Requirements for Electric Service Connections

Information and Requirements for Electric Supply

NH

2021 Edition

This publication superseded similar publications previously issued.

EVERSOURCE ENERGY

Table of Contents

Safety First and Always

The safety of customers, contractors, company employees and the general public is the number one priority of providing electric service connections.

Any contact with our wires may cause serious injury or death. Treat all downed, low hanging or burning wires as though they are "LIVE" – energized – and **KEEP AWAY**.

Do not regard the covering which may be observed on our wires as insulation.

Upon request, Eversource will install line-hose guards or hard guard to help protect against inadvertent contact with electrical lines. In some cases, customer charges will apply for installation of line-hose guards.

Report any downed, low hanging or burning wires to Eversource at **800.662.7764** or the police or fire department.

New Hampshire State law requires contacting "DIG SAFE" three full business days (72 hours) prior to doing any excavation, digging holes, or driving posts regardless of whether it is within the street or on private property. Obtain information by calling **888.DIG.SAFE** (**888.344.7233**).

Equipment such as ladders, scaffolding, etc., regardless of what the equipment is made of, can be electrified if brought in contact with wires. Use extra caution when installing siding, painting, cleaning gutters or other reasons to work near our facilities. **It is recommended that you call to have Eversource facilities covered before starting work.**

Removal or relocation of existing Eversource overhead or underground service equipment is prohibited. Contact Eversource if removal or relocation is necessary.

Do not enter or open existing electrical structures such as hand holes, transformer pads or switch vaults.

Heavy construction equipment such as cranes, derricks, backhoes, dump trucks, etc., should not be operated closer than ten feet from energized power lines rated at 50 kV or below. For lines rated over 50 kV, the minimum clearance between the lines and any part of the equipment shall be ten feet plus four inches for each kV over 50 kV as prescribed by OSHA Regulations (S1926 subpart N-550-(a) 15 (i) and (ii)).

Swimming pools and spas should not be installed beneath overhead facilities or above underground facilities. Please contact Eversource if you are planning to install a pool or spa near overhead or underground lines.

Where hazards exist, ground fault circuit interrupters must be used in accordance with National Electrical Code. In addition, we strongly recommend their installation on existing wiring.

Never replace/install fuses or breakers, for main switch or branch circuits, with other than the proper size for the installation in accordance with National Electrical Code.

Proper installation of emergency generators or other power sources is essential to avoid electrical source feeding back into our lines and endangering unsuspecting utility workers. Contact Eversource prior to connecting to your system.

In general, antennas, banners, signs or similar customer equipment shall not be attached to our poles except by special permission from Eversource. Such equipment when installed nearby shall be far enough away so contact with our facilities cannot take place during installation, removal, or by accident. All clearances shall be as required by National Electrical Code.

Keep shrubs, debris, fences, and other structures clear of meters, padmount transformers, and other Eversource equipment in accordance with the required clearances stated within this booklet.

Contact Us

To initiate a work request, check on the status of an existing request, and additional electrical service information; including meter socket pick up locations, please visit us at **eversource.com** or contact the Electric Service Support Center:

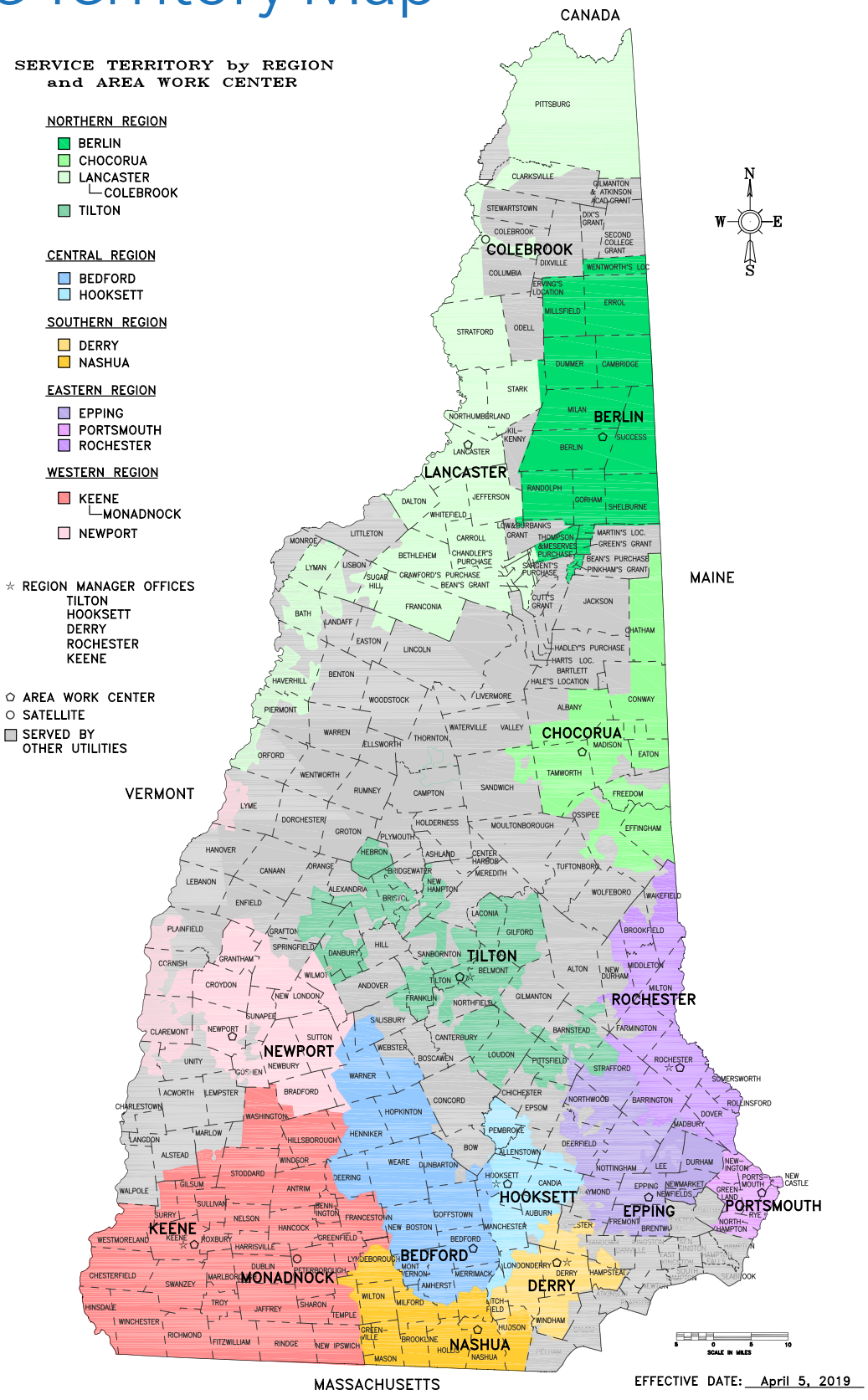
Electric Service Support Center
Monday – Friday 7:00 a.m. to 4:30 p.m.
800.362.7764
nhnewservice@eversource.com

EVERSOURCE NEW HAMPSHIRE - AREA WORK CENTER LOCATIONS	
Bedford Area Work Center	12 Bellemore Drive, Bedford NH 03110
Berlin Area Work Center	68 Jericho Road, Berlin NH 03570
Chocorua Area Work Center	169 White Mountain Hwy, Tamworth, NH 03817
Derry Area Work Center	16 A Street, Derry NH 03038
Epping Area Work Center	265 Calef Highway, Epping NH 03042
Hooksett Area Work Center	13 Legends Drive, Hooksett NH 03106
Keene Area Work Center	19 Production Avenue, Keene NH 03431
Lancaster Area Work Center	425 Main Street, Lancaster NH 03584
Nashua Area Work Center	370 Amherst Street, Nashua NH 03063
Newport Area Work Center	280 Sunapee Street, Newport NH 03773
Portsmouth Area Work Center	1700 Lafayette Road, Portsmouth NH 03801
Rochester Area Work Center	74 Old Dover Rd, Rochester NH 03867
Tilton Area Work Center	64 Business Park Drive, Tilton NH 03276
OTHER IMPORTANT NUMBERS	
Dig Safe	888.344.7233
New Hampshire Public Utilities Commission	800.852.3793

Questions or concerns not adequately addressed by the Company may be directed to the New Hampshire Public Utilities Commission:

New Hampshire Public Utilities Commission
Monday – Friday 8:00 a.m. to 4:30 p.m.
puc.nh.gov

Eversource New Hampshire Service Territory Map



Municipalities Partially or Wholly Served By Eversource – New Hampshire

MUNICIPALITY	AREA WORK CENTER
Albany	Chocorua
Alexandria*	Tilton
Allenstown*	Hooksett
Alstead*	Keene
Alton*	Rochester, Tilton
Amherst	Bedford, Nashua
Andover*	Tilton
Antrim	Keene
Ashland*	Tilton
Atkinson*	Derry
Auburn*	Derry, Hooksett
Barnstead*	Epping, Tilton
Barrington	Epping, Rochester, Tilton
Bath*	Lancaster
Bedford	Bedford
Belmont*	Tilton
Bennington	Keene
Berlin	Berlin
Bethlehem*	Lancaster
Boscawen*	Bedford, Tilton
Bow*	Bedford
Bradford	Keene, Newport
Brentwood*	Epping
Bridgewater*	Tilton
Bristol*	Tilton
Brookfield*	Rochester
Brookline	Nashua
Cambridge	Berlin
Campton*	Tilton
Candia*	Hooksett
Canterbury*	Tilton
Carroll	Lancaster
Charlestown*	Newport
Chatham	Chocorua
Chester*	Derry, Epping, Hooksett
Chesterfield	Keene
Chichester*	Hooksett, Tilton
Claremont*	Newport
Clarksville*	Lancaster
Colebrook*	Lancaster
Columbia*	Lancaster
Concord*	Bedford, Tilton
Contoocook*	Bedford
Conway*	Chocorua
Cornish*	Newport
Croydon*	Newport
Dalton	Lancaster
Danbury*	Tilton

*denotes municipalities are served by multiple utility companies.
Contact the ESSC at 800.362.7764 for the names of other utilities providing service to municipalities partially served by Eversource New Hampshire

Municipalities Partially or Wholly Served By Eversource – New Hampshire

MUNICIPALITY	AREA WORK CENTER
Danville*	Derry
Deerfield*	Hooksett, Epping
Deering	Bedford, Keene
Derry*	Derry
Dover	Rochester
Dublin	Keene
Dummer	Berlin
Dunbarton*	Bedford
Durham*	Epping, Rochester
Easton*	Lancaster
Eaton*	Chocorua
Effingham*	Chocorua
Enfield*	Newport
Epping*	Epping
Epsom*	Hooksett, Epping, Tilton
Errol	Berlin
Exeter*	Portsmouth
Farmington*	Rochester
Fitzwilliam	Keene
Francestown	Bedford, Keene
Franconia	Lancaster
Franklin*	Tilton
Freedom*	Chocorua
Fremont*	Epping
Gilford*	Tilton
Gilmanton*	Tilton
Gilsum	Keene
Goffstown	Bedford
Gorham	Berlin
Goshen*	Newport
Grafton*	Tilton
Grantham	Newport
Greenfield	Keene
Greenland*	Portsmouth
Green's Grant	Berlin
Greenville	Nashua, Keene
Hampstead*	Derry
Hampton*	Portsmouth
Hancock	Keene
Hanover*	Newport
Harrisville	Keene
Haverhill*	Lancaster
Hebron*	Tilton
Henniker	Bedford, Keene, Newport
Hill*	Tilton
Hillsborough	Bedford, Keene
Hinsdale	Keene
Hollis	Nashua

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MUNICIPALITY	AREA WORK CENTER
Hooksett	Bedford, Hooksett
Hopkinton*	Bedford
Hudson	Derry, Nashua
Jaffrey	Keene
Jefferson	Berlin, Lancaster
Keene	Keene
Laconia*	Tilton
Lancaster	Lancaster
Landaff*	Lancaster
Lee*	Epping
Lempster*	Newport
Lincoln*	Lancaster
Lisbon*	Lancaster
Litchfield	Derry, Hooksett, Nashua
Littleton*	Lancaster
Londonderry*	Derry, Hooksett
Loudon*	Tilton
Lyman*	Lancaster
Lyme*	Newport
Lyndeborough	Keene, Nashua
Madbury	Epping, Rochester
Madison*	Chocorua
Manchester	Bedford, Hooksett
Marlborough	Keene
Marlow*	Keene
Martin's Location	Berlin
Mason	Nashua
Meredith*	Tilton
Merrimack	Bedford, Nashua
Middleton	Rochester
Milan	Berlin
Milford	Bedford, Nashua
Millsfield	Berlin
Milton	Rochester
Mont Vernon	Bedford, Nashua
Nashua	Nashua
Nelson	Keene
New Boston	Bedford, Keene
New Castle	Portsmouth
New Durham*	Rochester
New Hampton*	Tilton
New Ipswich	Keene
New London	Newport
Newbury	Newport
Newfields	Epping, Rochester
Newington	Portsmouth
Newmarket	Epping
Newport*	Newport

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Municipalities Partially or Wholly Served By Eversource – New Hampshire

MUNICIPALITY	AREA WORK CENTER
North Hampton*	Portsmouth
Northfield*	Tilton
Northumberland	Lancaster
Northwood*	Epping, Tilton
Nottingham*	Epping, Tilton
Orange*	Tilton
Orford*	Lancaster
Ossipee*	Chocorua
Pelham*	Derry, Nashua
Pembroke	Hooksett
Peterborough	Keene
Piermont*	Lancaster
Pinkham's Grant	Berlin
Pittsburg*	Lancaster
Pittsfield*	Epping, Tilton
Plainfield*	Newport
Plymouth*	Tilton
Portsmouth	Portsmouth
Randolph	Berlin
Raymond*	Epping, Hooksett
Richmond	Keene
Rindge	Keene
Rochester	Rochester
Rollinsford	Rochester
Roxbury	Keene
Rye	Portsmouth
Salisbury*	Bedford, Tilton
Sanbornton*	Tilton
Sandown*	Derry
Sandwich*	Chocorua
Seabrook*	Portsmouth
Sharon	Keene
Shelburne	Berlin
Somersworth	Rochester
Springfield*	Newport
Stark	Berlin, Lancaster
Stewartstown*	Lancaster
Stoddard	Keene
Strafford	Epping, Rochester, Tilton
Stratford	Lancaster
Stratham*	Portsmouth
Sugar Hill*	Lancaster
Sullivan	Keene
Sunapee*	Newport
Surry*	Keene
Sutton*	Bedford, Newport
Swanzey	Keene
Tamworth*	Chocorua

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Municipalities Partially or Wholly Served By Eversource – New Hampshire

MUNICIPALITY	AREA WORK CENTER
Temple	Nashua, Keene
Thornton*	Tilton
Tilton	Tilton
Troy	Keene
Tuftonboro*	Chocorua
Unity*	Newport
Wakefield*	Rochester
Warner	Bedford, Newport
Washington*	Keene
Waterville*	Chocorua
Weare	Bedford, Newport
Webster*	Bedford
Wentworth's Location	Berlin
Westmoreland	Keene
Whitefield	Lancaster
Wilmot*	Newport, Tilton
Wilton	Nashua
Winchester	Keene
Windham*	Derry
Windsor	Keene

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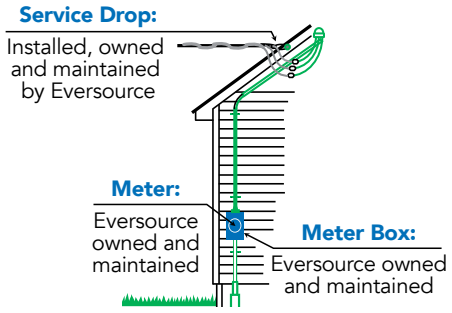
Construction Requirements

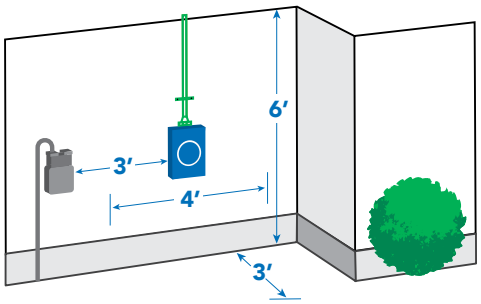
NH ELECTRIC EQUIPMENT OWNERSHIP & REQUIRED METER CLEARANCES | EVERSOURCE

ACCEPTABLE



Service Attachment

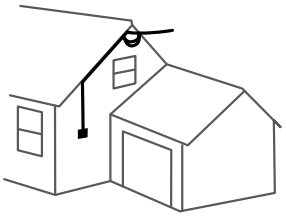
Attachment to gable end of house, 12′ to 25′ above finish grade.



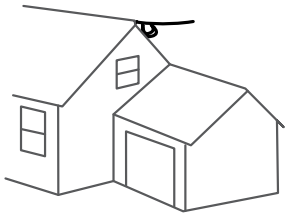
Meter Socket Location

No shrubs, debris, fences or other structures in 4′ side x 3′ deep x 6′ high space.

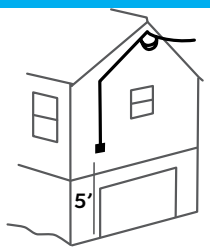
UNACCEPTABLE



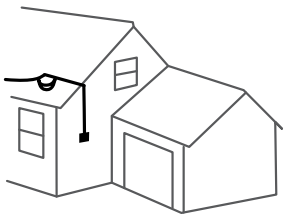
Over roof, not accessible by ladder



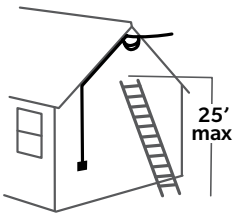
Meter on back of house



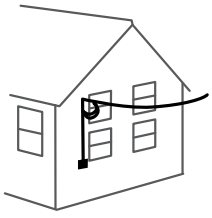
Meter above 5 ft



Mast not strong enough or guyed

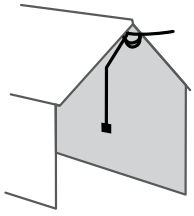


Attachment too high



Conductors too close to window/door

Meter not accessible



Meter Enclosed

Please consult with an Eversource Technician prior to installing any meter socket to ensure acceptable placement on the structure.

Minimum Clearances For Service 0-300 Volts To Ground Based On NESC Rules 232 and 234

GENERAL

This Standard specifies the clearance of **services 300 volts or less to ground**. These clearances define the position of the conductors when **at rest**. The dimensions shown are based on Rule 232 for vertical clearances, Rule 234 for horizontal clearances, and for clearances adjacent to buildings. Refer to Section 4 of this booklet for triplex and quadruplex cables which are not attached to buildings.

CLEARANCE FROM COMMUNICATIONS CABLES

Power company service drops running above and parallel to communications service drops shall have a minimum of 12 inches of clearance at any point in the span and at the building (refer to the National Electrical Safety Code).

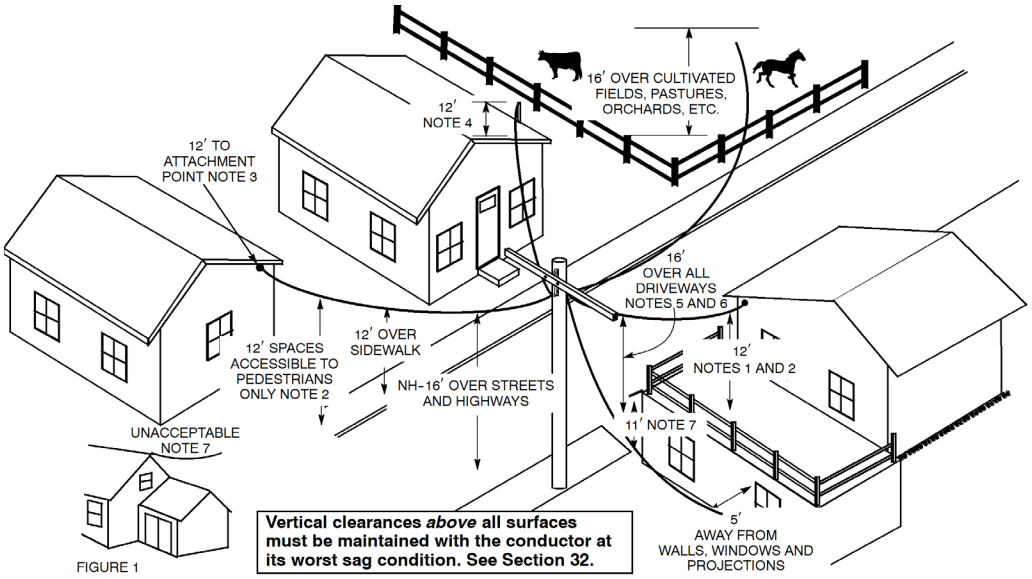


FIGURE 1

EVERSOURCE INTERNAL REFERENCE 04.151

NOTES

1. This clearance applies above flat roofs, balconies, and areas restricted to pedestrians only or to vehicles not exceeding 8 feet in height. Whenever possible, locate the service so the service connections can be directly reached from a ladder placed securely on the ground.
2. The distance to the bottom of drip loops may be reduced to 10 feet 6 inches.
3. This clearance may be decreased to 3 feet 6 inches if the roof is **NOT** accessible to pedestrians by means of a doorway, ramp, window, stairway, or a permanently mounted ladder whose bottom rung is closer than 8 feet to the ground or other accessible surface.
4. This includes residential, commercial, and industrial driveways, parking lots, and other areas subject to truck traffic.
5. Where the height of attachment at the building does not permit service drops to meet this value, the clearance may be reduced to 12 feet 6 inches over **residential driveways only**.
6. The clearance of a service that is **below** the level of an area accessible to pedestrians must be maintained with the service conductor at **0 degrees Fahrenheit, initial sag**.
7. Service attachment located above building extension as shown in figure 1 is not acceptable because the service connections cannot be directly reached from a ladder placed securely on the ground.
8. Clearances shall conform to governmental requirements if the clearances are greater than those shown above.
9. Service conductors shall not be installed beneath openings through which material may be moved, nor shall the service conductors obstruct entrance to these openings (refer to the most up to date National Electric Safety Code).

Overhead Service Entrance – 200 Amps and Smaller

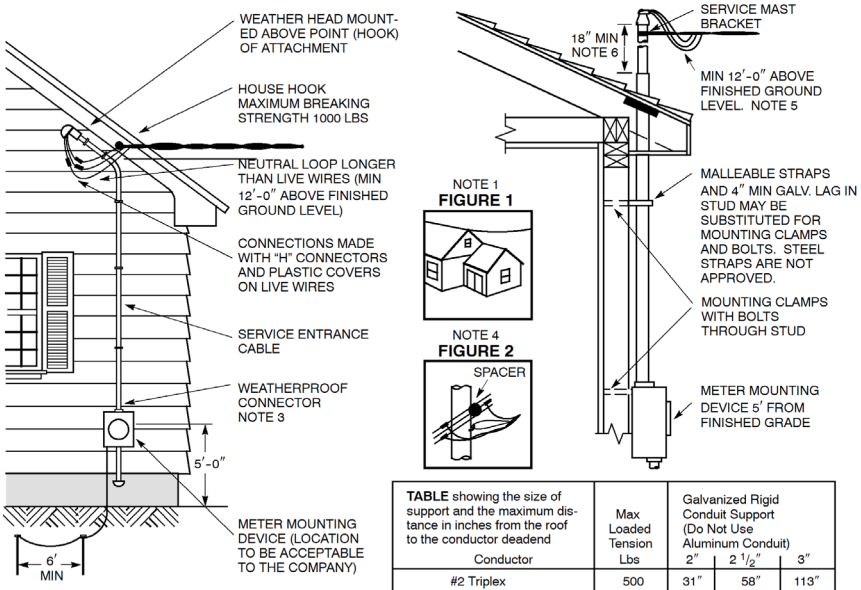


TABLE showing the size of support and the maximum distance in inches from the roof to the conductor deadend	Max Loaded Tension	Galvanized Rigid Conduit Support (Do Not Use Aluminum Conduit)		
Conductor	Lbs	2″	2 1/2″	3″
#2 Triplex	500	31″	58″	113″
1/0 Triplex	700	22″	41″	81″
#2 Quadruplex	600	28″	48″	94″
1/0 Quadruplex	840	18″	34″	87″

EVERSOURCE INTERNAL REFERENCE 14.106

CUSTOMER RESPONSIBILITY

1. Furnish and install service mast, if required, adequate in strength to support service drop and sufficient height to meet minimum clearance (as shown in TABLE).
2. The meter mounting device shall be installed approximately 5 feet above the final grade except where specifically approved otherwise by the Company. It shall be plumb level and attached to the finished exterior of the building with rust resistant screws extending through the finish and into the sheathing.
3. Furnish and install service entrance cable from meter mounting device to service entrance switch box.
4. Furnish, install and connect National Electrical Code approved ground electrodes.
5. Equipment and installation must comply with most up to date National Electrical Code and local codes.

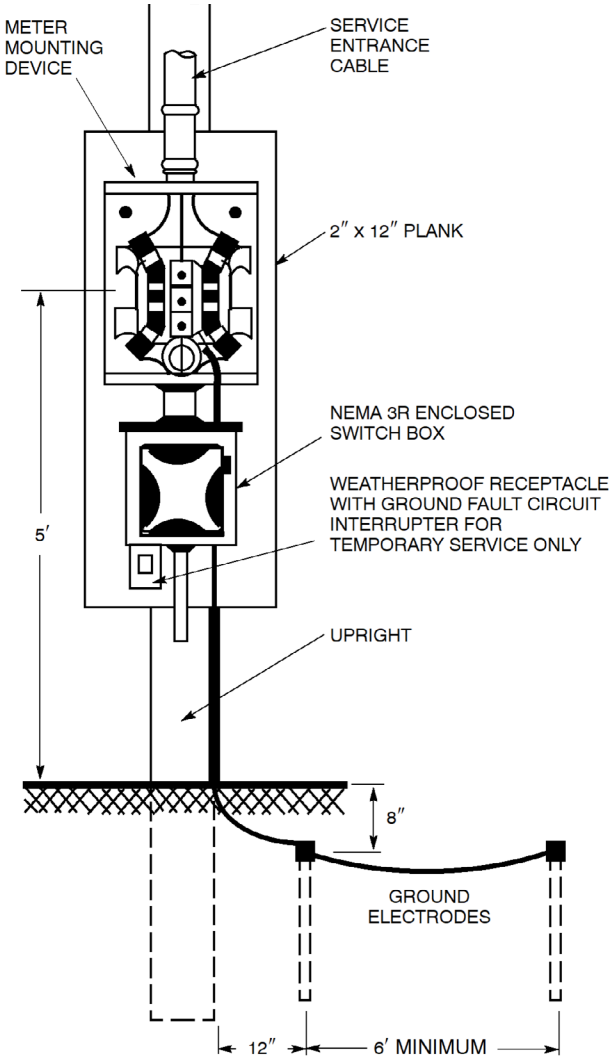
COMPANY RESPONSIBILITY

1. Furnish meter mounting device.
2. Furnish and install service entrance cable to meter mounting device (single-phase service only 200 amps or less).

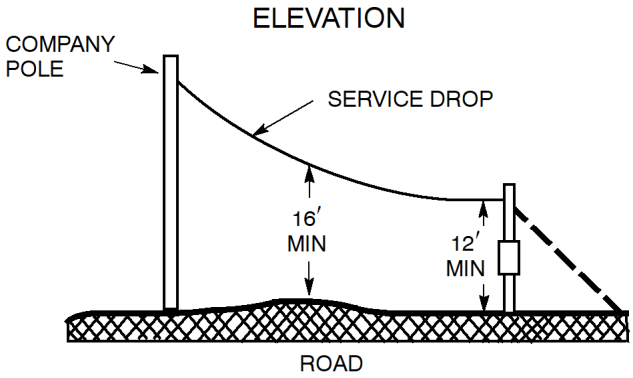
NOTES

1. Service attachment located above a building extension as shown in Figure 1 is not acceptable because service connections cannot be directly reached from a ladder placed securely on the ground.
2. Consideration should be given to place service attachment high enough on the building to allow communication company attachment below it with the National Electrical Safety Code required 12-inch separation.
3. Apply rubber silicone sealant to the weatherproof cable connector at top of meter (Eversource).
4. Neutral loops shall be longer than the live conductor loops so that live wires part first under extreme tensions (Figure 2 - Eversource).
5. The distance to the bottom of drip loops may be reduced to 10’ 6” if voltage is 300 volts or less to ground and 10 ‘ for 150 volts or less to ground.

Temporary or Permanent Single-Phase Service Mounted on Meter Pedestal



EVERSOURCE INTERNAL REFERENCE 14.105



CUSTOMER RESPONSIBILITY

1. Install meter mounting device with rust-resistant screws on a 2” x 12” plank.
2. Provide NEMA 3R enclosed circuit breaker or fusable disconnect below meter mounting device.
3. Furnish, install, and connect 2 National Electrical Code approved ground electrodes.
4. Furnish and install service entrance cable from meter mounting device to switch box.
5. Equipment and installation must comply with the National Electrical Code, National Electrical Safety Code, and all local codes.

CUSTOMER RESPONSIBILITY FOR PERMANENT SERVICE ONLY

1. Furnish and install treated upright no less than solid 6” x 6” or laminated from three 2” x 6” uprights set 4’ in the ground suitably braced and sufficiently stable to support a person on a ladder and tall enough to provide the required 12’ or 16’ of clearance (See elevation view), or a substitute acceptable by the Company.
2. Furnish and install 2” PVC conduit on upright if upright is suitable for climbing.

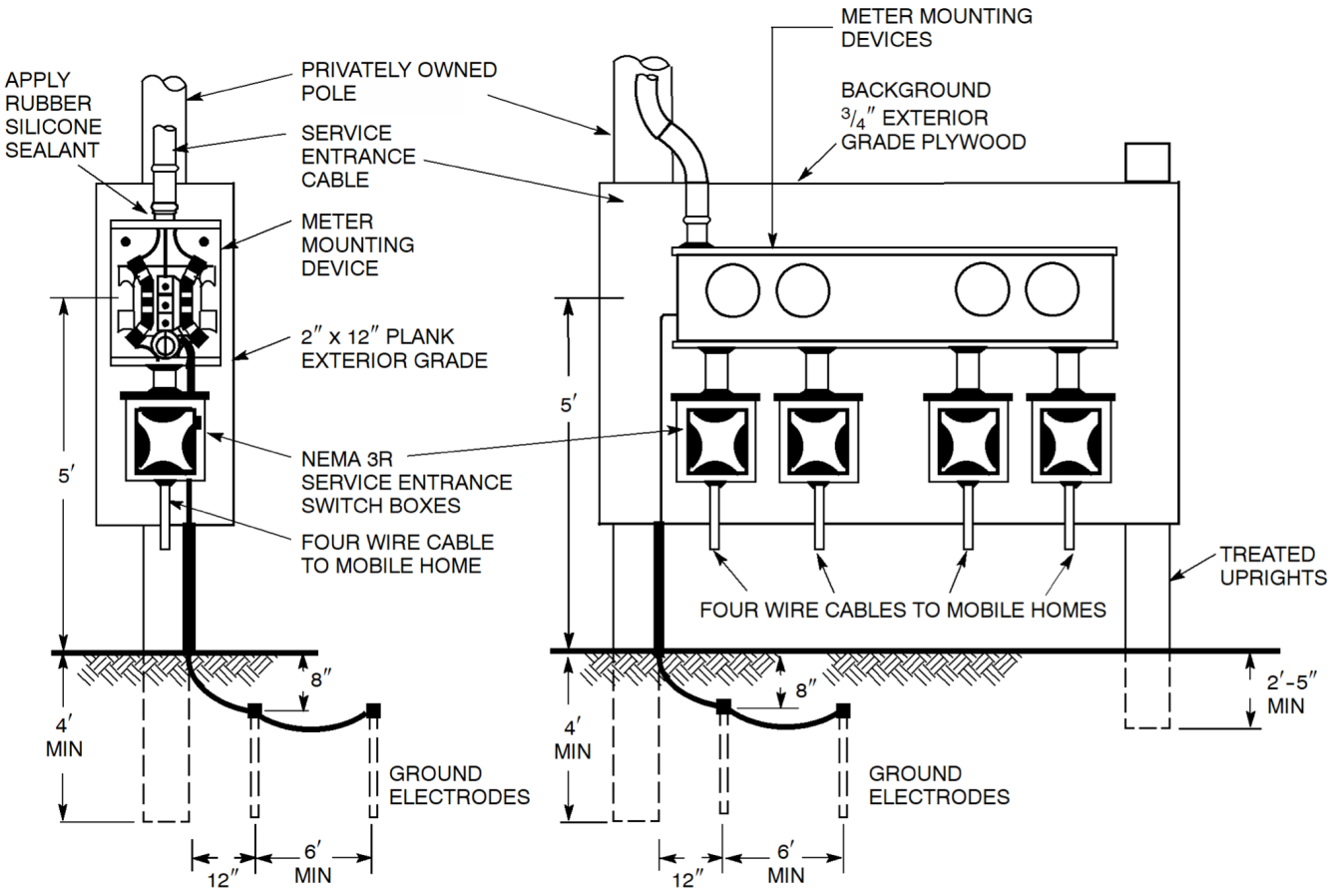
CUSTOMER RESPONSIBILITY FOR TEMPORARY SERVICE ONLY

1. Furnish and install treated upright no less than 4” x 6” set 4’ in the ground suitably braced and sufficiently stable to support a person on a ladder and tall enough to provide the required 12’ or 16’ of clearance (see elevation view), or a substitute acceptable by the Company.
2. Furnish and install meter mounting device, weatherproof receptacle with ground fault circuit interrupter below switch box.
3. Furnish, install, and connect 2 National Electrical Code approved ground electrodes.

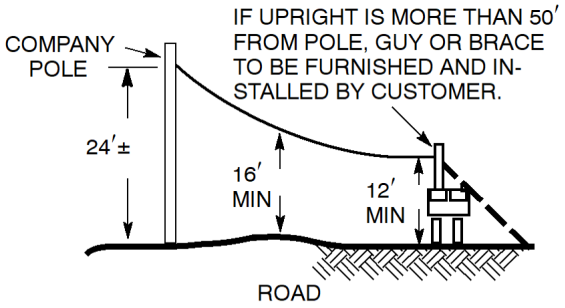
COMPANY RESPONSIBILITY

1. Furnish meter mounting device for permanent services only.
2. Furnish and install meter service entrance cable to meter mounting devices.

Overhead Service Single And Multiple Mobile Home 200 Amps And Smaller



EVERSOURCE INTERNAL REFERENCE 14.107



ELEVATION

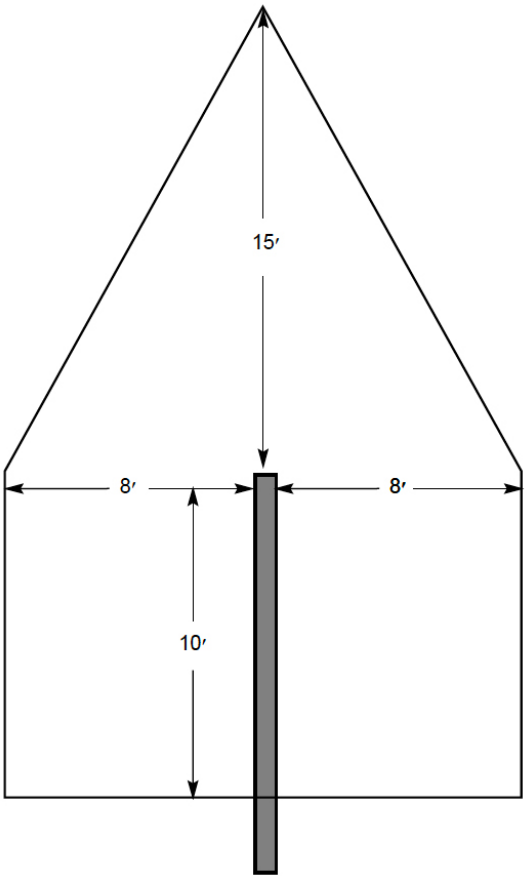
COMPANY RESPONSIBILITY

1. Furnish meter mounting device.
2. Furnish and install meter service entrance cable to meter mounting devices.

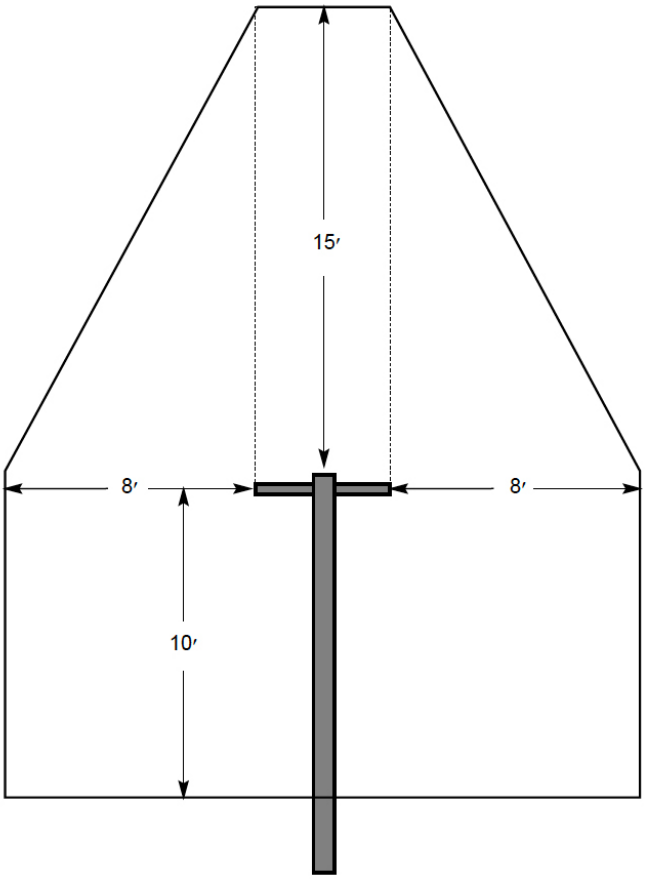
CUSTOMER RESPONSIBILITY & OWNERSHIP

1. Furnish and install treated upright no less than solid 6” x 6” or laminated from three 2” x 6” uprights set 4′ in the ground suitably braced and sufficiently stable to support a person on a ladder and tall enough to provide the required 12′ or 16′ of clearance (see elevation view), or a substitute acceptable to the Company.
2. Install meter mounting device with rust-resistant screws on a 2” x 12” plank or 3/4-inch exterior grade plywood as shown above.
3. Furnish and install 2” PVC conduit on upright if upright is suitable for climbing.
4. Furnish, install, and connect 2 National Electrical Code approved ground electrodes.
5. Furnish and install service entrance cable from meter mounting device to switch box(es).
6. Furnish and install NEMA 3R switch boxes with overcurrent devices.
7. Equipment and installation shall comply with the most up to date National Electrical Code and local codes.

Vegetation Clearing Specification for New Services



SINGLE PHASE



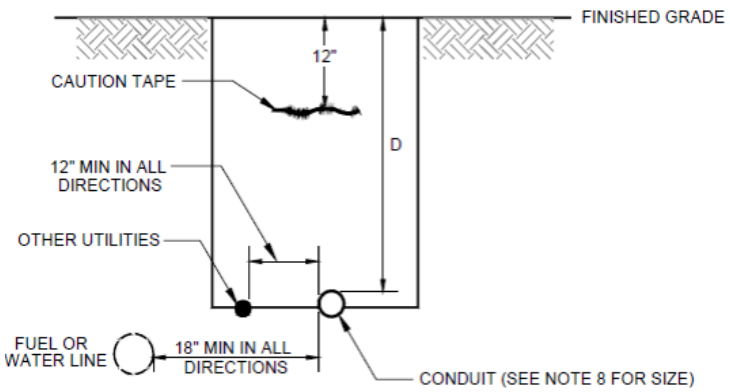
THREE PHASE

EVERSOURCE INTERNAL REFERENCE 14.103

NOTES

1. **Overhead Primary (2.4 - 34.5 kV) Conductors** - See SINGLE PHASE and THREE PHASE figures. Minimum 10′ clearance to the nearest primary conductor. Species recognized as fast growing and/or structurally weak are to be removed. Examples include red maple, ash, white pine, cherry, silver maple, poplar, birch and willow. All other trees and limbs are to be trimmed back to suitable laterals consistent with approved arboricultural practices.
2. **Hazardous Trees** - Trees and/or limbs up to 16" in diameter at breast height outside or inside the specified trim zone shall be removed when deemed structurally weak and likely to be a risk to the electrical system.
3. **Secondary and Service Wire Conductors - The customer is responsible for any trimming associated with the overhead service drop**. Vegetation shall be trimmed if necessary to prevent hard rubbing and chafing which could lead to wear and failure of the conductors.
4. **Inspections** - An inspection of proper trimming clearances will be made by a Company representative. New services will not be installed or energized unless properly cleared of vegetation.

Primary/Secondary Cable Installation



D = 36 Inches for primary voltage cable
30 Inches for secondary cables

EVERSOURCE INTERNAL REFERENCE 50.102

NOTES

1. All non-metallic conduit and fittings shall be electrical grade, schedule 40 PVC, shall conform to the applicable sections of NEMA and be UL Listed. **Only gray-colored conduit will be accepted**. Any PVC conduit not having the proper NEMA and UL markings will not be accepted. All steel conduits shall conform to ASTM A120 and be rigid galvanized steel. All PVC conduit joints must be cemented. Steel fittings shall be sealed with compound.
2. All 90-degree sweeps will be made using rigid galvanized steel with a minimum radius of 24" for 3" conduit, 36" for 4" conduit and 5" conduit, and 48" for 6" conduit. **All steel sweeps within 18" of surface shall be properly grounded**.
3. A 10' horizontal section of rigid galvanized steel conduit will be required at each sweep for primary.
4. The conduit should cross paved areas at approximately 90 degrees.
5. Backfill may be made with excavated material or comparable; unless material is deemed unsuitable by the Company. Backfill shall be free of frozen lumps, rocks or stones 2" maximum in dimension, debris, and rubbish. Organic material shall not be used as backfill. Backfill shall be thoroughly compacted in six-inch layers.
6. **A suitable pulling string, capable of 200 pounds of pull, must be installed in the conduit before the Company is notified to install cable**. The string should be blown into the conduit after the run is assembled to avoid bonding the string to the conduit.
7. Routing of the conduit and inspection prior to backfill will be provided by the Company. Installation of the conduit will be done by the contractor. **A Company Representative must be notified two business days prior to backfilling the trench**. If a cable cannot be successfully pulled through the completed conduit system due to a construction error, it will be the contractor's responsibility to locate and repair the involved conduit. **The contractor will be responsible for all resulting expenses.**
8. Normal conduit sizes for the Company are 3" for single phase primary and secondary voltage cables, 4" for three phase secondary, and 5" for three phase primary.
9. All conduit installations must conform to the National Electrical Safety Code, state and local codes and ordinances, and where applicable, the National Electrical Code.
10. Other utilities shall maintain a minimum distance of 12" in all directions from the Company conduit.

Primary/Secondary Cable Installation

CAUTION – CUSTOMER SHALL NOT ENTER ANY COMPANY STRUCTURE

EVERSOURCE INTERNAL REFERENCE 54.109

SERVICE TRENCH - CUSTOMER RESPONSIBILITY

The trench shall be in as direct a line as possible without reverse bends from the distribution facility to the customer service entrance. To minimize cable pulling forces, no more than two bends (not including riser at house or pole) exceeding a total combined change of 45 degrees shall be permitted.

1. Trench shall be of such depth to accommodate 30" minimum cover for service cables in conduit.
2. To prevent the conduit from being pulled out of the meter box, conduit shall be installed on virgin or well tamped soil. Trench bottom shall be undisturbed or relatively smooth earth, well tamped, and free of any debris that may be detrimental to the conduit.
3. Conduit in the trench should have a 4" per-100' downward pitch toward the distribution facility, if physically possible (this provides drainage away from the service entrance and prevents stagnant water in the duct). Grade may require installation of drilled sweep and stone sump.
4. Backfill shall not contain frozen material or stones larger than 2" in maximum dimension. Care shall be exercised to avoid damage to conduit during backfilling. Backfill shall be compacted and shall be completed before the Company schedules cable installation.
5. When required, coordination with telephone, cable TV, or other utilities is the customer's responsibility.

CONDUIT – CUSTOMER RESPONSIBILITY

Standard conduit shall be minimum 3" diameter, rigid PVC, heavy wall, sunlight resistant (6 percent - 7 percent titanium dioxide by weight), schedule 40 as per ANSI/NEMA TC 2-2003.

1. All 90-degree sweeps will be made using rigid galvanized steel with a minimum radius of 24" for 3" conduit, 36" for 4" conduit and 5" conduit, and 48" for 6" conduit.
2. Conduit should cross paved areas at approximately 90 degrees.
3. A 1/4-inch-diameter nylon pull rope, including 10' of slack shall be installed in the conduit
4. Secure the pull line to a plastic conduit plug at each end of the conduit run.
5. Plugged ends of the conduit shall be left accessible.

SERVICE FROM POLE

If service is from an overhead system, a grounded 90-degree galvanized steel bend shall be installed at the pole and at the meter mounting device location

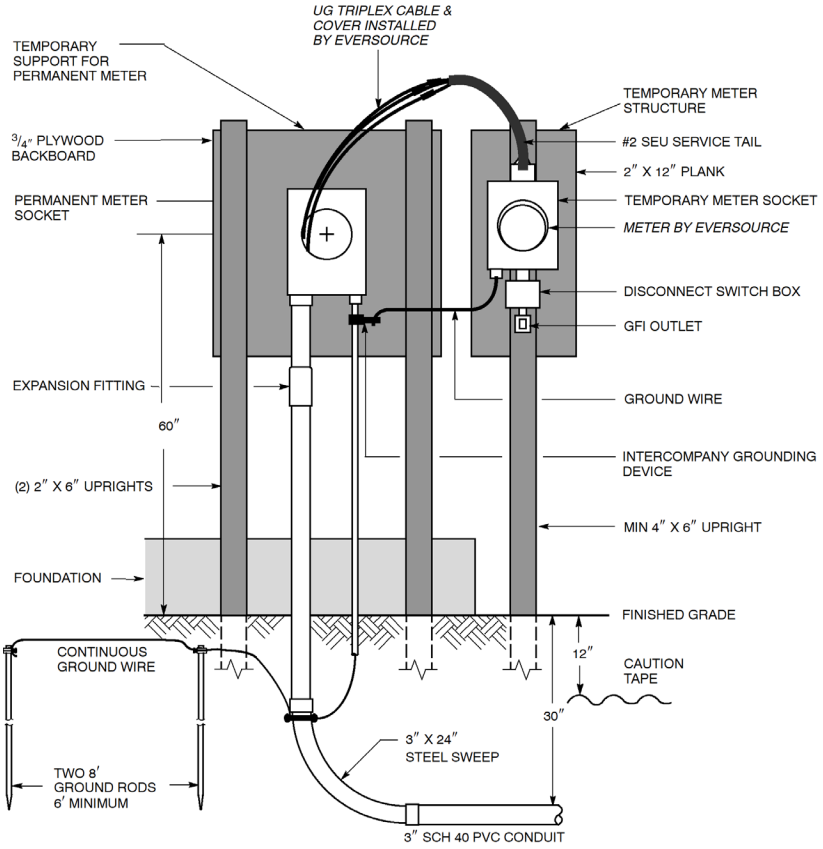
SERVICE FROM HANDHOLE/TRANSFORMER

Extend conduit to distribution facility and mate to previously installed 10' conduit stub. Tie pull lines, slide conduit sleeve over both ends, and secure with conduit cement.

LIMITATIONS

In the event a cable cannot be successfully pulled through the completed conduit system due to construction, it will be the contractor's responsibility to locate and repair the involved conduit. The contractor will be responsible for all resulting expenses.

Temporary/Permanent Underground Service 400 Amp & Below



EVERSOURCE INTERNAL REFERENCE 54.116

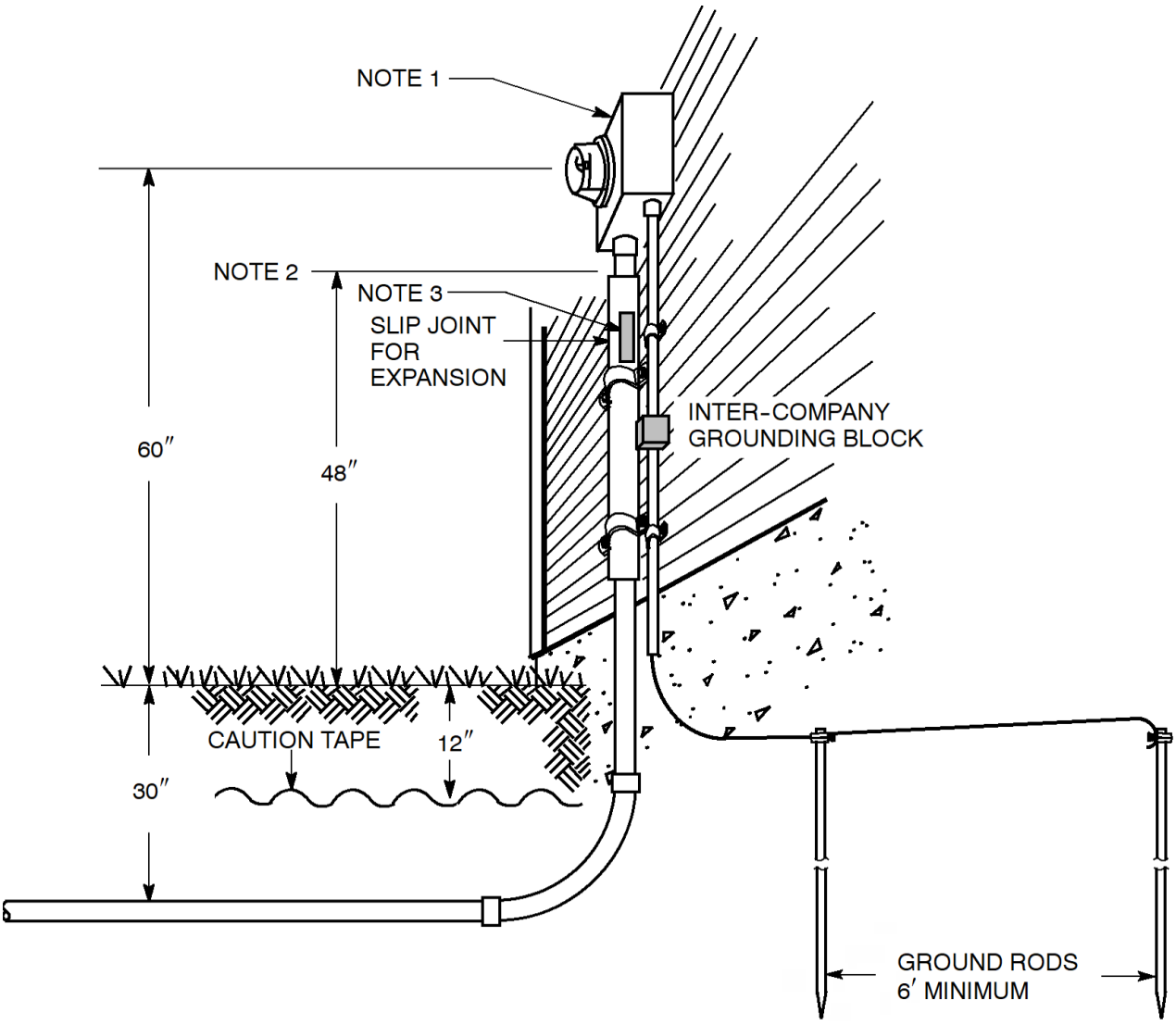
CUSTOMER RESPONSIBILITY

1. Install meter mounting device approximately 5' above the final grade except where specifically approved otherwise by the Company; plumb level and attached to the finished exterior of the building with rust-resistant screws extending through the finish and into the sheathing.
2. Furnish, install, and connect 2 National Electrical Code approved ground electrodes.
3. Furnish and install service entrance cable from meter mounting device to switch box.
4. Furnish and install schedule 40 PVC conduit except as noted. Install caution tape 12" below grade. Provide a rigid steel elbow.
5. Equipment and installation must comply with the National Electrical Code and all local codes. Expansion joint in conduit shall comply with the National Electrical Code.
6. **For services in homes larger than 3,000 square feet, parallel 3" conduits shall be installed to a below-ground service enclosure located no more than 10' from the meter mounting device.** A single 3" conduit from the service enclosure to the meter mounting device is sufficient.
7. For services with any elevation change, the Company may require a service enclosure located no more than 10' from the meter mounting device. A drilled sweep and stone sump installation may also be required.

COMPANY RESPONSIBILITY

1. Furnish meter mounting device (permanent service only).

Services In Conduit 600 Volt And Below



EVERSOURCE INTERNAL REFERENCE 54.110

CUSTOMER RESPONSIBILITY

1. Set meter socket plumb.
2. Steel sweep must be grounded if installed within 18″ of finish grade.
3. Splicing is not allowed. Ground wire must be continuous.

COMPANY RESPONSIBILITY

1. Furnish meter mounting device (permanent service only).
2. Furnish and install cable and meter.
3. Attach 2 1/2" x 2 1/2" adhesive-backed signs: **“WARNING, UNDERGROUND CABLE” and 3” x 5” “ELECTRIC SERVICE IN CONDUIT.”**
4. Attach lettering to identify the source.

Underground Services Terminating In Customer Owned Equipment

The conductors listed below meet or exceed National Electrical Code as required by state and local electrical inspectors.

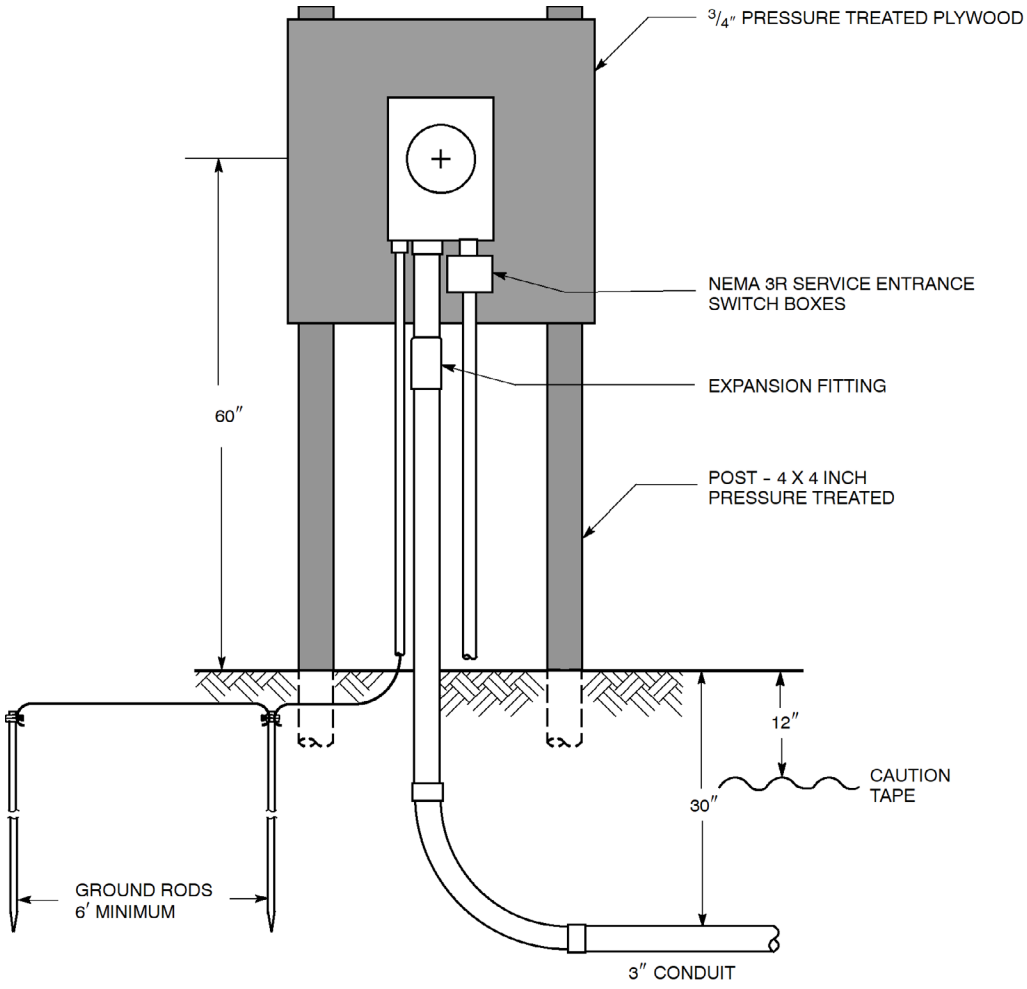
SERVICE SIZE		CONDUCTORS REQUIRED	NUMBER OF CONDUITS & SIZE (INCHES)	NEC RATING (AMPS)
AMPS	PHASE			
200	1	1 – 350 kcmil	1 – 3" conduit	250
200	3	1 – 350 kcmil	1 – 4" conduit	250
400	1	2 – 350 kcmil	2 – 3" conduits	500
400	3	2 – 350 kcmil	2 – 4" conduits	500
600	1	2 – 500 kcmil	2 – 4" conduits	620
600	3	2 – 500 kcmil	2 – 4" conduits	620
800	1	3 – 500 kcmil	3 – 4" conduits	930
800	3	3 – 500 kcmil	3 – 4" conduits	930
1000	1	4 – 350 kcmil	4 – 3" conduits	1000
1000	3	4 – 350 kcmil	4 – 4" conduits	1000
1200	1	4 – 500 kcmil	4 – 4" conduits	1240
1200	3	4 – 500 kcmil	4 – 4" conduits	1240

EVERSOURCE INTERNAL REFERENCE 54.121

NOTES

1. Services in excess of 1200 amps – please consult with an Eversource Technician.
2. Services on Manchester Network – copper conductors shall be used. Please consult with an Eversource Technician.

Mobile Home Meter Pedestal Installation Requirements



EVERSOURCE INTERNAL REFERENCE 54.115

CUSTOMER RESPONSIBILITY

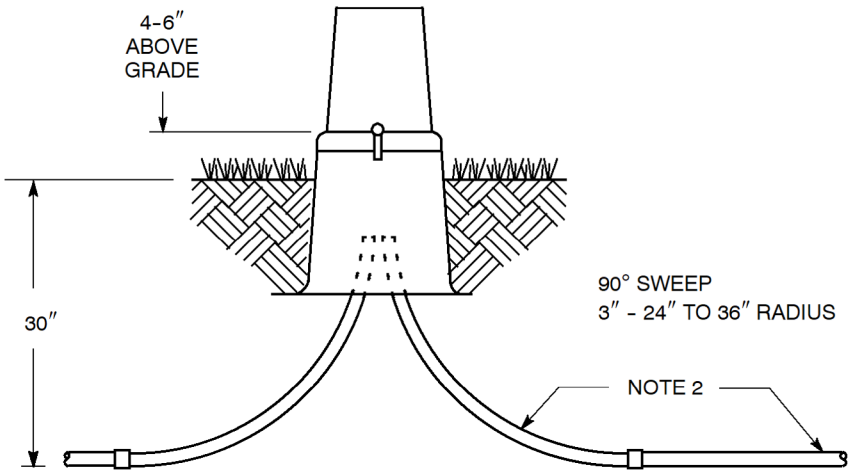
1. Furnish and install treated upright no less than solid 4” x 4” set 4’ in the ground securely. Any substitute shall be approved by Company prior to installation.
2. Furnish and install breakers, receptacles and wiring.
3. Secure front panel.
4. Furnish, install and connect two National Electrical Code approved ground electrodes.
5. Cable to mobile home must be four-wire. Equipment and installation must comply with the National Electrical Code and local codes.
6. Conduit shall be electrical grade, schedule 40, polyvinyl chloride (PVC) as noted, shall conform to the applicable sections of NEMA and be UL approved. Minimum size to be 3”. Provide a rigid steel elbow.

COMPANY RESPONSIBILITY

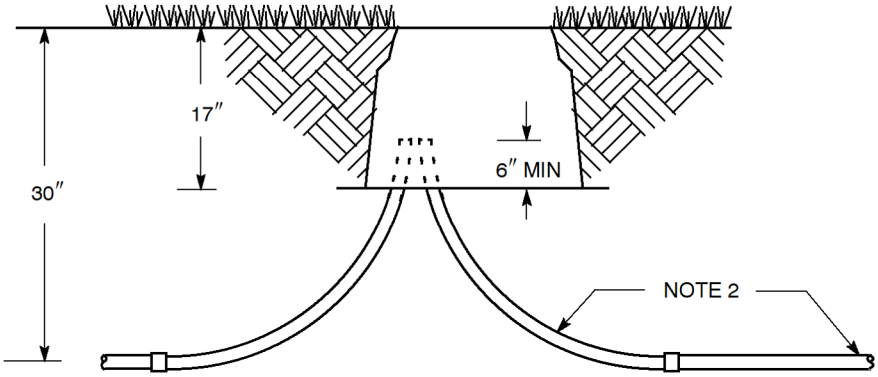
1. Furnish and install service cable to mobile home meter pedestal.
2. Furnish and install one warning sign on the meter pedestal.

Typical Secondary Cable Enclosure Installation

ABOVE GROUND PEDESTAL



BELOW GROUND ENCLOSURE

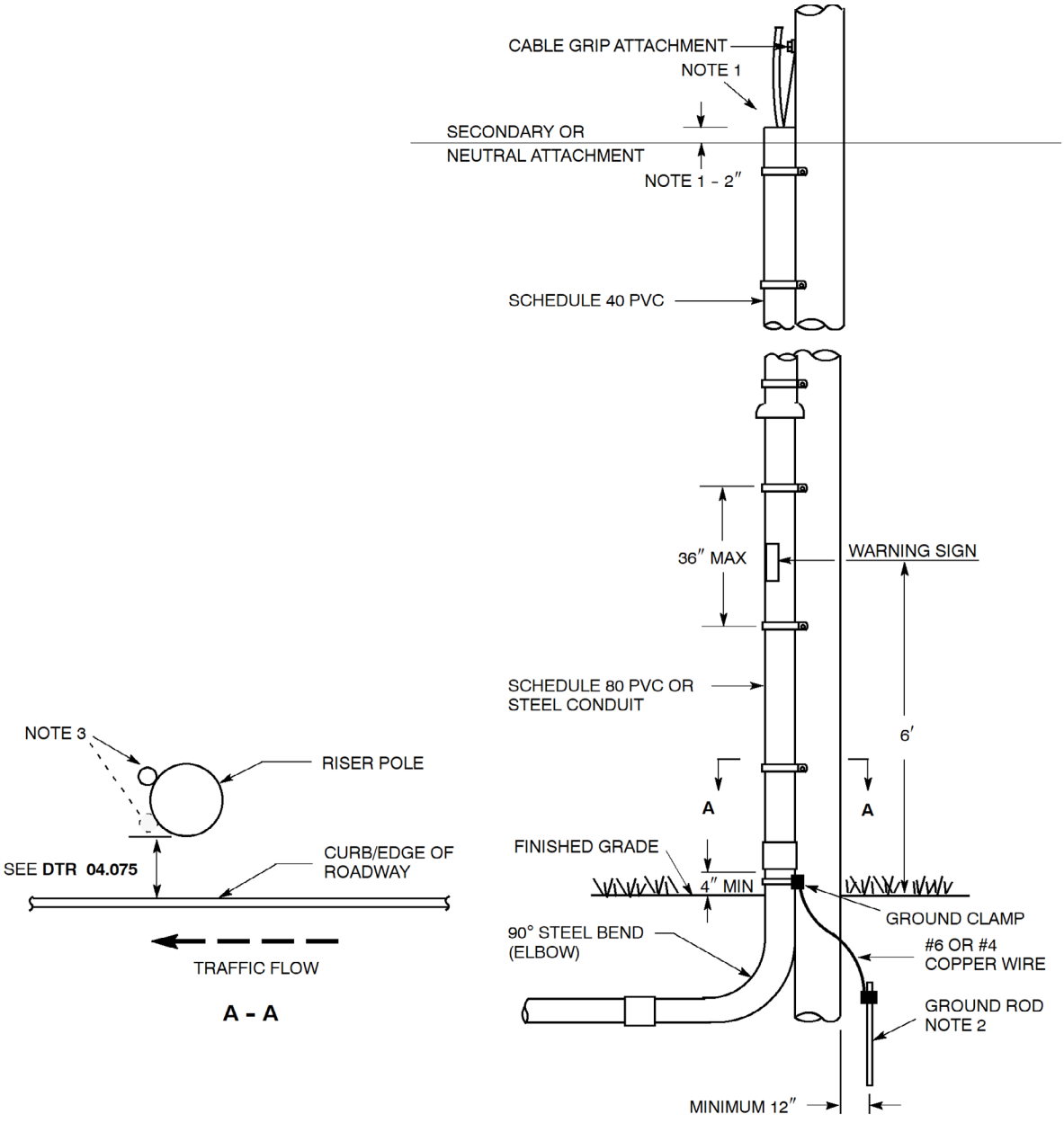


EVERSOURCE INTERNAL REFERENCE 54.215

NOTES

1. All PVC conduit shall be UL approved, gray in color, and at least schedule 40 electrical grade that meets NEMA requirements. Rigid galvanized steel conduit may also be used.
   CAUTION: See NOTE 2 - Galvanized Sweep Elbows.
2. All sweep elbows shall be galvanized steel type approved for electrical cables and have approved sealing compound applied to threaded coupling (and must be grounded if installed within 18″ of finished grade).
3. Temporary approved conduit end caps shall be placed on the exposed ends of conduit. Necessary measures shall be taken to prevent water, sand, and other objects from entering the conduit during and after construction. After construction is complete, seal conduits using proper methods.
4. A suitable pulling string capable of 200 pounds of pull shall be installed in the conduit system. Avoid bonding the string to the conduit with the fresh PVC cement.
5. A sweep elbow and a 10' section of conduit with a watertight end cap shall be installed for all known future load to be fed from an enclosure. Direction of conduit to be reviewed by a Company representative.
6. Remove all organic topsoil under enclosure and compact native material. Backfill if necessary with clean, well compacted gravel.
7. Watertight, URD service entrance multiple outlet connectors shall be used in the below ground enclosure.
8. On below ground enclosure, bring both conduits in at one end (this will allow the secondaries to be installed lengthwise in the enclosure, so that working slack is available).
9. Enclosures/pedestals shall be installed by the customer per Company specifications.

Secondary and Service Risers – 600 Volt Cable

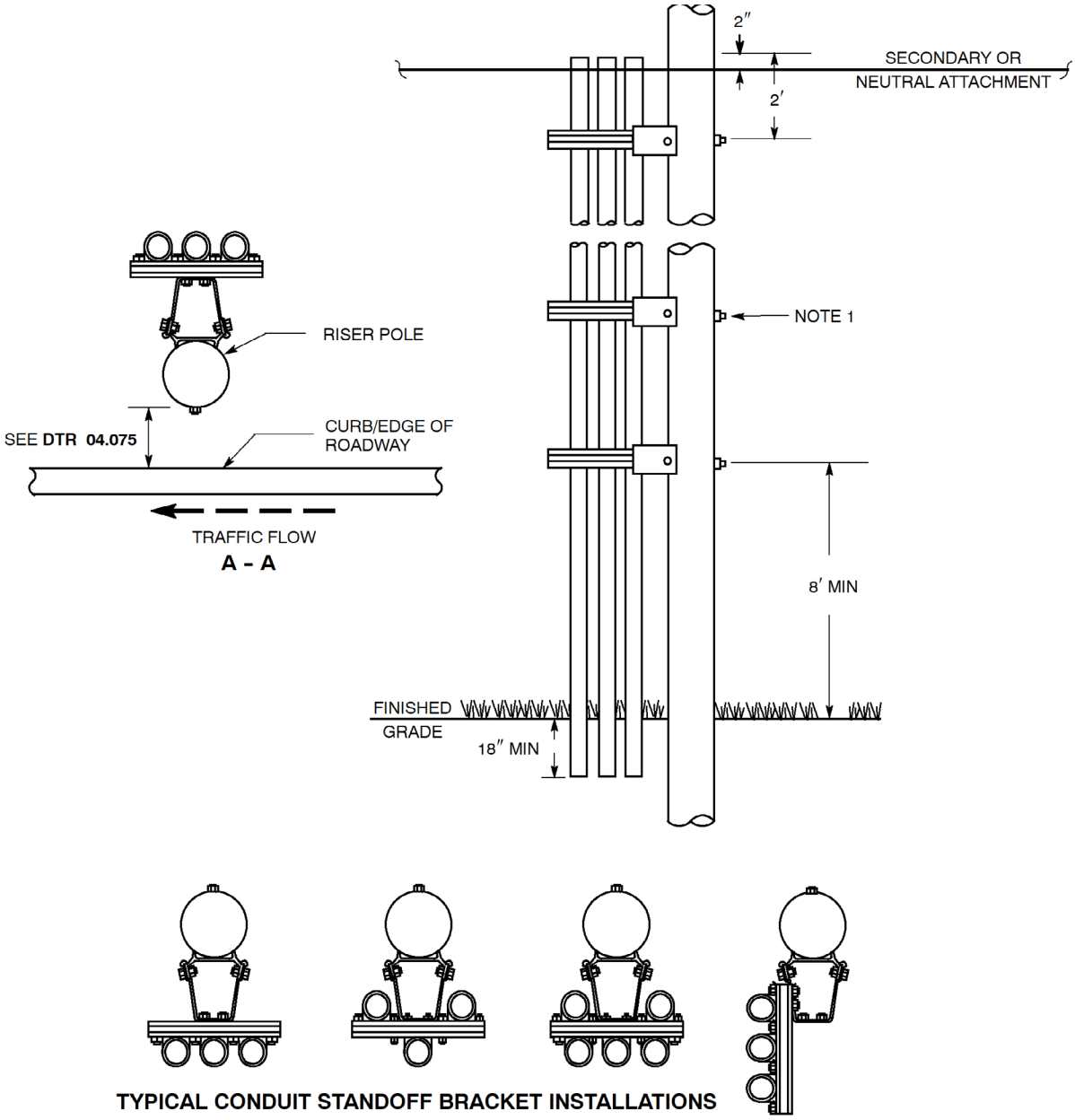


EVERSOURCE INTERNAL REFERENCE 12.057

NOTES

1. Seal conduit from water entry at top of riser for services installed in conduit for the entire run (Eversource).
2. Steel conduit shall be grounded. If the steel elbow is installed in a nonmetallic conduit installation, it shall also be grounded. Use 5/8″ x 8′ galvanized steel ground rod and ground clamp.
3. Preferred location for riser placement is on field side of pole opposite the direction of traffic. Check riser path for obstructions and coordinate with other utilities for placement of risers and any equipment. Road side of pole opposite the direction of traffic is reserved for road crossings.
4. Contact Dig Safe to locate buried cables before driving ground rods: **888.DIG.SAFE** (**888.344.7233**).

Cable Riser Standoff Bracket Installation



TYPICAL CONDUIT STANDOFF BRACKET INSTALLATIONS

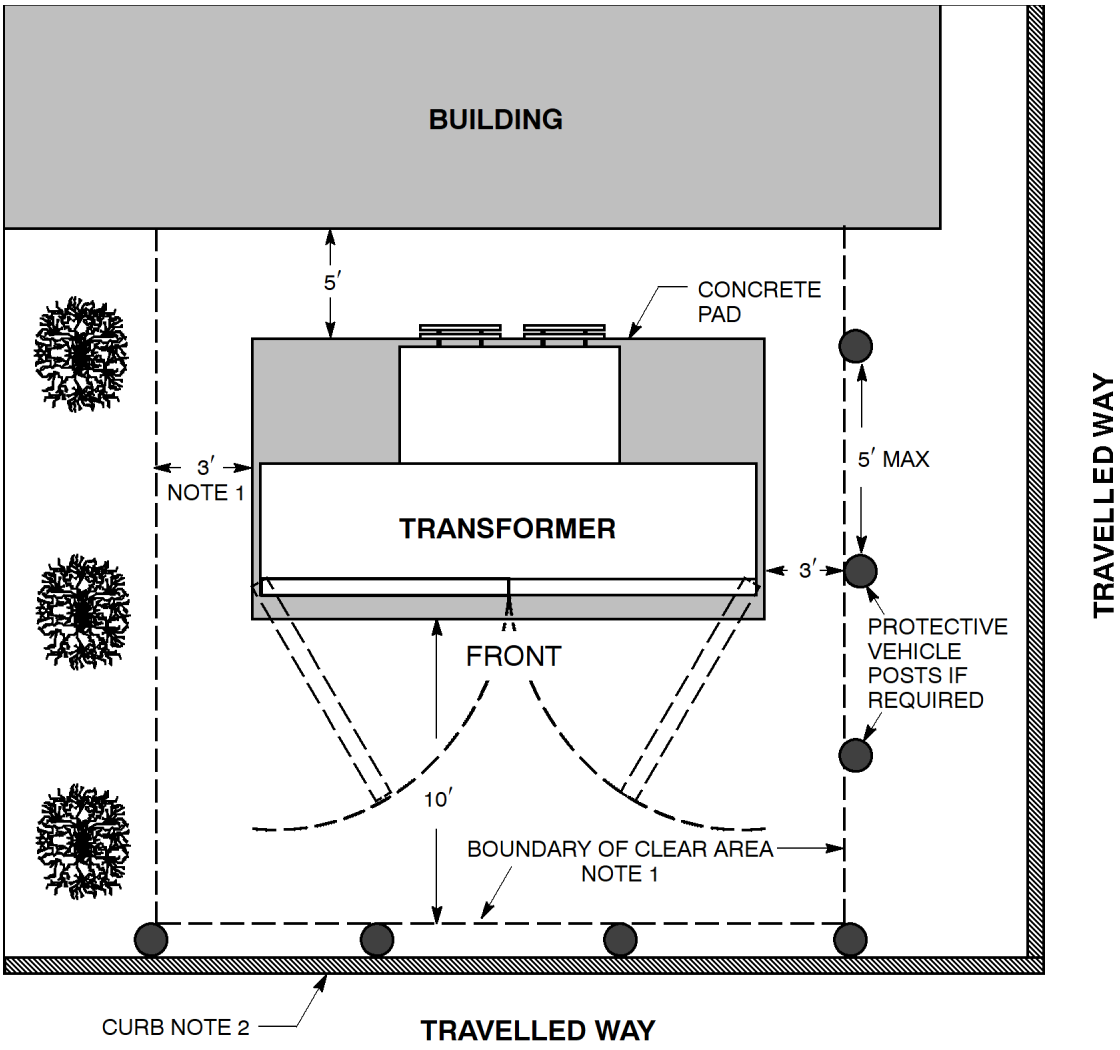
PLEASE CONSULT WITH A COMPANY REPRESENTATIVE FOR PLACEMENT OF STANDOFF BRACKETS ON A POLE PRIOR TO INSTALLATION

EVERSOURCE INTERNAL REFERENCE 12.017

NOTES

1. Install the intermediate standoff bracket equidistant from the upper and lower brackets.
2. Whenever possible install electrical facilities nearest to the pole.
3. Preferred location for riser placement is on field side of pole opposite the direction of traffic. Check riser path for obstructions and coordinate with other utilities for placement of risers and any equipment. Road side of pole opposite the direction of traffic is reserved for road crossings.

Pad-Mounted Transformers Location To Buildings and Roadways



EVERSOURCE INTERNAL REFERENCE 42.047

NOTES

1. To inspect, provide access, operate elbow connectors, and ventilate the transformer, the above specified clear area distances to buildings or shrubs shall be maintained. The distance from the building is to the concrete transformer pad. Property line shall be considered an obstruction since fences, shrubs, etc. may be installed at a future date by adjacent property owners. Because of the possibility of cooling fins overhanging the pad, side clearances to be increased to 5′ for transformers 1000 kVA and larger.
2. If no curb exists or transformer is located closer than 10′ to the traveled way, protective vehicle posts shall be installed. Refer to **Pad Mounted Oil Insulated Equipment Location and Mechanical Protection**.
3. The top of the concrete transformer pad shall be installed 6” above final grade.
4. Transformer shall not be located on steep grades where access to or elbow operation is made difficult.
5. Transformer shall meet the minimum distances to doors, windows, fire escapes, air intakes and walls. Refer to **Pad Mounted Oil Insulated Equipment Location and Mechanical Protection**.
6. Transformer is not to be located with its doors facing the building.
7. Refer to **Oil Detention for Pad Mounted Transformers and Environmental Considerations** for information on environmental considerations.

Pad Mounted Oil Insulated Equipment Location and Mechanical Protection

GENERAL

Pad-mounted oil insulated equipment (such as transformers, transclosures, switches, etc) should be installed so as to be accessible, not constitute an environmental hazard or a fire hazard, and be protected from damage. In underground areas, transformers installed at residential front lot lines are not subject to this requirement.

LOCATION

The pad-mounted equipment should be installed at a location where permanent access will be assured for future operation and maintenance as well as to permit installation, replacement and removal of the equipment by means of a winch truck with the boom up. Where noise may be a problem, careful consideration should be given when selecting a location. Areas subject to flooding should be avoided, as should other environmentally sensitive areas. Refer to **Environmental Considerations**. The building owner's and/or tenant's fire insurance carrier may restrict the proximity of the equipment to doors, windows or combustible materials and such requirements are the responsibility of the customer subject to the requirements of the Company. In the absence of other requirements, the equipment shall be located with the following minimum clearances from various building facilities. The distances mentioned in this section shall not supersede any local ordinance or code which requires greater clearances.

ITEM	MINIMUM DISTANCE		
	IN FRONT OF IN FEET	TO SIDE OF IN FEET	BELOW IN FEET
Door	20	10	–
Air Intake	10	10	25
Window	10	3	5
Fire Escape	20	20	–
Combustible Wall	6	6	–
Noncombustible wall	5	3	–
Fuel tanks (above and below grade)	10	10	–
Natural Gas or Propane Connections (NH)	15	15	–
Gasoline Dispensing Unit	20	20	–

OIL SUMP

If the surrounding grade pitches toward critical areas, it is recommended that an oil sump be provided. This should consist of ¾" trap rock fill under and around the equipment pad adequate to contain the quantity of oil in the equipment to be installed at the given location.

ADDITIONAL FIRE PROTECTION

If the building owner's and/or tenant's combustible facilities adjacent to the equipment require fire protection beyond that provided by oil sump, it shall be their responsibility to provide such protection in the form of space separation, fire resistant barriers, automatic spray systems, other oil containment facilities, or other means approved by their fire insurance company.

EQUIPMENT PROTECTION

Where pad-mounted equipment would be exposed to possible damage by vehicular traffic, protective bumpers are to be installed on exposed sides. Galvanized steel pipes 4" minimum diameter filled with concrete, I-beams 5" minimum, or other suitable means of protection may be used as bumpers. Such pipes or I-beams shall extend 42" minimum both above and below grade (bumpers shall be set in cylindrical concrete foundations a minimum of 42" below grade). Heavier bumpers set deeper should be considered where exposed to heavy trucks. Bumpers should be 10' minimum from the operating side of concrete pad and on the other sides 36" minimum from equipment or pad, whichever projects farther. The maximum spacing between bumpers on exposed sides should be 60".

EQUIPMENT LOCKS

Any equipment, with provisions for locking, that is left on site and is accessible to the general public, shall be padlocked. This includes installations that are not complete and not energized.

Environmental Considerations

PERMITS

Prior to the start of construction, all necessary environmental permits, whether federal, state and/or local shall be secured. It should be noted that jurisdiction over utility company activities varies within each state and exemptions may exist for some utility maintenance activities.

Where environmental considerations exist, the Company policy is typically to notify and consult with local agencies regarding significant maintenance activities, even in cases where we do not have a legal requirement to do so.

Work in areas where the following issues exist may require permits:

- Coastal zone
- Tidal wetlands
- Inland wetlands
- Water bodies (rivers, lakes, streams, ponds, etc.)
- Cultural/archaeological sites
- Tree trimming and/or tree removal
- Historic Districts

PLACEMENT OF OIL FILLED DISTRIBUTION EQUIPMENT

Oil filled equipment must be placed in the best possible location; considering the potential for oil spills and the effect on the environment and avoiding sensitive sites whenever feasible. Sensitive sites may include hospitals, schools, food preparation centers, agricultural areas, etc.

The locating of oil filled equipment should consider waterways (e.g. adjacent to a stream, catch basin), public health (e.g. school yards, play grounds), vandalism potential, and damage potential (sharp curve in road way, large trees, etc.).

The following guidelines are recommended, where possible, to avoid placement of oil filled equipment near water resources:

- 200’ from rivers/perennial streams/bodies of water/inland and dial wetlands
- 400’ from public drinking supply

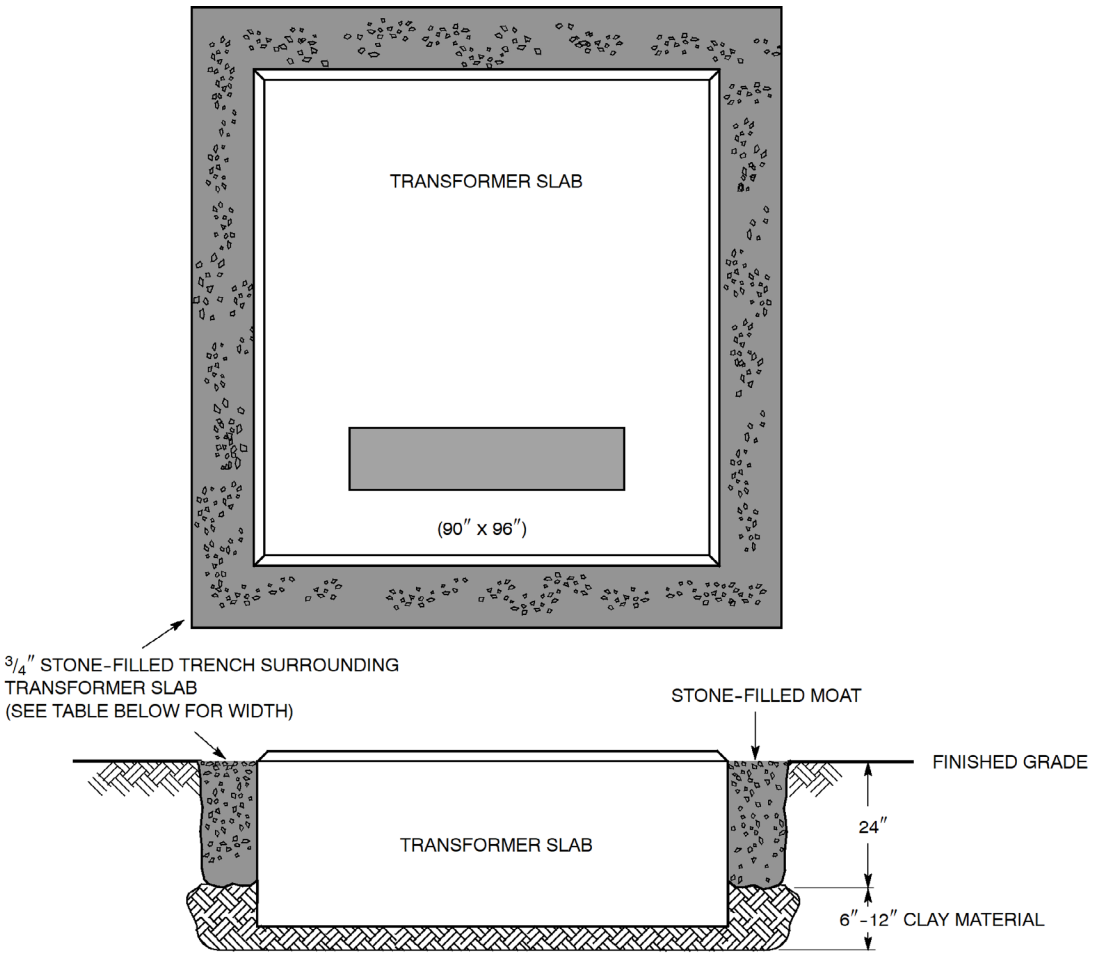
In the event placement of pad mounted oil filled distribution equipment in an environmentally sensitive location cannot be avoided then and oil detention moat should be used

ASBESTOS PRECAUTIONS

Projects involving removal and disposal of known or presumed asbestos containing materials require that sufficient precautions be taken to ensure employee safety, compliant work practice, and lawful disposal. Removal work may need to be performed by individuals with specialized training or certification, and/or require notification to regulators. This might be a concern on projects requiring duct or riser repair/replacement or cable replacements (e.g., Orangeburg, Transite, Parkway, etc.). For further information contact the Environmental Affairs Department.

EVERSOURCE INTERNAL REFERENCE 06.321

Oil Detention for Pad-Mounted Transformers



EVERSOURCE INTERNAL REFERENCE 58.311

To calculate dimension of the stone-filled moat:

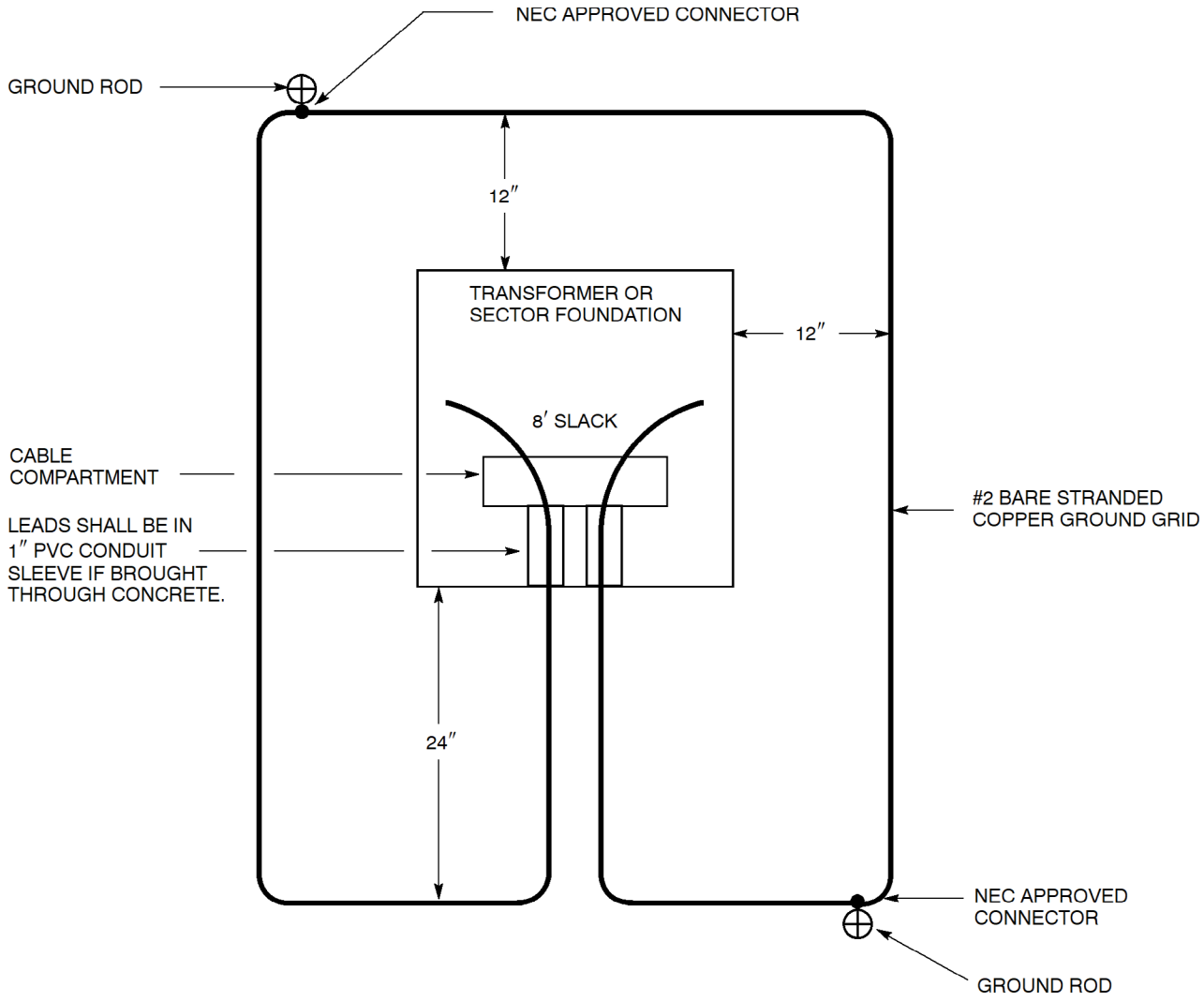
1. Convert gallons of oil in the transformer to cubic feet: Divide gallons by 7.48 to get cubic feet of oil.
2. Divide this number by 0.35 to determine the volume of stone-filled moat required.
3. From the table below select the width necessary to contain the oil.
4. In environmentally sensitive areas, seal all conduits.
5. Refer to Environmental Considerations for when an oil detention moat should be used.

VOLUME IN CUBIC FEET OF 24” DEEP STONE FILLED MOAT			
WIDTH OF MOAT (FEET)	SLAB DIMENSIONS IN INCHES		
	66x50	80x92	90x96
1	47	65	70
2	109	147	156
3	188	244	258

Installation Requirements For Padmounted Transformers & Sector Cabinets

1. Foundations shall be procured from a precast concrete manufacturer.
2. Reinforcing bars shall meet ASTM A615 Grade 60 specifications.
3. Reinforcing bar shall have a minimum 2" of concrete clear cover. Provide a 1" chamfer on all exposed slab edges.
4. All lifting handles will be recessed below the concrete surface.
5. One-inch PVC conduit sleeves shall be incorporated into the foundation to allow ground grid leads to enter pit openings per the details. Post-drilled holes are not acceptable.
6. Concrete shall have a minimum 28-day compressive strength of 4000 psi with 5-7% air entrainment. The top surface of the slab shall receive a wood float finish.
7. Slab shall be placed on undisturbed existing soil overlain **by a 12" minimum layer of ¾" crushed stone or well compacted gravel backfill**. If unsuitable bearing materials exist at this subgrade, remove and replace with additional stone or compacted gravel. Do not place concrete on a frozen subgrade.
8. Conduit pit is typically located on the roadway side. Refer to **Pad Mounted Transformers Location to Buildings and Roadway** and **Pad Mounted Oil Insulated Equipment Location and Mechanical Protection** for specific location and clearance requirements.
9. Schedule 40 PVC conduits shall be installed a minimum of 36" deep (30" for secondaries) and be surrounded with sand. Install an indicator tape 12" below finish grade along the conduit run beyond the slab. Refer to **Primary/Secondary Cable Installation** for details.
10. Conduit quantities and sizes shall be per specific project specifications (typically primary conduits are 5" and low voltage are 3").
11. Conduit elbows shall extend a maximum of 4" above the bottom of slab into the conduit pit. Cut if necessary (grind off sharp edges) and install a protective cap bushing.
12. Exposed steel conduits in the entrance pit shall be bonded to the ground grid. Refer to **Pad Mount Equipment Grounding**.

Pad-Mount Equipment Grounding Grid

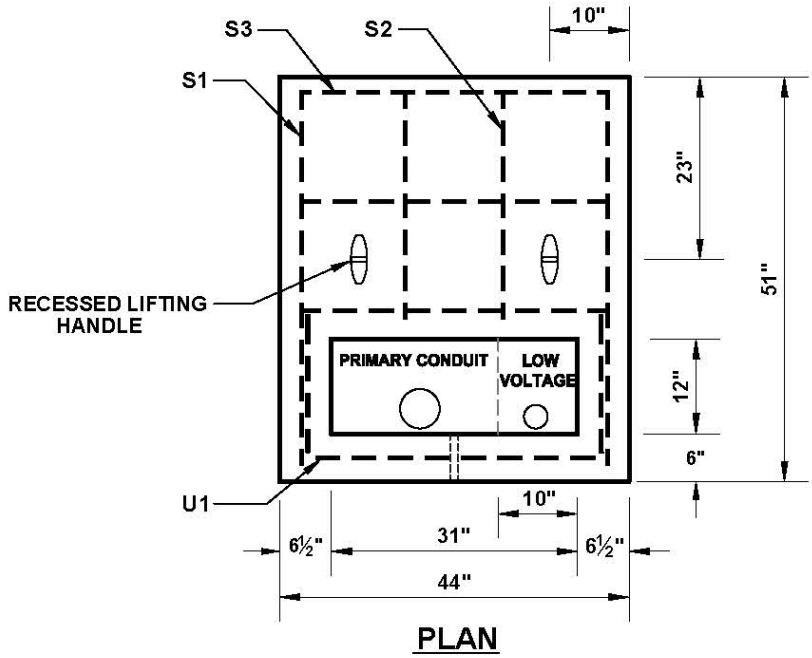


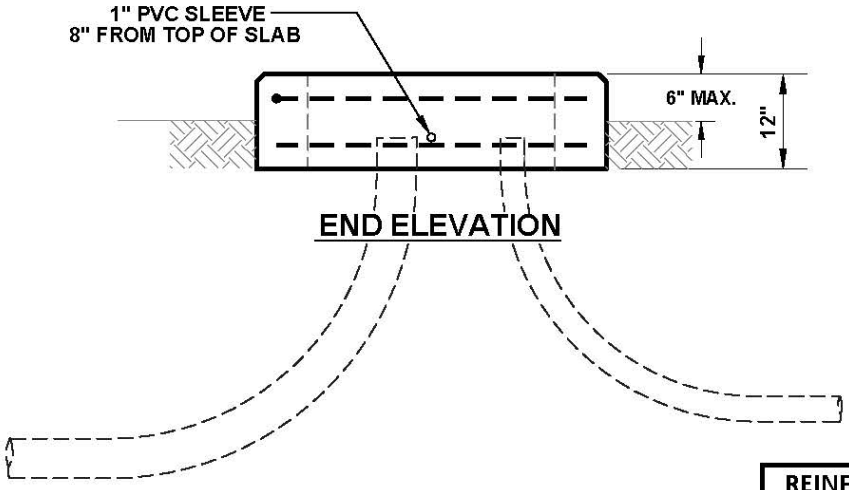
EVERSOURCE INTERNAL REFERENCE 56.223

CUSTOMER RESPONSIBILITY

The ground grid shall be supplied and installed by the customer and is to be buried at least 12 inches below grade. Eight feet of extra wire for each ground grid leg shall be left exposed in the cable compartment to allow for the connection to the transformer. The two 8-foot ground rods may be either galvanized steel or copperweld and they shall be connected to the grid with National Electrical Code approved connectors.

Single Phase Transformer Foundation 25-75 KVA





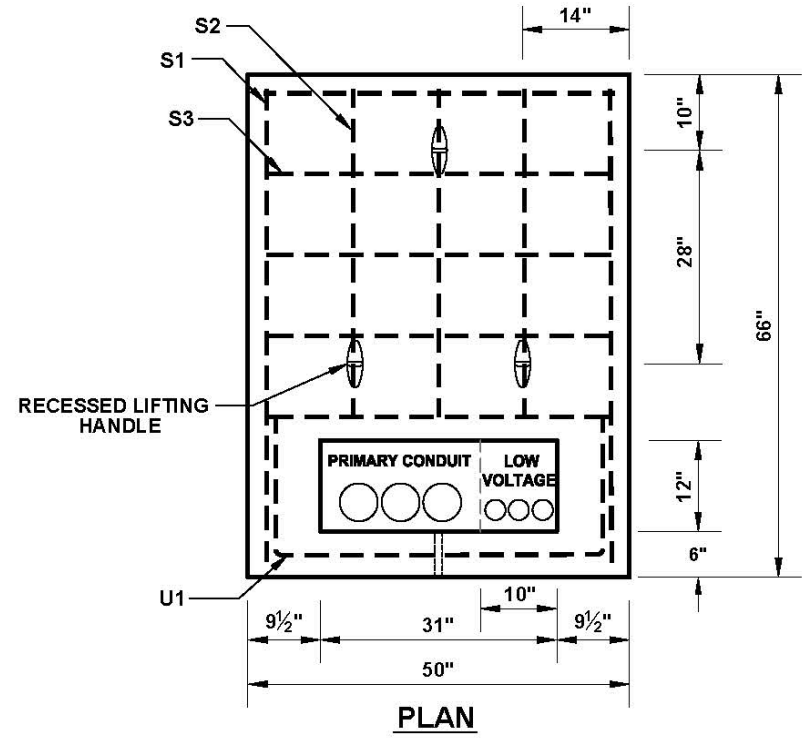
REINFORCING SCHEDULE (#6 BAR)			
Type	Qty	Length	Diagram
S1	4	47"	Straight
S2	4	29"	Straight
S3	6	40"	Straight
U1	2	74"	18 / 38 / 18

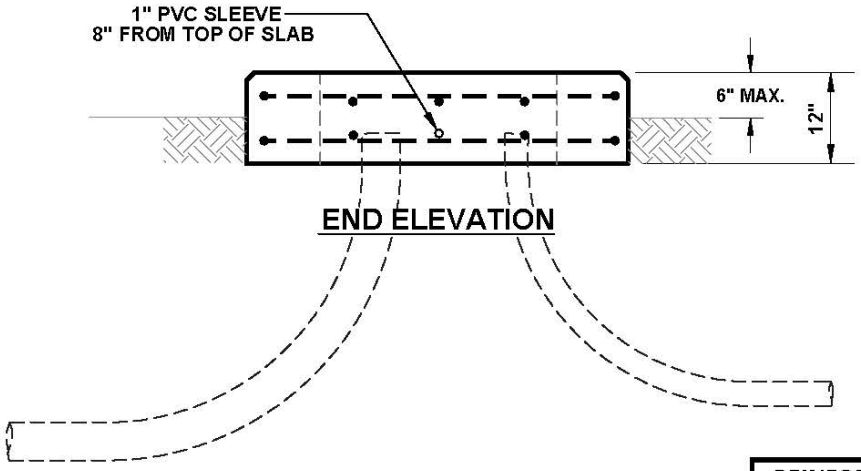
Total Foundation Weight, 1950 lbs.

EVERSOURCE INTERNAL REFERENCE 53.102

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

Single Phase Transformer Foundation 100-250 KVA





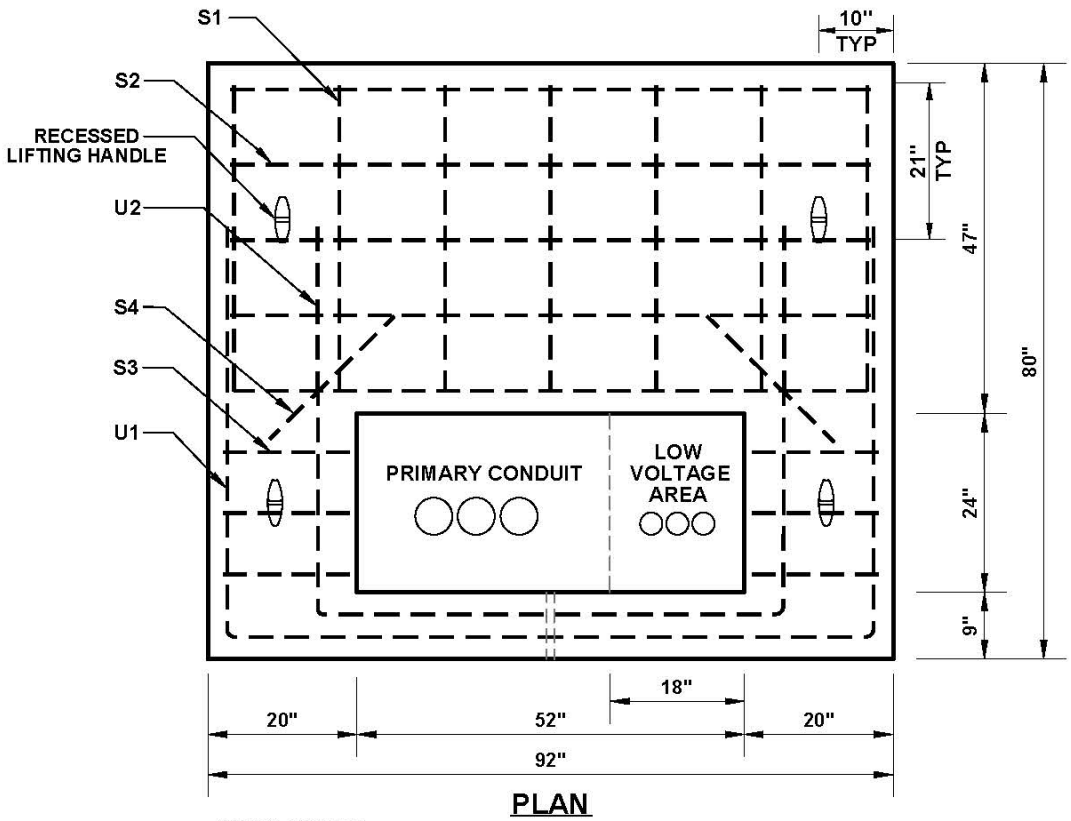
REINFORCING SCHEDULE (#6 BAR)			
Type	Qty	Length	Diagram
S1	4	62"	Straight
S2	6	44"	Straight
S3	10	46"	Straight
U1	2	78"	18 / 42 / 18

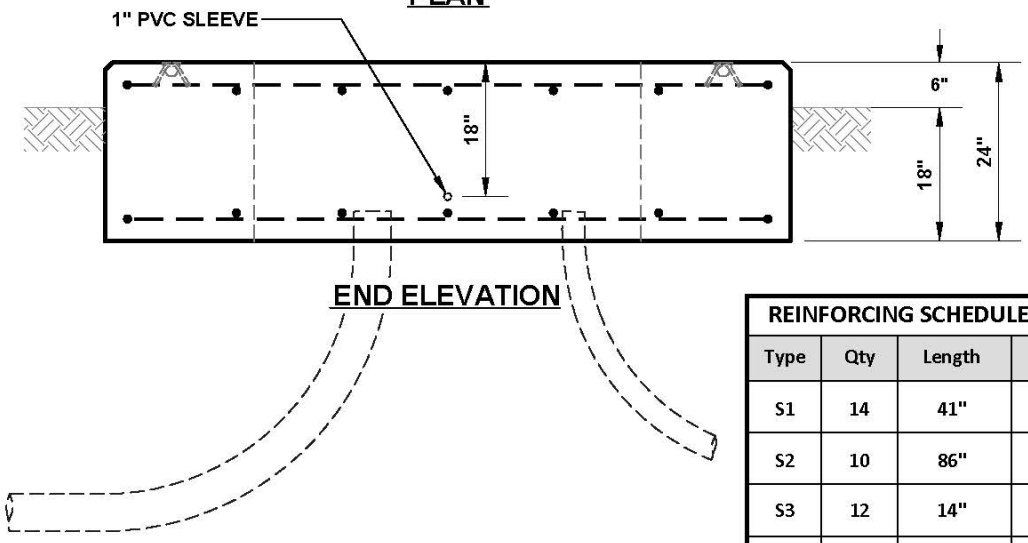
Total Foundation Weight, 3030 lbs.

EVERSOURCE INTERNAL REFERENCE 53.102L

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

3 Phase Padmounted Transformer Slab 75-500 KVA Dead Front 15 KV and Below





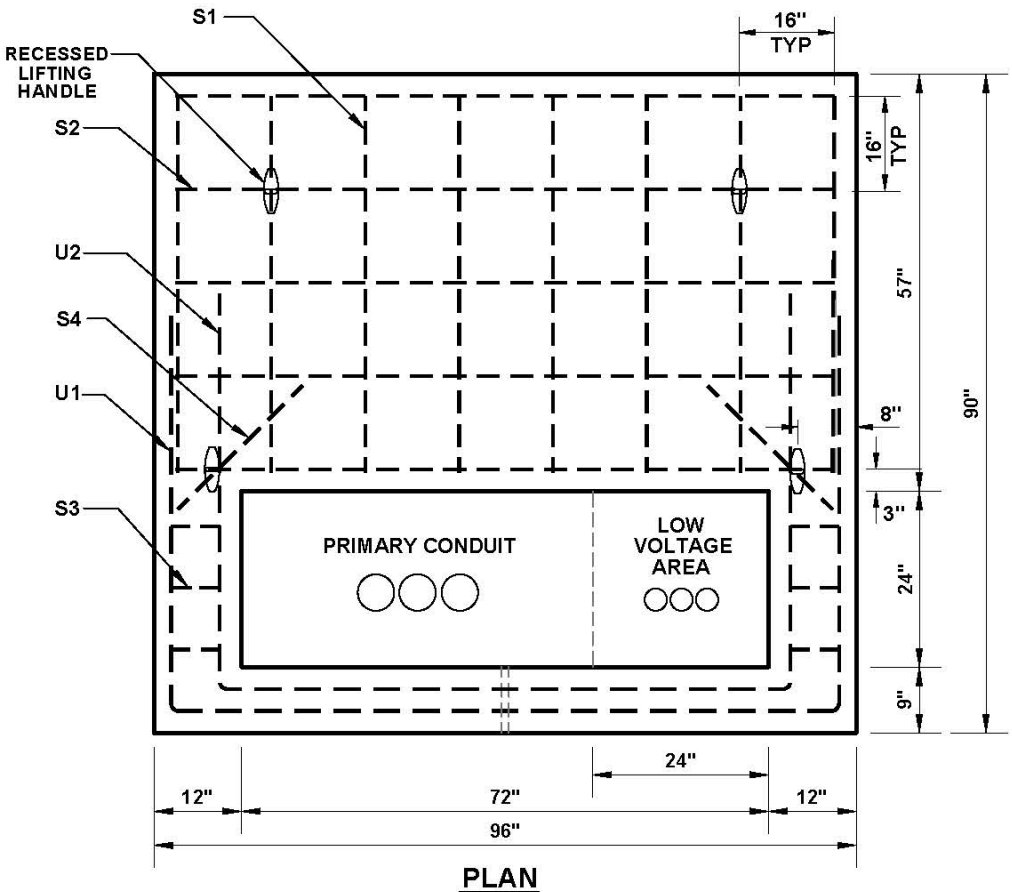
REINFORCING SCHEDULE (#6 BAR)			
Type	Qty	Length	Diagram
S1	14	41"	Straight
S2	10	86"	Straight
S3	12	14"	Straight
S4	4	24"	Straight
U1	2	194"	54 / 86 / 54
U2	2	170"	54 / 62 / 54

Total Foundation Weight, 12,600 lbs.

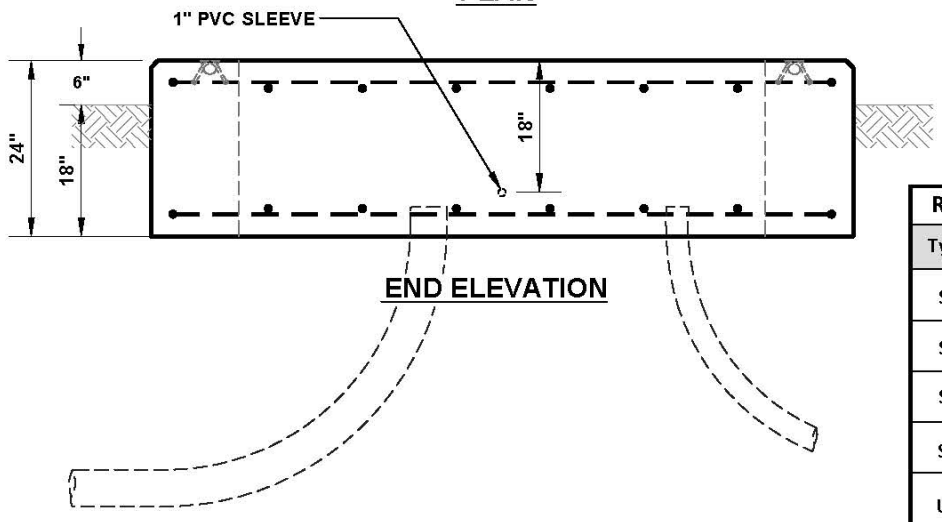
EVERSOURCE INTERNAL REFERENCE 53.111

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

3 Phase Padmounted Transformer Slab 15KV 750-2500 KVA Dead Front 34KV 75-2500 KVA Dead Front



PLAN



END ELEVATION

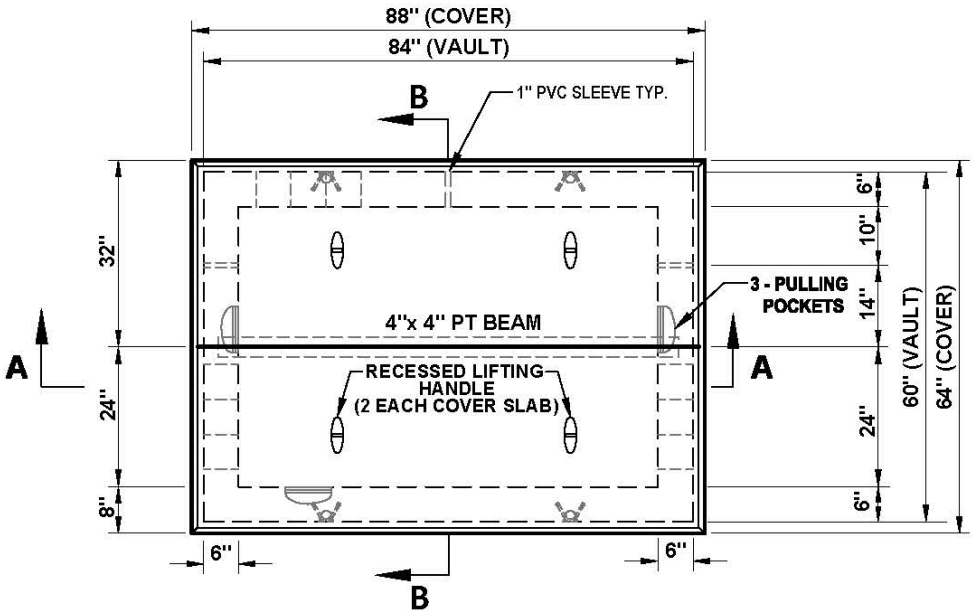
REINFORCING SCHEDULE (#6 BAR)			
Type	Qty	Length	Diagram
S1	16	51"	Straight
S2	10	90"	Straight
S3	12	7"	Straight
S4	4	24"	Straight
U1	2	198"	54 90 54
U2	2	186"	54 78 54

Total Foundation Weight, 14,200 lbs.

EVERSOURCE INTERNAL REFERENCE 53.116

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

Concrete Pullbox Grassy Area Only, H-10 Loading



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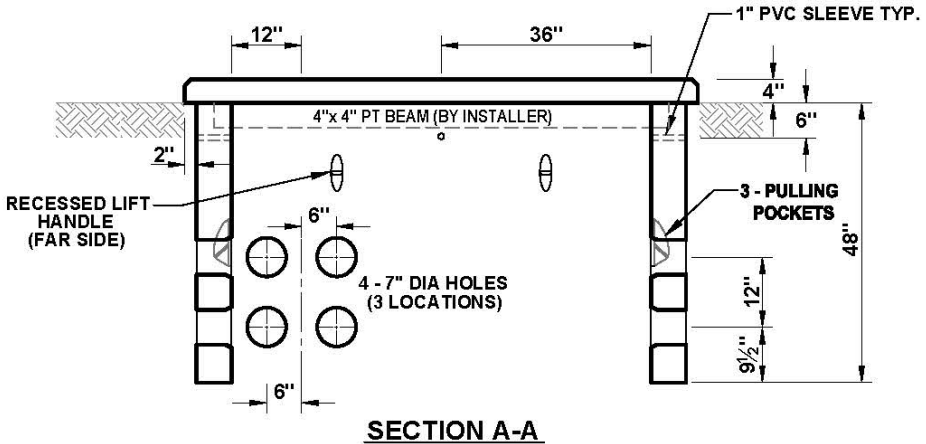
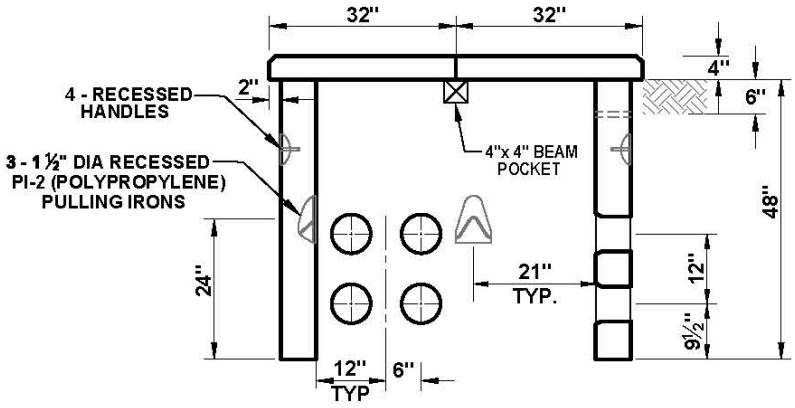
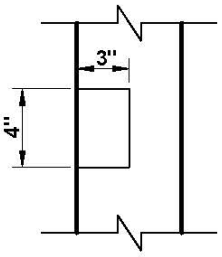


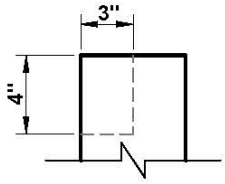
SECTION A-A



SECTION B-B



PLAN VIEW



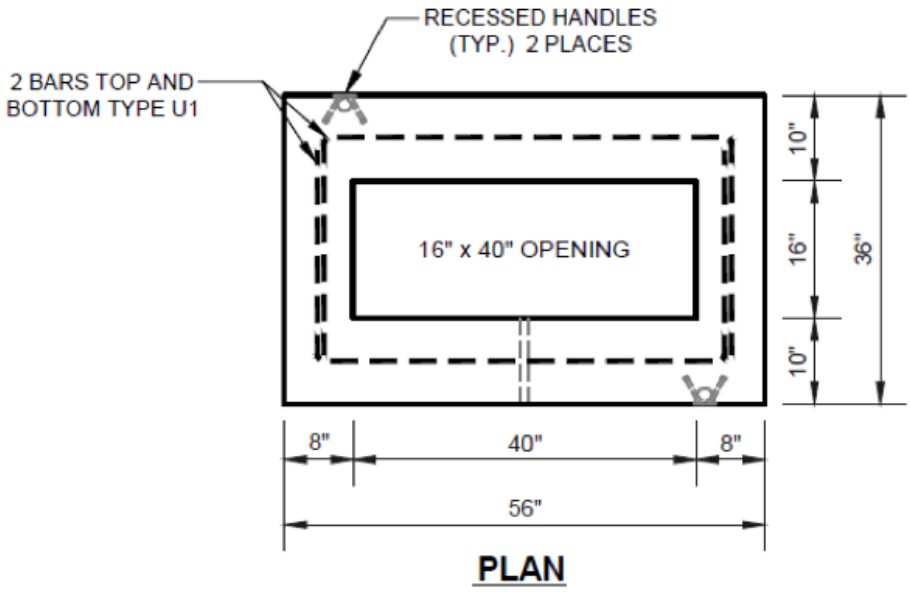
SIDE VIEW

BEAM POCKET DETAIL

EVERSOURCE INTERNAL REFERENCE NH SPLICE PIT

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

Single Phase Section Cabinet Foundation



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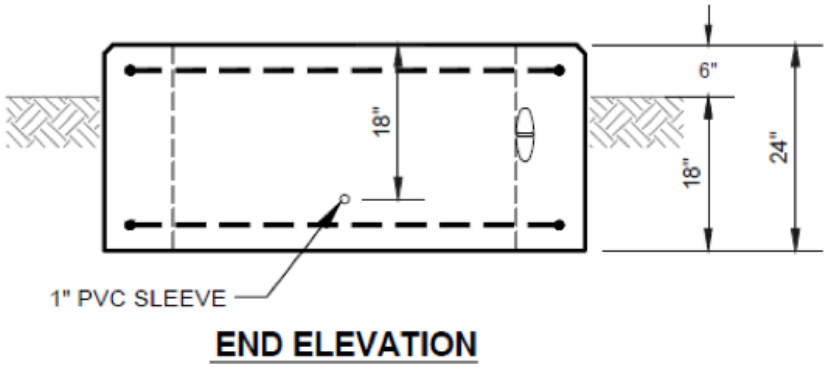


END ELEVATION

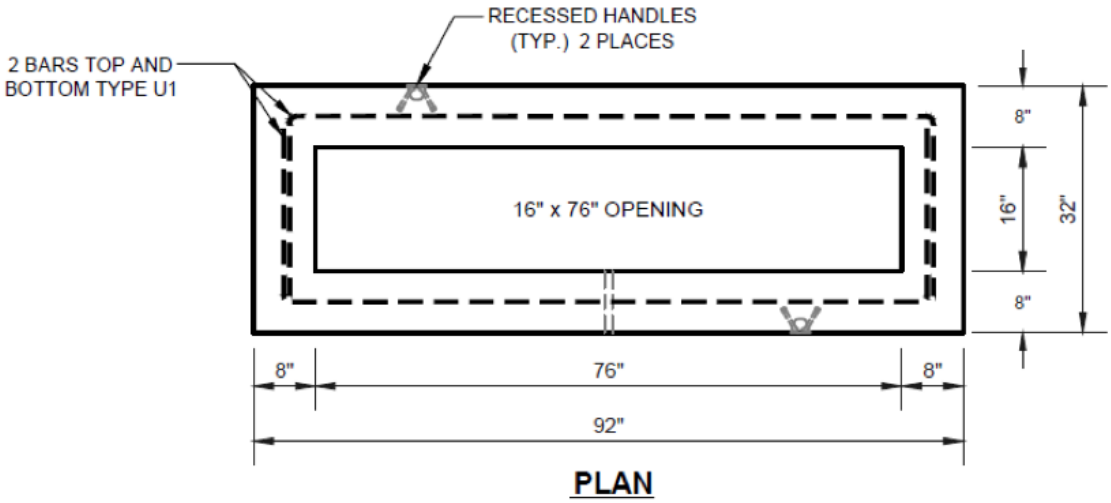
REINFORCING SCHEDULE (#6 BAR)			
Type	**Qty**	**Length**	**Diagram**
U1	4	104"	28 / 48 / 28

Total Foundation Weight, 2,850 lbs.

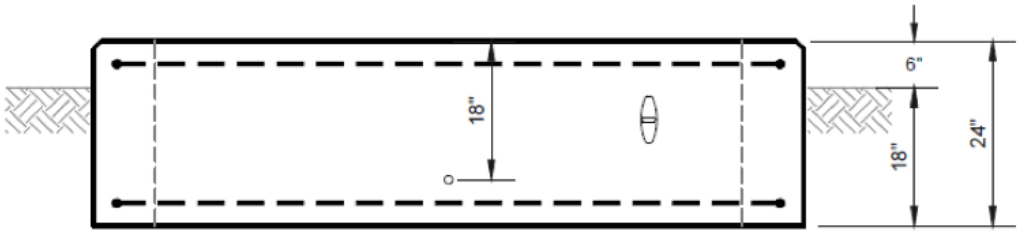
EVERSOURCE INTERNAL REFERENCE 53.125

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

Three Phase Sector Cabinet Foundation



PLAN



END ELEVATION

REINFORCING SCHEDULE (#6 BAR)			
Type	**Qty**	**Length**	**Diagram**
U1	4	132"	24 / 84 / 24

Total Foundation Weight, 3,600 lbs.

EVERSOURCE INTERNAL REFERENCE 53.128

Refer to **Installation Requirements for Padmounted Transformer and Sector Cabinets** for additional details.

Article 100-105 | Section 1 — General Information

100. These requirements have been developed to ensure reliable and adequate service to the user of electricity and to improve communication and coordination between Customers, Contractors, Architects, Engineers, Civic Planning Groups, and the Company. These requirements supplement the Company's Tariff as filed with the New Hampshire Public Utilities Commission and contain the most recent revisions (at the time of publishing) to the Company's Construction and Meter Standards.

101. The character of electric service made available in accordance with rate provisions will differ to some extent from one location to another on the Company's system. Customers, Contractors, Architects, Engineers, and Civic Planning Groups should therefore determine from the Company the types of service available for any new installation and for any existing installation which is to be enlarged or modified.

102. It is impractical to attempt to cover in a booklet of this type all Company approved Standards or all of the conditions and problems which may be encountered in various installations. Accordingly, Customers, Contractors, Architects, Engineers, and Civic Planning Groups are strongly urged to make use of the advisory services available through the Company without charge or obligation. Electric distribution system design services, after the initial design (i.e. redesign at a developer's or Customer's request or due to municipal requirements), and inspections after a failed inspection may be billed to the developer or Customer, unless the failed inspection was caused by the Company design.

103. With respect to Customer's wiring and electrical installations, no requirement, interpretation, or standard specified in this booklet is intended to supersede or conflict with the standards and regulations of the National Electrical Code , or with any state or municipal law, rule, or ordinance now in force or hereafter enacted or promulgated. The Company shall have no obligation to determine whether or not the Customer's wiring and electrical installations are proper and safe or comply with the National Electrical Safety Code or any other code or regulation in effect at the Customer's location. However, if it should come to the Company's attention that the Customer's wiring and electrical installations are not proper and safe, or do not comply with such codes, the Company shall have the right to refuse or discontinue service. In all municipalities which require permits and/or certificates of inspection for electrical work, it shall be the responsibility of the Customer or Contractor to obtain such documents from the proper authorities and provide copies to the Company before electric service is provided.

104. Safe and adequate access shall be maintained to Company owned equipment located on a Customer's premises. The Company shall have free right at all reasonable times to enter the Customer's premises to enable the Company to install, read, inspect, repair, remove, replace, disconnect, or otherwise maintain its meters, equipment, facilities, and for all other proper purposes. The Customer, if a tenant, shall authorize and request his landlord to permit the Company to enter said premises. If safe and adequate access to the meter is not available for the Company's employees, the Company reserves the right to discontinue service upon proper notice. The Customer shall not permit access to the Company's meters, equipment, and facilities located on his premises by other than an authorized representative of the Company or of the New Hampshire Public Utilities Commission. In case of loss or damage to Company property on the Customer's premises due to Customer negligence, the Customer shall pay to the Company the value of such property or the cost of repairs.

105. All employees authorized by the Company to visit the Customer's premises are required to carry means of identification which will be shown upon request. The Company will be responsible for the actions and workmanship of such employees.

Article 106-112 | Section 1 — General Information

106. Should the use or operation of any equipment by a Customer including but not limited to electric motors, welders, electronic power supplies or speed controls, adversely affect the Company's ability to render adequate service to others, the Company reserves the right to discontinue service until suitable corrections are made by the Customer.

107. The Company reserves the right to install protective apparatus so arranged as to disconnect or limit service to the Customer if the Company's capability to render service at the point of delivery is exceeded.

108. The Company will make or cause to be made, application for any necessary street permits or licenses for its facilities and will not be required to make electricity available on the premises of the Customer until a reasonable time after such permits or licenses are granted.

Construction of lines on or across private property will be done only if the Customer provides, without expense or cost to the Company, the necessary permits, easements, and consents for a satisfactory right-of-way for the erection, maintenance, and operation of a line to be used exclusively to serve the Customer. The Customer shall also be responsible for any on-going fees associated with any required permits or consents for rights-of-way located on or across private property. The Company shall be responsible for the construction and maintenance of all electric distribution facilities to serve the customer's premises, as specified in the Company's Tariff.

Additionally, per RSA 370:12, customers requiring a line extension on private property may opt to hire and pay a private line contractor, licensed by the state and approved by the Company, to construct a required overhead or underground power line extension on private property. The contractor shall supply and install all materials as specified by the Company. Line extensions must be designed by the Company and built to its specifications in order for the Company to assume ownership of the line. The Company has the right to not accept a customer built line extension that does not conform to the Company's specifications. Customers may not contract with private line contractors to construct line extensions along public ways. Please consult with a Field Technician prior to completing construction of the line extension.

109. The actual cost to the Company of moving meters and services shall be billed to the Customer in the following cases:

a. If a meter or service is relocated on the same premises at the request of the Customer.

b. If a meter or service is discontinued or removed temporarily at the request, or for the convenience, of the Customer.

c. When the cost of covering, instead of moving or temporarily removing a service exceeds 1 crew hour, the excess cost to the company shall be billed to the customer.

110. The cost of installing and removing a temporary overhead or underground service, which is not converted to a permanent service, shall be billed to the Customer.

111. The Distribution and Meter Standards included in this booklet are not all inclusive of Company Standards. Because Distribution and Meter Standards are revised periodically and are subject to Article 103, the Standards in this booklet may be obsolete. Any person who is uncertain or has a question as to the latest standard applicable, should contact the Electric Service Support Center.

112. Installation of oil filled equipment within 400 feet of public or community water systems are subject to special requirements. Customers, Contractors, Architects, Engineers, and Civic Planning Groups should determine from the Company the requirements applicable to any new installations and for any existing installation which is to be enlarged or modified. The Company's requirements were developed based on NH Department of Environmental Services rules which are available on their web site. Excess costs for the associated equipment shall be billed to the customer. Please consult with a Company representative prior to starting projects with impacts in environmentally sensitive locations.

Article 200-207 | Section 2 — Service Voltages

Low Voltage Service

200. Low voltage service for secondary rate Customers will be supplied from the nearest suitable distribution line of the Company at one of the following standard service voltages. All loads shall be balanced as equally as possible.

PHASE	WIRES	NOMINAL VOLTAGE	ARTICLE REFERENCE
1	3	120/240	202
3	4	120/208	203,204
3	4	277/480	204

201. The foregoing voltages are nominal and subject to reasonable variations in accordance with regulatory commission standards.

202. Single-phase, three wire, grounded neutral service is generally available for residential, small commercial and industrial use. Except as provided for in Article 203, the voltage shall be 120/240.

203. In some areas, the only available service is three-phase, four-wire 120/208 volts wye connected. In these areas all services shall be three-phase, four-wire except that small commercial and industrial loads of 100 amperes or less, and residential buildings with one or two dwelling units shall be supplied through single-phase, three-wire 120/208 volt services. Residential buildings with three or more dwelling units may be supplied through a three-phase, four-wire service with individual single-phase, three-wire subservices and meters such that the loads on each of the three phases shall be balanced as nearly as possible.

204. 120/208 and 277/480 volt three-phase, four-wire wye are the available voltages for commercial and industrial services and can be supplied where three-phase distribution is available except areas included in Article 203.

205. Three-phase, three-wire service at nominal voltage of 240, 480, or 600 volts is available for current Customers at existing locations only. Any major upgrade to the Customer's premises or service entrance may require an upgrade to a three-phase, four-wire system. The Company reserves the right to remove Company owned equipment supplying three-phase, three-wire services if such services should become inactive.

206. In locations where space limitations or other factors make it impossible or inadvisable, in the opinion of the Company, for a primary rate Customer (Rate GV or Rate LG) to have transforming apparatus devoted to their exclusive use, low voltage service shall be supplied to such a Customer in accordance with Tariff provisions from Company-owned transforming apparatus which also supplies other Customers. The transforming apparatus rental fee will be based upon the equivalent transforming apparatus that would be required for the exclusive use by the Customer.

207. Each residence in a new or newly renovated multi-tenant building will be metered separately and each meter will be billed as an individual Customer. Hotels, motels, dormitories, time share condominiums, and campgrounds are excluded from this requirement and may be master metered. Master metering is defined as the use of a single meter to supply electric service to a building that contains two or more residences. Reference PUC 303.02 Master Metering.

Article 208-210 | Section 2 — Service Voltages

High Voltage Service

208. High voltage service for primary or transmission rate Customers will be supplied at one of the following standard service voltages as available at the Customer's location.

PHASE	WIRES	NOMINAL VOLTAGE
3	4	2,400/4,160
3	4	4,800/8,320
3	4	7,200/12,470
3	4	19,920/34,500
3	3	34,500
3	3	115,000

209. The foregoing voltages are nominal and subject to reasonable variations in accordance with regulatory commission standards. All loads shall be balanced as equally as possible among the three phases.

210. Customers supplied by a high voltage service are responsible for the installation and maintenance of all secondary equipment, in addition to equipment as described in Articles 415 and 527.

Article 300-314 | Section 3 — Metering

General

300. The Company may refuse to connect a service or install a meter on any metering installation that does not conform to the requirements in this booklet. A service location that has not had an active meter may be subject to a municipal inspection and potential upgrades prior to connection.

301. Where interference with proper registration of an electric meter has been established, the Customer or person responsible for the interference, as determined by a Company investigation, may be required to reimburse the Company for lost revenue, damages to equipment, expenses incurred during the investigation, and may be subject to criminal prosecution.

302. Meters will be furnished, owned, and maintained by the Company and shall be installed, removed, and changed only by authorized Company employees. No customer owned equipment or conductors other than those load side conductors directly serving the customers service shall be placed in any Eversource metering enclosure.

303. A means must be provided by the Customer for disconnecting the service entrance conductors from all ungrounded conductors in the building or structure. The disconnection means shall comply with the current National Electrical Code requirements.

304. In multiple meter installations, each meter mounting device and Customer disconnecting means shall be permanently marked by the Customer and/or landlord to indicate the location which it serves, and as required by the current National Electrical Code requirements. When apartment/condominium units are renumbered, it is the Customer's and/or landlord's responsibility to notify the Company of such a change.

305. Typical meter installations are shown in the **Meter Standards** section of this booklet.

306. Unmetered (line) conductors shall not be run in a trough with metered (load) conductors.

307. Jumpers or other devices that result in unmetered electric service shall not be used.

308. Meters shall not be installed on Company owned poles except when providing service to equipment located on that pole that is associated with another utility purpose. Meters shall not be attached to Company owned padmount transformers unless authorized by a Meter & Service Supervisor.

Meter Mounting Devices - Company Owned

309. Meter mounting devices will normally be furnished, owned, and maintained by the Company.

310. The Customer may be held responsible for all undue damage to Company metering equipment. If the Company deems it appropriate, meters installed outdoors in isolated locations or where accidental or malicious damage is likely, shall be moved to an alternate location or installed in a protective enclosure at the Customer's expense.

311. Meter mounting devices may be obtained by contacting the Company Area Work Center that serves the area in which the service will be located.

Meter Mounting Devices - Customer Owned

312. **Meter mounting devices, enclosures, or meter pedestals may be supplied by the Customer when all UL requirements are met and approval has been granted by the Company's Meter & Service Supervisor prior to installation**. Although ring-less construction is preferred, ring-type sockets may be acceptable on multiple position metering or other installations at the discretion of the Meter and Service Supervisor.

313. **Meter mounting devices provided by the Customer shall include all necessary parts (fifth terminals, hubs, connectors, etc.), shall remain the property of the Customer, and shall be maintained by the Customer.**

314. A manual lever bypass is required on all three phase and all 320 amp single phase, self-contained meter mounting devices. The block must be provided with a plastic protective shield and flashover barriers between the phases. **No bypass or locking jaws will be allowed in single phase self-contained or network sockets.**

Article 315-322 | Section 3 — Metering

Meter Mounting Devices – Installation

315. The meter mounting devices shall be installed by the Customer five feet above final grade, except where specifically approved otherwise by the Company. It shall be plumb, level, and attached to the finished exterior of the building, or to a suitable pressure treated backboard permanently attached to the building, with screws sufficiently long to extend through the exterior finish and into the sheathing. Rust resistant screws shall be used in damp areas. Refer to **Typical Overhead – Single Meter – Outdoor**. If the sheathing will not support the installation, other provisions shall be made to ensure a sturdy and stable base for the meter mounting device and the service entrance cable. The Company shall not be liable for damage to a structure caused by water penetration behind the meter mounting device. Meter mounting device locations must be approved by the Company prior to installation. Please consult with a Field Technician prior to installing any meter mounting device.

316. All attachments of meter mounting devices shall allow for future removal of equipment. Explosive anchors shall not be used.

317. Multiple position meter mounting devices shall be mounted so that the center of any meter is not over six feet, nor less than two feet six inches, above the final grade surface.

318. In cases where the meter is mounted outside on an upright remote from the building being served, the customer shall provide a fused disconnect or circuit breaker in a weatherproof enclosure immediately below the meter mounting device.

Sealing of Meter Equipment

319. Three phase and transformer rated meters will be sealed by the Company in an approved manner, and seals shall not be broken by the Customer or his representative.

320. Single phase meters will be sealed by the Company in an approved manner, and seals shall not be broken by the Customer or his representative without prior approval of the Company.

321. The Company reserves the right to seal all points of access to unmetered conductors. These seals shall not be broken by the Customer or his representative without prior approval of the Company.

322. The Company monitors all metering equipment and services for tampering or unmetered wires and will investigate all instances of broken or altered seals.

Article 323-332 | Section 3 — Metering

Locations

323. Each meter location shall be designated by the Company unless otherwise agreed to in advance by a Company Representative. The location must be safely accessible to the Company during normal working hours for reading and servicing the meter. Sufficient wall space and a clear work area of at least three feet in front of the meter, free of shrubbery or other obstructions, shall be provided by the Customer. The location of meter sockets should take in to consideration the proximity of company equipment, level ground for serviceability by ladder, along with potential cost burden placed on the Customer and the Company. Enclosures shall not be built around meter mounting devices.

324. The preferred location for all meters is outdoors. The meter location will be chosen to protect the meter from falling ice and snow, heavy amounts of water, or other environmental hazards.

325. When outdoor meter locations are not feasible, meters will be located indoors near the service entrance in a clean, dry, and vibration free location with adequate illumination.

326. When indoor meter locations are not conveniently accessible to Company employees through a public entrance, Customers are requested to provide utility service doors, or keys by which authorized Company employees may gain access to metering equipment.

327. Inside meter locations may be designated by the Company under the following conditions:

a. To avoid undue damage to the meter.

b. Multiple meter installations where a main switch is required on the line side of the meters.

c. When the Company specifies instrument transformer metering.

d. Commercial and industrial installations where the meter is readily accessible.

328. Meters in multiple occupancy buildings not over two floors in height shall be grouped in one central location, unless otherwise designated by the Company. Meters in multiple occupancy buildings of over two floors in height may be grouped in suitable meter rooms, clearly marked and used only for electric service equipment.

329. Electric meters must be located a minimum of three feet from natural gas or propane meters, regulators, or vents, and ten feet from gas cylinders and fuel tanks. This includes both above and below ground tank installations. Distances may be increased per local ordinances.

Single Phase Installations

330. Single phase services will be metered with three wire, socket type meters except as otherwise designated by the Company. Three wires or a three conductor cable shall be run from the meter mounting device to the service entrance cabinet. For single phase, 120 volt loads not in excess of 20 amperes, two wires may be run by the Customer from the meter mounting device to the service entrance cabinet.

Three Phase Installations

331. Three phase services 400 amperes or less and 480 volts or less will normally be metered with a socket type meter except as otherwise designated by the Company.

332. A combination disconnecting means and overcurrent device shall be installed on the line side of each 277/480-volt self-contained meter mounting device or on any self-contained meter installation where the line-to-line voltage is greater than 300 volts.

Article 333-340 | Section 3 — Metering

Transformer Rated Installations

333. Electrical services with a current rating larger than 400 amperes or voltage in excess of 480 volts will generally require instrument transformers. This determination will be made by the Company.

334. The Company will furnish, and the Customer shall install the necessary instrument transformer enclosures up to an 800 amp service. Customer provided enclosures must be approved by the Company.

335. The Company shall furnish any connectors necessary to attach the service conductors to the instrument transformers if such connectors are not provided with the instrument transformer enclosure, or if the connectors provided are not suitable for the service conductors being used at the installation.

336. The Customer shall furnish and install all necessary conduit between the instrument transformer enclosure and the meter mounting device. Generally, the minimum trade size of this conduit will be 1¼ inches. Placement of sockets on a building structure or pedestal shall be agreed to in advance by the Company.

337. If the instrument transformers are located on a Company owned structure, the Company will install the instrument transformers and conduit on the structure.

338. The Company will furnish and install all secondary wiring from the instrument transformers to the meter mounting device.

339. No Customer owned equipment shall be placed in the instrument transformer enclosure.

340. The load terminals of instrument transformers or meter mounting devices shall not be used as a junction or distribution point for the Customer's wiring unless specifically authorized by the Company.

Article 400-410 | Section 4 — Overhead Service

Low Voltage Service

400. A new building or rewiring of an existing building requires an approved service entrance location from a Field Technician or other Company representative.

401. Only one service of the same characteristics will be run to a single building except as otherwise permitted by the National Electrical Code.

402. The point of attachment of a service to a Customer's building shall not be less than 12 feet nor more than 25 feet above permanent ground level. The ground shall be reasonably level to permit the use of a ladder by the Company to attach the service. Service attachments shall be so installed as to permit the service connections to be directly reached from a ladder placed securely on the ground, and as to permit the maintenance of the following minimum clearances as per the National Electrical Safety Code:

- Twelve feet above finished grade, sidewalks, residential driveways, and commercial areas not subject to truck traffic.
- Sixteen feet above roads, streets, alleys, residential driveways, cultivated fields, and areas subject to truck traffic.

For other areas and uses refer to **Minimum Clearances for Service 0 to 300 Volts to Ground based on NESC Rules 232 and 234**.

403. The maximum length of a service drop which the Company shall install is determined by the characteristics of the load to be served and the terrain over which the service drop passes. Under no circumstances will attachments be made to trees.

404. Where a building is too low to provide minimum clearance, the Customer shall install a service mast of suitable height and strength; guyed if deemed necessary. When such a service mast is installed, the Customer shall assume full responsibility for it, including roof leaks and the ability of the installation to support the required service drop. Per National Electrical Code requirements, only power service drop conductors may be attached to such mast. Refer to **Overhead Service Entrance – 200 Amps and Smaller**.

405. When temporary service is required, the installation shall be in accordance with **Temporary or Permanent Single Phase Mounted on a Meter Pedestal**. "Temporary" is defined as one year by the Federal Energy Regulatory Commission. To continue service beyond one year, the service must be converted to a permanent service and meet all pertinent requirements of this booklet. The Company has the right to disconnect or remove facilities that have not been converted to a permanent service after one year.

406. It is recommended that the service entrance provided for single family residences be single-phase 120/240 volt with a minimum capacity of 100 amps.

407. For single-phase entrances of 200 amps capacity and less, the Company will furnish and install the service drop and service entrance cable to the meter mounting device. Services of 200 amps or less will only be installed on the exterior of a building.

408. For single-phase service entrances larger than 200 amps, and for all low voltage three-phase service entrances, the Company will furnish and install the service drop to the point of attachment to the building or other location, and connectors to connect the service drop to the Customer's service entrance conductors. The Customer shall furnish and install all necessary conduit and cable beyond the service drop point of attachment.

409. Where it is considered necessary by the Company for the proper installation of large capacity overhead services, the Company will furnish and the Customer shall install, under the Company's direction, suitable eye bolt(s) in the building's exterior wall to support the service drop(s).

410. For services to semi-permanent mobile homes, the Customer shall install the meter mounting device and service entrance disconnect on an upright separate from the mobile home. Refer to **Overhead Service Single and Multiple Mobile Home 200 Amps and Smaller**.

Article 411-415 | Section 4 — Overhead Service

411. In trailer parks, the Company will install poles not less than one hundred feet apart, and the park owner or operator shall install and maintain a suitable service entrance board with meter mounting devices, service entrance disconnects, and mobile home connection receptacles. Refer to **Overhead Service Single and Multiple Mobile Home 200 Amps and Smaller** for suggested method of installation.

412. Meter mounting devices may be temporarily detached from buildings by Company personnel at the customer's request for remodeling purposes. This is to be considered temporary in nature and provisions for re-attachment must be made by the customer within one year.

413. Services to metal, concrete and brick structures and structures with asbestos siding shall require customer installed conduit from the point of attachment to the meter socket.

High Voltage Service

414. High voltage service will be supplied from the nearest suitable high voltage line in accordance with Tariff provisions. The Customer shall arrange with the Company for the construction of service extensions and other facilities necessary to supply such service.

415. Substation foundations, structures, equipment support poles, and all necessary transformers, controlling, and regulating apparatus shall be furnished, owned, and maintained by the Customer at his expense. However, transformers, controlling, and regulating apparatus may be rented from the Company in accordance with Tariff provisions.

Article 500-511 | Section 5 — Underground Service

Definitions

500. **Customer(s)**: One or more individuals, a developer, municipality, civic authority, or other duly authorized organization responsible for community planning, development, or redevelopment programs who may contract with the Company for the installation of underground electric distribution facilities or for electric service.

501. **Development**: A single parcel of land or contiguous parcels of land used for building construction and under the ownership and control of one or more individuals or a partnership or corporation (referred to as the developer) who can contract with the Company for the establishment of an underground electrical distribution system in the entire Development or a portion thereof.

502. **Excess Costs**: The amount by which the installed cost of a padmounted transformer exceeds the installed cost of an equivalent overhead transformer. The Company reserves the right to determine Excess Costs or portions thereof on the basis of average cost formulas consistently and equitably applied to all qualifying installations as defined by the Company.

503. **Urban Areas**: A high-density business district devoted primarily to commercial and/or industrial uses as determined by the Company.

504. **Underground Distribution System**: An underground system utilizing a conventional manhole/duct/vault system. Such systems include both network and non-network systems typically found in established urban areas.

505. **Underground Residential Distribution**: An underground system consisting of cable in conduit found in residential areas.

506. **Payment Terms**: Each customer shall make a lump sum payment of the costs prior to the start of construction.

General

507. Underground electric distribution facilities will be provided by the Company when feasible and practicable, and when consistent with the normal availability of manpower and the orderly scheduling of construction projects, all as reasonably determined by the Company. Subject to the above stated limitations on the availability of underground facilities, such facilities will be provided by the Company on a consistent and equitable basis to all who qualify. Such underground facilities will be provided in accordance with mutually acceptable plans and agreements between the Company and the Customer and in accordance with the provisions of these requirements. It is the intent of the Company that such underground distribution facilities will generally consist of those facilities located within or immediately adjacent to the boundaries of a tract or area under the ownership and control of the Customer and associated primarily with service to occupants of that tract or area. It is understood that the Company may be required to install overhead facilities in order to meet its electric service obligations unless acceptable plans and agreements are finalized in sufficient time to permit the installation of underground facilities to meet such obligations.

508. The Company will furnish, install, own, and maintain all underground electric distribution facilities necessary to provide proper service under the provisions of the Company's Tariff and these Requirements.

509. The Customer will furnish and install to the Company's specifications, and the Company will own and maintain, all necessary non-electrical facilities required for the Company to install underground electric distribution facilities described in this Section. These facilities include, but are not limited to; trenching, backfill, conduits, ducts, concrete slabs and manholes.

510. For new installations the Customer is responsible for the cost of such installations, as specified in the Company's Tariff.

511. Underground electric service lateral and meter mounting device locations will be established by the Company upon application. If by mutual agreement the service terminates in an indoor space, the Company may require the Customer to furnish, install, own, and maintain all underground electric distribution facilities needed to provide service; which may include and is not limited to trenching, backfill, conduits, ducts, concrete slabs, manholes, and service conductors.

Article 512-520 | Section 5 — Underground Service

512. Easements satisfactory to the Company shall be provided by the Customer at no cost to the Company.

513. The Company shall be consulted in advance with respect to service to high-rise buildings or other structures which may involve unusual electric service requirements. Failure to do so may impact Customer schedules due to long lead times for some equipment and the availability of sufficient Company manpower.

514. No permanent overhead service will be supplied in any area served exclusively from underground electric distribution facilities.

515. The Company reserves the right to determine any of the costs or portions thereof specified under the provisions of this Section on the basis of average cost formulas consistently and equitably applied to all qualifying installations as defined by the Company.

516. In some cases, the type, nature, and/or size of the service requested by a Customer may not be available at a desired location.

517. Replacement of the Company's primary overhead facilities with underground facilities as requested by a Customer may be done at the expense of the Customer and at the discretion of the Company after a determination by the Company has been made on the impact to the system and/or future expansions. The Customer is responsible for the Excess Cost of the underground installation plus cost of premature retirement and removal of the existing overhead facilities less any salvage value of the existing overhead facilities. The Company reserves the right to refuse the replacement if, in the Company's opinion, placing the line underground may result in operational or other problems.

518. **In the case of underground facilities, a Customer shall not erect or maintain or permit to be erected or maintained any building, structure, or septic system over such facilities, shall not plant or permit to be planted any trees or shrubs over such facilities, and shall not substantially change the grade over or adjacent to such facilities.**

519. Adequate clearances shall be maintained between the padmounted electrical equipment and the surrounding area

A minimum of a ten foot clearance in front of the equipment doors and accessibility for Eversource heavy duty vehicles shall be maintained at all times.

Protective barriers/bumpers are necessary in areas where vehicle traffic or snow removal equipment may cause damage to the equipment. The Customer must contact the Company to determine appropriate clearances. Clearances from doors, windows, air intakes, and fire escapes shall conform to Company Standards. Refer to **Padmounted Transformer Location to Building and Roadways**.

Clearances shall not supersede any local ordinance or code which requires greater clearance. If additional fire protection is necessary for insurance and/or other purposes, it is the responsibility of the building/property owner and/or Customer to provide additional protection.

520. The following requirements are applicable to new Customer owned vaults and locations where there is a major upgrade to the Customer's service. Customer vaults shall conform to the National Electrical Code. All oil-filled equipment shall be positioned such that anyone operating the unit can exit without having to go toward the unit. A minimum of a three foot clearance between equipment and the vault wall is necessary, unless a greater distance is required to operate the equipment. Each vault shall be equipped with two means of exit. Exit doors shall swing out and be equipped with panic bars, pressure plates, etc. that are normally latched but open under simple pressure. Both new and existing Customer vaults shall under no circumstances be used by Customers for storage or contain any equipment not specified by the Company. Doors shall be kept locked, access being allowed only to qualified persons. When vault locations are not conveniently accessible to the Company through a public entrance, Customers are requested to provide utility service doors, or keys by which authorized Company employees may gain access. Company owned oil filled equipment shall not be installed in vaults.

Article 521-523 | Section 5 — Underground Service

Underground Electric Distribution Facilities

521. The costs for new installations of underground electric distribution facilities (exclusive of lighting facilities) will be apportioned as follows:

a. The following underground electric distribution facilities will be provided entirely at the Company's expense and pertain to the installation of underground electric facilities on public property:

1. Underground facilities leaving substations where the installation of overhead facilities, in the sole judgment of the Company, would detract substantially from the appearance of the immediate area or is not feasible.
2. Underground facilities in areas where overhead facilities would be impaired by substantial above-ground congestion or by proximity to buildings or other structures, in the sole judgment of the Company.
3. Underground facilities where the cost to construct required new facilities overhead or to replace or supplement inadequate existing overhead facilities, would exceed the cost of the underground installation.

b. For distribution facilities not qualifying under 521(a):

1. The Customer shall pay to the Company the costs for the underground facilities as specified in the Company's Tariff.
2. The Customer shall furnish at his expense and to Company specifications all trenching, backfilling, manholes, duct bank, conduit, and transformer slabs necessary for the installation of underground electric distribution facilities including lighting facilities, if any. The Customer shall contact the Company for specifications.

522. Where agreements to take lighting service under the Company's Tariff have been executed, standard facilities for the underground source of power for street or area lighting will be provided by the Company. The additional cost of such underground facilities will be apportioned as specified in the Company's Tariff. Any trenching, backfilling, conduit, and transformer slabs required for the installation of a standard source of power for street or area lighting will be provided by the Customer at his expense. The Customer shall contact the Company for specifications.

Underground Secondary Service from Underground Secondary Network

523. In areas where the Company maintains an underground secondary distribution system (e.g. a secondary network), service will be furnished, installed, owned, and maintained by the Company to the Customer's main switch. The Customer will be responsible for the installation of all facilities described in Article 509 to the Company's manhole.

Article 524-528 | Section 5 — Underground Service

Underground Service from Underground Primary Network

524. This section does not apply to services detailed in Article 521 of this booklet. In underground areas where there is no underground secondary distribution system, or where, in the Company's opinion, the amount or nature of the Customer's load is such that the load will not be fed from such a system, the Customer will be fed from the primary underground distribution system. These types of services are subject to negotiations between the Customer and the Company. Due to the nature of this type of supply, Customer's should contact the Company as soon as possible to determine the apportionment of costs.

525. As deemed necessary by the Company, residential, commercial, and industrial Customers may be required to provide adequate space on private property for the Company/Customer owned transformers, switchgear, and protective equipment. The procurement of the necessary easements will be the responsibility of the Customer. The location of such equipment shall be designated or approved by the Company. Refer to **Pad Mounted Transformers Location to Buildings and Roadways** and **Pad Mounted Oil Insulated Equipment Location and Mechanical Protection**.

526. In certain instances, it may be necessary for the Company to install equipment on private property which is used to serve more than one Customer. The cost associated with the duct bank, cables, conduits, manholes, switchgear, and concrete slabs located on public property or located on private property when such facilities are utilized to provide service to additional customers, shall be negotiated between the affected Customers and the Company. The procurement of the necessary easements will be the responsibility of the affected Customers.

527. Customers taking underground service from a primary source may be required to provide, own, and maintain the main disconnect switch, transformer slab, switchgear, duct bank, conduit, and manholes which are exclusively for the Customer's use. The Customer shall buy or rent transformation and be responsible for locating transformation and services in accordance with Tariff provisions.

Underground Low Voltage Service from Company Overhead Lines

528. The Company may limit, at its discretion, the size of underground low voltage services from its overhead lines to those which can physically be installed on its poles. The Company may require the installation of a padmounted transformer or a pole on the Customer's property which is dedicated to providing the low voltage service.

Article 600-605 | Section 6 — Grounding

600. A permanent and effective grounding electrode system furnished, installed, and maintained by the Customer is an essential part of any two or three wire, single phase and any four wire three phase installation; and must be used for equipment grounding on three phase three wire installations. A grounding electrode system consists of one or more grounding electrodes bonded together and connected to the grounded service entrance conductor by a grounding electrode conductor.

601. **All grounding electrodes, grounding electrode conductors, and associated connectors must comply with the National Electrical Code.**

602. The Company will not be liable for electrical equipment damage due to loss of the Company's service neutral if the Customer's electric service entrance is not properly grounded in accordance with the provisions of this booklet and the National Electrical Code.

603. The grounded service entrance conductor must be connected at each individual service entrance switchbox, including the water heating service entrance switchbox, if any. The grounding electrode system must be connected to the grounded service entrance conductor, preferably in the meter mounting device.

604. Meter mounting devices, instrument transformer enclosures, and metal conduit installed by the Customer must be grounded by a grounding electrode system.

605. A suitable means must be provided by the Customer for attachment of other utilities to the Customer's grounding electrode system. **Attachments to the meter mounting device are not acceptable**.

Article 700-707 | Section 7 — Utilization Equipment Specifications

General

700. When Customer owned equipment could or actually does interfere with the operation of any components of the Company's electric system or the electric supply to others, the Company reserves the right to refuse service or to disconnect the service upon proper notice. Such instances include, but are not limited to, harmonic distortion, poor power factor, voltage fluctuations, unacceptable transformers, and capacitor installations. Customers shall consult with the Company in advance of making any commitments for large motors, air conditioning equipment, welders, x-ray machines, electric tank-less water heaters, phase converters, or other equipment which may have a high instantaneous electric demand. The Company will determine the effect such installations may have on the Company's system. **Should the Company determine that the installation is likely to cause interference with the electric system or the electric service to others, the Company may refuse to connect service, discontinue service, require the Customer to make modifications to their system, or require that the Customer pay the cost of modifications to the Company's system to enable the equipment to be operated. It is the Customer's responsibility to determine and correct the problems such equipment may have on their own system**.

Motor/Motor Driven Equipment Including Air Conditioning Equipment

701. The Customer shall ascertain from the Company the character of service for the proposed location and application before purchasing motors and motor driven equipment. In general, motors of 3 horsepower or less will be supplied from single phase services, **and motors larger than 3 horsepower will be supplied from three phase services**.

702. The electrical limitations of supply circuits may, in some cases, make it necessary to limit the size of the largest motor to be operated on any given part of the Company's System. Written information as to such limitations is available upon inquiry to the Company.

703. In general, single phase 120/240 volt and three phase 120/208 volt equipment with an instantaneous draw of 68 amps or less, and three phase 277/480 volt equipment with an instantaneous draw of 30 amps or less, may be installed without modifications to the equipment or the Company's system. The installation of equipment which has an instantaneous draw which is greater than specified in this paragraph may only be done upon written approval by a Company Representative (typically the Field Engineering Manager).

704. Upon application to the Company, the Company will determine those locations where exceptions to rules of this Section may be permissible. All exceptions to these rules must be in writing.

705. All motors and motor driven equipment shall be equipped with suitable protective devices. Among such devices to be considered are those to provide protection against single phase operation of poly-phase motors, reversal of rotation in poly-phase motors, overloads, and voltage and frequency variations.

706. The Company will not be responsible for damage caused to Customer owned equipment where such damage is caused by the absence, failure, or misapplication of any Customer owned protective device. The Company will not be held responsible for damage caused by lightning or other acts of nature.

Voltage Sensitive Equipment

707. Customers owning or planning to purchase electronic or other voltage sensitive equipment shall consult the manufacturer of their equipment and install suitable devices to protect against power system transients and/or loss of voltage.

Article 800-805 | Section 8 — Radio and Television Equipment

800. Antenna wires or masts shall not be attached to Company owned poles.

801. Antenna guy wires should not pass over or under Company wires nor run in the proximity of wires carrying voltages in excess of 150 volts to ground.

802. Antenna lead-in wires should be run and supported to prevent swinging closer than two feet from conductors of 250 volts or less to ground, or ten feet from conductors of more than 250 volts to ground.

803. Structures supporting outdoor antennas should be located to eliminate the possibility of such structures falling into, or otherwise making accidental contact with Company overhead conductors of over 150 volts to ground.

804. If in the Company's opinion, the Customer's antenna guy wires, lead-in wires, or structures supporting outdoor antennas are located so as to interfere with the supply of electric service to the Customer, the Company shall have the right to discontinue or refuse service to the Customer until suitable changes in the antenna system are made.

805. The Company has no authority to require the correction or removal of equipment belonging to others which may be causing interference with reception of radio, television, or other communication signals.

Article 900-903 | Section 9 — Generating Equipment Owned by Customers

General

900. The installation, connection, and operation of Customer-owned generating equipment by a Customer who takes service from the Company may be restricted under the provisions of rates in the Company's Tariff. The Customer shall contact the Company to obtain this information as part of the Customer's planning to make an installation of generating equipment. Prior to operation of Customer-owned generating equipment, the Company shall have the right to inspect any Customer-owned controlling and safety equipment associated with the generating equipment, together with the manner in which the generator is electrically connected to the Customer's load and/or Company's electrical system to assure itself that the operation of this equipment will not create an undue risk of damage or injury to the Company or its other Customers. Customers should contact the Company well in advance of equipment installation in order to allow sufficient time for the Company to conduct the necessary interconnection studies.

Standby Generating Equipment

901. Customers may install generating and/or energy storage equipment to serve as a standby source of electricity to supply all or a part of the Customer's load in the event of an interruption in the supply of electricity from the Company. The Customer's interconnection shall be arranged so that no electrical connection can occur between the Company's service and the Customer's standby source of supply. The standby source shall be controlled through the use of a double throw switch or equivalent, installed in a manner acceptable to the Company and designed to prevent the possibility of any electrical connection between the Company's normal electrical supply and the Customer's standby source. Standby generator connections into the meter mounting device are not allowed.

902. At the Company's discretion, the Customer's standby source may be allowed to interconnect and operate in parallel with the Company's supply provided certain conditions set forth by the Company are addressed by the Customer. Any Customer planning to interconnect standby generation in this manner must notify the Company in advance and obtain approval for the method of connection.

Conjunctional Generating Equipment

903. Customers may install generating and/or energy storage equipment to serve as a source of electricity which is operated in parallel with electric service taken from the Company. Such service from the Company is called conjunctional service. In certain cases, a conjunctional service Customer may elect to sell to the Company all of the output from the Customer's generating equipment, or the portion of the output in excess of the Customer's internal load. Customers who want to sell energy to the Company should refer to Articles 904 and 905 below. Customers with qualifying generating equipment have the option of being serviced under the Net Metering rules established by the New Hampshire Public Utilities Commission.

Prior to installing generating and/or energy storage equipment, Customers shall contact the Company to obtain the proper application form. The Company will review the application to ensure the equipment can safely be connected and operate in parallel with the Company's electric distribution system. The approved application will be returned to the Customer. After installation of the generator, a Certificate of Completion must be completed by the Customer and delivered to the Company. The form requires a signature from the town electrical inspector. If the town does not have an electrical inspector, a New Hampshire licensed electrician must approve the installation. Once the Company reviews the completed certificate, a meter technician will visit the property to install a net meter. Once the proper meter has been installed, the Customer will receive notification from the Company that the customer is officially enrolled in the net metering program. No operation of the generator is permitted until all these steps are completed. The Company is not responsible for improper billing that my result whenever the Customer operates a generator prior to the proper net meter being installed. Net Metering is not compatible with sub-meter installations. Generator connections into the meter mounting device are not allowed. The meter mounting device shall not be used as a pass-through for any customer-owned equipment.

Article 904-905 | Section 9 — Generating Equipment Owned by Customers

Qualifying Co-generators, Qualifying Small Power Producers, and Limited Electrical Energy Producers

904. Customers (and in some instances persons who are not Customers) may install generating equipment which meets the criteria established in federal regulations for qualifying cogeneration facilities or qualifying small power production facilities, or in State of New Hampshire regulations for limited electrical energy producers and may want to sell some or all of the electric energy they produce to the Company. In order to qualify under the Federal or State regulation, such producers (herein called distributed generators) must either be qualifying co-generator or produce energy using biomass, waste, or renewable resources such as solar, wind, and water as a primary energy source, and must meet certain other criteria.

905. Any person interested in developing a distributed generation facility shall contact the Company Distributed Generation Department. Contact shall be made at an early date in the planning process in order to allow sufficient time for the Company to conduct the necessary interconnection studies.

Article 1000-1003 | Section 10 — Water Heating and Space Heating

General

1000. Electricity taken under any of the Company's residential or general service rates may be used as a source for water heating and space heating in homes and other buildings. Electricity for water and space heating purposes is also available at special prices for existing or new Customers subject to certain restrictions set forth in the applicable rate schedules. The Sections below describe the optional rate schedules available for electric water heating and electric space heating purposes on the date this booklet was published, and refers to the **Meter Standards** included in this booklet. Current effective rate schedules and standard wiring diagrams are available upon request to the Company.

Uncontrolled Water Heating

1001. Uncontrolled water heating service is available to Customers with approved water heaters under certain residential rates or General Service Rate G. Uncontrolled water heaters may have either one or two heating elements, but when there are two elements, they must be electrically connected so that both elements cannot operate simultaneously. Refer to **Uncontrolled Water Heater Installation**.

Rate LCS Space Heating (Radio-Controlled Option)

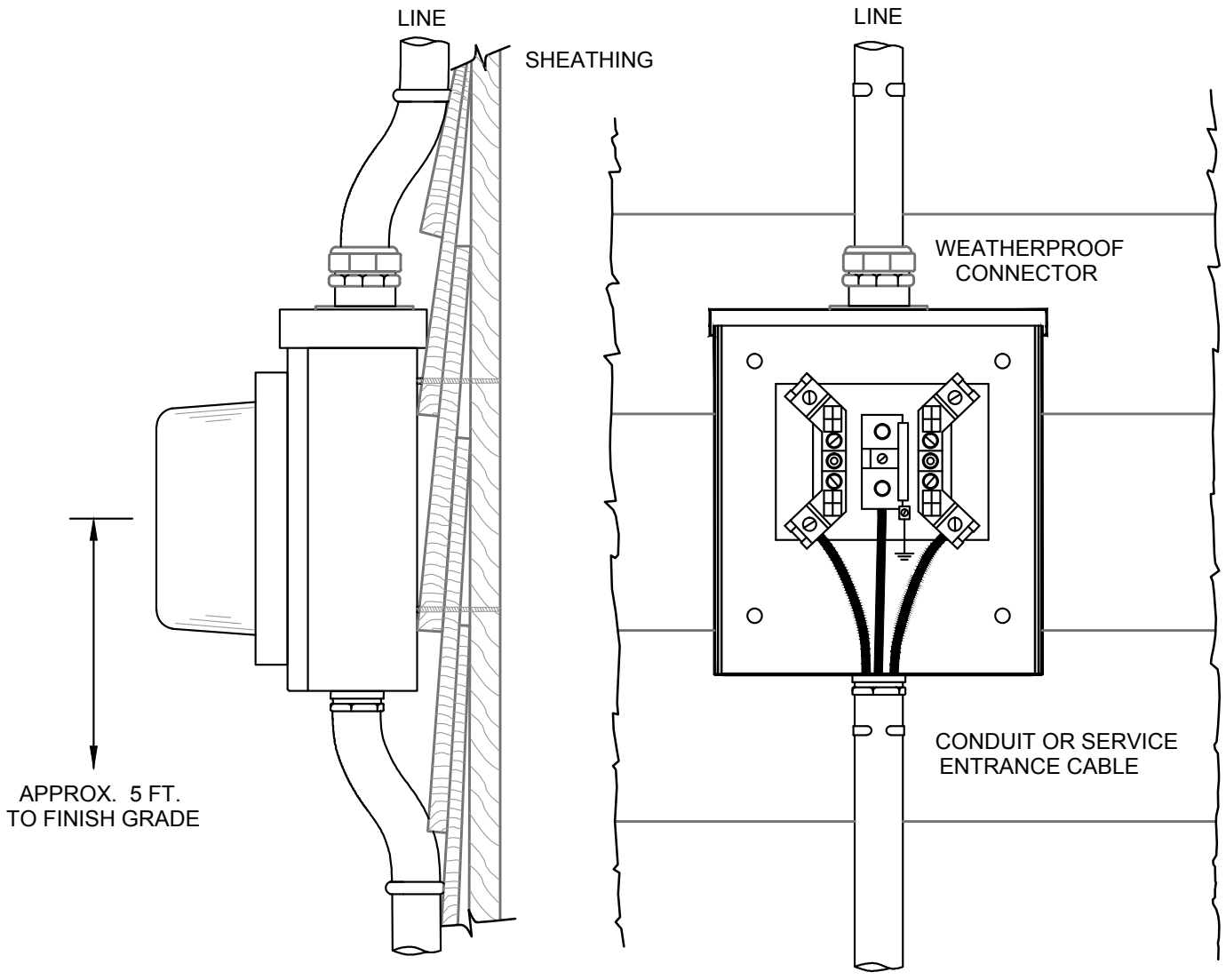
1002. Electric space heating service is available under Load Controlled Service Rate LCS to Residential Service Rate R and General Service Rate G customers who have permanently installed conventional electric space heating (e.g. electric resistance or heat pump); and when a dynamic electric thermal storage system or a wood or coal stove is available for use as a backup during times when service is interrupted by the Company. The availability of the radio-controlled option shall be limited to those premises which have electric space heating as the sole source of space heating, excluding the wood stove or coal stove. The wood or coal stove or dynamic electric thermal storage heater must be permanently installed and sized to adequately heat the premises main living area. Refer to **Heatsmart Typical Direct Metered Installation**.

Rate LCS Water Heating (Radio Controlled Option)

1003. Electric water heating service under the radio-controlled option of Rate LCS is available to Residential Service Rate R and General Service Rate G customers when taken in conjunction with electric space heating service under the radio-controlled option of Rate LCS. Electric water heating service will be interrupted when electric space heating is interrupted by the Company under the radio-controlled option of Rate LCS. Refer to **Heatsmart Typical Direct Metered Installation**.

Meter Standards

Typical Overhead – Single Meter – Outdoor



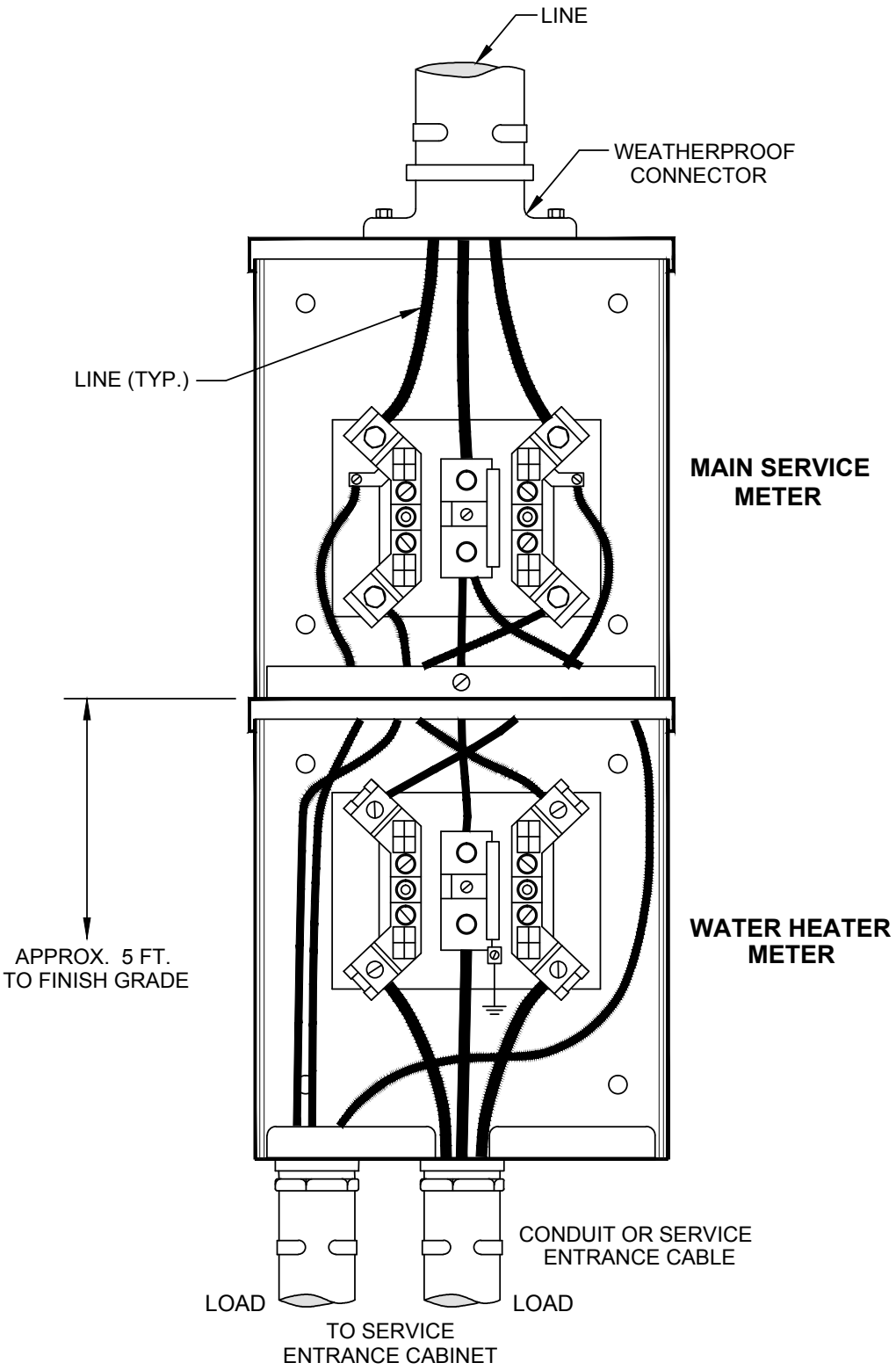
CLAMP:

- SOCKET MUST BE PLUMB AND LEVEL
- SOCKET TO BE LOCATED ON HIGHPOINT OF TWO CLAPBOARDS

NOTES

1. This installation is suitable for 120/208V network with a 5th terminal installed at the 9 o'clock position.
2. Sheathing must be capable of providing adequate support to meter mounting device and service entrance cable.

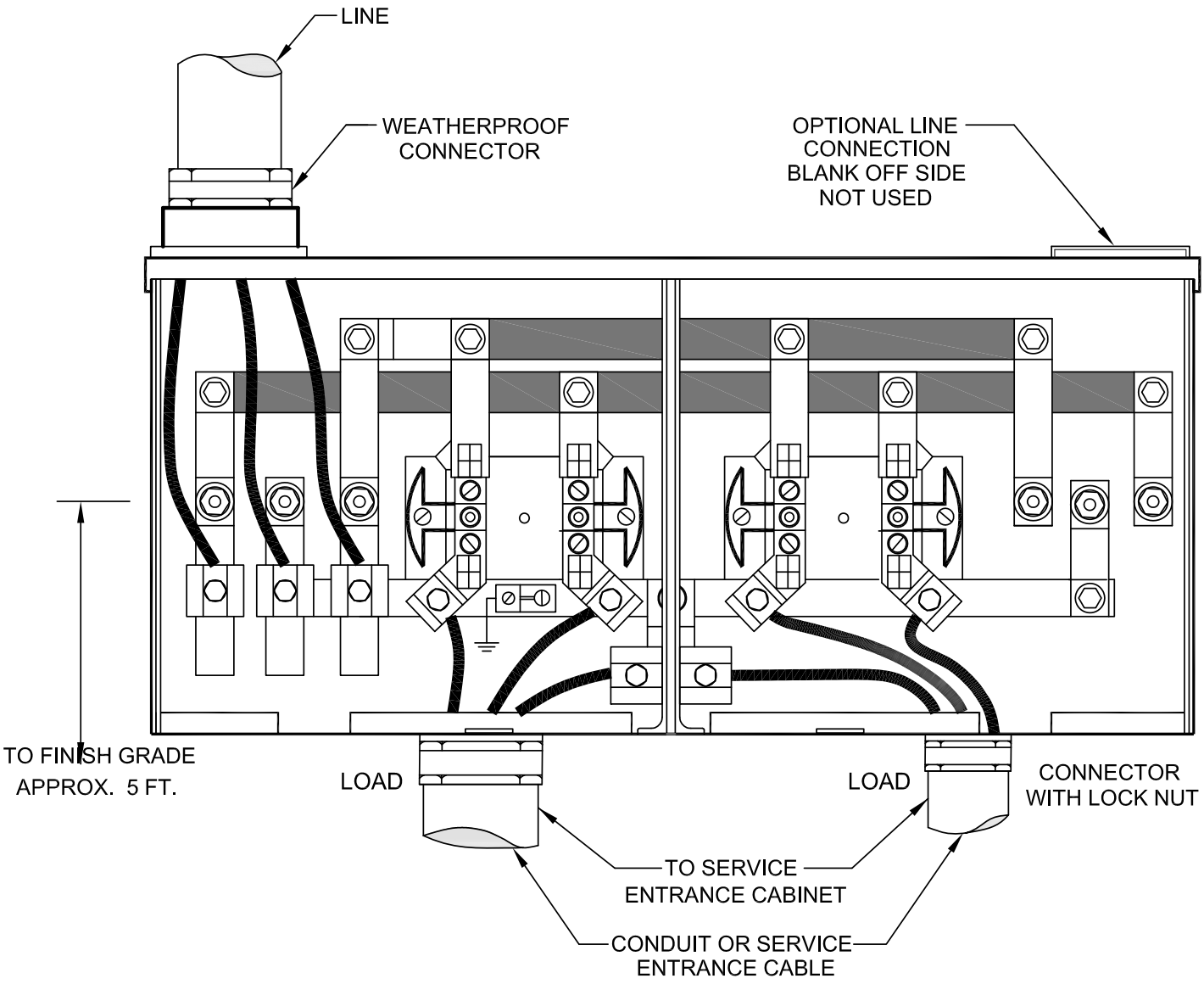
Typical Overhead – Double Vertical



NOTES

1. This diagram is for double installation, but triple and quadruple units are also available.
2. Line connection can be made to either left or right side of the box.
3. Horizontal units can also be used on underground services.

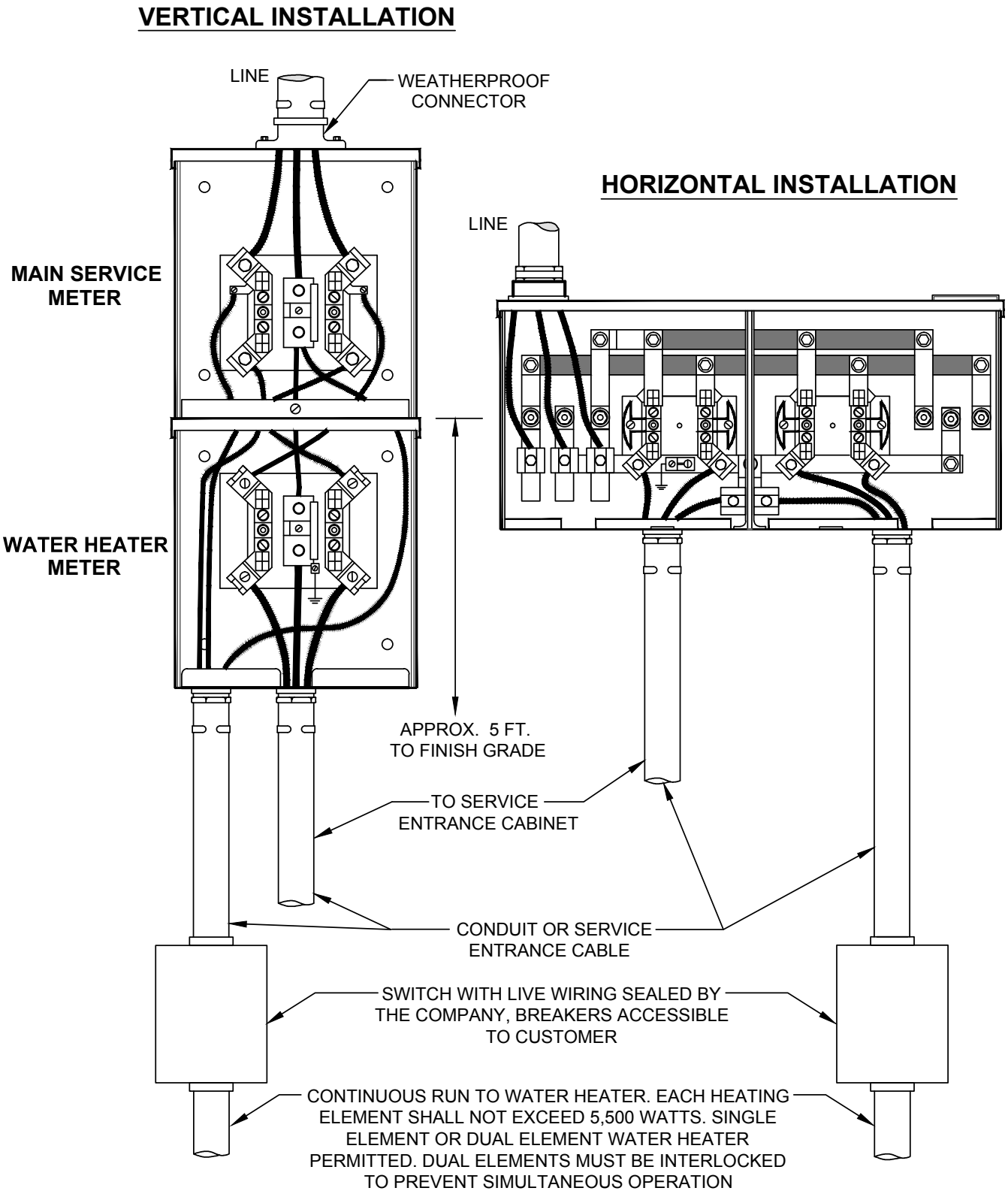
Typical Overhead – Double Horizontal



NOTES

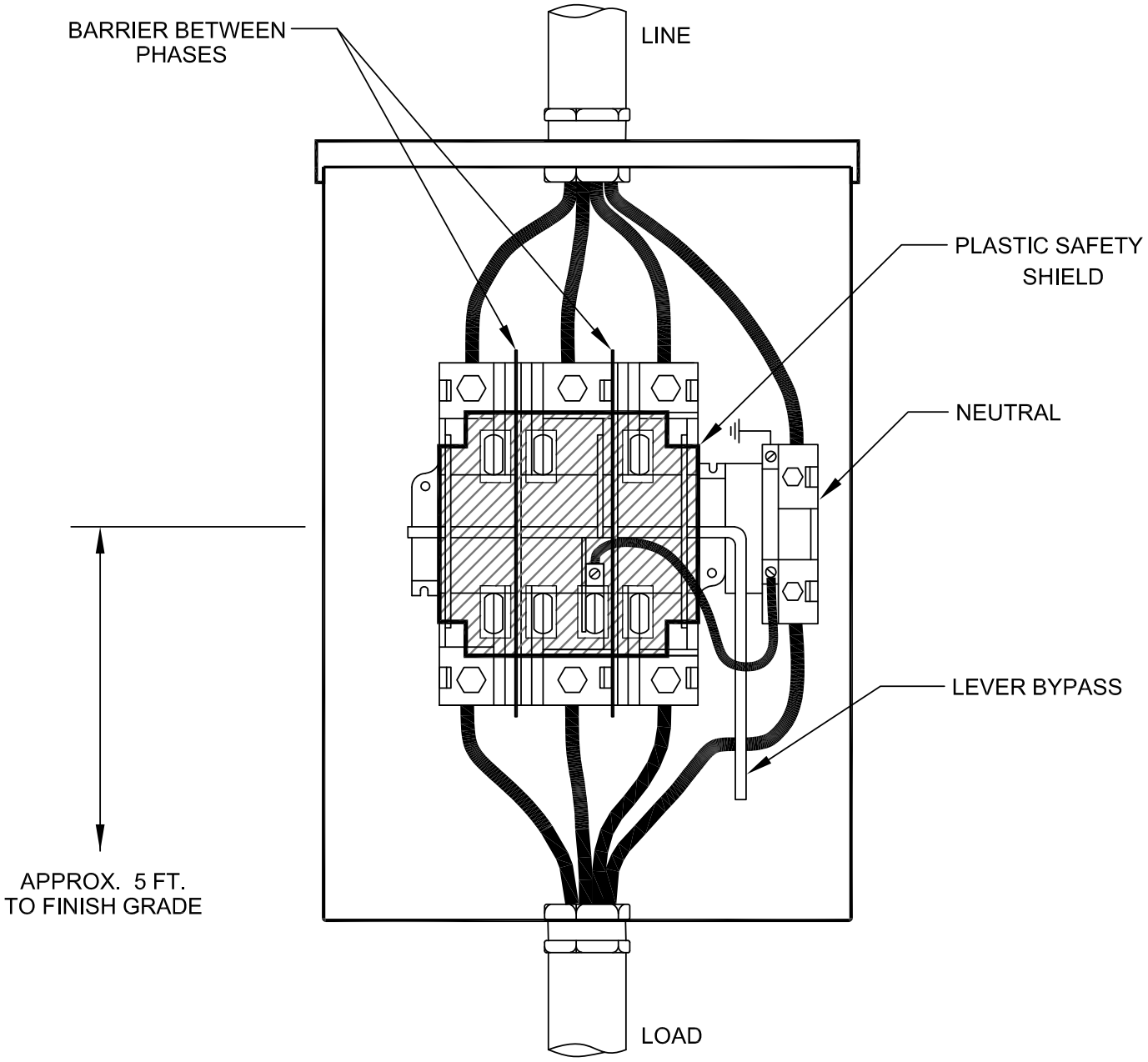
1. This diagram is for double installation, but triple and quadruple units are also available.
2. Line connection can be made to either left or right side of the box.
3. Horizontal units can also be used on underground services.

Uncontrolled Water Heater Installation



EXCEPTION: TIME CLOCK OR LOAD CONTROL DEVICE ALLOWED PROVIDED THE REMAINDER OF RUN IS #10AWG AND UNINTERRUPTED

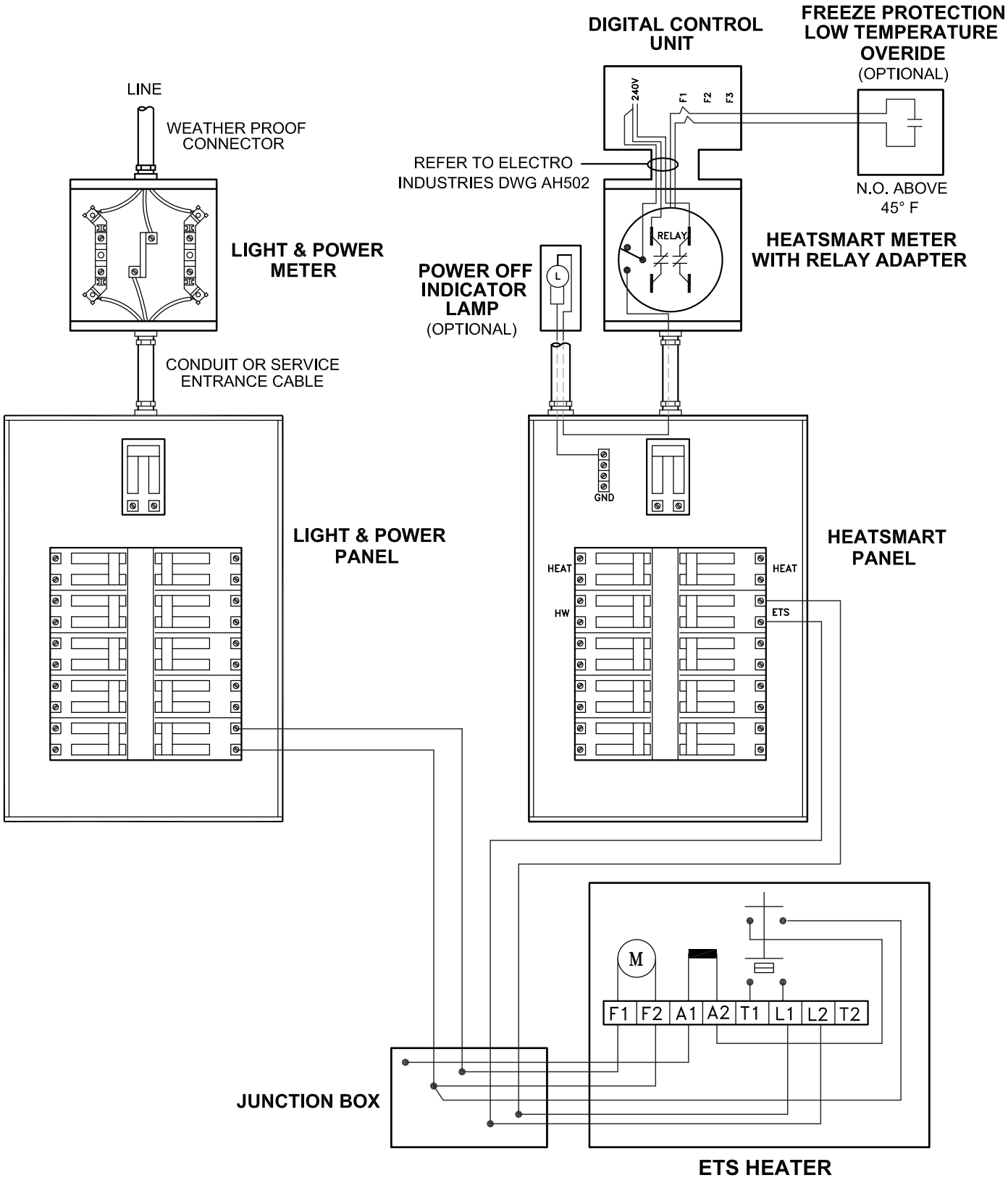
Socket – Self Contained 200/400 Ampere 30 4 Wire WYE



NOTE

1. May be used on 120/208 or 277/480.

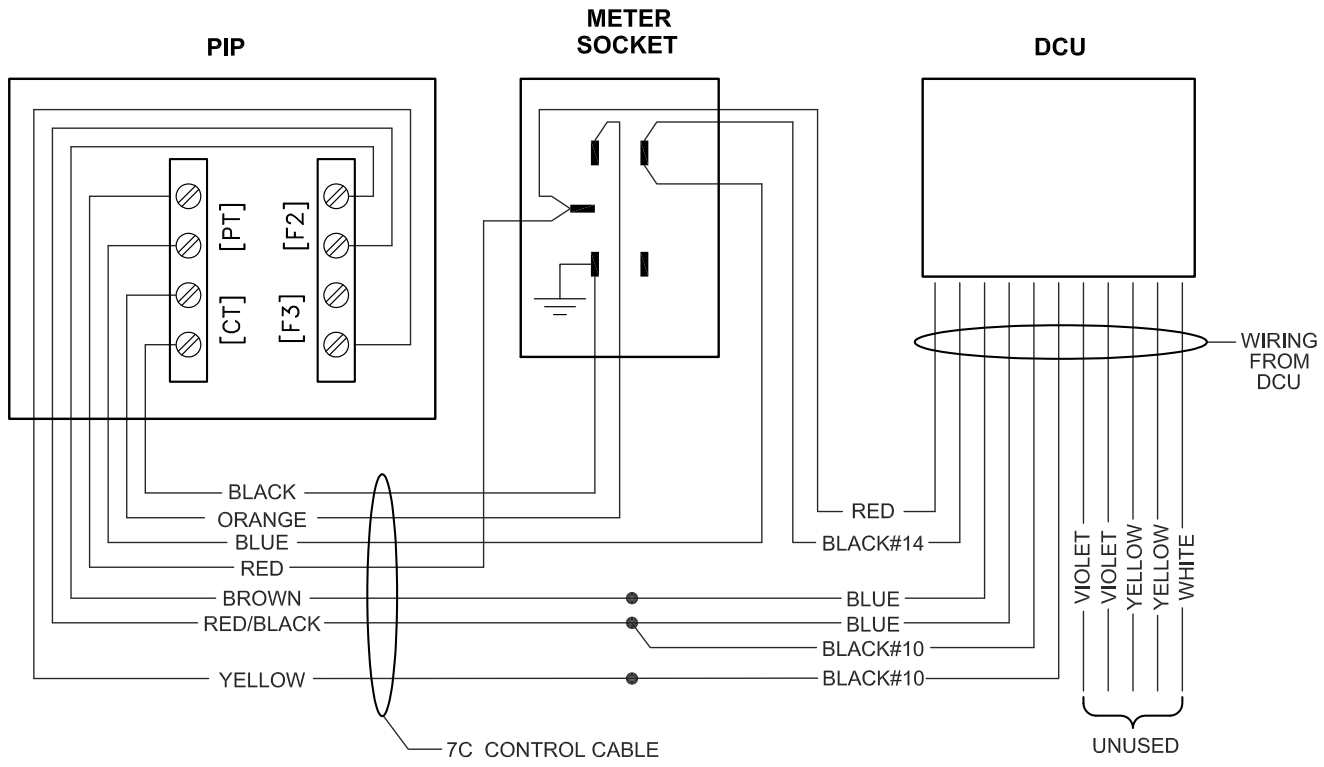
Heatsmart Typical Direct Metered Installation



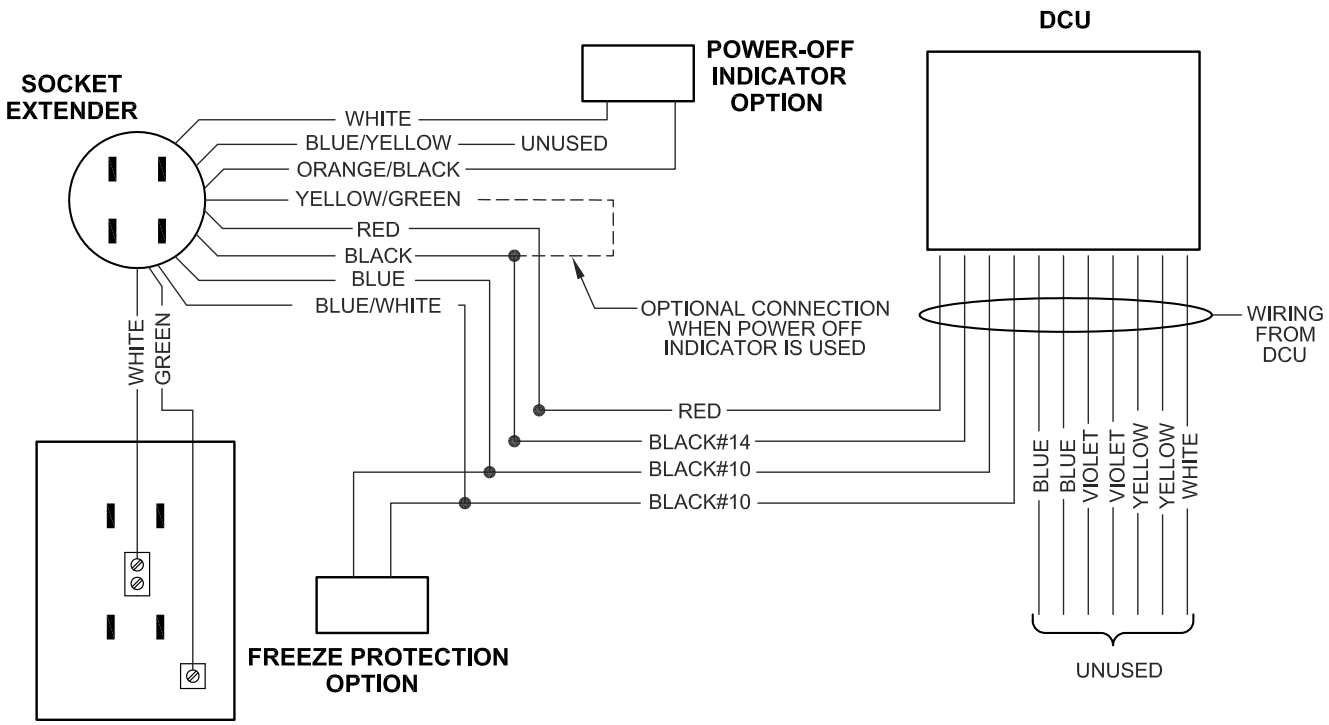
NOTE

1. This drawing shows a typical layout and wiring interconnections. Use 3-6-45 and manufacturer drawings for interconnection details.

Heatsmart Standard Wiring/Color Codes Using Peak Interrupter Panel



Using Socket Extenders



Typical Underground – Double Vertical

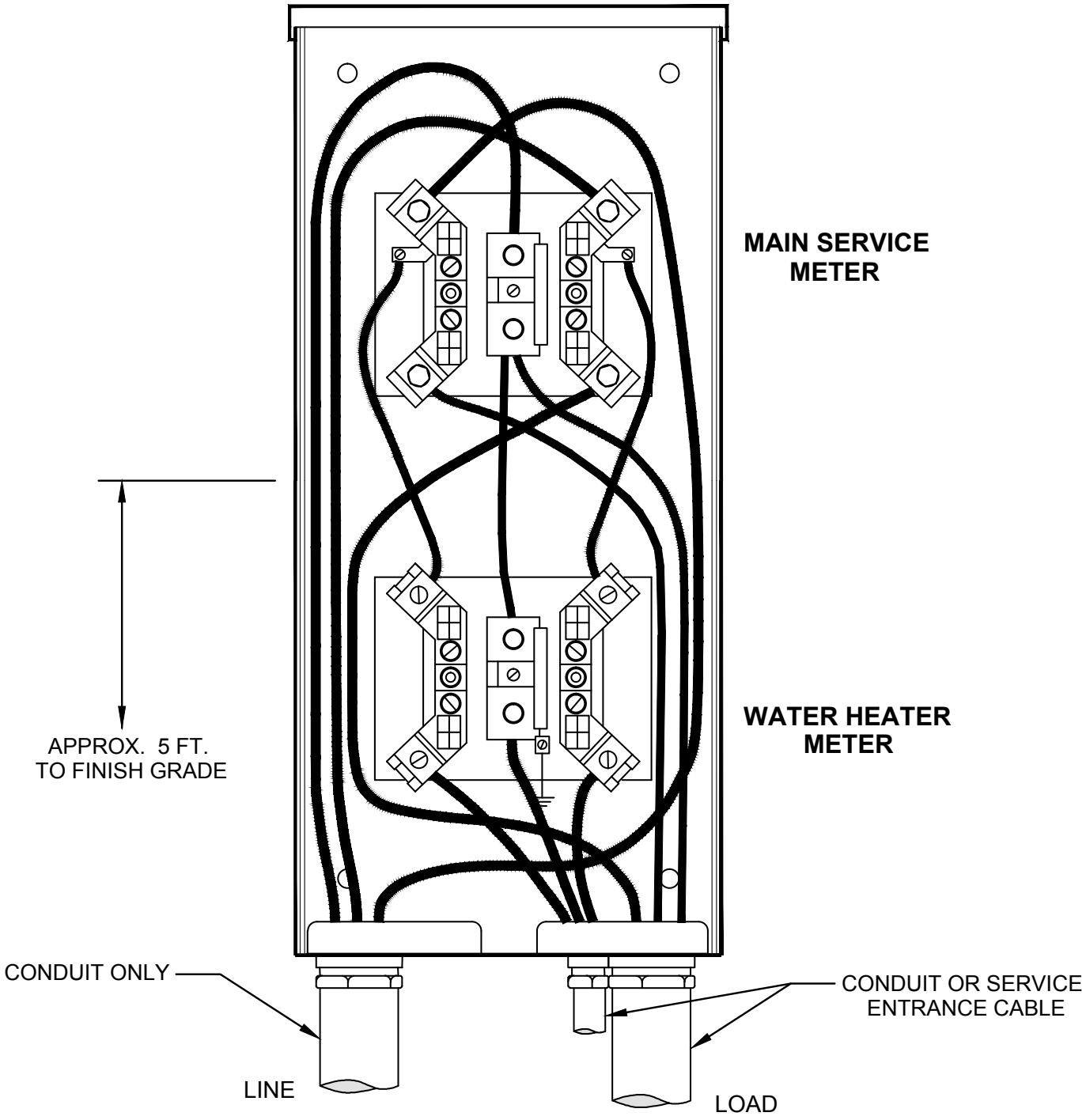
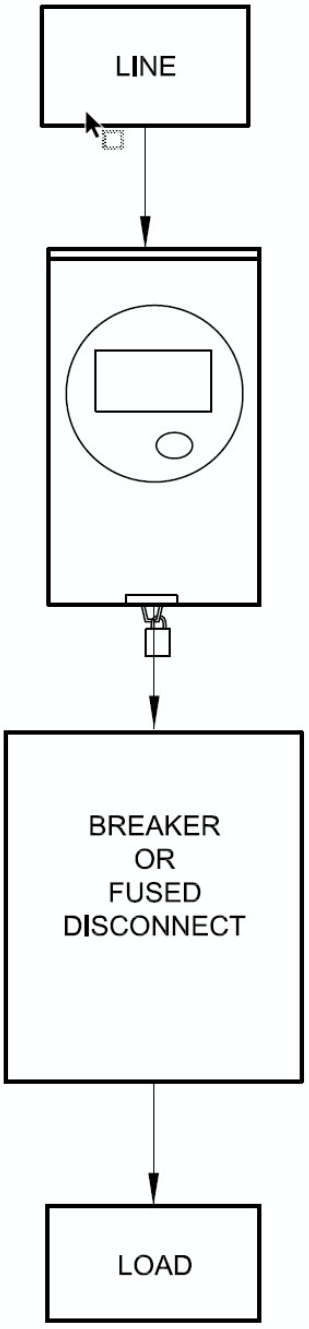


DIAGRAM SHOWING WIRING WITH COVER REMOVED

Hot and Cold Metering

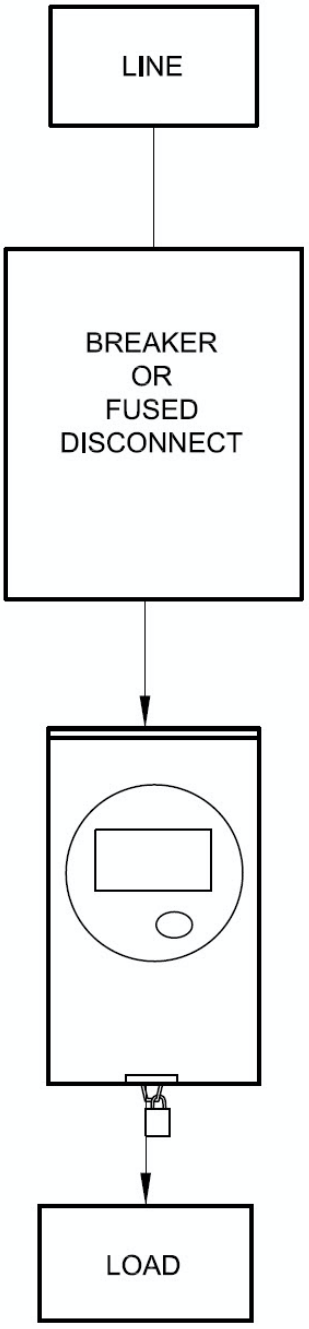
HOT SEQUENCE METERING
SELF-CONTAINED



400 Amps or Less

- Three Phase 208Y/120V
- Single Phase 120/208V
- Single Phase 120/240V

COLD SEQUENCE METERING
SELF-CONTAINED



400 Amps or Less

- Three Phase 480Y/277


EVERSOURCE
ENERGY