

ELECTRICAL SYMBOLS

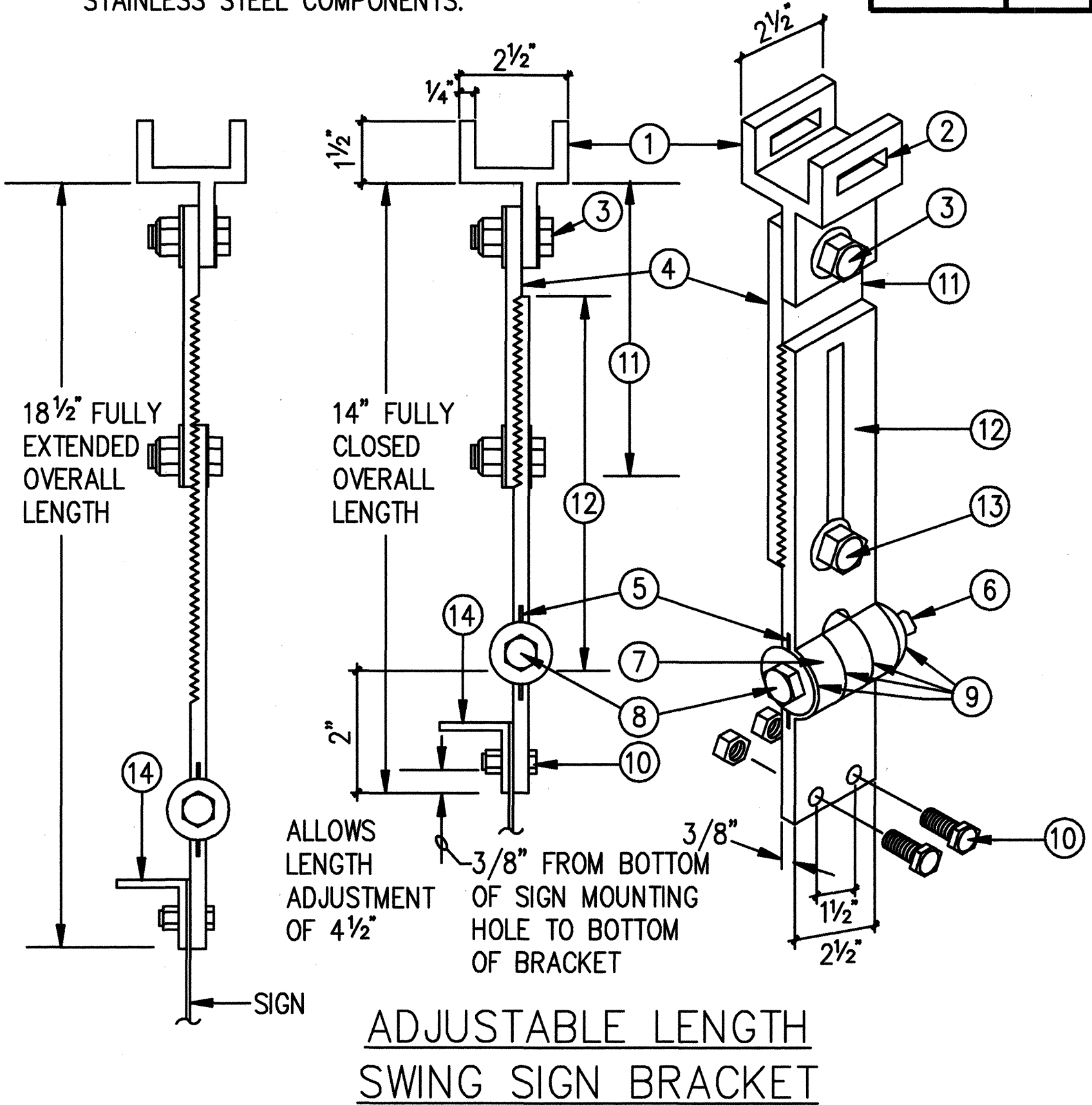
SYMBOL		DESCRIPTION	REMARKS
EXIST	NEW		
○		UTILITY POLE, WOOD, JOINT USAGE BY HECO., HCo., OCEANIC CABLEVISION, AND CITY & COUNTY STREET LIGHT POLE PROVIDED BY HECO, UNLESS OTHERWISE NOTED.	
⚡		HECO POLE-TOP TRANSFORMER	
○		UTILITY POLE, WOOD, BY HECO, UNLESS OTHERWISE NOTED.	
○		STREET LIGHT	
○		TRAFFIC LIGHT POLE, TYPE II	
○		MAST ARM	
○		TRAFFIC SIGNAL HEAD-RED,YELLOW,GREEN	SEE (A 18)
○		TRAFFIC SIGNAL HEAD-RED,YELLOW,GREEN ARROW	
○		TRAFFIC LIGHT POLE, TYPE I	
○		FIBER OPTIC	
○		TRAFFIC SIGNAL HEAD-RED,YELLOW,GREEN, GREEN/YELLOW LEFT TURN ARROW (BIMODAL)	SEE (A 18)
○		PEDESTRIAN SIGNAL	
⊠		TRAFFIC SIGNAL PULLBOX (TSPB) TYPE "C"	SEE (A 15)
⊠	⊠	TRAFFIC SIGNAL PULL BOX (TSPB), TYPE "A"	SEE (A 15)
—E—	—E—	UNDERGROUND ELECTRICAL DUCTLINES,	
⊗→		OPTICOM RECEIVER	SEE (A 18)
—OH-E/T/V—		OVERHEAD UTILITIES (E=ELECTRICAL, T=TELEPHONE, V=CATV)	
○	○	LOOP DETECTORS	SEE SHEET 17
—TS—	—TS—	UNDERGROUND TRAFFIC SIGNAL DUCTLINES AND CABLES	
—W8—		UNDERGROUND WATER LINE. 8" & 12" DIAMETER INDICATED	
—S8—		UNDERGROUND SEWER LINE. 8" DIAMETER INDICATED	
—G2—		UNDERGROUND GAS LINE. 2" DIAMETER INDICATED	
HH		HANDHOLE	
—SD—		UNDERGROUND STORM DRAIN LINE	
—OH-TS—		OVERHEAD TRAFFIC SIGNAL INTERCONNECT CABLES	

SYMBOL		DESCRIPTION	REMARKS
EXIST	NEW		
	⊥	BASELINE	
	⊥	CENTERLINE	
	C	COMMUNICATIONS	
	CB	CATCH BASIN	
	C&C	CITY AND COUNTY OF HONOLULU	
	DTS	DEPARTMENT OF TRANSPORTATION SERVICES	
	EHH	ELECTRIC HANDHOLE	
	EVP	EMERGENCY VEHICLE PRE-EMPTION	
	FH	FIRE HYDRANT	
	HECO	HAWAIIAN ELECTRIC Co.	
	HTCo	HAWAIIAN TELEPHONE Co.	
	SDMH	STORM DRAIN MANHOLE	
	PP	POWER POLE	
	SL	STREETLIGHT	
	SMH	SEWER MANHOLE	
	TS	TRAFFIC SIGN	
	TSPB	TRAFFIC SIGNAL PULLBOX	
	WM	WATER METER	
	DOT	STATE DEPARTMENT OF TRANSPORTATION	

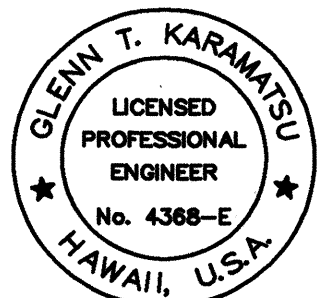
INDICATOR SYMBOLS

SYMBOLS	DESCRIPTION	REMARKS
(A 1)	TOP HALF: DETAIL NUMBER BOTTOM HALF: SHEET ON WHICH SHOWN	
①→	NOTE INDICATOR, NOTE #1 INDICATED	
△ A	CONDUIT/CABLE AND DUCT SECTION TYPE INDICATOR. △ INDICATES CONDUIT/CABLE QUANTITY. □ INDICATES DUCT SECTION TYPE.	SEE SHEET 14

ALL ALUMINUM 6061T6 ALLOY AND STAINLESS STEEL COMPONENTS.



- ① PIVOTAL UPPER BRACKET
- ② 1 5/8" x 1/4" SLOT FOR DOUBLE STRAPPING TO ELECTROLIER MAST ARM. (M2G-34S(HD) .030"x3/4" HEAVY DUTY STAINLESS STEEL STRAP WITH M2G-34B(HD) BUCKLE RECOMMENDED.)
- ③ 1/2" -13x1 1/2" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT AND STAINLESS STEEL WASHER (BOTH SIDES). ALLOWS UPPER BRACKET TO PIVOT AND ALIGN WITH ELECTROLIER MAST ARM.
- ④ 6" OVERALL DROP WITH FIXED LENGTH SIGN BRACKET
- ⑤ STAINLESS STEEL DAMPENER SPRING (REMOVABLE)
- ⑥ STAINLESS STEEL HEX LOCK NUT WITH 1/8" STAINLESS STEEL WASHER.
- ⑦ 1" O.D. AXLE HOUSING
- ⑧ 1/2" -13x4" STAINLESS STEEL HEX HEAD BOLT WITH 1/8" STAINLESS STEEL WASHER
- ⑨ OILITE BUSHING
- ⑩ SIGN MOUNTING SETS, CONSISTING OF TWO EACH 5/16" -18x1" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT. TWO HOLES ON 1 1/2" CENTERS PROVIDE POSITIVE LOCK SIGN MOUNTING TO BRACKET.
- ⑪ 8 1/4" OVERALL LENGTH UPPER ADJUSTABLE SIGN BRACKET SECTION
- ⑫ 9" OVERALL LENGTH LOWER ADJUSTABLE SIGN BRACKET SECTION, INCLUDING AXLE HOUSING (8" OVERALL LENGTH TO TOP OF AXLE HOUSING)
- ⑬ 1/2"-13x1 1/2" STAINLESS STEEL HEX BOLT WITH STAINLESS STEEL HEX LOCK NUT AND STAINLESS STEEL WASHERS (BOLT SIDES). LOOSEN LOCK NUT, ADJUST BRACKET TEETH TO LEVEL SIGN.
- ⑭ 1 1/4"x1 1/4"x 1/8" ALUMINUM ANGLE



This work was prepared by me or under my supervision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYMBOL LIST

FARRINGTON HIGHWAY
SIGNALIZED INTERSECTION
@ Puhano Street

AS NOTED Date: April 26, 1996

TRAFFIC SIGNAL NOTES

1. 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.
2. ALL SPLICING SHALL BE DONE IN THE PULLBOXES.
3. 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.
4. 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.
5. ALL TRAFFIC SIGNAL CONTROLLER EQUIPMENT SHALL COMPLETELY WIRED IN THE CABINET AND SHALL CONTROL THE TRAFFIC SIGNALS AS CALLED FOR IN THE PLANS.
6. 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.
7. 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.
8. ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAY", FEDERAL HIGHWAY ADMINISTRATION (1988) AND AMENDMENTS.
9. LOCATIONS OF TRAFFIC MARKINGS AND MARKERS (LANE LINES, STOP LINES, CROSS, ETC.) SHOWN ON THE PLANS SHALL BE VERIFIED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF THE TRAFFIC SIGNAL SYSTEM.
10. THE CONTRACTOR SHALL NOTIFY THE TRAFFIC SIGNAL BRANCH, DEPARTMENT OF TRANSPORTATION SERVICES, CITY & COUNTY OF HONOLULU, (PHONE NO. 523-4589) TWO WEEKS PRIOR TO COMMENCING ANY WORK ON THE TRAFFIC SIGNAL SYSTEM.
11. 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 ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE TRAFFIC SIGNAL SYSTEM (PHONE NO. 523-4589).
12. INSTALLATION OF THE OPTICOM RECEIVER SHALL CONFORM IN ACCORDANCE WITH THE STANDARD DETAILS OF THE DEPARTMENT OF TRANSPORTATION SERVICES, CITY & COUNTY OF HONOLULU, ELECTRICAL AND MAINTENANCE SERVICES DIVISION, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.

ELECTRICAL SERVICE CONNECTION NOTES

1. CONTRACTOR TO ARRANGE SERVICE CONNECTION WITH HECO.
2. CONTRACTOR SHALL MAKE ALL ELECTRICAL CONNECTIONS TO CONTROLLER, PROVIDE BREAKERS, GROUND AND 2" PVC CONDUIT, SCHEDULE 80.
3. CONNECTION FROM METER TO SERVICE BOX SHALL BE BY CONTRACTOR.
4. CONTRACTOR SHALL PROVIDE HECO FOUR WEEKS ADVANCE NOTICE FOR ANY WORK BY HECO.
5. A HECO STANBY MAN IS REQUIRED TO BE AT THE SITE AT THE TIME ANY NON-UTILITY COMPANY PERSONNEL WILL BE BREAKING INTO OR ENTERING ANY FACILITIES THAT CONTAIN ENERGIZED UTILITY COMPANY EQUIPMENT OR CABLES.
6. THREE WORKING DAYS ADVANCE NOTICE IS REQUIRED BY THE HECO FOR ANY INSPECTION SERVICE OR STANBY MAN. CALL - PHONE NO. 543-5668.
7. THE INSTALLATION OF THE METER PEDESTAL FOR UNDERGROUND SERVICE WILL NOT BE PAID FOR SEPARATELY BUT CONSIDERED INCIDENTAL TO THE METER SOCKET AND BREAKER (50 APMS).

8. ELECTRICAL SERVICE CONNECTION WORK BY HECO FORCES AND HECO FURNISHED EQUIPMENT AND MATERIALS SHALL BE PAID FOR UNDER ITEM NO. 623.9003 - ELECTRICAL SERVICE CONNECTION BY HECO.
9. PAYMENT FOR ITEMS OF WORK THAT HAVE CONTRACT UNIT PRICES WILL BE MADE UNDER THE APPLICABLE CONTRACT UNIT PRICES.
10. WORKING DRAWINGS FOR PERMANENT INSTALLATION OF HECO FACILITIES SHALL BE PROVIDED BY HECO.

ELECTRIC, TELEPHONE AND CABLE TV FACILITIES NOTES

1. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN THE CONSTRUCTION IS IN CLOSE PROXIMITY OF OVERHEAD ELECTRIC, TELEPHONE, AND CABLE TV CABLE FACILITIES. ANY DAMAGE TO THE EXISTING UNDERGROUND UTILITIES SHALL BE REPAIRED BY THE UTILITY COMPANY AND PAID FOR BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL NOTIFY THE "UTILITY COMPANIES" TWO (2) WEEKS IN ADVANCE FOR ANY POLE RELOCATIONS THAT ARE REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION COST.

CONSTRUCTION NOTES

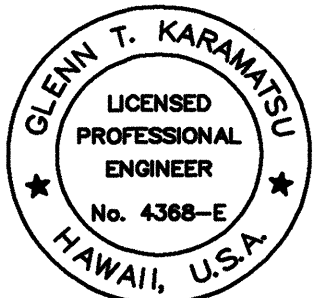
1. ALL CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986, AND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, MAUI AND HAWAII.
2. 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 LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
3. NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF CHAPTER 54, WATER QUALITY STANDARDS, AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH.
5. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DIVISION OF ENGINEERING, DEPARTMENT OF PUBLIC WORKS AT 527-6311 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT THREE (3) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.

ELECTRICAL & MAINTENANCE SERVICES DIVISION NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE TRAFFIC SIGNAL SYSTEM (PHONE: 523-4589).
2. THE TRAFFIC SIGNAL SYSTEMS SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION. ANY RELOCATION OR CHANGEOVER REQUIRED SHALL BE APPROVED BY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, AND PERFORMED AND PAID FOR BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING TRAFFIC SIGNAL, FACILITY, 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.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-94	1996	11	18

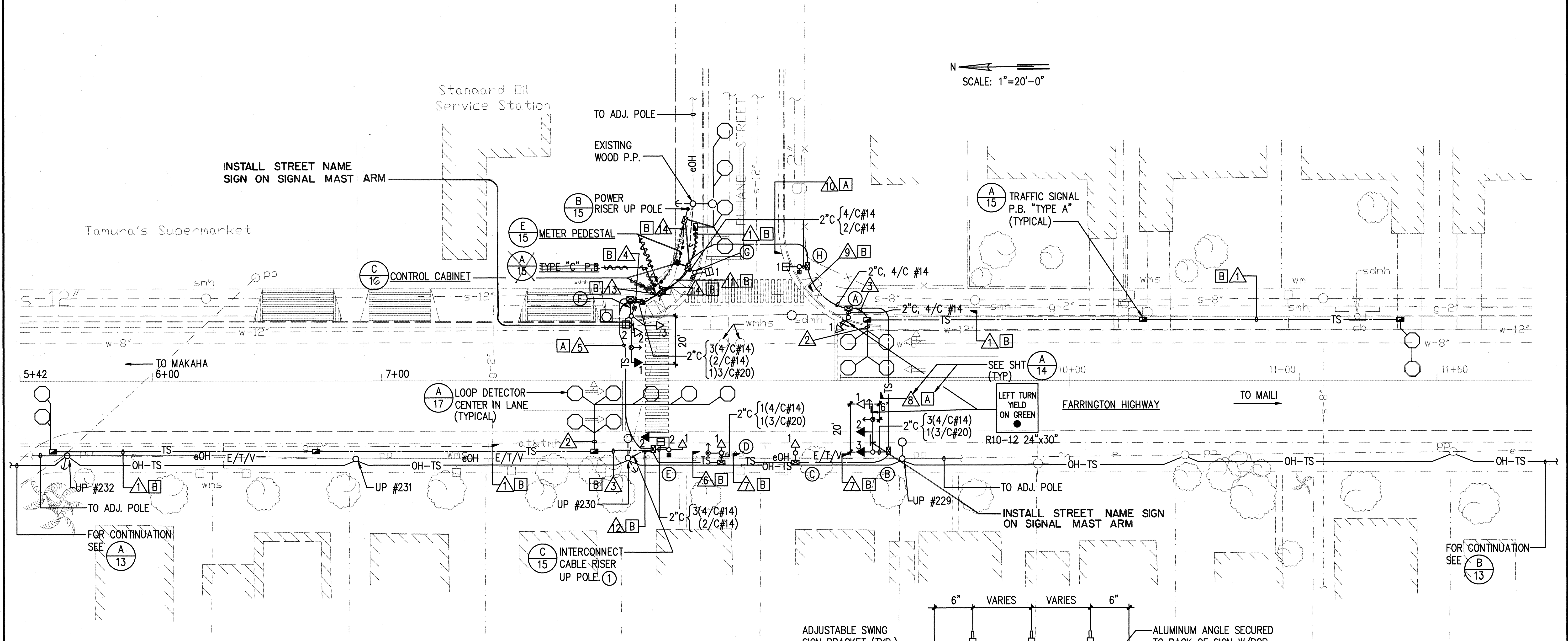
4. THE CONTRACTOR SHALL NOTIFY THE JOIST POLE COMMITTEE TWO (2) WEEKS IN ADVANCE OF ANY RELOCATION OF UTILITY POLE(S) THAT MAY BE NECESSARY.



Glenn Karamatsu
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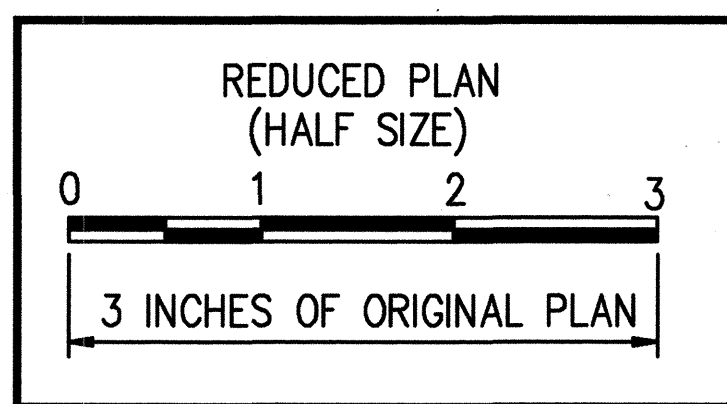
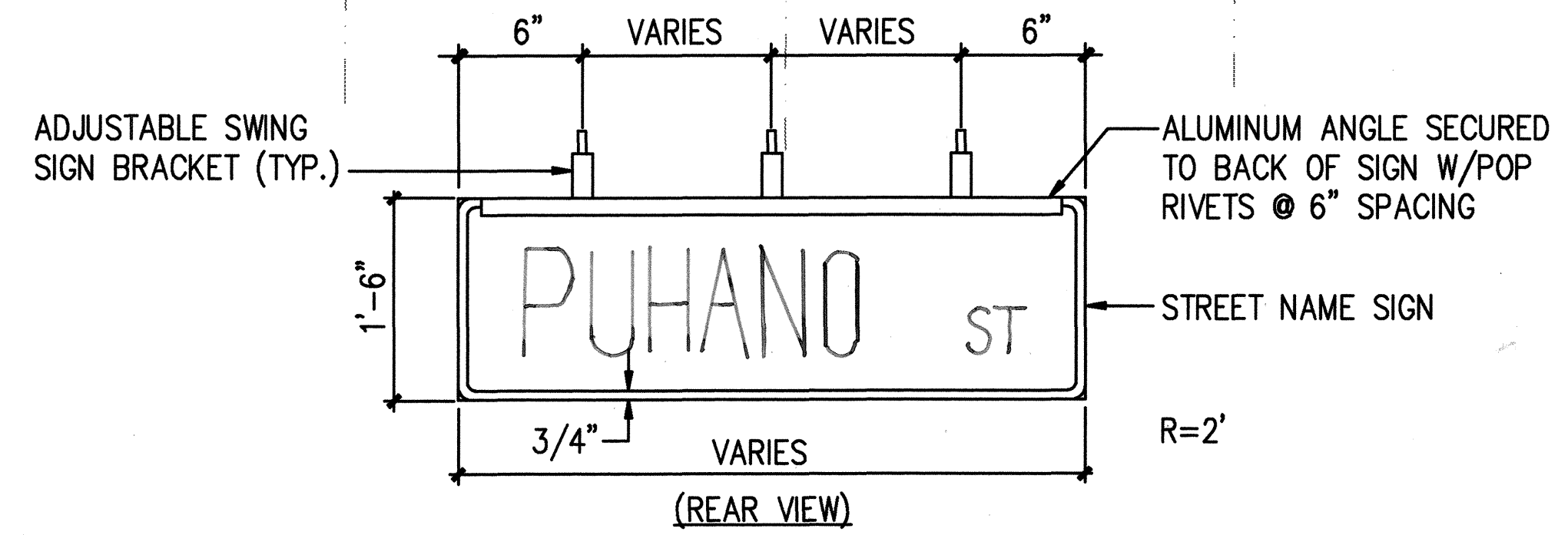
STATE OF HAWAII DEPARTMENT OF TRANSPORATION HIGHWAYS DIVISION	
GENERAL NOTES	
FARRINGTON HIGHWAY SIGNALIZED INTERSECTION @ Puhano Street	
AS NOTED	Date: April 26, 1996

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-94	1996	12	18

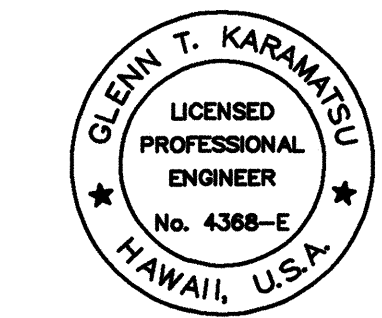


NOTES:

- ① OVERHEAD INTERCONNECT CABLES TO ADJACENT SIGNALIZED INTERSECTION NORTH AND SOUTH OF PUHANO ST.



A 12 **TRAFFIC SIGNAL PLAN—**
FARRINGTON HWY & PUHANO ST — STATION 5+42 TO STATION 11+60
SCALE: 1"=20'



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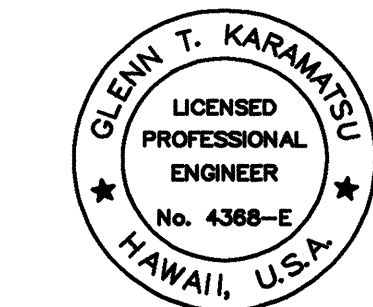
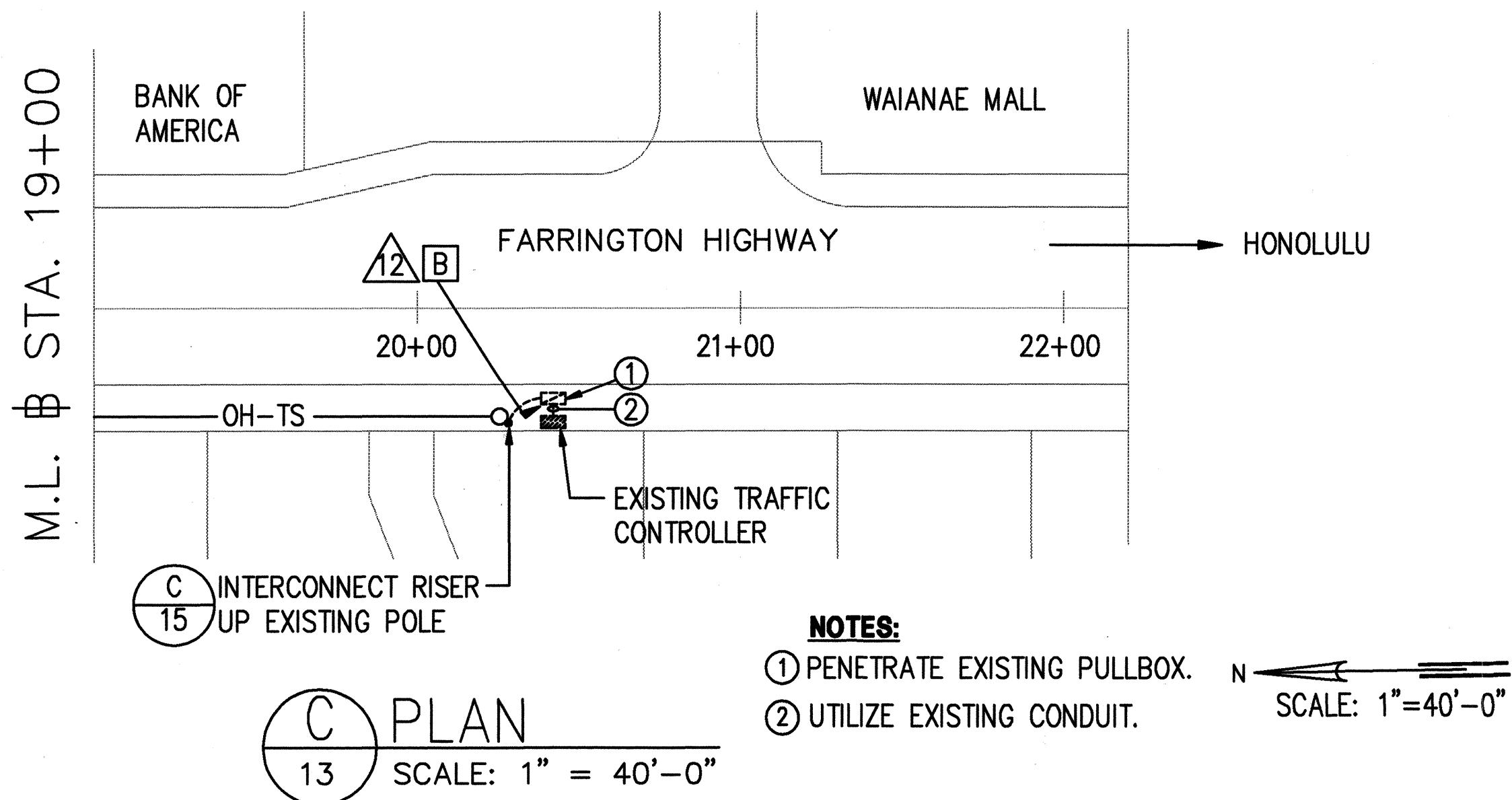
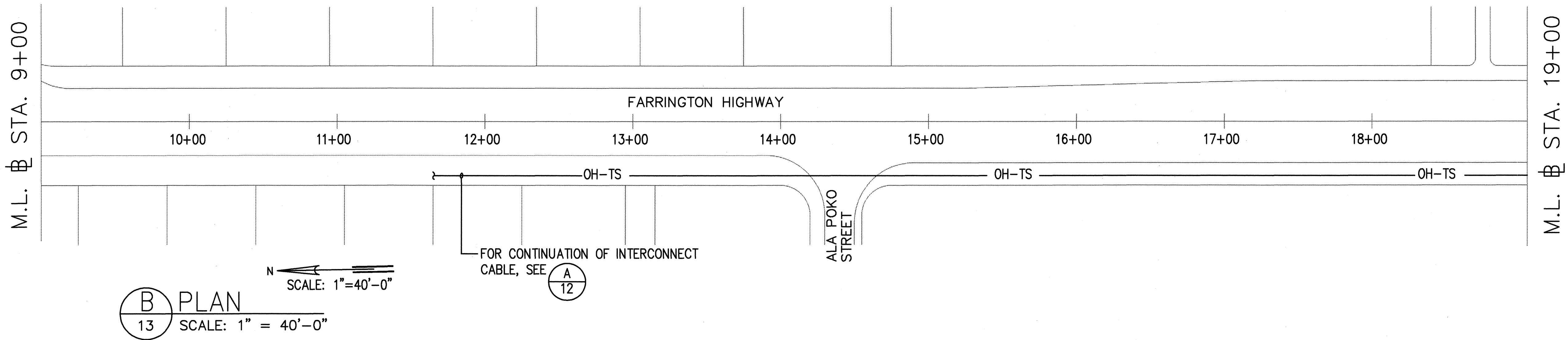
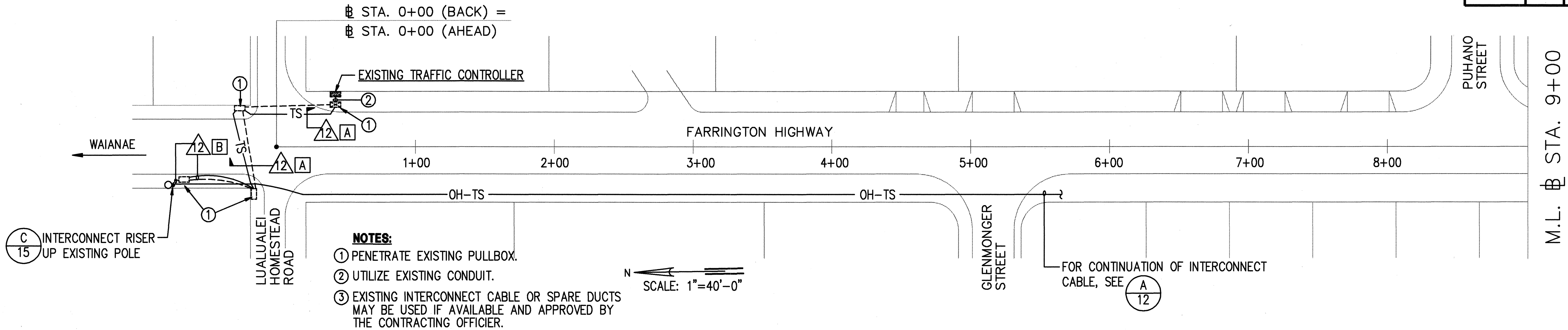
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

**FARRINGTON HIGHWAY
SIGNALIZED INTERSECTION
@ Puhano Street**

AS NOTED Date: April 26, 1996

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-94	1996	13	18



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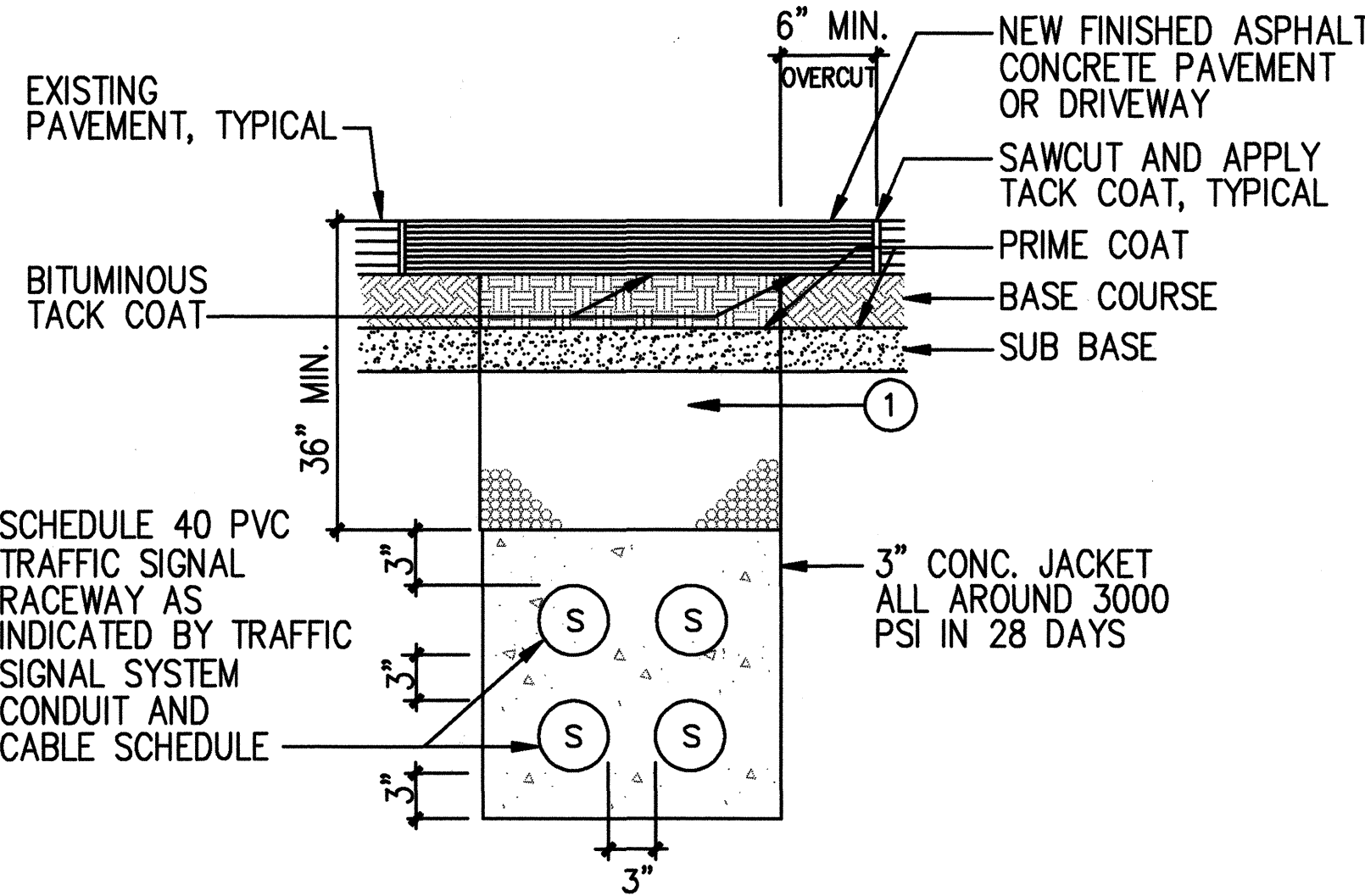
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC SIGNAL
INTERCONNECT PLAN
 FARRINGTON HIGHWAY
 SIGNALIZED INTERSECTION
 @ Puhano Street

AS NOTED

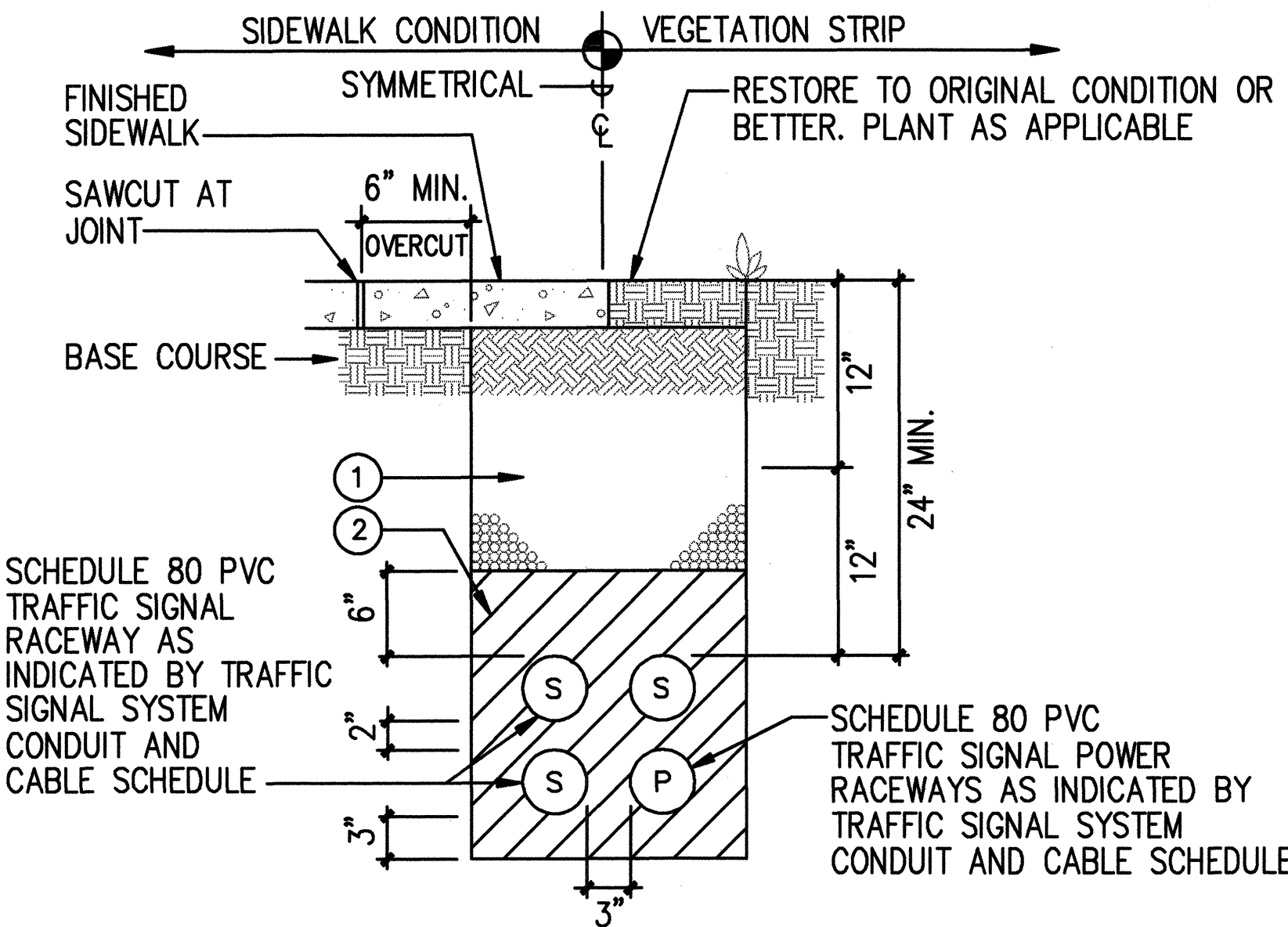
Date: April 26, 1996

NOTES:

- ① TYPE "A" BACKFILL - BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL, THE MAXIMUM ROCK SIZE SHALL BE 1" AND THE MIXTURE SHALL NOT CONTAIN MORE THAN 50% BY VOLUME OF ROCK PARTICLES.
- ② TYPE "B" BACKFILL - BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL, THE MIXTURE MUST PASS A 1/2" MESH SCREEN AND CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
- ③ PAVEMENT AND SIDEWALK STRUCTURE SHALL BE EQUIVALENT OR BETTER THAN EXISTING IN THICKNESS AND QUALITY.
- ④ PROVIDE 3" CONCRETE JACKET SCHEDULE 40 PVC UNDER PAVED ROAD OR DRIVEWAY CONDITIONS.
- ⑤ DIRECT BURIED WITH SCHEDULE 80 PVC UNDER SIDEWALK OR VEGETATION STRIP CONDITION IS AN ACCEPTABLE ALTERNATIVE.

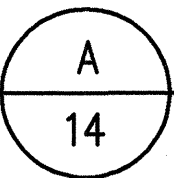


ENCASED DUCT TYPE [A]



DIRECT BURIED DUCT TYPE [B]

TYPICAL DUCT SECTIONS

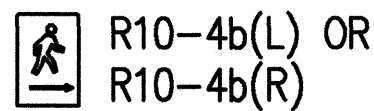


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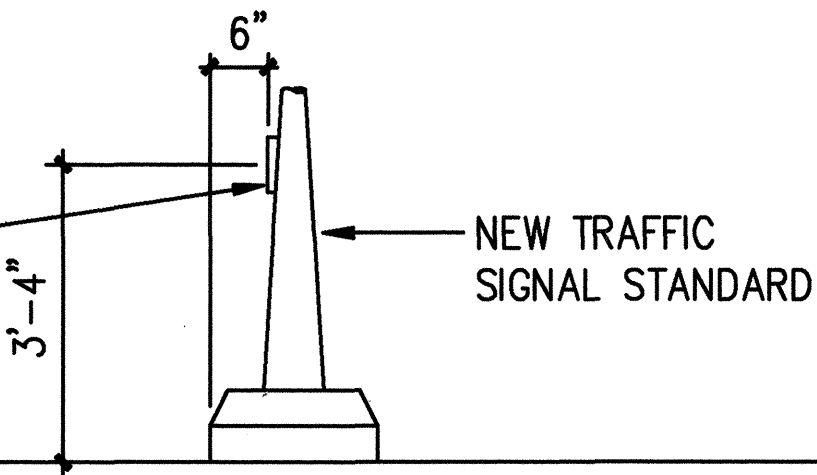
TRAFFIC SIGNAL HEAD SCHEDULE				
TRAFFIC SIGNAL HEAD TYPE AND DESCRIPTION				
PEDESTRIAN SIGNAL HEAD		12" RYG TRAFFIC SIGNAL HEAD	12" RY TRAFFIC SIGNAL HEAD	12" RYG (BIMODAL) TRAFFIC SIGNAL HEAD, FIBER OPTIC
POLE LETTER SIGNAL HEAD NUMBER	E-2, F-2, G-1, H-1	C-1, D-1 E-1, F-2, F-3	B-2, B-3 E-2, F-1,	A-1, B-1

LIST OF MATERIALS			
POLE LETTER	STANDARD TYPE	MOUNTING TYPE	SIGNAL FACES AND OPTICOM RECEIVERS
A	I-10	SLIPFITTER - ONE WAY	R-Y-G (BIMODAL LEFT)
B	II-20	MAST ARM - ONE WAY MAST ARM - ONE WAY BRACKET - ONE WAY MAST ARM (HOR.)	R-Y-G (BIMODAL LEFT) R-Y- R-Y- OPTICOM
C	I-10	SLIPFITTER - ONE WAY	R-Y-G
D	I-10	SLIPFITTER - ONE WAY VERTICAL MOUNT	R-Y-G OPTICOM
E	I-10	BRACKET - TWO WAY BRACKET - ONE WAY	R-Y-G, R-Y- H-M
F	II-20	MAST ARM - ONE WAY MAST ARM - ONE WAY BRACKET - ONE WAY BRACKET - ONE WAY MAST ARM (HOR.)	R-Y- R-Y-G R-Y-G H-M OPTICOM
G	I-10	SLIPFITTER - ONE WAY	H-M
H	I-10	SLIPFITTER - ONE WAY	H-M

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE														
	DELTA ITEM NO. (Δ)													
	Δ1	Δ2	Δ3	Δ4	Δ5	Δ6	Δ7	Δ8	Δ9	Δ10	Δ11	Δ12	Δ13	Δ14
QUANTITY OF 2" CONDUIT, SEE NOTE BELOW	1	1	1	4	4	3	3	3	3	3	3	1	6	1
QUANTITY OF 26/C #14 CONTROL CABLE				1	1	1	1	1	1	1	1		2	
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR LEAD IN CABLE AND/OR PEDESTRIAN PUSHBUTTON CABLE	1	2	2	4	3				2	3	4		8	
QUANTITY OF 3/C #20 SHIELDED OPTICAL DETECTOR CABLE				3	2	2	1						3	
QUANTITY OF 6 PAIR #19 INTERCONNECT CABLE				2	2							2	2	
QUANTITY OF 3/C #6 POWER CABLE													1	1
SPARE CONDUIT						1	1	2	1	1			1	
NOTE: SEE [A/14] [A/12] FOR DUCT SECTION TYPE.														



NEW SIGN WITH PEDESTRIAN PUSH BUTTON



TYPICAL SIGN WITH PEDESTRIAN PUSH BUTTON

NOT TO SCALE

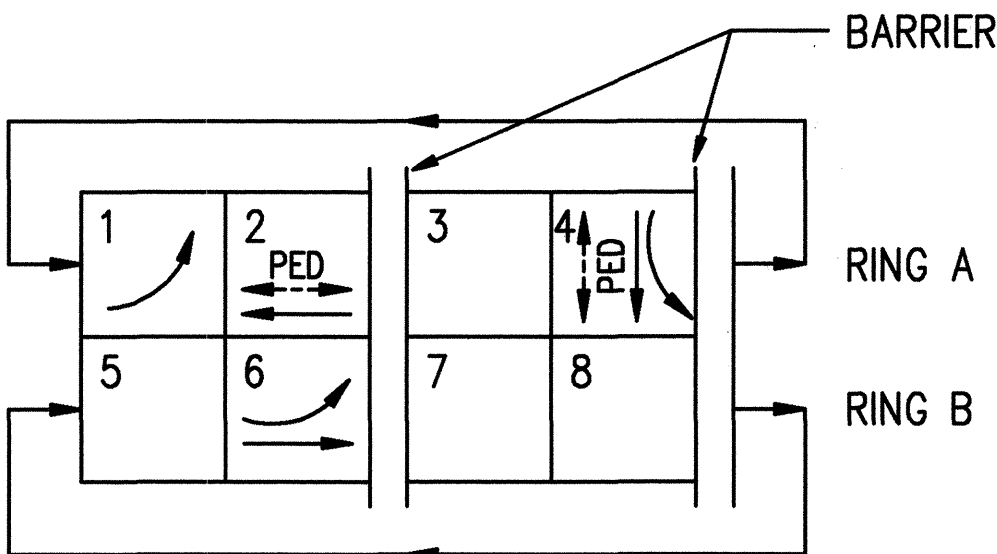


R10-4b (SIGN VARIES WITH DIRECTION)

(A) (←) R10-4b(R)

(C) (→) R10-4b(L)

(D) (↔) R10-4b(R), R10-4b(L)



PHASE DIAGRAM

PEDESTRIAN PUSH BUTTON WITH SIGN (NEW)

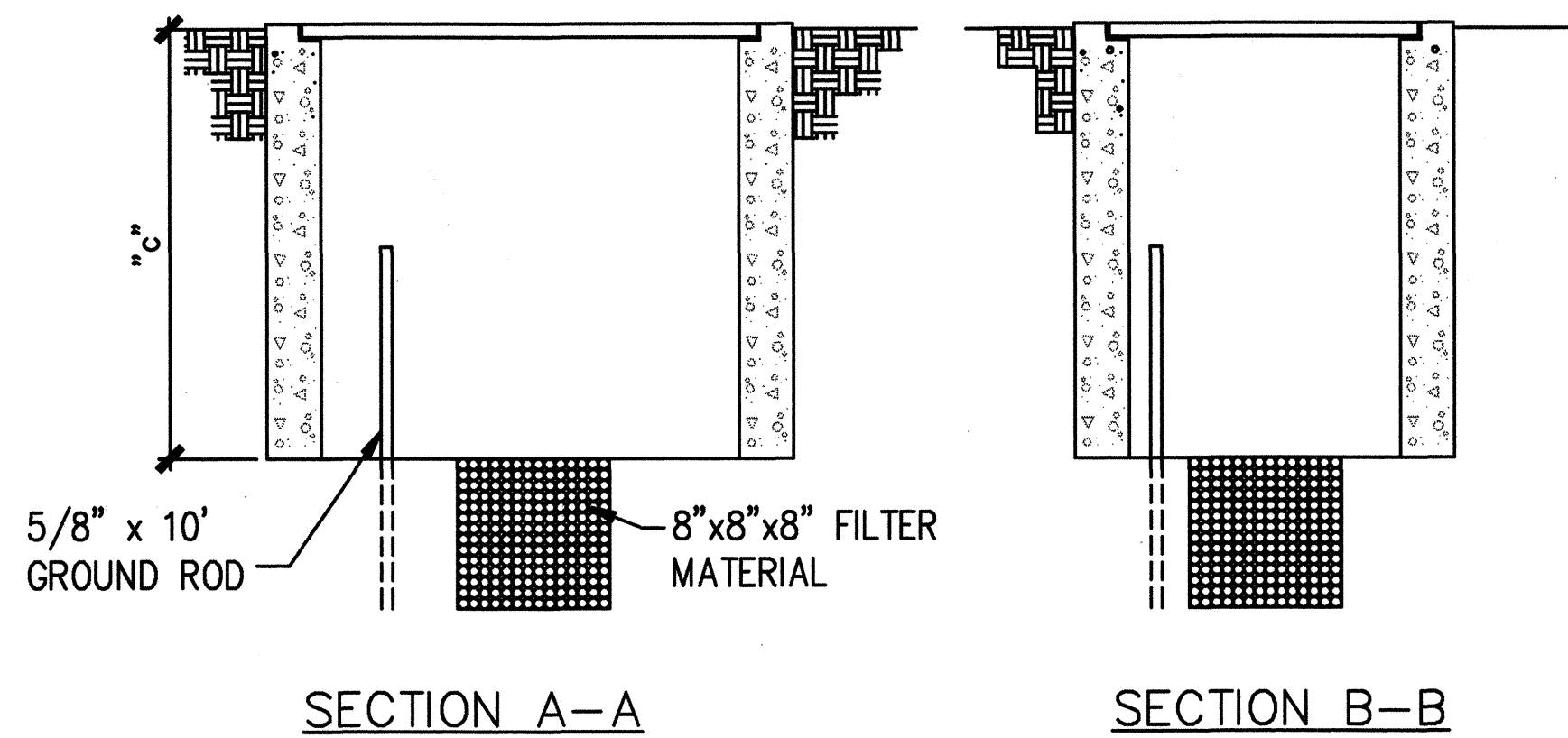


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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL SCHEDULES & DETAILS
FARRINGTON HIGHWAY
SIGNALIZED INTERSECTION
@ Puhano Street
AS NOTED Date: April 26, 1996

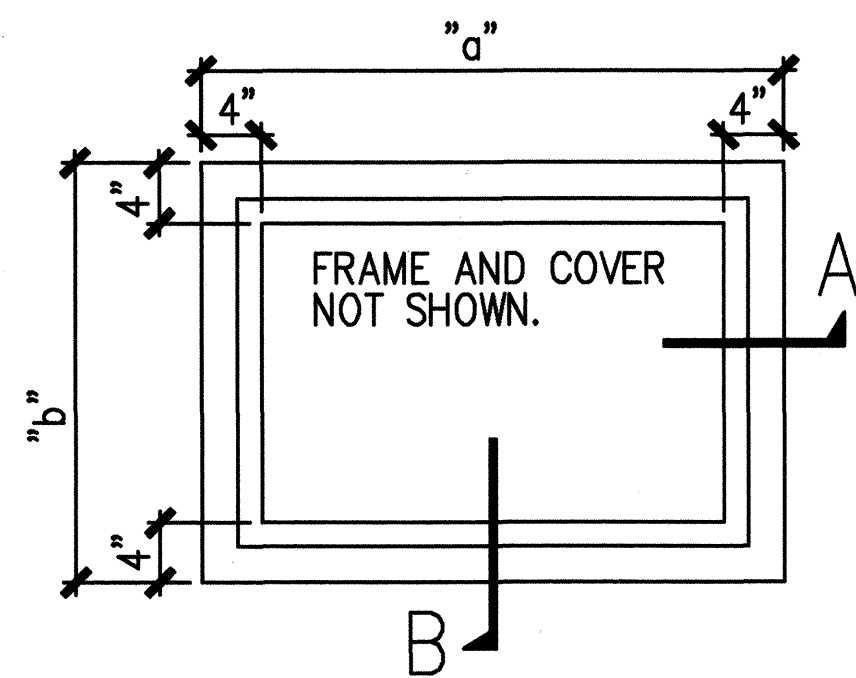
PULLBOX DIMENSIONS		
	TYPE "A"	TYPE "C"
"a"	28	40
"b"	19	28
"c"	18	24

- NOTES:
- ALL DIMENSIONS ARE IN INCHES
 - ALL CONCRETE SHALL BE CLASS "B"
 - PROVIDE GROUND ROD IN ALL PULLBOXES ADJACENT TO STANDARDS, PEDESTALS, CONTROLLERS AND OTHER SPECIFIED LOCATIONS.

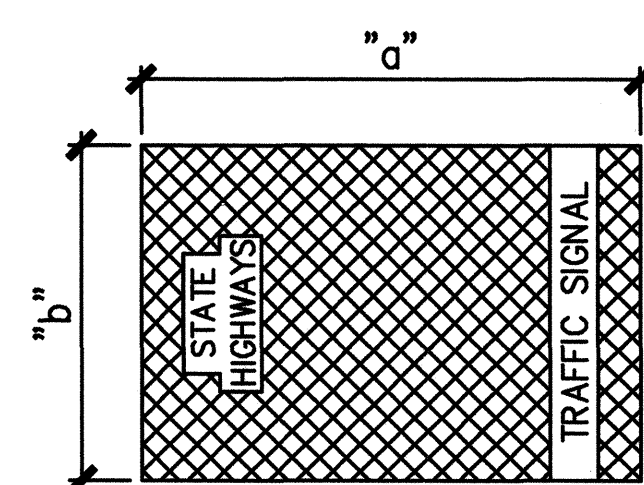


PULLBOX DETAILS

A TYPE "A" & "C" TRAFFIC SIGNAL PULLBOX DETAILS
15 NOT TO SCALE



PLAN OF PULLBOX

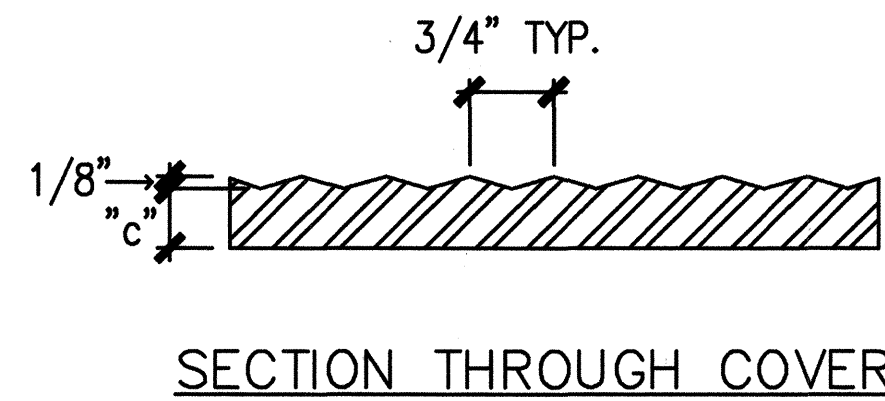


PLAN OF COVER

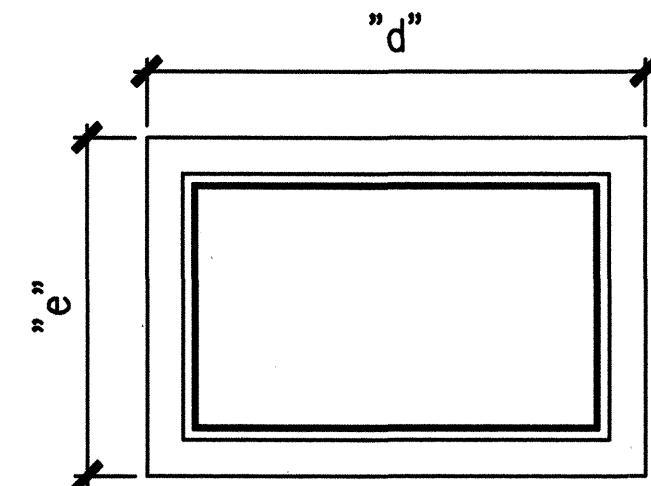
COVER AND FRAME DIMENSIONS		
	TYPE "A"	TYPE "C"
a	19-3/4	30
b	12	20
c	1/2	5/8
d	22-1/2	33-3/16
e	14-3/4	23-3/16
f	1	2
g	1-1/4	1-1/2
h	1/2	1-3/8

NOTE: ALL DIMENSIONS ARE IN INCHES

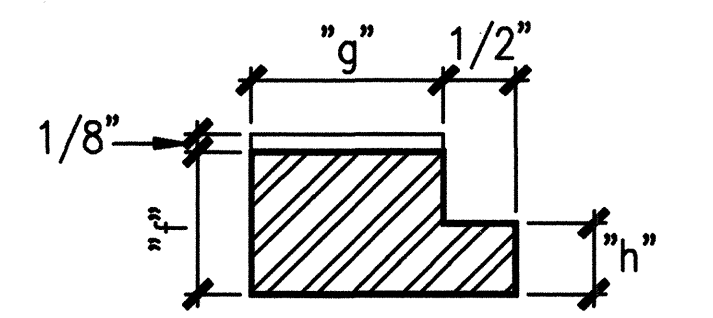
TSPB COVER DETAILS



SECTION THROUGH COVER



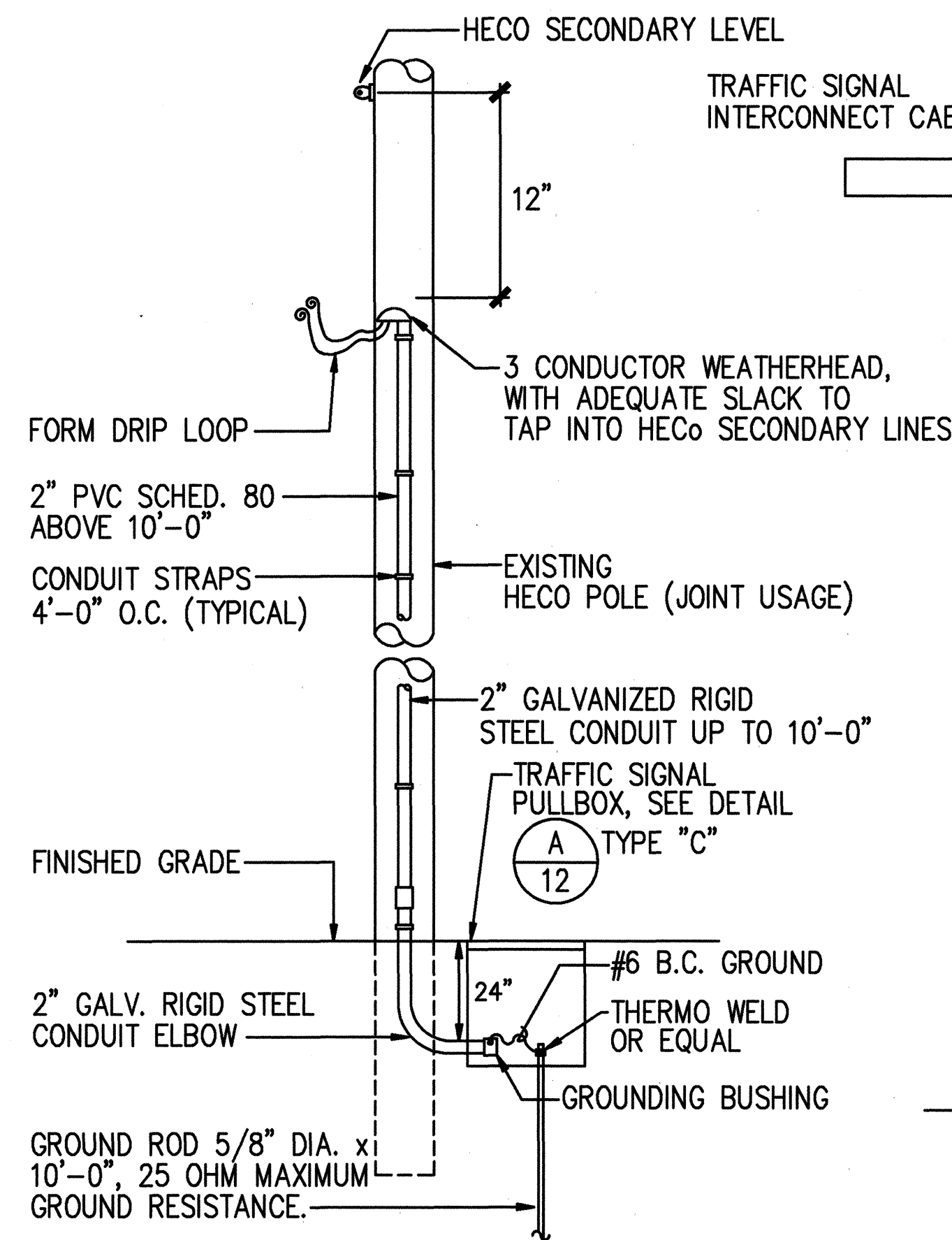
PLAN OF FRAME



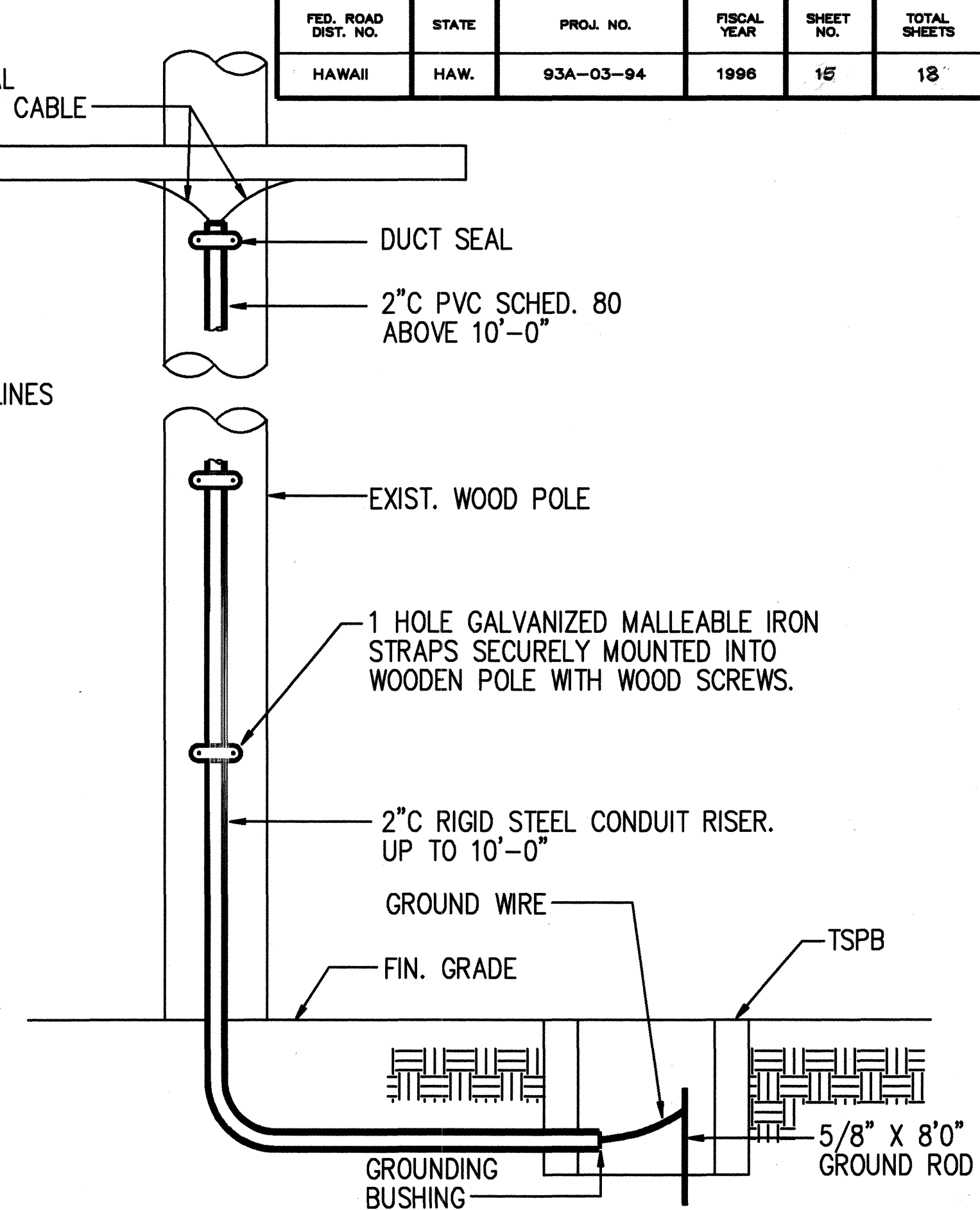
SECTION THROUGH FRAME

NOTES:

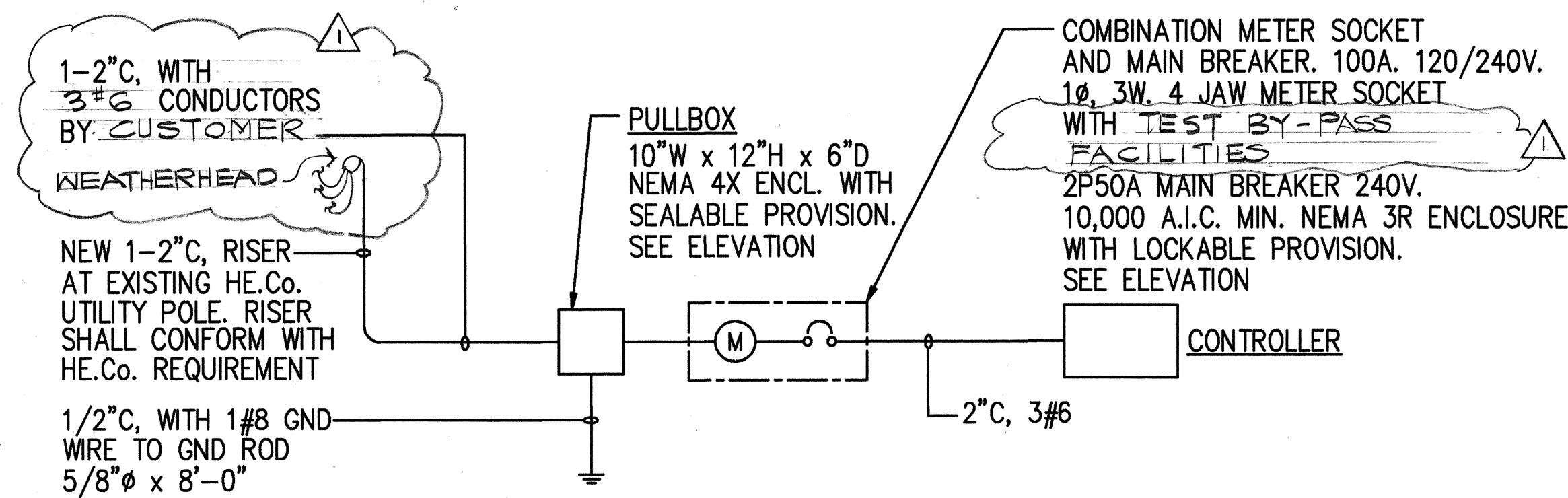
- SIDES OF COVER ARE TO BE SLIGHTLY BEVELED TO FACILITATE INSTALLATION. BEVEL IS INWARD FROM TOP TO BOTTOM.
- COVER TO BE CAST FROM GREY IRON.
- SUBMIT SHOP DRAWINGS FOR BOX, FRAME AND COVER FOR APPROVAL.



B TRAFFIC SIGNAL SYSTEM
HECO POWER CONDUIT
RISER DETAIL
15 NOT TO SCALE



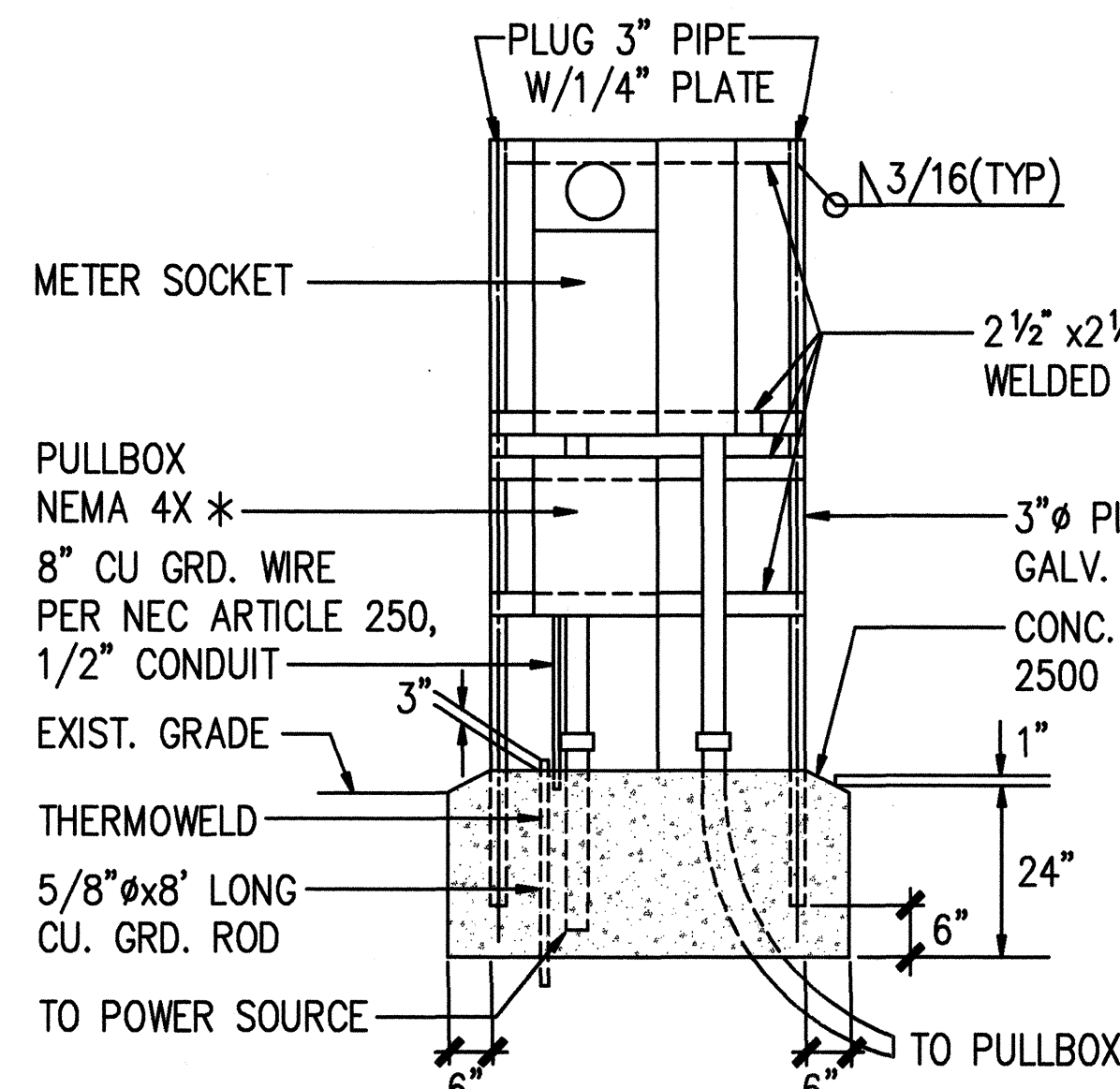
C NEW TRAFFIC SIGNAL SYSTEM
CONDUIT RISER INTERCONNECT CABLE
15 NOT TO SCALE



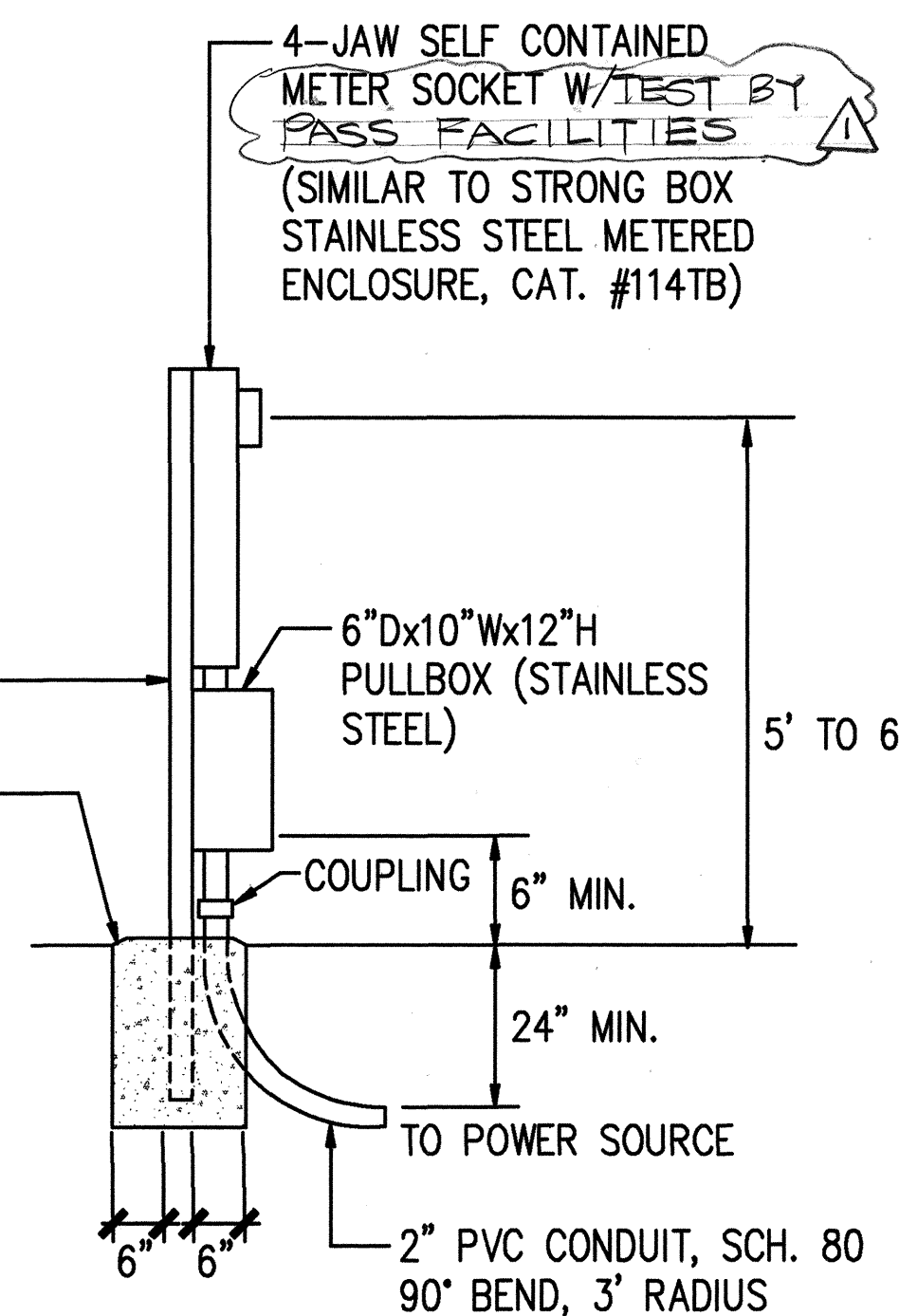
D ONE-LINE DIAGRAM
15 NOT TO SCALE

NOTES:

- PEDESTAL SHALL BE HOT-DIPPED GALV. AFTER FABRICATION.
ALL FASTENING BOLTS, NUTS & WASHERS SHALL BE STAINLESS STEEL.
PROVIDE 4 FT. CL. IN FRONT OF METER.
* SEALABLE STAINLESS STEEL ENCLOSURE 6"Dx10"Wx12"H.

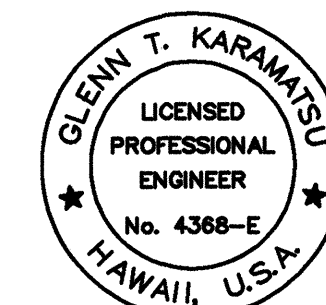


FRONT ELEVATION



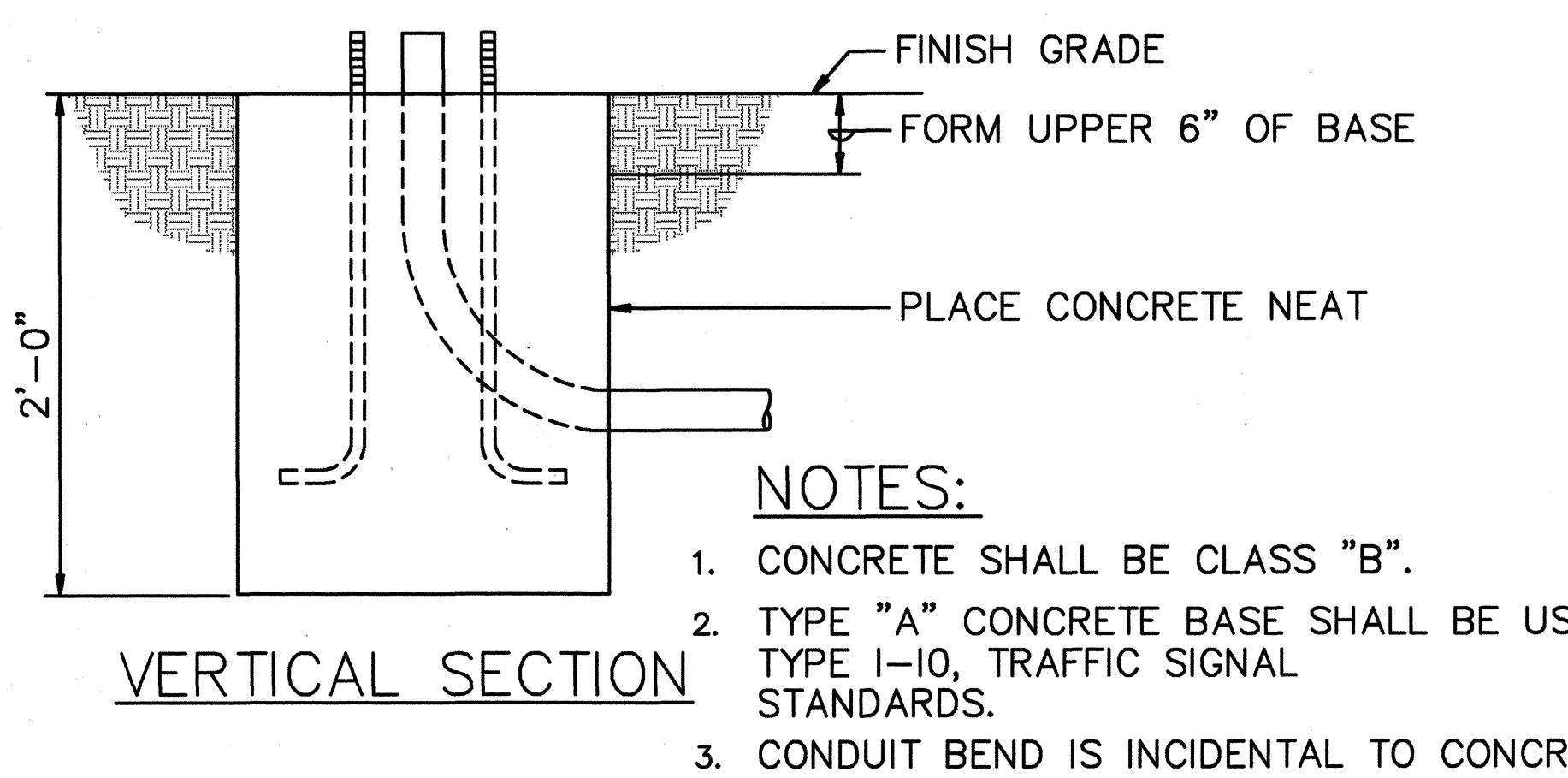
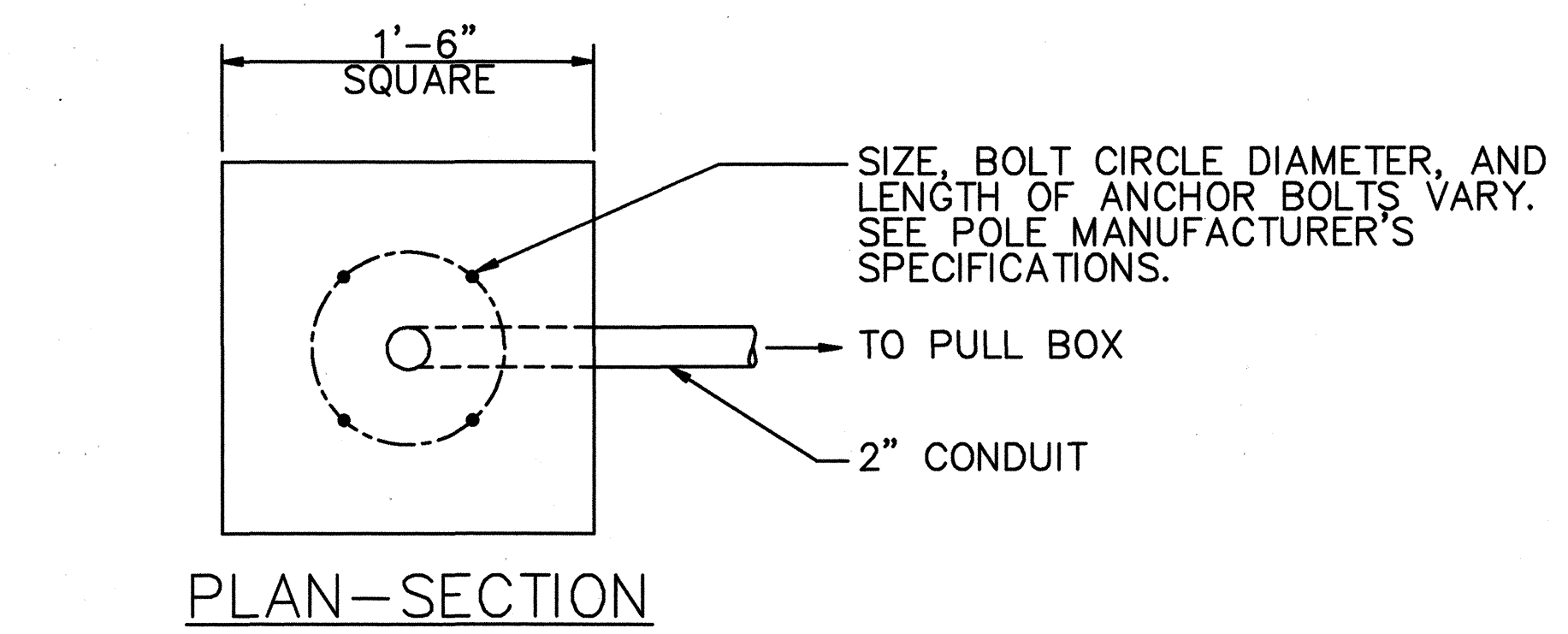
SIDE ELEVATION

E METER PEDESTAL FOR UNDERGROUND SERVICE DETAIL
15 NOT TO SCALE



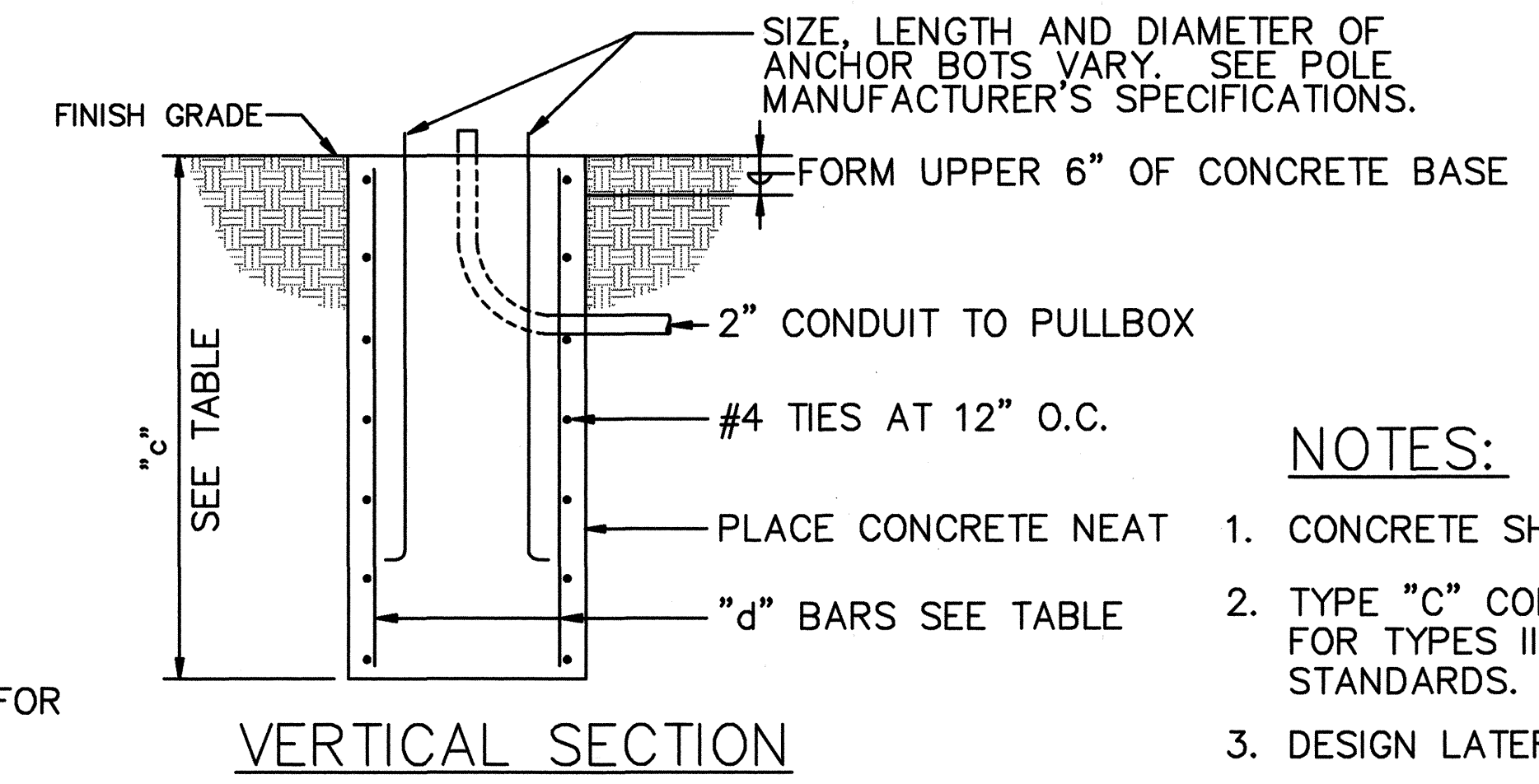
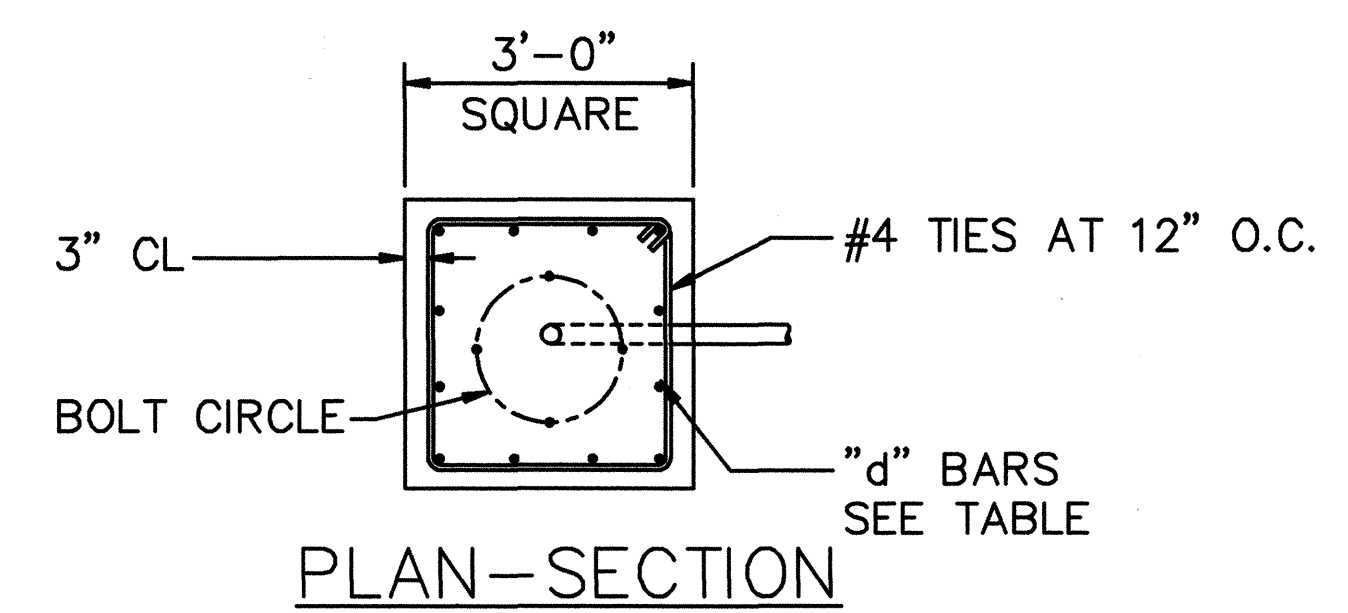
This work was prepared by me or under my supervision

PER HECO REQUIREMENTS		7-22-96
REVISION	DESCRIPTION	DATE
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TRAFFIC SIGNAL DETAILS FARRINGTON HIGHWAY SIGNALIZED INTERSECTION @ Puhano Street		
AS NOTED		Date: April 26, 1996



- NOTES:
1. CONCRETE SHALL BE CLASS "B".
 2. TYPE "A" CONCRETE BASE SHALL BE USED FOR TYPE I-10, TRAFFIC SIGNAL STANDARDS.
 3. CONDUIT BEND IS INCIDENTAL TO CONCRETE BASE.

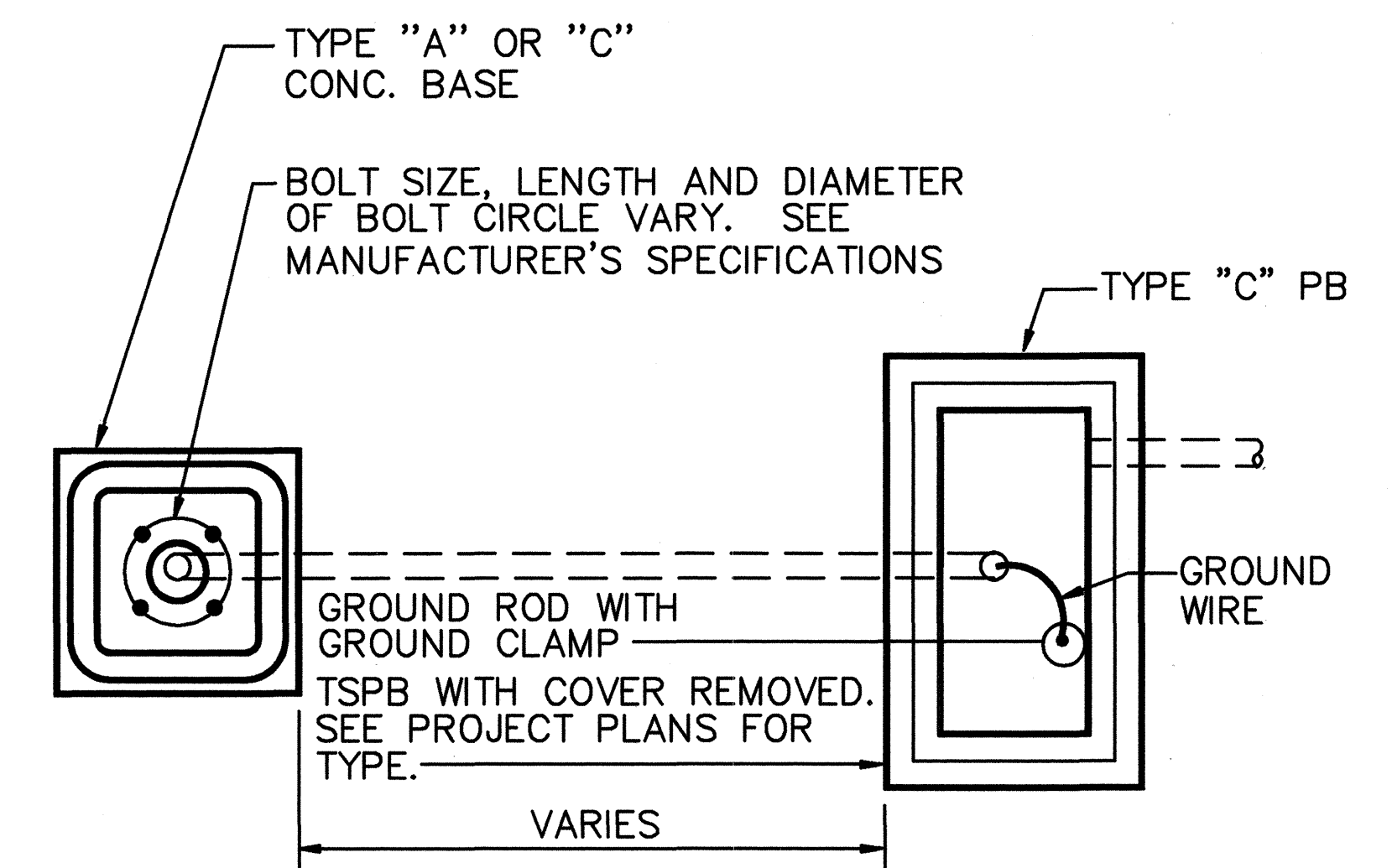
A TYPE "A" CONCRETE BASE
16 NOT TO SCALE



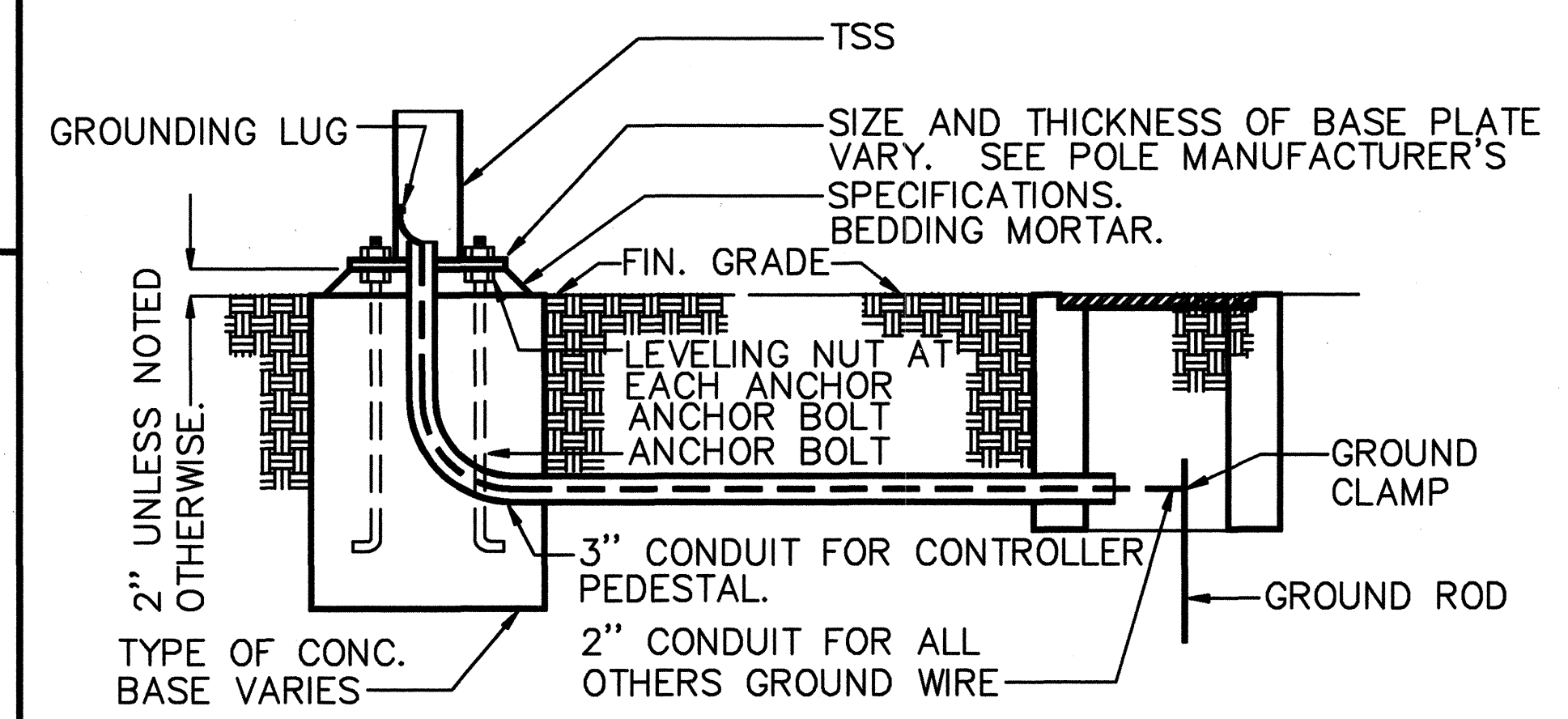
- NOTES:
1. CONCRETE SHALL BE CLASS "B".
 2. TYPE "C" CONCRETE BASE SHALL BE USED FOR TYPES II TRAFFIC SIGNAL STANDARDS.
 3. DESIGN LATERAL PRESSURE: 1,500 PSF.
 4. CONDUIT BEND IS INCIDENTAL TO CONCRETE BASE.

B TYPE "C" CONCRETE BASE
16 NOT TO SCALE

TYPE "C" CONCRETE BASE		
TYPE OF STANDARD	"c" BARS	"d" BARS
II-18	5'-0"	12-#6
II-20	5'-6"	12-#6
II-25	6'-0"	12-#6
II-30	6'-6"	12-#8
II-35	7'-0"	12-#8
II-40	8'-0"	12-#8

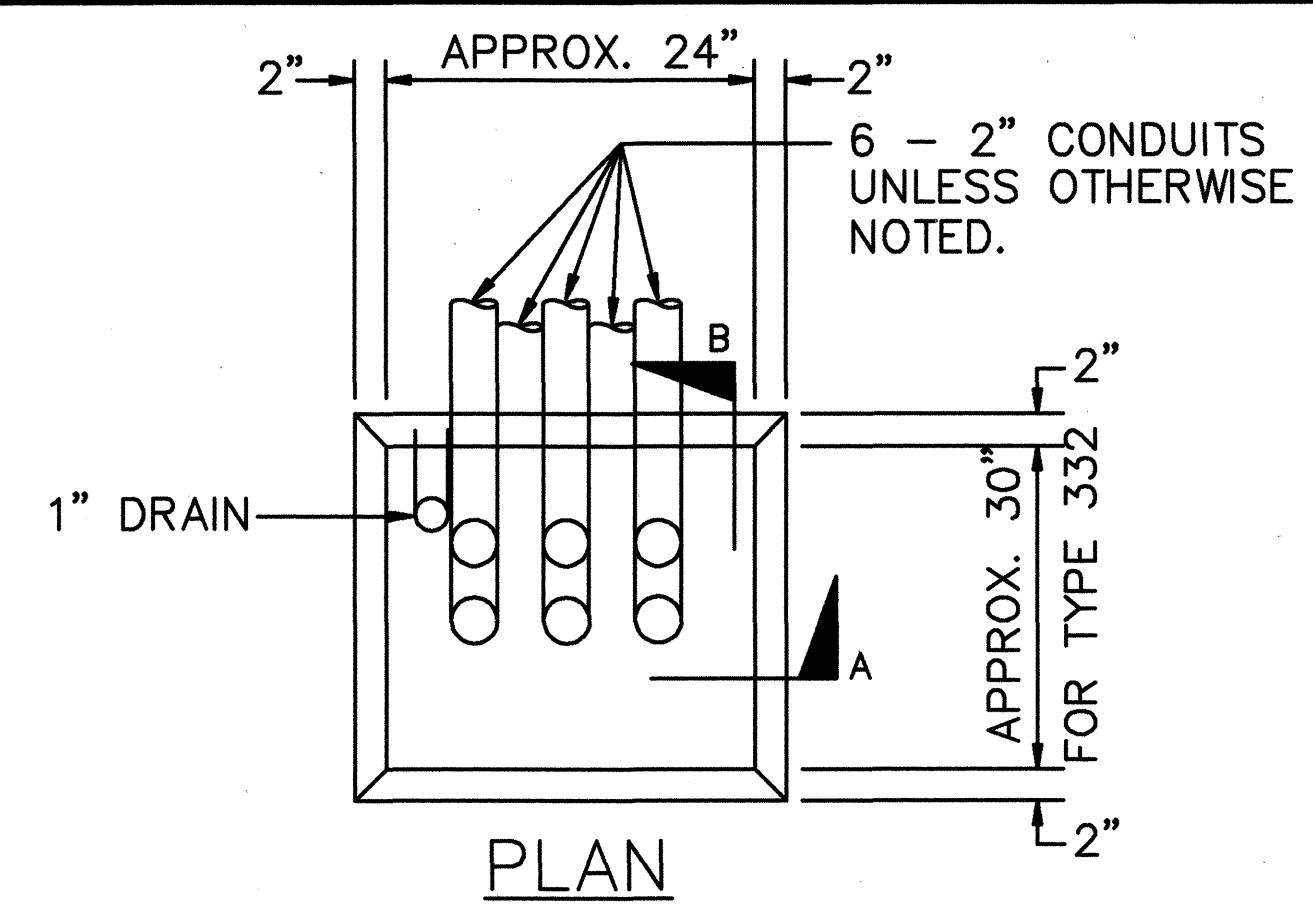


PLAN

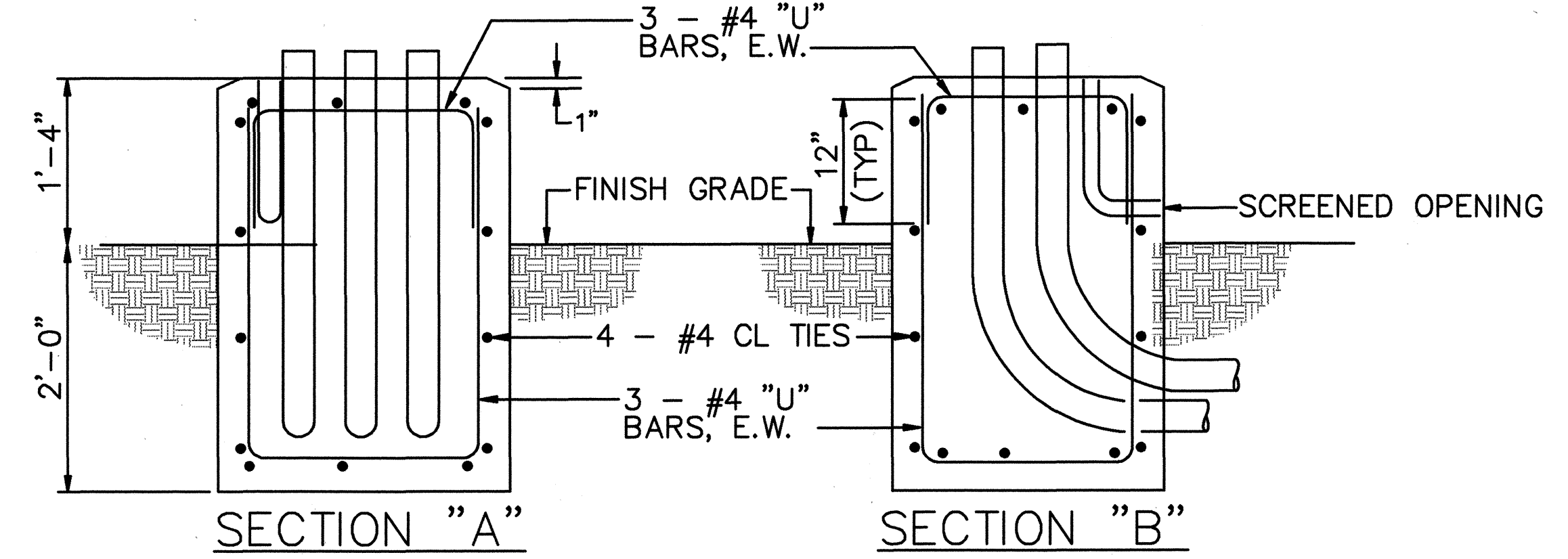


SECTION

D TYPICAL STANDARD AND PEDESTAL INSTALLATION
16 NOT TO SCALE

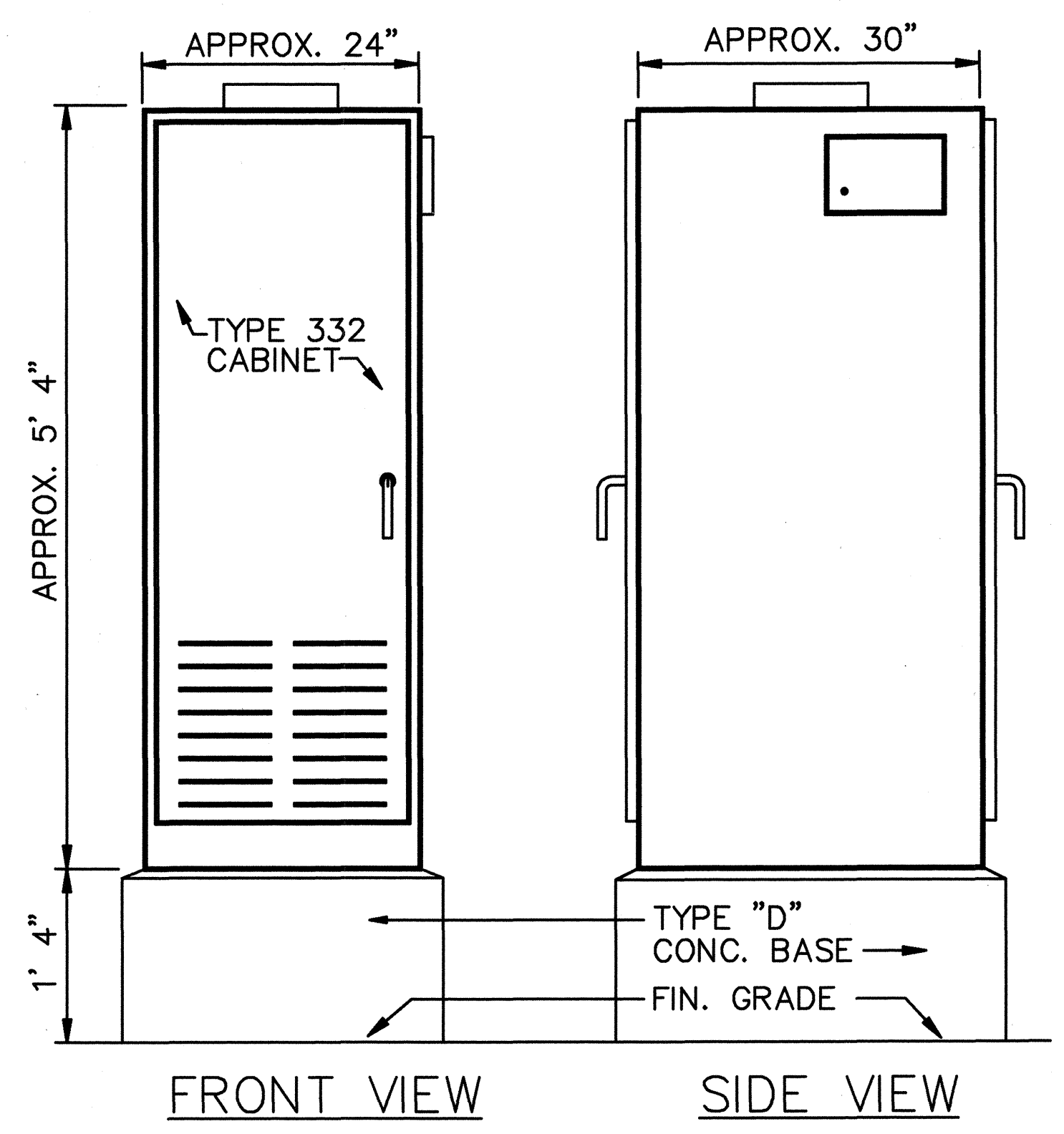


- NOTES:
1. CONCRETE SHALL BE CLASS "B".
 2. DIMENSIONS SHALL BE ALTERED TO SUIT CONTROLLER CABINET ACTUALLY FURNISHED.
 3. CONDUIT BEND AND DRAIN ARE INCIDENTAL TO CONCRETE BASE.
 4. REFER TO CABINET MANUFACTURER'S SPECIFICATIONS FOR DETAILS OF ANCHOR BOLTS AND BASE SETTING.
 5. ALL EXPOSED SURFACES OF CONCRETE BASE SHALL BE GIVEN A CLASS 2, RUBBED FINISH.

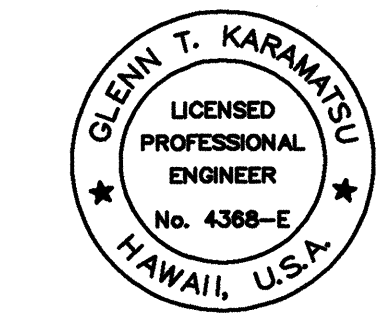


TYPE "D" CONCRETE BASE FOR CONTROLLER CABINETS
NOT TO SCALE

C TRAFFIC SIGNAL SYSTEM CONCRETE BASE DETAILS
16 NOT TO SCALE



TYPE 332 CABINET
NOT TO SCALE



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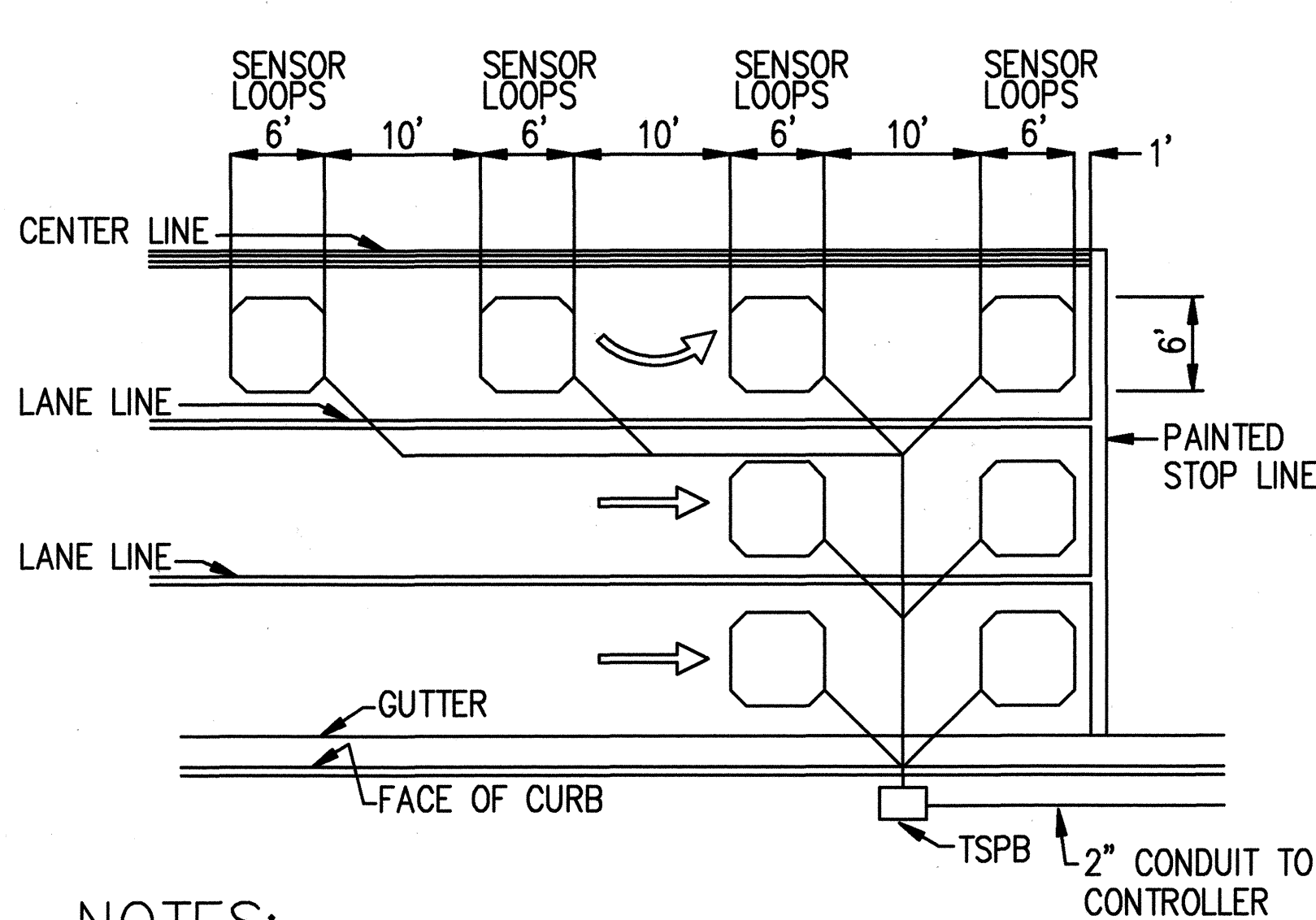
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONCRETE BASE DETAILS

FARRINGTON HIGHWAY
SIGNALIZED INTERSECTION
@ Puhano Street

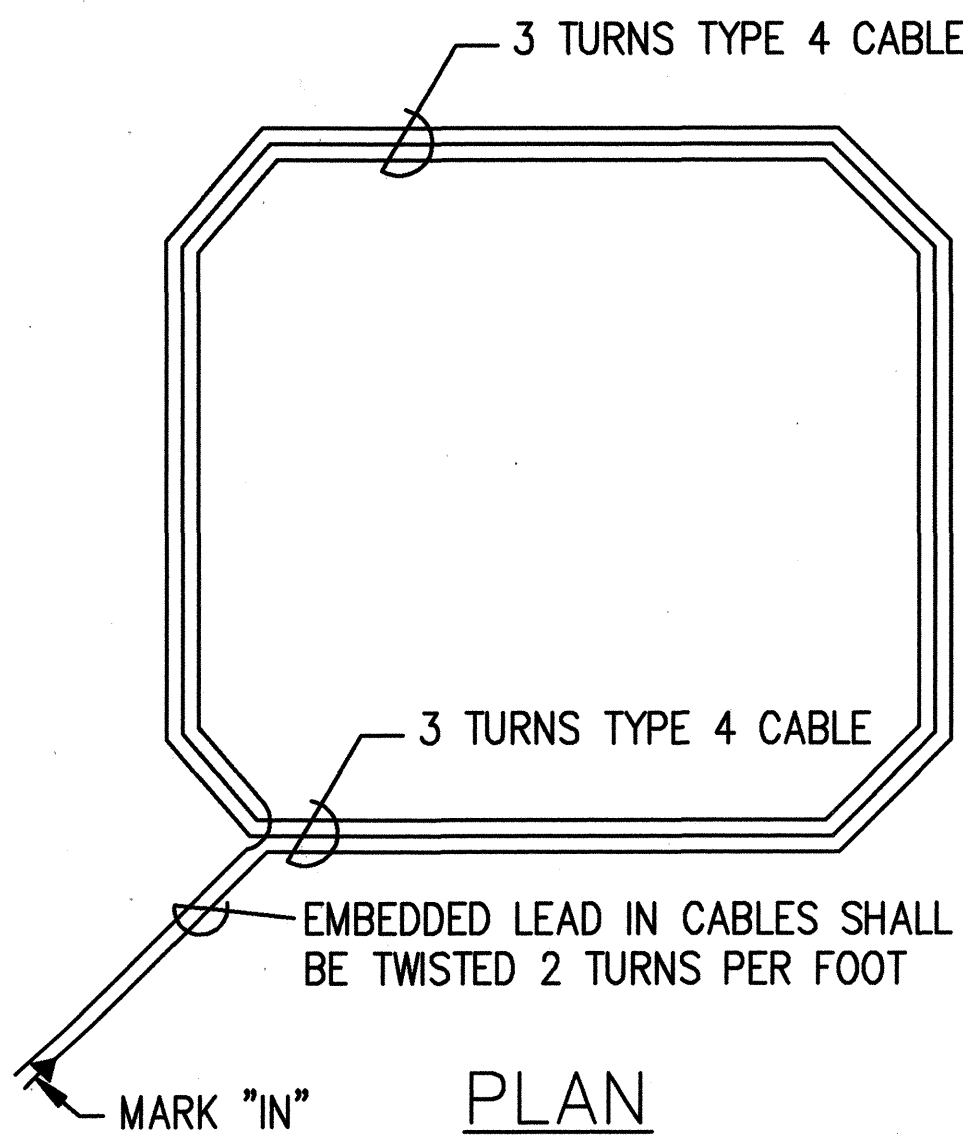
AS NOTED Date: April 26, 1996

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-94	1996	17	18

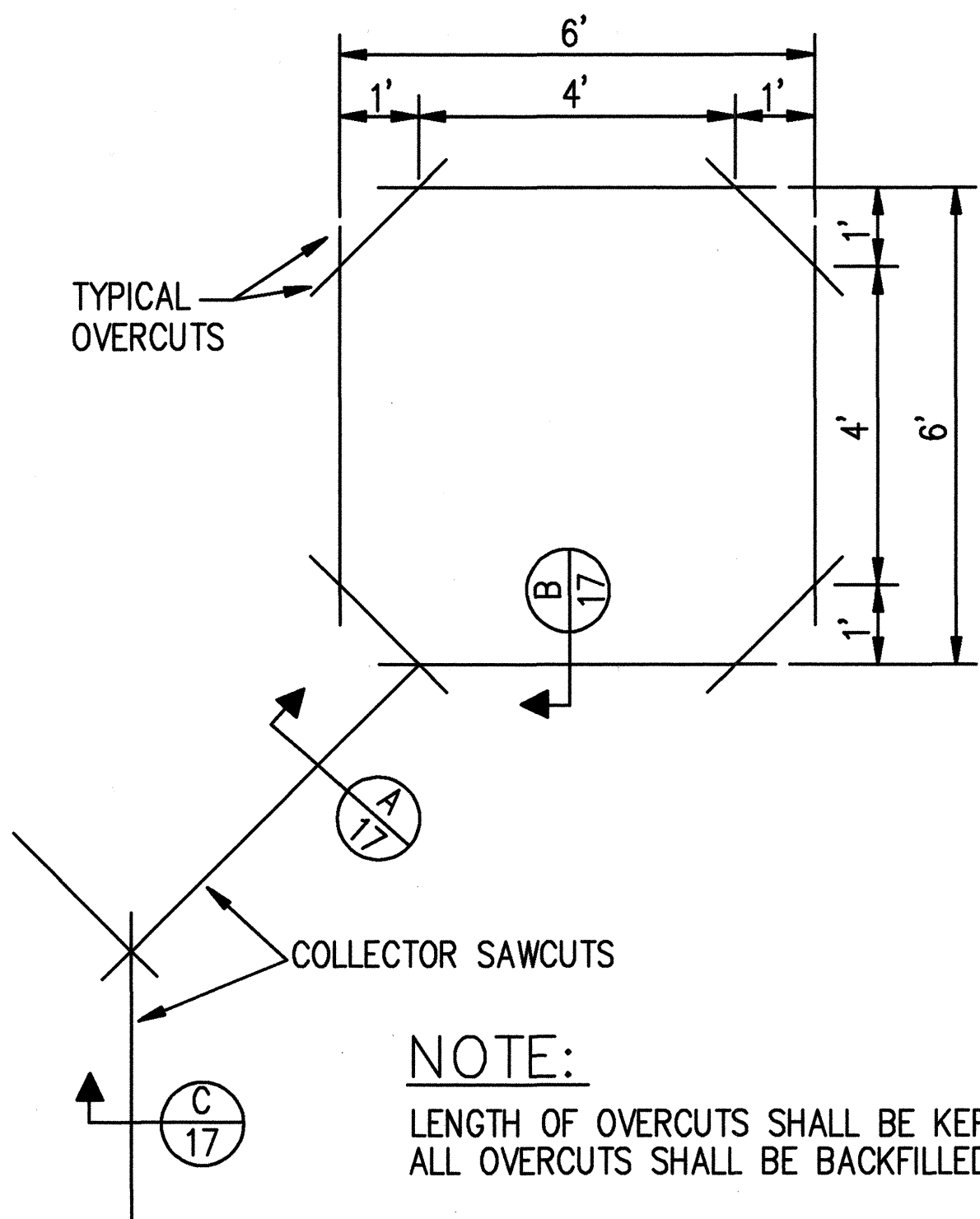


- NOTES:
1. CENTER SENSOR LOOPS IN LANES.
 2. COLLECTOR CABLES SHALL BE TWISTED 2 TURNS PER FOOT.
 3. NUMBER OF LOOPS AND LOCATIONS VARY. SEE PROJECT PLANS.
 4. NUMBER AND LOCATIONS OF COLLECTOR SAWCUTS MAY BE VARIED IN THE FIELD TO SUIT.
 5. COORDINATE FINAL LOCATION OF SENSORS WITH CIVIL STRIPING PLAN.

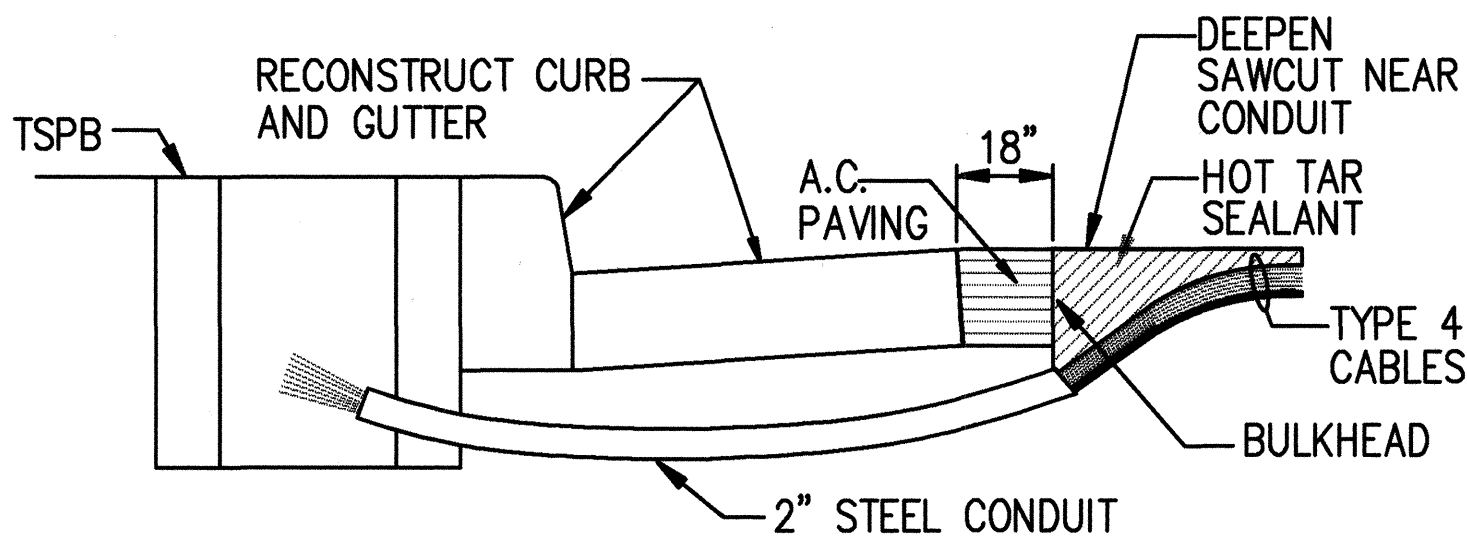
A
17
TYPICAL SENSOR LOOP LAYOUT
NOT TO SCALE



TYPICAL SENSOR LOOP WIRING DIAGRAM
NOT TO SCALE



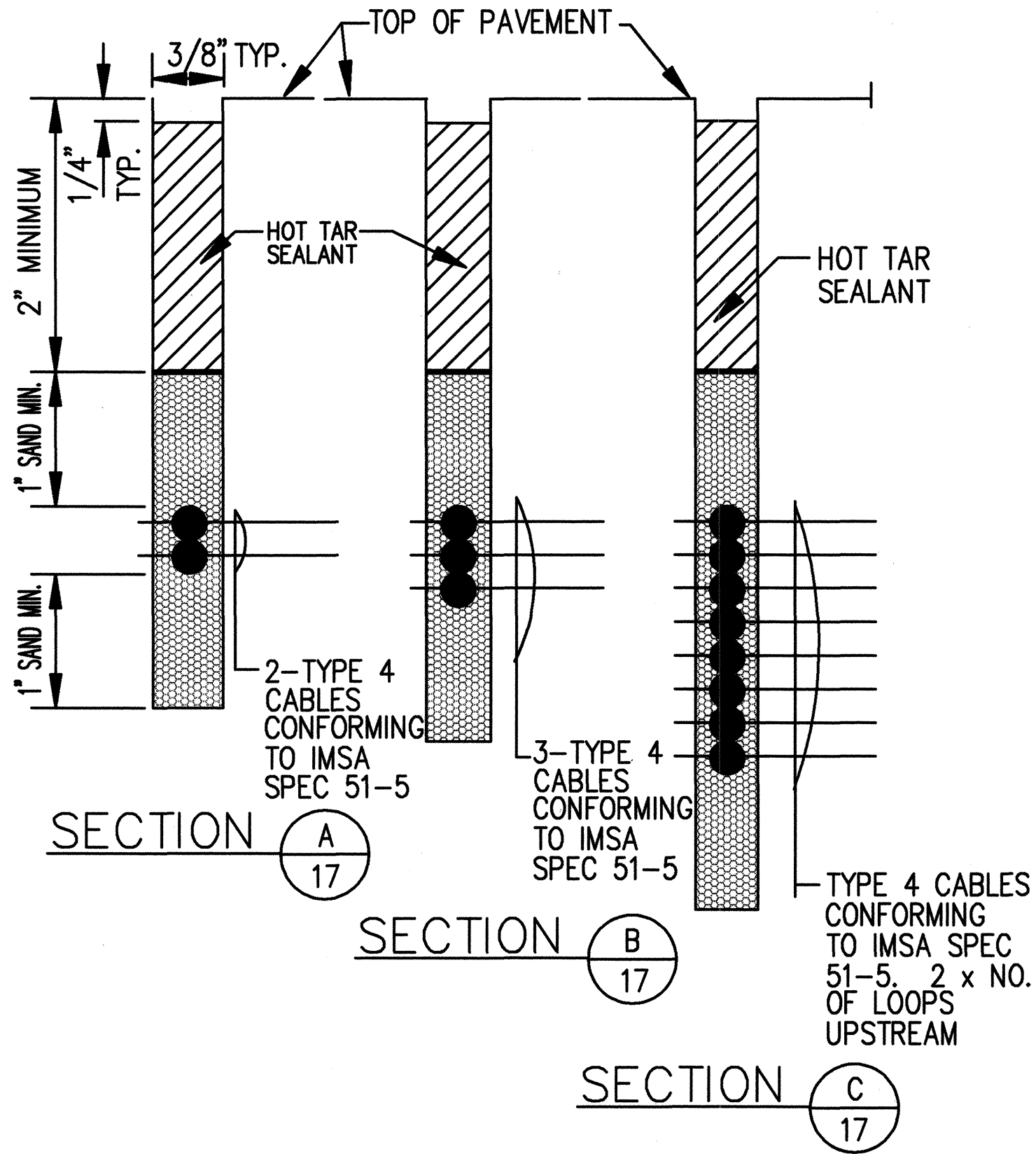
TYPICAL SENSOR LOOP SAWCUT DETAIL



NOTES ON CONSTRUCTION AT END OF SAWCUT

1. SEAL ROADWAY END OF CONDUIT AFTER INSTALLATION OF CONDUCTORS
2. INSTALL BULKHEAD ACROSS CONDUIT TRENCH.
3. PLACE HOT TAR IN SAWCUT.
4. BACKFILL OVER CONDUIT WITH NEW A.C.
5. RECONSTRUCT CURB AND GUTTER AS REQUIRED.

DETAIL OF SENSOR LOOP INSTALLATION
AT EDGE OF ROADWAY

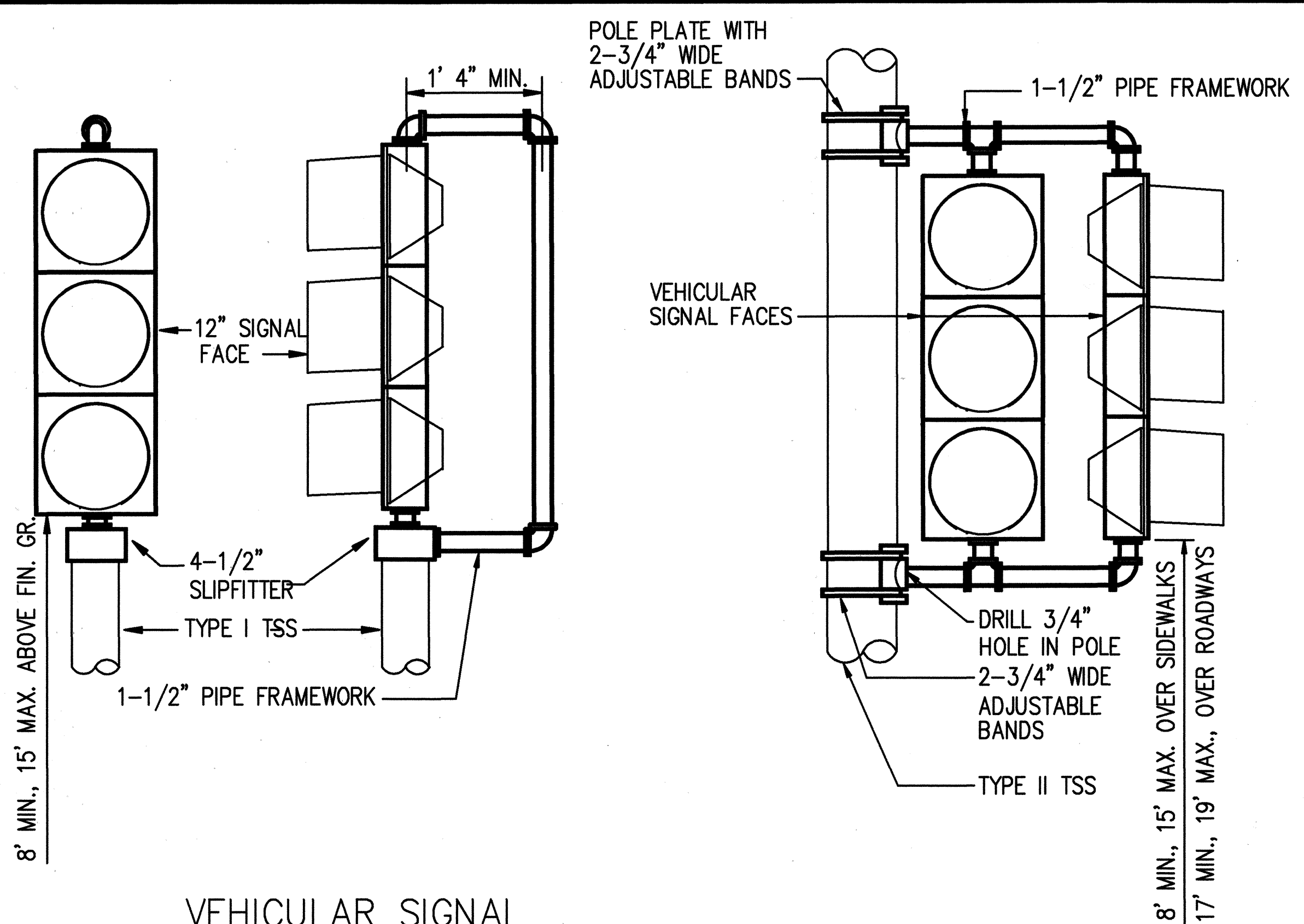


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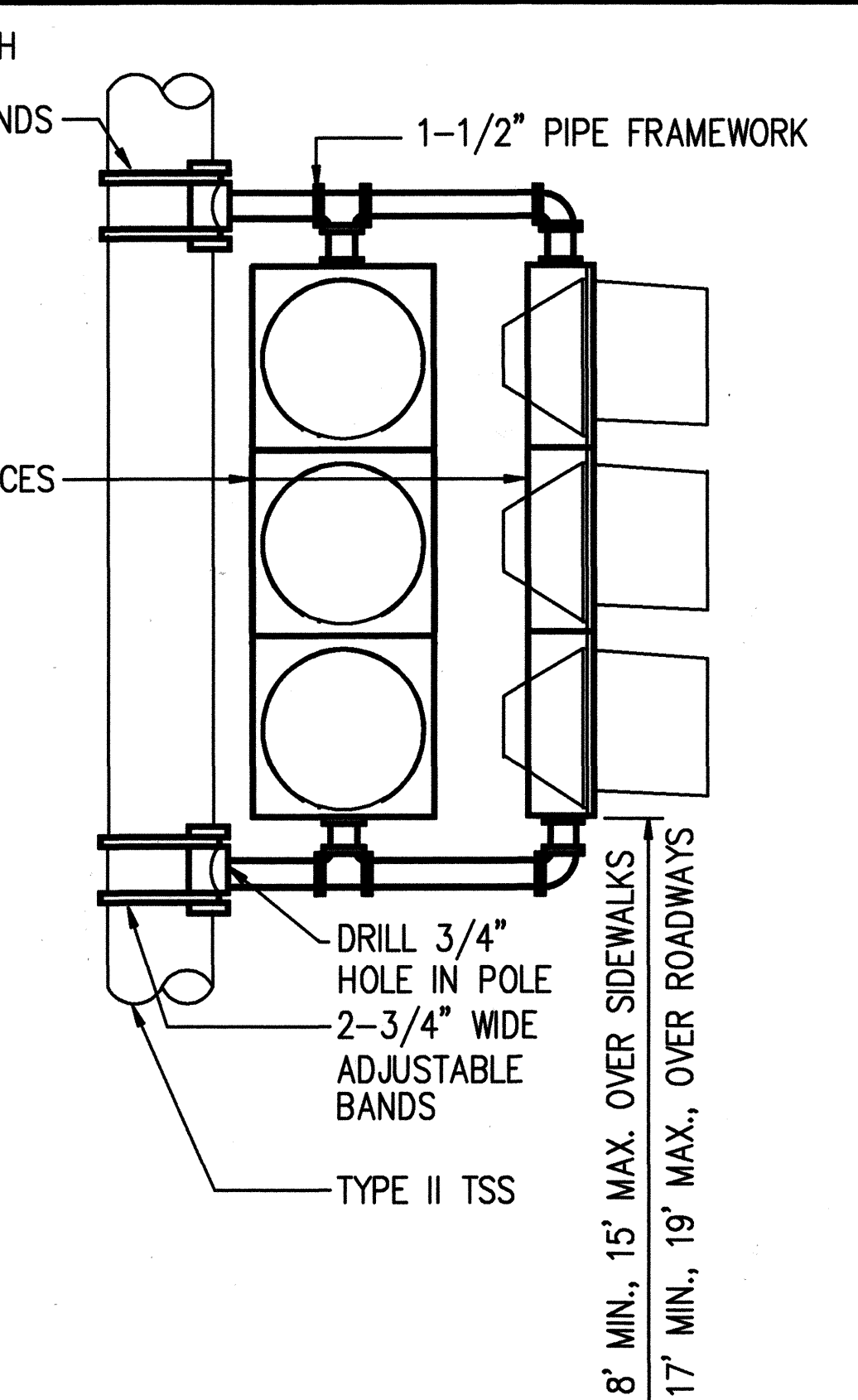
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LOOP DETECTOR DETAIL
FARRINGTON HIGHWAY
SIGNALIZED INTERSECTION
@ Puhano Street

AS NOTED
Date: April 26, 1996

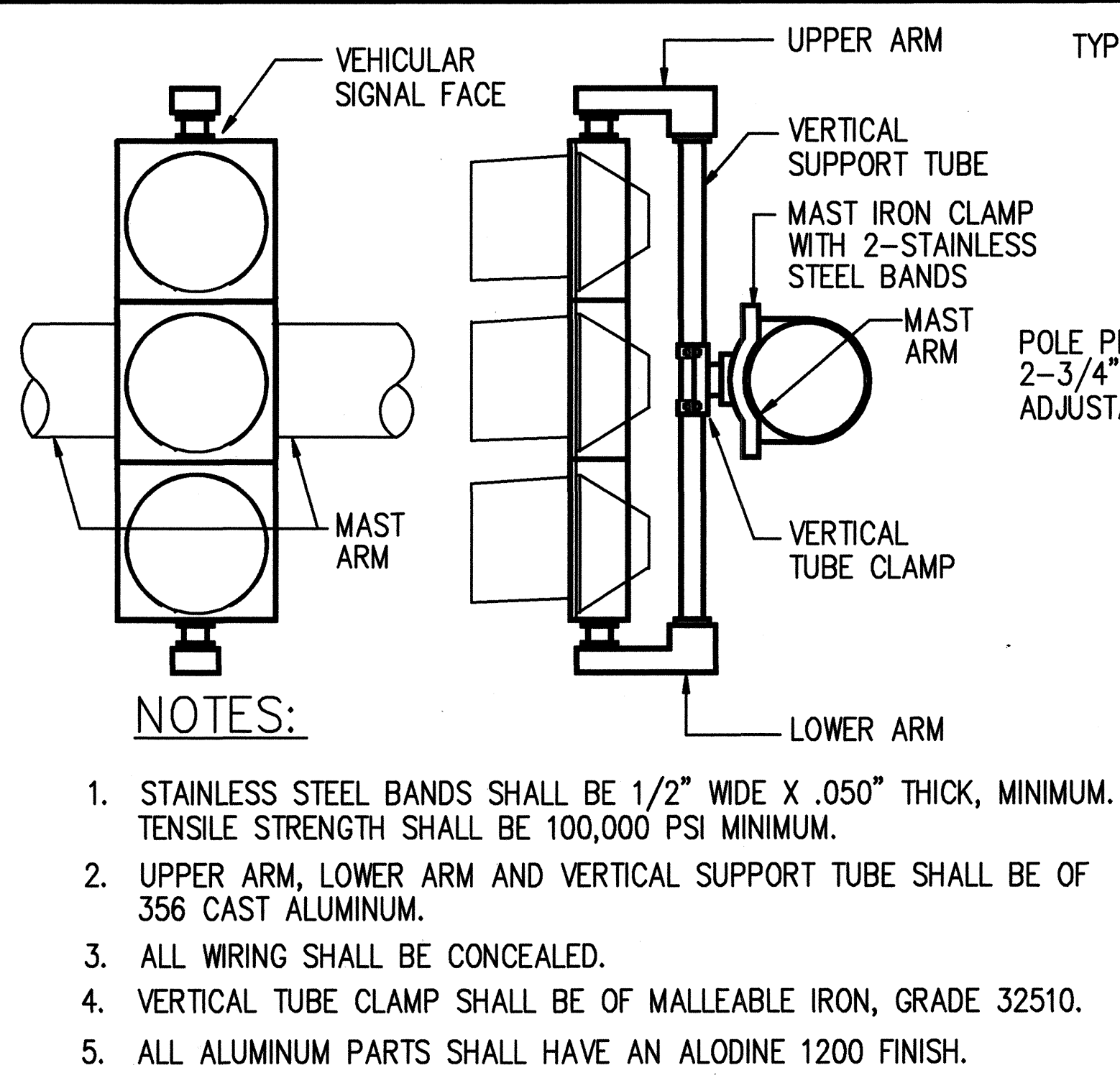
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-84	1998	18	18



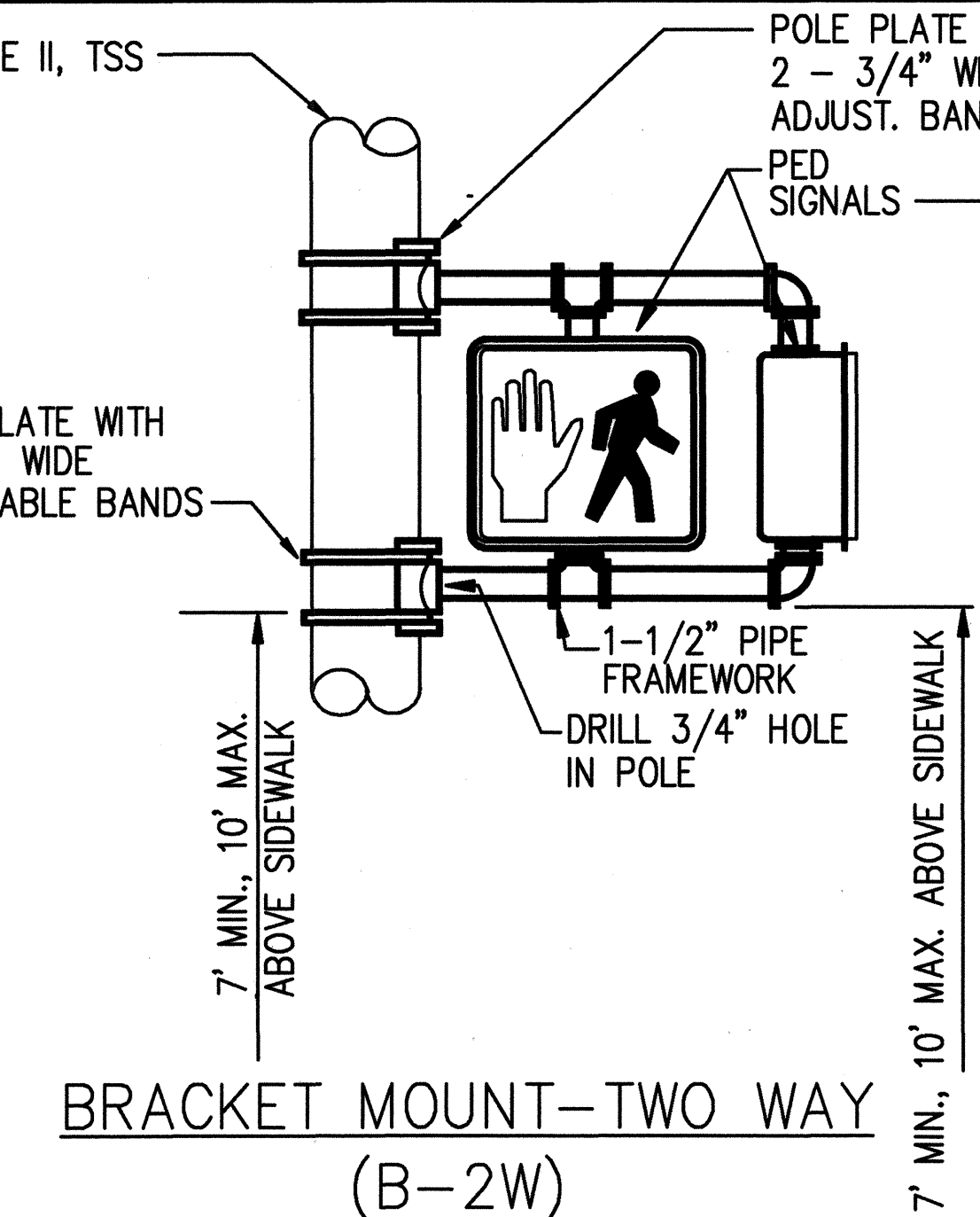
VEHICULAR SIGNAL
TOP OF POLE – ONE WAY MOUNTING
(TP-1W)



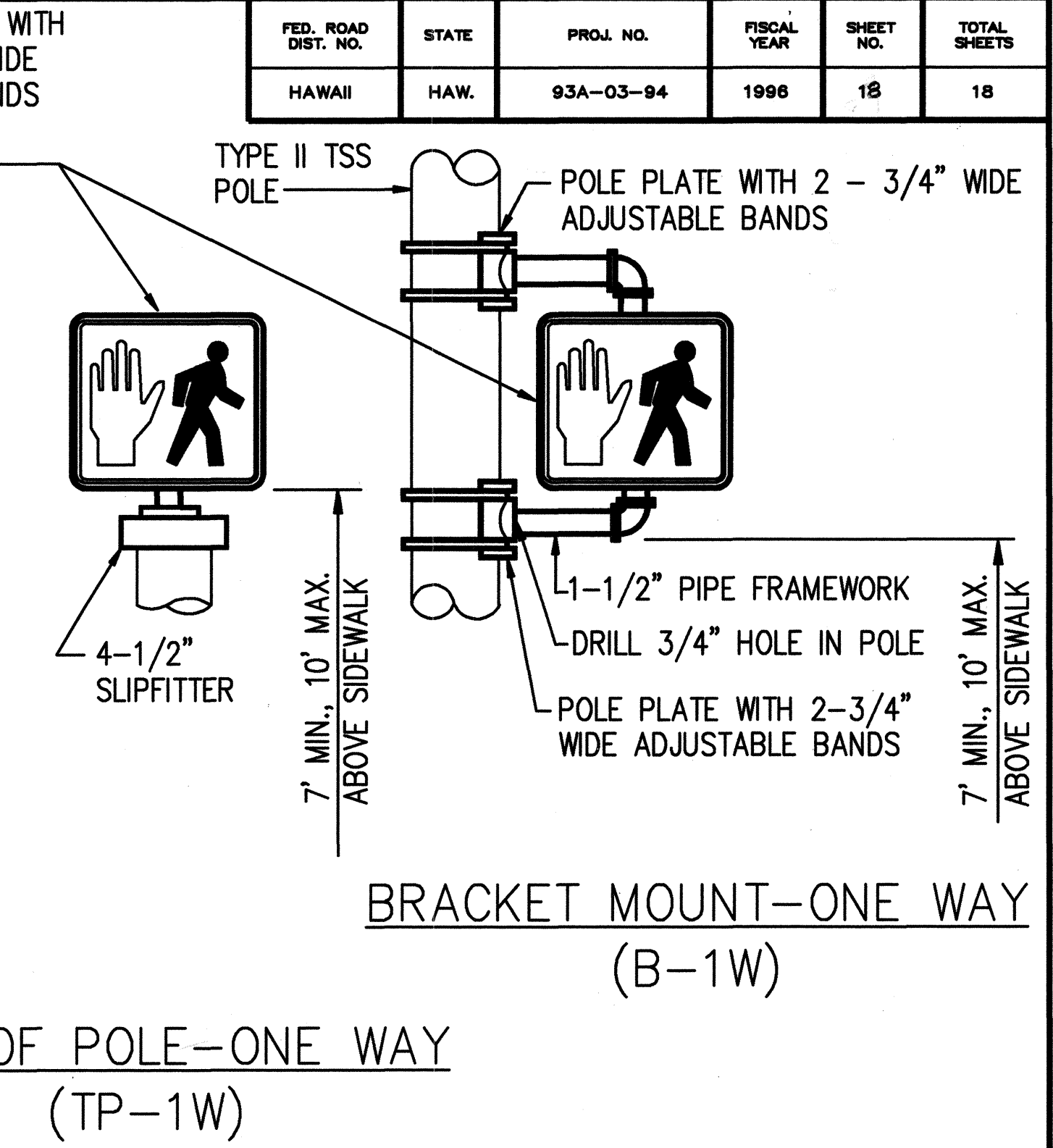
BRACKET MOUNT – TWO WAY
(B-2W)



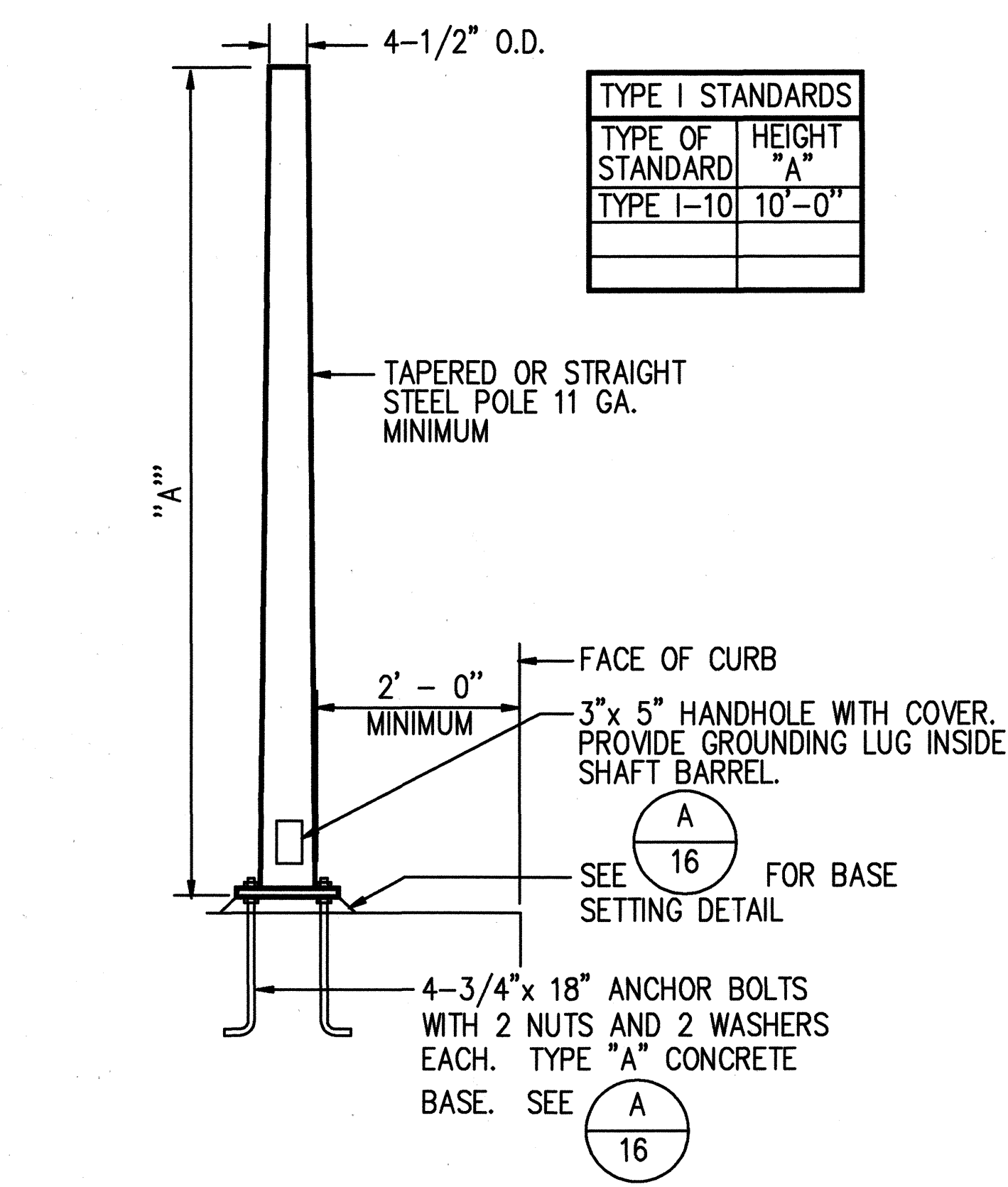
ADJUSTABLE
MAST ARM ONE WAY MOUNTING AT INTERMEDIATE POINT
MA-1W(I)



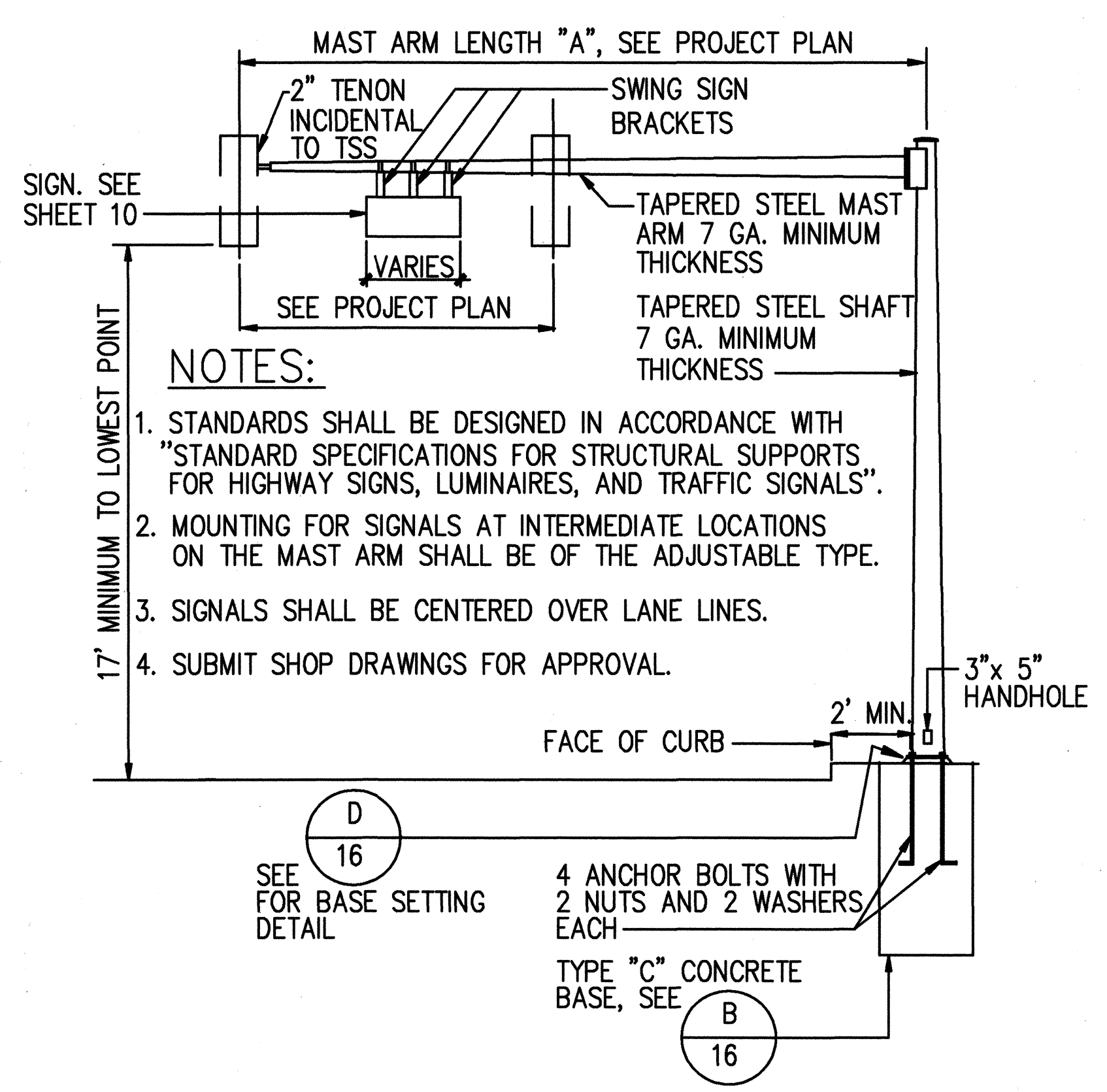
BRACKET MOUNT-TWO WAY
(B-2W)



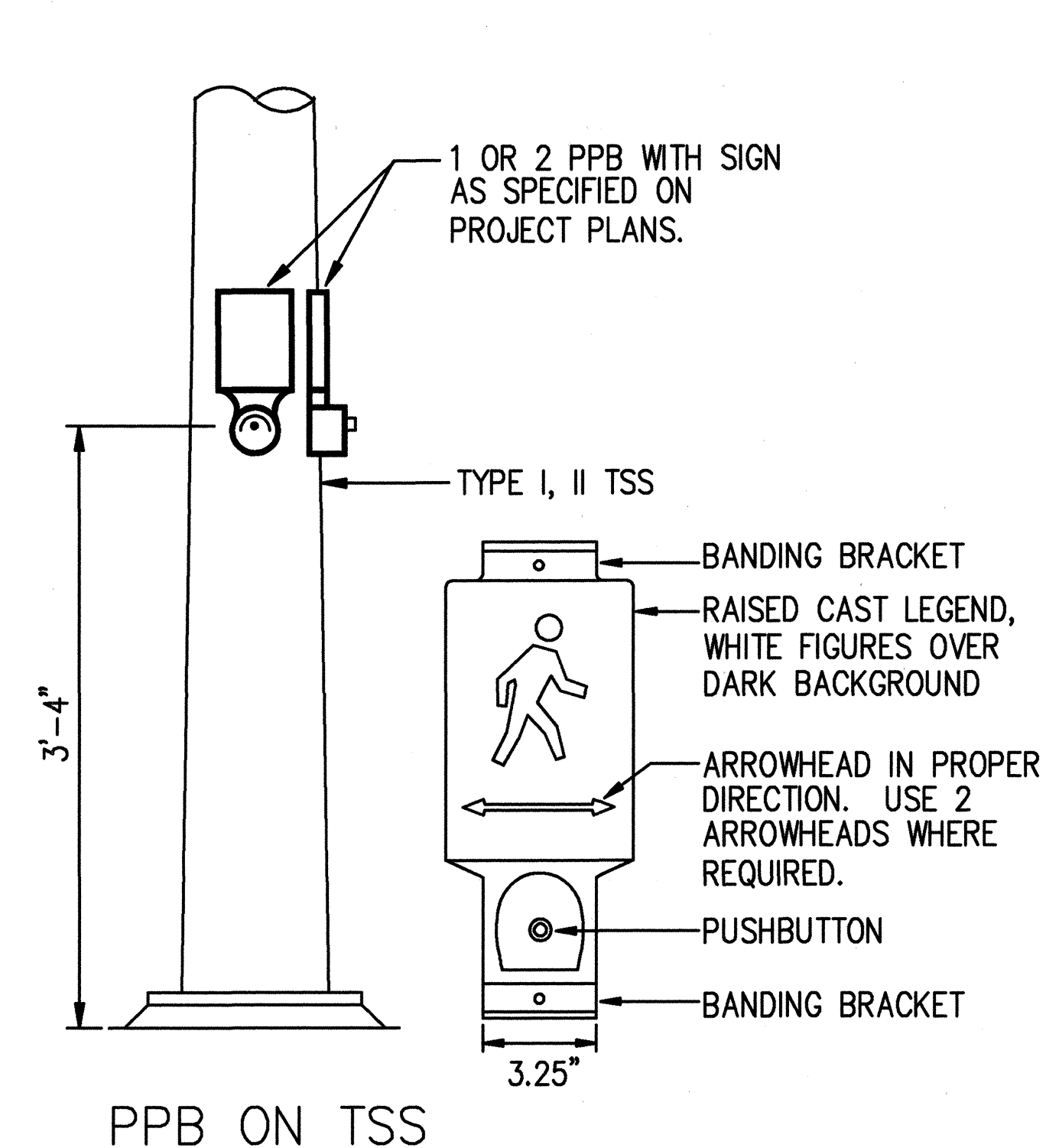
TOP OF POLE-ONE WAY
(TP-1W)
PEDESTRIAN SIGNAL MOUNTING



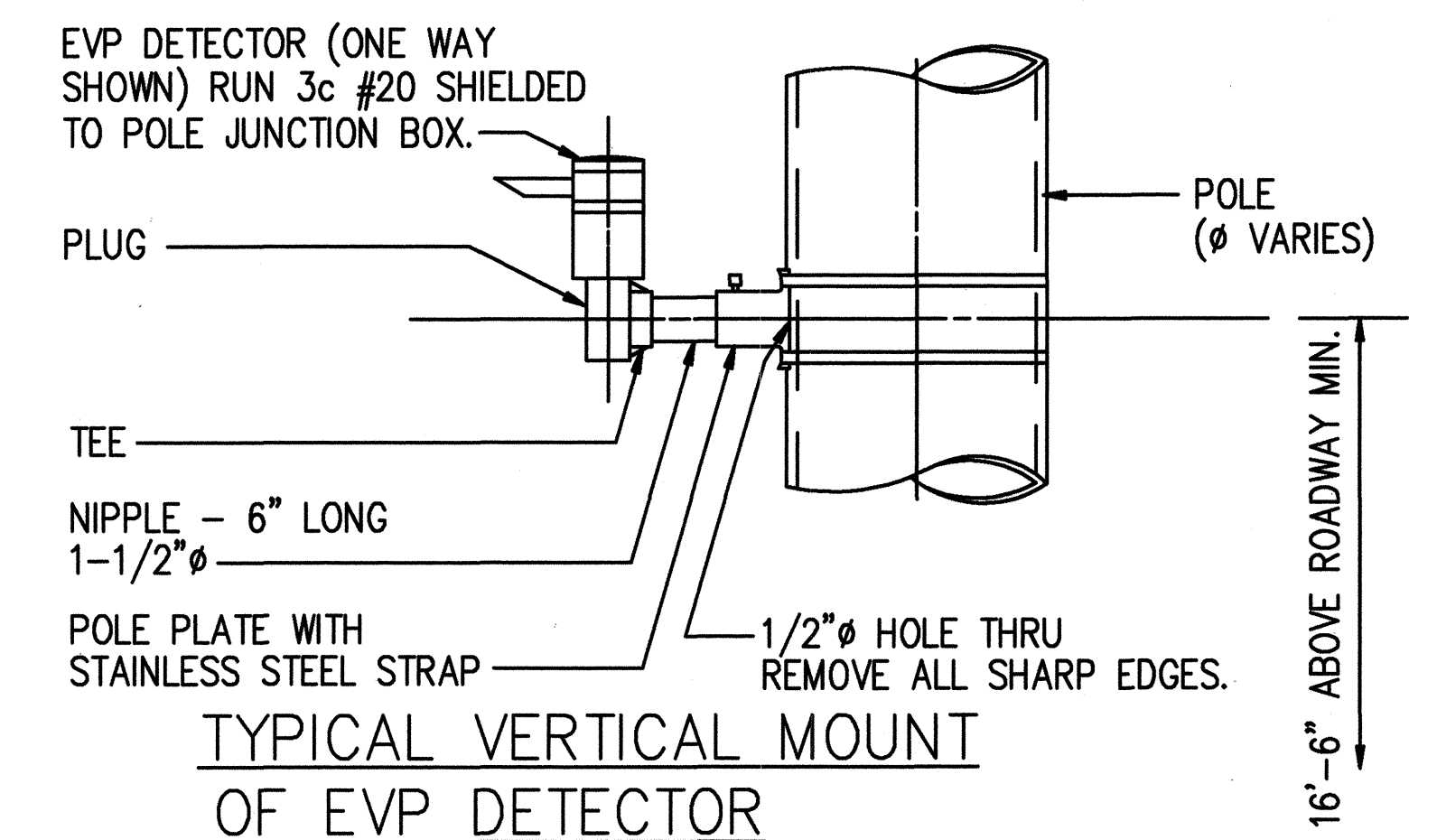
TYPE I TRAFFIC SIGNAL STANDARD



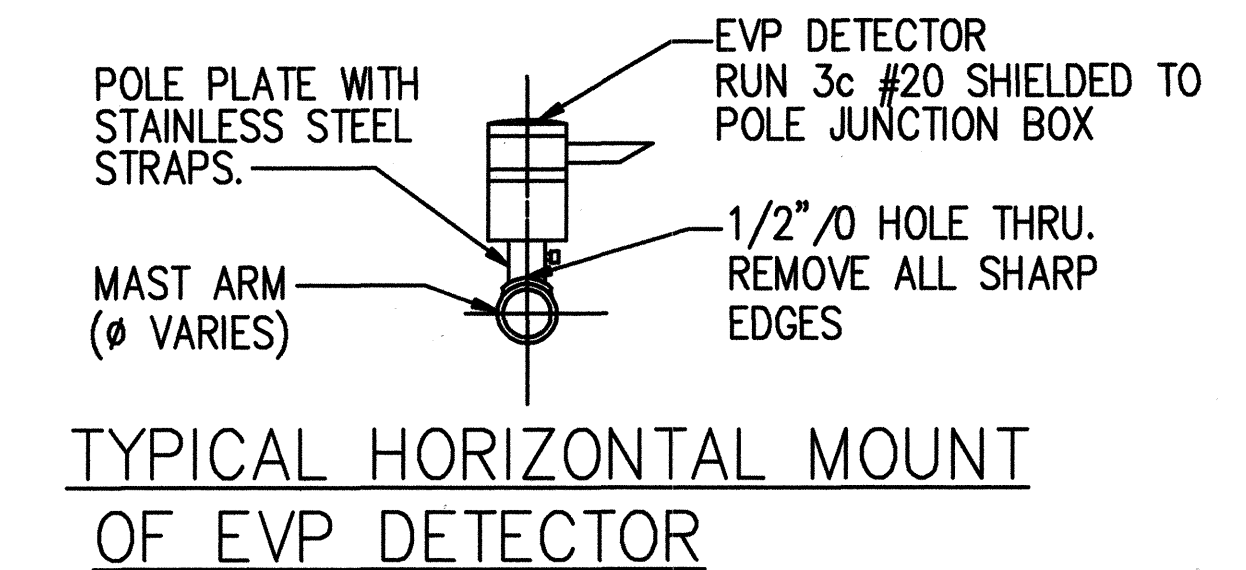
TYPE II – "A" TRAFFIC SIGNAL STANDARD



PEDESTRIAN PUSH BUTTON DETAILS



TYPICAL VERTICAL MOUNT
OF EVP DETECTOR



TYPICAL HORIZONTAL MOUNT
OF EVP DETECTOR

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This work was prepared by me or under my supervision