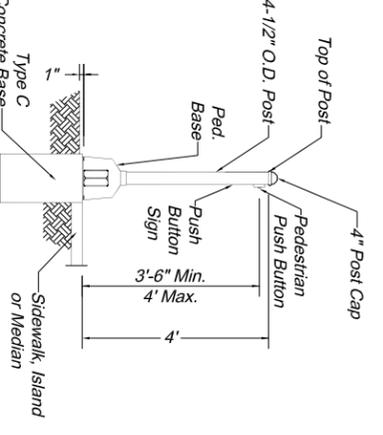
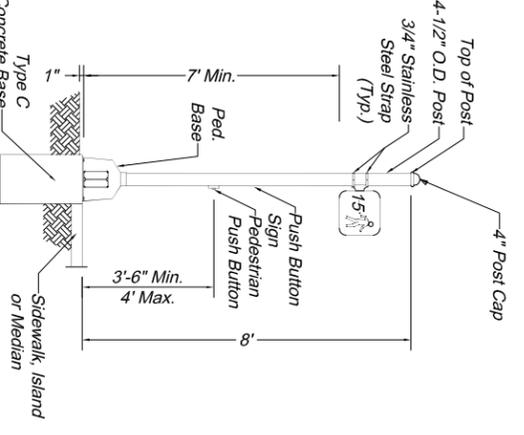
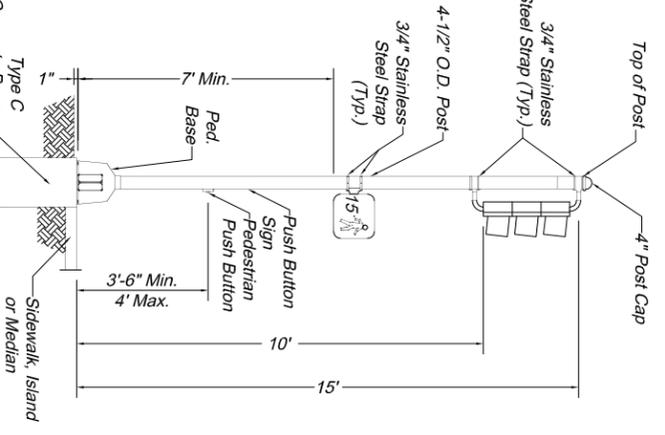
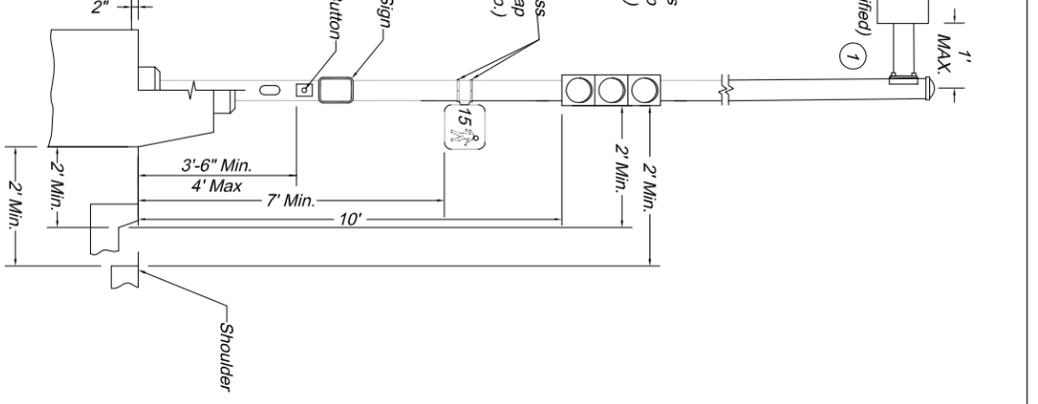


WOOD POLE MOUNTING

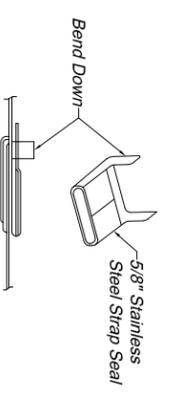
1 No sign in excess of 15.0 square feet shall be installed on posts or mast arms. Signs exceeding 6.0 square feet shall be located so that the edge of the sign is no more than 12" from the centerline of the post. D3 series signs as well as signs installed on the post shall be mounted with a strap type sign support. R10 series signs installed on the mast arm shall be mounted with an Astro-Bracket assembly.

MAST ARM POLE MOUNTING

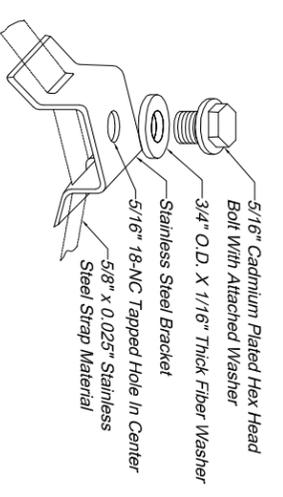


PEDESTAL POST MOUNTINGS

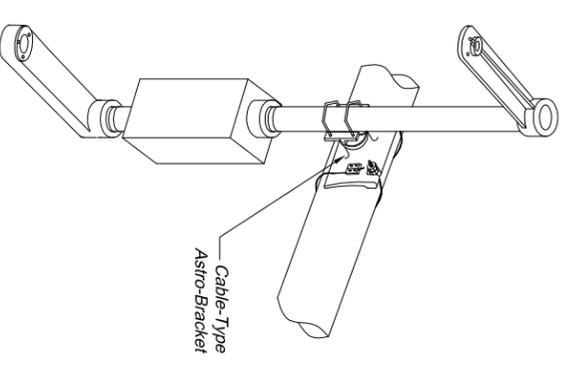
ENDS OF STRAP CLAMPED IN SEAL



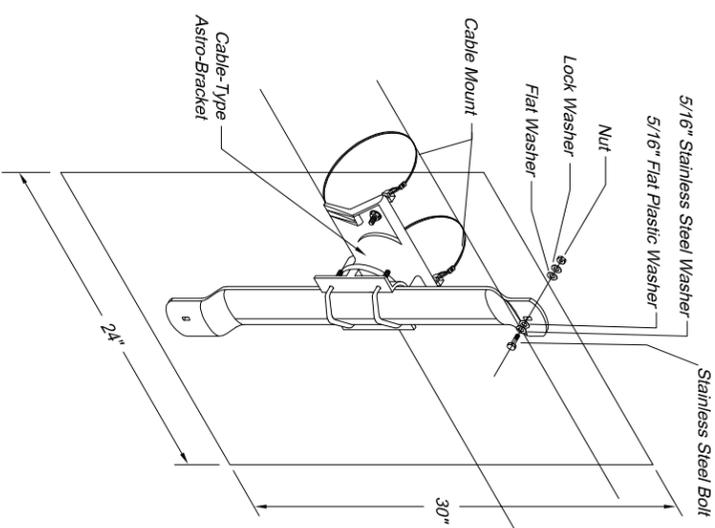
STRAP TYPE SIGN SUPPORT



SIGNAL HEAD MAST ARM MOUNTING DETAIL



MAST ARM SIGN MOUNTING DETAIL



Astro-Brac Terminal Compartment Bracket Assembly
Note: Only cable type Astro-Brac will be allowed, no bands.

General Notes:

All post wire outlets shall be deburred and equipped with bushings.
Backplates not shown in mounting diagrams for clarity.

Posts shall be grounded with #6 AWG bare copper wire from grounding bushing on conduit to grounding lug in post base. If steel conduit is used, if non-metallic conduit is used, provide #6 AWG wire from grounding lug in post to power supply ground buss in controller cabinet.

Leads from pedestrian signal lamps are connected to the signal head terminal compartment.

All signals shall be mounted vertically unless otherwise noted on the traffic signal plans.

Span wire mounted signals shall have a disconnect hanger.

Signal heads on mast arms shall be tilted forward from the top 3 to 7 degrees from vertical.

If a sign exceeds 42" in length, two supports are required; and if a sign exceeds 96" in length, three supports are required.

Mast arm mounted signals shall have a terminal compartment.

Side-mounted optically limiting heads shall have a minimum post clearance of 5'-1/2".

Symbol for pedestrian lenses shall have a minimum height of 11"

Push button signs shall be mounted directly above the actuator, except for locations on 4' pedestals the sign shall be located directly below the actuator.

Signal appurtenances shall have a horizontal clearance no less than 2" from the face of a vertical curb or from the outside edge of a shoulder, except signals located in a median island.

See standard drawing TS-3 for base details.

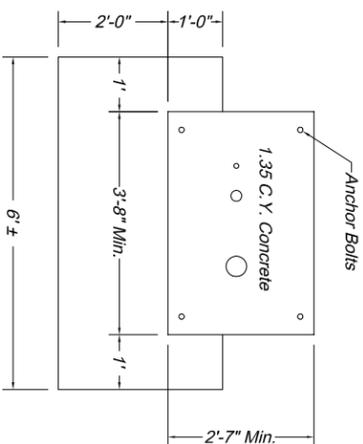
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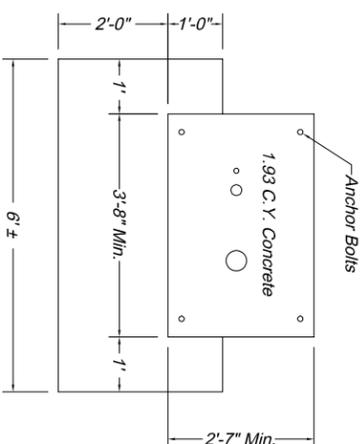
SIGNAL HEAD MOUNTING DETAILS

STANDARD DRAWING TS-1

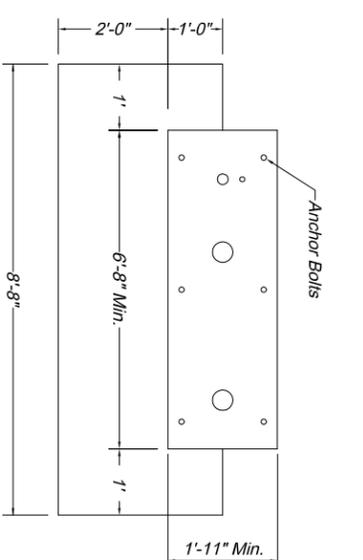
Drawn By: AS
Checked By: MP
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Project#



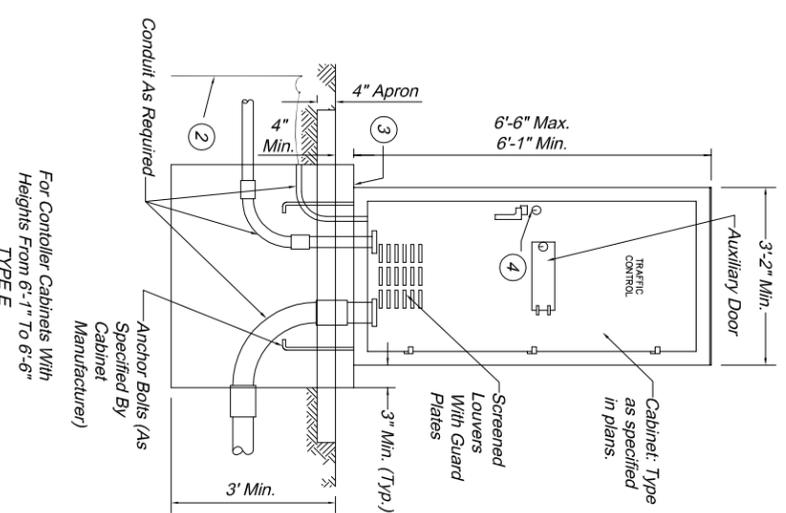
PLAN VIEW



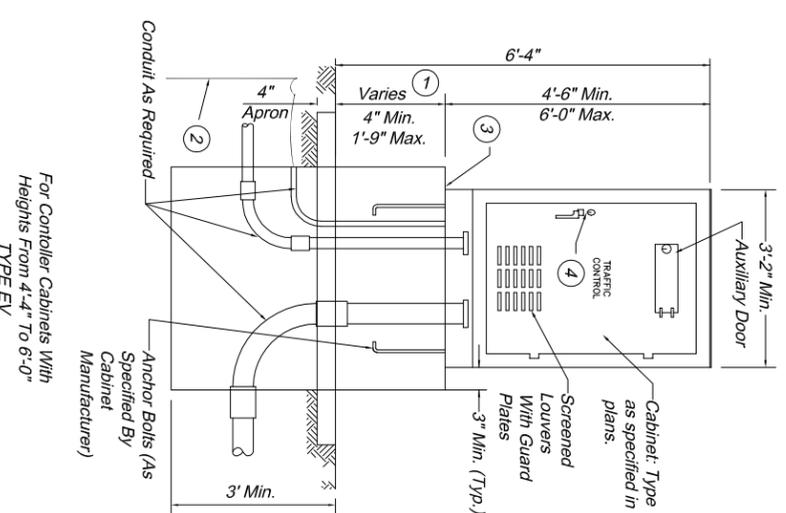
PLAN VIEW



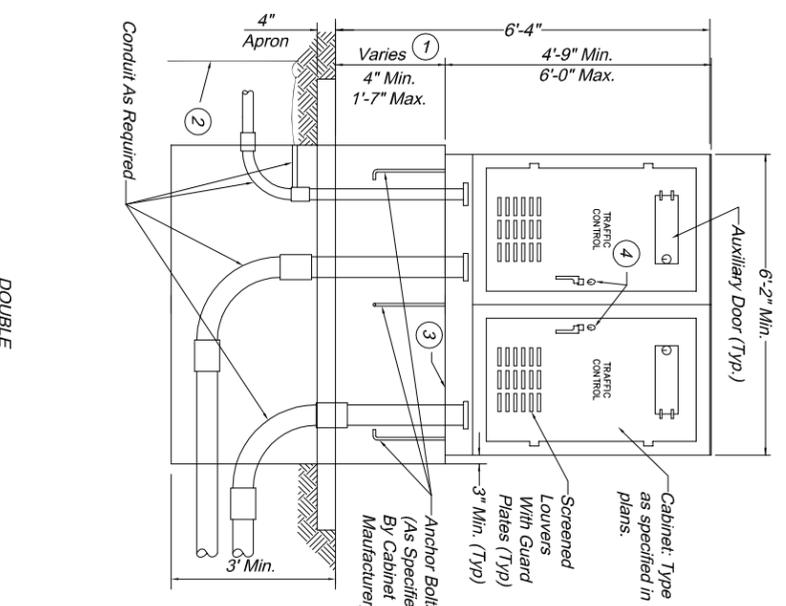
PLAN VIEW



For Controller Cabinets With Heights From 6'-1" To 6'-6" TYPE E

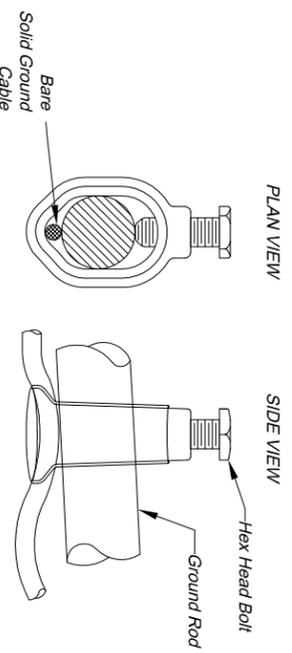


For Controller Cabinets With Heights From 4'-4" To 6'-0" TYPE EV



DOUBLE

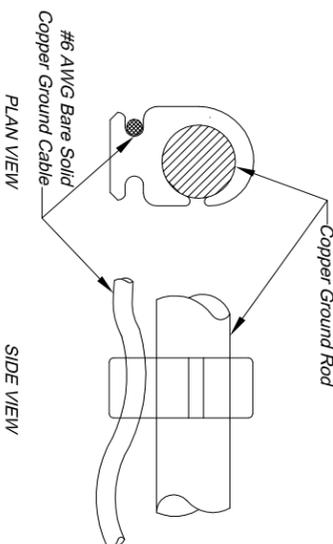
CONTROLLER CABINETS AND BASE TYPES



PLAN VIEW

CLAMP STYLE

SIDE VIEW



PLAN VIEW

CRIMP STYLE

SIDE VIEW

GROUND ROD CLAMP CONNECTION DETAIL

Ground rod clamp shall be subsidiary to ground rod.

General Notes:

Traffic signal controller cabinet shall be oriented with the back of the controller cabinet facing the intersection, such that when the door is open the signal head indications can be viewed while looking inside the cabinet.

- ① Dimension varies according to cabinet height.
- ② Ground rod, 3/4" dia. x 8' min. If subsurface conditions exist which prohibit the placement of the ground rod in a vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as detailed.
- ③ Lifetime silicone caulk between cabinet and base.
- ④ #2 corbin lock.

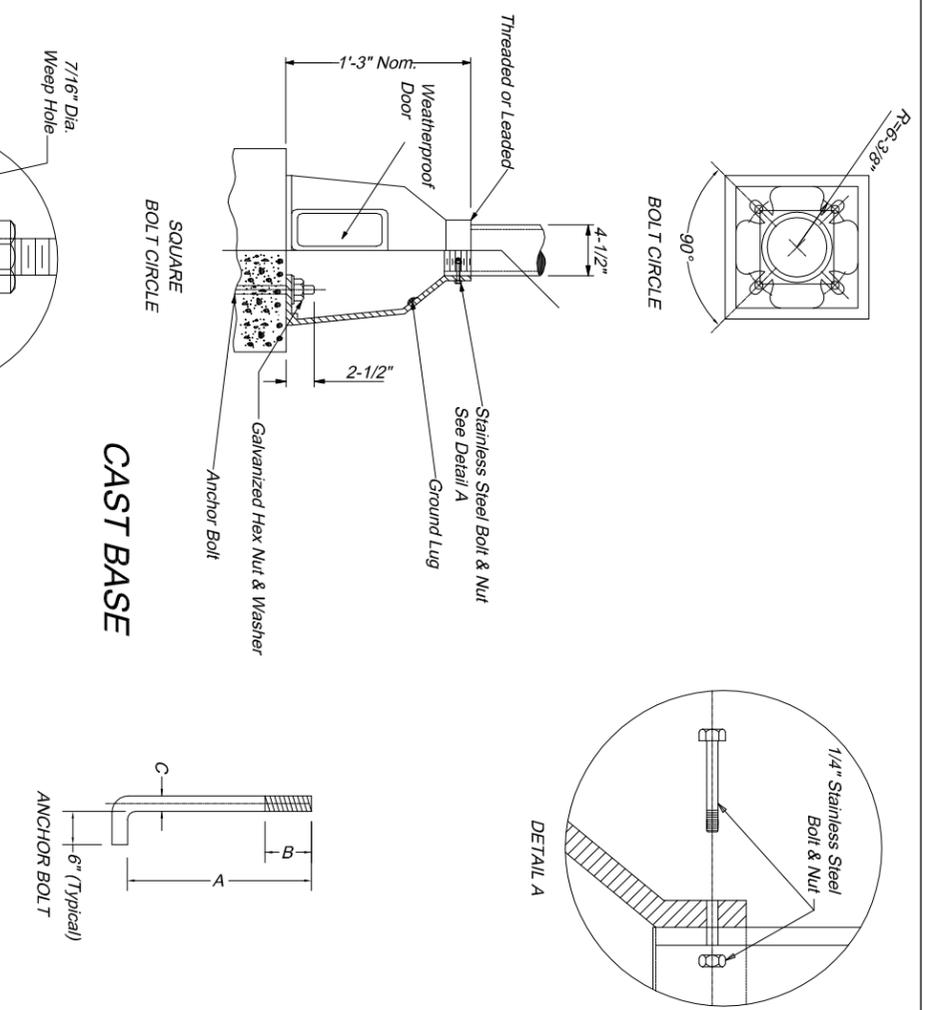
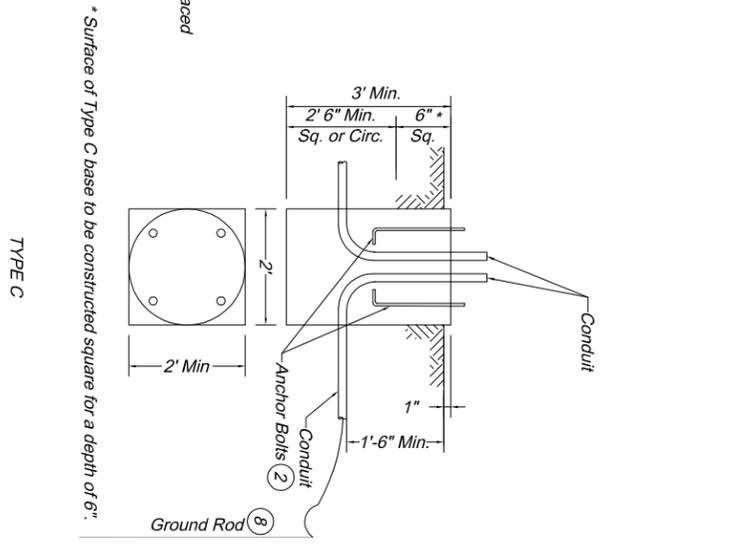
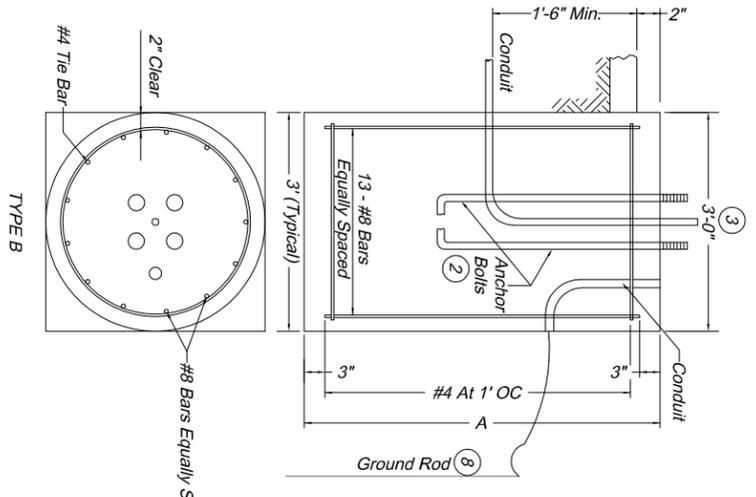
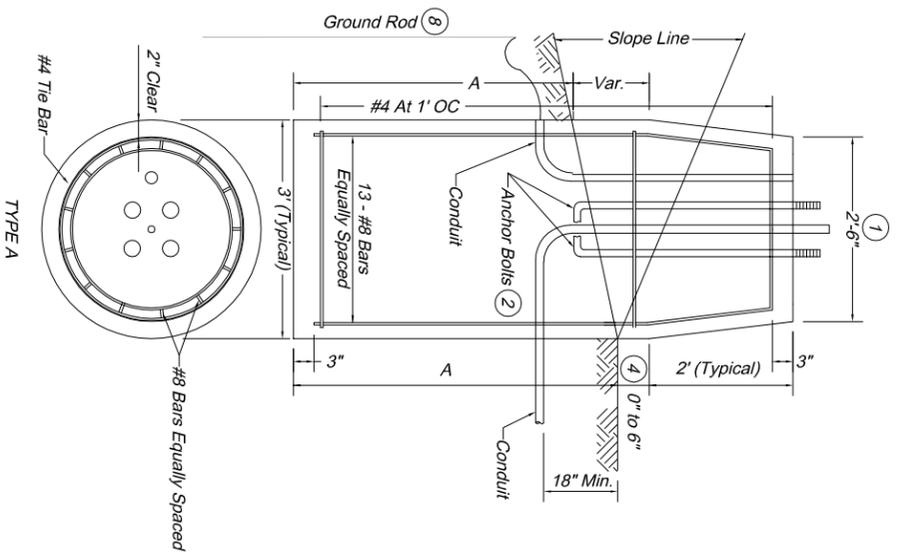
CONTROLLER CABINET & BASE DETAILS

STANDARD DRAWING TS-2



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Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#



POST BASES		
Post Type	Arm Length (ft.)	Base Type
B, BL, C & CL	8 - 14	A-8 or B-8
B, BL, C & CL	15 - 34	A-10 or B-10
B, BL, C & CL	35 - 54	A-13 or B-13

Arm length determined by length of longest arm for Type B & BL signal posts.
 Base Type A or B determined by location of post base.
 Special Design Requirements:

Signal structures which will exceed the dimension limits shown on Standard Drawing TS-5 shall have its Post Base designed by a professional engineer and approved by the City Engineer (or designee). A set of drawings including specifications and design computations shall be submitted for record and reference. The submitted drawings and calculations shall be signed and sealed by a professional engineer in accordance with the laws relating to architects and professional engineers (Chapter 327, RSMO) and shall include a title block or summary sheet which lists and certifies that the foundation will meet the design criteria.

- If bolt circle is 22 inches or greater, use Type B base. If Type B base is used anywhere, all Type B, BL, C, and CL posts shall have Type B base. Base plate shall stay within the top of the post base diameter.
- Anchor bolt dimensions are shown on the manufacturer's approved drawings.
- Maximum bolt circle diameter is 26". Base plate shall stay within the top of the post base diameter.
- 0" to 6" variation in base height is for obtaining 16'-0" clearance. 0.13" C.Y. concrete and 3 lbs. reinforcing steel per 6".
- Posts shall be furnished with individual nut covers.

STEEL & CONCRETE REQUIREMENTS FOR POST BASES			
Base	#8 Steel Bar	Weight (lbs)	Conc. C.Y.
A-8	8'-0"	399	2.53
A-10	10'-0"	481	3.06
A-13	13'-0"	604	3.84
B-8	8'-0"	317	2.09
B-10	10'-0"	400	2.62
B-13	13'-0"	523	3.40
		0.44	

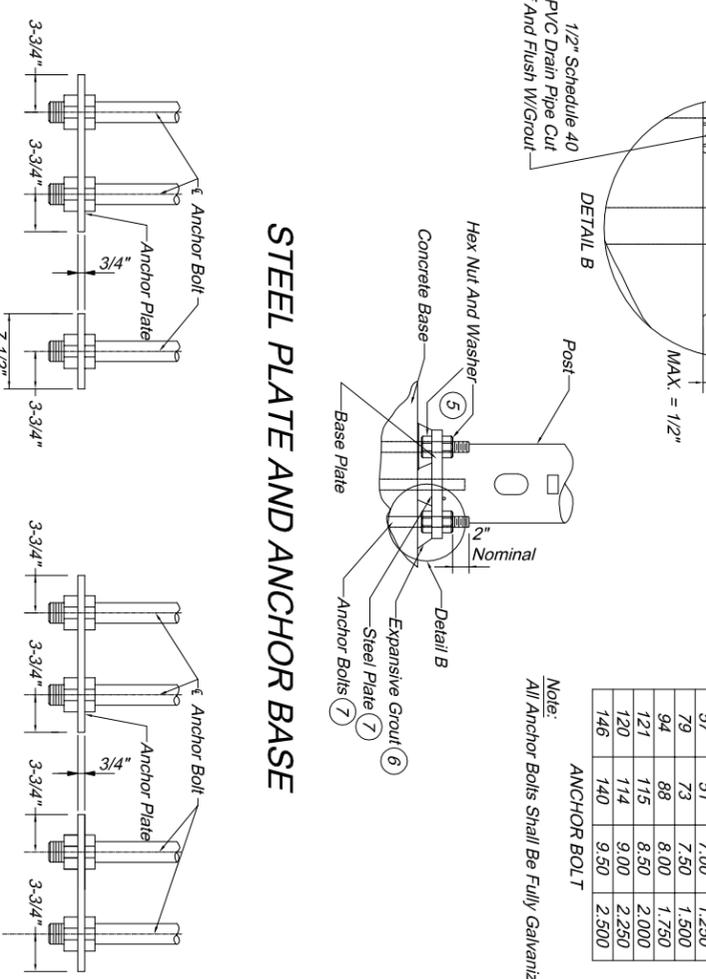
(10) Soil depth, no rock
 (11) Include #4 tie bar
 Surface of Type C base to be constructed square for a minimal depth of 6".

- Expansive grout shall be used between the post base plate and concrete base.
- Plate and bolt sizes shall be shown on fabricator's shop drawings and shall be subject to approval.
- 3/4" x 8" minimum ground rod. If subsurface conditions exist which prohibit the placement of the ground rod in vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as detailed on standard drawing TS-2.

BASE EMBEDMENT IN SOLID ROCK			
Solid Rock Encounter Point	Required Embedment For Base Type	A-8	A-10
At Surface		4'-6"	4'-9"
At One-Fourth Normal Depth		3'-6"	4'-0"
At One-Half Normal Depth		3'-0"	3'-3"
At Three-Fourths Normal Depth		1'-3"	1'-3"
			1'-0"

- Required embedment depths can be interpolated between encounter points for other solid rock encounter depths.
- Normal lengths for anchor bolts and reinforcing steel will be required.
- Core drill holes for anchor bolts and reinforcing steel in solid rock shall be provided. Core drill holes shall be twice the diameter of the anchor bolt and reinforcing steel diameter and to within 3 inches of the normal base depth.
- If soil, shale, gravel, fractured rock, or voids are encountered during core drilling, the rock shall be removed to the point of encounter.
- Anchor bolts and reinforcing steel shall be grouted in the core drill holes with non-shrink grout having a minimum strength of 9,000 pounds in 24 hours.
- Straight anchor bolts of the length shown in the anchor bolt table under the column "bolt length" are adequate for use in grouted core drilled holes. No heat induced alteration or bending of anchor bolts will be permitted.

STEEL PLATE AND ANCHOR BASE



OPTIONAL STEEL PLATE FOR ANCHOR BOLTS

Side View: Hex Nut or 5/16" Filler, Weld All Around Both Sides, TWO BOLTS PER PLATE

End View: Hex Nut or 5/16" Filler, Weld All Around Both Sides, FOUR BOLTS PER PLATE

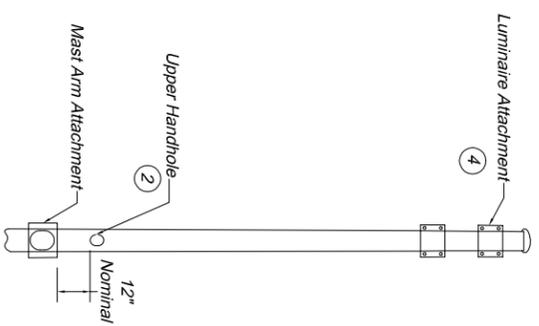


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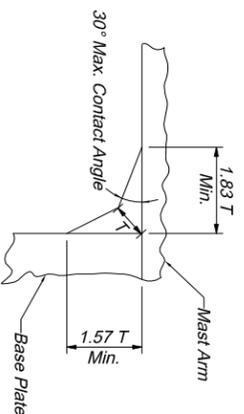
POST BASE DETAILS

STANDARD DRAWING TS-3

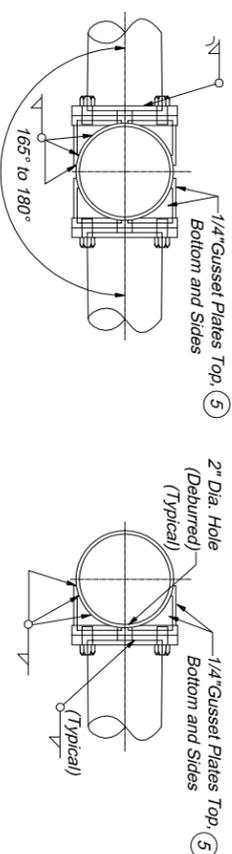
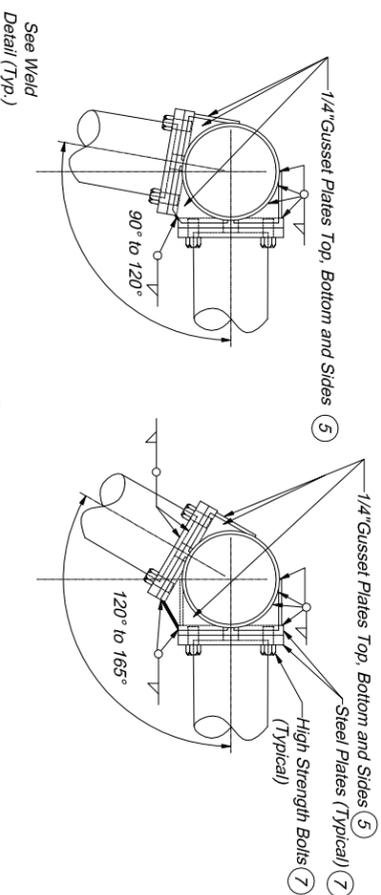
Drawn By: AS
 Checked By: WP
 Date: 09/25/2009
 Project#:
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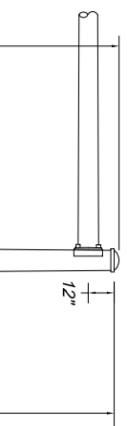
TYPE BL AND CL POSTS



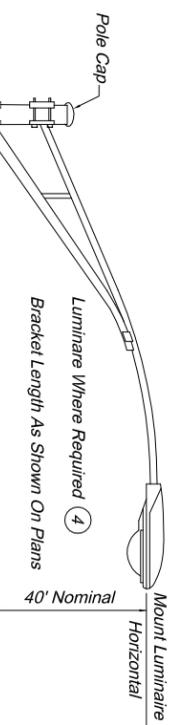
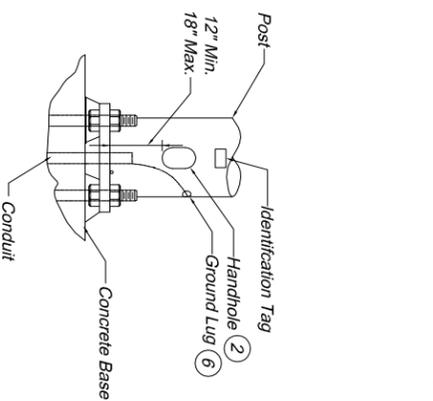
WELD DETAIL



ARM ATTACHMENTS

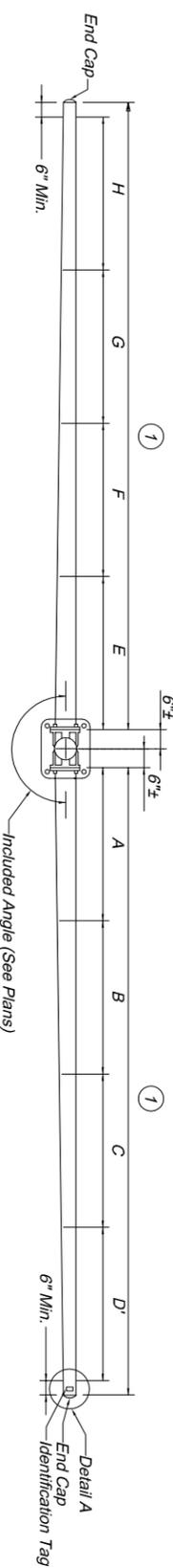


DETAIL A



TYPE C AND TYPE CL (WITH LUMINAIRE)

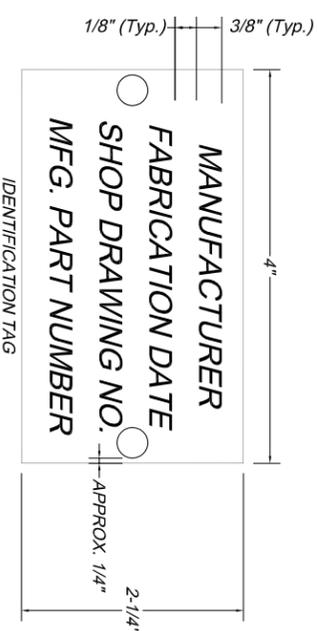
A, B, C, and D - Signal spacing as shown on the traffic signal plans.



E, F, G, and H - Signal spacing as shown on the traffic signal plans.

A, B, C, and D - Signal spacing as shown on the traffic signal plans.

TYPE B AND TYPE BL (WITH LUMINAIRE)



ID Tag Note:

Tag shall be aluminum or stainless steel and attached to pole or mast arm using two rivets or stainless steel drive screws. ID tag holes shall be drilled prior to galvanizing.

- 1) Arm Lengths shall not exceed 54 feet. See traffic signal plans for dimensions.
- 2) Handholes shall be approximately 4" x 6-1/2". Handhole frame shall be reinforced so that the pole strength is not reduced.
- 3) Posts shall be furnished with individual nut covers.
- 4) See street lighting standard details for typical bracket arm mounting for Type BL and Type CL posts.
- 5) Any openings between top and side gusset plates shall be sealed with lifetime caulk at time of installation.
- 6) Post shall be grounded from ground lug in post with #6 AWG bare copper wire to conduit system. Ground lug shall be 90° or 180° from the handhole.
- 7) Plate and bolt sizes shall be shown on fabricator's shop drawings and shall be subject to approval.

General Notes:

Arms shall be raked up 0.25" per foot minimum. Arms shall be provided with a permanent marking indicating proper orientation for installation.
To determine left or right on Type B or C signal post, viewing position shall be from the center of the intersection being controlled and facing the signal involved.

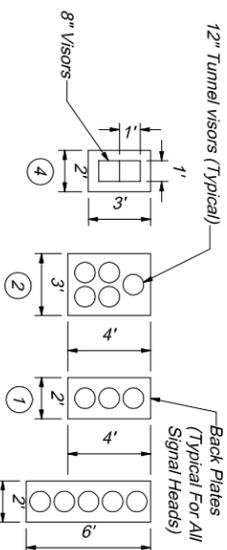
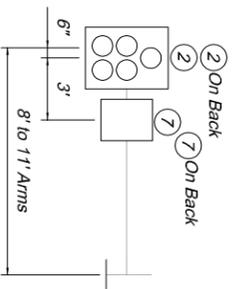
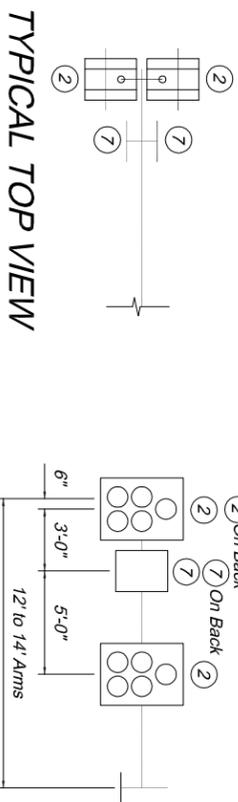
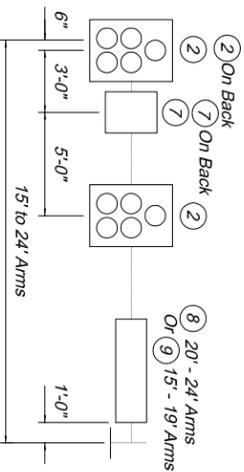
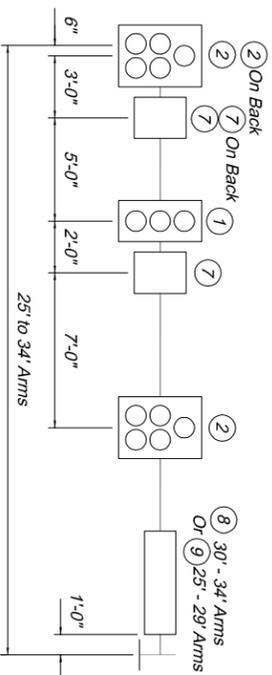
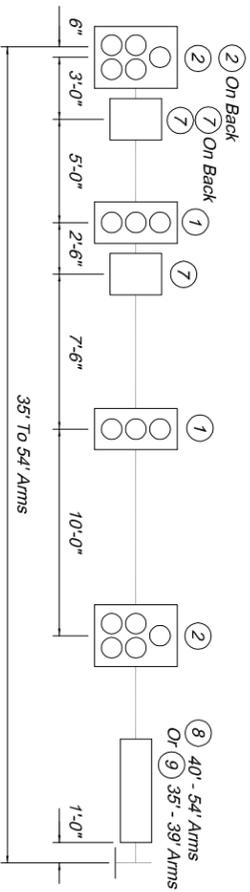


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TUBULAR STEEL POST DETAILS

STANDARD DRAWING TS-4

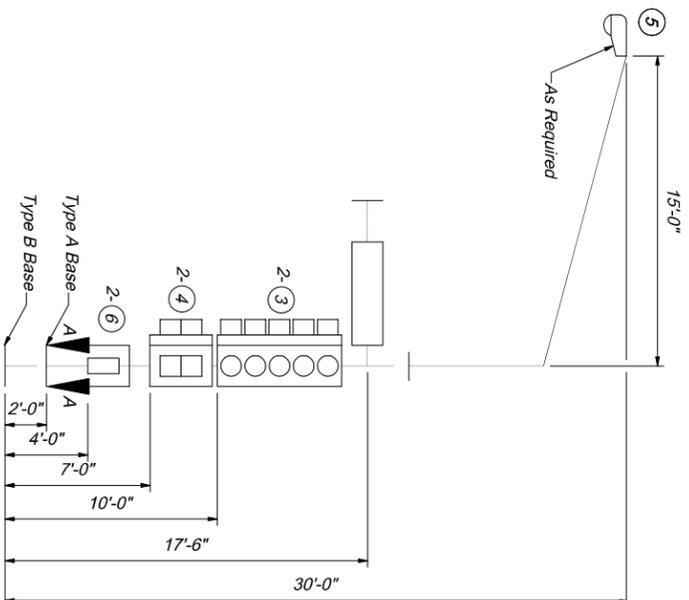
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Project#



Item No.	Description	Weight (Lbs.)*	Proj. Area (Sq. Ft.)	Surface Area (Sq. Ft.)
1	3-Section OL Head	60.0	8.0	32.5
2	5-Section OL Head	100.0	12.0	47.5
3	Vert. 5-Section OL Head	100.0	12.0	50.5
4	2-Section OL Head	40.0	6.0	23.0
5	150 Watt Luminaire	30.0	1.0	3.5
6	9" X 18" Sign	2.0	1.1	N/A
7	24" X 30" Sign	27.0	5.0	N/A
8	120" X 18" Sign	25.0	15.0	N/A
9	96" X 16" Sign	18.0	10.7	N/A
	96" X 18" Sign	20.0	12.0	N/A
	96" X 28" Sign	31.0	18.7	N/A

OL - Optically Limited
* Mounting Hardware Included

SECTION A-A



TYPICAL POST LOADING

MAST ARM LOADING

Structural Design Requirements:

Structural supports shall be designed and fabricated to withstand their own loading and the attachment loading shown on this drawing or on the plans, whichever is greater. Structural members include posts, mast arms and luminaires bracket arms, as required.

Design of the structural supports shall be based on AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1994 or latest revision with these exceptions.

Minimum Design Wind Speed of 90 MPH at 30 Feet Above Ground.
Group Loading:

Loads	Percent of Allowable Stress*
Group I - DL	100
Group II - DL + W	133
Group III - DL + Ice + 0.5(W**)	133

*No load reduction factors shall be applied in conjunction with these increased allowable stresses.

** W to be computed on the basis of the wind pressure formula, 25 PSF (1197 Pa) minimum for W for Group III.

Signal structures which will exceed the dimension limits shown shall be designed by a professional engineer*** based on AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2001, 4th Edition, including any interim with the criteria noted below:

- Minimum Basic Wind Speed 90 MPH at 30 Feet Above Ground
- Fatigue Category I
- 50 Year Design Life
- Shall not be specifically designed for truck induced wind gusts.
- Shall be specifically designed to resist periodic galloping forces.

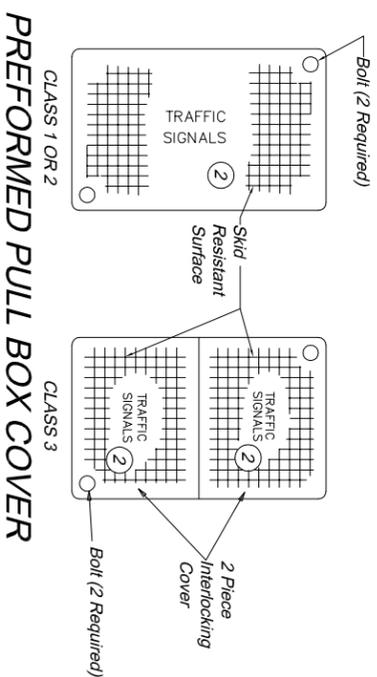
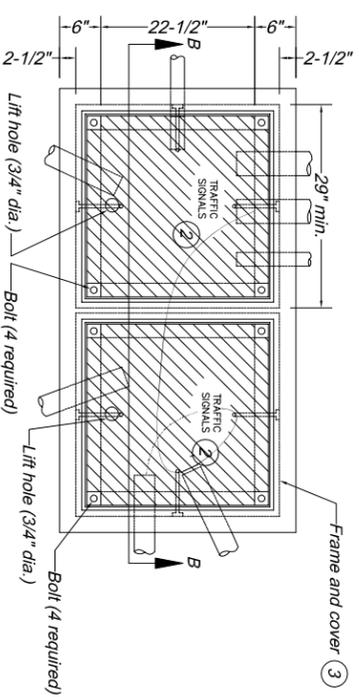
***A set of shop drawings including weld procedure specifications and design computations shall be submitted for record and reference. The submitted drawings and calculations shall be signed and sealed by a professional engineer in accordance with the laws relating to architects and professional engineers (Chapter 327, RSMO) and shall include a title block or summary sheet which lists and certifies that the product meets all of the specified design criteria.

For Type B and BL posts, ice and dead loading shall be based on the combined effect of design loading on each arm. Wind loading is applied as described in section 1.2.5(b) of the AASHTO Standard Specifications for Structural Supports, 1994 or latest version.

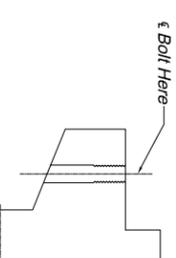
General Notes:

Attachment locations are for structural design purposes only. Actual locations are shown on the plans.

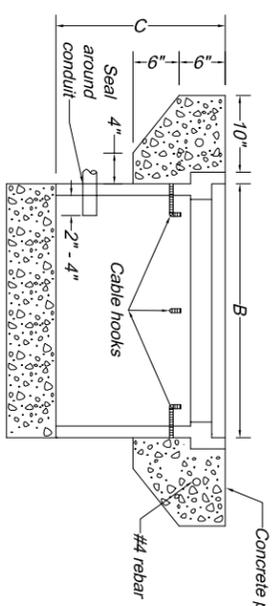
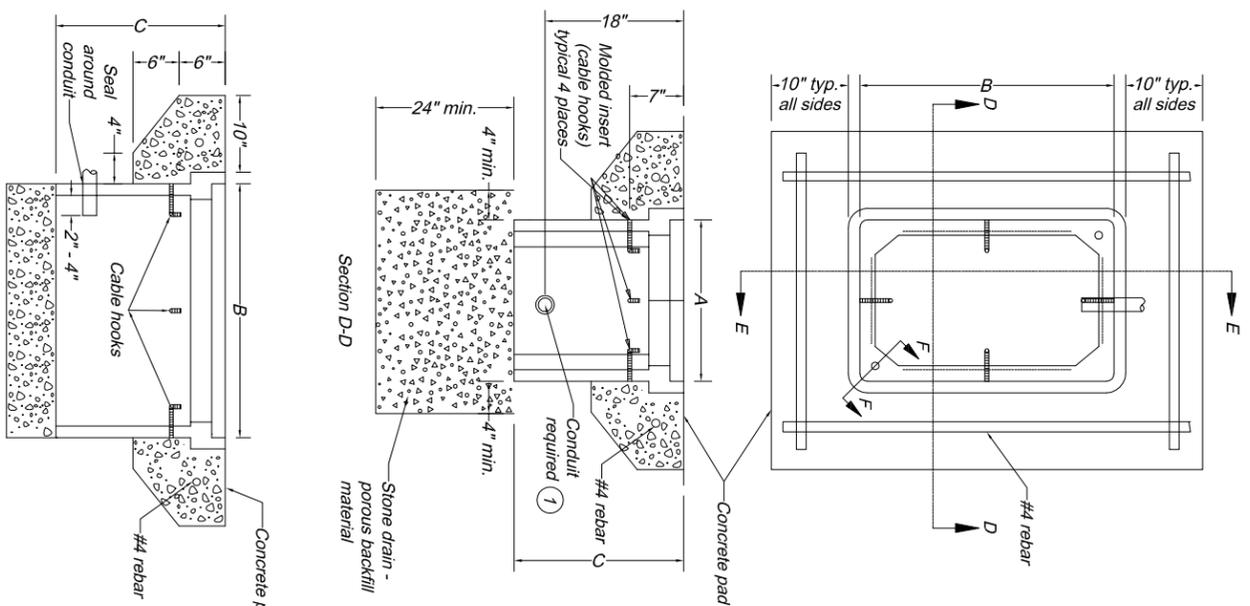
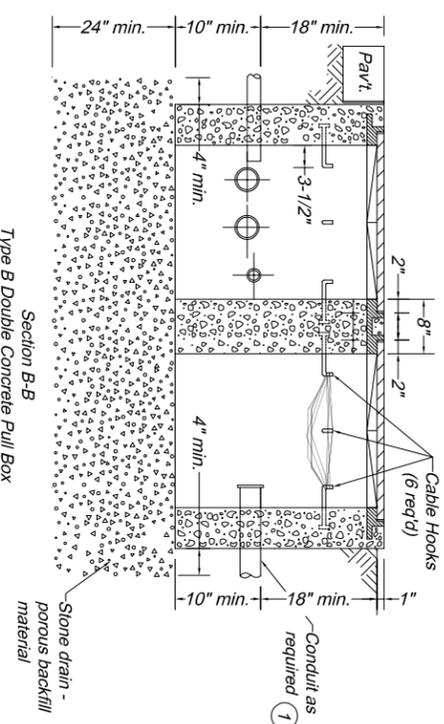
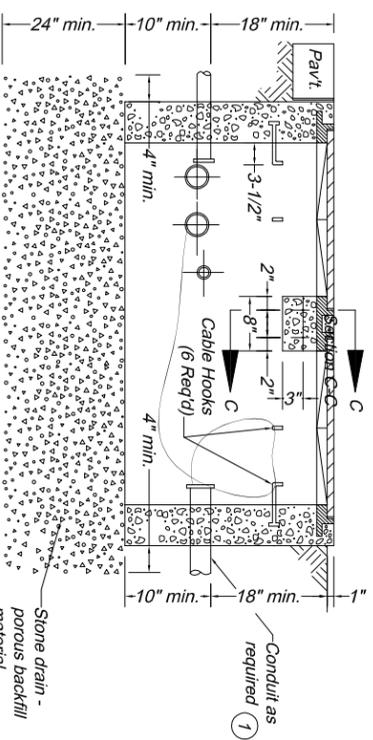
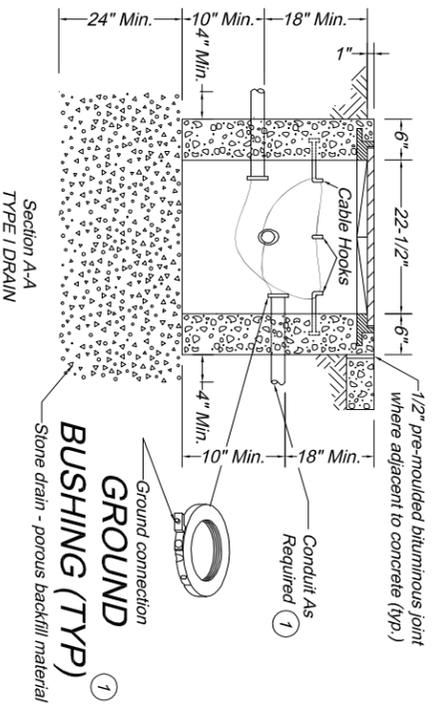
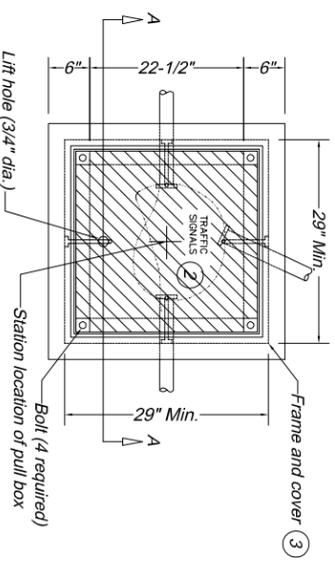




Number of Entering Conductors	Class	Preformed Pull Box Minimum Dimensions		
		A	B	C
< 23	1	17"	30"	20"
23 - 68	2	24"	36"	24"
> 68	3	30"	48"	24"



SECTION F-F
TYPICAL BOLT CLEANOUT



SINGLE CONCRETE PULL BOX

DOUBLE CONCRETE PULL BOX

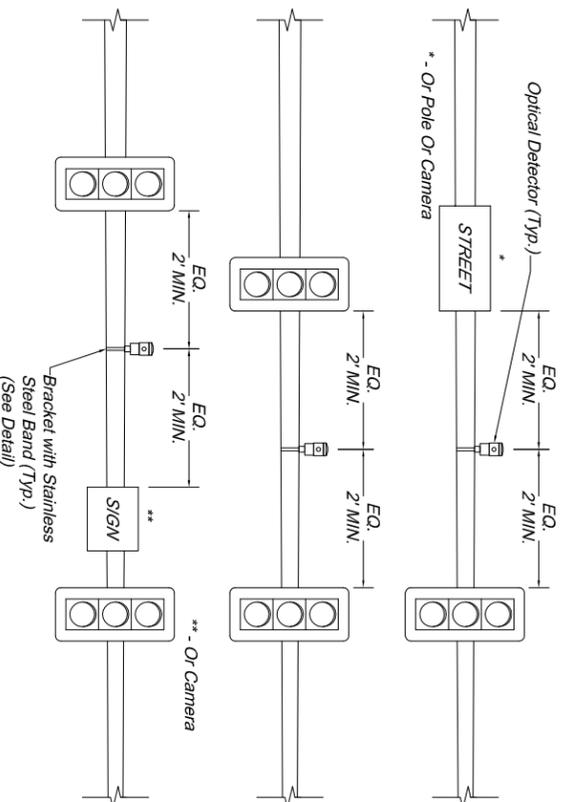
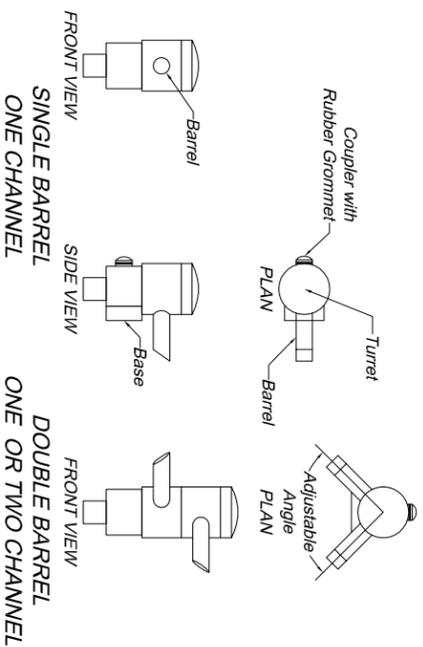
PREFORMED PULL BOX

- 1 All metal conduits shall be electrically bonded by a ground bushing and #6 AWG bare copper wire. For PVC, all ground wires shall be connected.
- 2 Signal pull boxes shall be embossed "Traffic Signals."
- 3 Pull box frames and covers shall be cast iron and the following minimum dimensions:
Frame Size: 29" x 29"
Opening Size: 22 1/2" x 22 1/2"
Frame Height: 4-1/4"
Frame Weight: 120 lbs.
Cover Size: 22-5/8" x 22-5/8"
Cover Thickness: 3/4"
Cover Weight: 140 lbs.

General Notes:

- All dimensions shown are nominal.
- Bolt cleanout detail shall be approved by the City Traffic Engineer.
- All concrete shall be 3,000 PSI minimum, and shall be subsidiary to the pull box.
- Pavement and subgrade shall be as shown on plans.
- Stone drain material shall be 1/2" - 3/4" clean rock.
- Lift opening required on all covers.
- Preformed box walls may be either flared or vertical.
- If an extension is used with a preformed box, the lip of the extension may be interior or exterior. The extension shall be compatible and from the same manufacturer.
- If preformed pull boxes are specified, the contractor may use the standard concrete pull box in lieu of the Class 1 or 2 preformed pull box or the double concrete pull box, Type A, in lieu of the Class 3 preformed pull boxes.





WHEN MULTIPLE DETECTOR UNITS ARE MOUNTED ON THE SAME MAST ARM, THEY SHALL BE SPACED APPROXIMATELY 12 INCHES APART.

Emergency Vehicle Detection Notes:

- The detector cable shall be continuous from the optical detector to the traffic signal controller. No splices shall be allowed.
- The contractor shall label the optical detector cable in all pull boxes by channels as indicated on the plans. This shall be accomplished with aluminum tags attached to the cable with aluminum wire. No direct payment shall be made for this work.
- Opticom shall be mounted inside the controller cabinet. Unless otherwise indicated on the plans, the placement of the optical detectors shall be centered between the signal heads and/or signal head and sign located on the mast arms. Further information on optical detector placement is shown in the details. The final placement of the optical detector may be adjusted for line of sight requirements.
- The equipment manufacturer shall be responsible for providing onsite technical assistance to the contractor in final placement of the optical detectors, as well as in all the aspects of the system installation.
- Preemption sequences and timings shall be developed by the equipment supplier. Timings shall be marked up on the lining sheets from the specific model of controller at each intersection and submitted for review by the City prior to implementation by the supplier. Pre-emption sequences shall use an all red interval or other methods to prevent the occurrence of "yellow traps" at intersections with protected/permitted left-turn phasing.
- Preempts are to be assigned as follows unless otherwise indicated in the plans:

Direction	Preempt No.	Channel
Northbound	1	A
Southbound	2	B
Eastbound	3	C
Westbound	4	D

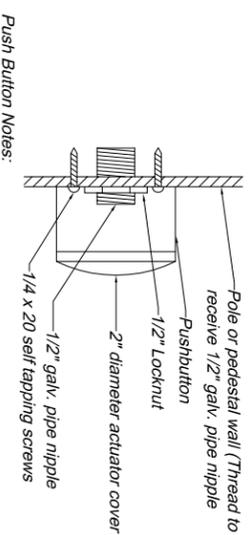
7. The Contractor shall install the equipment consistent with the equipment manufacturer's recommended installation procedures and interface diagrams in a neat and workmanlike manner. Emergency Vehicle Detection System shall be provided and installed by the contractor and shall consist of all detectors, processors, mounting brackets, etc for a fully operational system.

OPTICAL DETECTOR

Video Detection Notes:

- The video detection system shall consist of video camera(s), video detection processor (VDP), cables, brackets, and all other materials necessary for a fully functional system.
- The video detection system shall include software that detects vehicles in multiple lanes of each direction using only one video camera. Detection Zones (DZ) shall be defined using only a video menu and a pointing device to define and place zones on a video image. Up to 24 DZ per camera shall be available.
- The actual number and location of DZ shall be determined in the field by the City Traffic Engineer. The City reserves the right to have additional zones programmed or modify those shown based on the field programming period completed prior to turning on the signal.
- Video cameras are to be mounted as shown on the traffic signal plans. If the camera is mounted on a Type BL or CL pole, the camera shall be mounted directly to the luminaire bracket arm. If the camera is mounted on a Type B or C pole, the camera shall be mounted on the mast arm using a 6-foot riser.
- Video camera placement, adjustment, setup and initial programming shall be at the direction of the manufacturers representative. The manufacturers representative shall assist with identifying optical camera locations, system setup, programming, and turn-on.

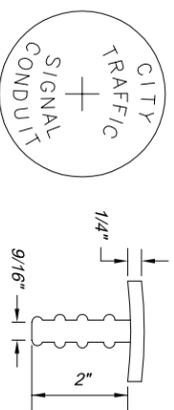
VIDEO DETECTION



Push Button Notes:

- Push buttons shall include 2 mounting brackets each and be of the type as noted in the plans.
- Push buttons shall be ADA approved and weatherproof, mounted in accordance with standard drawing TS-1.

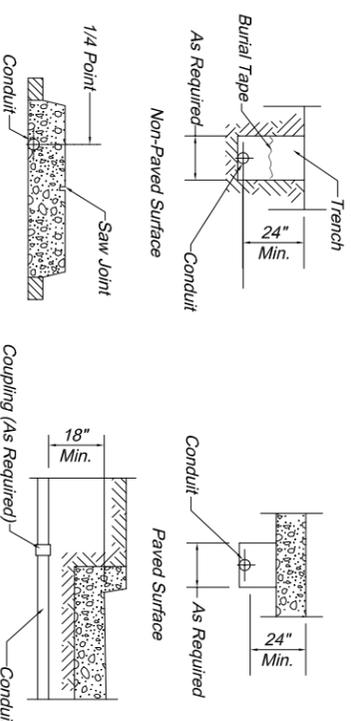
PUSH BUTTON MOUNT DETAIL



CONDUIT MARKER

Conduit Marker Notes:

- Wherever a conduit passes beneath a curbed street, aluminum conduit markers shall be installed in the curb immediately over the conduit location. Conduit markers shall be furnished by the contractor as detailed and shall be installed in the top of the curb by drilling the curb and epoxying the conduit marker in place. Conduit markers shall be flush with the curb. Conduit markers shall be subsidiary to conduit.



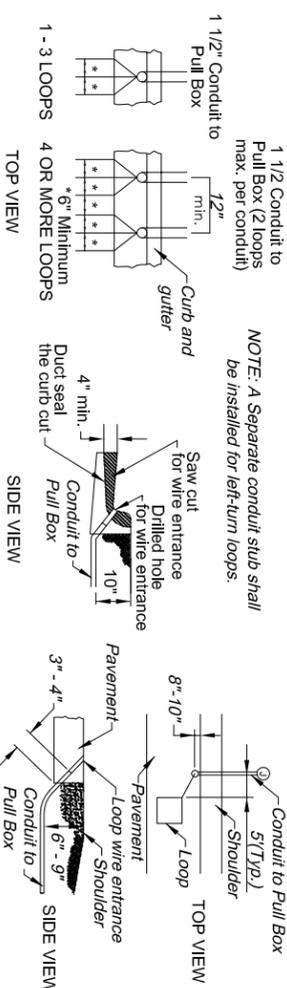
In Proposed Concrete Median On Existing Pavement

Conduit Location Notes:

- Conduit shall be installed to drain, and if metallic all ends shall be threaded and capped.
- The Contractor shall notify the City of Lee's Summit, Department of Public Works Traffic Division at (816) 969-1807 for inspection of the conduit installation. At least 24 hours notice shall be provided. The conduit shall not be covered unless inspected and approved by the Engineer or his authorized representative, so as to ensure proper depth, correct conduit material and proper conduit end treatment as described above.

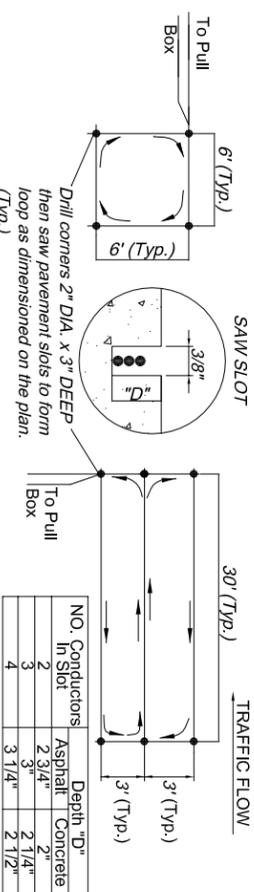
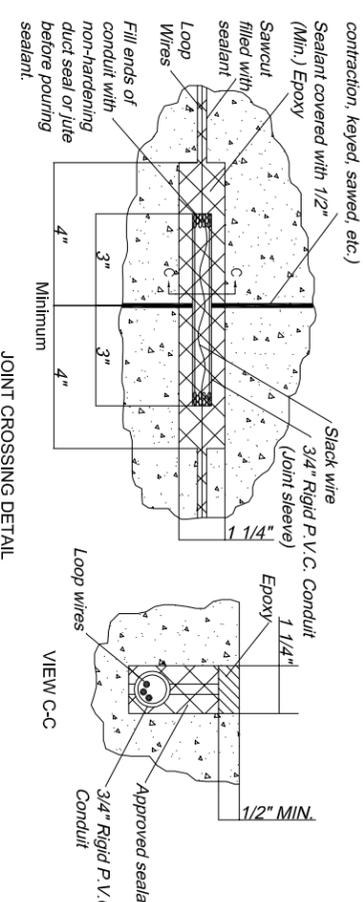
CONDUIT LOCATIONS

CURBED SECTION



LOOP WIRE ENTRANCE DETAIL

- Saw cut in the curb and gutter section and conduit entrance to be sealed with a pliable, non-hardening duct sealant prior to application of loop sealant. No loop sealant shall be applied in the curb and gutter section or at conduit entrance.
- Grout around conduit inserted into curb or pavement section.
- Each loop shall have a separate lead-in saw cut to the loop wire entrance in the curb or at the edge of pavement.



Loop Detection Notes:

- Quadrangle loop to be one continuous wire placed in two turns. All loops to be wound in same direction, with start and end clearly marked at pull box.
- Transverse loop to be one continuous wire placed in three turns. All loops to be wound in same direction, with start and end clearly marked at pull box.
- Slot in pavement for loops to be cut 3/8" wide at minimum depth "D" as indicated in Chart A. Slot in pavement for lead shall be 1/2" wide at minimum depth "D". Fill slots with an approved asphalt sealer (asphalt pavement) or an approved elastic epoxy sealant (concrete pavement) to within 1/8" of pavement surface.
- Other than soldered type splice or splice made with wire nuts at their junction, feeder cable and loop wire shall be of continuous run with no splices. All connections to be watertight with approved splice kits. Watertight connections shall extend to and encompass each outer jacket of the detector feeder and loop wire cables.
- All leads for individual loops to be kept separate and loop wire between the loop and the feeder cable connection shall be twisted three turns per foot.
- All loops shall be wet cut with equipment approved by the City Traffic Engineer.
- Where loops are to be installed on projects involving either asphalt pavement construction or milling and overlay of an existing asphalt pavement, loops shall be installed in the base course prior to placement of the asphalt surface course.
- If existing loops are to be abandoned and new loop installed, abandoned loop wires shall be removed or cut completely through along all slots parallel to vehicle flow.
- Loops shall be #14 AWG stranded wire in pvc duct made up of 2 non-twisted turns in single slot or as recommended by manufacturer of the detector amplifier. Loop shall be placed in sawed slots in a figure eight manner with device which will not damage the wire insulation. Lead-in cable shall be 2-1c #14 AWG twisted.

LOOP DETECTION

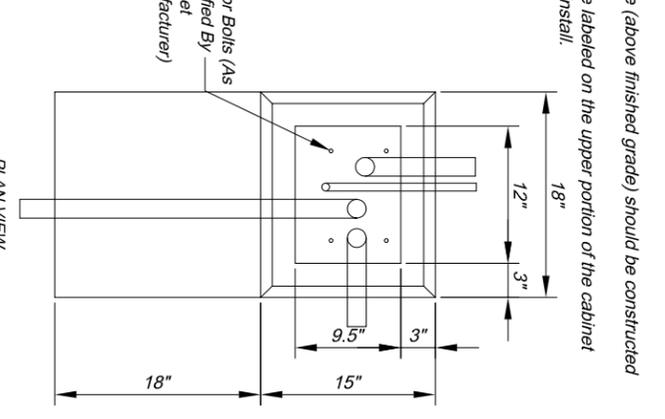
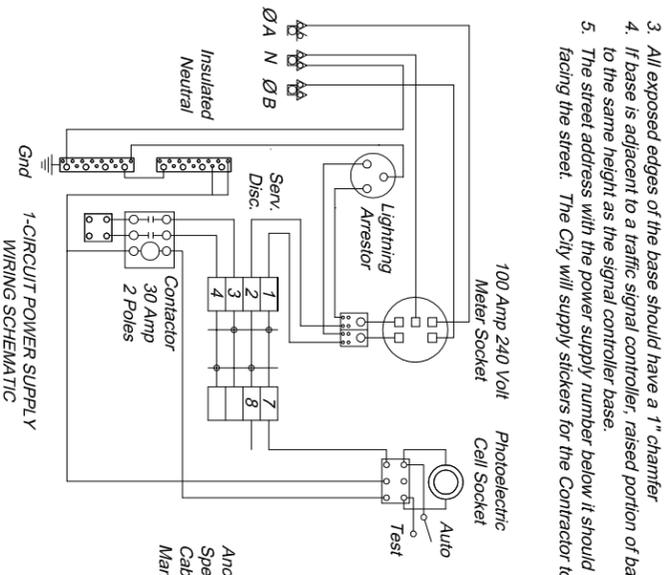
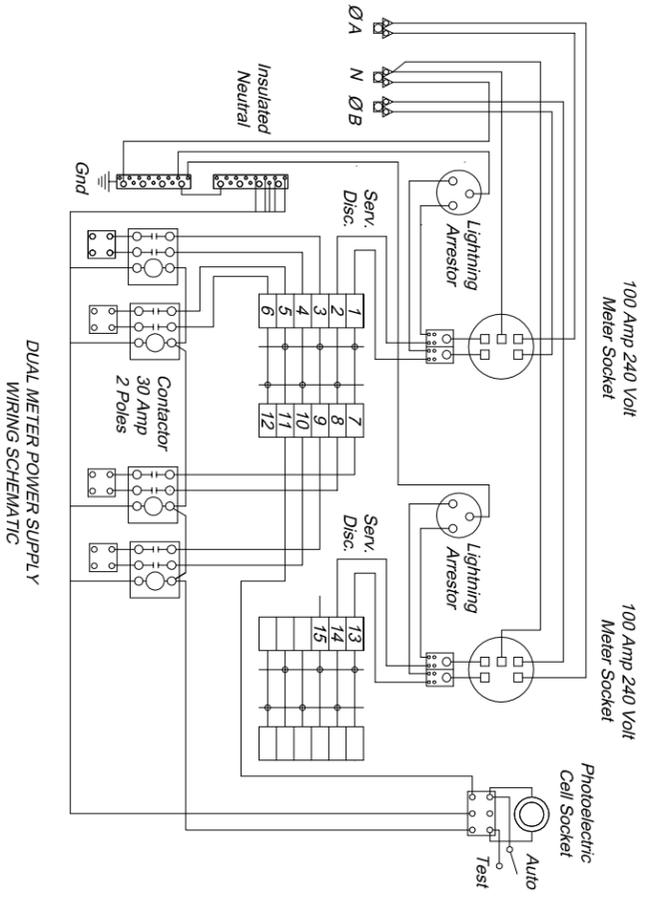
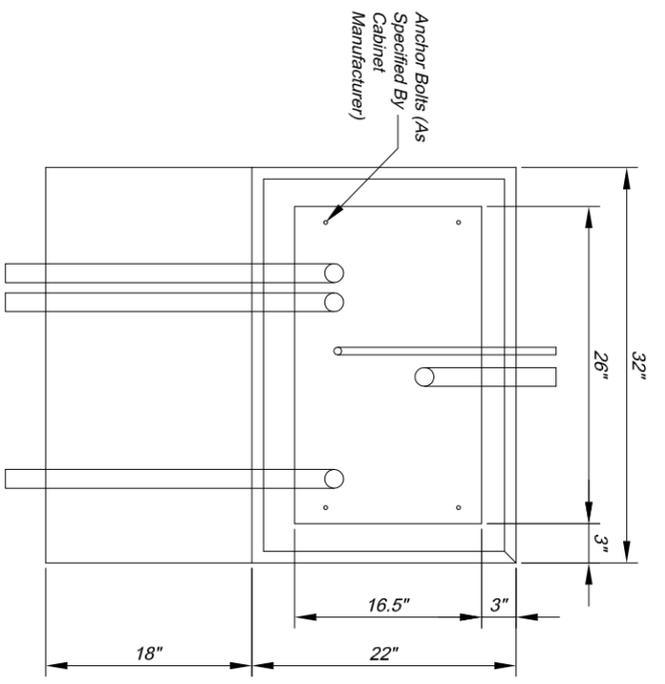


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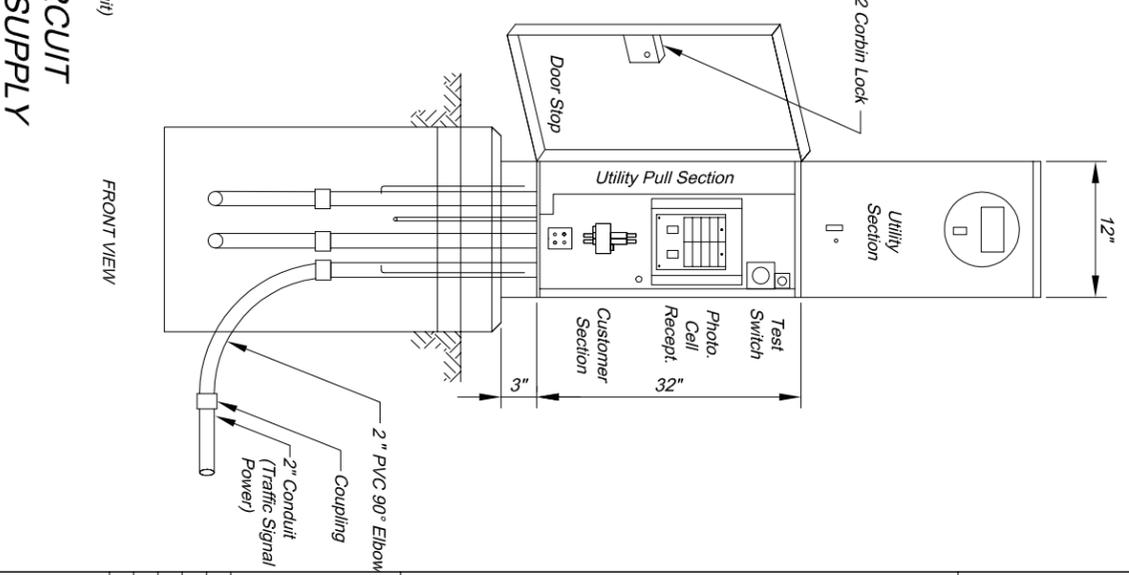
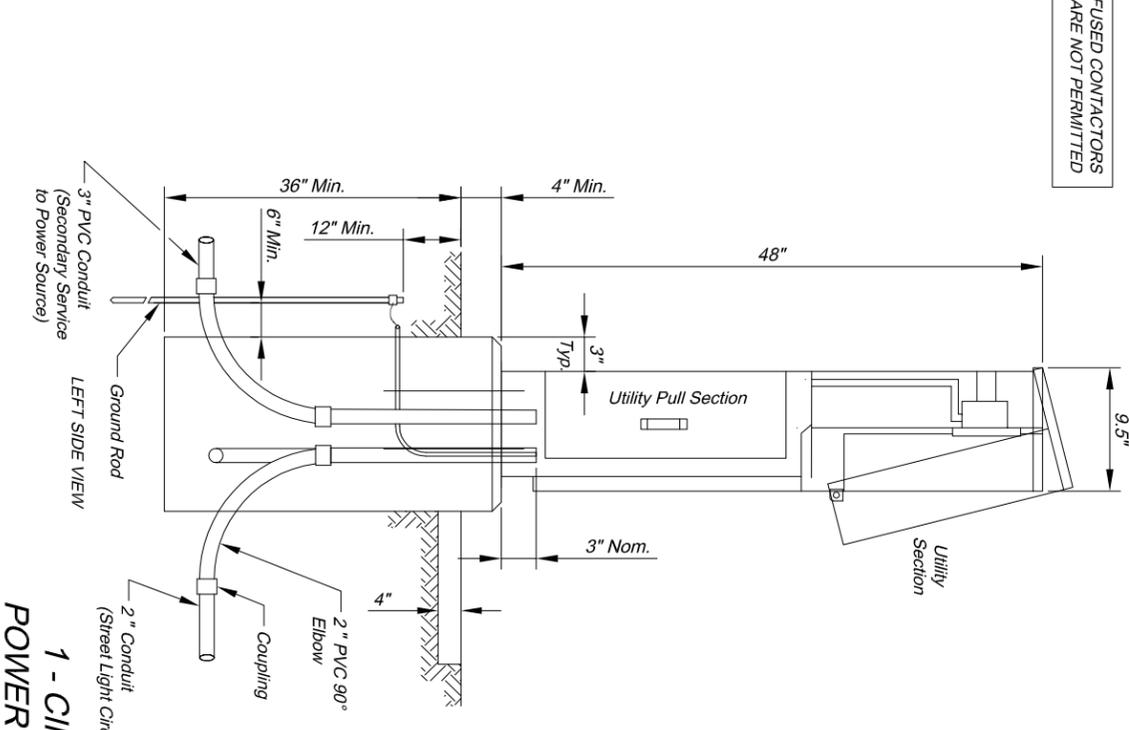
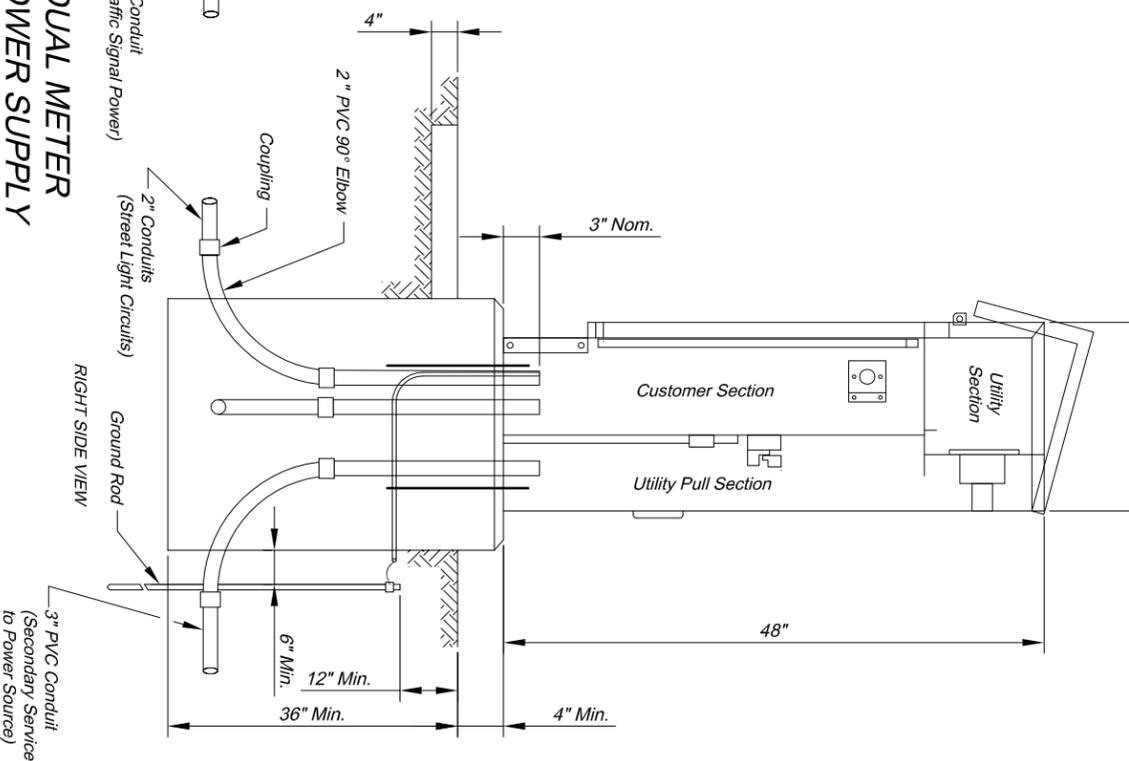
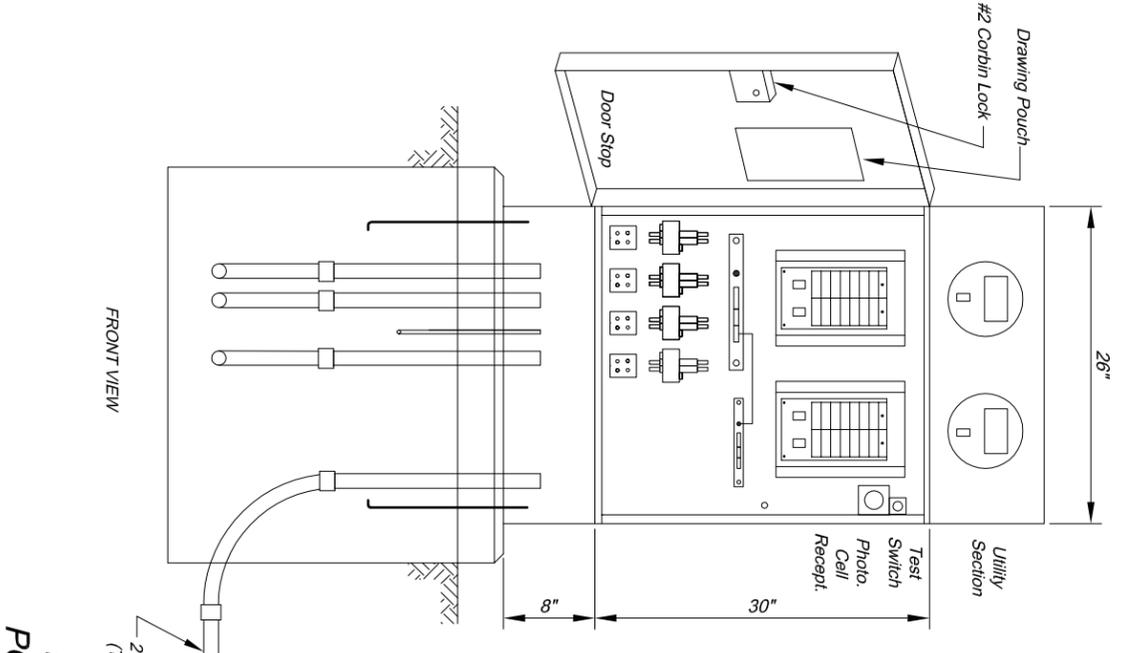
CONDUIT & DETECTION DETAILS

STANDARD DRAWING TS-7

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#



- NOTES:
1. Photoelectric cell should be oriented to the north or east.
 2. Seal around joint between cabinet and base with lifetime silicone caulk.
 3. All exposed edges of the base should have a 1" chamfer.
 4. If base is adjacent to a traffic signal controller, raised portion of base (above finished grade) should be constructed to the same height as the signal controller base.
 5. The street address with the power supply number below it should be labeled on the upper portion of the cabinet facing the street. The City will supply stickers for the Contractor to install.



FUSED CONTACTORS ARE NOT PERMITTED

DUAL METER POWER SUPPLY

1 - CIRCUIT POWER SUPPLY

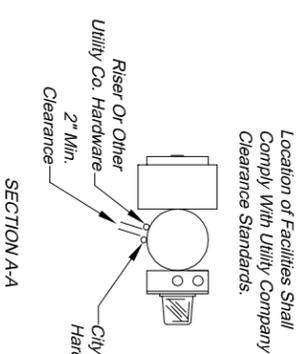
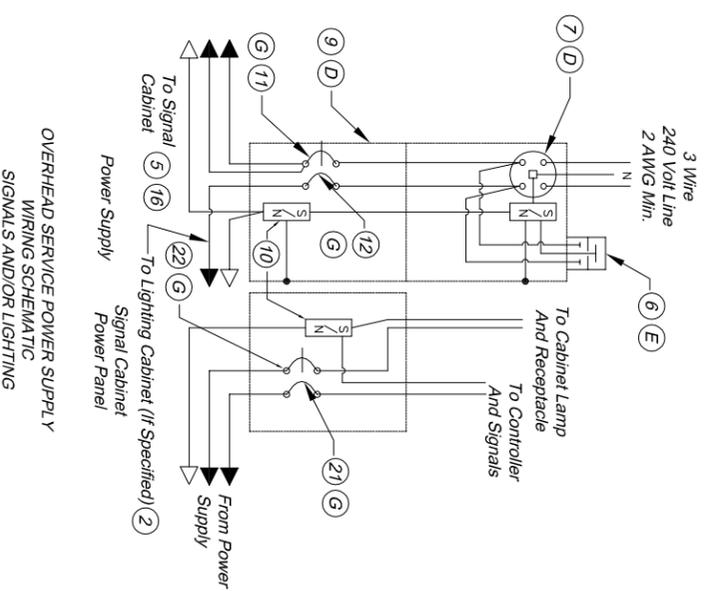


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POWER SUPPLY ASSEMBLY
240/120 VOLT SERVICE
STANDARD DRAWING TS-8

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project#

1 OF 1



Item	Description
1	Service pole 30' min., Class IV wood, Contractor provided, City owned. *
2	#8 AWG Min. Cable, 600 volt. *
3	Service entrance head
4	Guy cable, as required
5	2" min. rigid conduit with performed elbows
6	Lighting arrester, Valve type, 2 pole, 650 volt
7	240 volt Meter socket, 100 amp for signals
8	2" min. rigid conduit
9	Service disconnect box, Locking, Rainlight, NEMA 4
10	Insulated, Groundable neutral, 200 amp minimum
11	Signal breaker, Single pole, 40 amp min., Type A or B
12	Lighting breaker, Single pole, 40 amp, Type A or B
13	Metal conduit, 1 1/2"
14	Ground rod, #2 AWG min.
15	Ground rod, 3/4" x 8' min.
16	#2 AWG min. cable, 600 volt
17	Reserved
18	Threaded conduit hub with sealing washers
19	Lighting cables. *
20	Weatherproof adhesive label (signals) vinyl raised lettering
21	Type B controller and signal breaker, as specified.
22	Type B auxiliary breaker, 15 amp
23	Lighting control cabinet
24	2" Steel Conduit (minimum)
*	See plans

Notes

- (A) Service pole shall be guyed when span of overhead wire exceeds 50'. Increase 1 foot for each 5 feet above 50 feet.
- (B) Service disconnect boxes and meter boxes shall be aluminum or stainless steel. All hardware, hinges, catches, etc. shall be stainless steel. Meter socket and other equipment shall be U.L. approved, and conform to the requirements of the utility company providing power.
- (C) Schematic diagram shall be mounted on inside of door.
- (D) Utility company shall decide if lightning arresters are to be connected on the load or line side of the meter. The utility company shall also decide if the lightning arrester is terminated in the meter or disconnect cabinet. If terminated in the disconnect cabinet, it shall be installed on the connect cabinet.
- (E) If lighting is specified, install lighting control on power supply.
- (F) Breakers shall conform to the standard specifications.
- (G) If subsurface conditions exist which prohibit the placement of the ground rod in vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as detailed on standard drawing TS-2.
- (H) General Notes:

For cable types and installation. See standard specifications.

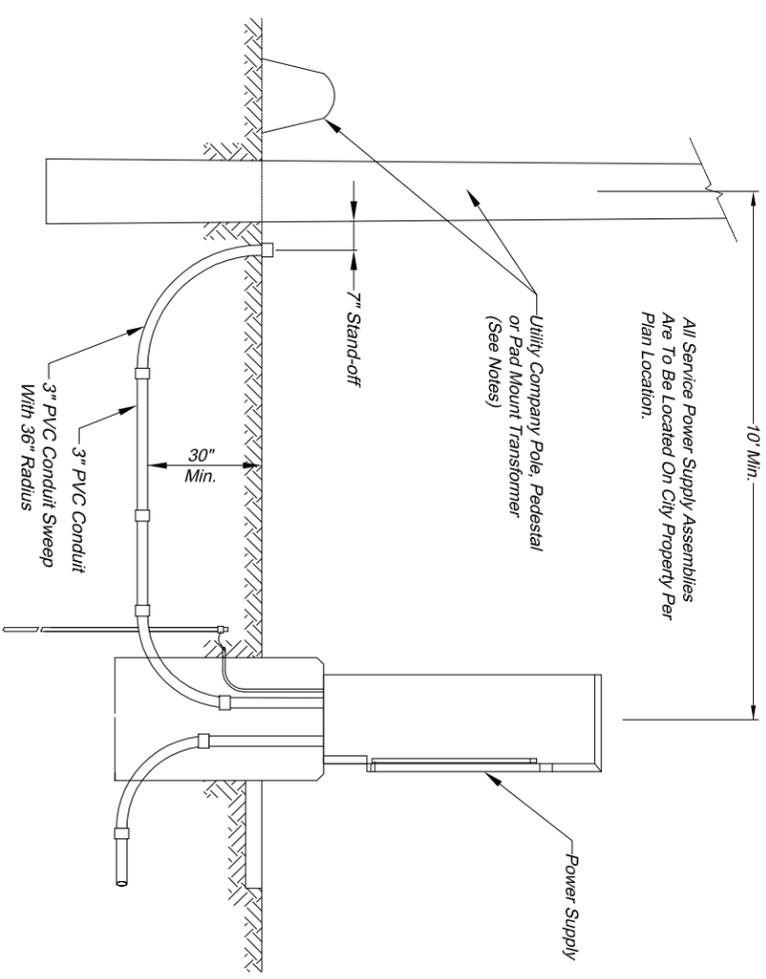
The type power supply assembly is shown on the plans or is designated on the contract.

The utility company shall be notified 30 days prior to date service will be required.

All openings in any utility enclosure, service box, or meter shall be covered and sealed with lifetime silicone caulk.

Contractor to provide sufficient number of ground rod(s) as required for maximum of 25 Ohms resistance to ground.

All materials required excluding reference items as shown on drawing shall be included in price bid for power supply assembly.



SECONDARY SERVICE CONNECTION DETAILS

- NOTES:
- Contractor shall install a conduit stub 24" to 6" above ground at utility poles. Conduit shall be stubbed to the side of the pole that will allow a direct run up the pole to the transformer without crossing other utility lines or cables. The end of the conduit shall be capped.
 - Contractor shall install conduit in a trench to within 24" of pedestals or pad mount transformers and leave a 36" x 36" x 36" access hole in the ground. Contractor shall keep open trench covered and promptly backfill access hole when service is completed.

**OVERHEAD SERVICE POWER SUPPLY
TEMPORARY SIGNAL ONLY**



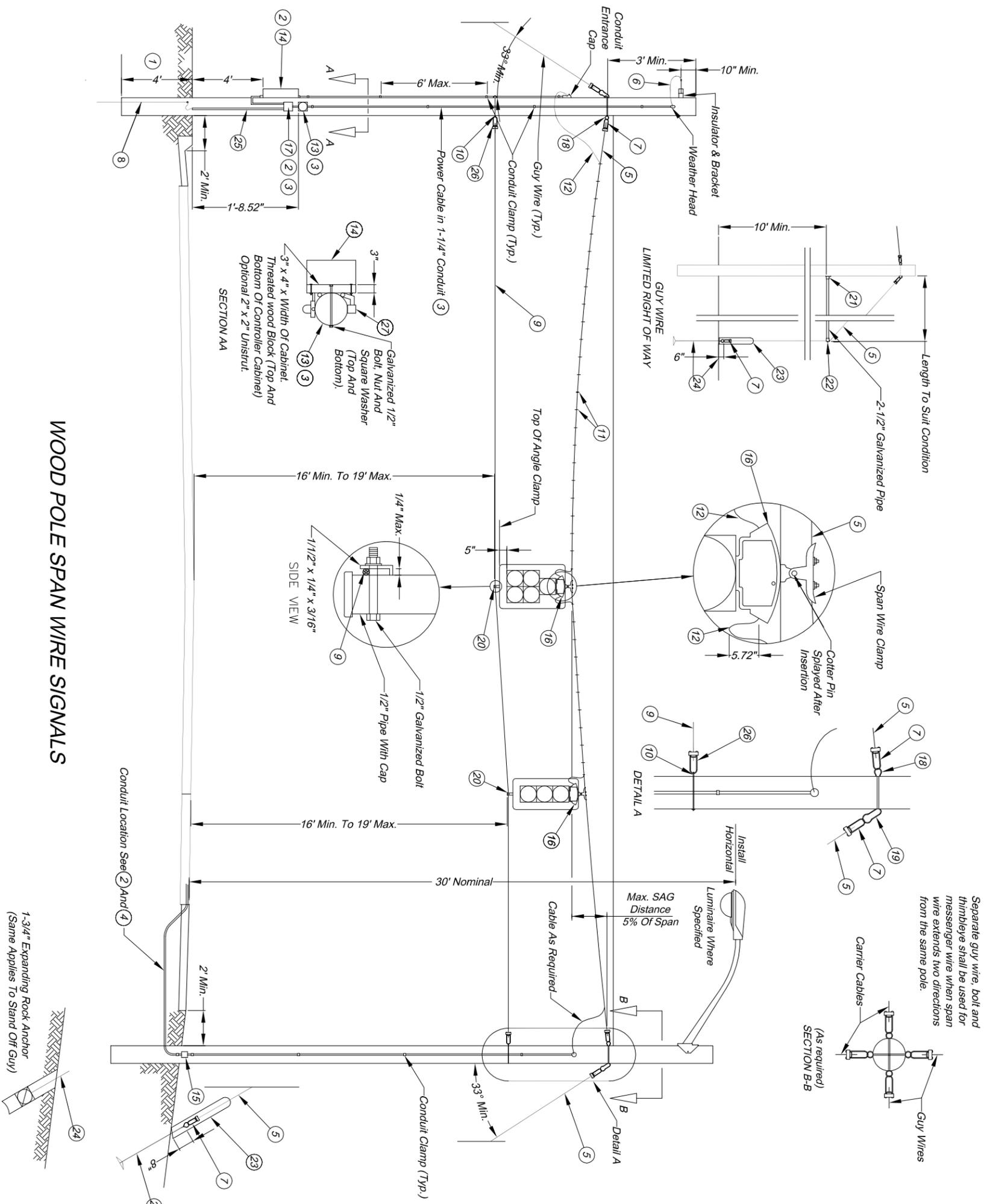
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POWER SUPPLY ASSEMBLY
240/120 VOLT SERVICE

STANDARD DRAWING TS-9

Drawn By: AS
Checked By: MP
Date: 09/25/2009
Project #

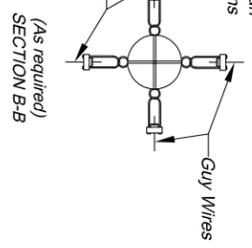
1 OF 1



WOOD POLE SPAN WIRE SIGNALS

1-3/4" Expanding Rock Anchor
(Same Applies To Stand Off Guy)

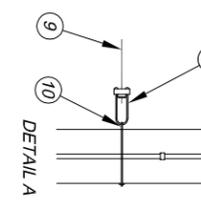
Separate guy wire, bolt and thimble shall be used for messenger wire when span wire extends two directions from the same pole.



(As required) SECTION B-B

Max. SAG Distance 5% OF Span

Install Horizontal Luminaire Where Specified



DETAIL A

- 1 Increase embedment 1' for each 5' increment in pole length over 20'.
- 2 Items are installed as required (See plans).
- 3 Items are installed if the pole is used as a power supply (See general notes).
- 4 Three or more entering conduits will require a pull box or other approved fitting.
- 5 Double galvanized 3/8" steel guy wire - 7 strand high strength grade.
- 6 Service wire and split-bolt or sleeve connection by utility company. Wire spacing as required by the utility company.
- 7 3/8" automatic jaw-type cable fitting with short bail, 3,860 lbs. minimum holding strength.
- 8 3/4" x 8' min. copper ground rod. If subsurface conditions exist which prohibit the placement of the ground rod in a vertical position, the rod may be driven at an oblique angle not to exceed 45 degrees from vertical or buried in a trench at least 30 in. deep. Connection to ground rod shall be clamp type as shown in standard drawing TS-2.
- 9 Double galvanized 1/4" steel leather wire - 7 strand high strength grade. Install horizontal or below horizontal. Tether wire shall not offset the span wire more than 7" at the pole connection.
- 10 1/2" galvanized oval eye bolt.
- 11 Non-corrosive metal cable hanger at 12" centers.
- 12 Multi-conductor cable (See plans).
- 13 Meter socket and cabinet.
- 14 Controller cabinet. All conduits shall enter the bottom of the cabinet. No holes shall be made in the top, back or sides of the cabinet.
- 15 Junction box (NEMA 4)
- 16 Disconnect hanger (Not required if temporary).
- 17 Circuit breaker. See street lighting standards and specifications for details.
- 18 5/8" galvanized straight thimble eye bolt with galvanized nut and 2-1/2" galvanized curve washer.
- 19 5/8" galvanized angle thimble eye.
- 20 Tether wire and clamp with quick release provisions. See detail for mounting to pole and signal. Optional attachment permitted with approval of City Traffic Engineer.
- 21 2-1/2" galvanized post plate fastened to pole with one 5/8" galvanized machine bolt & two 3/8" x 4" galvanized lag screws.
- 22 2-1/2" galvanized connector end fitting.
- 23 All locations require guy wire protector. (7' min.)
- 24 3/4" x 8' galvanized thimble eye anchor rod. (30" min. length in rock)
- 25 #6 AWG bare copper wire in 1/2" conduit.
- 26 1/4" automatic jaw type cable fitting with short bail, 5,990 lbs. minimum holding strength.
- 27 Lighting conduit breaker cabinet (If luminaires are specified, see street lighting standard plans and specifications).

GENERAL NOTES:

All appurtenances to be mounted on pole shall be fastened to pole as recommended by the manufacturer.

Schedule 40 Polyethylene or Polyvinyl Chloride conduit and weather head shall be used on utility company poles in lieu of rigid steel conduit.

No direct payment will be made for guys, conduit and junction boxes on poles, hardware, lighting bracket arms or any other items for which separate payment is not provided.

All guy wires shall be grounded.

Span wire shall not be installed more than 30' above grade unless otherwise approved by the City Traffic Engineer.



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WOOD POLE SPAN WIRE DETAILS
STANDARD DRAWING TS-10