

PART 2 RULES AND REGULATIONS GOVERNING ELECTRIC SERVICE

2.01 GENERAL SERVICE CONDITIONS

2.01 (a) BWP shall maintain the service conductors from the pole or pullbox to the Customer's point of attachment.

2.01 (b) The service provided will be alternating current at a regulated frequency of 60 Hertz.

2.01 (c) The Customer shall contact Staff well in advance of all new, upgraded, or relocated electrical installations.

2.01 (d) The Customer shall make an appointment to meet with Staff to determine the type of service, point of termination and meter location prior to any work being performed. The Customer shall furnish an electrical load schedule and size of main service at the time of appointment.

2.01 (e) The Customer has the responsibility to determine if the proposed building construction will place BWP's existing electrical facilities in conflict with any federal, state or local codes. The customer will bear the cost of any temporary or permanent relocation of BWP facilities to accommodate the building construction.

2.01 (f) BWP must review its commitments to the Customer for any service installation if more than 12 months have elapsed between the initial meeting [Ref. Section 2.01(d)] and the start of construction.

2.01 (g) If a service is disconnected, BWP will not re-energize it if the Customer's service entrance equipment appears unsafe or is in violation of applicable electrical codes.

2.01 (h) Although there are occasional exceptions, BWP uses the following guidelines for determining required Customer facilities:

Below 750 KW	Radial service from 4.16 kV or 12.47kV system from a pole, riser pole or pullbox. BWP requires on-site transformation for all new three-phase services of 400A and above.
750 KW - 3MW	One looped 12.47 kV feeder or service with primary feeder and a back-up. The Customer can request an alternate source if available. Any service above 750 KW requires a padmount switch. BWP requires two padmount transformers and a bus tie at the low side (277/480) voltage for load higher than 1500 KW.
3 MW - 5 MW	One looped 12.47 kV or 34.5 kV feeder plus a back-up 12.47 kV feeder. BWP requires at least two padmount transformers, a padmount switch and a bus tie at the low side.

5 MW and above	A dedicated 34.5 kV to 12.47 kV or 4.16 kV or 2.5 kV substation, with at least two power transformers and two high side lines. (A special contract between the Customer and BWP may be required to recover the cost of power supply depending upon the nature and magnitude of the load.)
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2.10 PHASE, VOLTAGE AND FREQUENCY SPECIFICATIONS

2.10 (a) BWP offers single-phase, 120/240 volt, three-wire service. BWP also provides power at 240V and 480V, three-phase, three-wire (delta) only for existing services with condition that 120V load cannot be connected to 240V or 480V delta services. For new three-phase services BWP offers:

120/208V	Three-phase, four-wire (wye)
277/480V	Three-phase, four-wire (wye)
2400/4160V	Three-phase, four-wire (grounded wye)
7200/12,470V	Three-phase, four-wire (grounded wye)
34,500V	Three-phase, three-wire (delta)

BWP may modify these voltage and phase specifications at specific locations because of service conditions.

2.10 (b) A separate ground wire is required for 240 volt, three-phase, three-wire installations per the National Electrical Code, Article 250-23, Figure 250-8.

2.10 (c) BWP's system is designed and maintained to provide proper service voltage levels at the Customer's main switch as specified by the American National Standard Institute (ANSI) C84.1. BWP has no control over the Customer's utilization voltage that results from a voltage drop in Customer's wiring or improperly-rated Customer-owned equipment.

2.10 (d) BWP will normally hold actual voltages to within plus-or-minus 5% of their nominal values at the Customer's main switch. The total variation of actual voltages will normally be no greater than 5% of the nominal voltage. Voltages may be outside these limits for the following reasons:

- (1) Service interruption caused by, but not limited to, switching, system disturbances, weather, or earthquakes.
- (2) Infrequent momentary fluctuations of short duration.
- (3) Customers located close to distribution substations may experience voltages up to 5% above nominal in the light load off-peak months; customers located at the end of distribution lines may experience voltages up to 5% below the nominal in the summer due to heavy air-conditioning load in peak months.
- (4) Other conditions beyond the control of BWP.

2.10 (e) All Customer-owned equipment must be designed and rated in accordance with the utilization voltages specified by the American National Standard Institute (ANSI) C84.1 in order to perform satisfactorily.

2.10 (f) BWP will do every effort to provide a reliable service without interruptions, but will not guarantee power with 100% reliability. Critical loads and customers on life support equipment should have battery back-up, take appropriate precautions, and make appropriate arrangements to ensure their continued comfort should service be interrupted. In the event of a major earthquake or a natural disaster, BWP cannot guarantee restored power within 4 hours to critical loads and customers on respirators.

2.10 (g) Although BWP will make every effort to provide Customers with quality power, BWP makes no guarantees that its quality of service will not affect equipment especially sensitive to voltage fluctuations, such as computers and computer-controlled devices. Customers who do not choose to provide their own surge suppression and power filtering for sensitive equipment do so at their own risk. BWP personnel will work with Customers to resolve any power quality problems brought to its attention.

2.10 (h) BWP normally holds its system frequency very close to 60 Hertz (within 59.95 and 60.05) but it could go out of these limits for the following reasons:

- (1) A sudden loss of on-site or off-site generation causing a frequency deviation.
- (2) Any large disturbance on the Western Electric Coordinating Council (WECC) system which may cause a momentary frequency dip.
- (3) Conditions beyond the control of BWP.

2.11 SINGLE-PHASE SERVICE

2.11 (a) BWP supplies single-phase service 120/240 volts through three wires. Single-phase loads shall be balanced between the two phase legs of the service with respect to the neutral wire.

2.11 (b) Single-phase loads with a service switch capacity of 400 amperes or less, and a voltage of 240 volts or less, normally will be supplied through one main meter. Where such switch is in excess of 400 amperes, Staff shall be consulted regarding metering requirements and related facilities, including switches and circuits.

2.11 (c) Each main switch must have its own individual service termination or pullbox.

2.12 THREE-PHASE SERVICE

2.12 (a) BWP shall not be required to supply three-phase service in any residential district. But BWP will make every effort to provide three-phase service at customer's expense provided it is practical and economical for the customer to pay for it.

2.12 (b) BWP may supply three-phase service in residential areas if field conditions warrant.

Conditions of such service will be reviewed on a case by case basis. Loads supplied from such service shall be reasonably balanced across all phases.

2.12 (c) For services of more than 400 amperes, BWP supplies the following voltages where the type, size of load and area so warrant:

- (1) Three-phase, four-wire 120/208 volt service
- (2) Three-phase, four-wire 277/480 volt service

Loads supplied from such services shall be balanced across all phases.

2.12 (d) Customers requesting three-phase service in areas where it is not normally available may have to pay the cost of providing the two additional phases, as determined by BWP.

2.12 (e) All elevators should be serviced from three-phase service. In the areas where three-phases are not available, customer will pay for bringing the additional two phases to the project site.

2.13 PRIMARY SERVICE

2.13 (a) BWP may supply service at primary voltages of 2400/4160Y, 7200/12, 470Y, or 34,500 delta only if Staff determines that the size and character of loads so warrant and meet the following requirements:

- (1) The Customer has qualified staff on board to properly operate and maintain high voltage equipment.
- (2) BWP will not be obligated to repair or replace customer-owned equipment, or to supply spare parts of equipment owned, operated and maintained by the Customer. BWP will make every effort to provide assistance, but will not be responsible for any delays in the restoration of a Customer's service caused by customer-owned equipment.

2.13 (b) In areas served by a primary voltage of 7200/12, 470Y, 2400/4160Y shall not be available as a primary voltage for new Customers. For existing Customers, 2400/4160Y may be available if:

- (1) BWP desires to convert the existing Customer from 2400/4160Y primary service to 7200/12, 470Y primary service for BWP's own benefit,
- (2) Rather than replace Customer's existing switchgear with 7200/12, 470Y switchgear, the Customer is willing to devote land for a padmounted air-break switch and at least one 12, 470/4160V-padmount transformer.

Under these conditions the installation of the switches and transformers shall be at BWP's own expense.

2.13 (c) Customers applying for primary service must have on file with BWP a schedule for maintenance of all high voltage equipment. Customers shall include the name and phone number of the person in charge of electrical facilities for the property, the company contracted to perform the periodic maintenance, and the frequency that the high voltage circuit breakers and oil-filled transformers are checked and maintained.

2.13 (d) Metering for primary service Customers shall be installed on the primary side of the customer’s transformer using EUSERC drawing 401 or the latest related drawing and be hot sequence. There shall be 8 feet of clear working space in front of the terminating compartment.

2.13 (e) Metering for 34,500 Volt services shall be installed on the secondary side. The customer will be required to provide BWP with the certified transformer loss report so that the meter can be programmed to register the losses.

2.14 LIGHTING LOADS

2.14 (a) Lighting loads shall normally be supplied through three wires at 120/240 volts or four wires at 120/208 volts.

2.14 (b) Neon lamps, mercury vapor, gaseous tube and similar lighting units shall have a power factor of at least 90%.

2.15 SINGLE-PHASE MOTOR LOADS

2.15 (a) Motor loads of 1 hp or less shall be connected to a single-phase service and may be served at 120 volts.

2.15 (b) Aggregate motor loads between 1 hp and 5 hp shall be connected to a single-phase 240-volt service.

2.15 (c) Aggregate loads between 5 hp and 10 hp shall be connected to either single-phase 240 volt or three-phase service.

2.15 (d) In areas where BWP does not maintain three-phase secondary mains, BWP will supply only single-phase service unless the applicant's load includes at least one motor rated in excess of 10 hp. The Customer shall bear the entire cost of bringing three-phase power to Customer’s facility.

2.15 (e) The starting current drawn from BWP's lines shall be considered the nameplate locked rotor current or that guaranteed by the manufacturer.

2.15 (f) If the starting current for a single-phase motor exceeds the value stated in Table 1, reduced voltage starting or other suitable means must be employed at the Customer's expense to limit the current to the value specified. Specific exceptions are provided in Sections 2.15(g) and (h).

Table 1 - Alternating Current, Single-Phase Motors Allowable Locked Rotor Currents		
Rated Size	At 120 Volts	At 240 Volts
1 hp or less	50 amperes	36 amperes
1.5 hp	-	48 amperes
2 hp	-	60 amperes
3 hp	-	80 amperes
5 hp	-	120 amperes
7.5 hp	-	170 amperes
10 hp	-	220 amperes

Motors connected to a single-phase service should not have a locked rotor current of more than 220

amperes.

2.15 (g) BWP may at any time require starting current values lower than set forth in Table 1 where conditions at any point on its system require such reduction to avoid interference with service.

2.15 (h) Reduced voltage starters may be omitted on any motor of a group installation provided that its starting current does not exceed the allowable starting current of the largest motor of the group.

2.16 THREE-PHASE MOTOR LOADS

2.16 (a) Individual motors exceeding 10 hp and aggregate motor loads exceeding 10 hp shall be connected to a three-phase service.

2.16 (b) Three-phase service at 277/480 volts may be supplied for motor installation where aggregate load including other power is 65 hp or greater. In general such service will be furnished only in localities zoned for major industries and BWP may not be required to continue service at such voltage if the load is reduced below 25 hp.

2.16 (c) The starting current drawn from the utility's lines shall be considered the nameplate locked rotor current or that guaranteed by the manufacturer.

2.16 (d) If the starting current for a three-phase motor exceeds the value stated in Table 2, reduced voltage starting or other suitable means must be employed at the Customer's expense. This will limit the current to the value specified, except where specific exemptions are provided in Section 2.16(f) and (g).

Table 2 - Alternating Current, Three-Phase Motors Allowable Locked Rotor Currents			
Rated Size	240 Volts	480 Volts	2400 Volts
3 hp	64 Amps	32 Amps	
5 hp	92 Amps	46 Amps	
7.5 hp	127 Amps	63 Amps	
10 hp	162 Amps	81 Amps	
15 hp	232 Amps	116 Amps	
20 hp	290 Amps	145 Amps	
25 hp	365 Amps	183 Amps	
30 hp	435 Amps	218 Amps	
40 hp	580 Amps	290 Amps	
50 hp	725 Amps	363 Amps	79 Amps
60 hp		435 Amps	87 Amps
75 hp		535 Amps	107 Amps
100 hp		725 Amps	142 Amps

For ratings of over 100 hp, BWP shall be consulted for allowable locked rotor currents.

2.16 (e) BWP shall require in rush, flicker and voltage calculations or volt-drop calculation to verify that Customer's motors will meet ANSI/IEEE Std. 141-1986, or latest revision, when starting. (See Appendix "B")

2.16 (f) BWP may at any time require starting current values lower than set forth in Table 2 where conditions at any point on its system require such reduction to avoid interference with service.

2.16 (g) Reduced voltage starters may be omitted on any motor of a group installation provided that its starting current does not exceed the allowable starting current of the largest motor of the group.

2.16 (h) Consistent with ANSI C.84.1, BWP will limit the maximum voltage phase unbalance to three percent when measured at the BWP meter under no-load conditions. (See Appendix "C")

2.17 MOTOR PROTECTION

2.17 (a) Motors that cannot be safely subjected to full rated voltage on starting, or that drive machinery of such a nature that the machinery itself or the product it handles will not permit the motor to resume normal speed upon the restoration of normal supply voltage, shall be equipped with devices that will disconnect them from the line upon failure of supply voltage, and that will prevent the automatic reconnection of the motors upon restoration of normal supply voltage.

2.17 (b) All motors of 1 hp or larger shall be equipped with thermal relays, fuses or other automatic overcurrent interrupting devices.

2.17 (c) Three-phase motors driving elevators, hoists, tramways, cranes, conveyors, or other equipment that would be unsafe under an uncontrolled reversal of motor rotation, shall be provided with reverse-phase and open-phase protection to disconnect completely the motors from the line in the event of phase reversal or loss of one phase.

2.17 (d) The Customer is responsible for providing inrush calculations and voltage drop flicker calculations for large motors (100 hp and above for 277/480 volt and 150 hp and above for 4,160 volt) to prevent any interference with the service.

2.17 (e) In the areas where BWP utilizes automatic reclosing, BWP will not be liable and responsible for any damages caused by automatic reclosing.

2.20 INTERFERENCE WITH SERVICE

2.20 (a) Customers who operate equipment which causes detrimental voltage fluctuations including, but not limited to, hoists, welders, x-ray apparatus, radio transmitters, elevator motors, compressors and furnaces must reasonably limit such fluctuations upon request by BWP. The Customer will be required to comply with the necessary corrective measures.

2.20 (b) Separate services are required for x-ray units over 5 kVA, welder units over 3 kVA, radio transmitters and resistance welders.

2.20 (c) The normal time interval of 15 minutes used for measured billing may be shortened and billed at a flat rate for meters serving x-rays or other intermittent loads.

2.20 (d) For arc furnace installations less than 100 kVA single-phase or 300 kVA three-phase, BWP may furnish energy at 240 or 480 volts, providing the Customer permanently installs suitable equipment that limits secondary short circuit current values to 300% of full load value.

2.20 (e) For arc furnace installations in excess of 100 kVA single-phase, or 300 kVA three-phase, BWP may require the Customers to provide, at their own expense, special furnace-type transformers and reactors that limit secondary short-circuit current values to 300% of full load value. In these cases, BWP shall furnish service at 12,470 volts or 34,500 volts.

2.21 POWER FACTOR

BWP encourages Customers to maintain a power factor of at least 90%. (Refer to Part 3, Section 3.18(g) for specific power factor rate penalties and credits.) For loads larger than 250 kW, BWP may require a power factor correction higher than 90%.

2.22 WAVEFORM AND POWER QUALITY

BWP may require that the waveform of the current drawn by Customer's equipment conform to the latest IEEE Standard 519. The magnitude of the harmonics, both voltage and current, shall also be limited as specified by this standard. BWP may require Customers to improve their power quality if it affects other Customers served from the same distribution line or service panel. (See Appendix "A")

2.23 ELECTROMAGNETIC FIELDS (EMF'S)

BWP will take EMF reads as requested by the Customer, and will follow the latest California Public Utilities Commission (CPUC), State, Local and Federal rules and regulations regarding this issue. BWP will design its new facilities to minimize EMF's based on SCE or CPUC guidelines.

2.24 STANDBY SERVICE

BWP will allow standby service or the use of an automatic transfer system for critical loads at the customer's expense. BWP shall approve the proposed standby service before installation.

2.26 TEMPORARY POWER AND LIGHT SERVICE

2.26 (a) BWP may remove temporary power installations after two years of service, unless special arrangements are made with BWP at the time the Customer applies for service.

2.26 (b) The Customer shall be required to furnish and install, at their own expense, a suitable pole or other adequate supporting structure to which BWP can make its service attachment. The Customer shall also be required to furnish and install associated metering equipment.

2.26 (c) The maximum span of overhead service drop wires shall be 75 feet, except as permitted by BWP.

2.26 (d) The Customer shall not use step-up or boost transformers without BWP's approval.

2.26 (e) BWP reserves the right to discontinue service without notice whenever in its opinion:

- (1) Service is no longer temporary in character.
- (2) Service is used without the protection of approved current-limiting devices.
- (3) Service is used for unauthorized purposes.
- (4) It is not safe to operate.
- (5) Service is no longer needed.

2.26 (f) BWP will not energize any panel, nor set any permanent meters in any meter group until the Contractor has removed all temporary power backfeeds, if any, from the building(s) to be energized.

2.26 (g) A flat charge will apply as an Aid-In-Construction fee for straight overhead services where transformer capacity is available.

2.26 (h) Where temporary facilities need to be installed and removed, up and down charges will apply. Contact BWP for estimate.

2.26 (i) Temporary power at 120/208 or 277/480 volts shall require an on-site padmount transformer. Aid-In-Construction charges will apply, similar to a permanent service. Upon completion of the project, the transformer charges will be prorated and the remaining money will be refunded to the Customer. Contact BWP for estimate.

2.26 (j) Other conditions of service shall be in accordance with these Rules and Regulations.

2.30 GENERAL OVERHEAD SERVICE REQUIREMENTS

2.30 (a) New service locations shall be obtained by contacting Staff and obtaining a Confirmation of Electric Service form before any work is started. Any change in service location also requires BWP's prior approval.

2.30 (b) Overhead service shall not be supplied to any building or premises, regardless of panel size, if the field conditions are such that it is not feasible or practical.

2.30 (c) Overhead service will not be provided to any Customer:

- (1) Having a single-phase panel of more than 400 amps.
- (2) Having a multi-dwelling building of ten units or more.
- (3) Having a three-phase panel of more than 200 amps.
- (4) Having commercial/industrial space of 10,000-sq. ft. or above.

- (5) With a service attachment higher than 23 feet above the final exterior building grade.

For multi-dwelling buildings any service for 120/208 or 277/480 volt shall require onsite transformation, depending on the field conditions.

2.30 (d) All multiple meter installations with six or more meters fed from overhead facilities are required to have a fused main disconnect or main circuit breaker ahead of all meters.

2.30 (e) Aid-In-Construction charges will apply to all Commercial Customers irrespective of the size of the panel. Residential Customers above 400 amps, multiple residential dwellings, and for special underground residential tracks.

2.31 OVERHEAD SERVICE DROPS

2.31 (a) BWP will furnish and install service drop wires from a pole to an approved permanent support (service head/or rack) on the Customer's premises. This support shall be of a type and so located that the wires can be installed in compliance with all applicable laws, including the overhead clearances established by General Order (G.O.) 95 of the California Public Utilities Commission and the National Electrical Code (NEC).

2.31 (b) BWP will not install more than one service drop having the same voltage and phase classification for any one building or group of buildings on a single premise. Separate services will be installed only where required by law or for BWP's operating convenience.

2.31 (c) The maximum length of the service drop wires shall not exceed 100 feet (75 feet for temporary construction power pole) except as permitted by BWP.

2.31 (d) The Contractor shall provide any additional anchorage adjacent to the service head which will permit installation of the service drops in accordance with G.O. 95 or Title 24 of the State Building Code as determined necessary by BWP.

2.32 SERVICE HEAD LOCATION

2.32 (a) Service heads shall be located on or recessed in exterior walls of structures so that only one point of attachment is required for the service drop.

2.32 (b) Service heads for single-phase and three-phase services should be located as close together as possible near the point of attachment.

2.32 (c) Service heads shall be located at the closest and most practical point nearest the utility pole from which service is to be supplied.

2.32 (d) No service head, nor point of attachment, shall be located more than 23 feet above the final exterior building grade.

2.32 (e) Service heads shall not be located on any walls or building members, which face and are less than three feet from a common property line.

2.32 (f) A minimum three-foot radial clearance shall be maintained from windows, doors and roof access ladders, to service drops and their point of attachment.

2.33 SERVICE HEADS AND ATTACHMENTS ON BUILDINGS OR STRUCTURES

2.33 (a) All standard service head installations shall be in accordance with Department drawings S-401, S-402 and S-709, latest revision.

2.33 (b) Where a service bracket or support structure is necessary to maintain the required service drop clearances, it shall be installed and properly maintained at the expense of the Customer.

2.33 (c) The service entrance conduit, or "periscope" between the service section/panel and the service head shall be one continuous conduit with no couplings unless otherwise approved by BWP.

2.33 (d) Minimum periscope size shall be 1½ inches in diameter where the service conductor attachment is less than 40 inches above the roof flashing or last support. Higher periscopes may require larger conduits or a back brace in accordance with Department drawing S-401, latest revision.

2.33 (e) Periscope material must be rigid steel conduit (G.S.C. or G.I.P.) and may not be intermediate conduit.

2.34 OVERHEAD CLEARANCES

2.34 (a) Electric service terminations on new building construction and existing building modifications shall be located so the service drop will not pass over any part of a swimming pool or less than 18 feet measured radially from the water's edge. Customers installing swimming pools will have to relocate service terminations in order to comply with these regulations. Pools shall not be installed under a utility pole line or within five feet measured horizontally from the drip line of the closest conductor on the pole.

2.34 (b) No open patios or balconies shall be erected underneath any high-voltage overhead conductor regardless of vertical clearance.

2.34 (c) In cases where service drop conductors must be relocated to provide legal clearances above or along side new structures, trees or other objects on a Customer's premises for their sole benefit, the Customer shall provide, at their expense, a new service location satisfactory to BWP, and shall pay all costs incurred by BWP.

2.35 OVERHEAD SERVICE ENTRANCE CONDUCTORS

2.35 (a) For each overhead service connection, Customers shall furnish at their own expense, a set of service entrance conductors which shall extend from the point of attachment of the BWP's service drop to the main service. Such service entrance conductors shall be of a type, size and be in an enclosure, which shall be in accordance with the National Electrical Code requirements.

2.35 (b) The minimum size service entrance conductors installed in the service conduit riser shall be in accordance with the National Electrical Code requirements.

2.35 (c) Service entrance conductors shall not pass through condulets because they are not sealable.

2.40 GENERAL LOW VOLTAGE UNDERGROUND SERVICE REQUIREMENTS

2.40 (a) All new service equipment locations must have prior approval of BWP before any work is started. Any change in service location also requires prior approval of BWP.

2.40 (b) BWP will not install more than one service for the same voltage and phase classification for any one building or group of buildings on single premises except where required by law or for the operating convenience of BWP.

2.40(c) Separate service conduits will be required for single-phase and three-phase services.

2.40 (d) All multiple meter installations with six or more meters fed from underground facilities are required to have a fused main disconnect or main circuit breaker ahead of all meters.

2.40 (e) Aid-In-Construction charges will apply to all Commercial Customers irrespective of the size of the panel, Residential Customers above 400 amps, multiple residential dwellings, and for special underground residential tracts.

2.41 UNDERGROUND SECONDARY INSTALLATION

2.41 (a) A plot plan and a detailed load schedule must be furnished to BWP for conduit design on all but single-family residential services.

2.41 (b) For single-family residential services 400 amps or less, the size of the service conduit shall be 3" minimum.

2.41 (c) The Customer will be responsible for installing underground conduits from the pullsection in the panel to a point 10 feet above the coupling on the riser pole, including any pullboxes. Underground service must rise at the location provided by BWP. Any substructure installed prior to BWP completing field work (including installation of stand-offs on the riser pole) may need to be moved at the owner's expense. See BWP drawings S-706 and S-707 latest revision.

2.41 (d) BWP will install all conduits on the pole from 10 feet above coupling to the secondary level on the pole.

2.41 (e) Underground service conduit, shall be installed at least 24" below finished grade.

2.41 (f) The bottom of the trench shall be smooth and level so that the conduits will not be deformed or broken when the trench is backfilled.

2.41 (g) When underground service conduit is on private property, it may be direct buried provided that:

- (1) The conduit is type DB and at least PVC Schedule 40.
- (2) Non-metallic conduit is installed in soil at least 90% compacted.
- (3) For up to 200 amps commercial and residential service and for 400 amps single family residential service the conduit could be direct buried.

Otherwise, the conduit shall be encased in a 3" concrete envelope consisting of a 3 ½ sack mix (red dye is not required) and shall be secured with spacers to ensure conduits will not float and will maintain 1 ½" spacing between conduits while concrete is poured.

2.41 (h) When underground service conduit is installed in a public right-of-way, it shall be at least concrete encased.

2.41 (i) All plastic conduits must be labeled and installed so that the label is in clear view of the inspector.

2.41 (j) Joints shall be tightly fitted and butted. No deflection in the conduit run will be permitted by loose fitting or forcing of conduit couplings. Plastic conduit joints must be cement-welded.

2.41 (k) The contractor shall do all grounding work in accordance with the latest revised BWP drawings. Ground rods are required at each end of a metallic conduit run.

2.41 (l) All conduits encased in concrete shall be mandrelled in the presence of the BWP inspector.

2.41 (m) A ¼ inch nylon pull cord or its equivalent must be provided in each completed conduit and must be secured at both ends.

2.42 SECONDARY POLE RISERS AND BENDS

2.42 (a) Staff shall designate the pole riser quadrant in the field prior to installation.

2.42 (b) One ten-foot length of conduit shall be installed on stand-offs installed by BWP on the pole for each required riser.

2.42 (c) Riser pole bends and conduit extensions which rise on poles in alleys or areas subject to vehicular traffic shall be minimum Schedule 80 PVC or rigid steel.

2.42 (d) For conduit not exceeding four inches in diameter, the minimum bend radius shall be three feet. For conduit exceeding four inches in diameter, the minimum radius shall be four feet.

2.42 (e) There shall not be more than the equivalent of two 90-degree bends in any one run of service conduit. BWP will require the installation of pullboxes in any run where the number of bends would otherwise exceed two.

2.42 (f) An isolated section of steel conduits installed in a nonmetallic conduit run is not permitted, except at pole riser terminations and areas where conditions prohibit the use of nonmetallic conduit.

2.42 (g) Riser and conduit shall be installed per BWP drawings S-706 and S-707.

2.43 SECONDARY SERVICE CONDUCTORS

Secondary service conductors shall be installed and terminated by BWP, except in case of on-site transformation. The Customer will be charged for the cost of material and installation as Aid-In-Construction.

2.45 TERMINATING PULLSECTIONS AT SERVICE ENTRANCE EQUIPMENT

2.45 (a) BWP will only accept pullboxes, pullsections and cable terminations that conform to the requirements of the Electric Utility Service Equipment Requirements Committee (EUSERC) as specified in the following EUSERC drawings:

Drawing 301	Single family residential underground combination metering.
Drawing 302A & 302B	400 Amp residential meter panel.
Drawing 342	Pullbox with cable terminating facilities for residential multiple-occupancy service.
Drawing 343, 343A & 344	Underground pullboxes (for cases not covered by Drawings 301 and 342).
Drawing 345 – 347	Cable terminating facilities in underground pullboxes or pullsections (for cases not covered by Drawings 301 and 342).

2.45 (b) All terminating pullboxes shall be readily and permanently accessible to BWP's employees for installation and maintenance of service conductors. Access must be through walking space acceptable to BWP, at least seven feet high and three feet wide.

2.45 (c) All terminating pullboxes and meter sections shall be located outside the building at a point designated by BWP, or in a meter room accessible from outside the building through one door. (Ref. Section 2.63)

2.45 (d) Minimum clear unobstructed working space directly in front of any terminating pullbox shall be a minimum of three feet wide, three feet deep and seven feet high measured from the level standing surface.

2.45 (e) Bottoms of terminating pullboxes shall not be less than six inches or more than five feet above standing work surface, and shall not extend over any driveway, walk or public way.

2.45 (f) Terminating pullboxes in an exposed location shall be weatherproof.

2.45 (g) When the service conduit enters the end of a terminating pullbox, the opposite end shall not be less than two feet from a wall, ceiling, or other obstruction. An obstruction is any projection that extends more than the depth of the box, extending from the surface on which the box is

mounted.

2.45 (h) Service entrance conductors shall not pass through or under a building, unless in a conduit encased with a three-inch envelope of concrete.

2.45 (i) When the Customer desires to lock the access to the service entrance equipment, the Customer must provide a key which will be kept in a lock box installed by BWP.

2.46 TERMINATING PULLBOXES

2.46 (a) All terminating pullboxes shall be sized per EUSERC Drawing 343, have landing lugs per EUSERC Drawing 347, and sealable covers.

2.46 (b) Service conduits shall normally enter a terminating pullbox from the bottom. BWP may require larger pullboxes in installations where conduits enter from the back or side.

2.46 (c) Where multiple meters are grouped at single location, only one service wiring raceway or bus shall leave the terminating enclosure.

2.46 (d) Where more than one terminating pullsection or group of meters is installed on a premise, each pullbox or service raceway shall be permanently identified to indicate the portion of the premises or building being served.

2.46 (e) If, subsequent to initial installation, additional metering equipment becomes necessary, consult BWP for requirements.

2.46 (f) The main service disconnect switches must be located immediately adjacent to the meter(s), and may not be separated by any walls or other partitions.

2.47 UNDERGROUND SERVICE PEDESTALS

2.47 (a) Underground Service Pedestals may be used only when approved by BWP for a specific location.

2.47 (b) The approximate size of pedestals shall be 12 inches by 14 inches by 48 inches in height. Mobile home type pedestals will not be accepted.

2.47 (c) The base must be mounted on a concrete slab.

2.47 (d) At least 3 feet of clearance must be maintained on all sides of the pedestal.

2.50 TRANSFORMER FACILITIES ON CUSTOMER'S PREMISES

2.50 (a) BWP will require on-site transformation facilities if a requested single-phase service is

more than 400 amperes, a three-phase service is more than 200 amperes, a multi-residential project is 10 units or more, a commercial/industrial project is 10,000 sq. ft. and larger, or a voltage other than 120/240 volt single-phase or 240 volts three-phase is requested. The facilities will be in the form of a padmount transformer.

2.50 (b) In Burbank Redevelopment Agency areas, underground service and on-site transformation may be required although the load may be less than specified in 2.50(a).

2.50 (c) Developers/Customers shall meet with BWP early in the design stage of a project in order to determine the type and location of the on-site transformer, pullbox, associated conduits and terminating facilities.

2.50 (d) BWP will make every effort in the Development Review process, or EIR, to provide as much information as possible about the facilities needed to serve a particular development, but BWP comments may be changed due to a change in the magnitude or nature of proposed development.

2.50 (e) After receiving a final set of project drawings, including a detailed electrical load schedule, BWP will issue a drawing that specifies the divisions of responsibility between the Contractor and the City pertaining to the electrical installation.

2.50 (f) BWP may furnish the labor, material and equipment at the Customer's expense for the following:

- (1) Transformers
- (2) Primary service cable to the Customer transformer facilities
- (3) New riser pole and remaining conduit up the riser pole*
- (4) Primary protective devices and primary cable support structures within the vault or customer station
- (5) Secondary service conductors from the transformer secondary terminals to the bus stubs where the Customer provides a bus duct type service in vaults or customer stations
- (6) Padmount switch where transformer capacity needed is above 500 KVA
- (7) Metering devices
- (8) Labor and equipment to install the above
- (9) Field services and inspection
- (10) Engineering-Construction drawings

* The cost of the riser pole may be shared if BWP is convinced that replacement benefits the whole area.

2.50 (g) BWP must have unobstructed ingress and egress at all times in order to service transformers. No structures, obstructions, future structural changes or building modifications are to be placed on, over, adjacent to or in front of any transformer pad, vault or enclosure.

2.50 (h) Any on-site transformer facility design that has not been installed within one year of approval must be reviewed by BWP prior to construction to verify that service requirements have

not changed.

2.52 PADMOUNTED TRANSFORMER AND SWITCH INSTALLATIONS

2.52 (a) For three-phase transformer installations the Customer is required to install either a 6-foot x 8-foot 6-inch x 6-inch or 8-foot x 10-foot x 6-inch reinforced concrete pad as dictated by BWP with a 4-foot x 7-foot vault below the pad. A 5-foot minimum working clearance is required directly in front of the pad (8-feet in front of a transformer) and three-foot minimum from both sides and back. Vertical clearance must be 14' minimum from the transformer pad level. Details can be found on BWP Drawings S-330 and S-723.

2.52 (b) Padmount switches shall rest on a 10-foot 6-inch x 7-foot x 8-inch reinforced concrete pad with an 8-foot 6-inch x 5-foot vault below the pad. A 5-foot minimum working clearance is required directly in front of a switch pad; an 8-foot minimum working clearance is required directly in the back of the pad and a 3-foot minimum from both sides. Vertical clearance must be 14' minimum from the switch pad level. See BWP Drawing S-462. A minimum 25-foot x 15-foot easement for each padmount switch and a 5-foot wide easement for the underground duct system from the property line to each switch will be required. An exact amount of space for the recorded easement will be determined after the design is complete. The developer/property owner's surveyor will provide a legal description of the easement which will be reviewed by BWP and then processed by the Community Development Department (contact 818-238-5250 for recording). For padmount switch/transformer pad required clearances and orientation see BWP drawings S-600 through S-606.

2.52 (c) For single-phase transformer installations, the Customer must install a 54-inch x 48-inch x 4-inch reinforced concrete pad with 2-foot x 3-foot pullbox without a base below the pad. The Customer must also install a 3-foot x 4-foot x 4-inch maintenance pad in front of the transformer pad. An 8-foot minimum working clearance is required directly in front of the pad and a 2-foot minimum from both sides and back. Vertical clearance must be 12' minimum from the transformer pad level. See BWP Drawing S-464.

2.52 (d) The Customer must install protective barrier posts around any transformer pad or switch installation that is subject to vehicular traffic or as deemed necessary by BWP. See BWP Drawing S-458.

2.52 (e) The Customer must do all grounding work at the transformer pad and/or switchpad as detailed on the drawings referenced above. For riser poles and pullbox grounding requirements, see BWP Drawings S-460, S-461, S-615, and S-670.

2.52 (f) All padmount equipment shall be at grade level unless agreed by BWP and easily accessible for BWP personnel for routine maintenance and crane access.

2.52 (g) The Customer will provide screening around the padmount equipment in a manner that does not create a problem for accessibility. It must meet CDD screening guidelines.

2.52 (h) Due to the natural maturation of trees and other landscaping elements, the following

landscaping requirements must be followed:

- (1) Existing trees and roots within eight feet of the transformer pads shall be removed.
- (2) New plantings within three feet of the back or sides of the pad and within eight feet of the front shall be of a groundcover type. This is considered the working clearance area.
- (3) Outside of the working clearance area, shrubbery is acceptable within eight feet of the pads, but trees must be beyond an eight foot radius to lessen future root conflicts.
- (4) Landscaping grade shall be a minimum of three inches below the grade level of the top of the 4' x 4' - 6' transformer pads and five inches below the grade level of the top of the 6' x 8' and 8' x 10' transformer pads.
- (5) All irrigation and sprinkler systems shall be constructed so that water shall be directed away from the transformers or the concrete pads. Surface water shall also drain away from the concrete pads.

2.52 (i) BWP may paint the padmount equipment (other than the traditional green or gray) if requested by the Customer at the Customer's expense.

2.53 SECONDARY CONNECTIONS

2.53 (a) The Customer shall install all service cables and conduits from the secondary side of BWP's transformer to the electrical switchgear in accordance with the National Electrical and City Codes. The Customer shall supply all necessary lugs, terminators and connectors required at the switchgear. Secondary conduits and cables shall be inspected and approved by the Building Department inspector.

2.53 (b) Under normal circumstances every padmount transformer will serve the maximum of a 3000 amp service to limit the number of conductors per phase. BWP has the option to allow a size larger than 3000 amps. The Customer peak load is expected to be much less than the connected load.

2.54 OWNERSHIP AND MAINTENANCE OF FACILITIES

2.54 (a) All transformers, meters, service wires, and other related facilities installed by BWP at the customer's expense on the Customer's premises for the purpose of delivering and measuring electric energy, shall continue to be the property of the utility and may be maintained, repaired or changed at any time, and removed upon termination of service.

2.54 (b) No rent or other charges whatsoever shall be made against the utility for placing or maintaining such facilities upon the Customer's premises. The Customer shall exercise reasonable care to prevent the facilities from being damaged or destroyed and shall not interfere with them. In case any defect to the installation is discovered, the Customer shall promptly notify BWP.

2.55 CUSTOMER'S RESPONSIBILITY FOR CUSTOMER'S EQUIPMENT

2.55 (a) Customers shall, at their own sole risk and expense, furnish, install and maintain in good and safe condition all electrical wires, lines, machinery and apparatus of any kind or character which may be required for the following:

- (1) Receiving electrical energy from the lines of the utility regardless of the location of the transformers, meters or other equipment of the utility.
- (2) Applying and utilizing such energy, including all necessary protective devices and suitable housing.

2.55 (b) BWP shall not be held responsible for any loss or damage caused by the negligence, want of proper care, or wrongful act by the Customer or any agent, employee, or licensee acting on the part of the Customer in installing, maintaining, using or operating with any such wire, lines, machinery or apparatus.

2.60 METERING EQUIPMENT AND INSTALLATION REQUIREMENTS

2.60 (a) Meter installations shall comply with all BWP standards, with the regulations of other inspection authorities having jurisdiction (City, State and NEC) and the Electric Utility Service Equipment Requirements Committee (EUSERC) guidelines.

2.60 (b) BWP shall determine the location and method of installation for all metering equipment by issuing an Electric Service Confirmation Form. No work shall proceed until this form is obtained.

2.60 (c) All materials, wiring methods and workmanship shall receive the approval of the Senior Electrical Inspector and BWP before any metering equipment is installed or the electrical service is energized.

2.60 (d) Whenever any electrical wiring is installed or modified, new metering equipment complying with these service requirements shall be used, except when in the opinion of BWP the existing metering equipment is satisfactory and adequate to register all energy to be supplied.

2.60 (e) For each meter, the Contractor shall furnish and install a switch or other approved disconnecting means capable of being individually locked in the open position. The disconnecting means shall be capable of accepting a BWP padlock with a 5/16-inch hasp. This disconnecting means shall be on the load side of the meter and shall control all the energy registered by that meter. The disconnect shall not have an automatic closing feature.

2.60 (f) Where meters register the energy supplied to any occupancy and the Basic Electrical Regulations of the California Administrative Code (Title 8) apply, it will be considered a commercial installation for the purpose of these requirements.

2.60 (g) The maximum allowable ampere rating of a main service switch or circuit breaker for one single-phase service is 400 amperes. BWP shall be consulted for larger size services.

2.60 (h) Reactive metering is not required on temporary services.

2.60 (i) Provisions for "future metering" positions on switchboards must be fully installed, including test facilities (if required), line side wiring, and meter sockets.

2.60 (j) Line side (unmetered) conductors and load side (metered) conductors are prohibited from

occupying the same raceway or enclosure.

2.60 (k) Protective barrier posts are required in front of any meter installation that is subject to vehicular traffic or as deemed necessary by BWP. See BWP Drawing S-458. The posts shall not inhibit access to the meters.

2.60 (l) For Net Energy Metering Service, see Section 3.25.

2.61 METER TYPE

All meters shall be "S" (socket) base type. Ringless or gasketed type sockets are not acceptable.

2.62 METER HEIGHT

2.62 (a) For other than switchboards, the centerline of any meter socket shall not be more than 75 inches above the level standing surface in front of the meter.

2.62 (b) The minimum height to the centerline of all meters shall not be less than 48 inches above the standing surface when installed outdoors. If enclosed in a cabinet, installed indoors, or in a meter room, the minimum height may be reduced to 36 inches.

2.63 METER LOCATIONS

2.63 (a) For residences, meter sockets shall be located on, or recessed in, external walls so that meter(s) will be accessible for reading, inspection, or testing without entering the building. Future building modifications or structural changes shall not make meters and associated equipment inaccessible from the same property. A confirmation of service must be obtained from BWP prior to any installation.

2.63 (b) For multi-residential, commercial, and industrial buildings, outdoor meter locations are preferred. Meter socket or service equipment shall not be installed in any location that is not readily accessible from the same property. When adequate exterior wall space is not available, the Customer must provide a separately locked meter room that is accessible from outside the building through one door. BWP must be supplied a key to that room which will be installed in a lock box adjacent to the door. Future building modifications or other structural changes shall not render the meters and associated equipment inaccessible. The Customer shall consult BWP for approved locations and obtain a service confirmation prior to any installation.

2.63 (c) For multi-occupancy buildings, all meters and metering equipment are to be grouped in one central location that is readily accessible 24 hours a day to BWP personnel.

2.63 (d) For reasons of public safety, maintenance of service, and reliability of metering, BWP has determined certain meter locations to be unacceptable. Therefore, no meter socket or service equipment shall be located:

- (1) Inside any building, unless located within an acceptable meter room. [Ref. 2.63(b)]
- (2) In any place where moisture, corrosive fumes, dust or similar deteriorating agents are

present which may interfere with the operation of the meter, materially damage it, or present a hazard to BWP personnel occupied in servicing, testing, or reading of such meter.

- (3) On or recessed in the exterior of any wall or structure located so that less than three feet of clearance is provided in front of all metering equipment and its enclosing cabinets from property lines, public thoroughfares, alleys, driveways, and walks.
- (4) In any location that is not readily accessible 24 hours a day for reading, maintenance, inspection, testing, or replacement of the metering equipment by BWP personnel.
- (5) In any location which is hazardous or unsuitable for entry by meter readers or service personnel (i.e. uncontrolled or unrestrained animals, in any area that is not accessible via a clear stairway of normal tread and rise, etc.).
- (6) In any security area protected by alarm systems, security gates or doors.
- (7) On buildings, occupancies or other structures not directly served by BWP service connection.
- (8) In single-family carports or garages.
- (9) On any portion of a building where future landscaping, fencing, structural changes, or modifications will make the meter(s) inaccessible or hinder clearances.
- (10) On poles owned and maintained by BWP.
- (11) In any patio area that could later be enclosed, thus preventing access to the meter and weatherhead.
- (12) In any elevator shaft, hatchway, or room containing elevator equipment.
- (13) In any substation or transformer vault, unless such meter is in an enclosure that is effectively shielded from the high voltage compartment and contains no bare or exposed energized parts.
- (14) Behind a switchboard having bare and exposed live energized parts, unless such meter is located at least five feet from such parts and is effectively shielded there from.
- (15) Directly over any plumbing fixtures.
- (16) Directly over any stairway, ramps, or steps.
- (17) On any balcony or mezzanine floor or in any basement, cellar, or underground room.
- (18) On any surface subject to excessive vibration as determined by BWP.
- (19) In an unlighted enclosed area.
- (20) Directly over or within three feet of any gas meter.
- (21) In any driveway unless there is a barrier 3 feet in front of the meter for protection from vehicular traffic.

2.64 METER SOCKET INSTALLATION

2.64 (a) All meter sockets shall be furnished, installed and wired by the electrical contractor in a true vertical position. Sockets mounted in walls exposed to the weather shall be designed for waterproof mounting and shall be installed in a manner that will prevent water from entering the walls of the building.

2.64 (b) Sockets shall not be flush mounted, but shall be semi-flush or surface mounted with not more than two sockets mounted on any one-cover plate.

2.64 (c) New meter installations with more than two-meter sockets must be installed in a factory-

assembled unit and wired with factory color-coded conductors at the socket terminals and at the switch or circuit breaker.

2.64 (d) Sockets on multiple meter installations must be removable without interrupting main bus continuity.

2.64 (e) Test switches for transformer metering will be furnished and installed by BWP when required.

2.64 (f) The contractor shall connect conductors to terminals in the socket for self-contained meters.

2.64 (g) For residential self-contained single-phase meter installations, an approved meter socket not exceeding No. 1 AWG wire may be used. Heavy duty approved meter sockets shall be used where wire size exceeds No. 1 AWG, but is not larger than 3/0 AWG; the meter switch rating is not over 200 amperes and service conduit is not greater than three inches.

2.64 (h) All residential underground combination pullboxes and meter terminating enclosures when installed semi-flush in any portion of the building shall be capable of accommodating heavy-duty sockets.

2.64 (i) For all commercial self-contained meter installations, a safety socket box with test bypass blocks shall be used. Heavy duty approved safety socket boxes (EUSERC Drawings 305 and 305A) shall be used when wire size exceeds No. 1 AWG, but is not larger than 250 kcmil and the meter switch rating is not over 200 amperes.

2.64 (j) Safety socket boxes are not required for the house light service in multiple-family residential occupancies provided meter switches do not exceed 200 amperes, and each individual occupancy is separately metered. This includes miscellaneous service for laundry rooms, garages, halls, exits and similar non-commercial uses on the premises.

2.64 (k) When service is supplied to a signboard for lighting only, and the meter switch does not exceed 100 amperes, it may be installed as required for a separately metered single occupancy residential installation. Consult BWP when signboards have motor driven equipment.

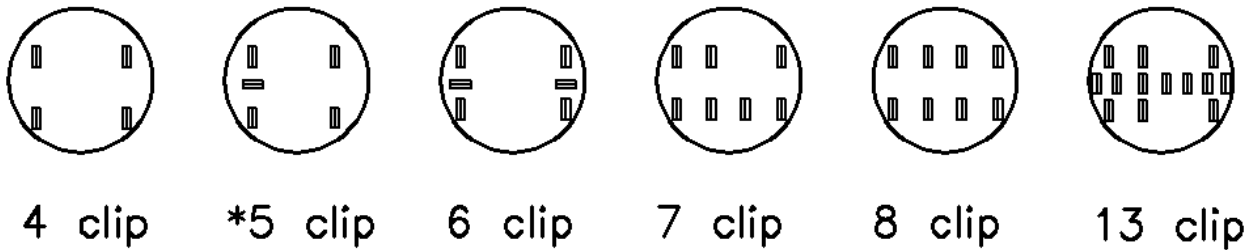
2.64 (l) For multi-metered services all numbering must be completed in a permanent manner at all individual units and meter sockets before service can be energized. Contact Public Works Engineering for unit designations.

2.65 METER SOCKET CLIP ARRANGEMENTS

2.65 (a) The number of socket clips and their arrangement vary with the type of service supplied to each Customer. The following table lists these requirements:

Type of Service	Number of Clips Self Contained	Number of Clips Transformer Rated Sockets
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1 Phase, 3 Wire, 120/240 Volt	4	6
2 Phase, 3 Wire "Network" 120/208 Volt	5	---
3 Phase, 3 Wire, 240 V. Delta	5	8
3 Phase, 3 Wire, 480 V. Delta (Existing only)	Not Allowed	8
3 Phase, 4 Wire, 120/208 V. Wye	7	13
3 Phase, 4 Wire, 277/480 V. Wye	Not Allowed	13
3 Phase, 4 Wire, 2400/4160 V. Wye	---	13
3 Phase, 4 Wire, 7200/12,470 V. Wye	---	13



*The fifth clip for self-contained meter sockets must be located in the nine o'clock position.

2.65 (b) Meter sockets shall be provided with jaws or clips of beryllium copper and conform to ANSI Standard C-12.7.

2.65 (c) No socket shall be equipped with circuit-closing devices or bypasses.

2.65 (d) All meter sockets shall be listed by Underwriter's Laboratories (UL) and have a maximum ampere rating which is not less than its service switch or service equipment ampacity.

2.65 (e) All safety socket boxes shall be listed by Underwriter's Laboratories (UL) and have a continuous duty rating of 200 amperes.

2.65 (f) Ringless or gasketed type enclosures or sockets are not acceptable.

2.66 METER ENCLOSURES

2.66 (a) Any meter enclosure installed and located upon a Customer's premises shall be of sufficient size and type to adequately and safely support, accommodate and protect any contained meter(s) installed by BWP. The meter enclosure shall be so located on the premises as to render it easily and readily accessible at all times to BWP. The meter enclosure shall comply with EUSERC Drawings

354 and G6.

2.66 (b) If an enclosure is to be locked, BWP must be supplied a key to that enclosure which will be installed in a lock box mounted adjacent to the door.

2.66 (c) The total inside dimensions for all recessed enclosed meters shall be a minimum of 11 inches from the face of the socket to the door or face of the enclosure.

2.66 (d) All safety socket boxes shall have a minimum clearance of one inch on the sides of the box and three inches below and above the box. All clearances must be measured from a horizontal or vertical plane extending from the front opening to the back of the recess. If a door is to be installed enclosing the recess, the total depth of the recess shall be the depth of the box and socket ring plus a minimum of nine inches.

2.66 (e) If the enclosure is to be covered, it shall be with a side-hinged door. Contact BWP if sliding doors are desired. The cover shall not be fastened shut with nails or screws.

2.67 WORKING SPACE IN FRONT OF METERS

2.67 (a) All installations must comply with the requirements as detailed in the National Electrical Code Articles 110-16, 110-32 through 110-34.

2.67 (b) A clear, unobstructed working space shall be maintained in front of all meter installations for a minimum distance of 3 feet wide, 3 feet deep, and 7 feet high measured vertically from the standing surface in front of the meter face. The standing surface must be level, or if outdoors, must gently slope away from the electrical equipment to promote proper drainage. Areas comprised of soil, grass or shrubbery (i.e. flower beds) are considered an unacceptable standing surface and will require the installation of a 36 inch x 36 inch x 4 inch concrete work pad in front of panel/meter.

2.67 (c) The working space must be entirely on the property where the service is located.

2.68 MULTIPLE METER INSTALLATIONS

2.68 (a) Where multiple meters are installed, their vertical center shall be a minimum of 8½ inches apart and their horizontal center shall be a minimum of 7½ inches apart for single-phase meters. Safety socket boxes shall have a minimum space of ½-inch between boxes horizontal and vertical. All meters must be installed to comply with EUSERC Drawings 353, G-2, and G-3.

2.68 (b) Sealable pullboxes and gutters shall be used for all multiple meter installations.

2.68 (c) Multiple meter permanent address/unit labeling must be provided as listed below:

- (1) Weather proof tags with ¼” minimum engraved numbers and shall be riveted in place. The engraving shall be deep enough to prevent it from being obscured by painting.
- (2) Weather proof ¾” minimum height number stickers designed for outdoor use.

- (3) Weather proof paint stenciled numbers ¾” minimum height.
- (4) NOT acceptable: permanent ink markers like Marks-A-Lot or Sharpie.
- (5) If the service equipment serves more than one street address, the labeling shall include the street address.
- (6) If the main breakers are NOT installed directly adjacent to the meters, the meter and the main breaker shall be identified with individual labels.
- (7) Unit numbering must meet Burbank Municipal Code requirements Section 7-614, Residential Building Identification, Section 7-615, Commercial Building Requirements and Section 15-1-901.4.4, Premises Identification.
- (8) Meters will not be installed until the labeling is complete.

2.69 ADDRESS CHANGING

Changing unit or suite numbers is highly discouraged and not recommended. If a Customer moves to another unit or suite in the same building and wants to keep their old unit number, BWP and Burbank Public Works must be consulted prior to any change. Each meter location and unit must be permanently marked, by the customer, according to BWP standards and each unit or suite electric meter must be verified by BWP personnel as to which unit or suite it serves. The verification process will be billed to the customer to cover technical and administrative costs.

2.70 SWITCHBOARD METER INSTALLATION 0 - 600 VOLTS

2.70 (a) The requirements of this section are in addition to those described in Section 2.60.

2.70 (b) The Contractor will be required to consult BWP regarding all switchboard meter installations and accessory equipment. BWP shall be contacted for any metering changes on existing switchboards.

2.70 (c) Switchboards with instrument transformer compartments are required for all installations rated over 200 amperes, and all services (regardless of current rating) of 277/480 volts or greater.

2.70 (d) Prior to fabrication of any transformer rated switchboard, the consulting engineer, manufacturer, or contractor shall submit at least five copies of a drawing of the service switchgear to BWP for approval. The drawing must include the following:

- (1) Job name and address, contractor's name and address, manufacturer's name and address.
- (2) Voltage, current, and short circuit withstand rating.
- (3) Bill of materials, including all switch/breaker ampacities and current rating of components.
- (4) Front view of switchboard including dimensions and location of all components listed on the bill of material and applicable EUSERC drawing numbers.
- (5) Statement that construction and labeling is in accordance with Underwriters Laboratories.

2.70 (e) Switchboards must meet all current EUSERC guidelines and City of Burbank requirements

in addition to all other requirements of this section.

2.70 (f) A service section is a section of the switchboard for the meter, service switch or breaker, the instrument transformer compartment, a panel for meter and test switch, and for the entrance of the service conductors.

2.70 (g) For underground services, a separate terminating and pulling section (EUSERC Drawing 345/347) will be required.

2.70 (h) Outdoor or rain-tight service sections with enclosed meter panels shall comply with the detailed requirements of applicable EUSERC drawings.

2.70 (i) Where any underground pullsections or switchboard service sections have parts that can be removed and will give access to the service conductors before they leave the instrument transformer compartment, such removable parts shall be made sealable.

2.70 (j) All openings in service wiring raceways shall be sealable and accessible to BWP. Raceways used for meter secondary wiring shall also be sealable.

2.70 (k) All switchboards shall be bussed.

2.70 (l) Service wiring raceway defined:

- (1) Overhead - Service wiring enclosure from the service head to the meter socket.
- (2) Underground - Where a terminating pullbox is used on an underground service, the wiring enclosure from such box to the meter socket is the service wiring raceway. Where a combination terminating pullbox is used for an underground residential service, the wiring enclosure from such a box to the meter switch or breaker is the service raceway.

2.70 (m) If any service and meter equipment is contained in a meter room, locked cabinet, or other enclosure, BWP must be supplied a key that will be installed in a lock box adjacent to or on the door.

2.71 METER TYPE AND HEIGHT

2.71 (a) All switchboard meters shall be "S" (socket) base type. Ringless or gasketed type sockets are not acceptable.

2.71 (b) The centerline of the meter socket shall not be more than 72½ inches, nor less than 67½ inches.

2.72 METERS SELF-CONTAINED

2.72 (a) Self-contained meters on switchboards shall have a sealable removable panel exposing safety test blocks.

2.72 (b) Maximum meter service switch or breaker rating shall not be greater than 200 amperes and service conductors not greater than 250 kcmil. Exception: EUSERC Drawings 302A and 302B (Class 320A Meter) for residential use.

2.72 (c) When more than one meter is to be installed, permanent markings must be provided by the Contractor at each meter, submain, and unit entrance, indicating the address or unit number served by that meter (see Section 2.68).

2.73 METERS WITH INSTRUMENT TRANSFORMERS

2.73 (a) Meter panels shall be drilled, tapped and slotted (EUSERC Drawing 332) for the required number of meters and secondary test switches which BWP will furnish and install.

2.73 (b) On all bussed instrument-transformer compartment service sections, the meters, instrument transformers, and test switches will be furnished and installed by BWP.

2.73 (c) Conductors shall not be routed through the instrument transformer compartment.

2.73 (d) Each instrument-transformer compartment shall meet EUSERC requirements.

2.74 HIGH VOLTAGE METERING AND SERVICE EQUIPMENT

2.74 (a) For switchgear for service of 2,400 volts or higher, the Customer shall have a consulting engineer, manufacturer, or contractor submit at least five copies of a drawing of the service entrance equipment, main breaker, meter section, and a plot plan of the proposed switchgear to BWP for approval prior to fabrication.

2.74 (b) The design must be in accordance with all of the specifications detailed in the Electric Utility Service Equipment Requirements Committee guidelines, EUSERC Section 400 and Drawing 401.

2.74 (c) Working clearance of minimum 8 feet is required in front of underground pull section or CT compartment.

2.75 CAMPUS BILLING (ELECTRIC METER TOTALIZATION)

2.75 (a) Under Campus Billing, the Customer receives one electric bill for multiple electric service locations, with only the totalized meter data appearing on the bill. Because the totalized kilowatt demand is less than the sum of the individual meter demands, Campus Billing results in a Demand Charge that is less than it would otherwise be. BWP may use a combination of hardwired metering or metering software to accomplish totalized meter reading. The intent of Campus Billing is to better reflect the cost of serving large commercial customers whose electric services are concentrated within a contiguous site. Section 2.75 (b) notwithstanding, BWP will disallow Campus Billing for

Customers whose loads are of such a nature that totalizing them would not accurately reflect the cost of serving them.

2.75 (b) In order for a customer location with multiple services to be eligible for Campus Billing, the Customer must meet and maintain the following criteria:

- (1) The multiple accounts or electric services are within a common address or, if within a commercial or industrial site, within a contiguous site. To be considered contiguous, the properties making up the campus must share at least one property line or parcel boundary.
- (2) The same legal entity buys and consumes the power at the site.
- (3) The Customer has a single point of customer contact at the place of business both for billing and service questions.
- (4) BWP will bill all services or accounts at the “P” or applicable Large Commercial electric rate and at the same service voltage, either secondary or primary. The “P” or applicable Large Commercial rate includes a fixed monthly customer service charge per meter to recover expenses. Additionally, each service totalized together must individually qualify for this electric rate and all must be served at either primary or secondary voltage, not both.
- (5) For each account to be totalized, BWP will provide interval data recording metering. Customers must maintain at their own expense a dedicated meter communication line of data transmission quality to each BWP electric meter. The Customer must install these dedicated lines per current City of Burbank building codes. BWP will install and maintain communication lines inside sealed compartments; the Customer must not break BWP seals. The Customer shall maintain these dedicated lines at all times. Should these lines be disconnected for any reason, including negligence, BWP will have the option to suspend and/or deny future Campus Billing. On a case-by-case basis, BWP may approve meter communication means other than modem/telephone.
- (6) The Customer’s totalized coincident peak demand of the services, as estimated by BWP upon sign-up, must exceed 750 kW at least three contiguous months out of the year. If Customer’s usage falls below that threshold, BWP may terminate Campus Billing.
- (7) Use of parallel systems for shifting load between different rate offerings is a violation of the terms of this agreement.

2.75 (c) BWP may grant Campus Billing to Customers who are otherwise ineligible if BWP, because of its own limitations, requires that Customers split their electrical services.

2.75 (d) For Customers receiving Campus Billing, BWP provides free of charge an on-line meter data service with individual meter information updated on a monthly basis. The purpose of this service is to encourage Customer energy management and conservation.

2.75 (e) Once the campus load is totalized, it is very difficult to accurately disaggregate a portion of the electric load for electric billing. Therefore customer sub-metering to third parties on campus is discouraged and may be cause for BWP to terminate totalization.

2.77 DEMAND METER APPLICATIONS

2.77 (a) All "C" (commercial) class meters with actual demands exceeding 20 kW will be required to have a demand meter.

2.77 (b) During July and January each year, a review of all meters that have monthly consumption exceeding 5,563 kWh for six consecutive months will have a demand meter installed.

2.77 (c) All "D" class and larger Customers must have a demand meter.

2.80 OFF-SITE IMPROVEMENTS

2.80 (a) The Customer/Developer will pay up to 100% of the cost of off-site improvements to extend or upgrade overhead/underground distribution lines to the project site if it benefits only that particular Customer/Developer.

2.80 (b) The cost may be shared between the Customer/Developer and BWP if off-site improvements benefit the whole area including any new Customer/Developer and off-site charges were as described in Section 3.26(g) under Off-Site Facility Charge.

2.81 PRIMARY UNDERGROUND LINE EXTENSIONS (HIGH VOLTAGE 750V OR MORE)

2.81 (a) Underground line extensions may be made where mutually agreed upon by BWP and the Customer and where BWP maintains or desires to maintain underground distribution facilities.

2.81 (b) Major underground line extensions will be installed, owned and maintained by BWP unless the line extension benefits one particular Customer. In that event the Customer will pay 100% of the cost of the line extension and dedicate the line extension to BWP for operation and maintenance. The underground line extension cost shall include the primary voltage line (2400 volts or above) from the nearest primary voltage source to the transformation point. The Customer will pay off-site charges to BWP as required under Section 3.26(g).

2.81 (c) BWP may require Customers to install a primary conduit system where overhead service is not practical or feasible. In the case of multi-family residential, commercial and industrial service, Customers will be responsible for the installation of the underground conduit system, including pullboxes from the point of service to the property line. In addition, BWP may require conduits installed for the length of the project in the parkway/sidewalk to accommodate future development. All the construction shall be according to BWP's design and specifications.

2.81 (d) BWP will provide and install underground cable splices, terminations and other accessories needed at the Customer's cost.

2.81 (e) BWP shall require the extension or creation of new underground lines to serve residential tracts of five lots or more. The Developer, depending upon the circumstances, may do the design, engineering and construction.

2.81 (f) Upon acceptance by BWP, the Customer will install and deed to BWP the necessary underground duct system required, all in accordance with BWP's specifications and design. All work by the Developer shall be performed at such times and in such a manner that will permit the utility to perform its work without delay and in an efficient manner.

2.81 (g) BWP will install underground cable, any padmount switches or transformers and other related work. The cost will be recovered by BWP from the Developer as Aid-In-Construction. In addition, a service charge will be assessed to each dwelling unit. Any offsite charges or any development money spent to improve the system in order to service the tract will also be recovered from the Developer.

2.81 (h) Where applicable laws or regulations prevent the use of what otherwise would be the shortest practical route for an underground line extension, BWP would make the final decision regarding the route.

2.81 (i) Extensions for temporary service or for loads of questionable permanency will not be made under this rule but will be made in accordance with the rules pertaining to temporary service.

2.81 (j) Any extension or relocation and undergrounding of service conduits for a Customer's convenience shall be at the Customer's expense.

2.81 (k) Primary underground installation shall be in accordance with BWP's applicable drawings and "Specifications for the Construction of Primary Underground Systems", latest revision.

2.82 OVERHEAD LINE EXTENSION

2.82 (a) Overhead line extensions may be made where mutually agreed upon by BWP and the Customer, or where BWP determines it is needed for operating convenience or serving load.

2.82 (b) Overhead line extensions will be installed, owned and maintained by BWP.

2.82 (c) In the event that an overhead line extension benefits one particular Customer, that Customer will pay 100% of the cost of the line extension or relocation.

2.82 (d) If BWP determines that a particular line extension benefits the whole area, the cost may be shared between BWP and the Customer.

2.90 34.5 KV CUSTOMER STATIONS

2.90 (a) A 34.5 kV Customer station will be required for cases where a Customer's estimated peak demand is more than 5 MVA, or the electrical distribution system lacks the capacity to serve such a load and 34.5 kV circuits are reasonably near the project. The minimum load to be served from such facilities will be 1 MVA. The Customer must provide the necessary space (with a minimum of 125 feet x 80 feet, with two 20-foot access roads on two sides) depending on the magnitude of load and the configuration of the lines that will be extended to the station. A 34.5 kV line extension will

normally be underground and loop-fed to ensure service reliability and system integrity. A radial service may be provided where reliability of service is not critical and does not affect system integrity.

2.90 (b) The Customer will be responsible for applicable Aid-In-Construction charges (Ref. Section 3.25) and a portion of or all costs associated with line extensions as determined by BWP.

2.90 (c) The design of the Customer station should conform to BWP design practices, guidelines, and applicable safety codes. The Customer station may be Gas Insulated Switch (GIS) gear metal-clad type to save space, and could be in pre-engineered buildings except transformers which have to be in open space with natural air cooling.