

WATER & SEWER UTILITIES

POLICIES & PROCEDURES

Cowlitz County Department of Public Works
Water-Sewer Utilities Division



Utilities Manager



Director

Date: November 3, 2015

Originally published: August 23, 2002

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BACKGROUND

The Water-Sewer Utilities Division of Cowlitz County Department of Public Works is an enterprise fund established in Cowlitz County, Washington. The utility maintains and operates all Cowlitz County owned water and sewer services. Water and sewer services are provided to approximately 1,250 addresses in certain rural areas of the county. Some areas are serviced with water, some with sewer and some with both services. Service areas include the town of Ryderwood, the Camelot, Woodbrook and Toutle areas, as well as the SR504 Spirit Lake Memorial Highway corridor including Silver Lake and Toutle Riverview. The water service in this area begins at the City of Castle Rock reservoir located at the Studebaker Pump Station and runs past the town of Toutle on South Toutle Road near Frank Smith Road. The sewer service terminates at the waste water treatment plant which is also on South Toutle Road. All County water and sewer areas are managed, maintained and operated as one system in which all customers pay the same water and sewer rates regardless of location.

The Water and Sewer Utilities Division employs a Utilities Manager, Diking Engineer, Utilities Foreman and several Utility Operators/Workers who are certified with the State of Washington to perform tests and maintain operations to ensure clean, potable water and properly treated wastewater to necessary standards. The Utilities Manager is a licensed Professional Civil Engineer and is responsible for managing the water and sewer infrastructure systems, seeking and securing grants and low interest financing, establishing rates and assuring compliance with ordinances, policies, and regulations for all water and sewer utility operations. The Utilities Manager is also responsible for engineering and dike and levee maintenance assistance to several special districts in Cowlitz County as requested by their board of supervisors. These are Lexington Flood Control Zone District, Silver Lake Flood Control District, Drainage Improvement District #15 in Willow Grove, Drainage Improvement District #1 in North Kelso, Consolidated Diking Improvement District #2 in Woodland, and Consolidated Diking Improvement District #3 in South Kelso.

The Board of County Commissioners and the Director of the Department of Public Works provide administrative oversight to the utility. The Accounting and Office Manager of the Department of Public Works oversees customer service, accounting and other clerical functions necessary to assure exemplary service to customers, accurate billing, payment handling, public meeting records, professional correspondence and solvent finances. The utility is audited annually to assure compliance with statutes of Washington State, internal policies and good business practices by the Washington State Auditor's office.

Water and sewer base rates, the consumption rate and SDC's (system development charges) are established by resolution of the Board of County Commissioners. Rates are set separately for water and sewer to recover the cost of each service. A one-time water and/or sewer SDC is assessed to new customers upon connection. The SDC is established for the proportional share necessary to recover costs associated to construct and fund all existing and future expanded water and sewer infrastructure assets.

All revenues collected from customers of the utility remain in the utility to cover expenses that provide customer service, administration and accounting, routine maintenance and operational services, required regulatory testing, training, certification and audits, and to establish reserves for future construction, replacement and non-routine major maintenance of the utility equipment and infrastructure. The infrastructure includes water and sewer distribution and collection mainlines, water reservoirs, water and sewer treatment plants, and pump stations. Special districts are separately funded, including all costs associated with administration and maintenance of infrastructure, such as pump houses, dikes and levees.

The general ordinances of the utility are codified in Cowlitz County Code, Title 15, Water, Sewer and Waste Disposal which are published at the following website:

<http://www.codepublishing.com/wa/cowlitzcounty/>

CHAPTER 1

WATER & SEWER SERVICE CONNECTIONS

A. PURPOSE

To establish Utilities Division procedures for the initiation and maintenance of accounts, collection of billings, and control of water/sewer services.

B. DEFINITIONS

1. Billing Date: Utility billings shall be dated no later than the 17th of every month.
2. Delinquent Account: Bills are delinquent unless paid in full by the working day on or immediately following the 15th of the following month, as shown on the utility bill, or within 15 days of a final billing on closed accounts.
3. Utility Billing: A utility bill may contain charges for water and sewer services.
4. Water Shut-off: The water meter will be “locked off” by a County operator to prevent flow of water to the property.
5. Door Hangers: A notice that may be hung on the doorknob of a residence to alert them to conditions affecting their service. The door hanger identifies a description of the situation and necessary action (if any). In the case of shutoffs due to delinquency, a shut-off notice is mailed to the owner as well as parties authorized by the owner to receive notices and bills prior to shut-off occurring.

C. RESPONSIBILITIES

1. Utilities Administration: Consists of several support staff that provide billing, accounting and customer service and report to the Accounting and Office Manager. They receive applications for new service, receive required deposits and payments, provide customer service, prepare billings, administer collections, and provide work orders to the Utility Operators to re-read the meters, perform leak checks, shut-offs and connection activities, and place door hangers.
2. Maintenance and Operations: Consists of one Foreman and three Utility Operators that report to the Utilities Manager. They maintain, repair and operate the water and sewer infrastructure system, install and construct new infrastructure, provide leak repair on mainlines, read meters, deliver door hangers, and perform water shut-off/connection services as directed by the Utilities Manager and as requested by the Utilities Administration staff. Maintenance and operational services are provided to Diking, Drainage and Flood Control Districts as requested by their board of supervisors.
3. The Utilities Manager: Reports to the Director of Public Works, manages the water and sewer system as well as services provided to special districts and assures compliance with ordinances, policies, and regulations, supports the Utilities Administration and Maintenance and Operations staff, collaborates with the Accounting and Office Manager to provide direction on difficult or unusual situations, in formulating rate recommendations, and in approving billing adjustments and lien and payment arrangements as provided for in policy.

4. The Director of Public Works: Reports to the Board of County Commissioners, oversees the Utilities Manager and the Accounting and Office Manager, and provides support to and has oversight and direction of the Maintenance and Operations and Utilities Administration staff.
5. Prosecuting Attorney's Office and County Treasurer: Supports the Utilities Division of the Department of Public Works in legal options, filing liens, property foreclosure, and undertaking any legal action required to enforce the collection of delinquent accounts.
6. The Board of County Commissioners: Supports department functions and the citizens of Cowlitz County. The Board must pre-approve all foreclosures and excessive leak adjustments.

D. APPLICATION FOR SERVICE AND DEPOSITS

1. Application for water and/or sewer services shall be made to the Department of Public Works upon forms prepared by the Department. No service will be provided until the application has been completed, approved, and any required deposit and fees paid.

Application shall be made by the owner of the property to be served. A temporary connection may be requested by the owner's authorized agent (real estate sale agent or property management service agent). An application for service shall only be an application until service has begun. It shall then become in effect a contract under which the property owner agrees to pay for service continuously until terminated as provided in this chapter.

Applicants must answer all required questions to determine if conditions at the property may require inspection or backflow devices. A positive response to any of the questions will result in referral of the application to the Utility Manager who will determine if further action or equipment is necessary. The referral will not delay the water service being connected.

Water shall not be connected at any service address until all delinquent water or sewer bills, developer extension agreements, and/or similar obligations to the County have been paid in full or other satisfactory contractual arrangements made. However, if a change of ownership has transpired in the previous 30 days, service may be connected in the name of the new owner to allow time for the previous owner to pay the final bill. The outstanding bill will transfer to the account of the new owner if it is not paid in full 45 days from final bill issuance.

Owners may request duplicate bills and notices to be sent to their tenant or other parties. Payments may be received from tenants or other parties. However, instructions on the account, requests for adjustments, and payment arrangements may only be negotiated by the contract holder or owner.

2. A deposit, as stated in Chapter 3, shall be paid at the time of application for service. Exceptions to this requirement are as follows:
 - a. Governmental agencies, including schools.
 - b. Any person who has had previous service within the last five (5) years with the County, whose payment record indicates no more than one late

payment of service charges during a 12-month consecutive period in the most recent 24-month period of service.

3. If all water and/or sewer charges have been paid in full, the County will apply for refund of the deposit from the County Treasurer at termination of service. The deposit will be applied to the account. If the customer has a credit balance due to overpayment or application of deposit, the County will apply for refund of the credit balance to the payer of the last payment on the account.
4. Upon request by the contract holder, deposits will be returned after one year to customers whose payment record indicates no late payment charges during the preceding consecutive twelve-month period. If an owner chooses to have a tenant or another party make payments on the utility bill, the owner remains responsible for timeliness and liability of payment.
5. A deposit may be transferred to a new service address providing the customer's account at his former address has been paid in full.

E. SUMMARY OF BILLING PROCEDURES

1. Utility bills are sent out to the customers covering consumption and/or base rate service charges as of the 15th of every month. Water consumption shall be billed from the date of the last reading to the date of the most current reading which typically occurs at approximately month-end. This allows time to remedy miss-readings and research high readings or reading meters on unoccupied properties prior to issuance of the billing.

Liability for utility charges attach to the property rather than to the customer. They are, in effect, liens against the property.

F. EFFECTIVE DATES OF BILLING

1. Water Account Only. Effective date is the date of installation as shown on the utility service order.
2. Sewer Account Only. Effective date is the date of inspection as shown on the sewer permit.
3. Combination Account. Effective date is the date of installation as shown on the utility service order.

G. ADJUSTMENTS

1. Water bills are adjusted under the following circumstances:
 - a. Fogged meters.
 - b. Stuck meters.
 - c. Damaged meters up through 1-inch in size.
 - d. Inaccessible meters.
 - e. Faulty meter
 - f. System flushing
 - g. Leaks caused by Cowlitz County

2. If a customer requests inspection of a meter, the Utilities Division shall inspect and test the meter at its expense. If the meter is found to be incorrect, the utility manager will calculate a billing adjustment. The Director of Public Works must approve a billing adjustment that exceeds \$250.

3. Summary of Billing Adjustment Practices

a. Requests for adjustments of utility bills due to leakage shall be eligible for an adjustment in certain circumstance. Adjustment of charges may be allowed whenever a customer suffers a loss of metered water without fault or neglect and providing repairs are made within 10 days of when the leaks are discovered and the owner is notified, and photos of damage or receipts for the repair expenses in materials and/or serviceman are provided and verified, or the existence of a leak is initially verified by a utility operator.

Utility operators must verify that leaks no longer exist prior to adjustment.

Leak adjustments may be made no more often than once every three years from the last date of leak at any site address. Adjustments for faulty toilets, running or dripping faucets, spigots or hoses are not eligible.

Commercial sewer customers with variable rates based on water use will receive a sewer adjustment if water is adjusted due to leakage.

The water leak adjustment is calculated as one-half of the consumption that is in excess of the average at that address for the same months in the previous three years, not to exceed the equivalent of 25 units of consumption. If the service address has been connected for less than three years, an average of the previous 12 months will be used instead. A service address connected for less than six months is not eligible for an adjustment.

The Accounting and Office Manager may approve adjustments up to \$100.00. The Utilities Manager may approve adjustments that exceed \$100 up to a maximum of \$250. The Director of Public Works must approve all other adjustments.

b. When there is an error in billing, the account charges shall be back billed if the account is under billed or credited to the account if the account was overbilled, within the statute of limitations.

c. Customers are notified of adjustments to their billings in person, by telephone or by letter. If a customer disputes the adjustment, a further verification of the account will be made after additional information has been received from the customer. Consultation is made with the Accounting and Office Manager, Utilities Manager and/or the Director of Public Works depending on the dollar amount and circumstances. The customer will be notified of the action.

d. The Accounting and Office Manager and/or the Utilities Manager may agree to payment arrangements on past due accounts wherein the amount past due will be collected over a period not to exceed 3 months,

or compromise disputed claims for back billing and/or service charges for amounts within their authority, which is \$100 and \$250 respectively.

The Director of Public Works, may agree to payment arrangements on past due accounts wherein the amount past due will be collected over a longer period or compromise a disputed claim for back billing and/or service charge as follows:

1. If it goes beyond the 3-year statute of limitations, or
2. If the delinquency goes beyond three (3) months for water accounts and the amount is not material, or
3. If the delinquency goes beyond six (6) months for sewer accounts and the amount is not material, or
4. In individual cases where, in the interest of the basic fairness to the customer and to the County, a reasonable flexibility in settlement can be arrived at.

H. TERMINATION OF SERVICE

In order to stop charge accrual, a request for discontinuance of service must be given by a person stated on the current contract. This most likely will be the property owner, or owner's authorized agent, but may be a tenant in the case of older contracts. No allowance for vacancy or other absence will be made unless the County has been notified. Under normal circumstances, the County will shut-off water service within one working day of receiving such notice. Charge discontinue on the day of shut-off.

1. It is the responsibility of the Utilities Administration Section to generate the work order that notifies the Operation and Maintenance Section to connect or shut-off service. The Utilities Operator shall return the work order along with the final meter reading, signed and dated by the Utility Operator, upon completion of the work. A lock will be placed on the meter to prevent unauthorized water use and the meter will continue to be read monthly to monitor water use.
2. When there is a change of occupancy or ownership, the work order for 'lock and meter read' may be delayed by no more than three (3) business days to allow sufficient time for the new owner to sign a contract for service, and then only if the previous owner authorizes the service continuation for this period. If not authorized by the previous owner or at the end of the three days, the service is to be locked and then unlocked when the new owner signs for service. A prorated bill for the monthly services is sent to the former owner or escrow company, and to the new owner based on the days of service the water was connected in that contract holder's name. However, if the former owner or tenant does not pay the bill, it becomes the current balance due from the new owner.
3. An owner may request water service to be locked at any time. If the owner states or the Department is aware that there is a tenant occupying the property, the owner must first sign a statement requesting termination of service and that they are aware of RCW 59.18.300 which states that it is unlawful for an owner to intentionally cause termination of water or sewer service for a tenant except for a reasonable period of time to make necessary repairs.

I. CHARGES

1. In the case of compound meters, total consumption will be determined by adding the consumption on both registers.
2. Water charges apply to occupied premises when the meter is not locked by county operators or when the meter registers use when the operators have previously locked services and the lock was removed as an unauthorized connection. Fees for unauthorized connection, lock replacement and damages to the meter or other county property may also apply.
3. Sewer charges apply to occupied premises when the property is connected to sewer service.

Sewer charges shall also apply to occupied premises when the property is not connected to a sewer service but when the property is listed on the assessment roll of a sewer ULID, or when water services are through another public water system and are connected and not locked.

If the contract holder vacations or is otherwise absent from the address, makes timely payments on the sewer account and their account is current, and presents a bill from the other water system showing zero consumption for the entire billing period upon return from vacation, the sewer charges for the same period shall be credited to their account.

Water and sewer charges for residential, commercial and industrial customers shall follow the rates specified in ordinance or approved by the Board of County Commissioners.

4. Miscellaneous billings or adjustments are made on the basis of service factors determined and reported in writing by the Utilities Administration Section to the Director of Public Works, Accounting and Office Manager, Utilities Manager or their authorized representative. All adjustments must be authorized in writing.

J. SUMMARY OF COLLECTION PRACTICES

1. Utility charges remain with the property; therefore, collection of utility charges incurred by a contract holder, whether they be by an owner or owner's representative or tenant, are the ultimate responsibility of the current owner.
2. The billing of a tenant is a service extended for the convenience of the owner and tenant and does not exempt the owner from the final payment responsibility. Authorization to direct mail a tenant must be authorized by the owner. The Utilities Administration Section may require written evidence from the owner or owner's representative such as a copy of the representative appointment, or rental agreement. Upon vacation of the premises by an owner or tenant, water service may be shut-off at the request of the owner or the owner's assigned agent. A contract for service will be required to reinstate service to a new owner. An existing contract for the same address and same owner may be reactivated after information is verbally verified as current. Charges must be brought current prior to authorization of new service unless billed within the previous 30 days and then a 45 day payment period will be authorized prior to transfer of the charges to the new owner's account.

Full-cycle bills are due on the 15th of the month following the billing date, unless the 15th falls on a non-work day in which case they are due the following work day. Final bills issued when an account is terminated are due 15 days from the date of billing. Online payments are considered paid on-time if paid prior to midnight on the due date. Payments deposited in the Public Works drop box are considered paid on-time if they are accounted for when the box is opened at the beginning of the next work day following the payment due date.

3. An administrative late fee is assessed each month an account is past due except when a contract holder has requested and been granted extended payment terms. Then a delinquency administration charge will apply. Contract holders will be notified of the late fee by mail if the past due amount is more than \$30.00.

Late fees may be waived by the Accounting and Office Manager or Utility Manager when there is an unanticipated medical situation or death by the contract holder or immediate family, inclement weather conditions that prevent access to records and mail, other emergency events that force the contract holder from their home, or when there is clerical error. A courtesy waiver of late fee may be granted no more often than once every two years for contract holders with at least 12 months of payment history and no more than one delinquency during the most recent 12 months of payments.

4. Delinquency will result in shut-off of water services. The contract holder, owner and any other parties authorized by the owner to receive notices will be notified of the shut-off date by mail. The notice will be mailed at least 10 days in advance of the shut-off date. The shut off date for full-cycle bills will be scheduled to occur on the first Wednesday of the month that falls no earlier than the 4th calendar day of the month following the bill due date. The past due balance must be \$50.00 or more for shut-off to occur, then the utility operators will lock the water meter on shut-off day. If the account is sewer only, or the amount past due is less than \$50.00 but more than the amount of the administrative late fee, or the customer pays the past due amount by 8:30 a.m. on the morning of shut off, then a delinquency administration fee will apply but shut-off will not occur.

Prior to water service being reinstated or the lien removed, all past due charges must be brought current together with any fees, interest, charges, or penalties which might apply except as otherwise authorized by the Accounting and Office Manager, Utilities Manager or Director of Public Works or their authorized representatives.

5. If payment of the past due amount has not been received within approximately seven days of the date water service was shut-off for nonpayment, a work order will be issued to assure that the lock placed by the utility operator upon shutoff is still secure.

If payment of the past due amount is not received by the working day prior to the next billing date, the account will be closed, final billing issued, deposits will be refunded against the balance due, and the entire account balance together with all deposits and fees will need to be paid to re-connect services. The new account can only be opened in the name of the property owner or their agent.

If payment is not received by the 25th day of the calendar month that water was shut-off, the contract holder and owner shall be sent a written notice that the water has been shut-off and the payment of the full balance including all fees and penalties is due or a lien will be filed.

The letters will be issued in a series as follows: 1) please pay by 'date', 2) pay by 'date' or a lien will be filed and fees and penalties will be assessed, 3) lien is filed and owner is notified. The lien will not be removed until all charges on account together with all costs, penalties and interest are paid in full. If the account is sewer only, the letter series begins with the second letter. Each letter shall be sent both certified with return receipt and by regular mail, allowing 10 calendar days for payment from the letter day for the first two letters.

6. If a non-sufficient funds (NSF) or other form of return check is received on a delinquent account, the customer will be notified by telephone or by door hanger to redeem such check together with a processing fee in an amount approved by the Board of County Commissioners. Payment is due in cash, by bankcard or by certified bank check within 24-hours. If the customer fails to redeem his check, water shut-off or lien action will take place within 10-days. In cases where the customer is not the property owner, the owner shall also be notified.

Upon receipt of a return check issued for deposit, or the second return check issued for payment on account for an address, the contract holder will be required to pay all future payments by cash, bankcard, or by certified bank check.

7. Deferred payment arrangement may be extended to contract holders in some special circumstances such as large utility bills, customers with temporary financial hardship due to partial or permanent medical issues or employment lapses, problems on payroll timing, or extended absences; except when the customers have failed to comply with previous payment arrangements, have issued more than one check returned by their bank, or who have repetitive credit problems. Tenants or others who are not contract holders may not negotiate payment arrangements or provide other instructions regarding services or the account.

The Utilities Administration Section, or the Utilities Manager, are authorized to agree to payment arrangements, which shall defer water shut-off or other collection action, when the customer complies with the terms thereof, provided that the amount past due will be collected over a period not to exceed 3 months, or to compromise disputed claims for back billing and/or service charges for amounts under \$100 and \$250 respectively. The Director of Public Works may agree to payment arrangements on past due accounts wherein the amount past due will be collected over a longer period.

8. Additional charges may also apply as detailed in Chapter 3, Utility Fees and Charges and Appendix 1.
9. Immediate shut-off of service and notification of property lien (letter #2) will take place if the following conditions are not resolved within 3 working days unless otherwise waived by the Director of Public Works:
 - a. A customer issued a NSF check to pay a delinquent account.

- b. After a shut-off for non-payment, the utility finds that the water was turned on by the customer.
- c. The customer fails to pay a required deposit.

K. LIENS

1. The Department of Public Works shall provide notice of a potential lien to the property owner 10 calendar days in advance of the lien filing to allow time for remedy, except as stated in J.9. Notice will be sent by certified mail with return receipt and by regular mail.
2. When the lien is filed a copy will be provided to the owner by certified mail.
3. Interest and penalties will be charged at the rates and in the manner listed below or as permitted by statute:
 - a. Interest will be charged at the rate of 8% per annum until all utility and penalty charges and other fees are paid in full. The interest charges will be waived if the balance due is paid in full within 30 days of the date the lien is filed.
 - b. Upon the expiration of 60 days after the filing of a lien, a 10% penalty of the amount due will also be charged.
4. The Department of Public Works will inform the Board of County Commissioners at least annually of all liens filed, balances due and contact with owners that may provide remedy. The Board of County Commissioners may authorize the Prosecuting Attorney and County Treasurer to begin foreclosure proceedings.
5. Upon payment of the full balance due on account for liened property, together with all fees and penalties, the Department of Public Works shall authorize the County Treasurer to release the lien.

CHAPTER 2 UTILITY EASEMENTS

A. PURPOSE

To establish procedures and specify easement requirements for water main and sewer main extensions.

B. RESPONSIBILITIES

The Utilities Division of the Department of Public Works shall administer the easement requirements.

C. GENERAL REQUIREMENTS

Any extension of the existing utility system by a developer/owner across private property shall require that a utility easement for water or sewer purposes be acquired by the developer/owner and conveyed to the County in a form and location acceptable to the Utilities Manager.

1. Title Required: The Utilities Manager may not accept or approve any easement unless clear title in the grantor has been demonstrated by a title report, or other manner acceptable to the Department of Public Works. The Utilities Manager may also require that the easement be exclusive, where in the opinion of the Utilities Manager such exclusivity is necessary to protect the Department of Public Works.
2. Map Required: The developer/owner shall furnish the Utilities Manager a map of the proposed easement location and surrounding area, and all other utility easements or facilities in or near the proposed water or sewer extension easement, prepared by a Professional Land Surveyor, licensed in the State of Washington. The final documents shall be recorded, per Washington State Law, by the developer/owners Professional Land Surveyor. All costs shall be the responsibility of the developer/owner.
3. Easement Relocation: The Utilities Manager may require the relocation of any such proposed easement where title search or any other information, however, obtained, indicates the existence of any other easement in the same location incompatible with the utility easement.
4. Easement Size: Easements for water or sewer purposes shall be at least 15 feet in width, unless the Utilities Manager permits a lesser width.
5. Easement Costs: The developer or property owner shall pay all costs for obtaining any such easement and recording the easement with the Cowlitz County Auditor.
6. Each customer/residence shall be served by individual sewer laterals.

CHAPTER 3 UTILITY FEES AND CHARGE

A. PURPOSE

To establish and identify fees associated with water and sewer services.

B. RESPONSIBILITIES

1. Utilities Manager: Implement, review, and adjust as necessary all fees and charges assessed by the Department of Public Works.
2. Utilities Administration Section: Calculate, collect, and account for all development related and administrative fees and charges as set forth by resolutions adopted by the Board of County Commissioners, in County Ordinance, in the Water and Sewer Utilities, Policies & Procedures, and as directed by the Director of Public Works.

C. FEES AND CHARGES

The current amounts, rates or formulas of fees and charges currently assessed by the Utility are detailed in Appendix 1. Monthly water and sewer rates are adopted by ordinance and are not included in this table.

D. DEFINITION OF FEES AND CHARGES

1. System Development Charge: Payment to the utility system whereby each new service contributes its allocated share to the general facilities and capital improvements of the utility. The system development charge does not include specific connection costs, nor meter installation costs to serve the property. All fees and charges shall be paid in advance.
2. Installation Charge: The fee charged for a water meter installation and any applicable state and local permits.
3. Surcharge: Assessment pursuant to latecomer agreements to any person not participating in the cost of construction of the utility system improvement or extension from which service is requested, such as a Local Improvement District, LID surcharge fee.
4. Fire Hydrant: Tank Lot Sales shall be charged in current water rate.
5. Unauthorized Connection Charge: Any bypassing/cutting of water meter locks, or connection to a water or sewer system without prior approval from the Department of Public Works shall result in an unauthorized connection charge in addition to all other applicable fees, charges. In addition, the person responsible shall be charged for all costs for repair of damaged meters or other county property and the estimated amount of water and sewer base rates and water consumed.

E. SYSTEM DEVELOPMENT CHARGES

1. System Development Charges: SDC’s shall be determined according to the number of Equivalent Residential Units required by the applicant.

Equivalent Residential Unit (ERU) shall mean a value assigned to each meter based on the maximum rate of flow of that meter size. A ¾-inch meter, the standard residential meter, has the value of 1.0 and other sizes are assigned values according to the ratio of their maximum flow to that of the ¾-inch meter, as follows:

Meter Size In Inches	Maximum Flow in Gallons/Minute	Equivalent Residential Unit (ERU)
¾	30	1.0
1	50	1.6 (4-6 plex)
1-1/2	100	3.3 (7-12 units)
2	160	5.3 (13-24 units)

2. Meter Installation Charge:

Installation charges as found in Appendix 1 are variable depending on the size of the installation and will also vary depending on whether the installation is within the County right-of-way or State right-of-way. The charge shall also include any applicable franchise or utility permit fees for pre-construction, inspection, traffic control, and permit review services that are required by state or local agencies.

3. Surcharge: The Utility may establish a surcharge to reimburse the Utility for financial participation in a developer extension or improvement, which enables or improves service availability to areas of benefit other than that proposed by the developer.

For example, the Utility may require a developer to install an 8-inch line rather than a 6-inch line, which would otherwise be adequate to serve the proposed development. The Utility may participate in the cost of the additional line capacity because it benefits the system generally and may make service available to another area.

Properties in the area of benefit, which later connect to the developer extension, shall pay their pro-rata share of the cost to the Utility as a surcharge to the system development charges. The Utility shall determine the zone of benefit and the pro-rata share after the construction of the developer extension.

CHAPTER 4 WATER & SEWER SERVICE INSTALLATIONS

A. PURPOSE

To establish procedures and requirements for providing water service and installing water meters.

B. GENERAL REQUIREMENTS

Any person desiring to have premises connected to the County water system shall first make application for service (see Chapter 1).

1. There shall be no extensions of water lines for the purpose of furnishing water service, nor shall water be furnished in any manner whatsoever, to any building or premises without the approval of the Utility and payment of the applicable fees and charges. The Utilities Division shall advise the owner, developer or contractor concerning the current standards and specifications requirements.
2. Any property owner served by a private water well shall disconnect said water well from any existing structure to protect the public water system from contamination due to cross-connections and comply with all other requirements of the Utility as a condition to connection to the system. If the cross connection cannot be eliminated, then an approved method, listed in WAC-246-290-490, must be installed.
3. Prior to any service installation, the applicant shall pay the system development charge as specified in Chapter 3, *Utility Fees and Charges*.

C. WATER SERVICE INSTALLATIONS

1. Water service installation costs from the water main to the applicant's property line and thence to the building, shall be paid by the applicant.
2. Service and meter installations shall be accomplished by the following methods:
 - a. For new services up to and including 1-1/2 inch in size, the applicant shall be responsible for obtaining the services of an **authorized** contractor to perform the service installation from the water main to the meter housing at a location designated by the Utilities Division. The installation shall be performed in accordance with the current Washington State Department of Transportation/American Public Works Association (WSDOT/APWA) Standard Specifications. Work shall be scheduled so that the Utilities Division can inspect that portion of the service connection between the main and the meter box. The Cowlitz County Department of Building & Planning inspects that portion between the meter box and the residence for conformance to plumbing code. Service may occur upon approval of the entire service line and completion of all other fees, agreements and forms as required in this document. It is the developer/owners responsibility to coordinate inspection of the construction work.

- b. For services that only require the installation of a water meter, the Utilities Division shall perform the meter installation. The meter will be installed after the service has been inspected and approved by the Department of Public Works. A fee to be paid in advance shall be charged as specified in Chapter 3 *Utility Fees and Charges*.
- c. For services larger than 1-1/2 inches, the applicant shall submit a service proposal to the Utilities Division for approval. The proposal shall show size, location and materials including valves, piping and the meter housing.

D. WATER METERS

- 1. Water meters shall be of a size and type as authorized by the Utilities Division. After the service installation is completed and approved by the Utilities Division, the meter shall be installed and sealed by the Utilities Division and no seal shall be altered or broken except by one of its authorized employees or agents.
- 2. The water meter and service connection, whether located on the public or private property, becomes the property of the utility after installation. The utility reserves the right to repair, replace, and maintain the service, as well as to remove it upon discontinuance.
- 3. Requests for meter and/or service size changes, relocations and grade changes shall be reviewed and approved by the Utilities Division. All costs will be at the customer's expense.

E. SEWER SERVICE INSTALLATIONS

- 1. Sewer service (sewer laterals) installation costs from the sewer main to the applicant's property line and thence to the building, shall be paid by the applicant.
- 2. Sewer service installations shall be accomplished by the following methods:
 - a. The applicant shall submit a service proposal to the Utilities Division for approval. The proposal shall show size, location and materials including piping, elbows, and the clean-outs.
 - b. The applicant shall be responsible for obtaining the services of an **authorized** contractor to perform the service installation from the sewer main to the clean-out at a location designated by the Utilities Division. The installation shall be performed in accordance with the current WSDOT/APWA Standard Specifications. Work shall be scheduled so that the Utilities Division can inspect that portion of the service connection between the main and the clean-out. The Cowlitz County Department of Building & Planning inspects that portion between the clean-out and the residence for conformance to plumbing code. Service may occur upon approval of the entire sewer lateral and completion of all other fees, agreements and forms as required in this document. It is the developer/owners responsibility to coordinate inspection of the construction work.

CHAPTER 5

TEMPORARY FIRE HYDRANT USE AND METER RENTAL POLICY

- A. When water service is required for a specific short-term duration, upon approval of the Director of Public Works, or his/her designee, a temporary hydrant use agreement and water meter rental may be obtained from the water utility section of the Department of Public Works. Anyone withdrawing water from or using County fire hydrants without a hydrant use agreement in their possession and utilizing a meter issued by the County, may be cited with a misdemeanor and fined up to \$1,000.00 per day under CCC 15.12.250, and charged with criminal theft.
- B. Such temporary hydrant use and meters shall only be used by designated parties and for a designated project or purpose set forth in the hydrant use agreement and water meters shall be promptly returned to the Public Works upon completion of the project or purpose. The meters are to be returned in the same condition as when rented, and the user shall be held responsible for any damage thereto, including paying all repair or replacement costs. While in the user's possession, the user shall be solely responsible for the meter and as such, should it be lost or stolen, the user shall pay the Department for the cost of its replacement.
- C. The Department shall require a non-refundable set/pull fee and a meter rental charge. The Department shall also require that a cash bond be deposited with the County prior to receipt of a temporary agreement and meter. Upon return of the meter and the payment of all outstanding charges, including any meter repairs or replacement costs, the cash bond shall be released back to the user.
- D. The balance remaining from the deposit will be refunded by check via US mail. Users failing to return the meter within a 30-day period may be cited with a criminal misdemeanor with up to \$1,000.00 per day in fines, for failure to abide by the terms and conditions of this Agreement, and the provisions of this policy and Ch. 15.14 Cowlitz County Code related to this Agreement.
- E. Water meters may be moved from one (1) hydrant to another within the same project or proposal; provided, the Department is notified in advance of proposed relocation and that approved hydrant wrenches and procedures are used to make all connections and disconnections.
- F. The following temporary hydrant use and meter rates apply under this policy:

Charge	Type of Charge
\$ 1,000.00	Deposit
\$ 150.00	Non-refund set/pull fee
\$ 5.00/day	Meter Rental

1. If a meter is broken, lost or stolen, payment for water used shall be based solely on an estimate made by the Director of Public Works for the duration of the hydrant use agreement.

- G.** Users shall make their deposit and sign the hydrant agreement in-person at the customer service counter located in the Cowlitz County Public Works building, 1600 13th Ave. S., Kelso, WA 98626, when picking up the meter from the Public Works Department.

CHAPTER 6 DEVELOPER EXTENSIONS – WATER AND SEWER

A. PURPOSE

To establish the department's requirements governing extensions to the existing utility system so that any person seeking to connect to the system will be required to install improvements to assure orderly development of the utility system.

B. EXTENSION REQUIREMENTS

1. Conditions Requiring Developer Extensions: An extension to a utility system water or sewer main will be required under the following conditions:
 - a. Where the connecting property under existing conditions is unable to comply with fire protection requirements contained in the Uniform Fire Code, as adopted or amended by Cowlitz County.
 - b. Where the existing water or sewer main is unable to adequately serve the property being developed as required by the Utility.
 - c. Where the property will connect to a water or sewer main that is scheduled for upgrading as specified in the adopted utility water and sewer system plan.
 - d. Where a water or sewer main extension is needed to complete the existing system of water or sewer mains or to further the orderly development of the utility system.
2. Extension Limits: Water or sewer main extensions installed under this regulation will extend through and to the extremes of the property being developed.

C. DEVELOPER EXTENSION AGREEMENTS

1. Developer Extension Agreements: Upon completion and approval of the construction drawings and project specifications, the owner or his/her agent and the Utility shall enter into a "Developer Extension Agreement – Water (or Sewer)" on forms provided by the Utilities Division.
2. Bill of Sale: All Developer Extensions accepted by the Utility shall be conveyed to the Utility by the owner through a Quit Claim Deed for mutual benefits only.
3. Developer Extension Procedure: The Utility shall process all Developer Extensions as specified in "Developer Extension Procedures."

D. WATER SYSTEM DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS

1. All water system extensions shall meet the design requirements of the Washington State Department of Health's (DOH) "Water System Design Manual", December 2009, DOH Pub. #331-123 (Rev. 12/09) or most current edition.
2. A completed Narrative Discussion, Analysis of the Capacity of the System, Hydraulic Analysis, and Distribution Main Requirements shall be submitted for review. Items to be included are identified in the DOH Water System Design Manual.
3. The water system shall be designed to provide capacities and connecting links within the development for the ultimate needs of the water service level of the County water system. The water system shall be compatible with the Comprehensive Plan, and of a design approved by the County.
4. In addition to supplying the domestic water service, the water system shall be designed to supply the fire flow requirements as developed by the Cowlitz County Department of Building and Planning or other more stringent agencies within the service area.
5. In general, the water systems shall be designed to care for future service that may reasonably be expected within a period of 50 years. Compatibility with existing and future adjacent water systems must be provided. The water system shall extend to the appropriate extremities of the project to provide for future development of the water system.
6. A copy of the calculations and worksheets used to determine design compliance of the water system within the development and adequacy of the existing and future water system facilities shall be submitted with the water system plans for approval.
7. Blowoffs and/or hydrants will be required on all dead end waterlines, including those that are anticipated to be extended. Blowoffs shall be designed to create minimum flushing velocities of 4-feet per second.
8. Sampling Stations may be required as part of the proposed development.
9. Specifications shall meet the current Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, English Units. Items not covered within the WSDOT specifications may be supplemented by the current American Water Works Association (AWWA) standard specifications.
10. Minimum Size, Fire Flow Required: Eight-inch diameter pipe is the minimum size water main acceptable to the Utility where fire protection requirements apply or gridding is required.
11. Minimum Size, Fire Flow Not Required: Four-inch diameter pipe shall be the minimum size of water main acceptable to the Utility for all residential developer extensions where fire protection requirements do not require installation of a larger size main.

12. Extension Design: The owner or developer shall have a licensed engineer design all water main extensions unless otherwise authorized by the Utility.
13. All designs shall meet Cowlitz County, federal, state, and local agency requirements and shall be subject to Utilities Division review and approval.
14. Mechanical pipe restraint and calculations are required.

E. FIRE LINE EXTENSIONS

1. Fire Line Agreement: When the Utility requires installation of a single fire hydrant on public property, a fire hydrant or hydrants on private property, or a fire sprinkler system pursuant to this regulation or requirements of other County agency or department, or it is desired by the owner or developer, the owner or developer and the Utility will enter into a fire line agreement entitled, "Application for Permission to Construct Improvements to the Water Distribution System."
2. Fire Line Design: The owner or developer shall have a licensed engineer design all fire line extensions, and such design shall be subject to Utilities Division review and approval.
3. Pressure and Supply: The Utility assumes no responsibility for any loss or damage to the customer's property due to an insufficient quantity of water or inadequate water pressure.

F. BASIC SEWER MAIN SPECIFICATIONS

1. All sewer system extensions shall meet the design requirements of the Washington State Department of Ecology's "Criteria for Sewage Works Design", August 2008, Pub #98-37 WQ or most current edition.
2. The sewer system shall be designed to provide capacities and connecting links within the development for the ultimate needs of the County sewer system. The sewer system shall be compatible with the Comprehensive Plan, and of a design approved by the County.
3. In general, sewer systems shall be designed to care for future loads that may reasonably be expected from full development upstream, consistent with the Comprehensive Plan. Sewer systems shall extend to the appropriate extremities of the project to provide for both upstream and downstream development of the system.
4. A copy of the calculations and worksheets used to determine design compliance of the sewer system within the development, the future upstream incoming influent, and the adequacy of the downstream facilities shall be submitted with the sewer plans for approval.
5. The minimum design life for sewer materials shall be 50 years.
6. Specifications shall meet the current Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, English Units.

7. Extension Design: The owner or developer shall have a licensed engineer design all sewer extensions unless otherwise authorized by the Utility.
8. All design shall meet Cowlitz County, federal, state, and local agency requirements and shall be subject to Utilities Division review and approval.

CHAPTER 7 DEVELOPER EXTENSION PROCEDURES

A. PURPOSE

To establish a timely, effective, and easy to understand process regarding the initiation, design review, construction, inspection and acceptance of water extensions to the utility system. The regulations and procedures contained in this chapter shall also generally apply to sewer main extensions.

B. DEVELOPER EXTENSION AGREEMENT

1. Initiation: The owner of any property in the Cowlitz County utility service area requiring main line extensions shall enter into a Developer Extension Agreement and install the required extensions in accordance with the agreement and the development standards of the Cowlitz County Department of Public Works. The agreement shall be signed by the owner(s).
2. Submittal Requirements: The Owner shall provide the following:
 - a. Name of Project.
 - b. Legal description of property to be served and properties benefited by the extension.
 - c. Evidence of ownership of property (title report).
 - d. Conditions of Plat approval.
 - e. Certification from the Department of Building & Planning that the proposed project meets current land use requirements.
 - f. Improvement Plans (meeting County standards):
 1. Property Site Plan with initial topographic information, including locations of existing utilities.
 2. Road and Drainage Plan
 3. Buildings or lots – set of building plans on all other than single family.

C. PRELIMINARY DESIGN LAYOUT – DEPARTMENT OF PUBLIC WORKS

1. Utilities Engineer meets with developers engineer to discuss tentative layout (red line).
2. Developers engineer completes preliminary design, meeting all federal, state, and local agency requirements.
3. Submit three (3) sets of Preliminary Design drawings and supporting calculations for review.

4. Plan set is reviewed by Fire Marshal to determine proper placement of fire hydrants. Fire flow is computed by the developer's engineer and reviewed by the Cowlitz County Department of Building and Planning and approved by Fire Marshal, if in compliance with code. The Fire Marshal returns fire flow report to Utility, which determines if system can deliver required fire flow.
5. Red line set submitted to developer's engineer for completion of preliminary design.

D. APPROVAL PRELIMINARY DESIGN AND FINAL DESIGN

1. Ten copies of the preliminary design with supporting calculations and documents are submitted to the Utility for review and comment and are distributed as follows:
 - a. Utilities Manager
 - b. Utilities Engineer
 - c. Cowlitz County Department of Public Works – Revision/File Copies
 - d. Developer and/or developer's engineer
 - e. Regulatory agency (set of plan with letter requesting review/approval):
 1. Water-Washington State Department of Health (if project outside of approved comprehensive plan area or if reservoir, or pump station)
 2. Sewer – Washington State Department of Ecology
 3. Cowlitz County Department of Building and Planning

It is the developer's responsibility to coordinate and ensure that the necessary review and approvals are received from the regulatory agencies.

2. Normal review period for the Cowlitz County Department of Public Works will be ten working days from receipt of submittal.
3. The Utility initiates action to obtain off-site easements, permits or franchises.
 - a. Developer or his agent is responsible for obtaining and filing with the Utility off-site and on-site easements prior to final design.
 - b. Submittal made by Utility to authority to obtain permits or franchises.
4. Upon completion of approval of preliminary design, the Utility re-submits plans with comments to the developer's engineer for finalization and completion of the cost estimate for construction.
 - a. The Utility maintains the right to make corrections, changes or additions to all designs as may be required to provide a complete working system at any time during design or construction.

E. PRECONSTRUCTION REQUIREMENTS

1. A preconstruction letter of requirements is written by the Utility to the developer or his engineer. The letter addresses requirements to be completed before scheduling of construction and preconstruction meetings with the Department of Public Works.
2. Requirements shall include, but are not limited to:
 - a. Completion and acceptance of the "Developer Extension Agreement"
 - b. Approval of contractor (by Utilities Engineer).
 - c. Performance bond or security agreement in lieu of bond.
 - d. Certificate of developer's insurance.
 - e. All easements (off-site and on-site) and Quit Claim Deeds for improvements are completed and returned to the Utility.
 - f. Permits or franchises approved and on file.
 - g. System development charges pursuant to the Developer Extension Agreement are paid, if applicable.
 - h. Regulatory approvals as required are completed.
 - i. Clearing and grading permit.
 - j. Approval of all construction plans for plats (Dept. of Building and Planning).
 - k. Coordination with building permit approvals (Dept. of Building and Planning).
3. Upon completion of all preconstruction requirements, the Utility approves the project for construction.

F. CONSTRUCTION AND INSPECTION OF PROJECT

1. Approved plans with transmittal to the developer/owner from Utilities Manager or designee, outlining approval for construction and addressing special conditions or requirements.
2. Upon completion of all preconstruction requirements (including acquisition of all easements, right-of-way), the preconstruction conference is requested by developer and/or developer's contractor and scheduled by Utility.
 - a. Forty-eight hours' notice required for preconstruction meeting.
 - b. Preconstruction meeting attended by:
 1. Utilities Manager and/or Utilities Engineer

2. Construction Manager
 3. County Inspector
 4. Developer/owner
 5. Developer's Engineer
 6. Developer's Inspector
 7. Developer's Contractor
 8. Any other federal, state, or local agency maintaining/requiring a permit or franchise.
3. Construction of water or sewer extension is scheduled.
- a. Developer's engineer or licensed surveyor stakes alignment and vertical control as shown in the approved plans. Alignment controls used in staking on private property shall be referenced per the legal description for the easement. The centerline of the easement shall correspond with the centerline of the horizontal alignment of the water/sewer lines.
 - b. Water main shut down for connections require 24 hours' notice to area water customers.
 - c. The contractor is to obtain a list of the water customers affected by the shut down and notify all of these customers by Utility approved and contractor supplied information cards (24 hours in advance).
 - d. The developer's engineer and inspector are required to certify that the construction of the project conforms to the approved plans and project specifications. Control items that are required by the approved plans and specifications such as; test results, material certifications, submittals, etc. along with the developer's engineer and inspectors daily reports, shall be submitted as supporting documentation to the Utility. Proposed changes, corrections, additions or deletions from the approved design plans, which may be required to complete installation, shall be submitted to the County for review and approval prior to implementation.

The County may perform spot reviews throughout the duration of the construction project. The developer/owner, developer/owner's engineer and developer/owner's inspector shall be responsible for ensuring that the project is constructed per the plans and specifications approved by the Utility Division.

4. Completion of construction.
- a. Upon completion of the project, including flushing, testing and sampling, the owner schedules a meeting with the contractor, developer's engineer, and developer's inspector to review completeness of project.
 - b. When developer's engineer and inspector determine that the project is complete, the owner requests:

1. Field inspection of the project by Utilities Engineer and/or his representative with developer's inspector.
 2. Inspector and contractor turn in field as-builts to the developer's engineer and the County.
 3. Developer's engineer completes the construction as-built, along with all material certifications, which is then certified and signed by the developer's engineer, surveyor, and inspector as being an accurate representation of the constructed project and as being built in conformance to the final approved plans and project specifications. Final as-built drawings are submitted on 4-mil, double matte, archiveable quality mylar. Certificate of archiveable quality submitted with mylars. A digital as-built copy in the latest version of ACAD shall be provided to the Utilities Division.
5. Final acceptance of project.
- a. The developer/owner turns in a memo of completion, with quantities to the County Construction Manager. Memo of completion and quantities are to be submitted immediately after the project manager approves the project as acceptable. County Construction Manager submits memo of completion to the Utilities Division.
 1. Utility is notified of final acceptance.
 2. Memo of completion and quantities is filed for record and references.
 3. Utility personnel are notified of completion of project and water meter may be set upon completion of a service agreement, payment of applicable fees, and completion of all other obligations by the developer.
 - b. All developer extensions, accepted by the Utility, shall be conveyed to the Utility by the owner through a Quit Claim Deed for mutual benefits.
 - c. Utility prepares letter of acceptance for the Director's signature and project is accepted.
 - d. Bond may be reduced to maintenance bond.

G. ONE-YEAR FINAL INSPECTION

1. Final inspection shall be accomplished for all projects prior to the end of the one-year guarantee period.
2. The construction manager will notify the Utilities Manager of any deficiencies, and deficiencies will be reported to the developer in writing, requiring corrections to utility standards within a period of seven (7) working days from receipt of letter.
 - a. The developer's bonding company shall be notified of all deficiencies. In the event the developer and/or his contractor fail to complete the work,

the Utility may elect to accomplish the work, and the developer and/or his bonding company will be held responsible for payment.

3. Project, after completion of deficiencies or after satisfactory inspection of system, will from that date, be operated and maintained by the Utility section.
4. If any utility modifications were made to the system during the "one-year" period, a digital as-built copy in the latest version of ACAD shall be provided to the Utilities Division

APPENDIX 1

RATES AND FEES

1. Administrative Fees:

Administrative Late Fee When past due is \$11 or more No charge if past due is less than \$11	\$10.00
Administrative Delinquency Fee Payment arrangement made (one-time charge) or Past due on shut-off day but no shut-off occurs due to low dollar amount or payment is made by 8:30 a.m.	\$20.00

Delinquency re-connection fee applies if water is shut-off.

2. Connection Charges (Standard Connection fee and Delinquency Re-Connection fee):

During normal working hours, Monday through Friday, except holidays	New and Reconnection for existing accounts in good standing	\$40.00
	Delinquency dispatch for existing contract holders	\$60.00
Other than normal working hours		\$150.00

Reconnection occurs within 24-hours of request or payment of past due charges and fees. Customers are responsible for notifying the department of past due amounts paid online, by mail or drop box, and for making a request for reconnection. Connection charges shall be adjusted periodically to approximate the utilities cost for dispatch (and administration of the delinquency when applicable).

3. System development charges (per ERU – See Chapter 3, Section E):

Residential Accounts (typically one ERU)	Water	\$1,985.00
	Sewer	\$1,985.00
Commercial and Industrial Accounts (per ERU)	Water	\$1,985.00
	Sewer *	\$1,985.00

*One ERU for each 300 gallons per day of sewer flow.

4. Meter installation charges:

Type of Installation	Meter Size		
	¾-inch	1-inch	1 ½-inch
1) Installation Within County Road Right of Way	\$660.00	\$775.00	\$1,060.00
2) Minimum Fee for Installation within State Right of Way*	\$1,200.00*	\$1,200.00*	\$1,200.00*

* A \$1,200 minimum charge is required. If the costs associated with installation exceed \$1,200, additional charges will be assessed to recover all costs of installation including but not limited to franchise or utility permit fees for pre-construction, inspection, traffic control, and permit review services associated with the installation.

5. Unauthorized Connection Charge: \$250.00
Plus costs for lock replacement, damages if any, and estimated service rates.

6. Fire Hydrant Tank Lot Sales: Must be pre-approved by the Utility Manager.
Charge will be based on the quantity used at the current water consumption rate.

7. Deposits – Apply to all new and reactivated accounts:

Residential Accounts Adjusted periodically to approximate one month's average service.	Water	\$50.00
	Sewer	\$80.00
Commercial & Industrial New services will be based on ERUs as used to establish SDCs, times the residential deposit amount with a minimum of the residential deposit amount.	Existing service addresses will be based on average of highest 3 months charges over the most recent active 12 billing periods, with a minimum of residential account deposit amount.	
Governmental Agencies	No deposit required	
Returning customers with service at any address in last 5 years, and no more than one late payment in a 12-month consecutive period in the most recent 24-month period of service.	No deposit required	

8. Water and sewer rates for unoccupied properties: The owner may request for water meter to be locked by a County operator while the property is unoccupied due to vacancy or vacation. No rates for water or sewer services will be charged so long as the water meter is locked by County operator and no services are used. Connection charges apply.

Properties serviced by another public water system may be refunded sewer rates if the account is current and in good standing and the customer presents evidence of no water consumption during an entire month's billing cycle. Sewer charges apply at all times if the property is serviced by a private water system or well.

APPENDIX 2 FIRE HYDRANT USE AGREEMENT



FIRE HYDRANT USE AGREEMENT

Issue Date:

Account No.:

SECTION 1. APPLICATION INFORMATION

Issued To: (Company & Representative)

Phone Number:

Billing Address:

Valid:
FROM: TO:

Location of Hydrant to be Used:

SECTION 2. CONDITIONS FOR USE

This agreement authorizes the use of Cowlitz County (County) owned fire hydrant for the conditions set forth below:

1. A deposit of \$1,000 plus a non-refundable set/pull fee of \$150.00 is to be paid in advance of receiving meter.
2. The meter rental charge shall be \$5 per calendar day.
3. The period of use shall not exceed 90 days.
4. Charges for water shall be the current consumption charges for all water used.
5. The customer shall pay all applicable water usage and meter rental fees within 30 calendar days of billing or an administrative late fee will be charged in accordance with County policy.
6. A copy of this Agreement must be with the vehicle used to transport water at any time water is withdrawn from the hydrant and shall be presented upon request.
7. Customer shall not use any water truck or tank without prior inspection and approval by the Water/Sewer Operator or Cross Connection Control Specialist.
8. Customer shall comply with the requirements set forth in 97 UFC (Uniform Fire Code), Section 1001.6.2; County Code, Chapter 51.14; and County Water-Sewer Utilities policy.

Customer is fully responsible for any damage, theft or loss to the hydrant and/or the hydrant meter, agrees to indemnify, defend and hold harmless the County, its agents and employees from and against any and all claims, losses or liability, including attorney's fees arising from injury or death to persons or damage to property occasioned by any act, omission or failure of the Customer, his officers, agents and employees under this Agreement, directly or indirectly arising from Customer's use or possession of the hydrant and/or the hydrant meter. This paragraph shall not apply to any damage resulting from the sole negligence of the County, its agents and employees. All charges shall be billed in an amount to fully reimburse the County for all costs incurred, including but not limited to time, materials, services and overhead. This Agreement shall be construed in accordance with the laws of Washington and any action hereunder will be maintained in Cowlitz County, where the indebtedness was incurred. The County shall be entitled to costs of collection, including reasonable attorney's fees.

I, the undersigned, agree to these terms and conditions. I will ensure that all water will be taken from approved hydrants in strict accordance with directions of the County. I also understand that failure to comply may result in revocation and payment of damages resulting from improper use of hydrants and/or hydrant meters, and that taking water without a hydrant meter or without possession of this agreement, or any unlawful use of this agreement, may subject person(s) to **misdemeanor prosecution** and a fine of \$1,000.00 per day, and charges of misdemeanor or felony criminal theft.

SIGNATURE OF CUSTOMER: _____ Date: _____

TITLE _____

SECTION 3. (UTILITY DEPARTMENT USE ONLY)

DEPOSIT: \$1,000 SET/PULL FEE: \$150	Paid By: <input type="checkbox"/> CASH <input type="checkbox"/> CHECK (Check Number:)	
Payment Received By:	Date:	Receipt Number:
Permit Approved By:		Date:

SECTION 4. (UTILITY DEPARTMENT USE ONLY) Do not issue a meter unless Section 3 has been completed and approved.

Type of Meter:	Meter Number:	Date Issued:
METER READING	START:	END:
Date Meter Returned:	Number of Days Used:	Meter Consumption (in CuFt):
		Meter Charge:

SECTION 5. (DETERMINATION OF FINAL BILLING)

Meter Charge:	Water Charge:	TOTAL CHARGE:
AMOUNT DUE (Refund):	Utility Department Approval:	Date:

Rev. 08/15

Hydrant Meter Process:

1. Applicant contacts the Utilities Department at 360-577-3030 for preliminary approval of hydrant location and permit.
2. Applicant reads Section 2 and signs the agreement.
3. Applicant pays the deposit and set/pull fee. The Utilities clerk completes Section 3.
4. The Utilities Manager reviews and approves the agreement.
5. The Utilities Foreman completes Section 4.
6. The Utilities Department will create a temporary account to record the unapplied receipts from the permit deposit. The Utilities Department will provide a copy of the permit to the Utilities Foreman and the customer.
7. The Utilities Crew shall install and secure the meter to the hydrant and retain a copy of the permit until the hydrant meter usage is complete. The customer shall keep a copy on-person at all times.
8. The Utilities Crew shall inspect the water truck or tank for air gap or backflow prevention.
9. Once the meter usage is complete, the Utilities Crew shall pull the hydrant meter, complete Section 4 of the permit and forward the consumption data to the Utilities Clerk for billing. The Utilities Department shall issue either a refund of portions of the deposit, or invoice for any amount exceeding the deposit paid.

**APPENDIX 3
DEVELOPER EXTENSION
AGREEMENT**



**DEPARTMENT OF PUBLIC WORKS
UTILITIES DIVISION**

1600 – 13th Avenue South
Kelso, WA 98626
TEL (360) 577-3030
FAX (360) 636-0845
Washington Relay Service 711 or (888) 833-8633

www.co.cowlitz.wa.us/publicworks/

Board of County Commissioners

Michael A. Karnofski	District 1
Dennis P. Weber	District 2
Joe Gardner	District 3

~~~ **SAMPLE LETTER** ~~~

ABC Developer  
XXX Any Road  
Any Town, WA 00000

**SUBJECT: Example Water System  
Short Subdivision No. 0000-000**

We have reviewed the construction documents you submitted for extending the water distribution system to serve the subject property. The plans and specifications are approved with the following condition:

1. A permit is required to work within the county road right of way for \_\_\_\_\_ road (an application form is attached). The steel pipe encasement needs to be jacked under \_\_\_\_\_ road.
2. The water line shall be installed in accordance with the 2002 Standard Specifications for Road, Bridge, and Municipal Construction of the Washington State Chapter of the American Public Works Association.
3. The Professional Engineer submitting the plans shall be responsible for inspecting the installation, pressure testing the lines, and meeting the Washington State Department of Health requirements. Upon completion of the installation, the Engineer shall provide a reproducible as-built drawing of the installation, and certify that the installation conformed to the plans and specifications.
4. The installation shall also be subject to inspection by Cowlitz County. We require a minimum of 48 hours advance notice of when the work will proceed.
5. A utility easement needs to be granted to Cowlitz County, and the water line needs to be Quit Claimed to Cowlitz County. I marked the easement boundary on your plans. If you will provide a legal description of the easement area, we will prepare the documents. I have attached draft copies of these documents for your information.

If you agree to conform to these conditions and the plans you submitted, please sign the attached copy of this letter and return it to us. We will issue a Notice to Proceed after you have agreed to the conditions.

The installation will not be accepted by Cowlitz County until all conditions are met. If you have any questions, please contact me at (360) 577-3030.

Sincerely,

Utilities Manager  
Cowlitz County Department of Public Works  
(360) 577-3030



### **ACCEPTANCE**

I, \_\_\_\_\_ have reviewed the above conditions and hereby agree to them.

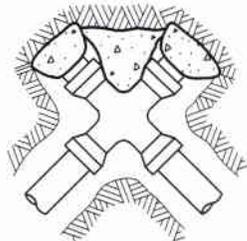
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

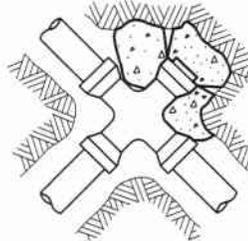
# **APPENDIX 4 STANDARD COUNTY DETAILS**



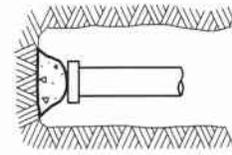
UNBALANCED CROSS  
(Use Column A)



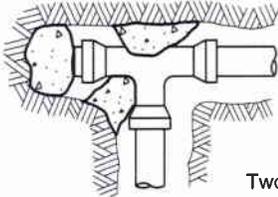
PLUGGED CROSS  
(Use Column B)



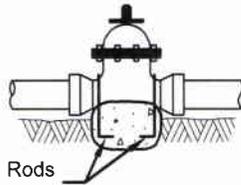
PLUGGED CROSS  
(Use Column A)



DEAD END

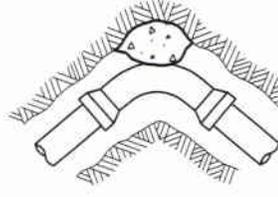


PLUGGED TEE  
(Use Column B)

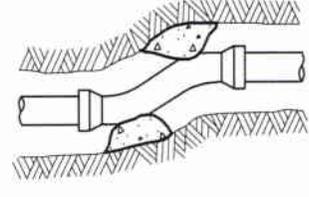


Two 1" DIA. Rods  
See Note 4

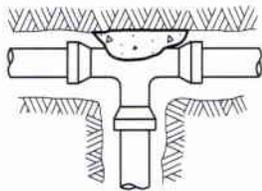
VALVE  
(Use Column A)



BEND



OFFSET  
Use Columns B - E)



TEE

| Size | Test Pressure<br>PSI | Thrust at Fittings in Pounds |                         |                         |                           |                            |
|------|----------------------|------------------------------|-------------------------|-------------------------|---------------------------|----------------------------|
|      |                      | A                            | B                       | C                       | D                         | E                          |
|      |                      | Tee and<br>Dead<br>Ends      | 90 <sup>^</sup><br>Bend | 45 <sup>^</sup><br>Bend | 22.5 <sup>^</sup><br>Bend | 11.25 <sup>^</sup><br>Bend |
| 4"   | 250                  | 3,140                        | 4,440                   | 2,405                   | 1,225                     | 615                        |
| 6"   | 250                  | 7,070                        | 9,995                   | 5,410                   | 2,760                     | 1,385                      |
| 8"   | 250                  | 12,565                       | 17,770                  | 9,620                   | 4,905                     | 2,465                      |
| 10"  | 250                  | 19,635                       | 27,770                  | 15,030                  | 7,660                     | 3,850                      |
| 12"  | 250                  | 28,275                       | 39,985                  | 21,640                  | 11,030                    | 5,545                      |
| 14"  | 250                  | 38,485                       | 54,425                  | 29,455                  | 15,015                    | 7,545                      |
| 16"  | 250                  | 50,265                       | 71,085                  | 38,470                  | 19,615                    | 9,855                      |

**NOTES:**

- Contractor to provide blocking adequate to withstand full test pressure.
- Divide thrust by safe bearing load to determine required area (in square feet) of concrete to distribute load.
- Areas to be adjusted for other pressure conditions.
- Provide two 1" minimum diameter rods on valves up through 10" diameter. Valves larger than 10" require special tie rod design.
- Concrete thrust blocking to be poured against undisturbed earth.
- Keep concrete clear of joint and accessories.

| Soil Type                          | Safe Bearing Load<br>PSF |
|------------------------------------|--------------------------|
| Muck, peat, etc.                   | 0                        |
| Soft clay                          | 1,000                    |
| Sand                               | 2,000                    |
| Sand and gravel                    | 3,000                    |
| Sand and gravel cemented with clay | 4,000                    |
| Hard shale                         | 10,000                   |

ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION

**KMC**  
DESIGNED BY  
**JMC 2/8/06**  
DRAWN BY  
**BAB**  
APPROVED BY  
**4/30/12**  
DATE

**THRUST BLOCKING  
DETAILS**

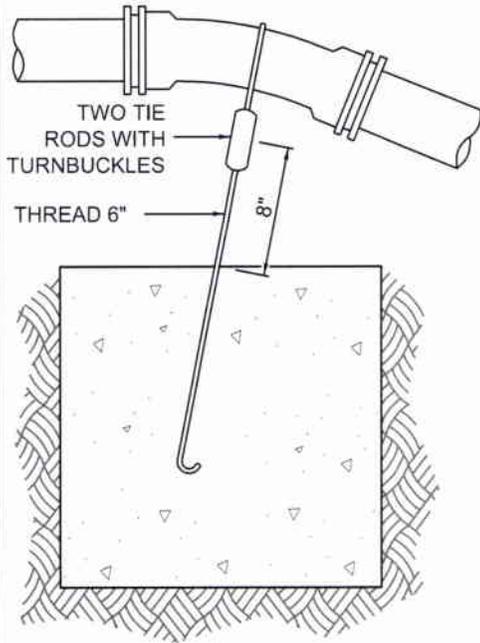
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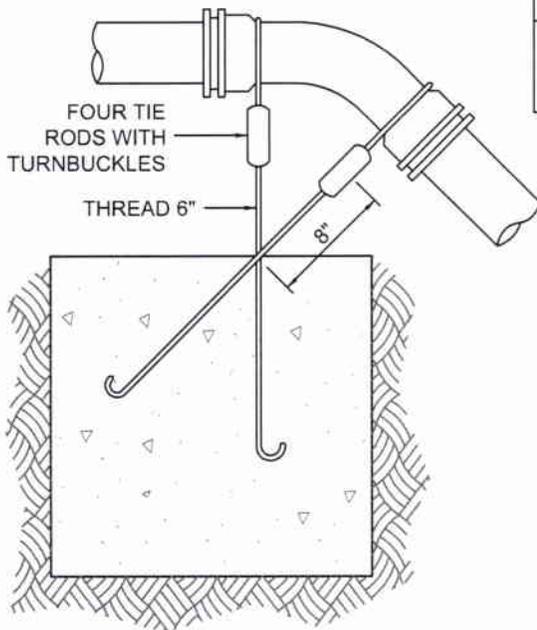
DEPARTMENT  
OF PUBLIC  
WORKS  
1600-13TH AVENUE SOUTH  
KELSO, WASHINGTON  
98626  
**DRAWING:CC-1903**

SHEET  
**1**  
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ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION



**BLOCKING FOR 11.25° OR 22.5° VERTICAL BENDS**



**BLOCKING FOR 45° VERTICAL BENDS**

| DIMENSION TABLE |                     |            |                         |                |               |                   |
|-----------------|---------------------|------------|-------------------------|----------------|---------------|-------------------|
| PIPE DIAM.      | TEST PRESSURE (PSI) | BEND ANGLE | CONCRETE VOLUME (Cu Ft) | CUBE SIZE (Ft) | TIE ROD DIAM. | TIE ROD EMBEDMENT |
| 4"              | 250                 | 11.25°     | 6                       | 1.8            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 12                      | 2.3            |               |                   |
|                 |                     | 45°        | 22                      | 2.8            |               |                   |
| 6"              | 250                 | 11.25°     | 14                      | 2.4            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 27                      | 3.0            |               |                   |
|                 |                     | 45°        | 50                      | 3.7            |               |                   |
| 8"              | 250                 | 11.25°     | 25                      | 2.9            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 48                      | 3.6            |               |                   |
|                 |                     | 45°        | 89                      | 4.5            |               |                   |
| 10"             | 250                 | 11.25°     | 38                      | 3.4            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 75                      | 4.2            |               |                   |
|                 |                     | 45°        | 139                     | 5.2            |               |                   |
| 12"             | 250                 | 11.25°     | 55                      | 3.8            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 108                     | 4.8            |               |                   |
|                 |                     | 45°        | 200                     | 5.8            | 7/8"          | 24"               |
| 14"             | 250                 | 11.25°     | 75                      | 4.2            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 147                     | 5.3            | 3/4"          | 20"               |
|                 |                     | 45°        | 272                     | 6.5            | 1"            | 27"               |
| 16"             | 250                 | 11.25°     | 98                      | 4.6            | 5/8"          | 17"               |
|                 |                     | 22.5°      | 192                     | 5.8            | 7/8"          | 24"               |
|                 |                     | 45°        | 355                     | 7.1            | 1 1/8"        | 30"               |

**NOTE:**  
Steel tie rods to be heavily coated with asphalt after installation.

KMC  
DESIGNED BY  
JMC 2/9/06  
DRAWN BY  
BAB  
APPROVED BY  
4/30/12  
DATE

**VERTICAL THRUST  
BLOCKING DETAIL**

N T S



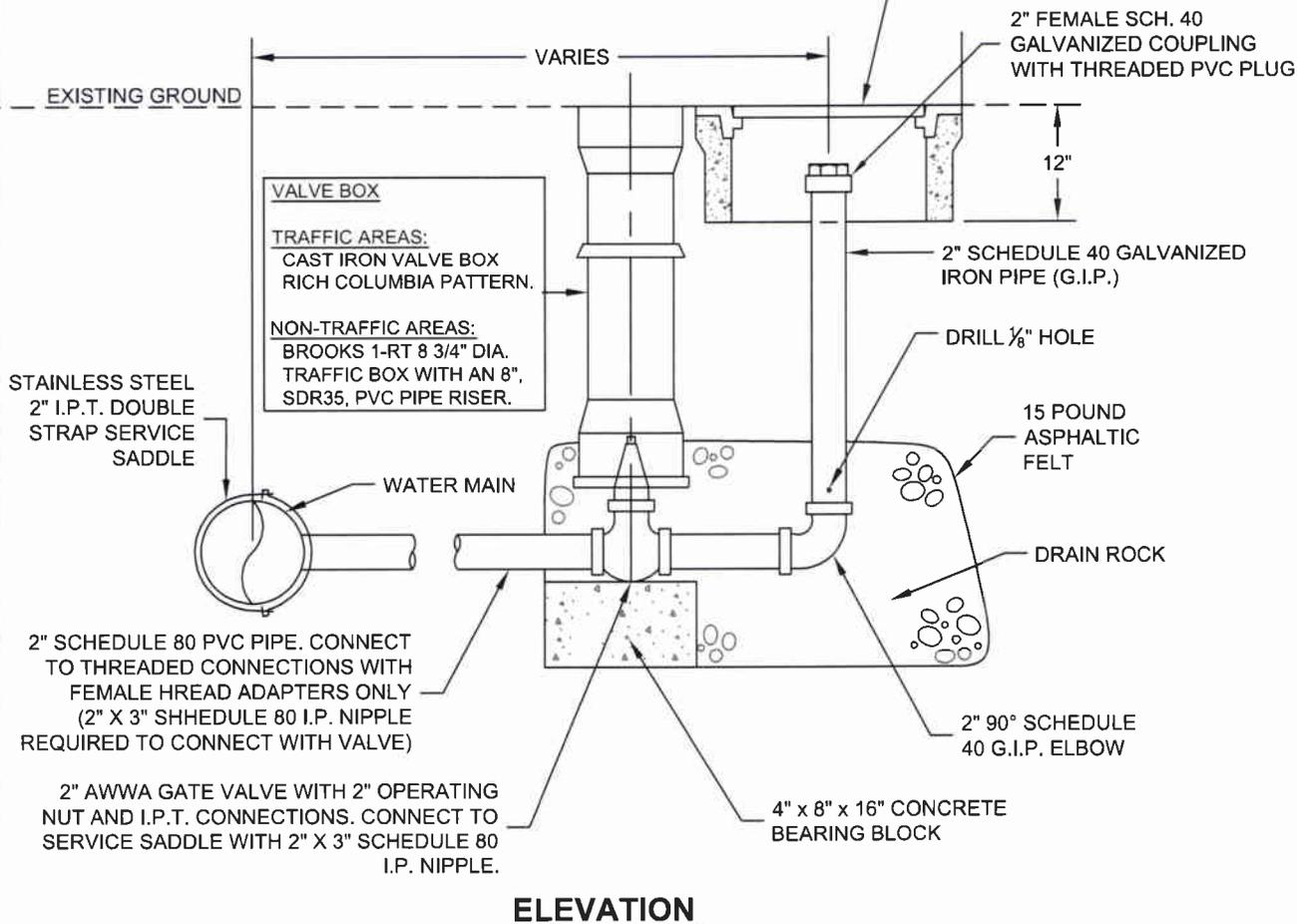
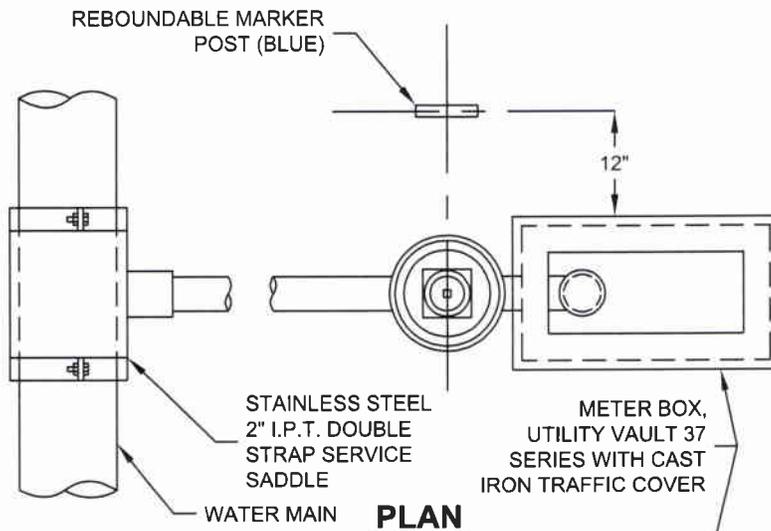
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98626  
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**NOTES:**

1. Paint pipe threads with asphalt paint after assembly.
2. All piping to be galvanized steel.
3. Valve and piping to valve to be 2" unless otherwise noted on plan.
4. Valve Marker to be in general conformance with WSDOT Specification 9-17.
5. County approved locate wire and/or detectable marking tape shall be installed over non-metallic lines as directed by Utilities Manager. Place tape approximately 1 foot above top of the line for it's full length. Detectable marking tape shall meet the requirements of WSDOT Stand specifications, Section 9-15.18



**KMC**  
DESIGNED BY  
**SMK 04/24/12**  
DRAWN BY  
**BAB**  
APPROVED BY  
**4/30/12**  
DATE

**2" BLOWOFF ASSEMBLY**

N T S



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R/W

**NOTES:**

1. Valve Marker to be in general conformance with WSDOT Specification 9-17.
2. County approved locate wire and/or detectable marking tape shall be installed over non-metallic lines as directed by Utilities Manager. Place tape approximately 1 foot above top of the line for it's full length. Detectable marking tape shall meet the requirements of WSDOT Stand specifications, Section 9-15.18

REBOUNDABLE MARKER POST (BLUE)

12"

6"

**PLAN**

EXISTING GROUND

1" HDPE POLYETHYLENE TUBING, DRISCO PIPE, OR APPROVED EQUIVALENT

WATER MAIN SIZE AND MATERIAL VARIES

4" THICK CONCRETE PAD

HOUSING HOUSING RISER

STAINLESS STEEL DOUBLE STRAP TAPPING SADDLE WITH 1" I.P.T. TAP OPENING

45°

1" CORP. STOP 1" I.P.T. TO 1" COMP. (C.T.S.) SET OPERATING NUT AT 3 OR 9 O'CLOCK

USA BLUEBOOK MODEL 900L BELOW GRADE SAMPLING STATION - 3/4" FIP INLET

**SECTION**

**KMC**  
 DESIGNED BY  
**JMC 2/16/06**  
 DRAWN BY  
**BAB**  
 APPROVED BY  
**4/30/12**  
 DATE

**SAMPLING STATION**

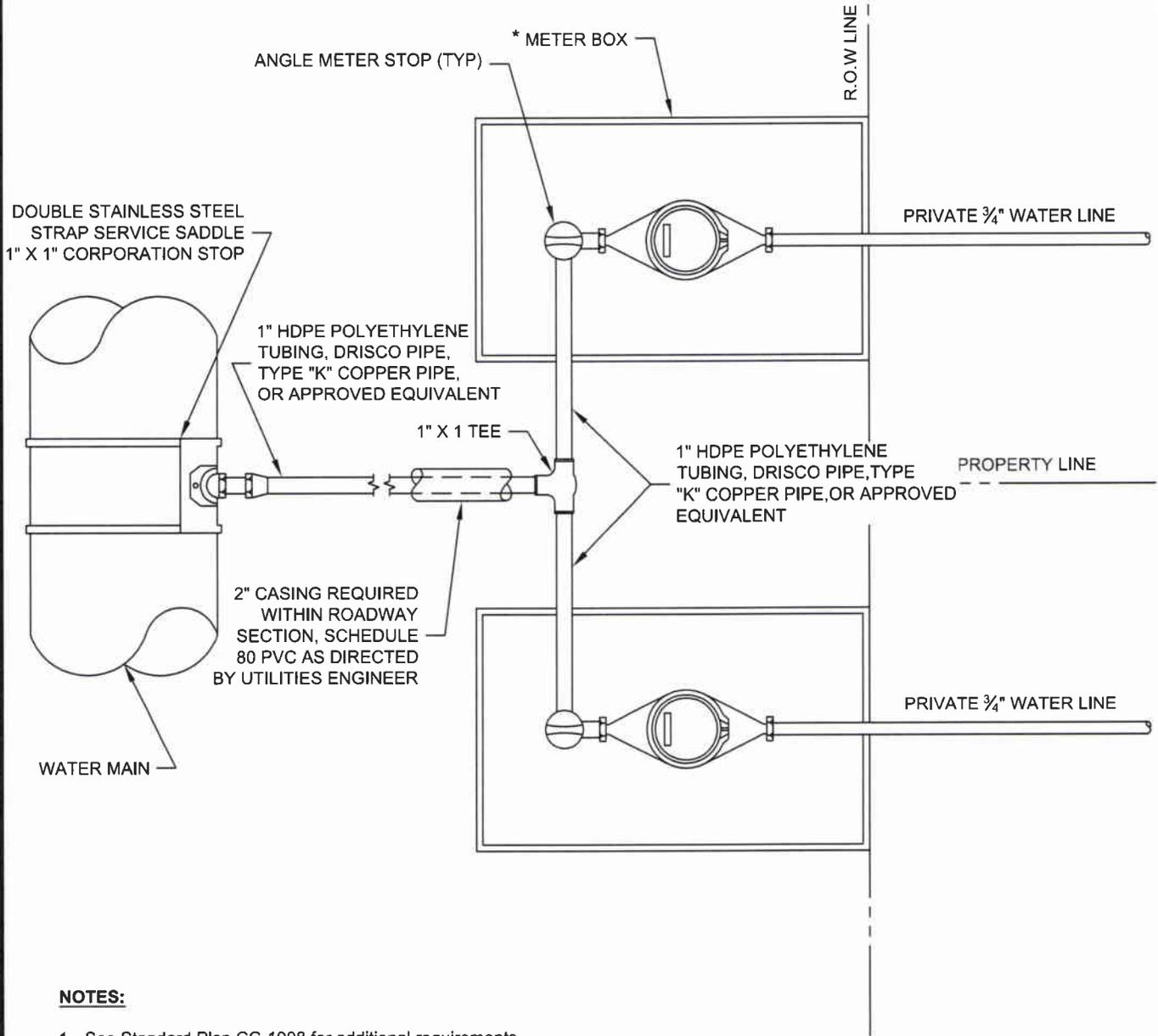
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**NOTES:**

1. See Standard Plan CC-1908 for additional requirements.
2. County approved locate wire and/or detectable marking tape shall be installed over non-metallic lines as directed by Utilities Manager. Place tape approximately 1 foot above top of the line for it's full length. Detectable marking tape shall meet the requirements of WSDOT Stand specifications, Section 9-15.18

**JAS**  
 DESIGNED BY  
**JMC 11/17/05**  
 DRAWN BY  
**BAB**  
 APPROVED BY  
**4/30/12**  
 DATE

**DUAL WATER SERVICE CONNECTION, 3/4" METER**

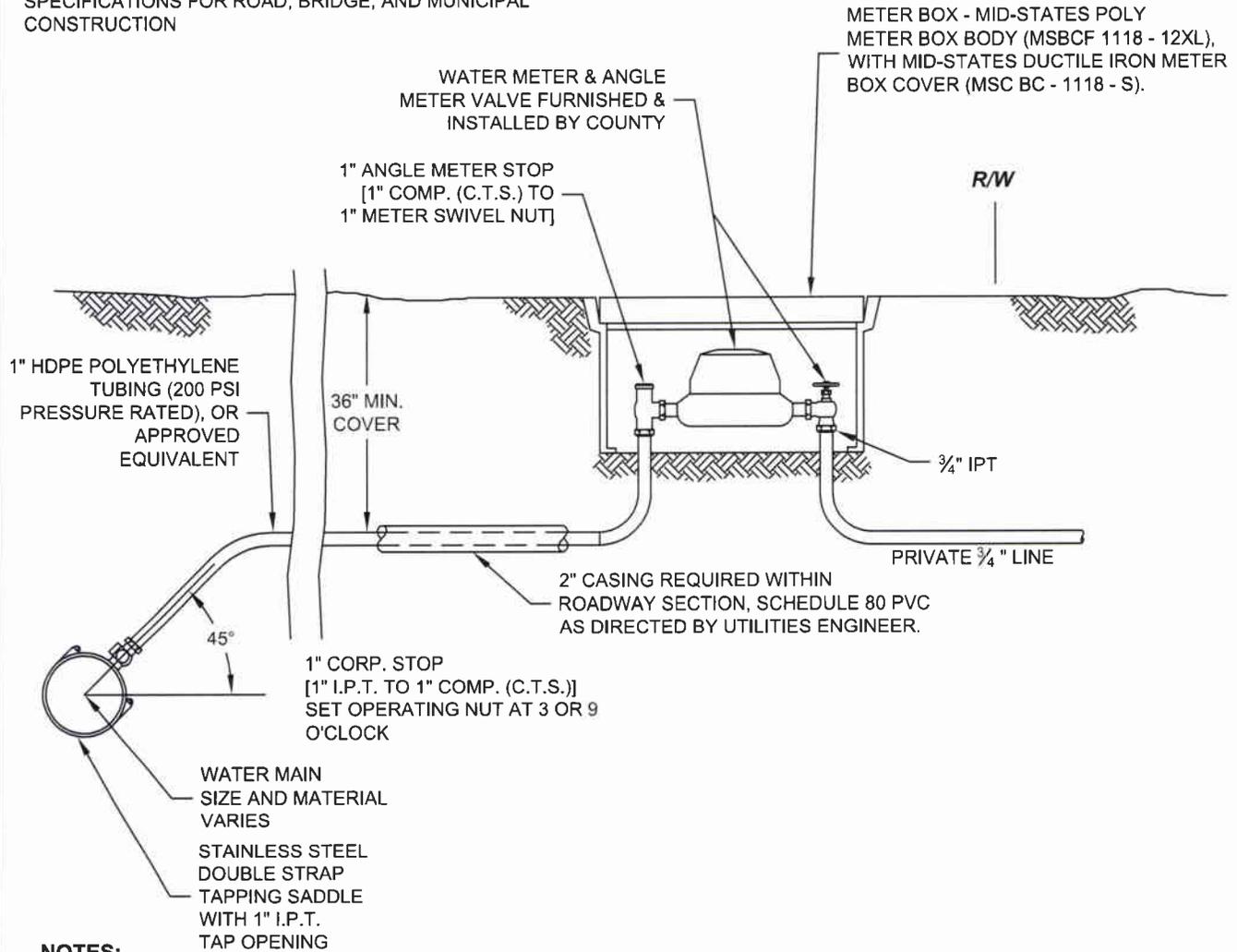
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 KELSO, WASHINGTON 98626  
**DRAWING:CC-1907**

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ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION



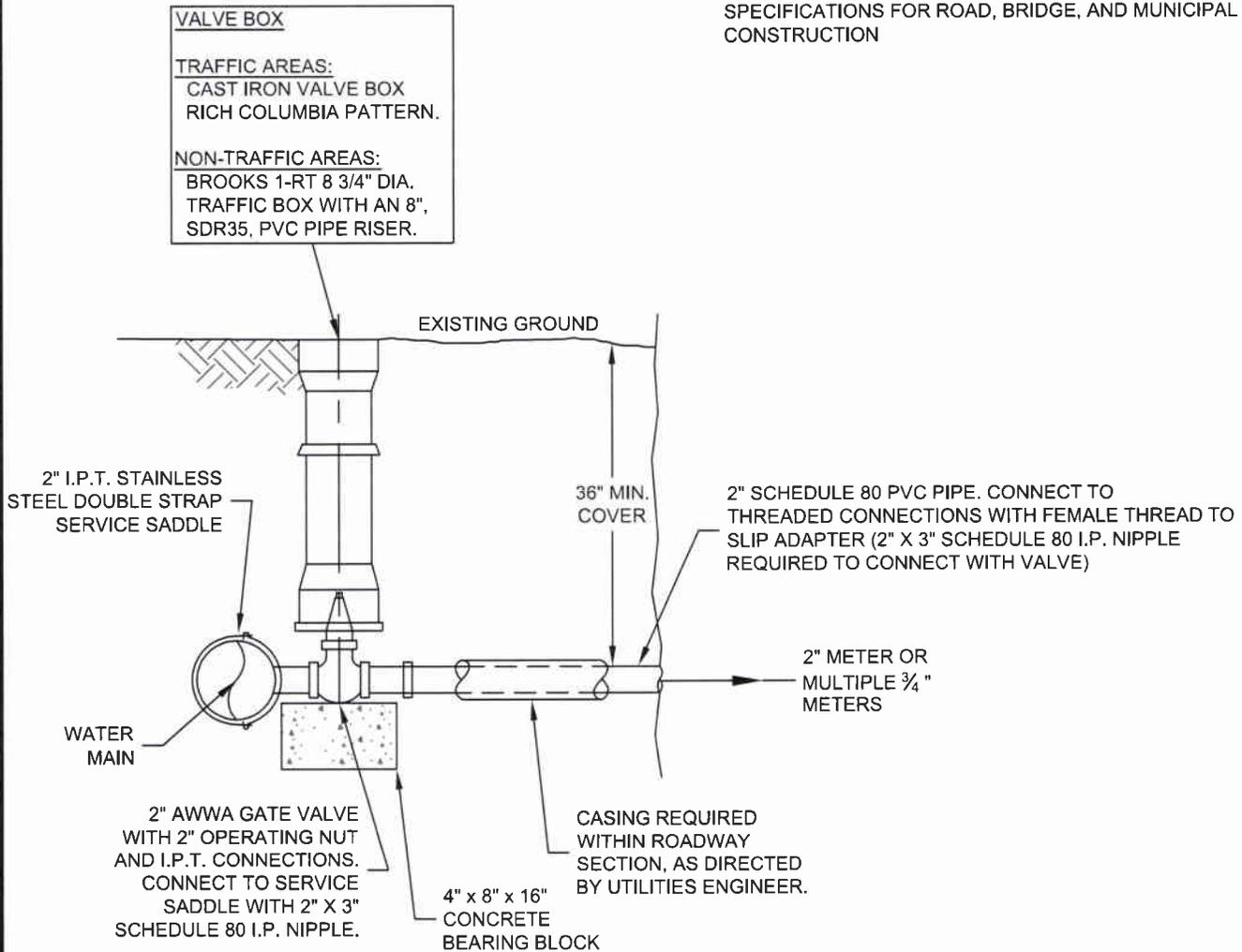
**NOTES:**

1. Bed all around main, service line, and meter base with 6" Min. depth Crushed Surfacing Top Course, or approved equivalent.
2. Backfill excavation with suitable onsite or imported material, compacted to 95% of the materials maximum density, as required in the road Right of Way Permit.
3. The water service line shall not be installed in the same trench with other utilities. The minimum lateral clearances are:
 

|                     |       |   |         |
|---------------------|-------|---|---------|
| Telephone and Cable | TV    | - | 3 FEET  |
|                     | Power | - | 3 FEET  |
|                     | Sewer | - | 10 FEET |
4. County approved locate wire and/or detectable marking tape shall be installed over non-metallic lines as directed by Utilities Manager. Place tape approximately 1 foot above top of the line for it's full length. Detectable marking tape shall meet the requirements of WSDOT Standard specifications, Section 9-15.18
5. Contractor must be licensed, bonded, insured, and have qualifying experience in municipal water works connections. Contractor shall contact County Public Works Utilities, a minimum of two working days prior to construction, to coordinate tap, tests, and approved materials for project.
6. All materials shall be for municipal water works. Corp. stop, meter stop, or other brass fittings shall be Mueller, or approved equivalent. Any deviations from County Standards will **NOT** be approved.

|                                                                                                                                  |                                                                    |                                                                                      |                                                                                                         |                                               |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| <p><b>DEH</b><br/>DESIGNED BY<br/><b>DJB 1/14/11</b><br/>DRAWN BY<br/><b>BAB</b><br/>APPROVED BY<br/><b>4/30/12</b><br/>DATE</p> | <p><b>WATER SERVICE CONNECTION</b><br/><b>3/4" or 1" METER</b></p> |  | <p>DEPARTMENT<br/>OF PUBLIC<br/>WORKS</p> <p>1600-13th AVENUE SOUTH<br/>KELSO, WASHINGTON<br/>98826</p> | <p>SHEET<br/><b>1</b><br/>OF<br/><b>1</b></p> |
| <p><b>N T S</b></p>                                                                                                              |                                                                    | <p><b>DRAWING:CC-1908</b></p>                                                        |                                                                                                         |                                               |

ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION



**NOTES:**

1. Bed all around main, service line, and meter base with Crushed Surfacing Top Course.
2. Backfill excavation with suitable onsite or imported material, compacted to 95% of the materials maximum density, as required in the road Right of Way Permit.
3. The water service line shall not be installed in the same trench with other utilities. The minimum lateral clearances are:
  - Telephone and Cable TV - 3 FEET
  - Power - 3 FEET
  - Sewer - 10 FEET
4. County approved locate wire and/or detectable marking tape shall be installed over non-metallic lines as directed by Utilities Manager. Place tape approximately 1 foot above top of the line for it's full length. Detectable marking tape shall meet the requirements of WSDOT Stand specifications, Section 9-15.18
5. Contractor must be licensed, bonded, insured, and have qualifying experience in municipal water works connections. Contractor shall contact County Public Works Utilities, a minimum of two working days prior to construction, to coordinate tap, tests, and approved materials for project. All materials shall be for municipal water works. Any deviations from County Standard Plans will **NOT** be approved. All new pipe, fittings, and appertenances shall be DISINFECTED, CHLORINE TESTED, FLUSHED, PRESURE TESTED, and BACTERIA TESTED by the Contractor per WSDOT Standard Specifications, Section 7-09, unless otherwise noted on the County Standard Plan.

DEH  
 DESIGNED BY  
**JMC 10/26/06**  
 DRAWN BY  
**BAB**  
 APPROVED BY  
**4/30/12**  
 DATE

**2" WATER SERVICE CONNECTION**

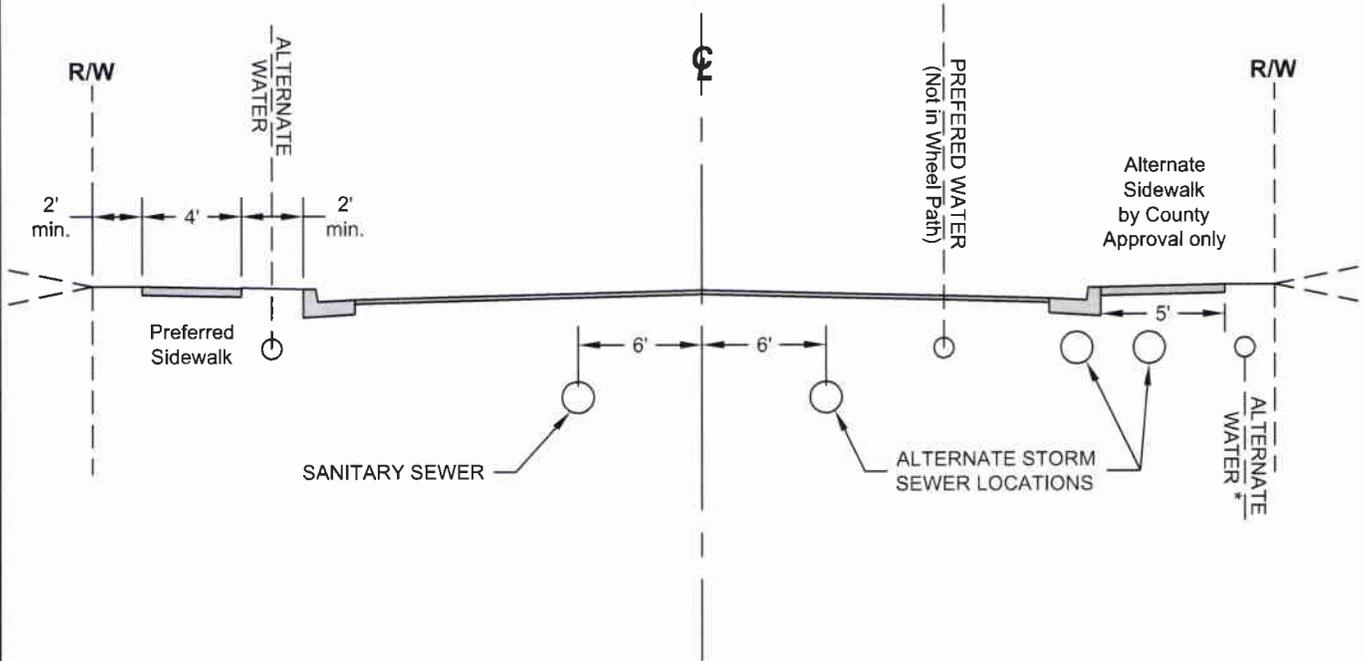
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 KELSO, WASHINGTON 98626  
**DRAWING:CC-1909**

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ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION



**NOTES:**

1. All utility installations shall meet the requirements of the Cowlitz County Utility Accomodation Policy.
2. Underground power, telecommunications and sanitary sewer shall be located on the north and west, water and storm sewer on the south and east.
3. Alternate water locations shown above require County approval. \* When Alternate Sidewalk is used, a minimum 6' Utility Easement outside of the Right of Way is required.
4. A minimum horizontal separation of 10 feet between sanitary sewers and any potable water lines, and a minimum vertical separation of 18 inches between the bottom of the water line and the crown of the sewer, shall be maintained. Variations to these requirements must conform to the requirements of Chapter C1-9 of the WA State Department of Ecology, Criteria for Sewage Works Design.
5. County approved locate wire and/or detectable marking tape shall be installed over non-metallic lines as directed by Utilities Manager. Place tape approximately 1 foot above top of the line for it's full length. Detectable marking tape shall meet the requirements of WSDOT Stand specifications, Section 9-15.18

**RGL**  
 DESIGNED BY  
**SMK 04/30/12**  
 DRAWN BY  
**BAB**  
 APPROVED BY  
**4/30/12**  
 DATE

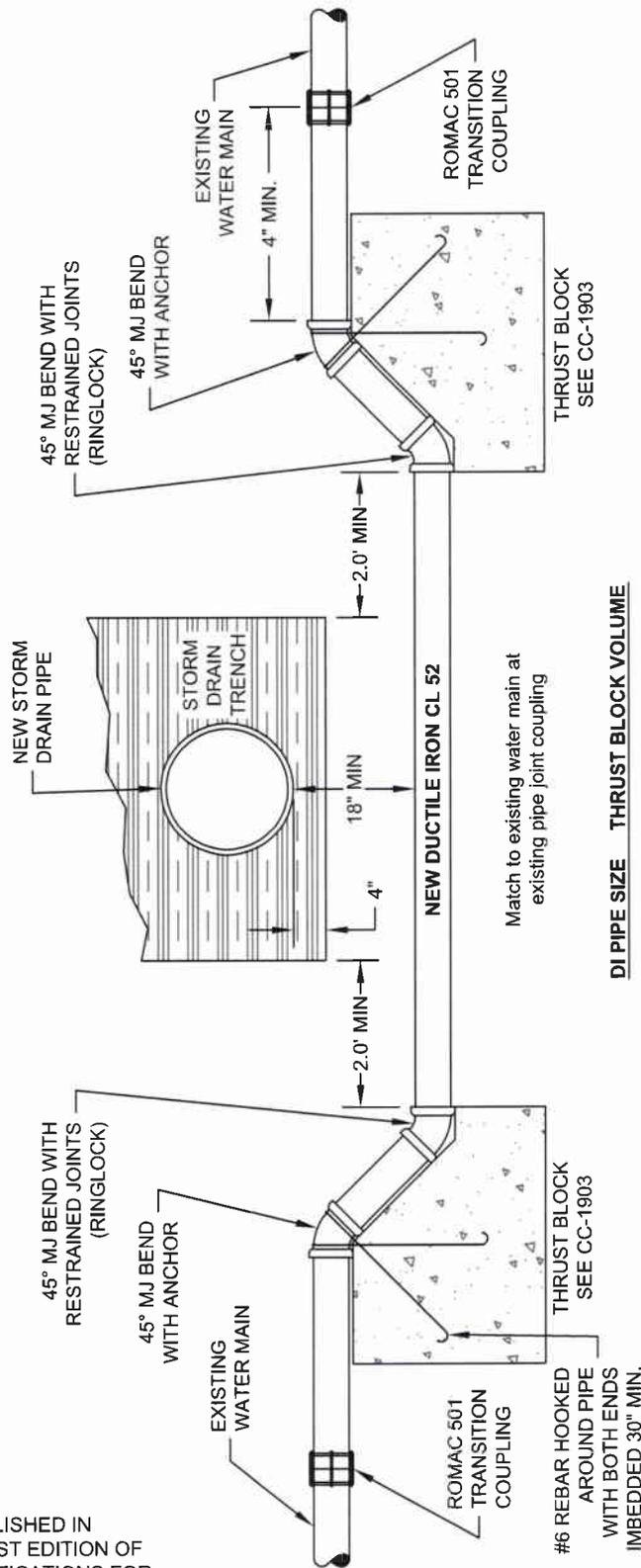
**UTILITIES LOCATION**

N T S



DEPARTMENT OF PUBLIC WORKS  
 1600-13TH AVENUE SOUTH  
 KELSO, WASHINGTON 98626  
**DRAWING:CC-1801**

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**DI PIPE SIZE    THRUST BLOCK VOLUME**

|       |                 |
|-------|-----------------|
| 6.0"  | 2.0 CUBIC YARDS |
| 8.0"  | 2.5 CUBIC YARDS |
| 10.0" | 3.0 CUBIC YARDS |

ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION

**RCM, AB**  
 DESIGNED BY  
**SMK 4/24/12**  
 DRAWN BY  
**BAB**  
 APPROVED BY  
**4/30/12**  
 DATE

**WATERLINE RELOCATION**

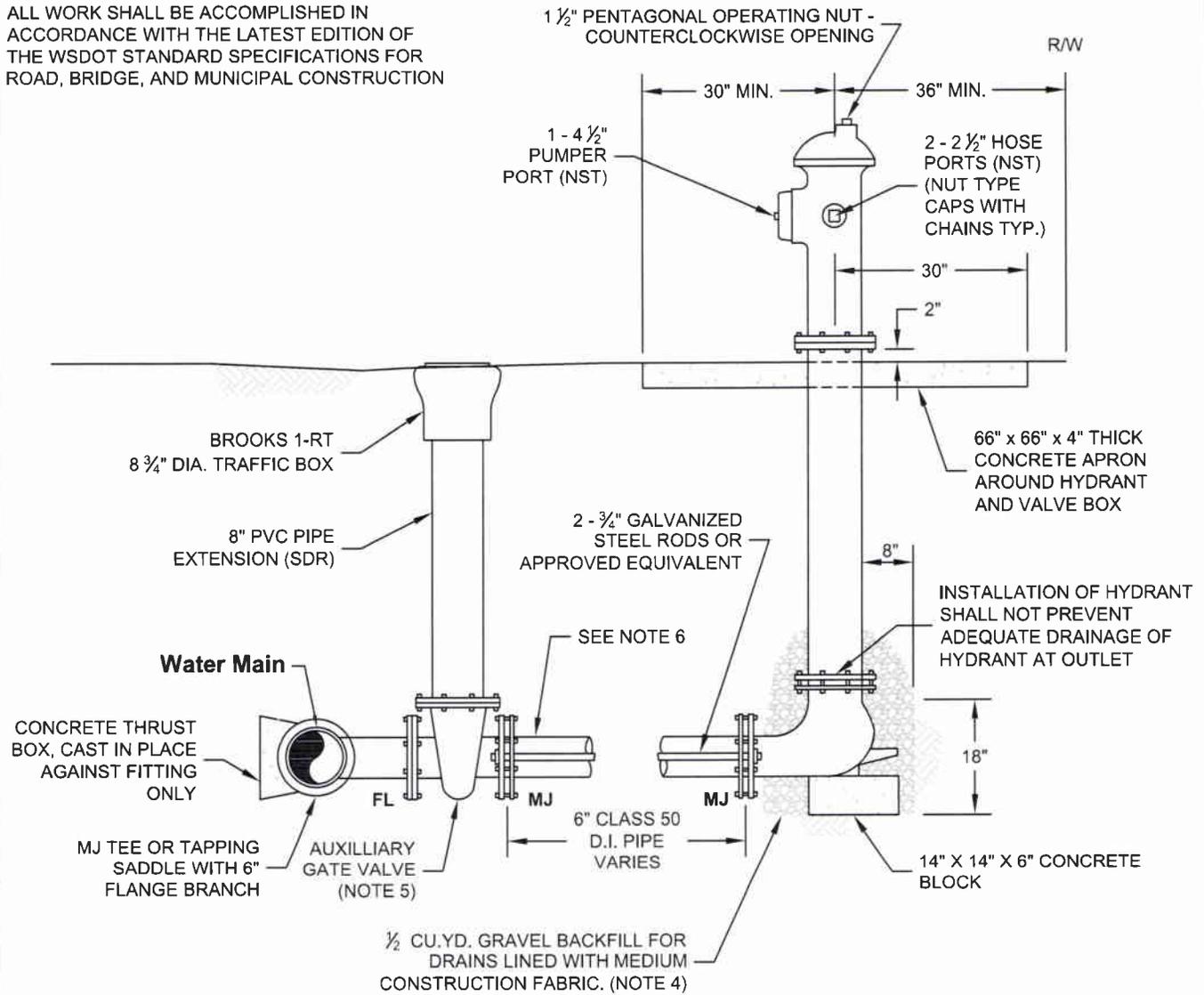
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**DRAWING:CC-1802**

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ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION



**NOTES:**

1. Hydrant shall be breakaway traffic model: Waterous Pacer WB67-250 or Mueller Super Centurion 250.
2. A minimum 36 inch radius unobstructed working area shall be provided around each hydrant.
3. All fittings in contact with concrete shall be wrapped in plastic.
4. Gravel Backfill for Drains shall be placed a minimum of 6" above drain outlet.
5. Hydrant valve shall be 6" Resilient Seat AWWA C 2506 Gate Valve, FLXMJ.
6. Each pipe joint 6" #1106 EBAA Iron, Inc. Megalug or approved equal, or 3/4" restraining rods, or thrust blocking as approved.

DEH  
 DESIGNED BY  
 DJB 10/14/10  
 DRAWN BY  
 BAB  
 APPROVED BY  
 4/30/12  
 DATE

**HYDRANT SETTING DETAIL**

N T S



DEPARTMENT OF  
 PUBLIC WORKS

1600-13th AVENUE SOUTH  
 KELSO, WASHINGTON 98626

**DRAWING:CC-1902**

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**APPENDIX 5**

**WASHINGTON STATE DEPARTMENT  
OF  
TRANSPORTATION**

**STANDARD DETAILS**

Utilize the most current edition of the following WSDOT Standard Plans.

|              |                                                            |
|--------------|------------------------------------------------------------|
| <b>B-1z</b>  | <b>Miscellaneous Details for Manholes and Catch Basins</b> |
| <b>B-18</b>  | <b>Drop Connection for Sanitary Sewers</b>                 |
| <b>B-21a</b> | <b>Combination Air Release/Vacuum Valve Assembly</b>       |
| <b>B-23a</b> | <b>Manhole Type 1</b>                                      |
| <b>B-23b</b> | <b>Manhole Type 2</b>                                      |
| <b>B-23c</b> | <b>Manhole Type 3</b>                                      |