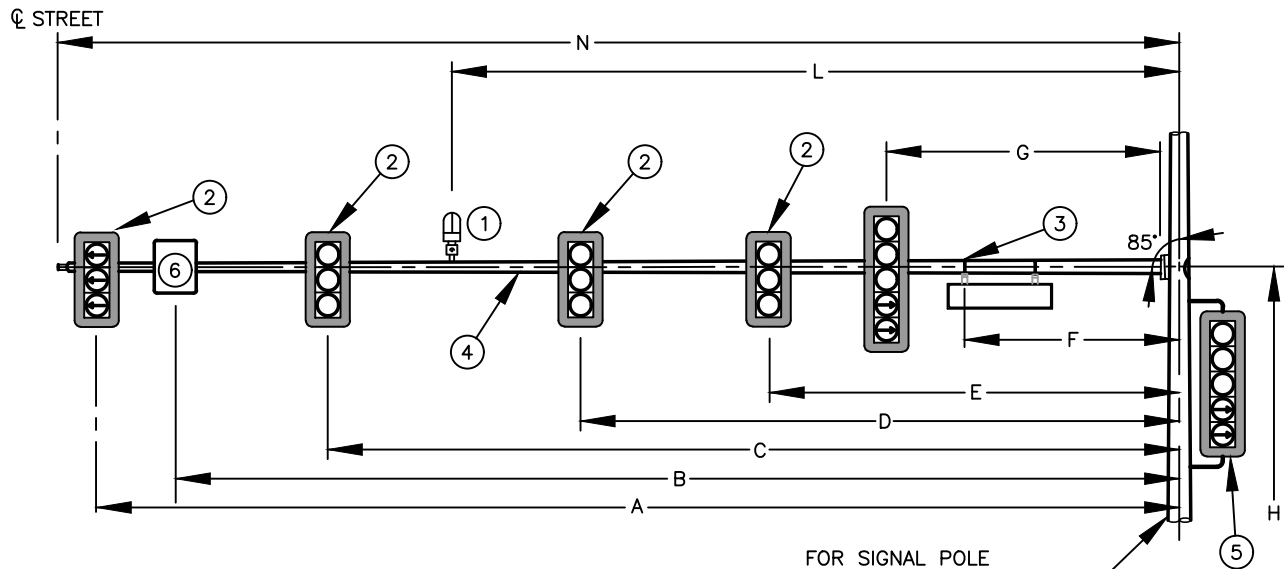


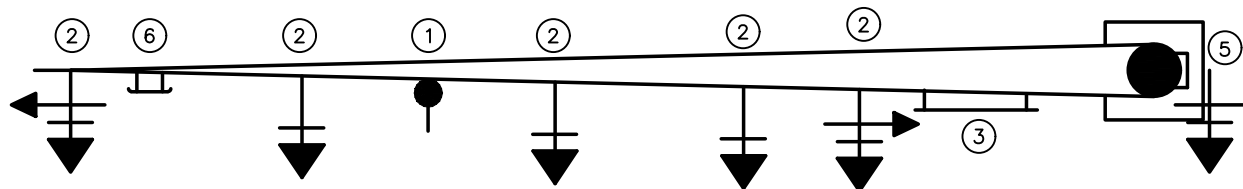


SIDE VIEW



OPTIONAL 4-SECTION LEFT TURN
FLASHING YELLOW ARROW SIGNAL
HEAD PER CITY OF VANCOUVER
TRAFFIC ENGINEERING MANAGER'S
APPROVAL

DIMENSION LETTER KEY:
A TO E & G = SIGNAL OR SIGN POSITION
F = STREET NAME SIGN BRACKET LOCATION
H = MAST ARM HEIGHT
L = PRE-EMPTION DETECTOR
N = MAST ARM LENGTH



PLAN VIEW WITH SIGNAL PLAN SHEET SYMBOLOGY

NOTES:

- ① PRE-EMPTION DETECTOR PER THE POLE SCHEDULE, DIMENSION L FROM THE POLE, TO BE DRILLED AND TAPPED. SEE STANDARD PLAN **T20-11A**.
- ② TENON FOR SIGNAL DISPLAY NOTED BY POSITIONS LETTER A TO E, AND G ON POLE SCHEDULE. SHALL BE WELDED DURING ARM FABRICATION PRIOR TO GALVANIZING. SEE STANDARD PLAN **T20-13**. DISPLAY CONFIGURATION PER PLANS.
- ③ STREET NAME SIGN. BRACKETS TYPICALLY AT POSITION F AND F MINUS 6 FT FROM POLE. POSITION F SHALL TYPICALLY BE LESS THAN POSITION E UNLESS OTHERWISE SPECIFIED. SEE STANDARD PLAN **T20-07**. NO TENON REQUIRED.
- ④ MAST ARM PER SPECIAL PROVISIONS.
- ⑤ SIGNAL MOUNTED ON SIDE OF POLE PER WSDOT TYPE K MOUNT, SEE WSDOT STANDARD PLAN J-75.10 . INSTALL AT 13 FT UNLESS OTHERWISE NOTED.
- ⑥ SIGN PER PLANS NOTED BY POSITION LETTER A TO E, AND G ON POLE SCHEDULE. MOUNTED PER WSDOT STANDARD PLAN G-30.10. NO TENON REQUIRED.



**MAST ARM CONFIGURATIONS - TYPE II AND III
TRAFFIC SIGNAL STANDARDS**

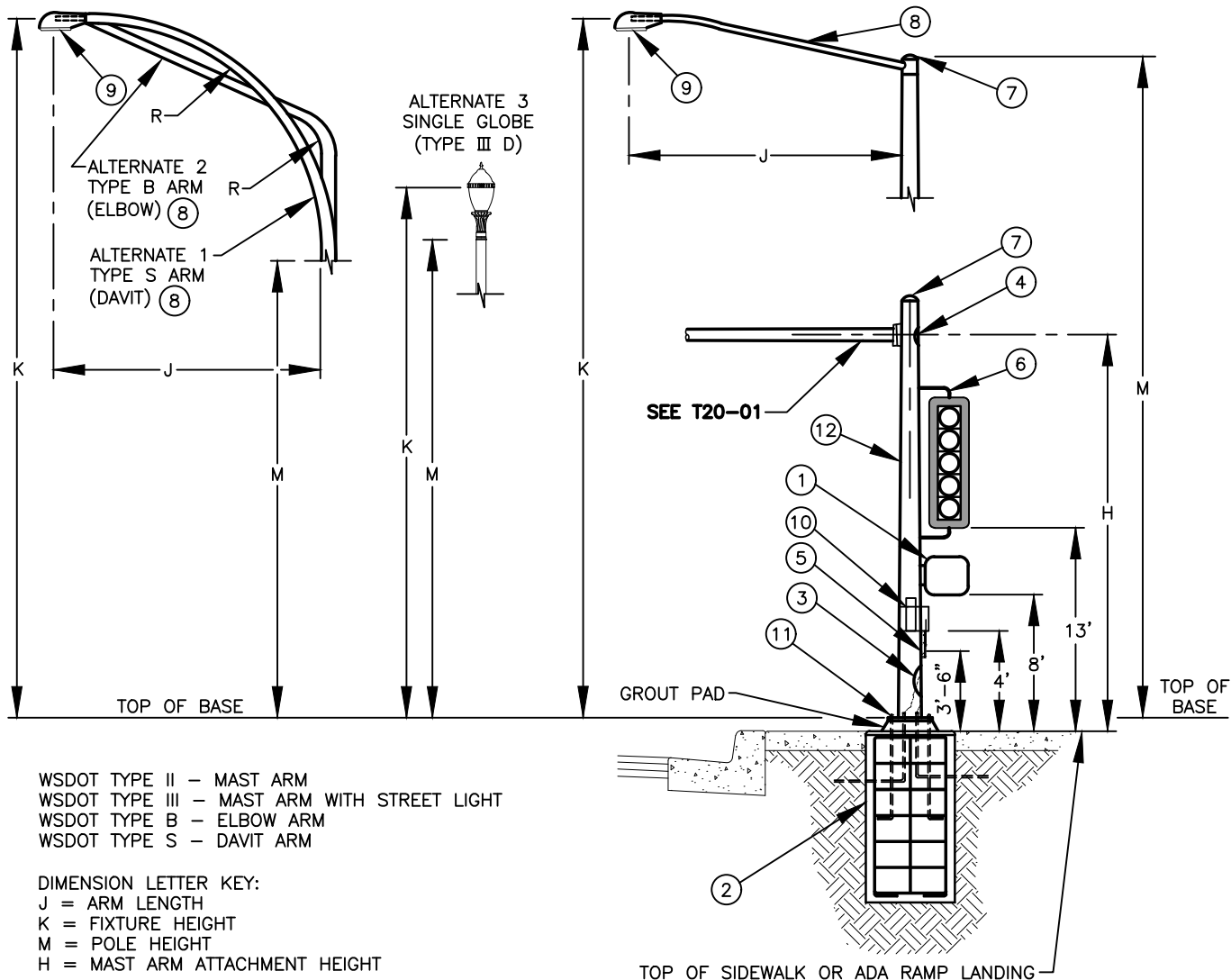
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T20-01

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POLE CONFIGURATIONS - TYPE II, III, B, AND S TRAFFIC SIGNAL STANDARDS

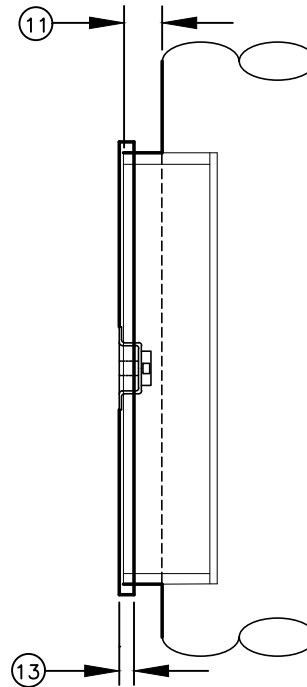
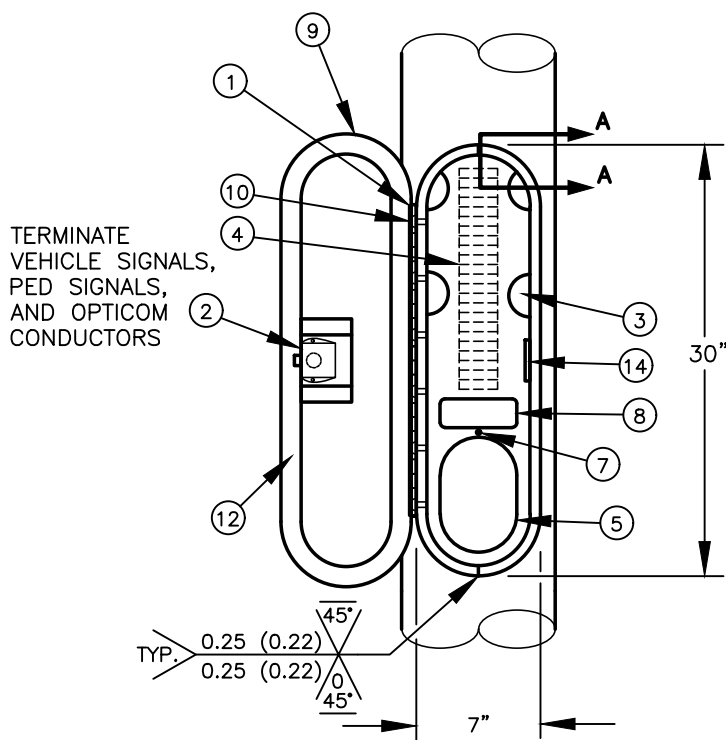
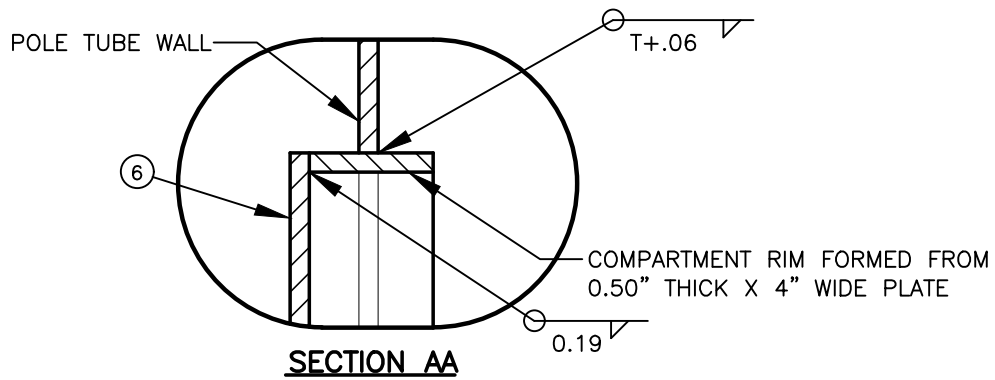


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T20-02



NOTES:

- | | |
|---|---|
| <p>① STAINLESS STEEL HINGE</p> <p>② "BEST" BRAND SLAM-LOCK WITH RED CORE.</p> <p>③ GALVANIZING SLOTS (6 REQUIRED).</p> <p>④ 2 - 16 POSITION TERMINAL BLOCKS WITH CAPACITY FOR #14 FORKS. #6 OR #8 SCREWS ALLOWED.</p> <p>⑤ 4" x 6" HANDHOLD.</p> <p>⑥ 3/8" (0.375") THICK BACKPLATE.</p> <p>⑦ 5/16" (0.31") TAPPED HOLE FURNISHED WITH STAINLESS STEEL CAP SCREW.</p> <p>⑧ 2" x 4" WIRE HOLE.</p> | <p>⑨ STAINLESS STEEL COVER, 30.5" X 7.75" X 1/16" THICK (14 GA.).</p> <p>⑩ (6) 0.25" X 0.50" STAINLESS STEEL SCREWS.</p> <p>⑪ 1.50" MAX PROTRUSION AT CENTERLINE OF COMPARTMENT.</p> <p>⑫ 1" WIDE X 0.5" THICK NEOPRENE GASKET.</p> <p>⑬ 1" WIDE FLANGE ON COVER.</p> <p>⑭ 0.38" X 0.50" LOCKING BAR.</p> |
|---|---|



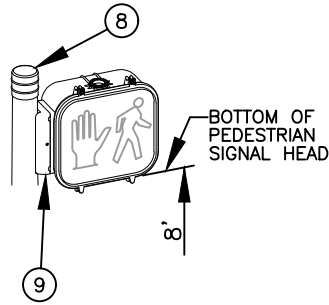
RECESSED TERMINAL COMPARTMENT - TYPE II, III, B, AND S TRAFFIC SIGNAL STANDARDS

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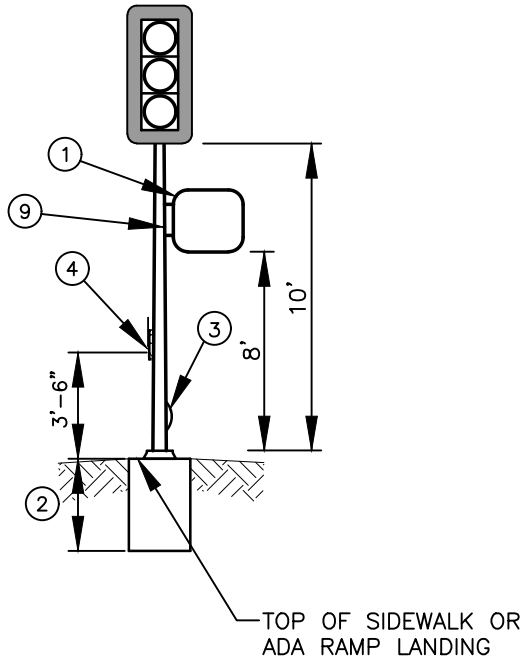
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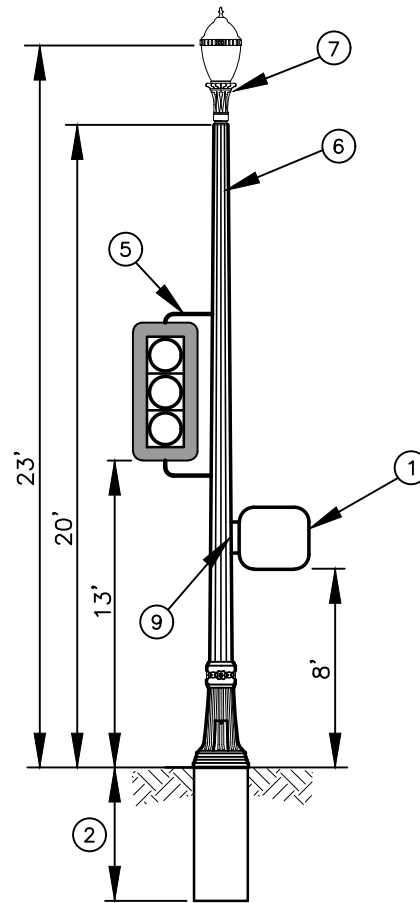
T20-03



TYPE E MOUNT



TYPE I



TYPE I D

NOTES:

- ① PEDESTRIAN SIGNAL MOUNTED ON SIDE OF POLE USING WSDOT TYPE E MOUNT AT ORIENTATION PER PLANS. SEE STANDARD PLAN **T20-09D**.
- ② SEE **TYPE PPB, TYPE PS AND TYPE I TRAFFIC SIGNAL POLE FOUNDATION STANDARD PLAN T20-16** AND SPECIFICATIONS FOR FOUNDATION INFORMATION.
- ③ HAND HOLE WITH COVER.
- ④ PUSH BUTTON PER PLANS.
- ⑤ USE WSDOT TYPE K MOUNT FOR SIDE MOUNTED VEHICLE SIGNAL. SEE WSDOT STANDARD PLAN J-75.10.
- ⑥ USE TYPE D LIGHT STANDARD FOR TYPE I D TRAFFIC SIGNAL STANDARD.
- ⑦ PROVIDE 110 V AC RECEPTACLE.
- ⑧ SLIPFITTER AT TOP OF POLE.
- ⑨ USE WSDOT TYPE E MOUNT FOR SIDE MOUNT PEDESTRIAN SIGNAL. SEE WSDOT STANDARD PLAN J-75.10.

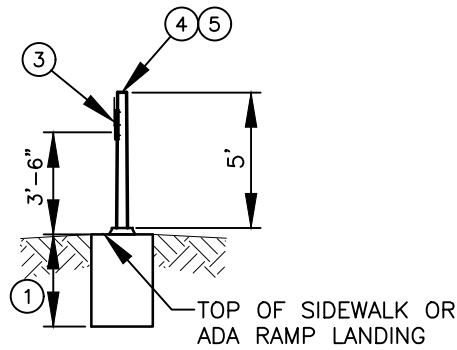


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**TYPE I AND I-D
TRAFFIC SIGNAL STANDARDS**

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STD. PLAN NO.
T20-04



TYPE PPB

NOTES:

- ① SEE **TYPE PPB, AND TYPE I TRAFFIC SIGNAL POLE FOUNDATION STANDARD PLAN T20-16** AND SPECIFICATIONS FOR FOUNDATION INFORMATION.
- ② POLE TO INCLUDE HAND HOLE WITH COVER.
- ③ PUSH BUTTON ASSEMBLY PER PLANS.
- ④ TOP OF POLE SHALL BE COVERED WITH POLE CAP.
- ⑤ TYPE PPB POLE. SEE WSDOT STANDARD PLANS J-20.10 AND J-20.11.



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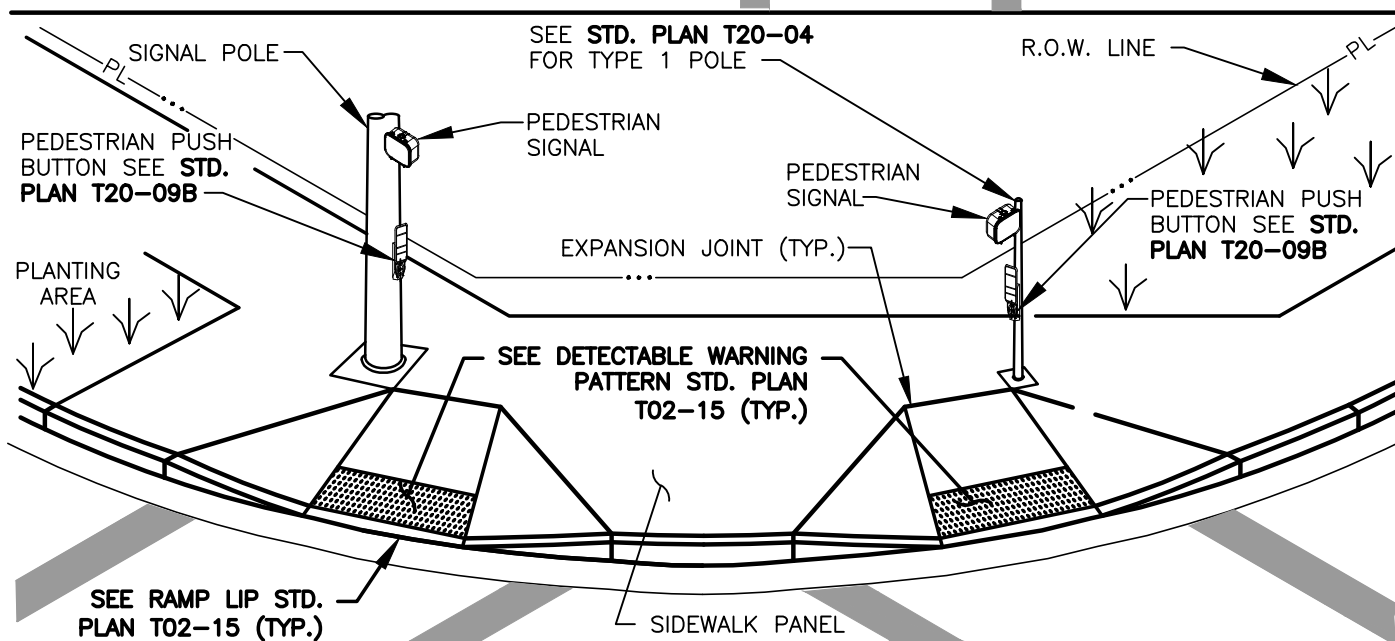
**TYPE PPB
TRAFFIC SIGNAL STANDARD**

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STD. PLAN NO.

T20-05

1. RAMPS TO BE CENTERED IN CROSSWALKS.
2. RAMPS TO BE CONSTRUCTED SEPARATELY AND ISOLATED BY EXPANSION JOINT MATERIAL.
3. RAMP WING MAY BE REPLACED WITH TYPE E-1 CURB SIMILAR TO **CURB RAMP** DETAIL IF OBSTRUCTION OR PLANTER PREVENTS PEDESTRIAN TRAFFIC IN WING AREA.
4. SURROUNDING SIDEWALK CROSS SLOPE TO BE 2% MAX. RADIALLY AROUND CORNER SECTION.
5. FOR SPOT ELEVATION CALL OUTS (), SEE **CIVIL PLANS** OR **ADA RAMP INFORMATION PLAN** FOR SPOT ELEVATION TABLE FOR THESE ELEVATIONS.
6. PEDESTRIAN SIGNAL HEADS SHALL LINE UP WITHIN THE CROSSWALK.
7. THE PUSHBUTTON SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE CROSSWALK LINE FURTHEST FROM THE CENTER OF THE INTERSECTION AND AS CLOSE AS POSSIBLE TO THE CURB RAMP. SEE **MUTCD 11TH ADDITION SECTION 4I.05** FOR ADDITIONAL INFORMATION IN REGARDS TO PUSHBUTTON PLACEMENT.



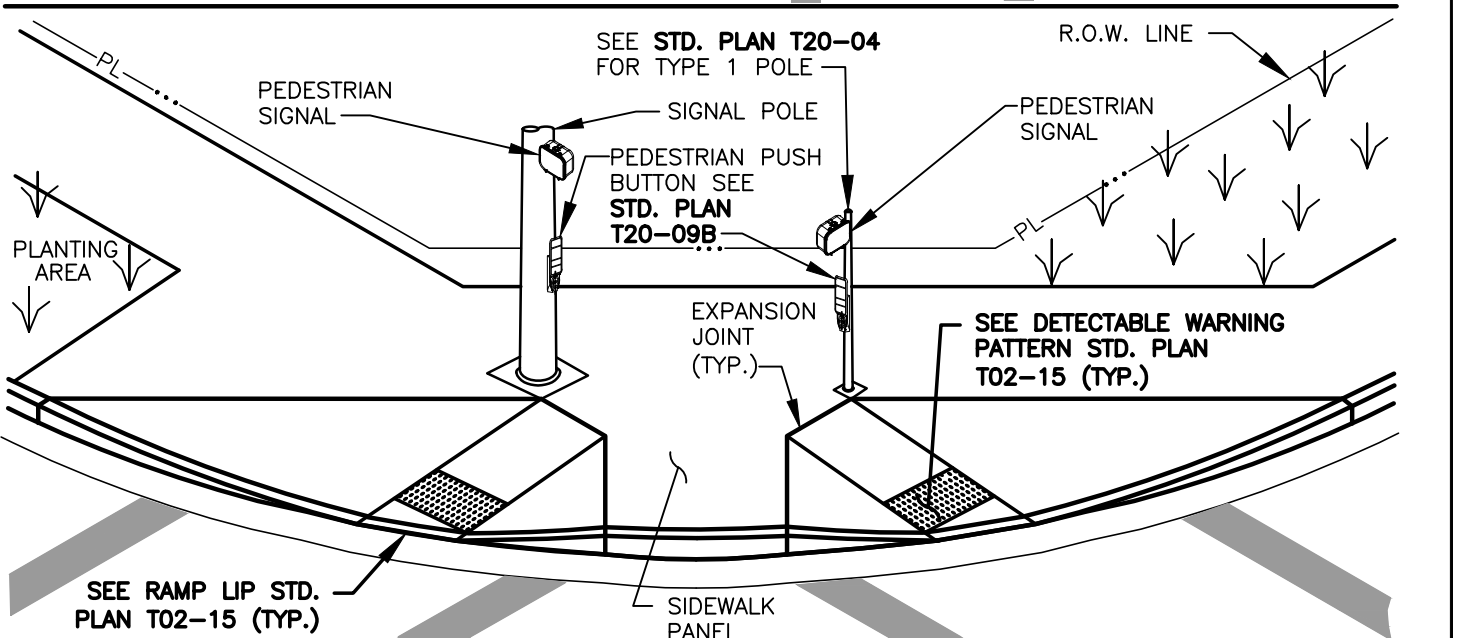
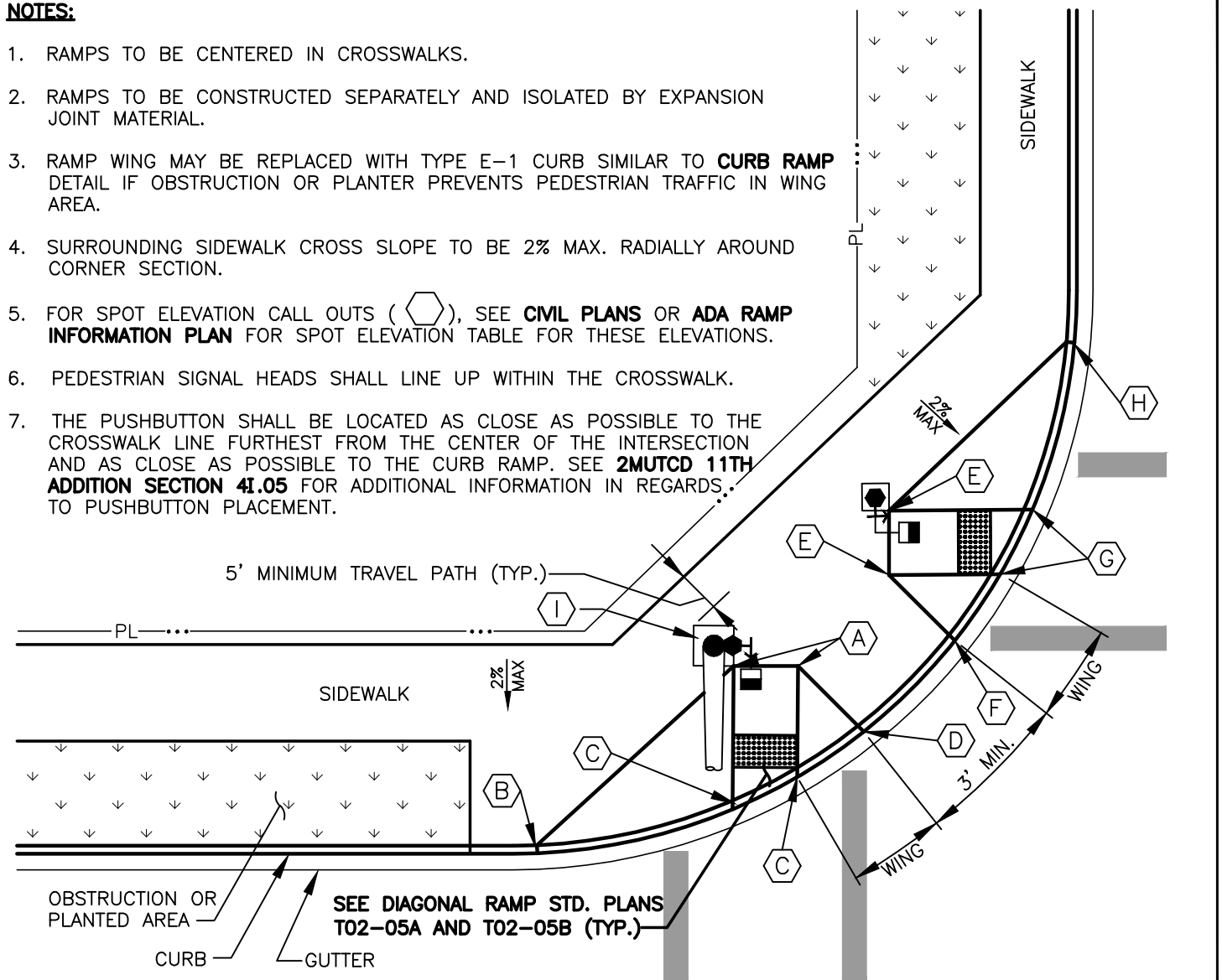
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Vancouver
WASHINGTON

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STD. PLAN NO.
T20-06A

NOTES:

1. RAMPS TO BE CENTERED IN CROSSWALKS.
2. RAMPS TO BE CONSTRUCTED SEPARATELY AND ISOLATED BY EXPANSION JOINT MATERIAL.
3. RAMP WING MAY BE REPLACED WITH TYPE E-1 CURB SIMILAR TO **CURB RAMP** DETAIL IF OBSTRUCTION OR PLANTER PREVENTS PEDESTRIAN TRAFFIC IN WING AREA.
4. SURROUNDING SIDEWALK CROSS SLOPE TO BE 2% MAX. RADially AROUND CORNER SECTION.
5. FOR SPOT ELEVATION CALL OUTS (), SEE **CIVIL PLANS** OR **ADA RAMP INFORMATION PLAN** FOR SPOT ELEVATION TABLE FOR THESE ELEVATIONS.
6. PEDESTRIAN SIGNAL HEADS SHALL LINE UP WITHIN THE CROSSWALK.
7. THE PUSHBUTTON SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE CROSSWALK LINE FURTHEST FROM THE CENTER OF THE INTERSECTION AND AS CLOSE AS POSSIBLE TO THE CURB RAMP. SEE **2MUTCD 11TH ADDITION SECTION 41.05** FOR ADDITIONAL INFORMATION IN REGARDS TO PUSHBUTTON PLACEMENT.



DOUBLE DIRECTIONAL RAMP PLACEMENT FOR TRAFFIC SIGNAL STANDARDS



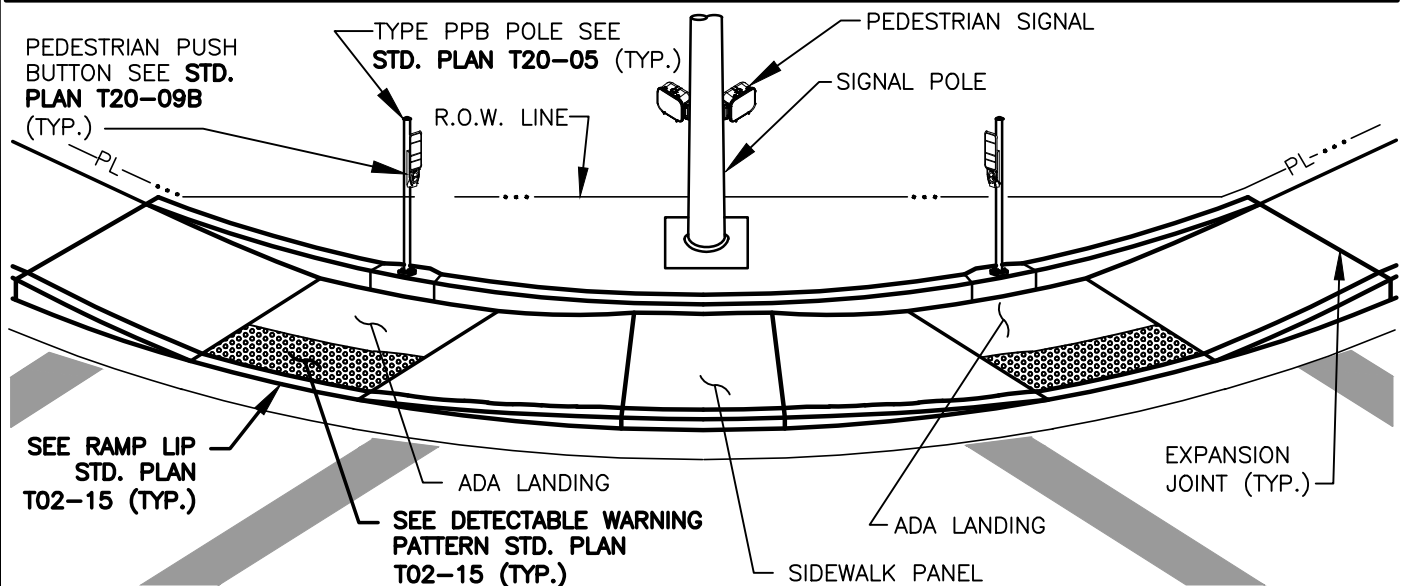
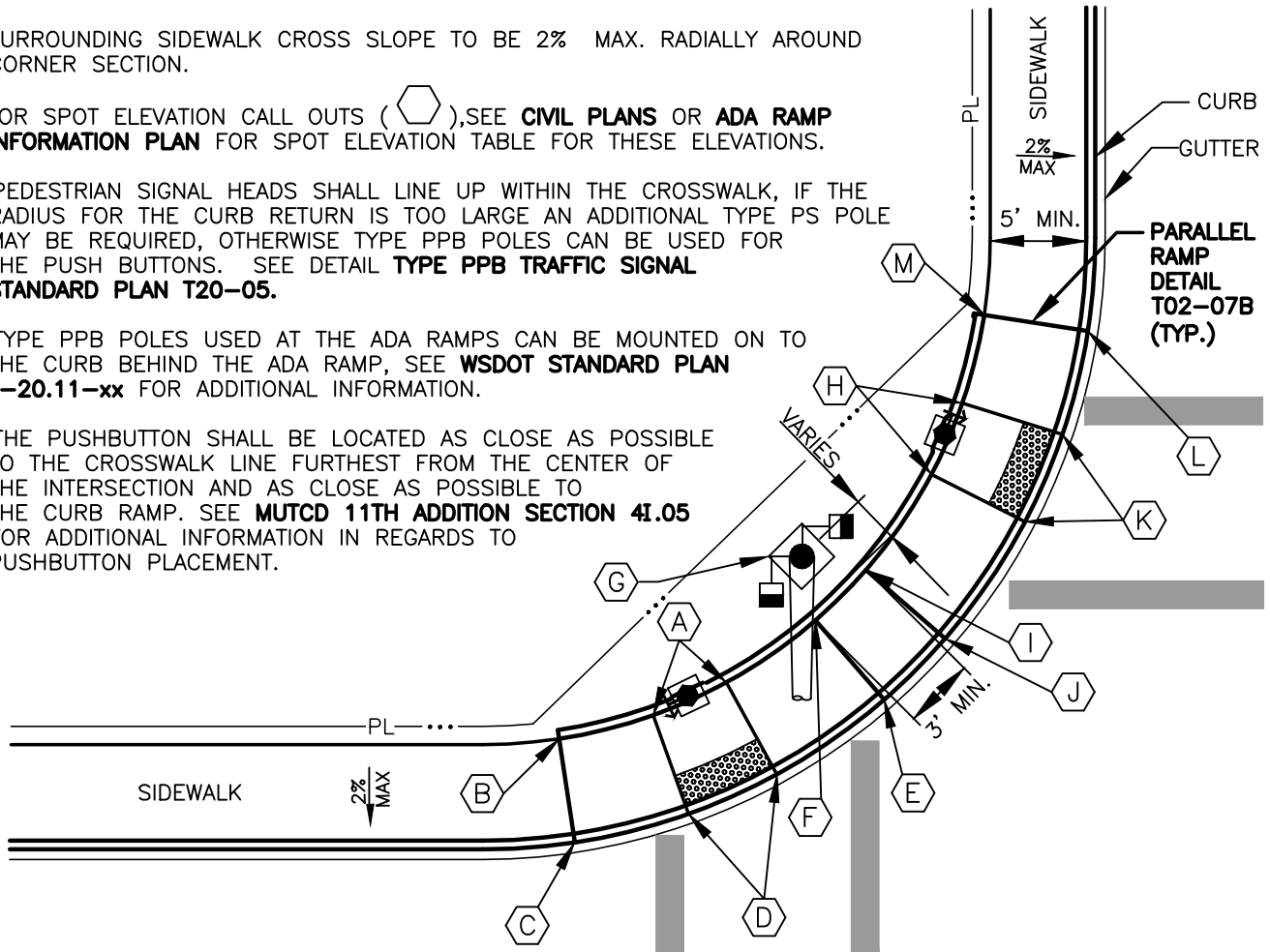
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STD. PLAN NO.
T20-06B

NOTES:

1. RAMPS TO BE CENTERED IN CROSSWALKS.
2. RAMPS TO BE CONSTRUCTED SEPARATELY AND ISOLATED BY EXPANSION JOINT MATERIAL.
3. RAMP WING MAY BE REPLACED WITH TYPE E-1 CURB SIMILAR TO **CURB RAMP** DETAIL IF OBSTRUCTION OR PLANTER PREVENTS PEDESTRIAN TRAFFIC IN WING AREA.
4. SURROUNDING SIDEWALK CROSS SLOPE TO BE 2% MAX. RADIALLY AROUND CORNER SECTION.
5. FOR SPOT ELEVATION CALL OUTS (), SEE **CIVIL PLANS** OR **ADA RAMP INFORMATION PLAN** FOR SPOT ELEVATION TABLE FOR THESE ELEVATIONS.
6. PEDESTRIAN SIGNAL HEADS SHALL LINE UP WITHIN THE CROSSWALK, IF THE RADIUS FOR THE CURB RETURN IS TOO LARGE AN ADDITIONAL TYPE PS POLE MAY BE REQUIRED, OTHERWISE TYPE PPB POLES CAN BE USED FOR THE PUSH BUTTONS. SEE DETAIL **TYPE PPB TRAFFIC SIGNAL STANDARD PLAN T20-05**.
7. TYPE PPB POLES USED AT THE ADA RAMPS CAN BE MOUNTED ON TO THE CURB BEHIND THE ADA RAMP, SEE **WSDOT STANDARD PLAN J-20.11-xx** FOR ADDITIONAL INFORMATION.
8. THE PUSHBUTTON SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE CROSSWALK LINE FURTHEST FROM THE CENTER OF THE INTERSECTION AND AS CLOSE AS POSSIBLE TO THE CURB RAMP. SEE **MUTCD 11TH ADDITION SECTION 4I.05** FOR ADDITIONAL INFORMATION IN REGARDS TO PUSHBUTTON PLACEMENT.



DOUBLE PARALLEL RAMP PLACEMENT FOR TRAFFIC SIGNAL STANDARDS



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STD. PLAN NO.

T20-06C

ADJUSTABLE
OVERHEAD MAST
ARM SWING SIGN
BRACKET

2-6' LONG SHAPED
ALUM. STIFFENER
BARS (SAME LENGTH
ALL SIGNS)

STRAP (2) 3/4" STAINLESS .030 BANDING
STRAPS (2000 LBS STRENGTH EACH STRAP)
USE BANDING CLIPS (2 STRAPS)

OVERHEAD MAST ARM
SWING SIGN BRACKET

SUFFIX

PREFIX

SIGN WIDTH 18"

SIGN LENGTH 6' - 10' (VARIES)

STIFFENER BAR

SEE NOTE 3

STIFFENER BAR

6"

1/4" (MIN.) GALV.
BRACKET 2" WIDE BY
VARIABLE LENGTH

SIGN

STIFFENER BAR

CLAMP BRACKET

3 3/16"

1/4" (MIN.) GALV.
BRACKET 2" WIDE
BY VARIABLE
LENGTH

CLAMP BRACKET STRAP

NOTES:

1. STREET NAME SIGN SHALL BE MADE OF .125 ALUMINUM SHEETING, FLAT STOCK, 18" WIDE BY 6' TO 10' IN LENGTH, (IN 6" INCREMENTS).
2. SIGN FACE SHALL BE FABRICATED FROM CUBED CORNERED LENS (VIP, TYPE A) REFLECTIVE MATERIAL. FACE LEGEND AND BORDER SHALL BE WHITE ON A GREEN BACKGROUND, EXCEPT IN THE DOWNTOWN AREA, WHICH SHALL HAVE A BROWN BACKGROUND.
3. LETTERING SHALL BE A COMBINATION OF UPPER AND LOWER CASE LETTERS PER FHWA STANDARDS. CAPITAL LETTERS OF THE STREET NAME SHALL BE 12" HEIGHT, EXCEPT WHEN TWO LINES ARE REQUIRED, THEN THE LETTERS SHALL BE 10" HEIGHT. THE PREFIX AND SUFFIX SHALL BE ABBREVIATED UPPER CASE LETTERS 6" HEIGHT, EXCEPT WHEN TWO LINES OF COPY ARE REQUIRED, THEN THE LETTERS SHALL BE 5" HEIGHT.
4. STIFFENER BARS SHALL BE .125 ALUMINUM SHAPED TO DIMENSIONS ABOVE.
5. COMPLETE READY-TO-MOUNT STREET NAME SIGN ASSEMBLY NOT TO EXCEED 65 POUNDS IN WEIGHT.
6. ALL SIGN MATERIALS AND ATTACHMENT HARDWARE SHALL CONFORM TO MUTCD AND WSDOT STANDARD SPECIFICATIONS.
7. WHEN SIGN REQUIRES TWO MESSAGE LINES, WIDTH SHALL BE INCREASED TO 30" AND AN ARROW SHALL BE ADDED TO BOTH MESSAGE LINES (LEFT ARROW LEFT OF THE DIRECTION AND RIGHT ARROW ON THE RIGHT).
8. ENGINEER SHALL APPROVE FACE COPY PRIOR TO FABRICATION.



OVERHEAD STREET NAME SIGN MOUNTING AND FABRICATION

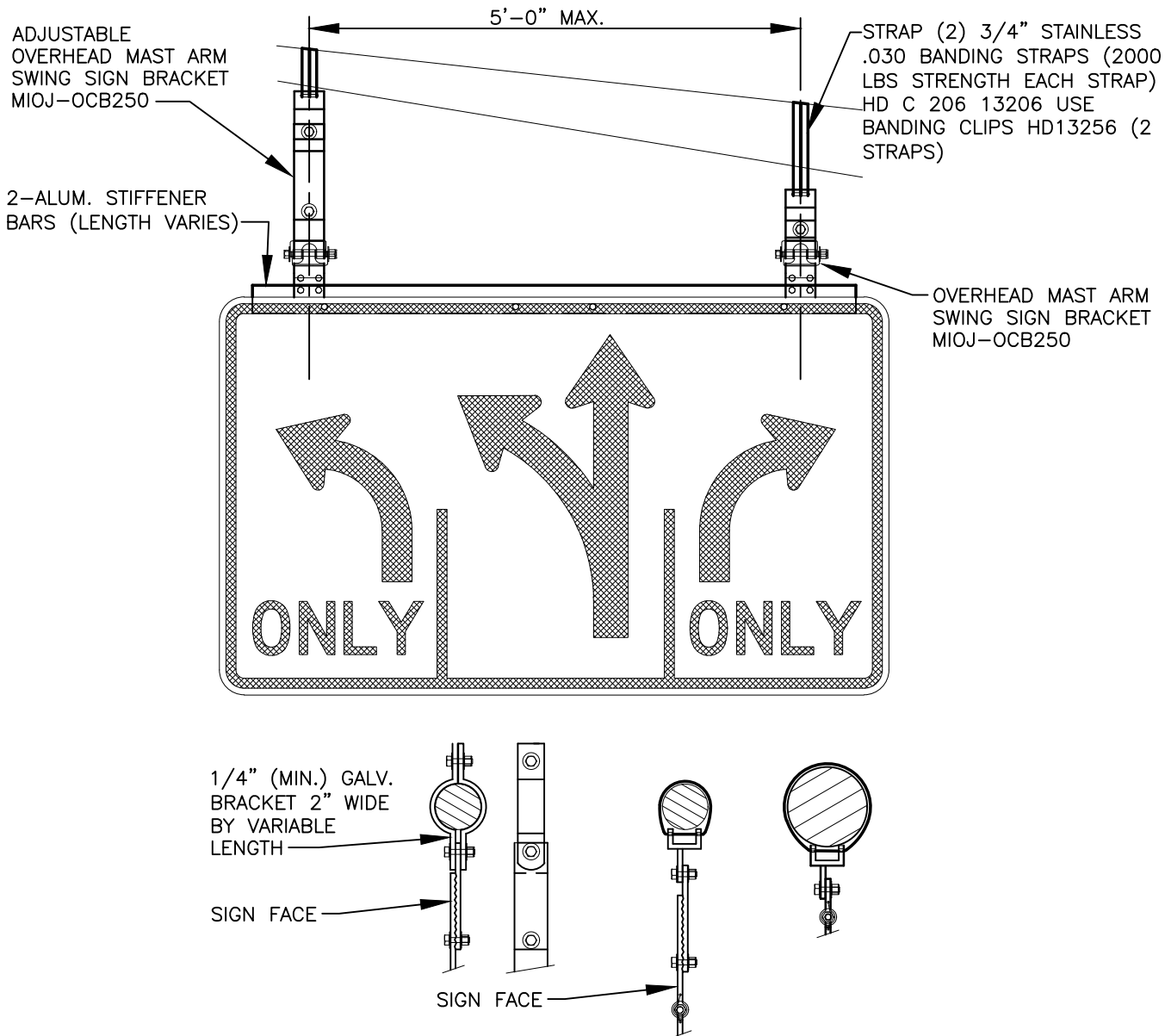
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T20-07

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NOTES:

CLAMP BRACKET STRAP

1. SIGN SHALL BE OF .125 ALUMINUM SHEETING, FLAT STOCK,
2. SIGN FACE SHALL BE FABRICATED FROM CUBED CORNERED LENS (VIP, TYPE A) REFLECTIVE MATERIAL. FACE LEGEND AND BORDER SHALL MATCH MUTCD AND WSDOT STANDARD SPECIFICATIONS.
3. STIFFENER BARS SHALL BE .125 ALUMINUM SHAPED.
4. COMPLETE READY-TO-MOUNT SIGN ASSEMBLY NOT TO EXCEED 65 POUNDS IN WEIGHT.
5. ALL SIGN MATERIALS AND ATTACHMENT HARDWARE SHALL CONFORM TO MUTCD AND WSDOT STANDARD SPECIFICATIONS.
6. ENGINEER SHALL APPROVE FACE COPY PRIOR TO FABRICATION.
7. THE SIZE OF THE SIGN WILL DETERMINE IF ONE OR TWO BRACKETS ARE NECESSARY. HAVE ENGINEERS APPROVAL PRIOR TO INSTALLATION.
8. FOR ALTERNATE OVERHEAD SIGN MOUNTING OPTION, SEE WSDOT STANDARD PLAN G-30.10-xx. HAVE ENGINEERS APPROVAL PRIOR TO USING ALTERNATE OPTION.



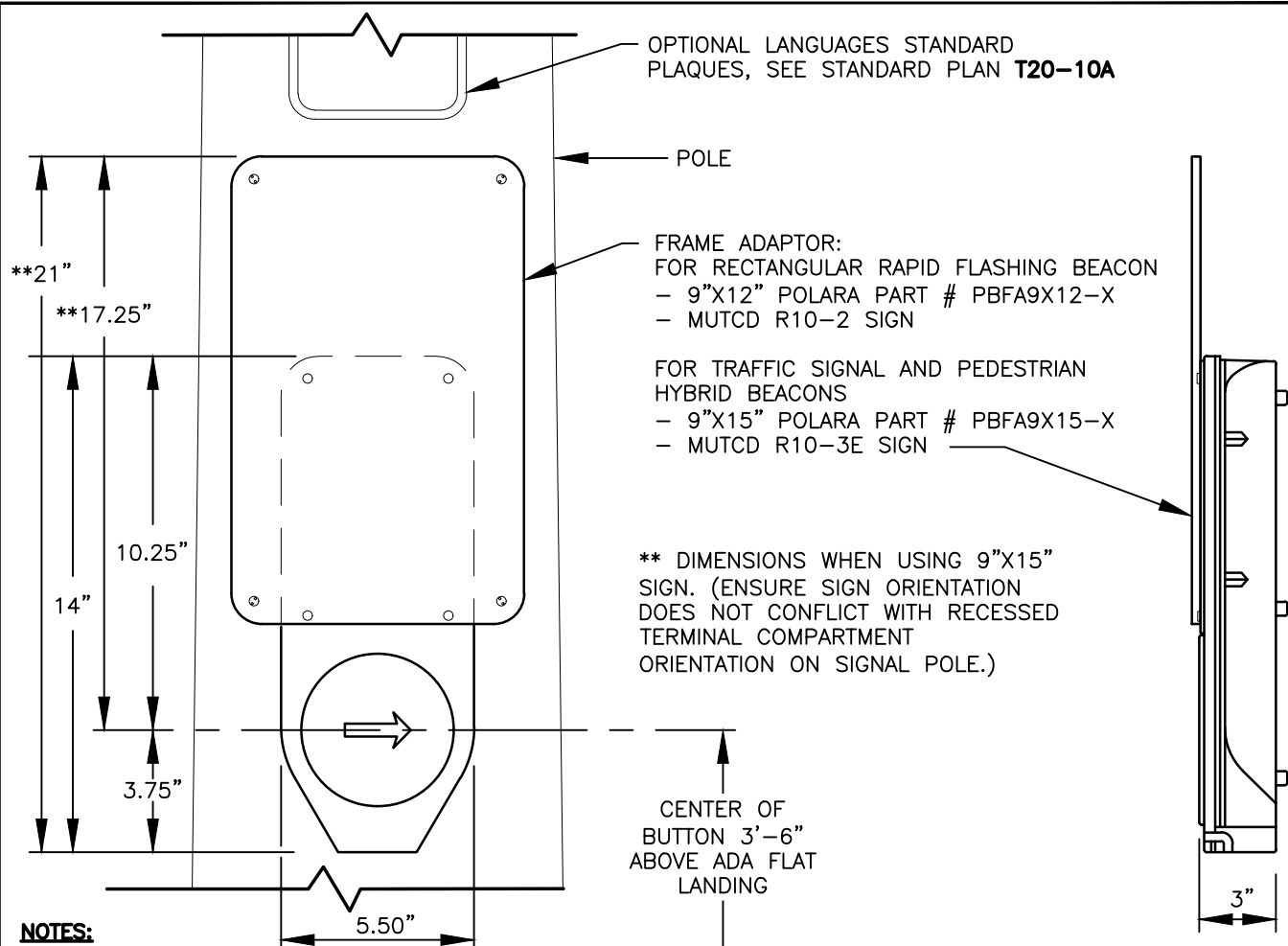
OVERHEAD SIGN MOUNTING

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T20-08



NOTES:

AUDIBLE – TACTILE PEDESTRIAN SIGNAL SYSTEM FOR ADA PEDESTRIAN PUSH BUTTON;

1. SHALL CONSIST OF 2-12 PUSH BUTTON STATIONS (MAXIMUM OF 3 PER PHASE) CONTROLLED BY A SINGLE BASE UNIT AT/IN THE TRAFFIC CONTROL CABINET.
2. SYSTEM MUST BE ABLE TO PROVIDE THE FOLLOWING AUDIBLE FEATURES:
 - A LOCATING TONE
 - 5 WALK SOUND CHOICES (FIELD SELECTABLE)
 - 3 PED-CLEARANCE SOUND CHOICES (FIELD SELECTABLE)
 - DIRECTION OF TRAVEL (AS STANDARD FEATURE WITH EXTENDED PUSH)
 - INFORMATION MESSAGE (CUSTOM FEATURE WITH EXTENDED PUSH)
3. ALL AUDIBLE SOUNDS MUST EMANATE FROM PUSH BUTTON STATION.
4. EACH AUDIBLE FEATURE MUST HAVE INDEPENDENTLY SETTABLE MINIMUM AND MAXIMUM VOLUME LIMITS.
5. ALL SOUNDS MUST AUTOMATICALLY ADJUST TO AMBIENT NOISE LEVELS OVER A 60 dB RANGE.
6. ALL SOUNDS FOR ALL PUSH BUTTON STATIONS MUST BE SYNCHRONIZED.
7. SYSTEM MUST BE ABLE TO PROVIDE AUDIBLE COUNTDOWN DURING PED CLEARANCE PHASE.
8. PUSH BUTTON STATIONS MUST REQUIRE ONLY TWO WIRES COMING FROM THE TRAFFIC CONTROL CABINET FOR EACH PHASE / CROSSWALK.
9. EACH PUSH BUTTON STATION MUST HAVE A 2" BUTTON WITH A TACTILE RAISED DIRECTIONAL ARROW ON THE BUTTON.
10. THE ARROW MUST BE ABLE TO BE CHANGED TO ONE OF FOUR DIRECTIONS.
11. THE ARROW/BUTTON MUST VIBRATE DURING THE WALK PERIOD, FOLLOWING A BUTTON PUSH.
12. PUSH BUTTON STATION FRAME SHALL BE MADE OF CAST ALUMINUM WITH MOUNTING HOLES TO HOLD A 9"x12" OR LARGER PEDESTRIAN SIGN.
13. ALL VOLUMES AND OPTIONAL FEATURES ARE TO BE SETTABLE USING A HAND HELD WIRELESS DEVICE WITH PASSWORD SECURITY.
14. WIRELESS DEVICE SHALL BE CAPABLE OF SETTING/UPDATING ALL PUSH BUTTON STATIONS ON THE INTERSECTION FROM A SINGLE PUSH BUTTON STATION (GLOBAL UPDATING).
15. SYSTEM MUST BE ABLE TO MUTE SOUNDS ON ALL CROSSWALKS EXCEPT ACTIVATED CROSSWALK (SELECTABLE FEATURE).
16. SYSTEM MUST BE ABLE TO HAVE MULTIPLE LANGUAGE CAPABILITY, SELECTABLE USER.
17. SYSTEM SHALL BE ABLE TO PLAY EMERGENCY PREEMPTION MESSAGE.
18. SYSTEM SHALL BE ABLE TO SELF TEST BUTTONS AND REPORT ANY FAULTS TO TRAFFIC CONTROLLER.
19. PEDESTRIAN BUTTON CASTING(S) SHALL BE YELLOW.



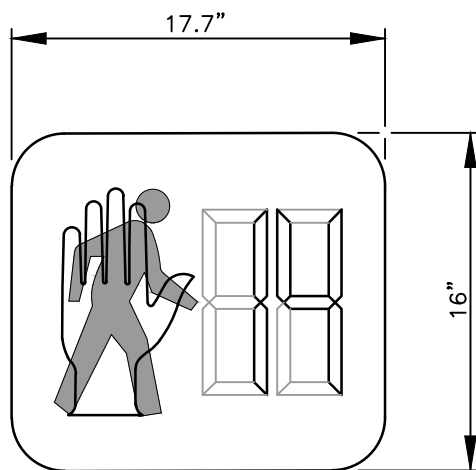
**ADA PEDESTRIAN AUDIBLE
PUSH BUTTON ASSEMBLY**

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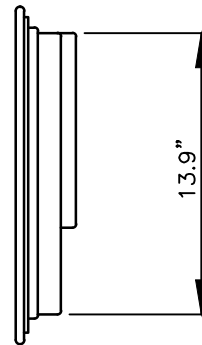
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T20-09B



FRONT VIEW



SIDE VIEW

16"x18" LED ARRAY PEDESTRIAN COUNTDOWN SIGNAL MODULE
 (GE PART NO. PS7-CFF1-VLA OR APPROVED EQUAL)

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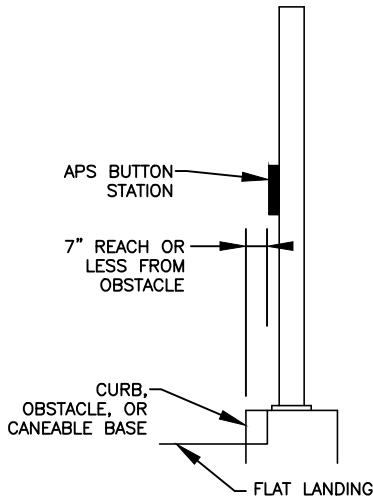
PEDESTRIAN COUNTDOWN SIGNAL HEAD

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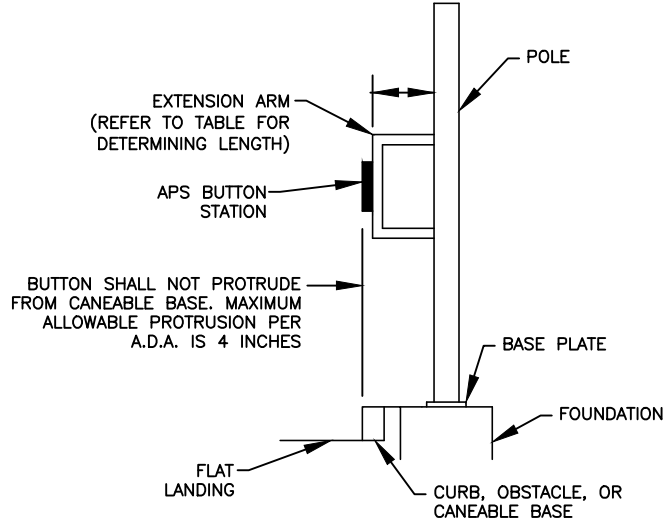
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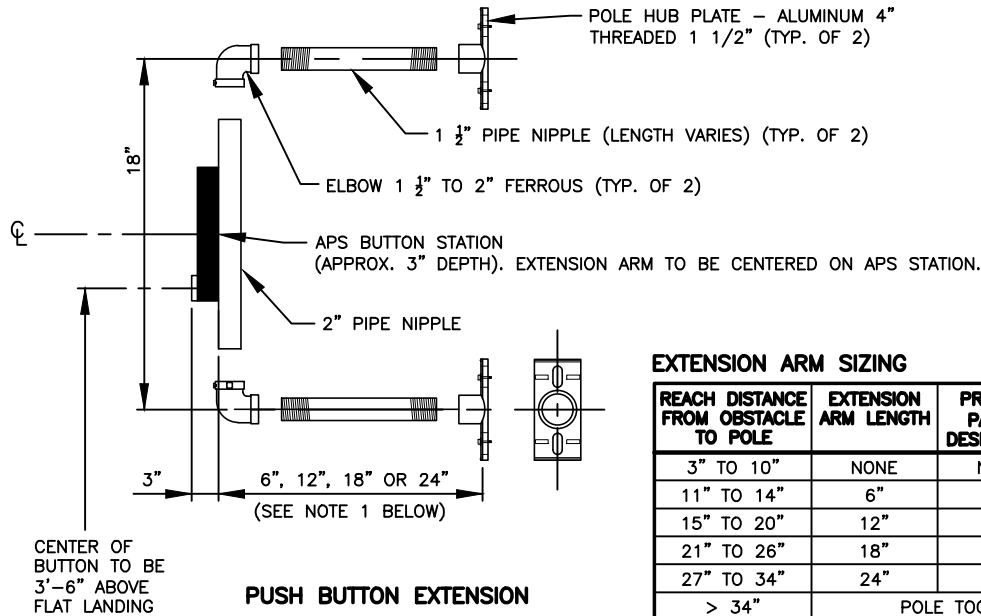
T20-09D



CASE 1: NO EXTENSION ARM
REQUIRED WHEN REACH DISTANCE
TO BUTTON IS 7" OR LESS.



CASE 2: EXTENSION ARM REQUIRED
WHEN REACH DISTANCE TO BUTTON
IS 8" OR GREATER. SEE TABLE.



PUSH BUTTON EXTENSION

EXTENSION ARM SIZING

REACH DISTANCE FROM OBSTACLE TO POLE	EXTENSION ARM LENGTH	PRODUCT PART # DESIGNATION	RESULTING REACH - RANGE
3" TO 10"	NONE	NONE	0" TO 7"
11" TO 14"	6"	6"	2" TO 5"
15" TO 20"	12"	12"	0" TO 5"
21" TO 26"	18"	18"	0" TO 5"
27" TO 34"	24"	24"	0" TO 7"
> 34"	POLE TOO FAR AWAY		

NOTES:

1. IT IS CONTRACTOR RESPONSIBILITY TO INSTALL THE APPROPRIATE EXTENSION ARM LENGTH. EXTENSION ARM LENGTH WILL VARY BASED ON FIELD CONDITIONS RELATED TO POLE, FOUNDATION, CURB LOCATION, AND LANDING GEOMETRY.
2. MAX. REACH DISTANCE FROM OBSTACLE TO BUTTON SHOULD BE 7" OR LESS.
3. BUTTON SHALL NOT PROTRUDE FROM CANEABLE BASE. (MAX. ALLOWABLE PROTRUSION PER A.D.A. IS 4".)
4. ALL HARDWARE SHALL BE STAINLESS STEEL.
5. EXTENSION ARM MANUFACTURED BY ADVANCED TRAFFIC PRODUCTS, INC. OR APPROVED EQUAL.
6. PAINT COLOR TO BE YELLOW.



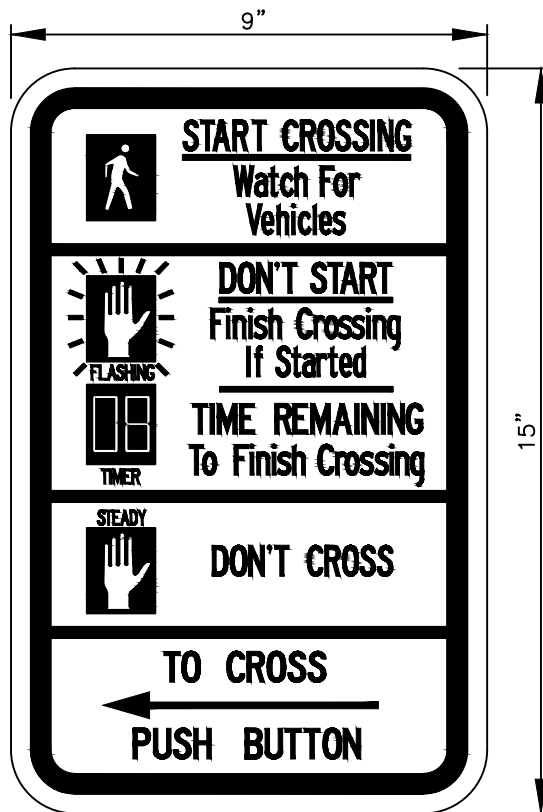
PEDESTRIAN PUSHBUTTON MOUNTING EXTENSION

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DEPARTMENT OF PUBLIC WORKS
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STD. PLAN NO.

T20-09E



STANDARD EDUCATIONAL PLAQUE

(MUTCD R10-3e FOR USE WITH COUNTDOWN PEDESTRIAN SIGNALS)



SPANISH



RUSSIAN

OPTIONAL LANGUAGE STANDARD PLAQUES*

*OTHER LANGUAGES AVAILABLE.

PUSH BUTTON PLAQUE OPTIONS



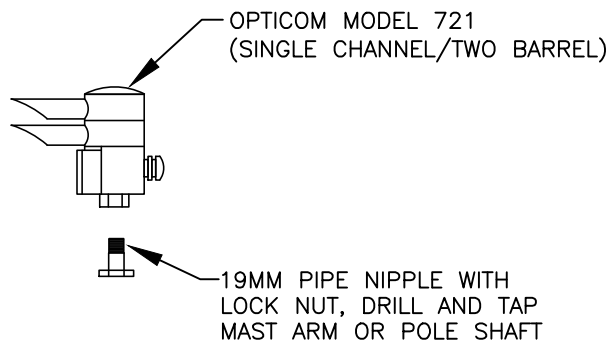
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STD. PLAN NO.

T20-10A

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MAST ARM MOUNT



PREEMPTION DETECTOR MOUNTING

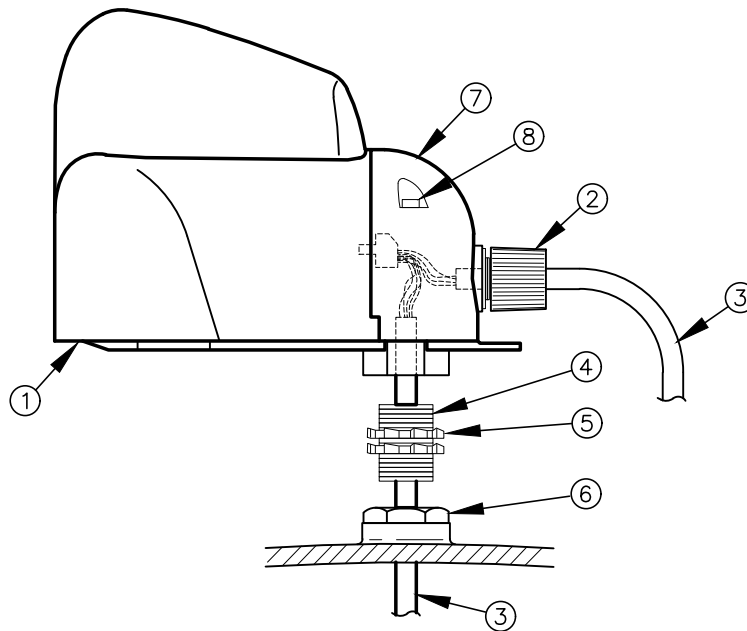
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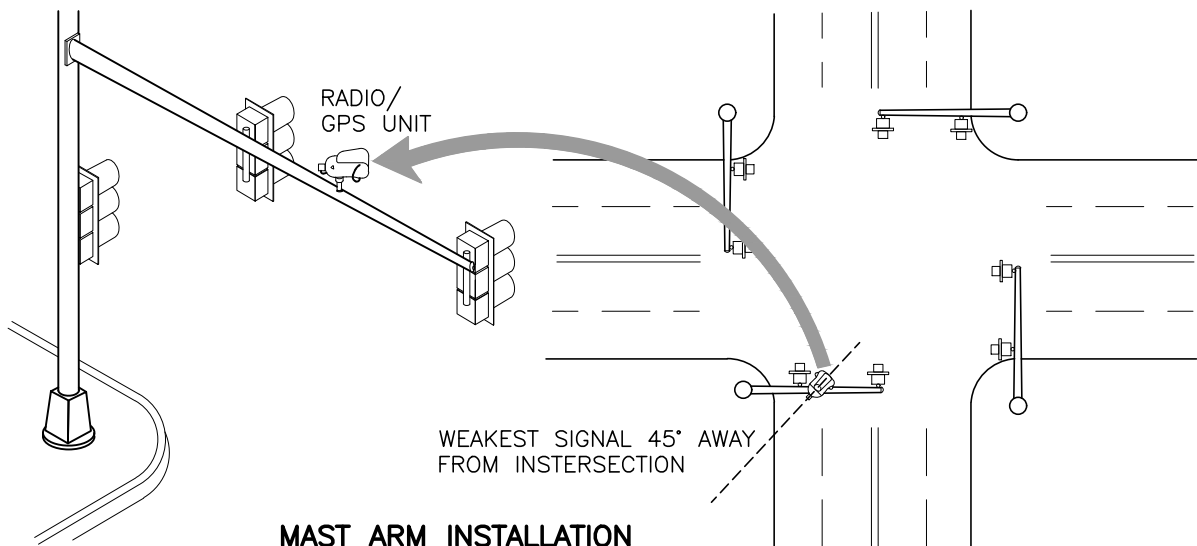
T20-11A

- ① INTERSECTION RADIO/GPS UNIT (MODEL 3100)
- ② CABLE RETAINER
- ③ RADIO/GPS CABLE (MODEL 1070)
- ④ NIPPLE/PIPE
- ⑤ LOCKNUT (2)
- ⑥ 3/4 INCH NPT MOUNT
- ⑦ WIRING COVER
- ⑧ COVER SCREWS (2)



NOTE:

1. THE RADIO/GPS UNIT SHALL BE MOUNTED IN A LOCATION THAT HAS AN UNOBSTRUCTED VIEW OF ALL APPROACHES OUT TO A DISTANCE OF 2,500 FEET.
2. BLOCKAGE OF APPROACHES BY THINGS SUCH AS BRIDGES, BUILDINGS, WALKWAYS AND TREES SHOULD BE AVOIDED.
3. THE RADIO/GPS UNIT IS USUALLY MOUNTED TO THE MAST ARM OR SPAN WIRE POLE NEAREST THE TRAFFIC CONTROLLER CABINET. IF AN APPROPRIATE MOUNTING LOCATION ON A MAST ARM OR SPAN WIRE POLE IS NOT AVAILABLE, YOU CAN MOUNT THE UNIT ON TO A SPAN WIRE. TRY TO USE A SIGNAL HEAD OR SIGN MOUNT TO MINIMIZE SWAY.
4. THE RADIO/GPS UNIT SHALL BE MOUNTED LEVEL AND AS HIGH AS POSSIBLE. DO NOT MOUNT UNIT UPSIDE DOWN
5. THE RADIO/GPS UNIT SHALL HAVE UNOBSTRUCTED VIEW OF AT LEAST 50% OF THE SKY.
6. THE MOUNTING LOCATION SHALL BE SUCH THAT THE CABLE RUN FROM THE RADIO/GPS UNIT TO THE PHASE SELECTOR (LOCATED IN THE TRAFFIC CONTROLLER CABINET) IS NO MORE THAN 250 FEET.
7. THE RADIO/GPS CABLE MAY BE RUN THROUGH CONDUIT OR ATTACHED TO A MESSENGER WIRE. THE CABLE SHALL NOT BE SUSPENDED UNSUPPORTED.
8. THE RADIO/GPS UNIT SHALL BE ORIENTED SUCH THAT THE CABLE RETAINER IS FACING AN AREA FROM WHICH VEHICLES WILL NOT BE APPROACHING.
9. DRIP LOOP SHALL BE 6 TO 8 INCHES.
10. ALL HARDWARE FASTENERS SHALL BE STAINLESS STEEL, TORQUED TO MANUFACTURER'S RECOMMENDATIONS WITH LOCKNUTS.
11. POWER LEADS SHALL BE INSTALLED WITH SUITABLE COPPER OPEN SPADES.
12. CONTRACTOR SHALL UTILIZE TOOLS AS RECOMMENDED BY RADIO/GPS VENDOR.
13. ALL FASTENER PENETRATIONS OF CABINET SHALL BE SEALED WITH APPROVED METHOD.



MAST ARM INSTALLATION

GPS OPTICOM INSTALLATION

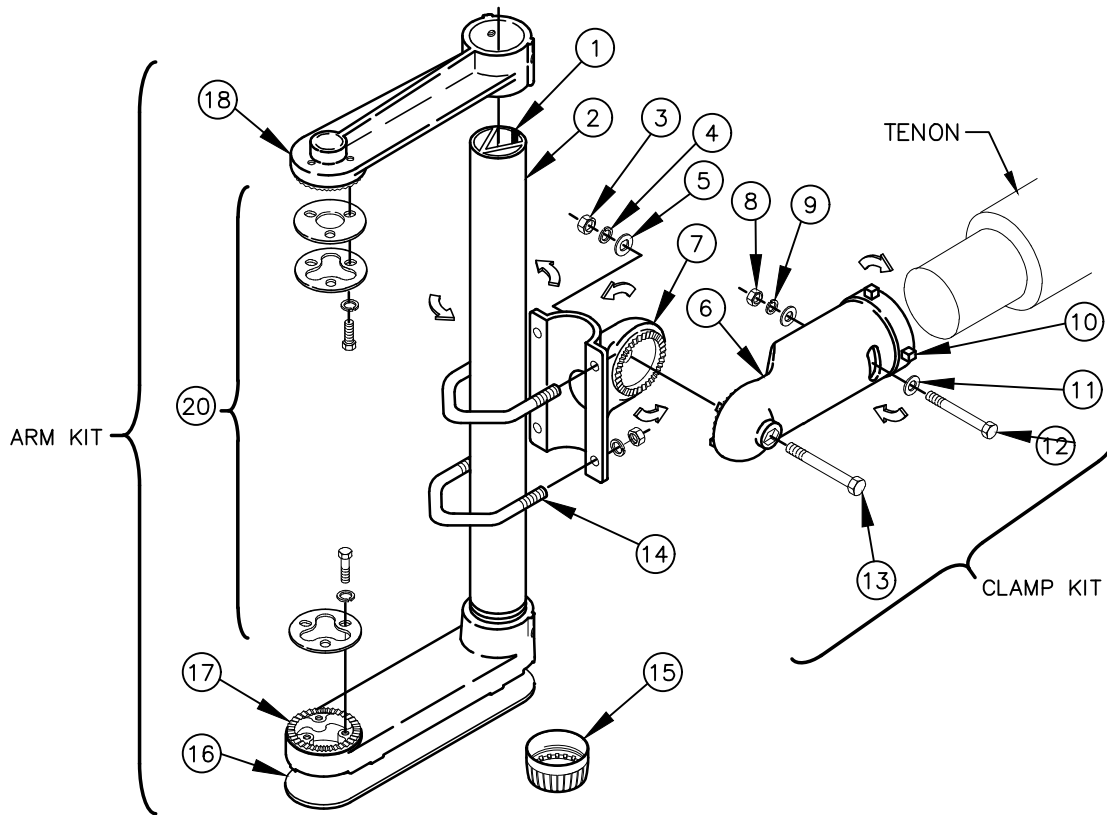


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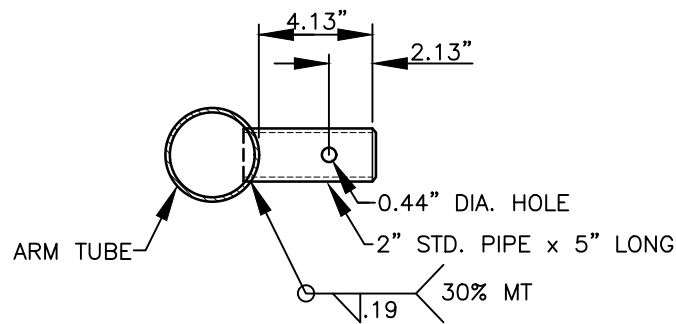
STD. PLAN NO.

T20-11B



ITEM	DESCRIPTION	QTY
①	INSERT, VINYL	1
②	GUSSETED TUBE, 1 1/2"-11 1/2 NPS, TOE, ALUMINUM	1
③	NUT, HEX 1/2"-13, STAINLESS	1
④	WASHER, LOCK SPLIT 1/2", STAINLESS	1
⑤	WASHER, FLAT 1/2", STAINLESS	1
⑥	ARM, ARTICULATED SERRATED 2-3/8" OD TENON MOUNT, ALUMINUM	1
⑦	SADDLE, ARTICULATING SERRATED, 713 ALUMINUM	1
⑧	NUT, HEX 3/8"-16, STAINLESS	1
⑨	WASHER, LOCK SPLIT 3/8", STAINLESS	1
⑩	SCREW, SET HEX HD 3/8"-16x3/4", STAINLESS	3
⑪	WASHER, FLAT 3/8", STAINLESS	2
⑫	BOLT, HEX HD 3/8"-16x4"	1
⑬	BOLT, HEX HD 1/2"-13x4 1/2", STAINLESS	1
⑭	V-BOLT KIT, 5/16"-18, STAINLESS	1
⑮	THREAD PROTECTOR, PLASTIC	1
⑯	COVER, LOWER ARM, ABS PLASTIC	1
⑰	LOWER ARM, ASTRO-BRAC 1-WAY, 8 1/2"	1
⑱	UPPER ARM, ASTRO-BRAC 1-WAY, 8 1/2"	1
⑲	BAG, 0.004x6 1/2"x14", POLY W/"AB-4000 ARM KIT"	2
⑳	HARDWARE KIT, 1-WAY ARM KIT W/ZINC 2 WASHER AND SS HDWR	2

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SIDE VIEW

NOTE:

ALL UNUSED TENONS
SHALL BE COVERED WITH
UV RESISTANT CAPS.



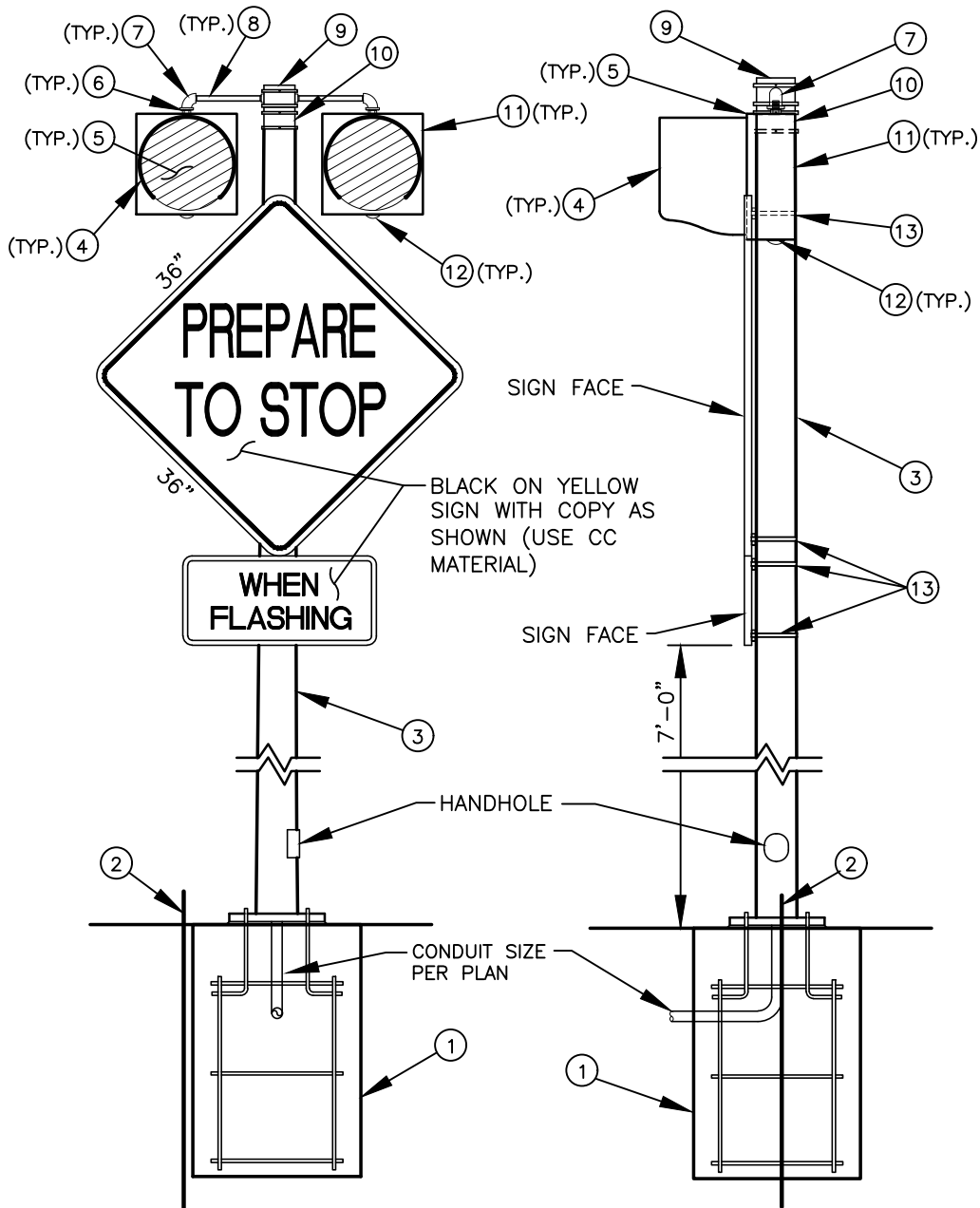
MAST ARM TENON

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STD. PLAN NO.

T20-13



NOTES:

- ① SEE TYPE PS, TYPE I AND TYPE PPB TRAFFIC SIGNAL POLE FOUNDATION STANDARD PLAN T20-16 AND SPECIFICATIONS FOR FOUNDATION INFORMATION.
- ② 8' GROUND ROD - CONNECT TO BASE.
- ③ TYPE I STANDARD (12'-6" IN LENGTH).
- ④ 1-WAY, 1-SECTION, 12" YELLOW LED MOUNTED ABOVE SIGN..
- ⑤ TUNNEL VISOR.
- ⑥ LOCKNIPPLE, 1 1/2" DIA. WITH GASKET, WASHER AND CONDUIT LOCKNUT.
- ⑦ SERRATED OR FLANGED ELBOW.
- ⑧ CONDUIT NIPPLE, 1 1/2" DIA.
- ⑨ TOP MOUNT SEE WSDOT DETAIL J-21.16.xx AND J-21.17.xx. IF SIGN IS MOUNTED ON LIGHT POLE USE MODIFIED TYPE K MOUNT.
- ⑩ SLIPFITTER.
- ⑪ ALUMINUM CASING.
- ⑫ END CAP.
- ⑬ MOUNTING BRACKET.

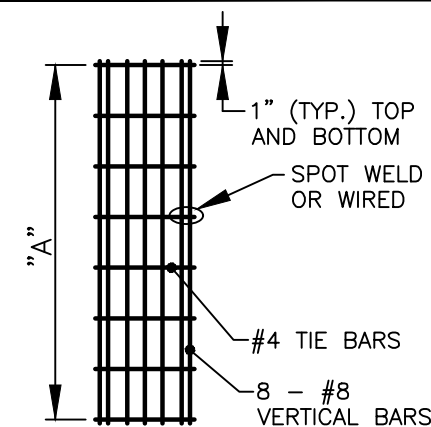


SIGN AND FLASHER ASSEMBLY

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STD. PLAN NO.
T20-14

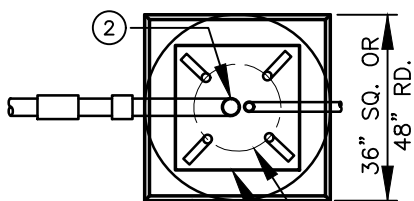


REBAR CAGE DETAIL

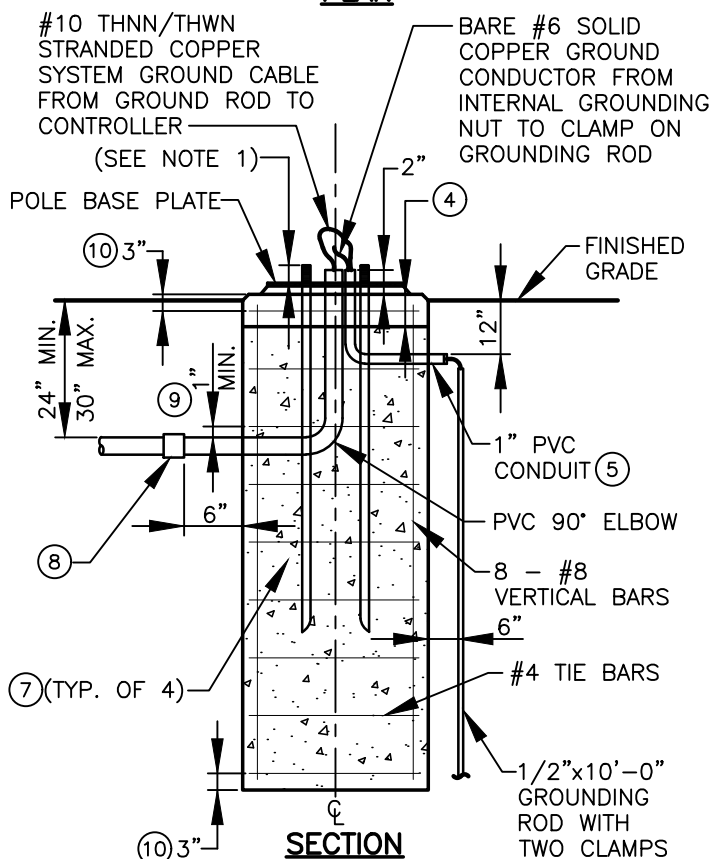
HORIZONTAL TIE BAR SHALL HAVE 15" MIN. LAP



VERTICAL REBAR	
POLE FOUNDATION DEPTH	LENGTH "A"
8'-0"	7'-8"
10'-0"	9'-8"
12'-0"	11'-8"
15'-0"	14'-8"



PLAN

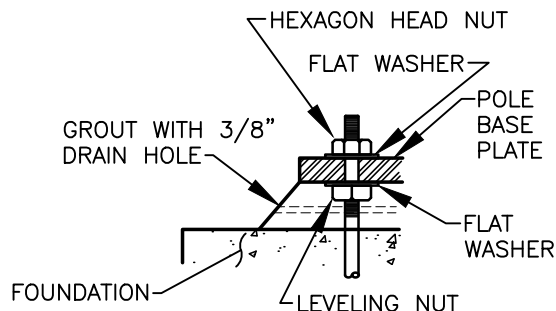


SECTION

TRAFFIC SIGNAL POLE BASE

HORIZONTAL REBAR

POLE FOUNDATION DIAMETER	REBAR CIR. "D"	SPACING
36"	30"	12" MAX. EXCEPT FOR 12'-0" AND 15'-0" BASE WHICH SHALL BE 9" MAX.
48"	40"	12" MAX. EXCEPT FOR 12'-0" AND 15'-0" BASE WHICH SHALL BE 9" MAX.



ANCHOR BOLT DETAIL

POLE BASE NOTES:

- ① FINAL POLE ANCHOR, BOLT SIZE, ANCHOR BOLT FOUNDATION, AND BOLT CIRCLE SHALL BE AS PER MANUFACTURER'S RECOMMENDED PRACTICES.
- ② ALL CONDUITS AND ANCHOR BOLTS SHALL BE RIGIDLY INSTALLED BEFORE CONCRETE IS PLACED. ANCHORS SHALL BE SPACED BY MEANS OF A FACTORY CERTIFIED TEMPLATE OR DRAWING. THE CENTER OF WHICH SHALL COINCIDE WITH THE CENTER OF THE BASE.
- ③ ALL CONCRETE POLE BASES SHALL BE CONSOLIDATED BY AN INTERNAL TYPE VIBRATOR.
- ④ FINAL 6" OF CONCRETE FOUNDATION (POLE CAP) SHALL BE FORMED SQUARE. FINAL TOP ELEVATION SHALL MATCH SIDEWALK.
- ⑤ PVC CONDUIT ELBOWS IN CONCRETE FOUNDATIONS SHALL BE CONNECTED TO PVC CONDUIT WITH PVC PIPE NIPPLE ALL PVC CONDUIT AND ELBOWS PRIOR TO PVC PIPE NIPPLE SHALL BE CONSIDERED SUBSIDIARY TO THE TRAFFIC SIGNAL POLE BASE.
- ⑥ POLE BASE PLATE THICKNESS VARIES PER SIGNAL POLE SIZE.
- ⑦ ANCHOR BOLTS AND PLATE PER POLE MANUFACTURER. ANCHOR BOLT SHALL BE ACCURATELY LOCATED AND SECURED IN PLACE PRIOR TO POURING CONCRETE.
- ⑧ PVC COUPLING SHALL BE 4" MINIMUM OF THE 6" OUTSIDE FOUNDATION.
- ⑨ CONDUIT SHALL HAVE MINIMUM 1" CLEARANCE FROM REBAR AND ANCHOR BOLTS.
- ⑩ REBAR SHALL HAVE MINIMUM 3" COVER.
- ⑪ SEE WSDOT STANDARD PLAN J-26.10-XX FOR ADDITIONAL INFORMATION.

**TYPE II, III, B, AND S
TRAFFIC SIGNAL POLE FOUNDATIONS**



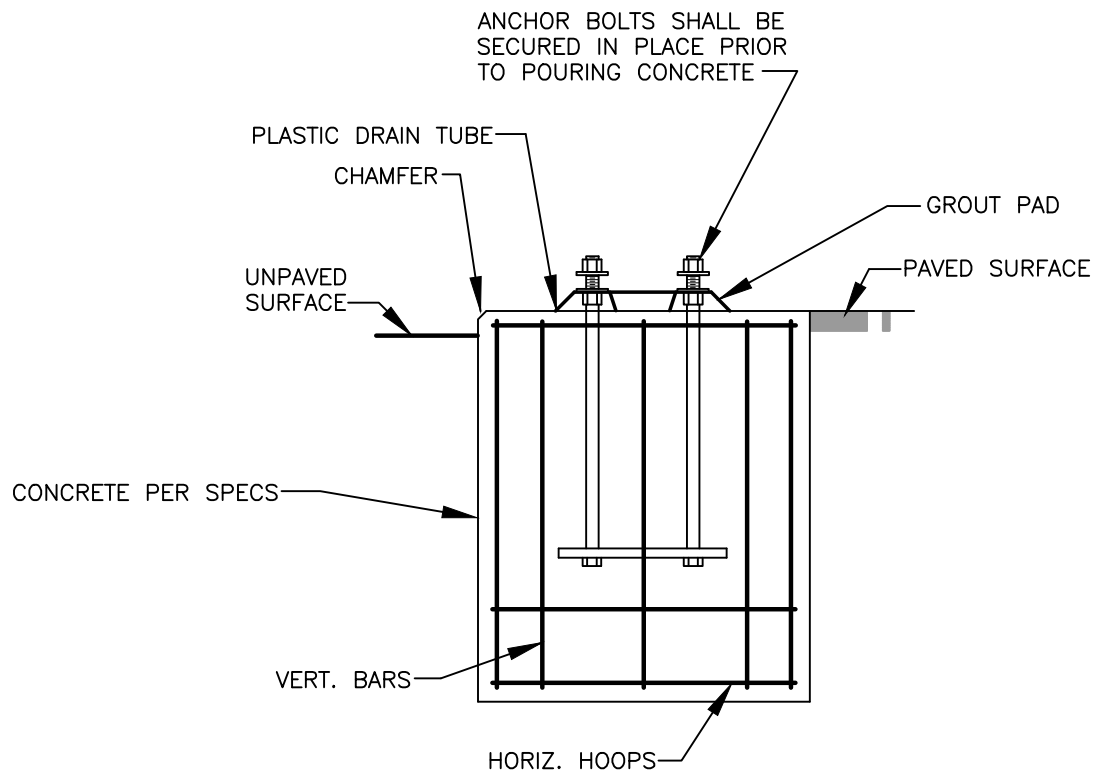
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STD. PLAN NO.

T20-15

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FOR TYPE PS AND TYPE I

REFER TO WSDOT STANDARD PLANS J-20.11 (SHEET 2), J-20.16 AND J-21.10 (SHEET 1).

FOR TYPE PPB:

REFER TO COV STANDARD PLAN T20-05 AND WSDOT STANDARD PLANS J-20.10 AND J-20.11 (SHEET 1).



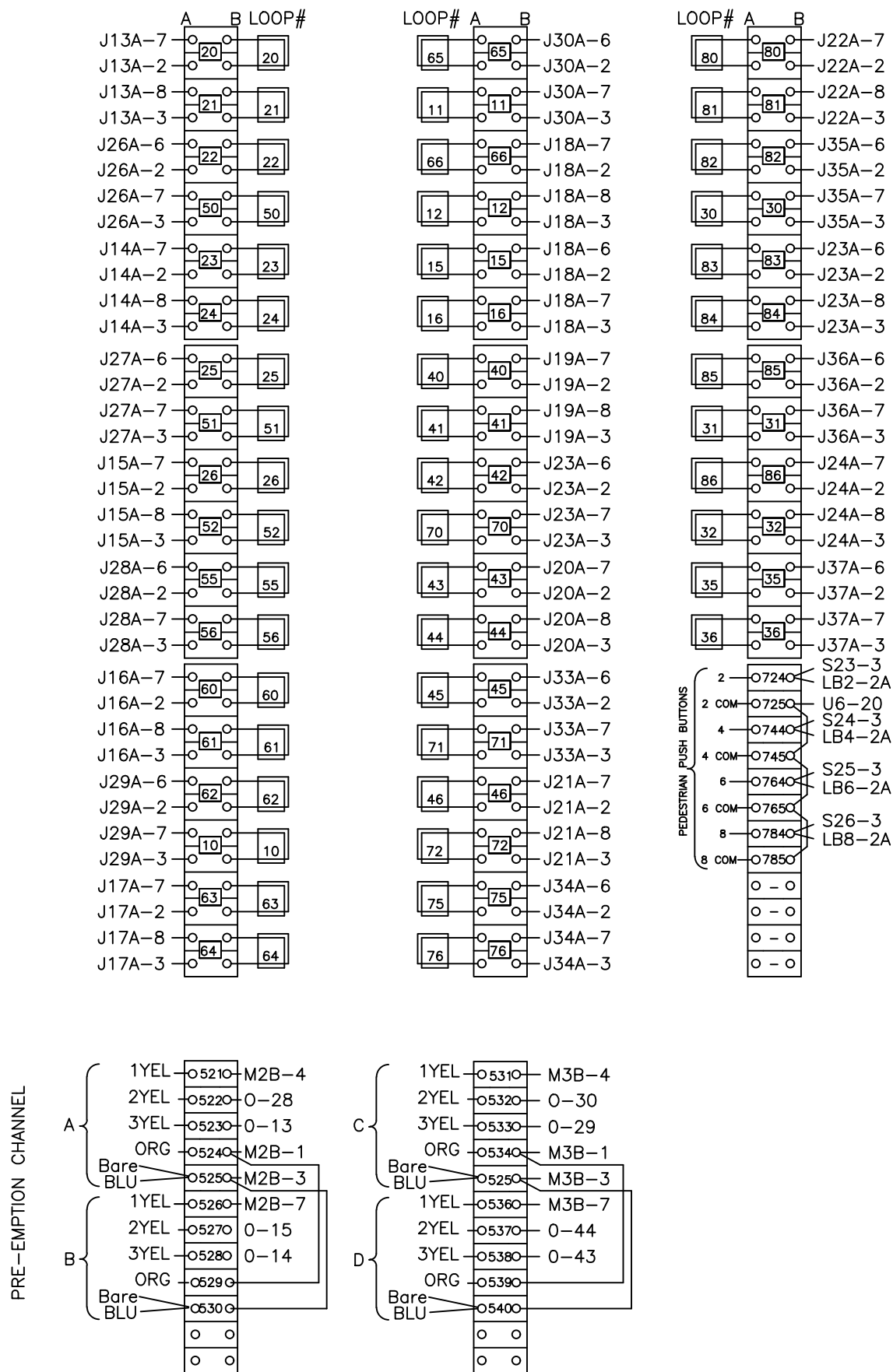
**TYPE PPB, PS, AND I
TRAFFIC SIGNAL POLE FOUNDATIONS**

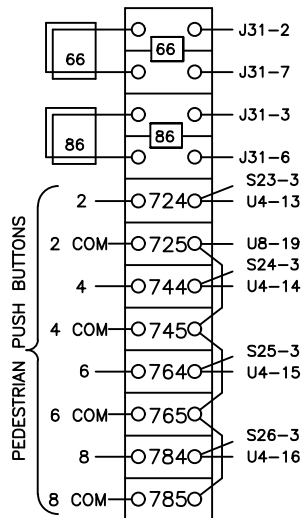
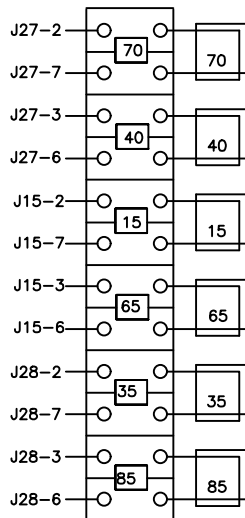
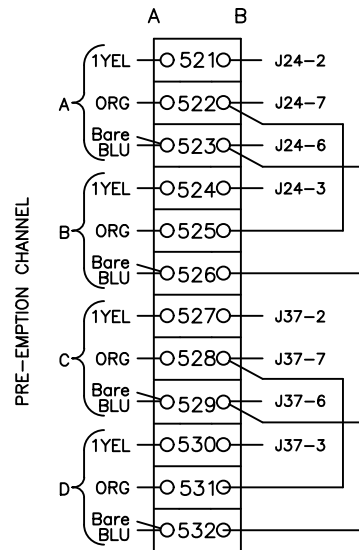
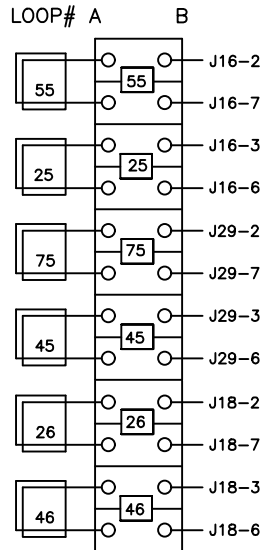
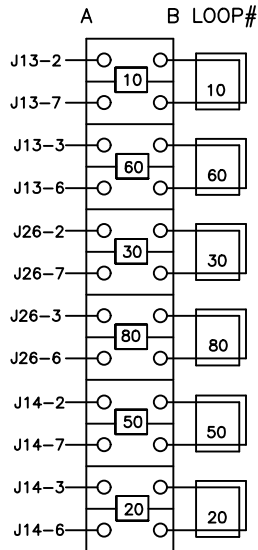
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STD. PLAN NO.

T20-16





TYPE "MSX" CABINET INPUT TERMINATIONS

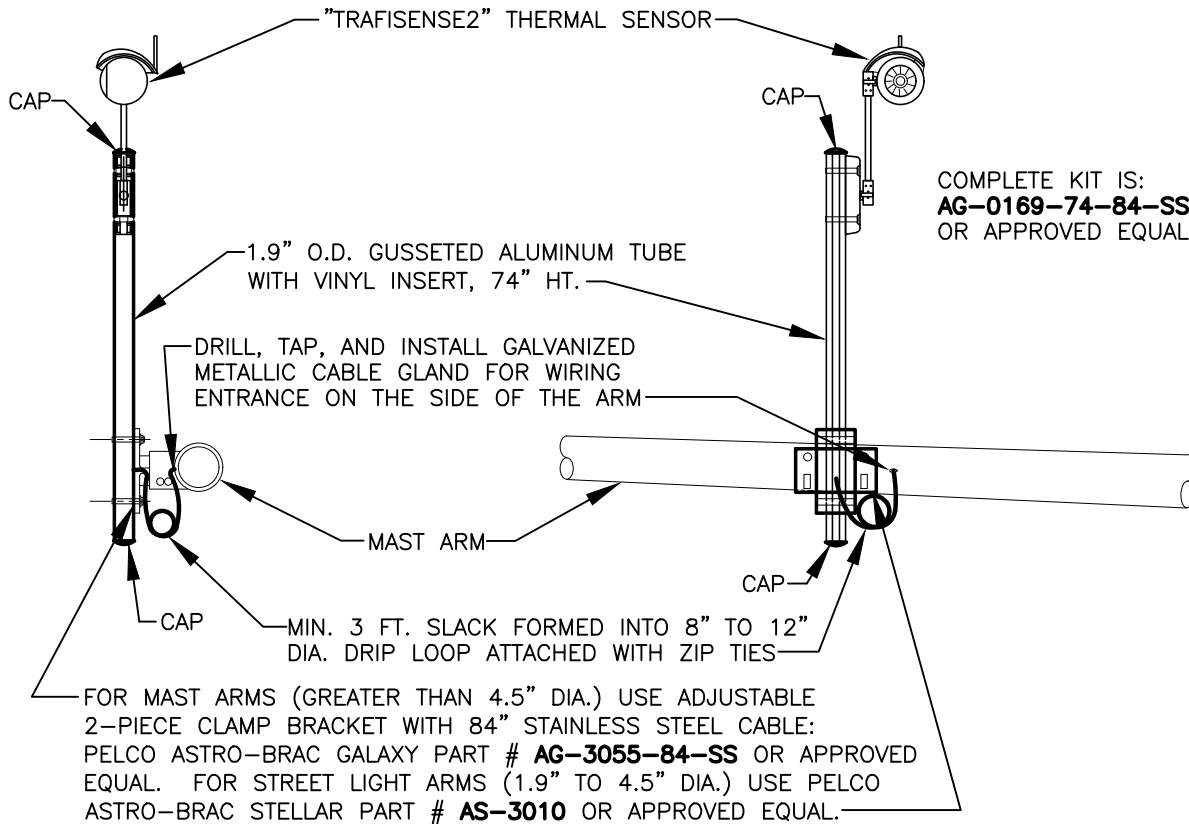


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STD. PLAN NO.

T20-35B



SIDE VIEW

FRONT VIEW

NOTES:

1. ALL HARDWARE FASTENERS SHALL BE STAINLESS STEEL UNLESS OTHERWISE APPROVED.
2. THE INSTALLATION OF THE SENSOR AND THE BRACKET MOUNT SHALL BE PER THE MANUFACTURER RECOMMENDATIONS.
3. THE LOCATION ON THE ARM SHALL BE PER THE PLANS.
4. SENSOR SHOULD NOT BE MOUNTED WITHIN 12 INCHES OF STREET LIGHT FIXTURE.



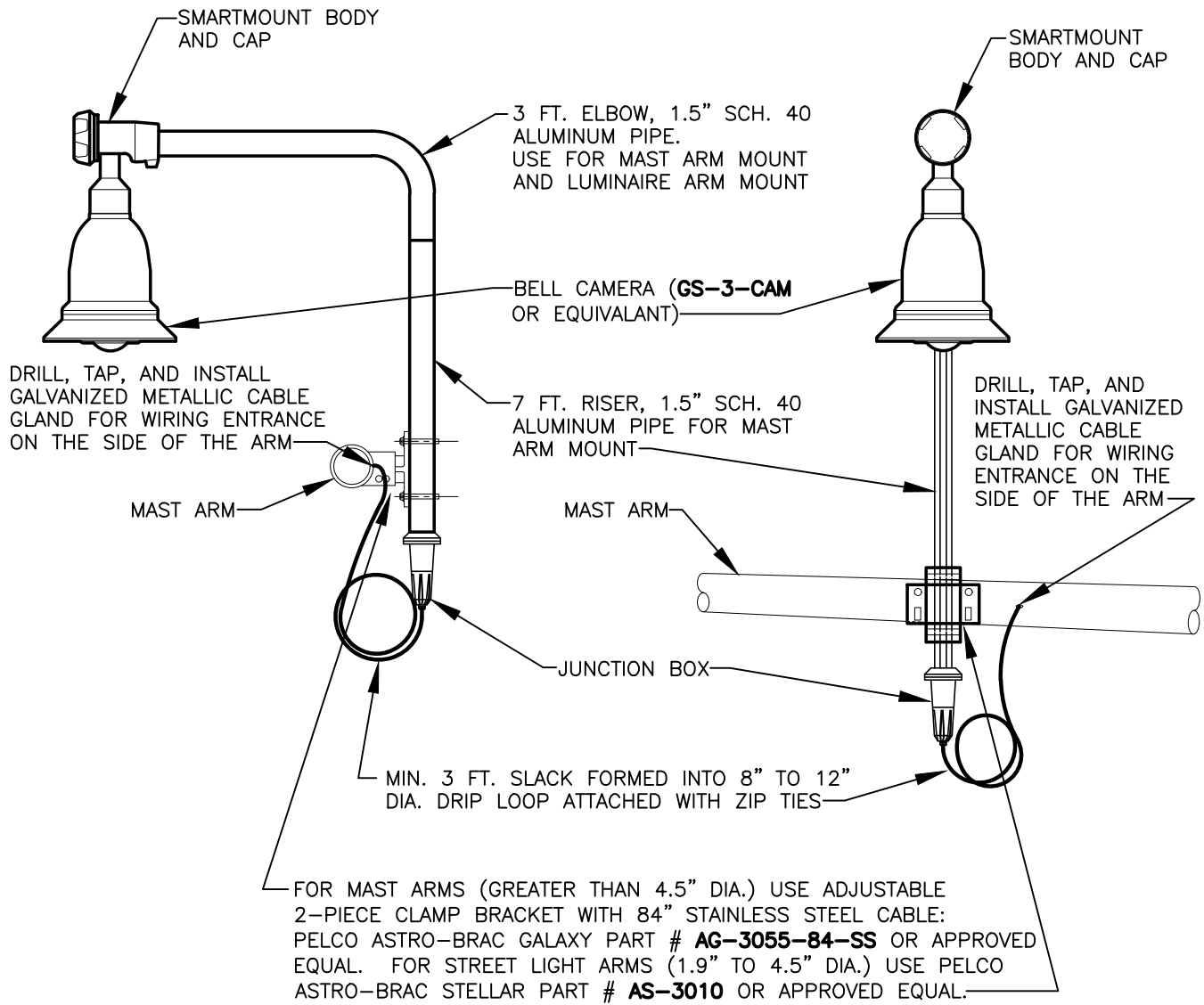
FLIR THERMAL SENSOR INSTALLATION ON MAST ARM

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STD. PLAN NO.

T20-37B



SIDE VIEW

FRONT VIEW

NOTES:

1. MOUNT LOCATION PER PLANS.
2. MAST ARM MOUNT: SMARTMOUNT PART # **GS-3-SMK**.
3. LUMINAIRE ARM MOUNT: SMARTMOUNT PART # **GS-3-SMK-L**.



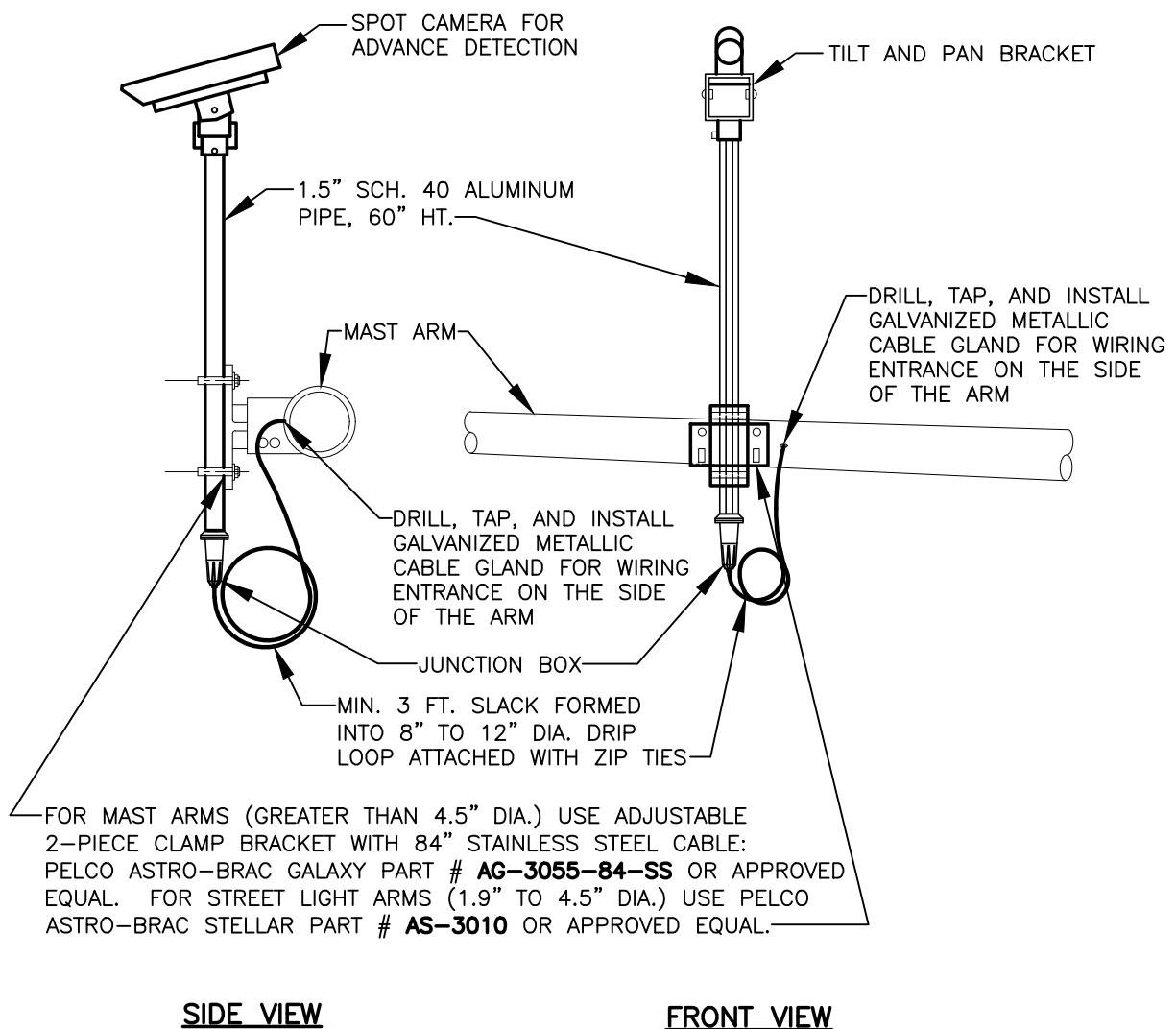
GRIDSMART BELL CAMERA INSTALLATION

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STD. PLAN NO.

T20-37D



NOTES:

1. PART # GS-3-SMA (OR APPROVED EQUAL). INCLUDES CAMERA, POLE AND JUNCTION BOX.
2. THE INSTALLATION OF THE SENSOR AND THE BRACKET MOUNT SHALL BE PER THE MANUFACTURER RECOMMENDATIONS.
3. THE LOCATION ON THE ARM SHALL BE PER THE PLANS.
4. CAMERA SHOULD NOT BE MOUNTED WITHIN 1 FT. OF STREET LIGHT FIXTURE.
5. ALL HARDWARE SHALL BE STAINLESS STEEL UNLESS OTHERWISE APPROVED.



GRIDSMART ADVANCE CAMERA INSTALLATION

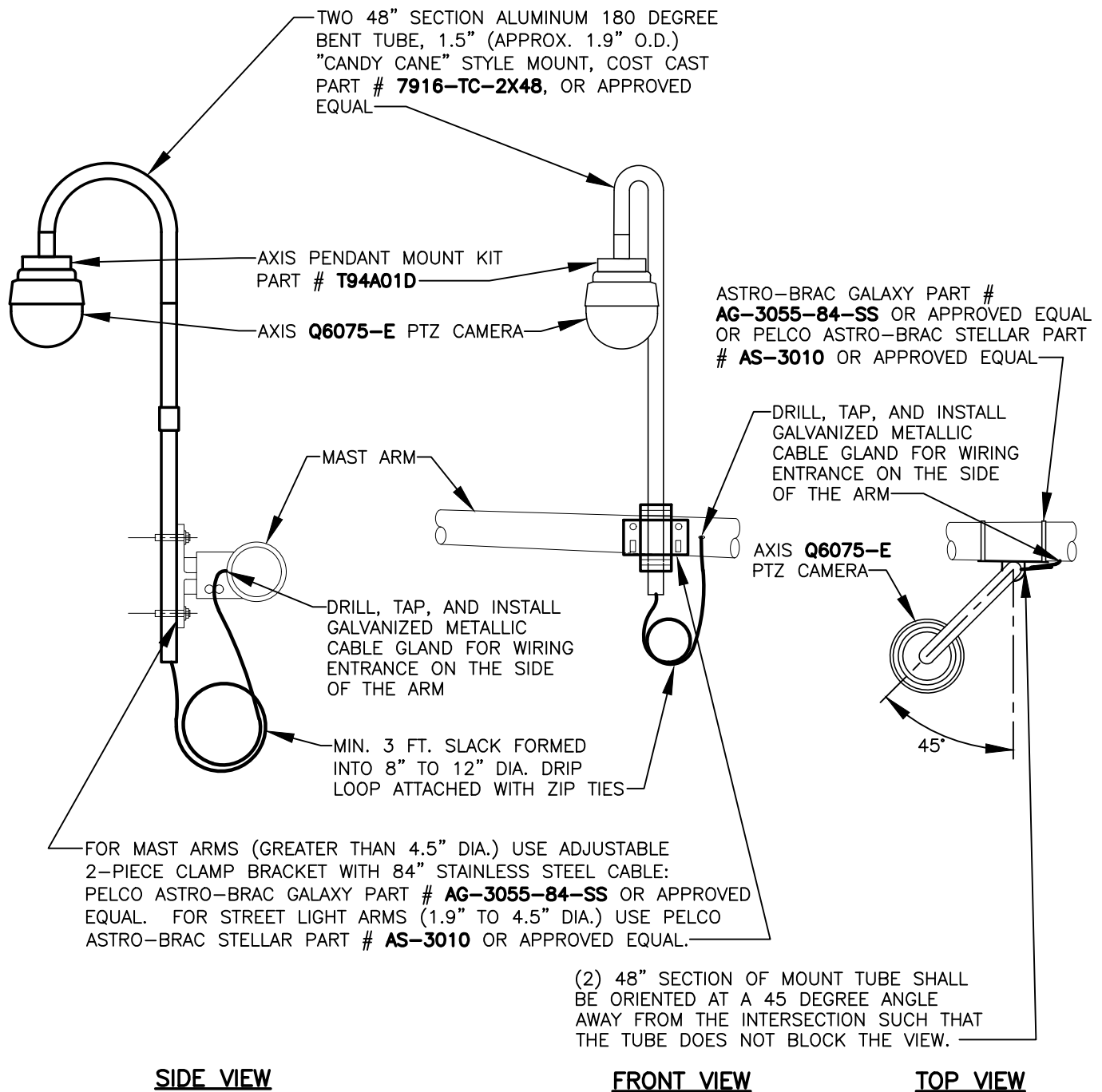
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STD. PLAN NO.

T20-37E

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NOTES:

1. MOUNT LOCATION PER PLANS.



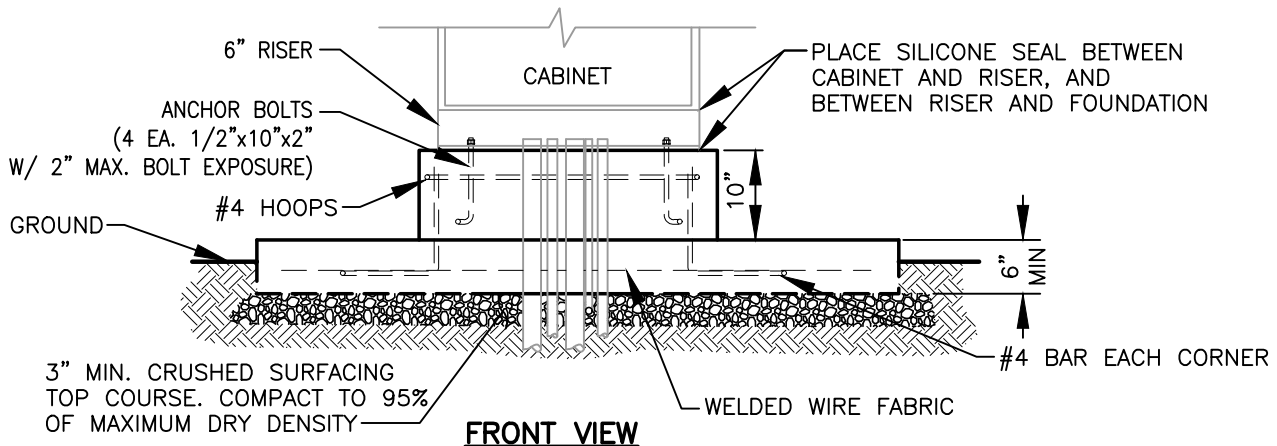
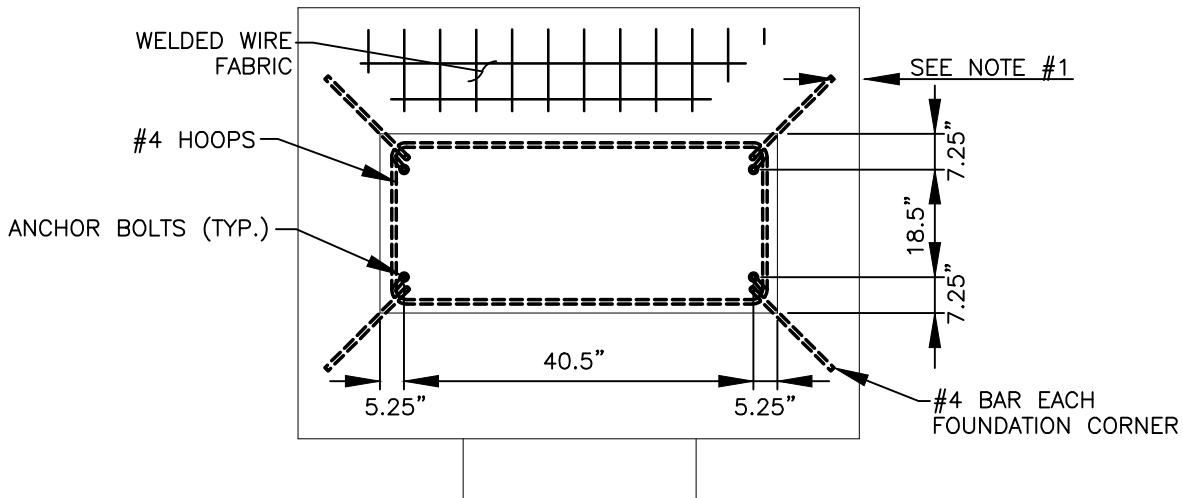
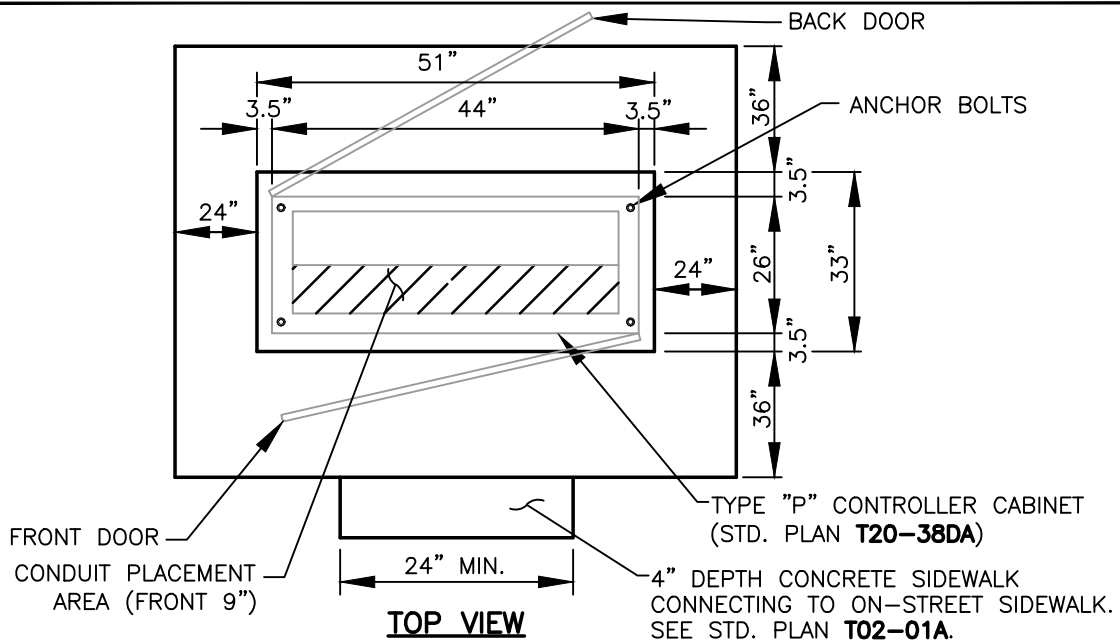
PTZ CAMERA INSTALLATION

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STD. PLAN NO.

T20-37F



NOTES:

1. 2" MINIMUM OF CONCRETE COVER ON ALL STRUCTURAL SUPPORT BARS.
2. CONDUITS SHALL EXTEND 2" MIN. AND 3" MAX. ABOVE CONCRETE MEASURED TO END OF BELL OR GROUND BUSHING.
3. ENSURE ALL DOORS CAN SWING OPEN 180 DEGREES.
4. SEE WSDOT STD. PLAN J-10.10 FOR SPECIFICATIONS.



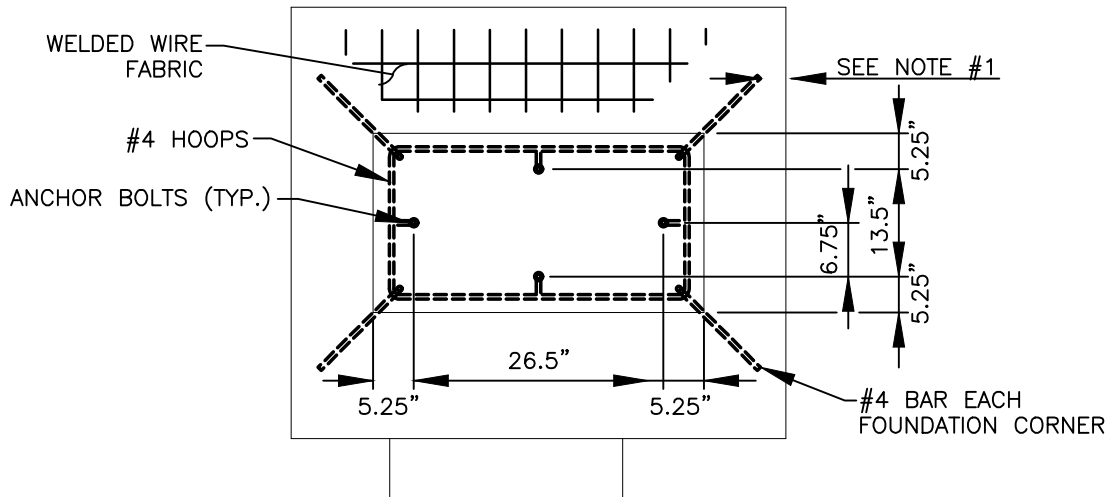
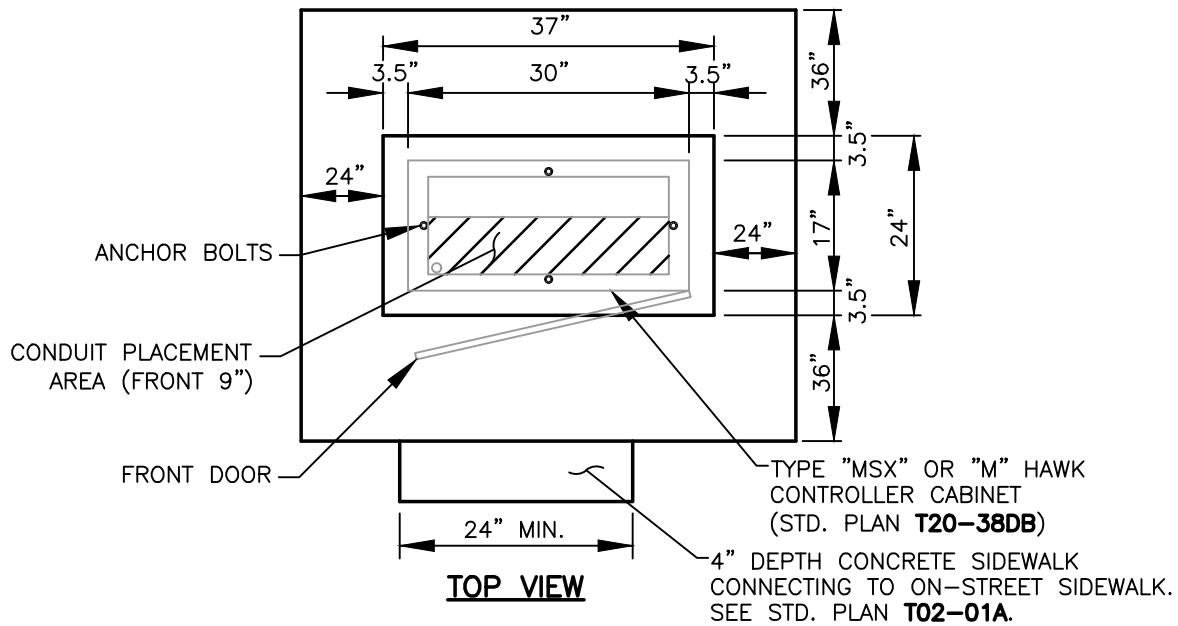
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TYPE "P" CABINET FOUNDATION

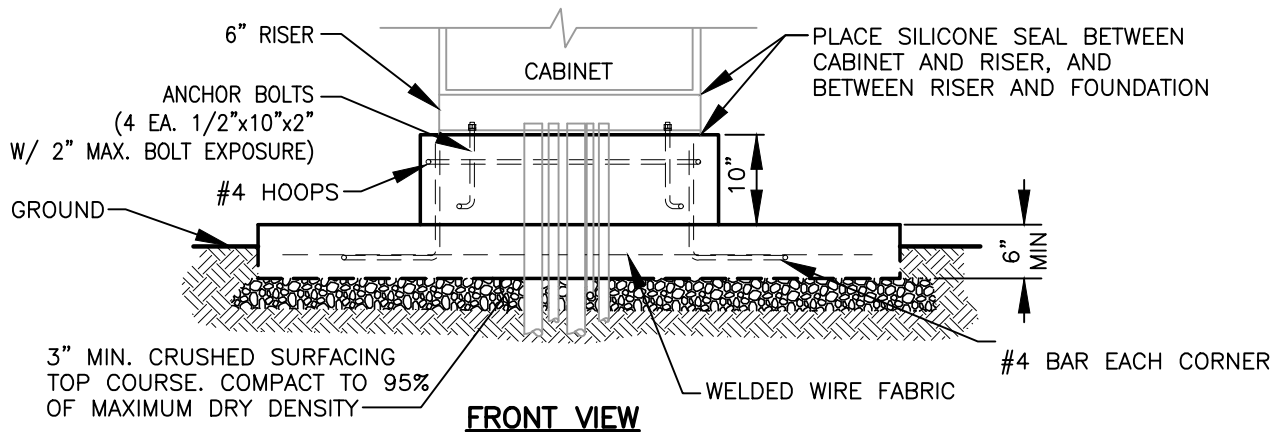
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4		3/24

STD. PLAN NO.

T20-38BA



TOP VIEW - BOLT PATTERN AND STRUCTURAL SUPPORT



NOTES:

1. 2" MINIMUM OF CONCRETE COVER ON ALL STRUCTURAL SUPPORT BARS.
2. CONDUITS SHALL EXTEND 2" MIN. AND 3" MAX. ABOVE CONCRETE MEASURED TO END OF BELL OR GROUND BUSHING.
3. ENSURE ALL DOORS CAN SWING OPEN 180 DEGREES.
4. SEE WSDOT STD. PLAN J-10.10 FOR SPECIFICATIONS.



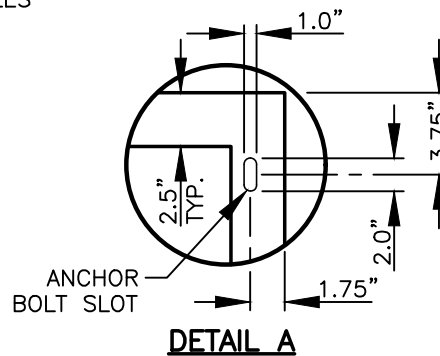
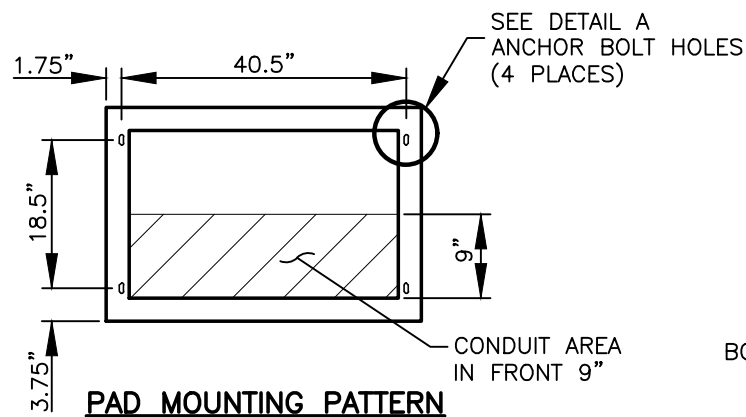
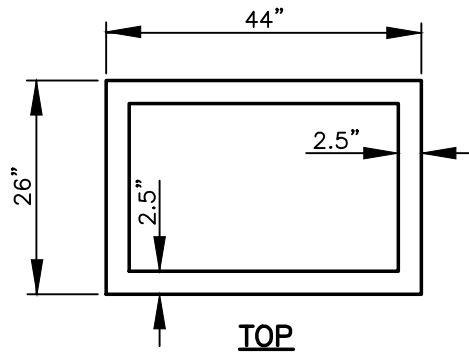
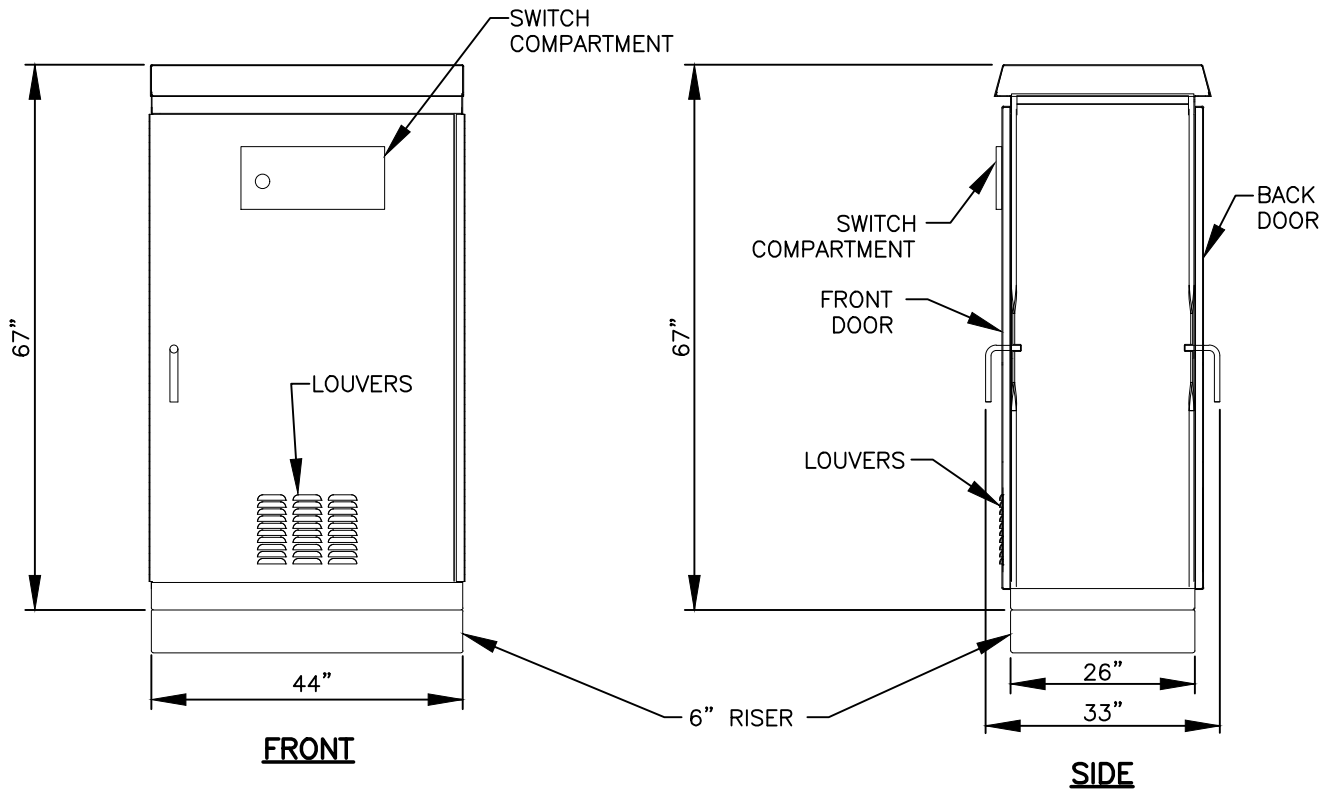
TYPE "MSX" OR "M" HAWK CABINET FOUNDATION

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T20-38BB



NOTES:

1. FRONT AND BACK DOOR "P" CABINET PART NO. FR443624, MANUFACTURED BY APX ENCLOSURE, INC. OR APPROVED EQUAL.



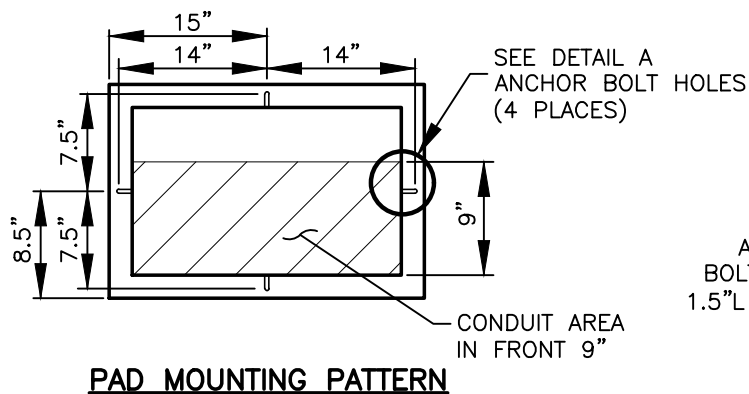
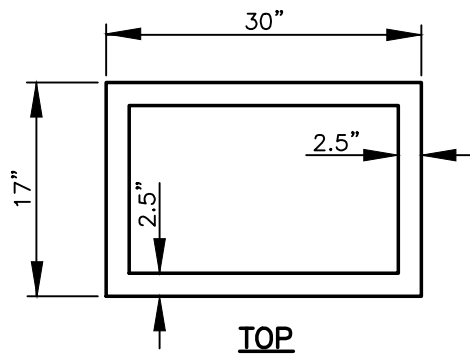
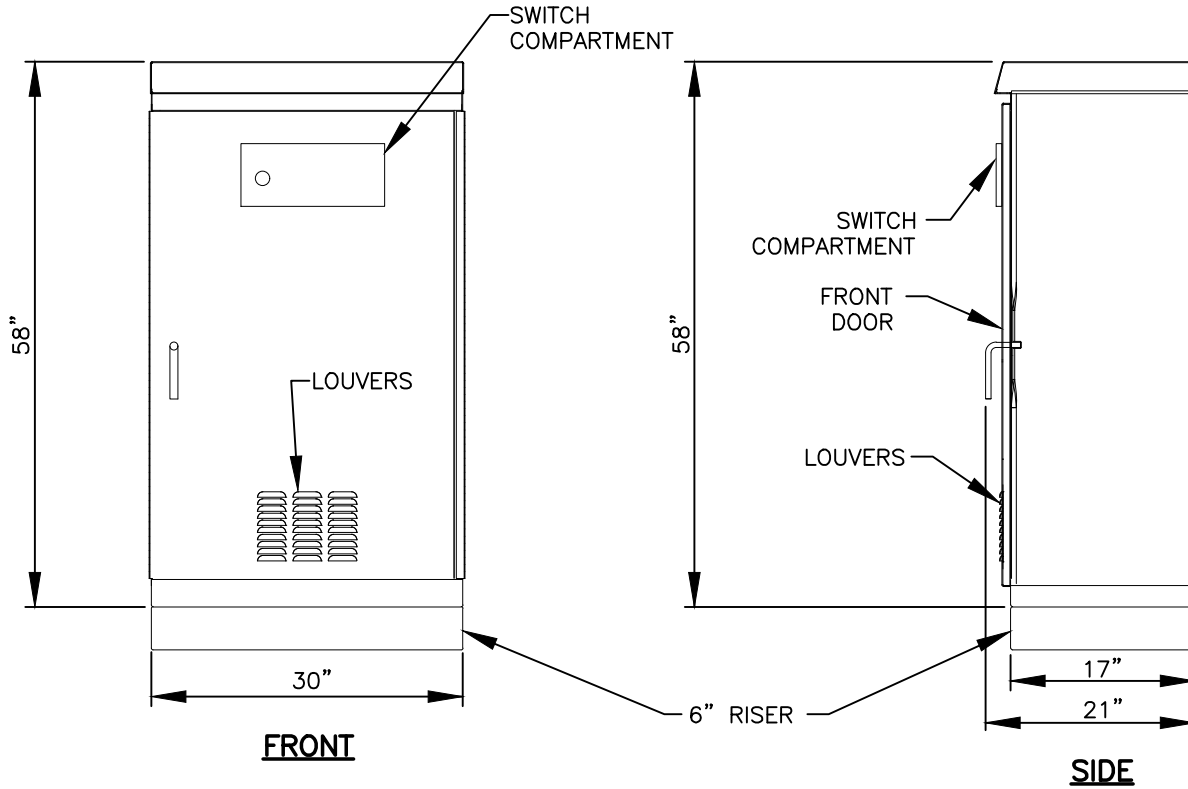
TYPE "P" CABINET DIMENSIONS

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T20-38DA



TYPE "MSX" & "M" HAWK CABINET DIMENSIONS

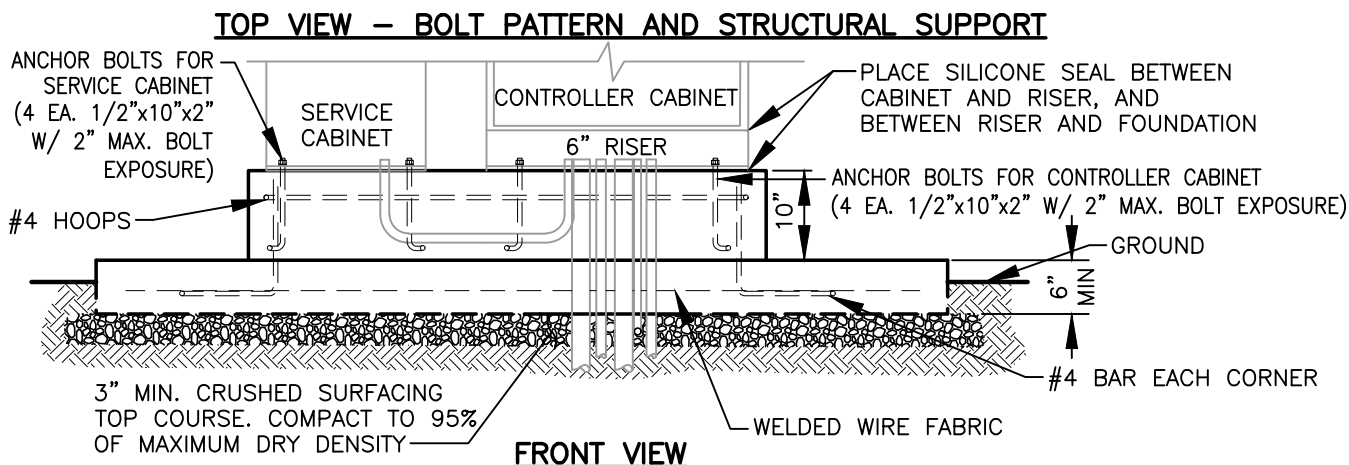
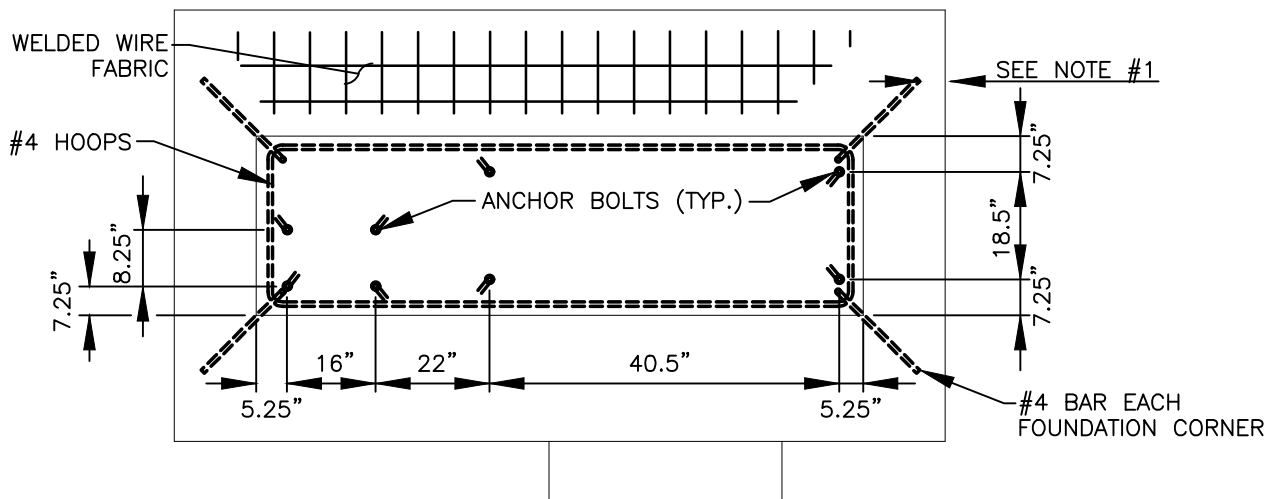
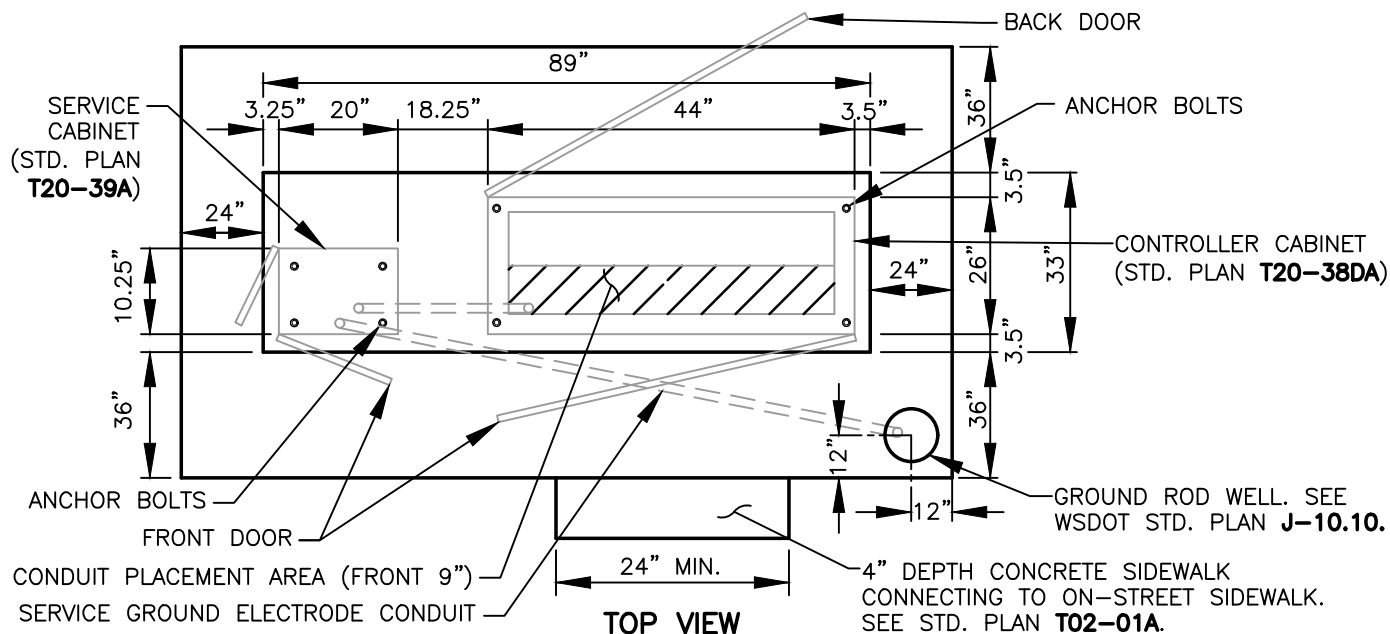


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STD. PLAN NO.

T20-38DB



NOTES:

1. 2" MINIMUM OF CONCRETE COVER ON ALL STRUCTURAL SUPPORT BARS.
2. CONDUITS SHALL EXTEND 2" MIN. AND 3" MAX. ABOVE CONCRETE MEASURED TO END OF BELL OR GROUND BUSHING.
3. ENSURE ALL DOORS CAN SWING OPEN 180 DEGREES.
4. SEE WSDOT STD. PLAN J-10.10 FOR SPECIFICATIONS.



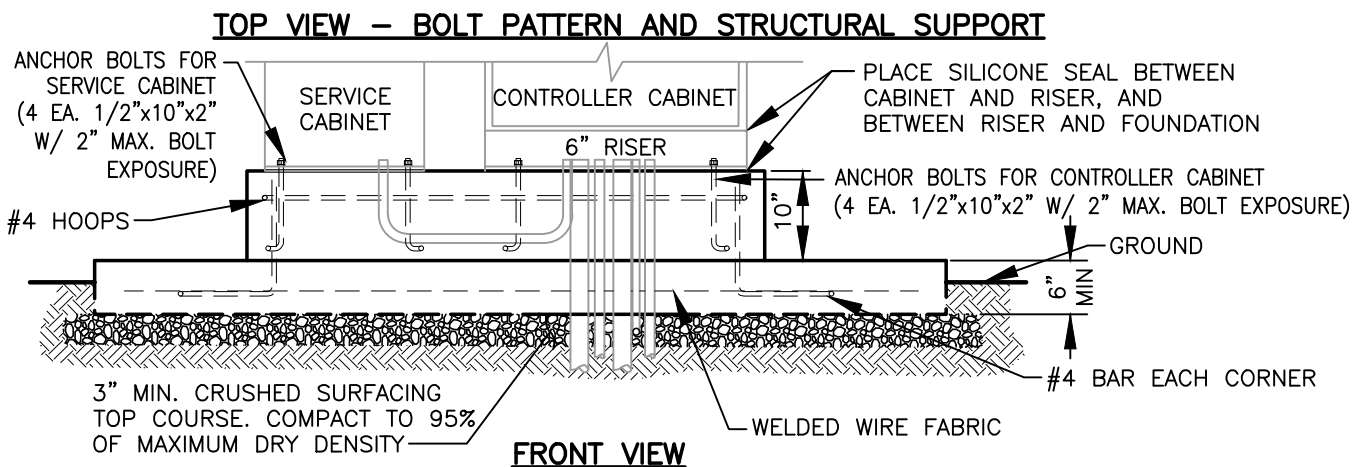
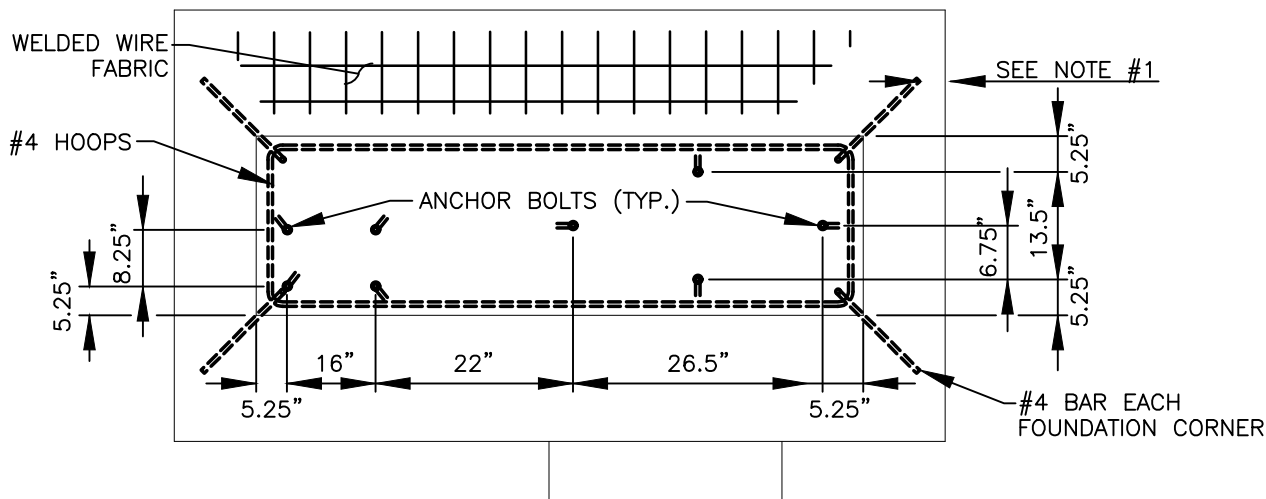
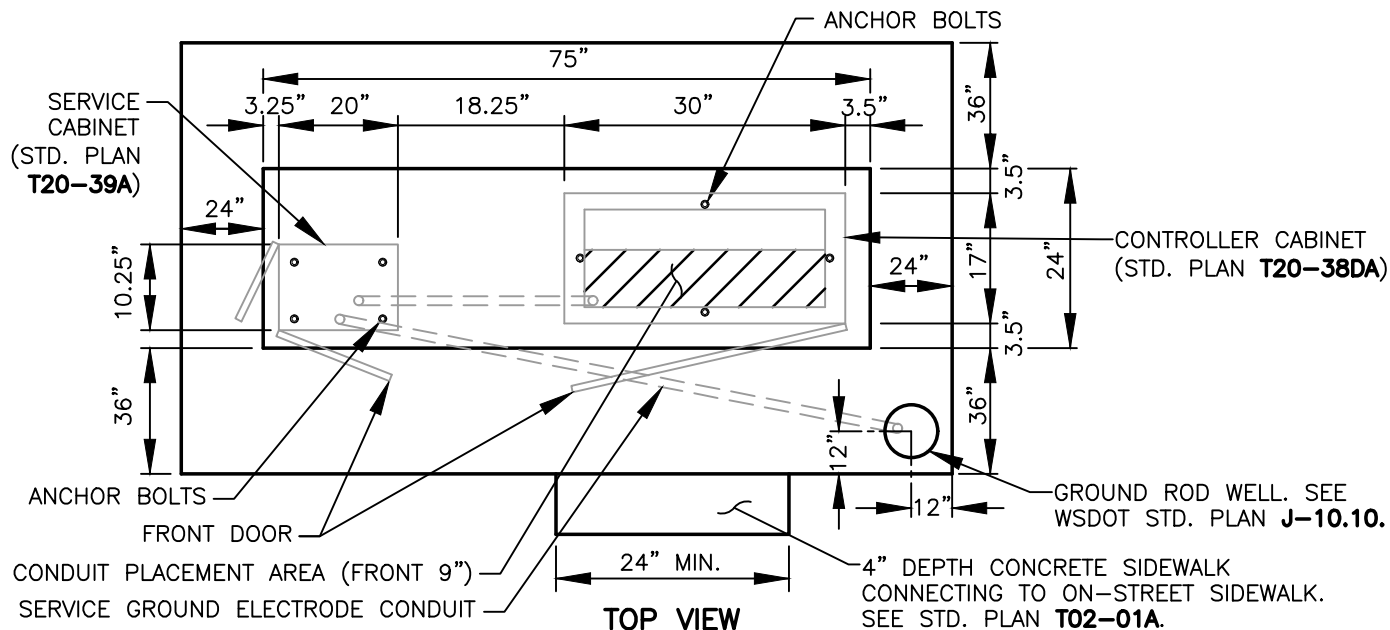
TYPE "P" CABINET AND SERVICE COMBINATION FOUNDATION

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STD. PLAN NO.

T20-38EA



NOTES:

1. 2" MINIMUM OF CONCRETE COVER ON ALL STRUCTURAL SUPPORT BARS.
2. CONDUITS SHALL EXTEND 2" MIN. AND 3" MAX. ABOVE CONCRETE MEASURED TO END OF BELL OR GROUND BUSHING.
3. ENSURE ALL DOORS CAN SWING OPEN 180 DEGREES.
4. SEE WSDOT STD. PLAN J-10.10 FOR SPECIFICATIONS.



TYPE "MSX" OR "M" HAWK CABINET SERVICE COMBINATION FOUNDATION

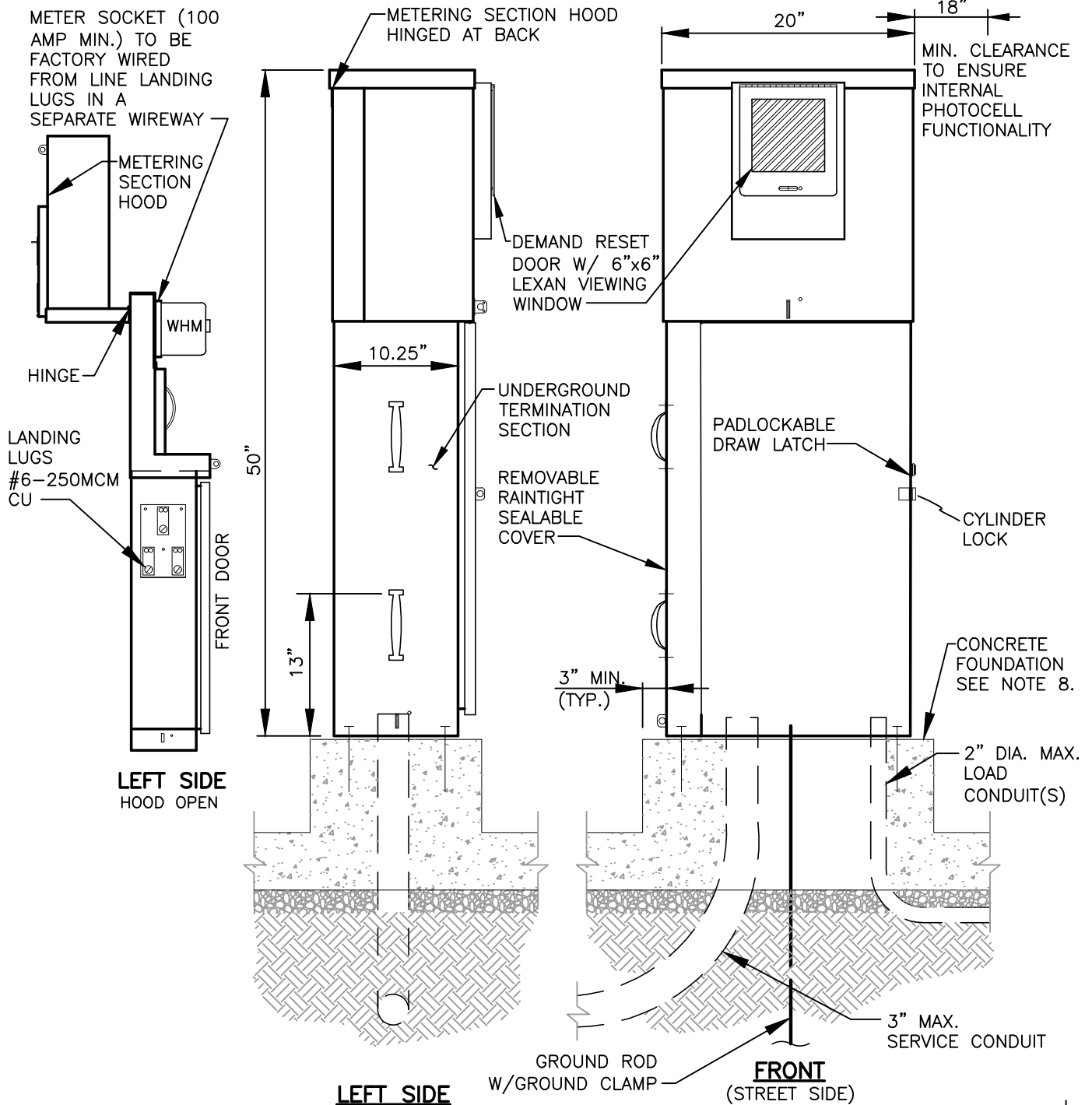
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STD. PLAN NO.

T20-38EB

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NOTES:

1. SEE SERVICE ENCLOSURE REQUIREMENTS ON STD. PLAN **T20-41**.
2. SEE WIRING DIAGRAM ON STD. PLAN **T20-39B**.
3. IF SERVICE CABINET IS INSTALLED ADJACENT TO CONTROLLER CABINET, SEE STD. PLAN **T20-38EA OR T20-38EB** FOR PLACEMENT.
4. PLACE A SILICONE SEAL BETWEEN THE FOUNDATION AND THE CABINET.
5. ENCLOSURE SHALL BE TESCO CLASS 27-000M.
6. ALUMINUM CONDUCTORS NOT ALLOWED.
7. FOLLOW WSDOT STANDARD PLANS FOR ADDITIONAL GROUND ROD INSTALLATION.
8. SEE FOUNDATION PLAN ON STD. PLAN **T20-39C**.



TRAFFIC SIGNAL SERVICE CABINET

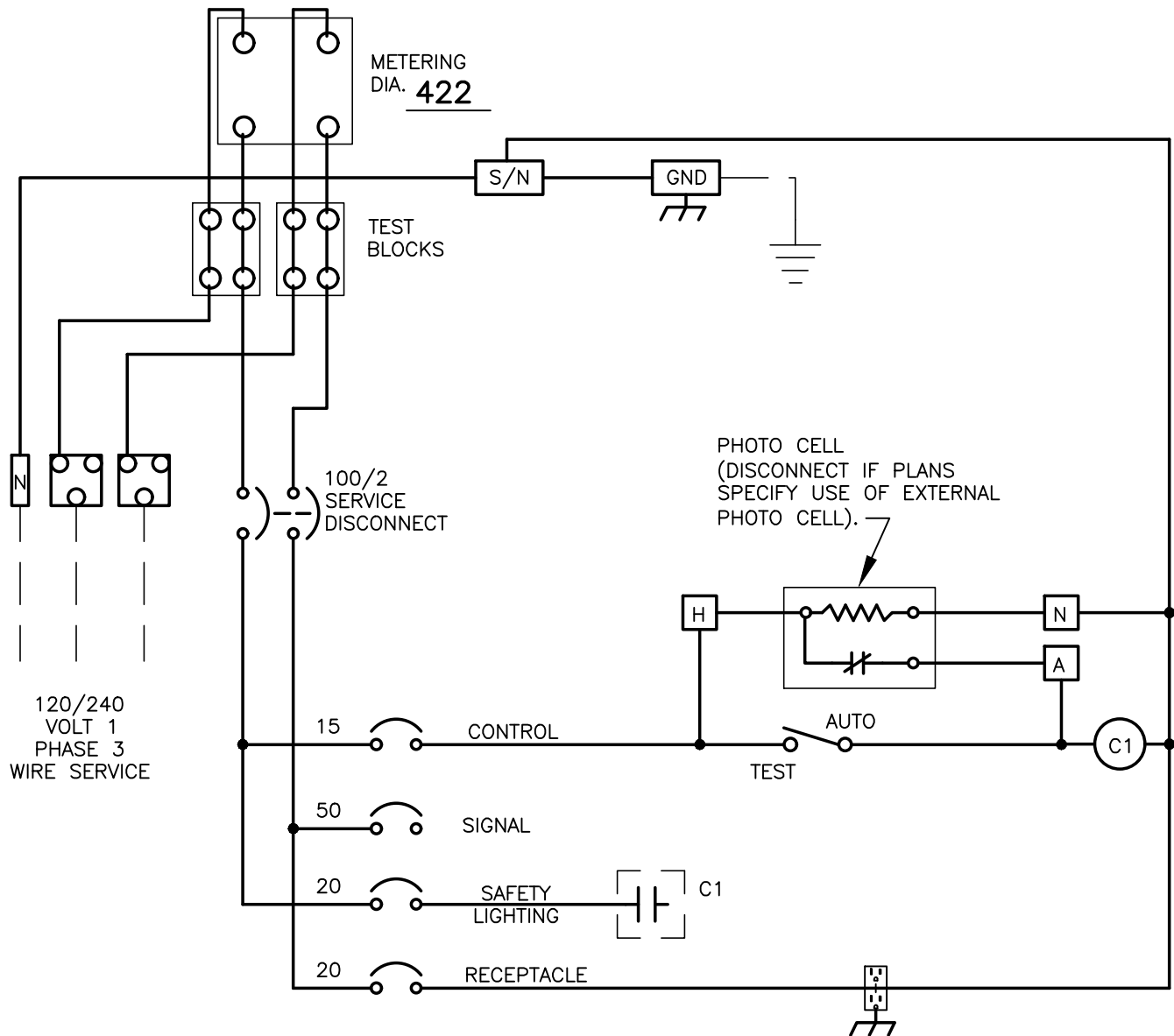
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T20-39A

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NOTE:

SEE STANDARD PLAN **T20-39A** FOR SERVICE CABINET DETAILS.



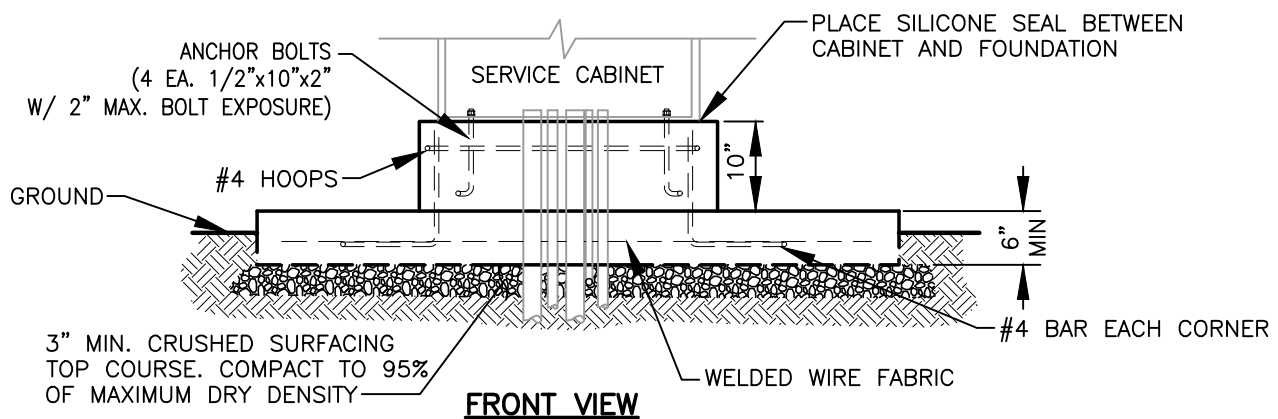
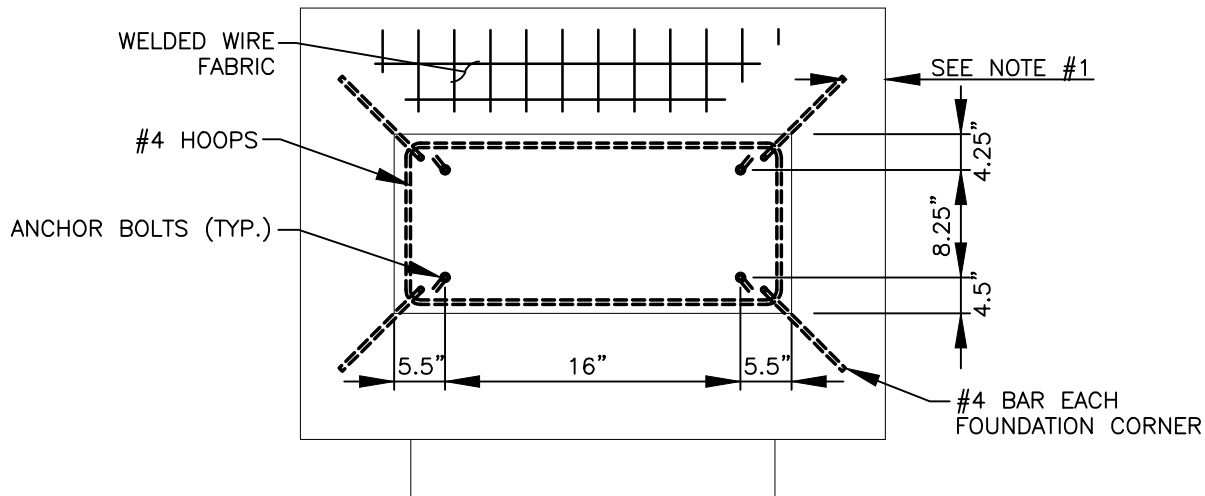
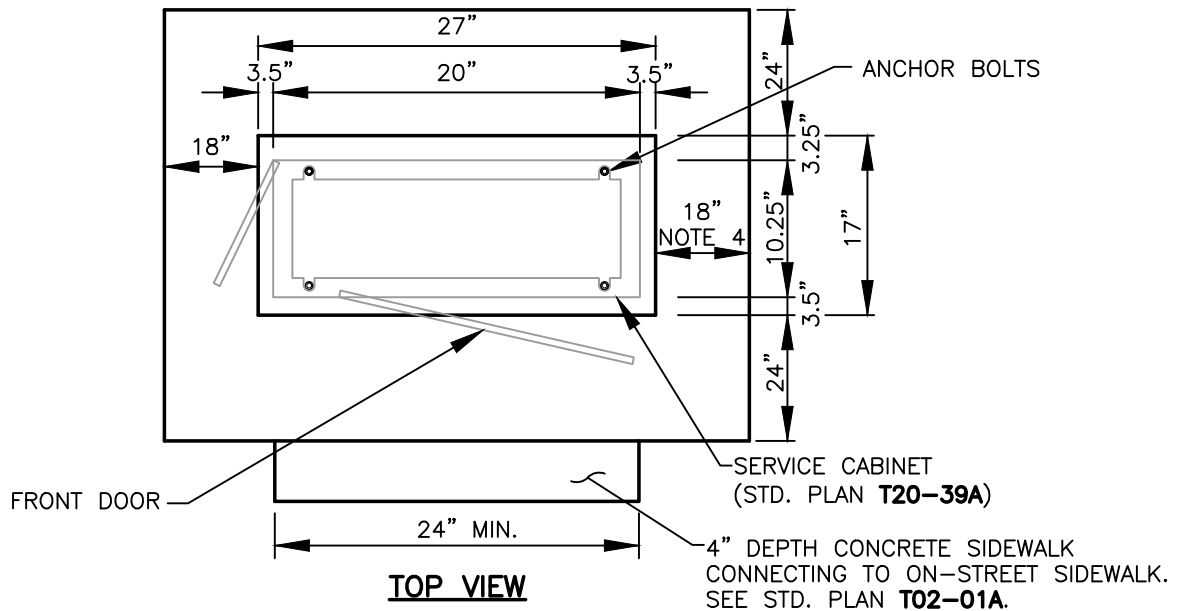
TRAFFIC SIGNAL SERVICE WIRING DIAGRAM

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T20-39B



NOTES:

1. 2" MINIMUM OF CONCRETE COVER ON ALL STRUCTURAL SUPPORT BARS.
2. CONDUITS SHALL EXTEND 2" MIN. AND 3" MAX. ABOVE CONCRETE MEASURED TO END OF BELL OR GROUND BUSHING.
3. ENSURE ALL DOORS CAN SWING OPEN 180 DEGREES.
4. 18" MINIMUM CLEARANCE ON RIGHT SIDE TO ENSURE INTERNAL PHOTOCELL FUNCTIONALITY.
5. SEE WSDOT STD. PLAN J-10.10 FOR SPECIFICATIONS.



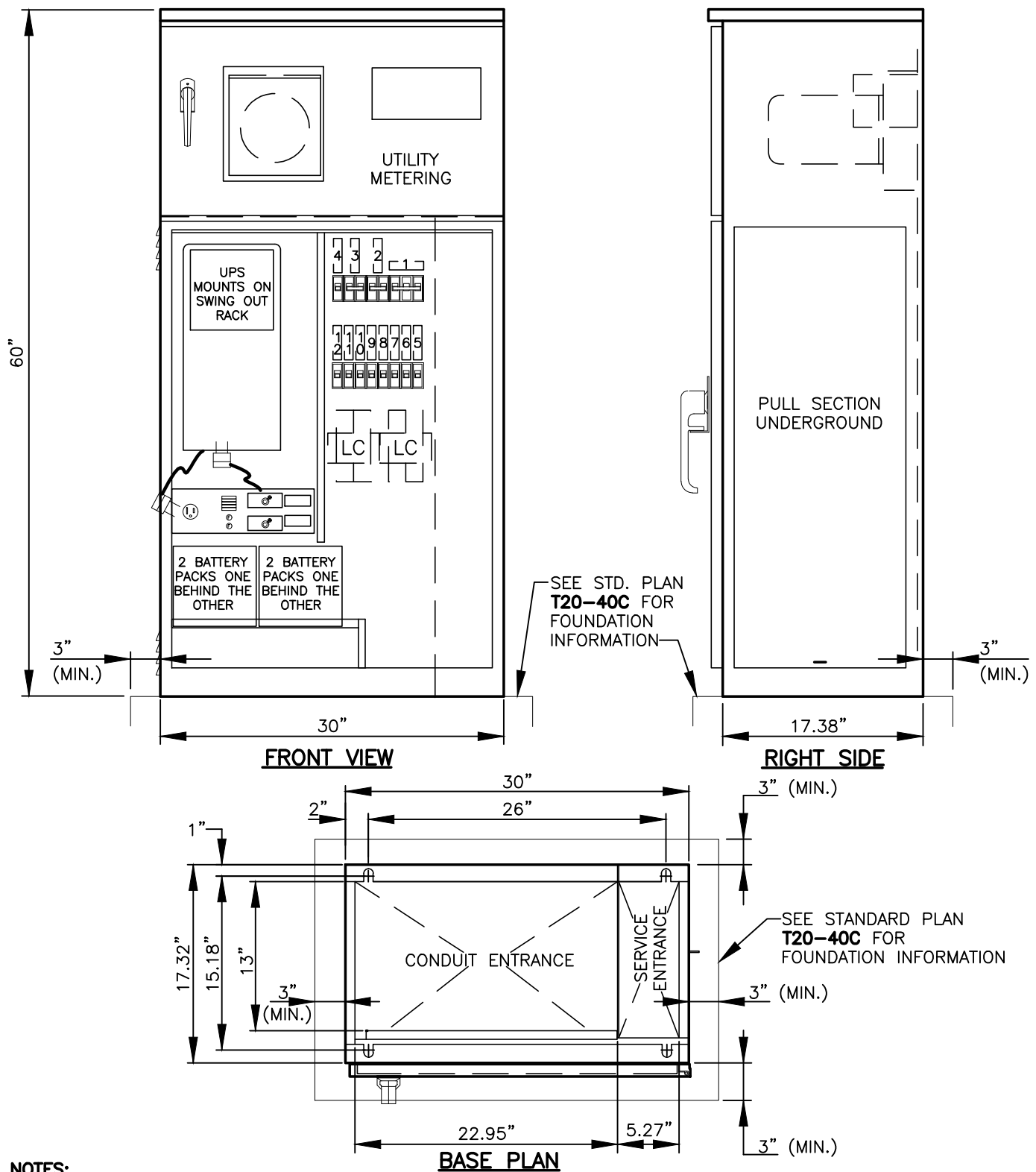
TRAFFIC SIGNAL SERVICE CABINET FOUNDATION

CITY OF VANCOUVER
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STD. PLAN NO.

T20-39C

**NOTES:**

1. SEE SERVICE ENCLOSURE REQUIREMENTS ON STANDARD PLAN **T20-41**.
2. SEE WIRING DIAGRAM ON STANDARD PLAN **T20-40B**.
3. SERVICE CABINET TO BE INSTALLED ON SEPARATE FOUNDATION 10 TO 20 FEET FROM CONTROLLER CABINET.
4. ENCLOSURE SHALL BE TESCO CLASS 24-000M-A OR CITY APPROVED EQUAL PRIOR TO BID.
5. FRONT DOOR SHOULD FACE TOWARD THE STREET.
6. TO BE USED ONLY WITH CITY TRAFFIC ENGINEER'S APPROVAL.
7. ALUMINUM CONDUCTORS NOT ALLOWED.

**TRAFFIC SIGNAL SERVICE CABINET WITH BATTERY BACKUP**

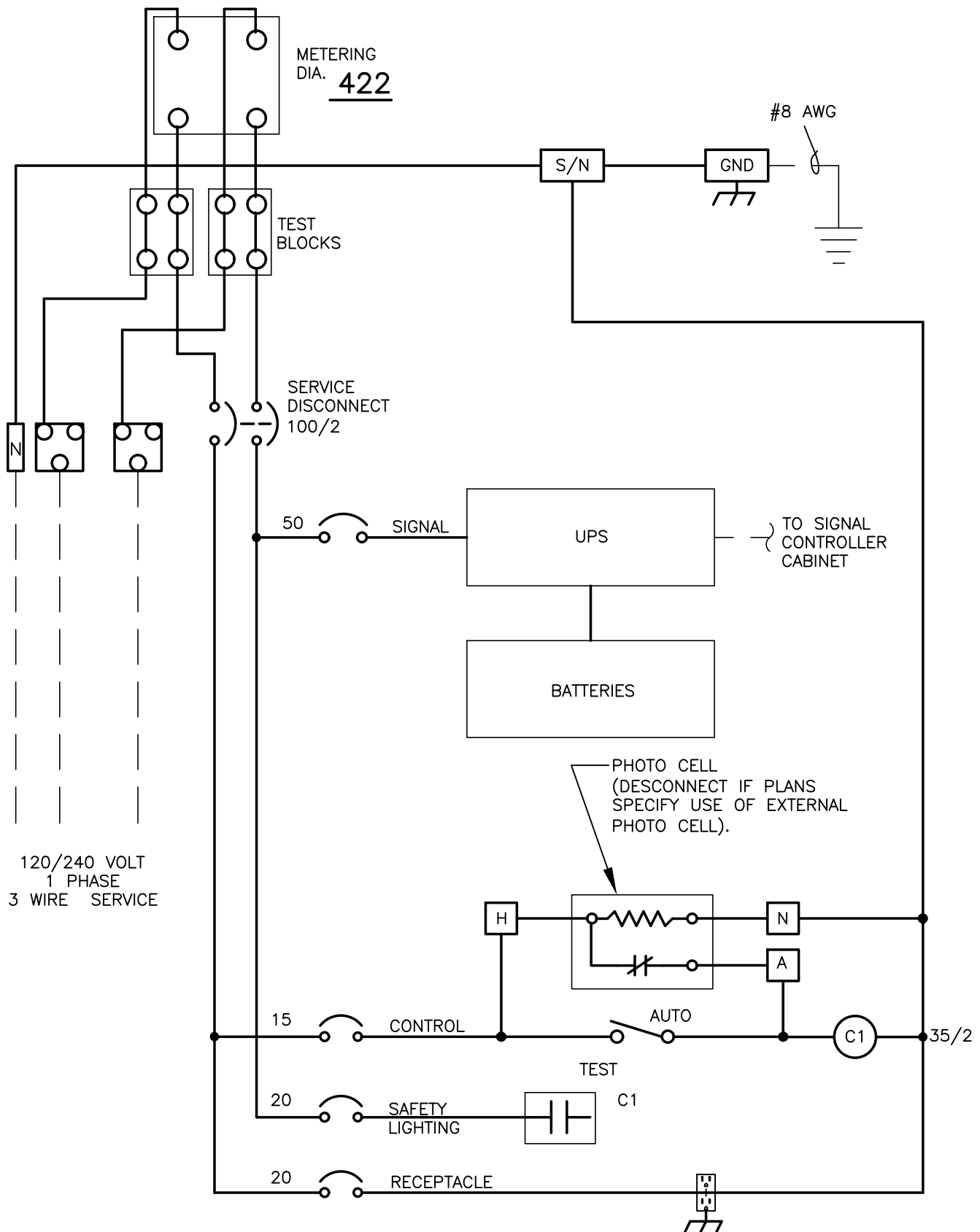
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STD. PLAN NO.

T20-40A

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NOTE:

SEE STANDARD PLAN **T20-40A** FOR SERVICE WITH BATTERY BACKUP ELECTRICAL CABINET LAYOUT.



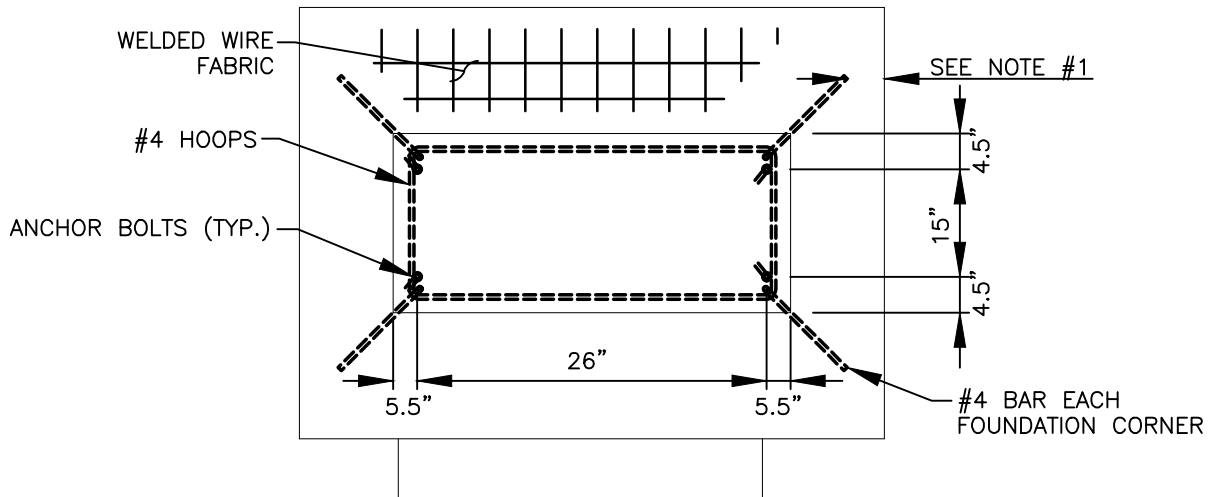
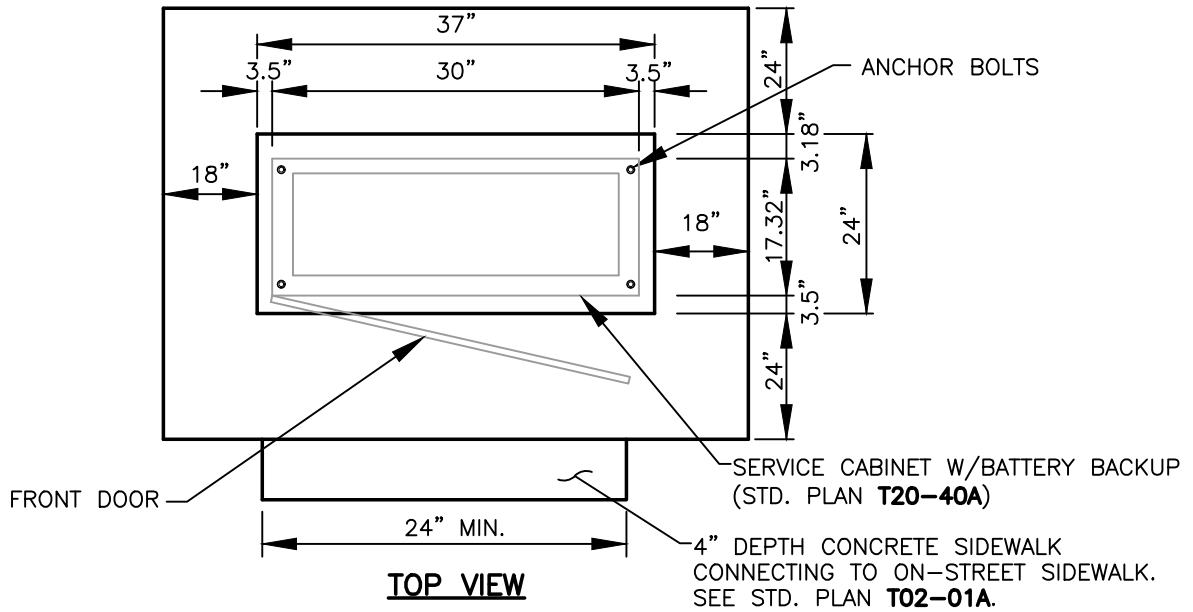
TRAFFIC SIGNAL SERVICE WITH BATTERY BACKUP WIRING DIAGRAM

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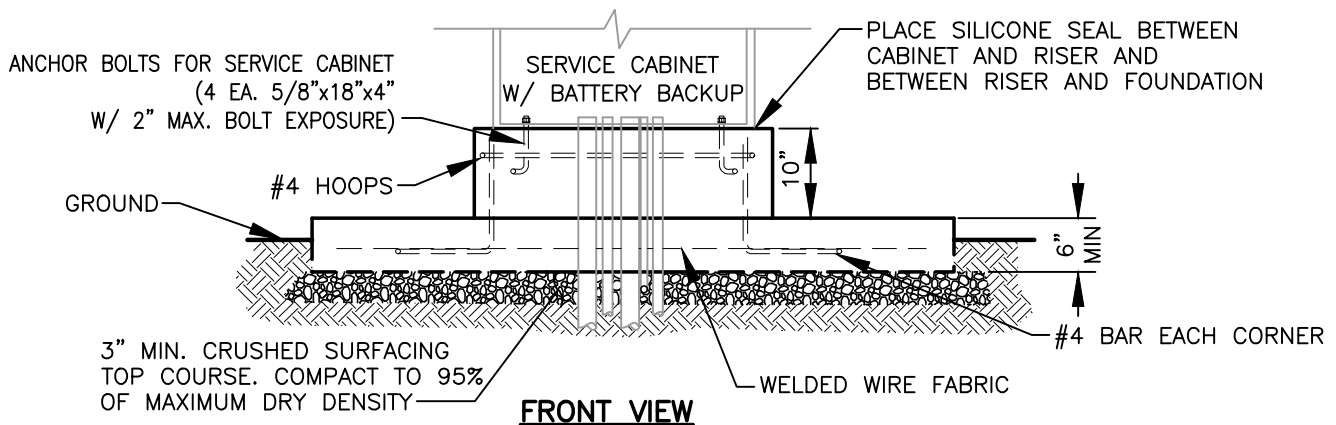
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STD. PLAN NO.

T20-40B



TOP VIEW - BOLT PATTERN AND STRUCTURAL SUPPORT



FRONT VIEW

NOTES:

1. 2" MINIMUM OF CONCRETE COVER ON ALL STRUCTURAL SUPPORT BARS.
2. CONDUITS SHALL EXTEND 2" MIN. AND 3" MAX. ABOVE CONCRETE MEASURED TO END OF BELL OR GROUND BUSHING.
3. ENSURE ALL DOOR SWINGS ARE CLEAR AND CAN SWING OPEN 180 DEGREES.



SERVICE CABINET WITH BATTERY BACKUP FOUNDATION

CITY OF VANCOUVER
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STD. PLAN NO.
T20-40C

NOTES:

- ENCLOSURE SHALL MEET EUSERC REQUIREMENTS.
- FABRICATED FROM 5052 1/8" ALUMINUM.
- INTERIOR SHALL BE FABRICATED FROM 14 GAUGE COLD ROLLED STEEL AND PAINTED WHITE.
- ENCLOSURE SHALL BE ANODIZED AFTER FABRICATION.
- ENCLOSURE SHALL HAVE CONTINUOUS WELDED SEAMS.
- FULL LENGTH DEAD FRONT WITH STAINLESS STEEL HINGE.
- FABRICATED BY A MANUFACTURER CARRYING A UL 508 LISTING.
- ENCLOSURE SHALL HAVE PULL SECTION WITH REMOVABLE STEP.
- FULLY FRAMED SIDE HINGED OUTER DOOR WITH SWAGED CLOSE TOLERANCE SIDES FOR FLUSH FIT WITH TOP DRIP LIP AND CLOSED CELL NEOPRENE FLANGE COMPRESSED GASKETS.
- HINGED DEAD FRONT WITH 1/4 TURN LATCH AND KNURLED KNOBS.
- DEAD FRONT DOOR SHALL BE HINGED ON THE SAME SIDE AS EXTERIOR DOOR AND OPEN A MINIMUM OF 100°.
- REMOVABLE BACK PAN SHALL BE MOUNTED ON 4 WELDED 1/4" STUDS.
- ALL CIRCUIT BREAKERS SHALL BE MOUNTED IN A VERTICAL POSITION, HANDLE UP FOR "ON" HANDLE DOWN FOR "OFF".
- ENCLOSURE SHALL CONSIST OF ABSOLUTELY NO "BOLT-ON" OR "PLUG-IN" CIRCUIT BREAKERS.
- ENCLOSURE SHALL BE COMPLETELY PRE-WIRED IN FACTORY.
WIRING WILL BE TO NEMA IIB STANDARDS SHOWING EXTERNAL CONNECTIONS AND EXTERNAL EQUIPMENT.
- ALL BUSSING SHALL BE UL APPROVED COPPER THHN CABLE BUSSING, FULLY RATED.
- THE FUNCTION OF ALL CIRCUIT BREAKERS, SWITCHES & OTHER COMPONENTS AS REQUIRED SHALL BE IDENTIFIED BY LAMINATED ENGRAVED PLASTIC NAMEPLATES WITH MINIMUM 1/4" LETTERS FASTENED WITH MINIMUM OF TWO #4-40 STAINLESS STEEL MACHINE SCREWS.
- WIRING SCHEMATICS WILL INCLUDE ALL EXTERNAL EQUIPMENT AND CONNECTIONS PER NEMA IIB.
- AS BUILT FACTORY DRAWINGS SHALL BE ENCLOSED IN CLEAR PLASTIC AND HELD INSIDE THE OUTER DOOR BY WELDED HOOKS.
- MANUFACTURERS WILL BE REQUIRED TO FURNISH INDEPENDENT LABORATORY CERTIFICATION OF METAL PREPARATION AND FINISH AND TO CONFIRM THAT THE OVERALL PRODUCT MEETS THESE SPECIFICATIONS.
- EXTERIOR, 1/8" ALUMINUM, AND INTERIOR 14 GA COLD ROLLED STEEL ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
- CONSTRUCTION WILL BE NEMA 3R, RAIN-TIGHT.
- ALL NUTS, BOLTS AND SCREWS WILL BE STAINLESS STEEL.
- NUTS, BOLTS AND SCREWS WILL NOT BE VISIBLE FROM OUTSIDE OF ENCLOSURE.
- NAMEPLATES WILL BE PROVIDED AS REQUIRED.
- CONTROL WIRING WILL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MARKERS.
- ENCLOSURE WILL BE FACTORY WIRED.

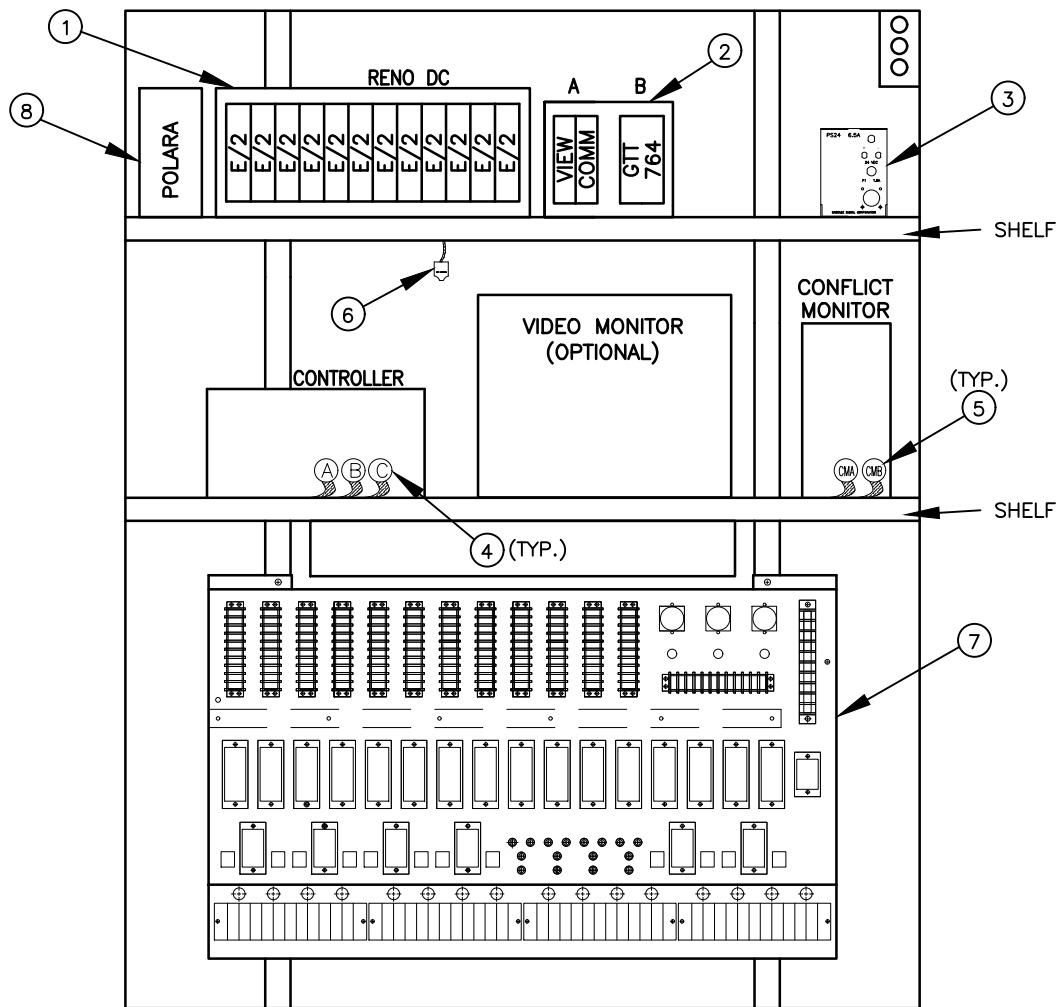
**SERVICE ENCLOSURE REQUIREMENTS**

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STD. PLAN NO.

T20-41



CABINET BACK NOTES:

- ① CARD CAGE 1 SHALL BE WIRED FOR 48 CHANNELS OF INDUCTIVE LOOP DETECTION. RACK TO BE SIZED FOR HALF SIZE (E/2) 4 CHANNEL DETECTORS SHALL BE UTILIZED. ASSIGNMENT AND LAYOUT SHALL BE CONSISTENT WITH EXISTING COV STANDARDS. CC1 SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1077 OR PRE-APPROVED EQUAL. SEE **DETECTION ASSIGNMENT FOR CARD CAGE, STANDARD PLAN T20-42E**.
- ② CARD CAGE 2 SHALL BE WIRED FOR TWO TRAFICON VIEWCOM VIDEO ENCODERS AND 4-CHANNEL OPTICOM/GTT DESCRIMINATOR. CC2 SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1194 OR PRE-APPROVED EQUAL. SEE **DETECTION ASSIGNMENT FOR CARD CAGE, STANDARD PLAN T20-42E**.
- ③ SHELF MOUNT POWER SUPPLY SHALL BE PROVIDED RATED FOR A MINIMUM OF 150 WATTS. BANANA JACKS SHALL BE PROVIDED ON FRONT TO MEASURE VOLTAGE. POWER SUPPLY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1435 OR PRE-APPROVED EQUAL.
- ④ NEMA TS1 "A", "B", AND "C" CONNECTORS AND CABLES.
- ⑤ CONFLICT MONITOR "A" AND "B" CONNECTORS AND CABLES.
- ⑥ MODEL #138 OPTICOM HARNESS.
- ⑦ THE LOAD BAY WIDTH SHALL NOT EXCEED 34" TO FACILITATE A NO INTERFERENCE SWING DOWN. LOAD BAY SHALL INCLUDE THE WIRING TO MODIFY THE MMU/DOOR OPEN INTERLOCK, AND THE POLICE FLASH RESET. A RELAY SHALL BE PROVIDED WITH A LS 24VDC DISCONNECT TO PREVENT A CONTROLLER/FLASH SIMULTANEOUS DISPLAY. LOAD BAY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1000 OR PRE-APPROVED EQUAL.
- ⑧ POLARA APS NAVIGATOR CONTROL UNIT, PART# ICCU-S2 (OR APPROVED EQUAL).



TYPE "P" CABINET INTERIOR LAYOUT (BACK)

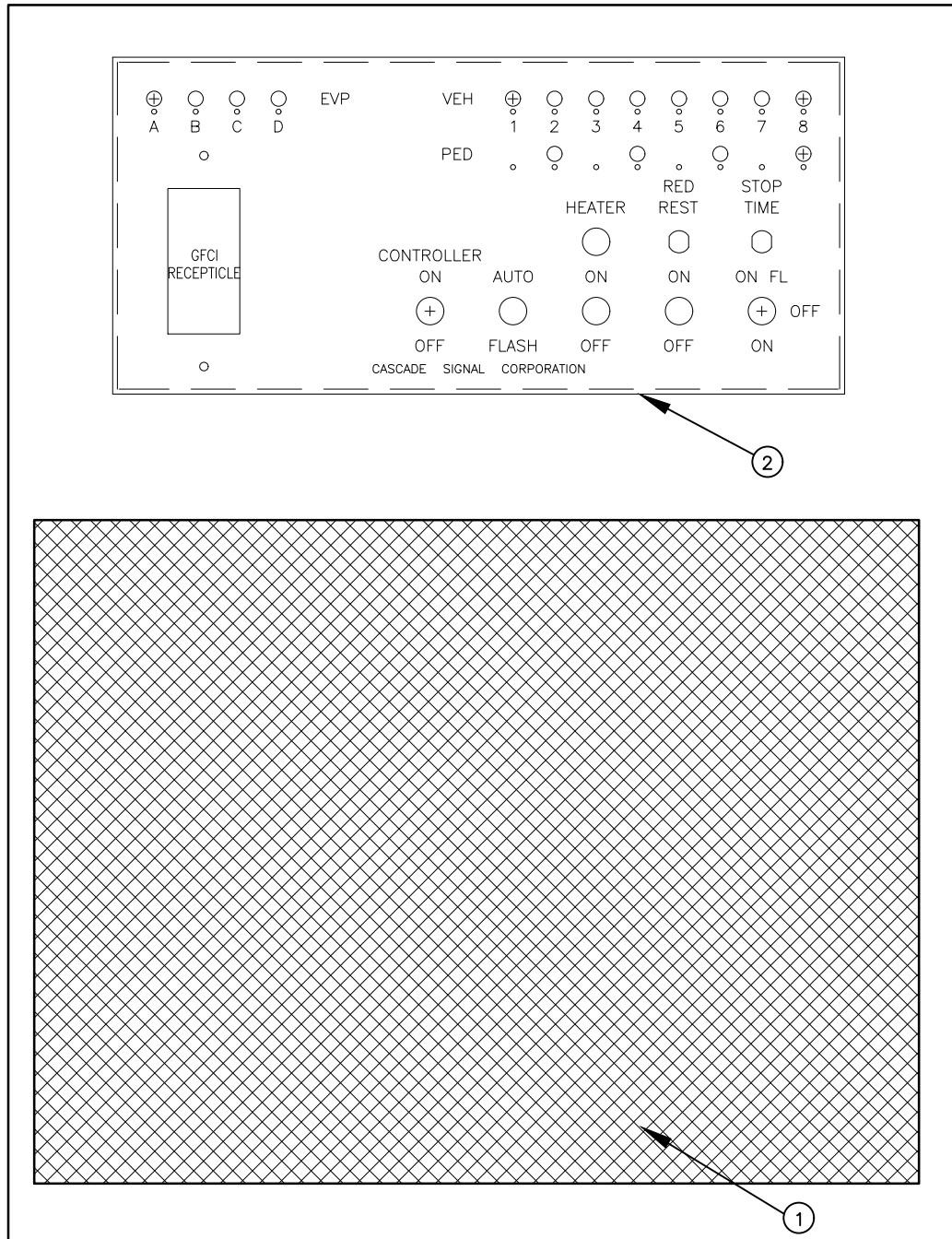
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STD. PLAN NO.

T20-42A

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CABINET DOOR NOTES:

- ① A 12" X 16" DOOR FILTER SHALL BE PROVIDED.
- ② A CONTROL PANEL WITH THE FEATURES AS SHOWN SHALL BE PROVIDED. IT SHALL INCLUDE A FULL PLASTIC COVER THAT CAN BE HINGED UP. THE POLICE PANEL SHALL CONTAIN 1 PB SWITCH TO PUT THE CABINET IN FLASH. THIS ASSEMBLY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 433 OR PRE-APPROVED EQUAL.



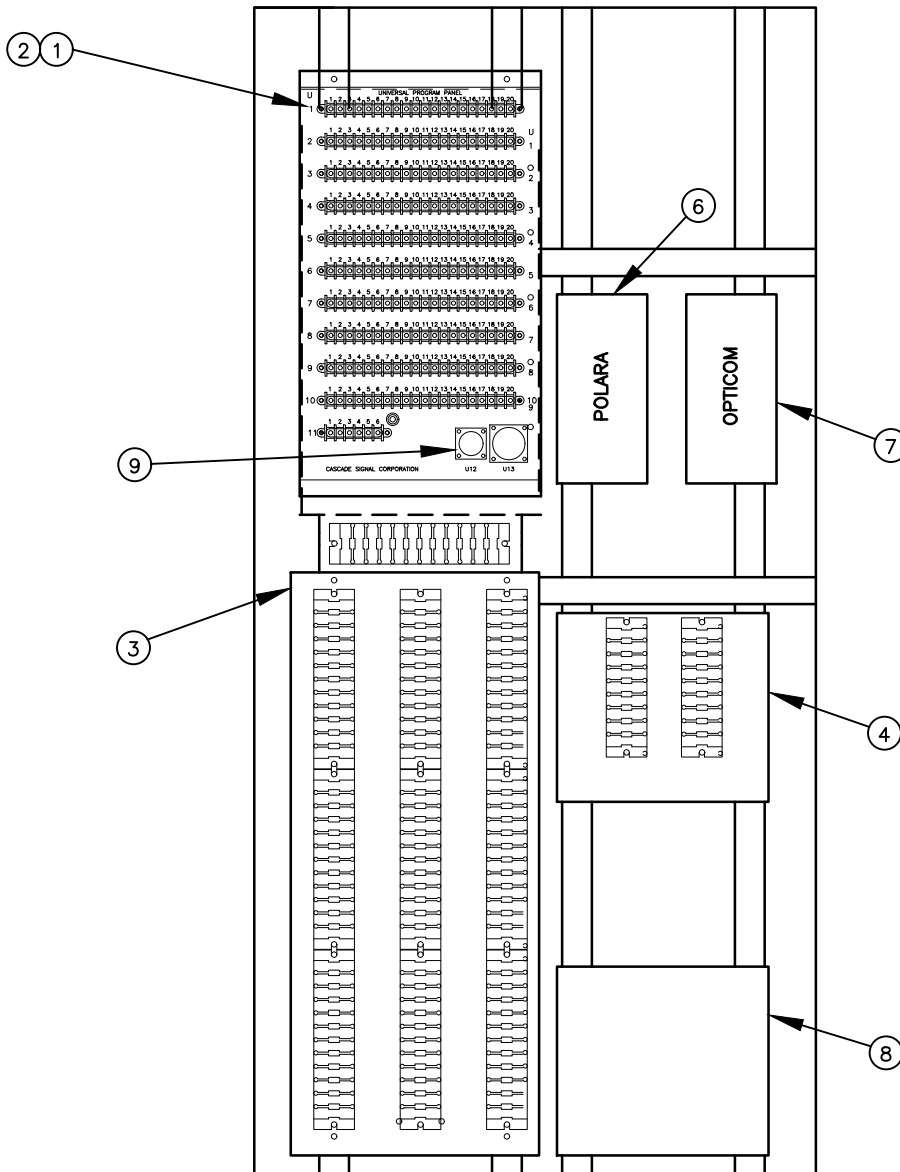
TYPE "P" CABINET INTERIOR LAYOUT (FRONT DOOR)

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T20-42B



CABINET LEFT SIDE NOTES:

- ① U PANEL TERMINAL ASSIGNMENT AND LAYOUT SHALL BE CONSISTENT WITH COV EXISTING STANDARDS. IT SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1100 OR PRE-APPROVED EQUAL.
- ② THE U PANEL SHALL BE WIRED TO FUNCTION WITH ANY TYPE TS1 CONTROLLER.
- ③ DETECTOR FIELD TERMINATION PANEL SHALL HAVE 9 MARATHON 1600 SERIES TERMINAL BLOCKS, LAYOUT AND LABEL. SEE **INPUT TERMINAL FOR "P" CABINET DETECTION PANEL ASSEMBLY, STANDARD PLAN T20-35A.**
- ④ OPTICOM FIELD TERMINATION PANEL SHALL HAVE 2 MARATHON 1600 SERIES TERMINAL BLOCKS, LAYOUT AND LABELED CONSISTANT WITH EXISTING COV STANDARDS. SEE **INPUT TERMINAL FOR "P" CABINET DETECTION PANEL ASSEMBLY, STANDARD PLAN T20-35A.**
- ⑤ NO PANELS ON THE SIDE SHALL INTERFERE WITH DROPPING DOWN THE LOAD BAY.
- ⑥ POLARA NAVIGATOR INTERCONNECT BOARD.
- ⑦ OPTICOM 768 AUXILIARY INTERFACE PANEL.
- ⑧ PANEL RESERVED FOR MOUNTING UP TO 8 EDCO CX SERIES VIDEO DETECTION SURGE SUPPRESSORS.
- ⑨ SEE "D" CONNECTOR, STANDARD PLAN T20-44.



TYPE "P" CABINET INTERIOR LAYOUT (LEFT SIDE)

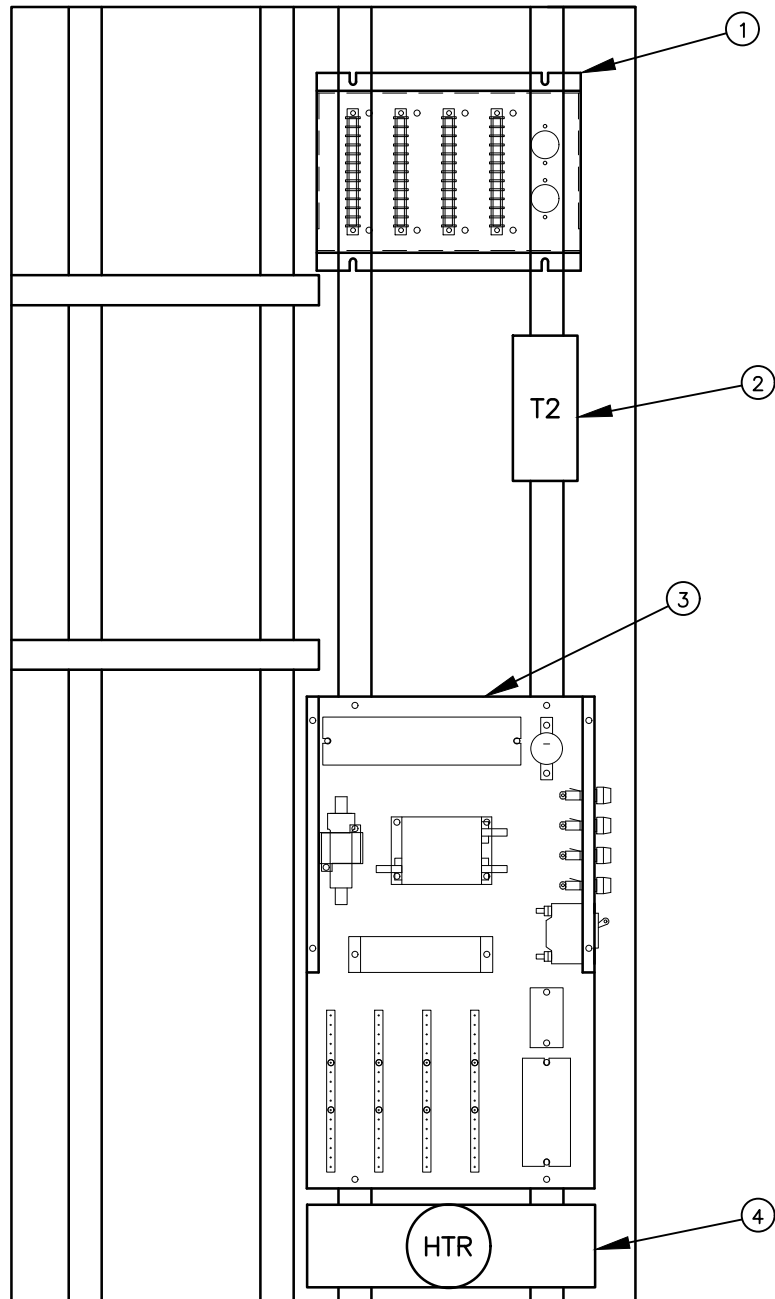
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T20-42C

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CABINET RIGHT SIDE NOTES:

- ① A POWER SUPPLY PANEL SHALL BE PROVIDED FOR DISTRIBUTION TERMINATION OF THE POWER SUPPLY CABLE. IT SHALL ALSO CONTAIN PROVISIONS FOR ADDITION OF 2 - 8 PIN OCTAL OR 11 PIN RELAYS FOR FUTURE FUNCTIONS. IT SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 553 OR PRE-APPROVED EQUAL.
- ② A THERMOSTAT TO CONTROL THE HEATER SHALL BE PROVIDED.
- ③ POWER PANEL CASCADE SIGNAL CORP. PART NO. CSC# 1602 OR PRE-APPROVED EQUAL.
- ④ A CABINET HEATER SHALL BE PROVIDED WITH A SCREW IN BASE.



TYPE "P" CABINET INTERIOR LAYOUT (RIGHT SIDE)

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T20-42D



TYPE "P" CABINET DETECTION ASSIGNMENTS FOR CARD CAGE

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T20-42E

CARD CAGE 1			
20	21	22	50
23	24	25	51
26	52	55	*56
60	61	62	10
63	64	65	11
66	12	15	*16
40	41	42	70
43	44	45	71
46	72	75	*76
80	81	82	30
83	84	85	31
86	32	35	*36

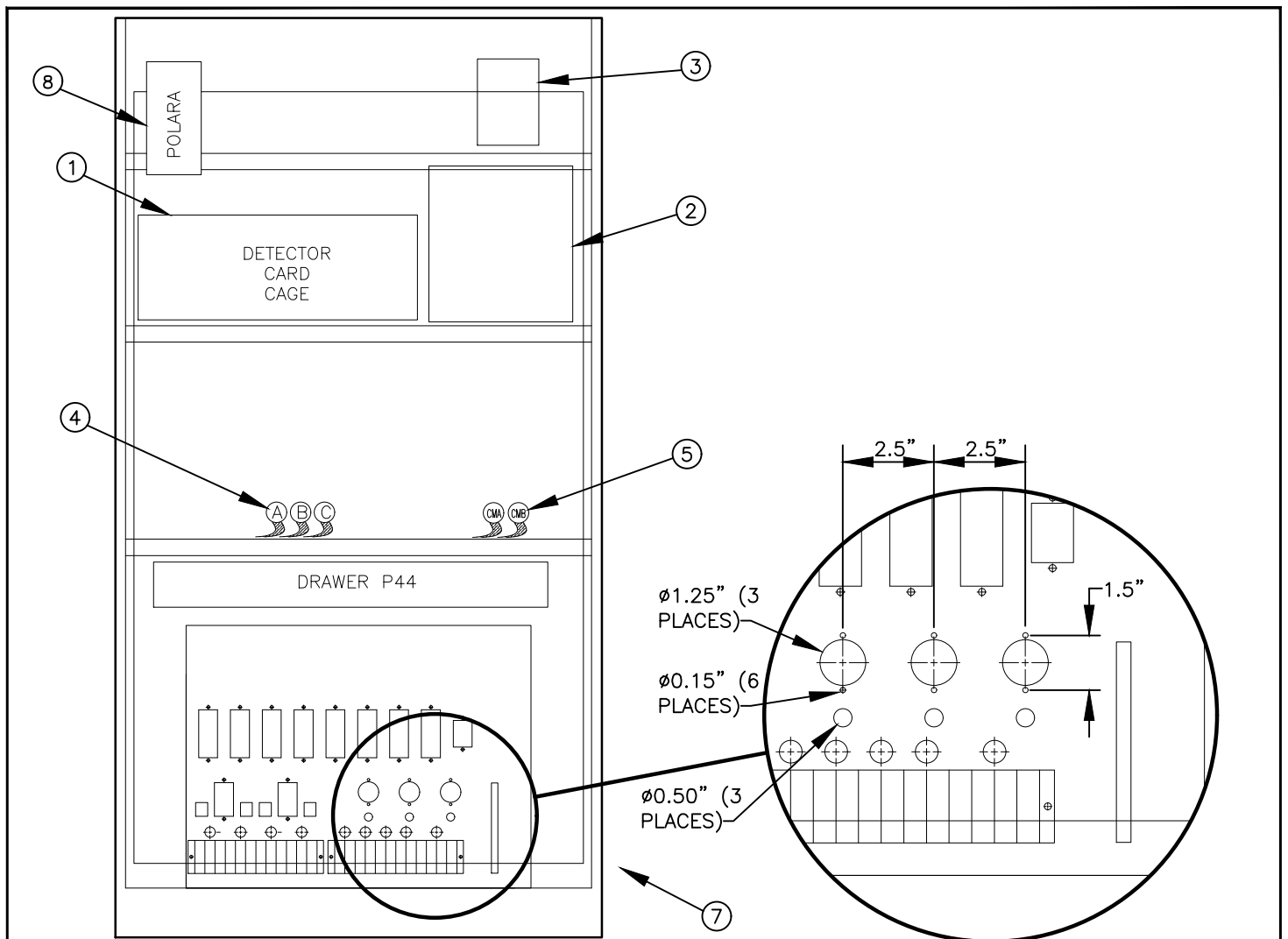
NOTE:

CARD CAGE 1 USES 4--CHANNEL, SINGLE SLOT DETECTOR UNITS.

CARD CAGE 2 USES 4--CHANNEL, TWO SLOT VIDEO UNITS.

* UNASSIGNED ON U-PANEL.

CARD CAGE 2			
VIEWCOM 1		VIEWCOM 2	
EVP			
A	B	C	D



CABINET BACK NOTES:

- ① THE CARD CAGE SHALL BE WIRED FOR 24 CHANNELS OF INDUCTIVE LOOP DETECTION, TWO TRAFICON VIEWCOM VIDEO ENCODERS, AND 4-CHANNEL OPTICOM/GTT DESCRIMINATOR. RACK TO BE SIZED FOR HALF SIZE (E/2) 4 CHANNEL DETECTORS. CC1 SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1078 OR PRE-APPROVED EQUAL. SEE **TYPE "MSX" CABINET DETECTION ASSIGNMENTS FOR CARD CAGE, STANDARD PLAN T20-43E.**
- ② SPACE FOR VIDEO MONITOR (OPTIONAL).
- ③ SHELF MOUNT POWER SUPPLY SHALL BE PROVIDED RATED FOR A MINIMUM OF 150 WATTS. PIN ASSIGNMENT SHALL BE CONSISTENT WITH EXISTING COV STANDARDS. BANANA JACKS SHALL BE PROVIDED ON FRONT TO MEASURE VOLTAGE. POWER SUPPLY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1435 OR PRE-APPROVED EQUAL.
- ④ NEMA TS1, "A", "B", AND "C" CONNECTORS AND CABLES.
- ⑤ CONFLICT MONITOR "A" AND "B" CONNECTORS AND CABLES.
- ⑥ MODEL #138 OPTICOM HARNESS.
- ⑦ THE LOAD BAY WIDTH SHALL NOT EXCEED 21" TO FACILITATE A NO INTERFERENCE SWING DOWN. ALL WIRING, WIRE COLORS AND TERMINAL BLOCK LAYOUT SHALL BE CONSISTENT WITH EXISTING COV STANDARDS. LOAD BAY SHALL INCLUDE THE WIRING TO MODIFY THE MMU/DOOR OPEN INTERLOCK, AND THE POLICE FLASH RESET. A RELAY SHALL BE PROVIDED WITH A LS 24VDC DISCONNECT TO PREVENT A CONTROLLER/FLASH SIMULTANEOUS DISPLAY. LOAD BAY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1321 OR PRE-APPROVED EQUAL.
- ⑧ POLARA APS NAVIGATOR CONTROL UNIT, PART# ICCU-S2 (OR APPROVED EQUAL).

TYPE "MSX" CABINET INTERIOR LAYOUT (BACK)



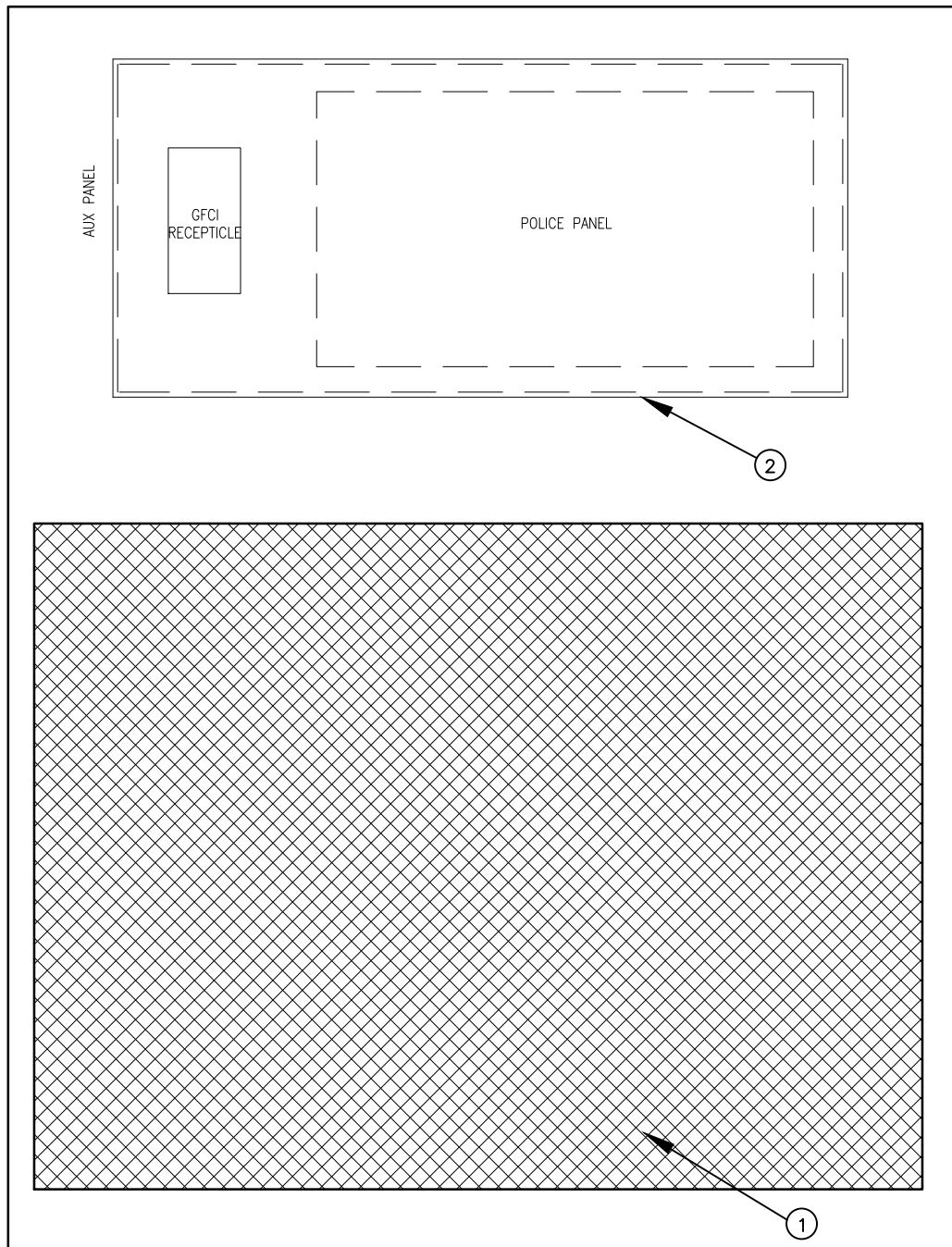
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T20-43A

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CABINET DOOR NOTES:

- ① A 12" X 16" DOOR FILTER SHALL BE PROVIDED.
- ② A CONTROL PANEL WITH THE FEATURES AS SHOWN SHALL BE PROVIDED. IT SHALL INCLUDE A FULL PLASTIC COVER THAT CAN BE HINGED UP. THE POLICE PANEL SHALL CONTAIN 1 PB SWITCH TO PUT THE CABINET IN FLASH. THIS ASSEMBLY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 2094 OR PRE-APPROVED EQUAL.



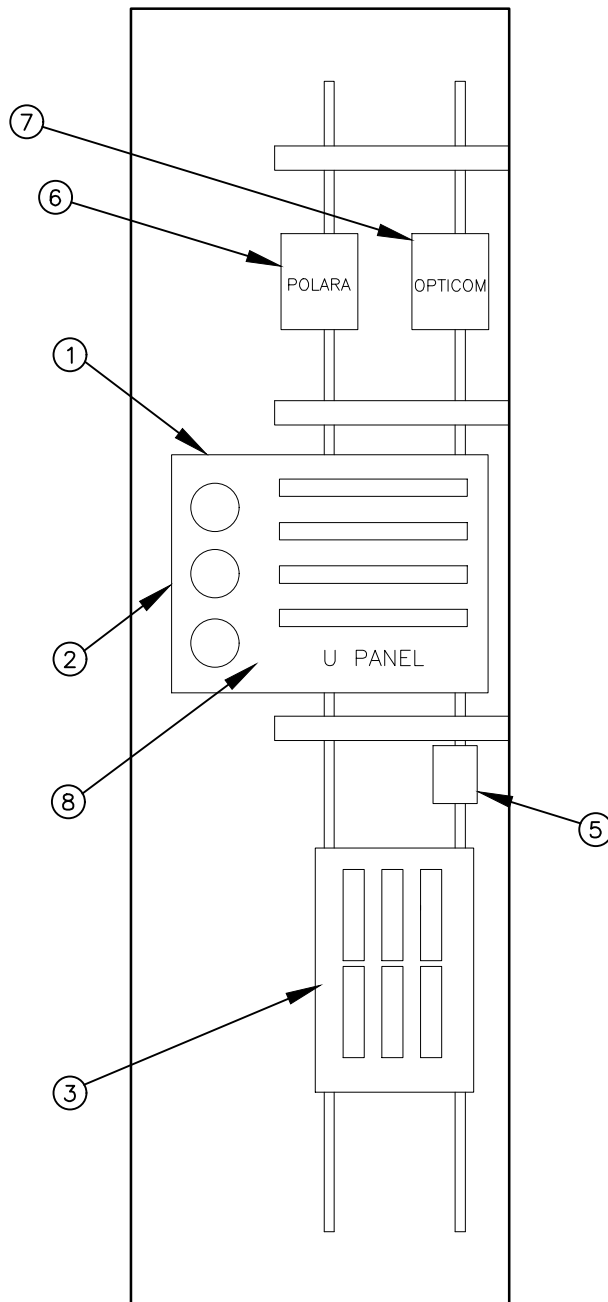
TYPE "MSX" CABINET INTERIOR LAYOUT (DOOR)

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T20-43B



CABINET LEFT SIDE NOTES:

- ① U PANEL TERMINAL ASSIGNMENT AND LAYOUT SHALL BE CONSISTENT WITH COV EXISTING STANDARDS. IT SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1323 OR PRE-APPROVED EQUAL.
- ② THE U PANEL SHALL BE WIRED TO FUNCTION WITH ANY TYPE TS1 CONTROLLER.
- ③ DETECTOR FIELD TERMINATION PANEL SHALL HAVE 6 MARATHON 1600 SERIES TERMINAL BLOCKS, LAYOUT AND LABELED CONSISTENT WITH EXISTING COV STANDARDS. IT SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1532. FOR ADDITIONAL INFORMATION, SEE **INPUT TERMINAL FOR "MSX" CABINET DETECTION PANEL ASSEMBLY, STANDARD PLAN T20-35B.**
- ④ NO PANELS ON THE SIDE SHALL INTERFERE WITH THE DROPPING DOWN OF THE LOAD BAY.
- ⑤ PANEL RESERVED FOR MOUNTING UP TO 6 EDCO CX SERIES VIDEO DETECTION SURGE SUPPRESSORS.
- ⑥ POLARA NAVIGATOR APS INTERCONNECT BOARD.
- ⑦ OPTICOM 768 AUXILARY INTERFACE PANEL.
- ⑧ SEE "D" CONNECTOR, STANDARD PLAN T20-44.



TYPE "MSX" CABINET INTERIOR LAYOUT (LEFT SIDE)

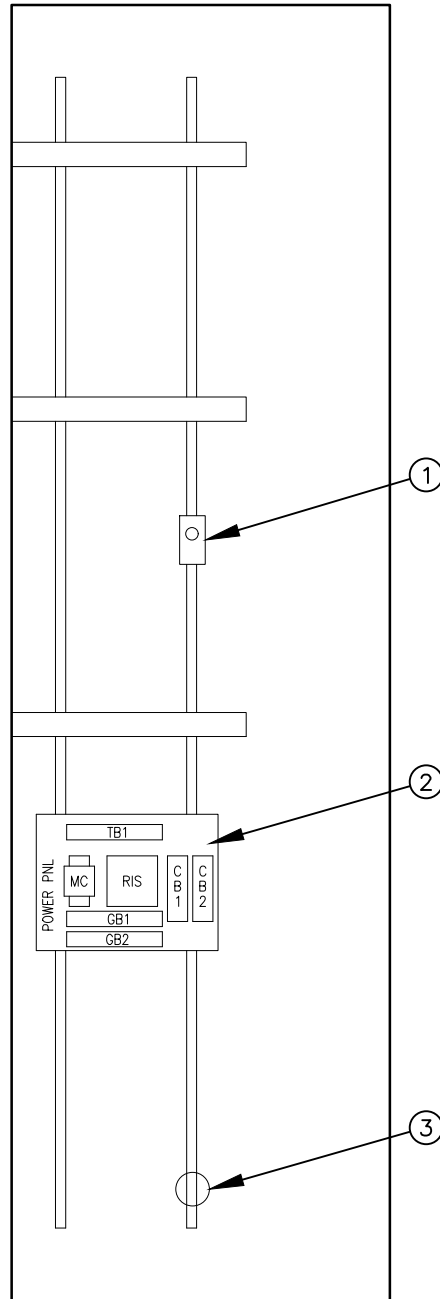
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STD. PLAN NO.

T20-43C

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CABINET RIGHT SIDE NOTES:

- ① A THERMOSTAT TO CONTROL THE HEATER SHALL BE PROVIDED.
- ② A POWER PANEL SHALL BE PROVIDED AND LAID OUT CONSISTENT WITH COV STANDARDS. CASCADE SIGNAL CORP. PART NO. CSC# 2067 OR PRE-APPROVED EQUAL.
- ③ A CABINET HEATER SHALL BE PROVIDED WITH A SCREW IN BASE.



TYPE "MSX" CABINET INTERIOR LAYOUT (RIGHT SIDE)

CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
TRANSPORTATION DIVISION

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STD. PLAN NO.

T20-43D



TYPE "MSX" CABINET DETECTION ASSIGNMENTS FOR CARD CAGE

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STD. PLAN NO.

T20-43E

CARD CAGE 1

20	40
21	41
22	42
23	43

60	80
61	81
62	82
63	83

15	55
25	65
35	75
45	85

1-2 CAMERA	* * *	4 CH VIDEO
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3-4 CAMERA	* * *	4 CH VIDEO
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EVP	A B C D
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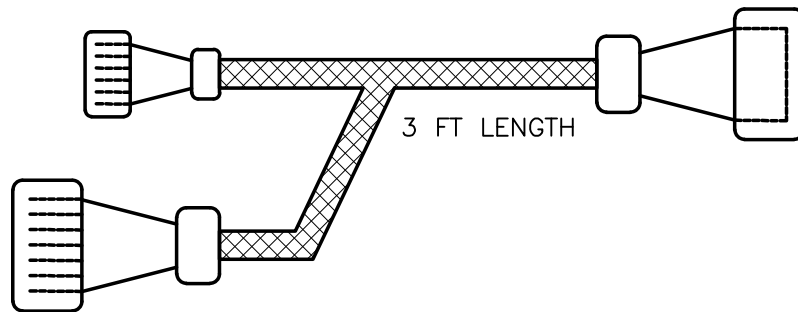
* UNASSIGNED ON U-PANEL.

CABINET END

"COV 44 D" FOR 2070N, NEMA
X3, AND XN-2 CONTROLLER END

U12 CONNECTOR
28 PIN PLUG
AMP. 206039-1

U13 CONNECTOR
57 PIN PLUG
AMP. 206437-1



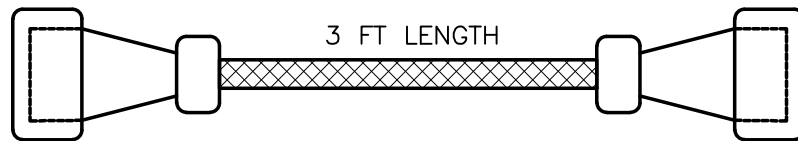
"D" CONNECTOR
61 PIN SOCKET
AMP. MS3116F24-61S
(SEE STANDARD PLAN
T20-45A FOR
PIN ASSIGNMENTS)

TYPE "P" CABINET 2070N "D" CONNECTOR

CABINET END

"COV 44 D" FOR 2070N, NEMA
X3, AND XN-2 CONTROLLER END

U12 CONNECTOR
57 PIN SOCKET
AMP. 205842-1



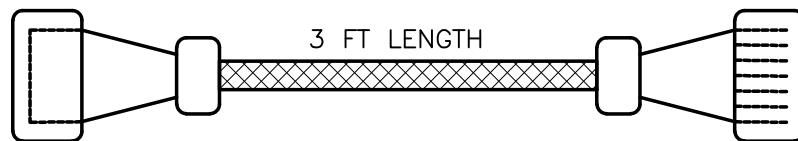
"D" CONNECTOR
61 PIN SOCKET
AMP. MS3116F24-61S
(SEE STANDARD PLAN
T20-45A FOR
PIN ASSIGNMENTS)

TYPE "MSX" CABINET 2070N "D" CONNECTOR

CABINET END

980TS2 CONTROLLER END

U12 CONNECTOR
57 PIN SOCKET
AMP. 205842-1



"D" CONNECTOR
57 PIN PLUG
AMP. 206437-1
(SEE STANDARD PLAN
T20-45B FOR
PIN ASSIGNMENTS)

TYPE "MSX" CABINET 980T2S "D" CONNECTOR

CONNECTS TO EXISTING END OF 980TS2
CONTROLLER "D" CONNECTOR

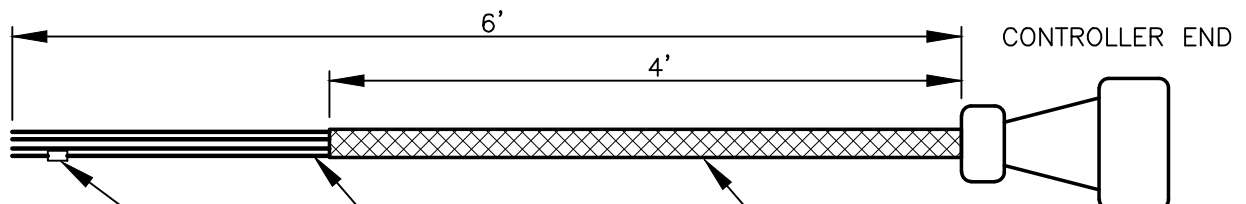
"COV 44 D" FOR 2070N, NEMA
X3, AND XN-2 CONTROLLER END

57 PIN SOCKET
AMP. 206437-1
(SEE STD. PLAN
T20-45B FOR
PIN ASSIGNMENTS)



980TS2 "D" CONNECTOR TO
2070N "D" CONNECTOR ADAPTOR

"D" CONNECTOR
61 PIN SOCKET
AMP. MS3116F24-61S
(SEE STANDARD PLAN
T20-45A FOR
PIN ASSIGNMENTS)



PIN LABEL APPROX. 2" FROM
END OF CONDUCTOR

"D" CONNECTOR HARNESS

"D" CONNECTOR (SEE
STANDARD PLANS
T20-45A OR T20-45B
AS SPECIFIED)



TYPE P AND MSX CABINET "D" CONNECTORS

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STD. PLAN NO.

T20-44

INPUTS			
CABINET FUNCTION	PIN	SOFTWARE FUNCTION	CABINET
DETECTOR #15	A	VEHICLE CALL #9	P, MSX
DETECTOR #25	B	VEHICLE CALL #10	P, MSX
DETECTOR #35	C	VEHICLE CALL #11	P, MSX
DETECTOR #45	D	VEHICLE CALL #12	P, MSX
DETECTOR #55	E	VEHICLE CALL #13	P, MSX
DETECTOR #65	F	VEHICLE CALL #14	P, MSX
DETECTOR #75	G	VEHICLE CALL #15	P, MSX
DETECTOR #85	H	VEHICLE CALL #16	P, MSX
DETECTOR #11	J	VEHICLE CALL #17	P
DETECTOR #21	K	VEHICLE CALL #18	P, MSX
DETECTOR #31	L	VEHICLE CALL #19	P
DETECTOR #41	M	VEHICLE CALL #20	P, MSX
DETECTOR #51	N	VEHICLE CALL #21	P
DETECTOR #61	P	VEHICLE CALL #22	P, MSX
DETECTOR #71	R	VEHICLE CALL #23	P
DETECTOR #81	S	VEHICLE CALL #24	P, MSX
DETECTOR #12	T	VEHICLE CALL #25	P
DETECTOR #22	U	VEHICLE CALL #26	P, MSX
DETECTOR #32	V	VEHICLE CALL #27	P
DETECTOR #42	W	VEHICLE CALL #28	P, MSX
DETECTOR #52	X	VEHICLE CALL #29	P
MANUAL FREE	Y	FREE	P, MSX
DETECTOR #62	Z	VEHICLE CALL #30	P, MSX
DETECTOR #72	a	VEHICLE CALL #31	P
MMU FLASH	b	ALARM 2 **	P, MSX
DOOR AJAR	c	ALARM 3 **	P
DETECTOR #82	d	VEHICLE CALL #32	P, MSX
DETECTOR #23	e	VEHICLE CALL #33	P, MSX
DETECTOR #43	f	VEHICLE CALL #34	P, MSX
DETECTOR #63	g	VEHICLE CALL #35	P, MSX
DETECTOR #83	h	VEHICLE CALL #36	P, MSX
DETECTOR #24	i	VEHICLE CALL #37	P
DETECTOR #44	j	VEHICLE CALL #38	P
DETECTOR #64	k	VEHICLE CALL #39	P
DETECTOR #84	m	VEHICLE CALL #40	P
DETECTOR #26	n	VEHICLE CALL #41	P
DETECTOR #46	p	VEHICLE CALL #42	P
DETECTOR #66	q	VEHICLE CALL #43	P
BATTERY BACK-UP FLASH	r	ALARM 4 **	P
DETECTOR #86	s	VEHICLE CALL #44	P
R/R PRE-EMPT	t	PRE-EMPT 1 IN	P, MSX
POLICE FLASH	u	ALARM 1 **	P, MSX
PRE-EMPT A INPUT	v	PRE-EMPT 3 IN	P, MSX
PRE-EMPT B INPUT	w	PRE-EMPT 4 IN	P, MSX
PRE-EMPT C INPUT	x	PRE-EMPT 5 IN	P, MSX
PRE-EMPT D INPUT	y	PRE-EMPT 6 IN	P, MSX

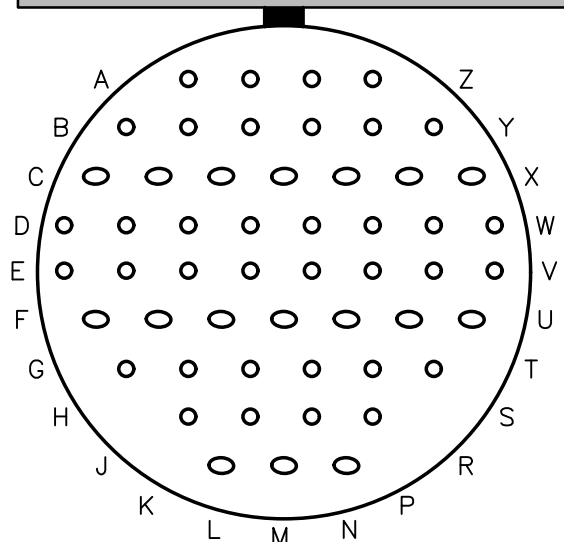
OUTPUTS			
CABINET FUNCTION	PIN	SOFTWARE FUNCTION	CABINET
PRE-EMPT C INDICATOR	z	PRE-EMPT STATUS 5	P, MSX
PRE-EMPT D INDICATOR	AA	PRE-EMPT STATUS 6	P, MSX
FUTURE USE	BB	**	P, MSX
FUTURE USE	CC	**	P, MSX
FUTURE USE	DD	**	P, MSX
FUTURE USE	EE	**	P, MSX
FUTURE USE	FF	**	P
FUTURE USE	GG	**	P
FUTURE USE	HH	**	P, MSX
PRE-EMPT A INDICATOR	JJ	PRE-EMPT STATUS 3	P, MSX
PRE-EMPT B INDICATOR	LL	PRE-EMPT STATUS 4	P, MSX
	KK	NOT USED	
	MM	NOT USED	
	NN	NOT USED	
	PP	NOT USED	

NOTES:

1. THE WIRING HARNESS AND CONNECTOR SHALL BE FULLY POPULATED.
2. CABINET FUNCTIONS DESIGNATED FOR FUTURE USE SHALL BE ASSIGNED AND IDENTIFIED ON THE PROJECT PLANS AND/OR IN THE SPECIAL PROVISIONS.

** TO BE DETERMINED.

**"D" CONNECTOR
61 PIN SOCKET
AMP# MS3116F24-61S**



"COV 44 D" FOR 2070N, NEMA X3, AND XN-2 "D" CONNECTOR AND PIN ASSIGNMENTS

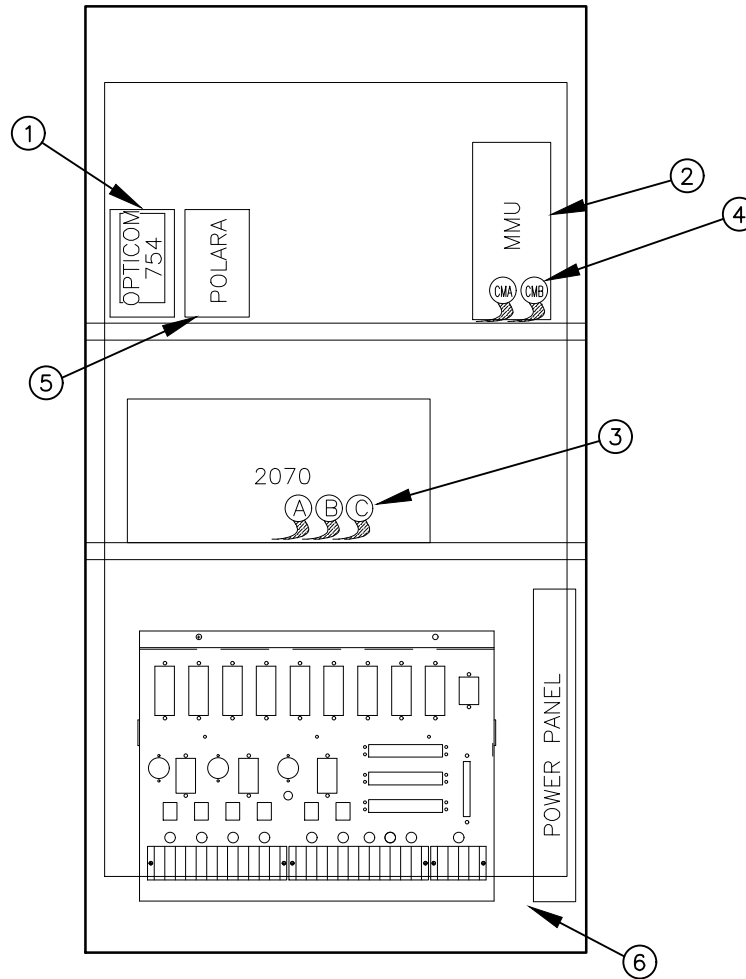


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STD. PLAN NO.

T20-45A



CABINET BACK NOTES:

- ① THE CARD CAGE SHALL BE WIRED FOR A 4-CHANNEL OPTICOM/GTT DESCRIMINATOR. ASSIGNMENT AND LAYOUT SHALL BE CONSISTENT WITH EXISTING COV STANDARDS. CC1 SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1078 OR PRE-APPROVED EQUAL. FOR ADDITIONAL INFORMATION, SEE **TYPE "M" CABINET HAWK SIGNAL DETECTION ASSIGNMENTS FOR CARD CAGE, STANDARD PLAN T20-46E.**
- ② SPACE FOR MALFUNCTION MONITOR UNIT.
- ③ NEMA TS1, "A", "B", AND "C" CONNECTORS AND CABLES.
- ④ CONFLICT MONITOR "A" AND "B" CONNECTORS AND CABLES.
- ⑤ POLARA APS NAVIGATOR CONTROL UNIT, PART# ICCU-S2 (OR APPROVED EQUAL).
- ⑥ THE LOAD BAY WIDTH SHALL NOT EXCEED 21" TO FACILITATE A NO INTERFERENCE SWING DOWN. ALL WIRING, WIRE COLORS AND TERMINAL BLOCK LAYOUT SHALL BE CONSISTENT WITH EXISTING COV HAWK STANDARDS. LOAD BAY SHALL INCLUDE THE WIRING TO MODIFY THE MMU/DOOR OPEN INTERLOCK, AND THE POLICE FLASH RESET. A RELAY SHALL BE PROVIDED WITH A LS 24VDC DISCONNECT TO PREVENT A CONTROLLER/FLASH SIMULTANEOUS DISPLAY. LOAD BAY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1321 OR PRE-APPROVED EQUAL.



TYPE "M" HAWK CABINET INTERIOR LAYOUT (BACK)

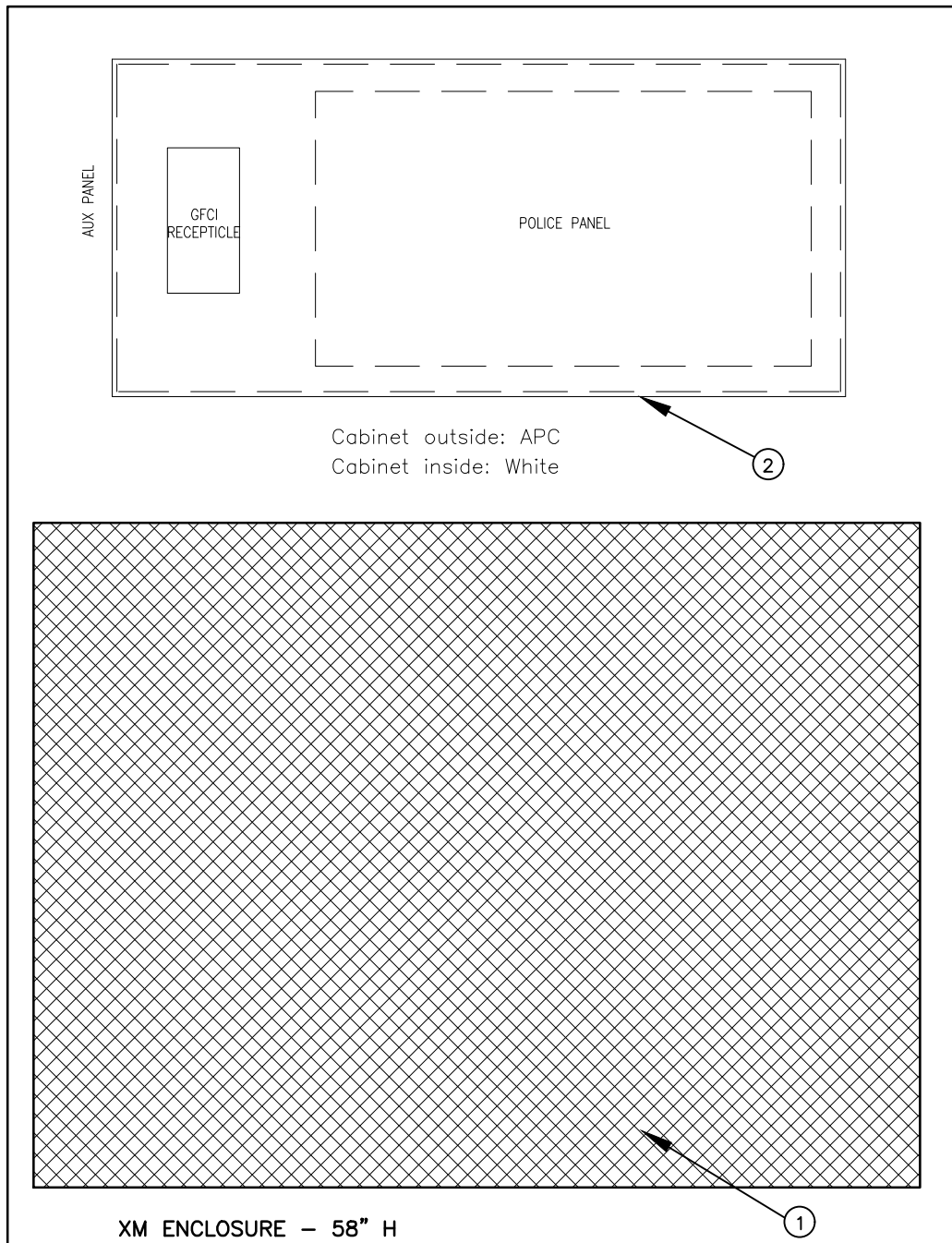
CITY OF VANCOUVER
DEPARTMENT OF PUBLIC WORKS
TRANSPORTATION DIVISION

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CDC		7/14
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4		3/24

STD. PLAN NO.

T20-46A

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CABINET DOOR NOTES:

- ① A 12" X 16" DOOR FILTER SHALL BE PROVIDED.
- ② A CONTROL PANEL WITH THE FEATURES AS SHOWN SHALL BE PROVIDED. IT SHALL INCLUDE A FULL PLASTIC COVER THAT CAN BE HINGED UP. THE POLICE PANEL SHALL CONTAIN 1 PB SWITCH TO PUT THE CABINET IN FLASH. THIS ASSEMBLY SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 2094 OR PRE-APPROVED EQUAL.



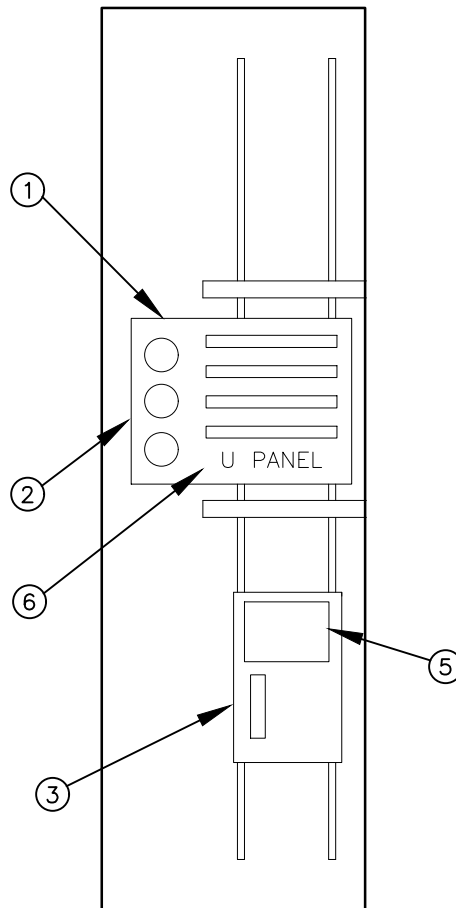
TYPE "M" HAWK CABINET INTERIOR LAYOUT (FRONT DOOR)

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STD. PLAN NO.

T20-46B



CABINET LEFT SIDE NOTES:

- ① U PANEL TERMINAL ASSIGNMENT AND LAYOUT SHALL BE CONSISTENT WITH COV EXISTING STANDARDS. IT SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1323 OR PRE-APPROVED EQUAL.
- ② THE U PANEL SHALL BE WIRED TO FUNCTION WITH ANY TYPE TS1 CONTROLLER.
- ③ DETECTOR FIELD TERMINATION PANEL SHALL HAVE 2 MARATHON 1600 SERIES TERMINAL BLOCKS, LAYOUT AND LABELED CONSISTENT WITH EXISTING COV HAWK STANDARDS. IT SHALL BE CASCADE SIGNAL CORP. PART NO. CSC# 1532. FOR ADDITIONAL INFORMATION, SEE **INPUT TERMINAL FOR "M" CABINET HAWK DETECTION PANEL ASSEMBLY, STANDARD PLAN T20-46E.**
- ④ NO PANELS ON THE SIDE SHALL INTERFERE WITH THE DROPPING DOWN OF THE LOAD BAY.
- ⑤ POLARA NAVIGATOR APS INTERCONNECT BOARD.
- ⑥ SEE "D" CONNECTOR, STANDARD PLAN T20-44.



TYPE "M" HAWK CABINET INTERIOR LAYOUT (LEFT SIDE)

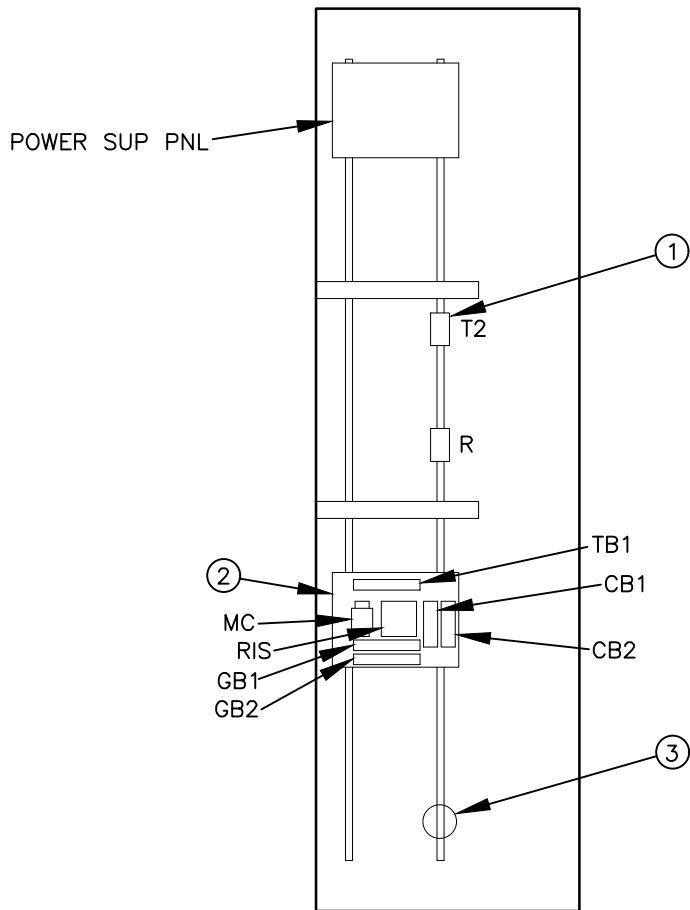
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4		3/24

STD. PLAN NO.

T20-46C

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CABINET RIGHT SIDE NOTES:

- ① A THERMOSTAT TO CONTROL THE HEATER SHALL BE PROVIDED.
- ② A POWER PANEL SHALL BE PROVIDED AND LAID OUT CONSISTENT WITH COV STANDARDS. CASCADE SIGNAL CORP. PART NO. CSC# 2067 OR PRE-APPROVED EQUAL.
- ③ A CABINET HEATER SHALL BE PROVIDED WITH A SCREW IN BASE.



TYPE "M" HAWK CABINET INTERIOR LAYOUT (RIGHT SIDE)

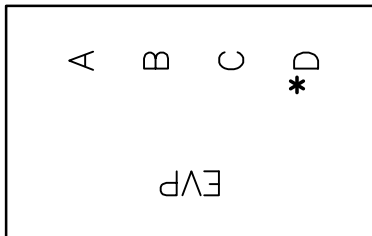
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STD. PLAN NO.

T20-46D

CARD CAGE 1



* UNASSIGNED ON U-PANEL.



CITY OF
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WASHINGTON

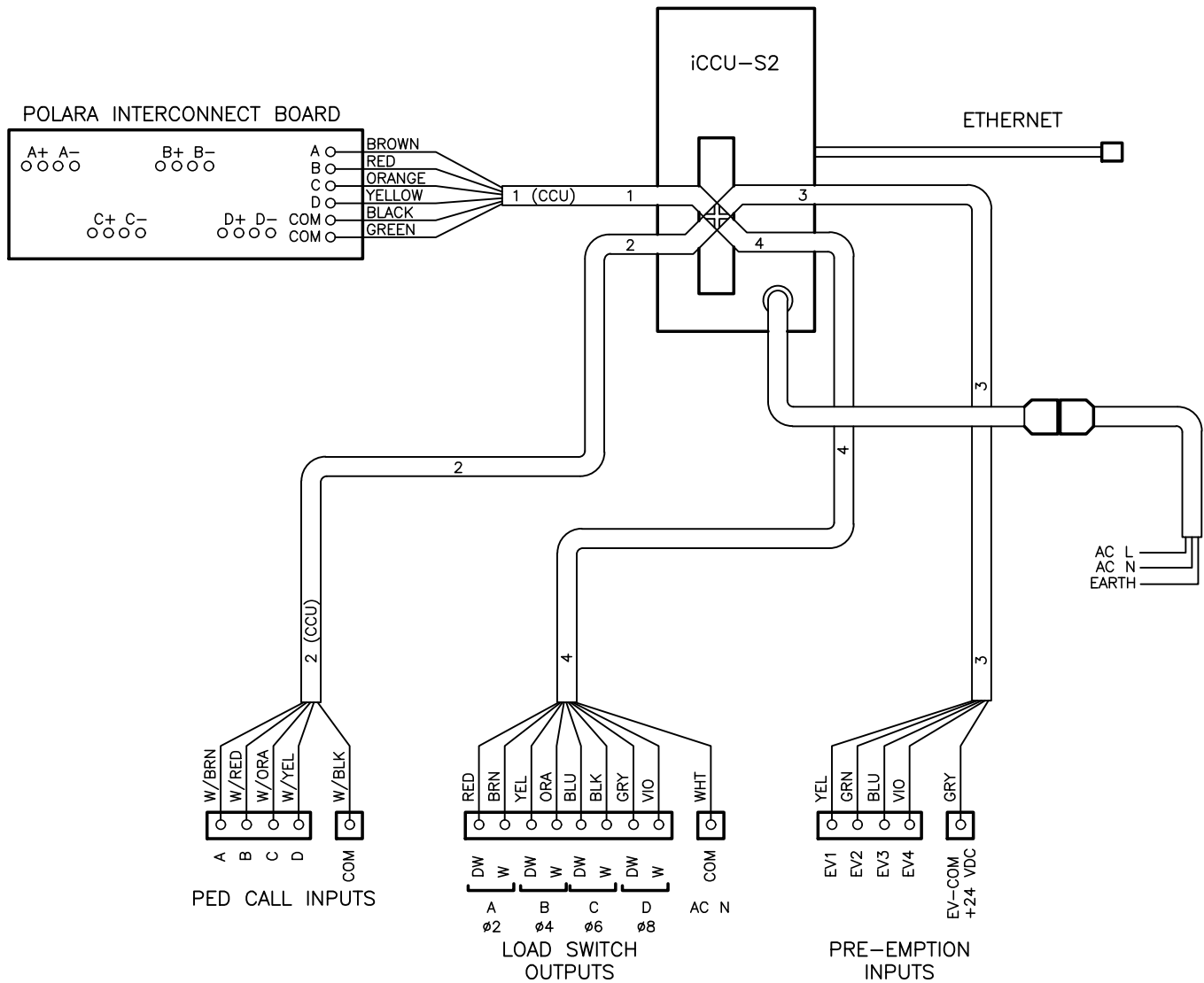
TYPE "M" HAWK CABINET DETECTION ASSIGMENTS FOR CARD CAGE

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T20-46E



POLARA APS NAVIGATOR INTERCONNECT BOARD AND WIRING HARNESS

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4		3/24

STD. PLAN NO.

T20-47