

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR TRAFFIC CONTROL SIGNAL SYSTEM

LOCATED AT: T.H. 49 (RICE ST. AND HODGSON RD.) AT CO. RD. 97 (GRAMSIE RD.)- C.S.A.H. 54 (RICE ST.) IN SHOREVIEW

MINN. PROJ. NO.

STATE PROJ. NO. 6214-52

ABBREVIATIONS

YEL	YELLOW	R	RED
GRN	GREEN	O	ORANGE
WLK	WALK	BL	BLUE
NEU	NEUTRAL	WH	WHITE
DWK	DON'T WALK	R/BLK	RED WITH BLACK TRACER
LUM	LUMINAIRE	O/BLK	ORANGE WITH BLACK TRACER
DNL	DOWNLIGHT	BL/BLK	BLUE WITH BLACK TRACER
SW	SWITCH	WH/BLK	WHITE WITH BLACK TRACER
SWD	SWITCHED	BLK	BLACK
CH.SW.	CHECK SWITCH	BLK/WH	BLACK WITH WHITE TRACER
H.H.	HANDHOLE	G/BLK	GREEN WITH BLACK TRACER
J.B.	JUNCTION BOX	G	GREEN
GR.R.	GROUND ROD	CLR.	CLEAR
SERV.	SERVICE	BR. GR.	BARE GROUND
	SPICE		
THA	THRU ARROW		
LTA	LEFT TURN ARROW		
RTA	RIGHT TURN ARROW		
TRA	THRU AND RIGHT ARROW		
RTHA (eg)	THRU ARROW - RED		
GLTA (eg)	LEFT TURN ARROW - GREEN		
YRTA (eg)	RIGHT TURN ARROW - YELLOW		
P1-1 (eg)	PEDESTRIAN INDICATIONS - PHASE "1"		
P2-2 (eg)	PUSH BUTTON - PHASE "2"		
S2 (eg)	SIGNAL HEADS - PHASE "3"		
D1-2	DETECTOR - PHASE "1"		
P.E.C.	PHOTOELECTRIC CELL		
ST.LHT.	STREET LIGHT		
S.O.P.	SOURCE OF POWER		
EGG	EQUIPMENT GROUND		
SPR	SPARE CONDUCTORS		
R.S.C.	RIGID STEEL CONDUIT		
N.M.C.	NON METALLIC CONDUIT		
E.V.P.	EMERGENCY VEHICLE PRE-EMPTION		
	EQG CONNECTION		
TDW	TELEPHONE DROP WIRE		
F&I	FURNISH AND INSTALL		
R&S	REMOVE AND SALVAGE		
FL	FLASH/FLASHING		

H.P.S.	HIGH PRESSURE SODIUM
(H)	EVP DETECTOR DIRECTION
(S)	SIGNAL BASE NO.
(A)	SIGNAL FACE NO.
(L)	LUMINAIRE NO.

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

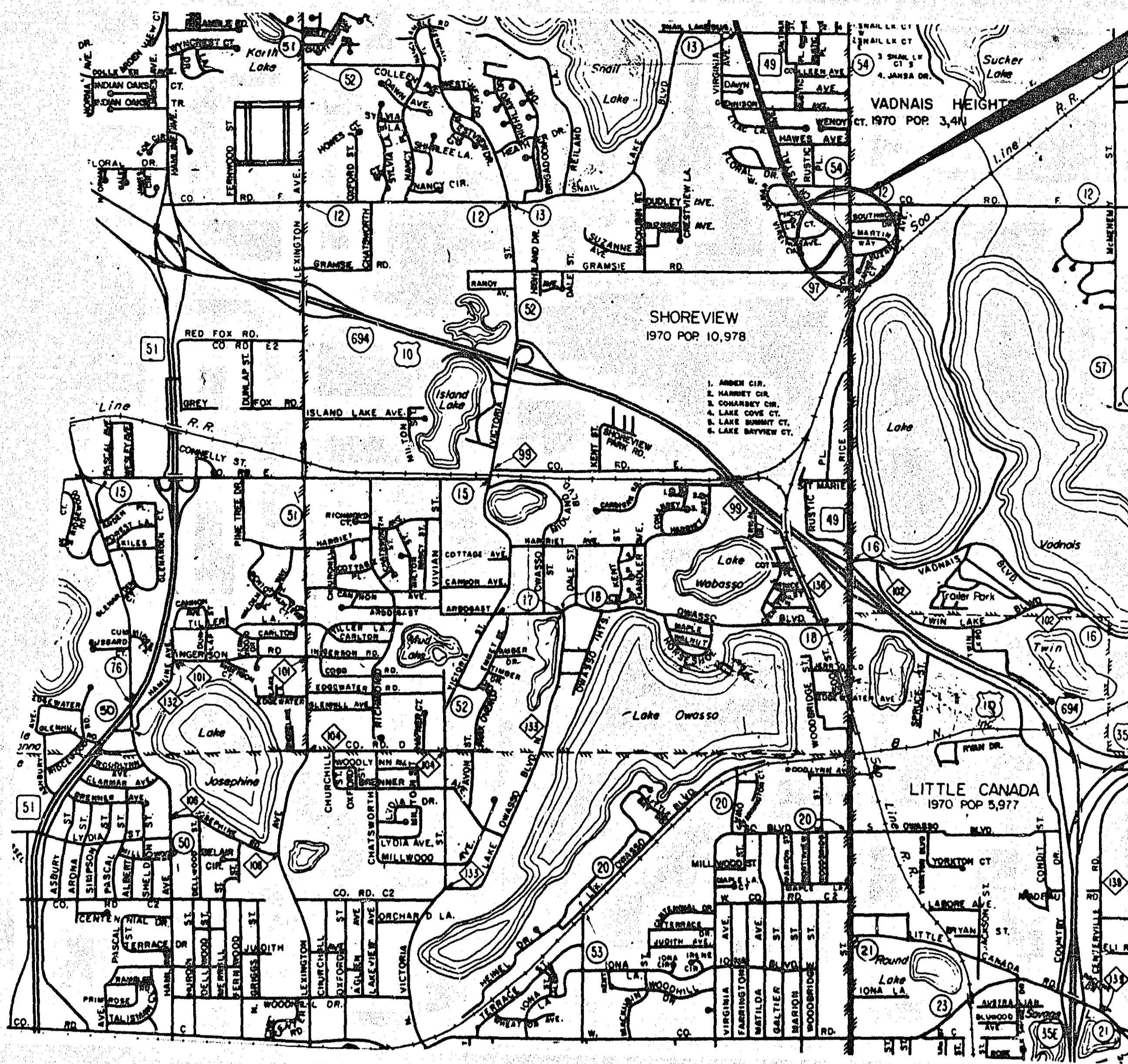
PLATE NO.	DESCRIPTION
* 8110 C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111 B	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
8112 C	PEDESTAL FOUNDATION
8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
* 8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
8116 C	STEEL GUARD POST
* 8117 F	PRECAST CONCRETE HANDHOLE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

* STANDARD PLATES APPLICABLE TO THIS PROJECT

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

LOCATION I.D. 62030049*019134*

LOCATION I.D.



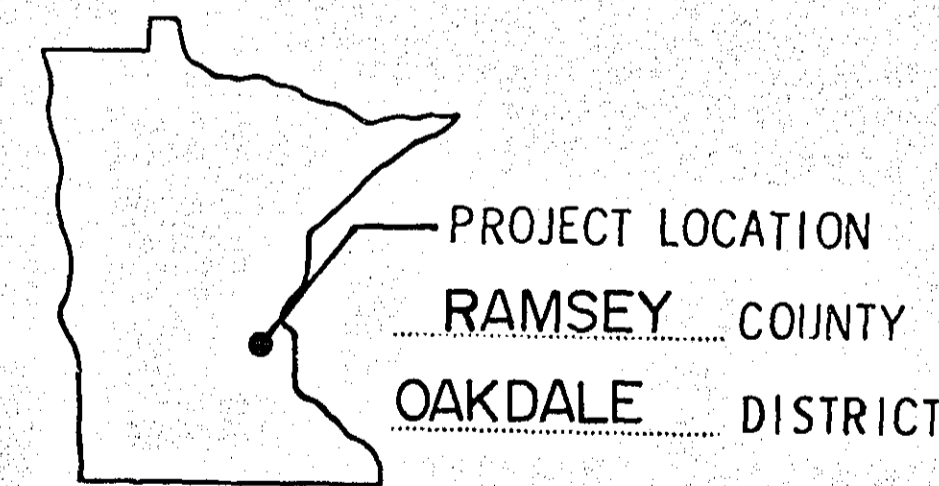
RAMSEY COUNTY

S.P. 6214-52 (T.H. 49=126)

T.H. 49 (RICE ST. AND HODGSON RD.) AT CO. RD. 97 (GRAMSIE RD.)-C.S.A.H. 54 (RICE ST.)

SCALES

PLAN	30'
PROFILE	
INDEX MAP	2000'
GENERAL LAYOUT	



STATE PROJ. NO. 6214-52 AREA JOB

INDEX

- 1 TITLE
- 2 ESTIMATED QUANTITIES AND DETAILS
- 3 SIGN DETAILS
- 4-5 INTERSECTION LAYOUT AND FIELD WIRING DIAGRAM
- 6 UTILITIES

THIS PLAN CONTAINS 6 SHEETS

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 9/29/82 REG. NO. 10956 ENGR. *John J. Hilde*

DESIGN SQUAD BRUCE KASTNER

Recommended for Approval *John J. Hilde* CITY ENGR. 19 82
MUNICIPALITY TITLE

Recommended for Approval _____ 19
MUNICIPALITY TITLE

Recommended for Approval _____ 19

Recommended for Approval *Harold E. White* Co. Engr. 19 82
COUNTY TITLE

Recommended for Approval *M. J. Reichenbach* 19 82
DISTRICT TRAFFIC ENGINEER

Right of Way Approval *John J. Hilde* 10-28 19 82
DIRECTOR, RIGHT OF WAY OPERATIONS

Recommended for Approval _____ 19
DISTRICT ENGINEER

Recommended for Approval *Raymond V. Kinn* 10-27 19 82
TRANSPORTATION PLANS ENGINEER

Recommended for Approval _____ 19
DESIGN SERVICES DIRECTOR

Recommended for Approval *Ronald L. Hoffman* 10/25 19 82
DIRECTOR, TRAFFIC ENGINEERING

Approved 10-28 19 82 *John J. Hilde*
DIRECTOR, OFFICE OF ENGINEERING SERVICES

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

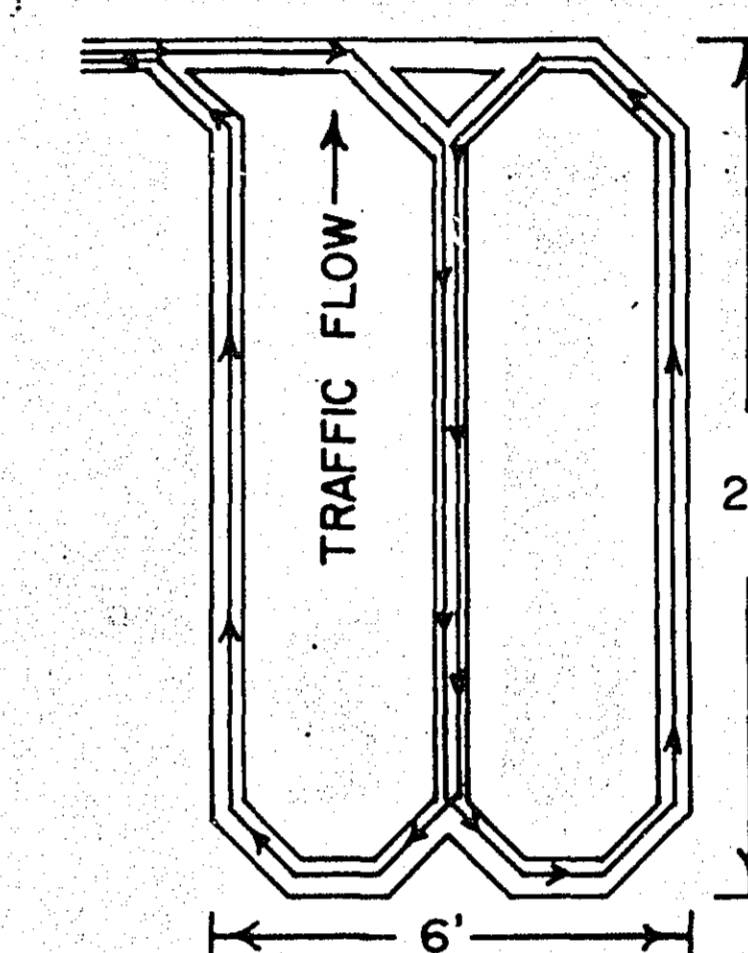
DATE 12/01/83 REG. NO. 10956

STATE PROJ. NO. 6214-52 (T.H. 49=126) SHEET NO. 1 OF 6 SHEETS

Mn DOT 21165 (4-78)

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	S.P. QUANTITIES		S.P. QUANTITIES		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			EST.	FINAL	EST.	FINAL		
2564.531	FURNISH AND INSTALL SIGN PANELS TYPE "D" - SIGNALS	SQ. FT.					54	
0565.602	MAST ARM POLE TYPE P80-A-20	EACH					1	
0565.602	MAST ARM POLE TYPE P80-A-25	EACH					1	
0565.602	MAST ARM POLE TYPE P100-A-20-D40-9	EACH					1	
0565.602	MAST ARM POLE TYPE P100-A-25-D40-9	EACH					1	
0565.602	P80 POLE FOUNDATION	EACH					2	
0565.602	P100 POLE FOUNDATION	EACH					2	
0565.602	LUMINAIRE - 200 WATT HIGH PRESSURE SODIUM	EACH					2	
0565.602	TYPE 20C	EACH					2	
0565.602	TYPE 20C (R-Y-G-YLTA-GLTA-FACE)	EACH					2	
0565.602	ONE WAY SIGNAL - OVERHEAD	EACH					2	
0565.602	ONE WAY SIGNAL - OVERHEAD (R-Y-G-YLTA-GLTA FACE)	EACH					2	
0565.602	PEDESTRIAN PUSH BUTTON	EACH					8	
0565.602	PEDESTRIAN INSTRUCTION SIGN R10-4B	EACH					8	
0565.602	PEDESTRIAN PUSH BUTTON STATION	EACH					2	
0565.602	HANDHOLE	EACH					8	
0565.602	R10-X1 SIGN	EACH					2	
0565.602	SERVICE EQUIPMENT	EACH					1	
0565.602	LOOP DETECTOR 6' x 10'	EACH					6	
0565.602	SPECIAL LOOP DETECTOR 6' x 20'	EACH					4	
0565.602	SPECIAL LOOP DETECTOR 2-6' x 20'	EACH					2	
0565.602	INSTALL WOOD POLE	EACH					1	
0565.603	4" INTERMEDIATE METAL CONDUIT	LIN. FT.					50	
0565.603	3" INTERMEDIATE METAL CONDUIT	LIN. FT.					70	
0565.603	2" INTERMEDIATE METAL CONDUIT	LIN. FT.					110	
0565.603	1.25" NON METALLIC CONDUIT	LIN. FT.					800	
0565.603	12/C #12	LIN. FT.					1120	
0565.603	3/C #12	LIN. FT.					610	
0565.603	3/C #20	LIN. FT.					815	
0565.603	2/C #14	LIN. FT.					2600	
0565.603	1/C #10	LIN. FT.					760	
0565.603	1/C #6	LIN. FT.					90	
0565.603	1/C #6 BARE GROUND	LIN. FT.					45	
0565.605	CONTROLLER CABINET FOUNDATION	ASSEMBLY					1	
0565.605	INSTALL CONTROLLER AND CABINET	ASSEMBLY					1	



SPECIAL LOOP DETECTOR

ESTIMATED QUANTITIES AND DETAILS

62030049 *019134*

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Sheet No. 2 of 6 Sheets

TYPE "D" SIGNS

Sign Panel	Size	No. Req.	No. Posts per Sign	Post Spacing	Sq. Ft. per Sign	a	b
D-1	108" x 36"	1	3	39"	27.0	9'	
D-2	108" x 36"	1	3	39"	27.0	13'	

TYPE "D" SIGN DATA

Sign Panel D-1:
 108" X 36", 3" R. D 1
 LINE 1 92.2 : 5--13 ARROW-180, 8"-6" E MOD.
 LINE 2 66.6 : 8"-6" E MOD., 5--13 ARROW-0

Sign Panel D-2:
 108" X 36", 3" R. D 2
 LINE 1 45.6 : 8"-6" E MOD., 3--16 DBL. HD. ARROW 90°.
 LINE 2 92.2 : 8"-6" E MOD., 5--13 ARROW-0

NOTES:
 1. Color - white legend and border on green background, fully reflectorized.
 2. Corners extending beyond the border shall not be trimmed.
 3. Borders shall be 1.00".
 4. See Standard Signs Manual for arrow and overlay details.
 5. For structural details, Type D signs, see Standard Signs Manual, page 105B.
 6. For Type D Stringer and Panel-Joint Detail, see Standard Signs Manual.

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- NOTES:
- (1) ALL SIGNAL HEADS SHALL BE 3 SECTION 12" RED, YEL AND GRN EXCEPT SIGNAL HEADS 2-1, 2-3, 6-1 AND 6-3 WHICH SHALL BE 12" RED, YEL, GRN, YLTA AND GLTA.
 - (2) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE, AND CAPPED CONDUIT OUTLET BODY FOR FUTURE EMERGENCY VEHICLE PRE EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED 4' FROM THE END OF EACH MAST ARM AT POLES 1, 2, 3 AND 4.
 - (3) SUFFICIENT 3/c#20 AND 2-1/c#14 TO REACH THE END OF THE MAST ARM SHALL BE INSTALLED AND LOOPED IN THE CONDUIT OUTLET BODY ON POLES 1, 2, 3 AND 4.
 - (4) SEE SHEET 3 FOR SIGN DETAILS.
 - (5) ALL ITEMS NOTED OR SHOWN IN PLACE SHALL BE USED IN PLACE UNLESS OTHERWISE SPECIFIED.
 - (6) SEE SPECIAL PROVISIONS FOR STATE FURNISHED EQUIPMENT.
 - (7) THE SIGNAL SYSTEM SHALL FLASH ALL RED.

LOOP DETECTORS	
NUMBER	SIZE
* D1-1	2-6'x20' (5)
D2-1	6'x10' (1)
D4-1	6'x10' (2)
* D4-2	6'x10' (2)
* D4-3	6'x20' (4)
* D4-4	6'x20' (3)
* D4-5	6'x20' (4)
* D4-6	6'x20' (3)
D4-7	6'x10' (2)
D4-8	6'x10' (2)
* D5-1	2-6'x20' (5)
D6-1	6'x10' (1)

- LOOP DETECTOR FUNCTIONS
- (1) CALL AND EXTEND
 - (2) EXTEND ONLY
 - (3) CALL ONLY
 - (4) DELAY CALL ONLY
 - (5) DELAY CALL-IMMEDIATE EXTEND

PEDESTRIAN PUSH BUTTON STATION (4" R.S.C.)
2- PEDESTRIAN PUSH BUTTONS
EXTEND INTO H.H. 7:
2" I.M.C.
2-3/c#12

1 TYPE P100-A-25-D40-9 (DAVIT AT 350°)
P100 POLE FOUNDATION
ONE WAY SIGNAL OVERHEAD
RIO-XI SIGN
LUMINAIRE-200 WATT H.P.S.
TYPE 20C-POLE MOUNTED 270°
EXTEND INTO H.H. 7:
3" I.M.C.
5-1/2/c#12
1-3/c#20
2-1/c#10

4" R.S.C. INPLACE
3-1/2/c#12
1-3/c#12
2-3/c#20
5-2/c#14
2-1/c#10

4" R.S.C. INPLACE
2-1/2/c#12
1-3/c#12
1-3/c#20
1-2/c#14

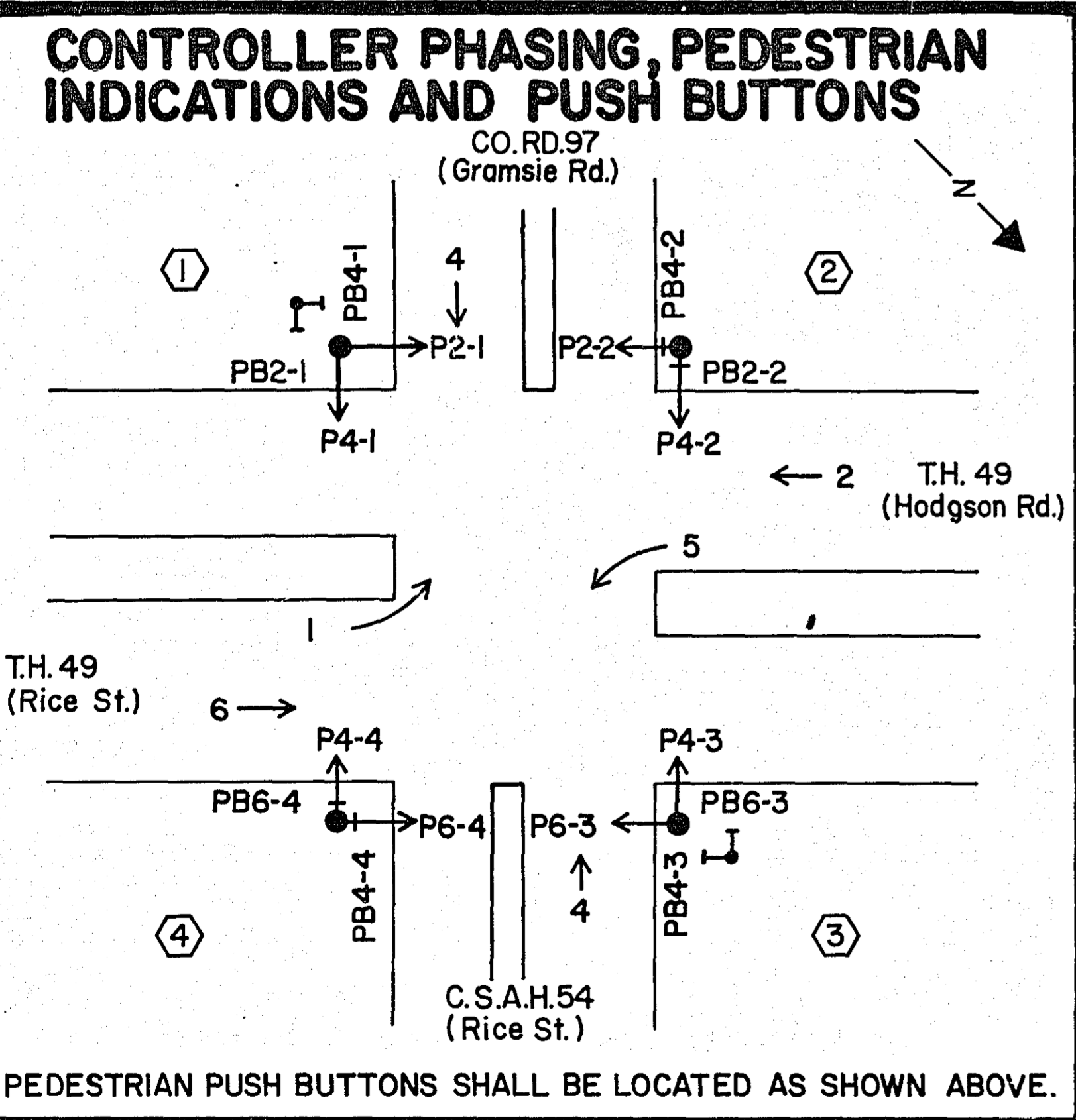
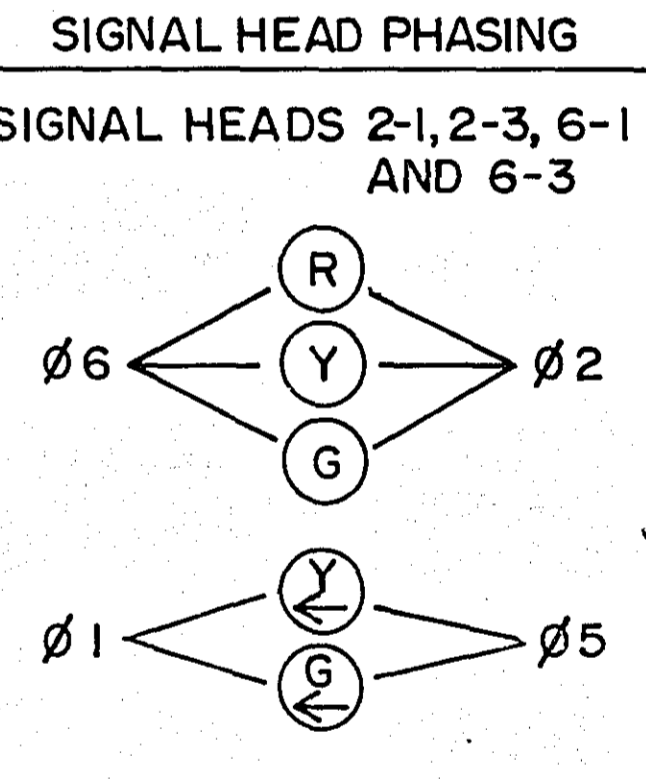
2 TYPE P80-A-25
P80 POLE FOUNDATION
ONE WAY SIGNAL-OVERHEAD
TYPE 20C-POLE MOUNTED 270°
2-PEDESTRIAN PUSH BUTTONS
EXTEND INTO H.H. 10:
3" I.M.C.
2-1/2/c#12
1-3/c#12
1-3/c#20

3" R.S.C. INPLACE
2-1/2/c#12
1-3/c#12
1-3/c#20

3 TYPE P100-A-20-D40-9 (DAVIT AT 350°)
P100 POLE FOUNDATION
ONE WAY SIGNAL-OVERHEAD
RIO-XI SIGN
LUMINAIRE-200 WATT H.P.S.
TYPE 20C-POLE MOUNTED 270°
EXTEND INTO H.H. 2:
3" I.M.C.
2-1/2/c#12
1-3/c#12
1-3/c#20
2-1/c#10

PEDESTRIAN PUSH BUTTON STATION (4" R.S.C.)
2- PEDESTRIAN PUSH BUTTONS
EXTEND INTO H.H. 2:
2" I.M.C.
1-3/c#12

4" R.S.C. INPLACE
2-1/2/c#12
2-3/c#12
1-3/c#20
2-1/c#10
5-2/c#14



11/4" N.M.C.
1-2/c#14

3" R.S.C. INPLACE
1-2/c#14

CONTROLLER AND CABINET
EXTEND INTO H.H. 17:
3" I.M.C.
2-1/c#6
1-1/c#6 BR. GR.
EXTEND INTO H.H. 4:
4" I.M.C.
3-1/2/c#12
2-3/c#12
2-3/c#20
5-2/c#14
EXTEND INTO H.H. 5
4" I.M.C.
3-1/2/c#12
1-3/c#12
2-3/c#20
1-2/c#14
BETWEEN H.H. 4 AND H.H. 5:
4" R.S.C. INPLACE

35' WOOD POLE
SERVICE EQUIPMENT
EXTEND INTO H.H. 17:
2" I.M.C.
2-1/c#6
1-1/c#6 BR. GR.
EXTEND BETWEEN H.H. 17 AND H.H. 4:
2" I.M.C.
2-1/c#10
EXTEND BETWEEN H.H. 17 AND H.H. 5:
2" I.M.C.
2-1/c#10

4 TYPE P80-A-20
P80 POLE FOUNDATION
ONE WAY SIGNAL-OVERHEAD
TYPE 20C-POLE MOUNTED 270°
2- PEDESTRIAN PUSH BUTTONS
EXTEND INTO H.H. 4:
3" I.M.C.
3-1/2/c#12
2-3/c#12
1-3/c#20

INTERSECTION LAYOUT

T.H. 49 (Rice St. and Hodgson Rd.) at Co Rd. 97 (Gramsie Rd.) -
C.S.A.H. 54 (Rice St.)

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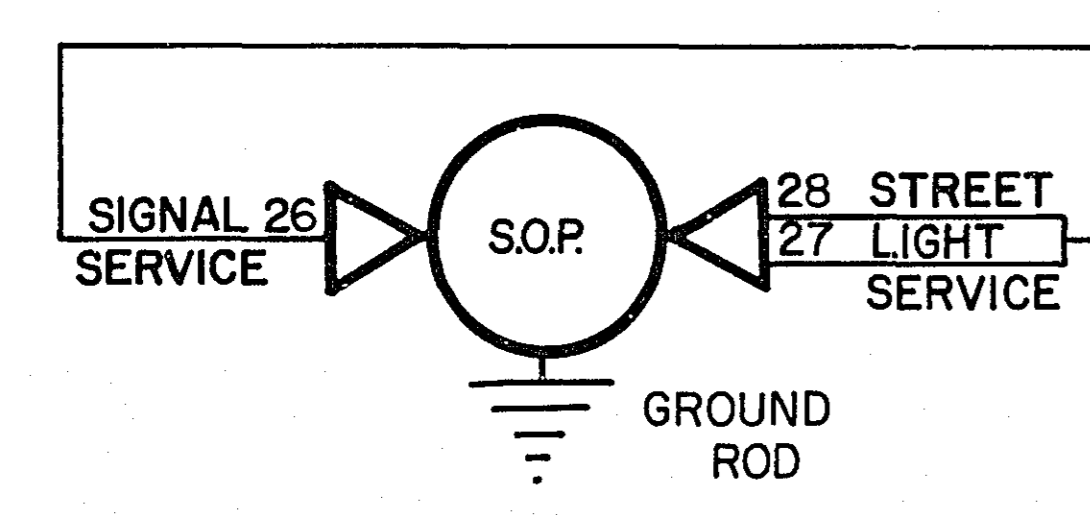
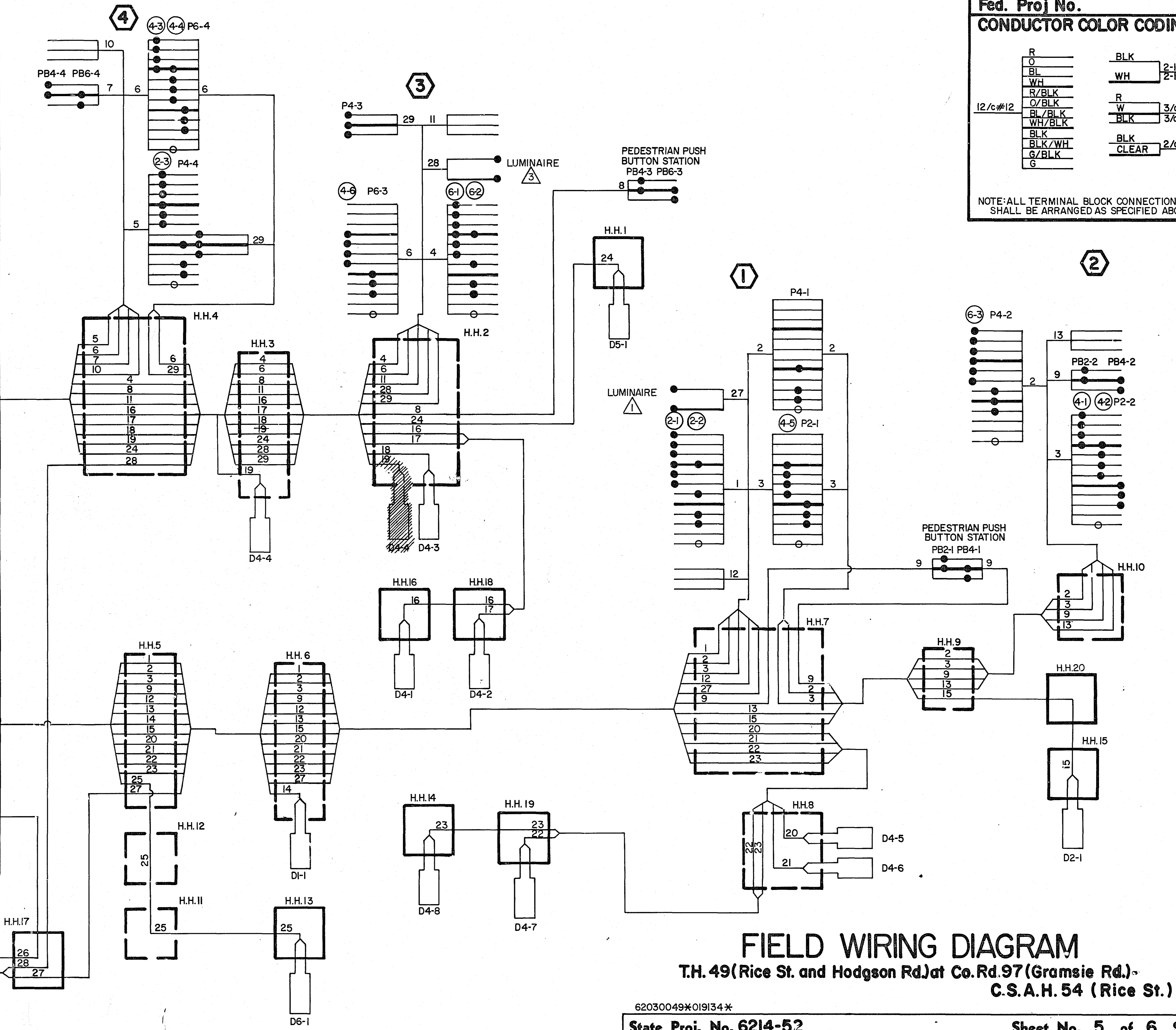
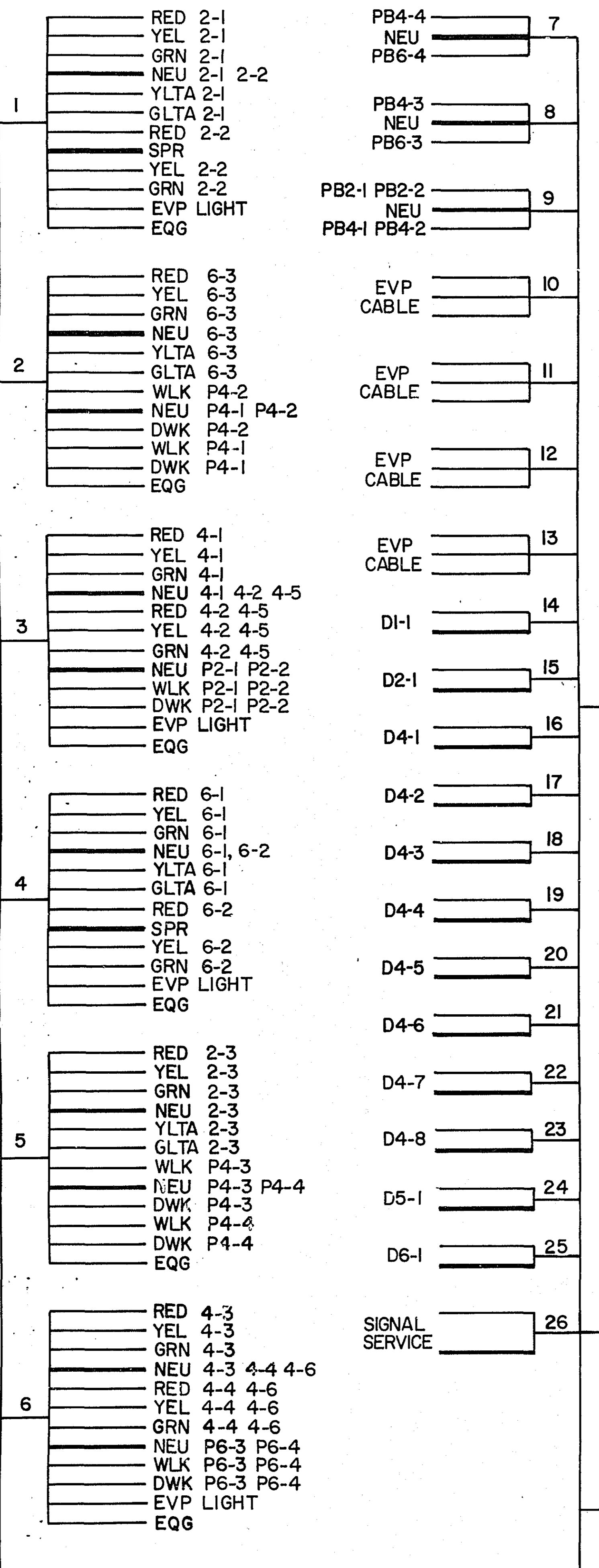
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R	BLK	2-1/c#6
O	WH	2-1/c#10
BL		
WH		
R/BLK		
O/BLK	R	3/c#12
BL/BLK	W	3/c#20
WH/BLK	BLK	3/c#20
BLK	BLK	2/c#14
BLK/WH	CLEAR	2/c#14
G/BLK		
G		

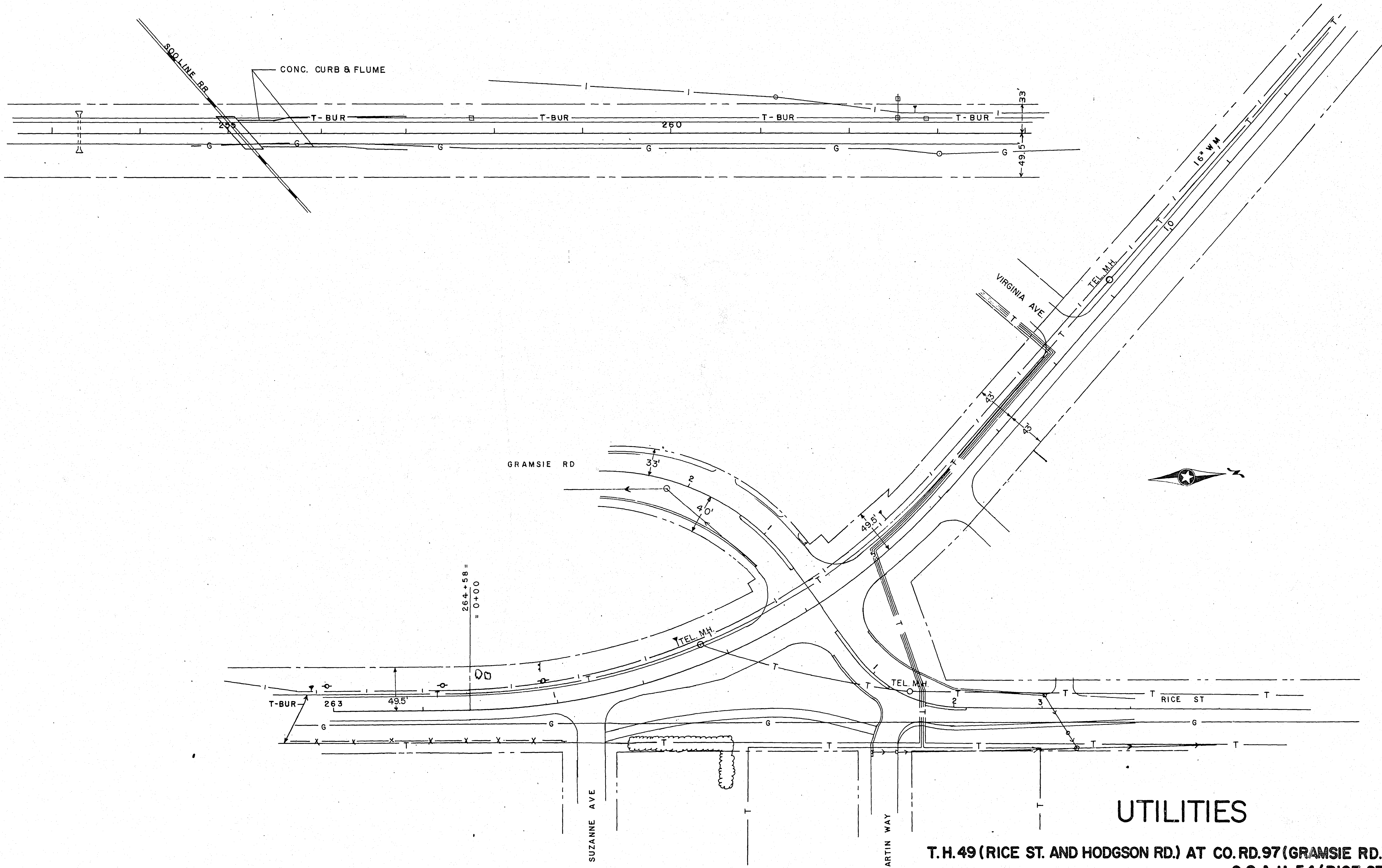
NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

CONTROLLER CABINET



FIELD WIRING DIAGRAM
 T.H. 49 (Rice St. and Hodgson Rd.) at Co. Rd. 97 (Gramsie Rd.)
 C.S.A.H. 54 (Rice St.)

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 Date: 1-12-84
 Misc/Item Signature: Steve Pe/Hei
 Doc. ID: 338



UTILITIES

T. H. 49 (RICE ST. AND HODGSON RD.) AT CO. RD. 97 (GRAMSIE RD.) -
C.S.A.H. 54 (RICE ST.)

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