

# CITIES OF ADDISON AND FARMERS BRANCH DALLAS COUNTY, TEXAS

## CONSTRUCTION PLANS FOR:

TRAFFIC SIGNAL INSTALLATION  
at Intersections of:

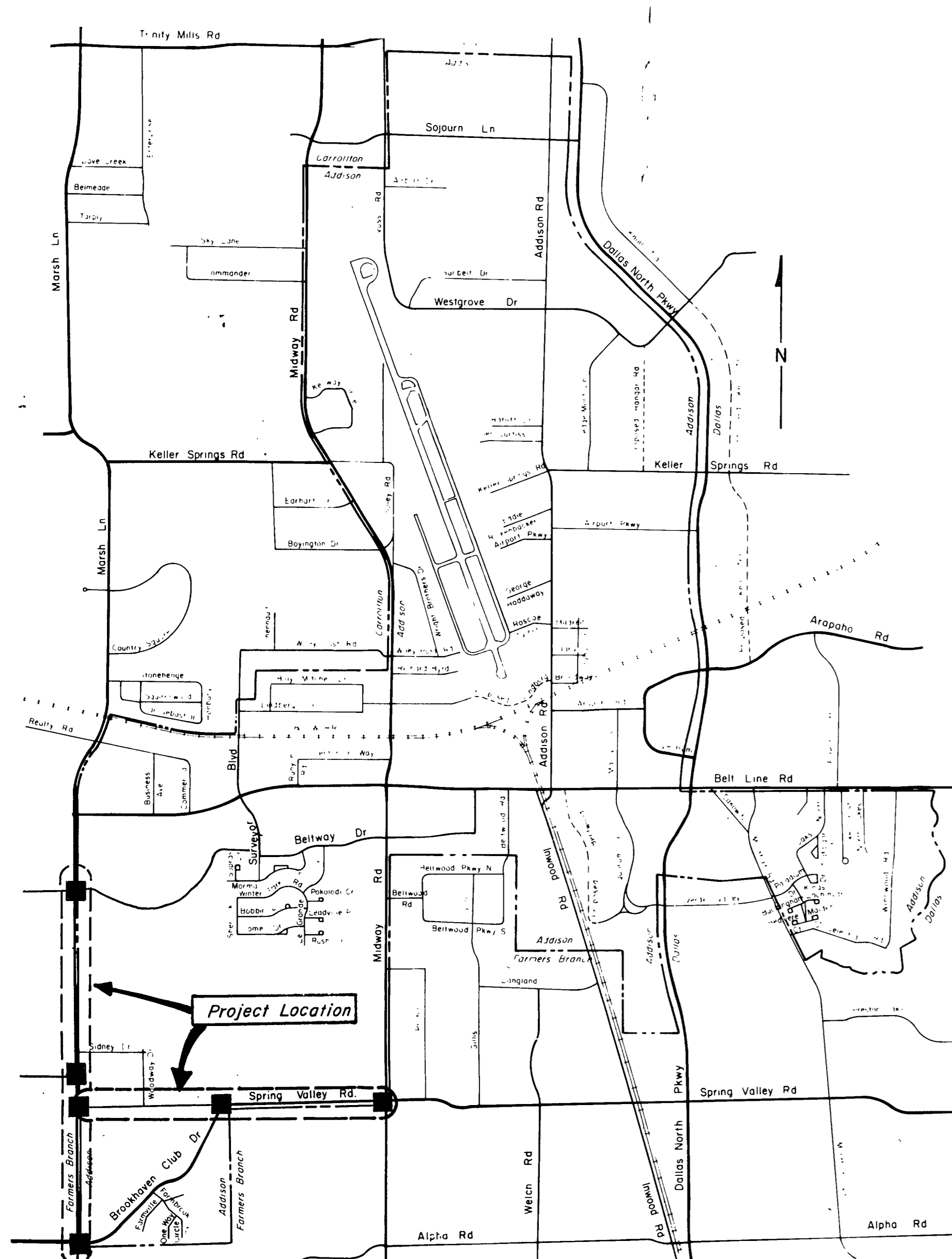
- Marsh Lane and Brookhaven Club Drive
- " " and Spring Valley Road
- " " and Pebble Beach Drive
- " " and Gardenbrook / Beltway Drive
- Spring Valley Road and Brookhaven Club Drive
- " " and Midway Road

### CITY OF FARMERS BRANCH

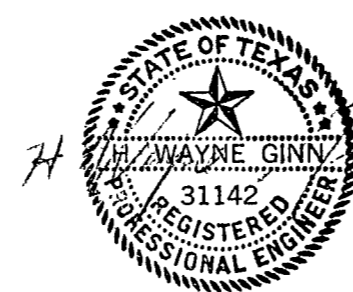
JOHN DODD - MAYOR  
CAROL DINGMAN - MAYOR PRO-TEM  
FRED JOHNSON  
HERB WEIDINGER  
BILL GLANCY  
DAVE BLAIR

### CITY OF ADDISON

JERRY J. REDDING - MAYOR  
COUNCIL MEMBERS:  
JOHN B. ALLEN  
RICHARD RODER  
GREG COLE  
BARRY FINKELSTEIN  
STEWART BEATTY



**GINN, INC.**  
Consulting Engineers



UNDER CONTRACT BY  
H.B. JONES  
CONSULTING ENGINEERS  
1983

*Hal B Jones*

CITY OF FARMERS BRANCH

Approved By: \_\_\_\_\_

DATE: \_\_\_\_\_

CITY OF ADDISON

Approved By: \_\_\_\_\_

Mayor

DATE: \_\_\_\_\_

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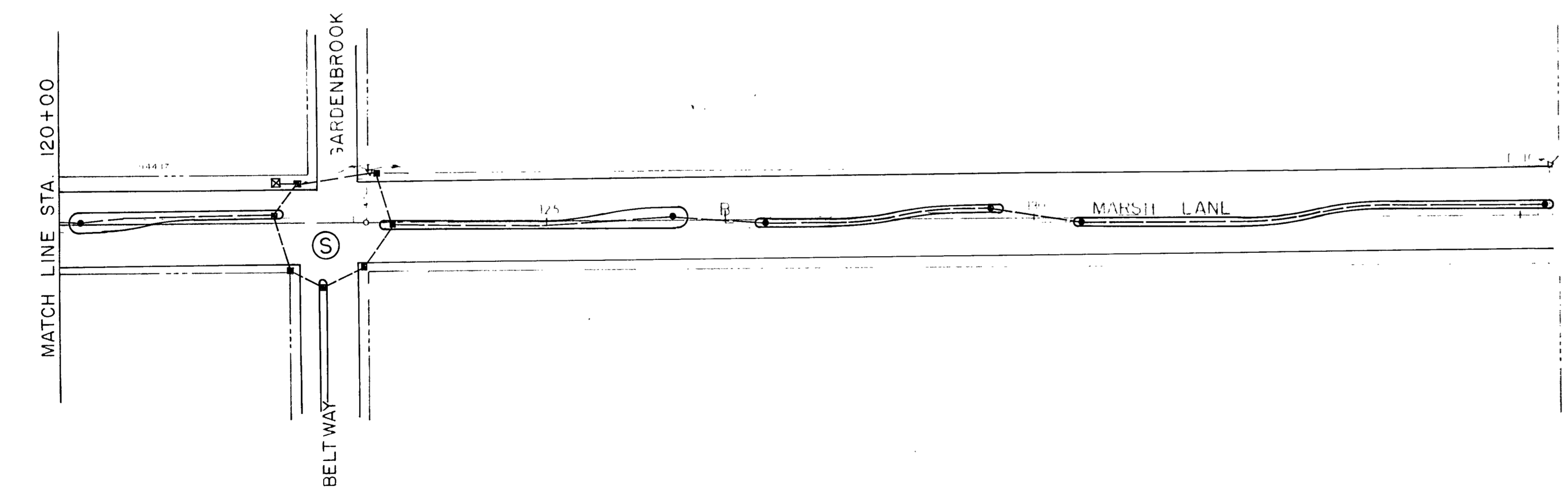
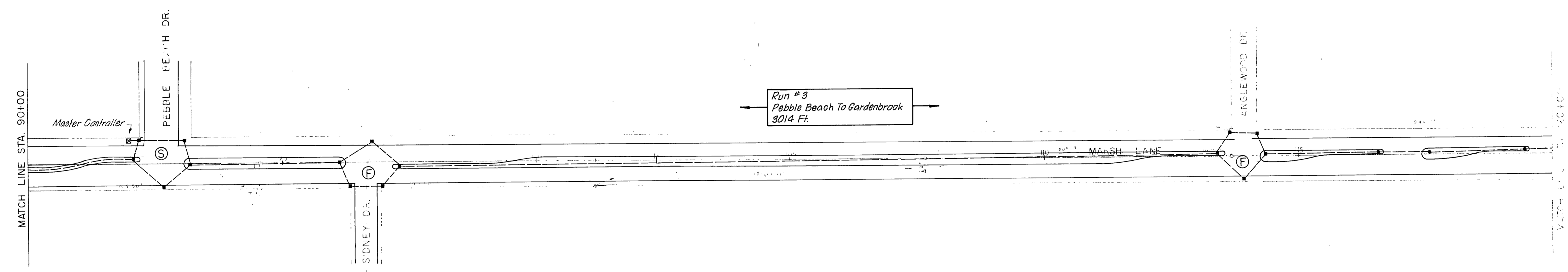
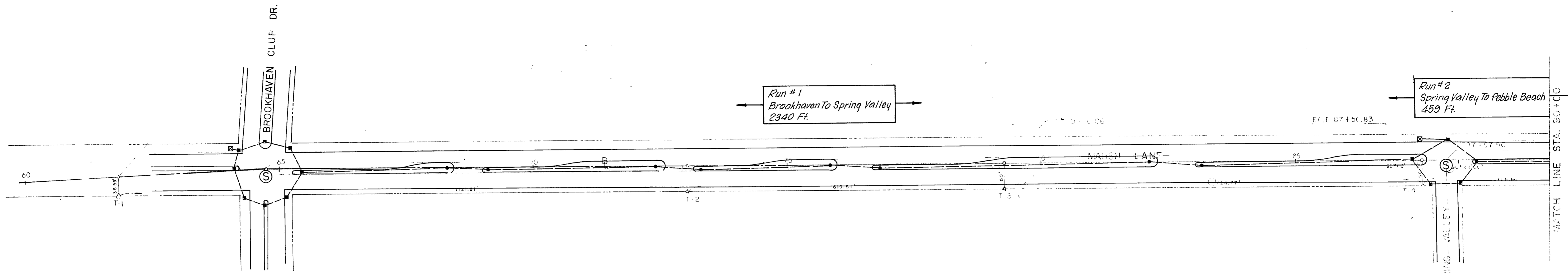
QUANTITIES PER INTERSECTION

ITEM	DESCRIPTION	UNIT	QUANTITIES PER INTERSECTION						PROJECT TOTAL
			MARSH & BROOKHAVEN CLUB	MARSH & SPRING VALLEY	MARSH & PEBBLE BEACH	MARSH & GORDENBROOK / BELTWAY	SPRING VALLEY & BROOKHAVEN CLUB	SPRING VALLEY & MIDWAY	
1	Master Control System	L.S.							1
2	3-Phase Controller Cabinet W/3M	Ea.						1	1
	Fire Preempt								
3	7-Phase Controller Cabinet W/3M	Ea.	1		1				2
	Fire Preempt								
4	4-Phase Controller Cabinet W/3M	Ea.	1	1					2
	Fire Preempt								
5	3-Phase Controller Cabinet W/3M	Ea.				1			1
	Fire Preempt								
6	1-3" PVC Trench	L.F.	115	65	130	100	50	185	645
7	1-3" PVC Push	L.F.						210	210
8	2-3" PVC Trench	L.F.	10	35	20	20	35	20	140
9	2-3" PVC Push	L.F.					60		60
10	3-3" PVC Trench	L.F.						15	15
11	1-2" PVC Trench	L.F.	40		25	45	105	400	615
12	1-2" PVC Push	L.F.			15		105		120
13	1-1" PVC Trench	L.F.		25	30	65	25	25	170
14	1-1" PVC Push	L.F.	25						25
15	Pull Box	Ea.	2	-	1	3	3	6	15
16	12" Plastic Stop Bar 60 Mil. Pav. Mark.	L.F.	145	90	95	140	-	190	660
17	Power Supply	Ea.	1	1	1	1	1	1	6
18	Pedestrian Push Button	Pr.	4	2	2	4	1	4	17
19	Loop Detector Amplifier	Ea.	15	8	9	14	8	18	72
20	5 Conductor #12	L.F.	350	-	315	320	-	380	1365
21	7 Conductor #12	L.F.	280	270	370	175	400	470	1965
22	20 Conductor #12	L.F.	225	170	40	260	155	335	1185
23	2 Conductor #12 (Ped. De.)	L.F.	1180	605	540	1120	515	1480	5360
24	2 Conductor-Shielded Loop Lead	L.F.	2055	1105	795	1905	2050	2770	10,680
25	1 Conductor #8 Ground	L.F.	605	325	500	500	530	670	3130
26	3 Conductor #8 Power	L.F.	45	45	55	90	350	45	630
27	Loop Wire #12 xHHW	L.F.	2331	1935	1748	2974	1039	4058	14,145
28	Communication Cable (Master Sys.)	L.F.	-	-	-	-	-	-	6685
29	Controller Foundation	Ea.	1	1	1	1	1	1	6
30	Type A Foundation	Ea.	-	1	-	3	1	4	9
31	Type B Foundation	Ea.	4	2	3	1	3	-	13
32	Type C Foundation	Ea.	3	2	2	2	-	4	13
33	Signal Pedestal Pole	Ea.	3	2	2	2		4	13
34	Mast Arm Assembly W/15' Arm	Ea.		1	1		2		4
35	Mast Arm Assembly W/20' Arm	Ea.	1	1			1		3
36	Mast Arm Assembly W/25' Arm	Ea.	3		2	1			6
37	Mast Arm Assembly W/30' Arm	Ea.		1		3		4	8
38	Mast Arm Assembly W/35' Arm	Ea.					1		1
39	4- Sect. 12" Signal Heads W/Dual Arrow	Ea.	3	2	1	3	-	4	13
40	3- Sect. 12" Signal Head	Ea.	8	5	6	8	7	8	42
41	1- Section Pedestrian Head	Ea.	8	4	4	8	2	8	34
42	Perm. Illuminated Sign 36" x 30"	Ea.						3	3
43	Remove Exist. Span Wire, Signal's Pole	Ea.	1					-	1
44	3M Optical Detector	Ea.	4	3	3	4	3	4	21
45	3M Discriminator Boards (Mod. B62)	Ea.	2	2	2	2	2	2	12

H.B. Jones

UNDER CONTRACT BY  
**H.B. JONES**  
 Consulting Engineers      Garland, Texas

No.	Revision	By	Date
CITIES OF ADDISON & FARMERS BRANCH DALLAS COUNTY, TEXAS			
<b>TRAFFIC SIGNAL INSTALLATION</b>			
QUANTITIES SHEET			
<b>GINN, INC.</b> Consulting Engineers      Dallas, Texas			
Designed - <i>HBJ</i>	Drawn - <i>R.G.B.</i>	Date - <i>SEPT. 1983</i>	Job No. -
Approved - <i>HBJ</i>	Checked -	Scale - <i>1"=20'</i>	Sheet 1 of 14



Run #1  
Brookhaven To Spring Valley  
2340 Ft.

Run #2  
Spring Valley To Pebble Beach  
459 Ft.

Run #3  
Pebble Beach To Gardenbrook  
3014 Ft.

- Notes:
1. Interconnect Cable For Project Will Be Hardwire Multi-Conductor.
  2. Cable Is To Be Installed Via Routings Shown With A Minimum Of Approved Splices.
  3. A Cable Loop Of 5 Feet Shall Be Provided In Each Pull Box. A Factor Of 15% Was Used For The Estimated Quantity (6685).
  4. The Contractor May Install At His Own Expenses Additional Pull Boxes.

- Legend
- Existing Pull Box
  - Existing 2" P.V.C.
  - ⊠ Controller
  - Ⓢ Signal Installation
  - Ⓣ Provision For Future Signal

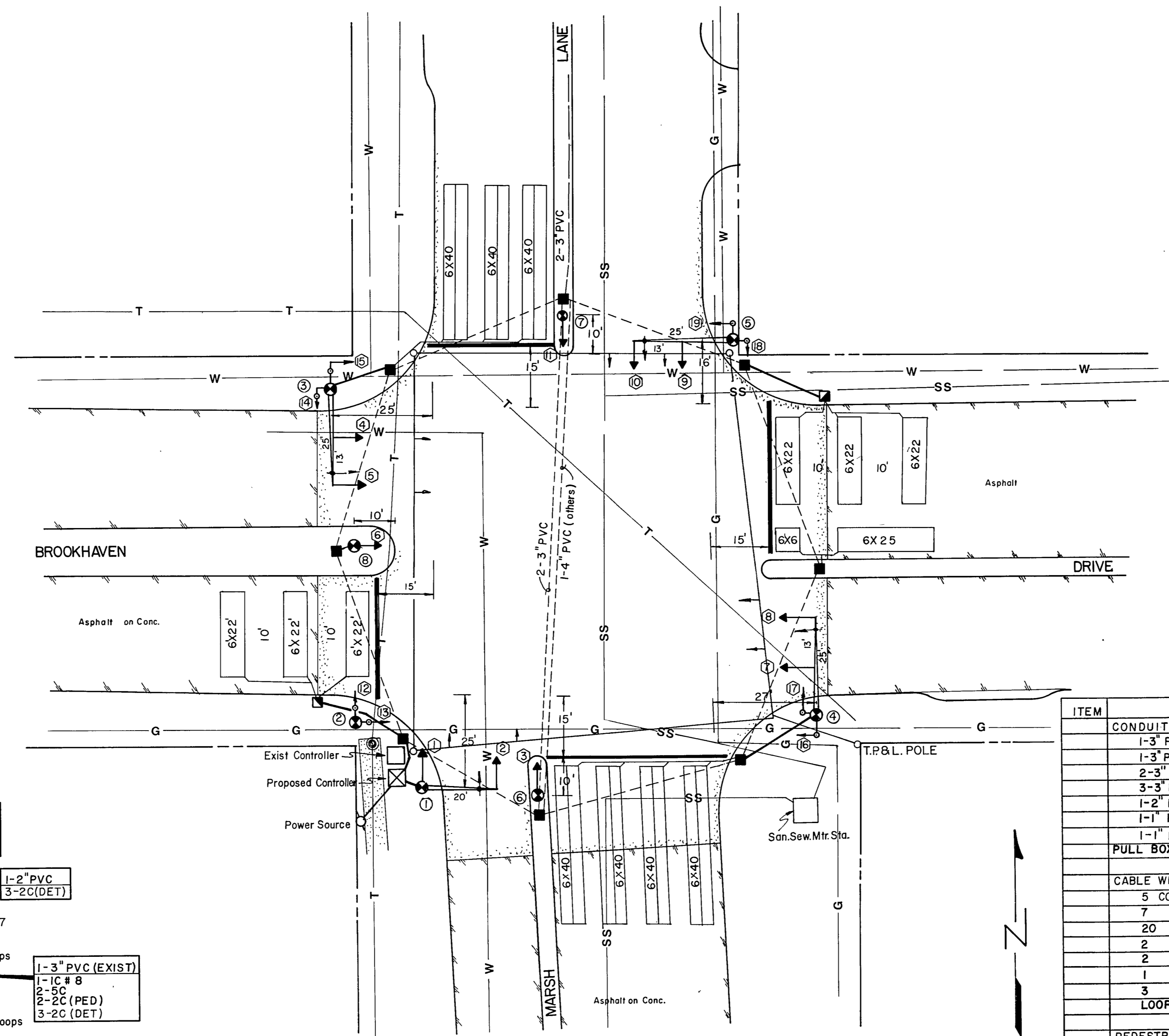
UNDER CONTRACT BY  
**H.B. JONES**  
Consulting Engineers Garland, Texas

*Hal B. Jones*

No.	Revision	By	Date
CITIES OF ADDISON & FARMERS BRANCH DALLAS COUNTY, TEXAS			
<b>TRAFFIC SIGNAL INSTALLATION</b>			
INTERCONNECT CABLE ROUTING MARSH LANE			
<b>GINN, INC.</b> Consulting Engineers Dallas, Texas			
Designed - <i>HBJ</i>	Drawn - <i>R.G.B.</i>	Date - <i>SEPT. 1983</i>	Job No. -
Approved - <i>HBJ</i>	Checked -	Scale - 1" = 100'	Sheet 2 of 14

CONDUIT & CABLE QUANTITIES

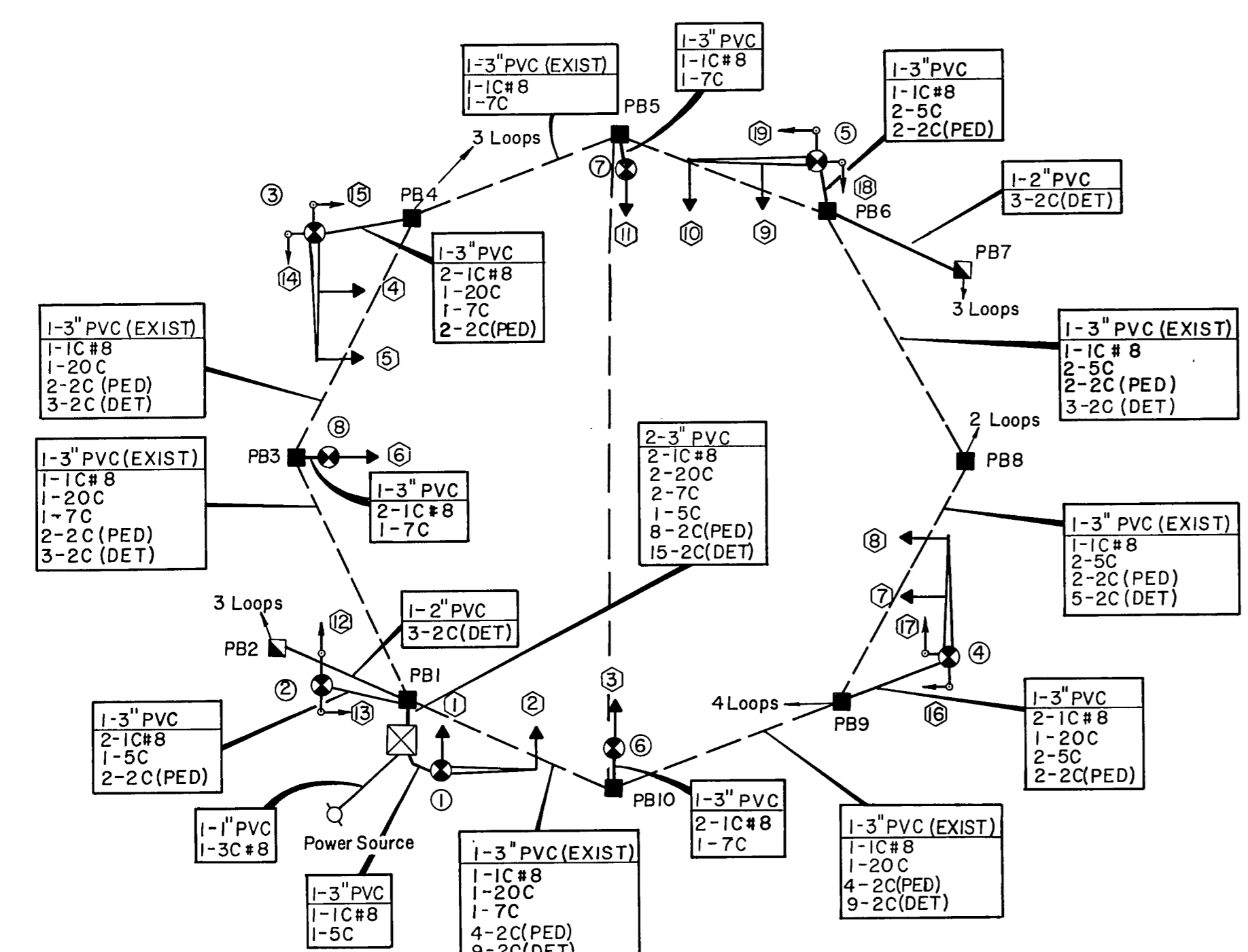
FROM	TO	DISTANCE	PVC CONDUIT T-TRENCH P-PUSHED	CABLE							
				SWITCHING	DETECTOR	GRD.	LOOP	POWER			
				5C	7C	20C	2C DET	1C #8	1C #12	3C #8	
Q	⊗	10'	1-1" P-25'							45'	
⊗	①	5'	1-3" T-15'	15				15			
⊗	PB1	5'	2-3" T-10'	10'	20	20	80	150	20		
PB1	②	10'	1-3" T-15'	15'			30	30			
PB1	PB2	20'	1-2" T-20'					75	265		
PB1	PB3	50'	---	55	55	110	165	55			
PB3	③	5'	1-3" T-10'	10				20			
PB3	PB4	50'	---	55			110	165	55	750	
PB4	④	15'	1-3" T-20'	20	20	50		40			
PB4	PB5	50'	---	55				55			
PB5	⑦	5'	1-3" T-10'	10				10			
PB1	PB10	40'	---	45	45	180	405	45			
PB10	⑥	5'	1-3" T-10'	10				20			
PB10	PB9	55'	---			60	240	540	60	1000	
PB9	④	20'	1-3" T-25'	50	25	60		50			
PB9	PB8	55'	---	120			120	300	60	121	
PB8	PB6	55'	---	120			120	180	60		
PB6	PB7	20'	1-2" T-20'					75	255		
PB6	⑤	5'	1-3" T-10'	20			30	10			
Totals				350	280	225	1130	2055	605	2391	45



QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANT.
<b>CONDUIT:</b>			
	1-3" PVC TRENCH	LF	115
	1-3" PVC PUSH		-
	2-3" PVC TRENCH		10
	3-3" PVC TRENCH		-
	1-2" PVC TRENCH	LF	40
	1-1" PVC TRENCH		-
	1-1" PVC PUSH	EA	25
	PULL BOX	EA	2
<b>CABLE WIRE</b>			
	5 CONDUCTOR #12	LF	350
	7 " #12		280
	20 " #12		225
	2 " #12 (PED. DET)		2
	" SHIELDED LOOP LEAD		2055
	1 " #8 GROUND		605
	3 " #8 POWER		45
	LOOP WIRE #12 XHHW	LF	2391
<b>FOUNDATIONS:</b>			
	SIGNAL CONTROLLER	EA	1
	TYPE A POLES	EA	1
	TYPE B "	EA	4
	TYPE C "	EA	3
<b>POLES:</b>			
	PEDESTAL	EA	3
	MAST ARM ASSEMBLY w/20' ARM		1
	" w/25' ARM		3
	" w/30' ARM		-
	" w/35' ARM	EA	1
	4 SECTION 12" SIGNAL HEAD w/1 DUAL ARROW		3
	3 SECTION 12" SIGNAL HEAD		8
	1 PEDESTRIAN HEAD	EA	8
	CONTROLLER - 7 PHASE FULLY ACTUATED	EA	1
	w/3M OPTICOM PRE-EMPT	EA	1
	POWER SUPPLY	EA	1
	12" PLASTIC STOP BAR (60mil.)	LF	145
	RETRO-REFLECTIVE		-
	REMOVE EXIST SPAN WIRE & CONTROLLER	LS	1

- ⊗ → 30' INSTALL SIGNAL MAST ARM & POLE
- ⊗ INSTALL TRAFFIC SIGNAL HEAD
- ⊗ INSTALL PEDESTRIAN BUTTON
- ⊗ → INSTALL OPTICOM DETECTOR ONE-DIRECTION
- ⊗ → INSTALL SIGNAL PULL BOX
- ⊗ → EXISTING SIGNAL PULL BOX
- ⊗ → INSTALL CONTROLLER & FOUNDATION
- ⊗ → POWER POLE - SERVICE SOURCE
- ⊗ → INSTALL PEDESTRIAN SIGNAL POLE
- — — — — INSTALL PVC CONDUIT
- - - - - EXISTING PVC CONDUIT
- W-SS-T-G- EXISTING U.G. UTILITIES - WATER - SAN. SEW. - TEL. - GAS
- ||||| STORM SEWER



WIRING & PVC DIAGRAM

HEAD NUMBERS	1, 2, 9, 10	4, 5, 7, 8	3, 11, 6	12, 13, 14, 15	16, 17, 18, 19
LENS SIZE	12"	12"	12"	*	*
TYPE	Conv.	Conv.	Conv.	Ped.	Ped.
LENS CONFIGURATION	R	R	R	DW	DW
Dual Arrow **	Y	Y	Y	WALK	WALK
	G	G	G		
Total Number of Units	4	4	3	4	4

NOTE  
EXISTING SPAN WIRE, SIGNALS, CONTROLLER AND POLES ARE TO BE REMOVED AND RETURNED TO CITY OF FARMERS BRANCH

\* One Section Pedestrian Head (WINKO-MATIC Model VI-2L-AG or Equal)  
\*\* Dual Arrow Fiber Optics - Amber/Green Arrow (WINKO-MATIC Model AFO-12 or Equal)

UNDER CONTRACT BY  
**H.B. JONES**  
Consulting Engineers      Garland, Texas

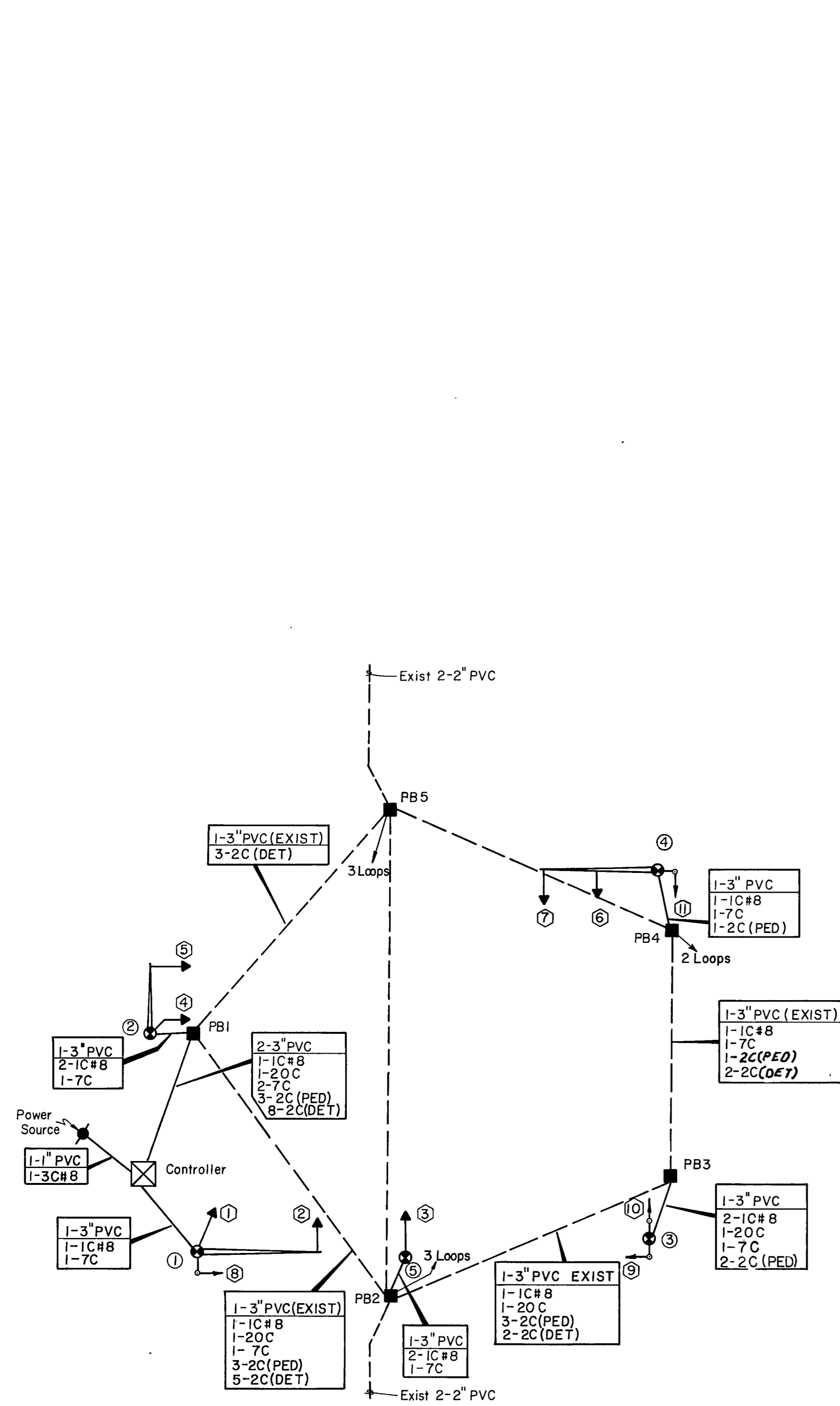
CITIES OF ADDISON & FARMERS BRANCH  
DALLAS COUNTY, TEXAS

**TRAFFIC SIGNAL INSTALLATION**

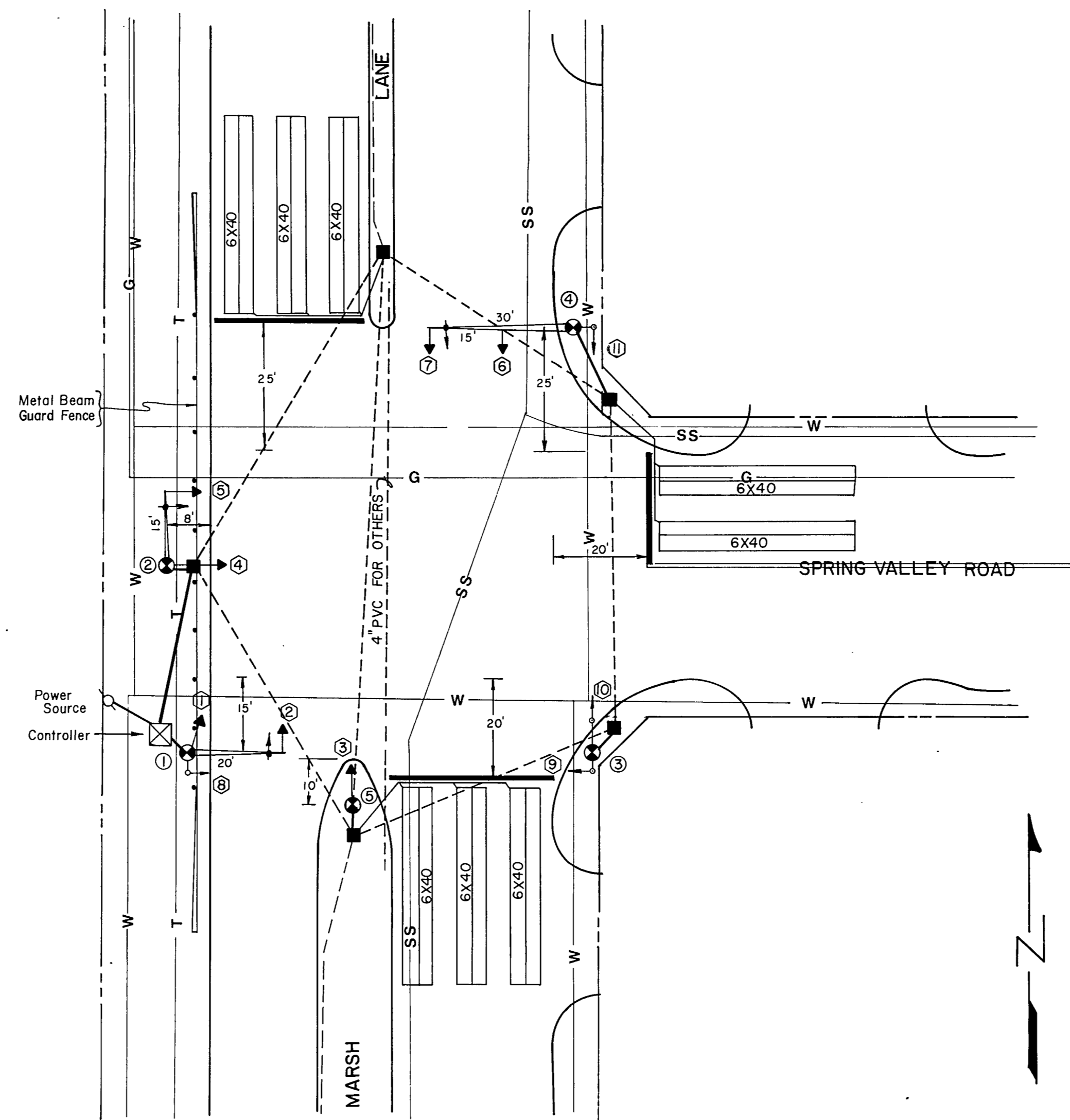
INTERSECTION LAYOUT  
BROOKHAVEN DRIVE AND MARSH LANE

**GINN, INC.**  
Consulting Engineers      Dallas, Texas

Designed - H.B.J.    Drawn - R.G.B.    Date - 9-83    Job No. -  
Approved - H.W.G.    Checked - H.B.J.    Scale - 1" = 20'    Sheet 3 of 14



PVC & WIRING DIAGRAM



CONDUIT & CABLE QUANTITIES

FROM	TO	DISTANCE	PVC CONDUIT TRENCH P-PUSHED	CABLE											
				SWITCHING	DETECTOR	GRD.	LOOP	POWER	5C	7C	20C	20C PED	2C DET	1C #8	1C #12
☐	☒	10'	1-1" T-25												45
☒	①	5'	1-3" T-15	15				15							
☒	PB1	30'	2-3" T-35	70	35	105	280	35							
PB1	②	5'	1-3" T-10	10				20							
PB1	PB2	60'	—	65	65	195	325	65	724						
PB2	③	5'	1-3" T-10	10				20							
PB2	PB3	55'	—		60	180	120	60							
PB3	④	5'	1-3" T-10	10	10	30		20							
PB3	PB4	65'	—	70	70	140	70	480							
PB4	⑤	15'	1-3" T-20	20		25		20							
PB1	PB5	75'	—					240	735						
TOTAL				270	170	605	1105	325	1939	45					

SIGNAL ARRAYS

HEAD NUMBERS	1,2 6,7	4	3	5	8,9 10,11
LENS SIZE	12"	12"	12"	12"	*
TYPE	Conv.	Conv.	Conv.	Conv.	Ped.
LENS CONFIGURATION	R	R	R	R	DW
	Y	Y	Y	Y	WALK
	G	G	G	G	
Total Number of Units	4	1	1	1	4

QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANT.
CONDUIT:			
	1-3" PVC TRENCH	LF	65
	1-3" PVC PUSH		—
	2-3" PVC TRENCH		35
	3-3" PVC TRENCH		—
	1-2" PVC TRENCH		25
	1-1" PVC TRENCH	LF	25
PULL BOX			
		EA	—
CABLE WIRE			
	5 CONDUCTOR #12	LF	—
	7 " #12		270
	20 " #12		170
	2 " #12 (PED. DET)		605
	2 " SHIELDED LOOP LEAD		1105
	1 " #8 GROUND		325
	3 " #8 POWER		45
	LOOP WIRE #12 XHHW	LF	1935
PEDESTRIAN PUSH BUTTON			
		PR	2
3-M OPTICOM DETECTOR			
		EA	3
LOOP DETECTOR AMPLIFIER			
		EA	8
FOUNDATIONS:			
	SIGNAL CONTROLLER	EA	1
	TYPE A POLES	EA	1
	TYPE B "	EA	2
	TYPE C "	EA	2
POLES:			
	PEDESTAL	EA	2
	MAST ARM ASSEMBLY w/15' ARM		1
	" w/20' ARM		1
	" w/30' ARM		1
	" w/35' ARM		—
	4 SECTION 12" SIGNAL HEAD w/1 DUAL ARROW	EA	2
	3 SECTION 12" SIGNAL HEAD		5
	1 PEDESTRIAN HEAD	EA	4
CONTROLLER - 4 PHASE FULLY ACTUATED			
	w/3M OPTICOM PRE-EMPT	EA	1
POWER SUPPLY			
	12" PLASTIC STOP BAR (60mil.)	EA	1
	RETRO-REFLECTIVE	LF	90
		LS	—

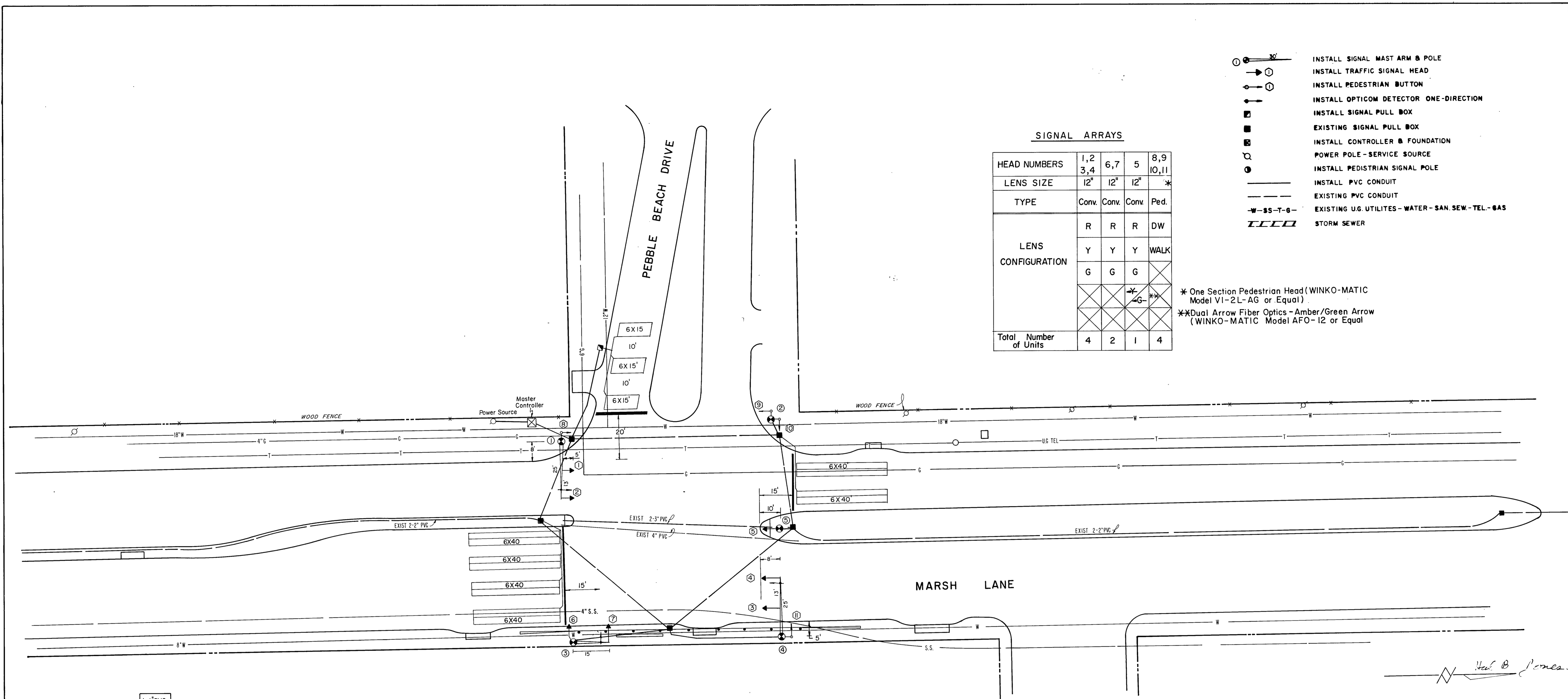
- ① → 30' INSTALL SIGNAL MAST ARM & POLE
- ① INSTALL TRAFFIC SIGNAL HEAD
- ① INSTALL PEDESTRIAN BUTTON
- → INSTALL OPTICOM DETECTOR ONE-DIRECTION
- INSTALL SIGNAL PULL BOX
- EXISTING SIGNAL PULL BOX
- INSTALL CONTROLLER & FOUNDATION
- ⊙ POWER POLE - SERVICE SOURCE
- INSTALL PEDESTRIAN SIGNAL POLE
- INSTALL PVC CONDUIT
- - - EXISTING PVC CONDUIT
- W-SS-T-G- EXISTING U.G. UTILITES - WATER - SAN. SEW. - TEL. - GAS
- ||||| STORM SEWER

\* One Section Pedestrian Head (WINKO-MATIC Model V1-2L-AG or Equal)  
 \*\*Dual Arrow Fiber Optics - Amber/Green Arrow (WINKO-MATIC Model AFO-12 or Equal)

UNDER CONTRACT BY  
**H. B. JONES**  
 Consulting Engineers Garland, Texas

*H. B. Jones*

No.	Revision	By	Date
CITIES OF ADDISON & FARMERS BRANCH DALLAS COUNTY, TEXAS			
<b>TRAFFIC SIGNAL INSTALLATION</b>			
INTERSECTION LAYOUT SPRING VALLEY ROAD AND MARSH LANE			
GINN, INC. Consulting Engineers Dallas, Texas			
Designed - H.B.J.	Drawn - R.G.B.	Date - 9-83	Job No. -
Approved - H.B.J.	Checked - H.B.J.	Scale - 1" = 20'	Sheet 4 of 14

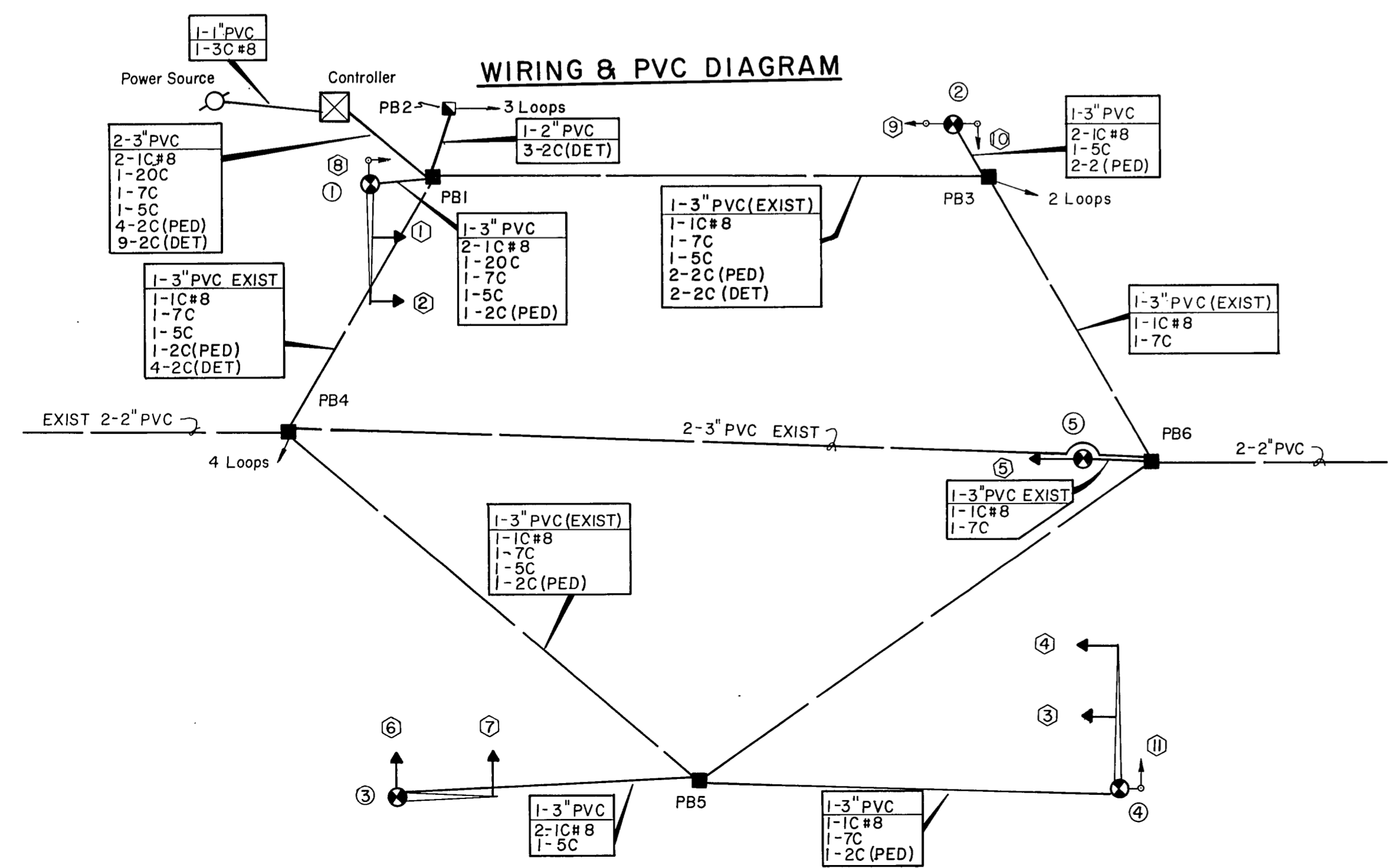


- INSTALL SIGNAL MAST ARM & POLE
- INSTALL TRAFFIC SIGNAL HEAD
- INSTALL PEDESTRIAN BUTTON
- INSTALL OPTICOM DETECTOR ONE-DIRECTION
- INSTALL SIGNAL PULL BOX
- EXISTING SIGNAL PULL BOX
- INSTALL CONTROLLER & FOUNDATION
- POWER POLE - SERVICE SOURCE
- INSTALL PEDESTRIAN SIGNAL POLE
- INSTALL PVC CONDUIT
- EXISTING PVC CONDUIT
- EXISTING U.G. UTILITIES - WATER - SAN. SEW. - TEL. - GAS
- STORM SEWER

SIGNAL ARRAYS						
HEAD NUMBERS	1,2	3,4	6,7	5	8,9	10,11
LENS SIZE	12"	12"	12"	12"	*	
TYPE	Conv.	Conv.	Conv.	Conv.	Ped.	
LENS CONFIGURATION	R	R	R	R	DW	
	Y	Y	Y	Y	WALK	
	G	G	G	G	-G-	
Total Number of Units	4		2	1	4	

\* One Section Pedestrian Head (WINKO-MATIC Model V1-2L-AG or Equal)  
 \*\*Dual Arrow Fiber Optics - Amber/Green Arrow (WINKO-MATIC Model AFO-12 or Equal)

**WIRING & PVC DIAGRAM**



**CONDUIT & CABLE QUANTITIES**

FROM	TO	DISTANCE	PVC CONDUIT TRENCH P-PUSHED	CABLE										
				5C	7C	20C	2C PED	2C DET	1C #8	1C #12	3C #8			
		15'	1-1" T-30'											55
	PB1	15'	2-3" T-20'	30	30	30	120	270	60					
	PB1	PB2	40'	1-2" P-15'				135	250					
	PB1	PB3	90'	1-3" T-10'	10'	10'	10'	15'	20'					
	PB5	PB6	40'	1-3" T-10'	10			30	20					
	PB3	PB6	40'		45				45					
	PB6	PB5	40'	1-3" T-10'	10				10'					
	PB1	PB4	40'		45	45	45	180	45	1014				
	PB4	PB5	75'		80	80		80	80					
	PB5	PB3	40'	1-3" T-45'	45				90					
	PB5	PB4	50'	1-3" T-55'	55			60	55					
TOTALS					315	370	40	540	795	500	1748	55		

**QUANTITIES**

ITEM	DESCRIPTION	UNIT	QUANT.
<b>CONDUIT:</b>			
	1-3" PVC TRENCH	LF	130
	1-3" PVC PUSH	LF	
	2-3" PVC TRENCH		20
	3-3" PVC TRENCH		
	1-2" PVC TRENCH	LF	25
	1-1" PVC TRENCH	LF	30
	1-2" PVC PUSH	LF	15
	PULL BOX	EA	1
<b>CABLE WIRE</b>			
	5 CONDUCTOR #12	LF	315
	7 " #12		370
	20 " #12		40
	2 " #12 (PED. & DET)		540
	2 " SHIELDED LOOP LEAD		795
	1 " #8 GROUND		500
	3 " #8 POWER		55
	LOOP WIRE #12 XHHW	LF	1748
<b>PEDESTRIAN PUSH BUTTON</b>			
		PR	2
<b>3-M OPTICOM DETECTOR</b>			
		EA	3
<b>LOOP DETECTOR AMPLIFIER</b>			
		EA	9
<b>FOUNDATIONS:</b>			
	SIGNAL CONTROLLER	EA	1
	TYPE A POLES	EA	
	TYPE B "	EA	3
	TYPE C "	EA	2

POLES:	
PEDESTAL	EA 2
MAST ARM ASSEMBLY w/15' ARM	EA 1
" w/25' ARM	EA 1
" w/30' ARM	EA 1
" w/35' ARM	EA 1
4 SECTION 12" SIGNAL HEAD w/1 DUAL ARROW	EA 6
3 SECTION 12" SIGNAL HEAD	EA 1
1 PEDESTRIAN HEAD	EA 4
CONTROLLER - 4 PHASE FULLY ACTUATED w/3M OPTICOM PRE-EMPT	
	EA 1
POWER SUPPLY	EA 1
12" PLASTIC STOP BAR (60mil)	EA 1
RETRO-REFLECTIVE	LF 95
REMOVE EXIST SPAN WIRE CONTROLLER	LS 1

UNDER CONTRACT BY  
**H.B. JONES**  
 Consulting Engineers Garland, Texas

No.	Revision	Date
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CITIES OF ADDISON & FARMERS BRANCH  
 DALLAS COUNTY, TEXAS  
**TRAFFIC SIGNAL INSTALLATION**

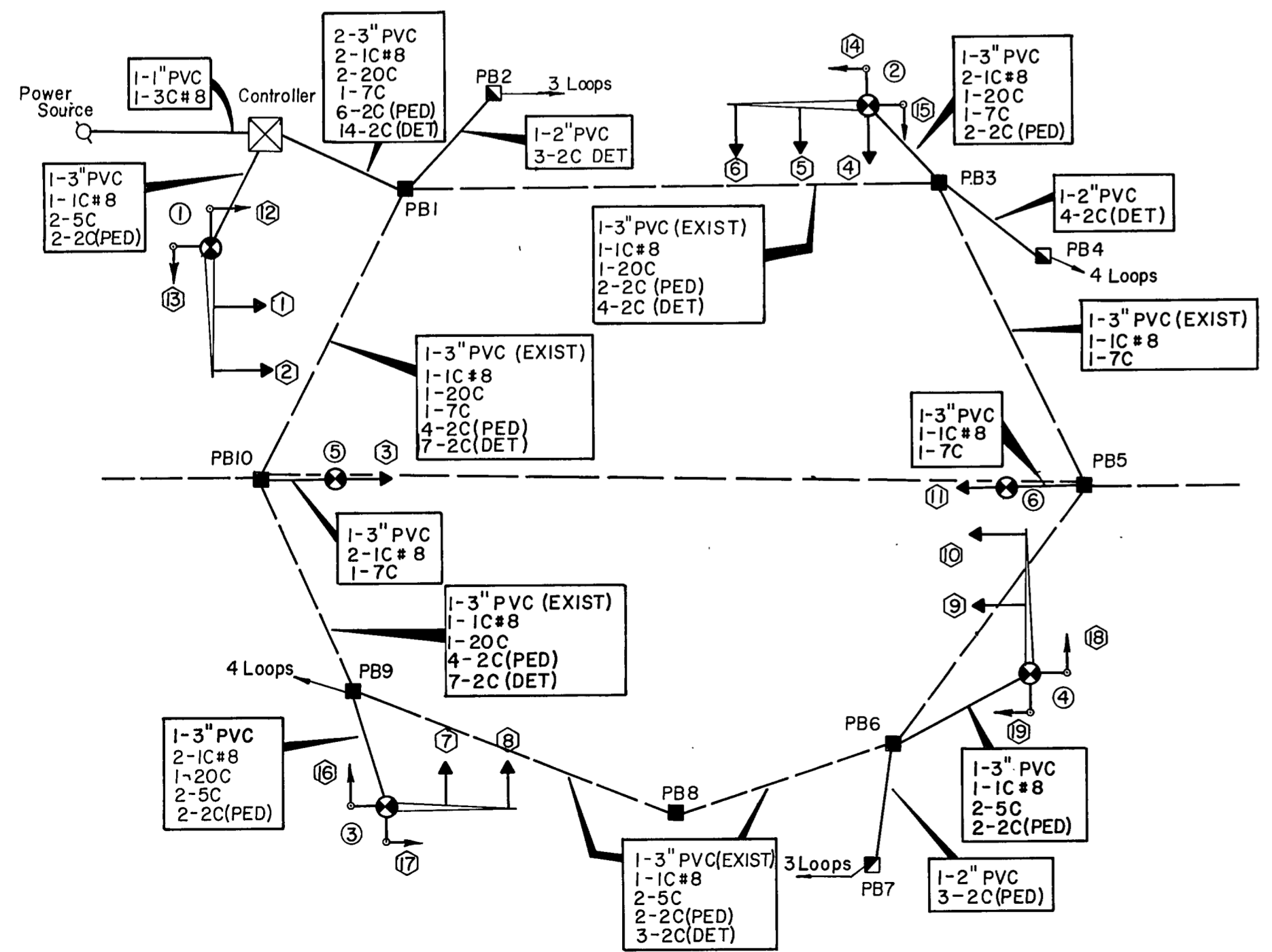
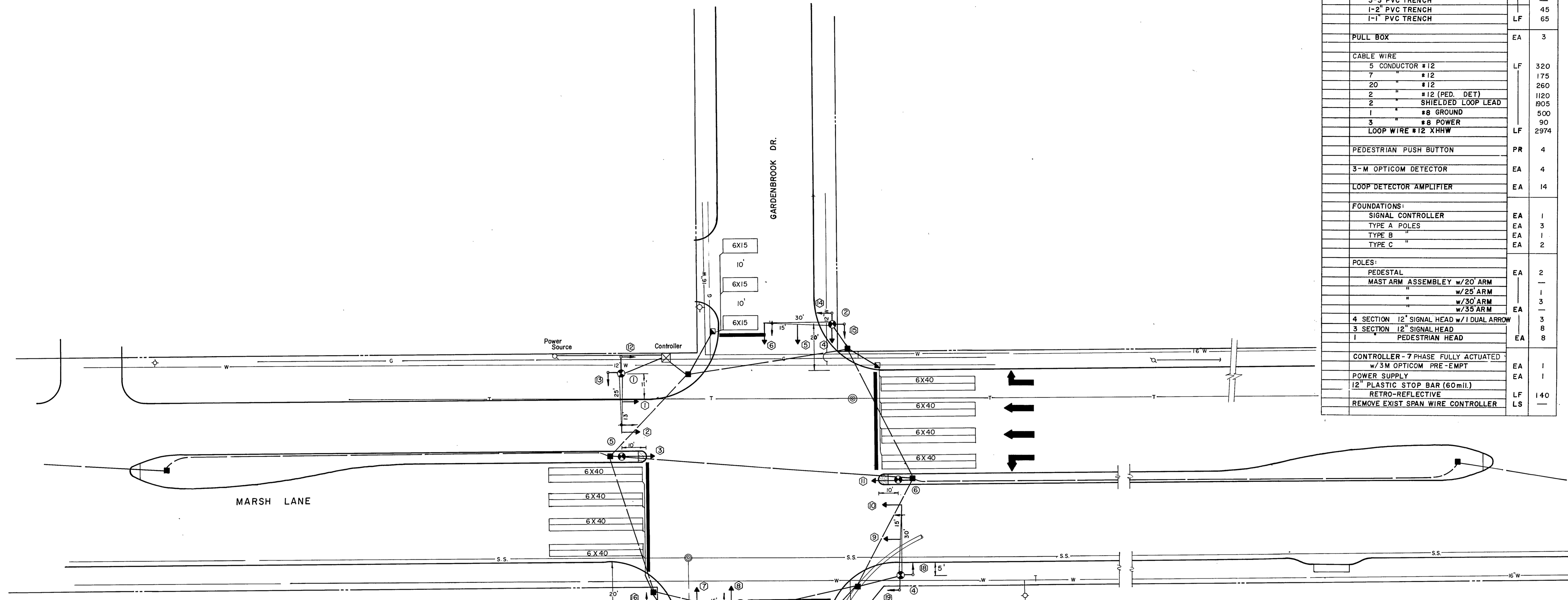
INTERSECTION LAYOUT  
 MARSH LANE AND PEBBLE BEACH DR.

**GINN, INC.**  
 Consulting Engineers Dallas, Texas

DESIGN H.B.J.	DRAWN R.G.B.	SCALE 1" = 20'	PROJ.
APPROVED H.W.G.	CHK'D H.B.J.	DATE SEPT. 1983	SHEET 5 # 14

QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANT.
<b>CONDUIT:</b>			
	1-3" PVC TRENCH	LF	100
	1-3" PVC PUSH		—
	2-3" PVC TRENCH		20
	3-3" PVC TRENCH		—
	1-2" PVC TRENCH	LF	45
	1-1" PVC TRENCH	LF	65
<b>PULL BOX</b>			
		EA	3
<b>CABLE WIRE</b>			
	5 CONDUCTOR #12	LF	320
	7 " #12		175
	20 " #12		260
	2 " #12 (PED. DET)		1120
	2 " SHIELDED LOOP LEAD		1905
	1 " #8 GROUND		500
	3 " #8 POWER		90
	LOOP WIRE #12 XHHW	LF	2974
<b>PEDESTRIAN PUSH BUTTON</b>			
		PR	4
<b>3-M OPTICOM DETECTOR</b>			
		EA	4
<b>LOOP DETECTOR AMPLIFIER</b>			
		EA	14
<b>FOUNDATIONS:</b>			
	SIGNAL CONTROLLER	EA	1
	TYPE A POLES	EA	3
	TYPE B "	EA	1
	TYPE C "	EA	2
<b>POLES:</b>			
	PEDESTAL	EA	2
	MAST ARM ASSEMBLY w/20' ARM		—
	" w/25' ARM		1
	" w/30' ARM		3
	" w/35' ARM	EA	—
	4 SECTION 12" SIGNAL HEAD w/1 DUAL ARROW		3
	3 SECTION 12" SIGNAL HEAD		8
	1 PEDESTRIAN HEAD	EA	8
<b>CONTROLLER - 7 PHASE FULLY ACTUATED</b>			
	w/3M OPTICOM PRE-EMPT	EA	1
<b>POWER SUPPLY</b>			
	12" PLASTIC STOP BAR (60mil.)	EA	1
	RETRO-REFLECTIVE	LF	140
	REMOVE EXIST SPAN WIRE CONTROLLER	LS	—



WIRING & PVC DIAGRAM

SIGNAL ARRAYS

HEAD NUMBERS	1,2	4,5	6,3	12,13	14,15
LENS SIZE	9,10	7,8	11	18,19	16,17
TYPE	Conv.	Conv.	Conv.	Ped.	Ped.
LENS CONFIGURATION	R	R	R	DW	DW
	Y	Y	Y	WALK	WALK
	G	G	G		
				**	**
Total Number of Units	4	4	3	4	4

\* One Section Pedestrian Head (WINKO-MATIC Model VI-2L-AG or Equal)  
 \*\*Dual Arrow Fiber Optics - Amber/Green Arrow (WINKO-MATIC Model AFO-12 or Equal)

CONDUIT & CABLE QUANTITIES

FROM	TO	DISTANCE	PVC CONDUIT T-TRENCH P-PUSHED	CABLE										
				5C	7C	20C	2C PED	2C DET	1C #8	1C #12	3C #8			
		50'	1-1" T-65'										90	
		20'	1-3" T-30'	60			60							
	PB1	10'	2-3" T-15'	20	40	120	280	40						
	PB1	PB2	20'	1-2" T-20'				75				260		
	PB1	PB3	70'				75	150	300	75				
	PB3		10'	1-3" T-15'	15	15	30			30				
	PB3	PB4	15'	1-2" T-15'					80			964		
	PB3	PB5	60'				65				65			
	PB5		5'	1-3" T-10'	10						10			
	PB1	PB10	50'				55	55	220	385	55			
	PB10	PB9	60'					65	260	455	65	1040		
	PB9		5'	1-3" T-10'	20		10	30			20			
	PB9	PB8	35'				80		80	120	40			
	PB8	PB6	50'				110		110	165	55			
	PB6		20'	1-3" T-25'	50				60		25			
	PB6	PB7	10'	1-2" T-10'							45		710	
TOTALS							320	175	260	1120	1905	500	2974	90

- ① → ① INSTALL SIGNAL MAST ARM & POLE
- → → INSTALL TRAFFIC SIGNAL HEAD
- → ○ INSTALL PEDESTRIAN BUTTON
- → → INSTALL OPTICOM DETECTOR ONE-DIRECTION
- INSTALL SIGNAL PULL BOX
- EXISTING SIGNAL PULL BOX
- INSTALL CONTROLLER & FOUNDATION
- POWER POLE - SERVICE SOURCE
- INSTALL PEDESTRIAN SIGNAL POLE
- INSTALL PVC CONDUIT
- EXISTING PVC CONDUIT
- W-S-T-G- EXISTING U.G. UTILITIES - WATER - SAN SEW. - TEL. - GAS
- ||||| STORM SEWER

UNDER CONTRACT BY  
**H.B. JONES**  
 Consulting Engineers Garland, Texas

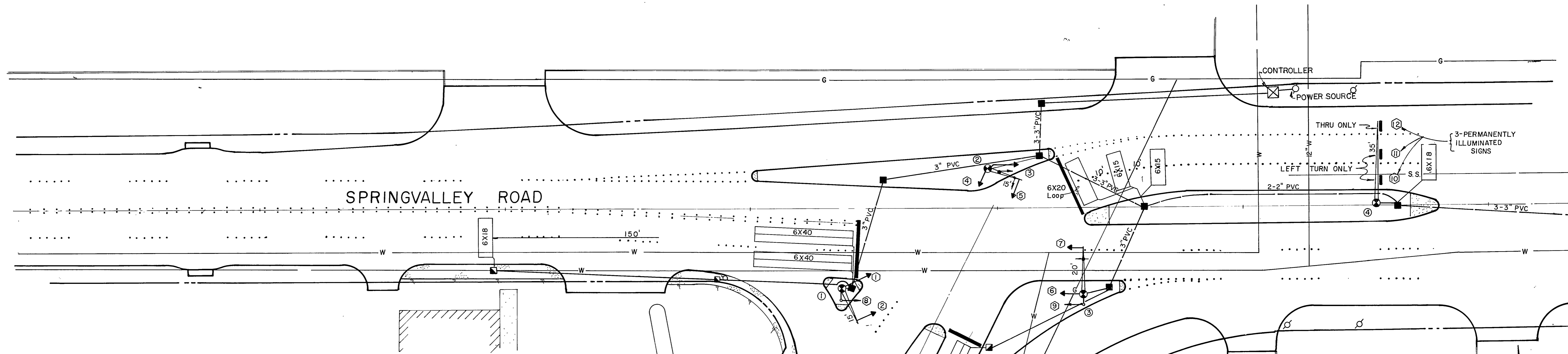
CITIES OF ADDISON & FARMERS BRANCH  
 DALLAS COUNTY, TEXAS

**TRAFFIC SIGNAL INSTALLATION**

INTERSECTION LAYOUT  
 MARSH LANE AND GARDENBROOK/BELTWAY

**GINN, INC.**  
 Consulting Engineers Dallas, Texas

DESIGN HBJ DRAWN R.G.B. SCALE 1"=20' PROJ.  
 APPROVED H.W.G. CHK'D HBJ DATE SEPT. 1983 SHEET 6 of 14



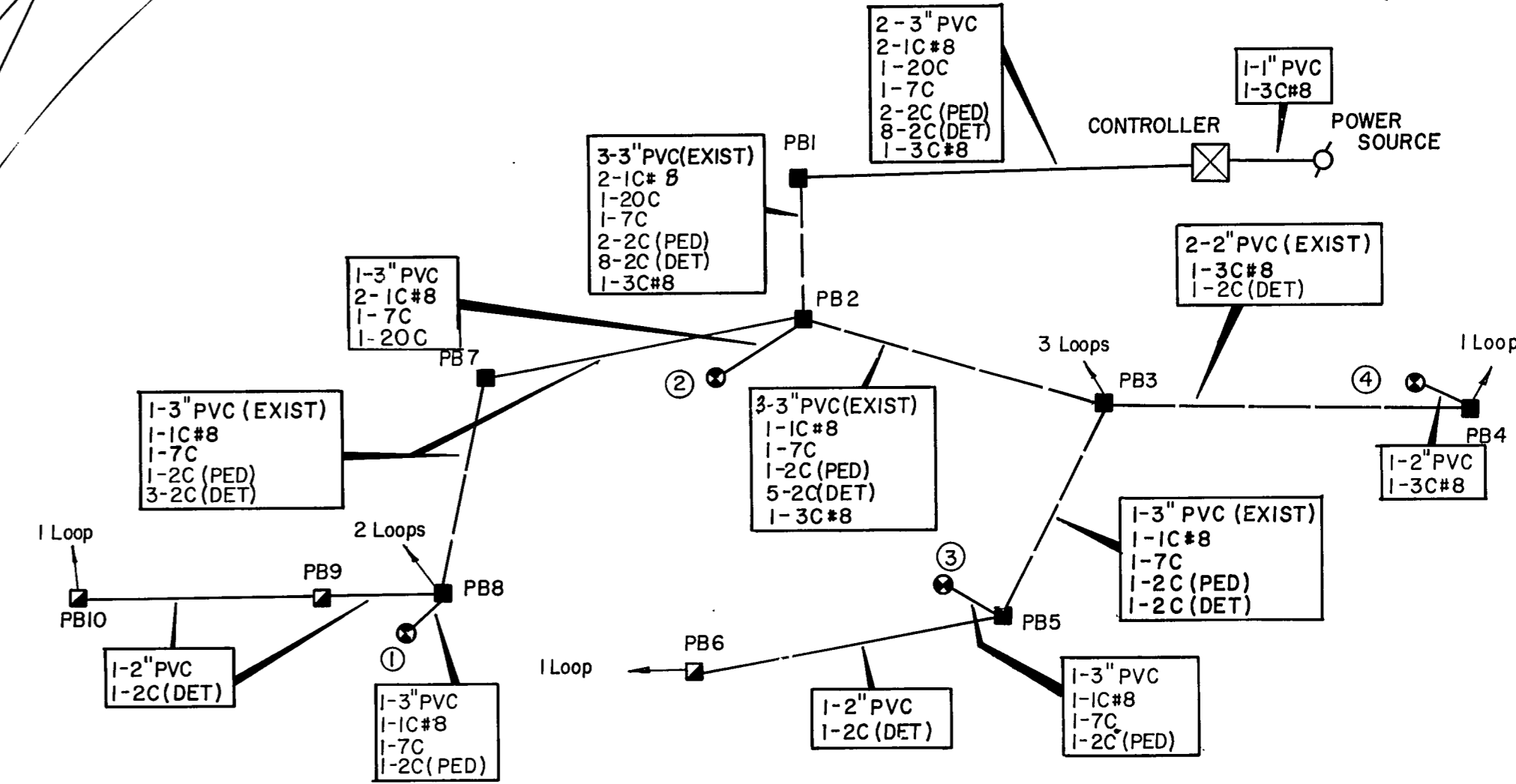
FOUNDATIONS:			
SIGNAL CONTROLLER	EA	1	
TYPE A POLES	EA	1	
TYPE B "	EA	3	
TYPE C "	EA	1	
POLES:			
MAST ARM ASSEMBLY w/15' ARM	EA	2	
MAST ARM ASSEMBLY w/20' ARM		1	
" w/25' ARM		1	
" w/30' ARM	EA	1	
" w/35' ARM		1	
4 SECTION 12" SIGNAL HEAD w/1 DUAL ARROW		7	
3 SECTION 12" SIGNAL HEAD		2	
1 PEDESTRIAN HEAD	EA	2	
PERMANENTLY ILLUMINATED SIGN 36"X30"		3	
CONTROLLER-3 PHASE FULLY ACTUATED w/3M OPTICOM PRE-EMPT	EA	1	
POWER SUPPLY	EA	1	
12" PLASTIC STOP BAR (60mil.)	LF	1	
RETRO-REFLECTIVE	LS	1	
REMOVE EXIST SPAN WIRE CONTROLLER			

QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANT.
CONDUIT:			
	1-3" PVC TRENCH	LF	50
	1-3" PVC PUSH		—
	2-3" PVC TRENCH		35
	1-2" PVC PUSH		105
	1-2" PVC TRENCH	LF	105
	1-1" PVC TRENCH	LF	25
	2-3" PVC PUSH	LF	60
	PULL BOX	EA	3
CABLE WIRE			
	5 CONDUCTOR #12	LF	—
	7 " #12		400
	20 " #12		155
	2 " #12 (PED. DET)		515
	2 " SHIELDED LOOP LEAD		2050
	1 " #8 GROUND		530
	3 " #8 POWER		350
	LOOP WIRE #12 XHRW	LF	1039
	PEDESTRIAN PUSH BUTTON	PR	1
	3-M OPTICOM DETECTOR	EA	3
	LOOP DETECTOR AMPLIFIER	EA	8

SIGNAL ARRAYS						
HEAD NUMBERS	1,2,3 4,5	6,7	8,9	10 11	12	
LENS SIZE	12"	12"	*	36"X30"		
TYPE	Conv.	Conv.	Ped.	★	★	
LENS CONFIGURATION	←R	R	DW	← ONLY	↑ ONLY	
	←Y	Y	WALK			
	←G	G				
Total Number of Units	5	2	2	2	1	

★ Permanently Illuminated Sign (36"X30")  
Sign face shall be Winko-Matic W-101 or Equal

\* ONE SECTION PEDESTRIAN HEAD (WINKO-METIC)  
MODEL VI-2L-AG OR EQUAL



WIRING & PVC DIAGRAM

CONDUIT & CABLE QUANTITIES

FROM	TO	DISTANCE	PVC CONDUIT T-TRENCH P-PUSHED	CABLE									
				SWITCHING 5C	7C	20C	DETECTOR 2C PED	2C DET	GRD. #8	LOOP #12	POWER #8		
⊗	⊗	10'	1-1" T-25'									45	
⊗	PB1	95'	2-3" P-60' 2-3" T-35'	105	105	210	840	210				105	
	PB1 PB2	20'		25	25	50	200	25				25	
	PB2	20'	1-3" T-25'		25	25			50				
	PB2 PB7	70'		75		75	225	75					
	PB7 PB8	45'		50		50	150	50	450				
	PB8	5'	1-3" T-10'	10		15		10					
	PB8 PB9	55'	1-2" P-55'				60						
	PB9 PB10	90'	1-2" P-50' 1-2" T-40'				95		65				
	PB2 PB3	50'		55		55	275	55	224	55			
	PB3 PB4	100'					105		85	105			
	PB4	5'	1-2" T-10'									15	
	PB3 PB5	35'		40		40	40	40					
	PB5	10'	1-3" T-15'	15		20		15					
	PB5 PB6	55'	1-2" T-55'				60		215				
TOTALS				400	155	515	2050	530	1039	350			

UNDER CONTRACT BY  
**H.B. JONES**  
Consulting Engineers Garland, Texas

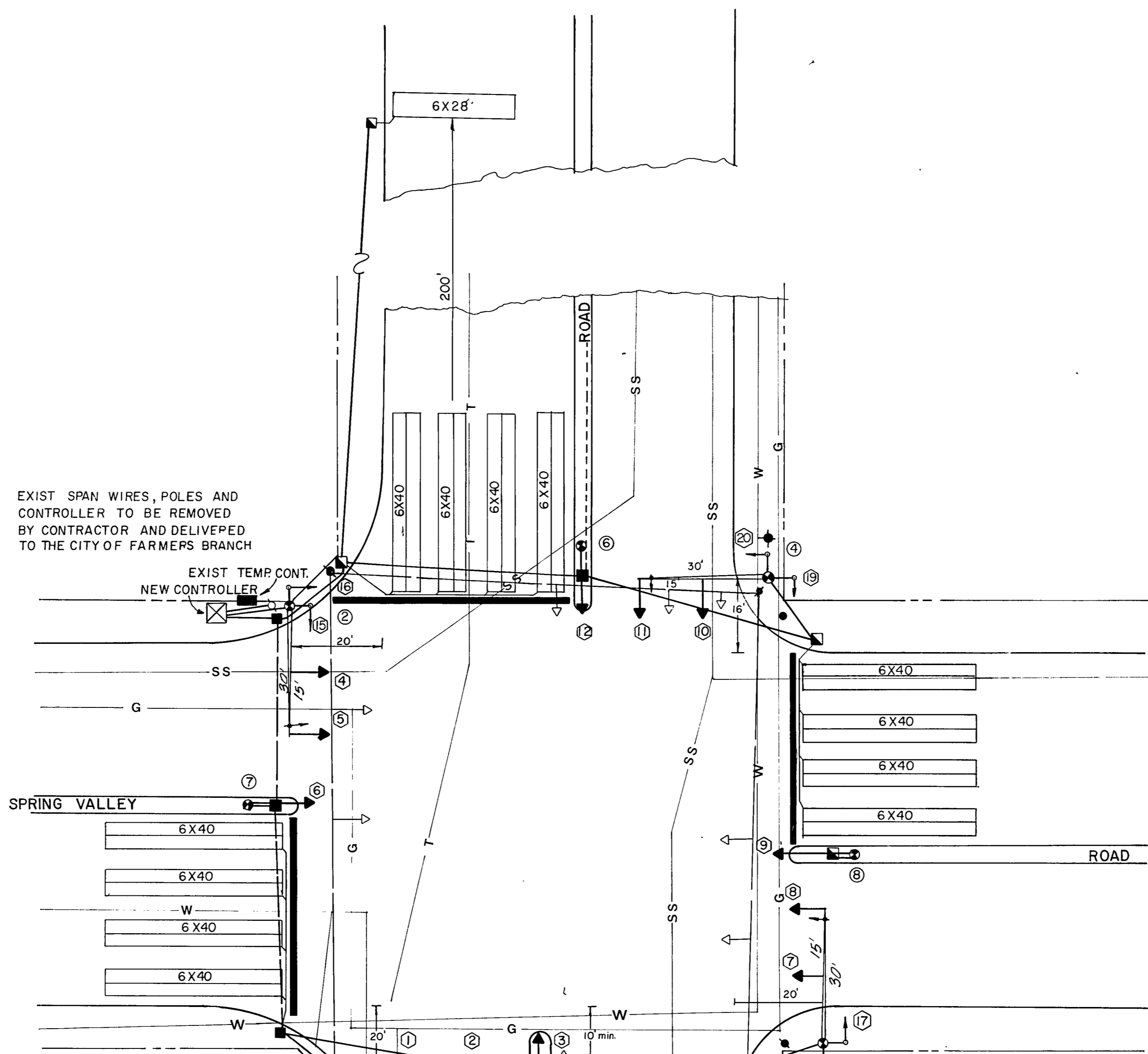
- ⊗ → ⊗ INSTALL SIGNAL MAST ARM & POLE
- ⊗ INSTALL TRAFFIC SIGNAL HEAD
- ⊗ → ⊗ INSTALL PEDESTRIAN BUTTON
- ⊗ INSTALL OPTICOM DETECTOR ONE-DIRECTION
- ⊗ INSTALL SIGNAL PULL BOX
- ⊗ EXISTING SIGNAL PULL BOX
- ⊗ INSTALL CONTROLLER & FOUNDATION
- ⊗ POWER POLE - SERVICE SOURCE
- ⊗ INSTALL PEDESTRIAN SIGNAL POLE
- — — — — INSTALL PVC CONDUIT
- — — — — EXISTING PVC CONDUIT
- W-SS-T-6- EXISTING U.G. UTILITIES - WATER - SAN. SEW. - TEL. - GAS
- ||||| STORM SEWER

NO.	Revision	By	Date
CITIES OF ADDISON & FARMERS BRANCH DALLAS COUNTY, TEXAS			
<b>TRAFFIC SIGNAL INSTALLATION</b>			
INTERSECTION LAYOUT BROOKHAVEN CLUB DR. AND SPRINGVALLEY ROAD			
<b>GINN, INC.</b> Consulting Engineers - Dallas, Texas			
Designed - HBJ	Drawn - RJB	Date - SEPT, 1983	Job -
Approved - HBJ	Checked - HBJ	Scale 1"=20'	Sheet 7 of 14



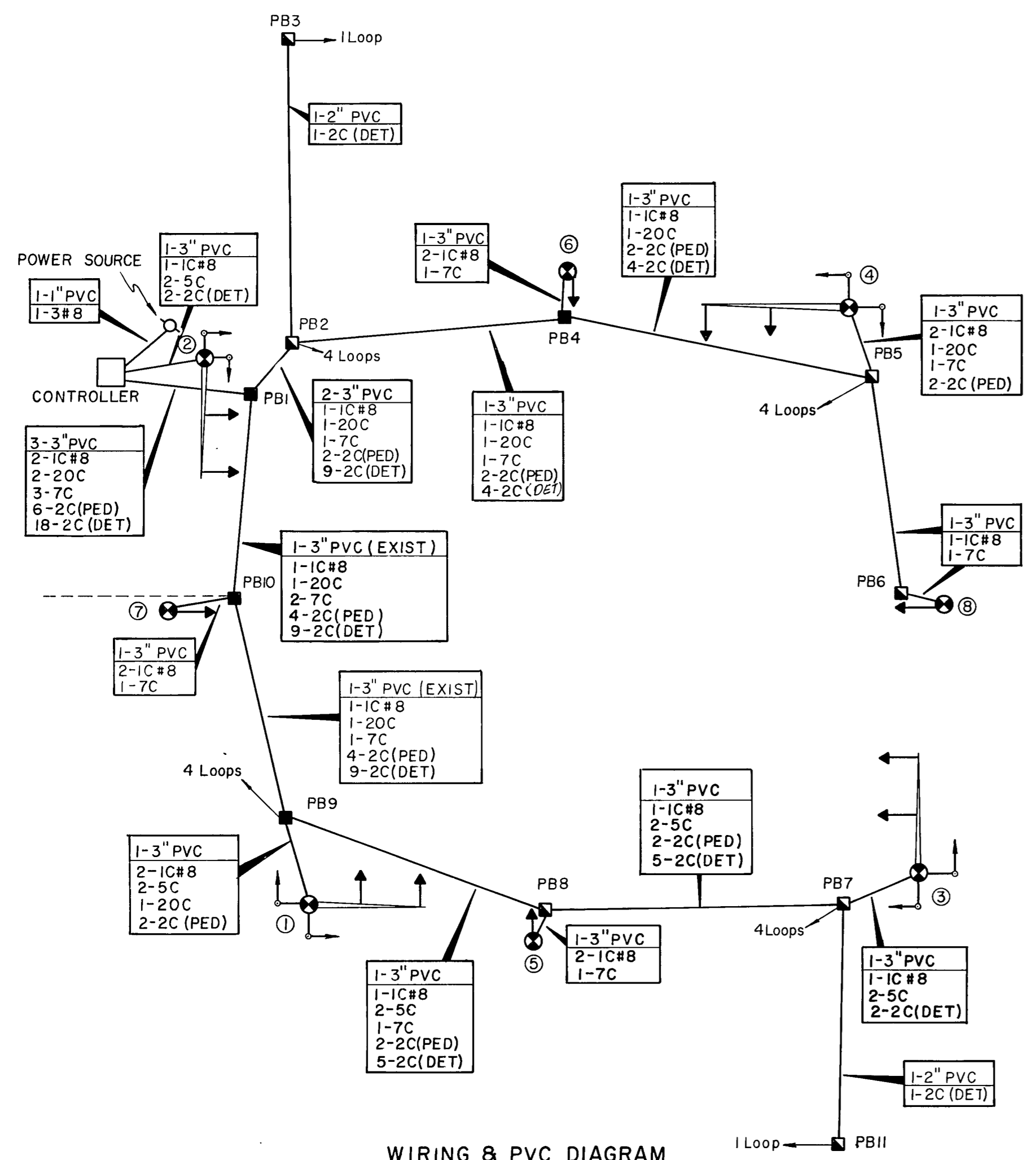
**CONDUIT & CABLE QUANTITIES**

FROM	TO	DISTANCE	PVC CONDUIT T-TRENCH P-PUSHED	CABLE							
				SWITCHING	DETECTOR	GRD	LOOP	POWER			
				5C	7C	20C	2C PED	2C DET	1C #8	1C #12	3C #8
Q	2	10'	1-1" T-25'								45'
Q	2	15'	1-3" T-25'	50			60		25		
Q	PB1	10'	3-3" T-15'	60	40	120	360	40			
PB1	PB2	20'	2-3" T-20'	25	25	25	225	25	10I2		
PB2	PB3	200'	1-2" T-200'				205		90		
PB2	PB4	55'	1-3" T-55'	60	60	120	240	60			
PB4	6	5'	1-3" T-10'	10					20		
PB4	PB5	55'	1-3" T-55'	60	120	240	60	972			
PB5	4	20'	1-3" T-25'	25	25	50		50			
PB5	PB6	45'	1-3" P-45'	50				50			
PB6	8	5'	1-3" T-10'	10				10			
PB1	PB10	40'	—	90	45	180	405	45			
PB10	7	5'	1-3" T-10'	10				20			
PB10	PB9	50'	—	55	55	220	495	55	992		
PB9	1	20'	1-3" T-20'	50		25	60	50			
PB9	PB8	60'	1-3" P-60'	130	65		130	325	65		
PB8	5	5'	1-3" T-10'	10				20			
PB8	PB7	50'	1-3" P-50'	110			110	275	55	992	
PB7	3	15'	1-3" T-20'	40			50	20			
PB7	PB11	200'	1-2" T-200'				205		670	4058	45
<b>TOTALS</b>				380	470	335	1450	2770	670	4058	45



**QUANTITIES**

ITEM	DESCRIPTION	UNIT	QUANT.
<b>CONDUIT:</b>			
	1-3" PVC TRENCH	LF	185
	1-3" PVC PUSH		210
	2-3" PVC TRENCH		20
	3-3" PVC TRENCH		15
	1-2" PVC TRENCH	LF	400
	1-1" PVC TRENCH		25
<b>PULL BOX</b>			
		EA	6
<b>CABLE WIRE</b>			
	5 CONDUCTOR #12	LF	380
	7 " #12		470
	20 " #12		335
	2 " #12 (PED. DET)		1450
	2 " SHIELDED LOOP LEAD		2770
	1 " #8 GROUND		670
	3 " #8 POWER		45
	LOOP WIRE #12 XHHW	LF	4058
<b>PEDESTRIAN PUSH BUTTON</b>			
		PR	4
<b>3-M OPTICOM DETECTOR</b>			
		EA	4
<b>LOOP DETECTOR AMPLIFIER</b>			
		EA	18
<b>FOUNDATIONS:</b>			
	SIGNAL CONTROLLER	EA	1
	TYPE A POLES	EA	4
	TYPE B "	EA	—
	TYPE C "	EA	4
<b>POLES:</b>			
	PEDESTAL	EA	4
	MAST ARM ASSEMBLY w/20' ARM		—
	" w/25' ARM		—
	" w/30' ARM	EA	—
	" w/35' ARM	EA	—
	4 SECTION 12" SIGNAL HEAD w/1 DUAL ARROW		4
	3 SECTION 12" SIGNAL HEAD		8
	1 " PEDESTRIAN HEAD	EA	8
<b>CONTROLLER - 8 PHASE FULLY ACTUATED</b>			
	w/3M OPTICOM PRE-EMPT	EA	1
<b>POWER SUPPLY</b>			
	12" PLASTIC STOP BAR (60mil.)	EA	1
	RETRO-REFLECTIVE	LF	190
	REMOVE EXIST SPAN WIRE CONTROLLER	LS	1



**WIRING & PVC DIAGRAM**

**SIGNAL ARRAYS**

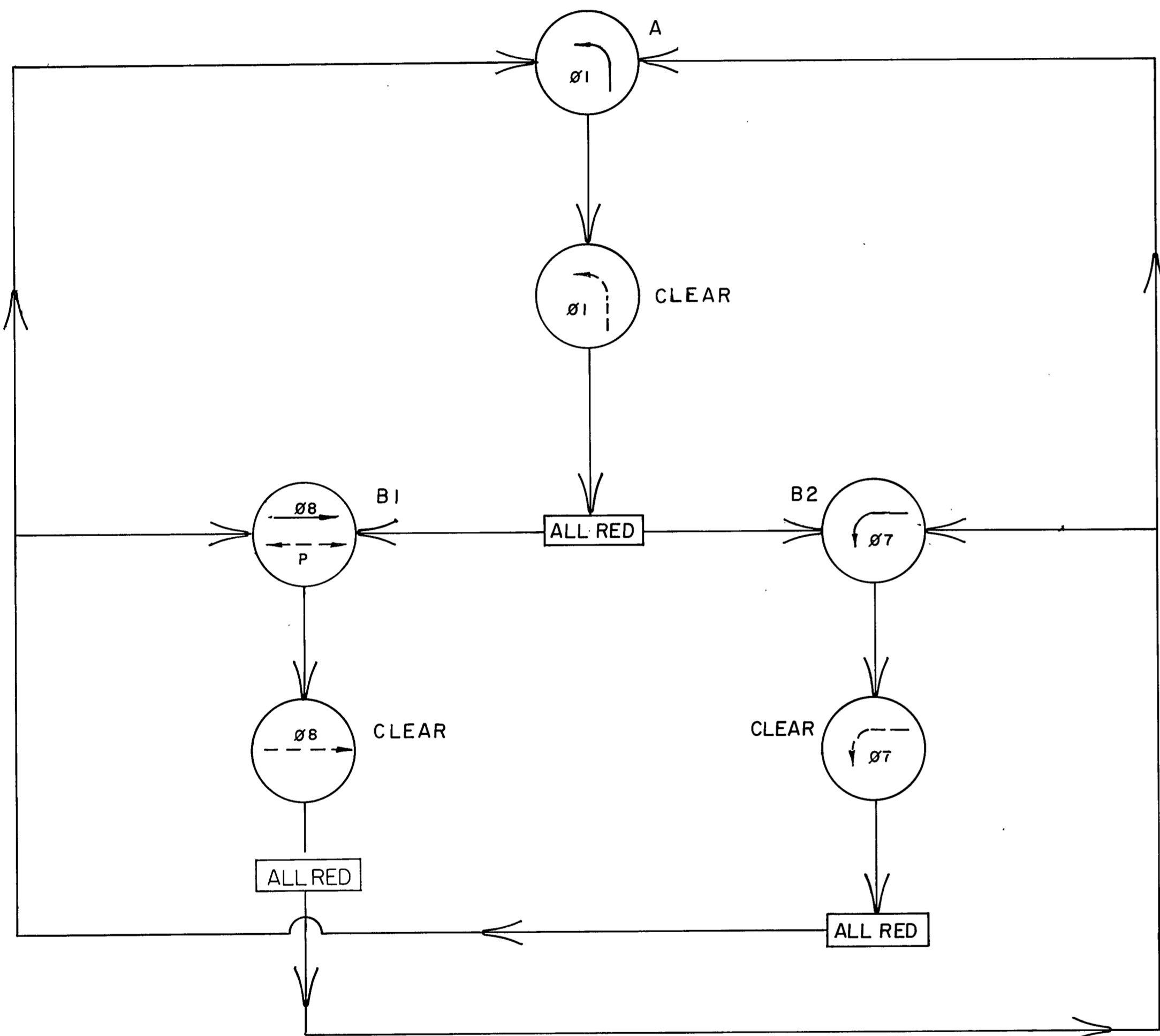
HEAD NUMBERS	1,2	4,5	3,12	13,14	17,18
	10,11	7,8	6,9	15,16	19,20
LENS SIZE	12"	12"	12"	12"	12"
TYPE	Conv.	Conv.	Conv.	Ped.	Ped.
LENS CONFIGURATION	R	R	R	DW	DW
	Y	Y	Y	WALK	WALK
	G	G	G		
Total Number of Units	4	4	4	4	4

\* One Section Pedestrian Head (WINKO-MATIC Model VI-2L-AG or Equal)  
 \* Dual Arrow Fiber Optics - Amber/Green Arrow (WINKO-MATIC Model AFO-12 or Equal)

- ① ———— INSTALL SIGNAL MAST ARM & POLE
- ② ———— INSTALL TRAFFIC SIGNAL HEAD
- ③ ———— INSTALL PEDESTRIAN BUTTON
- ④ ———— INSTALL OPTICOM DETECTOR ONE-DIRECTION
- ⑤ ———— INSTALL SIGNAL PULL BOX
- ⑥ ———— EXISTING SIGNAL PULL BOX
- ⑦ ———— INSTALL CONTROLLER & FOUNDATION
- ⑧ ———— POWER POLE - SERVICE SOURCE
- ⑨ ———— INSTALL PEDESTRIAN SIGNAL POLE
- ⑩ ———— INSTALL PVC CONDUIT
- ⑪ ———— EXISTING PVC CONDUIT
- ⑫ ———— EXISTING U.G. UTILITIES - WATER - SAN. SEW. - TEL. - GAS
- ⑬ ———— STORM SEWER

UNDER CONTRACT BY  
**H.B. JONES**  
 Consulting Engineers      Garland, Texas

No.	Revision	By	Date
CITIES OF ADDISON & FARMERS BRANCH DALLAS COUNTY, TEXAS			
<b>TRAFFIC SIGNAL INSTALLATION</b>			
INTERSECTION LAYOUT SPRING VALLEY ROAD AND MIDWAY ROAD			
<b>GINN, INC.</b> Consulting Engineers      Dallas, Texas			
Designed - HBJ	Drawn - R.G.B.	Date - SEPT. 1983	Job No. -
Approved - HBJ	Checked - HBJ	Scale - 1"=20'	Sheet 8 of 14



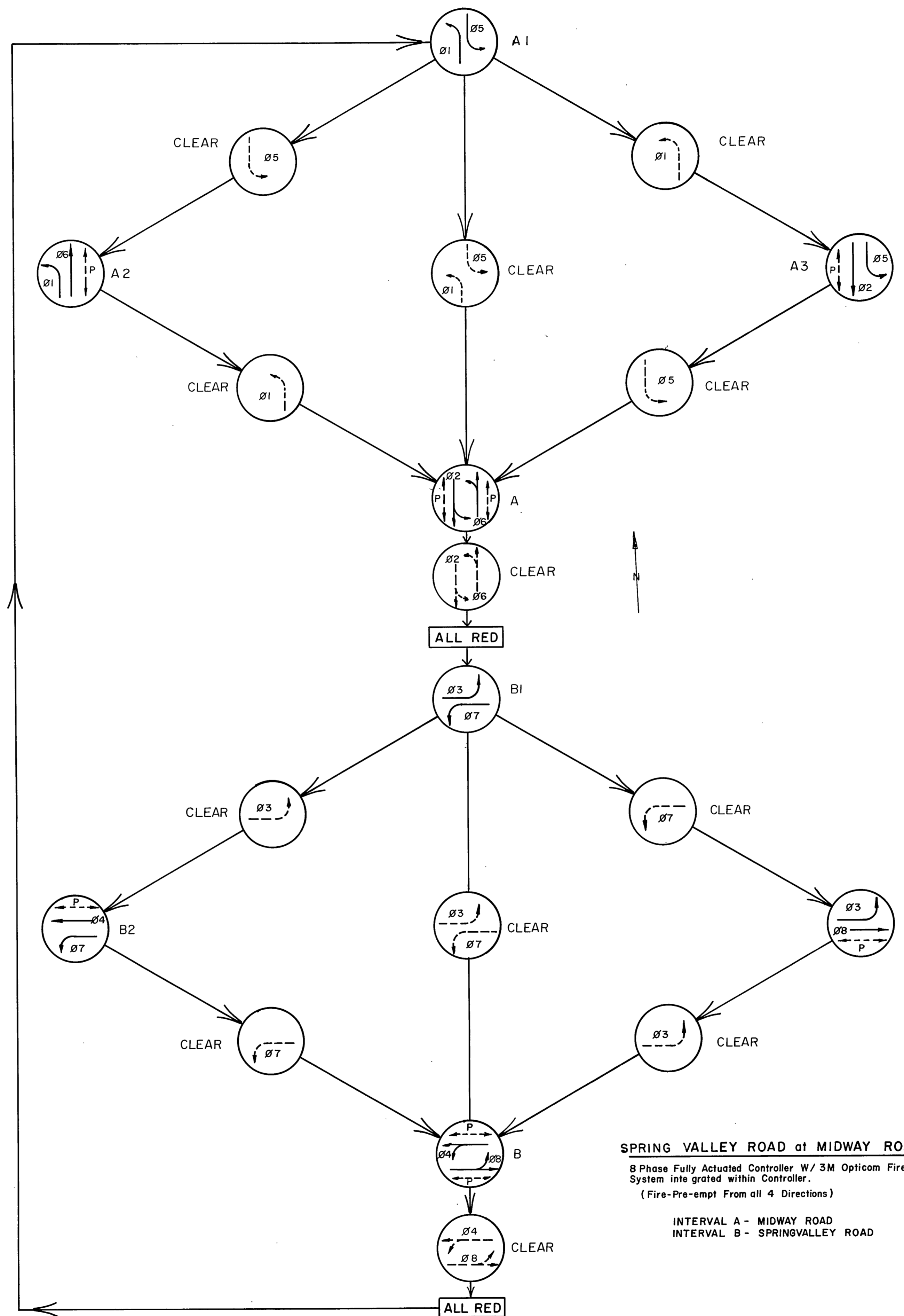
SPRING VALLEY ROAD at BROOKHAVEN CLUB DRIVE

3 Phase Fully Actuated Controller W/3M-OPTICOM Fire Preempt System integrated within Controller. (Fire Pre-emption from All 3 Directions)

INTERVAL A - BROOKHAVEN CLUB DRIVE  
INTERVAL B - SPRING VALLEY ROAD

SIGNAL HEAD DISPLAYS/INTERVAL CHART

INTERVAL	SIGNAL HEAD No.											
	1	2	3	4	5	6	7	8	9	10	11	12
A	←R-	←R-	←R-	←G-	←G-	R	R	DW	DW			
A CLEAR RED	←R-	←R-	←R-	←Y-	←Y-	R	R	DW	DW			
ALL RED	←R-	←R-	←R-	←R-	←R-	R	R	DW	DW			
B1	←R-	←R-	←R-	←R-	←R-	G	G	WALK	WALK			
B1 PED CLEAR	←R-	←R-	←R-	←R-	←R-	G	G	FLASH WALK	FLASH WALK			
B1 CLEAR RED	←R-	←R-	←R-	←R-	←R-	Y	Y	DW	DW			
ALL RED	←R-	←R-	←R-	←R-	←R-	R	R	DW	DW			
B2	←G-	←G-	←G-	←R-	←R-	R	R	DW	DW			
B2 CLEAR RED	←Y-	←Y-	←Y-	←R-	←R-	R	R	DW	DW			
ALL RED	←R-	←R-	←R-	←R-	←R-	R	R	DW	DW			



SPRING VALLEY ROAD at MIDWAY ROAD

8 Phase Fully Actuated Controller W/ 3M Opticom Fire-Preempt System into graded within Controller. (Fire-Pre-empt From all 4 Directions)

INTERVAL A - MIDWAY ROAD  
INTERVAL B - SPRING VALLEY ROAD

SIGNAL HEAD DISPLAYS/INTERVAL CHART

INTERVAL	SIGNAL HEAD No.															
	1,2	3	10,11	12	4,5	6	7,8	9	13,15	17,19	14,18	16,20				
A1	R	R	←G	R	←G	R	R	R	R	DW	DW	DW	DW			
A1 CLEAR A2	R	R	←Y	R	←G	R	R	R	R	DW	DW	DW	DW			
A1 CLEAR A3	R	R	←G	R	←Y	R	R	R	R	DW	DW	DW	DW			
A1 CLEAR A	R	R	←Y	R	←G	R	R	R	R	DW	DW	DW	DW			
A2	R	R	G	G	←G	R	R	R	R	DW	WALK	DW	DW			
A2 PED CLEAR	R	R	G	G	←G	R	R	R	R	DW	FLASH WALK	DW	DW			
A2 CLEAR A	R	R	G	G	←Y	R	R	R	R	DW	WALK	DW	DW			
A3	G	G	←G	R	R	R	R	R	R	WALK	DW	DW	DW			
A3 PED CLEAR	G	G	←G	R	R	R	R	R	R	FLASH WALK	DW	DW	DW			
A3 CLEAR A	G	G	←Y	R	R	R	R	R	R	WALK	DW	DW	DW			
A	G	G	G	G	R	R	R	R	R	WALK	WALK	DW	DW			
A PED CLEAR	G	G	G	G	R	R	R	R	R	FLASH WALK	FLASH WALK	DW	DW			
A CLEAR	Y	Y	Y	Y	R	R	R	R	R	DW	DW	DW	DW			
ALL RED	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW			
B1	R	R	R	R	R	R	←G	R	←G	R	DW	DW	DW			
B1 CLEAR B2	R	R	R	R	R	R	←Y	R	←Y	R	DW	DW	DW			
B1 CLEAR B3	R	R	R	R	R	R	←Y	R	←G	R	DW	DW	DW			
B1 CLEAR B	R	R	R	R	R	R	←Y	R	←Y	R	DW	DW	DW			
B2	R	R	R	R	G	G	←G	R	R	DW	DW	DW	WALK			
B2 PED CLEAR	R	R	R	R	G	G	←G	R	R	DW	DW	DW	FLASH WALK			
B2 CLEAR B	R	R	R	R	G	G	←Y	R	R	DW	DW	DW	WALK			
B3	R	R	R	R	R	R	G	G	←G	DW	DW	WALK	DW			
B3 PED CLEAR	R	R	R	R	R	R	G	G	←G	DW	DW	FLASH WALK	DW			
B3 CLEAR B	R	R	R	R	R	R	G	G	←Y	DW	DW	WALK	DW			
B	R	R	R	R	G	G	G	G	G	DW	DW	WALK	WALK			
B PED CLEAR	R	R	R	R	G	G	G	G	G	DW	DW	FLASH WALK	FLASH WALK			
B CLEAR	R	R	R	R	Y	Y	Y	Y	Y	DW	DW	DW	DW			
ALL RED	R	R	R	R	R	R	R	R	R	DW	DW	DW	DW			

Hal B Jones

UNDER CONTRACT BY

H.B. JONES

Consulting Engineers Garland, Texas

No.	Revision	By	Date
CITIES OF ADDISON & FARMERS BRANCH DALLAS COUNTY, TEXAS			
<b>TRAFFIC SIGNAL INSTALLATION</b>			
<b>INTERVAL &amp; PHASING DIAGRAMS</b>			
GINN, INC. Consulting Engineers Dallas, Texas			
DESIGN HBJ	DRAWN R.G.B.	SCALE 1"=20'	PROJ.
APPROVED H.B.J.	CHK'D HBJ	DATE SEPT 1983	SHEET 9 of 14

SIGNAL HEAD DISPLAYS/INTERVAL CHART

INTERVAL	SIGNAL HEAD No.										
	1,2	3	9,10	11	4,5	6	7,8	12,14	17,19	13,16	15,18
AI	R	R	R	R	R	R	R	DW	DW	DW	DW
AI CLEAR A2	R	R	R	R	R	R	R				
AI CLEAR A3	R	R	R	R	R	R	R				
AI CLEAR A	R	R	R	R	R	R	R	DW			
A2	G	G	R	R	R	R	R	WALK			
A2 PED CLEAR	G	G	R	R	R	R	R	FLASH WALK			
A2 CLEAR A	G	G	R	R	R	R	R	WALK	DW		
A3	R	R	G	G	R	R	R	DW	WALK		
A3 PED CLEAR	R	R	G	G	R	R	R	FLASH WALK			
A3 CLEAR A	R	R	G	G	R	R	R	DW	WALK		
A	G	G	G	G	R	R	R	WALK	WALK		
A PED CLEAR	G	G	G	G	R	R	R	FLASH WALK	FLASH WALK		
A CLEAR RED	Y	Y	Y	Y	R	R	R	DW	DW		
ALL RED	R	R	R	R	R	R	R			DW	DW
B	R	R	R	R	G	G	G			WALK	WALK
B PED CLEAR	R	R	R	R	G	G	G			FLASH WALK	FLASH WALK
B CLEAR	R	R	R	R	Y	Y	Y			DW	DW
BI	R	R	R	R	R	R	R				
BI CLEAR RED	R	R	R	R	R	R	R				
ALL RED	R	R	R	R	R	R	R	DW	DW	DW	DW

SIGNAL HEAD DISPLAYS/INTERVALS

INTERVAL	SIGNAL HEAD No.					
	1,2	3,4	5	6,7	8,9	10,11
AI	R	G	G	R	DW	DW
AI CLEAR A	R	G	G	R	DW	
A	G	G	G	R	WALK	
A PED CLEAR	G	G	G	R	FLASH WALK	
A CLEAR RED	Y	Y	Y	R	DW	
ALL RED	R	R	R	R		DW
B	R	R	R	G		WALK
B PED CLEAR	R	R	R	G		FLASH WALK
B CLEAR RED	R	R	R	Y		DW
ALL RED	R	R	R	R	DW	DW

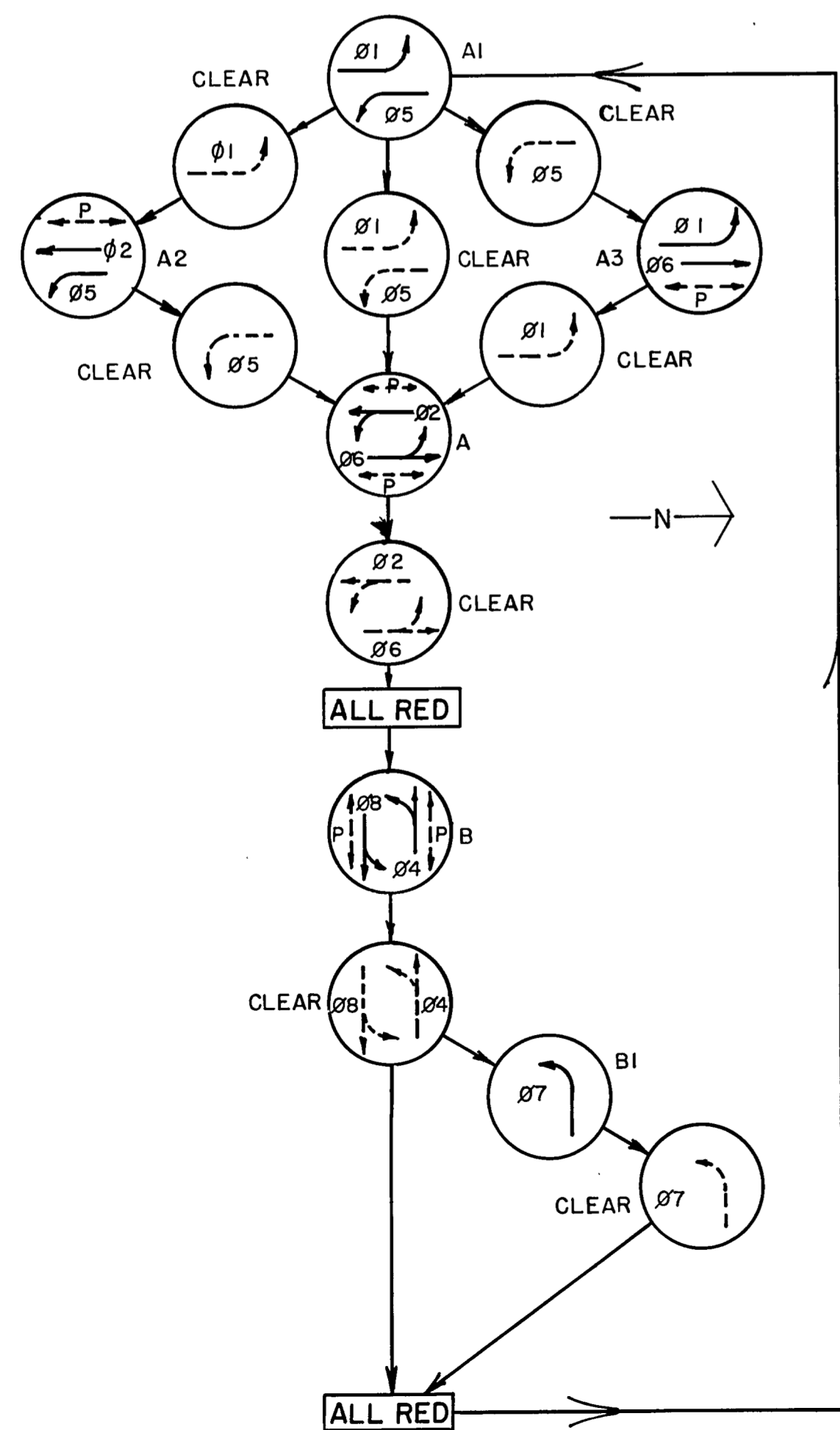
SIGNAL HEAD DISPLAYS/INTERVALS

INTERVAL	SIGNAL HEAD No.					
	1,2	3	6,7	4,5	8,9	10,11
AI	G	G	R	R	DW	DW
AI CLEAR A	G	G	R	R		
A	G	G	G	R		WALK
A PED CLEAR	G	G	G	R		FLASH WALK
A CLEAR RED	Y	Y	Y	R		DW
ALL RED	R	R	R	R	DW	
B	R	R	R	G	WALK	
B PED CLEAR	R	R	R	G	FLASH WALK	
B CLEAR RED	R	R	R	Y	DW	
ALL RED	R	R	R	R	DW	DW

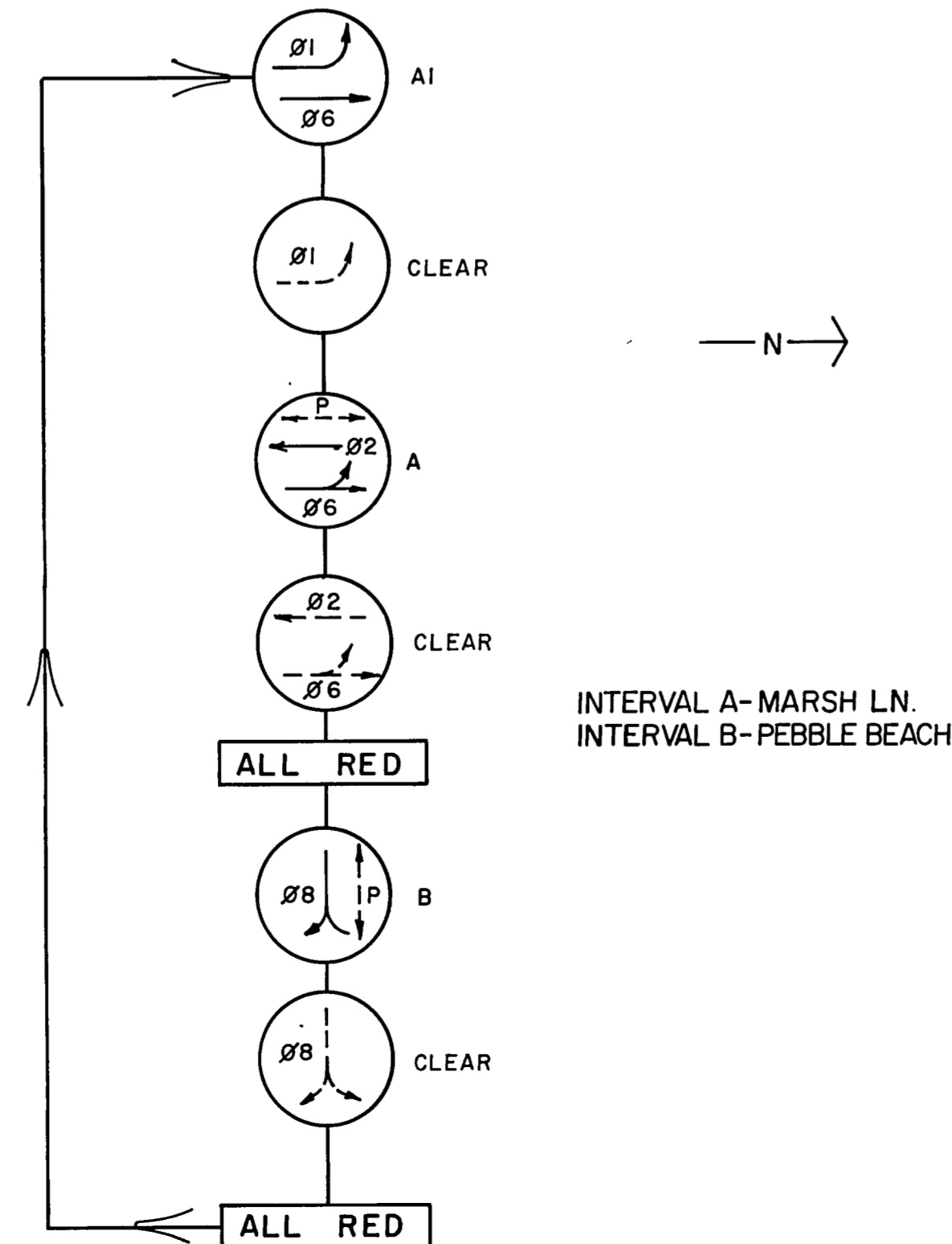
SIGNAL HEAD DISPLAYS/INTERVAL CHART

INTERVAL	SIGNAL HEAD No.										
	1,2	3	9,10	11	4,5	6	7,8	12,14	17,18	13,16	15,19
A1	R	R	R	R	R	R	R	DW	DW	DW	DW
AI CLEAR A2	R	R	R	R	R	R	R				
AI CLEAR A3	R	R	R	R	R	R	R				
AI CLEAR A	R	R	R	R	R	R	R	DW			
A2	G	G	R	R	R	R	R	WALK			
A2 PED CLEAR	G	G	R	R	R	R	R	FLASH WALK			
A2 CLEAR A	G	G	R	R	R	R	R	WALK	DW		
A3	R	R	G	G	R	R	R	DW	WALK		
A3 PED CLEAR	R	R	G	G	R	R	R	FLASH WALK			
A3 CLEAR A	R	R	G	G	R	R	R	DW	WALK		
A	G	G	G	G	R	R	R	WALK	WALK		
A PED CLEAR	G	G	G	G	R	R	R	FLASH WALK	FLASH WALK		
A CLEAR RED	Y	Y	Y	Y	R	R	R	DW	DW		
ALL RED	R	R	R	R	R	R	R				DW
BI	R	R	R	R	G	G	R				WALK
BI PED CLEAR	R	R	R	R	G	G	R				FLASH WALK
BI CLEAR B	R	R	R	R	G	G	R			DW	WALK
B	R	R	R	R	G	G	G				WALK
B PED CLEAR	R	R	R	R	G	G	G				FLASH WALK
B CLEAR RED	R	R	R	R	Y	Y	Y			DW	DW
ALL RED	R	R	R	R	R	R	R	DW	DW	DW	DW

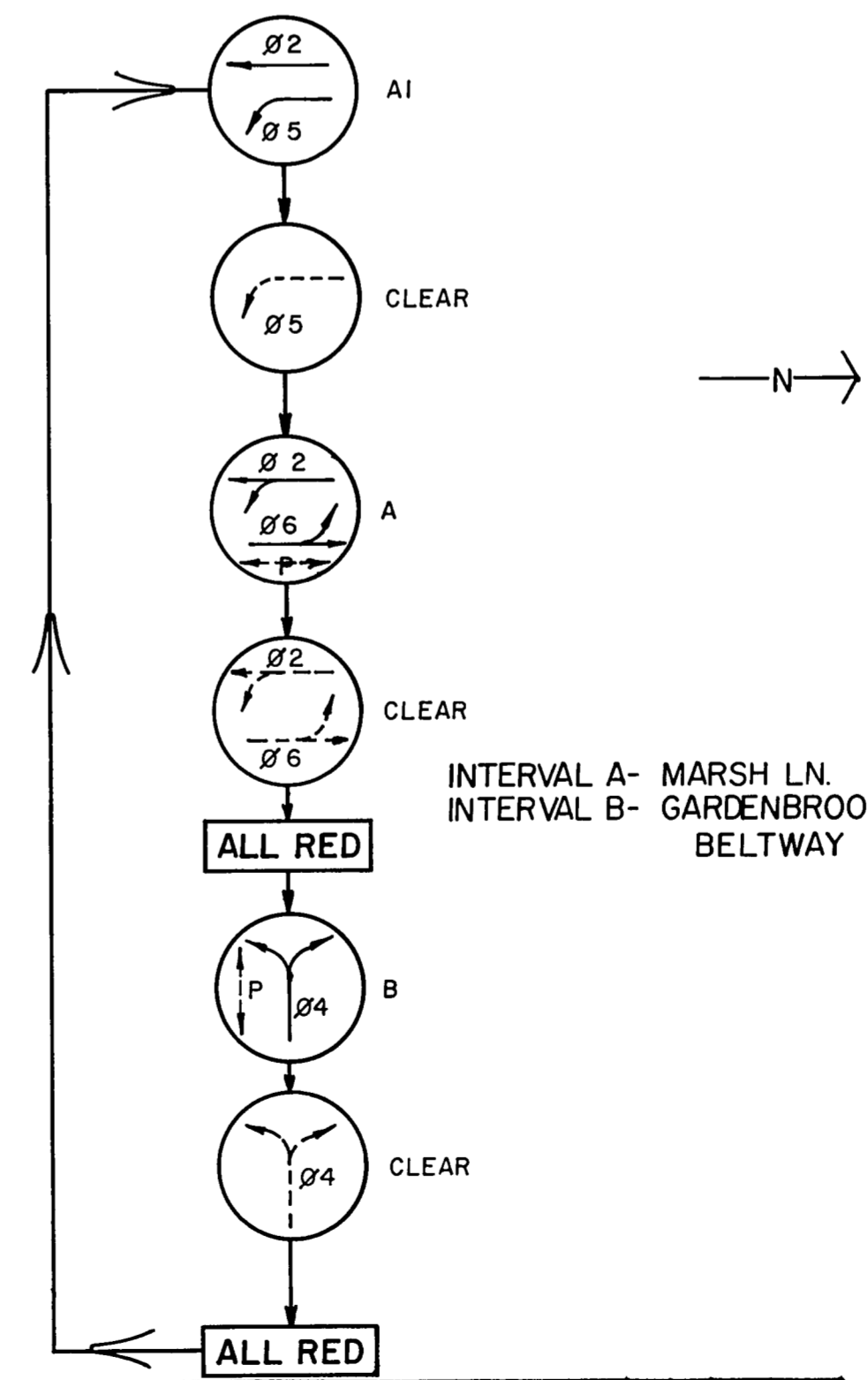
MARSH LN. at GARDENBROOK / BELTWAY DRIVE  
7 Phase Fully Actuated Controller w/3M OPTICOM Fire Pre-empt Integrated within Controller (Detection in all 4 directions)



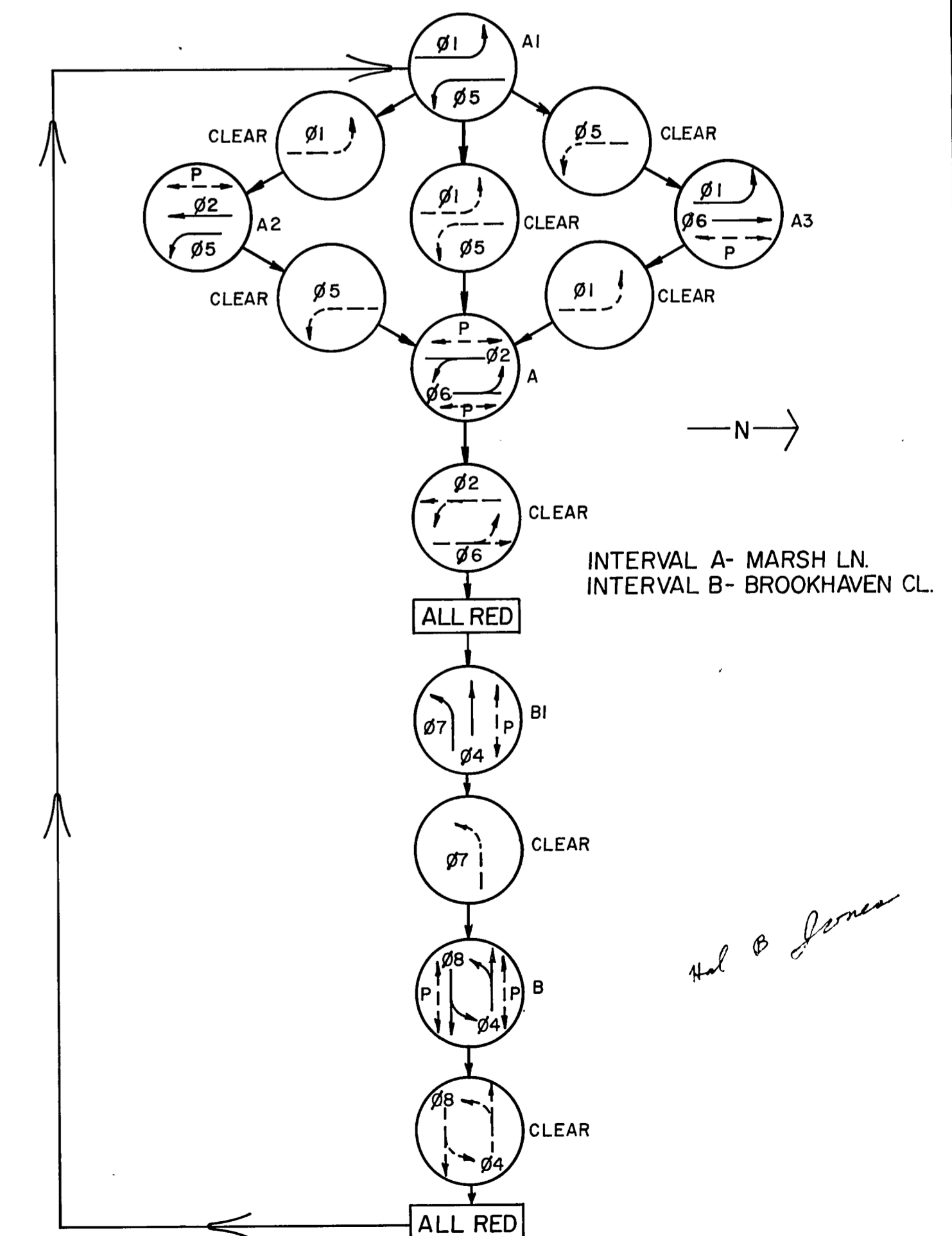
MARSH LANE at PEBBLE BEACH DRIVE  
4 Phase Fully Actuated Controller w/3M OPTICOM Fire Pre-empt (Detection in all 3 directions)



MARSH LANE at SPRING VALLEY ROAD  
4 Phase Fully Actuated Controller w/3M OPTICOM Fire Pre-empt (Detection in all 3 directions)



MARSH LANE at BROOKHAVEN CLUB  
7 Phases Fully Actuated Controller w/3M OPTICOM Fire Pre-empt (Detection in all 4 directions)



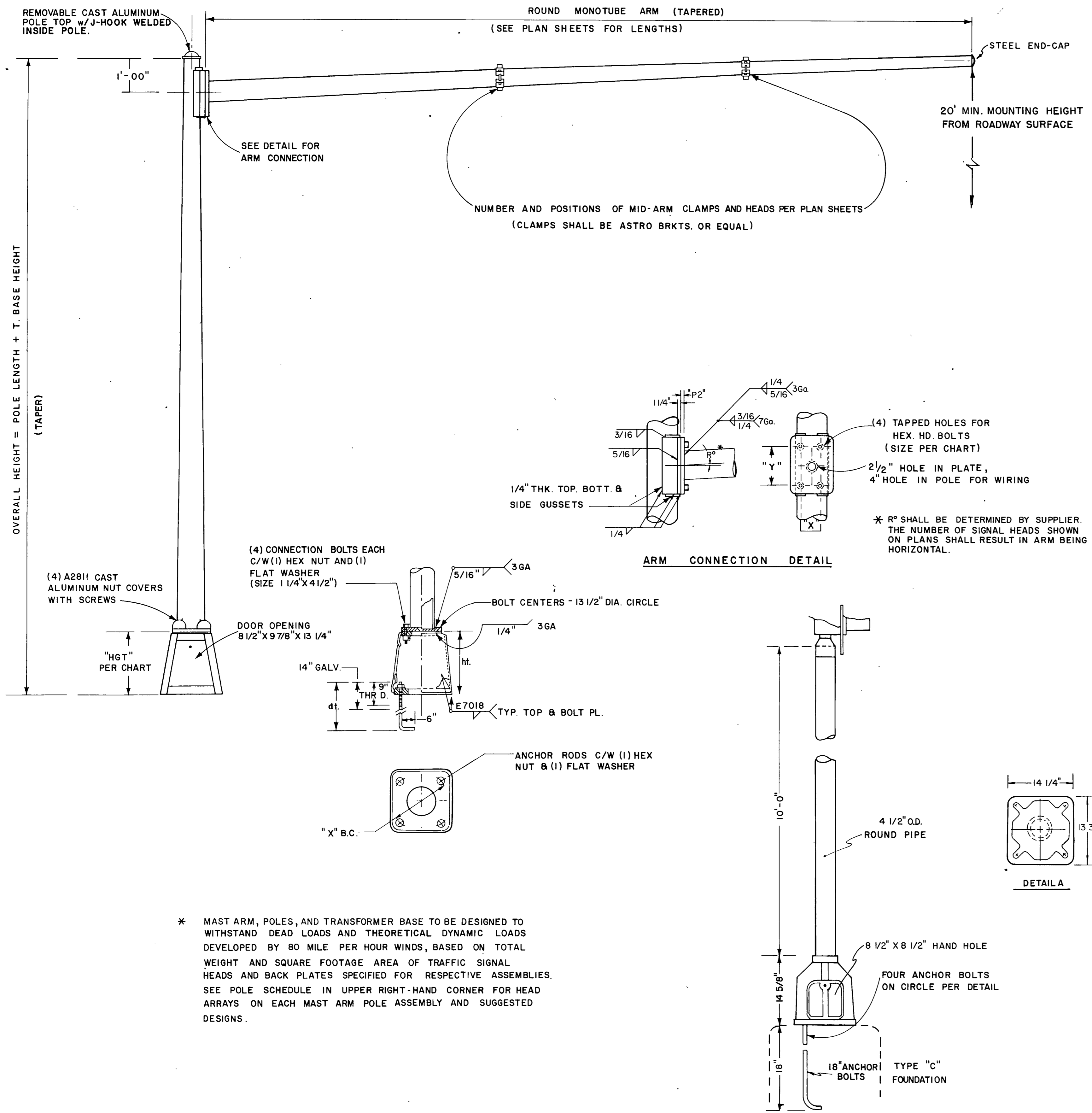
CITIES OF ADDISON & FARMERS BRANCH

INTERVAL & PHASING DIAGRAMS

GINN, INC.  
Consulting Engineers Dallas, Texas

DESIGN HBJ	DRAWN RBB	SCALE	PROJ.
APPR'D HWG	CHK'D HBJ	DATE 9-03	SHEET 10 of 14

SIGNAL PEDESTAL AND MAST ARM POLE SCHEDULE



\* MAST ARM, POLES, AND TRANSFORMER BASE TO BE DESIGNED TO WITHSTAND DEAD LOADS AND THEORETICAL DYNAMIC LOADS DEVELOPED BY 80 MILE PER HOUR WINDS, BASED ON TOTAL WEIGHT AND SQUARE FOOTAGE AREA OF TRAFFIC SIGNAL HEADS AND BACK PLATES SPECIFIED FOR RESPECTIVE ASSEMBLIES. SEE POLE SCHEDULE IN UPPER RIGHT-HAND CORNER FOR HEAD ARRAYS ON EACH MAST ARM POLE ASSEMBLY AND SUGGESTED DESIGNS.

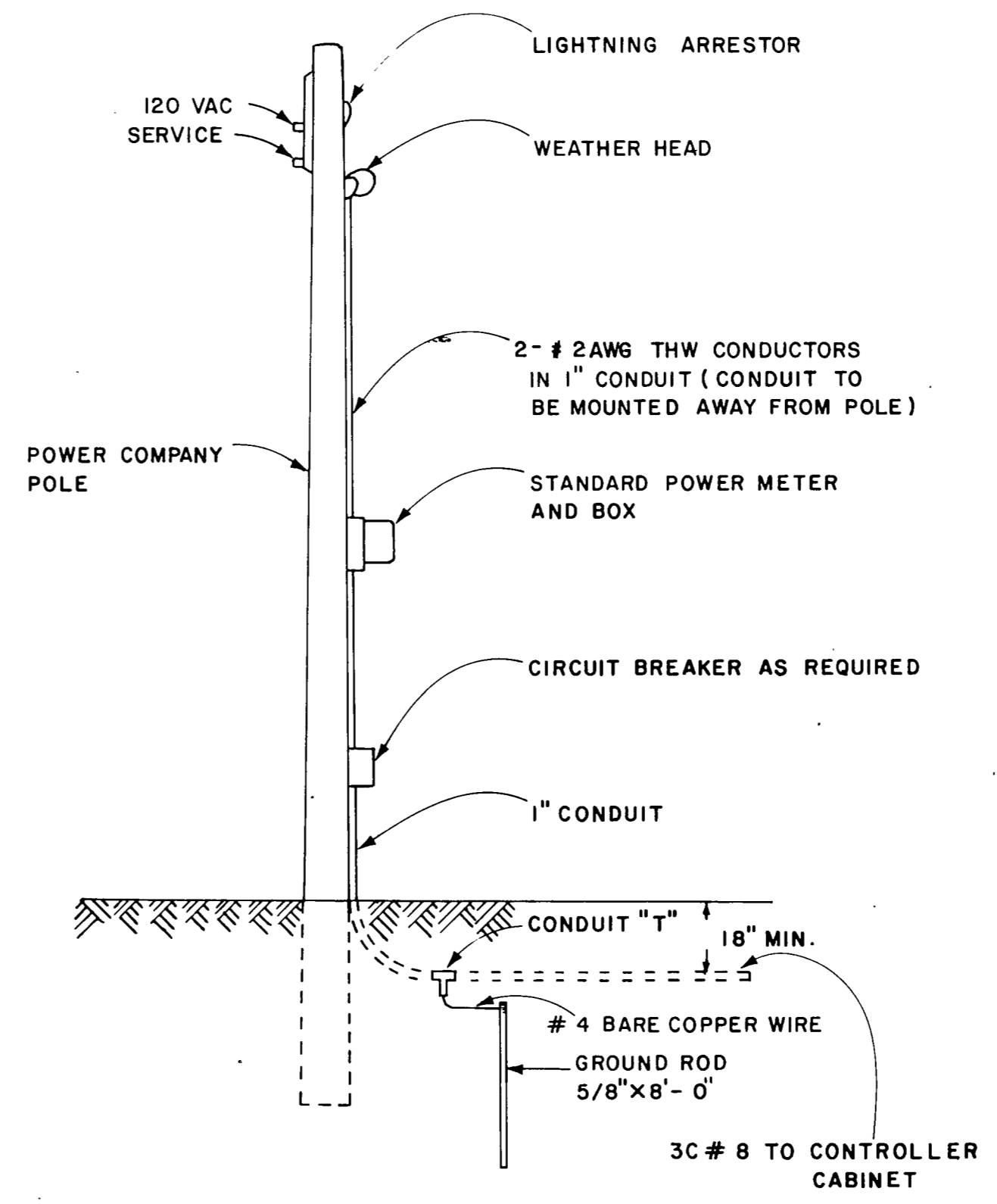
MAST ARM POLES AND TRANSFORMER BASES

SIGNAL PEDESTAL POLE (EAGLE SIGNAL Mod. UA358 or Equal)

UNIT DESCRIPTION	SIGNAL HEAD, ARRAY	SUGGESTED POLE DESIGN	NUMBER OF UNITS BY LOCATION						TOTALS
			MARSH & BROOKHVN.	MARSH & SP VALLEY	MARSH & PEBBLE BEACH	MARSH & GARDENBRK.	SP. VALLEY & BROOKHVN.	SP. VALLEY & MIDWAY	
SIGNAL PEDESTAL W/3 SECTION OR 2 PED. SIGNAL HEAD SIGNAL	(SEE DETAIL SHEET)	UA 358-3		1	1				2
SIGNAL PEDESTAL W/4 SECTION SIGNAL HEAD	(SEE DETAIL SHEET)	U 358-3	3	1	1	2		4	11
MAST ARM POLE ASSY. 15' MAST ARM W/2 - 3 SECTION SIGNAL HEADS		TD076216-15 B2840		1	1		2		4
MAST ARM POLE ASSY. 20' MAST ARM & TRAN. BASE W/2 - 3 SECTION SIGNAL HEADS		TD076216-20 B2840	1	1			1		3
MAST ARM POLE ASSY. 25' MAST ARM & TRAN. BASE W/2 - 3 SECTION SIGNAL HEADS		TD077217-25 B2840	3		2	1			6
MAST ARM POLE ASSY. 30' MAST ARM & TRAN. BASE W/2 - 3 SECTION SIGNAL HEADS		TD078218-30 B2945		1		2		4	7
MAST ARM POLE ASSY. 30' MAST ARM & TRAN. BASE W/2-3 SECTION & 1-4 SECTION SIGNAL HEADS		TD078218 30 B2945				1			1
MAST ARM POLE ASSY. 40' MAST ARM & TRAN. BASE W/2-3 SECTION & 1-4 SECTION SIGNAL HEADS		TD079219 40 B2945							
MAST ARM POLE ASSY. 35' MAST ARM W/3 MAST ARM MTD. 3 - SECTION HEADS		TD079219-35 B2945					1		1
MAST ARM POLE ASSY. 35' MAST ARM W/2 - 3 SEC. & 1-5 SEC. SIGNAL HEAD									
MAST ARM POLE ASSY. 25' & 35' MAST ARMS. W/5 - 3 SECTION SIGNAL HEADS									

\* SUGGESTED POLE DESIGN FOR PEDESTALS ARE EAGLE SIGNAL CORP. PART NUMBERS. SUGGESTED POLE DESIGN # S FOR MAST ARM POLES ARE FROM UNION METAL MFG. CO.

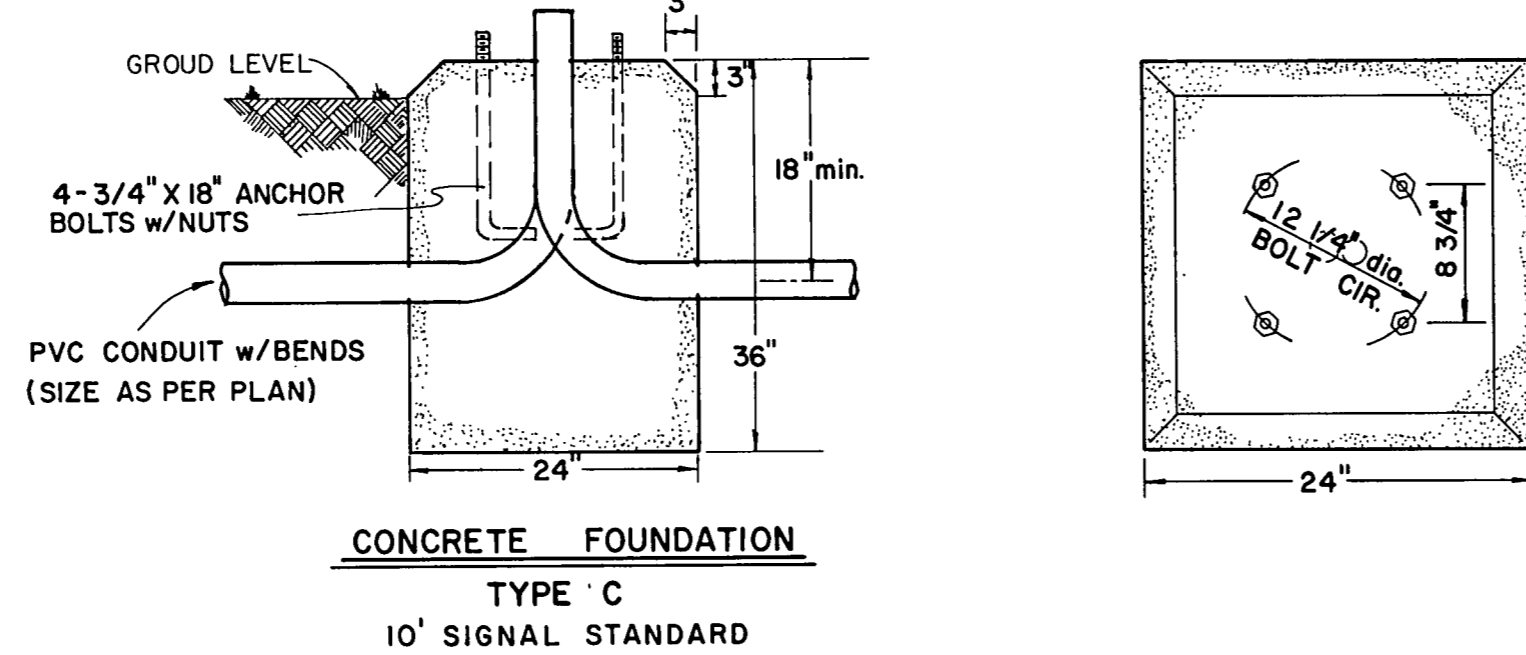
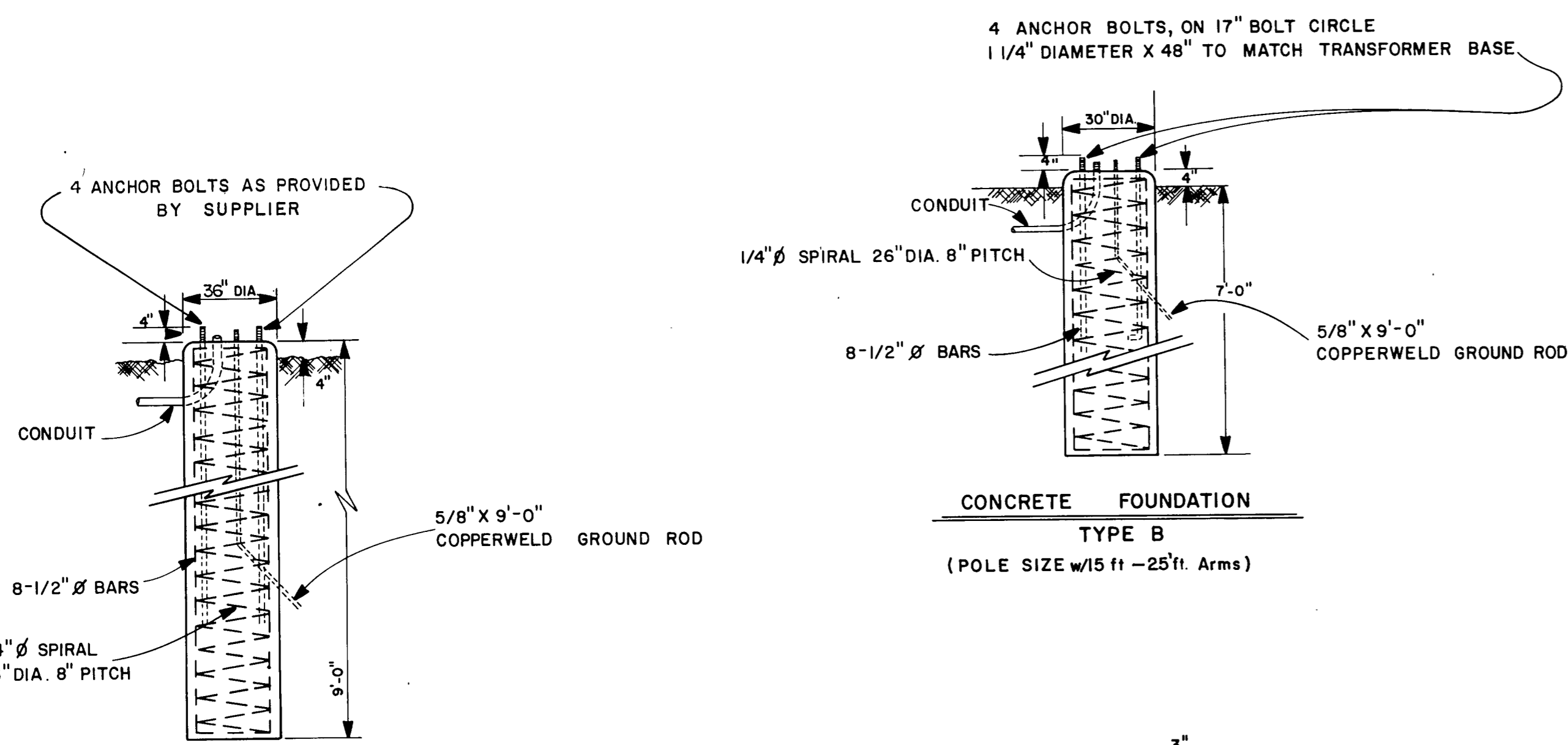
REFER TO SPECIFICATION FOR REQUIREMENTS FOR SUBMITTAL OF DESIGN DRAWINGS FOR ALL POLES; BY CONTRACTOR, AFTER AWARD OF CONTRACT.



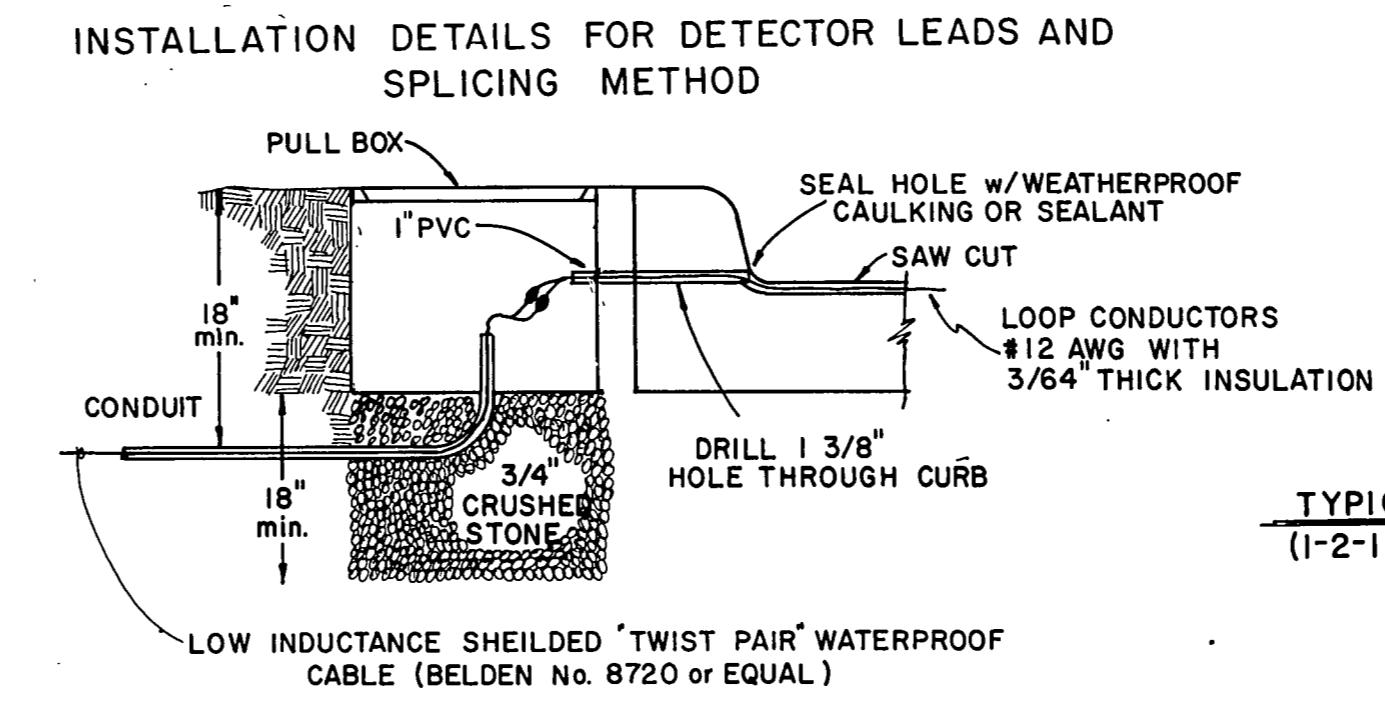
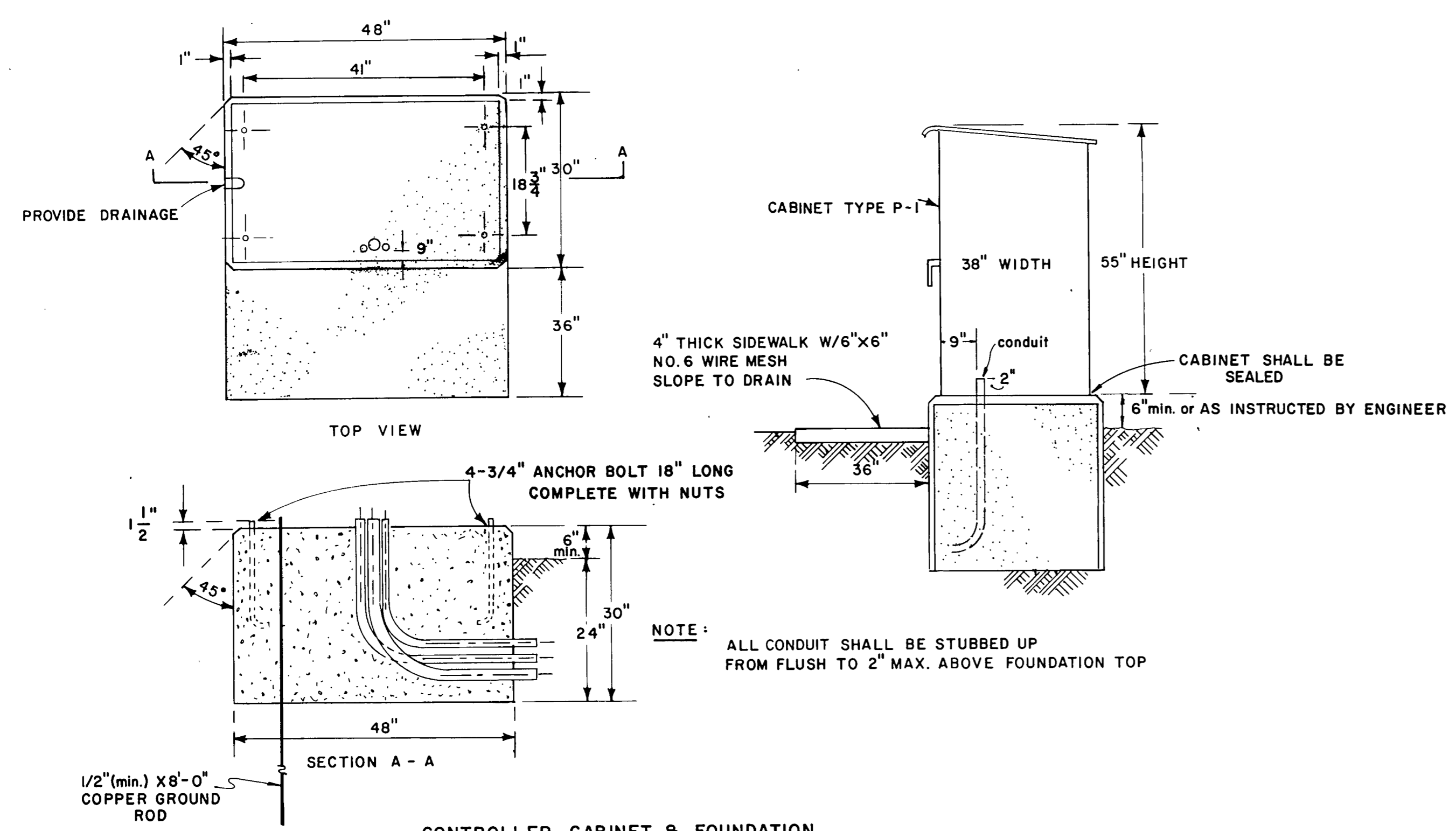
POWER SOURCE DETAILS  
THE CONTRACTOR SHALL MOUNT EQUIPMENT ON POLES AS DIRECTED BY THE POWER COMPANY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY TEXAS POWER LIGHT PRIOR TO MAKING CONTACT WITH THEIR POLES.

UNDER CONTRACT BY  
**H.B. JONES**  
Consulting Engineers, Garland, Texas

No.	Revision	By	Date
<b>TRAFFIC SIGNAL INSTALLATION</b>			
<b>DETAILS SHEET A</b>			
<b>GINN, INC.</b>			
Consulting Engineer, Dallas, Texas			
Designed - HBJ	Drawn - ABB	Date - July 1985	Job No -
Approved - HWA	Checked - HBJ	Scale - None	Sheet 11 of 14



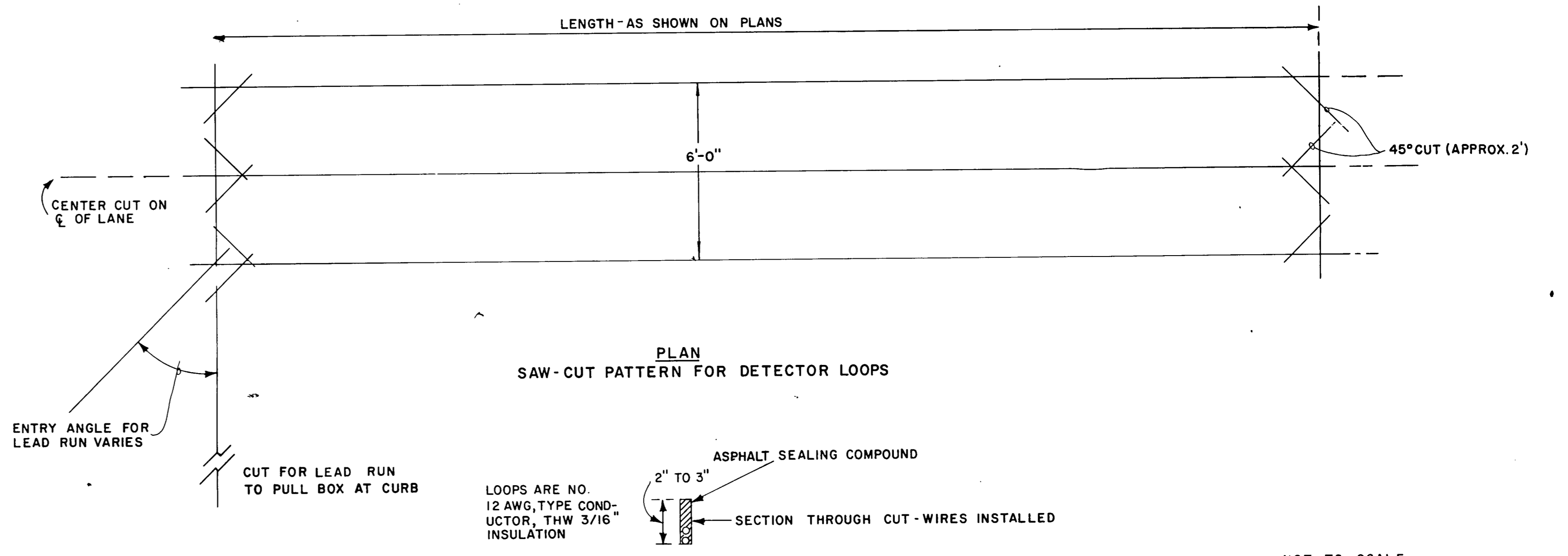
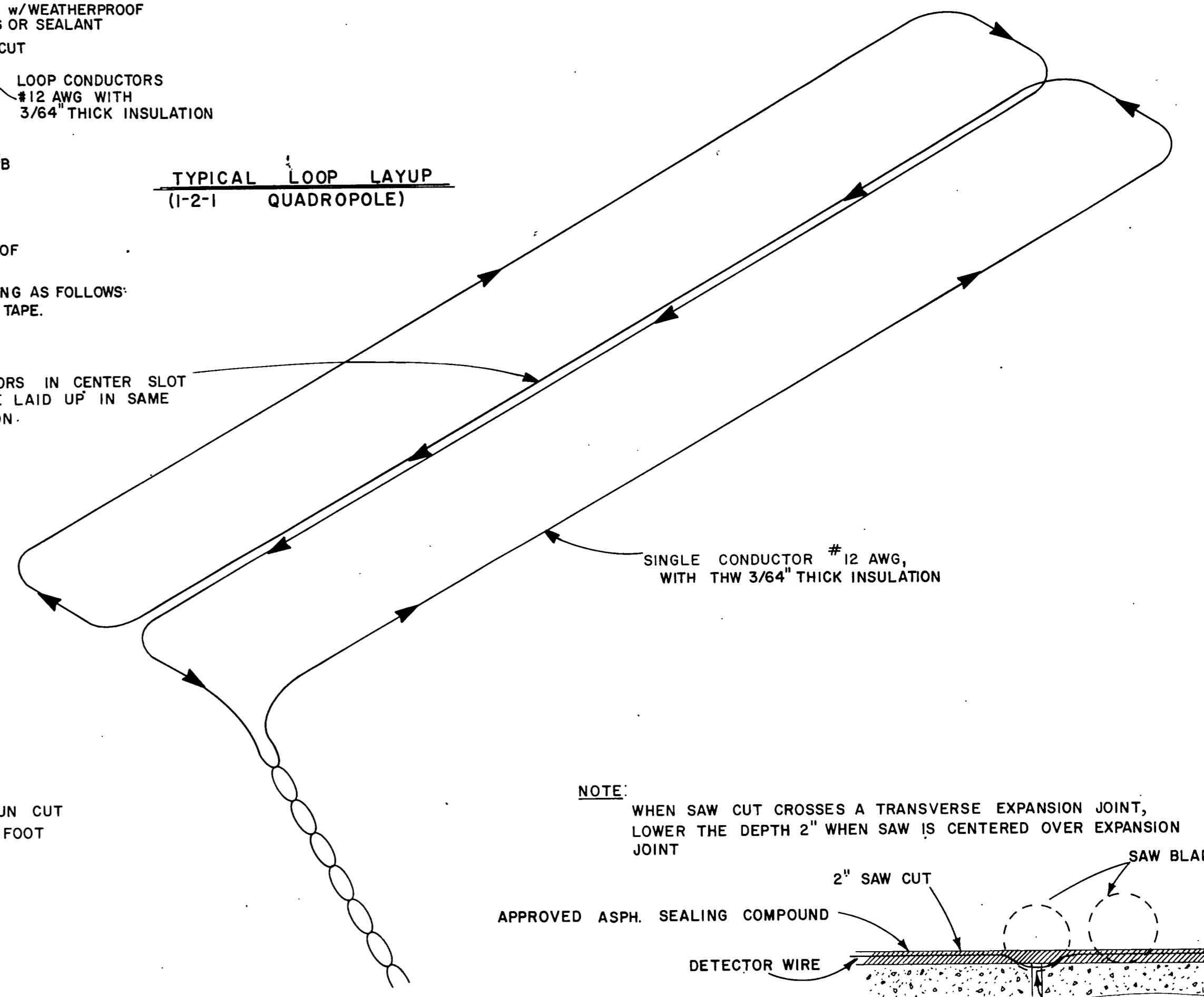
NOTE: ALL CONDUITS SHALL BE STUBBED UP APPROX. 2" ABOVE TOP OF FOUNDATION AND CENTERED



NOTE: SOLDER CONNECTIONS AND PROVIDE WATERTIGHT WRAPPING AS FOLLOWS:  
1. TAPE EACH SPLICE JOINT WITH SCOTCH #88 ELECTRICAL TAPE.  
2. DIP EACH TAPED SPLICE IN SCOTCHCOAT

TYPICAL LOOP LAYUP (1-2-1 QUADROPOLE)

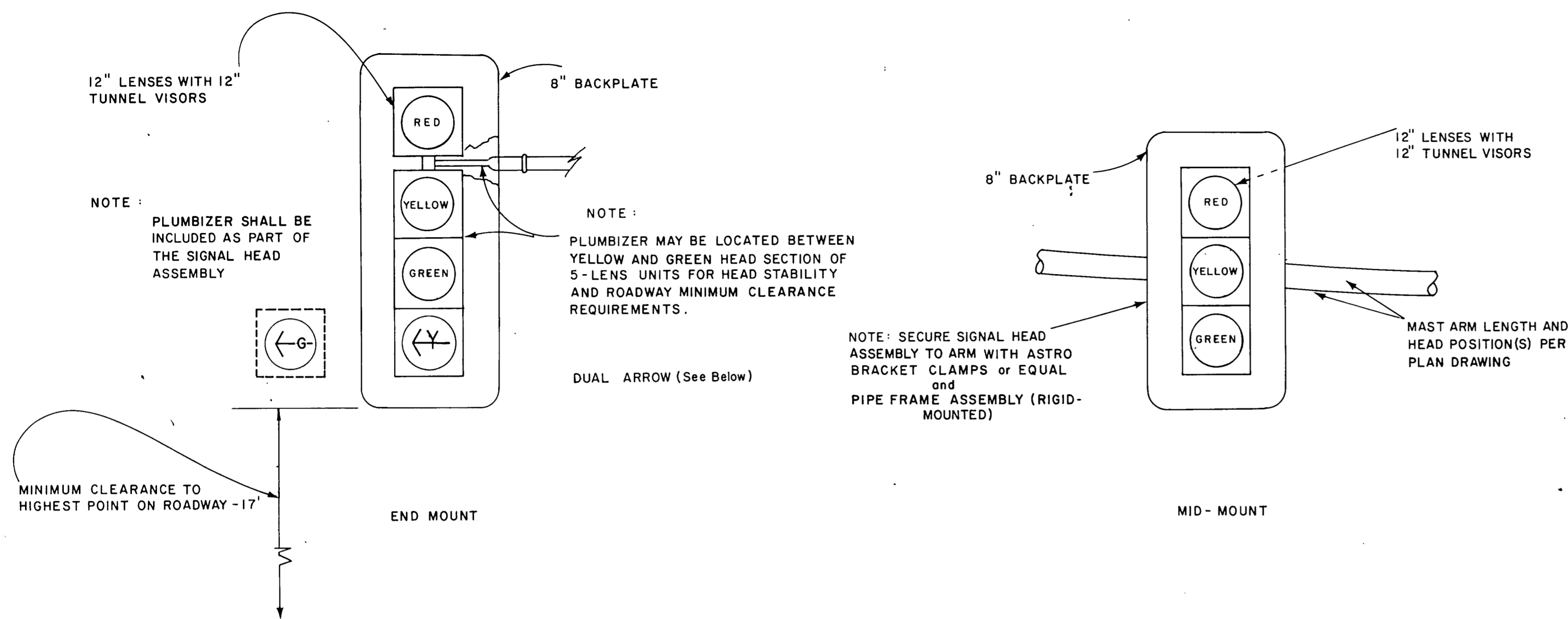
CONDUCTORS IN CENTER SLOT MUST BE LAID UP IN SAME DIRECTION.



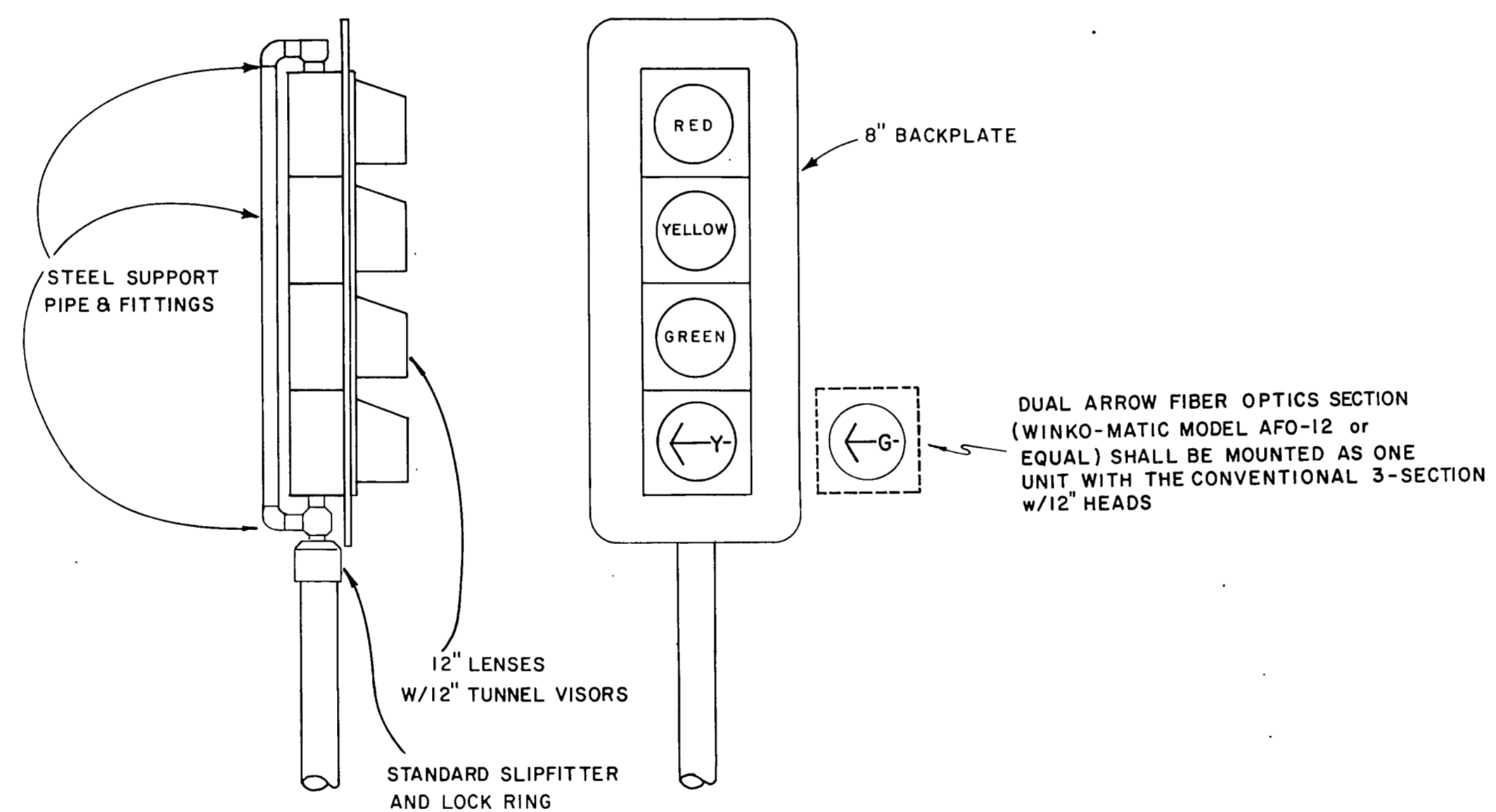
- NOT TO SCALE
- INSTALLATION OF WIRE LOOPS IS TO BE MADE IN THE SHORTEST TIME PRACTICAL, NOT TO EXCEED A 4 HR MAX. AND SCHEDULED DURING OFF PEAK HOURS TO MINIMIZE DELAY TO VEHICLE TRAFFIC.
  - THE PAVEMENT CUT IS TO BE CUT WITH A CONCRETE SAW, FORMING STRAIGHT LINES WITH LOOSE MATERIAL REMOVED. THE CUT SHOULD BE CLEAN AND DRY WHEN THE SEALING COMPOUND IS PLACED.
  - LOOPS UNDER 20' SHALL HAVE 3 TURNS OF #12 AWG THW WIRE LOOPS 20' AND LONGER SHALL HAVE 2 TURNS PER FOOT OF #12 AWG THW WIRE.
  - EACH LOOP IS TO BE RETURNED TO CONTROLLER VIA ONE PAIR OF UNSPLICED SHIELDED LEAD-IN WIRES. MULTIPLE, TWISTED LEADS TO MORE THAN ONE LOOP IN SINGLE LEAD RUN SAW SLOT ARE PERMISSIBLE. HOWEVER, DEPTH OF SUCH SLOTS MUST BE INCREASED TO PROVIDE A MINIMUM COVER THICKNESS FOR SEALING OF 1 1/2 INCHES.

UNDER CONTRACT BY  
**H.B. JONES**  
Consulting Engineers Garland, Texas

No.	Revision	By	Date
<b>TRAFFIC SIGNAL INSTALLATION</b>			
<b>DETAILS SHEET B</b>			
<b>GINN, INC.</b>			
Consulting Engineers Dallas, Texas			
Designed - HBJ	Drawn - RGB	Date - July 1983	Job No -
Approved - HBJ	Checked - HBJ	Scale - NONE	Sheet 12 of 14



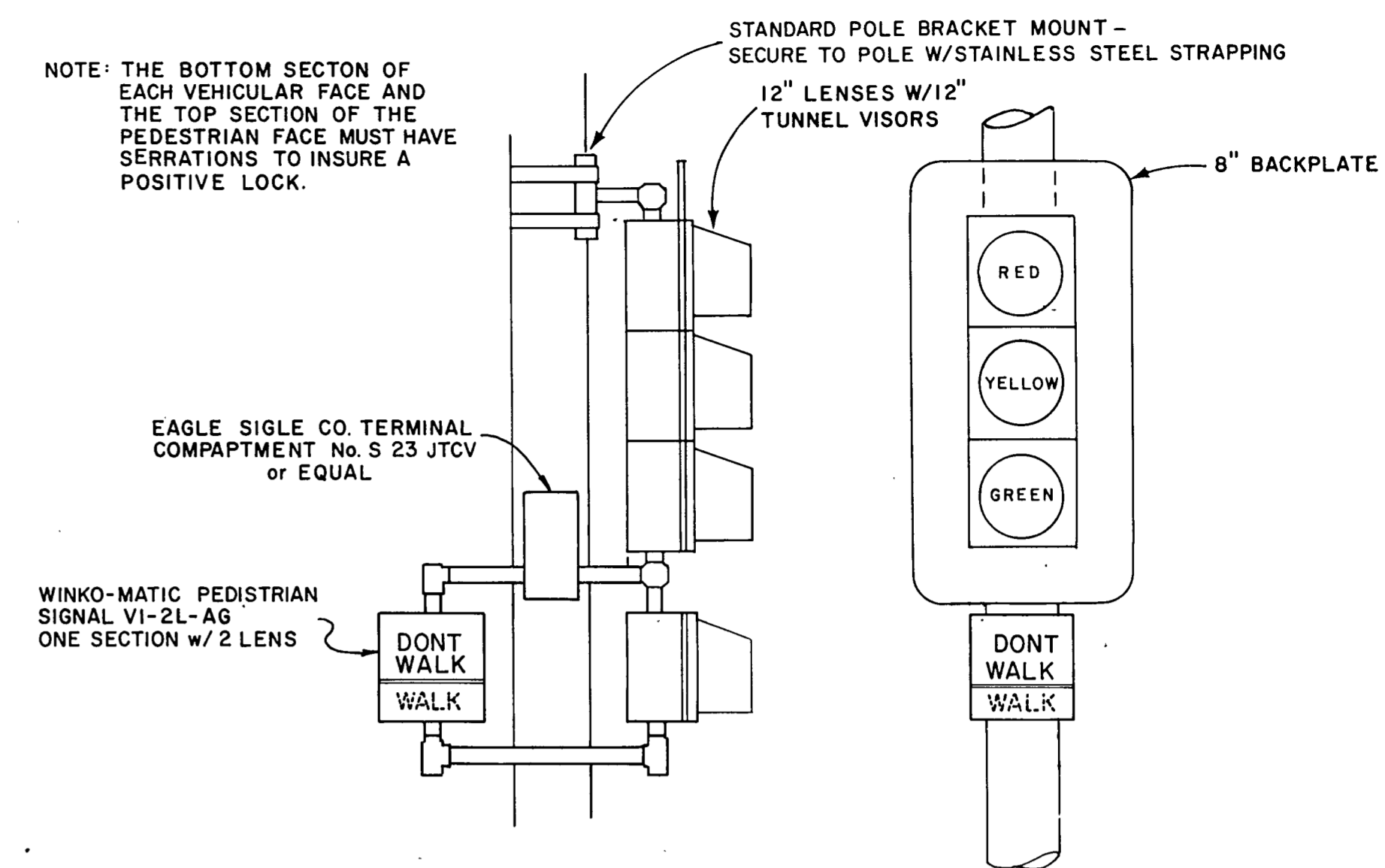
TYPICAL MAST-ARM MOUNTINGS



TYPICAL SIGNAL PEDESTAL TOP MOUNT - 4 - LENS HEAD

GENERAL NOTES FOR SIGNAL HEADS

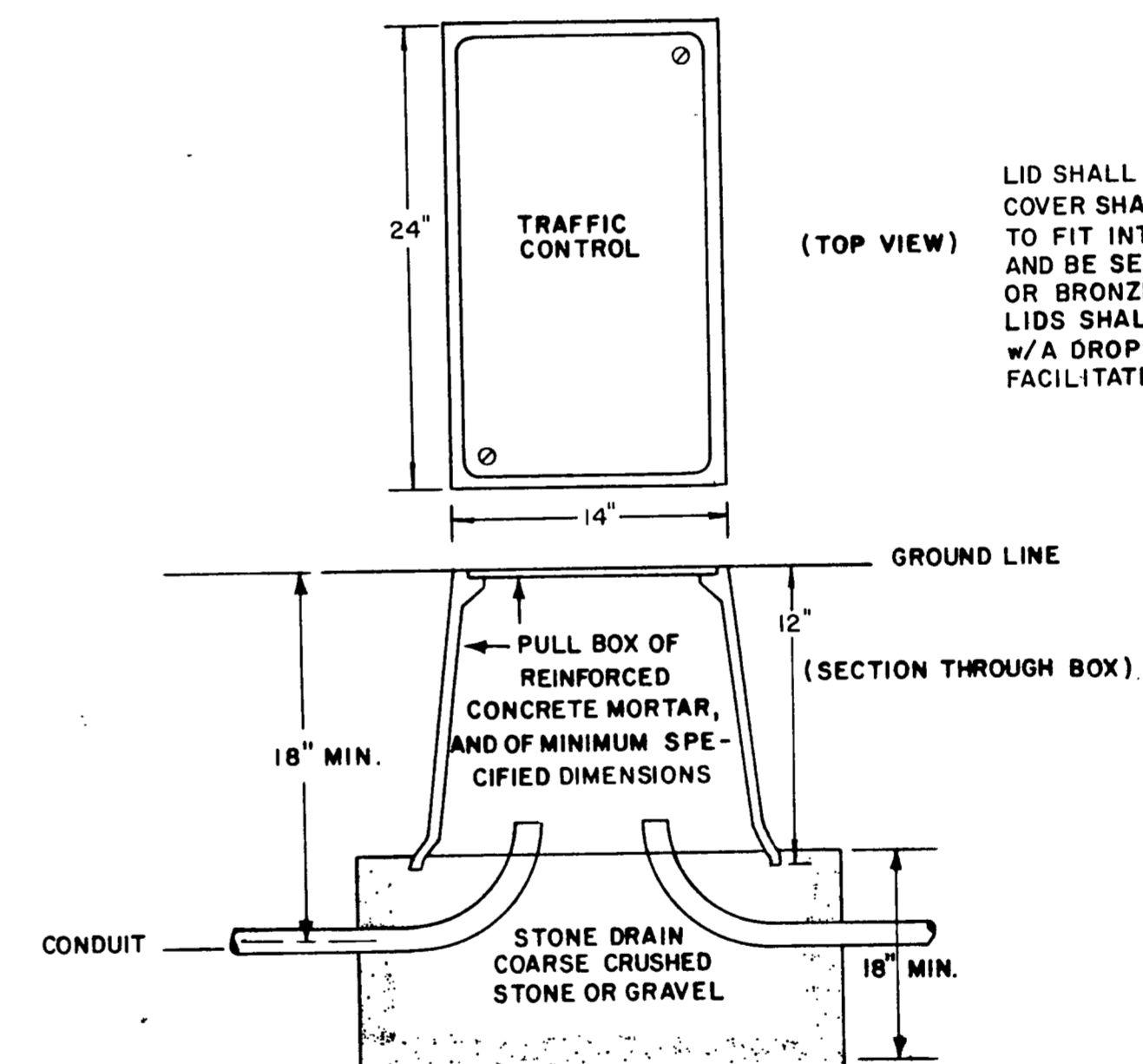
- PEDESTAL TOP-MOUNTED SIGNAL HEADS TO BE FURNISHED AS COMPLETE UNITS INCLUDING SLIP-FITTER, LOCK RING ATTACHMENT AND OTHER NECESSARY MOUNTING HARDWARE, PER DETAILS.
- POLE MOUNTED SIGNAL HEADS TO BE FURNISHED AS COMPLETE UNITS INCLUDING FITTINGS, POLE-MOUNT BRACKETS, STAINLESS STEEL STRAPPING AND OTHER NECESSARY MOUNTING HARDWARE, PER DETAIL.
- BOTTOM SECTION OF SIGNAL HEADS MUST HAVE CORRUGATIONS TO INSURE POSITIVE RADIAL POSITION LOCKING.
- POST AND PEDESTAL TOP MOUNTED HEADS ARE TO HAVE A MINIMUM CLEARANCE TO GROUND LINE OF 7 FEET.
- ALL MAST-ARM MOUNTED HEADS ARE TO HAVE A MINIMUM CLEARANCE TO HIGHEST POINT OF ROADWAY OF 17 FEET.
- ALL SIGNAL HEADS TO BE EQUIPPED WITH 8" BACKPLATES, PER DETAILS.
- THE INSTALLATION OF SIGNAL HEADS WILL ALSO INCLUDE PROVISION OF ADEQUATE NUMBER OF WIRES FROM THE HEADS TO THE TRANSFORMER BASE. TY#14 T.W. SOLID SHALL BE USED.



TYPICAL POLE MOUNT

3 or 4 SECTION HEAD w/PEDESTRIAN HEAD

NOTE: Pole mounted heads shall be positioned on the poles to give greatest amount of visibility



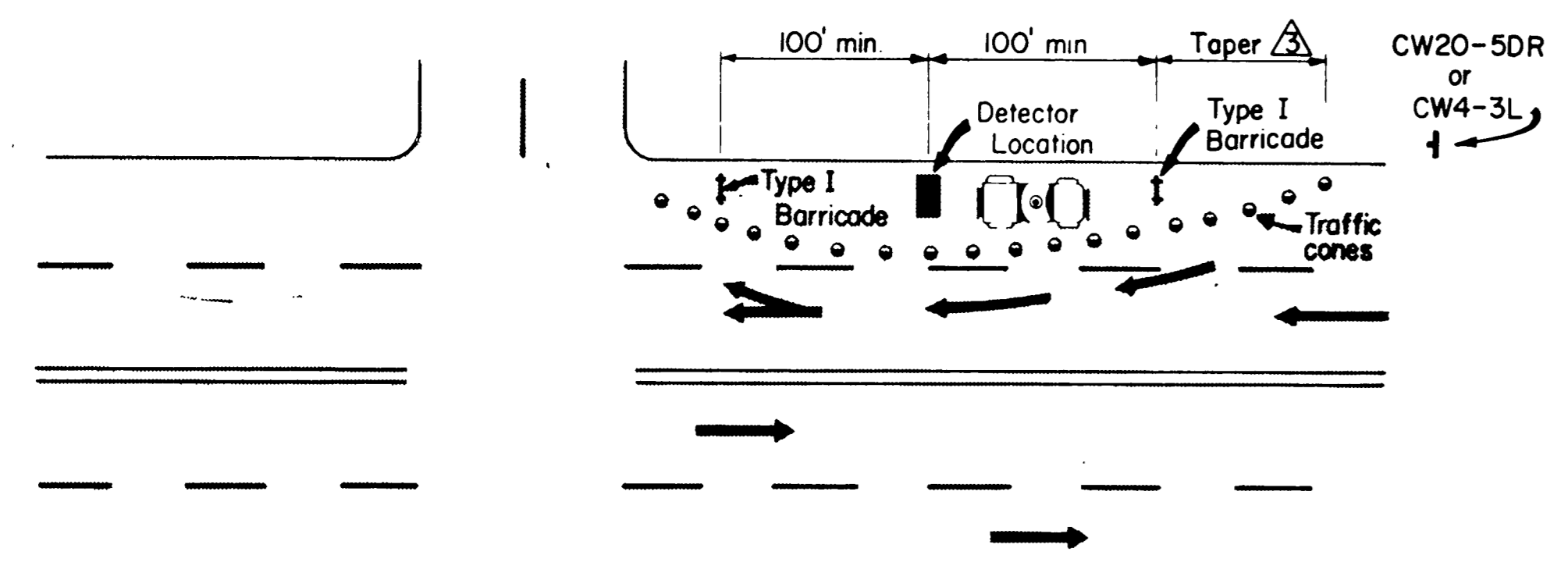
PULL BOX INSTALLATION

LID SHALL BE CAST IRON. COVER SHALL BE FABRICATED TO FIT INTO A RECESSED LIP AND BE SECURED w/ 2 BRASS OR BRONZE BOLTS & NUTS. LIDS SHALL BE PROVIDED w/A DROP TYPE HANDLE TO FACILITATE REMOVAL.

NOT TO SCALE

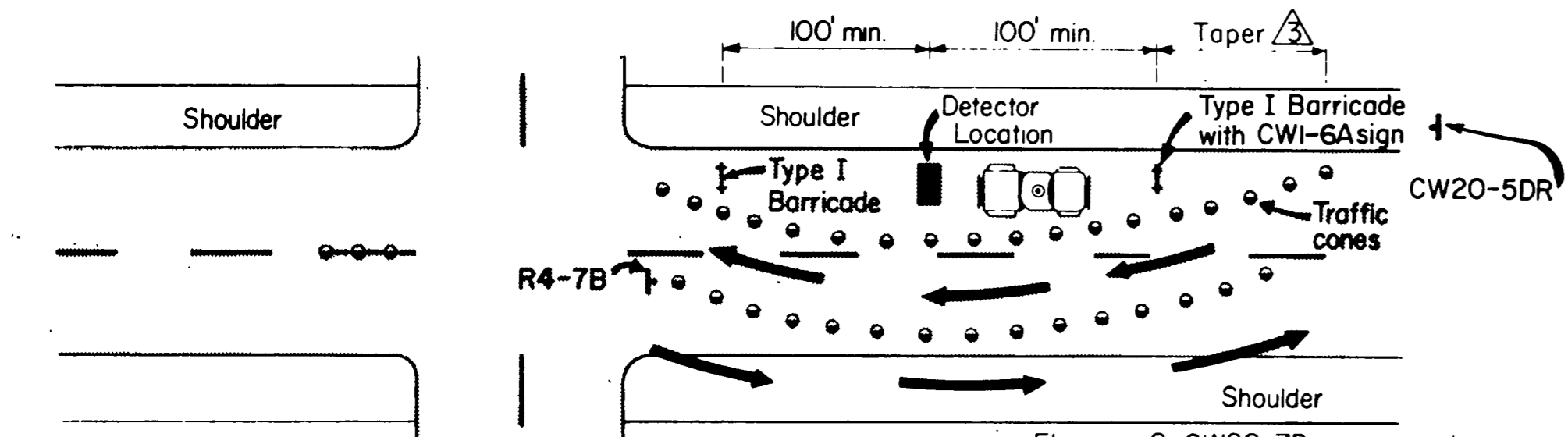
UNDER CONTRACT BY  
H. B. JONES  
Consulting Engineers Garland, Texas

TRAFFIC SIGNAL INSTALLATION				
DETAIL SHEET C				
GINN, INC.				
Consulting Engineers Dallas, Texas				
DESIGNED HBJ	DRAWN RGB	DATE JULY 1983	PROJ. NO.	
APPROV'D HBJ	CHK'D HBJ	SCALE NONE	SHEET 13 OF 14	



S = Speed (Numerical value)  
W = Width of offset

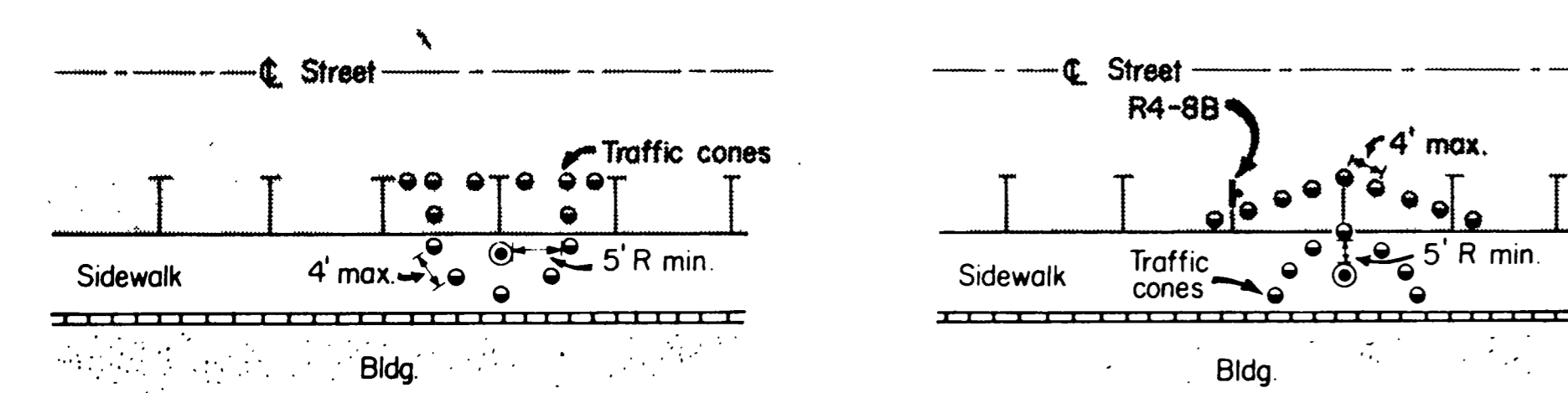
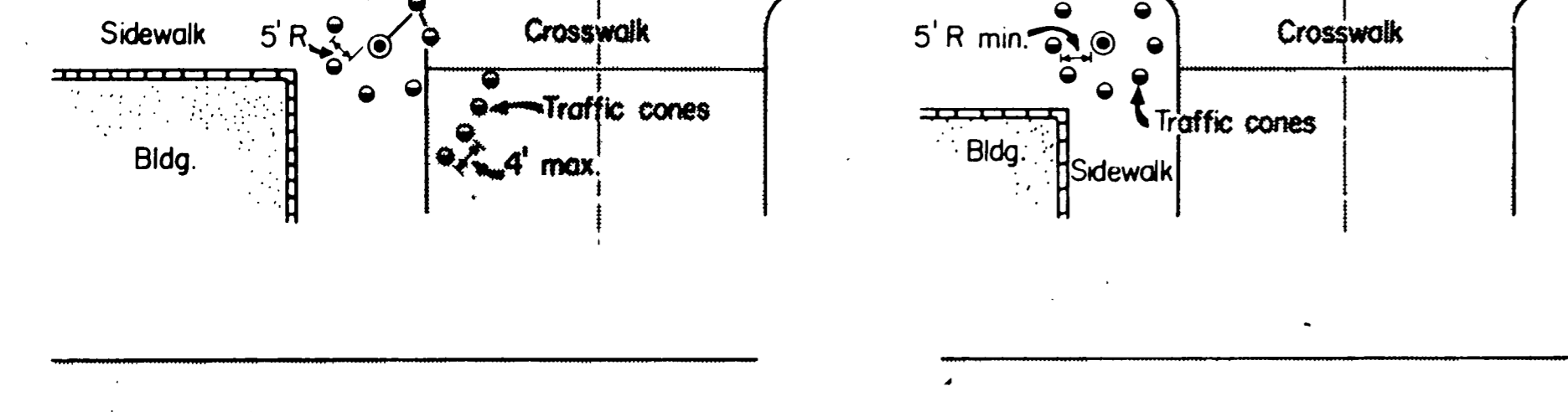
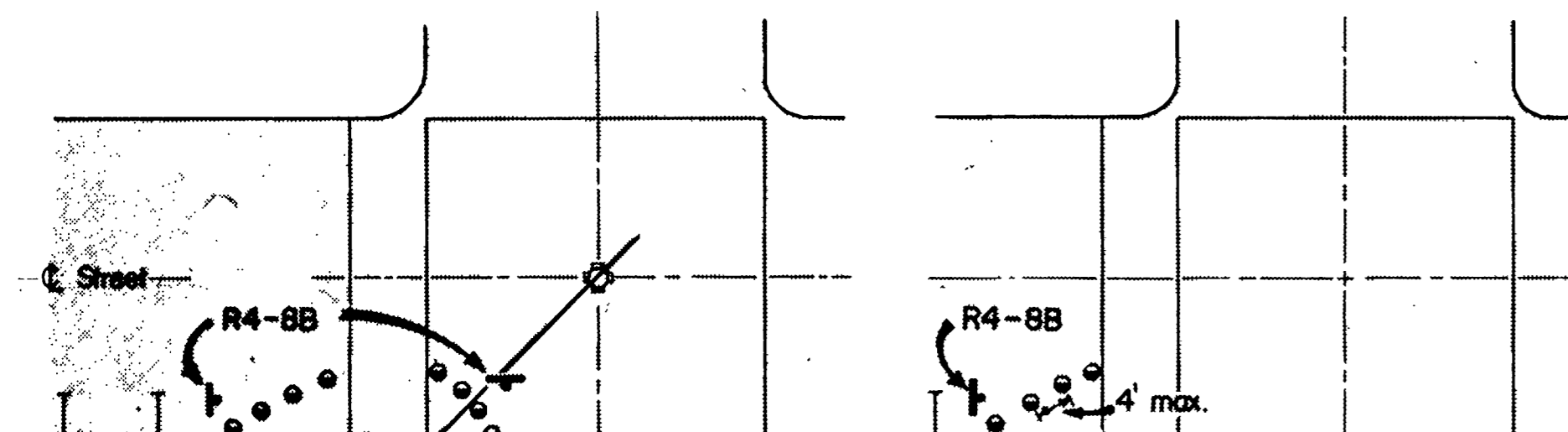
**Daytime - Four Lane Roadway**



**Daytime - Two Lane Roadway**

**TYPICAL DETECTOR INSTALLATION**

- At Night -**
1. Steady burn lamps for delineation instead of cones.
  2. Flashers on barricades.
- $TAPER = \frac{WS^2}{60}$  FOR 40MPH OR LESS  
 $TAPER = WS$  FOR 45MPH OR GREATER



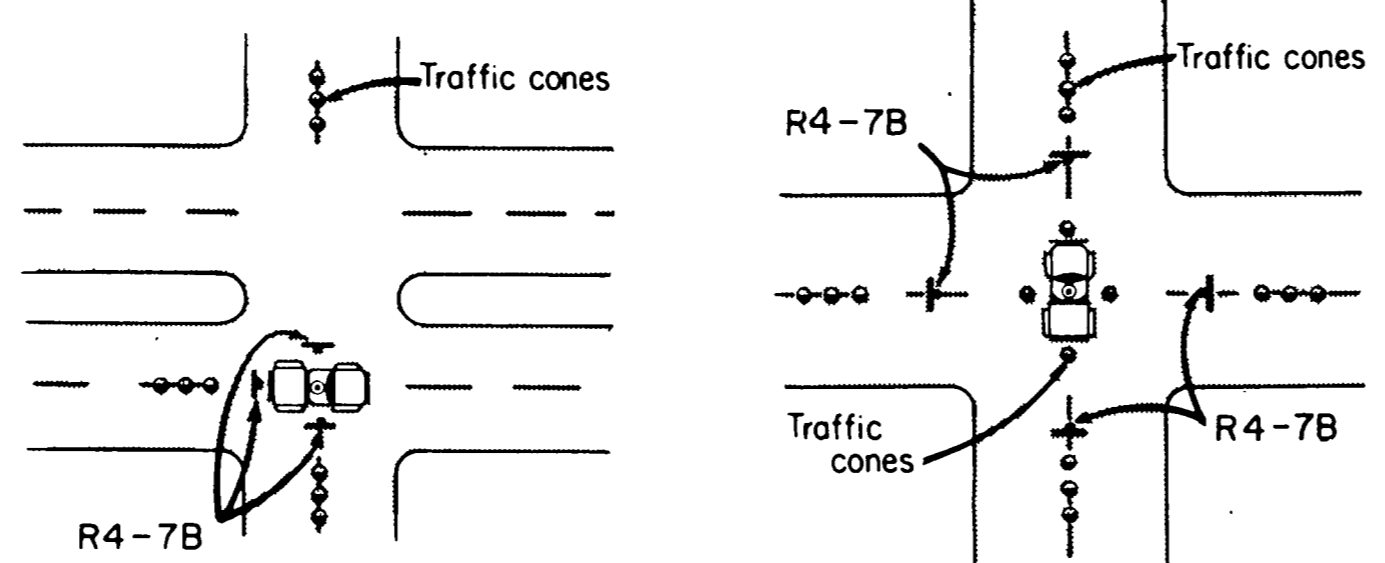
If cones are within limits of a parking space the R4-7B or R4-8B sign need not be placed.

Eliminate parking by placing cones when spaces exist.

**TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS**

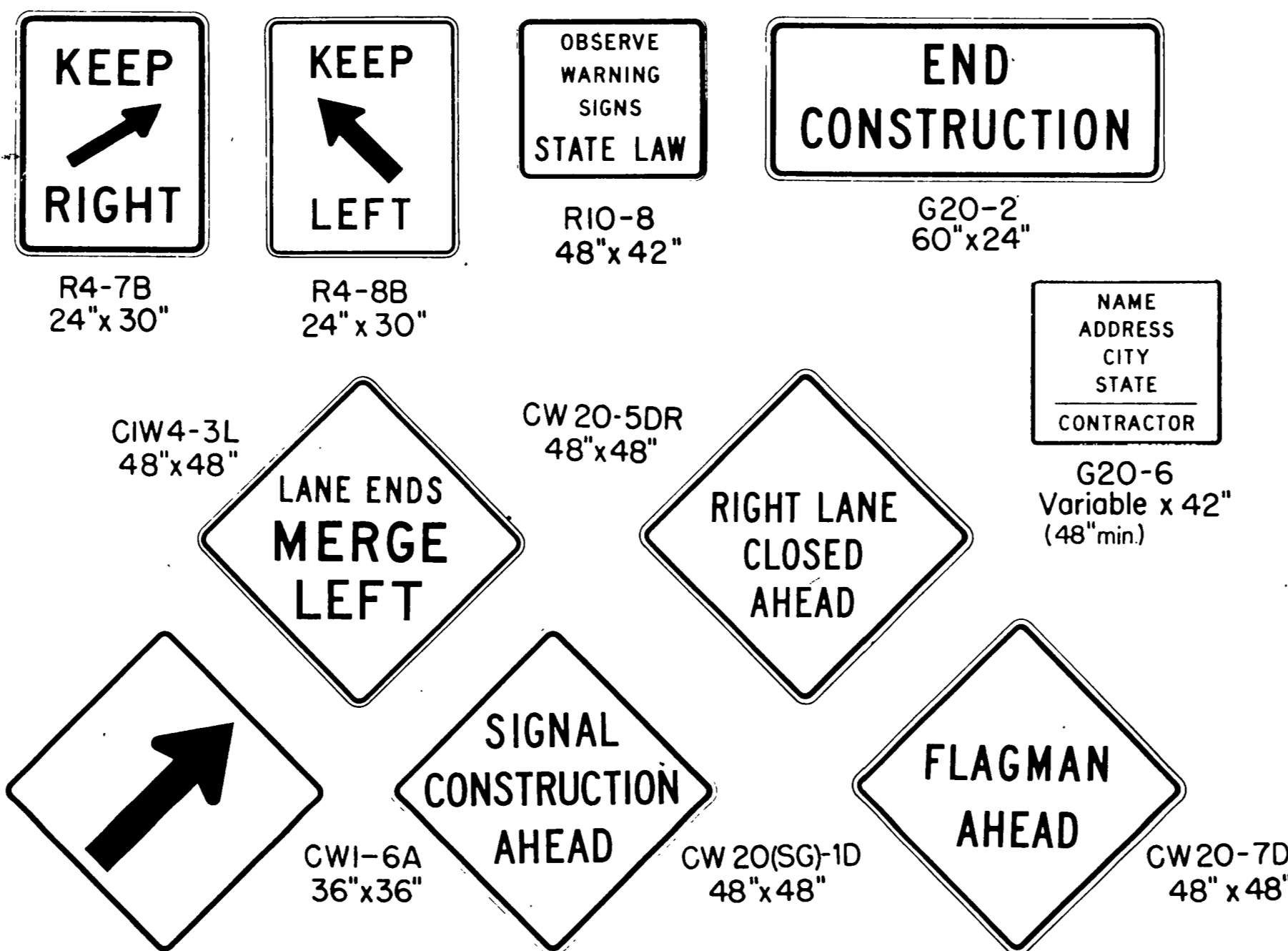
Where pedestrian movements are anticipated at night, all holes, trenches or other hazardous areas shall be adequately protected by use of barricades, lights or other protective devices.

**SIGNING IN ADVANCE OF CONSTRUCTION AND POSSIBLE SIGNING NEAR WORK AREA**

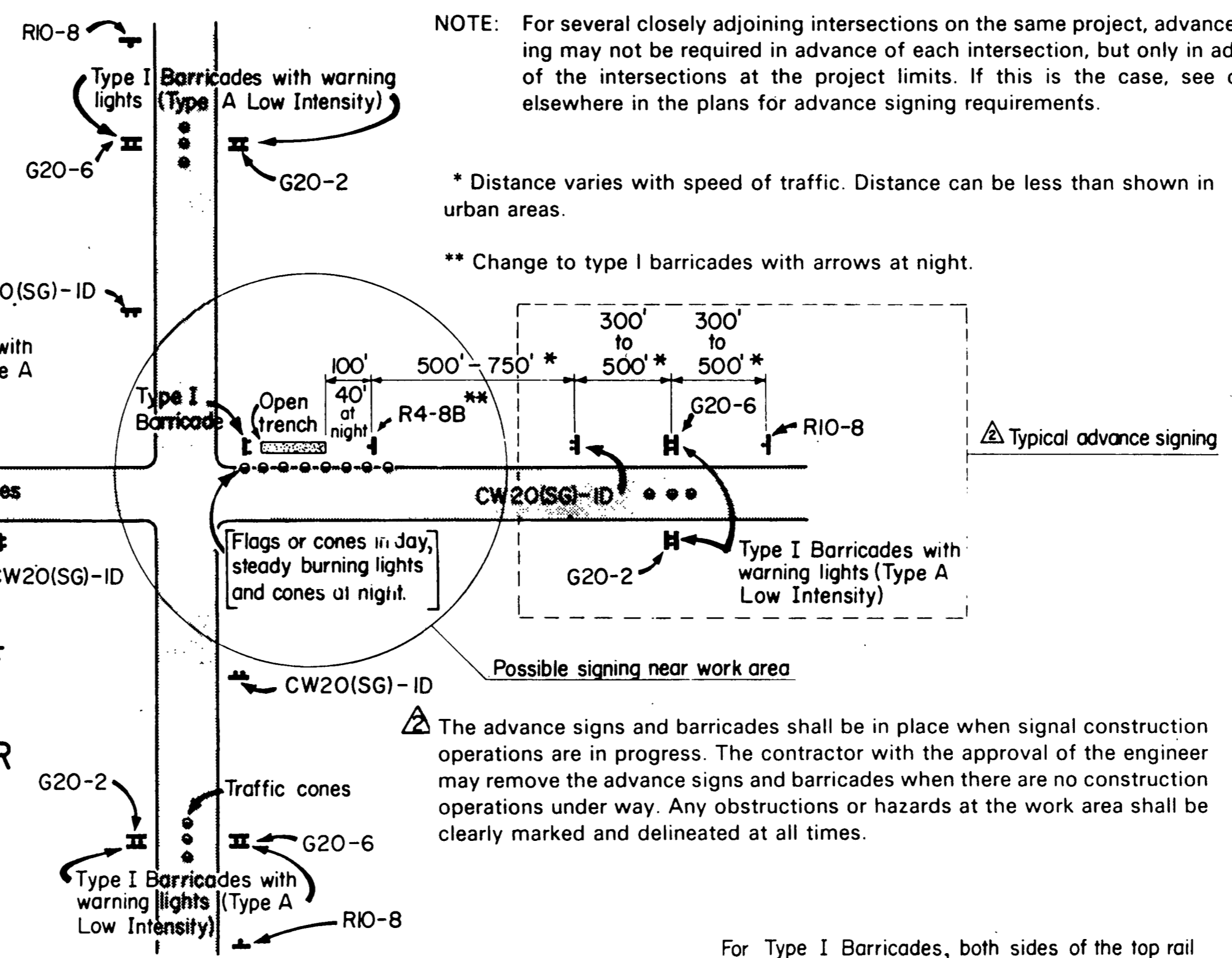


**TYPICAL HANGING SIGNAL INSTALLATIONS**

- NOTES**
1. Flagmen & CW20-7D sign may also be required according to field conditions.
  2. Use vehicle equipped with yellow rotating beacon.



**TYPICAL SIGNS USED IN TRAFFIC SIGNAL CONSTRUCTION AREAS**



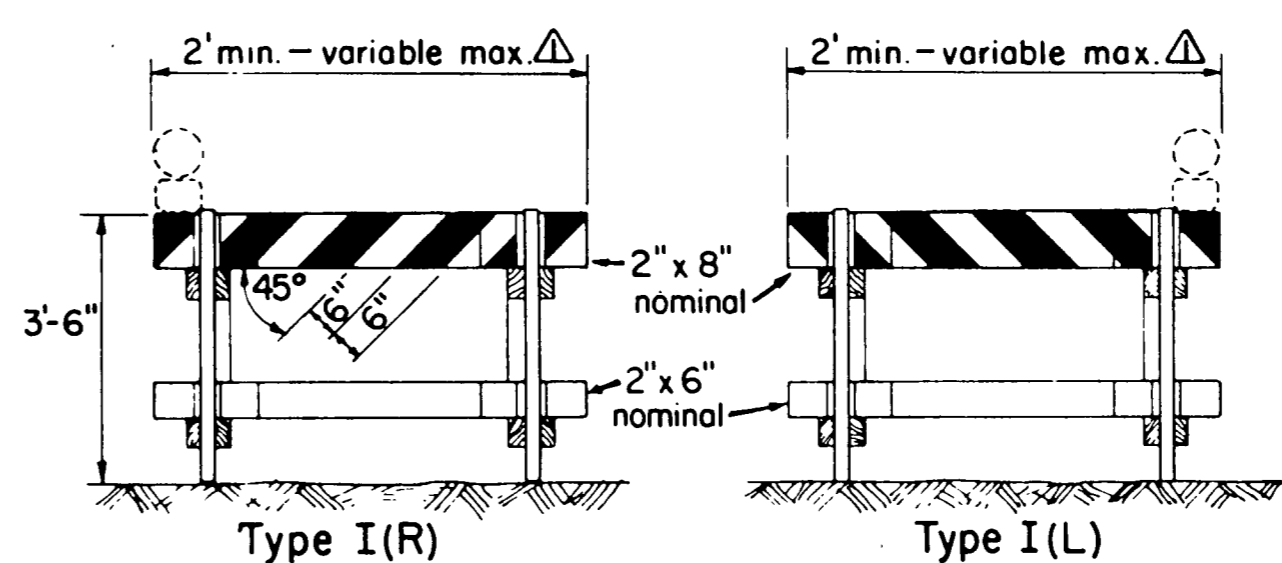
**NOTE:** For several closely adjoining intersections on the same project, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. If this is the case, see details elsewhere in the plans for advance signing requirements.

\* Distance varies with speed of traffic. Distance can be less than shown in urban areas.

\*\* Change to type I barricades with arrows at night.

The advance signs and barricades shall be in place when signal construction operations are in progress. The contractor with the approval of the engineer may remove the advance signs and barricades when there are no construction operations under way. Any obstructions or hazards at the work area shall be clearly marked and delineated at all times.

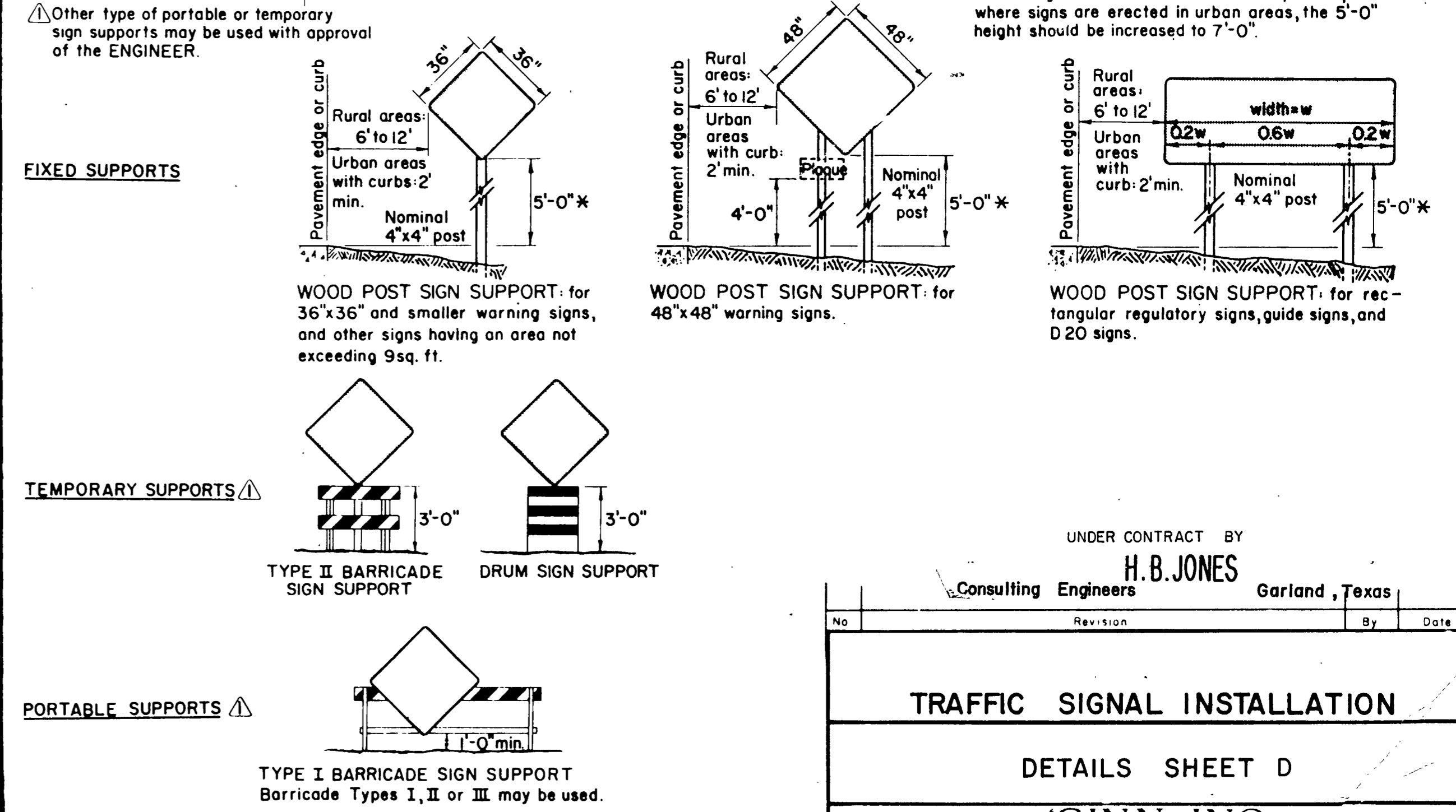
For Type I Barricades, both sides of the top rail shall have reflective orange and reflective white striping.



**TYPE I BARRICADES**

Where a sign is to be mounted on a barricade, the barricade length should not be less than the horizontal dimension of the sign. If lights are also to be mounted on the barricade, the barricade should not be less than the sign width plus about 12" for each light to be attached. Barricades of a greater length than the above will be satisfactory.

**TYPICAL SIGN SUPPORTS**



**GENERAL NOTES**

Reflectorized signs shall be constructed of retro-reflective sheeting and shall be maintained to meet the requirements for appearance, color and retro-reflectivity of the Item FLAT SURFACE FLEXIBLE REFLECTIVE SHEETING in the Department's specifications. Paints and coloration of signs shall be equal to the Department's standards. Signs shall comply with the general requirements specified in the "Standard Specifications for Construction of Highways, Streets and Bridges" in effect at the time of contract award.

All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways". Contractors shall furnish a copy of a certification from the manufacturer of the lights that the warning lights meet the requirements of the ITE Standard for Flashing and Steady Burn Warning Lights as contained in the latest edition of the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways".

All signs shown have black letters and borders on a reflective orange background except the RIO-8, R4-7B, R4-8B, and G20-6 signs which have a reflective white background.

Signs erected on portable supports for use on construction projects normally mean signs which are used during the day to warn or guide traffic through and/or around the actual construction area, but at the end of the workday such signs are either removed or turned away from the view of traffic. Portable supports shall be as shown on this sheet or as approved by the Engineer. The bottom of the sign shall be a minimum of one (1) foot above the pavement edge. Signs required for nighttime usage should not normally be mounted on portable supports, except when approved by the Engineer.

Signs erected on fixed supports for use on construction projects normally mean signs that are to remain in place for both day and night usage to regulate, warn and guide traffic in advance of and within the limits of the project including the crossroad approaches. However, under certain conditions, such as where a sign may be required for a few days duration and then is no longer needed or where a sign is moved from location to location every few days or where it is not practical or desirable to provide a fixed mounting, such signs may be erected on a temporary type of support. Temporary supports shall be as shown on this sheet or as approved by the Engineer. Signs erected on temporary supports should be at a minimum height of three (3) feet. Signs erected on fixed supports should be at a minimum height of five (5) feet in rural areas and seven (7) feet in urban areas and other rural locations where sight distance obstructions are present. Regardless of the type of support used, regulatory signs should not be erected at height less than the 5 or 7 foot minimum specified above unless a lower height is approved by the Engineer. Posts for fixed supports should be set in the ground without concrete footings.

Where portable or temporary supports require the use of weights to keep a sign or barricade from turning over, the use of some type of sandbag is recommended. The use of pieces of concrete, rocks, iron, steel or other solid objects will not be permitted.

For additional information and guidelines on barricades and construction signs see the Texas Manual on Uniform Traffic Control Devices.

Signing shown is typical and may be adjusted to fit field conditions by the engineer.

UNDER CONTRACT BY  
**H. B. JONES**  
Consulting Engineers

Garland, Texas

No.	Revision	By	Date
<b>TRAFFIC SIGNAL INSTALLATION</b>			
<b>DETAILS SHEET D</b>			
<b>GINN, INC.</b> Consulting Engineers Dallas, Texas			
Designed - HBT	Drawn - RAB	Date - July 1983	Job No. 8
Approved -	Checked - HBT	Scale - None	Sheet 14 of 14