



Citizens
Electric Corporation
A Touchstone Energy® Cooperative 

Electric Service Guidelines

REVISED FEBRUARY 2020

Citizens Electric Corporation (CEC)

Instructions to landowner or developer when planning facilities on their property.

1. **Always Look Up!** When locating a site for a home, mobile home, cabin, garage, grain bin, or any type of structure, “always look up.” Safety to your life and property requires sufficient spacing from existing power lines to your new structure. This distance is provided for in the right-of-way easement agreement.

When there is a conflict or question pertaining to electric lines, contact Citizens Electric Corporation. An analysis of your specific circumstances should be performed prior to construction.

The following easement widths are dimensions that should be observed when planning your facilities. The electric pole line is located in the center of the easement. Buildings shall not be located within the easement corridor.

<u>Type of Electric Line</u>	<u>Easement Width</u>
Transmission (cross country long span)	100 feet
Transmission (urban short span)	50 feet
Distribution Overhead (single phase or three phase)	30 feet
Distribution Underground (single phase or three phase)	15 feet

2. Trees on and near the right of way – these trees endanger the electrical circuit and cause outages. They will be removed or trimmed on a cycle basis.
3. Service to a new facility: A **qualified electrician** should provide service equipment recommendations based on the maximum load to be served. Qualified individuals are responsible for supplying the appropriate service panel, conductor size and type, and also perform the installation of the service panel, meter socket, conduit and entrance head, wire, ground rods and clamps, etc.

A. Home, RV/Temp. Service:

1. Meter on structure, mast type
2. Meter on structure, attachment on structure
3. Meter on structure, underground
4. Meter on CEC pole, mobile home
5. Meter on CEC pole, overhead
6. Meter on CEC pole, underground
- 7a. Meter on CEC pole, underground (2 panels)
- 7b. Meter on CEC pole, underground (2 panels) - option
8. Meter on CEC pole, structure & well
9. Meter on CEC pole, recreational vehicles
- 10a. Metering Pedestal, underground service
- 10b. Metering Pedestal, underground service - option
11. Metering Pedestal 320 Amp Meter Breaker, U/G

- B. Construction Power, or any other temporary connection:
 - 1. Meter on CEC pole, overhead
 - 2. Meter on post, underground
- 4. Underground Lines:
 - A. When digging or excavating, call Missouri One Call System to verify the location of any Citizens Electric owned underground electric lines. **1-800-Dig-Rite (1-800-344-7483) or 811. Citizens Electric Corporation does not locate and is not liable for privately owned underground facilities.**
 - B. On new installations, if customer requests underground electric, there is an additional charge. Contact CEC at 877.876.3511 - Option 5 for prices and specifications.

Thank you for your cooperation and help in addressing safety precautions for your electric service and preventing electrical contact accidents.

Service to New Residential Facilities

For inquiries related to service to new facilities, contact CEC's Engineering Department at 877-876-3511 – Option 5.

See the attached guides for examples of:

Home, RV/Temp. Service:

1. Meter on structure, mast type
2. Meter on structure, attachment on structure
3. Meter on structure, underground
4. Meter on CEC pole, mobile home
5. Meter on CEC pole, overhead
6. Meter on CEC pole, underground
- 7a. Meter on CEC pole, underground (2 panels)
- 7b. Meter on CEC pole, underground (2 panels) - option
8. Meter on CEC pole, structure & well
9. Meter on CEC pole, recreational vehicles
- 10a. Metering Pedestal, underground service
- 10b. Metering Pedestal, underground service - option
11. Metering Pedestal 320 Amp Meter Breaker, U/G

Construction Power, or any other temporary connection:

1. Meter on CEC pole, overhead
2. Meter on post, underground

1. Individual Overhead Service and Secondary Conductors

In the event that only overhead service and/or secondary facilities are required, the Corporation shall construct all overhead service and secondary facilities to a point on Customer's permanent facility as designated by the Corporation, utilizing generally accepted utility practices, at no charge to the Customer. When said Customer requests the service conductors to extend past a point on the permanent facility as designated by the Corporation, Customer shall pay in advance of construction an additional charge equal to the Corporation's then-current average standard construction cost of single phase overhead extension.

2. Individual Underground Service and Secondary Conductors

A. Residential structures located in areas served by an overhead primary distribution system:

Customer requesting underground service conductors shall pay the Corporation in advance of construction an amount equal to the Corporation's then-current average standard construction cost of single phase underground extension less the average standard construction cost of single phase overhead extension, for

installation of such service from the transformer or lift pole to a point on the Customer's permanent facility as designated by the Corporation.

Upon completion of construction, Customer shall pay the Corporation for any unforeseen costs not included in the Corporation's original cost for an individual service or secondary extension such as trenching through rock, special material used for backfilling, drilling under roads, driveways and sidewalks, right-of-way clearing, etc.

B. Residential structures located in a subdivision served by an underground distribution system:

At the request of Customer, the Corporation will install underground service conductors from a transformer or pedestal (located on or within the property line of said residential structure) to a point on the permanent facility as designated by the Corporation. When the length of such service conductors exceed 125 linear feet, or when said Customer requests the service conductors to extend past a point on the permanent facility as designated by the Corporation, Customer shall pay the Corporation in advance of construction an additional charge equal to the Corporation's then-current average standard construction cost of single phase underground service applicable to the additional length.

Customer shall pay the Corporation for any unforeseen costs not included in the Corporation's estimate for an individual underground service or secondary extension such as trenching through rock, special material used for backfilling, drilling under roads, driveways and sidewalks, right-of-way clearing, etc.

C. When Customer agrees to furnish such trench and/or conduit meeting the Corporation's specifications, the Corporation shall deduct from Customer's required advanced payment the Corporation's then-current average standard construction cost of trenching and/or installing conduit from the total cost of the line extension as outlined in Section 2.A and 2.B above.

Thank you for your cooperation and help in addressing safety precautions for your electric service and preventing electrical contact accidents.

Rural Missouri

10-Foot Rule – It's the Law!

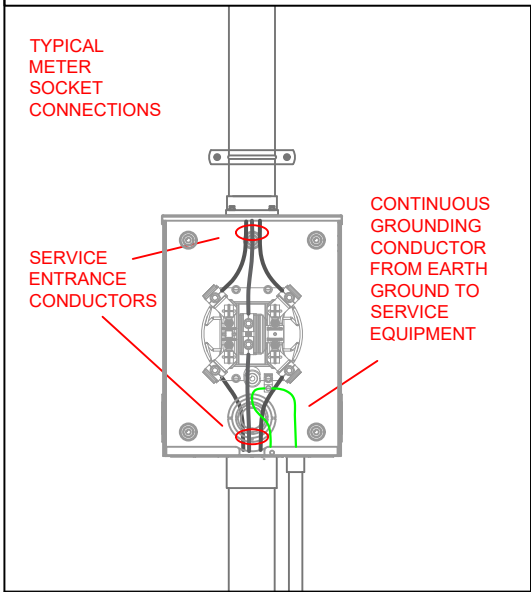
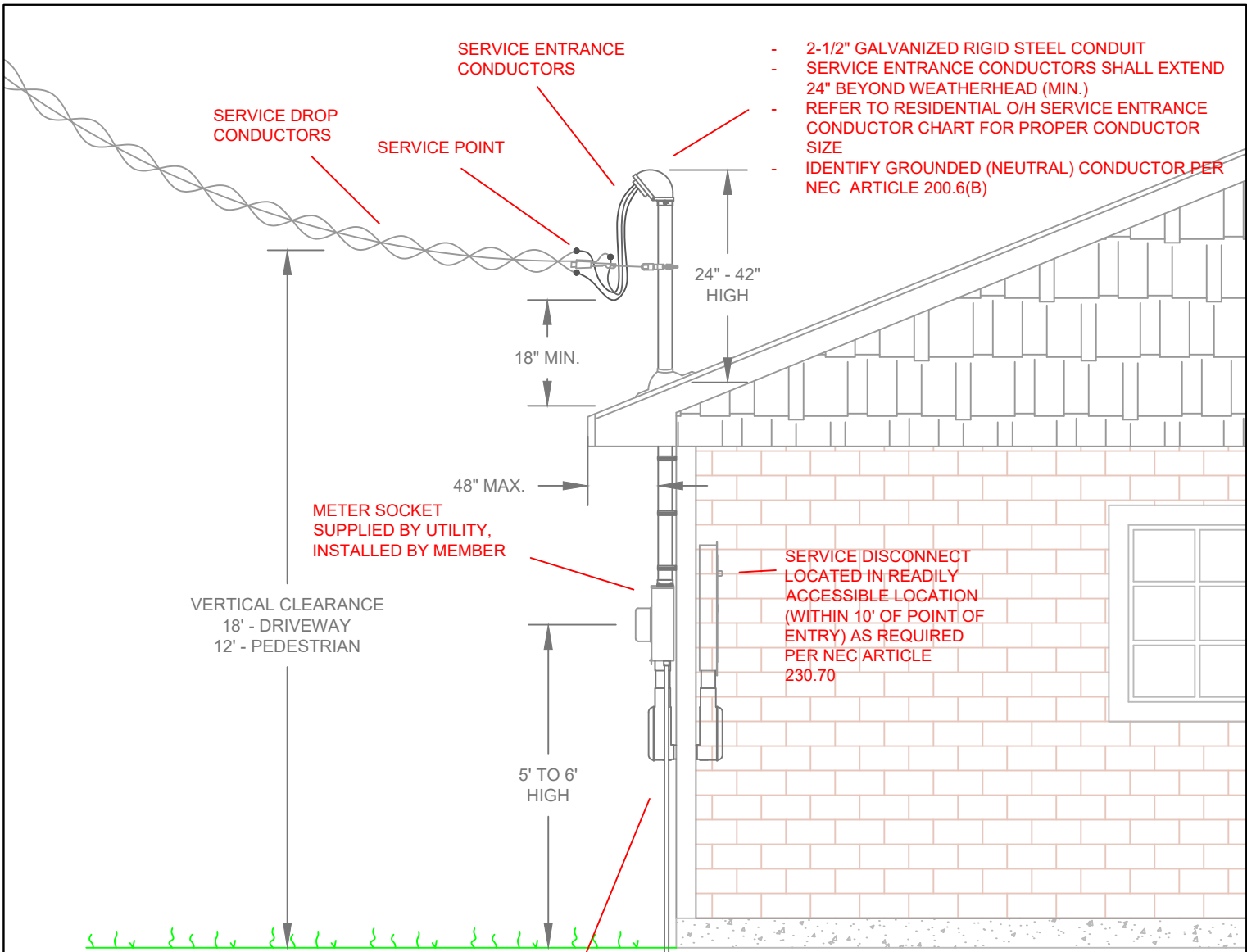
It's just common sense for anyone who must work near an energized electric transmission line to check with the utility that owns the line to make sure all safety precautions are taken. Well, it's also the law in the state of Missouri.

In 1991 the Missouri General Assembly passed the Overhead Power Line Safety Act, also called the 10-foot rule. The law requires that anyone who must work within 10 foot of a power line must first notify the utility that owns the line so safety precautions can be taken to help avoid tragedy.

Precautions may mean simply having a utility employee check the work area for safe clearances or it may involve disconnecting the line to avoid possible electrocution.

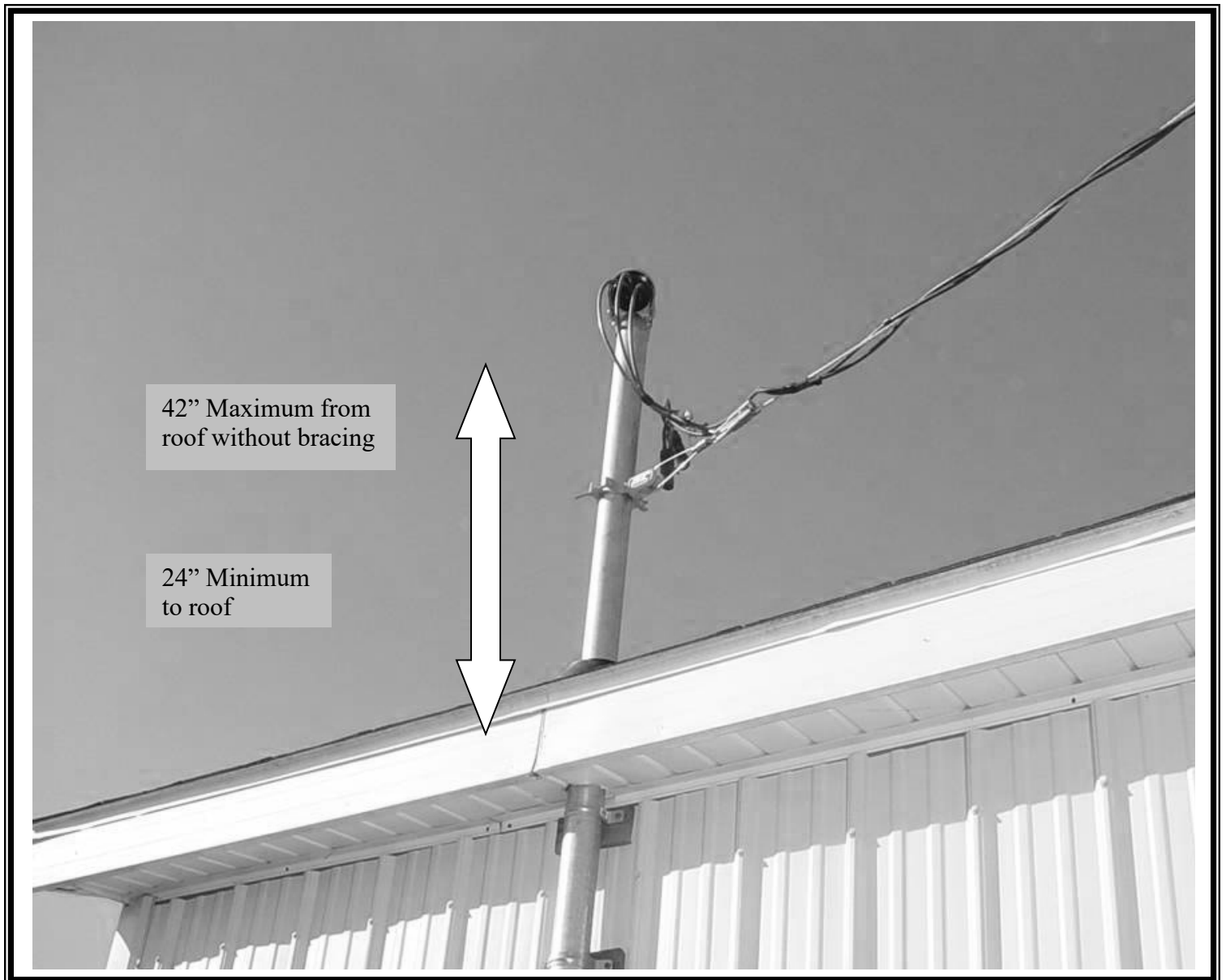
Under the law any person who comes into contact with a power line and didn't contact the utility that owns the line will be presumed negligent. This means that if a contractor's employee comes into contact with a line and the contractor didn't notify the utility before work began, then the contractor bears the responsibility for the accident.

If work must be done within 10 foot of the power line, play it safe and call the utility first. It could save a life.

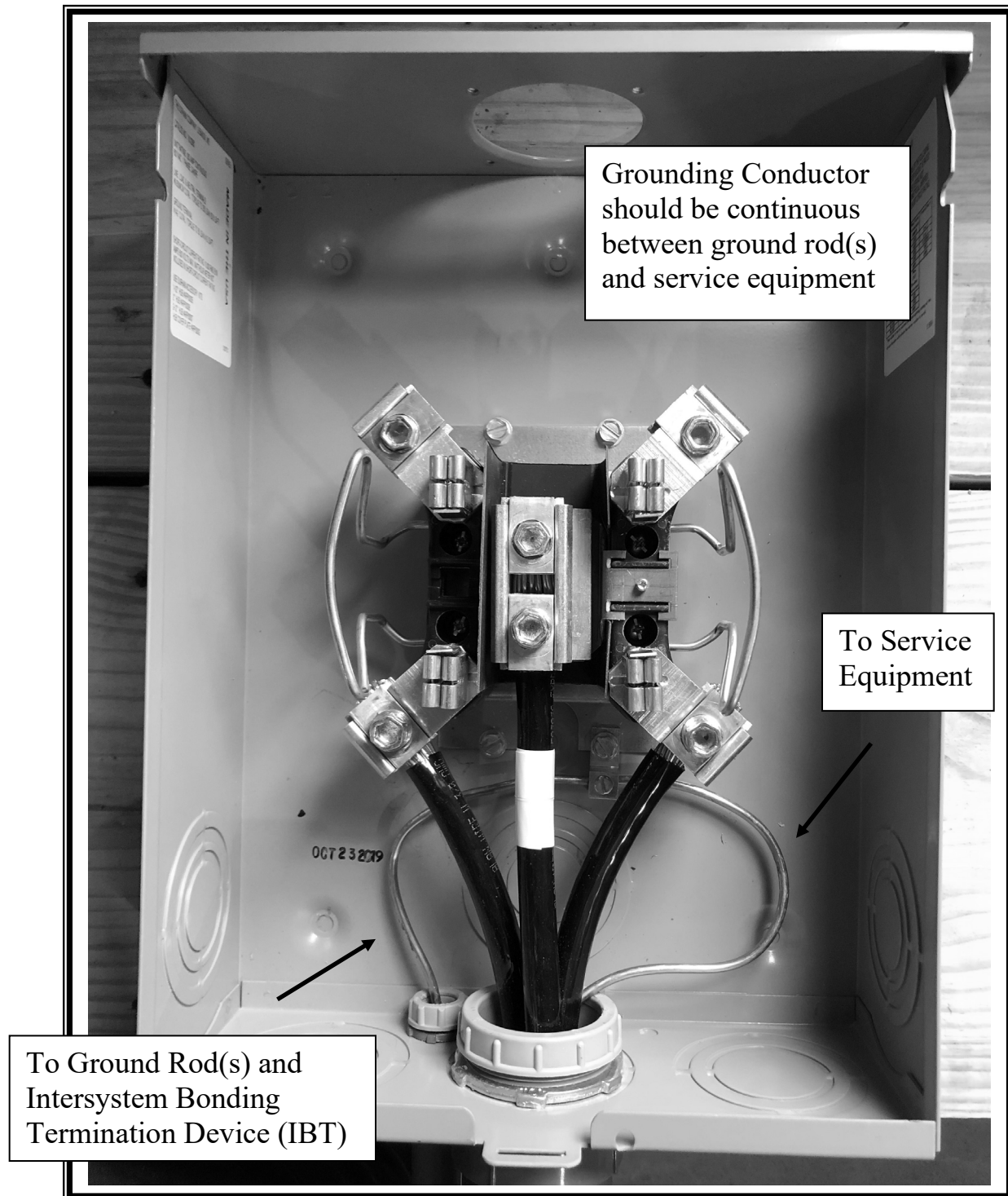


- GROUNDING AND BONDING AS REQUIRED PER NEC ARTICLE 250
- INTERSYSTEM BONDING TERMINATION DEVICE AS REQUIRED PER ARTICLE 250.94(A)
- WHEN SUPPLEMENTAL GROUND RODS ARE UTILIZED (NECESSARY WHEN GROUND RESISTANCE IS >25 OHMS), INSTALL IN ACCORDANCE WITH NEC ARTICLE 250
- 1/2" x 8' COPPER BONDED STEEL GROUND ROD AND PROPERLY SIZED GROUNDING CONDUCTOR PER ARTICLE 250.66
- > 6 FT APART

Meter on Structure, Mast Type 2½ inch Rigid Galvanized Conduit



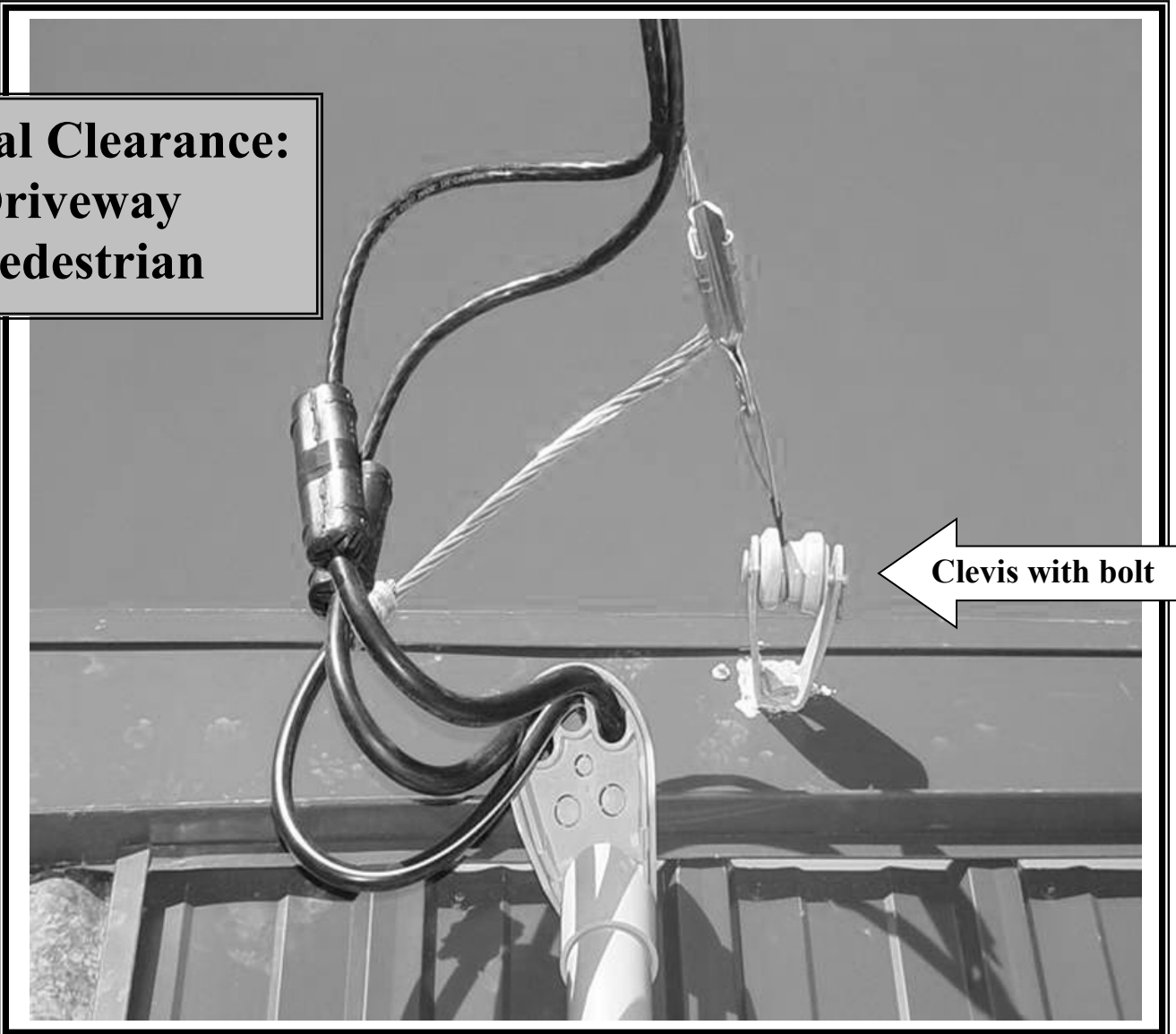
Required Grounding Methods

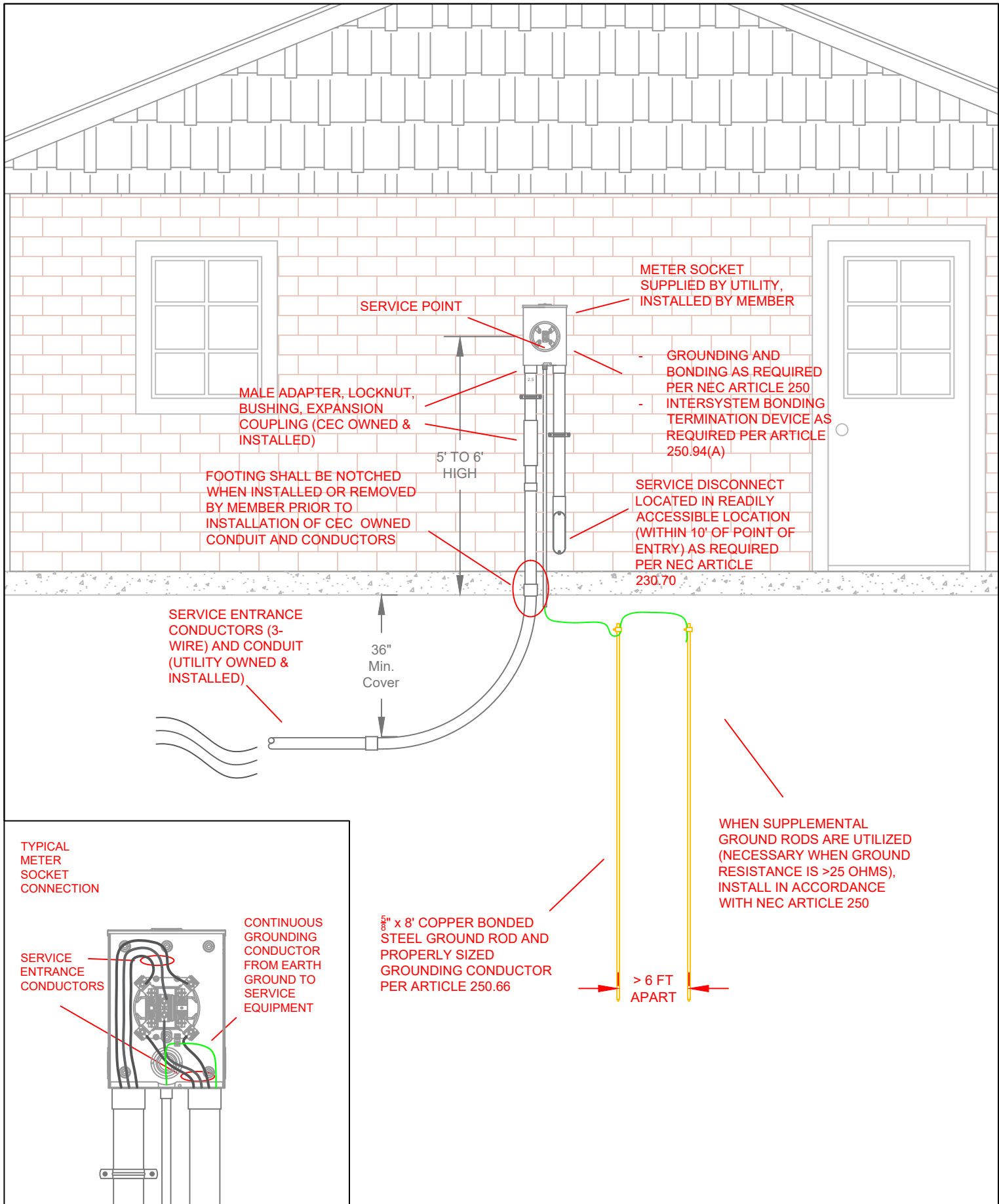


Attachment on Structure

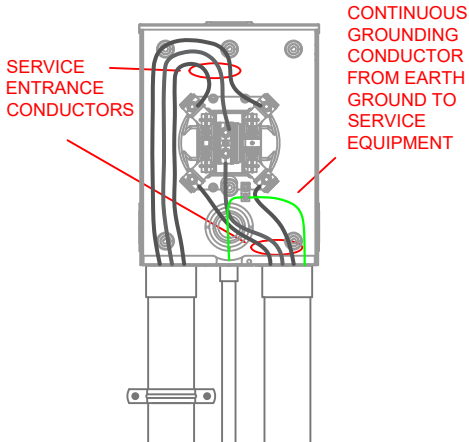
Service Clevis with Bolt

Vertical Clearance:
18' - Driveway
12' - Pedestrian

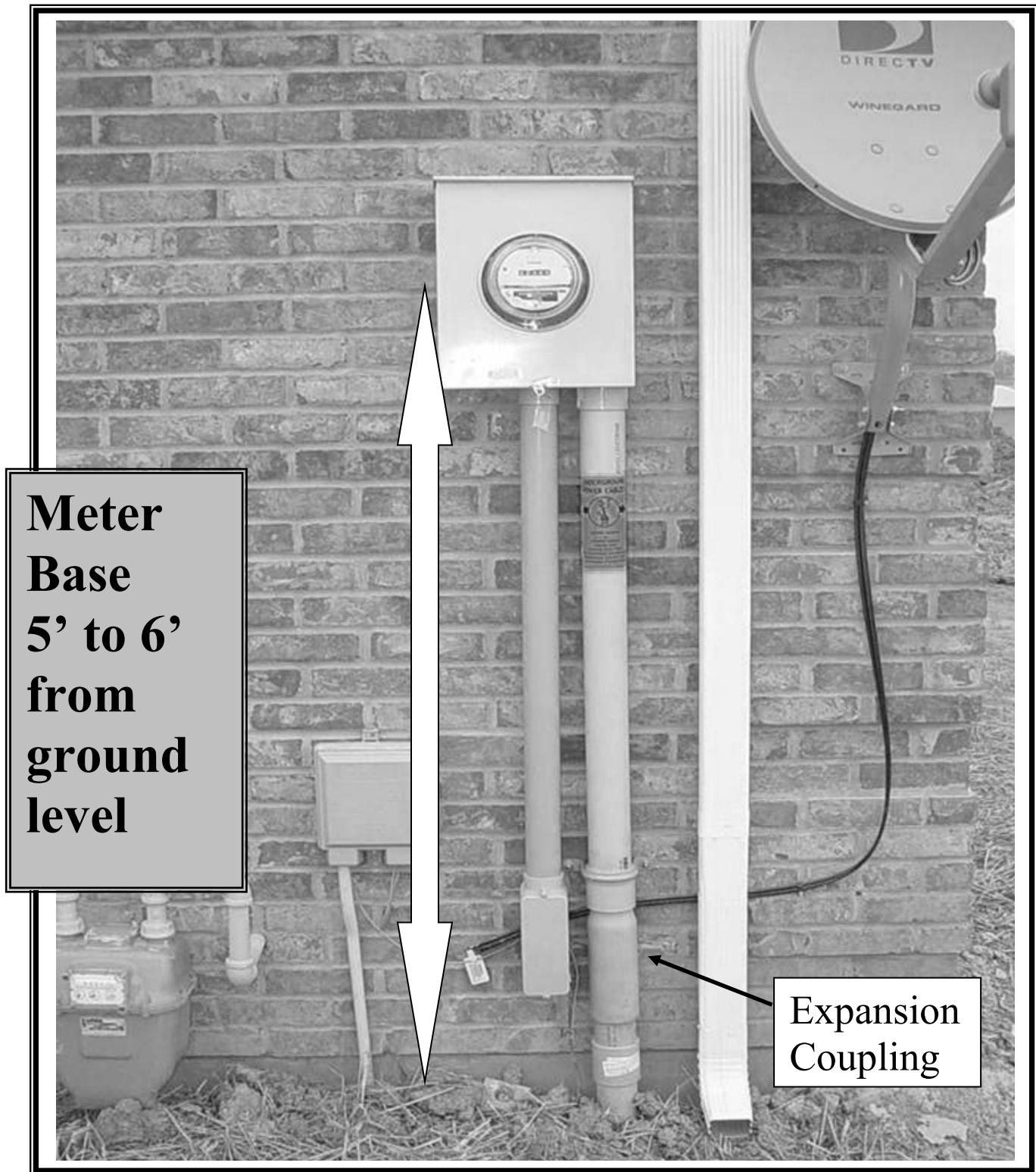


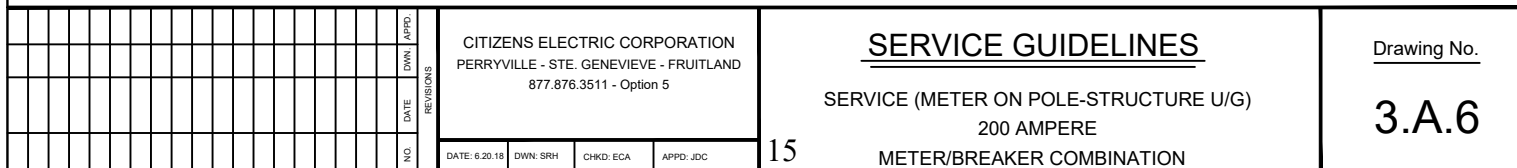


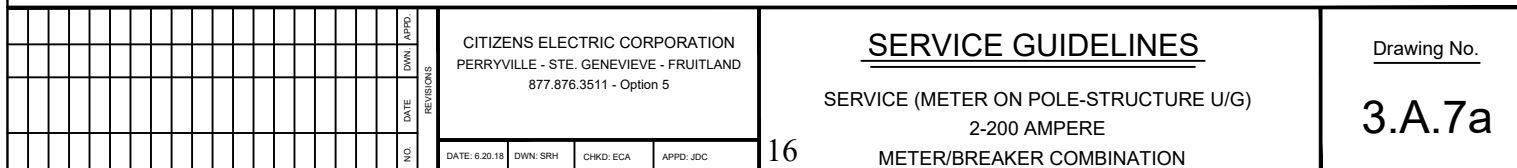
TYPICAL METER SOCKET CONNECTION

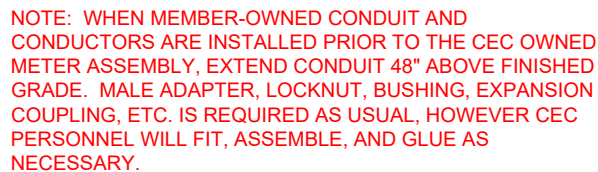


Meter on Structure, Underground





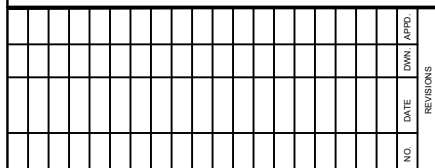


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DATE: 6.20.18	DWN: SRH	CHKD: ECA	APPD: JDC
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SERVICE (METER ON POLE-RECREATIONAL)
200 AMPERE
METER/BREAKER COMBINATION

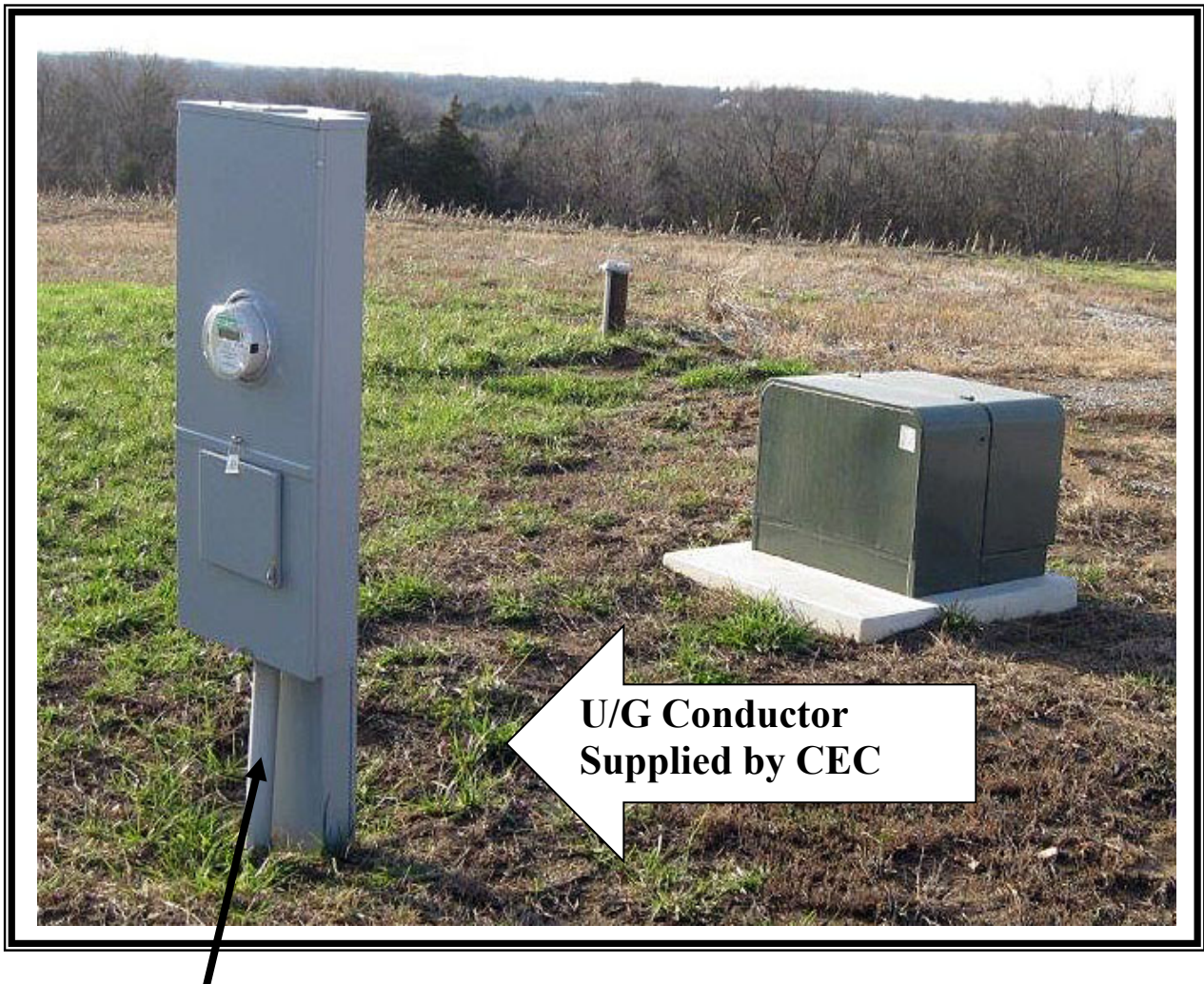
3.A.9



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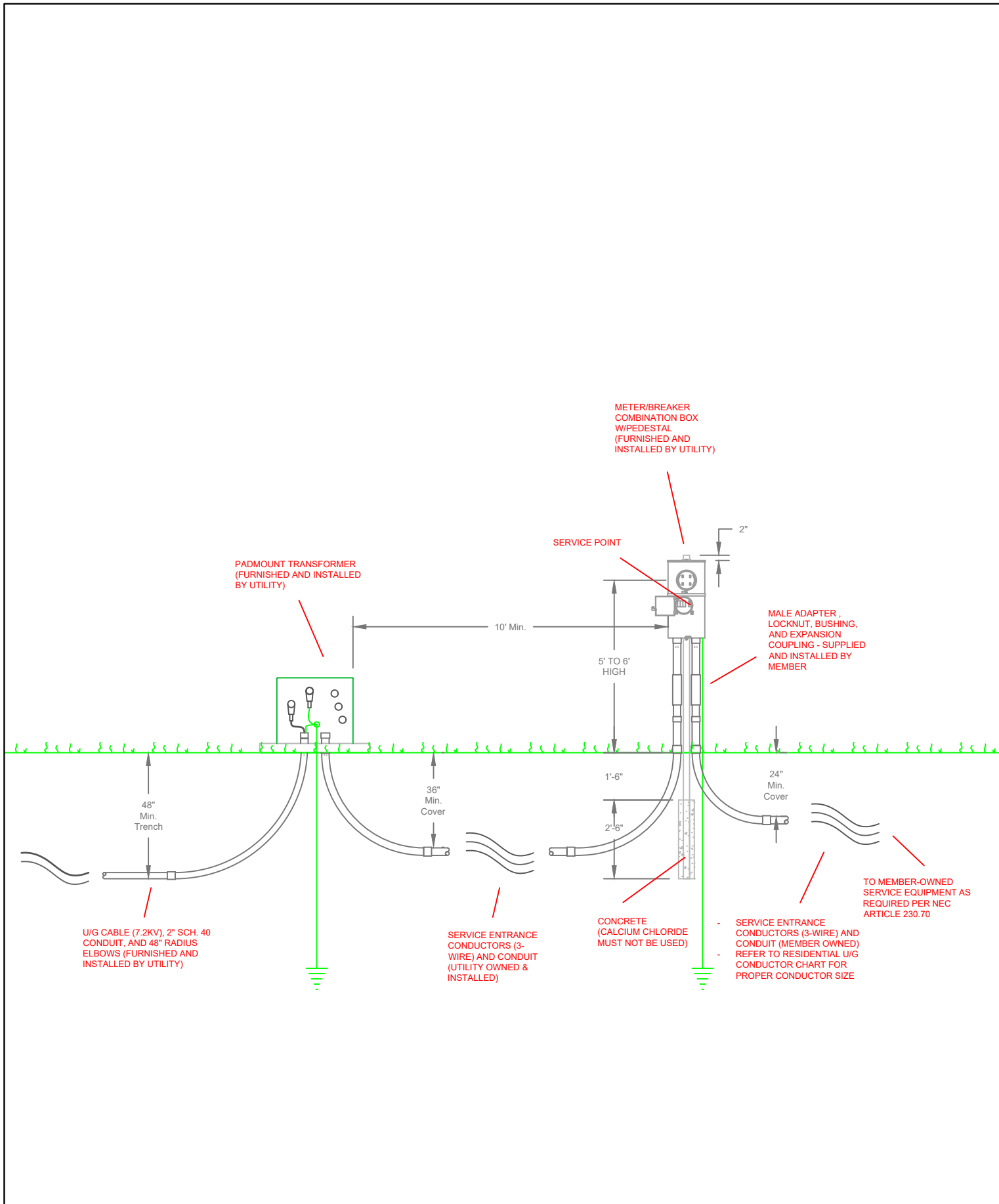
3.A.10a

Metering Pedestal, Underground

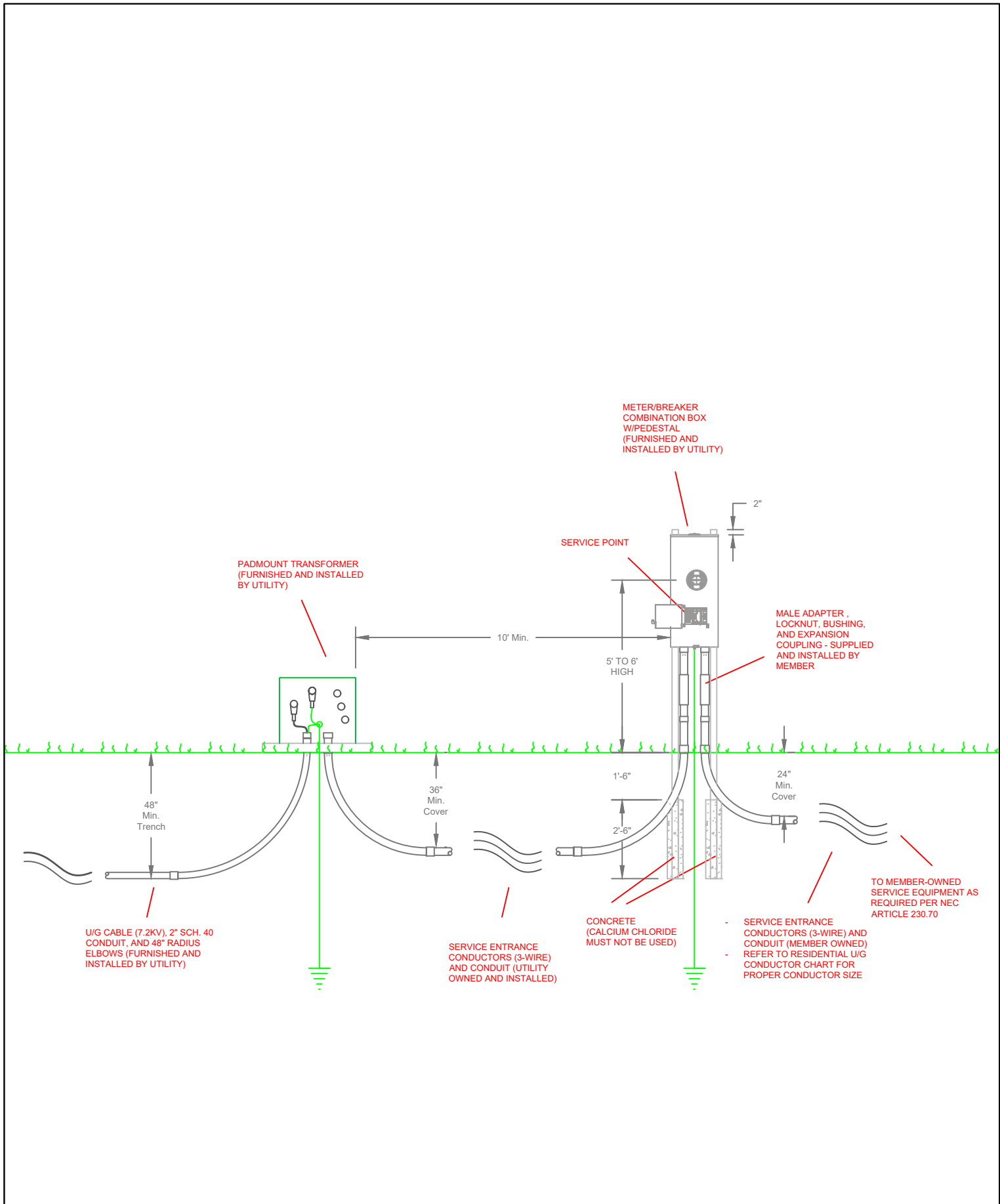


**U/G Conductor
Supplied by CEC**

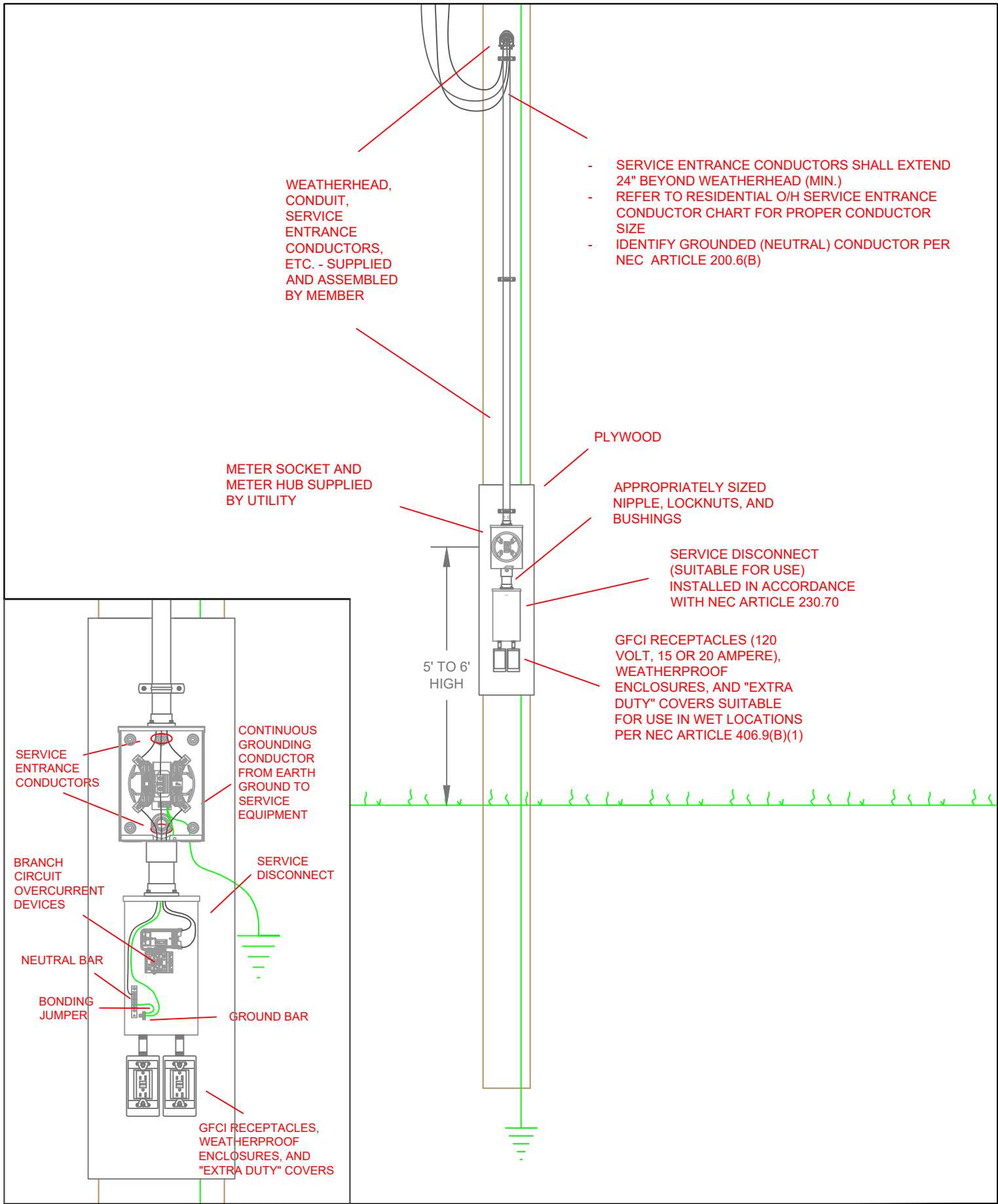
**Conduit & U/G
Conductor to
House or
Building
Supplied by
Customer**



												CITIZENS ELECTRIC CORPORATION PERRYVILLE - STE. GENEVIEVE - FRUITLAND 877.876.3511 - Option 5				SERVICE GUIDELINES SERVICE (METERING PED. ALT. U/G SOURCE) 200 AMPERE METER/BREAKER COMBINATION				Drawing No. 3.A.10b	
												DATE: 6.20.18 DWN: SRH CHKD: ECA APPD: JDC				22					



												CITIZENS ELECTRIC CORPORATION PERRYVILLE - STE. GENEVIEVE - FRUITLAND 877.876.3511 - Option 5				SERVICE GUIDELINES SERVICE (METERING PEDESTAL U/G SOURCE) 320 AMPERE METER/BREAKER COMBINATION				Drawing No. 3.A.11	
												DATE: 6.20.18 DWN: SRH CHKD: ECA APPD: JDC				23					



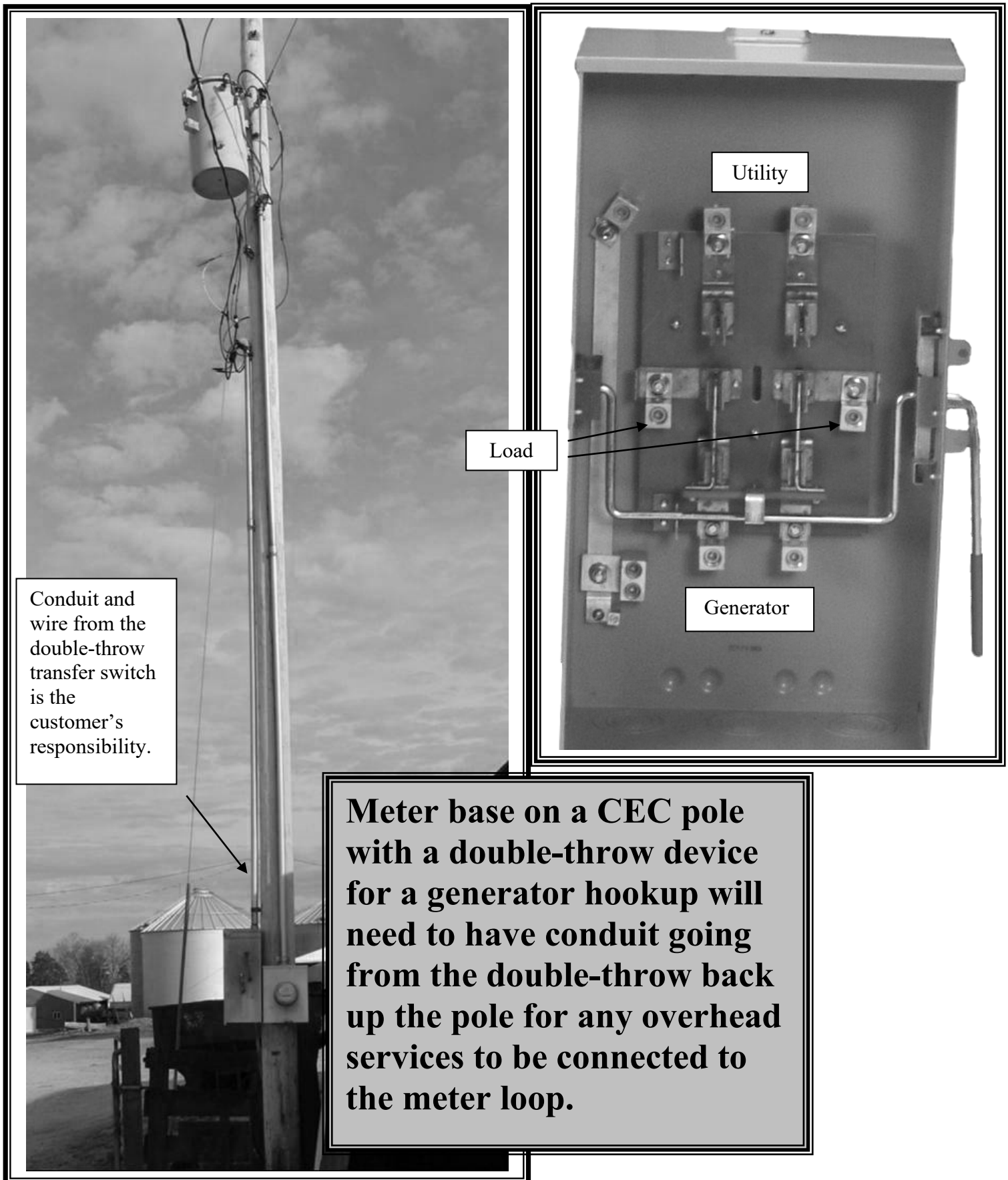
NO.	DATE	BY	APPD.
1	2.20.2020	SRH	JDC

CITIZENS ELECTRIC CORPORATION			
PERRYVILLE - STE. GENEVIEVE - FRUITLAND			
877.876.3511 - Option 5			
DATE: 6.20.19	DWN: SRH	CHKD: ECA	APPD: JDC

SERVICE GUIDELINES
SERVICE (CONSTRUCTION POWER-O/H)
100 AMPERE
STANDARD METER SOCKET

Drawing No.
3.B.1

Meter Loop with Double-Throw Switch



MEMBER-OWNED RESIDENTIAL **UNDERGROUND** SERVICE ENTRANCE CONDUCTOR SIZE - SINGLE PHASE, 120/240 VOLT SYSTEMS

Based on 2017 NEC Table 310.15(B)(16) and sized in accordance with NEC Articles 310.15(B)(3)(a) and 310.15(B)(7)(1).

Copper (THHN/THWN/THWN-2)

<u>Service Equipment Rating</u>	<u>Limiting Conductor Temperature Rating</u>	<u>Required Ampacity</u>	<u>Minimum Conductor Size</u>	<u>Conductor Ampacity</u>	<u>Maximum Length @ 83% & 3% Voltage Drop</u>	<u>Maximum Length @ 100% & 3% Voltage Drop</u>	<u>Minimum Conduit Size</u>	<u>Minimum Size of Grounding Electrode Conductor (AWG)</u>
100	60°C	83	3 - #3 3 - #2 (Option)	85 95	189 228	- -	1"(SCH. 40 PVC), 1.25"(SCH.80 PVC) 1.25"(SCH.40, SCH. 80 PVC)	#8 Copper
150	75°C	125	3 - #1 3 - #1/0 (Option)	130 150	181 222	- 185	1.25"(SCH.40, SCH. 80 PVC) 1.25"(SCH. 40 PVC), 1.5"(SCH.80 PVC)	#6 Copper
200	75°C	166	3 - #2/0 3 - #3/0 (Option)	175 200	197 246	- 205	1.5"(SCH.40, SCH.80 PVC) 2"(SCH.40, SCH.80 PVC)	#4 Copper
300	75°C	249	3 - 250 kcmil	255	219	182	2"(SCH. 40 PVC), 2.5"(SCH.80 PVC)	#2 Copper
400	75°C	332	3 - 400 kcmil	335	221	184	2.5"(SCH. 40 PVC), 3"(SCH.80 PVC)	#1/0 Copper

Aluminum (RHH/RHW/RHW-2)

<u>Service Equipment Rating</u>	<u>Limiting Conductor Temperature Rating</u>	<u>Required Ampacity</u>	<u>Minimum Conductor Size</u>	<u>Conductor Ampacity</u>	<u>Maximum Length @ 83% & 3% Voltage Drop</u>	<u>Maximum Length @ 100% & 3% Voltage Drop</u>	<u>Minimum Conduit Size</u>	<u>Minimum Size of Grounding Electrode Conductor</u>
100	60°C	83	3 - #1 3 - #1/0 (Option)	85 100	181 228	- 189	2"(SCH.40, SCH.80 PVC) 2"(SCH.40, SCH.80 PVC)	#8 Copper
150	75°C	125	3 - #2/0 3 - #3/0 (Option)	135 155	181 222	150 185	2"(SCH.40, SCH.80 PVC) 2"(SCH. 40 PVC), 2.5"(SCH.80 PVC)	#6 Copper
200	75°C	166	3 - #4/0 3 - 250 kcmil (Option)	180 205	197 231	164 191	2.5"(SCH.40, SCH.80 PVC) 3"(SCH. 40, SCH.80 PVC)	#4 Copper
300	75°C	249	3 - 350 kcmil	250	198	164	3"(SCH. 40, SCH.80 PVC)	#2 Copper
400	75°C	332	3 - 600 kcmil	340	213	176	3.5"(SCH. 40 PVC), 4"(SCH.80 PVC)	#1/0 Copper

MEMBER-OWNED RESIDENTIAL **OVERHEAD** SERVICE ENTRANCE CONDUCTOR SIZE - SINGLE PHASE, 120/240 VOLT SYSTEMS

Based on 2017 NEC Table 310.15(B)(16) and sized in accordance with NEC Articles 310.15(B)(3)(a) and 310.15(B)(7)(1).

Copper (THHN/THWN/THWN-2)

<u>Service Equipment Rating</u>	<u>Limiting Conductor Temperature Rating</u>	<u>Required Ampacity</u>	<u>Minimum Conductor Size</u>	<u>Conductor Ampacity</u>	<u>Minimum Conduit Size ¹</u>	<u>Minimum Size of Grounding Electrode Conductor</u>
100	60°C	83	3 - #2	84	1"(RMC), 1.25"(SCH.40, SCH.80 PVC)	#8 Copper
150	75°C	125	3 - #1/0	132	1.25"(RMC, SCH.40 PVC), 1.5"(SCH.80 PVC)	#6 Copper
			3 - #2/0 (Option)	154	1.5"(RMC, SCH.40, SCH.80 PVC)	#4 Copper
200	75°C	166	3 - #3/0	176	1.5"(RMC), 2"(SCH.40, SCH.80 PVC)	#4 Copper
			3 - #4/0 (Option)	202	2"(RMC, SCH.40, SCH.80 PVC)	#2 Copper
300	75°C	249	3 - 300 kcmil	251	2.5"(RMC, SCH. 40, SCH.80 PVC)	#2 Copper
400	75°C	332	3 - 500 kcmil	334	3"(RMC, SCH. 40, SCH.80 PVC)	#1/0 Copper

Aluminum (RHH/RHW/RHW-2)

<u>Service Equipment Rating</u>	<u>Limiting Conductor Temperature Rating</u>	<u>Required Ampacity</u>	<u>Minimum Conductor Size</u>	<u>Conductor Ampacity</u>	<u>Minimum Conduit Size ¹</u>	<u>Minimum Size of Grounding Electrode Conductor</u>
100	60°C	83	3 - #1/0	88	2"(RMC, SCH.40, SCH.80 PVC)	#8 Copper
150	75°C	125	3 - #3/0	136	2"(RMC, SCH.40 PVC), 2.5"(SCH.80 PVC)	#6 Copper
			3 - #4/0 (Option)	158	2.5"(RMC, SCH. 40, SCH.80 PVC)	#4 Copper
200	75°C	166	3 - 250 kcmil	180	2.5"(RMC), 3"(SCH.40, SCH.80 PVC)	#4 Copper
			3 - 350 kcmil (Option)	220	3"(RMC, SCH. 40, SCH.80 PVC)	#2 Copper
300	75°C	249	3 - 500 kcmil	273	3.5"(RMC, SCH. 40, SCH.80 PVC)	#2 Copper
400	75°C	332	3 - 750 kcmil	339	4"(RMC, SCH. 40, SCH. 80 PVC)	#1/0 Copper

Note: ¹ Minimum conduit required when utilizing a mast that supports the service drop conductors is 2-1/2" RMC.

MEMBER-OWNED RESIDENTIAL **OVERHEAD TRIPLEX** SERVICE CONDUCTOR SIZE - SINGLE PHASE, 120/240 VOLT SYSTEMS

Based on 2017 NEC Table 310.15(B)(20) and sized in accordance with NEC Article 310.15(B)(7)(1).

Aluminum (XHHW)*

<u>Service Equipment Rating</u>	<u>Limiting Conductor Temperature Rating</u>	<u>Required Ampacity</u>	<u>Minimum Conductor Size</u>	<u>Conductor Ampacity</u>	<u>Maximum Length @ 83% & 3% Voltage Drop</u>	<u>Maximum Length @ 100% & 3% Voltage Drop</u>
100	<u>75°C</u>	83	#3 #2 (Option)	92 106	120 153	- 124
150	<u>75°C</u>	125	#1/0 #2/0 (Option)	143 165	152 191	- 155
200	<u>75°C</u>	166	#3/0 #4/0 (Option)	192 224	172 212	- 172
300	<u>75°C</u>	249	250 kcmil	251	155	-
400	<u>75°C</u>	332	400 kcmil	339	165	-

* XLP is XHHW equivalent NEC type