6-407- Street Lighting

A. **Street Lighting Standards**. All developments shall meet the following minimum standards for providing public street lighting:

1. All developments shall submit public improvement & development plans that incorporate a proposed street lighting system to the Director of Development Services. The street lighting plan shall show the location and direction of the pole mast arm, and the proposed routing of the electric cable and duct.

2. An LED luminaire shall be placed at all intersecting public streets, which intersect with major county or state highways and/or major streets. Street lights shall be singularly controlled with photo control cells attached to, and shall be an integral part of, the luminaire. The control cell shall be similar to that manufactured by Precision, catalog no. P26-275, or current Precision equivalent.

3. An LED luminaire shall be placed at all cross or "T" intersections and at the end of streets and cul-de-sacs. An LED type luminaire shall be placed at mid block of all blocks, at a distance not to exceed 500 feet between installations. An LED type luminaire shall also be placed at all major curves in street alignment.

4. Mounting height shall be thirty (30) feet for all poles, except by approval from the Development Services Department.

5. All electric cable shall be placed underground in a unit duct. Each light shall have a single feed from the light standard to the point of connection to Commonwealth Edison electric lines. The single feed shall run through an above grade secondary electrical pedestal disconnect (API 10x14 or approved equal). The feed disconnect should have a buss inline link with crimp terminals & Cooper-Bussman rubber boots (IA0512 or equal) in the disconnect pedestal. The feed line from Commonwealth Edison pedestal to the secondary disconnect pedestal shall be piped with rigid PVC conduit (schedule 40) with two (2) 90 degree elbows

6. For developments where there is limited access to individual Commonwealth Edison pedestals, the use of a centrally located lighting controller cabinet will be allowed. The controller shall be powered by one single point electric service at 120/240V, 1Ø, 3 wire underground service. The lighting controls shall be installed within a ground mounted NEMA 3R, green-painted aluminum IDOT Type 3 locking cabinet. The individual light standards shall be connected to the lighting controller via alternating branch circuits. The control itself shall consist of a mechanically-held contactor which is automatically controlled via a controller-mounted photocell with a manual “Hand-Off-Auto” switch and individual branch circuits. Various controls shall be as shown in the standard details at the end of this section.

7. After completion of the street lighting system, all subdivisions shall submit to the Village Engineer or his designee, a set of "As Built" drawings showing the routing of electric cable, mounting height, mast arm length, luminaire wattage and actual locations of each light standard, disconnect pedestal, and point of connection to Commonwealth Edison electric lines. The Village Engineer or his designee shall inspect the system for conformance to the standards set out in this document. The Village Engineer or his designee may accept the system after all the deficiencies are corrected.

B. **Light Standards and Bracket**.

1. The complete standard shall be the type manufactured by the HAPCO Company or Valmont Industries, Inc. as shown in the standard details, no exceptions. The pole size, bracket size, and applicable catalog/part numbers are to be clearly shown on the development plans and applicable catalog cut sheets are required. The mounting heights shall be thirty (30) feet for all developments.

2. Each light standard shall be a one-piece, seamless, round tapered tube of alloy 6063, hollow shaft, with attached bracket arm and all accessories described herein. The pole shall have a 0.188 inch wall thickness. The pole shall be fully heat-treated along its entire length post- welding of the base flange, to produce the required T6 temper

3. The metal pole foundations shall be in accordance with Sections 836 and 1070 of the IDOT Standard

Specifications for Road and Bridge Construction, latest edition.

4. Welding shall be done by the inert gas shielded metal arc method with consumable electrode. Aluminum alloy 4043 electrode shall be used.

5. The base flange for the attachment of the shaft to the foundation shall be a one-piece cast socket of aluminum alloy 356. The flange shall be joined to the shaft by means of complete circumferential welds, externally at the top of the flange& internally at the bottom of the shaft tube. The bolt holes shall be capable of containing 1 inch anchor bolts with a specific bolt circle diameter of 11-1/2 inches. The base shall have an opening of such size as will permit easy entry of all conduit..

6. An ornamental cap of aluminum alloy shall be provided with each shaft. The cap shall be fastened to the shaft by means of a stainless steel screw.

7. The pole shaft shall include a 4 inch by 6 inch reinforced handhole centered 18 inches above the bottom of the shaft. Handholes are to be located 90 degrees clockwise from the plane of the bracket arm as viewed from the top. The opening for the handhole shall be oval in shape and measure 4 inch by 6 inch, with the major dimension along the vertical axis. The hole in the shaft wall shall be reinforced with a frame of aluminum alloy 356-T6, which shall project slightly beyond the wall interior and be completely joined to the interior and exterior of the shaft with a fillet of which the minimum size shall be 5/16 inch. The opening shall be protected by a snug-fitting cover attached with two stainless steel hex head screws. The external contour of the reinforcing frame and cover shall be curved to conform to the roundness of the shaft. The cover shall have a surface finish similar to the shaft.

8. Each pole shall contain an internal lug with a 3/8 inch diameter hole for the purpose of attaching a grounding connector.

9. The bracket arm shall be the truss type of design with an upper and lower member joined near the luminaire end of the arm and braced with a vertical strut. The upper member shall be the continuous wiring member and shall be a tapered tube that is ovalized at the pole shaft end, with the major dimension of the oval in the horizontal plane. Tube nominal wall thickness shall be 1/8 inch. The lower member shall be standard circular pipe. Both upper and lower members shall be attached to the pole shaft with 1/4 inch thick wrought, curved plates. Plates shall be welded to the members. The upper attachment shall be made with four1/2 inch aluminum bolts, nuts and lock washers. The lower attachment shall be made with two 3/8 inch stainless steel bolts and blind nuts. Blind nuts shall be factory installed in the pole shaft. Wiring at the upper attachment shall be through a 1-1/4 inch diameter hole with appropriate grommet. The material of the main bracket members and their attachment plates shall be alloy 6063-T6. The bracket arm shall incorporate a 2 inch pipe size slip-fitter tenon at least 6 inches long.

10. The bracket arm shall be of such length as will provide for the attaching of a light fixture twelve (12) feet from the shaft at all pole locations, on all equipment and materials.

11. A set of four threaded 1 inch-8 NC steel anchor bolts, minimum 40 inch length, with a 12 inch minimum length of hot-dipped galvanizing at the threaded end, shall be provided for anchoring the base to the concrete foundation. The bolts shall include a 4 inch right-angle hook at the unthreaded end and 6 inches of thread on the threaded end. A galvanized nut, lock washer and flat washer shall be supplied with each anchor bolt. Four anchor bolt covers of aluminum alloy 43, with stainless steel screws for their attachment, shall be provided..

12. All nuts, bolts and washers used in the assembly of the pole shall be 300 series stainless steel as indicated in the Light Standard Detail, excepting the foundation anchor bolt hardware.

13. The pole shaft shall be provided with a satin finish accomplished by mechanical rotary grinding. The bracket arms shall be provided with a satin etched finish. All materials shall be clean, free from dents & gouges. No surface preparation or painting of any type shall be performed on the assembly components at the time of installation.

14. Raceway openings shall be free from burrs and rough edges that may injure the installer and the wiring. Openings and shall be fitted with a rubber grommet.

15. In areas where breakaway devices are required, these devices shall be by means of breakaway couplings and aluminum shrouds or transformer bases as shown in the lighting details.

C. **Luminaire, LED Type, Mast Arm Mountedl- Residential**

LED Lighting Requirements for Typical Residential Public Roadways
Performance Criteria

LUMINAIRE REQUIREMENTS		
Maintenance	Tool-less, Entry Gasketed and Sealed and UL Listed for Wet Locations	
Light Source & Drivers	RoHS and DLC Compliant	
Operating Temperatures	-20°C to +40°C	
Internal Connections & Components	Preassembled and Prewired Using Modular Electrical Connections	
Minimum Life Expectancy	50,000 Hours	
Voltage Fluctuations	+ or – 10%	
Housing Finish Color	Gray, ASTM Rating of Six per D1654 after 1000 Hours	
Tenon Nominal Pipe Size (Inches)	2”	
Maximum Luminaire Weight (lb)	75 lb.	
Nominal Luminaire EPA (ft^2)	40 ft^2	
Nominal Input Voltage (V)	120V or 240V	
ANSI Vibration Test Level	Level 1 (Normal)	
Identification	External Labeling per ANSI C136.15 & 22	
Optics	Type 3, Flat Glass	
Mounting Method	Swivel-Tenon/Mast Arm	
Driver	Control Signal Interface	
Nominal BUG Ratings	B3-U0-G3	
Make/Model of LED Light Source(s)	Cree, Philips, Lumiled, Nichia	
Make/Model of LED Driver(s)	Advance, Philips or Equal	
Dim-ability	☑ Dimmable7 pin photo cell receptacle	☐ Not dimmable
Electrical Immunity System Failure	No Possible Disconnect	
Thermal Management	No Moving Parts	
Warranty Period (yr)	10 Year	
Buy America Compliance	NEMA listed company (provide copy of compliance document)	
Design Lights Consortium Compliance	Yes (Provide documentation verifying product listing on DLC’s website)	
PARAMETERS		
Lamp Lumen Depreciation	0.70	
Initial Input Power (W)	170W	
Maintained Input Power (W)	170W	
Initial LED Drive Current (mA)	530 min.	
Maintained LED Drive Current (mA)	530 min.	
CCT (K)	4000	
S/P ratio	0.9	

D.. **Luminaire, LED Type, Mast Arm Mounted- Commercial Public Roadway**

LED Lighting Requirements for Commercial and Collector Public Roadways
Performance Criteria

LUMINAIRE REQUIREMENTS		
Maintenance	Tool-less, Entry Gasketed, Sealed and UL Listed for Wet Locations	
Light Source & Drivers	RoHS and DLC Compliant	
Operating Temperatures	-20°C to +40°C	
Internal Connections & Components	Preassembled and Prewired Using Modular Electrical Connections	
Voltage Fluctuations	+ or – 10%	
Housing Finish Color	Gray, ASTM Rating of Six per D1654 after 1000 Hours	
Tenon Nominal Pipe Size (Inches)	2”	
Maximum Luminaire Weight (lb)	75 lb.	
Nominal Luminaire EPA (ft^2)	40 ft^2	
Nominal Input Voltage (V)	120V or 240V	
ANSI Vibration Test Level	Level 1 (Normal)	
Identification	External Labeling per ANSI C136.15 & 22	
Optics	Type 3, Flat Glass	
Mounting Method	Swivel-tenon/Mast Arm	
Driver	Control Signal Interface	
Nominal BUG Ratings	B3-U0-G3	
Make/Model of LED Light Source(s)	Cree, Philips, Lumiled, Nichia	
Make/Model of LED Driver(s)	Advance, Philips or Equal	
Dim-ability	☑ Dimmable 7 pin photo cell receptacle	☐ Not dimmable
Electrical Immunity System Failure	No Possible Disconnect	
Thermal Management	No Moving Parts	
Warranty Period (yr)	10 Year	
Buy America Compliance	NEMA listed company (provide copy of compliance document)	
Design Lights Consortium Compliance	Yes (Provide documentation verifying product listing on DLC’s website)	
PARAMETERS		
Lamp Lumen Depreciation	0.63	
Initial Input Power (W)	200W max.	
Maintained Input Power (W)	200W max.	
Initial LED Drive Current (mA)	530	
Maintained LED Drive Current (mA)	530	
CCT (K)	4000	
S/P ratio	0.9	

E. **Foundation**.

1. **Pole Foundation**. Pole foundations shall be constructed with a reinforced concrete foundation with dimensions required by the type of soil as shown on the soil tests and borings. Standard Details indicate minimums for concrete foundation construction.

   a. Foundations shall include a cage made of #3 and #5 reinforcing bars. The cage shall be 16 inches in diameter. There shall be six #5 bars, five feet in length, welded to six #3 bars which shall be spaced 12 inches O.C. and shall be formed into a 16" inch diameter circle.

   b. Foundations shall also contain a 5/8 inch diameter by 10 foot length grounding rod which shall be attached to the internal grounding lug located within the pole by clamps suitable gauge electrical grounding wire.

   c. In areas where conventional concrete foundations cannot be utilized because of soil conditions or utility conflicts, the use of metal Helix" type foundations may be utilized with written approval from the Village Engineer or his Designee. The Standard Details identify the minimums required.

2. **Materials**.

   a. The concrete shall be Class SI complying with Section 503 of the IDOT Standard Specifications for Road & Bridge Construction, latest edition. The reinforcement bars shall comply with Section 508 of the Standard Specifications. The raceway shall be a 2 inch diameter straight conduit of rigid plastic.

3. Construction Method.

   a. The foundation excavation shall be made by auguring. The foundation shall be cast-in-place and allowed to cure for at least fourteen (14) days prior to erecting the light pole standard. Concrete may be deposited against the soil. However, if soil conditions require use of a liner to form the hole, the liner may be withdrawn as the concrete is placed, with the approval of the Village Engineer or his designee. The top of the foundation shall be struck-off precisely level, to preclude the use of shims or other leveling means such as spacing washers, in order to allow plumb placement of the light standard atop the foundation surface.

   b. Metal pole foundations shall be in accordance with Section 836 of the IDOT Standard Specifications for Road and Bridge Construction, latest edition.

F. **Electric Cable 600 Volt, Plastic Insulated Materials**. The electric cable shall comply with the ASTM Standards (latest edition) Designation Number and shall comply with the Insulated Power Cable Engineers Association Standards cited by the paragraph or table number in I.P.C.E.A. Pub. S-61-402 (latest edition).

1. **Conductors**. The conductors shall be in accordance with Sections 817 and 1066 of the IDOT Standard Specifications for Road and Bridge Construction, latest edition, and shall be a minimum of No. 10 AWG size using XLP or EPR in the light standard. When not within the light standard, the wire shall be a minimum of No. 6 AWG using XLP or EPR. Conductors of No. 8 AWG size, XLP or EPR - USE and smaller shall be stranded annealed copper wire, ASTM B-3 compliant. Conductors of No. 6 AWG size and larger shall be stranded annealed copper wire, ASTM B-8 compliant. Conductors shall be of different colors to designate hot and neutral wires. Preferred colors are black, red and white.

2. **Fuses**. The wiring in the light standard shall have a 10 amp in-line fuse, FNM-10, and shall use an inline breakaway fuse holder with crimp terminals and rubber boots. The neutral shall have a Bussman identified solid neutral fuse holder and crimp terminals with rubber boots.

3. **Unit Duct**. The electric cable shall be in accordance with Sections 816 and 1066 of the IDOT Standard Specifications for Road and Bridge Construction, latest edition. The unit duct shall be one piece without splices. The unit duct may be formed by extruding it over the insulated conductors. The unit duct shall have a smooth inner bore which does not adhere to conductor insulation.

4. **Construction Methods**. The electric cable shall be continuous (no splicing) between the service connection and disconnect pedestal, between the lighting controller and light standard, and between the disconnect pedestal and light standard, and shall be contained within the plastic unit duct. The duct shall

extend one foot into the light standard and the cable shall be long enough for the splices to be withdrawn 18 inches from the pole handhole. All electric cable and cable unit duct shall be buried a minimum depth of 30 inches below finished grade.

5 **Splicing Of 600 Volt Cable & Wire (In Light Standard)**. This specification covers splicing of insulated electric cable and wire. Compliance with the ASTM Standards is required, as cited by the ASTM Designation Number.

6. **Taped Splices**. **Taped Splices are only allowed with prior approval from the Village Engineer, or his designee.** A taped splice shall mean a splice of pigtail construction made with a spring connector, rubber tape, and plastic/vinyl tape according to the following descriptions and construction methods:

a. **Connector**. The spring connectors shall be made of spring steel and zinc plated, or similar corrosion-resistant coating. The connectors shall employ the expandable spring principle and shall insure positive mechanical and electrical connection under all temperature and load conditions.

b. **Rubber Tape**. The rubber tape shall be of 0.75 inch width and 0.030 inch thickness, ASTM D119 compliant.

c. **Vinyl-Plastic Tape**. The vinyl tape shall be similar to that manufactured by 3M Corporation as SCOTCH Super 33+ Vinyl Plastic Electrical Tape. The vinyl tape shall be 0.75 inch width and 0.0070 inch thickness with an adhesive coating on one surface. The tape shall exhibit properties per ASTM D1000 and tape flammability resistance shall be per ASTM D568.

d. **Alternate Taped Splice**. A taped splice shall also mean a splice of pigtail construction made with a split-bolt connector wrapped in vinyl tape, followed by rubber tape, then finally with vinyl tape using the following criteria:

1. There shall be no exposed or bare electrical wire within the light standard, with the exception of the grounding cable. All exposed cable wire within a splice shall be fully taped.

2. Sufficient torque shall be exerted on the bolting assembly to insure positive electrical connection under all temperature and load conditions.

3. No insulating paint of any type shall be allowed.

G. **Vibratory Plowing**. The cable duct shall be directly buried by a vibratory plowing method to a minimum depth of 30 inches. Cable unit duct shall not be buried in excess of 48 inches.

1. **Directional Boring** All directional boring must be in accordance with IDOT Standard Specification for Road and Bridge Construction , Sections 810 and 1088.

H. **Granular Trench Backfill**. At locations indicated by the Village Engineer, or his designee, a trench shall be constructed to accommodate the cable duct or unit duct. The trench shall be backfilled with granular material in accordance with Section 810 of the IDOT Standard Specification for Road and Bridge Construction, latest edition. The contractor or developer shall furnish the trench backfill material and shall appropriately dispose of all surplus backfill material.

1. **Construction Methods**. The trench shall be excavated to a depth no less than 30 inches and no greater than 48 inches, in a manner that prevents cave-in. Excavated material shall be withdrawn and placed a sufficient distance away to prevent excavated material from reentering the trench. The trench width shall be at least six inches. Where the cable duct enters the foundation or a rigid steel conduit, the bottom of the trench shall be shaped so as to provide a smooth directional run of the duct.

a. The cable duct shall be placed in the bottom of the trench only after all existing loose granular material has been removed, and the trench area has been bedded with granular backfill material as directed by the Village Engineer or his designee.

b. The trench shall be backfilled by placing granular material in uniform layers no greater than six

inches in depth (loose un-compacted measure). The granular material in each deposited layer shall be thoroughly compacted in such a manner to avoid damage to the cable duct and/or wiring.

c. No granular material greater than two inches maximum dimension shall be allowed in any layer of the backfill placement.

d. No sod, frozen material, or any foreign material which, by decay or otherwise, would cause settlement, shall be placed as backfill material. Undesirable "naturally occurring" materials such as, but not limited to, coal, lignite, shells, clay lumps, broken concrete, shall not exceed five percent (5%) by weight in any one sample of backfill material.

e. Any material excavated from the trench may be used as backfill provided it does not conflict with the above, and the material is approved by the Village Engineer or his designee. However, if the material in question has been excavated from the roadway area, replacement material must be granular trench backfill regardless of what material has been excavated from the trench.

J. **Acceptance of Street Lighting System**.

1. Once the street lighting system has been initially installed according to the specifications set forth in this Section, the Village Engineer or his designee shall, upon the request of the developer, inspect the system and prepare a list of items for repair (commonly referred to as a “punch list”). The punch list shall be provided to the developer or his designee . When the appropriate repairs have been made, the Village shall accept the lighting system for luminaire maintenance only. The developer remains responsible for the lighting system and shall therefore be responsible for any damage due to construction, including cable hits and pole knock-downs. The Village shall accept the lighting system when the development is formally accepted in letter form, as written by the Director of Development Services.

2. During the punch list creation, the Village shall recognize that one splice on each cable is necessary between the light standard and the connection to the Commonwealth Edison electrical system. This splice is allowed as a result of cable cutting associated with the construction of the electrical system. If the cable has been cut for other reasons (e.g. accidental cable hit) and thereby requires more than one splice per cable run, the cable and duct shall be replaced in its entirety from the Commonwealth Edison disconnect pedestal to the light standard, or from the Commonwealth Edison disconnect pedestal, or transformer, to the lighting controller

Revised: 07/01/01

RHH or RHW-2 or USE-2

FR-CROSS-LINKED POLYETHYLENE INSULATION, 600 VOLT OPTIONAL JACKET OVERALL.

DESCRIPTION:

This specification covers the basic requirements of copper conductors insulated with flame retardant cross-linked polyethylene (XLP), classified as Type RHH or RHW-2 and as Type USE-2. Type RHH or RHW-2 is manufactured in accordance with NEC Article 310 and Type USE-2 in accordance with Article 338. This wire complies in all respects with ICEA, NEMA and UL Standards and is UL Listed. RHH or RHW-2 or USE-2 also conforms to Federal Specification J-C-30B. Sizes 12AWG through 4AWG stranded are manufactured in accordance with FAA Specification L-824 Underground Electrical Cable for Airport Lighting Circuits, Type C.

APPLICATION:

RHH or RHW-2 or USE-2 is for use in circuits not exceeding 600 volts. RHH or RHW-2 is for use in applications between buildings, in conduits or ducts or in open air, where the maximum operating temperature does not exceed 90°C (RHH) in dry locations or (RHW-2) in wet or dry locations. Type USE-2 is primarily for use in direct burial applications in wet locations at maximum continuous conductor temperature of 90°C. When installed in accordance with NEC article 230 & 338.

CONSTRUCTION DATA AND SPECIFICATIONS:

Conductors - The conductors consist of uncoated soft, solid or stranded copper meeting the requirements of ASTM B3. Unless otherwise specified, Class B stranding will be supplied. The stranding meets the requirements of ASTM B8 for concentric compressed or B496 for concentric compacted copper conductors.

Insulation - The insulation is flame retardant cross-linked polyethylene (XLP), extruded concentrically over the conductor to the wall thickness, as specified by UL 44 for Type RHH or RHW-2 conductors, UL 854 for Type USE-2, ICEA S-66-524 and NEMA WC-7. VW-1 flame retardant cross-linked polyethylene (XLP) insulation is available upon request.

Jacket - When required, a protective sunlight and ozone resistant jacket of flame retardant polyvinyl chloride (PVC) is extruded over the insulation. The jacket meets the requirements of UL 44, ICEA S-66-524/NEMA WC-7, ICEA S-95-658/NEMA WC70. UL approved Aetna 3742 non-halogen, flame resistant, low smoke, low corrosivity, non toxic, high performance jacket is available upon request. Polyethylene (PE), chlorinated polyethylene (CPE) or (-40°C) PVC jackets are available upon request.

Tests- The finished wire will meet all test requirements as specified by ICEA S-66-524/NEMA WC-7, ICEA S-95-658/NEMA WC70, UL 854 for USE-2 and UL 44 for RHH or RHW-2. Cables with a PVC jacket sizes 1/0 AWG and larger pass UL 1581, IEEE - 383 & 1202 Ribbon Burner Flame Test and are UL listed for CT Use.

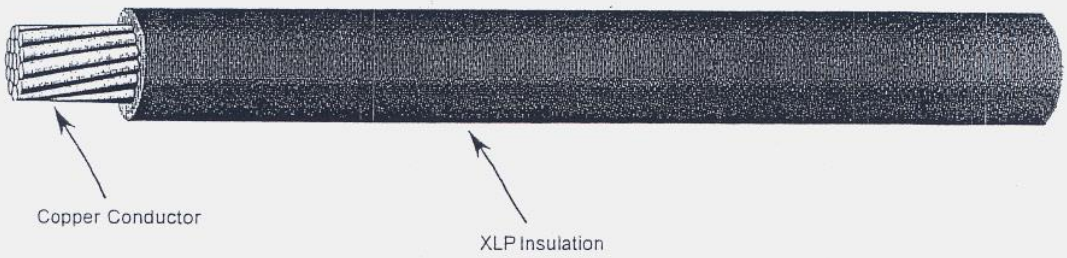
EXECUTIVE OFFICES: HARTSELLE, AL 35640
MANUFACTURING PLANT: VIRGINIA BEACH, VA.
TELEPHONE: (800) 423-6505 FAX: (256) 773-2574

aetna INSULATED WIRE

RHH or RHW-2 or USE-2
CROSS-LINKED POLYETHYLENE INSULATION, 600 VOLT

SPEC 1-6[illegible]
5M-6-1
Revised: 07/01/01

See New Lighting Details



90°C CONDUCTOR TEMPERATURE WET OR DRY

Product Code	Conductor: Size AWG or MCM	Conductor: No. of Strands	Insulation in Mils	Approximate O.D. in Inches	Ampacity* 90°C	Approximate Net Weight LBS/MFT
SINGLE CONDUCTOR 600 VOLT						
	14	SOLID	45	0.155	25+	20
	12	SOLID	45	0.175	30+	31
	10	SOLID	45	0.195	40+	45
	8	SOLID	60	0.250	55	72
	16[1]	7	45	0.145	20	17
	14	7	45	0.165	25+	20
	12	7	45	0.185	30+	31
	10	7	45	0.210	40+	45
	8	7	60	0.270	55	72
→	6	7	60	0.305	75	106
	4	7	60	0.355	95	160
	3	7	60	0.380	110	202
	2	7	60	0.415	130	244
	1	19	80	0.495	150	311
	1/0	19	80	0.535	170	384
	2/0	19	80	0.580	195	476
	3/0	19	80	0.630	225	591
	4/0	19	80	0.690	260	736
	250	37	95	0.765	290	875
	300	37	95	0.820	320	1038
	350	37	95	0.875	350	1203
	400	37	95	0.920	380	1376
	500	37	95	1.005	430	1690
	600	61	110	1.115	475	1990
	750	61	110	1.220	535	2517
	1000	61	110	1.375	615	3320

Note: *Based on not more than three conductors per NEC: As RHW-2, in raceway, 90°C conductor temperature and 30°C ambient in wet or dry locations. As RHH, in raceway, 90°C conductor temperature and 30°C ambient in locations. As USE-2, direct burial, 90°C conductor temperature and 30°C ambient in wet locations.

[1]Not recognized by UL or NEC Standards.

+The over current protection will not exceed 15 amperes for size 14AWG, 20 amperes for size 12AWG and 30 amperes for size 10AWG.

Sizes 12-4AWG stranded approved per FAA L-824, Type C.

Product codes apply only to black colored conductors. Other colors are available depending upon size.

The above data is approximate and subject to normal manufacturing tolerances.

Standards:

1. Listed by UL as Type RHH or RHW-2 per Standard 44.
2. Listed by UL as Type USE-2 per Standard 854.
3. Conforms to ICEA S-66-524/NEMA WC-7 Crosslinked Thermosetting Polyethelene Insulated Wire and Cable.
4. Conforms to ICEA S-95-658/NEMA WC70 Nonshielded 0-2KV Cables.
6. Conforms to Federal Specification J-C-30B

EXECUTIVE OFFICES: HARTSELLE, AL 35640
MANUFACTURING PLANT: VIRGINIA BEACH, VA
TELEPHONE: (800) 423-6505 FAX: (256) 773-2574

aetna INSULATED WIRE

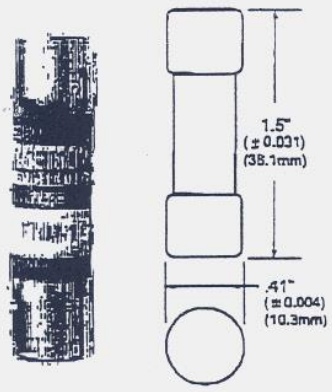
Bussmann

Time-Delay Ferrule Fuse
13/32" x 1-1/2"

PEDISTAL/POLE

FNM

See New Lighting Details



- Fibre tube.
- For circuits with high inrush currents.
- Formerly designated 5AB.
- Fusetron® Dual-Element fuse.

Fuseblock Catalog Numbers

Poles	Terminal Type		
	Screw With Quick Connect	Pressure Plate w/Quick Connect	Box Lug
1	BM6031SQ	BM6031PQ	BM6031B
2	BM6032SQ	BM6032PQ	BM6032B
3	BM6033SQ	BM6033PQ	BM6033B

CATALOG SYMBOL: FNM
TIME-DELAY
1/10 TO 30 AMPERES
INTERRUPTING RATING - SEE CHART BELOW
UL LISTED: STD. 248-14, 0-10/250V AC; 12-15/125V AC
FILE #E19180, GUIDE #JDYX
CSA CERTIFIED: 1-10/250V AC: CLASS 1422-01,
12-15/125V AC; FILE 53787
DC RATING: 1-15A rated 125V DC and 1.6 KAIC.

Electrical Ratings (Catalog Symbol and Amperes)

250 Volts AC	IR	250 Volts AC	IR	250 Volts AC	IR	125 Volts AC	
FNM-1/10		FNM-1-1/8		FNM-4		FNM-12	10,000
FNM-1/8		FNM-1-1/4		FNM-4-1/2		FNM-15	@ 125V AC
FNM-15/100		FNM-1-4/10		FNM-5		–	
FNM-2/10		FNM-1-1/2		FNM-5-6/10		–	
FNM-1/4	35A @	FNM-1-6/10	100A @	FNM-6		32 Volts AC	
FNM-3/10	250VAC	FNM-1-8/10	250VAC	FNM-6-1/4	200A @ 250VAC	FNM-20 *	← FNM-20 FOR PEDISTAL
FNM-4/10	10,000	FNM-2	10,000	FNM-7	10,000 @ 125VAC	FNM-25	
FNM-1/2	@	FNM-2-1/4	@	FNM-8		FNM-30	
FNM-6/10	125VAC	FNM-2-1/2	125VAC	FNM-9		–	
FNM-3/4		FNM-2-8/10		FNM-10 *		–	← FNM-10 FOR POLE
FNM-8/10		FNM-3		–		–	
FNM-1		FNM-3-2/10		–		–	
–		FNM-3-1/2		–		–	

If 250V AC is needed for 12-30 amps, use FNW series.

Carton Quantity and Weight

Ampere Ratings	Carton Qty	Weight Lbs.	Kg.
0-30	10	.125	.057

CE CE logo denotes compliance with European Union Low Voltage Directive (50-1000V AC, 75-1500V DC). Refer to BIF document #8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

COOPER Bussmann
1-18-00
N99107 Rev. A

Form No. FNM
Page 1 of 2
BIF Doc #2028

Bussmann®

TRON® In-Line Fuseholders
Single-Pole for 13/32" x 1½" Fuses

PEDISTAL/POLE

HEB Series

See New Lighting Details

Non-Break-A-Way Holders

Catalog Symbol: HEB-AA*, HEB-AB*, HEB-AC*, HEB-AD*, HEB-AE*, HEB-AJ, HEB-AK, HEB-AL, HEB-AR*, HEB-AY, HEB-BA*, HEB-BB*, HEB-BC*, HEB-BD*, HEB-CC*, HEB-DD*, HEB-JJ, HEB-JK, HEB-JL, HEB-JY, HEB-LL, HEB-NN*, HEB-PP*, HEB-QQ*, HEB-RR*, HEB-SS, HEB-TT*, HEB-ZA.

In-Line Fuseholders

Single-Pole

Waterproof

Agency Information:

*U.L. Recognized, Guide IZLT2, File E14853

*CSA Certified, Class 6225-01, File 47235

For break-a-way holders See Page 2

HEB — For any 13/32" x 1½" fuse. Fuseholder rated 30A, 600V (CSA Listed 15A max.). Typical fuse types: BAF, FNM, FNQ, and KTK (1/10-30A).

Example:

A single-pole, in-line holder for 13/32" x 1½" fuses. A single #12 solid wire is on the load side. A copper crimp is desired. Two #6 solid wire is on the line side. A copper set-screw is desired.

1. Choose HEB- Series.
2. Choose "A" for load side.
3. Choose "K" for line side.

Complete Catalog Number: HEB-AK.

Recommended torque on coupling nut: 10-20 in-lb.

Packaging & Ordering Information:

HEB	—	A		B
		Load Terminal		Line Terminal

For Insulating boots See Page 2

Catalog and Specification Data - Non-Break-A-Way

Conductor Terminals

Type Terminal	Conductor Data Size	No. Per Terminal	Solid	Stranded	Catalog Symbol Load & Line (2) & (3)
Copper Crimp	#12 to #8	1	•	•	A
	#12	2	•	•	
	#10	2	•	•	B
	#8	1	•	•	
	#4	1	•	•	
	#8	2	•	•	C
	#4	1	—	•	
	#6	2	•	•	D
	#2	1	—	•	
	#20 to #10	1	•	•	Z
Copper Set-Screw	#12 to #3	1	•	•	J
	#12 to #3	2	•	•	K
Solid Copper Terminal for Aluminum Wire Connector	#8 to #12	1	•	—	S
	#10 to #4	1	—	•	
Aluminum Crimp	#8	1	—	•	N
	#6	1	•	—	
	#6	1	—	•	P
	#4	1	•	—	
	#3, #4	1	—	•	Q
	#2	1	•	—	
	#1, #2	1	—	•	R
	#1/0	1	—	•	T
Aluminum Set-Screw	#12 to #2	1	•	•	L
	#12 to #2	2	•	•	Y

Bussmann

TRON® In-Line Fuseholders
Single-Pole for 13/32" x 1½" Fuses

HEB Series

See New Lighting Details

Break-A-Way Holders

Break-A-Way Holders consist of two parts for a complete unit. One part is the Fuseholder, which contains the Load Terminal, and the other part is the Break-A-Way, which contains the Line Terminal. These can be ordered as a complete unit or as individual parts.

Catalog Symbols:

Break-A-Way Unit:
(Includes Fuseholder, Break-A-Way part and Insulating Boots)
HEB-AW-RLA, HEB-AW-RLC-A*, HEB-AW-RLC-B, HEB-AW-RLC-C, HEB-AW-RLC-J, HEB-AW-RYA, HEB-AW-RYC, HEB-BW-RLC-A, HEB-BW-RLC-B, HEB-BW-RYC, HEB-JW-RLC-J, HEB-JW-RYC, HEB-KW-RLC-J, HEB-KW-RYC, HEB-LW-RLA, HEB-LW-RLC-J, HEB-LW-RYA

Fuseholder Only: HEB-AW*, HEB-BW*, HEB-DW*, HEB-JW, HEB-LW

Break-A-Way Part: RLC-A, RLC-B, RLC-C RLC-J, RYC, RLA, RYA

In-Line Fuseholders

Single-Pole

Agency Information:

*U.L. Recognized

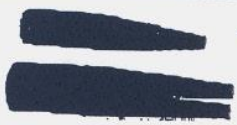
*CSA Certified

Catalog and Specification Data

Break-A-Way Receptacles

Type Terminal	Conductor Data Size	No. Per Terminal	Solid	Stranded	Catalog Symbol Line Side (3)
Copper Crimp 	#12 to #8	1	•	•	-RLC-A
	#6	1	•	•	-RLC-B
	#4	1	•	•	-RLC-C
Copper Set-Screw 	#12 to #2	1	•	•	-RLC-J
	#12 to #2	2	•	•	-RYC
Aluminum Set-Screw 	#12 to #2	1	•	•	-RLA
	#12 to #2	2	•	•	-RYA
Solid Break-A-Way 	(Required with Break-A-Way Receptacle)				W

Insulating Boots



Catalog Numbers	Type
1A0512	Single Conductor
1A0513	Two Conductor

Two insulating boots come standard with the Break-A-Way units (ex. HEB-AW-RLC-A). The insulating boots are not included with the Non-Break-A-Way Holders (ex. HEB-AA) or the individual pieces of the Break-A-Way parts (ex. HEB-AW, RLC-A). Two insulating boots must be ordered for each holder when ordering them separately. When insulated boots are utilized, extra heat retention requires that fuses are sized at a minimum of 200% of the RMS load current.

Example:

A single-pole, break-a-way, in-line holder for 13/32" x 1½" fuses. A single #12 solid wire is on the load side. A copper crimp is desired. Two #6 solid wire is on the line side. A copper set-screw is desired.

1. Choose HEB- Series.
2. Choose "AW" for load side.
3. Choose "RYC" for line side.

Complete Catalog Number: HEB-AW-RYC.

Recommended torque on coupling nut: 10-20 in-lb.

Packaging & Ordering Information:

HEB — [ ] (Load Terminal) W — [ ] (Line Terminal)

TRON® In-Line Fuseholders
Single-Pole for Solid Neutral

See New Lighting Details

HET Series

Non-Breakaway Holders
Catalog Symbol: HET-AA, HET-AB, HET-BB, HET-JJ, and HET-JK
In-Line Fuseholders, Single-Pole
Water-Resistant
For breakaway holders, see page 2

HET — A HEB fuseholder with a permanently installed solid neutral. Easily identified by white plastic coupling nut.

Example:
A single-pole, in-line holder for a neutral is required. One solid copper #8 is on the load side, copper crimp for connection. A solid copper #6 is on the line side, and a copper crimp is required.
1. Choose HET- series.
2. Choose "A" for load side.
3. Choose "B" for line side.

Complete Catalog Number: HET-AB.

Ordering Information:

HET	—			
		Load Terminal		Line Terminal

Catalog and Specification Data - Non-Breakaway

Conductor Terminals

Terminal Type	Conductors Size	No. Per Terminal	Solid	Stranded	Catalog Symbol Load & Line (2 & 3)
Copper Crimp 	#12 to #8	1	•	•	A
	#12	2	•	•	
	#10	2	•	•	B
	#6	1	•	•	
	#4	1	•	•	
Copper Set-Screw 	#12 to #3	1	•	•	J
	#12 to #2	2	•	•	K
Aluminum Set-Screw 	#12 to #2	1	•	•	L

Catalog Data — Insulating Boots

Catalog Numbers	Type
2A0660	Single Conductor
2A0661	Two Conductor

Insulating boots are **not** included with **non-breakaway** parts and must be ordered separately. They come standard with the breakaway series. The HET-AW & HET-JW do not have the boots. These catalog items do not have a breakaway receptacle.

When boots are utilized, extra heat retention requires that fuses are sized at a minimum of 200% of the RMS load current.

Recommended Torque on Coupling Nut: 10-20 in-lb.

TRON® In-Line Fuseholders
Single-Pole for Solid Neutral

HET Series

See New Lighting Details

Breakaway Holders

Catalog Symbol: HET-AW-RLC-A, HET-AW-RLC-B, HET-AW-RLC-C, HET-AW-RLC-J, HET-AW-RYC, HET-BW-RLC-B, HET-BW-RYC, HET-JW, HET-JW-RLC-J, HET-JW-RYC, and HET-AW

In-Line Fuseholders, Single-Pole

Example:

A single-pole, in-line, breakaway holder for a neutral is requested. A single #10 solid, copper crimp is on the load side. A single #10, solid wire and a copper crimp is needed on the line side.

1. Choose HET- series.
2. Choose "A" from 1st page for load side.
3. Choose "W" for breakaway requirement.
4. Choose "RLC-A" for breakaway receptacle on line side.

Complete Catalog Number: HET-AW-RLC-A

Catalog and Specification Data

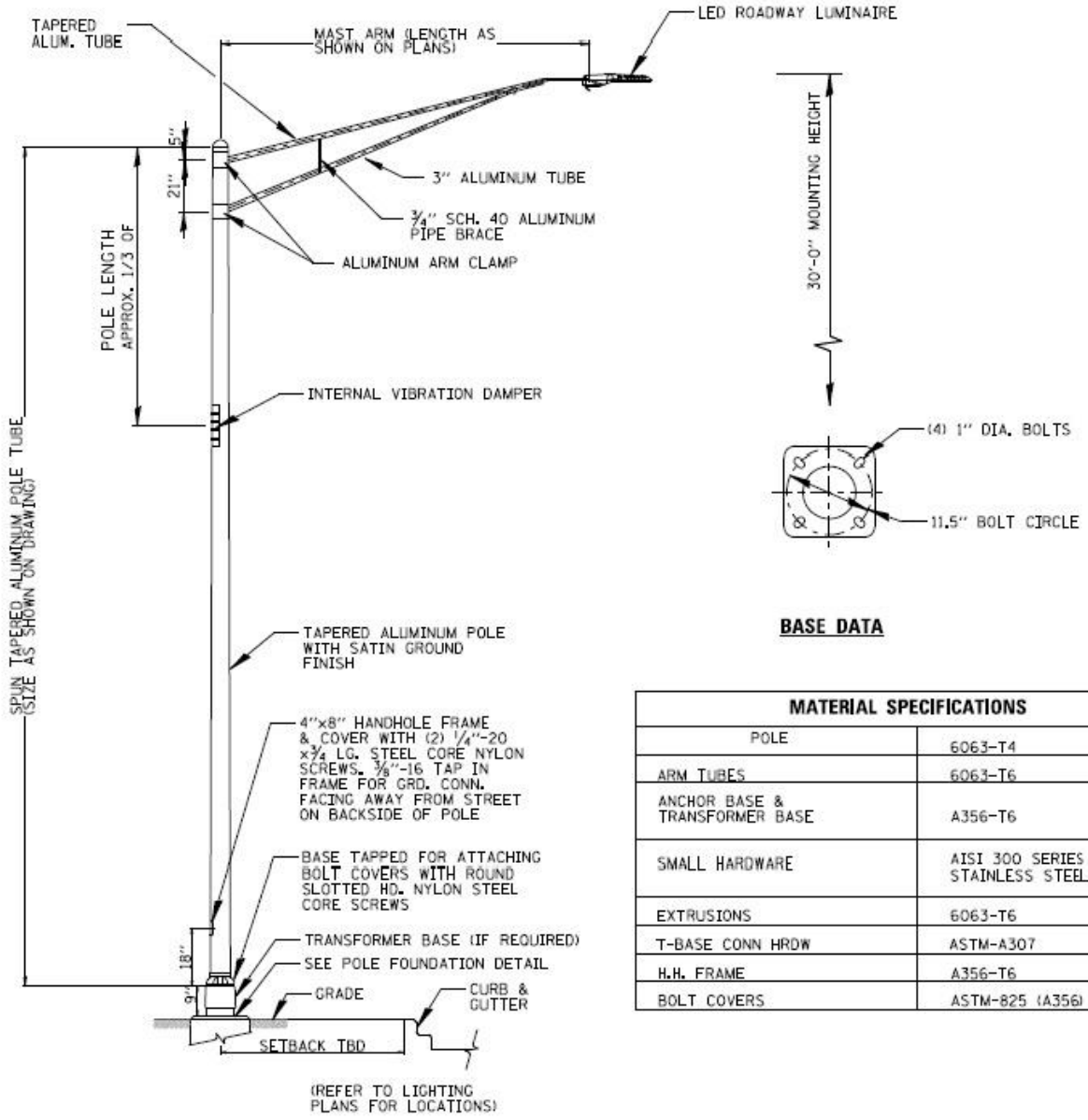
Breakaway Receptacles

Terminal Type	Conductor Data Size	No. Per Terminal	Solid	Stranded	Catalog Symbol Line Terminal (3)
Copper Crimp 	#12 to #8	1	•	•	-RLC-A
	#6	1	•	•	-RLC-B
	#4	1	•	•	-RLC-C
Copper Set-Screw 	#12 to #3	1	•	•	-RLC-J
	#12 to #3	2	•	•	-RYC
Solid Breakaway 	(Required with breakaway Receptacle)				W

Ordering Information:

HET	—		W	—	
		Load Terminal			Line Terminal

Recommended Torque on Coupling Nut: 10-20 in-lb.



BASE DATA

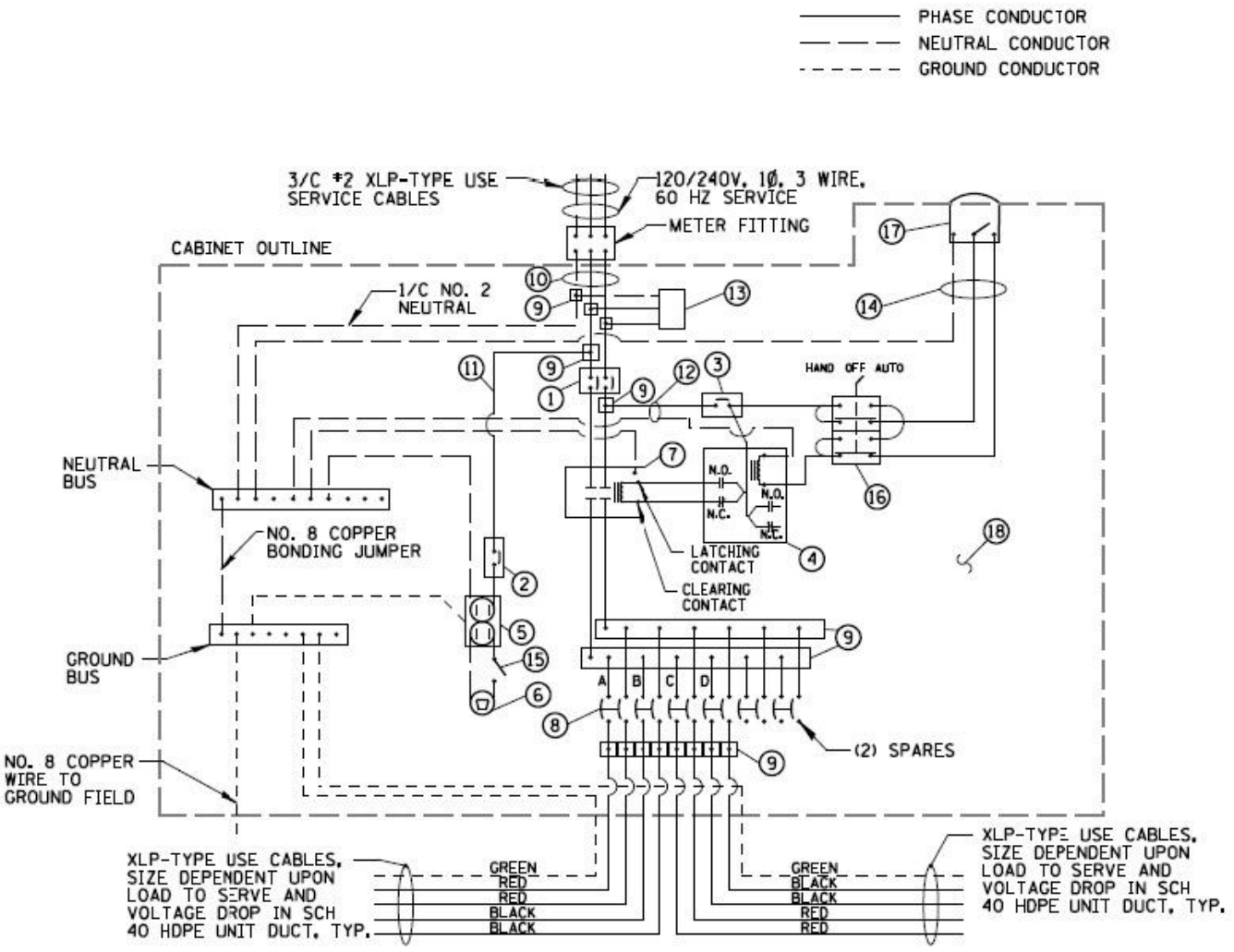
MATERIAL SPECIFICATIONS	
POLE	6063-T4
ARM TUBES	6063-T6
ANCHOR BASE & TRANSFORMER BASE	A356-T6
SMALL HARDWARE	AISI 300 SERIES STAINLESS STEEL
EXTRUSIONS	6063-T6
T-BASE CONN HRDW	ASTM-A307
H.H. FRAME	A356-T6
BOLT COVERS	ASTM-825 (A356)

NOTES:

1. LIGHT POLES SHALL MEET WIND LOADING & VIBRATION REQUIREMENTS ACCORDING TO THE LATEST AASHTO STANDARDS AND ARTICLE 1069.01 IN STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL STEEL SHALL BE FROM A DOMESTIC SOURCE.
2. THE LIGHT STANDARD SHALL MEET THE ILLUMINATION REQUIREMENTS AS SPECIFIED IN THE LUMINAIRE PERFORMANCE TABLES IN THE SPECIFICATIONS. ALL LUMINAIRES SHALL HAVE A MULTI-TAP BALLAST WIRED FOR 240 VOLTS OPERATION.
3. ALL LIGHT STANDARDS SHALL BE FROM THE SAME MANUFACTURER, OR APPROVED EQUAL.
4. LIGHT POLE SHALL BE U/L LISTED.
5. ANTI-SEIZE LUBRICANT SHALL BE APPLIED TO ALL BOLTED AREAS DURING INSTALLATION.

LIGHT STANDARD DETAIL

N.T.S.



LIGHTING CONTROLLER WIRING DETAIL

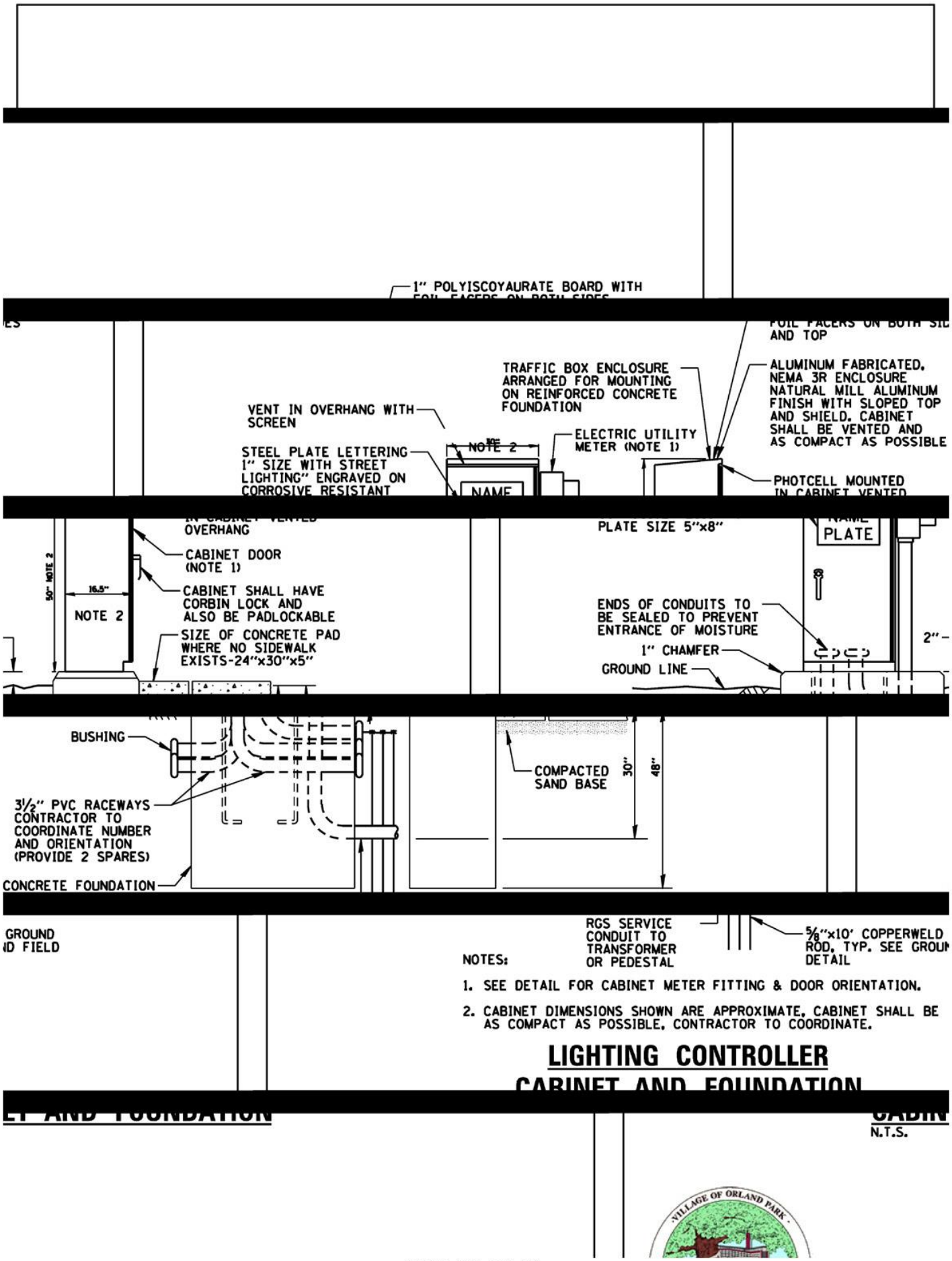
N.T.S.

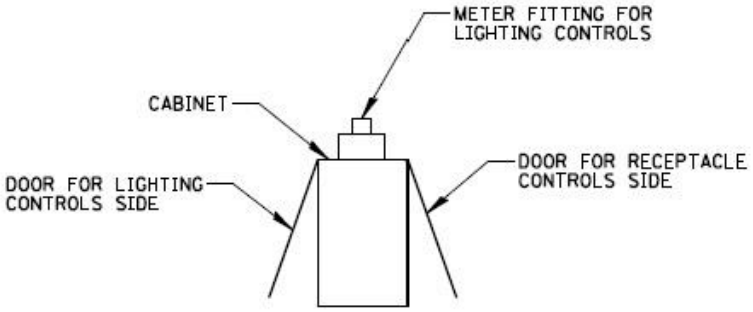
ITEM	SPECIFICATION	MFG./MODEL NO. OR APPROVED EQUAL
(1) MAIN CIRCUIT BREAKER	100 AMPERE, 2P, 240V SERVICE RATING, 10KAIC	SIEMENS NO. ED22B100
(2) LAMPHOLDER CIRCUIT BREAKER	20 AMPERE, 1P, 120V RATING, 10KAIC	SIEMENS NO. ED21B020
(3) PHOTOELECTRIC CONTROL CIRCUIT BREAKER	15 AMPERE, 1P, 120V RATING, 10KAIC	SIEMENS NO. ED21B015
(4) AUXILIARY RELAY	120 V OPERATED DPDT 60 HZ COIL 2 NO & 2 NC CONTACTS	MAGNECRAFT NO. 389 FXBXC1 - 120A
(5) CABINET RECEPTACLE AND BOX	COMMERCIAL GRADE GFCI 20A/120V, MOUNTED IN A WEATHERPROOF CAST ALUMINUM SINGLE GANG BOX WITH WEATHERPROOF COVER	RECEPTACLE: LEVITON NO. 8899, BOX: APPLETON NO. WSM150 COVER: APPLETON NO. WHG1
(6) CABINET LIGHT AND BOX	120V WEATHERPROOF LAMPHOLDER MOUNTED IN A CAST ALUMINUM BOX & EXT. GRADE 100W LAMP	LIGHT & BOX: RAB NO. VX100DG
(7) CONTACTOR	100 AMPERE, 2 POLE, 120 V COIL, MECH HELD	SQUARE D NO. 8903 SQO 10 V02
(8) BRANCH LINE CIRCUIT BREAKERS	6 - 20 AMPERE, 2P, 240V RATING, 10KAIC	SIEMENS NO. ED22B020
(9) POWER DISTRIBUTION BLOCK	600 VOLT, INSULATED, SIZE AS REQUIRED	MARATHON
(10) SERVICE CABLES	3-600V (XLP-TYPE USE) NO. 2	N/A
(11) LAMPHOLDER WIRE	2-600V XLP NO. 12	N/A
(12) CONTROL WIRE	2-600V XLP NO. 12	N/A
(13) SURGE ARRESTOR	10 K AMPERE RATING	SQUARE D NO. SDSA 1175
(14) PHOTOELECTRIC CONTROL WIRE	3-600V XLP NO. 12	N/A
(15) DOOR SWITCH	20A/120V, DOOR MOUNTED SNAP ACTION TYPE PLUNGER SWITCH	OMRON NO. A-20GO-K
(16) HAND-AUTO-OFF CONTROL SWITCH	20A, 3 POS. MTD IN CAST ALUM. ENCLOSURE	SQUARE D NO. 9001 KYK 111
(17) PHOTOCELL	120V, MTD. ON CABINET, DELAY TYPE, SPST-NC	FISHER PIERCE NO. FPFA-105M
(18) BACK PANEL	1/2" THICK SOLID PHENOLIC LAMINATE	ARBORON

NOTES:

1. ALL ITEMS LISTED IN LIGHTING CONTROLLER COMPONENT SCHEDULE SHALL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR "LIGHTING CONTROLLER" INCLUDING CABINET AND FOUNDATION.
2. THE LIGHTING CONTROLLER TOGETHER WITH ALL OF ITS COMPONENTS SHALL BE UL LISTED AS AN "ENCLOSED INDUSTRIAL CONTROL PANEL" UNDER UL508A.
3. CONNECTION OF SURGE ARRESTOR TO LINE SIDE OF MAIN CIRCUIT BREAKER SHALL NOT BE "DOUBLE LUGGED."

LIGHTING CONTROLLER COMPONENT SCHEDULE

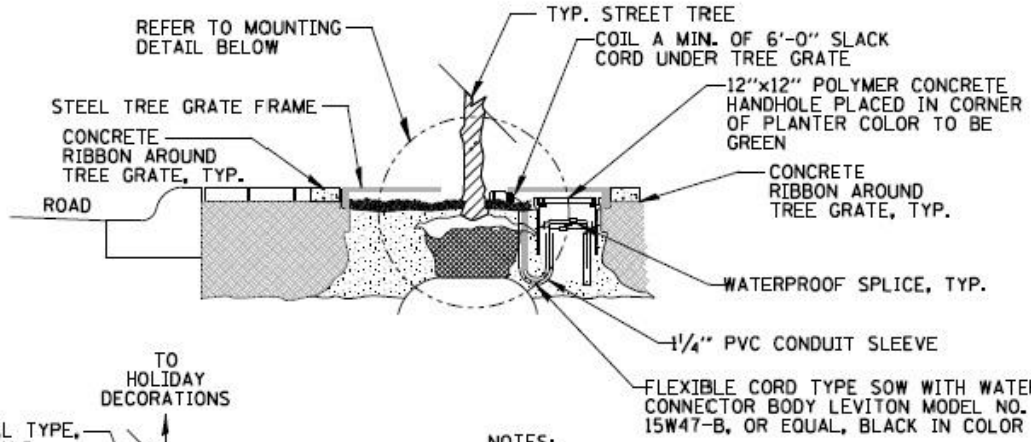

1" POLYISCOYAURATE BOARD WITH
FOIL FACERS ON BOTH SIDES
AND TOP
TRAFFIC BOX ENCLOSURE
ARRANGED FOR MOUNTING
ON REINFORCED CONCRETE
FOUNDATION
ALUMINUM FABRICATED,
NEMA 3R ENCLOSURE
NATURAL MILL ALUMINUM
FINISH WITH SLOPED TOP
AND SHIELD. CABINET
SHALL BE VENTED AND
AS COMPACT AS POSSIBLE
VENT IN OVERHANG WITH
SCREEN
ELECTRIC UTILITY
METER (NOTE 1)
STEEL PLATE LETTERING
1" SIZE WITH STREET
LIGHTING" ENGRAVED ON
CORROSIVE RESISTANT
NOTE 2
NAME
PLATE
PHOTCELL MOUNTED
IN CABINET VENTED
OVERHANG
PLATE SIZE 5"x8"
CABINET DOOR
(NOTE 1)
CABINET SHALL HAVE
CORBIN LOCK AND
ALSO BE PADLOCKABLE
SIZE OF CONCRETE PAD
WHERE NO SIDEWALK
EXISTS-24"x30"x5"
50" NOTE 2
16.5"
NOTE 2
ENDS OF CONDUITS TO
BE SEALED TO PREVENT
ENTRANCE OF MOISTURE
1" CHAMFER
GROUND LINE
2"
BUSHING
3½" PVC RACEWAYS
CONTRACTOR TO
COORDINATE NUMBER
AND ORIENTATION
(PROVIDE 2 SPARES)
CONCRETE FOUNDATION
COMPACTED
SAND BASE
30"
48"
GROUND
ND FIELD
RGS SERVICE
CONDUIT TO
TRANSFORMER
OR PEDESTAL
⅝"x10' COPPERWELD
ROD, TYP. SEE GROU
DETAIL
NOTES:
1. SEE DETAIL FOR CABINET METER FITTING & DOOR ORIENTATION.
2. CABINET DIMENSIONS SHOWN ARE APPROXIMATE, CABINET SHALL BE AS COMPACT AS POSSIBLE. CONTRACTOR TO COORDINATE.
LIGHTING CONTROLLER
CABINET AND FOUNDATION
LT AND FOUNDATION
CABIN
N.T.S.

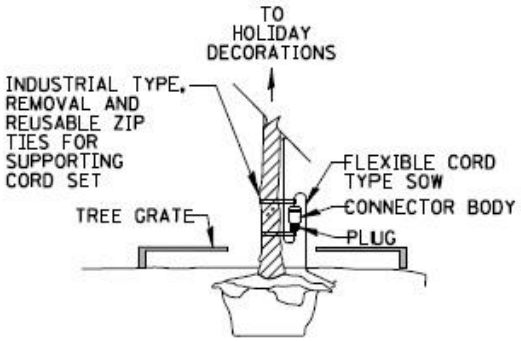


STREETSIDE

CABINET METER FITTING & DOOR ORIENTATION

N.T.S.





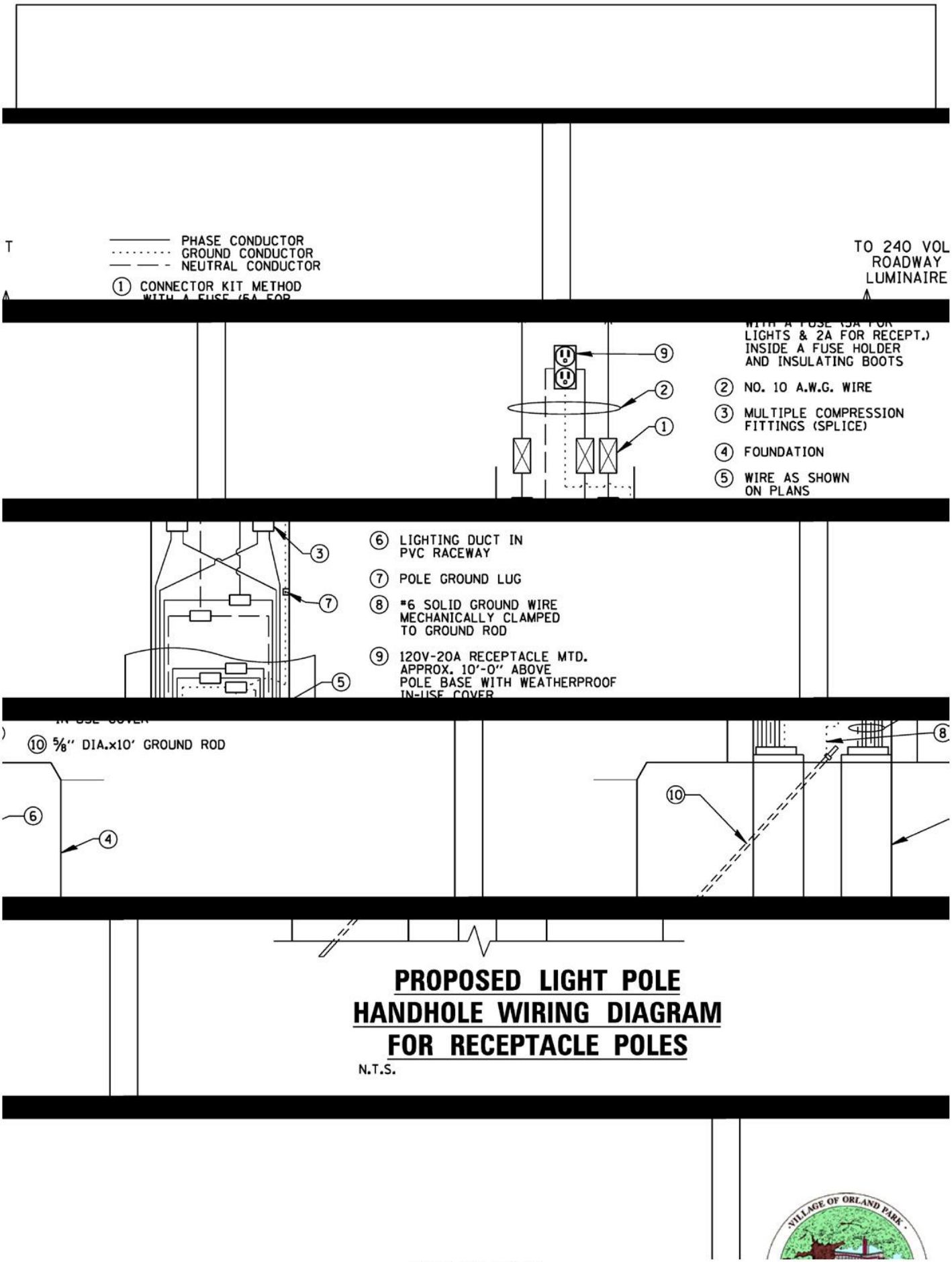
MOUNTING DETAIL FOR IN USE SERVICE

NOTES:

1. THE PROPOSED WATERTIGHT CORD CONNECTORS SHOWN SHALL BE USED IN CONJUCTION WITH ONLY CORRESPONDING LEVITON WATERTIGHT PLUG MODEL NO. 14W47-B, BLACK IN COLOR, RATED IN-USE PER NEC.
2. PROVIDE A RECEPTACLE IN ALL TREE GRATES.
3. CONTRACTOR SHALL SUPPLY SEPARATE CORD SET, 10 FT. IN LENGTH AND BLACK IN COLOR, WITH MATCHING LEVITON CONNECTOR ENDS (ONE END W/ PLUG AND ONE END W/ RECEPTACLE).

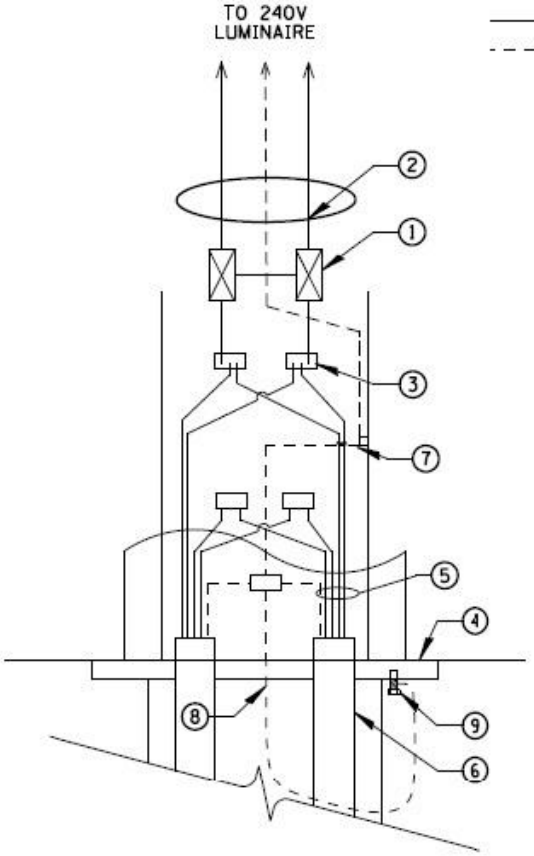
RECEPTACLE CORD ASSEMBLY, IN TREE GRATES DETAIL

N.T.S.



PROPOSED LIGHT POLE
HANDHOLE WIRING DIAGRAM
FOR RECEPTACLE POLES

N.T.S.



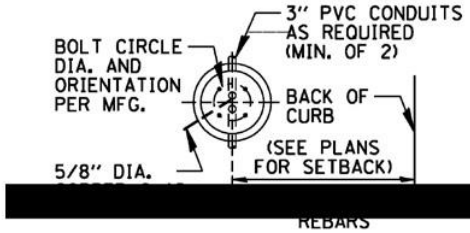
PHASE CONDUCTOR

GROUND CONDUCTOR

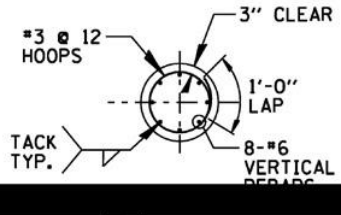
1. CONNECTOR KIT METHOD WITH A 5 AMP FUSE INSIDE A TWO POLE FUSE HOLDER AND INSULATING BOOTS
2. NO. 10 A.W.G. WIRE
3. MULTIPLE COMPRESSION FITTINGS (SPLICE)
4. POLE FOUNDATION
5. WIRE AS SHOWN ON PLANS
6. CABLES IN DUCT AS SHOWN ON PLANS
7. POLE GROUND LUG
8. #6 SOLID GROUND WIRE CONNECTED TO METAL POLE FOUNDATION
9. 3/8" GALV. HEX BOLT & LOCKWASHER WITH COMPRESSION TERMINAL FOR GROUND WIRE CONNECTION TO METAL POLE FOUNDATION

POLE HANDHOLE WIRING DIAGRAM

N.T.S.



SECTION A-A

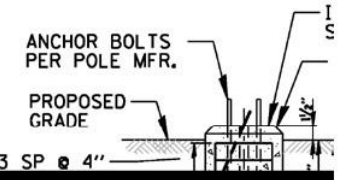


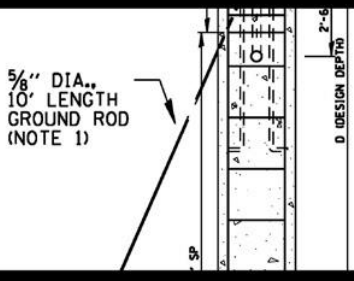
COPPER CLAD GROUND ROD

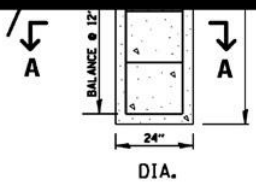
PLAN

DOT CLASS I CONCRETE

1" CHAMFER







SOIL CONDITIONS	DESIGN DEPTH "D" OF FOUNDAT
SOFT CLAY (Qu=0.375 TON/SF)	13'-0"
MEDIUM CLAY (Qu=0.75 TON/SF)	9'-6"
STIFF CLAY (Qu=1.50 TON/SF)	7'-0"
LOOSE SAND (Ø=34°)	9'-0"
MEDIUM SAND (Ø=37.5°)	8'-3"
DENSE SAND (Ø=40°)	7'-9"

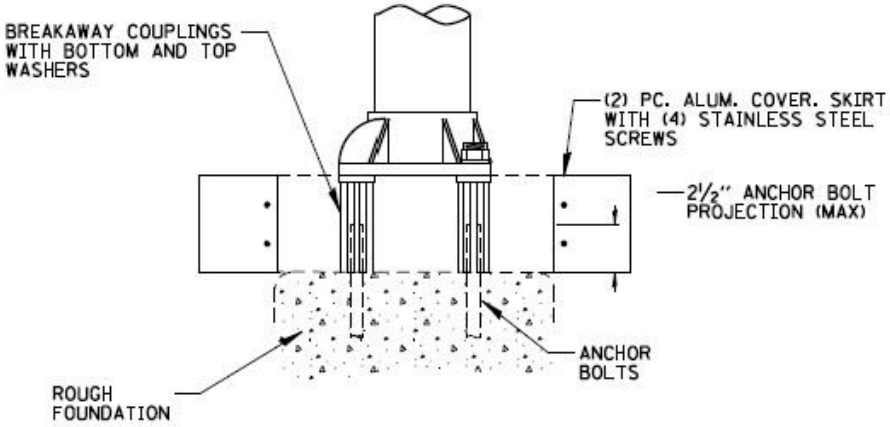
TION WITH 8 FEET

NOTES:

1. GROUND ROD SHALL BE CAST INTO CONCRETE FOUNDA IN CONTACT WITH SOIL.
2. FOUNDATIONS SHALL BE VIBRATED IN ACCORDANCE WITH IDOT STANDARD PRACTICES.

CONCRETE FOUNDATION DETAIL

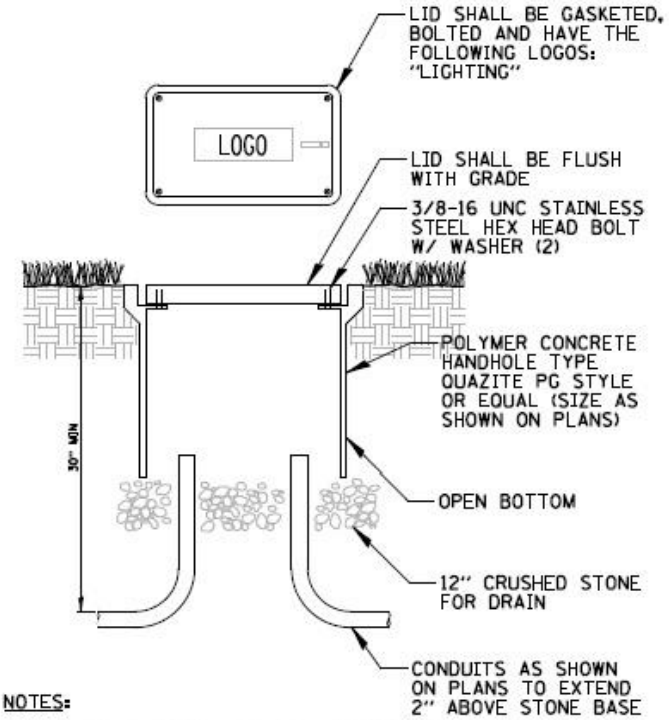
N.T.S.



NOTES:
1. SHALL BE FACTORY PAINTED BLACK IF UTILIZED IN HISTORIC DISTRICT AND UNPAINTED IN COMMERCIAL AND COMMERCIAL COLLECTOR ROADWAYS.

BREAKAWAY COUPLING DETAIL

N.T.S.

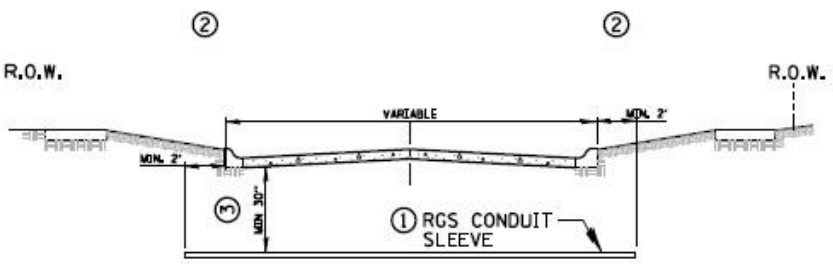


NOTES:

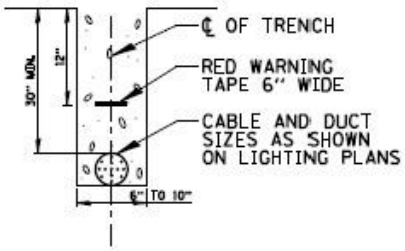
1. ALL SPLICES SHALL BE WATERPROOF. SEE SPLICING DETAIL.
2. POLYMER CONCRETE HANDHOLE AND LID SHALL BE GREY.
3. BOX & LID SHALL MEET/EXCEED ANSI TIER 15 LOADING REQUIREMENTS REQUIREMENTS AND BE TESTED IN ACCCORDANCE WITH THE LATEST EDITION OF THE ANSI/SCTE 77 "SPECIFICATIONS FOR UNDERGROUND ENCLOSURE INTEGITRY", AND THE PROVISIONS OF PARAGRAPHS 5.2.3 AND 5.2.4 OF WESTER UNDERGROUND COMMITTE GUIDE 3.6.

POLYMER CONCRETE HANDHOLE

N.T.S.



ROADWAY CROSSING



TRENCH CROSS SECTION

① SLEEVE SHALL BE HEAVY WALL RIGID GALVANIZED STEEL (RGS) CONDUIT.

② SLEEVE SHALL EXTEND A MINIMUM OF 2 FT. BEYOND BACK OF CURB.

③ SLEEVE SHALL BE A MINIMUM OF 30" BELOW ROADWAY OR CURB BOTTOM.

ELECTRIC CONDUIT INSTALLATION

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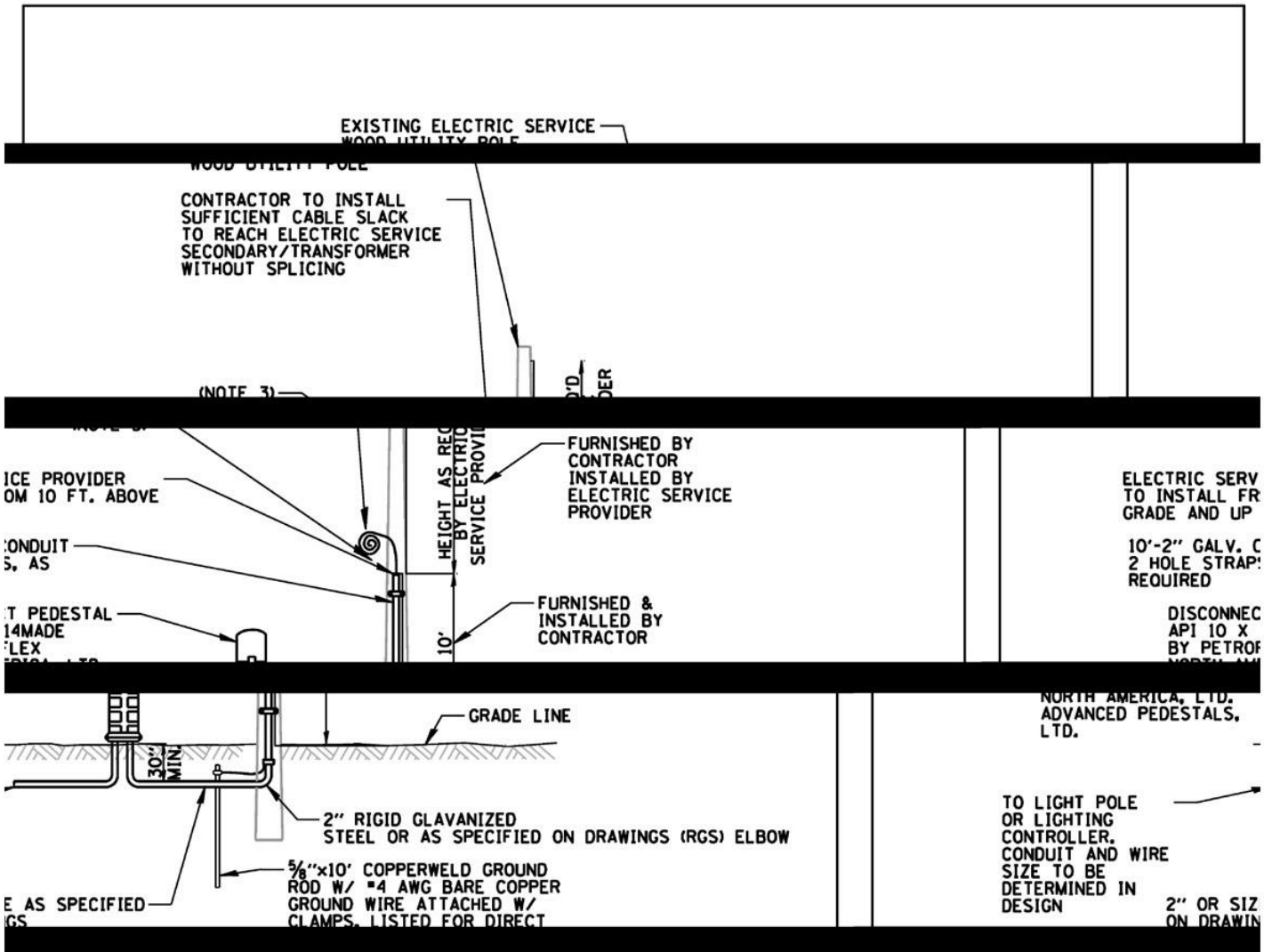

ONNECTION POLE

ELECTRIC SERVICE OVERHEAD C

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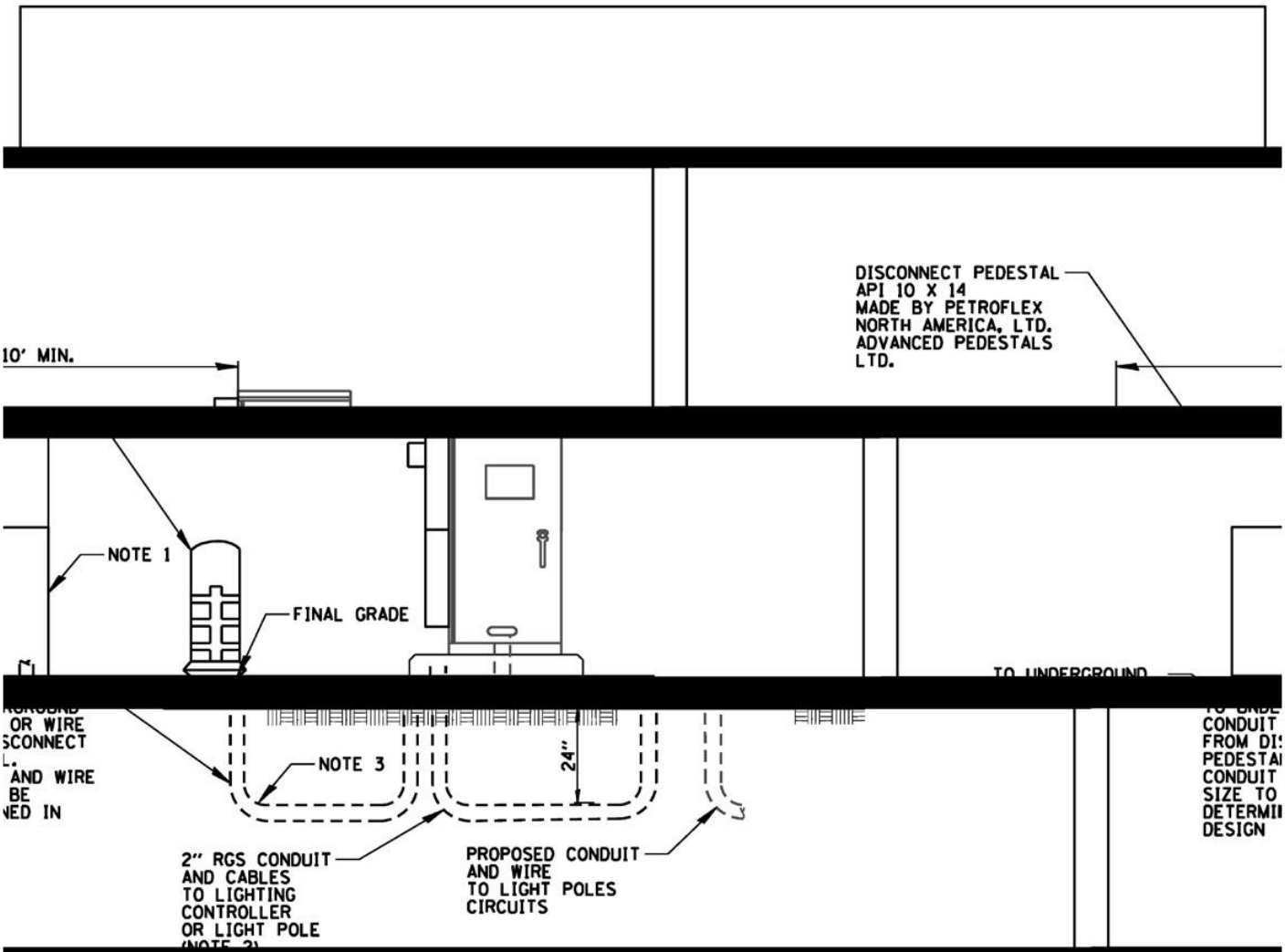
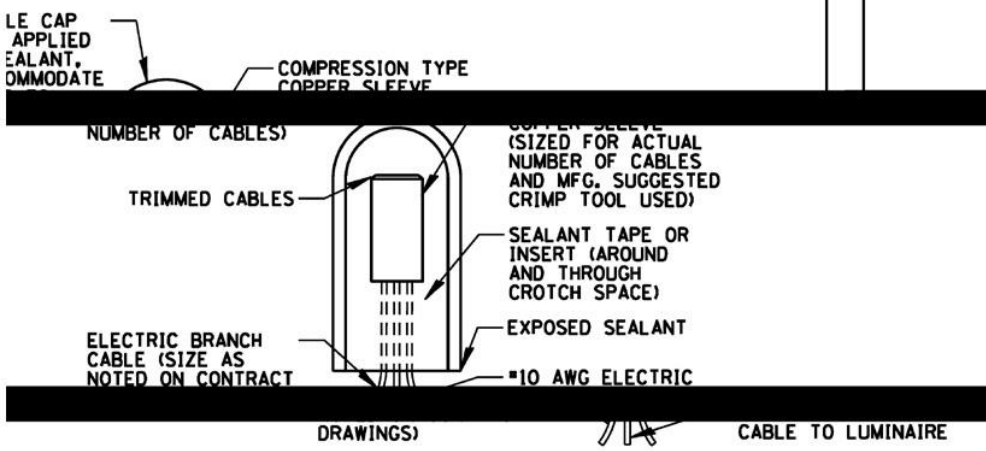


NOTES:

1. ELECTRIC SERVICE PEDESTAL OR TRANSFORMER LOCATED IN EASEMENT. COM ED WILL PROVIDE CONNECTORS FOR CABLES AND CONNECT CABLES WITHIN THE COM ED ENCLOSURE. COM ED WILL IDENTIFY CUSTOMER'S STREET LIGHT CABLE.
2. WIRE SIZE TO MATCH WIRE SIZE CALLED OUT IN LIGHTING CONTROLLER WIRING DIAGRAM.
3. IF LIGHTING CONTROLLER IS REQUIRED, DISCONNECT PEDESTAL CAN BE ELIMINATED.

ELECTRIC SERVICE UNDERGROUND CONNECTIO TO PEDESTAL/TRANSFORMER

N.T.S.



SPLICING ELECTRIC CABLE IN POLE

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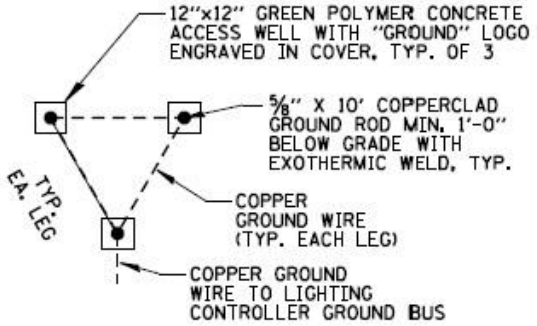
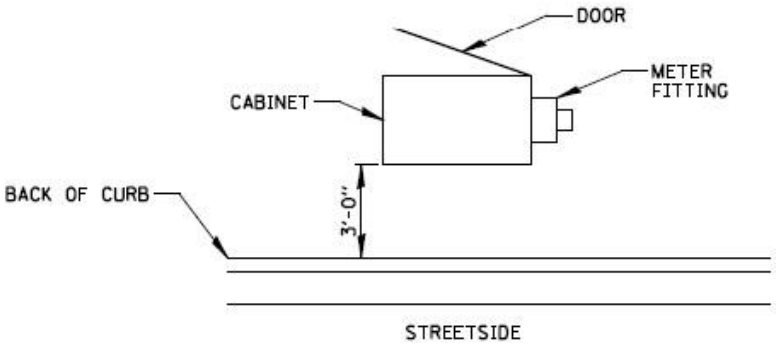


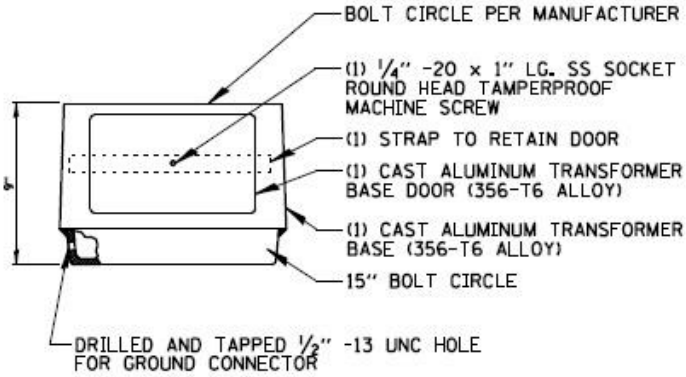
GROUND FIELD DETAIL (TYP.)

N.T.S.



CABINET METER FITTING & DOOR ORIENTATION

N.T.S.



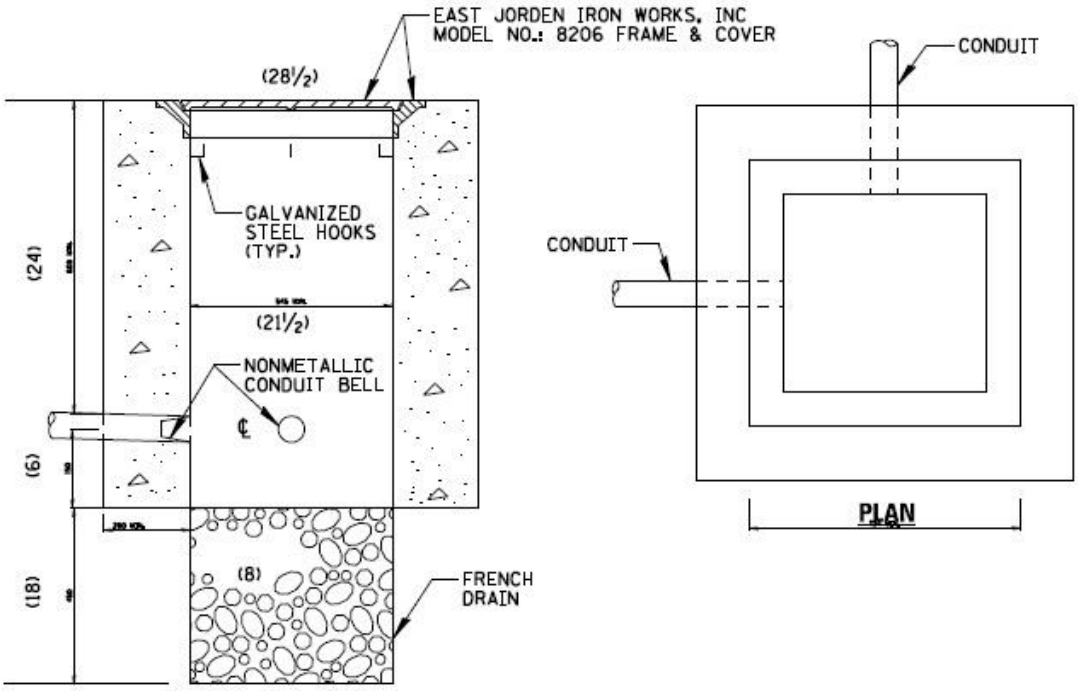
NOTES:

1. BEFORE INSTALLATION OF BREAKAWAY BASE, USER SHOULD CONSULT WITH AUTHORIZED DISTRIBUTOR REGARDING USERS PROPOSED APPLICATION, LOAD REQUIREMENTS AND INSTALLATION METHODS. FAILURES CAN RESULT FROM USERS MISAPPLICATION OR IMPROPER INSTALLATION. TO APPROACH OPTIMUM STATIC LOADS, USE THE LARGEST POSSIBLE BOLT CIRCLES. SHIMS SHALL NOT BE ALLOWED.

2. SHALL BE FACTORY PAINTED BLACK IF UTILIZED IN HISTORIC DISTRICT AND UNPAINTED IN COMMERCIAL AND COMMERCIAL COLLECTOR ROADWAYS.

BREAKAWAY TRANSFORMER BASE

N.T.S.



ELEVATION

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SHOWN.
2. FRAME AND COVER CAN BARE 64 KG (140 LBS.) MIN. LOAD

CONCRETE HANDHOLE

N.T.S.

NOTES:

1. FINISH: HOT DIP GALVANIZED PER AASHTO M111 (LATEST REVISION).
2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS (± 1 DEG) AND HOLE CENTERLINE CONCENTRIC (± .188) TO SHAFT AXIS.
3. STENCIL MIN ½ IN. LETTERS MANUFACTURER'S NUMBER AFTER GALVANIZING.
4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (± 125 FIM) AND IN LINE (± 2 DEG).
5. FLAME CUT SLOT PERPENDICULAR TO THE BASEPLATE.
6. PREHEAT, TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND PILOT POINT ON ALL WELDED AREAS.
7. FLAMECUT IRREGULARITIES PERMISSIBLE: (1) VALLEYS NOT TO EXCEED 3/32 IN. BELOW NOMINAL SURFACE LEVEL, (2) PEAKS OR POSITIVE IRREGULARITIES NOT TO EXCEED 1/32 IN. ABOVE NOMINAL SURFACE LEVEL OR INTERSECTIONS OF NOMINAL SURFACES.
8. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
9. ALL MATERIAL IS TO BE NEW, UNUSED AND MILL TRACEABLE MEETING THE FOLLOWING SPECIFICATIONS:

   BASEPLATE: ASTM A36-(LATEST REVISION) STRUCTURAL (CONFORM TO AASHTO TECH. BUL. #270)

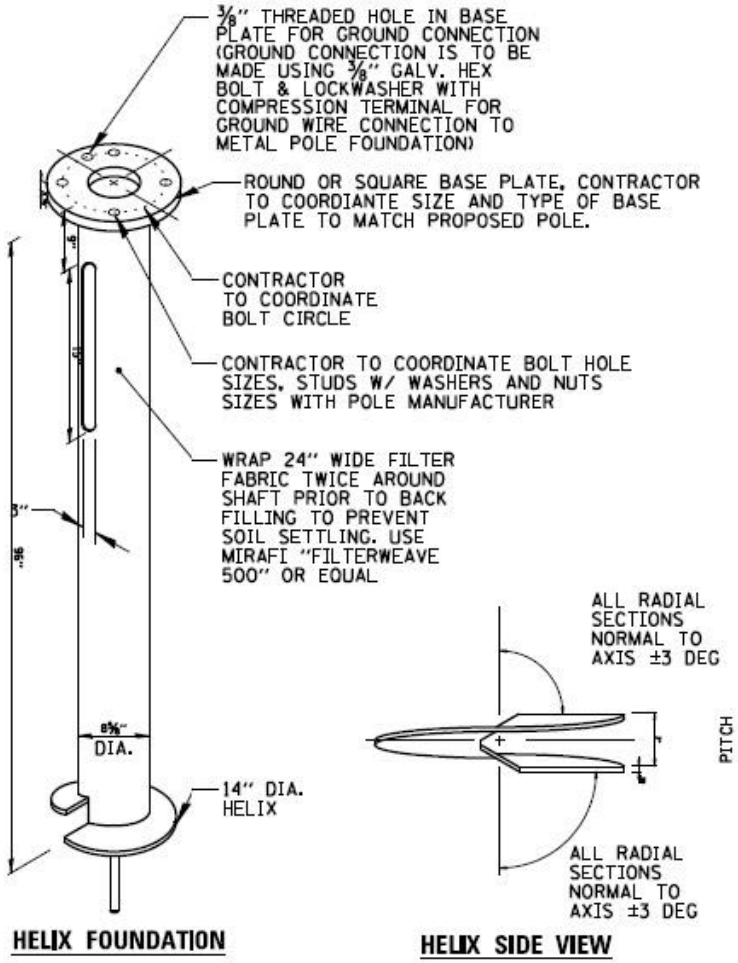
   SHAFT: ASTM A252 (LATEST REVISION) GRADE 2, STEEL PIPE PILES, ALT. MATERIAL: ASTM A53 (LATEST REVISION) TYPE E OR S, GRADE B, STEEL PIPE OR ASTM A500 (LATEST REVISION) GRADE B, STRUCTURAL STEEL TUBING.

   HELIX: ASTM A635 (LATEST REVISION) 3/8" THICK HOT ROLLED STEEL PLATE OR COIL.

   PILOT POINT: ASTM A575 (LATEST REVISION) 1¼" DIA. HOT ROLLED STEEL BAR.

   BOLTS: 1" DIA. HOT DIP GALVANIZED STUDS IN ACCORDANCE WITH AASHTO M314 OR ASTM F1554.

10. BASEPLATE IS PERMANENTLY STAMPED WITH MANUFACTURER'S IDENTIFICATION "ABC" IN ½" LETTERS AND DATE CODE IN ¼" LETTERS.



HELIX FOUNDATION

HELIX SIDE VIEW

LIGHT POLE METAL FOUNDATION DETAIL

N.T.S.