These requirements are an overview of the District’s Service Policies and of the Washington State Electrical Codes, and are not intended to replace or supplant such codes or policies, but only to give the customer a basic knowledge of the requirements for service connection.

This manual is intended to be a helpful guide to Architects, Engineers, Electrical Contractors, and the Building Industry who desire electrical service from the District. These requirements reflect standards that ensure the delivery of electrical energy with the latest electrical codes in effect. The District requests your cooperation in observing these requirements in order to provide you with a prompt service connection.
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1: DEFINITIONS

CURRENT TRANSFORMER (CT): Piece of District owned and maintained metering equipment required for services in excess of 400 amps. CT’s are used to step down high current to a lower level that is then used for metering. The District installs only Bus-Bar Type CT’s. The picture below is an example of a Bus-Bar Type CT.

![Bus-Bar Type Current Transformer](image)

DEVELOPER: Any individual, family, company, association, corporation, partnership, or group engaged in the subdivision and/or development of land or the speculative sale of land.

DEVELOPMENT: The subdivision of land and/or improvement of land, including clearing, grading, building roadways, installing utilities, etc., for the purpose of sale.

DEVELOPMENT BACKBONE: District facilities installed for the future distribution of electricity to parcels in a subdivision; paid for by the Developer and designed and installed by the District during the development of the property.

GANG METERBASE: A meterbase with multiple meter sockets that share one common service conductor entry point. These are typically used on multi-dwelling units such as apartments and duplexes.

METERBASE: The meter socket that is owned and installed by the customer that accepts the District’s meter. (See photos in the “OVERHEAD SERVICE” and the “UNDERGROUND SERVICE” definitions for examples)
OVERHEAD SERVICE: An electrical service that is fed with aerial secondary conductors to the customer’s weatherhead at the top of the meterbase’s mast. The point-of-delivery shall be at the customer’s weatherhead conductors. The picture below is an example of a typical overhead service.

POINT-OF-DELIVERY: Point where District-owned and maintained conductors connect to customer-owned and maintained conductors. (See photos in the “OVERHEAD SERVICE” and the “UNDERGROUND SERVICE” definitions for examples)

PRIMARY: Service or facilities constructed to operate at a voltage greater than 600 volts. Example: District-owned, 12.47kV, high voltage wire. (See photo in the “UNDERGROUND SERVICE” definition for an example)

RISER: Electrical conduit installed on the side of a District pole when underground wire must connect to aerial wire. (See photo in the “UNDERGROUND SERVICE” definition for an example)

S100: The District’s application form for New Services, Revised Services, and Development Backbones.

SECONDARY: Service or facilities constructed to operate at a voltage less than 600 volts. (See photo in the “OVERHEAD SERVICE” definition for an example)

SPECULATIVE: Development and/or construction for the purpose of future sale.

SUBDIVISION: The division of a parcel of land into contiguous subparcels.
TRANSFORMER: Piece of District owned and maintained equipment that steps high voltage primary down to lower voltage secondary levels for customer service connections. Transformers may either be installed on the ground (called Padmounted) or on a District power pole (called Polemounted).

UNDERGROUND SERVICE: An electrical service that is fed with underground secondary conductors from the District’s facilities to the customer’s meterbase. The point-of-delivery shall be at the designated transformer, service pedestal, or District riser-pole that serves the customer. However, in no case shall the point-of-delivery extend beyond the customer’s property limits. Below is an example of two typical underground service installations.

WEATHERHEAD: A weather-proof entry point for overhead conductors that fits on top of the mast that rises up out of the meterbase. (See photo in the “OVERHEAD SERVICE” definition for an example)
2: GENERAL POLICIES & REQUIREMENTS

2.1 APPLYING FOR SERVICE

Customers desiring a new electrical service, or a revision to an existing electrical service, must apply using the District’s S100 Form. (See Sections 5 and 6 for details on the District’s Service Class and Revision policies.) The S100 Form must be filled-out entirely and should be submitted during the project’s initial planning stage. Any postponement in supplying the required information can cause unnecessary delays in service connection.

Information required on the S100 Form includes: a) Name; b) Street Address; c) Legal Property Description; d) Occupancy and Structure Class; e) Desired Service Size [rating in Amperage]; f) Desired Voltage; and g) Total Electrical Load to be Connected [i.e. motors, heat pumps, furnaces, lighting, hot water heaters, instant hot water units, hot tubs, air conditioners, welders, etc.].

Below is an example of the portion of the S100 Form that needs to be filled-out and signed by the customer.
A quick overview of the customer’s responsibilities when installing a new service or revising an existing service includes:

- Contacting the District during the initial planning stage to determine the job’s scope and what electrical facilities are available.
- Applying for the service with the District’s S100 form and paying a $100 application fee (to be credited to the cost of the job if completed within one year).
- Providing the District a copy of the Recorded Survey and a Site Plan (used in the Engineering Department to design the job).
- Providing a Utility Easement (Note: See Section 2.10, EASEMENTS, for more information on when easements are required).
- Providing physical property corners (clearly marked and staked onsite) for the placement of electrical facilities.
- Arranging an onsite meeting to cover the District’s plan and to confirm locations of the electrical facilities.
- Trenching, excavating, backfilling, and all other dirt-work associated with installing the electrical facilities on the customer’s property (Note: See Section 7.2.1, GENERAL INFORMATION, for more details on excavation requirements).
- Signing and notarizing the District’s Contract and Utility Easement and paying all fees associated with the installation of the service (fees must be paid prior to scheduling the work).
- Having the service inspected by the State Electrical Inspector (Note: See Section 3, ELECTRICAL INSPECTION POLICY, for more details on inspection requirements).
- Coordinating with other utilities (water, TV, telephone, etc.) for the installation of their facilities (Note: See Section 7.2.1, GENERAL INFORMATION, on maintaining the proper separation of at least 12” from District facilities).

2.2 ADVANCED NOTICE FOR NEW SERVICES

Customers requiring a new service must normally allow the District a minimum of four weeks advanced notice in order for engineering, preparing line extension contracts, drawing easements, filing permits, acquiring materials, and coordinating work schedules. Lead times will vary depending on the complexity of the job.

*Summer is the busiest time of year for the District and may require an additional four weeks notice (total of eight weeks) to complete a customer’s job.

**Also, allow an additional four to eight weeks notice (total of eight to twelve weeks) whenever District Facilities must enter or exit Washington State Rights-of-Way due to the permitting process required by WSDOT.

2.3 VOLTAGE AND FREQUENCY

The District will furnish an electrical service of Sixty-Hertz (60Hz) Alternating Current (AC) of either single-phase or three-phase voltages.

The District will endeavor to maintain reasonable regulation of its distribution system voltages such that the voltage at the point-of-delivery remains within plus or minus five percent of a 120 volt base.
2.4 RESPONSIBILITY FOR DISTRICT PROPERTY

The customer shall provide a space for, and exercise due care and precaution to prevent damage to the District’s equipment located on the customer’s premises.
In the event District property is damaged by a customer, the District will hold the customer financially responsible for such damages and the repair or replacement thereof.

2.5 ACCESS TO PRIVATE PROPERTY

District employees shall be granted the right of access to customer’s premises for the purpose of reading meters, testing, inspecting, maintaining, and installing or removing any District equipment thereon.

2.6 REFUSAL OF SERVICE

The District may refuse electrical service, or may disconnect a customer’s existing service if the customer has not complied with the provisions of customer responsibility or if the customer has not complied with all applicable Codes and Standards governing electrical service installations.

2.7 ABNORMAL INSTALLATIONS

The District reserves the right to impose special requirements for unusual or abnormal service installations.

2.8 NOTICE OF TROUBLE

All service interruptions will be responded to as promptly as possible. It is the customer’s responsibility to notify the District in the event that service is interrupted, is not satisfactory, or any hazardous condition is known to exist on the customer’s premises.
After normal working hours, calls go to the District’s Call-Center who then contacts one of several District supervisory personnel. Before reporting an outage, it is important that customers determine as much information as possible concerning the problem, and particularly if the problem lies with District equipment and not with customer equipment (such as blown fuses, tripped breakers, or other customer-owned equipment failures). District response to an outage on customer owned equipment will be billed to the customer.

2.9 CUSTOMER-OWNED WIRE FAILURE

If a customer’s underground secondary wire fails, the District may assist in locating the point of failure during normal working hours and may make the repair if practical. If the District is requested to locate the failure point and make repairs after normal working hours, the customer will be billed the appropriate costs. If the cause of failure was due to improper installation or dig-in, the customer will be billed even if it is located and repaired during normal working hours.
2.10 EASEMENTS

It will be the responsibility of the customer seeking electrical service to determine the legal description of their property and to provide a utility easement for the placement of District facilities not located along a Public Right-of-Way. No new service extension will be authorized for construction until all required easements have been executed by all parties of interest and delivered to the District for filing and recording.

2.11 MOTOR SIZE LIMITATIONS

The maximum motor size allowed on single-phase services is 5 horsepower (hp). Three-phase services with motors of 40hp or greater must use Reduced Voltage Starting or Variable Frequency Drives with a minimum of twelve poles.

2.12 ADDING ELECTRICAL LOAD

Customers must notify the District when adding any electrical load of 3KW (3,000 Watts) or greater to an Existing Service.

2.13 CABLE PLACEMENT IN PRIMARY LINE EXTENSIONS

District-owned primary wire installed for primary line extensions must be installed along the property’s driveway and may not be ran cross-country. The cable must be installed within 3’ of the edge of the shoulder. This is to ensure that in the future the District will have easy access to the cable for maintenance or repairs. Below is an example of a primary line extension where the District’s primary wire follows the customer’s driveway to the transformer (the customer’s point of contact) even though it would be much shorter to run cross-country.
2.14 MAXIMUM ALLOWED LENGTH OF UG SECONDARY WIRE

All New and Revised Services must be fed UG with customer-owned secondary wire. The District allows a maximum length of UG secondary wire of 180’ and this 180’ is considered to be the total length of secondary wire from the point-of-delivery to the customer’s service. Services greater than 180’ from an available point-of-delivery require an extension of the District’s primary wire and the installation of a transformer nearer to the customer’s service. See Section 7.2.1, GENERAL INFORMATION, for more information on UG secondary wire length.

2.15 SITE PLAN

When applying for a new or revised service, the District may require a copy of the property’s Recorded Survey (recorded with the County), as well as a detailed Site Plan of the property. The Site Plan should include distances and dimensions of items such as streets, utility easements and corridors, driveways, property corners, property lines, building sites, and the proposed service entrance (meterbase) location. The Site Plan may be hand drawn but accuracy is extremely important. Below is an example of a typical Site Plan.
3: ELECTRICAL INSPECTION POLICY

3.1 NEW SERVICE INSPECTION

All new service entrances on new construction must be inspected and approved by the State Electrical Inspector (an employee of the Washington State Department of Labor and Industries- L&I) prior to being connected and energized.

3.2 MODIFIED SERVICE INSPECTION

Revised, modified, or updated residential or commercial services, installed by a District pre-qualified electrical contractor, may be connected prior to an inspection provided that evidence of a Washington State Electrical Wiring Permit is affixed to the service entrance equipment.

3.3 NOTIFICATION OF INSPECTION

The Washington State Electrical Inspector will notify the District once service entrances have been approved for connection, but it is good practice to personally inform the District of inspection to ensure the prompt scheduling and coordination of the connection time.

3.4 DEPARTMENT OF L&I CONTACT INFORMATION

For the Raymond Area:

Department of Labor and Industries
P.O. Box 66
Aberdeen, WA
98520
Phone: (360) 533-8200

For the Naselle and Long Beach Area:

Department of Labor and Industries
711 Vine Street
Kelso, WA
98626
Phone: (360) 575-6900
4: METERING

4.1 INGRESS AND EGRESS

The District reserves the right of ingress and egress on the customer’s premises at all reasonable hours for the purpose of meter reading, inspections, testing, and installation or removal of District property.

4.2 REACTIVE POWER METERING

The District may require reactive power metering where the customer’s connected load, on a single service, exceeds 50KVA. The customer shall contact the District to determine if reactive power metering is required, and if so, the customer shall provide suitable space for the District’s meter.

4.3 OWNERSHIP

While electrical meters are owned, maintained, and provided by the District, the meterbase is owned and provided by the customer. Meters shall be installed and removed by District personnel only. Any removal of District tags, locks, or meters is considered tampering and will result in a $100 fee.

4.4 METERING EQUIPMENT LOCATION

The customer’s metering equipment (meterbase, CT cabinet, etc.) must be positioned on the exterior of the customer’s premises and in an easily accessible location. The equipment must not be under any stairway, or any location that may be closed in at a later date such as a carport, patio, or deck. Meterbases must not be installed in areas where the meter is subject to damage from vehicles or other abuse, nor above any moving machinery or in any other hazardous area where District personnel cannot safely obtain access for reading and testing.

4.5 METERBASE HEIGHT

The customer’s meterbase must be mounted such that the meter socket centerline is between 5-1/2’ and 6-1/2’ above the ground. See Section 7, TYPICAL SERVICE INSTALLATIONS, for an illustration on the height.

4.6 METERBASE CLEARANCES

The customer’s meterbase must have at least 3’ of working clearance in front of, as well as 1’ of clearance to each side. The ceiling height of the working space in front of the meter must be at least 6-1/2’ above the floor or finished grade.
4.7 GANG METERBASE CLEARANCES

Group (gang) meterbases may be installed within 2’ of the ground but must not exceed 7-1/2’ above the ground. A minimum of 3” of clearance between adjoining meter flanges must be maintained. Gang meterbase installations with sockets lower than 4’ above the ground must be provided with adequate mechanical protection from moving objects that may accidentally bump the meters.

4.8 GANG METERBASE LABELING

Installations with multiple meters, such as apartment buildings, shall be plainly and permanently marked with the correct apartment number designation. The meter number must be verified to match the apartment served.

4.9 CURRENT TRANSFORMER (CT) METERING OWNERSHIP

When it comes to customer-owned versus District owned facilities, services requiring Current Transformers (CT’s) are similar to non-CT installations. The customer must provide a stainless steel CT enclosure and a stainless steel meterbase which will both be customer owned. The meterbase must also have provisions for a test-switch. The District shall own, maintain and provide the CT’s, meter, and test-switch. See Section 7.2.6, UNDERGROUND PERMANENT CT SERVICE, for more information of CT services.

4.10 CT METERING CONDUIT

A ¾” metallic conduit must be installed directly between the CT enclosure and its adjoining meterbase with no junction boxes in between. The conduit must be limited to less than 20’ in length and contain no more than three 90 degree bends. The customer shall not run any conductors or ground wires in this conduit. See Section 7.2.6, UNDERGROUND PERMANENT CT SERVICE, for more information of CT services.

4.11 CT TYPE

Only Bus-Bar Type CT’s are allowed in CT installations. See Section 1, DEFINITIONS, for the definition of a CT and a picture of a Bus-Bar Type CT.

4.12 UN-METERED CONDUCTORS

Un-metered secondary conductors are not allowed in raceways (or any other type of enclosure) where access is available by non-District personnel.
5: SERVICE CLASS

5.1 EXISTING SERVICE

An Existing Service is a service that currently has electricity and an open account where a customer is paying a monthly bill. The service’s meterbase may be fed with overhead (OH) wire or with underground (UG) wire. See Section 6, ADDING LOAD/REPLACING CUSTOMER-OWNED EQUIPMENT, for more information on adding electrical load and replacing customer-owned equipment on an Existing Service.

5.2 NEW SERVICE

New Services are those where no electrical service has been previously installed. A service that has been off (the account has been closed) for a period of more than one year is also considered a New Service. All New Services must be applied for with the District’s S100 Form, must be inspected prior to being energized, and must be fed UG with customer-owned UG secondary wire. All fees associated with the installation of a New Service are the customer’s responsibility and must be paid prior to connecting the service. See Section 7, TYPICAL SERVICE INSTALLATIONS, for details on installing a New Service. Below are two examples of New Services.

New Service Example 1: Bob just bought a piece of property and is going to build a house on it. To get electricity, Bob must apply for a New Service and his service must be fed UG.

New Service Example 2: Bob bought a house that had electricity once, but it has not had an account open on it for over one year. To get his electricity turned on, Bob must apply for a New Service, and his service (if it is not already) must be fed UG.

5.3 REVISED SERVICE

A Revised Service is an Existing Service that is being altered by the customer. A Revised Service follows the same guidelines of a New Service and therefore, must also be applied for with the District’s S100 Form, must be inspected prior to energizing, and must be fed UG with customer-owned secondary wire. If the Revised Service is not already fed UG, it must be converted to UG. See Section 7, TYPICAL SERVICE INSTALLATIONS, for details on installing an UG service. A service is considered to be a Revised Service if it meets one of the following criteria:

Criterion for Revised Service #1: The customer moves the point-of-contact (where District-owned conductors connect to customer-owned conductors).

Moved Point of Contact Example 1: Bob wants to build an addition onto his house, but the addition would require him to move his meterbase to a different wall, therefore moving the point-of-contact. Bob’s work to his
service would constitute a Revision and would have to follow the Revised Service policy, which includes being applied for and being fed UG.

**Moved Point of Contact Example 2:** Bob wants to add a second story onto his house, but the second story would require him to raise his weatherhead (where OH wires enter the mast) up through a different spot in his roof, therefore moving the point-of-contact. Bob’s work to his service would constitute a Revision and would have to follow the Revised Service policy, which includes being applied for and being fed UG.

**Criterion for Revised Service #2:** The customer upgrades the size of service.

**Upgraded Service Example 1:** Bob decides to replace his existing Oil Furnace with a Heat Pump with an Electrical Furnace backup. Bob’s Electrician determines that Bob’s 200AMP breaker-panel is already at full capacity and he advises Bob to upgrade the service size to 400AMP. Bob’s work to his service would constitute a Revision and would have to follow the Revised Service policy, which includes being applied for and being fed UG.

**Upgraded Service Example 2:** Bob decides to build a full-fledged woodshop and wants a separate 200AMP breaker-panel to power his tools. He already has a 400AMP service for his house, but that breaker-panel is at full capacity and his Electrician advises him to upgrade his service to 600AMP. Bob’s work to his service would constitute a Revision and would have to follow the Revised Service policy, which includes being applied for and being fed UG.
6: ADDING LOAD/REPLACING CUSTOMER-OWNED EQUIPMENT

A customer can replace his/her electrical equipment with no fee from the District as long as the equipment is identical (in electrical rating) to that which it replaces.

When adding electrical load, it is the customer’s and his/her Electrician’s responsibility to follow the pertinent electrical codes and to determine whether or not the Existing Service has the capacity for any additional load. Customers must notify the District when adding any electrical load 3KW (3,000 Watts) or greater to determine if the District’s facilities require upgrading.

Adding load on an Existing Service does not necessarily constitute a Revised Service.

It is NOT considered a Revised Service when a customer adds electrical load and the Existing Service can accommodate the additional load (without upgrading to a larger size), and therefore, the service is not required by the District to be fed UG.

Though it may not be considered a Revised Service when this happens, the additional load may force the District to upgrade the District’s facilities (such as installing larger wire, installing a larger transformer, etc.) to support that additional load and the customer would then be responsible for any fees associated with upgrading the District’s facilities.

It is the District’s emphasis to design the electrical system to serve existing loads with maximum efficiency, not to speculate on loads, and thereby the District reduces its electrical losses and is able to keep costs down and rates low for all customers.

Below are scenarios of adding load and/or replacing customer-owned electrical equipment (all of which are based on actual events that the District has seen).

Adding Load and Replacing Equipment Example 1: Bob decides to install a baseboard heater on his wall that is rated at 2kW. His Electrician determines that his existing 200AMP breaker-panel can accommodate the additional load and does not require upgrading to 400AMP. Because the service does not require upgrading, it is not a Revised Service (and is not required to be fed UG), and because the heater is less than 3kW, Bob does not need to notify the District of the additional load.

Adding Load and Replacing Equipment Example 2: Bob decides to replace his Oil Furnace with a new Electric Furnace rated at 15kW. His Electrician determines that his existing 200AMP breaker-panel can accommodate the additional load and does not require upgrading to 400AMP. Because the service does not require upgrading, it is not a Revised Service (and is not required to be fed UG), however, because the Electric Furnace load is greater than 3kW, Bob must notify the District of the additional load. After notifying the District, it is determined that the transformer serving Bob’s house does not have the capacity to support the additional load and must be replaced with a larger one. Even though Bob’s work does not constitute a Revised Service, Bob is still responsible
for the fees associated with the upgrading and replacement of the transformer.

**Adding Load and Replacing Equipment Example 3:** Bob’s 200AMP meterbase is rusted through and needs to be replaced. As long as Bob replaces his meterbase with an identically-rated, 200AMP meterbase, Bob’s work would not constitute a Revised Service and could be done with no costs to the District.

**Adding Load and Replacing Equipment Example 4:** Bob wants to replace his old 200AMP breaker-panel in his house. As long as Bob replaces his panel with an identically-rated, 200AMP breaker-panel, Bob’s work would not constitute a Revised Service and could be done at no cost to the District.

**Adding Load and Replacing Equipment Example 5:** Todd wants to replace his 60AMP fuse-panel in his house. Todd decides to replace his panel with a new, 200AMP breaker-panel. Because the replacement panel does not have an identical electrical rating, Bob’s work constitutes a Revised Service and must follow the Revised Service policy (must be applied for with an S100 and be fed UG).
7: TYPICAL SERVICE INSTALLATIONS

7.1 BACKGROUND

The normal distribution voltage for District-owned primary lines is 12.47kV / 7.2kV Grounded-Wye. The normal distribution voltage for customer-owned overhead and underground secondary lines is 120/240 Volts. Ordinarily, only single-phase service is available in residential areas.

At the option of the District, the following three-phase secondary voltages may be supplied:

- 120/208 Volt, 4-wire Wye (limited to 50KW or greater demand)
- 120/240 Volt, 4-wire Delta (limitations in UG primary areas)

The District will supply the above listed secondary voltages depending on the customer’s electrical service demand and on the availability of District facilities. It is the customer’s responsibility to obtain the District’s advice as to the type of service, voltages and number of phases available in any given area.

Because this manual is intended to assist customers with New or Revised Services, and because all New or Revised Services must be fed underground, this manual will not illustrate the typical overhead services.

7.2 UNDERGROUND SINGLE-PHASE SERVICES

7.2.1 GENERAL INFORMATION

All New and Revised Services must be fed underground with customer-owned secondary wire. It is the customer’s responsibility to arrange for an on-site meeting with the District to determine the location for the point-of-delivery.

The District allows a maximum length of underground secondary wire of 180’ and this 180’ is considered to be the total length of secondary wire from the point-of-delivery to the customer’s service. This distance must include the wire length that may be required to riser up a District power pole to reach the point-of-delivery. Below is an example of adding up the total secondary wire length where a riser was required on a District power pole.
Services greater than 180’ from an available point-of-delivery require an extension of the District’s primary wire and the installation of a transformer nearer to the customer’s service.

For the customer-owned secondary portion of a line extension (the portion from the transformer to the customer’s service) it is the customer’s responsibility to provide all ditching, wiring, conduit work (with the exception of risers on District-owned poles), backfilling, and restoration of the private property involved in undergrounding the service. The customer’s secondary wire should be installed as follows:

- Buried a minimum of 24” deep;
- Bedded above and below with sand or sandy soil;
- Encased in PVC electrical conduit if the cable route is beneath a concrete area such as a driveway, walkway, or patio;
- Inspected closely for nicks in the insulation which will eventually cause a failure;
- And mapped or sketched on a property map for future reference to cable route.

For the District-owned primary wire portion of a primary line extension, it is the customer’s responsibility to provide all ditching (36” minimum depth), backfilling, and restoration of the private property and the District will be responsible for the installation of the high-voltage primary wire and its conduit in the customer-provided trench.

Customer-owned facilities are not allowed in Public Rights-of-Way and all necessary permits for the installation of District-owned facilities in Public Rights-of-Way shall be obtained by the District.
For primary line extensions, telephone, CATV, and water lines ARE allowed in the same trench as the District-owned primary wire as long as a 12” separation is maintained at all times. This separation can either be vertical or horizontal depending on the type of trench used. Below is an example of a trencher style trench where 12” of vertical separation would be required and an example of a Backhoe style trench where 12” of horizontal separation would be allowed.

Typically, single-phase underground installations fall under one of the following types of service:
1. Underground Temporary Service;
2. Underground Manufactured Home Service;
3. Underground Permanent 200AMP Service;
4. Underground Permanent 400AMP Service; or
5. Underground Permanent CT Service (in Excess of 400AMP).

The proceeding sections will explain, with more detail, the five basic types of single-phase underground service installations.
7.2.2 UNDERGROUND TEMPORARY SERVICE

A temporary service is one that does not meet the requirements of a permanent service and which will require the removal of facilities prior to their amortization. Below is an illustration of a typical underground temporary service and a picture of an actual installation.

Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
7.2.3 UNDERGROUND 200AMP MANUFACTURED HOME SERVICE

Below is an illustration of a typical underground mobile home service and a picture of an actual installation.

Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
7.2.4 UNDERGROUND PERMANENT 200AMP SERVICE

Below are illustrations and pictures of typical underground permanent services with a rating of 200AMP or less. The first two show the meterbase attached to the side of the residence and the second two show a detached meterbase on a separate post next to the transformer.

Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
7.2.5 UNDERGROUND PERMANENT 400AMP SERVICE

The next service size available larger than 200AMP is a true, 400AMP service (which requires a special meterbase that is rated for a continuous 400AMP and accepts a bolt-on, 400AMP meter).

An example of the correct 400AMP meterbase is the Landis & Gyr ® Type K4UT Bolt-On 4-TERMINAL Meter Socket which measures 36” high, 18” wide, and 6.1” deep.

This is not to be confused with a meterbase that allows a peak current of 400AMP, but is only rated for a continuous 320AMP. 320AMP services are not available and will not be connected.

Most customers choose to install two parallel runs of tri-plexed secondary conductors rated at 200AMP each to achieve the 400AMP rating, though it is also acceptable to install one run of larger-sized tri-plexed secondary conductors rated at least 400AMP. Be sure to contact the Washington State Department of Labor & Industries- L&I (who has jurisdiction over customer-owned facilities and must approve the installation) for advice on Electrical Code and wire size. Below are illustrations and pictures of typical underground permanent services with a 400AMP rating. The first two show the meterbase attached to the side of the residence and the second two show a detached meterbase on a separate post next to the transformer.
Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.

7.2.6 UNDERGROUND PERMANENT CT SERVICE (IN EXCESS OF 400AMP)

Services larger than 400AMP must be metered with the use of CT’s and require special equipment. A stainless steel CT cabinet must be installed with a conduit running directly to a separate stainless steel meterbase. Below are illustrations and pictures of typical underground permanent services with a rating greater than 400AMP. The first two show the CT cabinet and meterbase attached to the side of the residence and the second two show a detached CT cabinet and meterbase on separate posts away from the residence.
Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
Consult an electrician or state electrical inspector for current NEC requirements on grounding and service entrance code changes.
8: DEVELOPMENTS AND SUBDIVISIONS

When land is subdivided into multiple parcels for individual sale, the developer is responsible for having the District install the underground Electrical Backbone during the development phase of the project and prior to the sale of the individual lots.

The Developer is responsible for:
- Contacting the District during the initial planning stage of the project to determine the project’s scope and what electrical facilities are available.
- Applying for the Development Backbone with the District’s S100 form and paying a $500 application fee (to be credited to the cost of the job if completed within one year).
- Providing the District a copy of the Recorded Survey and Site Plans (used in the Engineering Department to design the Electrical Backbone).
- Providing a Utility Easement.
- Providing physical property corners (clearly marked and staked onsite) for the placement of electrical facilities.
- Arranging an onsite meeting to cover the District’s plan and to confirm locations of the electrical facilities (usually takes place after the property is cleared and the roads are in).
- Signing and notarizing the District’s Contract and Utility Easement and paying all fees associated with the installation of the Electrical Backbone (fees must be paid prior to scheduling the work).
- Trenching, excavating, backfilling, and all other dirt-work associated with the installation the Electrical Backbone.
- Coordinating with other utilities (water, TV, telephone, etc.) for the installation of their facilities (Note: See Section 7.2.1, GENERAL INFORMATION, on maintaining the proper separation of at least 12” from District facilities).

The District is responsible for the design of the Backbone and the installation of all the electrical facilities associated with it. A typical Backbone is a conduit/vault system and usually requires the following facilities:
- An extension of the District’s primary wire (in continuous conduit) throughout the development.
- Buried, 4’x4’x4’ or 4’x6’x4’, concrete junction vaults for the termination and tapping of the District’s high-voltage primary wire.
- Buried, 3.5’x3.5’x4’, concrete transformer vaults and buried, 2’x3’x1.5’, fiberglass secondary vaults installed at approximately every other property corner for the future individual lot owners to wire to (Note: The Developer is not responsible for purchasing transformers in the backbone).
- Secondary wire crossings (in continuous conduit) under roadways from transformer vaults to adjacent secondary vaults.
Below is an example of a Development Backbone:

The example above shows the twelve lots in the Knotty Pines Development served from three transformers (four lots fed from each transformer) and facilities installed at every-other property corner. In Knotty Pines, the owners of Lots #1 and #2 would wire their services to the first transformer vault (shown at their adjoining property corner) and the owners of Lots #11 and #12 would wire their services to the first secondary vault (also shown at their adjoining property corner). Knotty Pines is a good example of having to tap existing underground primary wire with a junction vault (on Jim Street) and extending new underground primary into the development (along Craig Blvd) to feed the individual lots.

It is not the Developer’s responsibility to buy transformers for the backbone. A flat, Residential in Development, fee will be calculated by the District and applied to new services as customers apply for power in the Development. The flat-fee is designed to cover the costs of the facilities required for the installation of 200AMP services in each lot (transformers, meters, etc.) and does not reflect the costs of the Backbone. If a customer applies for a service larger than 200AMP, additional fees will be assessed (to that customer) to cover the additional costs.