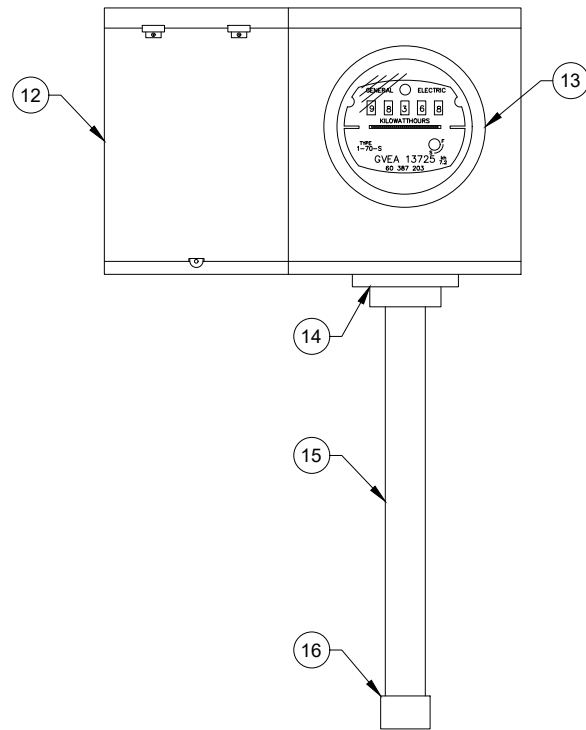


# Service Assembly Construction Detail

REVISED 03/2020



## 12 COMBINATION SERVICE ENTRANCE ENCLOSURE

All service enclosures shall be NEMA 3R outdoor type.

Meter enclosure must be sealable and have hubs and hub covers that are not removable from exterior of enclosure.

Combination service entrance enclosure shall be listed by a nationally recognized testing laboratory as suitable for use as service equipment and must be on GVEA list of approved service equipment.

### MAIN BREAKER

Standard size is 100A, 200, or 300A. Other sizes may be used upon prior approval. Fault current conditions may require Amp Interrupting rating above 10,000A. Check with a GVEA Construction Services Representative.

### NEUTRAL BUS

The neutral bus shall be directly or indirectly effectively bonded to enclosures in accordance to NEC 250.92. Install separate grounding lug in enclosure if neutral bus is not directly bonded to enclosure. Factory supplied neutral bus bonding means are subject to approval. Use of a single screw to bond grounding block to enclosure is not sufficient.

Per NEC 250.96 and 250.12, paint must be removed from surfaces in contact with grounding fittings. Exposed metal at ground points must be protected with conductive corrosion inhibitor.

Neutral bus must have three lugs for connection of the ground, neutral, and equipment grounding conductor.

## 13 METER AND SOCKET

Conductors shall be run according to manufacturer specifications.

All conductors shall be securely fastened to their respective terminals and shall be arranged in a manner which shall not interfere with the installation of the meter.

Meter socket for a 300A self-contained service must have a lever bypass and the upper right-hand jaw must be reduced or have an anti-inversion clip installed to prevent the insertion of a 200A meter.

Meter will be supplied and installed by GVEA.

## 14 THREADED HUB OR CONDUIT BONDING BUSHING

Hubs must be rated rain tight. Myers type threaded hubs approved for bonding by a nationally recognized testing laboratory are acceptable for bonding conduit to enclosures and may be substituted for conduit bonding bushings.

Standard locknuts or sealing locknuts are acceptable when used with a bonding bushing.

Where a bolt-on hub is used, it must be made by the same manufacturer as the service entrance enclosure. A bolt-on hub must be used on enclosures designed for use with a bolt on hub.

## 15 GALVANIZED RIGID OR INTERMEDIATE METAL CONDUIT

Conduit shall be rigid metal conduit (RMC) or intermediate metal conduit (IMC) and sized in accordance with Wire/Conduit Size Table.

This conduit is to be continuous. No junction boxes are permitted. Conduit bodies may be used with prior approval.

## 16 CONDUIT BUSHING

Install bushing appropriately sized for the conduit.

MATERIAL LIST		
ITEM	DESCRIPTION	QTY
12	COMBINATION SERVICE ENTRANCE ENCLOSURE	1
13	METER (OWNED & INSTALLED BY GVEA)	1
14	THREADED HUB OR BONDING BUSHING	1
15	METAL CONDUIT (RMC OR IMC)	*
16	CONDUIT BUSHING	1

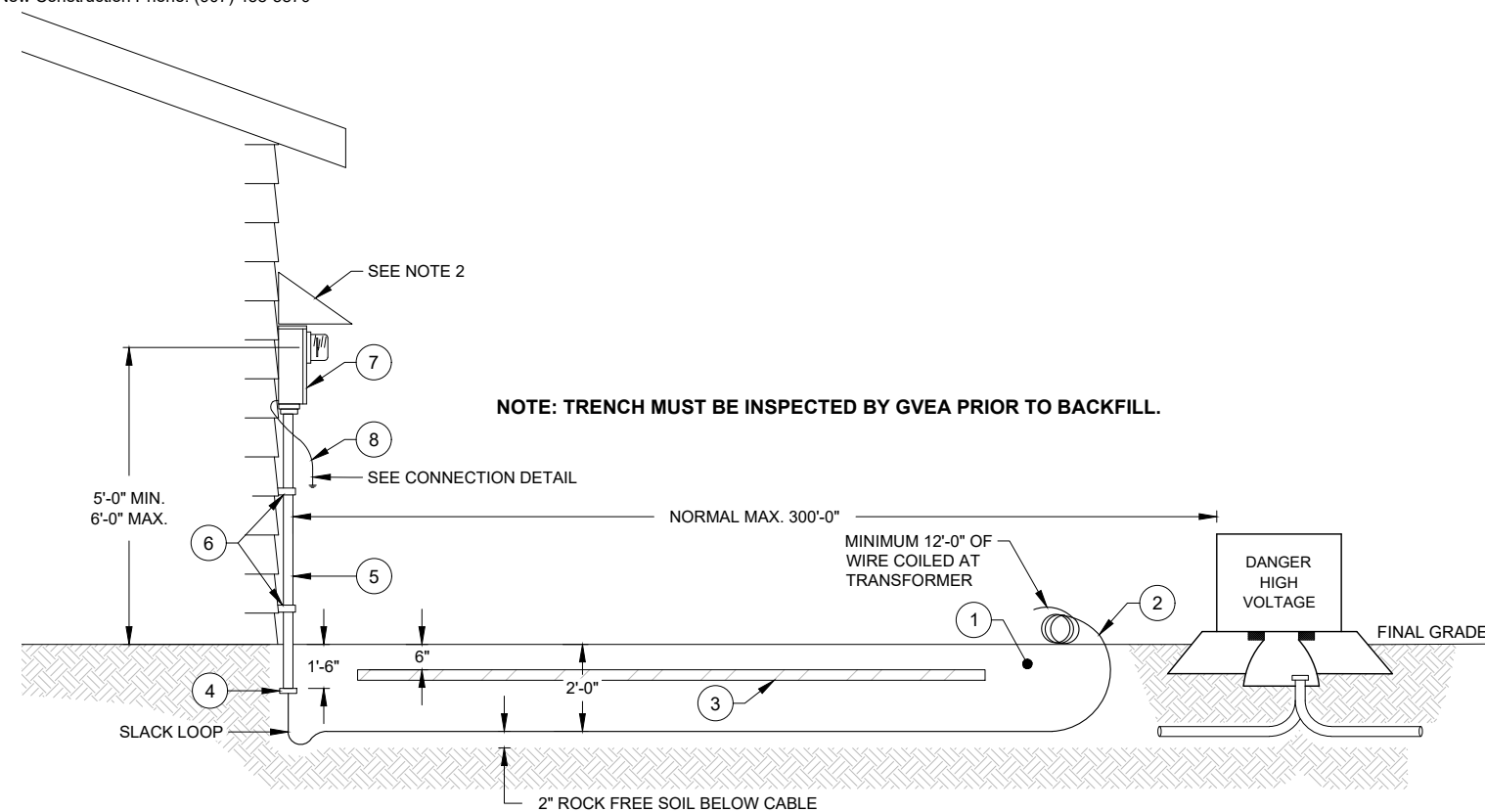
\*Quantity/Length determined by installation requirements.



**Golden Valley Electric Association, Inc.**  
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New Construction Phone: (907) 458-5870

# Construction Guide For Underground Residential Service - Meter on House (Type E)

REVISED 08/2020



## NOTES:

- Contact GVEA to determine wire size required to assure proper voltage at house.
- If roof overhang is less than 2'-0", provide suitable protection for meter from ice and snow. Protection by overhanging roof is preferred. An acceptable alternative is a protective hood made of 18 gauge (minimum) galvanized steel, fastened at the roof edge or wall, and extending out a minimum of 12" off the front of the meter enclosure and 6" on each side of the service equipment. Installation must meet all relevant code requirements.
- GVEA recommends copper wire. Aluminum wire of equal ampacity may be used provided that a GVEA approved service entrance enclosure is used and a copper pig-tail is used for connection to the service entrance. The pigtail must be connected to the aluminum wire with an approved compression splice.
- NEC and NESC require a minimum 12" separation between power and communication cable.
- Call GVEA for locate of primary lines prior to trenching.
- Underground secondary services not connected by September 30 will require special approval by GVEA. All additional costs involved in connects after this date will be borne by the member. Contractors may be required to follow special installation procedures.
- The information in this handout provides general guidelines for the installation of service equipment to meet the requirements of GVEA. It is the owner's responsibility to make sure that the service is also installed to meet all applicable city, borough, and State of Alaska codes, as well as the National Electrical Code (NEC) and National Electrical Safety Code (NESC).

MATERIAL LIST			
ITEM	QTY	DESCRIPTION	TYP. CATALOG #
1	**	TRENCH	*
2	**	CONDUCTOR	*
3	**	PLANK OR WARNING TAPE	*
4	1	CONDUIT BUSHING	*
5	**	METAL CONDUIT (RMC OR IMC)	*
6	2	CONDUIT STRAPS (RMC OR IMC)	Blackburn 16-416
7	1	SERVICE ASSEMBLY	*100A, 200A or 300A
8	**	#4AWG OR #2AWG CU WIRE	*
9	**	COPPERCLAD STAPLE	Joslyn J6652(E)
10	2	GROUND ROD CLAMP	Blackburn G5
11	2	GROUND ROD - 5/8"x8'-0"	Blackburn 6258

\*See instruction on following pages.

\*\*Quantity/Length determined by installation requirements.

# Instructions by Item Number

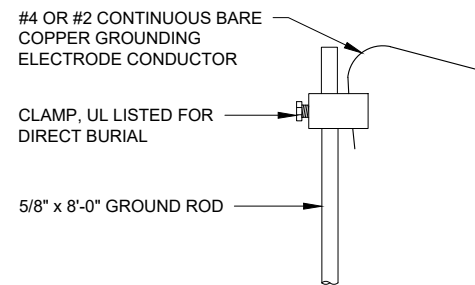
REVISED 08/2020

1. **TRENCH**  
Trench must be dug to proper depth between meter pedestal and edge of transformer pad. Hand dig when within 5'-0" of transformer pad. Installation must pass GVEA inspection prior to backfill. Backfill must be rock free.
2. **CONDUCTOR** - Type USE for Direct Burial, otherwise Type XHHW in Conduit  
Insulated conductor shall be furnished by member and INSTALLED BY MEMBER'S LICENSED ELECTRICIAN. Wire size depends on length of run. Check with GVEA's Construction Services Representative. GVEA recommends use of copper wire between transformer and meter.
3. **1"x6" PLANK OR WARNING TAPE**  
Soil below plank or marker tape must be rock free and hand backfilled to avoid cable damage.
4. **CONDUIT BUSHING**  
Install bushing appropriately sized for the conduit.
5. **GALVANIZED RIGID OR INTERMEDIATE METAL CONDUIT**  
Conduit shall be rigid metal conduit (RMC) or intermediate metal conduit (IMC) and sized in accordance with Wire/Conduit Size Table. This conduit is to be continuous. No junction boxes or conduit bodies are permitted.
6. **CONDUIT STRAPS**  
Strap must be listed for use with conduit installed. Install with screws appropriate for the material to which it is being fastened.
7. **SERVICE ASSEMBLY** - (Member's service equipment) Preassembled with Mast, Breaker, and Conductors See "Construction Guide for Overhead Residential Service Assembly" for details.



1. Prior to wiring a building or performing any electrical construction for a new service, the member shall request approval from GVEA for the location of member's service equipment, including meter(s).
2. The location of the member's service equipment shall be determined by working with GVEA's Construction Services Representative.
3. The member's service equipment shall be level, plumb, and located outside on the member's structure. The member's service equipment must be firmly supported and be in a location free from vibration, mechanical damage, and accumulating or falling ice. The meter must be accessible for reading, testing, and replacement.
4. GVEA does not permit the installation of the member's service equipment on GVEA facilities. Member's service equipment is not allowed to be installed on mobile structures.

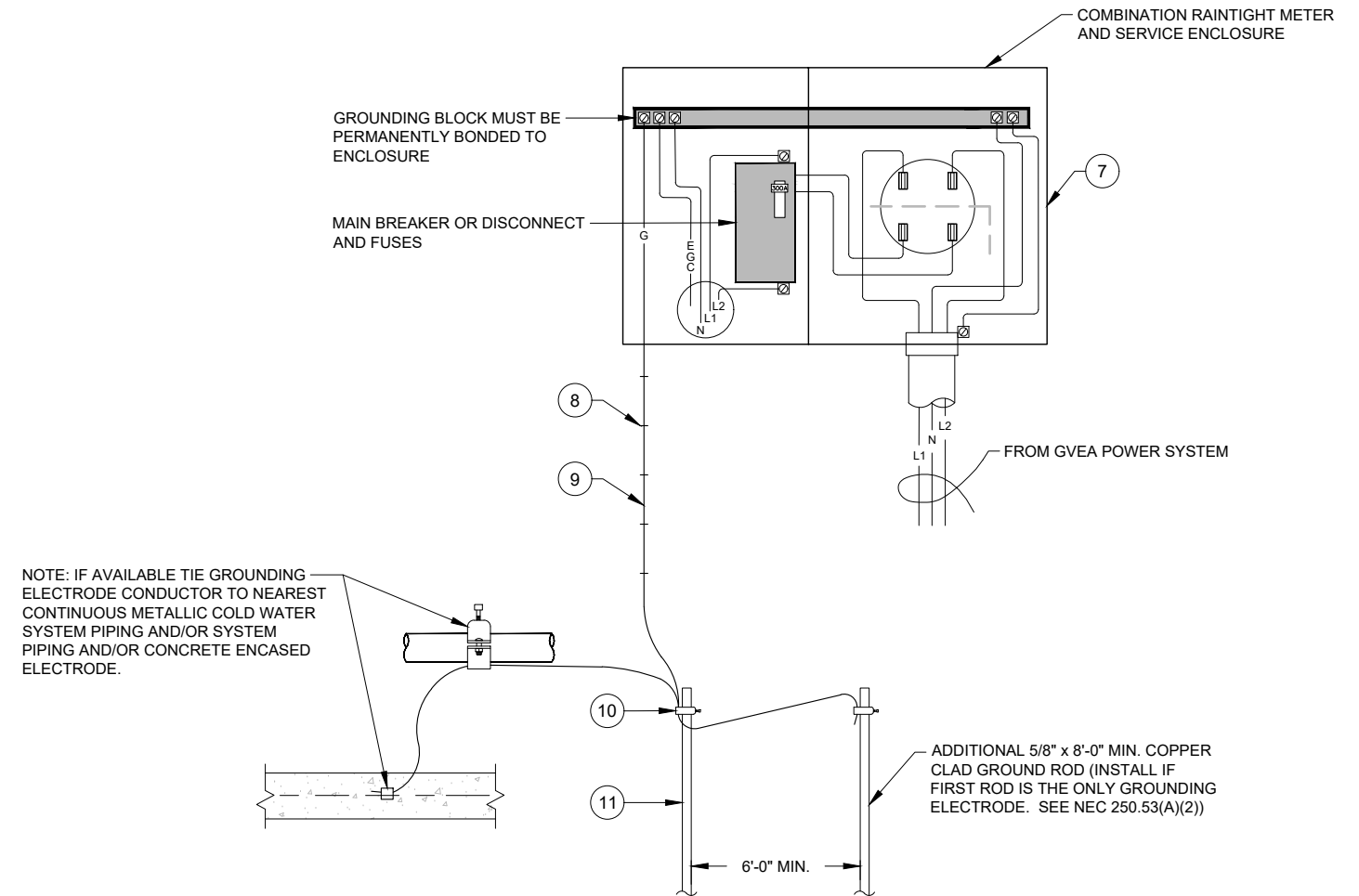
7. **SERVICE ASSEMBLY (CONTINUED)**
  5. Horizontal centerline of the meter shall be between 5'-0" and 6'-0" above the finished grade immediately in front of the meter.
  6. The distance between the vertical center line of the meter and any wall or obstruction shall be greater than 7".
  7. Member must provide and maintain a minimum 4'-0" wide path and debris free clearing between the member's service entrance mast and GVEA's pole for access to GVEA's service drop conductors. Remove any overhanging limbs or trees.
  8. All service conduit extending above the roof must be minimum 2" rigid (RMC or IMC) conduit and must be guyed.
  9. Meter socket for a 300A self-contained service must have a lever bypass and the upper right-hand jaw must be reduced or have an anti-inversion clip installed to prevent the insertion of a 200A meter.
8. **#4AWG OR #2AWG SOLID OR STRANDED BARE COPPER WIRE**  
Connect continuous grounding electrode conductor to grounding black at disconnect, then ground to minimum 5/8" x 8'-0" ground rod and, if available, connect to nearest continuous metallic cold water system. Attached with UL listed grounding connectors.
9. **STAPLE, COPPER CLAD**  
Staple Ground Wire every 6".
10. **GROUND ROD CLAMP**  
Use bronze or stainless steel clamp listed for direct burial.
11. **GROUND ROD**  
Shall be 5/8" x 8'-0" listed copper-clad. Locate at least 1'-6" from foundation or basement of building and out from under eaves. See National Electric Code, Article 250 for more information.



# Connection Detail - Meter Located On Building Being Served

REVISED 03/2020

NOTE: SEE NATIONAL ELECTRICAL CODE (NEC) FOR MORE INFORMATION



**LEGEND:**

EGC	Equipment Grounding Conductor	Green or Bare Wire
G	Grounding Electrode Conductor	Green or Bare Wire
L1,L2	Phases	Black Wires
N	Neutral	Bare Wire (in mast only) or Black Wire with White Tape Wrapped Around Ends

**WIRE/CONDUIT SIZE TABLE**

WIRE SHALL BE COPPER

SERVICE SIZE	MINIMUM WIRE SIZE (XHHW OR RHW)	MINIMUM CONDUIT WIRE (RMC OR IMC)	MINIMUM GROUNDING ELECTRODE CONDUCTOR SIZE	MINIMUM EQUIPMENT GROUNDING CONDUCTOR SIZE
100 Amp	#2 Copper	1 1/4" *	#4 Copper	#8 Copper
200 Amp	#3/0 Copper	2"	#4 Copper	#6 Copper
300 Amp	300 kcmil Copper	2"	#2 Copper	#4 Copper

\*See instructions for item #5 regarding masts above roof line.