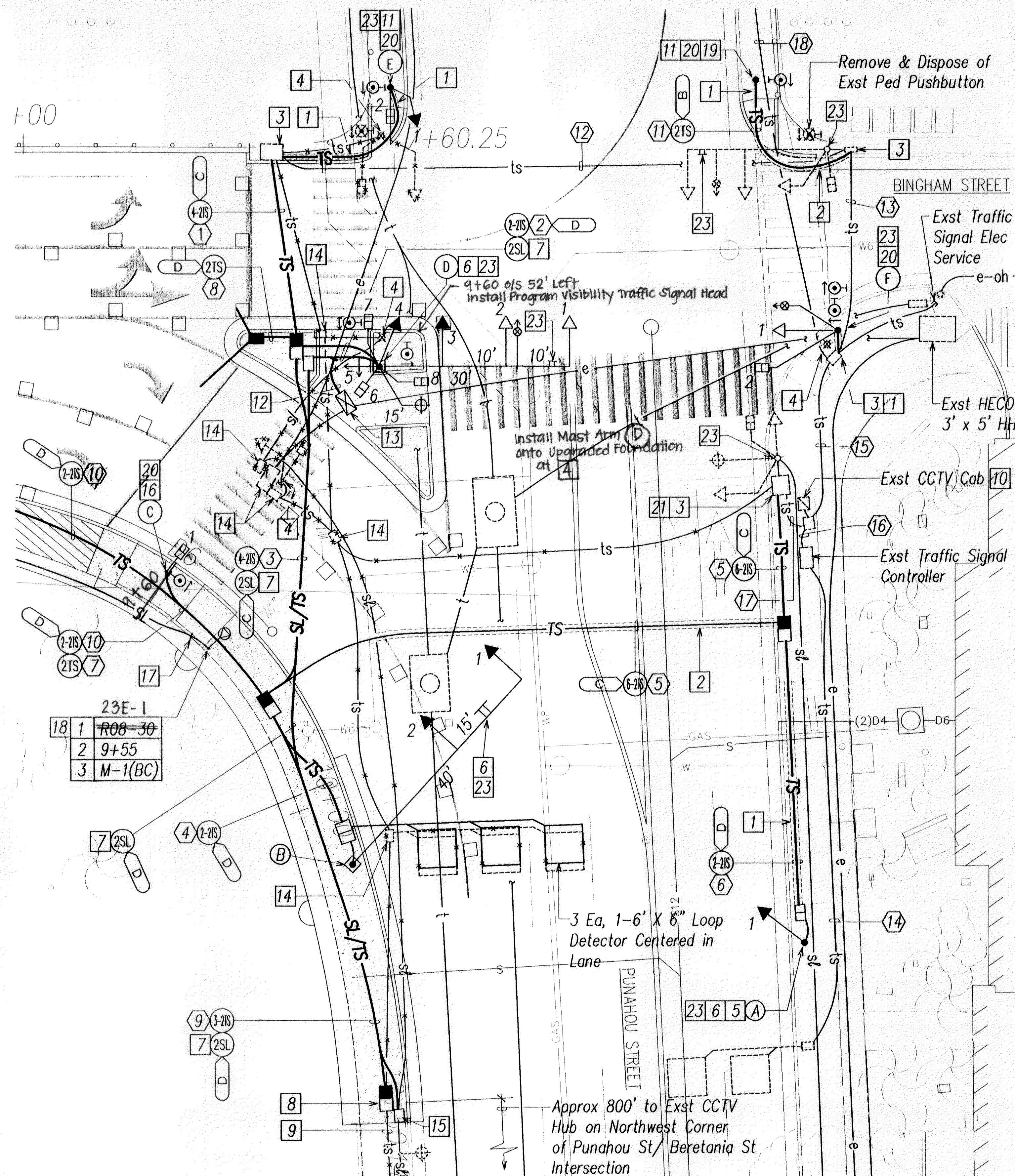
- 8'-0" Type I Standard.
- Transition to Conc Wall, See Det C/E-10.
- Provide Street Light Std per Det A/E-11.
- 3'-0" Type I Standard.
- See Civil Dwg C-29 for Pole Location.
- Interconnect Cable Splice by DTS, Traffic Signals & Technology Division. Coordinate Work With DTS, Traffic Signals & Technology Division.
- See Detail A/E-6 for Pole Mounting.
- Provide "CAUTION SIGNALS MODIFIED". Cost for Sign shall not be Paid for Separately, but shall be Considered Incidental to Traffic Signal Standard.

Notes:

- Sawcut Exst Conc Sidewalk @ Scoreline Prior to Trenching. Repair to Match Exst. See Det B/E-8. Sawcutting & Repairing Conc Sidewalk shall not be Paid for Separately, but shall be Considered Incidental to Various Traffic Signal Ductline Items.
- Sawcut Exst A.C. Pavement Prior to Trenching and Repaving. Repair to Match Exst. See Det B/E-8. Sawcutting & Repairing A.C. Pavement shall not be Paid for Separately, but shall be Considered Incidental to Various Traffic Signal Ductline Items.
- Penetrate Exst Pullbox for Conduit Entry. Route Conduits to Pullbox. Repair to Match Exst.
- Remove Exst Traffic Signal Standard. Deliver Salvageable Equipment, as Directed by D.T.S. Inspector to D.T.S. Baseyard at 160 Koula St. Dispose Remaining Items.
- 13'-0" Type I Standard.
- Provide "ON RIGHT ARROW ONLY" Sign. Cost for Sign shall not be Paid for Separately, but shall be Considered Incidental to Traffic Signal Standard.
- 2"C, 2#6, #6 Gnd.
- Intercept Exst Ductline & Wiring with Pullbox. Interconnect Cable Splice by D.T.S.-Traffic Signals & Technology Division.
- Remove Exst Fiber Optic Cable Between Exst CCTV Cabs at Bingham St/Punahou St Intersection & Beretania St/Punahou St. Provide 1-24 Strand Fiber Optic Cable. Provide Connectors & Terminate Cable at Exst CCTV Cabs. Coordinate Work with D.T.S., Traffic Signals & Technology Division.
- Disconnect Exst Fiber Optic Cable, Provide Connector & Terminate New 24 Strand Fiber Optic Cable.
- See Detail A/E-6 for Pole Mounting.
- HECo Underground Division to Break Exst Conc Jacket & 3"C. Provide Couplings & Extend 3"C to Pullbox. Coordinate Work with HECO.
- Intercept Exst Conc Jacketed 2-3"C with HECO 2' X 4' Pullbox. HECO Underground Division to Break Exst Conc Jacket & 2-3"C. Install HECO 2' X 4' pullbox Over Exposed Energized Cables. Contractor shall Exercise Caution While Working Near Energized Cables. Coordinate Work with Heco.
- After Exst Cables have been Removed, Demolish Pullbox & Backfill to Match Road Pavement Section.
- Intercept Exst Ductline & Wiring with Pullbox. Splice Exst Wiring to New Wiring.

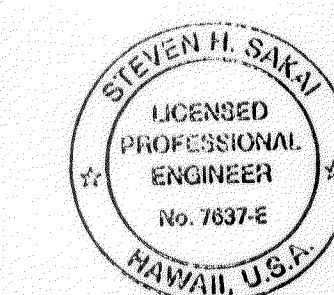
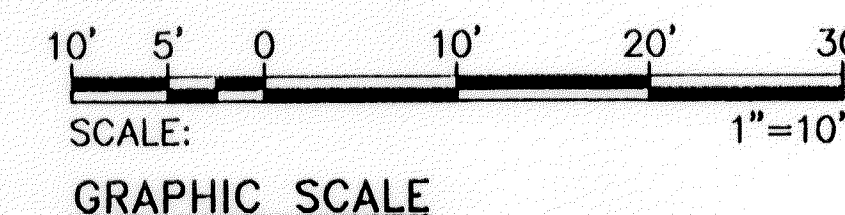
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NOTED BY	_____

LAST DATE OF ANY REVISIONS: 10/12/2000  
 2. MAKE REVISIONS TO 10/12/2000



PUNAHOU ST OFF-RAMP HIGHWAY LIGHTING AND TRAFFIC SIGNAL PARTIAL PLAN "III"

SCALE: 1"=10'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
 Steven H. Sakai

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**PUNAHOU ST OFF-RAMP HIGHWAY LIGHTING AND TRAFFIC SIGNAL PARTIAL PLAN "III"**

INTERSTATE ROUTE H-1  
 PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
 F.A.I. Project No. IM-H1-1(232)

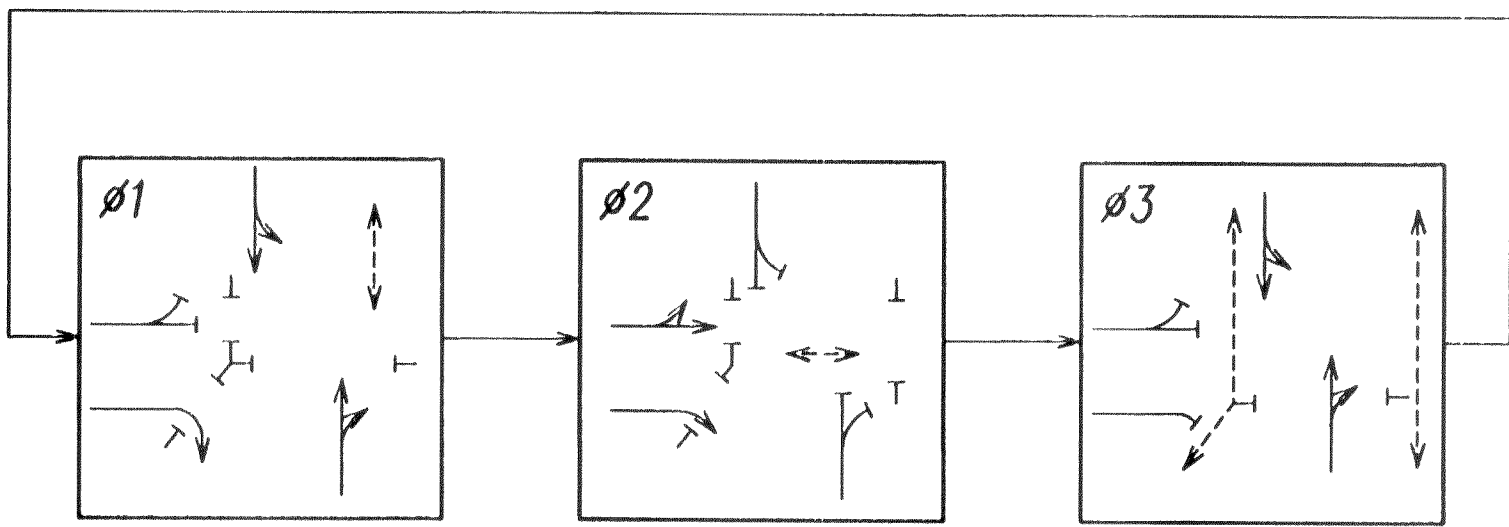
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 SHEET No. E-5 OF 18 SHEETS

"AS-BUILT"

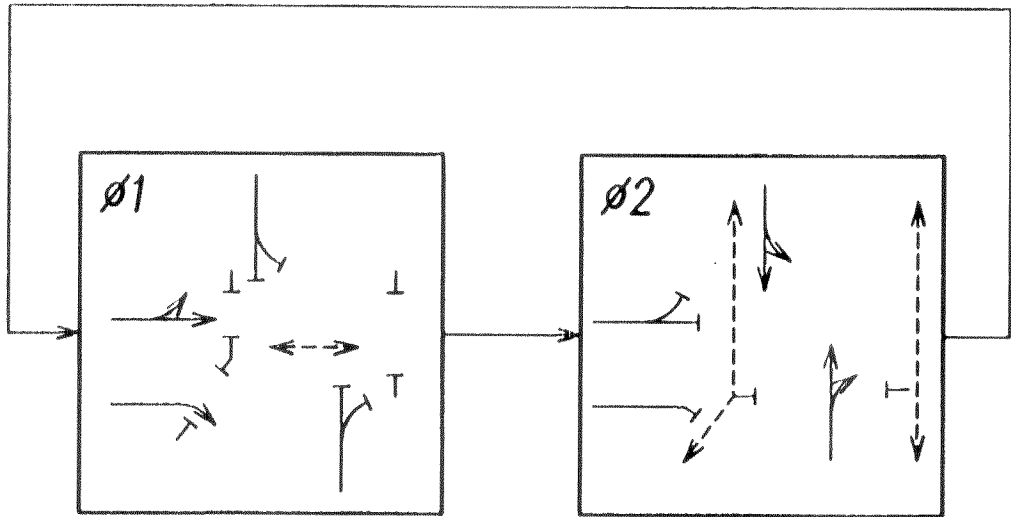
CONDUIT AND CABLE SCHEDULE	
SYMBOL	DESCRIPTION
①	2"C, 1-26/C *14 2"C, 1-2/C *14; 2-2"C, Pullwire in Each
②	2"C, 4-4/C *14; 2-2/C *14, 1-Opticom Cable 2"C, 4-4/C *14
③	2"C, 1-26/C *14 2"C, 5-2/C *14, 1-Opticom Cable 2-2"C, Pullwire
④	2"C, 1-26/C *14, 1-2/C *14; 2"C, Pullwire 2"C, 1-26/C *14; 2-2"C, Pullwire
⑤	2"C, 7-2/C *14; 2"C, 1-Opticom Cable 2"C, 1-24 Strand Fiber Optic Cable 2"C, 2-12 Pair *19 Interconnect Cable
⑥	2"C, 1-26/C *14; 2"C, Pullwire
⑦	2"C, 1-4/C *14, 1-2/C *14
⑧	2"C, 3-2/C *14
⑨	2"C, 1-24 Strand Fiber Optic Cable; 2"C, Pullwire 2"C, 2-12 Pair *19 Interconnect Cable
⑩	2"C, 1-2/C *14; 2"C, Pullwire
⑪	2"C, 1-2/C *14
⑫	Exst 2"C, Exst 1-26/C *14
⑬	Exst 2"C, Exst 1-26/C *14
⑭	Exst 2"C, Exst 1-2/C *14, 1-Opticom Cable Exst 2"C, Exst 1-2/C *14
⑮	Exst 2"C, Exst 1-26/C *14, 2-Opticom Cable Exst 2"C, Exst 3-2/C *14, 2-Opticom Cable, 1-12 Pair *19, 1-6 Pair *19 Exst 2"C, 3*6
⑯	Exst 2"C, Exst 1-26/C *14, 1-6 Pair *19. Remove Exst 1-6 Pair *19 Exst 2"C, Exst 1-26/C *14 Exst 2"C, Exst 3*6; Exst 2"C, Exst 8-2/C *14 Exst 2"C, Exst 3-Opticom Cable. Remove Exst 1-Opticom Cable & Provide New 1-Opticom Cable, 1-12 Pair *19
⑰	Exst 2"C, Exst 1-26/C *14, 1-6 Pair *19. Remove Exst 1-6 Pair & Provide 1-12 Pair *19 Exst 2"C, Exst 1-26/C *14, 1-12 Pair *19 Exst 2"C, Exst 3*6; Exst 2"C, Exst 7-2/C *14 Exst 2"C, Exst Fiber Optic Cable, 3-Opticom Cable. Remove Exst Fiber Optic Cable, 1-Opticom Cable & Provide New Fiber Optic Cable & 1-Opticom Cable
⑱	Exst 2"C, Exst 1-12 Pair *19, 1-6 Pair *19, 1-2/C *14

SIGNAL HEAD LEGEND				
				Signal Indication
12" RYGA Traffic Signal Head (L.E.D. Signal Assembly Except For Programmed Visibility Signal)	12" RYGA Traffic Signal Head (L.E.D. Signal Assembly Except For Programmed Visibility Signal)	12" RYGA Traffic Signal Head (L.E.D. Signal Assembly Except For Programmed Visibility Signal)	Pedestrian Signal Head	Description
D-3 D-4 E-1	D-1 D-2 F-1	A-1 B-1 B-2 D-5 (a)	C-1 F-2 D-6 D-7 D-8 E-2	Pole Letter-Signal Head Number

(a) - Programmed Visibility

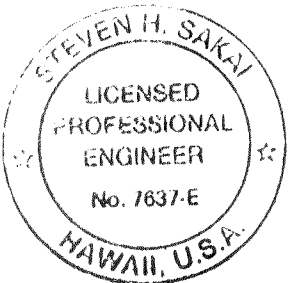


EXISTING & INTERIM PHASE DIAGRAM  
(For Construction Phases 2,3,4)



INTERIM & FINAL PHASE DIAGRAM  
(For Construction Phases 1,5,6)

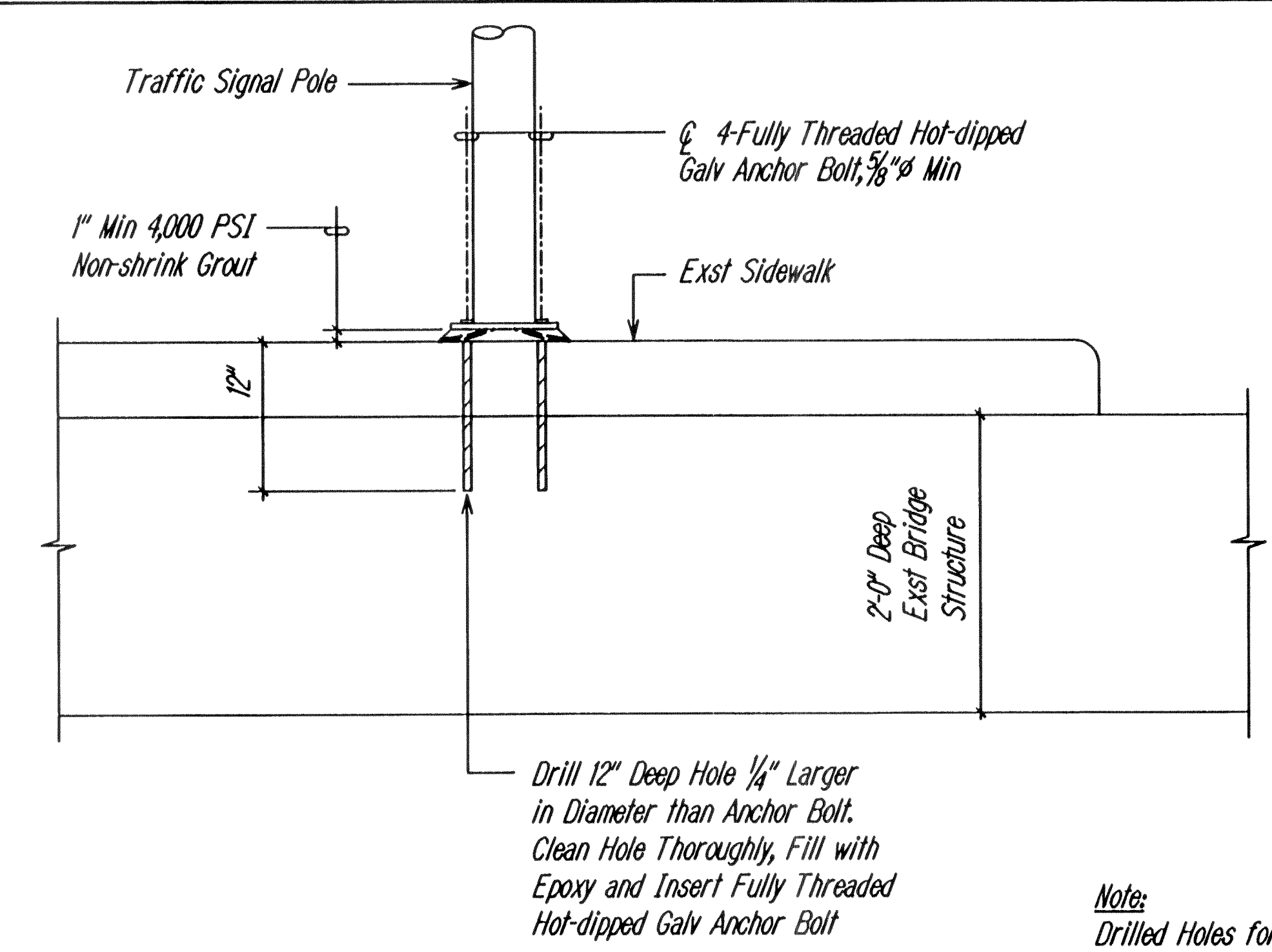
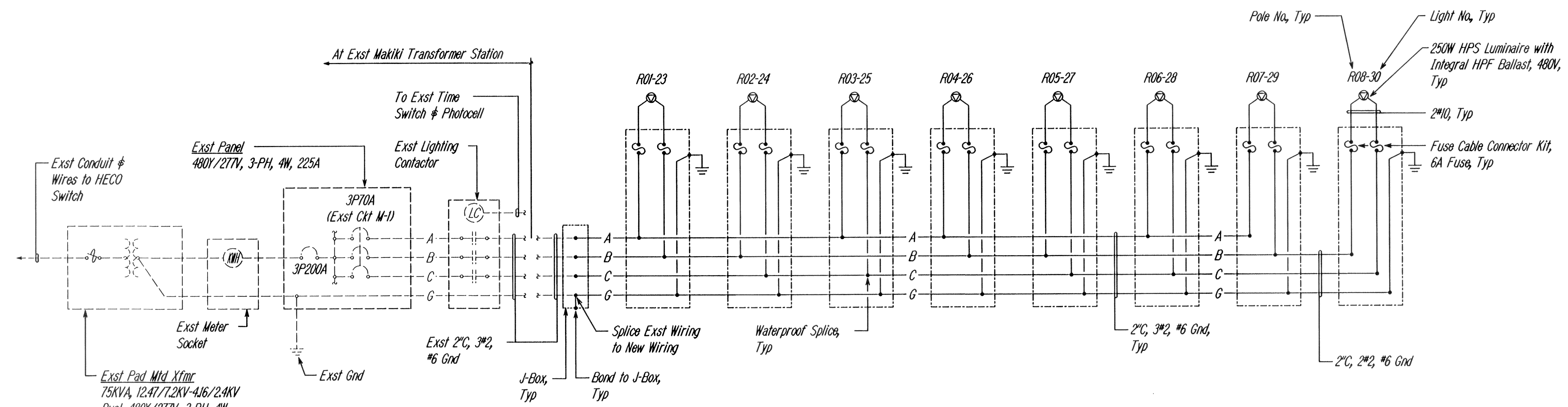
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
IN	_____



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*Steven H. Sakai*

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
TRAFFIC SIGNAL SCHEDULES AND DIAGRAMS
INTERSTATE ROUTE H-1 PUNAHOU ST. OFF-RAMP IMPROVEMENTS F.A.I. Project No. 1M-HI-1(232)
Scale: As Noted Date: 4/28/00
SHEET No. E-5A OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	57	84



**NOTE:**  
 DRILLED HOLES FOR ANCHOR BOLTS SHALL BE LOCATED TO AVOID EXST REBARS IN BRIDGE STRUCTURE.

**Note:**  
 Drilled Holes for Anchor Bolts shall be Located to Avoid Exst Rebars in Bridge Structure.

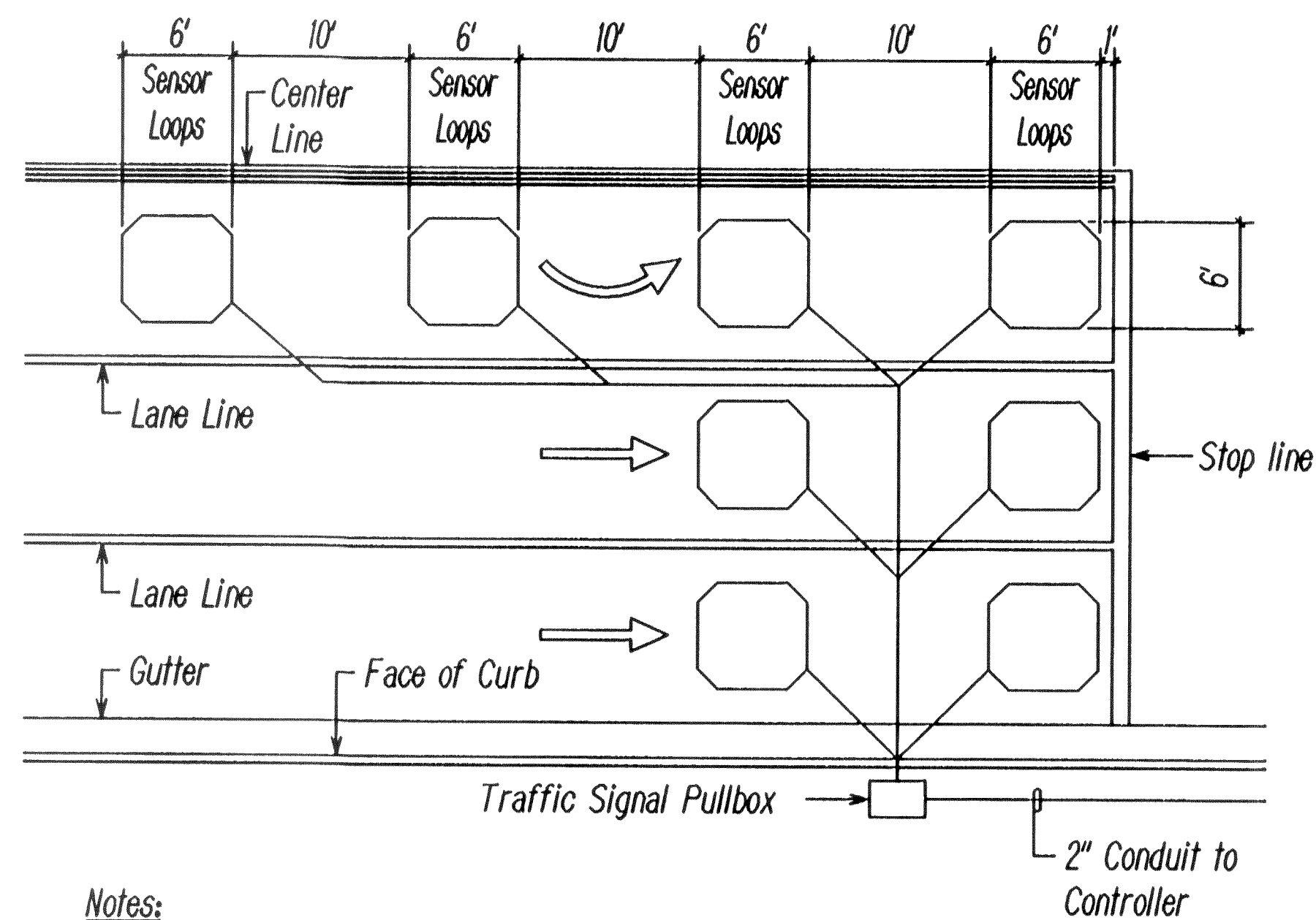
**A**  
**E-6** **TRAFFIC POLE ANCHOR DETAIL**  
 Not to Scale

STEVEN H. SALT  
 LICENSED PROFESSIONAL ENGINEER  
 No. 7037-E  
 HAWAII, U.S.A.  
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 UNDER MY SUPERVISION  
 Date: 4/28/00

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SINGLE-LINE DIAGRAM**  
**MISCELLANEOUS DETAILS**  
 INTERSTATE ROUTE H-1  
 PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
 F.A.I. Project No. 1M-HI-1(232)  
 Scale: As Noted Date: 4/28/00  
 SHEET No. E-6 OF 18 SHEETS

DESIGNED BY	
CHECKED BY	
DATE	
BY	
FOR	
NOTED BY	
DATE	
BY	
FOR	
NOTED BY	
DATE	
BY	
FOR	

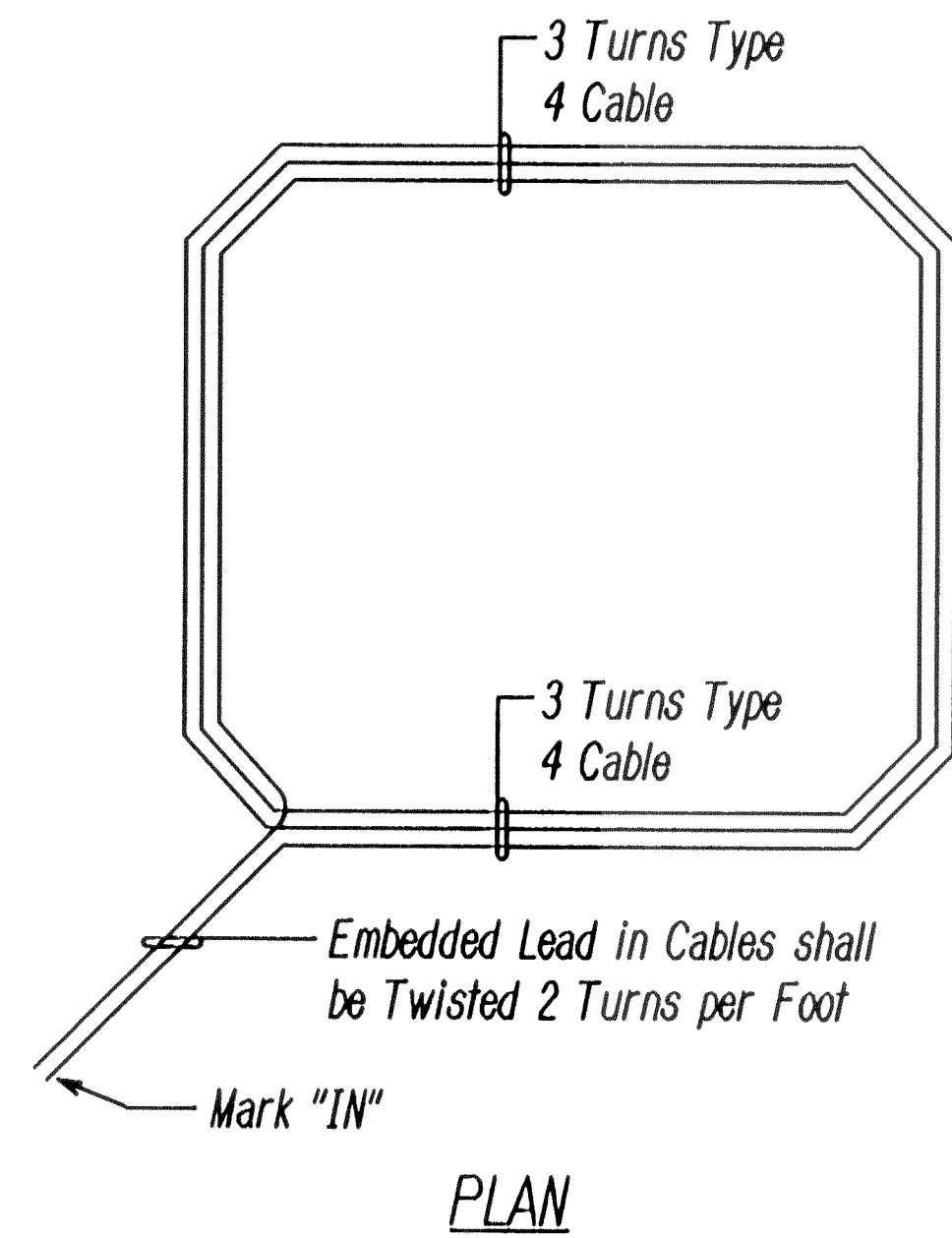
FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	58	84



**Notes:**

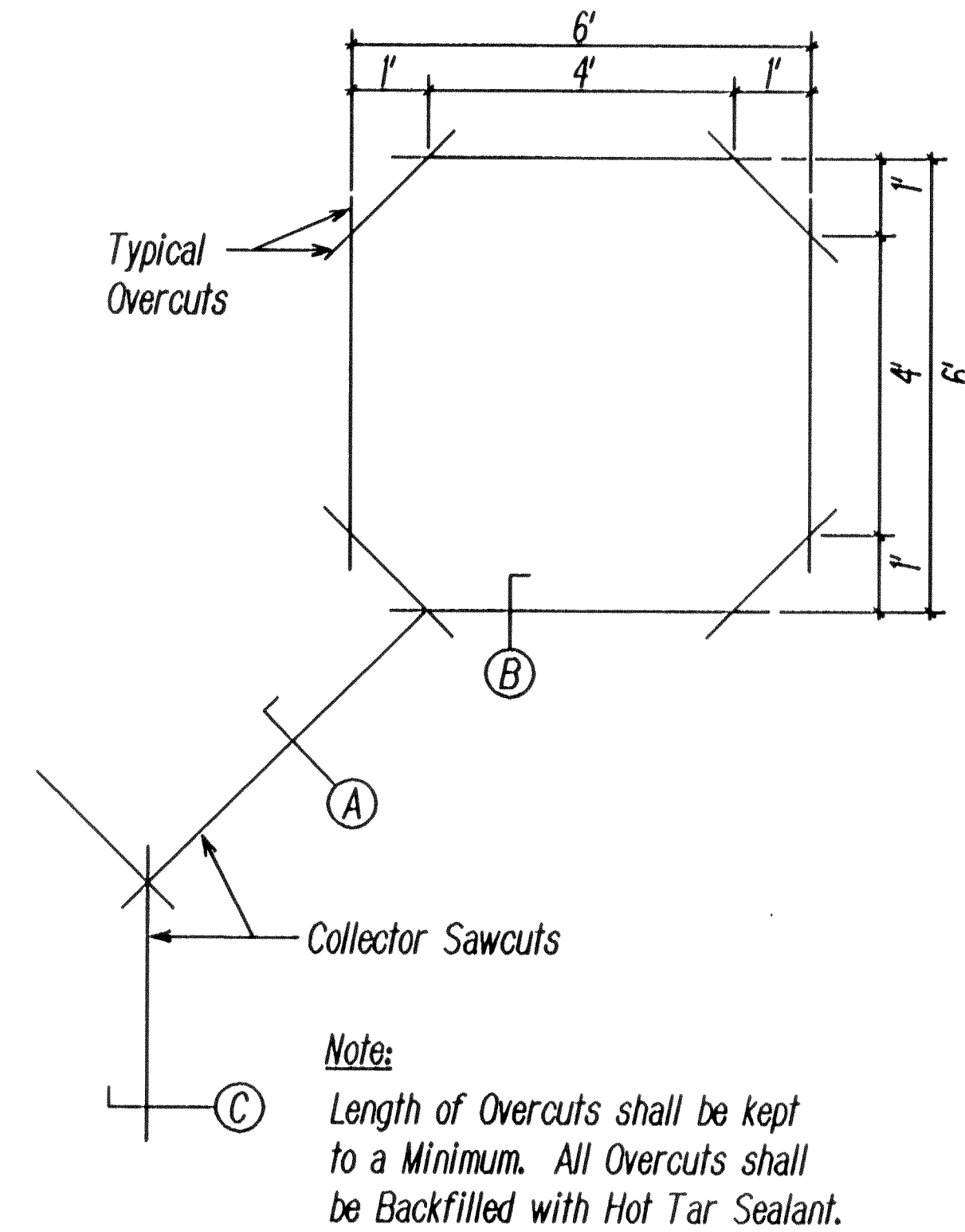
- Center Sensor Loops in Lanes.
- Collector Cables shall be Twisted 2 Turns per Foot.
- Number of Loops and Locations vary. See Project Plans.
- Number and Locations of Collector Sawcuts may be varied In the Field to Suit.

**A**  
E-7  
**TYPICAL SENSOR LOOP LAYOUT**  
Not to Scale



**Note:** Type 4 Cable - Loop Sensor Cable;  
Solid No. 12, Single Conductor to IMSA  
Spec 5I-5

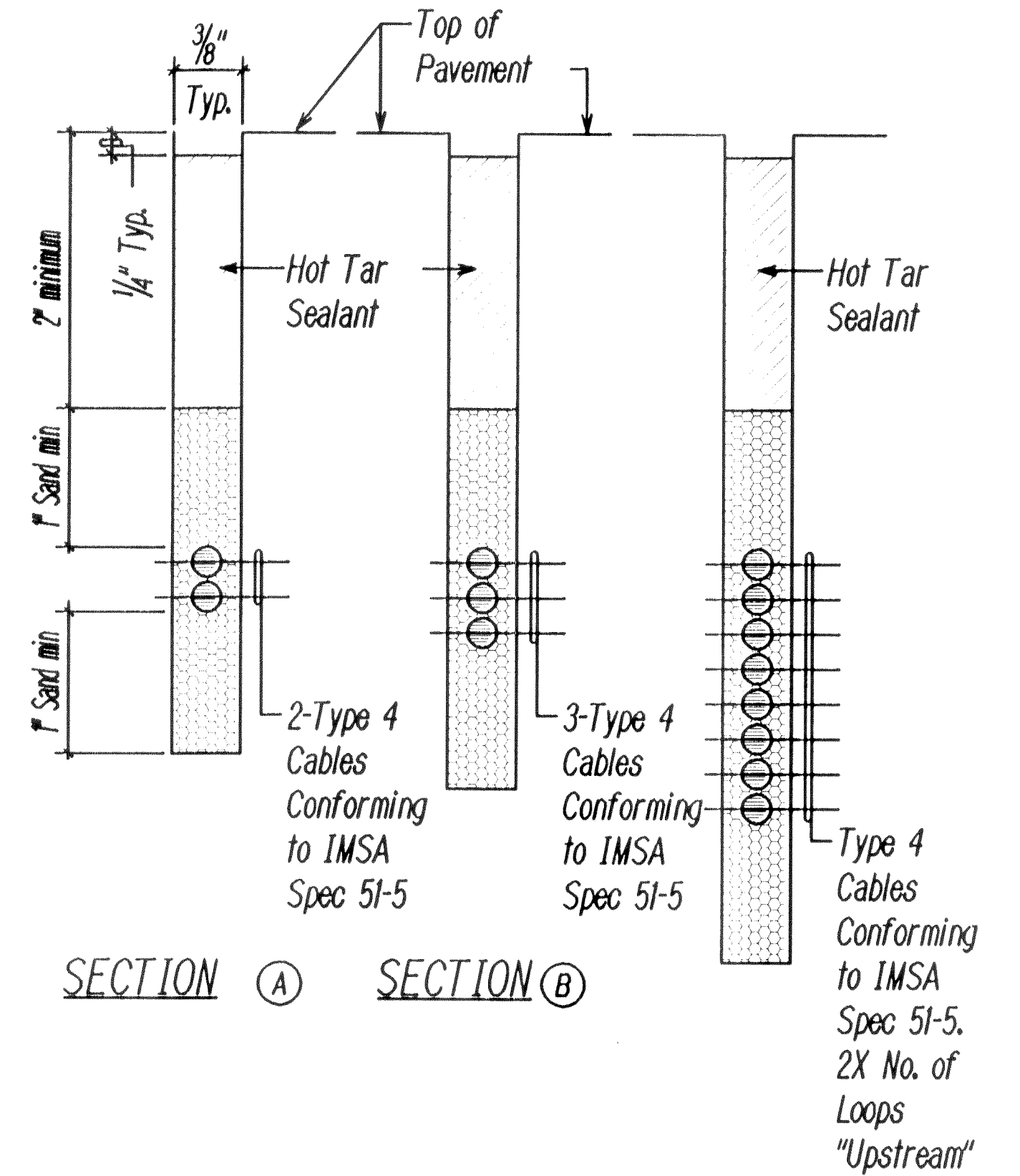
**C**  
E-7  
**TYPICAL SENSOR LOOP WIRING DIAGRAM**  
Not to Scale



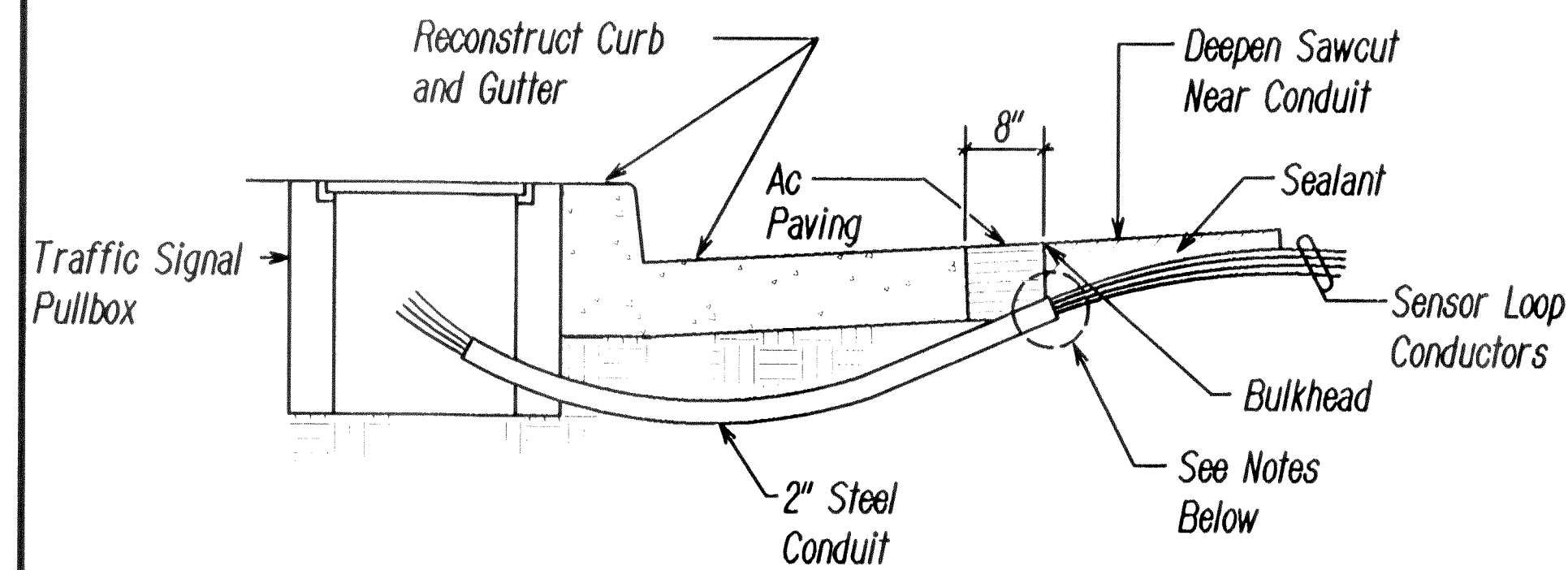
**Note:**

Length of Overcuts shall be kept to a Minimum. All Overcuts shall be Backfilled with Hot Tar Sealant.

**E**  
E-7  
**TYPICAL SENSOR LOOP SAWCUT DETAIL**  
Not to Scale



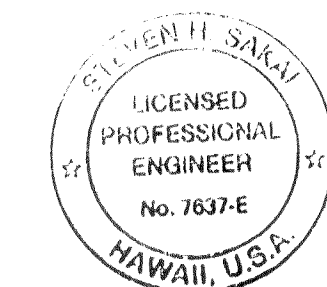
**B**  
E-7  
**DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY**  
Not to Scale



**Notes:**

- Seal Roadway End of Conduit after Installation of Conductors.
- Install Bulkhead Across Conduit Trench.
- Place Hot Tar in Sawcut.
- Backfill over Conduit with New Asphalt Concrete
- Reconstruct Curb and Gutter as Required.

**B**  
E-7  
**DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY**  
Not to Scale



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*Steven H. Sakai*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

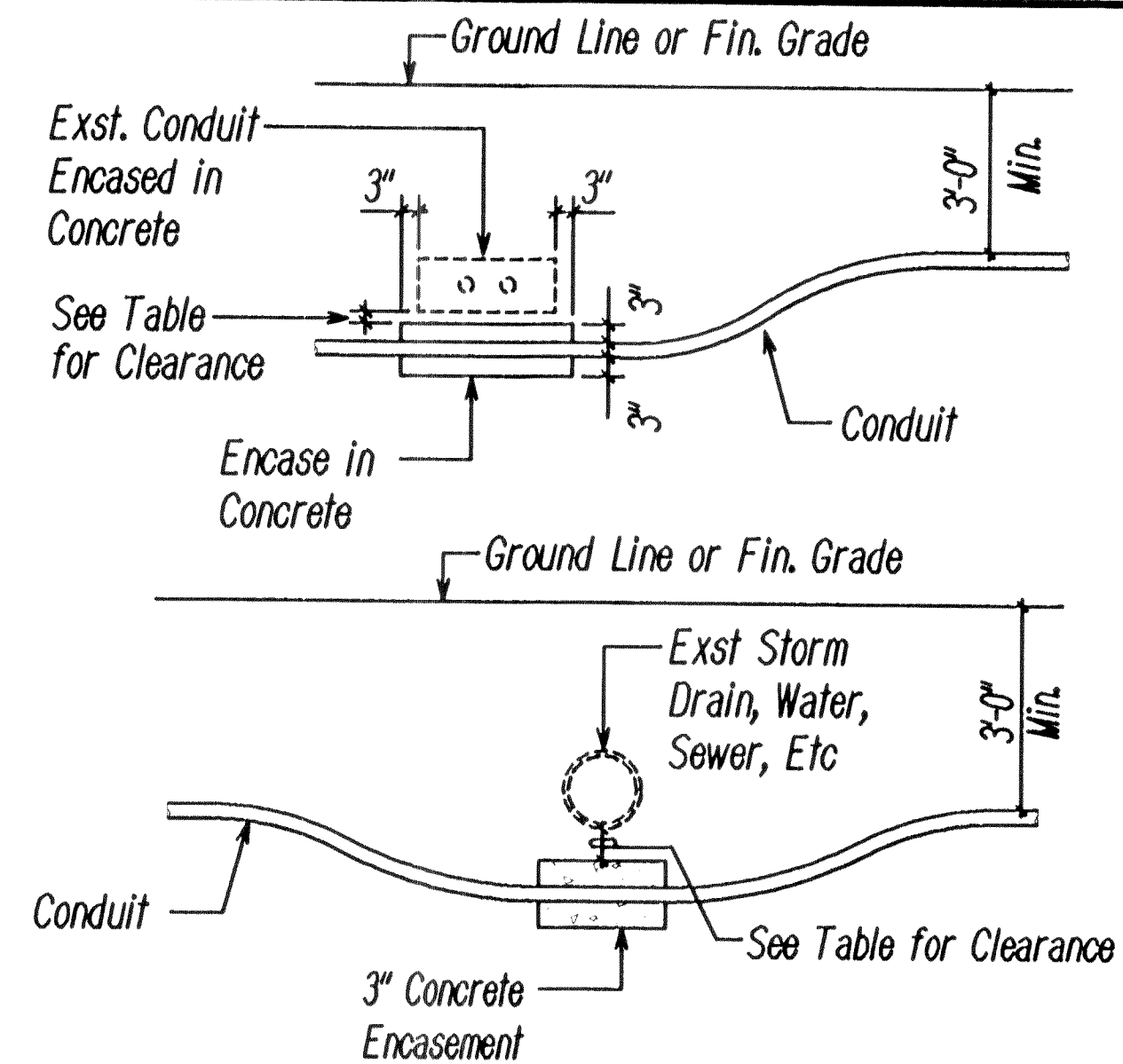
**LOOP DETECTOR DETAILS**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. 1M-HI-1(232)  
Scale: As Noted Date: 4/28/00

SHEET No. E-7 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	59	84

	Clearance
Water	See BWS Note 13, Sht 4
Sewer	24" Min or Provide 6" Thick Reinforced Conc Jacket
Drain	12" Min
HECO/HTCO/CATV	3" Min
AT&T	12" Min
Traffic Signal/Street Light	0"

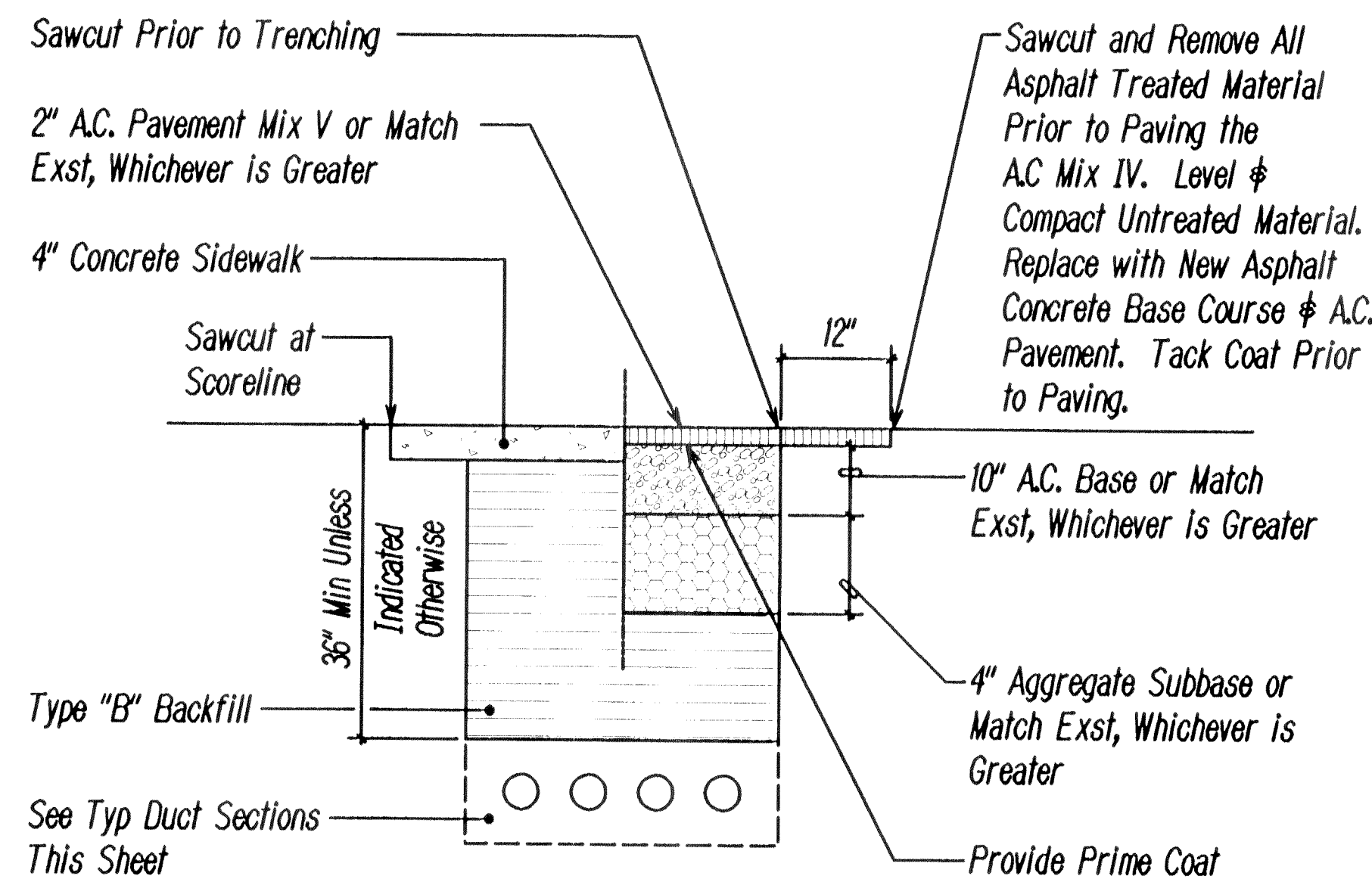


**A**  
E-8  
**TYPICAL CONDUIT BY-PASS DETAILS**  
Not to Scale

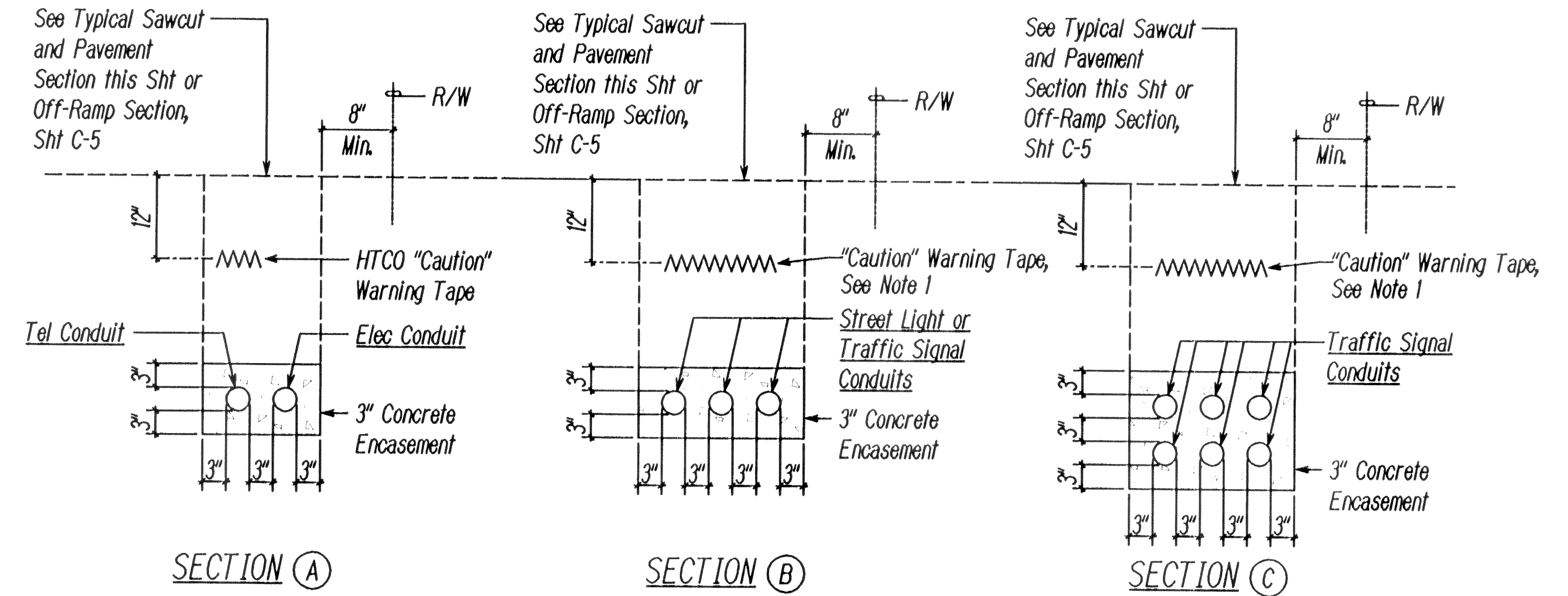
**Backfill Notes:**  
(Within State Right-of-Way)

- ☐ Trench Backfill Material "B"  
1. Sand Equivalent  $\geq$  Sand Equivalent of Surrounding Soil.  
2. 8" Max. Lift  
3. 95% Compaction
- ☐ Trench Backfill Material "A"  
1. Sand Equivalent  $\geq$  20  
2. 8" Max. Lift  
3. 95% Compaction
- ☐ Concrete - 3" Encasement, 2500 Psi Compressive Strength @ 28 Days.
- ☐ If Material Below Duct is not Equivalent to Backfill Material "A", Excavate Material & Provide 3" Backfill Material "A". See Above

**Note:** A.C. Pavement, A.C. Base & Aggregate Subbase Per 1994 State Standard Specifications for Highway Construction.



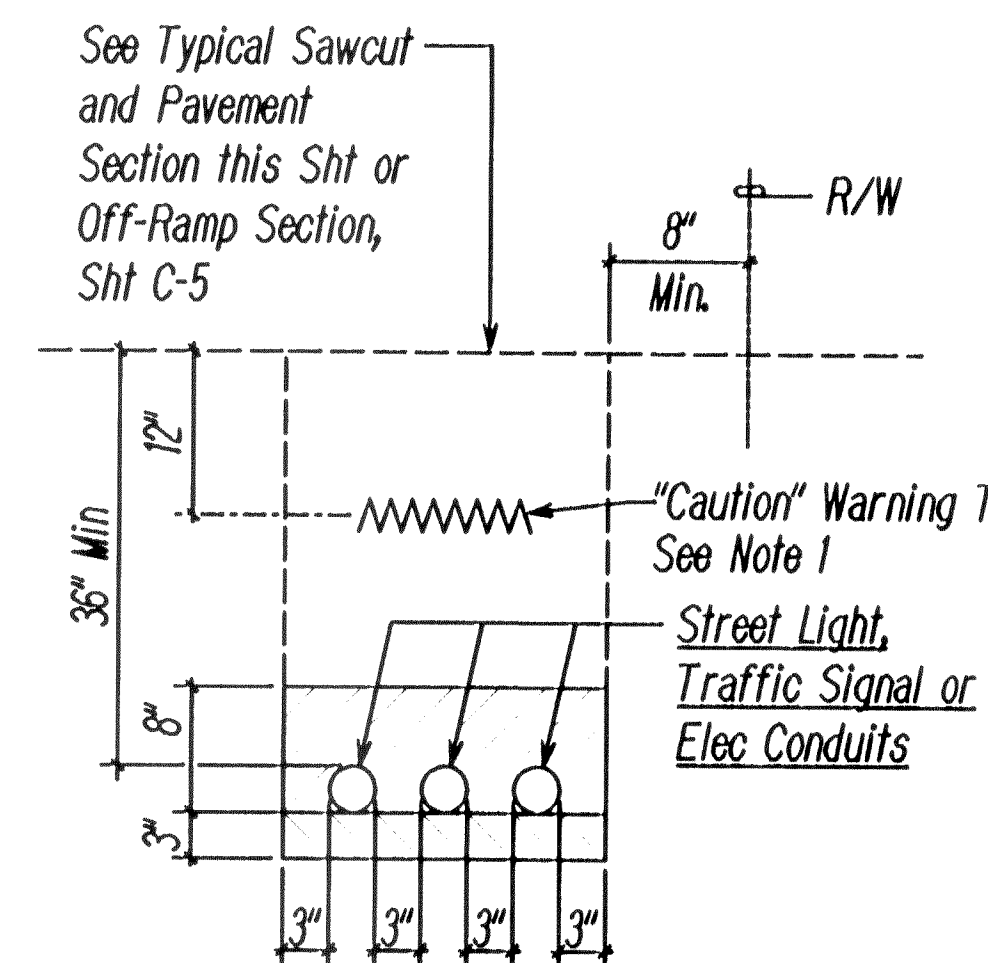
**B**  
E-8  
**TYPICAL SAWCUT AND PAVEMENT SECTION**  
(PUNAHOU STREET ONLY)  
Not to Scale



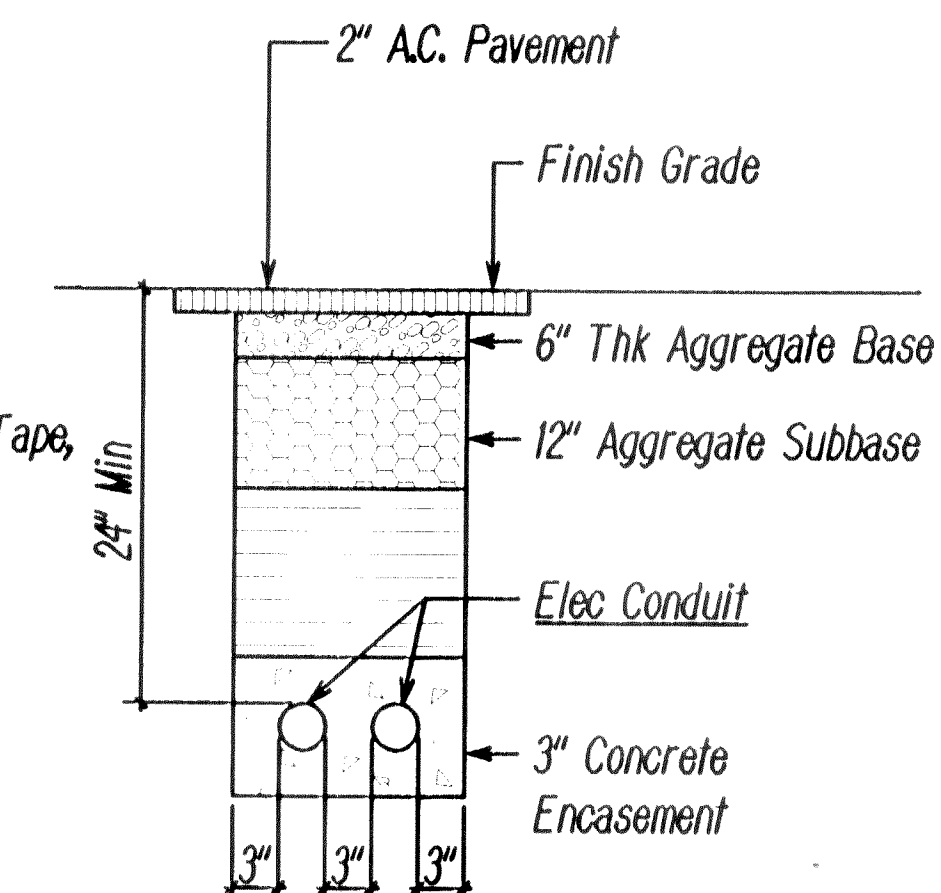
**SECTION A**

**SECTION B**

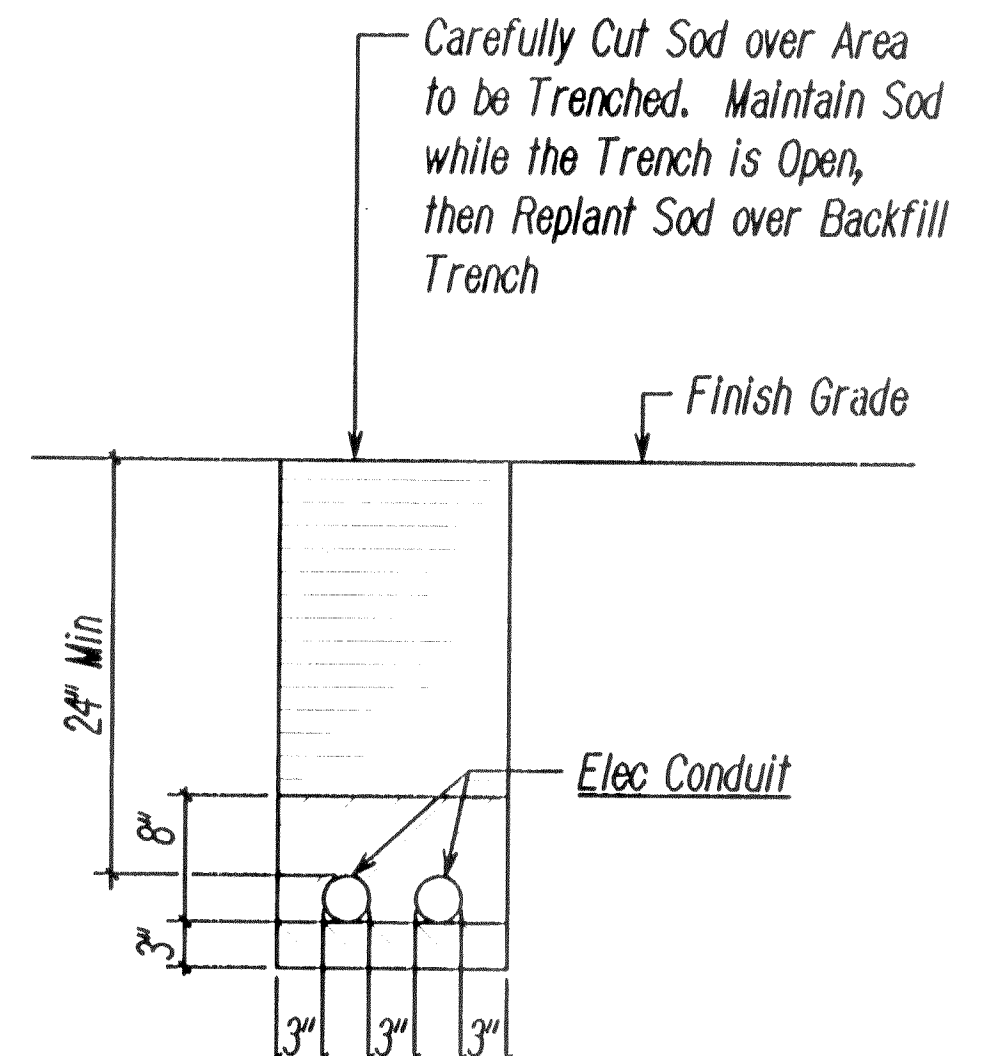
**SECTION C**



**SECTION D**



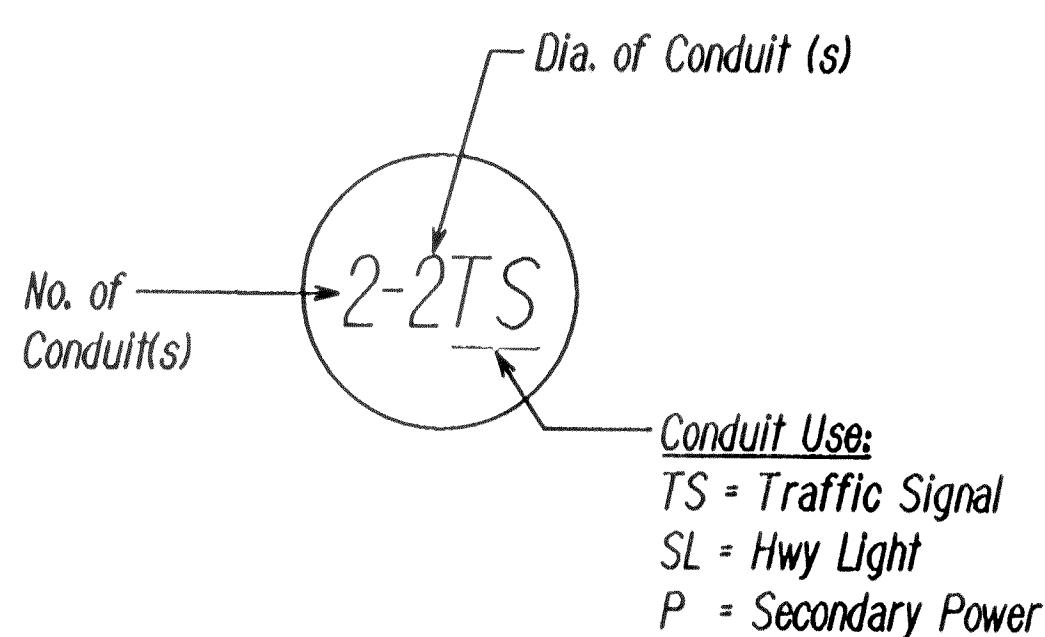
**SECTION E**



**SECTION F**

**Note:** See Plan for Size & Number of Conduits

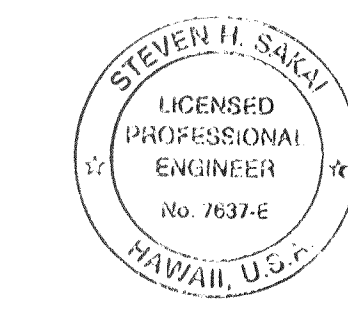
**C**  
E-8  
**TYPICAL DUCT SECTION DETAIL**  
Not to Scale



**CONDUIT DESIGNATION**

**GENERAL NOTES**

- The Metal Detectable Red Plastic Warning Tape shall be a minimum 5 mils thick and 4" wide with a continuous metallic backing and corrosion resistant 1 mil thick foil core. The tape shall read, "CAUTION - BURIED ELECTRIC LINE BELOW", utilizing 3-inch series "C" lettering. The message will be repeated with a 12-inch spacing between the end and beginning of repeated message.
- For direct buried duct sections, the concrete jacket required at the conduit by-pass for various utilities, shall not be paid for separately but considered incidental to the direct buried conduits.
- After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards and traffic signal controller cabinet concrete base. The duct seal material shall be approved by the Traffic Signal Inspector/Engineer and shall not be paid for separately but considered incidental to the direct buried and/or concrete encased conduits.



SEVEN H. SAKAI  
LICENSED PROFESSIONAL ENGINEER  
No. 7637-E  
HAWAII, U.S.A.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

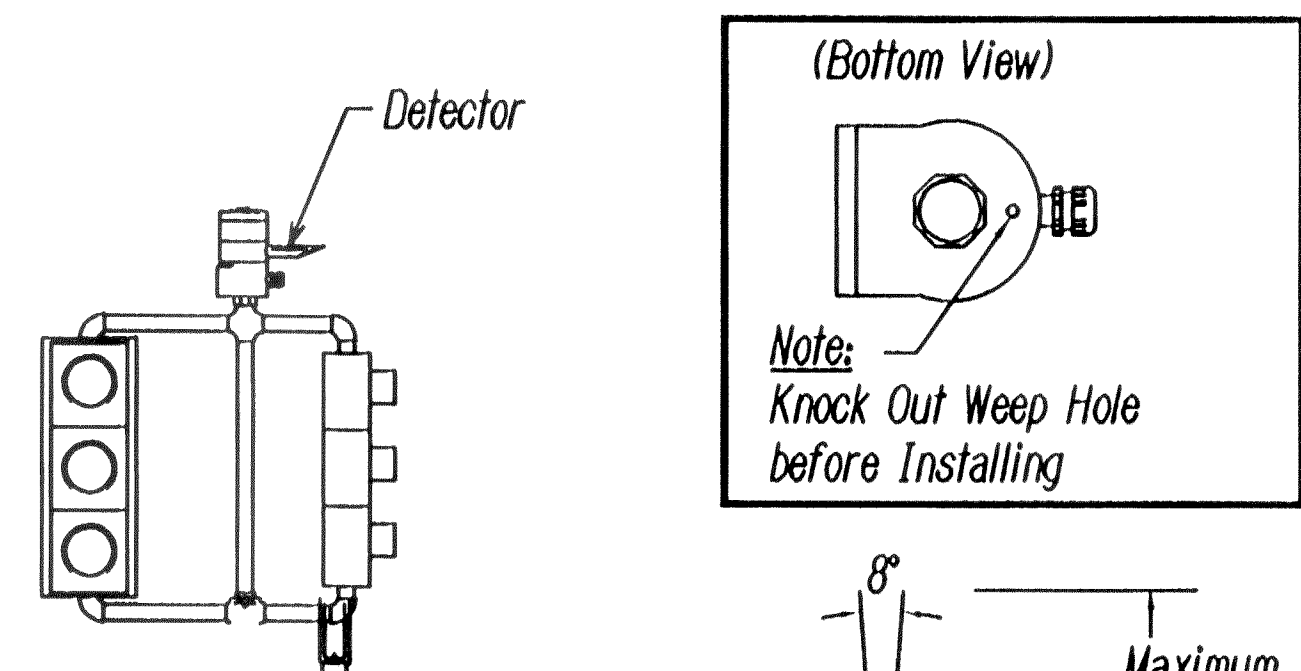
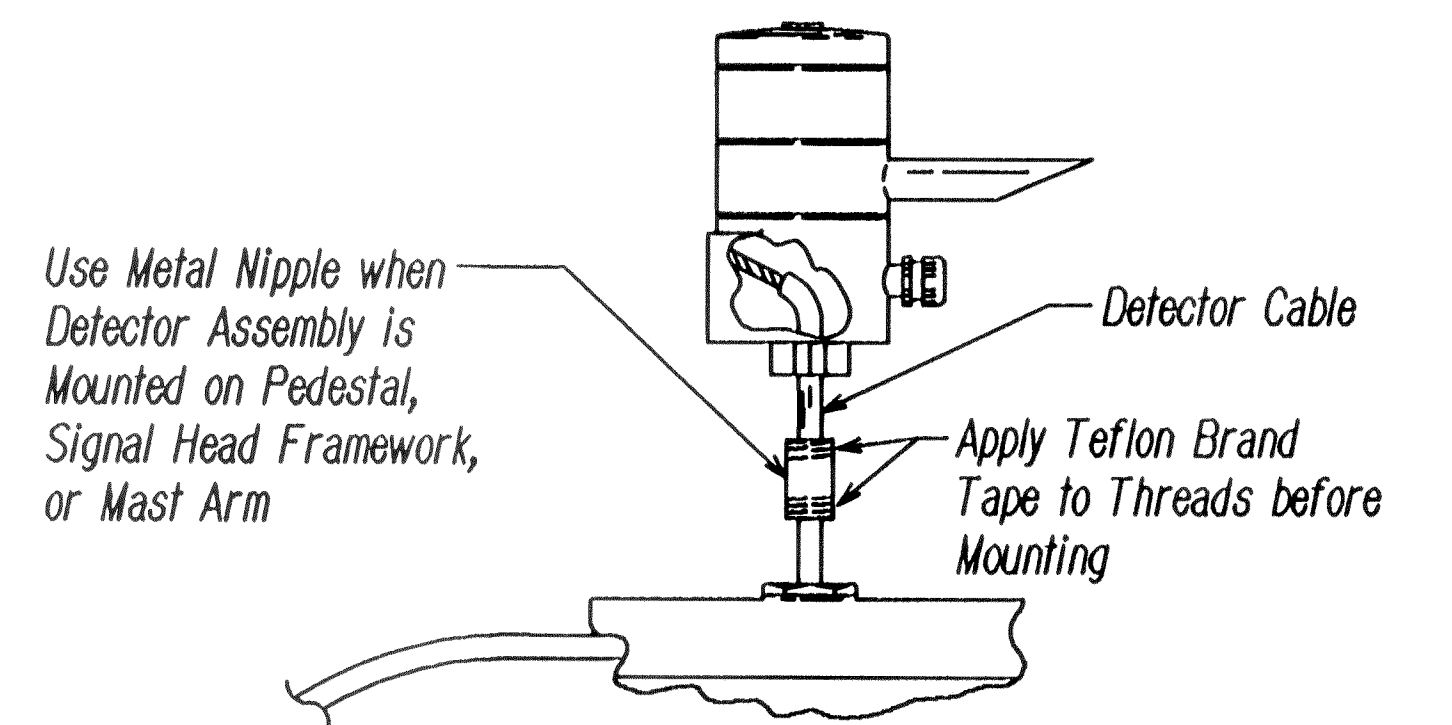
**TYPICAL DUCT SECTION & MISCELLANEOUS DETAILS**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. 1M-HI-1(232)

Scale: As Noted Date: 4/28/00

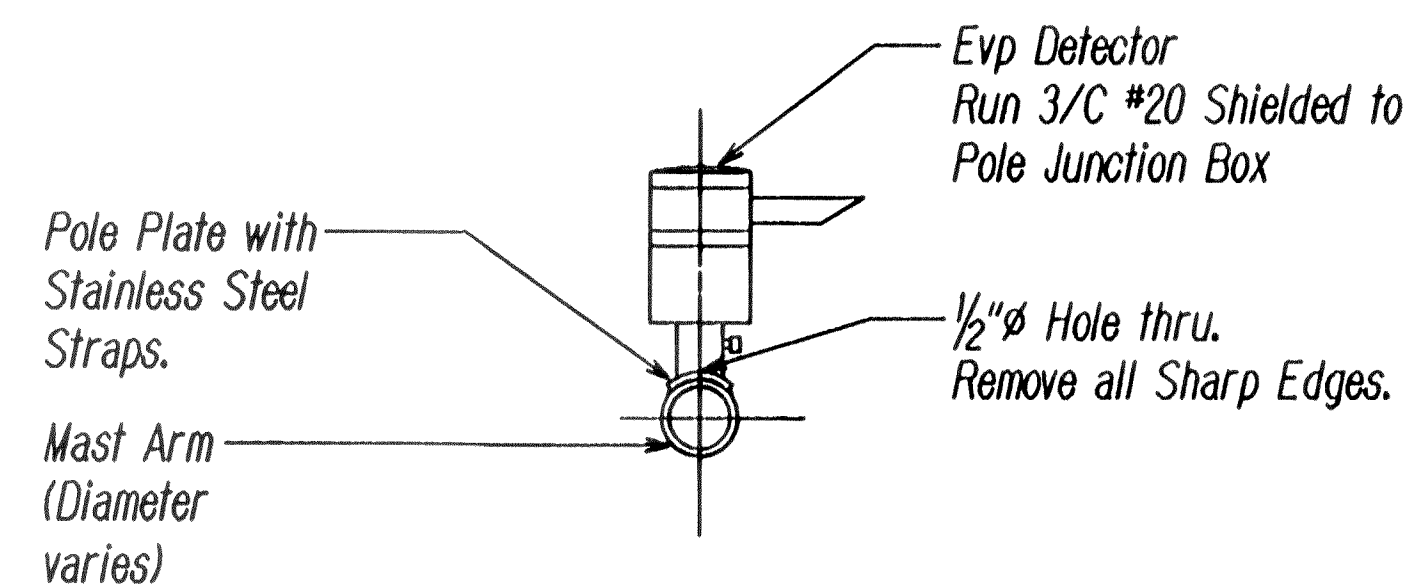
SHEET No. E-8 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID. PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(232)	2000	60	84



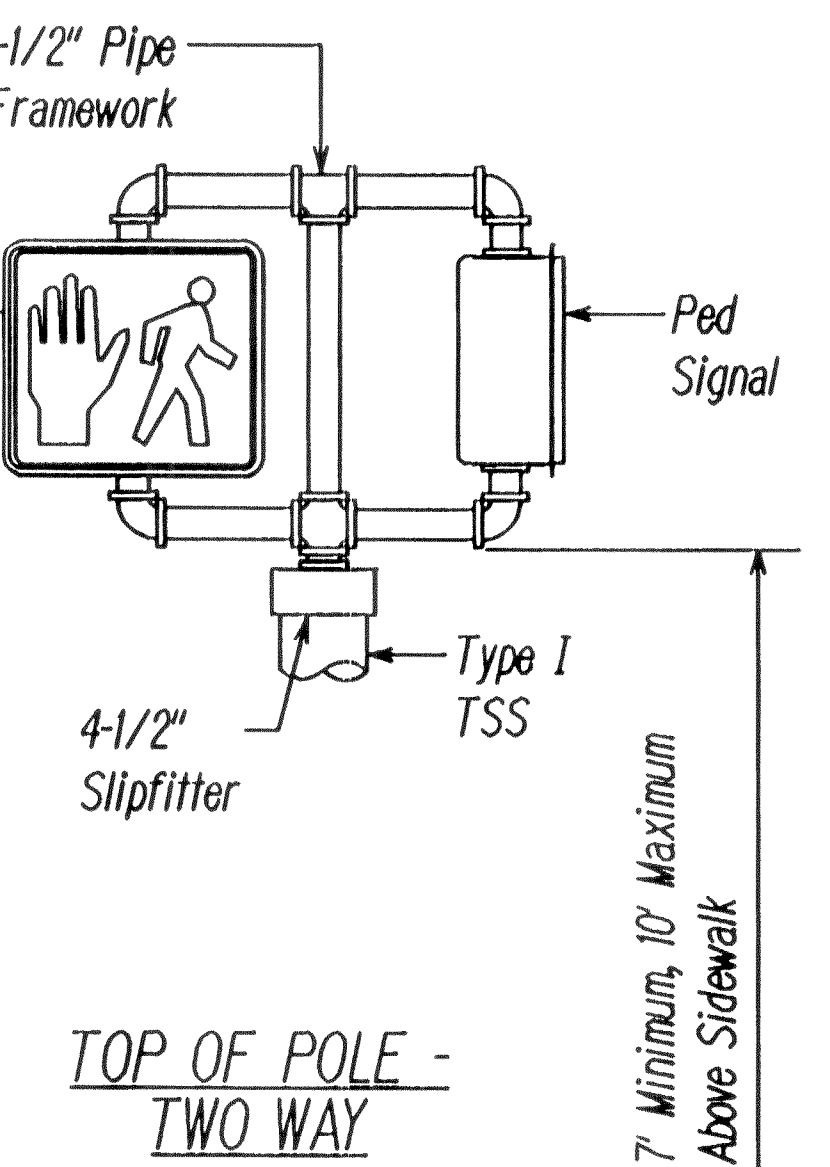
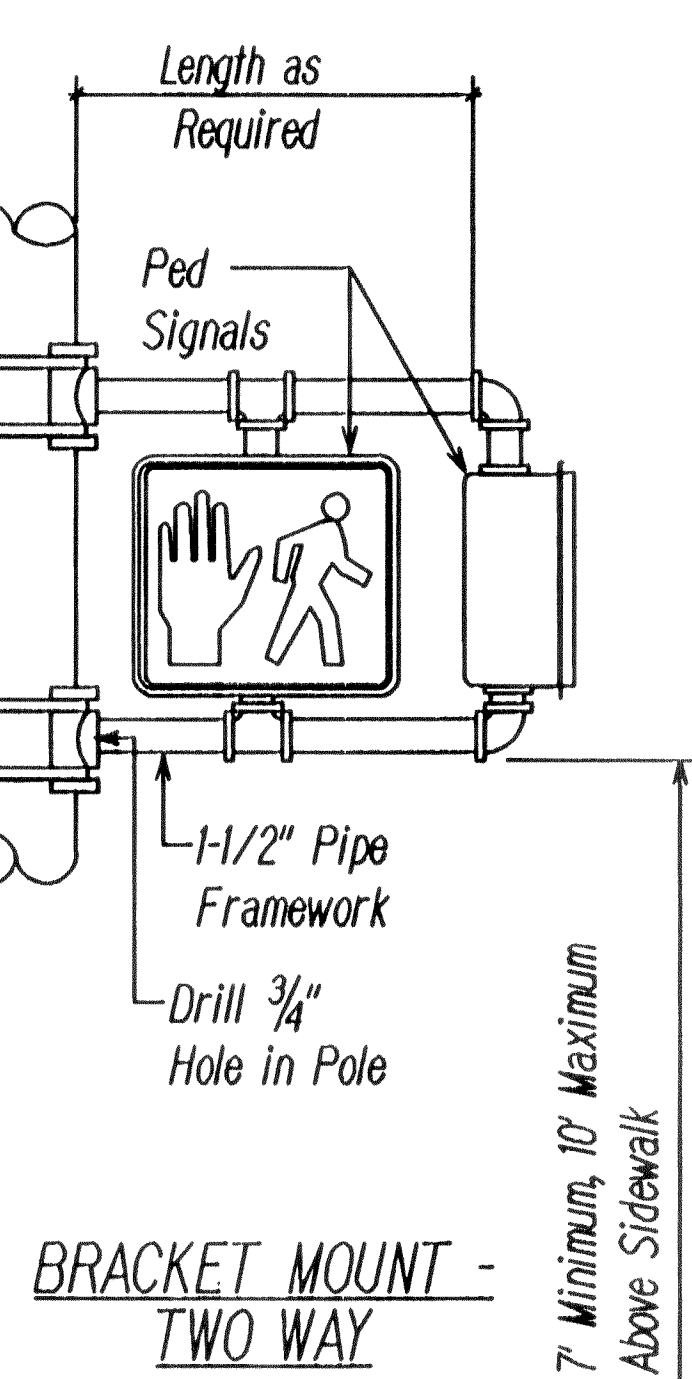
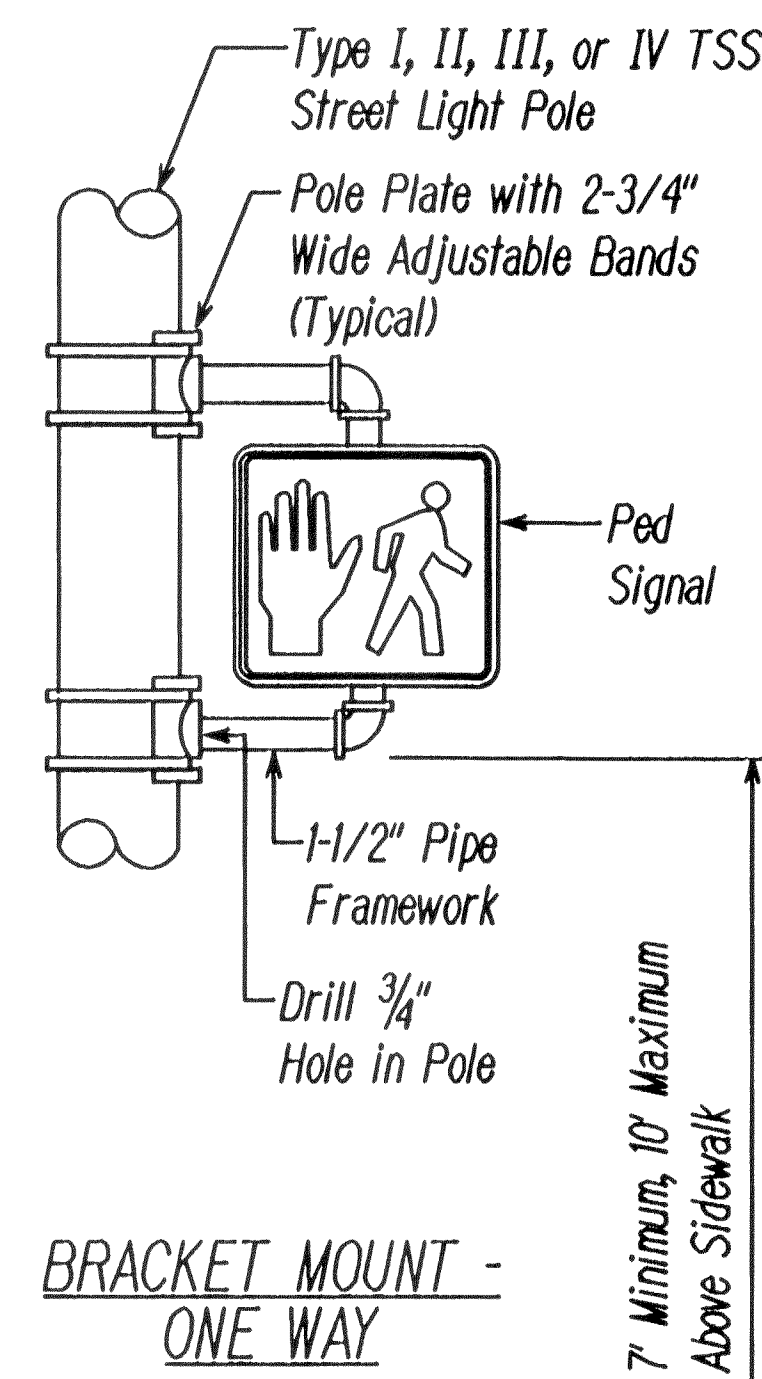
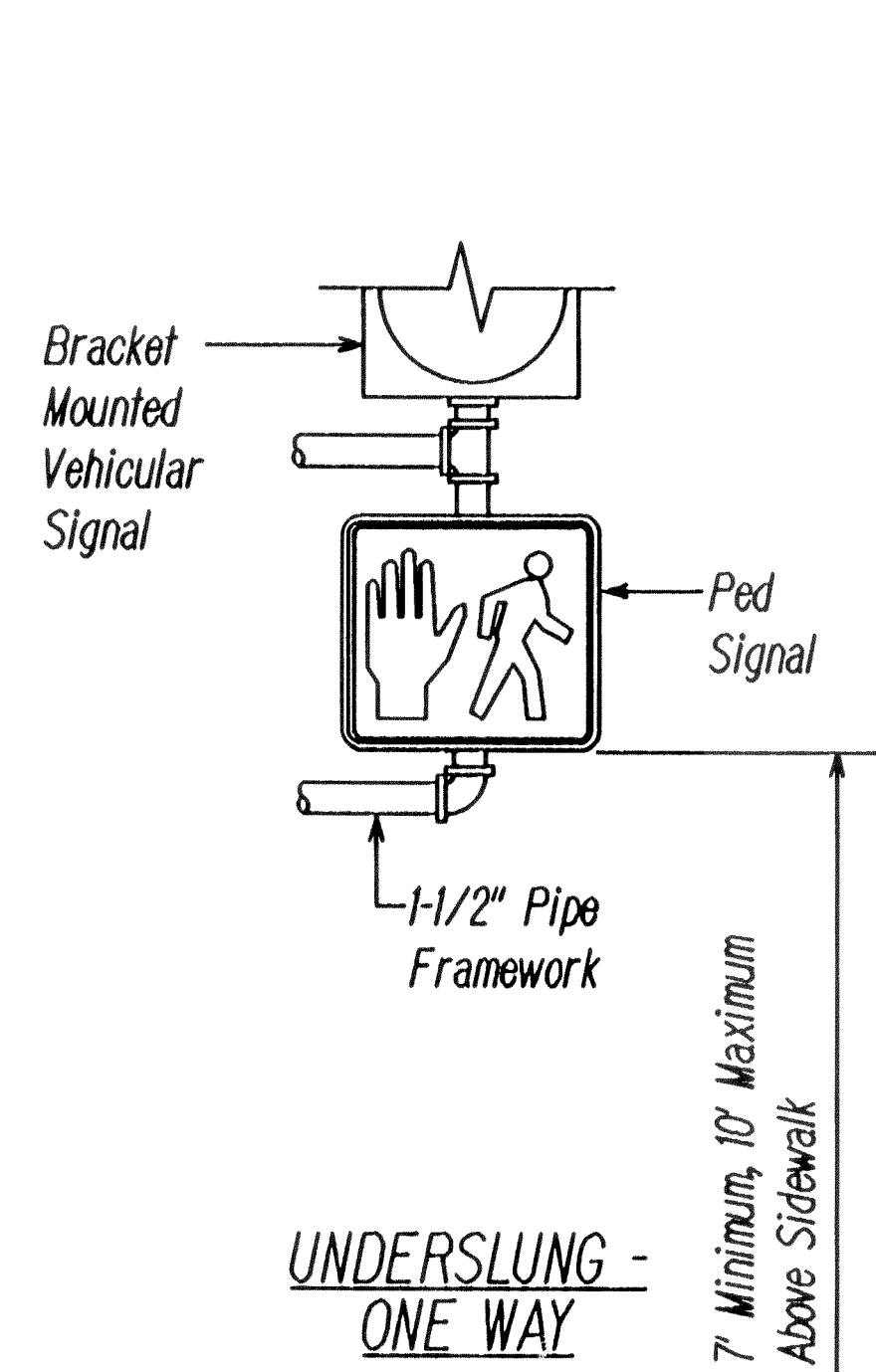
Note:  
Detector Reception Angle varies with Distance. It is Approximately 8° at 1800 Feet (0.54km). Due to Reflection, Reception Angle is Increased at Close Range. The Detector must be Aligned within 8° of the Farthest Point where Priority Vehicle is to be Sensed.

TYPICAL PEDESTAL/TYPE T.S.S. MOUNTING OF EVP DETECTOR



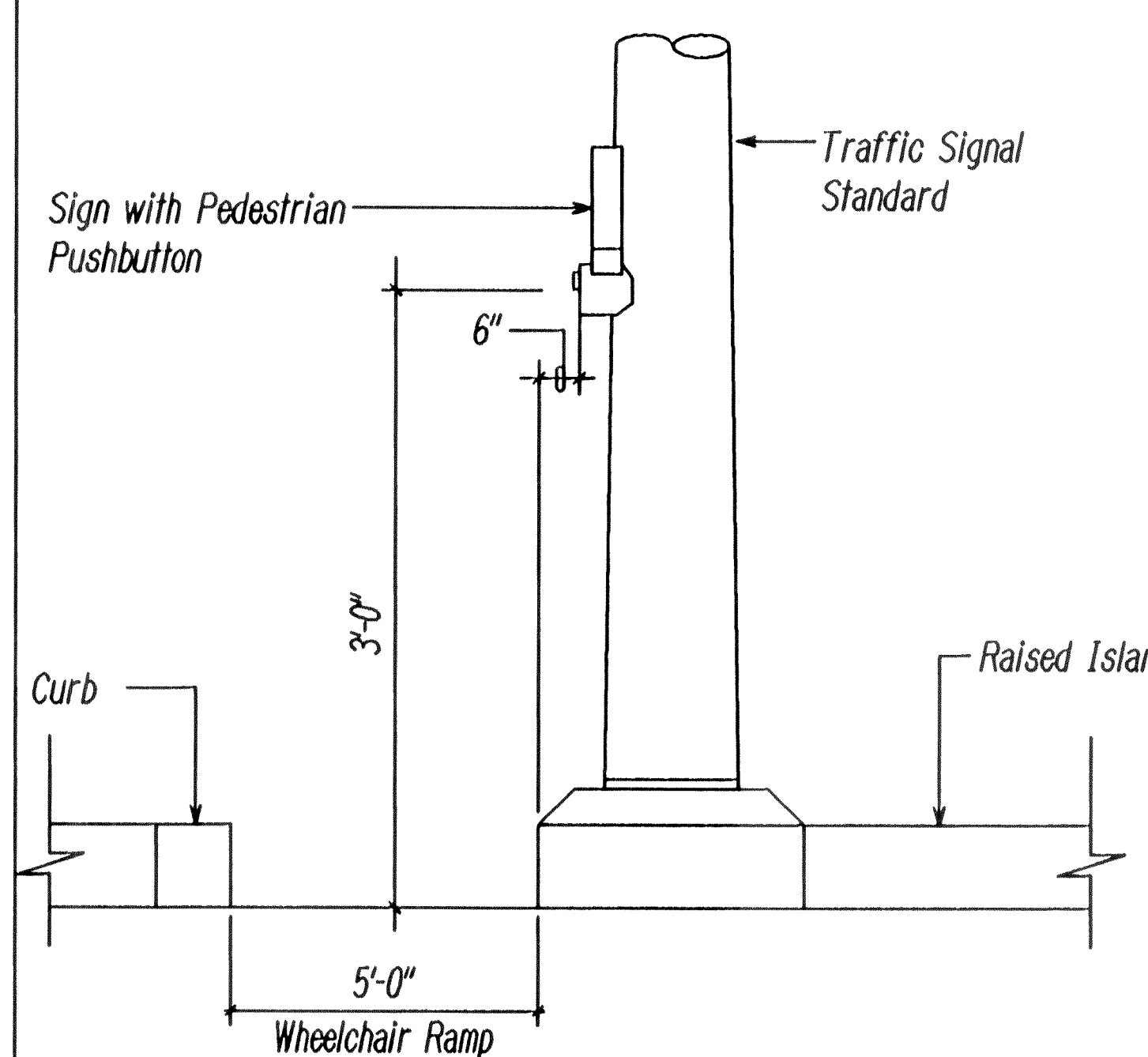
TYPICAL MAST ARM MOUNTING OF EVP DETECTOR

**A**  
E-9  
Not to Scale  
**EVP DETECTOR MOUNTING**



**B**  
E-9  
Not to Scale  
**PEDESTRIAN SIGNAL MOUNTINGS**

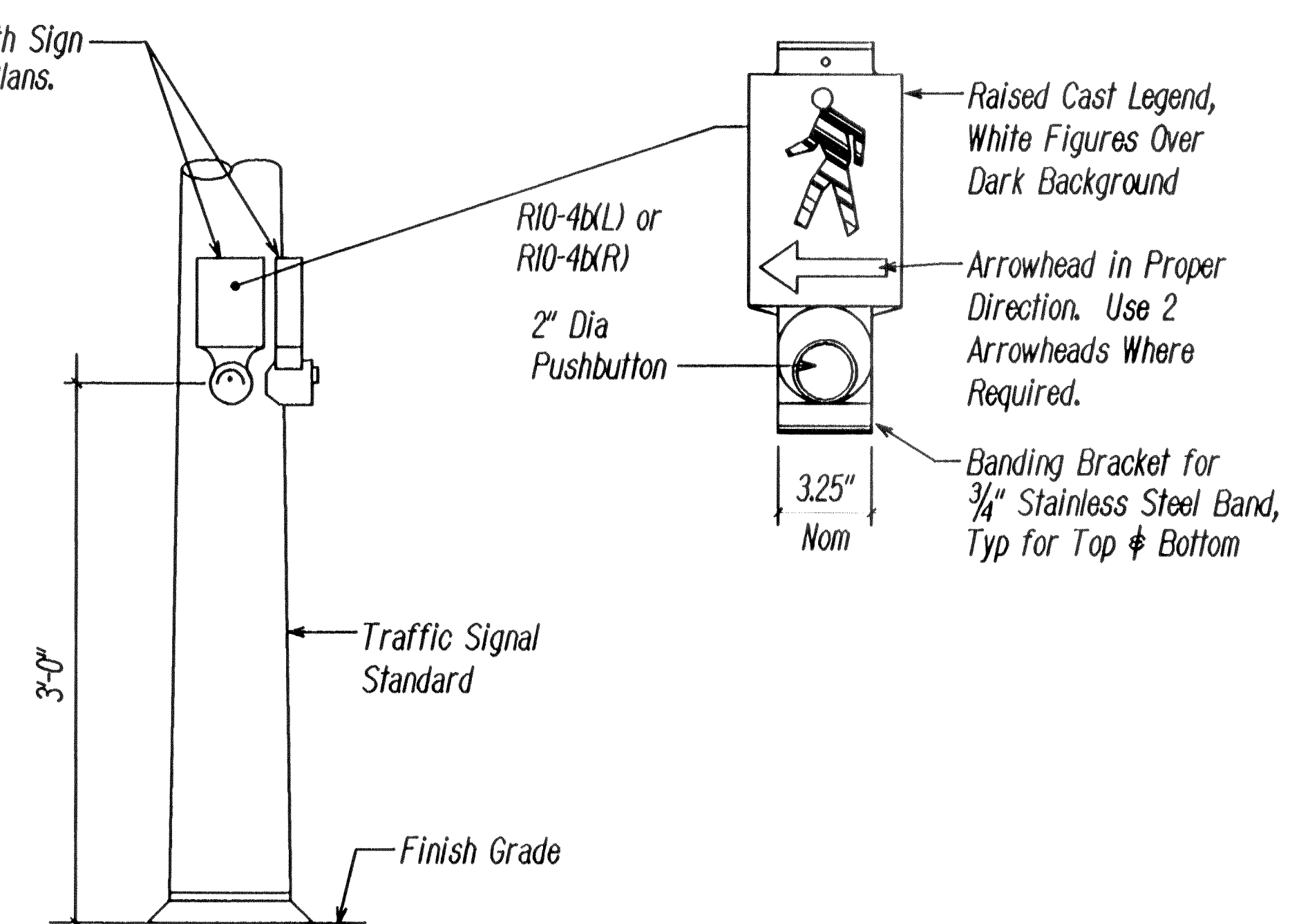
Note: See Sht C-29 for Push Button Locations.



AT RAISED CONCRETE ISLAND

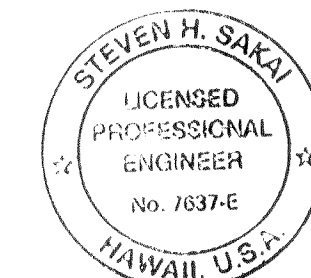
**C**  
E-9  
Not to Scale  
**PEDESTRIAN PUSHBUTTON DETAILS**

1 or 2 PPB with Sign as Shown on Plans.



AT SHOULDER

- Notes:
1. The Push Button Activator shall be of the Mushroom Plunger Type, ADA Acceptable, 2-Inches in Diameter that Requires less than 5 Pounds of Pressure to Activate.
  2. The Push Button Shall be tamperproof, Weatherproof and Constructed so that Electrical Shocks are Impossible.

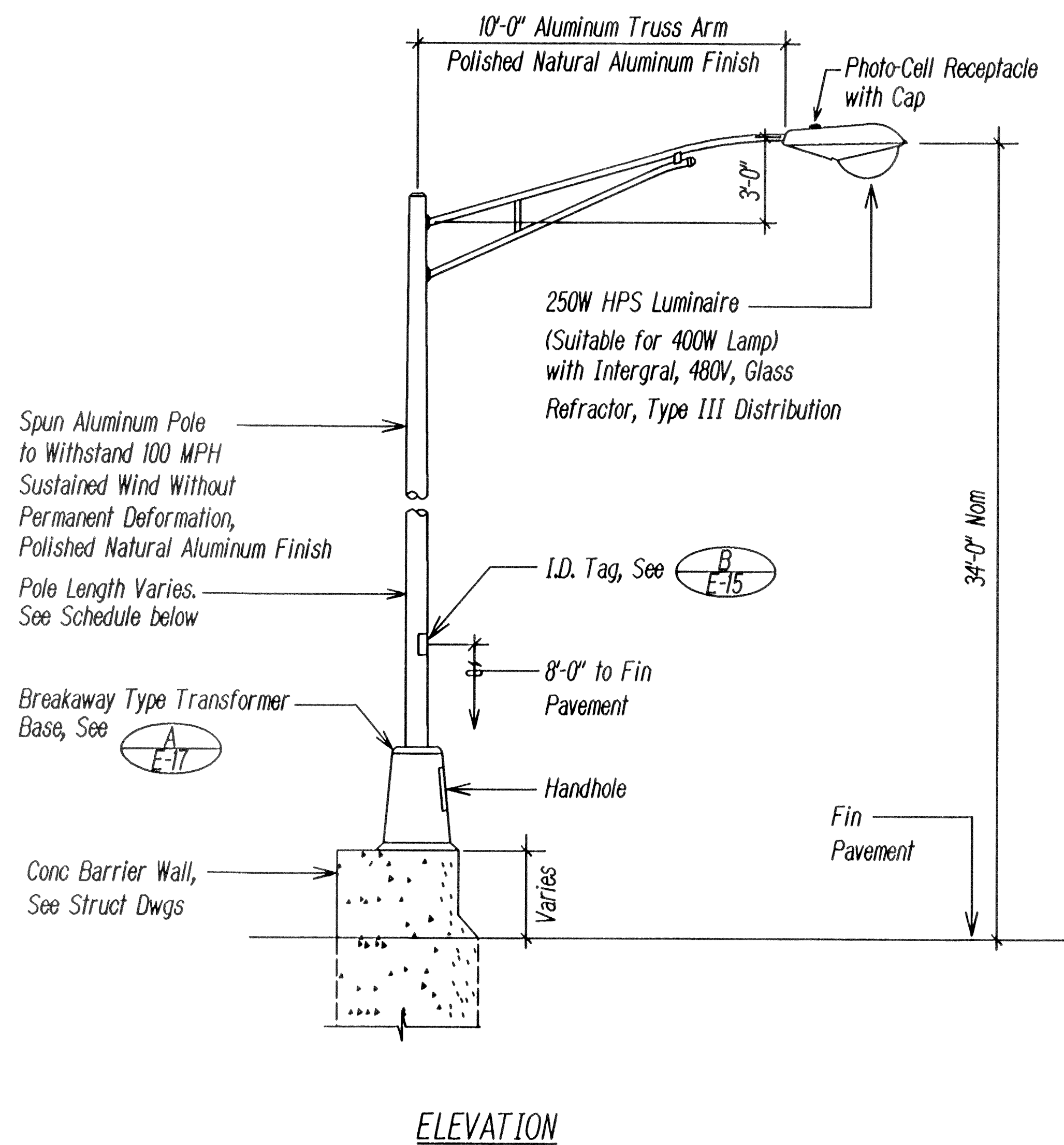


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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

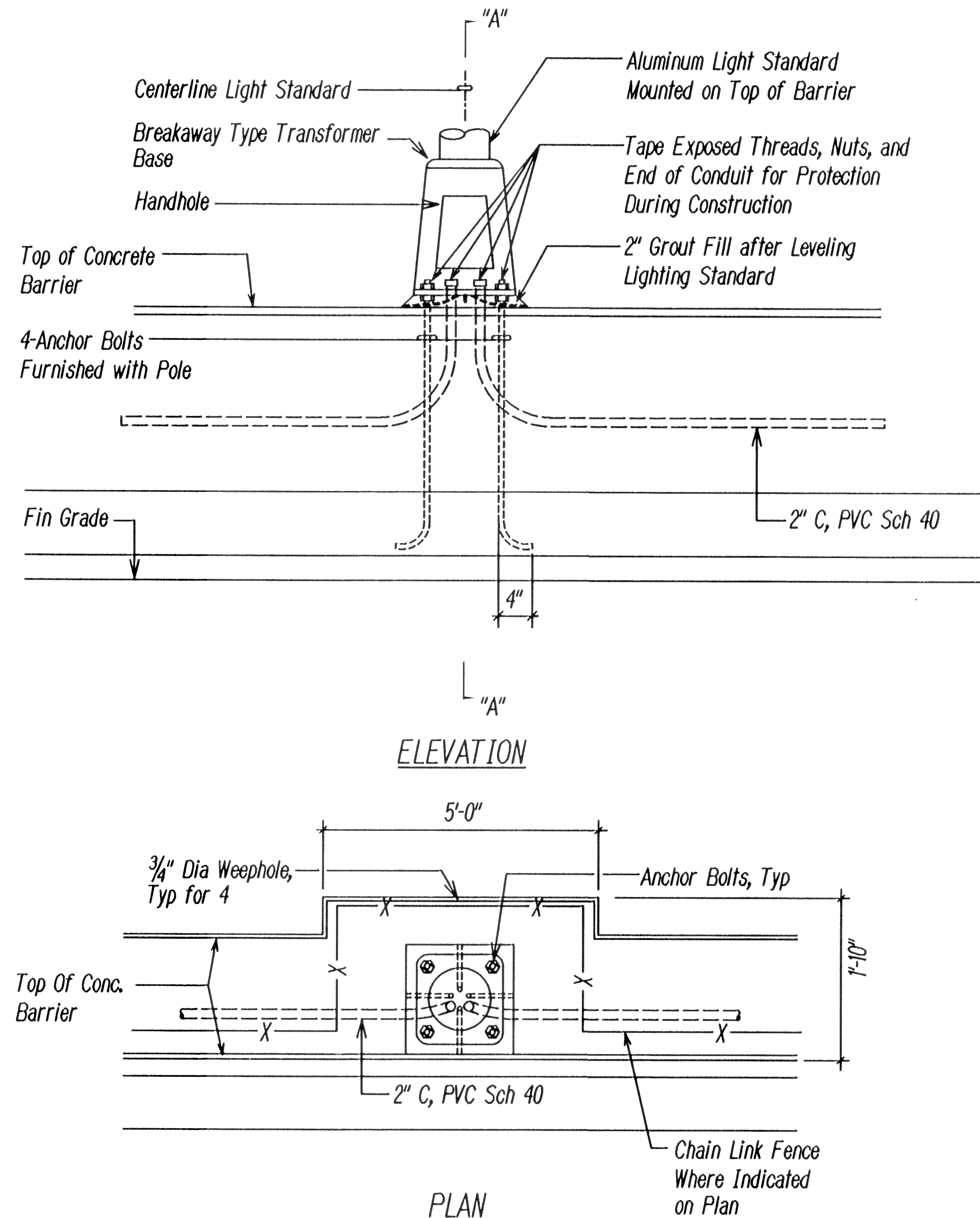
**PEDESTRIAN SIGNAL DETAILS**  
  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. IM-HI-1(232)  
Scale: As Noted      Date: 4/28/00

FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-K(232)	2000	61	84

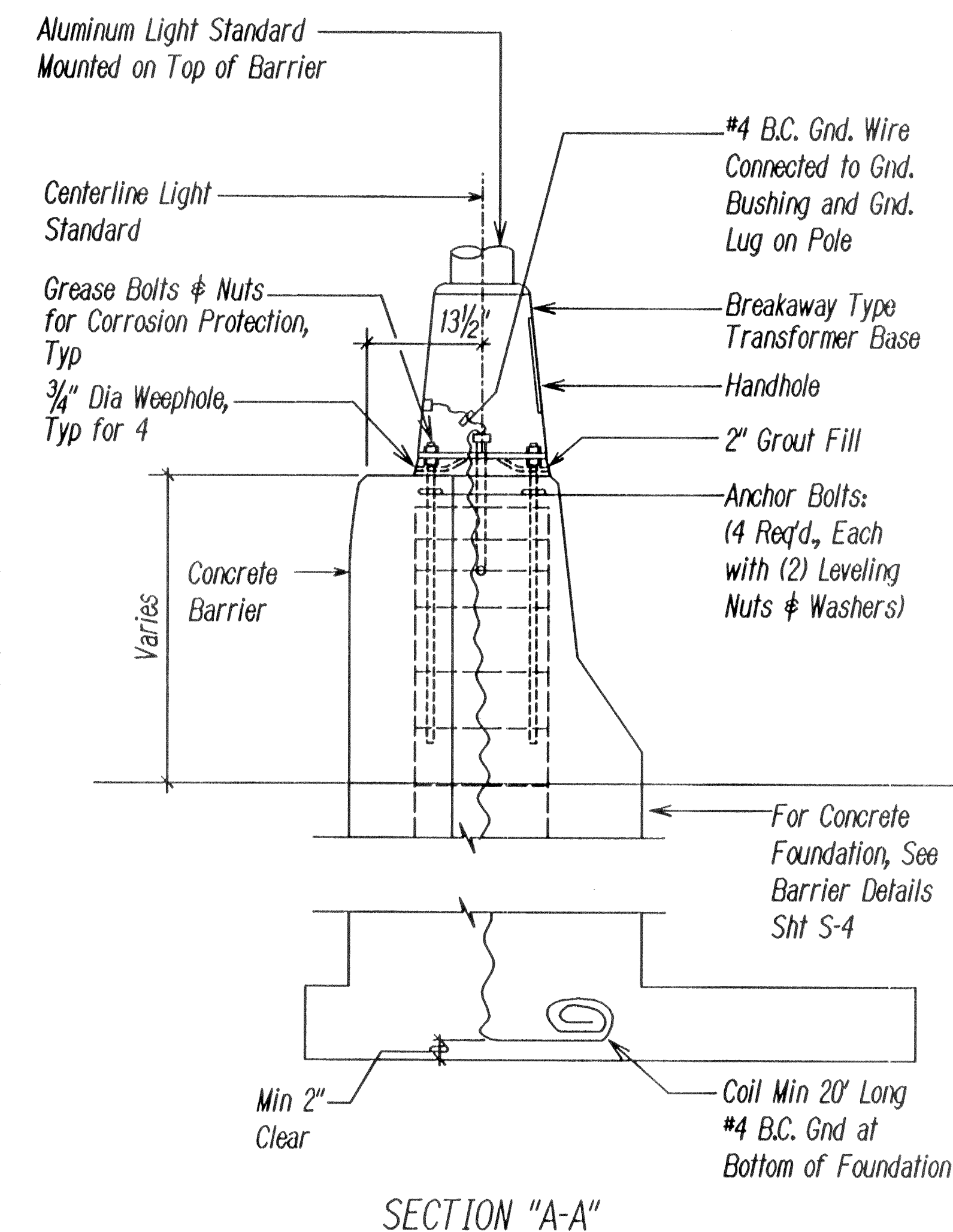


POLE HEIGHT SCHEDULE	
Pole no.	Pole length (Nom)
23	26'-6"
24	26'-6"
25	26'-6"
26	26'-0"
27	24'-6"
28	26'-6"
29	26'-6"

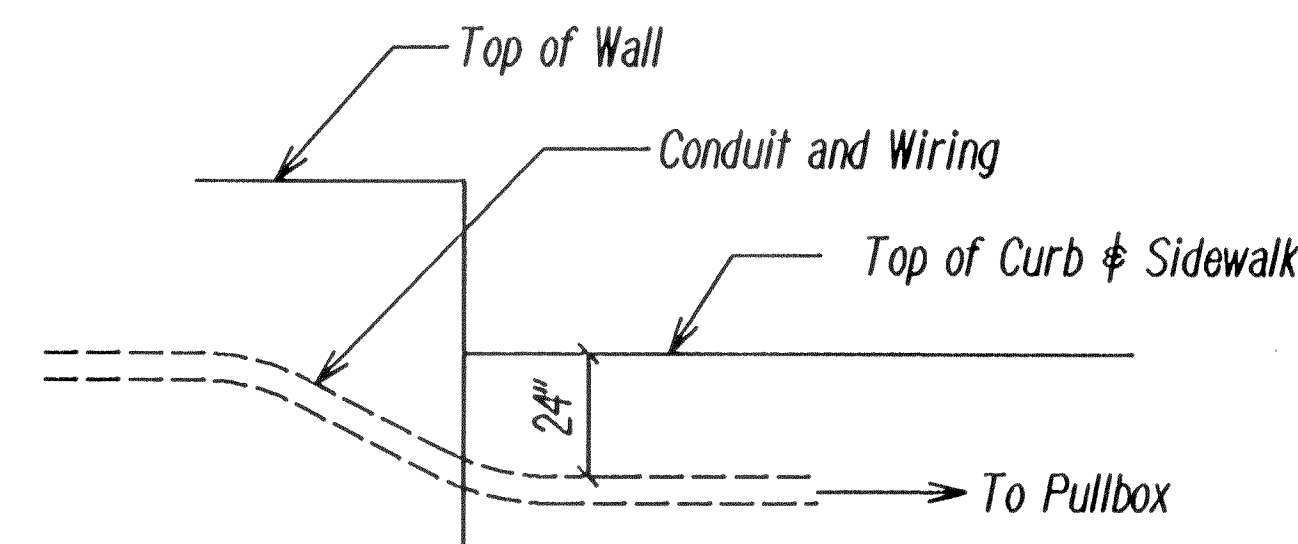
(A E-10) **HIGHWAY LIGHT STANDARD**  
Not To Scale



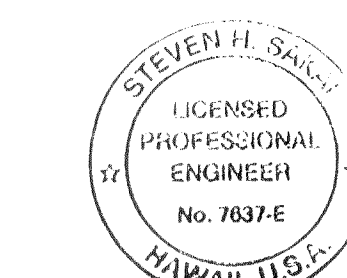
(B E-10) **HIGHWAY LIGHTING STANDARD MOUNTING DETAILS ON CONCRETE BARRIER**  
Not to Scale



Note: Conduit & Wiring Between Pullbox & Hwy Lt Standards shall not be Paid for Separately, but shall be Considered Incidental to the Various Contract Items.



(C E-10) **BARRIER WALL CONDUIT TRANSITION DETAIL**  
Not to Scale



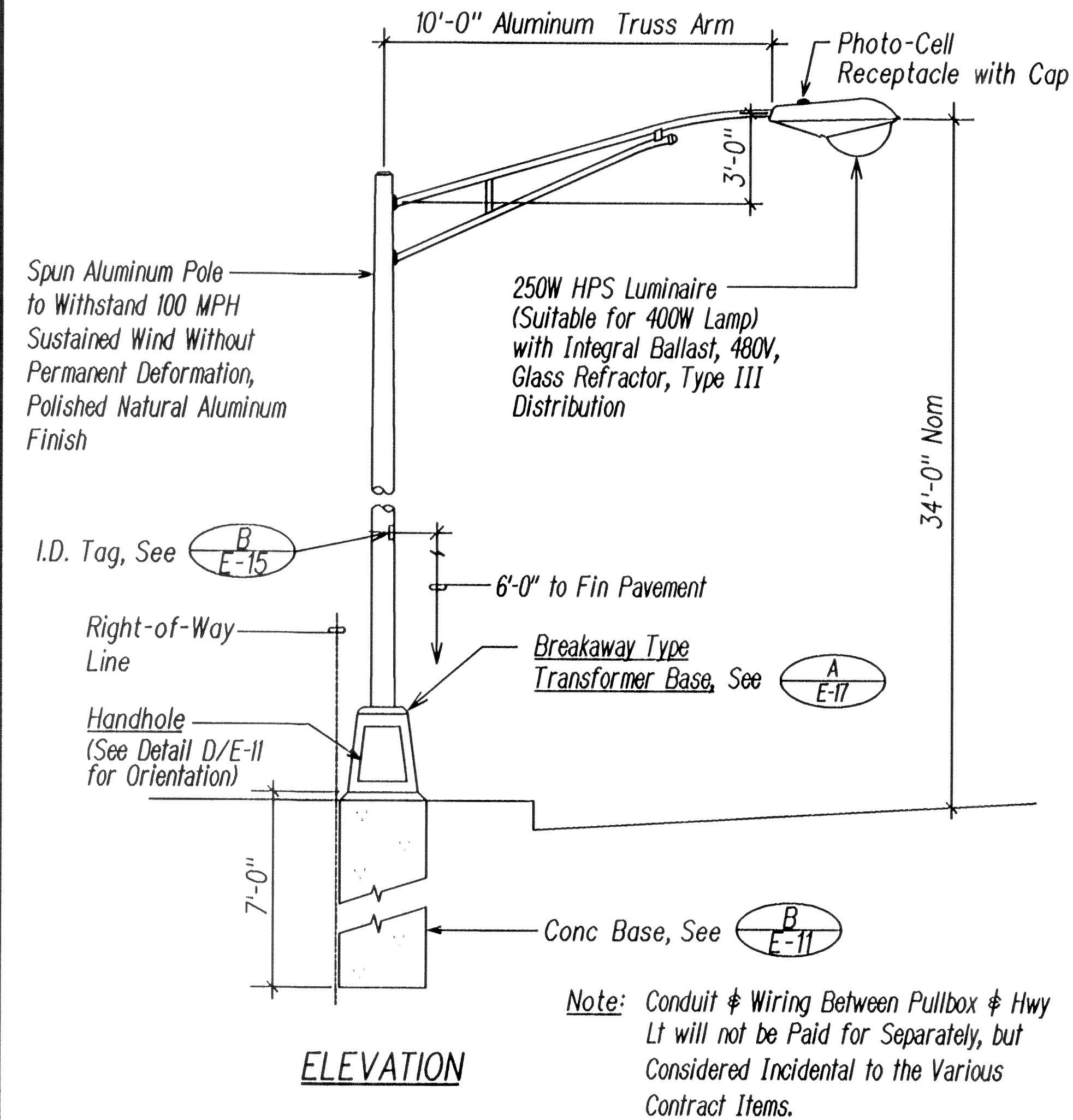
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*Steven H. Saka*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**HIGHWAY LIGHT DETAILS "I"**  
  
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. 1M-HI-K(232)  
Scale: As Noted      Date: 4/28/00

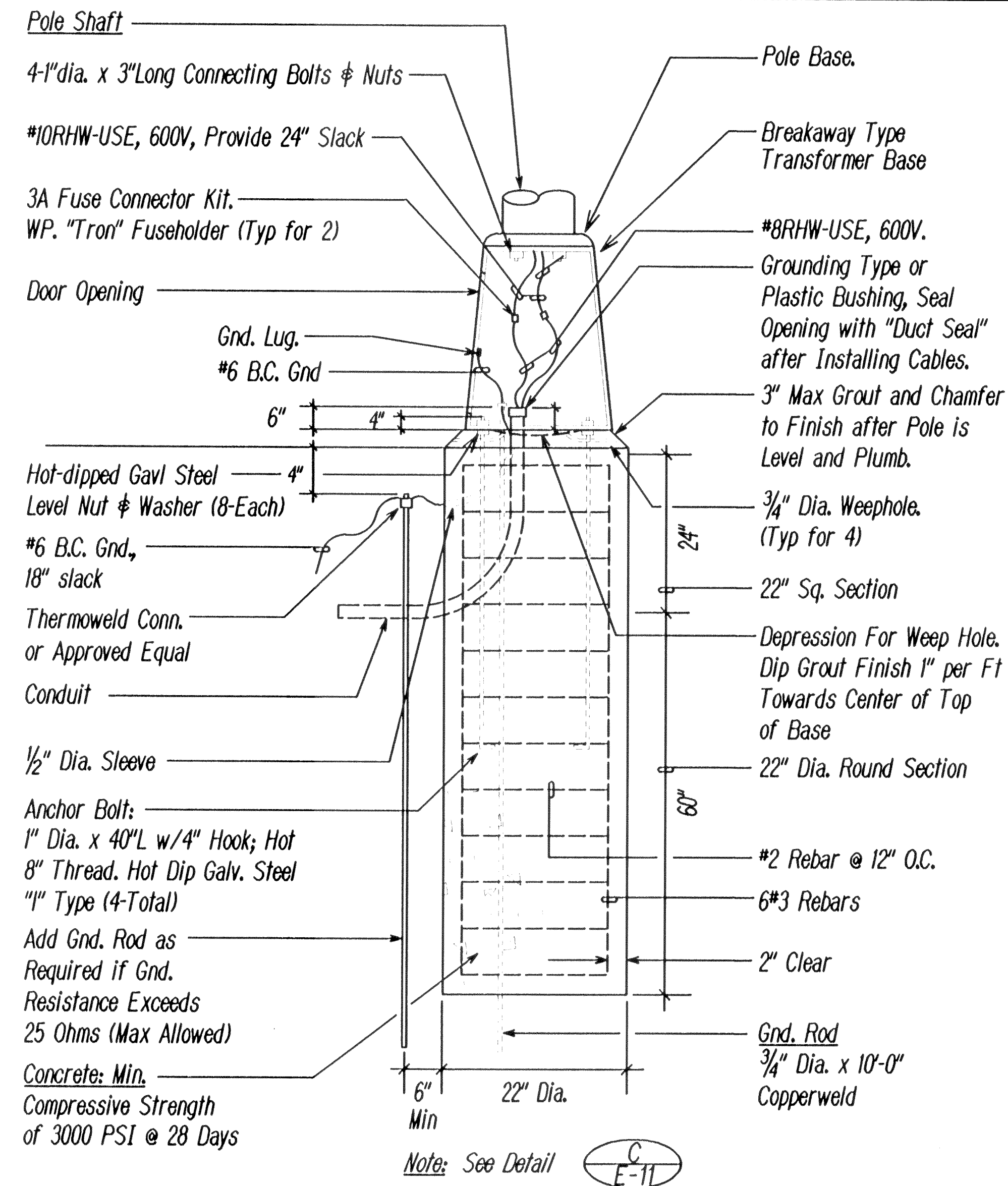
SHEET No. E-10 OF 18 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

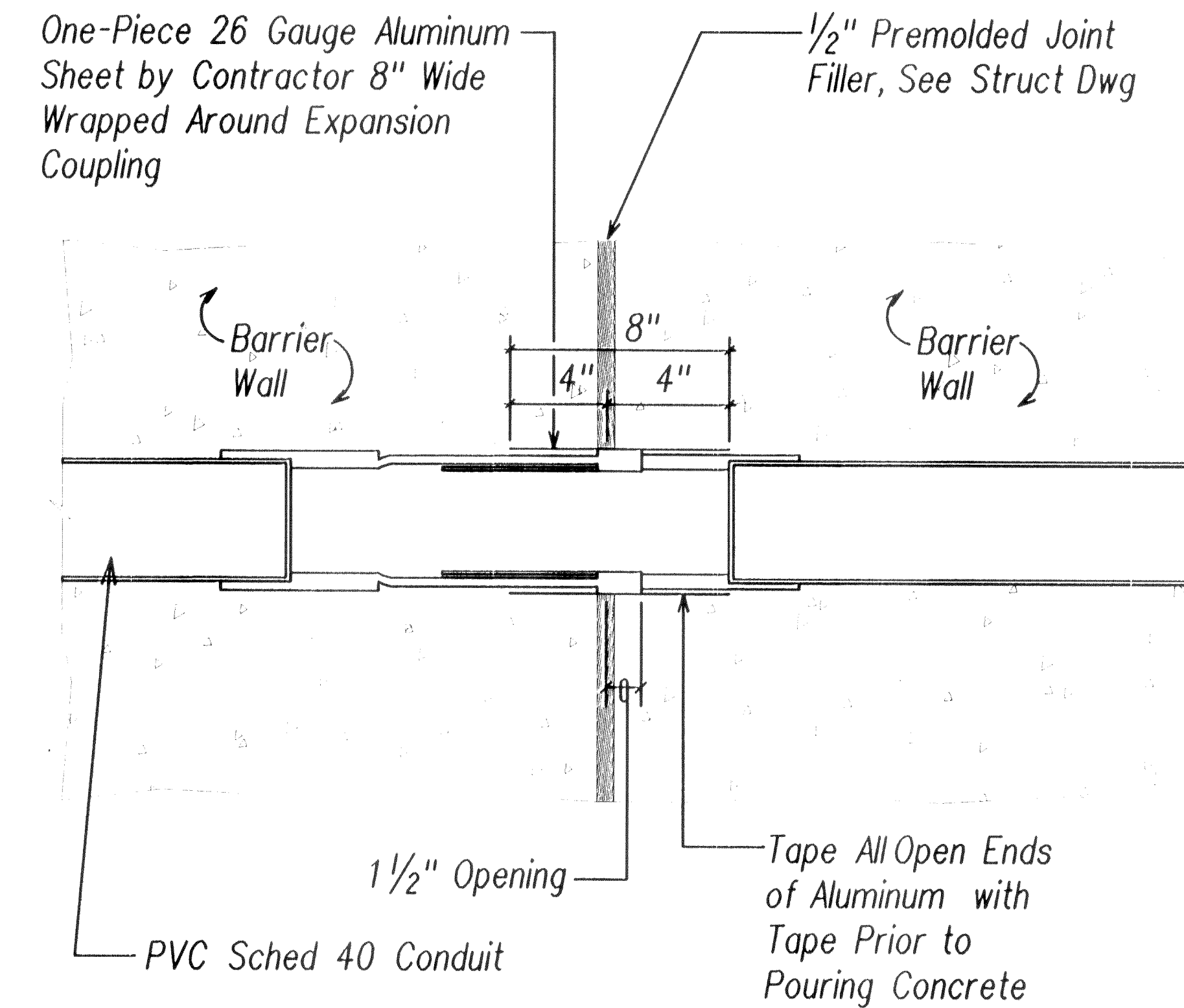
FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(232)	2000	62	84



(A) E-11 HIGHWAY LIGHT STANDARD NOT TO SCALE



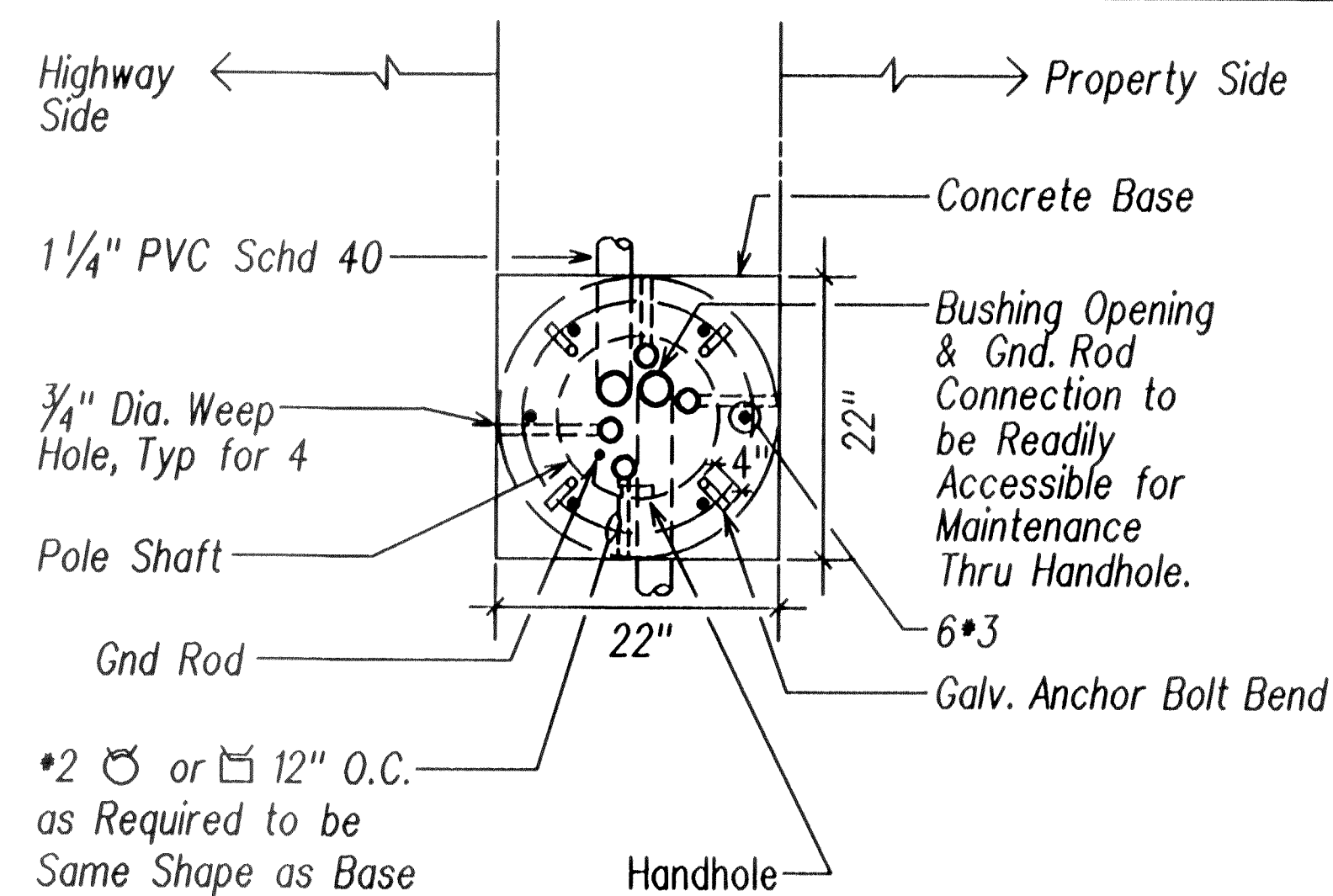
(B) E-11 CONCRETE BASE ELEVATION NOT TO SCALE



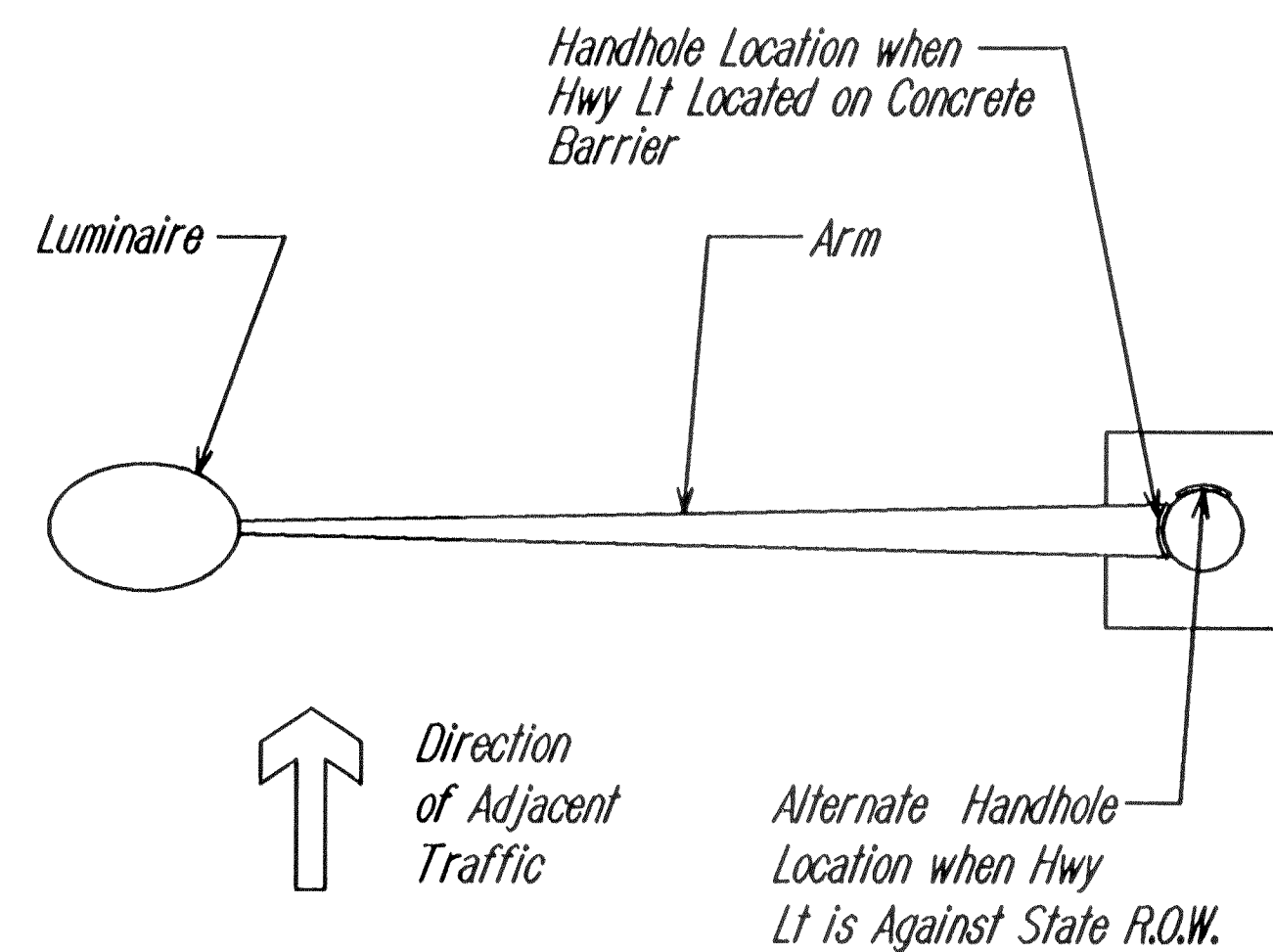
(E) E-11 TYPICAL EXPANSION FITTING DETAIL NOT TO SCALE

General Street Light Notes:

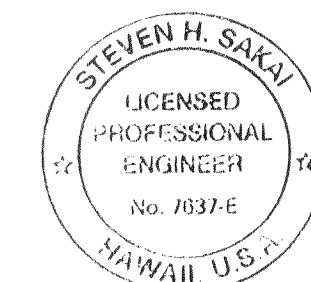
- Contractor shall Obtain Shop Drawing Approval Prior to Ordering Highway Lights
- All Highway Light Bases shall be Poured in Place
- Top of Pole Deflection with Arm and Luminaire shall be Maximum 4 Degrees From Vertical



(C) E-11 CONCRETE BASE PLAN NOT TO SCALE



(D) E-11 HANDHOLE ORIENTATION DETAIL NOT TO SCALE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

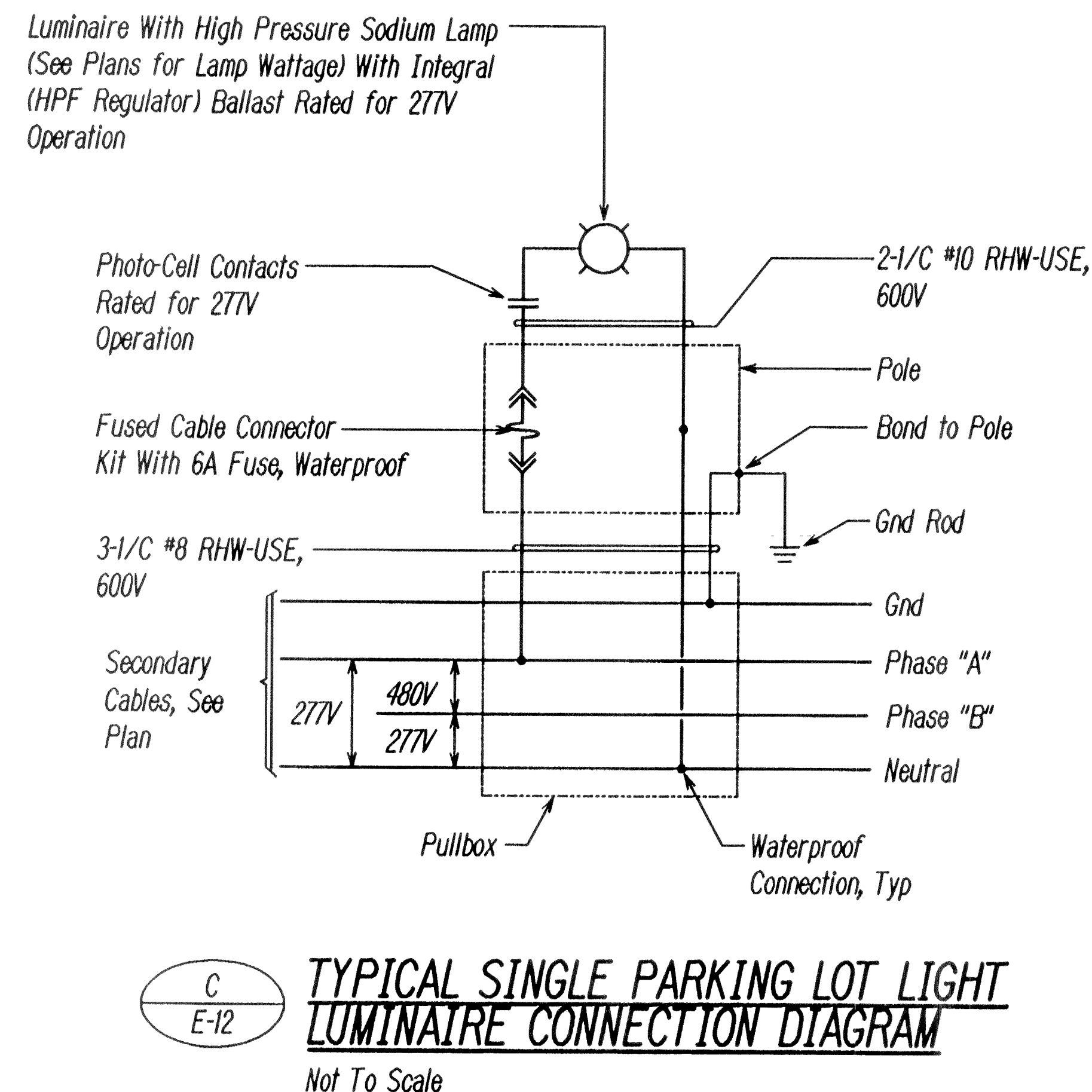
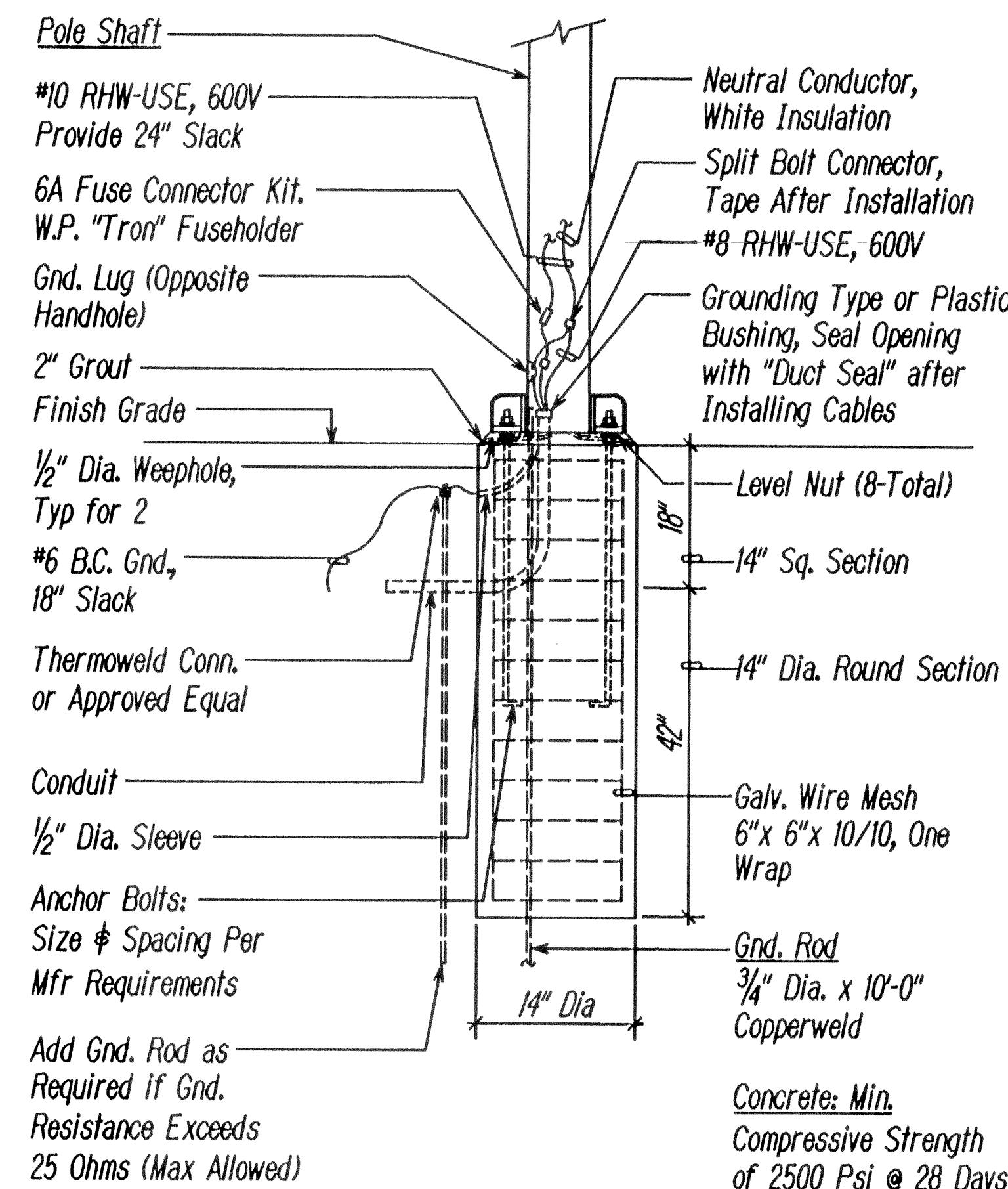
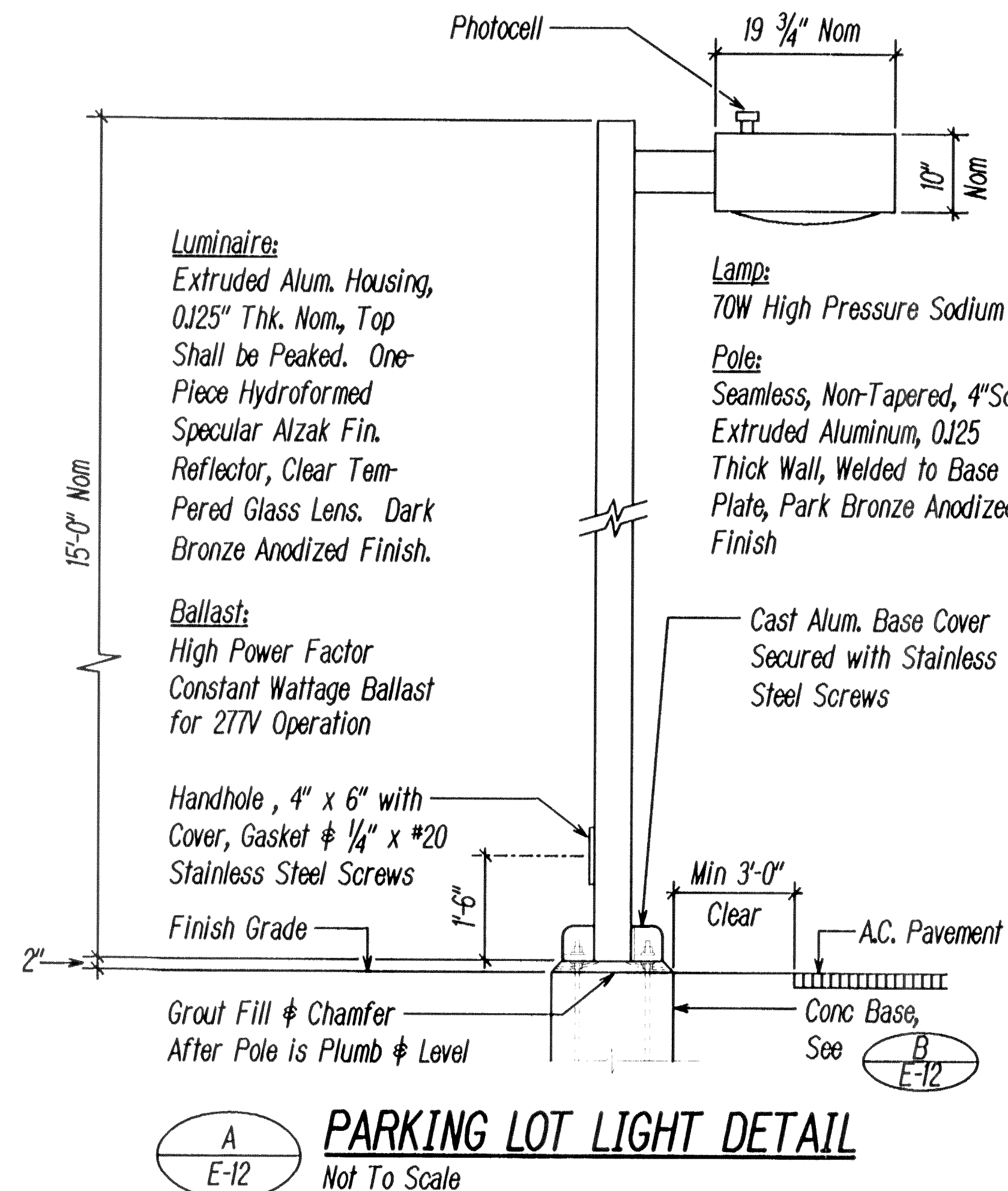
HIGHWAY LIGHT DETAILS "II"

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. IM-HI-1(232)

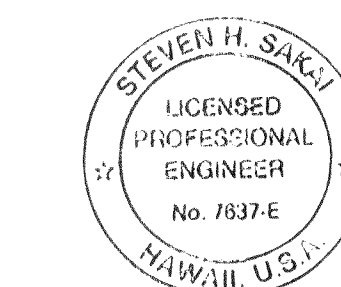
Scale: As Noted Date: 4/28/00

SHEET No. E-11 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(232)	2000	63	84



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTE BOOK	
CHECKED BY	
IN	



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*Steven H. Sakai*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

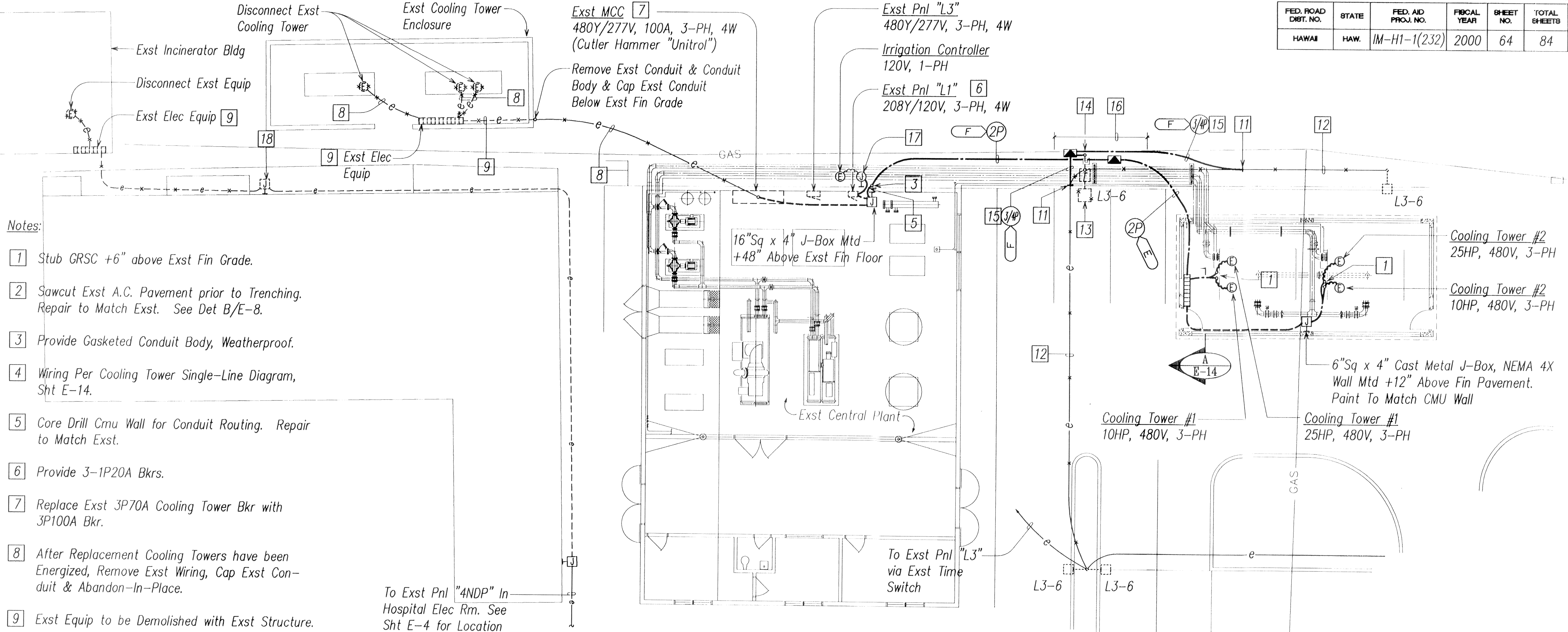
**PARKING LOT LIGHT DETAILS**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
E.A.I. Project No. IM-HI-1(232)

Scale: As Noted Date: 4/28/00

SHEET No. E-12 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(232)	2000	64	84



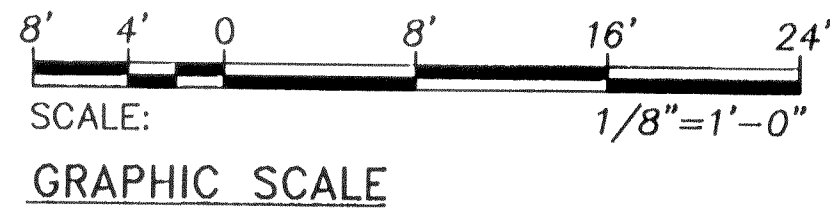
Notes:

- 1 Stub GRSC +6" above Exst Fin Grade.
- 2 Sawcut Exst A.C. Pavement prior to Trenching. Repair to Match Exst. See Det B/E-8.
- 3 Provide Gasketed Conduit Body, Weatherproof.
- 4 Wiring Per Cooling Tower Single-Line Diagram, Sht E-14.
- 5 Core Drill Cmu Wall for Conduit Routing. Repair to Match Exst.
- 6 Provide 3-1P20A Bkrs.
- 7 Replace Exst 3P70A Cooling Tower Bkr with 3P100A Bkr.
- 8 After Replacement Cooling Towers have been Energized, Remove Exst Wiring, Cap Exst Conduit & Abandon-In-Place.
- 9 Exst Equip to be Demolished with Exst Structure.
- 10 Remove Exst Wiring, Cap Exst Conduit & Abandon-In-Place.
- 11 Break Exst Conduit. Provide Coupling & Extend Conduit to Pullbox.
- 12 Remove Exst Wiring & Provide 2#12, #12 Gnd.
- 13 Relocate Exst Parking Lot Light as Indicated. Demolish Exst Conc Base 12" Below Fin Grade. Cap Exst Conduits & Abandon-In-Place.
- 14 Relocated Parking Lot Light. Provide Conc Base per Det B/E-12.
- 15 3/4"C, 2#12, #12 Gnd.
- 16 Cut & Plug Exst Gas Pipe & Remove 15' of Exst Pipe. See Civil Dwgs for Requirements.
- 17 4"Sq X 2" Cast Metal J-Box NEMA 4X, Wall Mtd +48" Above Fin Grade. Paint to Match Adjacent Finish.

To Exst Pnl "4NDP" In Hospital Elec Rm. See Sht E-4 for Location

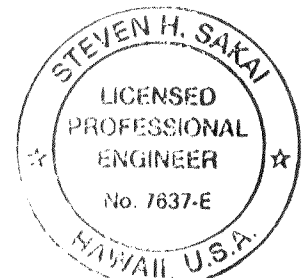
SHRINER'S HOSPITAL ELECTRICAL SITE PARTIAL PLAN 4  
SCALE: 1/8"=1'-0"

- 18 Exst Incinerator Bldg. Energized by Exst "Immunology Research Lab" Ckt. De-energize Ckt. & Cut Exst Wiring to Incinerator Bldg. Tape Ends of Wiring & Abandon-in-place. Provide Weatherproof Seal for Exst J-box. Coordinate Elec Outage with Shriners Hospital Maintenance Supervisor (Ph. 951-3679).



DATE	
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DESIGNED BY	
CHECKED BY	
NOTED BY	
APPROVED BY	

LAST SAVE: 05/12/00 @ 14:02:31 IN PLOT SC: 1/8"=1'



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STATE OF HAWAII  
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HIGHWAYS DIVISION

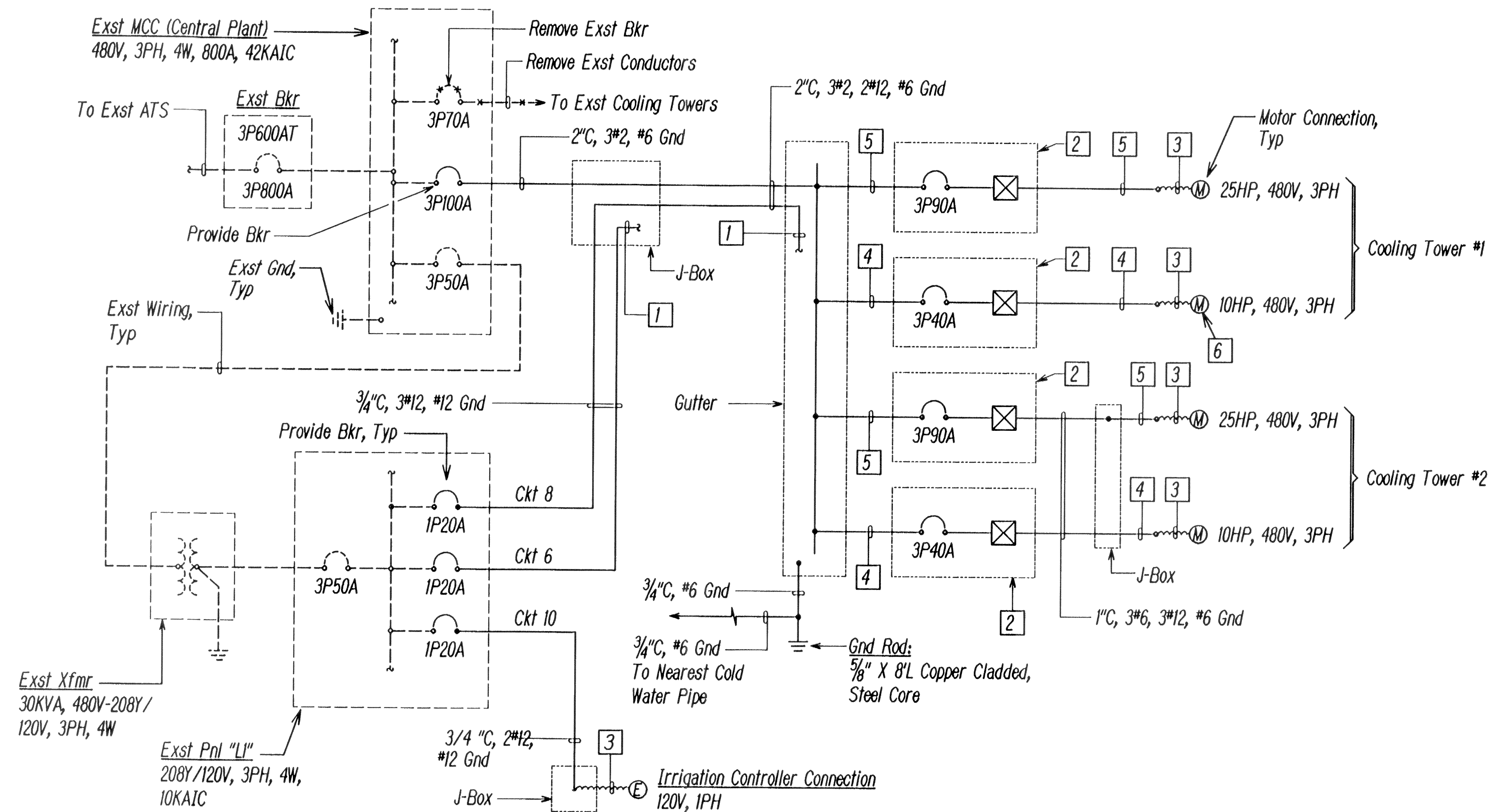
SHRINERS HOSPITAL ELECTRICAL  
SITE PARTIAL PLAN

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. IM-H1-1(232)

Scale: As Noted  
SHEET No. E-13 OF 18 SHEETS

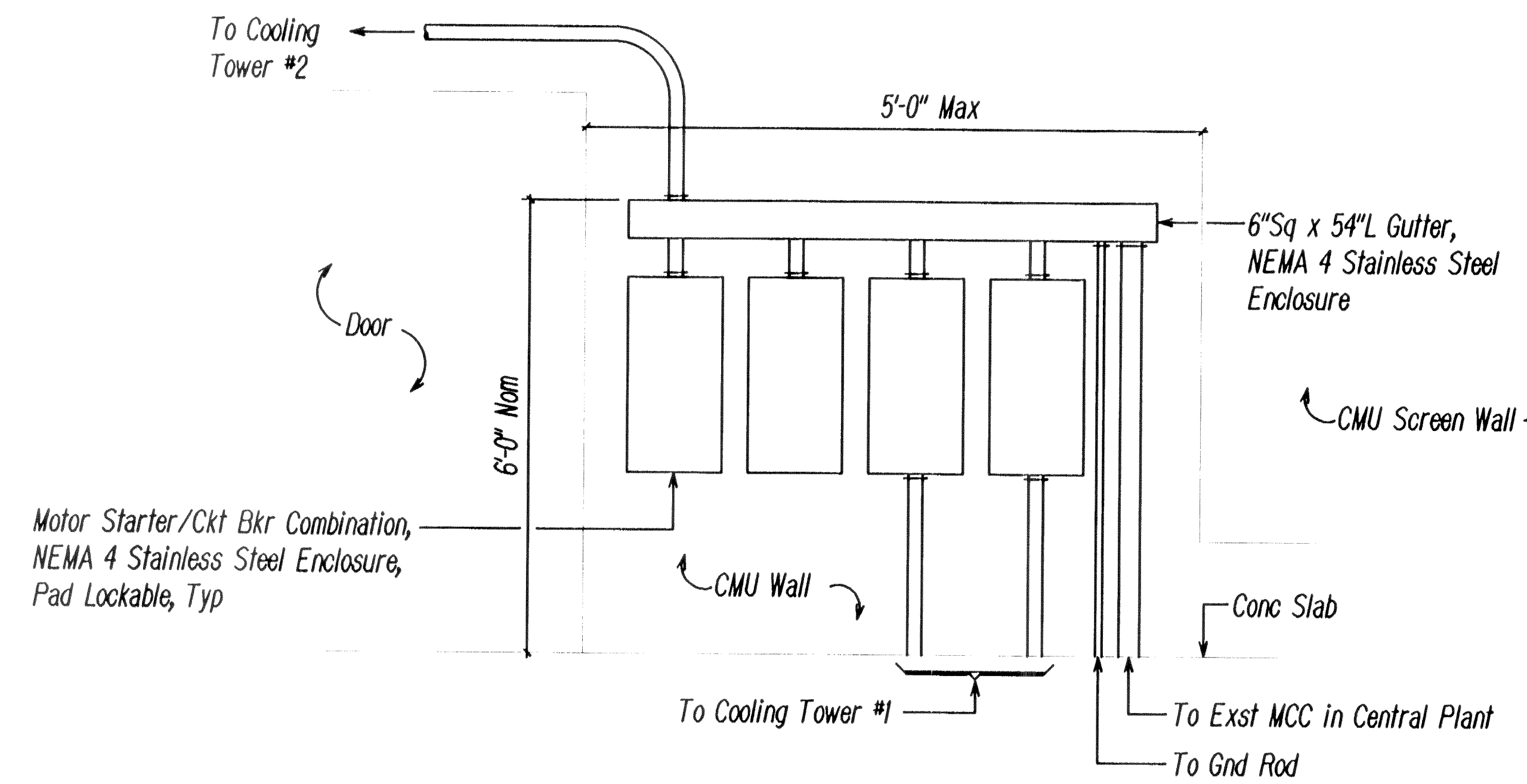
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FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	65	84



- Notes:
- 1 Neatly Coil 18" Slack for Connection By Mech Contractor, See Mech Dwg for Cont
  - 2 Motor Starter/Ckt Bkr Combination w/ NEMA Size 2 Starter & Overload Relays
  - 3 Liquidtight Flex Metal Conduit of Same Size & Wire Complement
  - 4 3/4" C, 3#12, #12 Gnd
  - 5 1" C, 3#8, #8 Gnd
  - 6 Motor will Operate on Emergency Power. See Mech. Dwg for Control Diag.

### COOLING TOWERS SINGLE-LINE DIAGRAM

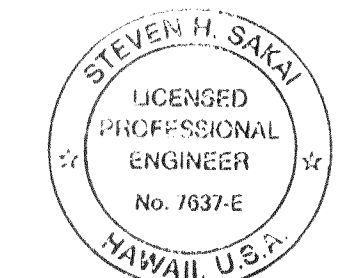


Note: Provide GRSC for Exposed Conduit, Paint to Match Adjacent Finish

### EQUIPMENT ELEVATION DETAIL

NOT TO SCALE

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	



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DATE: 4/28/00

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

COOLING TOWER SINGLE-LINE  
DIAGRAM & DETAILS

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. 1M-HI-1(232)

Scale: As Noted Date: 4/28/00

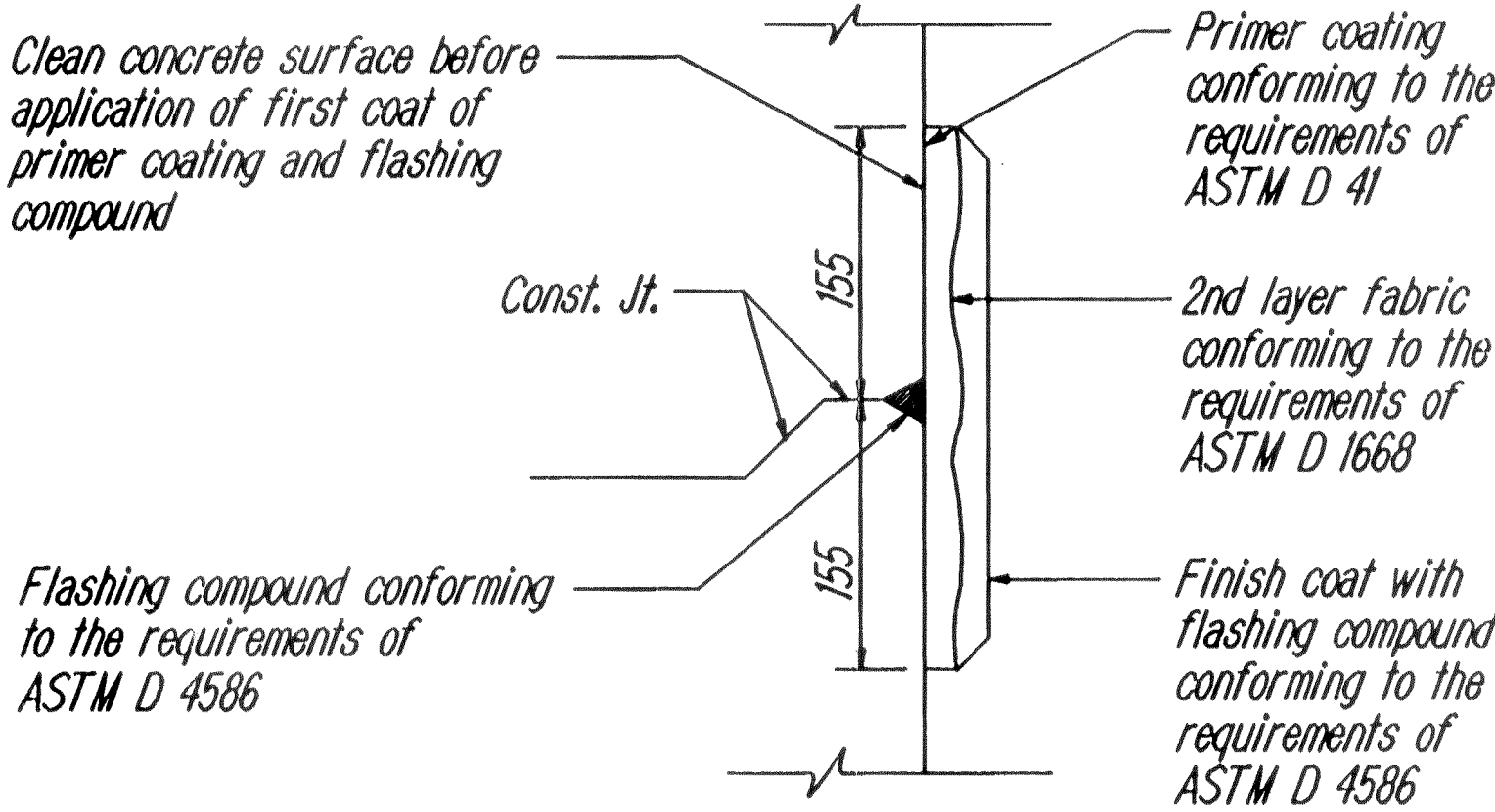
SHEET No. E-14 OF 18 SHEETS



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(232)	2000	67	84

GENERAL NOTES

1. Provide a minimum of one 16 dia. x 2.5m Copperweld Ground Rod in each pullbox. When directed by the Traffic Signal Inspector/Engineer, install additional Ground Rods. Cost of Ground Rods shall be incidental to the pullboxes.
2. All pre-cast concrete pullboxes shall be manufactured in two pieces.
3. The pullbox with cover shall be capable of supporting an MS 18 Loading.
4. The maximum weight of the pullbox cover shall not exceed 27 kilograms.
5. The openings for the conduits on all pullboxes shall be pre-cast concrete knockouts.
6. After installing the conduits in the openings of the pullboxes, the Contractor shall fill the excess opening in the pre-cast knockouts with concrete mortar.
7. Prior to installing the pullboxes, the Contractor shall level the bottom of the trench and achieve a minimum of 95% relative compaction of the bottom of the trench.
8. All concrete shall be Class A (25MPa, min.)
9. Rebars shall be Grade 300 and all lapped splices shall be 360mm minimum.
10. The #57 or #67 size aggregate shall conform to latest version of AASHTO M43 (ASTM D 448).
11. Type "C" Pullbox shall be installed in a location protected from vehicular traffic (i.e. raised sidewalk, behind A.C. curbs, traffic signal standard or pipe guards).



D  
E-16  
TYPICAL FLASHING COMPOUND  
WATERPROOFING DETAILS  
N.T.S.

All Dimensions are in Millimeters unless otherwise shown

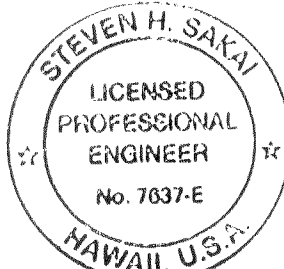
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PULLBOX & COVER DETAILS

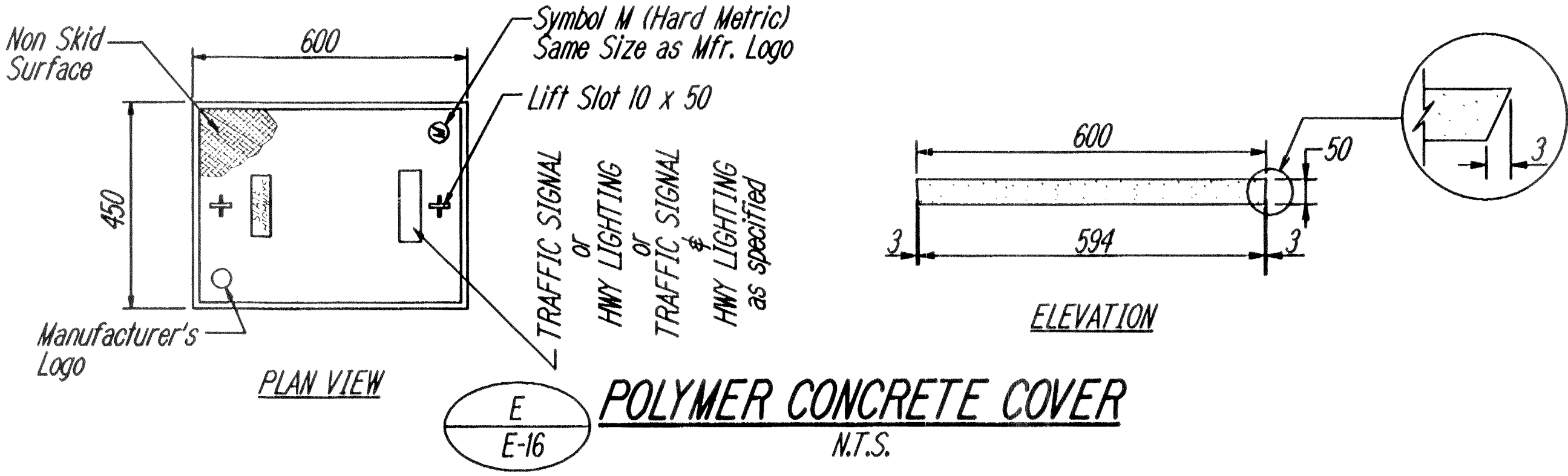
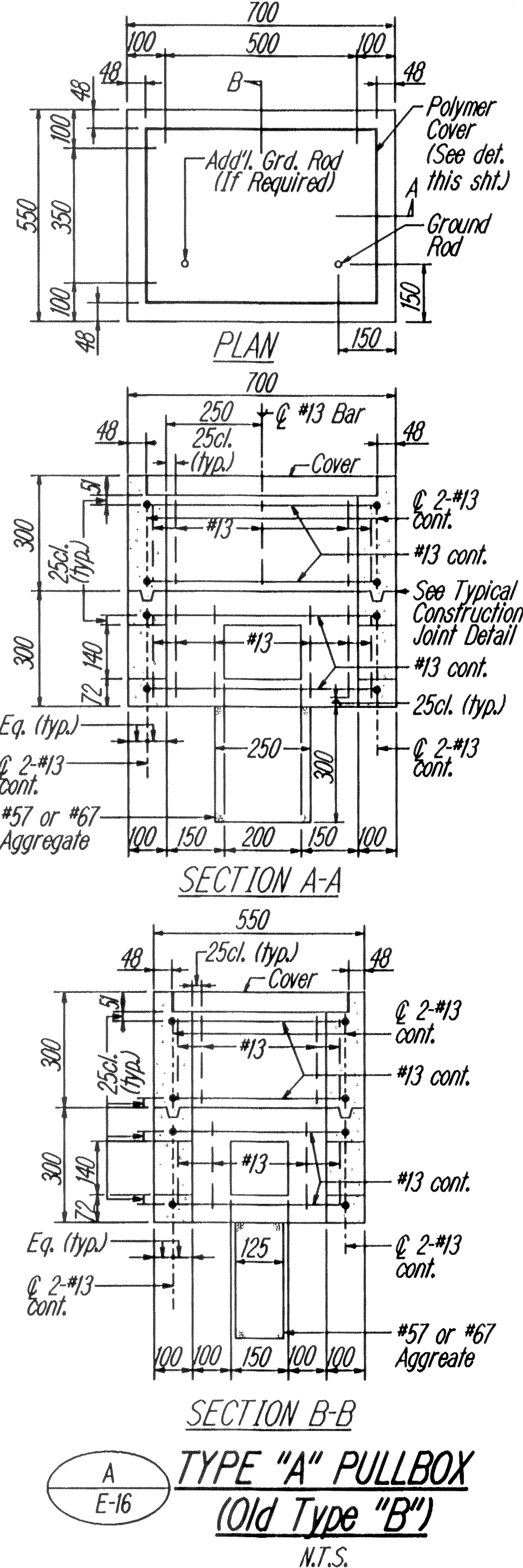
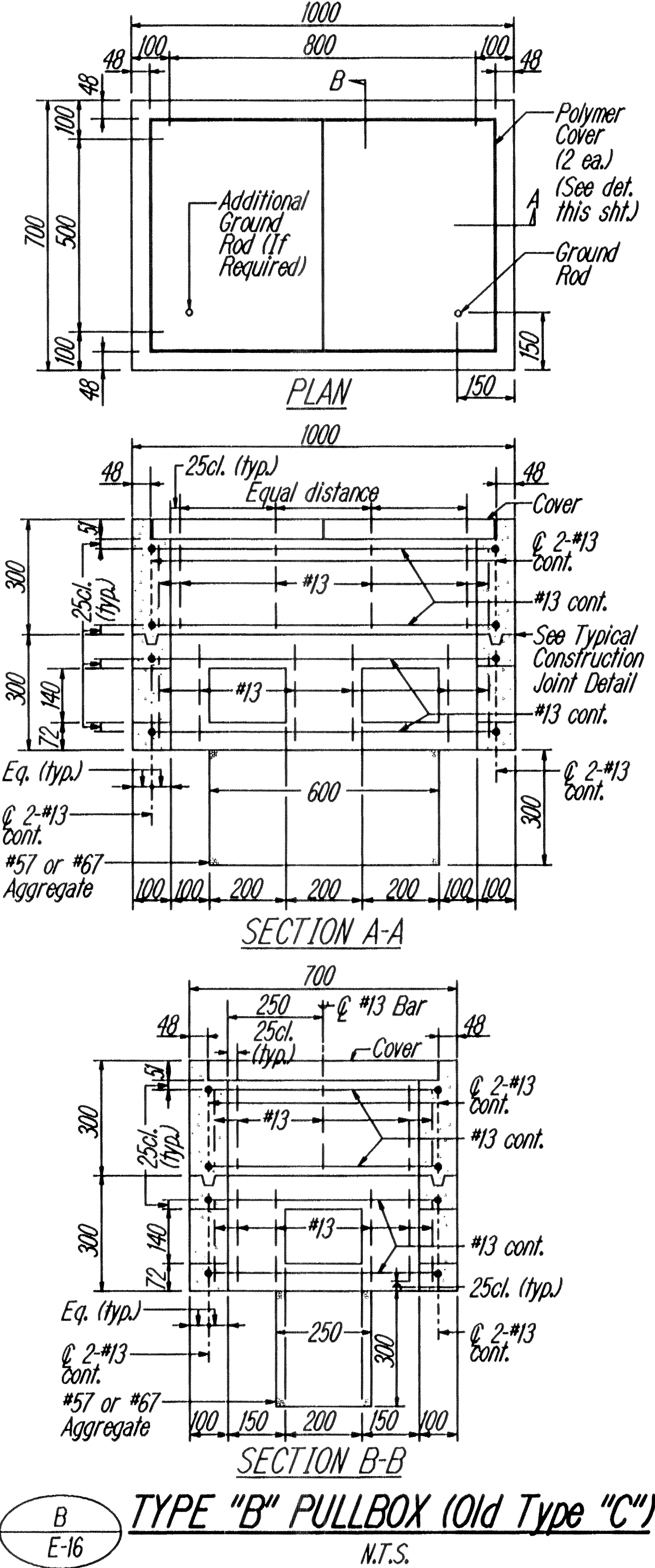
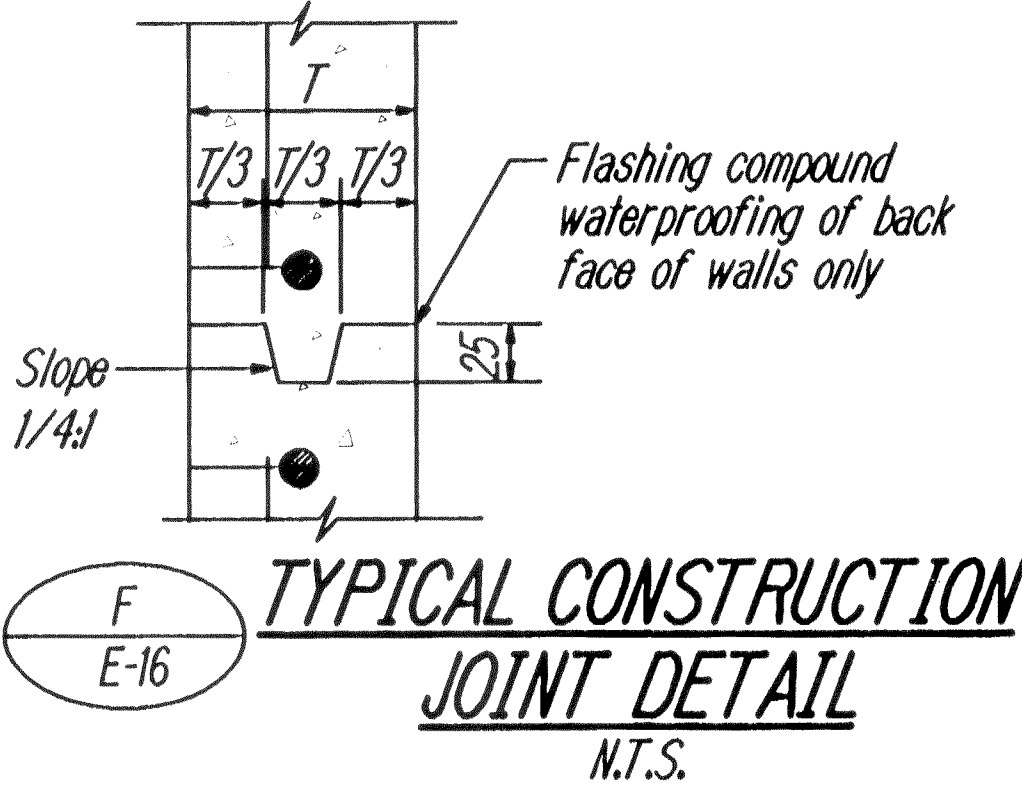
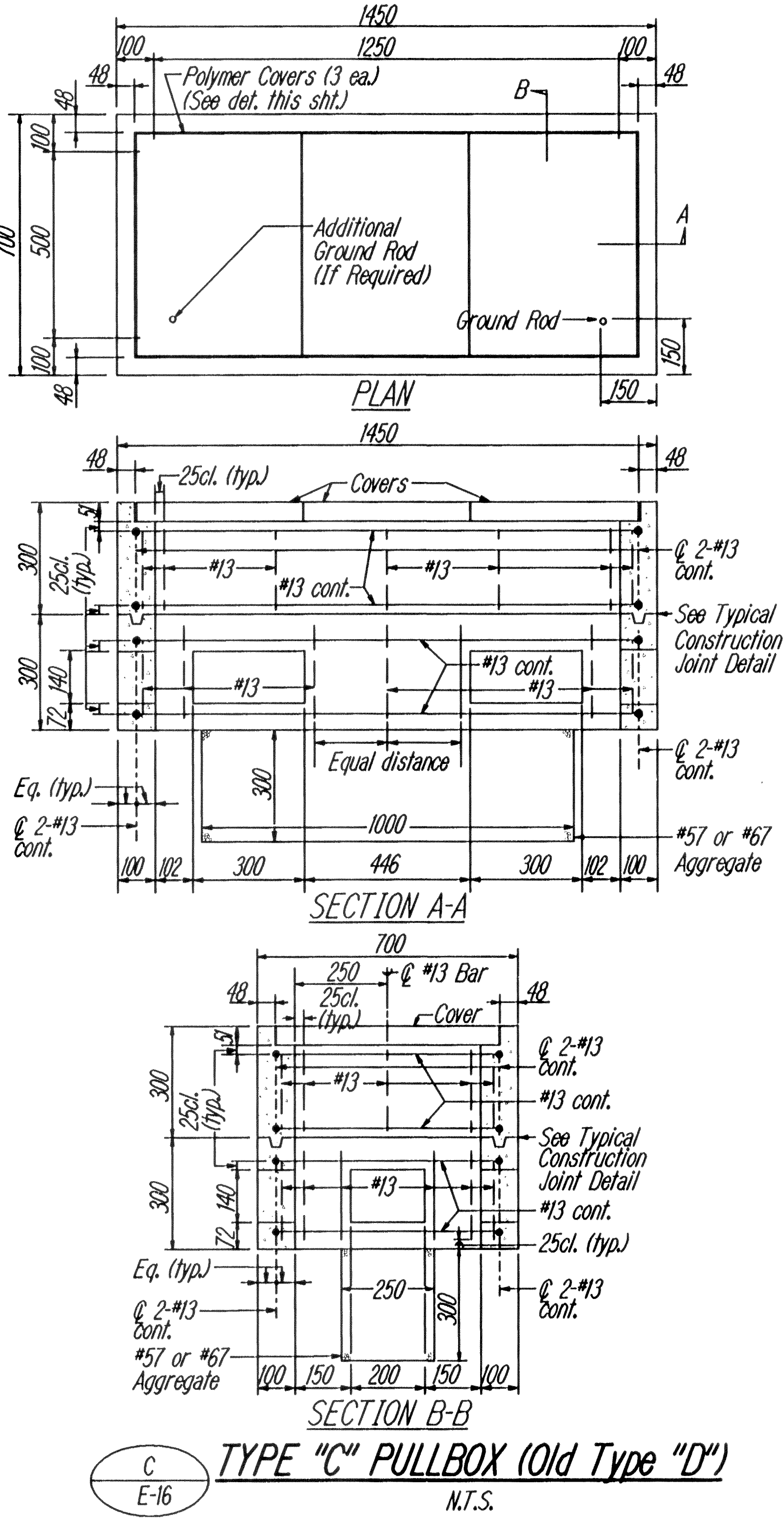
INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. 1M-HI-1(232)

Scale: As Shown Date: 4/28/00

SHEET No. E-16 OF 18 SHEETS

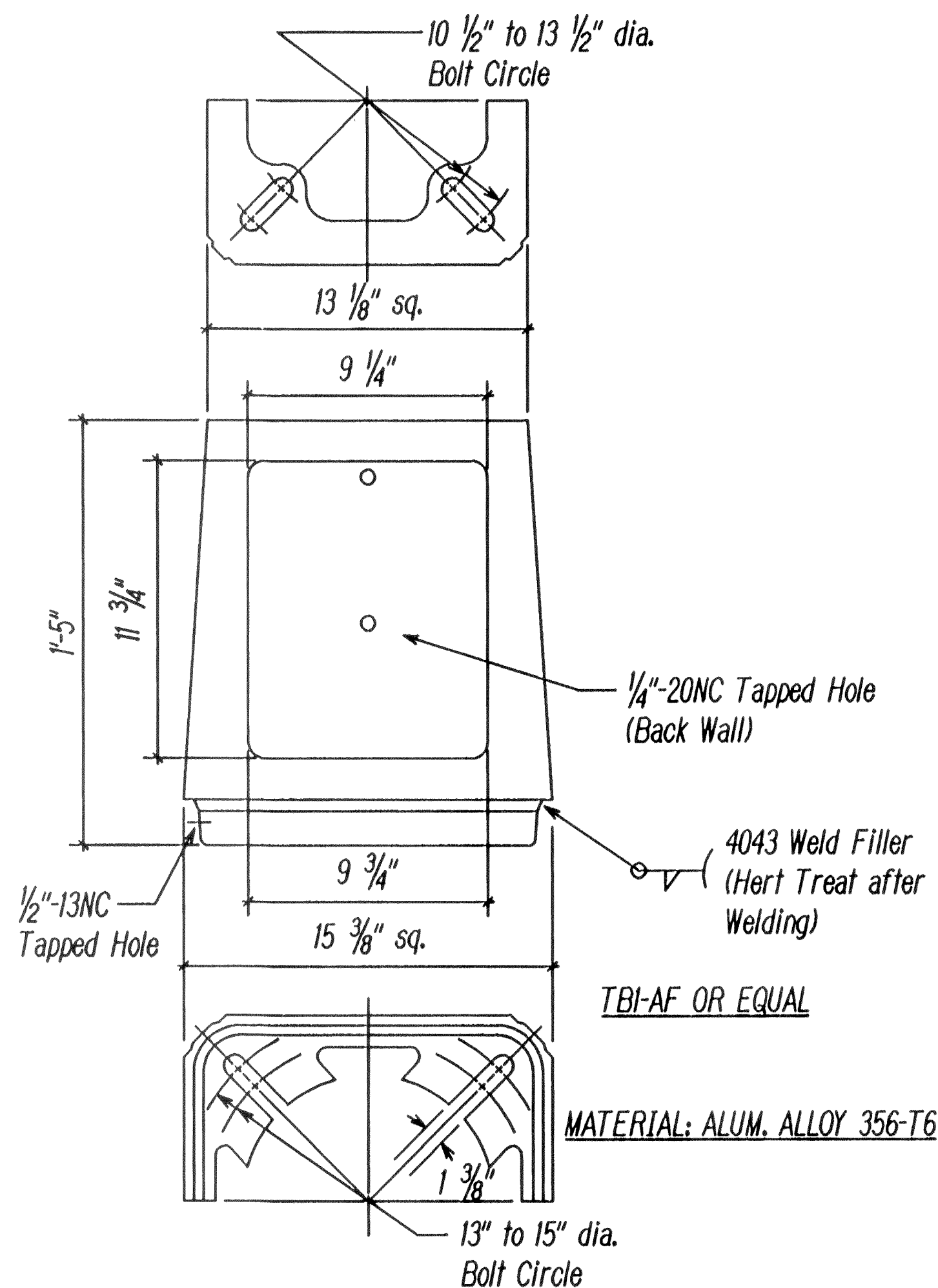


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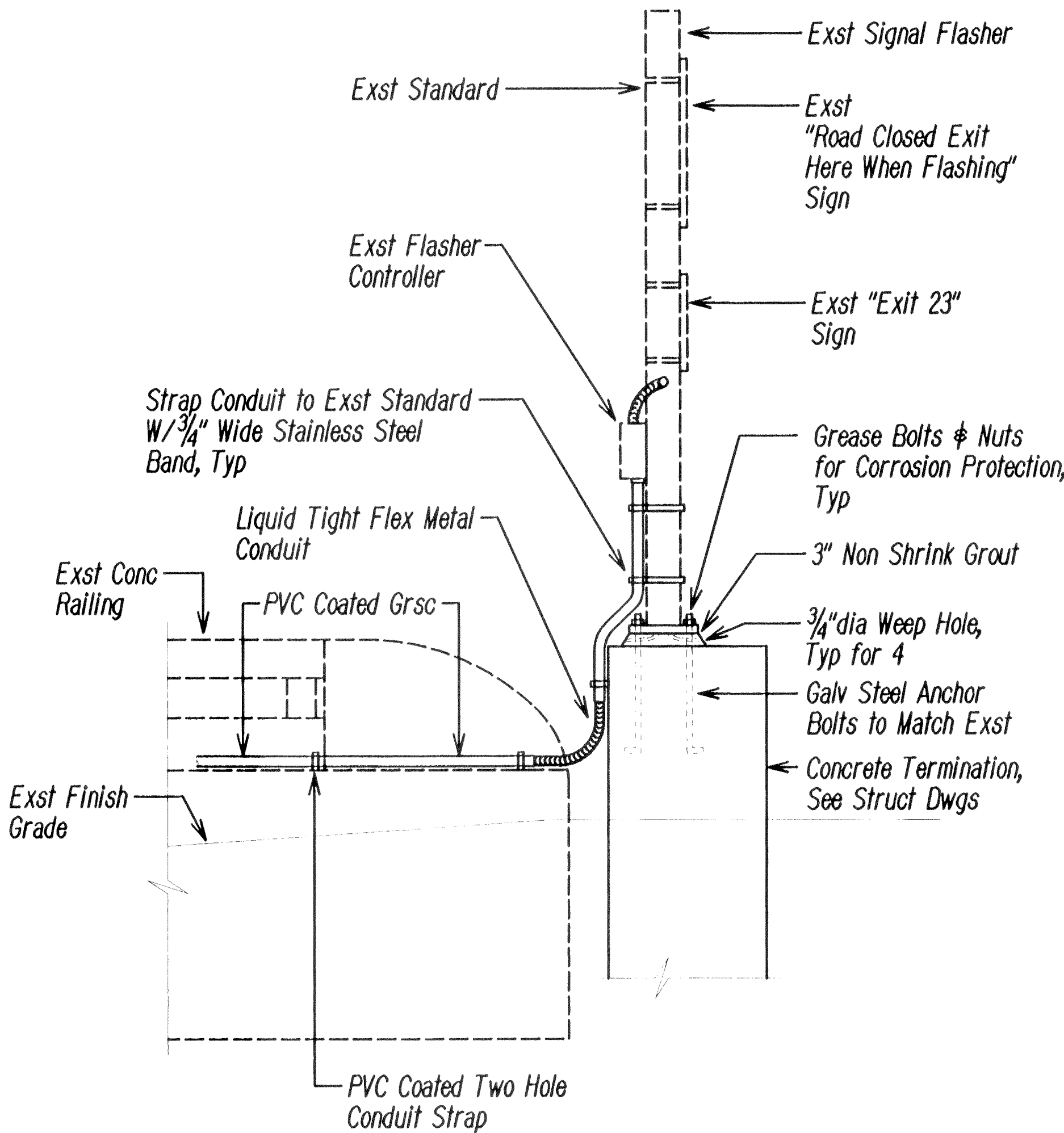
FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(232)	2000	68	84



**BASE SUPPLIED WITH:**

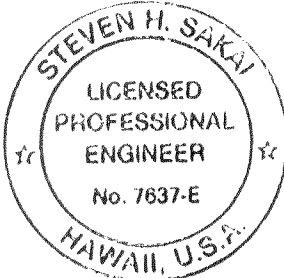
1. Door and 1/4"-20NC S.S. Screw
2. Eight 1" Washers 1/2" Thick x 2 3/4" O.D. (Washers Mechanical Galvanized per ASTM B454)
3. Four 1"-8NC x 3 3/4" Long Galvanized Steel Hex. Hd. Bolts
4. Four 1"-8NC Galvanized Steel Hex. Nuts
5. Four 1" Galvanized Steel Lock Washers
6. Four 1" x 2" O.D. Galvanized Steel Flatwashers

**BREAKAWAY TRANSFORMER BASE DETAIL**  
N.T.S.



**WARNING FLASHER STANDARD DETAIL**  
N.T.S.

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NOTE BOOK	
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**MISCELLANEOUS DETAILS**

INTERSTATE ROUTE H-1  
PUNAHOU ST. OFF-RAMP IMPROVEMENTS  
F.A.I. Project No. IM-HI-1(232)  
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SHEET No. E-17 OF 18 SHEETS