Appendix D

Water Quality Monitoring Plans and Concern Forms

- Coliform Monitoring Plan
- Disinfection Byproduct Monitoring Plan
- Lead & Copper Monitoring
- Citizen Concern Form

COLIFORM MONITORING PLAN

NAME OF SYSTEM:	CITY OF KELSO
SYSTEM I.D. NUMBER:	38000L
POPULATION SERVED:	11,772
SERVICE CONNECTIONS:	4,587
DOH SOURCE NUMBER:	S02
CATEGORY:	RANNEY / INF. GAL.
WELL DEPTH:	30 FT
TREATMENT PROCESS:	CHLORINATION FILTRATION PH Adjustment FLOURIDATION Iron & Manganese removal

STORAGE:

MINOR ROAD -	2.00 MG
WILLIAMS-FINNEY	0.50 MG
CARROLLS ROAD	0.50 MG
PAXTON ROAD	0.50 MG
ROCKY POINT	0.50 MG
BEHSHEL HEIGHTS	0.75 MG
TYBREN HEIGHTS	0.40 MG
TOTAL STORAGE:	5.15 MG

PUMP STATIONS:
CARROLL ROAD LIFT STATION
MINOR ROAD LIFT STATION
18TH AVENUE LIFT STATION
HAUSSLER ROAD LIFT STATION
HIGHLAND PARK LIFT STATION
ROCKY POINT PRESSURE BOOSTER
BEHSHEL HEIGHTS PRESSURE BOOSTER

TREATMENT PROCESS:	PURPOSE:
IN LINE MIXING	PARTICULATE (TURBIDITY) REMOVAL
FILTRATION	PARTICULATE (TURBIDITY) REMOVAL IRON & MANGANESE REMOVAL
CHLORINATION	DISINFECTION & OXIDATION TASTE & ODOR CONTROL
FLOURIDATION	DENTAL HEALTH
PH Adjustment	CORROSION CONTROL

1 inch = 900 feet

Innertie with P.U.D. to Cowlitz Gardens

Rocky Point Reservoir

Innertie with P.U.D. to Williams Finney through pump station

Behshel Heights Reservoir

Minor Road Reservoir

Williams-Finney Reservoir

18th Ave. PRV Located in Pump Station

Innertie with City of Longview to City of Kelso at 1246 GPM average

Sunrise PRV

North Crescent PRV

Ranney Well

Innertie to Davis Terrace Water Association

Highland Park PRV

Apple Lane PRV

Tybren Heights Reservoir

West Vista PRV

Carroll Rd. PRV

Carroll Road Reservoir

Paxton Road Reservoir

SAMPLING INFORMATION

NUMBER OF ROUTINE SAMPLES REQUIRED BY REGULATION	10 PER MONTH	NUMBER OF SAMPLE SITES NEEDED TO REPRESENT THE DISTRIBUTION SYSTEM	10 PER MONTH

WATER SYSTEM NAME
CITY OF KELSO - GROUP A - SAMPLE SITES

	TYPE	SITE #	LOCATION
SAMPLE	ROUTINE	A1	CARROLLS ROAD PUMP STATION
SITE	REPEAT	A11	201 CARROLLS ROAD
GROUP	REPEAT	A12	310 CARROLLS ROAD
A	REPEAT	A13	346 CARROLLS ROAD
SAMPLE	ROUTINE	A2	1415 SOUTH 10TH
SITE	REPEAT	A21	1005 WALNUT
GROUP	REPEAT	A22	1410 SOUTH 10TH
A	REPEAT	A23	1407 SOUTH 10TH
SAMPLE	ROUTINE	A3	BEHSHEL HGTS RESERVIOR
SITE	REPEAT	A31	1209 BEHESHEL HGTS
GROUP	REPEAT	A32	1419 BEHESHEL HGTS
A	REPEAT	A33	1421 BEHESHEL HGTS
SAMPLE	ROUTINE	A4	1405 BURCHAM
SITE	REPEAT	A41	1607 BURCHAM
GROUP	REPEAT	A42	1605 BURCHAM
A	REPEAT	A43	1404 BURCHAM
SAMPLE	ROUTINE	A5	WILLIAMS FINNEY RESERVIOR
SITE	REPEAT	A51	1545 MT BRYNION
GROUP	REPEAT	A52	1549 MT BRYNION
A	REPEAT	A53	COWLITZ VEIW OFFICE (CEMENTARY)
SAMPLE	ROUTINE	A6	MINOR ROAD PUMP STATION
SITE	REPEAT	A61	1211 13TH
GROUP	REPEAT	A62	1212 13TH
A	REPEAT	A63	1208 MINOR ROAD
SAMPLE	ROUTINE	A7	1404 STH 11TH
SITE	REPEAT	A71	1402 STH 11TH
GROUP	REPEAT	A72	1410 STH 11TH
A	REPEAT	A73	1403 STH 11TH
SAMPLE	ROUTINE	A8	TRAIN DEPOT
SITE	REPEAT	A81	710 STH 1ST
GROUP	REPEAT	A82	MAPLE SEWER PUMP STATION
A	REPEAT	A83	102 ALDER
SAMPLE	ROUTINE	A9	DONATION SEWER PUMP STATION
SITE	REPEAT	A91	1005 NTH 4TH
GROUP	REPEAT	A92	400 NTH 4TH
A	REPEAT	A93	307 BURCHAM
SAMPLE	ROUTINE	A10	2216 PARROTT WAY
SITE	REPEAT	A101	2300 PARROTT WAY
GROUP	REPEAT	A102	2401 TALLEY WAY
A	REPEAT	A103	2233 TALLEY WAY

SAMPLING INFORMATION

NUMBER OF ROUTINE SAMPLES REQUIRED BY REGULATION	10 PER MONTH	NUMBER OF SAMPLE SITES NEEDED TO REPRESENT THE DISTRIBUTION SYSTEM	10 PER MONTH

WATER SYSTEM NAME
CITY OF KELSO - GROUP A - SAMPLE SITES

	TYPE	SITE #	LOCATION
SAMPLE	ROUTINE	C1	2523 ALLEN STREET
SITE	REPEAT	C11	2437 ALLEN STREET
GROUP	REPEAT	C12	100 CORDUROY
C	REPEAT	C13	105 CORDUROY
SAMPLE	ROUTINE	C2	1007 YEW STREET
SITE	REPEAT	C21	1003 YEW STREET
GROUP	REPEAT	C22	1005 YEW STREET
C	REPEAT	C23	1009 YEW STREET
SAMPLE	ROUTINE	C3	306 BANYON
SITE	REPEAT	C31	213 BANYON
GROUP	REPEAT	C32	307 BANYON
C	REPEAT	C33	403 BANYON
SAMPLE	ROUTINE	C4	2300 PARROTT WAY
SITE	REPEAT	C41	2216 PARROTT WAY
GROUP	REPEAT	C42	2401 TALLEY WAY
C	REPEAT	C43	2233 TALLEY WAY
SAMPLE	ROUTINE	C5	710 STH 1ST
SITE	REPEAT	C51	TRAIN DEPOT
GROUP	REPEAT	C52	MAPLE SEWER STATION
C	REPEAT	C53	102 ALDER
SAMPLE	ROUTINE	C6	HIGHLAND PARK PUMP STATION
SITE	REPEAT	C61	206 HIGHLAND PARK DR
GROUP	REPEAT	C62	208 HIGHLAND PARK DR
C	REPEAT	C63	213 HIGHLAND PARK DR
SAMPLE	ROUTINE	C7	HAUSSLER SEWER PUMP STATION
SITE	REPEAT	C71	1510 KINNEAR
GROUP	REPEAT	C72	1510 COWEEMAN DR
C	REPEAT	C73	1502 COWEEMAN DR
SAMPLE	ROUTINE	C8	330 WILLOW ST
SITE	REPEAT	C81	107 WILLOW ST
GROUP	REPEAT	C82	701 WILLOW ST
C	REPEAT	C83	710 A WILLOW ST
SAMPLE	ROUTINE	C9	CATLIN SEWER STATION
SITE	REPEAT	C91	120 1ST AVE
GROUP	REPEAT	C92	200 1ST AVE
C	REPEAT	C93	COWLITZ COUNTY COURT HOUSE
SAMPLE	ROUTINE	C10	MAPLE SEWER STATION
SITE	REPEAT	C101	710 STH 1ST
GROUP	REPEAT	C102	TRAIN DEPOT
C	REPEAT	C103	102 ALDER

SAMPLING INFORMATION

NUMBER OF ROUTINE SAMPLES REQUIRED BY REGULATION	10 PER MONTH	NUMBER OF SAMPLE SITES NEEDED TO REPRESENT THE DISTRIBUTION SYSTEM	10 PER MONTH

WATER SYSTEM NAME
CITY OF KELSO - GROUP A - SAMPLE SITES

	TYPE	SITE #	LOCATION
SAMPLE	ROUTINE	B1	1921 MINOR ROAD
SITE	REPEAT	B11	1813 MINOR ROAD
GROUP	REPEAT	B12	1920 MINOR ROAD
B	REPEAT	B13	1650 MINOR ROAD
SAMPLE	ROUTINE	B2	18TH AVE PUMP STATION
SITE	REPEAT	B21	1807 SUNRISE
GROUP	REPEAT	B22	1805 SUNRISE
B	REPEAT	B23	1621 BURCHAM
SAMPLE	ROUTINE	B3	WOOD AVE APARTMENTS
SITE	REPEAT	B31	1106 WOOD AVE
GROUP	REPEAT	B32	1108 WOOD AVE
B	REPEAT	B33	1116 WOOD AVE
SAMPLE	ROUTINE	B4	106 REDPATH
SITE	REPEAT	B41	1121 N 2ND
GROUP	REPEAT	B42	1123 N 2ND
B	REPEAT	B43	105 REDPATH
SAMPLE	ROUTINE	B5	ROCKY POINT PUMP STATION
SITE	REPEAT	B51	2308 N PACIFIC
GROUP	REPEAT	B52	2304 N PACIFIC
B	REPEAT	B53	209 ROCKY POINT
SAMPLE	ROUTINE	B6	HAUSSLER ROAD PUMP STATION
SITE	REPEAT	B61	101 HAUSSLER
GROUP	REPEAT	B62	1825 GRADE ST
B	REPEAT	B63	1809 GRADE ST
SAMPLE	ROUTINE	B7	CATLIN HALL 106 NW 8TH AVE
SITE	REPEAT	B71	703 GRANT
GROUP	REPEAT	B72	705 W MAIN
B	REPEAT	B73	108 NW 7TH
SAMPLE	ROUTINE	B8	ROTARY PARK
SITE	REPEAT	B81	1400 BURCHAM
GROUP	REPEAT	B82	1405 BURCHAM
B	REPEAT	B83	1401 BURCHAM
SAMPLE	ROUTINE	B9	1403 STH 10TH
SITE	REPEAT	B91	1405 STH 10TH
GROUP	REPEAT	B92	1407 STH 10TH
B	REPEAT	B93	1404 STH 10TH
SAMPLE	ROUTINE	B10	1408 STH 9TH
SITE	REPEAT	B101	1410 STH 9TH
GROUP	REPEAT	B102	1407 STH 9TH
B	REPEAT	B103	1404 STH 9TH

Water System Features

- Innerties
- Reservoir Point Location
- Pump Stations
- Pressure Reducing Stations
- Water Treatment Plant
- Water Sources
- Water Line

Pressure Zones

- 191
- 188 - Main
- 297
- 320
- 410
- 301
- 522
- 311 - Lower Carroll Road
- 443 - Behshel Heights
- 322 - Mt Brynion
- 544 - East Hills
- 517 - Carroll Road

City Limits

- City of Kelso
- City of Longview

Sample Sites

- Group A Repeat
- Group A Routine
- Group B Repeat
- Group B Routine
- Group C Repeat
- Group C Routine

City of KELSO Public Works

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER OPERATIONS
2411 Pacific Ave • P.O. Box 47823 • Olympia, Washington 98504-7823
(360) 664-0768 • FAX (360) 664-8058
TDD Relay 1-800-833-6388

April 28, 2003

Paul Reebs
City of Kelso
Post Office Box 819
Kelso, Washington 98626

Dear Mr. Reebs:

Subject: City of Kelso Water System, ID #38000L, Cowlitz County; D/DBP Monitoring Plan, DOH Project #03-0413

The D/DBP Monitoring Plan for the above project received in this office on April 11, 2003, has been reviewed and in accordance with the provisions of WAC 246-290 is **APPROVED**. The approval issued herein is based on conformance with current standards outlined in WAC 246-290, revised April 9, 1999. Future changes in the rules may be more stringent and require facility modification or corrective action.

This project has been reviewed as a Group A water system project submittal in accordance with WAC 246-290.

Regulations establishing a schedule of fees for review of planning, engineering, and construction documents were adopted May 1, 2002 (WAC 246-290-990). An itemized invoice for $93 is enclosed.

Sincerely,

JAMES C. McCAULEY, P.E.
WSDOH Regional Engineer

Enclosures

cc: Cowlitz County Health Department

City Of Kelso
Disinfectants / Disinfection Byproducts Rule
Water Quality Monitoring Plan
2003

This plan covers new federal requirements for the monitoring of (D/DBP) and for the City Of Kelso, includes HAA5s, Distribution Chlorine, TTHMs and TOC.

1) HAA5s & TTHMs
    a. Sample sites selected according to rule requirements
        i. Minor Rd. pump station (average residence time)
        ii. Lower Haussler rd. pump station (average residence time)
        iii. Carrolls Rd. pump station (average residence time)
        iv. 306 Banyon (Max residence time) This site is in our top pressure zone in an area of low water usage and has a history of lower than average chlorine residuals indicative of long residence times.
    b. Samples are taken March, June, September and December of each year.
    c. A running annual average is tracked for compliance each quarter.
    d. Reduced monitoring is available for TTHMs and HAA5s if annual average TTHM is $\leq$.040mg/l and HAA5 is $\leq$.030mg/l.
    e. If a MCL violation occurs, than a return to routine monitoring of 4 samples per quarter per plant must be met.
    f. The annual average for the year is reported in the City Of Kelso annual consumer confidence report.
    g. Monthly report to DOH
    h. If an MCL is exceeded, the Department of Health must be contacted and a public notice must be provided to customers.
2) TOC
    a. Samples are taken monthly from the raw source water.
    b. TOCs are taken to provide information necessary in the determination of future HAA5s & TTHMs sample frequency requirements. Conditions for reduced monitoring are source water annual average TOC before any treatment must be $\leq$ 4.0 mg/l. Frequency of reduced monitoring would be one sample per plant per quarter.
    c. The annual average for the year is reported in the City Of Kelso annual consumer confidence report.
    d. Monthly report to DOH
    e. If an MCL is exceeded, the Department of Health must be contacted and a public notice must be provided to customers.
3) Distribution Chlorine
    a. Samples are taken at the time of coliform testing.
    b. Monthly average of the 10 samples, also the high and low chlorine reading of the month.
    c. Annual report, yearly average and high and low for the year in CCR.
    d. Monthly report sent to DOH
    e. If an MRDL is exceeded, the Department of Health must be contacted and a public notice must be provided to customers.

If a failure to monitor for any of the parameters makes it impossible to calculate an MCL or MRDL, the monitoring failure would be treated as a violation for the entire period covered by the annual average. If more than the minimum number of samples are taken, the entire results of all samples must be included in the compliance calculation.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

August 13, 2007

Reply to
Attn Of: OWW-136

Paul Reebs
City of Kelso
2300 Parrott Way
Kelso, Washington 98626

RE: Approval of Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) 40/30 Certification
City of Kelso ID # 38000L - Cowlitz County

Dear Mr. Reebs:

This letter is to provide confirmation that your 40/30 certification, submitted to meet the Initial Distribution System Evaluation (IDSE) requirement of the Stage 2 DBPR, has been approved.

Your next step will be to prepare a monitoring plan for Stage 2 DBPR compliance monitoring. This plan must be completed before you are required to begin Stage 2 DBPR compliance monitoring during the period starting October 2013. The Department of Health will provide guidance pertaining to the preparation of this monitoring plan as your compliance date approaches. Until Stage 2 DBPR compliance monitoring begins, you must continue to conduct Stage 1 DBPR monitoring as required by the state.

Additional information pertaining to choosing Stage 2 DBPR monitoring locations and preparing the Stage 2 DBPR monitoring plan is enclosed for your use. If you have questions regarding this letter, please contact me at (206) 553-1890 or marshall.wendy@epa.gov. For more information regarding this rule visit the Stage 2 DBPR website at www.epa.gov/safewater/disinfection/stage2.

Sincerely,

Wendy Marshall

Wendy Marshall
Environmental Scientist

Enclosure

cc: Ethan Moseng - DOH

40/30 Certification Letter

Complete and return to:

Stage 2 DBPR
US EPA-IPMC
P.O. Box 98
Dayton, OH 45401-0098

or

Wendy Marshall
USEPA – Region 10
1200 Sixth Avenue OWW-136
Seattle, WA 98101

Public Water Supply (PWS) Information

PWS Name: City of Kelso PWS ID: 38000L

Mailing Address: 2300 Parrott Way

City: Kelso State: WA

Zip: 98626

Population Served: 11,800

System Type: X Community Water System
☐ Non-Transient Non-Community Water System

Contact Person

Name: Paul Reebs Title: Water Treatment Plant Supervisor

Phone Number: 360-577-1085 Fax Number (if available): 360-423-9186

Email Address (if available): preebs@kelso.gov

Certification

*I herby certify that each individual Stage 1 DBPR compliance sample collected from **September 2005** to **June 2007** was less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5. I understand that to be eligible, each individual sample must be equal to or below these values. I also certify that this PWS collected all required Stage 1 samples as required by the State and did not have any Stage 1 monitoring violations during this time period. I am including the TTHM and HAA5 data that I am basing this certification on and a distribution system schematic with my system's DBP compliance monitoring sites plotted for review by the U.S. Environmental Protection Agency.*

Signature: Paul L Reebs

Date: 8-8-07

Contact for questions regarding this form:
Wendy Marshall, U.S. EPA, Region 10, 206-553-1890, marshall.wendy@epa.gov

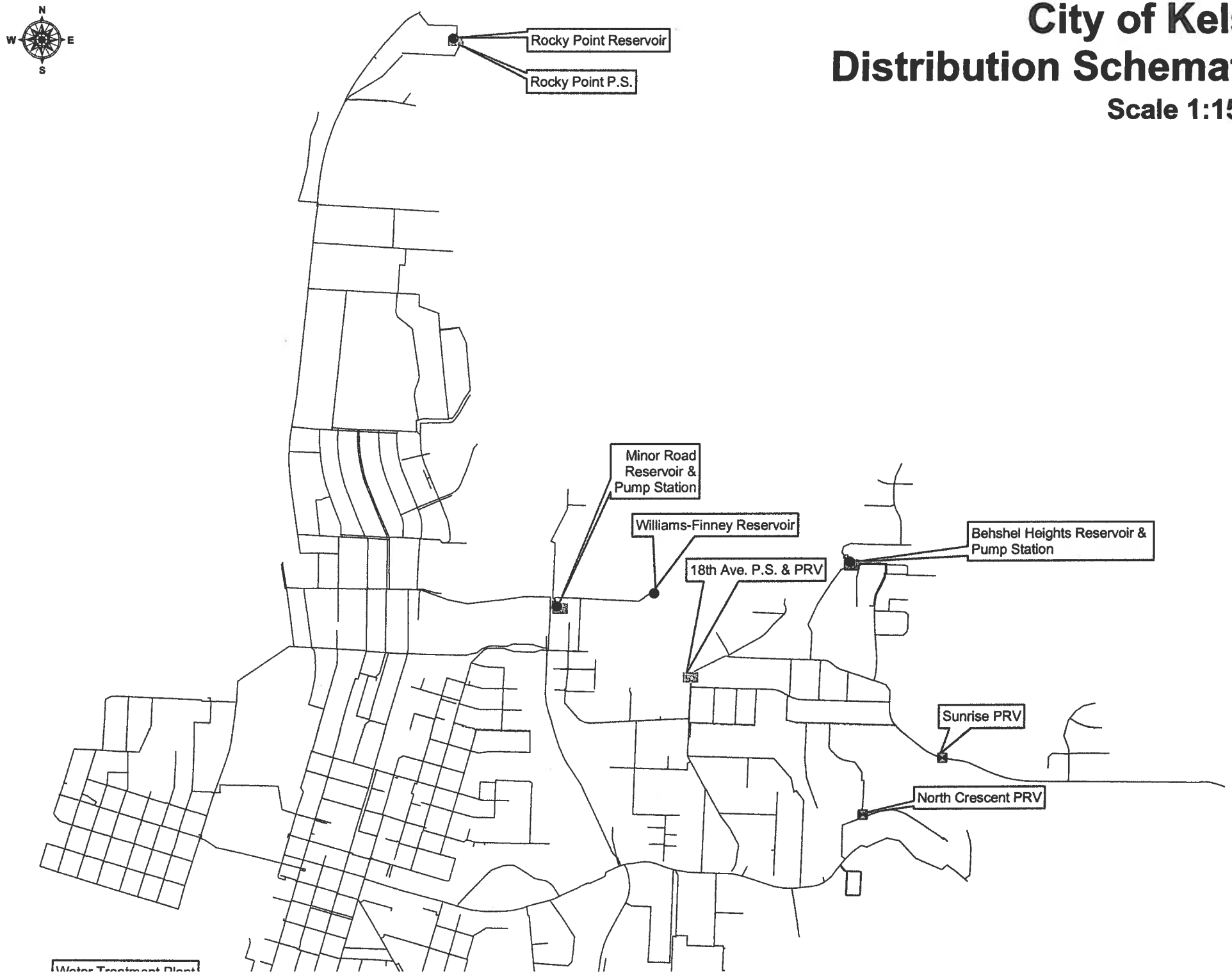
City of Kelso
Water Treatment Plant
Stage 1 DBPR Results

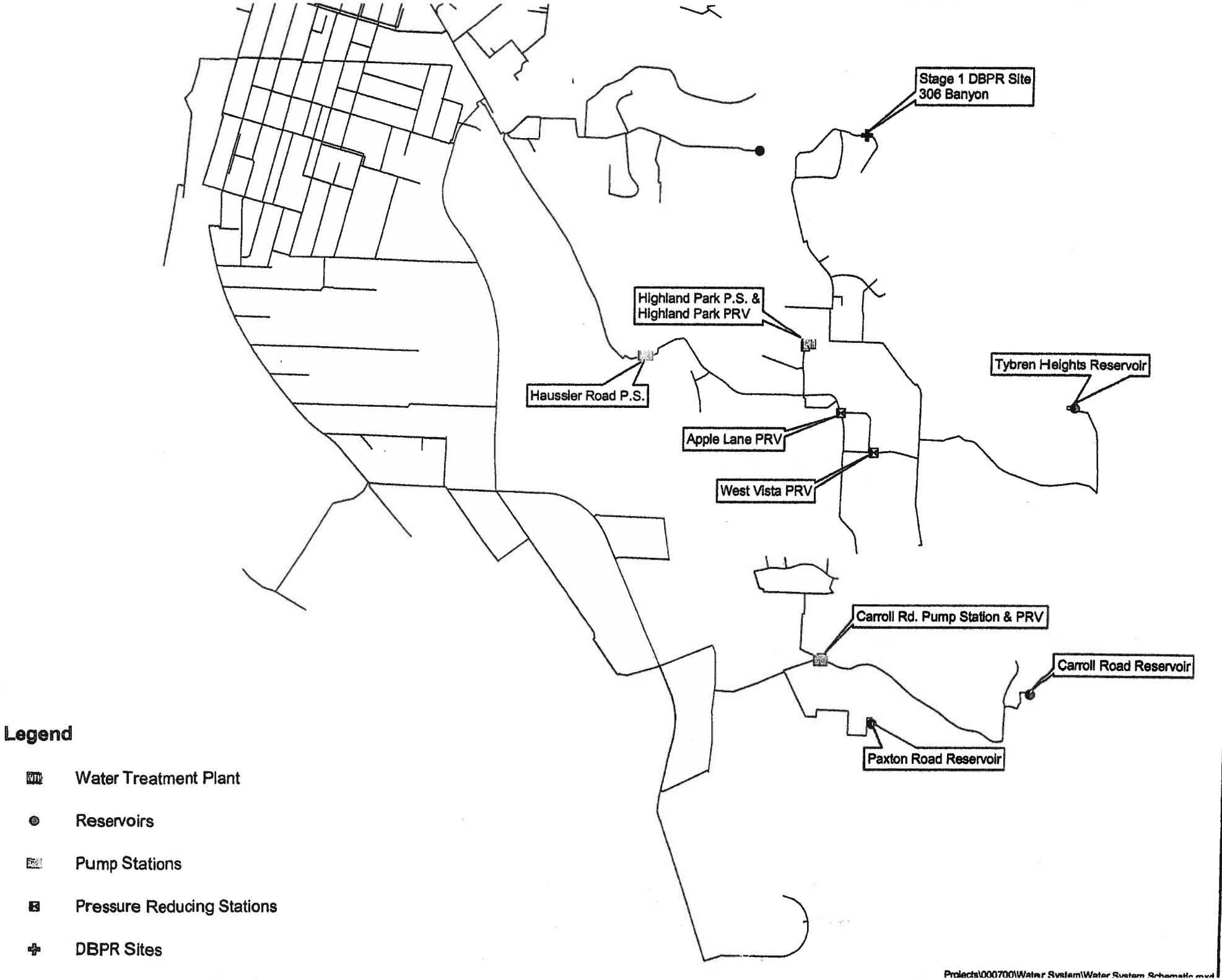
Stage 1 DBPR Site	Date Sample Collected	TTHM mg/l	HAA5 mg/l
306 Banyon	September 23, 2005	0.0365	0.0118
306 Banyon	December 6, 2005	0.0322	0.0156
306 Banyon	March 13, 2006	0.0297	0.0199
306 Banyon	June 12, 2006	0.0304	0.0183
306 Banyon	September 20, 2006	0.0377	0.0154
306 Banyon	December 18, 2006	0.0310	0.0132
306 Banyon	March 19, 2007	0.0298	0.0191
306 Banyon	June 11, 2007	0.0347	0.0163

HAA5 Analysis Method: **552.2**
TTHM Analysis Method: **524.2**

Analysis Preformed By: **Columbia Analytical Services**
1317 South 13th Ave.
Kelso, WA 98626

City of Kelso
Distribution Schematic
Scale 1:1500'




Stage 1 DBPR Site
306 Banyon
Highland Park P.S. &
Highland Park PRV
Haussler Road P.S.
Tybren Heights Reservoir
Apple Lane PRV
West Vista PRV
Carroll Rd. Pump Station & PRV
Carroll Road Reservoir
Paxton Road Reservoir
Legend
Water Treatment Plant
Reservoirs
Pump Stations
Pressure Reducing Stations
DBPR Sites
Projects\000700\Water System\Water System Schematic.mxd

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

August 13, 2007

Reply to
Attn Of: OWW-136

Paul Reebs
City of Kelso
2300 Parrott Way
Kelso, Washington 98626

RE: Approval of Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) 40/30 Certification
City of Kelso ID # 38000L - Cowlitz County

Dear Mr. Reebs:

This letter is to provide confirmation that your 40/30 certification, submitted to meet the Initial Distribution System Evaluation (IDSE) requirement of the Stage 2 DBPR, has been approved.

Your next step will be to prepare a monitoring plan for Stage 2 DBPR compliance monitoring. This plan must be completed before you are required to begin Stage 2 DBPR compliance monitoring during the period starting October 2013. The Department of Health will provide guidance pertaining to the preparation of this monitoring plan as your compliance date approaches. Until Stage 2 DBPR compliance monitoring begins, you must continue to conduct Stage 1 DBPR monitoring as required by the state.

Additional information pertaining to choosing Stage 2 DBPR monitoring locations and preparing the Stage 2 DBPR monitoring plan is enclosed for your use. If you have questions regarding this letter, please contact me at (206) 553-1890 or marshall.wendy@epa.gov. For more information regarding this rule visit the Stage 2 DBPR website at www.epa.gov/safewater/disinfection/stage2.

Sincerely,

Wendy Marshall

Wendy Marshall
Environmental Scientist

Enclosure

cc: Ethan Moseng - DOH

Lead and copper consumer notice and certification form

All Group A water systems that conduct lead and copper monitoring must provide individual sampling results to the persons at each sample location. You must also submit the form below to the Washington State Department of Health (DOH) to verify that you completed the notification. You should select all sites for lead and copper sampling from your current lead and copper sampling pool.

Notification of Results: The water system must provide the consumer notice as soon as possible, but no later than 30 days after learning the results.

> **Community water systems:** You must provide individual sampling results to all residences where you collected lead and copper samples. In multi-unit structures, notify only each unit tested.
>
> **Nontransient noncommunity water systems (NTNCs):** You must notify all consumers who use water from the sample tap, even if they do not receive a water bill. With prior approval from DOH, NTNC water systems can post the notice in public areas.

Certification to the state: DOH must receive a sample copy of one consumer notice and a signed certification form (below) within 90 days after the monitoring period ends.

To meet this reporting requirement, you may:

- Use the DOH Consumer Notice Template.
- Use the applicable EPA Consumer Notice template.
- Prepare your own Consumer Notice in conjunction with the state.

If you choose to produce your own Consumer Notice, it must include all of the following:

1. The sample results of the tap tested.
2. An explanation of the health effects of lead.
3. Steps consumers can take to reduce exposure to lead in drinking water.
4. The water system's contact information.
5. The maximum contaminant level goal (MCLG) and action level for lead, and the definitions of these two terms.

Lead and Copper Results: Consumer Notification Certification Form

The water system must complete this section. The signature below certifies that the notice contains all required elements.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Complete the following items (check all that apply):

- ☑ Results received from lab on 8 / 24 / 11. Thru 9/22/11
- ☑ Notice mailed to water users at each sample site location on 10 / 7 / 11.
- ☐ Notice hand delivered to water users at each sample site location on ___ / ___ / ___.
- ☐ Notice posted at ________________ on ___ / ___ / ___.

  (***By Department Approval Only***)

38000L	[signature]	WTP-Supervisor	10/7/11
PWS ID	Signature of owner or operator	Position	Date

Within 90 days after the monitoring period ends, send a copy of the completed notice and this certification form to: Washington State Department of Health, Office of Drinking Water, Water Quality Section, PO Box 47822, Olympia WA 98504-7822 or fax to (360) 236-2252.

Plant Copy

City of Kelso
Lead and Copper Results for 2011
Sorted by Descending Lead and Copper Levels

ID	Lead	ID	Copper
17	0.005	26	0.456
6	0.003	31	0.385
12	0.003	36	0.37
24	**0.003**	**28**	**0.368**
13	0.002	5	0.261
28	0.002	33	0.223
3	0.001	32	0.205
4	0.001	6	0.177
5	0.001	37	0.153
7	0.001	14	0.115
8	0.001	13	0.099
10	0.001	17	0.096
11	0.001	3	0.092
14	0.001	30	0.089
15	0.001	35	0.085
16	0.001	4	0.083
19	0.001	16	0.073
21	0.001	34	0.067
22	0.001	7	0.052
23	0.001	10	0.051
26	0.001	8	0.047
27	0.001	24	0.045
30	0.001	11	0.042
31	0.001	12	0.042
32	0.001	19	0.034
33	0.001	23	0.02
34	0.001	21	0.0168
35	0.001	15	0.016
36	0.001	22	0.008
37	0.001	27	0.006
Average	**0.0014**	**Average**	**0.126**

Number of samples required 30, number submitted 30.

90th Percentile Lead-0.003 mg/l
90th Percentile Copper-0.368 mg/l

Federal Action Levels:(At 90th Pjercentile) are 0.015 mg/l for lead and 1.3 mg/l for copper.

Resullts Submitted to DOH October 2011

Paul Reebs--Certification #2513
Water System ID# 38000L
Source SO2
Water Treatment Plant Supervisor
360-577-1085

Phone (360) 577.1085
Fax: (360) 423.8196

Kelso Public Works
Water Treatment Plant
710 S. 1st PO Box 819
Kelso, Washington 98626

October 2011

Kelso Water Customer
330 Willow St
Kelso,WA
98626

As part of the City's ongoing water-quality testing program, 30 homes in the Kelso water system were tested for lead and copper concentrations at the customers tap. Your residence was included among the 30 homes tested and we extend our thanks and gratitude to you for your cooperation and assistance.

We are happy to report, that not only your sample, but also all 30 samples tested OK, and results were below the required action levels for lead and copper. Our treatment plant upgrades, completed in 2003, have allowed us to raise the Ph of our water and this has been effective in controlling the lead and copper at our customer's taps.

With the good results of this most recent lead and copper sampling, the State Department Of Health, will allow Kelso to stay on reduced sampling. Which means we will only need to sample 30 sites every three years. We will be contacting your residence in about three years asking for your continued cooperation and assistance.

The maximum contaminant level goal (MCLG) is the level of a contaminant in drinking water below which there are known or e expected risks to health. MCLGs allow for a margin of safety. The action level is the concentration of contaminant that, if exceeded, triggers treatment requirements or actions a water system must follow.

- The MCLG for lead is "0" and the action level is .015 mg/l or (.015 parts per million).
- The MCLG and action level for copper is 1.3 mg/l or (1.3 parts per million)

Following are the test results from the sample taken at your home.

Copper - 0.089 mg/l
Lead- 0.001 mg/l

There is no Maximum Contaminant Level (MCL) for lead and copper at customer's taps, there is however an "action level" of .015 mg/l for lead and 1.3 mg/l for copper.

Thank you,

Paul Reebs
Kelso Water Treatment Plant Supervisor

If you have any questions about lead and copper, please contact the Kelso Water Plant at 577-1085.

Department of Health Information

How Lead Gets Into Water
Lead in drinking water most often comes from water distribution lines or household plumbing rather than from the water system source. Plumbing sources can include lead pipes, lead solder, faucets, valves, and other components made of brass. Lead from other sources (such as lead-based paint and contaminated dust or soil) can increase a person's overall exposure, which adds to the effects of lead in water.

Potential Health Effects of Lead
The greatest risk of lead exposure is to infants, young children, and pregnant woman. Lead can cause serious health problems if too much enter the body. Lead is stored in the bones and can be released later in life. Lead can cause damage to the brain and kidneys, interfere with production of red blood cells that carry oxygen, and may result in lowered IQ in children. During pregnancy, the child receives lead from the mother's bones, which may affect brain development. Low levels of lead can affect adults with high blood pressure or kidney problems.

How Copper Gets Into Water
Copper is a mineral and natural component in soils. In the correct amounts, it is an essential nutrient for humans and plants. In Washington State, most copper in drinking water comes from corrosion of household plumbing. Plumbing sources can include copper pipe and brass fixtures. Copper from plumbing corrosion can accumulate overnight.

Potential Health Effects of Copper
Although copper is an essential mineral in the diet, too much copper can cause health problems. Copper is widely distributed within the tissues of the body, but accumulates primarily in the liver and kidneys. A single dose of 15 mg of copper can cause nausea, vomiting, diarrhea, and intestinal cramps. Severe cases of copper poisoning have led to anemia and to disruption of lever and kidney functions. Individuals with Wilson's or Menke's diseases are at higher risk from copper exposure.

How You Can Reduce Exposure:

- *When your water has been sitting for several hours, flush the pipe by running the cold-water tap until the water us noticeably colder before using the water for drinking or cooking.* ***(The longer water has been sitting in the pipes, the more dissolved metals it may contain).***
- *Use only cold water for drinking, cooking, and making baby formula. Hot water may contain higher levels of lead or copper.*
- *Frequently clean the filter screens and aerators in faucets to remove captured particles. If building or remodeling, only use "lead free" or low lead piping and materials. Avoid using copper piping or brass fixtures for locations where water will be consumed or used in food preparation (such as kitchen or bathroom sinks)*

Columbia Analytical Services, Inc.
1317 South 13th Avenue
Kelso, WA 98626

LCR TEST PANEL

LEAD and/or COPPER

for the State of Washington

Distribution System- Report of Analyses

Lead and Copper Analyses (LCR)		System Group Type: A	
Water System ID Number:	38000L	System Name:	City of Kelso
Source: 893	(Distribution Samples)	County:	Cowlitz
Sample Purpose: (select appropriate box)		Date Received:	08/15/11
X	RC- Routine/Compliance	Date Analyzed:	08/23/11
	C- Confirmation	Date Reported:	08/24/11
	Investigative	COMMENTS:	K1107539
	Other(specify)		
Send Report To:	City of Kelso	Bill To:	

	(0023) Copper	(0009) Lead
(DOH#) Analyte		
State Reporting Level (SRL)	0.02 mg/l	0.002 mg/l
Regulatory Action Level	1.3 mg/l	0.015 mg/l
Analytical Method/ Analysis Initials	200.8/GJ	200.8/GJ

Lab Sample #	Date Collected	Sample Location	Copper mg/l	Lead mg/l
01775391	08/14/11	16	0.073	<0.001
01775392	08/15/11	33	0.223	0.001
01775393	08/13/11	22	0.008	<0.001
01775394	08/15/11	30	0.089	<0.001

NOTES:

AL (Federal Action Levels): are 0.015 mg/L for Lead and 1.3 mg/L for Copper. If the compounds detected at concentration in excess of this level, contact your regional DOH office for further information.

SRL (State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum contaminant Level): If the the contaminant amount exceeds the MCL, immediately contact your regional DOH office.

NA (Not Analyzed): in the amount column indicates this compound was not included in the current analysis.

ND (Not Detected): in the amount column indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.

<0.00X: indicates the compound was not detected in the sample. It also indicates that the laboratory used a method detection level (lab mdl) lower than the SRL.

COMMENTS:

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Columbia Analytical Services, Inc.
1317 South 13th Avenue
Kelso, WA 98626

LCR TEST PANEL

LEAD and/or COPPER

for the State of Washington

Distribution System- Report of Analyses

Lead and Copper Analyses (LCR)		**System Group Type:**	**A**
Water System ID Number:	**38000L**	**System Name:**	**City of Kelso**
Source: **893**	**(Distribution Samples)**	**County:**	**Cowlitz**
Sample Purpose: (select appropriate box)		**Date Received:**	**08/18/11**
X	**RC- Routine/Compliance**	**Date Analyzed:**	**09/21/11**
	C- Confirmation	**Date Reported:**	**09/22/11**
	Investigative	**COMMENTS:**	**K1107695**
	Other(specify)		
Send Report To:	**City of Kelso**	**Bill To:**	

	(0023) Copper	(0009) Lead
State Reporting Level (SRL)	0.02 mg/l	0.002 mg/l
Regulatory Action Level	1.3 mg/l	0.015 mg/l
Analytical Method/Analysis Formula	200.8/GJ	200.8/GJ

Lab Sample #	Date Collected	Sample Location	Copper mg/l	Lead mg/l
01776951	**08/18/11**	**19**	**0.034**	**<0.001**
01776952	**08/17/11**	**27**	**0.006**	**<0.001**
01776953	**08/18/11**	**36**	**0.370**	**<0.001**
01776954	**08/18/11**	**5**	**0.261**	**<0.001**
01776955	**08/18/11**	**35**	**0.085**	**<0.001**
01776956	**08/18/11**	**37**	**0.153**	**<0.001**

NOTES:

AL (Federal Action Levels): are 0.015 mg/L for Lead and 1.3 mg/L for Copper. If the compounds detected at concentration in excess of this level, contact your regional DOH office for further information.
SRL (State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).
MCL (Maximum contaminant Level): If the the contaminant amount exceeds the MCL, immediately contact your regional DOH office.
NA (Not Analyzed): in the amount column indicates this compound was not included in the current analysis.
ND (Not Detected): in the amount column indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.
<0.00X: indicates the compound was not detected in the sample. It also indicates that the laboratory used a method detection level (lab mdl) lower than the SRL.

COMMENTS:

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Columbia Analytical Services, Inc.
1317 South 13th Avenue
Kelso, WA 98626

LCR TEST PANEL

LEAD and/or COPPER

for the State of Washington

Distribution System- Report of Analyses

Lead and Copper Analyses (LCR)		**System Group Type:** A	
Water System ID Number: 38000L		**System Name:** City of Kelso	
Source: 893	(Distribution Samples)	**County:** Cowlitz	
Sample Purpose: (select appropriate box)		**Date Received:** 08/12/11	
X	RC- Routine/Compliance	**Date Analyzed:** 08/23/11	
	C- Confirmation	**Date Reported:** 08/24/11	
	Investigative	**COMMENTS:** K1107511	
	Other(specify)		
Send Report To:	City of Kelso	**Bill To:**	

	(0023) Copper	(0009) Lead
(DOH#) Analyte		
State Reporting Level(SRL)	0.02 mg/l	0.002 mg/l
Regulatory Action Level	1.3 mg/l	0.015 mg/l
Analytical Method/ Analysis Initials	200.8/GJ	200.8/GJ

Lab Sample #	Date Collected	Sample Location	Copper mg/l	Lead mg/l
01775111	08/12/11	13	0.099	0.002
01775112	08/12/11	23	0.020	0.001
01775113	08/12/11	26	0.456	0.001

NOTES:

AL (Federal Action Levels): are 0.015 mg/L for Lead and 1.3 mg/L for Copper. If the compounds detected at concentration in excess of this level, contact your regional DOH office for further information.

SRL (State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum contaminant Level): If the the contaminant amount exceeds the MCL, immediately contact your regional DOH office.

NA (Not Analyzed): in the amount column indicates this compound was not included in the current analysis.

ND (Not Detected): in the amount column indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.

<0.00X: indicates the compound was not detected in the sample. It also indicates that the laboratory used a method detection level (lab mdl) lower than the SRL.

COMMENTS:

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Columbia Analytical Services, Inc.
1317 South 13th Avenue
Kelso, WA 98626

LCR TEST PANEL

LEAD and/or COPPER

for the State of Washington

Distribution System- Report of Analyses

Lead and Copper Analyses (LCR)		**System Group Type:** A	
Water System ID Number:	38000L	**System Name:**	City of Kelso
Source: S93	(Distribution Samples)	**County:**	Cowlitz
Sample Purpose: (select appropriate box)		**Date Received:**	08/11/11
X	RC- Routine/Compliance	**Date Analyzed:**	09/07/11
	C- Confirmation	**Date Reported:**	09/08/11
	Investigative	**COMMENTS:**	K1107441
	Other(specify)		
Send Report To:	City of Kelso	**Bill To:**	

(DOH#) Analyte	(0023) Copper	(0009) Lead
State Reporting Level (SRL)	0.02 mg/l	0.002 mg/l
Regulatory Action Level	1.3 mg/l	0.015 mg/l
Analytical Method/ Analysts Initials	200.8/GJ	200.8/GJ

Lab Sample #	Date Collected	Sample Location	Copper mg/l	Lead mg/l
01744112	08/11/11	6	0.177	0.003
01744113	08/11/11	17	0.096	0.005
01744114	08/11/11	7	0.052	<0.001
01744115	08/11/11	31	0.385	<0.001
01744116	08/11/11	4	0.083	<0.001
01744117	08/11/11	8	0.047	<0.001

NOTES:

AL (Federal Action Levels): are 0.015 mg/L for Lead and 1.3 mg/L for Copper. If the compounds detected at concentration in excess of this level, contact your regional DOH office for further information.

SRL (State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum contaminant Level): if the the contaminant amount exceeds the MCL, immediately contact your regional DOH office.

NA (Not Analyzed): in the amount column indicates this compound was not included in the current analysis.

ND (Not Detected): in the amount column indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.

<0.00X: indicates the compound was not detected in the sample. It also indicates that the laboratory used a method detection level (lab mdl) lower than the SRL.

COMMENTS:

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Columbia Analytical Services, Inc.
1317 South 13th Avenue
Kelso, WA 98626

LCR TEST PANEL
LEAD and/or COPPER
for the State of Washington
Distribution System- Report of Analyses

Lead and Copper Analyses (LCR)		**System Group Type:**	**A**
Water System ID Number:	**38000L**	**System Name:**	**City of Kelso**
Source:	**S93 (Distribution Samples)**	**County:**	**Cowlitz**
Sample Purpose: (select appropriate box)		**Date Received:**	**08/11/11**
	RC- Routine/Compliance	**Date Analyzed:**	**09/07/11**
	C- Confirmation	**Date Reported:**	**09/08/11**
	Investigative	**COMMENTS:**	**K1107441**
	Other (specify)		
Send Report To:	**City of Kelso**	**Bill To:**	

(DOH#) Analyte	(0023) Copper	(0009) Lead
State Reporting Level (SRL)	0.02 mg/l	0.002 mg/l
Regulatory Action Level	1.3 mg/l	0.015 mg/l
Analytical Method/ Analyst's Initials	200.8/GJ	200.8/GJ

Lab Sample #	Date Collected	Sample Location	Copper mg/l	Lead mg/l
01774411	08/11/11	34	0.067	<0.001
01774412	08/11/11	3	0.092	<0.001
01774413	08/11/11	15	0.016	<0.001
01774414	08/11/11	21	0.168	<0.001
01774415	08/11/11	11	0.042	<0.001
01774416	08/11/11	14	0.115	<0.001
01774417	08/11/11	12	0.042	0.003
01774418	08/11/11	10	0.051	<0.001
01774419	08/11/11	24	0.045	0.003
01774410	08/11/11	28	0.368	0.002
01744111	08/11/11	32	0.205	<0.001

NOTES:

AL (Federal Action Levels): are 0.015 mg/L for Lead and 1.3 mg/L for Copper. If the compounds detected at concentration in excess of this level, contact your regional DOH office for further information.

SRL (State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum contaminant Level): if the the contaminant amount exceeds the MCL, immediately contact your regional DOH office.

NA (Not Analyzed): in the amount column indicates this compound was not included in the current analysis.

ND (Not Detected): in the amount column indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.

<0.00X: indicates the compound was not detected in the sample. It also indicates that the laboratory used a method detection level (lab mdl) lower than the SRL.

COMMENTS:

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CITY OF KELSO / PUBLIC WORKS
CITIZEN CONCERN FORM

DATE OF CALL: **TIME CALL WAS RECEIVED:** ☐**am** / ☐ **pm**

CALLER NAME: **CALLER PHONE #:**

CALLER ADDRESS:

REFERRED BY: **REFERRED TO:**

ADDRESS / LOCATION/DESCRIPTION OF CONCERN:

ACTIONS TAKEN:

PHOTOGRAPHS ATTACHED: ☐**yes** ☐ **no**☐ **N/A**
Before: ☐**yes** ☐ **no**☐ **N/A**
After: ☐**yes** ☐ **no**☐ **N/A**

DATE:

CALLER IS TO BE NOTIFIED WITHIN 10 DAYS FROM DATE OF CALL

DATE & TIME CALLER WAS NOTIFIED OF THE FINAL RESOLUTION:

NOTIFIED BY:

(All forms will be addressed and forwarded daily to the Public Works Department Assistant for central files. When the concern is settled, an updated final copy of the form should be forwarded again for the files. All Citizen Concern Forms will be kept on file for a minimum of 3 years.)

Appendix E

Water Rights and Rate Structures

- Water Right Permits, Certificates and Report of Examination
- City of Kelso, Water Rate Structure – Ordinance 10-3733
- Mill Street Test Well Vicinity Map

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☒ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☐ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
June 3, 1999	S2-29856	S2-29856	

NAME: City of Kelso

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 819	Kelso	Washington	98626

The applicant is pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE: Cowlitz River
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
18.57*		2800

QUANTITY, TYPE OF USE, PERIOD OF USE
2800 Acre-feet per year — Municipal supply — Year-round, as needed

*The total amount of water diverted under certificates and/or permits S2195, S2-01119C, G2-24762C, and S2-29856 shall be limited to 18.57 cfs and 5,600 acre-feet per year.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION–WITHDRAWAL
300 feet South and 1150 feet West of the Northeast corner of Section 34.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼ NE¼	34	8	2W	26	Cowlitz

RECORDED PLATTED PROPERTY

	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso as described in the February 1999 Longview-Kelso Urban Area Comprehensive Water Plan.

DESCRIPTION OF PROPOSED WORKS

City Kelso's existing Ramsey collector on the Cowlitz River.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	December 1, 2003	December 1, 2005

PROVISIONS

"The total amount of water diverted under certificates and or permits S2195, S2-01119C, G2-24762C, and S2-29856 shall be limited to 18.57 cfs and 5600 acre-feet per year."

The permittee is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect system capacity and actual usage.

An approved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 through -040, and WAC 508-12-030. Meter readings shall be recorded at least monthly.

A certificate of water right will not be issued until a final investigation is made.

The intake shall be screened at all times in accordance with Department of Fish and Wildlife screening criteria. This permit/certificate is issued subject to Washington Department of Fish and Wildlife Hydraulic Project Approval.

The permittee is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should not be filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent water is required, has been put to full beneficial use.

The Water Resources Act of 1971 specifies certain criteria regarding utilization and management of the waters of the state in the best public interest. Use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington,

this 11th *day of* December, *2001.*

Department of Ecology

ENG. HEARING DATA
OK

by
J. Mike Harris, Section Supervisor

S. P. No. 280—11-44—1M. [illegible]

CERTIFICATE RECORD No. 5 , PAGE No. 2195

STATE OF WASHINGTON, COUNTY OF Cowlitz

CERTIFICATE OF WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the State Supervisor of Hydraulics thereunder.)

This is to certify, that The City of Kelso *of* Kelso, *State of* Washington, *has made proof to the satisfaction of the State Supervisor of Hydraulics of Washington, of a right to the use of the waters of* Cowlitz River, *a tributary of* Columbia River, *with point or points of diversion within the* NE¼ of NE¼ *Sec.* 27, *Twp.* 8 N., *Range* 2 W., *W. M., for the purposes of* Domestic supply and fire protection for City of Kelso and environs *under* Appropriation *Permit No.* 629 *issued by the State Supervisor of Hydraulics, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Hydraulics of Washington and entered of record in Volume* 5, *at Page* 2195, *on the* 13th *day of* April, 1945; *that the right hereby confirmed dates from* November 2, 1925; *that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed* Three (3.0) cubic feet per second.

A description of the lands under such right to which the water hereby confirmed is appurtenant, and the place where such water is put to beneficial use, is as follows:

PLACE OF USE				FOR IRRIGATION	
Section	Township	Range	LEGAL SUBDIVISION	No. Acres Described in Permit	No. Acres Actually Irrigated

LOCATION OF POWER PLANT				FOR POWER	
Section	Township	Range	LEGAL SUBDIVISION	H. P. Described in Permit	[illegible]

Section	Township	Range	LEGAL SUBDIVISION	FOR OTHER USES
Parts of 26, 27, 34 & 35	8 N.	2 W.W.M.	City of Kelso, Washington	Domestic supply and fire protection

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 13th *day of* April, 1945

Supervisor of Hydraulics.

DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

[X] Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

[ ] Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
February 20, 1968	20762	16812	S 2-01119 C

NAME
CITY OF KELSO

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P. O. Box 209	Kelso	Washington	98626

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
Cowlitz River

TRIBUTARY OF (IF SURFACE WATERS)
Columbia River

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
10		2380

QUANTITY, TYPE OF USE, PERIOD OF USE
2380 acre-feet per year municipal supply continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1180 feet West and 200 feet South from Northeast Corner of Section 27.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
	27	8	2 W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
		Adam Redpati (Redpath) D.L.C. No. 48

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area Served by the City of Kelso.

PROVISIONS

Diversion intake shall be tightly screened at all times with wire mesh having openings with dimensions not greater than 0.125 (1/8) inch.

The total amount of water to be diverted under this certificate and Surface Water Certificate No. 2195 shall not exceed 2380 acre-feet per year.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia *Washington, this* 1st *day of* March, *19* 82.

DONALD W. MOOS, Director
Department of Ecology

by E.W. Asselstine, Regional Manager

ENGINEERING DATA

OK 2-16-82
OK 2-17-82

FOR COUNTY USE ONLY

REPORT OF EXAMINATION

Date of application February 20, 1968 Date of examination March 13, 1968 Application No. 20762

Name City of Kelso Address 312 Allen St., Kelso, WA 98626

Quantity applied for 30 c.f.s. Use Municipal supply

Source of appropriation Cowlitz River Tributary of Columbia River
(Redpath) D.L.C. No. 48, within the City of Kelso

Legal sub. Adam Redpati / Sec. 27 Twp. 8 N. Rge. 2 W. County Cowlitz

Measured or estimated quantity See records Probable low flow Recorded minimum - 998 c.f.s.

Quantity previously appropriated: W.T. CWT. E.T.

Other use made of water Irrigation, power, fish

Diversion works contemplated ~~concrete dam~~ Plans of development to be submitted

Other equipment

Irrigable acreage: Planned - Present Feasible

Other water rights appurtenant to this land Surface Water Certificate No. 2195 - City of Kelso (see below)

Progress of project Not started

Protests None

Quantity recommended (total) 30 c.f.s., 2380 ac-ft per yr. Irrig. Dom.

Power Municipal 30 c.f.s., 2380 ac-ft per yr Other uses

Department of Fisheries and Game report See below

Special remarks and provisions:

It is noted that the construction of the facilities for the appropriation of water under this application will require removal of material from or adjacent to a stream channel or watercourse. Applicant is therefore advised that a Hydraulic Approval should be obtained from the Departments of Fisheries and Game prior to commencing work (Fisheries Code 75.20.100).

In accordance with the recommendations of the Departments of Fisheries and Game, the permit shall be issued subject to the following provision: "Diversion intake shall be tightly screened at all times with wire mesh having openings with dimensions .125 (1/8) inch or less as may be required by the Departments of Fisheries and Game."

Use of the waters to be appropriated under this application will be for a public water supply. State Board of Health rules require every owner of a public water supply to obtain written approval from the Assistant Secretary, Division of Health prior to any new construction or alterations of a public water supply. The applicant is advised to contact the Washington State Division of Health, Public Health Bldg. No. 7, Thurston Airdustrial Center, Olympia, with regard to the need for compliance.

Surface Water Certificate No. 2195 for 3 cubic foot per second to the City of Kelso is appurtenant to the land covered by this application.

The average daily requirement based on an engineering study is 68 gallons per capita per day at the present time and predicted to be 85 gallons per capita per day by 1985 for an estimated population of 25,000 by 1990. It is, therefore, recommended that this application be approved on the basis of 85 gallons per capita per day or approximately 2380 acre-feet per year.

It is recommended that this application be approved for 30 cubic foot per second as requested.

The permit when issued shall carry the following provision: "The total amount of water to be diverted under this permit and Surface Water Certificate No. 2195 shall not exceed 2380 acre-feet per year."

Additionally, the permit when issued shall carry the following provision: "Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971."

In accordance with Section 90.03.290 RCW, I find that there is water available for appropriation from the source in question and that the diversion as recommended above will not impair existing rights or be detrimental to the public welfare. Therefore, permit should issue, subject to existing rights and indicated provisions.

Signed at Olympia, Washington,
this 17 day of December, 1971.

Jerry L. Louthain

JERRY L. LOUTHAIN, Engineer
Department of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
December 28, 1977	G 2-24762	G 2-24762 P	G 2-24762 C

NAME
CITY OF KELSO

ADDRESS, (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 209	Kelso	Washington	98626

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
well (Ranney Collector System)

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	2500	2800

QUANTITY, TYPE OF USE, PERIOD OF USE
2800 acre-feet per year municipal supply continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1200 feet west and 400 feet north from the Southeast corner of Section 27.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SE¼	27	8	2 W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso.

PROVISIONS

"The total amount of water diverted under this permit, Surface Water Certificate No. 2195 and Surface Water Permit 16812 shall be limited to 2800 acre-feet per year."

At such time that the Department of Ecology determines that regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.060 and WAC 508-64-020 through WAC 508-64-040.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Olympia *Washington, this* 31st *day of* July *19*80

WILBUR G. HALLAUER, DIRECTOR
Department of Ecology

ENGINEERING DATA
OK H 7-16-80
DES 7-22-80

by E.W. Asselstine
E.W. ASSELSTINE, Regional Manager

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
December 28, 1977	G 2-24762		

NAME
CITY OF KELSO

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
312 Allen Street	Kelso	Washington	98626

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
well (Ranney Collector System)

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	2500	2800

QUANTITY, TYPE OF USE, PERIOD OF USE
2800 acre-feet per year — municipal supply — continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1200 feet west and 400 feet north from the Southeast corner of Section 27.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SE¼	27	8	2 W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso.

DESCRIPTION OF PROPOSED WORKS

Ranney Collection System with a 20 inch transmission line to the distribution system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
July 1, 1980	July 1, 1982	July 1, 1983

PROVISIONS

Recommend this application be approved for 2500 gallons per minute and 2800 acre-feet per year for a municipal supply for the City of Kelso.

The annual requirement is based on a population of 25,000 by the year 2000 and 100 gallons per day per capita for a total of 2800 acre-feet per year.

Surface Water Certificate No. 2195 for 3 cubic feet per second and Surface Water Permit No. 16812 (Application No. 20762) are appurtenant to the same lands covered by this application. The permit when issued will be subject to the following provisions: "The total amount of water diverted under this permit, Surface Water Certificate No. 2195 and Surface Water Permit 16812 shall be limited to 2800 acre-feet per year."

The applicant is hereby advised that "At such time as the Department of Ecology determines that regulation and management of the subject waters is necessary (i.e., measurement of instantaneous diversion or withdrawal and/or annual withdrawal) and in the public interest, an approved measuring device and/or meter shall be installed and maintained in accordance with Chapter 508-64 WAC."

Applicant is advised that notice of proof of appropriation of water (under which final certificate of water right issues) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

Use of the waters to be appropriated under this application will be for a public water supply. State Board of Health rules require every owner of a public water supply to obtain written approval from the Water Supply and Waste Section, Department of Social and Health Services, Mail Stop LD 11, Building 4, Olympia, Washington, 98504, prior to any new construction or alterations of a public water supply.

Signed at Olympia, Washington,
this 23 day of June, 1978.

Robert P. Burrell
Robert P. Burrell
Department of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
November 20, 1998	G2-29813	G2-29813	

NAME
City of Kelso

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 819	Kelso	Washington	98626

The applicant is pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Three Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	1500	2400*

QUANTITY, TYPE OF USE, PERIOD OF USE		
1128 Acre-feet per year (Primary)	Municipal supply	Year-round, as needed
1272 Acre-feet per year (Supplemental)	Municipal supply	Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
1400 feet South and 250 feet West of the Northeast corner of Section 11.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼ NE¼ & SE¼ SE¼	11 & 2	7	2W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso as described in the February 1999 Longview-Kelso Urban Area Comprehensive Water System Plan.

DESCRIPTION OF PROPOSED WORKS

wells completed at a depth of 300 feet below ground surface.

DEVELOPMENT SCHEDULE

PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
d	December 1, ~~2003~~ 2002	December 1, 2005

PROVISIONS

otal amount of water diverted under certificates or permits S2195, S2-01119C, G2-24762C, S2-29856, G2-29813 and G2-29815 e limited to 6728 acre-feet per year."

ation and maintenance of an access port as described in Chapter 173-160 is required. An air line and gauge may be installed in n to the access port.

rmittee is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect capacity and actual usage.

leted well reports shall be submitted to the Department of Ecology within 30 days after the well has been completed. Test pump all be submitted to the Department of Ecology as it is obtained.

lls constructed in the State shall meet the construction requirements of Chapter 173-160 WAC entitled "Minimum Standards for the uction and Maintenance of Wells" and Chapter 18-104 RCW entitled "Water Well Construction, Act (1971)."

ificate of water right will not be issued until a final investigation is made.

proved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 h –040, and WAC 508-12-030. Meter readings shall be recorded at least monthly.

Vater Resources Act of 1971 specifies certain criteria regarding utilization and management of the waters of the state in the best interest. Use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient eservation of the natural environment.

ordance with Chapter 173-160 WAC, wells shall not be located within certain minimum distances of potential sources of nination. These minimum distances shall comply with local health regulations, as appropriate. In general, wells shall be located at 100 feet from sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill.

cess port, (in accordance with Chapter 173-160 WAC), shall be installed prior to issuance of a final certificate of water right. In on to the required access port, the applicant shall install and maintain, in operating condition, an airline and pressure gage. The ire gage shall be equipped with a standard tire valve and placed in a location accessible to Department of Ecology personnel. The shall extend from land surface to the top of the pump bowls and the total airline length shall be reported to the Department of gy upon completion of the pump system

of inspection will be conducted prior to final certificate issuance. The certificate will reflect the extent of the project perfected the limitations of the permit. Aspects will include as appropriate the source(s), system instantaneous capacity, beneficial use(s), l quantity, acreage, place of use, and satisfaction of provisions.

r-pumpage, well-monitoring, and static-water-level data, along with a summary and analysis of the data, shall be submitted annually, re frequently upon request, to Ecology's Southwest Regional Office Water Resources Program. The data shall be submitted in l format (ASCII) and shall include the following elements:

(continued on page 3)

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or to notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington,

11th *day of* December, *2001.*

Department of Ecology

by
J. Mike Harris, Section Supervisor

INEERING DATA

Provisions Continued

For Water Use Reporting:

1. Measurement method (totaling meter, acoustic meter, etc.) for each well
2. Total volume pumped from each well by month in thousands or millions of gallons
3. Unique Well ID number

For Water Level Reporting:

1. Unique Well ID Number
2. Measurement date and time
3. Measurement method (air line, electric tape, pressure transducer, etc.)
4. Well status (pumping, recently pumped, etc.)
5. Water level accuracy (to nearest foot, tenth of foot, etc.)
6. Description of the measuring point (top of casing, sounding tube, etc.)
7. Measuring point elevation above or below land surface to the nearest 0.1 foot
8. Land surface elevation at the well head to the nearest foot.
9. Static water level below measuring point to the nearest 0.1 foot.

The permittee is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should not be filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent water is required, has been put to full beneficial use.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the State's water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

Under RCW 90.44.250 and 90.54.030, the Department of Ecology is directed to become informed about all aspects of the water resources of the state. The Department is authorized to make such investigations as may be necessary to determine the location, extent, depth, volume, and flow of all groundwaters within the state. Accordingly, the applicant shall monitor and provide an annual summary of the previous year's monthly water level data and monthly totals of water pumped for this well. The summary shall be submitted in tabular format to Ecology's Southwest Regional Office annually, during the month of February, or more frequently if requested by the Department.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
November 20, 1998	G2-29813		

NAME
City of Kelso

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 819	Kelso	Washington	98626

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Three Wells

TRIBUTARY OF (IF SURFACE WATERS)

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APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
1400 feet South and 250 feet West of the Northeast corner of Section 11.

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SE¼ NE¼ & SE¼ SE¼	11 & 2	7	2W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso as described in the February 1999 Longview-Kelso Urban Area Comprehensive Water System Plan.

DESCRIPTION OF PROPOSED WORKS

to 3 wells completed at a depth of 300 feet below ground surface.

DEVELOPMENT SCHEDULE

GIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
tarted	December 1, 2003	December 1, 2005

REPORT

ACKGROUND:

n November 20, 1998, Doug Robinson, City Manager for the City of Kelso (Kelso), Washington, filed two applications for permits to propriate public ground water for municipal use. Mr. Robinson requested authorization to construct three or more wells under each plication, and to withdraw water at the combined instantaneous rate of 3,500 gallons per minute (gpm) with a maximum annual thdrawal of 5,600 acre-feet per year (ac-ft/yr). The applications for ground water appropriation were accepted for processing and signed application numbers G2-29813 and G2-29815. These applications are being considered together, albeit in separate reports. This port addresses application G2-29813. The priority date for these applications is November 20, 1998.

his application is processed under the Washington Department of Ecology (Ecology) Cost-Reimbursement Project No. 9E54 in reement with Avista-Steag and the Port of Longview. HWA GeoSciences Inc. (HWA) was contracted by Ecology to determine the nior water right applications competing for the same source of water as Avista-Steag and Port of Longview, and to prepare draft ports of examination (ROE) for Avista-Steag, the Port of Longview, and all other relevant applications in the region. HWA viewed all available documents pertaining to the Kelso area site conditions, historical water use, projected water demand, existing ght-holders, and seniority of pending applications potentially affected by the Kelso applications.

he City of Kelso holds the following water right certificates:

ertificate No.	Source	Withdrawal Rate	Annual Quantity
2195	Cowlitz River	3 cfs	not defined
2-01119C	Cowlitz River	10 cfs	2380 (under S2195 and S2-01119C)
2-24762C	Ranney Well	5.57 cfs	2800 (under all rights)

n May 1998, the Washington Department of Health determined that the water withdrawn by the Ranney collector under Water Right ertificate G2-24762C was ground water under the influence of surface water (the Cowlitz River).

he combined instantaneous withdrawal for the three certificated rights (a total of 18.57 cfs) is split between the Cowlitz River diversion nd the Ranney Well withdrawal. On June 3, 1999, Kelso applied (application #S2-29856) to increase the maximum withdrawal rate from he Ranney collector from 5.57 to 18.57 cfs and from 2800 to 5,600 acre-feet per year to allow the entire certificated quantity to be ithdrawn from the Ranney collector. This application is addressed in a separate Report of Examination.

he water appropriation requested under these filings will be used for municipal supply. Kelso has applied for this additional ppropriation to use the full capacity of the Kelso Water Treatment Plant, meet existing water demands, and meet the projected 2020 nnual demand. The amount of water that would be consumed or returned to surface water or ground water is unknown, and would epend on the amount and types of municipal uses, which would include domestic, irrigation, and industrial uses.

A legal notice of the proposed appropriation was published in the Longview Daily News on February 6 and February 13, 1999. No bjections were received in response to the public notice.

The Longview-Kelso Urban Area Comprehensive Water Plan Final Draft (February 1999) describes Kelso's projected water demands, existing facilities, and the recommended conservation plan. The Final Draft was submitted to the Washington Department of Health DOH) for review. It was approved by DOH on October 26,1999.

The application is categorically exempt from the SEPA review process.

INVESTIGATIONS:

In consideration of this application, I (Steve Nelson of HWA GeoSciences Inc. (HWA)) conducted a site visit on May 29, 2001. I reviewed the information submitted with the application, pertinent Ecology records, including well drilling reports and recorded water rights, the City of Kelso Ground Water Resource Study (Robinson and Noble August 1998), and the City of Kelso Test Well Drilling and Construction report (Robinson and Noble, November 2000). I evaluated the potential effects of the proposed appropriation upon existing and senior applicant ground water and surface water rights based on short-term pumping-test results at the test well. These reviews are summarized in Ground Water Rights Evaluation, City of Kelso (HWA, June 2001).

Project Site

The proposed location for the ground water withdrawal is in an undeveloped area at the confluence of the Coweeman and Cowlitz Rivers, one mile upstream of the confluence of the Cowlitz and Columbia Rivers, and three miles south of the city center of Kelso in Cowlitz County. The site lies on the Cowlitz River floodplain, in an urban to semi-rural area historically used for shipping and light industry. The area receives 30 to 40 inches of rain per year, mostly during the period November to June. The stage of the Cowlitz and Columbia Rivers fluctuates twice daily by approximately 1 and 2 feet, respectively, due to tidal response. The Coweeman River is the primary tributary to the Cowlitz River within one mile of the site.

The applicant proposes to withdraw ground water on undeveloped land near the Kelso-Longview airport and east of industrial properties including lumber processing facilities and the closed Cowlitz County landfill. Highway 432 and Talley Way provide site access. A 12-inch-diameter test well was installed to a depth of 305 feet in Section 11 under a Preliminary Permit issued on April 28, 1999. No test wells were installed at the alternate locations in Sections 2 or 14.

The project site lies within a sub-basin of the Grays-Elokoman watershed (WRIA 25), herein named the Kelso/Longview sub-basin. The southeast corner of the sub-basin extends into alluvial sediment on the eastern shore of the Cowlitz River, and into a portion of the Coweeman River valley in the Cowlitz River watershed (WRIA 26).

Regional Hydrogeology

The regional hydrogeology of the sub-basin has been described in Myers (1970) and Robinson and Noble (1998). The site is near the Columbia River, a regional physiographic feature that has excavated a deep trough into sedimentary and volcanic bedrock. The Cowlitz River is a tributary to the Columbia River and has carved a bedrock-walled valley filled primarily with unconsolidated alluvial and glacial sediment. The basal geologic units of the Cowlitz River valley consists of consolidated siltstone, sandstone and conglomerate of the Troutdale Formation. Coarse and permeable zones within this formation may contain sufficient ground water for domestic supply. Limited quantities of ground water exist in fractured sedimentary and volcanic bedrock of the sub-basin. Both rivers deposited interbedded layers of unconsolidated sand, silt, and gravel, which occur adjacent to and extend beneath the current river channels. These layers contain moderate to significant quantities of ground water. The surrounding bedrock in uplands above the sub-basin contains significantly less ground water than the alluvial deposits. Regional ground water flow paths generally follow topography. Precipitation infiltrates into the subsurface, migrates downward into bedrock, then into river alluvium, and finally discharges into the Columbia River. Surface water in the river may exchange with ground water along the stream bank at variable rates and direction during the year. The lower Columbia River and lower Cowlitz Rivers are tidally influenced.

In the Longview-Kelso sub-basin, limited ground water supplies for single-home use have been developed from bedrock wells, and small domestic supplies in the 50 to several hundred gpm ranges have been developed from shallow alluvial deposits. Large municipal and industrial ground water supplies yielding up to 3,000 gpm have been developed from deeper alluvial deposits.

Local Hydrogeology

Hydrostratigraphic units encountered during drilling the test well consist of approximately 15 feet of fill and dredge sand, 50 feet of unconsolidated silty sand with silt, wood, and pumice, and approximately 234 feet of medium to fine sand with silt. This deeper unit is interpreted as alluvial sediment deposited by the Cowlitz and Columbia Rivers. Consolidated sandstone extends below 299 to at least 306 feet.

The thickness and lateral extent of individual layers within the hydrostratigraphic units encountered during test well drilling may vary beneath the site, and individual layers may not extend beyond the site.

Ground Water Occurrence

The first ground water encountered (the water table) beneath the test well site and at other locations near the Cowlitz or Columbia Rivers occurs approximately 10 feet below grade. All units encountered during the test well drilling were saturated with ground water below this depth. Drilling did not sufficiently penetrate the sandstone unit to evaluate its potential yield.

Ground water elevations and ground water flow vary according to seasonal rates of rainfall and infiltration. Daily fluctuations (1 to 2 feet) and seasonal fluctuations (2 to 4 feet) in the Cowlitz River stage affect groundwater flow near the river. Ground water in the units flows generally towards or parallel to the Cowlitz River, except near actively pumped wells where water levels are artificially low.

Surface infiltration of precipitation flowing vertically downward from the surface and lateral inflow from adjacent ground water-bearing zones recharges the alluvial unit. Ground water in the alluvial unit ultimately discharges into the Cowlitz or Columbia Rivers, to which it is hydraulically connected.

Ground Water Quality

Naturally occurring iron concentrations (12.3 to 16.7 milligrams per liter [mg/L]) and manganese concentrations (1.29 to 1.5 mg/L) were detected in ground water samples collected during a 23 hour pumping test (Robinson and Noble, 2000). Elevated iron concentrations (2 to 5 mg/L) commonly occurs in most wells installed in the alluvial unit in the Kelso area (Robinson and Noble, 1998). These concentrations exceed secondary drinking water standards of 0.3 mg/L for iron and 0.05 mg/L for manganese. These are secondary MCLs and are based on aesthetics as opposed to health threats. The ground water would require treatment before municipal use.

Shallow ground water may be adversely affected by releases of hazardous industrial chemicals. The closed Cowlitz County landfill is approximately 2,500 feet west of the test well site across the Cowlitz River and the Kelso-Longview airport is approximately 2,000 feet north of the test well site. The test well was installed as deep as possible within the alluvial unit. Approximately 50 feet of overlying silty sand restricts downward vertical flow to the alluvial unit. Water quality data indicate that the landfill and airport do not adversely affect the ground water quality in the alluvial unit at the test well.

Availability of Ground Water

Wells capable of yielding more than 1,000 gpm were installed at three locations within four miles of the test well site: 1) one mile northwest at the Elks Lodge (up to 1,100 gpm), 2) two miles west at the Port of Longview (up to 3,500 gpm), and 3) four miles south at the Port of Kalama (up to 3,530 gpm). The wells were completed in unconsolidated alluvial deposits related to the Columbia or Cowlitz Rivers. All of these wells lie within one mile of the Columbia or Cowlitz Rivers. The alluvial unit in which these wells are completed are undoubtedly hydraulically connected to the rivers. The potential radius of influence due to pumping at these wells will not extend significantly beyond the radial distance to the river. Pumping at these wells, therefore, would not affect ground water levels at the Kelso test well site.

The results of a 23-hour pumping test at the Kelso test well at rates ranging from 650 to 1,250 gpm indicated a specific capacity of 38.5 gpm/ft, and a transmissivity of 230,000 to 330,000 gpd/ft. The drawdown in the test well was approximately 30 feet. The available drawdown at the test well is approximately 200 to 250 feet, indicating a theoretical yield of 7,700 gpm, and a substantial potential for long-term ground water withdrawal from the alluvial unit.

Kelso applied for the right to withdraw ground water at a combined rate of 3,500 gpm from six (6) or more wells within three adjoining sections (2, 11, and 14). Ground water likely would derive from the alluvial unit at depths ranging from approximately 150 to 300 feet below grade. The drawdown induced by the withdrawal would depend on the constant pumping rate for each well and the combined effects of pumping from all active wells. Preliminary results of recent testing at the Kelso test well indicate that the alluvial unit may produce more than 7,700 gpm from a single well at the test well location.

ıe hydrostratigraphic conditions at the proposed alternate location in Section 14 likely are similar to those at the test well location. The ound water development potential at the alternate location likely is greater, due to its proximity to the Columbia River channel. Coarser diment and higher productivity have been noted at other locations next to the Columbia River (e.g., four miles south at the Port of ılama, three miles north at Weyerhaeuser and Reynolds Aluminum properties).

ıe effect of the recharge boundary of the Columbia River would limit the amount of drawdown due to pumping from those portions of e unconsolidated unit hydraulically connected to the river. Active pumping from wells installed near the river, therefore, would result a relatively small radius of influence. The nearest existing ground water rights are approximately 1-mile northeast of the site at the Elks ɔdge. Ground water withdrawal from the test well area likely would not extend to the Elks Lodge wells, primarily due to the influence the Cowlitz River, which flows along a direct line between the two sites.

ɔtential for Impairment of Existing Rights and Senior Applications

ıree ground water certificates have been issued within a one-mile radius of the location of proposed ground water withdrawal. The rtificated right-holders obtain ground water from alluvial sediment deposited by the Cowlitz River. One certificate (Cowlitz County) is r domestic use (75 gpm) and the other two certificates (Elks Lodge) are for irrigation supply ,210 gpm). The point of ground water withdrawal for these three certificated rights are within 2,000 feet of the Cowlitz River, and the luvial unit in which the wells are completed is likely hydraulically connected to the Cowlitz River at these locations.

he combined totals for ground water rights issued within a one-mile radius of the project site is 1,285 gpm and 722 ac-ft/yr. No senior ɔplicants have applied for ground water withdrawals within one mile of the Port property.

quifer testing at the Kelso test well indicates that the alluvial unit is highly productive and appears capable of sustaining the existing and oposed withdrawal rates. The test well is completed in the alluvial unit less than 500 feet from the Cowlitz River. The alluvial unit at e well is hydraulically connected to the river. Ground water withdrawal from the alluvial unit will reduce the hydraulic head of the unit the well and create a drawdown cone of depression that will extend laterally and vertically through the flow system. The cone of epression around the well would extend to the aquifer recharge boundary at the Cowlitz River, potentially capturing surface water from ıe river during long-term ground water withdrawal.

rawdown interference due to simultaneous pumping of nearby existing wells would not likely be significant, due to the proximity of the quifer recharge boundary of the tidally influenced lower Cowlitz River. In addition, the high productivity of the alluvial unit at the test ell location indicates that drawdown due to pumping, even at rates as high as 1,000 gpm from a single well, would not interfere with kisting rights. Aquifer testing at the test well at a rate of 1,110 gpm indicated that the alluvial aquifer transmissivity ranges from 230,000 ɔ 330,000 gallons per day per foot (gpd/ft). The drawdown at the test rate was approximately 30 feet. The nearest existing ground water ght is more than 1 mile to the northeast (Elk Lodge wells).

lo impairment of existing ground water rights by additional ground water withdrawal at the application rates is expected. Pumping new ells at rates up to 1,100 gpm, spacing the wells at an appropriate distance, and locating the wells within the hydraulic influence of the owlitz River should minimize the drawdown at each well and its projected radius of influence. Surface-water flow would not be npaired by ground water withdrawal from the project site, due to the comparably vast quantity of water in the lower Cowlitz River basin. lo minimum instream flow restrictions exist for this tidally influenced surface water body.

roposed Well Construction

he 12-inch-diameter test well is located approximately 1,400 feet south and 250 feet west of the NE corner of Section 11 in the SE¼ of he NE¼ of Section 11, T. 7 N., R. 2 W.W.M. The test well will be used as a part of a ground water well field at the point of ground water withdrawal. Additional new wells would be completed at depths ranging from 100 to 300 feet below ground surface and screened in the lluvial unit, depending on the depth of the most productive zone at the well location. The new wells should sustain ground water withdrawal rates of 1,100 gpm or more, depending on the well diameter and aquifer yield at the well location. Placing the wells near the owlitz River would minimize interference between adjacent wells.

roject Description/Water Demand

elso currently holds instantaneous rights of 18.57 cfs and annual rights of 2,800 ac-ft/yr from the Cowlitz River (including the ground ater withdrawal from the Ranney Well-listed as Ground Water under the Influence by the Department of Health). In the Longview-elso Urban Area Comprehensive Water Plan Final Draft (February 1999), Kelso identified current and projected water supply demands, dentified sources and quality of water, and described proposed water treatment and transmission upgrades. Kelso concluded that current nnual water demand exceeds current annual water rights and that treatment and transmission system upgrades would improve the efficiency of water use and delivery.

For the year 2020, Kelso projected a maximum daily demand of 7.19 million gallons per day (mgd), and an average daily demand of 5.54 mgd. The projected 2020 annual raw water demand for Kelso is 6,728 acre-feet per year, including plant processes. Kelso concluded that their current instantaneous right (18.57 cfs) sufficiently meets current and projected (year 2020) instantaneous demands. Kelso has applied (surface water application S2-29614) to increase the instantaneous withdrawal rate from the Ranney well to 18.57 cfs, and to increase the annual withdrawal to 5,600 acre-feet per year. This application has been approved and a permit will be issued to allow the diversion of 18.57 cfs and 2,800 acre-feet per year from the Ranney collector on the Cowlitz River for municipal supply. This additional allocation will bring the total annual allocation to 5,600 acre-feet per year. Increasing the instantaneous withdrawal from the Ranney well to 18.57 cfs will allow the city to use the full capacity of the well and better manage the municipal supply system.

Kelso filed ground water applications G2-29813 and G2-29815 to appropriate ground water to augment the surface water supply to meet the projected 2020 annual raw water demand of 6,728 acre-feet per year from all sources. Kelso intends to refurbish the test well (Preliminary Permit of April 28, 1999) into a municipal water supply production well. Kelso has no immediate plans to add additional wells, and if the single well could potentially meet the additional demand, may forgo drilling additional wells at this time. Nevertheless, Kelso wishes to keep the option of developing additional wells from both sites if pumping from multiple wells will be more cost-effective than pumping from a single well.

The ground water would be treated at a new treatment facility near the point of withdrawal and the treated water would be connected to Kelso's water system.

FINDINGS:

- The alluvial unit contains sufficient potential to sustain the proposed rate of ground water.
- Withdrawal of ground water at the application rate would not detrimentally affect existing ground water right holders, which are more than 1 mile distant.
- Increasing the current rate of ground water withdrawal would not detrimentally affect nearby existing surface water right holders, which obtain water from the tidally influenced lower Columbia or Cowlitz Rivers.
- The ground water withdrawn from the alluvial unit would be beneficially used by Kelso for municipal water supply.
- The ground water withdrawal will not be detrimental to the public's interest.

CONCLUSION:

In accordance with Chapters 90.03 and 90.44 RCW, I find there is water available for appropriation from the source in question, that the appropriation as recommended is a beneficial use, and should not impair existing rights or be detrimental to public welfare.

RECOMMENDATIONS:

Based on these findings, I recommend approval of this ground water right application and issuance of permits as follows:

Permit G2-29813 to allow the withdrawal of 1,500 gpm and 1128 acre-feet per year (primary supply) and 1272 acre-feet per year (supplemental supply) for municipal supply from up to three wells.

PROVISIONS:

"The total amount of water diverted under certificates or permits S2195, S2-01119C, G2-24762C, S2-29856, G2-29813 and G2-29815 shall be limited to 6,728 acre-feet per year."

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, 1112 SE Quince Street, PO Box 47890, Olympia, Washington 98504-7890, prior to any new construction or alterations of a public water supply system.

Installation and maintenance of an access port as described in Chapter 173-160 is required. An air line and gauge may be installed in addition to the access port.

The applicant is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect system capacity and actual usage.

Completed well reports shall be submitted to the Department of Ecology within 30 days after the well has been completed. Test pump data shall be submitted to the Department of Ecology as it is obtained.

All wells constructed in the State shall meet the construction requirements of Chapter 173-160 WAC entitled "Minimum Standards for the Construction and Maintenance of Wells" and Chapter 18-104 RCW entitled "Water Well Construction, Act (1971)."

A certificate of water right will not be issued until a final investigation is made.

The Water Resources Act of 1971, Chapter 90.54 RCW specifies certain criteria regarding utilization and management of the waters of the State in the best public interest. Favorable consideration of this application has been based on sufficient waters available, at least during portions of the year. However, it is pointed out to the applicant that this use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

In accordance with Chapter 173-160 WAC, wells shall not be located within certain minimum distances of potential sources of contamination. These minimum distances shall comply with local health regulations, as appropriate. In general, wells shall be located at least 100 feet from sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill.

An access port, (in accordance with Chapter 173-160 WAC), shall be installed prior to issuance of a final certificate of water right. In addition to the required access port, the applicant shall install and maintain, in operating condition, an airline and pressure gage. The pressure gage shall be equipped with a standard tire valve and placed in a location accessible to Department of Ecology personnel. The airline shall extend from land surface to the top of the pump bowls and the total airline length shall be reported to the Department of Ecology upon completion of the pump system

A proof inspection will be conducted prior to final certificate issuance. The certificate will reflect the extent of the project perfected within the limitations of the permit. Aspects will include as appropriate the source(s), system instantaneous capacity, beneficial use(s), annual quantity, acreage, place of use, and satisfaction of provisions.

Water-pumpage, well-monitoring, and static-water-level data, along with a summary and analysis of the data, shall be submitted annually, or more frequently upon request, to Ecology's Southwest Regional Office Water Resources Program. The data shall be submitted in digital format (ASCII) and shall include the following elements:

For Water Use Reporting:

1. Measurement method (totaling meter, acoustic meter, etc.) for each well
2. Total volume pumped from each well by month in thousands or millions of gallons
3. Unique Well ID number

For Water Level Reporting:

1. Unique Well ID Number
2. Measurement date and time
3. Measurement method (air line, electric tape, pressure transducer, etc.)
4. Well status (pumping, recently pumped, etc.)
5. Water level accuracy (to nearest foot, tenth of foot, etc.)
6. Description of the measuring point (top of casing, sounding tube, etc.)
7. Measuring point elevation above or below land surface to the nearest 0.1 foot
8. Land surface elevation at the well head to the nearest foot.
9. Static water level below measuring point to the nearest 0.1 foot.

applicant is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should be filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent er is required, has been put to full beneficial use.

ıance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning ıuirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting thodology, and Conservation Programs, July 1994, and as revised.

der RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the te's water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan y be obtained from either the Department of Health or the Department of Ecology.

der RCW 90.44.250 and 90.54.030, the Department of Ecology is directed to become informed about all aspects of the water resources he state. The Department is authorized to make such investigations as may be necessary to determine the location, extent, depth, ume, and flow of all groundwaters within the state. Accordingly, the applicant shall monitor and provide an annual summary of the vious year's monthly water level data and monthly totals of water pumped for this well. The summary shall be submitted in tabular mat to Ecology's Southwest Regional Office annually, during the month of February, or more frequently if requested by the partment.

approved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 ɔugh –040, and WAC 508-12-030. Meter readings shall be recorded at least monthly.

PORTED BY: Tom Davis for Steve Nelson, HWA Date: October 5, 2001

e statutory permit fee for this application is $20.00.

FINDINGS OF FACT AND DECISION

ɔon reviewing the above report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. rthermore, I find water is available for appropriation and the appropriation as recommended is a beneficial use and will not be trimental to existing rights or the public welfare.

ıerefore, I ORDER a permit be issued under Ground Water Application Number G2-29813, subject to existing rights and indicated ɔvisions, to allow appropriation of public ground water for the amount and uses specified in the foregoing report.

Signed at Olympia, Washington, this 5th day of October, 2001.

J. Mike Harris
Water Resources Supervisor
Southwest Regional Office

Water Rights Application
Notes

- On October 10, 2001, Kelso received a "Report of Examination" for water rights applicant S2-29856. The report detailed the water rights we are allowed to take from the Ranney well. It effectively combined all past water right permits into one (S2195, S2-01119C, G2-24762C) into permit application S2-28856. It also double Kelso's water withdrawals from the Ranney well from 2,800 acre-feet to 5,600 acre-feet.

- On October 10, 2001, Kelso received a "Report of Examination" for water rights applicant S2-29813. The report detailed the water rights we are allowed to take from a new groundwater source at Talley Way. It effectively allows Kelso to withdrawal 1,128 acre-feet of water as primary plus the ability to withdrawal 1,272 acre-feet more if needed. However, if Kelso uses more than 1,128 acre-feet from the new well then we must reduce that additional amount from the Ranney Well. We are only allowed to pump a total of 6,728 acre-feet total from both supplies but it give us flexibility on what supply source we want to use.

IMPORTANT NOTES:

Kelso must develop the new well at Talley Way before December 1, 2003. If not, we must apply for an extension with Ecology before the deadline.

Kelso must use all the water permitted under each application by December 1, 2005. If not, we must apply for an extension with Ecology before the deadline.

- The Department of Ecology will issue Kelso a permit to withdrawal water under these two applications. Ecology ***will not*** issue Kelso a certificate of water rights under the permit until we use all the water under the application.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
November 20, 1998	G2-29815	G2-29815	

NAME
City of Kelso

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 819	Kelso	Washington	98626

The applicant is pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Three Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	2000	3200

QUANTITY, TYPE OF USE, PERIOD OF USE
3200 Acre-feet per year (Supplemental) Municipal supply Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION–WITHDRAWAL
To be determined - within the S½ of Section 11 or the N½ of Section 14.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
S½ Section 11 & N½ Section 14	11 & 14	7	2W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso as described in the February 1999 Longview-Kelso Urban Area Comprehensive Water System Plan.

DESCRIPTION OF PROPOSED WORKS

3 wells completed at a depth of 300 feet below ground surface.

DEVELOPMENT SCHEDULE

PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
ember 1, 2002	December 1, ~~2003~~ 2009	December 1, 2005

PROVISIONS

total amount of water diverted under certificates S2195, S2-01119C, G2-24762, S2-29856, G2-29813 and G2-29815 shall be limited 28 acre-feet per year."

lation and maintenance of an access port as described in Chapter 173-160 is required. An air line and gauge may be installed in ion to the access port.

permittee is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect m capacity and actual usage.

pleted well reports shall be submitted to the Department of Ecology within 30 days after the well has been completed. Test pump shall be submitted to the Department of Ecology as it is obtained.

Wells constructed in the State shall meet the construction requirements of Chapter 173-160 WAC entitled "Minimum Standards for the truction and Maintenance of Wells" and Chapter 18-104 RCW entitled "Water Well Construction, Act (1971)."

rtificate of water right will not be issued until a final investigation is made.

pproved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 igh –040, and WAC 508-12-030. Meter readings shall be recorded at least monthly.

Water Resources Act of 1971 specifies certain criteria regarding utilization and management of the waters of the state in the best ic interest. Use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient reservation of the natural environment.

cordance with Chapter 173-160 WAC, wells shall not be located within certain minimum distances of potential sources of amination. These minimum distances shall comply with local health regulations, as appropriate. In general, wells shall be located at 100 feet from sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill.

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oof inspection will be conducted prior to final certificate issuance. The certificate will reflect the extent of the project perfected in the limitations of the permit. Aspects will include as appropriate the source(s), system instantaneous capacity, beneficial use(s), ial quantity, acreage, place of use, and satisfaction of provisions.

er-pumpage, well-monitoring, and static-water-level data, along with a summary and analysis of the data, shall be submitted annually,

(continued on page 3)

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or to notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Olympia, Washington,

11th *day of* December, *2001.*

Department of Ecology

GINEERING DATA

by J. Mike Harris, Section Supervisor

Provisions Continued

or more frequently upon request, to Ecology's Southwest Regional Office Water Resources Program. The data shall be submitted in digital format (ASCII) and shall include the following elements:

For Water Use Reporting:

1. Measurement method (totaling meter, acoustic meter, etc.) for each well
2. Total volume pumped from each well by month in thousands or millions of gallons
3. Unique Well ID number

For Water Level Reporting:

1. Unique Well ID Number
2. Measurement date and time
3. Measurement method (air line, electric tape, pressure transducer, etc.)
4. Well status (pumping, recently pumped, etc.)
5. Water level accuracy (to nearest foot, tenth of foot, etc.)
6. Description of the measuring point (top of casing, sounding tube, etc.)
7. Measuring point elevation above or below land surface to the nearest 0.1 foot
8. Land surface elevation at the well head to the nearest foot.
9. Static water level below measuring point to the nearest 0.1 foot.

The permittee is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should not be filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent water is required, has been put to full beneficial use.

Issuance of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning Requirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs, July 1994, and as revised.

Under RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the State's water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, the applicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan may be obtained from either the Department of Health or the Department of Ecology.

Under RCW 90.44.250 and 90.54.030, the Department of Ecology is directed to become informed about all aspects of the water resources of the state. The Department is authorized to make such investigations as may be necessary to determine the location, extent, depth, volume, and flow of all groundwaters within the state. Accordingly, the applicant shall monitor and provide an annual summary of the previous year's monthly water level data and monthly totals of water pumped for this well. The summary shall be submitted in tabular format to Ecology's Southwest Regional Office annually, during the month of February, or more frequently if requested by the Department.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
November 20, 1998	G2-29815		

NAME
City of Kelso

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 819	Kelso	Washington	98626

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Three Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	2000	3200

QUANTITY, TYPE OF USE, PERIOD OF USE
3200 Acre-feet per year (Supplemental) Municipal supply Year-round, as needed

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
To be determined - within the S½ of Section 11 or the N½ of Section 14.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
S½ Section 11 & N½ Section 14	11 & 14	7	2W	26	Cowlitz

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kelso as described in the February 1999 Longview-Kelso Urban Area Comprehensive Water System Plan.

DESCRIPTION OF PROPOSED WORKS

to 3 wells completed at a depth of 300 feet below ground surface.

DEVELOPMENT SCHEDULE

GIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
ecember 1, 2002	December 1, 2003	December 1, 2005

REPORT

CKGROUND:

November 20, 1998, Doug Robinson, City Manager for the City of Kelso (Kelso), Washington, filed two applications for permits to ropriate public ground water for municipal use. Mr. Robinson requested authorization to construct three or more wells under each lication, and to withdraw water at the combined instantaneous rate of 3,500 gallons per minute (gpm) with a maximum annual hdrawal of 5,600 acre-feet per year (ac-ft/yr). The applications for ground water appropriation were accepted for processing and igned application numbers G2-29813 and G2-29815. These applications are being considered together, albeit in separate reports. This ort addresses application G2-29815. The priority date for these applications is November 20, 1998.

s application is processed under the Washington Department of Ecology (Ecology) Cost-Reimbursement Project No. 9E54 in eement with Avista-Steag and the Port of Longview. HWA GeoSciences Inc. (HWA) was contracted by Ecology to determine the ior water right applications competing for the same source of water as Avista-Steag and Port of Longview, and to prepare draft orts of examination (ROE) for Avista-Steag, the Port of Longview, and all other relevant applications in the region. HWA iewed all available documents pertaining to the Kelso area site conditions, historical water use, projected water demand, existing it-holders, and seniority of pending applications potentially affected by the Kelso applications.

e City of Kelso holds the following water right certificates:

rtificate No.	Source	Withdrawal Rate	Annual Quantity
195	Cowlitz River	3cfs	not defined
-01119C	Cowlitz River	10 cfs	2380 (under S2195 and S2-0119C)
-24762C	Ranney Well	2500 gpm (5.57 cfs)	2800 (under all rights)

May 1998, the Washington Department of Health determined that the water withdrawn by the Ranney collector under Water Right rtificate G2-24762 was ground water under the influence of surface water (the Cowlitz River).

e combined instantaneous withdrawal for the three certificated rights (a total of 18.57 cfs) is split between the Cowlitz River diversion d the Ranney Well withdrawal. On June 3, 1999, Kelso applied (application #S2-29856) to increase the maximum withdrawal rate from Ranney collector from 5.57 to 18.57 cfs and from 2800 to 5,600 acre-feet per year to allow the entire certificated quantity to be thdrawn from the Ranney collector. This application is addressed in a separate Report of Examination.

e water appropriation requested under these filings will be used for municipal supply. Kelso has applied for this additional propriation to use the full capacity of the Kelso Water Treatment Plant, meet existing water demands, and meet the projected 2020 nual demand. The amount of water that would be consumed or returned to surface water or ground water is unknown, and would pend on the amount and types of municipal uses, which would include domestic, irrigation, and industrial uses.

legal notice of the proposed appropriation was published in The Daily News on September 21 and September 28, 2001. No objections re received in response to the public notice.

ie Longview-Kelso Urban Area Comprehensive Water Plan Final Draft (February 1999) describes Kelso's projected water demands, isting facilities, and the recommended conservation plan. The Final Draft was submitted to the Washington Department of Health OH) for review. It was approved by DOH on October 26, 1999.

ie application is categorically exempt from the SEPA review process.

VESTIGATIONS:

consideration of this application, I (Steve Nelson of HWA GeoSciences Inc. (HWA)) conducted a site visit on May 29, 2001. I viewed the information submitted with the application, pertinent Ecology records, including well drilling reports and recorded water ghts, the City of Kelso Ground Water Resource Study (Robinson and Noble August 1998), and the City of Kelso Test Well Drilling and onstruction report (Robinson and Noble, November 2000). I evaluated the potential effects of the proposed appropriation upon existing d senior applicant ground water and surface water rights based on short-term pumping-test results at the test well. These reviews are mmarized in Ground Water Rights Evaluation, City of Kelso (HWA, June 2001).

oject Site

ie proposed location for the ground water withdrawal is in an undeveloped area at the confluence of the Coweeman and Cowlitz Rivers, ie mile upstream of the confluence of the Cowlitz and Columbia Rivers, and three miles south of the city center of Kelso in Cowlitz ounty. The site lies on the Cowlitz River floodplain, in an urban to semi-rural area historically used for shipping and light industry. The ea receives 30 to 40 inches of rain per year, mostly during the period November to June. The stage of the Cowlitz and Columbia Rivers ictuates twice daily by approximately 1 and 2 feet, respectively, due to tidal response. The Coweeman River is the primary tributary to e Cowlitz River within one mile of the site.

he applicant proposes to withdraw ground water on undeveloped land near the Kelso-Longview airport and east of industrial properties cluding lumber processing facilities and the closed Cowlitz County landfill. Highway 432 and Talley Way provide site access. A 12-ch-diameter test well was installed to a depth of 305 feet in Section 11 under a Preliminary Permit issued on April 28, 1999. No test ells were installed at the alternate locations in Sections 2 or 14.

The project site lies within a sub-basin of the Grays-Elokoman watershed (WRIA 25), herein named the Kelso/Longview sub-basin. The southeast corner of the sub-basin extends into alluvial sediment on the eastern shore of the Cowlitz River, and into a portion of the Coweeman River valley in the Cowlitz River watershed (WRIA 26).

Regional Hydrogeology

The regional hydrogeology of the sub-basin has been described in Myers (1970) and Robinson and Noble (1998). The site is near the Columbia River, a regional physiographic feature that has excavated a deep trough into sedimentary and volcanic bedrock. The Cowlitz River is a tributary to the Columbia River and has carved a bedrock-walled valley filled primarily with unconsolidated alluvial and glacial sediment. The basal geologic units of the Cowlitz River valley consists of consolidated siltstone, sandstone and conglomerate of the Troutdale Formation. Coarse and permeable zones within this formation may contain sufficient ground water for domestic supply. Limited quantities of ground water exist in fractured sedimentary and volcanic bedrock of the sub-basin. Both rivers deposited interbedded layers of unconsolidated sand, silt, and gravel, which occur adjacent to and extend beneath the current river channels. These layers contain moderate to significant quantities of ground water. The surrounding bedrock in uplands above the sub-basin contains significantly less ground water than the alluvial deposits. Regional ground water flow paths generally follow topography. Precipitation infiltrates into the subsurface, migrates downward into bedrock, then into river alluvium, and finally discharges into the Columbia River. Surface water in the river may exchange with ground water along the stream bank at variable rates and direction during the year. The lower Columbia River and lower Cowlitz Rivers are tidally influenced.

In the Longview-Kelso sub-basin, limited ground water supplies for single-home use have been developed from bedrock wells, and small domestic supplies in the 50 to several hundred gpm range have been developed from shallow alluvial deposits. Large municipal and industrial ground water supplies yielding up to 3,000 gpm have been developed from deeper alluvial deposits.

Local Hydrogeology

Hydrostratigraphic units encountered during drilling the test well consist of approximately 15 feet of fill and dredge sand, 50 feet of unconsolidated silty sand with silt, wood, and pumice, and approximately 234 feet of medium to fine sand with silt. This deeper unit is interpreted as alluvial sediment deposited by the Cowlitz and Columbia Rivers. Consolidated sandstone extends below 299 to at least 306 feet.

The thickness and lateral extent of individual layers within the hydrostratigraphic units encountered during test well drilling may vary beneath the site, and individual layers may not extend beyond the site.

Ground Water Occurrence

The first ground water encountered (the water table) beneath the test well site and at other locations near the Cowlitz or Columbia Rivers occurs approximately 10 feet below grade. All units encountered during the test well drilling were saturated with ground water below this depth. Drilling did not sufficiently penetrate the sandstone unit to evaluate its potential yield.

Ground water elevations and ground water flow vary according to seasonal rates of rainfall and infiltration. Daily fluctuations (1 to 2 feet) and seasonal fluctuations (2 to 4 feet) in the Cowlitz River stage affect groundwater flow near the river. Ground water in the units flows generally towards or parallel to the Cowlitz River, except near actively pumped wells where water levels are artificially low.

Surface infiltration of precipitation flowing vertically downward from the surface and lateral inflow from adjacent ground water-bearing zones recharges the alluvial unit. Ground water in the alluvial unit ultimately discharges into the Cowlitz or Columbia Rivers, to which it is hydraulically connected.

Ground Water Quality

Naturally occurring iron concentrations (12.3 to 16.7 milligrams per liter [mg/L]) and manganese concentrations (1.29 to 1.5 mg/L) were detected in ground water samples collected during a 23 hour pumping test (Robinson and Noble, 2000). Elevated iron concentrations (2 to 5 mg/L) commonly occurs in most wells installed in the alluvial unit in the Kelso area (Robinson and Noble, 1998). These concentrations exceed secondary drinking water standards of 0.3 mg/L for iron and 0.05 mg/L for manganese. These are secondary MCLs and are based on aesthetics as opposed to health threats. The ground water would require treatment before municipal use.

Shallow ground water may be adversely affected by releases of hazardous industrial chemicals. The closed Cowlitz County landfill is approximately 2,500 feet west of the test well site across the Cowlitz River and the Kelso-Longview airport is approximately 2,000 feet north of the test well site. The test well was installed as deep as possible within the alluvial unit. Approximately 50 feet of overlying silty sand restricts downward vertical flow to the alluvial unit. Water quality data indicate that the landfill and airport do not adversely affect the ground water quality in the alluvial unit at the test well.

Availability of Ground Water

Wells capable of yielding more than 1,000 gpm were installed at three locations within four miles of the test well site: 1) one mile northwest at the Elks Lodge (up to 1,100 gpm), 2) two miles west at the Port of Longview (up to 3,500 gpm), and 3) four miles south at the Port of Kalama (up to 3,530 gpm). The wells were completed in unconsolidated alluvial deposits related to the Columbia or Cowlitz Rivers. All of these wells lie within one mile of the Columbia or Cowlitz Rivers. The alluvial units in which these wells are completed are undoubtedly hydraulically connected to the rivers. The potential radius of influence due to pumping at these wells will not extend significantly beyond the radial distance to the river. Pumping at these wells, therefore, would not affect ground water levels at the Kelso test well site.

The results of a 23-hour pumping test at the Kelso test well at rates ranging from 650 to 1,250 gpm indicated a specific capacity of 38.5 gpm/ft, and a transmissivity of 230,000 to 330,000 gpd/ft. The drawdown in the test well was approximately 30 feet. The available drawdown at the test well is approximately 200 to 250 feet, indicating a theoretical yield of 7,700 gpm, and a substantial potential for long-term ground water withdrawal from the alluvial unit.

Kelso applied for the right to withdraw ground water at a combined rate of 3,500 gpm from six (6) or more wells within three adjoining sections (2, 11, and 14). Ground water likely would derive from the alluvial unit at depths ranging from approximately 150 to 300 feet below grade. The drawdown induced by the withdrawal would depend on the constant pumping rate for each well and the combined effects of pumping from all active wells. Preliminary results of recent testing at the Kelso test well indicate that the alluvial unit may produce more than 7,700 gpm from a single well at the test well location.

hydrostratigraphic conditions at the proposed alternate location in Section 14 likely are similar to those at the test well location. The nd water development potential at the alternate location likely is greater, due to its proximity to the Columbia River channel. Coarser nent and higher productivity have been noted at other locations next to the Columbia River (e.g., four miles south at the Port of ma, three miles north at Weyerhaeuser and Reynolds Aluminum properties).

effect of the recharge boundary of the Columbia River would limit the amount of drawdown due to pumping from those portions of nconsolidated unit hydraulically connected to the river. Active pumping from wells installed near the river, therefore, would result relatively small radius of influence. The nearest existing ground water rights are approximately 1 mile west of the site at the Elks ge. Ground water withdrawal from the test well area likely would not extend to the Elks Lodge wells, primarily due to the influence e Cowlitz River, which flows along a direct line between the two sites.

ntial for Impairment of Existing Rights and Senior Applications

e ground water certificates have been issued within a one-mile radius of the location of proposed ground water withdrawal. The ficated right-holders obtain ground water from alluvial sediment deposited by the Cowlitz River. One certificate (Cowlitz County) is lomestic use (75 gpm) and the other two certificates (Elks Lodge) are for irrigation supply (1,210 gpm). The ground water withdrawal ts for these three certificated rights are within 2,000 feet of the Cowlitz River, and the alluvial unit in which the wells are completed is y hydraulically connected to the Cowlitz River at these locations.

combined totals for ground water rights issued within a one-mile radius of the project site is 1,285 gpm and 722 ac-ft/yr. No senior icants have applied for ground water withdrawals within one mile of the Port property.

ifer testing at the Kelso test well indicates that the alluvial unit is highly productive and appears capable of sustaining the existing and osed withdrawal rates. The test well is completed in the alluvial unit less than 500 feet from the Cowlitz River. The alluvial unit at well is hydraulically connected to the river. Ground water withdrawal from the alluvial unit will reduce the hydraulic head of the unit e well and create a drawdown cone of depression that will extend laterally and vertically through the flow system. The cone of ession around the well would extend to the aquifer recharge boundary at the Cowlitz River, potentially capturing surface water from iver during long-term ground water withdrawal.

wdown interference due to simultaneous pumping of nearby existing wells would not likely be significant, due to the proximity of the fer recharge boundary of the tidally influenced lower Cowlitz River. In addition, the high productivity of the alluvial unit at the test location indicates that drawdown due to pumping, even at rates as high as 1,000 gpm from a single well, would not interfere with ting rights. Aquifer testing at the test well at a rate of 1,110 gpm indicated that the alluvial aquifer transmissivity ranges from 230,000 30,000 gallons per day per foot (gpd/ft). The drawdown at the test rate was approximately 30 feet. The nearest existing ground water t is more than 1 mile to the northeast (Elk Lodge wells).

impairment of existing ground water rights by additional ground water withdrawal is expected. Pumping new wells at rates up to 0 gpm, spacing the wells at an appropriate distance, and locating the wells within the hydraulic influence of the Cowlitz River should imize the drawdown at each well and its projected radius of influence. Surface-water flow would not be impaired by ground water drawal from the project site, due to the comparably vast quantity of water in the lower Cowlitz River basin. No minimum instream / restrictions exist for this tidally influenced surface water body.

posed Well Construction

12-inch-diameter test well is located approximately 1,400 feet south and 250 feet west of the NE corner of Section 11 in the SE¼ of NE¼ of Section 11, T. 7 N., R. 2 W.W.M. The test well will be used as a part of a ground water well field at the point of ground water drawal. Additional new wells would be completed at depths ranging from 100 to 300 feet below ground surface and screened in the vial unit, depending on the depth of the most productive zone at the well location. The new wells should sustain ground water drawal rates of 1,100 gpm or more, depending on the well diameter and aquifer yield at the well location. Placing the wells near the vlitz River would minimize interference between adjacent wells.

ject Description/Water Demand

so currently holds instantaneous rights of 18.57 cfs and annual rights of 2,800 ac-ft/yr from the Cowlitz River (including the ground er withdrawal from the Ranney Well-listed as Ground Water under the Influence by the Department of Health). In the Longview-so Urban Area Comprehensive Water Plan Final Draft (February 1999), Kelso identified current and projected water supply demands, ntified sources and quality of water, and described proposed water treatment and transmission upgrades. Kelso concluded that ual water demand exceeds current annual water rights, and that treatment and transmission system upgrades would improve the ciency of water use and delivery.

the year 2020, Kelso projected a maximum daily demand of 7.19 million gallons per day (mgd), and an average daily demand of 5.54 d. The projected 2020 annual raw water demand for Kelso is 6,728 acre-feet per year, including plant processes. Kelso concluded that r current instantaneous right (18.57 cfs) sufficiently meets current and projected (year 2020) instantaneous demands. Kelso has lied (surface water application S2-29614) to increase the instantaneous withdrawal rate from the Ranney well to 18.57 cfs, and to ease the annual withdrawal to 5,600 acre-feet per year. This application has been approved and a permit will be issued to allow the ersion of 18.57 cfs and 2,800 acre-feet per year from the Ranney collector on the Cowlitz River for municipal supply. This additional cation will bring the total annual allocation to 5,600 acre-feet per year. Increasing the instantaneous withdrawal from the Ranney well 8.57 cfs will allow the city to use the full capacity of the well and better manage the municipal supply system.

so filed ground water applications G2-29813 and G2-29815 to appropriate ground water to augment the surface water supply to meet projected 2020 annual raw water demand of 6,728 acre-feet per year from all sources. Kelso intends to refurbish the test well eliminary Permit of April 28, 1999) into a municipal water supply production well. Kelso has no immediate plans to add additional ls, and if the single well could potentially meet the additional demand, may forgo drilling additional wells at this time. Nevertheless, so wishes to keep the option of developing additional wells from both sites if pumping from multiple wells was more cost-effective n pumping from a single well.

e ground water would be treated at a new treatment facility near the point of withdrawal and the treated water would be connected to lso's water system.

FINDINGS:

- The alluvial unit contains sufficient potential to sustain the proposed rate of ground water.
- Withdrawal of ground water at the application rate would not detrimentally affect existing ground water right holders, which are more than 1 mile distant.
- Increasing the current rate of ground water withdrawal would not detrimentally affect nearby existing surface water right holders, which obtain water from the tidally influenced lower Columbia or Cowlitz Rivers.
- The ground water withdrawn from the alluvial unit would be beneficially used by Kelso for municipal water supply.
- The ground water withdrawal will not be detrimental to the public's interest.

CONCLUSION:

In accordance with Chapters 90.03 and 90.44 RCW, I find there is water available for appropriation from the source in question, that the appropriation as recommended is a beneficial use, and should not impair existing rights or be detrimental to public welfare.

RECOMMENDATIONS:

Based on these findings, I recommend approval of this ground water right application and issuance of permits as follows:

Permit G2-29815 to allow the withdrawal of 2,000 gpm and 3,200 acre-feet per year (supplemental supply) for municipal supply from up to three wells.

PROVISIONS:

"The total amount of water diverted under certificates S2195, S2-0119C, G2-24762, S2-29856, G2-29813 and G2-29815 shall be limited to 6,728 acre-feet per year."

The water appropriated under this application will be used for public water supply. The State Board of Health rules require public water supply owners to obtain written approval from the Office of Water Supply, Department of Health, 1112 SE Quince Street, PO Box 47890, Olympia, Washington 98504-7890, prior to any new construction or alterations of a public water supply system.

Installation and maintenance of an access port as described in Chapter 173-160 is required. An air line and gauge may be installed in addition to the access port.

The applicant is advised that the quantity of water allocated by this permit may be reduced at the time of final certification to reflect system capacity and actual usage.

Completed well reports shall be submitted to the Department of Ecology within 30 days after the well has been completed. Test pump data shall be submitted to the Department of Ecology as it is obtained.

All wells constructed in the State shall meet the construction requirements of Chapter 173-160 WAC entitled "Minimum Standards for the Construction and Maintenance of Wells" and Chapter 18-104 RCW entitled "Water Well Construction, Act (1971)."

A certificate of water right will not be issued until a final investigation is made.

The Water Resources Act of 1971, Chapter 90.54 RCW specifies certain criteria regarding utilization and management of the waters of the State in the best public interest. Favorable consideration of this application has been based on sufficient waters available, at least during portions of the year. However, it is pointed out to the applicant that this use of water may be subject to regulation at certain times, based on the necessity to maintain water quantities sufficient for preservation of the natural environment.

In accordance with Chapter 173-160 WAC, wells shall not be located within certain minimum distances of potential sources of contamination. These minimum distances shall comply with local health regulations, as appropriate. In general, wells shall be located at least 100 feet from sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill.

An access port, (in accordance with Chapter 173-160 WAC), shall be installed prior to issuance of a final certificate of water right. In addition to the required access port, the applicant shall install and maintain, in operating condition, an airline and pressure gage. The pressure gage shall be equipped with a standard tire valve and placed in a location accessible to Department of Ecology personnel. The airline shall extend from land surface to the top of the pump bowls and the total airline length shall be reported to the Department of Ecology upon completion of the pump system

A proof inspection will be conducted prior to final certificate issuance. The certificate will reflect the extent of the project perfected within the limitations of the permit. Aspects will include as appropriate the source(s), system instantaneous capacity, beneficial use(s), annual quantity, acreage, place of use, and satisfaction of provisions.

Water-pumpage, well-monitoring, and static-water-level data, along with a summary and analysis of the data, shall be submitted annually, or more frequently upon request, to Ecology's Southwest Regional Office Water Resources Program. The data shall be submitted in digital format (ASCII) and shall include the following elements:

For Water Use Reporting:

1. Measurement method (totaling meter, acoustic meter, etc.) for each well
2. Total volume pumped from each well by month in thousands or millions of gallons
3. Unique Well ID number

For Water Level Reporting:

1. Unique Well ID Number
2. Measurement date and time
3. Measurement method (air line, electric tape, pressure transducer, etc.)
4. Well status (pumping, recently pumped, etc.)
5. Water level accuracy (to nearest foot, tenth of foot, etc.)
6. Description of the measuring point (top of casing, sounding tube, etc.)
7. Measuring point elevation above or below land surface to the nearest 0.1 foot
8. Land surface elevation at the well head to the nearest foot.
9. Static water level below measuring point to the nearest 0.1 foot.

applicant is advised that notice of Proof of Appropriation of water (under which the final certificate of water right is issued) should ıe filed until the permanent distribution system has been constructed and that quantity of water allocated by the permit to the extent r is required, has been put to full beneficial use.

ınce of this water right is subject to the implementation of the minimum requirements established in the Conservation Planning ıirements, Guideline and Requirements for Public Water Systems Regarding Water Use Reporting, Demand Forecasting ıodology, and Conservation Programs, July 1994, and as revised.

er RCW 90.03.005 and 90.54.020(6), conservation and improved water use efficiency must be emphasized in the management of the ›'s water resources, and must be considered as a potential new source of water. Accordingly, as part of the terms of this water right, ıpplicant shall prepare and implement a water conservation plan approved by Department of Health. The standards for such a plan be obtained from either the Department of Health or the Department of Ecology.

er RCW 90.44.250 and 90.54.030, the Department of Ecology is directed to become informed about all aspects of the water resources ıe state. The Department is authorized to make such investigations as may be necessary to determine the location, extent, depth, me, and flow of all groundwaters within the state. Accordingly, the applicant shall monitor and provide an annual summary of the ious year's monthly water level data and monthly totals of water pumped for this well. The summary shall be submitted in tabular ıat to Ecology's Southwest Regional Office annually, during the month of February, or more frequently if requested by the artment.

ıpproved metering device shall be installed and maintained in accordance with RCW 90.03.360, 90.44.450 and WAC 508-64-020 ugh –040, and WAC 508-12-030. Meter readings shall be recorded at least monthly.

›ORTED BY: Don Dauzat for Steve Nelson (HWA) Date: November 1, 2001

statutory permit fee for this application is $20.00.

FINDINGS OF FACT AND DECISION

›n reviewing the above report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. thermore, I find water is available for appropriation and the appropriation as recommended is a beneficial use and will not be ·imental to existing rights or the public welfare.

›refore, I ORDER a permit be issued under Ground Water Application Number G2-29815, subject to existing rights and indicated visions, to allow appropriation of public ground water for the amount and uses specified in the foregoing report.

Signed at Olympia, Washington, this 1st day of November, 2001.

J. Mike Harris
Water Resources Supervisor
Southwest Regional Office

ORDINANCE NO. 10-3733

AN ORDINANCE OF THE CITY OF KELSO AMENDING ORDINANCE NO. 09-3698 UPDATING WATER AND SEWER FEES.

THE CITY COUNCIL OF THE CITY OF KELSO DO ORDAIN AS FOLLOWS:

SECTION 1. That Ordinance No. 09-3698 is hereby amended to provide as follows:

1. **Water Rates for All Residential and Commercial Users within the Corporate Limits:**

BI-MONTHLY CHARGES:

Meter Size (In Inches)	2009	2010	2011	2012	2013	2014
3/4 X 5/8	$ 15.46	$ 16.62	$ 17.87	$ 19.21	$ 20.65	$ 22.20
1	$ 31.93	$ 34.33	$ 36.91	$ 39.68	$ 42.66	$ 45.86
1.5	$ 59.80	$ 64.29	$ 69.12	$ 74.31	$ 79.89	$ 85.89
2	$ 92.96	$ 99.94	$ 107.44	$ 115.50	$ 124.17	$ 133.49
3	$ 181.58	$ 195.20	$ 209.84	$ 225.58	$ 242.50	$ 260.69
4	$ 281.51	$ 302.63	$ 325.33	$ 349.73	$ 375.96	$ 404.16
6	$ 891.68	$ 958.56	$1,030.46	$1,107.75	$1,190.84	$1,280.16
8	$1,239.52	$1,332.49	$1,432.43	$1,539.87	$1,655.36	$1,779.52
10	$1,781.80	$1,915.44	$2,059.10	$2,213.54	$2,379.56	$2,558.03

In addition to the fixed charge set forth above, each residential and commercial water customer of the utility shall pay an additional sum for every 100 cubic fee of water consumed.

2009	2010	2011	2012	2013	2014
$2.27	$2.44	$2.62	$2.82	$3.03	$3.26

2. **Water Rates for all Industrial Users within the Corporate Limits:**

BI-MONTHLY CHARGES

Meter Size (In Inches)	2009	2010	2011	2012	2013	2014
2	$ 2,529.15	$ 2,718.84	$ 2,922.75	$ 3,141.96	$ 3,377.61	$ 3,630.93
3	$ 5,059.52	$ 5,438.99	$ 5,846.92	$ 6,285.44	$ 6,756.85	$ 7,263.62
4	$ 7,907.25	$ 8,500.30	$ 9,137.83	$ 9,823.17	$10,559.91	$11,351.91
6	$15,810.86	$16,996.69	$18,271.44	$19,641.80	$21,134.58	$22,719.68
8	$25,297.61	$27,194.93	$29,234.55	$31,427.15	$33,784.19	$36,318.01
10	$36,362.64	$39,089.84	$42,021.58	$45,173.20	$48,561.19	$52,203.28

In addition to the fixed charge above, each industrial water customer of the utility shall pay an additional sum for every 100 cubic feet of water consumed.

2009	2010	2011	2012	2013	2014
$1.58	$1.70	$1.83	$1.96	$2.11	$2.27

Customers must consume a minimum of 25,000 cubic feet per day of water to qualify as an industrial user.

3. Private Fire System Connections (including sprinklers) shall be as follows:

"Connection" shall mean individual line size (not size of water appurtenance).

BI-MONTHLY CHARGES

Connection Size	2009	2010	2011	2012	2013	2014
1"	$ 2.38	$ 2.56	$ 2.75	$ 2.96	$ 3.18	$ 3.42
2"	$ 9.54	$ 10.26	$ 11.02	$ 11.85	$ 12.74	$ 13.70
3"	$ 21.46	$ 23.07	$ 24.80	$ 26.66	$ 28.66	$ 30.81
4"	$ 38.15	$ 41.01	$ 44.09	$ 47.40	$ 50.95	$ 54.77
6"	$ 76.23	$ 81.95	$ 88.09	$ 94.70	$ 101.80	$ 109.44
8"	$ 131.18	$ 141.02	$ 151.60	$ 162.97	$ 175.19	$ 188.33
10"	$ 182.46	$ 196.14	$ 210.86	$ 226.67	$ 243.67	$ 261.94

These charges also apply to references regarding fire services, fire standby fees, and fire monthly service charge.

4. Service Outside City Limits:

The normal rates for water and sewer service to individual accounts located outside the City boundaries shall be 1.5 times the in-City rate.

5. New Connection Charges:

For new water service connections, the meter installation charge shall be as follows:

CONNECTION SIZE	INSIDE CITY	OUTSIDE CITY
3/4 x 5/8 meter set only	$356.00	$ 534.00
1" meter set only	$750.00	$1,125.00

Over 1 inch services to be installed by customer's licensed contractor per city specifications and standards.

6. Wholesale or Bulk Resale Rates:

Rates charged to other public entities for bulk water for resale purposes shall be at a rate for every 100 cubic feet of water delivered, plus the applicable minimum service charge for the metered connection, as follows:

2009	2010	2011	2012	2013	2014
$0.96	$1.03	$1.11	$1.19	$1.28	$1.37

BI-MONTHLY CHARGES

Connection Size	2009	2010	2011	2012	2013	2014
1"	$ 24.82	$ 26.68	$ 28.68	$ 30.84	$ 33.15	$ 35.63
1.5"	$ 37.01	$ 39.79	$ 42.77	$ 45.98	$ 49.43	$ 53.14
2"	$ 55.23	$ 59.38	$ 63.83	$ 68.62	$ 73.76	$ 79.29
3"	$ 111.37	$ 119.72	$ 128.70	$ 138.35	$ 148.73	$ 159.89
4"	$ 185.35	$ 199.25	$ 214.20	$ 230.26	$ 247.53	$ 266.10
6"	$ 278.37	$ 299.25	$ 321.69	$ 345.82	$ 371.76	$ 399.64

7. Sewer Rates for All Residential and Commercial Users within the Corporate Limits

BI-MONTHLY CHARGES

SERVICE TYPE

A. Residential standby only (use less than 200 cf/ Bi-monthly)

2010	2011	2012	2013	2014
$15.15	$15.60	$16.07	$16.55	$16.76

B. All other residential dwellings

2009	2010	2011	2012	2013	2014
$95.57	$98.44	$101.39	$104.43	$107.57	$108.96

C. (1) All Commercial Users

2009	2010	2011	2012	2013	2014
$95.57	$98.44	$101.39	$104.43	$107.57	$108.96

(2) In addition, all commercial users consuming a quantity of water greater than 1300 cubic feet per Bi-month shall be charged for every 100 cubic feet of water consumed in excess of 1300 cubic feet per Bi-month.

2009	2010	2011	2012	2013	2014
$5.89	$6.07	$6.25	$6.44	$6.63	$6.70

8. Sewer Rates for All industrial Users within the Corporate Limits:

All industrial customers shall pay the following sewer rates based on water consumption:

BI-MONTHLY FIXED CHARGE

2009	2010	2011	2012	2013	2014
$7.56	$7.79	$8.02	$8.26	$8.51	$8.62

VOLUME CHARGE

	2009	2010	2011	2012	2013	2014
Per CCF	$2.99	$3.08	$3.17	$3.27	$3.37	$3.41

Customer must consume a minimum of 25,000 cubic feet per day of water to qualify as an industrial customer.

9. Treatment of "High Strength Waste" – Surcharge:

In the event that "high strength waste" is accepted for treatment by the Facilities, a surcharge shall be imposed and paid to the TRRWA in addition to any other charges for sewage treatment as follows:

BOD:	$ 0.40 per pound
Suspended Solids (SS):	$ 0.55 per pound

Such surcharge shall be assessed to "high strength waste" which is hereby defined to be waste that is in excess of a baseline concentration of 250 mg/l.

Such surcharge shall be calculated as follows:

BOD: (concentration [mg/l] – 250 mg/l) x 8.34 x flow (mgd) x $0.40
SS: (concentration [mg/l] – 250 mg/l) x 8.34 x flow (mgd) x $0.55

10. Miscellaneous

A. The City does not tap the sewer main for side-sewers. This work must be completed by the customer's licensed contractor.

B. Sewer service calls resulting from private side responsibility at cost of labor, material, and equipment with a minimum of $50.00 per call.

C. Service call fee for new customers or for water that is temporarily turned on or off $25.00/call.

D. Service call for water reconnection fee after water is turned off for non-payment is $100.00/call.

E. Penalty for meter tampering is $200.00/occurrence to be paid as a condition to resumption of service.

F. Meter removal charge is $100.00/occurrence. (Meters are removed where, in the City's judgment, such is necessary to insure that water will not be used without authorization.

G. Water meter test deposit $25.00/test.

H. Cleaning Usage Fee – an owner of property or a property manager may pay a non-refundable fee of $50.00 to have the water turned on for cleaning purposes for a period of 5 days only. After 5 days, the water will be automatically turned off and padlocked. The $50.00 fee will allow up to 300 cubic feet of water usage. If water is used in excess of 300 cubic feet, the owner or property manager will be charged an additional $3.26 per 100 cubic feet of water consumed, to be billed when the water is turned off. If the owner or property manager wishes the water to remain on after 5 days, then they must make a $60.00 deposit in addition to the $50.00 fee.

I. Irrigation meter: Standard bi-monthly water use rates as listed in this ordinance shall apply.

J. Pumping charge for leak adjustment purposes shall be $0.75 per 100 cubic feet.

K. Penalty for irrigating during a posted water shortage order is $100.00/each occurrence.

L. Minimum Water/Sewer account deposits shall be $60.00.

M. Latecomers agreement application fee shall be $250.00 plus $25.00/lot in the proposed benefited area. The appeal fee shall be $500.00.

N. The Capital recovery appeal fee shall be $500.00.

11. Capital Recovery Fees – Water Connections:

CONNECTION SIZE FEE	METER EQUIVALENTS (Compound Meter)	CAPITAL RECOVERY
3/4 x 5/8"	1	$ 1,969
1"	2.5	$ 4,923
1.5"	5.0	$ 9,845
2"	8.00	$ 15,752
3"	16	$ 31,504

4"	25	$ 49,225
6"	50	$ 98,450
8"	80	$ 157,520
10"	115	$ 226,435

12. Capital Recovery Fees – Sewer Connections:

CONNECTIONS FEE	METER EQUIVALENTS (Compound Meter)	CAPITAL RECOVERY
3/4 x 5/8"	1	$ 2,254
1"	2.5	$ 5,635
1.5"	5.0	$ 11,270
2"	8.00	$ 18,032
3"	16	$ 36,064
4"	25	$ 56,350
6"	50	$ 112,700
8"	80	$ 180,320
10"	115	$ 259,210

In addition to all "hook-up" charges, sanitary sewer service charges and other existing charge and fees imposed by a member entity or by the TRRWA, a System Development Charge (SDC) for waste water treatment in the sum of $1,957.00 will be charged for each new Equivalent Residential Unit (ERU) hereafter connected to the facilities of the TRRWA through the sanitary sewer lines of the member entities in accordance with the following conversion tables:

RESIDENTIAL		COMMERCIAL		INDUSTRIAL
Dwelling	ERU's per Dwelling Unit	Water Meter Size (Inches)	ERU's Per Meter	
Single family	1.00	5/8	1.00	1 ERU per each
Duplex, 3 or 4-plex	0.86	¾	1.50	300 gallons /day flow
Apartment (5 or more)	0.67	1	2.50	
		1.5	5.00	
		2	8.00	
		3	16.00	
		4	25.00	
		6	50.00	
		8	80.00	

13. Senior Citizens Reduction:

Senior Citizens occupying residential dwellings shall be eligible for a reduction of the water/sewer portion of their utility bill of four dollars ($4.00) per billing period, provided they apply and are qualified for such a reduction pursuant to the authority contained in RCW 74.38.070 as a low-income senior citizen. Further, for purposes of implementing this section, the rate reduction will be applied at $2.00 for water service

and $2.00 for sewer service per billing period. Those customers receiving either water service of sewer service will only receive a $2.00 reduction per billing period.

For purposes of implementing this section, "low-income senior citizen" means a person who is sixty-one-(61) years of age or older and whose total income, including that of his or her spouse or co-tenant, does not exceed the amount specified in RCW 84.36.381(5) as it now exists or is hereafter amended. Further, for purposes of implementing this section, the definitions of "combined disposable income," "disposable income" and "co-tenant" shall be as defined in RCW 84.36.383(5), (6), and (7), as they now exist or are hereafter amended.

14. Rates for Water Hydrant Meter Rentals – Services:

Rates for water hydrant meter rentals shall, at a minimum, consist of a $950.00 deposit, and a meter charge of $5.00 per day, and a minimum charge of $20.00 for wholesale or bulk resale rates for water consumption. The City Manager or his designee shall have authority to issue water hydrant meter permits in a form to be made available by the City Clerk.

SECTION 2. This Ordinance shall be in full force and effect forty-three days after its passage and publication of summary as required by law.

ADOPTED by the City Council and **SIGNED** by the Mayor this 7th day of September, 2010.

MAYOR

ATTEST/AUTHENTICATION:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

PUBLISHED: 9/11/10


WATER TREATMENT PLANT
TEST WELL LOCATION
COWLITZ RIVER
NOT TO SCALE
1ST AVE
ASH ST
MAPLE ST S
1ST AVE S
ALDER ST
PACIFIC AVE S
CEDAR ST
CHERRY ST
1ST AVE S
6TH AVE S
5TH AVE S
3RD AVE S
4TH AVE S
MILL ST
7TH AVE S
8TH AVE S
ELIZABETH ST
CHESTNUT ST
ELM ST
RIVERSIDE DR
LAUREL ST
ELM ST
LAUREL ST
9TH AVE S
RIVER RD
YEW ST
RIVER RD S
8TH AVE S
YEW ST
NELLA ST

Appendix F

Standards and Codes

- City of Kelso, Water System, KCM 13.04 – Ordinance 10-3731
- Kelso Municipal Code Chapter 13.04: Water System
- Cities of Longview and Kelso: Standard Plans and Specifications

ORDINANCE NO. 10-3731

AN ORDINANCE OF THE CITY OF KELSO REPEALING ORDINANCE NOS. 2402, 2575, 2587, 2592, 2627, 2726, 2826, 2880, 2881, 3038, 3055, AND 3677, CODIFIED AS KMC 13.04 AND ADDING A NEW KMC 13.04, REGARDING THE CITY'S WATER SYSTEM, AS MORE PARTICULARLY DESCRIBED HEREIN.

THE CITY COUNCIL OF THE CITY OF KELSO DO ORDAIN AS FOLLOWS:

SECTION 1. Repealer. That Ordinance numbers 2402, 2575, 2587, 2592, 2627, 2726, 2826, 2880, 2881, 3038, 3055, and 3677, codified as KMC 13.04 are hereby repealed in their entirety.

SECTION 2. New Chapter Adopted. That a new chapter entitled "Water System", to be codified as KMC 13.04, is hereby adopted to provide as follows:

Chapter 13.04
WATER SYSTEM

Sections:

13.04.010 Rules and Regulations Adopted.

Unless otherwise restricted or provided for in this chapter, the rules and regulations set forth in the KELSO ENGINEERING DESIGN MANUAL, together with all KEDM's adopted State and local authorities shall be, and the same are, adopted by reference.

13.04.020 Definitions.

Except where specifically designated herein, all words used in this section shall carry their customary meanings. Words used in the present tense include the future and plural words include the singular. The word "shall" is always mandatory, and the word "may" denotes a use of discretion in making a decision. The following words or phrases shall have the meaning set forth in this section for the purposes of this chapter:

1. "Agreement" means all agreements for service installations, meters and special service made with any person, firm or corporation, or the authorized agents thereof.
2. "Applicant" means any person, firm or corporation applying for water service or any other connection to the city water system.
3. "CCF" means one hundred cubic feet, (approximately seven hundred forty-eight gallons).
4. "City" means the city of Kelso, Washington, a municipal corporation.
5. "City engineer" means the person, firm or corporation designated by contract or condition of employment as the engineer.

6. "Connection" means any physical connection to the city water system by any water service or any private water system or pipeline extension.
7. "Cost" means the cost of labor, material, transportation, supervision, engineering and all other necessary overhead expenses.
8. "Council" means the city council of the city of Kelso, Washington.
9. "County" means Cowlitz County, Washington.
10. "Cross-connection" means any connection between any part of the water system used, or intended, to supply water for drinking purposes and any source or system containing water, or substance, that is not or cannot be approved by the city prior to or after April 17, 2007.
11. "Customer" means any person, firm or corporation obtaining or using water service from the water system of the city.
12. "Fire protection service, private" means water service and facilities for building sprinkler systems, hydrants, hose reels and other facilities installed on private property for fire protection and the water available therefore.
13. "Fire protection service, public" means the service and facilities of the entire water supply storage and distribution system of the city, including the fire hydrants affixed thereto, and the water available for fire protection, excepting house service connections and appurtenances thereto.
14. Mains. Generally are a minimum inside diameter of six inches forming a grid system which two or more of the public are connected.
15. "Multiple dwelling units" means duplexes, apartment buildings, condominiums, mobile home parks, trailer courts, multiple unit commercial structures and other multiple unit structures or buildings.
16. "Person" means natural persons of either sex, associations, partnerships and corporations, whether acting by themselves or by a servant, agent or employee, the singular number to be construed to include the plural and the masculine pronoun to include the feminine.
17. "Premises" Any single piece of property to which water is provided including, but not limited to, all improvements, mobile structures and structures located on it.
18. "Private pipe" means that portion of the water line from the meter to the premises.
19. "Service charges" means fees, costs, rates and charges for water services as listed in the Current Rate Ordinance, as adopted or hereafter amended.
20. "Service, commercial" means water services to businesses engaged in the manufacture and/or sale of a commodity or commodities or the rendering of a service, multiple dwellings of four-plex or greater, hotels, motels, schools, hospitals and public office buildings.
21. "Service, industrial" means a water service to a business enterprise engaged in the manufacture of products, materials, equipment, machinery and supplies or commodities on a substantial or major scale.
22. "Service installation" means all piping and fittings from the main to and including the water meter assembly including the tail piece. All piping and fittings from the meter to the premises served shall be the customer's responsibility.
23. "Service, residential" means a water service to a single-family or duplex or triplex dwelling unit or a water service for residential irrigation.
24. "Service, temporary" means a water service and facilities rendered for construction work and other uses of limited duration and the water available therefore.

25. "System" means all water source and supply facilities, transmission lines, storage facilities, pumping plants, distribution mains and appurtenances.
26. "System, private" means a water system, or pipelines and appurtenances, pumping facilities, reservoirs, treatment facilities or any combination thereof that are owned by other than the city.
27. "Water service pipe" means that portion of the pipe which lies between the main and the water meter.

13.04.030 Water Service Required—Conditions.

A. Each residential premise shall have a separate water service or services. All water services shall be metered. Premises containing less than four residential dwelling units and/or containing more than one commercial or industrial business shall have separate metered water service for each individual dwelling unit and/or commercial or industrial unit, except where situations and/or special conditions exist that make an individual service for each unit impossible or unfeasible at the discretion of the director of public works. The director of public works shall determine when such situations or conditions prohibit individual services. All meters, meter boxes, valves, and service lines from the main to and including the meter shall be and remain the property of the City.

B. Where there is a water main in front of any premises the owner of such premises supplied by city water shall have service connection with the city main. Water shall not be supplied to any other premises, except temporarily as approved by the director of public works by written permit. If two or more residential premises are supplied by one metered service, service charges for each premises supplied with water shall be assessed for each separate building or premises so supplied. Multi-services existing as of August 19, 1986 shall be separated at such time as the owner or occupant thereof shall obtain a building permit for the remodeling or structural alteration of such premises.

C. When two or more residential premises are being serviced by one water service connection, as otherwise set forth in this section, the city shall have the right to require the installation of additional water service connections from the water main to the premises. When additional water service connections are provided for any premises, all water service shall be metered and installed in an approved manner. No premises shall be permitted to furnish water to any other premises, except during an emergency which shall not exceed a period of thirty calendar days. An application to cover the emergency connection shall be filed with the city within forty-eight hours of the occurrence causing the emergency. When the intended use of the water service is changed or the structure served is altered, a new service shall be installed at the customer's expense unless the existing service complies with the provisions of this chapter.

13.04.040 New Construction Connections

A. Applicants for new service connections within the corporate limits of the city must present a copy of the building permit for the premises where water service is being requested.

B. It shall be the duty of the Building Inspector to deliver to the Public Works Director within twenty-four hours after the same has been made, a duplicate of each application filed in the office of the Building Inspector and upon which a permit for the construction, alteration or repair of any building has been issued. Contractors may, for building purposes, make application for water by meter, and the Public Works Department shall set a meter upon such application. PROVIDED, payment be made in

advance by such contractor of the estimated established connection fees including costs of usage, setting and removing the meter.
Alternatively, any water rate payer may, if he chooses, allow the use of water through the hose connections on his premises, provided the builder shows beforehand, the written permission from the said rate payer and receipt of the payment for the water in application of a written permit from the office of the Public Works Department. Where water is allowed to be taken without said permit and receipt being first shown, the owner or occupant so permitting the water to be taken will be liable for the charges and the water may be shut off from the premises until payment is made.

C. Applicants for service outside the corporate limits of the city shall sign an agreement stating that they will not oppose annexation of the area including the premises for which service is being applied.

D. If no public sewer service is available to any premises for which application for water service is made, approval of the application shall be conditioned upon the applicant obtaining a septic tank permit from Cowlitz County Building Department, and no connection shall be made if such septic tank permit is not issued.

E. After the applicant has been approved by the director of public works, and a septic tank permit has been obtained where required, the applicant shall pay to the city at City Hall all service charges required for constructing the water service connection as provided in this chapter and as required by the Current Rate Ordinance as adopted or hereafter amended. When all service charges have been paid, the approved application shall constitute an agreement whereby the applicant agrees, as a condition for the continued use of water, to conform to rules and regulations of the department as provided in this chapter or any amendment to this chapter, and the agreement stated in the application.

F. Fees and Charges. Water connection shall be made by the city upon application to the finance department and payment of the water service installation charges as provided by city enactment. All water connection charges received shall be considered capital revenue of the city.

G. Water Service Pipe Installation Requirements. Water service pipe shall be laid and maintained in accordance with the Kelso Engineering Design Manual.

H. Installation Specifications. Water service connections may be made by the city or by a lawfully operating, licensed, bonded and insured contractor at the owner's direction and expense. All contractors must receive a permit from public works for installation of all water service connections. If the water service connections are made by the city, the cost of installation and connection shall be paid as provided in Section 13.04.050 of this chapter and shall be made in accordance with the Current Rate Ordinance, as adopted or hereafter amended or such other connection rates or charges as may be adopted. Meters shall be placed in accordance with the Kelso engineering design manual.

I. Turn Ons. When new water service connections are inspected and approved by the city for any premises, a designee of the public works director shall set the meter with the valve at the meter turned to the "off" position. The meter shall remain off until a turn on order is issued by the public works director. A turn on order shall be issued when one of the following conditions is met: (1) the building contractor establishes the proper account at the city finance department which shall be in his name only, or (2) the owner establishes the proper account at the city finance department which shall be in his name only. Thereafter, owner shall pay all costs for receipt of continued service, or (3) the final inspection is complete and occupancy has been granted.

13.04.045 Connection—General Requirements.

A. Bills are to be prepared in even 100 cubic foot units.

B. The water may at any time be shut off from the mains without notice, for repairs or other necessary purposes, and the city will not be responsible for any consequent damages. Water for steam boilers should not be drawn by direct pressure from the mains, but owners of boilers should always provide tanks holding an ample reserve of water for such purpose.

C. Water will not be furnished where there are defective or leaking faucets, closets or other fixtures or where there are water closets or urinals without self-closing valves, or tanks without self-acting float valves, and when such small leaks may be discovered the supply will be turned off unless such defects are remedied within 48 hours after written notice from the Public Works Department has provided documented delivery to the occupants of the premises.

D. No plumber or other person will be allowed to make connection with the city mains or to make alterations in any conduit pipe or other fixture connecting therewith or to connect pipes where they have been disconnected, or to turn off or turn on water on any premises without written permission from the Public Works Department.

E. Agents of the Public Works Department shall have access at all business hours of the day to all parts of the buildings or premises in which water may be delivered from the city mains, for the purpose of inspecting the condition of the pipes and fixtures and the manner in which the water is used. Upon refusal to permit such inspection, water service may be disconnected and shall not be re-connected until such inspection is permitted and also all delinquent water rates, together with a turn-on charge is paid.

F. Water will be shut off upon discovery from the premises where the occupants allow it to run to waste and will not be again turned on until such waste is stopped and the turn on charge has been paid.

G. The City reserves the right to make an order forbidding all use of water for irrigation and sprinkling in event of shortage of water; due notice of such order to be given by its publication in a newspaper of general circulation in the city, and any person violating such order shall be subject to a charge as set by the Current Rate Ordinance, as adopted or hereafter amended, for each offense, and the water shall be shut off therefore. In no case shall the water be turned on for the use of such offender until such penalty shall have been paid.

H. Consumers who are supplied by meters shall keep their premises adjacent to the meter free from all rubbish, cars, or material of any kind which will prevent the employee of the Public Works Department from having access to the meter. Violation will result in a tampering fee.

I. Any person making unauthorized connections between the supply main and the meter will be guilty of a misdemeanor and upon conviction thereof shall be punished as for other misdemeanors as provided by law. In addition, a tampering fee will also be assessed.

J. Plumbers or others failing to conform to the rules and regulations of the Public Works Department shall be debarred from making any connections with service pipes of the City until they have paid the City of Kelso a penalty as set by the Current Rate Ordinance, as adopted or hereafter amended, for each violation in addition to any fine imposed by the Kelso Municipal Court. The violation shall be defined as meter tampering.

K. It shall be unlawful for any person to break, deface or damage any water meter, gate, pipe or other water works appliance or fixture or in any other manner interfere with the proper operation of any part of the water system of the City of Kelso, and anyone

found violating any of these provisions, unless otherwise provided for, shall be guilty of meter tampering and a misdemeanor, and upon conviction thereof shall be punished as for other misdemeanors as provided by law.

L. All of the rules and regulations prescribed by this chapter must be strictly complied with in every instance and the water must be paid for by all persons supplied, according to the rate ordinance, and in all instances charges shall be made and collection enforced against the tenant and owner of the premises where water connections and services are made, and the property shall be liable for the full amount of the rates and charges until paid.

M. Meter rate charges are payable subsequent to the period in which the water was consumed.

N. Wherever it has been ascertained that a retaining wall, ornamental wall or landscaped rockery or any other form of permanent structure is to be or has been erected upon any portion of a city street or public place in which a water service connection has been installed, the director of public works shall cause the relocation or readjustment of such water service connection or any portion thereof. The cost of such relocation or readjustment shall be charged against the property on which the erection of the permanent structure, as above referred to, is to be done or has been done and to the owner thereof. In no case shall the city be required to maintain or repair any portion of the service connection beyond the meter set assembly.

13.04.050 Service Application / Turn On Order.

A. Each premise shall have separate water service or services as set forth in this chapter. Any person desiring water service for any premises shall make application therefore at the Kelso City Hall. The applicant shall provide the following information:

1. Name, Mailing Address, Email Address & Phone number of Applicant;
2. Location (and tax parcel number if applicable) of Premises where water is requested;
3. Property Owners Name, Address and Email Address;
4. Signature and application date of owner or tenant of premises, the owner or tenant or their duly authorized representative or agents;
5. Date of requested Turn on;
6. Such additional information as the director of public works shall require;
7. Statement that the applicant acknowledges his or her obligation to abide by the ordinances, resolutions, rules and regulations adopted by the City that are established as conditions of use of water, and that the City has the right to shut off the water supply as required for such things as, by way of example, nonpayment, repairs, maintenance, or other necessary work;
8. Stated purpose of water use (Domestic, irrigation, construction, fire, etc.);
9. Verifiable Letter of Credit Reference for the immediate prior 24 months of continuous service from a comparable water/sewer utility provider showing no delinquencies, discontinuances or NSF checks as set forth in this section below, and if no or negative previous account history exists with Kelso, in order to qualify for a minimum deposit;
10. Valid identification;
11. Proof of ownership or rental agreement. The city reserves the right to withhold services until ownership or valid rental agreement can be verified.

B. The application provided for in Section A shall be signed by the applicant and such signature shall constitute an acknowledgement by the applicant of his or her obligation to pay for the water supplied at the rate and in the manner specified by the ordinances or resolutions of the City and to abide by the ordinances, resolutions, rules and regulations adopted by the City and that the City has a right, without liability, to shut off the water supply for nonpayment or as may be needed for repairs, maintenance or other necessary work. At the time of filing the application, the applicant shall pay to the City all required or applicable deposits, fees or charges owed to the City.

C. All applications for new service or a turn on order must be accompanied with a minimum deposit as set in the Current Rate Ordinance, as adopted or hereafter amended. In addition, the City may require an additional deposit equal to the cost of three months of estimated water service in the event the applicant cannot establish a Good Credit History. For purposes of this section, Good Credit History shall mean no outstanding balances for any utilities with the City in the last five years, or a verifiable letter of good credit reference from the prior water/sewer utility provider. Good credit shall also include (1) no more than one delinquency notice in the previous 24 months, and (2) no notice of discontinuance for nonpayment in the previous 24months, and (3) no more than one check returned for insufficient funds within the previous 24 months. (4) No previous liens have been filed. Deposits shall be returned when (1) the use of water is discontinued and all arrearages are paid or (2) after 30 months of continuous on-time full payments. If applicant is seeking qualification for a minimum deposit, service will not be provided until references have been approved.

13.04.060 Cross-Connections.

A. Definitions. Except where specifically designated herein, all words used in this section shall carry their customary meanings. Words used in the present tense include the future and plural words include the singular. The word "shall" is always mandatory, and the word "may" denotes a use of discretion in making a decision. Any definition not found in this section will take its meaning from the WAC (Chapter 246-290 WAC), or as amended, or in the most recent edition of the Manual of Cross Connection Control published by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

1. "Agreement" means all agreements for service installations, meters and special service made with any person, firm or corporation, or the authorized agents thereof.
2. "Air gap" means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or nonpressure-receiving vessel. To be an "approved air gap," the separation must be at least twice the diameter of the inlet piping (supply pipe) measured vertically, and never be less than one inch.
3. "Approved backflow prevention assembly" or "backflow assembly" or "assembly" means an assembly to counteract backpressures or prevent backsiphonage. This assembly must appear on the list of approved assemblies issued by the Washington State Department of Health. The assembly must be purchased and installed as a complete unit including two shut-off valves and test cocks.
4. "Auxiliary supply" means any water source or system other than the city of Kelso's water.

5. "Backflow" means the flow of water or other liquids, gases or solids from any source back into the distribution system. The flow of water in the opposite direction of its intended flow.
6. "Backflow assembly tester" means a person holding a valid BAT certificate issued in accordance with WAC 246-290-490 and Chapters 18.27, 18.106 and 70.119 RCW.
7. "Backpressure" shall mean backflow due to water pressure on the downstream side of the meter which exceeds the operating pressure of the public potable water supply.
8. "Backsiphonage" shall mean backflow due to a negative or reduced pressure within the public potable water supply.
9. "Building inspector" shall mean the building inspector for the city of Kelso.
10. "City" shall mean the city of Kelso.
11. "Closed system" means any water system or portion of a water system in which water is closed to atmosphere.
12. "Connection" means any physical connection to the city water system by any water service of any private water system or pipeline extension.
13. "Contamination" means the entry into or presence in a public water supply system of any substance which may be harmful to health and/or quality of the water.
14. "Council" means the city council of the city of Kelso, Washington.
15. "Cross-connection" means any physical arrangement where a public water system is connected, directly or indirectly (actual or potential), with any other nondrinkable water system or auxiliary system, wells, sewer, drain conduit, swimming pool, storage reservoir, plumbing fixture, swamp coolers, or any other device which contains, or may contain, contaminated or polluted water, sewage, used water, or other liquid of unknown or unsafe quality which may be capable of imparting contamination or pollution to the public water system as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices, or other temporary or permanent devices through which, or because of which, backflow may occur are considered to be cross-connections.
16. "Cross-connection specialist" or "CCS" shall mean a person holding a valid CCS certificate issued in accordance with the Washington Administrative Code who is employed by the city or under contract with the city.
17. "Degree of hazard" means the low or high hazard classification that shall be attached to all actual or potential cross-connections.
18. "Department" means the department of public works of the city.
19. "Distribution system" means all piping components of the city's system that serve to convey water from transmission mains linked to source, storage and treatment facilities to the consumer, excluding individual services.
20. "DOH" means Washington State Department of Health.
21. "Double check valve backflow prevention assembly" or "double check assembly" or "double check" or "DCVA" or "DC" means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a shut-off valve on each side of the checks, as well as test cocks.
22. "Double check detector assembly" or "DCDA" means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a shut-off valve on each side of the checks, as well as test cocks to test the checks for

tightness. It shall also be provided with a factory bypass arrangement with a meter and a minimum of an approved double check assembly.

23. "Health hazard" means an actual or potential threat of contamination of a physical, toxic or biological nature that would be a danger to health.
24. "In-premises protection" means a method of protecting the health of consumers served by the customer's plumbing system (i.e., located within the property lines of the customer's premises) by the installation of an approved air gap, backflow prevention assembly or device at the point of hazard.
25. "Inspector," "surveyor" or "specialist" shall mean a person holding a valid CCS certificate issued in accordance with the Washington Administrative Code, who meets the stipulations in this section and the most recent edition of the city's standard operating procedures manual.
26. "Local administrative authority" means the local official, board, department or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code and all other plumbing codes recognized by the state of Washington.
27. "Low health hazard" means the classification assigned to an actual or potential cross-connection that could allow a substance that may be objectionable, but not hazardous to one's health, to backflow into the potable water supply.
28. "Mobile unit" shall mean units connecting to the water system through a hydrant, hose bib, or other appurtenance of a permanent nature that is part of the city water system or a permanent water service to a premises. Examples can include but are not limited to the following: water trucks, pesticide applicator vehicles, chemical mixing units or tanks, waste or septage hauler trucks or units, sewer cleaning equipment, carpet or steam cleaning equipment, rock quarry or asphalt/concrete batch plants, or any other mobile equipment or vessel. Uses that are excluded from this definition are recreational vehicles at assigned sites or parked in accordance with other city ordinances pertaining to recreational vehicles, and homeowner devices that are used by the property owner in accordance with other provisions of this section, or other city of Kelso ordinances pertaining to provision of water service to a premises.
29. "Person" means a natural person (individual), corporation, company, association, partnership, firm, limited liability company, joint venture company or association, and other such entity.
30. "Plumbing hazard" means an internal or plumbing-type cross-connection in a consumer's potable water system that may be either a pollutional or a contamination-type hazard. This includes, but is not limited to, cross-connections to toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing-type cross-connections can be located in all types of structures including but not limited to homes, manufactured homes, apartment houses, hotels and commercial or industrial establishments.
31. "Pollutional hazard" means an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer's potable water system but which would not constitute a health or system hazard, as defined. The maximum degree of intensity of pollution to which the potable water system could be degraded under this definition

would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

32. "Potable water supply" means any system of water supply intended or used for human consumption or other domestic use and meets all requirements established by the Safe Drinking Water Act and the DOH regulations.
33. "Premises" means any piece of property to which water is provided including, but not limited to, all improvements, mobile structures and structures located on it.
34. "Premises isolation" means a method of protecting a public water system by installation of an approved air gap or approved backflow prevention assembly at the point of service (end of purveyor's service pipe) to separate the customer's plumbing system from the purveyor's distribution system.
35. "Reclaimed water" means effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment it is suitable for beneficial use or a controlled use that would not otherwise occur, and it is no longer considered wastewater.
36. "Reduced pressure detector assembly" or "RPDA" shall mean an approved assembly consisting of two approved reduced pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.
37. "Reduced pressure principle backflow prevention assembly" or "reduced pressure principle assembly" or "RP assembly" shall mean an assembly containing two independently acting approved check valves together with a hydraulically operated, mechanically independent pressure differential relief valve located between the check valves. The assembly shall include properly located test cocks and tightly closing shut-off valves at each end of the assembly.
38. "SOP" means the most recent edition of the city of Kelso's standard operating procedure manual.
39. "Thermal expansion" means the pressure created by the expansion of heated water.
40. "Unapproved auxiliary water supply" means a water supply (other than the purveyor's water supply) on or available to the consumer's premises that is either not approved for human consumption by the health agency having jurisdiction or is not otherwise acceptable to the purveyor.
41. "Used water" means any water supplied by the city to a customer's property after it has passed through the service connection and is no longer under the control of the city.
42. "WAC" means the most recent edition of the Washington Administrative Code.

B. Purpose. The purpose of this section is to protect the water system of the city of Kelso from contamination or pollution due to any existing or potential cross-connections as defined in WAC 246-290-010, or as amended by this section.

C. Cross-Connections Regulated.

1. No cross-connections shall be created, installed, used or maintained within the territory served by the city, except in accordance with this section.
2. The CCS for the city shall carry out or cause surveys to be carried out to determine if any actual or potential cross-connections exist. If found

necessary, an assembly commensurate with the degree of hazard will be required to be installed at the service connection.
3. The owner, occupant or person in control of the property is responsible for all cross connection control within the premises.
4. The owner, occupant or person in control of the property shall abide by other city regulations as contained in Section 13.04.050.

D. Application and Responsibilities. This section applies throughout the city and to every premises and property served by the city water system. It applies to any premises, public or private, regardless of date of connection to the city water. Every owner, occupant and/or person in control of any concerned premises is responsible for compliance with the terms and provisions contained herein.

E. Backflow Prevention Assembly Requirements. A CCS shall determine the type of backflow assembly to be installed within the area served by the city. All assemblies shall be installed at the service connection unless it is determined by the CCS to install the assembly at an alternate location. The cross-connection shall be eliminated or an assembly shall be required to be installed in each of the following circumstances, but the CCS is in no way limited to the following circumstances:

1. The nature and extent of any activity on the premises, or the materials used in connection with any activity on the premises, or materials stored on the premises, could contaminate or pollute the potable water supply.
2. Premises having any one or more cross-connections or potential cross-connections as that term is defined in this section and the Washington Administrative Code and all applicable plumbing codes.
3. When a cross-connection survey report form is required by the city to be filled out and the city has not received it.
4. Internal cross-connections are present that are not correctable.
5. Intricate plumbing arrangements exist or plumbing subject to frequent changes is present that make it impractical to ascertain whether or not cross-connections exist.
6. There is a repeated history of cross-connections being established or re-established.
7. There is unduly restricted entry so that inspections for cross-connections cannot be made with sufficient frequency to assure that cross-connections do not exist.
8. Materials, chemicals or any substance or apparatus is being used that if backflow occurred contamination would result.
9. Installation of an approved backflow prevention assembly is deemed to be necessary in the judgment of the CCS to accomplish the purpose of these regulations.
10. Any premises having an auxiliary water supply, which is not in compliance with WAC 248-54-30 and is not acceptable to the city.
11. In the event an in-premises assembly has not been tested or repaired as required by WAC 246-290-490, or as amended, and this section.
12. If it is determined that additions or rearrangements have been made to the plumbing system without obtaining proper permits as required by the city code enforcement division.
13. All high health hazard premises, which are defined in Table 9 of WAC 246-290-490, or as amended, are required to have premises isolation by

installing a reduced pressure principle assembly in accordance with this section.

14. When a garden hose attachment is connected to the premises' plumbing, including but not limited to fertilizer applicators, pesticide applicators and radiator flush kits.
15. Where reclaimed or reused water systems are installed.
16. Premises on which any substance is handled under pressure so as to permit entry into the public water system.

F. Irrigation Systems. All irrigation systems shall be protected in accordance with the plumbing code. In the event any system is equipped with an injector system, or has submerged heads, a reduced pressure principle assembly will be required.

G. Fire Systems. An approved double check detector backflow prevention assembly shall be the minimum protection on all new fire sprinkler systems using piping material that is not approved for potable water use, and/or that does not provide for periodic flow-through. A reduced pressure principle detector backflow prevention assembly must be installed, if any solution other than the potable water can be introduced into the sprinkler system. Retrofitting on fire sprinkler systems will be required in each of the following circumstances:

1. Where improper maintenance has occurred;
2. On all high hazard systems;
3. Wherever a CCS deems necessary; and
4. Wherever required by the WAC.

H. Temporary Meters and Hydrant Valves. Backflow protection will be required on temporary meters and all hydrant valves. The type of assembly will be commensurate with the degree of hazard and will be determined on a case-by-case basis by the city's CCS.

I. Mobile Units. Any mobile unit or apparatus as defined in subsection A of this section which uses the city's water from any premises or piping within the distribution system shall first obtain a water use permit from the city. The mobile unit will be inspected to assure appropriate backflow protection is installed in accordance with the city's most recent edition of the SOP manual.

J. Right-of-Way Encroachment.

1. No person shall install or maintain a backflow prevention assembly upon or within any city right-of-way except as provided in this section.
2. A backflow prevention assembly required by the city may be installed upon or within any city right-of-way only if the owner proves to the city that there is no other feasible location for installing the assembly, and installing it in the right-of-way will not interfere with traffic or utilities. The city retains the right to approve the location, height, depth, enclosure, and other requisites of the assembly prior to its installation.
3. All permits required by the city code to perform work in the right-of-way shall be obtained.
4. A property owner shall, at the request of the city and at the owner's expense, relocate a backflow prevention assembly which encroaches upon any city right-of-way, when such relocation is necessary for street or utility construction or repairs for purposes of public safety.

K. Plumbing Code. As a condition of water service, customers shall install, maintain, and operate their piping and plumbing systems in accordance with all Washington State Plumbing Codes.

L. Access to Premises. Authorized employees of the city, with proper identification, shall have access during the hours of 8:00 a.m. to 5:00 p.m. to all parts of commercial, industrial and residential premises and within the buildings to which water is supplied. If access to the premises or to the interior of a structure during these hours is denied, a reduced pressure principle assembly shall be required to be installed at the service connection to that premises.

M. Testing and Repairs. Backflow prevention assemblies shall be tested and repaired in accordance with the requirements set out in the WAC, this section and the most recent edition of the city's SOP manual.

N. Responsibilities of Backflow Prevention Assembly Testers. All backflow assembly testers operating within the city shall be certified in accordance with all applicable regulations and shall comply with all stipulations in this section and the most recent edition of the city's SOP manual.

O. Maintenance of Assemblies. Backflow prevention assemblies shall be maintained in accordance with the requirements set out in the WAC, or as amended, and the most recent edition of the city's SOP manual.

P. Installation Requirements and Specifications. Backflow prevention assemblies shall be installed in accordance with the requirements set out in the WAC and the most recent edition of the city's SOP manual. In the event the CCS allows premises isolation assembly to be installed at an alternate location, there shall be no connections between the meter and the premises isolation assembly.

Q. Thermal Expansion. If a closed system has been created by the installation of a backflow prevention assembly, it is the responsibility of the property owner to eliminate the possibility of thermal expansion.

R. Pressure Loss. Any reduction in water pressure caused by the installation of a backflow assembly is not the responsibility of the city. The city will give reasonable assistance to the owner regarding information on adequate sizing of assemblies and proper plumbing practices to provide for required pressure and flows for fire protection.

S. Parallel Installation. Premises where non-interruption of water supply is critical shall have two assemblies of the same type installed in parallel. They shall be sized in such a manner that either assembly will provide the minimum water requirements while the two together will provide the maximum water requirements.

T. New Construction.

1. On all new nonresidential construction, an approved backflow assembly shall be installed at the service connection. The type of the assembly will be commensurate with the degree of hazard as determined by a CCS.
2. When a building is constructed on commercial premises, and the end use of the building is not determined or could change, a reduced pressure principle backflow prevention assembly shall be installed at the service connection to provide protection of the public water supply in the event of the most hazardous use of the building.

U. Residential Service Connections. Any residential property, which has been determined to have an actual or potential cross-connection and/or has violated the plumbing code or this section in any way, shall be required to install an approved backflow prevention assembly in accordance with this section.

V. Rental Properties. The property owner is responsible for the installation, testing and repair of all backflow assemblies on their property. When the tenants change, or if the plumbing is altered in any way, it is the responsibility of the owner to notify the city.

W. Retrofitting. Retrofitting shall be required on all service connections where an actual or potential cross-connection exists, and wherever else the city deems retrofitting necessary.

X. Costs of Compliance. All costs associated with the purchase, installation, inspections, testing, replacement, maintenance, parts, and repairs of the backflow assembly are the financial responsibility of the property owner. All cost associated with any disconnect fees associated with the enforcement of this document are the sole responsibility of the water user and/or property owner.

Y. Recovery of Costs. Any water customer violating any of the provisions of this section and who causes damage to or impairs the city's water system, including, but not limited to, allowing contamination, pollution, any other solution or used water to enter the city's water system, shall be liable to the city for any expense, loss or damage caused by such violation. The city shall collect from the violator for the cost incurred by the city for any cleaning, purifying, repair or replacement work or any other expenses caused by the violation. Refusal to pay the assessed costs shall constitute a violation of this section and shall result in the termination of service.

Z. Emergency Suspension of Service. The public works director or their designee may, without prior notice, suspend water service to any premises when such suspension is necessary to stop the imminent threat of any actual or potential cross-connection as defined in this section and the most recent edition of the city's SOP manual.

AA. Non-emergency Suspension of Service. The public works director or their designee may suspend, with twenty-four hours' notice, the water supply to any premises where the conditions of this section or the most recent edition of the city's SOP manual have been violated.

BB. Penalties. Any person, property owner, firm, corporation or business entity violating (1) this section, or (2) any regulation, rule or permit of the city issued pursuant to this section shall be liable to the city for civil penalty. The amount of such civil penalty shall be two thousand dollars per violation. Each continuing day's violation under this section shall constitute a separate offense. The penal provisions imposed under this section shall not preclude the city from filing suit to enjoin the violation. The city of Kelso retains all legal rights and remedies available to it pursuant to local, state and federal law.

CC. Falsifying Information. Any person who knowingly makes any false statement, representation, record, report or other document filed or required to be maintained pursuant to this section, or who falsifies, tampers with, or knowingly renders inaccurate any backflow assembly, device or method required under this section shall (in addition to civil and/or criminal penalties provided by state law) be guilty of a misdemeanor subject to the general penalty clause of the Kelso Municipal Code.

13.04.080 Temporary Off.

The city shall assess service charges as long as the water service is in an active status. a customer may request that water service be turned off temporarily for periods longer than 30 consecutive days. A temporary off shall not exceed one year. Accounts not in use for one year or more shall be finaled retroactive to the first day of inactivation. Accounts off for a year or more must comply with all Kelso municipal code requirements for a nonstandard and inactive service. An "in person" signed application is required to initiate a temporary on and a subsequent activation of service. A service call fee will be

assessed for the temporary cessation and reconnection of service as set forth in the current rate ordinance. Temporary off customers shall provide an advance payment for current charges and a forwarding address for billing to qualify as such.

13.04.090 Irrigation Meters.

An irrigation meter may be installed to verify quantities of water used that will not return to the sewer system. Irrigation only meter accounts will not be charged a monthly sewer use fee. If approved by the public works director, Irrigation meters may also be set as deduct meters where appropriate. Deduct meters will not pay SDC fees, but all other connection fees and standards apply. Independent irrigation meters will pay water SDC fees but not sewer SDC fees and all other connection fees and standards apply.

13.04.100 Connections—Nonstandard and Inactive Service.

When a service has been in regular use and has been turned off or has been inactive for one year or more, it shall be determined as an inactive service, and, if the existing inactive service is nonstandard and it is physically possible to standardize the installation in accordance with Section 13.04.040 of this chapter, the applicant for service shall pay for a new service as provided. When any service which has been in regular use is turned off and attains a period of inactivity for two years or more, it shall be subject to disconnection and removal at the discretion of the director of public works.

13.04.120 Water Main Extension.

Water main extensions shall be in accordance with the Kelso Engineering Design Manual.

13.04.140 Latecomer Agreements.

A. **Purpose and Term**. Any property owner utilizing private funds to install public water system improvements may apply to the city to establish a latecomer agreement for recovery of a prorated share of the cost of constructing the public improvement from other properties that will later derive a benefit from the improvements. No latecomers' agreement shall extend for a period longer than 15 years from the date of final acceptance by the city unless a longer period is allowed pursuant to RCW 35.91.020.

B. **Rights and nonliability of city.** The city reserves the right to refuse to enter into any latecomer agreement or to reject any application therefore. All applications for latecomers' agreements shall be made on the basis that the applicant releases and waives any claims for any liability of the city in establishment and enforcement of latecomer agreements. The city shall not be responsible for locating any beneficiary or survivor entitled to benefits by or through latecomer agreements.

C. **Application requirements.** All applications for latecomer agreements shall be on forms established by the public works director and approved as to form by the city attorney. The application shall contain the following information:

1. Legal description of the property and of each of the benefited properties.
2. Vicinity maps showing the property, the benefited properties and the location of the proposed improvement.
3. Estimated cost data.

4. Proposed pro rata share of the cost of the improvement to be borne by the benefiting properties and the proposed method of assessment of the pro rata share.
5. Payment of application fee.

D. **Eligibility of applicants.** In order to be eligible for processing of latecomer agreements, applicants for latecomer agreements shall be in compliance with all city ordinances, rules, and regulations.

E. **Procedures for reimbursement agreements.**

1. If a reimbursement agreement is requested, the property owner shall submit project plans and a site plan, map or diagram of the proposed benefited area prepared by a licensed professional engineer, ownership reports on properties within the proposed benefited areas, a cost estimate for the project based upon the plans of a civil engineer from which reimbursable costs shall be estimated, and such other information as the city may require.
2. Property owners requesting a reimbursement agreement shall submit, along with the application, a nonrefundable payment in the amount established in the current rate ordinance as adopted or hereafter amended to be applied to the city's legal, engineering and administrative costs (including but not limited to staff time, and costs for title reports, appraisers, or other costs) associated with preparing the reimbursement agreement, which costs shall be included as reimbursable costs in the reimbursement agreement; provided, that whenever city engineering, legal, and administrative costs exceed the payment required herein, the city shall not process the application or execute any agreement until such costs have been paid in full.
3. The public works director, based on information submitted by the property owner will formulate an assessment reimbursement area (benefit area) based upon a determination of which parcels did not contribute to the original cost of such infrastructure improvement and which connect to or specially benefit from such infrastructure.
4. The public works director based on information submitted by the owner will estimate pro rata share of costs. The public works director may require engineering costs or construction bids to be provided and may retain an appraiser to assist in formulating the benefit area and pro rata costs.
5. The public works director shall make a preliminary determination of the benefit area and assessments and shall notify the property owners within the proposed benefit area by first class mail of the benefit area, the approximate assessment, and a description of the property owners' rights and options to participate in the agreement. The property owners may, upon payment of an appeal fee established in the Current Rate ordinance as adopted or hereafter amended, appeal the preliminary determination to the City Council within twenty (20) days of the date of mailing. The City Council may delegate the hearing examiner to hold the public hearing, establish the record and make a recommendation to the City Council.
6. Upon completion of the preliminary determination, and appeal there from, if any, the City shall prepare the final latecomers agreement for public hearing and consideration by council and shall notify the property owners within the proposed benefit area by first class mail of the hearing date.

7. Upon approval by City Council, the latecomer agreements must be recorded in the County auditor's office within 30 days of the final execution of the agreement. It shall be the sole responsibility of the latecomer applicant to record said agreement. Once recorded, the latecomer agreement shall be binding on owners of record within the assessment area who are not party to the agreement.

F. **Construction**. After the Latecomers' Agreement has been signed by both parties and all necessary permits and approvals have been obtained, the applicant shall construct the system improvements and upon completion obtain final inspection and acceptance of the improvement by the city.

G. **Illegal connection**. No person or entity shall be granted a permit or be authorized to connect to the water system improvements during the time set forth in the recorded latecomer agreement without first paying to the city, in addition to any and all other costs and charges assessed for such connection, the amount required by the latecomer agreement. Whenever any connection is made without such payment having first been made, the city may remove, or cause to be removed such unauthorized connection and all connecting pipe located in the right of way and dispose of the unauthorized material without any liability.

H. **City Ownership**. All water system improvements constructed by the property owner and to be subject to the latecomer agreement must be dedicated to and owned by the City.

13.04.145 Water Mains—Capital Recovery Charges/Water System.

A. Property within the city's water utility service area not previously assessed for water system improvements making service available to their property, whenever such improvements are being constructed as an extension of service through an undeveloped area or as a replacement due to obsolescence, inadequacy or deterioration, shall pay a capital recovery charge as a condition to connection to the city's water system. The capital recovery charge shall be determined by a method conforming to the criteria set forth in RCW 35.92.025. Said charges shall be reviewed annually and incorporated into an ordinance, together with any other adjustments made in charges connected to the water system. Such capital recovery charge shall be in addition to any and all connection charges provided for such service by the current rate ordinance as adopted or hereafter amended.

B. Payment of Capital Recovery Charge. Whenever provision is made throughout this chapter for the payment by any property owner of a capital recovery charge for water system improvements, such capital recovery charge may be paid in cash or in annual installments over a five-year period from the date of connection. If any property owner elects to make payments on said annual basis, he shall execute a contract in such form as shall be prescribed by the city council, which contract shall contain the provision that any unpaid balance may be paid in full on the date of any annual payment and the further provision that interest shall be paid on the deferred balances at the rate of ten percent per year. The specific terms of the contract shall be approved by the city manager. Such contracts shall be made a covenant running with the land and shall provide that the unpaid balances shall be a lien upon the property to which such connection is made, superior to all other liens and encumbrances except those for general taxes and special assessments, which may be foreclosed in the same manner provided by law for the foreclosure of delinquent local improvement district liens. The contract shall be recorded in the office of the county auditor at the expense of the

property owner and upon payment in full, a release of the said lien shall be executed by the city manager and attested by the city clerk. Such contract shall further provide that in the event of delinquency in the payment of any instrument there under, the public works director, or his employees, may disconnect the city's water service from and refuse to supply water to the premises in default until said delinquent payments are paid in full. This remedy to be concurrent with and in addition to the city's right to foreclosure said lien as herein provided.

C. Appeals.

1. In the event a person disputes the assessment which city staff proposes to impose as a condition to connecting to the city's water facilities, the aggrieved party may appeal such proposed assessment to the city council, provided written notice of appeal is filed with the city clerk no more than fourteen days from the date of notification of such proposed assessment.
2. The scope of such appeal shall be limited to questions of calculation of the proposed assessment at the rates set forth within the current rate ordinance as adopted or hereafter amended. The rates shall not be subject to review upon appeal, nor may assessments be waived by the city council in conjunction with any such appeal.

13.04.150 Private Water Systems.

The city shall not operate and maintain private water distribution mains inside or outside the corporate limits of the city in conjunction with its own facilities. All private water systems existing in conjunction with city facilities shall be equipped with an approved check meter at the expense of the private water system and the readings of such check meter shall be compared to readings of individual meters served by the private system to detect any discrepancies in water usage. All costs over and above those resulting from the water usage of customers on the private water system shall be borne by the owner and operator of the private water system.

13.04.160 Water Service Outside Corporate Limits.

All rules and regulations referring to the management of the city water system effective inside the corporate limits of the city shall apply equally outside the corporate limits except as otherwise specifically set forth in this chapter.

A. The term "water district" as used in this Chapter means where water is supplied through one metered service to several houses, families or persons without the corporate limits of the City of Kelso.

B. All provisions of this Chapter, regulating the sale and use of water within the corporate limits of the City not inconsistent with provisions following, shall govern the users of water without the corporate limits of the City.

C. The charge for a meter service outside of the City limits, up to a distance of twenty feet from the main, exclusive of the cost of replacing asphalt or cement pavement, shall be as set in the Current Rate Ordinance, as adopted or hereafter amended, if the service is more than twenty feet from the main the additional charge for such service shall be the actual materials, labor, equipment rental and overhead added to the basic cost together with the cost of replacing any pavement the cutting of which was necessary to install such service. A deposit based on an estimated cost of installing the service shall be made at the time of the application. The charge for services for installation of pipes larger than an inch shall be the cost of actual materials, labor,

equipment rental and overhead. A deposit based on an estimated cost of installing the service shall be made at the time of the application.

D. Minimum monthly charge for water supplied to water districts shall be that charge agreed upon in a contract approved by the City Council or shall be as established in the Current Rate Ordinance, as adopted or hereafter amended, for each occupied dwelling house within such water district. All water passing through the meter of such water district per month for each occupied dwelling shall be paid for by said water district at the rate of one and one-half times the rate charged for domestic consumption of water within the limits of the City of Kelso.

E. Application for formation of water districts shall be made to the City Council and may be granted under such terms and restrictions as shall from time to time be promulgated by that body. The City reserves the right to terminate all water districts and place same upon the schedule provided for in the Current Rate Ordinance as adopted or hereafter amended. All sums due the City for water sold to water districts must be paid as one payment or item by such party or parties as shall be designated by the members of such water district and upon failure to pay all such sums due the City therefore within the time prescribed for the payment of water rental within the City, the Public Works Director shall discontinue water service and shall make a charge as set by ordinance for the turning on of such water. All controversies arising among members of water districts must be settled by such members and the Public Works Director. The Public Works Director may refuse to furnish such district with water until such controversies are settled and the provisions of this chapter are complied with.

F. The minimum charge for water supplied to patrons without the City and not within a water district shall be set by the Current Rate Ordinance as adopted or hereafter amended. All water used shall be charged at one and one-half times the rate charged within the city limits.

13.04.170 Private Pipe Standards.

All persons connecting to city service or laying their own private pipe shall be required to use pipe meeting KEDM Standards and as approved in the City of Kelso Right of Way Permit. In all permanent sprinkler systems or other systems where contamination or cross-connections are possible, an approved backflow prevention device shall be installed. Public works shall maintain private services from city mains in improved City streets and shall have access on private property as shall be necessary to maintain such pipes during the work. Except for the above cause, owners shall maintain their private pipes from the end of the city's service to and into their property, or, in the event the director of public works finds it necessary to maintain the same, the owner shall relinquish all right in such pipes. When necessary, the city may re-lay service on property to conform to the slope occasioned by the grading of the street and charge the expense thereof to the owner of the service.

13.04.180 Plumbing Requirements.

All persons installing fixtures or appliances to be supplied with water from the city main shall be subject to the requirements of the Uniform Plumbing Code. Persons installing plumbing in new structures shall leave the valve at the meter in the "off" position upon completion of their work. Persons making additions or repairs to existing plumbing systems shall leave the valve at the meter in the position in which it was found in beginning their work. The Public Works Director shall have the right to refuse service or

discontinue service in any situation where it is discovered that applicable city standards have not been complied with making the installation.

13.04.190 Shut-off Valves.

Shut-off valves of approved full flow pattern with key or hand wheel shall be installed between the water service pipe leading from the city meter to the building within the premises served in accordance with the applicable plumbing code. Shutoff valves, where buried, shall be properly enclosed in a minimum six-inch diameter pipe, or box, of concrete, plastic or iron with an approved cover, protected from freezing and readily accessible. Valves or customer owned equipment are not permitted to be installed within the city's meter box. No outlet shall be connected to the service extension pipe between the city meter and the customer shut-off valve.

13.04.200 Meters—Installation and Ownership.

All one-inch diameter meters or less shall be provided as per Kelso fee ordinance and installed by the city on water service connections and shall remain the property of the city. All meters larger than one-inch shall be provided of an approved make and model and provided, installed and tested by the applicant.

13.04.210 Meters—Maintenance and Repair.

A. The city shall maintain and repair all service meters and replace meters periodically when necessary if rendered unserviceable by ordinary use. Where replacement or repair to any meter is necessary by reason of the neglect, carelessness or willful act of the owner or occupant of the premises served, all expenses of such replacement or repair incurred by the city shall be borne by the owner of the premises.

B. Whenever demand periodically exceeds the rated capacity of a meter to the extent that flow is inaccurately measured or the meter may be damaged, the city shall notify the owner. After evaluating the owner's requirements, the public works department shall advise the owner what meter size and fee requirements are necessary to give proper service without damage to the meter, and the estimate of the cost and fees to change such meter. If the owner does not pay the estimate of the cost to change such meter within thirty days after the date he is so advised by the public works department, then the city shall install the proper size meter and charge the full cost thereof the owner, or at its option, the city may terminate the water service. The failure of the owner to pay the cost to change the meter after the installation of a larger meter by the city within ninety (90) days of the date of the billing for the same, such cost shall become a lien against the premises pursuant to Section 13.04.380 of this chapter.

13.04.220 Meters—Testing Procedures/Leaks.

A. When any consumer whose water service is metered shall make a complaint that the bill for any past time has been excessive, the Public Works Department will, upon written request, have such meter re-read and inform the customer how to perform a 2-hr leak test. Should such consumer then desire that the meter be tested, said consumer shall make a deposit with the Public Works Department as set in the Current Rate Ordinance, as adopted or hereafter amended, before such test shall be made. The consumer shall have the privilege if he or she so desires to be present when such tests are made. In case a test should show an error of over three percent of water consumed

in favor of the Public Works Department, the deposit will be refunded to the consumer, a correct registering meter will be installed and the bill will be adjusted accordingly. If the test of such meter should show an accurate measurement of water or should show an error in favor of consumer, the amount deposited will be retained by the Public Works Department to cover part of the expense of making such test. Without a meter test, no leak adjustments will be provided for a meter error.

13.04.225 Water and Sewer Adjustments.

A. No leak adjustment will be provided unless the billing is at least double the normal calculated average. Customers are expected to be responsible to inspect and protect their own water systems for compromises caused from age, freezing weather or worn out fixtures. There will be no water leak adjustments for these causes.

B. When more than one leak adjustment is requested within a 24 month period, a professional written report documenting and positively affirming the integrity of the owner's water system will be required prior to considering additional requests.

C. There will be no water or sewer adjustments for irrigation or visible inside fixture maintenance leaks.

D. Where water adjustments are provided, all metered water used over the normal calculated average use must be billed the pumping fee as established by the Current Rate Ordinance, as adopted or hereafter amended, in lieu of the normal consumption rates.

E. Flat rate sewer charges will not be eligible for leak adjustments.

F. The Maximum adjustment period shall be one billing cycle.

G. Water/Sewer charge adjustments for water leaks may be allowed where sufficient documented evidence is presented to the City to show that water registering on the meter was not consumed for domestic purposes but was due to eligible leaks or damage on customer's side of the meter, which has been repaired and approved by the Public Works Director or his designee.

H. Sewer charges exceeding the flat base amount may be adjusted by estimating the quantity of wastewater not entering sewer system.

I. All other adjustments shall be determined on a case-by-case basis by the Public Works Director. A utility customer who suffers a monetary loss for water or sewer services without fault or neglect on the part of the utility customer shall notify the City's Public Works Department in writing setting forth the facts and circumstances surrounding the loss.

The Public Works Department shall do an investigation and make a determination on whether the utility customer is due an adjustment on his utility bill and the amount of said adjustment, if any, or whether no adjustment is due the utility customer. Minimum payments need to continue while adjustment is being investigated. The City shall then notify the customer in writing of said determination. If an adjustment is due the utility customer, said adjustment will be reflected on the utility customer's next available normal billing cycle.

For water leaks wherein that water does not return to the sewer, the Public Works Director or his designee may estimate the quantity and make the appropriate fee adjustment.

The utility customer may appeal the adjustment determination. A notice of appeal shall be made in writing to the City Clerk describing the basis for the appeal not more than ten (10) days after notice to the utility customer of the determination for which forms the basis for the appeal. Thereafter, an appeal meeting shall be scheduled by the City Clerk within twenty (20) business days. The appeal board shall consist of the City Manager,

City Clerk, and Public Works Director. Minimum payments shall be required to continue while adjustment requests are being investigated or water service will be shut off.

13.04.230 Miscellaneous Control Devices.

The city reserves the right to require any customer to install as a condition of water service a pressure reducing valve, backflow prevention device, pressure relief valve, booster pump with pressure tank or similar devices, at any location where the Public Works Director determines a need to protect the city's facilities.

13.04.260 Turn On—Without Permission Unlawful.

It is unlawful for any person, except duly authorized employees of the city, to turn on the water supply to any premises after a turn off is made at the meter by the city. The water service pipe to any premises turned on by an unauthorized person after such water supply has been turned off by the city for cause may, upon discovery, be disconnected by the city from the water main in the street and shall not be connected again until violations of these rules and regulations have been corrected and all expenses incurred by the city relating to meter tampering, disconnecting and reconnecting the service pipe are paid.

13.04.270 Turn Off, Turn On—Liability Disclaimer.

The city shall not be liable for any damage to person or property that may result from the turn off or turn on of the water service from the service being left on when the premises may be unoccupied.

13.04.280 Driveway or Crossing Construction—Connection Removal.

Whenever a driveway or crossing to be used for vehicular traffic is constructed within that portion of a city street lying between the curb line and the property line, the public works department shall cause the removal and relocation of any water service connection or any part thereof which may be within the boundaries of the such driveway or crossing. The cost of removal, relocation and maintenance of water service connection as provided in this section shall be charged against the property for which driveway or crossing was constructed and to the owner thereof.

13.04.290 Private Construction Work in Streets and Alleys.

All persons, firms, corporations and governmental agencies, and their contractors, performing street and alley work that may interfere, conflict, affect or endanger the water system of the city shall apply to the public works director for a right-of-way permit at least two working days in advance of commencing the work.

13.04.300 Standby Fire Protection.

A. Any customer using city water for all purposes shall be entitled to a separate standby fire protection service, and be required to install a fire protection meter. The monthly charge for such standby fire protection service shall be as provided by city ordinance. Such standby fire protection charges and fire line standby charges are based

upon the size of the customer's connection to the main, and are not based on any specific pressures or volume of water furnished to the customer.

B. Where fire service is provided, no charge shall be made for water used in extinguishing fires of incendiary or accidental origin; provided, Cowlitz 2 Fire and Rescue gives notice within ten working days from the time of such fire that a fire occurred. Otherwise, all water used shall be charged for at the rate provided in the Current Rate Ordinance as adopted or hereafter amended.

13.04.310 Misuse of Fire Protection Water.

Whenever water from the city's supply is available on a premises for fire protection only and is used without permit for purposes other than extinguishing fires of incendiary or accidental origin, twelve times the monthly service charge stated in the Current Rate Ordinance, as adopted or hereafter amended, shall be charge for each incident.

13.04.320 Fire Protection Meters.

A. Service of more than one per premises by a fire service shall not be permitted. All water service connection used for fire protection shall be installed in a manner as approved by the department of Public Works, Cowlitz 2 Fire and Rescue, and the State Fire Marshal, and metered at the expense of the owner of the premises as follows:

1. Double check detector assemblies or fireline check meters of size and type approved by the city shall be permitted on straight automatic fire sprinkler services which may include hose racks inside the building for firefighting purposes only. All water registered by the bypass meter shall be billed at the rate provided by city enactment, unless caused by fire as reported within ten days. Unauthorized use of water through a detector check meter shall be cause for installation of a fireline meter at the expense of the owner or agent.
2. Double check detector assemblies or fireline meters of a size and type approved by the department shall be installed on all fire services where hydrants, outside hose outlets or connection allowing the use of water for other purposes than the extinguishing of fires exist.
3. Must comply with all provision of Standby Fire Protection as per 13.04.300.
4. Delinquency in payment of expense for fire protection service or failure of the owner or occupant to make changes in meter installations as provided in this chapter after reasonable notice from the department shall be sufficient cause of discontinuance of fire service to the premises. Fire protection systems shall be installed and maintained by the owner in a manner approved by the department as to prevent backflow into the city's system.

B. All existing services used for fire protection shall be either metered or be provided with a sealed valve or as otherwise provided in the KEDM. All future fire service connections shall be installed in similar manner. In no case shall any tap be made upon any pipe used for fire purposes nor tank connected therewith, nor shall the use of any water be permitted through any un-metered fire service nor through any pipes, tank or fixtures therewith connected for any purpose other than the extinguishing of fire on the premises, except that these fire services may be tested occasionally. The Public Works Department must be notified in advance of and a permit obtained for such

test. For any violation of this provision the Public Works Department may charge the minimum rate for the size of service or cut off the service.

C. All structures and buildings with automatic sprinkler systems connected to the City mains shall pay to the Public Works Department for service at the rates established in the Current Rate Ordinance, as adopted or hereafter amended. No water for any purpose except fire protection shall be drawn from any service leading to such sprinkler system without the knowledge and permission of the Public Works Department and a plat or map of such system must be filed with the Public Works Department and notations made thereon of any and all connections from which water may be drawn for any other purpose. Notice must be given the Public Works Department at least 48 hours in advance of any test to be made of such sprinkler system and the hour of such test to be set within that time by the Public Works Department.

D. No charge will be made for water used in extinguishing fire or testing out the services, if the owner or occupant of the premises where such fire or testing occur gives notice to the Public Works Department.

13.04.330 Hydrants—Authorized Use.

No person other than authorized employees of the city shall operate fire hydrants and hose outlets unless a use permit has been issued by the city. A water meter shall be used by permittee to determine the amount of water usage in order to constitute an authorized use.

Any unauthorized or non permitted person using, tampering or causing damage to any fire hydrant belonging to the city shall be liable to the city for any and all damages resulting either directly or indirectly there from. Additionally, a fine of One Thousand dollars ($1000.00) will be assessed as a penalty as allowed by KMC 13.04.460

13.04.340 Hydrants—Temporary Use.

Persons desiring water service from a fire hydrant or hose connection shall make application therefore to the city and make arrangements therefore as provided in this chapter. Year-round use may be allowed of the hydrant meter upon prior written approval by the public works director. The daily meter charge may be waived for those approved for year-round use by the public works director.

13.04.350 Billing—Private Water Systems.

The total amount of water usage registered on the water meter shall be in accordance with the agreement authorizing service.

13.04.355 Schedule of Charges.

Bimonthly charges for the consumption of water shall include a fixed bimonthly demand charge based upon the size of the meter serving the dwelling, structure or use in question, together with a consumption charge for water consumed and shall be established by the current rate ordinance as adopted or hereafter amended.

13.04.360 Intentionally deleted.

13.04.370 Deposits—Change of Address—Delinquency.

Failure to receive mail will not be recognized as a valid excuse for failure to pay charges due. Notice of change in ownership of property and change in mailing address must be given in writing by the property owner or his agent to the city. As per KMC 13.04.050, the director of public works may require an advance or satisfactory security for all water to be furnished by meter, and if such payment is not made or security furnished within the time fixed by the city, water shall be shut off from the premises. The owners of those addresses that had Kelso utility liens in the past two (2) year period shall pay a deposit equal to the maximum allowed under KMC 13.04.050 prior to entering into a new rental agreement.

13.04.380 Delinquency—Assessment of Liens.

A. All water rates shall be charged against the premises for which the service was installed. The City shall have a lien against the premises to which the services were furnished for four months water charges due or to become due, but not for any charges more than four months past due; provided however, that if the owner of the premises or the owner of the delinquent mortgage thereon gives the City written notice to cut off service to the premises and makes payment of all delinquent and unpaid charges, then the City shall have no lien for service thereafter furnished. Enforcement and collection of a lien shall include, but not be limited to, the right to stop service and deny service thereafter to any and all owners and/or occupants of the premises until the charges for service and/or other charges have been paid in full, except as provided in this section. Such lien shall include the delinquent charges and such other costs incurred by the city.

B. The city will only terminate or refuse to provide or reinstate water service to a residential tenant occupying a rented dwelling when the water bill was incurred by a current occupant. When a rented dwelling is occupied by a tenant who has opened an account in his/her own name, no termination, no threat of termination or refusal to provide or reinstate water service will occur because of the nonpayment of a bill for water utility services if the bill is the obligation of the tenants' landlord as indicated in the written lease agreement provided, however, that the term "threat of termination" shall not include the notices authorized by this section or policy of the city.

C. When a rented dwelling for which a delinquent water bill is owed is occupied by a tenant, but the utility account is in the landlord's name, no termination will occur unless the tenant is first provided an opportunity to place the account in his or her own name without incurring any liability for the landlord's delinquent bill. When a rented dwelling for which a water bill is owed is occupied by a tenant and the delinquent bill was in the name of, and incurred by, a prior tenant no longer occupying the dwelling, no termination or refusal to provide or reinstate water service will occur until the current tenant is first provided the opportunity to have the account placed in his or her own name without liability for the delinquent bill. The current tenant must make application in person at the city's finance department during normal office hours to complete any forms required by the finance department in order to place service in his/her name.

D. If service is terminated before the tenant has exercised the right provided for in the preceding section to have the account placed in his or her own name, the tenant can have water restored without liability for the delinquent bill by applying to place the account in his or her own name for future service, as provided by this section, and by paying the usual service call fees.

E. The city finance department will not take any action which encourages or permits, whether by regulation, informal policy or oral statement, the termination of water

services to residential tenants occupying single family units or individually metered multifamily units because a prior occupant of the residence owes an unpaid bill or where the tenant's landlord has contracted for water service to the dwelling and the occupant is delinquent, unless the following procedures are complied with:

1. If a payment on a water utility account has not been received by the twenty-fifth day after the bill mailing date, the finance department will mail a shut-off and final notice for payment to the service address, and to the address (if any) listed in the department's file. This notice will advise that payment is past due and will alert interested parties that service will be terminated after seven business days from the date the notice was mailed unless payment is personally received at the city or arrangements acceptable to the city have been made. A statement describing "tenants' rights" as provided herein will be enclosed or printed on the back of the shut-off notice and will be referred to on the face of the shut-off notice;
2. If payment on a water utility account has not been received by the seventh day at 5 p.m. after the mailing of the shut off final notice, the water service may be terminated after 12 p.m. the following business day in accordance with this Chapter. If the water is disconnected for non-payment, a service call fee will be charged. If customers check is returned as a NSF, it will be treated as having not received a payment and service will be immediately terminated if delinquent, without further notice.
3. A statement of tenant's rights included with the shut-off notice shall be substantially in the following form:

NOTICE OF TENANT'S RIGHTS

If you are a tenant residing at the service address and water is presently being delivered to your home: You are not responsible for water bills incurred by a previous tenant who moved out before you moved in and you also are not responsible for water and sewer utility bills that are your landlord's responsibility.

If this bill is the obligation of a prior tenant or your landlord, you have the right to obtain continued water services by contacting the Finance Department and having the account placed in your name. If you do place the account in your own name, services will not be disconnected because of an unpaid bill for which you are not responsible. You will only be responsible for future bills coming due during your tenancy.

To place service in your own name you must go the City Finance Department, and make application in Person for continued service during normal work hours (8 to 5). You will be required to present personal identification and your current written rental agreement. You also will be required to identify your landlord and his current address.

If service is disconnected before you have contacted the Finance Department, you can have the service turned back on if you place the account in your name. However, a service call fee will be charged before service is restored. If you do put the account in your name, you will only be responsible for future bills.

You have the right to appeal the decision of the Finance Department relating to responsibility for past due utility bills or the right to have service placed in your own name. Utility service will not be disconnected during the appeal process.

F. If a tenant elects to contract for future water service under the preceding sections he or she must agree to pay appropriate deposit fees, service call fees if service has been terminated before the tenant has exercised the right to have the account placed in his or her name, and all future utility bills coming due during his or her occupancy of the premises. Application must be made in person at the Finance Department during normal working hours (8:00 a.m. to 5:00 p.m.).

G. In the event more than one apartment unit is served by a single meter, one of the tenants shall be required to put the account in their name and assume payment responsibility for the utility bill in order to keep the service from being shut off, or to get service restored. All notices required by preceding sections will also give notice of the City's customer appeal process. A tenant may request a hearing under this customer appeal process if the tenant has a dispute with the city regarding the application of this section. A notice of said appeal shall be made in writing to the city clerk describing the basis for the appeal no more than ten days after the person is aware of the matter which forms the basis for the appeal. Thereafter, an appeal meeting shall be scheduled by the city clerk within twenty business days. The appeal board shall consist of the city manager, city clerk and public works director.

H. Nothing set forth herein shall be construed to limit the city's rights to proceed either by judicial process or by the remedies prescribed by RCW 35.21.290 and 35.21.300 to the extent that such actions do not interfere with tenant's rights as provided herein. A "tenant" is any person who is entitled to occupy a dwelling unit primarily for living or dwelling purposes under a rental agreement.

I. In cases where the occupant of the premises moves to another location and applies for water at the new location, services may be denied at such location until and unless any statement for service against the first location is fully paid.

J. If any such charges are not paid, the city may record a lien at the office of the county auditor against the property for which the service was installed.

13.04.390 Disconnection of Service—Condemned Building.

Whenever a premises supplied with water has been found by the proper authorities to be dangerous to human life and unfit for human habitation, and notice of such findings has been provided to the public works director by the authorities, the public works director shall cause the water service to such premises to be turned off. Water service to such premises shall not be turned on until the owner and/or agent has secured a release or clearance from the proper authorities.

13.04.395 Discontinued Use.

All water rates are chargeable against the property. Payments made by tenants or agents will be credited to the property, which will be held for the rate charges while water is left turned on. Whenever it is desired to discontinue the use of water supplied to the premises, notice in writing must be given and payment of all arrearages, if any, must be made at the office of the City. The water will then be turned off, and will be turned on only upon application to be made at the office of the City and the payment of the service charge. Notice must be given in writing by owners or agents when buildings are vacated as no allowance under claims of vacancy will be made unless the City is properly notified and the water shut off. The City may discontinue the supply of water to the property until all charges against the property are paid, pursuant to KMC 13.04.380.

To discontinue use, the customer (or owner in the case of a premises abandoned by the tenant) must provide notice to the City of discontinuance. Such notice must be in person at the finance office for the city. Charges for water service shall be made up to and including the day the notice is received by the City. "

13.04.400 Emergency Interruption of Service.

In the event of emergency or whenever the public health, safety or the equitable distribution of water so demands, the director of public works may authorize the city to change, reduce or limit the time for or temporarily discontinue the use of water. Water service may be temporarily interrupted for purposes of making repairs, extensions or doing other necessary work. Before so changing, reducing, limiting or interrupting the use of water, the city shall notify, insofar as practicable, all water consumers affected. The city shall not be responsible for any damage resulting from interruption, change or failure of the water supply. In addition, the city makes no commitment as to the volume of water available, pressure, or continuity of service; and will not be liable for injuries or damage due to insufficient volumes, inadequate pressure or interruption of services.

13.04.410 Service Calls.

A. Service calls, for any reason, including but not limited to, convenience or emergency turn off or turn on, paid delinquent account turn on, or complaint leaks, or other problems due to trouble in lines not owned by the city, or problems in lines, valves, meters owned by the city, caused by problems or conditions other than by the city, shall be charged to the customer requesting the service call at the rate set by ordinance. The amount charged for the service call shall be billed to the customer as an additional charge and shall be due and payable within fourteen days after the date of the bill. Section 13.04.380 of this chapter shall apply when any service call charges become delinquent and unpaid.

B. Service calls, when it is determined by the city that the problem or trouble is in lines, valves, meters or facilities owned by the city, will result in no charge to the customer.

13.04.420 Inspections.

The public works department shall conduct inspections of the water system in coordination with the appropriate health department. The Public Works Director shall, from time to time, suggest rules and regulations deemed necessary by him to the city council to protect the municipal fresh water supply from pollution.

13.04.430 Access for Inspection.

Authorized employees of the city, properly identified, shall have access at reasonable times of the day to all parts of the premises or within buildings thereon to which water is supplied from city mains, for the purpose of checking conformity to these regulations; provided, such employees shall have access to single-family residential premises only upon a showing of probable cause to believe that the water service or plumbing therein is not in conformity with these regulations. Whenever the owner or occupant of any premises supplied by city water restrains authorized city employees from making such necessary inspections, water service may be refused or discontinued.

13.04.440 Tampering or Interfering with System Unlawful.

No person shall disturb, break, deface, damage or trespass upon any property belonging to or connected with the water system of the city in any manner whatsoever. No person shall store, maintain or keep any goods, merchandise, materials or rubbish within a distance of five feet or to interfere with the access or operation of any water meter, gate valve, fire hydrant or any other appurtenances in use on any water service, connection or water main. Violators will be charged a fee at the rate provided in the Current Rate Ordinance as adopted or hereafter amended.

13.04.450 Damaging Water System—Liability.

Any person causing damage to any property of the water utility belonging to the city shall be liable to the city for any and all damages resulting either directly or indirectly there from.

13.04.460 Violation—Penalty.

Any person willfully violating any of the provisions of this chapter shall be guilty of a misdemeanor. Any person found guilty of such violation shall be fined a sum not to exceed one thousand dollars ($1,000.00).

13.04.470 Constitutionality and Saving Clause.

If any provision, section, sentence, clause or phrase of this chapter, or the application of same to any person or set of circumstances, are for any reason held to be unconstitutional, void, invalid, or for any reason unenforceable, the validity of the remaining portions of this chapter or its application to other persons or circumstances shall not be affected thereby, it being the intent of the city council of the city of Kelso in adopting, and the mayor in approving, this chapter that no portion hereof or provision or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality or invalidity of any other portion, provision, or regulation.

SECTION 3. Continuity. This ordinance supersedes and repeals all existing ordinances and amendments thereof relating to Kelso Municipal Code 13.04 Water System, but shall not be construed or in any way interpreted to nullify, affect, or invalidate any rate collections or enforcement actions related to amounts due or actions taken under the provisions of KMC 13.04 prior to the effective date of this ordinance. The provisions of this ordinance, insofar as they are the same as the ordinance provisions previously adopted by the City shall be construed as restatements and continuations, and not as new enactments.

SECTION 4. This Ordinance shall be in full force and effect ninety days after its passage and publication of summary as required by law.

ADOPTED by the City Council and **SIGNED** by the Mayor this 20th day of July, 2010.

MAYOR

ATTEST/AUTHENTICATION:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

PUBLISHED: 7/24/10

Chapter 13.04
WATER SYSTEM*

Sections:

*Prior legislation: Prior code Chs. 10.04, 10.08, 10.12, 10.16, 10.20, 10.24, 10.28, 10.32, 10.36, 10.40 and 10.44; Ords. 3107, 3129, 3152, 3222, 3277, 3522, 3524, 3544, 3561, 3625, 3642, and 3643.

13.04.010 Rules and regulations adopted.
Unless otherwise restricted or provided for in this chapter, the rules and regulations set forth in the Kelso Engineering Design Manual, together with all KEDM's adopted state and local authorities, shall be, and the same are, adopted by reference. (Ord. 3731 § 2, 2010)

13.04.020 Definitions.
Except where specifically designated herein, all words used in this section shall carry their customary meanings. Words used in the present tense include the future and plural words include the singular. The word "shall" is always mandatory, and the word "may" denotes a use of discretion in making a decision. The following words or phrases shall have the meanings set forth in this section for the purposes of this chapter:

1. "Agreement" means all agreements for service installations, meters and special service made with any person, firm or corporation, or the authorized agents thereof.

2. "Applicant" means any person, firm or corporation applying for water service or any other connection to the city water system.

3. "CCF" means one hundred cubic feet (approximately seven hundred forty-eight gallons).

4. "City" means the city of Kelso, Washington, a municipal corporation.

5. "City engineer" means the person, firm or corporation designated by contract or condition of employment as the engineer.

6. "Connection" means any physical connection to the city water system by any water service or any private water system or pipeline extension.

7. "Cost" means the cost of labor, material, transportation, supervision, engineering and all other necessary overhead expenses.

8. "Council" means the city council of the city of Kelso, Washington.

9. "County" means Cowlitz County, Washington.

10. "Cross-connection" means any connection between any part of the water system used, or intended, to supply water for drinking purposes and any source or system containing water, or substance, that is not or cannot be approved by the city prior to or after April 17, 2007.

11. “Customer” means any person, firm or corporation obtaining or using water service from the water system of the city.

12. “Fire protection service, private” means water service and facilities for building sprinkler systems, hydrants, hose reels and other facilities installed on private property for fire protection and the water available therefor.

13. “Fire protection service, public” means the service and facilities of the entire water supply storage and distribution system of the city, including the fire hydrants affixed thereto, and the water available for fire protection, excepting house service connections and appurtenances thereto.

14. Mains. Generally are a minimum inside diameter of six inches forming a grid system which two or more of the public are connected.

15. “Multiple dwelling units” means duplexes, apartment buildings, condominiums, mobile home parks, trailer courts, multiple-unit commercial structures and other multiple-unit structures or buildings.

16. “Person” means natural persons of either sex, associations, partnerships and corporations, whether acting by themselves or by a servant, agent or employee, the singular number to be construed to include the plural and the masculine pronoun to include the feminine.

17. “Premises” means any single piece of property to which water is provided including, but not limited to, all improvements, mobile structures and structures located on it.

18. “Private pipe” means that portion of the water line from the meter to the premises.

19. “Service charges” means fees, costs, rates and charges for water services as listed in the current rate ordinance, as adopted or hereafter amended.

20. “Service, commercial” means water services to businesses engaged in the manufacture and/or sale of a commodity or commodities or the rendering of a service, multiple dwellings of fourplex or greater, hotels, motels, schools, hospitals and public office buildings.

21. “Service, industrial” means a water service to a business enterprise engaged in the manufacture of products, materials, equipment, machinery and supplies or commodities on a substantial or major scale.

22. “Service installation” means all piping and fittings from the main to and including the water meter assembly including the tail piece. All piping and fittings from the meter to the premises served shall be the customer’s responsibility.

23. “Service, residential” means a water service to a single-family or duplex or triplex dwelling unit or a water service for residential irrigation.

24. “Service, temporary” means a water service and facilities rendered for construction work and other uses of limited duration and the water available therefor.

25. “System” means all water source and supply facilities, transmission lines, storage facilities, pumping plants, distribution mains and appurtenances.

26. “System, private” means a water system, or pipelines and appurtenances, pumping facilities, reservoirs, treatment facilities or any combination thereof that are owned by other than the city.

27. “Water service pipe” means that portion of the pipe which lies between the main and the water meter. (Ord. 3731 § 2, 2010)

13.04.030 Water service required—Conditions.

A. Each residential premises shall have a separate water service or services. All water services shall be metered. Premises containing less than four residential dwelling units and/or containing more than one commercial or industrial business shall have separate metered water service for each individual dwelling unit and/or commercial or industrial unit, except where situations and/or special conditions exist that make an individual service for each unit impossible or unfeasible at the discretion of the director of public works. The director of public works shall determine when such situations or conditions prohibit individual services. All meters, meter boxes, valves, and service lines from the main to and including the meter shall be and remain the property of the city.

B. Where there is a water main in front of any premises the owner of such premises supplied by city water shall have service connection with the city main. Water shall not be supplied to any other premises, except temporarily as approved by the director of public works by written permit. If two or more residential premises are supplied by one metered service, service charges for each premises supplied with water shall be assessed for each separate building or premises so supplied. Multi-services existing as of August 19, 1986, shall be separated at such time as the owner or occupant thereof shall obtain a building permit for the remodeling or structural alteration of such premises.

C. When two or more residential premises are being serviced by one water service connection, as otherwise set forth in this section, the city shall have the right to require the installation of additional water service connections from the water main to the premises. When additional water service connections are provided for any premises, all water service shall be metered and installed in an approved manner. No premises shall be permitted to furnish water to any other premises, except during an emergency which shall not exceed a period of thirty calendar days. An application to cover the emergency connection shall be filed with the city within forty-eight hours of the occurrence causing the emergency. When the intended use of the water service is changed or the structure served is altered, a new service shall be installed at the customer’s expense unless the existing service complies with the provisions of this chapter. (Ord. 3731 § 2, 2010)

13.04.040 New construction connections.

A. Applicants for new service connections within the corporate limits of the city must present a copy of the building permit for the premises where water service is being requested.

B. It shall be the duty of the building inspector to deliver to the public works director, within twenty-four hours after the same has been made, a duplicate of each application

filed in the office of the building inspector and upon which a permit for the construction, alteration or repair of any building has been issued. Contractors may, for building purposes, make application for water by meter, and the public works department shall set a meter upon such application; provided, payment be made in advance by such contractor of the estimated established connection fees including costs of usage, setting and removing the meter.

Alternatively, any water rate payer may, if he chooses, allow the use of water through the hose connections on his premises, provided the builder shows beforehand the written permission from the said rate payer and receipt of the payment for the water in application of a written permit from the office of the public works department. Where water is allowed to be taken without said permit and receipt being first shown, the owner or occupant so permitting the water to be taken will be liable for the charges and the water may be shut off from the premises until payment is made.

C. Applicants for service outside the corporate limits of the city shall sign an agreement stating that they will not oppose annexation of the area including the premises for which service is being applied.

D. If no public sewer service is available to any premises for which application for water service is made, approval of the application shall be conditioned upon the applicant obtaining a septic tank permit from the Cowlitz County building department, and no connection shall be made if such septic tank permit is not issued.

E. After the applicant has been approved by the director of public works, and a septic tank permit has been obtained where required, the applicant shall pay to the city at City Hall all service charges required for constructing the water service connection as provided in this chapter and as required by the current rate ordinance as adopted or hereafter amended. When all service charges have been paid, the approved application shall constitute an agreement whereby the applicant agrees, as a condition for the continued use of water, to conform to rules and regulations of the department as provided in this chapter or any amendment to this chapter, and the agreement stated in the application.

F. Fees and Charges. Water connection shall be made by the city upon application to the finance department and payment of the water service installation charges as provided by city enactment. All water connection charges received shall be considered capital revenue of the city.

G. Water Service Pipe Installation Requirements. Water service pipe shall be laid and maintained in accordance with the Kelso Engineering Design Manual.

H. Installation Specifications. Water service connections may be made by the city or by a lawfully operating, licensed, bonded and insured contractor at the owner’s direction and expense. All contractors must receive a permit from public works for installation of all water service connections. If the water service connections are made by the city, the cost of installation and connection shall be paid as provided in Section 13.04.050 and shall be made in accordance with the current rate ordinance, as adopted or hereafter amended,

or such other connection rates or charges as may be adopted. Meters shall be placed in accordance with the Kelso Engineering Design Manual.

I. Turn-Ons. When new water service connections are inspected and approved by the city for any premises, a designee of the public works director shall set the meter with the valve at the meter turned to the “off” position. The meter shall remain off until a turn-on order is issued by the public works director. A turn-on order shall be issued when one of the following conditions is met:

1. The building contractor establishes the proper account at the city finance department, which shall be in his name only; or

2. The owner establishes the proper account at the city finance department which shall be in his name only. Thereafter, the owner shall pay all costs for receipt of continued service; or

3. The final inspection is complete and occupancy has been granted. (Ord. 3731 § 2, 2010)

13.04.045 Connection—General requirements.

A. Bills are to be prepared in even one-hundred-cubic-foot units.

B. The water may at any time be shut off from the mains without notice, for repairs or other necessary purposes, and the city will not be responsible for any consequent damages. Water for steam boilers should not be drawn by direct pressure from the mains, but owners of boilers should always provide tanks holding an ample reserve of water for such purpose.

C. Water will not be furnished where there are defective or leaking faucets, closets or other fixtures or where there are water closets or urinals without self-closing valves, or tanks without self-acting float valves, and when such small leaks may be discovered the supply will be turned off unless such defects are remedied within forty-eight hours after written notice from the public works department has provided documented delivery to the occupants of the premises.

D. No plumber or other person will be allowed to make connection with the city mains or to make alterations in any conduit pipe or other fixture connecting therewith or to connect pipes where they have been disconnected, or to turn off or turn on water on any premises without written permission from the public works department.

E. Agents of the public works department shall have access at all business hours of the day to all parts of the buildings or premises in which water may be delivered from the city mains, for the purpose of inspecting the condition of the pipes and fixtures and the manner in which the water is used. Upon refusal to permit such inspection, water service may be disconnected and shall not be reconnected until such inspection is permitted and also all delinquent water rates, together with a turn-on charge, are paid.

F. Water will be shut off upon discovery from the premises where the occupants allow it to run to waste and will not be again turned on until such waste is stopped and the turn-on charge has been paid.

G. The city reserves the right to make an order forbidding all use of water for irrigation and sprinkling in event of shortage of water, due notice of such order to be given by its publication in a newspaper of general circulation in the city, and any person violating such order shall be subject to a charge as set by the current rate ordinance, as adopted or hereafter amended, for each offense, and the water shall be shut off therefor. In no case shall the water be turned on for the use of such offender until such penalty shall have been paid.

H. Consumers who are supplied by meters shall keep their premises adjacent to the meter free from all rubbish, cars, or material of any kind which will prevent the employee of the public works department from having access to the meter. Violation will result in a tampering fee.

I. Any person making unauthorized connections between the supply main and the meter will be guilty of a misdemeanor and upon conviction thereof shall be punished as for other misdemeanors as provided by law. In addition, a tampering fee will also be assessed.

J. Plumbers or others failing to conform to the rules and regulations of the public works department shall be debarred from making any connections with service pipes of the city until they have paid the city of Kelso a penalty as set by the current rate ordinance, as adopted or hereafter amended, for each violation in addition to any fine imposed by the Kelso municipal court. The violation shall be defined as meter tampering.

K. It shall be unlawful for any person to break, deface or damage any water meter, gate, pipe or other water works appliance or fixture or in any other manner interfere with the proper operation of any part of the water system of the city of Kelso, and anyone found violating any of these provisions, unless otherwise provided for, shall be guilty of meter tampering and a misdemeanor, and upon conviction thereof shall be punished as for other misdemeanors as provided by law.

L. All of the rules and regulations prescribed by this chapter must be strictly complied with in every instance and the water must be paid for by all persons supplied, according to the rate ordinance, and in all instances charges shall be made and collection enforced against the tenant and owner of the premises where water connections and services are made, and the property shall be liable for the full amount of the rates and charges until paid.

M. Meter rate charges are payable subsequent to the period in which the water was consumed.

N. Wherever it has been ascertained that a retaining wall, ornamental wall or landscaped rockery or any other form of permanent structure is to be or has been erected upon any portion of a city street or public place in which a water service connection has been installed, the director of public works shall cause the relocation or readjustment of such water service connection or any portion thereof. The cost of such relocation or readjustment shall be charged against the property on which the erection of the permanent structure, as above referred to, is to be done or has been done and to the

owner thereof. In no case shall the city be required to maintain or repair any portion of the service connection beyond the meter set assembly. (Ord. 3731 § 2, 2010)

13.04.050 Service application/turn-on order.

A. Each premises shall have separate water service or services as set forth in this chapter. Any person desiring water service for any premises shall make application therefor at the Kelso City Hall. The applicant shall provide the following information:

1. Name, mailing address, email address and phone number of applicant;

2. Location (and tax parcel number if applicable) of premises where water is requested;

3. Property owner's name, address and email address;

4. Signature and application date of owner or tenant of premises, the owner or tenant or their duly authorized representative or agents;

5. Date of requested turn-on;

6. Such additional information as the director of public works shall require;

7. Statement that the applicant acknowledges his or her obligation to abide by the ordinances, resolutions, rules and regulations adopted by the city that are established as conditions of use of water, and that the city has the right to shut off the water supply as required for such things as, by way of example, nonpayment, repairs, maintenance, or other necessary work;

8. Stated purpose of water use (domestic, irrigation, construction, fire, etc.);

9. Verifiable letter of credit reference for the immediate prior twenty-four months of continuous service from a comparable water/sewer utility provider showing no delinquencies, discontinuances or NSF checks as set forth in this section below, and if no or negative previous account history exists with Kelso, in order to qualify for a minimum deposit;

10. Valid identification;

11. Proof of ownership or rental agreement. The city reserves the right to withhold services until ownership or valid rental agreement can be verified.

B. The application provided for in subsection A of this section shall be signed by the applicant and such signature shall constitute an acknowledgement by the applicant of his or her obligation to pay for the water supplied at the rate and in the manner specified by the ordinances or resolutions of the city and to abide by the ordinances, resolutions, rules and regulations adopted by the city and that the city has a right, without liability, to shut off the water supply for nonpayment or as may be needed for repairs, maintenance or other necessary work. At the time of filing the application, the applicant shall pay to the city all required or applicable deposits, fees or charges owed to the city.

C. All applications for new service or a turn-on order must be accompanied with a minimum deposit as set in the current rate ordinance, as adopted or hereafter amended. In addition, the city may require an additional deposit equal to the cost of three months of estimated water service in the event the applicant cannot establish a good credit history. For purposes of this section, “good credit history” shall mean no outstanding balances for any utilities with the city in the last five years, or a verifiable letter of good credit reference from the prior water/sewer utility provider. Good credit shall also include: (1) no more than one delinquency notice in the previous twenty-four months, and (2) no notice of discontinuance for nonpayment in the previous twenty-four months, and (3) no more than one check returned for insufficient funds within the previous twenty-four months, and (4) no previous liens have been filed. Deposits shall be returned when (1) the use of water is discontinued and all arrearages are paid or (2) after thirty months of continuous on-time full payments. If applicant is seeking qualification for a minimum deposit, service will not be provided until references have been approved. (Ord. 3731 § 2, 2010)

13.04.060 Cross-connections.

A. Definitions. Except where specifically designated herein, all words used in this section shall carry their customary meanings. Words used in the present tense include the future and plural words include the singular. The word “shall” is always mandatory, and the word “may” denotes a use of discretion in making a decision. Any definition not found in this section will take its meaning from the WAC (Chapter 246-290 WAC), or as amended, or in the most recent edition of the Manual of Cross Connection Control published by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

1. “Agreement” means all agreements for service installations, meters and special service made with any person, firm or corporation, or the authorized agents thereof.

2. “Air gap” means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or nonpressure-receiving vessel. To be an “approved air gap,” the separation must be at least twice the diameter of the inlet piping (supply pipe) measured vertically, and never be less than one inch.

3. “Approved backflow prevention assembly” or “backflow assembly” or “assembly” means an assembly to counteract backpressures or prevent backsiphonage. This assembly must appear on the list of approved assemblies issued by the Washington State Department of Health. The assembly must be purchased and installed as a complete unit including two shut-off valves and test cocks.

4. “Auxiliary supply” means any water source or system other than the city of Kelso’s water.

5. “Backflow” means the flow of water or other liquids, gases or solids from any source back into the distribution system. The flow of water in the opposite direction of its intended flow.

6. “Backflow assembly tester” means a person holding a valid BAT certificate issued in accordance with WAC 246-290-490 and Chapters 18.27, 18.106 and 70.119 RCW.

7. “Backpressure” shall mean backflow due to water pressure on the downstream side of the meter which exceeds the operating pressure of the public potable water supply.

8. “Backsiphonage” shall mean backflow due to a negative or reduced pressure within the public potable water supply.

9. “Building inspector” shall mean the building inspector for the city of Kelso.

10. “City” shall mean the city of Kelso.

11. “Closed system” means any water system or portion of a water system in which water is closed to the atmosphere.

12. “Connection” means any physical connection to the city water system by any water service of any private water system or pipeline extension.

13. “Contamination” means the entry into or presence in a public water supply system of any substance which may be harmful to health and/or quality of the water.

14. “Council” means the city council of the city of Kelso, Washington.

15. “Cross-connection” means any physical arrangement where a public water system is connected, directly or indirectly (actual or potential), with any other nondrinkable water system or auxiliary system, wells, sewer, drain conduit, swimming pool, storage reservoir, plumbing fixture, swamp coolers, or any other device which contains, or may contain, contaminated or polluted water, sewage, used water, or other liquid of unknown or unsafe quality which may be capable of imparting contamination or pollution to the public water system as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices, or other temporary or permanent devices through which, or because of which, backflow may occur are considered to be cross-connections.

16. “Cross-connection specialist” or “CCS” shall mean a person holding a valid CCS certificate issued in accordance with the Washington Administrative Code who is employed by the city or under contract with the city.

17. “Degree of hazard” means the low or high hazard classification that shall be attached to all actual or potential cross-connections.

18. “Department” means the department of public works of the city.

19. “Distribution system” means all piping components of the city’s system that serve to convey water from transmission mains linked to source, storage and treatment facilities to the consumer, excluding individual services.

20. “DOH” means the Washington State Department of Health.

21. “Double check valve backflow prevention assembly” or “double check assembly” or “double check” or “DCVA” or “DC” means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a shut-off valve on each side of the checks, as well as test cocks.

22. “Double check detector assembly” or “DCDA” means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a shut-off valve on each side of the checks, as well as test cocks to test the checks for tightness. It shall also be provided with a factory bypass arrangement with a meter and a minimum of an approved double check assembly.

23. “Health hazard” means an actual or potential threat of contamination of a physical, toxic or biological nature that would be a danger to health.

24. “In-premises protection” means a method of protecting the health of consumers served by the customer’s plumbing system (i.e., located within the property lines of the customer’s premises) by the installation of an approved air gap, backflow prevention assembly or device at the point of hazard.

25. “Inspector,” “surveyor” or “specialist” shall mean a person holding a valid CCS certificate issued in accordance with the Washington Administrative Code, who meets the stipulations in this section and the most recent edition of the city’s standard operating procedures manual.

26. “Local administrative authority” means the local official, board, department or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code and all other plumbing codes recognized by the state of Washington.

27. “Low health hazard” means the classification assigned to an actual or potential cross-connection that could allow a substance that may be objectionable, but not hazardous to one’s health, to backflow into the potable water supply.

28. “Mobile unit” shall mean units connecting to the water system through a hydrant, hose bib, or other appurtenance of a permanent nature that is part of the city water system or a permanent water service to a premises. Examples can include but are not limited to the following: water trucks, pesticide applicator vehicles, chemical mixing units or tanks, waste or septage hauler trucks or units, sewer cleaning equipment, carpet or steam cleaning equipment, rock quarry or asphalt/concrete batch plants, or any other mobile equipment or vessel. Uses that are excluded from this definition are recreational vehicles at assigned sites or parked in accordance with other city ordinances pertaining to recreational vehicles, and homeowner devices that are used by the property owner in accordance with other provisions of this section, or other city of Kelso ordinances pertaining to provision of water service to a premises.

29. “Person” means a natural person (individual), corporation, company, association, partnership, firm, limited liability company, joint venture company or association, and other such entity.

30. “Plumbing hazard” means an internal or plumbing-type cross-connection in a consumer’s potable water system that may be either a pollutional or a contamination -type hazard. This includes, but is not limited to, cross-connections to toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing-type cross-connections can be located in all types of structures including but not limited to homes, manufactured homes, apartment houses, hotels and commercial or industrial establishments.

31. “Pollutional hazard” means an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer’s potable water system but which would not constitute a health or system hazard, as defined. The maximum degree of intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

32. “Potable water supply” means any system of water supply intended or used for human consumption or other domestic use and meets all requirements established by the Safe Drinking Water Act and the DOH regulations.

33. “Premises” means any piece of property to which water is provided including, but not limited to, all improvements, mobile structures and structures located on it.

34. “Premises isolation” means a method of protecting a public water system by installation of an approved air gap or approved backflow prevention assembly at the point of service (end of purveyor’s service pipe) to separate the customer’s plumbing system from the purveyor’s distribution system.

35. “Reclaimed water” means effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment it is suitable for beneficial use or a controlled use that would not otherwise occur, and it is no longer considered wastewater.

36. “Reduced pressure detector assembly” or “RPDA” shall mean an approved assembly consisting of two approved reduced pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.

37. “Reduced pressure principle backflow prevention assembly” or “reduced pressure principle assembly” or “RP assembly” shall mean an assembly containing two independently acting approved check valves together with a hydraulically operated, mechanically independent pressure differential relief valve located between the check valves. The assembly shall include properly located test cocks and tightly closing shut-off valves at each end of the assembly.

38. “SOP” means the most recent edition of the city of Kelso’s standard operating procedure manual.

39. “Thermal expansion” means the pressure created by the expansion of heated water.

40. “Unapproved auxiliary water supply” means a water supply (other than the purveyor’s water supply) on or available to the consumer’s premises that is either not approved for human consumption by the health agency having jurisdiction or is not otherwise acceptable to the purveyor.

41. “Used water” means any water supplied by the city to a customer’s property after it has passed through the service connection and is no longer under the control of the city.

42. “WAC” means the most recent edition of the Washington Administrative Code.

B. Purpose. The purpose of this section is to protect the water system of the city of Kelso from contamination or pollution due to any existing or potential cross-connections as defined in WAC 246-290-010, or as amended by this section.

C. Cross-Connections Regulated.

1. No cross-connections shall be created, installed, used or maintained within the territory served by the city, except in accordance with this section.

2. The CCS for the city shall carry out or cause surveys to be carried out to determine if any actual or potential cross-connections exist. If found necessary, an assembly commensurate with the degree of hazard will be required to be installed at the service connection.

3. The owner, occupant or person in control of the property is responsible for all cross-connection control within the premises.

4. The owner, occupant or person in control of the property shall abide by other city regulations as contained in Section 13.04.050.

D. Application and Responsibilities. This section applies throughout the city and to every premises and property served by the city water system. It applies to any premises, public or private, regardless of date of connection to the city water. Every owner, occupant and/or person in control of any concerned premises is responsible for compliance with the terms and provisions contained herein.

E. Backflow Prevention Assembly Requirements. A CCS shall determine the type of backflow assembly to be installed within the area served by the city. All assemblies shall be installed at the service connection unless it is determined by the CCS to install the assembly at an alternate location. The cross-connection shall be eliminated or an assembly shall be required to be installed in each of the following circumstances, but the CCS is in no way limited to the following circumstances:

1. The nature and extent of any activity on the premises, or the materials used in connection with any activity on the premises, or materials stored on the premises, could contaminate or pollute the potable water supply.

2. Premises having any one or more cross-connections or potential cross-connections as that term is defined in this section and the Washington Administrative Code and all applicable plumbing codes.

3. When a cross-connection survey report form is required by the city to be filled out and the city has not received it.

4. Internal cross-connections are present that are not correctable.

5. Intricate plumbing arrangements exist or plumbing subject to frequent changes is present that makes it impractical to ascertain whether or not cross-connections exist.

6. There is a repeated history of cross-connections being established or re-established.

7. There is unduly restricted entry so that inspections for cross-connections cannot be made with sufficient frequency to assure that cross-connections do not exist.

8. Materials, chemicals or any substance or apparatus is being used that if backflow occurred contamination would result.

9. Installation of an approved backflow prevention assembly is deemed to be necessary in the judgment of the CCS to accomplish the purpose of these regulations.

10. Any premises having an auxiliary water supply which is not in compliance with WAC 248-54-030 and is not acceptable to the city.

11. In the event an in-premises assembly has not been tested or repaired as required by WAC 246-290-490, or as amended, and this section.

12. If it is determined that additions or rearrangements have been made to the plumbing system without obtaining proper permits as required by the city code enforcement division.

13. All high health hazard premises, which are defined in Table 9 of WAC 246-290-490, or as amended, are required to have premises isolation by installing a reduced pressure principle assembly in accordance with this section.

14. When a garden hose attachment is connected to the premises' plumbing, including but not limited to fertilizer applicators, pesticide applicators and radiator flush kits.

15. Where reclaimed or reused water systems are installed.

16. Premises on which any substance is handled under pressure so as to permit entry into the public water system.

F. Irrigation Systems. All irrigation systems shall be protected in accordance with the plumbing code. In the event any system is equipped with an injector system, or has submerged heads, a reduced pressure principle assembly will be required.

G. Fire Systems. An approved double check detector backflow prevention assembly shall be the minimum protection on all new fire sprinkler systems using piping material that is not approved for potable water use, and/or that does not provide for periodic flow-through. A reduced pressure principle detector backflow prevention assembly must be installed, if any solution other than the potable water can be introduced into the sprinkler system. Retrofitting on fire sprinkler systems will be required in each of the following circumstances:

1. Where improper maintenance has occurred;

2. On all high hazard systems;

3. Wherever a CCS deems necessary; and

4. Wherever required by the WAC.

H. Temporary Meters and Hydrant Valves. Backflow protection will be required on temporary meters and all hydrant valves. The type of assembly will be commensurate with the degree of hazard and will be determined on a case-by-case basis by the city's CCS.

I. Mobile Units. Any mobile unit or apparatus as defined in subsection A of this section which uses the city's water from any premises or piping within the distribution system shall first obtain a water use permit from the city. The mobile unit will be inspected to assure appropriate backflow protection is installed in accordance with the city's most recent edition of the SOP manual.

J. Right-of-Way Encroachment.

1. No person shall install or maintain a backflow prevention assembly upon or within any city right-of-way except as provided in this section.

2. A backflow prevention assembly required by the city may be installed upon or within any city right-of-way only if the owner proves to the city that there is no other feasible location for installing the assembly, and installing it in the right-of-way will not interfere with traffic or utilities. The city retains the right to approve the location, height, depth, enclosure, and other requisites of the assembly prior to its installation.

3. All permits required by the city code to perform work in the right-of-way shall be obtained.

4. A property owner shall, at the request of the city and at the owner's expense, relocate a backflow prevention assembly which encroaches upon any city right-of-

way, when such relocation is necessary for street or utility construction or repairs for purposes of public safety.

K. Plumbing Code. As a condition of water service, customers shall install, maintain, and operate their piping and plumbing systems in accordance with all Washington State Plumbing Codes.

L. Access to Premises. Authorized employees of the city, with proper identification, shall have access during the hours of 8:00 a.m. to 5:00 p.m. to all parts of commercial, industrial and residential premises and within the buildings to which water is supplied. If access to the premises or to the interior of a structure during these hours is denied, a reduced pressure principle assembly shall be required to be installed at the service connection to that premises.

M. Testing and Repairs. Backflow prevention assemblies shall be tested and repaired in accordance with the requirements set out in the WAC, this section and the most recent edition of the city's SOP manual.

N. Responsibilities of Backflow Prevention Assembly Testers. All backflow assembly testers operating within the city shall be certified in accordance with all applicable regulations and shall comply with all stipulations in this section and the most recent edition of the city's SOP manual.

O. Maintenance of Assemblies. Backflow prevention assemblies shall be maintained in accordance with the requirements set out in the WAC, or as amended, and the most recent edition of the city's SOP manual.

P. Installation Requirements and Specifications. Backflow prevention assemblies shall be installed in accordance with the requirements set out in the WAC and the most recent edition of the city's SOP manual. In the event the CCS allows premises isolation assembly to be installed at an alternate location, there shall be no connections between the meter and the premises isolation assembly.

Q. Thermal Expansion. If a closed system has been created by the installation of a backflow prevention assembly, it is the responsibility of the property owner to eliminate the possibility of thermal expansion.

R. Pressure Loss. Any reduction in water pressure caused by the installation of a backflow assembly is not the responsibility of the city. The city will give reasonable assistance to the owner regarding information on adequate sizing of assemblies and proper plumbing practices to provide for required pressure and flows for fire protection.

S. Parallel Installation. Premises where noninterruption of water supply is critical shall have two assemblies of the same type installed in parallel. They shall be sized in such a manner that either assembly will provide the minimum water requirements while the two together will provide the maximum water requirements.

T. New Construction.

1. On all new nonresidential construction, an approved backflow assembly shall be installed at the service connection. The type of the assembly will be commensurate with the degree of hazard as determined by a CCS.

2. When a building is constructed on commercial premises, and the end use of the building is not determined or could change, a reduced pressure principle backflow prevention assembly shall be installed at the service connection to provide protection of the public water supply in the event of the most hazardous use of the building.

U. Residential Service Connections. Any residential property, which has been determined to have an actual or potential cross-connection and/or has violated the plumbing code or this section in any way, shall be required to install an approved backflow prevention assembly in accordance with this section.

V. Rental Properties. The property owner is responsible for the installation, testing and repair of all backflow assemblies on their property. When the tenants change, or if the plumbing is altered in any way, it is the responsibility of the owner to notify the city.

W. Retrofitting. Retrofitting shall be required on all service connections where an actual or potential cross-connection exists, and wherever else the city deems retrofitting necessary.

X. Costs of Compliance. All costs associated with the purchase, installation, inspections, testing, replacement, maintenance, parts, and repairs of the backflow assembly are the financial responsibility of the property owner. All costs associated with any disconnect fees associated with the enforcement of this document are the sole responsibility of the water user and/or property owner.

Y. Recovery of Costs. Any water customer violating any of the provisions of this section and who causes damage to or impairs the city's water system, including, but not limited to, allowing contamination, pollution, any other solution or used water to enter the city's water system, shall be liable to the city for any expense, loss or damage caused by such violation. The city shall collect from the violator for the cost incurred by the city for any cleaning, purifying, repair or replacement work or any other expenses caused by the violation. Refusal to pay the assessed costs shall constitute a violation of this section and shall result in the termination of service.

Z. Emergency Suspension of Service. The public works director or their designee may, without prior notice, suspend water service to any premises when such suspension is necessary to stop the imminent threat of any actual or potential cross-connection as defined in this section and the most recent edition of the city's SOP manual.

AA. Nonemergency Suspension of Service. The public works director or their designee may suspend, with twenty-four hours' notice, the water supply to any premises where the conditions of this section or the most recent edition of the city's SOP manual have been violated.

BB. Penalties. Any person, property owner, firm, corporation or business entity violating (1) this section, or (2) any regulation, rule or permit of the city issued pursuant to this section shall be liable to the city for civil penalty. The amount of such civil penalty shall be two thousand dollars per violation. Each continuing day's violation under this section shall constitute a separate offense. The penal provisions imposed under this section shall not preclude the city from filing suit to enjoin the violation. The city of Kelso retains all legal rights and remedies available to it pursuant to local, state and federal law.

CC. Falsifying Information. Any person who knowingly makes any false statement, representation, record, report or other document filed or required to be maintained pursuant to this section, or who falsifies, tampers with, or knowingly renders inaccurate any backflow assembly, device or method required under this section shall (in addition to civil and/or criminal penalties provided by state law) be guilty of a misdemeanor subject to the general penalty clause of the Kelso Municipal Code. (Ord. 3731 § 2, 2010)

13.04.080 Temporary off.

The city shall assess service charges as long as the water service is in an active status. A customer may request that water service be turned off temporarily for periods longer than thirty consecutive days. A temporary off shall not exceed one year. Accounts not in use for one year or more shall be finaled retroactive to the first day of inactivation. Accounts off for a year or more must comply with all Kelso Municipal Code requirements for a nonstandard and inactive service. An "in person" signed application is required to initiate a temporary on and a subsequent activation of service. A service call fee will be assessed for the temporary cessation and reconnection of service as set forth in the current rate ordinance. Temporary off customers shall provide an advance payment for current charges and a forwarding address for billing to qualify as such. (Ord. 3731 § 2, 2010)

13.04.090 Irrigation meters.

An irrigation meter may be installed to verify quantities of water used that will not return to the sewer system. Irrigation-only meter accounts will not be charged a monthly sewer use fee. If approved by the public works director, irrigation meters may also be set as deduct meters where appropriate. Deduct meters will not pay SDC fees, but all other connection fees and standards apply. Independent irrigation meters will pay water SDC fees but not sewer SDC fees and all other connection fees and standards apply. (Ord. 3731 § 2, 2010)

13.04.100 Connections—Nonstandard and inactive service.

When a service has been in regular use and has been turned off or has been inactive for one year or more, it shall be determined as an inactive service, and, if the existing inactive service is nonstandard and it is physically possible to standardize the installation in accordance with Section 13.04.040, the applicant for service shall pay for a new service as provided. When any service which has been in regular use is turned off and attains a period of inactivity for two years or more, it shall be subject to disconnection and removal at the discretion of the director of public works. (Ord. 3731 § 2, 2010)

13.04.120 Water main extension.

Water main extensions shall be in accordance with the Kelso Engineering Design Manual. (Ord. 3731 § 2, 2010)

13.04.140 Latecomer agreements.

A. Purpose and Term. Any property owner utilizing private funds to install public infrastructure improvements may apply to the city to establish a latecomer agreement for recovery of a prorated share of the cost of constructing the public improvement from other properties that will later derive a benefit from the improvements. No latecomer agreement shall extend for a period longer than fifteen years from the date of final acceptance by the city unless a longer period is allowed pursuant to RCW 35.91.020.

B. Rights and Nonliability of City. The city reserves the right to refuse to enter into any latecomer agreement or to reject any application therefor. All applications for latecomer agreements shall be made on the basis that the applicant releases and waives any claims for any liability of the city in establishment and enforcement of latecomer agreements. The city shall not be responsible for locating any beneficiary or survivor entitled to benefits by or through latecomer agreements.

C. Application Requirements. All applications for latecomer agreements shall be on forms established by the public works director and approved as to form by the city attorney. The application shall contain the following information:

1. Legal description of the property and of each of the benefited properties.

2. Vicinity maps showing the property, the benefited properties and the location of the proposed improvement.

3. Estimated cost data.

4. Proposed pro rata share of the cost of the improvement to be borne by the benefiting properties and the proposed method of assessment of the pro rata share.

5. Payment of application fee.

D. Eligibility of Applicants. In order to be eligible for processing of latecomer agreements, applicants for latecomer agreements shall be in compliance with all city ordinances, rules, and regulations.

E. Procedures for Reimbursement Agreements.

1. If a reimbursement agreement is requested, the property owner shall submit project plans and a site plan, map or diagram of the proposed benefited area prepared by a licensed professional engineer, ownership reports on properties within the proposed benefited areas, a cost estimate for the project based upon the plans of a civil engineer from which reimbursable costs shall be estimated, and such other information as the city may require.

2. Property owners requesting a reimbursement agreement shall submit, along with the application, a nonrefundable payment in the amount established in the current

rate ordinance as adopted or hereafter amended to be applied to the city's legal, engineering and administrative costs (including but not limited to staff time, and costs for title reports, appraisers, or other costs) associated with preparing the reimbursement agreement, which costs shall be included as reimbursable costs in the reimbursement agreement; provided, that whenever city engineering, legal, and administrative costs exceed the payment required herein, the city shall not process the application or execute any agreement until such costs have been paid in full.

3. The public works director based on information submitted by the property owner will formulate an assessment reimbursement area (benefit area) based upon a determination of which parcels did not contribute to the original cost of such infrastructure improvement and which connect to or specially benefit from such infrastructure.

4. The public works director based on information submitted by the owner will estimate pro rata share of costs. The public works director may require engineering costs or construction bids to be provided and may retain an appraiser to assist in formulating the benefit area and pro rata costs.

5. The public works director shall make a preliminary determination of the benefit area and assessments and shall notify the property owners within the proposed benefit area by first class mail of the benefit area, the approximate assessment, and a description of the property owners' rights and options to participate in the agreement. The property owners may, upon payment of an appeal fee established in the current rate ordinance as adopted or hereafter amended, appeal the preliminary determination to the city council within twenty days of the date of mailing. The city council may delegate the hearing examiner to hold the public hearing, establish the record and make a recommendation to the city council.

6. Upon completion of the preliminary determination, and appeal therefrom, if any, the city shall prepare the final latecomer agreement for public hearing and consideration by council and shall notify the property owners within the proposed benefit area by first class mail of the hearing date.

7. Upon approval by city council, the latecomer agreements must be recorded in the county auditor's office within thirty days of the final execution of the agreement. It shall be the sole responsibility of the latecomer applicant to record said agreement. Once recorded, the latecomer agreement shall be binding on owners of record within the assessment area who are not party to the agreement.

F. Construction. After the latecomer agreement has been signed by both parties and all necessary permits and approvals have been obtained, the applicant shall construct the system improvements and upon completion obtain final inspection and acceptance of the improvement by the city.

G. Illegal Connection. No person or entity shall be granted a permit or be authorized to connect to the water system improvements during the time set forth in the recorded latecomer agreement without first paying to the city, in addition to any and all other costs and charges assessed for such connection, the amount required by the latecomer

agreement. Whenever any connection is made without such payment having first been made, the city may remove, or cause to be removed, such unauthorized connection and all connecting pipe located in the right-of-way and dispose of the unauthorized material without any liability.

H. City Ownership. All infrastructure improvements constructed by the property owner and to be subject to the latecomer agreement must be dedicated to and owned by the city. (Ord. 3738 § 1, 2010; Ord. 3731 § 2, 2010)

13.04.145 Water mains—Capital recovery charges/water system.

A. Property within the city's water utility service area not previously assessed for water system improvements making service available to their property, whenever such improvements are being constructed as an extension of service through an undeveloped area or as a replacement due to obsolescence, inadequacy or deterioration, shall pay a capital recovery charge as a condition to connection to the city's water system. The capital recovery charge shall be determined by a method conforming to the criteria set forth in RCW 35.92.025. Said charges shall be reviewed annually and incorporated into an ordinance, together with any other adjustments made in charges connected to the water system. Such capital recovery charge shall be in addition to any and all connection charges provided for such service by the current rate ordinance as adopted or hereafter amended.

B. Payment of Capital Recovery Charge. Whenever provision is made throughout this chapter for the payment by any property owner of a capital recovery charge for water system improvements, such capital recovery charge may be paid in cash or in annual installments over a five-year period from the date of connection. If any property owner elects to make payments on said annual basis, he shall execute a contract in such form as shall be prescribed by the city council, which contract shall contain the provision that any unpaid balance may be paid in full on the date of any annual payment and the further provision that interest shall be paid on the deferred balances at the rate of ten percent per year. The specific terms of the contract shall be approved by the city manager. Such contracts shall be made a covenant running with the land and shall provide that the unpaid balances shall be a lien upon the property to which such connection is made, superior to all other liens and encumbrances except those for general taxes and special assessments, which may be foreclosed in the same manner provided by law for the foreclosure of delinquent local improvement district liens. The contract shall be recorded in the office of the county auditor at the expense of the property owner and, upon payment in full, a release of the said lien shall be executed by the city manager and attested by the city clerk. Such contract shall further provide that in the event of delinquency in the payment of any instrument thereunder, the public works director, or his employees, may disconnect the city's water service from and refuse to supply water to the premises in default until said delinquent payments are paid in full. This remedy to be concurrent with and in addition to the city's right to foreclose said lien as herein provided.

C. Appeals.

1. In the event a person disputes the assessment which city staff proposes to impose as a condition to connecting to the city's water facilities, the aggrieved party

may appeal such proposed assessment to the city council, provided written notice of appeal is filed with the city clerk no more than fourteen days from the date of notification of such proposed assessment.

2. The scope of such appeal shall be limited to questions of calculation of the proposed assessment at the rates set forth within the current rate ordinance as adopted or hereafter amended. The rates shall not be subject to review upon appeal, nor may assessments be waived by the city council in conjunction with any such appeal. (Ord. 3731 § 2, 2010)

13.04.150 Private water systems.

The city shall not operate and maintain private water distribution mains inside or outside the corporate limits of the city in conjunction with its own facilities. All private water systems existing in conjunction with city facilities shall be equipped with an approved check meter at the expense of the private water system and the readings of such check meter shall be compared to readings of individual meters served by the private system to detect any discrepancies in water usage. All costs over and above those resulting from the water usage of customers on the private water system shall be borne by the owner and operator of the private water system. (Ord. 3731 § 2, 2010)

13.04.160 Water service outside corporate limits.

All rules and regulations referring to the management of the city water system effective inside the corporate limits of the city shall apply equally outside the corporate limits except as otherwise specifically set forth in this chapter.

A. The term “water district” as used in this chapter means where water is supplied through one metered service to several houses, families or persons without the corporate limits of the city of Kelso.

B. All provisions of this chapter regulating the sale and use of water within the corporate limits of the city not inconsistent with provisions following shall govern the users of water without the corporate limits of the city.

C. The charge for a meter service outside of the city limits, up to a distance of twenty feet from the main, exclusive of the cost of replacing asphalt or cement pavement, shall be as set in the current rate ordinance, as adopted or hereafter amended. If the service is more than twenty feet from the main the additional charge for such service shall be the actual materials, labor, equipment rental and overhead added to the basic cost together with the cost of replacing any pavement the cutting of which was necessary to install such service. A deposit based on an estimated cost of installing the service shall be made at the time of the application. The charge for services for installation of pipes larger than an inch shall be the cost of actual materials, labor, equipment rental and overhead. A deposit based on an estimated cost of installing the service shall be made at the time of the application.

D. Minimum monthly charge for water supplied to water districts shall be that charge agreed upon in a contract approved by the city council or shall be as established in the current rate ordinance, as adopted or hereafter amended, for each occupied dwelling house within such water district. All water passing through the meter of such water district

per month for each occupied dwelling shall be paid for by said water district at the rate of one and one-half times the rate charged for domestic consumption of water within the limits of the city of Kelso.

E. Application for formation of water districts shall be made to the city council and may be granted under such terms and restrictions as shall from time to time be promulgated by that body. The city reserves the right to terminate all water districts and place same upon the schedule provided for in the current rate ordinance as adopted or hereafter amended. All sums due the city for water sold to water districts must be paid as one payment or item by such party or parties as shall be designated by the members of such water district and upon failure to pay all such sums due the city therefor within the time prescribed for the payment of water rental within the city, the public works director shall discontinue water service and shall make a charge as set by ordinance for the turning on of such water. All controversies arising among members of water districts must be settled by such members and the public works director. The public works director may refuse to furnish such district with water until such controversies are settled and the provisions of this chapter are complied with.

F. The minimum charge for water supplied to patrons without the city and not within a water district shall be set by the current rate ordinance as adopted or hereafter amended. All water used shall be charged at one and one-half times the rate charged within the city limits. (Ord. 3731 § 2, 2010)

13.04.170 Private pipe standards.

All persons connecting to city service or laying their own private pipe shall be required to use pipe meeting KEDM standards and as approved in the city of Kelso right-of-way permit. In all permanent sprinkler systems or other systems where contamination or cross-connections are possible, an approved backflow prevention device shall be installed. Public works shall maintain private services from city mains in improved city streets and shall have access on private property as shall be necessary to maintain such pipes during the work. Except for the above case, owners shall maintain their private pipes from the end of the city's service to and into their property, or, in the event the director of public works finds it necessary to maintain the same, the owner shall relinquish all right in such pipes. When necessary, the city may re-lay service on property to conform to the slope occasioned by the grading of the street and charge the expense thereof to the owner of the service. (Ord. 3731 § 2, 2010)

13.04.180 Plumbing requirements.

All persons installing fixtures or appliances to be supplied with water from the city main shall be subject to the requirements of the Uniform Plumbing Code. Persons installing plumbing in new structures shall leave the valve at the meter in the "off" position upon completion of their work. Persons making additions or repairs to existing plumbing systems shall leave the valve at the meter in the position in which it was found in beginning their work. The public works director shall have the right to refuse service or discontinue service in any situation where it is discovered that applicable city standards have not been complied with in making the installation. (Ord. 3731 § 2, 2010)

13.04.190 Shut-off valves.
Shut-off valves of approved full flow pattern with key or hand wheel shall be installed between the water service pipe leading from the city meter to the building within the premises served in accordance with the applicable plumbing code. Shut-off valves, where buried, shall be properly enclosed in a minimum six-inch diameter pipe, or box, of concrete, plastic or iron with an approved cover, protected from freezing and readily accessible. Valves or customer-owned equipment are not permitted to be installed within the city's meter box. No outlet shall be connected to the service extension pipe between the city meter and the customer shut-off valve. (Ord. 3731 § 2, 2010)

13.04.200 Meters—Installation and ownership.
All one-inch diameter meters or less shall be provided as per the Kelso fee ordinance and installed by the city on water service connections and shall remain the property of the city. All meters larger than one inch shall be provided of an approved make and model and provided, installed and tested by the applicant. (Ord. 3731 § 2, 2010)

13.04.210 Meters—Maintenance and repair.
A. The city shall maintain and repair all service meters and replace meters periodically when necessary if rendered unserviceable by ordinary use. Where replacement or repair to any meter is necessary by reason of the neglect, carelessness or willful act of the owner or occupant of the premises served, all expenses of such replacement or repair incurred by the city shall be borne by the owner of the premises.

B. Whenever demand periodically exceeds the rated capacity of a meter to the extent that flow is inaccurately measured or the meter may be damaged, the city shall notify the owner. After evaluating the owner's requirements, the public works department shall advise the owner what meter size and fee requirements are necessary to give proper service without damage to the meter, and the estimate of the cost and fees to change such meter. If the owner does not pay the estimate of the cost to change such meter within thirty days after the date he is so advised by the public works department, then the city shall install the proper size meter and charge the full cost thereof to the owner, or, at its option, the city may terminate the water service. Upon the failure of the owner to pay the cost to change the meter after the installation of a larger meter by the city within ninety days of the date of the billing for the same, such cost shall become a lien against the premises pursuant to Section 13.04.380. (Ord. 3731 § 2, 2010)

13.04.220 Meters—Testing procedures/leaks.
When any consumer whose water service is metered shall make a complaint that the bill for any past time has been excessive, the public works department will, upon written request, have such meter re-read and inform the customer how to perform a two-hour leak test. Should such consumer then desire that the meter be tested, said consumer shall make a deposit with the public works department as set in the current rate ordinance, as adopted or hereafter amended, before such test shall be made. The consumer shall have the privilege if he or she so desires to be present when such tests are made. In case a test should show an error of over three percent of water consumed in favor of the public works department, the deposit will be refunded to the consumer, a correctly registering meter will be installed and the bill will be adjusted accordingly. If the test of such meter should show an accurate measurement of water or should show an

error in favor of the consumer, the amount deposited will be retained by the public works department to cover part of the expense of making such test. Without a meter test, no leak adjustments will be provided for a meter error. (Ord. 3731 § 2, 2010)

13.04.225 Water and sewer adjustments.

A. No leak adjustment will be provided unless the billing is at least double the normal calculated average. Customers are expected to be responsible to inspect and protect their own water systems for compromises caused from age, freezing weather or worn-out fixtures. There will be no water leak adjustments for these causes.

B. When more than one leak adjustment is requested within a twenty-four-month period, a professional written report documenting and positively affirming the integrity of the owner's water system will be required prior to considering additional requests.

C. There will be no water or sewer adjustments for irrigation or visible inside fixture maintenance leaks.

D. Where water adjustments are provided, all metered water used over the normal calculated average use must be billed the pumping fee as established by the current rate ordinance, as adopted or hereafter amended, in lieu of the normal consumption rates.

E. Flat rate sewer charges will not be eligible for leak adjustments.

F. The maximum adjustment period shall be one billing cycle.

G. Water/sewer charge adjustments for water leaks may be allowed where sufficient documented evidence is presented to the city to show that water registering on the meter was not consumed for domestic purposes but was due to eligible leaks or damage on customer's side of the meter, which has been repaired and approved by the public works director or his designee.

H. Sewer charges exceeding the flat base amount may be adjusted by estimating the quantity of wastewater not entering the sewer system.

I. All other adjustments shall be determined on a case-by-case basis by the public works director. A utility customer who suffers a monetary loss for water or sewer services without fault or neglect on the part of the utility customer shall notify the city's public works department in writing setting forth the facts and circumstances surrounding the loss.

The public works department shall do an investigation and make a determination on whether the utility customer is due an adjustment on his utility bill and the amount of said adjustment, if any, or whether no adjustment is due the utility customer. Minimum payments need to continue while adjustment is being investigated. The city shall then notify the customer in writing of said determination. If an adjustment is due the utility customer, said adjustment will be reflected on the utility customer's next available normal billing cycle.

For water leaks wherein that water does not return to the sewer, the public works director or his designee may estimate the quantity and make the appropriate fee adjustment.

The utility customer may appeal the adjustment determination. A notice of appeal shall be made in writing to the city clerk describing the basis for the appeal not more than ten days after notice to the utility customer of the determination which forms the basis for the appeal. Thereafter, an appeal meeting shall be scheduled by the city clerk within twenty business days. The appeal board shall consist of the city manager, city clerk, and public works director. Minimum payments shall be required to continue while adjustment requests are being investigated or water service will be shut off. (Ord. 3731 § 2, 2010)

13.04.230 Miscellaneous control devices.

The city reserves the right to require any customer to install as a condition of water service a pressure- reducing valve, backflow prevention device, pressure relief valve, booster pump with pressure tank or similar devices at any location where the public works director determines a need to protect the city's facilities. (Ord. 3731 § 2, 2010)

13.04.260 Turn-on—Without permission unlawful.

It is unlawful for any person, except duly authorized employees of the city, to turn on the water supply to any premises after a turn-off is made at the meter by the city. The water service pipe to any premises turned on by an unauthorized person after such water supply has been turned off by the city for cause may, upon discovery, be disconnected by the city from the water main in the street and shall not be connected again until violations of these rules and regulations have been corrected and all expenses incurred by the city relating to meter tampering, disconnecting and reconnecting the service pipe are paid. (Ord. 3731 § 2, 2010)

13.04.270 Turn-off, turn-on—Liability disclaimer.

The city shall not be liable for any damage to person or property that may result from the turn-off or turn-on of the water service from the service being left on when the premises may be unoccupied. (Ord. 3731 § 2, 2010)

13.04.280 Driveway or crossing construction—Connection removal.

Whenever a driveway or crossing to be used for vehicular traffic is constructed within that portion of a city street lying between the curb line and the property line, the public works department shall cause the removal and relocation of any water service connection or any part thereof which may be within the boundaries of such driveway or crossing. The cost of removal, relocation and maintenance of water service connection as provided in this section shall be charged against the property for which driveway or crossing was constructed and to the owner thereof. (Ord. 3731 § 2, 2010)

13.04.290 Private construction work in streets and alleys.

All persons, firms, corporations and governmental agencies, and their contractors, performing street and alley work that may interfere, conflict with, affect or endanger the water system of the city shall apply to the public works director for a right-of-way permit at least two working days in advance of commencing the work. (Ord. 3731 § 2, 2010)

13.04.300 Standby fire protection.

A. Any customer using city water for all purposes shall be entitled to a separate standby fire protection service, and be required to install a fire protection meter. The monthly charge for such standby fire protection service shall be as provided by city ordinance. Such standby fire protection charges and fire line standby charges are based upon the

size of the customer's connection to the main, and are not based on any specific pressures or volume of water furnished to the customer.

B. Where fire service is provided, no charge shall be made for water used in extinguishing fires of incendiary or accidental origin; provided, Cowlitz 2 Fire and Rescue gives notice within ten working days from the time of such fire that a fire occurred. Otherwise, all water used shall be charged for at the rate provided in the current rate ordinance as adopted or hereafter amended. (Ord. 3731 § 2, 2010)

13.04.310 Misuse of fire protection water.

Whenever water from the city's supply is available on a premises for fire protection only and is used without permit for purposes other than extinguishing fires of incendiary or accidental origin, twelve times the monthly service charge stated in the current rate ordinance, as adopted or hereafter amended, shall be charged for each incident. (Ord. 3731 § 2, 2010)

13.04.320 Fire protection meters.

A. Service of more than one per premises of a fire service shall not be permitted. All water service connections used for fire protection shall be installed in a manner as approved by the department of public works, Cowlitz 2 Fire and Rescue, and the State Fire Marshal, and metered at the expense of the owner of the premises as follows:

1. Double check detector assemblies or fire line check meters of size and type approved by the city shall be permitted on straight automatic fire sprinkler services which may include hose racks inside the building for firefighting purposes only. All water registered by the bypass meter shall be billed at the rate provided by city enactment, unless caused by fire as reported within ten days. Unauthorized use of water through a detector check meter shall be cause for installation of a fire line meter at the expense of the owner or agent.

2. Double check detector assemblies or fire line meters of a size and type approved by the department shall be installed on all fire services where hydrants, outside hose outlets or connections allowing the use of water for other purposes than the extinguishing of fires exist.

3. Must comply with all provisions of standby fire protection as per Section 13.04.300.

4. Delinquency in payment of expense for fire protection service or failure of the owner or occupant to make changes in meter installations as provided in this chapter after reasonable notice from the department shall be sufficient cause of discontinuance of fire service to the premises. Fire protection systems shall be installed and maintained by the owner in a manner approved by the department as to prevent backflow into the city's system.

B. All existing services used for fire protection shall be either metered or be provided with a sealed valve or as otherwise provided in the KEDM. All future fire service connections shall be installed in a similar manner. In no case shall any tap be made upon any pipe used for fire purposes nor tank connected therewith, nor shall the use of any water be

permitted through any unmetered fire service nor through any pipes, tank or fixtures therewith connected for any purpose other than the extinguishing of fire on the premises, except that these fire services may be tested occasionally. The public works department must be notified in advance of and a permit obtained for such test. For any violation of this provision the public works department may charge the minimum rate for the size of service or cut off the service.

C. All structures and buildings with automatic sprinkler systems connected to the city mains shall pay to the public works department for service at the rates established in the current rate ordinance, as adopted or hereafter amended. No water for any purpose except fire protection shall be drawn from any service leading to such sprinkler system without the knowledge and permission of the public works department and a plat or map of such system must be filed with the public works department and notations made thereon of any and all connections from which water may be drawn for any other purpose. Notice must be given the public works department at least forty-eight hours in advance of any test to be made of such sprinkler system and the hour of such test to be set within that time by the public works department.

D. No charge will be made for water used in extinguishing fire or testing out the services, if the owner or occupant of the premises where such fire or testing occurs gives notice to the public works department. (Ord. 3731 § 2, 2010)

13.04.330 Hydrants—Authorized use.
No person other than authorized employees of the city shall operate fire hydrants and hose outlets unless a use permit has been issued by the city. A water meter shall be used by the permittee to determine the amount of water usage in order to constitute an authorized use.

Any unauthorized or nonpermitted person using, tampering or causing damage to any fire hydrant belonging to the city shall be liable to the city for any and all damages resulting either directly or indirectly therefrom. Additionally, a fine of one thousand dollars will be assessed as a penalty as allowed by Section 13.04.460. (Ord. 3731 § 2, 2010)

13.04.340 Hydrants—Temporary use.
Persons desiring water service from a fire hydrant or hose connection shall make application therefor to the city and make arrangements therefor as provided in this chapter. Year-round use may be allowed of the hydrant meter upon prior written approval by the public works director. The daily meter charge may be waived for those approved for year-round use by the public works director. (Ord. 3731 § 2, 2010)

13.04.350 Billing—Private water systems.
The total amount of water usage registered on the water meter shall be in accordance with the agreement authorizing service. (Ord. 3731 § 2, 2010)

13.04.355 Schedule of charges.
Bimonthly charges for the consumption of water shall include a fixed bimonthly demand charge based upon the size of the meter serving the dwelling, structure or use in question, together with a consumption charge for water consumed, and shall be

established by the current rate ordinance as adopted or hereafter amended. (Ord. 3731 § 2, 2010)

13.04.370 Deposits—Change of address—Delinquency.
Failure to receive mail will not be recognized as a valid excuse for failure to pay charges due. Notice of change in ownership of property and change in mailing address must be given in writing by the property owner or his agent to the city. As per Section 13.04.050, the director of public works may require an advance or satisfactory security for all water to be furnished by meter, and if such payment is not made or security furnished within the time fixed by the city, water shall be shut off from the premises. The owners of those addresses that had Kelso utility liens in the past two-year period shall pay a deposit equal to the maximum allowed under Section 13.04.050 prior to entering into a new rental agreement. (Ord. 3731 § 2, 2010)

13.04.380 Delinquency—Assessment of liens.
A. All water rates shall be charged against the premises for which the service was installed. The city shall have a lien against the premises to which the services were furnished for four months' water charges due or to become due, but not for any charges more than four months past due; provided, however, that if the owner of the premises or the owner of the delinquent mortgage thereon gives the city written notice to cut off service to the premises and makes payment of all delinquent and unpaid charges, then the city shall have no lien for service thereafter furnished. Enforcement and collection of a lien shall include, but not be limited to, the right to stop service and deny service thereafter to any and all owners and/or occupants of the premises until the charges for service and/or other charges have been paid in full, except as provided in this section. Such lien shall include the delinquent charges and such other costs incurred by the city.

B. The city will only terminate or refuse to provide or reinstate water service to a residential tenant occupying a rented dwelling when the water bill was incurred by a current occupant. When a rented dwelling is occupied by a tenant who has opened an account in his/her own name, no termination, and no threat of termination or refusal to provide or reinstate water service will occur because of the nonpayment of a bill for water utility services if the bill is the obligation of the tenant's landlord as indicated in the written lease agreement; provided, however, that the term "threat of termination" shall not include the notices authorized by this section or policy of the city.

C. When a rented dwelling for which a delinquent water bill is owed is occupied by a tenant, but the utility account is in the landlord's name, no termination will occur unless the tenant is first provided an opportunity to place the account in his or her own name without incurring any liability for the landlord's delinquent bill. When a rented dwelling for which a water bill is owed is occupied by a tenant and the delinquent bill was in the name of, and incurred by, a prior tenant no longer occupying the dwelling, no termination or refusal to provide or reinstate water service will occur until the current tenant is first provided the opportunity to have the account placed in his or her own name without liability for the delinquent bill. The current tenant must make application in person at the city's finance department during normal office hours to complete any forms required by the finance department in order to place service in his/her name.

D. If service is terminated before the tenant has exercised the right provided for in subsection C of this section to have the account placed in his or her own name, the tenant can have water restored without liability for the delinquent bill by applying to place the account in his or her own name for future service, as provided by this section, and by paying the usual service call fees.

E. The city finance department will not take any action which encourages or permits, whether by regulation, informal policy or oral statement, the termination of water services to residential tenants occupying single-family units or individually metered multifamily units because a prior occupant of the residence owes an unpaid bill or where the tenant's landlord has contracted for water service to the dwelling and the occupant is delinquent, unless the following procedures are complied with:

1. If a payment on a water utility account has not been received by the twenty-fifth day after the bill mailing date, the finance department will mail a shut-off and final notice for payment to the service address, and to the address (if any) listed in the department's file. This notice will advise that payment is past due and will alert interested parties that service will be terminated after seven business days from the date the notice was mailed unless payment is personally received at the city or arrangements acceptable to the city have been made. A statement describing "tenants' rights" as provided herein will be enclosed or printed on the back of the shut-off notice and will be referred to on the face of the shut-off notice.

2. If payment on a water utility account has not been received by the seventh day at 5:00 p.m. after the mailing of the shut-off final notice, the water service may be terminated after 12:00 p.m. the following business day in accordance with this chapter. If the water is disconnected for nonpayment, a service call fee will be charged. If customer's check is returned as an NSF, it will be treated as having not received a payment and service will be immediately terminated if delinquent, without further notice.

3. A statement of tenant's rights included with the shut-off notice shall be substantially in the following form:

NOTICE OF TENANT'S RIGHTS

If you are a tenant residing at the service address and water is presently being delivered to your home: You are not responsible for water bills incurred by a previous tenant who moved out before you moved in and you also are not responsible for water and sewer utility bills that are your landlord's responsibility.

If this bill is the obligation of a prior tenant or your landlord, you have the right to obtain continued water services by contacting the Finance Department and having the account placed in your name. If you do place the account in your own name, services will not be disconnected because of an unpaid bill for which you are not responsible. You will only be responsible for future bills coming due during your tenancy.

To place service in your own name you must go to the City Finance Department, and make application in Person for continued service during normal work hours (8:00 to 5:00). You will be required to present personal identification and your current written rental agreement. You also will be required to identify your landlord and his current address.

If service is disconnected before you have contacted the Finance Department, you can have the service turned back on if you place the account in your name. However, a service call fee will be charged before service is restored. If you do put the account in your name, you will only be responsible for future bills.

You have the right to appeal the decision of the Finance Department relating to responsibility for past due utility bills or the right to have service placed in your own name. Utility service will not be disconnected during the appeal process.

F. If a tenant elects to contract for future water service under the preceding sections he or she must agree to pay appropriate deposit fees, service call fees if service has been terminated before the tenant has exercised the right to have the account placed in his or her name, and all future utility bills coming due during his or her occupancy of the premises. Application must be made in person at the finance department during normal working hours (8:00 a.m. to 5:00 p.m.).

G. In the event more than one apartment unit is served by a single meter, one of the tenants shall be required to put the account in their name and assume payment responsibility for the utility bill in order to keep the service from being shut off, or to get service restored. All notices required by preceding sections will also give notice of the city's customer appeal process. A tenant may request a hearing under this customer appeal process if the tenant has a dispute with the city regarding the application of this section. A notice of said appeal shall be made in writing to the city clerk describing the basis for the appeal no more than ten days after the person is aware of the matter which forms the basis for the appeal. Thereafter, an appeal meeting shall be scheduled by the city clerk within twenty business days. The appeal board shall consist of the city manager, city clerk and public works director.

H. Nothing set forth herein shall be construed to limit the city's rights to proceed either by judicial process or by the remedies prescribed by RCW 35.21.290 and 35.21.300 to the extent that such actions do not interfere with tenant's rights as provided herein. A "tenant" is any person who is entitled to occupy a dwelling unit primarily for living or dwelling purposes under a rental agreement.

I. In cases where the occupant of the premises moves to another location and applies for water at the new location, services may be denied at such location until and unless any statement for service against the first location is fully paid.

J. If any such charges are not paid, the city may record a lien at the office of the county auditor against the property for which the service was installed. (Ord. 3731 § 2, 2010)

13.04.390 Disconnection of service—Condemned building.
Whenever a premises supplied with water has been found by the proper authorities to be dangerous to human life and unfit for human habitation, and notice of such findings has been provided to the public works director by the authorities, the public works director shall cause the water service to such premises to be turned off. Water service to such premises shall not be turned on until the owner and/or agent has secured a release or clearance from the proper authorities. (Ord. 3731 § 2, 2010)

13.04.395 Discontinued use.
All water rates are chargeable against the property. Payments made by tenants or agents will be credited to the property, which will be held for the rate charges while water is left turned on. Whenever it is desired to discontinue the use of water supplied to the premises, notice in writing must be given and payment of all arrearages, if any, must be made at the office of the city. The water will then be turned off, and will be turned on only upon application to be made at the office of the city and the payment of the service charge. Notice must be given in writing by owners or agents when buildings are vacated as no allowance under claims of vacancy will be made unless the city is properly notified and the water shut off. The city may discontinue the supply of water to the property until all charges against the property are paid, pursuant to Section 13.04.380.

To discontinue use, the customer (or owner in the case of a premises abandoned by the tenant) must provide notice to the city of discontinuance. Such notice must be in person at the finance office for the city. Charges for water service shall be made up to and including the day the notice is received by the city. (Ord. 3731 § 2, 2010)

13.04.400 Emergency interruption of service.
In the event of emergency or whenever the public health, safety or the equitable distribution of water so demands, the director of public works may authorize the city to change, reduce or limit the time for or temporarily discontinue the use of water. Water service may be temporarily interrupted for purposes of making repairs, extensions or doing other necessary work. Before so changing, reducing, limiting or interrupting the use of water, the city shall notify, insofar as practicable, all water consumers affected. The city shall not be responsible for any damage resulting from interruption, change or failure of the water supply. In addition, the city makes no commitment as to the volume of water available, pressure, or continuity of service; and will not be liable for injuries or damage due to insufficient volumes, inadequate pressure or interruption of services. (Ord. 3731 § 2, 2010)

13.04.410 Service calls.
A. Service calls for any reason, including, but not limited to, convenience or emergency turn-off or turn-on, paid delinquent account turn-on, or complaint leaks, or other problems due to trouble in lines not owned by the city, or problems in lines, valves, or meters owned by the city, caused by problems or conditions other than by the city, shall be charged to the customer requesting the service call at the rate set by ordinance. The amount charged for the service call shall be billed to the customer as an additional charge and shall be due and payable within fourteen days after the date of the bill. Section 13.04.380 shall apply when any service call charges become delinquent and unpaid.

B. Service calls when it is determined by the city that the problem or trouble is in lines, valves, meters or facilities owned by the city will result in no charge to the customer. (Ord. 3731 § 2, 2010)

13.04.420 Inspections.
The public works department shall conduct inspections of the water system in coordination with the appropriate health department. The public works director shall, from time to time, suggest rules and regulations deemed necessary by him to the city council to protect the municipal fresh water supply from pollution. (Ord. 3731 § 2, 2010)

13.04.430 Access for inspection.
Authorized employees of the city, properly identified, shall have access at reasonable times of the day to all parts of the premises or within buildings thereon to which water is supplied from city mains, for the purpose of checking conformity to these regulations; provided, such employees shall have access to single-family residential premises only upon a showing of probable cause to believe that the water service or plumbing therein is not in conformity with these regulations. Whenever the owner or occupant of any premises supplied by city water restrains authorized city employees from making such necessary inspections, water service may be refused or discontinued. (Ord. 3731 § 2, 2010)

13.04.440 Tampering or interfering with system unlawful.
No person shall disturb, break, deface, damage or trespass upon any property belonging to or connected with the water system of the city in any manner whatsoever. No person shall store, maintain or keep any goods, merchandise, materials or rubbish within a distance of five feet or to interfere with the access or operation of any water meter, gate valve, fire hydrant or any other appurtenances in use on any water service, connection or water main. Violators will be charged a fee at the rate provided in the current rate ordinance as adopted or hereafter amended. (Ord. 3731 § 2, 2010)

13.04.450 Damaging water system—Liability.
Any person causing damage to any property of the water utility belonging to the city shall be liable to the city for any and all damages resulting either directly or indirectly therefrom. (Ord. 3731 § 2, 2010)

13.04.460 Violation—Penalty.
Any person willfully violating any of the provisions of this chapter shall be guilty of a misdemeanor. Any person found guilty of such violation shall be fined a sum not to exceed one thousand dollars. (Ord. 3731 § 2, 2010)

13.04.470 Constitutionality and saving clause.
If any provision, section, sentence, clause or phrase of this chapter, or the application of same to any person or set of circumstances, is for any reason held to be unconstitutional, void, invalid, or for any reason unenforceable, the validity of the remaining portions of this chapter or its application to other persons or circumstances shall not be affected thereby, it being the intent of the city council of the city of Kelso in adopting, and the mayor in approving, this chapter that no portion hereof or provision or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality or invalidity of any other portion, provision, or regulation. (Ord. 3731 § 2, 2010)

CHAPTER 5 - WATER

5.00 Utility Easements and Tracts

All public utilities (storm, water, and sewer) shall be in public right-of-way, utility easements or tracts. Easement and tract width shall be a minimum twenty (20) feet. No obstructions including but not limited to fences or retaining walls are to be located within the easement or tract.

5.01 General Design Considerations

A. In all developments water main extensions and looping are required to assure orderly development of the water utility system. Where applicable, water main extensions shall conform to the requirements of the City's latest approved Water System Plan. Where the proposed extension is not addressed in the Water System Plan, the Applicant shall pay the cost for any Water System Plan amendments required by the Washington State Department of Health, or City Engineer. All proposed water main extensions must comply with the City's requirements for development, water quality and pressure zones, and fire protection requirements of the City. The proposed main extension shall be designed by a licensed engineer and be approved by the city engineer and appropriate governmental authorities. The design shall be in conformance with the city standards and shall be designed by the use of a hydraulic analysis considering pipe size, restrictions, peak demand, length of run, elevation differences, the availability of water in the existing mains, reservoir capacity, pressures in the area, other local conditions and other factors as may be pertinent. If the extension is considered feasible, then the pipe diameter and other conditions shall be determined by the analysis. A meeting with the City Engineer shall be required prior to acceptance of the hydraulic analysis to help determine minimum requirements for the hydraulic analysis report.

B. Design and construction of water mains, including but not limited to, mainlines, valving, fire hydrants, fire sprinkler connections with backflow devices, domestic and irrigation services, pump stations, pressure reducing stations, telemetry and other appurtenances shall be in compliance with the City ordinances, special requirements of the City, these Standards, and the Standard Details.

C. All service laterals, 2" and smaller, shall be copper type K. All water mains and service laterals larger than 2" shall be Ductile Iron.,

D. The applicant is responsible for designing the proposed water system(s). The system(s) must be designed by a licensed engineer and approved by the City.

E. Water mains shall be extended through and to the extremes of the property being developed for gridding or future development, as determined by the City.

F. The City discourages dead end water main extensions. Unless specifically approved by

the City Engineer, all water main extensions shall be looped to other water mains within the pressure zone of that water main extension. Generally, looping of water main extensions is required for all extensions serving twenty (20) or more equivalent residential units.

G. The City discourages water main extensions for service to pressure zones different from the pressure zone from which the extension is made. Unless specifically approved by the City Engineer, booster pump stations or pressure reducing valve stations shall not be permitted.

H. Water mains parallel to a sewer shall be above and separated by a distance of ten feet horizontally.

Under unusual circumstances, the horizontal spacing may be adjusted subject to the approval of the director of public works. Water mains crossing sewers should not be less than three feet above the sewer. Where it is necessary for a sewer to cross within eighteen (18) inches or over the water main, the sewer shall be constructed of ductile iron for a distance of ten feet on either side of the water main as approved by the director of public works. At no time shall the water main design not be in accordance with the DOE Orange Book.

I. Rights-of-way or easements shall be provided to the City for access and maintenance of all conveyance systems, or other facilities as deemed appropriate by the City Engineer, within the development site, which are to be maintained by the City. The minimum widths of rights-of-way or easements shall be as follows, although the City Engineer may require increased widths when necessary to insure adequate area for equipment access and maintenance:

1. Pipes with an inside diameter less than or equal to thirty-six (36) inches: twenty (20) feet;

2. Pipes with an inside diameter greater than thirty-six (36) inches: twenty (20) feet or larger as required by the City;

3. Pipes shall be centered within the right-of-way or easement;

4. Pipes with more than a seven (7) foot depth to the invert shall require wider easements. A slope of one (1) horizontal to one (1) vertical from the storm drain invert to the ground surface shall be used in determining easement width.

No buildings or other structures that prevent access are permitted within rights-of-way or easements. Fences crossing rights-of-way shall provide gates of sufficient width to provide access by maintenance vehicles.

When possible, easements for apartment complexes or commercial/industrial developments shall be in parking lots, private drives, or similar areas that allow unobstructed vehicle access for maintenance.

5.02 Sizing and Pressure Requirements

A. In areas where gridding or fire flow is a requirement, 8-inch diameter pipe will normally be required. Nothing shall preclude the City from requiring the installation of a larger sized main if the City determines a larger size is needed to meet fire protection requirements or for future service. The Applicant shall be required to pay the cost of all oversizing. Reimbursement for oversizing will be in accordance with the KMC.

B. An adequate grid for eight (8) inch pipe shall measure no more than six hundred feet on one side and the sum of two sides shall not exceed nine hundred feet. Necessary fire flow, as recommended by the fire department, shall be considered and pipes shall be sized to meet these requirements. Where a grid is not established, pipe size shall be of a diameter suitable to carry the peak daily demand plus the required fire flow.

C. Dead end mains normally shall not be allowed. When they are permitted, a blow off assembly will be required. In the event that the "dead end" finishes where there is risk of a vacuum being created due to water shut down, then a Combination Air and Vacuum Release Valve shall be installed in accordance with the Standard Drawings.

D. All water system installation shall be designed to provide a pressure range at the residence of thirty (30) psi to ninety (90) psi at all times, including during peak demand, unless specifically approved.

E. An approved screen shall be located in the pressure reducing valve vault at a location upstream of the pressure-reducing valve. Pressure reducing valves may be required at the discretion of the City on individual services. Such valves will be installed after the meter and will be the responsibility of the homeowner to install and maintain.

F. Water service size shall be evaluated by the applicant's engineer. The requirements of this section shall be met and shall be no smaller than 1-inch. Booster pumps shall not be allowed on meter service lines in order to meet this requirement, unless specifically approved by the City Engineer.

G. Where requested by the City Engineer, the applicant's engineer shall provide a "pressure available" chart on the water system plan sheet of the construction plans. This sheet shall indicate the calculated pressures theoretically available to each lot during static and peak demand periods. In such cases it shall be the Applicant's engineer's responsibility to determine pressures based upon an analysis of the system. All work associated with the analysis shall be paid for by the Applicant.

5.03 Shut-off Valves

A. Valves shall be located, whenever possible, at intersections (one (1) valve per each line radiating from the intersection). In general, sufficient valves should be provided to permit shutting down any section of the line, not exceeding five-hundred (500) feet, with valve operations in not more than three (3) locations.

B. Valves shall be installed in clusters at pipeline intersections.

C. Valves 8-inches and smaller shall be resilient seat gate valves.

D. Valves 10-inches and greater shall be butterfly valves.

5.04 Air-release Valves

At high points in the water system, combination air and vacuum release valves (CARV) shall be installed as required by the City Engineer. All Air-Vac, Air Evacuation, and Vacuum Prevention Valves of sizes two (2) inches and larger shall vent to the outside of the vault. If construction of the valve does not permit the venting of leakage to the outside of the vault, a screened drain to daylight of at least the supply line size must be provided at a level that will prevent cross connection and/or backflow problems. This decision will be made by the City Engineer prior to the plan approval.

5.05 Hydrants

A. The number and locations of fire hydrants, fire flow requirements, and fire sprinkler components will be recommended by the Cowlitz Fire Department District #2. Following are general requirements for fire hydrant locations:

1. **Commercial Buildings:** Fire hydrants shall be located so that no part of a commercial building is more than two-hundred and fifty (250) feet from a fire hydrant measured along a route accessible to fire department vehicles. When a fire department connection (FDC) is installed in conjunction with an automatic sprinkler system, it is required to have a fire hydrant located within seventy (70) feet of the FDC.

2. **Non-Commercial Buildings:** Fire hydrants shall be placed at a minimum at each street intersection. The Fire Marshall may request additional hydrants per Fire Code requirements.

3. Intermediate hydrants are required when the distances to any part of noncommercial buildings exceeds five-hundred (500) feet measured along a route accessible to fire department vehicles.

B. Fire hydrants shall not be connected to mains less than 8-inches, or 6-inches in diameter where the length of 6-inch main is less than two-hundred (200) feet. As per the IFC,

fire hydrants shall be located to allow a 5-foot clear space surrounding the hydrant. For example, street lights, sign posts, protective posts, or retaining walls shall be no closer than five (5) feet from the nearest portion of a hydrant. There shall also be no obstructions directly in line with any of the ports of the hydrant.

C. Fire hydrants shall have Storz fittings (or approved equal).

D. Fire hydrants subject to possible vehicular damage shall be adequately protected with guard posts in accordance with Uniform Fire Code Section 8001.11.3. For marking, see Section 901.4.3. For obstruction, see Section 1001.7.

5.06 Water Meters

A. Water meters sized ¾-inch and 1-inch shall be furnished and set by the City. The owner is required to make application and pay meter fees prior to the installation. The City will install meters and lock off meter setters and turn on as requested by the owner after acceptance by the City.

B. Meters 1 ½ -inch and larger will be installed by the owner as part of the construction project and provided to the City Operations for testing and approval prior to installation. After testing and approval the applicant's contractor shall install.

C. Water meters will be set only after curb stop and box are at proper finished grade, an approved sanitary sewer or septic has been installed and accepted, a water use questionnaire has been approved, and all fees have been paid. All meters shall remain the property of the city.

D. Meters shall be located outside of the sidewalk and/or drivepath at the edge of public right-of-way, in the landscape strip or as otherwise approved by the City Engineer. Meters and services shall be relocated if a driveway or crossing is to be constructed over the existing service.

E. Meters located within county right-of-way shall be within the county right-of-way and within two (2) feet of the property line nearest the customer's premises.

F. In situations in which the above meter locations do not apply, or if locating the meter according to the above standards pose a risk to public safety or creates an undue hardship, the location of the meter(s) shall be approved by the City Engineer

G. All irrigation systems require the installation of state certified backflow devices.

All irrigation meters will be set and turned on after acceptance of the water system by the City. The City will not accept a water system until all the requirements of the Extension Agreement have been completed and all the fees have been paid.

H. Adjustments, repairs, or replacement of the service line, meter box, or setter shall be the responsibility of the property owner.

I. Water services are to be single runs from the main line to each meter. Manifolds with multiple meters shall be allowed in multi-family units with a single property owner or on commercial/industrial sites with a single owner as approved by the City Engineer. The location of all water services crossing curbs shall be indicated by a "W" stamped into the concrete curb.

5.07 Fees and Charges

All fees and charges related to development shall be in accordance with the latest requirements of the KMC.

5.08 Cross Connection Control

A. All water system connections to serve buildings or properties with domestic water, fire sprinkler systems, or irrigation systems shall comply with the minimum backflow requirements as established by the Department of Health (DOH), WAC 246-290-490, and the City.

B. Backflow devices shall be installed in accordance with the requirements of the "Accepted Procedure and Practice in Cross Connection Control" manual, the Uniform Plumbing Code, Chapter 6 Washington State Amendments 603.0.

5.09 Contract for Reimbursement (Latecomer Agreements)

Should the Applicant deem that the utility extension is an undue hardship and will significantly benefit other property owners, the Applicant may request a latecomer agreement, in accordance with the KMC.

5.10 Water Quality

The quality, taste, and odor of water drawn from new construction water mains shall be the same as the water in the existing facility classed as acceptable for use by the City. Should the water not be acceptable for use because of taste, required steps as approved by the City shall be accomplished to attain water quality acceptable for use. Sampling for such water quality testing shall be performed by the use of a Kupferle (model #88 Eclipse) sampling station installed permanently and specifically for such testing. A sampling station shall be required for every fifty (50) EDU's or as determined by the City Engineer. The location for said sampling stations will be determined by the City Engineer.

5.11 Plans and Specifications

All extensions to the water system shall conform to the most recent edition of the Standard Specifications for Road, Bridge, and Municipal Construction. The system shall be capable of future

expansion and be constructed of permanent materials.
The installation of water extensions shall be in accordance with construction plans and specifications prepared by the Applicant's engineer and reviewed and approved by the City. Where conflicts exist the more stringent specification shall apply as approved by the City.

5.12 Connections to Existing Pipelines

A. Connections shall only be allowed to existing mains. Connections to existing mains will only be allowed after receiving approval from the City Engineer. Upon the presentation to the City Engineer of the treasurer's receipt for service charges and the execution of the agreement, the City Engineer shall cause the premises described in the application to be connected to the City's water main.

B. Connections may be made to existing pipes under pressure with a tapping machine by determining the size and type of pipe and installing tapping sleeve to fit complete with tapping valve. Where cut-ins are permitted to be made in existing pipes, the work shall be conducted at such a time and in such a manner as to minimize the interruption of service. Cut-in time must be approved by the City. Necessary pipe, fittings, and gate valves shall be swabbed with chlorine and assembled at the site ready for installation prior to the shutting-off of water in the existing main. Once the water has been shut off, the work shall be performed vigorously, to minimize the interruption, and shall not be halted until the line is restored to service. Operation of all water main line valves shall be by the City. The City shall witness all wet taps and cut-in connections and requires forty-eight (48) hours notice and approval by the City.

C. The Contractor shall have the responsibility of giving written notice to the City at least four (4) days and to affected customers at least 48-hours prior to disruption of service. Written notice to affected customers shall consist of, at a minimum, door hangers, as well as signs posted at the entrance to the customers streets of the impacted area.

D. Pipes to be abandoned shall be removed or capped with mechanical couplings, as determined by the City Engineer.

E. Service connections shall extend at right angles from the main to the property line. The city connection which shall include a ball corp stop, a ball valve, and an angle ball valve shall be placed within the curbline and the meter set assembly in conformance with these Standards and the Standard Details.

5.13 Roadway and Railway Crossing

The owner shall use the method, which has been designed on the plans and is acceptable to the City and the government or private agency having control of the road. Permits are required and a copy shall be provided to the City.

5.14 Trench Excavation

A. Clearing and grubbing where required shall be performed within the easement or public right-of-way and as permitted by the property owner and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the Applicant.

B. Trenching for water mains shall be completed in accordance with the Standard Specifications.

C. Trenching and shoring operations shall not proceed more than one-hundred (100) feet in advance of pipe laying without written approval of the City.

D. Where a utility crosses under an existing asbestos cement water main or where a trench alters the bedding of an existing asbestos cement water main, the existing A.C. pipe shall be cut three (3) feet minimum from each side of the trench wall and replaced with a corresponding size ductile iron pipe Class 52. The ductile iron pipe shall be connected to A.C. pipe with transition couplings.

E. Contractor shall furnish a watertight plug of the appropriate size which shall be installed in the end of water main when work is delayed or stopped at the end of the work shift.

5.15 Pipe in Filled Areas

Where pipe is to be installed in filled areas, special treatment may be required at the discretion of the City. This treatment may consist of compacting the backfill in 6-inch layers, careful choice of backfill materials, use of Mechanical Joint Ductile Iron Pipe in short lengths, or such other reasonable method or combinations as may be necessary or as required by the City.

5.16 Pipe Installation for Water Mains

The work necessary to excavate, bed, and backfill water pipelines shall conform to the requirements of the Standard Specifications and the Standard Drawings.

A. Pipe and Fittings

Use only Class 52 ductile iron pipe and fittings in accordance with the Standard Specifications.

B. Permissible Deflection of Joints

Wherever it is necessary to deflect pipe from a straight line either in a vertical or horizontal plane, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed the values in the following Table 1 Section 5.18B:

Table 5.1
Maximum Deflection Permitted*
18-Foot Length Pipe

Dia. In.	Mechanical Joint** Maximum Deflection		Push-on Joint Maximum Deflection	
	Angle Degrees & Minutes	Deflection Inches	Angle Degrees	Deflection Inches
4	8-18	31	5	18
6	7-07	27	5	18
8	5-21	20	5	18
10	5-21	20	5	18
12	5-21	20	5	18

* The maximum deflection shall be whichever is less; the table or that recommended by the pipe manufacturer.

** Safe deflection for one hundred and fifty pounds (150 lbs.) pressure. For higher pressure, reduce tabulated deflection proportionally ten percent (10%) for each one hundred and fifty pounds (150 lbs.) added pressure.

5.17 Bedding and Backfill

Use imported bedding for all water main pipe installed under pavement, curbs, sidewalks, or usable shoulder. Bed and backfill pipe and appurtenances in accordance with the Standard Specifications.

5.18 Hydrostatic Tests

The Contractor shall make pressure and leakage tests on all newly laid pipe. Test to be made at two hundred and fifty (250) psi for 2-hour with acceptable loss in accordance with WSDOT standard specifications. Test at higher pressures may be required depending upon installation. Furnish all necessary equipment and material, make all taps in the pipe as required, and conduct the tests. The City shall witness the test; if the test does not pass inspection for any reason, additional trips required to witness the test shall be at the owner's expense.

A. Correction of Excessive Leakage

Should any test of pipe laid disclose leakage greater than that allowed, locate and repair the defective joints or pipe until the leakage of a subsequent test is within the specified allowance. The leakage allowed during a test shall be in accordance with the Standard Specifications.

B. Isolation of Existing Systems Prior to Testing

Existing water pipelines shall be protected from contamination during the testing process for new construction. The newly installed water line shall only be connected after it has passed pressure and dechlorination tests. Use of special "blind flanges" will be necessary if the line being tested cannot be adequately separated from existing systems. The Applicant's engineer shall submit shop drawings and proposed procedures to the City prior to installing any special testing device.

5.19 Sterilization and Flushing of Water Mains

Pipeline intended to carry potable water shall be sterilized before placing in service. Sterilizing procedures shall conform to the standard specifications as hereinafter modified or expanded.

A. Disposal of Sterilizing Water

Dispose of sterilizing water in an approved manner. Do not allow sterilizing water to flow into a waterway without adequate dilution or other satisfactory method of reducing chlorine to a safe level. Dechlorinization procedures are to be submitted in writing and approved by the City Engineer prior to flushing system.

5.20 Cross Connection Control and Backflow Assemblies

An approved backflow prevention assembly, as listed in "Backflow Prevention Assemblies for Installation in Washington State" (DOH PUB 331-137), is required on all fireline systems, domestic water service larger than 2-inches, and/or building in excess of thirty (30) feet above the water main. The assembly shall be installed at the location normally established for water meters, usually at the property line. A water service shall not be turned on until all required backflow prevention assemblies are installed, inspected, tested, approved, and registered with the City of Kelso. Costs of all installations, including all costs of inspection and testing fees, shall be the responsibility of the customer. The backflow prevention assembly will remain the property of the customer. The customer will be responsible for all maintenance and testing of the assembly and vault for the life of the assembly.

When required, backflow prevention assemblies for protection of the public water system shall meet the requirements set forth in the current Washington State Department of Health regulations, Uniform Plumbing Code, and City ordinances. All installation shall meet AWWA Cross Connection Control Manual, May 1990, requirement.

The type of backflow prevention assembly required is determined by the aforementioned rules and codes, based on the type of premises to which water service is being provided. The approved types of assemblies are listed below with some of the types of premises that must be protected by each type of assembly. However, these lists are not complete, they are only intended to provide some basic guidelines.

A. Reduced Pressure Backflow Assembly

An approved Reduced Pressure Backflow Assembly shall be installed on the service connection above ground to the following:

1. Any parcel or building that has an auxiliary water supply on or available to it. This will include any above or below ground water source. (The most commonly encountered type of auxiliary water supply is a private well);

2. Buildings which are located within an industrial zone;

3. Hospitals, medical centers, and clinics;

4. Mortuaries and nursing homes;

5. Gas stations;

6. Car washes;

7. Sewage pump and lift stations;

8. Dry cleaners and commercial laundries;

9. Any water system which has a pump to supplement pressure; and

10. Irrigation systems, which are designed to use chemical injection.

B. Double Check Assembly or Double Check Detector Assembly

An approved double check assembly or an approved double check detector assembly shall be required (provided that all internal plumbing is installed and maintained in accordance with the Uniform Plumbing Code), on the service connection to premises where there is:

1. Any fire system or water line to a private fire hydrant;

2. Multi-story buildings which are in excess of thirty (30) feet above the water main at the service connection;

3. Shopping centers or large retail stores; and

4. Restaurants or fast food establishments.

C. Installation and Testing

Backflow prevention assemblies shall be installed at the water service connection on the customer side of the meter. Backflow prevention assemblies 1-inch and smaller shall be installed in a heated and/or insulated enclosure capable of providing year-round freeze protection, sized to meet the clearance requirements as shown in the Kelso/Longview Standard Plans and Specifications.

After installation, all backflow prevention assemblies that are installed must be tested upon installation by a State of Washington certified tester. The results of the testing shall be received by the City prior to issuance of "final occupancy."

Backflow prevention device assembly vaults shall be constructed in accordance with the standard drawings and requirements of this section. Backflow vaults shall be on private property and located outside of public easements.

5.21 Requirements for Water System Vault Installations

To ensure proper operation and accessibility of all assemblies, the following requirements shall apply to installation of these assemblies, unless otherwise approved by the City. Vaults shall be constructed per the Standard Details.

A. The vault shall be sealed with an asphalt base foundation coating on the outside of the vault. Vault penetrations shall be sealed with non-shrink grout from the outside. Apply waterproof coating over grout. Backfill around vault per the manufacturer's specifications.

B. Access shall be through an H-20 rated hydraulic assist locking hatch of minimum size 36” x 60” locking open at 90°. Hatch is to be leak proof, gasketed, double raise and made of aluminum.

C. Provide approved ladder if the vault or chamber depth is 5’0” or greater and entry is through the vault or chamber roof. Ladders shall include a Model 1 Bilco LadderUP safety post or approved equal.

D. Adequate drainage for the vault or chamber shall be provided. (Drainage to piped storm systems allowed with check valve).

E. Vault must be equipped with a moisture proof light fixture if adequate lighting is not available.

F. Vault is to have no other use, except for use described by these Standards.

G. Vault shall be installed on undisturbed base or compacted 3/4"-0" gravel base.

H. No piping shall be installed in excess of three (3) feet above the vault floor.

I. Assembly is to be adequately supported from the floor, and suitably restrained from movement. Supports shall consist of steel supports or approved equal; no wood supports shall be used.

J. All electrical wiring shall be inspected by the Washington State Electrical Inspector (Permit is required).

K. The assembly shall be readily accessible with adequate room for maintenance.

L. All new services are to be pressure tested and disinfected by the contractor and proven to be bacteriologically safe from the existing main to the vault.

5.22 Fire Services and Domestic Services

A. No part of the backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. In a vault or chamber, adequate drainage shall be provided; and test cocks shall be plugged. The plugs shall not be of dissimilar metals.

B. The backflow assembly shall be protected from freezing and other severe weather conditions.

C. All backflow assemblies shall have a minimum twelve (12) inch clearance on the backside, Twenty-four (24) inch clearance on the test-cock side and twelve (12) inches below the assembly.

Adequate clearance of at least six (6) inches must be maintained above gate-valve stem at full extension. Headroom of six (6) feet is required in vaults without a full opening top. Access to the device and to any vault or chamber shall remain clear at all times.

D. No more than one (1) premises shall be served by any one (1) fire service.

E. Fire services shall be metered at the expense of the owner. Detector check meters shall be installed on automatic fire sprinkler services which may include hose racks inside the building; size and type shall be approved by the City. Double Check Detector Assemblies shall be installed on all fire services where hydrants are installed.

5.23 Special for Fire Service Only

A. Fire Service backflow prevention assemblies shall be installed at the property line or edge of the public water line easement. The fire service from the public main to the backflow assembly shall be publicly owned and meet all City's Standard Drawings.

B. Only approved resilient seat indicating valves are allowed on fireline assemblies.

C. Only approved Double Check Detector Valve Assemblies are to be used for system containment on fire line services in the City. The meter on the bypass detector shall read in cubic feet.

D. Fire Line Flow and Tamper Switches installed, as required by UBC sec. 3803, must be connected to a monitored Fire Detection System approved by the Fire Marshal. The tamper switches are required on the rising stem gate valves in the vault, as well as any other indicating control valves on the fire protection system. Electrical inspection and permit is required.

E. The remote reader (if allowed) shall be rigidly mounted on an exterior building wall (near the domestic meter), enclosed in a metal box with a slot opening which allows reading the remote without opening the box, and at an elevation of five (5) feet above the ground level.

The remote reader shall have the same number configuration as the metering device itself, and read in cubic feet. All wires to the remote reader shall be enclosed in a heavy plastic or rigid metal conduit. All wiring shall be in conformance with appropriate sections of the National Electric Code.

5.24 Water Meter Vaults

The vault is to be provided and installed by the Contractor, per Standard Drawings.

5.25 Pressure Reducing Valve Vaults

PRV vaults are unique to each situation. The engineer shall detail the vault on the plans and submit for review. The City will review the vault for size and compliance with the general requirements listed under this section.

5.26 Appurtenances

A. Air and Vacuum Release Valves

1. Air and vacuum release valves shall be APCO - Valve and Primer Corporation, "Heavy-Duty," combination air release valve, or equal.

2. Installation shall be as shown on the Standard Details.

3. Piping and fittings shall be copper or brass. Location of the air release valves as shown on the plans is approximate. The installation shall be set at the high point of the line. Water line must be constructed so the air release valve may be installed in a convenient location.

WATER SUPPLY

ALL WATER SYSTEM WORK AND MATERIALS SHALL COMPLY WITH THE LATEST EDITION OF CITY SPECIFICATIONS, AND THE LATEST EDITION OF WSDOT/APWA SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPLE CONSTRUCTION, AND THE WASHINGTON STATE DIVISION ADMINISTRATIVE RULES CHAPTER 333, IN THAT ORDER.

ALL WATER AND SANITARY SEWER LATERALS TO BE POTHOLED FOR PIPE SIZE, TYPE, AND DEPTH PRIOR TO CONSTRUCTION. SHOP DRAWINGS ARE REQUIRED AND SHALL BE APPROVED PRIOR TO ANY CONNECTIONS.

ALL WATERLINE PIPE SHALL HAVE MINIMUM COVER OF 36 INCHES OVER TOP OF PIPE.

THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT PIPE INTERIORS, FITTINGS AND VALVES AGAINST CONTAMINATION. CONTRACTORS SHALL PROVIDE WRITTEN NOTIFICATION TO CUSTOMERS AND CITY 48 HOURS IN ADVANCE OF ANY PLANNED SHUT DOWN. WRITTEN NOTIFICATION TO BE APPROVED BY CITY.

FITTINGS AND PIPE SECTIONS THAT WILL NOT BE DISINFECTED BY CHLORINE IN LINE FOR 25 HOURS SHALL HAVE THE INTERIORS SWABBED WITH A 50 mg/l HYPOCHLORITE SOLUTION BEFORE THEY ARE INSTALLED. SWABBING SHALL BE WITNESSED BY CITY INSPECTOR.

CONCRETE THRUST BLOCKS ARE TO BE CONSTRUCTED AT TEES, BENDS, FIREHYDRANTS, BLOW-OFFS, AND WHERE INDICATED ON THE PLANS AND STANDARD DETAILS. THE MINIMUM BEARING SURFACE AGAINST UNDISTURBED SOIL IS SHOWN ON THE DETAIL SHEET. THRUST BLOCKS SHALL BE ALLOWED TO CURE 14 DAYS BEFORE PIPELINE PRESSURE TESTING UNLESS 3-DAY MIX IS USED. FITTINGS SHALL BE WRAPPED WITH A POLY PLASTIC AS A BOND BREAKER. BLOCKS SHALL BE FORMED PRIOR TO POUR.

THE PIPELINE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH THE CITY SPECIFICATIONS. THE TEST IS TO BE WITNESSED BY THE CITY PUBLIC WORKS INSPECTOR.

THE PIPELINE IS TO BE THOROUGHLY DISINFECTED AND FLUSHED (AT 6 FPS FLUSHING VELOCITY) IN ACCORDANCE WITH THE CURRENT CITY STANDARDS. DECHLORINATION REQUIRED. NO DISCHARGE OF CHLORINATED WATER ALLOWED. SANITARY SEWER NOT TO BE USED FOR DISCHARGE. SUBMIT CHLORINATION AND DE-CHLORINATION PLAN ONE WEEK PRIOR TO CHLORINATION. CHLORINATION TO BE PERFORMED AFTER THE LINES ARE FLUSHED AND HAVE PASSED PRESSURE TEST.

PRIOR TO ENERGIZING THE WATER SYSTEM, A BACTERIOLOGICAL WATER SAMPLE SHALL BE TAKEN BY THE CITY WATER DEPARTMENT INSPECTOR, SUBMITTED TO AN ACCREDITED TESTING LAB, AND RETURNED TO THE DEPARTMENT INDICATING NO HAZARDS EXISTS.

NO ONE OTHER THAN CITY OF LONGVIEW WATER DEPARTMENT PERSONNEL TO OPERATE VALVES. ALL VALVES TO REMAIN ACCESSIBLE.

ALL PIPE AND FITTINGS SHALL BE RESTRAINED JOINT. FITTINGS TO BE MEGA-LUG. PIPE TO HAVE FIELD LOCK GASKETS. ALL PIPE SHALL HAVE SECONDARY RESTRAINT WITH THRUST BLOCKS OR APPROVED EQUAL.

TRACER WIRE - 12 GAUGE SOFT DRAWN (BLUE) TO BE USED.

AS BUILT DRAWINGS SHALL BE SUBMITTED & APPROVED PRIOR TO ACCEPTANCE.

ALL BACKFILL SHALL BE $\frac{5}{8}$" MINUS (CSTC).

FOUNDATION MATERIAL & GEO GRID SHALL BE INSTALLED AS DIRECTED BY THE CITY TO THE DEPTH AS DIRECTED.

Kelso Longview Cities Working Together

WATER GENERAL NOTES

STANDARD PLAN: **W - 000**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**

WATER NOTES ADDITIONAL

1. CONNECTION TO THE WATER SYSTEM SHALL BE INSPECTED BY PUBLIC WORKS DEPARTMENT PRIOR TO BACKFILL 48 HOURS (2 WORKING DAYS) NOTICE FOR INSPECTION.
2. ALL WATER SYSTEM FLUSHING, INCLUDING FIRE LINES, SHALL BE SCHEDULED THROUGH THE PUBLIC WORKS DEPARTMENT WHO WILL IN TURN SCHEDULE THE WATER DEPARTMENT TO BE PRESENT TO RECORD WATER USED AND TO OPERATE VALVES.
3. UTILITY PERMITS MUST BE APPLIED AND PAID FOR PRIOR TO ANY CONNECTIONS BEING MADE TO EITHER THE WATER OR SEWER SYSTEM.
4. BACKFLOW DEVICES REQUIRED ON ALL COMMERCIAL, IRRIGATION AND FIRE SERVICE CONNECTIONS TO THE CITY SYSTEM. CITY TO DETERMINE LEVEL OF HAZARD & DEVICE REQUIRED DURING PLAN REVIEW/DESIGN.
5. ONLY CITY WATER DEPARTMENT PERSONNEL SHALL OPERATE CITY VALVES.
6. SHUT DOWNS OF THE WATER SYSTEM FOR CONNECTIONS WILL BE DONE BETWEEN TUESDAY THROUGH THURSDAY FROM 8 AM TO 4 PM. MAX TIME THE WATER MAY BE OFF IS 4 HOURS.
7. SUBMITTALS AND SHOP DRAWINGS MUST BE APPROVED BEFORE THE SHUT DOWN IS SCHEDULED CONTRACTOR IS REQUIRED TO NOTIFY THE CUSTOMERS AFFECTED 2 WORKING DAYS IN ADVANCE IN WRITTING WITH CITY APPROVED LETTER. CONTRACTOR SHALL PRE-BOLT ALL MATERIALS & HAVE THE ASSEMBLY INSPECTED PRIOR TO ANY SHUT DOWN OF THE CITY SYSTEM. ALL BOLTS THAT WILL NOT UNDERGO PRESSURE TESTING SHALL BE TORQUE TIGHTENED TO MANUFACTURERES RECOMMENDATIONS IN THE PRESENCE OF THE INSPECTOR.
8. METERS LARGER THAN 1" WILL BE SUPPLIED BY THE CONTRACTOR.
    A. MUST BE DELIVERED TO THE WATER DEPARTMENT SHOP FOR ACCURACY TESTING AT LEAST ONE WEEK PRIOR TO INSTALLATION DATE.
    B. MUST BE INSTALLED BY THE CONTRACTOR.
9. (City of Longview Only)CONCRETE COLLARS SHALL BE STAMPED WITH PIPE SIZE & FLOW DIRECTION. (CITY SHALL SUPPLY/LOAN STAMPS)

Kelso Longview
Cities Working Together

WATER GENERAL NOTES

STANDARD PLAN: **W - 001**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

Kelso Longview
Cities Working Together

WATER SERVICE CONNECTION

STANDARD PLAN: **W - 010**

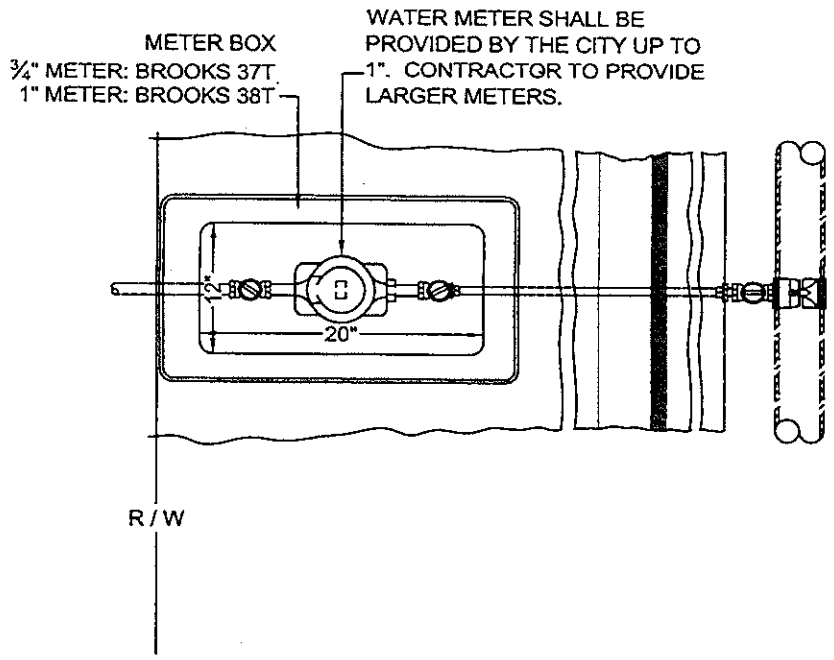
DATE: **FEB. 2008**

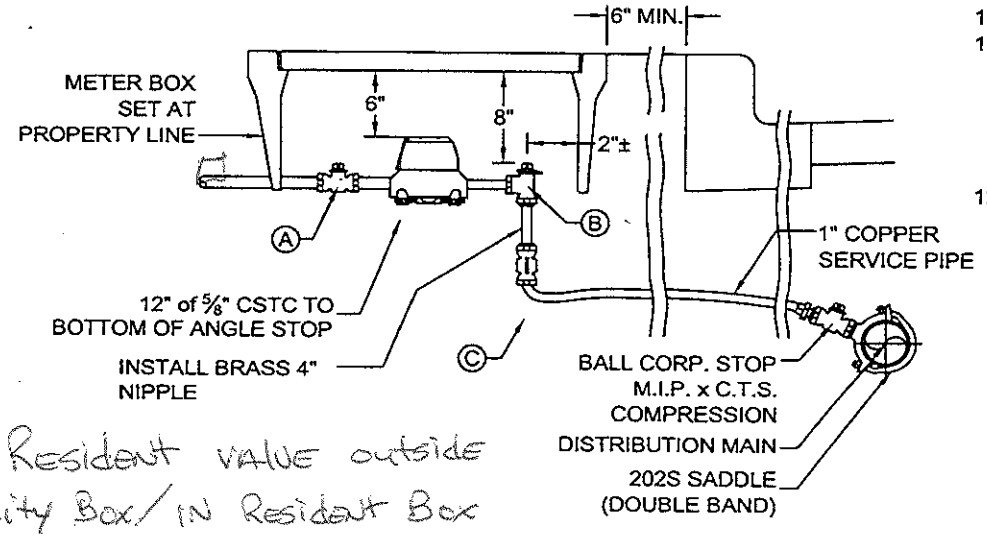
CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**

METER TO BE PLUMB AND SET ON A HORIZONTAL PLANE
METER TO BE CENTERED EACH WAY INSIDE METER BOX



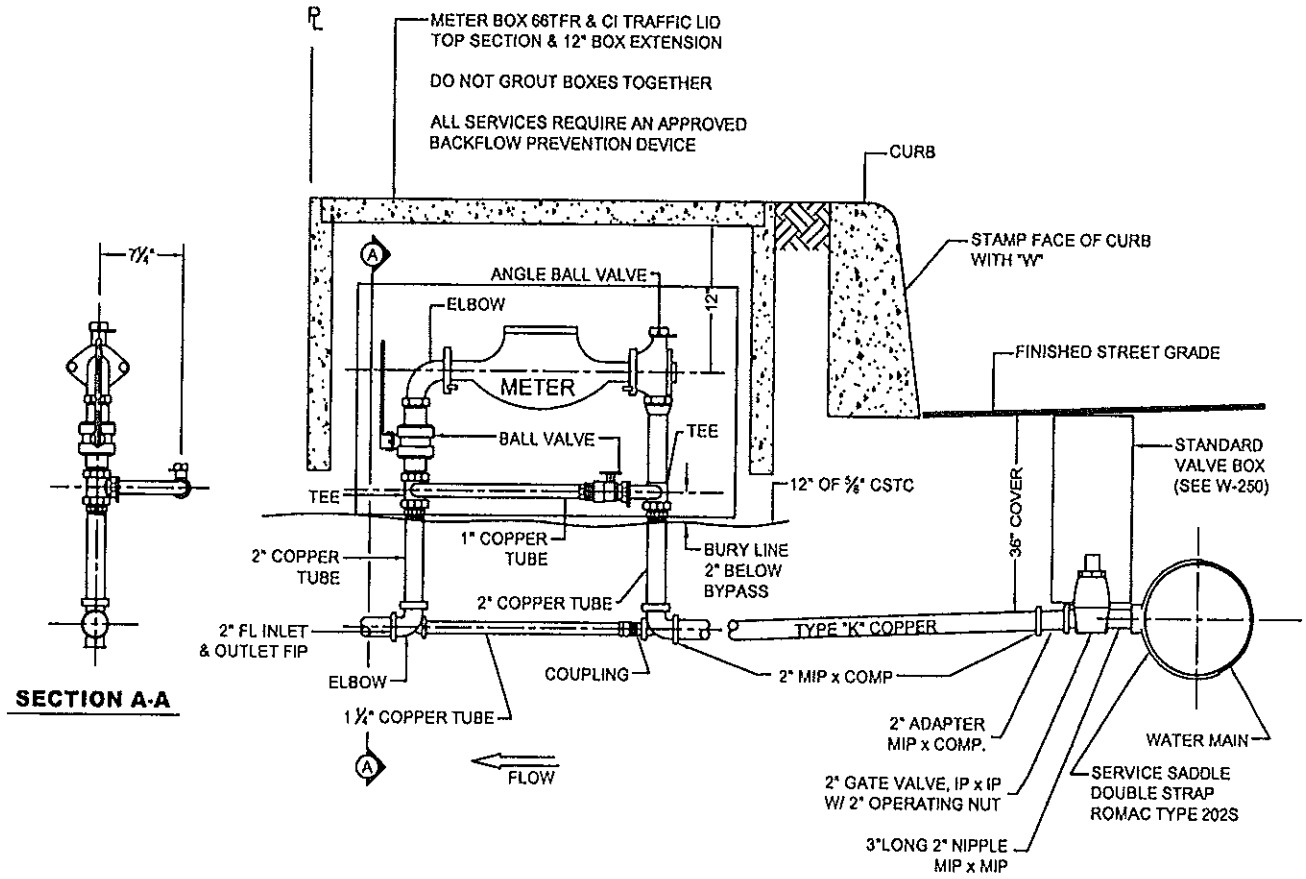


Resident VALVE outside
City Box / IN Resident Box

NOTES:

1. CLEARANCES:
   MIN. 5' FROM EDGE OF DRIVEWAY - NO METERS IN DRIVEWAY SECTION
   MIN. 10' FROM TREES
   MIN. 5' FROM OTHER UTILITIES, EXCEPT SEWER @ 10'
   MIN. DEPTH AT RIGHT OF WAY IS 36"
   MIN. DEPTH ON CUSTOMER SIDE IS 18"
2. CTS = COMPRESSION ALL BRASS & COPPER - NO GALVANIZED OR PLASTIC.
3. THE SERVICE LINE SHALL BE CONTINUOUS WITHOUT COUPLINGS BETWEEN THE CORPORATION STOP AND CURB STOP VALVE UNLESS APPROVED BY THE ENGINEER.
4. NO DIRECT TAPS ALLOWED.
5. METER LOCATION TO BE DETERMINED BY THE CITY.
6. SADDLES SHALL BE DOUBLE BAND DUCTILE IRON, BRONZE, STAINLESS STEEL, OR BAND-TYPE WITH I.P. STANDARD TAPPING.
7. BALL CORPORATION STOPS FOR USE WITH SADDLES SHALL BE OF BRONZE ALLOY WITH INLET I.P. STANDARD THREAD AND COMPRESSION OUTLET COMPATIBLE WITH CONNECTION PIPING, WITH NO ADAPTERS.
8. SERVICE PIPE SHALL BE A MINIMUM OF 1" TYPE K COPPER TUBING.
9. COMPRESSION COUPLING FOR USE IN CONNECTING PLAIN END WATER SERVICE PIPES SHALL BE APPLICABLE FOR THE TYPE OF PIPE BEING COUPLED. COMPRESSION COUPLINGS SHALL HAVE ARMORED GASKETS WHEN DIS-SIMILAR METAL PIPES ARE BEING JOINED.
10. WATER METERS SHALL NOT BE PLACED IN SIDEWALK.
11. CORPORATION STOPS AND COUPLINGS SHALL BE OF THE FOLLOWING MANUFACTURER BRANDS AND BE COMPRESSION DESIGN.
    MUELLER
    McDONALD
    FORD
12. METER BOX LIDS SHALL BE TOUCH READ APPLICATION WITH PLUG IN KNOCK-OUT.

VALVE	¾" METER	1" METER
A	¾" BALL VALVE - FEMALE I.P. x METER	1" BALL VALVE - FEMALE I.P. x METER
B	1" X ¾" ANGLE BALL VALVE STOP IP x METER	1" ANGLE BALL VALVE STOP IP x METER
C	1" BALL VALVE - F.I.P. x CTS COMPRESSION WITH LOCKING OPERATING NUT. (NO ADAPTERS ALLOWED) BALL VALVE TO BE INSTALLED AT 90° TO ANGLE STOP	



SECTION A-A

NOTES:

1. ALL FITTINGS SHALL BE BRASS.
2. NO FITTING ALLOWED FROM MAIN TO SETTER.
3. METER LAYING LENGTH: 1 ½" = 13"
   2" = 17"
   PLUS ½" FOR GASKETS
4. ALL METERS SHALL READ IN CUBIC FEET.
5. CONTRACTOR OR DEVELOPER WILL SUPPLY WATER METER TO CITY FOR TESTING PRIOR TO INSTALLATION.
6. METER SIZE TO BE APPROVED BY THE CITY.
7. METER TO BE REMOTE READ TYPE.
8. 1 ½" METERS WILL REQUIRE 2" x 1 ½" METER FLANGE REDUCERS.
9. METER BOX LIDS SHALL BE TOUCH READ APPLICATION WITH PLUG IN KNOCK-OUT.
10. FINAL GRADE ADJUSTMENT SHALL BE PERFORMED BY MODIFYING & STACKING BOXES.

Kelso Longview
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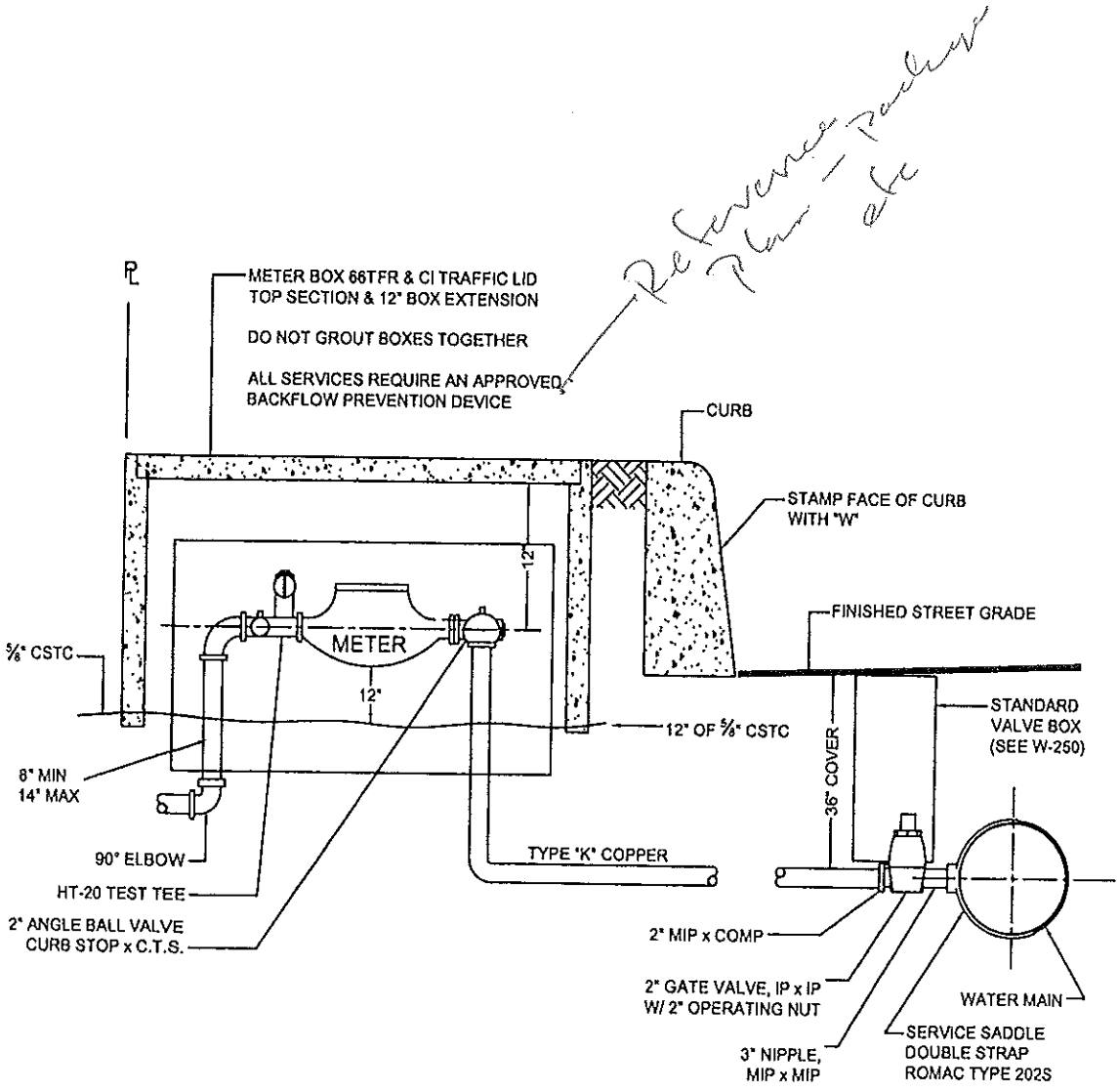
2" DOMESTIC WATER SERVICE

STANDARD PLAN: **W - 020**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**



NOTES:

1. ALL FITTINGS SHALL BE BRASS.
2. NO FITTING ALLOWED FROM MAIN TO SETTER.
3. METER LAYING LENGTH: 1 ½" = 13"
   2" = 17"
   PLUS ½" FOR GASKETS
4. ALL METERS SHALL READ IN CUBIC FEET.
5. CONTRACTOR OR DEVELOPER WILL SUPPLY WATER METER TO CITY FOR TESTING PRIOR TO INSTALLATION.
6. METER SIZE TO BE APPROVED BY THE CITY.
7. METER TO BE REMOTE READ TYPE.
8. 1 ½" METERS WILL REQUIRE 2" x 1 ½" METER FLANGE REDUCERS.
9. METER BOX LIDS SHALL BE TOUCH READ APPLICATION WITH PLUG IN KNOCK-OUT.
10. FINAL GRADE ADJUSTMENT SHALL BE PERFORMED BY MODIFYING & STACKING BOXES.

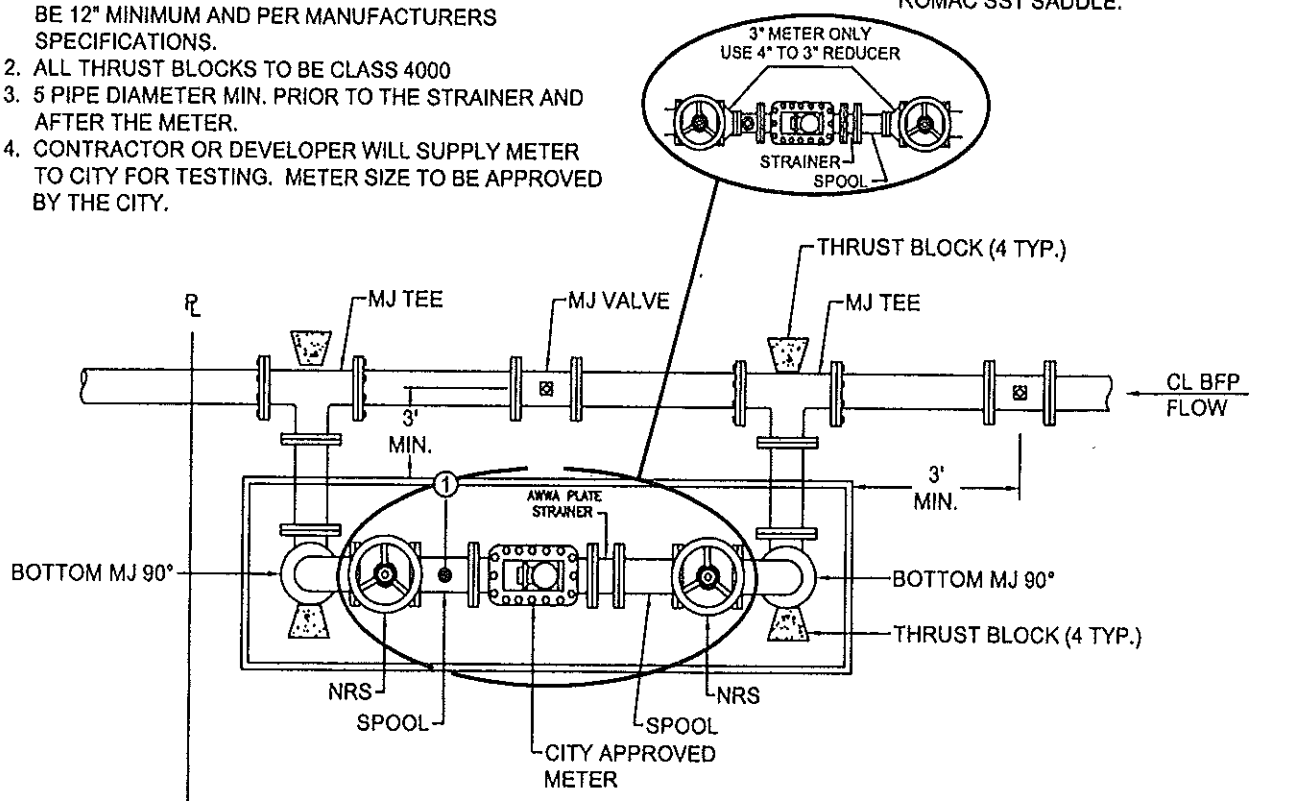
Kelso Longview
Cities Working Together

2" IRRIGATION WATER SERVICE

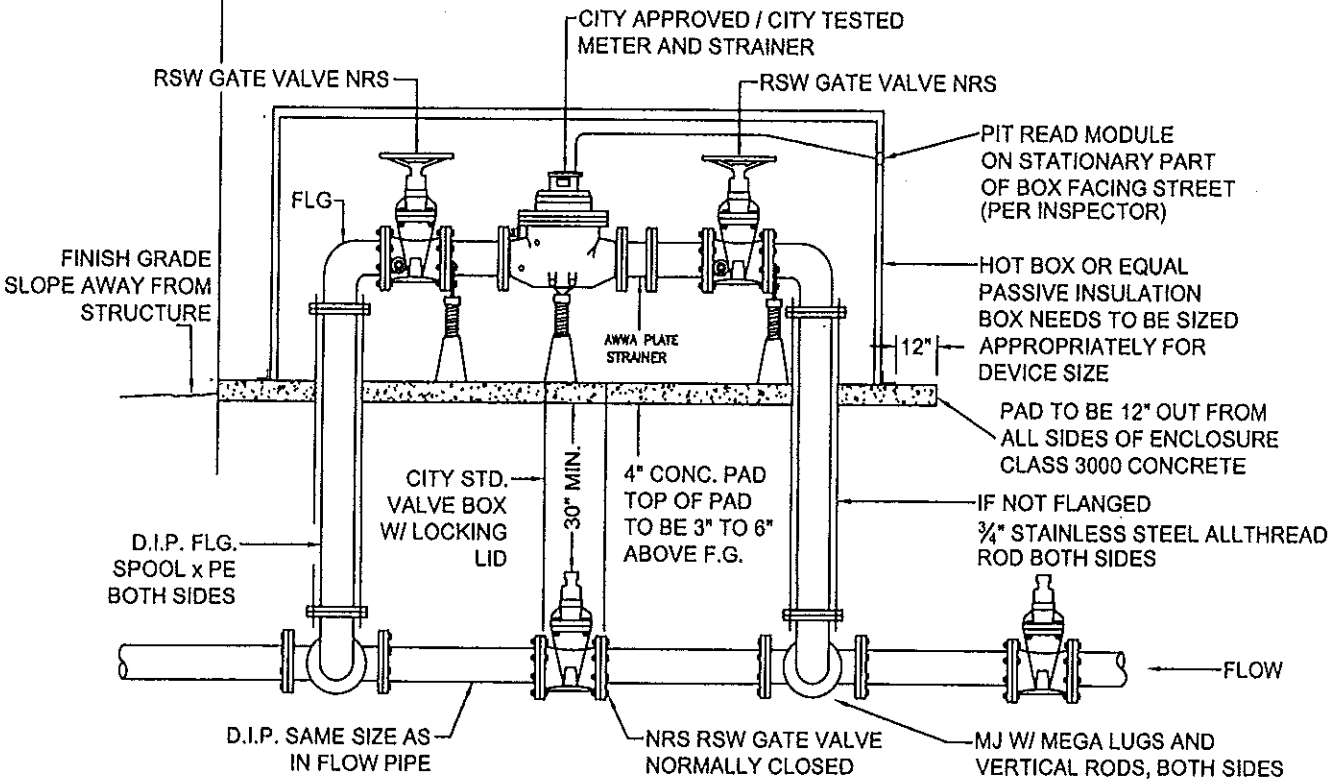
STANDARD PLAN: **W - 030**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

NOTES:

1. INSULATED ENCLOSURES INTERIOR CLEARANCE TO BE 12" MINIMUM AND PER MANUFACTURERS SPECIFICATIONS.
2. ALL THRUST BLOCKS TO BE CLASS 4000
3. 5 PIPE DIAMETER MIN. PRIOR TO THE STRAINER AND AFTER THE METER.
4. CONTRACTOR OR DEVELOPER WILL SUPPLY METER TO CITY FOR TESTING. METER SIZE TO BE APPROVED BY THE CITY.



PLAN



ELEVATION

Kelso Longview Cities Working Together

3" AND LARGER, ABOVE GROUND, DOMESTIC METER

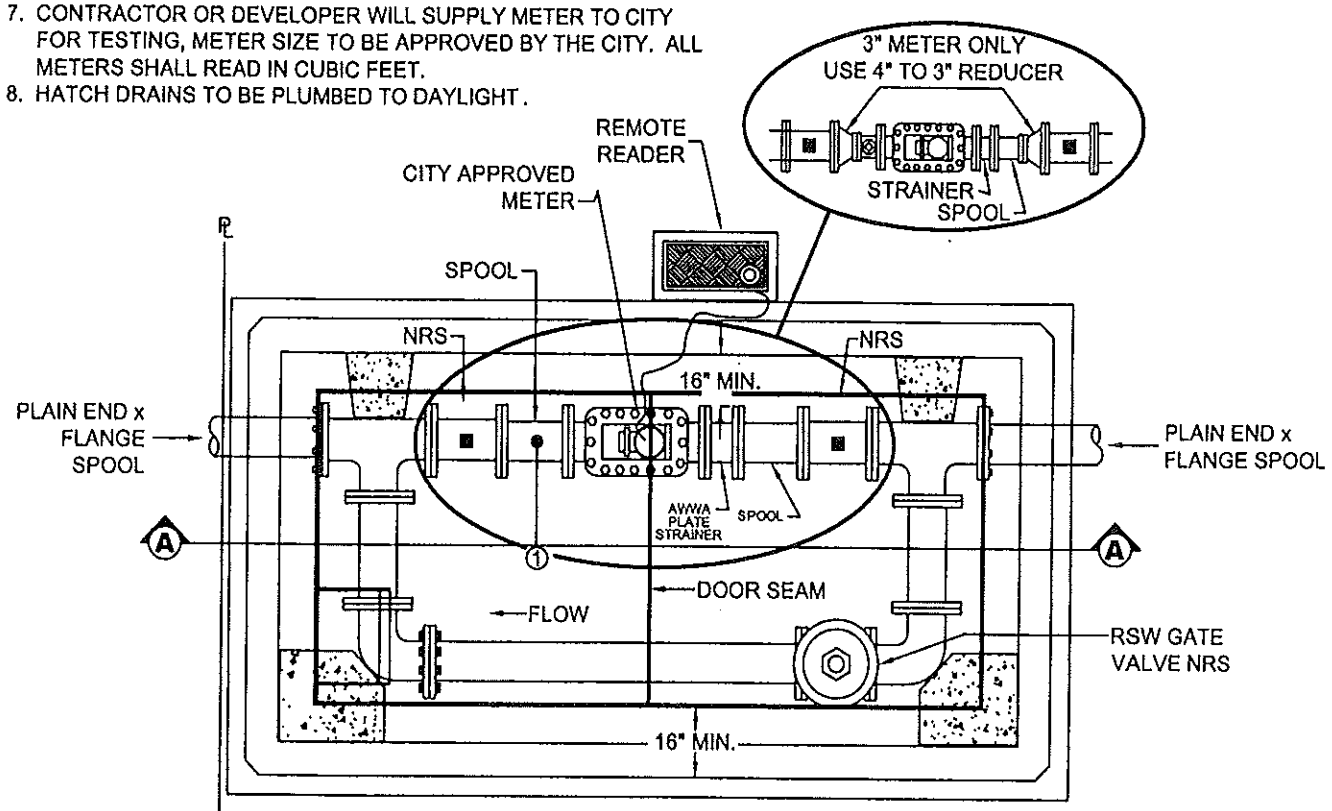
STANDARD PLAN: W - 050	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

NOTES:

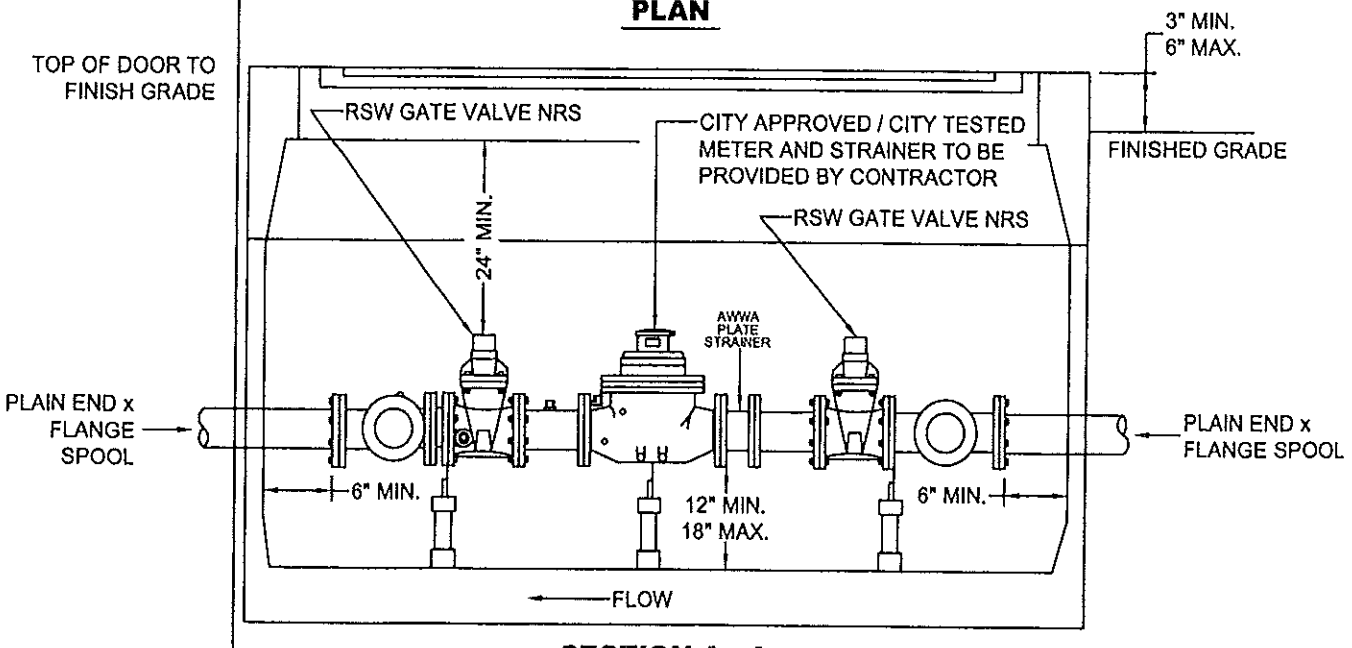
1. LINK SEALS AROUND ALL PIPE OPENINGS.
2. NOT TO BE LOCATED IN TRAFFIC AREAS OR PARKING LOTS.
3. UTILITY VAULT OR EQUAL.
4. USE DOUBLE RAISE ALUMINUM LW PRODUCTS HHD-1 HYDRAULIC ASSIST LOCKING HATCH (MIN. 36" x 60") (HS20 LOADING) LEAK PROOF GASKET.
5. ALL THUST BLOCKS TO BE CLASS 4000.
6. FIVE (5) PIPE DIAMETERS MIN. PRIOR TO THE STRAINER AND AFTER THE METER.
7. CONTRACTOR OR DEVELOPER WILL SUPPLY METER TO CITY FOR TESTING, METER SIZE TO BE APPROVED BY THE CITY. ALL METERS SHALL READ IN CUBIC FEET.
8. HATCH DRAINS TO BE PLUMBED TO DAYLIGHT.

RSW = RESILIENT SEAT WEDGE
NRS = NON-RISING STEM
KNOCKOUTS NOT ALLOWED IN VAULTS

① 2" TEST PLUG, 4" BRASS NIPPLE, WITH 2" BALL VALVE WITH PLUG



PLAN



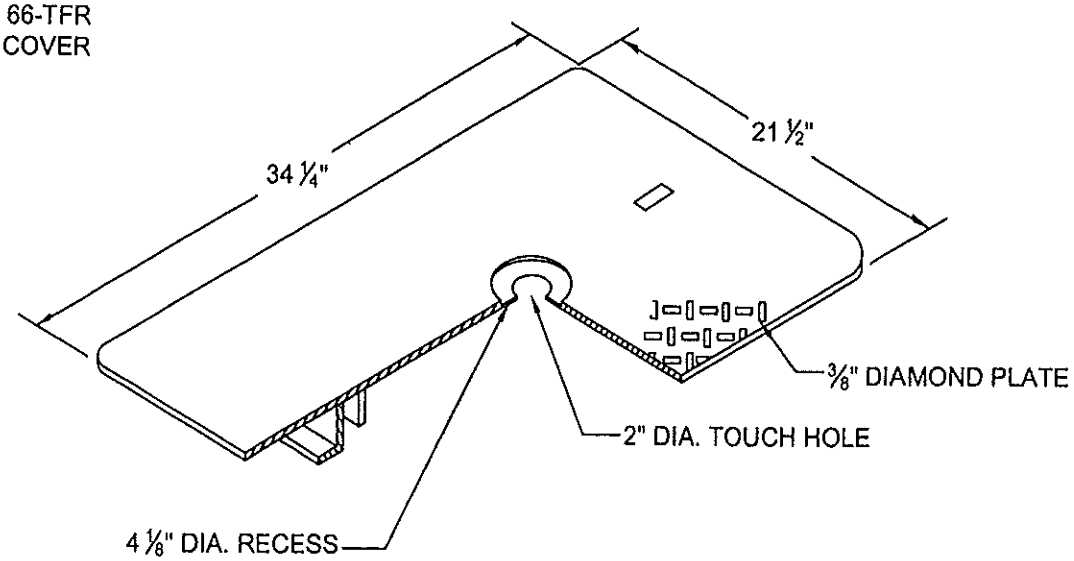
SECTION A - A

Kelso Longview
Cities Working Together

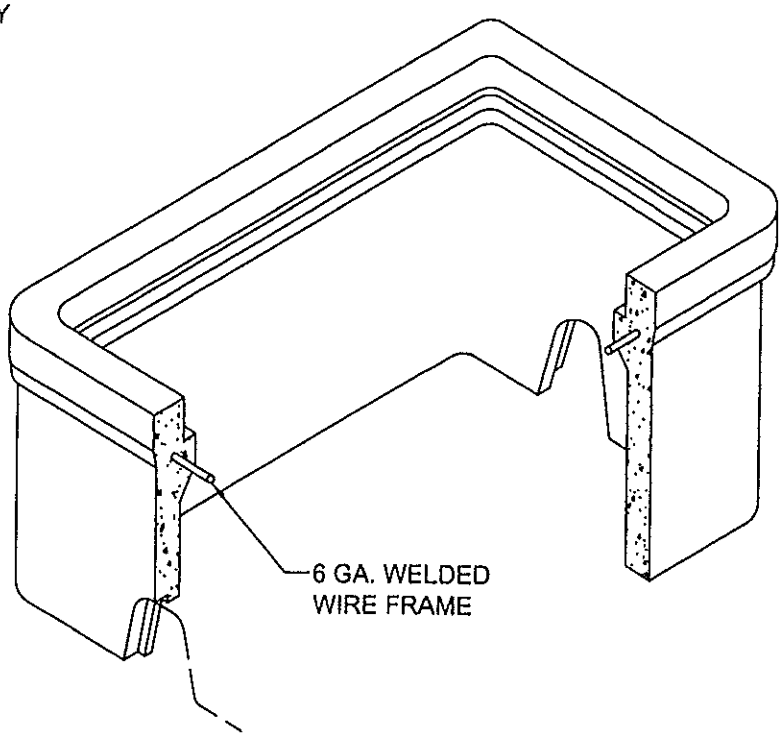
3" AND LARGER, BELOW GROUND, DOMESTIC METER

STANDARD PLAN: W - 060	CITY ENGINEER APPROVAL:
DATE: **FEB. 2007**	Longview: **C.B.**
	Kelso: **S.Z.**

BROOKS NO. 66-TFR
STEEL TRAFFIC COVER



BROOKS NO. 66
BODY



INSIDE DIMENSION OF BOX
= 17" x 30"

Kelso Longview
Cities Working Together

TRAFFIC COVER & BOX, TOUCH AND READ APPLICATION 2" METER

STANDARD PLAN: **W - 080**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

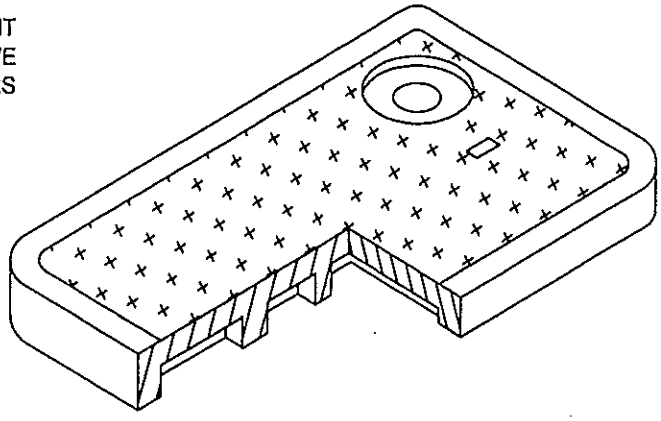
Longview: **C.B.**

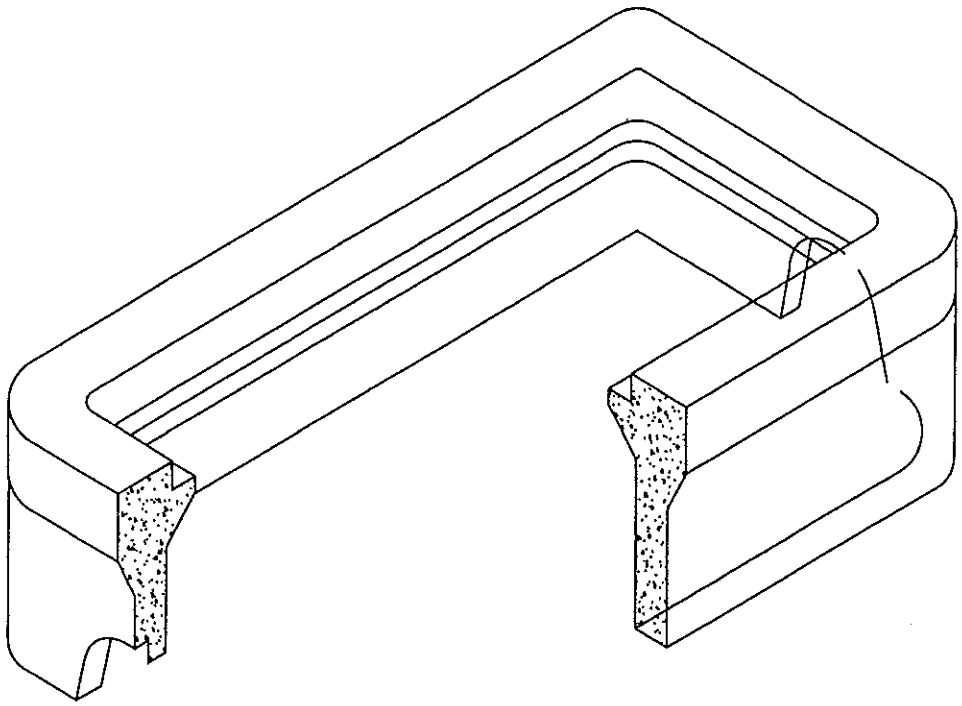
Kelso: **S.Z.**

BROOKS NO.37-T

TRAFFIC COVER AND BOX
TOUCH AND READ APPLICATION

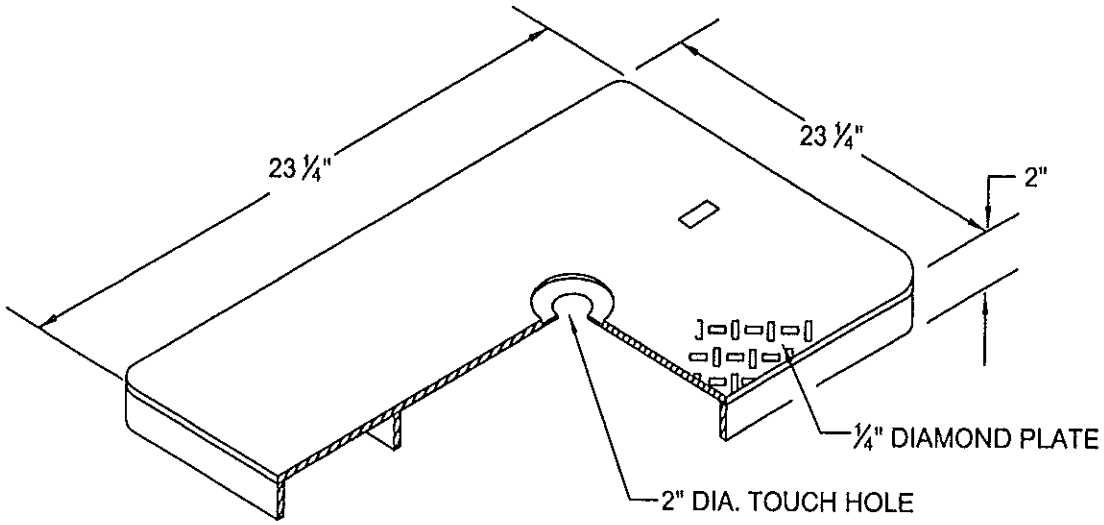
ALL DEVELOPMENT PROJECTS SHALL HAVE REMOTE READ METERS



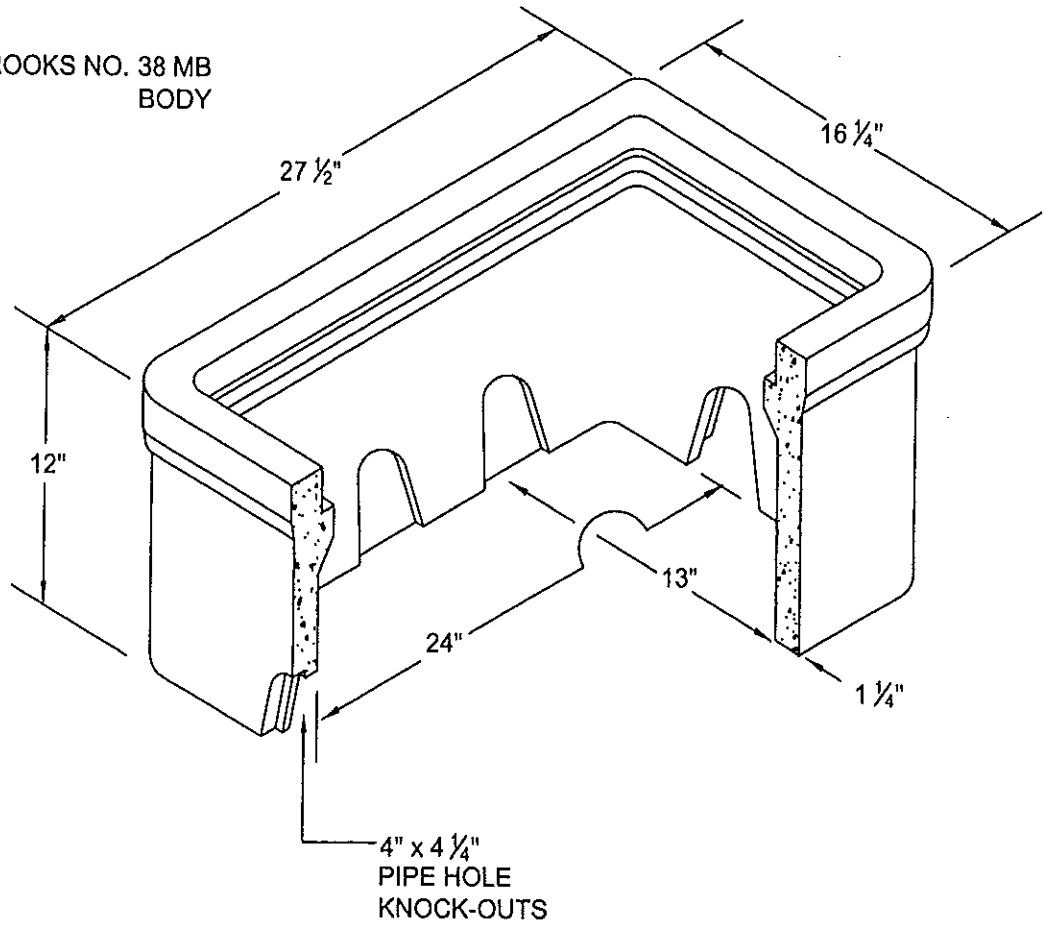


Kelso Longview Cities Working Together	**TOUCH AND READ FOR 3/4" WATER METER BOX**	
	STANDARD PLAN: **W - 100**	CITY ENGINEER APPROVAL:
	DATE: **FEB. 2007**	Longview: **C.B.**
		Kelso: **S.Z.**

BROOKS NO. 38-TF
STEEL TRAFFIC COVER FLUSH



BROOKS NO. 38 MB
BODY



Kelso Longview
Cities Working Together

TRAFFIC COVER & BOX, TOUCH & READ APPLICATION - 1" METERS

STANDARD PLAN: **W - 110**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2007**	Longview: **C.B.**
	Kelso: **S.Z.**

Kelso Longview
Cities Working Together

2" - 6" TYPICAL PRESSURE RELIEF STATION

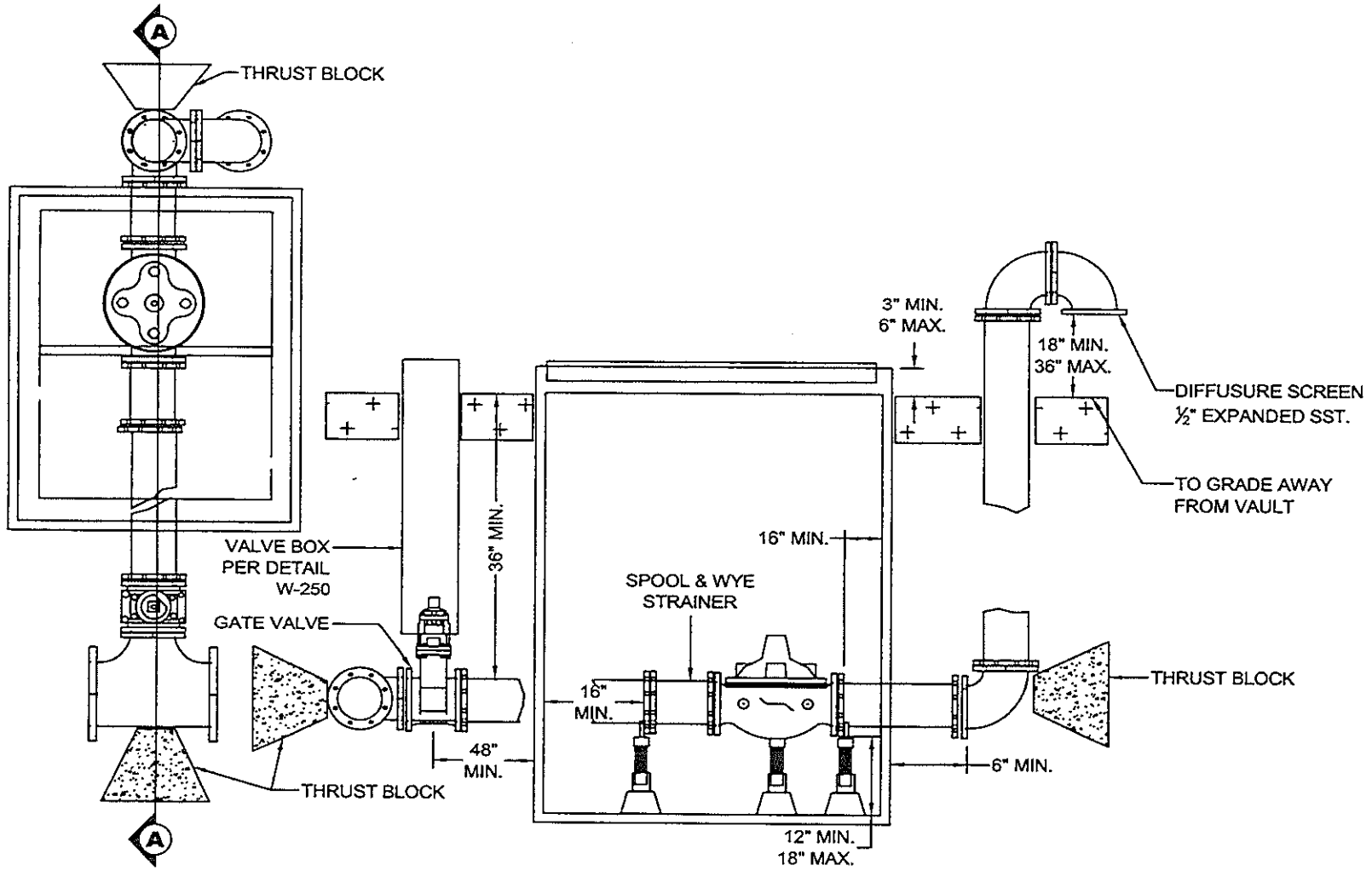
STANDARD PLAN: **W - 130**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**



NOTES:

1. ALL FITTINGS SHALL BE FLANGED.
2. VAULT SHALL BE UTILITY VAULT OR EQUAL.
3. DOORS TO BE LW HHD-1 OR EQUAL AND LEAK PROOF.
4. ALL VAULT PENETRATIONS TO BE SEALED WITH LINK SEAL OR EQUAL.
5. LID TO BE 36 x 60 LW HHD-1 HYDRAULIC LIFT ASSISTED.
6. KNOCKOUTS NOT ALLOWED IN VAULT HATCH TO DRAIN OUTSIDE VAULT.

SECTION A - A

7. 50-01 CLA VALVE WITH INDICATOR STEM.
8. RELIEF STATION NOT TO BE LOCATED IN TRAFFIC AREAS.
9. MINIMUM LID SIZE 36" x 60".
10. ALL THRUST BLOCKS TO BE CLASS 4000 CONCRETE.
11. VAULT TO BE ABOVE FINISHED GRADE MIN. 3" - MAX. 6".
12. VAULT SHOP DRAWING REQUIRED PRIOR TO ORDERING MATERIALS.

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4" - 12" TYPICAL PRESSURE REGULATION STATION

STANDARD PLAN W-140

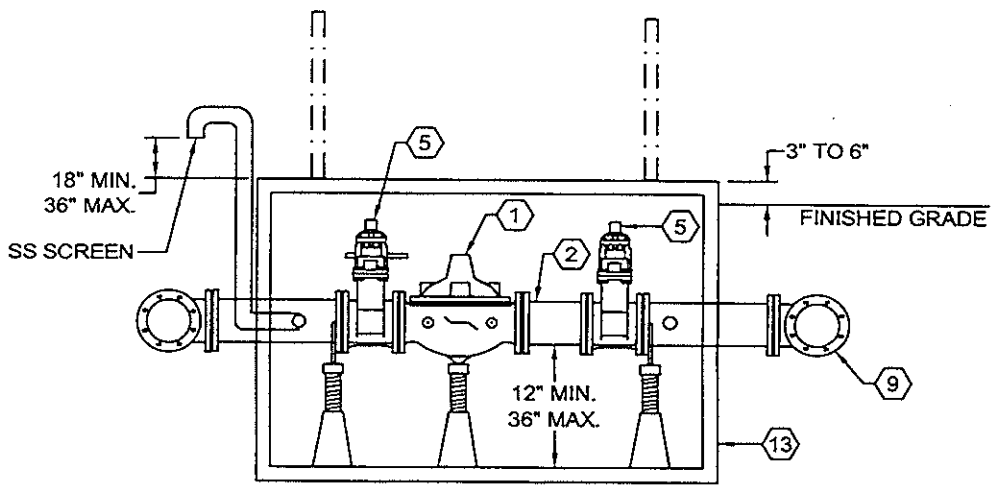
DATE: FEB. 2008

CITY ENGINEER APPROVAL

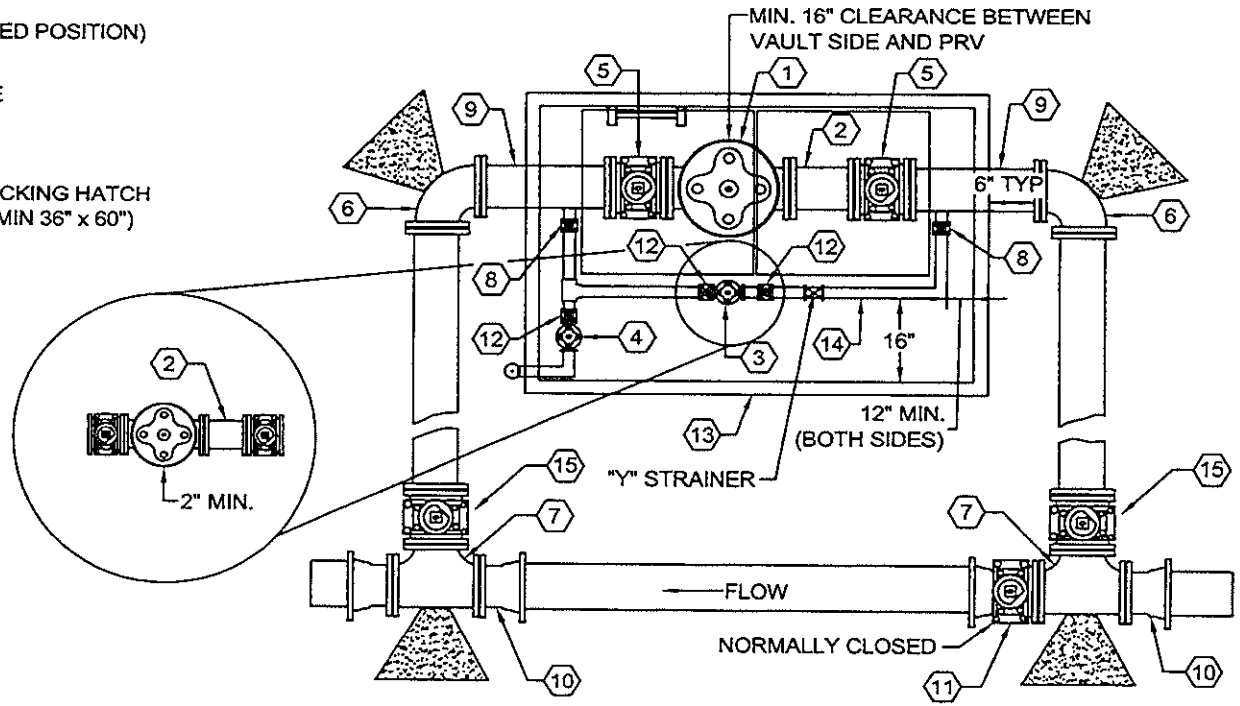
Longview: C.B.

Kelso: S.Z.

1. PRESSURE REDUCING VALVE 90-01 WITH STEM INDICATOR (CLA-VALVE OR EQUAL) (FIRE AND/OR PEAK DEMAND).
2. "Y" STRAINER FLG x MJ
3. LOW FLOW PRESSURE REDUCING VALVE 90-01 WITH STEM INDICATOR (CLA-VALVE OR EQUAL) (DOMESTIC AND/OR PEAK DEMAND).
4. PRESSURE RELIEF VALVE 50-01 & DISCHARGE PIPE SHALL BE SIZED FOR TOTAL FLOW.
5. RSWGV FLG x MJ
6. FLG x MJ 90d BEND
7. FLG x FLG TEE
8. RESILIANT SEAT WEDGE GATE VALVE
9. FLG x MJ D.I. SPOOL
10. FLG x MJ ADAPTOR. USE ROMAC FLG COUPLING ADAPTOR FOR INSTALLING IN EXISTING PIPE.
11. MJ x FLG RSWGV (ZONE VALVE CLOSED POSITION) FLG TO UPSTREAM TEE ONLY.
12. RESILIANT SEAT WEDGE GATE VALVE
13. VAULT (UTILITY VAULT OR EQUAL)
14. ALUMINUM HYDRALIC LIFT ASSIST LOCKING HATCH LW HDD-1 LEAK PROOF GASKETED. (MIN 36" x 60")
15. FLG x MJ VALVE



SECTION



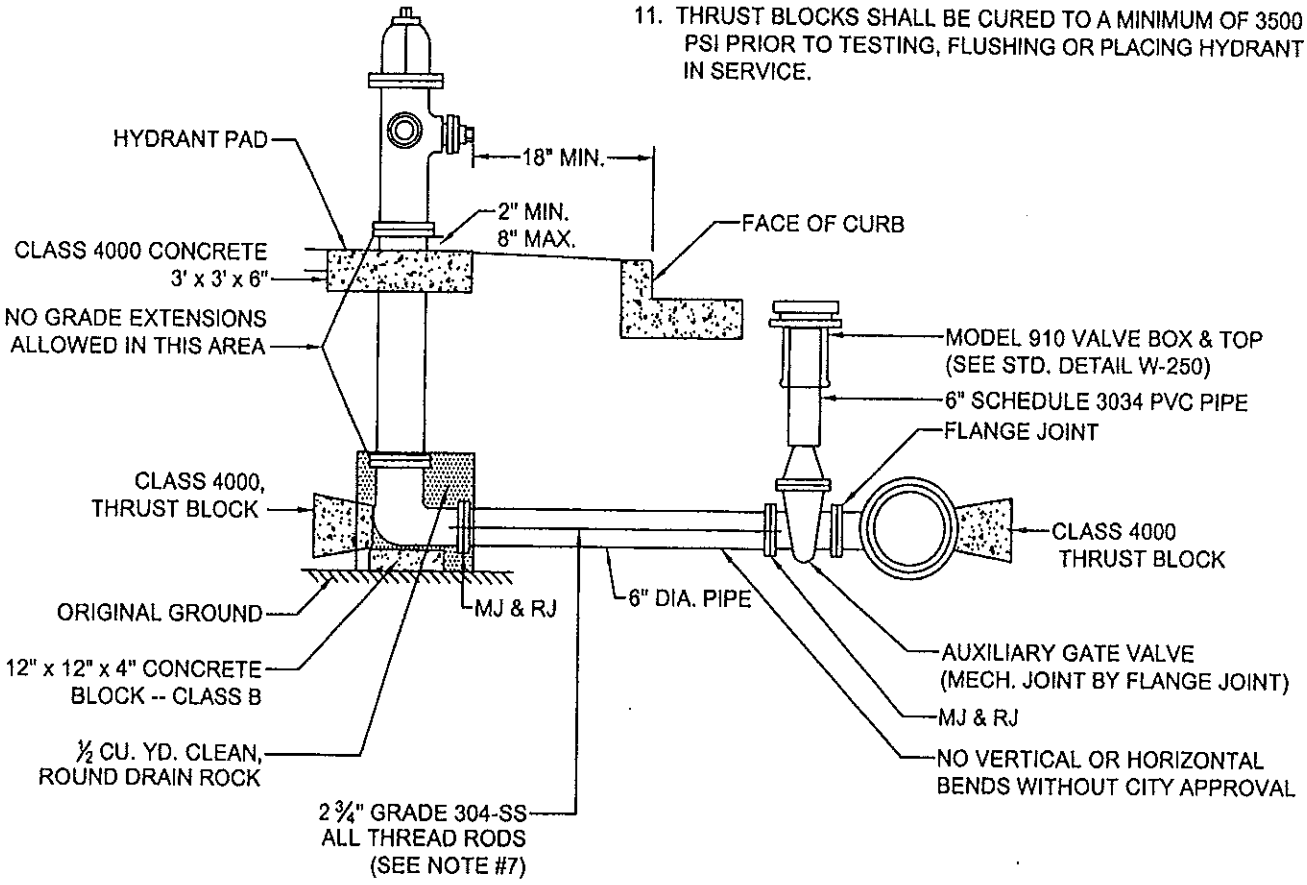
PLAN

NOTES:

1. ALL PENETRATIONS OF VAULT SHALL BE LINK SEAL OR EQUAL.
2. PRV HAS TO BE SIZED TO RELIEVE TOTAL CAPACITY OF STATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATION.
3. ALL THRUST BLOCKS TO BE CLASS 4000 CONCRETE.
4. HATCH TO DRAIN OUTSIDE VAULT.
5. ALL MJ FITTINGS TO BE RESTAINED.
6. LARGE VALVE TO HANDLE FIRE FLOW, SMALL VALVE TO HANDLE DOMESTIC MAX DA.
7. VAULT SHOP DRAWING REQUIRED PRIOR TO ORDERING MATERIALS.

NOTES:

1. TO ASSURE UNIFORMITY OF PARTS STOCKING, HYDRANTS SHALL BE 5 ¼" MUELLAR CENTURION, WATEROUS PACER 90, CLOW MEDALLION OR KENNEDY K81D GUARDIAN, WITH 16" TOP SECTION OR APPROVED EQUAL.
2. ALL HYDRANTS SHALL HAVE NATIONAL STANDARD THREAD OUTLETS, TWO 2 ½" PORTS AND SHALL BE EQUIPPED WITH ONE 4 ½" PUMPER CONNECTION WHICH FACES THE MAIN ROADWAY.
3. ALL HYDRANTS SHALL STAND PLUMB WITH THE LOWEST OUTLET OF THE HYDRANT NO LESS THAN 18" ABOVE FINISHED GRADE.
4. 10 MIL. PLASTIC SHEETING SHALL BE USED AS A BOND BREAKER BETWEEN CONCRETE BLOCKING AND PIPE FITTING AS WELL AS BETWEEN HYDRANT BARREL AND HYDRANT PAD.
5. INCLUDE VALVE BOX IN HYDRANT PAD WHEN BOX IS WITHIN 3' OR LESS OF HYDRANT OR BETWEEN SIDEWALK AND CURB.
6. ALL HYDRANTS SHALL BE BAGGED UNTIL SYSTEM IS APPROVED.
7. TO BE RODDED OR RESTAINED JOINTS INCLUDING THRUST BLOCKS.
8. HYDRANT MUST COMPLY TO ADA REQUIREMENTS.
9. CHAINS TO REMAIN ATTACHED TO HYDRANT.
10. NO BENDS IN 6" FROM MAIN TO HYDRANT.
11. THRUST BLOCKS SHALL BE CURED TO A MINIMUM OF 3500 PSI PRIOR TO TESTING, FLUSHING OR PLACING HYDRANT IN SERVICE.



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HYDRANTS

STANDARD PLAN: W - 150	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

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BLOWOFF ASSEMBLY

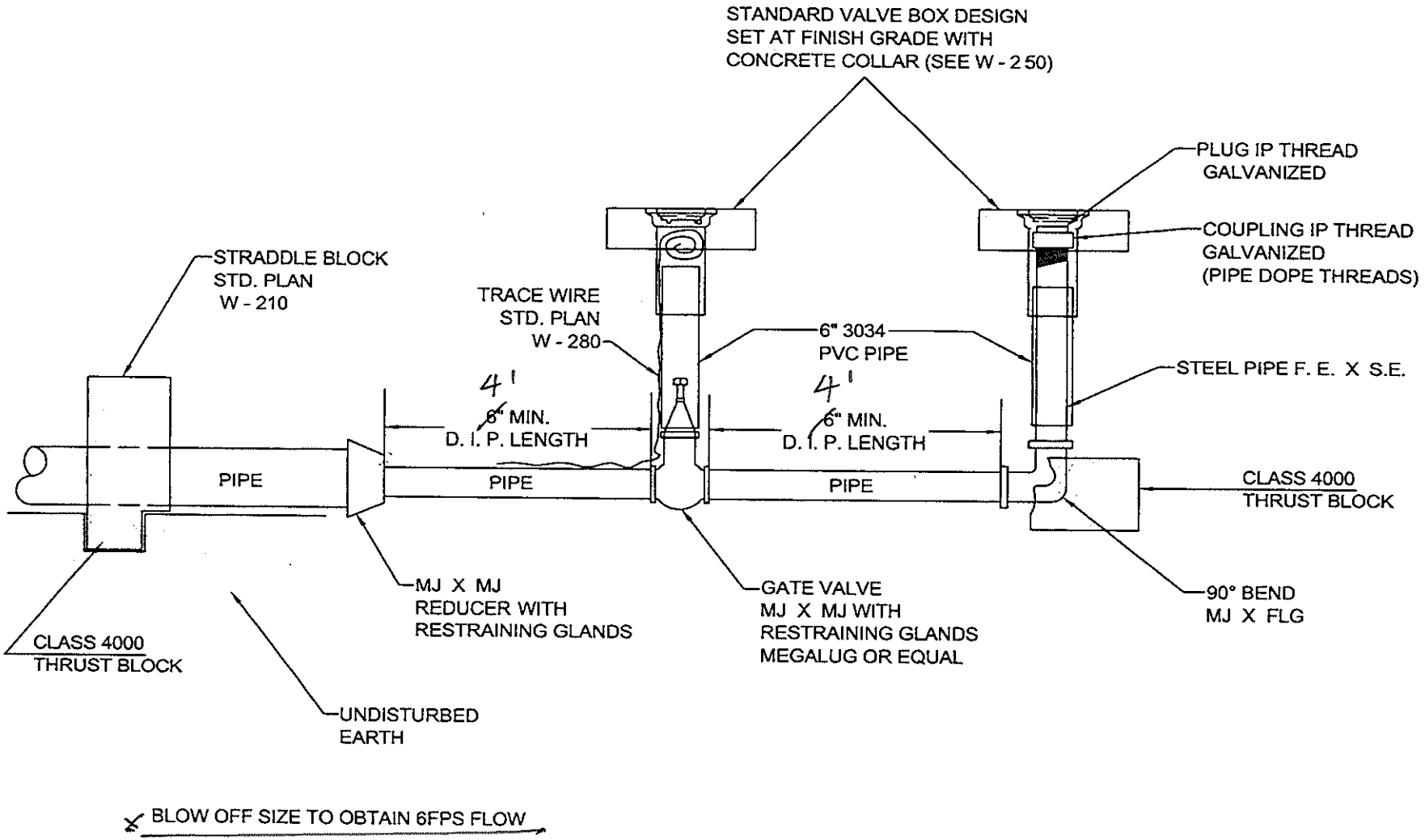
STANDARD PLAN: **W - 170**

DATE: **FEB. 2007**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**



Kelso Longview
Cities Working Together

MANUAL AIR RELEASE ASSEMBLY (1")

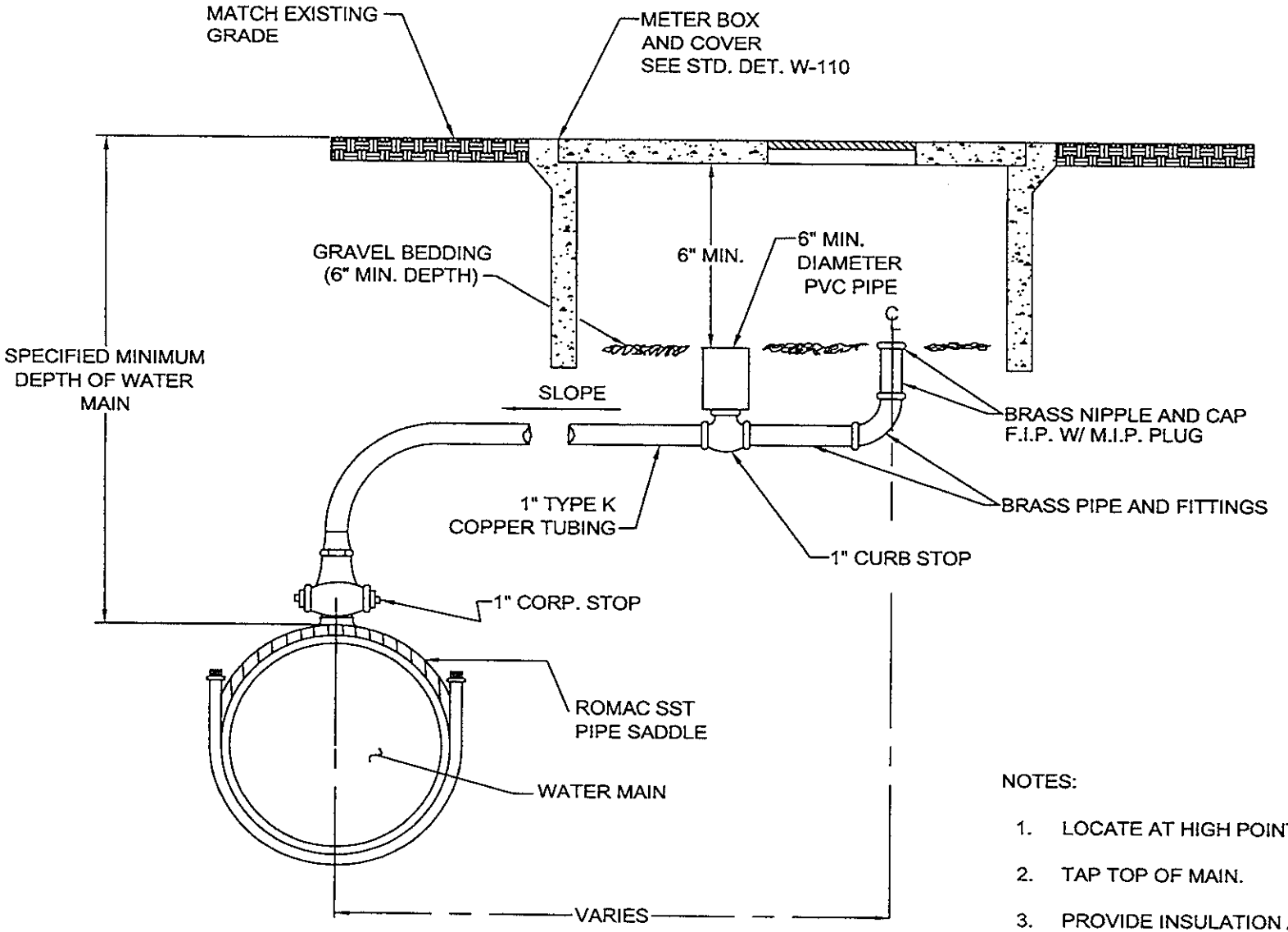
STANDARD PLAN: **W - 180**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

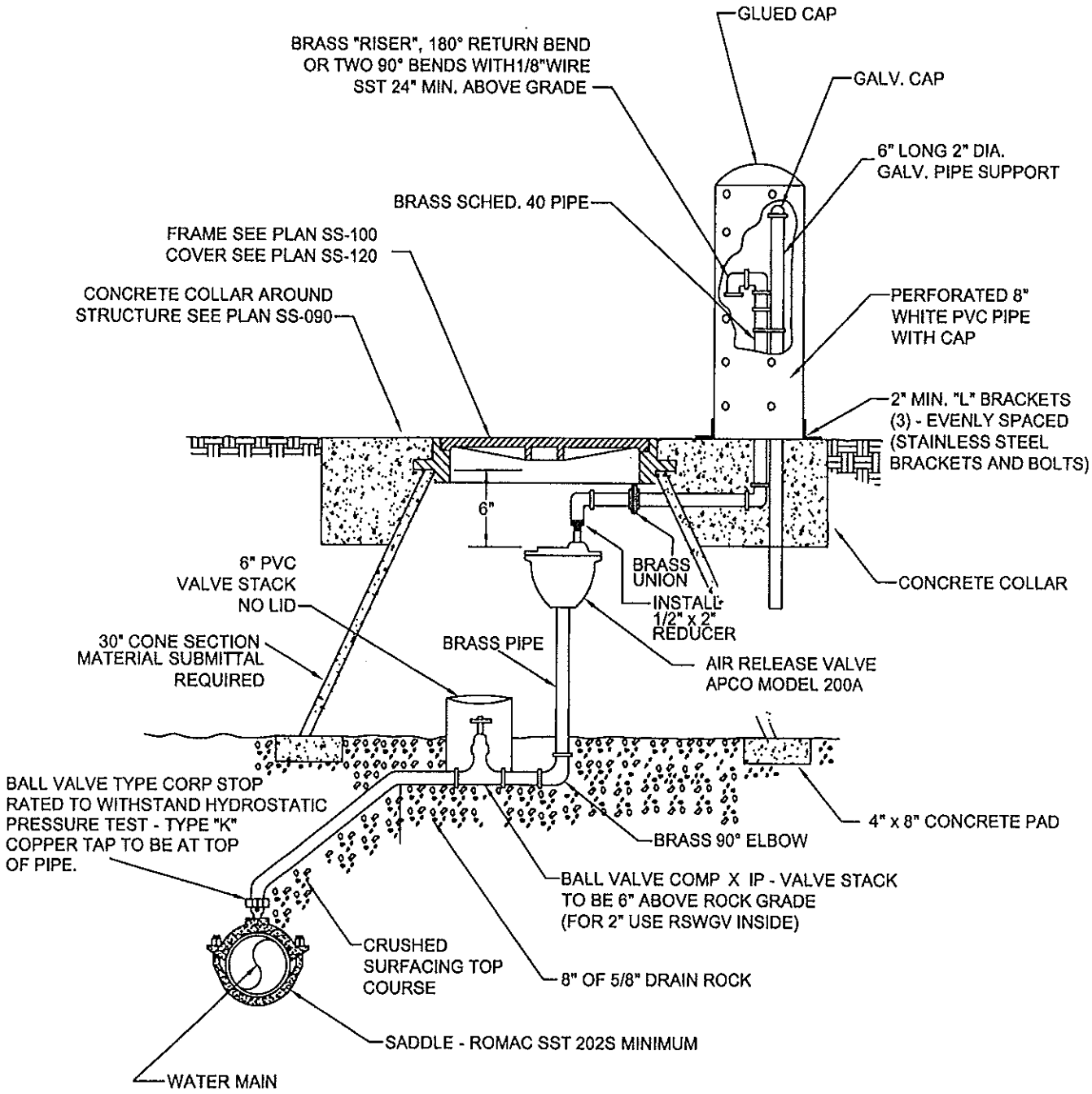
Longview: **C.B.**

Kelso: **S.Z.**



NOTES:

1. LOCATE AT HIGH POINT OF MAIN.
2. TAP TOP OF MAIN.
3. PROVIDE INSULATION AND ADDITIONAL DEPTH WHEN SPECIFIED FOR FREEZE PROTECTION.



NOTE:
NOT TO BE LOCATED IN TRAFFIC
AREAS OR PARKING LOTS.

Kelso Longview
Cities Working Together

1 " AND 2 " AIR RELEASE VALVE

STANDARD PLAN: **W - 190**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

Kelso Longview
Cities Working Together

BLOCKING FOR CONVEX VERTICAL BEND

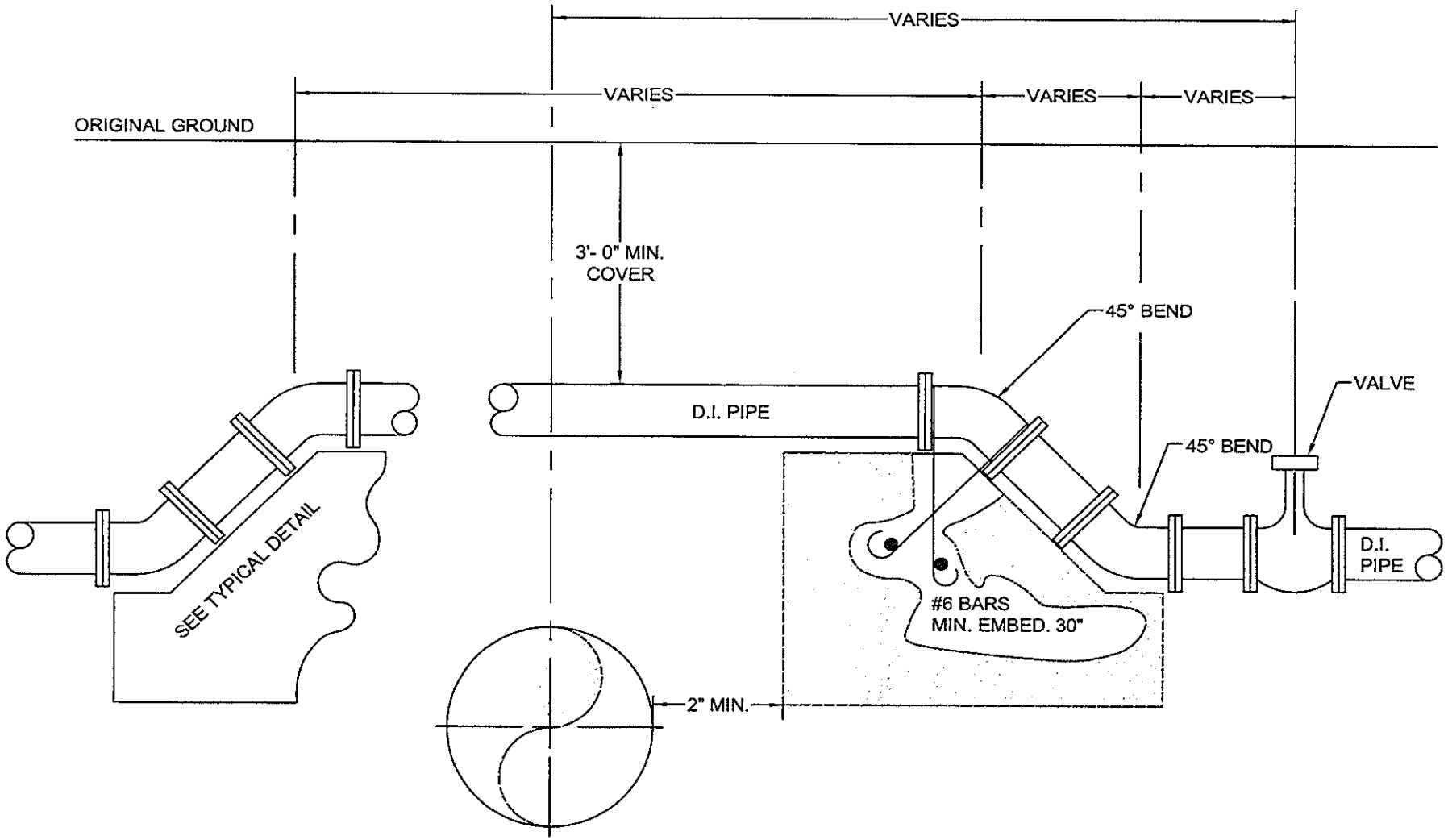
STANDARD PLAN: **W - 200**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**



SIVE OF GRAVITY BLOCK SHALL BE:

$$\text{BLOCK SIZE } (FT^3) = \frac{\text{THRUST FORCE (LB) PER STD. DET. W-220}}{\text{DENSITY OF BLOCK MATERIAL } (LB/FT^3)}$$

ALL JOINTS TO BE RESTRAINED CLASS 4000 CONCRETE
MJ ALLOWED WITH MEGALUG & RODDING
SEE STD. DET. W-220 FOR THRUST LOAD TABLE
AN ACCEPTABLE ALTERNATIVE TO THIS STANDARD PLAN IS WSDOT SP B-22
(CONCRETE BLOCKING FOR CONVEX VERTICAL BENDS)

Kelso Longview
Cities Working Together

STRADDLE BLOCK DETAIL

STANDARD PLAN: **W - 210**

DATE: **FEB. 2007**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**

① MECHANICAL JOINT FITTING, TEE, BEND, VALVE, ETC.

② 4 EACH - # 4 BARS

③ 4 EACH - # 4 BARS

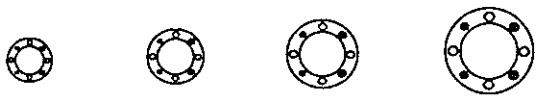
④ 90° EYE BOLT - 3/4" UNC ROLLED THREAD
DUCTILE LUGS NOT ACCEPTED

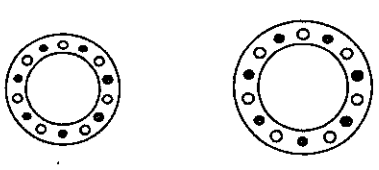
⑤ 3/4" STAINLESS STEEL ALL THREAD TIE ROD, N.C. THREAD,
STAINLESS STEEL COUPLERS ALLOWED

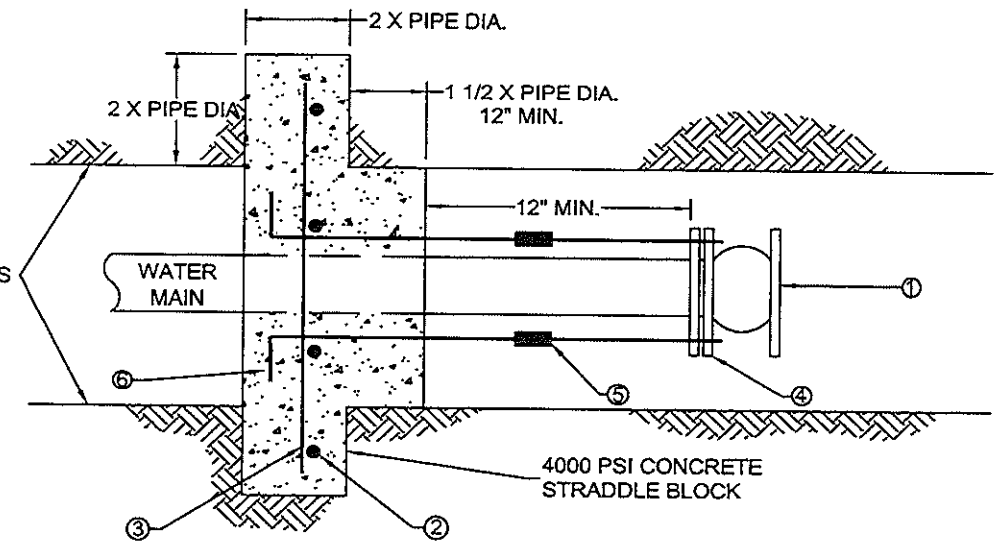
⑥ BEND TIE ROD W/ MIN 6" AFTER 90°
OPTION: USE 4" SQUARE PLATE W/ NUT

NOTES:

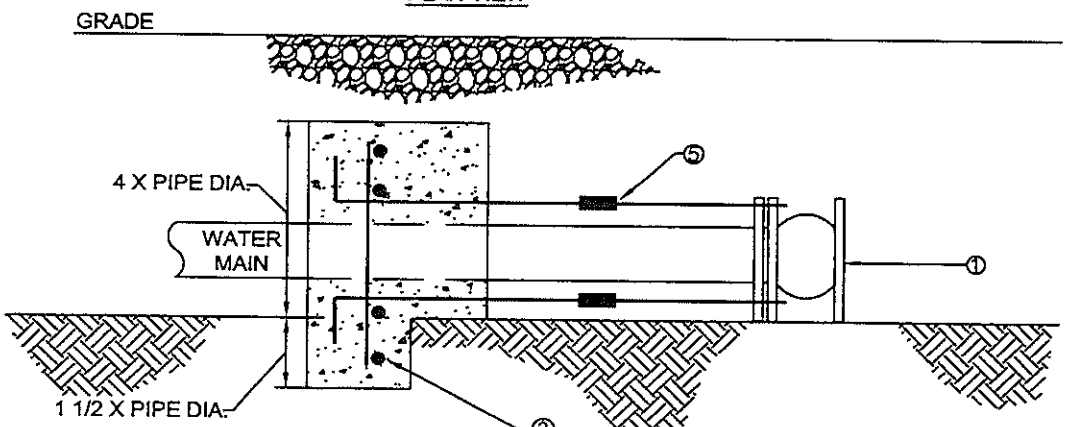
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. PLASTIC BARRIER SHALL BE WRAPPED AROUND ALL FITTINGS AND PIPE TO PROVIDE A BOND BREAKER.
3. ANCHOR REBAR SHALL BE ⅝" MINIMUM DIAMETER.
4. ANCHOR REBAR SHALL BE TIGHTLY FITTED AGAINST BEND OR VALVE.
5. CITY ENGINEER CAN WAIVE BLOCKING REQUIREMENTS IF SUFFICIENT RESTRAINT IS PROVIDED.
6. ALL THRUST BLOCKS TO BE CLASS 4000 CONCRETE (3-DAY MIX).







PLAN VIEW



SIDE VIEW

THRUST LOADS

RESULTANT THRUST AT FITTINGS AT 200 PSI WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22 - 1/2" BEND	11 - 1/2" BEND	DEAD END OR TEE
3"	3,484	1,886	962	482	2,464
4"	5,118	2,770	1,412	710	3,620
6"	10,576	5,724	2,918	1,466	7,478
8"	18,194	9,846	5,020	2,522	12,866
10"	27,370	14,812	7,552	3,794	19,354
12"	38,706	20,948	10,680	5,366	27,370
14"	52,002	28,144	14,348	7,208	36,770
16"	67,256	36,398	18,556	9,322	47,558
18"	84,470	45,716	23,306	11,710	59,730
20"	103,644	56,092	28,596	14,366	73,328
24"	147,868	80,026	40,796	20,498	104,558
30"	227,476	123,108	62,760	31,532	160,850
36"	325,862	176,354	89,904	45,170	230,418
42"	439,900	238,072	121,368	60,978	311,056
48"	573,274	310,254	158,166	79,466	405,366
54"	735,998	398,320	203,062	102,022	520,428
60"	843,212	456,344	232,642	116,884	596,242
64"	958,008	518,470	264,314	132,796	677,414

NOTES:

1. BLOCKING SHALL BE COMMERCIAL CONCRETE IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.

2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):

   EXAMPLE: 12" - 90° BEND IN SAND AND GRAVEL
   32,000 LBS DIVIDED BY SOIL BEARING LOAD EQUALS 10.7 S.F. OF AREA.
   (SOIL BEARING LOAD TO BE DETERMINED PER SOILS REPORT OR PROJECT ENGINEER OR GEOTECHNICAL ENGINEER).

3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, FITTING PRESSURES AND SOIL CONDITIONS.

4. ALL THRUST BLOCKS TO BE CLASS 4000 CONCRETE.

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THRUST LOADS

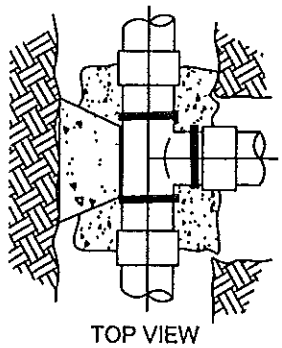
STANDARD PLAN: **W - 220**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

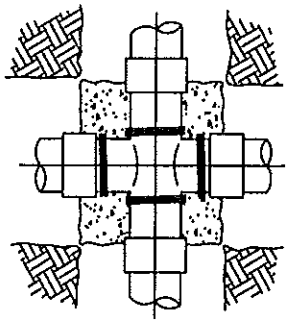
Longview: **C.B.**

Kelso: **S.Z.**



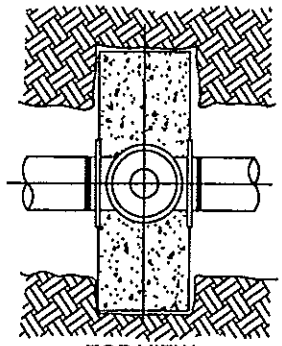
TOP VIEW

TEE



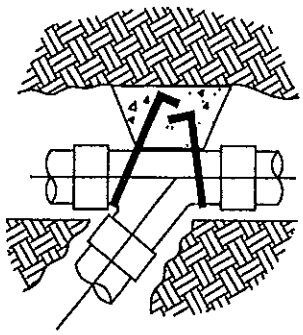
TOP VIEW

CROSS

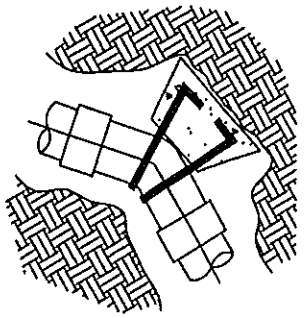


TOP VIEW

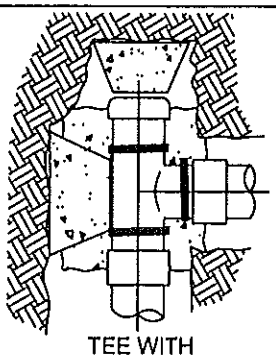
GATE VALVE



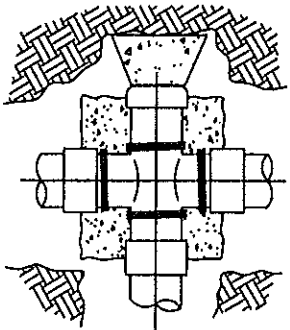
WYE



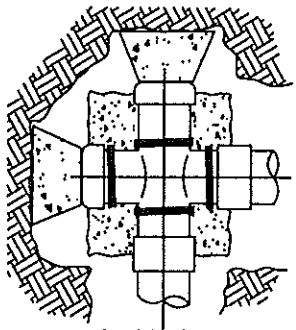
HORIZ. BEND



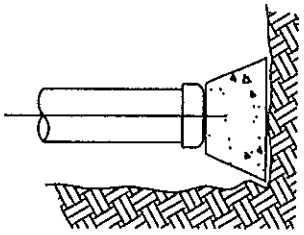
TEE WITH PLUG



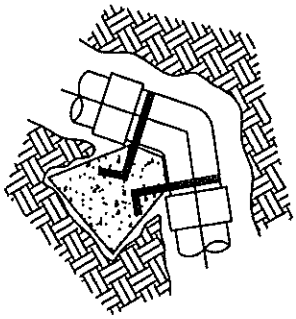
CROSS WITH PLUG



CROSS WITH PLUGS



PLUG OR CAP



45° - 90°
VERTICAL BEND

NOTES:

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. 10 MIL PLASTIC BARRIER SHALL BE WRAPPED AROUND ALL FITTINGS AND PIPE TO PROVIDE A BOND BREAKER.
3. ANCHOR REBAR SHALL BE ⅝" MINIMUM DIAMETER.
4. ANCHOR REBAR SHALL BE TIGHTLY FITTED AGAINST BEND OR VALVE.
5. CITY ENGINEER CAN WAIVE BLOCKING REQUIREMENTS IF SUFFICIENT RESTRAINT IS PROVIDED.
6. ALL THRUST BLOCKS TO BE CLASS 4000 CONCRETE.

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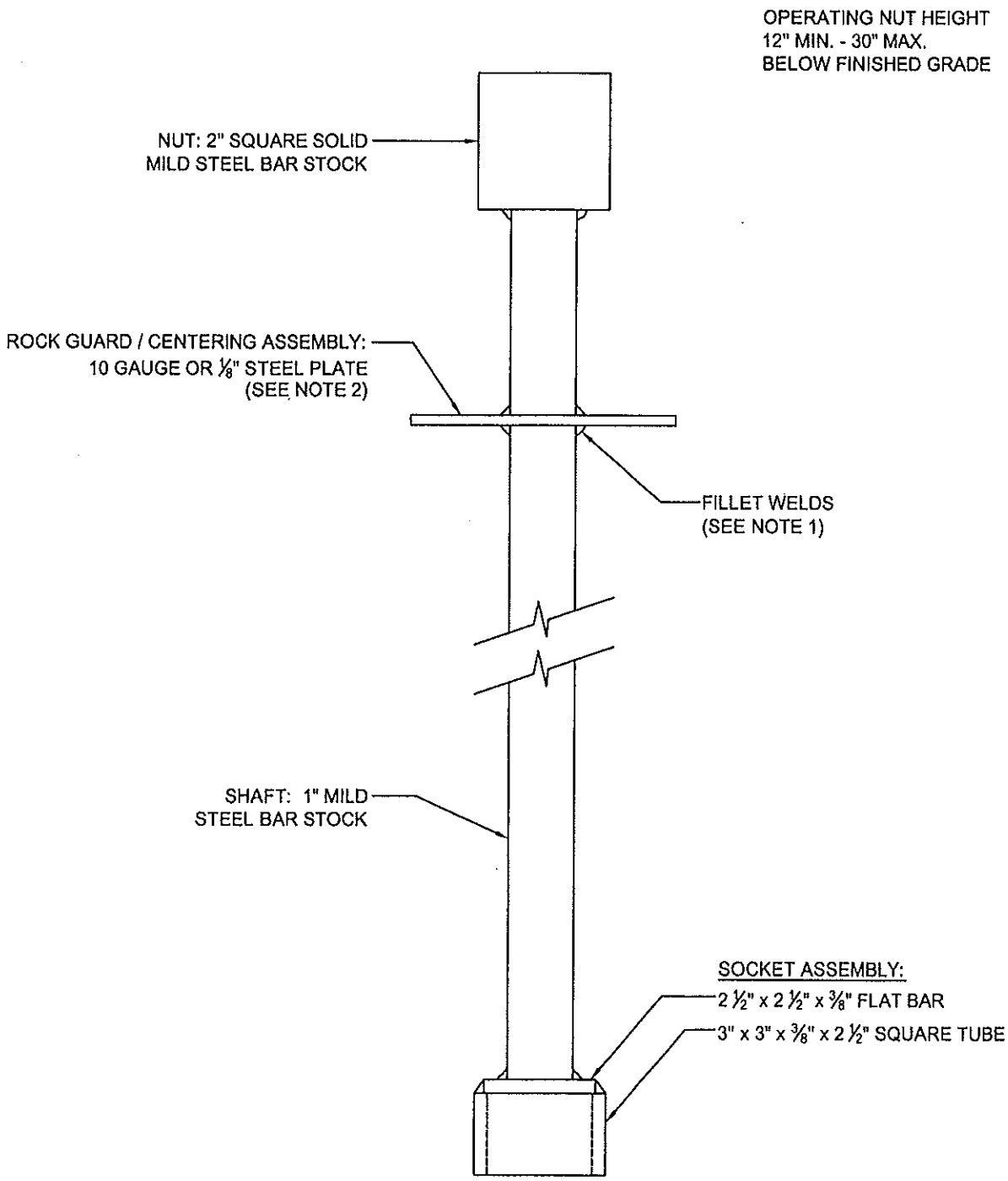
Cities Working Together

BLOCKING DETAIL

STANDARD PLAN: **W - 230**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**



NOTES:

1. ALL WELDS SHALL BE ¼" FILLET WELDS FOR FULL LENGTH OF CONTACT BETWEEN COMPONENTS.
2. DIAMETER OF CENTERLING PLATE ASSEMBLY SHALL BE ¼" LESS THAT THE INSIDE DIAMETER OF THE VALVE BOX RISER SECTION.
3. SECURE TO OPERATING NUT WITH TWO ⅜" SET SCREWS (STAINLESS STEEL).

Kelso Longview
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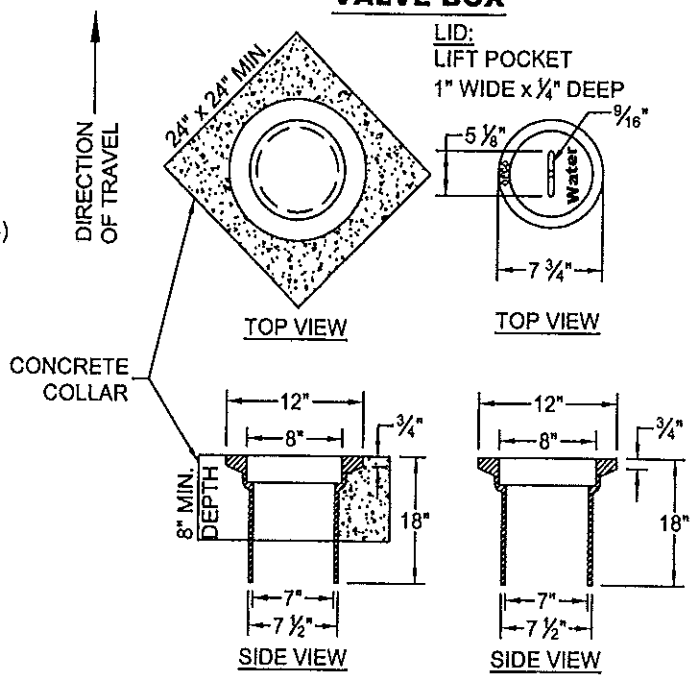
VALVE OPERATING EXTENSION

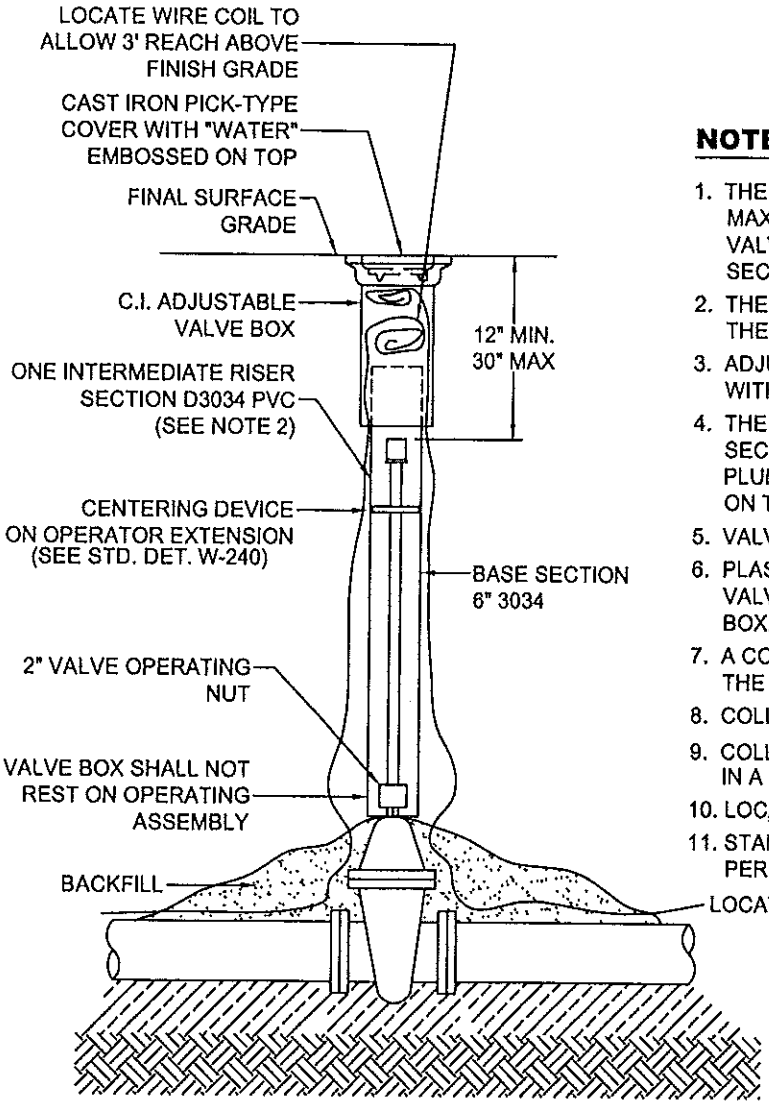
STANDARD PLAN:	CITY ENGINEER APPROVAL:
W - 240	Longview: **C.B.**
DATE: **FEB. 2007**	Kelso: **S.Z.**

NOTES:

1. TOLERANCE = ⅛"
2. EXTENSIONS SHALL BE 3034 PVC PIPE (THICK WALL)
3. VALVE BOXES SHALL MEET SECTION 9-30.3 (4) OF THE STD. SPECS.
4. MATERIAL: CAST IRON ASTM A-48, CL 30
   APPROX. WEIGHT: VALVE BOX - 42 LBS.
   COVER -14 LBS.
5. OLYMPIC FOUNDARY PART NO. VB910.

VALVE BOX





NOTES:

1. THE VALVE BOX ASSEMBLY SHALL CONSIST OF A MAXIMUM OF 2 COMPONENTS; THE ADJUSTABLE VALVE BOX (FRAME AND COVER), AND THE BASE SECTION.
2. THE ADJUSTABLE VALVE BOX SHALL BE CAST IRON. THE INTERMEDIATE RISER SECTION D3034 PVC.
3. ADJUSTABLE VALVE BOXES SHALL BE SUPPLIED WITHOUT BOTTOM FLANGES.
4. THE ADJUSTABLE VALVE BOX, INTERMEDIATE RISER SECTION, AND BASE SECTION SHALL BE INSTALLED PLUMB AND CENTERED OVER THE OPERATING NUT ON THE VALVE.
5. VALVE BOX TYPE SHALL BE A 910.
6. PLASTIC VALVE STACK SHALL EXTEND FROM TOP OF VALVE BONNET TO MIDDLE OF CAST IRON VALVE BOX.
7. A CONCRETE COLLAR SHALL BE INSTALLED AROUND THE CAST IRON VALVE BOX.
8. COLLAR SHALL BE 24" x 24"L x 8"D.
9. COLLAR SHALL BE EDGED WITH ⅜" FELT IF INSTALLED IN A CONCRETE AREA.
10. LOCATE WIRE PER STANDARD PLAN W-280.
11. STAMP COLLARS WITH CITY PROVIDED TOOLS AND PER INSTRUCTIONS OF INSPECTOR.

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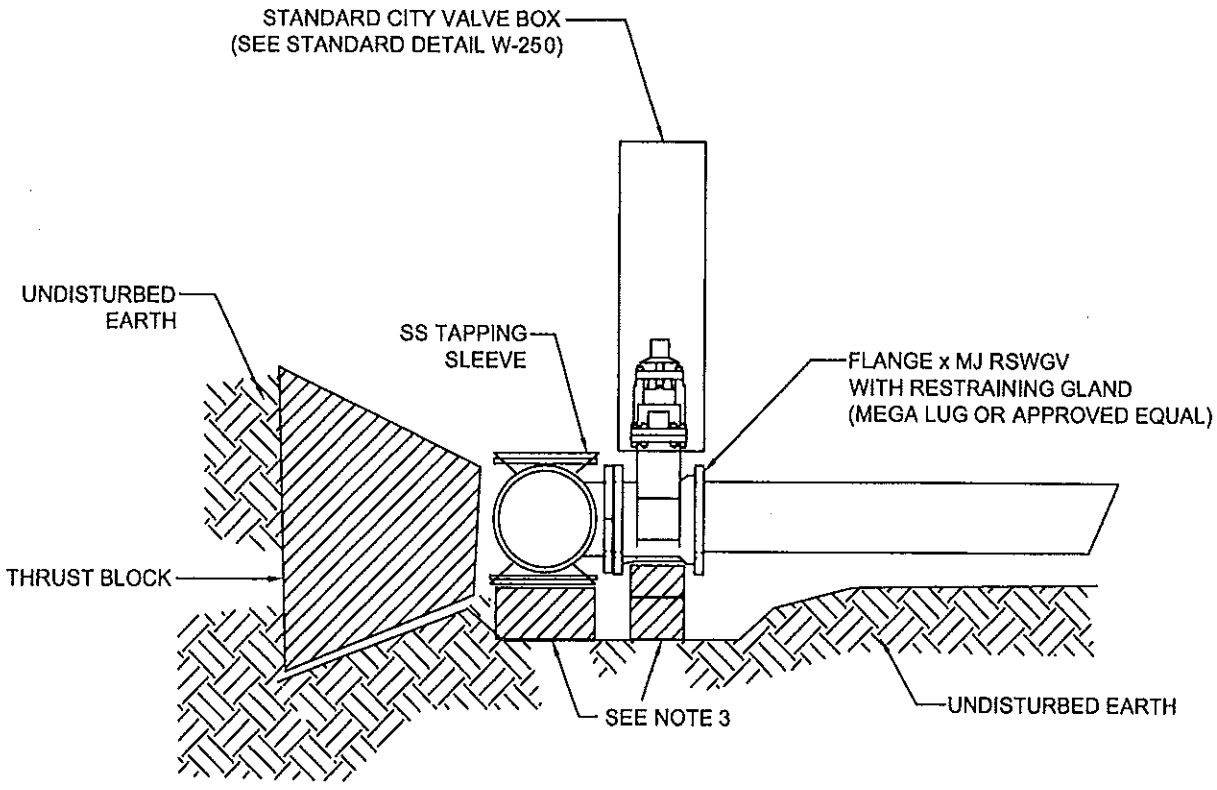
VALVE BOX DETAIL

STANDARD PLAN:	CITY ENGINEER APPROVAL:
W - 250	Longview: **C.B.**
DATE: **FEB. 2008**	Kelso: **S.Z.**

NOTES:

1. TAPPING SLEEVE SHALL BE 304 STAINLESS STEEL WITH STAINLESS STEEL FLANGE. JCM OR EQUIVALENT.
2. ALL BOLTS SHALL BE 304 STAINLESS STEEL OR APPROVED EQUAL.
3. TAPPING SLEEVE AND VALVE SHALL BE SUPPORTED BY CONCRETE BLOCKS RESTING ON NATIVE SOIL.
4. TAPPING SLEEVE AND VALVE SHALL BE WRAPPED WITH 10 MIL PLASTIC.
5. CITY MUST WITNESS AIR TEST AND BE PROVIDED WITH TAPPING COUPON.
6. TAPPING SLEEVE EDGE SHALL BE A MINIMUM OF 18 INCHES FROM BELL OR SPIGOT END OF EXISTING PIPE, AND A MINIMUM OF 18 INCHES FROM ANY OTHER TAP OR FITTING.
7. CONTRACTOR SHALL SCHEDULE THE HOT TAP WITH THE CITY 48 HOURS (2 WORKING DAYS) IN ADVANCE.
8. SIZE ON SIZE TAPS ARE NOT PERMITTED.
9. ALL THRUST BLOCKS TO BE CLASS 4000.



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HOT TAP OF EXISTING WATER MAIN

STANDARD PLAN: W - 260	CITY ENGINEER APPROVAL:
DATE: FEB. 2007	Longview: C.B.
	Kelso: S.Z.

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CASING DETAIL

STANDARD PLAN: **W - 270**

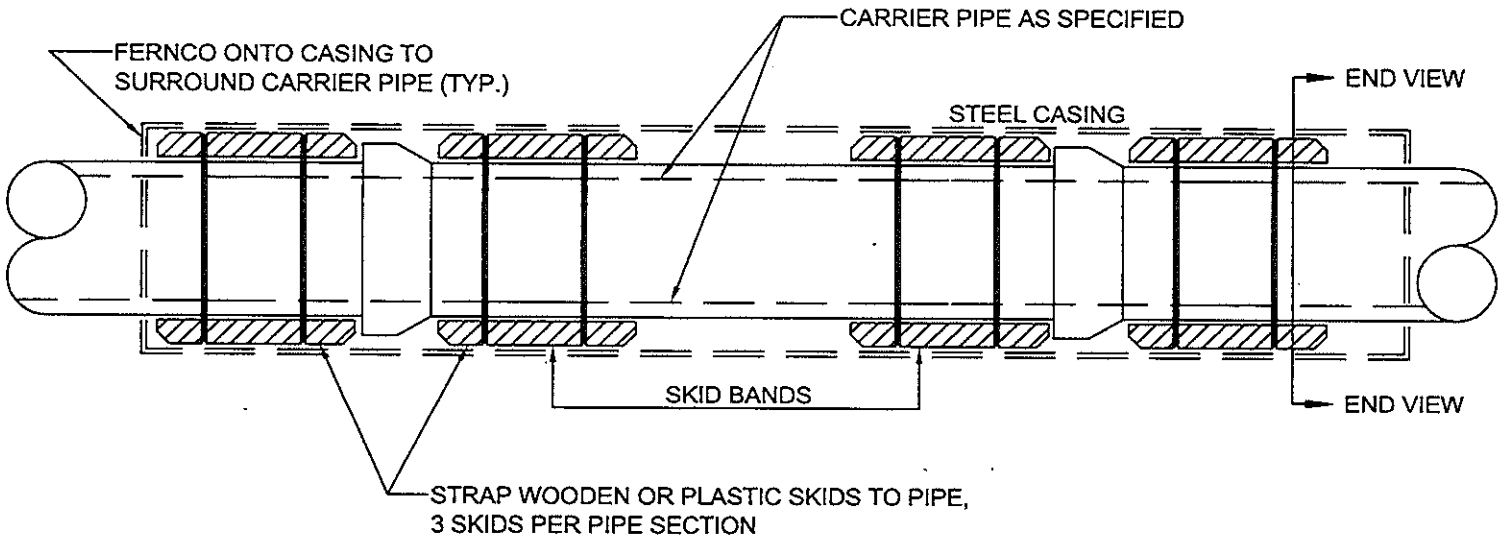
DATE: **FEB. 2008**

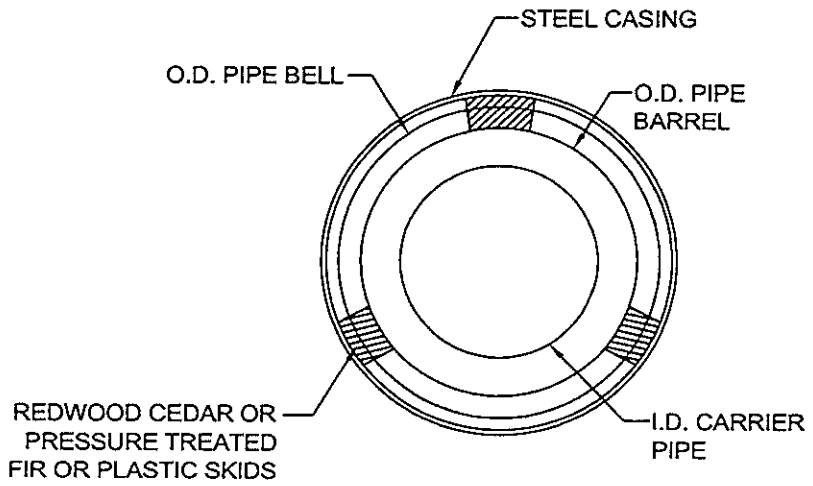
CITY ENGINEER APPROVAL:

Longview: **C.B.**

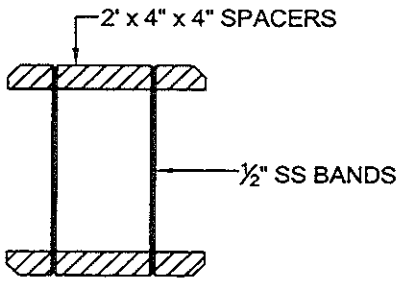
Kelso: **S.Z.**

ALL RESTRAINED JOINTS



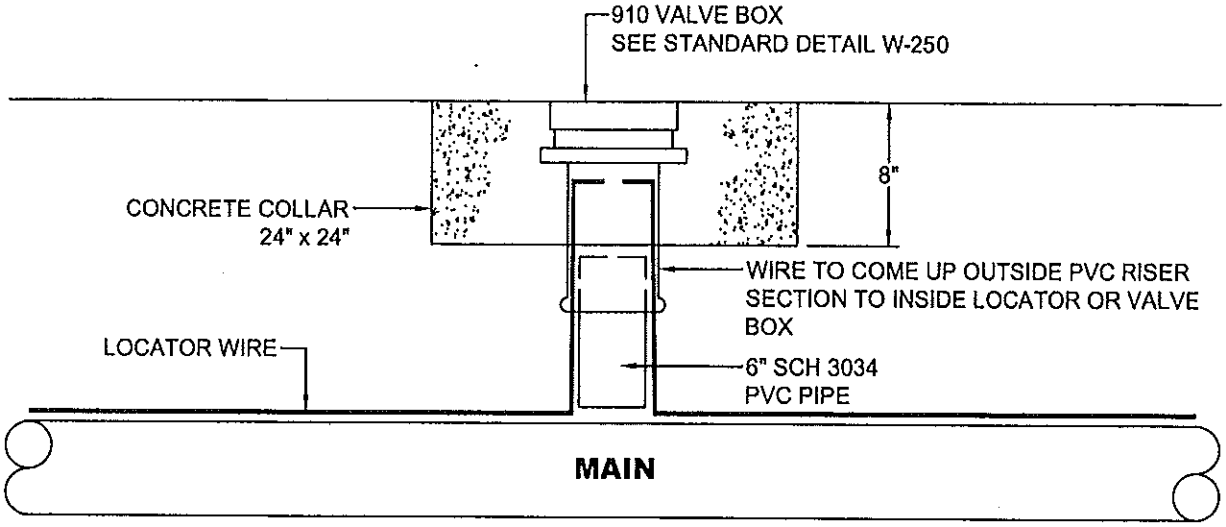


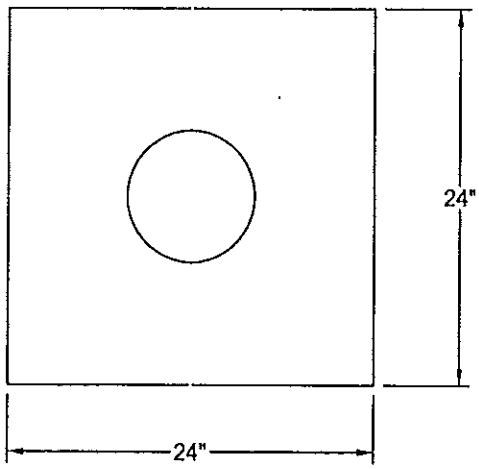
END VIEW



SKID DETAIL

VALVE BOX LID TO BE EMBOSSED WITH "WATER"





CONCRETE COLLAR
TOP VIEW

NOTES:

1. PLASTIC VALVE STACK SHALL EXTEND FROM TOP OF PIPE TO MIDDLE OF CAST IRON VALVE BOX.
2. A CONCRETE COLLAR SHALL BE INSTALLED AROUND THE CAST IRON VALVE BOX, COLLAR SHALL BE 24"W x 24"L x 8"D. COLLAR SHALL BE EDGED WITH ⅜" FELT IF INSTALLED IN A CONCRETE AREA.
3. WIRE SHALL BE 12 GAUGE SOFT DRAWN COPPER WITH INSULATION.
4. INSULATION COLOR SHALL BE BLUE.
5. WIRE SHALL BE ATTACHED TO PIPE EVERY 20', WIRE SHALL BE CENTERED ON TOP OF PIPE WITH ONE FOOT OF STACK FOR EVERY 20' OF PIPE.
6. 500 FEET MAXIMUM SPACING FOR VALVE BOXES.
7. 3 FOOT EXCESS WIRE COILED IN VALVE BOX OR LOCATOR BOX TO REACH 3 FOOT ABOVE FINISHED GRADE.

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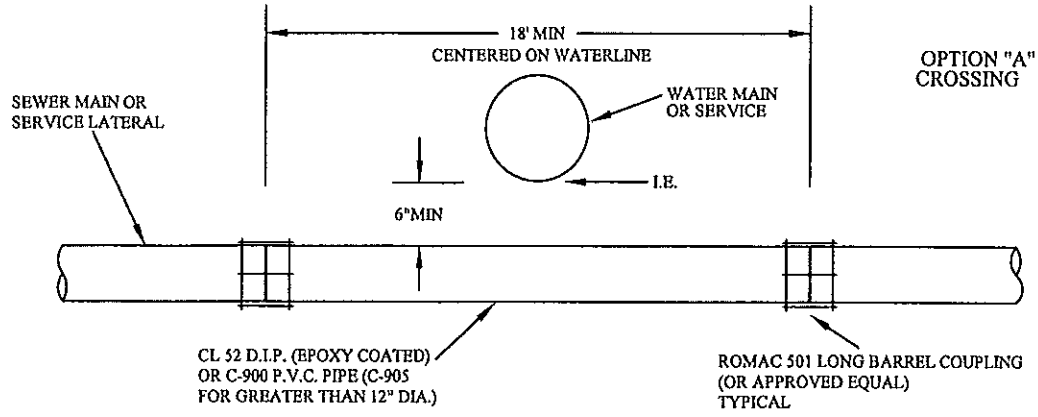
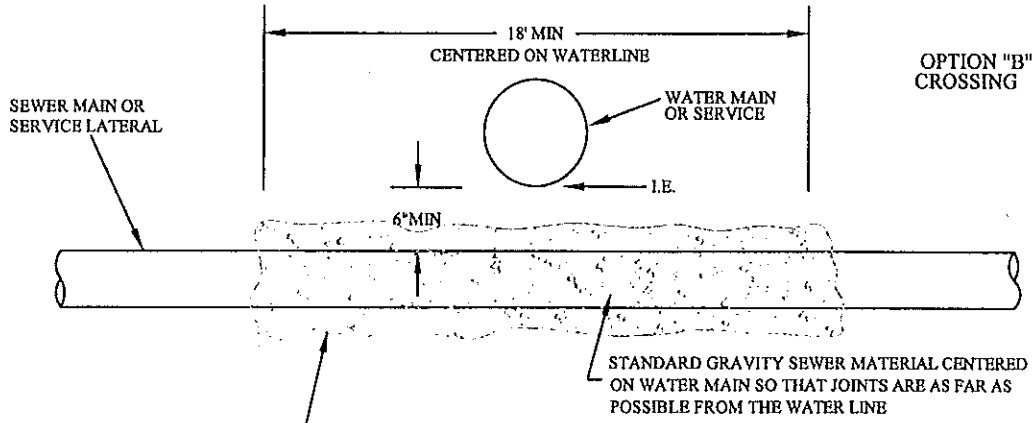
Cities Working Together

LOCATOR BOX DETAIL

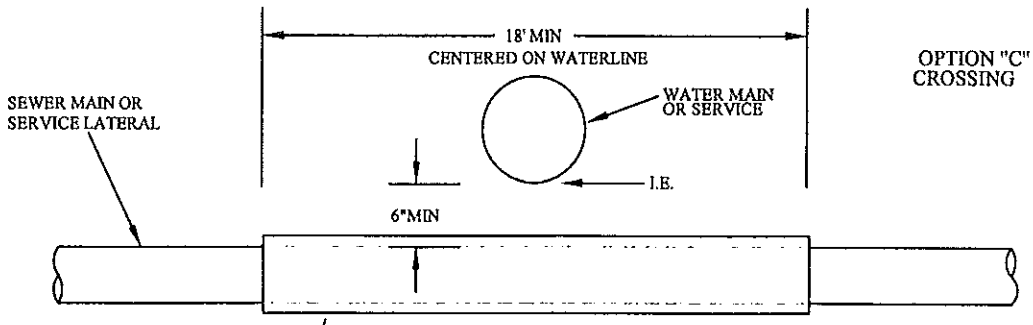
STANDARD PLAN: **W - 280**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2007**	Longview: **C.B.**
	Kelso: **S.Z.**



SECTION VIEW



SECTION VIEW



SECTION VIEW

USE THIS STANDARD PLAN WHEN SANITARY SEWER LINE IS BELOW WATER LINE & THERE IS LESS THAN 18" BETWEEN I.E. OF WATER AND CROWN OF SEWER LINE. CROSSING TYPE TO BE SPECIFIED ON CONSTRUCTION PLAN OR AS DIRECTED BY THE ENGINEER.

WATER-SEWER X-ING
SEWER UNDER WATER
-LESS THAN 18" SEPARATION

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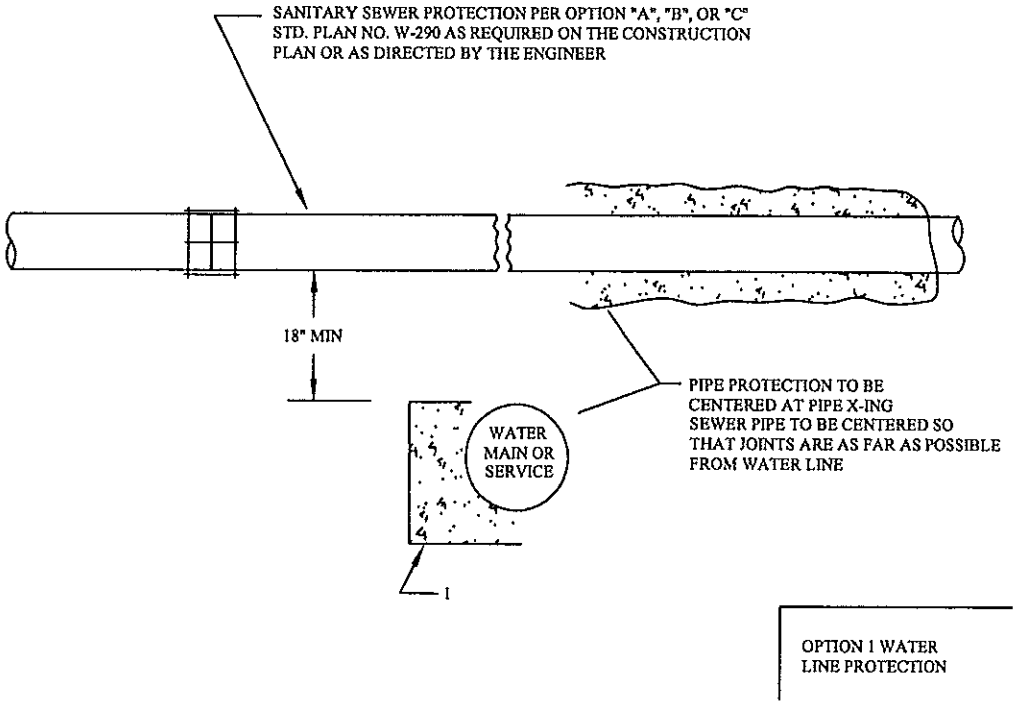
WATER-SEWER CROSSING

STANDARD PLAN: W - 290	CITY ENGINEER APPROVAL:
DATE: FEB. 2008	Longview: C.B.
	Kelso: S.Z.

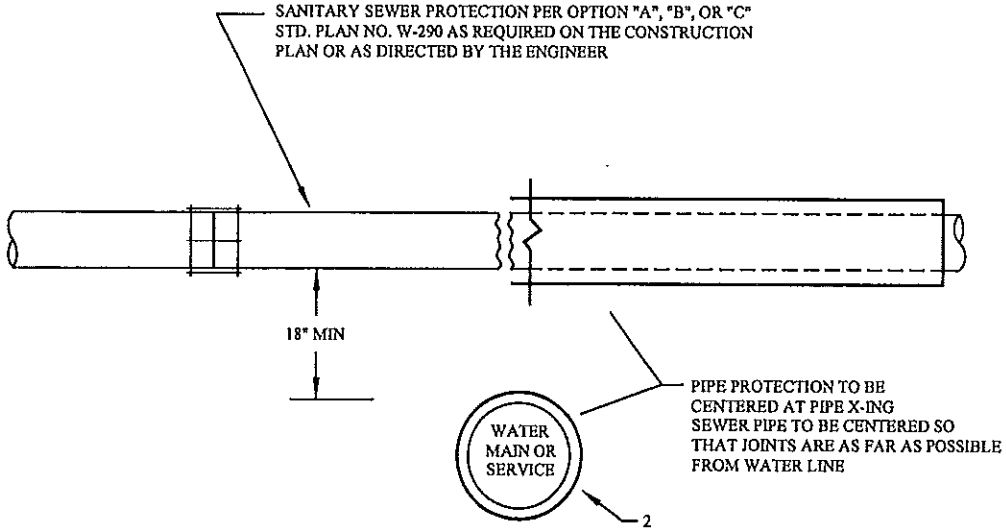


OPTION 1 WATER
LINE PROTECTION

PROVIDE A MINIMUM OF 18" OF CLEARANCE BETWEEN CROWN OF WATER LINE AND INVERT OF SANITARY SEWER. WATER LINE SHALL RECEIVE ONE OF THE FOLLOWING PROTECTIVE TREATMENTS AS REQUIRED ON THE CONSTRUCTION PLAN OR AS DIRECTED BY THE ENGINEER:

1) A MINIMUM 18 FOOT LENGTH OF CLASS 3000 CEMENT CONCRETE ENCASEMENT FOR A MINIMUM 6" THICKNESS AROUND THE WATER LINE.

WATER LINE TO BE WRAPPED IN 10 MIL PLASTIC SHEETING



PROVIDE A MINIMUM OF 18" OF CLEARANCE BETWEEN CROWN OF WATER LINE AND INVERT OF SANITARY SEWER. WATER LINE SHALL RECEIVE ONE OF THE FOLLOWING PROTECTIVE TREATMENTS AS REQUIRED ON THE CONSTRUCTION PLAN OR AS DIRECTED BY THE ENGINEER:

2) A 1/4" THICK CONTINUOUS STEEL*, DUCTILE IRON OR C-900 P.V.C. (C-905 FOR GREATER THAN 12" DIA) WITH A DR VALUE OF 18 OR LESS. PIPE SKIDS WILL BE USED AND ALL VOIDS PRESSURE GROUTED WITH SAND-CEMENT GROUT OR BENTONITE.

* STEEL CASING SHALL RECEIVE COROSION PROTECTION

OPTION 2 WATER
LINE PROTECTION

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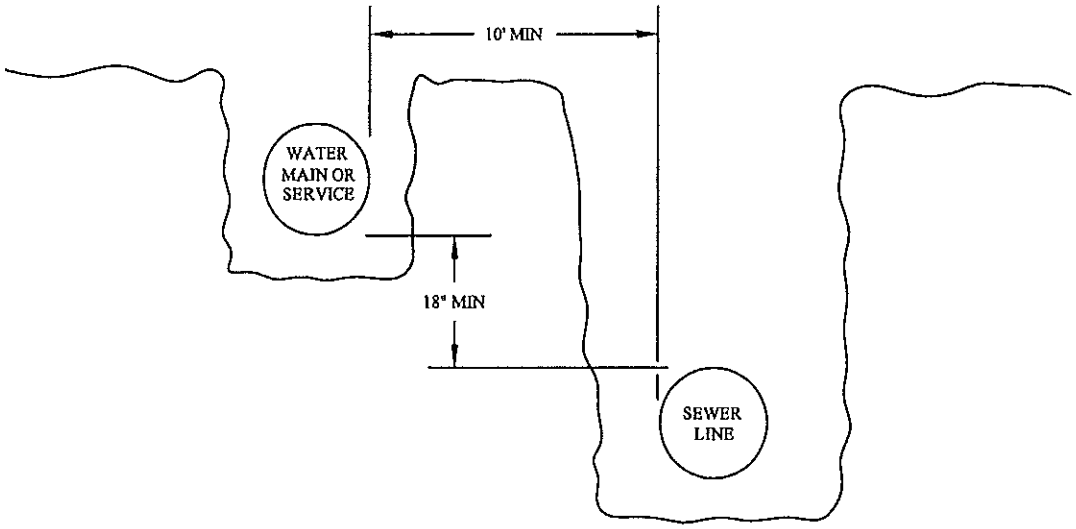
WATER-SEWER CROSSING

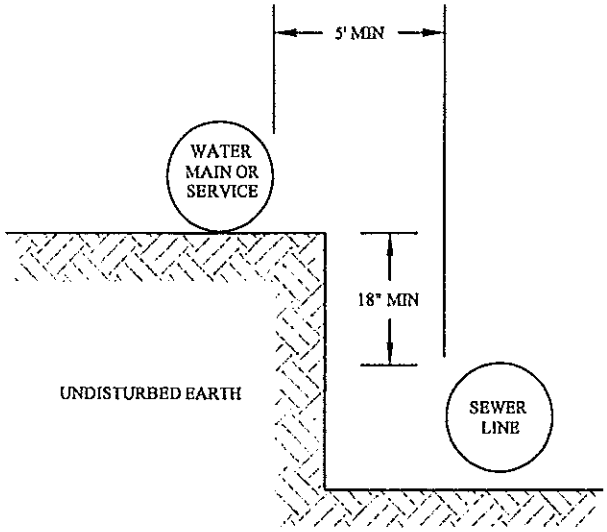
STANDARD PLAN: W - 295	CITY ENGINEER APPROVAL:
DATE: FEB. 2007	Longview: C.B.
	Kelso: S.Z.

NORMAL PARALLEL CONDITION: A MINIMUM HORIZONTAL SEPARATION OF 10 FEET BETWEEN ANY SANITARY SEWER AND WATER LINES, AND A MINIMUM VERTICAL SEPARATION OF 18" BETWEEN THE BOTTOM OF THE WATER LINE AND THE CROWN OF THE SEWER, SHALL BE MAINTAINED. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. LINES MUST BE LAID IN SEPARATE TRENCHES.



UNUSUAL PARALLEL CONDITIONS: WHEN SPECIAL CONDITIONS PREVENT THE SEPARATIONS DESCRIBED ABOVE, A SEWER MAY BE INSTALLED CLOSER THAN 10 FEET HORIZONTALLY OR 18" VERTICALLY TO A WATER LINE, PROVIDED:

1) LESS THAN 18" OF VERTICAL SEPARATION REQUIRES CL 52 D.I., OR C-900 P.V.C. FOR SEWER PIPE MATERIAL (C-905 FOR GREATER THAN 12" DIA). THE ENGINEER MAY APPROVE LESS THAN 10 FEET OF HORIZONTAL SEPARATION PROVIDED SEPARATE TRENCHES CAN BE MAINTAINED.
2) IF SEWER AND WATER LINES MUST BE LOCATED IN THE SAME TRENCH, BOTH SEWER LINES AND WATER LINES SHALL INCLUDE A CASING PIPE OF PRESSURE RATED PIPE MATERIAL DESIGNED TO WITHSTAND A MINIMUM STATIC PRESSURE OF 150 P.S.I. COMMERCIAL PIPE SKIDS AND AN APPROVED END CLOSURE IS REQUIRED AS NEEDED. A MINIMUM OF 5 FEET HORIZONTAL AND 18" OF VERTICAL CLEARANCE IS REQUIRED. (SEE ILLUSTRATION BELOW)



WATER-SEWER SEPARATION REQUIREMENTS FOR PARALLEL CONDITIONS

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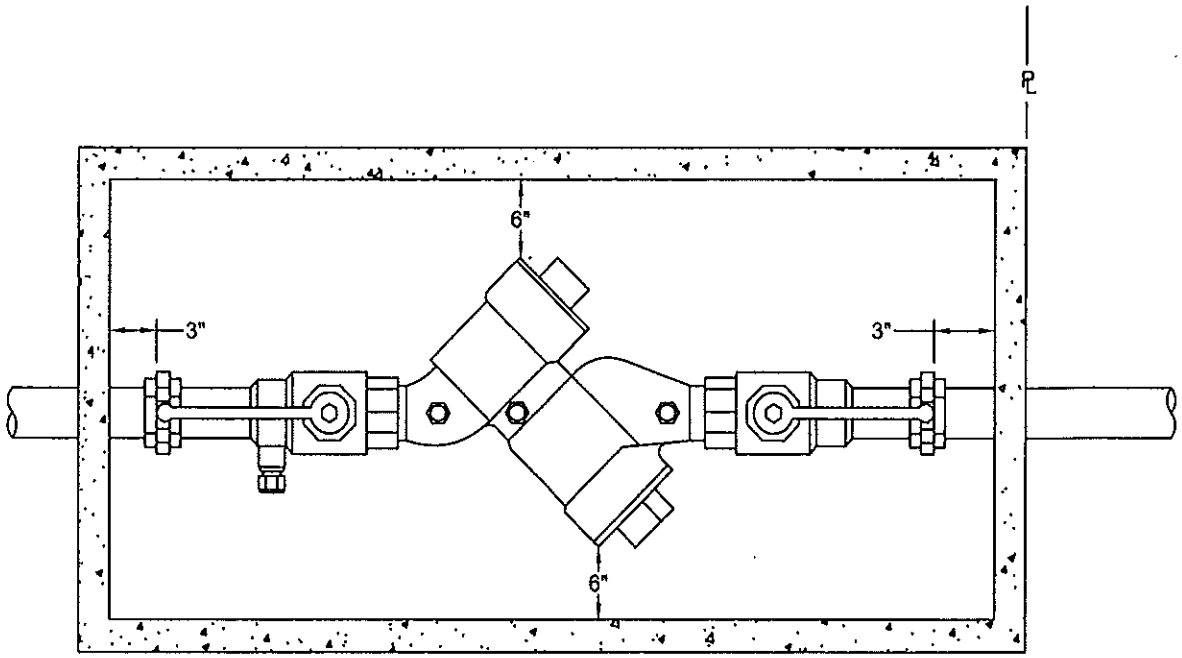
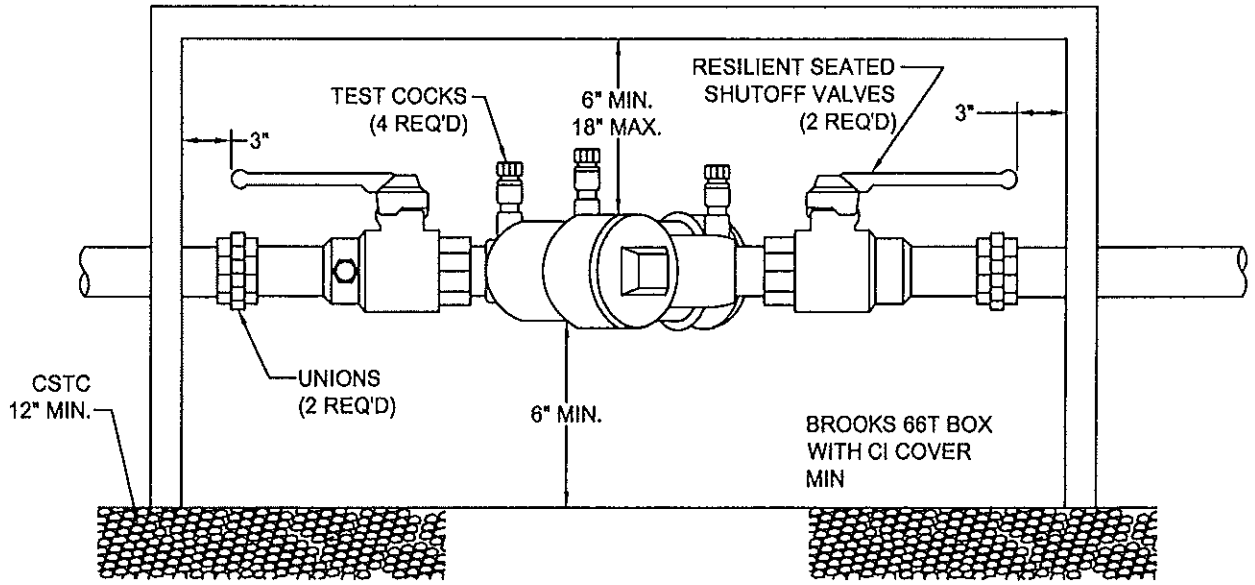
WATER-SEWER IN PARALLEL

STANDARD PLAN: W - 300	CITY ENGINEER APPROVAL:
DATE: FEB. 2007	Longview: C.B.
	Kelso: S.Z.





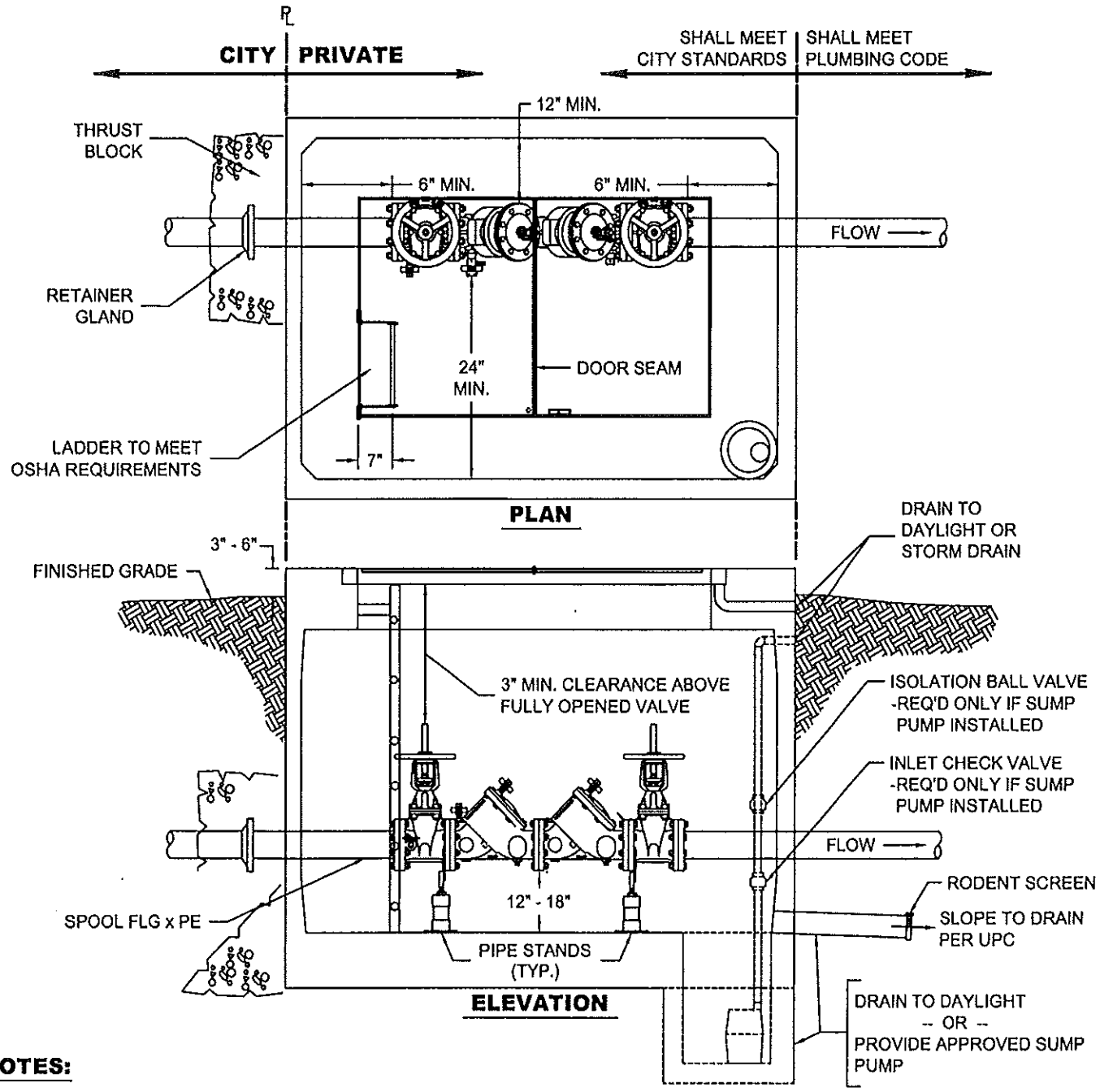
NOTES:

1. APPROVED DOUBLE CHECK VALVE ASSEMBLY TO LAY HORIZONTAL WITH GROUND.
2. DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
3. TEST COCKS TO EITHER FACE OUTWARDS OR UPWARDS FROM ASSEMBLY.
4. THOUGHOUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW PREVENTER.
5. THE DCVA MAY BE INSTALLED ABOVE OR BELOW THE GROUND PROVIDED ALL CLEARANCES ARE MET.
6. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
7. MUST BE PROTECTED FROM FREEZING CONDITIONS.
8. THE BACKFLOW ASSEMBLY SHALL BE A STATE APPROVED MODEL.
9. FACTORY HEATERS IN HOT BOXES ARE REQUIRED.
10. FINAL GRADE ADJUSTMENT SHALL BE PERFORMED BY MODIFYING & STACKING BOXES.

Kelso Longview Cities Working Together

DOUBLE CHECK VALVE ASSEMBLY - 2" AND SMALLER

STANDARD PLAN: **W - 310**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**



Vault

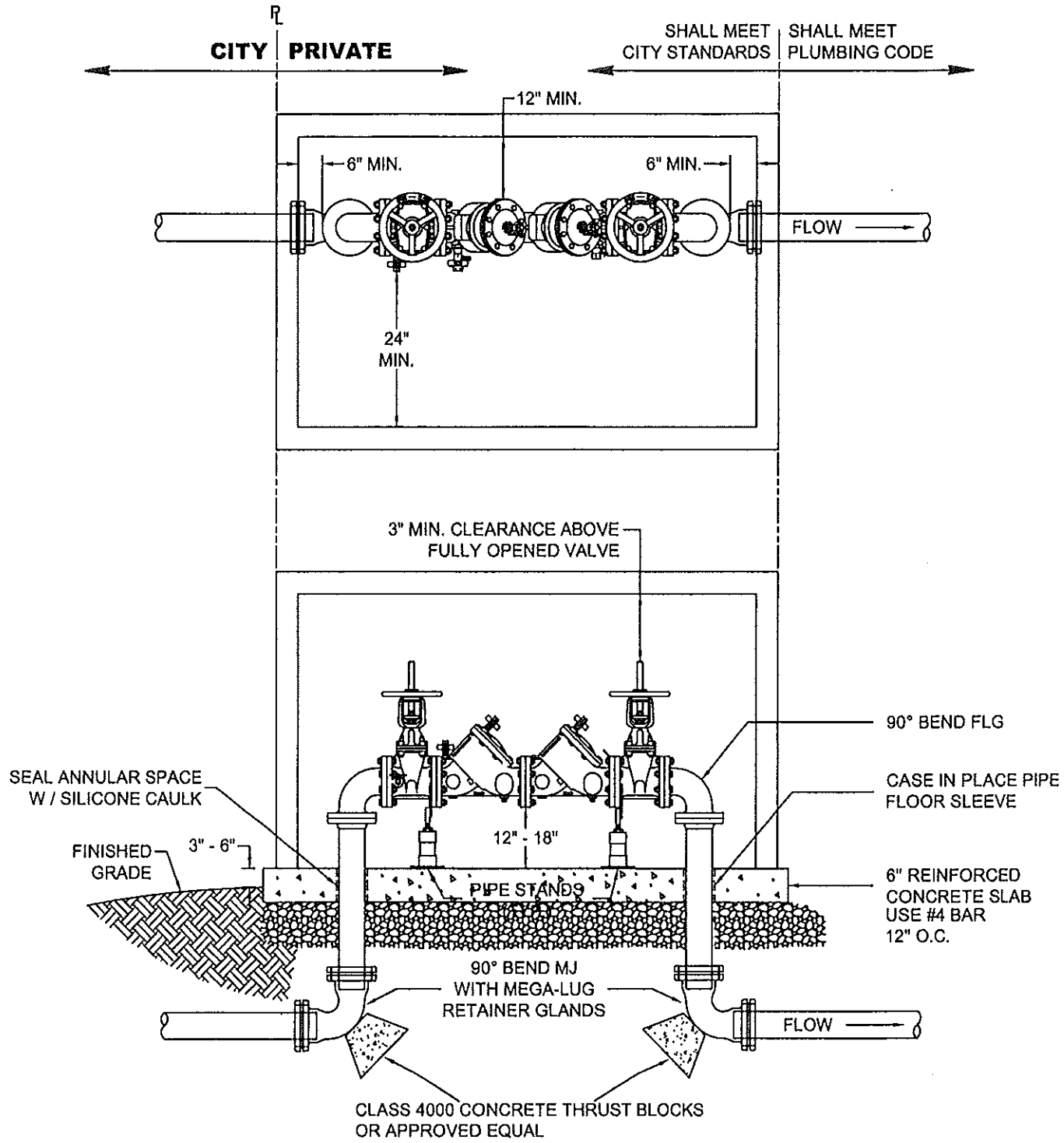
NOTES:

1. CONTRACTOR TO PROVIDE SITE SPECIFIC SHOP DRAWING FOR CITY ENGINEER APPROVAL PRIOR TO ANY CONSTRUCTION OF THIS ITEM.
2. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
3. HATCH DRAINS TO BE PLUMBED TO DAYLIGHT OR STORM DRAIN AS DIRECTED BY THE CITY INSPECTOR.
4. KNOCKOUTS NOT ALLOWED IN VAULT, CORE SAW ONLY.
5. LINK SEALS TO BE USED FOR ALL VAULT PENETRATIONS.
6. PIPE STANDS TO BE STANDON S76 OR EQUIVALENT FLANGE STYLE STANDS, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
7. VAULT SHALL BE EQUIPPED WITH A LEAK PROOF, GASKETED, DOUBLE RAISE, ALUMINUM, AASHTO H20 RATED, HYDRAULIC ASSIST, LOCKING HATCH, MIN. 36" x 60", LOCKING OPEN 90°.
8. VAULT SHALL BE PRECAST CONCRETE, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
9. VAULT SHALL GAVITY DRAIN TO DAYLIGHT OR A STORM DRAIN. IF THIS IS NOT POSSIBLE, A ¼ HP MINIMUM SUMP PUMP SHALL BE INSTALLED IN THE SUMP PIT OF THE VAULT AND SHALL DISCHARGE TO DAYLIGHT OR A STORM DRAIN. SAID PUMP SHALL AUTOMATICALLY PROTECT THE VAULT FROM FLOODING AT ALL TIMES.
10. ALL TESTING, FLUSHING, & CHLORINATION SHALL BE PERFORMED PRIOR TO INSTALLATION OF THE BACKFLOW DEVICE.
11. TAMPER SWITCH REQUIRED WHEN SPECIFIED BY FIRE MARSHAL.
12. WATER METER SHALL INCLUDE A TOUCH READ PIT MODULE PLACED IN BROOKS 37 T BOX ON STREET SIDE.

Kelso Longview
Cities Working Together

DOUBLE CHECK ASSEMBLY, LARGE, BELOW GROUND

STANDARD PLAN: **W - 320**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2007**	Longview: **C.B.**
	Kelso: **S.Z.**



NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND / OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
3. PIPE STANDS TO BE STANDON S76 OR EQUIVALENT FLANGE STYLE, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
4. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTRAINED JOINT WITH STAINLESS STEEL RODS.
5. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND.

Kelso Longview Cities Working Together

DOUBLE CHECK VALVE ASSEMBLY, LARGE, ABOVE GROUND

STANDARD PLAN: **W - 330**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

Kelso Longview
Cities Working Together

DOUBLE CHECK VALVE ASSEMBLY, N-PATTERN

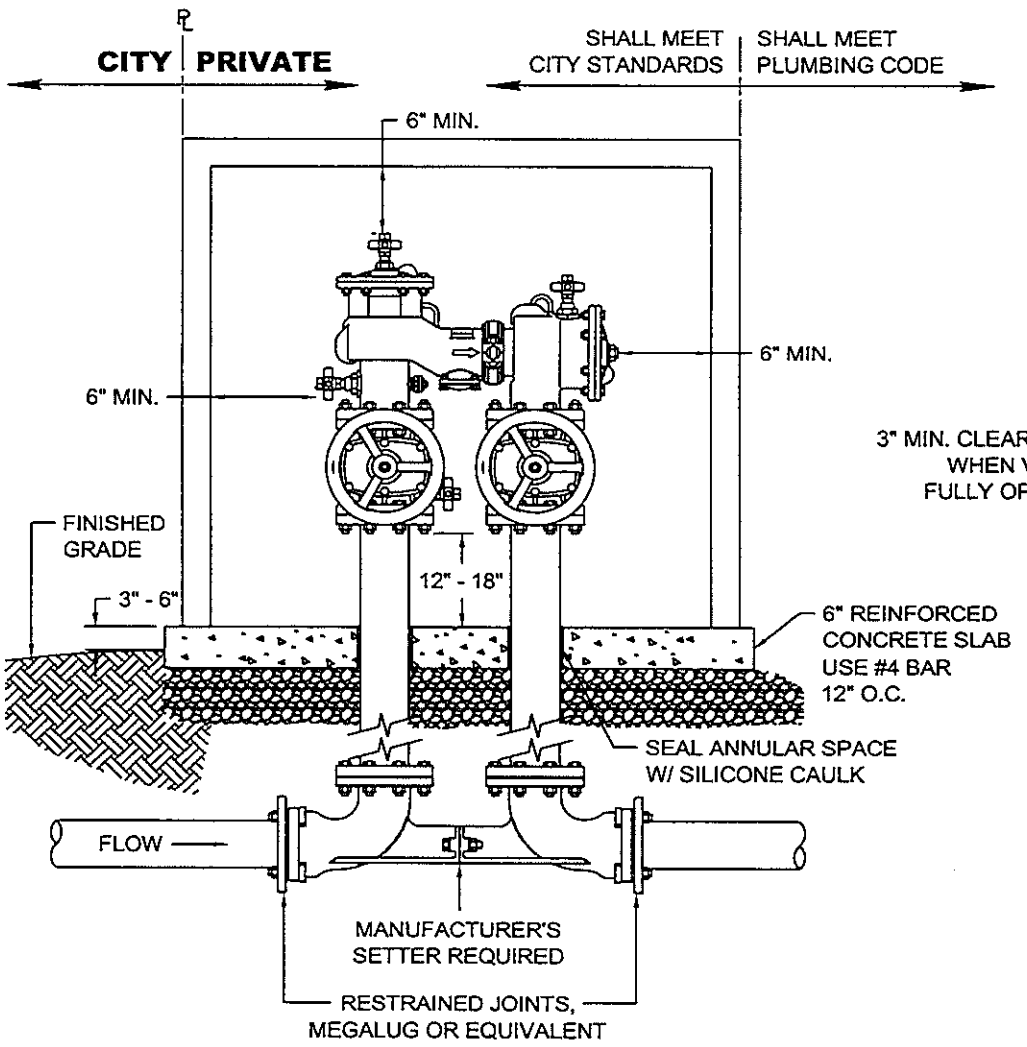
STANDARD PLAN: **W - 340**

DATE: **FEB. 2008**

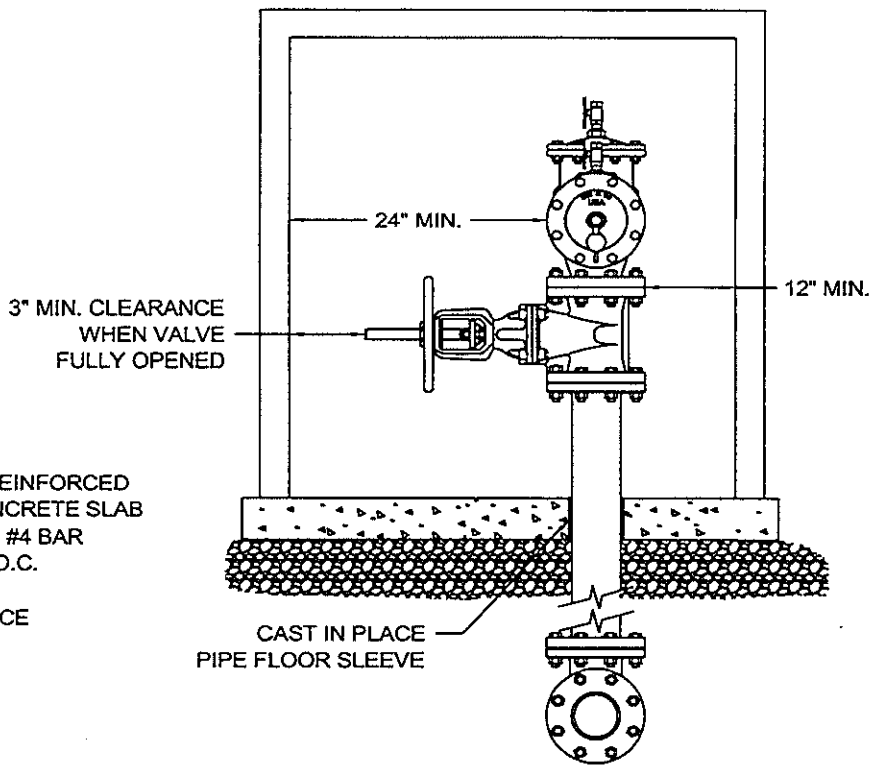
CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**



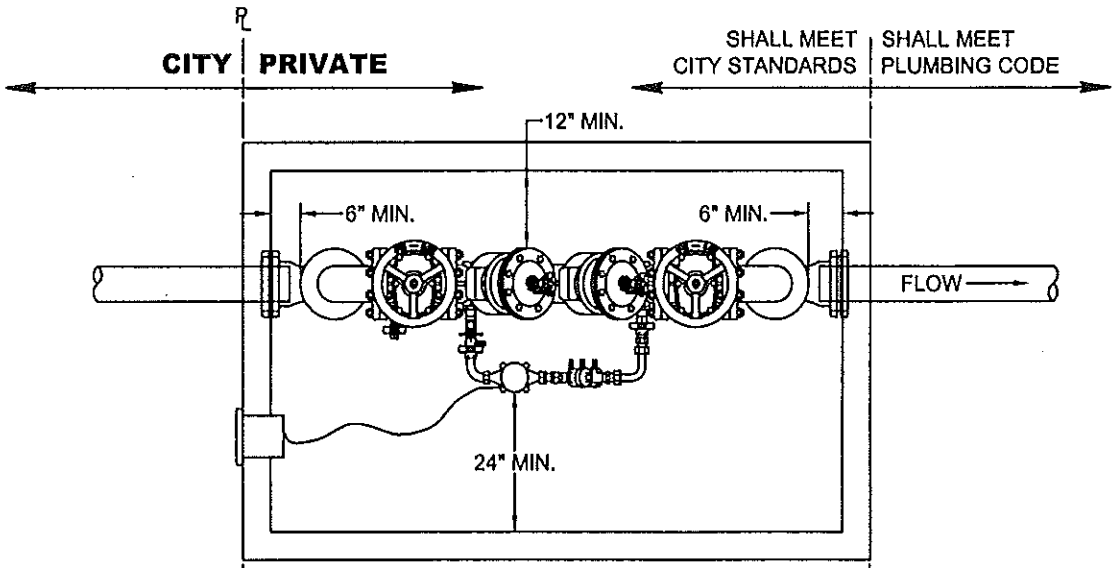
SIDE ELEVATION



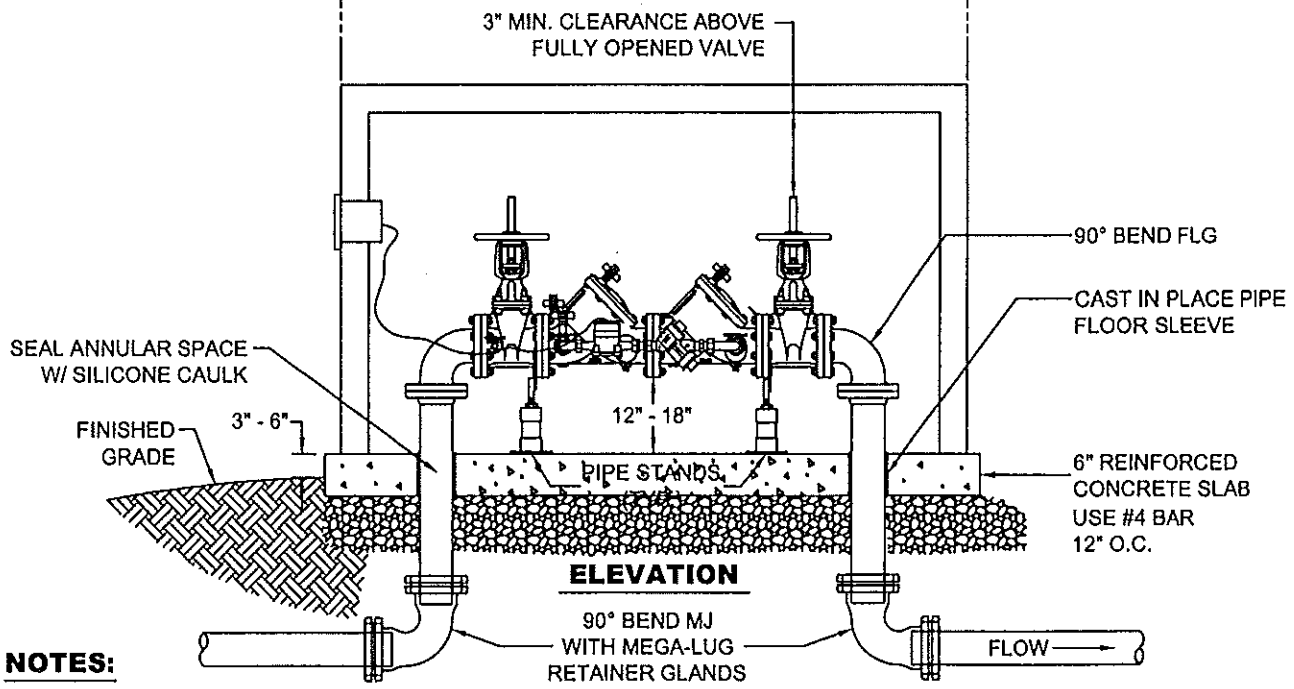
END ELEVATION

NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL
3. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTRAINED JOINT WTH STAINLESS STEEL RODS
4. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND



PLAN



ELEVATION

NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSIMBLIES.
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
3. DCDA GATE VALVES SHALL HAVE SUPERVISED TAMPER SWITCHES IF REQUIRED BY FIRE MARSHALL.
4. PIPE STANDS TO BE STANDON S76 OR EQUIVALENT FLANGE STYLE STANDS, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
5. WATER METER SHALL INCLUDE A TOUCH READ PIT MODULE INSTALLED ON THE STREET SIDE OF THE ENCLOSURE.
6. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTRAINED JOINT WITH STAINLESS STEEL RODS.
7. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND.

Kelso Longview
Cities Working Together

DOUBLE CHECK DETECTOR ASSEMBLY, LARGE, ABOVE GROUND

STANDARD PLAN: **W - 370**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

Kelso Longview
Cities Working Together

DOUBLE CHECK DETECTOR ASSEMBLY, N-PATTERN

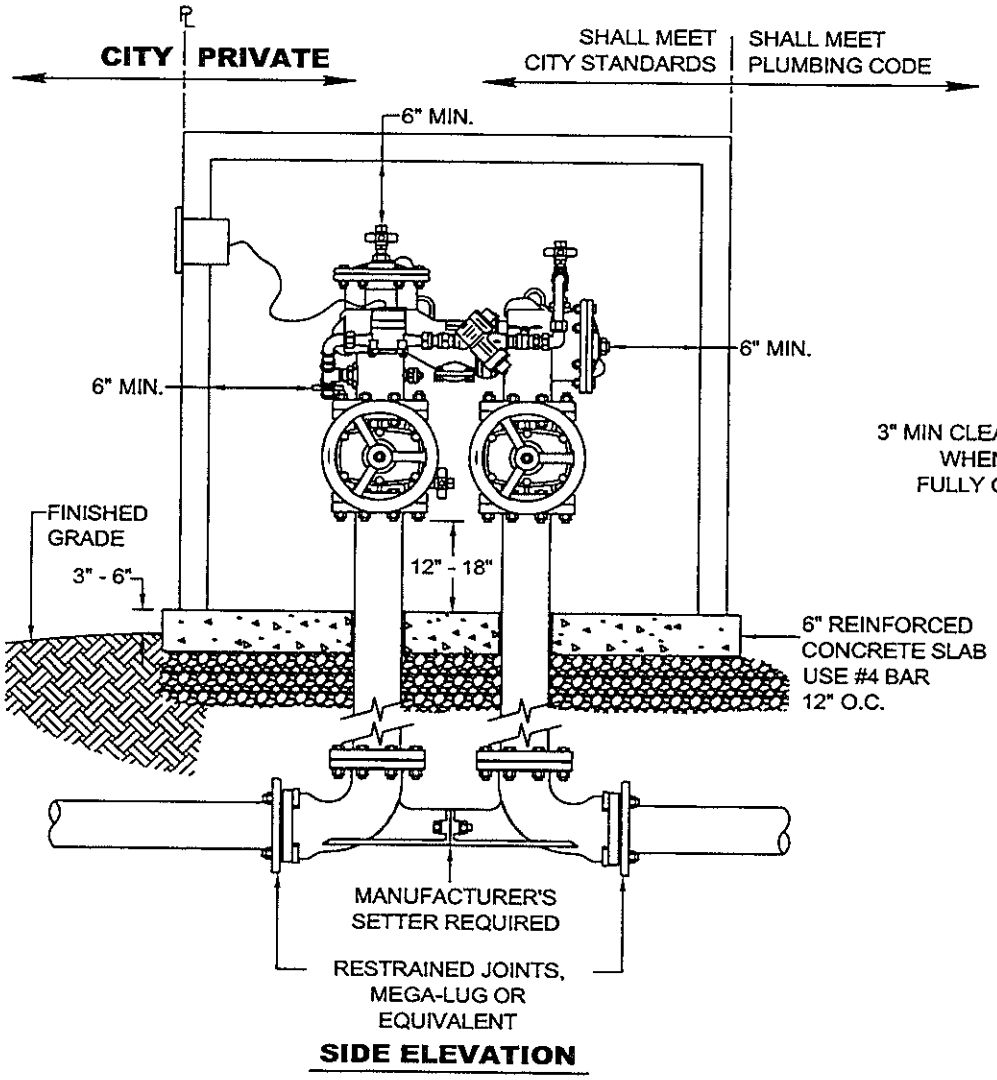
STANDARD PLAN: **W - 380**

DATE: **FEB. 2008**

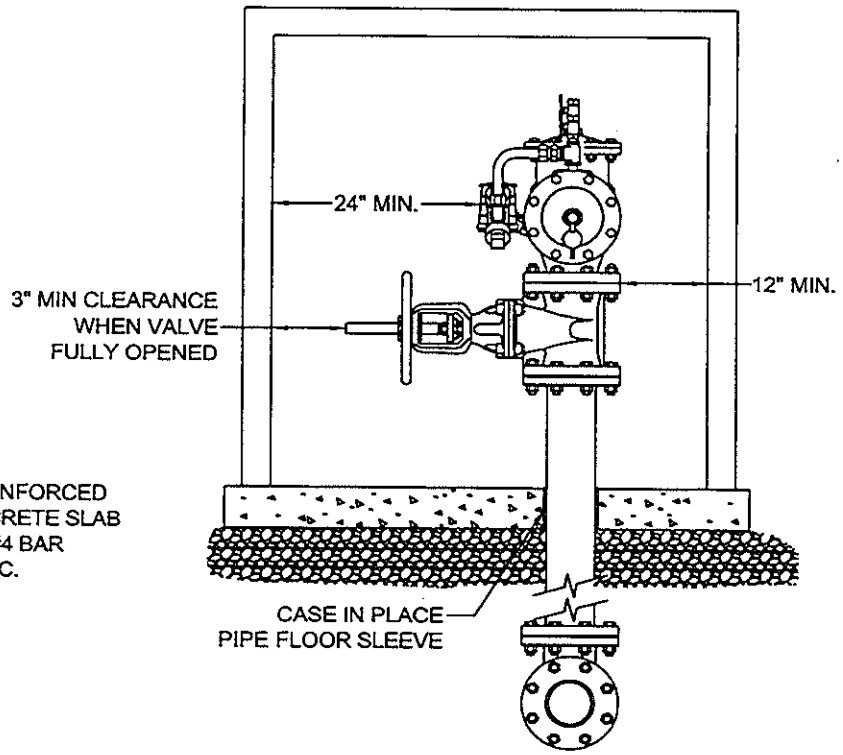
CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**



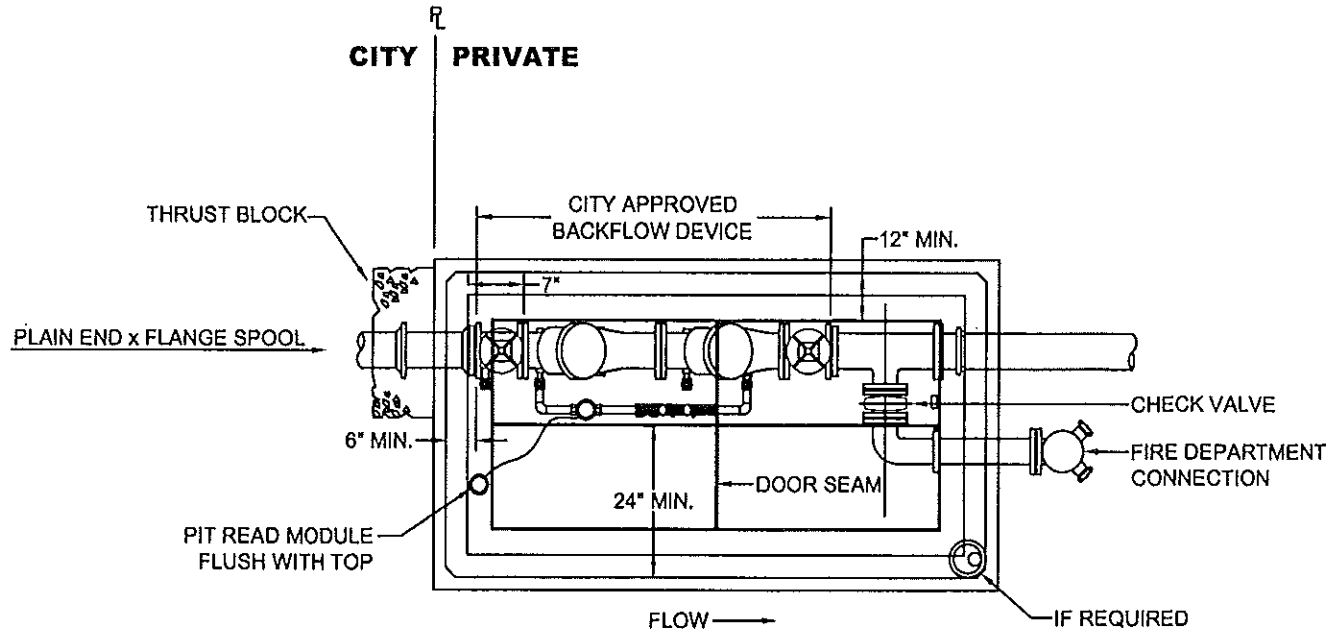
SIDE ELEVATION



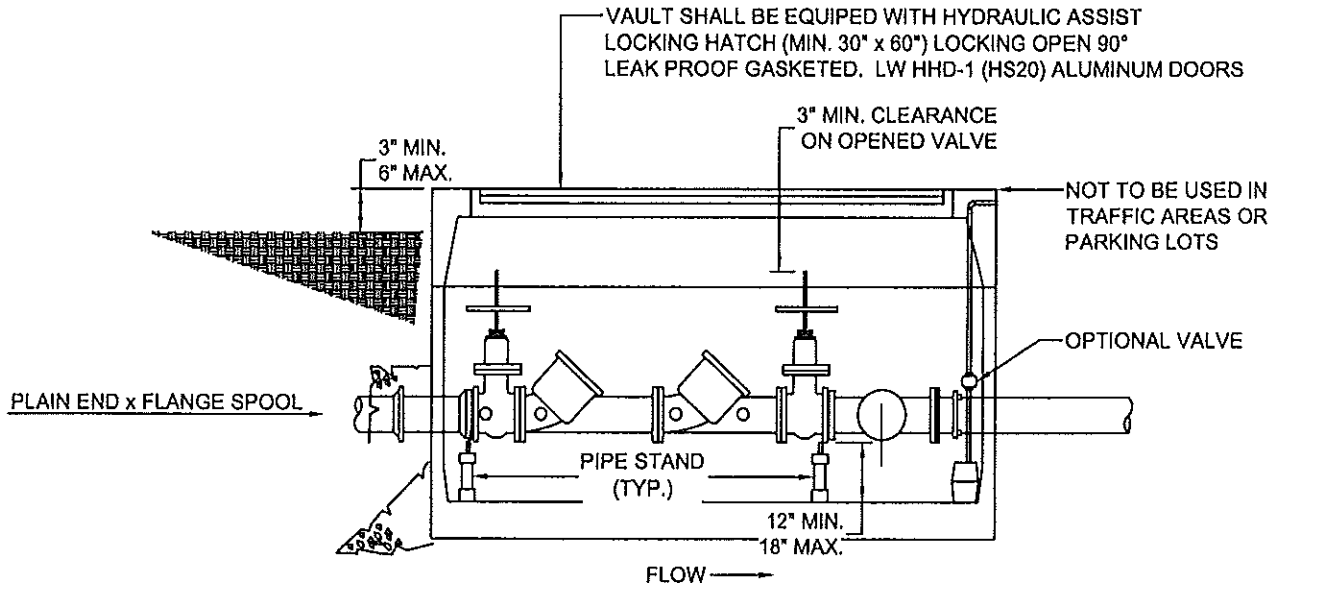
END ELEVATION

NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
3. DCDA GATE VALVES SHALL HAVE SUPERVISED TAMPER SWITCHES IF REQUIRED BY FIRE MARSHALL.
4. WATER METER SHALL INCLUDE A TOUCH READ PIT MODULE INSTALLED ON THE STREET SIDE OF THE ENCLOSURE.
5. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTRAINED JOINIT WITH STAINLESS STEEL RODS.
6. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND.



PLAN



ELEVATION

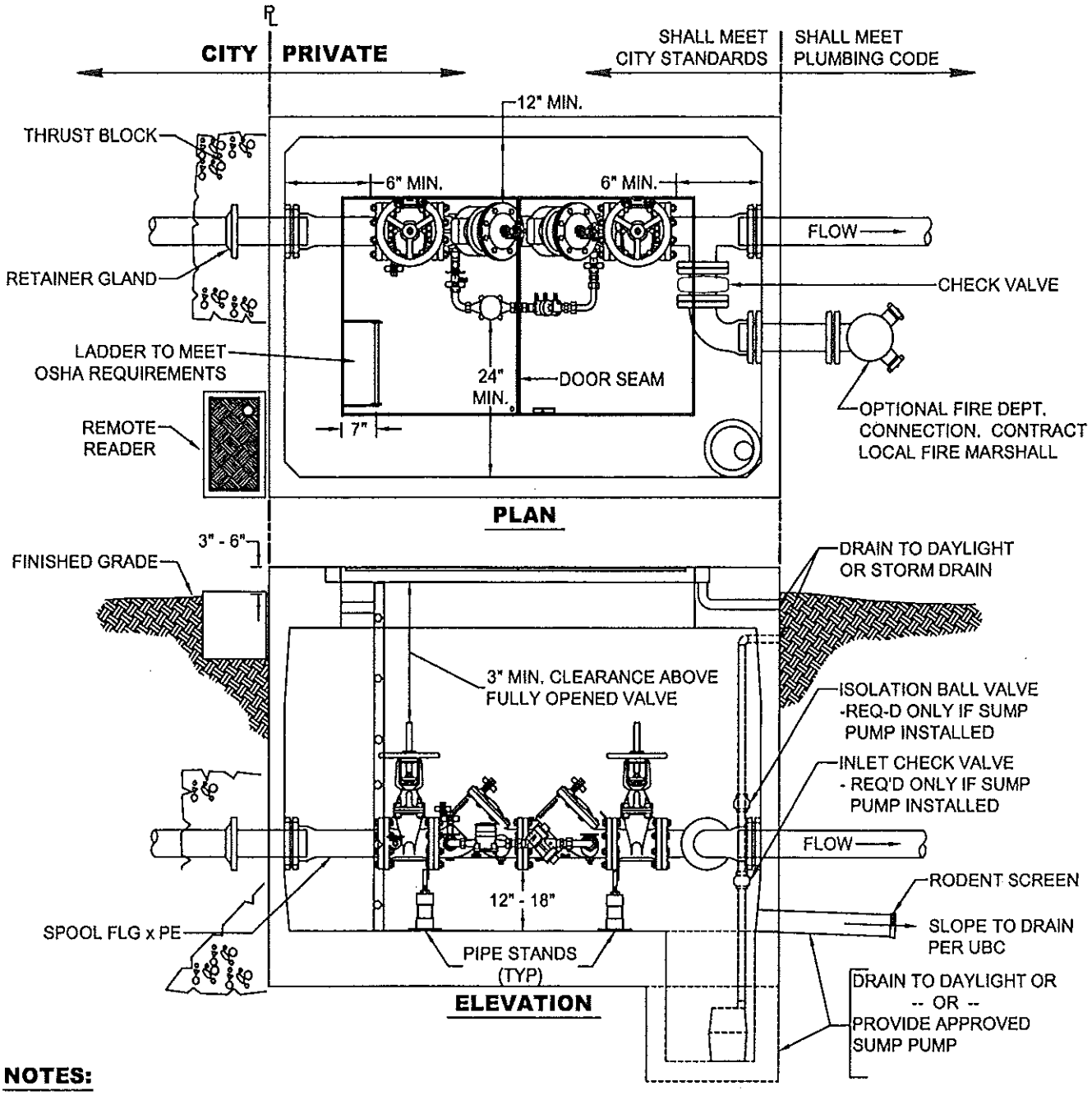
NOTES:

1. CONTRACTOR TO PROVIDE SITE SPECIFIC SHOP DRAWING FOR CITY ENGINEER APPROVAL PRIOR TO ANY CONSTRUCTION OF THIS ITEM.
2. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
3. HATCH DRAINS TO BE PLUMBED TO DAYLIGHT OR STORM DRAIN AS DIRECTED BY THE CITY INSPECTOR.
4. KNOCKOUT NOT ALLOWED IN VAULT, CORE SAW ONLY.
5. LINK SEALS FOR ALL VAULT PENETRATIONS.
6. PIPE STANDS TO BE STANDON S76 OR APPROVED EQUIVILANT FLANGE STYLE STANDS, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
7. VAULT SHALL BE EQUIPPED WITH A LEAK PROOF, GASKETED, DOUBLE RAISE, ALUMINUM, AASHTO H20 RATED, HYDRAULIC ASSIST, LOCKING HATCH, MIN. 36" x 60", LOCKING OPEN 90°.
8. VAULT SHALL BE PRECAST CONCRETE, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
9. VAULT SHALL GRAVITY DRAIN TO DAYLIGHT OR A STORM DRAIN. IF THIS IS NOT POSSIBLE, A 1/4 HP MINIMUM SUMP PUMP SHALL BE INSTALLED IN THE SUMP PIT OF THE VAULT AND SHALL DISCHARGE TO DAYLIGHT OR A STORM DRAIN. SAID PUMP SHALL AUTOMATICALLY PROTECT THE VAULT FROM FLOODING AT ALL TIMES.
10. ALL TESTING, FLUSHING, & CHLORINATION SHALL BE PERFORMED PRIOR TO INSTALLATION OF THE BACKFLOW DEVICE.
11. TAMPER SWITCH REQUIRED WHEN SPECIFIED BY FIRE MARSHAL.
12. WATER METER SHALL INCLUDE A TOUCH READ PIT MODULE PLACED IN BROOKS 37 T BOX ON STREET SIDE.

Kelso Longview
Cities Working Together

DOUBLE CHECK DETECTOR ASSEMBLY

STANDARD PLAN: W - 350 - L	CITY ENGINEER APPROVAL:
DATE: **FEB. 2007**	Longview: **C.B.**
	Kelso:



NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
2. DCDA GATE VALVES SHALL HAVE SUPERVISED TAMPER SWITCHES IF REQUIRED BY FIRE MARSHALL.
3. HATCH DRAINS TO BE PLUMBED TO DAYLIGHT OR STORM DRAIN AS DIRECTED BY THE CITY'S C.C.S. OR ENGINEER.
4. KNOCKOUTS NOT ALLOWED IN VAULT.
5. LINK SEALS TO BE USED FOR ALL VAULT PENETRATIONS.
6. PIPE STANDS TO BE STANDON S76 OR EQUIVALENT FLANCE STYLE STANDS, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
7. VAULT TO BE EQUIPPED WITH A LEAK PROOF, GASKETED, DOUBLE RAISE, ALUMINUM, AASHTO H20 RATED, HYDRAULIC ASSIST LOCKING HATCH, MIN. 36" x 60", LOCKING OPEN 90°.
8. VAULT SHALL BE PRECAST CONCRETE, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
9. VAULT SHALL GRAVITY DRAIN TO DAYLIGHT OR STORM DRAIN. IF THIS IS NOT POSSIBLE, A ¼ HP MINIMUM SUMP PUMP SHALL BE INSTALLED IN THE SUMP PIT OF THE VAULT AND SHALL DISCHARGE TO DAYLIGHT OR A STORM DRAIN. SAID PUMP SHALL AUTOMATICALLY PROTECT VAULT FROM FLOODING AT ALL TIMES.
10. WATER METER SHALL INCLUDE A TOUCH READ PIT MODULE PLACED IN BROOKS 37 T BOX ON STREET SIDE.

Kelso Longview Cities Working Together

DOUBLE CHECK DETECTOR ASSEMBLY, LARGE, BELOW GROUND

STANDARD PLAN: W - 360 - K	CITY ENGINEER APPROVAL: Longview:
DATE: FEB. 2008	Kelso: S.Z.

Kelso Longview
Cities Working Together

N-PATTERN REDUCED PRESSURE BACKFLOW ASSEMBLY

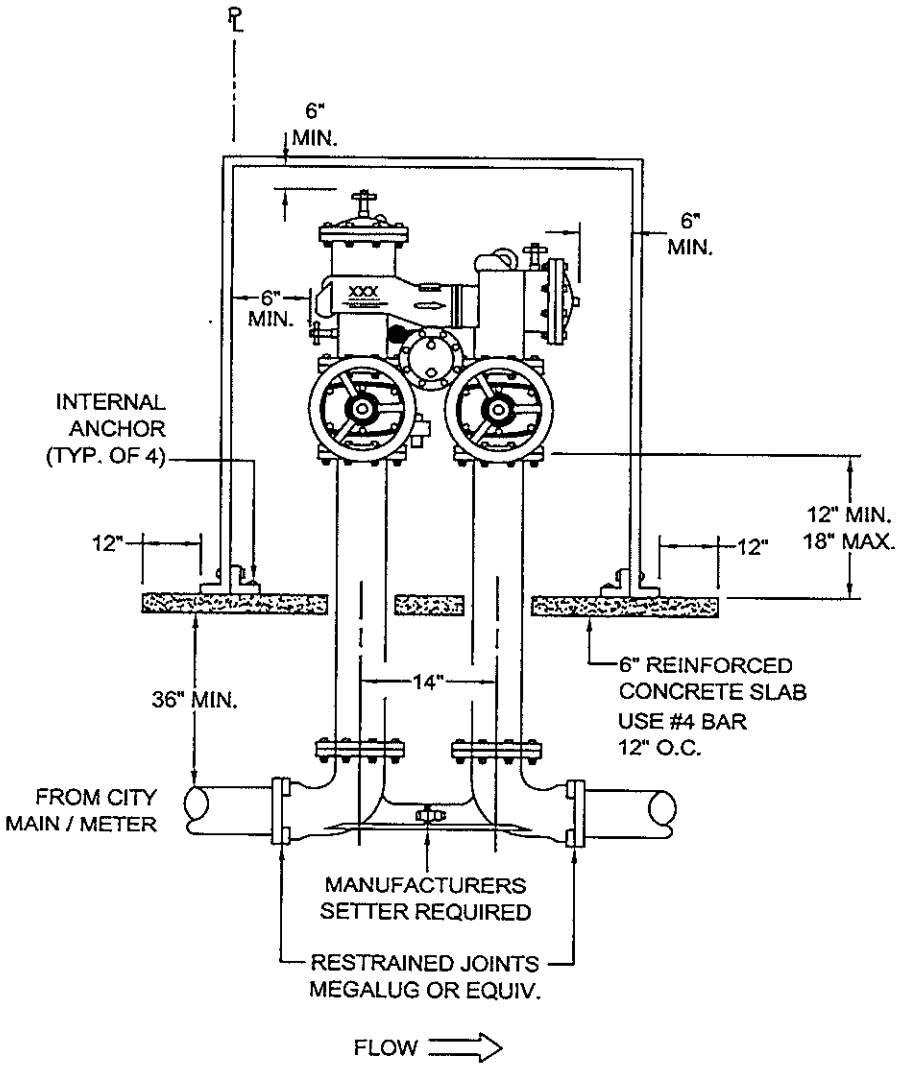
STANDARD PLAN: **W 390 - L**

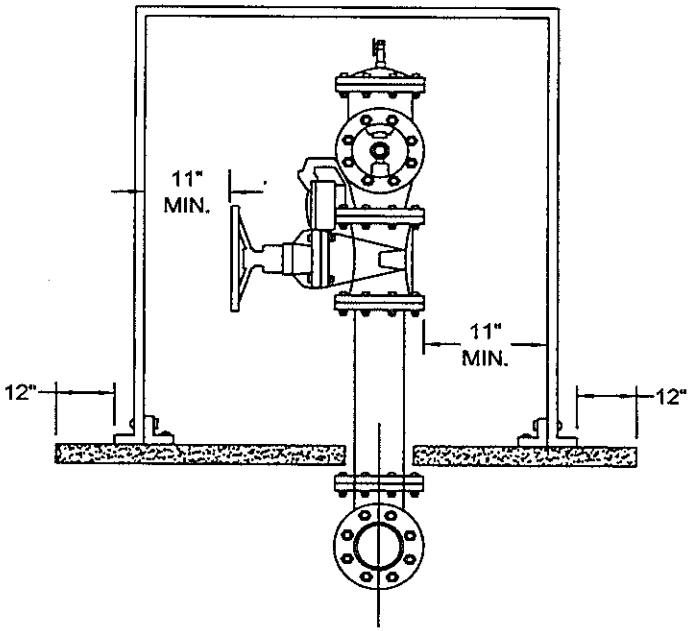
DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso:





NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED IN A LOCATION APPROVED BY THE CITY.
2. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED HORIZONTAL AND PLUMB.
3. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.

Kelso Longview
Cities Working Together

REDUCED PRESSURE BACKFLOW ASSEMBLY, N-PATTERN

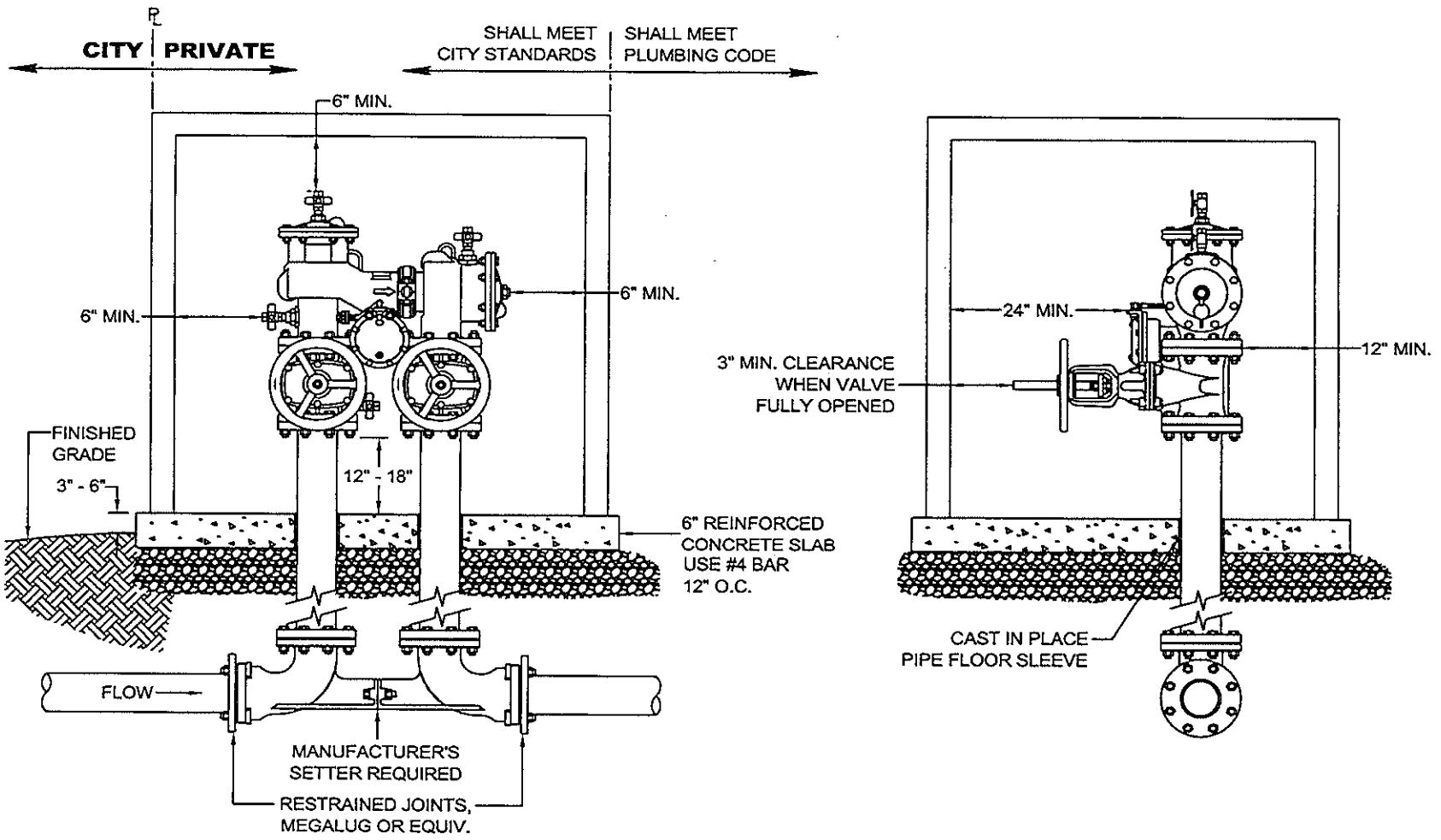
STANDARD PLAN: **W - 400 - K**

DATE: **FEB. 2008**

CITY ENGINEER APPROVAL:

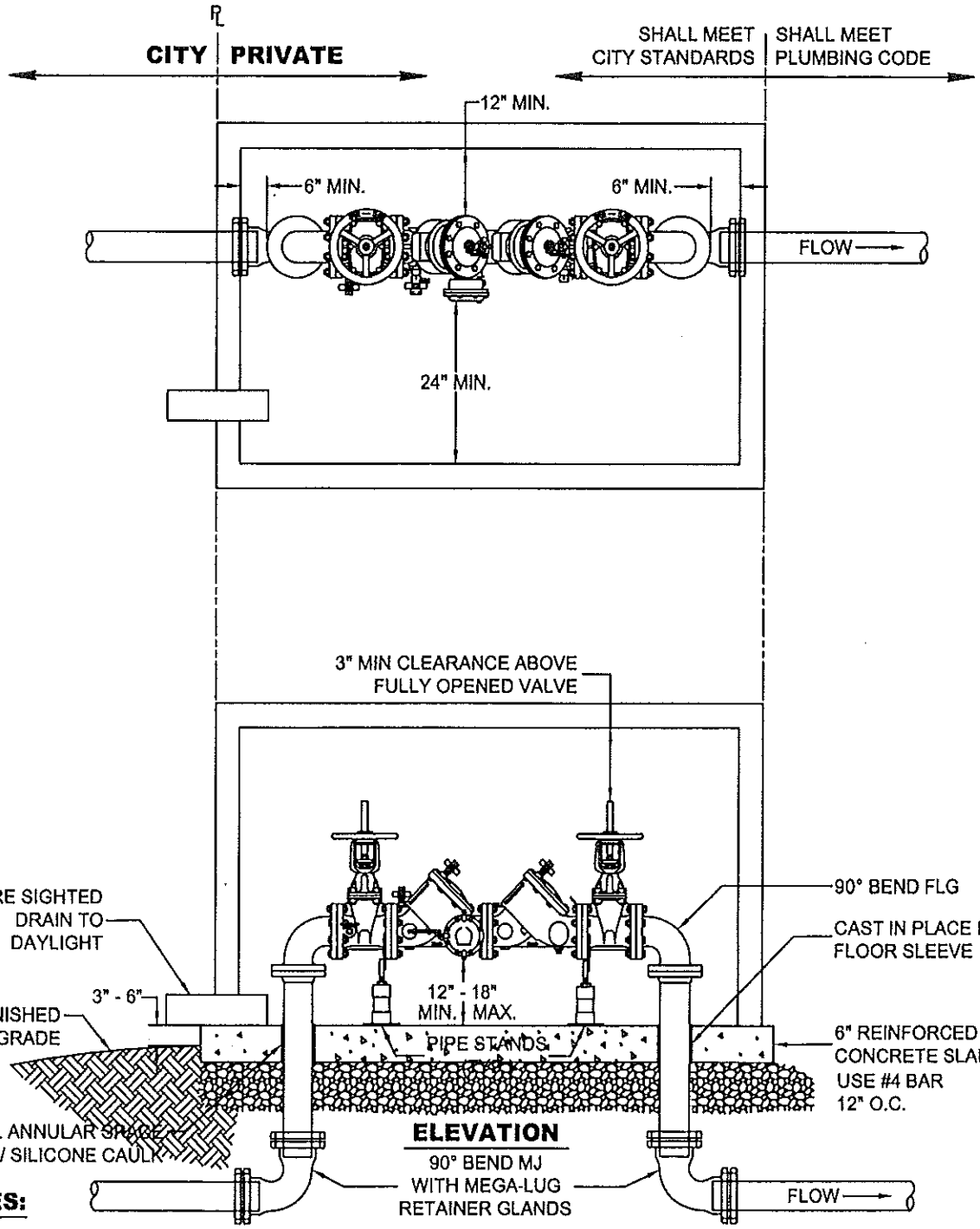
Longview:

Kelso: **S.Z.**



NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
3. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
4. ENCLOSURE SHALL BE EQUIPPED WITH A BORE-SIGHTED DRAIN TO DAYLIGHT, CAPABLE OF HANDLING THE VOLUME OF WATER THAT PROTENTIALLY COULD BE DISCHARGED FROM THE RELIEF VALVE PORT.
5. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTRAINED JOINT WITH STAINLESS STEEL RODS.
6. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND.



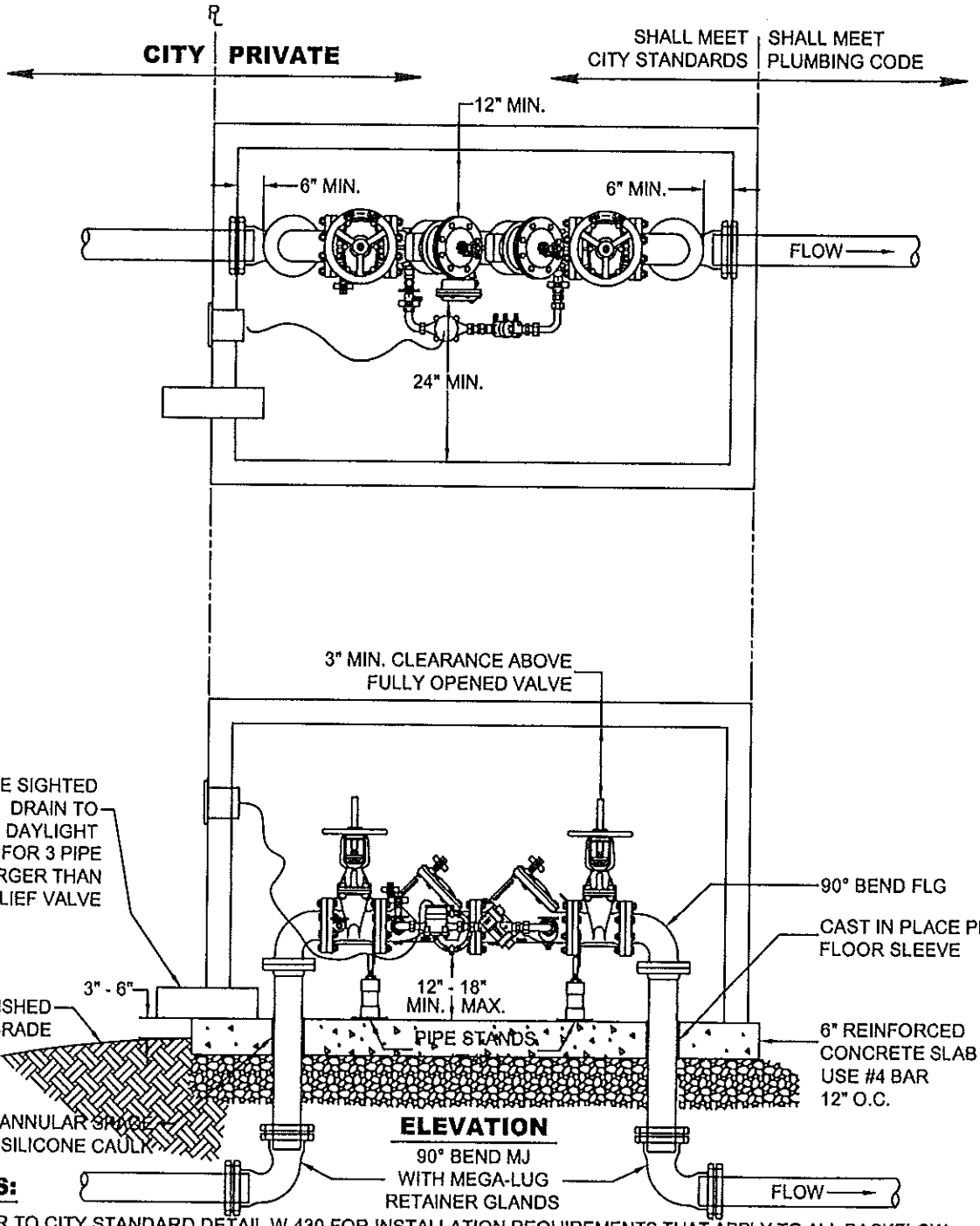
NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
3. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
4. ENCLOSURE SHALL BE EQUIPPED WITH A BORE-SIGHTED DRAIN TO DAYLIGHT, CAPABLE OF HANDLING THE VOLUME OF WATER THAT POTENTIALLY COULD BE DISCHARGED FROM THE RELIEF VALVE PORT.
5. PIPE STANDS TO BE STANDON S76 OR EQUIVALENT FLANGE STYLE, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
6. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTRAINED JOINT WITH STAINLESS STEEL RODS.
7. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND.

Kelso Longview
Cities Working Together

REDUCED PRESSURE BACKFLOW ASSEMBLY, LARGE

STANDARD PLAN: W - 410	CITY ENGINEER APPROVAL:
	Longview: **C.B.**
DATE: **FEB. 2008**	Kelso: **S.Z.**



NOTES:

1. REFER TO CITY STANDARD DETAIL W-430 FOR INSTALLATION REQUIREMENTS THAT APPLY TO ALL BACKFLOW PREVENTION ASSEMBLIES.
2. ASSEMBLY SHALL BE INSTALLED ABOVE GROUND IN A HEATED AND/OR INSULATED ENCLOSURE CAPABLE OF PROVIDING YEAR-ROUND FREEZE PROTECTION, SIZED TO MEET THE CLEARANCE REQUIREMENTS SHOWN IN THE DETAIL.
3. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
4. ENCLOSURE SHALL BE EQUIPPED WITH A DRAIN TO DAYLIGHT, CAPABLE OF HANDLING THE VOLUME OF WATER THAT POTENTIALLY COULD BE DISCHARGED FROM THE RELIEF VALVE PORT.
5. PIPE STANDS TO BE STANDON S76 OR EQUIVALENT FLANGE STYLE, EITHER GALVANIZED OR MADE OF STAINLESS STEEL.
6. RPDA GATE VALVES SHALL HAVE SUPERVISED TAMPER SWITCHES IF REQUIRED BY FIRE MARSHALL.
7. WATER METER SHALL INCLUDE A TOUCH READ PIT MODULE INSTALLED ON THE STREET SIDE OF THE ENCLOSURE.
8. VERTICAL UPRIGHTS SHALL BE FLANGED SPOOLS OR BE RESTAINED JOINT WITH STAINLESS STEEL RODS.
9. SLAB SHALL EXTEND 12" LARGER THAN ENCLOSURE FOOTPRINT, ALL THE WAY AROUND.

Kelso Longview
Cities Working Together

REDUCED PRESSURE DETECTOR ASSEMBLY, LARGE

STANDARD PLAN: W - 420	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**

BACKFLOW PREVENTION ASSEMBLY INSTALLATION REQUIREMENTS

1. ALL BACKFLOW ASSEMBLY INSTALLATIONS ARE TO BE COORDINATED WITH THE CITY'S CROSS-CONNECTION CONTROL SPECIALIST (CCS)
2. A CITY PLUMBING PERMIT MUST BE OBTAINED PRIOR TO INSTALLATION (KELSO ONLY)
3. MATERIALS SUBMITTALS AND CUT SHEETS SHALL BE SUBMITTED FOR APPROVAL TO THE CITY'S CCS AT LEAST 2-WEEKS PRIOR TO INSTALLATION
4. INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY THE CITY'S CCS PRIOR TO WATER TURN-ON
5. INSTALLATION INSPECTION SHALL BE SCHEDULED WITH THE CITY'S CCS AT LEAST 2 WORKING DAYS BEFORE INSTALLATION
6. ASSEMBLY SHALL BE LISTED IN THE CURRENT WSDOT LIST OF APPROVED ASSEMBLIES, PUB. 331-137
7. ASSEMBLY SHALL BE INSTALLED PER WAC 246-290-490 (6), CHAPTER 7 OF THE CURRENT PNWS-AWWA CROSS-CONNECTION CONTROL MANUAL, AND THESE CITY STANDARDS
8. ASSEMBLY SHALL BE INSTALLED IMMEDIATELY DOWNSTREAM OF THE WATER METER UNLESS AN ALTERNATE LOCATION IS APPROVED BY THE CITY'S CCS
9. ALL PIPING SHALL BE THRUST BLOCKED PER CITY STANDARDS W-220 AND W-230
10. ASSEMBLY SHALL BE FULLY ACCESSIBLE AND HAVE ADEQUATE CLEARANCE FOR IN-LINE TESTING, MAINTENANCE, REPAIR, AND REPLACEMENT
11. TEST COCKS SHALL BE EITHER SIDE OR UP FACING AND SHALL BE CAPPED WHEN ASSEMBLY IS NOT BEING TESTED
12. THOROUGHLY FLUSH LINES PRIOR TO INSTALLATION OF BACKFLOW ASSEMBLY
13. ALL ELECTRICAL WORK SHALL COMPLY WITH THE WASHINGTON STATE ELECTRICAL CODE AND BE INSPECTED BY A WASHINGTON STATE CERTIFIED ELECTRICAL INSPECTOR
14. ASSEMBLY SHALL BE TESTED PER WAC 246-290-490 (7)
15. CURRENT CERTIFICATION OF BOTH THE BACKFLOW ASSEMBLY TESTER AND THE TEST KIT USED MUST BE ON FILE WITH THE CITY'S CROSS-CONNECTION CONTROL DIVISION PRIOR TO TESTING ASSEMBLY
16. THE CITY'S CCS SHALL BE PRESENT FOR THE INITIAL TEST
17. TEST RESULTS SHALL BE SUBMITTED TO THE CITY'S CROSS-CONNECTION CONTROL DIVISION AT TIME OF TEST ON AN ORIGINAL, CITY APPROVED TEST REPORT FORM SUBMITTED TEST REPORT FORMS SHALL BE COMPLETELY AND LEGIBLY FILLED OUT AND
18. SIGNED BY BOTH THE TESTER AND THE OWNER (OR OWNER'S AUTHORIZED DESIGNEE)

Kelso Longview Cities Working Together	**BACKFLOW PREVENTION ASSEMBLY INSTALLATION REQUIREMENTS**	
	STANDARD PLAN: **W - 430**	CITY ENGINEER APPROVAL: Longview: **C.B.**
	DATE: **FEB. 2007**	Kelso: **S.Z.**

Required Submittals for Chlorination Process

1. Type and strength of chlorine (include MSDS sheet).

2. Type of de-chlorination compound (include MSDS sheet) and calculations showing the quantity of compound needed to de-chlorinate the highly chlorinated water contained in the new water main.

3. Letter to the City listing the material and equipment components to be used for chlorination and proposing a schedule for the work (all subject to review and approval by the City).

   a. Supply all clean and sterile components necessary for the process.

   b. Supply new vessel or new lining for the vessel to contain chlorine mix compounds.

4. Water trucks are **not** allowed to pump water or chlorine solution into any waterline.

5. Alternate water sources, if requested. Alternate sources of water may only be used to fill, test, chlorinate and de-chlorinate. Alternate sources of water must be submitted and approved in writing prior to use.

Chlorination Procedure (Option One)

1. Schedule City for testing at least 48 hours in advance.

2. City to assure isolation valve is fully closed to prevent solution from entering operational system.

3. Open end of pipe valve to allow water to exit new system.

4. Mix solution per attached sketch (Attachment # 1).

5. Pump sufficient chlorine solution into new line to displace the water in the new line and achieve the required chlorine concentration.

6. City to test solution at end of line to meet 50 to 100 PPM.

7. Close end of line valve.

8. Pump additional chlorine solution slowly into line while bleeding each service and hydrant.

9. Shut down system and let it chlorinate for 24 to 30 hours.

10. Schedule with City to de-chlorinate between 24 and 30 hours after chlorination is complete.

11. City to test chlorine level to ensure that required residual remains.

12. De-chlorinate (see following de-chlorination procedures).

Chlorination Procedure (Option Two)

1. Schedule City for testing at least 48 hours in advance.

2. City opens isolation valve to achieve flow per attached chart (Attachment # 2).

3. Contractor mixes chlorine solution per (Attachment # 2).

4. Inject chlorine solution at the proper flow rate through a corporation stop near the isolation valve (Attachment # 2).

5. City tests chlorine content at various locations throughout the system and informs the contractor when the required chlorine concentration has been confirmed at the end of the line.

6. City closes isolation valve and contractor stops injecting solution into the line. The system is closed and left to chlorinate for 24 to 30 hours.

7. City to test chlorine level to ensure that required residual remains.

8. De-chlorinate (See following de-chlorination procedures).

De-chlorination Procedure (Option One)

1. The City will open isolation valve and feed water through the new system at a slow rate.

2. Solution for de-chlorination will be mixed with the discharged water using an adjustable inductor type pump at the end of the line. Pump will be adjusted to obtain a zero chlorine level in the discharged water.

3. After all water is de-chlorinated, install a sampling station at the end of the line. The City will test to ensure that chlorine level is at the system residual level, and then obtain a bacteria sample.

4. Once the sample has passed, the new main can be put in service by the City and turned over to the City for operation.

De-chlorination Procedure (Option Two)

1. Place calculated amount (plus a little extra) of de-chlorination compound in empty water truck.

2. City turns isolation valve and flushes chlorinated water into water truck.

3. Contractor supplies all plumbing necessary to get the water from the blow off into the water truck.

4. Contractor disposes of de-chlorinated water per all required codes.

5. After all water is de-chlorinated, install a sampling station at the end of the line. The City will test to ensure that chlorine level is at the system residual level, and then obtain a bacteria sample.

6. Once the sample has passed, the new main can be put in service by the City and turned over to the City for operation.

Additional Overall Requirements for all Waterline Work

1. Unless otherwise stated, the Contractor is responsible to supply all labor, tools, equipment and supplies to perform the work in accordance with these procedures.

2. Contractor shall take all precautions necessary or as directed by the City to minimize all impacts to the public, including erosion during flushing.

3. Contractor shall schedule all work involved with these procedures a minimum of 48 hours in advance of the work.

4. If the Contractor prefers to use other means not laid out in these procedures, the Contractor shall submit for review and approval his/her proposed means and methods seven days prior to the work.

5. Bacteria samples will not be taken until the new waterline is connected to the City of Longview system with a testing station at the end of the newly installed system or each leg thereof.

6. Failed tests that require re-test of the bacteria sample shall be the responsibility of the Contractor and the right of way or infrastructure permitee. The Contractor/permittee shall be responsible for all failed tests; all City costs associated with failed tests shall be reimbursed by the Contractor/permittee to the City of Longview.

Kelso Longview Cities Working Together

CHLORINATION PROCEEDURES (3 OF 5)

STANDARD PLAN: **W - 652**

DATE: **FEB. 2007**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**

(ATTATCHMENT #1)

$$TG = \left(\frac{\pi \ R^2 \times LENGTH}{144} \right) \times 7.48 \ gal/FT^3$$

OPEN VALVE

LEGEND
TG = TOTAL GALLONS
D = DIAMETER IN INCHES
R = RADIUS IN INCHES
L = LENGTH OF PIPE

PIPE DIAMETER	GALLONS

TOTAL GALLONS

REPLACE WATER IN NEW MAIN WITH 85 ppm SOLUTION

OUT
PUMP
IN

SUCTION PIPE

1" TAP AND SADDLE WITH BALL CORP (REMOVE CORP & INSTALL BRASS PLUG AFTER ACCEPTANCE)

NEW MAIN

PUMP SOLUTION INTO NEW MAIN AND TEST @ OUTFALL END

____ TG / 32 = BATCHES

BATCH
1 CUP OF 5% BLEACH TO 32 GALLONS OF WATER

32gal CONTAINER

(75 to 90 ppm SOLUTION)

CLOSED VALVE

EXISTING MAIN

Kelso Longview Cities Working Together

CHLORINATION PROCEEDURES (4 OF 5)

STANDARD PLAN: W - 653	CITY ENGINEER APPROVAL:
DATE: FEB. 2007	Longview: C.B.
	Kelso: S.Z.

Attachment 2

Chlorination Calculation Procedures

Chlorination Formula for injecting into a pipe line.

(Gallons / Million Gallons) X 8.34 lbs/gal x 50 ppm / percent solution = lbs of Cl2.

Example:

2000 gal/1000000 gal x 8.34 x 50 ppm = .834 lbs / 12 Cl2% = 6.95 lbs

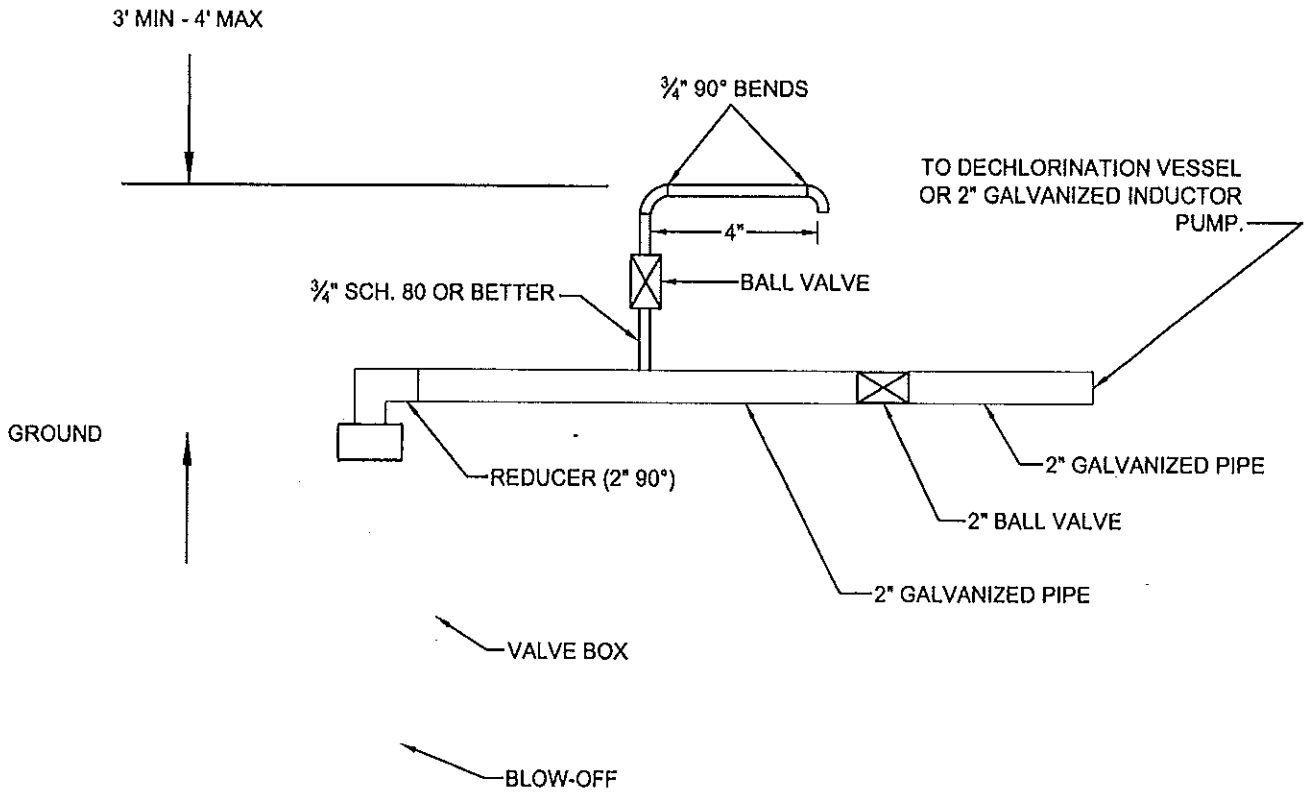
1gallon of 12% sodium hypochlorite solution weighs 8.34 lbs

So for 2000 gallons of water needing 6.95 lbs of 12% solution you divide the lbs of solution by lbs per gallon to come up with total gallons of liquid chlorine you need.
Example 6.95 / 8.34 = .83 gal of 12% solution.

Diameter	Gals water per Ft of pipe	lbs/cl2 per 100'
4	0.7	0.23
6	1.5	0.51
8	2.6	0.91
10	4.1	1.42
12	5.9	2.04

Flow calculation formula:

City opens isolation valve to obtain 30 GPM.
Contractor supplies a 35 gallon new or newly lined vessel.
Contractor marks and measures flow at end of line with vessel until City adjusts isolation valve to flow 30 GPM.
Contractor supplies and connects a 3GPM pump to the injection point.
Contractor mixes and pumps solution into line while flowing 30 GPM until proper concentration is confirmed by the City at the end of line.
Each 32 gallon batch requires 11 cups of 5% chlorine.
OR
Each 32 gallon batch requires 4.5 cups of 12.5% chlorine.
City bleeds services and hydrants while flowing solution to obtain required concentration.
Finish (option 2) process from number 6 on.



NOTES:

1. USE ¾", CLEAN, SCH. 80 OR BETTER PVC MATERIAL FOR PIPE AND BENDS.
2. CONTRACTOR TO ASSEMBLE FOR SAMPLING TO OPTAIN BACTERIA TEST.
3. TEST STATION TO BE INSTALLED AFTER FLUSHING AND TESTING IS COMPLETE.
4. CONTRACTOR IS RESPONSIBLE TO SUPPLY, INSTALL AND REMOVE TEST STATION.
5. TO BE FLUSHED WITH A MINIMUM OF 50 mg/L OF CHLORINATED WATER PRIOR TO INSTALLING.

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TEST STATION DETAIL

STANDARD PLAN: W - 660	CITY ENGINEER APPROVAL:
DATE: **FEB. 2007**	Longview: **C.B.**
	Kelso: **S.Z.**

WATER NOTES:

7-09 WATER MAINS
Section 7-09.2; Materials
Paragraph 1 is replaced with the following:

Materials shall meet the following sections:

Pipe	9-30.1
Ductile Iron Pipe (Restrained Joint)	9-30.1(1)
Fittings	9-30.2
Ductile Iron Pipe	9-30.2(1)
Restrained Joints	9-30.2(6)
Bolted Sleeve-Type Couplings for Plain End Pipe	9-30.2(7)
Valves	9-30.3
Gate Valves (3 inches to 10 inches)	9-30.3(1)
Butterfly Valves (12 inches and greater)	9-30.3(3)
Valve Boxes	9-30.3(4)
Valve Marker Posts	9-30.3(5)
Valve Stem Extension	9-30.3(6)
Combination Air Release Valves	9-30.3(7)
Tapping Sleeve and Valve Assembly	9-30.3(8)
Hydrants (All bolts and nuts to be stainless steel with Anti-seize Compound)	9-30.5
Service Connections (2 inches and Smaller)	9-30.6

All Ductile Iron Pipe, fittings and appurtenances shall have restrained joints by the use of Mega-Lugs, Romac Grip Rings, Field-Lock gaskets, or approved equal.

Bolts and nuts for flanged pipe and fittings shall conform in size and length with ANSI/AWWA C115/A21.15. All bolts and nuts shall be made from COR-TEN steel in accordance with ANSI/AWWA C111/A21.11.

All fittings to have thrust blocks as indicated in City Standard Plans.

Note: The City reserves the right for any or all salvage rights to any existing materials removed including but not limited to fire hydrants, crosses, tees, gate valves or pipe.

It shall be determined by the City as to what materials will be salvaged.

Any material requested for salvage will be delivered by the contractor to the City's operation center as directed by the City.

All costs associated with delivery or removal and disposal shall be borne by the contractor.

7-09.3 Construction Requirements
Section 7-09.3(5); Grade and Alignment
This section is supplemented with the following:

A minimum horizontal separation of 10 feet between sanitary sewers and any existing 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. The distance shall be measured edge to edge. Sewer line should be lower than water line and installed in separate trenches.

Section 7-09.3(9); Bedding the Pipe
Sentence 1 is replaced with the following:

Bedding material shall be select granular material free from wood waste, organic material, and other extraneous or objectionable materials and shall be CSTC.

Trace Wire
Trace wire shall be installed on all water mains and smaller service lines with a lay length of more than 6 feet. The wire shall be attached to the lines at 15 foot intervals and shall be brought to the surface at all junctions and termini using methods approved by the Engineer. Trace wire material for water lines shall be 12 Gauge, soft drawn, insulated, and shall be blue in color.

Splices shall be made with a kit containing a "T" shaped open cell centering device and a plastic bag of urethane and hardener which is mixed at the time of installation or heat shrinkable insulating tubing. Heat shrinking insulating tubing shall consist of a mastic lined heavy wall polyolefin cable sleeve. The resin used with the "T" shaped open cell centering device shall be a quick curing flexible compound with an approximate set-up time of 4 minutes at 72° F.
A continuity test shall be performed on tracer wire with inspector present prior to paving roadway.

7-09.3(19) Connections
Section 7-09.3(19) A; Connections to Existing Mains
Paragraphs 1, 4, 5, and 6 are replaced with the following:

Connections to the existing water main shall not be made without first making the necessary arrangements with the City Water/Sewer Department in advance. Work shall not be started until the existing main has been potholed to determine the materials, equipment, and labor necessary to properly complete the work. All the materials, equipment, and labor necessary to properly complete the work shall be assembled on the site before work is started. Torque tighten all non-test bolts.

Once work is started on a connection, it shall proceed continuously without interruption, and as rapidly as possible until completed. No shutoff of mains will be permitted overnight, over weekends, on Mondays or Fridays, or on holidays. The Water/Sewer Superintendent must be notified a minimum of 48 hours prior to any shutoff and must give approval prior to the shutoff taking place.

If the connection to the existing system involves turning off the water, the Contractor shall be responsible for notifying the residents affected by the shutoff a minimum of 48 hours prior to the shutoff. The Water/Sewer Superintendent will advise which property owners are to be notified.

Connections must be performed between 8:00 a.m. and 4:00 p.m. Tuesday through Thursdays unless other arrangements have been made with the Water/Sewer Superintendent. Any overtime cost by city staff will be incurred by the contractor.

All waterlines and services shall be abandoned at the main and provide a one foot separation from the watermain. Flushing may be required to be performed at night (per City direction) during non-peak flows.

Section 7-09.3(21); Concrete Thrust Blocking
This section is supplemented with the following:

All forms for concrete and deformed rebar thrust blocking must be approved by the City Engineer prior to pouring the concrete.

Section 7-09 .3(23); Hydrostatic Pressure Test
Paragraphs 1, 4, and 5 are replaced with the following:

All water mains and appurtenances shall be tested in sections of convenient length under a hydrostatic pressure equal to 1.5 times that under which they will operate or 200 psi whichever is greater. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished and operated by the Contractor. The Engineering Department must be notified a minimum of 48 hours prior to testing and must be present when tests are performed.

The mains shall be filled with water and allowed to stand under pressure a sufficient length of time to allow the escape of air and allow the lining of the pipe to absorb water. The Contractor shall be responsible for providing the water necessary to fill the pipelines for testing purposes.

The test shall be accomplished by pumping the main up to the required pressure, stopping the pump for 2 hours, and then pumping the main up to the test pressure again. During the test, the section being tested shall be observed to detect any visible leakage. A clean container shall be used for holding water for pumping up pressure on the main being tested. This makeup water shall be sterilized by the addition of chlorine to a concentration of 50 mg/l. In accordance with AWWA Standards.

Disinfection of Water Mains
Section 7-09.3(24)A; Flushing
Paragraph 1 is replaced with the following:

Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. Tap shall be provided large enough to develop a velocity of at least 6 fps in the main. Hydrants are not to be used for pipe flushing; only approved blow off assemblies are to be used. Connecting to city mains or flushing may be required at night depending on system conditions as determined by the engineer.

Contractor to provide sampling station point per City standards.

Section 7-09.3(24)D; Dry Calcium Hypochlorite
This section is deleted in it's entirety.

7-12 VALVES FOR WATER MAINS
Construction Requirements
Section 7-12.3(1); Installation of Valve Marker Post
This section is replaced with the following:

Where required, a valve marker post shall be furnished and installed with each valve. Valve marker posts shall be placed at the edge of the right-of-way opposite the valve and be set with a minimum of 48" of the post exposed above grade. The post shall have a blue reflective "water valve" decal placed within 3" of the top of the post. The post shall be carsonite. The post shall face on coming traffic at 4 feet away from the valve.

A concrete collar shall be poured around valve boxes that are to grade. A two headed arrow stamp will be used to stamp the concrete collar to show direction of flow for the water main.

All operators for Butterfly Valves shall be on centerline of street side of the main.

The contractor shall not operate any city valve. The city must be contacted to turn all city valves for all phases of construction.

7-14 HYDRANTS
Construction Requirements
Section 7-14.3(6); Hydrant Extensions
This section is supplemented with the following:

Hydrant extensions will not be allowed for newly constructed hydrants. The large port on the hydrant shall face the road.

7-15 SERVICE CONNECTIONS
Section 7-15.3; Construction Requirements
Paragraph 1 is replaced with the following:

All service connections to water mains shall be made using saddles as specified and be of the size and type suitable for use with the pipe being installed. Service pipelines shall be installed perpendicular to the main, unless otherwise shown in the plans.

Water meter service shall not conflict with electric/gas services, required 4' horizontal and 12" vertical separation from other utilities for Longview (5' horz. and 18" vert. for Kelso). (10' horizontal and 18" vertical from sanitary sewer)

PERMISSABLE HYDRANT LOCATION NOTE (construction water)

Contractor shall apply for hydrant permit thru the City Water Department if construction water is needed.

No meters installed without fee's being paid in full.

City to determine location for all hydrant meters.

WATER NOTES ADDITIONAL

1. Connection to the Water System shall be inspected by Public Works Department. 48 Hours (2 working days) notice for inspection.
2. All water system flushing, including fire lines, shall be scheduled through the Public Works Department who will in turn schedule the water department to be present to record water used and to operate city valves.
3. Utility permits must be applied and paid for prior to any connections being made to either the water or sewer system.
4. All backflow devices must be tested and certified by a stated certified tester prior to the water services being activated for use.
5. Only City Water Department personnel shall operate city valves.
6. Shut downs of the water system for connections will be done between Tuesday and Thursday from 8 AM and 4 PM. Max time the water may be off is 4 hours without prior approval.
7. Submittals and shop drawings must be approved before the shut down is scheduled. Contractor is required to notify the customers affected 2 working days in advance in writting with city approved letter.
8. Meters larger than 1" will be supplied by the contractor.
    a. Must be delivered to the Water Department shop for accuracy testing at least one week prior to installation date.
    b. Must be installed by the contractor.
    c. Must have approved submittal

All backfill shall be 5/8" minus (CSTC).

Foundation material & Geo grid shall be installed as directed by the City of Longview & to the depth as directed.

All pavement patches shall be 2" plus existing in depth or as directed by the City of Longview.

All pavement shall be full depth sawcut & replaced per the limits as marked by the City of Longview after construction.

Kelso Longview
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WATER SPECIFICATIONS (5 OF 5)

STANDARD PLAN: **W - 704**	CITY ENGINEER APPROVAL:
DATE: **FEB. 2008**	Longview: **C.B.**
	Kelso: **S.Z.**