

ANOKA COUNTY MINNESOTA

CONSTRUCTION PLANS

FOR

TRAFFIC SIGNAL SYSTEM

C.S.A.H.11(FOLEY BOULEVARD)

AT EGRET BOULEVARD

GOVERNING SPECIFICATIONS

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" INCLUDING ALL SUPPLEMENTS, SHALL GOVERN.

INDEX OF SHEETS

- 1 TITLE SHEET
- 2 INTERSECTION LAYOUT
- 3 FIELD WIRING DIAGRAM
- 4 UTILITIES
- 5 DETAILS

THIS PLAN CONTAINS 5 SHEETS

Recommended for Approval _____

Recommended for Approval _____

Recommended for Approval _____

Recommended for Approval _____

Recommended for Approval _____

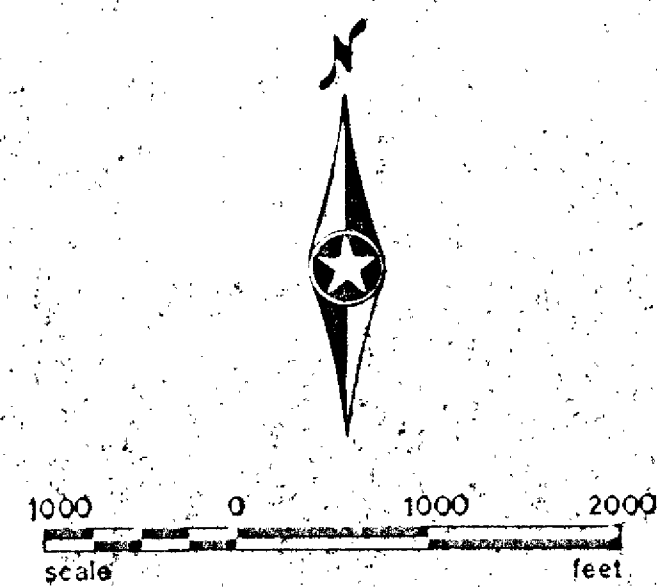
APPROVED: _____

CITY ENGINEER
Paul K. Lund
COUNTY ENGINEER

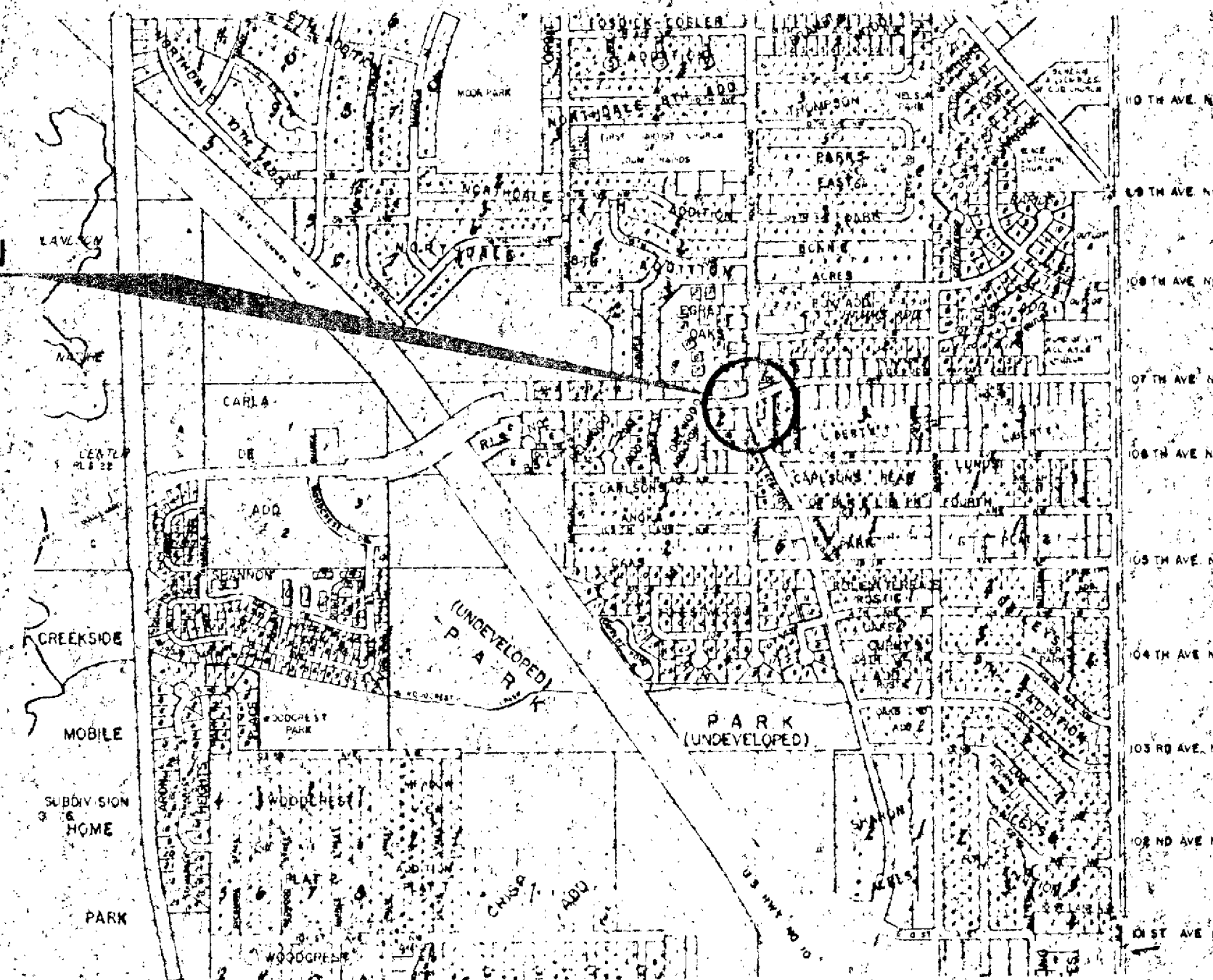
DISTRICT STATE AID ENGINEER

DIRECTOR, TRAFFIC ENGINEERING

DIRECTOR OFFICE OF STATE AID



PROJECT LOCATION
S.A.P. 02-611-23



COON RAPIDS, MINNESOTA

ESTIMATED QUANTITIES

PROJECT NO.	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITIES
	2585.511	FULL-TRAFFIC-ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM	SIGNAL SYSTEM	1

"ELECTRICAL ENGINEER CERTIFICATION"
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date: *7/31/87* Reg. No. *5524*

SURVEY	CHECKED BY	NO.	DATE	REVISIONS
DESIGN: M.K.	G.V.W.			
DRAWN: G.N.				

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Robert A. Eber
DATE: *7/31/87* REG. NO. *9089*



SHORT - ELLIOTT - HENDRICKSON, INC.
Saint Paul, Minnesota • Chippewa Falls, Wisconsin

SIGNAL SYSTEM
TITLE SHEET
C.S.A.H.11(FOLEY BOULEVARD)
AT EGRET BOULEVARD

S.A.P. 02-611-23

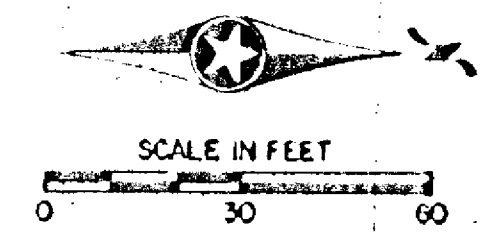
FILE NO.: 87144
DATE: 7/31/87
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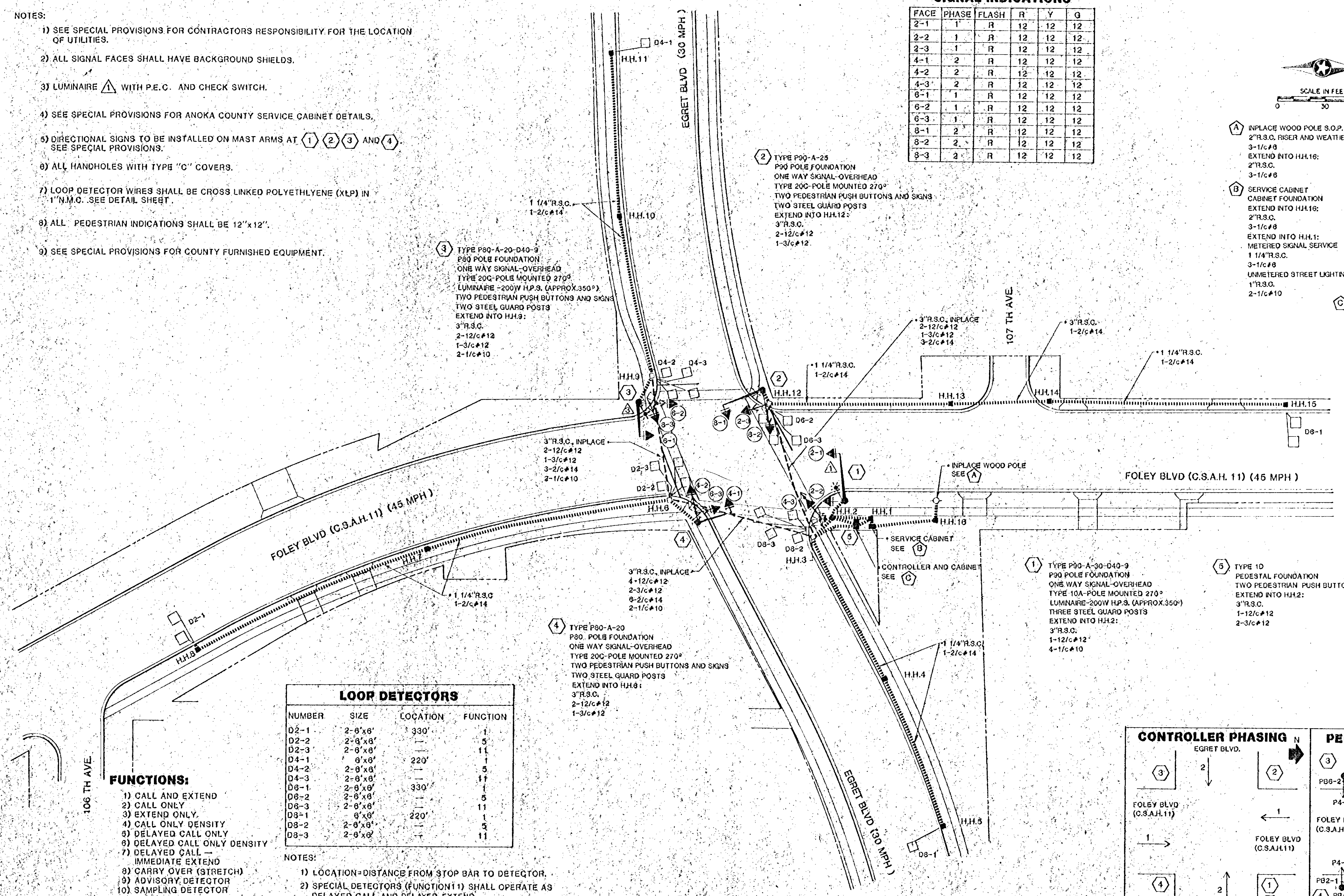
- 1) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR THE LOCATION OF UTILITIES.
- 2) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- 3) LUMINAIRE Δ WITH P.E.C. AND CHECK SWITCH.
- 4) SEE SPECIAL PROVISIONS FOR ANOKA COUNTY SERVICE CABINET DETAILS.
- 5) DIRECTIONAL SIGNS TO BE INSTALLED ON MAST ARMS AT ① ② ③ AND ④. SEE SPECIAL PROVISIONS.
- 6) ALL HANDHOLES WITH TYPE "C" COVERS.
- 7) LOOP DETECTOR WIRES SHALL BE CROSS LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE DETAIL SHEET.
- 8) ALL PEDESTRIAN INDICATIONS SHALL BE 12"x12".
- 9) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED EQUIPMENT.

SIGNAL INDICATIONS

FACE	PHASE	FLASH	R	Y	G
2-1	1	R	12	12	12
2-2	1	R	12	12	12
2-3	1	R	12	12	12
4-1	2	R	12	12	12
4-2	2	R	12	12	12
4-3	2	R	12	12	12
6-1	1	R	12	12	12
6-2	1	R	12	12	12
6-3	1	R	12	12	12
8-1	2	R	12	12	12
8-2	2	R	12	12	12
8-3	2	R	12	12	12



- ① INPLACE WOOD POLE S.O.P.
2" R.S.C. RISER AND WEATHERHEAD
3-1/c#8
EXTEND INTO H.H.16:
2" R.S.C.
3-1/c#8
- ② SERVICE CABINET
CABINET FOUNDATION
EXTEND INTO H.H.16:
2" R.S.C.
3-1/c#8
EXTEND INTO H.H.1:
METERED SIGNAL SERVICE
1 1/4" R.S.C.
3-1/c#8
UNMETERED STREET LIGHTING SERVICE
1" R.S.C.
2-1/c#10
- ③ CONTROLLER AND CABINET
CABINET FOUNDATION
EXTEND INTO H.H.1:
METERED SIGNAL SERVICE
1 1/4" R.S.C.
3-1/c#8
EXTEND INTO H.H.2:
4" R.S.C.
4-12/c#12
3-3/c#12
3-2/c#14
EXTEND INTO H.H.3:
4" R.S.C.
4-12/c#12
2-3/c#12
3-2/c#14
BETWEEN H.H.1 AND H.H.2:
2" R.S.C.
2-1/c#10
BETWEEN H.H.2 AND H.H.3:
3" R.S.C.
2-12/c#12
1-3/c#12
3-2/c#14
2-1/c#10



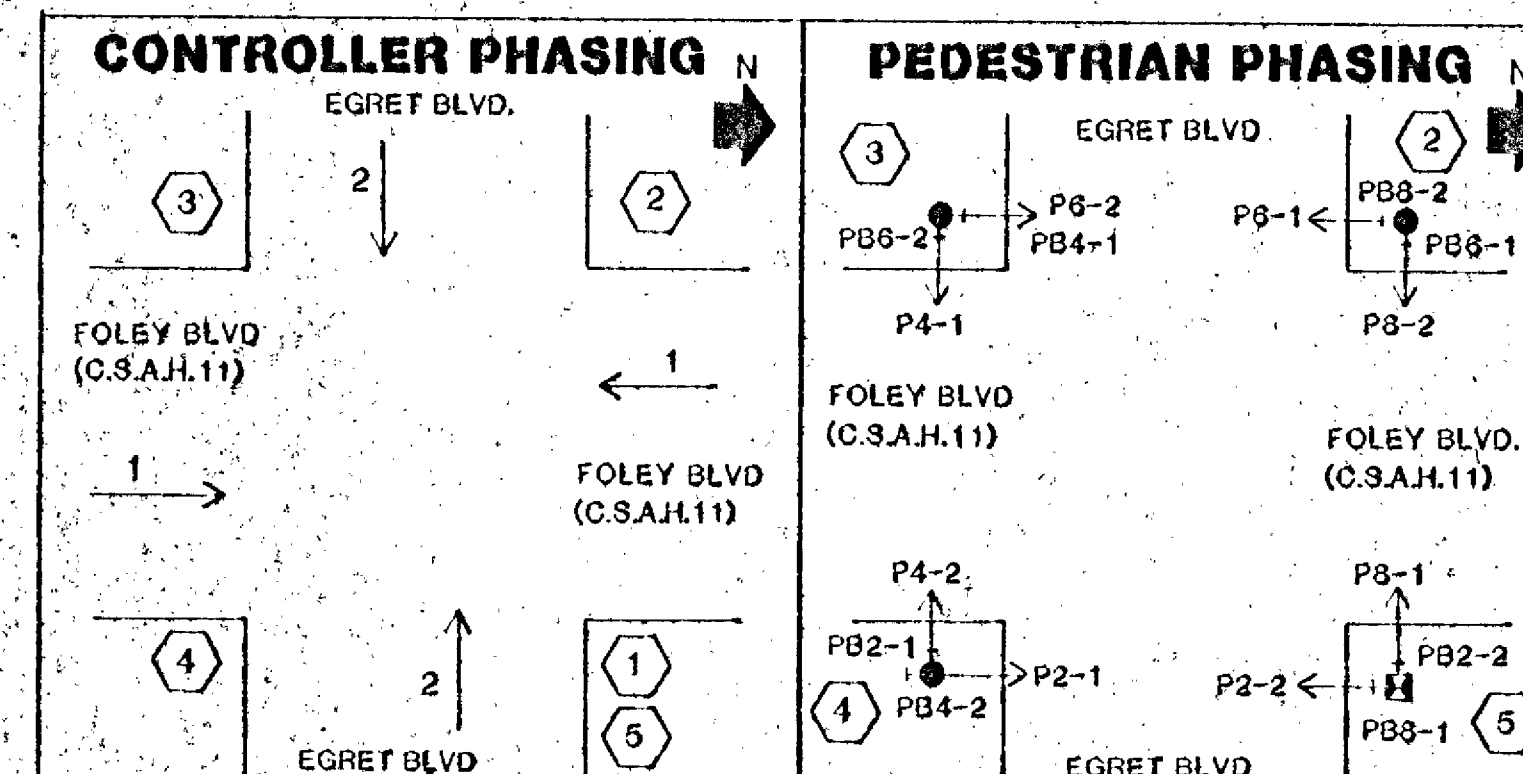
NUMBER	SIZE	LOCATION	FUNCTION
D2-1	2-8'x6'	330'	1
D2-2	2-8'x6'	---	5
D2-3	2-8'x6'	---	11
D4-1	6'x6'	220'	1
D4-2	2-8'x6'	---	5
D4-3	2-8'x6'	---	11
D6-1	2-8'x6'	330'	1
D6-2	2-8'x6'	---	5
D6-3	2-8'x6'	---	11
D8-1	6'x6'	220'	1
D8-2	2-8'x6'	---	5
D8-3	2-8'x6'	---	11

FUNCTIONS:

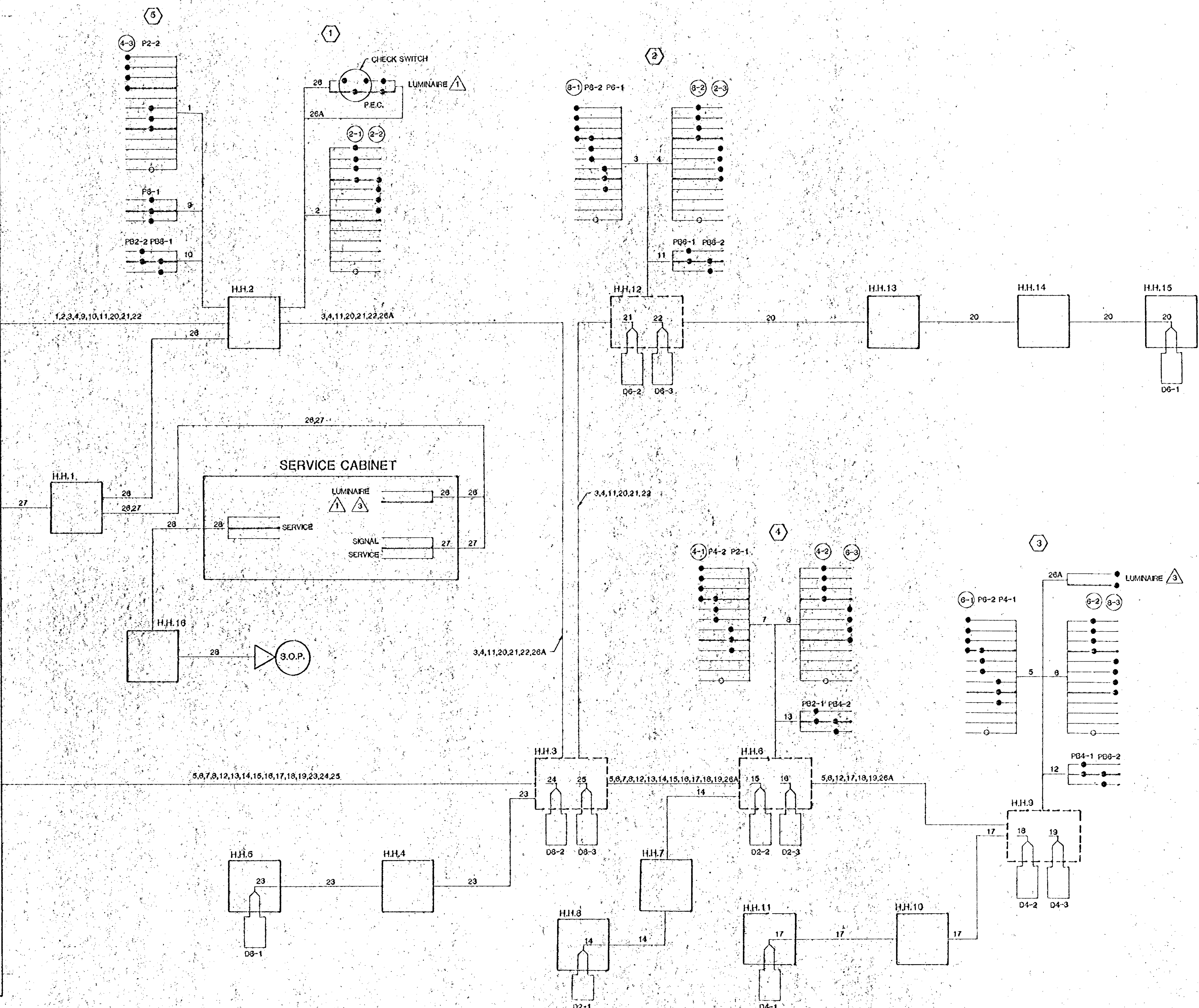
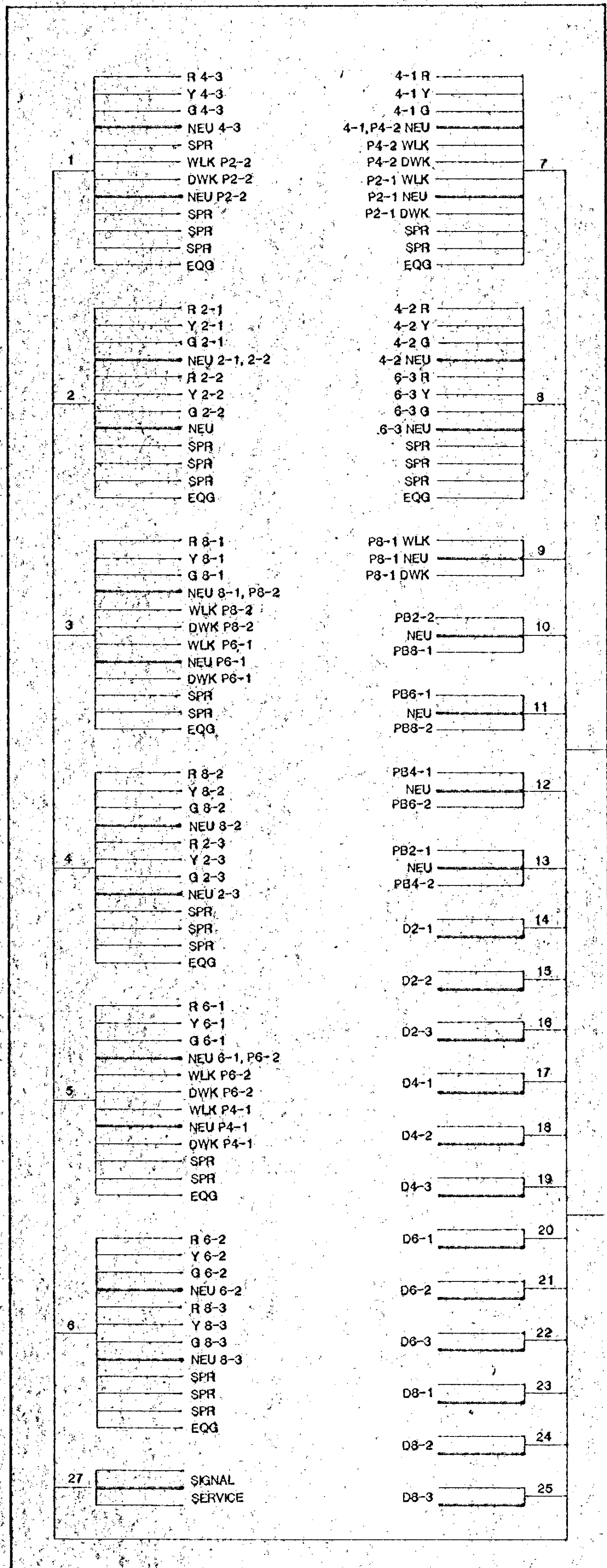
- 1) CALL AND EXTEND
- 2) CALL ONLY
- 3) EXTEND ONLY
- 4) CALL ONLY DENSITY
- 6) DELAYED CALL ONLY
- 6) DELAYED CALL ONLY DENSITY
- 7) DELAYED CALL - IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)
- 9) ADVISORY DETECTOR
- 10) SAMPLING DETECTOR
- 11) SPECIAL DETECTOR

NOTES:

- 1) LOCATION=DISTANCE FROM STOP BAR TO DETECTOR.
- 2) SPECIAL DETECTORS (FUNCTION 11) SHALL OPERATE AS DELAYED CALL AND DELAYED EXTEND.



CONTROLLER AND CABINET



SURVEY:	CHECKED BY:	NO.	DATE	REVISIONS
DESIGN: M.K.	G.V.W.			
DRAWN: G.N.				

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
 Date: 8/10/87 Reg. No. 9089

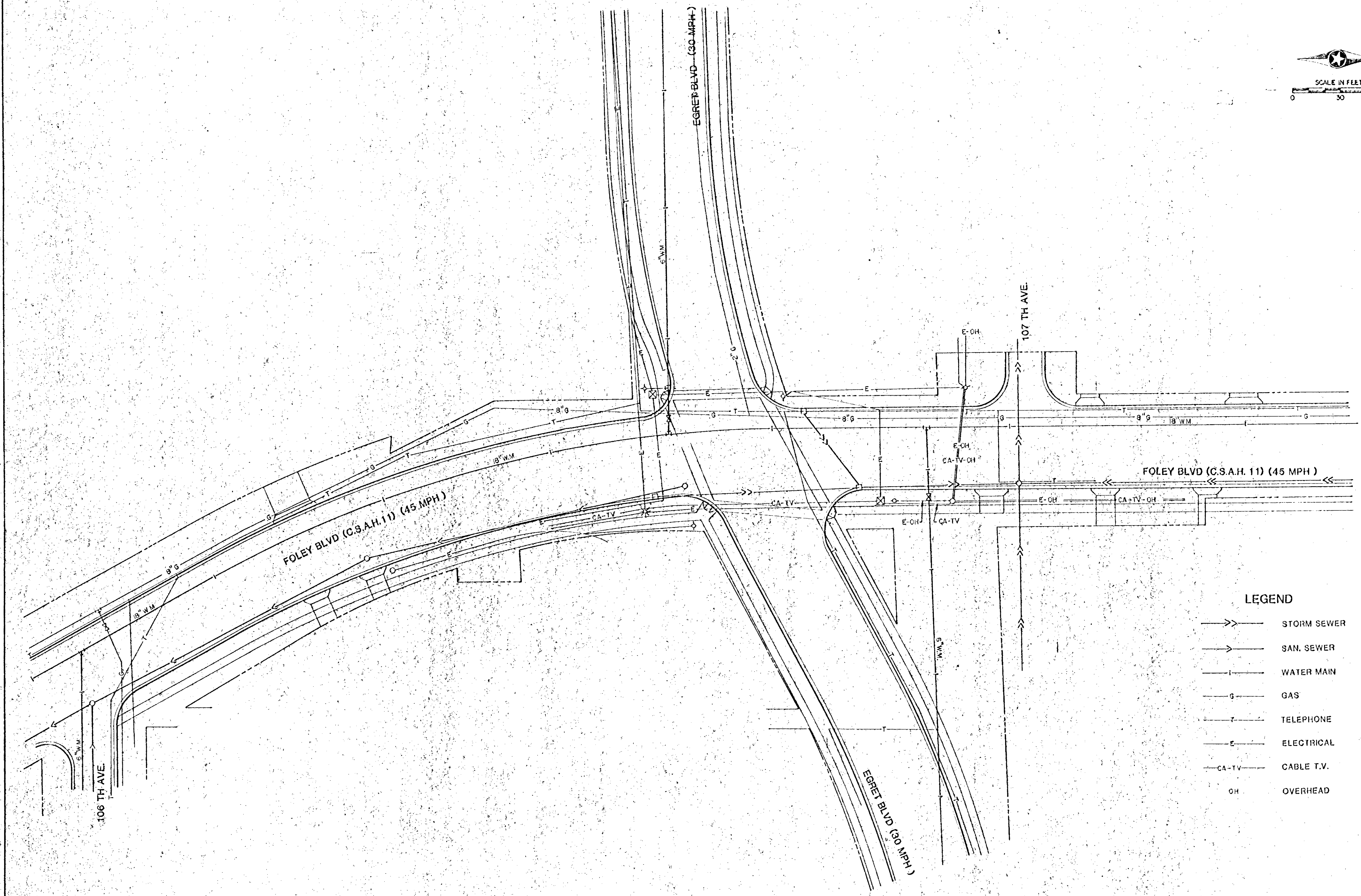
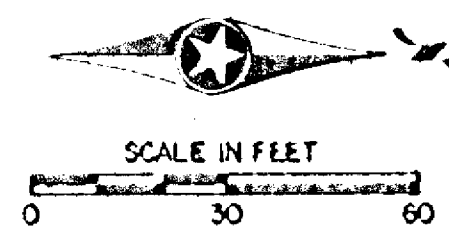


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 Saint Paul, Minnesota • Chippewa Falls, Wisconsin

SIGNAL SYSTEM
 FIELD WIRING DIAGRAM
 C.S.A.H. 11 (FOLLY BOULEVARD)
 AT EGRET BOULEVARD

S.A.P. 02-611-23

FILE NO.:	37144	3
DATE:	7/31/87	
		5



LEGEND

- >>— STORM SEWER
- >— SAN SEWER
- |— WATER MAIN
- g— GAS
- T— TELEPHONE
- E— ELECTRICAL
- CA-TV— CABLE T.V.
- OH OVERHEAD

SURVEY	CHECKED BY:	NO	DATE	REVISIONS
DESIGN: M.K.	G.V.W.			
DRAWN: G.J.				

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Signature
 Date: 01/03/87 Reg. No. 9089

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 Saint Paul, Minnesota • Chippewa Falls, Wisconsin

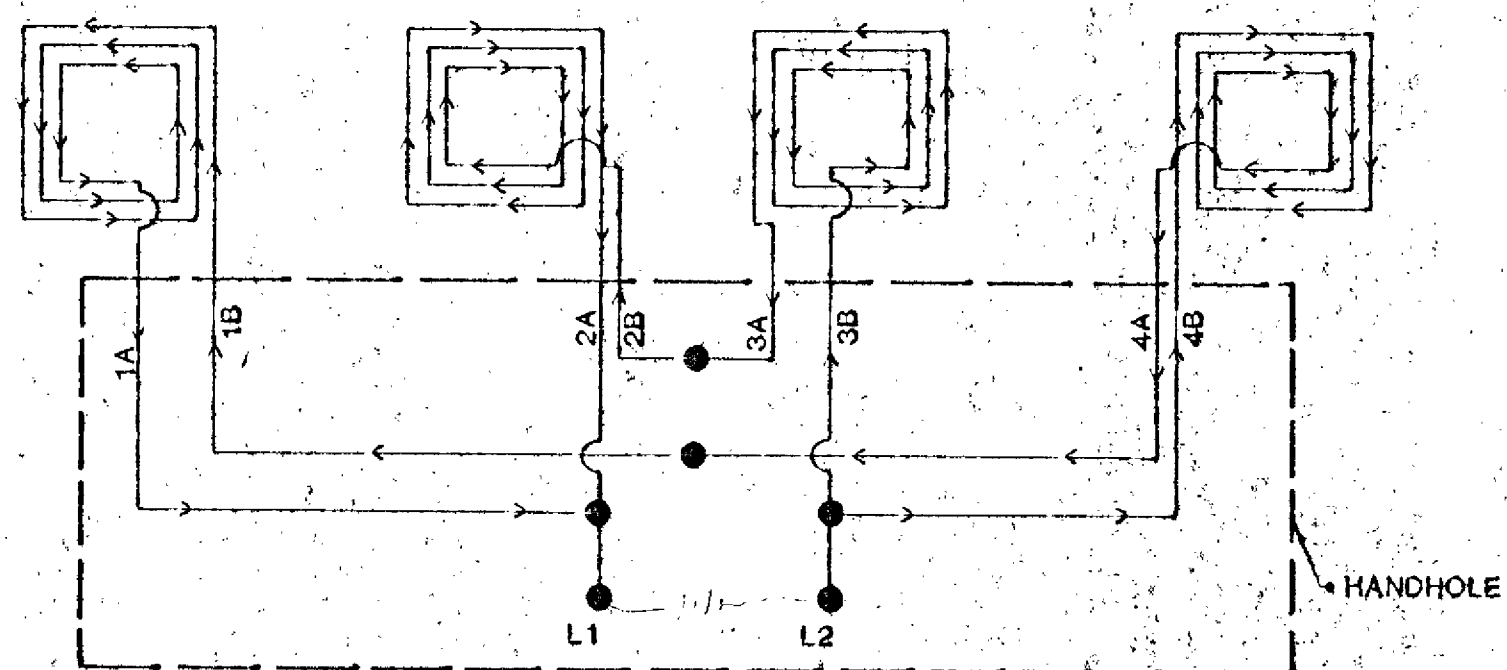
SIGNAL SYSTEM UTILITIES
 C.S.A.H. 11 (FOLEY BOULEVARD) AT EGRET BOULEVARD

S.A.P. 02-611-23

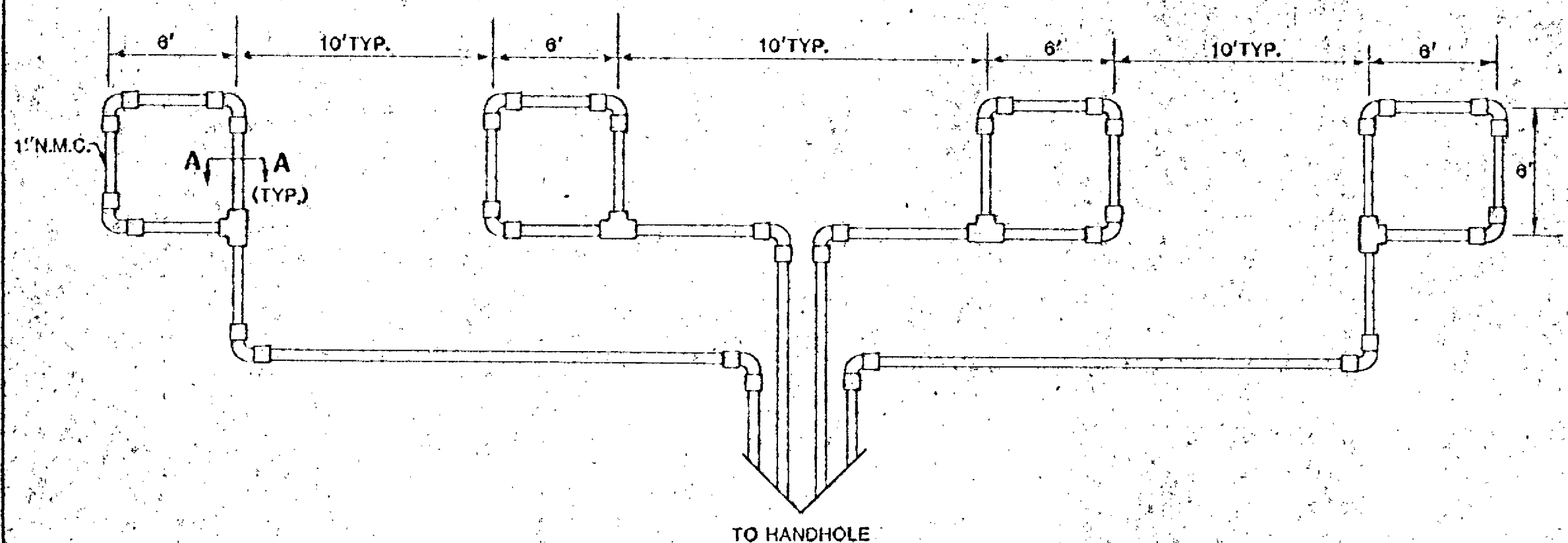
FILE NO:	87144	4
DATE:	7/31/87	5

LOOP DETECTOR DETAIL "C"

PLAN VIEW
(NOT TO SCALE)



LOOP CONNECTIONS SHALL BE SPLICED IN THE HANDHOLE AS FOLLOWS:
1B TO 4A 2B TO 3A 1A AND 2A TO L1 3B AND 4B TO L2
SPlice CONTROL CABLE TO L1 AND L2 IN HANDHOLE.
ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ect.).

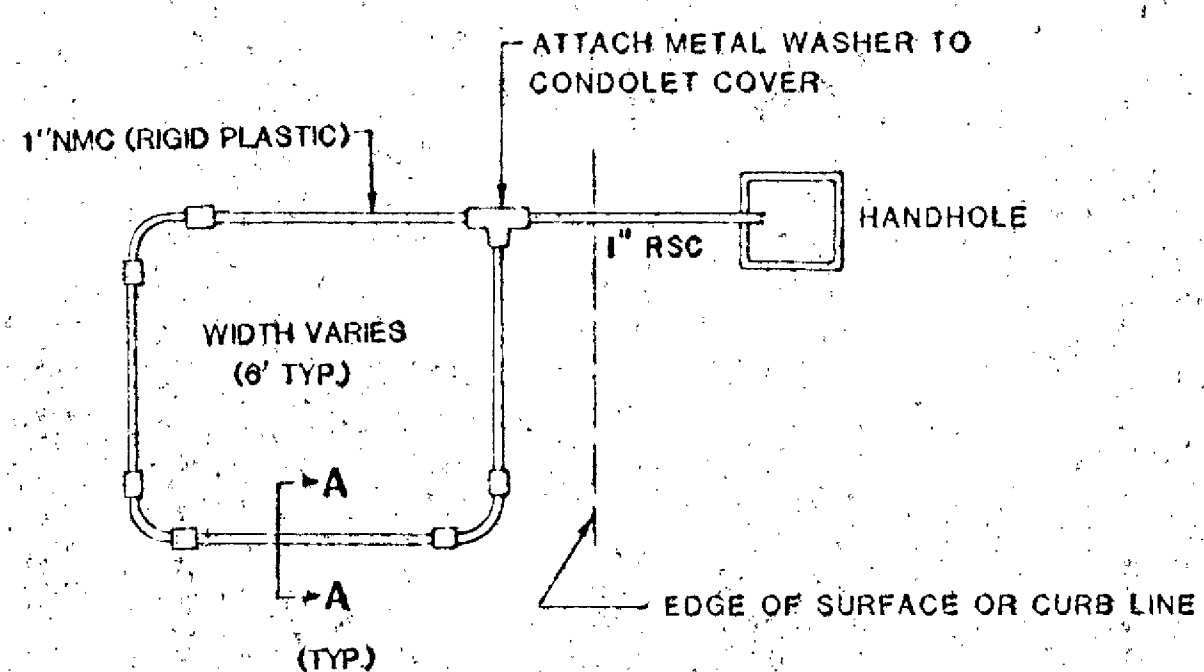


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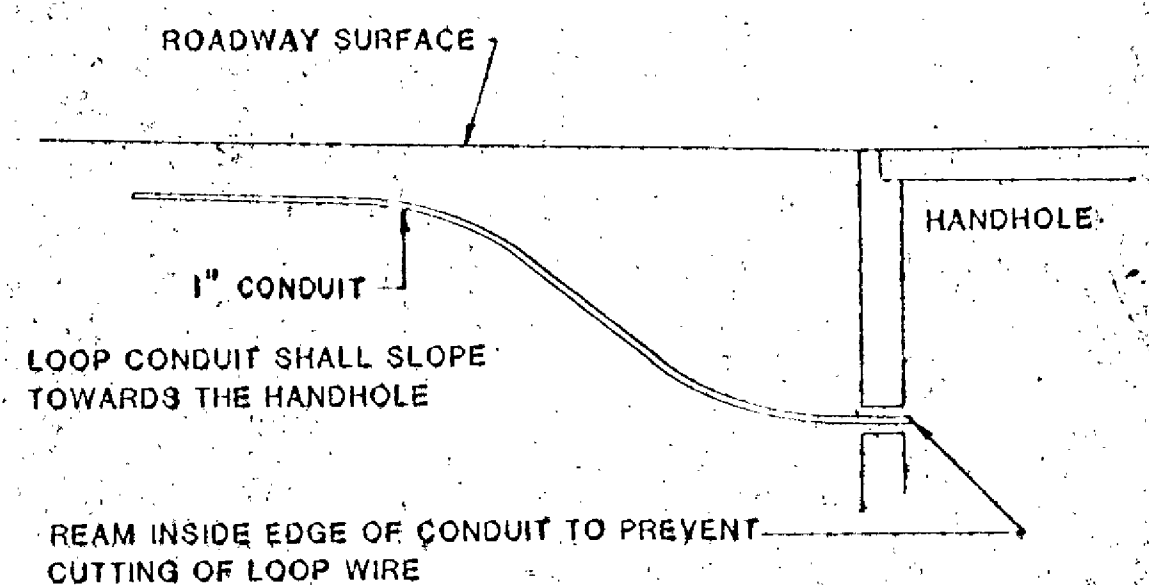
- 1) ALL CORNERS SHALL BE STANDARD 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING WESTERN UNION SPLICE, SOLDERED, TAPED & AND WATERPROOFED.
- 3) LOOP DETECTOR WIRES SHALL BE CROSS LINKED POLYETHYLENE (XLP) SEE SPECIAL PROVISIONS.
- 4) LOOP WIRES SHALL BE TWISTED A MINIMUM OF 1 TURN PER 3 FEET FROM THE LOOP TO THE CONDUIT TO AND 3 TURNS PER FOOT THROUGH THE CONDUIT THE HANDHOLE.
- 5) N.M.C. DESIGNATES NON-METALIC CONDUIT (SPEC 3803).

LOOP DETECTOR DETAIL "A"

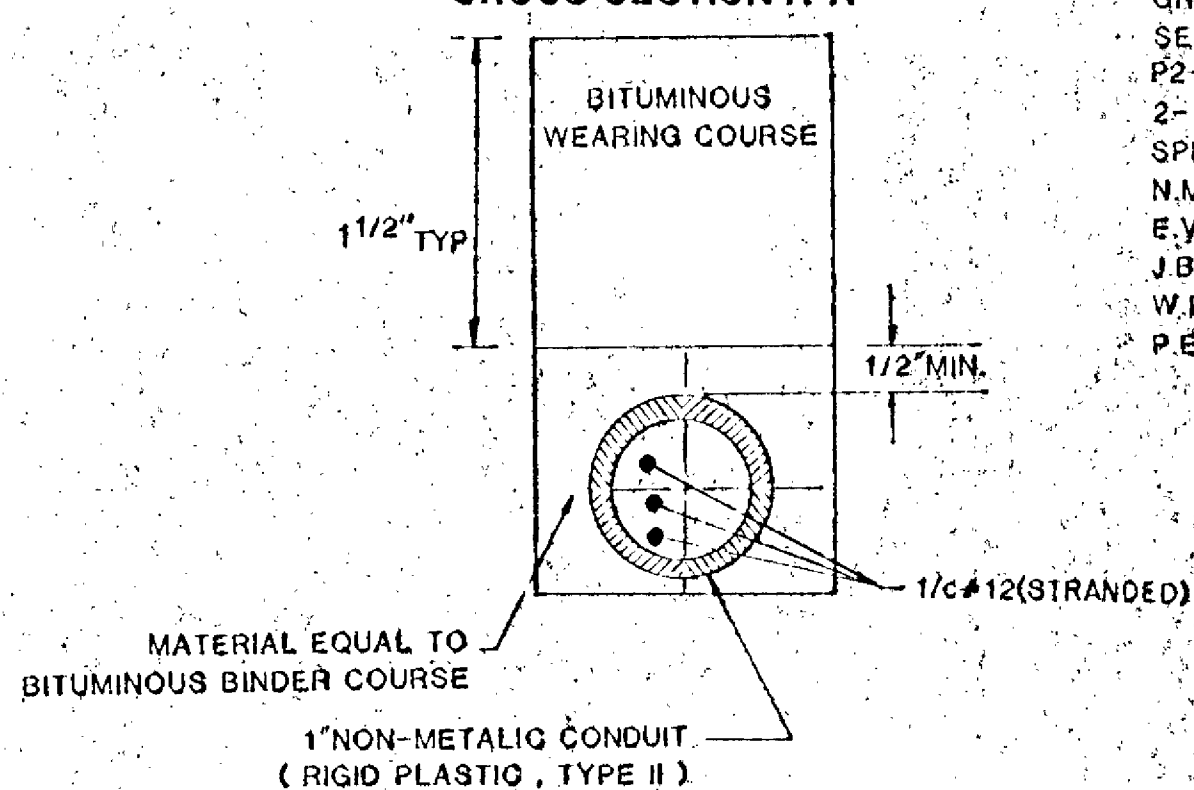
PLAN VIEW
(NOT TO SCALE)



DRAINAGE DETAILS



CROSS SECTION A-A

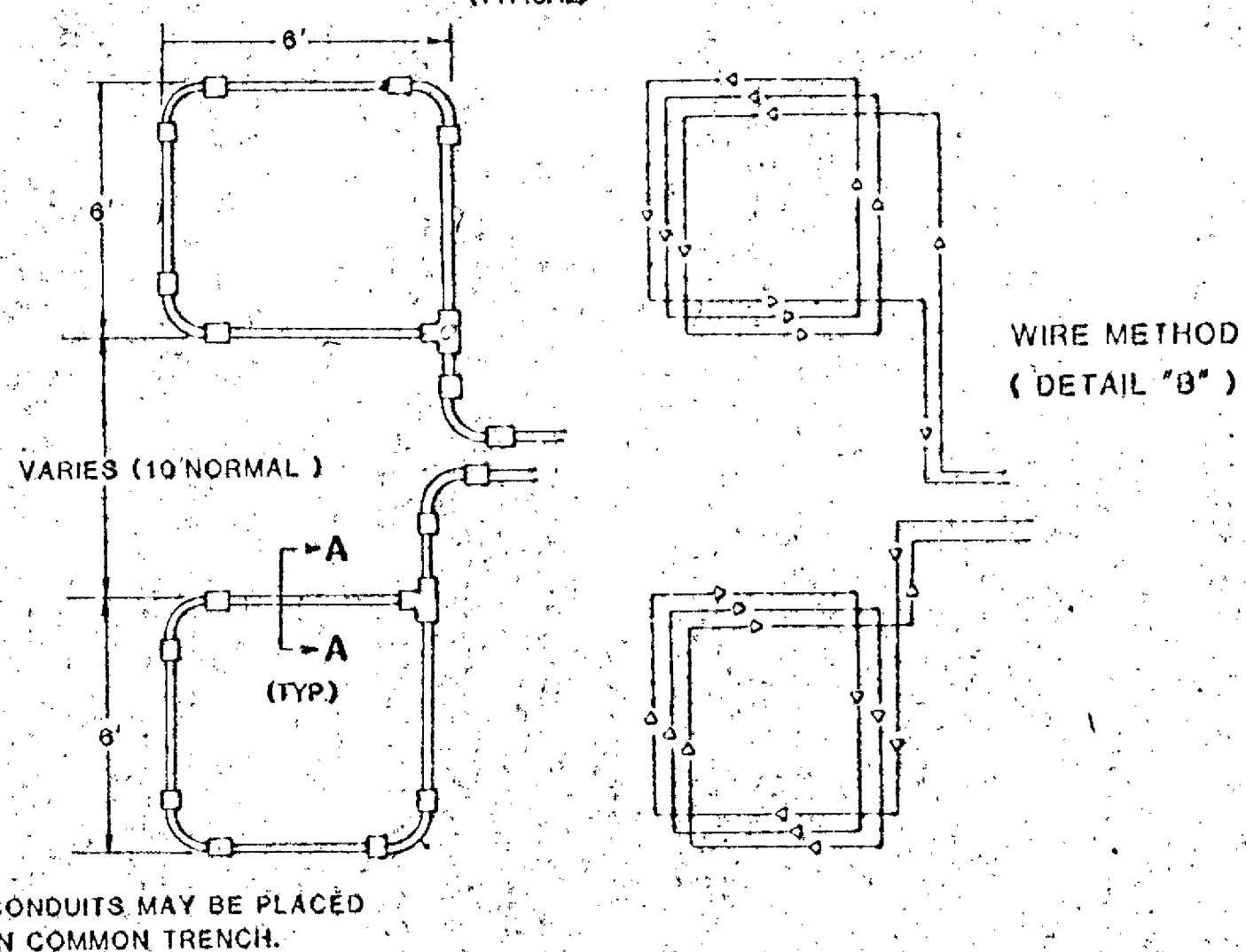


CONDUIT INSTALLATION DETAIL FOR LOOP DETECTORS

LOOP DETECTOR CONDUITS ARE TO BE INSTALLED IN 3" CUT TRENCHES AS SHOWN ON PLANS. INSTALL EACH COMPLETE DETECTOR ASSEMBLY WITH THE DETECTOR WIRE PULLED THROUGH THE COMPLETE ASSEMBLY TO HANDHOLE. WHERE APPROPRIATE, PLACE DETECTOR CONDUIT IN BITUMINOUS BINDER COURSE PRIOR TO PLACEMENT OF THE WEARING COURSE. THE DEPTH OF THE TRENCH AND THE RESULTANT PLACEMENT OF THE DETECTOR CONDUIT SHALL BE SUCH THAT THE ENTIRE DETECTOR ASSEMBLY DRAINS INTO THE HANDHOLE. BACKFILL AND COMPACT THE TRENCHES WITH MATERIAL EQUIVALENT TO THE MATERIAL REMOVED.

LOOP DETECTOR DETAIL "B"

PLAN VIEW
(NOT TO SCALE)
(TYPICAL)



ABBREVIATIONS

EQUIPMENT AND INDICATIONS

- R, RED - RED
- Y, YEL - YELLOW
- G, GRN - GREEN
- WLK - WALK
- NEU - NEUTRAL
- DWK - DON'T WALK
- LUM - LUMINAIRE
- DNL - DOWNLIGHT
- H.H. - HANDHOLE
- EQG - EQUIPMENT GROUND
- R.S.C. - RIGID STEEL CONDUIT
- GLTA - GREEN LEFT TURN ARROW
- YRTA - YELLOW RIGHT TURN ARROW
- D2-1(eg)-DETECTOR-PHASE "2"
- GR-R - GROUND ROD
- SER - SERVICE
- P2-2 PEDESTRIAN INDICATIONS-PHASE "2"
- 2-1(eg)-SIGNAL HEADS-PHASE "2"
- SPR - SPARE CONDUCTORS
- N.M.C. - NON METALLIC CONDUIT
- E.V.P. - EMERGENCY VEHICLE PRE-EMPTION
- J.B. - JUNCTION BOX
- W.P. - WOOD POLE
- P.E.C. - PHOTOELECTRIC CELL

CONDUCTOR COLOR CODE

- R - RED
- O - ORANGE
- BL - BLUE
- WH - WHITE
- G - GREEN
- BLK - BLACK
- R/BLK - RED WITH BLACK TRACER
- O/BLK - ORANGE WITH BLACK TRACER
- BL/BLK - BLUE WITH BLACK TRACER
- WH/BLK - WHITE WITH BLACK TRACER
- BLK/WH - BLACK WITH WHITE TRACER
- G/BLK - GREEN WITH BLACK TRACER

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQPT. NO'S.	⬆
SIGNAL BASE NO.	⊖
SIGNAL FACE NO.	⊙
LUMINAIRE NO.	⊕
CONTROLLER AND CABINET	⊞
CONTROLLER AND CABINET-IN PLACE	⊞
HANDHOLE	⊞
HANDHOLE-IN PLACE	⊞
RIGID STEEL CONDUIT (R.S.C.)	⊞
RIGID STEEL CONDUIT (R.S.C.)-IN PLACE	⊞
SIGNAL FACE WITH BACKGROUND SHIELD	⊞
SIGNAL FACE W/O BACKGROUND SHIELD	⊞
SIGNAL FACE-IN PLACE	⊞
PEDESTRIAN INDICATIONS	⊞
PEDESTRIAN INDICATIONS-IN PLACE	⊞
PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE	⊞
PEDESTRIAN PUSH BUTTON STATION	⊞
TRAFFIC SIGNAL PEDESTAL	⊞
TRAFFIC SIGNAL PEDESTAL-IN PLACE	⊞
TRAFFIC SIGNAL POLE AND MAST ARM	⊞
TRAFFIC SIGNAL POLE AND MAST ARM-IN PLACE	⊞
STREET LIGHT POLE AND LUMINAIRE	⊞
STREET LIGHT POLE AND LUMINAIRE-IN PLACE	⊞
MAST ARM AND LUMINAIRE	⊞
MAST ARM AND LUMINAIRE-IN PLACE	⊞
WOOD POLE	⊞
WOOD POLE-IN PLACE	⊞
SOURCE OF POWER	⊞
RAILROAD SIGNAL-IN PLACE	⊞
RIGHT OF WAY LINE	⊞
CENTER LINE	⊞
EDGE OF ROADWAY	⊞
SHOULDER LINE	⊞
CURB LINE	⊞
STOP BAR	⊞
CROSSWALK	⊞

CONDUCTOR COLOR CODING

R	BLK	2-1/C#6
O	WH	2-1/C#10
BL	R	
WH	W	3/C#12
R/BLK	BLK	
O/BLK	BLK	
BL/BLK	BLK	
WH/BLK	CLEAR	2/C#14
BLK	R OR O	
BLK/WH	WH OR YEL	3/C#20
G/BLK	BLK OR BL	
G		

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

STANDARD PLATES

PLATE NO.	DESCRIPTION
* 8110 C	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
* 8111 B	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
* 8112 C	PEDESTAL FOUNDATION
* 8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
* 8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
* 8116 C	STEEL GUARD POST
* 8117 F	PRECAST CONCRETE HANDHOLE
* 8118 C	SERVICE EQUIPMENT AND POLE
* 8119 C	GROUND MOUNTED CABINET FOUNDATION
* 8120 H	P-80 AND P-90 POLE FOUNDATION
* 8121 B	TRANSFORMER BASE WITH POLE BASE PLATE
* 8122 C	PEDESTAL AND PEDESTAL BASE
* 8123 B	POLE AND MAST ARM
* 8124 D	SIGNAL HEAD MOUNTS
* 8125 A	SWING-AWAY HINGE
* 8126 C	P-100 POLE FOUNDATION
* 8130 D	SAW CUT LOOP DETECTORS

* THESE STANDARD PLATES APPLY TO THIS PLAN

SURVEY	CHECKED BY:	NO	DATE	REVISIONS
DESIGN M.K.	G.V.W.			
DRAWN G.N.				

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date: 9/10/87 Reg. No. 9089



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SIGNAL SYSTEM
DETAILS
C.S.A.H. 11 (FOLEY BOULEVARD)
AT EGRET BOULEVARD

S.A.P. 02-611-23

FILE NO:
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