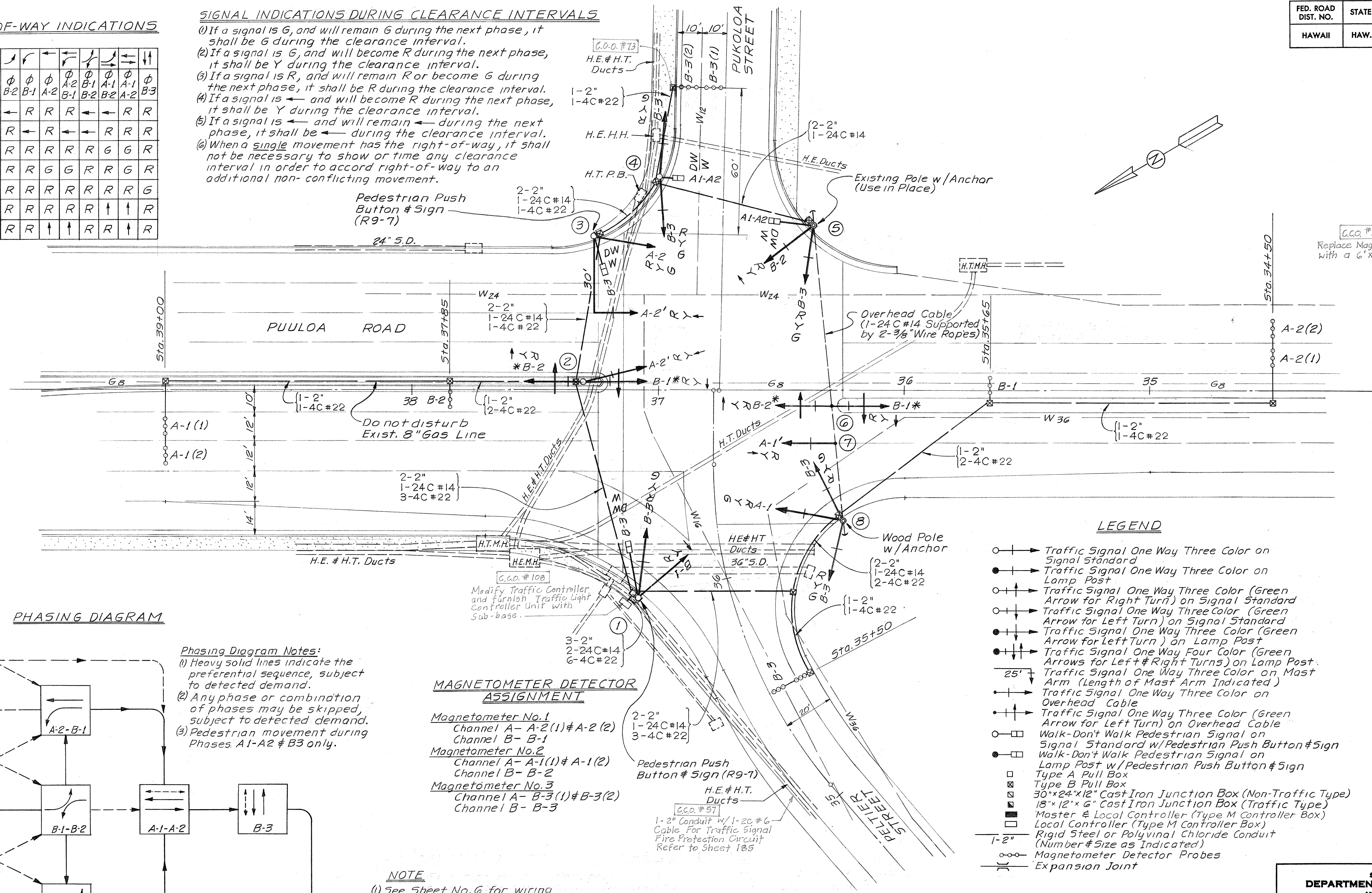


C.C.O. #106
Replace Magnetometer Detector Probes
with a 6'x20' 2-turn loop system

signal	ϕ_{A-1}	ϕ_{B-2}	ϕ_{B-1}	ϕ_{A-2}	ϕ_{A-2} ϕ_{B-1}	ϕ_{B-1} ϕ_{A-2}	ϕ_{A-1} ϕ_{B-2}	ϕ_{A-1} ϕ_{B-2}	ϕ_{B-3}
B-2	R		R	R	R			R	R
B-1	R	R		R			R	R	R
A-1	G	R	R	R	R	R	G	G	R
A-2	R	R	R	G	G	R	R	G	R
B-3	R	R	R	R	R	R	R	R	G
A-1'		R	R	R	R	R			R
A-2'	R	R	R			R	R		R

- (0) If a signal is G, and will remain G during the next phase, it shall be G during the clearance interval.
- (2) If a signal is G, and will become R during the next phase, it shall be Y during the clearance interval.
- (3) If a signal is R, and will remain R or become G during the next phase, it shall be R during the clearance interval.
- (4) If a signal is $\leftarrow$ and will become R during the next phase, it shall be Y during the clearance interval.
- (5) If a signal is $\leftarrow$ and will remain $\leftarrow$ during the next phase, it shall be $\leftarrow$ during the clearance interval.
- (6) When a single movement has the right-of-way, it shall not be necessary to show or time any clearance interval in order to accord right-of-way to an additional non-conflicting movement.



Phasing Diagram Note:

- (1) Heavy solid lines indicate preferential sequence to detected demand.
- (2) Any phase or combination of phases may be subject to detected demand.
- (3) Pedestrian movement Phases: A1-A2 & B3 only.

Magnetometer No. 1
Channel A - A-2(1) # A-2(2)
Channel B - B-1

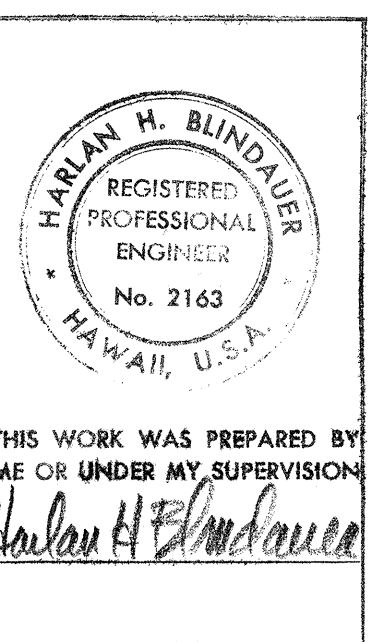
Magnetometer No. 2
Channel A - A-1(1) # A-1(2)
Channel B - B-2

Magnetometer No. 3
Channel A - B-3(1) # B-3(2)
Channel B - B-3

- (1) See Sheet No. 6 for wiring diagram.
- (2) Signal heads indicated thus (*) shall have programmed visibility heads-three section.

For Phase III of Construction Phasing, cover programmed visibility heads and provide clear green lenses for all heads having arrows for through traffic movements. Operate signal installation on fixed time basis. Covers for programmed visibility heads & clear green lenses to be included in "Temporary Traffic Signal Systems."

- Traffic Signal One Way Three Color on Signal Standard
- Traffic Signal One Way Three Color on Lamp Post
- Traffic Signal One Way Three Color (Green Arrow for Right Turn) on Signal Standard
- Traffic Signal One Way Three Color (Green Arrow for Left Turn) on Signal Standard
- Traffic Signal One Way Three Color (Green Arrow for Left Turn) on Lamp Post
- Traffic Signal One Way Four Color (Green Arrows for Left & Right Turns) on Lamp Post
- Traffic Signal One Way Three Color on Mast Arm (Length of Mast Arm Indicated)
- Traffic Signal One Way Three Color on Overhead Cable
- Traffic Signal One Way Three Color (Green Arrow for Left Turn) on Overhead Cable
- Walk-Don't Walk Pedestrian Signal on Signal Standard w/Pedestrian Push Button & Sign
- Walk-Don't Walk Pedestrian Signal on Lamp Post w/Pedestrian Push Button & Sign
- Type A Pull Box
- Type B Pull Box
- 30" x 24" x 12" Cast Iron Junction Box (Non-Traffic Type)
- 18" x 12" x 6" Cast Iron Junction Box (Traffic Type)
- Master & Local Controller (Type M Controller Box)
- Local Controller (Type M Controller Box)
- Rigid Steel or Polyvinyl Chloride Conduit (Number & Size as Indicated)
- Magnetometer Detector Probes
- Expansion Joint

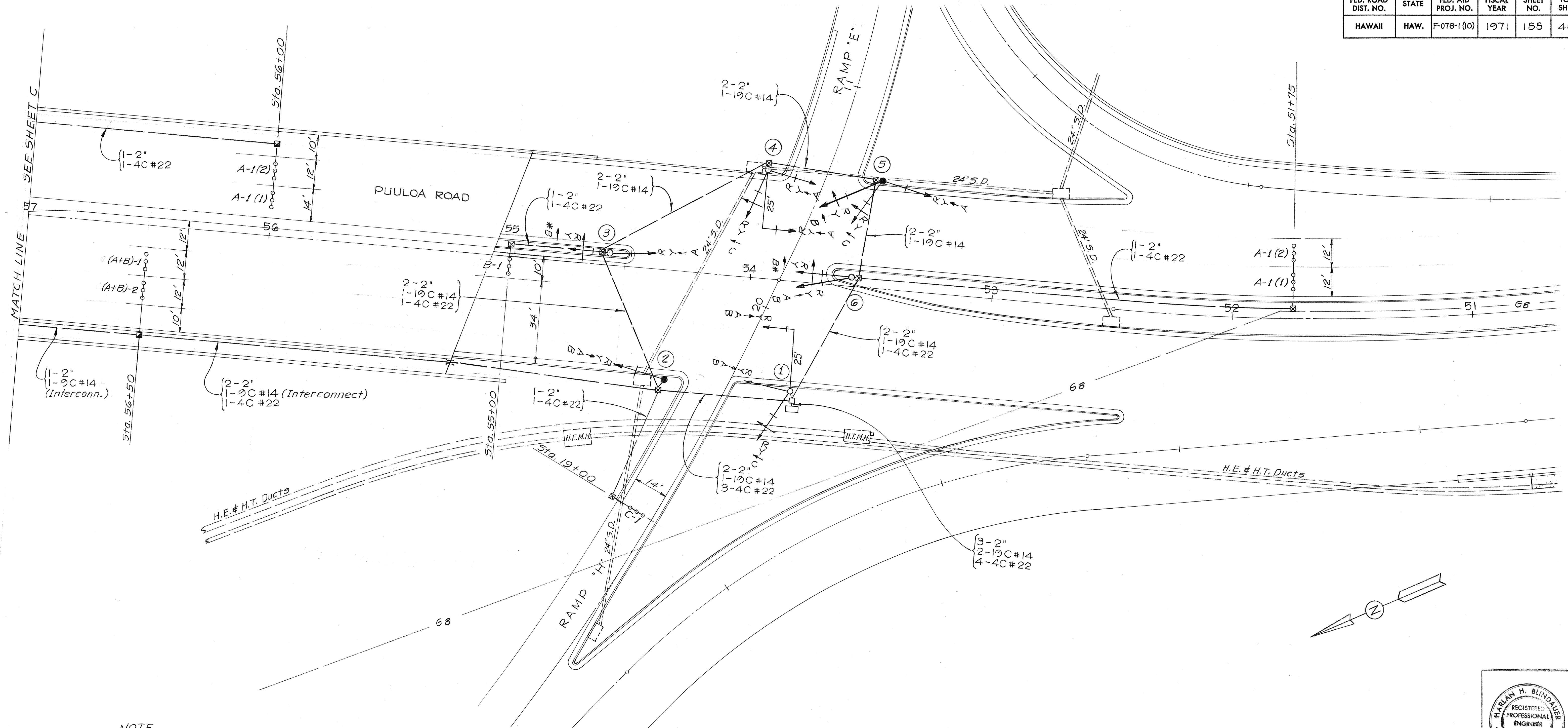


Scale: 1"=20' Date: JAN 1971

APPROVED: Roy Parker 4/11/21

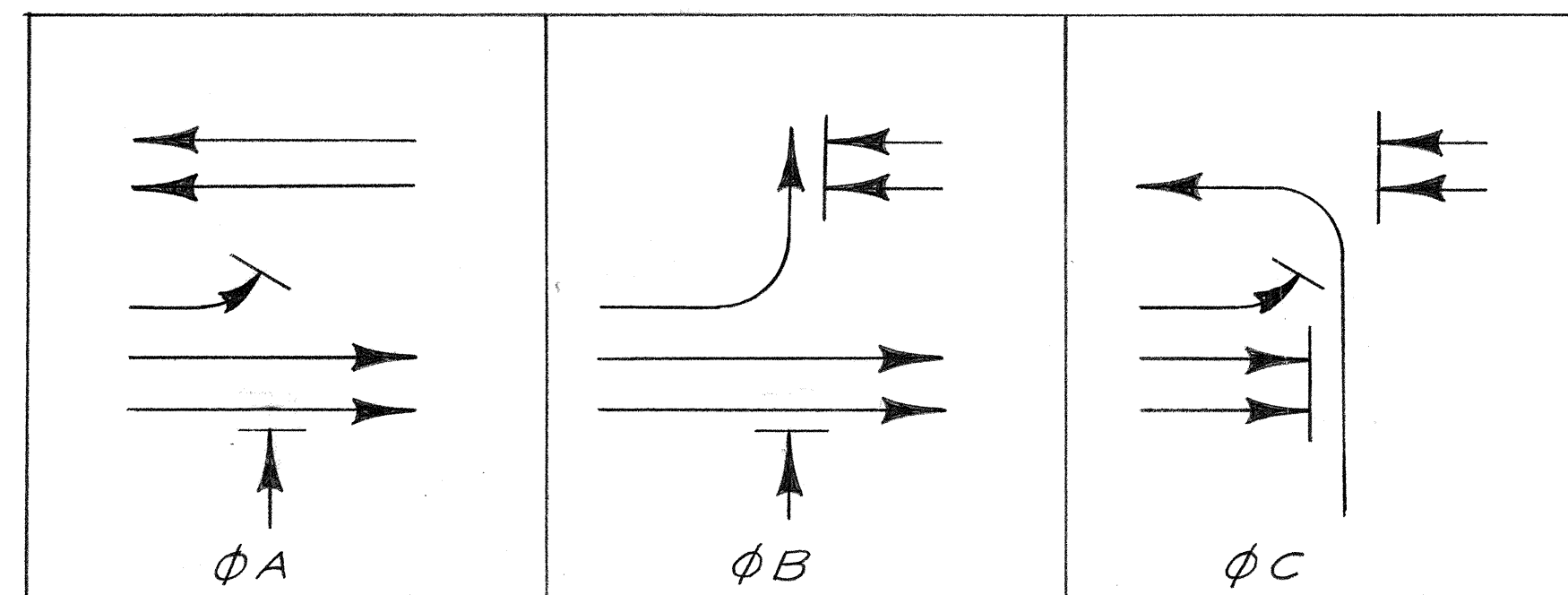
DEA TRAFFIC ENGINEER C & C OF HONOLULU DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	155	418



NOTE

- (1) See Sheet No. 6 for wiring diagram.
- (2) Signal heads indicated thus (*) shall have programmed visibility heads - three section.



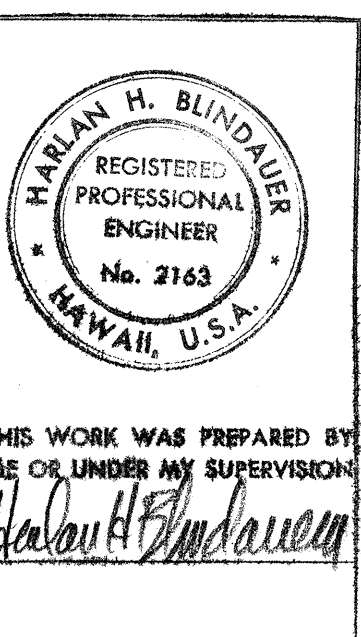
PHASE DIAGRAMS

MAGNETOMETER DETECTOR ASSIGNMENT

Magnetometer No. 1
Channel A- A-1(1) & A-1(2)
Channel B- (A+B)-1 & (A+B)-2
Magnetometer No. 2
Channel A- B-1
Channel B- C-1

(A+B) MAGNETOMETER DETECTOR OPERATION

- (1) During Full Actuated Operation
 - (a) Extend Phase A until there is a B-1 actuation at which time the detectors shall be disconnected.
 - (b) When Phase B is being timed, A+B actuations shall extend Phase B if there is a C-1 call.
 - (c) During Phase C, the A+B detectors shall be reconnected to call Phase A if there is no B-1 call. If there is a B-1 call, they shall remain disconnected.
- (2) During Semi-Actuated Operation
 - (a) Same as above except for extending and calling Phase A.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEMS SHEET B

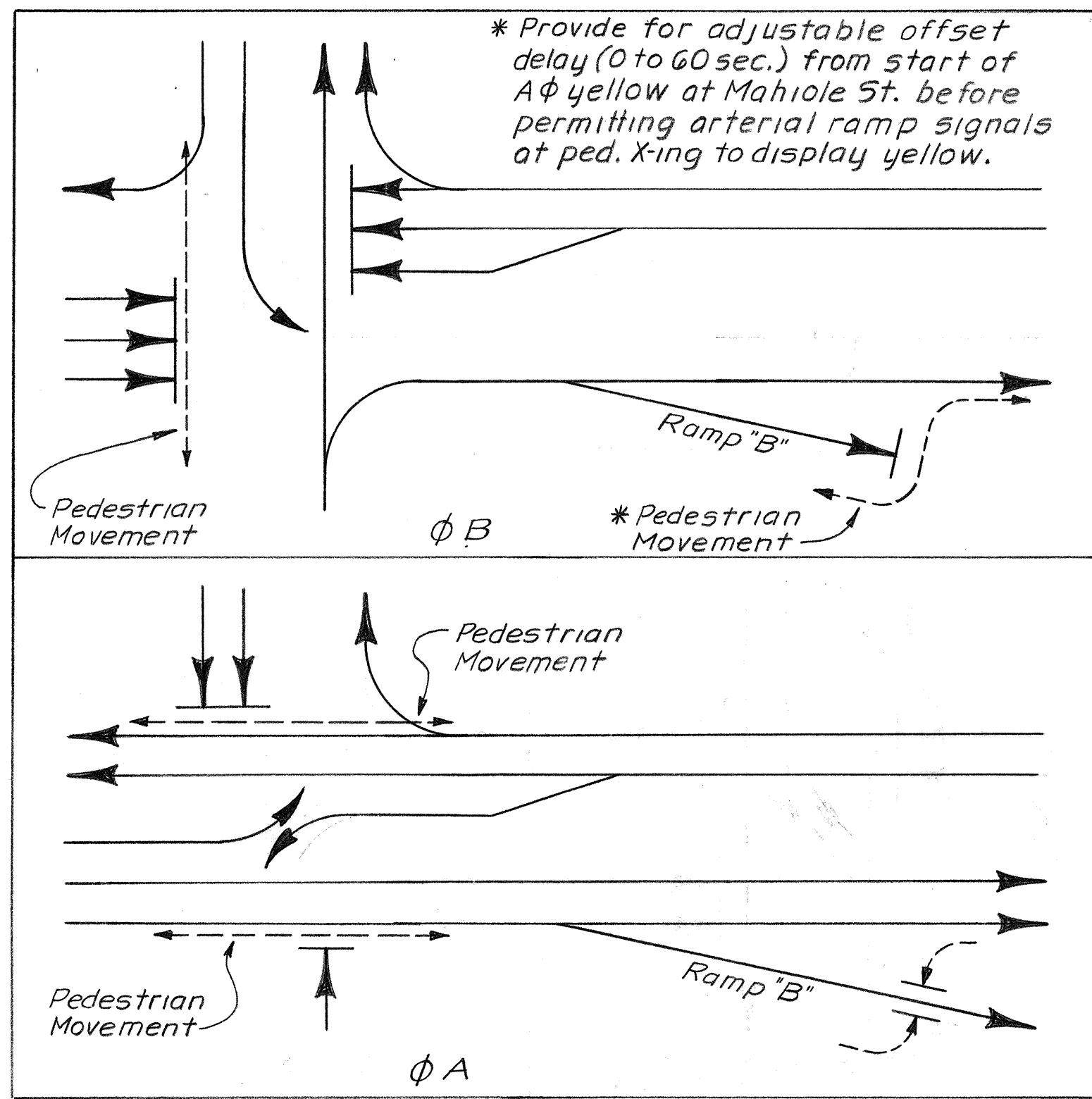
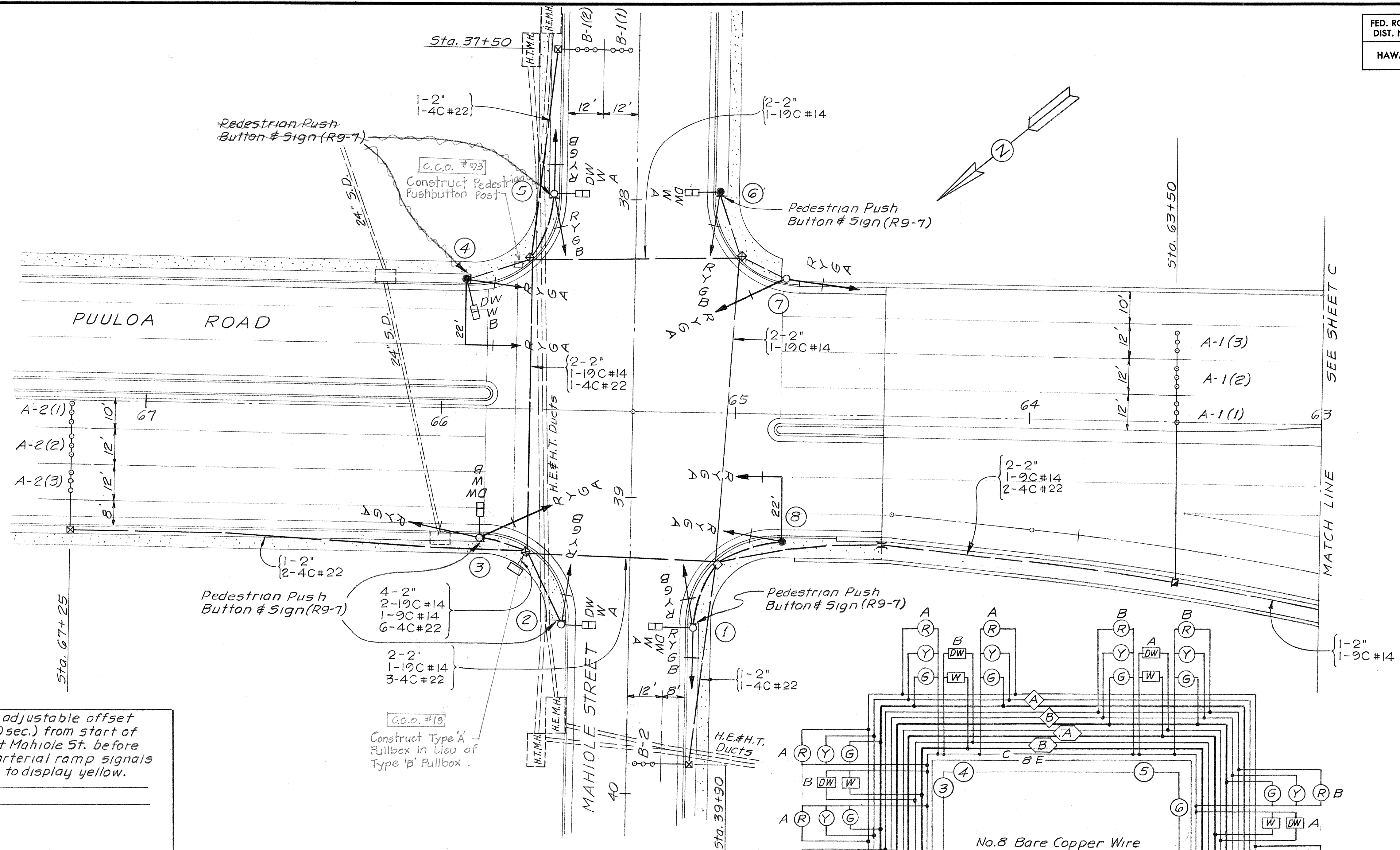
F.A. Proj. No. F-078-1(10)

Scale: 1"=20' Date: JAN 1971

SHEET No. 2 OF 8 SHEETS

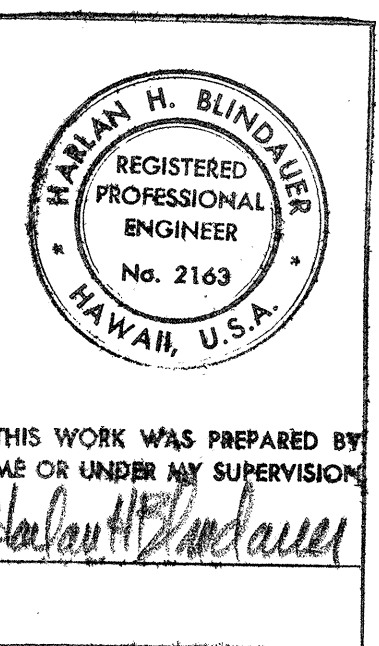
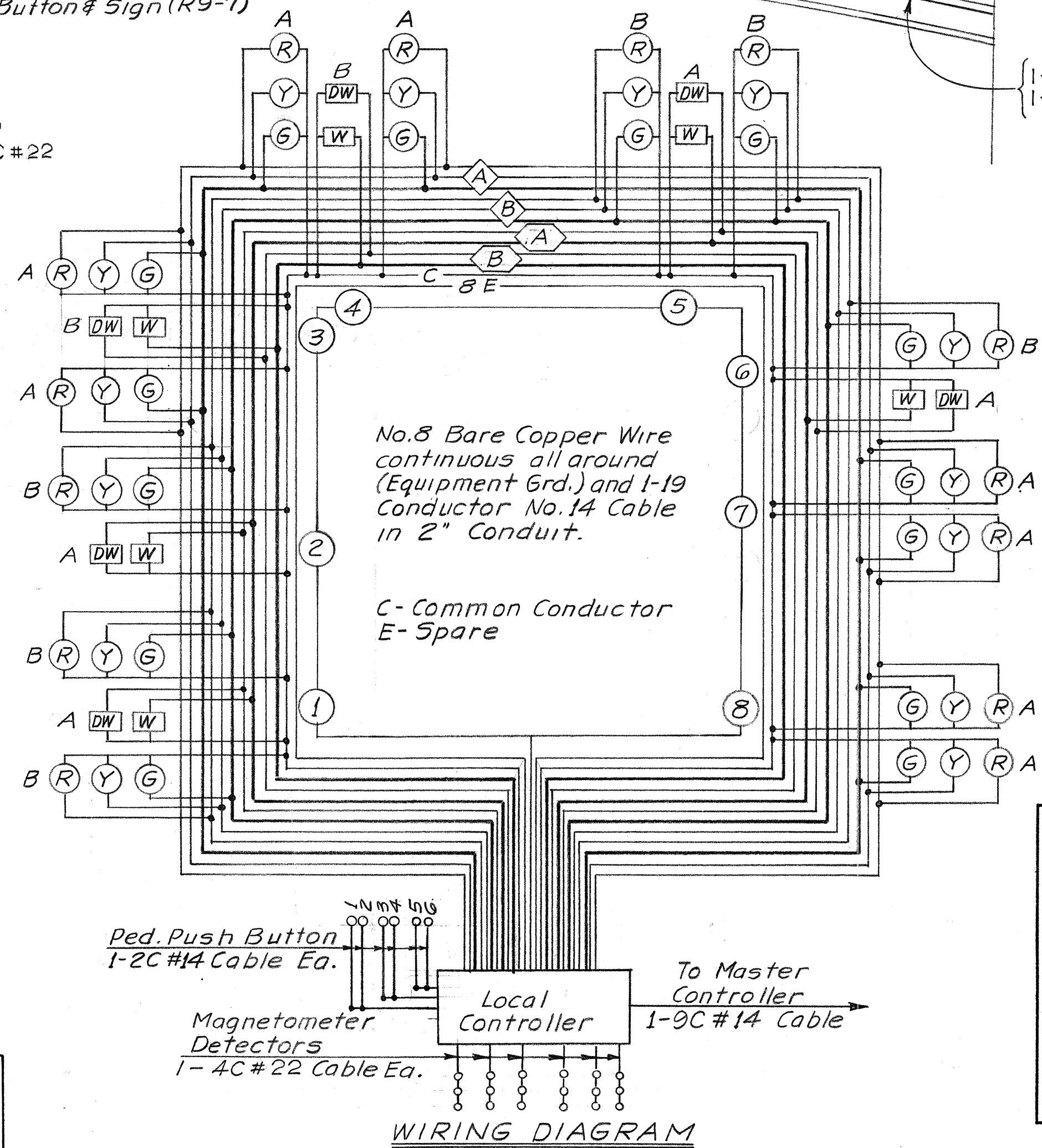
APPROVED: *[Signature]*
DATE: 4/1/71
TRAFFIC ENGINEER, C&C OF HONOLULU

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	157	418



MAGNETOMETER DETECTOR ASSIGNMENT

Magnetometer No. 1
Channel A - A-1(1) & A-1(2)
Channel B - A-2(1) & A-2(2)
Magnetometer No. 2
Channel A - B-1(1) & B-1(2)
Channel B - B-2
Magnetometer No. 3
Channel A - A-1(3)
Channel B - A-2(3)



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEMS SHEET D

F.A. Proj. No. F-078-1(10)

Scale: 1"=20'

Date: JAN 1971

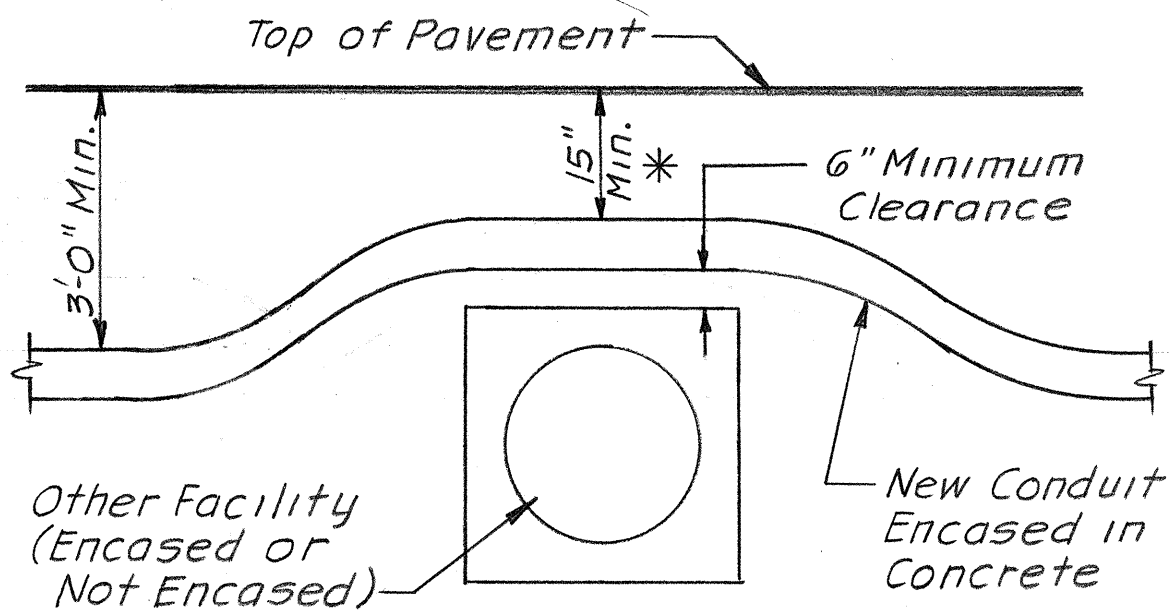
SHEET No. 4 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	158	418

GENERAL NOTES

- (1) Lens assemblies for all traffic signal systems shall be 12" throughout project.
- (2) All conduits under roadways shall be encased in concrete.
- (3) The exact location of all traffic signal standards, mast arms, controller bases, pull boxes, junction boxes, conduits, and magnetometer detectors shall be determined in the field by the Engineer.
- (4) The location of existing and proposed underground structures such as culverts, pipe lines, conduits, cables, etc. as shown on the plans are approximate only. Other existing utilities may not be shown. The Contractor shall check & verify the location of same.

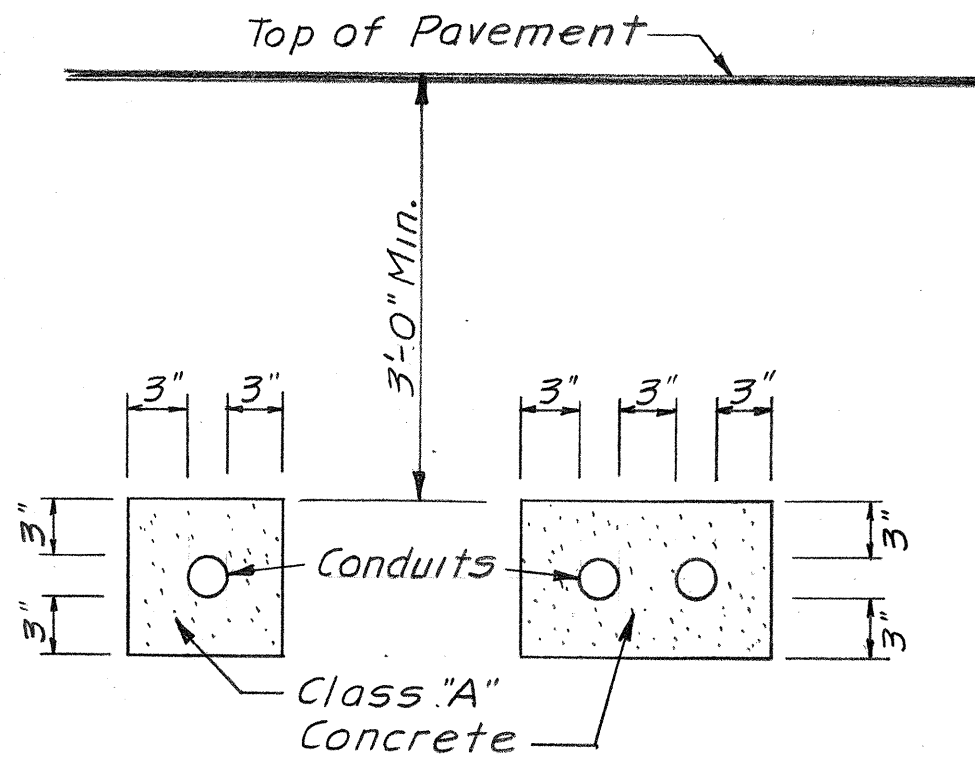
- (5) Except as noted on the plans, the present signal system components shall be salvaged and stockpiled on the site as directed by the Engineer.
- (6) Traffic controller service is 120 volts, 60 cycle, single phase, two wire A.C.
- (7) Saw cut & holes for magnetometer detector installations shall be filled by epoxy, asphalt, or other material as approved by the Engineer.
- (8) Traffic signal controller service connection will be provided by The Highway Lighting System Contractor. See Lighting Plans for details.



OTHER FACILITY BYPASS

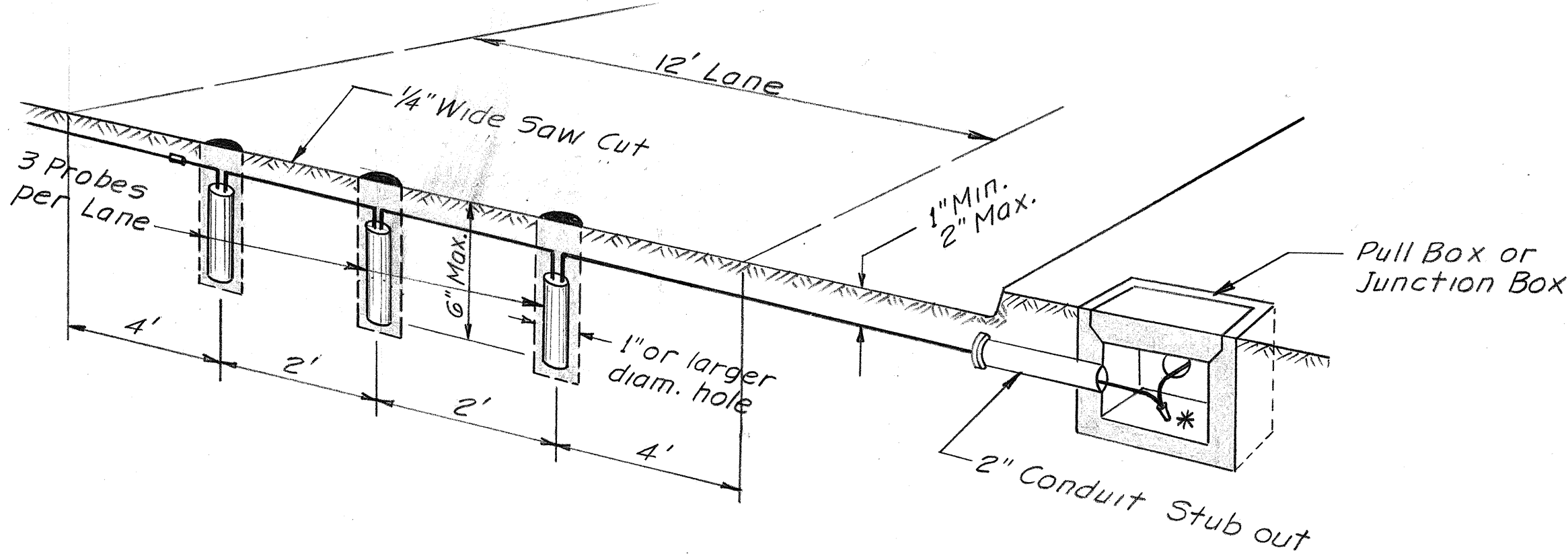
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* If minimum cannot be achieved, go under other facility.



CONDUITS ENCASED IN CONCRETE

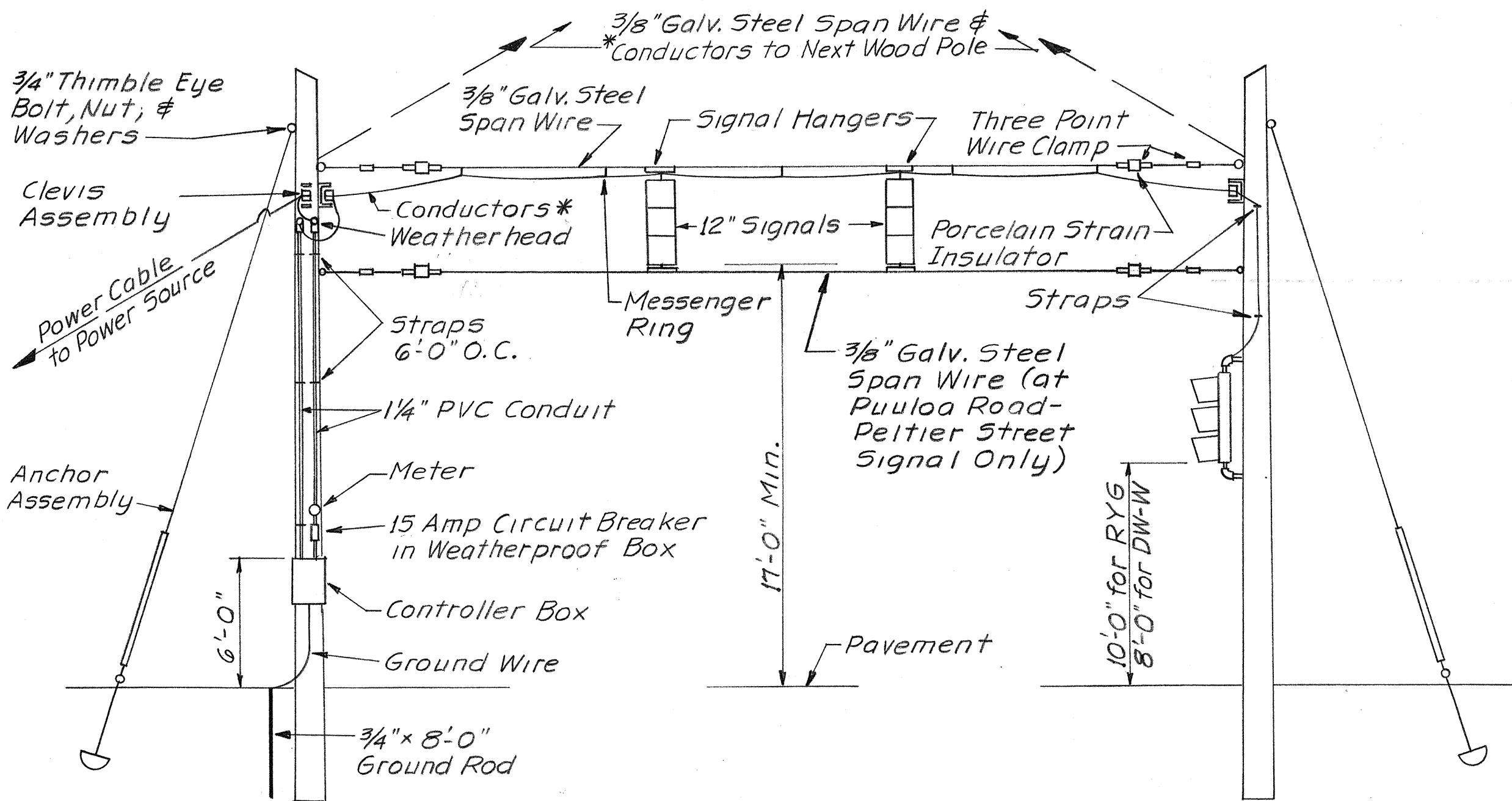
No Scale



MAGNETOMETER DETECTOR PROBE INSTALLATION

No Scale

* Splice to be waterproofed.



TYPICAL DETAIL OVERHEAD SIGNALS

No Scale

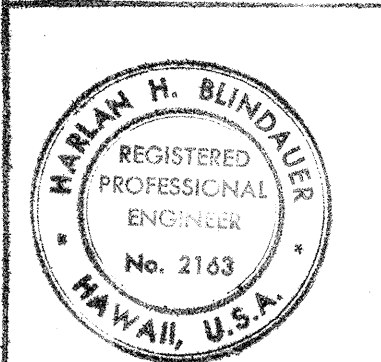
* See wiring diagram for size of cable.

APPROVED:

TRAFFIC ENGINEER, C & C OF HONOLULU

4/1/71

DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEMS MISC. DETAILS

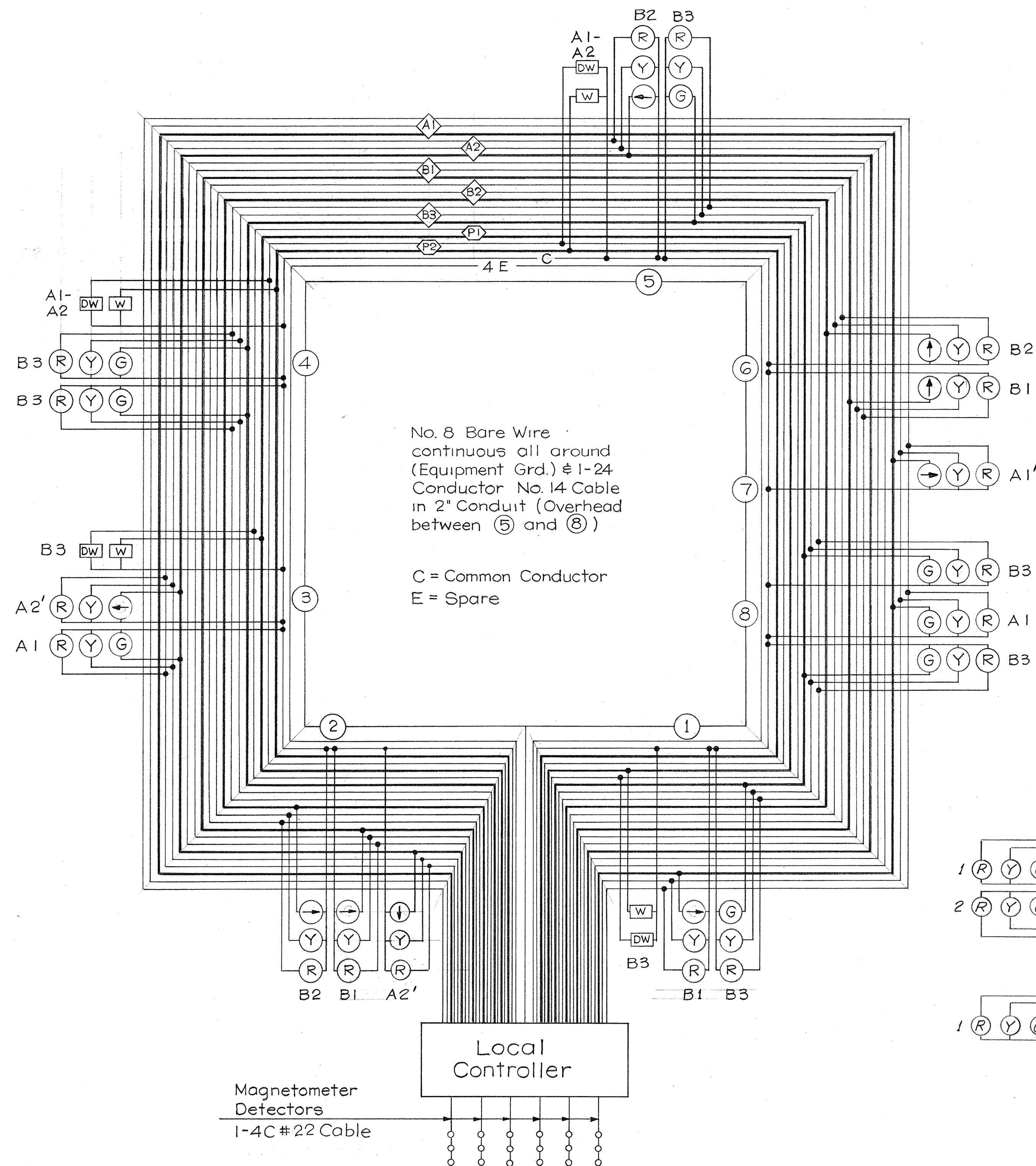
F.A. Proj. No. F-078-1(10)

Scale: As Noted

Date: JAN 1971

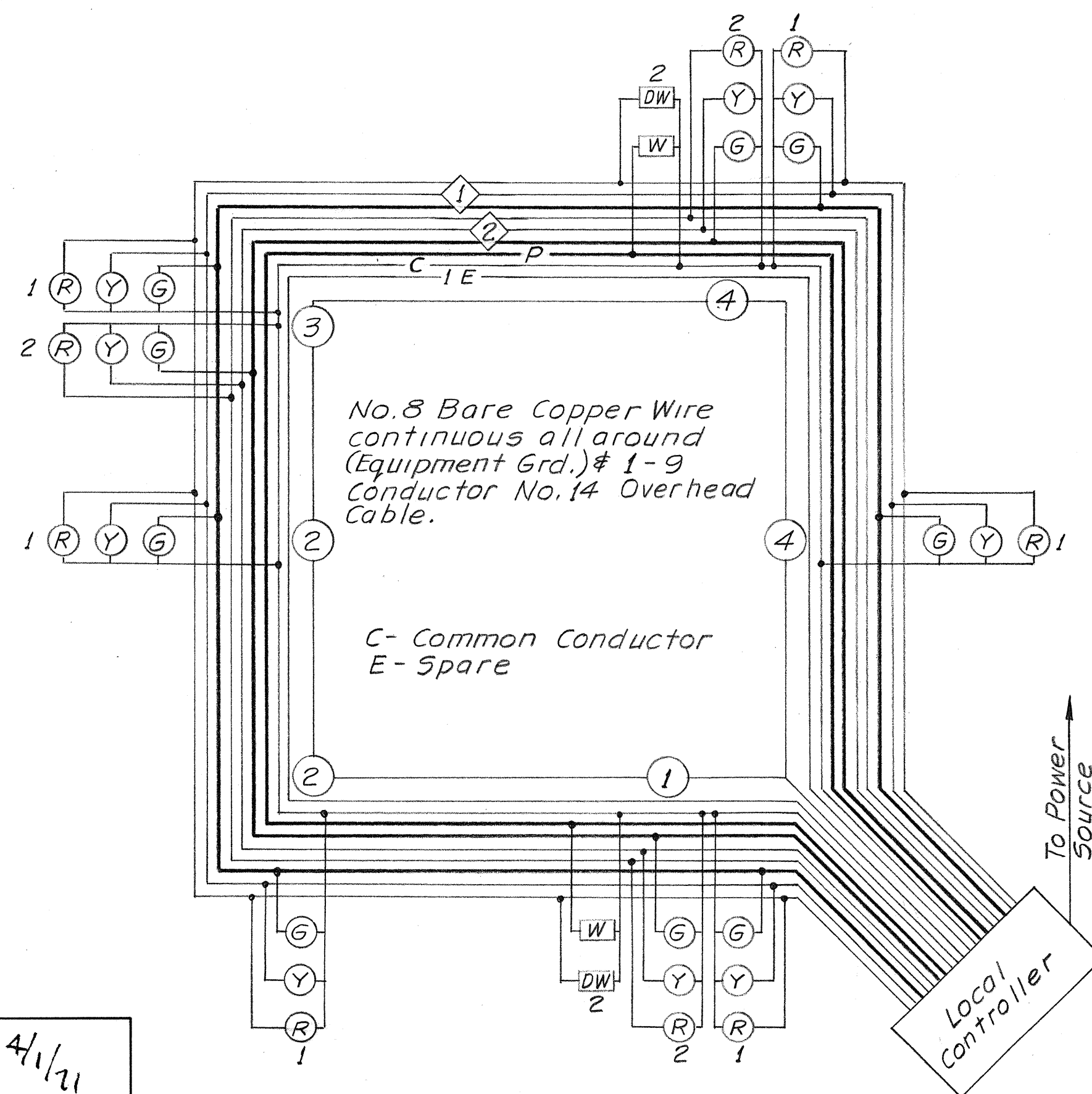
SHEET No. 5 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	159	418

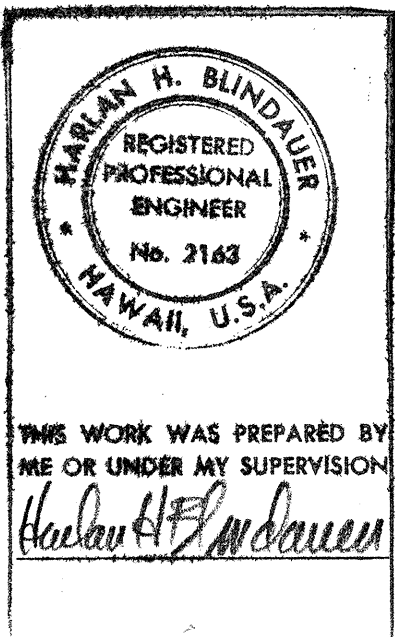
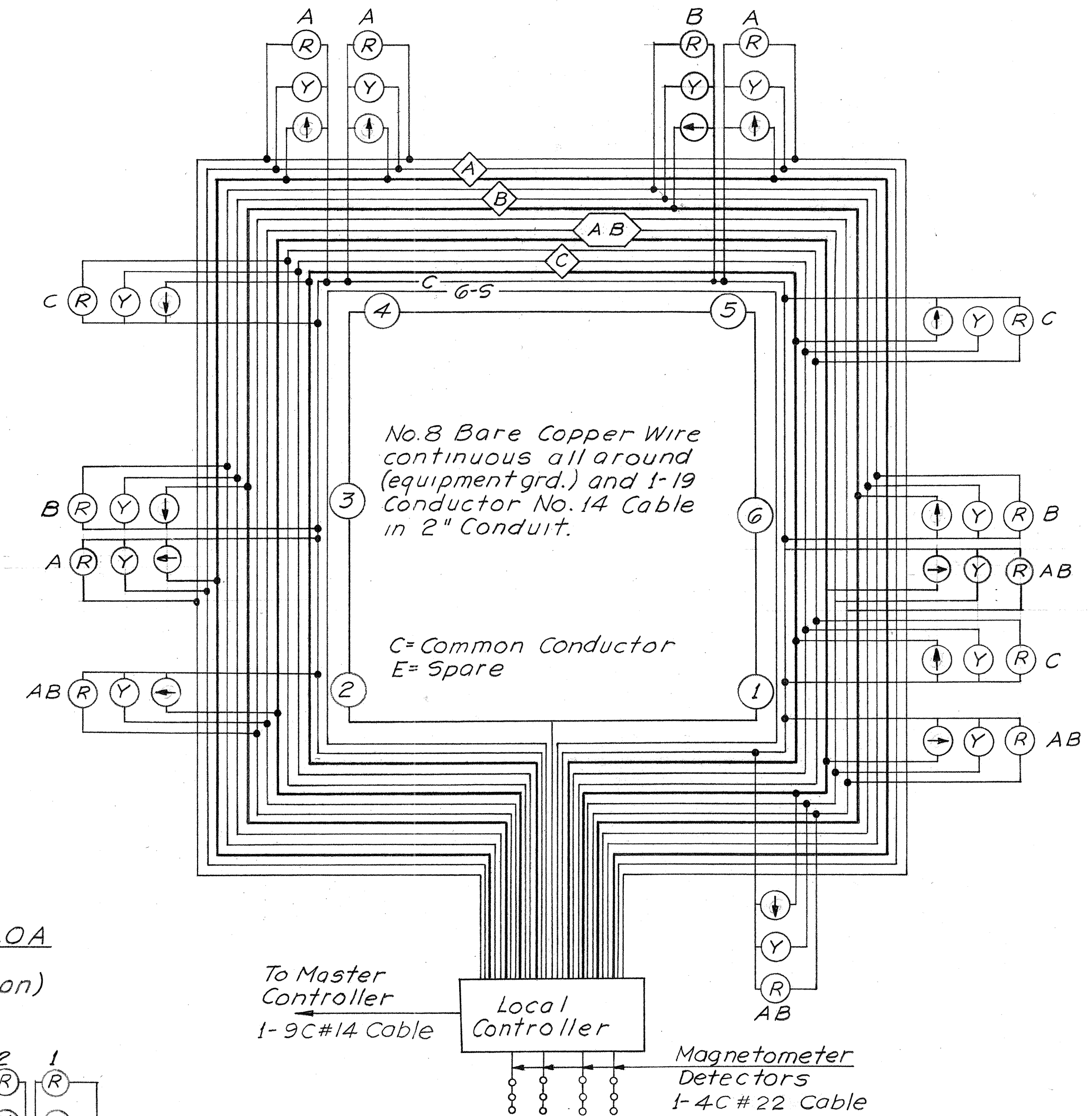


PUULOA ROAD - PUKOLOA STREET - PELTIER STREET INTERSECTION

MOANALUA ROAD - PUULOA ROAD INTERSECTION (Temporary Signal Installation)



PUULOA ROAD - RAMP "E" - RAMP "H" INTERSECTION

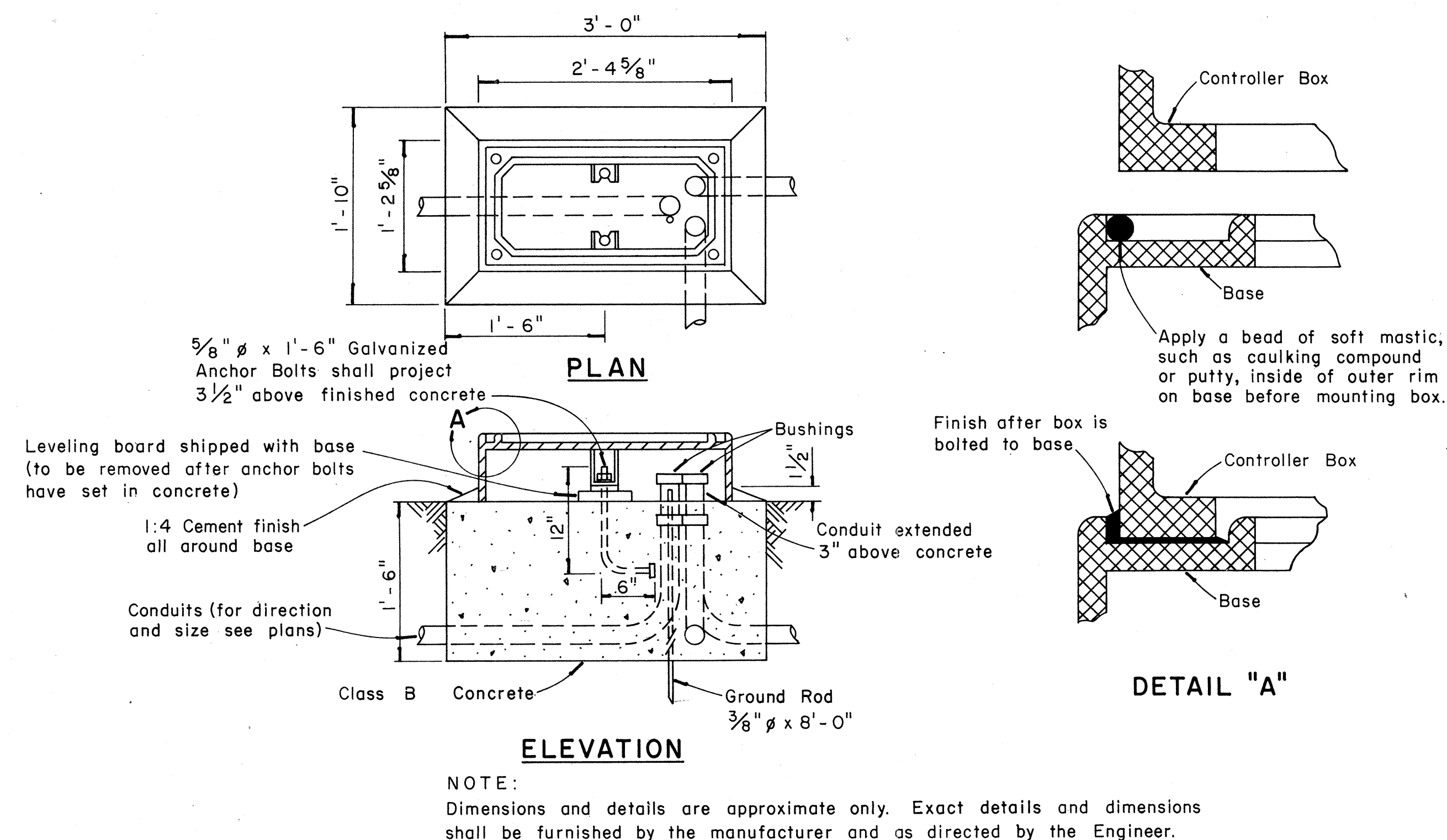
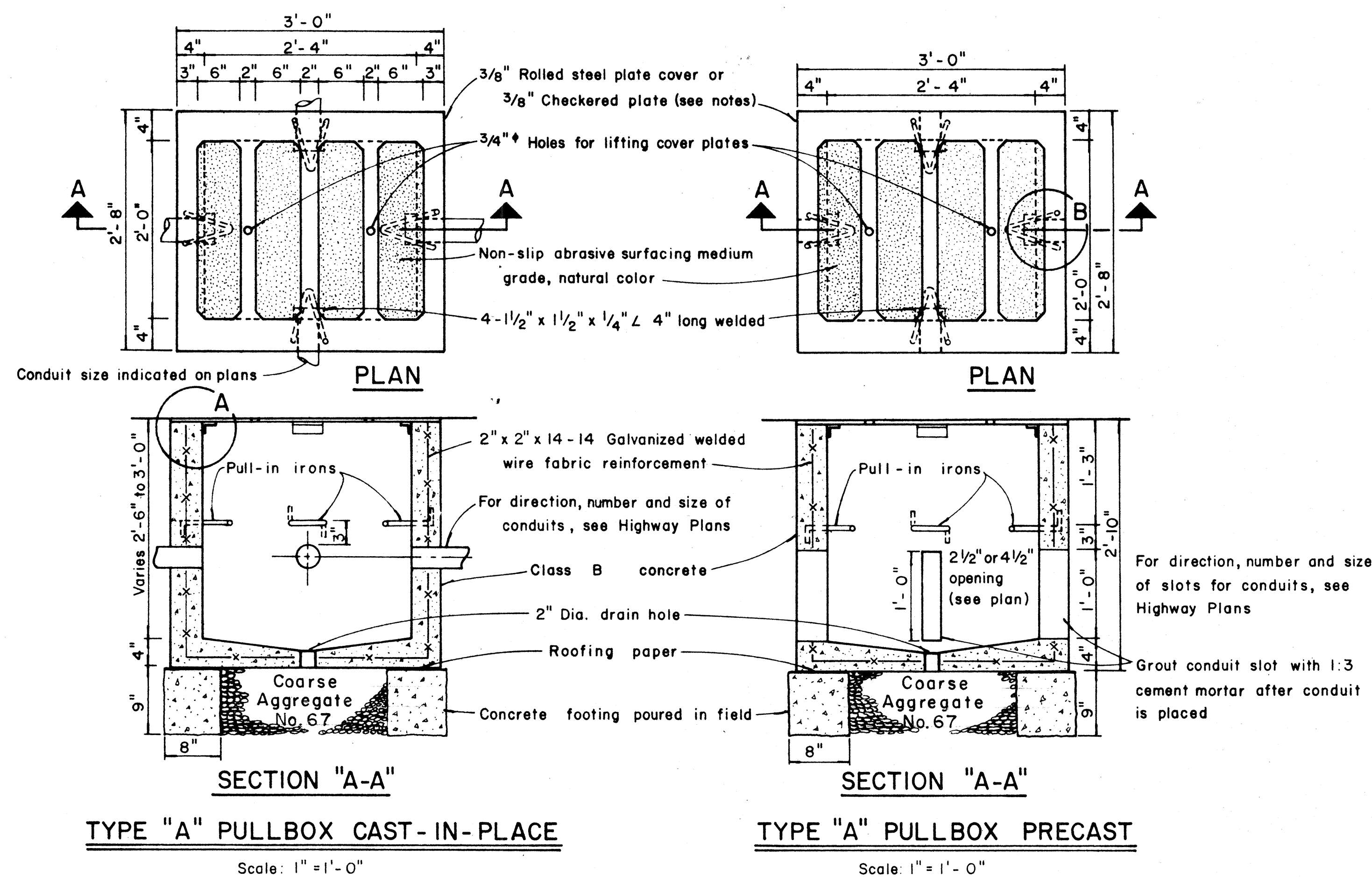


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEMS
WIRING DIAGRAMS
F.A. Proj. No. F-078-1(10)
Scale: No Scale Date: Jan 1971

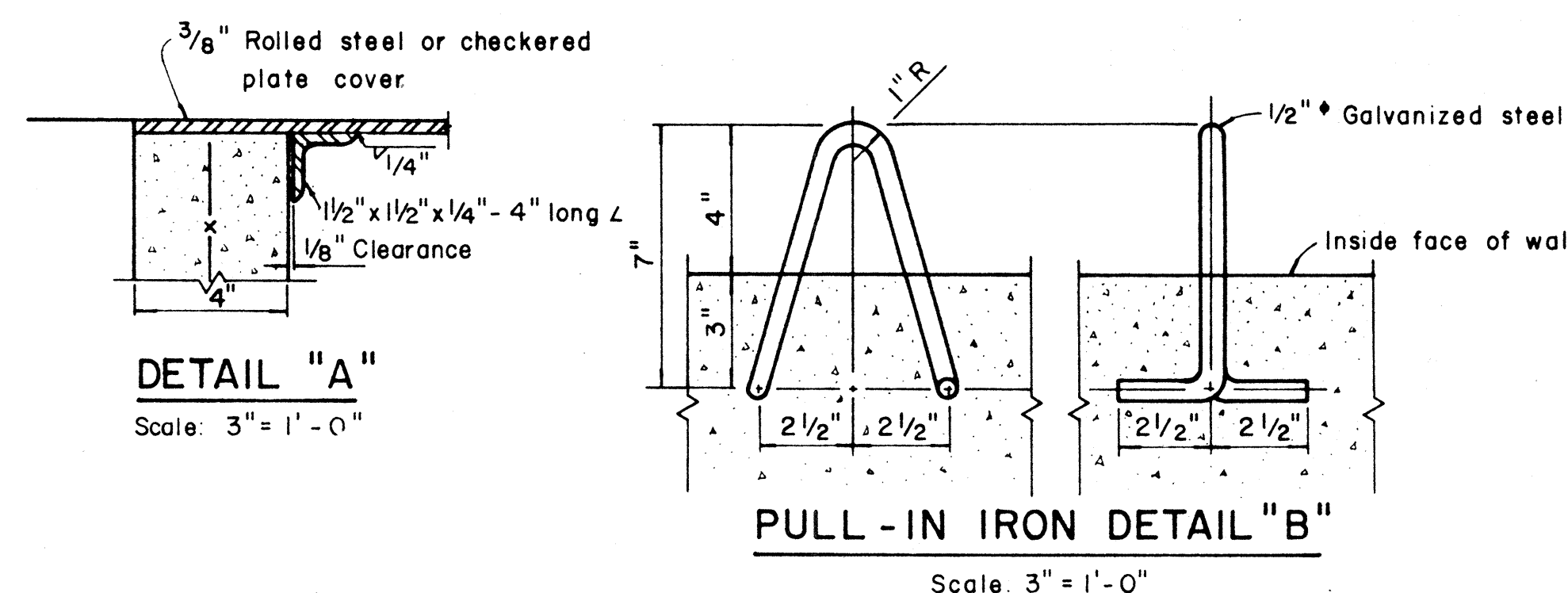
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

APPROVED: *[Signature]* 4/1/71
TRAFFIC ENGINEER, C & C OF HONOLULU DATE



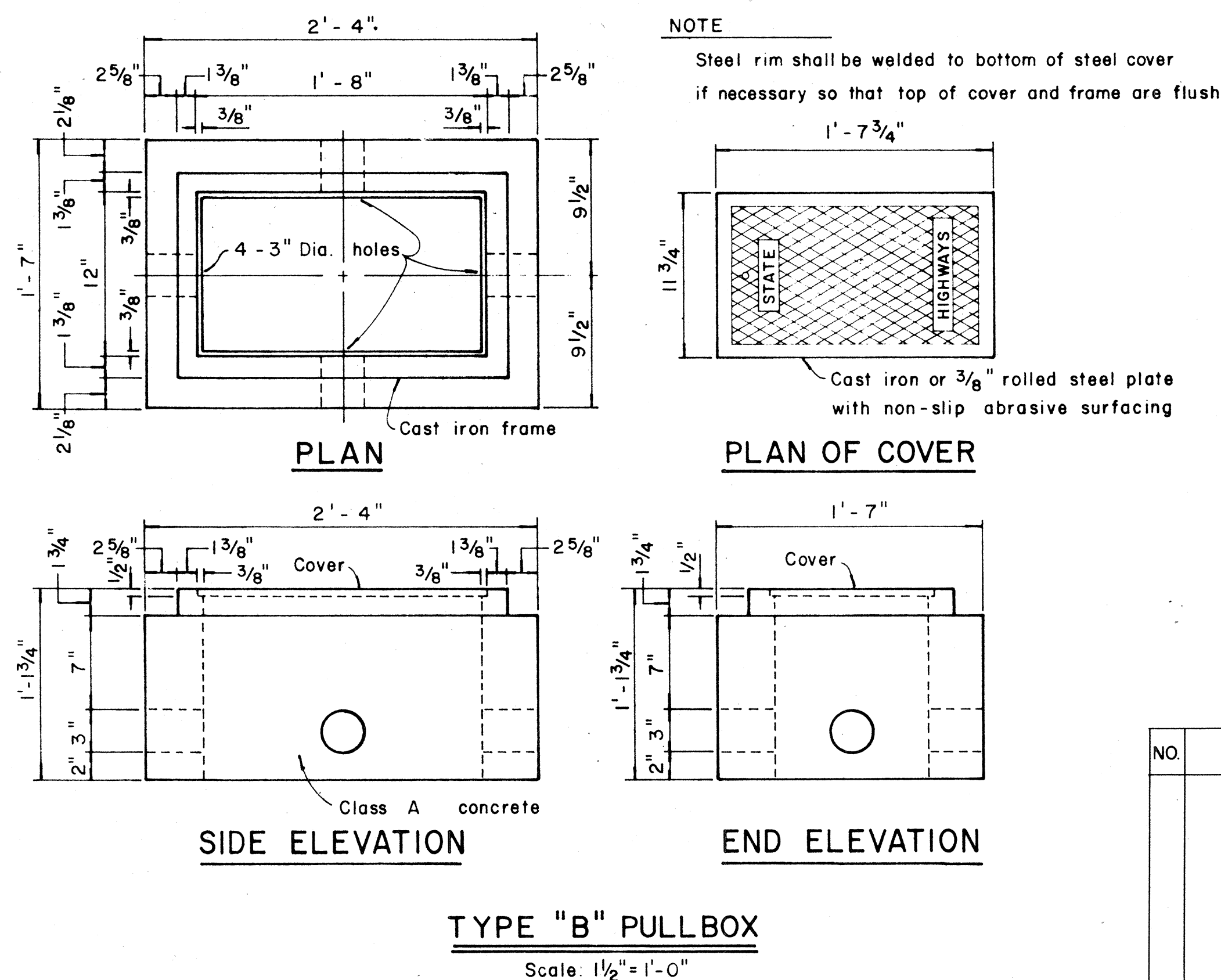
INSTALLATION DETAILS FOR TYPE "M" CONTROLLER BOX

Scale: 1" = 1' - 0"



NOTES: (FOR TYPE "A" PULLBOX)

1. $\frac{3}{8}$ " Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
2. $\frac{3}{8}$ " Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
3. Pull irons shall be placed opposite each conduit slot.
4. Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
5. Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.



TYPE "B" PULLBOX

Scale: $1\frac{1}{2}" = 1'-0"$

APPROVAL RECOMMENDED: Erich Tanaka 12/29/09
TRAFFIC ENGINEER DATE

APPROVED:

[Signature] ASSISTANT CHIEF, ENGINEERING

12-30-9 DATE

NO.	REVISION	APPROVED BY	DATE

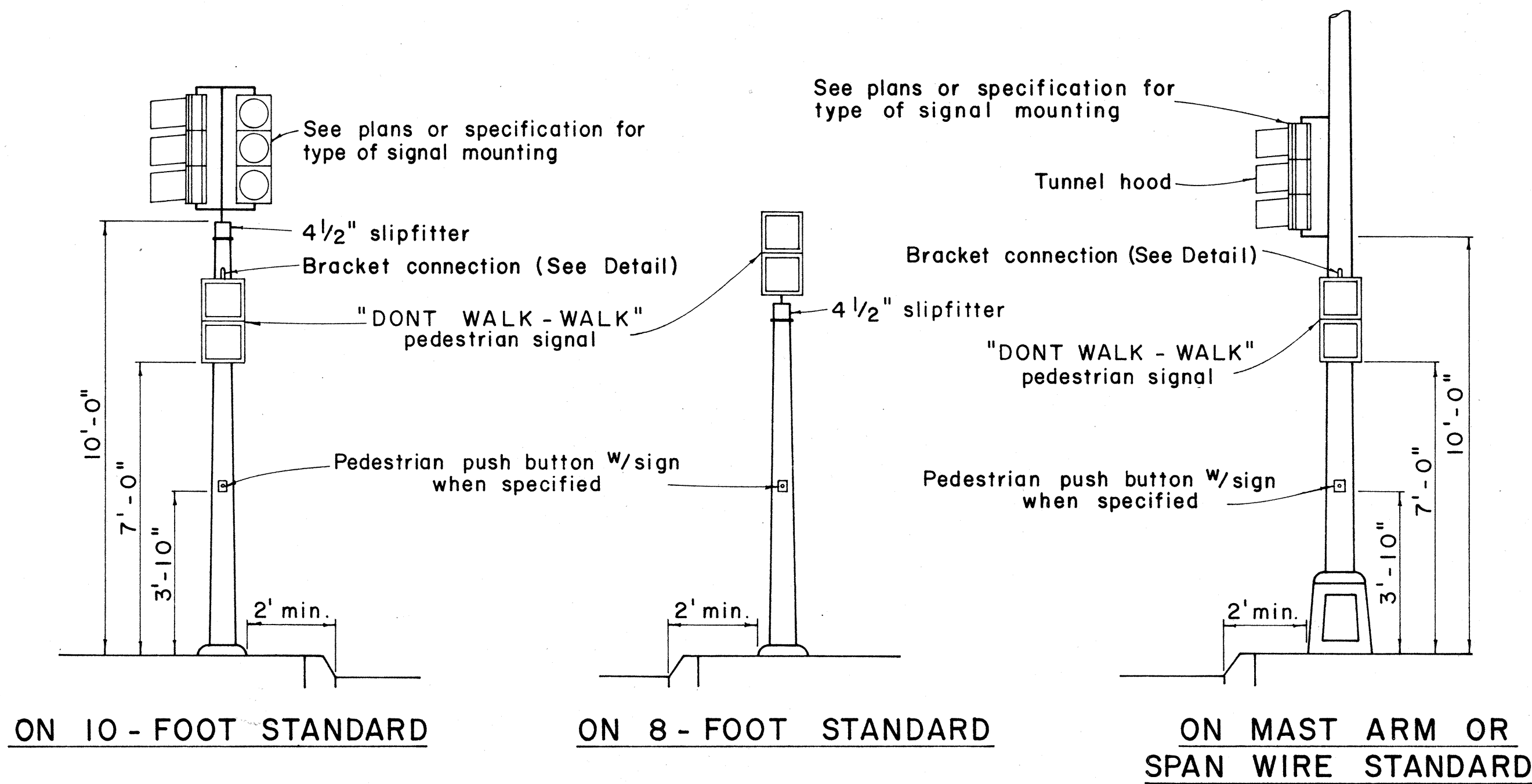
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PULLBOXES
AND
TYPE "M" CONTROLLER BOX

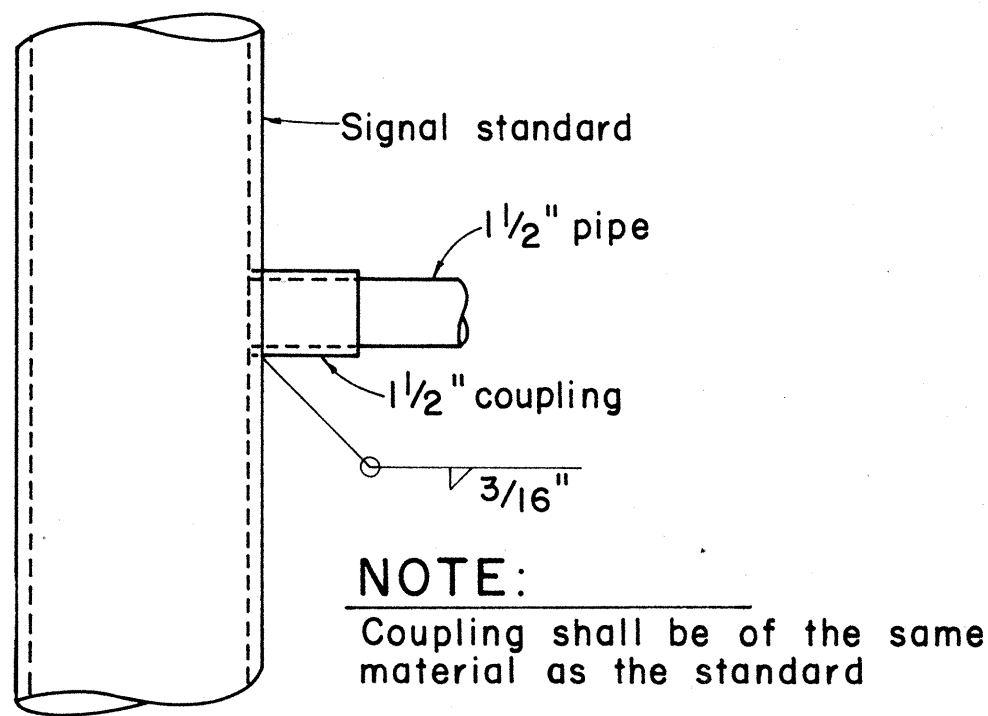
Scale as noted Date:

SHEET No. 7 OF 8 SHEETS DT 402

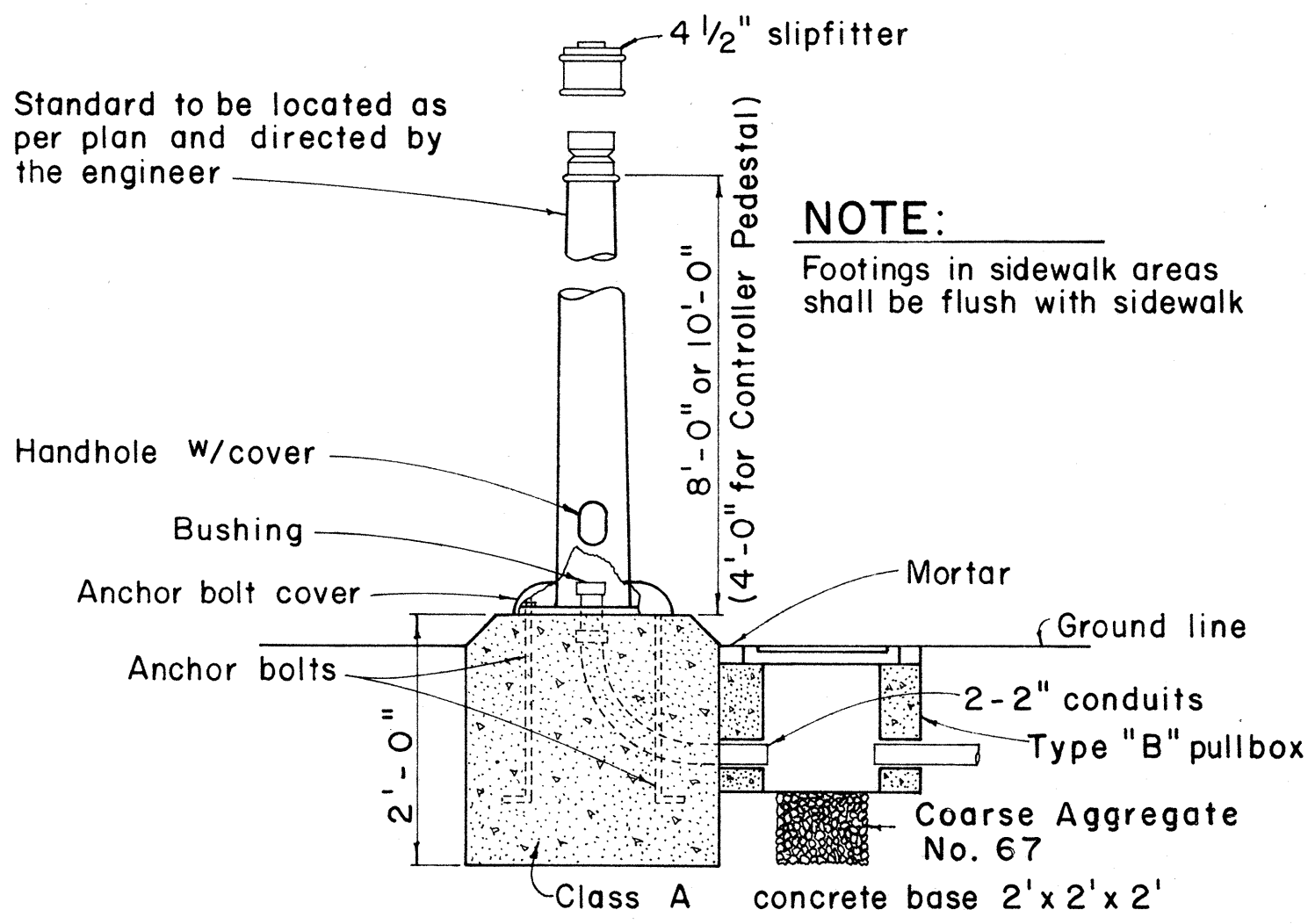
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	161	418



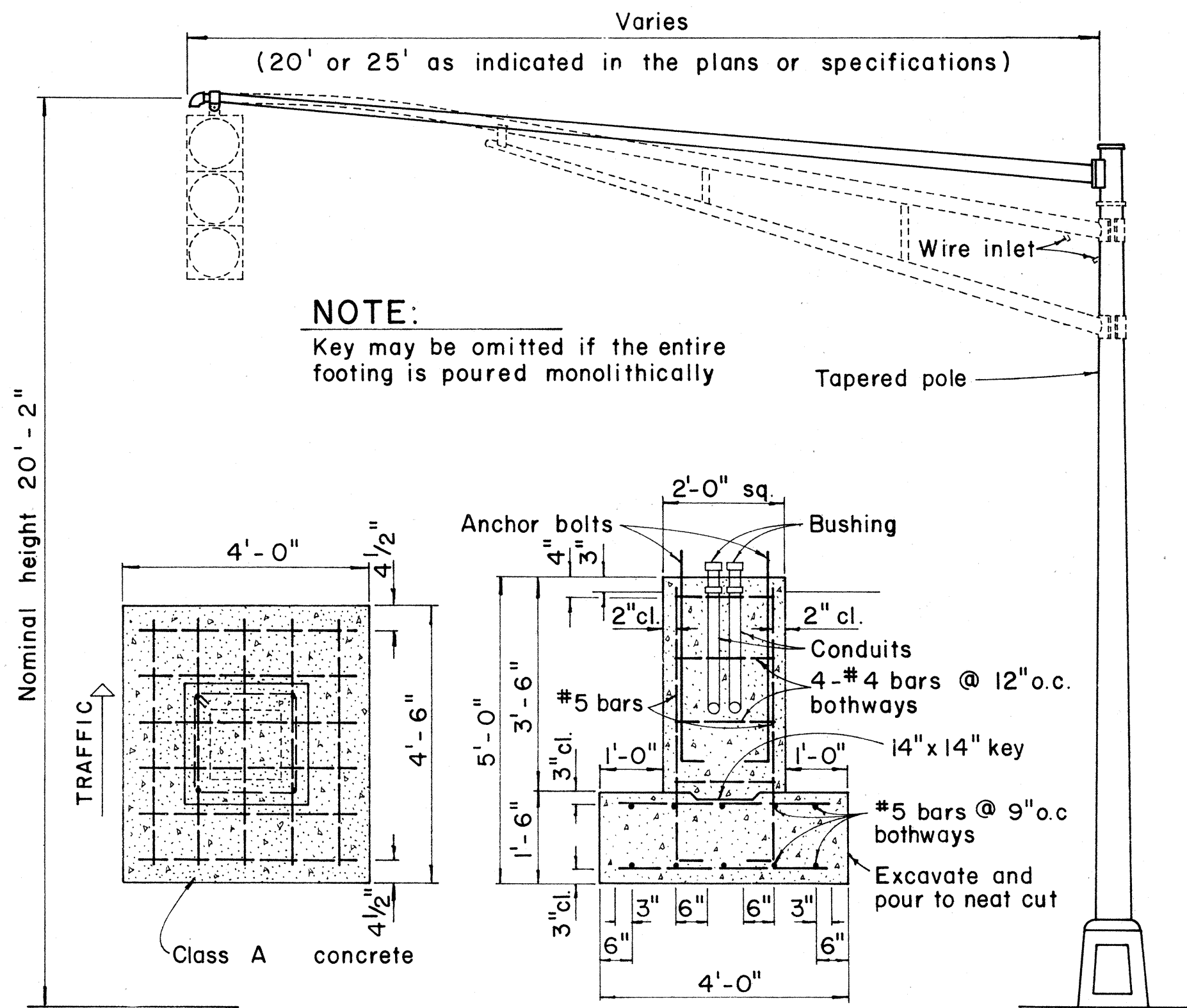
TYPICAL EQUIPMENT MOUNTINGS



DETAIL OF BRACKET CONNECTION

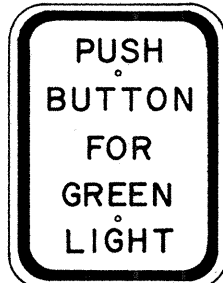


FOOTING FOR SIGNAL STANDARD OR CONTROLLER PEDESTAL

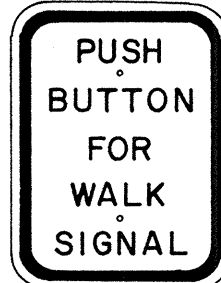


MAST ARM FOOTING AND STANDARD

TRAFFIC SIGN AS SPECIFIED IN PLAN
1. "PUSH BUTTON FOR GREEN LIGHT" (R9-6)
2. "PUSH BUTTON FOR WALK SIGNAL" (R9-7)

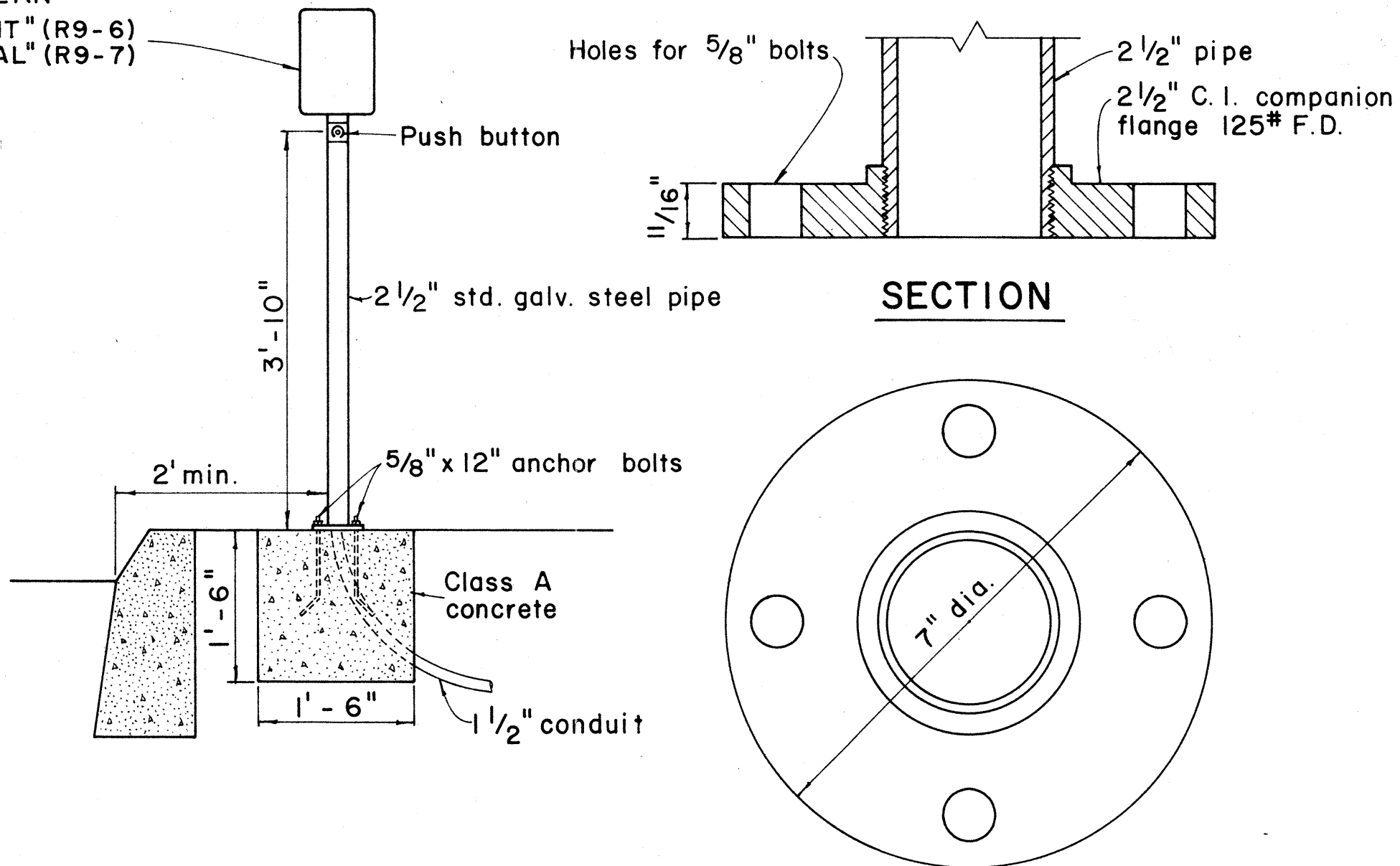


R9 - 6
9" x 12"



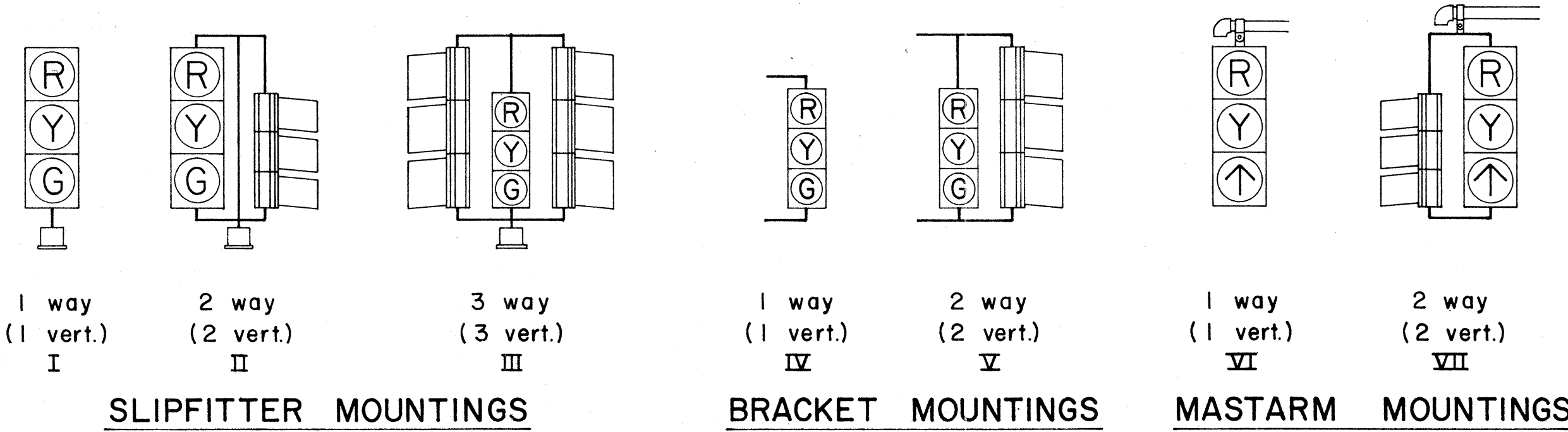
R9 - 7
9" x 12"

NOTE:
1. Conduits shall protrude 2" max. above finished surface of foundation.
2. Conduits shall slope away from pole foundation.
3. Post and base shall be painted with one coat of approved weather proof dark green enamel.

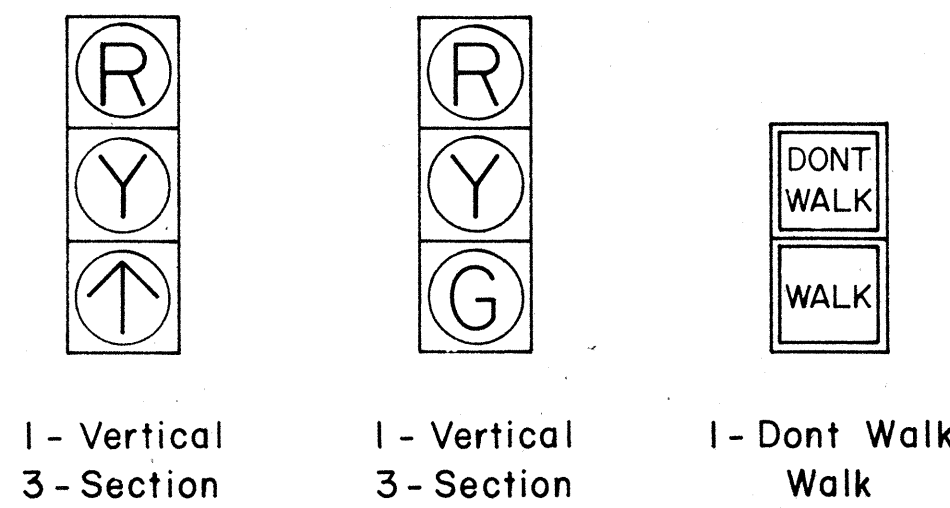


BASE DETAIL

PEDESTRIAN PUSH BUTTON POST AND FOOTING



TYPICAL VEHICULAR AND PEDESTRIAN SIGNAL MOUNTINGS



TYPICAL SIGNAL ARRANGEMENTS

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Erich Tanaka 12/29/69
TRAFFIC ENGINEER DATE
John J. J. J. 12/29/69
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL SYSTEM
MISCELLANEOUS DETAILS

Not to Scale January, 1968
SHEET No. 8 OF 8 SHEETS DT 400

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
NO.	