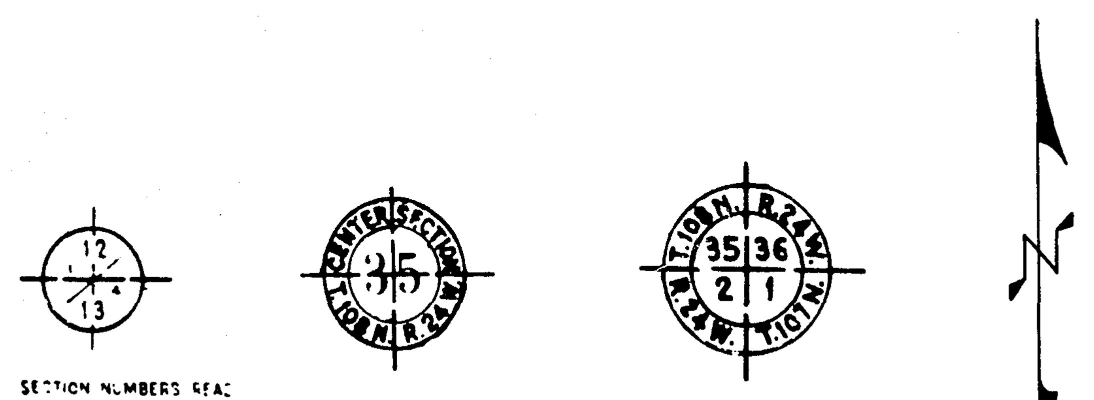
PLANS SYMBOLS

- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT OF WAY LINE
- PRESENT RIGHT OF WAY LINE
- CONTROL OF ACCESS LINE
- PROPERTY LINE (Except Land Lines)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE (P.I. 45 P.I.)
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT OF WAY LINE
- RIVER OR CREEK (NAME)
- DRY RUN
- DRAINAGE DITCH (SIZE)
- DRAIN TILE
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE (W)
- CHAIN LINK FENCE (C-L)
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- MEANDER CORNER
- SPRINGS
- MARSH
- TIMBER, ORCHARD, BRUSH, NURSERY (TIMBER)
- CATCH BASIN (C.B.)
- FIRE HYDRANT
- CATTLE GUARD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame) (1-S-F, 35', 75')
  - F-FRAME C-CONCRETE
  - S-STONE T-TILE
  - B-BRICK ST-STUCCO
- IRON PIPE OR ROD
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT (G)
- SAND PIT (S)
- BORROW PIT (B)
- ROCK QUARRY (Q)

UTILITIES SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (TELEPHONE CABLE TERMINAL)
- GAS MAIN (G)
- WATER MAIN
- CONDUIT
- TELEPHONE CABLE IN CONDUIT (T)
- ELECTRIC CABLE IN CONDUIT (P)
- TELEPHONE MANHOLE (T)
- ELECTRIC MANHOLE (P)
- BURIED TELEPHONE CABLE (T-BUR)
- BURIED ELECTRIC CABLE (P-BUR)
- AERIAL TELEPHONE CABLE (T-AE)
- SEWER, (SANITARY OR STORM)
- SEWER MANHOLE



NOTE: SECTION NUMBERS READ FROM THE SOUTH

PIT DATA

_______ PIT NO. _______ Located in ....
Dead Haul ....

_______ PIT NO. _______ Located in ....
Dead Haul ....

THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED JANUARY 1, 1968 AS AMENDED BY SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 1969 SHALL GOVERN.

OFFICE OF COUNTY ENGINEER

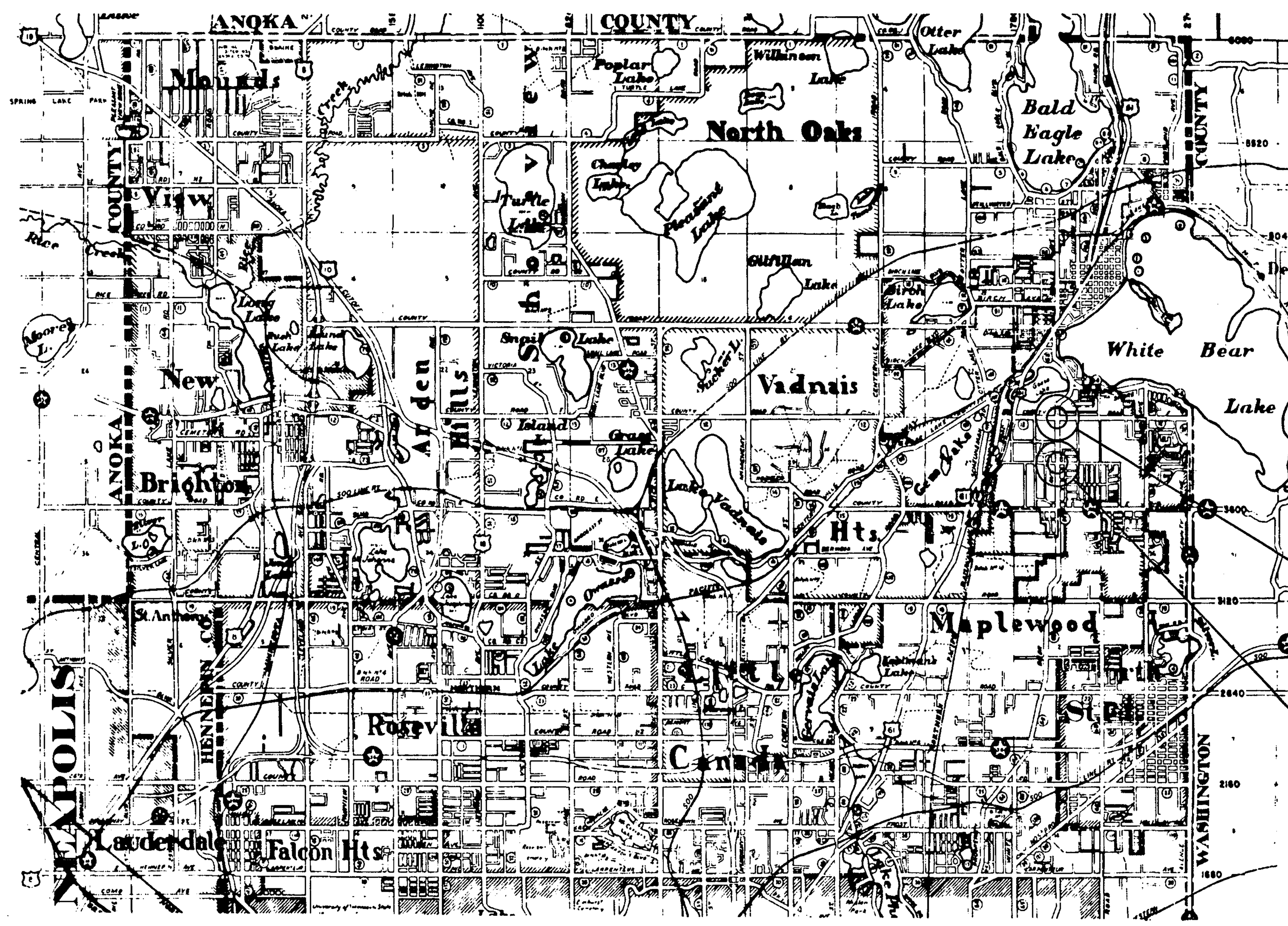
RAMSEY COUNTY

PLAN OF TRAFFIC CONTROL SYSTEM FOR THE INTERSECTION OF

WHITE BEAR AVE. & COUNTY RD. "F"

& UNDERGROUND INSTALLATION FOR THE INTERSECTION OF

WHITE BEAR AVE. & CEDAR AVE.
WHITE BEAR AVE. & BIRCH ST.



CITY OF ST. PAUL

WHITE BEAR AVE. & COUNTY. RD. "F"

WHITE BEAR AVE. & CEDAR AVE.

INDEX

DESIGNED BY Wm V. Chenoweth DATE 2-17-70
DIRECTOR OF SAFETY

RECOMMENDED FOR APPROVAL Dean R. Anklam DATE 2-17-70
COUNTY ENGINEER

APPROVED Thomas R. Byrne DATE 4-20-70
CHAIRMAN OF THE RAMSEY COUNTY BOARD

APPROVED __________ DATE __________
MAYOR, CITY OF WHITE BEAR LAKE

APPROVED __________ DATE __________

RECOMMENDED FOR APPROVAL Wm V. Chenoweth DATE 2-17-70
DIRECTOR OF SAFETY

RECOMMENDED FOR APPROVAL M.D. Kotelinek DATE 2-17-70
MAINTENANCE ENGINEER

RECOMMENDED FOR APPROVAL H.A. Wilke DATE 2-17-70
CONSTRUCTION ENGINEER

RECOMMENDED FOR APPROVAL __________ DATE ____

RECOMMENDED FOR APPROVAL __________ DATE ____

APPROVED Dean R. Anklam DATE 2-17-70
COUNTY ENGINEER

MINNESOTA STATE HIGHWAY DEPARTMENT

RECOMMENDED FOR APPROVAL __________ DATE __________

RECOMMENDED FOR APPROVAL __________ DATE __________
DISTRICT STATE AID ENGINEER

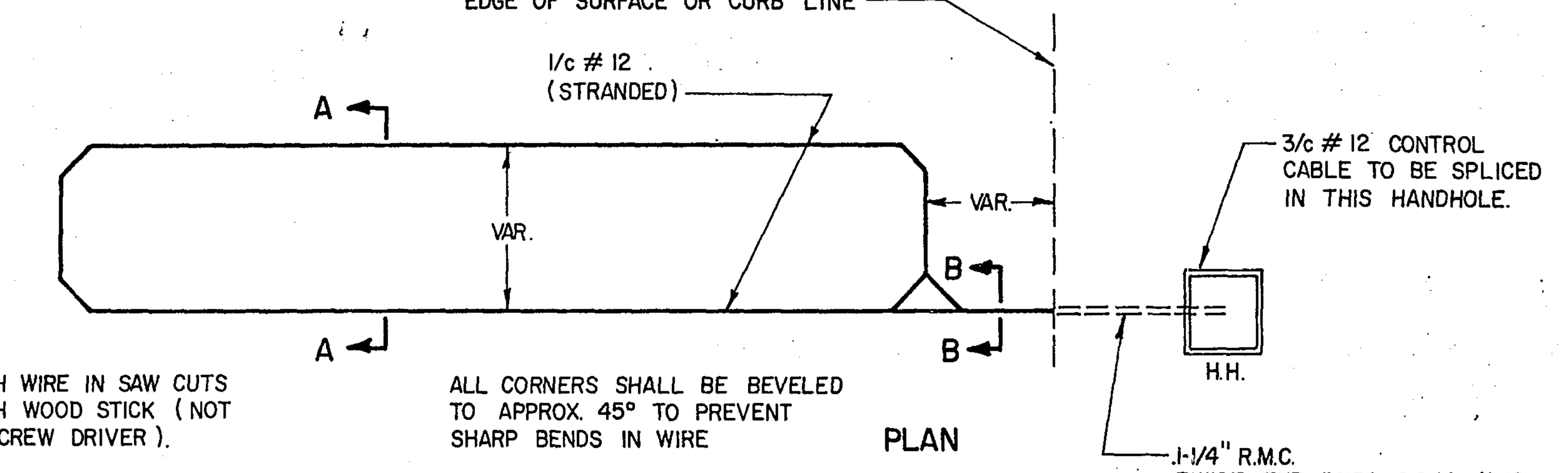
APPROVAL __________ DATE __________
STATE AID ENGINEER

GUARD POST
GALV. THREADED CAP
4" RIGID METALLIC CONDUIT
REFLECTIVE MATERIAL TO BE PLACED BY OTHERS
3" SULFUR
GROUND LINE
12" SAND
5" PIPE SLEEVE WITH METAL PLATE WELDED TO BOTTOM
CONCRETE
3' ± 3"
1'-3"
2'-0"
1'-6" DIA.
NOTE: THE TOP OF GUARD POSTS SHALL BE SET TO A UNIFORM GRADE AT EACH LOCATION.
PEDESTRIAN PUSH BUTTON DETAIL NO. 1
GALVANIZED THREADED CAP
PEDESTRIAN INSTRUCTION SIGN (SEE DETAIL NO. 3 FOR LEGEND)
2 1/2" RIGID METALLIC CONDUIT
15"
3'-6" MIN. 3'-9" MAX.
3"
18" MIN.
24" MIN.
18" MIN. DIA.
SEPARATE MOUNTING
PEDESTAL OR POLE MOUNTING
CONCRETE FOUNDATION
FOR MAST ARM TRAFFIC SIGNAL POLE
16.97" DIA. BOLT CIRCLE
3'
THE UPPER 10" OF THE ANCHOR AND THE LEVELING NUTS SHALL BE HOT DIPPED GALVANIZED
MORTAR
6" BOLT PROJECTION (THREADED)
ANCHOR BOLTS WITH TWO LEVELING NUTS ON EACH ONE. ANCHOR BOLTS SHALL BE NOT LESS THAN 1-1/2" x 48" AND TO BE PLACED AT RIGHT ANGLES TO THE DIRECTION OF THE MAST ARM OR SPAN WIRE
1/2" RADIUS
1" RIGID METALLIC CONDUIT WITH THREADS AND BUSHINGS ON BOTH ENDS
RIGID METALLIC CONDUIT SHALL BE OF THE SIZE AND NUMBER SHOWN IN THE PLAN AND SHALL BE PROJECTED APPROXIMATELY 4" ABOVE THE FOUNDATION BEFORE THE MOTAR IS PLACED
7'-0"
DEFORMED REINFORCING BARS (1/2" ϕ) EIGHT VERTICAL BARS 6'-3", SEVEN HORIZONTAL CIRCLES 27" DIA. THE HORIZONTAL BARS SHALL LAP 10" OR BE BUTT WELDED. WITH ALL REINFORCEMENT SECURELY FASTENED OR WELDED TOGETHER.
6"
5/8" x 15' GROUND ROD AND 1/c # 6 BARE COPPER WIRE REQUIRED WHEN A CONTINUOUS RIGID METALLIC CONDUIT SYSTEM IS NOT INSTALLED.
POLE FOR POWER CONNECTION
120 VOLTS POWER
12 CONDUCTOR WIRE
SERVICE POLE
1-1/4" RIGID METALLIC CONDUIT AND WEATHERHEAD
RAINPROOF METER BOX
RAINPROOF SQUARE "D" SWITCH
1-1/4" R.M.C.
NOTE: UNDERGROUND CABLE TO TERMINATE AT SQUARE D" SWITCH.
GROUND LINE
NOTE # 1
DISTANCE FROM GROUND LINE VARIABLE FROM 1/4" IN THE SIDEWALK AREA TO 2" IN THE SHOULDER OR BLVD. AREA.
THREADED RIGID METALLIC CONDUIT AS SHOWN IN THE PLANS.
PLAN
4 (5/8" x 18" MIN. GALV. ANCHOR BOLTS)
RIGID METALLIC CONDUIT 2" ABOVE BASE
SEE NOTE # 1
SEE NOTE # 1
SIDEWALK
18"
3'-0"
2'-6"
ELEVATION
PEDESTAL MOUNTED SIGNALS
SIDEWALK
JOINT FILLER
18"
36"
SIDE VIEW
GROUND ROD 5/8" x 15'
* FOUNDATION DIMEMENSION SHALL BE 6" GREATER THAN THE CABINET BASE TO BE INSTALLED
CONSTRUCT 4" CONCRETE SLAB, ON DOOR SIDE OF CONTROLLER
3'
* VAR.
* VAR.
TOP VIEW
ANCHOR BOLTS SHALL BE SET ACCORDING TO MANUFACTURERS RECOMMENDATION
GROUND MOUNTED CONTROLLER CABINET
CONCRETE FOUNDATIONS
26"
PLAN
1/4" DEFORMED REINFORCMENT BARS 20" LONG
2-1/4"
1"
2-1/4"
3" CTR'S
A
A
21-1/2"
PLAN OF COVER
TO BE SEALED WITH OAKUM AND CAULKING COMPOUND
26"
2"
22"
1/4" GAP
SEE DETAIL OF COVER
4"
18"
4"
36"
10"
3"R
10"
8"
6"
ELEVATION
B
5"
1"R
2-3/4"
3/4"
B
SECTION A-A
1/2" ϕ U - BOLT
3/4" DIA. HOLE
4"
7"
SEC. B-B
1/8 TO 12 MAX. SLOPE ON WALLS WILL BE PERMITTED FOR STRIPPING FORMS.
6" x 10" ACCESS HOLES ARE ACCEPTABLE
PRECAST CONCRETE HANDHOLE OR PULLBOX
WOOD POLE
1-1/4" R.M.C. 3-1/c # 6 R.H.W.
SERVICE FOR SIGNAL METERED AND SERVICE FOR LIGHTING NOT METERED
2 POLE - 30 AMP RAINTIGHT DISCONNECT SWITCH
1-1/4" R.M.C. 2-1/c # 6 R.H.W. (SIGNAL SYSTEM)
1-1/4" R.M.C. 2-1/c # 6 R.H.W. OR T.H.W. (STREET LIGHTING)
GROUND ROD 5/8" x 15'
SERVICE FOR SIGNAL ONLY (120 VOLTS)
SIGNAL
SERVICE FOR SIGNAL AND LIGHTING METERED (120/240 VOLTS)
SIGNAL AND LIGHTING
METER AND DISCONNECT SWITCH
MICROFILMED RAMSEY CO. ENGR.
CO. PROJ. NO. 69-65
SHEET NO. 2 OF 7 SHEETS

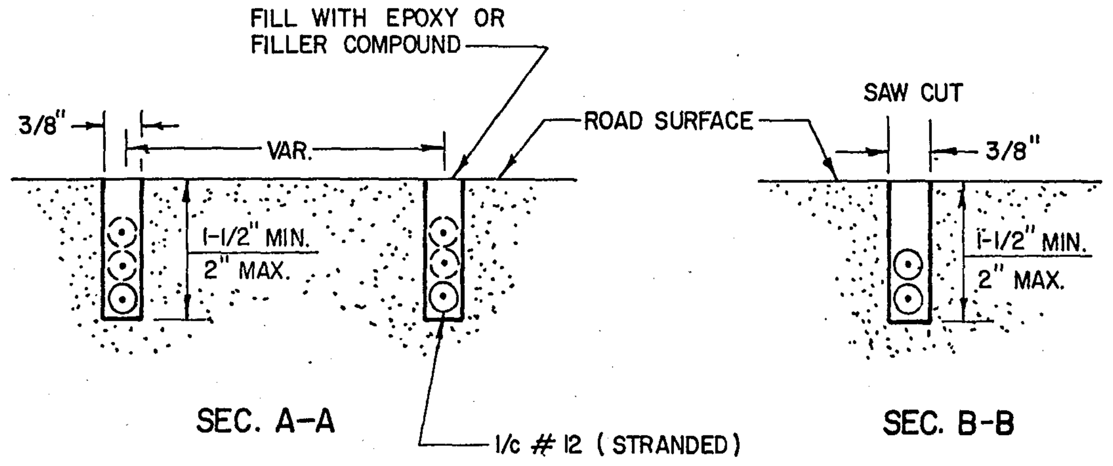
17-111

LOOP DETECTION INSTALLATION
DETAIL NO. 2

NOTE: NUMBER OF TURNS & SIZE OF LOOP SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.



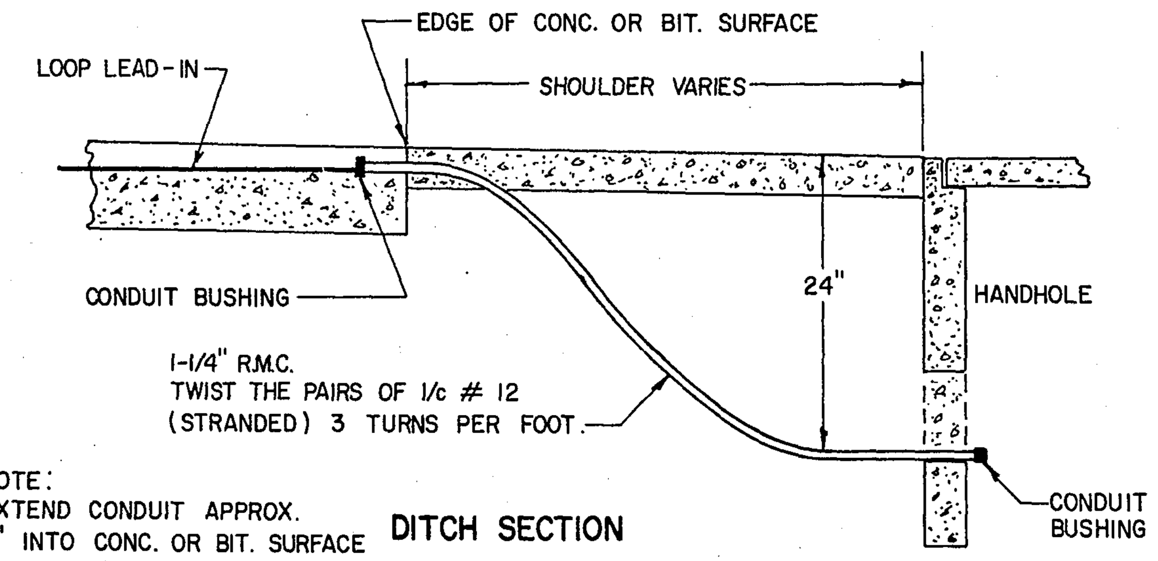
PLAN



SEC. A-A

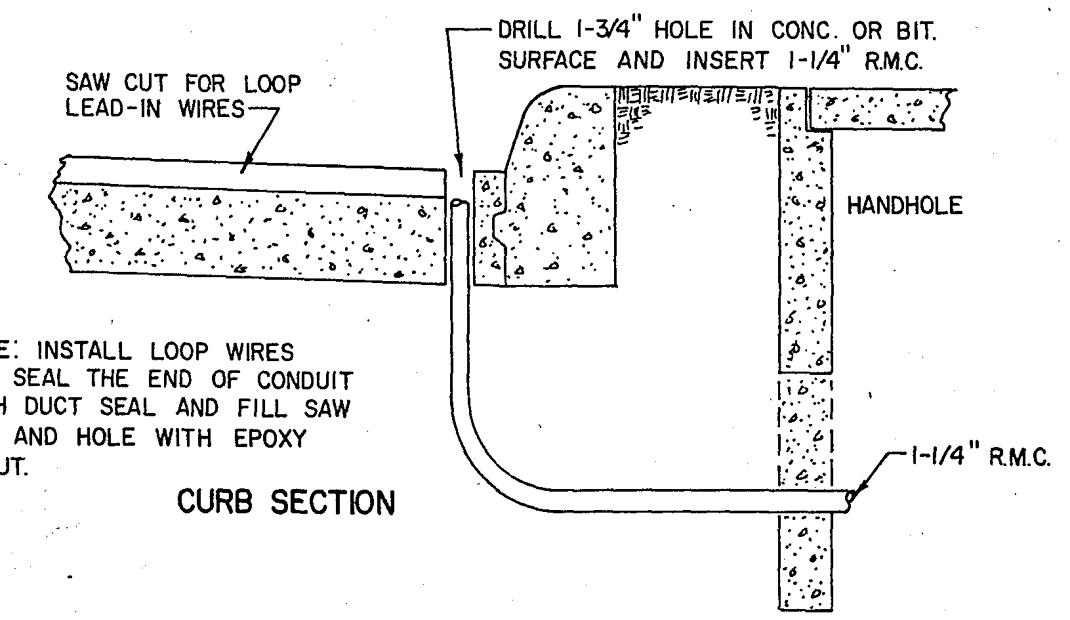
SEC. B-B

NOTE:
THE CONDUCTORS SHALL BE SINGLE-CONDUCTOR # 12 (STRANDED) INSULATED WITH FILLED CHEMICALLY CROSS-LINKED POLYETHYLENE AND SHALL BEAR THE U.L. LISTING LABELS FOR TYPE R.H.W. AND TYPE R.H.H.



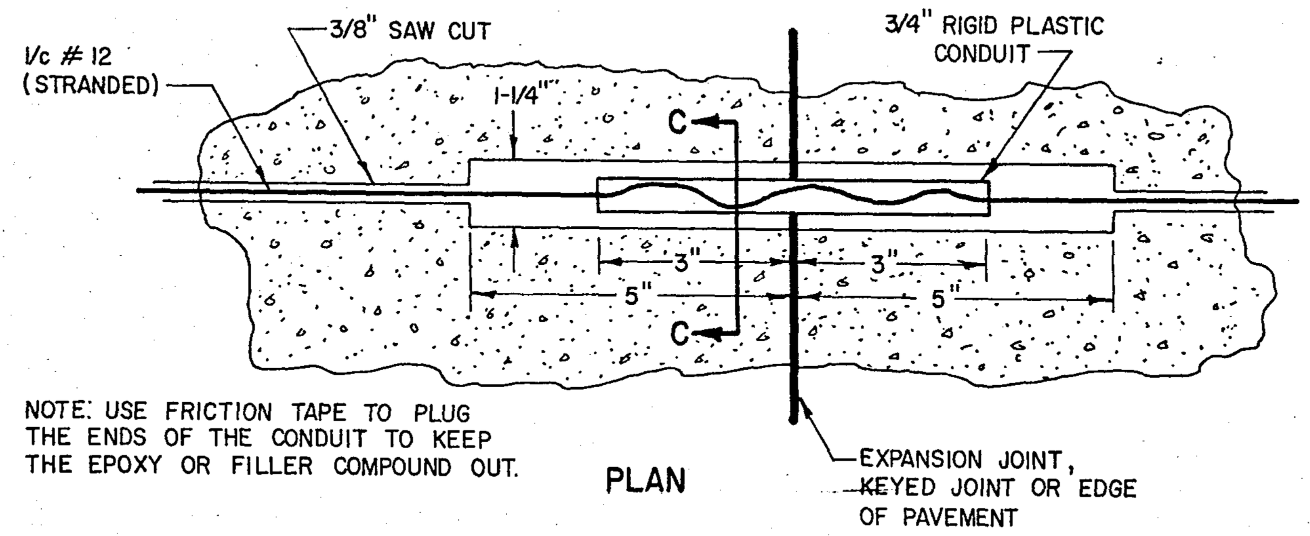
NOTE:
EXTEND CONDUIT APPROX. 2" INTO CONC. OR BIT. SURFACE

DITCH SECTION



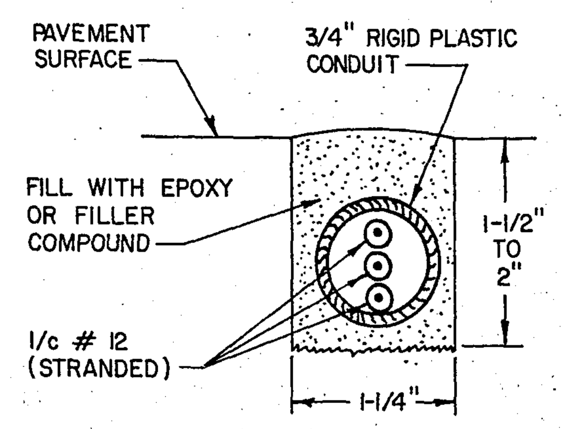
NOTE: INSTALL LOOP WIRES AND SEAL THE END OF CONDUIT WITH DUCT SEAL AND FILL SAW CUT AND HOLE WITH EPOXY GROUT.

CURB SECTION



NOTE: USE FRICTION TAPE TO PLUG THE ENDS OF THE CONDUIT TO KEEP THE EPOXY OR FILLER COMPOUND OUT.

PLAN

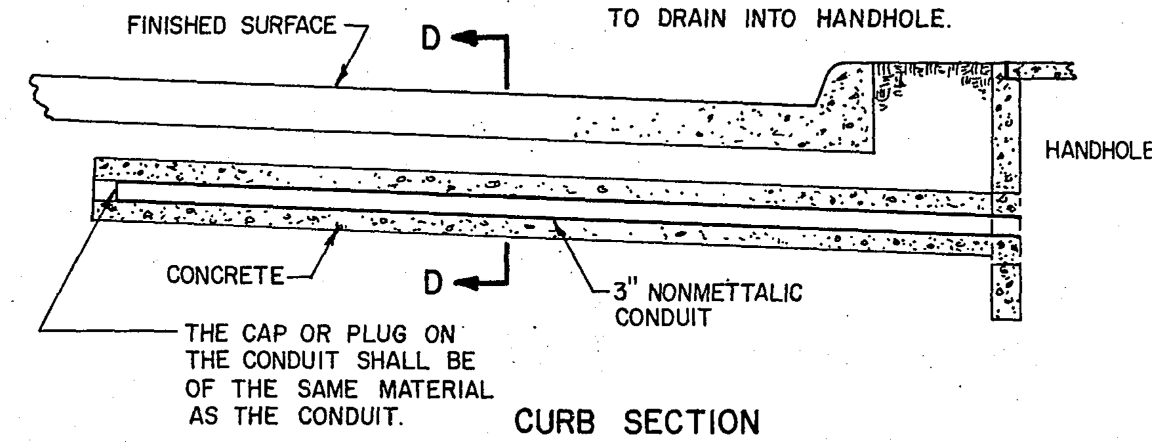


SECTION C-C

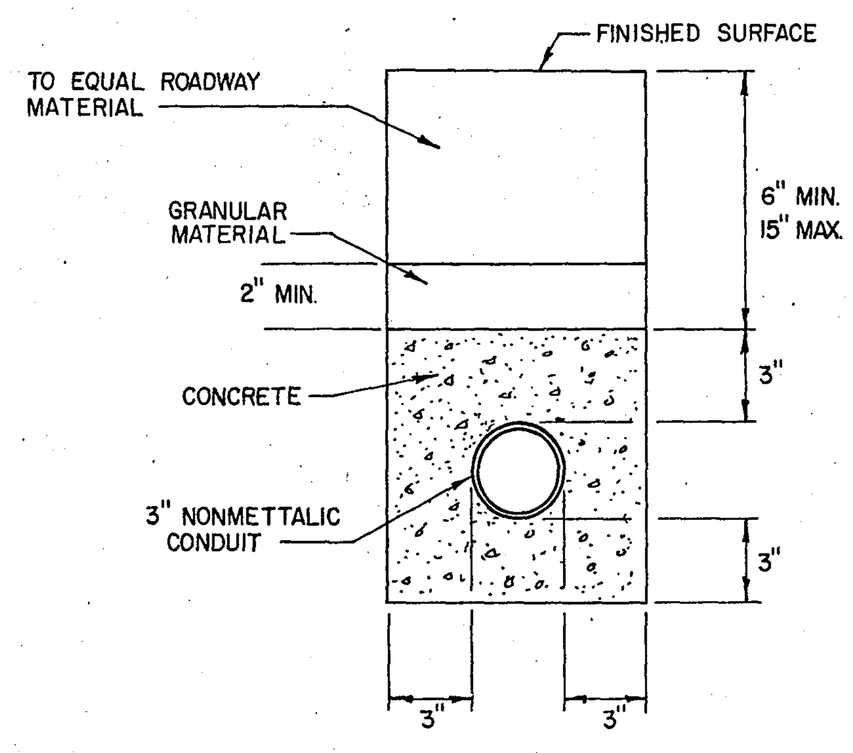
JOINT SLEEVE INSTALLATION
FOR LOOP DETECTORS

MAGNETIC VEHICLE DETECTOR INSTALLATION
DETAIL NO. 4

NOTE: CONDUIT LENGTH SHALL BE AS SHOWN IN THE PLAN AND SHALL BE SET TO DRAIN INTO HANDHOLE.

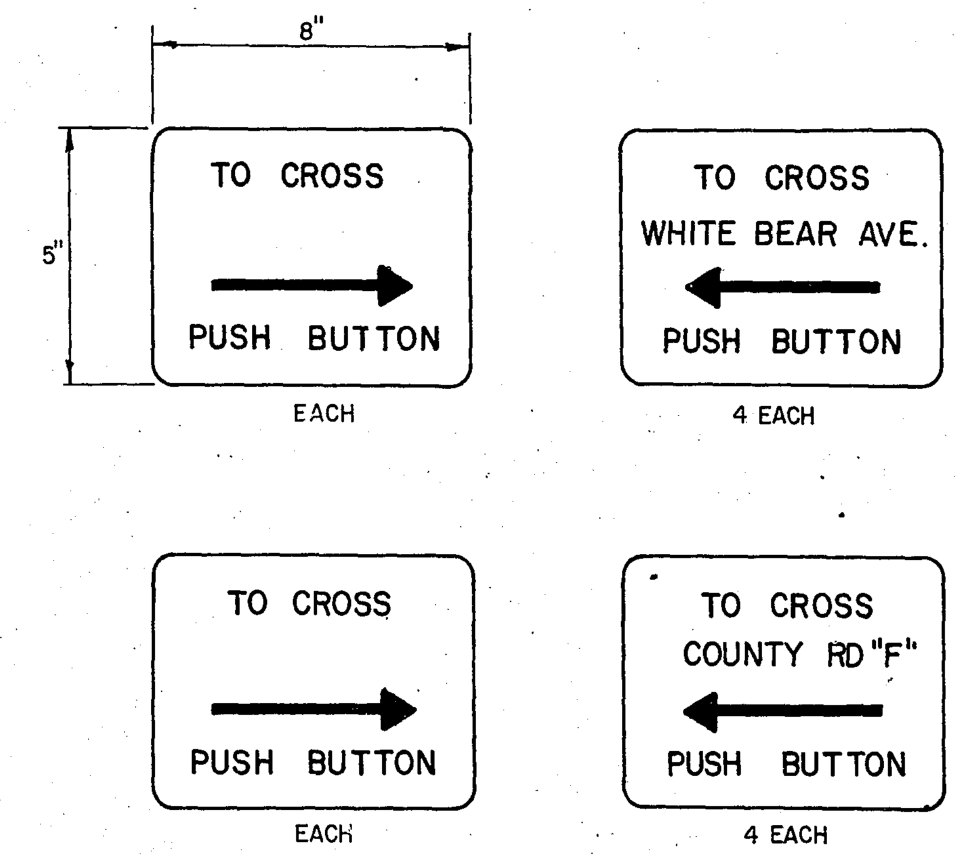


CURB SECTION



SECTION D-D

PEDESTRIAN INSTRUCTION SIGNS
DETAIL NO. 3



ABBREVIATIONS

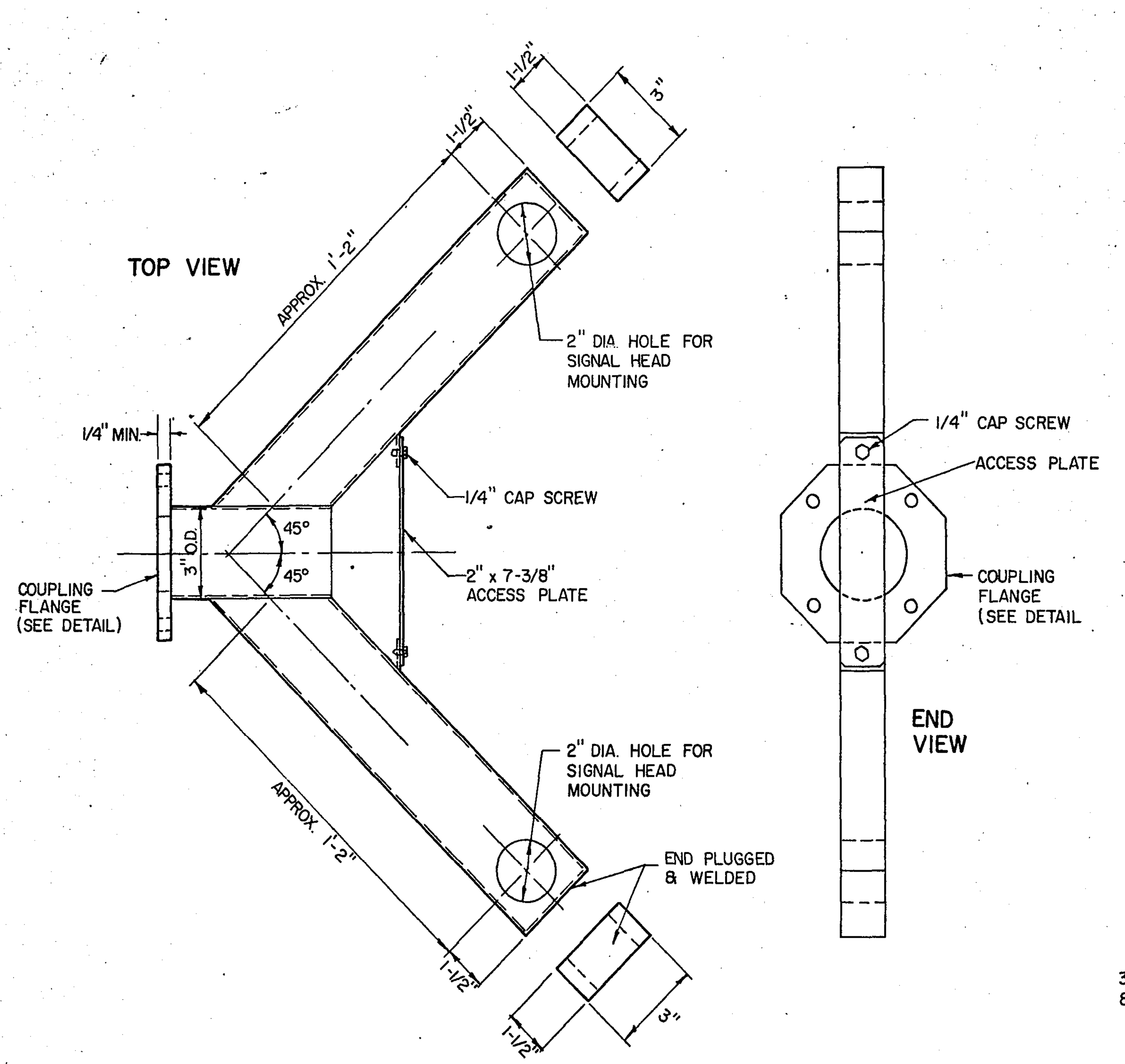
EQUIPMENT & INDICATIONS

RED - RED
YEL - YELLOW
GRN - GREEN
LTA - LEFT TURN ARROW
THA - THRU ARROW
RTA - RIGHT TURN ARROW
TRA - THRU AND RIGHT ARROW
WLK - WALK
NEU - NEUTRAL
DWK - DON'T WALK
SW - SWITCH
SWD - SWITCHED
LUM - LUMINAIRE
PA1(eg)- PEDESTRIAN INDICATION -"A" PHASE
PBB2 (eg) - PUSH BUTTON - "B" PHASE
C3 (eg) - SIGNAL HEAD - "C" PHASE
DA4 (eg) - DETECTOR - "A" PHASE
H.H. - HANDHOLE
GR.R. - GROUND ROD
SERV. - SERVICE

DNL - DOWNLIGHT
PE.C.- PHOTOELECTRIC CELL
ST. LHT. - STREET LIGHT
CH - CHECK
S.O.P. - SOURCE OF POWER
EQ. G. - EQUIPMENT GROUND
SPR - SPARE CONDUCTOR

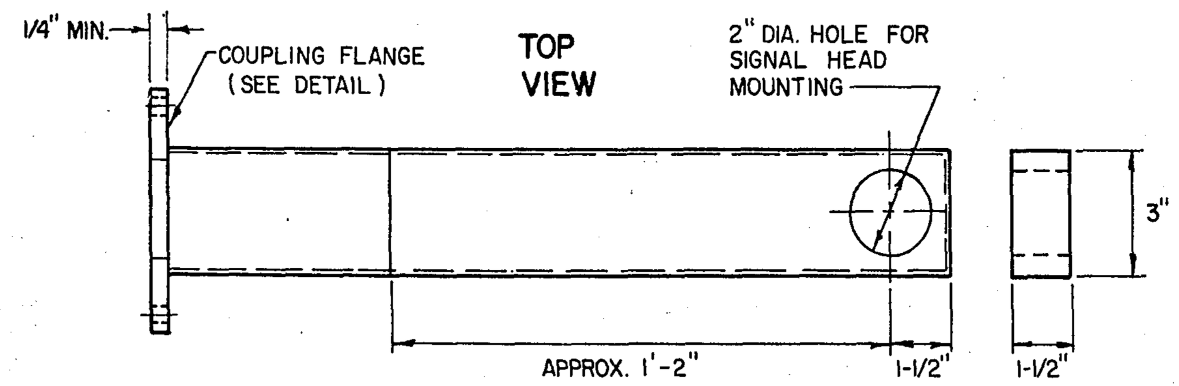
COLOR CODING OF CONDUCTORS

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



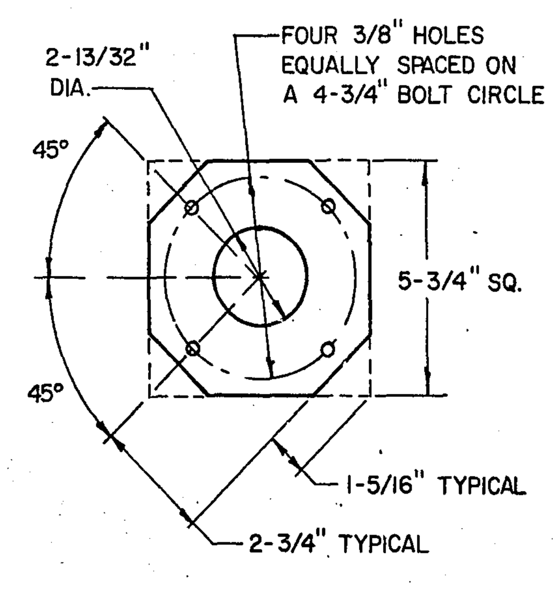
TWO-WAY TRAFFIC SIGNAL PLUMBING AND MOUNTING DEVICE

SPECIFICATION REFERENCE M.H.D. 1703



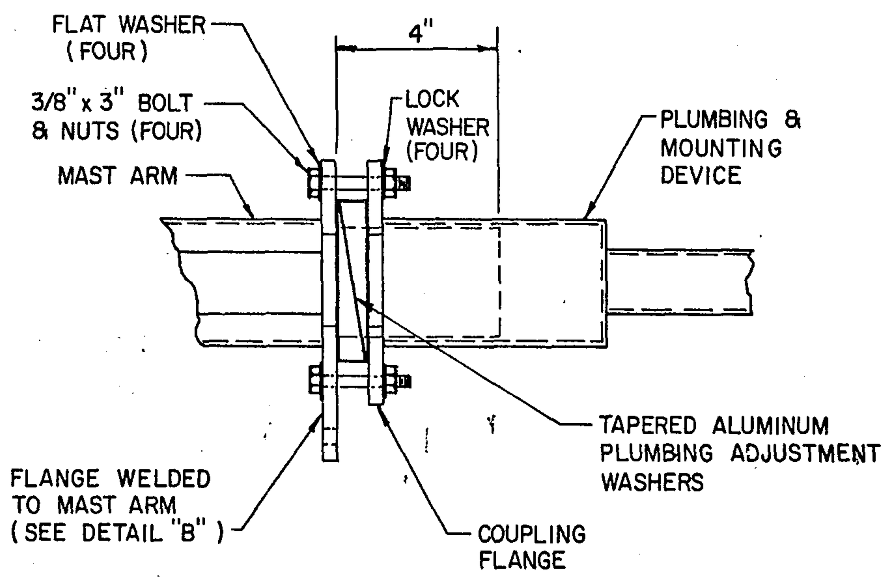
ONE-WAY TRAFFIC SIGNAL PLUMBING AND MOUNTING DEVICE

SPECIFICATION REFERENCE M.H.D. 1703



COUPLING FLANGE DETAIL

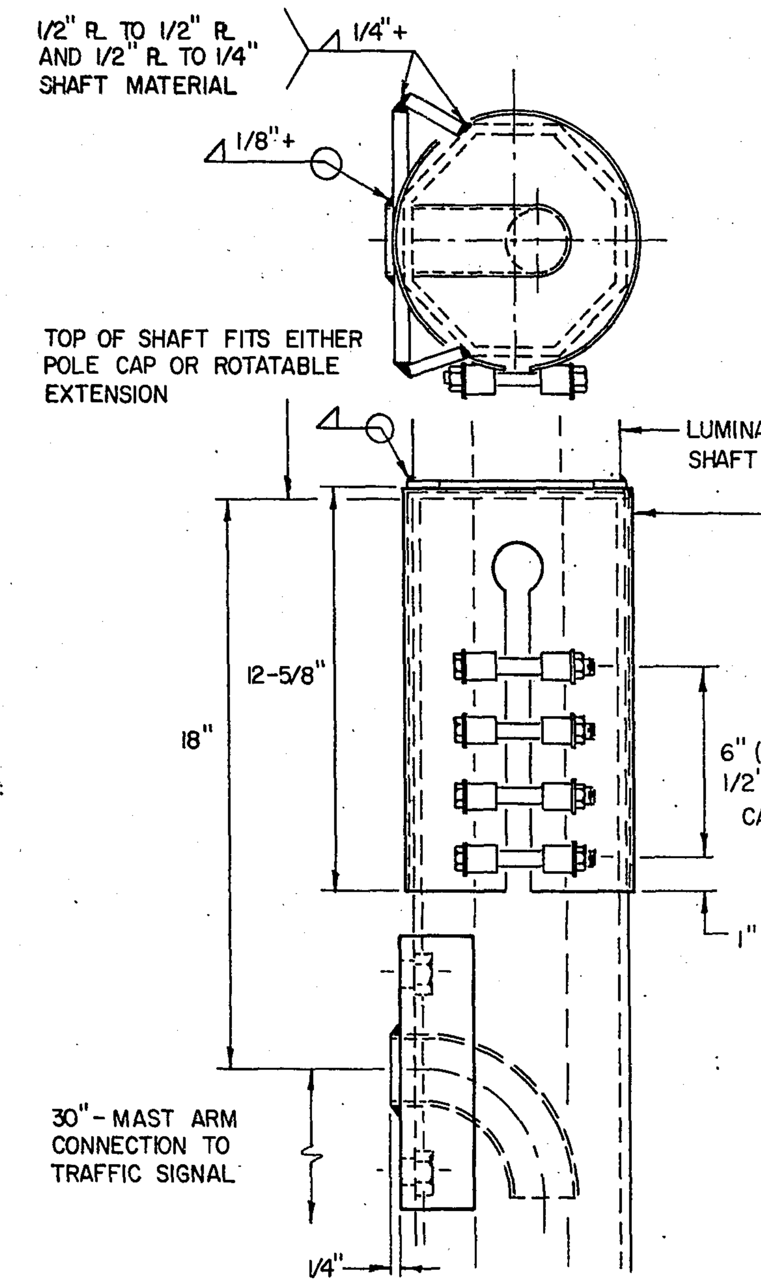
(ONE-WAY AND TWO-WAY SIGNAL)



ASSEMBLY DETAIL

(ONE-WAY AND TWO-WAY SIGNAL)

SPECIFICATION REFERENCE M.H.D. 1703



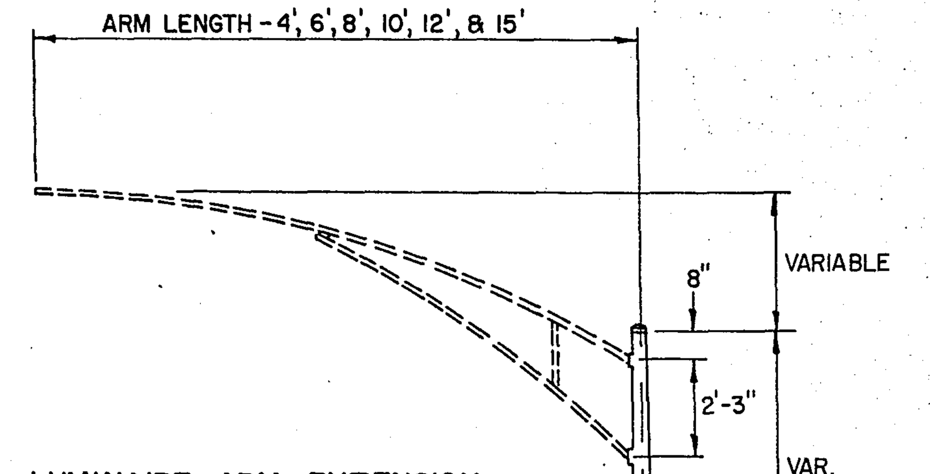
DETAIL C

ROTATABLE LUMINAIRE EXTENSION AND MAST ARM CONNECTION

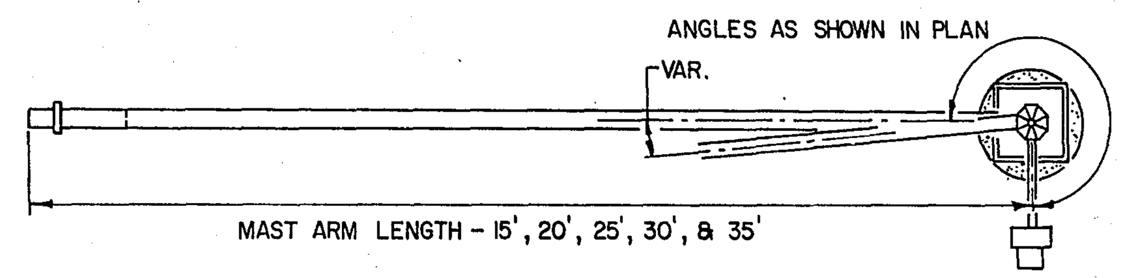
NOTES:

TYPE A-20-D30 OR 40-12 TYPE A-20-T30 OR 40-20
(1) (2) (3) (4) (1) (2) (3) (4)

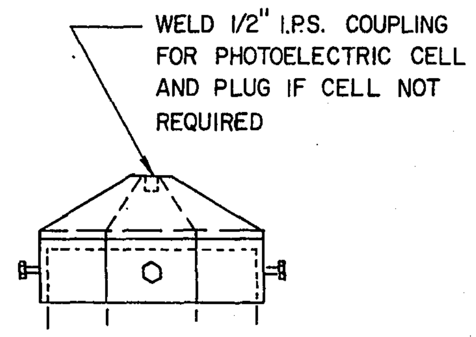
1. LETTER TYPE INDICATES POLE MAST ARM POSITION WITH RESPECT TO THE ℄ OF ROADWAY.
2. NUMBER FOLLOWING TYPE LETTER INDICATES SIGNAL MAST ARM LENGTH.
3. SECOND LETTER INDICATES LUMINAIRE TRUSS -TYPE ARM EXTENSION OR DAVIT-TYPE ARM EXTENSION. SECOND LETTER FOLLOWED BY NUMBERS INDICATES LUMINAIRE MOUNTING HEIGHT.
4. NUMBER FOLLOWING INDICATES LENGTH OF LUMINAIRE TRUSS ARM OR DAVIT ARM.



LUMINAIRE ARM EXTENSION



PLAN

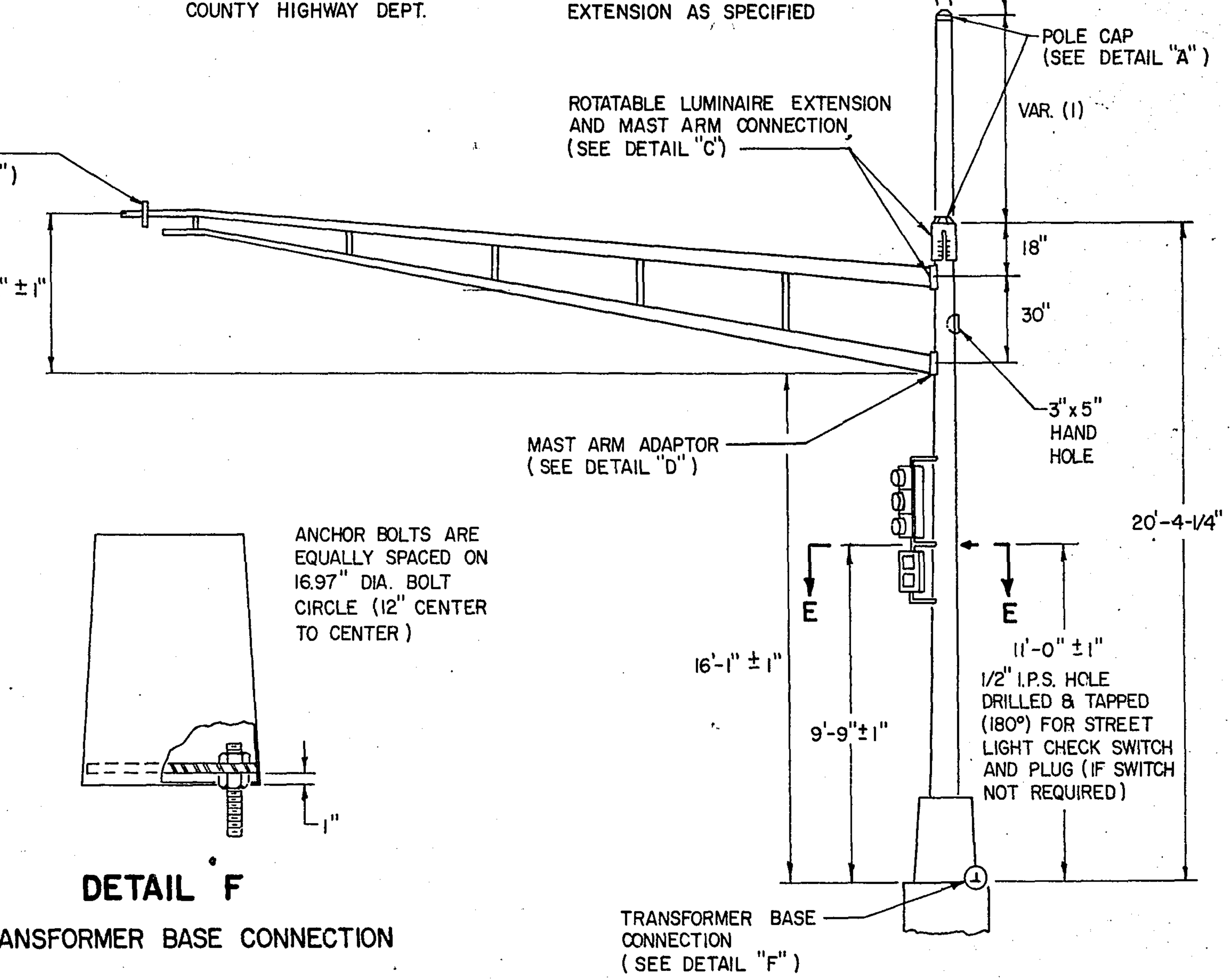


DETAIL A

POLE CAP

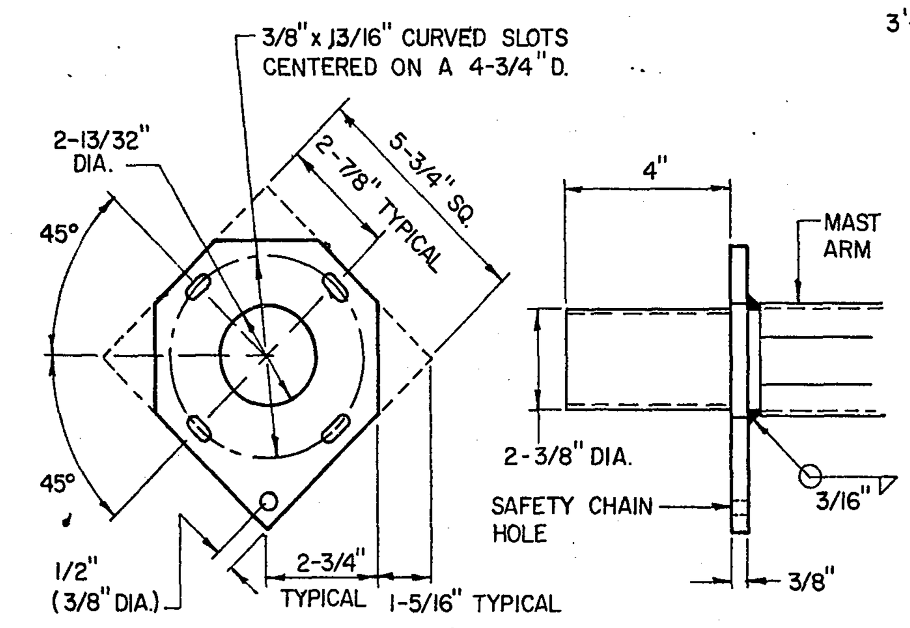
(1) DIMENSIONS SHOWN SHOULD PROVIDE FOR A DISTANCE OF 30' OR 40' FROM TRANSFORMER BASE BOTTOM TO TOP OF LUMINAIRE. DIMENSIONS MAY VARY AS SPECIFIED BY THE RAMSEY COUNTY HIGHWAY DEPT.

FOR LUMINAIRE, USE TRUSS-TYPE ARM OR DAVIT-TYPE ARM SHAFT EXTENSION AS SPECIFIED



ELEVATION

POLE AND MAST ARM

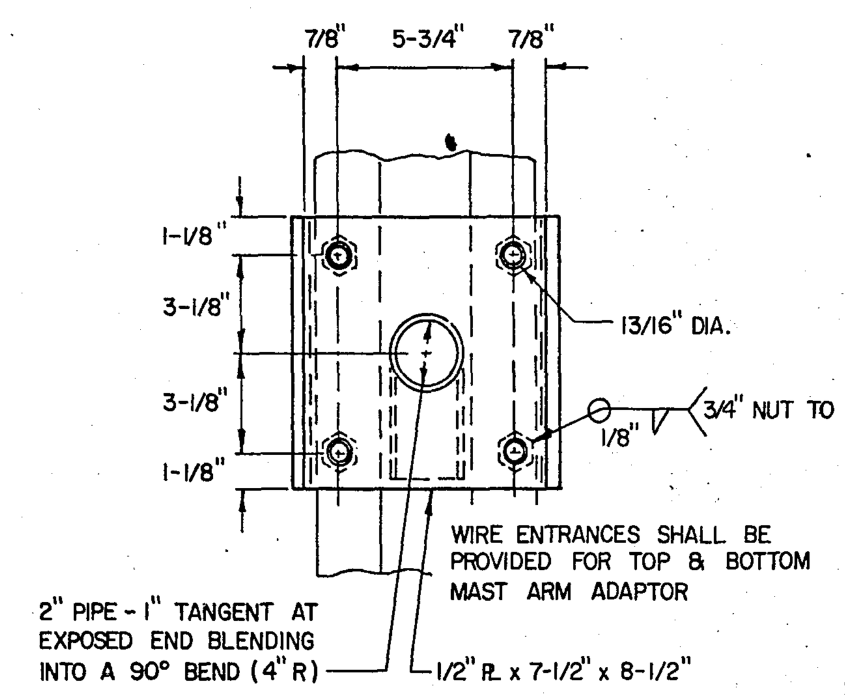


DETAIL B

FLANGE

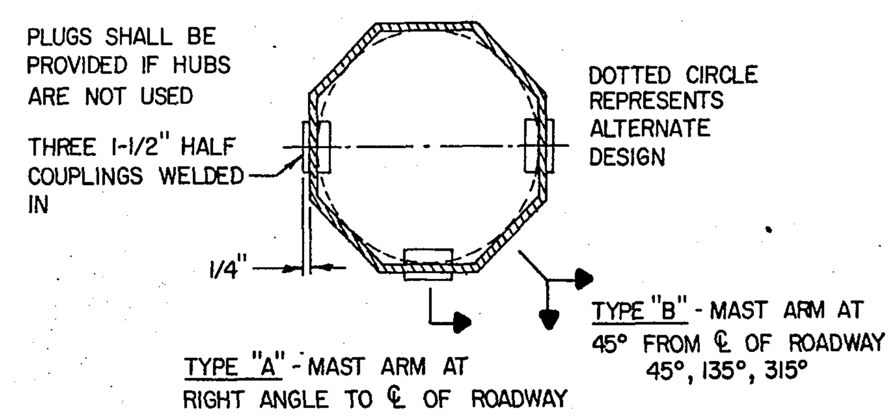
DETAIL F

TRANSFORMER BASE CONNECTION



DETAIL D

MAST ARM ADAPTOR



SECTION E-E

POLE-MOUNTED SIGNAL HUB

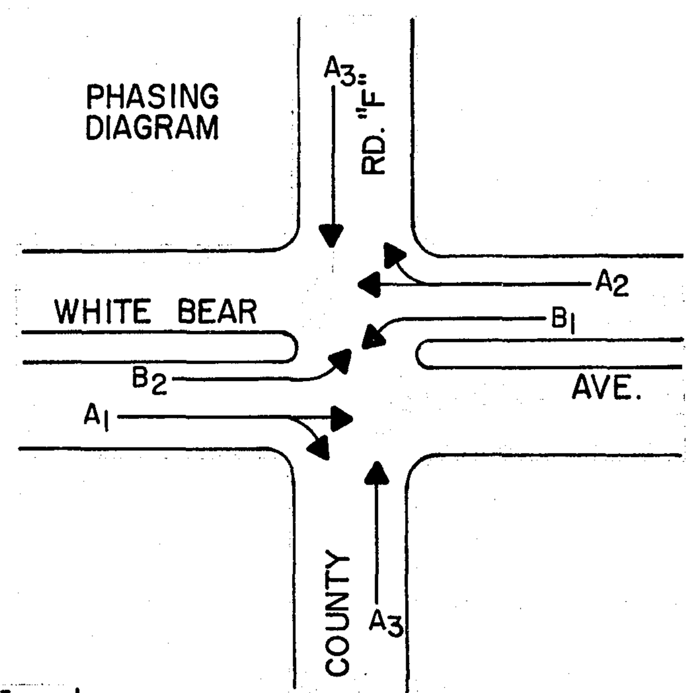
CO. PROJ. NO. 69-65	SHEET NO. 4 OF 7 SHEETS

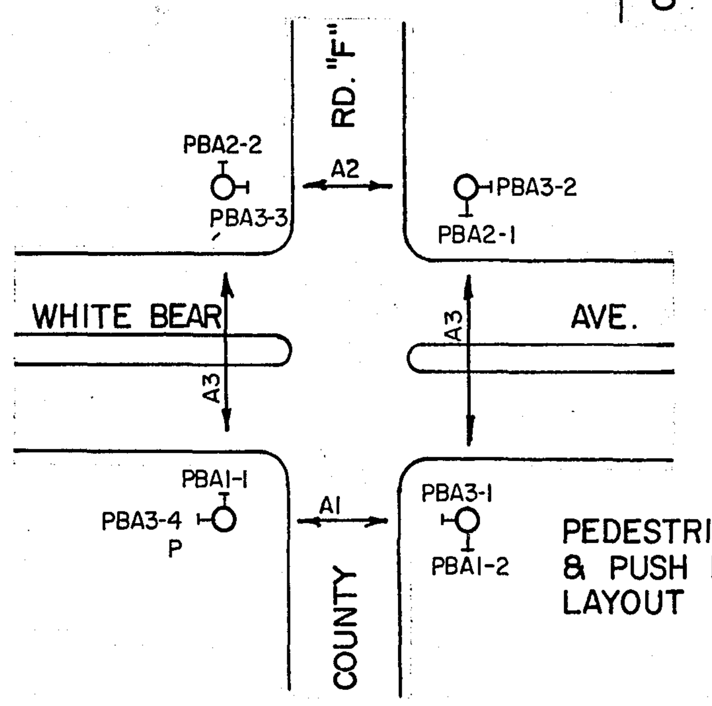
WHITE BEAR AVE. & COUNTY ROAD "F"

0 10 20 30 40 50
SCALE IN FEET

LEGEND OF SYMBOLS	
	CONTROLLER
	PEDESTAL
	HANDHOLE (PULLBOX)
	RIGID METALLIC CONDUIT (R.M.C.)
	MAST ARM & POLE
	SIGNAL FACE
	SIGNAL FACE WITH BACKGROUND SHIELD
	MAST ARM & LUMINAIRE
	PEDESTRIAN INDICATION
	SOURCE OF POWER (S.O.P.)

PHASING DIAGRAM

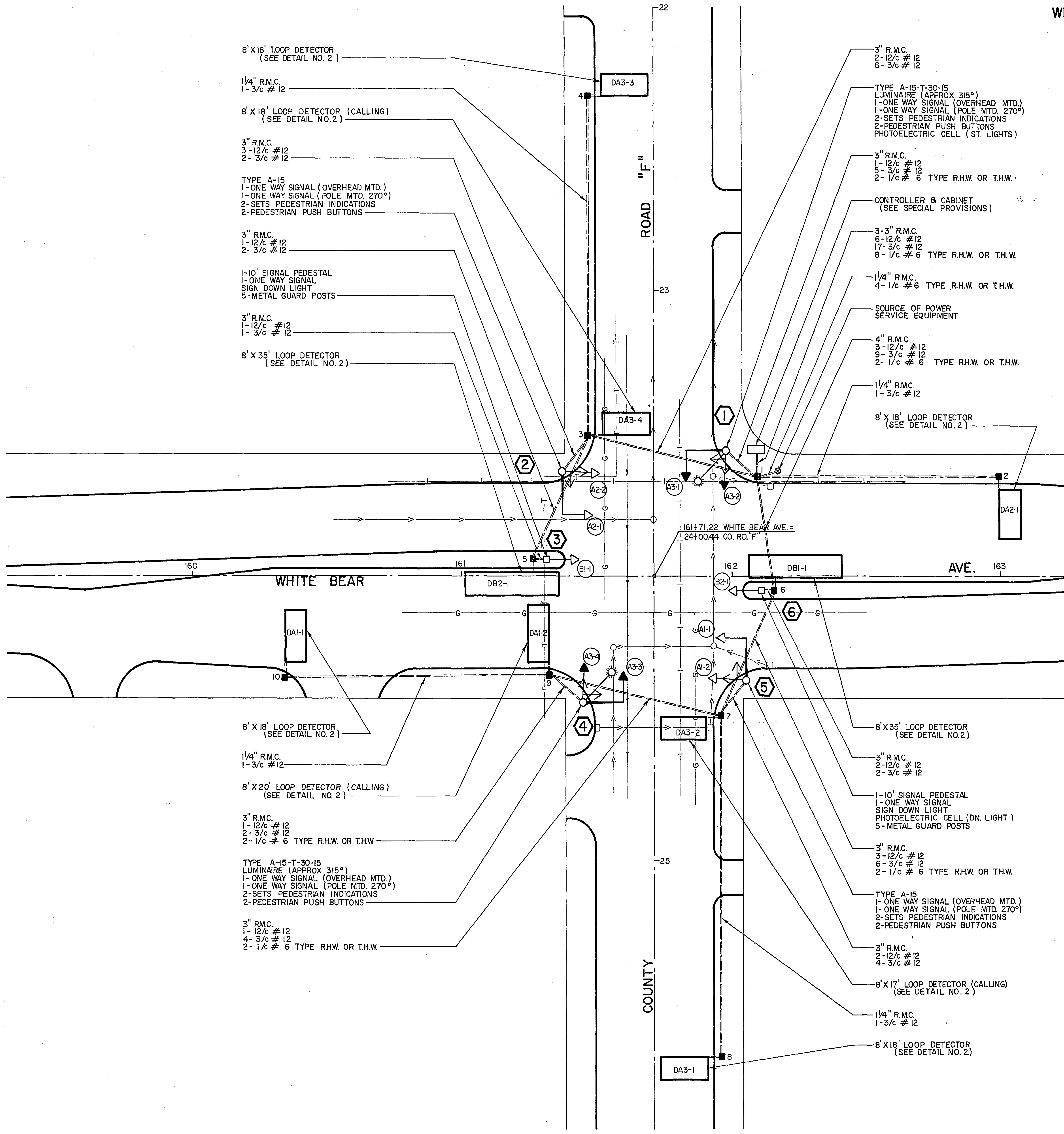




PEDESTRIAN PHASING & PUSH BUTTON LAYOUT

FACE	PHASE	FLASH	INDICATION SIZE					
			R	Y	G	←	↑	→
A1-1	A_1	R	12"	12"	–	–	12"	12"
A1-2	A_1	R	12"	12"	–	–	12"	12"
A2-1	A_2	R	12"	12"	–	–	12"	12"
A2-2	A_2	R	12"	12"	–	–	12"	12"
A3-1	A_3	R	12"	12"	12"	–	–	–
A3-2	A_3	R	12"	12"	12"	–	–	–
A3-3	A_3	R	12"	12"	12"	–	–	–
A3-4	A_3	R	12"	12"	12"	–	–	–
* B1-1	B_1	R	12"	12"	–	12"	–	–
* B2-1	B_2	R	12"	12"	–	12"	–	–

* SEE SPECIAL PROVISIONS



STATION	LOCATION	DESCRIPTION
WHITE BEAR AVE.		
160+34	RT. 36'	PULLBOX 10
161+27	LT. 5.5'	PULLBOX 5
161+31	LT. 5.5'	SIGNAL NO. 3
161+32	RT. 35'	PULLBOX 9
161+37	LT. 36.5'	SIGNAL NO. 2
161+44.5	RT. 44.5'	SIGNAL NO. 4
161+47	LT. 49'	PULLBOX 3
161+96	RT. 49'	PULLBOX 7
161+98	LT. 44.5'	SIGNAL NO. 1
162+05.5	RT. 36.5'	SIGNAL NO. 5
162+09	LT. 44.5'	CONTROLLER CABINET
162+10	LT. 35	PULLBOX 1
162+12	RT. 5.5'	SIGNAL NO. 6
162+16	RT. 5.5'	PULLBOX 6
163+00	LT. 35'	PULLBOX 2
COUNTY ROAD "F"		
22+31	RT. 24'	PULLBOX 4
25+69	LT. 24'	PULLBOX 8

CO. PROJ. NO. 69-65

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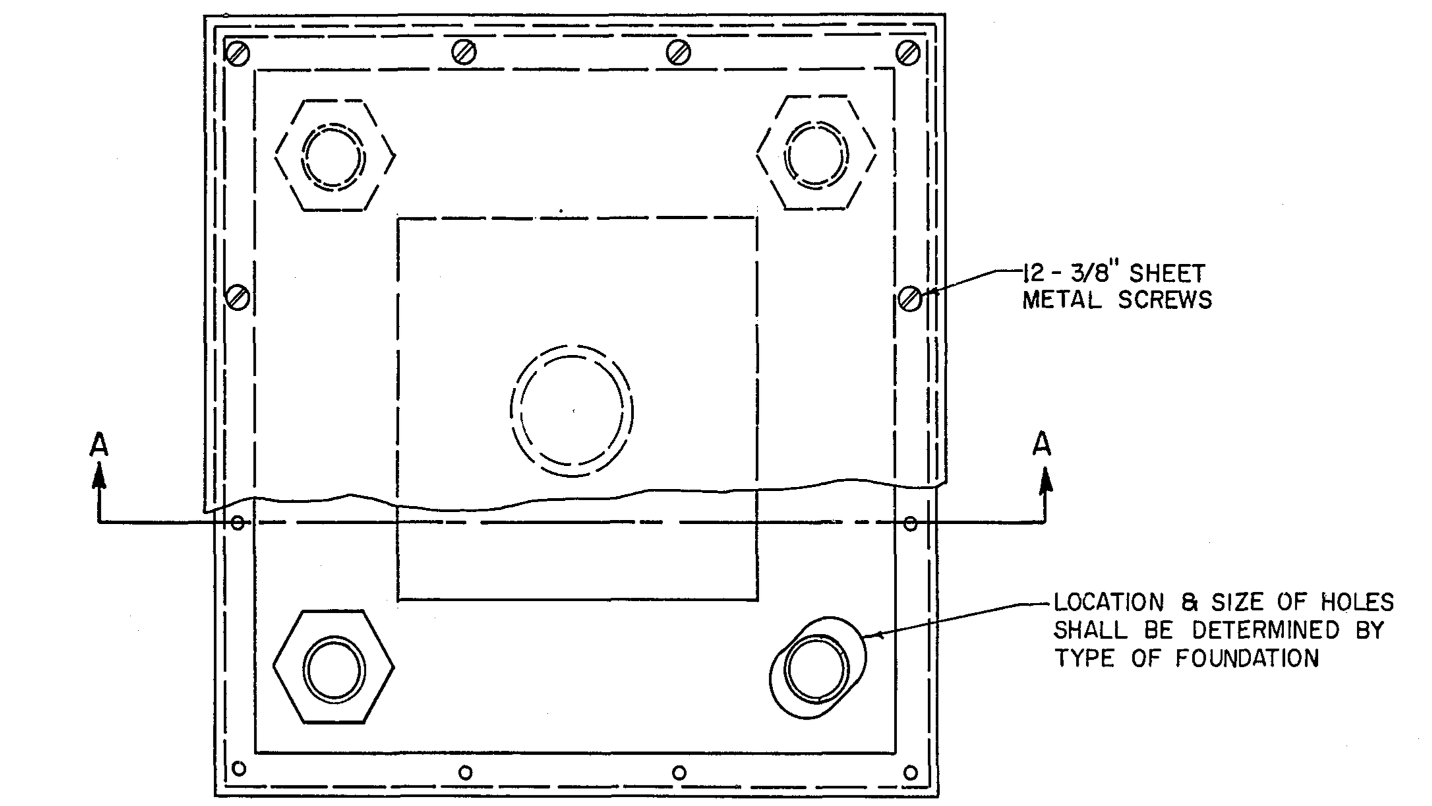
FIELD WIRING DIAGRAM

CO. PROJ. NO. 69-65

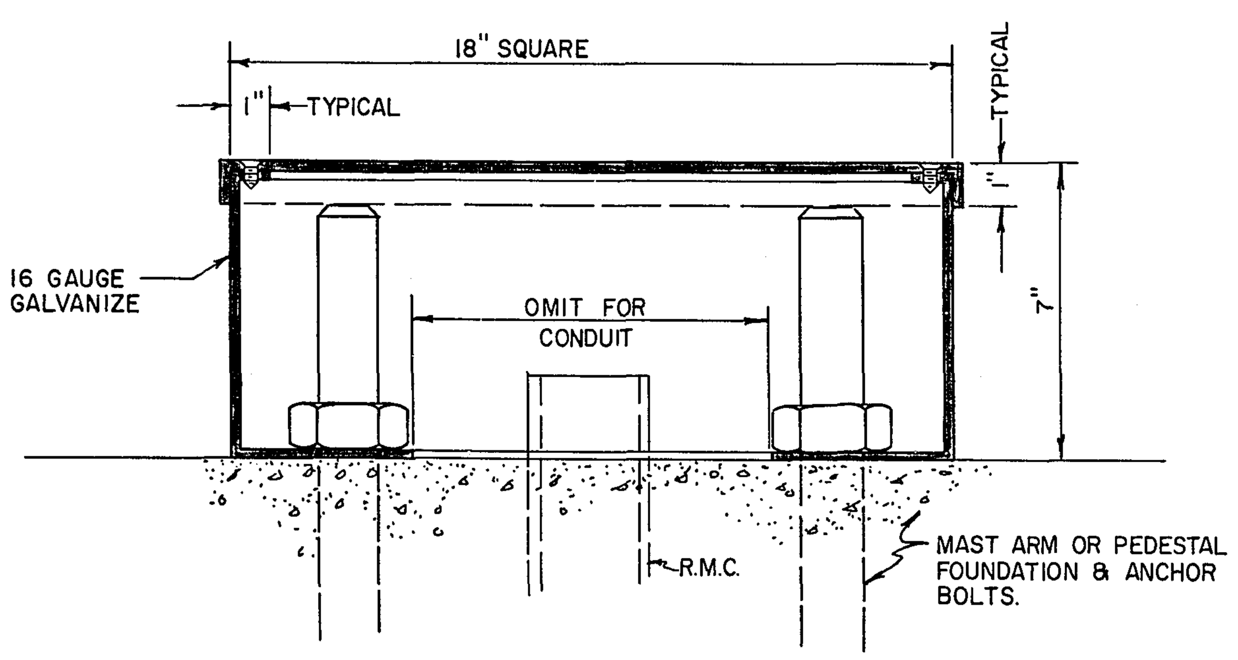
SHEET NO. 6 OF 7 SHEETS

MICROFILMED RAMSEY CO. ENGR.

17-111

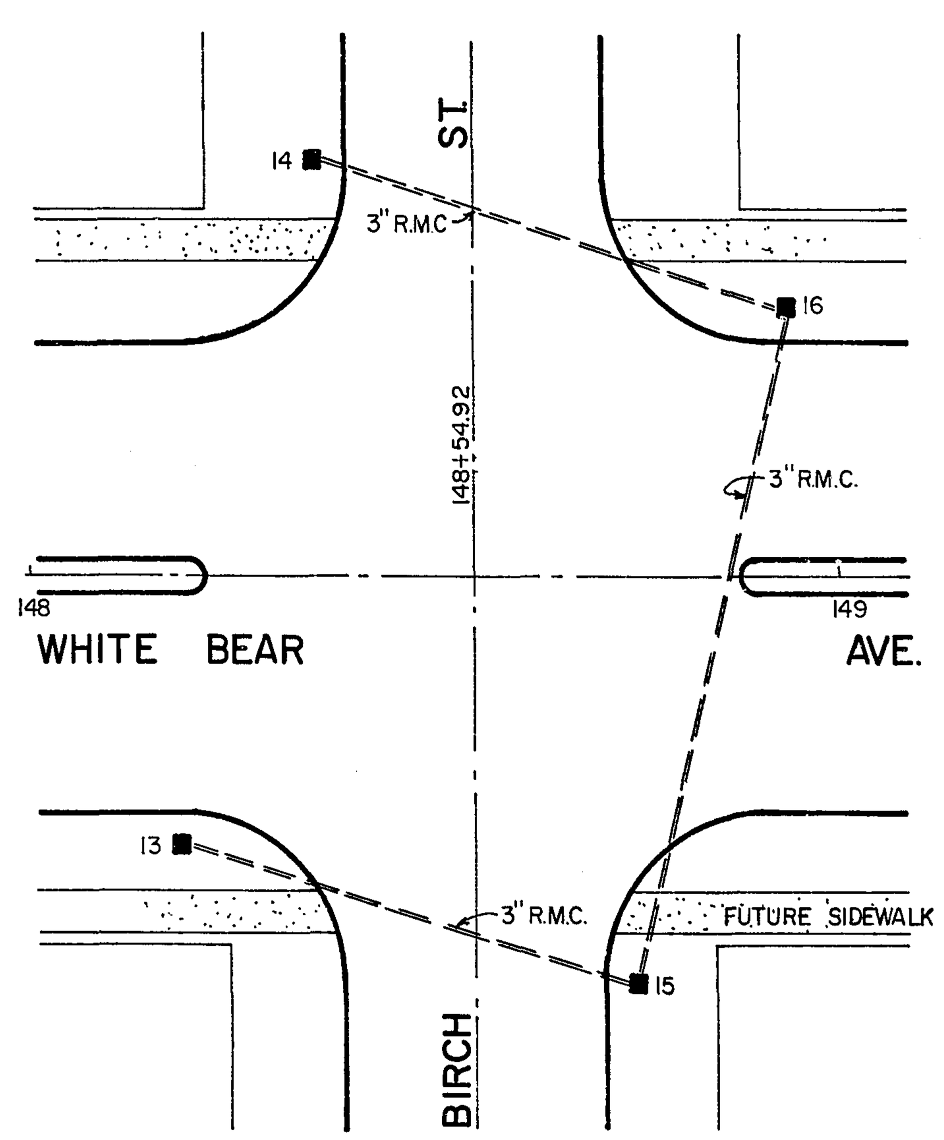


PLAN

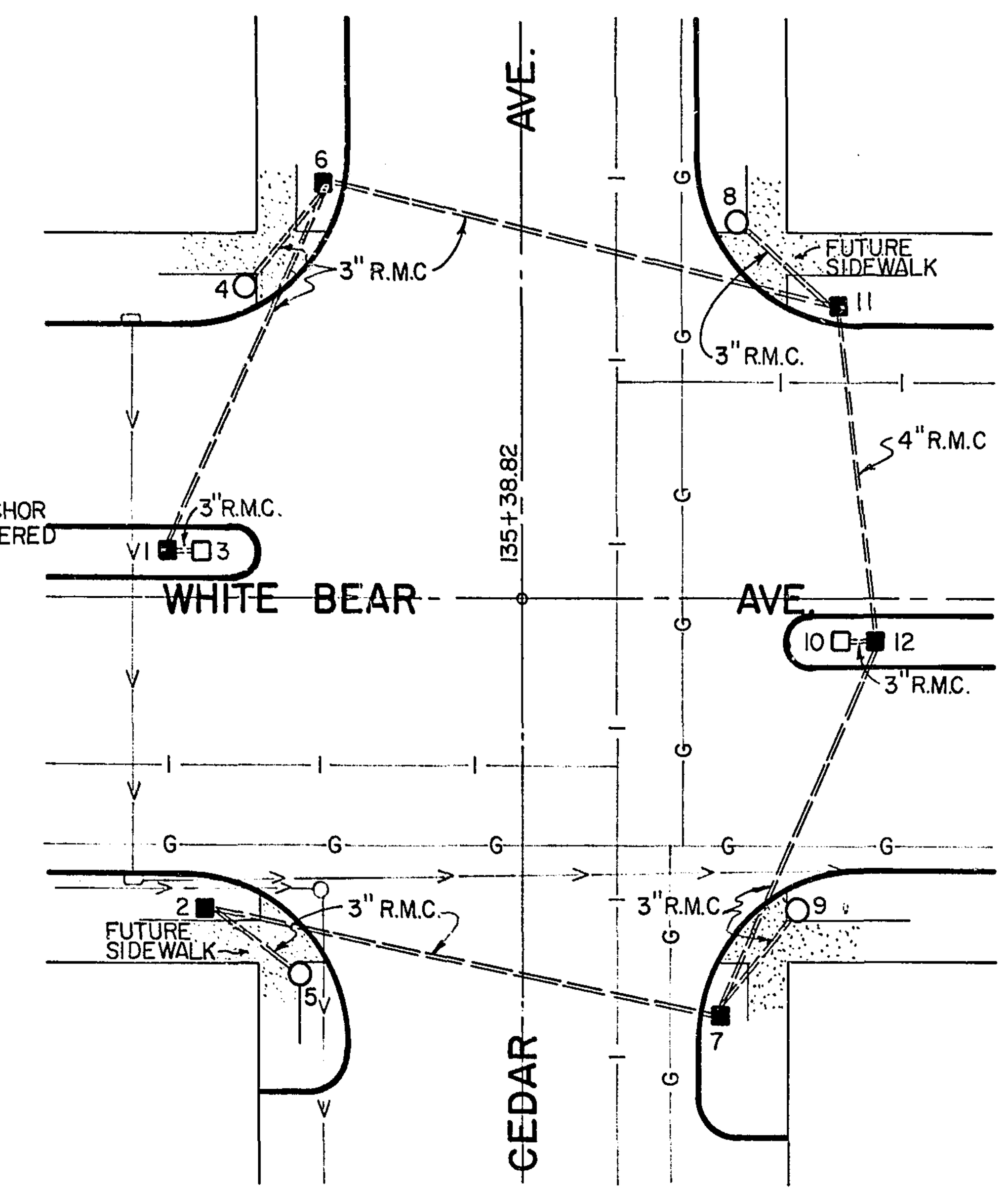


SECTION A-A

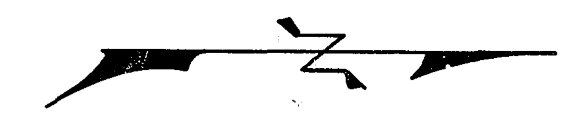
FOUNDATION BOLT COVER



NOTE: ALL FOUNDATION ANCHOR BOLTS SHALL BE COVERED (SEE DETAIL



WHITE BEAR AVE. & CEDAR AVE.



SCALE: 1" = 20'

LEGEND OF SYMBOLS	
— — —	RIGID METALLIC CONDUIT (R.M.C.)
□	PEDESTAL FOUNDATION
○	MAST ARM FOUNDATION (TYPE "A")
■	HANDHOLE (PULLBOX)

FURNISH AND INSTALL RIGID METALLIC CONDUIT, PULLBOXES AND CONCRETE FOUNDATIONS AS SHOWN IN PLAN

NO.	STATION	LOCATION	FURNISH & INSTALL PULLBOX	PEDESTAL FOUNDATION	MAST ARM FOUNDATION (TYPE "A")
	WHITE BEAR AVE.				
1	134+95	LT. 5.5'	1		
2	134+99	RT. 37'	1		
3	134+99	LT. 5.5'		1	
4	135+04.5	LT. 36.5'			1
5	135+11	RT. 44.5'			1
6	135+14	LT. 49'	1		
7	135+63	RT. 49'	1		
8	135+65.5	LT 44.5'			1
9	135+73	RT. 36.5			1
10	135+79	RT. 5.5'		1	
11	135+79	LT. 35'	1		
12	135+83	RT. 5.5'	1		
13	148+19	RT. 32'	1		
14	148+35	LT. 48	1		
15	148+75	RT 48'	1		
16	148+94	LT. 32'	1		
		TOTALS	10	2	4

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