

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR TRAFFIC CONTROL SIGNAL SYSTEMS

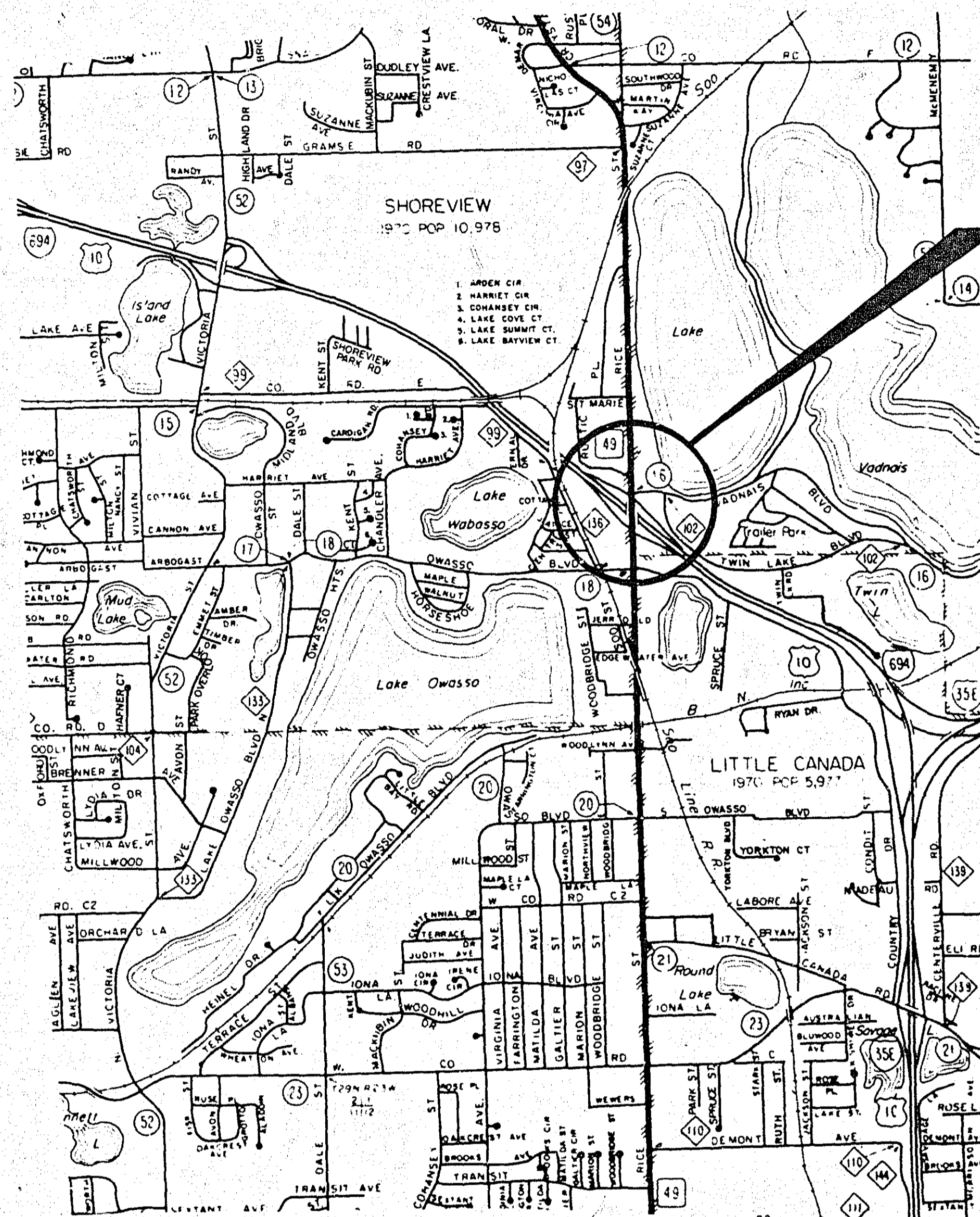
LOCATED AT TH. 49 (RICE ST.) AT I-694 NORTH RAMPS-C.S.A.H. 16 (VADNAIS BLVD.) AND SOUTH RAMPS IN SHOREVIEW AND VADNAIS HEIGHTS, RAMSEY COUNTY.

MINN. PROJ. NO.

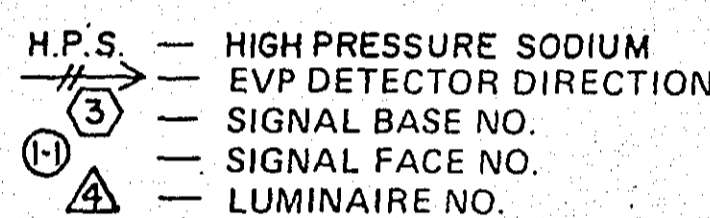
STATE PROJ. NO. 6214-58

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	CL.R.	CLEAR
SERV.	SERVICE	BR. GR.	BARE GROUND
	SPLICE		
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"		
3-2 (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		
EQG	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	EQG CONNECTION		
TDW	TELEPHONE DROP WIRE		
F&I	FURNISH AND INSTALL		
R&S	REMOVE AND SALVAGE		
FL	FLASH/FLASHING		



S.P. 6214-58 (T.H. 49=126)
T.H. 49 (RICE ST.) AT I-694, NORTH RAMPS-C.S.A.H. 16 (VADNAIS BLVD.) AND SOUTH RAMPS.



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.

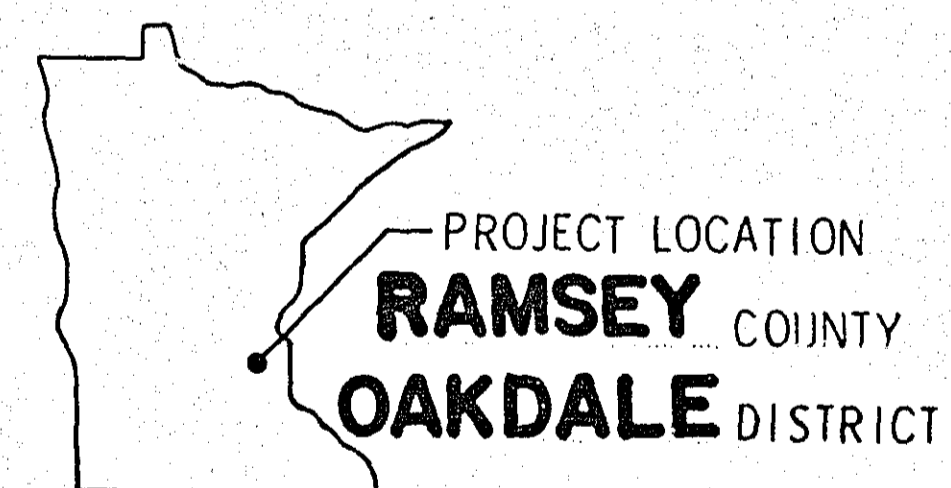
PLATE NO.	DESCRIPTION
* 8110 C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
* 8111 B	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
* 8112 C	PEDESTAL FOUNDATION
8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
* 8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
8116 C	STEEL GUARD POST
* 8117 F	PRECAST CONCRETE HANDHOLE
* 8118 C	SERVICE EQUIPMENT & POLE, TRAFFIC CONTROL SIGNALS
* 8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 G	P-80 AND P-90 POLE FOUNDATIONS
8121 B	TRANSFORMER BASE WITH POLE BASE PLATE
* 8122 C	PEDESTAL AND 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	PIOO MAST ARM POLE FOUNDATION
* 8130 D	SAW CUT LOOP DETECTORS

* STANDARD PLATES APPLICABLE TO THIS PROJECT

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

LOCATION I.D. 62010694*045100N
 LOCATION I.D. 62010694*045100S

SCALES
 PLAN..... 30' AND 50'
 PROFILE.....
 INDEX MAP..... 2000'
 GENERAL LAYOUT.....



STATE PROJ. NO. 6214-58 AREA JOB

FED. PROJ. NO. STATE FUNDS

GOVERNING SPECIFICATIONS

THE 1978 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" SHALL GOVERN.

INDEX

1. Title Sheet
2. Estimated Quantities
3. Sign Details
- 4-7. Intersection Layouts and Wiring Diagrams
- 8-9. Information Sheets
10. Utilities

THIS PLAN CONTAINS 10 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 4/22/82 REG. NO. 10956 ENGR. *Carl L. Goble*

DESIGN SQUAD BRUCE KASTNER

Recommended for Approval _____ 19 _____

Recommended for Approval *Genard & Urban* 5/5
City of Vadnaiss Heights Clerk-Treasurer 1982
 MUNICIPALITY TITLE

Recommended for Approval _____ 19 _____
 DISTRICT TRAFFIC ENGINEER

Recommended for Approval *Keneth Wolf* 5-31-82
Ramsey Co. Eng.
 COUNTY TITLE

Recommended for Approval _____ 19 _____

Right of Way Approval *AD Morrison* 5-17-1982
 DIRECTOR, RIGHT OF WAY OPERATIONS

Recommended for Approval *DAE Doherty* 4/82
 DISTRICT ENGINEER

Recommended for Approval *Raymond E. Kow* 5/12/82
 TRANSPORTATION PLANS ENGINEER

Recommended for Approval _____ 19 _____
 DESIGN SERVICES DIRECTOR

Recommended for Approval *Hermit M. Bar* 5-10-1982
 DISTRICT DIRECTOR, TRAFFIC ENGINEERING

Approved 5-17-1982 *Carl L. Goble*
 DIRECTOR, OFFICE OF ENGINEERING SERVICES

DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 APPROVED
 DIVISION ADMINISTRATOR DATE

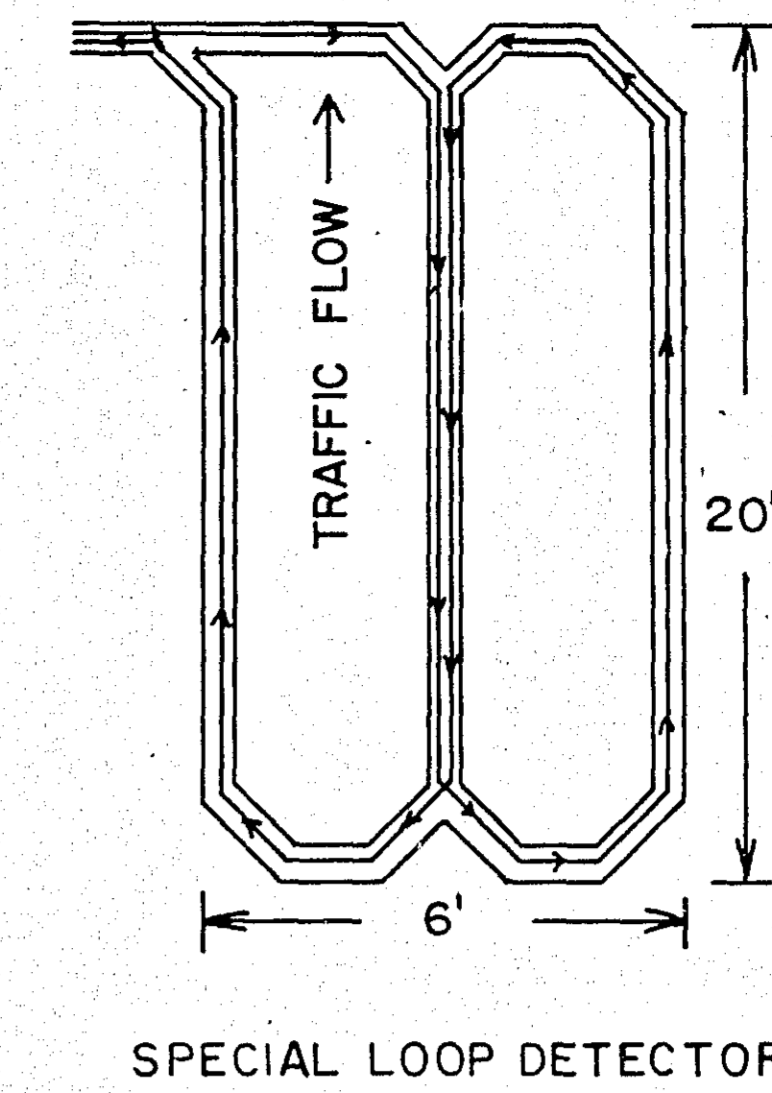
I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 12/23/82 REG. NO. 10956

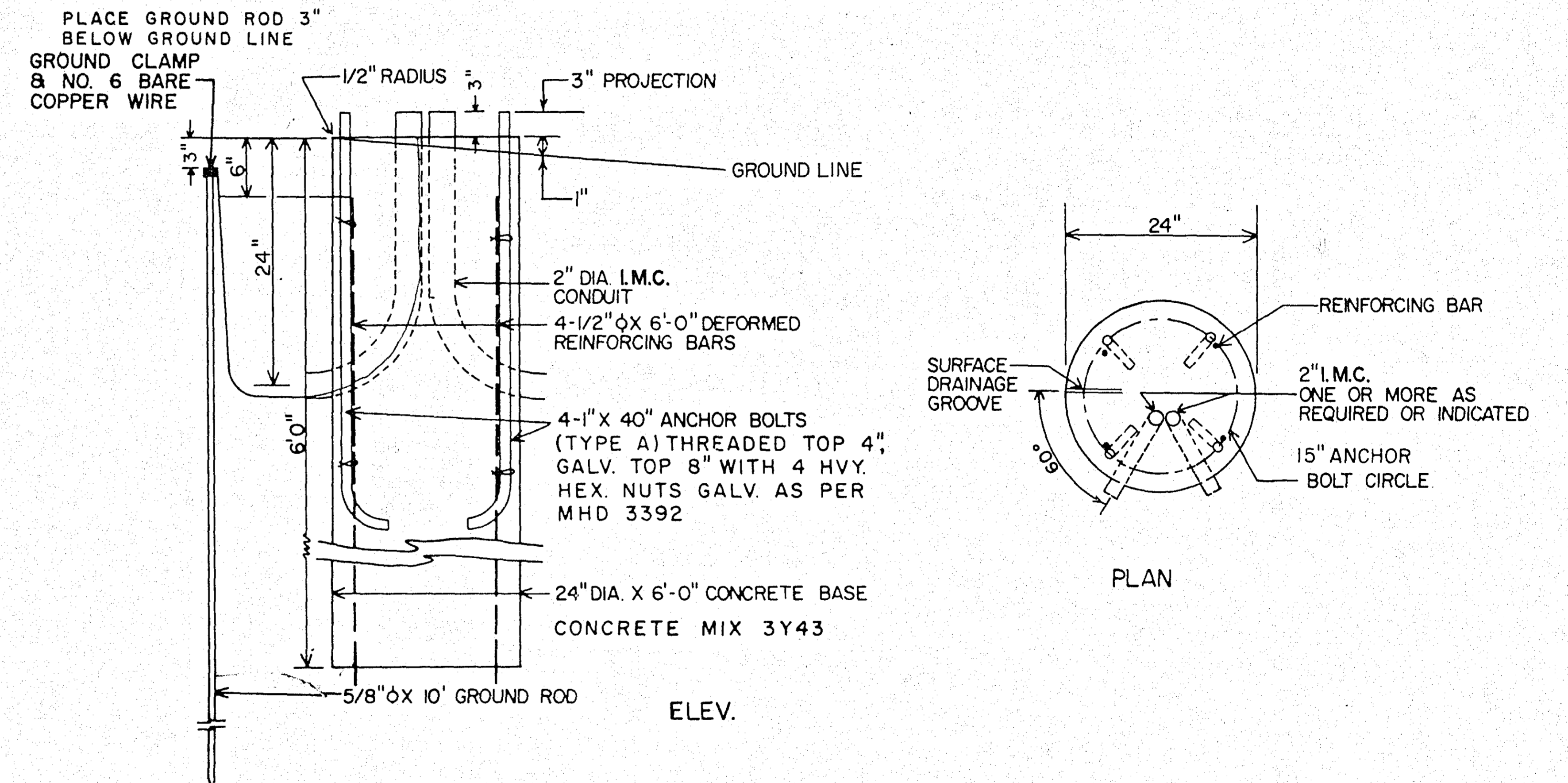
STATE PROJ. NO. 6214-58 (T.H. 49=126) SHEET NO. 1 OF 10 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	SYSTEM "A" QUANTITIES		SYSTEM "B" QUANTITIES		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			EST.	FINAL	EST.	FINAL		
2564.531	FURNISH AND INSTALL SIGN PANELS TYPE "D" - SIGNALS	SQ. FT.	32.5		32.5		65.0	
0565.601	REMOVE AND SALVAGE SIGNAL SYSTEM	LUMP SUM.	1		1		2	
0565.602	TYPE 4A	EACH			1		1	
0565.602	TYPE 10A	EACH	1				1	
0565.602	TYPE 10B	EACH			1		1	
0565.602	ONE WAY SIGNAL - OVERHEAD	EACH	1		1		2	
0565.602	REVISE TYPE 1B TO TYPE 1E	EACH			1		1	
0565.602	REVISE TYPE 2B TO TYPE 2C (R-Y-G-YLTA-GLTA-FACE)	EACH	1				1	
0565.602	REVISE TYPE 10A TO TYPE 10B	EACH	1				1	
0565.602	REVISE TYPE 20A TO TYPE 20B	EACH			1		1	
0565.602	REVISE TYPE 20B	EACH			1		1	
0565.602	REVISE TYPE 20C (R-Y-G-YLTA-GLTA SPECIAL SIGNAL FACE)	EACH			1		1	
0565.602	REVISE ONE WAY SIGNAL - OVERHEAD (R-Y-G-YLTA-GLTA FACE)	EACH	1		1		2	
0565.602	REVISE TWO WAY SIGNAL - OVERHEAD (R-Y-G-YLTA-GLTA FACE)	EACH			1		1	
0565.602	MID ARM MOUNT	EACH	1		2		3	
0565.602	PEDESTRIAN PUSH BUTTON	EACH	2		4		6	
0565.602	PEDESTRIAN INSTRUCTION SIGN R10-4B	EACH	2		4		6	
0565.602	R9-3A SIGN	EACH	2		3		5	
0565.602	R10-X1 SIGN	EACH	1		2		3	
0565.602	HANDHOLE	EACH	1		10		11	
0565.602	SERVICE EQUIPMENT	EACH			1		1	
0565.602	LOOP DETECTOR 6' x 6'	EACH			1		1	
0565.602	LOOP DETECTOR 6' x 8'	EACH			2		2	
0565.602	LOOP DETECTOR 6' x 12'	EACH	1				1	
0565.602	LOOP DETECTOR 6' x 14'	EACH			1		1	
0565.602	SPECIAL LOOP DETECTOR 6' x 20'	EACH	5		5		10	
0565.602	SPLICE INPLACE LOOP DETECTOR	EACH			2		2	
0565.602	CONTROLLER CABINET FOUNDATION	EACH	1		1		1	
0565.602	PEDESTAL FOUNDATION	EACH	2		2		2	
0565.602	INSTALL PEDESTAL POLE AND BASE	EACH	1		1		1	
0565.602	RELOCATE PEDESTAL POLE AND BASE	EACH	1		1		1	
0565.602	LIGHT BASE DESIGN E	EACH			1		1	
0565.602	RELOCATE LIGHTING UNIT	EACH			1		1	
0565.602	INSTALL WOOD POLE	EACH			1		1	
0565.602	ADJUST HANDHOLE	EACH	1		1		1	
0565.602	ONE WAY SIGNAL-OVERHEAD (SPECIAL SIGNAL FACE)	EACH			1		1	
0565.603	4" RIGID STEEL CONDUIT (AUGERED)	LIN. FT.			70		70	
0565.603	4" INTERMEDIATE METAL CONDUIT	LIN. FT.			60		60	
0565.603	3" RIGID STEEL CONDUIT (AUGERED)	LIN. FT.			135		135	
0565.603	3" INTERMEDIATE METAL CONDUIT	LIN. FT.			45		45	
0565.603	2" INTERMEDIATE METAL CONDUIT	LIN. FT.			10		10	
0565.603	1 1/2" RIGID STEEL CONDUIT	LIN. FT.			510		510	
0565.603	1 1/2" NON METALLIC CONDUIT	LIN. FT.	140		145		285	
0565.603	12/C #12	LIN. FT.	300		1080		1380	
0565.603	3/C #12	LIN. FT.	120		510		630	
0565.603	3/C #20	LIN. FT.	230		640		870	
0565.603	2/C #14	LIN. FT.	590		2695		3285	
0565.603	1/C #10	LIN. FT.			680		680	
0565.603	1/C #6	LIN. FT.			80		80	
0565.603	1/C #6 BARE GROUND	LIN. FT.	180		40		220	
0565.605	INSTALL CONTROLLER AND CABINET	ASSEMBLY	1		1		2	



LIGHT BASE, DESIGN E



ESTIMATED QUANTITIES AND DETAILS

78" X 60", 6" R. D 2
 LINE 1 33.8 + 8" E MOD.
 LINE 2 62.0 + 30" X 24" --10" NUM.. 24" X 24" --10" NUM.
 LINE 3 18.0 + 14--18 ARROW-180

78" X 60", 6" R. D 1
 LINE 1 32.5 + 8" E MOD.
 LINE 2 62.0 + 30" X 24" --10" NUM.. 24" X 24" --10" NUM.
 LINE 3 18.0 + 14--18 ARROW-180

TYPE "D" SIGNS

Sign Panel	Size	No. Req.	No. Posts per Sign	Post Spacing	Sq. Ft. per Sign	a	b
D-1	78" x 60"	1	2	54"	32.5	13'	
D-2	78" x 60"	1	2	54"	32.5	14'	

TYPE "D" SIGN DATA

Code No.	Quantity	Size	Legend	Sq. Ft. per Overlay
MI-1A	2	30" x 24"	I-694	5.0
MI-4A	2	24" x 24"	U.S. 10	4.0

NOTES:

- Color - white legend and border on green background, fully reflectorized.
- Corners extending beyond the border shall not be trimmed.
- Borders shall be 1.25"
- See Standard Signs Manual for arrow and overlay details.
- For structural details, Type D signs, see Standard Signs Manual, page 105B.
- For Type D Stringer and Panel-Joint Detail, see Standard Signs Manual.

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Sheet No. 3 of 10 Sheets

FACE	PHASE	FLASH	INPLACE INDICATION SIZE			REVISED INDICATION SIZE			
			R	Y	G	R	Y	G	
2-1	2	R	12"	12"	12"	-	-	-	NO CHANGE
2-2	2	R	12"	12"	12"	-	-	-	NO CHANGE
4-1	4	R	12"	12"	12"	-	-	-	NO CHANGE
4-2	4	R	12"	12"	12"	-	-	-	NO CHANGE
4-3	4	R	-	-	-	12"	12"	12"	-
6-1	1 AND 6	R	12"	12"	12"	12"	12"	12"	12"
6-2	6	R	-	-	-	12"	12"	12"	-
6-3	6	R	12"	12"	12"	-	-	-	NO CHANGE
6-4	1 AND 6	R	12"	12"	12"	12"	12"	12"	12"

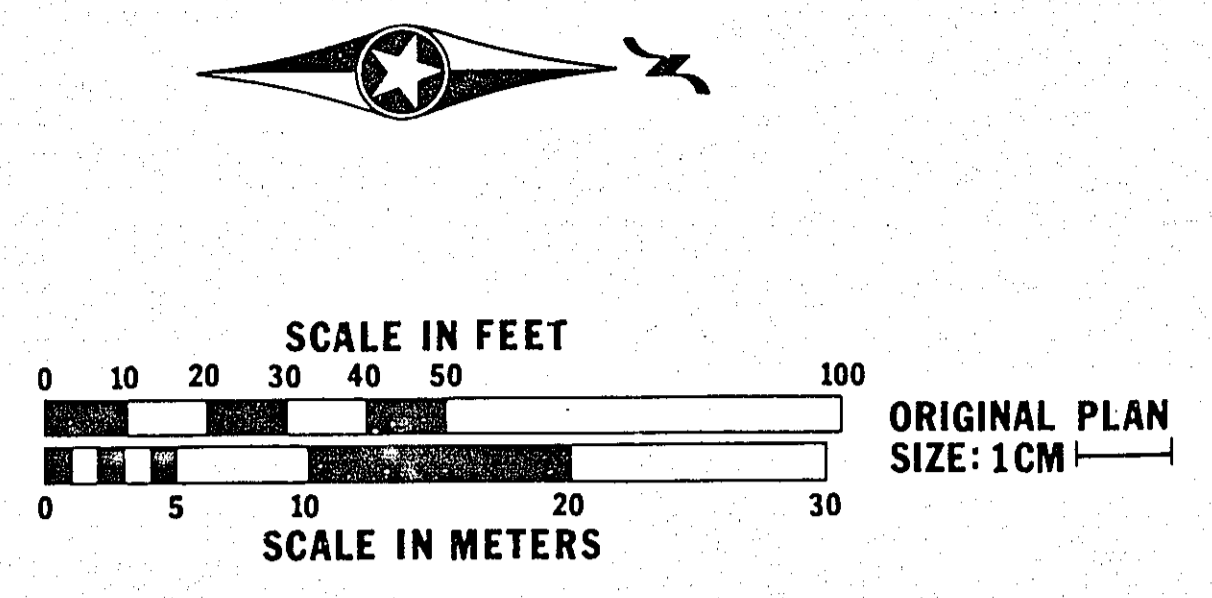
LOOP DETECTORS		
NUMBER	SIZE	
** DI-1	6' X 20'	(2)
** DI-2	6' X 20'	(3)
D2-1	INPLACE	(1)
D4-1	6' X 12'	(1)
D4-2	INPLACE	(1)
** D4-3	6' X 20'	(3)
** D4-4	2-6' X 20'	(1)
D6-1	INPLACE	(1)
D6-2	INPLACE	(1)

**=SPECIAL LOOP DETECTOR-SEE DETAILS

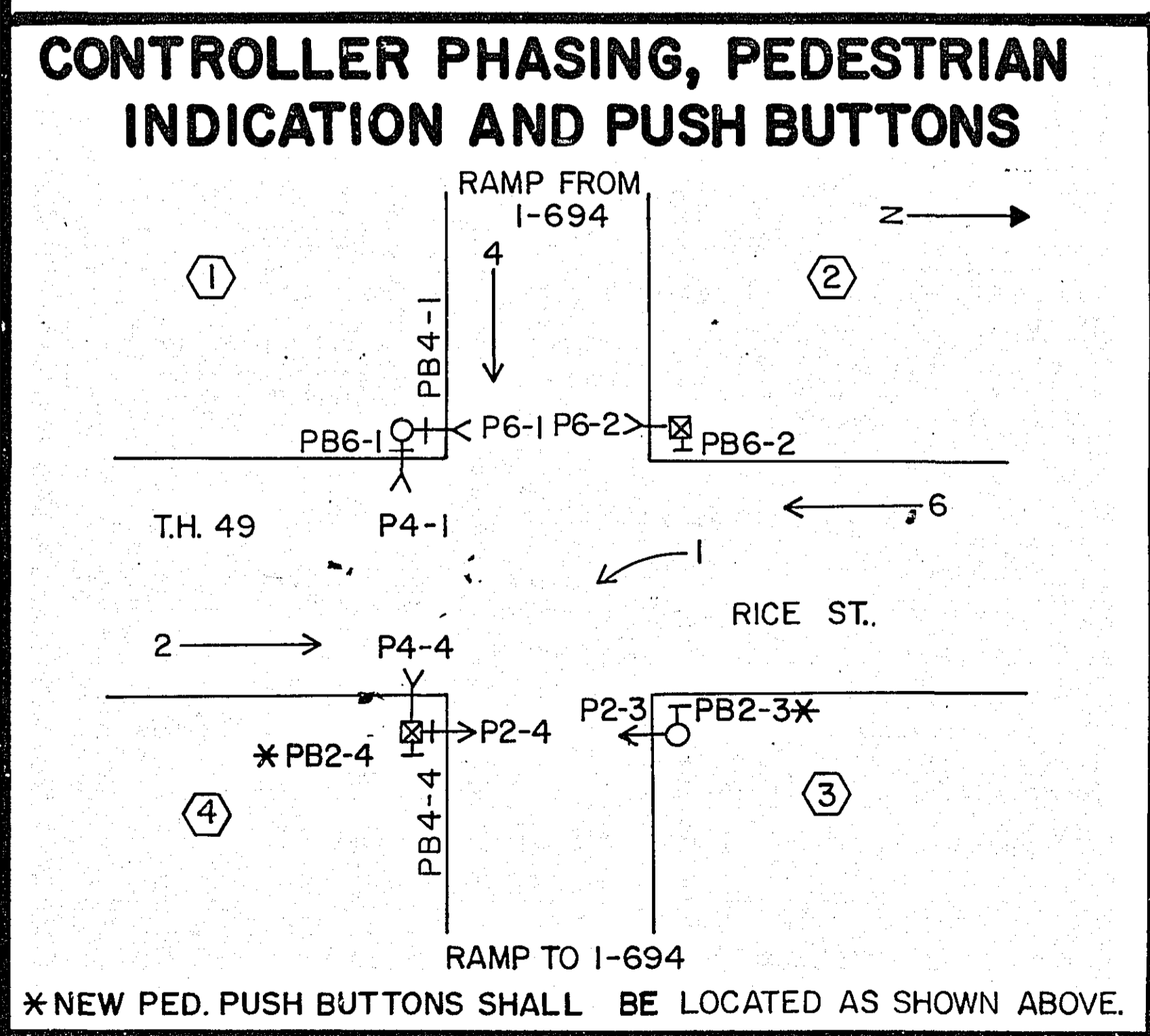
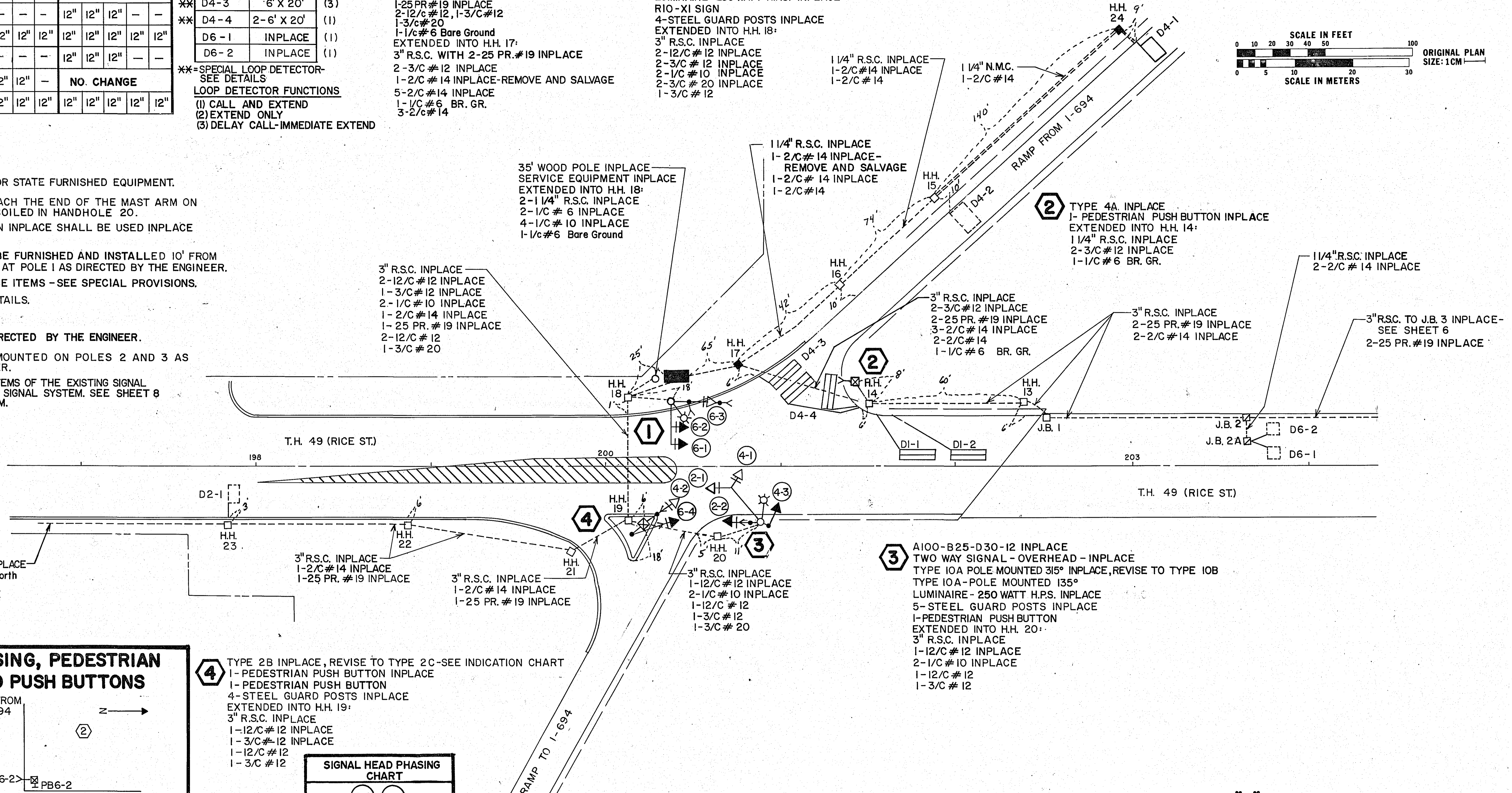
LOOP DETECTOR FUNCTIONS
 (1) CALL AND EXTEND
 (2) EXTEND ONLY
 (3) DELAY CALL-IMMEDIATE EXTEND

CONTROLLER AND CABINET INPLACE, REMOVE AND SALVAGE
 CONTROLLER AND CABINET EXTEND INTO H.H. 18:
 2-3" R.S.C. INPLACE
 4-12/C #12 INPLACE
 1-3/C #12 INPLACE
 2-1/C #6 INPLACE
 2-3/C #20 INPLACE
 1-2/C #14 INPLACE
 1-25 PR #19 INPLACE
 2-12/C #12, 1-3/C #12
 1-3/C #20
 1-1/C #6 Bare Ground
 EXTENDED INTO H.H. 17:
 3" R.S.C. WITH 2-25 PR. #19 INPLACE
 2-3/C #12 INPLACE
 1-2/C #14 INPLACE-REMOVE AND SALVAGE
 5-2/C #14 INPLACE
 1-1/C #6 BR. GR.
 3-2/C #14

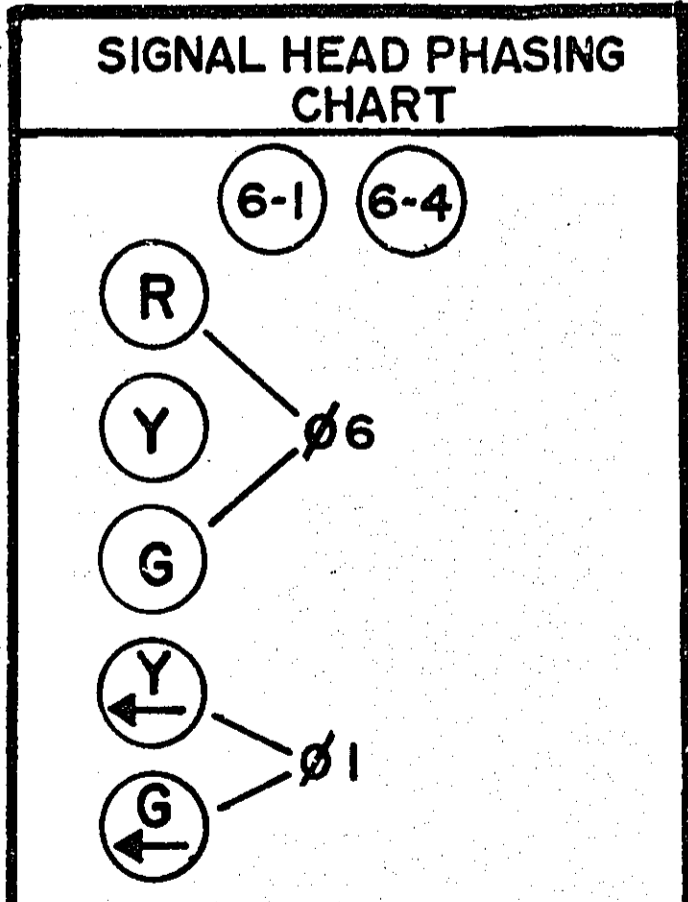
① A100-A-25-D30-12 INPLACE
 ONE WAY SIGNAL-OVERHEAD INPLACE, RELOCATE TO MID ARM MOUNT
 ONE WAY SIGNAL-OVERHEAD TYPE IOB-POLE MOUNTED 270° INPLACE
 2-PEDESTRIAN PUSH BUTTONS INPLACE
 LUMINAIRE -250 WATT H.P.S. INPLACE
 RIO - XI SIGN
 4-STEEL GUARD POSTS INPLACE
 EXTENDED INTO H.H. 18:
 3" R.S.C. INPLACE
 2-12/C #12 INPLACE
 2-3/C #12 INPLACE
 2-1/C #10 INPLACE
 2-3/C #20 INPLACE
 1-3/C #12



- NOTES:
- (1) SEE SPECIAL PROVISIONS FOR STATE FURNISHED EQUIPMENT.
 - (2) SUFFICIENT 3/C #20 TO REACH THE END OF THE MAST ARM ON ON POLE 3 SHALL BE COILED IN HANDHOLE 20.
 - (3) ALL ITEMS NOTED OR SHOWN INPLACE SHALL BE USED INPLACE UNLESS OTHER SPECIFIED.
 - (4) A MID ARM MOUNT SHALL BE FURNISHED AND INSTALLED 10' FROM THE END OF THE MAST ARM AT POLE 1 AS DIRECTED BY THE ENGINEER.
 - (5) PAINT ALL NEW AND INPLACE ITEMS -SEE SPECIAL PROVISIONS.
 - (6) SEE SHEET 3 FOR SIGN DETAILS.
 - (7) ADJUST HANDHOLE 17 AS DIRECTED BY THE ENGINEER.
 - (8) A R9-3A SIGN SHALL BE MOUNTED ON POLES 2 AND 3 AS DIRECTED BY THE ENGINEER.
 - (9) REMOVE AND SALVAGE ALL ITEMS OF THE EXISTING SIGNAL SYSTEM NOT USED IN THE NEW SIGNAL SYSTEM. SEE SHEET 8 FOR EXISTING SIGNAL SYSTEM.



④ TYPE 2B INPLACE, REVISE TO TYPE 2C-SEE INDICATION CHART
 1-PEDESTRIAN PUSH BUTTON INPLACE
 1-PEDESTRIAN PUSH BUTTON
 4-STEEL GUARD POSTS INPLACE
 EXTENDED INTO H.H. 19:
 3" R.S.C. INPLACE
 1-12/C #12 INPLACE
 1-3/C #12 INPLACE
 1-12/C #12
 1-3/C #12



③ A100-B25-D30-12 INPLACE
 TWO WAY SIGNAL - OVERHEAD - INPLACE
 TYPE IOA-POLE MOUNTED 315° INPLACE, REVISE TO TYPE IOB
 TYPE IOA-POLE MOUNTED 135°
 LUMINAIRE - 250 WATT H.P.S. INPLACE
 5-STEEL GUARD POSTS INPLACE
 1-PEDESTRIAN PUSH BUTTON
 EXTENDED INTO H.H. 20:
 3" R.S.C. INPLACE
 1-12/C #12 INPLACE
 2-1/C #10 INPLACE
 1-12/C #12
 1-3/C #12

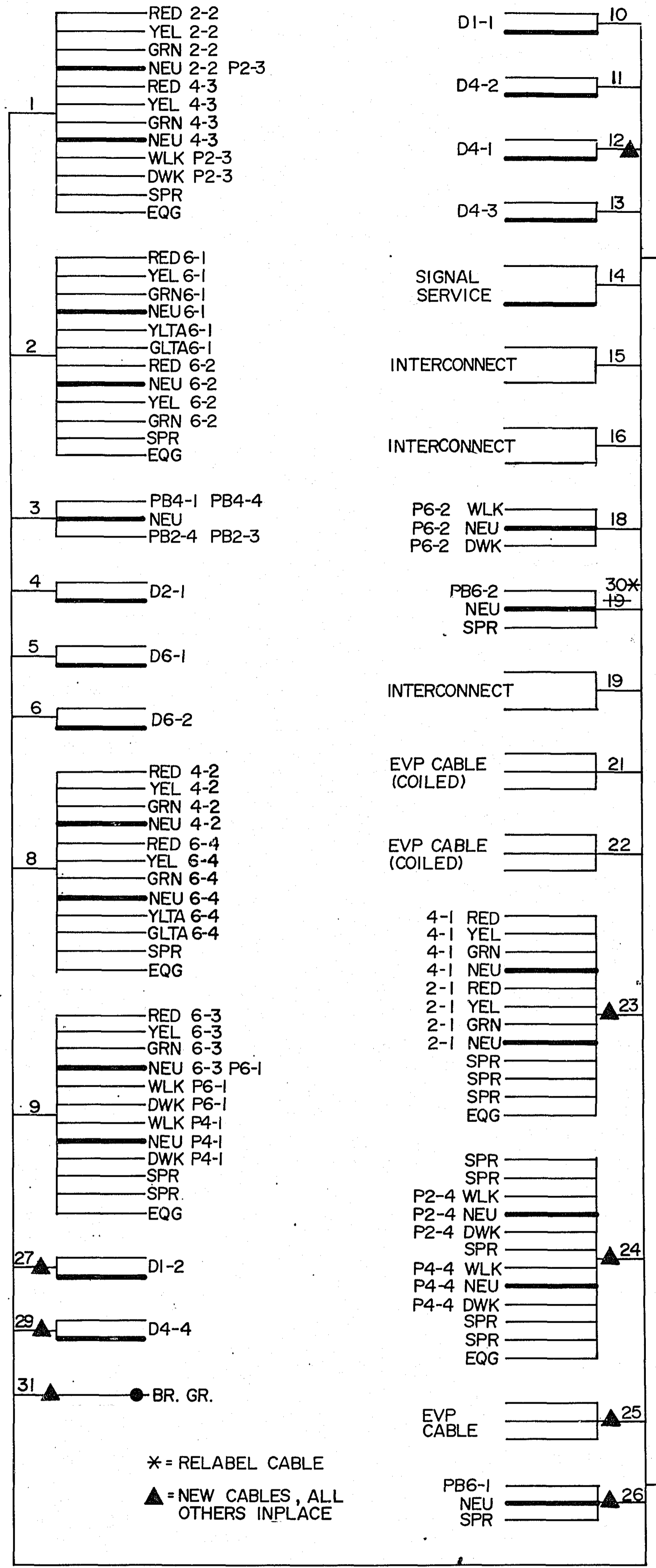
SYSTEM "A"
INTERSECTION LAYOUT
T.H. 49 (RICE ST.) AT 1-694 SOUTH RAMPS

62010694X0451005

State Proj. No. 6214-58

Sheet No. 4 of 10 Sheets

CONTROLLER CABINET

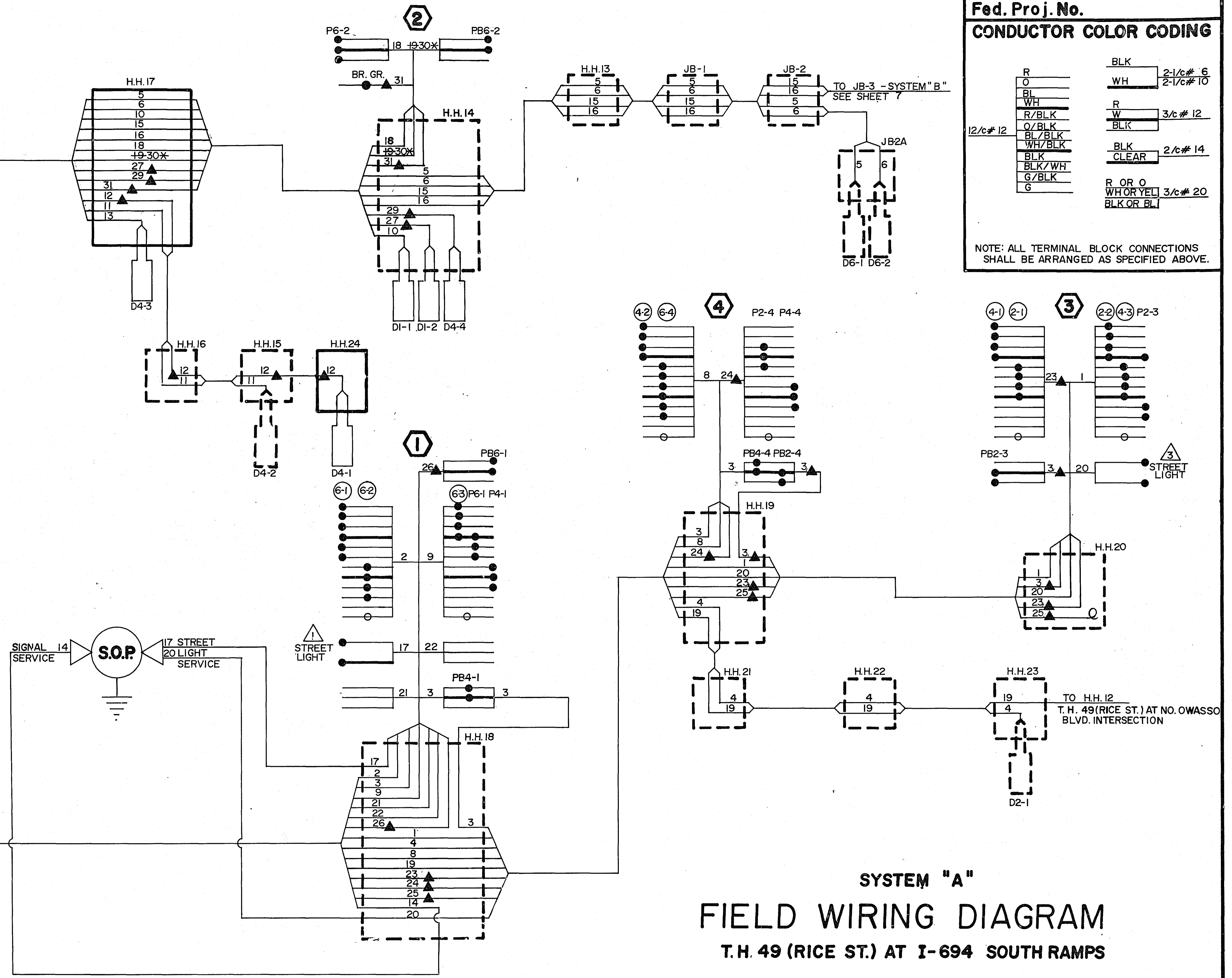


Fed. Proj. No.

CONDUCTOR COLOR CODING

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

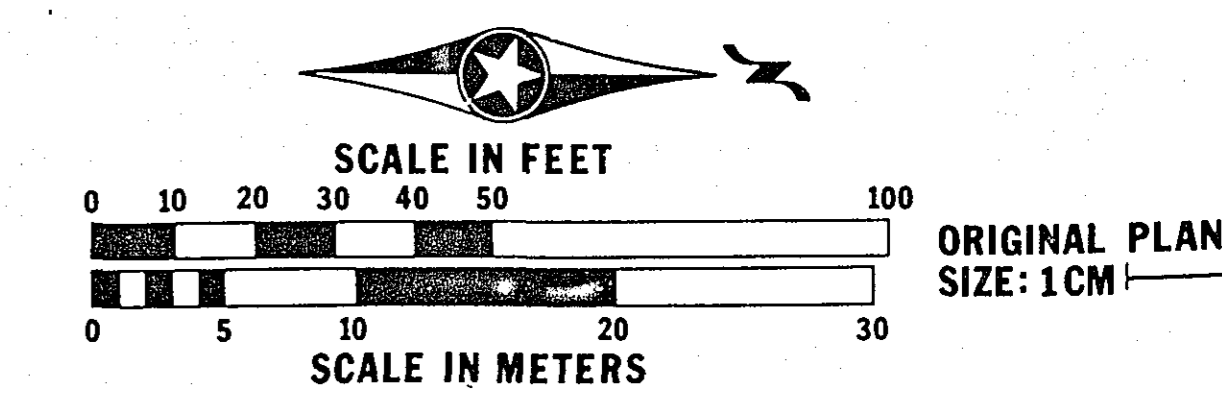
NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



SYSTEM "A"
FIELD WIRING DIAGRAM
 T.H. 49 (RICE ST.) AT I-694 SOUTH RAMPS

ADJACENT DOCUMENT WAS SUPPLIED BY AGENCY NAMED BELOW, DURING THE REGULAR COURSE OF BUSINESS, TO BE FILMED BY STATE OF MINNESOTA MICROGRAPHIC SERVICES UNIT ACCORDING TO NATIONAL BUREAU OF STANDARDS REQUIREMENTS FOR PERMANENT MICROFILM AND ACCORDING TO FILED PROCEDURES FOR THIS DOCUMENT.

Agency/Authority: *DOT Road Design Tom Hayes* Date: *1-12-54*
 Doc. ID: *228* Microfilm Signature: *Steve Pelletier*



FACE	PHASE	FLASH	INPLACE INDICATION SIZE				REVISED INDICATION SIZE				
			R	Y	G	←	R	Y	G	←	
* 2-1	2 & 5	R	12"	12"	12"	12"	12"	12"	12"	12"	12"
2-2	2	R	—	—	—	12"	12"	12"	—	—	—
2-3	2	R	12"	12"	12"	NO CHANGE					
* 2-4	2 & 5	R	12"	12"	12"	12"	12"	12"	12"	12"	12"
* 3-1	3	R	12"	12"	12"	NO CHANGE					
* 3-2	3	R	12"	12"	12"	NO CHANGE					
3-3	3	R	8"	8"	8"	12"	12"	12"	—	—	—
4-1	4	R	12"	12"	12"	NO CHANGE					
4-2	4	R	12"	12"	12"	NO CHANGE					
4-3	4	R	12"	12"	12"	NO CHANGE					
4-4	4	R	8"	8"	8"	12"	12"	12"	—	—	—
6-1	1 & 6	R	12"	12"	12"	12"	12"	12"	12"	12"	12"
6-2	6	R	—	—	—	12"	12"	12"	—	—	—
6-3	6	R	12"	12"	12"	NO CHANGE					
6-4	1 & 6	R	—	—	—	12"	12"	12"	12"	12"	12"

LOOP DETECTORS		
NUMBER	SIZE	
DI-1	6' X 20'	(3)
DI-2	6' X 20'	(2)
D2-1	INPLACE	(1)
D2-2	INPLACE	(1)
D3-1	6' X 14'	(1)
D3-2	INPLACE	(1)
D3-3	INPLACE	(1)
D4-1	6' X 8'	(2)
D4-2	6' X 8'	(2)
D4-3	6' X 20'	(3)
D5-1	6' X 20'	(3)
D5-2	6' X 20'	(2)
D6-1	6' X 6'	(1)

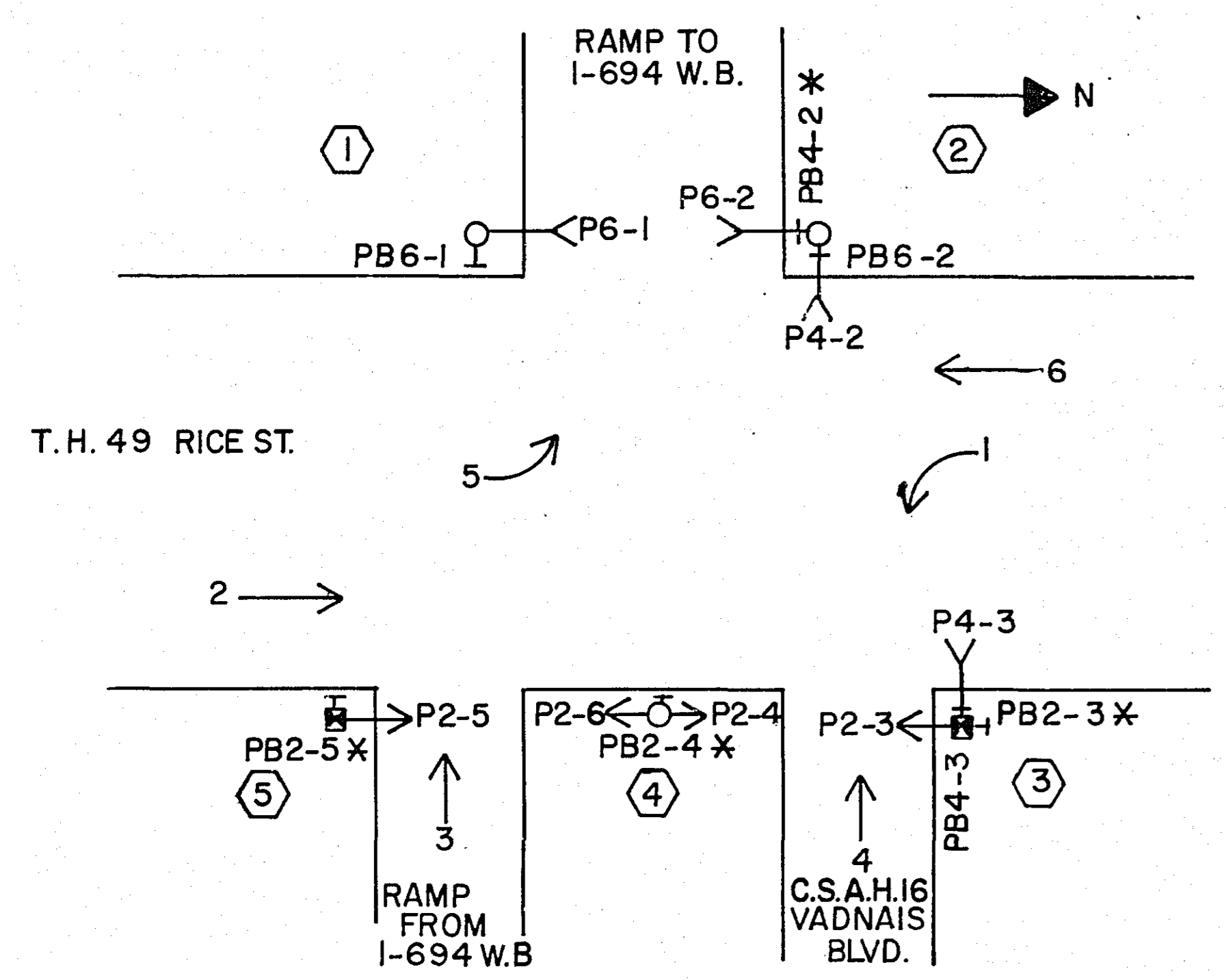
** = SPECIAL LOOP DETECTOR-SEE DETAILS

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

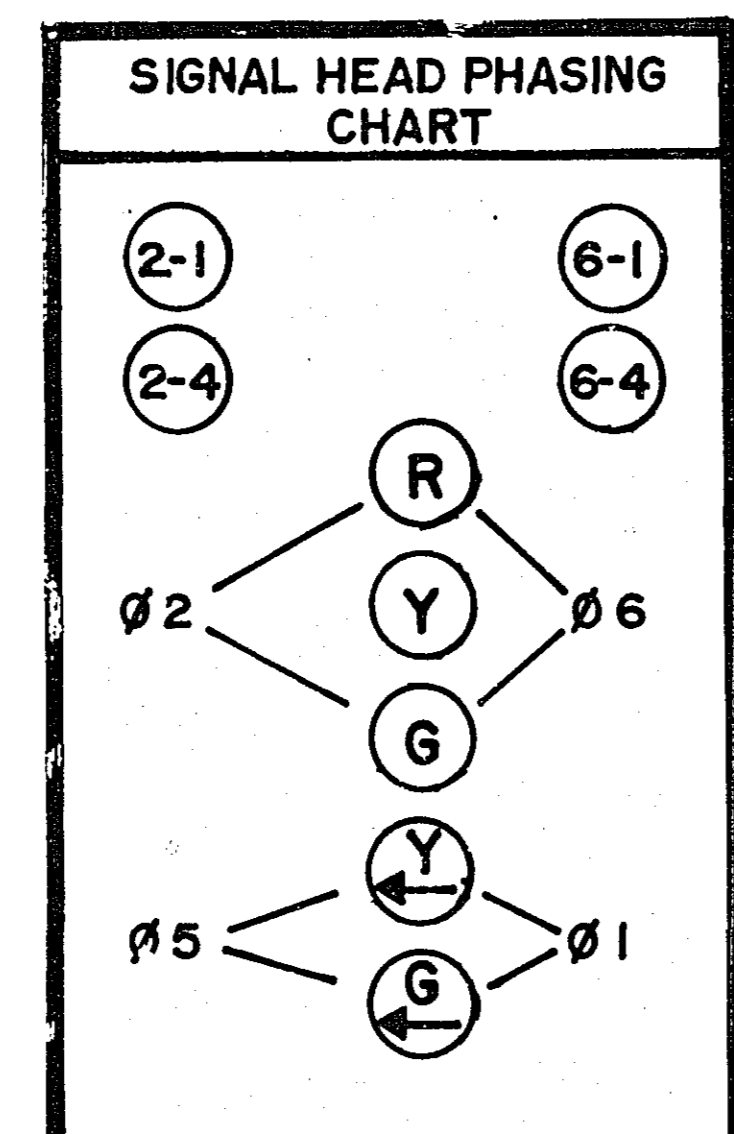
* = SPECIAL SIGNAL FACE SEE SPECIAL PROVISIONS.

- NOTE:**
- (1) SEE SPECIAL PROVISIONS FOR STATE FURNISHED EQUIPMENT ON POLES 1, 2, AND 4
 - (2) SUFFICIENT 3/C # 20 TO REACH THE END OF THE MAST ARM SHALL BE COILED IN HANDHOLES 5, 10, AND 11.
 - (3) ALL ITEMS SHOWN OR NOTED INPLACE SHALL BE USED INPLACE UNLESS OTHERWISE SPECIFIED.
 - (4) A MID ARM MOUNT SHALL BE FURNISHED AND INSTALLED ON THE MAST ARM OF POLES 1 AND 4 AT A LOCATION AS DIRECTED BY THE ENGINEER.
 - (5) PAINT ALL NEW AND INPLACE ITEMS (SEE SPECIAL PROVISIONS).
 - (6) SEE SHEET 3 FOR SIGN DETAILS.
 - (7) THE CONTRACTOR SHALL PROVIDE ALL NEW BRACKETING AT POLES 1, 2, 3, AND 4.
 - (8) REMOVE AND SALVAGE ALL ITEMS OF THE EXISTING SIGNAL SYSTEM NOT USED IN THE NEW SIGNAL SYSTEM SEE SHEET 9 FOR EXISTING SIGNAL SYSTEM.
 - (9) A R 9-5A SIGN SHALL BE MOUNTED ON POLES 1, 4, AND 5 AS DIRECTED BY THE ENGINEER.
 - (10) THE CONTRACTOR SHALL MOVE EXISTING CONDUCTORS TO NEW TERMINATIONS AS DIRECTED BY THE ENGINEER.

CONTROLLER PHASING PEDESTRIAN INDICATIONS AND PUSH BUTTONS

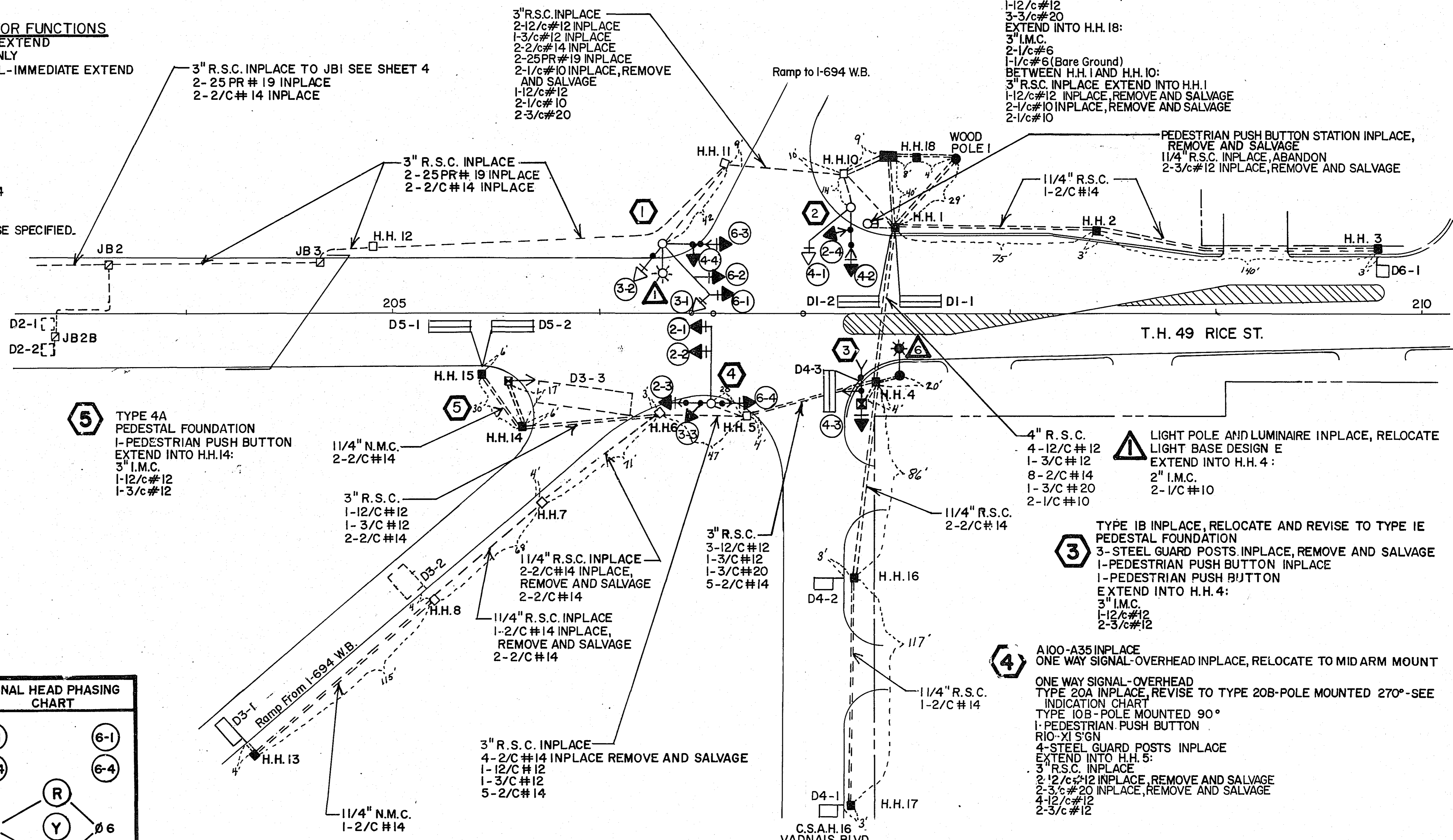


* NEW PED. PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE



1 A100-B30-D9 INPLACE
 TWO WAY SIGNAL-OVERHEAD INPLACE, RELOCATE TO MID ARM MOUNT
 ONE WAY SIGNAL-OVERHEAD
 TYPE 20B INPLACE, REVISE HEAD 4-4 SEE INDICATION CHART
 TYPE IOA INPLACE
 LUMINAIRE 250 WATT H.P.S. INPLACE
 1-PEDESTRIAN PUSH BUTTON INPLACE
 R10-XI SIGN
 EXTEND INTO H.H. 11:
 3" R.S.C. INPLACE
 2-12/C #12 INPLACE
 1-3/C #12 INPLACE
 2-12/C #10 INPLACE, REMOVE AND SALVAGE
 1-12/C #12
 2-1/C #10

2 A100-B25 INPLACE
 ONE WAY SIGNAL-OVERHEAD INPLACE
 TYPE 20C INPLACE, REVISE HEAD 2-4-SEE INDICATION CHART
 1-PEDESTRIAN PUSH BUTTON INPLACE
 1-PEDESTRIAN PUSH BUTTON
 4-STEEL GUARD POSTS INPLACE
 EXTEND INTO H.H. 10:
 3" R.S.C. INPLACE
 2-12/C #12 INPLACE
 3-3/C #12 INPLACE



5 TYPE 4A PEDESTAL FOUNDATION
 1-PEDESTRIAN PUSH BUTTON
 EXTEND INTO H.H. 14:
 3" I.M.C.
 1-12/C #12
 1-3/C #12

4" R.S.C.
 4-12/C #12
 1-3/C #12
 8-2/C #14
 1-3/C #20
 2-1/C #10

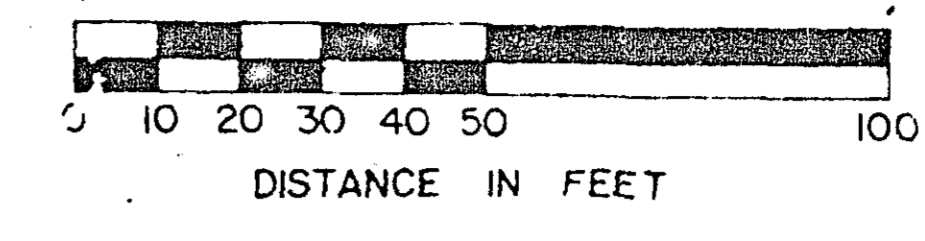
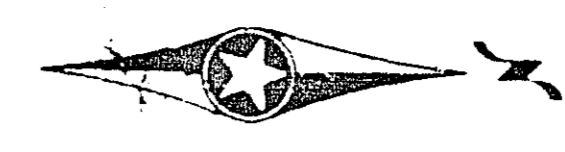
LIGHT POLE AND LUMINAIRE INPLACE, RELOCATE
 LIGHT BASE DESIGN E
 EXTEND INTO H.H. 4:
 2" I.M.C.
 2-1/C #10

3 TYPE 1B INPLACE, RELOCATE AND REVISE TO TYPE 1E
 PEDESTAL FOUNDATION
 3-STEEL GUARD POSTS INPLACE, REMOVE AND SALVAGE
 1-PEDESTRIAN PUSH BUTTON INPLACE
 1-PEDESTRIAN PUSH BUTTON
 EXTEND INTO H.H. 4:
 3" I.M.C.
 1-12/C #12
 2-3/C #12

4 A100-A35 INPLACE
 ONE WAY SIGNAL-OVERHEAD INPLACE, RELOCATE TO MID ARM MOUNT
 ONE WAY SIGNAL-OVERHEAD
 TYPE 20A INPLACE, REVISE TO TYPE 20B-POLE MOUNTED 270°-SEE INDICATION CHART
 TYPE 10B-POLE MOUNTED 90°
 1-PEDESTRIAN PUSH BUTTON
 R10-XI SIGN
 4-STEEL GUARD POSTS INPLACE
 EXTEND INTO H.H. 5:
 3" R.S.C. INPLACE
 2-12/C #12 INPLACE, REMOVE AND SALVAGE
 2-3/C #20 INPLACE, REMOVE AND SALVAGE
 4-12/C #12
 2-3/C #12

"SYSTEM B" INTERSECTION LAYOUT
 T.H. 49 (Rice St.) at I-694 North Ramps and C.S.A.H. 16 (Vadna's Blvd.)

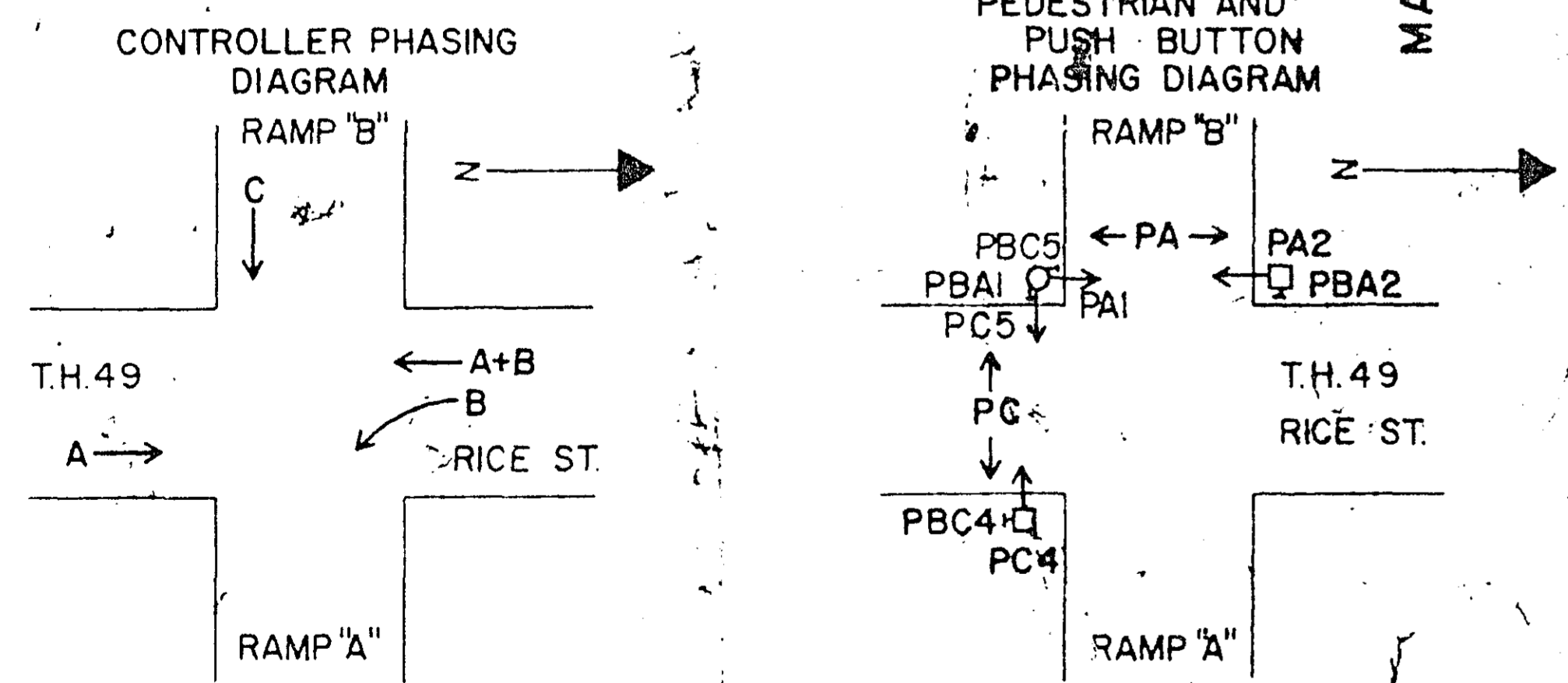
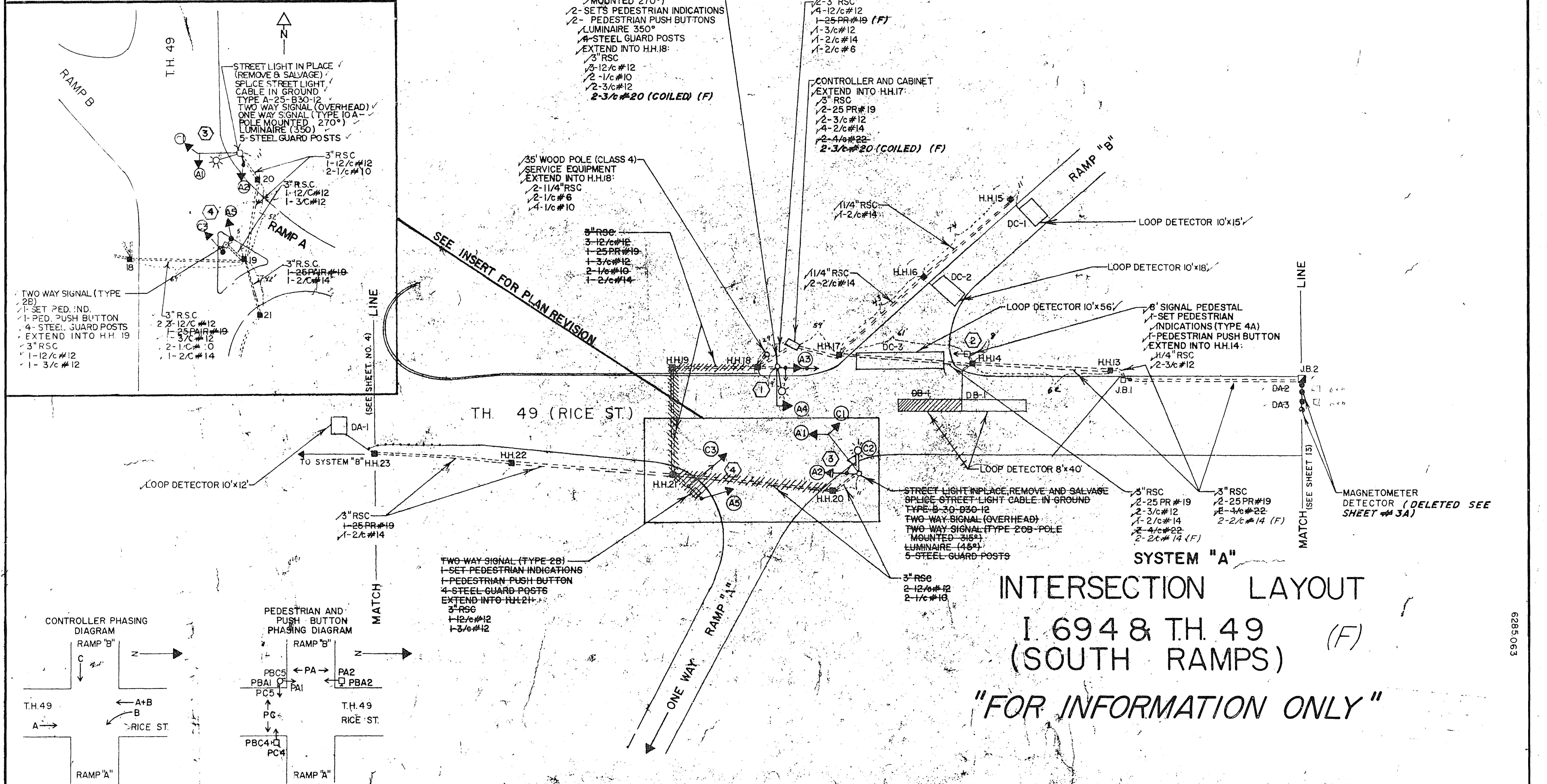
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 Agency/Authority: DOT - Road Design Tom Noyes
 Date: 1-12-84
 Microfilm Signature: Sue Veltun
 Date: 1-12-84



SIGNAL INDICATION CHART

FACE	PHASE	FLASH	INDICATION SIZE		
			R	Y	G
A1	A	Y	12"	12"	12"
A2	A	Y	12"	12"	12"
A3	A+B	Y	12"	12"	12"
A4	A+B	Y	12"	12"	12"
A5	A+B	Y	12"	12"	12"
C1	C	R	12"	12"	12"
C2	C	R	12"	12"	12"
C3	C	R	12"	12"	12"

L=PROVIDE DIRECTIONAL LOUVERS



INTERSECTION LAYOUT
I. 694 & TH. 49
(SOUTH RAMPS) (F)

"FOR INFORMATION ONLY"

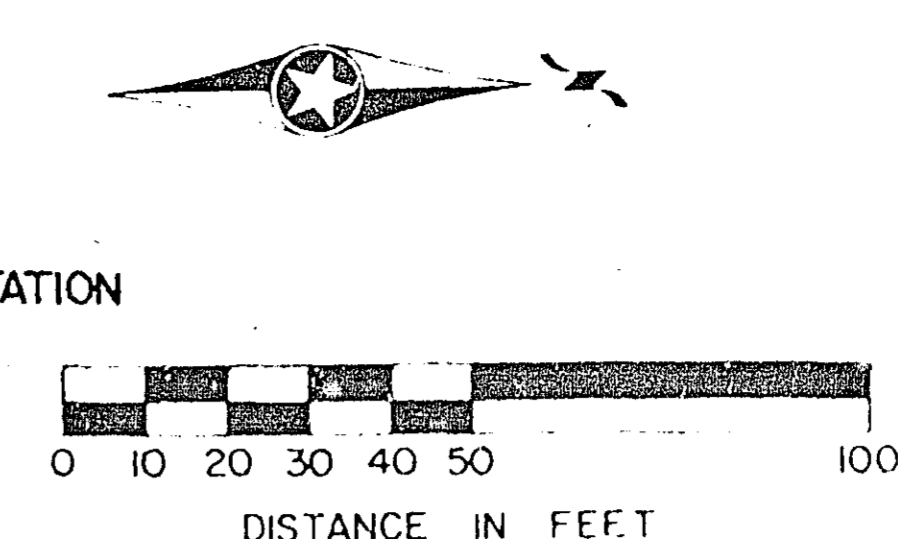
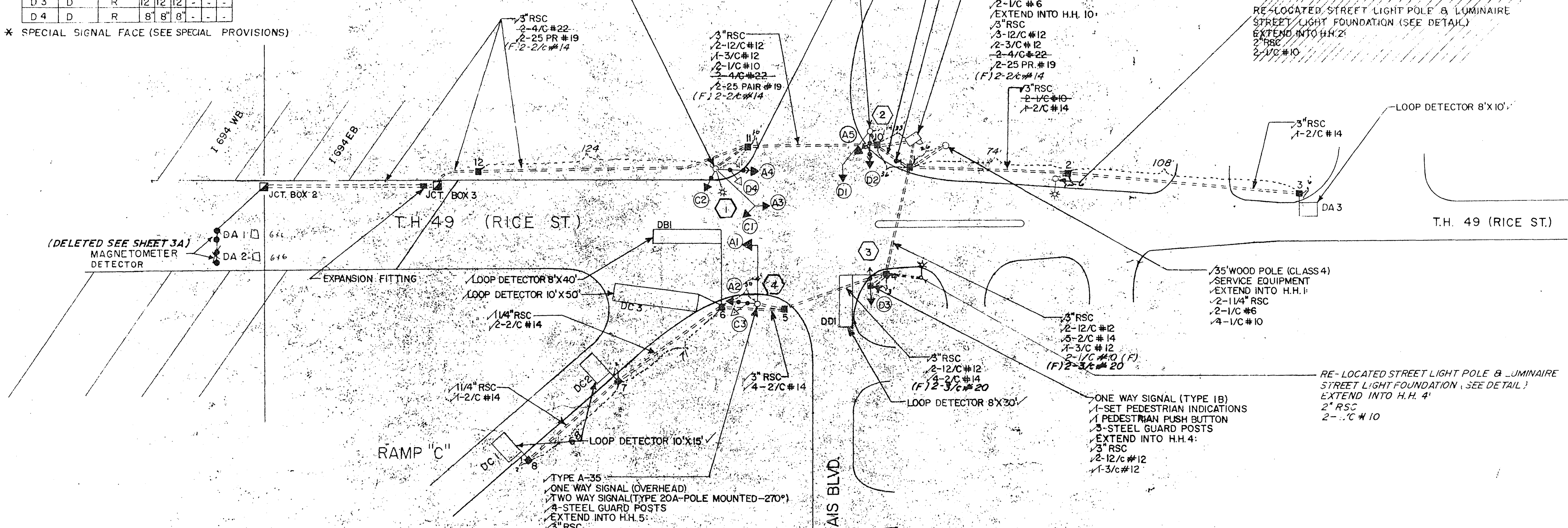
SIGNAL INDICATION CHART

FACE	PHASE	FLASH	INDICATION SIZE			
			R	Y	G	← →
* A1	A+B	Y	12"	12"	12"	-
A2	A+B	Y	12"	12"	12"	-
A3	A	Y	12"	12"	12"	-
A4	A	Y	12"	12"	12"	-
* A5	A+B	Y	12"	12"	12"	-
* C1	C	R	12"	12"	12"	-
C2	C	R	12"	12"	12"	-
C3	C	R	8"	8"	8"	-
D1	D	R	12"	12"	12"	-
D2	D	R	12"	12"	12"	-
D3	D	R	12"	12"	12"	-
D4	D	R	8"	8"	8"	-

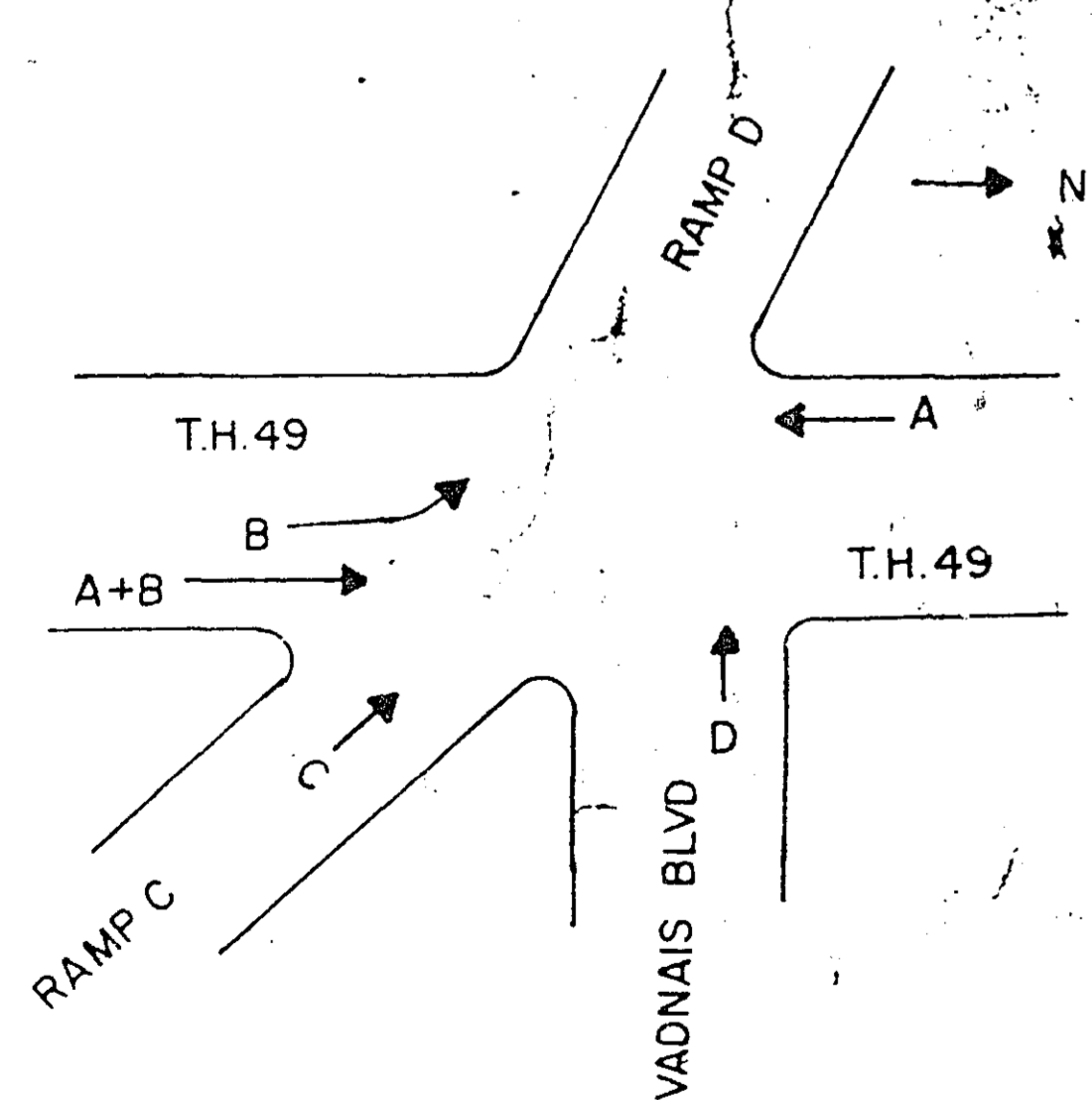
* SPECIAL SIGNAL FACE (SEE SPECIAL PROVISIONS)

- ✓ STREET LIGHT IN PLACE, RELOCATE
- ✓ REMOVE FOUNDATION
- ✓ SPLICE STREET LIGHT CABLE IN GROUND
- ✓ TYPE B-30-D30-12 9 (F)
- ✓ TWO WAY SIGNAL (OVERHEAD)
- ✓ TWO WAY SIGNAL (TYPE 20C-POLE MOUNTED 315°)
- ✓ ONE WAY SIGNAL (TYPE 10A-POLE MOUNTED 45°)
- ✓ 1-SET PEDESTRIAN INDICATIONS
- ✓ 1 PEDESTRIAN PUSH BUTTON
- ✓ LUMINAIRE 45°
- (F) 4-STEEL GUARD POSTS
- ✓ EXTEND INTO H.H. II:
- ✓ 2-12/c #12
- ✓ 1-3/c #12
- ✓ 2-1/c #10

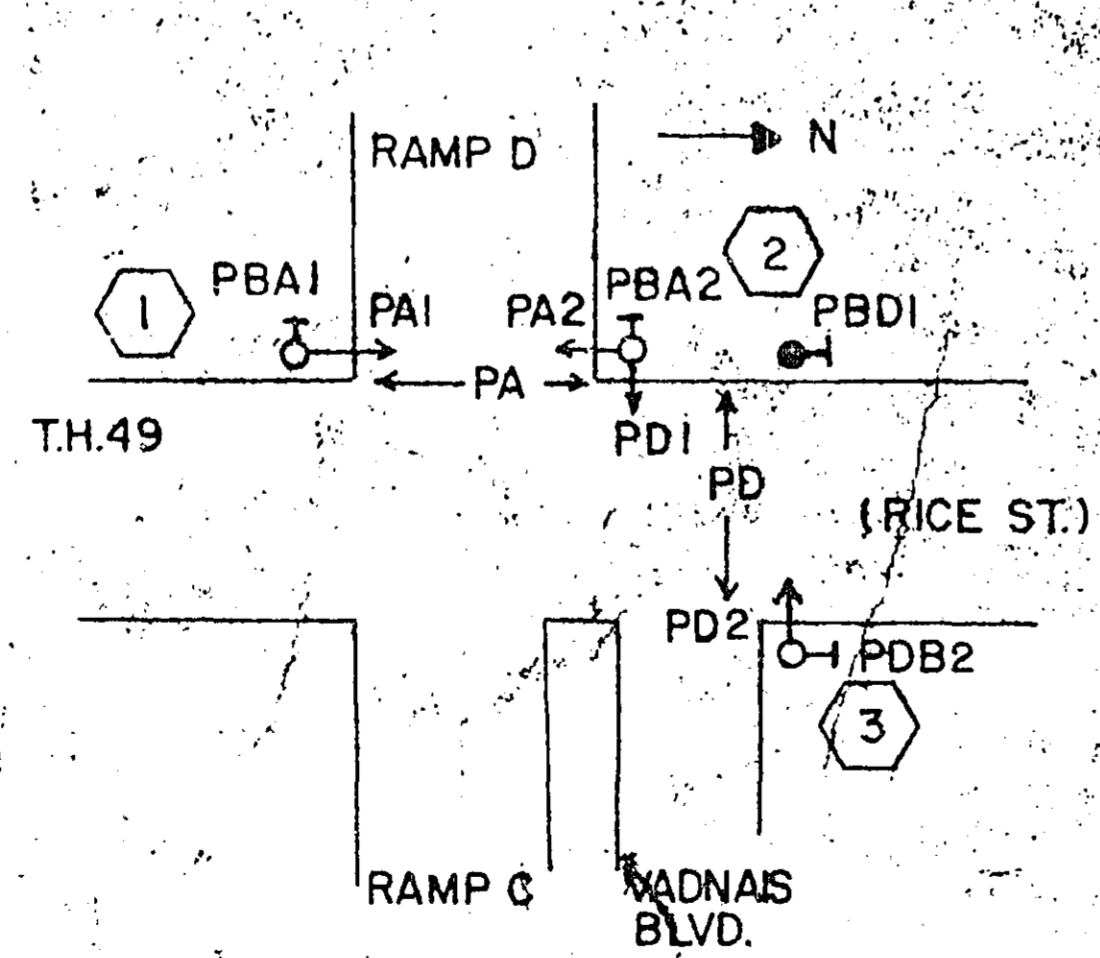
- ✓ TYPE B-25
- ✓ ONE WAY SIGNAL (OVERHEAD)
- ✓ TWO WAY SIGNAL (TYPE 20D-POLE MOUNTED 315°)
- ✓ 2-SETS PEDESTRIAN INDICATIONS
- ✓ 1 PEDESTRIAN PUSH BUTTON
- ✓ 4-STEEL GUARD POSTS
- ✓ EXTEND INTO H.H. IO:
- ✓ 3" RSC
- ✓ 3-12/c #12
- ✓ 3-3/c #12



CONTROLLER PHASING DIAGRAM



PEDESTRIAN PHASING DIAGRAM

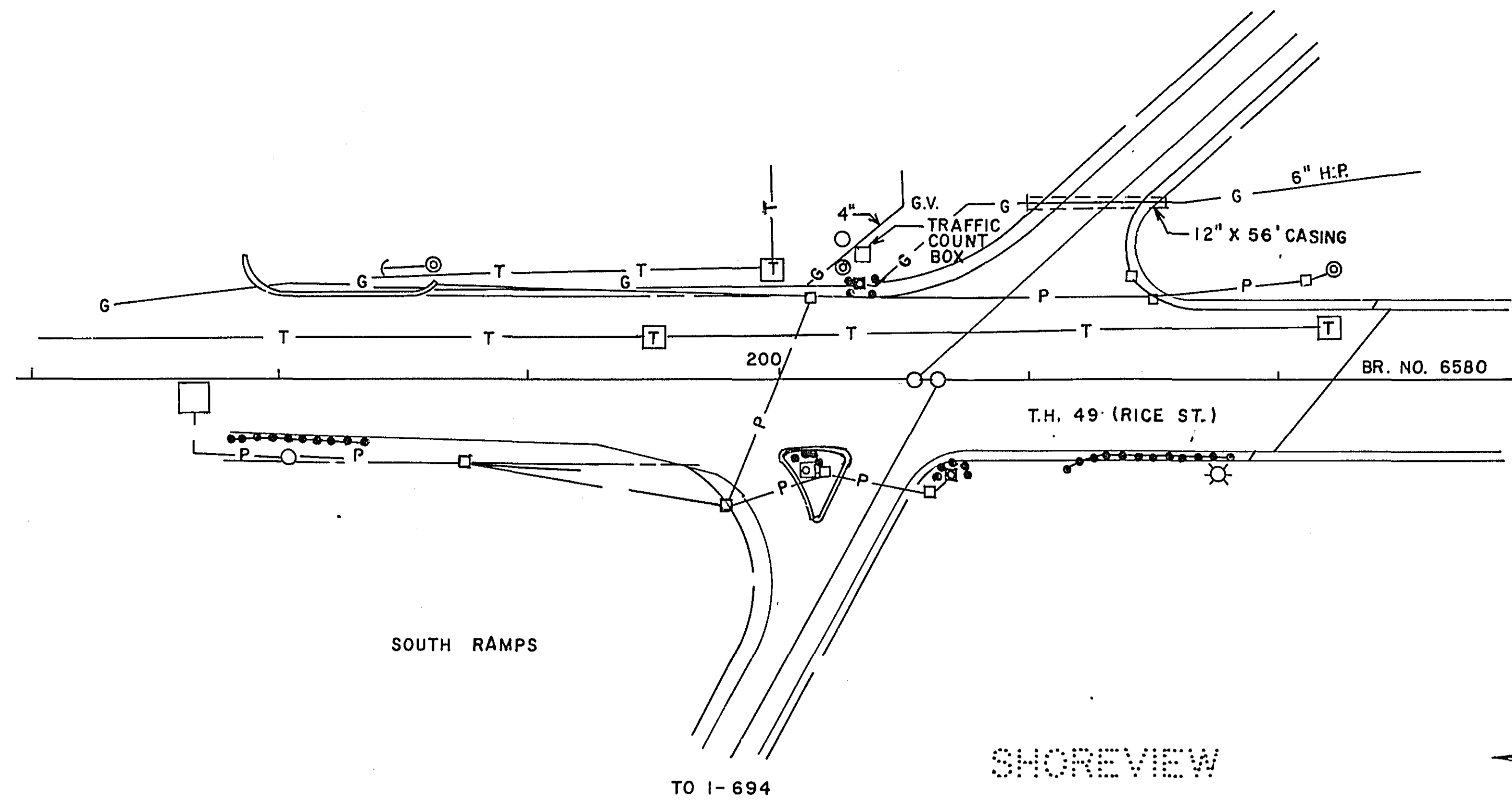


SYSTEM "B"
INTERSECTION LAYOUT
1 694 & T.H. 49 (F)
(NORTH RAMPS)
"FOR INFORMATION ONLY"

State Proj. No. 6214-58

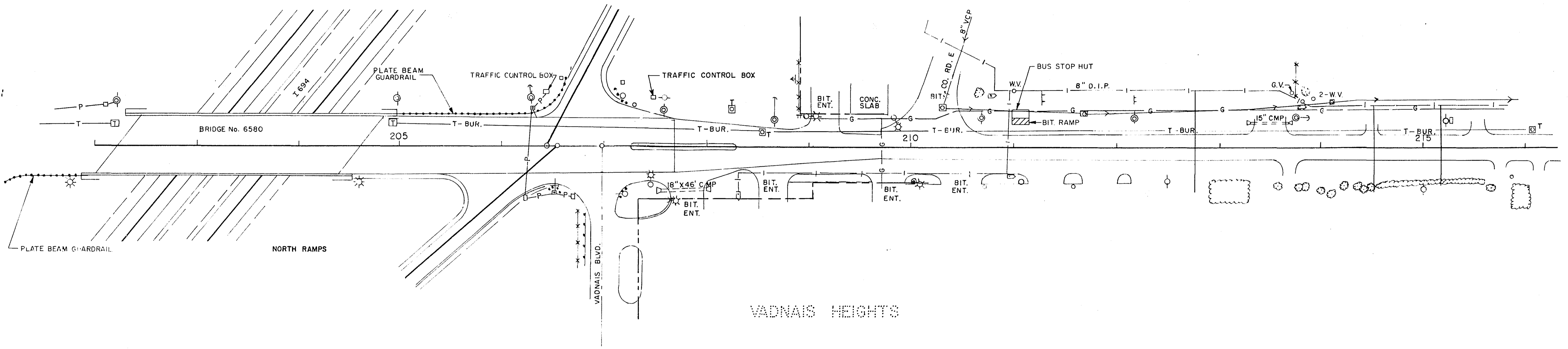
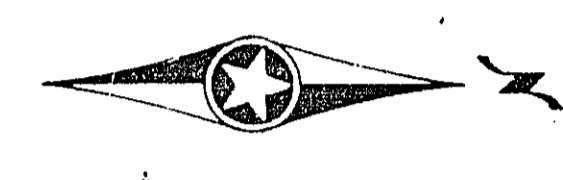
Sheet No. 9 of 10 Sheets

FROM I-694



TO I-694

SHOREVIEW



VADNAIS HEIGHTS

UTILITIES

T.H. 49 (RICE ST.) AT NO. AND SO. RAMPS - I-694

EXISTING TOPOGRAPHY

State Proj. No. 6214-58 (T.H. 49 = 126)

Sheet No. 10 of 10 Sheets