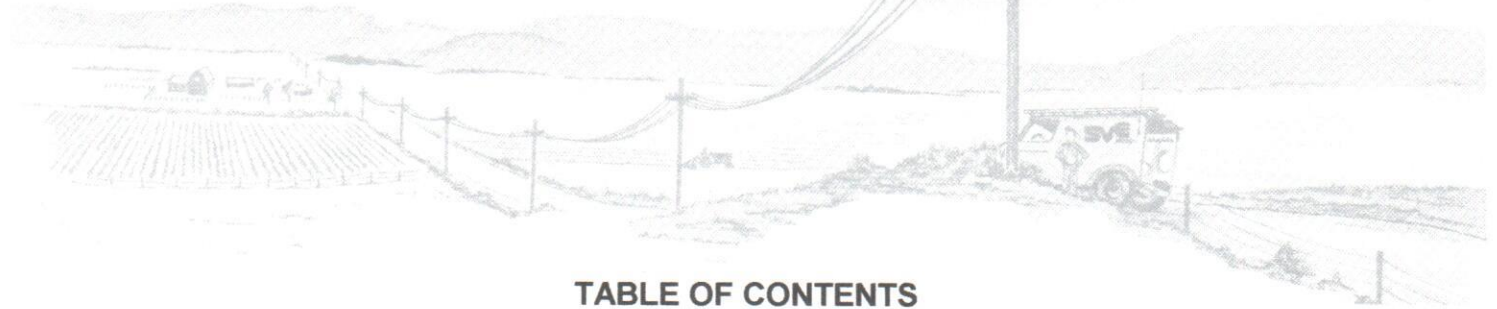




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ELECTRIFICATION CORP.**

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**TABLE OF CONTENTS**

**RESIDENTIAL ELECTRICAL SERVICE REQUIREMENTS**

- |                    |   |   |
|--------------------|---|---|
| <b>SECTION I</b>   | - | <b>OVERHEAD RESIDENTIAL SERVICE</b>   |
| <b>SECTION II</b>  | - | <b>OVERHEAD SERVICE TO A SURPRISE<br/>VALLEY ELECTRIFICATION CORP.<br/>OWNED SERVICE POLE</b> |
| <b>SECTION III</b> | - | <b>UNDERGROUND SERVICE RESIDENTIAL</b>  |

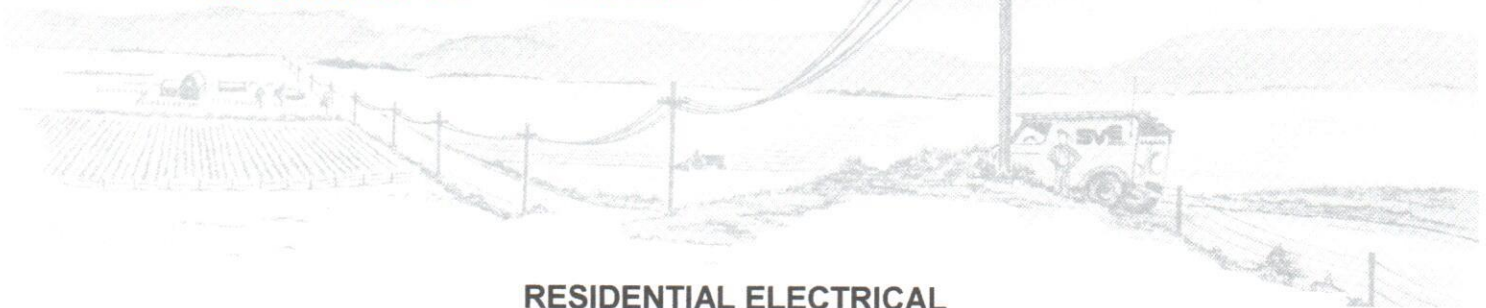
**AGRICULTURAL IRRIGATION SERVICE REQUIREMENTS**

- |                   |   |  |
|-------------------|---|--|
| <b>SECTION IV</b> | - | <b>OVERHEAD SERVICE TO IRRIGATION<br/>PUMP</b>       |
| <b>SECTION V</b>  | - | <b>UNDERGROUND SERVICE TO AN<br/>IRRIGATION PUMP</b> |



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## **RESIDENTIAL ELECTRICAL SERVICE REQUIREMENTS**

The purpose of these requirements are to assist you and your contractor in obtaining electrical service for your residence. It describes the work SVEC will do and the work SVEC requires all members to do for electrical service. Following these guidelines and procedures allows SVEC to provide electric service in a cost effective and timely manner.

These drawings are for illustrative purposes only, it is the customer's responsibility to contact the local building inspector for specifics and to comply with all Federal, State and local wiring codes.

Some of the requirements described here –in are necessarily broad to cover a wide range of conditions. For answers to more specific questions or concerns, please contact the Engineering Department at Surprise Valley Electrification Corp.

These requirements describe only the wires and equipment typically installed on your property. If your residence is located farther than about 200 feet from an existing SVEC line, a primary or high voltage line extension may also be needed. If a primary extension is required SVEC will discuss the details with you.

Should SVEC be required to install facilities across properties other than your own, right-of-way for these facilities must be obtained. SVEC will obtain right-of-way on public lands, such as the Forest Service, and requires that you obtain right-of-way for private land. If this is necessary SVEC will discuss the details with you.

It is the customer's responsibility to acquire all of the necessary permits and inspections from the appropriate agency's involved.

For residential construction in Modoc or Lassen Counties, the county building codes require that you have a well and septic system on your property prior to the installation of electrical power.

It is recommended that you hire a qualified electrical contractor, familiar with the applicable building codes to do the wiring for you.

## Section 1 Overhead Residential Service

### 1. Purpose

This section describes the installation of an overhead electrical service to a residence with the meter installed on the house. Overhead service consists of poles and wires installed from the nearest Surprise Valley Electrification (SVEC) line across your property to your residence. Service will be provided in accordance with SVEC's Line Extension Policy.

### 2. Limits

The typical single family residential service consists of a transformer pole, service wire, and a 200 amp meter base installed on your house. The following limits apply to this type of service.

The typical maximum size self-contained meter base that can be installed on a single residence is limited to 200 amps. If your requirements are greater than 200 amps, please contact SVEC.

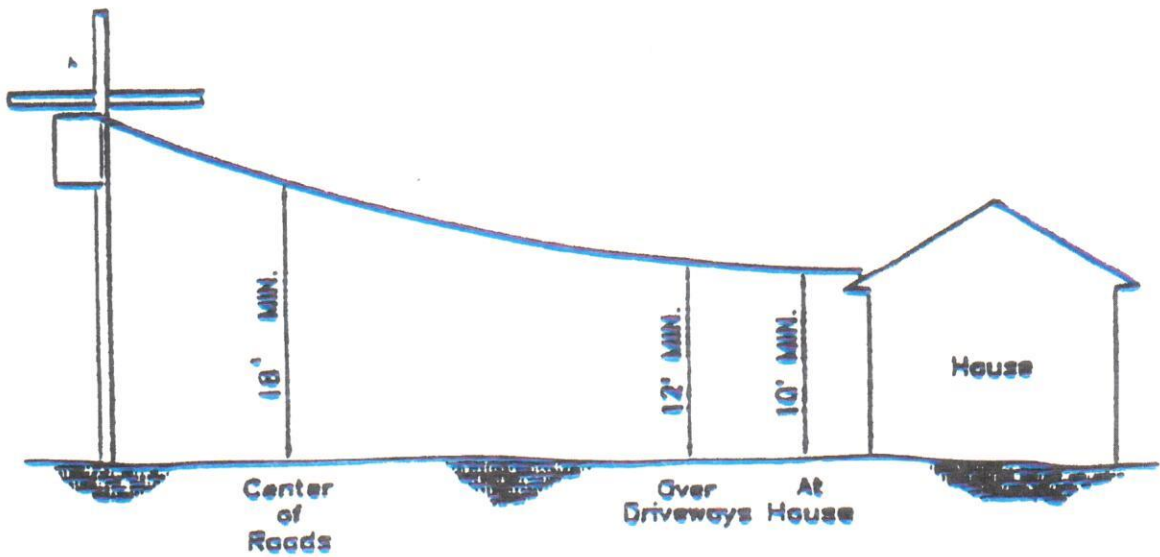
The length of the electrical service should be limited to no more than 200 feet. The reason for this limit is voltage drop or loss in the service wire to the house. Should the length of the service be such that it would prove electrically prohibitive, a transformer and primary extension may be required.

### 3. Your Responsibility

You are responsible for furnishing, installing, and maintaining the following equipment.

- a. The riser conduit; a minimum 2 inch diameter rigid steel electrical conduit.
- b. Service entrance wire; this wire is installed from the meter base to the weather head on the riser conduit. Minimum of 18" leads to extend from the weather head for connection to SVEC's service wire.
- c. A weather head installed on top of the riser conduit.
- d. The meter base and main breaker.
- e. One 8 foot ground rod.  
(Two ground rods spaced 6 feet apart in Oregon.)

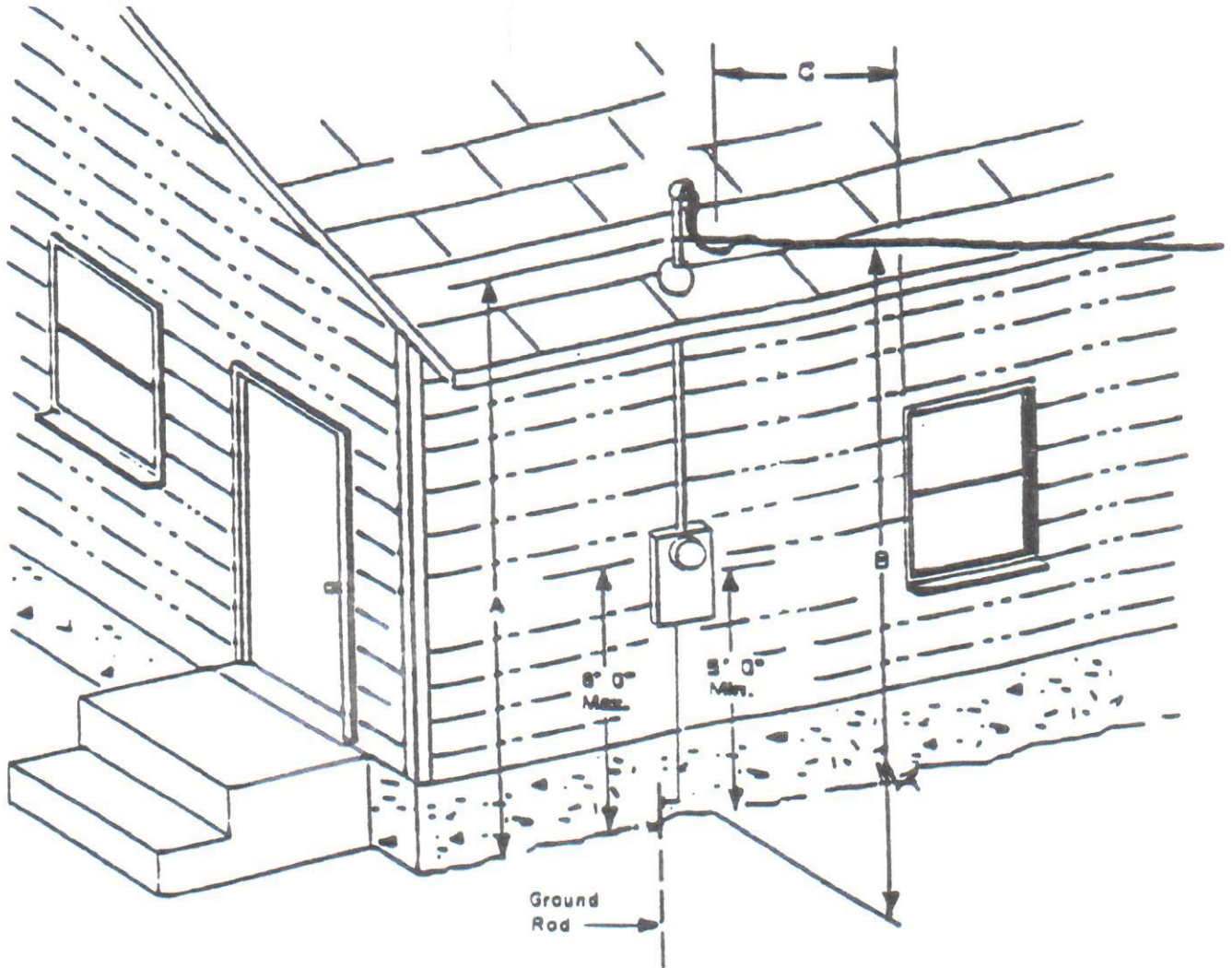
# Clearances



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# Typical Residential Overhead Service



- A. Point of attachment 12' minimum above finished grade, or from any platform or projection from which conductors may be reached.
- B. 12' above finished grade-12' over residential driveways-18' over streets.
- C. 3' minimum from windows, balconies or porches.

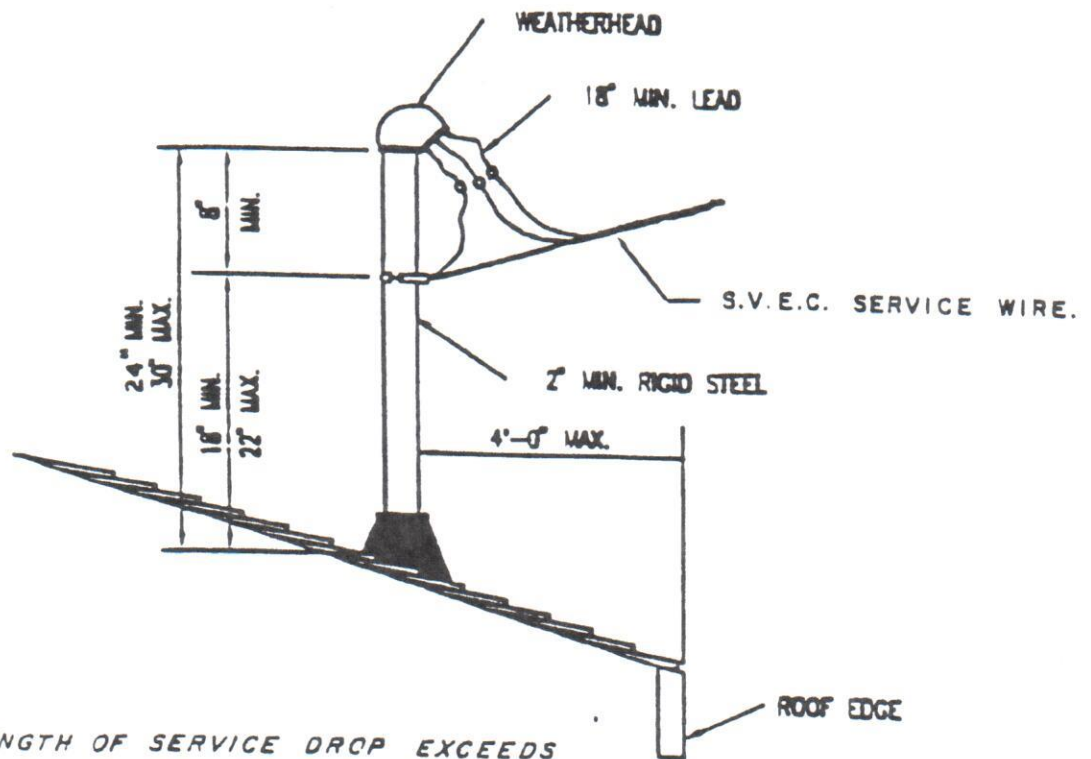
Note: Clearances A and B are based on General Order 95. Clearances should conform to the Code in effect at the time of Installation.



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# Unbraced Riser



**NOTE:**  
IF LENGTH OF SERVICE DROP EXCEEDS  
100', RISER WILL BE GUYED.



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## Section 2 Overhead Service to a SVEC Owned Service Pole

### 1. Purpose

This section describes the installation of an overhead electrical service to a residence with meter installed on a SVEC owned service pole. This type of service is commonly used when the meter cannot be installed on the house, or when you elect to install overhead wires to other buildings on your property. Overhead service consists of poles and wires installed from the nearest SVEC line across your property to the service pole. Service will be provided in accordance with SVEC's Line Extension Policy.

### 2. Limits

The typical single family residential service of this type consists of a transformer pole, service wire, and a 200 amp meter base installed on a SVEC owned service pole. The following limits apply to this type of service.

The typical maximum size self-contained meter base that can be installed on a service pole is limited to 200 amps. If your requirements are greater than 200 amps, please contact SVEC.

The length of the electrical service should be limited to 200 feet due to possible voltage drop. Should the length of service be such that it would prove electrically prohibitive, a transformer and primary extension may be required.

### 3. Your Responsibility

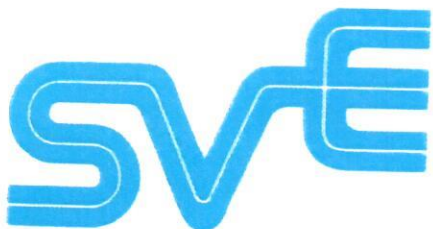
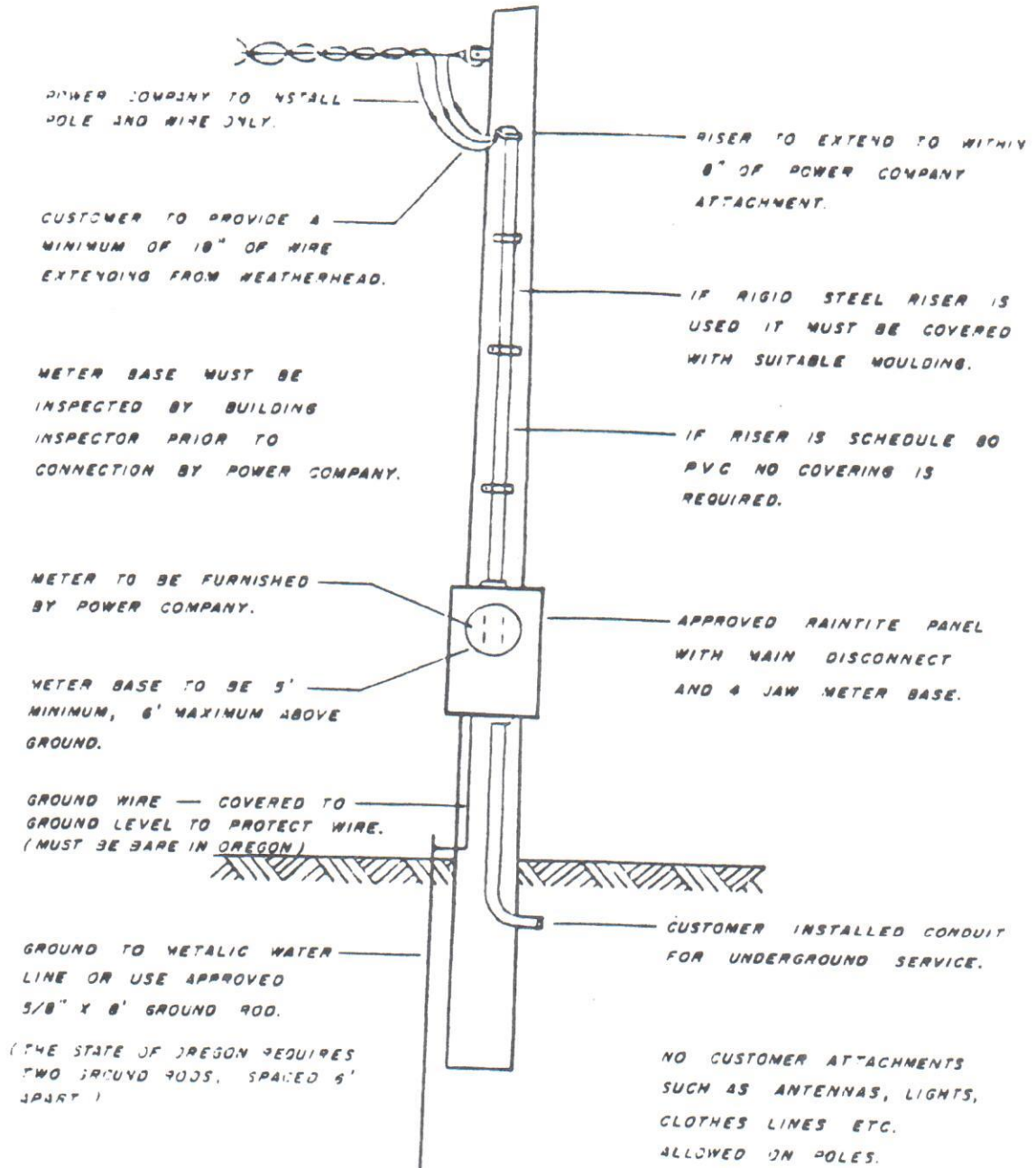
You are responsible for furnishing, installing, and maintaining the following equipment.

- a. Riser Conduit- the overhead riser conduit shall be a minimum of 2 inches in diameter and be schedule 80 PVC electrical conduit. If rigid steel is used, it must be covered with a suitable molding.

The underground conduit shall be a minimum of 2 inches in diameter. Rigid steel or schedule 80 PVC electrical conduit where exposed and minimum 2 inch schedule 40 PVC electrical conduit where buried.

- b. Service entrance wire- this wire is installed from the meter base to the weather head on the riser conduit. Minimum 18" leads to extend from the weather head.
- c. A weather head installed on top of the riser conduit and riser to extend within 18" of power company attachment.
- d. The meter base and main breaker.
- e. One 8 foot ground rod. ( Two ground rods spaced 6 feet apart in Oregon)

# Meter Pole Requirements



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## Section 3 Underground Residential Service

### 1. Purpose

This section describes the installation of an underground electrical service to a residence, with the meter installed either on the house or on a post that you install. This type of service is commonly installed when you do not want overhead lines installed on your property or you live in an area where the overall electrical system is underground. This underground service is installed in a buried conduit from the nearest appropriate SVEC device to your house. Service will be provided in accordance with the SVEC Line Extension Policy.

### 2. Limits

The typical single family residential service of this type consists of less than 200 amp meter base installed on your house. The following limits apply to this type of service.

The typical maximum size of the self-contained meter base that can be installed on a single residence is limited to 200 amps. If your requirements are greater than 200 amps, please contact SVEC.

The length of the electrical service should be limited to no more than 200 feet due to possible voltage drop. Should the length of service be such that it would prove electrically prohibitive, a transformer, and primary extension may be required.

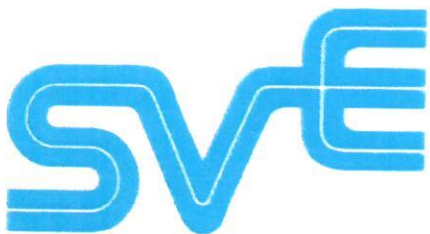
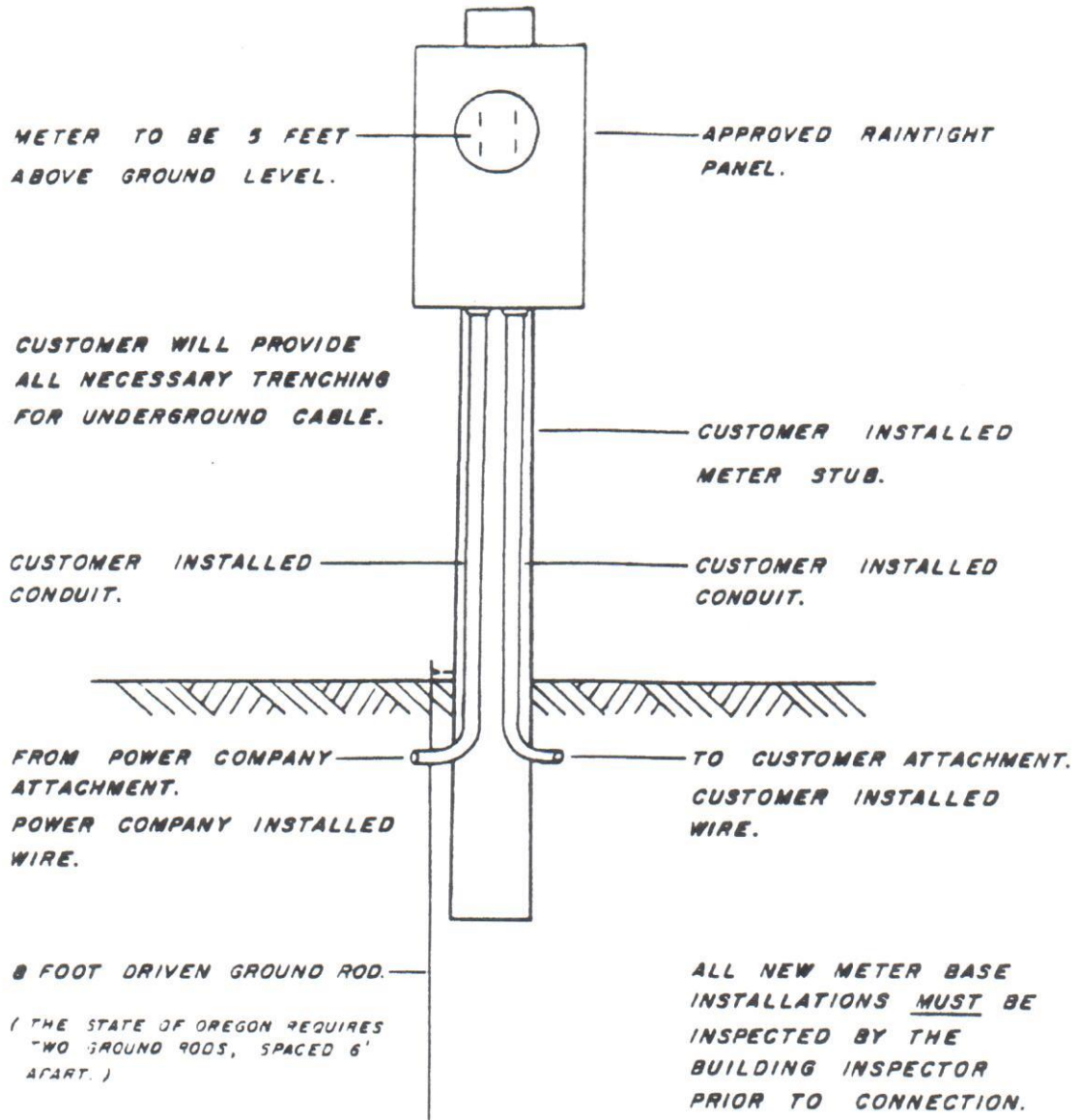
Underground service is required in areas served by an overall underground electrical distribution system.

### 3. Your Responsibility

You are responsible for furnishing and installing the following equipment and maintaining the meter base.

- a. Provide or make arrangements and pay for the trench excavation and back fill in accordance with SVEC's specifications.
- b. Conduit installed in the trench from the meter base to the nearest SVEC facility. The conduit size required is 3 inches in diameter for a 200 amp service. Any conduit exposed above ground level must be schedule 80 PVC and schedule 40 PVC where buried. You need to put a 5/32 inch or larger polypropylene pull line in the conduit. The pull line must have a breaking strength of 600 pounds.
- c. If the length of the conduit run contains turns in excess of 270 degrees, you may be required to install the details of these boxes if they are needed.

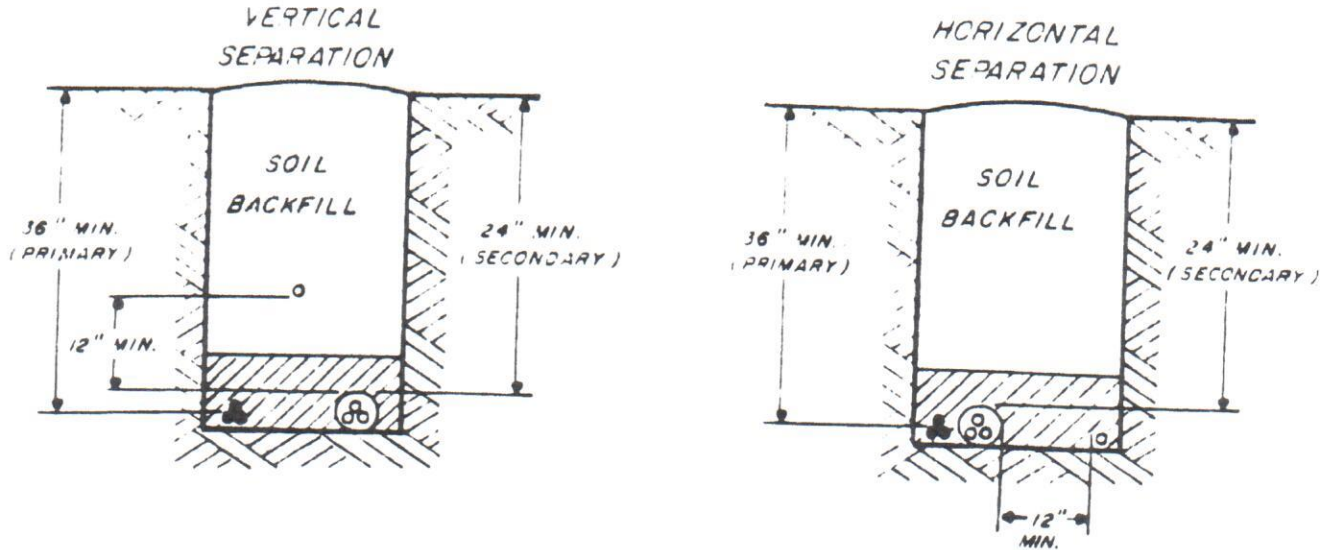
# Underground Service



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# Standard Trench Configuration



1. CUSTOMER WILL SUPPLY ALL NECESSARY TRENCHING AND BACKFILL.
2. PRIMARY CABLE WILL BE BURIED AT A MINIMUM DEPTH OF 36" AND THE CUSTOMER WILL SUPPLY SELECT BACKFILL MATERIAL IF REQUIRED.
3. SECONDARY CABLE WILL BE BURIED AT A MINIMUM DEPTH OF 24" AND MUST BE INSTALLED IN A CUSTOMER SUPPLIED CONDUIT WITH A PULL STRING. SCHEDULE 40 PVC IS PREFERRED.
4. INSPECTION OF THE TRENCH BY S.V.E.C. WILL BE MADE PRIOR TO THE INSTALLATION OF THE CABLE OR CONDUIT AND PRIOR TO THE INSTALLATION OF THE SELECT BACKFILL.
5. THE WIDTH OF THE TRENCH IS AT THE DISCRETION OF S.V.E.C.

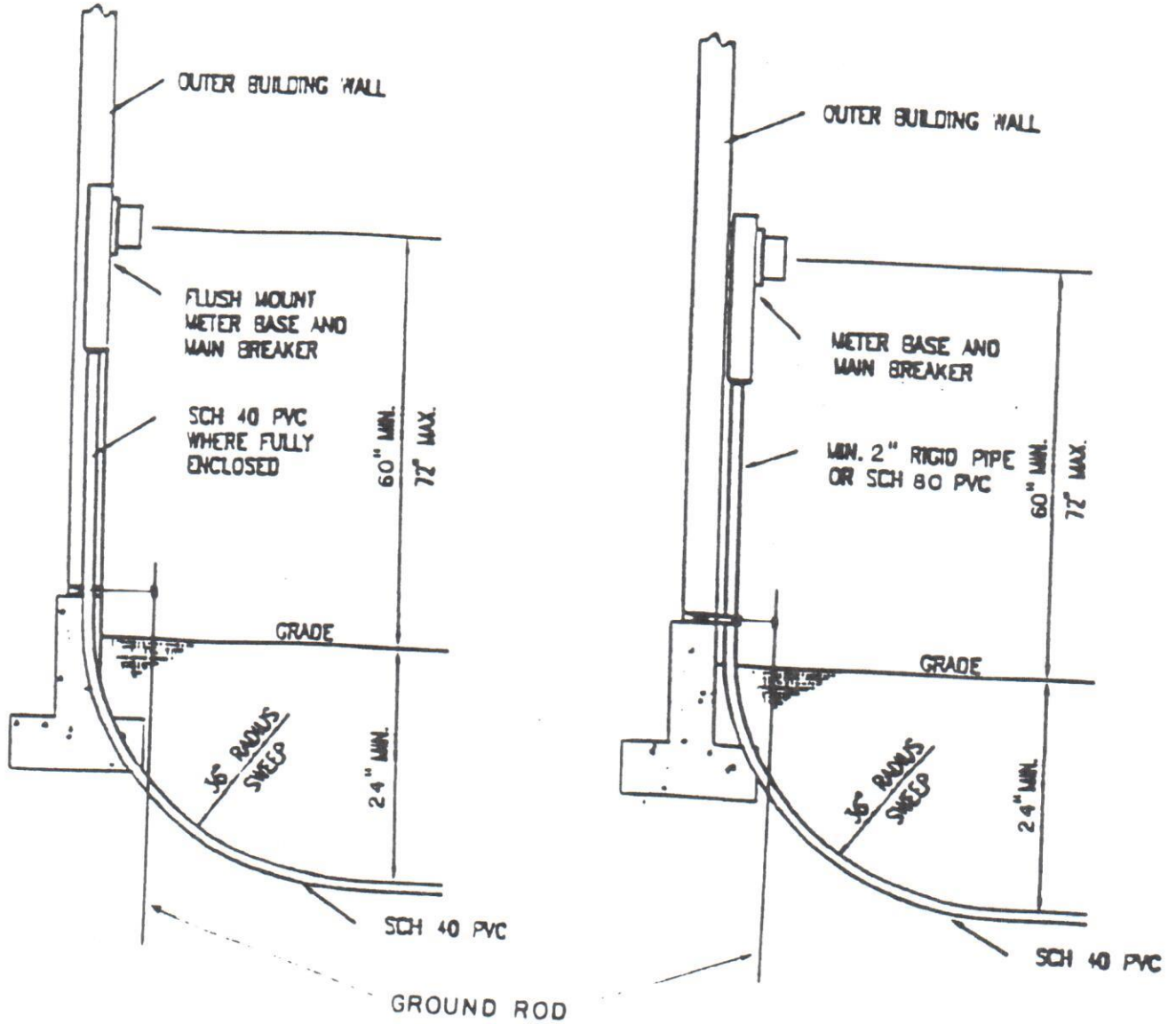
UTILITY LEGEND	
●	POWER (PRIMARY)
⊗	POWER (SECONDARY)
○	COMMUNICATIONS
▨	SELECT BACKFILL MIN. 6" ON ALL SIDES



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# Meter Base Detail



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A detailed line drawing illustration of an agricultural landscape. In the foreground, a utility truck with 'SVEC' written on its side is parked on a dirt road. A tall utility pole stands next to it, with several power lines extending across the scene. In the background, there are rolling hills, a fence line, and a small building, possibly a farm or irrigation pump station. The overall scene depicts the context of agricultural electrification.

### **AGRICULTURAL IRRIGATION SERVICE REQUIREMENTS**

The purpose of these requirements are to assist you and your contractor in obtaining electrical service for your irrigation pump. It describes the work SVEC will do and the work SVEC requires all members to do for electrical service. Following these guidelines and procedures allows SVEC to provide electric service in a cost effective and timely manner.

These drawings are for illustrative purposes only, it is the customers responsibility to contact the local building inspector for specifics and to comply with all Federal, State and local wiring codes.

Some of the requirements described here-in are necessarily broad to cover a wide range of conditions. For answers to more specific questions or concerns, please contact the Engineering Department at Surprise Valley Electrification Corp.

These requirements describe only the wires and equipment typically installed on your property. If your irrigation pump is located farther than about 200 feet from an existing SVEC line, a primary or high voltage line extension may also be needed. If a primary extension is required SVEC will discuss the details with you.

Should SVEC be required to install facilities across properties other than your own, right-of-way for these facilities must be obtained. SVEC will obtain right-of-way on public lands, such as the Forest Service, and requires that you obtain right-of-way for private land. If this is necessary SVEC will discuss the details with you.

It is the customers responsibility to acquire all of the necessary permits and inspections from the appropriate agency's involved.

It is recommended that you hire a qualified electrical contractor, familiar with the applicable building codes to do the wiring for you.

## Section 4 Overhead Service to an Irrigation Pump

### 1. Purpose

This section describes the installation of an overhead service to an agricultural irrigation pump.

Overhead service consists of poles and wires installed from the nearest SVEC line across your property to your pump site. Service will be provided in accordance with SVEC's Line Extension Policy.

### 2. Limits

The typical overhead irrigation service consists of a transformer pole, service wires, and a meter pole located near the pump.

The length of the electrical service should be limited to no more than 200 feet. The reason for this limit is voltage drop or loss in the service wire to the pump motor.

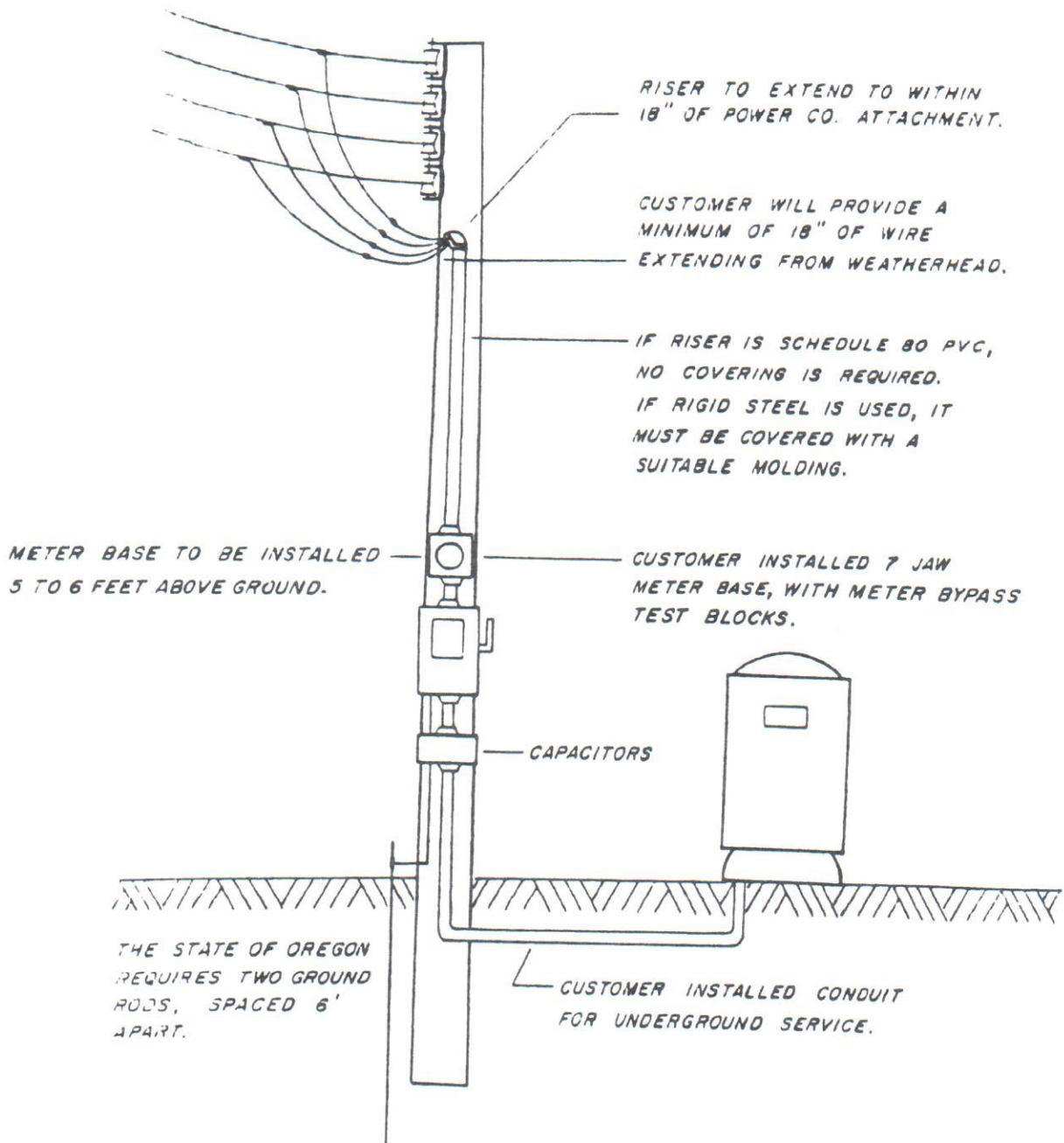
Should length of service be such that it would prove electrically prohibitive, a transformer and primary line extension may be required.

### 3. Your Responsibility

You are responsible for furnishing, installing, and maintaining the following equipment.

- a. The riser and weather head, which must extend to within 18" of the SVEC attachment near the top of the pole.
- b. A minimum of 18" of wire extending from the weather head for connection to SVEC's service wire.
- c. A 7-jaw meter base, heavy duty, with meter bypass provisions unless the motor is in excess of 125 horsepower, in which case SVEC will provide the meter base.
- d. All motors below 20 horsepower shall be operated at 230 volts.
- e. All motors 20 horsepower and larger shall be operated at 460 volts and shall be equipped with capacitors to improve the motor power factor to 95% efficiency.
- f. All motors 60 horsepower and above shall be equipped with reduced voltage starting.
- g. It is the customer's responsibility to provide thermal relays, fuses or any other automatic current interrupting the device to protect his equipment against damage from overcurrent, undercurrent or single phasing conditions.

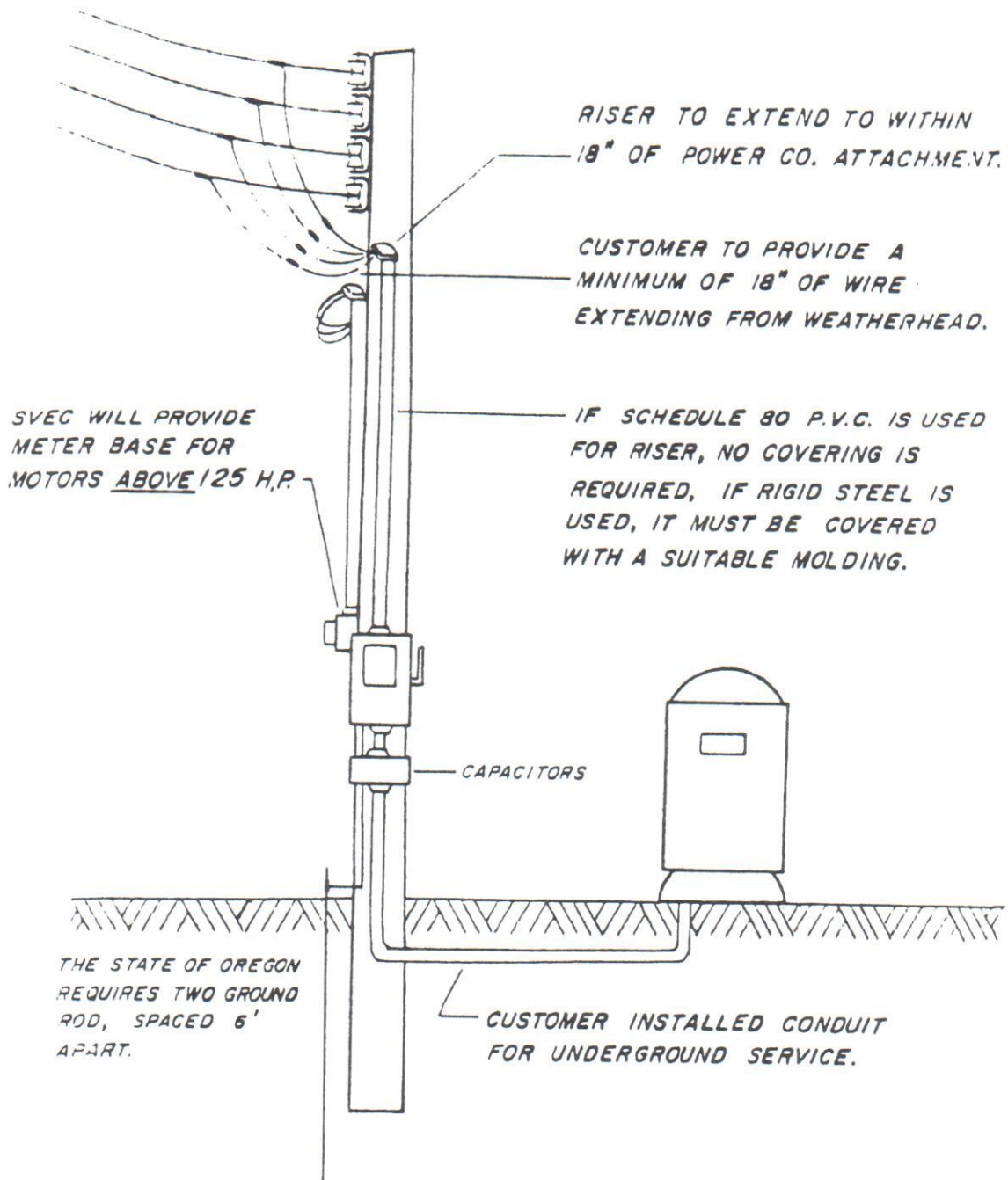
# Metering for Motors 125 H.P. & Below



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# Metering for Motors Above 125 H.P.



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## Section 5 Underground Service to an Irrigation Pump

### 1. Purpose

This section describes the installation of an underground service to an agricultural irrigation pump.

Underground service consists of wires installed from the nearest SVEC line across your property to your pump site. Service will be provided in accordance with SVEC's Line Extension Policy.

### 2. Limits

The typical underground irrigation service consists of a transformer and underground service wires to the pump site.

The length of the electrical service should be limited to no more than 200 feet. The reason for this limit is voltage drop or loss in the service wire to the pump motor.

Should the length of the service be such that it would prove electrically prohibitive, a transformer and primary line extension may be required.

### 3. Your Responsibility

You are responsible for furnishing, installing, and maintaining the following equipment.

- a. Provide or make arrangements and pay for trench excavation and back fill in accordance with SVEC's specifications.
- b. The conduit installed in the trench from SVEC's transformer to the customer's terminal box. The conduit shall be schedule 40 PVC where buried and schedule 80 PVC for any conduit exposed above ground level.

You also need to put a 5/32 inch or larger polypropylene pull line in the conduit. The pull line must have a breaking strength of 600 pounds.

- c. If the length of the conduit run contains turns, you may be required to install pull boxes along the conduit route.
- d. SVEC must inspect the trench and conduit installation before back filling the trench. SVEC requires this inspection as we maintain the conduit and wire after the initial installation.
- e. A 7-jaw meter base, heavy duty, with meter bypass provisions unless the motor is in excess of 125 horsepower, in which case SVEC will provide the meter base.

F. A 12" x 12" x 6" terminal splice box for motors 125 H.P. and less. A ~~36" x 36" x 11"~~ <sup>36" x 48" x 11"</sup> terminal splice box with provisions for Bar Type CT's is required for motors above 125 H.P., in which case SVEC will provide the meter base.

- G. All motors below 20 H.P. shall be operated at 230 volts.
- H. All motors 20 H.P. and larger shall be operated at 460 volts and shall be equipped with capacitors to improve the motor power factor to 95% efficiency.
- I. All motors 60 H.P. and above shall be equipped with reduced voltage starting.
- J. It is the customer's responsibility to provide thermal relays, fuses or any other automatic current interrupting device to protect his equipment against damage from overcurrent, undercurrent or single phasing conditions.
- K. You must arrange for the County Building Inspector to inspect and approve your equipment before SVEC can connect the installation.

#### 4. SVEC'S RESPONSIBILITY

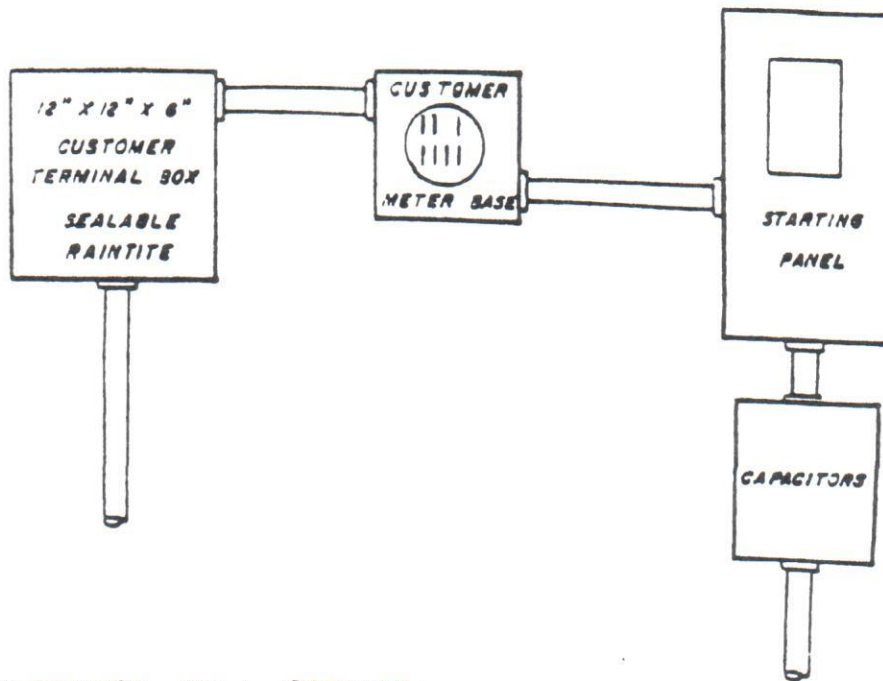
SVEC will furnish and install the service wire from the transformer to the customer's terminal box.

#### 5. SERVICE LOCATION AND CONDUIT ROUTE

SVEC will designate the meter location and help you determine a route for the trench and conduit. This route must be relatively straight.

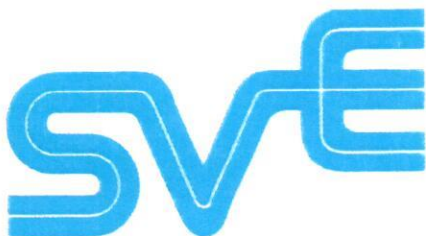
Please contact SVEC early in the process of planning your installation. This allows us to agree on a route for the trench and meter base location that meets both our needs.

# Metering for Motors 125 H.P. & Below



## *CUSTOMER WILL PROVIDE:*

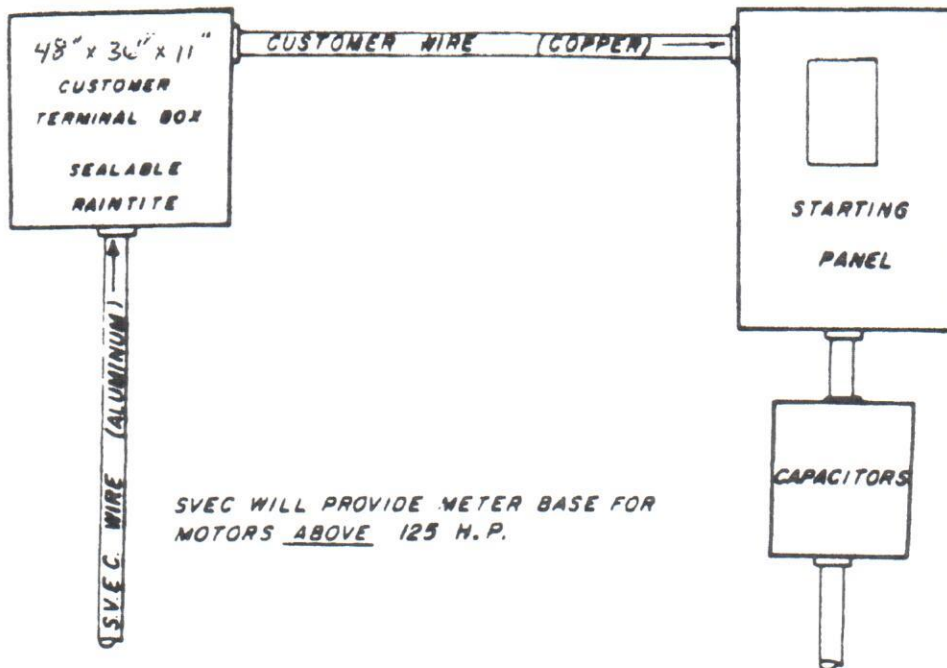
- 1. Adequate copper wire to terminal box for splice.*
- 2. Terminal box sized as shown.*
- 3. Transformer pad with adequate drainage.*
- 4. All ditching for underground wire.*
- 5. Proper sized conduit for underground secondary wire.*
- 6. Reduced voltage starting is required on all motors 60 H.P. and above.*
- 7. Capacitors required on motors 20 H.P. and above.*
- 8. Meter base, 7 jaw, heavy duty, with test blocks.  
(Oregon requires base with meter bypass provisions.)*



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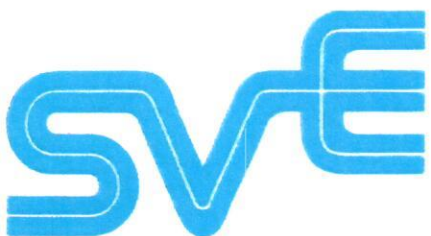
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# Metering For Motors Above 125 H.P.



## *CUSTOMER WILL PROVIDE:*

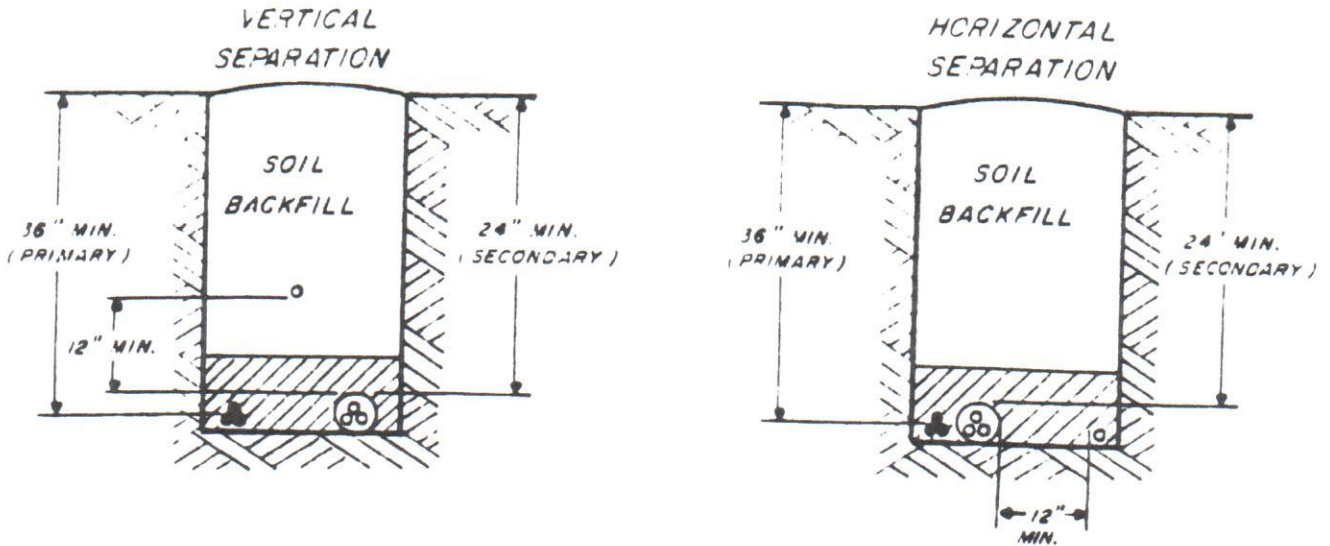
- 1. Adequate copper wire to terminal box for splice.*
- 2. Terminal box sized as shown.*
- 3. Transformer pad with adequate drainage.*
- 4. All ditching for underground wire.*
- 5. Proper sized conduit for underground secondary wire.*
- 6. Reduced voltage starting is required on all motors 60 H.P. and above.*
- 7. Capacitors required on motors 20 H.P. and above.*



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# Standard Trench Configuration



1. CUSTOMER WILL SUPPLY ALL NECESSARY TRENCHING AND BACKFILL.
2. PRIMARY CABLE WILL BE BURIED AT A MINIMUM DEPTH OF 36" AND THE CUSTOMER WILL SUPPLY SELECT BACKFILL MATERIAL IF REQUIRED.
3. SECONDARY CABLE WILL BE BURIED AT A MINIMUM DEPTH OF 24" AND MUST BE INSTALLED IN A CUSTOMER SUPPLIED CONDUIT WITH A PULL STRING. SCHEDULE 40 PVC IS PREFERRED.
4. INSPECTION OF THE TRENCH BY S.V.E.C. WILL BE MADE PRIOR TO THE INSTALLATION OF THE CABLE OR CONDUIT AND PRIOR TO THE INSTALLATION OF THE SELECT BACKFILL.
5. THE WIDTH OF THE TRENCH IS AT THE DISCRETION OF S.V.E.C.

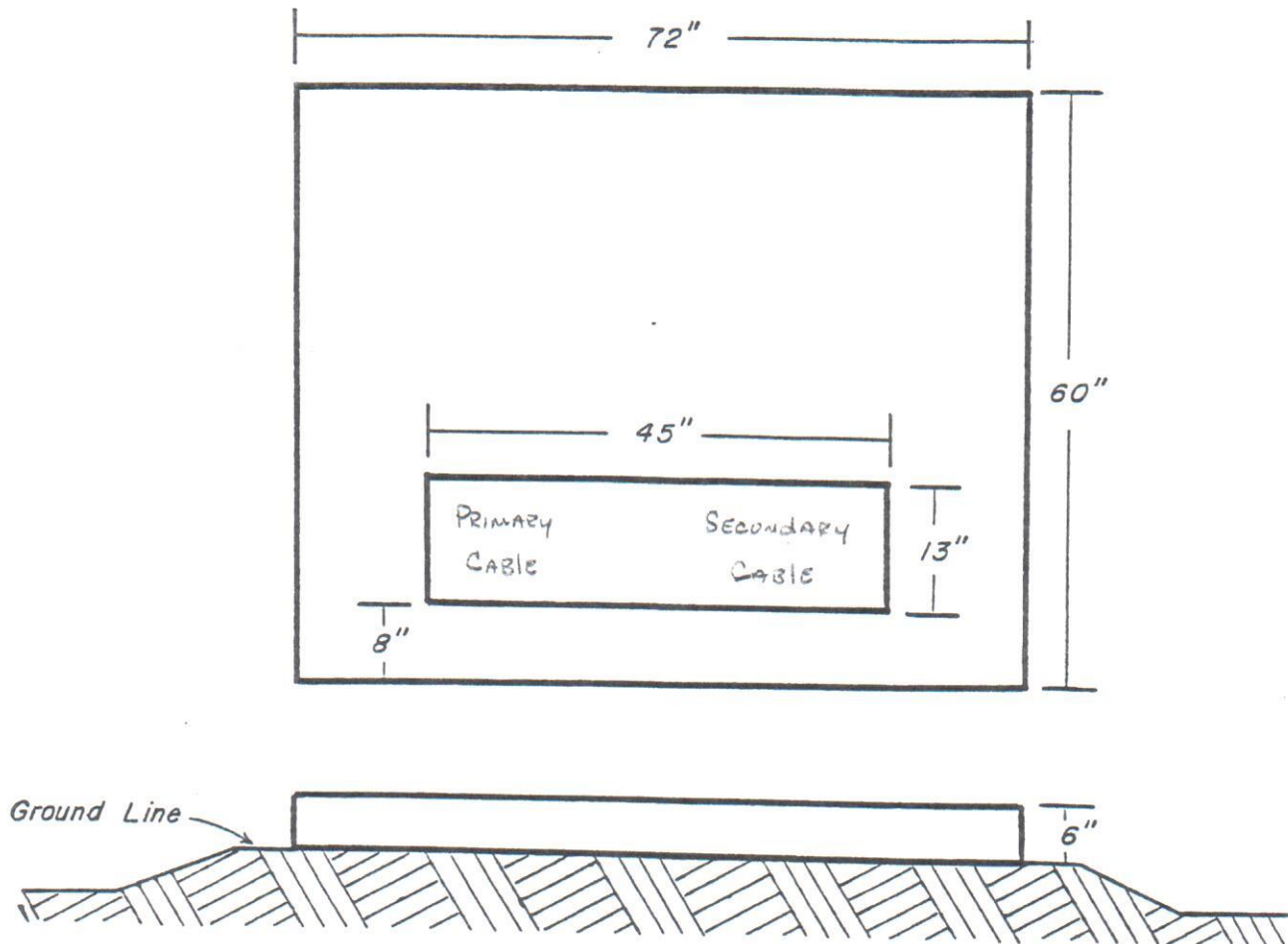
UTILITY LEGEND	
●	POWER (PRIMARY)
⊗	POWER (SECONDARY)
○	COMMUNICATIONS
▨	SELECT BACKFILL MIN. 6" ON ALL SIDES



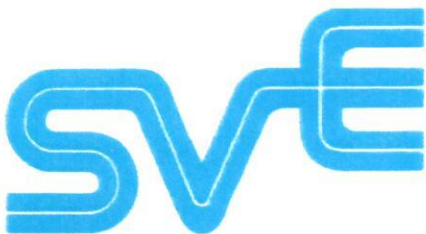
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# Three Phase Padmount Transformer



1. Pad shall be concrete material, approximately 6" thick.
2. Pad shall be level and placed alongside ditch with opening in pad facing toward ditch.
3. Pad should be elevated slightly to insure adequate drainage.



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