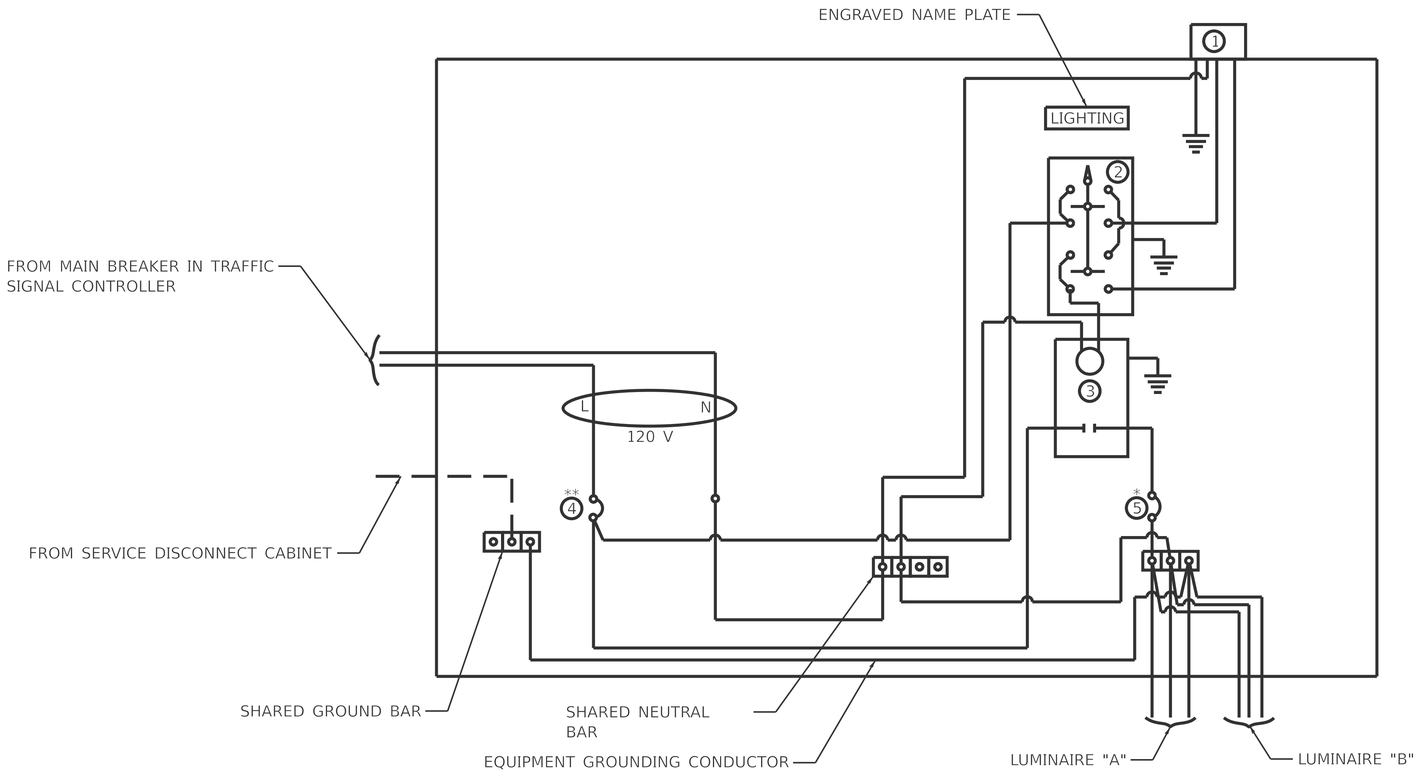


LEGEND

⏚	GROUND CONNECTED TO SHARED GROUND BAR
— —	INDICATES SHARED WITH TRAFFIC SIGNAL CONTROLLER EQUIPMENT
①	PHOTOCELL WITH INTEGRAL SURGE ARRESTER
②	HAND-OFF-AUTO SELECTOR SWITCH
③	30 AMP, 1 POLE, ELECTRICALLY HELD CONTACTOR
④	20 AMP, 1 POLE, CIRCUIT BREAKER
⑤	15 AMP, 1 POLE, BRANCH BREAKER

*QUANTITY OF BRANCH BREAKERS SHALL DEPEND ON THE COMBINATION LIGHTING CIRCUIT DIAGRAM OR AS DIRECTED BY THE ENGINEER

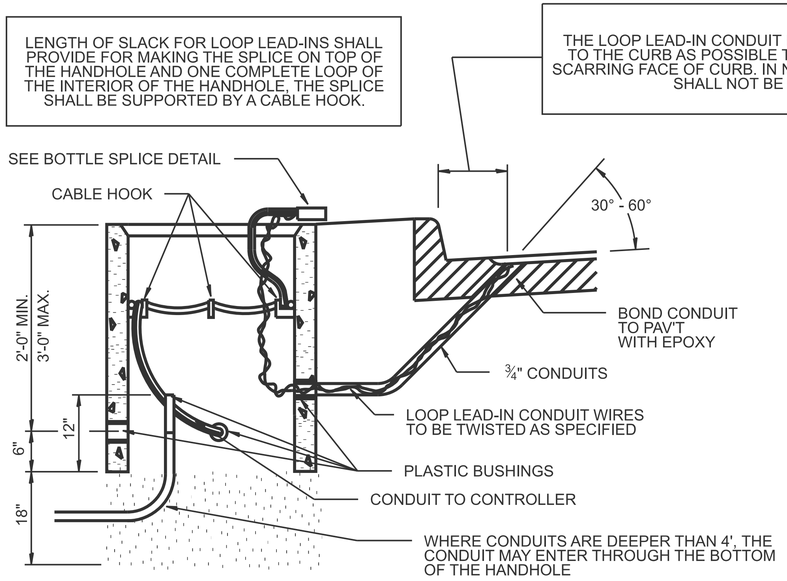
**SIZE LARGER AS NEEDED

COMBINATION LIGHTING CONTROLLER WIRING DIAGRAM

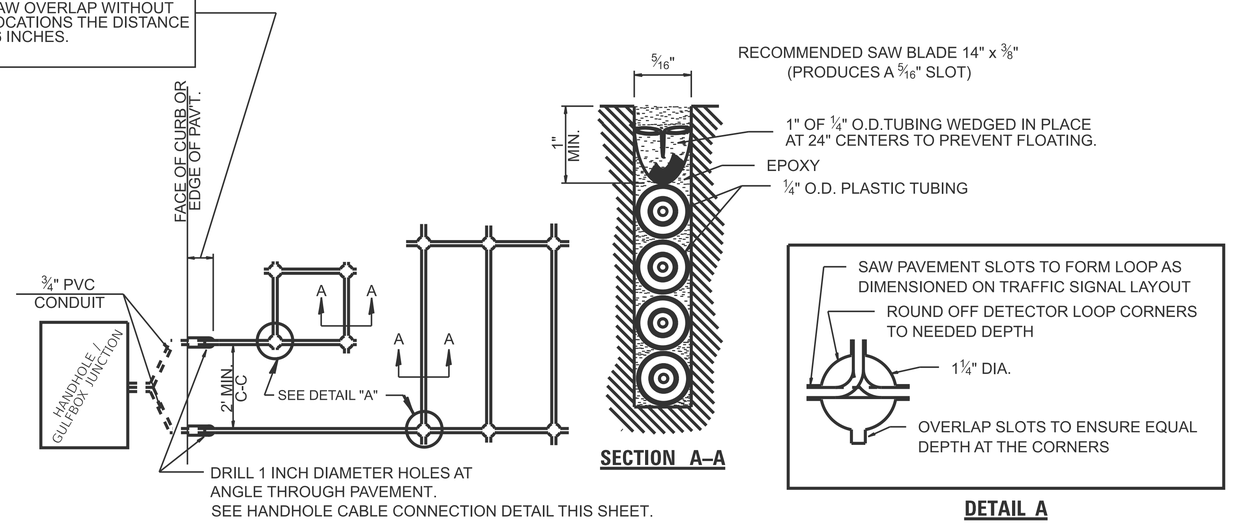
GENERAL NOTES

1. ALL CONTROL INSTALLATION COMPONENTS SHALL BE U.L. LISTED.
2. ALL WIRING SHALL BE NEATLY DRESSED, IDENTIFIED BY TAGS, AND SUPPORTED.
3. THE CIRCUIT BREAKER SHALL BE CLEARLY LABELED FOR LIGHTING ACCORDING TO ARTICLE 1068.01(e)(f) OF THE STANDARD SPECIFICATIONS.
4. INSTALL UNDER EAVE PHOTOCELL ON TRAFFIC SIGNAL CONTROLLER CABINET PER ARTICLE 1068.01(e)(2) OF THE STANDARD SPECIFICATIONS.
5. ALL LIGHTING EQUIPMENT SHALL BE INSTALLED ON A SIDE MOUNTED INSULATED SUBPANEL PER ARTICLE 1068.01(e)(9) OF THE STANDARD SPECIFICATIONS ON THE LOWER RIGHT HAND SIDE OF TRAFFIC SIGNAL CONTROLLER OR AS DIRECTED BY THE ENGINEER.
6. PROVIDE AN ENGRAVED STAINLESS STEEL NAMEPLATE ON THE SUB PANEL READING "LIGHTING".

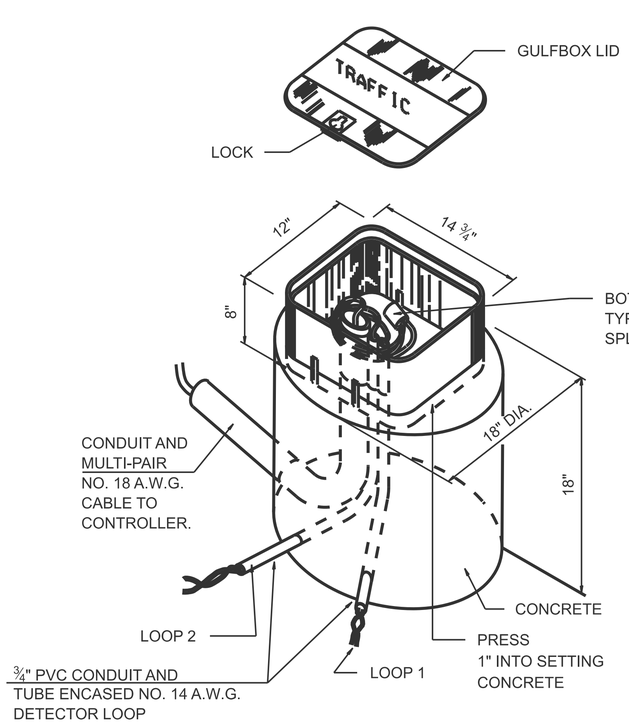
DISTRICT SIX
COMBINATION LIGHTING CONTROLLER DETAIL



HANDHOLE CABLE CONNECTIONS

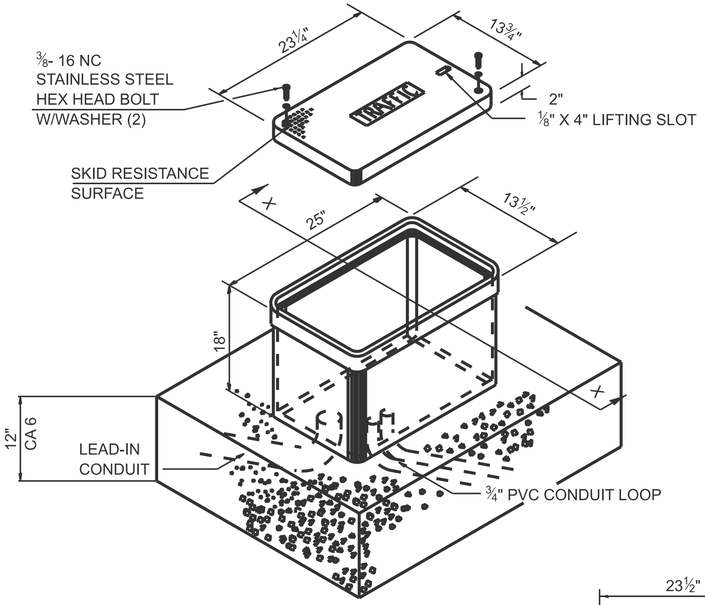


PAVEMENT SAWING DETAIL FOR TUBE ENCASED DETECTOR LOOP WIRE

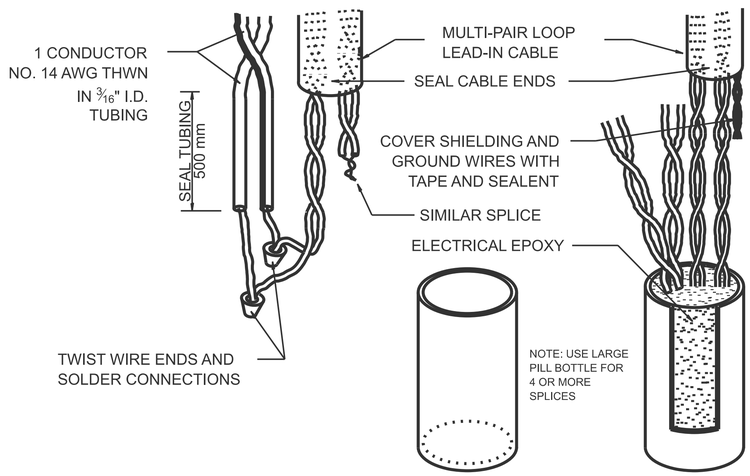


GULFBOX JUNCTION DETAIL

(SHOWING CONNECTION OF TUBE-ENCASED DETECTOR LOOP TO MULTI-PAIR LEAD-IN CABLE)



JUNCTION BOX (SPECIAL)



BOTTLE SPLICE DETAIL

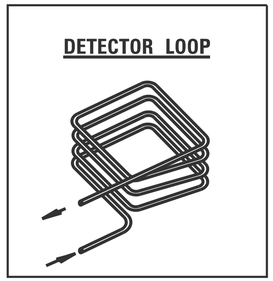
D6–800–TSDL001

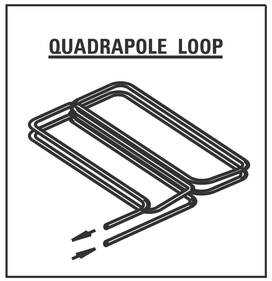
DISTRICT SIX
TRAFFIC SIGNAL DETECTOR LOOP DETAILS

LOOP DESIGNATION	NUMBER OF TURNS	READING @ HANDHOLE OR JUNCTION BOX				READING @ CONTROLLER			
		CALCULATED		METERED		CALCULATED		METERED	
		mh	W	mh	W	mh	W	mh	W
WRE	4	139	0.31		165	4.18			
WLB	2	194	0.91		207	2.85			
WLT	2-4-2	407	1.37			421	3.31		
SLB	2	188	0.78			193	1.46		
SLT	2-4-2	463	1.50			468	2.18		
SMB	2	179	0.69			183	1.37		
SMP	2-4-2	575	1.75			579	2.43		
SRB	2	183	0.64			187	1.32		
SRT	2	196	0.69			201	1.36		
ELB	2	196	0.96			201	1.8		
ELT	2-4-2	389	1.32			395	2.17		
ELE	4	145	0.44			171	4.28		
ERE	4	142	1.27			228	13.87		
ERL	4	140	1.11		226	18.71			
ELF	4	144	1.41		270	20.07			
ERF	4	142	4.04			268	22.71		
NLB	2	189	3.54			266	13.90		
NLT	2-4-2	407	4.48			484	15.85		
NMP	2-4-2	500	5.15			577	16.52		
NMB	2	179	7.56			256	18.92		
NRT	2	111	4.85			188	16.21		
NRB	2	111	4.85			188	16.21		

EXAMPLE ONLY

INSERT JOB SPECIFIC INFORMATION





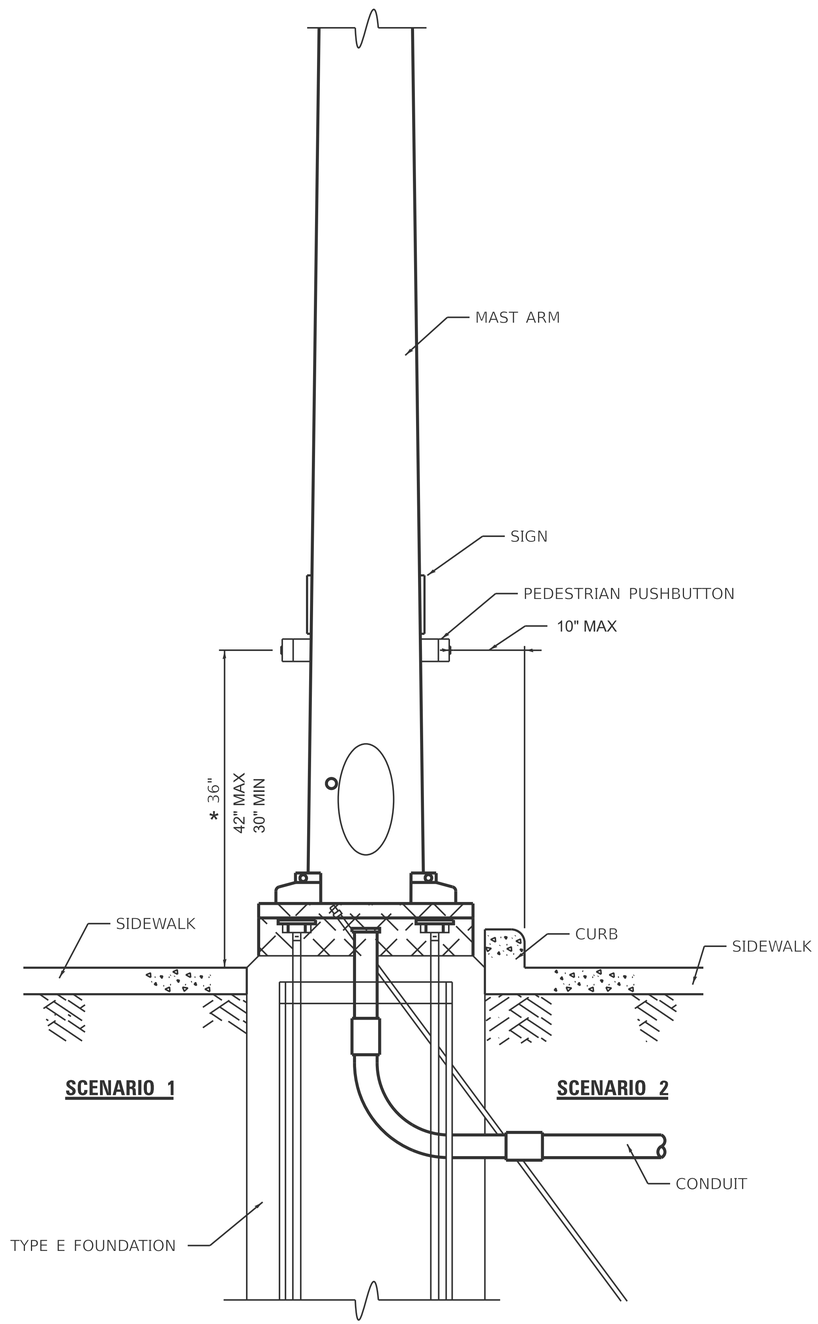
INSTALLING THE LOOP WIRE:
THE NEGATIVE LEAD SHALL BE CONNECTED TO THE BLACK CONDUCTOR OF A PAIR OF CONDUCTORS IN THE LEAD-IN CABLE AND THE POSITIVE LEAD SHALL BE CONNECTED TO THE COLOR-CODED CONDUCTOR OF THE CABLE PAIR.

DETECTOR LOOP WIRE INSTALLATION

DETECTOR NOTES:

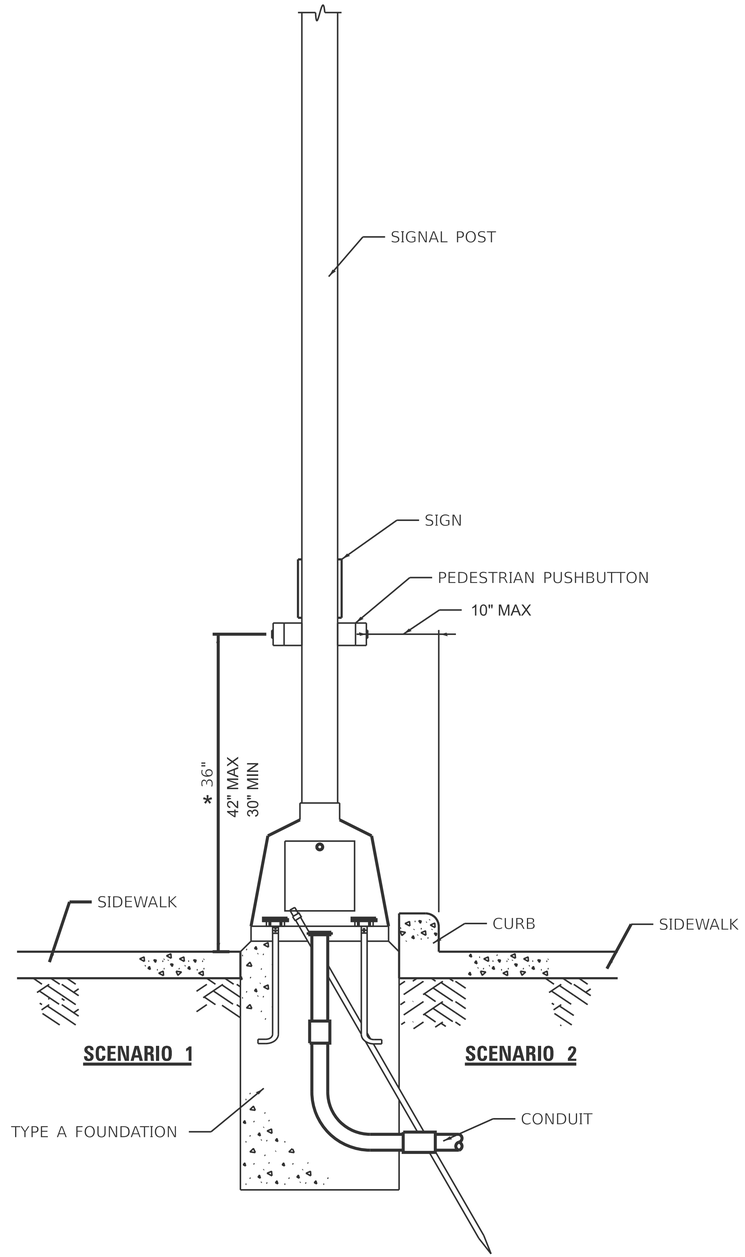
1. THE DETECTOR LOOP SHALL BE CENTERED IN THE LANE IN WHICH IT IS SHOWN. ANY ADJUSTMENTS ARE TO BE MADE ONLY AT THE DIRECTION OF THE ENGINEER.
2. THE DETECTOR LOOPS SHALL CONSIST OF THE NUMBER OF TURNS AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. ACCEPTANCE OF THE LOOPS AS METERED SHALL BE DETERMINED BY THE ENGINEER.
4. ALL DETECTOR WIRES SHALL BE MARKED WITH WATERPROOF LABELS USING THE WIRING IDENTIFICATION SHOWN ON THE PLANS. THE + AND - OF EACH LOOP MUST BE USED TO IDENTIFY CURRENT FLOW. ALWAYS CONNECT THE BLACK WIRE OF EACH PAIR TO THE NEGATIVE (-) LOOP WIRE.
5. ALL QUADRAPOLE LOOPS SHALL BE 2-4-2 DESIGN.

DISTRICT SIX
TRAFFIC SIGNAL DETECTOR LOOP DETAILS



PEDESTRIAN PUSHBUTTON INSTALLATION, MAST ARM

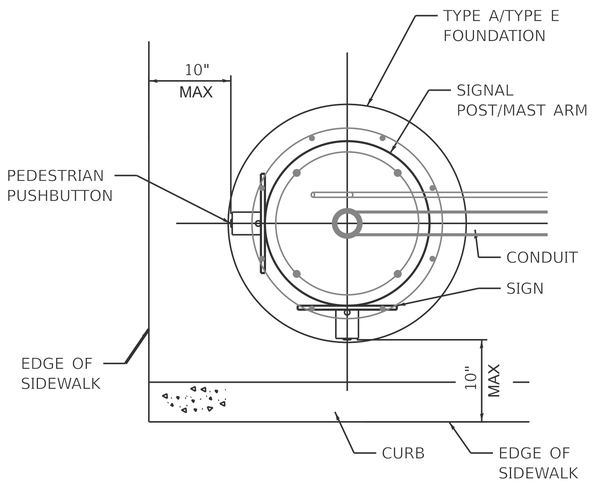
* 36" PREFERRED



PEDESTRIAN PUSHBUTTON INSTALLATION, SIGNAL POST

GENERAL NOTES

1. PREFERRED MOUNTING HEIGHT OF THE PUSHBUTTON SHALL BE APPROXIMATELY 3 FEET. THE HEIGHT SHALL BE MAXIMUM OF 3.5 FEET AND MINIMUM OF 2.5 FEET ABOVE SIDEWALK.
2. REACH OF THE PUSHBUTTON SHALL BE A MAXIMUM OF 10 INCHES FROM THE EDGE OF THE SIDEWALK.
3. PUSHBUTTON SHALL BE UNOBSTRUCTED AND ADJACENT TO ALL-WEATHER SURFACE TO PROVIDE ACCESS FROM A WHEELCHAIR.
4. IN ANY CASE THE 10 INCH MAXIMUM DISTANCE IS NOT ACHIEVED, MODULAR EXTENSION BRACKETS SHALL BE INSTALLED. THE COST AND LABOR OF INSTALLING EXTENSION BRACKET SHALL BE INCLUDED IN THE COST OF PEDESTRIAN PUSHBUTTON.
5. THE PUSHBUTTON FACE SHOULD BE PARALLEL TO THE CROSSWALK IT CONTROLS.



PEDESTRIAN PUSHBUTTON INSTALLATION, TOP VIEW

NOT TO SCALE

DISTRICT SIX
PEDESTRIAN PUSHBUTTON INSTALLATION DETAIL

D6–800–PPBI

TRAFFIC SIGNAL PLAN LEGEND

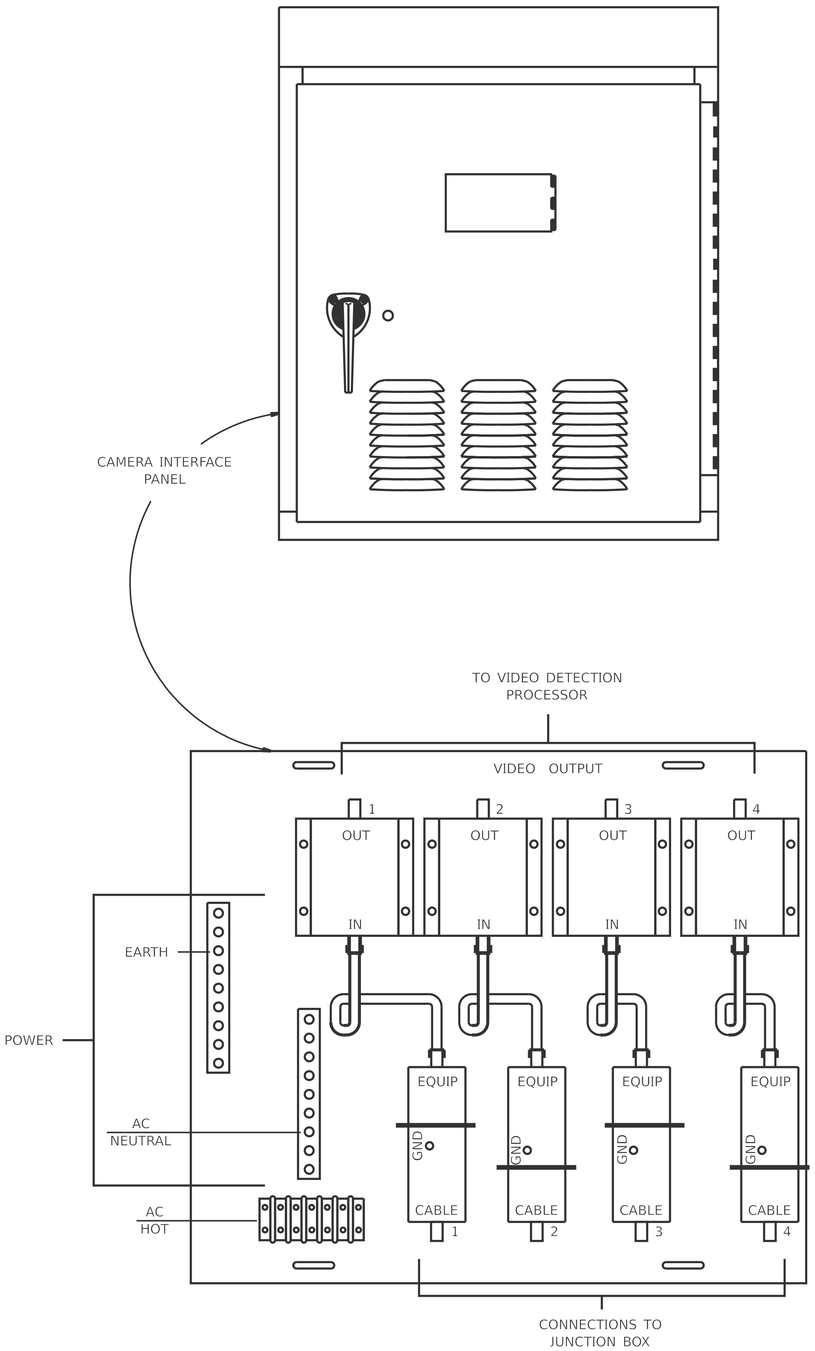
ITEM	REMOVAL	EXISTING	PROPOSED
ALUMINUM MAST ARM ASSEMBLY AND POLE	R		
STEEL MAST ARM ASSEMBLY AND POLE	R		
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE	R		
SIGNAL POST	R		
CONTROLLER CABINET	R		
MASTER CONTROLLER	R		
RAILROAD CONTROLLER	R		
UNINTERRUPTABLE POWER SUPPLY	R UPS	UPS	UPS
TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT MINIMUM	R		
TEMPORARY WOOD POLE W/ GUY	R		
SERVICE INSTALLATION (P) POLE OR (G) GROUND MOUNT	R		
TEMPORARY SIGNAL HEAD			
SIGNAL HEAD (NUMBER INDICATE NUMBER OF SECTIONS)	R	3	3
SIGNAL HEAD WITH BACKPLATE	R		
FLASHER INSTALLATION (S DENOTES SOLAR POWER)	R		
PEDESTRIAN SIGNAL HEAD	R		
PEDESTRIAN PUSH-BUTTON DETECTOR	R		
ACCESSIBLE PEDESTRIAN PUSH-BUTTON DETECTOR	R APS	APS	APS
PRIORITY VEHICLE DETECTOR	R		
CONFORMATION BEACON	R		
VIDEO DETECTOR SYSTEM	R V	V	V
HANDHOLE	R		
DOUBLE HANDHOLE	R		
HEAVY DUTY HANDHOLE	R H	H	H
JUNCTION BOX	R		
GULFBOX JUNCTION	R		
CONDUIT SPLICE			

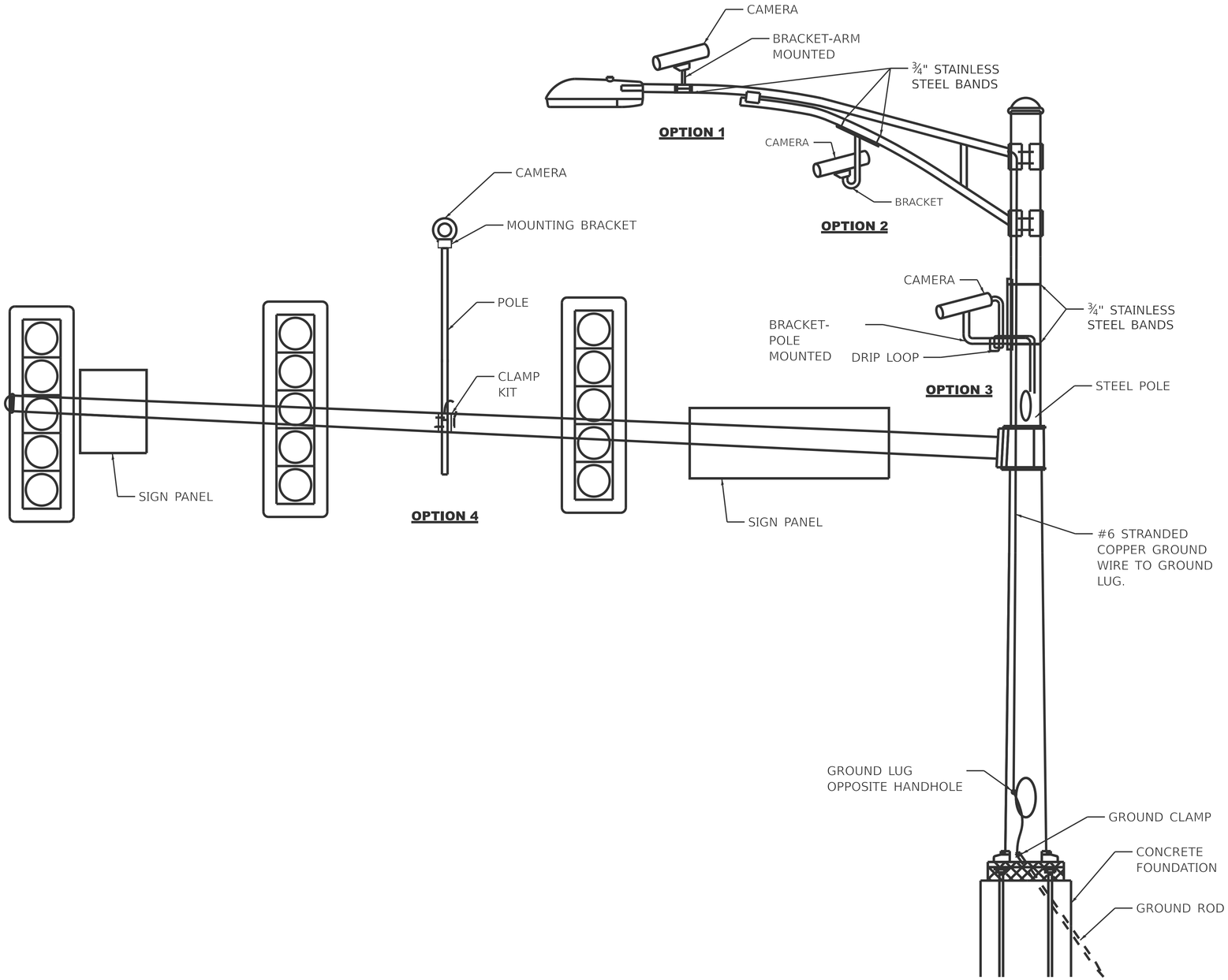
ITEM	REMOVAL	EXISTING	PROPOSED
DETECTOR LOOP LARGE			
DETECTOR LOOP SMALL			
QUADRAPOLE DETECTOR LOOP			
DIRECT CONNECTED LOOP LEAD-IN (TWISTED)			
UNDERGROUND CONDUIT (UC) LENGTH - CONSTRUCTION (T=TRENCH, P=PUSHED, A=AGUERED, E= EXISTING) SIZE - TYPE (S=STEEL, P=PVC, F=FIBER DUCT, U=UNI-DUCT)		15'-UC 3" PVC	15'-UC 3" PVC

TRAFFIC SIGNAL DETAIL LEGEND

ITEM	REMOVAL	EXISTING	PROPOSED
SIGNAL SECTION - SOLID RED	R R	R	R
SIGNAL SECTION - SOLID YELLOW	R Y	Y	Y
SIGNAL SECTION - SOLID GREEN	R G	G	G
SIGNAL SECTION - RED TURN ARROW	R <R	<R	<R
SIGNAL SECTION - YELLOW TURN ARROW	R <Y	<Y	<Y
SIGNAL SECTION - FLASHING YELLOW ARROW	R <FY	<FY	<FY
SIGNAL SECTION - GREEN TURN ARROW	R <G	<G	<G
PEDESTRIAN SIGNAL HEAD	R		
PEDESTRIAN SIGNAL HEAD W/ COUNTDOWN TIMER	R 15	15	15
TRAFFIC SIGNAL BACKPLATE	R		
SIGNAL SECTION WITH LOUVRE	R		
SIGNAL SECTION WITH DUAL INDICATION	R Y> G>	Y> G>	Y> G>
ELECTRIC CABLE (NUMBER INDICATES NUMBER OF CONDUCTORS)	R 2	2	2
ELECTRIC CABLE IDENTIFIER TAPE CODES (R=RED, W=WHITE, Y=YELLOW, G=GREEN, B=BLUE, O=ORANGE, V=VIOLET, P=PINK)	R W O	W O	W O
DETECTOR LOOP	R + -	+ -	+ -
QUADRAPOLE DETECTOR LOOP	R + -	+ -	+ -

DISTRICT SIX
TRAFFIC SIGNAL LEGEND STANDARD



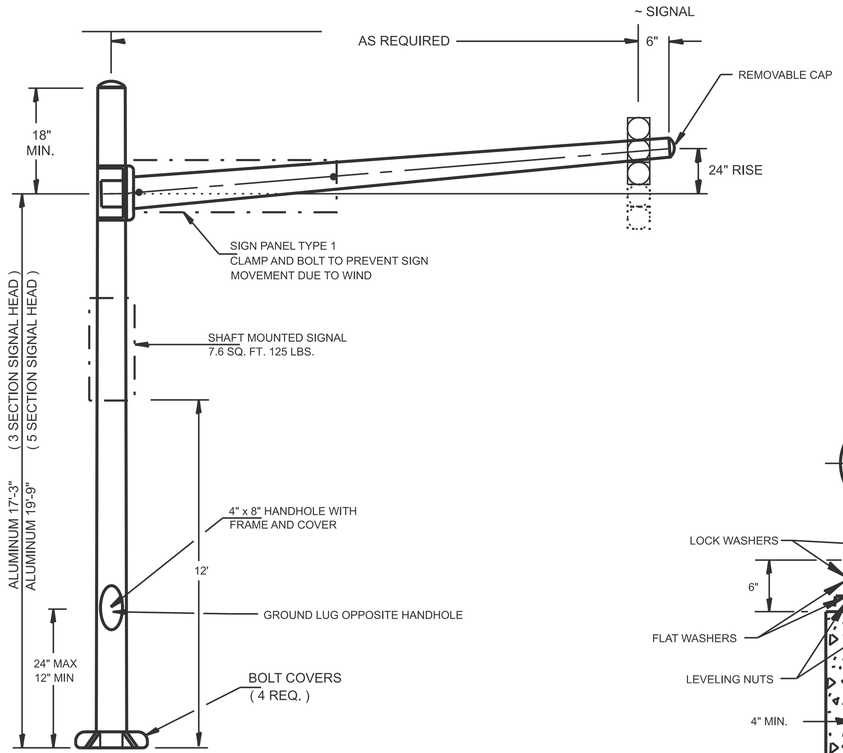


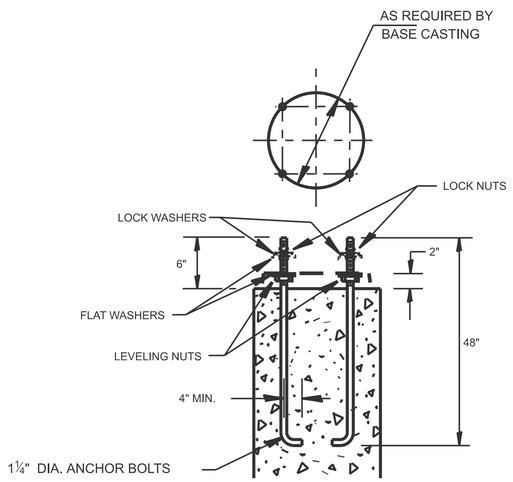
VIDEO DETECTION SYSTEM INSTALLATION
ARM MOUNTED, MAST-ARM MOUNTED, OR POLE MOUNTED

DISTRICT SIX
VIDEO DETECTION SYSTEM INSTALLATION DETAIL

D6–800–VDSI

QUANTITY EACH	FORMAT	LETTER SIZE	LOCATION	SIGN SIZE			SIGN PANEL	
				WIDTH	HEIGHT	SQ FT	TYPE 1 SQ FT	TYPE 2 SQ FT





NUTS, LOCKWASHERS AND FLATWASHERS SHALL BE GALVANIZED STEEL. 4 EACH REQUIRED. (REFER TO ARTICLE 710.12 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION)

1. THIS STANDARD SHALL BE DESIGNED TO SUPPORT ONE 8O LB. SIGNAL HEAD OF 14.7 SQ. FT. PROJECTED AREA AT THE FREE END OF THE MAST ARM AND ONE 125 LB. SIGNAL HEAD OF 7.6 SQ. FT. PROJECTED AREA MOUNTED 12 FT. UP ON THE SHAFT OR THE SIGNAL LOADINGS SHOWN ON THE PLANS, WHICHEVER IS GREATER. THE DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR 8O M.P.H. WIND VELOCITY.

2. THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS OF THE MAST ARM ASSEMBLY TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. THESE DRAWINGS SHALL BE AT LEAST 17 IN. BY 22 IN. IN SIZE AND OF ADEQUATE QUALITY FOR MICROFILMING.

3. HOLES IN THE SHAFT FOR WIRE INLET AND BACK CLAMP BOSSES SHALL BE DRILLED IN THE FIELD.

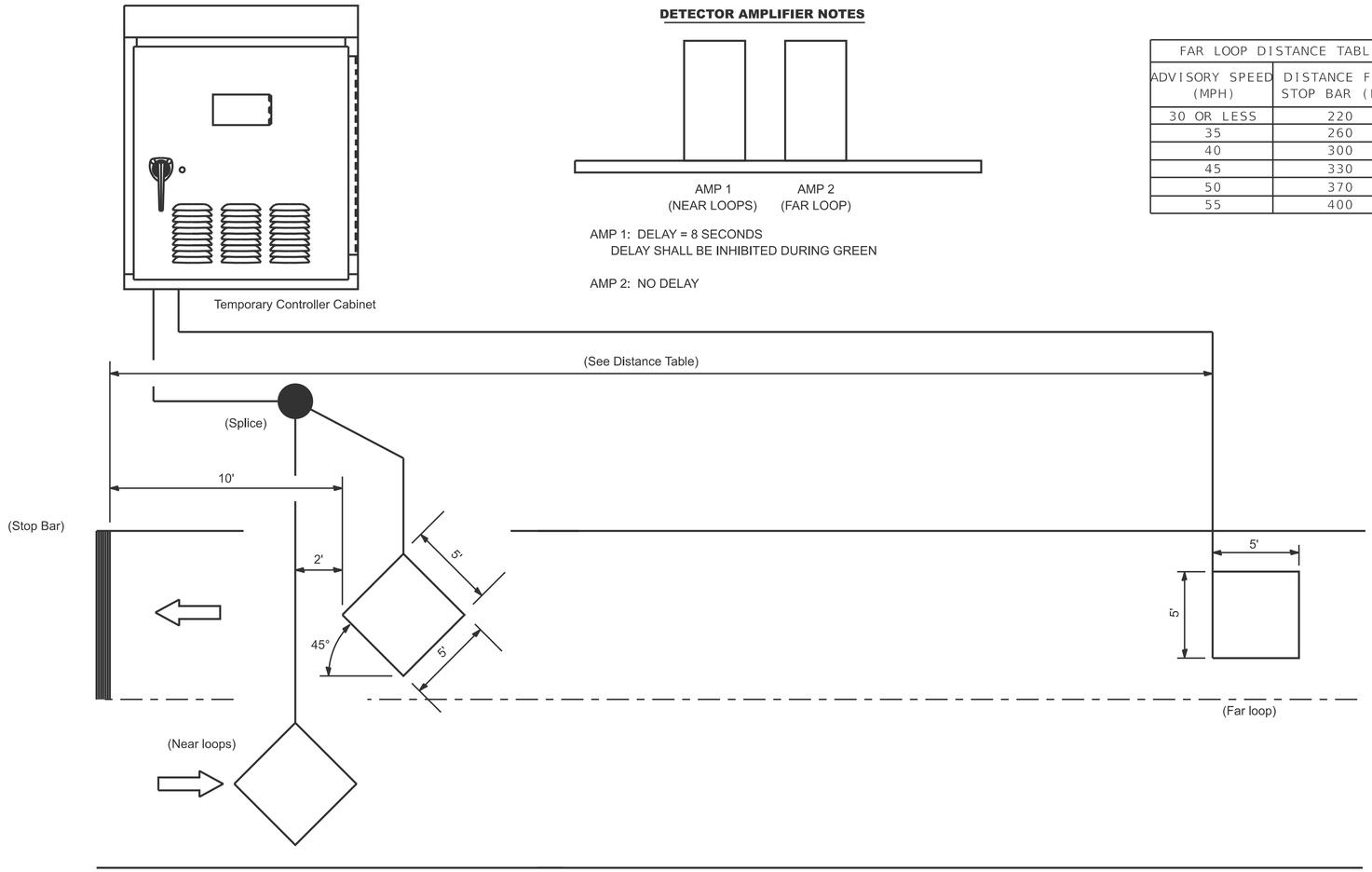
4. OTHER ALLOYS, ACCEPTABLE BY AASHTO, WHICH SATISFY OR EXCEED THE DESIGN REQUIREMENTS MAY BE USED IF APPROVED BY THE ENGINEER.

5. HIGH STRENGTH ANCHOR BOLTS, WHEN USED, SHALL BE SPECIFIED WITH ASTM SPECIFICATIONS INDICATING MINIMUM YIELD AND TENSILE STRENGTH.

6. THE SIGNAL HEAD (INCLUDING BACKPLATE WHEN USED) SHALL BE NOT LESS THAN 16'-O" OR MORE THAN 18'-O" ABOVE THE ROADWAY.

D6–800–AL2530MMAAP

ALUMINUM 25 FT. & 30 FT. MONOTUBE MAST ARM ASSEMBLY AND POLE



DETECTOR AMPLIFIER NOTES

AMP 1: DELAY = 8 SECONDS
DELAY SHALL BE INHIBITED DURING GREEN

AMP 2: NO DELAY

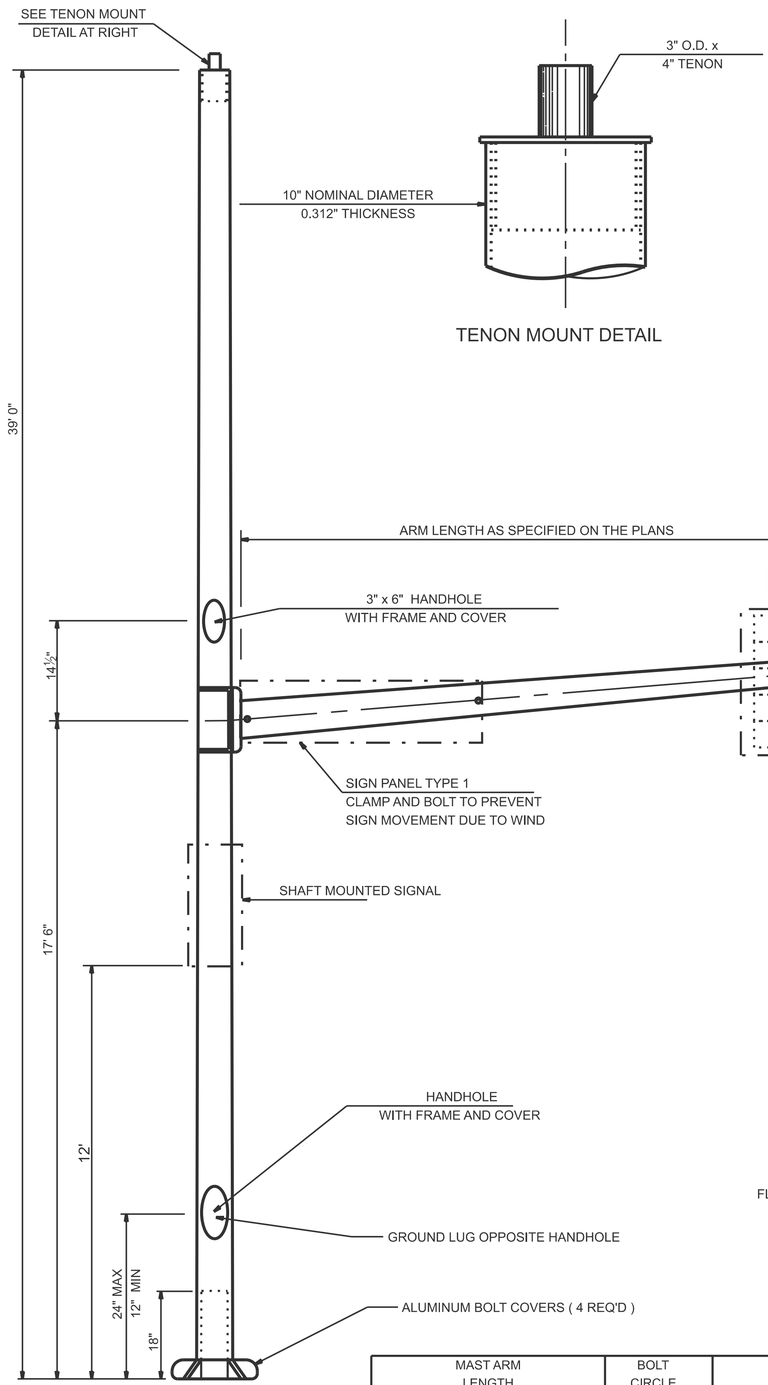
FAR LOOP DISTANCE TABLE	
ADVISORY SPEED (MPH)	DISTANCE FROM STOP BAR (FT.)
30 OR LESS	220
35	260
40	300
45	330
50	370
55	400

NOTE: All loops centered in lane.

INDUCTION LOOP DETECTOR

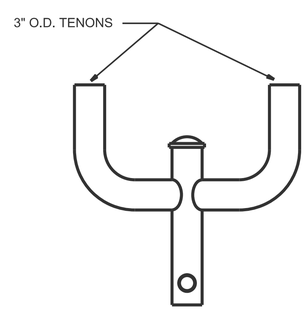
D6–800–TBTSLP

TEMPORARY BRIDGE TRAFFIC SIGNAL
LOOP PLACEMENT DETAIL SHEET

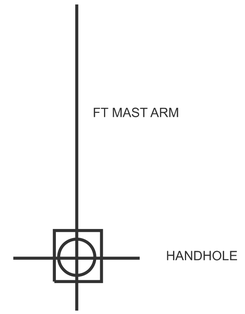


TENON MOUNT DETAIL

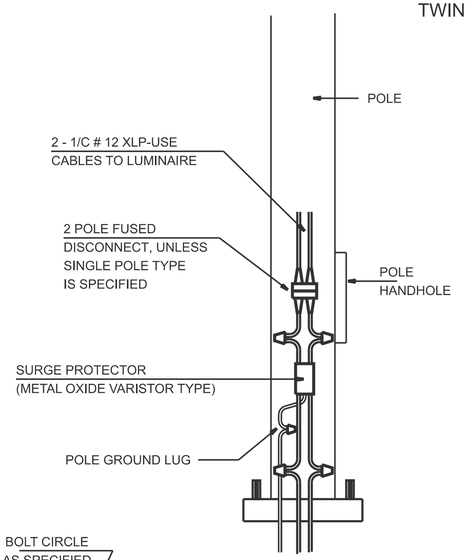
INSTALL AND ORIENT ARM BRACKET OVER POLE TENON AND FIRMLY HAND TIGHTEN THE TWO SET SCREWS. USE THIRD HOLE IN ARM BRACKET AS A GUIDE TO DRILL A $^{21}/_{64}$" DIA. HOLE THROUGH TENON. INSTALL AND TIGHTEN SET SCREWS AN ADDITIONAL $^{1}/_{4}$ TO $^{3}/_{8}$ TURN WITH HEX KEY (NOT INCLUDED). INSTALL LOCK NUTS ON SET SCREWS IF THREADED PROJECTION ALLOWS.

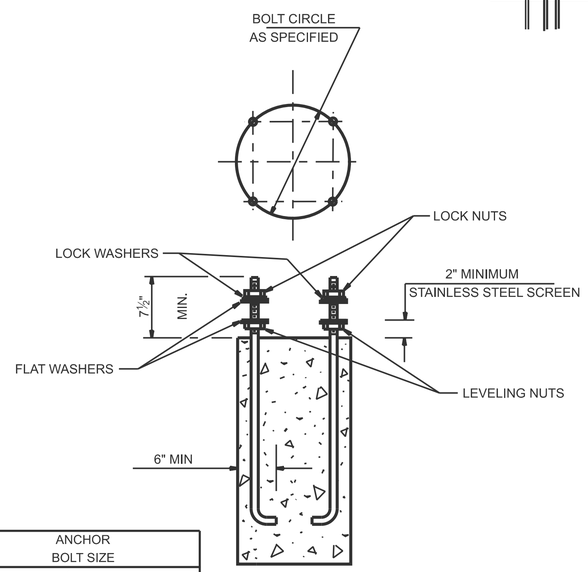


TWIN TENON



ORIENTATION OF ARM





MAST ARM LENGTH	BOLT CIRCLE	ANCHOR BOLT SIZE
16' THRU 28'	15'	1½" x 60"
30' THRU 24'	18"	1½" x 60"
44'	18"	1¾" x 60"

GENERAL NOTES

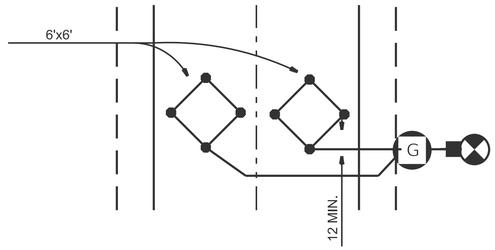
1. The combination mast arm assembly and pole shall be constructed with one piece mast arms and pole or other equivalent sectional design.
2. The standard shall be designed to support one 80 lbs signal head with a projected area of 14.7 square feet at the free end of the mast arm, one 50 lbs signal head with a projected area of 8.7 square feet mounted 12 feet inward on the mast arm, one 125 lbs signal head with a projected area of 7.6 square feet mounted 12 feet high on the shaft, one 55 lbs luminaire with a projected area of 3 square feet, and a sign panel 2'-6" by 6'-0" mounted as shown on Standard 2380 or the loadings shown on the plans, whichever is greater. The design shall be in accordance with the requirements of the current "Standard Specifications for Structural Supports for Highway Signs, Luminares, and Traffic Signals" as published by the American Association of State Highway and Transportation Officials for 80 mph wind velocity.
3. The contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor bolts to the Engineer for approval prior to fabrication. These drawings shall be at least 17 inches by 22 inches in size and of adequate quality for microfilming.
4. The type of signal head mounting bracket to be used shall be approved by the Engineer.
5. The signal head (including backplate when used) shall be not less than 16' or more than 18' above the crown of the pavement.
6. The manufacturer will be allowed to slot the base plate in which other bolt circles may fit providing that these slots do not offset the integrity of the pole.
7. Combination mast arm assemblies and poles shall not be installed without the luminaire.
8. The anchor bolts shall conform to the requirements of Article 706.09 of the Standard Specifications for Road and Bridge Construction.
9. Luminaire shall comply with Section 962 of the Standard Specifications for Road and Bridge Construction. It includes luminaire, lamp and surge protector.
10. Cable for luminaire shall conform to Section 952 and 785.03 of the Standard Specifications for Road and Bridge Construction. It includes cable and fused quick disconnect.
11. Luminaire mast arms shall comply with Article 785.10 of the Standard Specifications for Road and Bridge Construction and may be either "clamp on" type or davit type.
12. Fused disconnect or circuit breaker shall conform to Article 785.05 of the Standard Specifications for Road and Bridge Construction.
13. Cable shall be installed in traffic signal conduit unless otherwise noted.

DETAILS OF ALUMINUM COMBINATION MAST ARM ASSEMBLY AND POLE

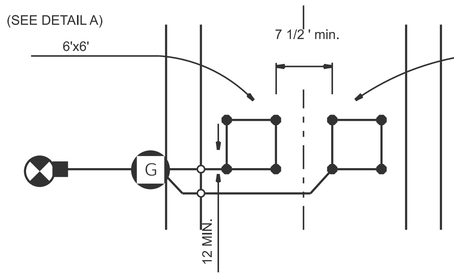
D6–800–ACMAAP

TYPICAL APPLICATIONS FOR TRAFFIC COUNTER USING TERMINAL FACILITY

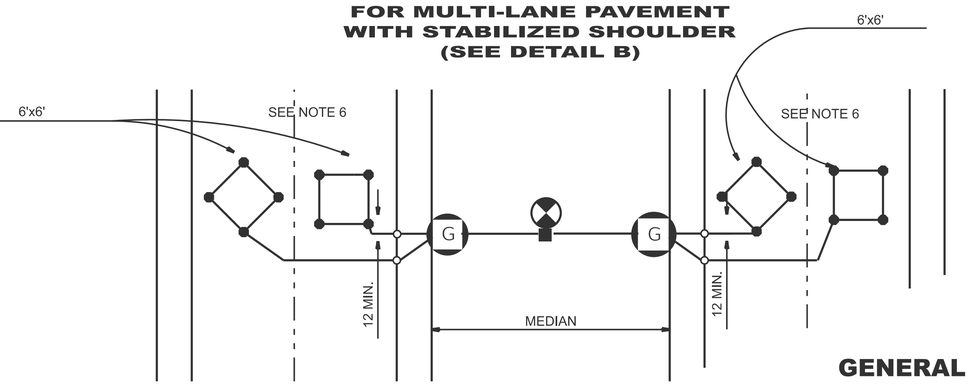
FOR PAVEMENT WITH AGGREGATE SHOULDER 2-WAY TRAFFIC



FOR PAVEMENT WITH STABILIZED SHOULDER 2-WAY TRAFFIC



FOR MULTI-LANE PAVEMENT WITH STABILIZED SHOULDER (SEE DETAIL B)



SCHEDULE OF QUANTITIES			
ITEM	QUANTITY	UNIT	CODE NO.
DETECTOR LOOP, SPECIAL	25	FOOT	M8470400
CONDUIT IN TRENCH, 1 1/4 DIA., PVC	9	FOOT	M8100240
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO.18 3 PAIR	9	FOOT	M8241510
TRENCH AND BACKFILL FOR ELECTRICAL WORK	8	FOOT	M8680100
TRENCH AND BACKFILL FOR ELECTRICAL WORK (SPECIAL)	-	FOOT	M8680105
GULFBOX JUNCTION	1	EACH	81500100
TERMINAL FACILITY	1	EACH	86301000
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO.18 6 PAIR	-	FOOT	M8241520

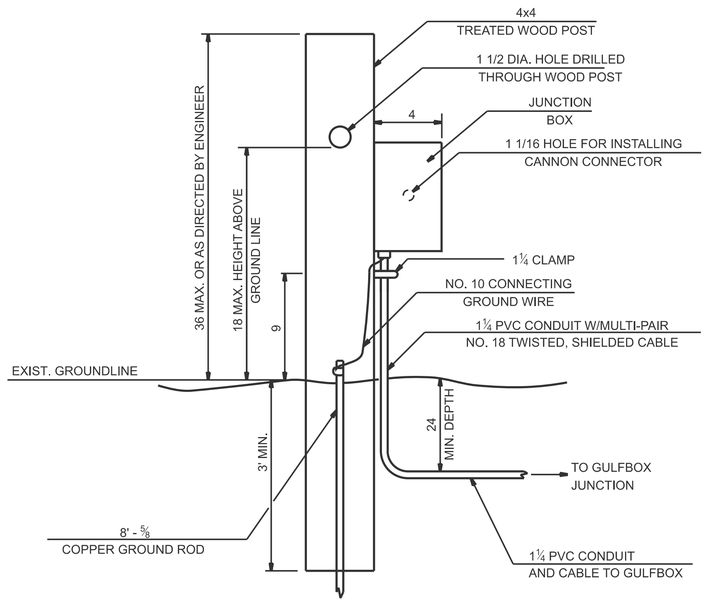
LEGEND

- 4 x 4 Treated Wood Post
- Terminal Facility
- G — Gulfbox Junction
- Indicates 4 Hole Drilled at Pavement Joint
- Indicates 1 1/4 Hole Drilled at Detector Loop Corner

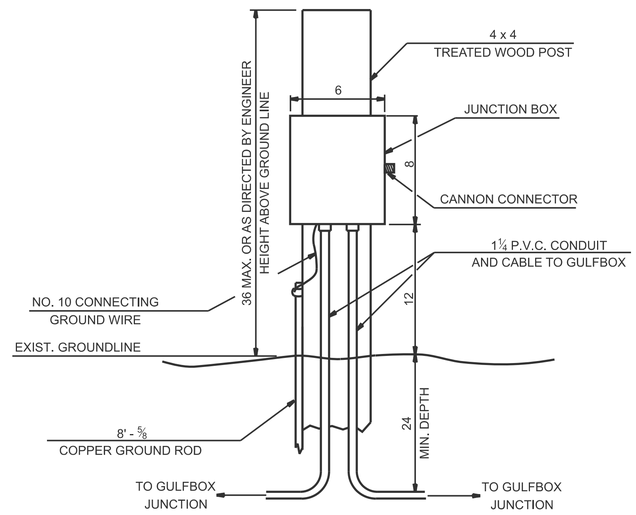
GENERAL NOTES

1. Each detector loop used shall be wired independently at the gulfbox.
2. A single multiple pair cable shall be wired from the gulfbox to the terminal facility. The number of pairs in the cable shall be equal to the number of detector loops plus a minimum of one pair to be used as a spare.
3. Diamond shaped loops shall be centered in the pavement lanes.
4. Square shaped loops shall have a minimum separartion of 7.5' between inside edges of the detector loops.
5. Each 6'x6' detector loop shall have a minimum of 4 turns of cable or as directed by the engineer.
6. Detector loops may be located as squares or diamonds in the pavement as directed by the engineer. All loops shall be oriented in the same direction.
7. Gulf junctions shall be located outside the aggregate or stabilized shoulder limits with the top of gulfbox junctions level with groundline as directed by the engineer.

DETAIL A
TERMINAL FACILITY DETAIL



DETAIL B
TERMINAL FACILITY DETAIL



NOTES FOR TERMINAL FACILITY

1. Ground rod shall be connected to the junction box with No. 10 AWG copper wire as shown in the junction box detail.
2. The location of the terminal facility shall be determined by the Engineer in the eld.

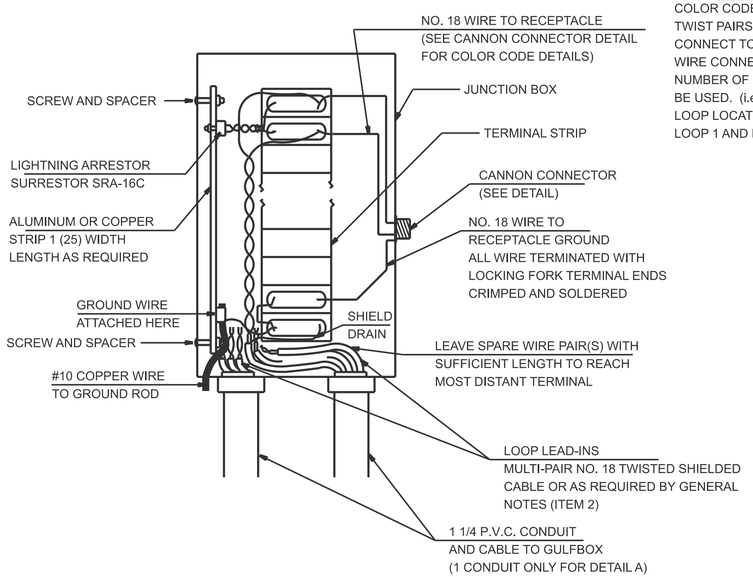
All dimensions are in inches (millimeters) unless otherwise shown.

NOTE: DO NOT SCALE

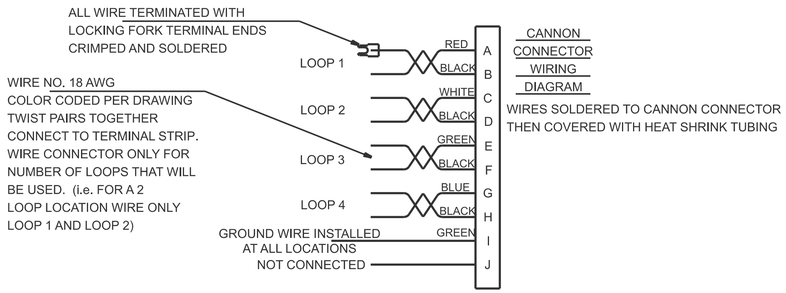
DETAIL FOR TRAFFIC COUNTERS USING TERMINAL FACILITY

D6–800–TCUTF001

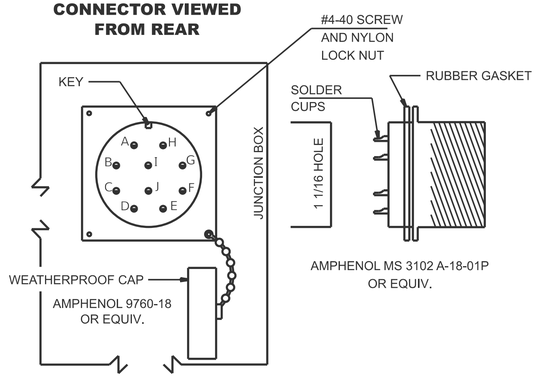
JUNCTION BOX DETAIL FOR DETAIL A AND B



CANNON CONNECTOR DETAIL



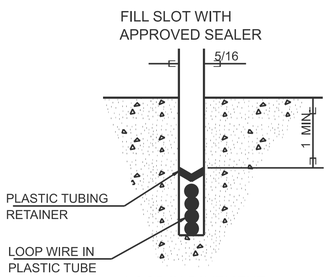
CONNECTOR VIEWED FROM REAR



NOTES FOR JUNCTION BOX

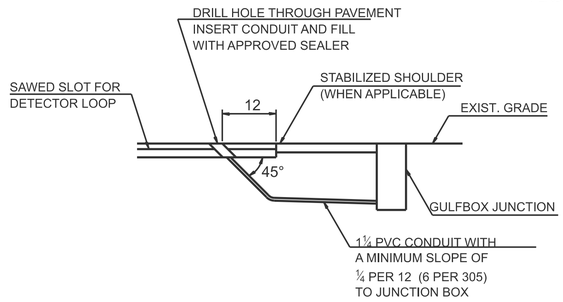
1. One lightning arrestor for each loop.
2. Number of terminals on terminal strip to be determined by number of loops. Terminal strip shall be Cinch Barrier Type 140 or equivalent.
3. Junction box shall be weather proof with size determined by number of components. Junction box shall be 4 X 6 X 8 Ho man Box or equivalent.
4. Terminal with more than 4 loops will require the use of 2 cannon connectors with loops grouped by direction or as directed by the Engineer.
5. The cost of installing the terminal facility includes all vertical wiring, boxes, connectors, vertical conduit, post, ground rod, surrestors, and labor, and shall be paid for at the contract unit price for TERMINAL FACILITY - 1 Each.

DETECTOR LOOP DETAILS; GULFBOX JUNCTION DETAIL

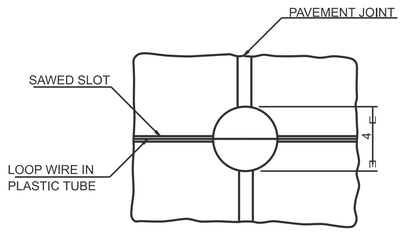


LOOP IN PAVEMENT

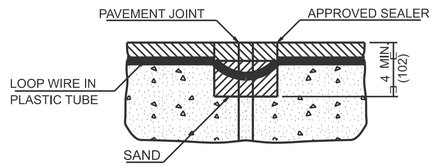
DETECTOR LOOP INSTALLATION



DETECTOR LOOP LEAD-IN DETAIL



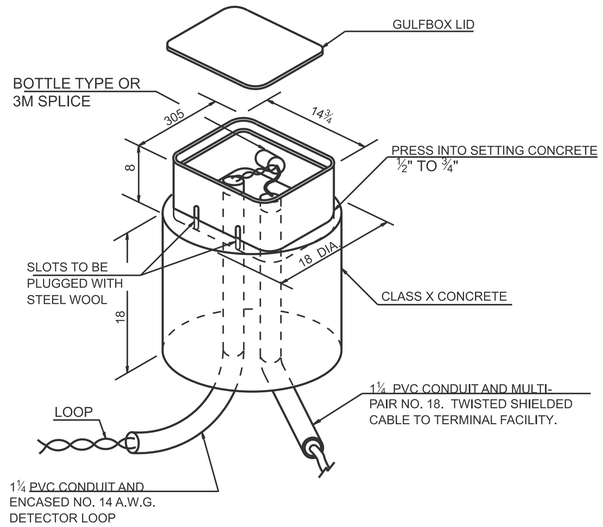
PLAN



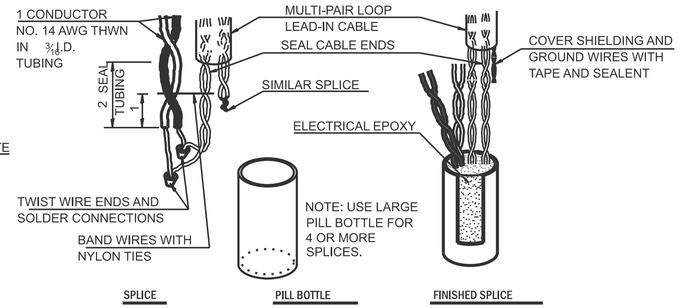
VERTICAL SECTION

NOTE: LOOP WIRE MUST FOLLOW SAW CUT TO BOTTOM, FORMING SLACK SECTION AT JOINT.

DETECTOR LOOP DETAIL AT PAVEMENT JOINT OR PAVEMENT CRACK



GULFBOX JUNCTION DETAIL



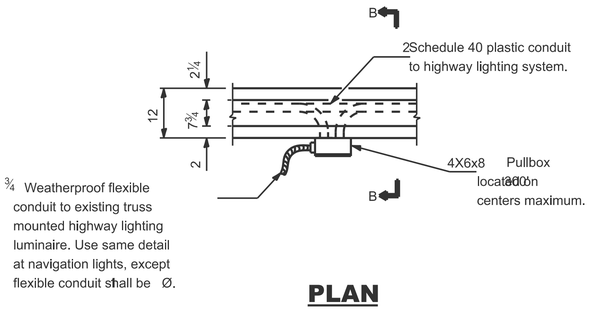
BOTTLE SPLICE DETAIL

All dimensions are in inches unless otherwise shown.

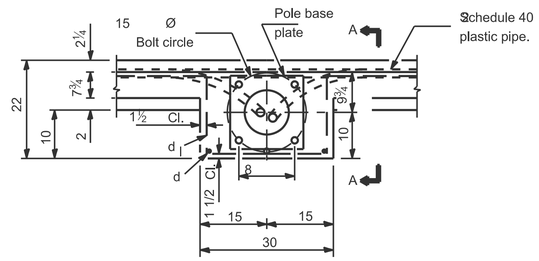
NOTE: DO NOT SCALE

DETAIL FOR TRAFFIC COUNTERS USING TERMINAL FACILITY

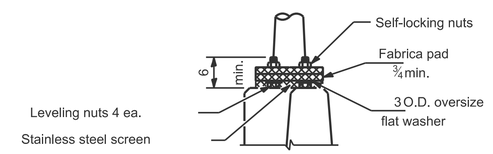
D6–800–TCUTF002



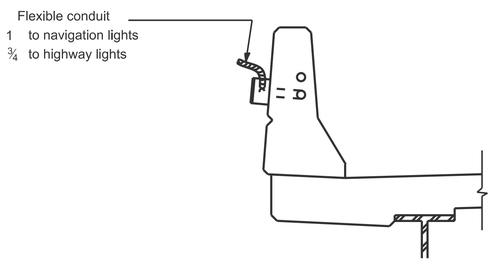
PLAN



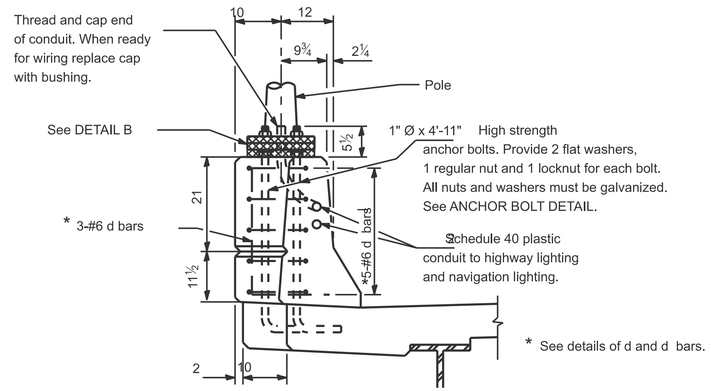
PLAN



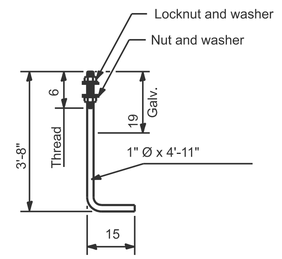
DETAIL B



SECTION B-B

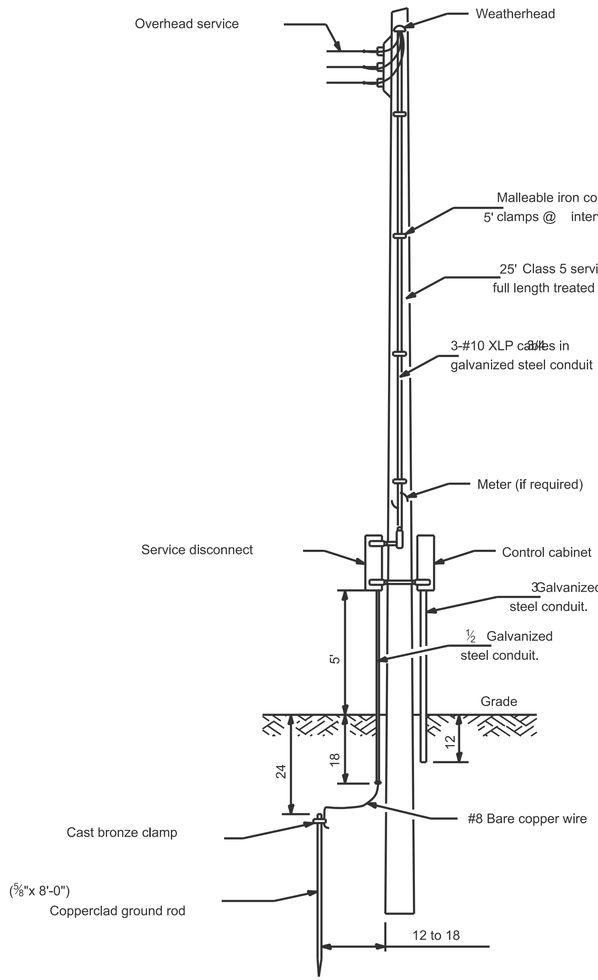


SECTION A-A

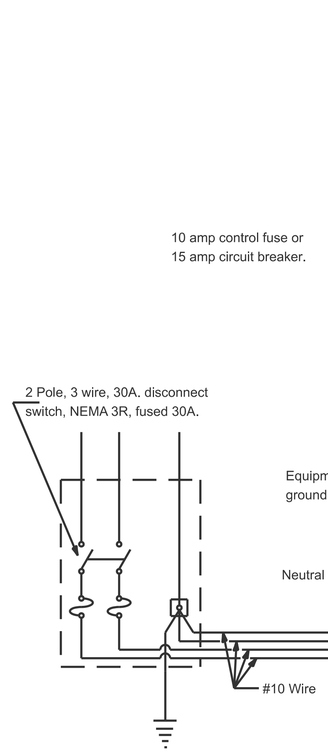


ANCHOR BOLT DETAIL

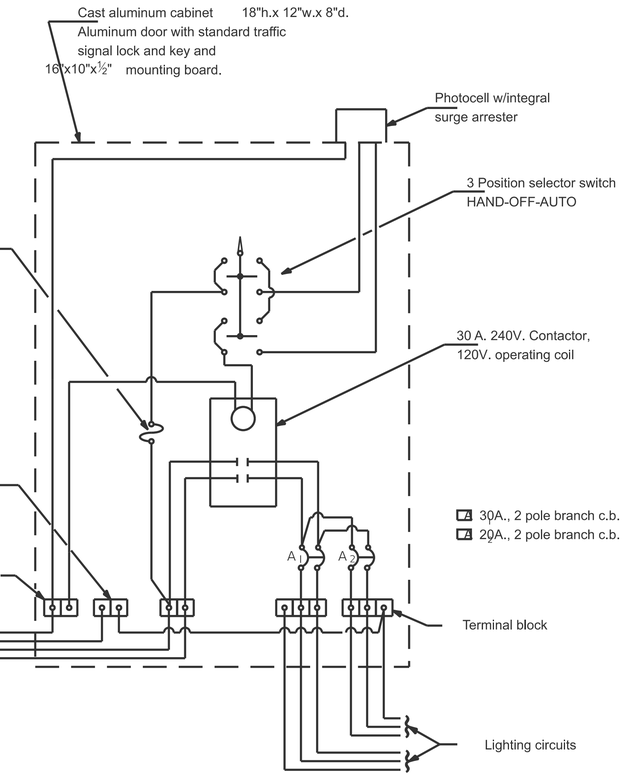
CONDUIT IN BRIDGE PARAPET DETAIL



SERVICE POLE



DISCONNECT SWITCH



PHOTOCELL RELAY

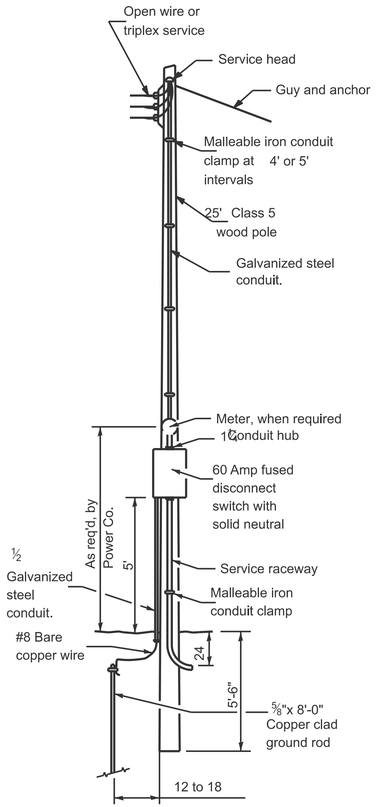
GENERAL NOTES

All equipment shall be U.L. Listed.

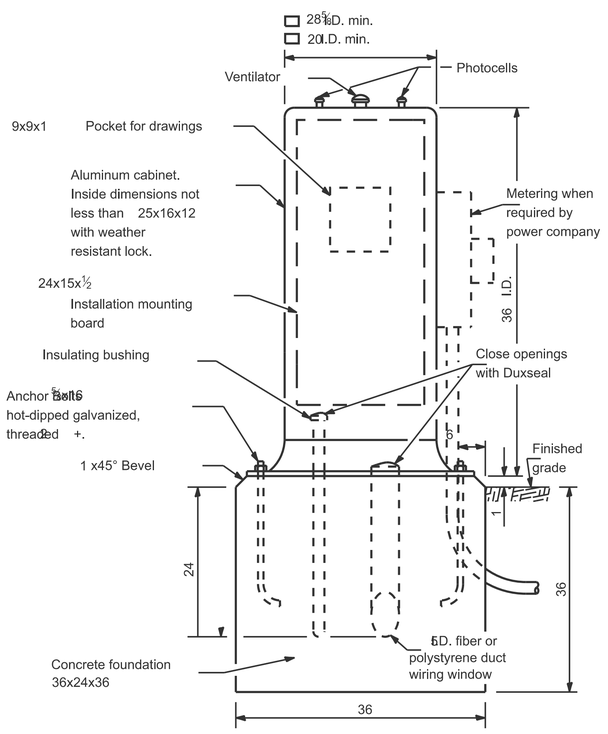
All dimensions are in inches
unless otherwise shown.

CONTROL INSTALLATION SERVICE POLE MOUNTED
120/240V., 1 PHASE, 3 WIRE SERVICE

D6–800–CISPM

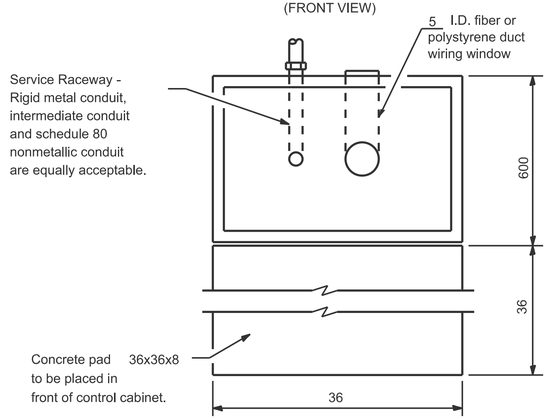


SERVICE POLE



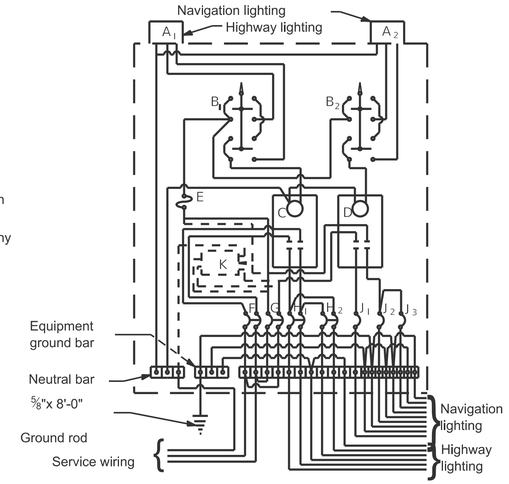
CONTROL INSTALLATION

(FRONT VIEW)



FOUNDATION

(TOP VIEW)



WIRING DIAGRAM

A1, A2 Photocells w/integral surge arrestors
B1, B2 Selector switch
C Contactor
- 60A., 2 pole, 240V.
- 60A., 2 pole, 480V.
- 100A., 2 pole, 240V.
- 100A., 2 pole, 480V.
- 150A., 2 pole, 240V.
- 150A., 2 pole, 480V.
- 200A., 2 pole, 240V.
- 200A., 2 pole, 480V.

D Contactor, 30A., 2 pole, 240V.
E 10A., Control fuse or 15A. ckt. breaker
F
- 60A., 2 pole, main breaker
- 100A., 2 pole, main breaker
- 150A., 2 pole, main breaker
- 200A., 2 pole, main breaker

G 30A., 2 pole, main breaker
H1, H2 20A., 2 pole, branch c.b's. ( ) required
- 30A., 2 pole, branch c.b's. ( ) required
- 40A., 2 pole, branch c.b's. ( ) required
- 50A., 2 pole, branch c.b's. ( ) required

J1, J2, J3 20A., 1 pole, branch c.b's.
K Transformer, single phase, ( )KVA, 480V. primary, 120/240V., 1}, 3W. secondary, required w/480V. service wiring to be revised as shown dotted.

☐ 240 V. SERVICE
☐ 480 V. SERVICE

GENERAL NOTES

Wiring shall be panel board fashion. All bends shall be right angles. All runs shall vertical or parallel to panel board. Wires shall be grouped or laced.

All control installation components shall be U.L. listed.

Label equipment ground and neutral.

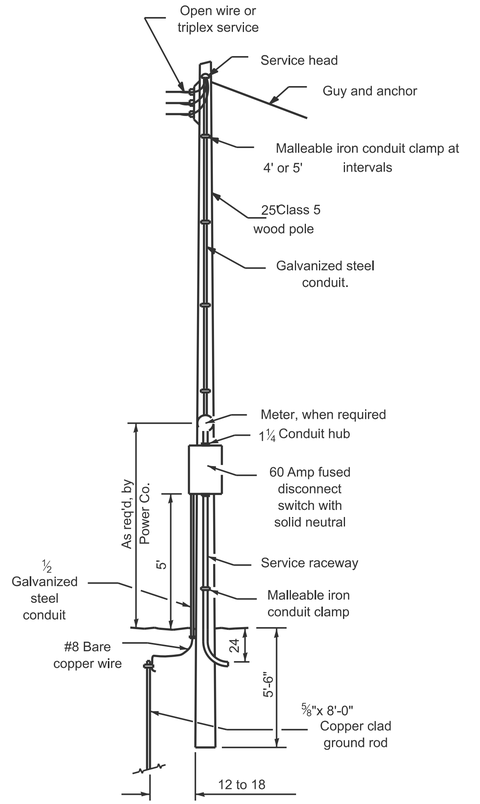
Locate service pole and control installation adjacent to R.O.W. line with a minimum distance of 30' from the edge of pavement. Exact location shall be established by the Engineer.

The underground service entrance wiring shall not exceed 150'. Total aerial and underground service between the control installation and primary transformer shall not exceed 250'.

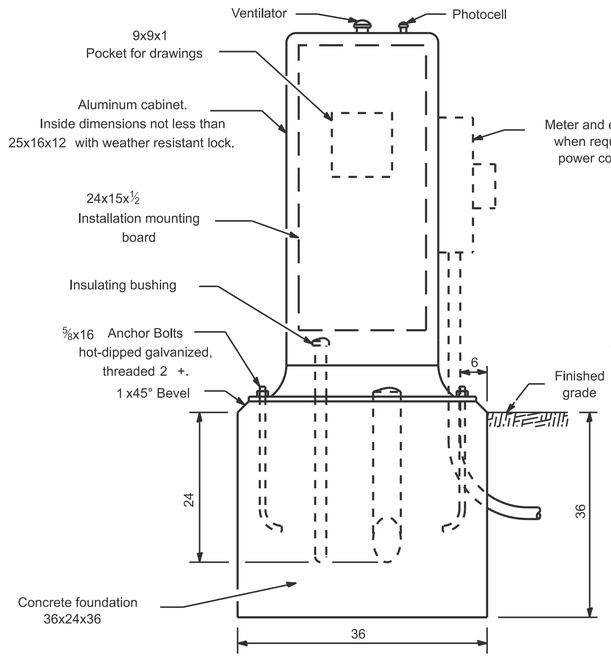
Raceways shall terminate 3 above top of concrete foundation.

For 480 V. systems, a 480/120 V. control transformer will be required.

CONTROL INSTALLATION DUAL

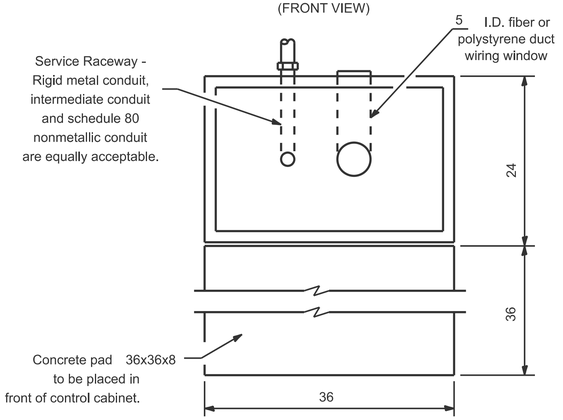


SERVICE POLE



CONTROL INSTALLATION

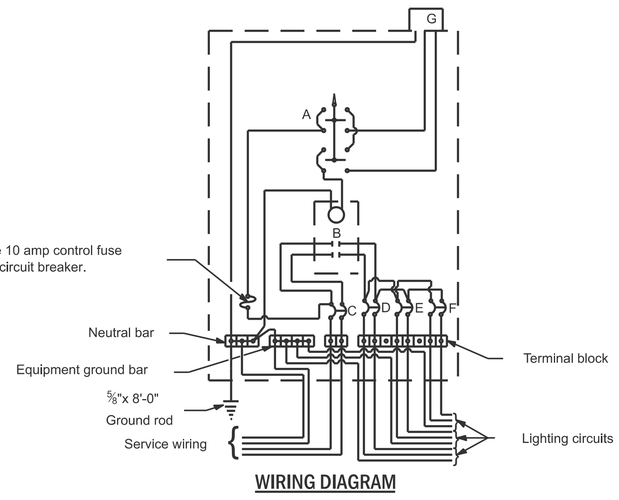
(FRONT VIEW)



FOUNDATION

(TOP VIEW)

A Selector switch
B 2 Pole 100 amp contactor
C 2 Pole 60 amp service disconnect
D,E,F 2 Pole 30 amp breakers
G Photocell w/integral surge arrester



WIRING DIAGRAM

☐ 240 V. SERVICE

☐ 480 V. SERVICE

GENERAL NOTES

Locate service pole and control installation adjacent to R.O.W. line with a minimum distance of 30' from the edge of pavement. Exact location shall be established by the Engineer.

The underground service entrance wiring shall not exceed 150'. Total aerial and underground service between the control installation and primary transformer shall not exceed 250'.

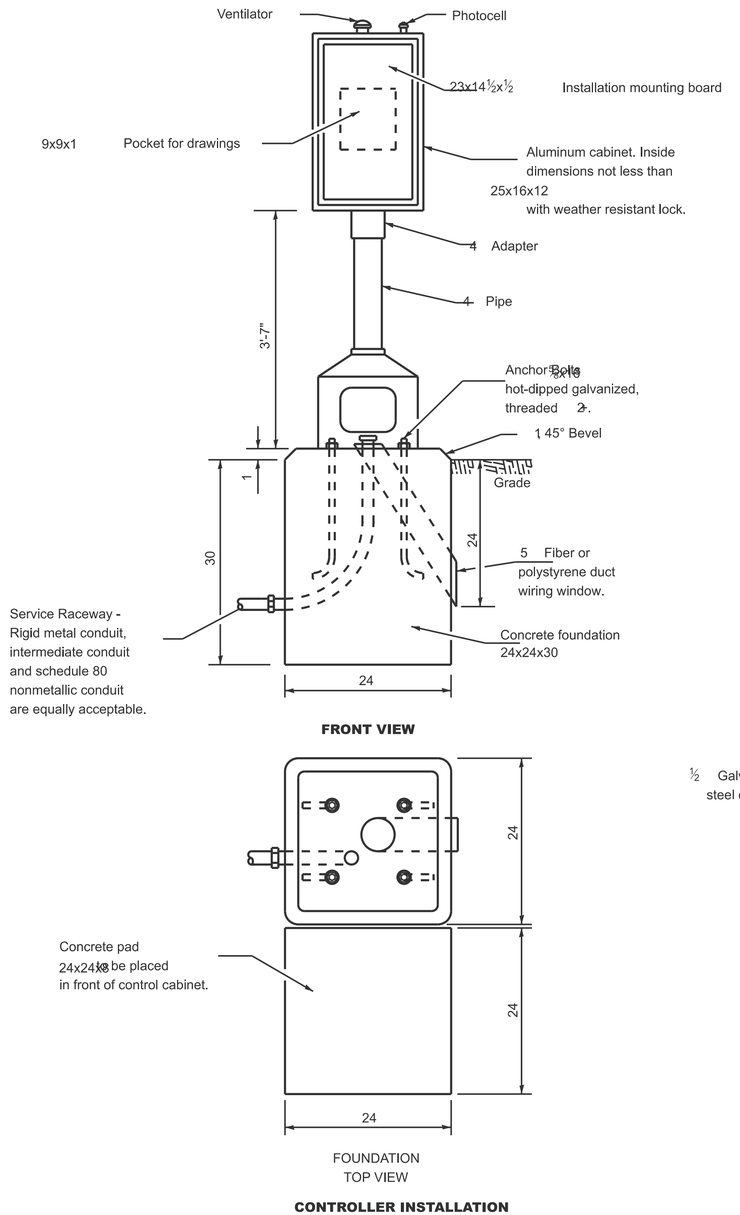
Raceways shall terminate 3 above top of concrete foundation.

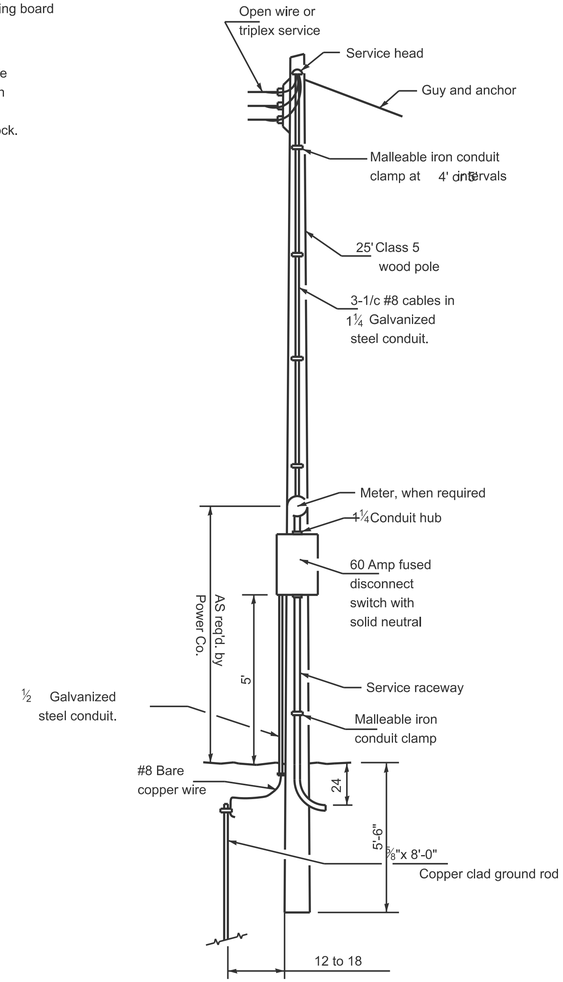
For 480 V. systems, a 480/120 V. control transformer will be required.

All dimensions are in inches unless otherwise shown.

CONTROL INSTALLATION
TYPE CB–RCS–100

D6–800–CBRCS100





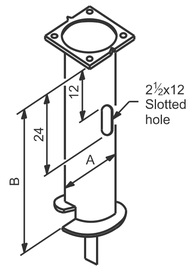
CONTROL INSTALLATION
TYPE CB-RCS-60

D6–800–CBRCS60

DATA, STEEL ** FOUNDATION TABLE			
BOLT CIRCLE	A	B	MOUNTING * HEIGHT
15"	10"	6'	45' 50'
15"	8"	6'	45'
11"	8"	6'	40'

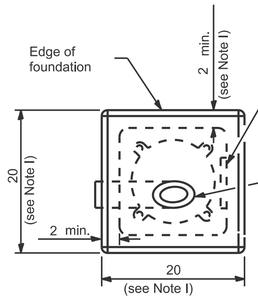
* For use on poles w/twin tenon

** Minimum torque req'd to install foundations shall be 5,000 lbs.



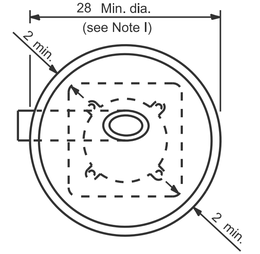
STEEL POLE FOUNDATION

LOW MOUNTING FOUNDATION TABLE		
HEIGHT	DEPTH	BOLT CIRCLE
30'	5'-0"	11"
31'-35'	6'-0"	11"
36'-40'	7'-0"	15"
41'-45'	7'-6"	15"
46'-50'	8'-0"	15"

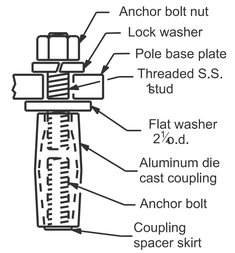


Place door on wireway side. Wireway may be on front, back, or side of foundation as rquired by the trenching which should permit unit duct to have as few bends as are practical.

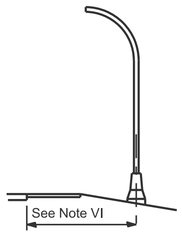
Top of fiber duct shall be flush with the tip of foundation for drainage. 5" I.D. type I fiber or polystyrene duct wiring window.

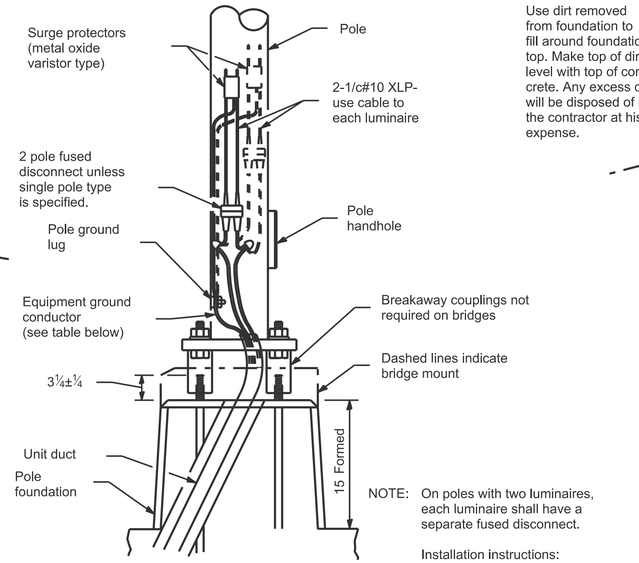


ALT. FOUNDATION



TYP. COUPLING





NOTE: On poles with two luminaires, each luminaire shall have a separate fused disconnect.

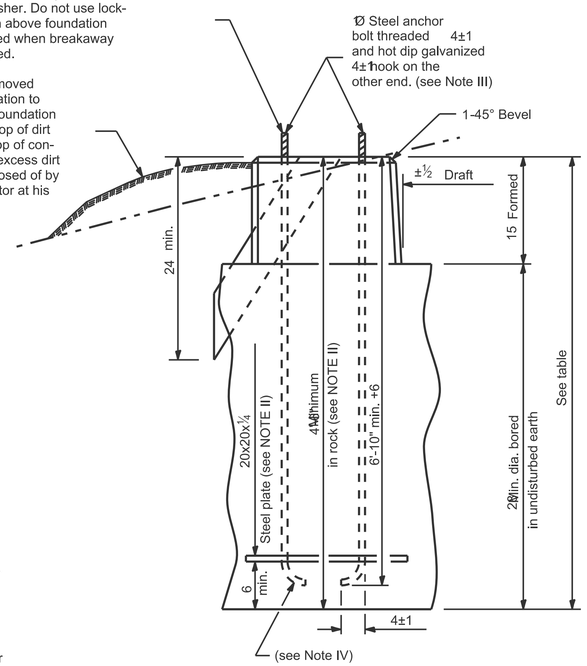
Installation instructions:

Screw couplings on to anchor bolts to end of threads, level couplings, very important, as couplings will become over-stressed and either crack or strip threads inside coupling.

POLE BASE MOUNTING & WIRING

Anchor bolt shall extend through nut ⅜ to top. Use self-locking nut and flat washer. Do not use lock-washer. Length above foundation shall be adjusted when breakaway devices are used.

Use dirt removed from foundation to fill around foundation top. Make top of dirt level with top of concrete. Any excess dirt will be disposed of by the contractor at his expense.



LIGHTING POLE FOUNDATION

GENERAL NOTES

After pouring concrete, the form shall remain undisturbed overnight.

The top 15" only shall be formed. Concrete bounded by undisturbed earth only shall fill the remainder of the hole.

I Minimum clearance from the outside edge of foundation to any part of the pole baseplate shall be 2".

II The depth of the foundation may be reduced 6" for every 12" of rock encountered with a minimum depth of 4'-6". When the depth of the foundation is decreased to less than 6' the anchor bolts shall be cut, threaded, and a steel plate 20" x 20" x¼" shall be installed on the anchor bolts 6" above the bottom of the excavation. The cost shall be incidental the foundation.

III On parapet walls use 1¼ Ø anchor bolts. Use self-locking nut and flat washer. Do not use lockwasher. (For details see Standard III/2.35 of Bridge Design Manual.

IV Bend radius shall be four times bolt diameter.

V Connect ground wires to pole base ground lug, not anchor bolts or transformer base.

VI Low mount pole foundation setback:

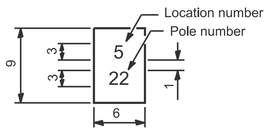
For horizontal mounted luminaires, setback shall be a minimum of 20' from edge of pavement.

For vertical mount luminaires, setback shall be a minimum of 30' from edge of pavement. Poles shall be located 5' behind guardrail or other protective barriers, or as directed by the Engineer.

All dimensions are in inches unless otherwise shown.

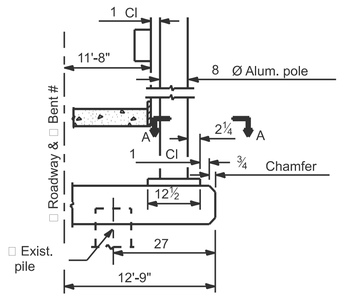
"Install and orient arm bracket over pole tenon and firmly hand tighten the two set screws. Use third hole in arm bracket as a guide to drill a $2\frac{1}{64}$ diameter hole through tenon. Install and tighten self-tapping screw. Tighten set screws an additional ($\frac{1}{4}$ to $\frac{3}{8}$) turn with hex key (not provided). Install locknuts on set screws if threaded projection allows."

Pole shall meet AASHTO Standard Specifications for 80 mph wind loading and , 90 lbs 4.0 sq ft 2 E.P.A. luminaire.

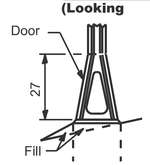


The contractor shall furnish and install a light pole identification of each new light pole, as shown above, incidental to the respective light pole pay item. The numerals shall be series "D", black, screened on silver-white type B pressure sensitive reflective sheeting conforming to the requirements of section T602.01 of the Standard Specifications for Traffic Control Items. The numerals shall conform to the FHWA "Standard Alphabets for Highway Signs".

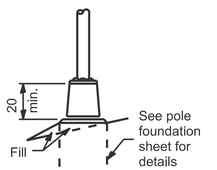
The light pole identification shall be applied to sign base material as specified in section 1085.05 of the Standard Specifications, approximatey above the adjacent pavement grade visible to approaching traffic in accordance with Highway Standard 2319.



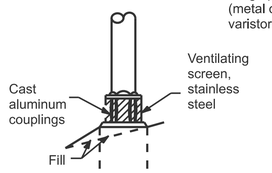
BENT #
(Looking)



☐ **STAINLESS STEEL FLAIR BASE**

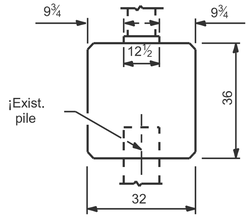


☐ **TRANSFORMER BASE**

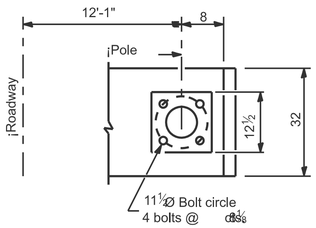


☐ **BREAKAWAY COUPLING**

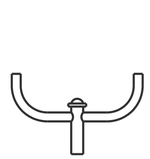
☐ **FRANGIBLE**



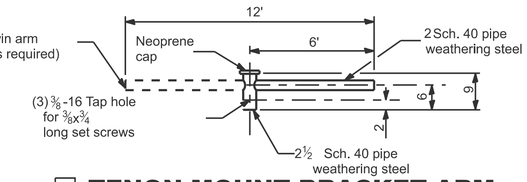
☐ **BRIDGE PIER MOUNT**



SECTION A-A

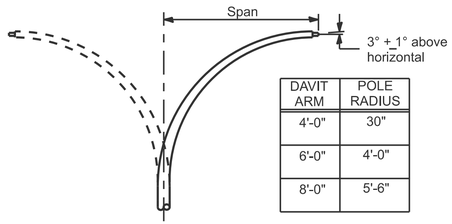


☐ **TWIN TENON**



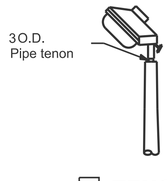
☐ **TENON MOUNT BRACKET ARM**

NOTE: Single or twin arm assembly shall be tilted 3° above horizontal.

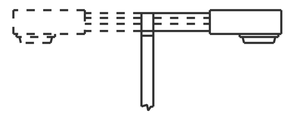


DAVIT ARM	POLE RADIUS
4'-0"	30"
6'-0"	4'-0"
8'-0"	5'-6"

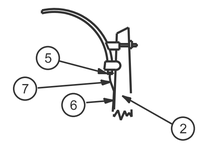
☐ **DAVIT ARM** **(and or)**
☐ **DAVIT ARM-TWIN**



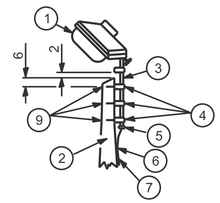
☐ **TENON**



☐ **SHORT BRACKET**
☐ **SHORT BRACKET - TWIN**

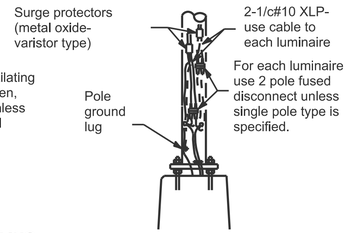


☐ **MAST ARM**

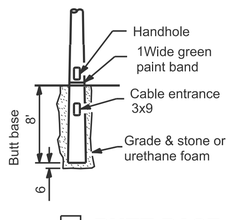


☐ **TENON**

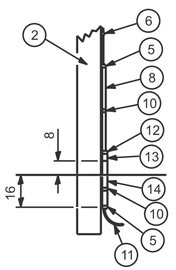
1. Luminaire
2. Wood pole, class 3 or better
3. 2½ Galv. steel conduit
4. Single offset pole band
5. Conduit bushing
6. Cable clamps on centers
7. 2/c #12 Type use cable
8. 1 Galv. steel conduit in length
9. ⅝ Ø hot dipped galvanized bolt with flat washer & locknut (3 req'd)
10. Conduit clamps on centers
11. Unit duct
12. Threaded reducer
13. "C" Conduit, threaded
14. 1½ Galv. steel conduit for 1 unit duct or Galv. steel conduit for 2 or 3 unit ducts.



☐ **ANCHOR**



☐ **BUTT BASE**



☐ **POLE, WOOD**

POLE LENGTH	DEPTH IN GROUND
65'	12'
60'	10'
55'	9'
50'	8'
45'	7'
40'	6.5'
35'	6'
30'	5.5'

☐ **METAL** OR ☐ **CONCRETE**

Details for underground distribution if required

All dimensions are in inches unless otherwise shown.

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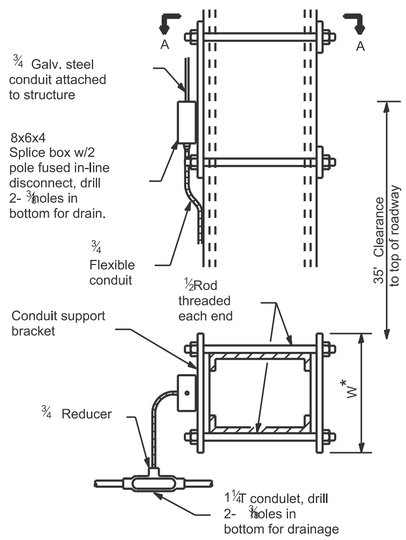
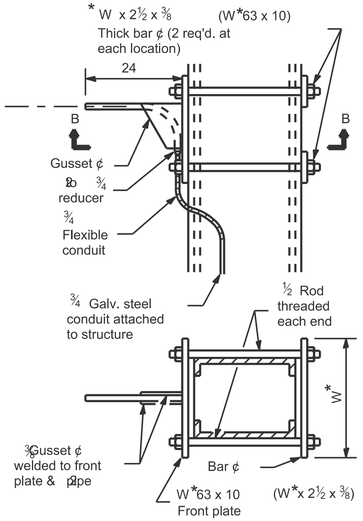
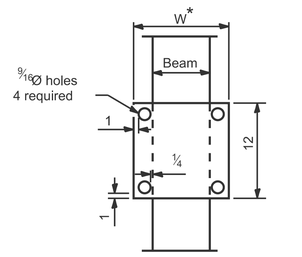
LIGHTING POLE STANDARDS



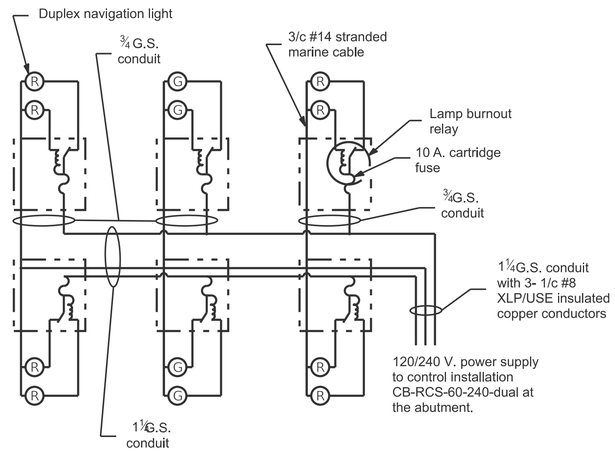
SECTION A-A



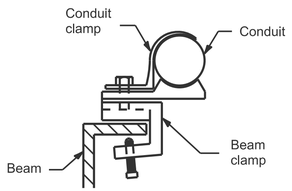
SECTION B-B



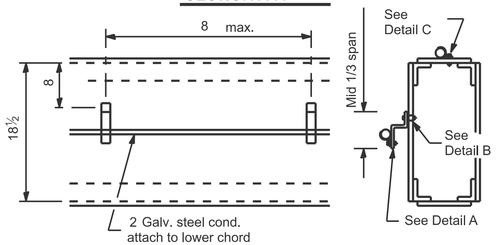
FRONT PLATE DETAIL



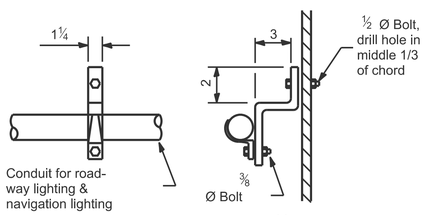
WIRING DIAGRAM FOR NAVIGATION LIGHTING



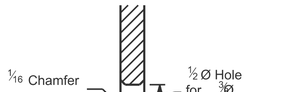
DETAIL C



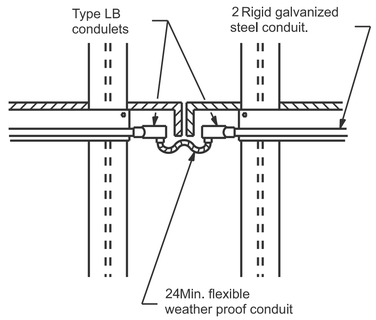
MAST ARM MOUNTING DETAILS



DETAIL A

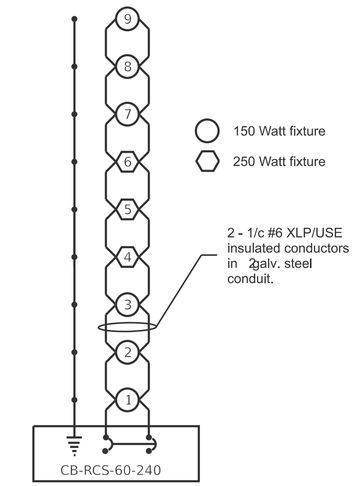


DETAIL B

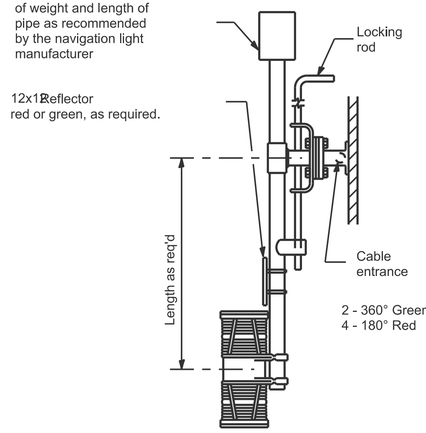


EXPANSION JOINT DETAIL

(Use same method to bypass other obstructions.)



ROADWAY LIGHTING



NAVIGATION LUMINAIRE

** Conduit clamps shall be malleable iron. Bolts, lock-nuts and washers shall be stainless steel. ¼ steel bracket shall be hot dipped galvanized after fabrication. Location on 6'cts.

All dimensions are in inches unless otherwise shown.

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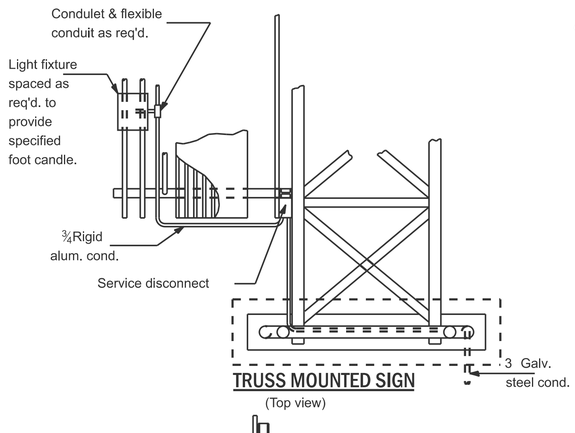
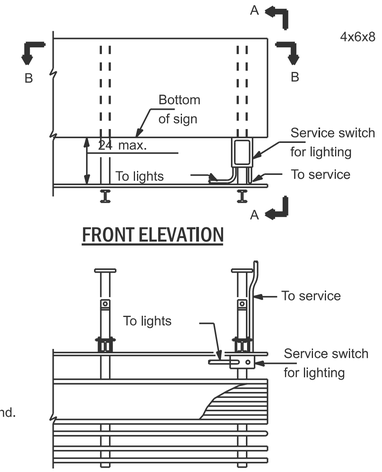
NAVIGATION LIGHTING w/COUNTERBALANCE



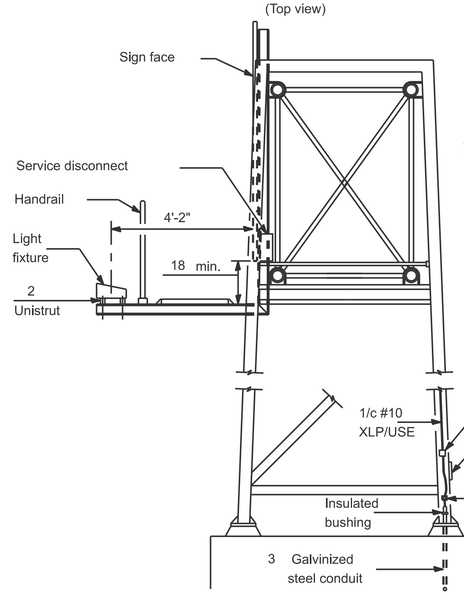
TRUSS MOUNTED SIGN

(Top view)



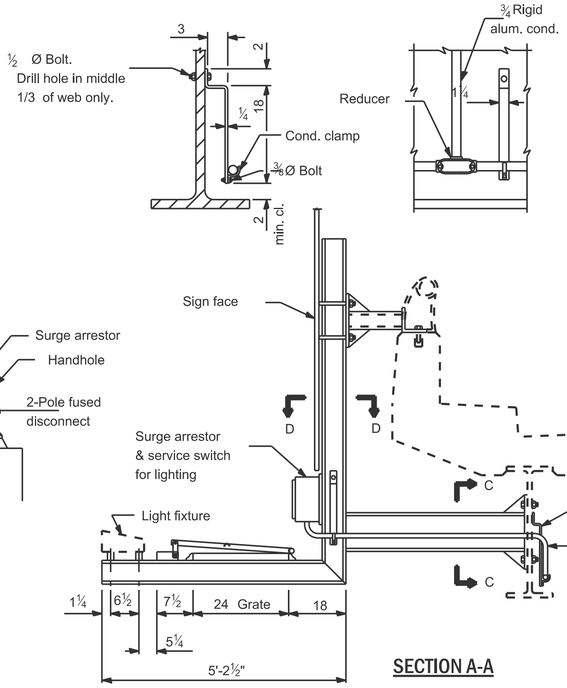
FRONT ELEVATION

SECTION B-B

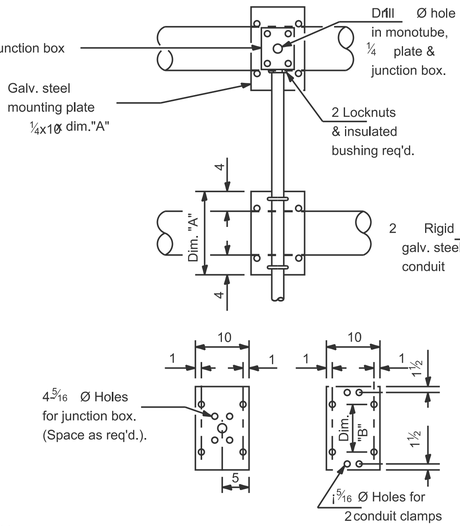


TRUSS MOUNTED SIGN

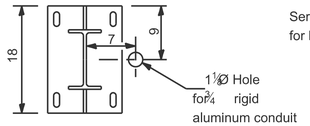
(Side elevation)



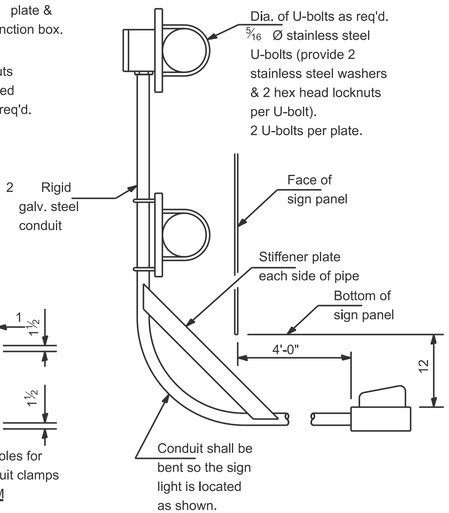
SECTION A-A



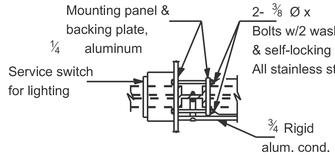
MOUNTING PLATES



SECTION C-C



TWIN MONOTUBE



SECTION D-D

GENERAL NOTES

All sign lighting xtures shall have a minimum of 3 mounting points.

All mounting hardware shall be stainless steel.

All dimensions are in inches unless otherwise shown.

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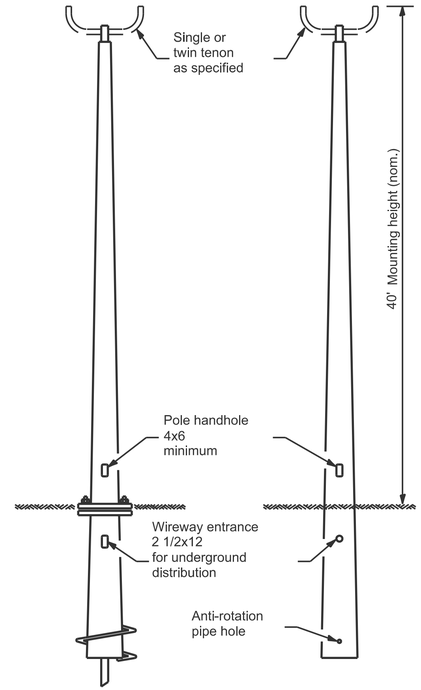
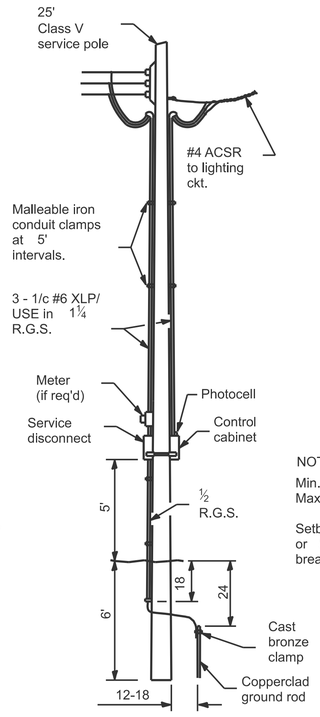
SIGN LIGHTING DETAILS



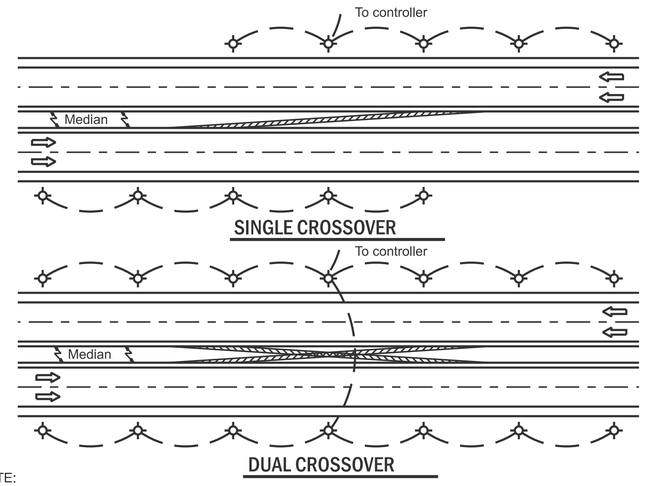
ANCHOR BASE W/
METAL FOUNDATION

BUTT BASE

POLE, FIBERGLASS
BREAKAWAY TYPE



SERVICE
INSTALLATION



NOTE:

Min. Pole spacing 200'
Max. Pole spacing 250'

Setback shall be min. (30')
or back of ditch, unless
breakaway type pole is used.

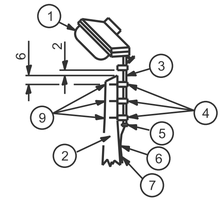
1. Luminaire
2. Wood pole, class 3 or better
3. 2½Galv. steel conduit
4. Single offset pole band
5. Conduit bushing
6. Cable clamps on 24" centers
7. 2/c #12 Type USE cable
8. 1 Galv. steel conduit 10' in length

NOTE:

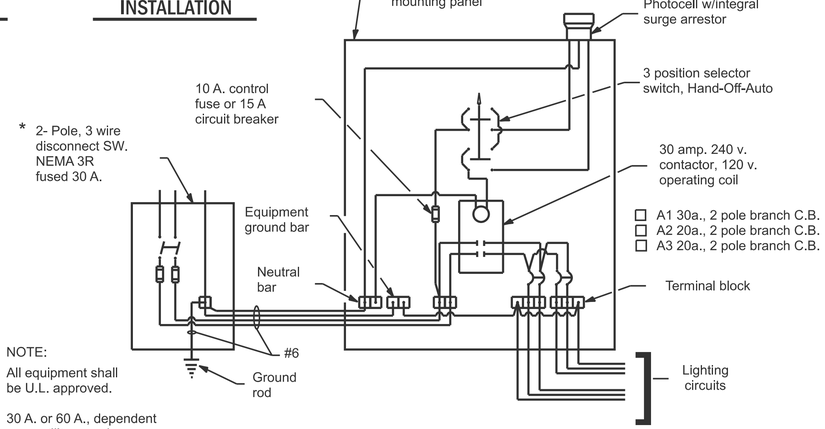
Luminaire(s) shall have a 2-pole inline weatherproof quick disconnect fuse holder.

Luminaire(s) shall be oriented and the mounting angle adjusted as recommented by the Engineer.

Connect luminaire equipment ground to ACSR messenger.



9. ⅝ Ø hot dipped galvanized bolt with flat washer & locknut (3 req'd)
10. Conduit clamps on 36" centers
11. Unit duct
12. Threaded reducer
13. "C" Condulet, threaded
14. 1½ Galv. steel conduit for 1 unit duct or 3" galv. steel conduit for 2 or 3 unit ducts.

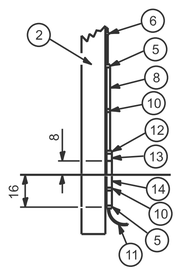


NOTE:

All equipment shall be U.L. approved.

* 30 A. or 60 A., dependent upon utility co. rules.

WIRING DIAGRAM

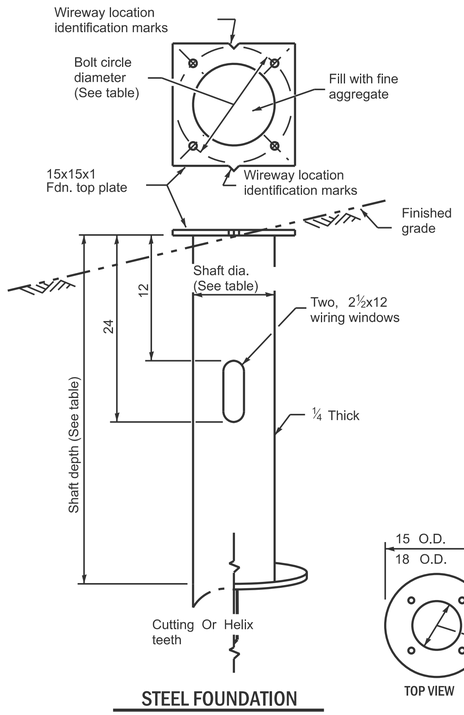


POLE, WOOD

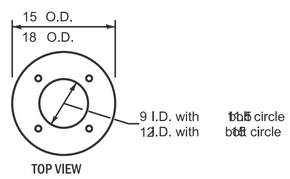
POLE LENGTH	DEPTH IN GROUND
65'	12'
60'	10'
55'	9'
50'	8'
45'	7'
40'	6.5'
35'	6'
30'	5.5'

		STEEL FOUNDATION		CONCRETE FOUNDATION		
LIGHT POLE MOUNTING HEIGHT	BOLT CIRCLE DIAMETER	SHAFT DIAMETER	SHAFT DEPTH	SHAFT DIAMETER	SHAFT DEPTH	ANCHOR ROD LENGTH*
≤ 30'	11½"	8⅝"	6'-0"	24"	5'-0"	4'-9"
31'-35'	11½"	8⅝"	6'-0"	24"	5'-6"	5'-3"
36'-40'	15"	8⅝"	6'-0" **	24"	6'-0"	5'-9"
41'-45'	15"	8⅝"	6'-0" **	24"	6'-6"	6'-3"
46'-50'	15"	8⅝"	8'-0"	24"	7'-0"	6'-9"

* Length does not include 4 hook
** 8⅝"x 8'-0" for Twin luminaires



STEEL FOUNDATION



RING PLATE DETAIL

(When rock is encountered and foundation is shallower)

Notes:

All foundations are designed to be located on slopes not exceeding 2:1 where soils have an uncon ned compressive strength of at least 1.0 TSF. The contractor shall verify the soil strength during drilling for concrete foundations or by monitoring installation resistance on steel foundations and notify the engineer if other conditions are encountered.

Notes:

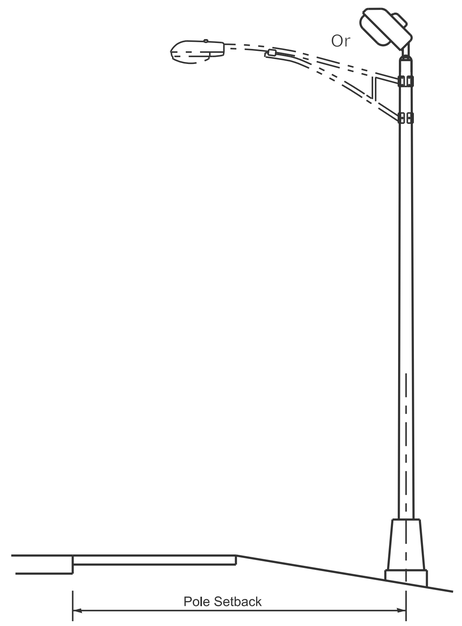
Wireway may be on front, back, or side of foundation as required by the trenching. Place door of transformer base on wireway side to minimize the number of unit duct bends.

Top of schedule 40 PVC 5 I.D. PVC wiring window, shall be ush with the top of foundation for drainage.

*** If the required anchor rod length above top of foundation is less than 3, anchor rods may be lowered below 6

Anchor rod shall extend through nut to t6⅝ . For barrier or foundations located behind guardrail, use self-locking nut and flat washer. Do not use lock washer. Length above foundation shall be adjusted to accomodate breakaway devices furnished by the contractor for a specific installation.

CONCRETE FOUNDATION



Pole Foundation Setback:

For horizontal mounted luminaires, setback shall be a minimum of 20' from edge of pavement.

For vertical mount luminaires, setback shall be a minimum of 30' from edge of pavement. Poles shall be located 5' behind guardrail or other protective barriers, or as directed by the Engineer.

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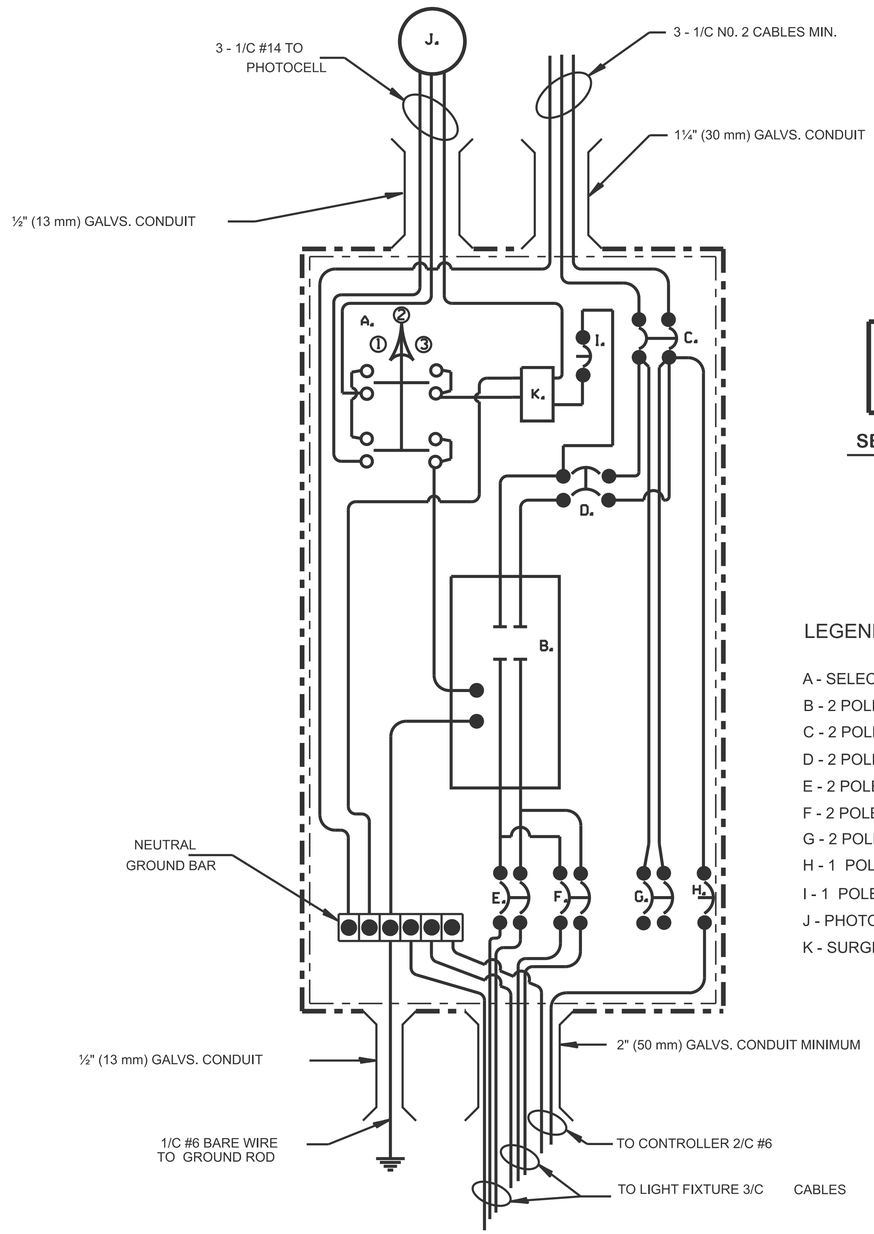
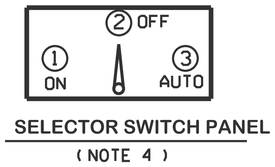
LIGHT POLE FOUNDATION

SERVICE INSTALLATION TYPE A, MODIFIED



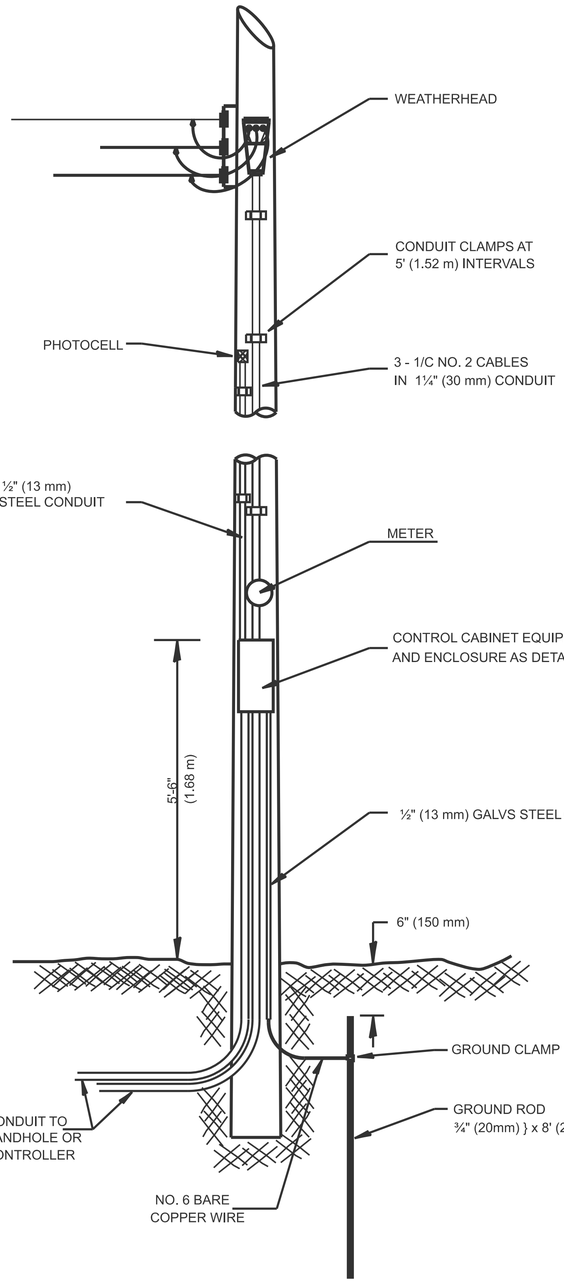
CONTACTOR AND SWITCHING ENCLOSURE



SELECTOR SWITCH PANEL
(NOTE 4)

LEGEND :

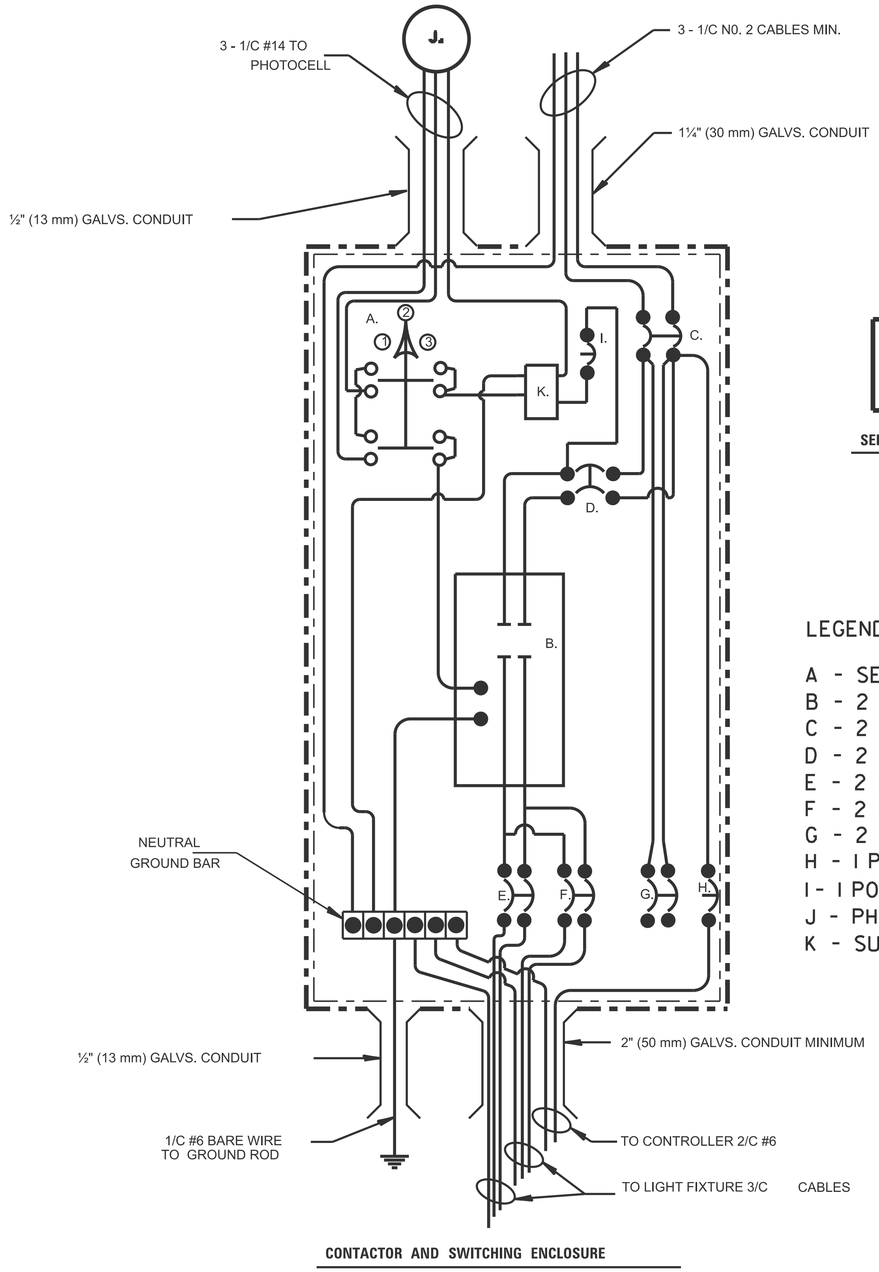
A - SELECTOR SWITCH - 3 POSITION
B - 2 POLE , 30 AMP CONTACTOR
C - 2 POLE , 100 AMP BREAKER
D - 2 POLE , 30 AMP BREAKER
E - 2 POLE , 15 AMP BREAKER
F - 2 POLE , 15 AMP BREAKER
G - 2 POLE , 20 AMP BREAKER
H - 1 POLE , 50 AMP BREAKER
I - 1 POLE , 15 AMP BREAKER
J - PHOTOCELL
K - SURGE PROTECTOR



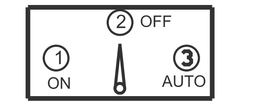
NOTES :

1. ALL ENCLOSURES SHALL BE NEMA TYPE 4 ALUMINUM ALLOY WEATHER PROOF BOX WITH LOCKING PROVISIONS.
2. CONTROL CABINET SHALL HAVE MINIMUM INSIDE DIMENSIONS OF 18" (450 mm) x 12" (300 mm) x 6" (150 mm) .
3. THE CONTRACTOR MAY USE MATERIALS SALVAGED FROM THE EXISTING SERVICE IF APPROVED BY THE ENGINEER.
4. SELECTOR SWITCH SHALL HAVE MARKED POSITIONS WITH METAL OR ENGRAVED PLASTIC NAME PLATE AS SHOWN.

SERVICE INSTALLATION TYPE B, MODIFIED



CONTACTOR AND SWITCHING ENCLOSURE

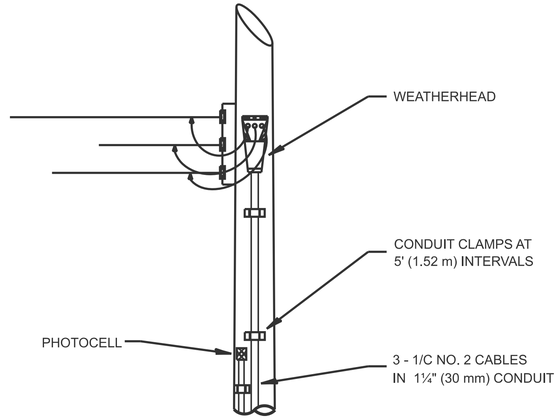


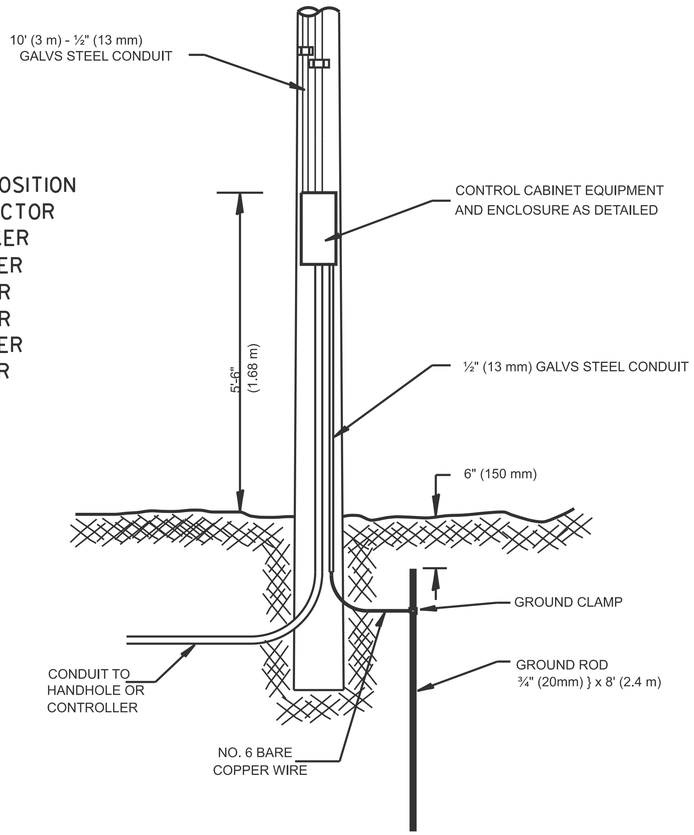
SELECTOR SWITCH PANEL

(NOTE 4)

LEGEND :

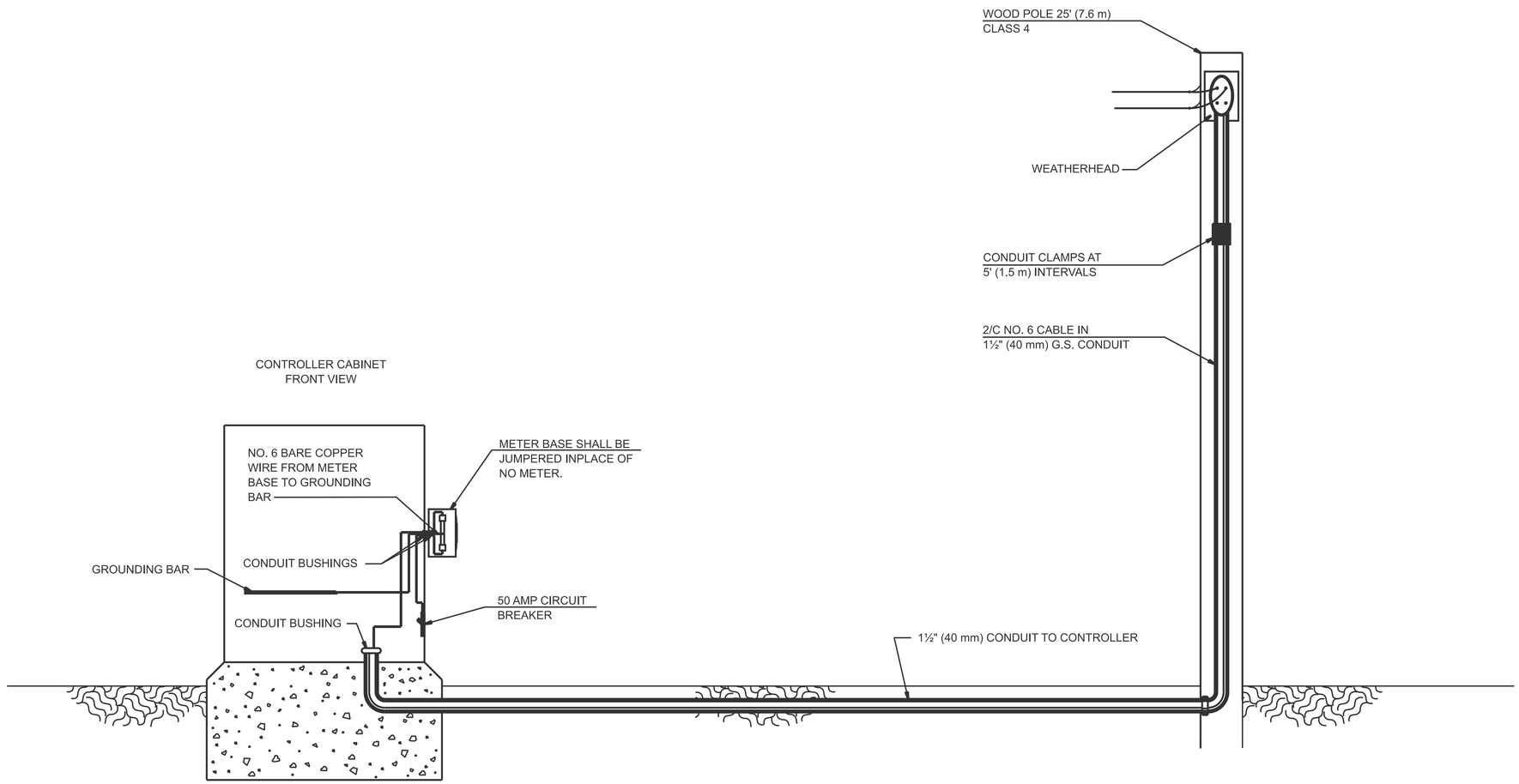
A - SELECTOR SWITCH - 3 POSITION
B - 2 POLE , 30 AMP CONTACTOR
C - 2 POLE , 100 AMP BREAKER
D - 2 POLE , 30 AMP BREAKER
E - 2 POLE , 15 AMP BREAKER
F - 2 POLE , 15 AMP BREAKER
G - 2 POLE , 20 AMP BREAKER
H - 1 POLE , 50 AMP BREAKER
I - 1 POLE , 15 AMP BREAKER
J - PHOTOCELL
K - SURGE PROTECTOR





NOTES :

1. ALL ENCLOSURES SHALL BE NEMA TYPE 4 ALUMINUM ALLOY WEATHER PROOF BOX WITH LOCKING PROVISIONS.
2. CONTROL CABINET SHALL HAVE MINIMUM INSIDE DIMENSIONS OF 18" (13 mm) x 12" (300 mm) x 6" (150 mm).
3. THE CONTRACTOR MAY USE MATERIALS SALVAGED FROM THE EXISTING SERVICE IF APPROVED BY THE ENGINEER.
4. SELECTOR SWITCH SHALL HAVE MARKED POSITIONS WITH METAL OR ENGRAVED PLASTIC NAME PLATE AS SHOWN.



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SERVICE INSTALLATION
TYPE C (MODIFIED)