

Canoochee Electric Membership Corporation (CEMC) Project Requirements At Fort Stewart and Hunter Army Airfield:

Canoochee EMC is responsible for the operation, maintenance, and power line extension of the Fort Stewart (FS) and Hunter Army Airfield (HAAF) electrical distribution systems. Line extensions for new construction projects are designed and constructed in accordance with Rural Utility Specifications (RUS) and the National Electric Safety Code (NESC.)

Line extensions to serve new facilities at Fort Stewart and HAAF may be overhead or underground construction as required by project specifications or site conditions.

Overhead Construction

CEMC will furnish all labor and overhead distribution equipment such as wood poles, transformers, transformer assemblies, primary and secondary conductor (400 amp and smaller) in accordance with the Canoochee EMC Line of Demarcation Policy, overhead conductor pole hardware, guying, secondary, services, and grounding as required for overhead construction.

Underground Construction

CEMC will furnish all labor and underground distribution equipment such as pad mounted transformers, transformer assemblies, concrete pad, riser assemblies, primary and secondary conductor (400 amp and smaller) in accordance with the Canoochee EMC Line of Demarcation Policy, meter bases, meters, lighting fixtures, lighting poles, lighting contactor, and lighting conductor as required for underground construction.

Note: Due to Force Protection requirements, transformers will be located at least 33 feet from any building with an occupancy of 11 people or greater. When the occupancy exceeds 50 people the distance increases to 82 feet. Protection bollards will be installed by GC if required.

Conductor Terminations

CEMC will make all electrical connections of conductors terminating in over head and pad mounted transformers, street lighting, and primary conductor riser assemblies. Wire sizing must be coordinated with Canoochee EMC to assure timely termination.

<u>Conduit</u>

In accordance to a meeting between DPW on August 26th 2010 The General Contractor will provide and install for underground construction all primary conduit of 4" or 6" diameter buried a minimum of <u>48 inches deep</u> for (MCA) COE Projects as directed per project. Conduit will be of appropriate schedule type PVC, XLP or PE. <u>Each conduit shall contain a pull string and stubbed up 36" above</u> <u>finish grade.</u> This directive will require coordination between the GC through the appropriate DPW project manager and Canoochee EMC.

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GC shall furnish and install all service entrance conductors and conduit from meter to the load center.

Metering

The GC will install self contained meter bases for 400 Amp and less load centers. Meter bases will be mounted on the building exterior between 3'-6" and 5'-0" above finished grade. For load centers greater than 600 Amp or structures larger than 4000 square feet requiring pulse metering, Current Rated Transformer (CT) metering will be furnished by and installed by CEMC at the transformer location.

Self-Contained meter bases will be issued to the GC (or electrical sub-contractor) at the CEMC Operating Headquarter locations shown in Table 1

Canoochee EMC Operating Headquarter					
Base Address Building Contact Name Phone Number					
Fort Stewart	83 Italy St.	1099	Shawn Crosby	912-459-1112	
Hunter Army Airfield 443 S. Douglas St. 1035 Stacy Brinson 912-459-11					
Table 1					

Table 1

Coordination / Scheduling

An overall project schedule will be provided by the GC to CEMC at the start of the project for CEMC to design the electrical requirements, order equipment and manage lead time and delivery schedules, clear right of way, and install the electrical facilities.

Changes of the project schedule by the GC affecting CEMC's schedule and/or scope of work will require the approval by CEMC and the Department of Public Works (DPW) or Corp of Engineering (CO) Project Manager (as appropriate.)

Adequate time will be provided by the GC in the project schedule for CEMC construction or demolition activities.

Contractually, CEMC cannot start any project until a Notice to Proceed (NTP) has been received from our contracting officer. Third party jobs fees must be paid before construction can begin.

The GC will ensure the site is on grade elevation prior to the start of work by CEMC. The CEMC work area will need to be clear of obstructions such as materials; equipment lay down areas, earthen backfill, and/or temporary services and portable structures.

The GC will provide site coordination between CEMC and its other project subcontractors to ensure CEMC is allowed full un-restricted access to the site to install or demo of facilities in a start to competition timeframe.

CEMC will require a reasonable number of working days to complete the installation of the underground facilities. CEMC requires a minimum of 14 and a maximum of 21 calendar day's written notice of the date when the installation of underground facilities may commence. To be considered ready for the installation of CEMC underground

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facilities a site must be at final grade, but not at final compaction. CEMC will in no way be responsible for additional work required due to additional compaction or the relocation of facilities when proper coordination is not received.

Examples of Coordination/Scheduling conflicts:

- 1. CEMC is scheduled to trench where soil compaction for a parking lot is complete. CEMC trenching is not typical of compaction levels for parking lots. CEMC will not be liable for parking lot repairs if scheduled after soil compaction by GC.
- 2. CEMC is scheduled to install street light poles on foundations, but GC has a portion of the foundations installed. Revisit may increase project cost.
- 3. CEMC is scheduled to set transformers, but secondary conductors have not been installed by electrical sub-contractor and stubbed up at the transformer for termination by EMC. Revisit may increase project cost.

Canoochee EMC Scheduling Contacts

Base	Primary	Phone Number	Secondary	Phone Number	
Fort Stewart	Walt Lee	912-459-1112	Joe Holton	912-459-1112	
		extension 3003		extension 3002	
Hunter Army	Stacy Brinson	912-459-1113	Daniel Phillips	912-459-1113	
Airfield	,	extension 6000		extension 6004	
Table 2					

Equipment Lead Time

The project schedule should include an appropriate amount of time for CEMC to order long lead time equipment as shown in Table 3.

Typical Equipment Lead Times	
Component	Months
Transformers, Switchgear, Circuit Protection (Reclosers)	5
Lighting Poles (Aluminum) and Luminaries	3
Overhead or Underground conductor, hardware, meters	1
Table 3	

Fast track projects such as portable classrooms, temporary mobile offices, and other such similar structures present a challenge as contractors often erect a temporary facility faster than lead times for Aluminum street light poles and decorative fixtures.

For fast track lighting projects, wood pole construction with standard Utility (gray) Cobra head luminaries should be considered.

Right of Way Clearing

The Forestry Department at Fort Stewart and Hunter Army Airfield will coordinate the removal of all merchantable timber in the Right of Way path of Canoochee EMC's power distribution system. Upon removal of merchantable timber, Canoochee EMC will use their discretion in the determination of the right of way width and type of vegetation for removal or disposal.

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Lighting

Design Parameters

The following pages define the lighting and pole standards offered by Canoochee EMC for installation at Fort Stewart and Hunter Army Airfield.

CEMC will provide lighting equipment <u>specifications</u> for poles, fixtures, bases, break a way bases, foundations, and base mounted pole anchor bolt patterns.

Lighting should be designed to meet both IES guidelines and Dark Sky initiatives. Considerations should be given in the design for prevention of glare and light intrusion into adjacent areas.

Base Mounted poles should be selected for areas where the poles are to be installed within 4 feet of the curb. For high traffic impact, concrete foundation should be specified for installation 36 inches above final grade. For low traffic impact, concrete foundation should be specified for installation 3 inches above final grade. All foundations shall be plumb (level) with the bolts being plumb and with a smooth, level mounting surface. For areas near road level breakaway bases will be used. For areas with no traffic impact, Direct Bury poles should be specified.

High Pressure Sodium and Metal Halide lighting are both utilized on Fort Stewart and Hunter Army Airfield. High Pressure Sodium is preferred for Residential areas, Motor Pools, and along major Roadways. Metal Halide is preferred for Commercial areas, Offices, and the Garrison areas of the base.

Security Cameras

Canoochee EMC does not allow security cameras to be attached to or mounted on distribution power or street lighting poles. (NESC /NEC Code Compliance requirement.)

Bollard Lighting

CEMC does not offer new bollard lighting in the lighting standards.

General Contractor installation Requirements

GC will furnish and install all foundations and conduit for underground lighting. All lighting conduits shall be 11/2" diameter and buried a minimum of <u>30 inches deep. Each</u> conduit will contain a pull string. For direct bury poles, conduit shall be stubbed up 36" above finish grade at each pole location.

General Contractor installation Requirements (Continued)

GC will install all concrete pole base foundations with three feet protruding above grade in areas where vehicles park or travel in close proximity to the street light location and/or foundations with breakaway bases. Direct buried street light poles will be installed by CEMC in areas where poles are protected or located out of vehicular parking or travel.

GC will furnish and install the anchor bolts and a pole ground consisting of an 8' ground rod 5/8" in diameter with a #6 solid copper or equivalent in all street lighting foundations at the time the foundations are poured.

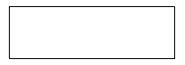
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Utilities Protection at Fort Stewart

Canoochee EMC is a charter member of the Fort Stewart Hunter Army Airfield Utility Coordination Committee (FSHAAUCC). This committee is a peer group of contractors, locators, and utilities meeting the second Wednesday of each month to discuss underground dig law requirements and issues at Fort Stewart and Hunter Army Airfield.

All underground construction on both military bases is permitted by the Georgia Utilities Protection Center. Excavation requirements in Georgia require a Dig Permit obtained through the one call center....... Call before You Dig Number 1-800-282-7111.



Contractors are invited to attend these meetings to meet with utility representatives and base locator contractors for a safer work environment and protection of the military's underground infrastructure.

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Shoebox Fixture General Electric (GE) DECASHIELD Series Dark Bronze finish

Recommended for use along roadways or in parking lots where large amounts of light are desired and aesthetics are of a primary concern. The adapter allows designer to install one, two, three, or four lights per pole.



Shoebox				
	Voltage	Wattage	Туре	Design
M27-S15-BR	SYL Multi-Volt	150W	МН	Shoebox-Bronze
M27-S25-BR	SYL Multi-Volt	250W	МН	Shoebox-Bronze
M27-S40-BR	SYL Multi-Volt	400W	МН	Shoebox-Bronze
M27-S100-BR	SYL Multi-Volt	1000W	МН	Shoebox-Bronze

Note: These units are multi-wattage.

Shoebox Accessories			
	M25-S1-BR	Pole Top Tenon Adapter Square	

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Post Top Fixture General Electric (GE) Salem Post Top Series Dark Bronze or Black Finish

These fixtures are recommended for use in residential areas and Garrison areas subject to high likelihood of damage. Typical example: walkways, barracks and office buildings.



Standard Post Top

	Voltage	Wattage	Туре	Design
M26-PS10-BL	SYL Multi-Volt	100W	HPS	Salem Post Top-Black
M26-PS10-BR	SYL Multi-Volt	100W	HPS	Salem Post Top-Bronze
M27-PS15-BR	SYL Multi-Volt	150W	MH	Salem Post Top-Bronze
M27-PS15-BL	SYL Multi-Volt	150W	MH	Salem Post Top-Black

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Premium Post Top Fixtures

General Electric (GE) Dynamics 547 Series Black finish

Recommended for use in high visibility residential neighborhoods where the likelihood of damage is small. These fixtures may be used with fiberglass or aluminum poles.



Premium Post Top					
	Voltage	Wattage	Туре	Design	
M26-PD15-BK	SYL Multi-Volt	150W	HPS	D547 Post Top-Black	
Those units used in housing prove only					

These units used in housing areas only.

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Standard Cobra head

General Electric (GE) M250R Series Grey Finish recommended for use along roadways

where aesthetics are not of primary concern



Standard C	obra head		
Voltage	Wattage	Туре	Design
Volt	250W	HPS	Cobrahead-Gray
SYL Multi-			
Volt	400W	HPS	Cobrahead-Gray
	Voltage SYL Multi- Volt SYL Multi-	SYL Multi- Volt 250W SYL Multi-	Voltage Wattage Type SYL Multi- Volt 250W HPS SYL Multi- 250W HPS

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Premium Cobrahead Fixtures Cut-Off General Electric (GE) M-250R Series

Bronze or black finish

Recommended for use in non-residential areas where aesthetics are not of primary concern.



Premium Cobrahead							
M26-C15	SYL Multi-Volt	150W	HPS	Cobrahead-Gray			
M26-C25	SYL Multi-Volt	250W	HPS	Cobrahead-Gray			
M26-C40	SYL Multi-Volt	250W	HPS	Cobrahead-Gray			
M26-C25-BL	SYL Multi-Volt	250W	HPS	Cobrahead-Black			
M26-C40-BL	SYL Multi-Volt	250W	HPS	Cobrahead-Black			
M26-C25-BR	SYL Multi-Volt	250W	HPS	Cobrahead-Bronze			
M26-C40-BR	SYL Multi-Volt	400W	HPS	Cobrahead-Bronze			
M27-C40-BR	SYL Multi-Volt	400W	МН	Cobrahead-Bronze			

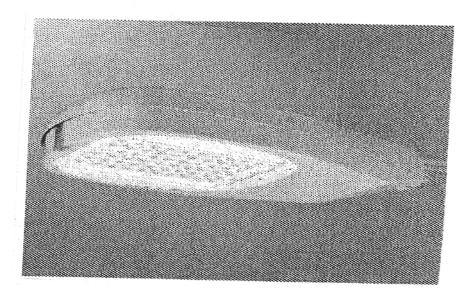
Premium Cobrahead Accessories

M25-C1-BRX	8' Bronze Aluminum Arm Tenon Mount			
M25-C1-BLX	8' Black Aluminum Arm Tenon Mount			
M25-C1-BR-4	4' Bronze Aluminum Single Arm Tenon Mount			
M25-C1-BL-4	4' Black Aluminum Single Arm Tenon Mount			
M25-C2-BR-4	2-BR-4 4' Bronze Aluminum Double Arm Tenon Mount			
M25-C2-BL-4	M25-C2-BL-4 4' Black Aluminum Double Arm Tenon Mount			

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LED Cobrahead Fixtures



LED Fixtures

	Voltage	Wattage	Туре	Design	
M30-C25-BR	250 Watt Equiv SYL Multi-Volt	77 W	LED	Cobra Head - Bronze	
M30-C40-BR	400 Watt Equiv SYL Multi-Volt	101 W	LED	Cobra Head - Bronze	

LED Accessories

M25-SF	Light Arm Slipfitter Adapter

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LED Post Top Fixture Cooper Streetworks Salem Post Top Series Dark Bronze or Black Finish

These fixtures are recommended for use in residential areas and Garrison areas subject to high likelihood of damage. Typical example: walkways, barracks and office buildings.



Standard Post Top

	Voltage	Lumens	Туре	Design
	SYL Multi-Volt	5000 Lumens	LED	Salem Post Top-Black
	SYL Multi-Volt	5000 Lumens	LED	Salem Post Top-Bronze

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Power Floodlight General Electric Power Directional Flood Light Dark Bronze

Recommended for use in areas where large areas need to be lighted and aesthetics are of secondary importance.



Floodlights

	Voltage	Wattage Type Design		Design		
M26-F25-BR	SYL Multi-Volt	250W	HPS	PowerFlood-Bronze		
M26-F40-BR	SYL Multi-Volt	400W	HPS	PowerFlood -Bronze		
M26-F100-BR	SYL Multi-Volt	1000W	HPS	PowerFlood –Bronze		
M27-F40-BR	SYL Multi-Volt	400W	MH	PowerFlood -Bronze		
M27-F100-BR	SYL Multi-Volt	1000W	MH	PowerFlood –Bronze		
Note: 1000 watt flood light	Note: 1000 watt flood lights are special order only. 1000 watt Sports Flood lights are available by Special Order.					

Floodlight Accessories

M25-F2-BR	Double Floodlight Arm Tenon Mount Bronze
M25-F3-BR 180 Degree	Three Floodlight Arm Tenon Mount Bronze (on 35' Direct Bury or All Base Mount Poles)
M25-F3X-BR 120 Degree	Three Floodlight Arm Tenon Mount Bronze (on 35' Direct Bury or All Base Mount Poles)
M25-F4-BR 180 Degree	Four Floodlight Arm Tenon Mount Bronze (on 33' or 40' Base Mount Pole Only)
M25-F4X-BR 90 Degree	Four Floodlight Arm Tenon Mount Bronze (on 33' or 40' Base Mount Pole Only)

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Direct Burial Poles		
PA-16-BR	16' Aluminum Pole Bronze (12' mounting height)	
PA-25-BR	25' Aluminum Pole Bronze (22' mounting height)	
PA-35-BR	35' Aluminum Pole Bronze (30' mounting height)	
PF-25-BL	25' Fiberglass Pole Black (Used in housing areas only)	

Base Mount Poles

PA-B12-BL	12' Aluminum Pole Black (12, Mounting height, requires level foundation with grade or 13.5' w/ breakaway base)
PA-B12-BR	12' Aluminum Pole Bronze (12, Mounting height, requires level foundation with grade or 13.5' w/ breakaway base)
PA-B28-BL	28' Aluminum Pole Black (28' Mounting height, requires level foundation with grade or 29.5' w/ breakaway base)
PA-B28-BR	28' Aluminum Pole Bronze (28' Mounting height, requires level foundation with grade or 29.5' w/ breakaway base)
PA-B33-BL	33' Aluminum Pole Black (33' mounting height, requires base 36" above grade)
PA-B33-BR	33'-Aluminum Pole Bronze (33' Mounting Height, requires base 36" above grade)

Note: Black poles are special order only.

Pole Foundations

PFOUNDXS	Pole Foundation Extra Small Used for flood lights at grade 4 3/4 " Bolt Pattern, 3' Length
PFOUNDS	Pole Foundation Small Used for base mounting flush with grade 12" Bolt Pattern, 3' Length
PFOUNDM	Pole Foundation Medium Used for base mounting flush with grade 12" Bolt Pattern 5' Length
PFOUNDL	Pole Foundation Large Used for base mounting 36" above grade 12" Bolt Pattern 8' Length
PFOUNDXL	Pole Foundation Extra Large Used for base mounting 36" above grade 14" Bolt Pattern 8' Length

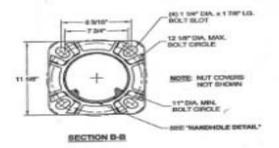
Miscellaneous Accessories

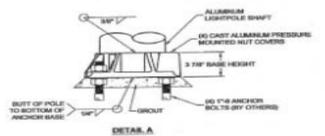
M25-PHOTO	Photo Cell Controlled Contactor
M25-TIME	Timer Controlled Contactor
P-BREAK-BL	Breakaway Base-Black adds 1.5 feet to height
P-BREAK-BR	Breakaway Base-Bronze adds 1.5 feet to height

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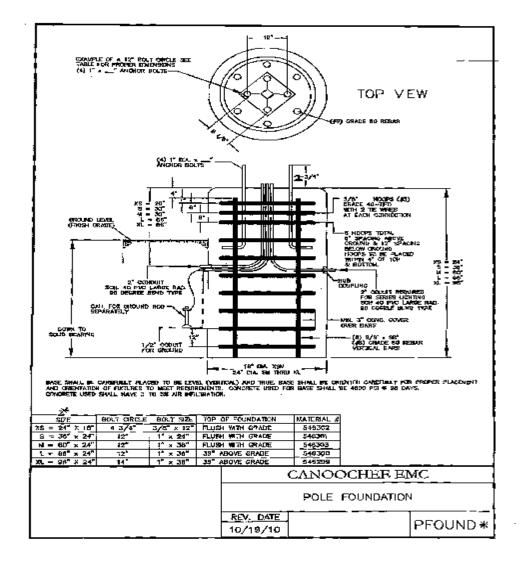




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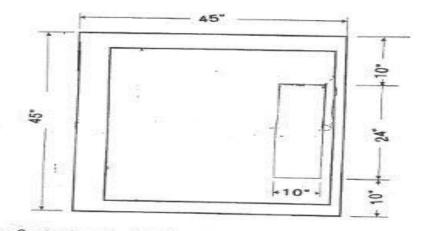


<u>Note: All foundation and bolts must be plumb. Please contact CEMC for lighting template.</u> Note: For 15' or smaller pole near traffic, Foundation should be 5' in length with 30" above grade.

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Single Phase Transformer Pad



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Note: Contractor to install all service entrance conduit in Secondary Side of pad opening.

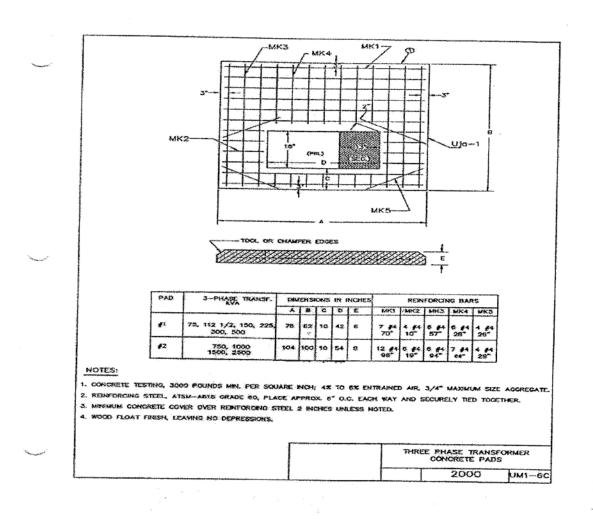
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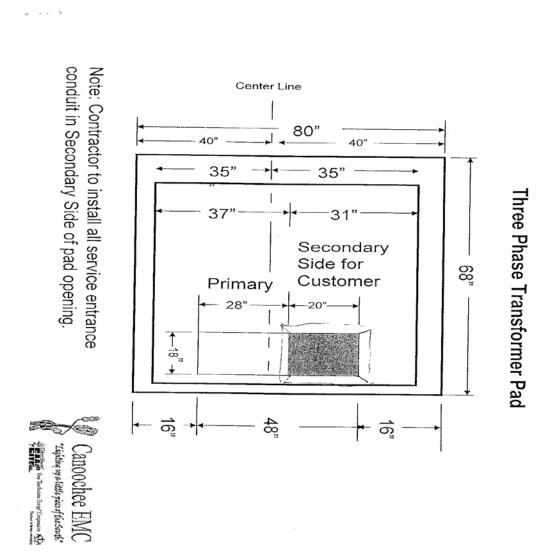


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<u>Color Coding of Customer's Service Conductors</u>. Color coding of Customer's service conductors shall be as follows in Table 3.G. [Phase arrangement shall be (A), (B), (C), front to back, top to bottom, or left to right, as viewed from the front of the service equipment and metering equipment. (N) shall be the neutral.]:

TABLE 3.G COLOR CODING OF CUSTOMER'S SERVICE CONDUCTORS								
	Phase							
Service Type	А	В	c	N				
120/240V, Single-Phase, 3-Wire	RED	BLACK		WHITE				
120/240V, 3-Phase, 4-Wire, DELTA								
Through Metering Equipment	RÈD	BLACK	ORANGE (High-Leg)	WHITE				
In Service Equipment	RED	ORANGE (High-Leg)	BLACK	WHITE				
120/208V, Single-Phase, 3-Wire	RED	BLACK		WHITE				
120/208V, 3-Phase, 4-Wire, WYE	RED	BLACK	BLUE	WHITE				
277/480V, 3-Phase, 4-Wire, WYE	BROWN	YELLOW	PURPLE	NATURAL GRAY				

Marking of conductors at all termination points will be approved for sizes #6 AWG and larger. Per COA Ordinance No. 000928-107, Section 110-35 Color Coding of Electrical Conductors – ALL COLORS SHALL BE CONSISTENT THROUGHOUT EACH SYSTEM. (Four wire wye secondary services from AE to multiple occupancy buildings require that the Customer install a four wire wye service to each occupant to satisfy to color consistency requirement of this COA ordinance.)

Note: Normal Rotation For Canoochee EMC Is Clock-Wise.

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