Alaska Power & Telephone
Electric Service Requirements
(Service Assembly Guide)

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This document is subject to periodic updates. Please ensure that you have the latest version by contacting your local office or by visiting www.aptalaska.com.

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REVISION LOG

SECTION	DESCRIPTION	DATE
103	Added language regarding undesirable load characteristics to Secondary Voltage subsection 7	5/7/2024
202	Revised subsection 7-11	5/7/2024
204	Updated easement requirements and process.	5/7/2024
205	Added last sentence to both paragraphs regarding responsibilities for tree clearing.	5/7/2024
206	Inserted new language in subsection "e" regarding State of Alaska requirements	5/7/2024
207	Added sentence about disconnection in the event of safety problems.	5/7/2024
301	Revised first paragraph adding recommendation to provide photos prior to inspection.	5/7/2024

INTRODUCTION

Alaska Power & Telephone (AP&T) has assembled this booklet to assist customers, architects, engineers, and electrical contractors in planning for or obtaining electric service to new or remodeled installations.

The information presented is intended to supplement and not replace the requirements of the National Electrical Code (NEC), the National Electrical Safety Code (NESC), and all other applicable federal and state codes, regulations, and ordinances. It is the responsibility of the customer to ensure that their installation complies with the most recent edition of the NEC and any other local, state, or federal codes that may apply. If there is a conflict in requirements between this guide and AP&T's Tariff, the tariff, which is approved by the Regulatory Commission of Alaska, shall take precedence.

This 2024 edition of the Electric Service Requirements booklet supersedes all previous specifications or service information.

AP&T strives to serve its customers promptly and satisfactorily in completing electric service connections. AP&T will gladly give attention to any questions concerning the requirements in this booklet. Contact your local office for further information.

For your safety and to help prevent damage, always call your local AP&T office at least 3 days before digging, excavating, or driving ground rods. There is no cost for having locates of AP&T owned infrastructure done on your property.

SECTION 1 GENERAL INFORMATION

101 Purpose

The purpose of this booklet is to inform customers, consultants, and contractors of the requirements for obtaining electric service from AP&T. Prior to purchasing any electrical equipment for a proposed installation or beginning construction, a customer and/or their representative should contact AP&T's local office to learn the general requirements for obtaining service and to obtain the most current service specifications. Additional information is available on the AP&T website at www.aptalaska.com. This booklet is not intended to ensure the adequacy and safety of the customer's wiring and equipment; such responsibility remains with the customer.

AP&T does not perform the function of inspecting the customer's internal wiring for compliance with requirements of electrical codes or regulations established by public bodies. AP&T does recommend that all installations be inspected by the appropriate governing authority.

102 Character of Service

Electric service is available as single or three phase 60 Hertz alternating current from an overhead or underground distribution system at one of the nominal American National Standards Institute (ANSI) standard voltages as given in the following section. Three phase service may not be readily available in all locations.

103 Types of Service

The following are standard voltages and capacities available to AP&T customers:

Secondary Voltages

1. Single Phase 120/240 volt, three wire standard lighting and power service up to 200-amp capacity only.
2. Single Phase 120/240 volt, three wire standard between 200 amp and 400 amp (CT service).
3. Single Phase 120/208 volt, three wire standard lighting and power service up to 200-amp capacity. Larger equivalent capacities will be required to service 120/208 volt four-wire grounded wye three phase.
4. Three Phase 277/480 volt, four wire grounded wye of capacity to meet customer requirements.
5. Three Phase 120/208 volt, four wire grounded wye to meet customer

requirements.

6. Three-phase 120/240 volt four wire delta to meet customer requirements.
7. Customer may request other than standard secondary voltage. The customer will be financially responsible for all special equipment needed to supply non-standard secondary voltage.

To prevent unacceptable voltage flicker to the members, single-phase motors are limited to 10 HP and smaller. Motors larger than 10 HP require AP&T installation pre-approval. Reduced voltage starting is required for all motors larger than 25 HP.

It shall be the responsibility of the customer to provide suitable protective apparatus on all motor installations including adequate protection against single phasing (loss of one single phase with two still energized), on three phase motors.

Devices which produce harmonic distortion such as adjustable speed drives, electronic ballasts for fluorescent lighting, switching power supplies for computers, and electric vehicles shall be filtered such that the harmonic distortion resulting from these devices is kept within the limits specified in the most recent revision of IEEE 519, Section 10. Compliance with this requirement shall be based on voltage and power quality measurements taken at the point of delivery by AP&T.

AP&T may refuse or discontinue service to a customer's installation if the installation has load characteristics that may cause excessive voltage fluctuations, impairment of service, or damage to AP&T facilities or other customers. Undesirable load characteristics include but are not limited to twenty (20) percent unbalanced load between phases, a power factor below ninety (90) percent, or cyclical demand fluctuations produced by the customer's equipment (electric welders, elevator motors, etc.). AP&T may require, as a condition of service that customers install, at their expense, equipment that will eliminate the undesirable lad characteristics.

Primary Voltages

Service at the primary voltage level may be required for larger commercial and industrial customers. This option is typically available to customers; however, the voltage level and availability of three phase power will vary depending on the service location. Contact AP&T for further information and assistance regarding primary service options.

SECTION 2 SERVICE

201 Service Equipment

AP&T approved service equipment must be installed by the customer and inspected and approved by AP&T prior to service being scheduled for construction. Please review the applicable specification in this booklet that pertains to the service required.

202 Service Installation Steps

The general process to obtaining electric service is described below. Additional details are also found later in this Service Standards book.

1. Complete and submit a Service Application (Customer)
   a. Provide a site plan showing service location.
   b. Provide an estimate of the electrical demand load. Commercial and Industrial customers must provide this as furnished by their engineer.
2. Preliminary cost estimate and engineering (AP&T)
3. Right of way, easement and permits obtained, as required (Customer)
4. Final engineering and cost estimate (AP&T)
5. Acceptance of estimate and fees paid (Customer)
6. Service Equipment Installed (Customer)
7. Right of way (ROW) clearing for service line if necessary (Customer)
8. Service Equipment and ROW clearing inspected and approved (AP&T)
9. Construction scheduled (AP&T)
10. Construction (AP&T)
11. Final Inspection and As-built (AP&T)

203 Meter Accessibility/Location

A meter base must be installed in a location accessible to AP&T at all times. A new or relocated meter shall be installed on the outside wall of a building, on a meter stub, or on a meter pole. All locations must be approved by AP&T.

The customer will furnish a location that is safely accessible by AP&T employees, free from vibration, corrosive atmosphere, abnormal temperatures, protected from adverse climatic conditions or aggressive domestic animals and located near the corner of the structure nearest to the existing distribution facilities of AP&T. Any deviation from these standards must be pre-arranged with AP&T and may result in additional cost to the customer. All locations are subject to approval by the AP&T local office.

The customer must provide a clear working space of five feet minimum in front of the service and at least 30 inches wide for the entire height of the service. The service working space must also be clear of other obstructions such as fuel lines, water lines or

other non-electrical equipment.

Examples of **acceptable** locations for a meter base include:

1. On an exterior wall of a building or structure built on a permanent non-movable foundation.
2. In an area that is not fenced-in or enclosed; and
3. On an approved post in a location approved by AP&T.

Examples of locations that are **not acceptable** for a meter base include:

1. In or under enclosed porches or breezeways.
2. In or under carports.
3. Under rain gutter down-spouts or other drains.
4. Attached directly to a mobile home or other temporary structure.
5. Within 10' of an onsite fillable propane tank.
6. Within 5' of a diesel or heating oil tank.
7. On a primary pole or other AP&T owned pole that is under NESC rules, such as a guy stub pole or secondary lift pole.

204 Easements

As part of obtaining electrical service to your property, AP&T may require an easement on any affected property. This is required when AP&T owned infrastructure is installed on or through a property, regardless of property ownership. This will allow AP&T to install facilities to provide electrical and telecommunications service to you and to future property owners.

Easements widths shall be:

Primary overhead, thirty (30) feet wide, fifteen (15) feet on each side of centerline.

Primary underground, twenty (20) feet wide, ten (10) feet on each side of centerline.

Secondary overhead, twenty (20) feet wide, ten (10) feet on each side of centerline.

Secondary underground, fifteen (15) feet wide, seven and a half (7.5) feet on each side of centerline.

The customer must first submit a completed service application with a copy of the deed proving ownership. AP&T will make a site visit to assist in the design process. Any surveying that is required for the location of the property boundaries shall be provided by the customer and must be done prior to the site visit.

After the site visit, a cost and contract will be provided to the customer. If this is accepted, the easement process will start. Before the AP&T equipment for the new service can be installed, the completed, signed, and notarized easement documentation must be submitted to AP&T, who will then file the document with the Alaska Department of Natural Resources Recording Office. Failure to provide a copy of the easement documents to AP&T will result in a delay in obtaining service.

The easement will provide AP&T with the right of access to construct, operate, inspect, repair or remove AP&T's facilities. The customer shall provide safe and clear access to the entire easement and AP&T's facilities at all times. This includes keeping the easement clear of trees, brush and other vegetation by the customer. The easement also provides AP&T the right to cut brush, trees or other vegetation if required to perform maintenance or repairs. Any obstructions that may interfere with construction or maintenance activities are not allowed within the easement. These include buildings, parts of buildings, walls, fences, sheds, garages, greenhouses, or other structures. Some use of the easement by the customer is only allowed as long as access by AP&T is not restricted. The customer is liable for the cost of removal and replacement of any structures or other obstructions in the easement should AP&T require access. Use of the easement by others for access or other uses is not permitted.

Please contact AP&T for guidance and assistance in the process of obtaining a property easement in order to receive service.

205 Route Selection and Clearing

AP&T will select the route for the line extension and/or service. A clear and unobstructed route must be provided for AP&T to construct service or primary line within the boundaries of the customer's property by the customer. Overhead clearing consists of removing all vegetation and obstructions from the entire width of the specified easement. Danger trees and branches, such as dead trees or leaning trees, outside of the easement may also be required to be removed. This route along the service drop is to be maintained by the customer. AP&T will maintain the clearing along primary voltage lines.

Cut brush and trees as close as possible to ground level. All cut trees, brush and other debris shall be removed from the easement to allow access for construction. For underground services, stumps must be removed from the route to allow trenching activities to occur. If clearing of the easement is performed by the customer and found to be incomplete or unsatisfactory, AP&T will delay construction until clearing is sufficient. A poorly maintained service route may also delay restoration in the event of damage due to a storm or other incident outside of AP&T's control.

206 Service Entrance Equipment Requirements

The following list summarizes the requirements for the customer's service equipment. Refer to the Service Standard drawings for additional requirements specific to the service that is required for your project.

a. Before any new service entrance equipment is installed by the customer, he or she shall have the installation location approved by AP&T. Where substantial changes will be made to an existing service, the customer, builder or authorized representative shall contact AP&T for a temporary disconnect and/or approval.
b. To help prevent damage, always call your local AP&T office for locates at least

3 days before digging, excavating or driving ground rods.

c. The customer shall install and maintain all wiring equipment beyond the point of delivery except for meters, current transformers, and all wiring associated with the metering. The point of delivery, unless otherwise specified, is that location on the exterior of the customer's building or on an approved structure where AP&T's system and the customer's facilities are interconnected.
d. Customer's wiring, meter socket and service entrance facilities must be installed and maintained by the customer in conformity with applicable state requirements, current standards required by the National Electrical Code (NEC), the National Electrical Safety Code (NESC), AP&T's Electric Service Requirements and all other federal, state, and local codes as applicable.
e. Please note that the State of Alaska has specific Statutes and requires work to be done by licensed electrical installers in most circumstances.
f. AP&T shall inspect all residential meter bases prior to job being released to construction. AP&T may refuse to connect service if customer's installation is found to be non-compliant with codes and/or AP&T specifications.
g. All service equipment must be UL listed, weatherproof with a minimum NEMA 3R rating and manufactured for the type of service (overhead or underground) used.
h. Service equipment must include a main circuit breaker. Non-CT type residential services must utilize a combination meter socket and main breaker. The customer is responsible for providing suitable protective devices for the equipment on the customer's premises. The customer shall protect equipment with special service requirements from potentially harmful conditions, including, but not limited to, single phase operation of equipment requiring three phase service or under-and-over voltage conditions.
i. Multiple meter socket type services must be permanently labeled with the location served for each meter.

AP&T representatives do not have authority to provide guidelines for the customer side of the meter base, i.e., wire size, expected load. AP&T shall not be held liable for any loss or damage to persons or property resulting from any contact with, or defects in, the customers installation or equipment, or the delivery of electric energy thereto.

207 AP&T Owned Service Facilities on Customer's Premises

The following list summarizes additional requirements for the customer regarding AP&T owned facilities that are required to provide service.

1. All facilities on the utility side of the demarcation point on the customer's premises shall remain the property of AP&T and may be removed, replaced, or updated by AP&T at any time. The customer shall provide sufficient space for AP&T to access AP&T's property and protect AP&T's property located on the customer's premises. In addition, the customer shall not break AP&T's equipment seals. The customer shall be liable for loss or damage to AP&T property arising from neglect, carelessness, vandalism, improper protection from ice, snow and water, or misuse by the customer or any other person on the

customer's property.

2. Tampering with meters is prohibited by AP&T and is a civil offense under Alaska law (see AS 42.20.030 et seq.). Any tampering, breaking of meter seals, opening or damaging of AP&T locks, interference with, or any work performed upon the meter installation or other property of AP&T is prohibited. AP&T may, at any time, and without notice, discontinue supply of service to the customer and remove the meter or meters and equipment in the event of such tampering or interference. The customer shall be responsible for payment of all costs which result from such tampering or interference with AP&T property. Those costs may include, but are not limited to, disconnection and reconnection charges, investigation related costs, damage to AP&T property, and payment for service consumed but not metered. Service will not be restored to such customer until payment has been made to AP&T for all costs.
3. On underground service installations requiring pad mounted equipment (or any other above-grade equipment such as secondary pedestals), the customer is required to furnish an accessible and safe location for the pad mounted equipment on the customer's property. All pad mounted equipment site locations must be approved by AP&T. AP&T will not install pad mounted equipment on property other than that of the customer unless there is a platted public utility easement (i.e., in a street or alley right-of-way, or on an adjacent neighbor's property). There shall be a minimum working clearance at all times from trees, shrubs and building walls of 10 feet in front of the pad mounted equipment and three feet on each of the other sides. Clearance above the pad mounted equipment should be sufficient to provide crane clearance for installation and replacement. Where required, the customer shall install, at the customer's expense, suitable protective or security devices designated by AP&T on the customer's premises (such as bollards).
4. Properly identified employees of AP&T shall have access to customer premises at all times for the purpose of reading meters, testing or inspecting the customer's load and equipment, or installing, repairing, removing or exchanging equipment belonging to AP&T. The customer shall not construct or have any device, building, fence, shrubs, trees, etc., that would impede utility access to AP&T equipment.

208 Trenching and Underground Installations

The trenching plan will be inspected and approved by AP&T prior to construction. Trenching within 10 feet of any existing AP&T facility is not allowed without coordination with AP&T personnel.

Depending on the location, the customer or AP&T will perform trenching. Please contact your local service center.

If in a location where the customer provides trenching, the customer will perform all excavation related work for installation of secondary pedestals, transformers, and all primary cable installations. AP&T will also perform the installation of AP&T owned facilities even if the customer has provided the trench. Customer-provided installation of AP&T owned equipment is not permitted.

209 Temporary Construction Power

AP&T will extend the necessary facilities to a customer-furnished, single phase 120/240-volt temporary service with total capacity not exceeding 200 amps per delivery point for a period not to exceed twelve months. Extensions to the deadline may be granted for those instances showing good cause. Each case must be reviewed and approved by AP&T's local office and approved by the local manager.

AP&T may also provide temporary service to facilities intended to be used for a short period of time only, such as construction camps, shows or other events. The applicant must pay for costs associated with installation and removal of all facilities that are temporary. Contact AP&T for further information.

210 Electrical Standby Generators

Customers that intend to install any kind of generation such as diesel generators, solar, wind, et cetera are required to contact AP&T for approval prior to installation.

No customer shall, without AP&T's prior approval, temporarily or permanently connect any electric generator to wiring which is intended to be energized at any time from AP&T's system. Proper sectionalizing and protective equipment must be installed in conformance with applicable federal and state codes as well as AP&T service requirements.

Customer generators shall be installed such that they cannot energize AP&T facilities, using UL certified equipment installed in conformance with electrical codes, such as manual double throw switches or transfer switches. All switches shall be break before make (non-paralleling) type.

The customer shall not in any circumstance install their own generation source with grid tie capabilities without prior review and approval by AP&T.

Retail customers that desire to interconnect their own generation with AP&T's distribution system must contact their local AP&T office prior to the installation of any equipment. Grid tie generation and net metering are not available in all locations. Refer to the AP&T Tariff for more details on program requirements.

211 Work Requirements in Proximity to AP&T Facilities

All work on, or in the immediate vicinity of, AP&T facilities, such as backfilling or cuts, tree trimming or falling, temporary support, shoring and relocations are subject to prior approval and inspection by AP&T. Individuals who cause AP&T facilities to be damaged will be charged the cost of repairing damaged facilities. Contact AP&T prior to commencing construction or equipment operating, near or around any underground or overhead facilities. Alaska Statute AS 18.60.670 et seq. requires a 10-foot minimum

operating clearance from all energized overhead conductors.

*AS 18.60.670. Prohibition against Placement of Equipment Near Electrical Power Lines and Conductors.

A person individually or through an agent or employee may not:
(1) place any type of tool, equipment, machinery, or material that is capable of lateral, vertical, or swinging motion, within 10 feet of a high voltage overhead electrical line or conductor; **(2)** store, operate, erect, maintain, move, or transport tools, machinery, equipment, supplies, materials, apparatus, buildings, or other structures within 10 feet of a high voltage overhead electrical line or conductor.

212 Fire Pump and Fire Pump Equipment

1. AP&T requires that any installation requiring equipment to be connected to the supply side of the service disconnect will be designed by a registered engineer. These installation types shall be limited to those found in the NEC and shall follow all applicable codes and standards.
2. AP&T acknowledges NEC requirements, permissions, and exceptions with regard to fire alarms, fire pump equipment and fire sprinkler systems. The NEC does allow attachment of such equipment to the supply side of the service disconnecting means.
3. If the electric service entrance for a building or structure utilizes switchboard service style equipment, then a separate area outside of the sealable sections for the attachment of the fire alarm and fire pump equipment conductors must be an integral part of the electrical service entrance equipment design.
4. Supply circuits for fire pump equipment may be installed along with other customer supply circuits inside of wall mounted CT cabinets as long as such attachment remains on the load side of the CTs where other customer load (metered) conductors are typically terminated. If the service does not incorporate CT's, a separately metered service shall be installed. These circuits must be installed in accordance with the NEC requirements for service-entrance conductors.
5. For facilities with multiple services, each service shall have means of disconnect clearly and permanently labeled.

213 Undesirable Service Characteristics

1. AP&T may refuse or discontinue service to a customer if the customer's installations, in the judgement of AP&T, will adversely affect the operation of AP&T's system or its service to other customers. Undesirable load characteristics may cause excessive voltage fluctuations, harmonics, impaired service or damage to the facilities of AP&T or other customers.
2. AP&T reserves the right to immediately disconnect services when the customer's load makes it impossible to provide service to other customers within AP&T's voltage and frequency standards. AP&T also reserves the right to disconnect a service if safety concerns are found.

3. In less serious situations, notice will be provided to the customer prior to disconnection. The customer must correct the situation within 15 days. In cases where more time is required, the customer must provide a written response that establishes the correction date. Refer to the tariff for additional details.

SECTION 3 INSPECTIONS

301 General Information

Prior to connection of electric service, the customer/applicant's meter base must be inspected by AP&T. AP&T will not inspect the customer side of the meter base or wiring. The first inspection is included in the price of the service installation, but follow-up inspections may result in additional charges to the customer. AP&T recommends that the customer send pictures of the service installation directly to their primary AP&T point of contact prior to the first inspection trip.

The following type of work will require an inspection:

- All service installations not previously served by AP&T.
- Service entrance equipment or meter base assembly that has been replaced, upgraded, or relocated.
- The service line has been disconnected at AP&T's facilities for repairs or rewiring at customer's building or service location.

302 Electric Service Inspection Requirements

The meter base will be inspected to meet the AP&T meter base specifications found in this guide or obtained from AP&T engineering. No service or line extension will be released for construction until the meter base has met the AP&T specification completely.

The service standards, equipment specifications and guides are not engineered drawings. They are reference drawings intended to assist the customer or the customer's engineer and to meet AP&T requirements. Any resulting customer installation requires compliance with state and federal regulations and requires compliance with the National Electrical Safety Code and the National Electric Code as adopted by regional authorities.

SECTION 4 GENERAL SERVICE GUIDELINES

401 All Service Types (Overhead and Underground)

1. Prior to wiring a building, performing electrical construction for a new service, or remodeling an existing service, the customer shall obtain approval from AP&T for the location of all meter bases.

2. The customer's service equipment shall conform to the latest revision of the National Electrical Code, Municipal local amendments to the NEC, and State and Municipal Codes.

3. New or remodeled installations must conform to current and applicable provisions of the National Electrical Code and any other city, state or federal regulation.

4. All electric services shall comply with all applicable grounding requirements found in the latest edition of the NEC.

5. If roof overhang is less than two feet, customer will provide meter base protection from snow and ice. An acceptable alternative is a protective hood extending six inches out from face of meter and minimum of six inches on each side of the meter base.

6. For a standard residential service, two ground rods with ground rod clamps and ground conductor shall be furnished and installed by the customer. The copper ground conductor must be continuous (having no cuts) between the meter base and the two ground rods. Ground conductors cannot be placed behind siding. All portions of the grounding system including ground rod connections shall be visible for AP&T inspection and buried by the customer afterwards.

7. The meter base shall be securely fastened to the wall using lag bolts, machine bolts, screws, or u-bolts. Nails are not permitted.

8. The meter base enclosure shall not have any unsealed openings such as missing conduit knockouts.

9. The source side conduit risers will be provided and installed by the customer.

10. All wiring on the customer side of the meter base is the responsibility of the customer, for both installation and maintenance. AP&T personnel are not allowed to work on the customer’s wiring. If any unsafe wiring is identified, AP&T will not connect customer meter base until it has been corrected by the customer.

11. The face of the meter base will be in a direction that is most advantageous for maintenance or reading of the meter.

12. All meter bases must be inspected by an AP&T representative prior to the service

being scheduled for installation.

13. Refer to standard installation drawings for additional details.

402 Overhead Services

All conditions in Section 401 apply to overhead services as well as the following:

1. Any weather head that exceed 36 inches above the roof requires guying.

2. Minimum overhead service conductor clearances:
    a. 12 feet above spaces and ways subject to pedestrian or restricted areas
    b. 18 feet above driveways, parking lots and areas subject to truck traffic. Consideration for snowpack on traveled surfaces should be included.
    c. 20 feet over an Alaska Department of Transportation right-of-way
    d. Additional clearance may be required due to site conditions or installation specific requirements. Contact AP&T for guidance.

3. The customer's neutral wire shall be identified at the weather head as the white or striped wire.

4. Conduit riser clamps must be made of heavy gauge galvanized steel or malleable iron. These may be either two-hole pipe clamps or single-hole pipe clamps (two required at each location) spaced not more than 10 feet apart on center and one within 12 inches of each end (at the weather head and the meter base). The clamps shall be securely attached with either lag screws into the solid wood framework or toggle bolts into siding (concrete anchors are required for masonry). These are customer provided and installed.

5. Service riser conduit shall be galvanized rigid steel only and shall have a minimum diameter of 2 inches. No conduit couplings will be allowed above roofline.

6. Where the length of the conduit riser exceeds 10 feet, the coupling shall be located on the end closest to the meter base.

7. For a gable mount weather head: The customer shall provide suitably braced framework and install a service drop attachment point. The point of attachment shall be sufficient height for sufficient conductor clearances described in 402.2 and shall not extend more than 12 inches below the weather head.

8. It is highly recommended to install snow stops above a non-gable end overhead service to protect the mast and conductors.

403 Temporary Meter Base

1. The temporary meter base location shall be coordinated with AP&T.

2. There shall be no driveway crossing permitted for temporary service unless customer provides a void. No road crossings will be permitted unless the crossing is completed utilizing overhead construction techniques.

3. AP&T will disconnect temporary service no later than twelve months after installation unless good reason is shown.

4. Temporary service is typically available as single phase, 200 amp or less 120/240 volt. Other options, such as three phase temporary service may be available upon AP&T approval.

404 Multi-Meter Installations

All conditions in Section 401 apply to multi-meter services as well as the following:

1. AP&T meters shall be located on the outside of the building, or other approved structures, and accessible by AP&T personnel.

2. The customer shall provide a NEMA Type 3R wall mounted pull box with terminals and a sealable and lockable bussed gutter specifically designed for ganging individual meter sockets under a common feed.

3. The bussed gutter shall have an ampere rating equal to or greater than the total ampere rating for each of the meter sockets, which are installed and served from the bus.

4. Ring style sockets and removable panel covers must be compatible with and not interfere with the tamper proof meter sealing rings.

5. Network services require a factory installed 5th jaw or a factory supplied 5th jaw kit to be installed in the 9 o'clock position.

6. For 3-phase, 4-wire services supplied from a Delta connected secondary, the phase conductor having the higher voltage to ground (power leg) shall be located on the C phase (right side) of the circuit breaker lugs of each meter socket or CT cabinet and marked with orange.

7. The source side conduit type, size and quantity shall be coordinated with AP&T.

8. All service entrances require an external (located outside the building) lockable service disconnect switch or a lockable remote shunt device.

9. Prior to energizing multi-meter installations, each location that the meter serves must be clearly identified. When the meters are installed, the owner or his authorized representative must be present to physically verify that each meter serves the location designated by the labeling. If numbering changes, it is up to the property owner to relabel each meter.

10. Examples of acceptable permanent identification labeling are: 1) 3M Scotchcal 220 decals or, 2) an embossed metal or engraved laminated plastic identification plate attached by screws or rivets. All lettering and numbering for the code designation shall be a minimum of one inch in height. Marking with ink pen is not considered permanent identification.

11. The customer shall provide a NEMA Type 3R multi-metered enclosure with self-contained meter sockets appropriate to the type of service requested. All non-residential installations shall include meter sockets with a test block.

12. A main disconnect shall be installed on the source side (line/utility side) of a group of seven or more meter sockets. The main disconnect may be a fused disconnect switch, or a circuit breaker.

13. All main service disconnects on the source side (line/utility side) require factory designed and installed sealing and/or locking provisions for all areas of the enclosure, except access for fuse replacement or switch operation.

14. The service termination section of the multi-metered enclosure shall conform to the Service Equipment specification drawings. A cover independent of any other service equipment shall be removable without disturbing adjacent panels. Terminal lugs shall be provided. The enclosure cover must be securely fastened to the box and equipped with tabs or plates for seals and locks.

405 Three Phase Service –Above 200 Amps

1. Before any service entrance is installed on any structure, the customer, builder or authorized representative shall obtain agreement from AP&T as to where the service entrance and multi-metered equipment shall be located. All CT enclosures and meter bases shall be located on the outside of the building. The service entrance must be installed as close as possible to existing AP&T facilities.

2. The customer's service equipment shall conform to the latest revision of the National Electrical Code, Borough, State and Municipal Codes. UL listing is required where applicable.

3. The source side conduit shall be PVC or RGS conduit. Risers will be provided and installed by customer.

4. AP&T will supply and install the current transformers, test switches, meter, meter wiring, and service conductor.

5. All service entrances require an external (located outside the building) lockable service disconnect switch. A lockable shunt trip disconnect is acceptable. Shunt trip disconnects must be clearly labeled “Electrical Service Shunt Trip Disconnect”.

6. For all commercial and residential three phase services, contact AP&T Engineering for further information and to determine the additional service requirements that will be applicable to your project.

SECTION 500 DRAWINGS AND SPECIFICATIONS

501 – Service Standards Drawings

SS-1: Self-Contained Meter Socket 100-200 Amp
SS-2: Current Transformer Meter Socket
SS-3: Underground Meter Base – Building Mounted – 200 Amp or Less
SS-4: 200 Amp Two Post Customer Meter Stub
SS-5: Underground Service (6 Units or Less)
SS-6: Underground Service (More than 6 Units)
SS-7: Single Phase – Underground Service 201-400 Amps
SS-8: Three Phase- Underground Service 201-800 Amps
SS-9: Three Phase – Underground Service 801-1200 Amps
SS-10: Three Phase – Underground Service 1201-2000 Amps
SS-11: Overhead Meter Base – Building Mounted – 200 Amp or Less
SS-12: Overhead Meter Base – Gable Mount – 200 Amp or Less
SS-13: Overhead meter Base – Secondary Pole Mounted – 200 Amp or Less
SS-14-UG: Underground Temporary Construction Service – 200 Amp or less
SS-14-OH: Overhead Temporary Construction Service
SS-15: Typical Arrangements for Standby Generators
SS-16: Trench Detail
SS-17: Customer Clearing Requirements

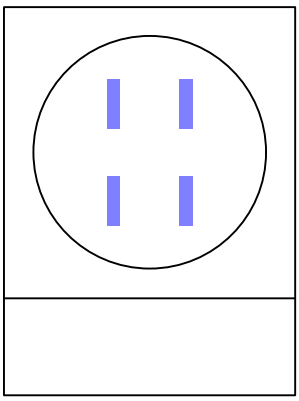


FIGURE 1

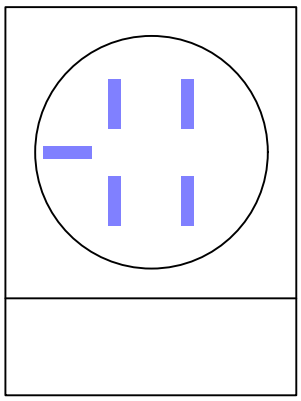


FIGURE 2

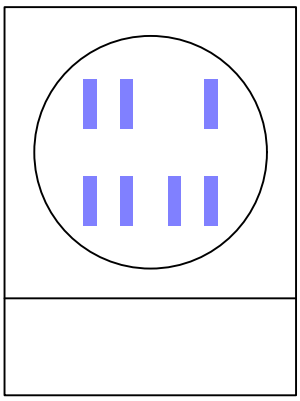


FIGURE 3

4 TERMINAL

120/240V, 1Ø, 3W

5 TERMINAL

120/208V, 1Ø, 3W

7 TERMINAL

120/208V, 3Ø, 4W
277/480V, 3Ø, 4W
120/240V, 3Ø, 4W

NOTES :

1. METER SOCKETS SHALL BE RING TYPE CONSTRUCTION.
2. THE 5TH JAW OF FIGURE 2 MUST BE INSTALLED IN THE 9 O'CLOCK POSITION.
3. METER LOOPS AND SOCKETS SHALL BE PROVIDED AND INSTALLED BY CUSTOMER.

REV	DISCRIPTION	REV BY	DATE

AP&T

SELF CONTAINED METER SOCKET 100 TO 200 AMP

SHEET 1 OF 1

DWG NAME: SS-1

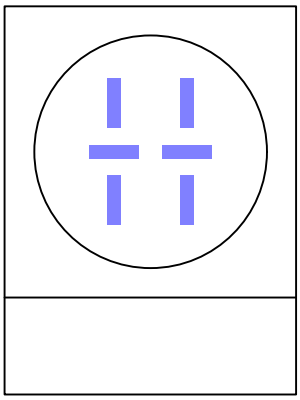


FIGURE 4

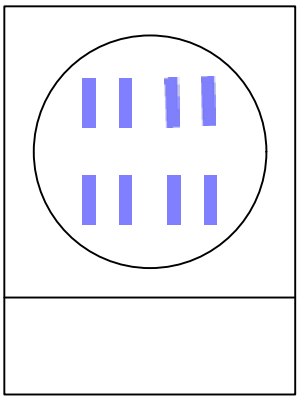


FIGURE 5

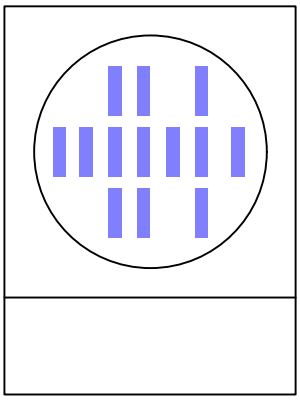


FIGURE 6

6 TERMINAL

120/240V, 1Ø, 3W

8 TERMINAL

480V, 3Ø, 3W

13 TERMINAL

120/208V, 3Ø, 4W
277/480V, 3Ø, 4W
120/240V, 3Ø, 4W

NOTES:

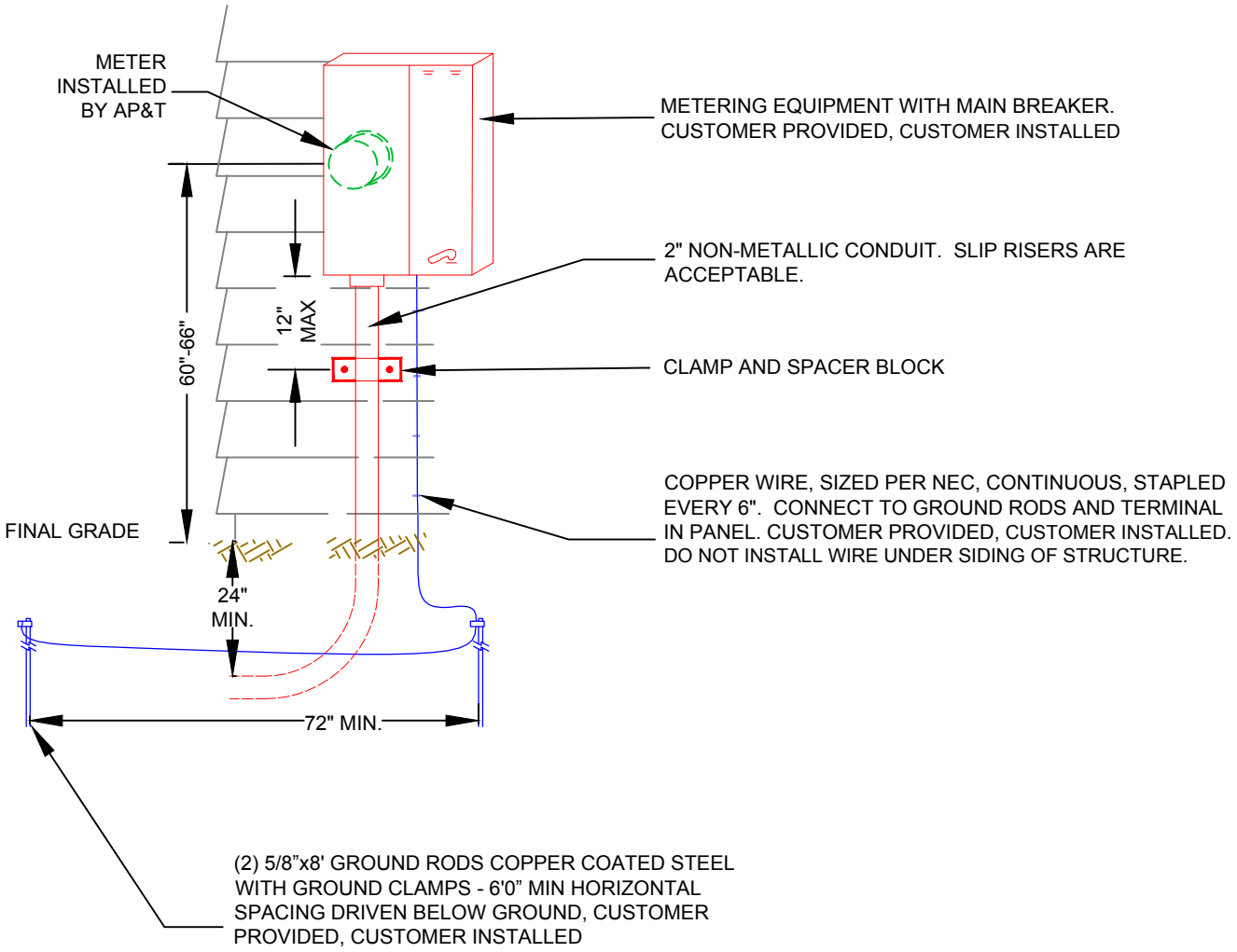
1. AP&T SHALL PROVIDE THE METERS, CT'S, CT WIRING, TEST SWITCH, SERVICE CONDUCTOR & SERVICE SIDE CONDUIT(S).

REV	DISCRIPTION	REV BY	DATE

CURRENT TRANSFORMER METR SOCKET

SHEET 1 OF 1

DWG NAME: SS-2



NOTE:

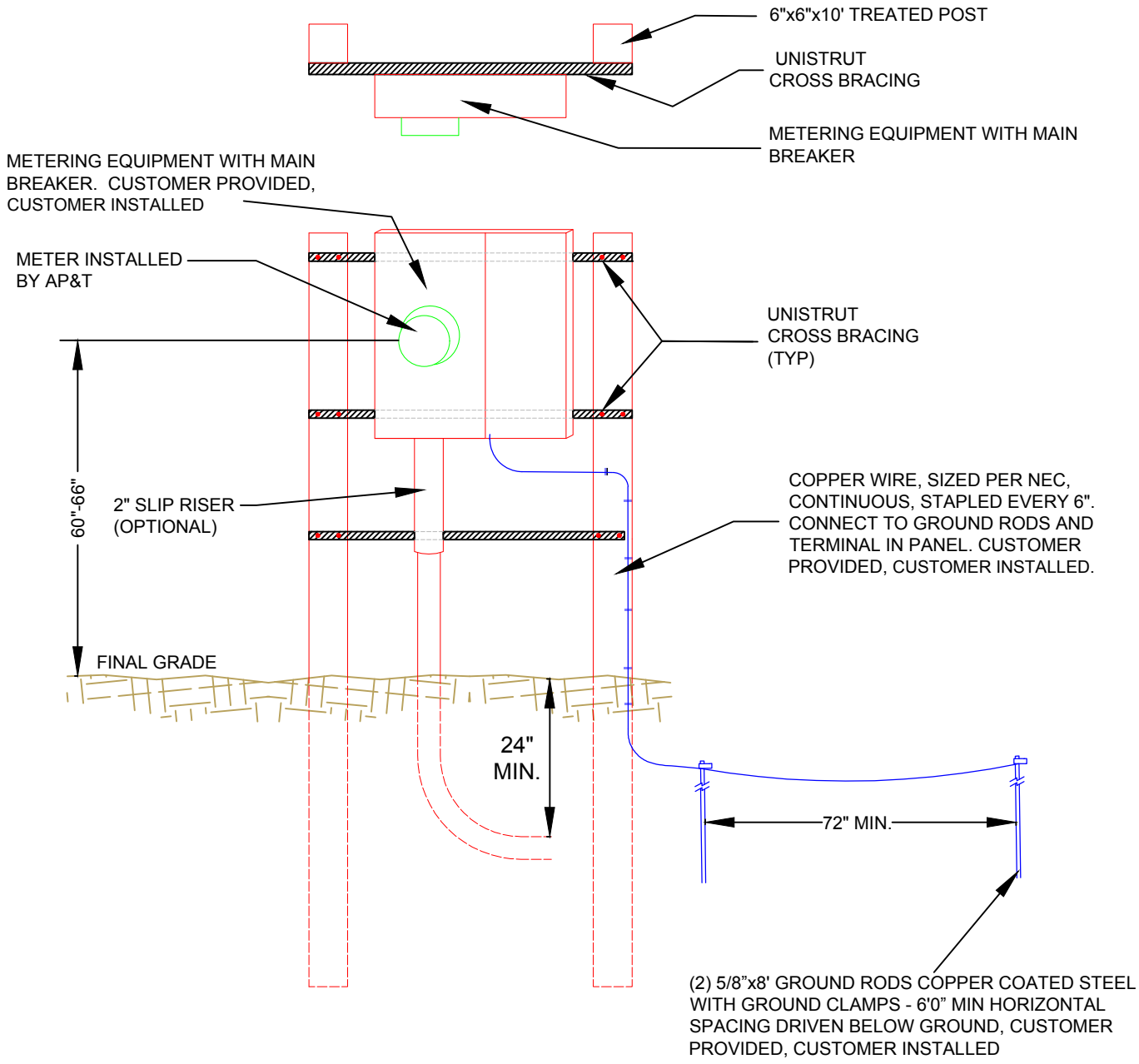
1. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 1	BF	04/08/24

UNDRGRND METER BASE BUILDING MOUNTED 200 AMP OR LESS

SHEET 1 OF 1

DWG NAME: SS-3



NOTES:

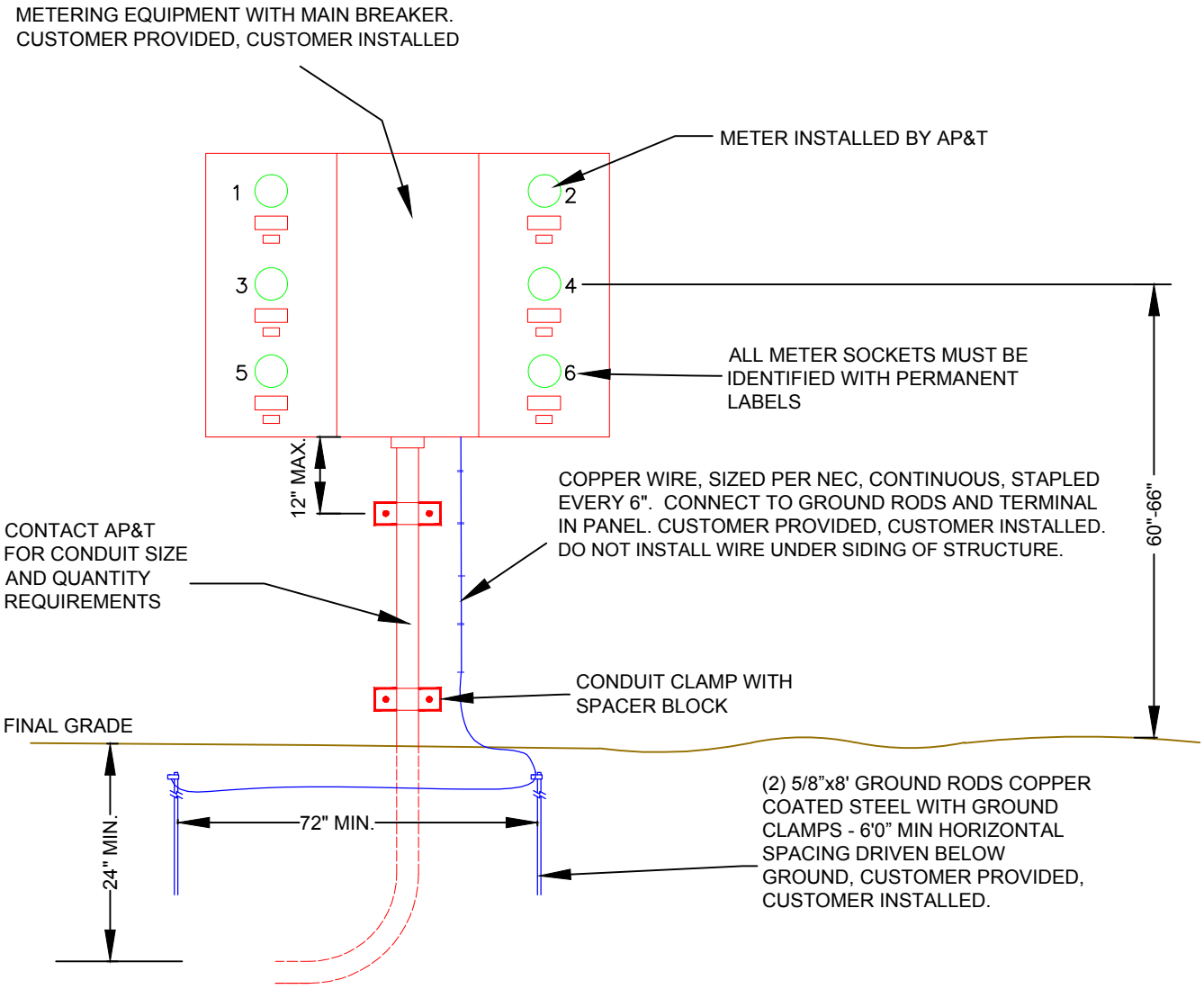
1. MINIMUM DEPTH OF POSTS FROM FINAL GRADE ARE 42".
2. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 2	BF	04/08/24

200 AMP TWO POST CUSTOMER METER STUB (CMS)

SHEET 1 OF 1

DWG NAME: SS-4



NOTES:

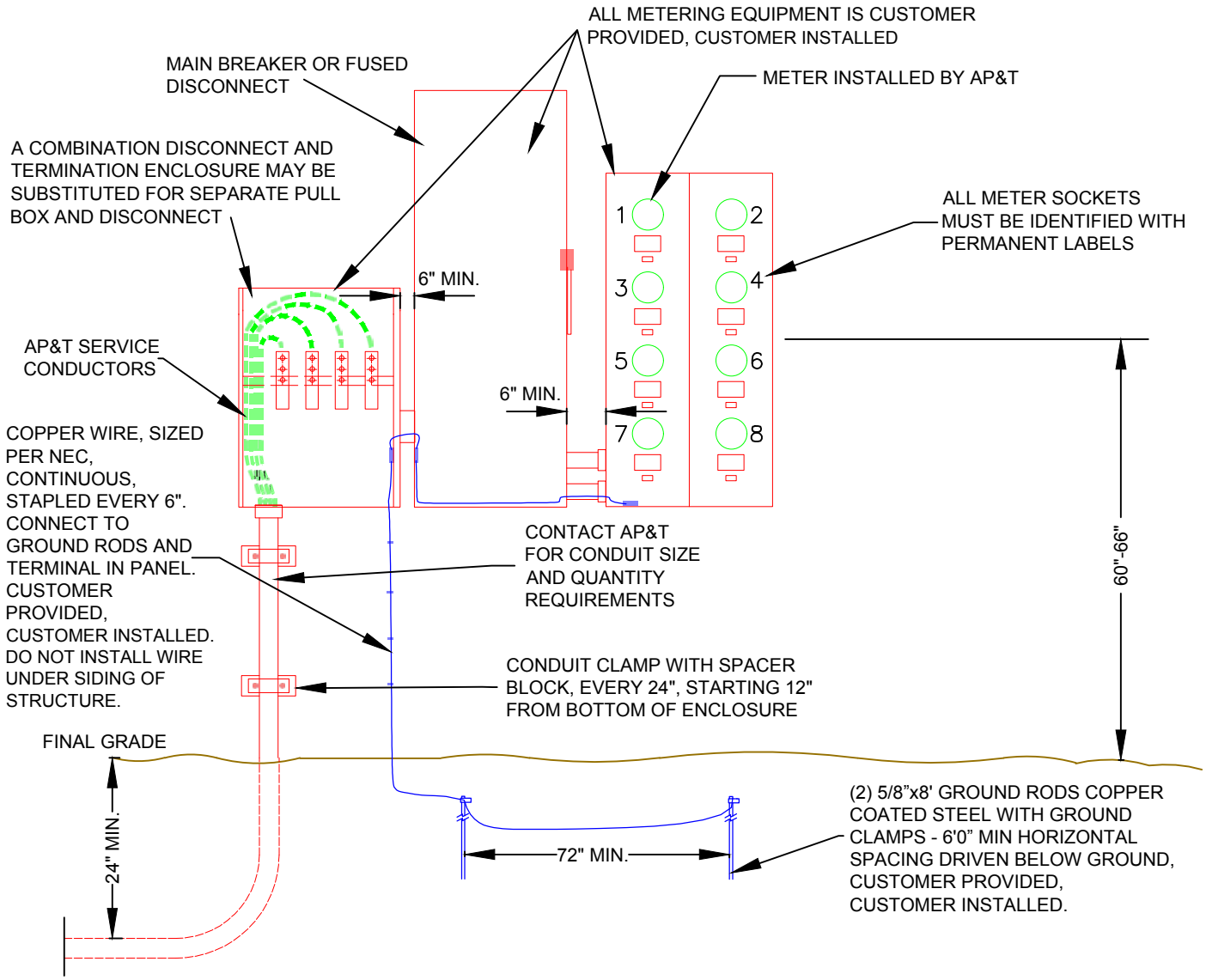
1. THE MULTI-METERED ENCLOSURE SHALL HAVE NO MORE THAN FOUR-METER SOCKETS PER VERTICAL COLUMN.
2. COVER SHALL BE REMOVABLE WITHOUT DISTURBING ADJACENT PANELS. TERMINAL LUGS SHALL BE PROVIDED. THE ENCLOSURE COVER MUST BE SECURELY FASTENED TO THE BOX AND EQUIPPED WITH TABS OR PLATES FOR SEALS OR LOCKS.
3. ALL METAL EQUIPMENT AND CONDUIT MUST BE BONDED PER NEC REQUIREMENTS.
4. METERING CABINET AND MAIN DISCONNECT MUST BE ON EXTERIOR OF BUILDING.
5. IDENTIFY ALL METER BASES WITH PERMANENT LABELS.
6. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 6	BF	04/08/24

UNDERGROUND SERVICE (6 UNITS OR LESS)

SHEET 1 OF 1

DWG NAME: SS-5



NOTES:

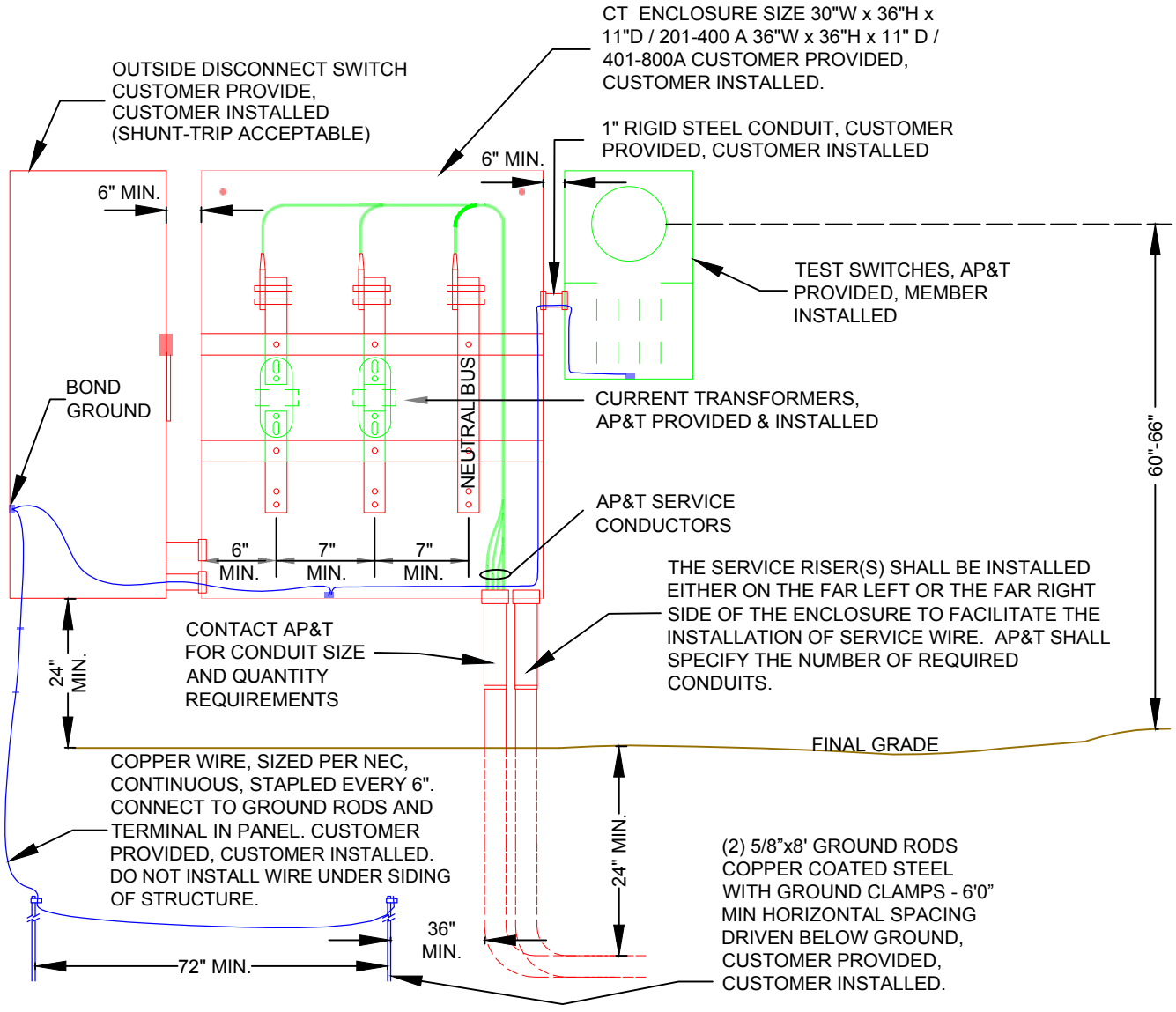
1. THE MULTI-METERED ENCLOSURE SHALL HAVE NO MORE THAN FOUR-METER SOCKETS PER VERTICAL COLUMN.
2. COVER SHALL BE REMOVABLE WITHOUT DISTURBING ADJACENT PANELS. TERMINAL LUGS SHALL BE PROVIDED. THE ENCLOSURE COVER MUST BE SECURELY FASTENED TO THE BOX AND EQUIPPED WITH TABS OR PLATES FOR SEALS OR LOCKS.
3. ALL METAL EQUIPMENT AND CONDUIT MUST BE BONDED PER NEC REQUIREMENTS.
4. METERING CABINET AND MAIN DISCONNECT MUST BE ON EXTERIOR OF BUILDING.
5. IDENTIFY ALL METER BASES WITH PERMANENT LABELS.
6. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 6	BF	04/08/24

UNDERGROUND SERVICE (MORE THAN 6 UNITS)

SHEET 1 OF 1

DWG NAME: SS-6



NOTES:

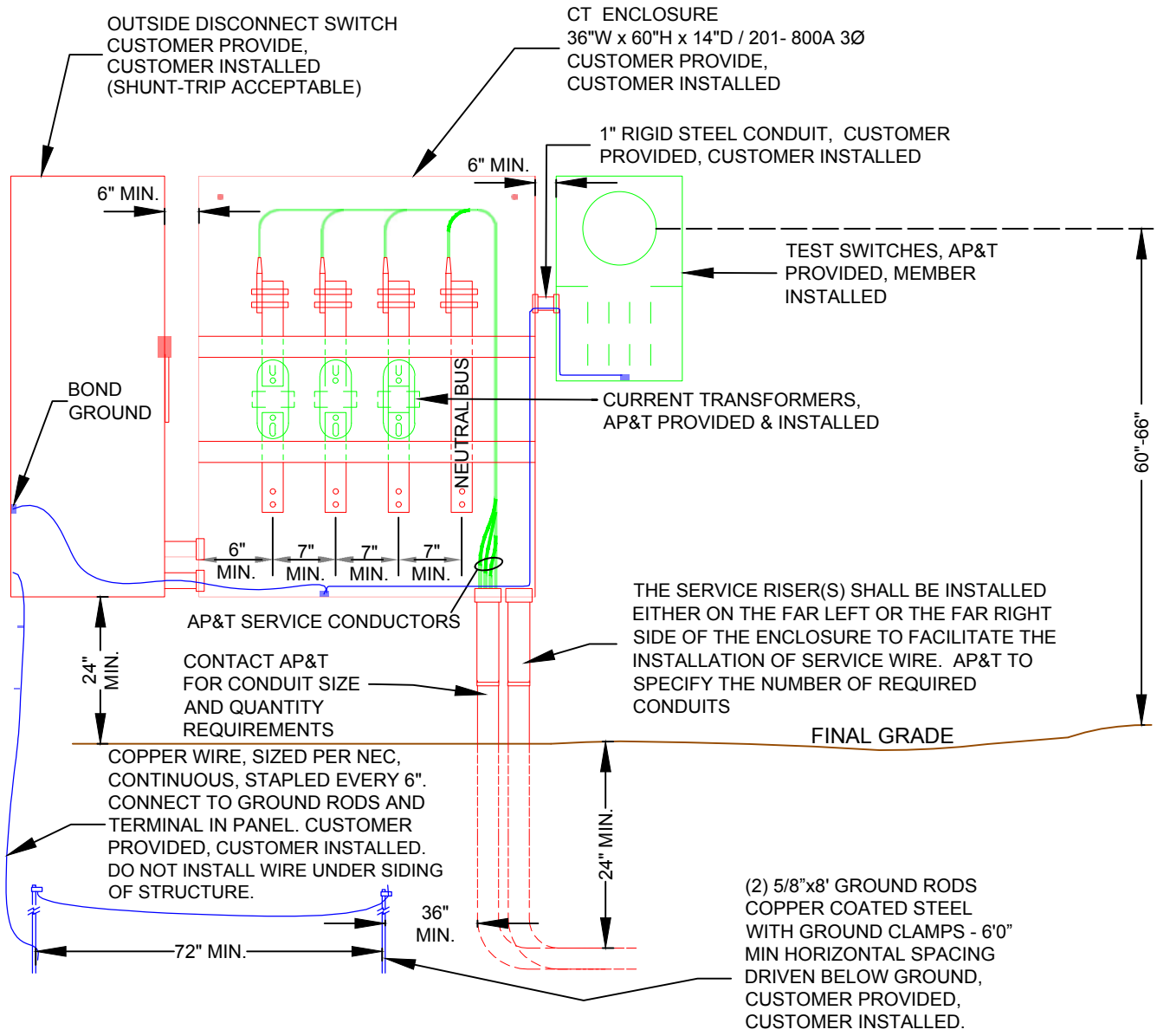
1. THE CUSTOMER SHALL PROVIDE A NEMA TYPE 3R CURRENT TRANSFORMER (CT) CABINET WITH A MINIMUM ENCLOSURE SIZE AS SHOWN.
2. THE ENCLOSURE COVER MUST BE HINGED AND EQUIPPED FOR SEALS AND LOCKS (5/16" SHANK PADLOCK).
3. ALL EQUIPMENT SHALL BE LOCATED ON A COMMON OUTSIDE WALL ADJACENT TO EACH OTHER.
4. ALL METAL EQUIPMENT AND CONDUIT MUST BE GROUNDED AND BONDED IN ACCORDANCE WITH NEC REQUIREMENTS.
5. AP&T SHALL PROVIDE THE METERS, CT'S, CT WIRING, TEST SWITCH, SERVICE CONDUCTOR & SERVICE SIDE CONDUIT(S).
6. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 6	BF	04/08/24

SINGLE PHASE UNDERGROUND SERVICE 201 TO 400 AMPS

SHEET 1 OF 1

DWG NAME: SS-7



NOTES:

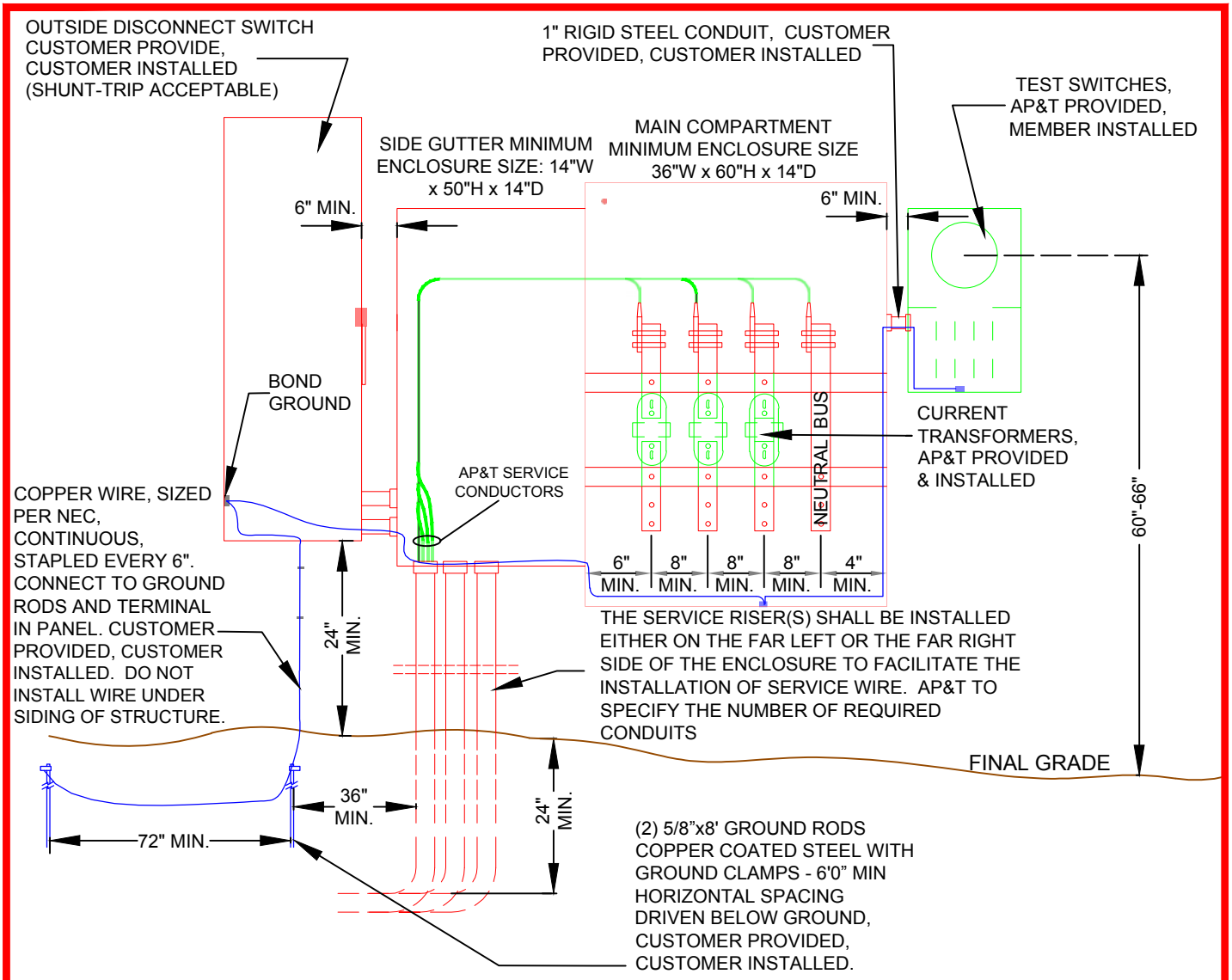
1. THE CUSTOMER SHALL PROVIDE A NEMA TYPE 3R CURRENT TRANSFORMER (CT) CABINET WITH A MINIMUM ENCLOSURE SIZE AS SHOWN.
2. THE ENCLOSURE COVER MUST BE HINGED AND EQUIPPED FOR SEALS AND LOCKS (5/16" SHANK PADLOCK).
3. ALL EQUIPMENT SHALL BE LOCATED ON A COMMON OUTSIDE WALL ADJACENT TO EACH OTHER.
4. ALL METAL EQUIPMENT AND CONDUIT MUST BE GROUNDED AND BONDED IN ACCORDANCE WITH NEC REQUIREMENTS.
5. AP&T SHALL PROVIDE THE METERS, CT'S, CT WIRING, TEST SWITCH, SERVICE CONDUCTOR & SERVICE SIDE CONDUIT(S).
6. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 6	BF	04/08/24

THREE PHASE UNDERGROUND SERVICE 201 TO 800 AMPS

SHEET 1 OF 1

DWG NAME: SS-8



NOTES:

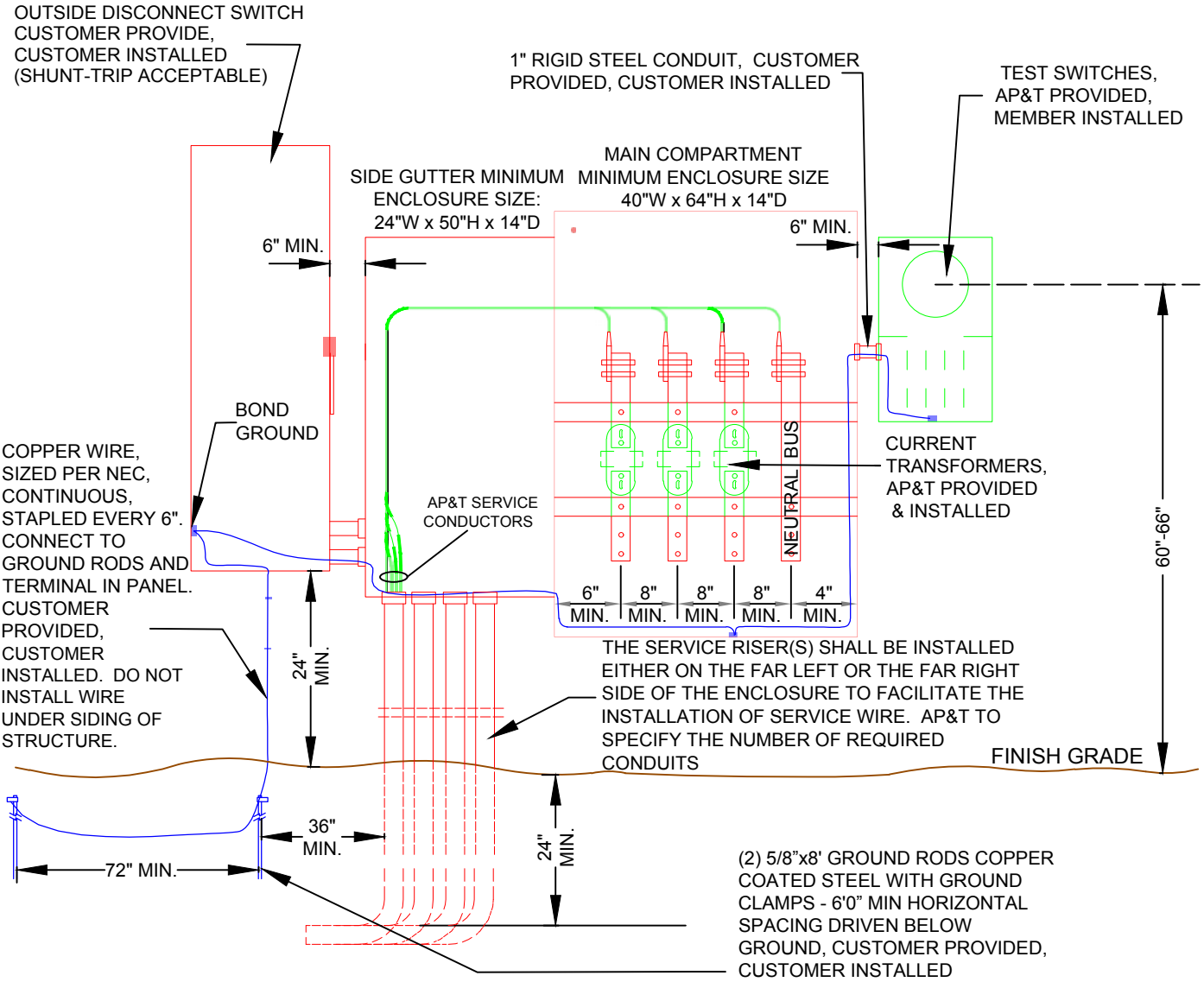
1. THE CUSTOMER SHALL PROVIDE A NEMA TYPE 3R CURRENT TRANSFORMER (CT) CABINET WITH A MINIMUM ENCLOSURE SIZE AS SHOWN.
2. THE ENCLOSURE COVER MUST BE HINGED AND EQUIPPED FOR SEALS AND LOCKS (5/16" SHANK PADLOCK).
3. ALL EQUIPMENT SHALL BE LOCATED ON A COMMON OUTSIDE WALL ADJACENT TO EACH OTHER.
4. ALL METAL EQUIPMENT AND CONDUIT MUST BE GROUNDED AND BONDED IN ACCORDANCE WITH NEC REQUIREMENTS.
5. AP&T SHALL PROVIDE THE METERS, CT'S, CT WIRING, TEST SWITCH, SERVICE CONDUCTOR & SERVICE SIDE CONDUIT(S).
6. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 6	BF	04/08/24

THREE PHASE UNDERGROUND SERVICE 801 TO 1200 AMPS

SHEET 1 OF 1

DWG NAME: SS-9



NOTES:

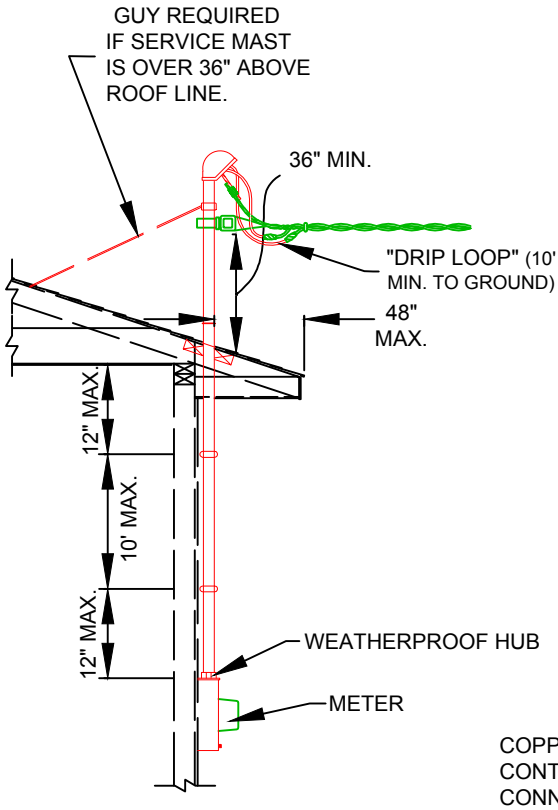
1. THE CUSTOMER SHALL PROVIDE A NEMA TYPE 3R CURRENT TRANSFORMER (CT) CABINET WITH A MINIMUM ENCLOSURE SIZE AS SHOWN.
2. THE ENCLOSURE COVER MUST BE HINGED AND EQUIPPED FOR SEALS AND LOCKS (5/16" SHANK PADLOCK).
3. ALL EQUIPMENT SHALL BE LOCATED ON A COMMON OUTSIDE WALL ADJACENT TO EACH OTHER.
4. ALL METAL EQUIPMENT AND CONDUIT MUST BE GROUNDED AND BONDED IN ACCORDANCE WITH NEC REQUIREMENTS.
5. AP&T SHALL PROVIDE THE METERS, CT'S, CT WIRING, TEST SWITCH, SERVICE CONDUCTOR & SERVICE SIDE CONDUIT(S).
6. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

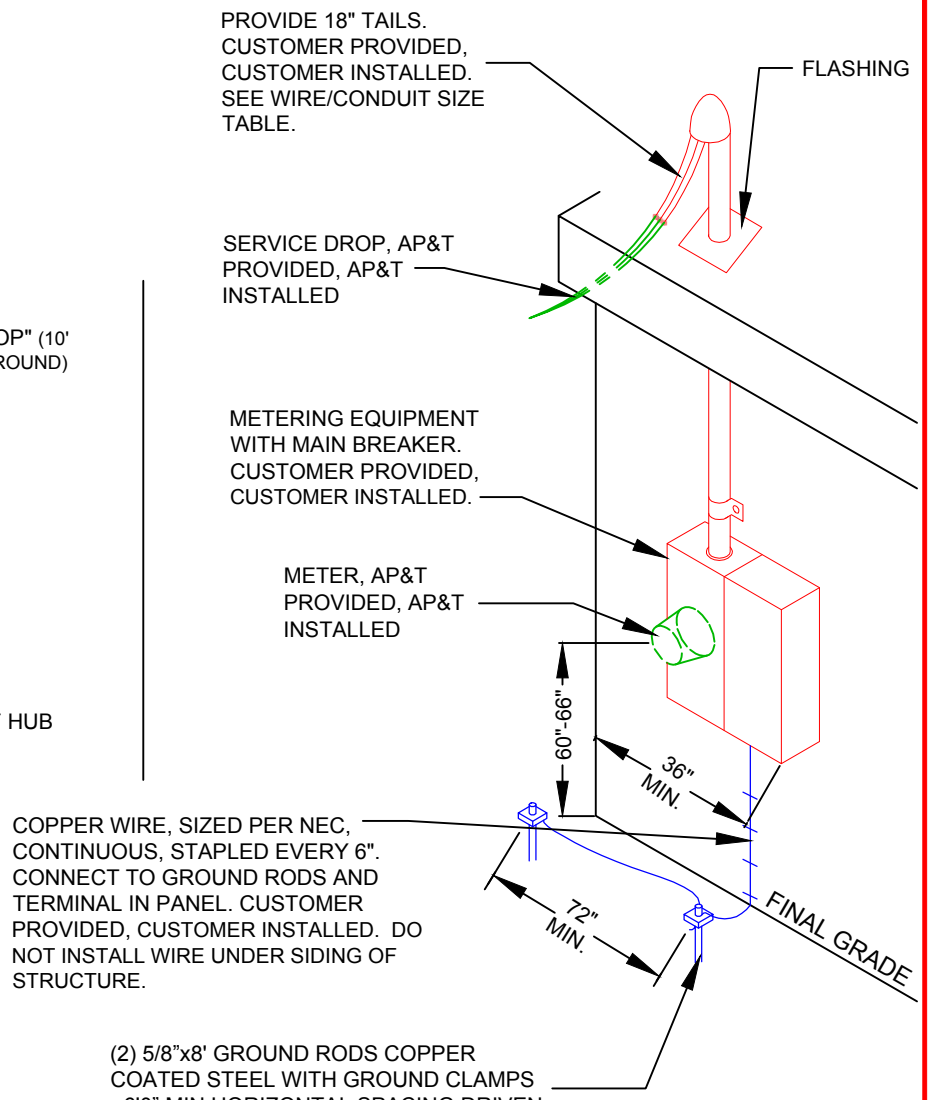
REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 6	BF	04/08/24

THREE PHASE UNDERGROUND SERVICE 1201 TO 2000 AMPS

SHEET 1 OF 1

DWG NAME: SS-10





NOTE:

1. INSTALLATION OF SNOW STOP ABOVE THE MAST IS HIGHLY RECOMMENDED.

SERVICE SIZE	PHASE WIRE SIZE	NEUTRAL WIRE SIZE	MIN. GRC CONDUIT SIZE
200 amp 120/240 volt only	#2/0 copper	#2/0 copper	2"
100 amp 120/240 volt only	#2 copper	#2 copper	2"

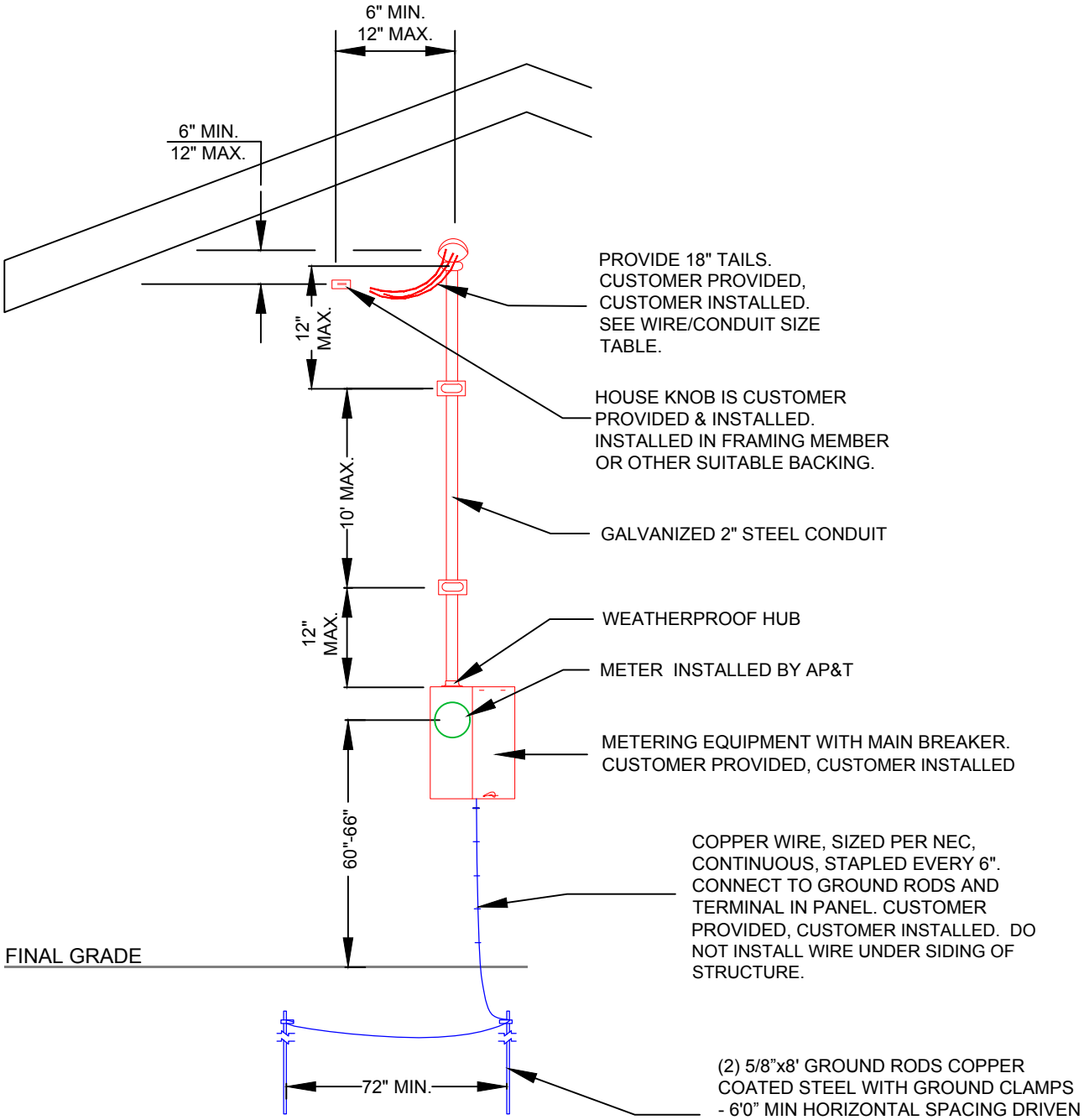
CONDUCTOR SUBSTITUTIONS MAY BE PERMITTED WITH PRIOR APPROVAL. CONTACT YOUR LOCAL AP&T OFFICE.

REV	DISCRIPTION	REV BY	DATE
01	CHANGED PHASE & NTRL WIRE TO 2/0 CU	BF	04/08/24

OVERHEAD METER BASE BUILDING MOUNTED 200 AMP OR LESS

SHEET 1 OF 1

DWG NAME: SS-11



SERVICE SIZE	PHASE WIRE SIZE	NEUTRAL WIRE SIZE	MIN. GRC CONDUIT SIZE
200 amp 120/240 volt only	#2/0 copper	#2/0 copper	2"
100 amp 120/240 volt only	#2 copper	#2 copper	2"

CONDUCTOR SUBSTITUTIONS MAY BE PERMITTED WITH PRIOR APPROVAL. CONTACT YOUR LOCAL AP&T OFFICE.

REV	DISCRIPTION	REV BY	DATE
01	CHANGED PHASE & NTRL WIRE TO 2/0 CU	BF	04/08/24

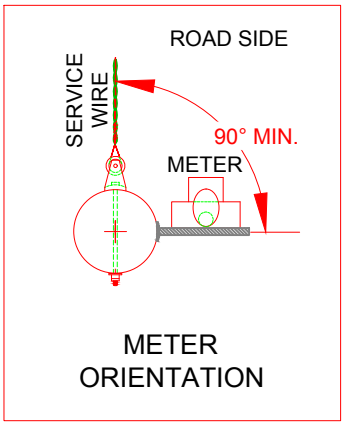
OVERHEAD METER BASE GABLE MOUNT 200 AMP OR LESS

SHEET 1 OF 1

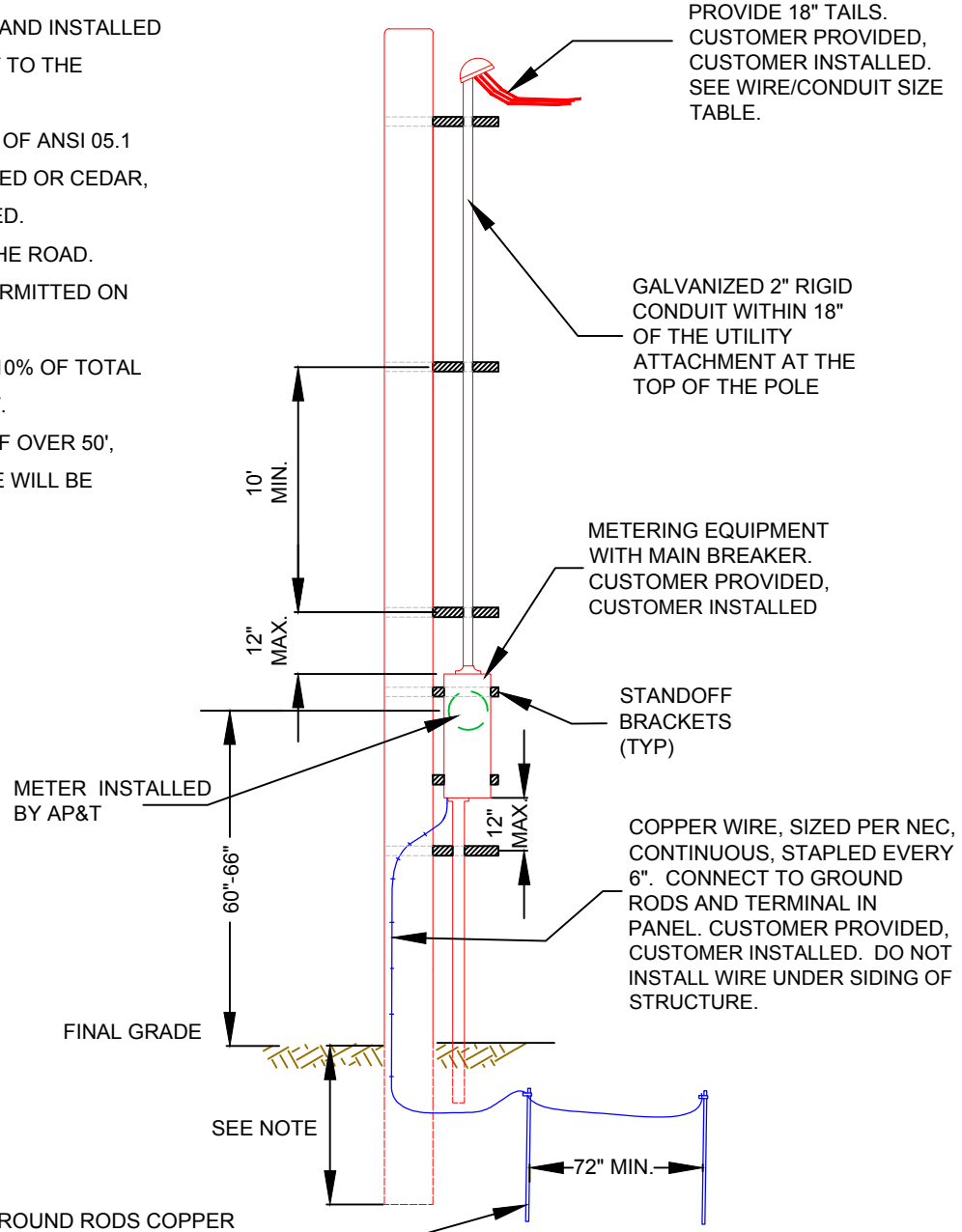
DWG NAME: SS-12

NOTES:

1. POLES MAY BE PROVIDED AND INSTALLED UPON REQUEST AT A COST TO THE CUSTOMER.
2. POLE SHALL BE A MINIMUM OF ANSI 05.1 CLASS 5 PRESSURE TREATED OR CEDAR, CREOSOTE IS NOT ALLOWED.
3. METER MUST BE FACING THE ROAD.
4. METER BASES ARE NOT PERMITTED ON PRIMARY POLES.
5. SET POLE TO A DEPTH OF 10% OF TOTAL POLE LENGTH PLUS 2 FEET.
6. MAX SPAN LENGTH IS 50'. IF OVER 50', AN AP&T OWNED LIFT POLE WILL BE INSTALLED.



METER ORIENTATION



SERVICE SIZE	PHASE WIRE SIZE	NEUTRAL WIRE SIZE	MIN. GRC CONDUIT SIZE
200 amp 120/240 volt only	#2/0 copper	#2/0 copper	2"
100 amp 120/240 volt only	#2 copper	#2 copper	2"

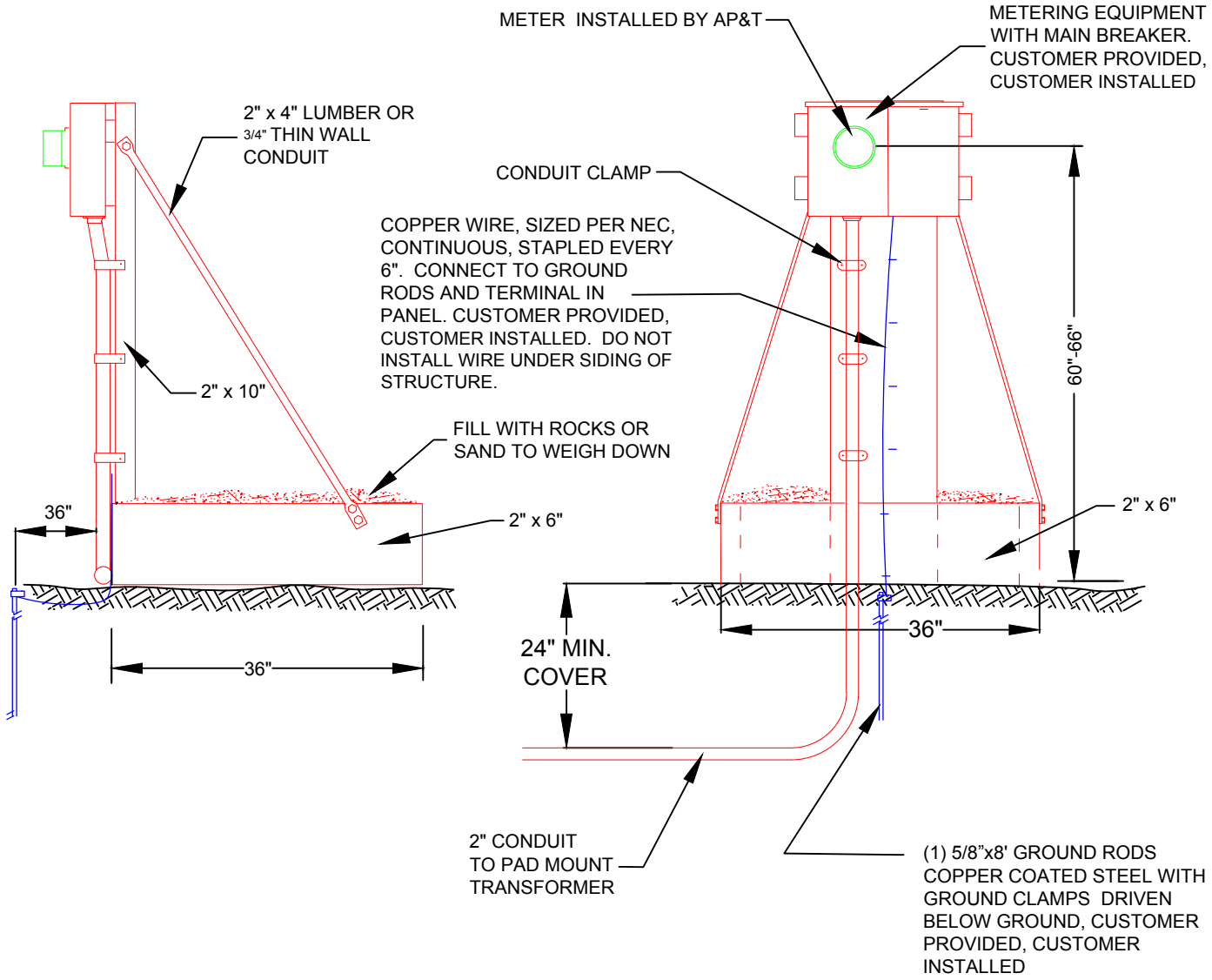
CONDUCTOR SUBSTITUTIONS MAY BE PERMITTED WITH PRIOR APPROVAL. CONTACT YOUR LOCAL AP&T OFFICE.

REV	DISCRIPTION	REV BY	DATE
02	REVISED NOTES 1, 2 & ADDED NOTES 5, 6	BF	04/08/24
01	CHANGED PHASE & NTRL WIRE TO 2/0 CU	BF	04/08/24

OVERHEAD METER BASE POLE MOUNTED 200AMPS OR LESS

SHEET 1 OF 1

DWG NAME: SS-13



NOTES:

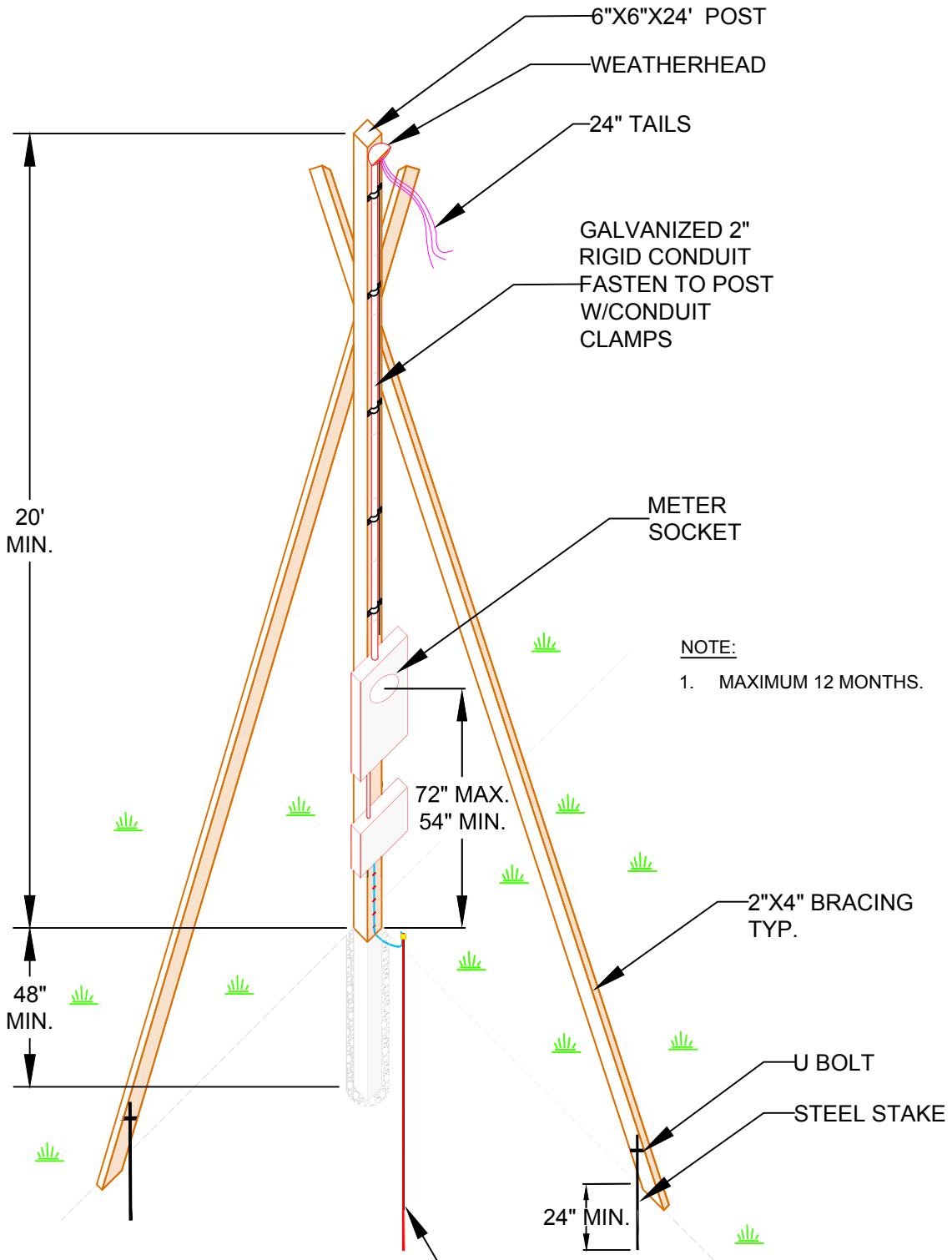
1. SERVICE CONDUCTORS SHALL BE INSTALLED OF ADEQUATE CAPACITY TO MATCH OR EXCEED RATING OF MAIN BREAKER.
2. PLACE THE METER BASE AS CLOSE TO THE PAD MOUNT TRANSFORMER AS POSSIBLE.
3. MAXIMUM 12 MONTHS.
4. CONDUIT MAY NOT BE BURIED PRIOR TO AP&T INSPECTION.

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 4	BF	04/08/24

UNDERGROUND CONST. SERVICE METER BASE 200 AMP OR LESS

SHEET 1 OF 1

DWG NAME: SS-14-UG



NOTE:

1. MAXIMUM 12 MONTHS.

NOTE:

1. ALTERNATE TEMPORARY SERVICE CONFIGURATIONS MAY BE ACCEPTED AS LONG AS IT IS PRE-APPROVED BY AP&T BEFORE CONSTRUCTION STARTS.

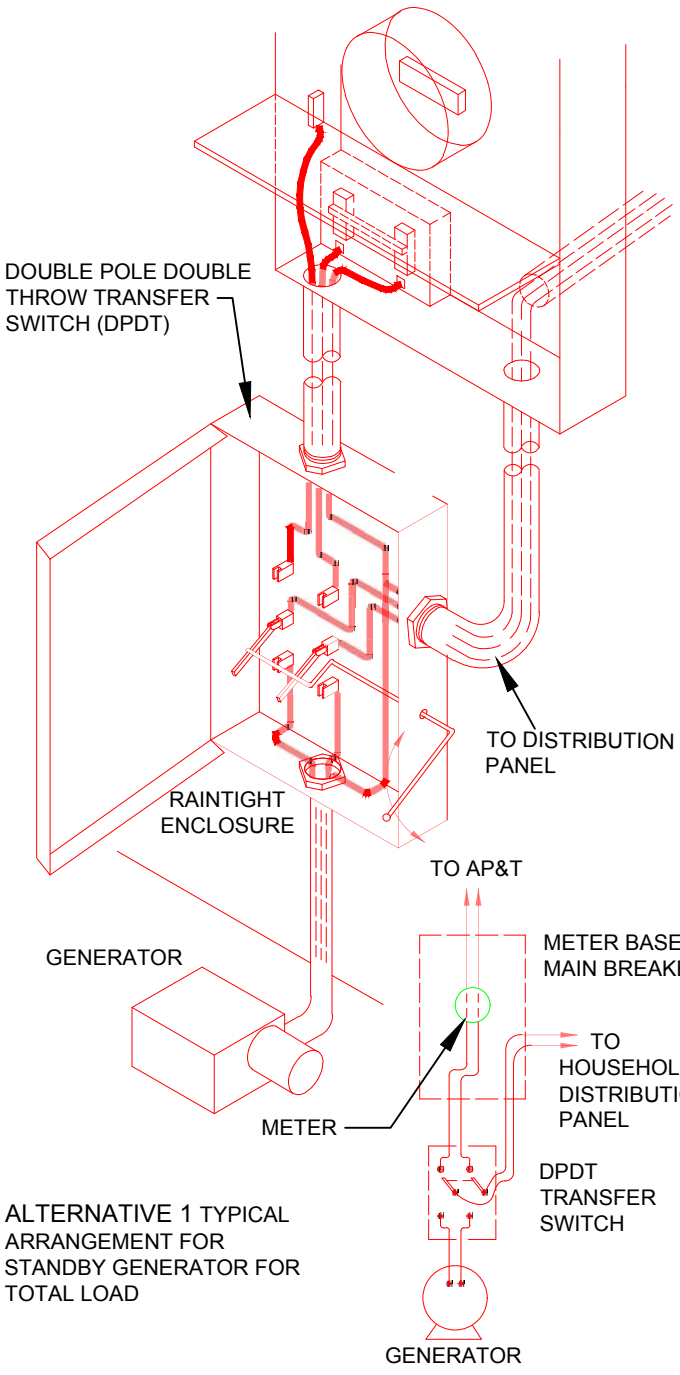
(1) 5/8"x8' GROUND RODS COPPER COATED STEEL WITH GROUND CLAMPS DRIVEN BELOW GROUND, CUSTOMER PROVIDED, CUSTOMER INSTALLED

REV	DISCRIPTION	REV BY	DATE
01	ADDED NOTE 1	BF	04/08/24

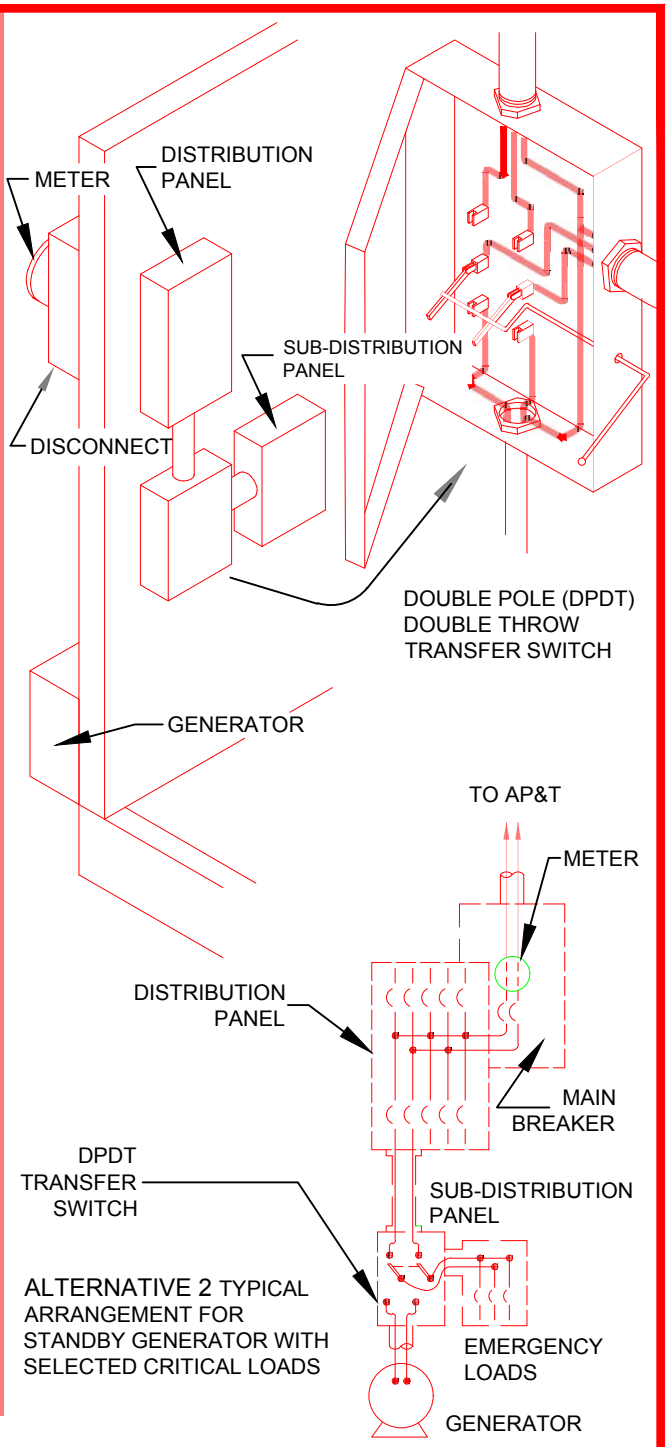
OVERHEAD CONST. SERVICE METER BASE 200 AMP OR LESS

SHEET 1 OF 1

DWG NAME: SS-14-OH



ALTERNATIVE 1 TYPICAL ARRANGEMENT FOR STANDBY GENERATOR FOR TOTAL LOAD



ALTERNATIVE 2 TYPICAL ARRANGEMENT FOR STANDBY GENERATOR WITH SELECTED CRITICAL LOADS

NOTES:

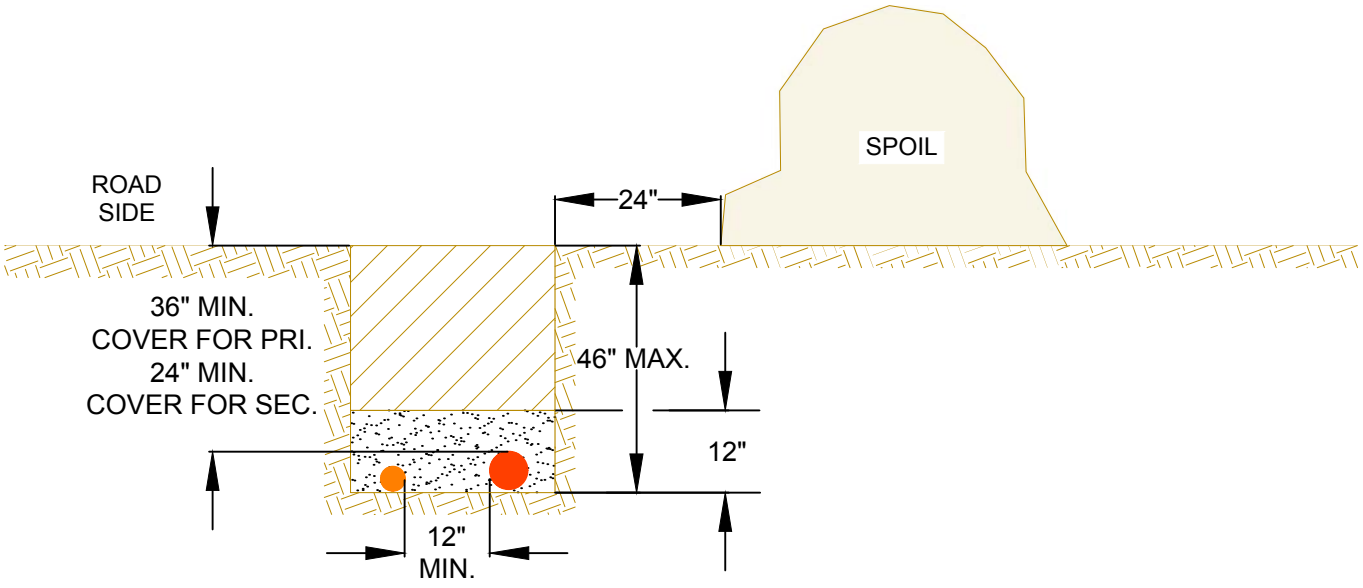
1. ALL TRANSFER SWITCHES MUST BE UL LISTED FOR THE PURPOSE FOR WHICH THEY ARE INSTALLED.
2. TRANSFER SWITCH AND GENERATOR BONDING AND GROUNDING SHALL BE PER THE NATIONAL ELECTRIC CODE. TO ENSURE A PROPER AND SAFE INSTALLATION, AP&T RECOMMENDS THAT GENERATOR TRANSFER SWITCHES ARE INSTALLED BY A LICENSED ELECTRICIAN.

REV	DISCRIPTION	REV BY	DATE

TYPICAL ARRANGEMENT FOR STANDBY GENERATORS

SHEET 1 OF 1

DWG NAME: SS-15



LEGEND

- PRIMARY/SECONDARY CONDUIT
- COMMUNICATION CONDUIT
- BACKFILL
- SELECT BACKFILL
- UNDISTURBED EARTH

NOTES:

1. TRENCH CENTERLINE SHALL FOLLOW THE ALIGNMENT SPECIFIED BY AP&T.
2. ALL CROSSING SHALL PROVIDE A MINIMUM 12" OF CLEAR SEPARATION FROM ANY EXISTING UTILITIES.
3. CLEAN 1" MINUS FOR SELECT BACKFILL. NO BIG ROCKS OR STICKS.
4. BACKFILL BEFORE TRENCH AND CONDUIT INSTALLATION IS INSPECTED BY AP&T IS NOT ALLOWED.
5. CONSULT AP&T IF MINIMUM DEPTHS ARE NOT ABLE TO BE ACHIEVED DUE TO SITE CONDITIONS.

REV	DISCRIPTION	REV BY	DATE

TRENCH DETAIL

SHEET 1 OF 1

DWG NAME: SS-16

UNDERGROUND

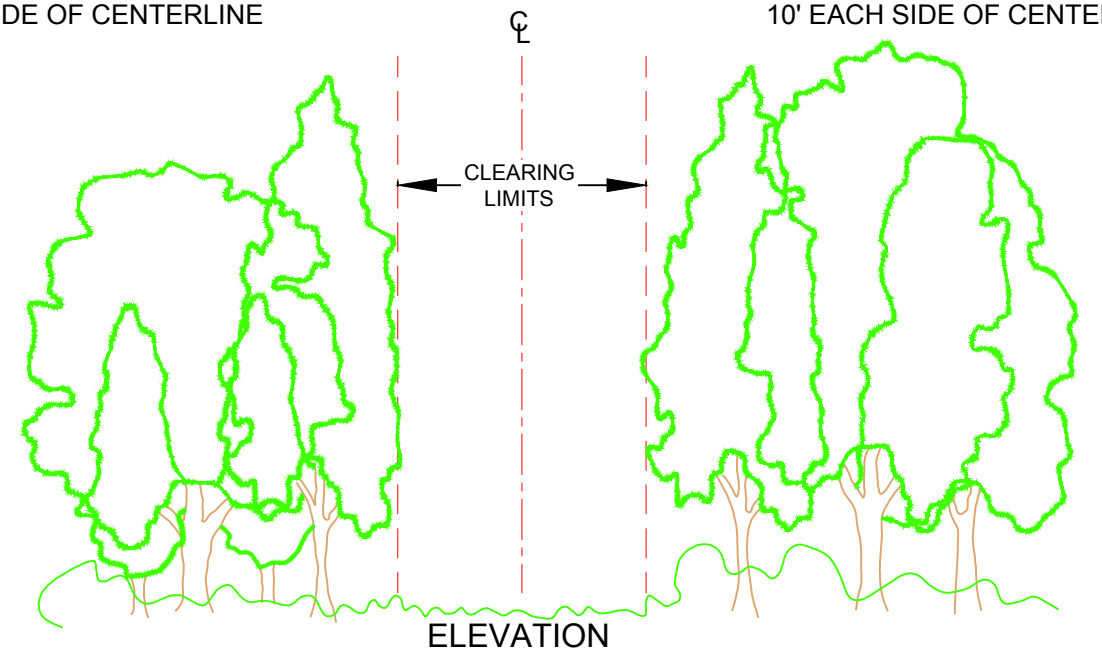
PRIMARY 20' WIDE
10' EACH SIDE OF CENTERLINE

SECONDARY 15' WIDE
7.5' EACH SIDE OF CENTERLINE

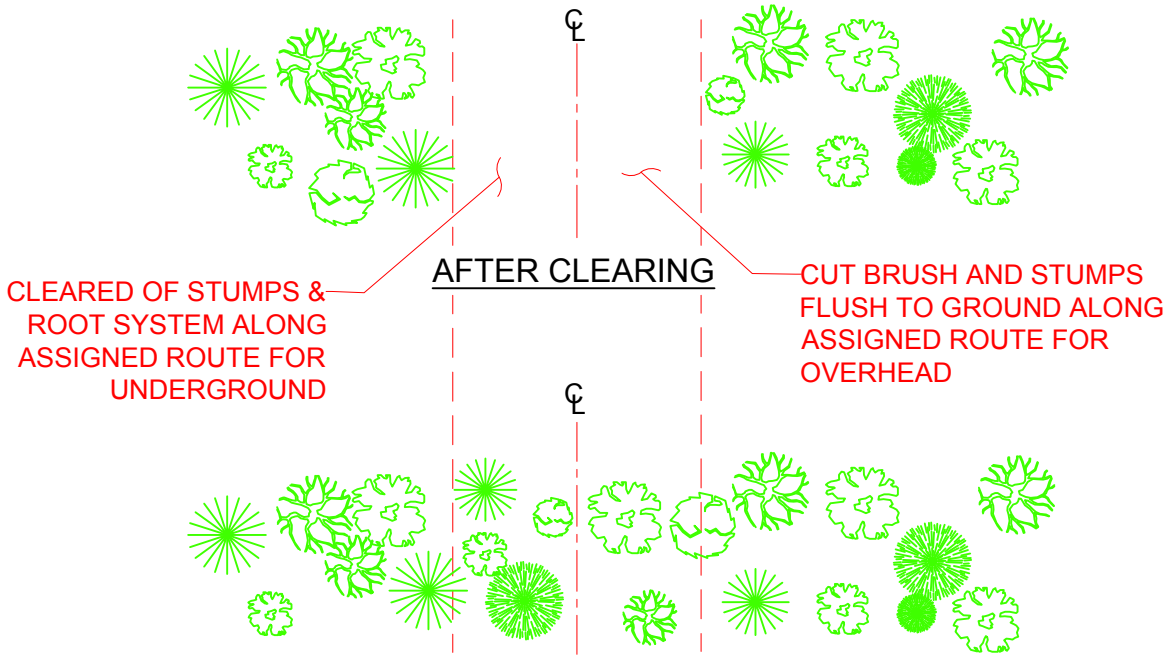
OVERHEAD

PRIMARY 30' WIDE
15' EACH SIDE OF CENTERLINE

SECONDARY 20' WIDE
10' EACH SIDE OF CENTERLINE



ELEVATION



REV	DISCRIPTION	REV BY	DATE

CUSTOMER CLEARING REQUIREMENTS

SHEET 1 OF 1

DWG NAME: SS-17