

Prince William County Service Authority

Metered Account Types and Configurations



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Additional Resources

[Prince William County Service Authority Website](http://www.pwcsa.org)
www.pwcsa.org

[Developer Rates & Fees](#)

[Customer Handbook](#)

[Utility Standards Manual](#)

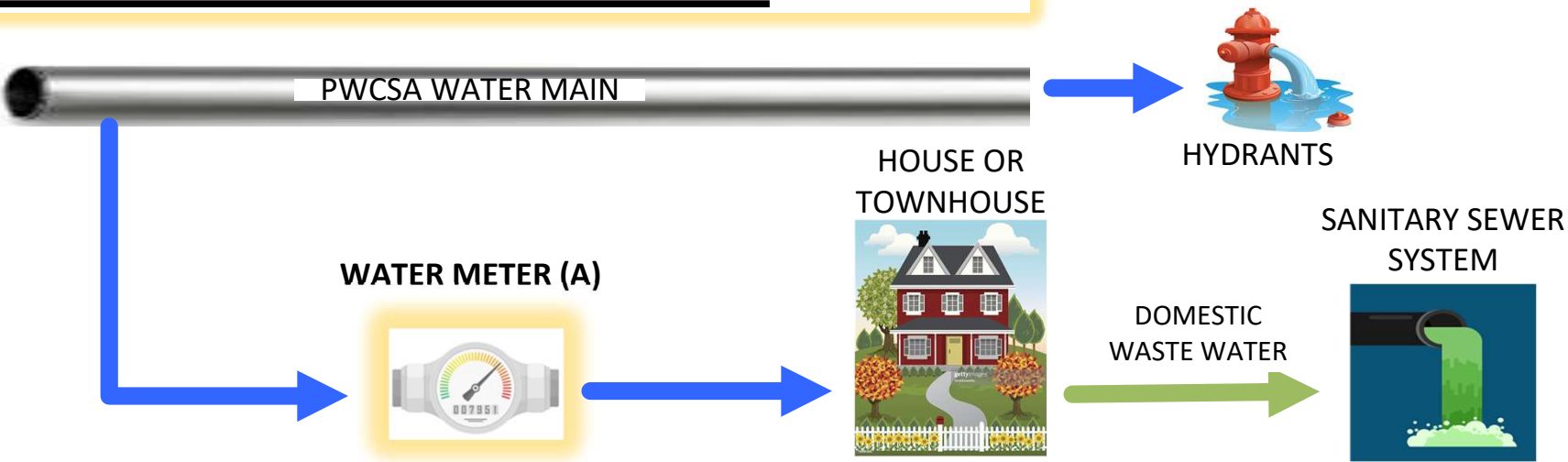
[Water Distribution System Details](#)

Revision: Original
Effective: December 1, 2022
Approved: Samantha Kearney

Single Family Residential Metered Water & Sewer Connection

- The water meter is located outside the house at the property line.
- Water service is provided from PWCSA’s water main.
- Domestic wastewater is discharged to PWCSA’s sewer system.
- Meter readings are used to bill for both water and sewer service.
- 1 Equivalent Residential Unit (ERU) of water and sanitary sewer capacity is charged for this account. See PWCSA’s Developer Rates & Fees.

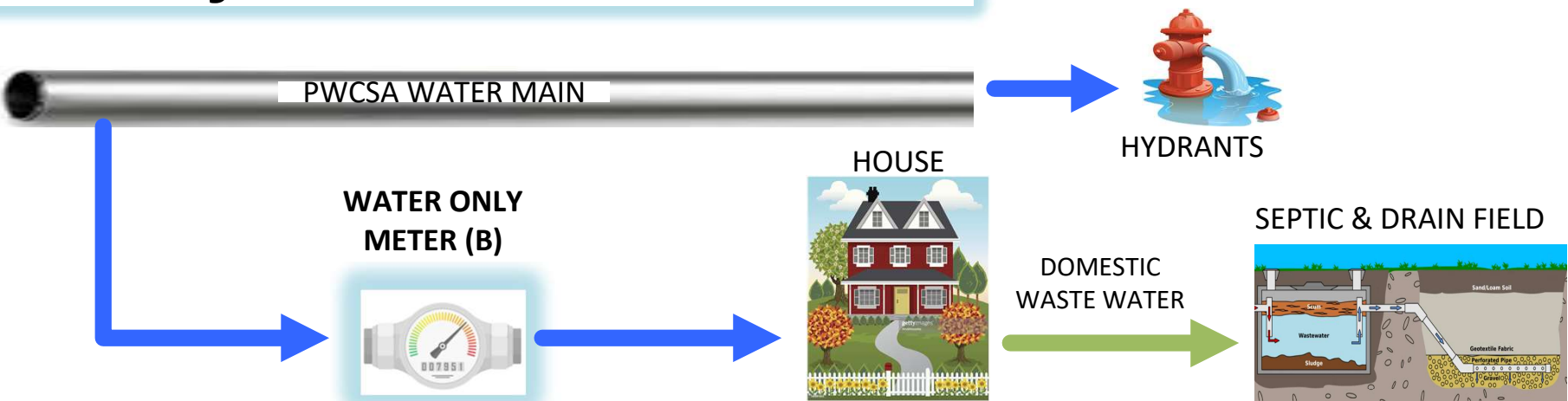
** Water Bill = Meter A Readings
Sewer Bill = Meter A Readings



Single Family Residential Metered Water Only Connection

- The water meter is located outside the house at the property line.
- Water service is provided from PWCSA’s water main.
- Domestic wastewater is discharged to a private septic tank and drain field.
- Meter readings are used to bill for only water service.
- 1 Equivalent Residential Unit (ERU) of water capacity is charged for this account. See PWCSA’s Developer Rates & Fees.

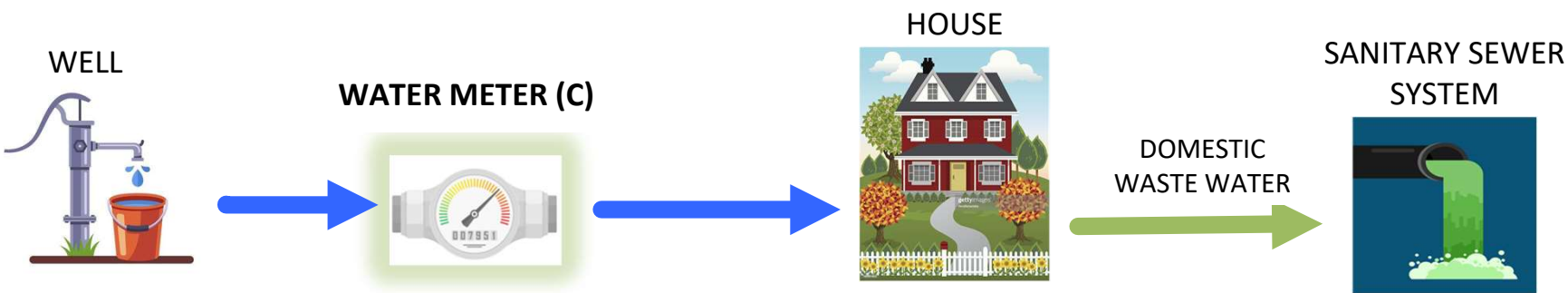
** Water Bill = Meter B Readings



Single Family Residential Metered (Well) Sewer Only Connection

- The water meter is installed between the private well and the house.
- The meter is located outside the house.
- Water service is provided from a private well.
- Water running through the meter is assumed to return to the PWCSA’s sewer system.
- Meter readings are used to bill for only sewer service.
- 1 Equivalent Residential Unit (ERU) of sanitary sewer capacity is charged for this account. See PWCSA’s Developer Rates & Fees.

** Sewer Bill = Meter C Readings

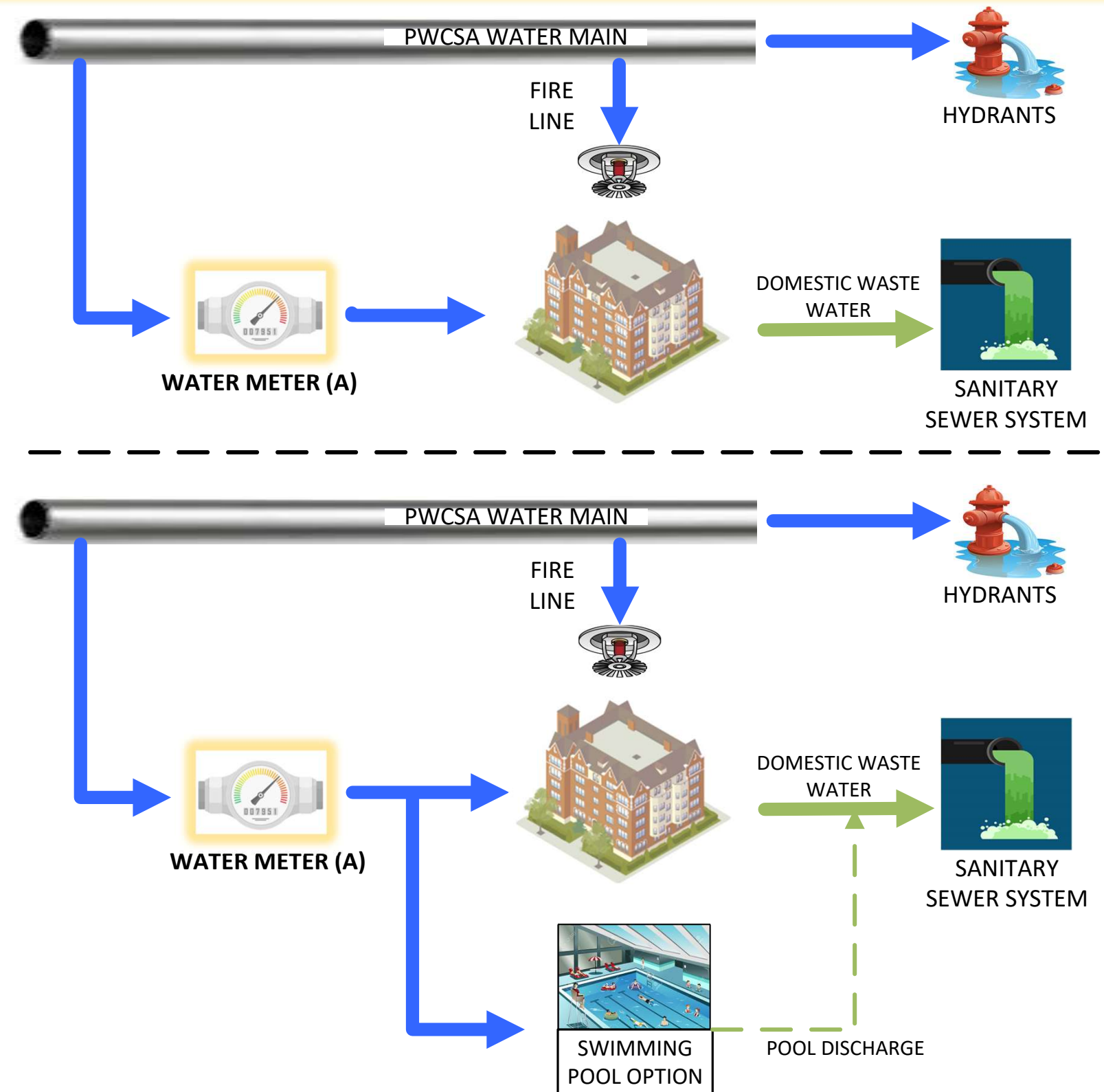


Multi-Family Metered Water & Sewer Connection

- A multi-family building is defined as a structure containing more than one dwelling where no external property is deeded to the individual dwelling units (e.g. apartments, condominiums, stacked townhouses, trailer parks, or like use).
- The water meter is located outside the building.
- Water service is provided from PWCSA's water main.
- Domestic wastewater is discharged to PWCSA's sewer system.
- One water meter is used per structure. PWCSA does not meter individual dwelling units in a multifamily building. The owner can install private meters inside the building to monitor the use of each unit; however, PWCSA will not read or make use of private meters.
- Meter readings are used to bill for both water and sewer service.
- Both water and sanitary sewer capacity fees are charged for this account and shall be assessed based on 80% of 1 Equivalent Residential Unit (ERU), per dwelling unit. See PWCSA's Developer Rates & Fees.

Example, a building with 100 multi-family dwelling units:
100 multi-family dwelling units x 80% = 80 water ERUs
100 multi-family dwelling units x 80% = 80 sewer ERUs

** Water Bill = Meter A Readings
Sewer Bill = Meter A Readings

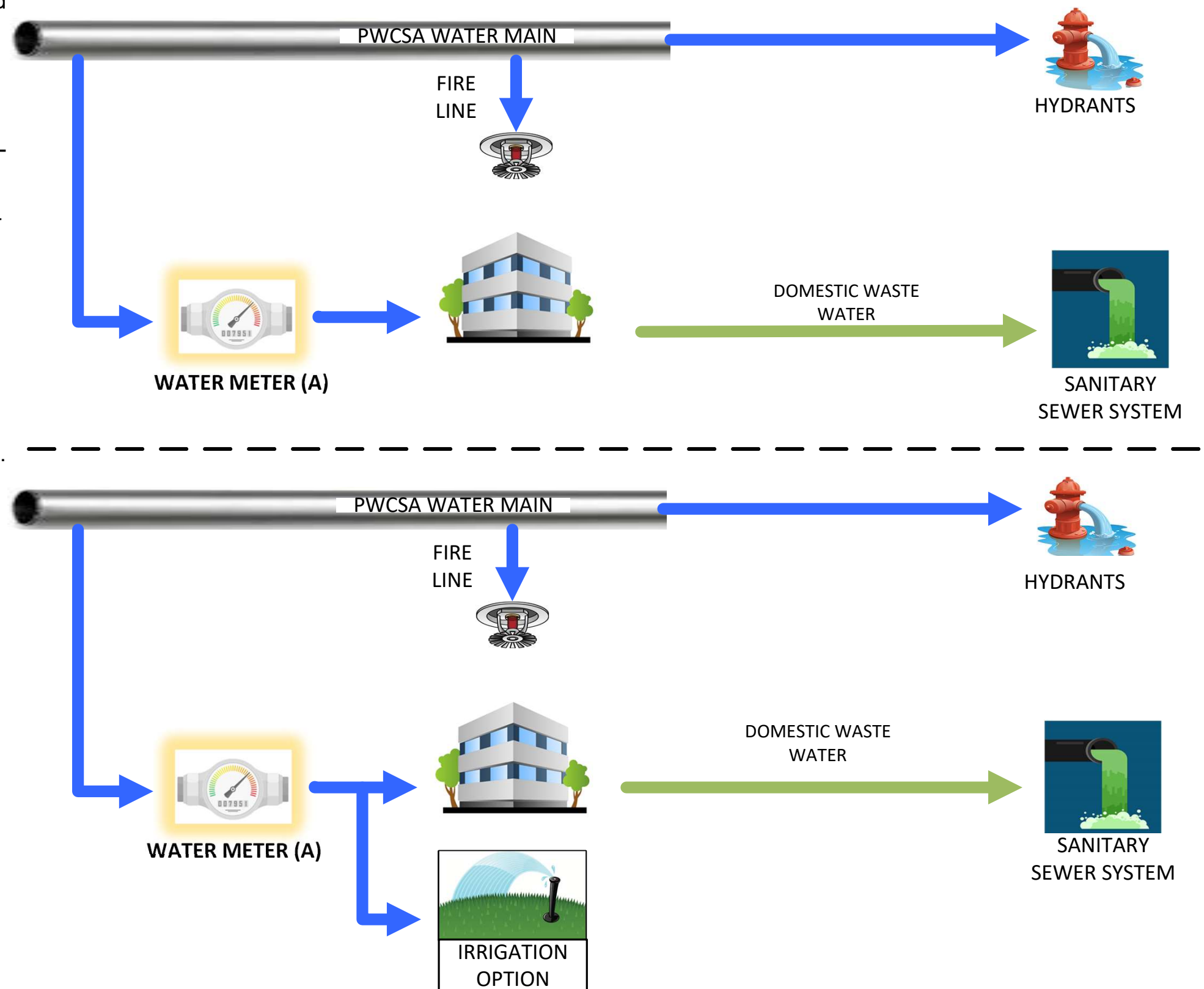


Commercial Metered Water & Sewer Connection

- A commercial use is defined for all uses that are not considered residential, multi-family, or student housing. Commercial uses include, but are not limited to, assisted living, automotive, business, car wash, churches, clinics, data centers, dental, education centers, fitness centers, food preparation, gaming, gas stations, government, grocery, health care, hospitals, industrial, laboratory, laundromat, manufacturing, markets, non-profit, nursing homes, office, pharmaceutical, recreation centers, recycling, rehabilitation centers, research, restaurants, retail, salons, schools, storage, warehouse, worship centers, or like uses. PWCSA shall consult the zoning designation and special use permits as administered by Prince William County to confirm the needed metered account type.
- The water meter is located outside the building, near the water main, on the property it serves.
- Water service is provided from PWCSA's water main.
- Domestic wastewater is discharged to PWCSA's sewer system.
- Meter readings are used to bill for both water and sewer service.
- Both water and sanitary sewer capacity fees are charged for this account and shall be assessed based on Equivalent Residential Units (ERU). See PWCSA's Developer Rates & Fees.
- Commercial meters 5/8"x3/4", 1" and 1 1/2" have set capacity allotment associated with the meter size. For meters 2" and larger, capacity shall be purchased based on the reported customer's peak monthly usage, but shall not be less than 120,000 gallon per month.

Example, a commercial building needing a 1 1/2" meter:
7 water ERUs (70,000 gallons per month of water capacity)
7 sewer ERUs (70,000 gallons per month of sewer capacity)

** Water Bill = Meter A Readings
Sewer Bill = Meter A Readings

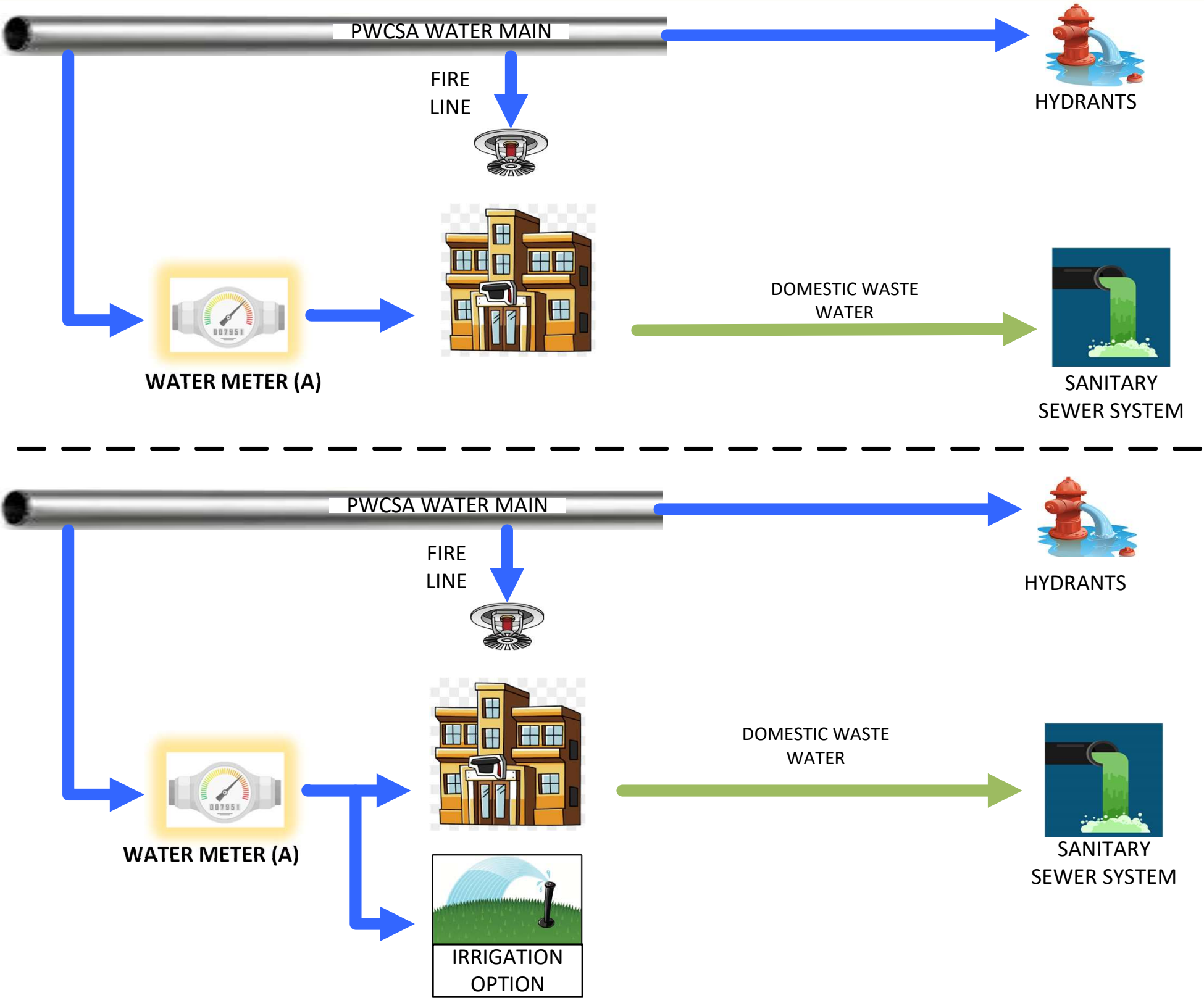


Revision: Original
Effective: December 1, 2022
Approved: Samantha Kearney

Student Housing Metered Water & Sewer Connection

- A student housing use is defined for structures that function as a temporary residence dedicated to housing students attending an educational institution. They are not considered permeant dwellings for the residence nor is the living space available to rent by a non-student.
- PWCSA requires supporting documentation to confirm student housing use that is consistent with Prince William County’s land zoning or special use permit.
- The water meter is located outside the building, near the water main, on the property it serves.
- Water service is provided from PWCSA’s water main.
- Domestic wastewater is discharged to PWCSA’s sewer system.
- Meter readings are used to bill for both water and sewer service.
- For student housing, capacity shall be purchased based on the reported customer’s peak monthly usage, which is converted to Equivalent Residential Units (ERU). See PWCSA’s Developer Rates & Fees.

** Water Bill = Meter A Readings
Sewer Bill = Meter A Readings



Mixed Use (Residential & Commercial) Metered Water & Sewer Connection

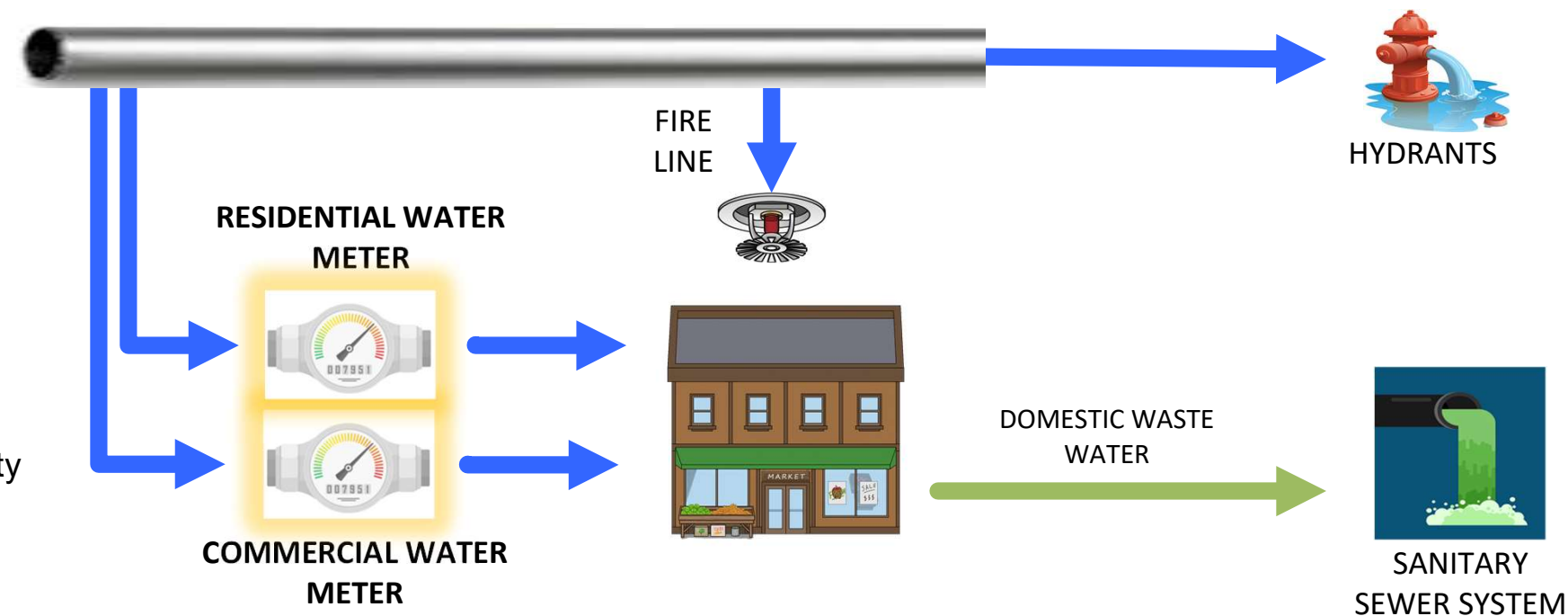
- A mixed use building is defined as a structure that proposes both residential and commercial use.
- Capacity fees are assessed differently for multi-family and commercial uses; therefore, separate meters and separate accounts are required for each use.
- Different water and sanitary sewer billing rates are used for multi-family and commercial usage; therefore, separate accounts and plumbing systems are required. No cross-connections are permitted between the residential and commercial plumbing (water) systems.
- The water meters are located outside the building. PWCSA does not meter individual dwelling units inside the building. The owner can install private meters inside the building to monitor the use of each unit; however, PWCSA will not read or make use of private meters.
- Water meters are located outside the building, near the water main, on the property it serves.
- Water service is provided from PWCSA's water main.
- Domestic wastewater is discharged to PWCSA's sewer system.
- Meter readings are used to bill for both water and sewer service.

- Both water and sanitary sewer capacity fees are charged for a multi-family account and shall be assessed based on 80% of 1 Equivalent Residential Unit (ERU), per dwelling unit. See PWCSA's Developer Rates & Fees.

Example, a building with 100 multi-family dwelling units:
100 multi-family dwelling units x 80% = 80 water ERUs
100 multi-family dwelling units x 80% = 80 sewer ERUs

- Both water and sanitary sewer capacity fees are charged for a commercial account and shall be assessed based on Equivalent Residential Units (ERU). See PWCSA's Developer Rates & Fees.
- Commercial meters 5/8"x3/4", 1" and 1 1/2" have set capacity allotment associated with the meter size. For meters 2" and larger, capacity shall be purchased based on the reported customer's peak monthly usage, but shall not be less than 120,000 gallon per month.

Example, a commercial building needing a 1 1/2" meter:
7 water ERUs (70,000 gallons per month of water capacity)
7 sewer ERUs (70,000 gallons per month of sewer capacity)

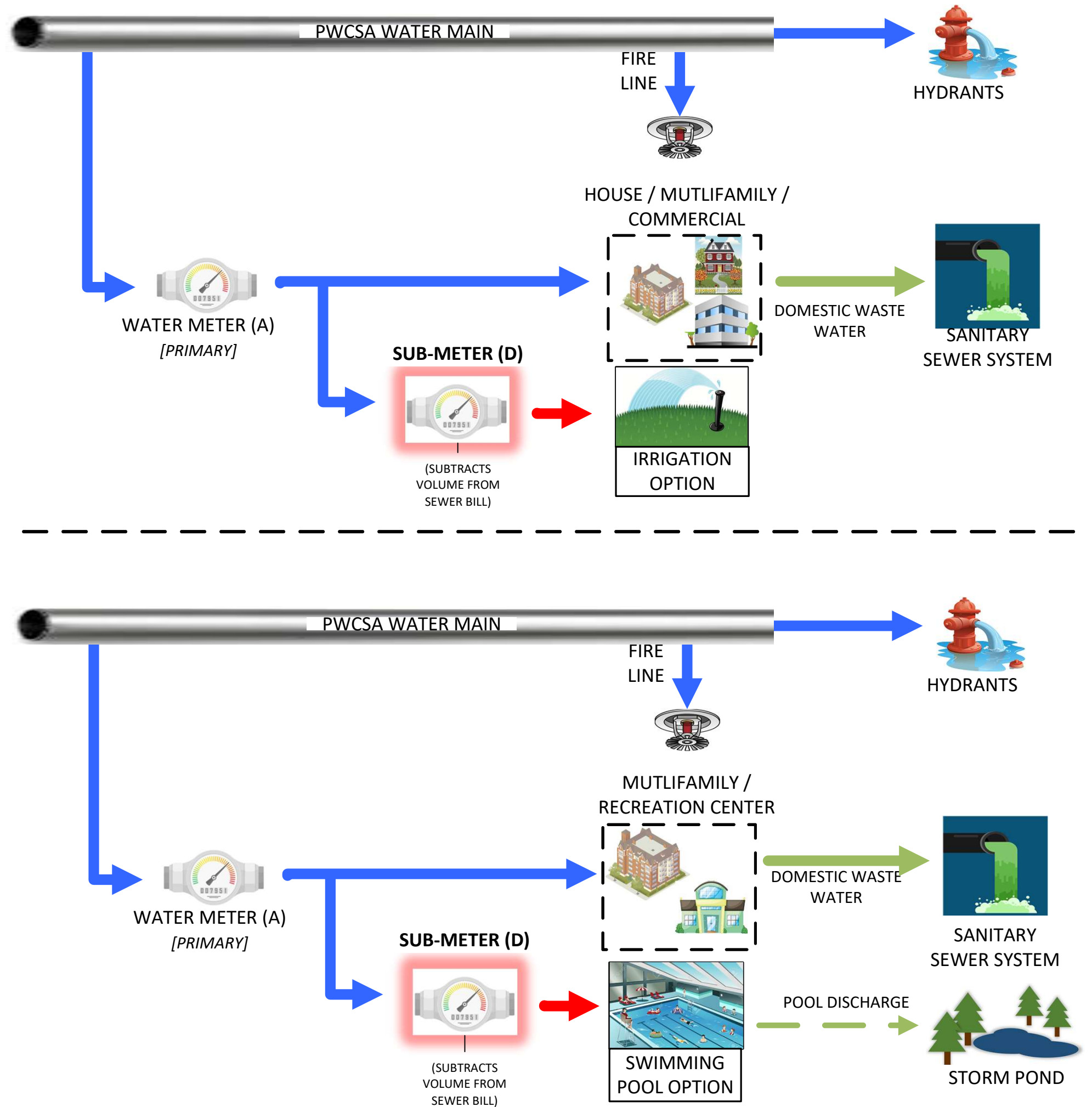


Sub-Meter

- The principle use for a sub-meter is for applications where the water does not return to the sanitary sewer. Exceptions are made to allow the use of a sub-meter for process applications where residual water from the process passes through a process discharge sewer meter before returning to the sanitary sewer. See the process discharge sewer meter summary for additional information.
- The sub-meter is connected to a branch off the service line between the primary water meter and the building (customer side) and is located outside. A sub-meter is to reside within 5 feet of the primary water meter when possible.
- Sub-meter readings are linked to a water and sewer account and is not a separately billed account. Only two sub-meters can be associated with a water and sewer account.
- The sub-meter is a **subtraction meter**. It subtracts out the volume from the sewer billing.
- Capacity is allocated with the primary water meter. There is no capacity purchase for a sub-meter; however, a service charge is assessed for the sub-meter.
- The size of the sub-meter cannot be larger than the primary water meter.
- If the sub-meter fails or is subverted, no subtraction is made to the billing (e.g. sewer is billed at 100 percent of consumption registered at the primary water meter).

** A sub-meter is typically used when the building is not using the all the purchased water capacity associated with the primary water meter.*

** Water Bill = Meter A Readings
Sewer Bill = Meter A – Meter D

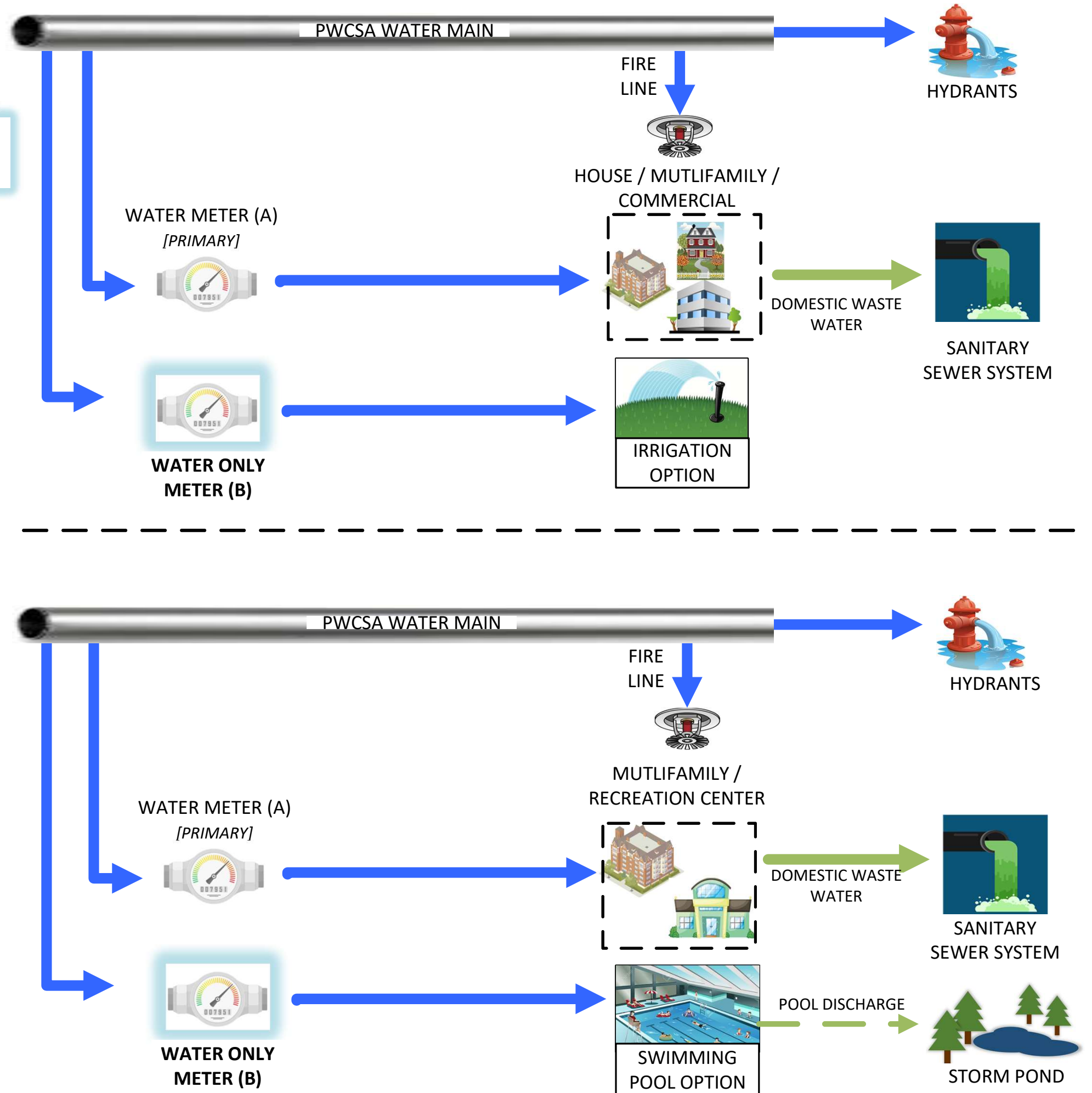


Water Only Meter Connection

- The principle use for a water only meter is for applications where the water does not return to the sanitary sewer. Exceptions are made to allow the use of a water only meter for process applications where residual water from the process passes through a process discharge sewer meter before returning to the sanitary sewer. See the process discharge sewer meter summary for additional information.
- The water only meter is connected directly to the water main and is located outside the building, near the water main, on the property it serves.
- Meter sizes greater than 2-inch require sizable vaults and are subject to a significant monthly service charge.
- Water capacity fees are charged for a water only metered account. The capacity associated with the account is independent of the primary water meter. See PWCSA's Developer Rates & Fees.
- Meter readings are used to bill only for water service.

** A water only meter is typically used when the building is using nearly all the purchased water capacity associated with the primary water meter.*

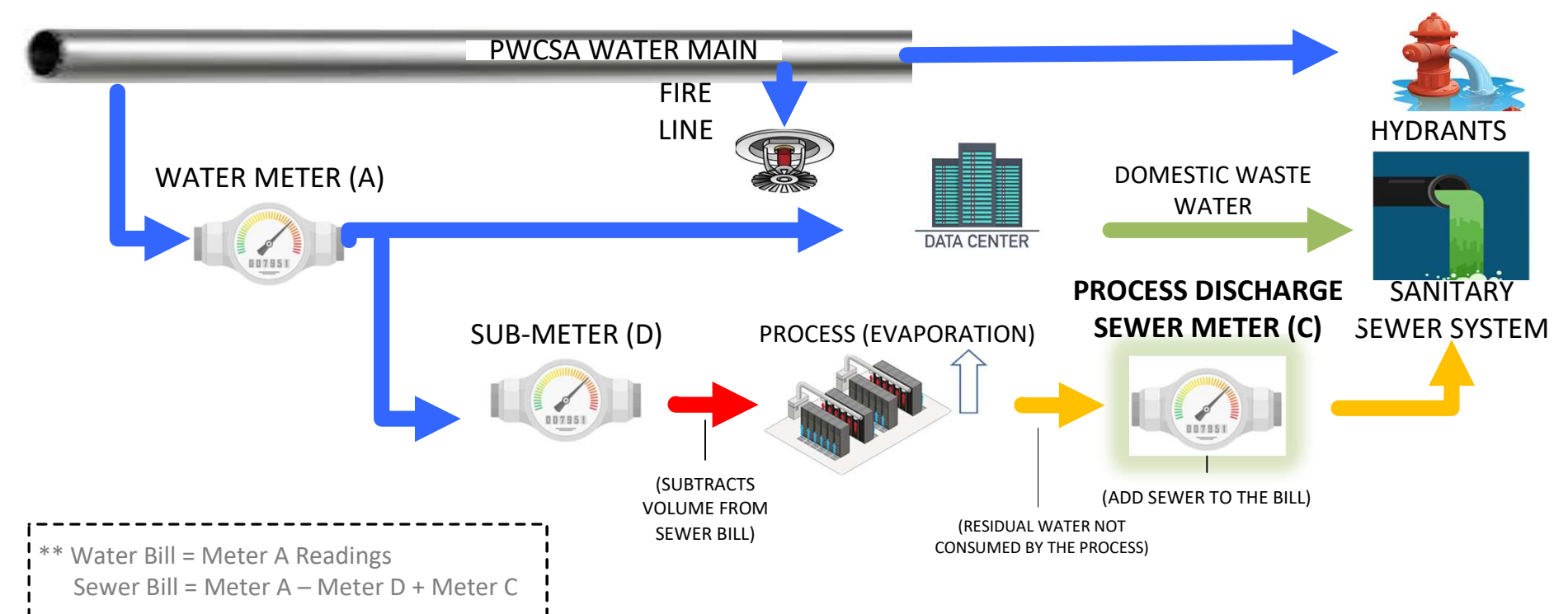
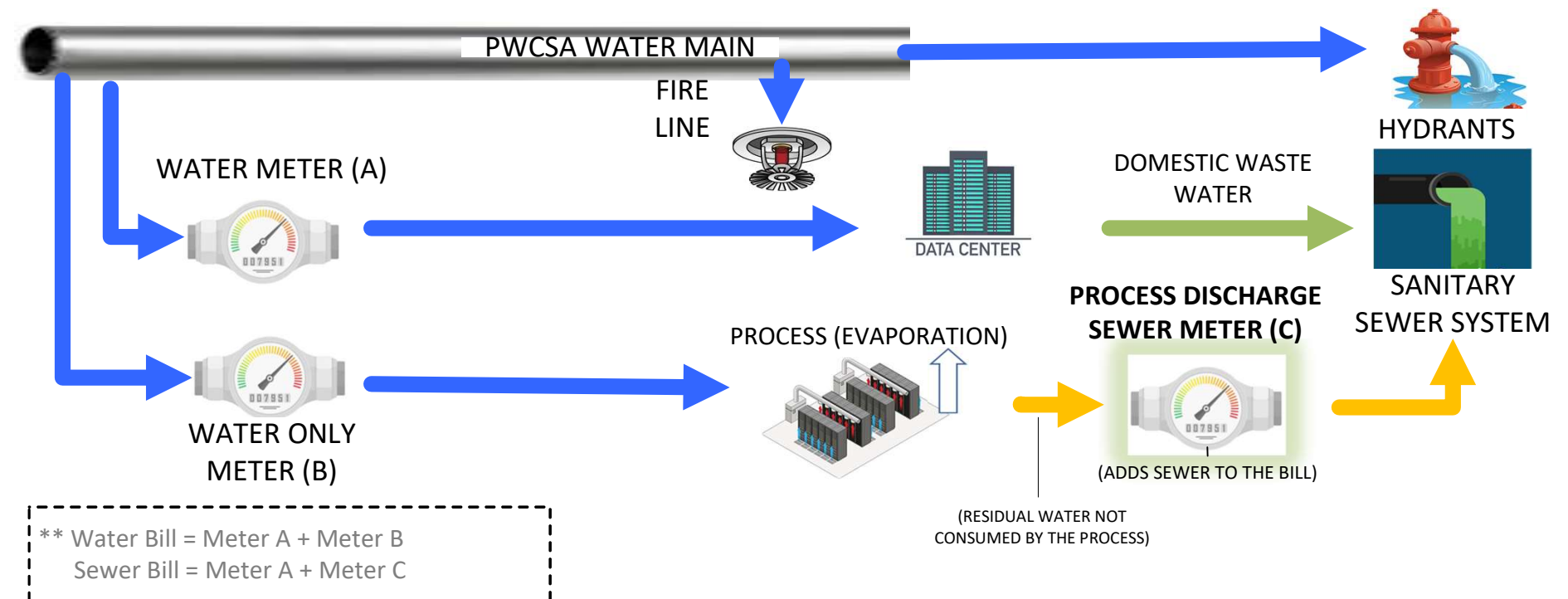
** Water Bill = Meter A + Meter B
Sewer Bill= Meter A



Process Discharge Sewer Metered Connection

- A process discharge sewer meter can be used for applications where water is needed for a process (manufacturing, bottling, cooling, etc.) and most of the water does not return to the sanitary sewer; however, there is still a required discharged volume back to the sanitary sewer.
- Process discharge sewer meters cannot register flow with solids; therefore, they are unable to measure flow with domestic waste.
- Process discharge sewer meters are not permitted for use where the effluent is classified as hazardous. Any chemical additives or treatment of the effluent must be disclosed in an Industrial User Survey submitted to PWCSA.
- A process discharge sewer meter is only permitted where there is a dedicated distribution system supplying water to the process through a sub-meter or water only meter. A dedicated collection system is required to run the effluent through a process discharge sewer meter separate from the private domestic (wastewater) plumbing system.
- All operational scenarios for the process shall maintain the discharge rate of the effluent within the minimum and the maximum flow rates of the process discharge sewer meter. The meter installation shall comply with all the manufacturer's requirements for the meter.
- An unmetered emergency bypass of the process discharge sewer meter is not permitted to discharge to the sanitary sewer system.
- The process discharge sewer meter is located outside the building on the property it serves and requires a sizeable vault for installation.
- Meter readings are used to bill only for sewer service. It adds sewer consumption to the bill.
- Sewer capacity fees are charged for a process discharge sewer metered account. See PWCSA's Developer Rates & Fees.

** A process discharge sewer meter is typically used when significant amount of water does not return to the sanitary sewer system*



Master Water and Sewer Meter Connection

- A large single (master) meter can be used to supply the on-site water system (e.g. fire protection, domestic, and process). Typically, an 8-inch meter is needed to supply fire flow of 2,500 gallons per minute.
- All pipe, valves, and hydrants past the meter are privately owned and maintained.
- Meter sizes greater than 2-inch require sizable vaults and are subject to a significant monthly service charge. Water cannot run backwards through the meter. A check valve shall be used to isolate the private water system from the public water system.
- All water that registers through the master meter is billed for sanitary unless the water runs through a sub-meter (e.g. subtraction meter) for a given process.
- Capacity fees are not assessed for the fire protection component of the service (e.g. hydrants and fire lines); however, all water used for fire protection will be billed as consumption as the water runs through the master meter.
- Capacity fees are assessed based on the specific customer's peak monthly usage. Capacity shall not be less than 12 Equivalent Residential Units (ERU). See PWCSA's Developer Rates & Fees.
- Mixed water and sanitary sewer ERU capacity may be purchased for the master meter **only if there is a use that employs a process discharge sewer meter.**
- Typically, a larger distribution pipe supplies water to the building, hydrants and fire lines. A smaller distribution pipe supplies water to the process through a sub-meter.

** A master meter is typically used for secure sites that do not want to provide access for public utilities*

Sub-Meter

- Sub-meter readings are linked to a water and sewer account and is not a separate billed account. Only two sub-meters can be associated with a water and sewer account.
- The sub-meter is a **subtraction meter**. It subtracts out the volume from the sewer billing.
- Capacity is allocated with the master meter. There is no capacity purchase for a sub-meter; however, a service charge is assessed for the sub-meter.
- If the sub-meter fails or is subverted, no subtraction is made to the billing (e.g. sewer is billed at 100 percent of consumption registered at the water and sewer meter).

Process Discharge Sewer Metered Connection

- A process discharge sewer meter can be used for applications where water is needed for a process (manufacturing, bottling, cooling, etc.) and most of the water does not return to the sanitary sewer; however, there is still a required discharged volume back to the sanitary sewer.
- Process discharge sewer meters cannot register flow with solids; therefore, they are unable to measure flow with domestic waste nor are they permitted for use where the effluent is classified as hazardous.
- Meter readings are used to bill only for sewer service. It adds sewer consumption to the bill.
- Sewer capacity fees are charged for a process discharge sewer metered account. See PWCSA's Developer Rates & Fees.

CAPACITY PURCHASE BREAKDOWN EXAMPLE:

MASTER WATER & SEWER METER (A)

100 ERUs of Water capacity (20 for the buildings and 80 for process)
20 ERUs of Sewer capacity (20 for the buildings)

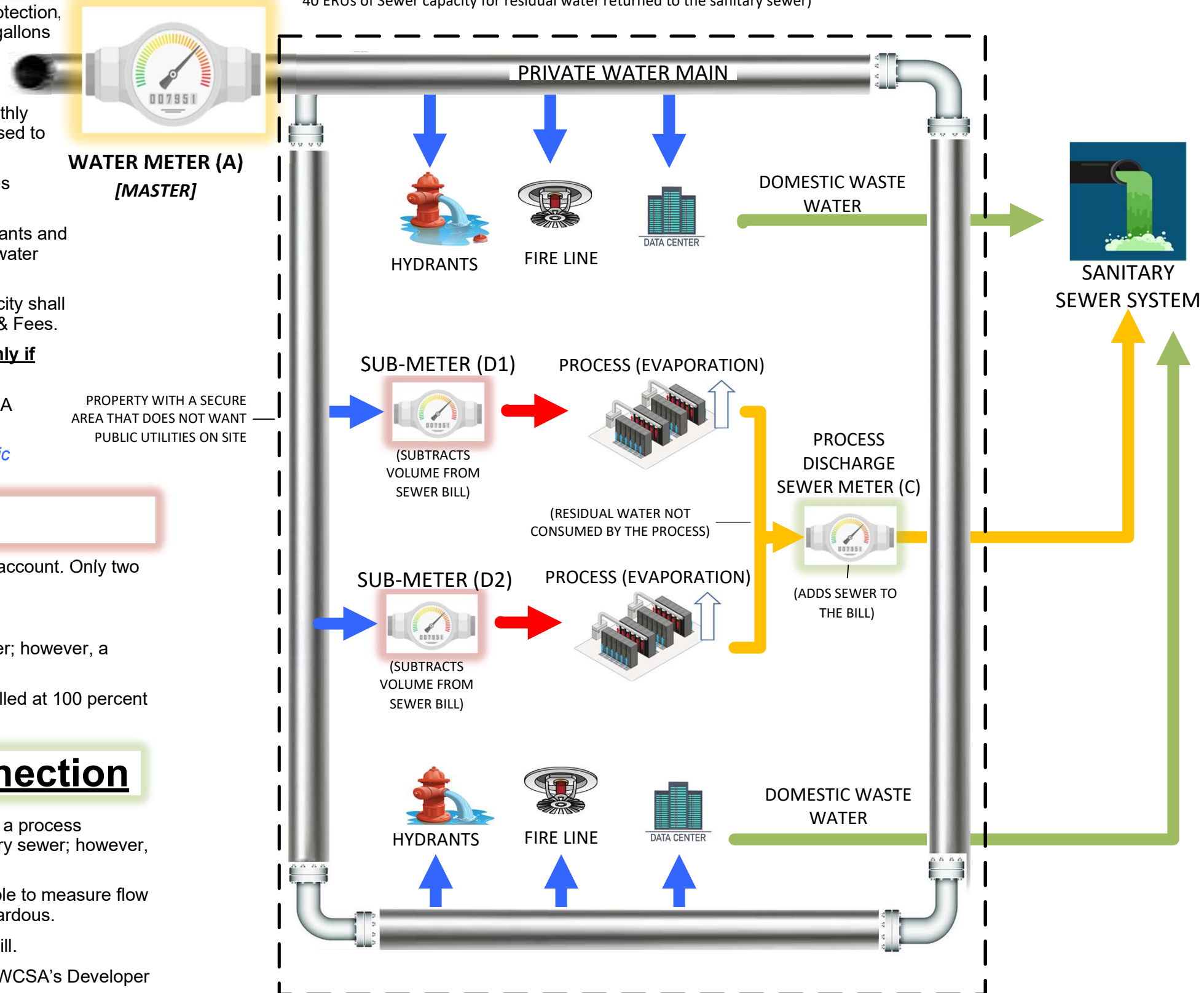
SUB-METER (D1 & D2)

Subtraction meters (this is not an account; no associated ERUs)

SEWER ONLY PROCESS METER (C)

40 ERUs of Sewer capacity for residual water returned to the sanitary sewer)

****Water Bill = Meter A Readings**
Sewer Bill = Meter A – Meter D1 & D2 + Meter C



Water Meter Summary & General Specifications

Meter Size: 5/8"
Positive Displacement



- Minimum Flow Rate:
1/8 gallon per minute
- Maximum Flow Rate:
20 gallons per minute
- Normal Operating Range:
½ to 20 gallons per minute
- Thread Type:
NPSM ¾" - 14"

Meter Size: 1"
Positive Displacement



- Minimum Flow Rate:
3/8 gallon per minute
- Maximum Flow Rate:
50 gallons per minute
- Normal Operating Range:
1 to 50 gallons per minute

Meter Size: 1.5"
Positive Displacement



- Minimum Flow Rate:
3/4 gallon per minute
- Maximum Flow Rate:
100 gallons per minute
- Normal Operating Range:
2 to 100 gallons per minute

Meter Size: 2"
Positive Displacement



- Minimum Flow Rate:
1 gallon per minute
- Maximum Flow Rate:
160 gallons per minute
- Normal Operating Range:
2 ½ to 160 gallons per minute

Meter Size: 3"
Compound Meter
Turbine & Displacement



- Minimum Flow Rate:
1/8 gallon per minute
- Maximum Flow Rate:
450 gallons per minute
- Normal Operating Range:
½ to 450 gallons per minute

Meter Size: 4"
Compound Meter
Turbine & Displacement



- Minimum Flow Rate:
1/2 gallon per minute
- Maximum Flow Rate:
1,000 gallons per minute
- Normal Operating Range:
1 to 1,000 gallons per minute

Meter Size: 8"
HP Protectus III
Turbine & Displacement



- Minimum Flow Rate:
1 gallon per minute
- Maximum Flow Rate:
4,000 gallons per minute
- Normal Operating Range:
2 to 4,000 gallons per minute

PROCESS DISCHARGE SEWER METERS

For process discharge sewer meters less than 3", consult with PWCSA Engineering Staff

Meter Size: 3"
Ultrasonic Meter



- Minimum Flow Rate:
1/2 gallon per minute
- Maximum Flow Rate:
500 gallons per minute
- Normal Operating Range:
3/4 to 500 gallons per minute

Meter Size: 4"
Ultrasonic Meter



- Minimum Flow Rate:
3/4 gallon per minute
- Maximum Flow Rate:
1,250 gallons per minute
- Normal Operating Range:
1 ½ to 1,250 gallons per minute