

MINN. PROJ. NO.
MINN. PROJ. NO.

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR TRAFFIC CONTROL SIGNAL SYSTEMS

LOCATED ON COUNTY ROAD 78 (HANSON BOULEVARD) AT 113th AVENUE NW IN COON RAPIDS, SYSTEM "A", C.P.88-26-78
C.S.A.H.14 (MAIN STREET) AT SHOPPING CENTER (CENTRAL AVENUE NE) IN BLAINE, SYSTEM "B", C.P.02-614-08

STATE AID PROJ. NO.

STATE AID PROJ. NO.

GROSS LENGTH	FEET	MILES	GROSS LENGTH	FEET	MILES
BRIDGES LENGTH	FEET	MILES	BRIDGES LENGTH	FEET	MILES
EXCEPTIONS LENGTH	FEET	MILES	EXCEPTIONS LENGTH	FEET	MILES
NET LENGTH	FEET	MILES	NET LENGTH	FEET	MILES

GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL GOVERN

INDEX

- 1 TITLE SHEET
- 2-5 INTERSECTION LAYOUTS AND FIELD WIRING DIAGRAMS
- 6 DETAILS
- 7-8 UTILITIES

THIS PLAN CONTAINS 8 SHEETS

DESIGN DESIGNATION

ΣN18₂₀
R Value
ADT (19) =
Proj. ADT (19) =
Proj. HCADT (19) =
Soil Factor

ton Design
Shoulder Width

Design Speed MPH
Based on Sight Distance
Height of eye Height of object
Design Speed not achieved at:

STA TO STA MPH
STA TO STA MPH
STA TO STA MPH

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 10/22/88 REG. NO. 9089 ENGR. [Signature]

COUNTY

Recommended for Approval 19
DISTRICT STATE AID ENGINEER

Recommended for Approval 19
STATE AID PLANS AND SPECS ENGINEER

Approved 19
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____
DIVISION ADMINISTRATOR DATE

PLANS SYMBOLS

- 1. GRAVEL PAVEMENT
- 2. SAND PAVEMENT
- 3. ASPHALT PAVEMENT
- 4. BITUMINOUS PAVEMENT
- 5. CONCRETE PAVEMENT
- 6. STUCCO
- 7. BRICK
- 8. IRON PIPE OR ROD
- 9. MODULAR STONE CONCRETE OR METAL
- 10. WOODEN RAIL
- 11. GRAVEL PIT
- 12. SAND PIT
- 13. BURROW PIT
- 14. ROCK QUARRY

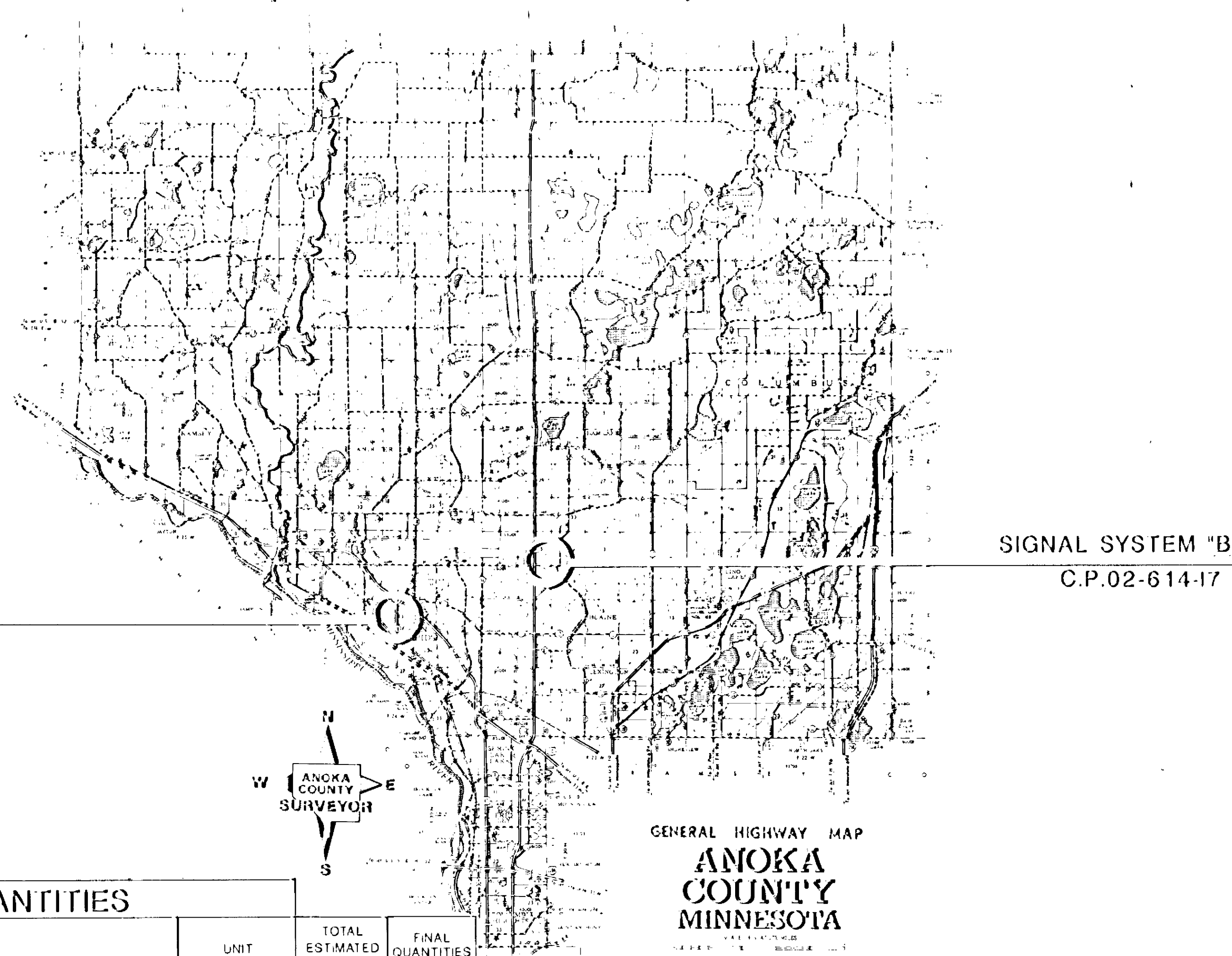
UTILITIES SYMBOLS

- 1. POWER POLE LINE
- 2. TELEPHONE OR TELEGRAPH POLE LINE
- 3. JOINT TELEPHONE AND POWER ON POWER POLES
- 4. ON TELEPHONE POLES
- 5. ANCHOR
- 6. STEEL TOWER
- 7. STREET LIGHT
- 8. PEDESTAL TELEPHONE CABLE TERMINAL
- 9. GAS MAIN
- 10. WATER MAIN
- 11. CONDUIT
- 12. TELEPHONE CABLE IN CONDUIT
- 13. ELECTRIC CABLE IN CONDUIT
- 14. TELEPHONE TAP-HOLE
- 15. ELECTRIC TAP-HOLE
- 16. BURIED TELEPHONE CABLE
- 17. BURIED ELECTRIC CABLE
- 18. AERIAL TELEPHONE CABLE
- 19. SEWER SANITARY OR STORM
- 20. SEWER TAP-HOLE

SCALES

PLAN N.A.
PROFILE N.A.
INDEX MAP 268 MI
GENERAL LAYOUT 30 FEET

PROJECT LOCATIONS



SIGNAL SYSTEM "A"
C.P.88-26-78

SIGNAL SYSTEM "B"
C.P.02-614-17

ESTIMATED QUANTITIES

PROJECT NO.	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	FINAL QUANTITIES
	2104 501	REMOVE CURB AND GUTTER	LN.FT.	15	
	2104 503	REMOVE CONCRETE SIDEWALK	SQ.FT.	75	
	2105 523	COMMON BORROW (LV)	CUBIC YARD	100	
	2501 511	36" C.M PIPE CULVERT	LN.FT.	20	
	2521 501	4" CONCRETE WALK	SQ.FT.	100	
	2521 511	BITUMINOUS WALK	SQ.FT.	450	
	2531 501	CONCRETE CURB AND GUTTER (B&I)	LN.FT.	--	
	2531 602	PEDESTRIAN CURB RAMP	EA	1	
	2565 511	FULL-TRAFFIC ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM "A"	SIGNAL SYSTEM	1	
	2565 511	FULL-TRAFFIC ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM "B"	SIGNAL SYSTEM	1	
	2575 501	ROADSIDE SEEING	SQ.YD.	70	

STATE AID PROJ. NO. _____
STATE PROJ. NO. _____ SHEET NO. 1 OF 8 SHEETS

Sheet Form # 432 REV. 2-88

NOTES:

- 1) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR THE LOCATION OF UTILITIES.
- 2) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- 3) SEE SPECIAL PROVISIONS FOR ANOKA COUNTY SERVICE CABINET DETAILS.
- 4) DIRECTIONAL SIGNS TO BE FURNISHED AND INSTALLED ON MAST ARMS AT 1), 2), 4) AND 6). SEE SPECIAL PROVISIONS.
- 5) ALL HANDHOLES SHALL BE CONCRETE WITH TYPE 'C' COVERS.
- 6) LOOP DETECTOR WIRES SHALL BE CROSS LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS.
- 7) ALL PEDESTRIAN INDICATIONS SHALL BE 12"x12"
- 8) HUBS FOR POLE MOUNTED SIGNAL INDICATIONS SHALL BE PROVIDED ON 4 SIDES OF MAST ARM POLES. SEE SPECIAL PROVISIONS.
- 9) HANDHOLES 1, 2 AND 3 AND LOOP DETECTORS D4-1, D4-2 AND D4-3 AS WELL AS THE CONDUIT BETWEEN HH.1 AND HH.3 ARE INPLACE.
- 10) SEE SPECIAL PROVISIONS FOR PATCHING TO BE DONE BY OTHERS AFTER LOOP DETECTOR INSTALLATION.

1) TYPE P100-A-35-D40-9 (DAVIT AT 315°)
 P100 POLE FOUNDATION
 2-ONE WAY SIGNALS-OVERHEAD
 TYPE 10B-POLE MOUNTED 0°
 TYPE 10B-POLE MOUNTED 270°
 LUMINAIRE-250 WATT H.P.S.
 2-PEDESTRIAN PUSH BUTTONS
 EXTEND INTO HH.1:
 3'R.S.C.
 2-12/c#12
 2-3/c#12
 2-1/c#10

INPLACE WOOD POLE (S.O.P.) (NOT EXACT LOCATION)

FUTURE ROADWORK (RIGHT-TURN LANE) (JULY/AUG 1989)

INPLACE-1 1/4'R.S.C. 1-2/c#14

SERVICE CABINET-SEE (A)

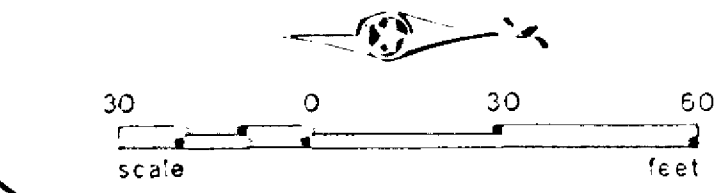
CONTROLLER CABINET-SEE (B)

3'R.S.C. 4-12/c#12 3-3/c#12 6-2/c#14

NOTE: ALL SIZES ARE IN INCHES.

3) TYPE 4B PEDESTAL POLE AND BASE PEDESTAL FOUNDATION 2 PEDESTRIAN PUSH BUTTONS EXTEND INTO HH.5:
 2'R.S.C. 1-12/c#12 1-3/c#12

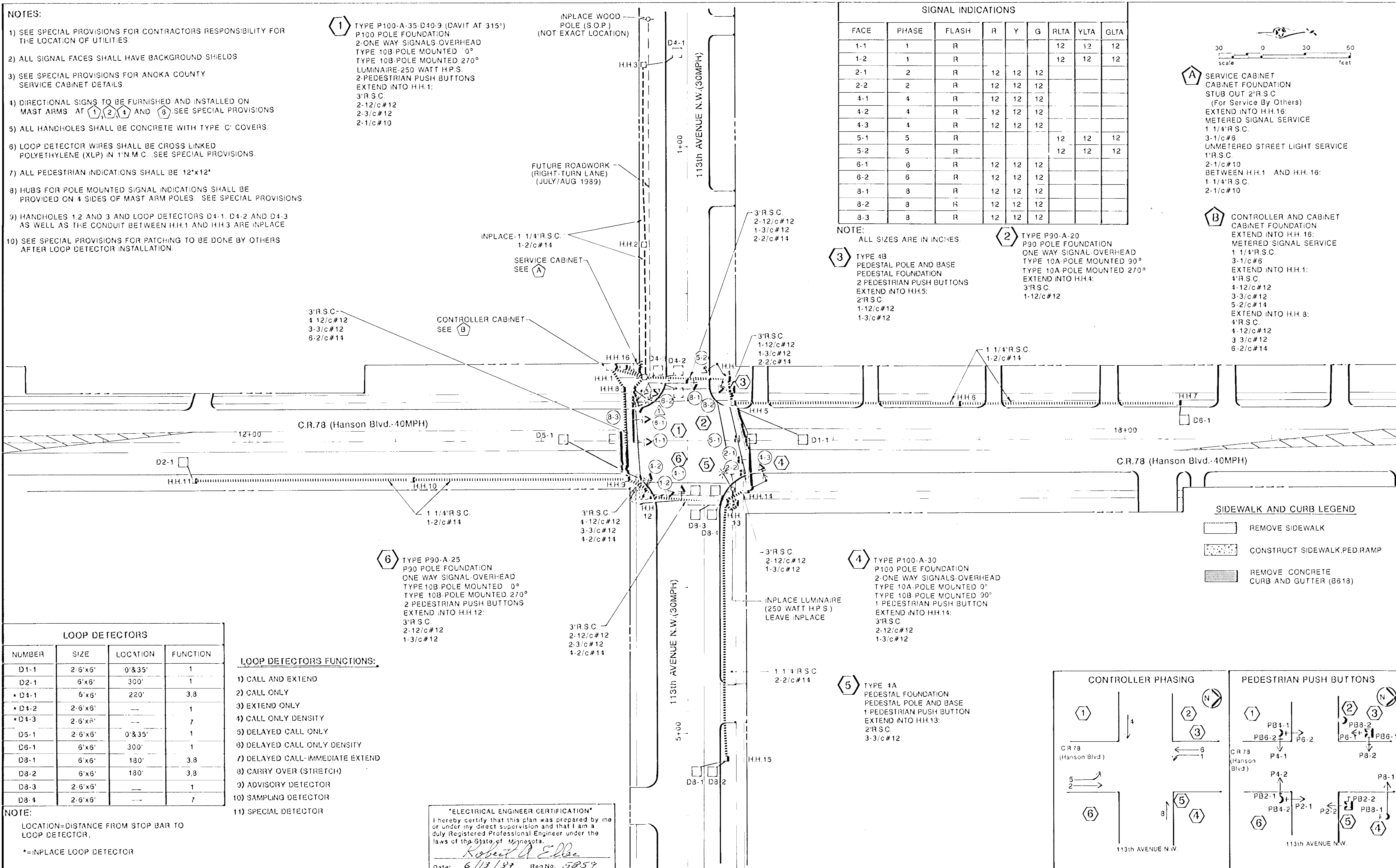
2) TYPE P90-A-20 P90 POLE FOUNDATION ONE WAY SIGNAL-OVERHEAD TYPE 10A-POLE MOUNTED 90° TYPE 10A-POLE MOUNTED 270° EXTEND INTO HH.4:
 3'R.S.C. 1-12/c#12



A) SERVICE CABINET CABINET FOUNDATION STUB OUT 2'R.S.C. (For Service By Others) EXTEND INTO HH.16: METERED SIGNAL SERVICE 1 1/4'R.S.C. 3-1/c#6 UNMETERED STREET LIGHT SERVICE 1'R.S.C. 2-1/c#10 BETWEEN HH.1 AND HH.16: 1 1/4'R.S.C. 2-1/c#10

B) CONTROLLER AND CABINET CABINET FOUNDATION EXTEND INTO H.H. 16: METERED SIGNAL SERVICE 1 1/4'R.S.C. 3-1/c#6 EXTEND INTO H.H.1: 4'R.S.C. 4-12/c#12 3-3/c#12 5-2/c#14 EXTEND INTO H.H.8: 4'R.S.C. 4-12/c#12 3 3/c#12 6-2/c#14

SIGNAL INDICATIONS								
FACE	PHASE	FLASH	R	Y	G	RLTA	YLTA	GLTA
1-1	1	R				12	12	12
1-2	1	R				12	12	12
2-1	2	R	12	12	12			
2-2	2	R	12	12	12			
4-1	4	R	12	12	12			
4-2	4	R	12	12	12			
4-3	4	R	12	12	12			
5-1	5	R				12	12	12
5-2	5	R				12	12	12
6-1	6	R	12	12	12			
6-2	6	R	12	12	12			
8-1	8	R	12	12	12			
8-2	8	R	12	12	12			
8-3	8	R	12	12	12			



LOOP DETECTORS			
NUMBER	SIZE	LOCATION	FUNCTION
D1-1	2-6'x6'	0'&35'	1
D2-1	6'x6'	300'	1
*D4-1	6'x6'	220'	3,8
*D4-2	2-6'x6'	---	1
*D4-3	2-6'x6'	---	7
D5-1	2-6'x6'	0'&35'	1
D6-1	6'x6'	300'	1
D8-1	6'x6'	180'	3,8
D8-2	6'x6'	180'	3,8
D8-3	2-6'x6'	---	1
D8-4	2-6'x6'	---	7

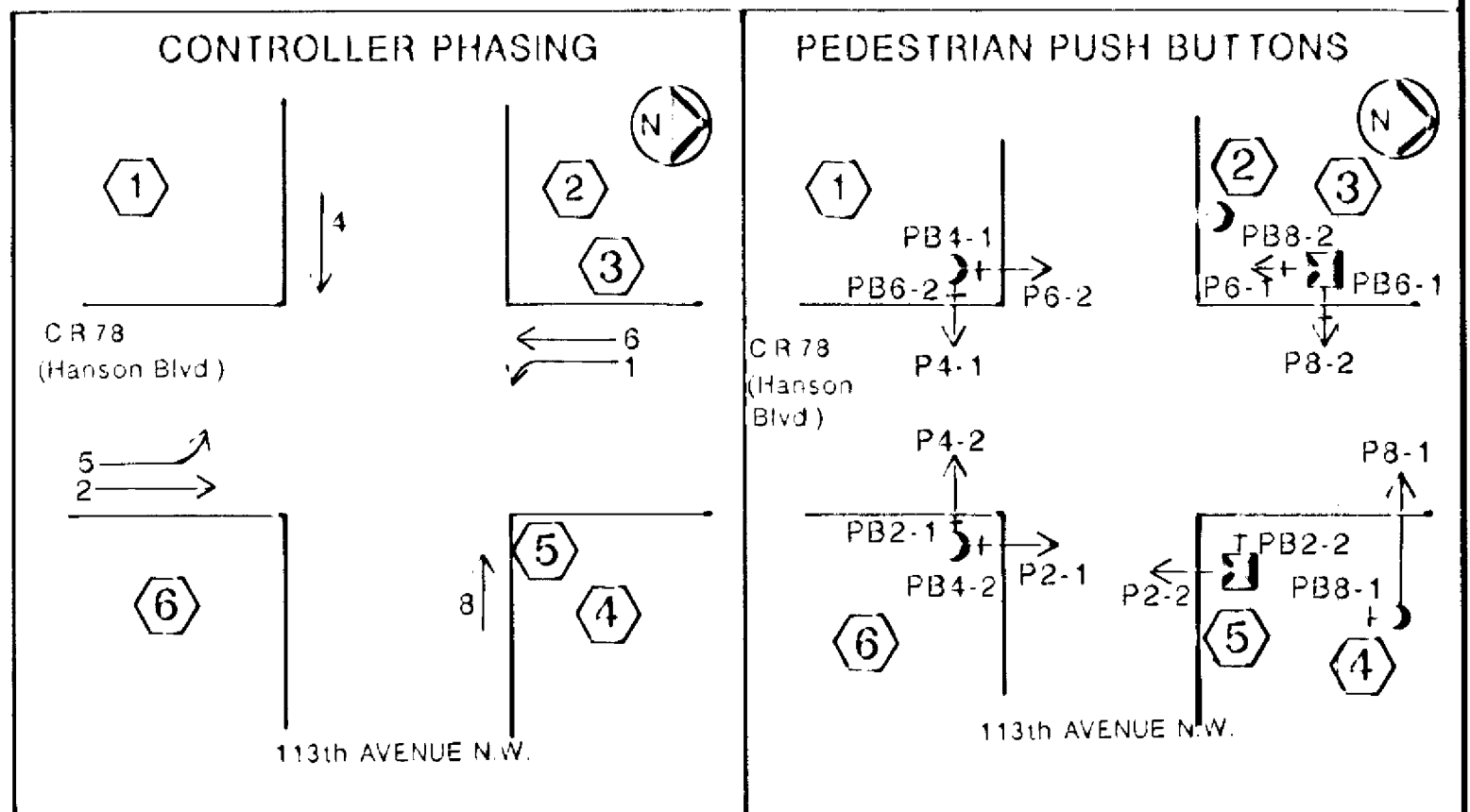
- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
 - 2) CALL ONLY
 - 3) EXTEND ONLY
 - 4) CALL ONLY DENSITY
 - 5) DELAYED CALL ONLY
 - 6) DELAYED CALL ONLY DENSITY
 - 7) DELAYED CALL-IMMEDIATE EXTEND
 - 8) CARRY OVER (STRETCH)
 - 9) ADVISORY DETECTOR
 - 10) SAMPLING DETECTOR
 - 11) SPECIAL DETECTOR

NOTE:
 LOCATION=DISTANCE FROM STOP BAR TO LOOP DETECTOR.
 *=INPLACE LOOP DETECTOR

"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.
Robert A. E. [Signature]
 Date: 6/13/89 Reg.No. 5859

SIDEWALK AND CURB LEGEND

[Symbol]	REMOVE SIDEWALK
[Symbol]	CONSTRUCT SIDEWALK, PED.RAMP
[Symbol]	REMOVE CONCRETE CURB AND GUTTER (B&18)

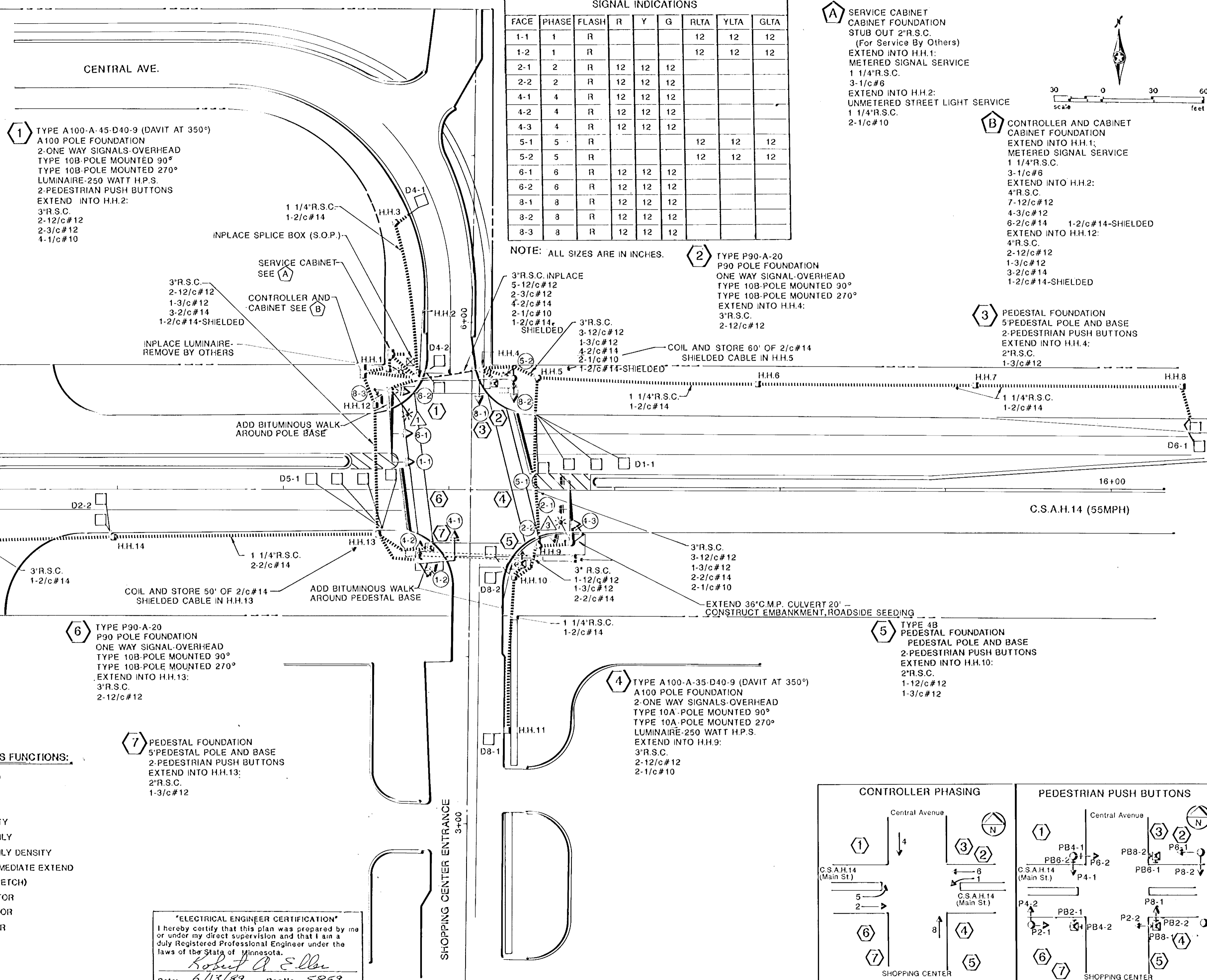


NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED	Date	Reg. No.

<p>ENGINEERS ARCHITECTS PLANNERS</p>	<p>ANOKA COUNTY</p> <p>C.P.88-26-78</p>	<p>SIGNAL SYSTEM 'A'</p> <p>INTERSECTION LAYOUT</p> <p>C.R.78 (Hanson Blvd.) AT 113th AVENUE N.W.</p>	FILE NO.	2
			89184	
			DATE	8
			7/12/89	

BASE	OVERLAY	DRG. NO.

- NOTES:**
- SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR THE LOCATION OF UTILITIES.
 - ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
 - LUMINAIRE WITH P.E.C. AND CHECK SWITCH.
 - SEE SPECIAL PROVISIONS FOR ANOKA COUNTY SERVICE CABINET DETAILS.
 - ALL HANDHOLES SHALL BE CONCRETE WITH TYPE 'C' COVERS.
 - LOOP DETECTOR WIRES SHALL BE CROSS LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS.
 - ALL PEDESTRIAN INDICATIONS SHALL BE 12"x12".
 - HUBS FOR POLE MOUNTED SIGNAL INDICATIONS SHALL BE PROVIDED ON 4 SIDES OF MAST ARM POLES. SEE SPECIAL PROVISIONS.
 - DIRECTIONAL SIGNS TO BE FURNISHED AND INSTALLED ON MAST ARMS AT 1, 2, 4 AND 6. SEE SPECIAL PROVISIONS.
 - SEE SPECIAL PROVISIONS FOR PATCHING TO BE DONE BY OTHERS AFTER LOOP DETECTOR INSTALLATION.



SIGNAL INDICATIONS

FACE	PHASE	FLASH	R	Y	G	RLTA	YLTA	GLTA
1-1	1	R				12	12	12
1-2	1	R				12	12	12
2-1	2	R	12	12	12			
2-2	2	R	12	12	12			
4-1	4	R	12	12	12			
4-2	4	R	12	12	12			
4-3	4	R	12	12	12			
5-1	5	R				12	12	12
5-2	5	R				12	12	12
6-1	6	R	12	12	12			
6-2	6	R	12	12	12			
8-1	8	R	12	12	12			
8-2	8	R	12	12	12			
8-3	8	R	12	12	12			

A SERVICE CABINET
 CABINET FOUNDATION
 STUB OUT 2" R.S.C.
 (For Service By Others)
 EXTEND INTO H.H.1:
 METERED SIGNAL SERVICE
 1 1/4" R.S.C.
 3-1/c#6
 EXTEND INTO H.H.2:
 UNMETERED STREET LIGHT SERVICE
 1 1/4" R.S.C.
 2-1/c#10

B CONTROLLER AND CABINET
 CABINET FOUNDATION
 EXTEND INTO H.H.1:
 METERED SIGNAL SERVICE
 1 1/4" R.S.C.
 3-1/c#6
 EXTEND INTO H.H.2:
 4" R.S.C.
 7-12/c#12
 4-3/c#12
 6-2/c#14 1-2/c#14-SHIELDED
 EXTEND INTO H.H.12:
 4" R.S.C.
 2-12/c#12
 1-3/c#12
 3-2/c#14
 1-2/c#14-SHIELDED

3 PEDESTAL FOUNDATION
 5" PEDESTAL POLE AND BASE
 2-PEDESTRIAN PUSH BUTTONS
 EXTEND INTO H.H.4:
 2" R.S.C.
 1-3/c#12

LOOP DETECTORS

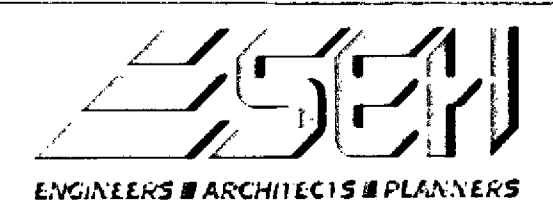
NUMBER	SIZE	LOCATION	FUNCTION
D1-1	4-6'x6'	---	1
D2-1	2-6'x6'	400'	1
D2-2	2-6'x6'	180'	2
D4-1	6'x6'	100'	3,8
D4-2	2-6'x6'	---	7
D5-1	4-6'x6'	---	1
D8-1	2-6'x6'	400'	1
D8-1	6'x6'	100'	3,8
D8-2	2-6'x6'	---	7

- LOOP DETECTORS FUNCTIONS:**
- CALL AND EXTEND
 - CALL ONLY
 - EXTEND ONLY
 - CALL ONLY DENSITY
 - DELAYED CALL ONLY
 - DELAYED CALL ONLY DENSITY
 - DELAYED CALL-IMMEDIATE EXTEND
 - CARRY OVER (STRETCH)
 - ADVISORY DETECTOR
 - SAMPLING DETECTOR
 - SPECIAL DETECTOR

NOTE:
 LOCATION=DISTANCE FROM STOP BAR TO LOOP DETECTOR.

"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.
Robert A. Ellen
 Date: 6/13/89 Reg.No. 5859

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.
Shelley Wilson
 Date: 7/12/89 Reg.No. 9089



ANOKA COUNTY
 S.A.P.02-614-17

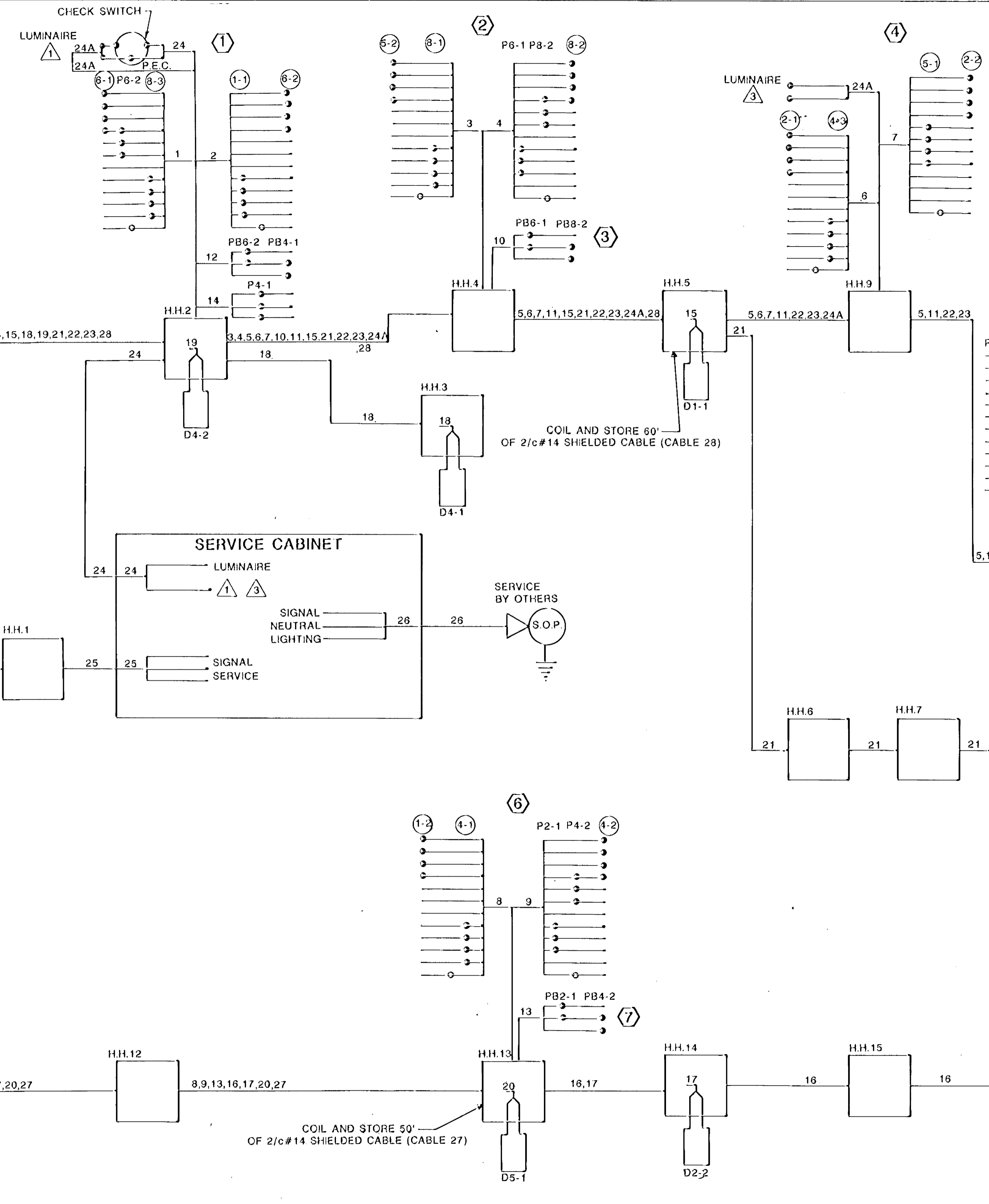
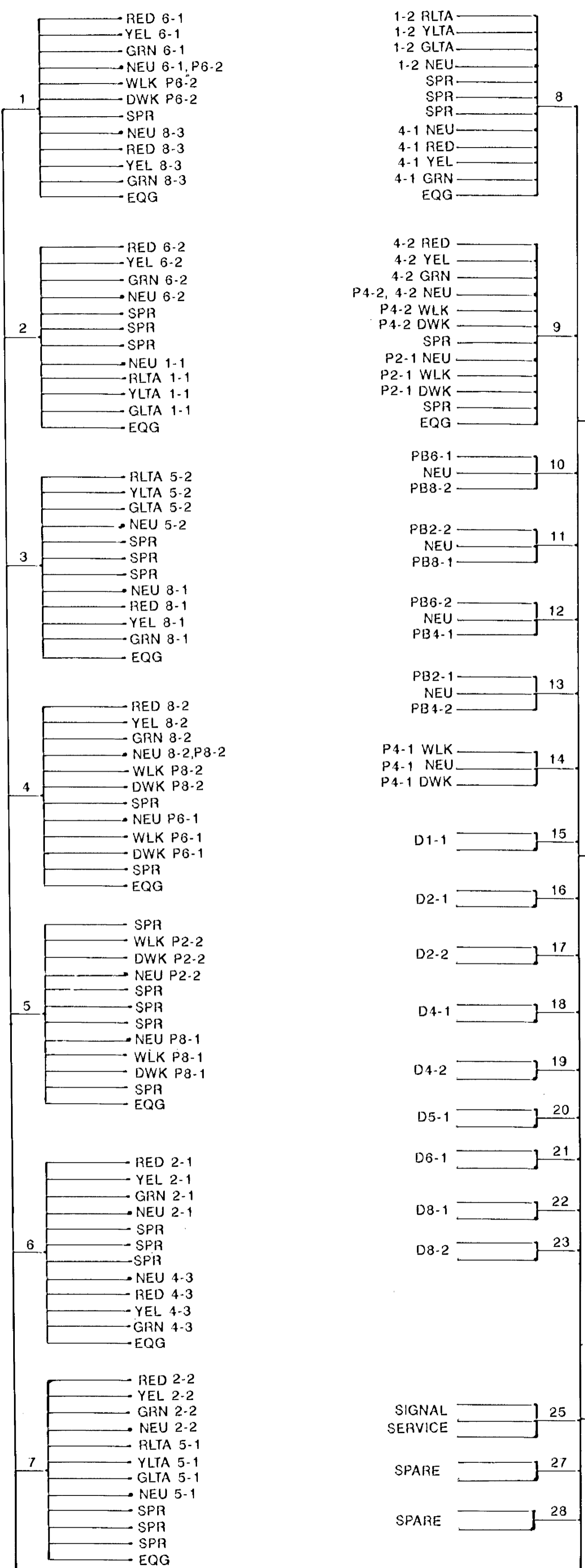
SIGNAL SYSTEM 'B'
 INTERSECTION LAYOUT
 C.S.A.H.14(Main Street) AT SHOPPING CENTER

FILE NO.	4
89185	
DATE	
7/12/89	
	8

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

CONTROLLER CABINET

--	--	--	--	--	--	--	--	--	--



CONDUCTOR COLOR CODING

R	BLK	2-1/C#4
O	WH	2-1/C#6
BL		2-1/C#10
WH	R	
R/BLK	W	3/C#12
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

"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.
Robert A. Egan
 Date: 6/13/89 Reg. No. 5359

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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. Egan
 Date: 7/12/89 Reg. No. 9089



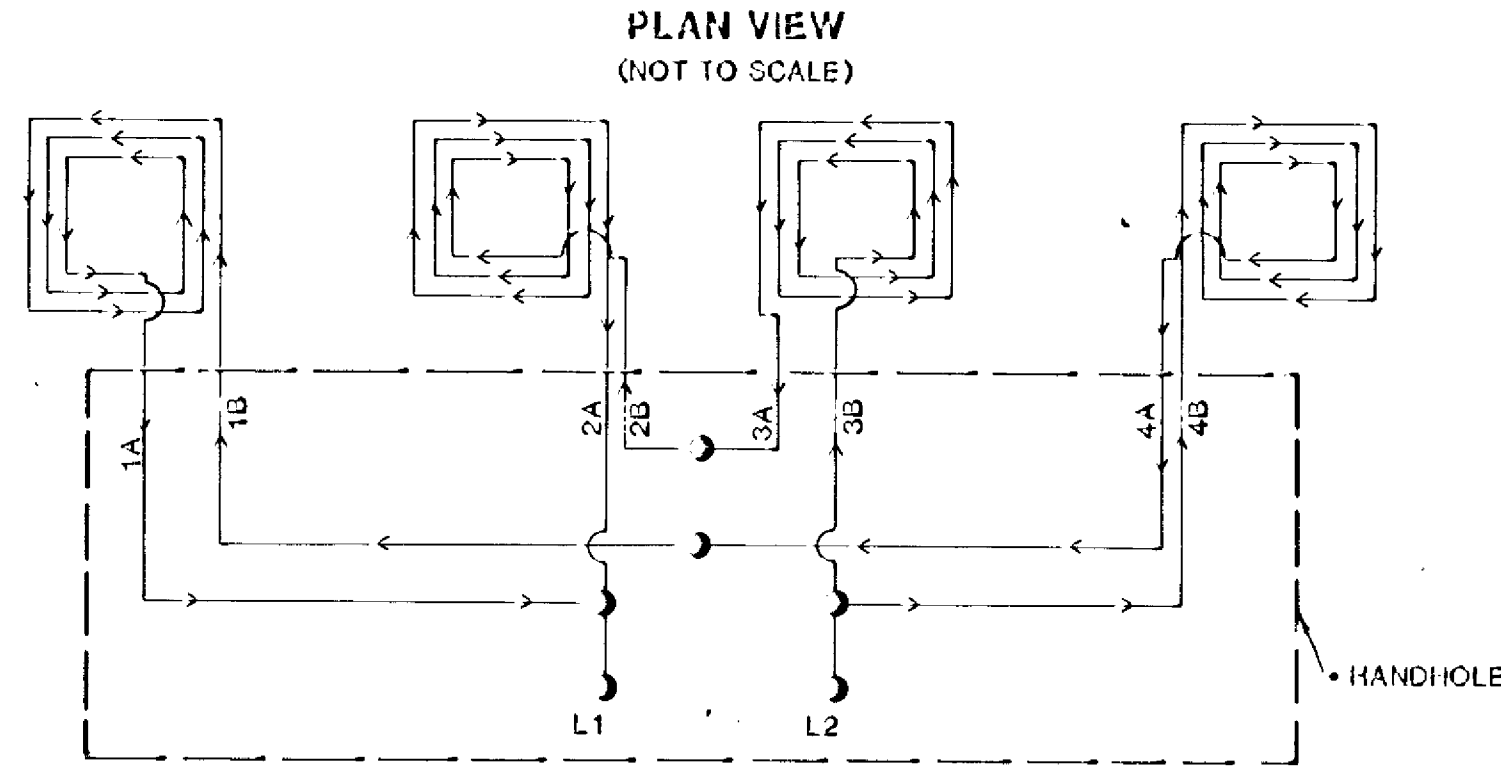
ANOKA COUNTY
 S.A.P.02-614-17

SIGNAL SYSTEM 'B'
 FIELD WIRING DIAGRAM
 C.S.A.H.14 (Main Street) AT SHOPPING CENTER

FILE NO.	89185	5
DATE	7/12/89	8

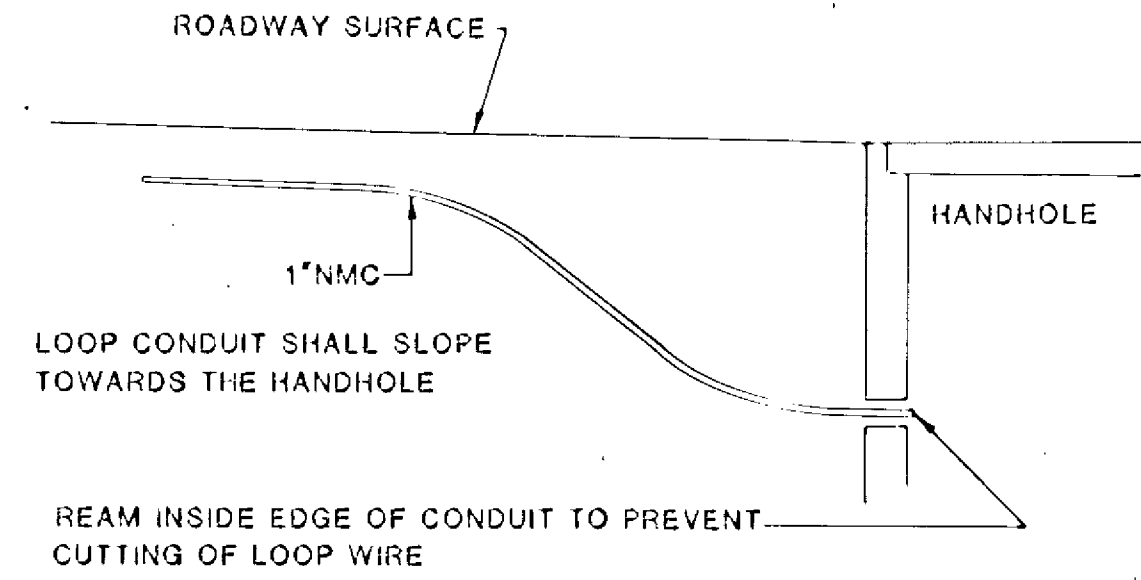
DATE	REVISION

LOOP DETECTOR DETAIL "C"

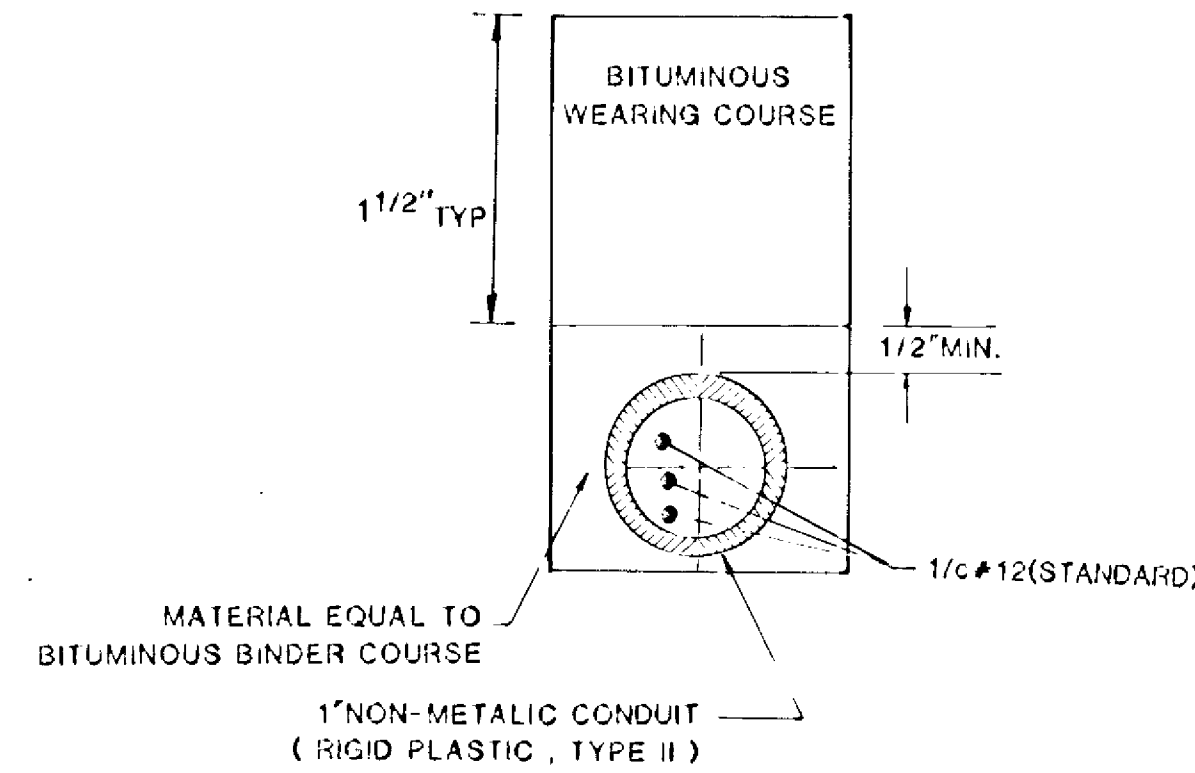


LOOP CONNECTIONS SHALL BE SPLICED IN THE HANDHOLE AS FOLLOWS:
 1B TO 4A 2B TO 3A 1A AND 2A TO L1 3B AND 4B TO L2
 SPLICE CONTROL CABLE TO L1 AND L2 IN HANDHOLE.
 ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ect).

DRAINAGE DETAILS



CROSS SECTION A-A



ABBREVIATIONS

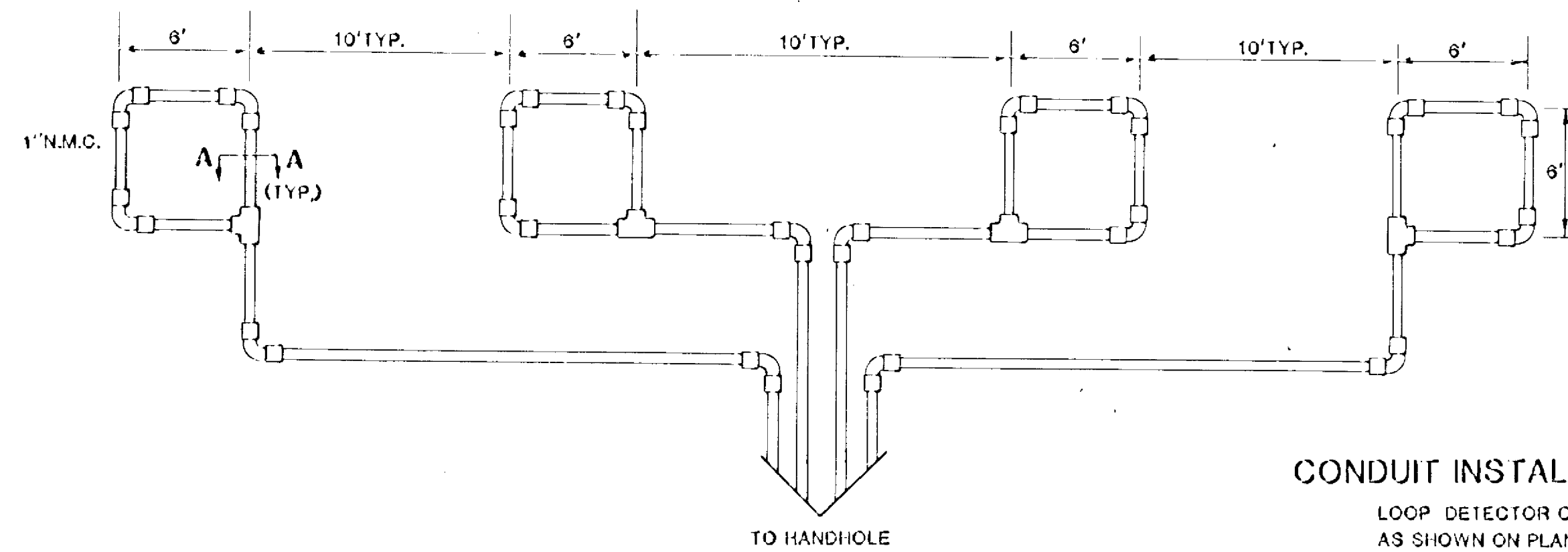
- EQUIPMENT AND INDICATIONS**
- RED-RED
 - YEL-YELLOW
 - GRN-GREEN
 - WLK-WALK
 - NEU-NEUTRAL
 - DKW-DON'T WALK
 - LUM-LUMINAIRE
 - DNL-DOWNLIGHT
 - H.H.-HANDHOLE
 - EQG-EQUIPMENT GROUND
 - R.S.C.-RIGID STEEL CONDUIT
 - GLTA-GREEN LEFT TURN ARROW
 - YRTA-YELLOW RIGHT TURN ARROW
 - D2-1(eg)-DETECTOR-PHASE "2"
 - GR-R-GROUND ROD
 - SER-SERVICE
 - P2-2 PEDESTRIAN INDICATIONS
 - 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

LEGEND OF SYMBOLS

- CONTROLLER AND SERVICE EQPT NOS. --- (A)
- SIGNAL BASE NO. --- (1)
- SIGNAL FACE NO. --- (2)
- LUMINAIRE NO. --- (3)
- CONTROLLER AND CABINET --- (4)
- CONTROLLER AND CABINET-IN PLACE --- (5)
- HANDHOLE --- (6)
- HANDHOLE-IN PLACE --- (7)
- RIGID STEEL CONDUIT (R.S.C) --- (8)
- RIGID STEEL CONDUIT (R.S.C)-IN PLACE --- (9)
- SIGNAL FACE WITH BACKGROUND SHIELD --- (10)
- SIGNAL FACE W/O BACKGROUND SHIELD --- (11)
- SIGNAL FACE-IN PLACE --- (12)
- PEDESTRIAN INDICATIONS --- (13)
- PEDESTRIAN INDICATIONS-IN PLACE --- (14)
- PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE --- (15)
- PEDESTRIAN PUSH BUTTON STATION --- (16)
- TRAFFIC SIGNAL PEDESTAL --- (17)
- TRAFFIC SIGNAL PEDESTAL-IN PLACE --- (18)
- TRAFFIC SIGNAL POLE AND MAST ARM --- (19)
- TRAFFIC SIGNAL POLE AND MAST ARM-IN PLACE --- (20)
- STREET LIGHT POLE AND LUMINAIRE --- (21)
- STREET LIGHT POLE AND LUMINAIRE-IN PLACE --- (22)
- MAST ARM AND LUMINAIRE --- (23)
- MAST ARM AND LUMINAIRE-IN PLACE --- (24)
- WOOD POLE --- (25)
- WOOD POLE-IN PLACE --- (26)
- SOURCE OF POWER --- (27)
- RAILROAD SIGNAL-IN PLACE --- (28)
- RIGHT OF WAY LINE --- (29)
- CENTER LINE --- (30)
- EDGE OF ROADWAY --- (31)
- SHOULDER LINE --- (32)
- CURB LINE --- (33)
- STOP BAR --- (34)

CONDUCTOR COLOR CODE

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



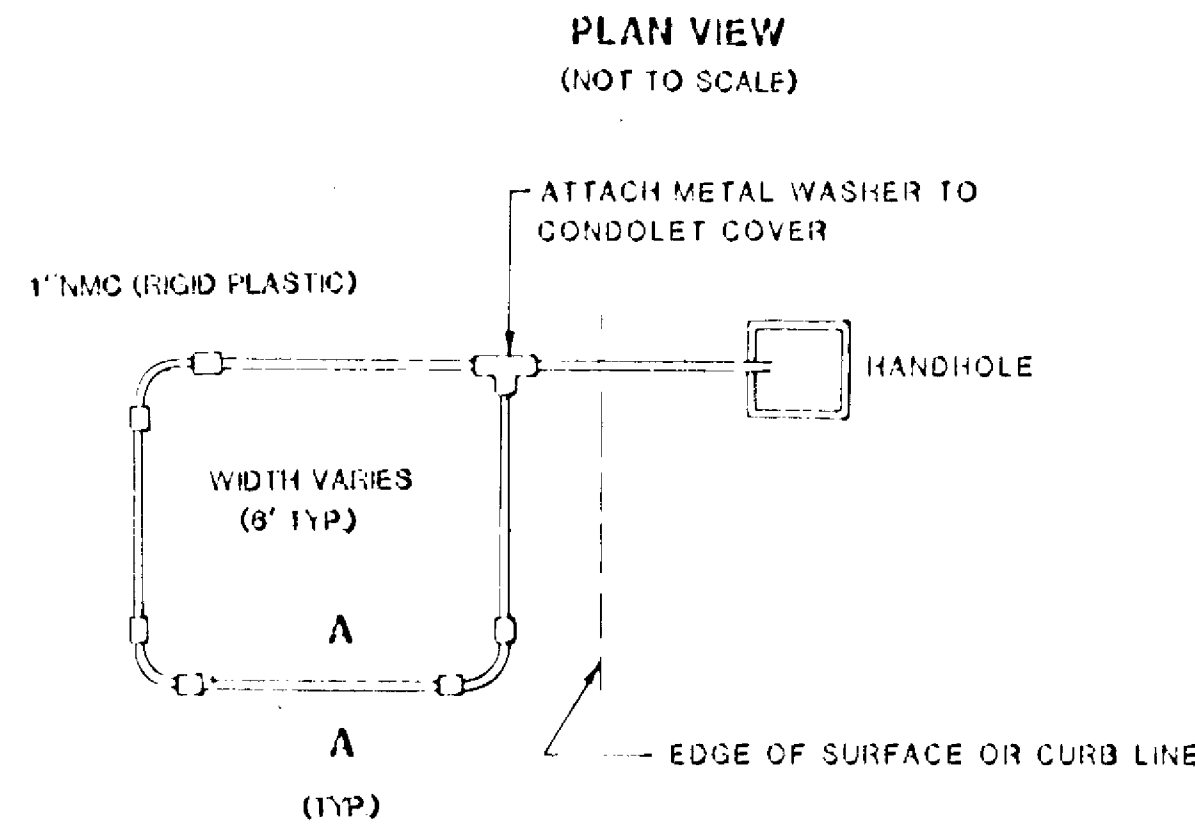
CONDUIT INSTALLATION DETAIL FOR LOOP DETECTORS

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.

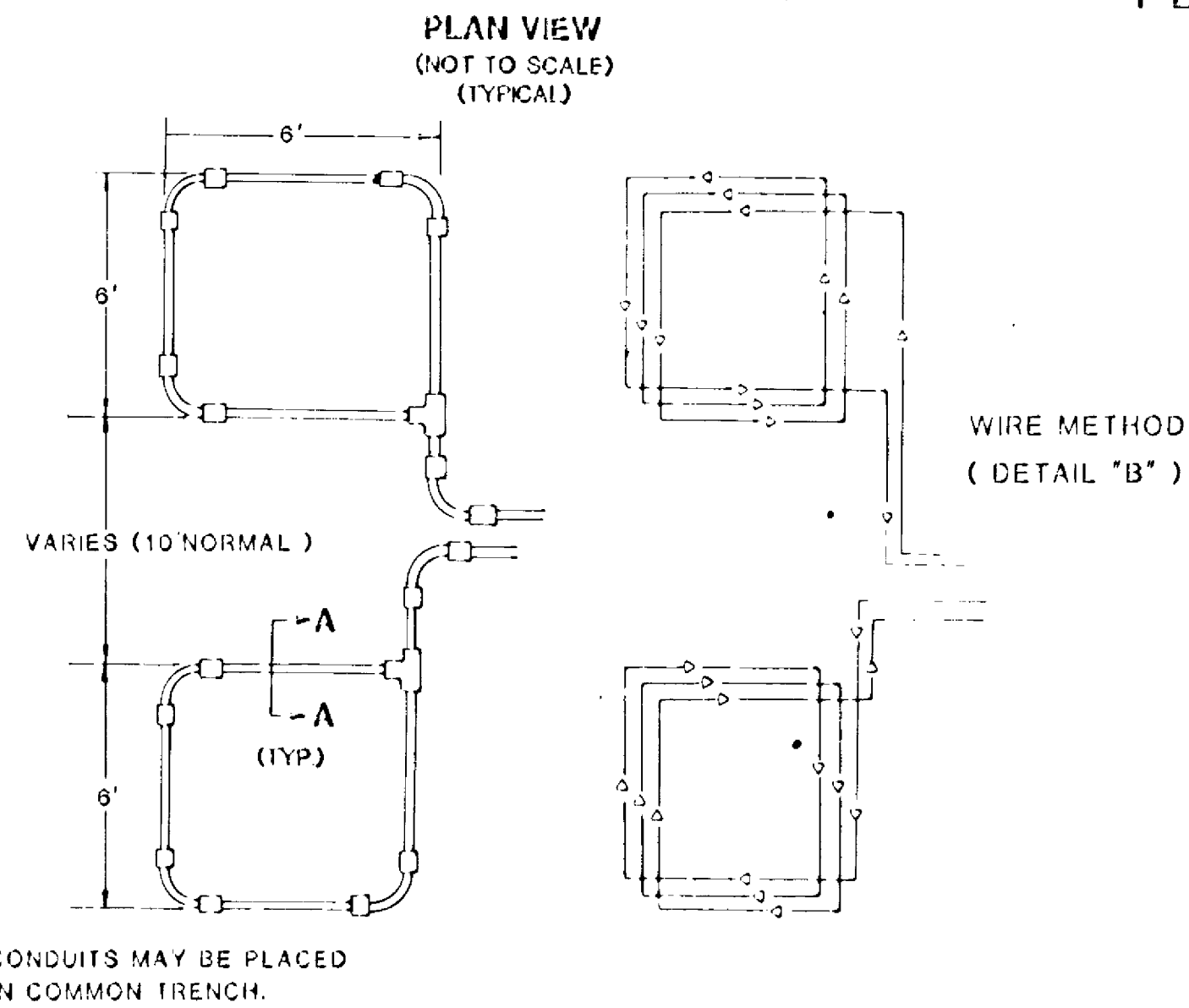
NOTES:

- 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 (XPL) 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 TO THE HANDHOLE.
- 5) N.M.C. DESIGNATES NON-METALLIC CONDUIT (SPEC 3803).

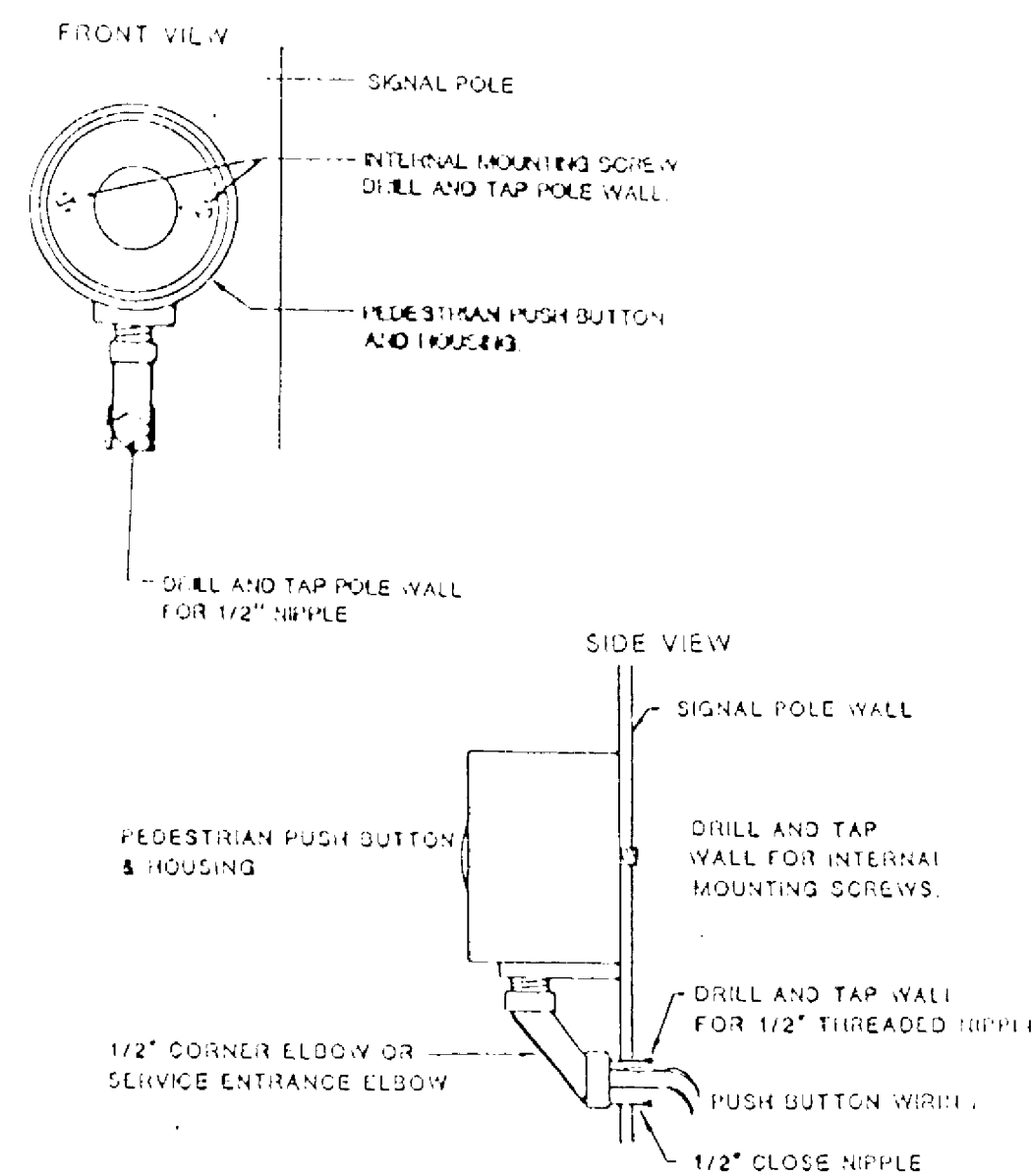
LOOP DETECTOR DETAIL "A"



LOOP DETECTOR DETAIL "B"



PEDESTRIAN PUSH BUTTON DETAIL



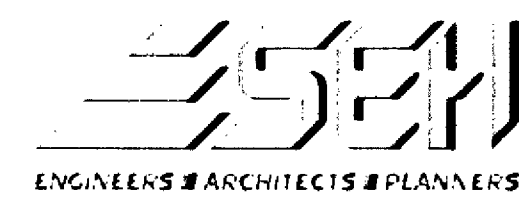
STANDARD PLATES

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
* 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 B	SIGNAL HEAD MOUNTS
* 8126 C	P-100 POLE FOUNDATION
* 8130 D	SAW CUT LOOP DETECTORS
0004 A	SPECIFICATION REFERENCE
* 3124 B	METAL APRON CONNECTION
* 3221 C	CORRUGATED STEEL PIPE COUPLING BAND
* 7035 J	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
* 7100 F	CONCRETE CURB AND GUTTERS

* THESE STANDARD PLATES APPLY TO THIS PLAN

NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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: 7/12/89 Reg. No. 9089



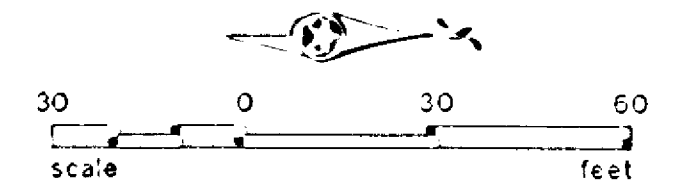
ANOKA COUNTY

**SIGNAL SYSTEM
 "A", "B"
 DETAILS**

FILE NO.
89184-85
DATE
7/12/89

6
8

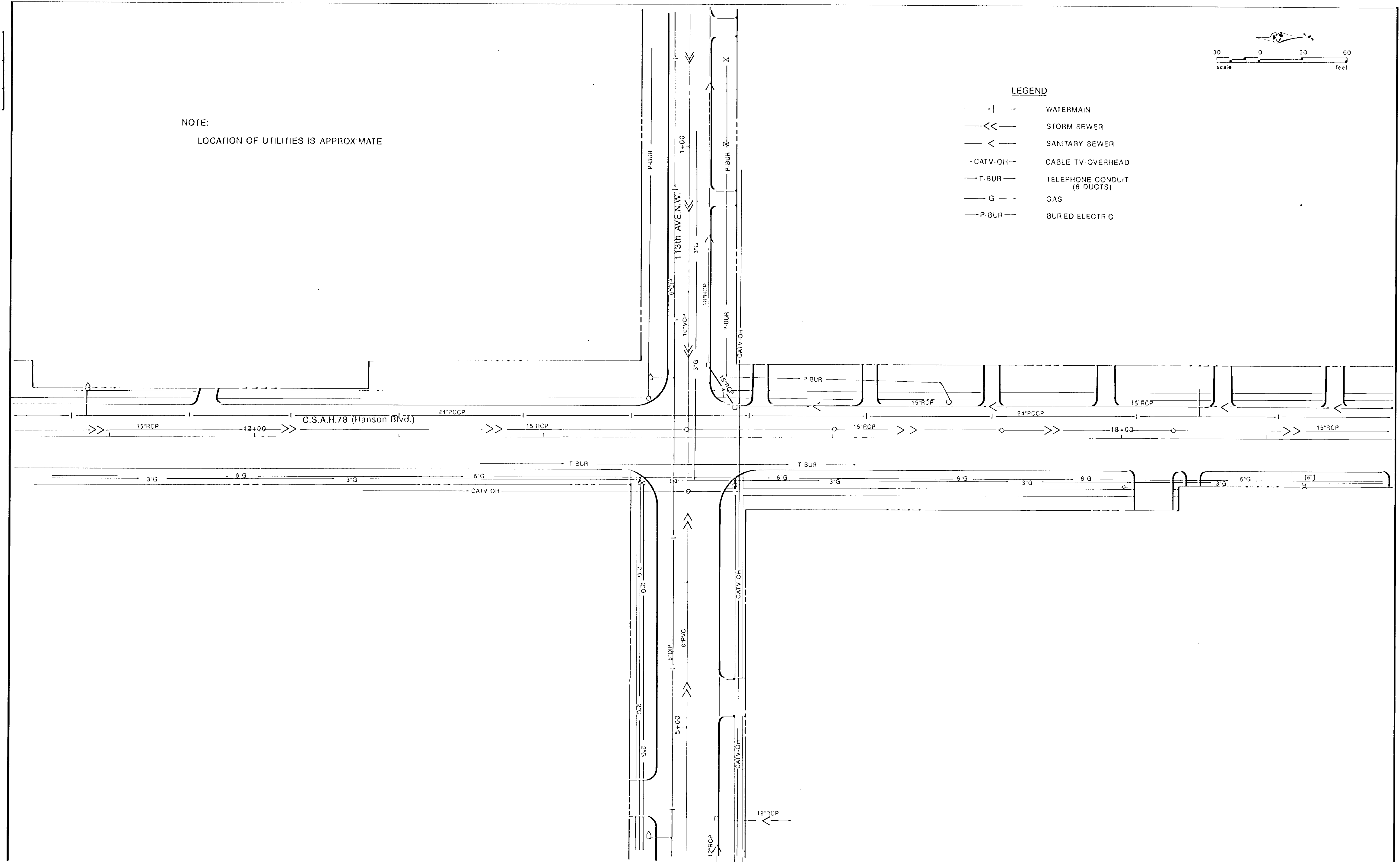
DATE	DESCRIPTION



NOTE:
LOCATION OF UTILITIES IS APPROXIMATE

LEGEND

- |— WATERMAIN
- <<— STORM SEWER
- <— SANITARY SEWER
- CATV-OH-- CABLE TV OVERHEAD
- T-BUR— TELEPHONE CONDUIT (6 DUCTS)
- G— GAS
- P-BUR— BURIED ELECTRIC



NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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: _____ Reg No. 9089

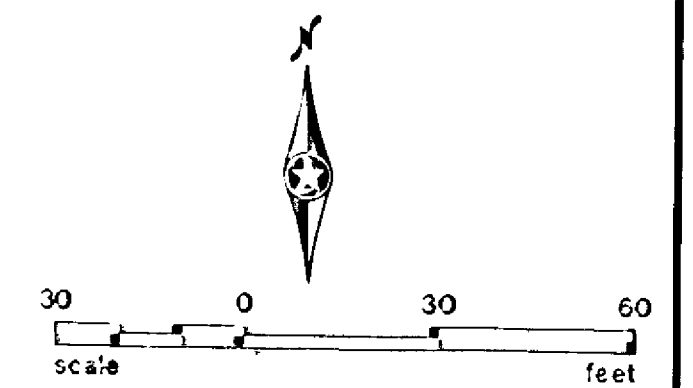


ANOKA COUNTY
C.P.88-26-78

TRAFFIC SIGNAL SYSTEM
UTILITY
C.S.A.H.78 (Hanson Blvd.) AT 113th AVE. N.W.

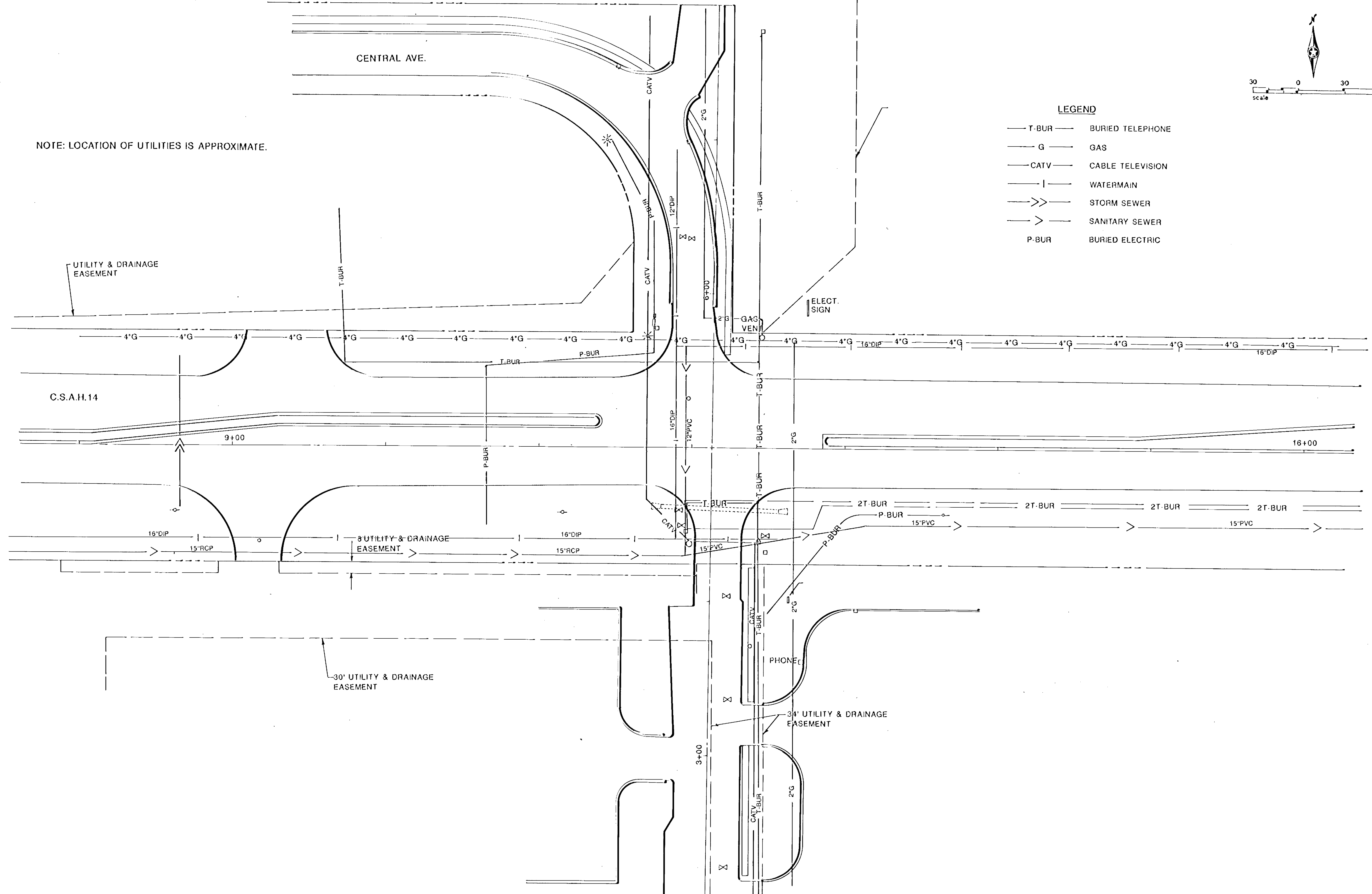
FILE NO. 89184	7
DATE 7/12/89	8

BASE: DWG 141 (P&C) INC.



NOTE: LOCATION OF UTILITIES IS APPROXIMATE.

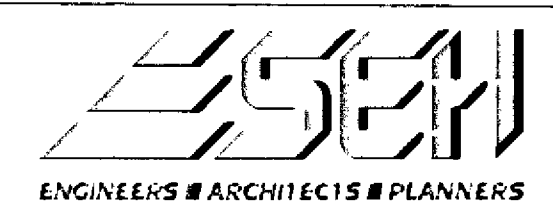
- LEGEND**
- T-BUR — BURIED TELEPHONE
 - G — GAS
 - CATV — CABLE TELEVISION
 - | — WATERMAIN
 - >> — STORM SEWER
 - > — SANITARY SEWER
 - P-BUR BURIED ELECTRIC



NO.	BY	DATE	REVISIONS	ITEM	DESIGN	CHECKED

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

[Signature]
Date 7/12/89 Reg No. 9089



ANOKA COUNTY
S.A.P.02-614-17

TRAFFIC SIGNAL SYSTEM
UTILITY
C.S.A.H.14(Main Street) AT SHOPPING CENTER

FILE NO. 89185	8
DATE 7/12/89	8