

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR TRAFFIC CONTROL SIGNAL SYSTEM

LOCATED AT: T.H. 49 (HODGSON ROAD) AND T.H. 96 IN NORTH OAKS AND SHOREVIEW, RAMSEY COUNTY

MINN. PROJ. NO. HES 5418(16)

STATE PROJ. NO. 6214-53 (T.H. 49=126)

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
●	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"		
PB2-2 (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		
E.O.G.	EQUIPMENT GROUND		
SPR	SPARE CONDUCTORS		
R.S.C.	RIGID STEEL CONDUIT		
N.M.C.	NON METALLIC CONDUIT		
E.V.P.	EMERGENCY VEHICLE PRE-EMPTION		
○	E.GG CONNECTION		
TDW	TELEPHONE DROP WIRE		
F&I	FURNISH AND INSTALL		
R&S	REMOVE AND SALVAGE		
FL	FLASH/FLASHING		

H.P.S.	HIGH PRESSURE SODIUM
○	EVP DETECTOR DIRECTION
○	SIGNAL BASE NO.
○	SIGNAL FACE NO.
○	LUMINAIRE NO.

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STANDARD PLATES

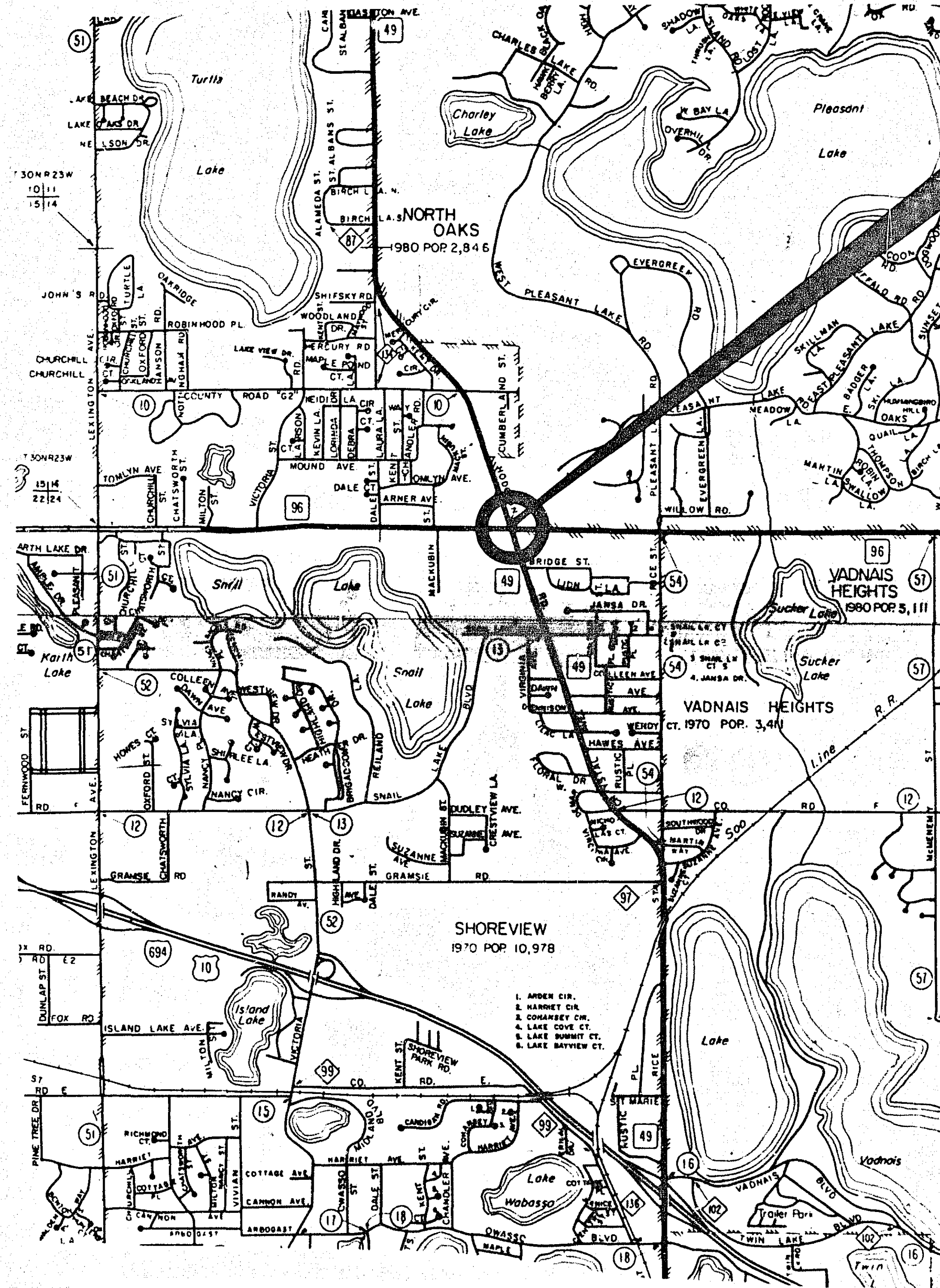
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

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	P-80 & P-90 POLE FOUNDATIONS
* 8121 B	TRANSFORMER BASE WITH POLE BASE PLATE
8122 C	PEDESTAL & PEDESTAL BASE
* 8123 B	POLE & MAST ARM
* 8124 C	MAST ARM SIGNAL HEAD MOUNTS
8125 A	SWING-AWAY HINGE
8126 B	P-100 POLE FOUNDATION
* 8130 D	SAW CUT LOOP DETECTORS

* STANDARD PLATES APPLICABLE TO THIS PROJECT

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

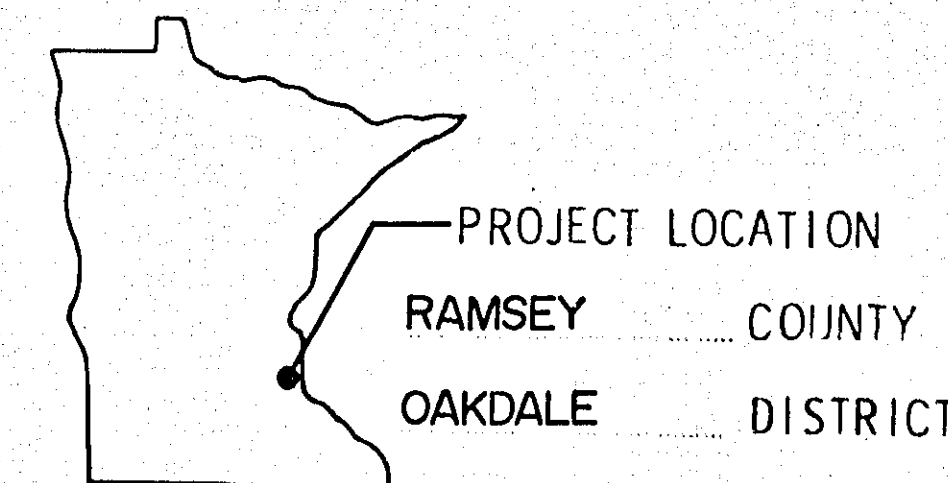
LOCATION I.D. 62030049*020410*
LOCATION I.D.



RAMSEY COUNTY

S.P. 6214-53 (T.H. 49=126)
T.H. 49 (HODGSON ROAD)
AT T.H. 96

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



STATE PROJ. NO. 6214-53 AREA JOB

FED. PROJ. NO. HES 5418(16)

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 AND DETAILS
- 3 SIGN DETAILS
- 4-7 EQUIPMENT PAD DETAILS
- 8-10 INTERSECTION LAYOUT AND FIELD WIRING DIAGRAM
- 11 SHEET DELETED

DUO TO THE LENGTH IN TIME THAT HAS ELAPSED SINCE THE PROJECT WAS COMPLETED AND THE CHANGE IN PERSONNEL, THE FINAL QUANTITIES WILL BE THE ONLY ENTRIES MADE ON THE FINAL PLANS.

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 3/3/82 REG. NO. 10956 ENGR. *Carl J. Gille*

DESIGN SQUAD BRUCE KASTNER

- Recommended for Approval 19
- Recommended for Approval *Richard A. Wedell* 3/12/82 19
- Recommended for Approval 19
- Recommended for Approval 19
- Recommended for Approval *Mark R. ...* 3/4 1982 19
- Right of Way Approval *A. J. Hansen* 4-15-1982
- Recommended for Approval *D. E. ...* 3/3 1982
- Recommended for Approval *Raymond K. Know* 4/15 1982
- Recommended for Approval *John P. ...* 4-16-1982
- Recommended for Approval *Thomas E. Campbell* 4-1-1982
- Approved 4-16 1982 *Jim A. ...*

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

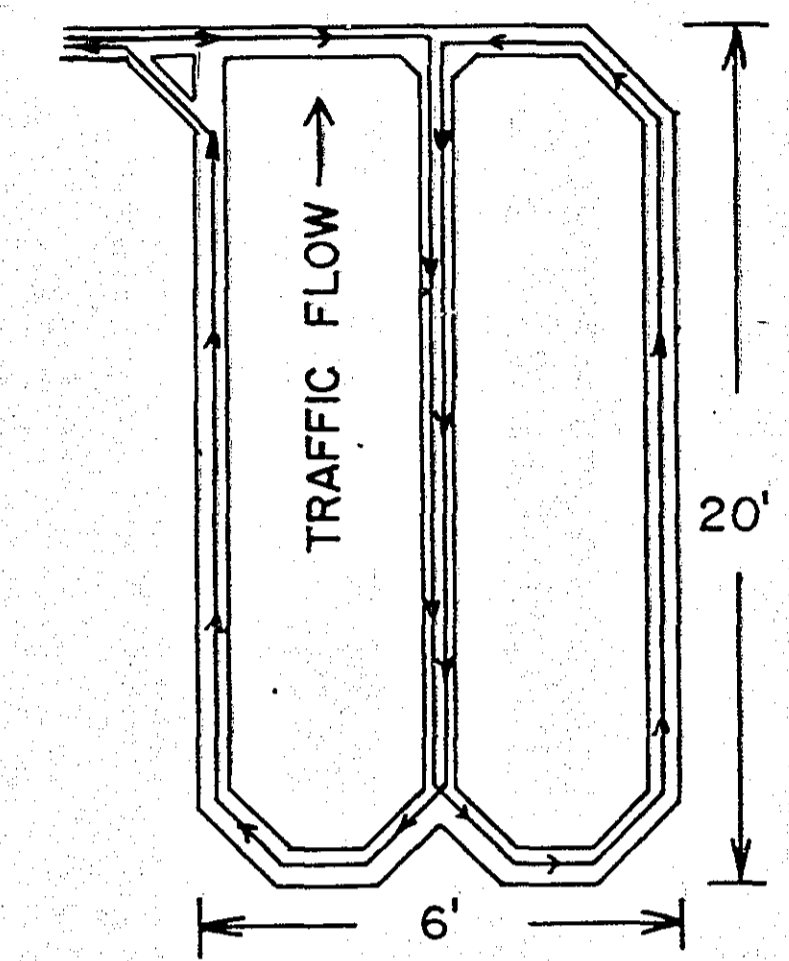
I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 3/3/82 REG. NO. 10956

STATE PROJ. NO. 6214-53 (T.H. 49 = 126) SHEET NO. 1 OF 11 SHEETS

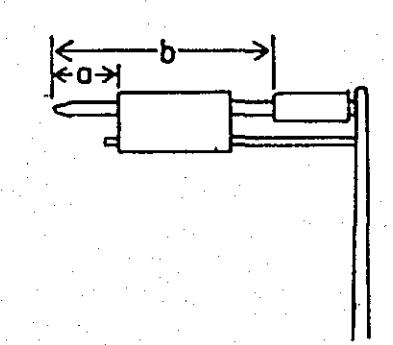
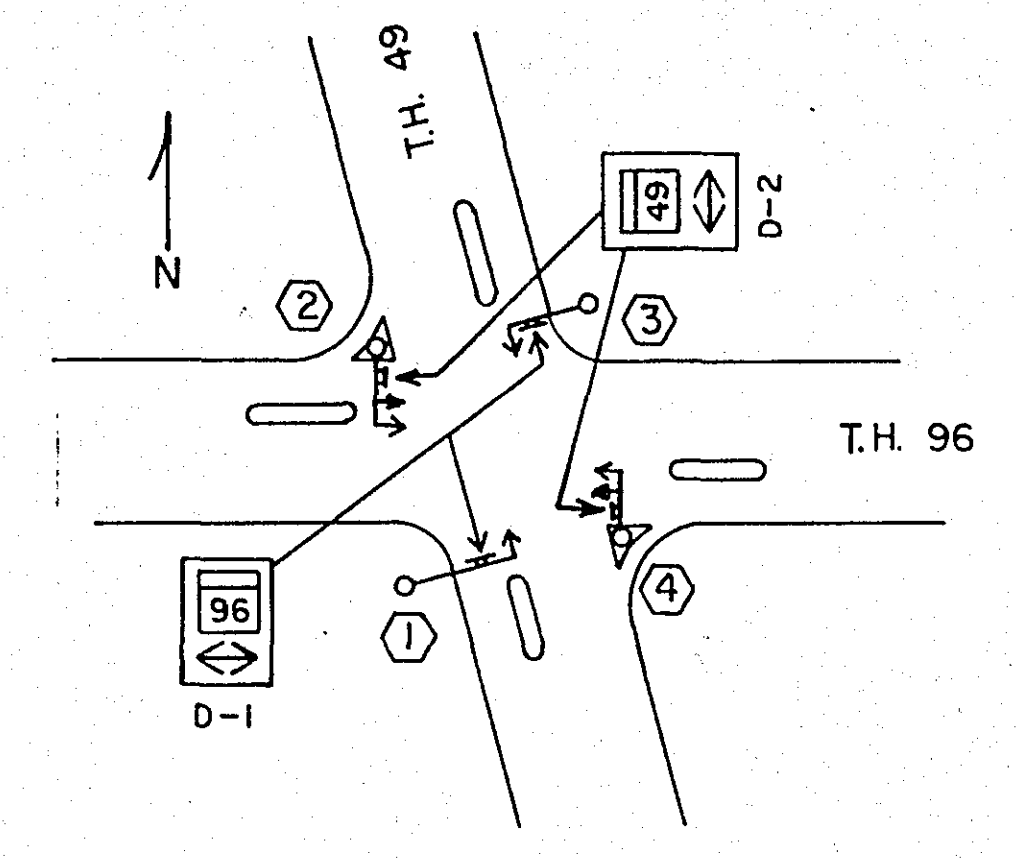
STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	S.P. QUANTITIES		S.P. QUANTITIES		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			EST.	FINAL	EST.	FINAL		
0564.531	FURNISH AND INSTALL SIGN PANELS TYPE "D" - SIGNALS	SQ. FT.					48	48
0565.601	REMOVE AND SALVAGE SIGNAL SYSTEM	LUMP SUM					1	1
0565.602	MAST ARM POLE P80-A-25	EACH					2	2
0565.602	MAST ARM POLE P90-A-30-D40-9	EACH					2	2
0565.602	P80 POLE FOUNDATION	EACH					2	2
0565.602	P90 POLE FOUNDATION	EACH					2	2
0565.602	LUMINAIRE-200 WATT HIGH PRESSURE SODIUM	EACH					2	2
0565.602	TYPE 10C	EACH					2	2
0565.602	TYPE 20C (R-Y-G-YLTA-GLTA FACE)	EACH					2	2
0565.602	ONE WAY SIGNAL-OVERHEAD (SPECIAL SIGNAL FACE)	EACH					2	2
0565.602	ONE WAY SIGNAL-OVERHEAD (R Y G FACE)	EACH					2	2
0565.602	ONE WAY SIGNAL-OVERHEAD (R-Y-G-YLTA-GLTA FACE)	EACH					2	2
0565.602	PEDESTRIAN PUSH BUTTON	EACH					8	8
0565.602	PEDESTRIAN INSTRUCTION SIGN	EACH					8	8
0565.602	PEDESTRIAN PUSH BUTTON STATION	EACH					2	2
0565.602	HANDHOLE	EACH					21	21
0565.602	R10-10 SIGN	EACH					2	2
0565.602	R10-X1 SIGN	EACH					2	2
0565.602	DOWN LIGHT	EACH					4	4
0565.602	DISCONNECT SWITCH	EACH					1	1
0565.602	LOOP DETECTOR 6' x 6'	EACH					4	4
0565.602	SPECIAL LOOP DETECTOR 6' x 20'	EACH					2	2
0565.602	SPECIAL LOOP DETECTOR 2-6' x 20'	EACH					4	4
0565.602	STEEL GUARD POST	EACH					16	16
0565.603	4" RIGID STEEL CONDUIT (AUGERED)	LIN. FT.					100	0
0565.603	4" RIGID STEEL CONDUIT (TRENCHED)	LIN. FT.					46	193
0565.603	3" RIGID STEEL CONDUIT (AUGERED)	LIN. FT.					280	0
0565.603	3" RIGID STEEL CONDUIT (TRENCHED)	LIN. FT.					45	299
0565.603	2" RIGID STEEL CONDUIT (TRENCHED)	LIN. FT.					70	141
0565.603	1 1/2" RIGID STEEL CONDUIT (TRENCHED)	LIN. FT.					1290	1,392
0565.603	1/2" #12	LIN. FT.					1150	1,312
0565.603	3/4" #12	LIN. FT.					860	1,032
0565.603	3/4" #20	LIN. FT.					325	491
0565.603	1/2" #14	LIN. FT.					2915	3,383
0565.603	1/2" #10	LIN. FT.					530	628
0565.603	1/2" #1/0	LIN. FT.					120	141
0565.605	EQUIPMENT PAD	ASSEMBLY					1	1
0565.605	SIGNAL SERVICE CABINET	ASSEMBLY					1	1
0565.605	INSTALL CONTROLLER AND CABINET	ASSEMBLY					1	1



SPECIAL LOOP DETECTOR

ESTIMATED QUANTITIES AND DETAILS

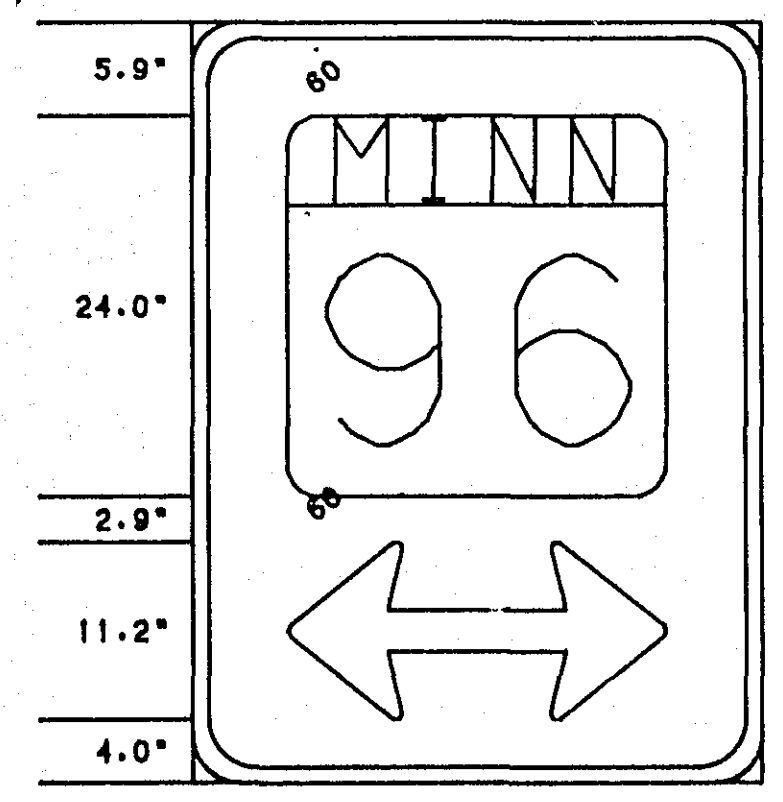


TYPE "D" SIGNS

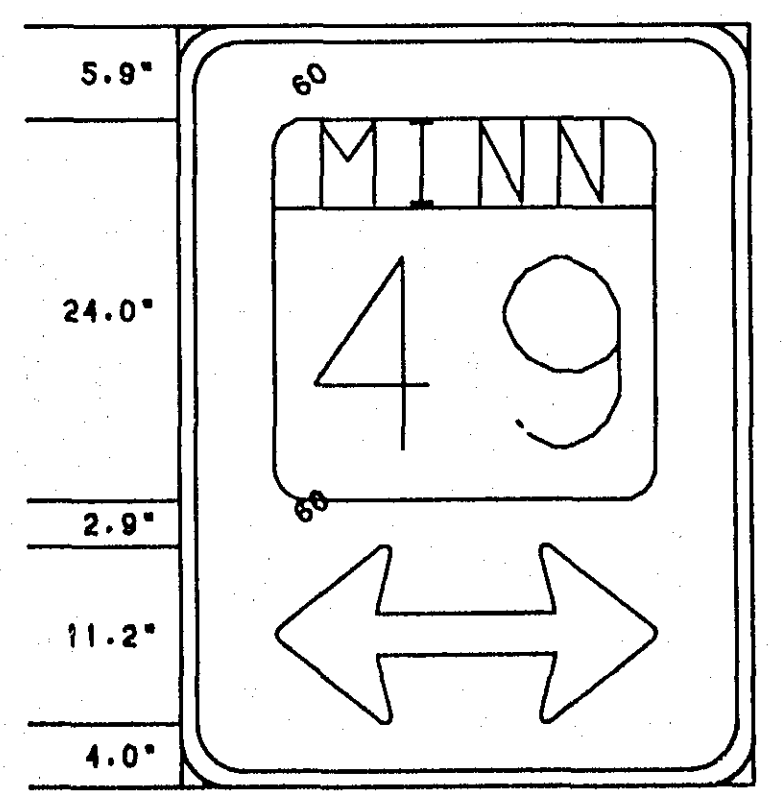
Sign Panel	Size	No. Req.	No. Posts per Sign	Post Spacing	Sq. Ft. per Sign	a	b
D-1	36" x 48"	2	2	24"	12.0	7'	
D-2	36" x 48"	2	2	24"	12.0	16'	

OVERLAYS

Code No.	Quantity	Size	Legend	Sq. Ft. per Overlay
MI-6B	2	24" x 24"	Minn. 49	4.0
MI-6B	2	24" x 24"	Minn. 96	4.0



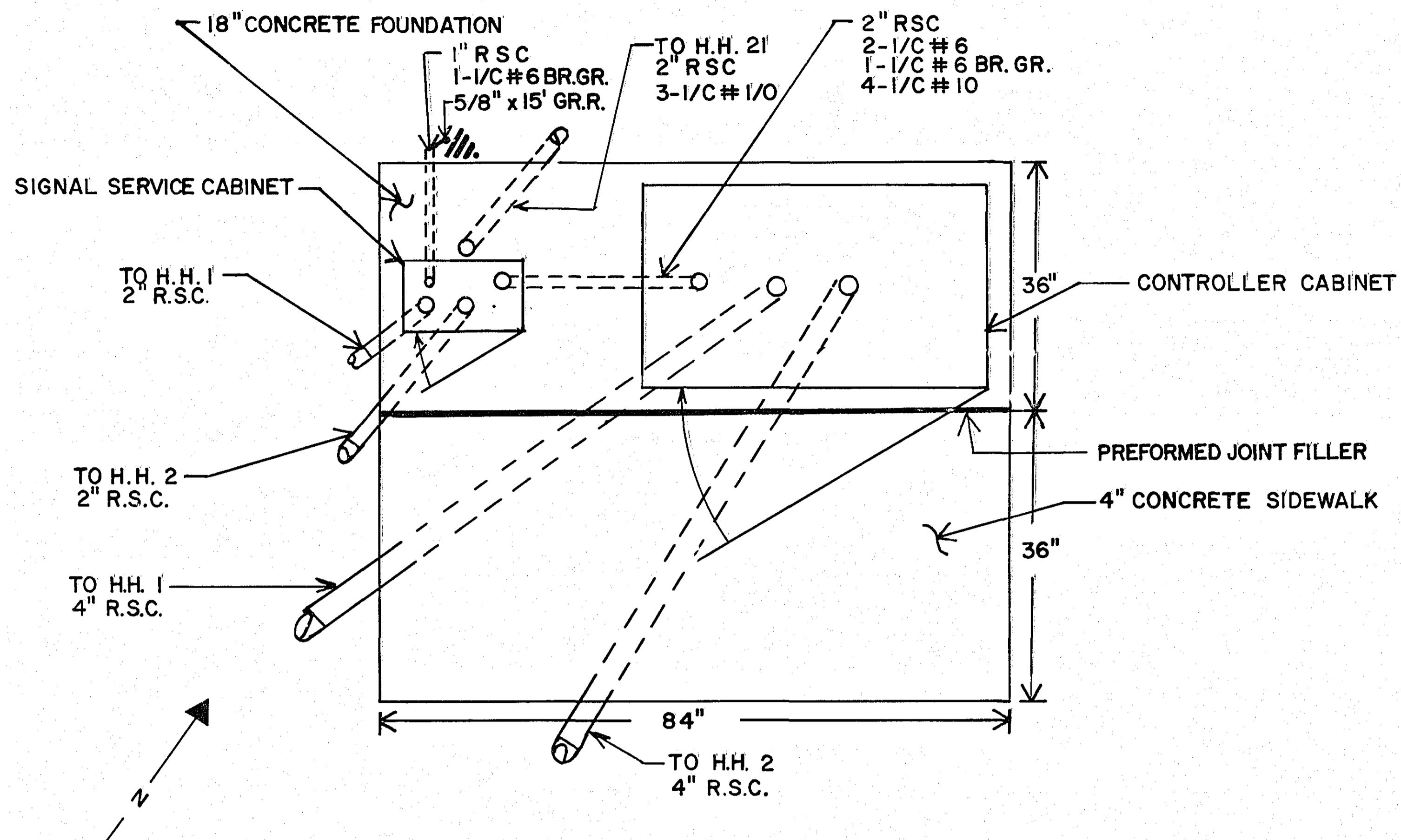
36" X 48", 3" R. D 1
 LINE 1 24.0 : 24" X 24" --10" NUM.
 LINE 2 24.0 : 5-24 DBL. AR.



36" X 48", 3" R. D 2
 LINE 1 24.0 : 24" X 24" --10" NUM.
 LINE 2 24.0 : 5-24 DBL. AR.

TYPE "D" SIGN DATA

- 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 1.0".
 4. See Standard Signs Manual for arrow and overlay details.
 5. For structural details, Type D signs, see Standard Signs Manual, page 105 B.
 6. For Type D Stringer and Panel-Joint Detail, see Standard Signs Manual.

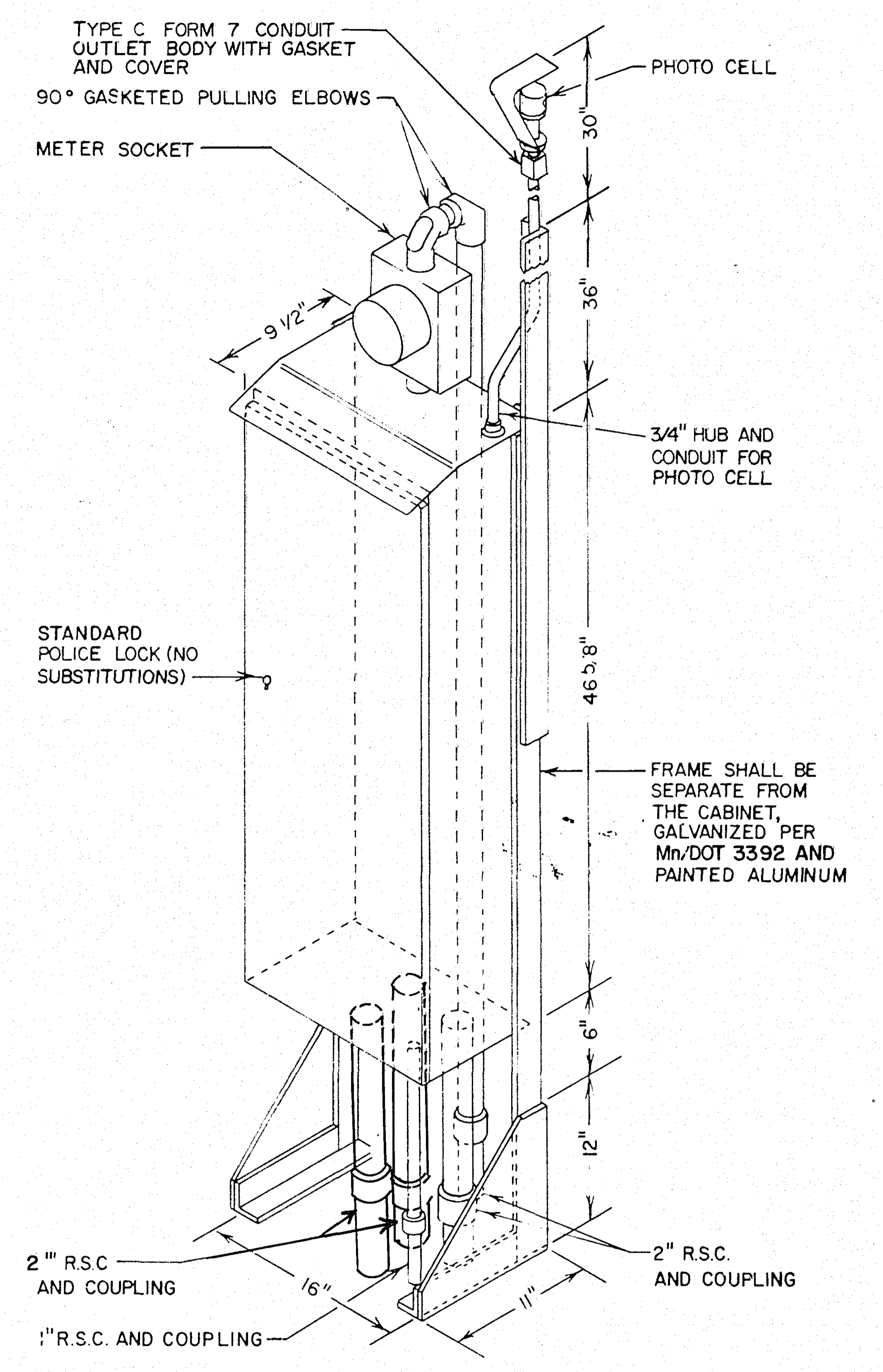


EQUIPMENT PAD LAYOUT

SIGNAL SERVICE CABINET TERMINAL CONNECTION CHART				
CABLE NO.*	TYPE	CIRCUIT BREAKER	TERMINAL	ITEM
27	2-1/C#6	CB4	TB5-1B	SIGNAL SERVICE
28	2-1/C#10	CB6	TB5-5B	CONVENIENCE OUTLET
29	2-1/C#10	CB8	TB5-15B	DOWNLIGHT SERVICE
33	2-1/C#10	CB9	TB5-10B	LUMINAIRE Δ
34	2-1/C#10	CB10	TB5-11B	LUMINAIRE Δ
*CABLE NO. AS SHOWN ON FIELD WIRING DIAGRAM SEE SHEET NO. 9				

NOTES

- ANCHOR RODS, NUTS AND WASHERS PER Mn/DOT 3385 OR APPROVED EQUAL SET AS RECOMMENDED BY CABINET MANUFACTURER (NUMBER, SIZE, AND LENGTH OF ANCHOR RODS SHALL BE AS REQUIRED BY THE CABINET MANUFACTURER).
- UPPER PART OF FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER IN THE FIELD.
- TOP OF CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED) CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER BUT SHALL NOT INTERFERE WITH CABINET FUNCTIONS. (SUPPORTING MEMBERS, ETC.)
- CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR FOUNDATION AND CONCRETE WALK.
- CONDUITS WHICH HAVE BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
- EXACT LOCATIONS OF CONDUIT WITHIN THE PAD SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.



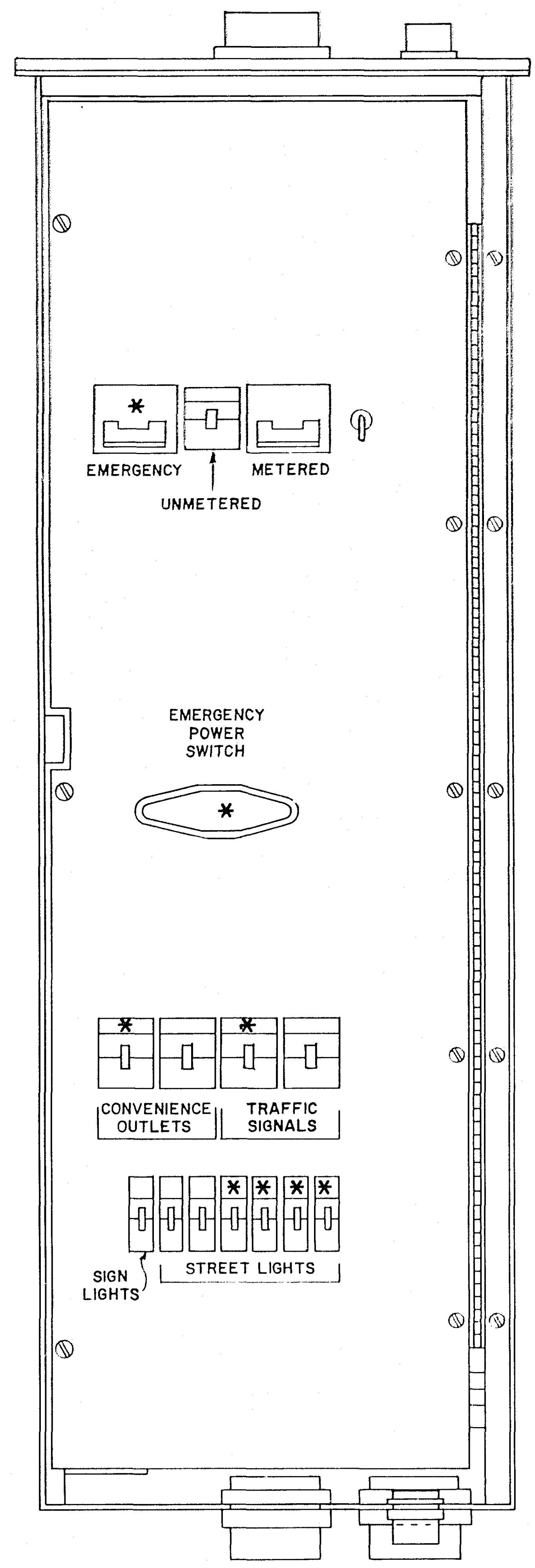
SIGNAL SERVICE CABINET

**EQUIPMENT PAD DETAILS
T.H. 49 AT T.H. 96**

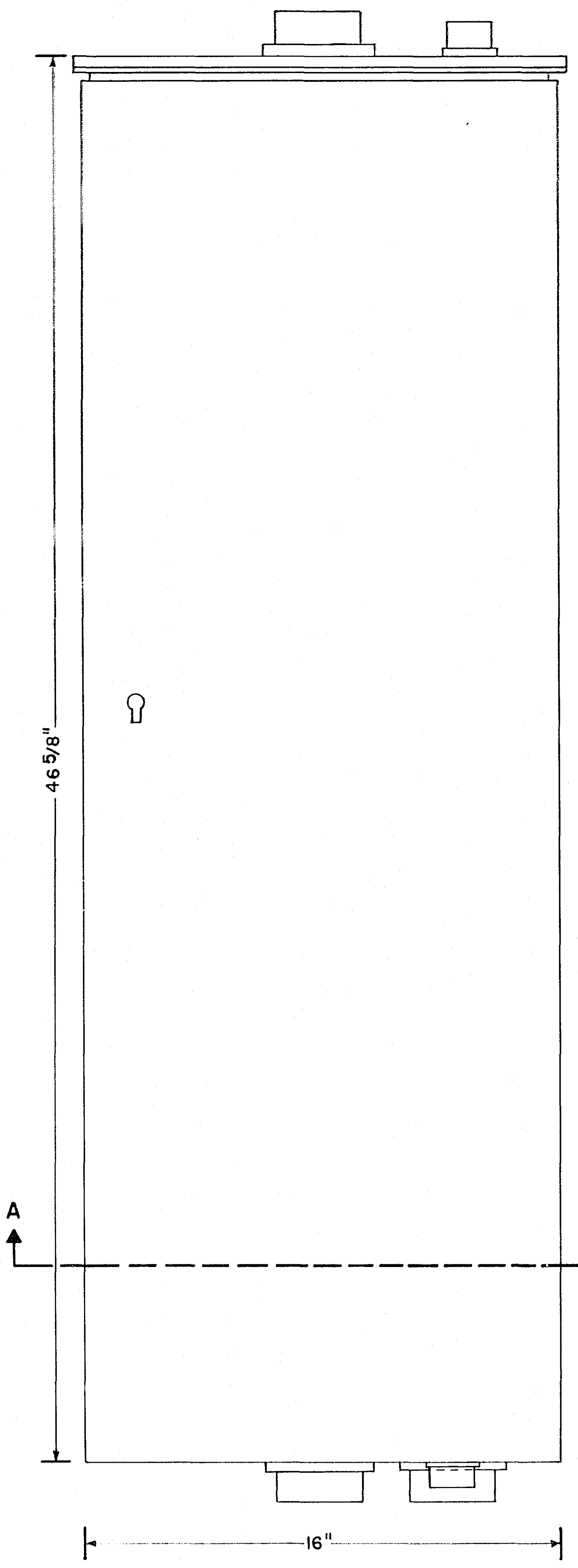
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State Proj. No. 6214-53

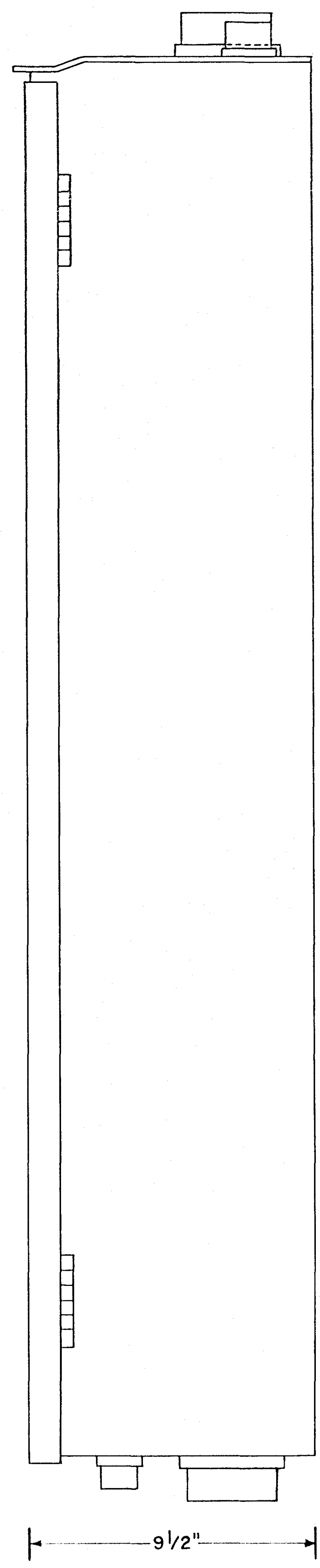
Sheet No. 4 of 11 Sheets



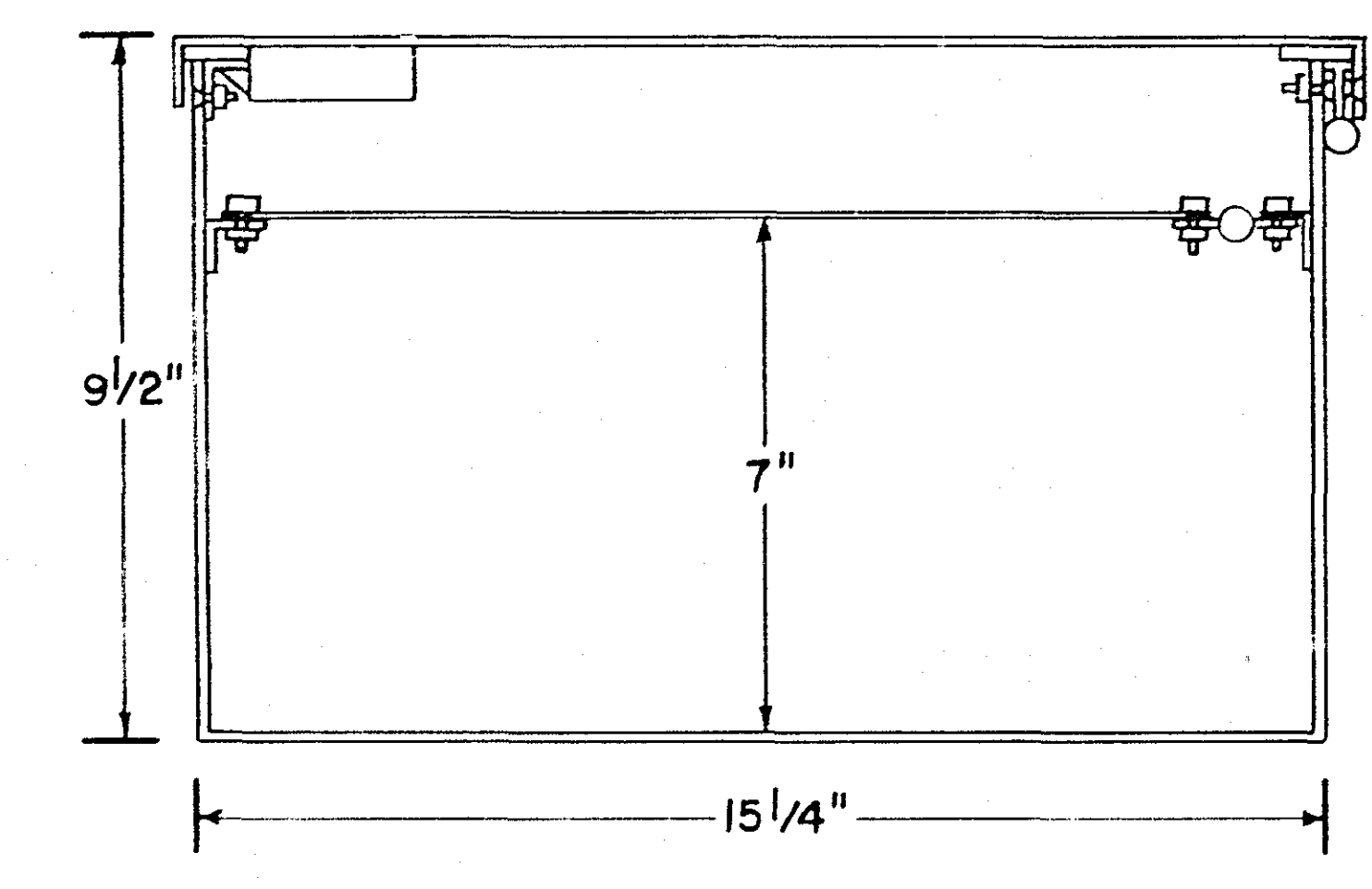
FRONT VIEW
DOOR REMOVED



FRONT VIEW
DOOR CLOSED



SIDE VIEW



SECTION A-A
BASIC FRAME

NOTES:

1. MECHANICAL DETAIL, PARTS LIST AND CONSTRUCTION INFORMATION SHALL BE OBTAINED FROM THE MINNESOTA DEPARTMENT OF TRANSPORTATION, OFFICE OF TRAFFIC ENGINEERING.
2. THE CABINET SHALL BE RAIN-TIGHT CONSTRUCTION OR BETTER. ALL GASKETING MATERIAL SHALL BE NEOPRENE OR EQUAL.
3. ALL HINGES, HINGE PINS AND LOCKS SHALL BE OF NON-CORRODING MATERIAL.
4. THE CABINET DOOR SHALL LOCK WITH A STANDARD POLICE KEY.
5. ALL SWITCHES, CIRCUIT BREAKERS AND TERMINAL STRIPS SHALL BE MARKED IN A MANNER THAT WILL NOT DETERIORATE WITH MOISTURE OR AGE.
6. FIELD CONNECTIONS SHALL BE CLEARLY MARKED AND EASILY ACCESSIBLE.
7. THE CABINET SHALL BE FABRICATED OF MINIMUM 12 GAUGE STEEL IN ACCORDANCE WITH Mn/DOT 3306.
8. THE CABINET SHALL BE GALVANIZED IN ACCORDANCE WITH Mn/DOT 3392.
9. THE CABINET SHALL BE PAINTED INSIDE AND OUTSIDE WITH ONE SHOP COAT OF CORROSION INHIBITING RED IRON OXIDE PRIME PAINT. THE INSIDE OF THE CABINET SHALL BE PAINTED ONE SHOP COAT OF ALUMINUM PAINT. TWO FIELD COATS OF ALUMINUM PAINT CONFORMING TO THE REQUIREMENTS OF Mn/DOT 3527 AND 3528 FOR THE FIRST AND SECOND COATS RESPECTIVELY SHALL BE APPLIED TO THE OUTSIDE IN ACCORDANCE WITH Mn/DOT 2476.
10. * INDICATES FUTURE EQUIPMENT, NOT SUPPLIED ON THIS PROJECT. ALL MOUNTING PANELS, BRACKETS AND TERMINAL BLOCKS FOR FUTURE EQUIPMENT TO BE SUPPLIED.
11. THE SIGNAL SERVICE CABINET SHALL BE AS MANUFACTURED BY THE FOLLOWING (OR AN APPROVED EQUAL):
(A) STATES ELECTRIC MANUFACTURING CO., MPLS., MINN.
(B) SHALLBETTER INDUSTRIES INC., MPLS., MINN.
(C) BECO ELECTRIC MANUFACTURING CO., MPLS., MINN.
12. THE NUMBER, SIZE AND LOCATION OF CONDUIT HUBS ON THE BOTTOM OF THE SIGNAL SERVICE CABINET SHALL BE AS SHOWN ON THE EQUIPMENT PAD DETAILS. CABINET BOTTOM SHALL BE CONTINUOUS METAL; DO NOT FURNISH EMERGENCY CONNECTOR COVER ASSEMBLY.

**SIGNAL SERVICE CABINET
BASIC CABINET INFORMATION
T.H. 49 AT T.H. 96**

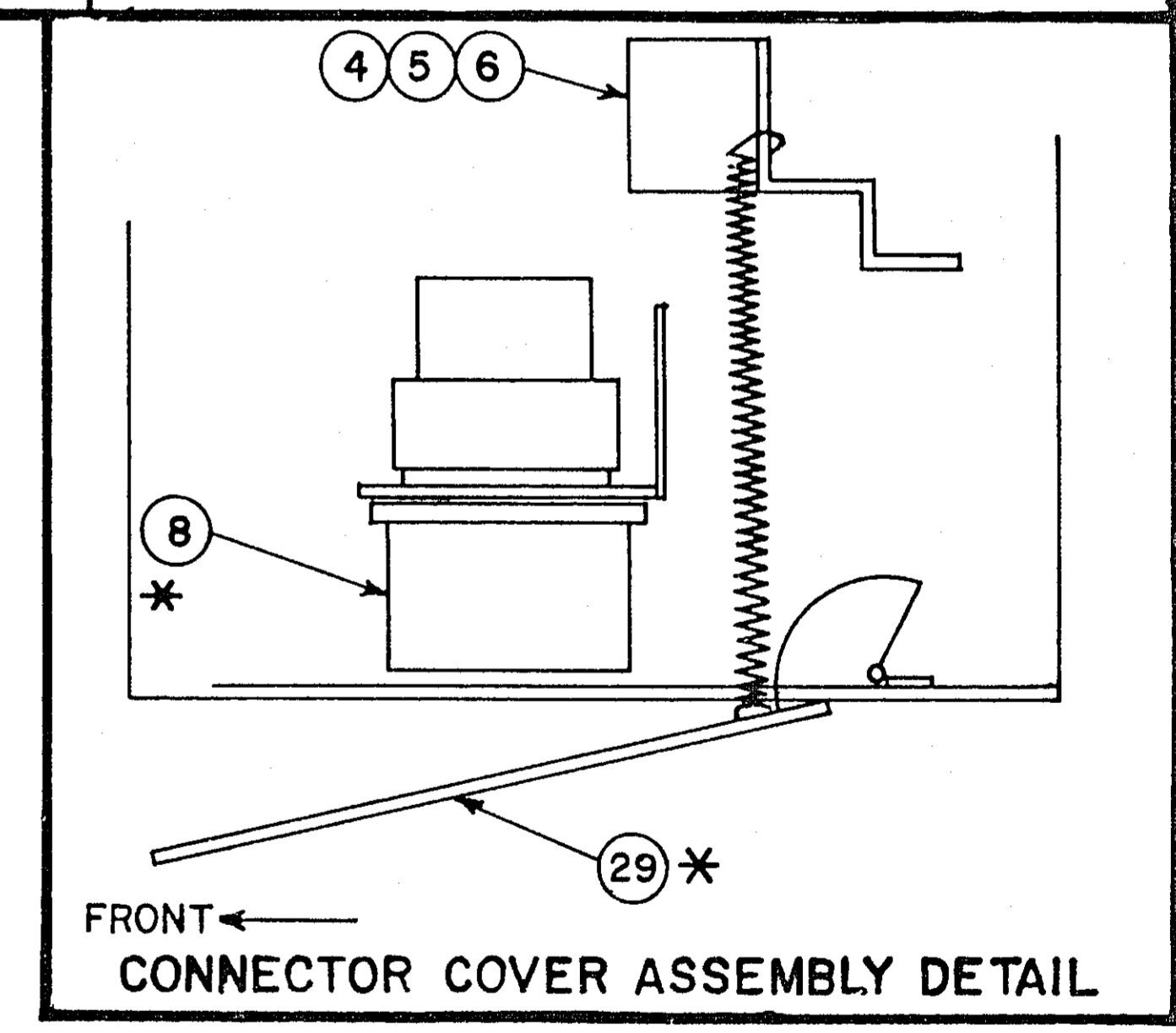
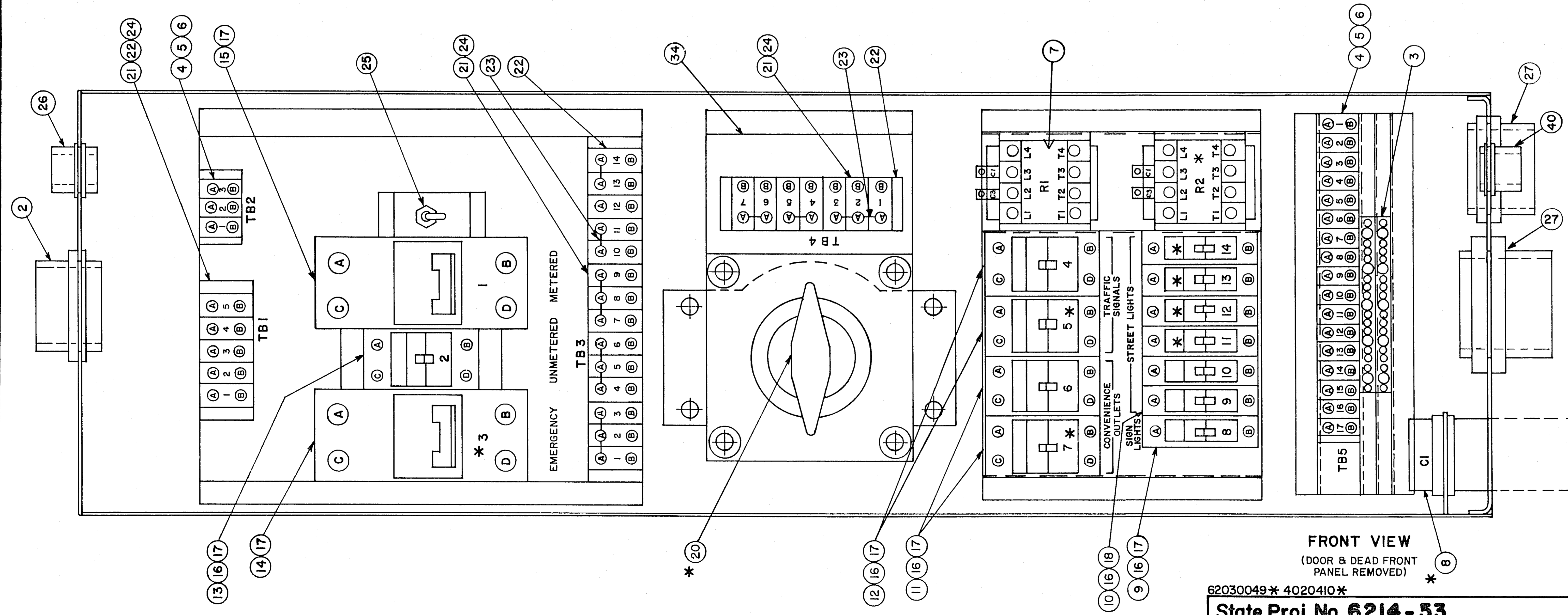
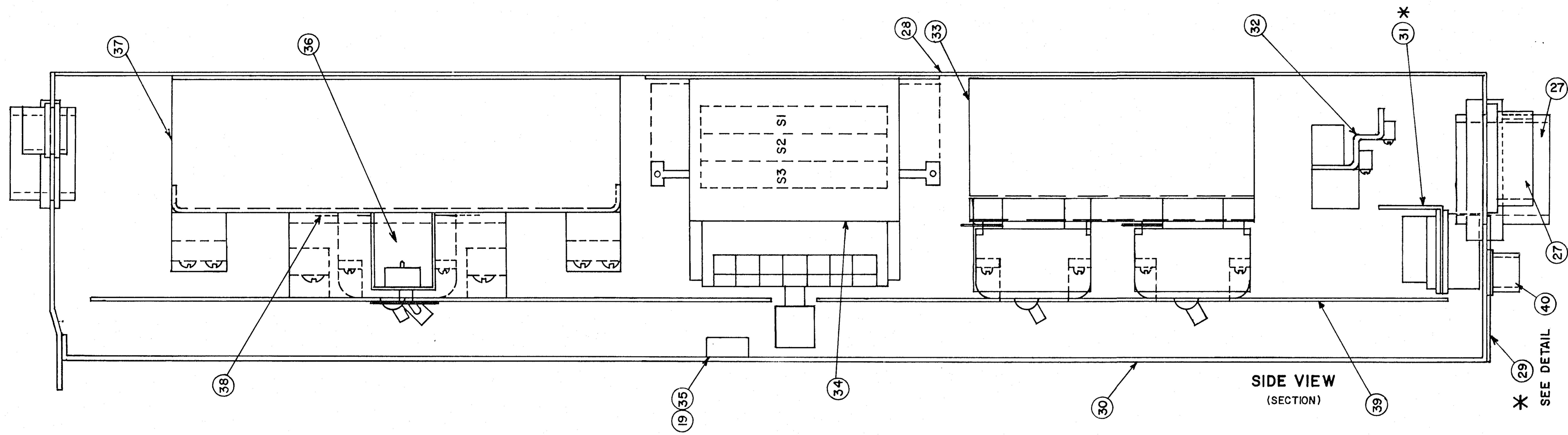
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State Proj. No. 6214-53

Sheet No. 5 of 11 Sheets

BILL OF MATERIAL FOR SERVICE CABINET

ITEM	DESCRIPTION
1	3" RAINLIGHT HUB
2	2 1/2" RAINLIGHT HUB
3	BONDING BAR
4	TERMINAL BLOCK
5	END TERMINAL BLOCK
6	MARKING TAPE
7	PHOTOCELL RELAY
* 8	EMERGENCY POWER GENERATOR CONNECTOR
9	CIRCUIT BREAKER - 15A-1 POLE
10	CIRCUIT BREAKER - 20A-1 POLE
11	CIRCUIT BREAKER - 20A-2 POLE
12	CIRCUIT BREAKER - 40A-2 POLE
13	CIRCUIT BREAKER - 60A-2 POLE
* 14	CIRCUIT BREAKER - 125A-2 POLE
15	CIRCUIT BREAKER - 150A-2 POLE
16	MOUNTING CLAMP
17	CB 1 TO 8 IDENTIFYING TABS
18	CB 9 TO 14 IDENTIFYING TABS
19	POLICE KEY LOCK
* 20	ROTARY EMERGENCY POWER SWITCH
21	TERMINAL BLOCK
22	END TERMINAL BLOCK
23	JUMPER
24	MARKING TAPE
25	TOGGLE SWITCH
26	3/4" RAINLIGHT HUB
27	2" RAINLIGHT HUB
28	CABINET HOUSING ASSEMBLY
* 29	EMERGENCY POWER CONNECTOR COVER ASSEMBLY
30	FRONT PANEL ASSEMBLY
* 31	EMERGENCY POWER CONNECTOR MOUNTING BRACKET
32	TERMINAL MOUNTING BRACKET
33	CIRCUIT BREAKER MOUNTING BRACKET
34	ROTARY SWITCH TERMINAL MOUNTING BRACKET
35	POLICE KEY LOCK MOUNTING BRACKET
36	TOGGLE SWITCH MOUNTING BRACKET
37	MAIN CIRCUIT BREAKER AND TERMINAL BLOCK MOUNTING BRACKET
38	CIRCUIT BREAKER MOUNTING BRACKET
39	DEAD FRONT PANEL
40	1" RAINLIGHT HUB



*(SEE SHEET NO. 5)

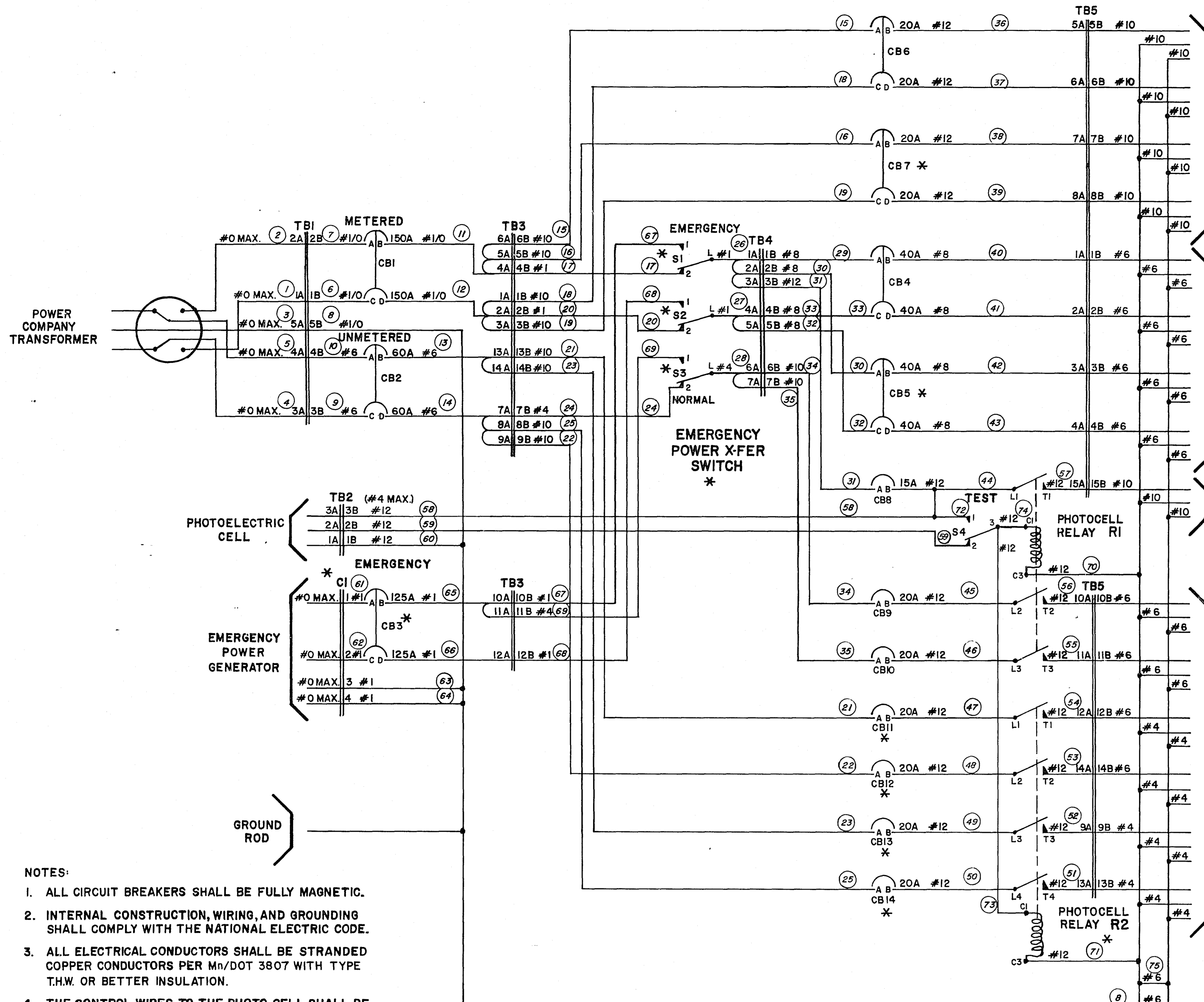
SIGNAL SERVICE CABINET DETAILS

T.H. 49 AT T.H. 96

62030049* 4020410*
State Proj. No. 6214-53

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.

Doc. ID: 62030049
Doc. No. 4020410
Doc. Date: 11/15/2011
Doc. Author: Tom Noves



CONVENIENCE
OUTLETS

TRAFFIC
SIGNALS

SIGN
LIGHTS

STREET
LIGHTS

WIRE NO.	WIRE SIZE (AWG)	APPROX. WIRE LENGTH	FROM	LOCATION TO
1.	1/0		METER HEAD OUT	TB1-1A
2.	1/0		METER HEAD OUT	TB1-2A
3.	1/0		METER HEAD GROUND	TB1-5A
4.	1/0		METER HEAD IN	TB1-3A
5.	1/0		METER HEAD IN	TB1-4A
6.	1/0	4"	TB1-1B	CB1-C
7.	1/0	4"	TB1-2B	CB1-A
8.	1/0	5"	TB1-5B	BONDING BARS
9.	6	5"	TB1-3B	CB2-C
10.	6	5"	TB1-4B	CB2-A
11.	1/0	5"	CB1-B	TB3-4A
12.	1/0	5"	CB1-D	TB3-2A
13.	6	8"	CB2-B	TB3-13A
14.	6	5-1/2"	CB2-D	TB3-7A
15.	10	3-2"	TB3-6B	CB6-A
16.	10	3-4"	TB3-5B	CB7-A
17.	1	1"	TB3-4B	6-1-2 TB4-1A
18.	10	3-6"	TB3-1B	CB6-C
19.	10	3-8"	TB3-5B	CB7-C
20.	1	1-8"	TB3-2B	6-2-2 TB4-4A
21.	10	2-9"	TB3-13B	CB11-A
22.	10	2-10"	TB3-9B	CB12-A
23.	10	2-7"	TB3-14B	CB13-A
24.	4	1"	TB3-7B	9-3-2 TB4-6A
25.	10	2-10"	TB3-8B	CB14-A
26.	1	1-6"	6-1-L	TB4-1A
27.	1	1-3"	6-2-L	TB4-4A
28.	4	1-9"	6-3-L	TB4-6A
29.	8	1-2"	TB4-1B	CB4-A
30.	8	1-4"	TB4-2B	CB5-A
31.	12	2-1"	TB4-3B	CB8-A
32.	8	1-8"	TB4-5B	CB5-C
33.	8	1-5"	TB4-4B	CB4-C
34.	10	2-2"	TB4-6B	CB9-A
35.	10	2-2"	TB4-7B	CB10-A
36.	12	1-3"	CB6-B	TB5-5A
37.	12	1-4"	CB6-D	TB5-6A
38.	12	1-4"	CB7-B	TB5-7A
39.	12	1-6"	CB7-D	TB5-8A
40.	8	1-2"	CB4-B	TB5-1A
41.	8	1-2"	CB4-D	TB5-2A
42.	8	1-3"	CB5-B	TB5-3A
43.	8	1-4"	CB5-D	TB5-4A
44.	12	1-4"	CB8-B	R1-L1
45.	12	1-7"	CB9-B	R1-L2
46.	12	1-8"	CB10-B	R1-L3
47.	12	1-3"	CB11-B	R2-L1
48.	12	1-4"	CB12-B	R2-L2
49.	12	1-2"	CB13-B	R2-L3
50.	12	1-1"	CB14-B	R2-L4
51.	12	1-4"	R2-T4	TB5-13A
52.	12	1-2"	R2-T3	TB5-9A
53.	12	1-6"	R2-T2	TB5-14A
54.	12	1-5"	R2-T1	TB5-12A
55.	12	1-5"	R1-T3	TB5-11A
56.	12	1-5"	R1-T2	TB5-10A
57.	12	1-5"	R1-T1	TB5-15A
58.	12	2-9"	TB2-3B	R1-L1
59.	12	1-5"	TB2-2B	S-4-2
60.	12	4-6"	TB2-1B	TB1-5B
61.	1	5"	61-1	CB3-A
62.	1	5"	61-2	CB3-C
63.	1	1-3"	61-3	BONDING BARS
64.	1	1-3"	61-4	BONDING BARS
65.	1	5"	CB3-B	TB3-10A
66.	1	5"	CB3-D	TB3-12A
67.	1	1-7"	TB3-10B	S-1-1
68.	1	8"	TB3-12B	S-2-1
69.	4	1-6"	TB3-11B	S-3-1
70.	12	9"	R1-C3	BONDING BARS
71.	12	1"	R2-C3	BONDING BARS
72.	12	2"	R1-L1	S-4-1
73.	12	10"	R1-C1	R2-C1
74.	12	2"	S-4-3	R1-C1
75.	6	4"		INTERCONNECTION OF BONDING BARS
76.	6	4"		INTERCONNECTION OF BONDING BARS

TERMINAL STRAPS ARE TO BE USED BETWEEN THE FOLLOWING POINTS IN THE CIRCUIT:

- 1A AND 2A OF TB3
- 2A AND 3A OF TB3
- 4A AND 5A OF TB3
- 5A AND 6A OF TB3
- 7A AND 8A OF TB3
- 8A AND 9A OF TB3
- 10A AND 11A OF TB3
- 13A AND 14A OF TB3
- 1A AND 2A OF TB4
- 2A AND 3A OF TB4
- 4A AND 5A OF TB4
- 6A AND 7A OF TB4

- NOTES:
- ALL CIRCUIT BREAKERS SHALL BE FULLY MAGNETIC.
 - INTERNAL CONSTRUCTION, WIRING, AND GROUNDING SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE.
 - ALL ELECTRICAL CONDUCTORS SHALL BE STRANDED COPPER CONDUCTORS PER Mn/DOT 3807 WITH TYPE T.H.W. OR BETTER INSULATION.
 - THE CONTROL WIRES TO THE PHOTO CELL SHALL BE IN CONDUIT SEPARATE FROM THE SERVICE ENTRANCE CONDUIT.
 - * INDICATES FUTURE EQUIPMENT. NOT SUPPLIED ON THIS PROJECT. JUMPER WIRES BETWEEN TB3-4B AND TB4-1A, TB3-2B AND TB4-4A, TB3-7B AND TB4-6A TO BE SUPPLIED TO PROVIDE CIRCUIT CONTINUITY. ALL MOUNTING PANELS, BRACKETS AND TERMINAL BLOCKS FOR FUTURE EQUIPMENT TO BE SUPPLIED. WIRES SHOWN LINED OUT IN WIRE LIST ARE NOT TO BE SUPPLIED.

T. H. 49 AT T. H. 96

62030049 * 020410 *
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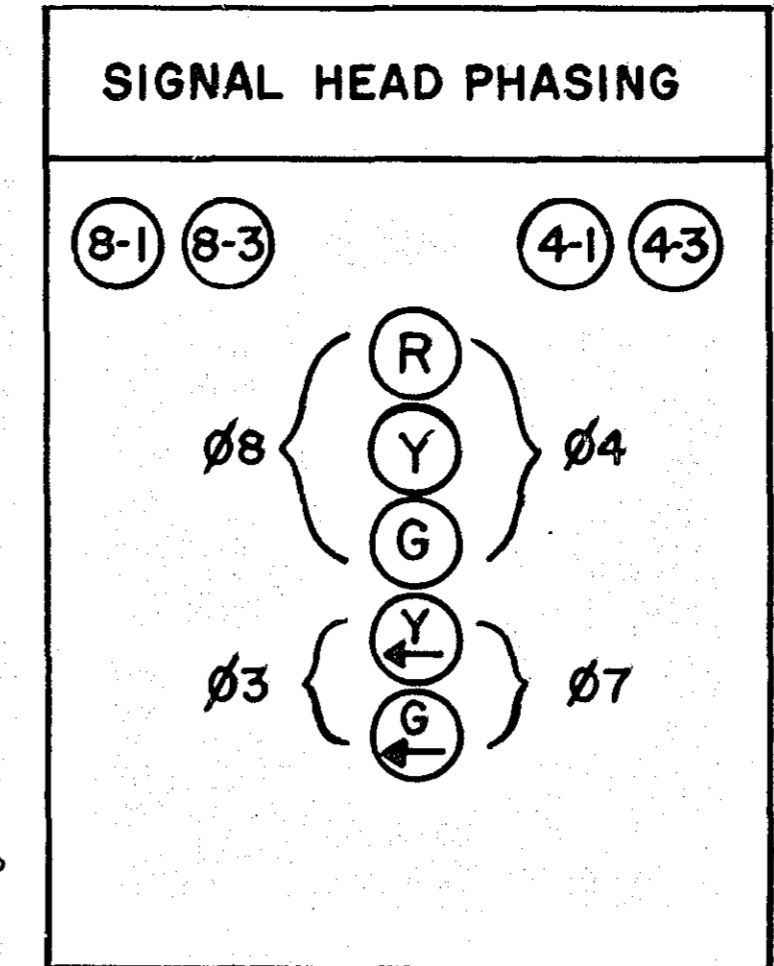
**SIGNAL SERVICE CABINET
WIRING DIAGRAM**

Sheet No. 7 of 11 Sheets

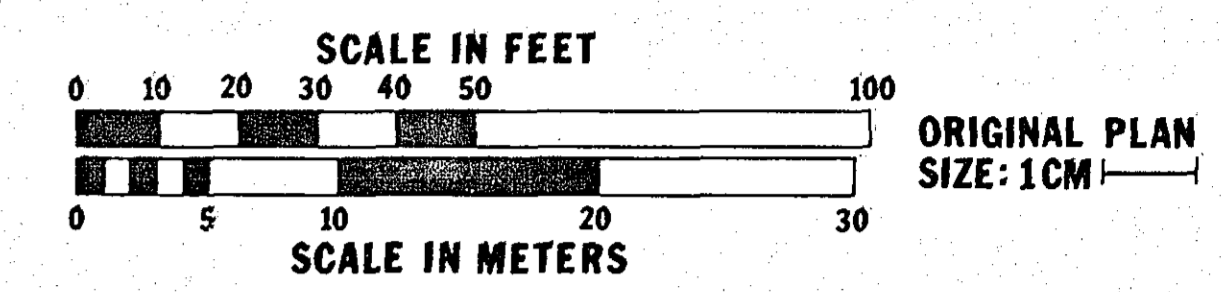
FACE	PHASE	FLASH	INDICATION SIZE					
			R	Y	G	Y	G	
* 1-1	1	R	12"	12"	—	—	12"	
2-1	2	R	12"	12"	12"	—	—	
2-2	2	R	12"	12"	12"	—	—	
4-1	4 AND 7	R	12"	12"	12"	12"	12"	
4-2	4	R	12"	12"	12"	—	—	
4-3	4 AND 7	R	12"	12"	12"	12"	12"	
* 5-1	5	R	12"	12"	—	—	12"	
6-1	6	R	12"	12"	12"	—	—	
6-2	6	R	12"	12"	12"	—	—	
8-1	8 AND 3	R	12"	12"	12"	12"	12"	
8-2	8	R	12"	12"	12"	—	—	
8-3	8 AND 3	R	12"	12"	12"	12"	12"	

LOOP DETECTORS		
NUMBER	SIZE	
** D1-1	2-6' x 20's	(1)
D2-1	6' x 6'	(1)
** D3-1	6' x 20'	(2) (1)
** D3-2	6' x 20'	(3)
D4-1	6' x 20'	(1)
D4-2	6' x 6'	(2)
** D5-1	2-6' x 20's	(1)
D6-1	6' x 6'	(1)
** D7-1	6' x 20'	(2) (1)
** D7-2	6' x 20'	(3)
D8-1	6' x 20'	(1)
D8-2	6' x 6'	(2)

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

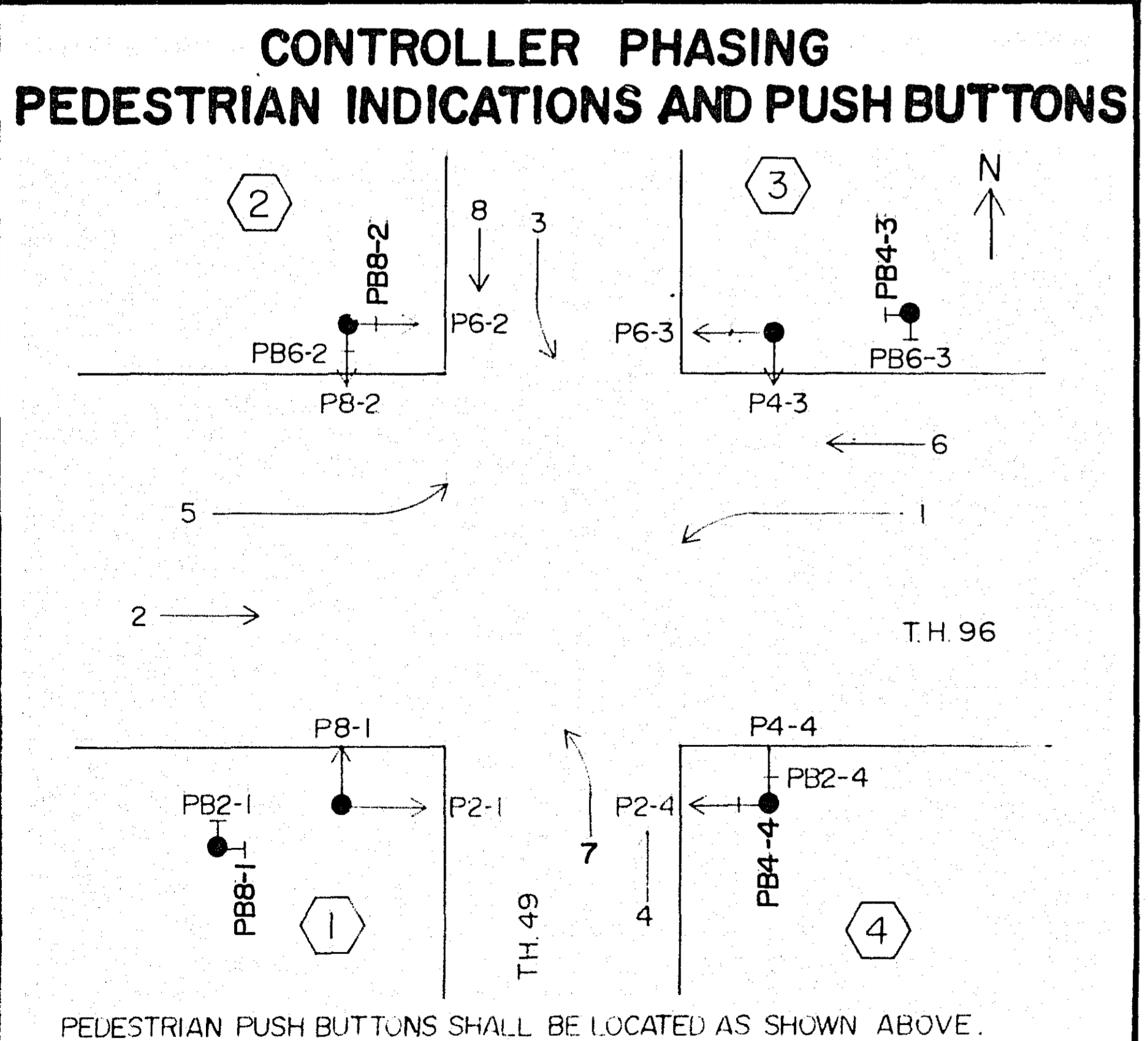
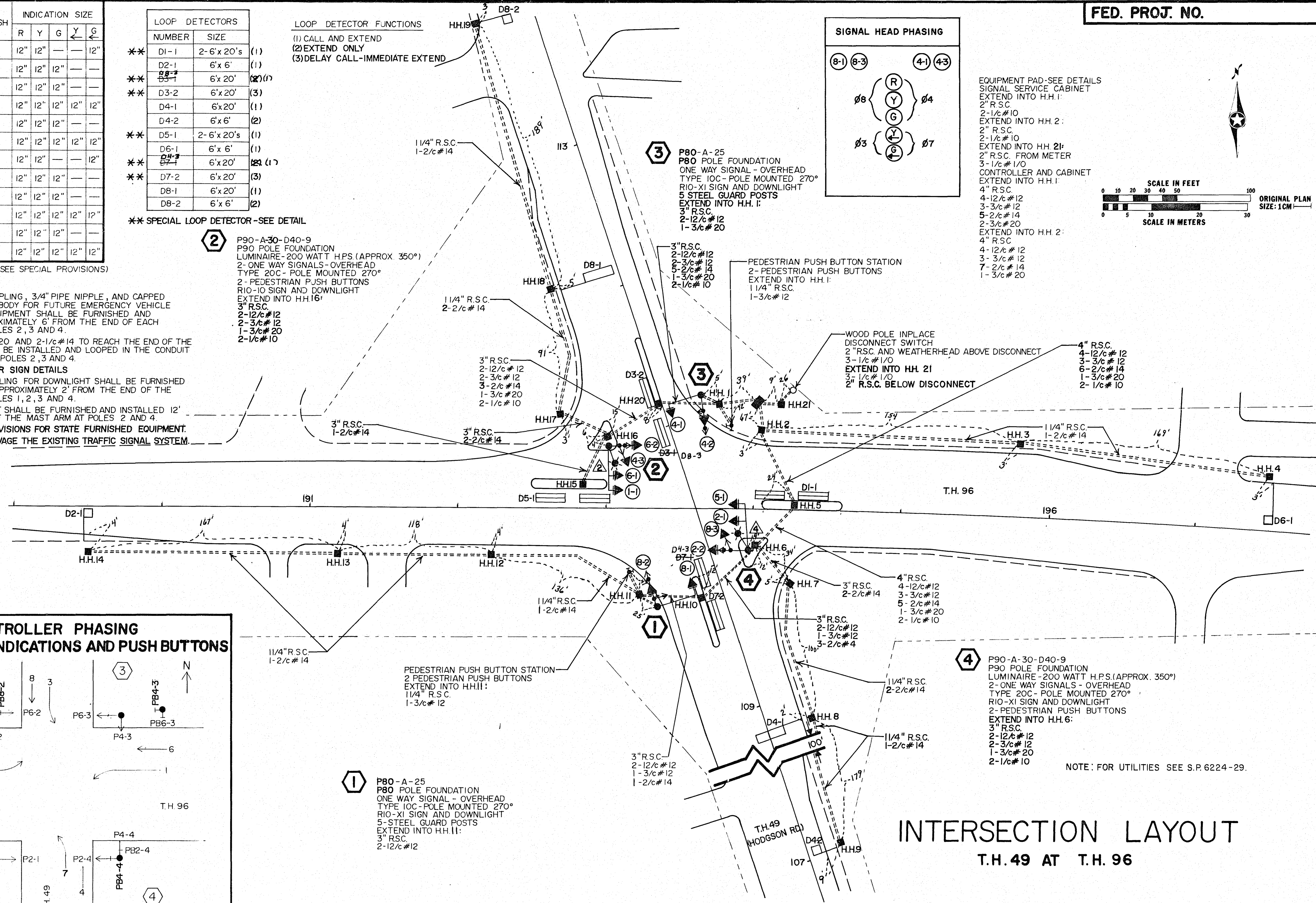


EQUIPMENT PAD-SEE DETAILS
 SIGNAL SERVICE CABINET
 EXTEND INTO H.H. 1:
 2" R.S.C.
 2-1/2" #10
 EXTEND INTO H.H. 2:
 2" R.S.C.
 2-1/2" #10
 EXTEND INTO H.H. 2I:
 2" R.S.C. FROM METER
 3-1/2" #10
 CONTROLLER AND CABINET
 EXTEND INTO H.H. 1:
 4" R.S.C.
 4-12" #12
 3-3" #12
 5-2" #14
 2-3" #20
 EXTEND INTO H.H. 2:
 4" R.S.C.
 4-12" #12
 3-3" #12
 7-2" #14
 1-3" #20



* SPECIAL SIGNAL FACE (SEE SPECIAL PROVISIONS)

- NOTES:
 (1) 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 APPROXIMATELY 6' FROM THE END OF EACH MAST ARM AT POLES 2, 3 AND 4.
 (2) 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 2, 3 AND 4.
 (3) SEE SHEET 3 FOR SIGN DETAILS
 (4) A 3/4" HALF COUPLING FOR DOWNLIGHT SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 2' FROM THE END OF THE MAST ARM AT POLES 1, 2, 3 AND 4.
 (5) A MID ARM MOUNT SHALL BE FURNISHED AND INSTALLED 12' FROM THE END OF THE MAST ARM AT POLES 2 AND 4.
 (6) SEE SPECIAL PROVISIONS FOR STATE FURNISHED EQUIPMENT.
 (7) REMOVE AND SALVAGE THE EXISTING TRAFFIC SIGNAL SYSTEM. SEE SHEET 10.



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE.

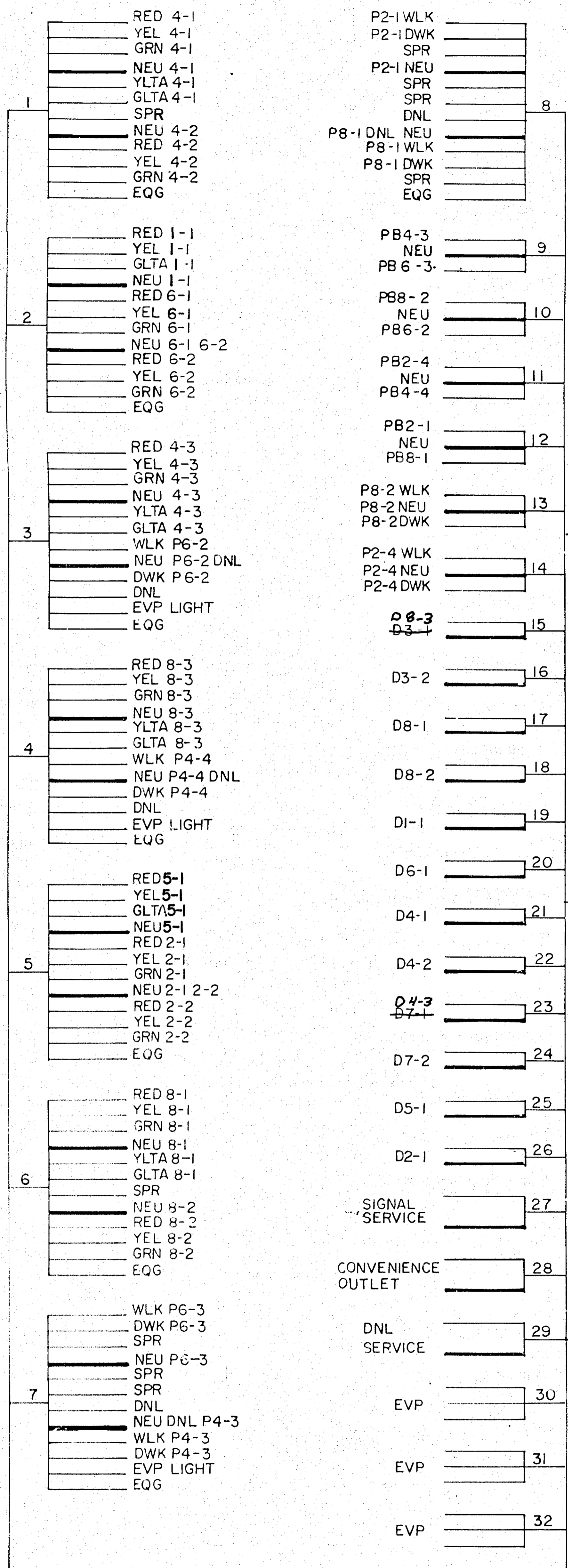
INTERSECTION LAYOUT

T.H. 49 AT T.H. 96

62030049*020410*
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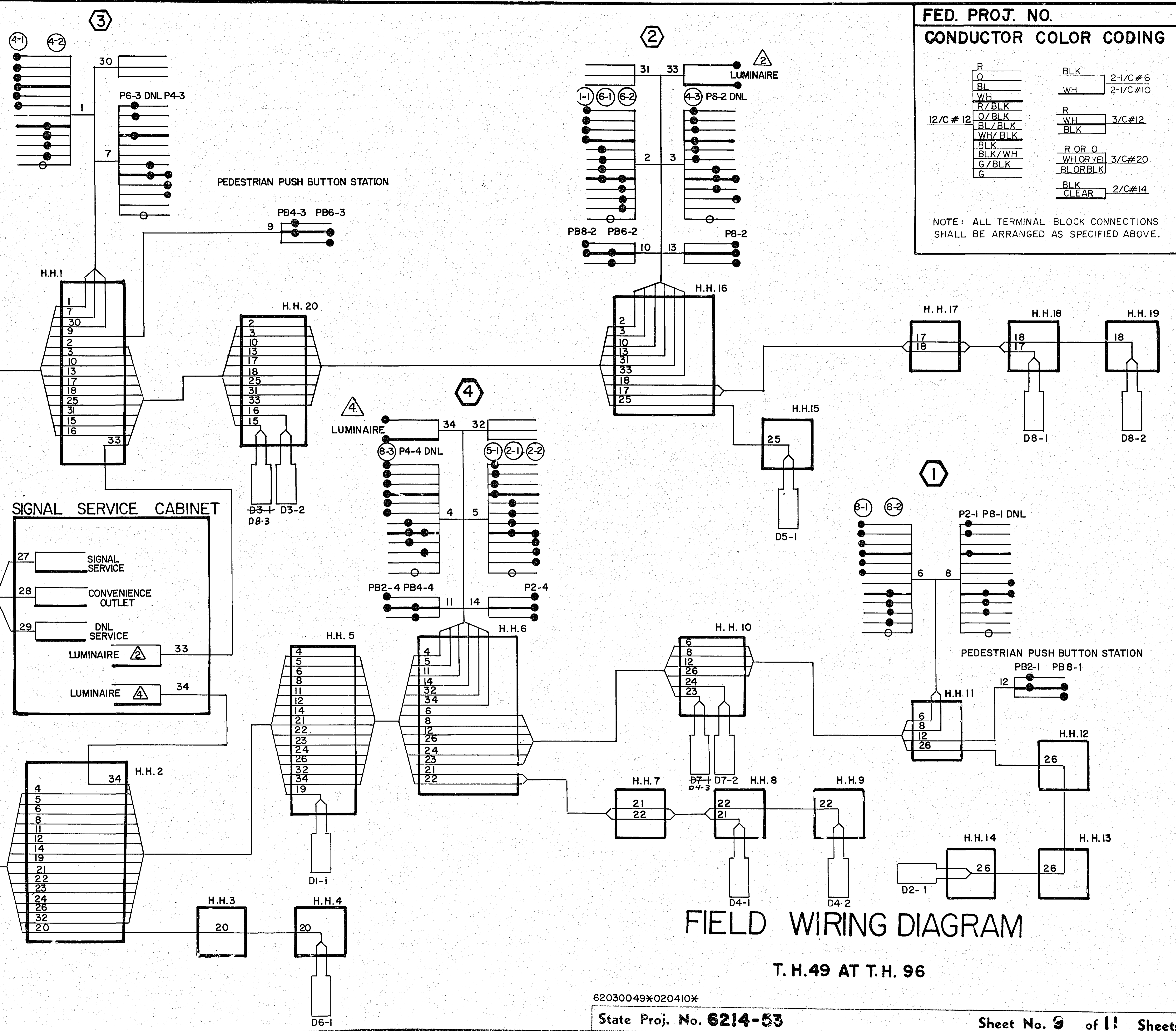
CONTROLLER CABINET



FED. PROJ. NO. CONDUCTOR COLOR CODING

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

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



FIELD WIRING DIAGRAM

T. H. 49 AT T. H. 96

62030049*020410*

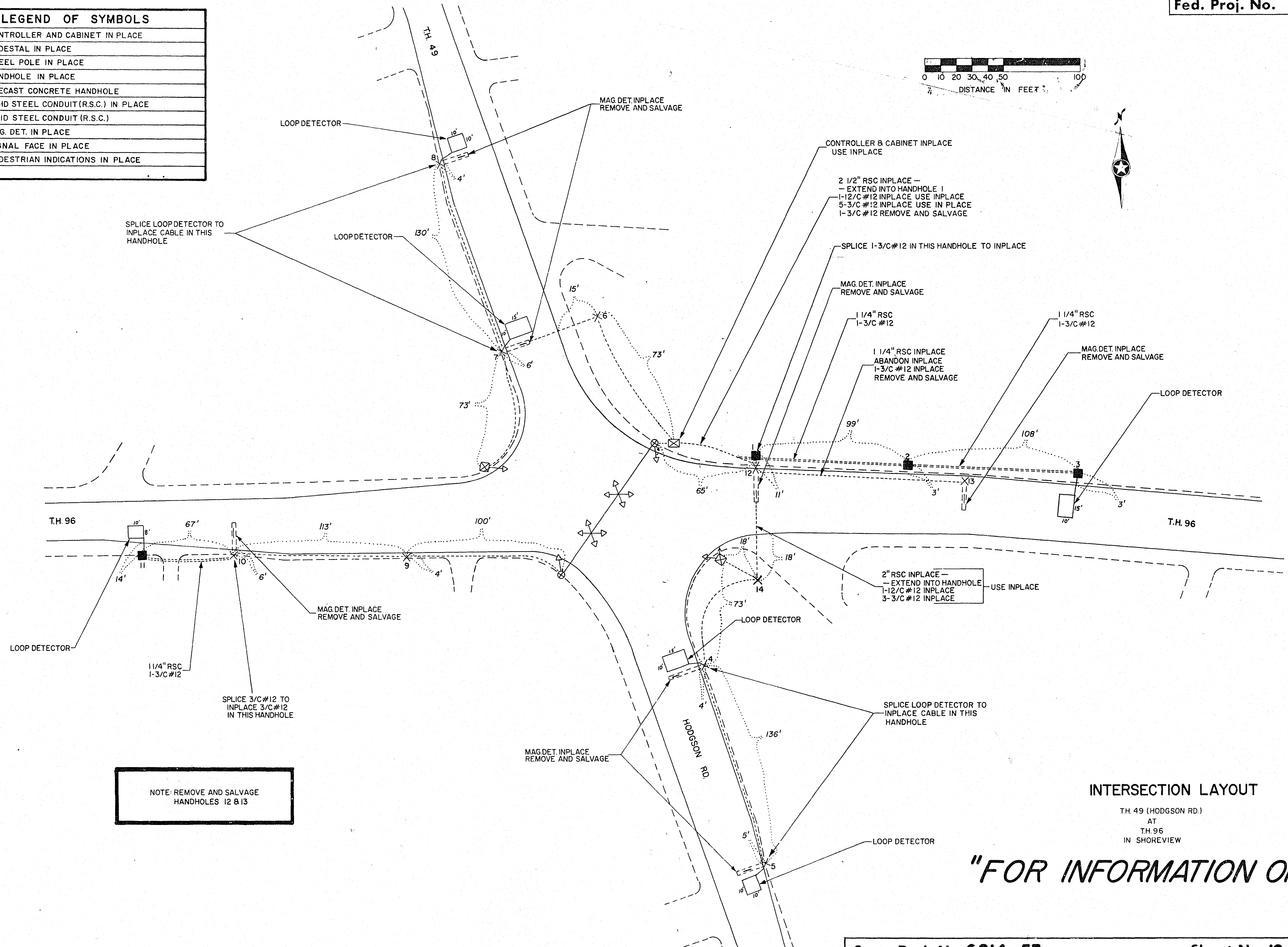
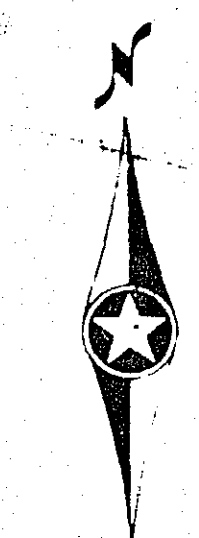
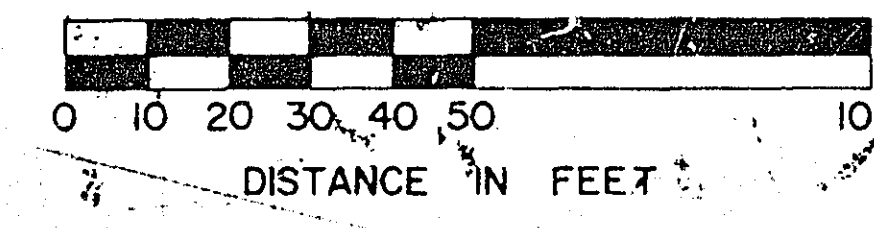
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DOT Tom MOYES

LEGEND OF SYMBOLS	
	CONTROLLER AND CABINET IN PLACE
	PEDESTAL IN PLACE
	STEEL POLE IN PLACE
	HANDHOLE IN PLACE
	PRECAST CONCRETE HANDHOLE
	RIGID STEEL CONDUIT (R.S.C.) IN PLACE
	RIGID STEEL CONDUIT (R.S.C.)
	MAG. DET. IN PLACE
	SIGNAL FACE IN PLACE
	PEDESTRIAN INDICATIONS IN PLACE



INTERSECTION LAYOUT

T.H. 49 (HODGSON RD.)
AT
T.H. 96
IN SHOREVIEW

"FOR INFORMATION ONLY"

6214.062