

Construction Standards and Processes

December 1, 2009

Orangeburg Department of Public Utilities

The Department of Utilities (DPU) is a wholly owned enterprise of the City of Orangeburg. Created in 1898 as a water and electric light supplier, DPU has evolved into one of the largest municipally owned utilities in the state of South Carolina. With a staff of 178 employees, DPU serves over 35,000 customers and is committed to providing the best possible service at the lowest possible cost.

DPU is composed of five divisions working together to provide electric, natural gas, water and wastewater services to the City of Orangeburg and surrounding areas in Orangeburg County and some areas of Calhoun County.

Administrative Division

The Administrative Division provides all customer service, meter reading, billing, accounting, inventory control and information technology functions as well as other operational support for all other divisions. The Administrative Division is a vital component in DPU's overall structure.

Electric Division

The Electric Division purchases and distributes electricity to a 450 square mile area serving 35,000 electrical services. This division also operates and maintains 22 substations, strategically located throughout the distribution system as well as the transmission and distribution lines necessary to provide the service. In addition they operate and maintain 3 electric generation facilities for peak and emergency power.

Natural Gas Division

The Natural Gas Division serves over 10,000 residential, commercial and industrial customers with clean, efficient natural gas. The natural gas system consists of over 300 miles of natural gas distribution mains and, a propane-air plant to supply supplementary gas. The Natural Gas Division also purchases, transports and balances gas supplies for its customers.

Water Division

The Water Division provides safe and reliable drinking water to more than 25,000 customers within a 300 square mile service territory which includes the City of Orangeburg as well as 6 towns and 2 wholesale customers. DPU owns and operates a 30 million gallon per day treatment plant which uses the North Fork of the Edisto River as its source of water. Finished drinking water is delivered through a distribution system consisting of 500 miles of transmission and distribution infrastructure, ranging in size from 2-inch to 36-inch, 9 elevated storage tanks and 3 booster pump stations.

Wastewater Division

The Wastewater Division provides quality wastewater collection and treatment while adhering to all state and federal regulations in regards to the collection, transportation, treatment and discharge of processed wastewater. The wastewater collection system serves approximately 13,000 customers consists of 230 miles of collection pipes, 18 lift stations and a 9 million gallon per day treatment plant.

DEPARTMENT OF PUBLIC UTILITIES

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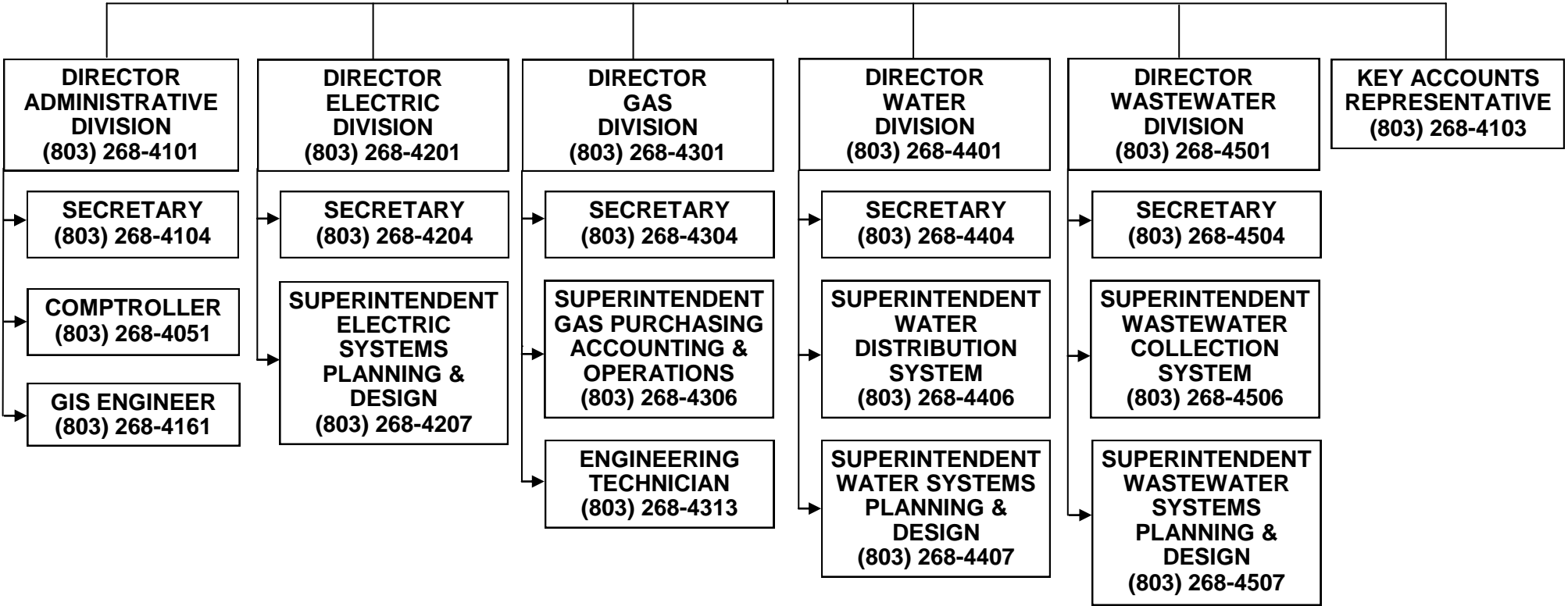
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DEVELOPMENT GUIDE

SECTION 1 DEVELOPMENT PLANS

This document should be used only as a guide for new or altered utility services. It is issued as a convenient general reference for customers, architects, engineers and contractors planning, constructing, installing, repairing or altering utility equipment already connected or to be connected to DPU's system.

These guidelines are subject to additions and changes at any time as developments and progress in the utility industry may require or be mandated by governing bodies.

These guidelines should not be interpreted to conflict with the regulations of the State of South Carolina, ordinances of the City of Orangeburg or any other regulating bodies having jurisdiction. It is the responsibility of the developer to ensure that the project complies with all federal, state, or local codes that may apply. All codes, permits and inspections related to a project should be addressed before construction begins.

Section 1.1 Submittal Requirements

A complete submittal package, including a full set of construction drawings and specifications, is required to effectively review utility service for all new developments. The following information is required for submittal:

- Contact Information of Developer:
 - Property Owner
 - Name of Development
 - Legal Description of Property
 - Name of Applicant for Service
 - Developer/Designer/Consultants
 - Field Superintendent Contact Information

- Zoning Classification of Property

- One hard copy set of Development Plans and an electronic Auto Cad file (Auto Cad 2000 or later) including but not limited to the following (where applicable):
 - Vicinity map
 - Existing site layout/Utilities layout
 - Proposed site layout/Utilities layout
 - Boundary lines of property subject to the plans
 - Contour lines
 - Plumbing plans
 - Wetlands and streams/river corridor
 - Existing and proposed easements
 - Building size and location
 - Conceptual building design and illustrations
 - Parking and loading area plan
 - Streets and driveways
 - Landscaping and exterior lighting plans
 - Signage design
 - Registered 911 address scheme and tax map numbers
 - Anticipated phases of development and time line

Section 1.2 Easements

All new developments will be required to provide joint utility easements as determined by DPU. Where it is required to place utility facilities such as but not limited to electric, gas, water, and wastewater lines and all associated appurtenances, to be owned by the utility in order to provide services, the owner(s) involved with the project shall be required to grant an easement to DPU. Easement width will be a minimum of ten feet and may be wider based on the Department's needs and the engineered services layout as determined by DPU. Developer established easements are subject to change at the discretion of DPU based on an engineering review of the plans with tentatively established easements and the necessary easements (rights-of-way) required for requested services. All DPU services will be

projected for development in the future even if all are not applicable at inception. The Department will prepare an easement document and drawing and once signed this document will constitute a legal contract between the developer and DPU and will be recorded in the Orangeburg County Register of Deeds.

It is the developer's responsibility to clear the easement area and service route area of construction of materials, dumpsters, dirt piles, trees, fences, etc., for DPU equipment and personnel before installation can begin. The developer is responsible to protect shrubs, trees, and other landscaping décor during construction. DPU reserves the right to remove or maintain any vegetation on or adjacent to the easement for the purpose of providing safe and reliable utility services to the customer and the general public. No structures may be placed within the established easement by either a developer or customer at any time in the future. All infringements on easements will be documented and notification to the owner will be made requiring said structures to be removed at the owner's expense.

DPU respectfully requests that developers supply drawings stating all installed services and easements to any additional service providers such as but not limited to; telecommunications and cable television providers.

Annexation covenants (if applicable) and easement documents must be completed before any construction begins.

Section 1.3 Special Permits

Right-of-Way Encroachment Permits

Any utility construction that will impact a public right-of-way or for any other reason require a special permit must be permitted through the appropriate agency that owns, operates, and maintains the right-of-way, roadbed, and/or drainage structures within that particular public right-of-way or has legal jurisdiction requiring a permit. It is the responsibility of the developer to determine which agencies will be involved with the project and submit the appropriate permit applications to DPU for review and approval. The respective permitting agencies will only process permit applications submitted through DPU. Once the permit(s)

has been reviewed and signed by authorized personnel of DPU, they will be forwarded to the agency, which has jurisdiction. The developer will be responsible for paying only the fees associated with said permit.

Please note that right-of-way permits will be processed only after plans have received final approval from all affected divisions of DPU. The time required to receive a right-of-way permit can be lengthy and varies by agency. Developers are encouraged to allow adequate time in their project schedule for the permitting process.

Section 1.4 Change Orders

Once a mutually agreed upon development plan exists any changes which will impact DPU will require a written request for a change order. Changes documented through change orders may be subject to fees associated with engineering and/or construction updates. Fees will be calculated based on current costs associated with the magnitude of the change order and the developmental stage of the project within DPU.

Section 1.5 Covenants (Water and Wastewater)

If the proposed development is located in any unincorporated area of Orangeburg County the property in accordance with the General Terms and Conditions of DPU is subject to an annexation covenant, a binding contract to agree to be annexed into the city limits of Orangeburg at the pleasure of the City Council of the City of Orangeburg.

This does not mean that this property will be immediately annexed or annexed in the near future. This simply means that if City Council ever decides to annex property under provisions of the statutes of the State of South Carolina, it will have every right to do so. Once signed, this covenant will be transferable to all subsequent owners of the property.

Acting as an instrument of our City Council, DPU requires all new customers establishing water and wastewater accounts to sign a covenant which is processed through Customer Service.

Section 1.6 Meter Placement (Electric and Gas)

Residential Dwellings:

Meter placement will preferably be on the forward most 25% of either side of the dwelling closest to the street or the front of all residential dwellings (front being considered the side of the dwelling that faces the street). In addition meters must remain unobstructed by anything that would hinder or prevent monthly meter readings by DPU personnel.

Commercial Structures: Contact each division to inquire about service.

Industrial Structures: Contact each division or the Key Accounts Representative to inquire about service.

SECTION 2 ELECTRIC UTILITY SERVICES

Section 2.1 General Service Information

The information in this section is supplementary to the National Electric Code (NEC) and the National Electric Safety Code (NESC), as approved by the American National Standards Institute (ANSI) and federal, state and local rules and regulations enforced within the territory that DPU provides electric service. Where they conflict with the National Electrical Code, these rules and regulations will prevail.

Section 2.1.1 Service Availability

DPU nominal secondary voltages are:

- 120/240 volts, 3-wire single phase
- 120/240 volts, 4-wire three phase
- 120/208 volts, 4-wire three phase
- 277/480 volts, 4-wire three phase.

Service voltages that are higher than 480 voltages are available to customers only by the consent of authorized divisional personnel. (The need for such voltage would be determined by the size and type of load the customer requires. The customer will be required to provide load specifications to justify the need of higher voltages.)

All of the above voltages are supplied at approximately 60 Hertz. It is the customer's responsibility to coordinate with DPU to ensure that the required voltage is available at the desired location.

Section 2.1.2 Service Orders

A service order is required before any work will begin. Service orders must be obtained through Customer Service. Requisition slips for material supplied by DPU are issued only after service orders are created and fees paid. Meter sockets, racks, clevises, bolts, etc., will be issued to contractors, electricians or other authorized persons after a requisition slip is presented to DPU personnel at the DPU Operations Center located at 350 Sprinkle Avenue.

Single phase meter sockets, clevises and mast attachments are usually available at DPU's main office located at 1016 Russell Street.

Section 2.1.3 Temporary Electric Service

Temporary service installations are usually overhead service drops for construction purposes. These services are designed with convenience in mind since they are not permanent in nature. When temporary service is desired, the customer will coordinate the need for the service with DPU's Engineering/Staking personnel in advance of the required service date. Authorized divisional personnel will spot the service location before construction begins. DPU does reserve the right to refuse to connect any temporary service in which the location was not spotted by authorized divisional personnel. In an overhead distribution area, the temporary service is usually located within 130 feet of existing overhead electric facilities. In an underground distribution area, the service is usually located within 10 feet of existing underground facilities.

Any temporary installation requiring a special service meter and/or any construction work which DPU must do prior to energizing the temporary service or installation of a transformer and any other facilities which must be removed when the temporary service is no longer required, will be done at the expense of the customer. Charges will include material and labor required for the installation and removal. The payment assessed for such services will be collected in advance. In existing underground distribution areas, temporary services requiring special conditions are to be coordinated and pre-approved between the customers and authorized divisional personnel.

Section 2.1.4 Services and Meters

DPU will install only one set of service conductors (per service voltage) to a building or structure. If one customer occupies the building or structure, then only one service meter will be installed. If several tenants or families occupy a building or structure, with each being a different customer of DPU, individual meter sockets will have to be provided for connection by the customer(s).

In multiple occupancy buildings, where ganged meter sockets or a common electrical trough is being used to serve multiple meters, the location of the common service point will be determined by authorized divisional personnel. In this case, the location of such service point greatly depends on the existing electrical facilities and the overall design of the building or structure.

In metering installations on services over 400 amperes (600 volts and under), and where instrument transformers are used DPU will furnish all secondary wiring and conduit, including weather head, from the instrument transformers' secondary to the meter. Contractors must install conduit (including pull string), instrument transformer brackets and meter socket at his expense.

Meter sockets shall be securely attached to the building in a plumb and vertical position. In general, overhead service conductor point of attachment will be made via clevis and bolt type dead-end. Clevises shall be mounted with a machine bolt provided by DPU. House knobs on new or rebuilt services will not be approved. For additional information regarding meters, service installations and service requirements, refer to DPU's Wiring Rules and Regulations document.

Section 2.1.5 Grounding

Ground wires and ground rods are to be installed in accordance with the requirements and specifications of the latest approved edition of the NEC, or in accordance with the requirements of local authorities or other inspection agencies having jurisdiction. Minimum code grounding requirements are based on the service entrance installations.

All services shall be grounded at service equipment, except lightning arrestors, which may be grounded at the weatherhead. A driven water pipe does not constitute an approved grounding electrode. Where available all services will be grounded with a continuous wire to both a metallic cold water pipe and driven ground rod.

All grounding conductors used as equipment bonds or grounds shall terminate on the frame or cabinet of the equipment being grounded in a connector approved for the purpose. Ground

wire attached by means of a sheet metal or other type screw does not constitute an acceptable bond, based on NEC standards.

Section 2.1.6 Trenching and Underground Raceways

The developer will be responsible for digging the electric service trench and installing a continuous conduit run to the designated demark location specified by authorized divisional personnel. The trench or raceway drawing specifications, for both primary and secondary service conductors, will be provided by the Electric Division.

Section 2.1.7 Codes, Permits, and Inspections

A permit must be issued for each installation, whether new construction, additions or modifications to an existing structure present change in the wiring of the building. All developers will secure a permit from the appropriate authority, prior to doing any wiring on any specified job. Developers should request DPU to locate all points of attachment for service drops and specify type and class of voltage prior to doing any wiring on a job requiring a new service or service upgrade.

Section 2.1.8 Final Connections

DPU will make all final connections between the department's connection points or equipment and will not permit any unauthorized connections.

SECTION 2.2 Overhead Electric Service

Section 2.2.1 General Information

This guide will establish the requirements for residential and commercial overhead service installations at voltages less than 600 volts.

An overhead service is the complete wiring system from DPU's overhead distribution lines to a building or structure including the customer's service entrance wiring and service equipment. The "service conductor" is the overhead conductors from DPU's distribution lines to the building or structure. The "service entrance conductors" are those conductors installed by the customer between the point of attachment of the "service conductors" to the customer's building and the customer's "service equipment" within or on the building.

Section 2.2.2 Responsibilities of the Developer and Utility

The developer must provide, install and maintain the following equipment pertaining to overhead services:

- Attachment (U-shaped clamp) for insulated clevis of service drop
- Service mast with weatherhead (if applicable)
- Meter Pole (if applicable)
- Current transformer enclosure with CT mounting base, CT bolts, and other related hardware (when required)
- All required guying
- Meter socket

DPU will provide, install and maintain the following equipment pertaining to overhead services:

- Service conductors
- Service dead-end clamp
- Current transformers and Potential Transformers (if applicable)
- Insulated clevis for attachment of service drop
- Meter

Section 2.2.3 Point of Attachment

DPU requires the developer to verify the location of the point of attachment on any building or structure with authorized divisional personnel. DPU will then determine if the location of the service conductor and the location of the point of attachment are mutually acceptable. DPU will assume no responsibility to modify the location of the service conductors if an incorrect location is chosen without consent from authorized divisional personnel. If in the opinion of DPU, there is an appropriate location on a building where DPU service conductors can be attached via an existing pole, and the customer, architect, or contractor wants another pole set for his convenience or desire, the customer, architect, or contractor shall pay the cost of any extra facilities. These extra facilities will also be considered property of DPU.

Section 2.2.4 Service Conductors and Service Entrance Conductors

Service drops will not be terminated on chimneys, vent pipes, gutters, or other nonstructural portions of the building. Suitable service attachments locations should be approved by authorized divisional personnel prior to service termination. Service entrance conductors shall be at least 18 inches out of the weatherhead to permit connection to the service drop.

Section 2.2.5 Service Mast Location and Construction

The service mast shall be located so that only one attachment of the service drop to the building is required, unless parallel service conductors are used by DPU. Any exceptions must be approved by DPU prior to installation. The service mast shall be a minimum of one and a half (1 ½”) inches rigid steel galvanized conduit and shall provide a structurally sound attachment for the service drop. (Refer to DPU’s Wiring Rules and Regulations for proper conduit size for service conductor lengths)

Section 2.2.6 Clearances

Service mast attachments and point of attachments should be installed and located so that proper clearances are provided for the service conductor. Absolute minimum vertical clearance for overhead service conductors should be as follows:

Vertical clearance of Conductor-to-Ground:

- Point of Attachment12 feet
- Bottom of Drip Loop10 feet
- Service Conductors
 - Above Final Grade Level.....12 feet
 - Above Driveway16 feet
 - Above Streets, Alleys and County Roads18 feet
 - State Highways24 feet

Section 2.2.7 Meter Pole

A meter pole may be used if a permanent service entrance or meter socket cannot be installed on the structure. If it is used, the overhead meter pole shall be furnished by the developer and shall comply with DPU Meter Pole Guidelines as follows:

Location

The meter pole shall be located:

- Between the structure served and the location of DPU's electric facility where the service conductors will originate
- In an area that can be accessed by a utility service vehicle
- In a location approved by authorized divisional personnel

Guying

- A guy is required on all meter poles where the distance between DPU's pole and the meter pole is greater than 50 feet.

Setting and Material

- Meter poles shall be at a minimum depth of ten (10) percent of the pole's length plus 2 feet, as an example that would be 4 feet for a 20-foot pole.
- Pole is to be made of wood and have a minimum diameter of 8-inches for round poles and 6" x 6" for square poles.
- Pole should be at least twenty feet (20') in height and a minimum diameter of 5 ½ inches at the top.
- Poles should be sound and reasonably straight.

Section 2.3 New Underground Residential Service from Existing Overhead Facilities

The standard service from existing overhead lines is an overhead service; however, in a new construction or in the modification of an existing service, DPU may install an overhead-to-underground (hybrid) service upon the request of the customer. There will be a fee as specified in the General Terms and Conditions for the change-over.

Responsibilities of the Developer

The developer must contact DPU and obtain information as to whether a new hybrid service or a conversion from overhead service to hybrid service is available. This is determined and approved by authorized divisional personnel on a case-by-case basis due to differing field conditions.

For locations approved by DPU for hybrid services, the developer is responsible for all costs associated with the installation of or conversion to a hybrid service. This includes:

- Installing the below grade conduit, riser conduit to the meter socket, and the meter socket or conversion of the meter socket to accept the underground service.

- Providing and installing the necessary gray electrical conduit (Schedule 40 PVC) between the meter location and the pole riser.
- Supplying the necessary conduit to pass under driveways and sidewalks.
- Providing the trenching and backfilling between the meter and the pole riser. The new trench route is to have a depth of 3 feet, have adequate separation from gas, water, or sewer lines when parallel. All installations must conform to DPU specifications and must be inspected and approved by authorized divisional personnel.

Responsibilities of DPU

- DPU will install the pole riser conduit originating from the customer's conduit at the base of the riser pole, extending to the top of the pole just below the point of connection.
- DPU will also install and connect the new underground service conductors at no expense to the customer.

Section 2.4 Underground Service - Residential

This guideline establishes the requirements for residential and commercial underground service installations at voltages less than 600 volts. This would include both permanent and temporary service.

Section 2.4.1 General Information

The developer who desires single-phase underground service for residential subdivisions, apartment complexes, condominiums and mobile home parks, must contact DPU as soon as possible in the planning stages of the project to address electrical service issues such as voltage, service point, electrical service layout, etc.

Development must be on a single parcel of land suitable for underground distribution. The developer will pay a fee for the need of any “specialized construction work” DPU deems necessary for the installation of electric underground facilities. Otherwise, the developer will be required to have such work performed at their expense, such as but not limited to, abnormal rock beds in right-of-ways, crossing ditches and streams, removal of trees and bushes, or grading of unmanageable terrain that hinders the use of equipment.

Residential developments must have a minimum of 20 dwelling units or lots in an adjacent arrangement. Developments of less than 20 dwelling units, lots greater than 1.0 acre or lots requiring special consideration will be at the discretion of DPU if underground distribution will be installed. All project development plans and construction schedules must be provided and approved by the Planning Commission of either the City or the County as applicable.

Section 2.4.2 Responsibilities of DPU

DPU will provide one service point per lot. Any additional services for structures such as garages, workshops and other detached structures shall be installed at the expense of the developer. All secondary raceways for structures listed above, DPU will require that conduit be installed by the developer. DPU will specify the location of the service point for all residences, detached structure, apartment buildings and mobile homes. Any service point installed that was not specified by DPU may not be accepted and all special construction expenses that DPU incur to provide service due to this construction will be at the expense of the developer or owner.

DPU will provide an electrical distribution layout and lighting layout (if applicable) to the developer prior to construction. Changes to the layout by the developer resulting in additional costs to DPU will be at the expense of the developer.

DPU will perform the necessary right-of-way clearing, trenching, and backfilling to install underground facilities. Any debris cleanup from right-of-way clearing will be the responsibility of the developer. DPU will utilize utmost care during installation procedures, but will not be responsible for unexpected damages to landscape, bodies of water, trees, shrubbery or unmarked developer-owned underground facilities during this process.

DPU will furnish, install, connect, and maintain all required primary distribution conductors, pad-mounted transformers, pads, secondary conductors, and meters when applicable. The standard voltage for residential services will be 120/240 volts, single phase.

DPU will select the type of construction and location of the main feeders. Main feeders may be overhead with dip poles located on developer/owner property. DPU will determine the need of conduit for underground primary, secondary, and street light conductor.

Pad-mounted transformers will be located at property corners (when applicable) to allow access for maintenance and replacement. Clearance around the transformer shall be 10 feet to allow for equipment and personnel to perform work. Obstacles within the 10 feet perimeter may be removed by DPU and replacement will be at owner/developer expense.

Temporary service for underground developments may be furnished through pad-mounted transformers or nearby overhead facilities if available. Temporary services will be installed and removed by DPU at the expense of the developer/owner.

Underground service laterals from a transformer or pedestal will be installed using the most direct route as possible between the two points. Any variation or request from such route will be at the developer/owner expense. Any obstructions, such as dirt piles, trees, bushes, debris, or construction material must be removed or relocated prior to installation of electric underground facilities.

Section 2.4.3 Responsibilities of the Developer

The developer will provide suitable easements for electric utilities as well as all utilities for DPU. Easements will be adequate enough to allow for proper operation and maintenance of underground electric facilities. Property corners where DPU proposes to install a mini-pad or pad-mounted transformer will require the property owner to maintain at least 10 feet of unobstructed space in front of the transformer doors for operation and maintenance of the equipment. Furthermore, DPU will be granted access by property owners for maintenance and/or replacement of transformers and underground conductors. Any maintenance,

replacement, or repair by DPU will be performed with the utmost care and workmanship, and any disturbed property will be return to as near original condition as practical.

The developer will identify, install and maintain property markers with lot numbers on stakes in advance of any work to be performed by DPU. Also, the developer will provide information and arrange field spotting of any underground facilities not identified by local Palmetto Utility Protection Service (PUPS) (1-888-721-7877). DPU will not be responsible for any damages to facilities not marked or identified by PUPS or the developer.

The developer will establish final grade or near final grade before the start of any underground electric construction. Any changes in grade which presents a problem or NESC code violation will be fixed at the expense of the developer.

In an Underground Residential Development (URD), all secondary conduits from the metering point (meter socket) to the service connection point (transformer or pedestal) will be provided and installed by the developer. The conduit will typically be two to four inch gray schedule 40 electrical conduit buried at a minimum depth of 36 inches. The developer also is responsible for installing conduit for any driveway crossing or road access routes where paving will occur.

In large underground subdivision developments, DPU may require the developer to install conduit raceway for all primary conductors specified by DPU for that development. The conduit will typically be two to four inch gray schedule 40 electrical conduit buried at a minimum depth of 36 inches. If the developer cannot facilitate such, DPU will provide a quote for installing the conduit system and will require payment for the primary conduit raceway prior to installation.

Any changes in the original layout for the URD involving relocation of electric facilities will be at the expense of the developer.

Section 2.5 Electric Services for Multi-Unit Buildings

DPU will require the developer to install gang meter sockets and have the sockets clearly and permanently marked or labeled showing the units served. Markings should be on the inside of the meter socket as well as on the meter socket cover. All apartments, townhouses, or condominiums will be individually metered.

Service to the structure will consist of a single underground service lateral. Multiple services to one structure will not be allowed, unless pre-approved by authorized divisional personnel.

Service voltage for apartments, townhouses and condominiums will be 120/240 single phase. Any development requesting three phase voltage will be at the discretion of DPU to determine if such request is feasible.

The developer will provide DPU a lighting plan for the development if DPU lights are desired. The secondary conduits for the lights will be installed by the developer and DPU will specify the service point location for each light installed.

Section 2.6 Electric Services for Mobile Home Parks

The developer shall provide and install metering facilities for mobile homes with such facilities adhering to NEC, all local codes, and DPU General Rules and Wiring document. All meter sockets and meter pedestals furnished by the developer must be approved by DPU prior to installation and the locations must be spotted and approved by authorized divisional personnel. DPU will require the developer to provide a dual meter pedestal for small adjacent mobile home lots. Such lots will be served with a single underground service lateral with the meter pedestal being located on the lot line between the two mobile homes. Any metering facility installed without prior approval by DPU and requires relocation or modification of existing DPU electrical facilities will be at the expense of the developer.

DPU will require the developer to have meter sockets clearly and permanently marked or labeled showing the unit served. Markings should be on the inside of the meter socket as

well as on the meter socket cover. All conductors or cables from the metering facility to the mobile home will be installed by the developer.

The developer will provide DPU a lighting plan for the development if DPU lights are desired. The secondary conduits for the lights will be installed by the developer or owner and DPU will specify the service point location for each light installed. Services to signs, leasing offices, motorized gates, or security huts will be installed by the developer to a metering point designated by DPU.

Section 2.7 Underground Service – Commercial and Industrial

Installation of underground electrical utilities for temporary and permanent service to new and existing commercial and industrial projects must meet the requirements established in this document. The developer must contact DPU at the beginning of the planning stage of a project to address electric service issues such as voltage, service point, transformer location, transformer type, transformer size, and metering equipment. A complete submittal package as stated in Section 1.1 is required.

The developer must coordinate the approval of all governmental agencies required for the development, including buffer zones, wetlands permitting, zoning, etc. The developer must provide DPU with a construction schedule showing when temporary and permanent electric service will be required.

The developer must provide, install, and maintain permanent property corner markers prior to the beginning and throughout the duration of the project.

The developer must establish final grade and tamp any required fill before the construction of any underground distribution system may begin. Any changes in the grade after construction begins that will require DPU to deviate from normal construction methods will be at the cost of the developer.

The developer must provide, install, and maintain the concrete transformer pad and vehicle protection bollards if required. The developer must provide all necessary conduits (both primary and secondary), pull wire, pull boxes, bends, trenching of primary raceways and

backfilling, in accordance with DPU specifications, from the transformer(s) location to the source. All bends must be galvanized, which includes the underground bend at the transformer entrance and the base of the source dip pole. The conduit must meet the NEC standards.

The developer must provide, install, and maintain the meter base for services served by a transformer in which the meter base is not mounted on the transformer itself. For meter bases mounted on a pad-mounted transformer, DPU will provide, install, and maintain. Transformer size and capacity will be based on expected load rather than main disconnect size. Large load services will generally be metered using current transformers. The method in which DPU uses to meter a large load service is subject to change as metering technology changes.

The developer will be responsible for notifying PUPS. Damage to existing underground utilities resulting from incorrect or improper locates will be repaired at the expense of the developer.

The developer will be responsible to comply with the City of Orangeburg tree or buffer ordinances affecting DPU easements. Any tree replacement due to ordinance violation will be at the expense of the developer. The developer must be familiar with all ordinances that affect DPU easements and must consider this when assigning an easement.

The developer will provide DPU a lighting plan for the development if DPU lights are desired. The secondary conduits for the lights will be installed by the developer and DPU will specify the service point location for each light installed. Services to signs, leasing offices, motorized gates, or security huts will be installed by the developer to a metering point designated by DPU.

SECTION 3 NATURAL GAS UTILITY SERVICES

Section 3.1 Installation of Natural Gas Services

All Natural Gas services shall be installed by DPU or its contracted agents. Location of proposed natural gas services will be coordinated with any proposed or existing electric, water and wastewater services.

All DPU provided natural gas services are subject to DPU Gas Rules and Regulations currently on file with the applicable regulatory authorities and to any related orders by the applicable regulatory authorities.

Section 3.2 DPU Future Rights

DPU reserves the right to perform taps into main and service lines to provide service to adjacent properties if needed any time in the future.

All natural gas piping up to and including the meter and related installed facilities remain the property of DPU. The Customer or their representative agrees to provide necessary access to the Customer's premises for the purpose of installation of mains and service, meter reading, inspections, repair, maintenance and other related activities. Piping beyond the meter and within the structure is the property and responsibility of the Customer.

Section 3.3 DPU Delivery Pressure

DPU's standard delivery pressure is 7-inches of water column. Service pressures higher than 7-inches water column are available to customers only by the determination of authorized divisional personnel. The need for such pressures would be determined by the size of the customer's load. The customer will be required to provide load specifications to justify the need of higher pressures.

Section 3.4 Permits

It is required that a permit be issued for each installation, construction, additions to existing construction, any change in the piping of existing construction, or any repairs to existing piping. All contractors will secure a permit from the appropriate authority, prior to doing any piping on any specified job. Contractors should request the authorized divisional personnel to identify the meter location and provide DPU with required pressure and gas load prior to doing any piping on a job requiring a new service or service upgrade.

Section 3.5 Point of Attachment

DPU requires the customer, architect, or contractor to verify the location of the meter setting on any building or structure from authorized divisional personnel. DPU will then determine if the location is acceptable. DPU will assume no responsibility to modify the location of the meter setting if an incorrect location is chosen without prior consent from authorized divisional personnel.

The customer is required to provide a one inch (1”) threaded steel pipe for DPU to connect to. A larger connection pipe maybe used as determined and approved by authorized divisional personnel.

DPU will make the final connection to the customers piping once it has passed all inspections.

Section 3.6 DPU Ownership

All natural gas piping up to and including the meter and related installed facilities remain the property of DPU. The Customer or their representative agrees to provide necessary access to the Customer’s premises for the purpose of installation of mains and service, meter reading, inspections, repair, maintenance and other related activities. Piping beyond the meter and within the structure is the property and responsibility of the Customer.

Section 3.7 Developer/Customer Responsibilities

The Customer agrees to notify DPU prior to any construction activities that might encroach upon the location of the natural gas piping or related facilities, such as building, paving or additions over the main or service line. Some construction activities may necessitate the relocation of natural gas facilities at the Customer's expense.

Privately owned underground structures, such as but not limited to, septic tanks, drain and water lines, fuel lines, and sprinkler systems cannot be located by DPU or our agents prior to excavation. The location of these facilities and all reserved drain field sites must be marked by the Customer. Neither DPU nor its contractors are responsible for any damages to such facilities and reserved drain field sites whose location is not adequately or accurately marked.

The Customer agrees to take reasonable and prudent measures to protect all natural gas piping and meters of DPU.

SECTION 4 WATER UTILITY SERVICES

The construction of all water main extensions to be connected to the DPU system must be coordinated through the Water Division. DPU will provide developers a copy of the water distribution system construction and design specifications. DPU's General Terms and Conditions are available from the department's website or from any Customer Service Representative. Any questions or requests for meetings during the project may be directed to the Superintendent of Planning and Design.

Section 4.1 Submittal and Plan Review

Section 4.1.1 Main Line Extensions

In addition to the submittal requirements in Section 1.1, engineering calculations for the proposed water line(s) must be provided by the developer and prepared by a professional engineer licensed in the State of South Carolina. Upon receipt of a complete project submittal, the utility layout will be reviewed and DPU will advise the developer of any necessary modifications or changes which will be made. Tap and impact fees will also be determined during this review. The project review shall take into consideration issues ranging from water availability to acceptable metering scenarios and may affect the design of the new mains and services. Upon completing the review, water availability will be determined.

Section 4.1.2 Water Services Only

Project submittals consisting of services only (i.e. dedicated fire services and/or domestic services), which do not require a construction permit for installation as defined in the South Carolina Department of Health and Environmental Control (SCDHEC) State Primary Drinking Water Regulations, the developer must submit plans and a description of the proposed work. The Superintendent of Planning and Design will prepare a fee determination and notify the developer any required easements. The submittal must adhere to the Cross-Connection Control Program as discussed in Section 4.8. The developer will be notified

when the proposed plans are approved. Service applications will not be accepted by Customer Service until all applicable fees are paid and plans are approved.

Section 4.2 SCDHEC Water Main Extension Permitting

The planning and scheduling of development projects requiring the extension of water mains in the DPU service area must allow adequate time for the internal review by the Water Division and the SCDHEC permitting process. The initial plan review process takes a minimum of 30 days and all comments will be sent to the developer for any necessary revisions. Once the plans have been approved by DPU, the developer will be notified to prepare and submit a SCDHEC construction permit application package to the Director of the Water Division. If the Delegated Review option is requested, DPU will submit the construction permit application package to SCDHEC under the Delegated Review Program. Upon review, all DPU impact fees must be paid before the permit application package will be forwarded to SCDHEC.

DPU is the delegated review entity and performs reviews of all delegated review projects before a permit application is submitted to SCDHEC. A permit application form can be obtained by visiting the SCDHEC website at www.scdhec.gov/environment/water. The permit application includes an instruction page with the required items needed for submittal.

Obtaining SCDHEC permit to construct and operate an extension to the water mains of the Department of Public Utilities may be obtained in two ways:

- The Developer through his agent (a registered Professional Engineer) may apply directly to SCDHEC after having the plans and specifications approved by DPU
- The Developer, again through his agent, may utilize the DPU delegated review process, the advantage of which generally that the review process is expedited

Section 4.2.1 SCDHEC Permitting by Developer

The Developer is responsible for submitting all permit requirements and fees to SCDHEC.

- Developer hires a consultant to design the water system, produce plans and specifications which meet all DPU criteria.
- Developer or his agent submits plans and specifications to DPU for review and approval. Upon approval, DPU will issue a water availability letter and a willingness and ability to serve letter for submission to SCDHEC.
- Developer prepares SCDHEC Construction Permit Application and submits the package, including the letters mentioned above, to SCDHEC with a \$150.00 check for fees.
- SCDHEC issues Permit to Construct
- Developer informs DPU of construction schedule so that DPU can inspect construction in progress.
- Once construction is complete and all testing (i.e. Bacteriological and Pressure Testing) are complete, DPU personnel will perform a final inspection.
- After DPU final inspection:
 - Developer must provide DPU with Record Drawings.
 - DPU issues an Ownership, Operation and Maintenance letter to SCDHEC.
 - Developer puts together the final package to SCDHEC and requests a final inspection and Permit to Operate.
- Upon receipt of the Permit to Operate, the developer signs the Water Agreement explained in Section 4.3 and water service commences.

Section 4.2.2 SCDHEC Permitting through DPU Delegated Review Process

Projects must be submitted for consideration before DPU will approve the use of the Delegated Review Process.

- Developer hires a consultant to design the water system, produce plans and specifications which meet all DPU criteria.
- Developer or his agent submits plans and specifications to DPU for review and approval. Upon approval, DPU will issue a water availability letter and a willingness and ability to serve letter for submission to SCDHEC.
- Developer prepares SCDHEC Construction Permit Application and submits the package DPU with a check for all fees.
- DPU reviews plans and specifications for conformity to State Primary Drinking Water regulations and then prepares Delegated Review Process letter to SCDHEC and includes with permit package to SCDHEC.
- Developer signs a Water Agreement prior to beginning construction.
- SCDHEC issues Permit to Construct.
- Developer informs DPU of construction schedule so that DPU can inspect construction in progress.
- Once construction and all testing (i.e. Bacteriological and Pressure Testing) are complete, DPU personnel will perform a final inspection.
- After DPU final inspection:
 - Developer must provide DPU with Record Drawings
 - DPU will issue Ownership, Operation and Maintenance letter to SCDHEC.
 - Developer puts together the final package to SCDHEC and requests a final inspection and Permit to Operate.
- Upon receipt of the Permit to Operate, the developer signs the Water Agreement explained in Section 4.3 and water service commences.

Section 4.2.3 Permitting by Division

DPU retains the right to either accept or decline any request for internal design of a development. The Water Division will control the design and supervision of the water construction under the General Construction Permit Program.

Section 4.3 Water Agreement

All developers of new infrastructure projects will be required to execute a standard water agreement prepared by the Water Division which will transfer ownership and operation of the new system to DPU for operation and maintenance once all specifications have been satisfied.

Section 4.4 Water Tap and Impact Fees

Water tap and impact fees will be collected in accordance with the General Terms and Conditions.

Section 4.5 Approved Contractors and Project Inspection

Only contractors that hold the proper license classification under S.C. Code of Laws Section 40-11-410 (3) (c) and have been approved by the DPU may construct or perform any work on any water distribution system which is to be connected to the DPU water system. An approved contractor must be used or the developer must submit documentation of work history and a company profile to DPU for review. It is incumbent upon the developer to fully investigate and satisfy themselves as to the approved contractor's financial status, safety record, insurance status, business/ethical practices, and/or any other area the developer deems necessary. Any contractor performing work on the water distribution system will be subject to inspection during construction to ensure compliance with DPU Minimum Standards. DPU does not warrant or guarantee, in any way, any approved contractor.

Section 4.6 Fire Protection

DPU's service area covers multiple fire districts. Fire protection requirements as established by the appropriate jurisdiction for both the interior and exterior of all buildings must be met as an integral part of the permitting process.

Section 4.6.1 Fire Metering

Full flow fire meters, ranging in size from four to ten inches, will be installed at the developer's expense and will require the acquisition of a utility easement varying in size due to site layout. DPU will provide notification to the developer of the space needed for the meter installation. An approved backflow prevention device must be installed on the line downstream of the meter but before the first connection in order for the meter to be connected.

Section 4.7 Bulk Water Sales

Bulk water sales for construction are available through rental of a fire hydrant meter. For information on how to request this service contact the Water Division.

Section 4.8 Cross-Connection Control Program

In accordance with South Carolina law, DPU administers a state approved Cross-Connection Control Program. Cross Connection procedures must be followed as outlined in the General Terms and Conditions. DPU reserves the right to determine the actual or potential degree of hazard (health, non-health or lethal) and the type of backflow protection to be installed and maintained.

Section 4.9 Project Completion Requirements

When construction is complete, the developer must submit record drawings including detailed dimensions of valves, hydrants, fittings, air release assemblies, etc. for review. The

Superintendent of Planning and Design will conduct an onsite inspection with the developer to ensure that the project is complete and fully operational. Any discrepancies, revisions and/or corrections found in the record drawings will be communicated to the developer.

Once the record drawings are satisfactory, the developer will submit a complete closeout package to the Superintendent of Planning and Design. This package will include a copy of all bacteriological results (if not performed by the Water Division), pressure test results, list of unit costs for all water main construction costs and a certification letter from the professional engineer.

An operation and maintenance letter will be issued by DPU to SCDHEC for the new system once all Water Division requirements have been met. The developer will submit a separate closeout package to SCDHEC based on its requirements for project closeout. Once all provisions have been met by the developer and DPU, SCDHEC will issue a Permit to Operate for the new system(s).

SECTION 5 WASTEWATER UTILITY SERVICES

The construction of all wastewater main extensions to be connected to the DPU system must be coordinated through the Wastewater Division. DPU will provide developers a copy of the sanitary sewer specifications. DPU's General Terms and Conditions are available from the department's website or from any Customer Service Representative. Any questions or requests for meetings during the project may be directed to the Superintendent of Planning and Design.

Section 5.1 Wastewater Connection Requirements

Developments shall be connected to the wastewater collection system if gravity service is available. If the system is not in place or cannot be extended, the developer must provide individual subsurface disposal systems where appropriate, given site density, soil, slope and other conditions, subject to applicable SCDHEC regulations, the City's Sewer Use Ordinance and the General Terms and Conditions.

All developments and lots within subdivisions shall be provided with wastewater facilities conforming to requirements, rules, and policies of SCDHEC, installed in accordance with the prevailing standards and sanitary sewer specifications of DPU and approved by said agencies.

Section 5.2 Submittal and Plan Review

The proposed wastewater collection system of a development will be reviewed upon the receipt of a complete project submittal as discussed in Section 1. Design flow calculations and material specifications for any new construction project must be included in the submittal. All collection mains, force mains, manholes, services, lift stations and appurtenances must conform to the sanitary sewer specifications of DPU.

The Wastewater Division will notify the developer of approval and the required tap and impact fees. If any changes, modifications or additions are needed in order to serve the project, details of this information will be outlined in a letter to the developer with a request

to resubmit after the items have been addressed. If there are any questions about the review, contact the Wastewater Division.

Section 5.3 SCDHEC Permitting

DPU performs reviews of all projects before a permit application is submitted to SCDHEC. A wastewater construction permit application form is located on the SCDHEC website at www.scdhec.gov/permits. The permit application includes instructions and the list of items needed to complete the package. DPU must receive a copy of the SCDHEC Permit to Construct before construction begins and a copy of the Permit to Operate once construction has been completed and approved by DPU. Typical steps for this process are as follows:

- Developer hires a consultant to design the wastewater system and produce plans and specifications which meet all DPU criteria.
- Developer or his agent submits plans and specifications to DPU for review and approval. Upon approval of the plans and specifications, DPU will issue a Wastewater Acceptance letter for submission to SCDHEC.
- Developer signs a Wastewater Agreement as explained in Section 5.6 prior to beginning construction.
- SCDHEC issues Permit to Construct.
- Developer informs DPU of construction schedule so that DPU can inspect construction in progress.
- Once construction and all testing (i.e. pressure testing) are complete, DPU personnel perform a final inspection.
- DPU issues a Wastewater Operation and Maintenance letter to SCDHEC upon receipt of all project completion requirements in Section 5.7.
- Developer provides DPU with record drawings in accordance with Section 5.7.
- Developer puts together the final package and submits it to SCDHEC along with a request for a final inspection and Permit to Operate.

Section 5.4 Wastewater Tap and Impact Fees

Wastewater tap and impact fees will be collected in accordance with the General Terms and Conditions.

Section 5.5 Approved Contractors and Project Inspection

Only contractors that hold the proper license classification under S.C. Code of Laws Section 40-11-410 (3) (c) and have been approved by the DPU may construct or perform any work on any wastewater collection system which is to be connected to the DPU wastewater system. An approved contractor must be used or the developer must submit documentation of work history and a company profile to DPU for review. It is incumbent upon the developer to fully investigate and satisfy themselves as to the approved contractor's financial status, safety record, insurance status, business/ethical practices, and/or any other area the developer deems necessary. Any contractor performing work on the wastewater collection system will be subject to inspection during construction to ensure compliance with DPU Minimum Standards. DPU does not warrant or guarantee, in any way, any approved contractor.

Section 5.6 Wastewater Agreement

All developers of new infrastructure projects will be required to execute a wastewater agreement prepared by the Wastewater Division which will transfer ownership of the new system to DPU for operation and maintenance.

Section 5.7 Project Completion Requirements

An operation and maintenance letter to SCDHEC for the new system will be issued when construction has been completed, inspected and approved by the Wastewater Division. The developer is responsible for the preparation of record drawings accurately depicting the "as-built" locations of all utilities constructed. DPU must receive a printed and electronic copy of the record drawings indicating manhole rim and invert elevations, measurements on all

service wyes and cleanouts. DPU must receive a video of the newly constructed wastewater system on DVD. A copy of the final payment request illustrating itemized unit cost from the contractor must be provided.