WATER SYSTEM PLAN

SEPTEMBER 2017 – FINAL

VARELA & ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
PLANNING • DESIGN • MANAGEMENT • INSPECTION

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 E Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

November 30, 2017

Mayor Shawn Logan
City of Othello
500 E Main Street
Othello, WA 99344

Subject: Othello Water Department; PWS ID #64850; Adams County Water System Plan; DOH Project #17-0301; **DOH Approval**

Dear Mayor Logan:

The City of Othello Water System Plan (WSP) received in this office on March 3, 2017, with revisions submitted on September 1, 2017, November 28, 2017, has been reviewed and in accordance with the provisions of WAC 246-290-100, is hereby **APPROVED**.

An approved update of this WSP is required **on or before November 30, 2022**, unless the Department of Health (DOH) requests an update or plan amendment pursuant to WAC 246-290-100(9). Approval of this WSP is valid as it relates to current standards outlined in Washington Administrative Code (WAC) 246-290, revised January 2017, and is subject to the qualifications herein. Future revisions in the rules and statutes may be more stringent and require facility modification or corrective action.

Standard Construction Specifications for distribution main extensions have been approved as part of this WSP. With this approval and consistent with WAC 246 290 125(2), the City of Othello may proceed with the installation of distribution main extensions without additional DOH approval provided that the City maintains on file completed construction completion reports (a copy of which is attached) in accordance with WAC 246 290 125(2) and makes them available for review upon request by DOH.

Disclaimer: The department's approval of your Water System Plan does not confer or guarantee any right to a specific quantity of water. The approved number of service connections is based on your representation of available water quantity. If the Washington Department of Ecology, a local planning agency, or other authority responsible for determining water rights and water system adequacy determines that you have use of less water than you represented, the number of approved connections may be reduced commensurate with the actual amount of water and your legal right to use it. A copy of the Department of Ecology's correspondence dated March 28, 2017 and September 13, 2017 regarding your water rights are enclosed.

Previously, DOH approved 4,262 connections for the City of Othello.

The WSP includes capacity information that demonstrates the physical and legal ability of this water system to provide water during the 6-year period for which the approval of the WSP is valid. Based on the analysis presented in the WSP, the limiting factor in determining the approved number of connections is **Stand By Storage**.

DOH bases the number of approved connections on Worksheet 6-1 and the updated Water Facilities Inventory (WFI) form information, both included in the WSP, assuming all new connections are single family connections:

From Worksheet 6-1
Water System Capacity: 12,394 ERUs (limiting component is Stand By Storage)
Total Existing ERUs: - 10,443 ERUs (based on 2,182 existing connections and DSL)
Available ERUs: 1,951 ERUs

From WFI Information

Existing number of active service connections:	2,182
Available connections (= Available ERUs):	1,951
Approved number of connections:	4,133 connections

Accordingly, the approved number of connections that will be reflected on the WFI form and in DOH records is **4,133**.

The City of Othello is responsible for permitting new service connections in a manner consistent with the water system plan so that the physical capacity and water right limitations are not exceeded. As new water services are requested, the City of Othello must evaluate each connection for the expected water demands and adjust the remaining connection allowance. The water system should keep an updated list that compares the overall ERUs expended against the overall number of connections placed into service. This will allow a better estimate of the system's adequacy.

Pursuant to RCW 90.03.386(2), the "Othello Growth Area, Retail Service Are, Service Area, Water Rights Place of Use Service Area" identified on Figure 1A, *Service Areas, Municipal Boundaries, and Parcels* in the WSP now represents "place of use" for this system's water rights. Future changes in service area should be made through a WSP amendment or update.

The City of Othello has a duty to provide new water service within its retail service area. This WSP includes service policies to describe how your system plans to provide new service within your retail service area.

Submittal of the WSP included local government consistency determinations from the City of Othello and Adams County Planning. This WSP meets local government consistency requirements for WSP approval pursuant to RCW 43.20 for these entities.

The City of Othello is located within Esquatzel Coulee WRIA #36. Ecology has not determined whether the WSP was not inconsistent with an approved watershed plan. DOH encourages the water system to contact Ecology regarding this matter.

Thank you for your cooperation. DOH recognizes the significant effort and resource commitment involved in the preparation of this WSP. If you have any comments or questions concerning our review please contact either of us at (509) 329-2120 or (509) 329-2137, respectively.

Sincerely,

Scott Malley PE
for Andres Cervantes, P.E.
Regional Engineer
Office of Drinking Water
Division of Environmental Public Health

Jamie Gardipe
Regional Planner
Office of Drinking Water
Division of Environmental Public Health

Enclosures: Department of Ecology correspondence (2)
Construction Completion Form

cc: Dan Quick, Othello Water Department
Terry Clements, City of Othello Public Works Department
Jesse J. Cowger, PE, Varela & Associates, Inc.
Adams County Health Department
Adams County Building and Planning
Ying Fu, Department of Ecology, Eastern Regional Office
George Simon, DOH Regional Compliance Program Director
Matt Hadorn, DOH WFI Coordinator

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

March 28, 2017

Mr. Dan Quick
City of Othello
500 E Main St.
Othello, WA 99344

Re: Othello Water Department; PWS ID # 64850; Adams County
Water system Plan Update: DOH Project #17-0301

Dear Mr. Quick:

I have reviewed the above referenced document in accordance with the *2007 Memorandum of Understanding* between Department of Health (DOH) and Department of Ecology (DOE), and in accordance with RCW 90.03.386. Ecology's review is focused only on the subject water system's water rights legitimacy, adequacy and related issues affecting the submitted report.

City of Othello Water System has 8 water rights for municipal purposes. The water Right Status Table 4-7 and 4-9 appear to be current and correct. The System has a total instantaneous pumping water right Qi of 9,550 gpm, and annual quantity limit Qa of 7,100 acre-ft/yr. The City has last integrated its well system in 2013. The City will have adequate water right to support its current operation, 6 year forecast and 20 year growth in a no-industrial-growth scenario.

If the City plans to add sizable industrial facilities during the 20 year period, the city will experience shortfalls on both Qi and Qa. The report offered several solutions to solve the problem. One alternative might be to apply Qi only water right in the 508-14 subarea first (Qi only applications can be processed pretty quickly), then seek out interties from neighboring water systems to supplement for Qa shortage.

These are my comments at this time. Please don't hesitate to contact me should you have any questions regarding this letter. I can be reached at (509) 329-3451 or by email at yifu461@ecy.wa.gov.

Sincerely,

Ying Fu
Water Resources Program

YF:
cc: Brian Sayrs, DOH

Gardipe, Jamie C (DOH)

From: Sayrs, Brian A (DOH)
Sent: Monday, September 25, 2017 8:30 AM
To: Gardipe, Jamie C (DOH)
Subject: FW: 2nd draft Othello

Something for Othello's plan file.

From: Fu, Ying (ECY)
Sent: Wednesday, September 13, 2017 9:38 AM
To: Sayrs, Brian A (DOH) <Brian.Sayrs@DOH.WA.GOV>
Subject: 2nd draft Othello

Hi Brian,

I have reviewed the second draft for Othello. I have no further comments.

Thanks

Ying

CITY OF OTHELLO, WASHINGTON

WATER SYSTEM PLAN

MAYOR
Shawn Logan

CITY ADMINISTRATOR
Wade Farris

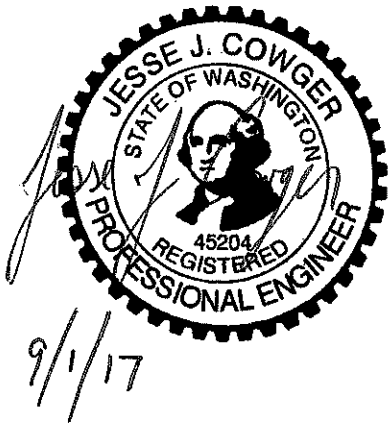
COMMUNITY DEVELOPMENT DIRECTOR
Anne Henning

PUBLIC WORKS DIRECTOR
Terry Clements

FINANCE OFFICER
Spencer Williams

CITY CLERK
Rebecca Perez-Ozuna

CITY COUNCIL
Genna Dorow, Position 1
John Lallas, Position 2
Corey Everett, Position 3
Eugene Bain, Position 4
Larry McCourtie, Position 5
Mark Snyder, Position 6
Angel Garza Position 7



9/1/17

VARELA & ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
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Prepared by Nathan Hutchens and Jesse Cowger

CITY OF OTHELLO, WASHINGTON

WATER SYSTEM PLAN

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APPENDICES

ABBREVIATIONS

(Not all of the abbreviations below appear in this report)

AC	asbestos cement water main material
ADD	average day demand
ac-ft/yr	acre-feet per year (a measure of water volume withdrawn from a well)
add'l.	additional
ave.	average
CCS	cross connection control specialist
CDBG	Community Development Block Grant
cfs	cubic feet per second
CIP	capital improvements plan
CY	cubic yards
DI	ductile iron water main material
dia.	diameter
DOE	Wash. State Department of Ecology
DFW	Wash. State Department of Fish and Wildlife
DOH	Wash. State Department of Health
DWSRF	Drinking Water State Revolving Fund
elev.	elevation
Ecology	Wash. State Department of Ecology
ERU	equivalent residential user (a measure of water demand in terms of an equivalent number of single family dwellings)
FF	fire flow
FmHA	Farmer's Home Administration, now known as Rural Development
gal	gallons
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
GMA	Growth Management Act
GO	general obligation (a type of bond secured by property taxes)
HP	horsepower
IOC	inorganic chemicals
LF or L.F.	lineal feet
LID	local improvement district
max.	maximum
MCL	maximum contaminant level
MDD	max day demand
MG	million gallons
mgd	million gallons per day
mg/L	milligrams/liter
MHI	median household income
mi.	mile
min.	minimum
NRCS	Natural Resources Conservation Service (formerly SCS)
NEPA	National Environmental Protection Act
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
PHD	peak hour demand
prv	pressure reducing valve
PVC	polyvinyl chloride (plastic) water main material
PWTF	Public Works Trust Fund
RCW	Revised Code of Washington
RD	Rural Development (formerly FmHA)
ROW	right of way
SCADA	supervisory control and data acquisition (i.e., computerized control system)
SEPA	State Environmental Protection Act
suppl.	supplemental
UGA	urban growth area
ULID	utility local improvement district
VOC	volatile organic chemicals
WAC	Washington Administrative Code
WSDM	Water System Design Manual (DOH)
WSP	water system plan
WTP	water treatment plant

ACKNOWLEDGEMENTS

The successful completion of this Water System Plan would not have been possible without the support and cooperation of the City of Othello Staff who provided valuable assistance in producing this Plan. In addition, the Washington State Department of Health – Office of Drinking Water and also contributed to the production of this Water System Plan.

INTRODUCTION

The City of Othello initiated this water system plan in compliance with DOH requirements. This WSP has been prepared in accordance with WAC 246-290 and the 2009 Water System Design Manual

EXECUTIVE SUMMARY

Section 1: Description of Existing Water System

- The City of Othello's water system consists of a main pressure zone, eight wells (six wells actively used for drinking water supply, one for emergency, and one seasonal), three standpipe reservoirs, and approximately 69 miles of water mains. Water system main diameters range from 4-inch to 16-inch, with the older mains being steel or AC and newer mains being DI or PVC.
- Othello serves the majority of its customers from the main zone where all wells and all reservoirs are located. Othello supplies wholesale water to Adams County Water District #1 (ACWD#1) whose water system is independently managed and owned by Adams County. ACWD #1's service pressures are regulated by a pressure reducing valve located at the intertie with Othello's system on Cunningham Road (refer to **Figure 3**).
- The City has approximately 6,630 gpm of well pumping capacity and 6 MG of total storage capacity.
- Othello has defined a Service Area, Retail Service Area, and Water Rights Place of Use Service Area (refer to **Figure 1**). Othello has established service area policies consistent with its duty to serve its Retail Service Area. Several small water systems surrounding Othello were examined during the 2016 City of Othello Consolidation Feasibility Studies (refer **Appendix E** for CFS executive summary) for possible consolidation with the City's water system.
- The most recent major improvement made to the system was the construction of the Well #9 Pump Station in 2016.
- Othello is located within the East Columbia Basin Irrigation District (ECBID) of the Columbia Basin Project which is administered by the Bureau of Reclamation (BOR).

Section 2: Planning Data

- The water system serves approximately 2,180 connections (refer to **Table 2-1** for breakdown of service connection types). The total water service area population is roughly 8,880.
- The City's Comprehensive Plan projects Othello's water service area population will grow by approximately 4.23% annually. The City of Othello cannot maintain such a high growth rate through development within City limits alone. Othello expects that future growth will also occur outside the existing City limits in future annexations within the Othello Growth Area (see **Figure 2**).
- Electronic records for the City's production values were lost sometime before 2015 when a data file was corrupted. The City's WUE records indicate that the City has a negative distribution system leakage. Annual distribution system leakage was assumed to be 5% for establishing baseline demand levels from which to project future growth.
- Demand projections are based on two scenarios; No-Industrial-Growth and Industrial-Growth. Industrial users are the City's largest water consumers and account for approximately 2/3 of the City's total annual water demand. Industrial-Growth scenarios are based on the assumption that in the next 20 years three new industrial users equivalent in size to Simplot will locate in Othello.

- Othello's equivalent residential unit (ERU) consumes 453 gpd; Othello serves approximately 10,443 ERUs currently. The City has begun to implement an irrigation utility for new developments which utilizes BOR canal water. Demand projections assume a reduction in future ERU consumption rates as the City implements, operates, and expands this irrigation utility.

Section 3: Design Standards

- Othello derives its design standards and criteria for evaluating adequacy of the existing system from a variety of sources including State & Federal regulations, Department of Health (DOH) guidance manuals, Recommended Standards for Water Works (10-State Standards), industry practice, engineering judgement, and staff preference.
- WAC 246-290-125(2) permits a submittal exception for distribution mains provided Othello maintains an approved Water System Plan which contains standard construction specifications for distribution mains. This Water System Plan meets those requirements; therefore, Othello has requested DOH grant the submittal exception for distribution main projects.

Section 4: Existing System Evaluation

- Othello's existing quantity of supply meets established criteria for Current, 6-year No-Industrial-Growth, and 20-year No-Industrial-Growth scenarios. Othello's existing quantity of supply cannot meet 6-year Industrial-Growth and 20-year Industrial-Growth scenarios.
- Several wells are not able to produce their maximum yield due to interference between wells and declining water levels in the Wanapum Aquifer. The City completed the Water Supply Plan (2016) in order to identify and assess likely causes of well yield performance issues and assess groundwater supply options in order to sustain existing wellfield capacity and offset anticipated future declines in yields from the City's groundwater supply wells.
- Well 6 (2,000 gpm) has levels of Fluoride above the MCL. All other sources of supply comply with current water quality standards.
- The City is current with all sampling requirements. The City chlorinates all of its sources except for Well 2 which is an emergency only source.
- The City's water rights are adequate to support projected growth during the No-Industrial-Growth scenario through the 20-year planning period. The City will need to acquire additional water rights or an alternative source of supply in order to support industrial growth.
- Othello chooses to nest standby (SB) and fire (FS) storage. Even with nesting, the City's existing storage is deficient for all current and future demand scenarios due to a lack of equalizing storage.
- The City has a maintenance agreement for its three reservoirs which includes recoating and yearly inspections.
- Othello's distribution system performs well under peak hour demand (PHD). The hydraulic model estimates that all services receive the required 30 psi minimum service pressure during current PHD. The hydraulic model estimates several areas will not be able to meet minimum pressure requirements during 20-year PHD.

- Several areas do not meet the City's fire flow criteria. Areas served by 4-inch mains have limited fire flow capacity. Industrial services currently have less fire flow available than the City's fire flow criteria.
- Aging steel mains may become an increasing maintenance nuisance as corrosion causes these mains to fail over time.

Section 5: Improvements

- The City plans to continue to rely on groundwater for the near term. Othello plans on drilling a new well (Well 10) in either the Grande Ronde or Wanapum Aquifer during the 6-year planning horizon and another new well (Well 11) during the 20-year planning horizon. The City also plans on rehabilitating Well 7 to recover some of the wells lost pumping capacity.
- The City plans on implementing a supplemental source of supply in the mid- to long-term. The City is currently analyzing the feasibility of implementing an alternate source of supply which may consist of some combination of the following; treating BOR canal water to potable water standards, aquifer storage recovery (ASR) into the Wanapum Aquifer, and/or treating industrial wastewater for direct injection using ASR.
- Othello has chosen not to take action to lower fluoride levels in Well 6. Results from the City's ASR feasibility study will help to inform the City's options to decrease fluoride levels within Well 6 to below the MCL.
- The City's current water rights cannot support another industrial user equivalent in size to Simplot. In order to reduce groundwater consumption, the City has taken steps to require new development to provide irrigation service utilizing BOR canal water. The City is seeking out water rights available for purchase as well as completing an ASR Feasibility Study in conjunction with development of a supplemental source of supply. Reducing the City's reliance on groundwater and/or acquiring additional water rights is key to securing the City's water supply to attract new industrial users.
- The City plans on constructing a new 2.5 MG reservoir and adding standby power to City wells in order to meet 20-year Industrial-Growth storage requirements. The City has two possible sites for the new reservoir.
- Several main replacements are necessary to meet Othello's fire flow criteria.
- Approximately 7,000 LF of steel mains in Othello's distribution system have unknown service life remaining. Eventually these mains will require replacement.
- The City plans on constructing new mains to serve future growth; approximately 24,100 LF within the 6-year planning horizon, approximately 12,900 LF within the 20-year planning horizon, and approximately 76,300 LF beyond the 20-year planning horizon.

Section 6: Implementation

- The City's Capital Improvements Plan details the City's planned improvement schedule through the 6-year and 20-year planning horizons. The Capital Improvements Plan (excerpted from **Section 6**) is reproduced on the page following in this Executive Summary.

- The total dollar value of improvements for both the 6-year and 20-year planning horizons is approximately $49M-52M. Othello plans to continue funding projects using reserve funds and with loans and grants from State and Federal agencies.
- It appears that the identified improvements can be implemented without major disruption to the system's normal operation.

Section 7: System Finances

- Othello's budget balances; annual revenues cover annual expenditures. Revenue that exceeds fixed expenses provides budget for capital projects.
- The water rate structure is based on customer class, service size, and location of connection (within City limits vs. outside City limits). The single family residential base water rate for a connection located within City limits is $34.83. Connections located outside of City limits have a 50% surcharge applied to the base water rate.
- Othello reads meters monthly. Customers are billed monthly for their base rate and they receive an overage bill once per year.
- The City bills customers using an inclining tier block rate structure. Non-bulk water users use a three tier structure and bulk water users use a two tier structure. Most customers receive a relatively moderate base allotment of water (800 CF per month) before reaching the second block of water. These block rates help to encourage water conservation.
- Othello's water system has no outstanding debt.
- Othello plans to continue to fund projects as they have in the past by using reserve funds and acquiring grants and low interest loans from State and Federal institutions.

Table ES-1 City of Othello Water System Capital Improvements Plan

Period	Improvement	Purpose	Potential Funding Sources	Est. Cost [1]
6-YEAR PLANNING PERIOD	Supply Improvements:			
	• Rehabilitate Well 7	• Recover pumping capacity of Well 7	Reserve Funds	$100,000
	• Construct new well (Well 10)	• If the Grande Ronde aquifer is a feasible supply source, a new deep aquifer well could help to offset future declines in existing groundwater supply capacity	PWTF, RD, CDBG, CERB, Reserve Funds, Revenue Bonds	$3,000,000
	Water Quality Improvements:			
	• Well 6 feasibility study and implementation of chosen alternative	• Alternatives being considered to mitigate high fluoride levels in Well 6 include: 1. Dedicate Well 6 to industrial users 2. Treatment system to remove fluoride 3. Use Well 6 as ASR injection well [2]	DWSRF, PWTF, RD, CDBG, Reserve Funds, Revenue Bonds	$700,000 - $1,700,000 [3]
	Water Rights Improvements:			
	• None Planned (without industrial growth)	-	-	-
	Storage Improvements:			
	• Construct new 2.5 MG reservoir at the Site A or Site B location	• Increase storage capacity • Increase fire flow	PWTF, RD, CDBG, CERB, Reserve Funds	$2,700,000
	• Add standby power to City wells	• Reduce standby storage volume requirement	PWTF, RD, Reserve Funds, Revenue Bonds	$1,500,000
	Distribution System Improvements:			
	• Refer to Table 5-14 for breakdown of projects	• Address fire flow deficiencies, replace aging steel mains, and construct future main extensions	PWTF, RD, CDBG, Reserve Funds, Revenue Bonds	$4,690,000
	Improvements required for Industrial-Growth [4]:			
	• Purchase or lease additional water rights [5]	• Increase Qa to meet projected annual Industrial-Growth demand	Reserve Funds, Revenue Bonds	$78,000 - $1,950,000
			Total Estimated Cost of 6-Year Capital Improvements:	$12.8M - $15.6M
20-YEAR PLANNING PERIOD	Supply Improvements:			
	• Construct new well (Well 11)	• Offset future declines in existing groundwater supply capacity • Utilize remaining water rights (Qi)	PWTF, RD, CDBG, CERB, Reserve Funds, Revenue Bonds	$3,000,000
	• Develop supplemental source of supply	• Reduce reliance on groundwater sources • Supplement City's existing water rights • Serve industrial growth	DWSRF, PWTF, RD, CDBG, OCR, CERB, Reserve Funds, Revenue Bonds	$32,000,000
	Distribution System Improvements:			
	• Refer to Table 5-14 for breakdown of projects	• Construct future main extensions	PWTF, RD, CDBG, CERB, Reserves, Revenue Bonds	$3,700,000
			Total Estimated Cost of 20-Year Capital Improvements:	$37M
			Total Estimated Cost of 6-Year and 20-Year Capital Improvements:	$49M – $52M

(1) *All costs shown are planning level estimates that show approximate funding needs for improvements; all projects should undergo a full cost evaluation prior to design and implementation.*

(2) *ASR costs unknown. The City is in the process of developing a feasibility study and cost estimates for ASR.*

(3) *Does not include costs associated with additional feasibility studies.*

(4) *Improvements under other categories in the 6-year planning period will also facilitate capacity required for the Industrial-Growth scenario.*

(5) *Projected demands for the 6-yr Industrial-Growth scenario exceed the City's current annual water rights (Qa).*

1.0 DESCRIPTION OF WATER SYSTEM

1.1 Purpose and Scope

The primary purpose of this Comprehensive Water System Plan is to provide present and future City officials with an engineering analysis of the existing water system, assist them in setting system priorities and selecting the improvements that best meet the City's needs, establish a recommended order of improvement priorities, and set forth a long range plan for water system improvements based on the City's projected growth.

This Water System Plan (WSP) has been prepared in accordance with WAC 246-290.

1.2 Ownership and Management

The water system is owned and operated by the City of Othello.

DOH ID Number:	64850
Address:	City of Othello 500 E. Main Street Othello, WA 99344
Phone:	(509) 488-5686 (City Hall)
Fax:	(509) 488-0102 (City Hall)
City Administrator:	Wade Farris
Public Works Director:	Terry Clements
Water System Operator:	Dan Quick

The ownership is municipal with a council decision making process. The City Council sets the budget for the water department. The City Administrator runs the day to day operation of the City. The City's Public Works Director has discretionary control of the water system budget to make purchases and to have work performed. For situations where large expenses are required or long term decisions are needed, the Public Works Director works in conjunction with the City Administrator, Mayor and City Council to determine a course of action and method of funding. The Public Works Director consults the City's most recent planning documents to determine the number of connections the system can serve, and uses these documents to guide planning efforts and to plan short-term project phasing. Finally, the Public Works Director works with the City Engineer when large projects are necessary, when the City is seeking funding for a project, or if a developer requires above average fire flow.

1.3 System Background

1.3.1 History of Water System Development

The City of Othello's water system has evolved over the years through expansions to meet growing demand, repairs, modification, and rehabilitation. The first wells in the area were drilled by the Northern Pacific Railroad starting in 1907. The original distribution system was built by the railroad around the two railroad wells and City Wells No. 1 and 2 in the vicinity of Broadway and Fourth Avenue.

The completion of Grand Coulee Dam in 1942 allowed for irrigation of the Othello area and construction workers started moving to the area. Irrigation water arrived in Othello in 1952, and by 1960 the City's population had increased from 526 to 2,699. Expansion of the water system occurred throughout this time period to meet the needs of a growing population, resulting in a system composed primarily of 4 and 6-inch diameter water mains. In 1957, Reservoir No. 1 was constructed in Lions Park. The last railroad involvement was drilling of the processing plant well in 1962. Reservoir No. 2 was constructed in 1967 near Scootney Springs School. Reservoir No. 3 was added in 1996 adjacent to Reservoir No. 1.

For the past 100 years, one of the most critical elements in the City's ability to grow has been the availability of potable water. The City has analyzed the potential for developing water sources other than the Wanapum Aquifer, and in the short term, the Wanapum Aquifer is still the best and most economical source of potable water. Experience with the City's existing water sources has confirmed that the Wanapum Aquifer's water level has been decreasing for years hence a new supplemental source of supply will eventually likely become a necessity.

In the 1970s, deep water wells were being drilled in the Lind/Odessa/Cunningham areas to irrigate dry land that was not included in the first phase of the Columbia Basin Irrigation Project. The initial plan was to drill the wells to get the farms in production so that they could better finance the East High Canal which would irrigate another half million acres. This has not come to fruition, leaving these wells dependent on deep wells, which are depleting the aquifer. These wells also pose a possible threat of contamination to the aquifer through unintentional backflows and uncontrolled leakage of poor quality water into the Wanapum Aquifer.

In the 1990s, the Department of Ecology acknowledged that the East High Canal was not going to be built any time soon and that the Wanapum Aquifer had become over-permitted for withdrawal as a result. At that time, the Department of Ecology began to require all deep wells to seal off the Wanapum Aquifer from other aquifers. However, many of the irrigation wells northeast of Othello are still not sealed, therefore intermixing and down-flowing water from the Wanapum Aquifer, causing continual depletion of the water table during non-irrigation months.

1.3.2 Location/Topography/Neighboring Water Systems

The City of Othello is located approximately 110 miles southwest of Spokane and 25 miles south of Moses Lake at the intersection of State Route 24 and State Route 26 in Adams County. The nearest public water systems are in the City of Warden, approximately 16 miles to the north along State Route 17 and the City of Connell, approximately 24 miles to the south along State Route 17.

In 1982 the City of Othello entered into a long-term agreement with Adams County Water District No. 1 (ACWD#1) as the District's sole source of drinking water. This agreement is included in **Appendix A**. Othello provides potable water to ACWD#1 at the intertie along Cunningham Road approximately 0.5 miles west of the City's municipal boundary. Water fees are established based on monthly readings of the master meter located in the meter vault along Cunningham Road. A PRV is located within the valve vault which reduces service pressure within the ACWD#1 distribution system. The right-of-way, transmission main, master meter, pressure reducing valve, valving and appurtenances are property of the City. ACWD#1 owns and operates the water system downstream of the master meter vault.

The City of Othello water system spans approximately 113 vertical feet ranging from Well 9 at the its' highest point located east of State Route 17 to its' lowest point along Hudson Street located south of State Route 26. The ACWD#1 water system spans approximately 18 vertical feet ranging from the PRV located at the northeast boundary along Cunningham Road to the lowest service connection located at the northwest boundary along Cunningham Road. The total vertical drop within the City of Othello water system including ACWD#1 is 177 feet.

Othello is located within the East Columbia Basin Irrigation District (ECBID) boundary. ECBID is an independent non-profit quasi-municipality irrigation district founded under Washington State Law which holds a contract with the United States Bureau of Reclamation (BOR), a division of the United States Department of Interior, to operate and maintain a portion of the broader Columbia Basin Project (CBP). Lands irrigated in the ECBID are located in Adams and Grant Counties. ECBID serves approximately 154,000 acres of land within the CBP.

1.4 Inventory of Existing Facilities

1.4.1 General Description of System Components and Operation

The table following provides an inventory of water system components:

Table 1-1 Water System Component Inventory

System	Component	Description	
Supply	Well 2 S01	Log available:	Yes, refer to Appendix C
		Depth:	697'
		Diameter:	8"
		Casing Depth:	120'
		Screen:	none
		Date Constructed:	1940
		SWL:	Not reported (2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,091
		Present pumping rate:	275 gpm (Emergency only, runs out of water after brief periods of pumping)
		Pump/motor:	Submersible L273, 75 HP
		Discharge pressure [(2)] :	46 – 55 psi
		Enclosure:	No building over wellhead, meter in vault
		Location:	NW ¼, NW ¼, S3, T15, R29 (Pioneer Park)

System	Component	Description	
Supply	Well 3 S02	Log available:	Yes, refer to Appendix C
		Depth:	907’
		Diameter:	16”
		Casing Depth:	197’
		Screen:	none
		Date Constructed:	1957
		SWL:	385’ (Date recorded: 1977, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,115
		Present pumping rate:	800 gpm
		Pump/motor:	Line Shaft CHC, 300 HP
		Discharge pressure (2):	36.5 – 42 psi
		Enclosure:	Pump house (CMU)
		Location:	SE ¼, SE ¼, S34, T16, R29 (Lions Park)
	Well 4 S06	Log available:	Yes, refer to Appendix C
		Depth:	907’ / 1450’ (deepened 1992) / 976’ (filled 1994)
		Diameter:	20”
		Casing Depth:	826’ (perforated 550’ – 795’)
		Screen:	none
		Date Constructed:	1965
		SWL:	396’ (Date recorded: 1994, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,098’
		Present pumping rate:	430 gpm
		Pump/motor:	Line Shaft H75, 150 HP
		Discharge pressure (2):	44 – 51 psi
		Enclosure:	Pump house (Corrugated metal exterior, unknown interior)
		Location:	NE ¼, SE ¼, S3, T15, R29 (McFarland Junior High School)
	Well 5 S07	Log available:	Yes, refer to Appendix C
		Depth:	1,007’
		Diameter:	30”
		Casing Depth:	666’ (perforated 550’ – 650’)
		Screen:	none
		Date Constructed:	1974
		SWL:	277’ (Date recorded: 1987, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,052’
		Present pumping rate:	900 gpm
		Pump/motor:	Peerless HXB, 350 HP
		Discharge pressure (2):	62 – 70 psi
		Enclosure:	Pump house (brick)
		Location:	SE ¼, SW ¼, S3, T15, R29 (SR-26 & 7th Ave)
	Well 6 S05	Log available:	Yes, refer to Appendix C
		Depth:	1,210’
		Diameter:	20”
		Casing Depth:	0’ – 212’ & 997’ – 1,208’
		Screen:	1,015 – 1,035’ & 1,055’ – 1,075’
		Date Constructed:	1978
		SWL:	536’ (Date recorded 1978, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,053’
		Present pumping rate:	2,000 gpm
		Pump/motor:	Vertical Turbine, 900 HP
		Discharge pressure (2):	67 – 77 psi
		Enclosure:	Pump house
		Location:	NE ¼, NE ¼, S4, T15, R29 (Railroad Ave. & Larch St.)

System	Component	Description	
Supply	Well 7 S08	Log available:	Yes, refer to Appendix C
		Depth:	820'
		Diameter:	16"
		Casing Depth:	670'
		Screen:	670' – 740' & 795' – 815' (stainless steel)
		Date Constructed:	1998
		SWL:	125' (Date recorded: 1997, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,020'
		Present pumping rate:	630 gpm
		Pump/motor:	CMC, 600 HP
		Discharge pressure (2):	76 – 85 psi
		Enclosure:	Pump house (brick)
		Location:	SE ¼, SE ¼, S9, T15, R29 (SR-24 & Bench Rd.)
	Well 8 S09	Log available:	Yes, refer to Appendix C
		Depth:	853'
		Diameter:	24"
		Casing Depth:	398'
		Screen:	none
		Date Constructed:	2002
		SWL:	380' (Date recorded: 2002, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,119
		Present pumping rate:	395 gpm
		Pump/motor:	Vertical Turbine, 250 HP
		Discharge pressure (2):	32 – 41 psi
		Enclosure:	Pump house (brick)
		Location:	SW ¼, SW ¼, S26, T16, 29R (14th Ave. & Lee St.)
	Well 9 S10	Log available:	Yes, refer to Appendix C
		Depth:	1,042'
		Diameter:	16"
		Casing Depth:	1,043'
		Screen:	418' – 1,040' (approx. 70% screened)
		Date Constructed:	2015
		SWL:	51' (Date recorded: 2015, 2016 Well Assessment Memo)
		Approx. wellhead elev.:	1,130'
		Present pumping rate:	1,200 gpm using VFD, 1,500 gpm max
		Pump/motor:	Vertical Turbine, 250 HP
		Discharge pressure (2):	35 – 42 psi
		Enclosure:	Pump house (CMU)
		Location:	NE ¼, SW ¼, S36, T16, R29
Storage	Reservoir 1	Construction type:	Welded steel with concrete base
		Approx. dim.:	42' – 4" dia. x 96' high
		Date constructed:	1957
		Recoating:	1976
		Approx. overflow elev.:	1,209.1'
		Approx. ground elev.:	1,119.6'
		Volume:	1,000,000 gal
		Pressure zones served:	Main / ACWD#1 PRV Zone
		Location:	SE ¼, SE ¼, S34, T16, R29 (Lions Park)
	Reservoir 2	Construction type:	Welded steel with concrete base
		Approx. dim.:	54' – 3" dia. x 116 high
		Date constructed:	1967
		Recoating:	2000
		Approx. overflow elev.:	1,209.1'
		Approx. ground elev.:	1,099.2'
		Volume:	2,000,000 gal
		Pressure zones served:	Main / ACWD#1 PRV Zone
		Location:	NE ¼, NE ¼, S3, T15, R29 (Ash St. & 14th Ave.)

System	Component	Description				
Storage	Reservoir 3	Construction type:	Welded steel with concrete base			
		Approx. dim.:	74' dia. x 98' high			
		Date constructed:	1996			
		Recoating:	none			
		Approx. overflow elev.:	1,209.1'			
		Approx. ground elev.:	1,119.6'			
		Volume:	3,000,000 gal			
		Pressure zones served:	Main / ACWD#1 PRV Zone			
		Location:	SE ¼, SE ¼, S34, T16, R29 (Lions Park)			
Distribution System (1)		Steel	DI	AC	PVC	TOTAL
	4" mains	5,404	0	12,389	0	17,793
	6"	462	0	42,046	8,436	50,944
	8"	1,119	0	59,125	103,746	163,990
	10"	0	3,332	15,815	31,854	51,001
	12"	0	6,042	15,091	27,309	48,442
	16"	0	4,547	10,588	13,931	29,066
	Total	6,985	13,921	155,054	185,276	361,236
Pressure Zones	Main	Services within the zone range in elevation from approx. 1,017 – 1,120'. The lower portions of the zone have static pressures in the range of 83 psi. The upper portions of the zone have static pressures in the range of 38 psi.				
	ACWD#1 PRV Zone	The pressure-reducing valve (PRV) on Cunningham Road reduces the pressure for the wholesale contract sales of potable water to Adams County Water District No. 1. The City of Othello supply to ACWD#1 is metered with a 10-inch meter and at that location a 10-inch pressure reducing valve is installed for back flow prevention. Services range in elevation from approximately 960'-970'.				

(1) *Distribution quantities are current as of 8/2016*

(2) *Discharge pressure range evaluated based on hydraulic model for "No Demand" and "Peak Hour Demand" scenarios*

1.4.2 Overview of System Operation

The City's water system is operated by Dan Quick, who maintains a certification as Water Distribution Manager (WDM) 2. Normal operation and control of the water system is by a telemetry system at the Public Works building. It controls the City's wells and has alarm function for loss of pumps, power and high/low reservoir levels.

The City's wells are automatically controlled based on water level in the reservoirs which is communicated to the well pump controls via radio transmission. Variable frequency drive motors are installed on most wells and are used primarily to set fixed pumping rates in order to minimize interference of drawdown between active wells. Well 6 is considered a seasonal source due to observed high fluoride levels. Generally, Othello maintains reservoir levels at the top of operational storage and uses wells to pump peak hour demand.

1.5 Related Planning Documents

Planning activities of other institutions or government entities can affect planning for water utilities. The City of Othello seeks to reduce potential conflicts and overlaps in planning through coordination with local entities that may impact the City's water system. The sections following outline the City's efforts to coordinate the planning efforts of this Water System Plan with entities that have interest. This Water System Plan updates and supersedes the City's previous Water System Plan (Gray & Osborne, Inc., June 2011).

1.5.1 City of Othello Comprehensive Plan

This Water System Plan is consistent with the City's Comprehensive Plan (2015). Refer to **Appendix A** for a copy of the City's planning consistency checklist.

1.5.2 City of Othello Consolidation Feasibility Studies

In 2015, the Drinking Water State Revolving Fund (DWSRF) awarded the City of Othello several grants to study the feasibility of consolidating small water systems into Othello's water system. The goal of these consolidation feasibility studies was to provide the City of Othello and each small water system owner a basis for considering integration of the small water system into the City of Othello's water system. The analysis and alternatives for each system varied depending on the specific locations, conditions and situation within the small system and its potential impact on the City of Othello's water supply and infrastructure. Completion of the consolidation studies does not preclude the need for subsequent financial or technical investigations which may become evident as a result of the consolidation studies.

Copies of the City of Othello Consolidation Feasibility Studies are available under separate cover; the Executive Summary for the consolidation studies is included in **Appendix E**.

1.5.3 Adams County Water District No. 1 Draft Water System Plan

Columbia Water Services submitted the Adams County Water District No. 1 Draft Water System Plan to DOH in June, 2015. This Water System Plan incorporates elements of the ACWD#1 Draft Water System Plan.

1.5.4 Adams County Comprehensive Plan

This Water System Plan is consistent with Adams County's Comprehensive Plan. Refer to **Appendix A** for a copy of the County's planning consistency checklist.

1.6 Existing Service Area Characteristics

Several small water systems are located outside Othello's area and within the Growth Area. Eight of these water systems were evaluated to determine the feasibility of consolidation with the City during the CFS studies (2016). There are several remaining water systems which are located within the City's Growth Area that were not analyzed during the 2016 CFS studies. The City is currently serving Adams County Water District No. 1 with water as a single customer. The City does not have any plans to serve the other purveyors with water.

1.7 Current, Future, Retail, and Water Rights Place of Use Service Areas

The existing current, future, retail, and water rights place of use service areas are shown on **Figure 2**. Future development within the Othello Growth Area will occur primarily within City Limits and outside of City Limits within the City of Othello Growth Area. The majority of the existing water system connections are single-family residential. The water system also serves a number of commercial

and industrial connections and provides water service to Adams County Water District No. 1. ACWD#1 is within the PRV pressure zone.

Othello is located in Adams County, which is not required to plan per the Growth Management Act. In the City's Comprehensive Plan the City has designated a future growth area for the City. However, Adams County is not a Growth Management Act planning county, thus this growth area is under the authority of Adams County, yet subject to annexation by the City in accordance with its comprehensive plan.

Figure 1B shows the Adams County zoning for the area around the City. It is City policy that annexation is required for water service outside of the City limits except in special circumstances which requires City Council approval. Therefore any extensions of the water system outside its existing water service area will in most cases require annexation. When the area is annexed, the City will rezone the area in accordance with the City's Comprehensive Plan Policy 1.5.2 which requires that annexation of residential areas be high-density R-4 zoning by default as a method for concentrating residential densities in the future. Policy 1.6.3 is aimed at increasing densities by limiting service provision outside of the City Limits.

The City of Othello requires a surcharge on water provided to users located outside the City Limits of 150% as stated in the Othello Municipal Code 12.16.130.

OMC 12.20.010 states that "all domestic water mains and lines lying outside the corporate limits of the City shall be installed, owned, and maintained by the consumers and the City shall have no duty to repair or replace such mains or lines. Water meters on such domestic service outside the corporate limits shall be placed, installed, and maintained within the discretion of the water and sewer department, and shall remain the property of the City regardless of locations."

Figure 2 was developed based on communication with the City and shows where new development is likely to occur and how many ERUs are anticipated within both the municipal boundary the City's Growth Area.

1.8 Duty to Serve and Conditions of Service

The City of Othello has a duty to provide service to all new connections within the Retail Service Area (refer to **Figure 1** for Retail Service Area) when the circumstances meet four threshold factors (see RCW 43.20.260):

1. The municipal water supplier has sufficient capacity to serve water in a safe and reliable manner.
2. The service request is consistent with adopted local plans and development regulations.
3. The municipal water supplier has sufficient water rights to provide service.
4. The municipal water supplier can provide service in a timely and reasonable manner.

The City's process for addressing a request for service determines whether the request meets the four threshold factors defined in RCW 43.20.260.

Process for Requesting Service
Potential customers submit water service applications to the City. The City processes and responds to all applications within two weeks of receiving service request.

System Capacity Determination
The City consults the Water System Plan to see if any obvious issues exist that would prevent service of an additional customer. The City consults the City Engineering Consultant if it appears the system may not have capacity to serve the proposed connection. The City Engineering Consultant then conducts an analysis to ascertain whether sufficient system capacity exists (supply, storage, distribution system, water rights, etc.) to serve the requesting customer and determines what additional improvements are required to provide service. The customer requesting service is responsible for financing the system improvements necessary to provide service. If the City has insufficient water rights to serve the customer requesting service, the requestor is responsible for supplying the portion of the rights that exceeds what the City currently holds.

Non-Technical Conditions Affecting Provision of Service
Those requesting annexation must comply with relevant City ordinances and development codes. The City can only provide service if adequate water rights are available to serve the requestor (see System Capacity Determination above).

Denial of Service and Appeals
Service may not be denied within City Limits per the Othello Municipal Code Section 12.16.005. All development is subject to the development review process per OMC 19.09. If a development is denied by the City during the development review process then appeals may be made per OMC 19.11. Under OMC 19.11 appeals go to the Hearing Examiner then may be further appealed to superior court.

1.9 Service Area Agreements

Othello adopts policies which govern all aspects of the system. Refer to **Appendix D** for Othello's Service Area Policies. The following table lists the major sections and issues addressed in each policy.

Table 1-2 Water System Component Inventory

Policy #	Description
WSP 01-03	Annexations Policy
WSP 02-03	Anti-terrorism Policy
WSP 03-03	Billing Complaints Policy
WSP 03-03	(P) Billing Complaints Procedure
WSP 04-03	Conservation Policy
WSP 05-03	Cross-connection Control Policy
WSP 06-03	Extra-territorial Agreement Policy
WSP 07-03	Fire Flow Design Standards Policy
WSP 07-03	(P) Fire Flow Design Standards Procedure
WSP 08-03	Fire Flow Policy
WSP 09-03	Fire Sprinklers Policy
WSP 09-03	(P) Fire Sprinklers Procedure
WSP 10-03	Irrigation Water Policy
WSP 10-03	(P) Irrigation Water Procedure
WSP 11-03	Latecomers Agreement Policy
WSP 11-03	(P) Latecomers Agreement Procedure
WSP 12-03	Safe Water System Policy
WSP 13-03	Satellite Policy
WSP 14-03	Surcharge for Outside City Limits Policy
WSP 14-03	(P) Surcharge for Outside City Limits Procedure
WSP 15-03	Water Fund and Reserve Fund Policy
WSP 16-03	Water Quality Complaint Procedure
WSP 16-03	(P) Water Quality Complaint Procedure
WSP 17-03	Water Shortage Policy
WSP 17-03	(P) Water Shortage Procedure
WSP 18-03	Water System Expansion Policy
WSP 19-03	Wellhead Protection Policy

1.10 Ordinances, Service Policies and Regulations

Refer to **Appendix D** for the City's water/sewer ordinances, resolutions and codes.

1.11 Satellite Management

Othello entered into a water service agreement in 1982 for supply and distribution of domestic water to ACWD#1. However, Othello does not own or operate ACWD#1.

Presently Othello does not plan to own, operate, or manage satellite systems. Othello may consider eventual consolidation with existing water systems in the Othello Growth Area.

1.12 Complaints

Water system customers may register complaints at City Hall. The City deals with complaints on a case-by-case basis. Complaints that cannot be resolved by City staff can be brought to the City Council for further consideration.

2.0 PLANING DATA

2.1 Current Data

2.1.1 Current Population

The Comprehensive Plan indicates the total current population for the City is as follows:

City of Othello population:	7,780	(2015)

The Draft Adams County Water District No. 1 Water System Plan indicates the total current population for the ACWD#1 is as follows:

ACWD#1 population:	1,100	(2015)

The total current population served by the City of Othello system is as follows:

Total population:	8,880	(2015)

Othello's average population per household is compared to Adams County and the Washington State average below:

Othello	3.37	(2010 Census)
Adams County	2.82	(2010 Census)
Washington State	2.51	(2010 Census)

The 2015 Comprehensive Plan states that population growth compared to the number of new housing units is 4.27 people added for every housing unit added between 2000 and today.

Othello has a higher average population per household than the statewide and Adams County averages.

2.1.2 Types and Numbers of Connections

As of the end of year 2015, the City served the following connections to its water system:

Table 2-1 Types and Numbers of Connections [1]

User Class	No. of Meters
Residential (single family dwellings)	1637
Multi-Residential	131
Residential Irrigation	21
Outside Residential	8
Motel	4
Industrial	15
Commercial	212
Multi-Commercial	33
Hospital	5
Commercial Lawn	20
Church	19
Fire Sprinkler	34
School	22
City Meters	21
Total:	2182

(1) *Provided by City of Othello staff*

2.1.3 Water Production

Available production data was provided by the City. Water Use Efficiency (WUE) reports available on the DOH Sentry site also provided a record of City water production.

The City stores historical daily and monthly production records on the water system telemetry SCADA system. Electronic records for the City's production values were lost sometime before 2015 when a data file was corrupted. Hard copies were available for monthly production and used to estimate MDD for the system.

2.1.4 Seasonal Production Patterns

The following table shows monthly system water production totals for each well in 2015.

Table 2-2 Monthly System Water Production by Well [1] [2]

Well	Month												Total (MG)
	Jan (MG)	Feb (MG)	Mar (MG)	Apr (MG)	May (MG)	Jun (MG)	Jul (MG)	Aug (MG)	Sep (MG)	Oct (MG)	Nov (MG)	Dec (MG)	
Well 2	0	0	0	0	0	0	0	0	0	0	0	0	0
Well 3	19.9	0	16.2	29.6	36.6	28.1	33.2	42.6	32.9	40.6	32.7	28.6	341.0
Well 4	17.8	22.5	15.7	13.6	21.5	16.4	15.1	18.3	13.9	17.8	4,.5	7.2	184.3
Well 5	37.8	51.7	38.0	39.0	49.3	39.8	38.1	46.1	35.6	44.5	36.0	36.2	492.1
Well 6	4.8	9.2	300.0	0	0	0	3.5	51.3	27.3	5.5	0	0	101.9
Well 7	25.2	29.6	13.1	20.1	34.0	26.4	25.6	32.3	24.9	31.8	23.0	13,2	299.2
Well 8	10.9	12.5	3.8	3.5	19.1	14.2	12.4	6.2	6.4	11.7	100.0	0.3	101.1
Well 9	0	0	0	0	0	0	5.5	0	0	0	0	0	5.5
Total	116.4	125.5 [3]	87.1	105.8	160.5 [4]	124.9	133.4 [5]	196.8	141.0	151.9	96.3	85.5	1,525.1

(1) *2015 well production values provided by City of Othello staff*

(2) *Mechanical issues can affect annual volumes withdrawn from individual wells*

(3) *10 million gallons total between February and March wasted and not included in the production due to a water quality problem the last week of January*

(4) *338,000 gallons wasted and included in well production figures for May during Well 9 startup*

(5) *Well 9 temporary metering*

2.1.5 Water Consumption

Consumption data for each user class for the years 2013-2015 was provided by the City and is shown below.

Table 2-3 Total Water Consumption

Customer Class	2013 (gal)	2014 (gal)	2015 (gal)	Average (gal)
Residential (single family dwellings)	258,533,000	277,367,000	276,122,000	270,674,000
Multi-Residential	67,126,000	71,827,000	66,449,000	68,467,000
Residential Irrigation	9,039,000	10,048,000	9,378,000	9,488,000
Outside Residential	46,999,000	50,005,000	53,905,000	50,303,000
Motel	3,563,000	4,325,000	2,890,000	3,593,000
Industrial	1,156,663,000	1,145,775,000	1,001,274,000	1,101,237,000
Commercial	58,528,000	66,741,000	65,733,000	63,667,000
Multi-Commercial	4,561,000	5,757,000	6,141,000	5,486,000
Hospital	8,657,000	8,124,000	7,011,000	7,931,000
Commercial Lawn	33,193,000	42,979,000	34,929,000	37,034,000
Church	8,710,000	8,838,000	8,188,000	8,579,000
Fire Sprinkler	0	0	0	0
School	9,439,000	11,174,000	9,667,000	10,093,000
City Meters	8,696,000	7,250,000	9,052,000	8,333,000
Total	1,673,707,000	1,710,210,000	1,550,739,000	1,644,885,000

(1) *Provided by City of Othello staff*

2.1.6 Seasonal Consumption Patterns

WAC 246-290-100(4)(b)(ii)(D) requires systems serving more than 1,000 connections to provide sufficient consumption data to identify trends in the seasonal variation in consumption patterns of each customer class. The rate of consumption within some customer classes changes seasonally throughout the year. Othello has three main customer classes: residential, commercial, and industrial. The City reads meters monthly which provides insight into the summer/winter consumption ratio. The Table following shows the average seasonal percentage use by each customer class for 2014-2016.

Table 2-4 Seasonal Consumption Patterns (1) (2)

Customer Class	Residential (3)	Commercial	Industrial (3)
Summer	71%	66%	50%
Winter	29%	34%	50%
Total	100%	100%	100%

(1) *Provided by City of Othello staff*

(2) *Summer months are April through September, winter months are November through March*

(3) *See **Table 2-5** Adams County Water District No. 1, Simplot, and McCain seasonal consumption patterns*

The table below shows seasonal consumption patterns for several of the City's largest water users including Adams County Water District No. 1, Simplot, and McCain.

Table 2-5 Seasonal Consumption Patterns – Large Water Users [1] [2]

Customer Class	Simplot [3]	McCain [3]	ACWD#1 [4]
Summer	49.4%	52.5%	59.4%
Winter	50.6%	47.5%	40.6%
Total	100%	100%	100%

(1) *Provided by City of Othello staff*

(2) *Summer months are April through September, winter months are November through March*

(3) *Industrial user*

(4) *Consists of individual residential services*

2.1.7 Existing System Demands

The following table contains a summary of system demands; the table footnotes contain relevant assumptions associated with the demands.

Table 2-6 Existing System Demands

Item	Units	2013	2014	2015	Average
Total Consumed [1]	(MG)	1,674	1,710	1,551	1,645
Assumed DSL (5%) [2]	(MG)	83	86	77	82
Total Produced: [3]	(MG)	1,757	1,796	1,628	1,727
ADD: Average Day Demand [4]	(MGD)	4.814	4.921	4.460	4.732
	(gpm)	3,340	3,420	3,100	3,290
MDD: Max Day Demand [5]	(MGD)	6.574	7.302	6.416	6.764
	(gpm)	4,570	5,070	4,460	4,700
PHD: Peak Hour Demand [6]	(gpm)	7,410	8,250	7,250	7,640

(5) *Provided by City of Othello staff*

(6) *DSL was assumed because well production records were corrupted and WUE reports showed extremely low DSL*

(7) *Total consumed x 1.05 for DSL*

(8) *Total annual produced / 365 days*

(9) *Based on daily well pump meter records for July and August*

(10) *PHD = (MDD/1440)(CN+F)+18, where C = 1.6, N = 10,443 (avg) and F = 225, WSDOH WSDM Eq. 5-1*

2.1.8 Equivalent Residential Units

The Washington State Department of Health (DOH) defines an equivalent residential unit (ERU) as the amount of water consumed by a typical full-time single family residence. Calculating the amount of water consumed by a typical full time single family residence requires a system to possess accurate water volume sales records for a one year period for single family connections. The following calculations show the average water use of an Othello single family residence and the total ERUs in Othello.

Approximate Average Breakdown of Uses (2013-2015)

Residential (single family dwellings)	15.67%
Multi-residential	3.96%
Residential irrigation	0.55%
Outside residential	2.92%
Motel	0.21%
Industrial	63.55%
Commercial	3.69%
Multi-commercial	0.32%
Hospital	0.46%
Commercial lawn	2.14%
Church	0.50%
Fire sprinkler	0.00%
School	0.58%
City meters	0.48%
Leakage	5.00%
Total	100%

Annual Volume per ERU per Day

(average annual volume 2013-2015) x (percent single family use) ÷ (single family connections) ÷ 365 days
(1,645 MG x 16.49%) ÷ 1,637 single family connections ÷ 365 days/year = **453 gpd/ERU**

Number of ERUs (based on annual average water use)

Residential (single family dwellings)	1,637
Multi-residential	414
Residential irrigation	57
Outside residential	304
Motel	22
Industrial	6,660
Commercial	385
Multi-commercial	33
Hospital	48
Commercial lawn	224
Church	52
Fire sprinkler	-
School	61
City meters	50
Leakage	496
Total	10,443

2.1.9 Large Water Users

The City's fifteen largest water users and their 2013-2015 metered consumption is shown in the proceeding table. The largest water users account for approximately 70% of the total water consumed between 2013-2015. As indicated in preceding sections industrial water use accounts for approximately 63% of Othello's total water consumption.

Table 2-7 Largest Users

Connection	Type	2013 Usage (MG)	2014 Usage (MG)	2015 Usage (MG)	Average	Percent of Total City Consumption
10" Simplot Industrial	Industrial	598.9	579.8	600.7	593.1	36.1%
6" Simplot Industrial	Industrial	264.7	2.5	228.4	165.2	10.0%
10" McCain Foods	Industrial	166.4	185.8	81.2	144.5	8.8%
ACWD#1	Non-incorporated residential	43.5	46.3	49.9	46.6	2.8%
2" McCain Foods	Industrial	44.1	43.7	-	43.9	2.7%
SVZ 6"	Industrial	32.1	34.5	31.4	32.7	2.0%
McCain Foods	Industrial	19.5	19.0	20.0	19.5	1.2%
McCain Foods	Industrial	17.5	18.3	16.0	17.3	1.0%
OSD/Hiawatha - Lawn	School	11.1	15.2	11.9	12.7	0.8%
McCain Foods	Industrial	-	-	10.9	10.9	0.7%
Harvest Fresh Product	Industrial	9.1	9.6	9.4	9.4	0.6%
Lineage Logistics LLC	Industrial	8.3	7.4	8.4	8.0	0.5%
Modern Trailer Court	Multi-residential	5.3	6.5	5.0	5.6	0.3%
OSD/Lutacaga - Lawn	School	-	5.3	-	5.3	0.3%
OSD/Wahitis Elementary - Lawn	School	4.0	5.4	4.3	4.6	0.3%
OSD/Scooteny Springs	School	-	4.5	3.8	4.2	0.3%
Pool 4"	Commercial	3.9	-	-	3.9	0.2%
Terra Gold Farms	Industrial	4.8	0.0	3.8	2.9	0.2%
	Total	1,233.4	983.9	1,085.0	1,130.2	68.7%

Adams County Water District No. 1 Water Use

Source meter data was provided for the Adams County Water District's water system in the ACWD#1 WSP for 2010 – 2014. Water use is shown on the following table. Water use represents all total water use (connections + DSL) for the intertie. The District receives irrigation water from ECBID and by the City's water system. Water use for years 2012 – 2014 is shown in the following table.

Table 2-8 ACWD#1 Water Use Summary

Description	Year					
	2012		2013		2014	
	(gal.)	(gpd)	(gal.)	(gpd)	(gal.)	(gpd)
Annual Total	51,235,100	140,000	43,488,900	119,000	45,836,400	126,000
Maximum Month	5,523,200	182,000	5,452,900	179,000	5,809,700	191,000
Average Month	4,269,600	140,000	3,624,100	119,000	3,819,700	126,000
Minimum Month	2,797,000	92,000	2,636,000	87,000	2,461,700	81,000

(1) *Source meter data reproduced from ACWD#1 draft WSP (2016)*

Industrial Water Use

An approximate breakdown of City water use for the two largest industrial users (Simplot and McCain Foods) is shown below.

Table 2-9 Simplot/McCain Foods Water Use Summary

	2013 Usage (MG)	2014 Usage (MG)	2015 Usage (MG)	Average Usage (MG)	Total Water Consumption (%)
Simplot	863.6	582.3	829.0	758.3	46.1%
McCain Foods (1)	247.5	266.8	128.1	214.1	13.0%

(1) *Usage is assumed to represent approximately 2 months of standard water use*

Simplot is a food processor that accounts for approximately half of the City's water use. Discussion with Simplot management has resulted in the City's understanding that Simplot is not intending to expand significantly in the planning period.

McCain Foods has two private wells and generally operates independently, however they rely on the City for backup water. In the past Othello supplied water to McCain Foods generally for roughly two months of the year. McCain recently drilled a new well, so this WSP assumes McCain will not need supply from Othello except as backup.

2.2 Future Data Projections

Water use can be correlated with population. Increases in population generally increases a system's water use. For the purpose of estimating future water demand this WSP uses population projections for 6-year and 20-year planning periods. The Washington State Office of Financial Management, (OFM) provides the most current information on growth for counties. Larger cities often have planning departments which make these projections. Smaller cities may adopt their own projections based on one or more of the following: projections done by the OFM: historical population trends, known development plans, comprehensive plans, etc. Othello's 2015 Comprehensive Plan provides population growth projections specific to Othello.

2.2.1 Projected Growth Rate

Othello's projected 20-year population is estimated in the City's 2015 Comprehensive Plan and is based on several factors: a population growth of 4.27 people for every housing unit added, a final housing unit projection of 3,472 total units, and a projected annexation of Adams County residents into the City of 3,000. Average annual growth rate for the City is calculated at 4.23%.

2.2.1.1 20-year Projected Population

(20-year projected total housing units) x (residents per new housing unit 2000-2015) + (residents due to annexation)
(3,472 total housing units x 4.27 residents per housing unit) + 3000 residents due to annexation = **17,825 residents**

Table 2-10 Othello Population Projections [(1)]

	2015	2020	2025	2030	2035
Population	7,780	9,572	11,777	14,490	17,825

(1) *Based on population projections in 2015 City of Othello Comprehensive Plan. Calculated average annual growth rate for this table is 4.23%*

2.2.2 Future ERU Values

The City of Othello is in the process of adopting a policy requiring that all new planned developments provide separate domestic and irrigation water services. Domestic water lines shall continue to be supplied by the City's potable water system while irrigation water lines shall be supplied by ECBID irrigation water or possibly a new City owned irrigation utility supplied by Bureau of Reclamation canals. Supplying new developments with irrigation service will reduce demand on the City's potable water system and likely result in lower average ERU values for future demand scenarios. Based on the

likely decline in average ERU consumption rates over time, this WSP assumes the following ERU consumption rates for the planning periods shown:

Current: 453 gpd/ERU
6-year: 400 gpd/ERU
20-year: 315 gpd/ERU

The preceding assumed ERU values are used in conjunction with the projected growth rate to estimate future demands. However, if/when Othello seeks to change the number of DOH approved connections the City will not use the preceding assumed ERU consumption rates as the basis for establishing the City's service connections capacity; Othello will submit a capacity analysis to DOH which uses the City's most current consumption records and ERU values as the basis to establish the new DOH approved number of connections.

2.2.3 Projected Non-Industrial ERUs

Othello projects ERU growth among non-industrial users to occur proportional to the overall population growth at a rate of 4.23% annually. Othello's projected annual growth is higher than the OFM projections for Adams County as a whole. The projected growth rate results in 28.2% growth over the 6-year planning period and 129% growth over the 20-year planning period. Some of the projected growth will occur as infill and some growth will require expansion of Othello's distribution system and/or pressure zones within the Othello Growth Area. The following table shows projected 6-year and 20-year non-industrial ERUs.

Table 2-11 Projected Non-Industrial ERUs

	Current	6-year	20-year
Non-Industrial ERUs	3,783	4,851	8,668

(1) *Based on an annual non-industrial ERU growth rate of 4.23%*

2.2.4 Projected Industrial ERUs

The 2011 Water System Plan projected no growth in industrial consumption through the 20-year planning period. However, Othello wants to attract new industrial users to the City. This Water System Plan analyzes two scenarios: 1) no industrial growth during the 20-yr planning period and, 2) new industrial customers locating in Othello at a regular interval over the 20-yr planning period. Growth could occur if McCain Foods becomes dependent on City water or if new industries request City water. Assumptions include the addition of three new industries of equal consumption to Simplot during the 20-year planning period. The following projected industrial demands assume that average industrial consumption for existing industries remain constant through the planning period.

Simplot Average Annual Usage: 760 MG

The following table shows projected 6-year and 20-year total industrial ERUs.

Table 2-12 Projected Industrial ERUs

Scenario	Description	Current [1]	6-year [2]	20-year [3]
No-Industrial-Growth	Number of New Industries [4]	-	0	0
	Water Use (MG)	1,101	1,101	1,101
	Industrial ERUs	6,660	7,543	9,578
Industrial-Growth	Number of New Industries [4]	-	1	3
	Water Use (MG)	1,101	1,860	3,376
	Industrial ERUs	6,660	12,737	29,364

(1) *Current ERU = 453 gpd/ERU*

(2) *6-year ERU = 400 gpd/ERU*

(3) *20-year ERU = 315 gpd/ERU*

(4) *Based on new industries of equal size to Simplot becoming connected to City water*

2.2.5 Projected Total System ERUs

The following table shows projected 6-year and 20-year total system ERUs for the No-Industrial-Growth and Industrial-Growth scenario.

Table 2-13 Projected Total System ERUs [1]

	Current	6-year [1]	20-year [2]
Total ERUs w/ No-Industrial-Growth	10,443	12,394	18,246
Total ERUs w/ Industrial-Growth	10,443	17,588	38,032

(1) *Based on **Table 2-11** and **Table 2-12***

2.3 Distribution of Current and Future Demands

2.3.1 Introduction

Since the water demand of the planning area is not evenly distributed over the entire area, it is necessary to distribute the existing and future water demand to the areas where they already, or will occur. Weighting the distribution of the projected demand increase over the future service area provides a more accurate evaluation than distributing demands uniformly. This tailors the sizing of components for specific sub areas.

2.3.2 Projected Demand Distributions

The City's growth area boundary as defined in the City of Othello Comprehensive Plan is shown on **Figure 1** and includes the existing City limits and areas where future growth is expected. **Figure 2** shows planned growth distribution within the growth area for the 6-year, 20-year, and beyond scenarios. Each area was assigned ERUs based on the projected use for the area based on conversations with the City.

2.4 Water Demand

Othello's SCADA system records indicate that during 2013-2015 the max day demand to average day demand ratio was approximately 1.43. Using DOH WSDM Equation 5-1 the peak hour demand to max day demand ratio for 2013-2015 is estimated at approximately 1.62. Projected average day demands

are determined based on the 6-year and 20-year scenarios shown in **Table 2-13**. MDD and PHD are determined based on the MDD and PHD ratios and applied to the projected ADD.

The following table contains existing and projected water demands for 6-yr and 20-yr planning horizons based on an annual growth rate of 4.23% and industrial growth rates described in **Table 2-12**.

Table 2-14 Summary of Existing and Projected Demands

Time Frame	Future Scenario	ERUs [2]	ADD [3]		MDD [4]		PHD [5]	
			MGD	gpm	MGD	gpm	MGD	gpm
Current [1]	Current	10,443	4.731	3,285	6.762	4,696	10.986	7,629
6-year	No-Industrial-Growth	12,394	4.958	3,443	7.086	4,921	11.514	7,996
	Industrial-Growth	17,588	7.035	4,886	10.056	6,983	16.338	11,346
20-year	No-Industrial-Growth	18,246	5.748	3,991	8.216	5,705	13.348	9,270
	Industrial-Growth	38,033	11.980	8,320	17.124	11,892	27.823	19,321

(1) *Refer to **Table 2-6** 2013-2015 average values*

(2) *Refer to **Table 2-13***

(3) *Current ERUs x 453 gpd/ERU; 6-year ERUs x 400 gpd/ERU; 20-year ERUs x 315 gpd/ERU*

(4) *ADD x (MDD:ADD) : MDD:ADD; refer to **Table 2-6** average ratio of 1.43*

(5) *MDD x (PHD:MDD) : PHD:MDD; refer to **Table 2-6** average ratio of 1.62*

3.0 DESIGN STANDARDS

Each water utility must establish system design standards appropriate to meet its customers' needs and expectations. While a utility has some discretion in setting performance and design criteria, all criteria must meet the minimum standards set by the Washington State DOH for public water supplies. Many water systems in the State of Washington use one or more of the following standards as the basis for facilities evaluation and design.

- Washington State Department of Health Water System Design Manual
- Recommended Standards for Water Works ("10 State Standards")
- System owner requirements and preferences
- Local fire protection authority input
- Washington Surveying & Rating Bureau (regarding fire flow)
- Engineering judgment
- Industry practice

Washington Administrative Codes (WAC's) pertaining to public water systems administered by Washington State Department of Health (DOH) and Ecology (DOE) comprise the regulatory criteria applicable to this water system (WAC 246-290).

The City of Othello requires that all underground work involving public rights-of-way adhere to the City's Public Works Design Standards. Alternate design standards may be accepted when it can be shown that such alternative standards will provide a design superior to that specified within the City standards. In evaluating the alternate design, the City shall consider the WSDOH Water System Design Manual. A copy of the City's Water System Design Standards may be found in **Appendix D**. Copies of the City's Public Works Design Standards are also available upon request from the City's Public Works Department.

3.1 Supply Requirements

DOH Water System Design Manual recommends systems develop source capacity that enables the system to replenish depleted fire suppression storage within a 72-hr period while concurrently supplying the max day demand of the system. 10 State Standards recommends a minimum of two sources and total source capacity at least equal to the system maximum day demand with the largest source out of service.

The City selects the following supply capacity requirement:

- Supply capacity shall be capable of replenishing depleted fire suppression storage within a 72-hr period while concurrently supplying the max day demand of the system.

3.2 Booster Station Requirements

Currently Othello has no booster stations; if they are needed in the future, the following criteria will apply:

3.2.1 Open System Booster Stations

An open system pressure zone pumps water to a reservoir open to the atmosphere. The level of the reservoir being filled typically controls the operation of the booster pumps that fill it. Open system booster stations shall be designed in accordance with DOH criteria as outlined in Chapter 10 of the Water System Design Manual (WSDM). The following summarizes the WSDM criteria:

- Equalizing storage or additional booster pump capacity must be provided to ensure the Peak Hour Demand (PHD) of the zone can be met
- Max Day Demand (MDD) of the booster zone must be met with all pumps in service
- Average Day Demand (ADD) of the booster zone must be met with the largest capacity pump out of service

The City currently does not have any open system booster stations however this criteria applies to any open system booster zones the City may establish in the future.

3.2.2 Closed System Booster Stations

A closed system pressure zone pumps to a distribution system that is closed to the atmosphere; some closed zones utilize pressure tanks, and/or variable speed pumps, and/or PRVs to meet system demands without over pressurization. Closed system booster stations shall be designed in accordance with DOH criteria as outlined in Chapter 10 of the DOH WSDM. The following summarizes the WSDM criteria:

- Provide PHD at minimum 30 psi service with the largest pump out of service
- Provide MDD plus fire flow rate at minimum 20 psi residual pressure with the largest capacity regularly used pump out of service
- Auxiliary power generator that activates automatically in the event of a power outage

3.3 Storage Requirements

As required by WAC 246-290-235, City storage facilities shall be designed with sufficient capacity to meet the requirements of the following storage components as defined in the DOH WSDM:

- Dead Storage
- Operational Storage
- Equalizing Storage
- Standby Storage
- Fire Suppression Storage

The City may, at its discretion, apply the alternate design concept as described in the DOH WSDM and further detailed in Sections following.

3.3.1 Dead Storage (DS)

Dead storage is the portion of a reservoir below which some customers in the system will experience pressures less than the minimum requirement. Standpipes typically have a portion of the reservoir intentionally designed as dead storage.

Conversely, if a system's source (well or booster pump) does not have sufficient capacity to fill a reservoir above a certain elevation, that portion of the reservoir cannot provide storage to the system and therefore qualifies as dead storage.

3.3.2 Operational Storage (OS)

Operational storage is the volume in a reservoir used during normal operation of the system; it is the storage volume used between turning the supply pumps on and off. In general, systems control the operation of supply sources with level sensors or floats in the reservoirs they fill. Using OS allows a reasonable amount of time between pump start/stop which protects the motors from heat damage that can result from excessive cycling of the pump. The system uses OS when supply sources are off. Systems that utilize variable speed pumps can eliminate OS by setting up the pumps to maintain a full reservoir.

3.3.3 Equalizing Storage (ES)

Equalizing storage is the quantity of storage required to meet peak demands that exceed supply capacity. The following equation from the DOH WSDM calculates the volume of required ES:

ES = (PHD-Q) x 150 minutes

Where ***ES*** *= equalizing storage in gallons*

PHD *= peak hour demand in gpm*

Q *= source capacity in gpm*

3.3.4 Standby Storage (SB)

The purpose of SB is to provide a measure of reliability should sources fail or when unusual conditions impose higher demands than anticipated. The DOH WSDM provides separate equations for calculating required SB volume for systems served by one source and for systems served by multiple sources as described below.

- **Water Systems with a Single Source**

  The required SB volume for systems served by a single source of supply is two times the system's ADD for the design year to be available to all service connections at minimum service pressure of 20 psi.

  $SB_{TSS} = (2\ days)\ (ADD)\ (N)$

  Where ***SB =*** *is the total standby storage in a single source system in gallons*

  ADD *= Average day demand, gpd/ERU*

  N *= Number of ERUs*

- **Water Systems with Multiple Sources**

  The required SB volume for systems served by multiple sources must be available to all service connections at a minimum service pressure of 20 psi and is based upon the following equation.

  $$SB_{TMS} = (2\ days)\ [(ADD)\ (N) - (1{,}440\ min)\ (Q_S - Q_L)]$$

  Where ***SB*** *= the total standby storage in a multiple source system in gallons (in no case can volume be less than 200 gal per ERU)*

  ADD *= Average day demand, gpd/ERU*

  N *= Number of ERUs*

  Q_S *= Sum of all available source, gpm*

  Q_L *= Capacity of largest source, gpm*

SB storage is intended to satisfy the requirements imposed by the system customers for unusual situations; DOH recommends that the SB volume be not less than 200 gallons/ERU. Currently the City requires that the SB volume be not less than 150 gallons/ERU. Once the City's new reservoir is brought online the City's SB criterion will increase to the minimum DOH recommended SB volume criterion of 200 gallons/ERU; refer to **Sections 4.5** and **5.5** for further discussion of standby storage.

A further reduction in required SB volume can be achieved by providing automatic backup power at the sources of supply. To be considered equivalent to gravity storage all sources used in the SB calculation must be equipped with automatic backup power.

3.3.5 Fire Suppression Storage (FS)

FS is the quantity of storage needed to meet required firefighting flows. If a public water system provides fire flow, it is required to construct and maintain facilities, including storage reservoirs, capable of delivering fire flow while maintaining a minimum pressure of 20 psi at all service connections within the distribution system [WAC 246-290-221(5)].

The volume of FS required for each pressure zone is the product of the maximum fire flow rate and duration established as City criteria; this may or may not be the same fire flow rate and duration required by the local fire protection authority or County Fire Marshal for individual structures within the City. For water systems located in areas governed under the Public Water System Coordination Act of 1977 (PWSCA), Chapter 70.116 RCW, minimum flow rates and duration that must apply for residential, commercial, and industrial developments are specified in the Water System Coordination Act regulations, WAC 246-293-640. Greater FS requirements for individual structures may be specified by the local fire protection authority, County Fire Marshal, and/or locally adopted Coordinated Water System Plan; however, the City is not obligated to provide fire flow above and beyond City criteria established in this Water System Plan.

3.3.5.1 Nesting of Fire Suppression Storage and Standby Storage

A water system may elect to "nest" the SB and FS storage volumes [WAC 246-290-235(4)]. If a purveyor chooses to nest SB and FS, the larger of either SB or FS is used as the total volume required. Provided that such practice is not prohibited by:

- Adopted Coordinated Water System Plan
- Local Ordinance

- Local Fire Protection Authority

Othello chooses to nest SB and FS. Refer to **Appendix A** for letter coordinating with Fire District. The City plans on addressing known storage deficiencies within the system (see **Section 5**).

3.3.6 Storage Alternate Design Concept

The DOH WSDM provides criteria for reservoir design and storage volume. During the capital facilities planning process, systems typically apply these criteria to determine whether existing storage volume meets the needs of the system and satisfies regulatory criteria.

The WSDM provides an "Alternate Design Concept" (Section 9.1.3 of the WSDM) which outlines circumstances under which systems may reduce or in some cases eliminate the standby and fire storage component requirements. Systems can substitute source capacity for storage volume provided certain requirements are satisfied.

Water systems substituting source capacity for storage volumes must consider and provide appropriate justification for varying from each of the following criteria:

- Exclude capacity of the largest producing source of supply from the calculations
- Equip each supply source used in the calculations with on-site backup power facilities, promptly started by an automatic transfer switch upon loss of utility power.
- Incorporate provisions for pump protection during low demand periods into the water system design.

The City elects to utilize the storage alternate design concept at its discretion where it is deemed cost effective and in the City's best interest to do so.

3.4 Fire Flow Criteria

The Washington Surveying and Rating Bureau (WSRB) rates municipal fire fighting systems (part of which is a water system) for insurance companies. WSRB's rating partially determines fire insurance rates for a given area. WSRB uses a 10 class system; Class 1 being communities with greatest ability to extinguish a fire and Class 10 being the lowest. Currently, Othello rates as a Class 5. For comparison, current ratings of several other central Washington cities are shown below:

Moses Lake	4
Ritzville	6
Lind	8
Warden	7
Connell	6

The City of Othello uses the International Fire Code (IFC) Appendix B as a guide in establishing its fire flow requirements, with modifications identified for specific buildings and locations. The City adopts the following fire flow requirements for the purpose of water system planning.

Adams County Fire District No. 5 and the WSRB confirmed the fire flows and limitations provided in the table below.

Table 3-1 City of Othello Water System Fire Flow Criteria Goals

Location:	Fire Flow	Duration
Single Family Residential	1,000 gpm	1 hour
Commercial/Multi-family	2,500 gpm (1)	2 hours
Hiawatha Elementary School	3,750 gpm	4 hours
Lutacaga Elementary School	3,750 gpm	4 hours
Scootney Springs Elementary School	3,750 gpm	4 hours
McFarland Junior High School	3,750 gpm	4 hours
Fuel Storage Depot (Columbia Street & Broadway)	5,000 gpm	4 hours
McCain Foods Processing Plant	6,250 gpm	4 hours
Simplot Processing Plant	6,250 gpm	4 hours
All others per the International Fire Code		

(1) *Adams County Fire District No. 5 limits V type buildings for under 3,600 sq. ft.*

(2) *Adams County Fire District No. 5 limits V-B type buildings for under 9,400 sq. ft.*

State regulations require water systems to provide the selected fire flow rate criteria while maintaining minimum 20 psi throughout the distribution system. Critical Water Supply Service Areas (CWSSA) are required to maintain a minimum 20 psi throughout the distribution system with the largest source out of service. Othello is not a CWSSA.

3.5 Distribution System

3.5.1 System Pressure

DOH establishes minimum service pressures for public water systems. During normal conditions, minimum pressures within the distribution system shall be maintained at or above 30 psi at the customer meter. During fire conditions (MDD, FS depleted) systems must maintain a minimum pressure of 20 psi at all customer meters. Although DOH does not dictate restrictions on maximum distribution system pressure, the City endeavors to limit maximum distribution system pressure to 100 psi whenever possible.

3.5.2 Pipe Sizes

DOH requires distribution system mains supplying fire flow to have a minimum diameter of 6 inches. DOH also requires all new mains installed to have a minimum diameter of 6 inches unless otherwise justified by a hydraulic analysis. The Ten State Standards have the same recommendation for minimum pipe size.

The Othello Municipal Code requires minimum pipe sizes of 8-inch in residential zones, 10-inch in commercial zones and 12-inch in industrial zones unless a larger size is determined to be required by the City. The City also requires minimum 12-inch mains along its transmission grid, which generally follows section lines; refer to **Figure 5** for Othello's transmission grid.

3.5.3 Valve and Hydrant Spacing

The Othello Municipal Code dictates maximum hydrant spacing of 400 feet. Crosses shall have no less than three valves, tees shall have no less than two valves, and elbows not within 400 feet of a valve shall have one in-line valve. Main line valve spacing shall not exceed 400 feet; Whenever feasible, Othello requires coordination of in-line valve spacing with hydrant spacing (e.g. for blocks longer than 400' where hydrants are spaced at the 400 ft minimum each hydrant tee should have a hydrant isolation valve on the tee branch and one valve on the tee run).

3.5.4 Design Standards

Refer to the **Appendix D** for copies of the City's 2016 Public Works Water System Design Standards. Design standards contained in the appendices are for reference only, contact the City of Othello Public Works Department for the City's most current Public Works Design Standards.

3.5.5 Construction Standards

The City's Standard Construction Specifications and Public Works Design Standards may be found under separate cover.

4.0 EXISTING SYSTEM ANALYSIS

This section makes use of the demand figures developed in **Section 2** to assess the adequacy of system facilities based on the criteria stated in **Section 3**. Refer to **Table 2-14**. Please also refer to **Figure 3** for a schematic map of the existing water system.

4.1 Reported System Problems

A water system plan provides an engineering analysis of a water system. However, this analysis is incomplete without input from the system's operator(s) and other individuals that have intimate knowledge of the day to day operations and problems of the system. Comments provided by individuals with close working knowledge of the system follow.

4.1.1 Comments from Water System Operator

Othello water system operator Dan Quick identified the following issues with the system:

- There are a number of fire hydrants that are old and difficult to maintain which are located along undersized mains
- Steel mains are undersized and cause low flows within the system. The operator also believes that complaints of dirty water are a direct cause of the steel mains
- The City needs some sort of failsafe system to warn public works if the telemetry system goes offline
- Well 8 and Well 6 need VFDs
- The system currently experiences low flow along Ash, Oak, and Elm Streets between 7th Ave and 14th Ave
- Entrained air is present in Well 9

4.2 Supply

4.2.1 Overview of Existing Supply Facilities

Refer to **Table 1-1** for details on City wells, **Figure 3** for locations of City wells, and **Appendix C** for copies of the available well reports. Othello has eight wells (refer to table following). Well 2 is used as an emergency source and runs out of water after brief periods of pumping. Well 6 is used as a seasonal source to meet peak demand in the summer months and has elevated levels of fluoride. Well 9 has a maximum capacity of 1,500 gpm but is currently pumped at 1,200 gpm by utilizing a VFD. Well 1 was decommissioned in 2014.

The following table summarizes Othello's supply facilities:

Table 4-1 Supply Facility Summary

Well Number	Location	Year Constructed/ Drilled	Motor Horsepower	Current Pumping Rate (gpm)	Status
1	Pioneer Park	1909	-	-	Decommissioned
2	Lions Park	1940	75	275	Emergency (1)
3	Lions Park	1957	300	800	Active
4	McFarland Junior High School	1965	150	430	Active
5	SR26 & 7th Ave	1974	350	900	Active
6	Railroad Ave & Larch St	1978	900	2,000	Seasonal (2)
7	SR24 & Bench Rd	1998	600	630	Active
8	14th Ave & Lee St	2002	250	395	Active
9	NE ¼, SW ¼, S36, T16, R29	2015	250	1,200	Active
			Total	6,355 (3)	

(1) *Emergency only, runs out of water after brief periods of pumping*

(2) *Used seasonally during peak demands. Has elevated fluoride levels*

(3) *Does not include Well 2 current pumping rate*

The table following provides a summary of well construction, including subsequent modifications or rehabilitation efforts, based on review of City files and well logs from Ecology.

Table 4-2 Well Construction Summary

Well Number	Construction/ Modification Date	Total Depth (ft)	Depth of Screened or Perforated Casing Intervals (ft)	Depth of Open, Uncased Intervals (ft)	Depth to Water (ft)	Depth to Water Date	Description of Work
2	1940	697	Not reported	120 to 697	Not reported	Not reported	Drilled
3	1957 1977	900 No change	None No change	197 to 900 No change	278 385	2/1/1957 5/11/1977	Drilled Reconditioned well, new pump
4	1965 1992 1994	905 1,450 976	550 to 795 None 428 to 436	826 to 905 443 to 1,450 443 to 976	225 403 396	1/30/1965 5/18/1992 1/11/1997	Drilled Deepened, pulled casing Abandon lower borehole, perforate casing
5	1974 1987	1,007 No change	550 to 650 No change	666 to 1,007 No change	283 277	12/19/1973 3/31/1987	Drilled Reconditioned well
6	1978	1,210 1,002	1,015 to 1,075 Not applicable	None 212 to 1,002	197 536	1/25/1978 2/22/2011	Drilled Abandoned lower borehole, pull screen assembly
7	1997	820	670 to 815	Not applicable	125	5/13/1997	Drilled
8	2002	853	Not applicable	398 to 853	380	11/18/2002	Drilled
9	2015	1,042	418 to 1,040	Not applicable	51	5/27/2015	Drilled

4.2.2 Condition of Supply Facilities

As shown in the preceding table Othello's active wells were constructed at various intervals over the last 76 years. All wells withdraw from the lower Wanapum Basalt aquifer. Most well pumps are equipped with variable frequency drives (VFD) which are used to mitigate the effects of aquifer level drawdown and interference between wells. **Table 4-3** provides a summary of the current condition of each of the City wells.

Table 4-3 Condition of Wells [(1)]

Well Number	Method of Construction	Condition of Well	Comments and Known Problems or Issues
2	Drilled	Poor	May be subject to cascading water, runs out of water after brief periods of pumping
3	Drilled	Good	Experiencing lower yield due to long-term decrease in area-wide aquifer water levels, production is scaled back when Well 6 is online
4	Drilled	Good	No appreciable loss in well efficiency is evident since the well was modified
5	Drilled	Good	No appreciable loss in well efficiency is evident since the well was constructed and reconditioned, production is scaled back when Well 5 is online
6	Drilled	Good	May be subject to cascading water, currently exhibits levels of fluoride above the MCL
7	Drilled	Good	Loss of efficiency possibly due to biofouling of the well screen
8	Drilled	Good	New in 2002, may be subject to cascading water
9	Drilled	Good	New in 2015

(1) *Condition of wells were evaluated in the 2016 Water Supply Study*

In the future, the City may decide to rehab Well 7 to improve efficiency and increase capacity. The City's hydrogeologist estimates that rehabilitating Well 7 could yield approximately 300 gpm more than its current capacity.

4.2.3 Supply Capacity Analysis

The City of Othello has a current well pumping capacity of 6,355 gpm (excluding emergency source Well 2). Othello's existing well pumping capacity is less than current PHD (7,629 gpm). Othello's largest well pump (Well 6) has capacity to pump 2,000 gpm and is used as a seasonal source to meet peak demand scenarios. With Well 6 out of service Othello has a remaining total well pump capacity of 4,355 gpm. The City relies heavily on well pumping capacity to meet peak demands due to a lack of standby storage in reservoirs. The City's wells have a history of mechanical issues which have affected the total supply capacity available from individual wells. During the summer of 2015, the City had to ration water due to mechanical issues in Wells 3 and 6. The following table shows City water demand relative to the City's existing water supply capacity and water rights.

Table 4-4 Existing Supply Facilities Capacity Evaluation

Scenario	ERUs [1]	Annual Source Production (System Demand) [2]				Total Source Capacity [3]		Water Rights	
		(MG/yr)	ADD (MGD)	MDD (gpm)	PHD (gpm)	Wells 3 - 9 (MG/yr)	Wells 3 - 9 (gpm)	Q_i (gpm)	Q_a (annual)
Current	10,443	1,727	4.73	4,696	7,629	3,340	6,355	9,550	2,314 MG 7,100 ac-ft
6-year No-Industrial-Growth	12,394	1,810	4.96	4,921	7,996				
6-year Industrial-Growth	17,588	2,568	7.04	6,983	11,346				
20-year No-Industrial-Growth	18,246	2,098	5.75	5,705	9,270				
20-year Industrial-Growth	38,033	4,373	11.98	11,892	19,321				

(1) *Based on a growth rate of 4.23%. See **Section 2** for derivation of current and future ERUs*

(2) *Current source production provided by City of Othello staff for 2016 withdrawal rates. See **Table 4-1** for breakdown of well pump capacities.*

(3) *Total source capacity does not include Well 2 capacity*

Supply criteria in **Section 3** states that the system must be able to replenish depleted fire suppression storage within a 72-hour period while concurrently supplying the MDD of the system. The City's current and projected future fire storage volume is 1.5 MG. Replenishment of the fire storage volume within 72-hours results in a flow rate of 347 gpm. The City is able to supply MDD and fire suppression storage replenishment for its' current, 6-year and 20-year (No-Industrial-Growth) scenarios with existing total source capacity. The City is unable to supply MDD and fire suppression storage replenishment for its' 6-year and 20-year (w/ industrial growth) scenarios with existing total source capacity.

Conclusions:
Supply capacity meets MDD + FSS (replenished in 72 hr) for the Current, 6-year No-Industrial-Growth, and 20-year No-Industrial-Growth scenarios but cannot meet 6-year Industrial-Growth and 20-year Industrial-Growth scenarios. Several wells are not able to produce their maximum yield due to interference between wells.

The City plans on implementing new supply capacity improvements within the 6-year and 20-year planning horizons. Supply capacity improvements include the following:

- Rehabilitate Well 7 within the 6-year planning horizon in order to recover up to 300 gpm of supply capacity increasing Well 7's total capacity to 930 gpm.

- Introduce a new Well (Well 10) within the 6-year planning horizon. Assumed 1,500 gpm supply capacity.

- Introduce a new Well (Well 11) within the 20-year planning horizon. Assumed 1,395 gpm supply capacity (utilizes City's remaining Qi). Implementation of the Well 11 alternative is dependent on whether the City is able to secure a supplemental source of supply in the mid to long term (refer to **Section 5.2**).

The City plans on having a total supply capacity of 8,155 gpm by the end of the 6-year planning horizon and a total supply capacity of 9,550 gpm by the end of the 20-year planning horizon. These 6-year and 20-year supply capacities are represented in equations and tables throughout **Section 4** in order to

determine future deficiencies and recommendations for the Capital Improvements Plan (CIP). By assuming the 6-year and 20-year supply capacities the City is able to meet all of its' MDD + FSS (replenished in 72 hr) except the 20-year Industrial-Growth scenario.

4.2.4 Groundwater

The City completed the Water Supply Plan (2016) in order to identify and assess likely causes of well yield performance issues and assess groundwater supply options in order to sustain existing wellfield capacity and offset anticipated future declines in yields from the City's groundwater supply wells.

The City of Othello relies on wells drilled into the lower Wanapum Basalt aquifer as its sole source of drinking water. Over time the groundwater level in the lower Wanapum Basalt has declined and resulted in progressively lower pumping rates from existing wells. The Washington State Department of Ecology (Ecology) has identified and documented the regional decline of aquifer levels through a series of reports regarding the Columbia Basin Groundwater Management Area (GWMA).

The 2016 Water Supply Plan is available under separate cover. The Water Supply Plan's systematic evaluation of existing wells concluded the following:

- The City is doing a good job of managing the effects of seasonal drawdown and well interference by selectively pumping certain wells to maximize yield.

- All City wells except Well 7 show stable well efficiency over time. Well 7 was constructed with a stainless steel screen (all other wells except Well 6 are completed primarily with open borehole in the water bearing zones. Rehabilitation of Well 7 might increase the existing pumping rate of 600 gpm to 900 gpm.

- The City operates a telemetry system collecting and recording water level and flow data from each of the active wells. Much of the historical telemetry data was reportedly corrupted and lost. Maintaining reliable, accurate water level and flow data is critical to managing and optimizing the City's pumping and limiting drawdown in the wells. We recommend that the City routinely archive telemetry data in a secure location to ensure data are available for future use.

- Wells 2, 6, and 8 may be subject to cascading water when pumping causes water levels to draw down below the elevation of uncased water bearing zones. Cascading water may entrain air and negatively affect pump performance. We recommend that the pump performance curves be compared to actual pump yields at operating total head to assess whether cascading water and air entrainment could be affecting pump performance.

- Water rights are not a constraint for the City in managing the well field. Withdrawals from recently constructed Well 9 are limited to 2,000 gpm, 3,000 ac-ft/year, as this well is only authorized under one City water right. We recommend that if and when future water changes are required that Well 9 be added to the right being changed.

- There is record in the files reviewed that proofs of appropriation or requests to extend the development schedules for City water rights were filed with Ecology. If this is the case, we recommend completing proofs of appropriation for five of the City's water rights that are ready for certification, while filing extensions to the development schedules for the remaining rights.

Conclusions:
Due to the documented decline in the lower Wanapum Basalt aquifer it is unclear how effective new wells will be in providing future system demands past the 20-year planning horizon. The City may need to consider source water alternatives other than the lower Wanapum Basalt aquifer in order to meet future demands.

4.2.5 Water Quality and Disinfection

4.2.5.1 Source Water Quality

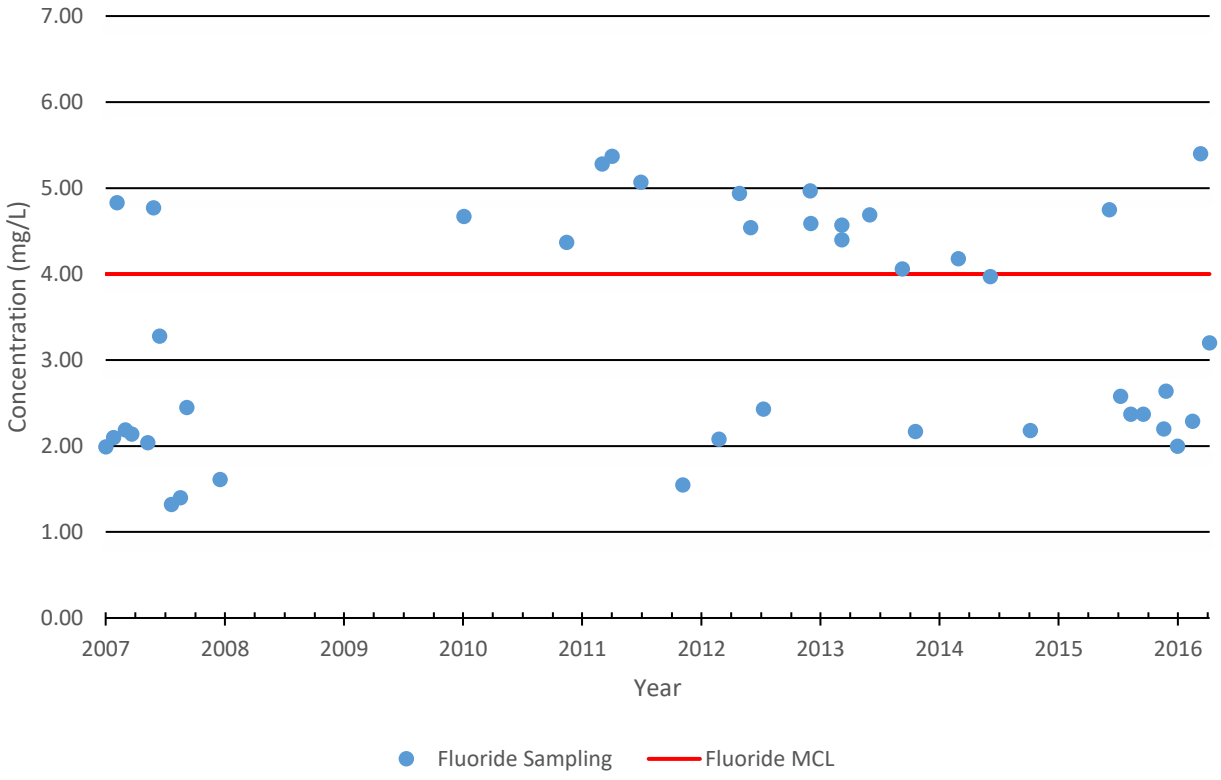
Washington State Department of Health (DOH) requires cities to monitor the water quality of all drinking water sources through cyclic testing. The City of Othello has had reasonably constant water quality over the years. The City's most prevalent historic source contaminant is fluoride (F) which has been found at concentrations above the MCL in Well 6. All other wells comply with current water quality standards. **Table 4-6** summarizes the City's water quality sampling requirements.

4.2.5.2 Fluoride

In 2007, the City retained the services of GSI Water Solutions to characterize the groundwater production and fluoride concentrations by water-bearing zones in Well No. 6. The goal of GSI's efforts was to determine how to remediate the well without significantly decreasing the production of the well. GSI's report determined that while fluoride levels are in excess of 4 mg/l in the deepest zones of Well No. 6, the highest concentrations of fluoride come from an interval between approximately 915 to 930 feet below ground surface (exceeding 8 mg/l, and possibly exceeding 15 mg/l). GSI theorized that the City could seal off the interflow zones responsible for the higher fluoride levels. The City performed this work in 2010, and the capacity of Well No. 6 was reduced to approximately 2,000 gpm in the process.

As of 2016 fluoride levels in Well 6 have not reduced to levels below the MCL. The average fluoride concentration for 2007 – 2016 in Well 6 is 3.3 mg/l. See **Appendix D** for the City's Fluoride Blending Plan.

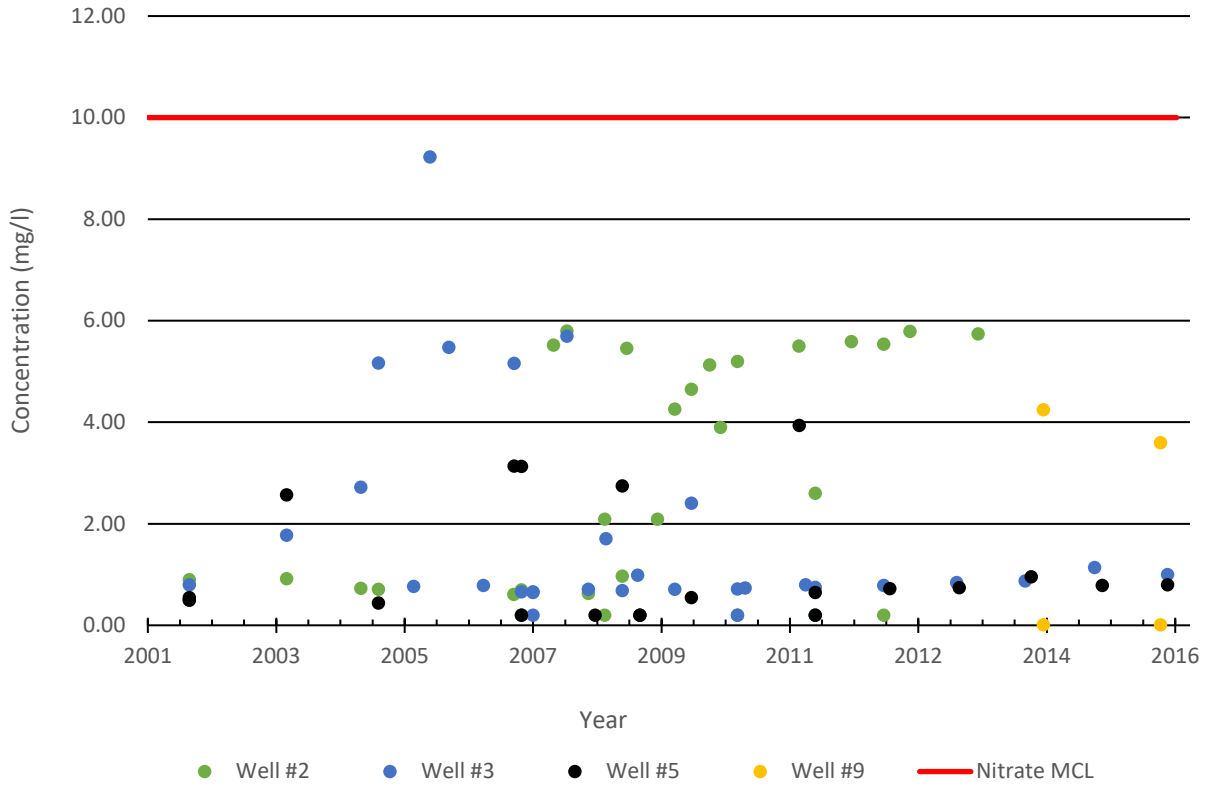
Figure A Historic Fluoride Concentrations in Well 6



4.2.5.3 Nitrates

The City is required to test for nitrates yearly at Wells 3, 4, 5, 6, 7, 8, and 9. If a sample at any well exceeds the trigger level (5-mg/l) for nitrate, the City must increase monitoring to quarterly. This monitoring frequency must continue until four consecutive samples test below the 5-mg/l trigger level. Historically the City well concentrations average below the 5 mg/l trigger level. Between 2007 and 2013 Well 2 nitrate levels were commonly 5.6 mg/l. Well 2 has not been tested for nitrates since 2013 and is not currently listed on the WQMS for any contaminant testing due to its designation as an emergency only source. Between 2005 and 2007 Well 3 nitrate levels were commonly above the 5 mg/l trigger level. Since 2012 Nitrate levels have not been observed above 5 mg/l. Well 5 has historically shown elevated nitrate levels approaching 4 mg/l but has not shown nitrate levels above 1 mg/l in over 5 years. Well 9 samples have at times approached 4 mg/l. No samples between 2001 and 2016 have exceeded the MCL of 10 mg/l.

Figure B Historic Nitrate Concentrations in City Wells



4.2.5.4 Coliform

The City tested positive on several series of coliform tests between 2003 and 2015. Positive coliform tests occurred in April 2003, July 2004, December 2008, June 2012, and January 2015. Per the operator the 2012 hit was due to operator error. 2015 hits were due to the use of Crisco as the bearing lube during well rehabilitation. The Crisco was difficult to remove from the well and as a result the City does not allow the vender to use Crisco as a bearing lube.

4.2.5.5 Chlorination

The City chlorinates all of its sources except for Well 2 which is an emergency only source. The disinfection methods for the remaining sources are summarized in **Table 4-5**. The City targets a chlorine residual of 0.5 mg/l in most parts of the distribution system with a minimum allowable residual of 0.1 mg/l.

Table 4-5 Source Chlorination

Well Number	Disinfection	Comments
2	N/A	Not treated
3	Sodium Hypochlorite	Storage tank outside well house. Metering pump on top of tank.
4	Sodium Hypochlorite	Storage tank outside well house. Metering pump mounted near ceiling inside well house.
5	Sodium Hypochlorite	Storage tank outside well house. Metering pump on top of tank.
6	Chlorine Gas	Chlorination equipment housed in separate chlorine room.
7	Sodium Hypochlorite	Storage tank outside well house. Metering pump on top of tank.
8	Chlorine Gas	Chlorination equipment housed in separate chlorine room.
9	Sodium Hypochlorite	Chlorination equipment housed in separate chlorine room.

4.2.5.6 Compliance with Existing Regulations

DOH generates a Water Quality Monitoring Schedule (WQMS) for water systems on an annual basis; the WQMS summarizes the system's water quality sampling requirements for the year. The **Appendix B** contains a copy of the City's 2015 WQMS. **Table 4-6** summarizes the City's water quality monitoring requirements. Note that the City has no well fields.

Table 4-6 Monitoring History and Requirements as Reported by DOH

Contaminant	Sample Location	Schedule / Status	Trends / Comments
Lead and Copper	Distribution System	Collect 20 samples between Jan 2014 - Dec 2016	No apparent concerns
Total Trihalomethane (THM)	Distribution System	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
Halo-Acetic Acids (HAA5)	Distribution System	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
Nitrate	Well 3	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 4	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 5	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 6	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 7	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 8	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 9	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
Complete Inorganic (IOC)	Well 3	State Waiver: Collect 1 sample between Jan 2011 - Dec 2019	No apparent concerns
	Well 4	State Waiver: Collect 1 sample between Jan 2011 - Dec 2019	No apparent concerns
	Well 5	State Waiver: Collect 1 sample between Jan 2011 - Dec 2019	No apparent concerns
	Well 6	State Waiver: Collect 1 sample between Jan 2011 - Dec 2019	No apparent concerns
	Well 7	State Waiver: Collect 1 sample between Jan 2011 - Dec 2019	No apparent concerns
	Well 8	State Waiver: Collect 1 sample between Jan 2011 - Dec 2019	No apparent concerns
	Well 9	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
Fluoride	Well 3	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 4	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 5	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 6	Collect 4 samples between Jan 2016 - Dec 2016 (quarterly)	Historically levels for Well 6 avg. 3.3 mg/l approx. 0.7 below the 4.0 mg/l MCL
	Well 7	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
	Well 8	Collect 1 sample between Jan 2016 - Dec 2016	No apparent concerns
Volatile Organics (VOC)	Well 3	State Waiver: Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 4	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns

Contaminant	Sample Location	Schedule / Status	Trends / Comments
	Well 5	State Waiver: Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 6	State Waiver: Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 7	State Waiver: Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 8	State Waiver: Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 9	Collect 1 sample between Jan 2014 - Dec 2016	Initial Determined 2 Qtr
Herbicides	Well 3	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 4	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 5	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 6	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 7	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
	Well 8	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 9	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
Pesticides	Well 6	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
Soil Fumigants	Well 3	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
	Well 4	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
	Well 5	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
	Well 6	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
	Well 7	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
	Well 8	State Waiver: Collect 1 sample between Jan 2014 - Dec 2022	No apparent concerns
Gross Alpha	Well 3	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 4	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 5	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 6	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 7	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 8	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 9	Collect 2 samples between Jan 2016 - Jun 2016	Initial - quarterly
Radium 228	Well 3	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 4	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 5	Collect 1 sample between Jan 2014 - Dec 2016	No apparent concerns
	Well 6	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 7	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 8	Collect 1 sample between Jan 2014 - Dec 2019	No apparent concerns
	Well 9	Collect 2 samples between Jan 2016 - Jun 2016	No apparent concerns

4.2.5.7 Regulations

Refer to WAC 246-290-300, 310, and 320 for monitoring, MCL, MRDL, and follow-up action regulations.

4.2.5.8 Lead and Coper Rule

Othello provides reduced monitoring for lead and copper. See **Appendix D** for DOH monitoring criteria, public notification form, and LCR sampling map.

4.2.5.9 Groundwater Rule

The Environmental Protection Agency (EPA) finalized the Groundwater Rule in October 2006 and the Groundwater Rule went into effect in December 2009. The Groundwater Rule builds on the Total Coliform Rule by addressing the health risks of fecal contamination in groundwater sources used by a public water system. The basic requirements of the Groundwater Rule include source water monitoring (triggered and assessment), compliance monitoring, sanitary surveys, corrective actions, and public notification. The following table provides an overview of the Groundwater Rule.

Table 4-7 Groundwater Rule Overview

Requirement		Comments
Sanitary survey by DOH every 3 years		May be every 5 years if certain conditions are met
Determination of hydrogeologic sensitivity		
Triggered source water monitoring: • Test source water for coliform within 24 hours of distribution system hit • Monthly source monitoring for coliform of sources in hydrogeologically sensitive areas		-
If the above steps indicate a fecally contaminated source or one with significant deficiencies that can act as a potential pathway for contamination, the system must do one of the following: • eliminate the source of the contamination or correct the significant deficiency • provide alternate source water • provide treatment which achieves at least 99.99% (4-log) removal or inactivation of viruses and monitoring to verify same		-
Several situations and violations require public notification. The following outlines these violations and the type of notification required.		Systems that receive an E. coli-positive result in a source water sample must notify their customers within 24 hours of result.
• E. coli-positive ground water source sample	Tier 1 PN, CCR, special notification	Consecutive systems served by the groundwater source must also notify the public.
• Failure to take corrective action within 120 days of notification	Tier 2 PN, CCR, special notification	-
• Failure to maintain at least 4-log treatment of viruses	Tier 2 PN, CCR	-
• Failure to meet monitoring requirements	Tier 3 PN, CCR	-
• Uncorrected significant deficiency	Special notice in CCR	-
	Special notice	Systems must continue to notify the public annually until they correct the significant deficiency.
• Unaddressed E. coli-positive groundwater source sample	Special notice in CCR	Community systems must put a notice in the CCR annually until they address the positive source water sample.

4.3 Water Rights

The water rights information contained herein is based on available records, including those provided by Department of Ecology (Ecology). This Water System Plan does not constitute legal analysis or interpretation by the City nor Varela & Associates of the rights or quantities reported herein.

The City currently has ground water rights denoted by certificate numbers 182-D, 183-D, 3390-A, 5338-A, G3-20368P, G2-25032P, G3-25033P, and G3-25933P. The City submitted an application to appropriate public waters in 1994 under application no. G3-29644. Conversations with Ecology indicate the 1994 application is located within the Chapter 508-14 WAC subarea for commingled natural and artificially stored groundwater beneath the Columbia Basin Project. Ecology stopped issuing permits for the 508-14 subarea in 1992 until the amounts of natural and artificially stored groundwater are determined. At this time Ecology does not anticipate that any certificates within the subarea will be issued in the near future.

In 1993, the City applied for a change to each of its water rights and applied to add three points of withdrawal (Well 8, Well 9, and Well 10). In 2001, Ecology issued a Report of Examination (ROE) that consolidated the City's rights and allowed withdrawal of any of the City's water rights through any of the City's municipal wells. Total withdrawal under all water rights is limited to 9,550 gpm and 7,100 acre-feet per year. The final location for Well 9 was different then the location listed in the 2011

ROE. In 2014, Ecology approved the current location of withdrawal for Well 9 under permit no. G3-25933.

Refer to the **Appendix C** for copies of the City's water rights documents. A summary of the City's water rights as reported by Ecology is shown in **Tables 4-8**, **4-9**, and **4-10**.

Table 4-8 Current Water Rights Status

Permit Certificate, or Claim #	Priority Date	City Source Name / Number	Existing Water Rights				Existing Consumption		Current Water Right Status (Excess/Deficiency)	
			Maximum Instantaneous Flow Rate (gpm) (Qi)	Status of Instantaneous Water Right	Maximum Annual Volume (ac-ft/yr) (Qa)	Status of Annual Water Right	Maximum Instantaneous Flow Rate (gpm) (Qi)	Maximum Annual Volume (ac-ft/yr) (Qa)	Maximum Instantaneous Flow Rate (gpm) (Qi)	Maximum Annual Volume (ac-ft/yr) (Qa)
182-D	6/1/1909	2, 3, 4, 5, 6, 7, 8, proposed Well 10	200	Primary	34	Primary	6,355 (2)	5,299 (3)	3,195	1,801
183-D	4/1/1940	2, 3, 4, 5, 6, 7, 8, proposed Well 10	200	Primary	148	Primary				
3390-A	9/15/1958	2, 3, 4, 5, 6, 7, 8, proposed Well 10	1,130	Primary	624	Primary				
5338-A	3/25/1964	2, 3, 4, 5, 6, 7, 8, proposed Well 10	900	Primary	1,440	Primary				
G3-20368P	9/18/1972	2, 3, 4, 5, 6, 7, 8, proposed Well 10	2,000	Primary	778	Primary				
G3-25032P	10/20/1976	2, 3, 4, 5, 6, 7, 8, proposed Well 10	2,250	Primary	2,600	Primary				
G3-25033P	10/20/1976	2, 3, 4, 5, 6, 7, 8, proposed Well 10	870	Primary	1,476	Primary				
G3-25933P	4/7/1978	2, 3, 4, 5, 6, 7, 8, 9, proposed Well 10 (1)	2,000	Primary	0	Primary				
			9,550	Total	7,100	Total	6,355	5,299	3,195	1,801

(1) *A proposed well 9 was authorized as an additional point of withdrawal for all water rights; however, the actual location where Well 9 was constructed is only authorized under G3-25933P*

(2) *Includes 2015 withdrawal rates for Wells 3, 4, 5, 6, 7, 8 and 9. Does not include Well 2 or proposed Well 10.*

(3) *2013-2015 average annual volume (see **Table 2-14**).*

Table 4-9 Forecasted Water Rights Status without Industrial Growth

Permit Certificate, or Claim #	Priority Date	City Source Name / Number	Existing Water Rights				Future Consumption		Current Water Right Status (Excess/Deficiency)	
			Maximum Instantaneous Flow Rate (gpm) (Qi)	Status of Instantaneous Water Right	Maximum Annual Volume (ac-ft/yr) (Qa)	Status of Annual Water Right	Maximum Instantaneous Flow Rate (gpm) (Qi)	Maximum Annual Volume (ac-ft/yr) (Qa)	Maximum Instantaneous Flow Rate (gpm) (Qi)	Maximum Annual Volume (ac-ft/yr) (Qa)
182-D	6/1/1909	2, 3, 4, 5, 6, 7, 8, proposed Well 10	200	Primary	34	Primary				
183-D	4/1/1940	2, 3, 4, 5, 6, 7, 8, proposed Well 10	200	Primary	148	Primary				
3390-A	9/15/1958	2, 3, 4, 5, 6, 7, 8, proposed Well 10	1,130	Primary	624	Primary	6-yr 8,155 (2)	6-yr 5,553 (3)	6-yr 1,395	6-yr 1,547
5338-A	3/25/1964	2, 3, 4, 5, 6, 7, 8, proposed Well 10	900	Primary	1,440	Primary				
G3-20368P	9/18/1972	2, 3, 4, 5, 6, 7, 8, proposed Well 10	2,000	Primary	778	Primary				
G3-25032P	10/20/1976	2, 3, 4, 5, 6, 7, 8, proposed Well 10	2,250	Primary	2,600	Primary	20-yr 9,550 (4)	20-yr 6,438 (5)	20-yr 0	20-yr 662
G3-25033P	10/20/1976	2, 3, 4, 5, 6, 7, 8, proposed Well 10	870	Primary	1,476	Primary				
G3-25933P	4/7/1978	2, 3, 4, 5, 6, 7, 8, 9, proposed Well 10 (1)	2,000	Primary	0	Primary				
			9,550	Total	7,100	Total				

(1) *A proposed well 9 was authorized as an additional point of withdrawal for all water rights; however, the actual location where Well 9 was constructed is only authorized under G3-25933P*

(2) *Projected 6-year Qi: includes all City wells operating at 2015 withdrawal rates (excluding Well 2). Includes proposed Well 10 (1,500 gpm) and assumes Well 7 is rehabilitated (930 gpm).*

(3) *Projected 6-year annual Qa (see **Table 2-14**)*

(4) *Projected 20-year Qi: assumes all available Qi is withdrawn through existing and proposed wells*

(5) *Projected 20-year annual (see **Table 2-14**)*

Table 4-10 Forecasted Water Rights Status with Industrial Growth

Permit Certificate, or Claim #	Priority Date	City Source Name / Number	Existing Water Rights				Future Consumption		Current Water Right Status (Excess/Deficiency)	
			Maximum Instantaneous Flow Rate (gpm) (Qi)	Status of Instantaneous Water Right	Maximum Annual Volume (ac-ft/yr) (Qa)	Status of Annual Water Right	Maximum Instantaneous Flow Rate (gpm) (Qi)	Maximum Annual Volume (ac-ft/yr) (Qa)	Maximum Instantaneous Flow Rate (gpm) (Qi)	Maximum Annual Volume (ac-ft/yr) (Qa)
182-D	6/1/1909	2, 3, 4, 5, 6, 7, 8, proposed Well 10	200	Primary	34	Primary				
183-D	4/1/1940	2, 3, 4, 5, 6, 7, 8, proposed Well 10	200	Primary	148	Primary				
3390-A	9/15/1958	2, 3, 4, 5, 6, 7, 8, proposed Well 10	1,130	Primary	624	Primary	6-yr 6,655 (2)	6-yr 7,880 (3)	6-yr 3,195	6-yr (780)
5338-A	3/25/1964	2, 3, 4, 5, 6, 7, 8, proposed Well 10	900	Primary	1,440	Primary				
G3-20368P	9/18/1972	2, 3, 4, 5, 6, 7, 8, proposed Well 10	2,000	Primary	778	Primary				
G3-25032P	10/20/1976	2, 3, 4, 5, 6, 7, 8, proposed Well 10	2,250	Primary	2,600	Primary	20-yr 6,955 (4)	20-yr 13,420 (5)	20-yr 2,595	20-yr (6,320)
G3-25033P	10/20/1976	2, 3, 4, 5, 6, 7, 8, proposed Well 10	870	Primary	1,476	Primary				
G3-25933P	4/7/1978	2, 3, 4, 5, 6, 7, 8, 9, proposed Well 10 (1)	2,000	Primary	0	Primary				
			9,550	Total	7,100	Total				

(1) *A proposed well 9 was authorized as an additional point of withdrawal for all water rights; however, the actual location where Well 9 was constructed is only authorized under G3-25933P*

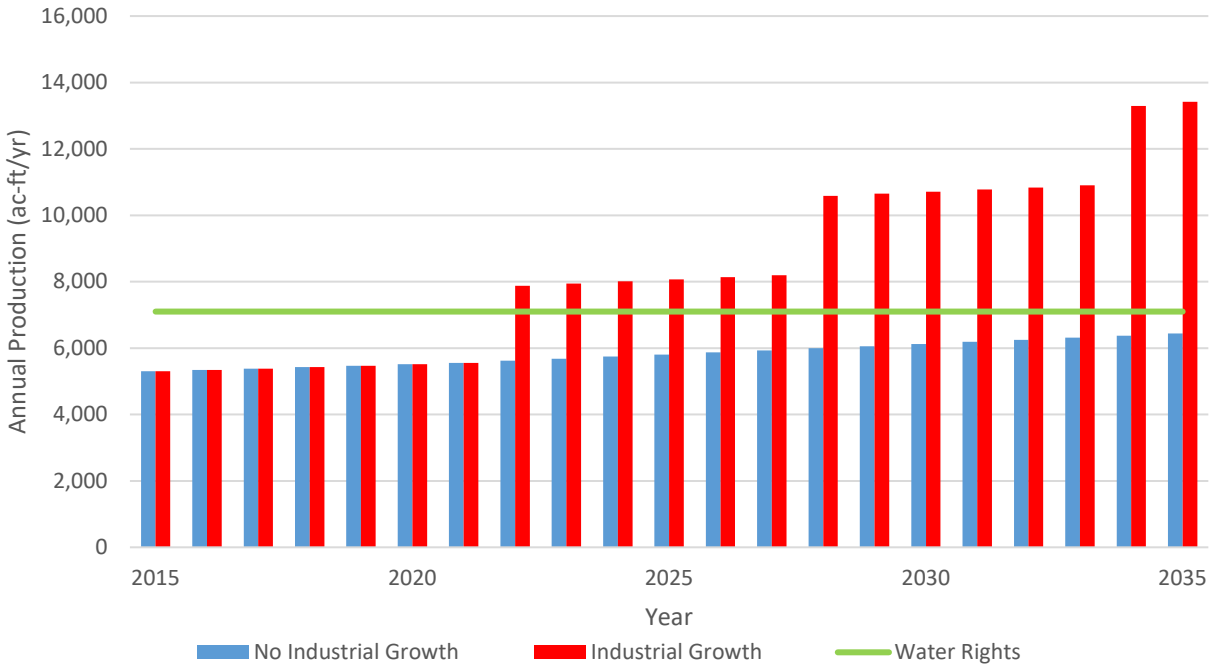
(2) *Projected 6-year Qi: includes all City wells operating at 2015 withdrawal rates (excluding Well 2). Includes proposed Well 10 (1,500 gpm) and assumes Well 7 is rehabilitated (930 gpm).*

(3) *Projected 6-year annual Qa (see **Table 2-14**)*

(4) *Projected 20-year Qi: assumes all available Qi is withdrawn through existing and proposed wells*

(5) *Projected 20-year annual (see **Table 2-14**)*

Figure C Forecasted Water Demands VS Water Rights



(1) *Assumptions include the addition of one new industry of equal consumption to Simplot during the 6-year planning period and the addition of two new industries of equal consumption to Simplot during the 20-year planning period.*

(2) *Each additional industrial user is assumed to have an average annual usage of 760 MG.*

As shown in the proceeding figure, the time frame in which Othello has adequate water rights to meet system demand depends a great deal on whether the City attracts additional industrial users. If no new industrial users locate in the City then Othello's water rights would exceed projected demand for the next 30 years. The City appears to have insufficient water rights to support addition of a new industrial user similar in size to Simplot at any point in the future. The City also has insufficient Qi to meet MDD during the 20-year Industrial-Growth scenario.

4.4 Booster Zones

The City does not currently have any booster stations.

4.5 Storage (Conventional Analysis)

The following paragraphs calculate the volume of storage required in accordance with the DOH design criteria outlined in **Section 3**.

4.5.1 Existing Storage Capacity

Existing Storage Volume:

1 MG Res.	1,000,000 gal
2 MG Res.	2,000,000 gal
3 MG Res.	3,000,000 gal
Total	6,000,000 gal

4.5.2 Operation Storage (OS)

This portion of storage is the volume devoted to supplying the water system while, under normal operating conditions when the sources of supply are in the "off" state. Othello utilizes the four feet below the overflow elevation as operational storage. An additional component of Operation Storage exists within the City's reservoirs as the volume above the overflow elevation and below the ceiling of the reservoir.

- 1 MG Reservoir: 1,000,000 gallons in 96' tall reservoir
  1,000,000 gallons / 96' = 10,417 gal per vertical foot
  [4' + 7'] x 10,417 = 114,583 gallons
- 2 MG Reservoir: 2,000,000 gallons in 116' tall reservoir
  2,000,000 gallons / 116' = 17,241 gal per vertical foot
  [4' + 6'] x 17,241 = 172,410 gallons
- 3 MG Reservoir: 3,000,000 gallons in 98' tall reservoir
  3,000,000 gallons / 98' = 30,612 gal per vertical foot
  [4' + 9'] x 30,612 = 397,956 gallons
- Total: 684,956 gallons Operation Storage

4.5.3 Dead Storage (DS)

The State requires minimum service pressures meet the requirements of WAC 246-290-230. Minimum required system pressure during max day demand with fire storage depleted is 20 psi and minimum required service pressure during peak hour demand with equalizing storage depleted is 30 psi. Othello's highest existing service connection is located at Olympia St and 14th Ave at an elevation of approximately 1,120 and the highest point within the system is 1,122 at Well 8. Dead Storage elevation was determined using the hydraulic model for each time frame and demand scenario by identifying minimum tank elevations needed to maintain minimum required pressures.

Hydraulic modeling determined that the minimum allowable HGL is 1,169 during MDD and 1,192 during PHD. Since the bottom of the City's reservoirs elevations are below 1,169 the existing reservoirs have Dead Storage. The City's Dead Storage is the volume below 1,169.

- 1 MG Reservoir: 1,000,000 gallons in 96' tall reservoir
  1,000,000 gallons / 96' = 10,417 gal per vertical foot
  Base elevation at 1,120'
  49 x 10,417 = 510,433 gallons

- 2 MG Reservoir: 2,000,000 gallons in 116' tall reservoir
  2,000,000 gallons / 116' = 17,241 gal per vertical foot
  Base elevation at 1,099'
  70 x 17,241 = 1,206,870 gallons
- 3 MG Reservoir: 3,000,000 gallons in 98' tall reservoir
  3,000,000 gallons / 98' = 30,612 gal per vertical foot
  Base elevation at 1,120'
  49 x 30,612 = 1,499,988 gallons
- Total: 3,217,291 gallons Dead Storage

4.5.4 Standby Storage (SS)

Standby storage provides a measure of reliability should sources fail or when unusual conditions impose higher demands than anticipated. DOH requires a minimum standby storage volume of twice a system's average day demand volume less the system's water production capacity for one day with the largest source out of service. If a system's source capacity with largest source out of service exceeds a systems average day demand DOH recommends that systems still provide a minimum standby storage volume of 200 gal/ERU.

DOH Water System Design Manual Equation 9-3:

$$SB_{TMS} = (2 \text{ days}) [(ADD)(N) - (1{,}440 \text{ min})(Q_S - Q_L)]$$

$$\geq 200 \text{ gallons/ERU (DOH recommended minimum)}$$

- Present: 2 days x [4.731 MGD (ADD, **Table 2-14**) – (4,355* gpm (well pumps) x 1,440 min)]
  = 0 gal

  DOH Rec Min: 200 gal x 10,443 ERUs = 2,088,600 gal

- 6-year: (No-Industrial-Growth) 2 days x [4.958 MGD (ADD, **Table 2-14**) – (6,155* gpm (well pumps) x 1,440 min)]
  = 0 gal

  DOH Rec Min: 200 gal x 12,394 ERUs = 2,478,800 gal

- 6-year: (Industrial-Growth) 2 days x [7.035 MGD (ADD, **Table 2-14**) – (6,155* gpm (well pumps) x 1,440 min)]
  = 1,538,000 gal

  DOH Rec Min: 200 gal x 17,588 ERUs = 3,517,600 gal

- 20-year: (No-Industrial-Growth) 2 days x [5.748 MGD (ADD, **Table 2-14**) – (7,550* gpm (well pumps) x 1,440 min)]
  = 0 gal

  DOH Rec Min: 200 gal x 18,246 ERUs = 3,649,200 gal

- 20-year: (Industrial-Growth) 2 days x [11.980 MGD (ADD, **Table 2-14**) – (7,550* gpm (well pumps) x 1,440 min)]
  = 2,216,160 gal

DOH Rec Min: 200 gal x 38,033 ERUs = 7,606,400 gal

* DOH Water System Design Manual requires the largest source to be neglected in the calculation of standby storage. Pumping capacity shown assumes Well 2 and Well 6 are in reserve. 6-year scenarios include proposed Well 10 (1,500 gpm) and rehabbed Well 7 (930 gpm). 20-year scenarios include proposed Well 10 (1,500 gpm), rehabbed Well 7 (930 gpm), and proposed Well 11 (1,395 gpm).

4.5.5 Fire Storage (FS)

The minimum fire storage volume is the product of the required flow rate and the required flow duration.

6,250 gpm x 240 min. = 1,500,000 gal

4.5.6 Equalizing Storage (ES)

This portion of storage is the quantity of storage required to meet peak demands that exceed supply capacity. The required volume is the difference between peak hour demand and system supply capacity multiplied by 150 minutes.

DOH WSDM Equation 9-1:

ES = (PHD-Q) x 150 minutes

Current: Pumping Capacity of Wells 3, 4, 5, 6, 7, 8, and 9 (see **Table 4-8**)
6-year: Pumping Capacity of Wells 3, 4, 5, 6, rehabbed 7, 8, 9, and proposed 10 (see **Table 4-9**)
(3) *20-year: assumes all available Qi is withdrawn through existing and proposed wells (see **Table 4-9**)*

- Present: [7,629 gpm (PHD, **Table 2-14**) – 6,355 gpm] x 150 = 191,168 gal
- 6-year (No-Industrial-Growth): [7,995 gpm (PHD, **Table 2-14**) – 8,155 gpm] x 150 = 0 gal
- 6-year (Industrial-Growth): [11,346 gpm (PHD, **Table 2-14**) – 8,155 gpm] x 150 = 478,663 gal
- 20-year (No-Industrial-Growth): [9,269 gpm (PHD, **Table 2-14**) – 9,550 gpm] x 150 = 0 gal
- 20-year (Industrial-Growth) [19,321 gpm (PHD, **Table 2-14**) – 9,550 gpm] x 150 = 1,465,649 gal

4.6 Storage (Alternate Design Concept Analysis)

The DOH Water System Design Manual (WSDM) provides criteria for reservoir design and storage volume. During the capital facilities planning process, systems typically apply these criteria to determine whether existing storage is adequate to meet the needs of the system and satisfy regulatory criteria.

The WSDM provides an "Alternate Design Concept" (Section 9.1.3 of WSDM) which outlines circumstances under which some of the storage components described above can be reduced or in some cases eliminated. Systems can substitute source capacity for storage volume provided certain requirements are satisfied.

Water systems substituting source capacity for storage volumes need to consider and provide appropriate justification for varying from the following:

- Exclude capacity of the largest producing source of supply from the calculations
- Each source of supply used in the calculations be equipped with on-site backup power facilities, promptly started by an automatic transfer switch upon loss of utility power.
- Incorporate provisions into the system design for pump protection during low demand periods.

4.6.1 Sources with Back Up Power in Lieu of Standby Storage

The following calculations and explanation provide rationale for relying on source capacity rather than gravity storage to supply Othello's standby needs. The storage capacity analysis and results that follow are summarized in **Table 5-8**. Using the DOH "Alternate Design Concept", the following storage volumes result:

DOH Water System Design Manual Equation 9-3:

$$SB_{TMS} = (2 \text{ days})[(ADD)(N) - (1{,}440 \text{ min})(Q_S - Q_L)]$$

$$\geq 200 \text{ gallons/ERU} \text{ (DOH recommended minimum)}$$

- Present: 2 days x [4.731 MGD (ADD, **Table 2-14**) – (4,355* gpm (well pumps) x 1,440 min)]

  = 0 gpd

  DOH Rec Min: 200 gal x 10,443 ERUs = 2,088,600 gpd (1,450 gpm)

- 6-year: (No-Industrial-Growth) 2 days x [4.958 MGD (ADD, **Table 2-14**) – (6,155* gpm (well pumps) x 1,440 min)]

  = 0 gpd

  DOH Rec Min: 200 gal x 12,394 ERUs = 2,478,800 gpd (1,721 gpm)

- 6-year: (Industrial-Growth) 2 days x [7.035 MGD (ADD, **Table 2-14**) – (6,155* gpm (well pumps) x 1,440 min)]

  = 1,538,000 gpd (1,068 gpm)

  DOH Rec Min: 200 gal x 17,588 ERUs = 3,517,600 gpd (2,443 gpm)

- 20-year: (No-Industrial-Growth) 2 days x [5.748 MGD (ADD, **Table 2-14**) – (7,550* gpm (well pumps) x 1,440 min)]

  = 0 gpd

  DOH Rec Min: 200 gal x 18,246 ERUs = 3,649,200 gpd (2,534 gpm)

- 20-year: (Industrial-Growth) 2 days x [11.980 MGD (ADD, **Table 2-14**) – (7,550* gpm (well pumps) x 1,440 min)]

  = 2,216,160 gpd (1,539 gpm)

  DOH Rec Min: 200 gal x 38,033 ERUs = 7,606,400 gpd (5,282 gpm)

  * DOH Water System Design Manual requires the largest source to be neglected in the calculation of standby storage. Pumping capacity shown assumes Well 2 and Well 6 are in reserve. 6-year scenarios include proposed

Well 10 (1,500 gpm) and rehabbed Well 7 (930 gpm). 20-year scenarios include proposed Well 10 (1,500 gpm), rehabbed Well 7 (930 gpm), and proposed Well 11 (1,395 gpm).

DOH allows source capacity to be considered equivalent to gravity standby storage if the sources are equipped with auxiliary power that starts automatically when the primary power feed is disrupted. If the City provided auxiliary power at each of its source wells the combined production would be 6,355 gpm. Converting the DOH recommended minimum volume to a daily flow rate (as shown in the preceding calculations) demonstrates that the City's 6,355 gpm of continuously available supply with automatic backup power (with Wells 2 and 6 in reserve) is sufficient to supply all projected standby storage needs.

4.7 Summary of Storage Analysis

Table 4-11 Storage Summary

	Current (gal)	Projected 6-yr		Projected 20-yr	
		No-Industrial-Growth (gal)	Industrial-Growth (gal)	No-Industrial-Growth (gal)	Industrial-Growth (gal)
Dead Storage(1)	3,217,313	3,217,291	3,217,291	3,217,291	3,217,291
Operational Storage (2)	684,956	684,956	684,956	684,956	684,956
Standby	1,566,450 (3)	2,478,800 (4)	3,517,600 (3)	3,649,200 (4)	7,606,400 (4)
Fire Flow (4)	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Equalization	191,168	0	478,663	0	1,465,649
Total Required Storage (5)	5,659,887	6,381,047	7,898,511	7,551,447	12,974,297
Existing Storage (6)	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Excess (Deficiency) Storage	340,113	(381,047)	(1,898,511)	(1,551,447)	(6,974,297)

(1) *DOH requires 20 psi throughout the system at bottom of FS/SB. Highest elevation is approximately 1,120. DS is bottom 49' of 1 MG standpipe, bottom 70' of 2 MG standpipe, and bottom 49' of 3 MG standpipe.*

(2) *Approximately 4' of top portion of reservoir before wells ON plus volume between overflow and roof.*

(3) *Represents the City's interim minimum standby storage of 150 gal per ERU*

(4) *DOH recommends that standby storage be at a minimum 200 gal per ERU*

(5) *Assumes basic fire flow of 6,250 gpm for 4 hours remains the same for the 20-year planning period.*

(6) *This total "nests" Fire Flow and Standby storage volumes, the larger volume contributes to the sum. See **Appendix A** for local fire authority approval of "nesting"*

(7) *Storage provided from 1 MG, 2 MG and 3 MG standpipe reservoirs*

Conclusions:
The City's existing storage is deficient during all current and future demand scenarios. Deficiencies are due to a lack of standby storage within the reservoirs. In order for the City to continue to issue building permits the City has reduced the minimum allowable standby storage from 200 gal/ERU to 150 gal/ERU. The reduction in the minimum standby storage criteria will return to DOH's minimum design criteria once the City's chosen storage improvement alternative is implemented (see **Section 5.5.3**)

4.7.1 Standby and Fire Storage Nesting

The DOH Water System Design Manual indicates water systems may exclude the SB or FS component, whichever is smaller, from a water system's total storage requirement unless such practice is prohibited by: (1) a locally developed and adopted coordinated water system plan, (2) local ordinance, or (3) the local fire protection authority or county fire marshal (see WAC 246-290-235(4)). The City has chosen

to "nest" the standby and fire flow volumes as allowed by the DOH Water System Design Manual. Refer to **Appendix A** for approval of nesting by Fire Marshal.

4.7.2 Condition of Existing Reservoirs

The 1 MG reservoir was recoated both inside and out in 2015 and the 3 MG reservoir was recoated inside and out in 2016. PAX mixers were installed in the 1 MG and 3 MG reservoirs during the recoating process. The 2 MG reservoir is scheduled for recoating in 2019 at which time a PAX mixer will be installed. Inspections are performed yearly on each of the tanks.

4.8 Distribution System

4.8.1 Hydraulics

4.8.1.1 Hydraulic Model Setup

Othello's hydraulic model was built for the 2016 Water System Plan based on available data provided by the City for water main location, size and material. The analysis contained herein was performed independent of the 2011 Water System Plan analysis performed by Gray & Osborne, Inc. The hydraulic model was used to estimate performance of the water distribution system under current and projected future demand conditions. The hydraulic model utilizes WaterCAD V8i by Bentley Systems as the analysis environment.

Adams County's GIS digital elevation model (DEM) data supplied the majority of elevation information for system nodes. The 2011 Water System Plan provided the overflow elevations and dimensions of the reservoirs. Reservoir water levels for the various scenarios were set in accordance with the following DOH requirements.

- Operational storage and equalizing storage depleted for peak hour scenarios
- Operational storage, equalizing storage and fire storage depleted under max day demand for fire flow scenarios
- Operational storage, equalizing storage and standby storage depleted under average day demand for standby scenarios
- The largest single source of supply neglected for max day (fire flow) scenarios
- Refer to **Appendix F** for a table of hydraulic model boundary conditions for scenarios

Othello plans to periodically update the hydraulic model to reflect additions, replacements, and/or changes to the distribution system. During the intervening years between Water System Plan updates Othello will use the model to assist in designing planned capital improvements as system growth occurs. The hydraulic model provides Othello with a working understanding of the system's capacity and limitations. **Appendix F** contains a copy of hydraulic model node map and sample outputs.

4.8.1.2 Demand Allocation

Existing and projected future demands were applied to the hydraulic model as shown in **Table 2-14**. Future ERUs were distributed within the hydraulic model as shown on **Figure 2**. Parcel maps and aerial photographs and input from the City's Community Development Director provided the basis for

spatial distribution of demands within the model; Othello's records on large water users provided additional basis for fine tuning demand distribution.

4.8.1.3 Model Calibration

The hydraulic model was calibrated by observing service pressure based on hydrant flow tests conducted by City of Othello Staff at various system nodes; system demands were recorded by the City's SCADA system and used to create analogous demands within the hydraulic model. Hydrant pressures measured in the field were compared with pressures predicted by the model. Generally the pressures measured in the field agreed with model estimated pressures within 5-10%. The model tended to underestimate available pressure in most cases which indicates the model is conservative.

Fire hydrant flow tests conducted by Adams County Fire District #5 (ACFD5) were used to calibrate the hydraulic model. ACFD5 conducts the flow tests over a period from mid June to early August. These tests do not occur on the same day under the same demand conditions; during these they record static pressure, residual pressure, and flow rate. Because the system background demands, reservoir levels, and wells status are unknown, these tests cannot directly calibrate the hydraulic model. However, they still provide a useful comparison to check the computer model against measured field conditions. In general, the hydraulic model could reproduce pressures observed by the ACFD5 by manipulating reservoir levels and active well pumps.

Based on the available flow test data for calibration and based on the engineering judgement of Varela & Associates, the following Hazen-Williams roughness coefficients (C) were assumed for each pipe material:

- Steel: 100
- PVC: 130
- AC: 130
- DI: 120

4.8.1.4 Hydraulic Analyses – Normal Operating Conditions (PHD)

Systems must maintain a minimum of 30 psi service pressure at all services during normal operating conditions peak hour demand (PHD). Refer to **Appendix F** for a detailed summary of boundary conditions for each scenario.

During the current PHD scenario the hydraulic model indicates that the distribution system maintains a system pressure range of 30-80 psi while averaging a 3 psi service pressure drop from the no demand scenario to PHD. During the 20-yr Static Industrial-Growth PHD scenario the hydraulic model indicates that the distribution system maintains a system pressure range of 30-80 psi while average a 6 psi service pressure drop from the no demand scenario to PHD.

During 6-yr and 20-yr Industrial-Growth PHD scenarios the hydraulic model indicates varying degrees of system pressure deficiencies. The table following contains a list of areas in the water system that will experience pressures near or below the 30 psi minimum criterion during PHD.

Table 4-12 Lower Pressure Areas

Location	Approx. PHD Performance with Supply Capacity Improvements		Reason for Low Pressure or Pressure Drop
	Time Frame	Pressure (psi) [1]	
Vicinity of 14th Ave and Lee St	Current	32 - 34	High elevation relative to reservoir. Large point demands associated with future industry.
	6-yr No-Industrial-Growth	34 - 36	
	6-yr Industrial-Growth	20 - 28	
	20-yr No-Industrial-Growth	34 - 36	
	20-yr Industrial-Growth	Suction [2]	
Vicinity of 14th Ave and Olympia St	Current	34 - 37	High elevation relative to reservoir.
	6-yr No-Industrial-Growth	44 - 48	
	6-yr Industrial-Growth	40 - 43	
	20-yr No-Industrial-Growth	40 - 44	
	20-yr Industrial-Growth	13 - 14	
Vicinity of SR-17 and Cunningham Rd (including Well 9)	Current	34 - 36	High elevation relative to reservoir
	6-yr No-Industrial-Growth	36	
	6-yr Industrial-Growth	30 - 31	
	20-yr No-Industrial-Growth	36	
	20-yr Industrial-Growth	25 - 28	

(1) *Based on 2016 WSP hydraulic analysis results. 6-year scenarios assume proposed Well 10 (1,500 gpm) and rehabbed Well 7 (930 gpm) are running. 20-year scenarios assume proposed Well 10 (1,500 gpm), rehabbed Well 7 (930 gpm), and proposed Well 11 (1,395 gpm) are running.*

(2) *Future industry locations are projected along Lee St west of 14th Ave*

4.8.1.5 Hydraulic Analyses – Fire Flow Conditions (MDD)

The hydraulic model predicts fire flow rate availability at all system nodes. The majority of Othello's water system nodes require 1,000 gpm single-family residential fire flow rate; some areas require higher flow rates depending on existing structures and planned development types. The table following contains predicted available fire flow rates for the locations in the system the hydraulic model estimates do not meet fire flow rate availability criteria if no additional source supply improvements are added to the system.

Table 4-13 Areas Not Meeting District Fire Flow Criteria [1]

Location	Flow Rate Criteria (gpm)	Estimated Flow Rate For No-Industrial-Growth Scenarios			Comments
		Current (gpm)	6-year (gpm)	20-year (gpm)	
Industrial zone along N. Broadway and Lee St [2] [3]	6,250	1,500 - 2,000	1,300 - 1,800	400 - 600	Transmission system is unable to supply fire flow to industrial services
Fuel Storage Depot (Columbia Street & Broadway)	5,000	4,900	4,600	2,300	Fire flow is deficient during all demand scenarios
Schools	3,750	3,800 - 7,100	3,200 - 6,500	1,600 - 3,400	6-yr fire flow deficit at Hiawatha Elementary School, 20-yr fire flow deficit at all schools
Commercial areas along Broadway Ave, Columbia St, and Main St	2,500	3,800 - 4,900	3,500 - 4,600	1,800 - 2,300	20-yr fire flow deficit at all commercial services
Areas served by 4-inch steel mains	1,000	400 - 900	400 - 900	300 - 800	4" steel mains limit flow rate during all fire flow scenarios

(1) *Based on 2016 WSP hydraulic analysis results for current supply capacity*

(2) *Assumes that the fire flow is withdrawn at a single node*

(3) *Future industry locations are projected along Lee St west of 14th Ave*

The majority of fire flow deficiencies relate to either 4-inch mains or high flow rate criteria. The hydraulic model shows that the Hiawatha Elementary School will not meet flow rate criteria during 6-yr No-Industrial-Growth MDD. The system will not be able to provide flow rate criteria to schools and commercial districts during 20-yr No-Industrial-Growth MDD. Industrial services currently have less fire flow available than district fire flow criteria.

The following table contains predicted available fire flow rates for the locations listed in **Table 4-13** in the event that the City implements its' proposed 6-year water supply improvements and 20-year water supply improvements discussed in **Section 4.2.3**.

Table 4-14 Fire Flows Resulting from Proposed Supply Capacity Improvements [(1)]

Location	Flow Rate Criteria (gpm)	Estimated Flow Rate For No-Industrial-Growth Scenarios			Comments
		Current (gpm)	6-year (gpm)	20-year (gpm)	
Industrial zone along N. Broadway and Lee St [(2)] [(3)]	6,250	1,500 - 2,000	2,200 - 2,900	2,300 - 3,100	Transmission system is unable to supply fire flow to industrial services
Fuel Storage Depot (Columbia Street & Broadway)	5,000	4,900	7,600	7,600	Not deficient
Schools	3,750	3,800 - 7,100	5,100 - 11,000	5,700 - 12,000	Not deficient
Commercial areas along Broadway Ave, Columbia St, and Main St	2,500	3,800 - 4,900	5,800 - 7,000	6,000 - 10,000	Not deficient
Areas served by 4-inch steel mains	1,000	400 - 900	400 - 900	400 - 900	4" steel mains limit flow rate during all fire flow scenarios

(1) *Based on 2016 WSP hydraulic analysis results with largest source (Well 6) offline. 6-year scenarios assume proposed Well 10 (1,500 gpm) and rehabbed Well 7 (930 gpm) are running. 20-year scenarios assume proposed Well 10 (1,500 gpm), rehabbed Well 7 (930 gpm), and proposed Well 11 (1,395 gpm) are running.*

(2) *Assumes that the fire flow is withdrawn at a single node*

(3) *Future industry locations are projected along Lee St west of 14th Ave*

Conclusions:
The City is able to meet district fire flow criteria at the fuel storage depot, City schools and commercial zones by improving supply capacity for No-Industrial-Growth scenarios if the City increases supply capacity. By doing so, individual storage component volumes are reduced allowing for more pressure head within the system.

Even with the aforementioned supply improvements fire flow minimum pressures are not available to service connections during 6-year and 20-year Industrial-Growth MDD scenarios. During each scenario reservoir levels are near or below dead storage levels for 20 psi criterion. Improvements are needed prior to a new industrial user locating in Othello.

4.8.2 Fire Hydrant Coverage

Hydrant coverage is generally good throughout the system. There are several older fire hydrants which are located along undersized mains are difficult to find replacement parts for. In several cases fire flow is not met at fire hydrants due to insufficient capacity along the main line.

4.8.3 Condition of Distribution System

Othello's distribution system consists primarily of asbestos cement (AC) and newer PVC mains. PVC mains are mostly located south and east of town as well as along Main St. The operator feels that the approximately 7,000 LF of steel mains are in urgent need of replacement.

All services are connected to the main with saddles. Service line material is mostly copper (1-inch) and PVC (greater than 1-inch). Most services have either curb stops or shutoffs on the meter setter/yoke. Othello meters all services.

The system appears to have adequate valves to facilitate system maintenance, repairs, and additions without shutting down service to large areas.

Calculating system leakage provides useful information about the condition of distribution system mains. Water use efficiency (WUE) records included on the DOH sentry website do not indicate system leakage for years 2011-2015. In 2010 the City recorded a distribution system leakage of 57 MG of unaccounted for water. As a percentage of total system production Othello's distribution system leakage was 4.0% in 2010.

4.8.4 Miscellaneous Distribution System Problems or Deficiencies

A number of 4" mains remain in the system. In some cases, these cause available fire flows to fall below the criteria established, however in some cases, fire flow is provided by mains in adjacent blocks and the 4" size is not detrimental. Replacement of 4-inch mains with larger pipe just because they are less than current standards is not warranted or planned, unless their replacement is needed to meet desired fire flow criteria or if deterioration or leakage become a problem.

4.9 Control System

The City's Wells are automatically controlled based on water level in the reservoirs (that is communicated to the well pump controls via radio transmission and reception measured by a transducer located at the standpipe). An auto-dialer alarm alerts the operator in the event of overflow or extreme low levels in the standpipe. Remote monitoring of standpipe levels at a single location is possible at the public works building through the City's telemetry system.

The City is in the process of installing an automated backup on the telemetry computer and plans on manually backing up telemetry data onto the server to ensure that files are not corrupted or lost.

4.10 Overall Water System Reliability

The Othello water system has a certain amount of redundancy built into it due to its 5 primary sources, one seasonal source, and one emergency source and six million gallons of storage available in three standpipe reservoirs. The table below outlines potential situations and their expected corresponding effect on the system.

Table 4-15 Water System Reliability

Potential Threat	Effect on Water System
Loss of Electrical Power	1. Well pumps cease to operate; affect on system depends on how many well pumps lose power, volume of water in reservoirs and system demand. 2. Control system ceases to operate; effect noticed immediately depending on how many well sites are affected.
Main break	In general, the distribution system is relatively well looped. Valving is adequate for isolation of service disruption due to breaks to a reasonably small area. A main break in most other areas would result in minimal service disruption.
Reservoir temporarily out of service	Barring a major fire flow event or a source going out of service, there would be minimal impact to the system.
Mechanical Failure of Well Pump	With 6,000,000 gallons of total available storage and 7 sources available to the system, 1 well being off-line would not affect system operation for some time, except during the highest demand periods. Consider the following potential scenarios: • Existing avg. demand: minimal effect since current well pumping capacity is approximately twice that of the average day demand. • Existing MDD: minimal effect; if the largest source were out of service, the six remaining sources are capable of supplying current demands. • 20-yr avg. demand (No-Industrial-Growth): minimal effect since total well pumping capacity with the largest well offline is in excess of the 20-yr avg. demand (No-Industrial-Growth). • Future MDD: noticeable effect; if the largest source were out of service, the six remaining sources are not capable of supplying MDD, standby storage would have to be utilized.

4.11 Summary of Water System Deficiencies

Table 4-15 summarizes the deficiencies described in this section. **Section 5** evaluates alternative methods of addressing these deficiencies and identifies the selected improvements, including costs. **Section 6** prioritizes the required improvements into a capital improvements plan (CIP).

Table 4-16 Summary of Water System Deficiencies

Component	Deficiency	When does deficiency occur during No-Industrial-Growth scenarios?	When does deficiency occur during Industrial-Growth scenarios?
Supply	Well 2 • may be subject to cascading water • runs out of water after brief periods of pumping	Currently deficient	Currently deficient
	Well 6 • may be subject to cascading water • exhibits levels of fluoride above the MCL	Currently deficient	Currently deficient
	Well 7 • loss of efficiency possibly due to biofouling of the well screen	Currently deficient	Currently deficient
	Total source capacity • MDD + FSS (replenished in 72 hr)	Beyond 20-year	20-year (1)
	Groundwater • levels associated with the Wanapum Aquifer are declining and adversely effecting City well capacity	Currently deficient	Currently deficient
Water Rights	Annual withdrawal (Qa)	Beyond 20-year	6-year
	Annual withdrawal (Qi > MDD)	Beyond 20-year	20-year
Water Quality	Fluoride • Concentration above MCL (4 mg/l)	Currently deficient (2)	Currently deficient (2)
	Nitrates • Concentration above MCL (10 mg/l)	Currently meets criteria	Currently meets criteria
	Coliform • Detection/No Detection	Currently meets criteria	Currently meets criteria
Storage	Total required City reservoir volume • Storage requirements could be reduced by adding backup power generators per the Alternate Design Concept (see DOH WSDM 9.1.3)	Currently deficient	Currently deficient
	Reservoir Coating	Currently meets criteria	Currently meets criteria
PHD	System pressure • below 30 psi	Beyond 20-year	6-year, 20-year (4)
MDD (Fire Flow) (3)	Along 4-inch steel mains	Currently deficient	Currently deficient
	Fuel depot at Columbia St & Broadway Ave	Slightly deficient	Currently deficient
	Industrial connections along N Broadway Ave & Lee St	Currently deficient	Currently deficient
	School locations	6-year fire flow deficit at Hiawatha Elementary School, 20-year fire flow deficit at all schools	6-year
	Commercial zones	20-year	6-year

(1) *Assumes supply improvements are made to increase supply capacity during 6-year and 20-year planning horizons (see **Section 4.2.3**)*

(2) *Deficiency occurs in Well 6*

(3) *Fuel depot, school, and commercial zone fire flow deficiencies are contingent on whether the City implements planned supply capacity improvements (see **Section 4.1.6.5**)*

(4) *System-wide pressure deficiency during 20-year Industrial-Growth scenario*

5.0 IMPROVEMENTS

5.1 Introduction

This section identifies an improvement or a range of improvement alternatives for each deficiency listed in **Section 4**. Where applicable, **Figure 4** shows the location of system improvements.

The cost estimates included in this section represent planning level estimates based on preliminary evaluations and assumptions; the cost estimates provide a basis for comparing alternatives and allow the City to approximate financing needs for preparation of a capital improvements plan (CIP). Estimated costs were derived from other similar projects in eastern Washington in the past 10 years and manufacturer inquiries; costs have been modified depending on actual project design specifics, the cost of labor and materials, and market conditions at the time of project implementation.

When the City prepares to implement the capital projects identified herein, the City will prepare a more detailed evaluation and cost estimate in a preliminary engineering report. In some cases DOH may require a Project Report in accordance with WAC 246-290-110 to address project specifics prior to project approval. In most cases, DOH does not require a Project Report for distribution system improvements identified in a WSP.

5.2 Supply

Due to the City's projected growth and the recorded regional decline in the lower Wanapum Basalt aquifer the City elected to complete the Water Supply Plan in 2016. The Water Supply Plan outlines near-term and mid to long-term steps that the City plans to take to meet projected water demand and prevent availability of water supply from constraining growth in Othello.

5.2.1 Near Term: Continue to Maintain, Develop, and Rely on Groundwater

In the near term Othello must continue to rely on its groundwater sources and develop additional well(s) to keep up with regional declines in aquifer levels and corresponding declines in exiting well pumping rates. Recommendations and cost analysis for each near term supply improvement is provided below.

5.2.1.1 Rehabilitate Well 7

It appears the efficiency of Well 7 has decreased over time. Rehabilitation of this well may recover 300 gpm of pumping capacity.

In the 2016 Water Supply Plan, the City's hydrogeologist, Aspect Consulting estimates the rehabilitation of Well 7 would cost roughly $50,000. This cost does not include pump repairs or removal of the well house to access the well. If pump repairs/modifications are necessary and depending on the scope of building modifications required to access the well head with a rehabilitation rig, the cost to rehabilitate Well 7 could be $100,000 - $200,000.

5.2.1.2 Install New Groundwater Wells

In order to offset future declines in supply capacity the City plans on constructing one new well (Well 10) within the 6-year planning horizon and one new well (Well 11) within the 20-year planning horizon. Othello plans to explore the Grande Ronde aquifer to determine whether adequate quality and quantity of water is available in this deeper aquifer. If the Grande Ronde proves to be a viable source for future wells the City would consider drilling Well 10 adjacent to existing Well 9 (a lower Wanapum well). For the purpose of planning, Othello assumes Well 10 will have a pumping capacity of 1,500 gpm. Othello plans to construct Well 11 in the 20-year horizon to replace source capacity lost to Wanapum aquifer decline, serve future growth, and utilize the City's remaining instantaneous water rights (Qi). Assumed capacity of Well 11 is 1,395 gpm (the balance of Othello's instantaneous water rights).

The following tables provide a cost estimate for construction of a new Grande Ronde aquifer well and pump station.

Table 5-1 Estimated Cost of New Grande Ronde Well and Pump Station

Description	Est. Quan.	Units	Unit Price	Amount
Drill New Well				
Site work	-	LS	-	$110,000
Drill new 24"-28" well	-	LS	-	$832,500
Well capacity testing	-	LS	-	$124,000
Pump Station				
Site work	-	LS	-	$124,500
Construct new pump house	-	LS	-	$195,000
Well pump	-	LS	-	$300,000
Piping, plumbing and valves	-	LS	-	$142,000
Electrical and controls including VFD	-	LS	-	$250,000
Miscellaneous	-	LS	-	$25,000
			Subtotal	$2,100,000
			Sales Tax (7.7%)	$160,000
			Contingency (15%)	$320,000
			Construction Subtotal	$2,580,000
Engineering, Hydrogeological Investigation., Design, Construction Management, and Inspection (18%)				$460,000
Water Rights Changes, Legal Review				$10,000
Property Acquisition [(1)]				$50,000
TOTAL PROJECT COST (rounded to nearest $100K)				$3,000,000

(1) *May not be necessary if new well on same site as existing well (Well 9)*

5.2.2 Mid to Long Term: Develop Supplemental Source of Supply

The available data and analyses to date document a regional decline in Lower Wanapum Basalt aquifer water levels in the Columbia Basin. The estimates vary on current rate of decline, but it appears Othello may not be able to continue to rely on groundwater indefinitely as its sole source of water supply. To mitigate the possibly finite nature of groundwater supply Othello plans to develop a supplemental source of supply. The City has identified the following possible components of a future supplemental source of supply:

- Surface water from Bureau of Reclamation irrigation canals treated to drinking water standards for potable use; this source could also be treated to the groundwater anti-degradation standard for injection and storage in the basalt aquifer for later recover via City wells.

- Industrial wastewater treated to anti-degradation standard for groundwater injection and storage in the basalt aquifer for later recovery via City wells. Currently industrial wastewater cannot be utilized for direct potable reuse; future changes in regulation may open doors for direct potable reuse of industrial wastewater.

The City has begun a study to investigate the feasibility of establishing a new source of supply which may employ aquifer storage and recovery (ASR) as a means to store treated water in the basalt aquifer. ASR may prove a useful tool for Othello due to several factors:

- Surface water from Bureau of Reclamation canals is not available for use during the winter. Treating water from the canals and storing it in the aquifer could allow Othello to treat and store the volume of water most useful to the City's situation.

- If the City pursued treatment and reuse of industrial wastewater the treated effluent would need to spend time in an environmental buffer such as a basalt aquifer before it could be utilized for drinking water.

- If the City utilizes Well 6 as the injection well for ASR it may dilute the fluoride concentration in the vicinity of the well (see **Section 5.3** for options for Well 6). If the City also continues to utilize Well 6 as a recovery well the fluoride concentration may drop below the MCL.

Capacity of a supplemental source will depend on several factors including availability of raw water, construction and operation cost for treatment, and the City's desired ratio of groundwater vs. supplement supply. Assuming availability of raw water is not the limiting factor, treatment could be designed for incremental expansion based on the City's needs over time.

The timing for implementation of a supplemental source of supply depends on many factors such as:

- Availability of raw water from Bureau of Reclamation canals, industrial users, or other sources not yet identified.

- Contaminants in raw water and treatment requirements to make raw water suitable for potable consumption or storage via ASR.

- Permitting with Department of Ecology for ASR reservoir permit and water rights implications

- Availability of funding

- Rate of aquifer decline and effect on Othello's ability to supply system demand

- Viability of Grande Ronde aquifer; if Grand Ronde is viable source of supply it may extend the timeframe Othello chooses to rely on groundwater

The results of Othello's ASR feasibility study will provide the City with some of the information needed to lay out a more specific timeline for implementation as well as likely project costs. A preliminary cost estimate to treat BOR canal water to potable drinking water standards and to implement ASR injection is shown in the table below. The cost estimate assumes the City will treat BOR canal water to drinking water standards and then pump it directly into the City's distribution

system. A new ASR injection well could be constructed to ensure that treated surface water was being used for ASR purposes and would also give the City flexibility to implement industrial treatment and reuse since current State regulations requires that treated industrial wastewater spend time in an environmental buffer (such as an aquifer) before it can be withdrawn and used for drinking water purposes.

Table 5-2 Estimated Cost of 6 MGD Water Treatment Facility and ASR Injection Well

Description	Est. Quant.	Units	Unit Price	Amount
6 MGD water treatment facility [1] [2]	-	LS	-	$18,000,000
Modifications to existing water system [3]	-	LS	-	$2,000,000
ASR well, injection/pump station [4]	-	LS	-	$2,000,000
			Subtotal	$22,000,000
			Sales Tax 7.7%	$1,690,000
			Contingency 15%	$3,300,000
			Construction Subtotal	$26,990,000
Engineering, Geotech, Design, Construction Management, and Inspection (20%)				$5,400,000
			TOTAL PROJECT COST	$32,400,000

(1) *Treatment to potable water standards (includes granular activated media, UV disinfection, and chlorination)*

(2) *Assumes initial water treatment plant project capacity of 6 MGD roughly equivalent to the 20-year No-Industrial-Growth Scenario. This would include an option to roughly double treatment capacity to 12 MGD through implementation of a parallel treatment train; a 12 MGD facility would be roughly equivalent to the 20-year Industrial-Growth Scenario.*

(3) *Includes connection to the City's existing distribution system and modification to existing wells for ASR injection*

(4) *Includes new well for ASR injection and injection/pump station*

5.3 Water Quality

Othello is in compliance with all sampling and contaminant regulations with the exception of fluoride (F) levels in Well 6 which generally exceed the MCL of 4.0 mg/L. The City attempted to modify the well in the past to decrease the fluoride concentration, but had little success.

Due to the fluoride levels exceeding the MCL Othello currently designates Well 6 as a seasonal well and only operates it if all other sources of supply cannot meet system demand. Well 6 is the City's largest producing source at 2,000 gpm. The City sees the following alternatives for future utilization of Well 6:

5.3.1 Alternative 1: Continue to Utilize Well 6 as a Seasonal Source (Do Nothing)

The City can continue to utilize Well 6 on a seasonal basis and rely on blending in the distribution system to dilute the fluoride level. The primary benefit of this alternative is no investment is required. This alternative has the disadvantage of lack of flexibility in when the City can utilize Well 6. It would also make it more likely the customers closest to Well 6 would consume water with fluoride levels that exceed the MCL. DOH may not allow the City to operate the well in the fashion indefinitely.

The City's current Fluoride Blending Plan includes using Well 6 as a 'last on' well, meaning that all other wells in the system will be in production before Well 6 is turned on. When Well 6 is in production, the City concentrates its' Fluoride sampling to areas adjacent to susceptible populations such as schools and assisted living centers. Samples are sent for lab testing once a week from the Well 6 site when Well 6 is in production. See **Appendix D** for a copy of the City's current Fluoride Blending Plan.

5.3.2 Alternative 2: Dedicate Well 6 to Supplying Industrial Users

More than half of the water pumped from Othello's wells goes to industrial users. The largest of these industrial users is Simplot, which utilizes roughly 70% of industrial water supplied by Othello. If a significant portion of Othello's industrial users could utilize water from Well 6 without affecting their industrial processes, then devoting Well 6 to industrial use would effectively reduce the fluoride levels in water supplied for potable use. The following considerations pertain to feasibility of implementing this option:

- DOH and/or USDA may have water quality requirements for the water used in the industrial food processes that would preclude use of water with fluoride concentrations above 4.0 mg/L.

- Water produced from Well 6 has some aesthetic taste and odor issues that may make the water unappealing for some industrial customers.

- Dedicated use of Well 6 would require construction of a dedicated distribution system for industrial supply and would require industrial users to internally separate their potable uses from their industrial uses. This carries with it an increased risk of cross connection between the two systems.

- Well 6 does not currently have a VFD to allow modulation of pumping rate to match demand; however, the City has budgeted for purchase and installation of a VFD for Well 6.

- If the VFD does not provide sufficient range of flow for industrial users, then a dedicated reservoir would also be needed.

- Dedicating a single source to industrial use has potential for reliability issues if the single source breaks down. Installation of a one-way intertie with the City's potable water distribution system could potentially mitigate reliability concerns.

Additional discussions with the City's industrial users are needed to determine whether barriers exist that preclude implementation of this option. The City will investigate this option further and potentially combine discussions with industrial users while investigating the feasibility of industrial wastewater treatment and reuse.

Table 5-3 Estimated Cost to Supply Industrial Users with Well 6 Water

Description	Est. Quant.	Units	Unit Price	Amount
100,000-gallon elevated steel reservoir (95' to top of tank) (1) (2)	-	LS	-	$500,000
One way intertie vault, piping, backflow assembly and valves	-	LS	-	$40,000
Electrical and controls including VFD retrofit for Well 6 (3)	-	LS	-	$0
Distribution main from Well 6 to Simplot (12" PVC) (4)	5,100	LF	122	$622,200
			Subtotal	$1,160,000
			Sales Tax 7.7%	$90,000
			Contingency 15%	$170,000
			Construction Subtotal	$1,420,000
Engineering, Geotech, Design, Construction Management, and Inspection (20%)				$280,000
			TOTAL PROJECT COST	$1,700,000

(1) *Othello's largest industrial user's (Simplot) average annual use for 2013-2015 is 758.3 MG (see **Table 2-7**). Storage volumes based on Simplot ADD = 1,442 gpm, MDD = 2,000 gpm, PHD = 2,500 gpm*

(2) *Storage volumes include OS (25,000 gal) and ES (75,000). FS and SS provided by the City at intertie.*

(3) *A VFD at Well 6 is currently budgeted by the City and will be installed separately*

(4) *Distribution main from Well 6 to Simplot cost for 12-inch PVC main with asphalt repair (see **Table 5-10**)*

5.3.3 Alternative 3: Fluoride Treatment System for Well 6

A treatment system could remove fluoride from the water produced by Well 6. The following types of treatment methods could likely remove fluoride from Well 6 raw water to levels below the MCL:

- Granular Activated Alumina
- Reverse Osmosis (RO)
- Electrodialysis and Electrodialysis Reversal
- Bone Char

Additional investigation of the raw water properties and constituents is needed to determine which of the preceding treatment methods would make the most sense for Well 6 if implemented. A treatment system would require additional operator expertise and certification and would also have ongoing chemical and membrane/media expenses (depending on the treatment method).

The table below provides a cost estimate for the treatment alternative.

Table 5-4 Estimated Cost to Treat Well 6

Description	Est. Quant.	Units	Unit Price	Amount
Equipment and media (1) (2)	-	LS	-	$450,000
			Subtotal	$450,000
			Sales Tax 7.7%	$30,000
			Contingency 15%	$70,000
			Construction Subtotal	$550,000
Engineering, Design, Construction Management, and Inspection (20%)				$110,000
			TOTAL PROJECT COST	$700,000

(1) *Equipment sized to treat Well 6 (Q = 2,000 gpm) to below the MCL*

(2) *Annual chemical costs are estimated at $6,000, replacement media costs are estimated at approximately $120,000 per 5-7 years*

5.3.4 Alternative 4: Blend Well 6 with other City Well(s)

Well 6 has the highest fluoride concentration of all Othello's wells. Most City wells have average fluoride concentrations around 2.0 mg/l; although some of the wells have occasional spikes up to 3.0 mg/l. Several factors affect the feasibility of blending Well 6 with another City well:

- Capacity: Well 6 is Othello's largest producing source with a current pumping rate of approximately 2,000 gpm. To reliably achieve a blended water fluoride concentration below the MCL the City may need to reduce the pumping rate of Well 6 to allow sufficient dilution of fluoride.

- Proximity of other wells to Well 6:

    - A dedicated main with no service connections is required to blend Well 6 with another well. The well closest to Well 6 is Well 2 which is approximately half a mile away. However, Well 2 has limited reliability; City Staff reports the well runs out of water after roughly 15 minutes of operation. The City has designated Well 2 "Emergency Only".

    - Due to Well 2's lack of capacity (historic pumping rate of approximately 300 gpm) compared to Well 6 and Well 2's lack of reliability for extended pumping, blending Well 6 with Well 2 appears unfeasible.

    - Most City wells (other than Well 2) are 1-2 miles away from Well 6

- Reliability: in order to maintain blended fluoride concentration below the MCL operation of Well 6 becomes contingent upon the operability of the well(s) blended with it. If the blending well becomes inoperable due to mechanical failure, interference issues, capacity decline, or other issues then the City cannot operate Well 6 without supplying the system undiluted water with fluoride concentration likely exceeding the MCL.

- Monitoring: fluoride concentrations in City wells vary throughout the year so DOH would likely require routine monitoring (possibly daily) to demonstrate blended fluoride concentration meets regulatory requirements. The frequency and corresponding expense associated with monitoring blended water quality may affect the feasibility of this Option.

The cost associated with blending Well 6 with other City wells would be considerable due to the high capacity of Well 6 and its proximity to other wells. Blending also has the disadvantage of reduced reliability because Well 6 becomes dependent on the operation of other wells to achieve the desired blended fluoride concentration below the MCL.

5.3.5 Alternative 5: Use Well 6 as an ASR Injection Well

Othello has begun investigating the feasibility of developing a supplemental source of supply to augment its groundwater sources. The supplemental supply would likely include treatment of surface water and may utilize ASR. If the City utilizes Well 6 as the injection well for ASR it may dilute the fluoride concentration in the vicinity of the well. If the City also continues to utilize Well 6 as a recovery well the fluoride concentration may drop below the MCL.

Well 6 is located near the western edge of Othello's system. Initial observations by the City's hydrogeology consultant indicate a well more centrally located betwixt Othello's other wells would be more ideal from an ASR standpoint. However, further analysis is needed to assess the options, combinations, advantages, and disadvantages associated with selecting the injection well(s) for an ASR system.

Utilizing Well 6 for ASR may have operational complexities that affect the well's availability for meeting system demand (e.g. when utilizing Well 6 as an injection well it cannot provide supply to the system). Some of the restrictions on availability could likely be overcome through operational coordination with the City's other wells and the new supplemental source (surface water or industrial, see **Section 5.2**). Presumably the City would not inject water during periods of high demand when the City might need Well 6 to meet peak demands.

5.3.6 Summary of Well 6 Fluoride Alternatives

The following table summarizes advantages and disadvantages associated with the alternatives for addressing fluoride in Well 6:

Table 5-5 Initial Screening of Well 6 Alternatives

Option	Advantages	Disadvantages	Further Consideration?
Do Nothing	• Low cost	• Well 6 remains seasonal source • Customers closest to Well 6 likely exposed to higher levels of fluoride when Well 6 operates	Yes
Dedicate Well 6 to Industrial Users	• Potentially puts capacity of Well 6 to use for existing industrial customers • Would likely reduce fluoride levels consumed by non-industrial customers	• Acceptability to regulators unknown • Would require dedicated distribution system and potentially storage facilities (significant cost to implement)	Yes
Treatment System to Remove Fluoride	• Reliable way to reduce fluoride from water produced by Well 6	• Likely significant first cost • Increased operational complexity • Ongoing chemical/media/membrane maintenance	Yes
Blend with other City Well(s)	• Could achieve blended fluoride levels that meet the MCL.	• Significant first cost associated with mains dedicated to blending • May require blending with multiple sources or reducing pumping rate of Well 6 • Reduces system reliability due to required functionality of blending wells to operate Well 6 • Increased monitoring to demonstrate blended water quality meets regulatory requirements	No
Use Well 6 as ASR Injection Well	• May reduce concentration of fluoride in Well 6 to below MCL. • Would not require reducing the pumping rate of Well 6 • If ASR implemented, may slow the decline of the Wanapum aquifer • Supplemental source of supply would reduce the City's reliance on existing sole source aquifer	• Requires construction of supplemental source of supply (high first cost and ongoing operation and maintenance cost) • Non-central location of Well 6 in relation to Othello's other wells may not be ideal from an ASR standpoint • Greater operational complexity	Yes

As shown in the preceding table, each option has advantages and disadvantages. Additional investigation and cost estimates are needed to determine which option best serves the City's long-term interests. The results of the City's ASR feasibility study will affect the City's decision as will input from DOH on potentially devoting Well 6 to industrial use.

5.3.7 Selection of Alternative

The City chooses the Do Nothing option until more information is available on ASR feasibility and potential limits using Well 6 water for industrial processes.

5.4 Water Rights

Othello has adequate instantaneous water rights (Qi) and annual water rights (Qa) to meet current and projected 20-year needs during No-Industrial-Growth scenarios. Existing wells utilize 6,355 gpm of Othello's available 9,550 gpm instantaneous withdrawal rate. This leaves 3,195 gpm of instantaneous withdrawal rights still available to Othello. The City has acknowledged the need for additional supply sources (see **Section 4.2.3**) and plan on utilizing remaining Qi during the 20-year planning period.

Water demand projections discussed in **Section 4.3** indicate Othello's annual water use will exceed its Qa if another industrial user equivalent in size to Simplot connects to the City's system. The City would exceed its Qi during the 20-year Industrial-Growth scenario. Therefore, the City will need a plan to address its Qa and Qi shortfalls in the event that new large industrial users wish to connect to the City's system.

5.4.1 Alternative 1: Apply to Ecology for Additional Water Rights

The City submitted an Application for a Permit to Appropriate Public Waters of the State of Washington for groundwater in 1994. At present Ecology is not issuing certificates located within the Chapter 508-14 WAC subarea for commingled natural and artificially stored groundwater beneath the Columbia Basin Project. Per Ecology there is no clear path to issuing permits in the subarea until natural and artificially stored groundwater volumes are quantified and ownership of artificially stored waters are determined. The probability of a timely, successful application for additional water rights appears low.

5.4.2 Alternative 2: Purchase or Lease Additional Water Rights from Third Party

Ecology allows the sale and transfer of water rights provided certain criteria are met. Any transfer or change of water right must pass the following tests:

The change cannot:

- Impair any existing rights
- Increase the quantity of water to be used, either instantaneously or annually
- Change the body of water from which water is drawn, either surface or ground
- Be detrimental to the public welfare

It appears that Othello likely meets the criteria for purchasing, trading, or leasing additional water rights from neighboring water systems if it could find neighboring water systems with excess water rights willing to sell or lease them. Buying additional water rights from a neighbor would involve financial negotiations and a regulatory review by Ecology. The process of transfer or change of water rights generally proceeds much faster than applications for new water rights. The cost of such an endeavor depends on numerous factors. In the past water rights sales have been in the range of $1,500-$2,500 per ac-ft and lease prices have been in the range of $50-$100 per ac-ft per year. Many leases are an annual agreement so the cost becomes an annual expense.

According to the projections developed herein, Othello's annual shortfall at the end of the 6-year planning period may reach approximately 780 ac-ft and Othello's annual shortfall at the end of the 20-year planning period may reach approximately 6,320 ac-ft depending on whether new industries wish to connect to the City's system. Purchasing this quantity of water rights at $1,500-$2,500 per ac-ft could cost in the range of $9,480,000 - $15,800,000. Leasing the same quantity on an annual basis could cost in the range of $316,000 - $632,000.

5.4.3 Alternative 3: Decrease Use to Stay within Current Water Rights

The City is currently in the process of constructing an irrigation utility to serve future developments within the City. The new irrigation utility will supply future developments with water from BOR canals. Implementation of the new utility will likely decrease the City's equivalent residential unit consumption rates for the 6-year and 20-year planning periods. Projected demands developed in **Section 2** already reflect the City's reduced consumption due to implementing the new irrigation utility. Therefore, while the City has been taking measures to decrease the burden placed on its wells it is not likely that these measures alone will be capable of eliminating the City's projected water rights deficit in the projected Industrial-Growth scenarios. Even with the proposed irrigation utility the City is projected to have a Qa shortfall of 780 ac-ft during the 6-year Industrial-Growth scenario.

5.4.4 Alternative 4: Develop Supplemental Source of Supply

Section 5.2.2 discusses the City's needs for developing a supplemental source of supply to mitigate the effects of drawdown and pumping rates in the existing City wells. BOR canal waters have an allotted amount designated for municipal and industrial uses. Long-term leases may be available for the City so that BOR canal water can be utilized for municipal and industrial uses. If Othello secures leases for BOR canal water as a new source of supply, it will supplement the City's existing groundwater rights (Qa & Qi).

5.4.5 Selected Solution to Potential Water Rights Shortage

Based on the available alternatives Othello selects a multistage approach to addressing the potential Qa and Qi water rights deficit:

1. Monitor status of additional water rights: Othello applied for an additional water right in 1994. Whether Ecology will process that water right application is questionable. Should Ecology process and approve the water right application, that would provide Othello with additional water rights.

2. Supplement new development with an irrigation utility: Othello has passed an ordinance stating that all new development within the City is required to supply irrigation water via a City owned irrigation utility. The City expects average water consumption per ERU to decrease over time due to the new irrigation utility.

3. Purchase additional water rights from neighbors: Othello is actively seeking purchase of water rights if water rights are available for purchase. This step may not be necessary if the City develops a supplemental source of supply. In addition, the City is pursuing options for supplementing municipal and industrial well water with BOR surface water or industrial wastewater (See **Section 5.2.2**).

5.5 Storage

Analysis of City storage needs in **Section 4** indicates the City's current storage has inadequate capacity to meet DOH's minimum criteria for standby storage. The City has identified two storage alternatives to meet the City's future storage needs. The following sections contain discussions and cost analysis for each storage alternative.

5.5.1 Alternative 1: Build New 2.5 MG Reservoir

Maintaining the City's existing hydraulic grade line (1,169') limits the City's choices for reservoir type to elevated steel and standpipe tanks. The City's three existing tanks are standpipe construction. It is assumed that a new tank would also be a standpipe. Constructing a new 2.5 MG standpipe reservoir would allow the City to meet its Current and 6-year No-Industrial-Growth volume needs identified in **Section 4**. However, addressing projected standby storage deficiencies via conventional gravity storage becomes unfeasible particularly in the event new large industrial users come to Othello. Hence, the City plans to address those deficiencies as described in Alternative 2.

The City has received funding from the Department of Commerce via a Community Economic Revitalization Board (CERB) grant to perform preliminary engineering and environmental investigations for Alternative 1 and the City hopes to construct the new reservoir during the 2018 or 2019 construction season.

The City is considering two possible sites for a new 2.5 MG reservoir (see **Figure 4**). Site A is located at the City's Well 9 site east of town and Site B is located at the intersection of 7th Ave and Lee St.

Site A is currently owned by Othello as it is adjacent to the City's existing Well 9 and a likely site for the City's future Well 10. If Well 10 is located adjacent to Well 9, Well 10 will need to tap the Grande Rhonde aquifer; otherwise if both wells tapped the Wanapum aquifer the wells would severely interfere with each other. The water quality of the Grande Rhonde aquifer is unknown. If water produced from a Grande Rhonde well contains contaminants that can be removed via air stripping it may be advantageous to have a reservoir adjacent to the well. Mixing and aerating equipment could be installed in a reservoir to air-strip volatile contaminants. It is also possible the City may want to blend water produced from a new Grande Rhonde well with water produced from Well 9. Locating the proposed reservoir adjacent to the existing Well 9 and likely future Well 10 site would allow the City to blend well water directly to the reservoir. Blending could also be achieved by methods other than mixing in a reservoir.

The City does not yet own property at the Site B location. Locating a new reservoir at Site B would provide a significant hydraulic benefit to the industrial area along Broadway Ave and Lee St. **Table 5-6** assumes that if the City locates a new reservoir at Site B.

Donation of Site B as a new reservoir location will be a prerequisite to development of the adjacent properties by future land developers. Property to the SE of Lee St and 7th Ave has been proposed as a new public school and as such is the most probable location for the new 2.5 MG reservoir if Site B is chosen.

Table 5-6 Estimated Cost of New 2.5 MG Standpipe Reservoir at Site A or Site B

Description	Est. Quantity	Units	Unit Price	Amount
Valve vault and site piping	1	LS	$200,000	$200,000
Reservoir foundation	1	LS	$300,000	$300,000
2.5 MG welded steel standpipe reservoir (90' tall)	1	LS	$900,000	$900,000
Coating for steel tank	1	LS	$180,000	$180,000
Site work	1	LS	$239,000	$239,000
Miscellaneous	1	LS	$102,450	$102,450
			Subtotal	$1,920,000
			Sales Tax 7.7%	$150,000
			Contingency 15%	$290,000
			Construction Subtotal	$2,360,000
			Engineering, Geotech , Design, Construction Management, and Inspection (18%)	$350,000
			Property Acquisition (assume Well 9 site)	$0
			TOTAL PROJECT COST	$2,700,000

5.5.2 Alternative 2: Add Standby Power to City Wells

Utilizing DOH's "Alternate Design Concept" as described in **Section 3** allows systems to reduce or sometimes eliminate required standby storage. By equipping existing and future wells with automatic backup power generation, the City can meet its Current, 6-year No-Industrial-Growth, 6-year Industrial-Growth, and 20-year No-Industrial-Growth storage volume needs identified in **Section 4**.

These generators can be self-contained weather proof units that do not require a building. Installation will require some modifications to the existing electrical system of the wells and the addition of an automatic transfer switch. These new gen sets should also be tied in to the City's SCADA system. For cost estimating purposes each well is assumed to be already equipped with a VFD (because having a VFD affects required size of the generator).

Table 5-7 Estimated Cost of Standby Power

Description [1]	Est. Quan.	Units	Unit Price [2]	Amount
Well #2 Generator	1	LS	$67,000	$67,000
Well #3 Generator	1	LS	$118,000	$118,000
Well #4 Generator	1	LS	$84,000	$84,000
Well #5 Generator	1	LS	$147,000	$147,000
Well #6 Generator [3]	1	LS	$227,000	$227,000
Well #7 Generator	1	LS	$227,000	$227,000
Well #8 Generator	1	LS	$100,000	$100,000
Well #9 Generator	1	LS	$100,000	$100,000
			Subtotal	$1,070,000
			Sales Tax 7.7%	$80,000
			Contingency 15%	$160,000
			Construction Subtotal	$1,310,000
			Prelim. Eng, Design, Construction Mgmt, and inspection (15%)	$200,000
			TOTAL PROJECT COST	$1,500,000

(1) *All generator costs include weather proof sound enclosure, 48 hr fuel tank, and automatic transfer switch*

(2) *Unit price includes 26.5% installation cost based on RS Means*

(3) *Assumes existing 2400v pump motor is replaced with a 480v pump motor*

5.5.3 Summary of Storage Alternatives

Table 5-8 Storage Alternative Summary

Facilities	Description	Current (gal)	Projected 6-yr		Projected 20-yr	
			No-Industrial-Growth (gal)	Industrial-Growth (gal)	No-Industrial-Growth (gal)	Industrial-Growth (gal)
Existing [1]	Total Required Storage	6,182,037	6,381,095	7,898,525	7,551,569	12,974,480
	Existing Storage [2]	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
	Excess (Deficiency) Storage	(182,037)	(381,095)	(1,898,525)	(1,551,569)	(6,974,480)
Add 2.5 MG Reservoir	Total Required Storage [3]	7,682,037	7,881,095	9,398,525	9,051,569	14,474,480
	Future Storage [4]	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000
	Excess (Deficiency) Storage	817,963	618,905	(898,525)	(551,569)	(5,974,480)
Add Standby Power [5]	Total Required Storage [6]	5,593,437	5,402,270	5,880,930	5,402,270	6,867,963
	Future Storage [2]	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
	Excess (Deficiency) Storage	406,563	597,730	119,070	597,730	(867,963)
Add 2.5 MG Reservoir and Standby Power	Total Required Storage [6]	7,093,437	6,902,270	7,380,930	6,902,270	8,367,963
	Future Storage [4]	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000
	Excess (Deficiency) Storage	1,406,563	1,597,730	1,119,070	1,597,730	132,037

(1) *Existing storage from **Table 4-10**. Assumes Well 7 is rehabilitated and Well 10 is constructed during the 6-yr planning horizon and Well 11 is constructed during the 20-yr planning horizon.*

(2) *Existing storage provided from 1 MG, 2 MG and 3 MG standpipe reservoirs*

(3) *Assumes that Othello continues to utilize the four feet below the overflow elevation as operational storage.*

(4) *Future storage provided from 1 MG, 2 MG, 3 MG, and 2.5 MG standpipe reservoirs*

(5) *Assumes that all existing and future wells are equipped with on-site standby power*

(6) *This total includes Fire Suppression Storage and eliminates Standby storage volumes in accordance with the Alternate Design Concept. Assumes basic fire flow of 6,250 gpm for 4 hours remains the same for the 20-year planning period.*

The City can address its' Current and 6-year No-Industrial-Growth standby storage volume deficiencies by building a new standpipe reservoir. The City can address its Current, 6-year No-Industrial-Growth, 6-year Industrial-Growth, and 20-year No-Industrial-Growth storage volume deficiencies by adding standby power on wells with capacity equal to future ADD. In order to meet

storage requirements for the 20-year Industrial-Growth scenario the City must build a new reservoir and add standby power.

Table 5-9 Initial Screening of Storage Alternatives

Option	Advantages	Disadvantages	Further Consideration?
Do Nothing	• Low cost	• Current storage capacity does not meet DOH criteria	No
Build 2.5 MG Reservoir	• Future storage capacity meets 6-yr No-Industrial-Growth deficiencies • City owned property available for construction (Well 9 site) • Increases fire flow throughout the system due to increased HGL	• Does not meet storage deficiencies for 6-yr Industrial-Growth scenarios • Cost	Yes
Add Standby Power to City Wells	• Future storage capacity meets 6-yr No-Industrial-Growth, 6-yr Industrial-Growth and 20-yr No-Industrial-Growth deficiencies • City owns property to house generators at each well site • Lower cost than reservoir alternative	• Standby power required for future supply wells • Cost • Maintenance	Yes
Build 2.5 MG Reservoir and Add Standby Power to City Wells	• Future storage capacity meets 6-yr No-Industrial-Growth, 6-yr Industrial-Growth, 20-yr No-Industrial-Growth, and 20-yr Industrial-Growth deficiencies • City owned property available for construction of reservoir and standby power • Increases fire flow throughout the system due to increased HGL	• Standby power required for future supply wells • Cost • Maintenance	Yes

Building a new 2.5 MG reservoir satisfies the City's existing standby storage deficiency and allows for minimum standby storage volumes to return to the DOH minimum criteria of 200 gal/ERU. A new reservoir will also meet the City's 6-year No-Industrial-Growth source criteria and increases service pressures during fire flow and PHD scenarios. Adding standby power to City wells offers the most cost effective way to meet 6-year Industrial-Growth and 20-year No-Industrial-Growth source criteria in the near term. Othello plans to implement both a new standpipe reservoir and backup generators to ensure storage criteria are met and that service pressures are maintained during fire flow scenarios.

5.5.4 Condition of Existing Reservoir

It appears that the City's reservoirs are in adequate condition. The City has a service contract with Utility Services Group to maintain its reservoirs which include yearly inspections and recoating on the three reservoirs. The 2 MG reservoir is scheduled for recoating in 2019. The cost of recoating is included in the City's maintenance contract with Utility Services Group.

5.6 Distribution System

5.6.1 Estimated Unit Costs of Distribution System Improvements

The table following lists the estimated cost of construction for water mains with and without the cost of asphalt replacement. The table does not include tax, contingencies, and engineering; subsequent tables for specific improvement projects include these items.

Table 5-10 Estimated Distribution System Unit Costs

Diameter (in)	Cost per LF ($)						
	Main and Install [1]	Valves, Fittings, Restraints [2]	Fire Hydrants [3]	Service Connections [4]	Asphalt Replacement [5]	Total for Construction	
						without asphalt	with asphalt
8	30	12	9	36	27	87	114
10	33	13	9	36	27	91	118
12	36	14	9	36	27	95	122
14	40	16	9	36	27	101	128
16	45	18	9	36	27	108	135

(1) *Based on recent bid tabulations and pipe material costs – assumes PVC C900/905 mains*

(2) *Assume 45% of cost of main to install*

(3) *Assume one hydrant every 500 ft*

(4) *Assume one service every 50 ft*

(5) *Assume 9' wide restoration*

The distribution system unit costs contained in the preceding table provide the basis for planning level cost estimates for distribution system improvements planned herein.

5.6.2 Main Replacements

The City has approximately 7,000 LF of aging steel mains which the system operator indicates are in urgent need of replacement. The residential areas south of Main St contain approximately 6,000 LF of the reported 7,000 LF of steel mains. The operator also indicates that there are several lengths of AC mains which need replacement as well. As the steel mains continue to age, they will begin to leak and break. Replacing the mains recommended by the system operator is estimated to cost approximately $1,900,000 (see **Table 5-14**). These mains will be replaced as they become problematic.

5.6.3 Addressing Future Fire Flow Distribution System Deficiencies

The hydraulic analysis of water system facilities identified several deficiencies with the City's distribution system relating to meeting fire flow criteria during MDD. Per **Section 4.6.1.5** fire flow deficiencies occurring during No-Industrial-Growth scenarios may be met at the City schools, commercial zones and fuel depot by constructing the supply improvements described in **Section 5.2**. The City is also able to further increase fire flow by adding a new reservoir per **Section 5.5**.

The No-Industrial-Growth scenarios assume that Simplot and McCain's water consumption remains constant throughout the planning period whereas Industrial-Growth scenarios assume that any new industrial users which connect to the City will have demand equivalent to that of Simplot.

5.6.3.1 Fire Flow Alternatives Analysis for No-Industrial-Growth Scenario

The following table outlines the main replacements/additions necessary to improve fire flows to Simplot and McCain. The process of replacing aging steel and AC water mains elsewhere in the system may further serve to improve fire flows beyond what is shown in the table following.

Table 5-11 Distribution System Improvements to Increase Industrial Fire Flow

Location	Improvement	Purpose
Fir St from 1 MG and 3 MG standpipe reservoir to 14th Ave	Replace 12" AC main with 16" PVC or DI	Increase industrial fire flow between reservoirs and industries
Broadway Ave between Olympia St and Lee St	Replace 10" PVC main with 16" PVC or DI	Increase industrial fire flow between reservoirs and industries
Grid north of Olympia St between 1st Ave and 14th Ave (1)	Install 12" PVC and 16" PVC or DI mains	Increase industrial fire flow by creating smaller loop within system

(1) *Grid includes a 16" main along 7th Ave between Olympia St and Lee St and a 12" main between 14th Ave and the McCain fire main (refer to* ***Figure 4****).*

The table below summarizes fire flow capacity at Simplot and McCain during each fire flow alternative during No-Industrial-Growth scenarios.

Table 5-12 Fire Flow Analysis at Industrial Area (McCain / Simplot) (1) (2)

Alternative	Flow Rate Criteria (gpm)	Estimated Flow Rate at McCain/Simplot For No-Industrial-Growth Scenarios		
		Current (gpm)	6-year (gpm)	20-year (gpm)
Without improvements	6,250	1,500 / 2,000	1,300 / 1,800	500 / 800
With supply improvements (3)	6,250	1,500 / 2,000	2,200 / 2,900	2,300 / 3,100
With new 2.5 MG reservoir: Site A (4)	6,250	2,700 / 3,600	2,800 / 3,700	2,500 / 3,200
With new 2.5 MG reservoir: Site B (5)	6,250	7,800 / 4,600	9,300 / 4,800	9,100 / 4,700
With increased distribution system capacity (6)	6,250	2,900 / 3,000	2,900 / 3,000	1,600 / 1,700
With new Site A reservoir and distribution improvements (4) (6)	6,250	4,800 / 5,100	5,400 / 5,100	4,500 / 4,700
With new Site B reservoir and distribution improvements (5) (6)	6,250	8,700 / 7,500	10,500 / 8,400	10,300 / 8,300
With new Site A reservoir and supply improvements (3) (4)	6,250	2,700 / 3,600	3,300 / 4,300	3,400 / 4,400
With new Site B reservoir and supply improvements (3) (5)	6,250	7,800 / 4,600	9,100 / 5,000	9,800 / 5,100
With new Site A reservoir, supply improvements and increased distribution system capacity (3) (4) (6)	6,250	4,800 / 5,100	5,800 / 6,100	6,200 / 6,500
With new Site B reservoir, supply improvements and increased distribution system capacity (3) (5) (6)	6,250	8,600 / 7,400	11,000 / 8,700	11,100 / 8,800

(1) *Based on 2016 WSP hydraulic analysis results with largest source (Well 6) offline*

(2) *Assumes that fire flow is withdrawn at a single node*

(3) *6-year scenarios assume proposed Well 10 (1,500 gpm) and rehabbed Well 7 (930 gpm) are online and running. 20-year scenarios assume proposed Well 10 (1,500 gpm), rehabbed Well 7 (930 gpm), and proposed Well 11 (1,395 gpm) are online and running.*

(4) *Site A reservoir located at Well 9 site*

(5) *Site B reservoir located at 7th Ave and Lee St*

(6) *Distribution system improvements are shown on* ***Figure 4.*** *Additional description of improvements shown in* ***Table 5-11****.*

Fire flow availability at the City's two largest industrial users (McCain and Simplot) during the No-Industrial-Growth scenario is largely influenced by which site the City chooses to locate the proposed 2.5 MG reservoir.

If Site A is chosen for the new reservoir, then the City will need to construct the supply improvements as described in **Section 5.2** and incorporate the distribution system improvements provided in

Table 5-11. Under this scenario the City won't meet fire flow criteria until the 20-year planning period. In order for the City to meet its fire flow criteria in the 6-year timeframe additional distribution system improvements or a booster station would need to be constructed.

If Site B is chosen for the new reservoir, the only improvement required to meet 6-year and 20-year fire flow requirements is to incorporate the distribution system improvements provided in **Table 5-11**.

5.6.3.2 Fire Flow Alternatives Analysis for Industrial-Growth Scenario

The cumulative effects of the fire flow alternatives described in the section above may not satisfy future fire flow criteria in the event that new industrial users locate within the system. A booster station located at the 3 MG reservoir could be used to maintain system HGL within the remaining reservoirs by utilizing the reservoir's dead storage. A new booster station would be sized such that pumping capacity would be equal to industrial fire flow criteria. A new booster station would add operational complexity to the system and will require a higher level of sophistication to operate.

The table following summarizes fire flow capacity at McCain, Simplot and along Lee St for each fire flow alternative during Industrial-Growth scenarios. New industrial user demands are assumed per **Section 2.2** and are located north of town along Lee St.

Table 5-13 Fire Flow Analysis at Industrial Area for Existing and Future Industrial Users [1] [2]

Alternative	Flow Rate Criteria (gpm)	Estimated Flow Rate For Industrial-Growth Scenarios		HGL For Industrial-Growth Scenarios	
		6-year (gpm) [3]	20-year (gpm) [4]	6-year (ft)	20-year (ft)
Without improvements	6,250	0 [5]	0 [6]	1,166	1,145
With booster station and supply improvements [7] [8]	6,250	3,000 - 5,500	0 [5]	1,209	1,201
With Site B reservoir and supply improvements [8] [10]	6,250	4,600 - 8,700	4,100 - 7,700	1,182	1,171
With Site B reservoir and distribution system improvements [10] [11]	6,250	6,200 - 9,700	0 [5]	1,179	1,165
With Site B reservoir, distribution system improvements, and supply improvements [8] [10] [11]	6,250	6,400 - 10,100	5,700 - 8,700	1,182	1,171
With booster station and Site A reservoir [7] [9]	6,250	2,800 - 5,100	0 [5]	1,209	1,193
With booster station, Site A reservoir and supply improvements [7] [8] [9]	6,250	2,800 - 5,200	0 [5]	1,209	1,205
With booster station, Site A reservoir and distribution system improvements [7] [9] [11]	6,250	6,100 - 7,100	0 - 100	1,209	1,193
With booster station, Site A reservoir, supply improvements, and distribution system improvements [7] [8] [9] [11]	6,250	6,300 - 6,400	2,300 - 3,100	1,209	1,205
With booster station and Site B reservoir [7] [10]	6,250	6,000 - 11,800	5,200 - 10,200	1,209	1,193
With booster station, Site B reservoir and supply improvements [7] [8] [10]	6,250	6,000 - 11,800	5,900 - 11,800	1,209	1,205
With booster station, Site B reservoir and distribution system improvements [7] [10] [11]	6,250	8,000 - 13,400	7,100 - 11,600	1,209	1,193
With booster station, Site B reservoir, supply improvements, and distribution system improvements [7] [8] [10] [11]	6,250	7,800 - 13,000	7,900 - 13,100	1,209	1,205

(1) *Based on 2016 WSP hydraulic analysis results with largest source (Well 6) offline.*

(2) *Assumes that fire flow is withdrawn at a single node and new industries withdraw from a single node*

(3) *6-year Industrial-Growth scenarios assume one new industrial users within the system*

(4) *20-year Industrial-Growth scenarios assume three new industrial users within the system*

(5) *HGL results in residual pressure in system less than 20 psi*

(6) *HGL results in system-wide pressure less than 20 psi*

(7) *Booster station pumps from the 3MG reservoir located at Lions Park*

(8) *6-year growth scenarios assume proposed Well 10 (1,500 gpm) and rehabbed Well 7 (930 gpm) are online and running. 20-year growth scenarios assume proposed Well 10 (1,500 gpm), rehabbed Well 7 (930 gpm), and proposed Well 11 (1,395 gpm) are online and running.*

(9) *Site A reservoir located at Well 9 site*

(10) *Site B reservoir located at 7th Ave and Lee St*

(11) *Distribution system improvements are shown on* ***Figure 4***

Fire flow availability in the industrial area near the City's two largest industrial users (McCain and Simplot) during the Industrial-Growth scenario is largely influenced by which site the City chooses to locate the proposed 2.5 MG reservoir.

If Site A is chosen for the new reservoir, then the City will need to construct a booster pump at the 3 MG reservoir, the supply improvements as described in **Section 5.2**, and incorporate the distribution system improvements provided in **Table 5-11** in order to meet its fire flow criteria for the industrial area. Under this scenario of improvements the City will meet fire flow during the 6-year Industrial-Growth planning period; however, if more industries locate in the City during the 20-year planning period the fire flow availability in this area will become deficient again.

If Site B is chosen for the new reservoir, then the City will need to construct a booster pump at the 3 MG reservoir and incorporate the distribution system improvements provided in **Table 5-11** in order to meet fire flow criteria in the industrial area. Under this scenario the City will be able to meet fire flow requirements during the 6-year Industrial-Growth and 20-year Industrial-Growth planning periods.

5.6.4 Mains Related to Future Development

Section 2 discusses potential future growth areas within the Othello Growth Area. The section forecasts growth in areas that the water system does not currently serve (see **Figure 2**). Main sizes shown on **Figure 4** are determined by the hydraulic model and the minimum main sizing criteria defined in **Section 3.5.2** and the transmission grid shown on **Figure 2B**. The distribution system infill between the transmission grid will be sized on a case-by-case basis with consideration of fire flow, service pressure, land use, zoning, and expected growth in that area. Main sizing will be reviewed by the City's engineer. The 6-year, 20-year and Beyond 20-year proposed main extensions and sizes are shown on **Figure 4**.

The current system is capable of serving customers up to an elevation of approximately 1,135' after which the service pressure will drop below 30-psi. Should future development be desired in areas above this elevation, the issue of reduced service pressure will be addressed in one of two ways: the City will require in-line booster pumps for individual services or a new pressure zone will be created by a booster station. Individual booster pumps will be under management and control of the City and will only be used as an interim measure pursuant to WAC 246-290-230(8). There are currently no proposed service areas within the Othello Growth Area above 1,135'.

5.6.5 Summary of Main Replacements and Extensions

Table 5-14 Estimated Cost of Main Replacements and Extensions

Description	Planning Horizon.	Est. Quan.	Units	Unit Price	Amount
Alley South of Hemlock St between 7th Ave and 10th Ave (1)	6-year	1,160	LF	$87	$101,000
Larch St between 10th and 14th Ave (1)	6-year	1,500	LF	$114	$171,000
Spruce St between 10th and 14th Ave (1)	6-year	1,500	LF	$114	$171,000
Juniper St between 10th and 14th Ave (1)	6-year	1,500	LF	$114	$171,000
13th Ave between Larch St and Spruce St (1)	6-year	330	LF	$114	$38,000
Ash St between 9th Ave and 10th Ave (1)	6-year	350	LF	$114	$40,000
4th Ave between Elm St and Scooteny St (1)	6-year	1,720	LF	$114	$196,000
Alley North of Pine St between 2nd Ave and 4th Ave and ½ block South on 2nd St (1)	6-year	900	LF	$87	$78,000
Fir St from 1 MG and 3 MG standpipe reservoir to 14th Ave (2)	20-year	200	LF	$135	$27,000
Broadway Ave between Olympia St and Lee St (2)	20-year	1,200	LF	$135	$162,000
Grid north of Olympia St (2) (3)	6-year	7,400	LF	(5)	$937,900
Main extension along Moon St and SR-26 (4)	6-year	7,900	LF	(6)	$1,190,000
Main extensions S of SR-26 and E of 14th Ave (4)	6-year	16,200	LF	(7)	$1,595,000
20-yr main extensions (4)	20-year	12,900	LF	(7)	$1,427,000
Beyond 20-yr main extensions (4)	Beyond 20-yr	76,300	LF	(8)	$8,777,000
				Subtotal	$15,080,000
				Sales Tax 7.7%	$1,160,000
				Contingency 15%	$2,260,000
				Construction Subtotal	$18,500,000
				Prelim. Eng, Design, Construction Mgmt, and inspection (15%)	$2,780,000
				DISTRIBUTION SYSTEM TOTAL	$21,300,000

(1) *Main replacements recommended by the system operator*

(2) *Distribution system improvements required to increase industrial fire flow (see **Table 5-11**)*

(3) *Grid includes a 16" main along 7th Ave between Olympia St and Lee St and a 12" main between 14th Ave and the McCain fire main (see **Figure 4**).*

(4) *Main extensions related to future development. Mains were sized using the following hydraulic boundary conditions; 6-yr and 20-yr No-Industrial-Growth scenario demands, Well 10 constructed during 6-yr planning horizon, Well 7 rehabilitated during 6-yr planning horizon, and Well 11 constructed during 20-yr planning horizon*

(5) *Unit price includes 12" PVC main with asphalt and 16" PVC main with asphalt (see **Table 5-10**)*

(6) *Unit price includes 8" PVC main without asphalt and 12" PVC main with asphalt (see **Table 5-10**)*

(7) *Unit price includes 8" PVC main without asphalt and 12" PVC main with asphalt (see **Table 5-10**)*

(8) *Unit price includes 12" PVC main without asphalt and 12" PVC main with asphalt (see **Table 5-10**)*

5.6.6 Improvements to Fire Hydrant Coverage

When old water mains are replaced or new water mains are installed, the criteria for fire hydrant spacing will be dictated by the City's Public Works Design Standards and the Fire District.

Section 6 summarizes the system improvements presented in this section, including the purpose, priority, and implementation time frame of each. The specific steps and issues related to implementing the improvements are also included in **Section 6**, as is a Capital Improvements Plan (CIP) and potential financing sources. Financing for Improvements is discussed in **Section 7**.

6.0 IMPLEMENTATION

This section summarizes planned improvements and prioritization, describes financing alternatives, and presents this information in the form of a Capital Improvements Plan (CIP).

6.1 Improvement Implementation

The proceeding system analysis and improvements sections of this Plan identify numerous additions, replacements, and changes to Othello's water system. Several of the improvements discussed in these sections are contingent on whether new industrial users wish to locate in Othello and connect to the City's water system. The City does not currently have sufficient financial resources to implement all identified improvements immediately. The City will need to acquire funding for projects from a variety of available sources; refer to CIP and financial section for possible sources of funding. Water system improvements have been grouped into 6-year and 20-year horizons. Higher priority improvements have been placed in the 6-year horizon while less urgent improvements have been placed in the 20-year horizon. The CIP at the end of this section reflects this prioritization. See **Figure 4** for location of improvements.

6.2 Implementation Issues

6.2.1 Well 7 Rehabilitation

Well 7 has experienced decreased efficiency over time. Rehabilitation of this well could recover 300 gpm of pumping capacity. Well 7 will need to be offline during the rehabilitation work which will result in lower supply capacity available to the system. In order to mitigate the effects of this lower supply capacity the City plans on performing the Well 7 rehabilitation work during non-peak demand seasons.

6.2.2 Water Main Replacements and Additions

Othello could save a substantial amount of money on main replacements by coordinating the projects with City and County paving projects. Whenever possible, main replacements and additions will be coordinated with paving projects.

6.2.3 Industrial-Growth

If a new industrial user wants to locate in Othello the City may not have sufficient annual water rights (Qa) to meet future demand (depending on the size of the new industrial user). The City may need to purchase and/or lease additional water rights (Qa) in order to meet future demands. During the 20-year planning horizon the City plans on developing a new source of supply to meet future demands and to mitigate declining aquifer levels in the Lower Wanapum aquifer.

6.2.4 Financing

Financing is a significant hurdle to clear before the plan can be implemented. In the past, the City has used system reserve funds, loans, and grants to implement its capital improvement projects. The City

will continue to pursue grants to implement the projects laid out in the CIP. Projects that cannot be fully grant funded may receive funding from City reserves or low interest loans from State or Federal loan agencies.

A water utility budget analysis and potential project funding sources and generalized rate impacts are included in **Section 7**.

6.2.5 Permits & Approvals

Following Department of Health (DOH) approval of this Water System Plan the City can begin implementing the improvements identified herein, on a schedule that reflects financial feasibility. DOH may require a Project Report (WAC 246-290-110) for various components of the proposed improvements and will review construction documents for major facilities. Environmental reviews will also be needed; the specific environmental review requirements will vary by project and funding source.

Depending where the City plans to construct improvements, the City and/or County may require permits.

6.3 Capital Improvement Plan

The following table contains the City's Capital Improvements Plan, including the following elements:

- Improvements
- Estimated costs
- Potential sources of funding
- Planned implementation time frame

Costs shown in the CIP are based on the planning level construction cost estimates included in **Section 5**; refer to the cost estimates in **Section 5** for additional detail on what is included in each project estimated cost. The CIP categorizes system improvements into two time frames and two growth scenarios based on the prioritization shown in **Table 6-1** and **Table 6-2**: improvements planned for the 6-yr horizon and the 20-yr horizon with Industrial-Growth and No-Industrial-Growth scenarios

Table 6-1 City of Othello Water System Capital Improvements Plan

Period	Improvement	Purpose	Potential Funding Sources	Est. Cost [1]
6-YEAR PLANNING PERIOD	Supply Improvements:			
	• Rehabilitate Well 7	• Recover pumping capacity of Well 7	Reserve Funds	$100,000
	• Construct new well (Well 10)	• If the Grande Ronde aquifer is a feasible supply source, a new deep aquifer well could help to offset future declines in existing groundwater supply capacity	RD, CDBG, CERB, Reserve Funds, Revenue Bonds, PWTF	$3,000,000
	Water Quality Improvements:			
	• Well 6 feasibility study and implementation of chosen alternative	• Alternatives being considered to mitigate high fluoride levels in Well 6 include: 1. Dedicate Well 6 to industrial users 2. Treatment system to remove fluoride 3. Use Well 6 as ASR injection well [2]	DWSRF, RD, CDBG, Reserve Funds, Revenue Bonds, PWTF	$700,000 - $1,700,000 [3]
	Water Rights Improvements:			
	• None Planned (without industrial growth)	-	-	-
	Storage Improvements:			
	• Construct new 2.5 MG reservoir at the Site A or Site B location	• Increase storage capacity • Increase fire flow	RD, CDBG, CERB, Reserve Funds, PWTF	$2,700,000
	• Add standby power to City wells	• Reduce standby storage volume requirement	RD, Reserve Funds, Revenue Bonds, PWTF	$1,500,000
	Distribution System Improvements:			
	• Refer to Table 5-14 for breakdown of projects	• Address fire flow deficiencies, replace aging steel mains, and construct future main extensions	RD, CDBG, Reserve Funds, Revenue Bonds, PWTF	$4,690,000
	Improvements required for Industrial-Growth [4]:			
	• Purchase or lease additional water rights [5]	• Increase Qa to meet projected annual Industrial-Growth demand	Reserve Funds, Revenue Bonds	$78,000 - $1,950,000
			Total Estimated Cost of 6-Year Capital Improvements:	$12.8M - $15.6M
20-YEAR PLANNING PERIOD	Supply Improvements:			
	• Construct new well (Well 11)	• Offset future declines in existing groundwater supply capacity • Utilize remaining water rights (Qi)	RD, CDBG, CERB, Reserve Funds, Revenue Bonds, PWTF	$3,000,000
	• Develop supplemental source of supply	• Reduce reliance on groundwater sources • Supplement City's existing water rights • Serve industrial growth	DWSRF, RD, CDBG, OCR, CERB, Reserve Funds, Revenue Bonds, PWTF	$32,000,000
	Distribution System Improvements:			
	• Refer to Table 5-14 for breakdown of projects	• Construct future main extensions	RD, CDBG, CERB, Reserves, Revenue Bonds, PWTF	$3,700,000
			Total Estimated Cost of 20-Year Capital Improvements:	$37M
			Total Estimated Cost of 6-Year and 20-Year Capital Improvements:	$49M – $52M

(1) *All costs shown are planning level estimates that show approximate funding needs for improvements; all projects should undergo a full cost evaluation prior to design and implementation.*

(2) *ASR costs unknown. The City is in the process of developing a feasibility study and cost estimates for ASR.*

(3) *Does not include costs associated with additional feasibility studies.*

(4) *Improvements under other categories in the 6-year planning period will also facilitate capacity required for the Industrial-Growth scenario.*

(5) *Projected demands for the 6-yr Industrial-Growth scenario exceed the City's current annual water rights (Qa).*

7.0 FINANCES

7.1 Overview of Revenues and Expenditures

The following table provides an overview of Othello's annual expenses. The Pro Forma budget column is intended to represent a typical budget year for Othello at 2015 cost levels. It serves as the starting point for budget writing in future years. Othello plans to routinely update the Pro Forma for items such as changes in number of customers (rate revenue), changes in O&M costs, and inflation. Subsequent tables show Othello's annual revenues and finances summary.

Table 7-1 Water System Expenditures [1]

Category	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Budget	Pro Forma [2]
Water Administration						
Salary - Utility Billing Clerk (1/3)	-	14,844.01	15,878.98	16,196.40	16,520.09	16,520.09
Benefits - Utility Billing Clerk (1/3)	-	7,462.35	8,013.80	8,478.60	8,834.94	8,834.94
Office & Operating Supplies	1,760.00	3,039.55	2,050.45	2,173.51	2,800.00	2,800.00
Small Tools & Equipment	493.00	500.00	-	776.73	1,000.00	1,000.00
On-Line Payment Costs	2,329.00	2,801.84	3,510.18	5,125.86	3,000.00	3,000.00
Water Utilities – Professional Services – PW	-	-	-	443,543.20	-	-
Central Services – Professional Services – G	-	-	-	394,541.00	-	-
Postage	3,127.00	4,189.64	6,076.94	4,782.24	3,500.00	3,500.00
Water Travel	451.00	1,188.56	1,393.50	2,950.73	1,600.00	1,600.00
Advertising - Legal Notices	18.00	1,290.08	356.44	209.70	300.00	300.00
Professional Services	55.00	50.00	599.00	599.00	600.00	600.00
Mailing Mach. Maint. Contract	602.00	601.67	661.83	1,323.66	700.00	700.00
Organizational Dues	2,385.00	2,729.67	2,576.00	2,780.47	3,000.00	3,000.00
Prof. Serv. - Boarddocs	540.00	581.58	581.58	581.58	600.00	600.00
Col Basin Dev League - Membership	600.00	600.00	600.00	600.00	600.00	600.00
Col Basin Dev League - Contribution	6,000.00	6,000.00	6,000.00	6,000.00	6,000.00	6,000.00
Water Education	390.00	450.00	991.65	2,029.60	1,600.00	1,600.00
Water Revenue Tax	112,179.00	123,386.34	123,372.02	126,830.73	125,000.00	125,000.00
Water Administration Total	$130,929.00	$169,715.29	$172,662.37	$1,019,523.01	$175,655.03	$175,655.03
Water Operations						
System Maintenance Supplies	23,107.00	26,975.18	24,251.54	19,267.16	25,000.00	25,000.00
Analysis/Testing Supplies	67.00	454.28	1,865.45	-	1,000.00	1,000.00
Operating Supplies - Chemicals	28,891.00	25,785.14	20,465.66	16,200.46	20,000.00	20,000.00
Water Testing Services	11,583.00	12,790.04	11,559.75	8,314.70	17,000.00	17,000.00
Prof Services - Engineering (Water)	-	16,891.06	8,727.66	45,349.30	30,000.00	30,000.00
Prof. Services - Locates	575.00	455.84	438.90	635.64	500.00	500.00
Prof. Services - Telemetry	4,121.00	3,693.58	2,945.00	9,589.79	10,000.00	10,000.00
DOH - Water Supply study	-	-	35,409.34	50,712.69	-	-
DOH - Wtr System Consolidation Studies (8)	-	-	15,615.60	176,576.30	-	-
CERB - Planning Grant	-	-	-	-	75,000.00	-
DOE - ASR Feasibility Study	-	-	-	46,693.33	151,392.00	-
Telephone - Telemetry Line	1,394.00	1,694.34	2,097.07	1,950.96	2,000.00	2,000.00
Equipment Rental	778.00	-	-	-	1,000.00	1,000.00
Electricity - Well Sites	471,177.00	515,490.95	435,839.63	379,568.01	470,000.00	470,000.00
Street Repairs - PAY to Streets	1,619.00	1,942.20	-	-	5,000.00	5,000.00
Well/Wellsite Repair & Maintenance	7,604.00	1,989.87	4,948.62	3,247.55	80,000.00	-
Meters - Repair & Maintenance	10,061.00	10,296.07	9,998.49	12,508.50	10,000.00	10,000.00
Well #2 Repair & Maintenance	-	-	-	7,465.38	-	10,000.00
Well #3 Repair & Maintenance	829.00	74,033.33	58,297.74	3,252.59	-	10,000.00
Well #4 Repair & Maintenance	319.00	38.15	18.52	819.84	-	10,000.00

Category	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Budget	Pro Forma [2]
Well #5 Repair & Maintenance	71,479.00	12,309.95	1,153.31	-	-	10,000.00
Well #6 Repair & Maintenance	749.00	5.01	322,307.11	1,034.27	500,000.00	10,000.00
Well #7 Repair & Maintenance	984.00	-	1,460.22	-	-	10,000.00
Well #8 Repair & Maintenance	98,080.00	469.63	1,324.71	6,469.43	-	10,000.00
Well #9 Repair & Maintenance	-	-	-	834.74	-	10,000.00
Water Hydrant - Rep & Maintenance	3,963.00	5,435.80	2,968.17	2,544.63	15,000.00	15,000.00
Reservoir - Repair & Maintenance	-	35,336.77	5,524.01	39,238.91	40,000.00	40,000.00
System Improvements & Rehab	1,700.00	51,836.71	35,324.40	-	40,000.00	40,000.00
Water Operating Permit	2,557.00	3,225.50	3,225.50	4,339.50	4,500.00	4,500.00
Misc. Water Operations Costs	13,191.00	4,348.18	2,600.12	5,476.23	3,000.00	3,000.00
Water Operations Total	$754,828.00	$805,497.58	$1,008,366.52	$842,089.91	$1,500,392.00	$774,000.00
Direct Debt Payments [3]						
PWTF Principle Payment - Well #7	127,898.30	127,898.30	127,898.29	127,898.30	-	-
PWTF Interest Payment - Well #7	15,347.80	11,510.85	7,034.41	3,836.95	-	-
Debt Service Total	$143,246.10	$139,409.15	$134,932.70	$131,735.25	$0.00	$0.00
Capital Expenditures						
Drill & Equipment Well #9	75,430.00	754,524.34	1,070,875.30	820,821.17	-	-
Server Upgrades	-	-	4,838.52	-	16,750.00	-
Exchange Migration into the cloud	2,241.00	-	-	-	1,800.00	-
Well #6 Rehabilitation	2,025.00	-			-	-
Well #7 Air Conditioning	-	-	-	-	-	-
SR 24 Industrial Area	-	-	-	-	-	-
Water Tower Maintenance Program	-	186.38	267,121.00	255,932.66	265,000.00	-
Service Trucks (2) (Shared cost)	144,436.00	-	-	-	55,000.00	-
Seal Well #1	-	-	-	-	-	-
Water System Strategic Planning	-	-	-	-	-	-
Hand held Meters	-	-	-	-	-	-
Water-Line Improvements/Overlays	103,934.00	96,583.97	223,173.75	422,814.33	400,000.00	-
One Service Truck - (Shared)	-	-	-	-	-	-
Orion Laptop - Meter Reader	-	16,000.00	-	-	-	-
Capital Expenditures Total	$328,066.00	$867,294.69	$1,566,008.57	$1,499,568.16	$738,550.00	$711,687.97[4]
Transfers						
TRS - Gen Fund/(Utility Tax) [5]	47,217.00	51,433.38	53,536.19	53,792.03	275,561.00	275,561.00
TRS - Gen Fund/Computer Tech	3,000.00	3,000.00	3,000.00	-	3,000.00	3,000.00
TRS - Gen Fund Cost Allocation	317,260.00	266,978.54	412,466.00	-	370,064.00	370,064.00
TRS - Water Reserves (Fund 107) [6]	1,331,729.00	-	-	-	-	[4]
TRS - Water Reserves	-	-	-	-	-	-
TRS - Water Rsrvs-Wells Rehab.	-	-	-	-	-	-
TRS - P/W Allocation	368,316.00	393,166.66	390,237.78	-	521,308.00	521,308.00
TRS - Debt Service\Wtr-Swr Bond	-	-	-	-	-	-
Transfers Total	$2,067,522.00	$714,578.58	$859,239.97	$53,792.03	$1,169,933.00	$1,169,933.00
Total Expenditures	$3,424,591.10	$2,696,495.29	$3,741,210.13	$3,546,708.36	$3,584,530.03	$2,831,276.00
$ per ERU / Month [7]	$27.33	$21.52	$29.85	$28.30	$28.60	$22.59

(1) *Provided by City of Othello Finance Officer*

(2) *Intended to estimate total system costs for a typical year at 2017 cost levels*

(3) *PWTF principle payment and PWTF interest payment paid off in full as of 2016*

(4) *Net income (Total Revenue – Total Expenditures) is available for capital expenditures (see **Table 7-3**) or to be transferred to water system reserves*

(5) *Utility tax increased from 2% to 10% in 2017*

(6) *The City routinely transfers funds out of its' water system fund into water system reserves fund (Fund 107) when surplus funds exist*

(7) *Based on 10,443 water use ERUs served by Othello (refer to **Section 2.1.7**)*

Table 7-2 Water System Revenue [1]

Category	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Budget	Pro Forma [2]
Grant Revenue						
CDBG Grant - Rehab Well #6	-	-	-	-	-	-
DoH - Water Supply study	-	-	-	25,000.00	-	-
DoH - Wtr System Consolidation Studies (8)	-	-	-	78,077.90	-	-
CERB - Planning Grant	-	-	-	-	50,000.00	-
DOE - ASR Feasibility Study	-	-	-	-	151,392.00	-
Total Grant Revenue	$0.00	$0.00	$0.00	$103,077.90	$201,392.00	$0.00
Water Sales						
Water Sales	2,277,144.00	2,510,784.80	2,490,569.68	2,597,677.83	2,601,606.00	2,601,606.00
Other Sales	-	-	-	-	-	-
Tank Water	-	-	-	-	-	-
Water Connection Fees	27,328.00	31,891.34	45,575.35	24,528.15	30,000.00	30,000.00
Gen Facility Charges	51,862.00	59,815.03	142,270.00	48,780.00	70,000.00	70,000.00
Latecomers Agmt. Chgs.	-	-	-	18,465.00	-	-
Misc Water Operations	4,120.00	150.00	9,069.10	149.80	-	-
City Water Usage	23,205.00	26,124.39	28,695.44	30,589.10	24,000.00	24,000.00
Hanging Notice Fee	20,257.00	21,207.55	25,791.92	30,414.07	30,000.00	30,000.00
Total Charges for Services	$2,403,916.00	$2,649,973.11	$2,741,971.49	$2,750,603.95	$2,755,606.00	$2,755,606.00
Miscellaneous Revenues						
Investment Interest	5,471.00	1,488.20	1,713.58	1,011.31	1,400.00	1,400.00
Ins. Claim Recoveries	-	-	-	-	-	-
Tractor Use by Streets	-	-	-	-	-	-
Hydrant Use by Fire Dept	-	-	-	-	-	-
Cashier's Over/Short	-	-	-	-	-	-
Sale Salvage - Water	-	-	-	-	-	-
Misc Other Water Rev	311.00	10,535.65	1,412.87	1,276.22	500.00	500.00
Insurance Recoveries	-	109,107.85	-	-	-	-
Prior Year(s) Corrections	(5,488.00)	-	-	-	-	-
Total Miscellaneous Revenues	$294.00	$121,131.70	$3,126.45	$2,287.53	$1,900.00	$1,900.00
Other Revenues						
Trs-In/Fund 001 Hydrant Costs	36,000.00	13,440.00	13,650.00	13,560.00	13,770.00	13,770.00
Trs-In/Fund 140 PW New Truck	-	-	-	-	-	-
Trs-In/Fund 135 Waterline Impr Project	170,000.00	-	-	-	-	-
Trs -In/Fund 107 Water Tower maint prog	-	-	265,000.00	82,000.00	-	-
Trs -In/Fund 107 Well #9 project	-	500,000.00	150,000.00	-	-	-
Trs -In/Fund 107 water line imp/overlays	-	-	-	300,000.00	60,000.00	60,000.00
Trs -In/Fund 107 VFD	-	16,000.00	-	-	500,000.00	-
Total Transfers	$206,000.00	$529,440.00	$428,650.00	$395,560.00	$573,770.00	$73,770.00
Total Expenditures	$2,610,210.00	$3,300,544.81	$3,173,747.94	$3,251,529.38	$3,532,668.00	$2,831,276.00
$ per ERU / Month [3]	$20.83	$26.34	$25.33	$25.95	$28.19	$22.59

(1) *Provided by City of Othello Finance Officer*

(2) *Intended to estimate total system revenue for a typical year at 2017 revenue levels*

(3) *Based on 10,443 water use ERUs served by Othello (refer to **Section 2.1.7**)*

Table 7-3 Water System Budget Summary

Category	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Budget	Pro Forma [1]
Total Expenditures (system costs)	3,424,591.10	2,696,495.29	3,741,210.13	3,546,708.36	3,584,530.03	2,831,276.00
Total Revenue (system income)	2,610,210.00	3,300,544.81	3,173,747.94	3,251,529.38	3,532,668.00	2,831,276.00
Net Income (Loss)	$(814,381.10)	$604,049.52	$(567,462.19)	$(295,178.98)	$(51,862.03)	$711,687.97 [2]
Expenditure per ERU/ Month	27.33	21.52	29.85	28.30	28.60	22.59
Revenue per ERU / Month	20.83	26.34	25.33	25.95	28.19	22.59
Net Income (Loss) per ERU / Month [3]	$(6.50)	$4.82	$(4.53)	$(2.36)	$(0.41)	$0.00

(1) *Intended to estimate total system costs for a typical year at 2017 cost levels*

(2) *Remaining revenues available for capital expenditures or to be transferred to water system reserves*

(3) *Based on 10,443 water use ERUs served by Othello (refer to **Section 2.1.7**)*

Table 7-3 shows that expenditures fluctuate from year to year and in years the City implements significant improvements, a net loss occurs. 2013 expenditures appear high due to a $1.3 million transfer from the water system fund into reserves. Capital improvements projects are shown in **Table 7-1** and are considered one-year expenditures. The Pro Forma shows that under a typical year the system is expected to net approximately $712K which the City will either use to implement improvement projects or transfer to reserves for future projects. **Table 7-1** indicates that the estimated Pro Forma monthly water cost was $22.59/ERU.

7.2 Water Rates

7.2.1 Summary

The following is a summary of the City's 2017 water rates effective as of December 16, 2016. The City plans annual rate increases for 2018 and 2019. Refer to the City's October 24, 2016 ordinance (**Appendix D**) for the City's projected 2018 and 2019 water rates.

Base Charge
The following table lists the City's 2017 base charge for each meter size.

Table 7-4 Current Block Rate Structure [1]

Meter Size	Minimum Charge [2]	First Block of Water [3]	Second Block of Water [3]	Third Block of Water [3]
1" or less	$34.83	8 units	20 units	Total used less 28 units
1-1/2"	$115.99	26 units	66 units	Total used less 92 units
2"	$185.65	42 units	106 units	Total used less 148 units
3"	$348.33	80 units	200 units	Total used less 280 units
4"	$580.34	133 units	333 units	Total used less 466 units
6"	$1,161.02	266 units	666 units	Total used less 932 units
8"	$1,857.68	426 units	1,066 units	Total used less 1,492 units
10"	$2,670.36	613 units	1,533 units	Total used less 2,146 units

(1) *1 unit = 100 cubic feet of water*

(2) *Minimum monthly service charges for 2017. Refer to City Ordinance No. 1481 (**Appendix D**) for projected 2018 and 2019 minimum monthly service charges.*

(3) *Block rate structure quantities constant through 2019*

Table 7-5 Current Water Rates

Customer Location	First Block of Water	Second Block of Water	Third Block of Water
Price per unit delivered inside the City limits	$0.68 per unit	$0.80 per unit	$0.91 per unit
Price per unit delivered outside the City limits (1)	$1.02 per unit	$1.20 per unit	$1.37 per unit

(1) *50% surcharge applied to customers outside City limits*

Table 7-6 Current Industrial Bulk Water Rate

Customer Location	Per Unit Charge for first 50,000 units	Per Unit Charge for units used greater than 50,000
Price per unit delivered inside the City limits	$0.70 per unit	$0.77 per unit
Price per unit delivered outside the City limits (1)	$1.05 per unit	$1.16 per unit

(1) *50% surcharge applied to customers outside City limits*

Observations Regarding Rates

The City makes use of an inclining tier block rate structure in order to encourage conservation within the system. The rate structure for non-industrial users includes three tiers; two tiers with defined unit limits and a third tier for customers surpassing the first two tiers. As of 2017 bulk water rates for industrial users have an inclining tier block rate structure with two tiers. This was implemented to encourage conservation among large accounts who exert much higher demands on the system and require larger infrastructure components to provide adequate levels of service.

7.2.2 Equivalent Residential Rate Units (ERRUs)

The number of equivalent residential units (ERUs) estimated on the basis of water use is presented in **Section 2**. However, unless the system's water rate structure distributes system costs exactly in proportion to water use, utilizing the number of water use ERUs for financial analysis will be inaccurate; therefore, it is important to determine the number of the Equivalent Residential Rate Units ("Rate ERUs") or ERRUs. This is an important distinction because financial impacts will be distributed among system customers in proportion to the rate structure, not water use. The number of ERRUs is used when determining the impact of new capital debt on the various customer classes *based on the actual proportion of the total system costs each class pays under the current rate structure.* It is also informative in comparing water use versus revenue contribution of the classes (e.g. residential versus non-residential).

For financial planning purposes the following calculations utilize revenue and connection records for the period January 1, 2015 – December 31, 2015.

Revenue per Equivalent Residential Rate Unit (ERRU)

Annual Residential Revenue / No. of Residential Services = $899,659.77 / 1,637 / 12 mo.
= $45.80 per ERRU per mo.

Number of Multi-Family & Commercial ERRUs

Annual Multi-Family & Commercial / Revenue per ERRU = $778,401.91 / 12 mo. / $45.80
= 1,416 Multi-Family & Com ERRUs

Number of Industrial ERRUs

Annual Industrial / Revenue per ERRU = $870,296.93 / 12 mo. / $45.80
= 1,584 Industrial ERRUs

Total Number of ERRUs
Residential Rate ERUs + Multi-Family & Comm + Industrial = 1,637 + 1,416 + 1,584
= 4,637 ERRU

Compare number of Equivalent Residential Rate Units (ERRUs) to Water Use ERUs:

	No. of Water Use ERUs	No. of Rate ERRUs
Single-Residential	1,637	1,637
Multi-Family/ Commercial	2,146	1,416
Industrial	6,660	1,584
Total	10,443	4,637

Based on the 2016 water rate structure it is apparent that Multi-Family/ Commercial and Industrial customers pay less per unit of water used than residential customers. Starting in 2017 rates for bulk water users will use an inclining black rate structure which will increase non-residential ERRUs. In the event that the City decides to change the water rate structure or incur debt services the most current number of ERRUs will be used to compute the impact of new debt on customer rates.

7.3 Description of Existing Debt

As of February 2017 the City has no outstanding water debt.

7.4 Funding for Planned Improvements

The ability of the City to construct future improvements is contingent on the City's ability to secure funding from the various funding sources. The City may ultimately scale back improvements (i.e. postpone some distribution system improvements) if funding cannot be secured that maintains affordable water rates.

7.5 Funding Sources

Financing can present a significant hurdle for implementing improvements. While the City maintains a reserve fund, outside funding will also be needed to fully implement Othello's CIP. The following paragraphs discuss potential funding sources for system improvements; Othello's CIP identifies many of these sources of funding for specific projects to be implemented.

7.5.1 RD Loans and Grants

USDA Rural Development funds a wide variety of public works projects in small communities through its Environmental Water/Waste Program. RD offers grant and/or loan packages. Applications are accepted on an on-going basis with funds available 9 – 18 months following submittal.

RD will award grant funds when the cost of a proposed project will cause rates to be too high relative to other similar systems and/or too high relative to a jurisdiction's MHI as determined by the US Census or valid income survey. However, RD also has to have grant funds available to give. Thus, it is advisable to submit RD applications at the on-set of the RD fiscal year in January if funding is desired for the current fiscal year; or August for the following fiscal year (funds for current fiscal years

are typically exhausted by each August). A disadvantage of RD funding includes significant administrative costs as compared to other funding programs.

7.5.2 Washington State Public Works Trust Fund

The Public Works Trust Fund (PWTF) program was established by the state legislature in 1985 to provide a long-term source of funds for local governments for the repair and reconstruction of public works facilities. This program, which is administered by the Washington State Department of Commerce, provides construction loans for up to $7 million per biennium, per jurisdiction for 20-year terms. No match is required. Construction loan applications are generally due in March with funds available 12-14 months later, provided the State Legislature funds the PWTF program.

The PWTF program has offered Pre-Construction funding in previous years, although it has not been available for several years. Loan terms and details, potential subsidy, eligibility and application guidelines will be provided if/when PWTF preconstruction funding becomes available.

To be eligible for PWTF funding applicants must meet three requirements:

1. Adoption of the local real estate excise tax on the sale of real property within the jurisdiction (per RCW 82.46.010(1) and RCW 82.46.030(2)).
2. Adoption of a Capital Facilities Plan in compliance with the Growth Management Act, if applicable (water, sewer, and street/storm drainage plan).
3. Sanitary sewer and drinking water projects that are eligible for the clean water state revolving fund loan program (CWSRF) or the drinking water state revolving fund loan program (DWSRF) are not eligible for public works board construction loans.

7.5.3 Community Development Block Grant (CDBG)

The Department of Commerce (Commerce) administers the CDBG program. CDBG funds are federal Housing & Urban Development (HUD) funds, and are available for public works projects in low to moderate income areas with limited financial resources, public health and safety concerns, and need for economic growth/revitalization. The maximum General Purpose grant amount available ranges from $750,000 to $1,000,000 depending on the circumstances and type of project. In previous years, the maximum grant request was $1,000,000; it is possible that the larger ceiling will be available in future years, depending on the amount awarded to HUD by the federal government. Application workshops are held prior to the application due date, for 2017 applications are due June 1st. Applications are lengthy, require detailed information, and significant documentation. CDBG is the most competitive funding program.

7.5.4 Drinking Water State Revolving Fund (DWSRF)

Jointly administered through Washington State Department of Health and the Washington State Public Works Board, these federal loan funds are available primarily for projects which address Safe Drinking Water Act (SDWA) health standards that have been exceeded or to prevent future violations (i.e., water quality related projects), although other projects, such as construction of new reservoirs and water main replacements receive secondary consideration. DWSR funds cannot be used for projects primarily intended for fire flow or growth. Specific projects being applied for must be contained in a water system plan approved as of the date of the closing of the application period.

The maximum DWSRF loan available for the 2016 funding year is $3 million, or $6 million for jointly-owned projects. Interest rates are 1.5% over a 20-year term with reduced interest rates available to systems with higher affordability indexes. No local match is required, although a 1% loan fee applies in some cases; the 1% fee is typically rolled into the loan. Applications for 2017 are due at the end of November. Eligibility requirements include a current, approved Water System Plan at the time of application.

7.5.5 Capital Contributions

Capital contributions, variously known as "impact fee," "system development charges," "facility charges," or "connection charges" are one-time fees assessed against developers or individual new customers to recover all, or part of, the cost of the additional system capacity constructed for their use or benefit (or to "buy in" to reserve capacity of long-existing facilities). Capital contributions improve system financial equity because they require new customers to: 1) repay users who have invested in facilities through prior monthly service charges or fees, and/or 2) finance new facilities required to serve them. Local Improvement District (LID) financing is simply a specific long-term method of financing capital contributions for a small or large group of properties benefiting from specific capital improvements.

Capital contributions are generally assessed against the developer (in the case of new service areas), as opposed to the homeowner or property owner. The City's present general facility and site facility charges are defined in the City of Othello Municipal Code 12.16.280.

7.5.6 Reserve Funds

Most funding agencies want to see a financial commitment on the part of a municipality toward the project the agency is being asked to fund. A reserve fund is an excellent way to show that commitment. The City currently maintains a reserve fund.

The City's Water Fund and Water Reserve Fund Policy is included in **Appendix D**. The City's reserve fund is funded by means of transfers of funds over 30% of the annual operating budget from the water fund. The City does not require a minimum balance in the reserve fund.

7.5.7 Revenue Bonds

Revenue bonds issued by the City provide a means of borrowing funds to finance capital improvements to the water system. These bonds constitute a lien against the earnings of the utility; in this case, water revenues. Such bonds may be issued for varying terms and interest rates, depending on the needs of the City and the bond market at the time of issuance. Interest earned by bondholders is generally not taxable income, reducing the interest rate required by bond purchasers. Debt service is paid out of system revenues. The issuer is usually required to maintain utility rates at a sufficient level to pay the annual debt service plus 25% to 50%, which often goes into a reserve fund.

7.5.8 Office of Columbia River (OCR)

The Department of Ecology created the Office of Columbia River (OCR) to use Columbia River Basin Development Account funds to develop new water supplies using storage, conservation, and

voluntary regional water management agreements. The legislature tasked OCR with six directives (Chapter 90.90 RCW):

- Find sources of water supply for pending water right applications. (RCW 90.90.020(3)(b)).
- Develop water sources for new municipal, domestic, industrial, and irrigation water needs within the Columbia River Basin (RCW 90.90.020(3)(d))
- Issue supply and demand reports. (RCW 90.90.040(3)).
- Secure alternatives to groundwater for agricultural users in the Odessa subarea aquifer. (RCW 90.90.020(3)(a)).
- Find a new uninterruptible supply of water for the holders of interruptible water rights on the Columbia river mainstem. (RCW 90.90.020(3)(c)).
- Develop water supplies for instream as well as out-of-stream uses." (RCW 90.90.020(1)(a)(ii)).

Othello is located within the Columbia River Basin and is therefore eligible for OCR funding. The City received OCR funding to complete an Aquifer Storage and Recovery (ASR) Feasibility Study which is currently underway.

7.5.9 Utility Local Improvement District (ULID) Bonds

Local Improvement District formation is a method of financing that allows specifically benefited properties to pay for the improvements. ULID's can be formed by petition of a majority of the property owners or by resolution. Under certain circumstances where the jurisdiction declares the improvements necessary for the public health and safety (and with other criteria being met), an ULID formed by City Council resolution is immune to protest; otherwise, a 3/5 majority of property owners may prevent its formation by submission of a protest petition. Properties within the ULID are annually assessed a total amount adequate to service bonds, which are issued with the ULID assessments as security. In essence, ULID financing provides a method for developers and property owners to make appropriate capital contributions to new facilities required to support service to their properties.

ULID financing could be used for improvements benefiting presently served properties or newly developed properties. Disadvantages of ULID financing in fully developed areas of the City include the significant time and costs associated with the formation and assessment determination process.

8.0 WATER USE EFFICIENCY

WAC 246-290-810 requires that Water System Plans and Small Water System Management Programs must describe the municipal water supplier's existing Water Use Efficiency (WUE) Program. The municipal water supplier must continue existing levels of water use efficiency.

8.1 Metering Requirements

8.1.1 Source Meters

WAC 246-290-496(1) requires that systems measure the volume of water produced or purchased using a source meter or other meter installed upstream of the distribution system. The requirements of this section of the WAC do not apply to volumes of water delivered to a public water system through an emergency intertie; however, interties used as permanent or seasonal sources must have meters.

The City currently meters production at all City sources of supply. All well pump stations have magnetic flow meters. The pump station meters are tied into Othello's telemetry system to provide to provide real-time flow rates and record total production.

As required by WAC 246-290-496(3), the City selects, installs, operates, calibrates, and maintains source meters according to generally accepted industry standards and information from the manufacture.

8.1.2 Consumption Meters

WAC 246-290-496(2) requires systems to measure the volume of water delivered to consumers by installing meters on all direct service connections. Systems may serve certain clustered entities through a single meter (e.g. campgrounds, RV parks, mobile home parks, buildings with multiple units, and complexes with multiple buildings served as a single connection).

The City currently meters all service connections.

As required by WAC 246-290-496(3), the City selects, installs, operates, calibrates, and maintains customer service meters according to generally accepted industry standards and information from the manufacturer.

8.1.3 Intertie Meters

Othello meters water supplied to Adams County Water District #1 through a one-way intertie. The City does not currently have emergency interties with adjacent water systems.

8.2 Data Collection

The Water Use Efficiency (WUE) Rule requires systems to collect production and consumption data on a regular basis and report that information in the annual performance report. Water production and

consumption data has numerous uses including: calculating system leakage, forecasting demand, identifying areas for more efficient use of water, and evaluating the effectiveness of the WUE program.

8.2.1 Source and Service Meter Data

Othello collects and records source production total continuously via the SCADA system; the production data can be organized in many useful intervals (e.g. daily, monthly, annually, etc.). Othello reads customer service meters monthly.

The City stores historical daily and monthly production records on the water system telemetry SCADA system. Electronic records for the City's production values were lost sometime before 2015 when a data file was corrupted. The City is in the process of installing an automated backup system on the telemetry computer and plans on backing up telemetry data onto a server to ensure that files are not corrupted or lost in the future.

8.3 Water Supply Characteristics

The City's water system is supplied via eight sources which operate based on source call order as described in **Section 4.2**. Well 6 is a seasonal well and is used only when demand of the water system exceeds the supply capacity of the primary wells. City well locations are shown on **Figure 3**. Current pumping rates of City wells are shown in **Table 4-1**.

The City of Othello relies on wells drilled into the lower Wanapum Basalt aquifer as its sole source of drinking water. Over time the groundwater level in the lower Wanapum Basalt has declined and resulted in progressively lower pumping rates from existing wells. The Washington State Department of Ecology (Ecology) has identified and documented the regional decline of aquifer levels through a series of reports regarding the Columbia Basin Groundwater Management Area (GWMA). Othello recognizes the looming threat to its water supply posed by declining aquifer levels and is working with Varela & Associates and Aspect Consulting to address the problem. In 2016, the City tasked Varela and Aspect with developing a Water Supply Plan to secure the City's water supply for the future (See **Appendix E** for the Water Supply Plan Summary and Recommendation).

In addition to declining aquifer levels, interference between City and private wells exacerbates declining pumping rates in City wells. The City's Well 6 has fluoride (F) concentrations above the MCL and Well 7's capacity has declined possibly due to biofouling. The City also relies heavily on well pumping capacity to meet peak demands due to a lack of equalizing storage volume in reservoirs.

The City's water rights constrain the instantaneous and annual quantities of water available for withdrawal (refer to water rights analysis in preceding Sections).

8.4 Interties

The City of Othello provides water to Adams County Water District #1 (ACWD #1, a small suburban development approximately ¾ of a mile west of the City), which has about 200 connections. This is a "one-way" intertie since ACWD #1 does not have any other source of water.

Water delivered to ACWD #1 is metered by a 6-inch meter. ACWD #1 is the fourth largest water user in the City and its use is shown in **Table 2-7**. A copy of the water service agreement is provided in **Appendix A**.

8.5 Distribution System Leakage Standard

All water that is not authorized consumption is considered distribution system leakage (DSL) by DOH. Authorized uses can include maintenance flushing, firefighting, cleaning of reservoirs, and street cleaning. If authorized uses other than service connection consumption are tracked and estimated, they can be subtracted when calculating DSL. In addition to service connection consumption Othello estimates and tracks water usages such as construction utilization, flushing, and fire hydrant testing. The following table shows calculated distribution system leakage as reported on Othello's annual WUE reports.

Table 8-1 Distribution System Leakage

Year	DSL
2010	4.0%
2011	-0.6%
2012	-0.2%
2013	(1)
2014	-2.7%
2015	-1.7%

(1) *Water Use Efficiency report unavailable for 2013*

WAC 246-290-820(4) requires that system with a 3-year running average DSL exceeding 10% develop a water loss control action plan. Othello's 3-year running average DSL does not exceed 10% and hence does not need to provide a water loss control action plan.

In 2011, 2012, 2014, and 2015 the City reported a negative DSL in their annual Water Use Efficiency Annual Performance Report. Negative DSL results are not possible for municipal water systems and therefore it is assumed that some sort of data error contributed to the negative DSL values reported in the Annual Performance Reports for 2011, 2012, 2014, and 2015. Othello is working to identify the source of data error that resulted in negative DSL values in previous years.

8.6 WUE Program

The primary purpose of WUE Program is to provide present and future system officials with a plan for using water efficiently. A WUE program assists in setting system priorities and selecting goals and measures that best meet a system's needs. The applicable WACs (246-290-800 through 246-290-840) do not make a distinction between irrigation water rights or water supplied for irrigation and other water rights as to amounts to be used in the water use efficiency calculations. WAC 246-290-810(4)(d)(ii) does make distinctions between indoor residential, outdoor and industrial/commercial/institutional, but the WACs appear to include conservation of irrigation rights by a municipality.

8.6.1 Current WUE Program

Othello's Current WUE program seeks to gradually and permanently increase its customer's water use efficiency be educating its customers and providing incentives. As a part of the existing WUE program

Othello encourages employees to perform water use efficiency oriented public outreach in the normal course of their duties.

8.6.2 Estimated Conservation Savings to Date

The City's 2011 WSP calculated the City's ERU usage at 519 gpd. As shown in **Section 2.2** the City's current ERU usage is approximately 453 gpd. The City's water use per ERU has decreased by 66 gpd/ERU since the 2011 WSP.

8.6.3 Goal Setting and the Public Forum

Setting goals that can be measured is an important step in helping systems encourage customers to use water more efficiently. The Water Use Efficiency Rule requires systems to set goals through a public process. Involving the public allows water users to understand the characteristics and future needs of the water system and to set a reasonable, attainable goal.

8.6.4 WUE Goal

Othello plans to adopt a WUE goal of reducing annual water use by 640,000 gallons annually. Othello will utilize WUE measures to achieve this WUE goal (refer to **Table 8-4** for a breakdown of WUE measures and estimated water savings).

Public Forum for Establishing WUE Goal

The Water Use Efficiency Rule requires that systems allow customers and interested members of the public to participate in the goal setting process through a public forum. This allows the public an opportunity to provide input on the decisions and it helps them understand the benefits of using water more efficiently and how they can help achieve the WUE goal.

Othello plans to conduct a WUE public forum in April of 2017 to allow customers and interested members of the public to participate in the goal setting process. Othello will provide notice to its customers at least two weeks prior to the forum via posting in City hall and on the web (City website and DOH website). The notice included the purpose of the meeting, date of the meeting, time the meeting began, location of the meeting, and where interested individuals could find additional information supporting the proposed WUE goal. Refer to **Appendix D** for public forum documentation.

8.6.5 WUE Measures

The Water Use Efficiency Rule requires implementation of some water saving measures and evaluation of others. The following subsections contain the required measures and evaluations.

8.6.5.1 Required Measures

Customer Education

Othello provides WUE education to its customers by mailing WUE literature such as DOH published WUE brochures to customers with newsletters and/or the annual Consumer Confidence Report.

8.6.5.2 Required Evaluations

Evaluation of Rate Structure to Encourage Water Use Efficiency

An inclining block type rate structure encourages conservation by directly linking a customer's increased consumption to higher water bills. Implementing an inclining block rate structure is relatively simple and inexpensive (to the water system) to implement.

As indicated in **Section 7.2.1**, the City has a base rate plus inclined block overage rate structure for non-industrial customers and a two tier inclining block overage rate structure for industrial customers. The non-industrial inclined block overage rate structure includes three blocks for promoting conservation. Historically when the City has increased its rates, the same percentage rate increase has been applied to both the base rate and the overage charge.

Industrial customers used approximately 70% of the City's total water consumption in 2015. Total industrial consumption has increased by 9.5% since 2015. Simplot, the City's largest industrial user accounted for approximately 45% of the City's total consumption in 2015. In 2016 the City passed an ordinance modifying water rates for all customer classes. The ordinance modified the rate structure for industrial bulk water users to reflect a two tier inclining block rate structure. Bulk industrial water user rates were raised from a $0.64 per unit (single block rate in 2016) to $0.70 per unit for the first 50,000 units and $0.77 per unit charge for consumption greater than 50,000 units (see **Table 7-6**).

The changes made to the industrial rate structure were made to promote equity and to encourage the largest water users in the City to use water more efficiently.

Evaluation of Reclaimed Water Opportunities

The Municipal Water Law requires systems with over 1,000 connections to evaluate opportunities for reclaimed water use when completing a Water System Plan. Customers with large irrigated areas such as schools could potentially use reclaimed water. The following table shows some of Othello's largest water users and a cursory assessment as to whether they could utilize reclaimed water if it were to become available.

Table 8-2 Assessment of Large Water User's Potential to use Reclaimed Water

Customer Name	Rank	Type	Potential Reclaimed Water User?
10" Simplot Industrial	1	Industrial	No
6" Simplot Industrial	2	Industrial	No
10" McCain Foods	3	Industrial	No
Adams County Water District	4	Outside Residential	No
2" McCain Foods	5	Industrial	No
SVZ 6"	6	Industrial	No
McCain Foods	7	Industrial	No
McCain Foods	8	Industrial	No
OSD/Hiawatha - Lawn	9	School	Yes
McCain Foods	10	Industrial	No
Harvest Fresh Product	11	Industrial	No
Lineage Logistics LLC	12	Industrial	No
Modern Trailer Court	13	Multi-residential	Yes
OSD/Lutacaga - Lawn	14	School	Yes
OSD/Wahitis Elementary - Lawn	15	School	Yes
OSD/Scooteny Springs	16	School	Yes
Pool 4"	17	Commercial	No
Terra Gold Farms	18	Industrial	No

(1) *Potential to use reclaimed water is based on whether the property is located on a large irrigated parcel.*

At present, Othello has no access to reclaimed water. No regional facility with reclaimed water has a distribution system close enough to Othello's service area to provide reclaimed water. In addition, Othello currently has no reclaimed water distribution network; this makes the prospect of using reclaimed water prohibitively expensive due to the infrastructure investment required. Wastewater reuse tends to become cost effective only when less expensive sources of water do not exist.

The City has taken steps in providing alternatives to potable water for large irrigated areas. Eastern Columbia Basin Irrigation District (ECBID) canals currently provide irrigation water for the City's two largest parks (Lions Park and Kiwanis Park). In addition, the City is in the process of adopting a policy requiring that all new planned developments provide separate domestic and irrigation water services. Domestic water lines shall continue to be supplied by the City's potable water system while irrigation water lines shall be supplied by ECBID irrigation water or possibly a new City owned irrigation utility supplied by Bureau of Reclamation canals.

Section 5.2.2 discusses the need to identify a supplemental source of potable water supply for the City in the mid- to long-term. Alternatives for a potential supplemental source of supply include:

- Surface water from Bureau of Reclamation irrigation canals treated to drinking water standards for potable use; this source could also be treated to the groundwater anti-degradation standard for injection and storage in the basalt aquifer for later recover via City wells.

- Industrial wastewater treated to anti-degradation standard for groundwater injection and storage in the basalt aquifer for later recovery via City wells. Currently industrial wastewater cannot be utilized for direct potable reuse; future changes in regulation may open doors for direct potable reuse of industrial wastewater.

8.6.6 WUE Measures

According to the City's Water Facilities Inventory Form, Othello currently serves approximately 2,900 connections which includes approximately 131 multi-family connections serving approximately 684 dwelling units (refer to **Appendix B** for WFI). The 2,900 connections represent the City's connections and number of dwelling units. In the past DOH considered a multi-family connection as one connection regardless of how many dwelling units it served. DOH changed how it counts multi-family connections indicating the number of dwelling units now dictates the number of connections. This resulted in many systems paying higher permit fees to DOH and generally being required to conform to the requirements of larger systems than had been previously required.

One example of where this change in policy has affected Othello is in the number of WUE measures the system is required to implement or evaluate for cost effectiveness. The table following contains the number of WUE measures that system of various sizes must either implement or evaluate for cost effectiveness. Prior to DOH's change in policy on how connections are counted Othello needed to either implement or evaluate for cost effectiveness at least five measures; under the new DOH policy Othello must either implement or evaluate for cost effectiveness at least six measures.

Table 8-3 Required Number of WUE Measures

Number of Connections	Less than 500	500 – 999	1,000 – 2,499	2,500 – 9,999	10,000 – 49,999	50,000 or more
Number of WUE Measures Required	1	4	5	6	9	12

Othello selects the following measures to achieve its WUE goal.

Measure #1: Residential Customer Outdoor Efficiency Education

Othello will annually mail an educational flyer to its residential customers focused on efficient outdoor watering in residential applications. Information will include residential plant water requirements for Othello, reminders to not water during rainfall periods, and additional ideas for efficient outdoor use of water in residential applications. The flyer will also include contact information for local irrigation system companies that specialize in highly efficient residential irrigation systems. This will help interested residential customers connect with local irrigation distributers to install and operate a more water efficient automatic irrigation system. This educational outreach will be in addition to the mandatory customer education referenced in Section 8.6.5.1.

Measure #2: Multi-Family Customer Outdoor Efficiency Education

Othello will annually mail an educational flyer to its multi-family customers focused on efficient outdoor watering in multi-family applications. Information will include landscaping plant water requirements for Othello, reminders to not water during rainfall periods, and additional ideas for efficient outdoor use of water in multi-family applications. The flyer will also include contact information for local irrigation system companies that specialize in highly efficient irrigation systems. This will help interested multi-family customers connect with local irrigation distributers to install and operate a more water efficient automatic irrigation system. This educational outreach will be in addition to the mandatory customer education referenced in Section 8.6.5.1.

Measure #3: Commercial Customer Outdoor Efficiency Education

Othello will annually mail an educational flyer to its commercial customers focused on efficient outdoor watering in commercial applications. Information will include commercial landscaping plant water requirements for Othello, reminders to not water during rainfall periods, and additional ideas for efficient outdoor use of water in commercial applications. The flyer will also include contact information for local irrigation system companies that specialize in highly efficient commercial irrigation systems. This will help interested commercial customers connect with local irrigation distributers to install and operate a more water efficient automatic irrigation system. This educational outreach will be in addition to the mandatory customer education referenced in Section 8.6.5.1.

Measure #4: Residential Customer Leak Education

Othello will annually mail residential customers an informational on how to locate and repair leaks on their property.

Measure #5: Multi-Family Customer Leak Education

Othello will annually mail multi-family customers an informational on how to locate and repair leaks on their property.

Measure #6: Commercial Customer Leak Education

Othello will annually mail commercial customers an informational on how to locate and repair leaks on their property.

8.6.7 Projected Water Savings and Budget for WUE Program

Othello has estimated the projected water savings associated with each WUE measure in the following table. The footnotes on the table following contain the assumptions for the water savings estimate. Actual water savings realized by individual customers may vary.

Table 8-4 Projected Annual Water Savings and Cost of WUE Measures

Measure Number	Description	Estimated Participants (per year)	Estimated Savings per Participant (gal/year)	Estimated Annual Savings (gal)	Estimated Annual Cost
1	Residential Customer Outdoor Efficiency Education	300	100	30,000	$200
2	Multi-Family Customer Outdoor Efficiency Education	3	10,000	30,000	$200
3	Commercial Customer Outdoor Efficiency Education	3	10,000	30,000	$200
4	Residential Customer Leak Education (1)	5	50,000	250,000	$200
5	Multi-Family Customer Leak Education (1)	3	50,000	150,000	$200
6	Commercial Customer Leak Education (1)	3	50,000	150,000	$200
			Water Use Efficiency Savings Goal (Total) =	640,000	$1,200

(1) *Assumes that all customers receive mailers and that customers listed as participants in the table find and fix leaks of 0.1 gpm (≈ 50,000 gal/yr).*

8.6.8 Evaluating Whether WUE Savings is Achieved

Othello plans to monitor the efficacy of the WUE measures on an annual basis in conjunction with the annual WUE performance report to DOH. It is assumed that as long as Othello sends out the mailers associated with Measures #1 - #6 in the preceding table, the assumed WUE savings associated with Measures #1 - #6 will have been realized.

8.6.9 Future WUE Goal Updates

WAC 246-290-830(7) requires systems to reevaluate goals at a minimum every six years. Systems may change the WUE goal more often than the prescribed six-year interval. All changes to the WUE goal must follow the same public process and goal setting criteria used to establish previous goals.

8.7 Demand Forecasting – Projected WUE

The Water Use Efficiency Rule requires systems to project water system demand both with and without potential savings obtained from the WUE program. The following table shows current and future demand projections with and without water savings from increased WUE. Othello estimates the WUE program saves approximately 640,000 gallons per year.

Table 8-5 Projected Effect of WUE on Total System Demand

Time Frame	Description	Annual System Demand (MG/year)
Current	Current level of WUE	1,727
6-year	Without WUE	1,810
	With planned WUE (1)	1,806
	Max WUE (2) (3)	1,721
20-year	Without WUE	2,098
	With planned WUE (1)	2,089
	Max WUE (3) (4)	2,050

(1) *This is based on measures selected by Othello for implementation; Othello estimates these measures will save approximately 640,000 gallons annually.*

(2) *Max WUE (no more WUE possible), assumes no outdoor water use and average indoor water use of 100 gpd/capita with an average ERU occupancy of 3.5 persons => 350 gpd/Non-Industrial ERU.*

(3) *Max WUE (no more WUE possible), assumes no outdoor water use and average indoor water use of 100 gpd/capita with an average ERU occupancy of 3.0 persons => 300 gpd/Non-Industrial ERU.*

(4) *Based on projected 6 and 20 year ERUs developed in **Section 2**.*

8.8 Annual Performance Report

Othello submits annual performance reports to DOH which include information on water production, distribution system leakage, and Othello's progress made towards achieving the established water saving goals for the year (refer to **Appendix B** for recent years WUE performance reports).

8.8.1 Water Shortage Response Plan

The following table details Othello's water shortage response plan.

Table 8-6 Water Shortage Response Plan

Stage 1 Minor Shortage Voluntary Measures 5% – 10% reduction goal	Stage 2 Moderate Shortage Mandatory Program 10% – 20% reduction goal	Stage 3 Severe Shortage Rationing Program 20% – 30% reduction goal
A. PUBLIC INFORMATION ACTIONS		
- Prepare & distribute water conservation materials (bill insert, etc.) - Prepare & disseminate technical conservation information to specific customer types - Coordinate media outreach program - Issue news releases to the media	- Continue public information program - Communicate with primary industrial users, with instructions not to start any new production line runs until further notice	- Continue public information program - Notify Fire, Police, and industrial users of an emergency and implement emergency procedures
B. Othello ACTIONS		
- Increase enforcement of hydrant opening - Increase meter reading frequency & meter maintenance - Promote intensive leak detection & repair program - Draft & adopt policies banning water waste. A policy could require: ▪ No unfixed leaks; ▪ No hosing of paved surfaces; ▪ No fountains except those using re-circulated water; ▪ No water running onto streets; ▪ No watering during the middle of the day; and ▪ No irrigation runoff - Draft & adopt policies allowing Othello to declare a water emergency and require fixed consumption allotments or % cutbacks (rationing)	- Reduce water usage for main flushing, street cleaning, public fountains, & park irrigation - Watering of schools, commercial areas, etc., restricted to nights or designated irrigation days (parks and cemeteries irrigated with BOR canal water)	- All public water uses not required for health or safety prohibited unless using tank truck water supplies or reclaimed wastewater - Terminate service to the large users - Irrigation schools, commercial areas, etc., severely restricted - Main flushing allowed only for emergency purposes
C. USER RESTRICTIONS		
- Implement voluntary water use reductions (see A. Stage 1)	- Implement policy banning water waste (See B. Stage 1 above) - Industrial users will not start any new production line runs until further notice. Industrial plans are permitted to complete runs already underway - Adopt landscape irrigation restrictions incorporating one or more of the following: ▪ Time of day (e.g., 7 pm to 7 am) ▪ Weekly frequency (e.g., odd/even, time per week) ▪ Sprinkler bans (e.g., hand) - Commercial car washes should intensify voluntary use reductions - Golf course irrigation times and weekly watering limits reduced	- Implement policy allowing utilities to declare a water emergency & to require rationing (see B. Stage 1) - Service to industrial users will be terminated until emergency status is lifted - Car washing permitted only during specified watering hours of designated irrigation days - Times of day restrictions applied to commercial car washes - Watering times & weekly watering limits reduced - Permissible watering hours & weekly frequency for landscaping irrigation further reduced
D. PENALTIES		
- None	- Warning - House call - Shut off and reconnection fee	- Fines
E. PRICING		
- None	- Impose surcharges	- Impose surcharges

The City Council has the necessary authority to implement the measures outlined in **Table 8-6** at such time as they are required.

9.0 SOURCE WATER PROTECTION

9.1 Introduction

WAC 246-290-135 outlines the requirements for source water protection. The sections following address source water protection requirements.

9.2 Susceptibility Assessment

A susceptibility assessment has been completed for the system wells. A copy of the assessment is contained in the **Appendix D**.

9.3 Wellhead Protection Area Information

The Wellhead Protection Plan is carried forward from the 2011 WSP. A copy is provided in **Appendix D.**

9.4 Potential Contaminant Source Inventory

Potential contaminant source inventory identifies potential sources within the Wellhead protection areas. A table summarizing these locations is provided in **Appendix D** along with sample notification letters.

9.5 Notification of Findings

The property owners of sites listed as potential contaminants have been notified as to their location and their potential to contaminate the system's water supply by means of a letter, a copy of which is included in the **Appendix**.

9.6 Contingency and Emergency Response Plans

The Emergency Response Plan is carried forward from the 2011 WSP. A copy is provided in **Appendix D** with updated contact information**.** Contingency plans for water shortages are presented in **Table 8-6**. The City has on file at the office emergency response procedures that can be made available upon request.

10.0 OPERATION AND MAINTENANCE

10.1 Water System Management & Operator Certification

Dan Quick (Operator Number 010552) has responsibility for the water system operation. He can be reached at Othello's Public Works building at (509) 488-6997.

10.2 System Operation and Control

10.2.1 Identification of Major System Components

Refer to **Section 1.4**.

10.2.2 Routine System Operation

The routine system operation of each system component is provided in **Appendix D**.

10.3 Monitoring Procedures

Othello performs all routine water quality monitoring as required by WAC 246-290-300. Refer to **Section 4.2.5.6** for a summary of all the City's sampling requirements. The City is generally in compliance with the requirements of the WAC and no adjustments to its procedures appear necessary at this time.

10.4 Emergency Response Procedures

The City's Emergency Response Plan is provided in **Appendix D.** Refer to **Section 4.8** for an assessment of vulnerability/reliability of various water system components under various circumstances.

10.5 Cross Connection Control

The Cross Connection Control Plan is provided in **Appendix D.**

10.6 Record Keeping and Reporting

The City keeps all water system records. Electronic records for the City's production values were lost sometime before 2015 when a data file was corrupted. Available records include:

- Water quality sampling results
- Source meter records
- Service meter records
- Customer complaints
- Project record drawings
- Water system engineering reports

- Billing records

In general, it is the City's policy not to dispose of any potentially valuable system records. The City follows the requirements of WAC 246-29-480.

10.7 Operation & Maintenance Program Improvements

The water system is operated efficiently and effectively. See **Section 5** for improvements intended to increase system operational efficiency.

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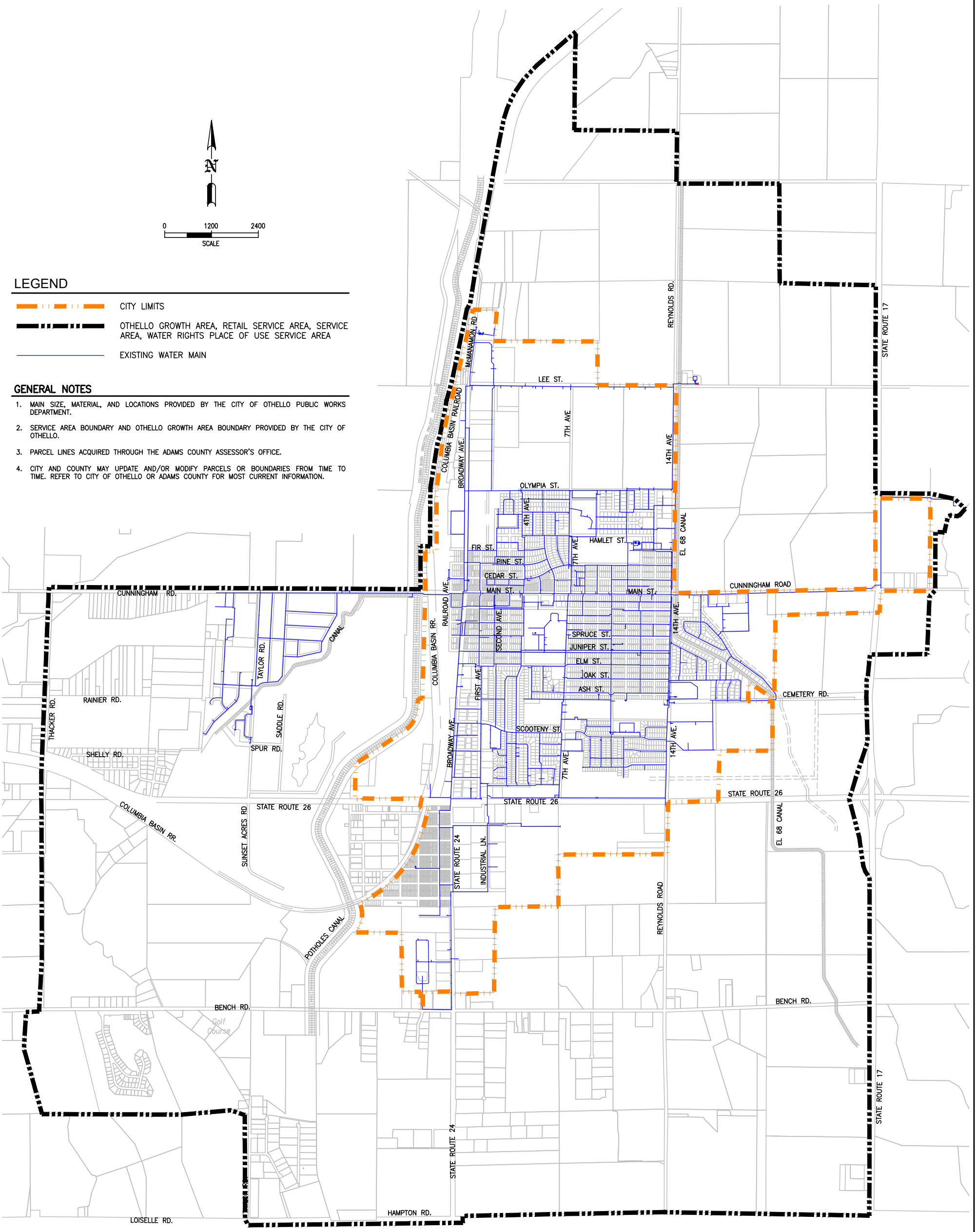
SCALE

LEGEND

- CITY LIMITS
- OTHELLO GROWTH AREA, RETAIL SERVICE AREA, SERVICE AREA, WATER RIGHTS PLACE OF USE SERVICE AREA
- EXISTING WATER MAIN

GENERAL NOTES

1. MAIN SIZE, MATERIAL, AND LOCATIONS PROVIDED BY THE CITY OF OTHELLO PUBLIC WORKS DEPARTMENT.
2. SERVICE AREA BOUNDARY AND OTHELLO GROWTH AREA BOUNDARY PROVIDED BY THE CITY OF OTHELLO.
3. PARCEL LINES ACQUIRED THROUGH THE ADAMS COUNTY ASSESSOR'S OFFICE.
4. CITY AND COUNTY MAY UPDATE AND/OR MODIFY PARCELS OR BOUNDARIES FROM TIME TO TIME. REFER TO CITY OF OTHELLO OR ADAMS COUNTY FOR MOST CURRENT INFORMATION.



1722001-WSP-Fig 1

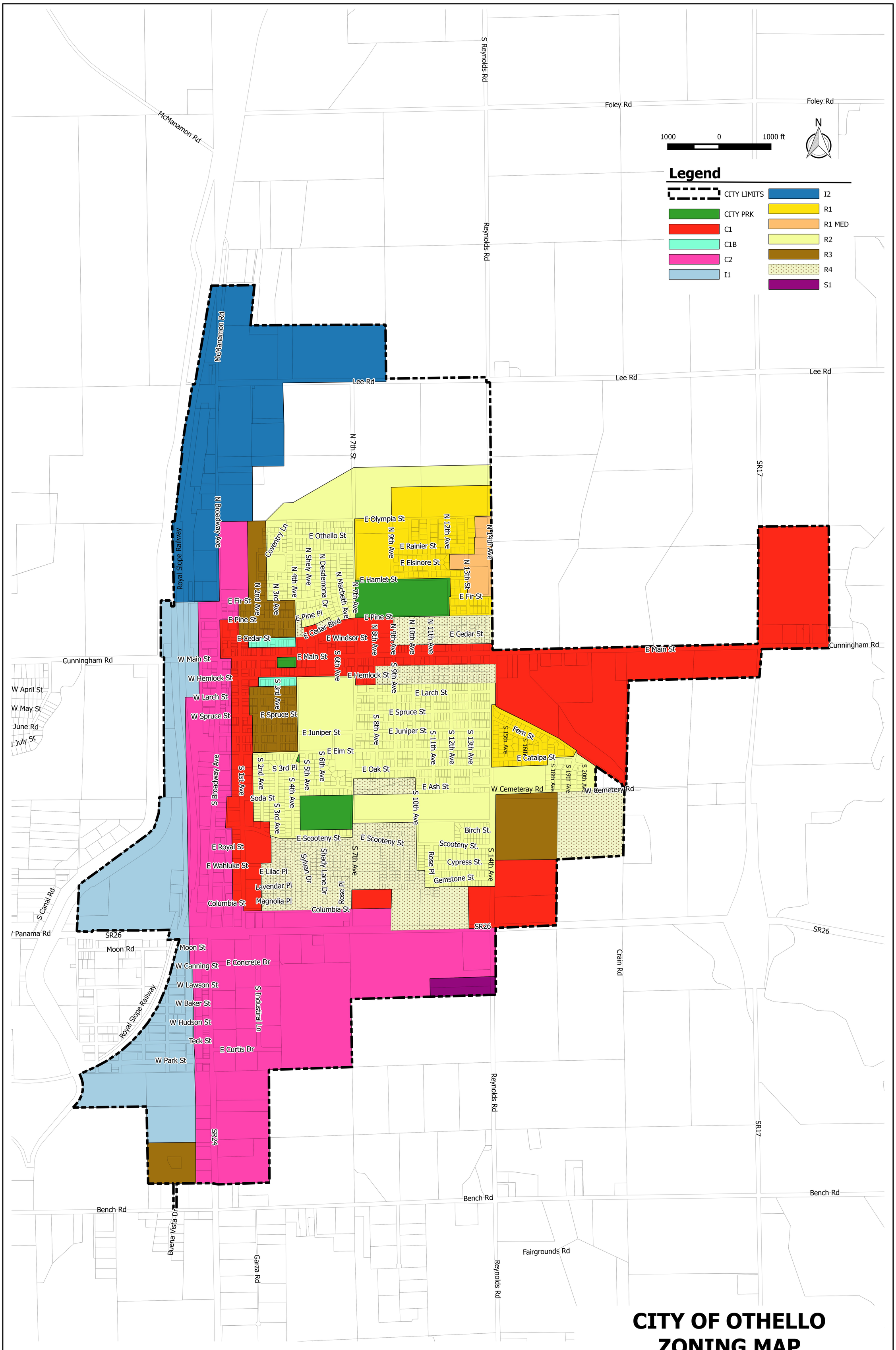
SCALE:	AS SHOWN
DESIGNED:	NVH
DRAWN:	TVP
CHECKED:	
APPROVED:	
PROJ. NO.:	172-20-01
DATE:	10/04/16

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF OTHELLO, WASHINGTON
WATER SYSTEM PLAN

SERVICE AREAS, MUNICIPAL BOUNDARIES, AND PARCELS

FIGURE
1A



VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

FIGURE 1B

CITY OF OTHELLO ZONING MAP

January 11, 2016

Adams County, Washington

Exhibit B of Ordinance No. (O-03-11)
Amended O-02-10

N
W E
S

Source: Adams County Planning & Building Department Data as of March 2007

Legend

Zoning District

- Commercial
- General Agriculture
- Heavy Industrial
- Light Industrial
- Prime Agriculture
- Rural Residential
- R-1 Residential (currently not designated)
- Rural Settlement
- Airport (Obstruction) Overlay

County Road — Paved / Graveled / Unimproved

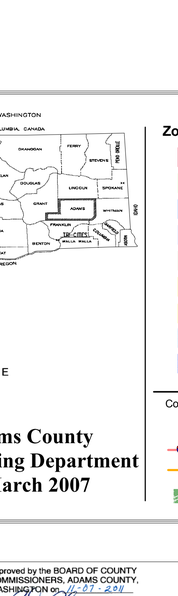
- Federal Highway
- State Highway
- Private Lane
- Railroad
- Canal
- City
- Section

Approved by the BOARD OF COUNTY COMMISSIONERS, ADAMS COUNTY, WASHINGTON on 11-07-2011
Chairman

Approved by the ADAMS COUNTY PLANNING COMMISSION on 9-15-11
Chairman

ATTEST:
Linda Reimer, MMC
Clerk of the Board

Secretary of the Planning Commission.



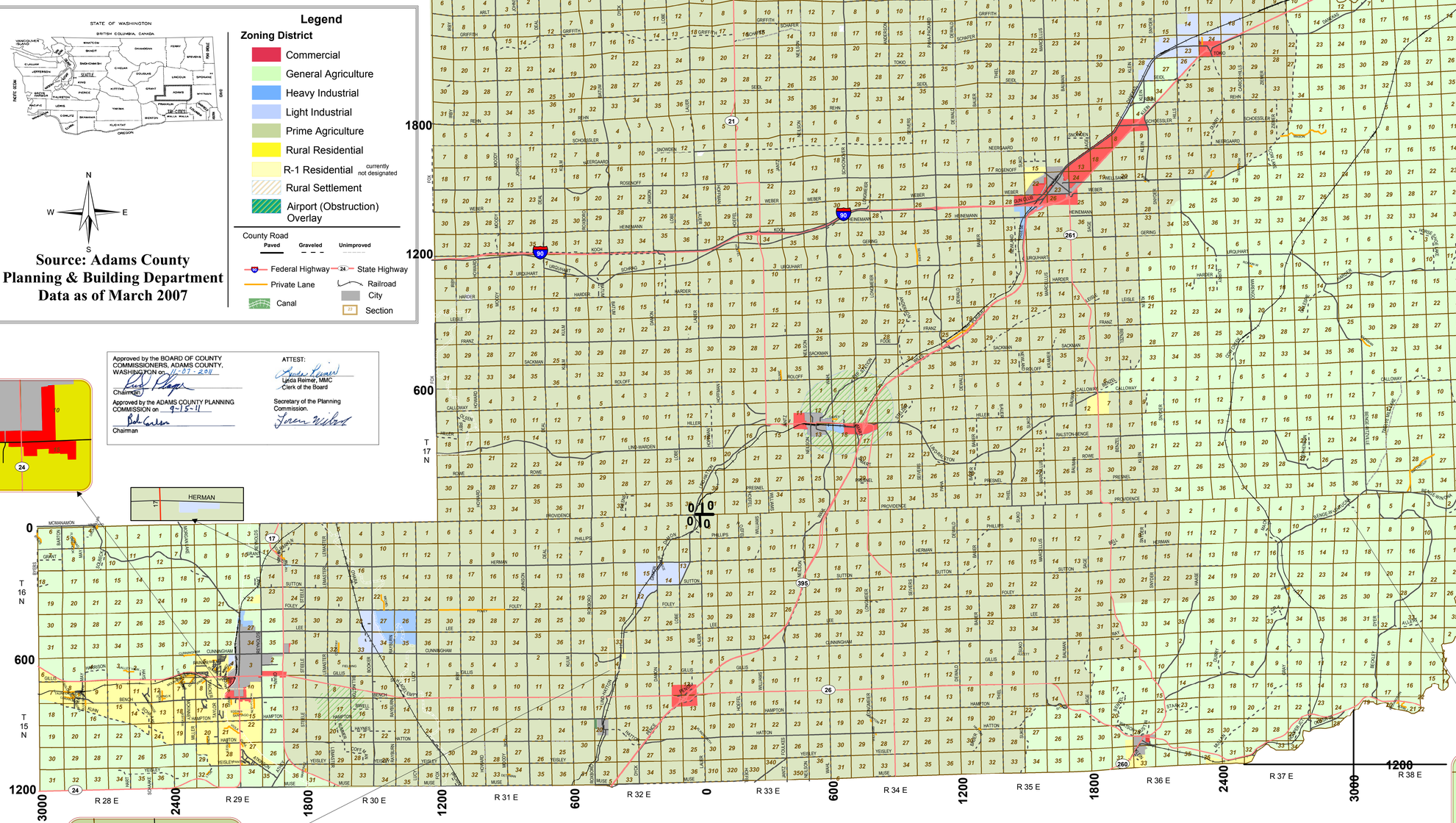


FIGURE 1C

Zoning Map

0 1.5 3 6 9 12 Miles

LABEL	AREA (AC)	DENSITY TYPE	ERUs	PROBABILITY (1–5)
1	10	RES–HIGH	40	3
2	14	RES–LOW	42	3
3	51	RES–LOW	153	3
4	83	SCHOOL	176	2
5	72	RES–LOW	216	1
6	104	RES–LOW	312	5
7	170	RES–HIGH	680	5
8	87	COMMERCIAL	287	5
9	87	COMMERCIAL	287	3
10	3	OTHER	9	1
11	33	RES–LOW	99	1
12	22	RES–LOW	66	5
13	108	COMMERCIAL	356	2
14	134	RES–LOW	402	3
15	13	RES–LOW	39	1
16	38	RES–LOW	114	1
17	15	RES–HIGH	60	3
18	10	RES–HIGH	40	1
19	12	RES–LOW	36	1
20	22	RES–LOW	66	1
21	9	COMMERCIAL	30	3
22	19	OTHER	57	1
23	15	COMMERCIAL	50	3
24	131	COMMERCIAL	432	5
25	69	COMMERCIAL	228	1
26	65	RES–LOW	195	5
27	10	RES–HIGH	40	2
28	82	RES–LOW	246	5
29	114	RES–LOW	342	5
30	51	COMMERCIAL	168	2
31	100	RES–HIGH	400	3
32	164	RES–LOW	492	5
33	38	COMMERCIAL	125	5
34	223	RES–LOW	669	4
35	38	COMMERCIAL	125	2
36	15	RES–HIGH	60	5
37	74	RES–LOW	222	2
38	94	RES–LOW	282	2
39	83	RES–LOW	249	4
40	33	RES–LOW	99	4

LABEL	AREA (AC)	DENSITY TYPE	ERUs	PROBABILITY (1–5)
41	40	RES–LOW	120	4
42	129	RES–LOW	387	4
43	15	RES–HIGH	60	1
44	44	SCHOOL	88	5
45	14	RES–LOW	42	2
46	64	RES–HIGH	256	1
47	55	RES–LOW	165	2
48	55	RES–LOW	165	4
49	37	RES–LOW	111	4

DENSITY ASSUMPTIONS

LOW DENSITY RESIDENTIAL	3 ERU/AC
HIGH DENSITY RESIDENTIAL	4 ERU/AC
COMMERCIAL DENSITY	3.3 ERU/AC
SCHOOL DENSITY	2 ERU/AC
OTHER DENSITY	3 ERU/AC

PROBABILITY NOTES

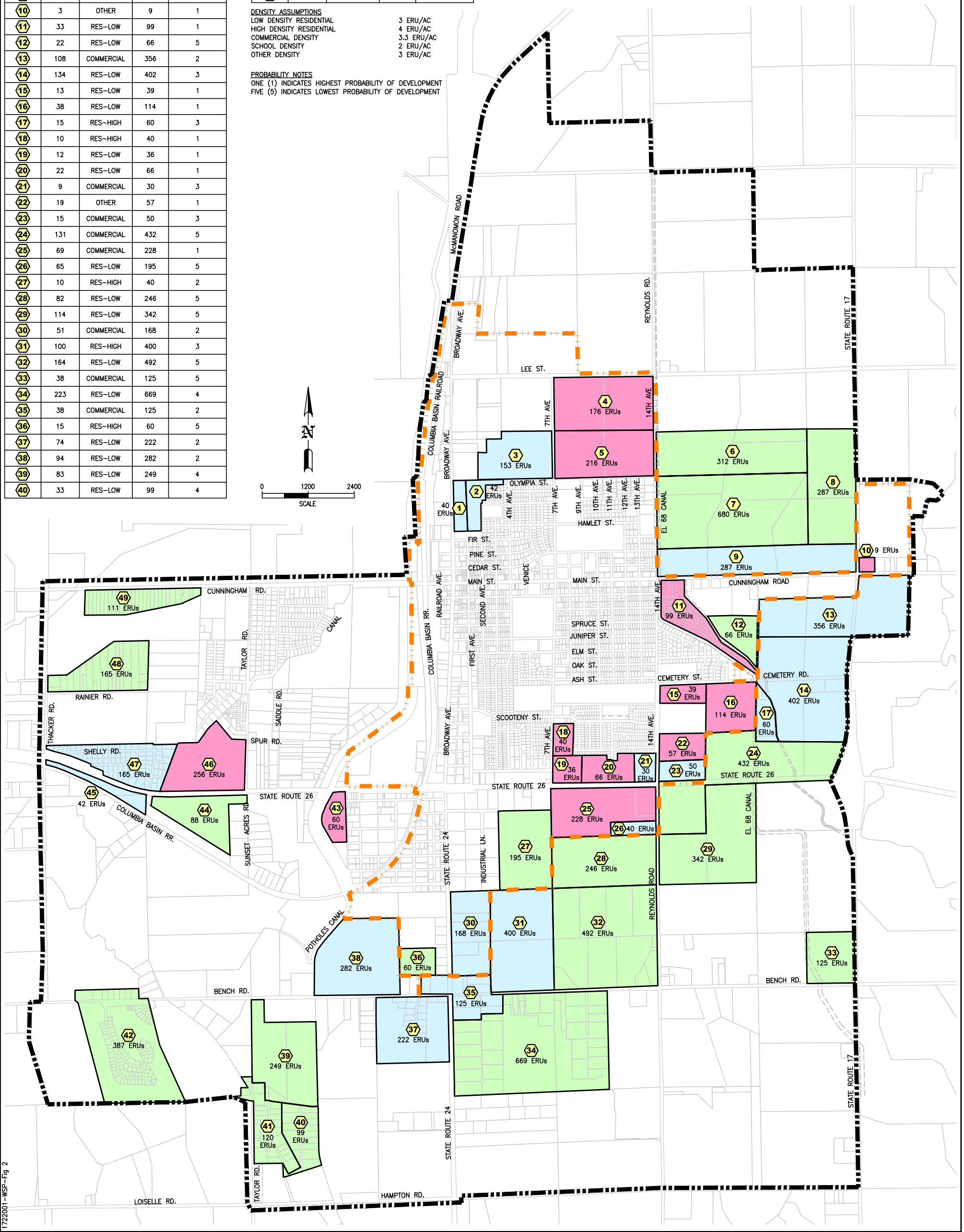
ONE (1) INDICATES HIGHEST PROBABILITY OF DEVELOPMENT
FIVE (5) INDICATES LOWEST PROBABILITY OF DEVELOPMENT

LEGEND

- CITY LIMITS
- OTHELLO GROWTH AREA
- GROWTH AREA BOUNDARY
- 6–YR GROWTH
- 20–YR GROWTH
- BEYOND 20–YR

GENERAL NOTES

1. MAIN SIZE, MATERIAL, AND LOCATIONS PROVIDED BY THE CITY OF OTHELLO PUBLIC WORKS DEPARTMENT.
2. SERVICE AREA BOUNDARY AND OTHELLO GROWTH AREA BOUNDARY PROVIDED BY THE CITY OF OTHELLO.
3. PARCEL LINES ACQUIRED THROUGH THE ADAMS COUNTY ASSESSOR'S OFFICE.
4. CITY AND COUNTY MAY UPDATE AND/OR MODIFY PARCELS OR BOUNDARIES FROM TIME TO TIME. REFER TO CITY OF OTHELLO OR ADAMS COUNTY FOR MOST CURRENT INFORMATION.



1722001–WSP–Fig 2

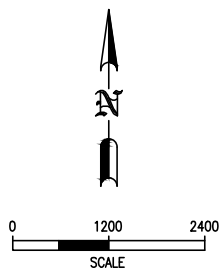
SCALE:	AS SHOWN
DESIGNED:	NVH
DRAWN:	TVP
CHECKED:	
APPROVED:	
PROJ. NO.:	172–20–01
DATE:	10/4/16

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF OTHELLO, WASHINGTON
WATER SYSTEM PLAN

FUTURE GROWTH DISTRIBUTION

FIGURE
2A



LEGEND

- OTHELLO GROWTH AREA
- CITY LIMITS
- EXISTING WATER MAIN
- TRANSMISSION GRID; REFER TO SECTION 3.5.2 REGARDING MAIN SIZING ALONG THE TRANSMISSION GRID

GENERAL NOTES

1. MAIN SIZE, MATERIAL, AND LOCATIONS PROVIDED BY THE CITY OF OTHELLO PUBLIC WORKS DEPARTMENT.
2. SERVICE AREA BOUNDARY AND OTHELLO GROWTH AREA BOUNDARY PROVIDED BY THE CITY OF OTHELLO.
3. PARCEL LINES ACQUIRED THROUGH THE ADAMS COUNTY ASSESSOR'S OFFICE.
4. CITY AND COUNTY MAY UPDATE AND/OR MODIFY PARCELS OR BOUNDARIES FROM TIME TO TIME. REFER TO CITY OF OTHELLO OR ADAMS COUNTY FOR MOST CURRENT INFORMATION.

1722001-WSP-Fig 2B

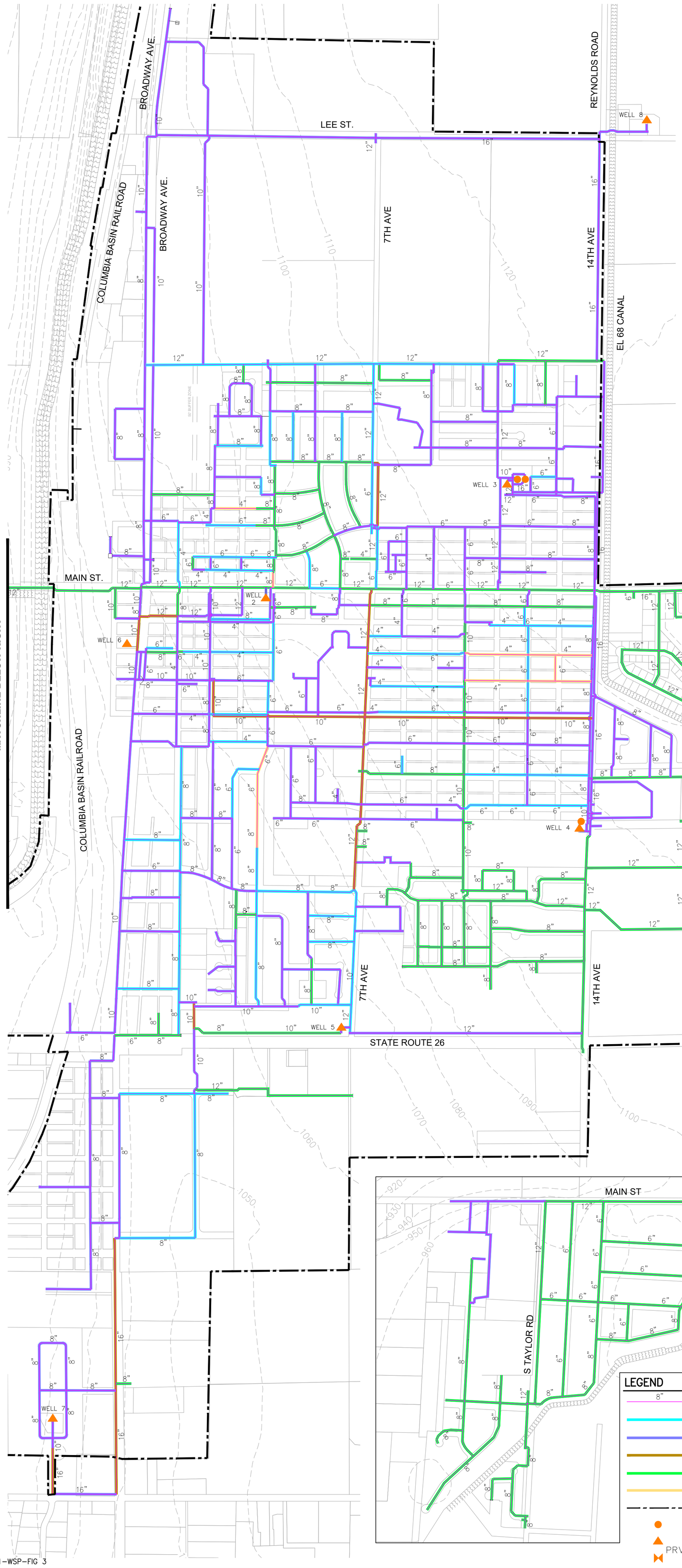
SCALE:	AS SHOWN
DESIGNED:	NVH
DRAWN:	TVP/TVS
CHECKED:	
APPROVED:	
PROJ. NO.:	172-20-01
DATE:	10/04/16

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF OTHELLO, WASHINGTON
WATER SYSTEM PLAN

TRANSMISSION GRID

FIGURE
2B



LEGEND

- WATERMAIN W/ PIPE SIZE
- ASBESTOS CEMENT (AC)
- CAST IRON (CI)
- DUCTILE IRON (DI)
- POLYVINYL CHLORIDE PIPE (PVC)
- STEEL PIPE
- CITY LIMITS
- RESERVOIR
- WELL
- PRV – INTERTIE WITH ACWD1

GENERAL NOTES

1. MAIN SIZE, MATERIAL, AND LOCATIONS PROVIDED BY THE CITY OF OTHELLO PUBLIC WORKS DEPARTMENT.
2. SERVICE AREA BOUNDARY AND OTHELLO GROWTH AREA BOUNDARY PROVIDED BY THE CITY OF OTHELLO.
3. PARCEL LINES ACQUIRED THROUGH THE ADAMS COUNTY ASSESSOR'S OFFICE.
4. CITY AND COUNTY MAY UPDATE AND/OR MODIFY PARCELS OR BOUNDARIES FROM TIME TO TIME. REFER TO CITY OF OTHELLO OR ADAMS COUNTY FOR MOST CURRENT INFORMATION.
5. CONTOUR LINES BASED ON NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) DIGITAL ELEVATION FILES.

1722001–WSP–FIG 3

SCALE:	AS SHOWN
DESIGNED:	NVH
DRAWN:	TVS
CHECKED:	
APPROVED:	
PROJ. NO.:	172–20–01
DATE:	11/29/16

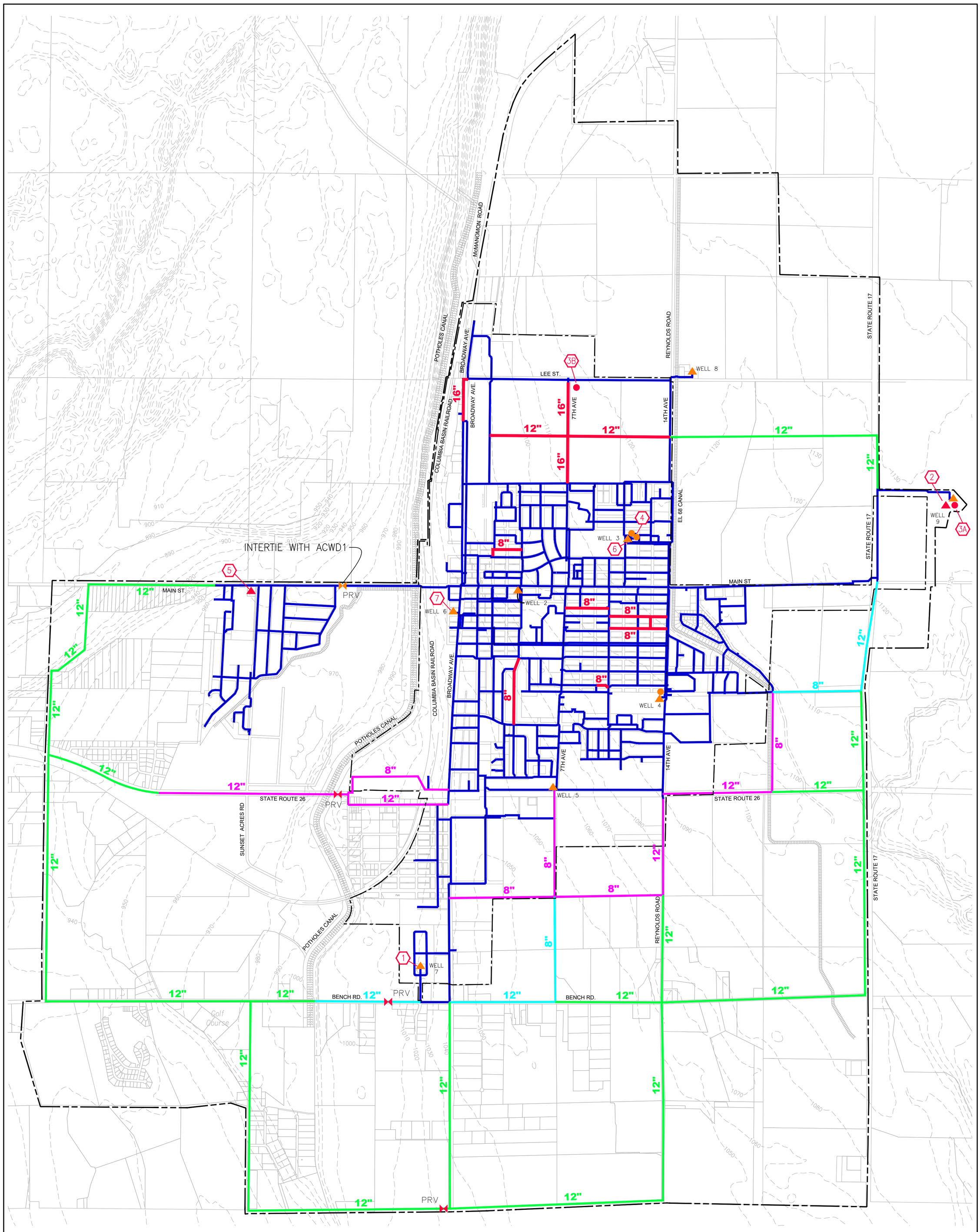
VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF OTHELLO, WASHINGTON
WATER SYSTEM PLAN

FIGURE

EXISTING WATER SYSTEM

3



LEGEND

- EXISTING WATER MAIN
- OTHELLO GROWTH AREA
- CITY LIMITS
- 8" 6–YR GROWTH
- 8" 20–YR GROWTH
- 8" BEYOND 20–YR
- 8" DISTRIBUTION SYSTEM IMPROVEMENTS
- EXISTING RESERVOIR
- EXISTING WELL
- PRV EXISTING PRV (INTERTIE WITH ACWD1)
- PROPOSED RESERVOIR
- PROPOSED WELL
- PRV PROPOSED PRV
- (1) REHABILITATE WELL 7
- (2) PROPOSED WELL 10
- (3A) PROPOSED 2.5 MILLION GALLON RESERVOIR: SITE A
- (3B) PROPOSED 2.5 MILLION GALLON RESERVOIR: SITE B
- (4) UPSIZE RESERVOIR OUTLET PIPE TO 16" AS PART OF THE DISTRIBUTION SYSTEM IMPROVEMENTS
- (5) PROPOSED WELL 11
- (6) PROPOSED BOOSTER STATION
- (7) WELL 6 FLUORIDE IMPROVEMENTS

GENERAL NOTES

1. MAIN SIZE, MATERIAL, AND LOCATIONS PROVIDED BY THE CITY OF OTHELLO PUBLIC WORKS DEPARTMENT.
2. SERVICE AREA BOUNDARY AND OTHELLO GROWTH AREA BOUNDARY PROVIDED BY THE CITY OF OTHELLO.
3. PARCEL LINES ACQUIRED THROUGH THE ADAMS COUNTY ASSESSOR'S OFFICE.
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5. CONTOUR LINES BASED ON NATIONAL AGRICULTURE IMAGERY PROGRAM (NAIP) DIGITAL ELEVATION FILES.

0 1200 2400
SCALE

1722001–WSP–FIG 4

SCALE: AS SHOWN
DESIGNED: NVH
DRAWN: TVS
CHECKED:
APPROVED:
PROJ. NO.: 172–20–01
DATE: 11/29/16

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF OTHELLO, WASHINGTON
WATER SYSTEM PLAN

FIGURE 4

PLANNED WATER SYSTEM IMPROVEMENTS

APPENDICES

Appendix A
Local Agency Planning Consistency Checklists
Local Fire District Coordination Documentation
City of Othello Draft Comprehensive Plan: Land Use Element
System Capacity Analysis
Water Service Agreement – Adams County Water District #1
Water Service Agreement – McCain Foods USA, Inc
Notice to Neighboring Utilities for WSP Review and Comment
Council Meeting Documentation (WUE and Meeting of Consumers)
WUE Customer Education Documentation

Appendix B
DOH Water Facilities Inventory (WFI)
DOH Water Quality Monitoring Schedule (WQMS)
DOH Sanitary Survey Checklist (SSC)
DOH Water Use Efficiency (WUE) Performance Reports

Appendix C
Well Logs
Water Rights Certificates

Appendix D
Water System City Code, Policies, and Ordinances
2016 Public Works Water System Design Standards
Cross Connection Control Plan
Operation and Maintenance Plan
Emergency Response Plan
Wellhead Protection Plan
Coliform Monitoring Plan
Lead and Copper Rule
Fluoride Blending Plan
Consumer Confidence Report

Appendix E
Consolidation Feasibility Study Executive Summary (2016)
Water Supply Plan Summary (2016)
ASR Feasibility Study Summary (2017)

Appendix F
Hydraulic Model Schematic and Sample Outputs

Appendix G
Determination of Non-Significance
SEPA Checklist (non-project)

APPENDIX A

Local Agency Planning Consistency Checklists
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WUE Customer Education Documentation

Washington State Department of Health

Local Government Consistency Determination Form

Water System Name: City of Othello PWS ID: 64850

Planning/Engineering Document Title: Water System Plan Plan Date: February 2017

Local Government with Jurisdiction Conducting Review: City of Othello

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

Local Government Consistency Statement	For use by water system: Identify the page(s) in submittal	For use by local government: Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Figures 1/1A/1B/2	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Throughout Section 2 (pgs. 11-20)	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	Appendix D	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Section 1.9 - 1.10 (pg 10)	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	N/A

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Anne Henning
Signature

8-31-17
Date

Anne Henning, Community Development Director Othello
Printed Name, Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

Washington State Department of Health

Local Government Consistency Determination Form

Water System Name: City of Othello PWS ID: 64850

Planning/Engineering Document Title: Water System Plan Plan Date: February 2017

Local Government with Jurisdiction Conducting Review: Adams County

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

Local Government Consistency Statement	For use by water system: Identify the page(s) in submittal	For use by local government: Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Figures 1/1A/1B/2	Yes - Please See attached comments.
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Throughout Section 2 (pgs. 11-20)	N/a
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	Appendix D	N/a
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Section 1.9 - 1.10 (pg 10)	N/a
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature 8/30/2017 Date

Tim Unruh Planning Director

Printed Name, Title, & Jurisdiction

ADAMS County
WASHINGTON

To: Nathan Hutchens, Varela and Associates

From: Adams County Building & Planning Department

Date: August 30, 2017

RE: **City of Othello WSP Local Government Consistency Determination Form**

Thank you for the opportunity to review the City of Othello WSP update for consistency with Adams County land use plans. While we have no objection to the proposed growth area and retail water service area boundaries, we would like to point out that the City's growth area includes land in the County that is used and zoned for General Agriculture.

The purpose of this land use designation is to support irrigated row crop, orchard production, grain or feed crop production, as well as livestock grazing. Permitted density in the General Agriculture designation is 1 home per 20-acres. The extension of infrastructure for potable water could create would not be supported by the current use and density.

ADAMS COUNTY FIRE DISTRICT 5

Adams County Fire District #5
220 S Broadway
Othello, WA 99344

(509)488-2951
Fax (509)488-7808

November 16, 2016

City of Othello
Public Works Department
111 N Broadway Ave
Othello, WA 99344

Attn: Terry Clements
Public Works Director

RE: Water System Plan Storage Nesting

Dear Mr. Clements,

We have reviewed the City's proposed fire flow rate and duration criteria; we agree that the criteria appear reasonable for the types of construction found within the areas served by the City.

After deliberations and correspondence with your engineer, we approve of nesting the standby and fire suppression components of the City's storage with the understanding that the City is planning a new storage in the near future as well as discussing the installation of emergency backup power at a well site.

If you have any questions or concerns regarding this review, please contact our office at (509)488-2951.

Regards,

Gary Lebacken
Fire Chief

Chapter 1
Land Use

The purpose of the Land Use plan element describes and analyzes development potential and actualities on the landscape. This element provides a framework for all the other elements within the plan. The other elements must be consistent with the land use element and maps.

Existing Conditions:

The challenges facing the City include a shortage of developable land within its borders. Sewer service is not available within the City south of Highway 26, leaving approximately one-fifth of the city's area without service. This has severely restricted the ability of that land to fully develop to its potential.

Distribution of the City's zoning was calculated using the Adams County GIS system. These estimates show the following distribution of land by zoning:

- Residential 36%
- Open Space 7%
- Parks 2%
- Commercial 35%
- Industrial 20%

These estimates appear to show a balanced community where residential land is the highest acreage of land use and there seems to be a balance of commercial and industrial land supply. However, through the comp plan process, it has become readily apparent that looks are deceiving. Anecdotal testimony has shown that there is a severe shortage of land available for development that seems to be confirmed by the data. (See Figure 1-1)

After taking out that portion of the City south of Highway 26 which has no sewer service, the amount of vacant acres available for development drops to only 28%. When you consider that a typical project will dedicate nearly 30% of its land area for streets, sidewalks, and utilities, the available land supply quickly dwindles to a small number.

Expansion History

The physical size of Othello has changed but the development footprint for the City of Othello has remained largely unchanged for more than a decade. Figure 1-2 shows the annexation history for the City. Since 2000, the city has annexed approximately 398 acres of land representing about a 16% expansion in the City's size. Unfortunately, only about 30 of those

annexed acres have since developed; 23 acres for Wahitis Elementary school; and nearly 7 acres for commercial uses. No land annexed within the last 14 years has been developed for residential use.

Figure 1-1. City Zoning and Vacancy (estimated)

Zoning District	Total Acres	Vacant Acres	% Vacant
Commercial 1	389	186	48%
Commercial 1B	10	0	0%
Commercial 2	480	213	44%
Commercial 3	0	0	N/A
Industrial 1	247	46	19%
Industrial 2	250	50	20%
Open Space	175	175	100%
Parks	44	0	N/A
R-1 Residential	158	40	25%
R-1M Medical	15	0	0%
R-2 Residential	414	46	11%
R-3 Residential	50	28	56%
R-4 Residential	248	83	33%
S-1 Suburban	20	0	0%
	2,500	**867**	**35%**

Figure 1-2. Annexation History

Year	Annexation Size	Zoning	Developed Use	Vacant Acres
2002	37 acres	Commercial 1	Vacant	37
2007	75 acres	Commercial 1	Commercial	65
2008	170 acres	Commercial 2	Vacant/County	150
2011	38 acres	Residential 3	School	13
2012	38 acres	Residential 4	Vacant	38
2014	20 acres	Commercial 1	Vacant	20
2015	20 acres	Commercial 1	Vacant	20
Total	398 acres			345 Acres

But, during that same period the City's population has been growing substantially. In fact, the population of the City has grown by approximately 1,800 people which is an increase of about 31%.

Without a comprehensive plan for that growth, the market reacted in three ways: first, because residential development did not kept pace with population, densities increased and the development that did occur was in the form of infill; second, a large amount of the annexed

areas were largely unserved by infrastructure and city utility services; and third, the majority of the annexed areas were for commercial purposes. The result has been an overall lack of space to grow.

Increasing Densities

Typical growth patterns in a well planned community will have a well balanced approach where job growth drives housing growth, which in turn drives additional growth. A city which grows in population by 31%, that grows in size by 10%, but adds no new residential area growth by annexation, wouldn't be considered a balanced community.

The result, as discussed in the housing chapter, Othello has a highly constrained housing market. In Othello's case, the market is defined by increasing densities, a shortage of rental units, and a housing market where new homes are often sold before construction is complete.

Annexation Strategy

Of the 398 acres annexed since 2000, 112 of those acres were to the East of the City. All 112 of those acres were zoned commercial when they were annexed, and none of those acres were served by city services like water or sewer. In fact, it wasn't until 2015 when the City drilled Well #9, that water and sewer were even extended to those 112 acres.

The "annex first, then wait forever for city services to be made available" model clearly demonstrates a lack of planning. It shows a disconnect between capital project investment (either public or private) and unplanned growth that explains why virtually no annexed land has developed after annexation.

In fact, only the 2011 annexation for Wahitis Elementary has resulted in development at the developer's expense. (The 2014 annexation was for the Columbia Basin Health Association (CBHA) clinic site which is currently in design and permitting for construction to start in 2016.)

This situation brings to light the need for not only a comprehensive planning strategy, but also an annexation strategy that is tied to capital planning investments. One where development pressure drives infrastructure investment, not one where public investment is required before development is considered. Such a model isn't sustainable and forces the City to assume all risk with no expectation for repayment.

It also supports the idea that the City should consider annexations only when adequate infrastructure is in place and when development plans support the need for the annexation. There is also the need for an evaluation of what types of land uses the city needs for balanced growth.

As part of the comp plan planning process, staff reviewed the existing land use pattern with the City. The findings of this analysis are outlined below:

Residential

The City has six (6) residential zoning districts with approximately 905 acres. Of those, 22% or 197 acres remain vacant. Of this vacant land a significantly large part of that has no sewer service available. For example, of the of the 28 acres zoned R-3, approximately 16 acres of those have no service available. This effectively means that 10% of vacant residential land in the city is not available for development at city densities.

Figure 1-3. Estimated Residential Zoning and Vacancy

Residential	Total Acres	Vacant Acres	% Vacant
S-1 Suburban	20	0	0%
R-1 Residential	158	40	25%
R-1M Residential Medical	15	0	0%
R-2 Residential	414	46	11%
R-3 Residential	50	28	56%
R-4 Residential	248	83	33%
	905	**197**	**22%**

Another problem is that the City's zoning code has a number of residential zoning districts. This makes the code look robust and diverse, but that impression is oddly misleading. In spite of having six zoning designations there is little diversity. The S-1 suburban zone only applies to two 10-acre parcels (a density of .1 units per acre).

The entire R-1M "residential" medical zone only has three residences (on 3.5 acres) while the remaining 11.5 acres are the hospital. So it could more accurately be described a public facility or commercial zoning district rather than a residential district.

In addition, the R-1, R-2, R-3 and R-4 zones are markedly homogenous. The zones have virtually the same lot size requirements, setbacks, height limits, lot coverage limits, and parking requirements. With little exaggeration, the only meaningful difference is what types of uses are allowed in the zones. For example, the R-1 only allows one dwelling a lot; the R-2 district allows all R-1 uses plus duplex units; the R-3 allows all R-1 and R-2 uses plus tri-plexes and four-plexes; and the R-4 district allows R-1, R-2, R-3 uses plus multi-family units.

The result of this type of zoning framework is discussed in Chapter 2 Housing, but can be generally characterized as a low density sprawl at a level of which makes utility service provision highly inefficient. This fact alone could explain why the City has had such limited residential growth in spite of such a robust growth in population.

When coupling the inadequate zoning framework with the current constrained supply of vacant residential land within the city, analysis of the potential housing supply (as outlined in Chapter 2) suggests that there is only sufficient space to accommodate only about a fourth of the needed number of housing units. This suggests that Othello has little choice but to contemplate a planned Othello Growth Area (OGA).

Given this, the comprehensive planning process has demonstrated that the City has a vision for having a robust housing market with a mix of old and new neighborhoods, housing styles, densities, and a range of housing affordability.

The City desires to have a zoning code which creates opportunities for multiple types of housing units. The City desires a mix of housing types, both within the community but also within individual developments; and, the City desires to add options for mixed-use housing and commercial developments. The addition of such code language should allow for increased densities which will in turn reduce the cost for providing services like roads, water, and sewer.

The City can also preserve home values by establishing a high quality of life in the community and protecting it through the enforcement of health, safety, and nuisance codes.

To do this, efforts need to focus on infrastructure plans that include safe water provision, an adequate water supply, adequate wastewater disposal, electrical and natural gas provision, and a secure communications system.

By planning residential development in a more compact form, the City can reduce investment costs. But the City must also establish and implement service levels that improve the overall quality of life in the community, specifically, in the areas of public safety, transportation, parks and recreation, and other government services.

This can best be accomplished by following a systematic development and annexation strategy that encourages infill projects or developments where services are currently available. Annexations should prioritize properties that:

1) Already have services;
2) Are adjacent to existing service lines;
3) Include specific development plans and proposals;
4) Commit to the installation of infrastructure within a specific period of time; and,
5) Facilitate the logical extension of services to additional areas within the OGA.

Annexations which fail to meet these priorities should be strongly discouraged unless they can be found to address a specific need within the community and will further the purpose of the City's vision and comprehensive plan. Annexations which create infrastructure gaps or that "leap-frog" undeveloped or unserved properties should be avoided wherever possible.

When residential developments are proposed, higher density residential developments should be used to buffer single-family neighborhoods from industrial developments and zones. Mixed use developments should also be considered for buffering industrial and commercial developments from single-family neighborhoods.

Where residential development occurs, adequate provisions for fire safety, public safety, parks and recreation will be required. The City will work to develop a framework so that costs for such provisions can fairly and equitably be distributed throughout the community.

Commercial

Othello intends to provide an open and welcoming economic environment. The Economic Development Chapter, Chapter 5 of this plan, further clarifies this vision, but ultimately this vision will be realized through the implementation of commercial and industrial land use regulations.

The current zoning structure for commercial zoning includes four zoning districts:

Figure 1-4. Commercial Zoning and Vacancy

Commercial	**Total Acres**	**Vacant Acres**	**% Vacant**
C-1	389	186	48%
C-1B	10	0	0%
C-2	480	213	44%
C-3	0	0	N/A
	879	**399**	**45%**

C-1 Commercial zoning is a traditional zoning district which allows a narrow range of commercial uses including small scale retail businesses where business is conducted indoors.

C-1B zoning is similar in nature except it appears to exist solely to accommodate existing residential uses that existed prior to the zoning district. As with the miss-named R-1M zone, the C-1B zone appears to be miss-labeled as it functions as a residential zone and not a commercial one.

C-2 Commercial zoning is slightly more robust than the C-1 because it allows for service uses and activities that occur outside of structures. The permitted uses in the C-2 district tend to require larger parcels to accommodate the display of goods for sale and for larger structures.

The C-3 district appears to be designed for retail, service and office spaces. However, there is no land designated as C-3 on the Zoning Map.

During the comp plan planning process, staff advocated for a reform of the commercial zoning designations. Public input was sought regarding a new approach to commercial zoning designation. Conclusions from those discussions showed that there was general support for updating the city commercial zoning code to include four types of commercial designations and an overlay code:

> Neighborhood Commercial (NC) – Characterized by limited size commercial uses intended to primarily serve as convenience shopping for services for the immediate neighborhood.
>
> Community Commercial (CC) – Uses that provide regular shopping and service needs to adjacent neighborhoods and the community as a whole.
>
> General Commercial (GC) – Which Provide a full range of goods and services necessary to serve large areas of the county and traveling public.
>
> Mixed Use overlay (MU) – Developments that allow mutually supporting activities to be located on the same site or incorporated into the same building. Examples include retail, services, offices, and residential.

The City will need to engage in an update to its zoning code so that the commercial goals of the comp plan can be better implemented by the zoning code. Table 1-6 below indicates what zoning districts can be implemented in each comp plan designation.

<u>Commercial Character</u>

Commercially zoned properties in the city have several challenges. Along Main Street lots can be characterized by very small lots platted during the City's earliest days. Many lots are 3,000 square feet in size (25 feet by 120 feet) which makes them too small to develop unless more than one contiguous lot is owned.

Main Street has a jumble of building styles and sizes along its entire length. The west end is characterized by old town commercial uses that front on the sidewalk. This is presumably from the days when there was angled parking on Main Street. From Pioneer Park east, Main Street is characterized by a mix of more recent building styles and designs. Parking becomes the most prominent feature of many of the sites. A mix of paved and unpaved parking areas, most without landscaping, tends to accentuate the varied degree of maintenance that each

property gets. Well maintained and landscaped businesses mix haphazardly alongside unpainted businesses with crumbling asphalt and retaining walls. There is also nearly 150 acres of vacant commercial land along Main Street East of Walmart which makes it look like Othello is far removed from the highway as opposed to being located on both sides of Highway 17.

Enter the Othello Beautification Committee. This community driven group has taken it upon itself to design a Main Street Improvement Project that includes decorative lighting, street furniture, and flower pots that are maintained by volunteers. The City contributes to the effort on an ongoing basis as do many of the local service organizations. The continued support of this effort and efforts to reduce the amount of overhead lines along Main Street should make improvements to the overall impression of Othello.

Commercial sites along 1st Avenue and Broadway are characterized by larger lot sizes. Much of the property is developed with a few sites available for infill development. The area around Main Street and 1st is traditional old town styled businesses which open directly onto the sidewalk. But again, there is no cohesive theme or design pattern that would allow for the area to be characterized as a "downtown".

1st Avenue is zoned C-1 on both sides while Broadway is zoned C-2 on both sides. Because the commercial zoning districts are so similar, the result is that the further south along the roads one goes towards Highway 26, the more and more similar the character of the uses become. In fact, Broadway could be considered more industrial than commercial in character.

South of Highway 26, there are large swaths of undeveloped commercial properties but without sewer service; uses of the sites will be limited. The business that do exist are on septic systems, and in keeping with the C-2 zoning district have small structures surrounded by large storage, sales, and parking areas. The overall impression that this area is an industrial district is only exasperated by the fact that the street names are Concrete Drive and Industrial Lane.

Aesthetic Challenge

This introduces one of the most difficult challenges facing the City. The City has done a fairly good job of buffering its residential neighborhoods from commercial impacts, but public input was generally consistent that the City has experienced an overall decline in aesthetics. A good example of this is decent buffering between commercial and industrial uses (while providing very good commercial access to good transportation infrastructure) the commercial areas of the city have a profound negative impact on the look and feel of the community.

Efforts to find solutions included the need to establish a Central Business District with neighborhood nodes of commercial businesses intended to serve city residents. In addition, mixed use developments should be allowed throughout the city so that small business

entrepreneurs can create live-work developments where low impact businesses co-exist with residential uses. Mixed-use developments are those that involve residential uses in the same building as professional offices, small retail spaces, or home businesses.

Citizen input was also clear that concentrating on the aesthetic quality of the commercial developments of the City is a high priority. As such, future updates of the city code will need to address aesthetics.

The areas identified for future commercial use by the Othello Growth Area Map (Map 1) are large parcels that front on existing or planned transportation corridors. The size of these lots should be preserved so that larger developments will benefit from economies of scale by sharing parking, providing multiple commercial pads that will include attractive landscaping, and quality of life features like open space, outside dining areas, attractive structural design, street furniture, live music, and public art.

General Commercial or "highway" commercial sites identified as city "gateway" sites shall provide for aesthetic improvements which provide a positive impression for those entering the City of Othello. These improvements can be made on-site or off-site but must be in the spirit of promoting the quality of life, aesthetics, economic vitality, or improve the profile and impression of the City of Othello.

Industrial – Manufacturing

Othello's industrial base is directly related to agriculture and agribusiness. The city's largest private employers, largest water and utility users, and commercial truck and rail traffic generators are all industrial agricultural processors. The one service which is not affected by industrial users is the City's wastewater treatment plant. As noted in the Capital Facilities & Utilities Chapter of the plan (Chapter 3) industrial wastewater discharge is not collected or treated by the City.

The largest of the heavy industry activities are concentrated in the north of the City in the Industrial 2 (I-2) zone. The zoning map also shows a large backbone of Industrial 1 (I-1) district on the west side of the City. This area extends from Fir Street south all the way to the City's southern boundary with the majority of it west of Roosevelt Avenue.

What is not readily apparent when looking at the zoning map is that the majority of this property is railroad right-of-way. In total, the city has approximately 497 acres of industrial zoned property (See Figure 1-5).

Figure 1-5. Industrial Zoning and Vacancy

Industrial	Total Acres	Vacant Acres	% Vacant
Industrial 1 (I-1)	247	46	19%
Industrial 2 (I-2)	250	50	20%
	497	96	19%

Industrial property constitutes about 20% of the City's current total land area. However, because of the railroad and the lineal properties that bound the rail line, nearly 100 of those acres are occupied or not developable. The 46 vacant acres identified above are an approximation of the area south of Highway 26, west of Roosevelt Avenue that has development potential. While there are two parcels of 13 and 16 acres, the majority of the remaining lots are less than an acre in size including 25'x120' lots created in the 1930's. This fragmentation means that nearly all of the I-1 zoned property is functionally not available for development.

The I-2 district fares little better for development potential. The large I-2 properties not fully developed are already owned by the neighboring heavy industrial users who are likely to be the end users of property when developed. This likely means that new industry will be precluded from locating to the city without the addition of new industrial land.

Future Needs

Othello recognizes that in order to sustain growth, it needs to be able to ensure an adequate land supply for development. This means the City and its partners must provide the capital facilities and utilities needed to support new industry.

The City is working closely with the Adams County Development Council, the Port of Othello, Adams County, and the private sector to evaluate the community's needs and to plan a path towards economic growth. In addition to the need for developable land, ongoing efforts show that the two biggest challenges come from wastewater disposal and a dependable water supply. (More information on this effort can be found in Chapter 5 - Economic Development.)

The largest limiting factor to the City's job sector growth is the ability to supply water and the availability of industrial wastewater treatment. With the assumption that a cooperative effort to find a solution will be successful, the City needs to ensure that it is ready to respond to the opportunities created by those solutions.

This can be done by identifying a large industrial land base that is clustered around transportation corridors that can provide adequate access. The land identified for industrial growth in the plan is located along a rail corridor and adequately sized to allow for rail lines to be distributed through the area. It is also bounded by Lee Street which is identified as part of the City's existing truck route plan. Lee Street provides a truck route from the industrial area to

Highway 17 and the Ports industrial site at Bruce. Broadway Avenue is also an important north-south truck route connection through the City. It connects heavy industry with Highway 26 and Highway 24.

The updated Truck Route Plan included in this plan shows that truck routes will be added throughout the area identified north of the City. The plan includes making portions of Foley Road, 7th Avenue, and 14th Avenue (Reynolds Road), and other roads north of Lee Road, into additional truck routes.

By designating a large industrial park area north of the City, infrastructure investments can be leveraged to create additional growth in an efficient manner. This strategy will allow for cooperative development opportunities that include public-private partnerships for capital projects including sewer mains, water mains, roads, rail projects, intersection improvements, drainage projects, and water reuse projects as outlined in the Capital Facilities and Economic Development chapters.

The attached maps of the Othello Growth Area identify areas targeted for both light and heavy industrial growth. Approximately 1,000 acres have been identified for designation as Heavy Industrial. Light Industrial designated areas include about 160 acres of land along Lee Road and an additional 120 acres of Open Space land within the City. (The ultimate designation for these open space acres will need to be determined at a future time.) There is another 75 acres of Light Industrial designation along Highway 26 bounded by the railroad.

By envisioning a compact industrial growth design, the City is providing leadership that ensures future economic development opportunities. The areas designated provide access to railroad transportation corridors, Highways 17, 26 and 24, and air transport through the Port of Othello's airport southeast of the city. The heavy industrial designated site has a direct link to the Bruce industrial area and the likely industrial wastewater facility being pursued by the Port, County, and ACDC. The site is in close proximity to multiple water sources including City mains, the East-Low Canal, industrial wells, and the likely site for a future re-use facility being sought through State and Federal funding sources.

Having the heavy industrial uses buffered by light industrial zoning and mixed use, park or higher density multi-family uses, single-family residential neighborhoods should be buffered from the industrial impacts and incompatible uses.

Any industrial development that is visible from a highway, shall include aesthetic design considerations or features that ensure that such development provides a positive impression for the City of Othello. These improvements can be made on-site or off-site but must be in the

spirit of promoting the quality of life, aesthetics, economic vitality, or improve the profile or impression of the City of Othello.

Parks & Recreation / Open Space

There is a large area of natural open space west of the City below the East-Low Canal. This area is characterized by what appears to be a large wetland complex and a surface water body known as Rodeo Lake. This area should be considered for open space preservation because of its environmental and conservation value which warrants protection from development. Environmental constraints make recreational use of the property as the likely best potential use of the property. In as much as the City can, the City should pursue the acquisition of the property for a public recreation facility. Such a property could be a regional facility that once developed, could be an appealing aspect of the City's quality of life and an economic attraction for the community.

Pursuit of another regional recreation facility is also a part of the City's vision. The Parks and Recreation Chapter of the plan include ideas and opportunities for the expansion of the City's park infrastructure. Specific sites for these sites have not been identified at this point so this plan includes several potential areas for facilities. Included in that chapter is a projected goal for parks disbursed throughout the community.

The Land Use Chapter of the comp plan includes provisions for parks in all areas of the City. See Figure 1-6 below.

There are 175 acres of Open Space zoning in the city. All of the land is vacant of development but used for agricultural production. The zoning designates two types of Open Space: one is Open Space Recreation (O-SR); and the other is Open Space Urban Reserve. The zoning map does not indicate which type of open space is intended for the site so either could satisfy the designation. Recreation is covered by Chapter 6 of this plan. However, as discussed above, it is assumed that the Open Space area in the north of the City was reserved for urban development and has designated it for light industrial and residential development.

Resource land & Critical areas

Resource lands typically include forestland, mineral resource lands, and agricultural lands. Critical areas or environmental lands can include any aspect of the natural environment that affect development or some other aspect of the built environment.

The City has no zoning designation for natural areas or critical areas. Agricultural activities, forestry uses, and mineral extraction activities would be regulated as land uses within the city. Environmental resources are regulated through the City's Critical Areas ordinances.

The goals and policies for the management of resource and critical areas are outlined in Chapter 7 of this plan.

Note: GMA does not allow resources of long-term commercial use designation within cities unless a Transferable Development Rights program is adopted. In Othello's case no such program exists.

Effects of the Comp Plan

The creation of an Othello Growth Area means that the City will be able to target growth in a coordinated manner. Figure 1-6 below provides direction for how the comp plan will be implemented through the existing zoning code. The figure shows what current zoning is compatible with the comp plan designations shown on the Othello Growth Area Map. An "X" implies the zoning is not compatible with the comprehensive plan designation. A "Yes" means that the zoning is compatible with the comprehensive plan designation.

Figure 1-7 expresses the City's desired state for how the Othello Municipal Code, in its updated form, will implement the comprehensive plan. As the City updates its development and zoning codes, the City is determined to make sure that code changes implement the comprehensive plan.

At the time of the adoption of this plan, the City recognizes that in order to implement the plan, several things will need to occur. First, the City will need to reorganize its code. Second, the City will need to develop the regulatory tools necessary to implement the desired goals, policies and objectives of this plan. And third, the City will need to further define the comprehensive plan designations outlined in this chapter.

For example, at the publishing of this plan, all commercial land use designations on the Othello Growth Area map are defined as "Commercial" and identified by one color on the map. However, as stated in the plan, the City's desire is to develop a system of commercial zoning that allows development catered to neighborhoods, the community as a whole, and the wider public as a whole. Similarly, the map shows large areas of residential designation while the stated desired outcome of the plan is to develop tools for higher densities, mixed housing types, and varied value entry points for residential developments.

Please Note: The plan recognizes that the map with a single designation system is only adequate for an interim time until further planning work can take place. This means that until such time as all the desired tools of the plan are developed, or the map is revised, any new tools adopted after this plan MAY be considered consistent with the plan at the discretion of the Community Development Director, the Hearings Examiner, or City Council, as allowed by code, without having to have the comp plan officially updated or altered to allow the use of

such tools. However, this is conditional upon these decisions, code changes, processes, and/or tools are found to be consistent with the Comp Plan when they are made.

Figure 1-6. Existing Zoning Designations related to Comp Plan Designations

	Commercial			Industrial		Residential		
Zoning	**Neighborhood**	**Community**	**General**	**Light**	**Heavy**	**Low**	**Med**	**High**
I-1	X	X	X	Yes	X	X	X	X
I-2	X	X	X	X	Yes	X	X	X
C-1	Yes	Yes	Yes	X	X	X	X	X
C-2	X	Yes	Yes	X	X	X	X	X
S-1	X	X	X	X	X	Yes	Yes	Yes
R-1	X	X	X	X	X	Yes	Yes	Yes
R-1 M	X	X	X	X	X	Yes	Yes	Yes
R-2	X	X	X	X	X	Yes	Yes	Yes
R-3	X	X	X	X	X	Yes	Yes	Yes
R-4	X	X	X	X	X	Yes	Yes	Yes
OS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parks	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Figure 1-7. Proposed Zoning Implementation through the Comp Plan Designations

	Commercial			Industrial		Residential		
Zoning	**Neighborhood**	**Community**	**General**	**Light**	**Heavy**	**Low**	**Med**	**High**
MU	Yes	Yes	Yes	X	X	Yes	Yes	Yes
R-1	X	X	X	X	X	Yes	X	X
R-2	X	X	X	X	X	Yes	Yes	X
R-3	X	X	X	X	X	X	Yes	Yes
NC	Yes	Yes	X	X	X	X	X	X
CC	X	Yes	Yes	X	X	X	X	X
GC	X	Yes	Yes	X	X	X	X	X
LI	X	X	X	Yes	Yes	X	X	X
HI	X	X	X	X	Yes	X	X	X
OS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parks	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Goals, Objectives and Policies:

GOAL 1.1 Create a City Vision for Othello.

Objective 1.1.1 Define the character of Othello through a visioning process.

Objective 1.1.2 Create a comprehensive plan for Othello which can be conscientiously pursued once defined.

Objective 1.1.3 Create an annexation strategy for evaluating annexation requests.

Policy 1.1.1 The City of Othello vision should be revisited regularly as new councilmembers join the city council.

Policy 1.1.2 Promote a service delivery system visible to users, accessible to all, and centrally located.

Policy 1.1.3 Promote an annexation strategy that ensures requests for expansion result in development projects; effective and efficient service delivery; and that do not place undue burden on city tax-payers for the expansion of city services.

GOAL 1.2 Provide major activity centers along transportation corridors.

Objective 1.2.1 Develop an Othello Growth Area map which identifies the area where the City intends to grow and develop infrastructure for the provision of city services.

Objective 1.2.2 Identify commercial nodes within the Othello Growth Area which provide for commercial growth opportunities without taking the focus off of the City's existing commercial corridors.

Policy 1.2.1 The City must ensure that new commercial activity centers along transportation corridors are used as gateway sites that provide a positive impression of Othello from the transportation corridor.

Policy 1.2.2 Development opportunities created by city expansion should not sacrifice quality of life, aesthetics, city reputation, or the overall impression of the City as a whole, in order to maximize individual economic opportunities.

Policy 1.2.3 Developments adjacent to transportation corridors, gateways, or intersections of concern, should be responsible for contributing to the development of gateway features.

GOAL 1.3 Identify Focused Public Investment Areas (FPIA) for efficient and targeted spending on urban services.

GOAL 1.4 Develop sub-area or neighborhood plans with detailed plans for self-identified areas or neighborhoods.

GOAL 1.5 Integrate land use decisions with public facility and utility uses.

Policy 1.5.1 Annexations shall be evaluated by the annexation priorities outlined in this plan.

Policy 1.5.2 Annexation areas will automatically be zoned for high-density (R-4 or as amended) residential unless the annexation is accompanied by land use applications and a zone change request for a specific zoning district.

GOAL 1.6 Provide a land use pattern that can be efficiently provided with services.

Objective 1.6.1 Create a Mixed Use zone which provides opportunities for mixed residential and commercial uses in attractive developments that enhance the City's character, quality of life, and economic vitality.

Policy 1.6.1 Encourage industry to locate next to major routes of transportation.

Policy 1.6.2 Services should only be provided upon showing that development is consistent with the desired goals and policies of the comprehensive plan.

Policy 1.6.3 In order to prevent pre-mature rural-density development within the growth area, lots created in the County after the CP is adopted should not be considered for service provision unless they are annexed prior to division.

GOAL 1.7 Create an attractive development atmosphere where commercial and industrial opportunities can provide local economic growth.

Policy 1.7.1 Build on local goods and services that can be made regional, national or international export opportunities.

Policy 1.7.2 The City commits to creating regulations and processes which encourage development activities without sacrificing quality of life.

GOAL 1.8 Create a regulatory atmosphere that encourages development in a responsible manner.

Objective 1.8.1 Adopt and enforce building, fire and development code standards that ensure a safe and attractive community.

Objective 1.8.2 Create an environment where development occurs concurrent with the utilities, infrastructure, and facilities required to support the growth.

Objective 1.8.3 Encourage new growth to locate in or near the built-up area of Othello or where utilities are readily available for extension.

GOAL 1.9 Create a development process that is clear, responsive, timely, and predictable.

Objective 1.9.1 Adopt changes to the Othello Municipal Code to simplify the development process.

Objective 1.9.1 Reorganize the Othello Municipal Code so that information is organized in a manner which eliminates conflicts; clarifies processes; and clarifies applicable standards.

Objective 1.9.1 Create processes that have clear submittal standards, timelines, and approval criteria.

Summary of System Capacity					
Description of Facility [1]	Capacity (ERUs)	Existing Use (ERUs)	Reserve Capacity (ERUs)	Reserve Capacity (%)	
Supply Facilities	**14,122**	10,443	3,679	26%	
Treatment Facilities [2]	**14,122**	N/A	N/A	N/A	
Water Rights (Qi)	**21,222**	10,443	10,779	51%	
Water Rights (Qa)	**13,991**	10,443	3,548	25%	
Standby Storage	**11,529**	10,443	1,086	9%	
Equalizing Storage	**12,953**	10,443	2,510	19%	
Transmission/Distribution [3][4]	**29,385**	10,443	18,942	64%	
Transmission/Distribution [3][5]	**14,097**	10,443	3,654	26%	

[1] Refer to calculations for assumptions governing estimate of system capacity

[2] Othello treats all existing wells

[3] Transmission/Distribution system ERU capacity is equal to or greater than the capacity shown; refer to notes in Transmission/Distribution system section of this capacity analysis.

[4] Industrial growth scenario

[5] No industrial growth scenario

Existing System ERU's and Demands			
ERU's	**10,443 ERU's**	Section 2.1.7 of WSP contains breakdown of existing ERUs by use type; this total includes ERUs due to leakage.	
ADD	4.731 MGD	Table 2-12 of WSP	
	453 gpd/ERU	Section 2.1.7 of WSP	
MDD	6.762 MGD	Table 2-12 of WSP	
	648 gpd/ERU	Calculated	
	0.45 gpm/ERU	Calculated	
PHD	7,629 gpm	Table 2-12 of WSP	
	0.73 gpm/ERU	Calculated	

Supply Analysis										
Existing Supply Facilities										
	Total Supply Capacity			6,355	gpm	Table 4-1				
				9.151	MGD	Calculated - pumping rate x 1440 min				
Capacity Analysis Based on Supplying MDD										
All current supply systems working at full capacity										
	Total allowable ERUs = (supply capacity) / (MDD ERU)									
	Total allowable ERUs =			**14,122**	**ERUs**					
Treatment Analysis										
Existing Treatment Facilities										
Othello provides continuous chlorination at all of its well sites										
Capacity Analysis										
Treatment capacity ERU's are equal to supply capacity ERUs										
				14,122	**ERUs**					
Water Rights Analysis										
Current Water Rights										
Qi =	9,550	gpm								
Qa =	7,100	ac-ft								
	2,313	MG/yr								
Capacity Based on Supplying MDD										
Qi	Total allowable Qi ERUs = Qi / (MDD ERU)									
	Total allowable Qi ERUs =			**21,222**	**ERUs**					
Capacity Based on Supplying Annual										
Qa	Total allowable Qa ERUs = Qa / (ADD ERU x 365)									
	Total allowable ERUs =			**13,991**	**ERUs**					

Storage Analysis											
Existing Storage											
	1MG Reservoir			1,000,000	gal	Table 1-1 of WSP					
	2MG Reservoir			2,000,000	gal						
	3MG Reservoir			3,000,000	gal						
	Total Existing Storage =			**6.000**	**MG**						
Available Storage (based on hydraulic analysis to maintain minimum pressures in distribution system under conditions noted below)											
	Max storage available for ES			466,160	gal	PHD, min 30 psi, all pumps on					
						bottom of OS to 30psi (approx. 1197 ft)					
	Max storage available for FS & ES			2,155,990	gal	MDD, min 20 psi, all but largest pump on					
						bottom of OS to 20psi (approx. 1168 ft)					
	Max storage available for SB & ES			2,039,450	gal	ADD, min 20 psi, no pumps on					
						bottom of OS to 20psi (approx. 1170 ft)					
Dead Storage											
	Dead storage caused by elevation of highest connection: 3.218 MG										
	Approx. 452,000 gal DS due to elevation above overflow										
	Required DS =			**3.670**	**MG**						
Operational Storage											
	1MG Reservoir			41,668	gal						
	2MG Reservoir			68,964	gal						
	3MG Reservoir			122,448	gal						
	Total OS =			**0.233**	**MG**	Table 4-14 of WSP					
Fire Storage											
	FS = fire flow rate x duration										
	Fire Flow Rate =			6,250	gpm	Section 3.4 of WSP					
	Fire Flow Duration =			240	min	Section 3.4 of WSP					
	Required FS =			**1.500**	**MG**						
Equalizing Storage											
	ES Storage Criterion										
		ES = (PHD-Qs) x 150 min			0.191	MG					
	Solve ES Criterion for Number of ERUs based on Available Volume										
		Total pumping capacity =				6,355	gpm	Table 4-1 of WSP			
		ERUs = (Qs x 150 + ES Max)/(ERU-PHD x 150)									
	Equalizing Storage Capacity			**12,953**	**ERUs**						
Standby Storage											
	SB Storage Criterion:										
		SB = 2[(ADD)(ERU)-tm(Qs-QL)] =			(3.081)	MG					
		or minimum of 200 gal/ERU =			2.089	MG					
	SB and FS are nested; therefore largest of FS/SB										
		SB/FS volume available =			**2.089**	**MG**					
	Solve SB Storage Criterion for Number of ERUs based on Available Volume										
		Flowrate of all sources except largest =				4,355	gpm	Table 4-1 of WSP			
		ERUs = SB Max/200									
	Max Standby Storage Capacity at			**10,197**	**ERUs**						
	200 gpd/ERU neglecting ES										

Storage Analysis (cont.)										
SB and ES when calculated concurrently using 200 gpd/ERU										
	Solve combined available equalizing storage capacity and standby storage capacity using the max available standby storage									
		ERUs = [SB Max + Qs(150)]/[200+(ERU-PHD x 150)]								
	SB and ES ERUs (200 gpd/ERU)			**9,667**	**ERUs**					
Current available SB volume per ERU										
	Solve total available standby storage per ERU based on available SB and ES less ES storage criteria									
		SB/ERU = [Max Avail Storage SB/ES - ES + Qs(150)] / ERUs-Current								
	Standby Storage per ERU			**177**	**gal/ERU**					
Required Storage (200 gpd/ERU) =			**6.183**	**MG**						
Existing Storage =			**6.000**	**MG**						
SB and ES when calculated concurrently using 150 gpd/ERU										
	Solve combined available equalizing storage capacity and standby storage capacity using the max available SB+ES storage									
		ERUs = [SB Max + Qs(150)]/[150+(ERU-PHD x 150)]								
	SB and ES ERUs (150 gpd/ERU)			**11,529**	**ERUs**					

Transmission/Distribution System Analysis

DOH requires estimation of the physical capacity of the transmission/distribution system facilities. Estimating existing utilization and residual capacity of these facilities depends on the assumptions associated with the location of existing and projected future demands within the transmission/distribution system. The Water System Plan identifies existing and projected future deficiencies in the transmission/distribution system based on an estimated geographic distribution of existing demands and assumed location of future growth.

The transmission/distribution system improvements identified in the Water System Plan will be needed to serve existing and/or projected future growth at the level of service criteria defined in the Water System Plan. Other system improvements may be necessary if growth or redevelopment does not occur as assumed or if development necessitates a change in the level of service criteria (e.g. fire flow rate, service pressure, etc.). It is assumed the local permitting process and water system policies will identify needed improvements for each new development on a case by case basis.

For the purpose of system capacity analysis it has been assumed that the system can supply the projected 20-year demand (ERUs) of the system provided the transmission/distribution system improvement(s) identified in the Water System Plan are implemented. Hence, the capacity of the system based on transmission/distribution system facilities is equal to or greater than the number of ERUs shown below.

Projected 20-year System Size =	**29,385 ERUs**
Industrial Growth	
Projected 20-year System Size =	**14,097 ERUs**
No Industrial Growth	

COPY

AGREEMENT BETWEEN

THE CITY OF OTHELLO AND ADAMS COUNTY WATER DISTRICT NO. 1

FOR WATER SUPPLY

IT IS HEREBY AGREED BY AND BETWEEN THE CITY OF OTHELLO, a municipal corporation in Adams County, State of Washington, hereinafter called the "CITY", and ADAMS COUNTY WATER DISTRICT NO. 1, a public corporation in Adams County, State of Washington, hereinafter called the "DISTRICT"; and,

WHEREAS, the CITY owns and operates a system for the supply and distribution of domestic water and is authorized to sell and distribute said water to its own inhabitants and to other persons and customers outside the corporate limits of the City; and,

WHEREAS, the DISTRICT requires a source of domestic water for sale and distribution to its inhabitants; and,

WHEREAS, it is proposed that a water rate be established by the CITY which will adequately compensate the CITY for its cost of the supply of water and will aid in retiring the present and future indebtedness of the CITY attributable to supply costs and increased labor and inflationary costs,

NOW, THEREFORE, IT IS AGREED as follows:

SECTION I

DEFINITIONS

As used in this agreement, the following words and phrases shall have the meanings hereinafter set forth unless the context shall clearly indicate that another meaning is intended:

(1) Transmission Main. The term transmission main shall mean that part of the supply system having a primary purpose of carrying a supply of water between the sources and the distribution system and may have direct service connections to individuals or final users tapped to this main.

(2) Distribution Main. The term distribution main shall mean a water main which has service connections tapped directly to the distribution main for supplying an individual consumer.

(3) Service Connections. The term service connections shall mean those separate connections between a distribution main and the consumer.

(4) Distribution Facilities. The term distribution facilities shall mean that system of pipes and appurtenances used for receiving a supply of water and distributing it directly to the consumers or final users. For the purpose of this contract it shall be further understood to mean that the Distribution Facilities are separate parts of each water system and as such, are all operated and controlled by either the CITY or the DISTRICT individually, but not jointly.

(5) Water Meter. The term water meter shall mean the meter or measuring device installed on a service connection for the purpose of measuring the amount of water, in cubic feet, furnished the final consumer.

(6) Meter Stop. The term meter stop shall mean a mechanical device placed upstream of the water meter to provide for a positive method of locking off water supply to the final consumer.

(7) Backflow Preventer. The term backflow preventer shall mean a mechanical device placed downstream of the water meter to prevent water from flowing from the final consumer to the distribution main.

(8) Master Meter. The term master meter shall mean the measuring device placed in the flow direct from the transmission main to the distribution facilities to measure total volume of water used, in cubic feet, and shall be complete with an independent 24-hour flow chart having a seven-day (7) cycle. The meter shall be a compound meter.

(9) Cubic Foot. The term cubic foot shall mean a unit of measurement of flowing water equal to 7.48 gallons past a given point, usually a meter.

(10) Peak Day. The term peak day shall mean the 24-hour average flow rate for any maximum usage day during a calendar year.

(11) Calendar Year. The calendar year shall be from January 1st through December 31st of any given year.

(12) Billing Cycle. The billing cycle shall mean any nominal 30-day period. For the purpose of the contract at this time, it shall mean from the 16th of one month through the 15th of the following month.

SECTION II

WATER SUPPLY

The CITY agrees to supply and deliver to the DISTRICT, and the DISTRICT agrees to receive and purchase from the CITY, all domestic water required by the DISTRICT for the supply of dwellings and support services common to a residential area. The DISTRICT agrees not to wholesale or retail water outside of its boundaries as established on or before January 1, 1981, as set out on the attached Exhibit A.

The CITY agrees to supply water to the DISTRICT at a single point through a master meter immediately adjacent to the intersection of Cunningham and Danielle Roads, or as otherwise mutually agreed upon, and at no other location, at quantities and rates as hereinafter set forth. The DISTRICT agrees to obtain and purchase all of its domestic water from the CITY and from no other source, including the development of its own source, and further agrees to pay all design, engineering, construction and installation costs necessary or incidental to enable the CITY to deliver and the DISTRICT to

receive said water except as otherwise specified in this agreement. The ownership and control of the transmission main, master meter, appurtenances and right-of-way, shall be vested in the CITY along with the obligation to perform and pay for all maintenance on said transmission main, master meter and appurtenances. The ownership, control and obligation to perform and pay for all maintenance, repair, replacement, or expenditures of any description of the DISTRICTS distribution facilities downstream of the before specified master meter, shall be vested in the DISTRICT.

The quality of the water delivered to the DISTRICT is warranted to the extent that it shall be at least equal to the quality of water distributed within the City, and the CITY has the right to add chemical treatment as permitted by State and Federal laws, codes and regulations as deemed necessary. The CITY further states that it will continue to pursue compliance with the Federal Safe Drinking Water Act, P.L. 93-523 as administered by the State of Washington.

WATER STORAGE MUST MATCH CITY'S REQ'S.

The agreement to supply water by the CITY to the DISTRICT shall be subject to and limited by unavoidable accidents, acts of God and any other conditions beyond the control of the CITY. If the CITY supply is limited, the DISTRICT'S supply will be limited in the same proportion as the entire CITY will be limited. If the CITY declares an emergency on limited water available through accident, catastrophe or its own emergency, and notifies the DISTRICT of the limitations imposed by the CITY, the DISTRICT shall comply forthwith to those limitations or be subject to the CITY controlling delivery of water at the master meter for the duration of the emergency.

The CITY will treat any major interruptions to the supply to the DISTRICT as an urgent matter and will attempt to restore or cause to be restored, normal service to the DISTRICT as expeditiously as possible. The CITY shall not be liable to the

DISTRICT for loss or damages of any kind resulting from unavoidable interruption or limitations in the supply of water to the DISTRICT.

The DISTRICT agrees to notify the CITY in writing at least ninety (90) days in advance of any contimplated major modifications or expansions of the DISTRICT'S distribution facilities. The CITY reserves the right to determine if it can meet the increased demands posed by such major expansions within the DISTRICT and to set forth the methods and rates to be imposed upon the DISTRICT to meet those increased demands. If the CITY cannot meet the demands of the water DISTRICT, the water DISTRICT shall be allowed to acquire alternative sources.

SECTION III

FACILITIES TO BE CONSTRUCTED AND OPERATED

In consideration for the CITY selling water to the DISTRICT, the DISTRICT agrees to construct and convey to the CITY, without assumption or liability for any debt thereon, a transmission main constructed of either Class 50 ductile iron pipe or plastic pipe meeting Section C900 AWWA, having a minimum nominal diameter of twelve (12") inches. The transmission main shall be connected to the CITY'S distribution facilities near the intersection of Main Street and Broadway Avenue and shall terminate at a location adjacent to the boundaries of the DISTRICT, no less in distance than the intersection of Cunningham Road and Danielle Road. A master meter, together with a valving and bypass, shall be installed in the DISTRICT'S distribution main at a point immediately adjacent to the point of connection with the transmission main or at such other location as mutually agreed upon, and together with the right-of-way, transmission main, pressure reducing valve, valving, and appurtenances, shall become the property of the CITY. The CITY agrees to participate in the cost for

constructing the twelve-inch (12") diameter transmission main with the following stipulations:

(1) In consideration of the DISTRICT constructing a transmission main of the specified material and having a diameter of twelve-inches (12"), which may be greater than the DISTRICT needs, the CITY agrees to set aside and pay to the DISTRICT a maximum of eighteen thousand dollars ($18,000.00);

(2) The amount to be paid to the DISTRICT, up to a maximum of eighteen thousand dollars ($18,000.00), shall be determined during the interim between the bid opening and bid award, and shall be based on the cost difference for the specified pipe material and an eight-inch (8") transmission main constructed primarily of PVC materials meeting AWWA C900, or as otherwise mutually agreed upon; and,

(3) The CITY shall pay the DISTRICT the above agreed upon amount within thirty (30) days of acceptance of the transmission main by both the CITY and the DISTRICT.

The type and size of master meter selected by the DISTRICT, together with other transmission main components and construction requirements, shall be subject to written approval of the CITY.

The DISTRICT agrees to construct distribution facilities within its boundaries as established on January 1st, 1981, for the single purpose of distributing domestic water to its inhabitants. Said distribution facilities shall be constructed and owned by the DISTRICT and shall incorporate the following minimum requirements:

(1) Perimeter distribution mains shall have a minimum nominal diameter of eight-inches (8") with interior distribution mains having a minimum nominal diameter of six-inches (6"). Distribution mains may be constructed of any material meeting

AWWA specifications. All distribution mains shall be valved to facilitate maintenance and repair with a minimum of disruption of services to the DISTRICT as a whole;

(2) The distribution facilities shall include fire hydrants having an inlet diameter of six-inches (6"), two 2½-inch hose ports and a 4-inch pumper port having Pacific Coast Thread No. 3. Hydrants shall be placed throughout the District consistent with good engineering practices and in accordance with state and county codes;

(3) Service connections shall have a minimum diameter of 3/4-inch and shall be type K copper. Service connections shall be complete with corporation stop, meter stop, meter registering in cubic feet, backflow preventer, meter box, and such appurtenances as required to make the connection complete and operable; and,

(4) The final design to be implemented by the DISTRICT for its distribution facilities shall be subject to approval in writing by the CITY. At no time shall water from existing sources be caused or allowed to flow into and through these new facilities. Existing wells, reservoirs and piping shall be disconnected immediately upon completion of the facilities, and abandoned in accordance with procedures established by the State of Washington.

The CITY agrees to operate and maintain the transmission main and its appurtenances in like manner in which it operates and maintains its distribution facilities and to employ adequate, qualified personnel to accomplish the same, and the DISTRICT agrees to operate and maintain its distribution facilities and to employ adequate, qualified personnel to accomplish the same in accordance with applicable state and federal laws, codes and regulations.

The DISTRICT agrees to act promptly to affect repairs when necessary, and to take such action as required to maintain

water system losses, excluding reported loss through fire flow, to five (5%) percent of the annual water consumption as determined by comparing the annual billing consumption of the DISTRICT with the annual consumption recorded by the CITY through monitoring of the master meter.

The DISTRICT shall not be charged for any fire flow usage. The amount of water used in fighting fires will be calculated in the following manner:

> At the end of any month in which a fire flow occurs, the amount of fire flow shall be calculated by subtracting the amount of that month's customer billing records from the amount recorded by the master meter.

The DISTRICT shall immediately notify the CITY of any major breaks or failures in the distribution facilities so that the CITY may satisfy itself as to the adequacy of the measures taken by the DISTRICT to safeguard against contamination and to effect the necessary repairs. Should the DISTRICT require assistance in securing such disruptions and ask for said assistance from the CITY, and the CITY responds with labor, equipment, or material, the DISTRICT agrees to pay the CITY direct cost, including administrative charges, for said assistance. The offer of assistance in emergency situations by the CITY shall not be constructed as a commitment by the CITY to make routine repairs or to respond to an emergency, but rather provides for equitable reimbursement to the CITY should it respond. The DISTRICT'S responsibility is no less reduced to supply adequate equipment and manpower or such other contractual arrangements necessary to effect such repairs.

SECTION IV

MASTER METER

All water delivered by the CITY to the DISTRICT shall be measured through the master meter. The master meter shall be

installed in such a manner as to allow testing without removal. Either party to this agreement may, at its option, request or cause to be tested, the master meter for accuracy. All tests shall be conducted in a manner agreeable to both parties and the costs of testing shall be borne in the following manner:

> If both parties agree to the test, then costs will be shared equally. If either of the parties singularly requests the test, then the cost shall be borne by the party causing the test to be performed, providing the test indicates the master meter to be performing within the degree of accuracy guaranteed by the manufacturer of the equipment. In the event the master meter is not performing within the allowable limits, then the party benefitting as a result of the malfunction shall bear the cost of the test.

Whenever it has been determined as a result of the test that the master meter is not functioning within the allowable tolerance, then an adjustment in charges for water supply shall be determined as follows:

> The master meter error percentage determined from the test shall be used to adjust recorded deliveries and shall apply for a period of time being one-half the time from the last satisfactory test or six (6) months, whichever is less; and the time at which the malfunction was determined, plus all of the time between discovery of error and completion of repairs or adjustments of the master meter. Either a credit or additional billing at the rates hereinafter provided for water supply shall accrue to the appropriate party.

The DISTRICT shall provide the CITY with the total number of customers and billing consumption at the end of each year for all customers being served water through the master meter. This information is to be used to determine the accuracy of the master meter and to calculate system losses, excluding previously determined fire flows.

SECTION V

CHARGES AND INCREASES

The CITY agrees to supply, and the DISTRICT agrees to purchase, sufficient water to meet the domestic needs of the

inhabitants within the boundaries of the DISTRICT. Water shall be supplied by the CITY to the DISTRICT at the following rate:

(1) The DISTRICT agrees to pay the CITY at a rate of forty-five cents ($.45) per each one-hundred (100 c.f.) cubic feet of water metered monthly;

(2) The DISTRICT agrees to pay a minimum monthly charge of six hundred dollars ($600.00) which is approximately equal to a minimum monthly purchase of 1,333 hundred cubic feet (CCF), irrespective of the amount of water used. Charges in excess of the minimum monthly charge shall begin to accrue when actual metered use exceeds 1,333 hundred cubic feet;

(3) The above stated rate and minimum monthly charge shall be in effect from the date of execution of the agreement, through December 31, 1987, and shall remain in effect thereafter until such time as a general rate increase is adopted for the City users, or as otherwise provided herein; and,

(4) It is further agreed that if an increase in water rates is proposed by the CITY to be applicable to the DISTRICT, it shall be applied in a fair and equitable manner proportionate to the degree of use and service received by all users, both within and outside the City limits with a copy of said finding and proposals to be delivered to the DISTRICT at least thirty (30) days prior to a public hearing as provided for in the following paragraph.

In the event that a rate change for the DISTRICT is proposed, the CITY will cause notice to be published and posted at three (3) public places within the District, at least fifteen (15) days prior to the date that shall be set for a public hearing on the matter. The hearing shall be held at the Othello City Hall under the joint direction of the City Council and the District Commissioners and shall be open to the public. After hearing the opinions offered, the City Council and the District Commissioners shall, if possible, reach an agreement

on the proposed rate change. If agreement is reached, the same shall be adopted in the form of resolutions by the City Council and District Commissioners. If agreement cannot be reached, the matter will be submitted within three (3) business days to an arbitration board composed of one arbitrator chosen by the CITY, one arbitrator chosen by the DISTRICT, and a third arbitrator chosen by the two arbitrators, for binding arbitration on the matter. Thereafter, the decision of the arbitrator shall be incorporated into an appropriate resolution for adoption by the City Council and District Commissioners at their next regularly scheduled meeting.

It is further agreed that should capital improvements be made to the CITY'S supply, storage, distribution and/or transmission system, and should such improvements be made by use of general obligation bonds repaid by assessment of real property within the City limits, as opposed to revenue bonds repaid by water utility income, that the CITY shall have the right to increase water rates to the DISTRICT proportionate to the increased service and reliability received, and as mutually agreed upon by both parties. In the event the CITY and DISTRICT are unable to reach a mutual agreement, then the procedure outlined in the preceding paragraph shall be used to determine the rate.

SECTION VI

BILLING AND PAYMENT

The period of billing for water supplied under this agrecment shall be on regular monthly intervals. The master meter shall be read and recorded on or near the 15th of each month in which the service was furnished. Billing to the DISTRICT will be made on the last day of the month, and payment to the CITY becomes due by the 10th day of the month following. If any payment or portion thereof due to the CITY shall remain

unpaid for thirty (30) days following its due date, the DISTRICT shall be charged with, and pay to the CITY, interest on the amount unpaid from its due date until paid, at the rate of fourteen (14%) percent per annum.

SECTION VII

DEFAULT

If the CITY or the DISTRICT shall fail to comply with or perform any covenant or agreement hereof promptly at the time and in the manner herein required, the injured party may elect any of the following remedies wherever appropriate. Either party may commence an action for specific performance injunction and/or damages. In such a case the losing party expressly agrees to pay all costs and a reasonable attorney's fee for the winning party. In the case of nonpayment by the DISTRICT, the CITY agrees to give thirty (30) days notice of default followed by a ninety (90) day grace period during which the DISTRICT will have the opportunity to pay all charges that have become due and payable. After the proper notice and grace period, the CITY expressly reserves the right to assume control of the DISTRICT'S sale and distribution system for water in order to collect sufficient funds to pay all charges due under this agreement and the reasonable cost of such added administration. In the alternative, after the same above-stated notice of default and grace period, the CITY expressly reserves the right to terminate water service to the DISTRICT.

The CITY'S rights to assume the DISTRICT'S sales and distribution system for collection of charges plus costs or termination of water service, shall not apply in a case where there is a good faith dispute over charges between the parties.

SECTION VIII

TERM AND EXPIRATION

The terms of this agreement shall be in effect for a period of ninety-nine (99) years from the date of signing, except that the term of this agreement may be shortened or extended only upon the mutual agreement of the parties hereto.

DATED this the 24th day of May, 1982.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

ADAMS COUNTY
WATER DISTRICT NO. 1 by:

COMMISSIONER

COMMISSIONER

COMMISSIONER

ATTEST:

SECRETARY

AMENDMENT OF AGREEMENT BETWEEN
THE CITY OF OTHELLO AND ADAMS COUNTY WATER DISTRICT NO. 1
FOR WATER SUPPLY

IT IS HEREBY AGREED BY AND BETWEEN THE CITY OF OTHELLO, a municipal corporation in Adams County, State of Washington, and ADAMS COUNTY WATER DISTRICT NO. 1, a public corporation in Adams County, State of Washington; and,

WHEREAS, the CITY OF OTHELLO and ADAMS COUNTY WATER DISTRICT NO. 1 entered into a long term agreement for water supply; and,

WHEREAS, said agreement dated May 24, 1982, provided for the CITY OF OTHELLO participating in construction cost of 12-inch transmission main to a maximum of $18,000; and,

WHEREAS, ADAMS COUNTY WATER DISTRICT NO. 1 realized substantial cost savings since calling for bids for construction of the project over estimated costs; and,

WHEREAS, ADAMS COUNTY WATER DISTRICT NO. 1 experienced costs of $7,500 for preliminary engineering as part of the overall project cost, and asks the CITY OF OTHELLO to assume same in lieu of construction costs as provided for in Section III, Sub-section 1 and 2, of the original agreement;

NOW, THEREFORE, IT IS AGREED as follows:

The CITY OF OTHELLO agrees to pay the sum of $7,500 to Adams County Water District No. 1, and ADAMS COUNTY WATER DISTRICT NO. 1 agrees to accept $7,500 as the City's full share for participation in construction of 12-inch water transmission mains as provided for in the original agreement dated May 24, 1982.

Section III, Sub-sections 1 and 2, are hereby amended to read "a maximum of seven thousand five hundred dollars ($7,500.00)", and Sub-section 2 is further amended in its entirety to read as follows:

> The amount of seven thousand five hundred dollars ($7,500.00) to be paid by the City to Adams County Water District No. 1, may be applied towards the preliminary engineering expense outstanding with the District and said amount is considered to satisfy the cost difference between constructing 12-inch transmission main and 8-inch transmission main.

All other sections and provisions of the original agreement shall remain valid and in force.

DATED this the 14th day of June, 1982.

FOR ADAMS COUNTY WATER DISTRICT NO. 1:

Dora S. Beraza
COMMISSIONER

COMMISSIONER

COMMISSIONER

ATTEST:
SECRETARY

FOR THE CITY OF OTHELLO:

MAYOR PROTEM

ATTEST:
CITY CLERK

APPROVED AS TO FORM:
CITY ATTORNEY

AGREEMENT BETWEEN McCAIN FOODS USA, INC AND THE CITY OF OTHELLO, WASHINGTON, REGARDING MUNICIPAL WATER USED BY MCCAIN FOODS USA, INC.

1 **Preamble.** This agreement is made and entered into effective September 16, 2003, by and between McCain Foods USA, Inc, a Delaware corporation (McCain) and the City of Othello, Washington, a municipal corporation (The City).

2 **Recitals.**

2.1 McCain owns and operates a food processing plant located within the City, which is connected to the City's potable water system. These connections are for potable water to be used for personal consumption by personnel at the plant and for standby fire protection.

2.2 The City operates a potable water utility within the City limits, which delivers potable water to residents of the City, including McCain.

2.3 McCain and the City desire to establish by this agreement the scope of City potable water to McCain's plant and the charge to be assessed for such connections and the potable water consumed by McCain.

2.4 McCain is in possession of a ground water withdrawal permit issued by the Washington Department of Ecology (DOE) permitting is to withdraw ground water of Washington State for industrial purposes of processing food stuffs and personal use by McCain personnel within its plant.

3 **Consideration and Covenants.** It is mutually agreed and covenanted as follows:

3.1 McCain has current potable water connections to the City's water utility for personnel use purposes, which are metered. McCain will pay for water used on these lines and meters at the rates established by City ordinance for the consumption of potable water by commercial users for the actual water consumed as evidenced by the meter readings from those meters. The rate for such use is as established by ordinance of the City for meters of that size and in that use.

3.2 McCain has a current potable water connection to the City's water utility for production purposes, which is metered on a ten-inch (10") line. Effective September 16, 2003, service through this meter shall be terminated, whether or not the meter is removed, and the City shall only bill McCain and McCain shall

only be required to make any payment on the basis or readings taken from this meter for quantities used, at commercial rates. This service line may be converted to a separately metered 2" potable water service and all use shall be based on the readings of that 2" meter.

3.3 McCain has current standby fire suppression water connections to a ten (10") inch main, which is part of the City's water distribution system. These connections are for fire suppression purposes. McCain's connections to the 10-inch main are three (3) branch connections that feed the fire suppression tank and booster pumps.

3.3.1 For the first thirty-six (36) months of this agreement, McCain shall pay three thousand dollars ($3,000) per month for fire suppression water; provided that, the monthly payment shall be adjusted annually on January 16th by the change in the September to September All West Coast CPI, or its successor, for the proceeding year, but in no event shall the monthly rate be increased by more than four percent (4%) in any year.

Commencing on month thirty-seven and continuing to the end of this Agreement, the monthly payment shall be reduced and McCain shall pay Two Thousand Dollars ($2,000.00) per month for fire suppression water; provided that the new monthly payment shall be adjusted annually on January 16th by the change in the September to September All West Coast CPI, or its successor, for the preceding year, but in no event shall the monthly rate be increased by more than four percent (4%) in any year.

3.3.2 If these branch connections are used to provide water for other than fire suppression purposes, McCain will be deemed to have used the water for consumption purposes and shall be billed ten thousand dollars ($10,000) for every month any such consumption through this connection occurs.

3.4 The City acknowledges that McCain is vested in a water withdrawal permit issued by DOE under water right certificate number #G300246C. The City makes no claim to any right of ownership, nor any right to take water from any water source identified in such permit.

3.5 Future Improvements.

3.5.1 In the event McCain desires a different metered connection to the City's water utility, such shall be provided by the City upon the same terms and conditions such connections are provided to other customers of the City's

water utility, in the same class of service, as such classes of service exist, at the time a completed application for such service is received.

3.5.2 In the event McCain desires a different service or connection related to the unmetered connection to the City's water utility, the parties agree to meet and negotiate in good faith any change in the terms and conditions of this Agreement desired or necessary to implement such a change.

4 **Operational Control.** The operational control of the water utility of the City shall remain with the City or its successor in interest as a municipal water utility.

5 **Relationship of the Parties.** The City is the operator of a municipal water utility and McCain is a customer of that utility. No other relationship is intended. No agent, official, employee, servant, or representative of one party shall be deemed an officer, employee, agent, servant or representative of the other party for any purpose.

6 **Transfer of Interest.** Either party may transfer its interest in this agreement to a successor in interest by means of sale or lease provided that the City may transfer its interest in this Agreement only to another municipal water purveyor or to a private water purveyor authorized to do business as a water purveyor in the State of Washington.

7 **Notice.** Any notice required to be given by either party to the other shall be deposited in the United States mail, postage prepaid, addressed to:

McCain Foods USA, Inc
Attn: Factory Manager
100 E. Lee Street
Othello WA 99344

And, to:

McCain Foods USA, Inc
Attn: Senior Vice President of Manufacturing and
Director of Environmental Engineering
PO Box 10
Plover WI 54467

And, to:

City of Othello
Attn: The Mayor
500 E Main

Othello WA 99344-1195,

Or at such other address as either party may designate to the other in writing from time to time. All notices to be given with respect to this agreement shall be in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing contained herein shall be construed to preclude personal service of any notice in the manner prescribed for personal service of a summons or other legal process.

8 **Applicable Law.** This agreement shall be governed by and construed in accordance with the laws of the State of Washington.

9 **Venue.** Venue of any action to enforce the provisions of this Agreement, including arbitration or the place for the taking of all depositions, shall lie in Adams County, Washington.

10 **Attorney Fees.** In the event either party hereto institutes any action to enforce the provisions of this agreement or for any cause arising out of this agreement, except for dispute resolution as provided for herein, the prevailing party in such action shall be entitled to reimbursement by the losing party for all of its court costs, reasonable attorney's fees, including such costs and fees that are incurred on appeal or in the enforcement of any judgment.

11 **Invalidity.** Any provision of this agreement which shall prove to be invalid, void or illegal shall in no way affect, impair or invalidate any of the other provisions hereof and such other provisions shall remain in full force and effect despite such invalidity or illegality.

12 **Modification.** No changes of additions to this agreement shall be valid or binding upon either party unless such change or addition be in writing, executed by both parties.

13 **Duration.** This Agreement shall be in force and effect on September 16, 2003, and shall remain in effect until September 15, 2016, unless this Agreement is terminated earlier as provided herein.

14 **Renewal.** Any time within 12 months of the termination date of this Agreement, either party may request to enter negotiations to extend this Agreement upon such terms and conditions as the parties may agree.

15 **Termination.** The City may terminate this agreement only for cause, including but not limited to, failure to make payment, use of fire suppression water for non-fire suppression purposes, failure to abide by the ordinances and rules of the City related to

the operation of the City's potable water system and its protection. McCain may terminate this agreement upon six- (6) month's notice to the City in the event McCain discontinues operation of its Othello processing facility. All unmetered connections from the City's water utility to McCain facilities shall be terminated on or before the effective date of the termination of this Agreement at McCain's expense.

16 **Entire Agreement.** This agreement constitutes the entire agreement of the parties and supersedes all prior agreements, contracts, and understanding, written or oral. The parties agree that there are no other understandings, oral or otherwise, regarding the subject matter of this agreement. Any and all previous agreements, understandings, and the like, oral or otherwise, are hereby revoked.

17 **Construction of Agreement.** In the event of a dispute between the parties as to the meaning of terms, phrases or specific provisions of this Agreement, the authorship of this Agreement shall not be cause for this Agreement to be construed against any party nor in favor of any party.

Dated: November 3, 2003

McCAIN FOODS USA, INC

By _____
Daniel Paradis, General Manager

Dated: October 28, 2003

CITY OF OTHELLO

By _____
Jeannie L. Sanders, Mayor

FIRST AMENDED AGREEMENT BETWEEN McCAIN FOODS USA, INC.
AND THE CITY OF OTHELLO, WASHINGTON,
REGARDING MUNICIPAL WATER USED BY McCAIN FOODS USA, INC.

1 **Preamble.** This is the first amendment to an agreement effective September 16, 2003, by and between McCain Foods USA, Inc., a Maine corporation (McCain) and the City of Othello, Washington, a municipal corporation (City), is effective September 1, 2004.

2 **Recitals.**

2.1 McCain owns and operates a food processing plant located within the City, which is connected to the City's potable water system. These connections are for potable water to be used for personal consumption by personnel at the plant and for standby fire protection.

2.2 The City operates a potable water utility within the City limits, which delivers potable water to residents of the City, including McCain.

2.3 McCain and the City desire to establish by this agreement the scope of City potable water to McCain's plant and the charge to be assessed for such connections and the potable water consumed by McCain.

2.4 McCain is in possession of a ground water withdrawal permit issued by the Washington Department of Ecology (DOE) permitting it to withdraw ground water of Washington State for industrial purposes of processing food stuffs and personal use by McCain personnel within the plant.

3 **Considerations and Covenants.**

3.1 McCain has current potable water connections to the City's water utility for personnel use purposes, which are metered. McCain will pay for water used on these lines and meters at the rates established by City ordinance for the consumption of potable water by commercial users for the actual water consumed as evidenced by the meter readings from those meters. The rate for such use is as established by ordinance of the City for meters of that size and in that use.

3.2 McCain has a potable water connection to the City's water utility for production purposes, which is metered on a ten inch (10") line. Regular service through this meter has been terminated, and McCain uses water from its own wells for production purposes. To provide the availability of stand by production water, consistent with the ability of the City's water system to provide such water, this connection shall remain in place. Use of water from this connection shall be

available to McCain on an as needed basis. City personnel shall make water available to McCain through this connection upon the request of McCain as expeditiously as circumstances permit at the time of the request. An effort shall be made to begin water delivery within one hundred twenty minutes of the receipt of such a request from McCain. McCain shall provide the City with a list of persons authorized to request the delivery of water to McCain through this connection. In the event potable water is delivered through this connection to McCain, the City shall only bill McCain and McCain shall only be required to make any payment on the basis of readings taken from this meter for quantities used, at commercial rates as set forth in the ordinances of the City. McCain shall pay Eight Hundred Thirty-three Dollars and Thirty-three cents ($833.33) per month beginning with September 2004 to the City as a stand by fee for the availability of potable water for production purposes through this meter.

3.3 McCain has current standby fire suppression water connections to a ten (10") inch main, which is part of the City's water distribution system. These connections are for fire suppression purposes. McCain's connections to the 10-inch main are three (3) branch connections that feed the fire suppression tank and booster pumps.

3.3.1 For the first thirty-six (36) months of this agreement, beginning with September 2003, McCain shall pay three thousand dollars ($3,000.00) per month for the availability of fire suppression water; provided that the monthly payment shall be adjusted annually on January 16th by the change in the September to September All West Coast CPI, or its successor, for the proceeding year but in no event shall the monthly rate be increased by more than four percent (4%) in any year.

Commencing, September 2006, on month thirty-seven and continuing to the end of this Agreement, the monthly payment shall be reduced and McCain shall pay Two Thousand Dollars ($2,000) per month for fire suppression water; provided that the new monthly payment shall be adjusted annually on January 1st by the change in the September to September All West Coast CPI, or its successor, for the proceeding year but in no event shall the monthly rate be increased by more than four percent (4%) in any year.

3.4 The City acknowledges that McCain is vested in a water withdrawal permit issued by DOE under water right certificate number #G300246C. The City makes no claim to any right of ownership, nor any right to take water from any water source identified in such permit.

3.5 **Future Improvements.**

3.5.1 In the event McCain desires a differed metered connection to the City's water utility, such shall be provided by the City upon the same terms and conditions such connections are provided to other customers of the City's water utility, in the same class of service, as such classes of service exist, at the time a completed application for such service is received.

3.5.2 In the event McCain desires a difference service or connection related to the unmetered connection to the City's water utility, the parties agree to meet and negotiate in good faith any change in the terms and conditions of this agreement desired or necessary to implement such a change.

4 **Operational Control.** The operational control of the water utility of the City shall remain with the City or its successor in interest as a municipal water utility.

5 **Relationship of the Parties.** The City is the operator of a municipal water utility and McCain is a customer of that utility. No other relationship is intended. No agent, official, employee, servant, or representative of one party shall be deemed an officer, employee, agent, servant or representative of the other party for any purpose.

6 **Transfer of Interest.** Either party may transfer its interest in this agreement to a successor in interest by means of sale or lease provided that the City may transfer its interest in this agreement only to another municipal water purveyor authorized to do business as a water purveyor in the State of Washington.

7 **Notice.** Any notice required to be given by either party to the other shall be deposited in the United States mail, postage prepared, addressed to:

McCain Foods USA, Inc.
Attn: Factory Manager
100 E Lee Street
Othello WA 99344

And to:

McCain Foods USA, Inc.
Attn: Senior Vice President of Manufacturing and
Director of Environmental Engineering
PO Box 10
Plover WI 54467

And to:

City of Othello
Attn: The Mayor
500 E Main
Othello WA 99344-1195

Or at such other address as either party may designate to the other in writing from time to time. All notices to be given with respect to this agreement shall be in writing. Every notice shall be deemed to have been given at the time it shall be deposited in the United States mail in the manner prescribed herein. Nothing contained herein shall be construed to preclude personal service of any notice in the manner prescribed for personal service of a summons or other legal process.

8 **Applicable Law.** This agreement shall be governed by and construed in accordance with the laws of the State of Washington.

9 **Venue.** Venue of any action to enforce the provisions of this agreement, including arbitration of the place for the taking of depositions, shall lie in Adams County, Washington.

10 **Attorney Fees.** In the event either party hereto institutes any action to enforce the provisions of this agreement or for any cause arising out of this agreement, except for dispute resolution as provided for herein, the prevailing party in such action shall be entitled to reimbursement by the losing party for all of its court costs, reasonable attorney's fees, including such costs and fees that are incurred on appeal or in the enforcement of any judgment.

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conditions as the parties may agree.

15 **Termination.** The City may terminate this agreement only for cause, including but not limited to, failure to make payment, use of fire suppression water for non-fire suppression purposes, failure to abide by the ordinances and rules of the City related to the operation of the City's potable water system and its protection. McCain may terminate this agreement upon six (6) months notice to the City in the event McCain discontinues operation of its Othello processing facility. All unmetered connections from the City's water utility to McCain facilities shall be terminated on or before the effective date of the termination of this Agreement at McCain's expense.

16 **Entire Agreement.** This agreement constitutes the entire agreement of the parties and supersedes all prior agreements, contracts, and understandings, written or oral. The parties agree that there are not other understandings, oral or otherwise, regarding the subject matter of this agreement. Any and all previous agreements, understandings, and the like, oral or otherwise, are hereby revoked.

17 **Construction of Agreement.** In the event of a dispute between the parties as to the meaning of terms, phrases or specific provisions of this Agreement, the authorship of this agreement shall not be cause for this agreement to be construed against any party nor in favor of any party.

Dated: 8/29/04

McCAIN FOODS USA, INC.

By _____
Daniel Paradis, General Manager

Dated: 8/23/04

CITY OF OTHELLO

By _____
Jeannie L. Sanders, Mayor

I, Yvonne Hernandez mailed the attached Notice to Adjacent Utilities to all addresses shown on the attached mailing list. This list of adjacent utilities was gathered using the Department of Health's online sentry site. The list includes all Class A water systems located within the City of Othello's Growth Area. Notices were mailed to adjacent utilities on August 31st, 2017.

Name: Yvonne Hernandez Title Deputy City Clerk

Signature: Yvonne Hernandez Date: 9-1-17

RESOLUTION NO. 2017-20

A RESOLUTION ADOPTING THE CITY OF OTHELLO'S WATER USE EFFICIENCY GOAL

RECITALS:

1. Whereas, the City of Othello is updating its Water System Plan
2. Whereas, WAC 246-290-830(7) requires water systems to update its water use efficiency goal in conjunction with update of its Water System Plan.
3. Whereas, WAC 246-290-830(4) (a) requires water systems to provide a public forum to provide an opportunity for consumers and the public to participate and comment on the water use efficiency goal.
4. Whereas, the City of Othello has made the required public notices, conducted the public forum, and considered input provided by the public concerning the proposed water use efficiency goal.

RESOLVED:

1. Now, therefore, be it resolved that the City of Othello adopts the following as its water use efficiency goal:

    - Reduce water use by 640,000 gallons annually.

ADOPTED by the City Council of Othello, Washington on this 28th day of August, 2017.

By: _____
Shawn R. Logan, Mayor

ATTEST:

By: _____
Rebecca P. Ozuna, City Clerk

Public Notice

Water Use Efficiency Public Forum for the 2017 Draft Water System Plan

The City of Othello has submitted the 2017 Draft Water System Plan (WSP) to Washington State Department of Health for review. Per Washington State Administrative Code (WAC 246-290-830) the City is holding a public forum for the draft WSP. This forum is intended to provide an opportunity for the public to comment on the City's proposed water use efficiency (WUE) goals. A description of the proposed WUE goals may be found in Section 8.6 of the Draft WSP. A copy of the WSP may be found at City Hall for those who wish to review the WSP and WUE goals prior to the forum. See below for more details:

You are invited to attend the public forum on:

August 28, 2017

6:30 pm

City Hall Council Chambers 500 E Main St. Othello, WA 99344

Public Notice

Informational Meeting for the

2017 Draft Water System Plan

The City of Othello has submitted the 2017 Draft Water System Plan (WSP) to Washington State Department of Health for review. Per the Washington State Administrative Code (WAC 246-290-100) the City is holding an informational meeting for the water system consumers to provide an opportunity for the public to comment on the WSP. A copy of the WSP may be found at City Hall for those who wish to review the WSP prior to the meeting. See below for more details:

You are invited to attend the public forum on:

August 28, 2017

6:30 pm

City Hall Council Chambers 500 E Main St.

Othello, WA 99344

Monday, August 28, 2017
Regular Council Meeting 6:30 p.m.

Othello City Council Chambers
500 E. Main Street

1. OPENING ITEMS

1.1 Call to Order

1.2 Invocation

1.3 Pledge of Allegiance

1.4 Roll Call

1.5 Citizen Input

2. APPROVAL OF AGENDA

3. CONSENT AGENDA: The following items will be enacted by one motion. If separate discussion is desired, that item may be placed on the regular agenda, with concurrence of the Council. Requests to remove items should be made under Agenda Item 2: Approval of Agenda.

3.1 Approval of City Council Minutes of August 14, 2017

3.2 Approval of City Council Special Meeting Minutes of August 18, 2017

3.3 Approval of Accounts Payable Checks

3.4 Acceptance of Tennis Courts Sealing and Painting

4. CURRENT BUSINESS

4.1 Mark Wash - Solid Waste/Recycling Discussion

4.2 Paul Rossow - WA Dept. Of Ecology - Outdoor Burning Laws and Rules

4.3 2018 Budget Process and Committee Schedule

4.4 Strategic Planning Information

4.5 Informational Public Meeting for Water System Plan (WSP)

4.6 Water Use Efficiency (WUE) Public Forum

4.7 Resolution to Adopt Water Use Efficiency Goal

4.8 Ordinance to Amend OMC Section 12.20.010 titled "Installation, Maintenance and Use of System"

4.9 Amendment to Greater Othello Chamber of Commerce Facility Use Agreement and Resolution for Farmers Market

4.10 Resolution and Facility Use Agreement for American Crown Circus

5. UNFINISHED BUSINESS

6. NEW BUSINESS

7. COUNCIL WILL ALSO RECEIVE THE FOLLOWING:

7.1 Department Head Reports

7.2 Planning Commission Minutes

The City Hall Council Chambers is accessible for persons with disabilities. Please let us know if you will need any special accommodations to attend the meeting at 488-5686.

The Agenda is subject to change due to changing status of items before the City meetings.

CALL TO ORDER:

Mayor Shawn R. Logan called the meeting to order at 6:30 p.m. and led a silent invocation and the Pledge of Allegiance.

Present: **Mayor Shawn R. Logan; Councilmembers: Eugene Bain, Genna Dorow, Corey Everett, Angel Garza, Larry McCourtie, John Lallas, and Mark Snyder.**

Also Present: **City Administrator Wade Farris; Department Heads: Police Chief Phil Schenck, City Clerk Rebecca P. Ozuna and Finance Officer Spencer Williams**

CITIZEN INPUT

Rosa Contreras mentioned that she is here to express her concern about the Farmers Market moving from Saturday to Thursday. Ms. Contreras mentioned that she is a vendor at the Farmers Market and they had been advised by Patty that they were going to be on a trial bases for three (3) weeks to have the market on Thursday. She mentioned that this scenario was going to be hard for her because she works at Wal-Mart until 4pm, her kids can't drive and wasn't sure how she was going to do it. Ms. Contreras commented that at first the people were not aware of the change because most of her customers are farm labor workers who get off early on Saturday and come to the Farmers Market to purchase their vegetables. The first Thursday was not successful for her which doesn't work for her and suggested maybe having it on Saturday and Thursday.

Ms. Contreras mentioned that Patty approached her on the second Thursday and asked how it was going and what she thought and she responded. However, Ms. Contreras stated that after she responded, Patty mentioned to her that it does not matter how Ms. Contreras felt because she is head and has the last word. Ms. Contreras went on to voice her opinion as to why the Farmers Market would be best for it to stay on Saturday. Councilmember Angel Garza questioned as to why it was moved from Thursday to Saturday because his understanding was that it was not working out. Ms. Contreras commented that to her knowledge there was no issues with the vendors however she mentioned that she had heard that Saturdays was not working out for the event coordinator.

Bianca Mendoza, Manager of the Chambers of Commerce, mentioned that over the 2 years since she has been in charge she has seen a decline in the attendance at the Farmers Market in both vendors and customers. Due to the decline she mentioned that they wanted to try something different. Ms. Mendoza mentioned that they choose Thursday and tried it for 3 weeks and the amount of both customers and vendors tripled during those three weekdays. They asked the opinion of all the vendors and customers and took all the information into consideration when making the decision to move the market. Ms. Mendoza acknowledged that this change causes an inconvenience for some vendors and customers because of their work schedule however she stated that they are looking to grow the market and this change seems to be working.

Patty Garza, President of the Chamber of Commerce, stated that she has been at the Farmers Market since it opened and does recognize that there are some vendors that do good like the vegetable vendors. However, she mentioned that they are trying to grow the Farmers Market and there have been some vendors like Lori Wheeler (soap vendor) and Lori Taff (coffee vendor) who have inquired about the customer traffic on Saturdays. Some of the other vendors like Lori Wheeler, Lori Taff and Erika from Iron works have mentioned that Saturdays do not work for them because of how it is. Mrs. Garza did acknowledge that the first 2 Thursdays the vegetable vendors did not do so well because the people from CBHA did not show up to hand out the checks. Mayor Logan clarified that CBHA gives out WIC checks for people to buy vegetables. Councilmember Genna Dorow asked if they had seen the change of migrant workers from Saturday to Thursday and Mrs. Garza stated that they are learning because they were not aware that it had changed as many other people were not aware. There were some comments from the Council regarding the differences they have seen on Saturday morning and Thursday Evenings.

Mayor Logan clarified to Ms. Contreras that the City of Othello entered into a contract with the Chamber of Commerce and since we entered the contract with The Chamber of Commerce they provides insurance, pay the fee to the City and it is basically their event and their park.

Charles Garcia, 1045 E. Rainier St., thanked the City for their amazing job they do on the ball parks. Mr. Garcia stated that many people know that he is the organizer of the Latino Softball event and he has always hosted it as an event and is aware that Fiesta Amistad has kind of vacated their request for tourism funds from the City. He approached the Council and mentioned that if the City was interested in developing the event part of the Latino Softball event that he would be interested in a joint venture and bring in more entertainment throughout the day. His goal is to make it into a family event and have them stay longer and spend their money in town.

Mr. Garcia proposed to Council that he is willing to donate the turf to pull out home plates (the batting areas on both sides) on all the fields and replace them with turf. He commented that the Public Works Crew has done a good job with cleaning and getting the rock out however the problem now is with batters boxes because after one game they are powder and that problem will continue to increase unless the City puts a lot of money to bring in the right soil. Mr. Garcia mentioned that he was fortunate enough to have some 100 rolls of WAZZUs field that was just pulled up and was willing to donate about some rolls so we could have enough to install and replace for the next couple years. Discussion and comments were held and said with Council, the Mayor and Mr. Garcia regarding how the installation would happen, the cost to the City, the use of the field by other teams and the durability.

APPROVAL OF AGENDA
Council carried a motion to approve the agenda. M/S Dorow/Garza.

CONSENT AGENDA:

- **A. Approval of City Council Minutes of August 14, 2017**
- **B. Approval of Special City Council Minutes of August 18, 2017**
- **C. Approval of Accounts Payable Checks**
- **D. Acceptance of Tennis Courts Sealing and Painting**

Accounts Payable was audited and certified by the Auditing Officer, as required by RCW 42.24.080; and those expense reimbursement claims certified and as required by RCW 42.24.090, have been recorded on a listing that has been reviewed by the Council audit committee and is available to the Council.

Accounts Payable Check No. 48571 to No. 48633 in the amount of $197,442.50.

Council carried a motion to approve the Consent Agenda, as presented. M/S Bain/Dorow.

MARK WASH – SOLID WASTE/RECYCLING DISCUSSION
Finance Officer Spencer Williams explained to Council that our three-year solid waste rate ordinance expires at the end of this year. We will need to look at this service and the rate structure for the next three-year period. We will start this discussion in committee later this week or next week (soon). A few years ago, we discussed introducing a recycling program into our regular solid waste program. Mr. Williams, mentioned that as part of this discussion, Mark Wash (Consolidated Disposal) is here tonight to discuss the possibility of a recycling program and what it could mean for the City, which we will then take this information forward to the next step in Committee.

Councilmember Corey Everett stated that since he works for CDSI he wanted to abstain from the discussion.

Mark Wash, Vice President of Consolidated Disposal Services Inc., gave a brief introduction about his position and the various boards that he services on. Mr. Wash mentioned that the end of the

current 3 year contract is in 2020 and he wants to provide any information needed and also gather any information provided because there are many options that can be done to the contract like changes, addition or it can be left as is. Mr. Wash commented that recycling is part of the future and currently Washington State is more than 50% recycling rate per figures provided by the Department of Ecology and their association is a large part of that. The West side of the states has rural recycling programs in place however they only work if the density is high enough to make it an efficient route. Mr. Wash mentioned that the City of Moses Lake has single stream and yard waste collection along with their garbage service, The City of Quincy also has yard waste and single stream collection and they want to provide the same services to the City of Othello. The City of Othello currently pays the higher rate of disposal compared to the City of Moses Lake and Quincy where they pay $28 per ton and the City of Othello pays $77 which is scheduled to go up $1 for the next three years.

Councilmember Lallas asked if the rate were charged by Adams County directly to the City or to Consolidated and Mr. Wash confirmed that it was directly to the City and all they charged us for were the collections and the containers that they provide. Discussions and comments were said by Council, Mayor Logan and Mr. Wash regarding a centralized location for recycling in the City of Othello, making it economically feasible to the customers to use recycling, the fact that recycling will not pay for itself due to the amount being taken out of the mainstream, our current cardboard recycling, and fees.

PAUL ROSSOW – WA DEPARTMENT OF ECOLOGY – OUTDOOR BURNING LAWS AND RULES

Mr. Paul Rossow from the Washington Department of Ecology Air Quality Program provided the Council with a flyer indicating what is able to be burned outside and what is not. Mr. Rossow also mentioned what the rules where for outside burning or agricultural burning. There was some discussion and questions between Council and Mr. Rossow in regards to burn bans, the difference of burnings, what is permissible and what is not, and what is except from a burn permit.

2018 BUDGET PROCESS AND COMMITTEE SCHEDULE

Finance Officer Spencer Williams commented that budget season is quickly approaching. Because the final budget belongs to the Council, we want to make the budget building process work for you. We will work with Department Heads and the Finance Committee to make this a smooth process. This year we'll follow a similar format to the process we followed last year. The broad strokes of the budget season are as follows:

- **July-Aug - Work with department heads to develop budget expectations for 2017 and 2018.**
- **Sep - City Council strategic planning retreat.**
- **Oct - Meet with the various budget committees to review the sections of the budget.**
- **Nov - Review budget proposals and consider inclusion of capital requests.**
- **Late Nov or Dec - Pass 2018 Budget**

The Strategic planning retreat is new this year. We will have a comprehensive discussion about the future needs of the City and vision. Our City engineers and new grant writer will also be at this meeting. During our Council Budget Committee meetings, we will review the budget by sections. We will look at a brief history of expenses and review the justifications for increasing or decreasing budget lines for 2018. We've prepared a preliminary calendar for this review. Please review the committees and the meeting dates and times. We can make changes as necessary, to fit your schedules.

STRATEGIC PLANNING INFORMATION

City Administrator Wade Farris mentioned that Strategic Planning Meeting was discussed at the last Council meeting and one of the main reasons Grant Writer Teddy Wallace-Hardcastle was hired was to help the City through this process. The meetings purpose and schedule were presented to Council. Mr. Farris stated that the main purpose of this 5 Year Strategic Planning meeting is to put in perspective where we want the City of Othello to go and collate everyone's

ideas and visions into one voice and one vision for the City of Othello for the possible next 10 or 15 years. He mentioned that the plan will be revised every 5 years. There was a brief overview of the schedule in which the meeting will be held at the Senior Center. After the review of the schedule it was determined that the times presented would not be feasible for some councilmember do to work and it was decided by census to change the times. An updated schedule will be provided at the next meeting after some discussion with Grant Writer Teddy Wallace-Hardcastle.

INFORMATIONAL PUBLIC MEETING FOR THE WATER SYSTEM PLAN (WSP)

Mr. Jesse Cowger from Varela & Associates mentioned that they have various agenda items pertaining to the Water System Plan and some of these have been discussed with the Water/Sewer Committee and mentioned Nathan Hutchens also from Varela & Associates will be participating in the discussions. Mr. Cowger commented that one of the things mentioned to him by Councilmember John Lallas was that he wished there was more public involvement on a lot of the decision because there wasn't a lot of feedback on the decisions that the Council makes. However, in this case it is required by the Department of Health and the Washington Administrative Code that the City has an informational meeting on the Water System Plan and invites the consumers and public to comment on the plan.

Mr. Cowger provided a very brief overview of what the Water System Plan does and the purpose of it. He also explained that notices of the meeting were posted and that the draft WSP has been available at City Hall for the past two weeks for the public to review. The purpose of this informational meeting is to allow the public to comment on the WSP. Mayor Logan opened the meeting for public comment, there was none. Mr. Cowger commented that it is normal to not have any involvement from the public regarding the Water System Plan, however they had a lot of involvement from the Council and the Water/Sewer Committee and expressed that the noninvolvement from the public does not affect the plan.

WATER USE EFFICIENCY (WUE) PUBLIC FORUM

Mr. Jesse Cowger from Varela & Associates introduced Nathan Hutchens also from Varela & Associates. Mr. Hutchens mentioned that Department of Health (DOH) requires that municipalities address Water Use Efficiency (WUE) in the Water System Plan. He stated that the purpose of the WUE section of the WSP is to require cities to set up a WUE Program and to generally encourage municipalities to efficiently use water. There were various ways stated on how to make sure the plans works like for example providing good working meters, etc. The WSP includes the following proposed WUE Goal:

- **Reduce water use by 640,000 gallons annually**

The WSP also selects six WUE measures that it will implement to achieve the WUE Goal. The proposed WUE measures include mailing educational information targeted at three of the City's customer classes (residential, commercial, and industrial) to help them increase outdoor water use efficiency and find leaks. These informational materials would be mailed with City utility bills. The purpose of this WUE forum is to provide customers and the public an opportunity to comment on the proposed WUE goal and measures.

Mr. Hutchens pointed out to Council that the City is also beginning the process of implementing a non-potable irrigation utility using the Cities Bureau of Reclamation Water which he states will save a ton of water by reducing the loading on the aquifer. Mr. Hutchens mentioned that the estimated budget for the mailings is about $1,200 annually in printing materials. Mayor Logan opened the meeting for public comment, there was none. Mayor Logan asked if the parks can be included and used as part of the efficiencies to meet the 640,000 goal and was responded that since they are already on separate irrigation and the goal is for new efficiency. There was more discussion and comments by the Council, Staff and Varela Staff.

RESOLUTION TO ADOPT WATER USE EFFICIENCY GOAL

Mr. Nathan Hutchens from Varela & Associates mentioned the Water Efficiency Goal is 640,000 using the six measures and did open up to public comment. They believe the goal is obtainable and adopt the goal. The goal is an annual goal however this situation is by the actions obtainable which is allowed by DOH.

Council carried a motion to ADOPT RESOLUTION ESTABLISHING OTHELLO'S WATER USE EFFICINCY GOAL. M/S Dorow/Snyder. This shall be known as Resolution No. 2017-20.

ORDINANCE TO AMEND OMC SECTION 12.20.010 OF CHAPTER 12.20 ENTITLED "INSTALLATION, MAINTENANCE AND USE OF SYSTEM"

Mr. Jesse Cowger from Varela & Associates mentioned that one of the things that came up from the Department of Health (DOH) review was that DOH commented on OMC 12.20.010 indicating it does not meet the State's requirement for water systems to own and maintain the mains that serve water system customers. Basically the issue was that DOH objected to Othello indicating that the main lines that are outside the City limits are not owned by the City and not maintained by the City and they believe that if people are still being served off of it then the City should own it and maintain it due to health issues. The proposed revision to the OMC will clarify where City ownership of water mains, services, backflow preventers, and appurtenances ends and where private ownership begins. Mr. Cowger mentioned that there was a suggestion from City Attorney Kelly Konkright where if there is a water main under private property than the City should get an easement from the property owners. They believe this will make the process easier for the City in the long run.

Council carried a motion to ADOPT ORDINANCE TO REVISE OMC 12.20.010. M/S Lallas/McCourtie. This shall be known as Ordinance No. 1496

AMENDMENT OF FACILITY USE AGREEMENT FOR GREATER OTHELLO CHAMBER OF COMMERCE AND RESOLUTION FOR FARMERS MARKET

Park and Recreation Coordinator Amy Hurlbut advised that the Farmers Market has been struggling to grow and even maintain on Saturday. Based on a couple of suggestions from shoppers and vendors the Greater Othello Chamber of Commerce decided to try out a Thursday evening market in place of Saturday's market. Over the past 2 weeks they have experienced success at growing both the vendor participation and the shoppers. After their test run they have asked we amend their contract to allow them to continue having the Thursday market in place of Saturday.

Ms. Hurlbut recommends the City Council approve the amended Facility Use Agreement between the City of Othello and the Greater Othello Chamber of Commerce for use of Pioneer Park and the resolution to operate the 2017 Farmer's Market.

Council carried a motion to APPROVE THE AMENDED FACILITY USE AGREEMENT BETWEEN THE CITY OF OTHELLO AND THE GREATER OTHELLO CHAMBER OF COMMERCE FOR USE OF PIONEER PARK AND RESOLUTION TO OPERATE THE 2017 FARMER'S MARKET. M/S Lallas/Dorow. This shall be Resolution 2017-21.

RESOLUTION AND FACILITY USE AGREEMENT FOR AMERICAN CROWN CIRCUS

Park and Recreation Coordinator Amy Hurlbut mentioned that Staff has received a request for use of City property from Frank Osorio, with the American Crown Circus, for use of the Lions Park soccer field Wednesday, September 5, 2017, though Monday September 12, 2017 in order to host their one-ring, European style acrobatic circus that consists of jugglers, comedic performers, acrobats and magicians. The American Crown Circus last visited Othello in September of 2016.

Ms. Hurlbut commented that representatives of the American Crown Circus have requested to arrive in the parking spaces on Pine St. on Tuesday, September 5 and to setup the event on Wednesday, September 6, 2017, from 7:00 AM to 6:00 PM. The American Crown Circus plans to

hold two shows per day September 7, 2017-Septmeber 11, 2017 with the first show scheduled from 6:00 PM to 7:30 PM, and the second show scheduled from 8:00 PM to 9:30 PM. Event cleanup/teardown is scheduled to be completed by 11:00 AM on Tuesday, September 12, 2017.

It will be the responsibility of the American Crown Circus and its representatives to provide security of their facilities (tent, belongings, etc.) in Lions Park throughout the event. Representatives of the American Crown Circus have been instructed to park any trailers or RVs in the parking spaces on Pine Street for the duration of this event. Over flow parking is permitted in the City owned lot on 9th and Pine.

Ms. Hurlbut advised Council that rather than paying the $400 special event fee for use of Lions Park for this event, due to the estimated attendance of 500+ people, representatives of the American Crown Circus have agreed to donate 15% of total ticket sales to the City of Othello in order to compensate the City for providing additional services such as additional garbage containers, as well cover the increase in landfill fees due to this event. In 2016, the American Crown Circus' payment of 15% of ticket sales to the City of Othello equaled $2,804. She recommends City Council approve the resolution authorizing use of City property for the American Crown Circus and authorizing the mayor to sign the Facility Use agreement. There was some concern voiced about their treatment of the grounds by Councilmember Dorow and Lallas and Ms. Hurlbut commented that it has been addressed in the resolution and agreement.

Councilmember McCourtie stated that he is 100% against the use of the park for the circus and these types of events and would like for them to come up with a different plan like having it at the fairgrounds.

Council carried a motion to APPROVE RESOLUTION AUTHORIZING USE OF CITY PROPERTY FOR THE AMERICAN CROWN CIRCUS AND AUTHORIZING THE MAYOR TO SIGN THE FACILITY USE AGREEMENT. M/S Dorow/Everett. Councilmembers McCourtie and Lallas cast an opposing vote. This shall be known as Resolution No. 2017-22.

UNFINISHED BUSINESS

Councilmember Mark Snyder inquired about the CBHA entrance and was informed by City Administrator that they are still in negotiations.

NEW BUSINESS

Mayor Logan asked Council about the Workshop meeting for September 5th if they want to cancel as there was nothing on the agenda. There was a census to cancel the meeting.

Council made a motion to CANCEL THE CITY COUNCIL WORKSHOP MEETING FOR MONDAY SEPTEMBER 5TH. M/S Dorow/McCourtie.

ADJOURNMENT

With no further items to discuss, Mayor Logan adjourned the Council meeting at 8:14 p.m.

By:_____
SHAWN R. LOGAN, Mayor

ATTEST:

By:_____
REBECCA P. OZUNA, City Clerk

APPENDIX B

DOH Water Facilities Inventory (WFI)
DOH Water Quality Monitoring Schedule (WQMS)
DOH Sanitary Survey Checklist (SSC)
DOH Water Use Efficiency (WUE) Performance Reports

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

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 08/25/2016
Printed: 12/14/2016
WFI Printed For: On-Demand
Submission Reason: Pop/Connect Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
64850 R	OTHELLO WATER DEPARTMENT	ADAMS	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS	8. OWNER NUMBER: 004313
DAN QUICK 111 N BROADWAY OTHELLO, WA 99344	OTHELLO, CITY OF DAN QUICK 500 E MAIN ST OTHELLO, WA 99344	CERTIFIED OPERATOR
STREET ADDRESS IF DIFFERENT FROM ABOVE	**STREET ADDRESS IF DIFFERENT FROM ABOVE**	
ATTN ADDRESS CITY STATE ZIP	ATTN ADDRESS CITY STATE ZIP	

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone: (509) 488-6997		Owner Daytime Phone: (509) 488-6997	
Primary Contact Mobile/Cell Phone: (509) 989-0687		Owner Mobile/Cell Phone: (509) 989-0687	
Primary Contact Evening Phone: (xxx)-xxx-xxxx		Owner Evening Phone: (xxx)-xxx-xxxx	
Fax:	E-mail: xxxxxxxxxxxxxxxxxxx	Fax: (509) 488-3701	E-mail: xxxxxxxxxxxxxxxxxxx

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

[ ] Agricultural	[x] Hospital/Clinic	[x] Residential
[x] Commercial / Business	[x] Industrial	[x] School
[x] Day Care	[x] Licensed Residential Facility	[ ] Temporary Farm Worker
[x] Food Service/Food Permit	[x] Lodging	[x] Other (church, fire station, etc.):
[x] 1,000 or more person event for 2 or more days per year	[x] Recreational / RV Park	

13. WATER SYSTEM OWNERSHIP (mark only one)				14. STORAGE CAPACITY (gallons)
[ ] Association	[ ] County	[ ] Investor	[ ] Special District	
[x] City / Town	[ ] Federal	[ ] Private	[ ] State	6,000,000

- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES -

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
64850 R	OTHELLO WATER DEPARTMENT	ADAMS	A	Comm

15	16	17	18										19			20	21						22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY										USE				TREATMENT						DEPTH		SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	Well #2 - AFL224		X												X	Y	X						588	260	NW NE	03	15N	29E
S02	Well #3 - ABS088		X										X			Y		X					907	1300	SE SE	34	16N	29E
S05	Well #6 - ABR235		X											X		Y		X					1200	2000	NE NE	04	15N	29E
S06	Well #4 - AEL069		X										X			Y		X					904	450	NE SE	03	15N	29E
S07	Well #5 - AFL223		X										X			Y		X					1007	1200	SE SW	03	05N	29E
S08	Well #7 - AAP562		X										X			Y		X					820	650	SE SE	09	15N	29E
S09	Well #8 - AAS228		X										X			Y		X					853	500	SW SW	26	18N	29E
S10	Well #9 - AAR984		X										X			Y		X					407	1000	NE SW	36	16N	29E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
64850 R	OTHELLO WATER DEPARTMENT	ADAMS	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		2636	4262
A. Full Time Single Family Residences (Occupied 180 days or more per year)	1952		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	131		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	684		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	0
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	290	290	0
28. TOTAL SERVICE CONNECTIONS		2926	4262

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 7680

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
* Requirement is exception from WAC 246-290	9	9	9	9	9	9	9	9	9	9	9	9

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

WS ID	WS Name
64850	OTHELLO WATER DEPARTMENT

Total WFI Printed: 1

Water Quality Monitoring Schedule

System: OTHELLO WATER DEPARTMENT **PWS ID: 64850 R** **Region: EASTERN**
Contact: Dan Quick **Group: A - Comm** **County: ADAMS**

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017
Coliform Monitoring Population	7680	7680	7680	7680	7680	7680	7680	7680	7680	7680	7680	7680
Number of Routine Samples Required	9	9	9	9	9	9	9	9	9	9	9	9

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Lead and Copper	20	Jan 2014 - Dec 2016	standard - 3 year	07/12/2016	
Asbestos	0	Jan 2011 - Dec 2019	waiver - 9 year		
Total Trihalomethane (THM)	1	Jan 2016 - Dec 2016	reduced - 1 year	08/17/2016	
Halo-Acetic Acids (HAA5)	1	Jan 2016 - Dec 2016	reduced - 1 year	08/17/2016	

Water Quality Monitoring Schedule

Notes on Distribution System Chemical Monitoring

For *Lead and Copper*:
- Collect samples from the COLD WATER side of a KITCHEN or BATHROOM faucet that is used daily.
- Before sampling, make sure the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours (e.g. overnight).
- If you are sampling from a faucet that has hot water, make sure cold water is the last water to run through the faucet before it sits overnight.
- If your sampling frequency is annual or every 3 years, collect samples between June 1 and September 30.

For *Asbestos:* Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.

For *Disinfection Byproducts (HAA5 and THM):* Collect the samples at the locations identified in your Disinfection Byproducts (DBP) monitoring plan.

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.

Source S02	*Well #3 - ABS088*	*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	R&C - 1 year	06/16/2016	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/14/2011	
Fluoride	1	Jan 2016 - Dec 2016	R&C - 1 year	06/16/2016	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	04/26/2011	Apr 2017
Herbicides	1	Jan 2014 - Dec 2016	R&C - 3 year	03/07/2016	
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/14/2011	
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	06/04/2012	Mar 2017
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	06/16/2016	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	06/16/2016	

Source S05	*Well #6 - ABR235*	*Well*	*Use - Seasonal*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	06/21/2016	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/17/2013	
Fluoride	1	Jan 2016 - Mar 2016	increased - quarterly	08/03/2016	
Fluoride	1	Apr 2016 - Jun 2016	increased - quarterly	08/03/2016	

Water Quality Monitoring Schedule

Source S05	*Well #6 - ABR235*	*Well*	*Use - Seasonal*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Fluoride	1	Jul 2016 - Sep 2016	increased - quarterly	08/03/2016	
Fluoride	1	Oct 2016 - Dec 2016	increased - quarterly	08/03/2016	***Oct 2016***
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	09/10/2012	Jul 2019
Herbicides	1	Jan 2014 - Dec 2016	R&C - 3 year	08/10/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	02/24/2011	Jul 2021
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	08/07/2012	Jul 2021
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	07/01/2013	Feb 2017
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	02/24/2011	Feb 2017

Source S06	*Well #4 - AEL069*	*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/06/2016	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/15/2011	
Fluoride	1	Jan 2016 - Dec 2016	R&C - 1 year	08/03/2016	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	standard - 3 year	06/21/2016	
Herbicides	1	Jan 2014 - Dec 2016	R&C - 3 year	07/14/2015	
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/15/2011	
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	06/04/2012	Mar 2017
Gross Alpha	1	Jan 2014 - Dec 2016	standard - 3 year	06/04/2015	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	06/04/2015	
Radium 228	1	Jan 2014 - Dec 2016	standard - 3 year	06/04/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	06/04/2015	

Source S07	*Well #5 - AFL223*	*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	06/16/2016	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/14/2011	

Water Quality Monitoring Schedule

Source S07	*Well #5 - AFL223*	*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Fluoride	1	Jan 2016 - Dec 2016	R&C - 1 year	04/22/2016	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	04/26/2011	Apr 2017
Herbicides	1	Jan 2014 - Dec 2016	R&C - 3 year	03/07/2016	
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	04/26/2011	
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	10/19/2012	Mar 2017
Gross Alpha	1	Jan 2014 - Dec 2016	standard - 3 year	09/09/2015	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	09/09/2015	
Radium 228	1	Jan 2014 - Dec 2016	standard - 3 year	09/09/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	09/09/2015	

Source S08	*Well #7 - AAP562*	*Well*	*Use - Permanent*	*Susceptility - Moderate*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	09/06/2016	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/14/2011	
Fluoride	1	Jan 2016 - Dec 2016	R&C - 1 year	09/06/2016	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	06/14/2011	Jun 2017
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/17/2013	Apr 2022
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/14/2011	
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	04/28/2008	Mar 2017
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	08/03/2016	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	08/03/2016	

Source S09	*Well #8 - AAS228*	*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	08/03/2016	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/15/2011	
Fluoride	1	Jan 2016 - Dec 2016	R&C - 1 year	08/03/2016	

Water Quality Monitoring Schedule

Source S09	*Well #8 - AAS228*	*Well*	*Use - Permanent*	*Susceptility - High*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	06/15/2011	Jun 2017
Herbicides	1	Jan 2014 - Dec 2016	R&C - 3 year	03/07/2016	
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	06/15/2011	
Soil Fumigants	1	Jan 2014 - Dec 2022	waiver - 9 year	06/05/2012	Mar 2017
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	09/06/2016	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	09/06/2016	

Source S10	*Well #9 - AAR984*	*Well*	*Use - Permanent*	*Susceptility - Moderate*	
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2016 - Dec 2016	standard - 1 year	05/11/2016	
Complete Inorganic (IOC)	1	Jan 2014 - Dec 2016	standard - 3 year	05/11/2016	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2016	Initial Determined 2 Qtr	08/03/2016	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	09/11/2014	
Pesticides	0	Jan 2014 - Dec 2016	waiver - 3 year	09/11/2014	
Soil Fumigants	0	Jan 2014 - Dec 2016	waiver - 3 year	06/17/2016	
Gross Alpha	1	Jan 2014 - Dec 2016	standard - 6 year	05/11/2016	
Gross Alpha	1	Jan 2016 - Mar 2016	initial - quarterly	05/11/2016	***Mar 2016***
Gross Alpha	1	Apr 2016 - Jun 2016	initial - quarterly	05/11/2016	
Radium 228	1	Jan 2014 - Dec 2016	standard - 6 year	05/11/2016	
Radium 228	1	Jan 2016 - Mar 2016	initial - quarterly	05/11/2016	***Mar 2016***
Radium 228	1	Apr 2016 - Jun 2016	initial - quarterly	05/11/2016	

Water Quality Monitoring Schedule

Other Information

Other Reporting Schedules	Due Date
Measure chlorine residuals and submit monthly reports if your system uses continuous chlorination:	monthly
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2016
Submit CCR certification form to ODW (Community systems only):	10/01/2016
Submit Water Use Efficiency report online to ODW (Community and other municipal water systems only):	07/01/2016
Send notices of lead and copper sample results to the customers sampled:	10 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	60 days after you notify customers

Special Notes

Collect fluoride samples for S05 (Well 6) every calendar quarter - at wellhead when well in use and at entry to distribution system when S05 is not running. Continue distribution fluoride monitoring in 2014.

Eastern Regional Water Quality Monitoring Contacts

For questions regarding chemical monitoring:	Stan Hoffman: (509) 329-2132: or Stan.Hoffman@doh.wa.gov
For questions regarding DBPs:	Stan Hoffman: (509) 329-2132 or Stan.Hoffman@doh.wa.gov
For questions regarding coliform bacteria and microbial issues:	Mark Steward: (509) 329-2134 or Mark.Steward@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.

WASHINGTON STATE DEPARTMENT OF HEALTH
ERO Group A Water System Sanitary Survey Checklist

System Name:	**City Of Othello Water Department**			**Survey Date:**	**5/ 22 / 2012**
PWS ID#:	**64850 R**	**County:**	**Adams**	**System Type:**	**A-COMM**
Persons Attending Inspection:	**Dan Quick, Bryony Stasney**				
Inspector's Name:	**Andres R. Cervantes**				

PART A: SUMMARY OF INSPECTION FINDINGS & RECOMMENDATIONS

Significant Deficiencies observed during this survey:

- **Sources:**
  - **General**, Continue with distribution system monitoring for Fluoride, and annual public notification requirements. Fluoride levels in wells / sources fluctuate above and below the secondary MCL. S05 (Well #6) exception with consistent readings above the MCL.
  - **S06**, Photo-65 and Photo-68 - Seal along edge of steel plate and cement pedestal with durable non-shrinking silicone or grout. Prevent potential surface contamination of aquifer.
    Photo-66 - Double-check electrical junction box for watertight seal around electrical wiring and conduit into casing.
  - **S07**, Photo-77 - Seal along edge of steel plate and cement pedestal with durable non-shrinking silicone or grout. Prevent potential surface contamination of aquifer.
    Photo-76 - Turn pipe vent to face floor and re-install or properly secure the screen.
    Recommend: Photo-73 - Install tide valve or equivalent on end of discharge pipe.
  - **S04**, Photo-82 - Install / secure durable cover with watertight seal on or over casing.
- **Reservoirs:**
  - **R1, R2, & R3**, Provide documentation or dates when contractors completed inspections of reservoirs..

PART B AND C: GENERAL WATER SYSTEM DESCRIPTION AND PLANNING/MANAGEMENT DISCUSSION

1. General description of the water system including facilities and operation, direction of flow (from source to distribution), how the controls function, storage, treatment if any, number of pressure zones and any significant changes.

Single pressure zone with 7 sources and 3 reservoirs. Sources pump directly into the system and controlled by the water level in the reservoirs. City has a total reservoir capacity of 6.0 MG, of which a majority is dead storage in the stand-pipes.

The wells are blended within the distribution system and a testing protocol for fluoride required to show the fluoride levels are being mitigated within the distribution system. There were 2 MCL exceedances within the distribution system in 2011, and 4 from S05 (Well #6).

Optional Information: describe the general level of planning and management documents developed by this water system and any recommendations for additional development, including system management practices and processes, water rates, etc. Also describe any significant trends in water quality monitoring and results.

City has an approved plan. City continues to review and improve water system facilities. Including source improvements, water quality testing, and storage.

2. If the certified operator on record is not correct, who is the certified operator?	
4. Has the system completed a Small Water System Management Program or Water System Plan?	☒Yes ☐No ☐Partial
11. Were water quality sample results and trends reviewed with the purveyor?	☒Yes ☐No

PART D1: SOURCES (This page may be reproduced to add more sources)

Describe and evaluate the source facilities including maintenance, operations, sanitary and security observations and any major change made to the source such as deepening or reconstruction:

Sanitary control areas protected. Wellhead for S01 raised above ground and located in Pioneer Park. S02 is locked behind a fence and pumphouse.

	S01	S02
17. DOH Source Number:		
18. Source Name from the WFI: (For example, North Well; Well #2; ABC334.)	**Well #2**	**Well #3**
19. Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)	**AFL 224**	**ABS 088**
20. Source Use: P – Permanent S - Seasonal E - Emergency	**P**	**P**
21. If this is an emergency source, is it physically disconnected?	☐Yes ☒No	☐Yes ☒No
22. What is the physical location of the source? Use references -cross street, address, directions to locate in the field or GPS?	**N of Main St. Pioneer Park**	**N of E Fir St. Lions Park**
23. Is the source listed on the Water Facilities Inventory (WFI) report?	☒Yes ☐No	☒Yes ☐No
24. Is the source a potential GWI source?	☐Yes ☒No	☐Yes ☒No
25. Is the Sanitary Control Area (SCA) free of potential sources of contamination?	☒Yes ☐No	☒Yes ☐No
26. If the wellhead is located in a pit or vault, is it drained to daylight?	☐Yes ☒No	☐Yes ☒No
27. Does the top of the casing extend at least 6 inches above the floor or ground?	☒Yes ☐No	☒Yes ☐No
28. Is the source protected from any obvious risk of being submerged?	☒Yes ☐No	☒Yes ☐No
29. Is there a watertight, sealed well cap with no unprotected openings?	☒Yes ☐No	☒Yes ☐No
30. Is the well casing free of any unprotected openings?	☒Yes ☐No	☒Yes ☐No
31. Is there a vent on the well?	☒Yes ☐No	☒Yes ☐No
32. If yes, is the vent properly protected? (24 mesh screen or slots)	☒Yes ☐No	☒Yes ☐No
33. Are conduits and junction boxes sealed to prevent contaminant entry?	☒Yes ☐No	☒Yes ☐No
34. Is the well protected from physical damage by vehicles parked or driving nearby?	☒Yes ☐No	☒Yes ☐No
35. Is a raw water sample tap provided at the source?	☒Yes ☐No	☒Yes ☐No
36. Is the source metered?	☒Yes ☐No	☒Yes ☐No
37. If yes, is the source meter being read?	☒Yes ☐No	☒Yes ☐No
38. If yes, are the water production records maintained?	☒Yes ☐No	☒Yes ☐No
39. Is the wellhouse properly constructed and maintained?	☒Yes ☐No	☒Yes ☐No
40. Is there evidence of rodent infestation?	☐Yes ☒No	☐Yes ☒No
41. Is the wellhouse adequately protected from unauthorized access?	☒Yes ☐No	☒Yes ☐No
42. Is the source a spring?	☐Yes ☒No	☐Yes ☒No
43. Is the spring enclosure properly constructed?	☐Yes ☐No	☐Yes ☐No
44. Is the drain pipe on the collection box screened?	☐Yes ☐No	☐Yes ☐No
45. Is the overflow pipe on the collection box screened?	☐Yes ☐No	☐Yes ☐No
46. Is direct surface drainage diverted around or away from the spring?	☐Yes ☐No	☐Yes ☐No
PART E1: TREATMENT	**- No Treatment -**	**- Chlorinate -**
49. Are all types of active treatment noted on the WFI? *If no, explain below*	☐Yes ☐No	☒Yes ☐No
50. Has any treatment been discontinued since the last survey? *If yes explain below*	☐Yes ☐No	☐Yes ☒No
52. Are primary contaminant treatment facilities required by DOH present and operating?	☐Yes ☐No	☐Yes ☐No
56. If Chlorine Contact Time is required by DOH, are the minimum free chlorine residuals maintained?	☐Yes ☐No	☐Yes ☐No

Additional comments: **Chlorinate to provide taste and odor control. S01 not provided with disinfection. S02 has LMI injector pump and Bulk supply tank from Starchlor, Sodium Hypochlorite (12.5%).**

PART D2: SOURCES (This page may be reproduced to add more sources)

Describe and evaluate the source facilities including maintenance, operations, sanitary and security observations and any major change made to the source such as deepening or reconstruction:

Sources located in a locked pumphouse and secured. SCA's around wells protected. S06 and S07 protected by fenced enclosures.

S05 currently offline for repairs.

S07 currently offline for minor repairs.

		S05	S06	S07
17.	DOH Source Number:			
18.	Source Name from the WFI: (For example, North Well; Well #2; ABC334.)	**Well #6**	**Well #4**	**Well #5**
19.	Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)	**ABR 235**	**AEL 069**	**AFL 223**
20.	Source Use: **P – Permanent** **S - Seasonal** **E - Emergency**	**S**	**P**	**P**
21.	If this is an emergency source, is it physically disconnected?	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
22.	What is the physical location of the source? Use references -cross street, address, directions to locate in the field or GPS?	**SE corner of W Larch and Broadway**	**W intersection of S 14th St and Cemetery rd**	**N Hwy 26 and S end of 7th St**
23.	Is the source listed on the Water Facilities Inventory (WFI) report?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
24.	Is the source a potential GWI source?	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
25.	**Is the Sanitary Control Area (SCA) free of potential sources of**	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
26.	If the wellhead is located in a pit or vault, is it drained to daylight?	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
27.	Does the top of the casing extend at least 6 inches above the floor or ground?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
28.	**Is the source protected from any obvious risk of being submerged?**	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
29.	**Is there a watertight, sealed well cap with no unprotected openings?**	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
30.	**Is the well casing free of any unprotected openings?**	☒Yes ☐No	☐Yes ☒**No**	☒Yes ☐No
31.	Is there a vent on the well?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
32.	**If yes, is the vent properly protected? (24 mesh screen or slots)**	☒Yes ☐No	☒Yes ☐No	☐Yes ☒**No**
33.	**Are conduits and junction boxes sealed to prevent contaminant entry?**	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
34.	Is the well protected from physical damage by vehicles parked or driving nearby?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
35.	Is a raw water sample tap provided at the source?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
36.	Is the source metered?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
37.	If yes, is the source meter being read?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
38.	If yes, are the water production records maintained?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
39.	Is the wellhouse properly constructed and maintained?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
40.	Is there evidence of rodent infestation?	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
41.	Is the wellhouse adequately protected from unauthorized access?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
42.	Is the source a spring?	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
43.	**Is the spring enclosure properly constructed?**	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
44.	**Is the drain pipe on the collection box screened?**	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
45.	**Is the overflow pipe on the collection box screened?**	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
46.	**Is direct surface drainage diverted around or away from the spring?**	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
PART E2:	**TREATMENT**	**- Chlorinate -**	**- Chlorinate -**	**- Chlorinate -**
49.	Are all types of active treatment noted on the WFI? *If no, explain below*	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
50.	Has any treatment been discontinued since the last survey? *If yes explain below*	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
52.	**Are primary contaminant treatment facilities required by DOH present and operating?**	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
56.	**If Chlorine Contact Time is required by DOH, are the minimum free chlorine residuals maintained?**	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No

Additional comments: **Chlorinate to provide taste and odor control. S06 and S07 have LMI injector pumps and Bulk supply tank from Starchlor, Sodium Hypochlorite (12.5%).**

PART D3: SOURCES (This page may be reproduced to add more sources)

Describe and evaluate the source facilities including maintenance, operations, sanitary and security observations and any major change made to the source such as deepening or reconstruction:

Both sources protected behing fenced enclosures. S08 is located within a locking pumphouse. S09 located adjacent to pumphouse under a framed cover.

SCA's protected and no sign of potential contaminant sources within 100-ft.

	S08	S09
17. DOH Source Number:	**S08**	**S09**
18. Source Name from the WFI: (For example, North Well; Well #2; ABC334.)	**Well #7**	**Well #8**
19. Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)	**AAP 562**	**AAS 228**
20. Source Use: P – Permanent S - Seasonal E - Emergency	**P**	**P**
21. If this is an emergency source, is it physically disconnected?	☐Yes ☒No	☐Yes ☒No
22. What is the physical location of the source? Use references -cross street, address, directions to locate in the field or GPS?	**SE Corner intersection of Bench and SR 24**	**SE Corner intersection of Lee and S Reynolds**
23. Is the source listed on the Water Facilities Inventory (WFI) report?	☒Yes ☐No	☒Yes ☐No
24. Is the source a potential GWI source?	☐Yes ☒No	☐Yes ☒No
25. Is the Sanitary Control Area (SCA) free of potential sources of contamination?	☒Yes ☐No	☒Yes ☐No
26. If the wellhead is located in a pit or vault, is it drained to daylight?	☐Yes ☒No	☐Yes ☒No
27. Does the top of the casing extend at least 6 inches above the floor or ground?	☒Yes ☐No	☒Yes ☐No
28. Is the source protected from any obvious risk of being submerged?	☒Yes ☐No	☒Yes ☐No
29. Is there a watertight, sealed well cap with no unprotected openings?	☒Yes ☐No	☒Yes ☐No
30. Is the well casing free of any unprotected openings?	☒Yes ☐No	☒Yes ☐No
31. Is there a vent on the well?	☒Yes ☐No	☒Yes ☐No
32. If yes, is the vent properly protected? (24 mesh screen or slots)	☒Yes ☐No	☒Yes ☐No
33. Are conduits and junction boxes sealed to prevent contaminant entry?	☒Yes ☐No	☒Yes ☐No
34. Is the well protected from physical damage by vehicles parked or driving nearby?	☒Yes ☐No	☒Yes ☐No
35. Is a raw water sample tap provided at the source?	☒Yes ☐No	☒Yes ☐No
36. Is the source metered?	☒Yes ☐No	☒Yes ☐No
37. If yes, is the source meter being read?	☒Yes ☐No	☒Yes ☐No
38. If yes, are the water production records maintained?	☒Yes ☐No	☒Yes ☐No
39. Is the wellhouse properly constructed and maintained?	☒Yes ☐No	☒Yes ☐No
40. Is there evidence of rodent infestation?	☐Yes ☒No	☐Yes ☒No
41. Is the wellhouse adequately protected from unauthorized access?	☒Yes ☐No	☒Yes ☐No
42. Is the source a spring?	☐Yes ☒No	☐Yes ☒No
43. Is the spring enclosure properly constructed?	☐Yes ☐No	☐Yes ☐No
44. Is the drain pipe on the collection box screened?	☐Yes ☐No	☐Yes ☐No
45. Is the overflow pipe on the collection box screened?	☐Yes ☐No	☐Yes ☐No
46. Is direct surface drainage diverted around or away from the spring?	☐Yes ☐No	☐Yes ☐No
PART E1: TREATMENT	**- Chlorinate -**	**- Chlorinate -**
49. Are all types of active treatment noted on the WFI? *If no, explain below*	☒Yes ☐No	☒Yes ☐No
50. Has any treatment been discontinued since the last survey? *If yes explain below*	☐Yes ☒No	☐Yes ☒No
52. Are primary contaminant treatment facilities required by DOH present and operating?	☐Yes ☐No	☐Yes ☐No
56. If Chlorine Contact Time is required by DOH, are the minimum free chlorine residuals maintained?	☐Yes ☐No	☐Yes ☐No

Additional comments: **Chlorinate to provide taste and odor control. S08 has LMI injector pump and Bulk supply tank from Starchlor, Sodium Hypochlorite (12.5%). S09 has gaseous chlorine.**

PART H2: WATER STORAGE FACILITIES (Reproduce table if necessary)	- Reservoir 1 -	- Reservoir 2 -	- Reservoir 3 -
Describe and evaluate the finished water storage facilities including volume, maintenance, configuration of the inlet/outlet piping, operational, sanitary and security observations:	**Standpipe Welded Steel 1 - MG**	**Standpipe Welded Steel 2 - MG**	**Standpipe Welded Steel 3 - MG**
75. Is the storage tank protected from unauthorized entry or vandalism? *If no, explain below*	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
76. Is the access hatch constructed and sealed to prevent the entry of contaminants? *If no, explain below*	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
77. Is there a dedicated air vent on the storage tank?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
78. If yes, is the air vent constructed to prevent the entry of contaminants? *If no, explain below*	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
79. If unable to physically inspect the reservoir hatch or vent, select method used to document their condition:			
▪ Review and discussion of maintenance records with purveyor.	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
▪ Photos to be taken and mailed by purveyor later.	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
▪ Purveyor unable to document, additional follow-up required.	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
80. Is the overflow line protected to prevent contaminants from entering the tank?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
84. If yes, is there an air gap or approved backflow preventer assembly?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
85. Is there a separate drain line on the tank?	☐Yes ☒No	☐Yes ☒No	☐Yes ☒No
86. Is the drain line protected to prevent contaminants from entering or plugging the line?	☒Yes ☐No	☒Yes ☐No	☒Yes ☐No
87. When was the tank inspected last? *Explain below if necessary*	Routinely	Routinely	Routinely

Additional comments: **Reservoirs scheduled for regular inspections by outside - third party company. Recent investigations / inspections indicated no concerns with hatches and vents.**

PART I: DISTRIBUTION SYSTEM	
93. Is an adequate map of the distribution system maintained?	☒Yes ☐No
94. Does the system provide adequate pressure throughout the distribution system? *If no, explain below*	☒Yes ☐No
96. Are proper procedures followed for disinfection of new construction or repairs?	☒Yes ☐No
101. Is the system protected from any cross connections observed during the survey? *If no, explain below*	☒Yes ☐No
102. Is the system protected from high health hazard cross connections? *If no, explain below*	☒Yes ☐No

Additional comments: **Map and improvements also provided in WSP.**

PART K: FIELD NOTES AND SAFETY CONCERNS

NOTES:

Deep well sources have fluoride that fluctuate above and below the secondary MCL.

S05 actually exceeds the MCL for fluoride, and distribution levels indicate high fluoride when the well is online.

City currently maintains a sampling protocol in the distribution system to show the fluoride levels in the distribution system do not exceed the primary MCL of 4.0 mg/L. In 2011, the primary MCL was exceeded three times and corresponded with the opertion of S05 (Well #6).

Photographs: S01 and S02	PWS ID # 64850 R	Date: May 22, 2012	Page # 1

Photo-37: S01 (Well #2)

Looking North – Pioneer Park

- → Wellhead – center of photo
- → Main St. in the distance
- → Gazebo behind wellhead

Photo-38: S01 (Well #2)

Looking SE – Pioneer Park

- → Wellhead – center of photo
  - ⇉ Vented
  - ⇉ Meter in vault
- → Gazebo behind wellhead

Photo-39: S01 (Well #2)

DOE ID

- → AFL 224

Photo-40: S01 (Well #2)

Looking North

- → Discharge line to main
- → Raw water sample tap in the distance
  - ⇉ @ Main St

Photo-41: S02 (Well #3)

Looking West – Sanitary Control Area (SCA)

- → Pumphouse – Chlorinator and solution tank
- → NE corner of Lions Park
- → Fenced area

Photo-42: S02 (Well #3)

Looking North – Sanitary Control Area (SCA)

- → NE corner of Lions Park
- → Reservoir 1
  - ⇉ R1 and R3 in same fenced area of park

Photo-43: S02

LMI Diaphragm pump

- → Max PSI – 100
- → Max GPH – 2.50

Photo-44: S02

US Motors

- → 300-hp
- → ABS 088
  - ⇉ Not available

Photographs: S02	PWS ID # 64850 R	Date: May 22, 2012	Page # 2

Photo-45:

S02 (Well #3)

Vertical Motor

→ US Motors

→ Vented

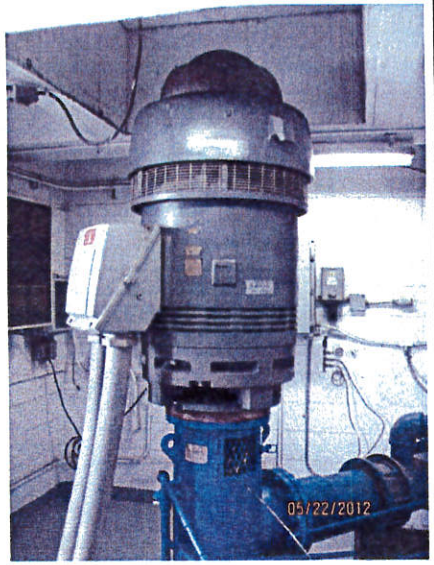


Photo-46:

S02 (Well #3)

Discharge Header

→ Vent

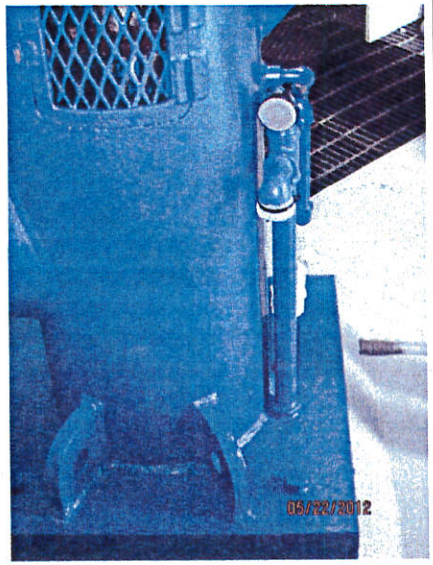


Photo-47: S02 (Well #3)

Discharge to system

→ Control valves

→ Lube Line

→ Grated floor covers mainline with meter and raw water sample tap

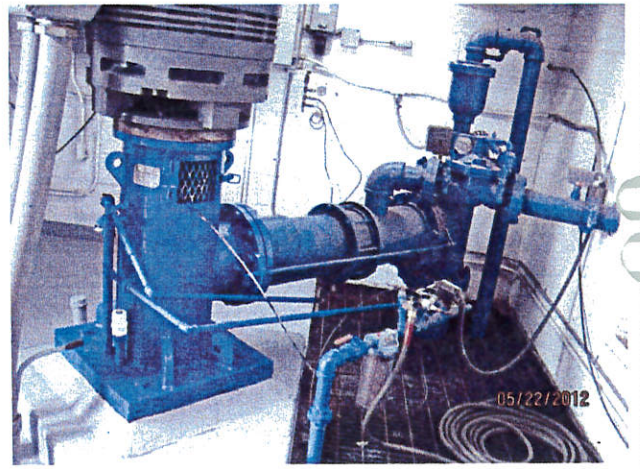


Photo-48:

S02 (Well #3)

Control valve Discharge to waste

→ Screened

Photo-49: S02 (Well #3)

Lube line

→ Source sample tap

→ Charcoal filter

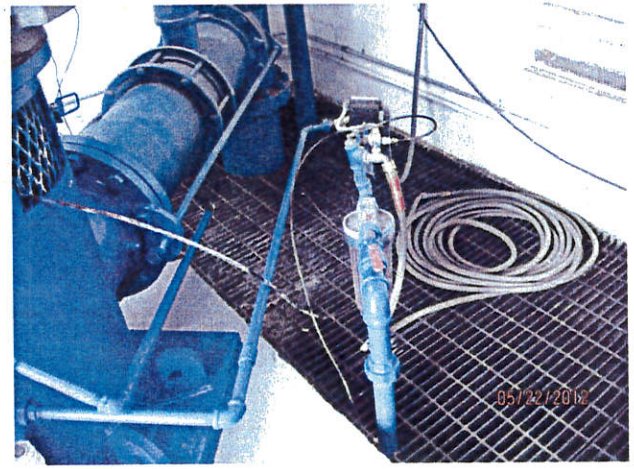


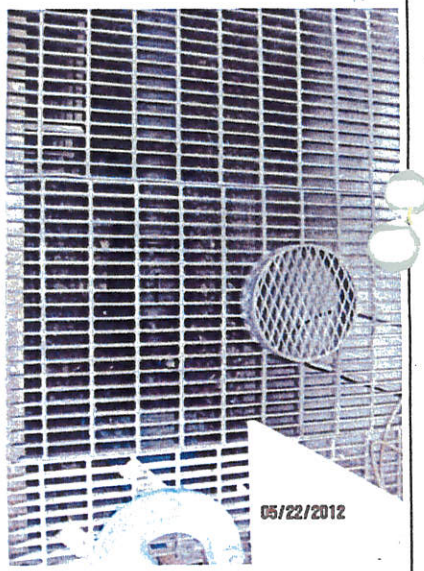
Photo-50:

S02 (Well #3)

Steel Grate Flooring

→ Source meter

→ Injector



Photographs: Reservoirs 1, 3, and 2 (R1, R2, and R3)	PWS ID # 64850 R	Date: May 22, 2012	Page # 3

Photo-51: Reservoir 1 and 3
View from drain / overflow pipe basin
→ S03 and R1 and R3
⇉ Area secured with fencing
→ 1.0 mg and 2.0 MG

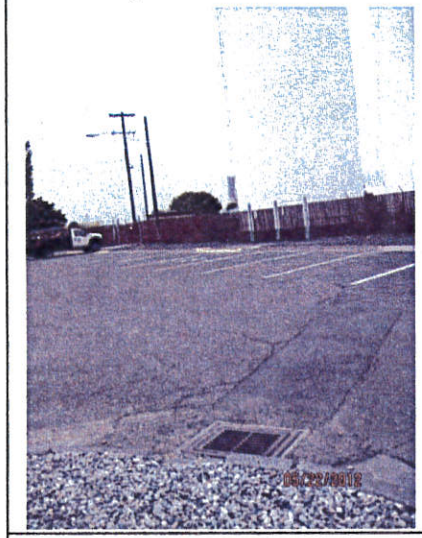


Photo-52: R1 and R3
R1 – Welded steel standpipe
→ Locking gate on ladder
→ Lower access manhole

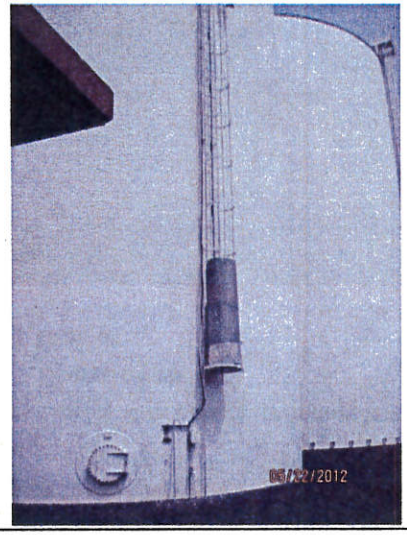


Photo-53: R1 and R3
R3 – Welded steel standpipe (Right)
→ Overflow with air gap
→ Lower access manhole

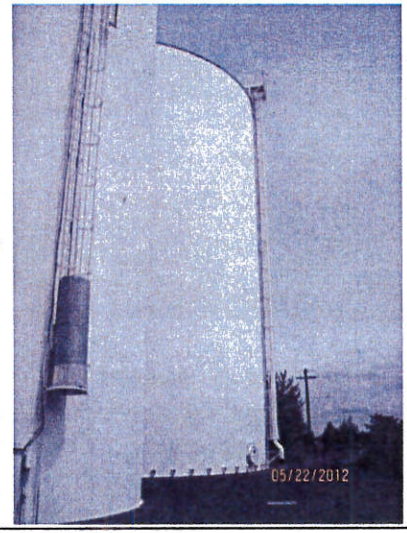


Photo-54: R3
Overflow
→ Air gap
⇉ W/ Tide Valve

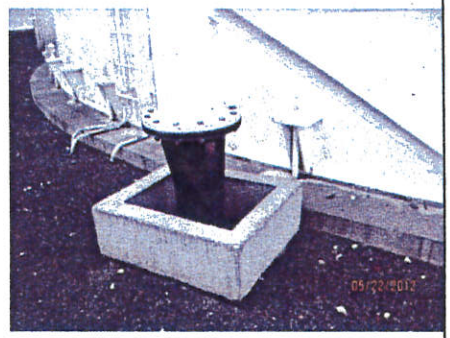


Photo-55: R1 and R3
Overflow
→ Discharge
⇉ 1 of 2 drain basins

Photo-56: Reservoir 2
SCA S06 – Fenced area
Lower access manhole

Photo-57: R2
Access ladder
Landing on top for access hatch
Level indicator

Photo-58: R2
Access ladder
→ Locking gate

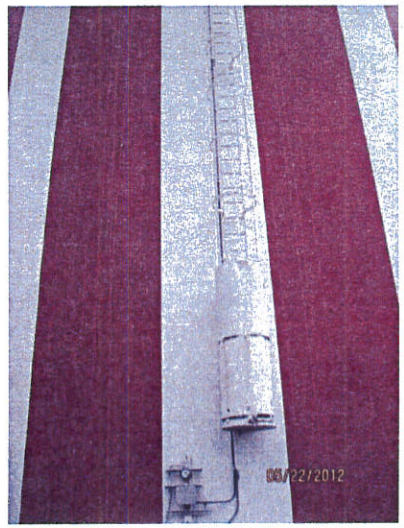
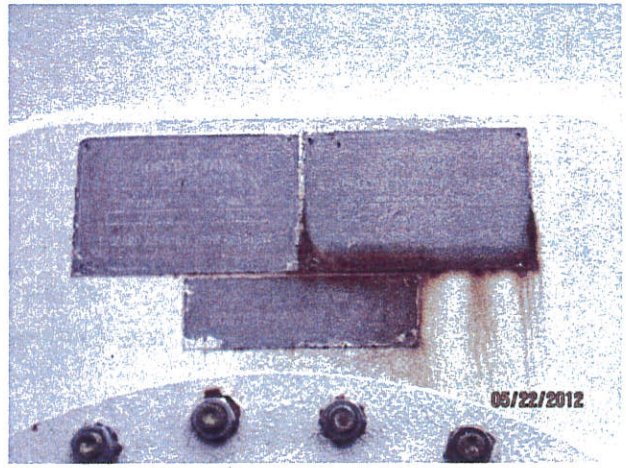


Photo-59: R2
Construction Plaque
→ Horton Tank
⇉ 1967
⇉ Welded Steel
→ 2.0 MG



Photographs: S06	PWS ID # 64850 R	Date: May 22, 2012	Page # 4

Photo-60: S06 (Well #4)
Looking South along 14th Avenue (Reynolds Rd)
Sanitary Control Area
→ School field – Right (picture) – West side of road
→ Ag land – Left (picture) – East side of road

Photo-61: S06 (Well #4)
Looking West
Sanitary Control Area
→ School field
→ Pumphouse for well

Photo-62: S06
DOE ID
→ AEL 069

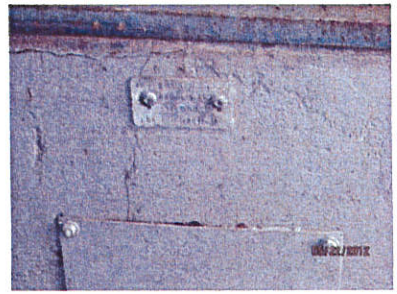


Photo-63: S06
Submersible pump
→ 100-hp
→ Centripro

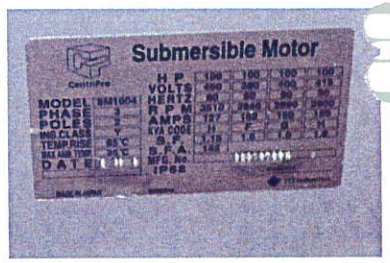


Photo-64: S06 (Well #4)
Chlorine solution tank
→ StarChlor
→ LMI Diaphragm pump (inside)

Photo-65: S06 (Well #4)
Wellhead
Discharge line
→ Steel grate floor covers discharge line to main
⇉ Source meter
⇉ Injector

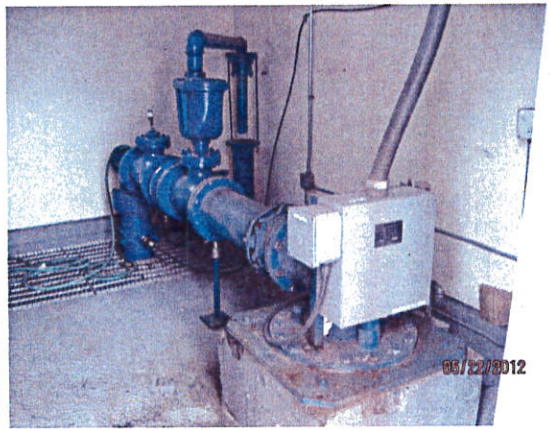


Photo-66: S06 (Well #4)
Control box / junction box
→ Screened air vent
→ Direct port to casing
Required: Check interior of box

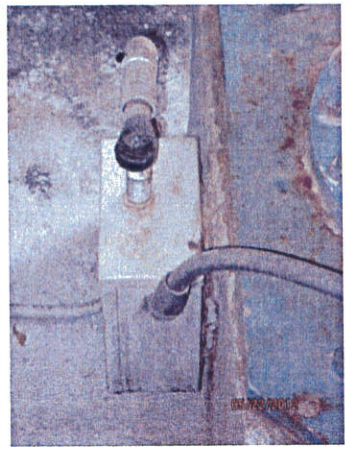
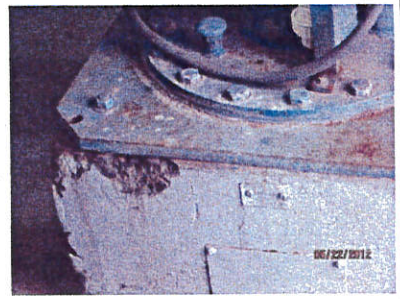


Photo-67: S06
Drain for control valve discharge
→ Drains outside of building

Photo-68: S06
Wellhead
→ Steel plate covering casing

Required:
› Seal around steel plate



Photographs: S07	PWS ID # 64850 R	Date: May 22, 2012	Page # 5

Photo-69: S07 (Well #5)
Sanitary Control area
→ Looking SW
→ Pumphouse
→ HWY 26

Photo-70: S07 (Well #5)
Sanitary Control area
→ Looking West
→ Pumphouse
→ Undeveloped land

Photo-71: S07
Well #5
→ Solution tank

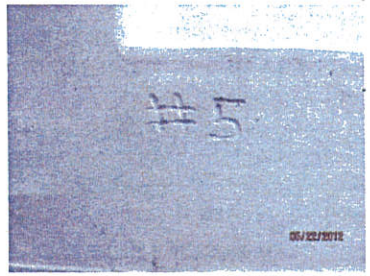


Photo-72: S07
Motor Specs
→ US Motors
⇉ 400-hp

Photo-73: S07 (Well #5)
Control valve discharges to waste
⇉ Holes provide air gap for splash guard
Recommend: Tide valve or equivalent

Photo-74: S07 (Well #5)
Discharge to system
→ Control valve (top right corner)
⇉ Discharges outside
⇉ Photo-37

Photo-75: S07 (Well #5)
Turbine pump with vertical motor
→ US Motors
⇉ 400-hp

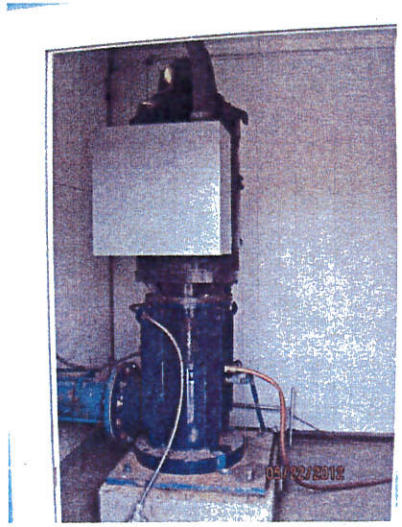
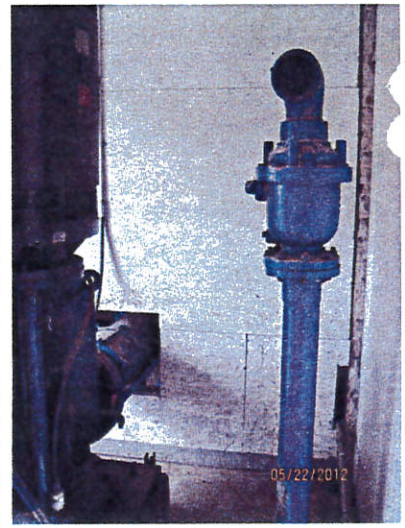


Photo-76: S07 (Well #5)
Screened air vent
Required:
› Turn to face downward and install new screen



Photographs: S07 and S05	PWS ID # 64850 R	Date: May 22, 2012	Page # 6

Photo-77: S07 (Well #5)

Wellhead

→ Discharge plate covers casing

Recommend: Seal along edge to prevent debris and surface leaks entering casing

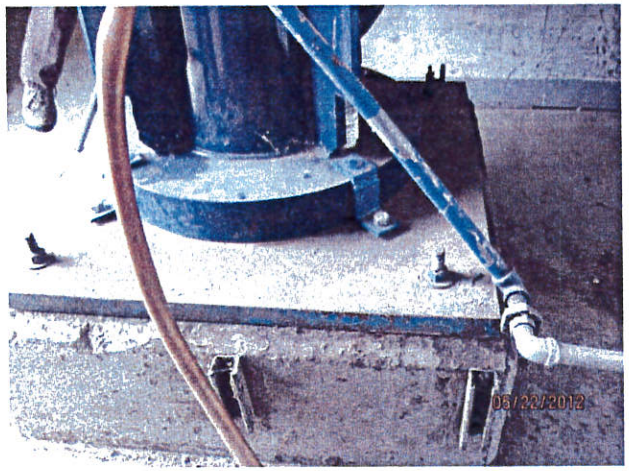


Photo-78:

S07 (Well #5)

Treatment

→ StarChlor

⇉ 12.5%

→ Solution Tank

→ LMI Chlorinator

Photo-79: S07 (Well #5)

LMI Diaphragm pump

→ Max PSI – 100

→ Max GPH – 2.50

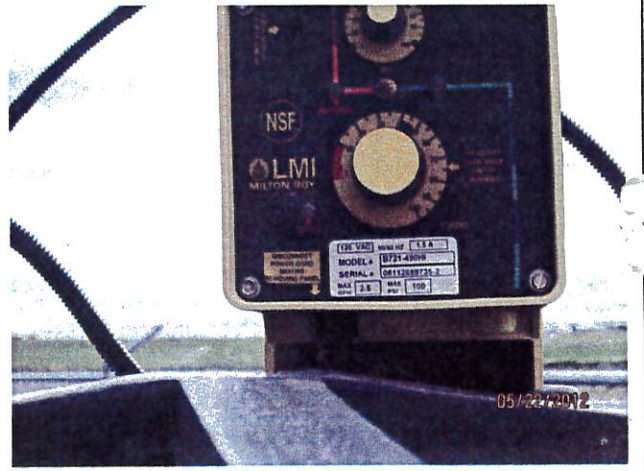


Photo-80: S04 (Well #6)

Looking North

→ SCA

→ Riser pipe and shaft

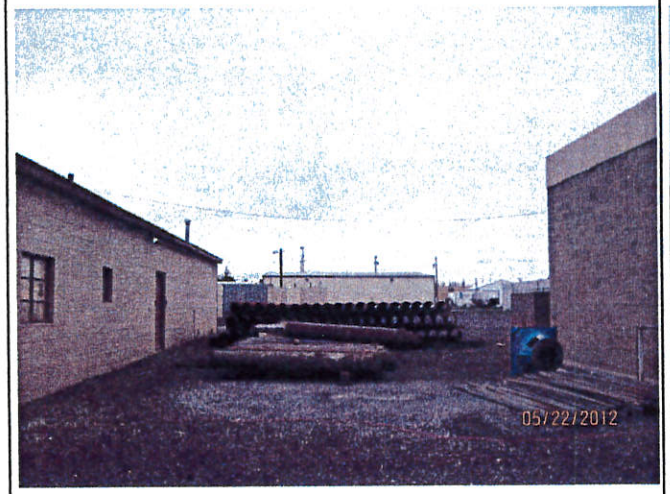


Photo-81: S04 (Well #6)

Looking East

→ SCA

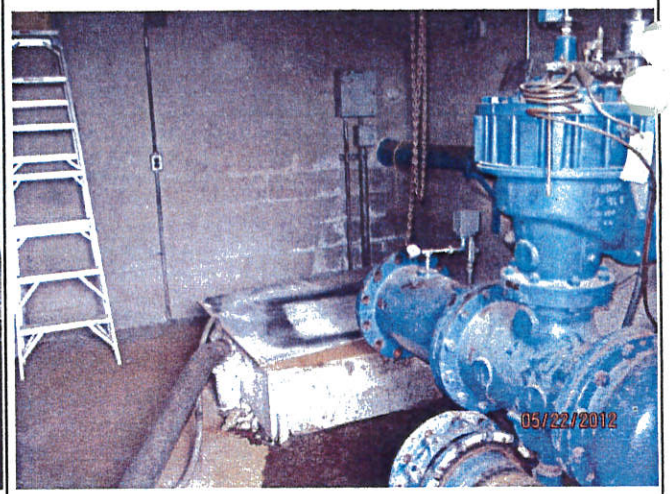
→ Industrial / Commercial zone

Photo-82: S04 (Well #6)

Wellhead

→ Board over pedestal covers casing

Required: Provide secure watertight cover or casing



Photographs: S08	PWS ID # 64850 R	Date: May 22, 2012	Page # 7

Photo-83: S08 (Well #7)

Looking North - SCA

→ Primarily low density and undeveloped land

→ Pumphouse

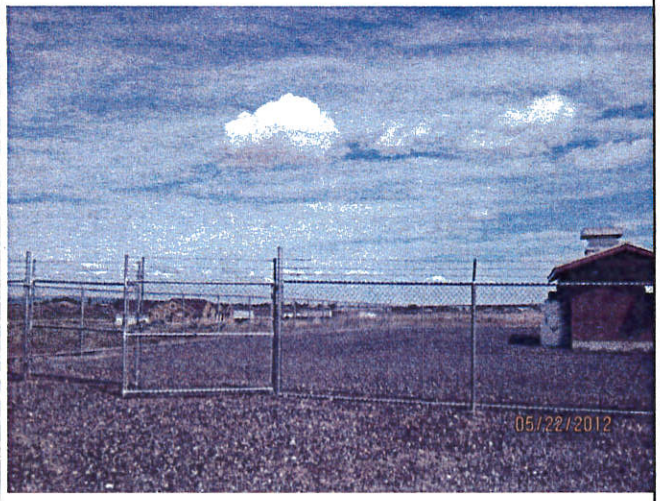


Photo-84: S08 (Well #7)

Looking east of north - SCA

→ Primarily low density and undeveloped land

→ Pumphouse

Photo-85: S08 (Well #7)

Looking East - SCA

→ Primarily low density and undeveloped land

→ Direction of Highway 24

Photo-86: S08 (Well #7)

Treatment

→ StarChlor – Solution tank

⇉ 12.5%

→ LMI Chlorinator

S08 (Well #7)

Photo-87:

LMI Diaphragm pump

→ Max PSI – 100

→ Max GPH – 2.50

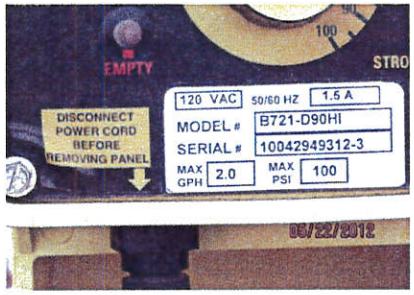
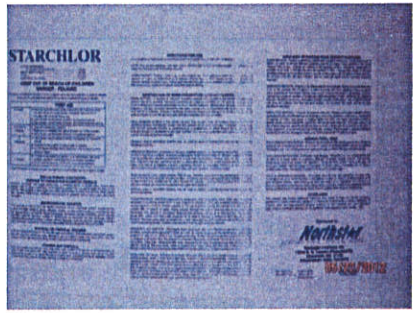


Photo-88:

Star Chlor

Bulk Supplier

→ 12.5%



S08 (Well #7)

Photo-89: Pump

DOE ID

→ AAP 562

Photo-90: Pump Motor

Specifications

US Motor

→ 300-hp

Photographs:	S08	PWS ID # 64850 R	Date: May 22, 2012	Page # 8

Photo-91: S08 (Well #7)
Well motor and pump
→ Discharge to system

Photo-92: S08 (Well #7)
Discharge head
→ Static Water Level

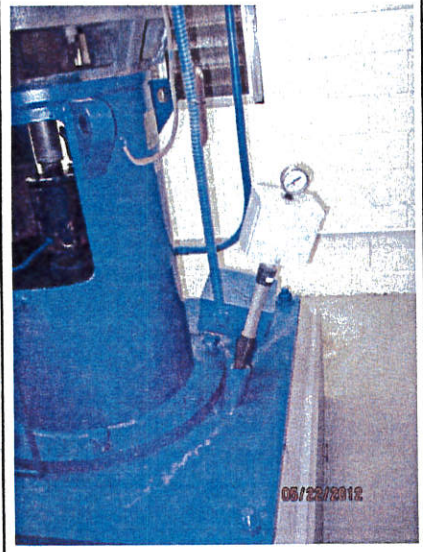


Photo-93: S08 (Well #7)
Screened air vent

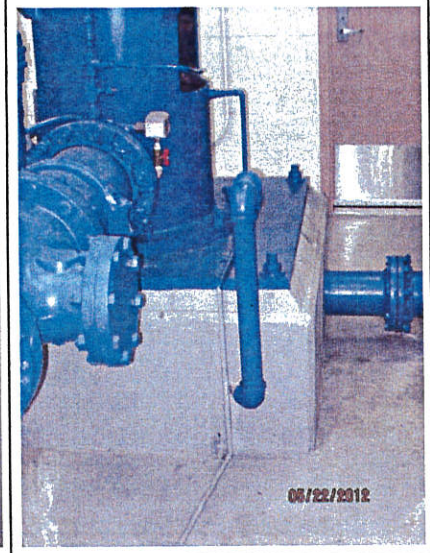


Photo-94: S08 (Well #7)
Discharge line
→ Raw Water sample tap

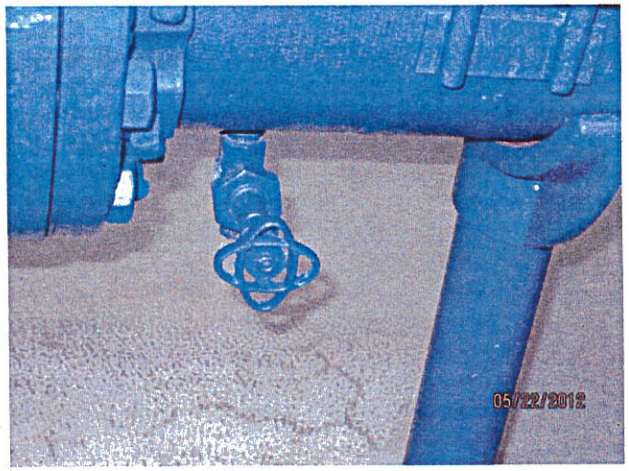


Photo-95: S08 (Well #7)
Control valve discharge
→ Dumps into casing

Photo-96: S08 (Well #7)
Discharge line
→ Metered

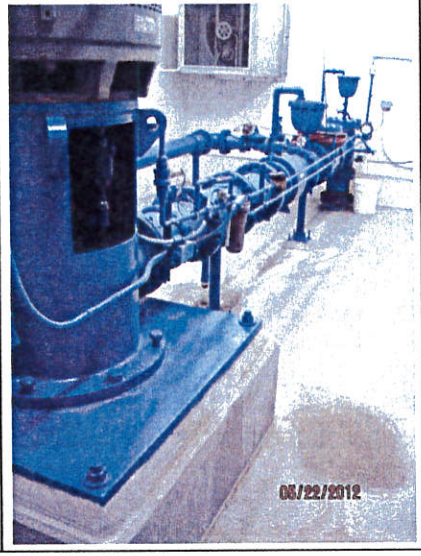


Photo-97: S08 (Well #7)
discharge line
→ Lube line
→ Injector

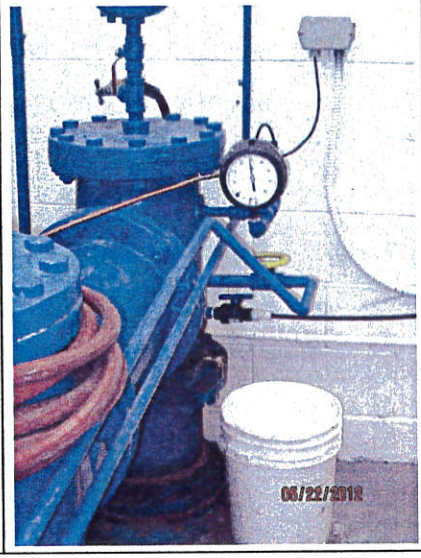


Photo-98: S08 (Well #7)
Control valve
→ Potential sample tap

Photographs: S09	PWS ID # 64850 R	Date: May 22, 2012	Page # 9

Photo-99: S09 (Well #8)

Sanitary Control Area (SCA) – Looking West

→ Along Lee Rd

→ Pumphouse

→ Surrounded by Ag. fields

Photo-100: S09 (Well #8)

Sanitary Control Area (SCA) – Looking North

→ Along Lee Rd

→ Pumphouse

→ Surrounded by Ag. fields

Photo-101: S09 (Well #8)

Control valve discharge

→ Air gap

Photo-102: S09 (Well #8)

Wellhead

→ Screened air vent

→ DOE ID

Photo-103:

S09 (Well #8)

Discharge line

→ Cover open on East side

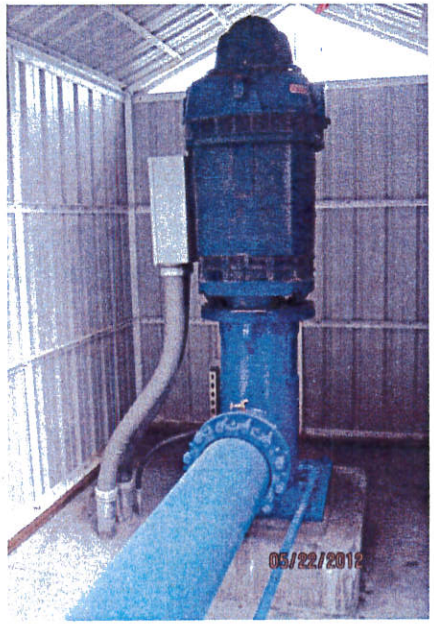


Photo-104: S09 (Well #8)

DOE ID

→ AAS 228

Photo-105: S09 (Well #8)
Pump motor specs
→ US Motors
→ 250 hp

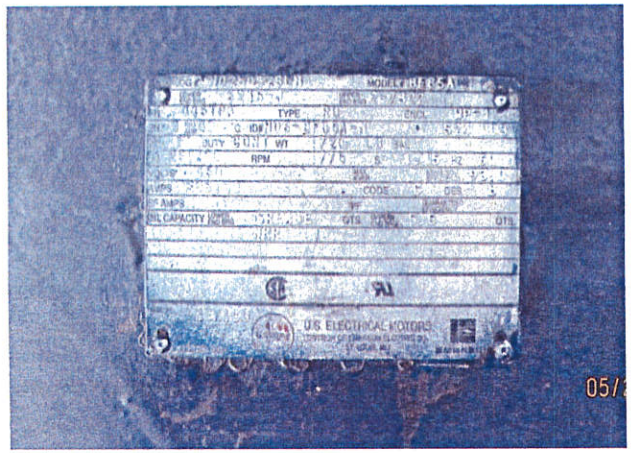


Photo-106:
S09 (Well #8)
Penwalt Scales
→ Gas chlorine cylinders
→ 150 #
US Filter Controls

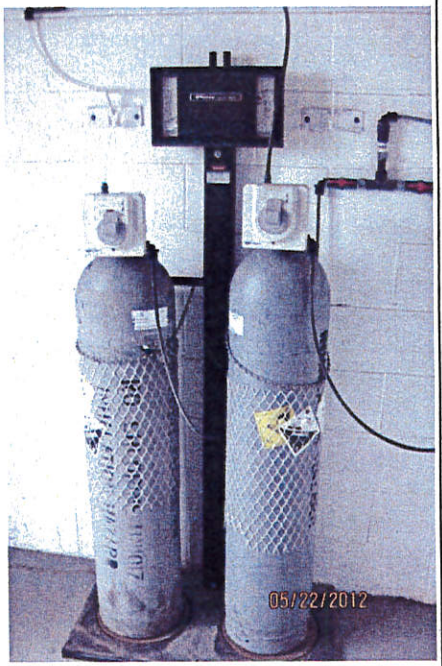


Photo-107: S09 (Well #8)
Chlorine injector pump
→ Franklin Electric

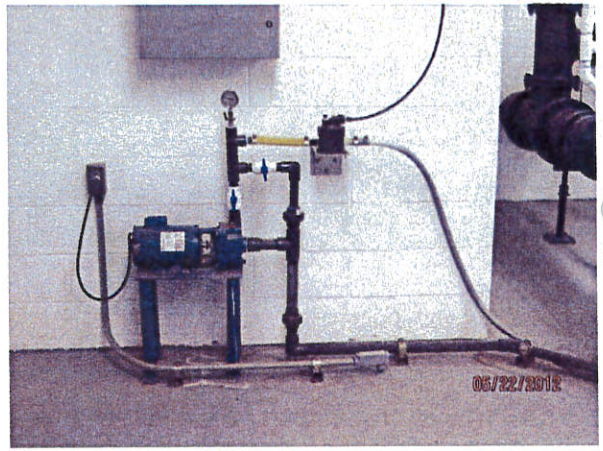


Photo-108: S09 (Well #8)
Chlorine injector pump
→ Franklin Electric
→ 1 ½ hp

Photo-109:
S09 (Well #8)
Discharge line
→ Injector
→ Meter
→ Control valve

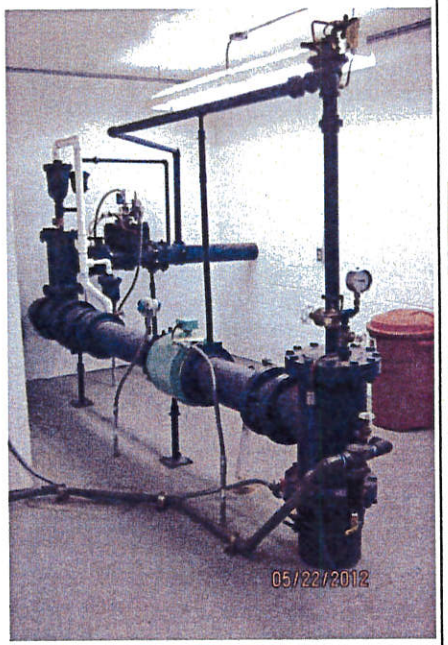
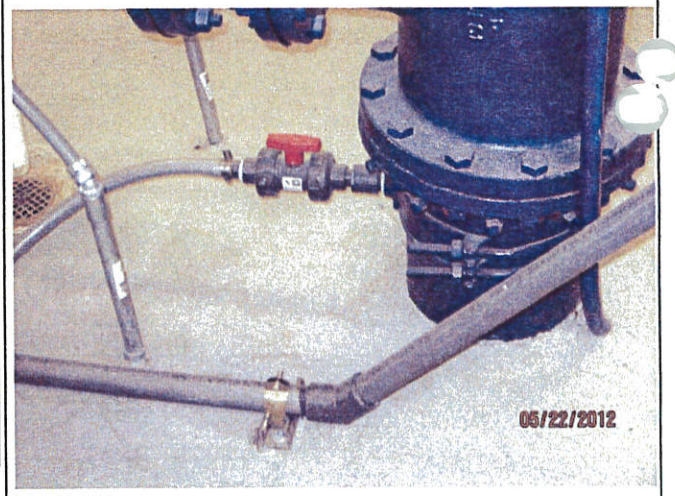


Photo-110: S09 (Well #8)
Close-up Photo 109
→ Chlorine injector



City of Othello
Fluoride Levels

64850 R

Collected	Source	Lab-Sample No.	Analyte Group	Analyte Test Panel	Analyte Number	Sample Information Range	Results		Purpose	Sample Group Information EQ	LT	NA
4/17/2012	**Dist**	**109-29225**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.71**	**mg/L**	**RC**	**1**	**0**	**7**
3/22/2012	Dist	109-28833	IOC	IOC_SHORT	0019	EQ	2.74	mg/L	RC	1	0	7
2/27/2012	Dist	109-28400	IOC	IOC_SHORT	0019	EQ	2.17	mg/L	RC	1	0	7
2/15/2012	**5**	**109-28288**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.55**	**mg/L**	**RC**	**1**	**0**	**7**
1/24/2012	Dist	109-28000	IOC	IOC_SHORT	0019	EQ	2.01	mg/L	RC	1	0	7
12/28/2011	**Dist**	**109-27772**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.25**	**mg/L**	**RC**	**1**	**0**	**7**
10/10/2011	**5**	**109-26749**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**5.07**	**mg/L**	**RC**	**1**	**0**	**7**
9/22/2011	Dist	109-26487	IOC	IOC_SHORT	0019	EQ	1.85	mg/L	RC	1	0	7
9/12/2011	**6**	**109-26189**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**3.12**	**mg/L**	**RC**	**2**	**0**	**6**
8/30/2011	Dist	109-25905	IOC	IOC_SHORT	0019	EQ	2.16	mg/L	RC	1	0	7
8/23/2011	Dist	109-25746	IOC	IOC_SHORT	0019	EQ	2.85	mg/L	RC	1	0	7
8/23/2011	Dist	109-25745	IOC	IOC_SHORT	0019	EQ	2.19	mg/L	RC	1	0	7
7/21/2011	**Dist**	**109-25140**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**5.07**	**mg/L**	**RC**	**1**	**0**	**7**
7/21/2011	Dist	109-25141	IOC	IOC_SHORT	0019	EQ	3.25	mg/L	RC	1	0	7
7/21/2011	Dist	109-25142	IOC	IOC_SHORT	0019	EQ	2.15	mg/L	RC	1	0	7
7/21/2011	**Dist**	**109-25143**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**4.75**	**mg/L**	**RC**	**1**	**0**	**7**
7/21/2011	Dist	109-25144	IOC	IOC_SHORT	0019	EQ	2.52	mg/L	RC	1	0	7
7/21/2011	Dist	109-25145	IOC	IOC_SHORT	0019	EQ	2.81	mg/L	RC	1	0	7
7/21/2011	Dist	109-25146	IOC	IOC_SHORT	0019	EQ	2.02	mg/L	RC	1	0	7
7/21/2011	Dist	109-25147	IOC	IOC_SHORT	0019	EQ	2.04	mg/L	RC	1	0	7
7/21/2011	Dist	109-25148	IOC	IOC_SHORT	0019	EQ	2.04	mg/L	RC	1	0	7
7/21/2011	**7**	**109-25130**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.03**	**mg/L**	**RC**	**1**	**0**	**7**
7/18/2011	**1**	**109-25025**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.76**	**mg/L**	**RC**	**1**	**0**	**7**
7/13/2011	**5**	**109-24904**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**5.37**	**mg/L**	**RC**	**2**	**0**	**6**
6/15/2011	**9**	**109-24415**	**IOC**	**IOC**	**0019**	**EQ**	**2.52**	**mg/L**	**RC**	**14**	**9**	**20**
6/15/2011	**6**	**109-24437**	**IOC**	**IOC**	**0019**	**EQ**	**3.04**	**mg/L**	**RC**	**13**	**9**	**21**
6/15/2011	1	109-24427	IOC	IOC_SHORT	0019	EQ	2.25	mg/L	RC	1	0	7
6/15/2011	1	109-24413	IOC	IOC	0019	EQ	1.46	mg/L	RC	14	8	21
6/14/2011	**8**	**109-24382**	**IOC**	**IOC**	**0019**	**EQ**	**2.45**	**mg/L**	**RC**	**13**	**9**	**21**
6/14/2011	7	109-24377	IOC	IOC	0019	EQ	1.74	mg/L	RC	15	7	21
6/14/2011	**2**	**109-24379**	**IOC**	**IOC**	**0019**	**EQ**	**2.74**	**mg/L**	**RC**	**13**	**9**	**21**
6/13/2011	**5**	**109-24351**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**5.28**	**mg/L**	**RC**	**2**	**0**	**6**
5/17/2011	1	109-23923	IOC	IOC_SHORT	0019	EQ	2.74	mg/L	RC	1	0	7
4/25/2011	1	109-23570	IOC	IOC_SHORT	0019	EQ	2.1	mg/L	RC	1	0	7
3/23/2011	1	109-23198	IOC	IOC	0019	EQ	2.4	mg/L	RC	1	0	42
2/24/2011	**5**	**109-22730**	**IOC**	**IOC**	**0019**	**EQ**	**4.37**	**mg/L**	**RC**	**15**	**7**	**21**
2/15/2011	1	109-22571	IOC	IOC_SHORT	0019	EQ	2.44	mg/L	RC	1	0	7
1/20/2011	1	109-22354	IOC	IOC_SHORT	0019	EQ	2.55	mg/L	RC	1	0	7
12/21/2010	**1**	**109-22046**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.32**	**mg/L**	**RC**	**1**	**0**	**7**
11/17/2010	1	109-21599	IOC	IOC_SHORT	0019	EQ	2.6	mg/L	RC	1	0	7
10/20/2010	**Dist**	**109-21270**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.68**	**mg/L**	**RC**	**1**	**0**	**7**
9/16/2010	1	109-20613	IOC	IOC_SHORT	0019	EQ	2.4	mg/L	RC	1	0	7
8/12/2010	1	109-19798	IOC	IOC_SHORT	0019	EQ	2.41	mg/L	RC	1	0	7
7/23/2010	**9**	**109-19288**	**IOC**	**IOC**	**0019**	**EQ**	**2.24**	**mg/L**	**RC**	**12**	**9**	**22**
7/14/2010	Dist	109-19017	IOC	IOC_SHORT	0019	EQ	2.66	mg/L	RC	1	0	7
6/16/2010	9	109-18347	IOC	IOC_SHORT	0019	EQ	2.76	mg/L	RC	1	1	6
6/16/2010	**8**	**109-18345**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.43**	**mg/L**	**RC**	**1**	**0**	**7**
6/16/2010	**6**	**109-18343**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**0.45**	**mg/L**	**RC**	**2**	**0**	**6**
6/16/2010	1	109-18393	IOC	IOC_SHORT	0019	EQ	2.66	mg/L	RC	1	0	7
5/25/2010	1	109-17918	IOC	IOC_SHORT	0019	EQ	2.59	mg/L	RC	1	0	7
5/7/2010	**2**	**109-17633**	**IOC**	**IOC**	**0019**	**EQ**	**2.5**	**mg/L**	**RC**	**15**	**6**	**22**
5/7/2010	1	109-17629	IOC	IOC	0019	EQ	0.65	mg/L	RC	12	9	22
4/15/2010	**5**	**109-17261**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**4.67**	**mg/L**	**RC**	**2**	**0**	**6**
3/15/2010	1	109-16718	IOC	IOC_SHORT	0019	EQ	1.91	mg/L	RC	1	0	7
2/23/2010	1	109-16409	IOC	IOC_SHORT	0019	EQ	1.97	mg/L	RC	1	0	7
1/13/2010	1	109-15746	IOC	IOC_SHORT	0019	EQ	2.26	mg/L	RC	1	0	7
12/21/2009	**1**	**109-15498**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.51**	**mg/L**	**RC**	**1**	**0**	**7**
11/18/2009	1	109-15093	IOC	IOC_SHORT	0019	EQ	1.83	mg/L	RC	1	0	7
10/20/2009	1	109-14711	IOC	IOC_SHORT	0019	EQ	1.82	mg/L	RC	1	0	7
9/14/2009	1	109-13776	IOC	IOC_SHORT	0019	EQ	2.18	mg/L	RC	1	0	7
8/18/2009	1	109-13140	IOC	IOC_SHORT	0019	EQ	2.25	mg/L	RC	1	0	7
7/22/2009	1	109-12457	IOC	IOC_SHORT	0019	EQ	1.91	mg/L	RC	1	0	7
7/13/2009	**6**	**109-12193**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.93**	**mg/L**	**RC**	**1**	**0**	**7**
6/22/2009	1	109-11595	IOC	IOC_SHORT	0019	EQ	1.99	mg/L	RC	1	0	7
6/16/2009	**9**	**109-11385**	**IOC**	**IOC**	**0019**	**EQ**	**1.81**	**mg/L**	**RC**	**1**	**1**	**41**
6/16/2009	**8**	**109-11384**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.71**	**mg/L**	**RC**	**1**	**0**	**7**
6/16/2009	**7**	**109-11383**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.55**	**mg/L**	**RC**	**1**	**0**	**7**
6/16/2009	**2**	**109-11382**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.96**	**mg/L**	**RC**	**2**	**0**	**6**
5/26/2009	**Dist**	**109-10890**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.24**	**mg/L**	**RC**	**1**	**0**	**7**
4/30/2009	Dist	046-10526	IOC	IOC_SHORT	0019	EQ	1.69	mg/L	RC	1	0	7
3/30/2009	Dist	046-10052	IOC	IOC_SHORT	0019	EQ	1.75	mg/L	RC	1	0	7
2/25/2009	Dist	046-99548	IOC	IOC_SHORT	0019	EQ	2.42	mg/L	RC	1	0	7
1/26/2009	Dist	046-99131	IOC	IOC_SHORT	0019	EQ	2.09	mg/L	RC	1	0	7
12/17/2008	**7**	**046-98510**	**IOC**	**IOC**	**0019**	**EQ**	**1.03**	**mg/L**	**RC**	**17**	**12**	**14**
12/16/2008	**Dist**	**046-98647**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.38**	**mg/L**	**RC**	**1**	**0**	**7**
12/4/2008	Dist	046-98513	IOC	IOC_SHORT	0019	EQ	2.15	mg/L	RC	1	0	7
12/4/2008	Dist	046-98511	IOC	IOC_SHORT	0019	EQ	2.54	mg/L	RC	1	0	7
12/4/2008	Dist	046-98514	IOC	IOC_SHORT	0019	EQ	1.94	mg/L	RC	1	0	7
11/24/2008	Dist	046-98300	IOC	IOC_SHORT	0019	EQ	1.95	mg/L	RC	1	0	7

Collected	Source	Lab-Sample No.	Analyte			Sample Information				Sample Group Information		
			Group	Test Panel	Number	Range	Results		Purpose	EQ	LT	NA
10/27/2008	Dist	046-97982	IOC	IOC_SHORT	0019	EQ	1.87	mg/L	RC	1	0	7
9/22/2008	Dist	046-97419	IOC	IOC_SHORT	0019	EQ	2.7	mg/L	RC	1	0	7
9/16/2008	**9**	**046-97283**	**IOC**	**IOC**	**0019**	**EQ**	**2.4**	**mg/L**	**RC**	**1**	**1**	**41**
9/16/2008	**8**	**046-97282**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.1**	**mg/L**	**RC**	**1**	**1**	**6**
9/16/2008	**6**	**046-97281**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.6**	**mg/L**	**RC**	**1**	**0**	**7**
8/29/2008	**1**	**046-96846**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.45**	**mg/L**	**RC**	**1**	**0**	**7**
7/28/2008	Dist	046-96058	IOC	IOC_SHORT	0019	EQ	1.64	mg/L	RC	1	0	7
7/28/2008	Dist	046-96070	IOC	IOC_SHORT	0019	EQ	1.66	mg/L	RC	1	0	7
7/28/2008	Dist	046-96060	IOC	IOC_SHORT	0019	EQ	1.73	mg/L	RC	1	0	7
7/28/2008	Dist	046-96062	IOC	IOC_SHORT	0019	EQ	1.66	mg/L	RC	1	0	7
7/28/2008	Dist	046-96064	IOC	IOC_SHORT	0019	EQ	1.93	mg/L	RC	1	0	7
7/28/2008	Dist	046-96068	IOC	IOC_SHORT	0019	EQ	1.69	mg/L	RC	1	0	7
7/28/2008	Dist	046-96066	IOC	IOC_SHORT	0019	EQ	1.94	mg/L	RC	1	0	7
7/23/2008	8	046-96009	IOC	IOC	0019	EQ	1.79	mg/L	RC	9	20	14
6/23/2008	Dist	046-95262	IOC	IOC_SHORT	0019	EQ	1.71	mg/L	RC	1	0	7
6/16/2008	1	046-95131	IOC	IOC	0019	EQ	1.66	mg/L	RC	13	16	14
5/29/2008	7	046-94797	IOC	IOC_SHORT	0019	EQ	2.42	mg/L	RC	1	0	7
4/30/2008	Dist	046-94369	IOC	IOC_SHORT	0019	EQ	2.99	mg/L	RC	1	0	7
4/30/2008	Dist	046-94371	IOC	IOC_SHORT	0019	EQ	2.82	mg/L	RC	1	0	7
4/30/2008	Dist	046-94373	IOC	IOC_SHORT	0019	EQ	3.02	mg/L	RC	1	0	7
4/30/2008	Dist	046-94375	IOC	IOC_SHORT	0019	EQ	3.3	mg/L	RC	1	0	7
4/30/2008	Dist	046-94377	IOC	IOC_SHORT	0019	EQ	3.89	mg/L	RC	1	0	7
4/30/2008	Dist	046-94379	IOC	IOC_SHORT	0019	EQ	2.91	mg/L	RC	1	0	7
4/30/2008	Dist	046-94381	IOC	IOC_SHORT	0019	EQ	2.87	mg/L	RC	1	0	7
3/28/2008	9	046-93869	IOC	IOC_SHORT	0019	EQ	1.35	mg/L	RC	1	0	7
3/28/2008	8	046-93867	IOC	IOC_SHORT	0019	EQ	1.63	mg/L	RC	1	0	7
3/28/2008	7	046-93565	IOC	IOC_SHORT	0019	EQ	1.73	mg/L	RC	1	0	7
3/28/2008	6	046-93863	IOC	IOC_SHORT	0019	EQ	1.63	mg/L	RC	1	0	7
3/28/2008	**5**	**046-93861**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.61**	**mg/L**	**RC**	**1**	**0**	**7**
3/28/2008	**2**	**046-93859**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.24**	**mg/L**	**RC**	**1**	**0**	**7**
3/28/2008	1	046-93857	IOC	IOC_SHORT	0019	EQ	1.19	mg/L	RC	1	0	7
3/24/2008	9	046-93763	IOC	IOC_SHORT	0019	EQ	1.16	mg/L	RC	1	0	7
3/24/2008	9	046-93764	IOC	IOC	0019	EQ	1.61	mg/L	RC	2	0	41
3/24/2008	8	046-93761	IOC	IOC_SHORT	0019	EQ	1.78	mg/L	RC	1	0	7
3/24/2008	2	046-93759	IOC	IOC_SHORT	0019	EQ	1.55	mg/L	RC	2	0	6
2/28/2008	Dist	046-93291	IOC	IOC_SHORT	0019	EQ	3.03	mg/L	RC	1	0	7
2/28/2008	Dist	046-93290	IOC	IOC_SHORT	0019	EQ	3.35	mg/L	RC	1	0	7
2/28/2008	Dist	046-93289	IOC	IOC_SHORT	0019	EQ	2.82	mg/L	RC	1	0	7
2/28/2008	Dist	046-93288	IOC	IOC_SHORT	0019	EQ	2.34	mg/L	RC	1	0	7
2/28/2008	Dist	046-93287	IOC	IOC_SHORT	0019	EQ	2.98	mg/L	RC	1	0	7
2/28/2008	Dist	046-93286	IOC	IOC_SHORT	0019	EQ	3.11	mg/L	RC	1	0	7
2/28/2008	Dist	046-93285	IOC	IOC_SHORT	0019	EQ	2.82	mg/L	RC	1	0	7
1/29/2008	Dist	046-92936	IOC	IOC_SHORT	0019	EQ	0.97	mg/L	RC	1	0	7
1/29/2008	Dist	046-92937	IOC	IOC_SHORT	0019	EQ	1.1	mg/L	RC	1	0	7
1/29/2008	Dist	046-92938	IOC	IOC_SHORT	0019	EQ	1.2	mg/L	RC	1	0	7
1/29/2008	Dist	046-92941	IOC	IOC_SHORT	0019	EQ	1.38	mg/L	RC	1	0	7
1/29/2008	Dist	046-92939	IOC	IOC_SHORT	0019	EQ	1.11	mg/L	RC	1	0	7
12/17/2007	**9**	**046-92453**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.5**	**mg/L**	**RC**	**1**	**0**	**7**
12/17/2007	**8**	**046-92452**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.2**	**mg/L**	**RC**	**1**	**0**	**7**
12/17/2007	**7**	**046-92451**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.05**	**mg/L**	**RC**	**1**	**0**	**7**
12/17/2007	**6**	**046-92450**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.24**	**mg/L**	**RC**	**1**	**0**	**7**
12/17/2007	**5**	**046-92449**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.45**	**mg/L**	**RC**	**1**	**0**	**7**
12/17/2007	**2**	**046-92448**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.31**	**mg/L**	**RC**	**1**	**0**	**7**
12/17/2007	**1**	**046-92447**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.74**	**mg/L**	**RC**	**1**	**0**	**7**
11/28/2007	9	109-92121	IOC	IOC_SHORT	0019	EQ	2.24	mg/L	RC	1	0	7
11/28/2007	8	109-92120	IOC	IOC_SHORT	0019	EQ	1.87	mg/L	RC	1	0	7
11/28/2007	7	109-92119	IOC	IOC_SHORT	0019	EQ	1.7	mg/L	RC	1	0	7
11/28/2007	6	109-92118	IOC	IOC_SHORT	0019	EQ	1.5	mg/L	RC	1	0	7
11/28/2007	5	109-92117	IOC	IOC_SHORT	0019	EQ	1.4	mg/L	RC	1	0	7
11/28/2007	2	109-92116	IOC	IOC_SHORT	0019	EQ	0.5	mg/L	RC	1	0	7
11/28/2007	1	109-92115	IOC	IOC_SHORT	0019	EQ	1.35	mg/L	RC	1	0	7
10/31/2007	9	109-91741	IOC	IOC_SHORT	0019	EQ	1.68	mg/L	RC	1	0	7
10/31/2007	8	109-91740	IOC	IOC_SHORT	0019	EQ	2.2	mg/L	RC	1	0	7
10/31/2007	7	109-91739	IOC	IOC_SHORT	0019	EQ	1.78	mg/L	RC	1	0	7
10/31/2007	6	109-91738	IOC	IOC_SHORT	0019	EQ	1.77	mg/L	RC	1	0	7
10/31/2007	5	109-91737	IOC	IOC_SHORT	0019	EQ	1.32	mg/L	RC	1	0	7
10/31/2007	2	109-91736	IOC	IOC_SHORT	0019	EQ	1.44	mg/L	RC	1	0	7
10/31/2007	1	109-91735	IOC	IOC_SHORT	0019	EQ	1.41	mg/L	RC	1	0	7
9/25/2007	9	109-91186	IOC	IOC_SHORT	0019	EQ	2.63	mg/L	RC	1	0	7
9/25/2007	8	109-91185	IOC	IOC_SHORT	0019	EQ	2.8	mg/L	RC	1	0	7
9/25/2007	7	109-91184	IOC	IOC_SHORT	0019	EQ	2.73	mg/L	RC	1	0	7
9/25/2007	6	109-91183	IOC	IOC_SHORT	0019	EQ	2.8	mg/L	RC	1	0	7
9/25/2007	5	109-91182	IOC	IOC_SHORT	0019	EQ	3.28	mg/L	RC	1	0	7
9/25/2007	2	109-91181	IOC	IOC_SHORT	0019	EQ	3.4	mg/L	RC	1	0	7
9/25/2007	1	109-91180	IOC	IOC_SHORT	0019	EQ	3.27	mg/L	RC	1	0	7
9/6/2007	**5**	**109-90645**	**IOC**	**IOC**	**0019**	**EQ**	**4.77**	**mg/L**	**RC**	**2**	**1**	**40**
8/20/2007	9	109-90276	IOC	IOC_SHORT	0019	EQ	2.46	mg/L	RC	1	0	7
8/20/2007	8	109-90275	IOC	IOC_SHORT	0019	EQ	2.25	mg/L	RC	1	0	7
8/20/2007	6	046-90337	IOC	IOC	0019	EQ	3.52	mg/L	RC	5	23	15
8/20/2007	6	109-90274	IOC	IOC_SHORT	0019	EQ	3.17	mg/L	RC	1	0	7

City of Othello
Fluoride Levels

64850 R

Collected	Source	Lab-Sample No.	Analyte			Sample Information				Sample Group Information		
			Group	Test Panel	Number	Range	Results		Purpose	EQ	LT	NA
6/4/2012	**1**	**109-30076**	**IOC**	**IOC**	**0019**	**EQ**	**0.67**	**mg/L**	**RC**	**13**	**9**	**21**
7/18/2011	**1**	**109-25025**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.76**	**mg/L**	**RC**	**1**	**0**	**7**
6/15/2011	1	109-24427	IOC	IOC_SHORT	0019	EQ	2.25	mg/L	RC	1	0	7
6/15/2011	1	109-24413	IOC	IOC	0019	EQ	1.46	mg/L	RC	14	8	21
5/17/2011	1	109-23923	IOC	IOC_SHORT	0019	EQ	2.74	mg/L	RC	1	0	7
4/25/2011	1	109-23570	IOC	IOC_SHORT	0019	EQ	2.1	mg/L	RC	1	0	7
3/23/2011	1	109-23198	IOC	IOC	0019	EQ	2.4	mg/L	RC	1	0	42
2/15/2011	1	109-22571	IOC	IOC_SHORT	0019	EQ	2.44	mg/L	RC	1	0	7
1/20/2011	1	109-22354	IOC	IOC_SHORT	0019	EQ	2.55	mg/L	RC	1	0	7
12/21/2010	**1**	**109-22046**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.32**	**mg/L**	**RC**	**1**	**0**	**7**
11/17/2010	1	109-21599	IOC	IOC_SHORT	0019	EQ	2.6	mg/L	RC	1	0	7
9/16/2010	1	109-20613	IOC	IOC_SHORT	0019	EQ	2.4	mg/L	RC	1	0	7
8/12/2010	1	109-19798	IOC	IOC_SHORT	0019	EQ	2.41	mg/L	RC	1	0	7
6/16/2010	1	109-18393	IOC	IOC_SHORT	0019	EQ	2.66	mg/L	RC	1	0	7
5/25/2010	1	109-17918	IOC	IOC_SHORT	0019	EQ	2.59	mg/L	RC	1	0	7
5/7/2010	1	109-17629	IOC	IOC	0019	EQ	0.65	mg/L	RC	12	9	22
3/15/2010	1	109-16718	IOC	IOC_SHORT	0019	EQ	1.91	mg/L	RC	1	0	7
2/23/2010	1	109-16409	IOC	IOC_SHORT	0019	EQ	1.97	mg/L	RC	1	0	7
1/13/2010	1	109-15746	IOC	IOC_SHORT	0019	EQ	2.26	mg/L	RC	1	0	7
12/21/2009	**1**	**109-15498**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.51**	**mg/L**	**RC**	**1**	**0**	**7**
11/18/2009	1	109-15093	IOC	IOC_SHORT	0019	EQ	1.83	mg/L	RC	1	0	7
10/20/2009	1	109-14711	IOC	IOC_SHORT	0019	EQ	1.82	mg/L	RC	1	0	7
9/14/2009	1	109-13776	IOC	IOC_SHORT	0019	EQ	2.18	mg/L	RC	1	0	7
8/18/2009	1	109-13140	IOC	IOC_SHORT	0019	EQ	2.25	mg/L	RC	1	0	7
7/22/2009	1	109-12457	IOC	IOC_SHORT	0019	EQ	1.91	mg/L	RC	1	0	7
6/22/2009	1	109-11595	IOC	IOC_SHORT	0019	EQ	1.99	mg/L	RC	1	0	7
8/29/2008	**1**	**046-96846**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.45**	**mg/L**	**RC**	**1**	**0**	**7**
6/16/2008	1	046-95131	IOC	IOC	0019	EQ	1.66	mg/L	RC	13	16	14
3/28/2008	1	046-93857	IOC	IOC_SHORT	0019	EQ	1.19	mg/L	RC	1	0	7
12/17/2007	**1**	**046-92447**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.74**	**mg/L**	**RC**	**1**	**0**	**7**
11/28/2007	1	109-92115	IOC	IOC_SHORT	0019	EQ	1.35	mg/L	RC	1	0	7
10/31/2007	1	109-91735	IOC	IOC_SHORT	0019	EQ	1.41	mg/L	RC	1	0	7
9/25/2007	1	109-91180	IOC	IOC_SHORT	0019	EQ	3.27	mg/L	RC	1	0	7
8/20/2007	1	109-90271	IOC	IOC_SHORT	0019	EQ	2.32	mg/L	RC	1	0	7
7/2/2007	1	046-19449	IOC	IOC_SHORT	0019	EQ	1.91	mg/L	RC	1	0	7
6/12/2007	1	046-17298	IOC	IOC_SHORT	0019	EQ	2.05	mg/L	RC	1	0	7
5/7/2007	1	046-13436	IOC	IOC_SHORT	0019	EQ	1.97	mg/L	RC	1	0	7
4/13/2007	1	046-10386	IOC	IOC_SHORT	0019	EQ	1.76	mg/L	RC	1	0	7
4/11/2007	1	046-10069	IOC	IOC	0019	EQ	1.81	mg/L	RC	3	9	31
4/19/2000	**1**	**109-47644**	**IOC**	**IOC**	**0019**	**EQ**	**2.27**	**mg/L**	**RC**	**10**	**19**	**14**
4/19/2000	1	109-47645	IOC	IOC	0019	EQ	2.39	mg/L	RC	10	19	14
4/19/2000	1	109-47646	IOC	IOC	0019	EQ	2.68	mg/L	RC	10	19	14
4/19/2000	1	109-47647	IOC	IOC	0019	EQ	2.32	mg/L	RC	10	19	14
1/10/2000	1	109-46464	IOC	IOC	0019	EQ	1.51	mg/L	RC	11	18	14
3/13/1996	**1**	**051-15374**	**IOC**	**IOC**	**0019**	**EQ**	**2.5**	**mg/L**	**RC**	**8**	**18**	**17**
3/13/1996	**1**	**051-15375**	**IOC**	**IOC**	**0019**	**EQ**	**5.2**	**mg/L**	**RC**	**8**	**18**	**17**
3/13/1996	1	051-15376	IOC	IOC	0019	EQ	2.2	mg/L	RC	8	18	17
5/4/1995	1	109-30357	IOC	IOC	0019	EQ	0.59	mg/L	RC	10	18	2
6/14/2011	**2**	**109-24379**	**IOC**	**IOC**	**0019**	**EQ**	**2.74**	**mg/L**	**RC**	**13**	**9**	**21**
5/7/2010	**2**	**109-17633**	**IOC**	**IOC**	**0019**	**EQ**	**2.5**	**mg/L**	**RC**	**15**	**6**	**22**
6/16/2009	**2**	**109-11382**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.96**	**mg/L**	**RC**	**2**	**0**	**6**
3/28/2008	**2**	**046-93859**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**1.24**	**mg/L**	**RC**	**1**	**0**	**7**
3/24/2008	2	046-93759	IOC	IOC_SHORT	0019	EQ	1.55	mg/L	RC	2	0	6
12/17/2007	**2**	**046-92448**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.31**	**mg/L**	**RC**	**1**	**0**	**7**
11/28/2007	2	109-92116	IOC	IOC_SHORT	0019	EQ	0.5	mg/L	RC	1	0	7
10/31/2007	2	109-91736	IOC	IOC_SHORT	0019	EQ	1.44	mg/L	RC	1	0	7
9/25/2007	2	109-91181	IOC	IOC_SHORT	0019	EQ	3.4	mg/L	RC	1	0	7
8/20/2007	2	109-90272	IOC	IOC_SHORT	0019	EQ	2.61	mg/L	RC	1	0	7
7/2/2007	2	046-19450	IOC	IOC_SHORT	0019	EQ	2.14	mg/L	RC	1	0	7
6/12/2007	2	046-17299	IOC	IOC_SHORT	0019	EQ	2.2	mg/L	RC	1	0	7
6/11/2007	2	046-16962	IOC	IOC	0019	EQ	2.48	mg/L	RC	7	21	15
6/11/2007	2	046-16961	IOC	IOC	0019	EQ	2.43	mg/L	RC	2	1	40
5/7/2007	2	046-13437	IOC	IOC_SHORT	0019	EQ	1.94	mg/L	RC	1	0	7
4/13/2007	2	046-10387	IOC	IOC_SHORT	0019	EQ	2.12	mg/L	RC	1	0	7
4/11/2007	2	046-10070	IOC	IOC	0019	EQ	2.31	mg/L	RC	3	9	31
12/27/2006	**2**	**023-39388**	**IOC**	**IOC_SHORT**	**0019**	**EQ**	**2.1**	**mg/L**	**RC**	**1**	**0**	**7**

Collected	Source	Lab-Sample No.	Analyte			Sample Information				Sample Group Information		
			Group	Test Panel	Number	Range	Results		Purpose	EQ	LT	NA
7/23/2002	2	109-60643	IOC	IOC	0019	EQ	2.8	mg/L	RC	12	17	14
5/11/2001	2	109-53194	IOC	IOC	0019	EQ	2.06	mg/L	RC	10	19	14
10/11/2000	2	109-50077	IOC	IOC	0019	EQ	2.8	mg/L	RC	11	18	14
7/21/2000	2	109-48836	IOC	IOC	0019	EQ	3.22	mg/L	RC	10	19	14
1/11/2000	2	109-46471	IOC	IOC	0019	EQ	2.4	mg/L	RC	10	19	14
6/22/1999	2	109-43728	IOC	IOC	0019	EQ	2.01	mg/L	RC	10	19	14
3/13/1996	2	051-15374	IOC	IOC	0019	EQ	2.5	mg/L	RC	8	18	17
3/13/1996	2	051-15375	IOC	IOC	0019	EQ	5.2	mg/L	RC	8	18	17
3/13/1996	2	051-15376	IOC	IOC	0019	EQ	2.2	mg/L	RC	8	18	17
2/15/2012	5	109-28288	IOC	IOC_SHORT	0019	EQ	1.55	mg/L	RC	1	0	7
10/10/2011	5	109-26749	IOC	IOC_SHORT	0019	EQ	5.07	mg/L	RC	1	0	7
7/13/2011	5	109-24904	IOC	IOC_SHORT	0019	EQ	5.37	mg/L	RC	2	0	6
6/13/2011	5	109-24351	IOC	IOC_SHORT	0019	EQ	5.28	mg/L	RC	2	0	6
2/24/2011	5	109-22730	IOC	IOC	0019	EQ	4.37	mg/L	RC	15	7	21
4/15/2010	5	109-17261	IOC	IOC_SHORT	0019	EQ	4.67	mg/L	RC	2	0	6
3/28/2008	5	046-93861	IOC	IOC_SHORT	0019	EQ	1.61	mg/L	RC	1	0	7
12/17/2007	5	046-92449	IOC	IOC_SHORT	0019	EQ	2.45	mg/L	RC	1	0	7
11/28/2007	5	109-92117	IOC	IOC_SHORT	0019	EQ	1.4	mg/L	RC	1	0	7
10/31/2007	5	109-91737	IOC	IOC_SHORT	0019	EQ	1.32	mg/L	RC	1	0	7
9/25/2007	5	109-91182	IOC	IOC_SHORT	0019	EQ	3.28	mg/L	RC	1	0	7
9/6/2007	5	109-90645	IOC	IOC	0019	EQ	4.77	mg/L	RC	2	1	40
8/20/2007	5	109-90273	IOC	IOC_SHORT	0019	EQ	2.04	mg/L	RC	1	0	7
7/2/2007	5	046-19451	IOC	IOC_SHORT	0019	EQ	2.14	mg/L	RC	1	0	7
6/12/2007	5	046-17300	IOC	IOC_SHORT	0019	EQ	2.19	mg/L	RC	1	0	7
5/17/2007	5	046-14497	IOC	IOC	0019	EQ	4.83	mg/L	RC	3	9	31
5/7/2007	5	046-13438	IOC	IOC_SHORT	0019	EQ	2.1	mg/L	RC	1	0	7
4/13/2007	5	046-10388	IOC	IOC_SHORT	0019	EQ	1.99	mg/L	RC	1	0	7
3/13/1996	5	051-15374	IOC	IOC	0019	EQ	2.5	mg/L	RC	8	18	17
3/13/1996	5	051-15375	IOC	IOC	0019	EQ	5.2	mg/L	RC	8	18	17
3/13/1996	5	051-15376	IOC	IOC	0019	EQ	2.2	mg/L	RC	8	18	17
9/12/2011	6	109-26189	IOC	IOC_SHORT	0019	EQ	3.12	mg/L	RC	2	0	6
6/15/2011	6	109-24437	IOC	IOC	0019	EQ	3.04	mg/L	RC	13	9	21
6/16/2010	6	109-18343	IOC	IOC_SHORT	0019	EQ	0.45	mg/L	RC	2	0	6
7/13/2009	6	109-12193	IOC	IOC_SHORT	0019	EQ	2.93	mg/L	RC	1	0	7
9/16/2008	6	046-97281	IOC	IOC_SHORT	0019	EQ	2.6	mg/L	RC	1	0	7
3/28/2008	6	046-93863	IOC	IOC_SHORT	0019	EQ	1.63	mg/L	RC	1	0	7
12/17/2007	6	046-92450	IOC	IOC_SHORT	0019	EQ	2.24	mg/L	RC	1	0	7
11/28/2007	6	109-92118	IOC	IOC_SHORT	0019	EQ	1.5	mg/L	RC	1	0	7
10/31/2007	6	109-91738	IOC	IOC_SHORT	0019	EQ	1.77	mg/L	RC	1	0	7
9/25/2007	6	109-91183	IOC	IOC_SHORT	0019	EQ	2.8	mg/L	RC	1	0	7
8/20/2007	6	046-90337	IOC	IOC	0019	EQ	3.52	mg/L	RC	5	23	15
8/20/2007	6	109-90274	IOC	IOC_SHORT	0019	EQ	3.17	mg/L	RC	1	0	7
7/2/2007	6	046-19452	IOC	IOC_SHORT	0019	EQ	2.08	mg/L	RC	1	0	7
6/12/2007	6	046-17301	IOC	IOC_SHORT	0019	EQ	2.45	mg/L	RC	1	0	7
5/7/2007	6	046-13439	IOC	IOC_SHORT	0019	EQ	2.35	mg/L	RC	1	0	7
4/13/2007	6	046-10389	IOC	IOC_SHORT	0019	EQ	1.56	mg/L	RC	1	0	7
12/27/2006	6	023-39387	IOC	IOC_SHORT	0019	EQ	2.1	mg/L	RC	1	0	7
1/11/2000	6	109-46472	IOC	IOC	0019	EQ	2.99	mg/L	RC	13	16	14
6/22/1999	6	109-43729	IOC	IOC	0019	EQ	2.18	mg/L	RC	10	19	14
3/13/1996	6	051-15374	IOC	IOC	0019	EQ	2.5	mg/L	RC	8	18	17
3/13/1996	6	051-15375	IOC	IOC	0019	EQ	5.2	mg/L	RC	8	18	17
3/13/1996	6	051-15376	IOC	IOC	0019	EQ	2.2	mg/L	RC	8	18	17
2/8/1994	6	051-14899	IOC	IOC	0019	EQ	4	mg/L	RC	7	19	4
4/14/1992	6	051-13911	IOC	ICHEM	0019	EQ	6.2	mg/L	RC	8	12	0
7/21/2011	7	109-25130	IOC	IOC_SHORT	0019	EQ	2.03	mg/L	RC	1	0	7
6/14/2011	7	109-24377	IOC	IOC	0019	EQ	1.74	mg/L	RC	15	7	21
6/16/2009	7	109-11383	IOC	IOC_SHORT	0019	EQ	1.55	mg/L	RC	1	0	7
12/17/2008	7	046-98510	IOC	IOC	0019	EQ	1.03	mg/L	RC	17	12	14
5/29/2008	7	046-94797	IOC	IOC_SHORT	0019	EQ	2.42	mg/L	RC	1	0	7
3/28/2008	7	046-93565	IOC	IOC_SHORT	0019	EQ	1.73	mg/L	RC	1	0	7
12/17/2007	7	046-92451	IOC	IOC_SHORT	0019	EQ	2.05	mg/L	RC	1	0	7
11/28/2007	7	109-92119	IOC	IOC_SHORT	0019	EQ	1.7	mg/L	RC	1	0	7
10/31/2007	7	109-91739	IOC	IOC_SHORT	0019	EQ	1.78	mg/L	RC	1	0	7
9/25/2007	7	109-91184	IOC	IOC_SHORT	0019	EQ	2.73	mg/L	RC	1	0	7
7/2/2007	7	046-19453	IOC	IOC_SHORT	0019	EQ	2.36	mg/L	RC	1	0	7
6/12/2007	7	046-17302	IOC	IOC_SHORT	0019	EQ	2.45	mg/L	RC	1	0	7
5/7/2007	7	046-13440	IOC	IOC_SHORT	0019	EQ	2.31	mg/L	RC	1	0	7
4/13/2007	7	046-10390	IOC	IOC_SHORT	0019	EQ	1.46	mg/L	RC	1	0	7
4/12/2007	7	046-10171	IOC	IOC	0019	EQ	0.96	mg/L	RC	3	9	31
7/23/2002	7	109-60644	IOC	IOC	0019	EQ	2.16	mg/L	RC	10	19	14

2011
Annual Drinking Water Quality Report
City of Othello

Traducción disponible del Informe de Calidad del Agua.

Este Informe contiene información muy importante sobre el sistema de agua del pueblo. La información esta disponible en español en la municipalidad.

The City Of Othello, as well as all water providers, are required by the Department of Health, to send you their annual drinking water quality report.

The City of Othello Water Department provides a safe and dependable supply of drinking water that meets or exceeds all federal and state requirements. The City of Othello is served by seven wells. All seven of the wells pump water from the Wanapum Aquifer. Pumped water is fed directly into the distribution system. Water is stored in three tower reservoirs within the City. Full volume capacity totals about six million gallons. Pressure throughout the distribution system is the result of the height of the water in the reservoirs. The storage volume provides protection against fire, power outages, high water use periods, and whether the pumps can meet the demand on the system.

If you have any questions about this report or concerning your water utility, please contact:

City of Othello **500 E Main St** **Othello, WA 99344** **ID #64850R** **509-488-5686 or 488-6997**	**State Department of Health** **Suite 305** **1500 W Fourth Ave** **Spokane, WA 99204** **509-456-3115**	**Environmental Protection Agency** **Safe Drinking Water Act Hotline** **1-800-426-4791**

The City of Othello owns the City of Othello Water Department. The Department is responsible to the Mayor and City Council. The Mayor and City Council meet regularly on the 2nd and 4th Mondays of each month at 7:00 p.m. You are welcome to attend these meetings.

The City of Othello routinely monitors for constituents (listed below) in your drinking water according to Federal and State laws. Table 1 shows the results of our monitoring for the period of January 1st to December 31st, 2011. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk.

Below are several categories and some of the constituents that each category may include:

- Microbiological: E. Coli, Giardia, and Cryptosporidium.
- Radioactive Contaminants: beta and alpha emitters and radium.
- Inorganic Contaminants: arsenic, asbestos, chromium, copper, lead, fluoride and nitrate.
- Synthetic Organic Contaminants: pesticides and herbicides.
- Volatile Organic Contaminants: benzene, carbon tetrachloride and trihalomethanes.

In Table 1, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000. Other comparisons are: This is equivalent to one drop of water diluted into approximately the fuel tank capacity of a compact car, or about thirty seconds out of a year.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000. Other examples are: This is equivalent to 1 drop of water diluted into 250 drums or about three seconds out of 100 years.

Action Level - the concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal -The "Goal"(MCLG) is the level of a contaminant in drinking water which there is no known or expected risk to health. MCLGs allow for a margin of safety.

TABLE 1: TEST RESULTS						
Contaminant	**Violation Y/N**	**Avg. Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Microbiological Contaminants:						
(1)Total Coliform	N	0	N/A	0	Total Coliform Positive	Naturally present in the environment
Inorganic Contaminants:						
(2) Fluoride Range detected: 1.46 to 5.37	Y	2.666	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
(3) Nitrate (as Nitrogen) Range detected: 0.0 to 5.59	N	1.456	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
(4) Cadmium Range detected: 0.00 to 0.0002	N	0.00	ppm	.005	.005	Occurs naturally in zinc, lead, copper and other ores.
Disinfection By-Products:						
(5) Trihalomethanes (TTHM)	N	0	ppb	80	80	By-product of drinking water chlorination
(6) Haloacetec Acids (HAA5)	N	0	ppb	60	60	By-product of drinking water disinfection

Inorganic Contaminants:

(3) Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

As you can see by the table, our system had one violation. We have learned through our monitoring and testing that some constituents have been detected. We constantly monitor for various constituents in the water supply to meet all regulatory requirements. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. Please see the information below regarding the fluoride levels to explain the violation that was detected in 2011. This high level of fluoride was caused by well #6, which was run only on an emergency basis, due to high demand and the history of high fluoride amounts. The Department of Health has changed the status of well #6 from emergency use only to seasonal, for use during high demand summer months.

Flouride: This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). During a test that only applied to well #6 (not the whole water system) the drinking water had a fluoride concentration of 5.37 in July of 2011. When the water from well #6 is mixed with the whole water system, the average fluoride for the whole year was 2.666, well below the federal maximum of 4.0 for fluorides, although it is higher than the State of Washington MCL of 2.0.

Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water, during the well #6 water testing as stated above, did contain more than 4 mg/l of fluoride, and therefore we're required to notify you of this discovery because of potential problems. For more information, please call the City of Othello Public Works Department at 509-488-6997. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

Total Coliform: The Total Coliform Rule requires water systems to meet a stricter limit for coliform bacteria. Coliform bacteria are usually harmless, but their presence in water can be an indication of disease-causing bacteria. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. If this limit is exceeded, the water supplier must notify the public by newspaper, television or radio. To comply with the stricter regulations, we have increased the average amount of chlorine in the distribution system.

Nitrates: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider. The city is required to test for Nitrates quarterly for source 2, (well #3), yearly for source 9 (well #8) and for all other wells the test is required every 3 years. As a precaution we would always notify physicians and health care providers in this area if there is ever a higher than normal level of nitrates in the water supply.

Cadmium: Sources for cadmium are found in natural deposits as ores containing other elements. As you can see by the above chart the city was not above the maximum contaminate level for the average of the tests that were complete.

Trihalomethanes (TTHM) & Haloacetic Acid (HAA5): The tests for TTHM and HAA5 are done on well systems that use chlorination products for well disinfection. The tests must be done during the warmest part of the year, sometime between July and October.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791). Please call Public Works @ 488-6997 or City Hall @ 488-5686 if you have questions.

We at the City of Othello Water Department work around the clock to provide top quality water to every tap. We ask that all of our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.

Cervantes, Andres (DOH)

From: Stasney, Bryony E (DOH)
Sent: Tuesday, June 19, 2012 11:23 AM
To: Cervantes, Andres (DOH)
Subject: fluoride for Othello

Hello Andy
Here is the fluoride paragraph. Let me know if this works.
Bryony

Fluoride Monitoring

Permanent sources S01, S02, S06, S07, S08 and S09 have fluoride levels that generally range above the fluoride secondary maximum contaminant (MCL) of 2 mg/L and below the fluoride primary MCL of 4 mg/L.

Seasonal source S05 has fluoride levels that generally exceed the primary MCL of 4 mg/L.

As a result, we require Othello conduct the following:

- Annual monitoring for fluoride at sources S01, S02, S06, S07, S08 and S09 (in the months listed in Part 2 of the WQMR).
- Quarterly monitoring for fluoride at source S05 (well #6), at the source when the well is running and at entry to distribution when the well is not running. Always mark the source on the lab slip as S05.
- Distribution system fluoride monitoring when S05 is running. Monitor fluoride levels at all distribution monitoring stations using a field meter every week day that S05 is running. Collect one fluoride sample per week (at a different station each week) for every week that S05 is running and send the sample to an accredited drinking water laboratory for analysis. The purpose of the weekly laboratory sample is to make sure that the field equipment is calibrated and that field readings are accurate. Mark the source as S92 (flowing distribution source) and mark the station number in the comment section.
- Include fluoride tier 3 public notification annually to all customers (for example within the consumer confidence report). A copy of the tier 3 mandatory language is enclosed.

Fluoride Tier 3 PN template.do...

Bryony Stasney, L.HG., Source Water Quality Program Manager
Washington State Department of Health - Office of Drinking Water - Eastern Region
16201 East Indiana Ave., Suite 1500, Spokane Valley, WA 99216
Tel: 509-329-2100
Direct: 509-329-2132
Fax: 509-329-2104
Bryony.Stasney@doh.wa.gov

Public Health - Always Working for a Safer and Healthier Washington
Visit our web site at www.doh.wa.gov/ehp/dw

NOTICE TO WATER SYSTEM USERS

Fluoride Secondary Maximum Contaminant Level Exceeded

The _____ Water System, I.D. _____, located in _____ County recently violated the Secondary Maximum Contaminant Level (SMCL) of 2 mg/L for fluoride in drinking water. Fluoride contamination is rarely due to human activity. Fluoride occurs naturally in some areas and is found in high concentrations in the aquifer of our source water. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation.

The sample collected on _____ has a fluoride concentration of _____ mg/L.

This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis).

Dental fluorosis in its moderate or severe forms, may result in a brown staining and or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/l of fluoride (the US Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem.

Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

At this time:

- ☐ No action is required by the water users.
- ☐ We are continuing to monitor fluoride levels. We will inform you if they exceed the limit of 4 mg/l.
- ☐ Samples will be collected in the future as required.
- ☐ Other information for customers:

For more information, please contact _____at ( )_____-_____ or at

(Owner or operator) (Phone number)

_____

(Address)

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by distributing copies by hand or mail and posting this notice in a public place.

This notice is being sent to you by _____ Water System on ___/___/____

AVISO PARA LOS USARIOS DEL SISTEMA DE AGUA

El Fluoruro Excedió el Secundaría Nivel Máximo de Contaminante

El Sistema de agua _____, I.D. _____, situado en el Condado de _____ hace muy poco que violó el Secundaría Nivel Máximo de Contaminante (siglas en ingles SMCL) de 2 mg/l por fluoruro en el agua potable. Es raro que la contaminación de fluoruro resulte de la actividad humana. Fluoruro ocurre naturalmente en algunas áreas y se encuentra en concentraciones altas en el acuífero de nuestra fuente de agua. Aunque que no es emergencia, como nuestros clientes, usted tiene el derecho a saber que pasó, que debe de ser, y lo que vamos hacer para corregir esta situación.

La muestra recogida en _____ tiene el concentración de fluoruro de _____ mg/l.

Esta es un alerta de su agua potable y un problema dental cosmético que podrían afectar niños menores de nueve años de edad. En niveles bajos, fluoruro puede ayudar prevenir las caries, pero los niños que beben agua que contiene más de 2 miligramos por litro (mg/l) de fluoruro pueden desarrollar decoloración cosmético de sus dientes permanentes (fluorosis dental).

Fluorosis dental en sus formas moderado o grave, puede resultar en unos manchas el color de café y, o in los picaduras de los dientes permanentes. Este problema ocurre solamente en los dientes en desarrollo, antes de que se aparezcan de las encimas. Niños menores de nueve años deben estar provistos con fuentes alternativos de agua potable o el agua que ha sido tratado para remover el fluoruro para evitar la posibilidad de las manchas o picaduras de sus dientes permanentes. Usted también puede desear contactar su dentista del uso apropiado por los niños pequeños de los productos que contienen fluoruro. Los niños mayores y adultos con seguridad pueden beber el agua.

El agua potable que contiene más que 4 mg/l de fluoruro (el estándar de la Agencia de Protección del Ambiente de los Estados Unidos) puede aumentar su riesgo de desarrollar una enfermedad de los huesos. Su agua potable no contiene más de 4 mg/l de fluoruro, pero estamos obligados a notificar a usted cuando se descube que el nivel de fluoruro en su agua potable exceda 2 mg/l porque debido de este problema dental cosmético.

Algunas unidades de tratamiento del agua de la casa también son disponibles para remover el fluoruro del agua potable. Para aprender más sobre estos de las unidades disponibles de tratamiento del agua de la casa, usted puede llamar a NSF International al 1-877-8-NSF-HELP.

A este tiempo:

- ☐ No acción es requerido por los usuarios del agua.
- ☐ Seguimos a monitorear los niveles de fluoruro. Nosotros le informaremos si se excede el límite de 4 mg/l.
- ☐ Las muestras se recogieron en el futuro como se requiere.
- ☐ Otra información para los clientes:

Para más información, par favor póngase en contacto con _____ (____)_____-_____ o
(Dueño u Operador) (Numero de Teléfono)

_____
(Dirección)

Por favor comparte esta información con los demás que beben esta agua, especialmente aquellos que no hayan recibido este aviso directamente (por ejemplo, las personas en apartamentos, hogares de ancianos, escuelas, y negocios). Usted puede hacer mediante la distribución de copias a mano o por el correo y la publicación de este aviso en un lugar público.

Este aviso ha sido enviado a usted por el Sistema de Agua _____ el ____/_____/_____

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

Date Submitted: 10/24/2011

Water Use Efficiency
Annual Performance Report - 2010

WS Name: OTHELLO WATER DEPARTMENT Water System ID# : 64850 WS County: ADAMS

Report submitted by: *Daniel Quick*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2010* To *12/31/2010*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*1,428,704,000* gallons
Authorized Consumption (AC) – Annual Volume	*1,371,780,388* gallons
Distribution System Leakage – Annual Volume TP – AC	*56,923,612* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*4.0 %*
3-year annual average	*2.5 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *11/22/2010* Has goal been changed since last performance report? *Yes*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Reduce annual non-industrial residential consumption per capital by 0.5% per year on a three year average basis.
Maintain unaccounted for water under 10%

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Meter up grade to wells,and Industrial users.
A rate increase of 4% to water rates, a stepped billing of units will cause water conservation. plus info sent out with billing on conservation

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Industrial side meter up grades. will help on our uncounted for water plus inform the plants of actual usage.
One meter a 10 inch was just upgraded it was found that only 1/10th of the water they were using was restring. This will also help on the water loss report. we're working with the plant on there consumption.

Do not mail, fax, or email this report to DOH

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

Date Submitted: 7/3/2012

Water Use Efficiency
Annual Performance Report - 2011

WS Name: OTHELLO WATER DEPARTMENT Water System ID# : 64850 WS County: ADAMS

Report submitted by: *Daniel Quick*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2011* To *12/31/2011*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*1,440,237,000* gallons
Authorized Consumption (AC) – Annual Volume	*1,449,367,436* gallons
Distribution System Leakage – Annual Volume TP – AC	*-9,130,436* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*-0.6 %*
3-year annual average	*2.5 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *11/22/2010* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Reduce annual non-industrial,residential comssumption by .5% per year. Maintain unaccounted for water under 10%.Stepped billing units increased of 3.9%

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

from last year we have accounted for 4% more water due to meter upgrades and leak detection. Account for fire Hydrant flushing water and estimates of fire fighting and construction water.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Do not mail, fax, or email this report to DOH

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

Date Submitted: 7/31/2013

Water Use Efficiency
Annual Performance Report - 2012

WS Name: OTHELLO WATER DEPARTMENT Water System ID# : 64850 WS County: ADAMS

Report submitted by: *Daniel Quick*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2012* To *12/31/2012*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*1,638,065,284* gallons
Authorized Consumption (AC) – Annual Volume	*1,640,609,617* gallons
Distribution System Leakage – Annual Volume TP – AC	*-2,544,333* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*-0.2 %*
3-year annual average	*2.5 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *11/22/2010* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Reduce annual non-industrial,residential comssumption by .5% per year. Maintain unaccounted for water under 10%.Stepped billing units increased of 3.9%

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

construction water is now all being metered, through meter check out and billing. estimates are now being made during hydrant flushing.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Do not mail, fax, or email this report to DOH

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

Date Submitted: 10/14/2015

Water Use Efficiency
Annual Performance Report - 2014

WS Name: OTHELLO WATER DEPARTMENT Water System ID# : 64850 WS County: ADAMS

Report submitted by: *Daniel Quick*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2014* To *12/31/2014*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*1,665,994,392* gallons
Authorized Consumption (AC) – Annual Volume	*1,710,220,468* gallons
Distribution System Leakage – Annual Volume TP – AC	*-44,226,076* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*-2.7 %*
3-year annual average	*2.5 %*

Goal-Setting Information:

Date of Most Recent Public Forum: _____ Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Meter construction water. Estimate Hydrant flushing water consumption. Our meters will report hi consumption and continuous flow if it does not stop in 24hrs. The City crew will check for leaks and report to the customer.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Do not mail, fax, or email this report to DOH

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

Date Submitted: 6/24/2016

Water Use Efficiency
Annual Performance Report - 2015

WS Name: OTHELLO WATER DEPARTMENT Water System ID# : 64850 WS County: ADAMS

Report submitted by: *Daniel Quick*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2015* To *12/31/2015*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*1,525,461,905* gallons
Authorized Consumption (AC) – Annual Volume	*1,550,734,152* gallons
Distribution System Leakage – Annual Volume TP – AC	*-25,272,247* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*-1.7 %*
3-year annual average	*2.5 %*

Goal-Setting Information:

Date of Most Recent Public Forum: _____ Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

meter construction water. Estimate hydrant flushing. The city's meters will report hi consumption and continuous flow if it dies not stop in 24 hr. The city crew will inform the customer and check for leaks.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Do not mail, fax, or email this report to DOH

APPENDIX C

Well Logs
Water Rights Certificates

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

DEPARTMENT OF ECOLOGY State of Washington

Construction/Decommission *("x" in circle)*

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number none

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK: Owner's number of well (if more than one) 1

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well _____ inches, drilled _____ ft. Depth of completed well _____ ft.

CONSTRUCTION DETAILS

Casing Installed: ☐ Welded _____" Diam. from _____ ft. to _____ ft. ☐ Liner installed _____" Diam. from _____ ft. to _____ ft. ☐ Threaded _____" Diam. From _____ ft. to _____ ft.

Perforations: ☐ Yes ☐ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☐ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☐ No Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☐ No To what depth? _____ ft.

Material used in seal _____

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☐ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Air test _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

Decommissioned 8/19/14

CURRENT

Notice of Intent No. AE27371

Unique Ecology Well ID Tag No. AAR990

Water Right Permit No. _____

Property Owner Name City of Othello

Well Street Address 136 South Broadway

City Othello County Adams

Location NE1/4-1/4 NE1/4 Sec 4 Twn 15N R 29 **(s, t, r Still REQUIRED)** EWM ☒ Or WWM ☐

Lat/Long Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. (Required) 1529030502511

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Well was reportedly driled		
circa 1909.		
Placed unhydrated chip		
bentonite in uncased hole		
from bottom of well (545')		
to bottom of casing (211').		
Perforated casing (4 around		
every foot) from its		
bottom up to ground		
surface.		
Pumped cement grout under		
pressure from bottom of		
casing to surface.		

Start Date 8/13/14 Completed Date 8/19/14

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Steve Schneider

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 0643

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Schneider Water Services

Address 21881 River Road NE

City, State, Zip St. Paul , OR, 97137

Contractor's Registration No. SCHNEEI940R8 Date 9/3/14

Well #1

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

A-8481
P-7886
C-13012HC

WELL LOG

Record by Driller
Source Driller's Record

Location: State of WASHINGTON
County Adams
Area 25' N and 67' E of
Map SW corner
NE ¼ NE ¼ sec. 27 T. 16 N., R. 30 E. W.

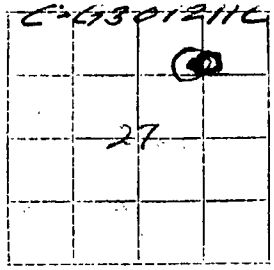


Diagram of Section

Drilling Co. Barnett Pump & Irrigation Company
Address Box 104, Lind, Washington
Method of Drilling Cable Date Oct. 29, 1970
Owner Othello Ice & Cold Storage, Inc.
Address 1131 N. Broadway, Othello
Land surface, datum 1240 ft. above / below
SWL: 130' Date ....., 19..... Dims. 8"x6.35'

CORRELATION	MATERIAL	From (feet)	To (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Irrigation and industrial use.		
	Topsoil	0	18
	Caliche	18	23
	Rock, broken, brown	23	128
	Basalt, black	128	180
	Basalt, hard, grey	180	218
	Basalt, black, broken	218	250
	Basalt, hard, grey	250	305
	Rock, broken, black (some water)	305	336
	Basalt, hard, grey	336	365
	Basalt, broken, black	365	410
	Basalt, hard, grey	410	508
	Rock, black, broken (some water)	508	522
	Basalt, medium hard	522	550

Turn up

Sheet ..... of ..... sheets

WELL LOG.—Continued No........../..........-..........

Corre-lation	Material	From (feet)	To (feet)
	Depth forward	———	
	Basalt, hard	550	589
	Shale, blue (some water in shale)	589	596
	Basalt, hard, grey	596	603
	Shale, blue, mixed with rock and gravel	603	609
	Basalt, grey	609	635
	Casing installed: 16" from 0 to 131'		
	Yield: 1400 gpm w/280' dd after 4 hr		
	1000 gpm w/195' dd after 4¼ h		
	800 gpm w/115' dd after 4 hr		
	Date of test: Nov. 25, 1970		
	Temperature: 63°		
	Permitted		
	5400 gpm		
	2650 af		
	670 ac		
	Mehr 56566 + ~~56570~~		
	~~[illegible]~~		
	1976 200 AF		
	12/30/75 796	9900 FT³	
	11/23/76 655	9400 FT³	

S. F. No. 7449—OS—12-68.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Decla. #150
Cert. #182-D

Date June 1, 1909

Record by J. H. Barrett

Source G. W. Decla. Claim

Location: State of WASHINGTON

County Adams

Area

Map

NE ¼ NE ¼ sec. 4 T. 15 N., R. 29 E. W.

DIAGRAM OF SECTION

Drilling Co.

Address

Method of Drilling Drilled Date June 1 1909

Owner Town of Othello

Address Othello, Wash.

Land surface, datum 1250 ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Well log:		
	Glacial deposits	140	140
	Basaltic formation	421	561
	Pump Test:		
	Dim.: 561' deep; 8" diam.		
	SWL: No data		
	DD: No data		
	Yield: No data (200 g.p.m. in Cert.		
	Casing: 8" diam. steel casing from surface to 120'		
	Perfs.: No data		
	Type & Size of Pump: Deep well turb pump		
	" " " " Motor: Electric motor		

Turn up

Sheet ____ of ____ sheets

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG Well #2 No. Decla. #151
Cert. #183-D

Date April 1, 1940

Record by J. H. Barrett

Source Decla. of G. W. Form

Location: State of WASHINGTON

County Adams

Area

Map

NW¼ NW¼ sec. 3 T. 15 N., R. 29 E. XX

DIAGRAM OF SECTION

Drilling Co.

Address

Method of Drilling Drilled Date Apr. 1 1940

Owner Town of Othello

Address Othello, Wash.

Land surface, datum 1050 ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Well log:		
	Glacial deposits	140	140
	Basaltic formation	557	697
	Pump Test:		
	Dim.: 697' deep; 8" diam.		
	SWL: No data		
	DD: No data		
	Yield: No data (200 g.p.m. in Cert.)		
	Casing: 8" diam. steel casing from surface to 120'		
	Perfs.: No data		
	Type & Size of Pump: Deep well turbi		
	" " " " pump		
	Motor: Elec. motor		

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Turn up

Sheet ____ of ____ sheets

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. G3-25033
Permit No. G3-25033P

(1) OWNER: Name City of Othello Address 512 East Main, Othello WA 99344

(2) LOCATION OF WELL: County Adams NW 1/4 SE 1/4 SE 1/4 Sec. 34 T. 16 N., R. 29E W.M.
Bearing and distance from section or subdivision corner 1250 ft - 1650' W of SE Cor. 34

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one).... #3
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☒* Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well ..... inches.
Drilled ..... ft. Depth of completed well ..... ft.

(6) CONSTRUCTION DETAILS:
Casing installed: ....." Diam. from ..... ft. to ..... ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☐ ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☐
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☐
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☐ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☐ No ☐ To what depth? ..... ft.
Material used in seal .....
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Jacuzzi
Type: vertical turbine H.P. 450

(8) WATER LEVELS: Land-surface elevation above mean sea level.... 1115 ft.
Static level 385 ft. below top of well Date 5/11/77
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? **
Yield: 1714 gal./min. with 100 ft. drawdown after 2 hrs.
" 1463 " 76 " 2 "
" 1263 " 58 " 2 "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	443'	30"	388'	90"	386'
10"	389'	45"	387'	105"	386'
20"	389'	60"	387'	120"	385'

Date of test May 11, 1977
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Does not apply -- no modifications were made to the original bore hole.		

Work started ....., 19..... Completed ....., 19.....

ENGINEER'S STATEMENT:
New pumping equipment for this well was installed under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME BROWN AND CALDWELL
(Person, firm, or corporation) (Type or print)
Address 100 W. Harrison, Seattle, WA 98119

[Signed] ..... (Engineer)

License No. 12931 Date June 8, 1977

*New pump and pump control equipment added. No modifications were made to the bore hole.
**Brown and Caldwell consulting engineers.

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Well Tagging Form

Unique Well Tag No: ABS 088

64850 R 02

RECORD VERIFICATION (check ✓ one)

- ☐ Well Report available *(please attach this form to the well report and submit it to the Ecology Regional Office near you)* well # 3
- ☐ Verification inconclusive
- ☒ Well Report not available

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

First Name: Othello Water Department Last Name:

Street Address: 111 N Broadway

City: Othello, 99344 State: WA

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address:

City: County:

T. 16 N. R. 29 E W.M. Sec. 34 SE 1/4 of the SE

FOR AGENCY USE ONLY

Latitude 46° 49' 45.78249 N"

Longitude 119 09 30.86306 W"

- ☒ GPS
- ☐ Topographic Map
- ☐ Survey
- ☐ Computer generated

Elevation at land surface 359 feet/~~meters~~ *(circle one)*

- ☐ Digital Altimeter
- ☐ Topographic Map
- ☒ Other GPS

Additional information, if available:

- ☐ Location marked on topographic map *(please attach)*
- ☐ Location marked on air photo *(please attach)*

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

FOR AGENCY USE ONLY

WELL CHARACTERISTICS

Physical Description of well (size of casing, type of well, housing, etc.)

Location of Well identification Tag:

Was supplemental tag needed for ease of identifying well? ☐ Yes ☒ No

If yes, where was tag placed? _____

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Scale 1:24,000 (1"=2,000')

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION 34

COMMENTS:

FOR ECOLOGY WATER RESOURCES PROGRAM ONLY

Water Right # _____ Date Issued _____

Circle One: Application Permit Certificate Claim Exempt

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG Well #3 No. Appli. #5002
C 3390

Date February, 1957

Record by well driller

Source driller's record

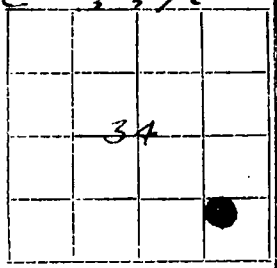


Diagram of Section

Location: State of WASHINGTON

County Adams

Area

Map

NW¼SE¼ SE¼ sec. 34 T. 16 N., R. 29 E. W.

Drilling Co. Gray & Osborne

Address Yakima, Washington

Method of Drilling Date , 19

Owner City of Othello, Wash.

Address

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	See drawing in file		
	PUMP TEST:		
	Dim. 900'x16"		
	SWL: 278 ft.		
	DD: 36 ft.		
	Yield: 1340 g.p.m.		
	Water Tem.p 75° F.		
	~~Type & size of pump: Turbine 1130 g.p~~		
	~~" " " " motor: elec. 150 h.p.~~		
	CASING:		
	16" diam. std. wt. from 0 to 197ft.		
	Meter 104612		

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Turn up

Sheet of sheets

WELL LOG.—Continued No...../.....-.....

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Depth forward	———	
	Sandy loam	5	5
	Gravel	8	13
	Hardpan	7	20
	Silty sand	3	23
	Partly cemented gravel	7	30
	Loose gravel	2	32
	Gravel & clay	58	90
	Yellow clay	45	135
	Brown clay	5	140
	Sand	10	150
	Gritty clay	15	165
	Brown clay	13	178
	Broken basalt	12	190
	Basalt	38	228
	Muddy broken basalt	5	233
	Broken basalt	17	250
	Basalt	61	311
	Brown shale & basalt	28	339
	Basalt	63	402
	Basalt crevices	5	407
	Basalt	161	561
	Shale & basalt	15	576
	Basalt	1	577
	Broken basalt	30	607
	Basalt	153	760
	Broken basalt	10	770
	Basalt	130	900
	Water 11/12/76 280 475 GPM		

Well Test: 5/11/77: SWL 385
1714 gpm, 100' DD, 2 hours
1463 76 2
1263 58 2

Recovery: Complete in 2 minutes

S. F. No. 7[illegible]—12-54—3M. 40108.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT Appli. #7076

WELL LOG No. P16871 C 5883

Date February 3, 1965

Record by Driller

Source Driller's Record

Location: State of WASHINGTON

County Adams

Area 136.5' S & 134' W of NE

Map corner of SE¼, Sec. 3

NE¼NE ¼ nese ¼ sec. 3 T. 15 N., R. 29 E.

Diagram of Section: 3/31/34, 3, 33

Drilling Co. Charles Jungmann Drilling Company

Address 115 Rees Ave., Walla Walla, Washington

Method of Drilling Cable Date Jan. 30, 1965

Owner City of Othello

Address Othello, Washington

Land surface, datum 1050 ft. above / below

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Correlation	Material	Thickness (feet)	Depth (feet)
	Municipal well		
	Sand, gravel, clay	0	128
	Broken basalt	128	155
	Black basalt	155	178
	Grey basalt	178	232
	Brown basalt	232	255
	Grey basalt	255	326
	Brown basalt	326	349
	Black, grey	349	562
	Broken black basalt	562	651
	Black basalt and broken	651	795
	Grey basalt	795	866
	Black basalt with seams	866	900
	Grey basalt	900	905

Turn up Sheet .... of .... sheets

WELL LOG.—Continued No...../.....-.....

Consolidation	Material	Thickness (feet)	Depth (feet)
	Depth forward	———	
	Casing: 20" from +1 to 57.7'		
	16" from +1 to 167.3'		
	12" from 154.3' to 443'		
	10" from 432.11 to 826'		
	Perforated from 550 to 795'		
	Surface sealed with casing, cement		
	SWL: 225 on January 30, 1965		
	Yields 1,000 gpm with 25" dd after 20 hours		
	February 1, 1965		
	15 minute recovery		
	Meter 63494		

S. F. No. 7449—OS—6-61—2M.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. [redacted]

Water Right Permit No. _____

OWNER: Name City of Othello Address 512 E. Main Street Othello, WA 99344

(2) LOCATION OF WELL: County Adams Well #4 ¼ ¼ Sec. 3 T. 15 N., R. 29 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) _____

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☐ Test Well ☐ Municipal ☒ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 4

Abandoned ☐ New well ☐ Deepened ☒ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 9 7/8 inches.

Drilled ~~1450~~552 feet. Depth of completed well 1450 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: n/a " Diam. from _____ ft. to _____ ft.

Welded ☐ Liner installed ☐ Threaded ☐ _____ " Diam. from _____ ft. to _____ ft.

_____ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____

SIZE of perforations _____ in. by _____ in.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? _____ ft.

Material used in seal Done Previously

Did any strata contain unusable water? Yes ☐ No ☐

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level _____ ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (Cap, valve, etc.))

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " "

" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Hard grey basalt 175 PSI	898	930
Medium grey - broken seams	930	935
Broken & pourous 250 PSI	935	~~XXX~~ 945
Medium grey - broken seams	945	970
Hard grey basalt	970	986
Pourous basalt	986	1004
~~Broken basalt - pourous seams~~		
Broken basalt - pourous seams	1004	1023
Medium grey	1023	1047
Hard grey	1047	1067
Black pourous PSI 260	1067	1073
Broken basalt	1073	1080
Medium grey - broken seams	1080	1120
Hard grey basalt	1120	1161
Soft black basalt	1161	1170
Medium black basalt	1170	1242
Red pourous 320 PSI	1242	1246
Soft black basalt	1246	1260
Medium basalt - broken seams	1260	1377
Soft black basalt	1377	1396
Hard grey - broken seams 340 PSI	1396	1450

Drilled 9 7/8" hole

RECEIVED FEB 11 1992 DEPARTMENT OF ECOLOGY

Work started 12/16-91, 19. Completed 1-5-92, 19

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME BJ Exploration Co., INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address Rt 4 Box 4517 Kennewick, WA 99337

(Signed) Jerry Black (WELL DRILLER) License No. 0337

Contractor's Registration No. BJEXPC1I32QK Date 2/4/92, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

28139

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W004661
UNIQUE WELL I.D. #
Water Right Permit No.

(1) **OWNER:** Name City of Othello Address 512 E Main St. Othello WA 99344

(2) **LOCATION OF WELL:** County Adams NE 1/4 SE 1/4 Sec 3 T. 15 N., R 29 W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) Well # 4

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☒ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (If more than one) 4
Abandoned ☐ New well ☐ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☒ Rotary ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of well _____ inches.
Drilled --- feet. Depth of completed well 976 ft.

(6) **CONSTRUCTION DETAILS:**
Casing Installed: _____" Diam. from _____ ft. to _____ ft.
Welded ☐ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐
Threaded ☐ _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills Knife
SIZE of perforations _____ in. by _____ in.
48 perforations from 428 ft. to 436 ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☐
Manufacturer's Name _____
Type _____ Model No. _____
Diam. ____ Slot size _____ from _____ ft. to _____ ft.
Diam. ____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☐ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☐ No ☐ To what depth? _____ ft.
Material used in seal _____
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name _____
Type: _____ H.P. _____

(8) **WATER LEVELS:** Land-surface elevation above mean sea level _____ ft.
Static level 396 ft. below top of well Date 1/24/94
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to well water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Existing well drilled 1965; to 905'		
Deepened in 1992 to 1450'		
Irrigators Inc. was retained by City of Othello to eliminate upflow & downflow of water in well		
1) Existing 12" casing perforated	428	436
Set bridge	-	440
Cemented Perforated casing	416.5	440
Drilled out cement plug - down flow from behind bottom of casing eliminated		
2) Backfilled with chlorinated pea- gravel	994	1450
Backfilled with bentonite chips	979	994
Pressure grouted with neat cement	976	979
Upflow from Grande Rhonde Aquifer eliminated		
Well was video logged to verify sealing of Aquifers		

Work Started 12/1/93, 19. Completed 1/13, 1994

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME IRRIGATORS, INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P O BOX 449 Moses Lk WA 98837

(Signed) Delos K Boyce (WELL DRILLER) License No. 1064

Contractor's Registration No. IRRIGI*1160J Date 1/11/97

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93) * * f

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W004661
UNIQUE WELL I.D. # # 4
Water Right Permit No. #5338 - A

(1) **OWNER:** Name City of Othello Address 735 E Main Othello WA 99357

LOCATION OF WELL: County Adams NW 1/4 SE 1/4 Sec 3 T. 15N N., R 29E W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address)

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☒ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (If more than one) 4
Abandoned ☐ New well ☐ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☒ Rotary ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of well _____ inches. Drilled _____ feet. Depth of completed well _____ ft.

(6) **CONSTRUCTION DETAILS:**
Casing Installed: _____" Diam. from _____ ft. to _____ ft.
Welded ☐ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐
Threaded ☐ _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☒ No ☐
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from 428 ft. to 436 ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☐
Manufacturer's Name _____
Type _____ Model No. _____
Diam. ____ Slot size _____ from _____ ft. to _____ ft.
Diam. ____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☐ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☐ No ☐ To what depth? _____ ft.
Material used in seal _____
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name _____
Type: _____ H.P. _____

(8) **WATER LEVELS:** Land-surface elevation above mean sea level _____ ft.
Static level _____ ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Gravel Filled and Bentonite Seal		
Lower 480' of Well		
Concrete Seal Bottom of		
Existing 12" Casing		
Final Well Depth		976'

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DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

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DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

Work Started 12-1-93, 19. Completed 1-13, 1994

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

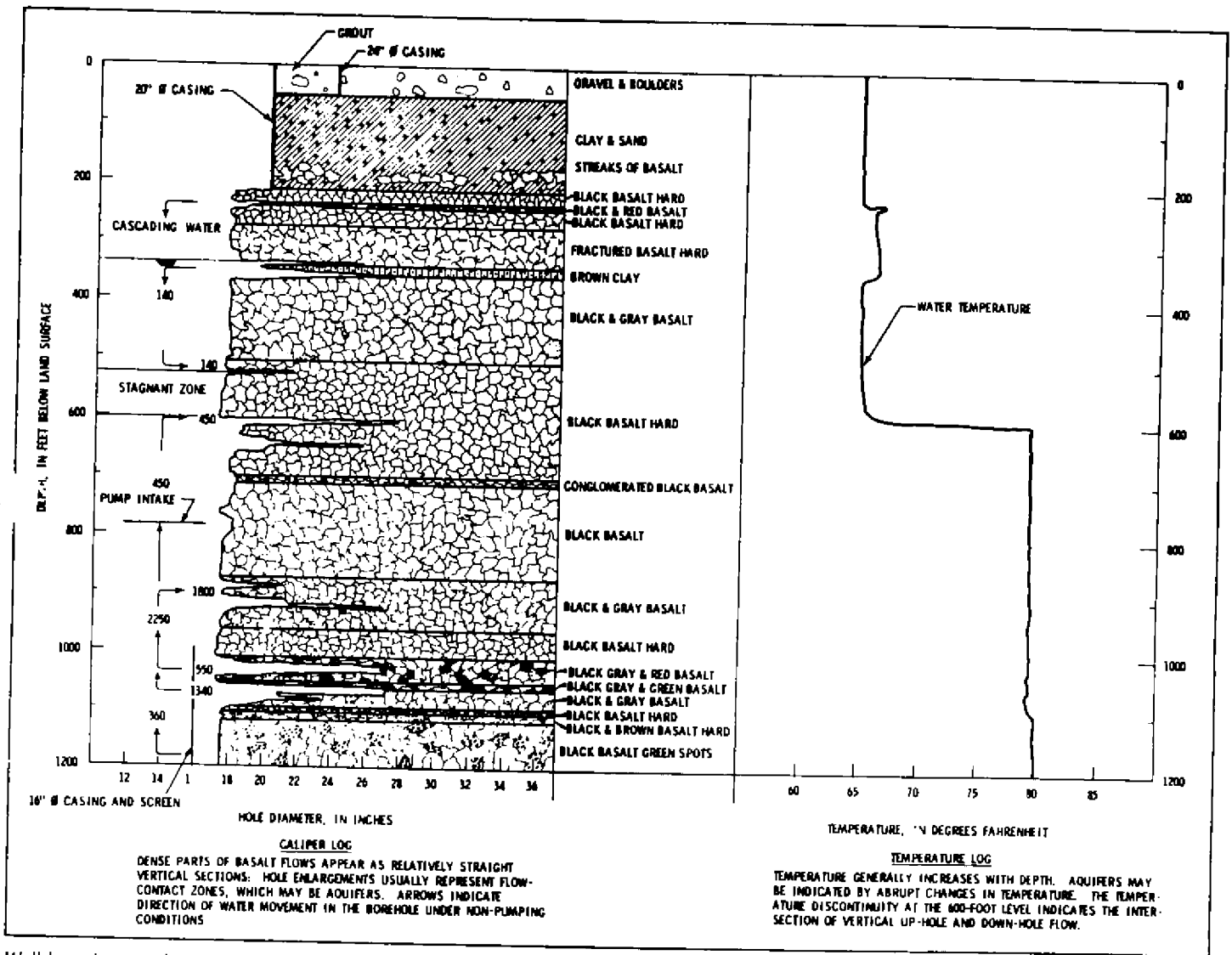
NAME Irrigators, Inc. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address PO Box 449
(Signed) Tom Pryor (WELL DRILLER) License No. 2112
Contractor's Registration No. IRRIGI*1160J Date Oct. 31, 19 95

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93) * * f

15/29 - 4



Well logs showing the geologic and temperature characteristics of Well No. 6

air or mud rotary drill rig with the following characteristics:

- 100-foot derrick capable of handling a 270,000-pound working load
- 27-½-inch diameter rotary table
- total power requirements, including support equipment, 2,500 horsepower
- 40,000-pound drill collar weight
- 2,400 cubic feet per minute air delivery capability at 800 pounds per square inch
- maxiumum drilling depth ranges from 1,000 to 5,000 feet for 24-inch and 9-⅞-inch diameter holes respectively.

The well was completed on December 15, 1978.

Borehole Construction

When completed, Well No. 6 extended to a depth of 1,200 feet. The borehole is uncased where it penetrates solid, unfractured rock. The well required casing only in the upper 220 feet and in a lower 205-foot section near the bottom. The 20-inch diameter surface casing was placed in unconsolidated material overlying the consolidated basalt formations. The lower 16-inch diameter casing and screen were installed to prevent caving of a large fracture zone, which is believed to be the most productive aquifer, at the 1,000-foot depth. Total construction cost for the borehole was approximately $206,000.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. 320368
Permit No. 320368

(1) **OWNER:** Name CITY OF OTHELLO Address OTHELLO WASH.

(2) **LOCATION OF WELL:** County ADAMS SE¼SE¼SW¼ Sec. 3 T. 15 N., R. 30E W.M.

Bearing and distance from section or subdivision corner

(3) **PROPOSED USE:** Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 5
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 30"&20"&16"&12 inches.
Drilled 1007 ft. Depth of completed well 1007 ft.

(6) **CONSTRUCTION DETAILS:**
Casing installed: 24" Diam. from +1 ft. to 81 ft.
Threaded ☐ 16" Diam. from +1 ft. to 342 ft.
Welded ☒ 12" Diam. from ft. to 666 ft.

Perforations: Yes ☐ No ☒ 12
Type of perforator used STAR
SIZE of perforations ¼ x 4 in. by in.
4 rows perforations from 550 ft. to 666 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 342 ft.
Material used in seal CEMENT - CASING
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level ... 1050 ft.
Static level 965 ft. below top of well Date 12-19-73
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? JONES PUMP
Yield: 1575 gal./min. with 148 ft. drawdown after 12 hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 MIN	307				
5 "	228				
COMPLETE	4 HRS				

Date of test 12-19-73
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 64 Was a chemical analysis made? Yes ☒ No ☐

(10) **WELL LOG:**
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
SOIL	0	3
BROWN CLAY	3	65
GREY CLAY	65	160
BLUE CLAY	160	192
BLACK BASALT	192	205
GREY BASALT	205	235
BLACK BASALT	235	294
GREY BASALT	294	335
BROWN BASALT	335	365
BLACK BASALT	365	385
BROWN BASALT	385	397
BLACK BASALT	397	458
GREY BASALT	458	519
BLACK BASALT	519	895
GREY BASALT	895	917
BLACK BASALT	917	960
GREY BASALT	960	975
BLACK BASALT	975	1007

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APR 12 1974
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

Work started 9-1, 1973 Completed 4-9, 1974

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME CHAS. JUNGMANN DRILLING CO.
(Person, firm, or corporation) (Type or print)

Address 115 BEES AVE W.W. WASH.

[Signed] (Well Driller)

License No. 0229 Date 4-9, 1974

S. F. No. 7356—OS—(Rev. 4-71). (USE ADDITIONAL SHEETS IF NECESSARY)

4/15/74

3

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with Department of Ecology
2nd Copy — Owner's Copy
3rd Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. G3-25032P

(1) **OWNER:** Name City of Othello Address City Hall, Othello, Washington

(2) **LOCATION OF WELL:** County Adams County NE ¼ NE ¼ Sec. 4 T. 15 N., R. 29 W.M.

Bearing and distance from section or subdivision corner

(3) **PROPOSED USE:** Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 6
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Drilled 1210 ft. Diameter of well 20" & 17-1/2" inches. Depth of completed well 1210 ft.

(6) **CONSTRUCTION DETAILS:**

Casing installed: 24" Diam. from 0 ft. to 52 ft.
Threaded ☐ 20" Diam. from 0 ft. to 212 ft.
Welded ☒ 16" Diam. from 997 ft. to 1208 ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Layne
Type St.Steel shaped wire Model No. .....
Diam. 16 Slot size .250 from 1015 ft. to 1035 ft.
Diam. 16 Slot size .250 from 1055 ft. to 1075 ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 52 ft.
Material used in seal cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) **PUMP:** Manufacturer's Name Layne
Type: Diesel H.P. 700

(8) **WATER LEVELS:** Land-surface elevation above mean sea level 1053 ft.
Static level 197 ft. below top of well Date 1/25/78
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Layne
Yield: 2500 gal./min. with 14:18 ft. drawdown after 10min.
" 2500 " 25.4 " 100min "
" 2500 " 40.45 " 1000min "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
min	232.84	100min	221.12	300min	216.66
10 min	231.05	150min	218.73	600min	212.75
60 min	224.08	200min	218.00	720min	212.04

Date of test 1/26/78
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) **WELL LOG:**

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Gravel and boulders	0	30
Gravel and boulders	30	52
Clay and sand	52	158
Clay and sand(streaks of basalt	158	214
Black Basalt Hard	214	211
Black Basalt Hard	211	230
Black Basalt Hard	230	235
Black & Red basalt	235	246
Black Basalt Hard	246	274
Fractured Basalt Black	274	343
Brown Clay	343	360
Black & Gray Basalt	360	440
Black & Gray Basalt	440	508
Black Basalt Hard	508	563
Black Basalt Hard	563	624
Black Basalt Hard	624	703
Conglomerated Black Basalt	703	717
Black Basalt	717	878
Black & Gray Basalt	878	965
Black Basalt Hard	956	1011
Black Gray & Red Basalt	1011	1055
Black Gray & Green Basalt	1055	1068
Black & Gray Basalt	1068	1098
Black Basalt Hard	1098	1106
Black & Brown Basalt Hard	1106	1120
Black Basalt Green spots	1120	1210

2250 Min
2500
300 min

Work started October 1, 1977 Completed February 10, 1978

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME E. E. Luhdorff Co. - A Division of Layne-Western Co., Inc.
(Person, firm, or corporation) (Type or print)

Address P.O. Box 336, Moses Lake, WA 98837

[Signed] William C. Gustafson
(Well Driller)

License No. 0733 Date Feb. 14, 1978

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DOH-197

UNIQUE WELL I D NUMBER A B R 2 3 5
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit July 27, 1994 By R Handley

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number 64850R Source Number SO 06

USGS Site Identification _____

RECORD VERIFICATION

☒ Well Report available *(please attach)*
☐ Well Report not available
☐ Verification inconclusive

WELL OWNERSHIP IF DIFFERENT FROM WELL REPORT

Name CITY OF OTHELLO

Street address 512 E Main

City City of Othello State Wa.

LOCATION OF WELL IF DIFFERENT FROM WELL REPORT

Well Address _____

City _____ County Adams

T 15 N R 29 E W M Sec 4 NE ¼ of the NE ¼

Latitude 46 49 25

Longitude 119 10 30

☐ GPS (raw data)
☐ GPS (corrected)
☒ Topographic Map
☐ Survey
☐ Computer generated
☐ Other _____

Elevation at land surface 1053 (feet) meters *(circle one)*

☐ Digital Altimeter
☒ Topographic Map

Additional information if available

☐ Location marked on topographic map *(please attach)*

☐ Location marked on air photo *(please attach)*

Water Right # G3 25032P Priority Date _____

Circle one Application (Permit) Certificate Claim Exempt

WELL CHARACTERISTICS

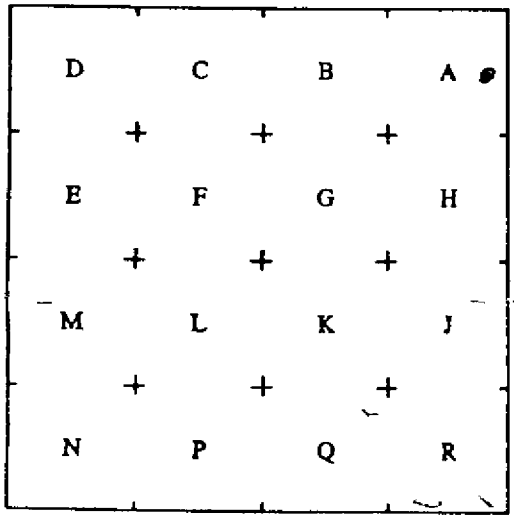
Physical Description of Well (size of casing type of well housing etc) 24 Casing 0 52 (Surface Seal)
20 Casing 0 212 16 casing 997 to 1208 Block Bld 900 HP Motor.

Location of Well Identification Tag Pump Base Plate S.W Corner.

Was Supplemental Tag needed for ease of identifying well?
☑ NO ☐ YES

If yes where was tag placed? _____

Scale 1 24 000 (1 =2 000)



Indicate the location of the well within the Section by drawing a dot at that point

SECTION 4

COMMENTS _____

Please attach this form to the Well Report and submit it to the Department of Ecology. Water Right Program Headquarters
Well Construction Report Form

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. W 34672
UNIQUE WELL I.D. # AAP 562
Water Right Permit No. _____

MAR 13 2000

(1) OWNER: Name City of Othello Address 512 E. Main Othello, WA 99344

LOCATION OF WELL: County Adams County - SE 1/4 SE 1/4 Sec 9 T. 15N N, R 29E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 1400 LF N. of City Limits

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☒ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) #7
Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 16" inches.
Drilled 820 feet. Depth of completed well 820 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 20" Diam. from 0 ft. to 386 ft.
Welded ☒ 16" Diam. from 380 ft. to 670 ft.
Liner installed ☐
Threaded ☐ _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name NAGAOKA
Type V Wire Model No. _____
Diam. 16 Slot size .050 from 670 ft. to 740 ft.
Diam. ____ Slot size _____ from 795 ft. to 815 ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 200 ft.
Material used in seal Neat Cement 13 Yds
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 125 ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Schnieder Equip.
Yield: 950 gal./min. with 245 ft. drawdown after 4 hrs.
" 1200 " 290 " 4 "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest 1000 gal./min. with stem set at 800 ft. for 4 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Soil & Fill Material	0	4
Sediments, Brown - Gray	4	280
Clay, Some Black Basalt	280	300*
Basalt Black Hard	300	420
Basalt Fract Hard Black	420	450
Basalt Hard Black	450	490
Basalt Fract Black	490	520
Basalt Hard Black	520	600
Basalt Fract Black	600	610
Basalt Hard Black	610	680
Basalt Red - Black Vesic	680	730
Basalt Hard Black	730	800
Basalt Med Soft Black - Red	800	810
Basalt Hard Black	810	820

RECEIVED
MAR 09 2000
DEPARTMENT OF ECOLOGY

Work Started 12-7-97 19. Completed 5-30-98 19

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME STACO Well Services, Inc. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 220 Academy Street Mt. Angle OR 97362
(Signed) _____ (WELL DRILLER) License No. 0859
Contractor's Registration No. STACO WS 1310H Date 5-30 19 98

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy 124458

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent WO7498

UNIQUE WELL I.D. # AAS228

Water Right Permit No. Declaration of GW Claim #150

(1) **OWNER:** Name City of Othello Address 500 East Main, Othello, WA 99344

(2) **LOCATION OF WELL:** County Adams SW 1/4 SW 1/4 Sec 26 T 16 N.R. 29E WM

(2a) **STREET ADDRESS OF WELL:** (or nearest address) None Assigned ENE of intersection of Lee w/ Reynolds

TAX PARCEL NO.:

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☒ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 8
☒ New Well ☐ Deepened ☐ Reconditioned ☐ Decommission
Method: ☐ Dug ☐ Bored ☐ Cable ☐ Driven ☐ Rotary ☐ Jetted

(5) **DIMENSIONS:** Diameter of well 24x20 inches
Drilled 951 feet. Depth of completed well 853 ft.

(6) **CONSTRUCTION DETAILS**
Casing Installed:
☒ Welded 20 " Diam. from +3 ft. to 398 ft.
☐ Liner installed 24 " Diam. from 2 ft. to 203.5 ft.
☐ Threaded " Diam. from ft. to ft.

Perforations: ☐ Yes ☒ No
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location
Manufacturer's Name
Type Model No.
Diam. Slot Size from ft. to ft.
Diam. Slot Size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand
Material placed from ft. to ft.

Surface seal: ☒ Yes ☐ No To what depth? 398 ft.
Material used in seal cement grout
Did any strata contain unusable water? ☒ Yes ☐ No
Type of water? high flouride & odor Depth of strata 913-932±
Method of sealing strata off cement grout (see item #10)

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level ~ 1120 ft.
Static level 380.5 ft. below top of well Date 11/18/02
Artesian pressure lbs. per square inch Date
Artesian water is controlled by
(Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom? SEI
Yield: See attached graph ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Yield: gal./min. with ft. drawdown after hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
See attached graph					

Date of test 11/18-20/02
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 75°F Was a chemical analysis made? ☒ Yes ☐ No

(10) **WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION**
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
see attached log		
Steel plate welded between casings at top of 24" casing. Lower hole abandonment as approved by DOE variance:		
slough & large gravel	853	870
cement grout	870	890
pea gravel w/ sand	890	933
cement grout	933	951

RECEIVED DEC 06 2002 DEPARTMENT OF ECOLOGY EASTERN REGIONAL OFFICE

Work Started 7/17/02 Completed 11/26/02

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Steve Schneider License No. 0643
(Licensed Driller/Engineer) et al

Trainee Name License No.

Drilling Company Schneider Equipment, Inc.

(Signed) Stephen A Schneider License No. 643
(Licensed Driller/Engineer)

Address 21881 River Rd NE, St. Paul, OR 97137

Contractor's Registration No. SCHNEI*226LG Date 12/6/02

(USE ADDITIONAL SHEETS IF NECESSARY)

124458

City of Othello Well No 8

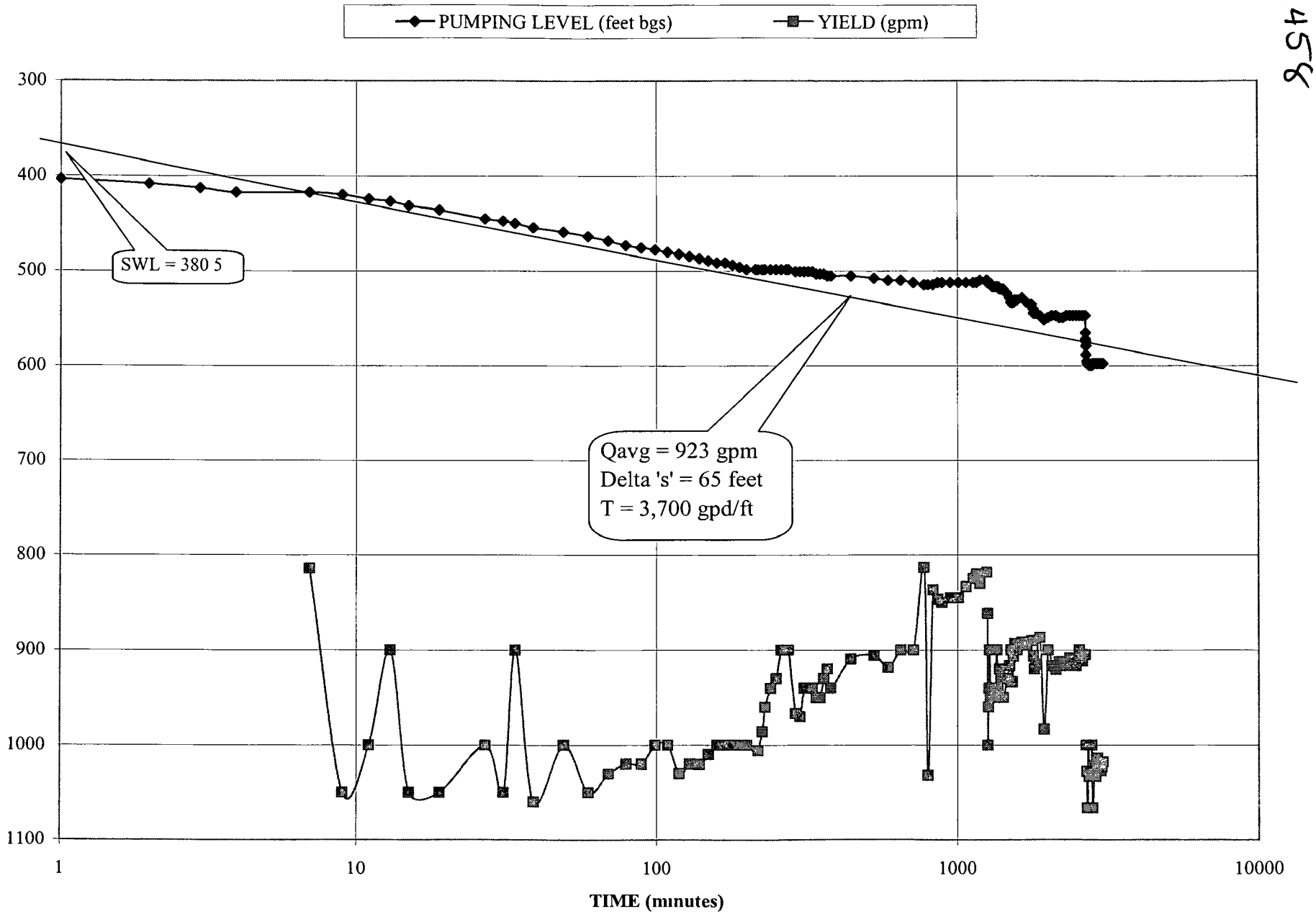
by Schneider Drilling Co

Start Card #W07498 Label #AAS228

FM	TO	DESCRIPTION
0	4	Sandy loam
4	7	Sandy loam & gravel w/ cobbles
7	12	Cobbles, gravel, & claystone, pink (caliche)
12	28	Claystone, pink, soft & gravel, brown w/ cobbles
28	68	Claystone, pink & gravel, cobbles & occasional boulder
68	108	Claystone, grey & pink, soft
108	120	Clay, tan - brown, sticky, medium
120	140	Sandstone, brown, medium, weathered & clay, tan
140	160	Sandstone, brown, medium, weathered
160	165	Sandstone, brown & clay, grey, sticky
165	200	Clay, grey, soft-medium
200	213	Clay, tan - grey, stcky, medium
213	216	Basalt, black, medium, fractured
216	243	Basalt, grey, hard, fractured
243	244	Basalt, brown, medium, fractured
244	248	Basalt, brown, medium, broken
248	252	Basalt, brown, soft, vesicular, broken w/ claystone, yellow
252	258	Basalt, brown & grey, medium, well fractured
258	281	Basalt, brown, soft, vesicular, broken w/ claystone, yellow
281	437	Basalt, grey, hard, some fractures
437	444	Basalt, black, hard, fractured, w/ trace of clay, green
444	517	Basalt, black turning to grey w/ depth, very hard, fractured
517	528	Basalt, black, hard, fractured
528	529	Clay & sandstone, brown & tan & basalt, black, medium-soft
529	569	Basalt, black, soft, broken, vesicular (blue-green in vesicles)
569	592	Basalt, black, hard, some fractures
592	593	Basalt, black, soft, fractured
593	602	Basalt, black, soft, broken, fractured, vesicular
602	612	Basalt, dark grey, medium, fractured

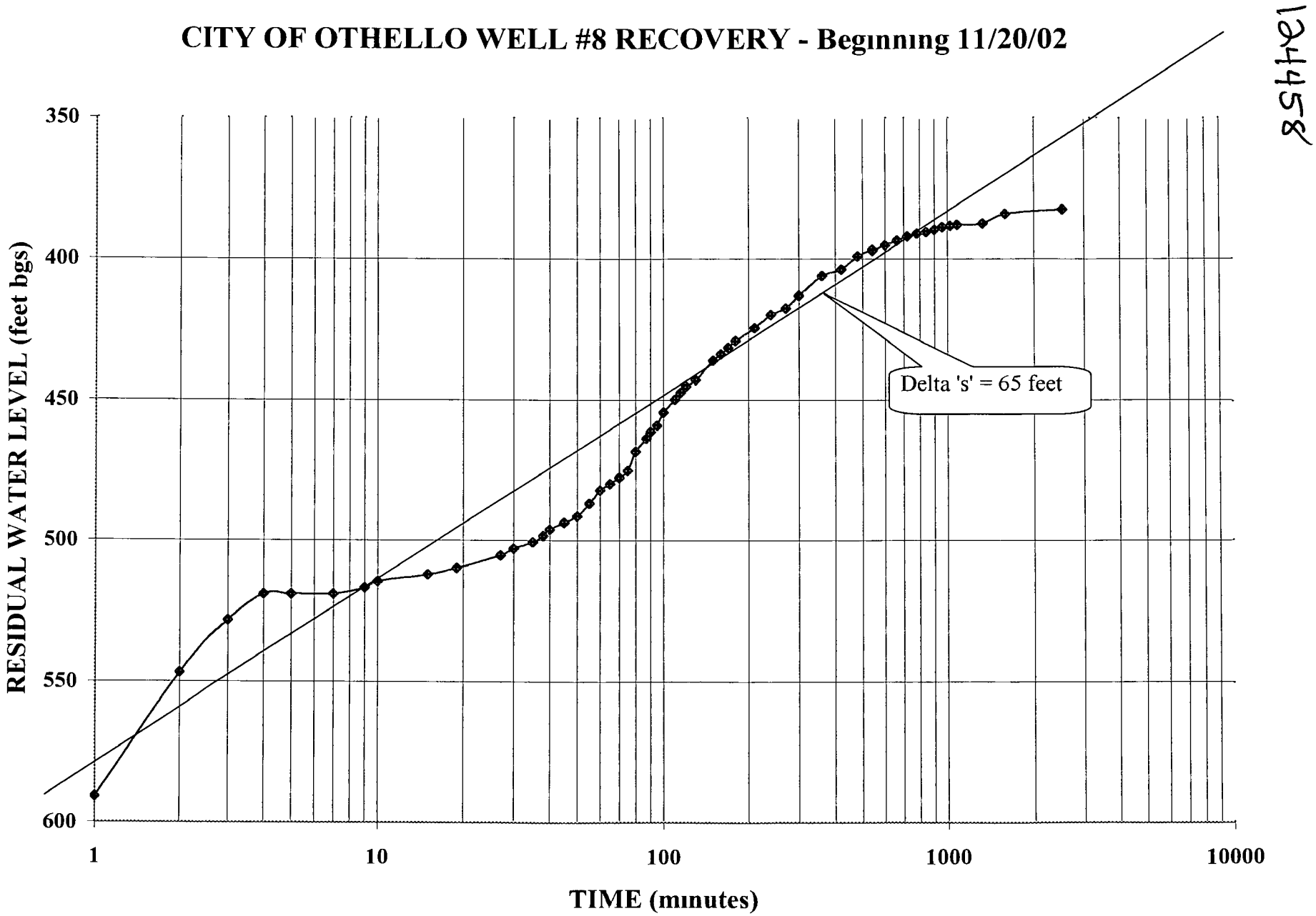
612	619	Basalt, black, medium-soft, fractured, vesicular w/ some claystone, green
619	640	Basalt, grey, medium-hard, fractured
640	670	Basalt, black, medium-soft, broken w/ some claystone, green
670	674	Basalt, dark grey, hard fractured
674	683	Basalt, black w/some brown, medium, fractured, vesicular w/some claystone, green
683	687	Basalt, dark grey w/pink & green tints, soft, cindery, vesicular
687	695	Basalt, dark grey, medium, some fractures
695	697	Basalt, dark grey, medium, fractured
697	700	Basalt, dark grey, medium, fractured, w/ claystone, green
700	708	Basalt, dark grey, medium, fractured, w/ claystone, blue-green
708	723	Basalt, dark grey, medium-hard, fractured
723	739	Basalt, dark grey, medium, fractured w/vesicles
739	743	Basalt, dark grey, hard-medium, fractured
743	761	Basalt, dark grey, medium, fractured, w/ vesicles
761	763	Basalt, dark grey, medium-hard, fractured
763	780	Basalt, dark grey, hard, some fractures
780	798	Basalt, black, medium, fractured, vesicular
798	833	Basalt, dark grey, hard, some fractures
833	838	Basalt, dark grey, medium, some fractures w/occasional vesicles
838	839	Basalt, dark grey, hard, fractured w/occasional vesicles
839	840	Basalt, dark grey, medium, some fractures w/occasional vesicles & claystone, green
840	844	Basalt, dark grey, medium, some fractures w/occasional vesicles
844	858	Basalt, dark grey, medium, some fractures
858	905	Basalt, dark grey, hard, very few fractures
905	910	Basalt, black, medium, fractured
910	914	Basalt, black, soft, fractured, vesicular w/claystone, green & grey
914	915	Clay, green w/some basalt, dark grey
915	932	Basalt, dark grey, soft, fractured w/claystone, green
932	937	Basalt, grey, medium, fractured w/claystone, green
937	948	Basalt, dark grey, medium, fractured w/claystone, green
948	951	Basalt, grey, hard, some fractures

CITY OF OTHELLO WELL #8 TEST - Beginning 11/18/02



CR Test xls CR graph

Schneider Drilling Co



WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

DEPARTMENT OF ECOLOGY State of Washington

Construction/Decommission *("x" in circle)*

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number none

PROPOSED USE: ☐ Domestic ☐ Industrial ☒ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one) 9

☒ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 16 inches, drilled 1115 ft. Depth of completed well 1042 ft.

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 16" Diam. from +3 ft. to 407 ft.

☒ Liner installed 14" Diam. from 398* ft. to 1043* ft.

☐ Threaded _____" Diam. From _____ ft. to _____ ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☒ Yes ☐ No ☐ K-Pac Location _____

Manufacturer's Name Alloy

Type V wire wrap Model No. 304SS

Diam. 14 Slot size .150 from * ft. to * ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☒ Yes ☐ No To what depth? 407 ft.

Material used in seal cement

Did any strata contain unusable water? ☒ Yes ☐ No

Type of water? GR aquifer Depth of strata est 1100-1115

Method of sealing strata off cement & bent.

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 51 ft. below top of well Date 5/27/15

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? Schneider

Yield: 1475 gal./min. with 182 ft. drawdown after 72 hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 9/9-12/14

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water 66F Was a chemical analysis made? ☒ Yes ☐ No

CURRENT

Notice of Intent No. WE18528

Unique Ecology Well ID Tag No. AAR984

Water Right Permit No. G3-25933P (ADAM-13-05)

Property Owner Name City of Othello

Well Street Address Cunningham Rd.

City Othello County Adams

Location NE 1/4-1/4 SW 1/4 Sec 36 Twn 16N R 29 EWM ☒ Or WWM ☐

(s, t, r Still REQUIRED)

Lat/Long Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No. (Required) 2100450780100

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
See attached formation log.		
* Liner installed includes		
pipe size screens located:	418	467
	487	585
	604	684
	724	833
	850	890
	920	940
	950	970
	1010	1040

RECEIVED
JUN 15 2015
Department of Ecology
Eastern Regional Office

Start Date 6/24/14 Completed Date 5/21/15

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Steve Schneider

Driller/Engineer/Trainee Signature Stephen Schneider

Driller or trainee License No. 0643

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Schneider Water Services

Address 21881 River Road NE

City, State, Zip St. Paul , OR, 97137

Contractor's Registration No. SCHNEEI940R8 Date 6/2/15

CITY OF OTHELLO
Well No. 9 - Tag AAR984
Formation Log
by Schneider Water Services

FM	TO	DESCRIPTION
0	3	Top soil, brown
3	8	Sand, silty with some caliche
8	13	Caliche, tan, silty, soft-hard
13	21	Caliche, pink & tan, hard
21	33	Sand, brown, medium, cemented
33	35	Siltstone, tan, medium-hard
35	39	Siltstone, tan & yellow, medium-soft
39	52	Siltstone, tan & yellow, soft & some clay
52	72	Clay, tan, medium-soft & some soft siltstone lenses
72	85	Clay, tan, soft with some siltstone, grey, soft
85	91	Clay, grey, medium-soft
91	98	Clay, tan, soft
98	107	Siltstone, brown, medium-soft
107	117	Clay, tan, medium-soft
117	137	Siltstone, brown, medium-soft
137	146	Clay, tan, soft
146	166	Siltstone, brown & tan, medium-hard
166	174	Basalt, brown, weathered, medium-soft
174	178	Siltstone, dark brown, weathered, medium-hard
178	188	Basalt, brown & grey, medium, fractured
188	208	Basalt, grey with brown, hard-medium, fractured
208	213	Basalt, brown with black, soft-medium, fractured, vesicular & claystone, brown, soft-medium
213	220	Basalt, black, soft, very fractured, vesicular with claystone, brown
220	224	Claystone, tan, medium
224	234	Basalt, brown, soft-medium, fractured
234	244	Basalt, black & brown, very fractured, vesicular, soft & claystone, tan, soft
244	249	Basalt, black & grey, hard, some fractures
249	250	Claystone, tan & yellow, soft
250	268	Basalt, black & grey, hard, some fractures
268	271	Basalt, black & grey, hard, some fractures & claystone
271	415	Basalt, black & grey, hard, some fractures
415	422	Claystone, dark brown, hard
422	425	Basalt, grey, medium, broken, vesicular & some claystone, dark brown, hard
425	434	Basalt, grey, medium, broken, vesicular & some claystone, tan, hard
434	437	Basalt, grey, hard
437	440	Basalt, grey, hard, fractured & some quartz, brown & claystone, tan, hard
440	471	Basalt, black & grey with occasional brown, hard, some fractures
471	487	Basalt, grey, hard
487	490	Basalt, grey & brown, hard, fractured
490	493	Basalt, brown & black, medium, fractured, some vesicles & some claystone, green, medium
493	499	Basalt, dark grey, medium-hard, some fractures
499	502	Basalt, black, soft, vesicular
502	510	Basalt, dark grey, medium-hard, some fractures
510	518	Basalt, black, soft, vesicular w/claystone, black, medium
518	536	Basalt, dark grey, medium, fractured, some vesicles & some claystone, black, medium
536	542	Basalt, grey, hard, some fractures & some claystone, green, medium

CITY OF OTHELLO
Well No. 9 - Tag AAR984
Formation Log
by Schneider Water Services

FM	TO	DESCRIPTION
542	544	Basalt, black, medium, fractured, vesicular
544	550	Basalt, grey, medium-hard, vesicular, some fractures
550	555	Basalt, grey, medium, fractured & claystone, blue & brown, medium
555	565	Basalt, black & some grey, medium, fractured, vesicular
565	575	Basalt, dark grey, medium, some fractures
575	587	Basalt, black, medium, fractured, some vesicules
587	599	Basalt, grey, medium-hard
599	656	Basalt, dark grey, soft-medium, fractured, vesicular
656	660	Basalt, dark grey, medium-hard, fractured
660	668	Basalt, dark grey & black, medium, fractured, vesicular
668	688	Basalt, dark grey, medium-hard, some fractures & vesicles
688	696	Basalt, dark grey, hard, some fractures
696	713	Basalt, dark grey, medium-hard, fracutred w/some blue mineral
713	716	Basalt, brownish grey, medium, fractured w/claystone, grey, hard
716	732	Basalt, dark grey, hard, fractured
732	739	Basalt, dark grey & black, medium-hard, fractured; vesicular
739	741	Basalt, grey, hard, fractured, some vesicles
741	746	Basalt, grey, hard, some fractures & vesicles
746	749	Basalt, grey & brown, medium, vesicular, fractured & some claystone
749	772	Basalt, dark grey, medium-hard, fractured, vesicular & some claystone
772	793	Basalt, grey, very hard, some fractures
793	802	Basalt, dark grey, hard, fractured, vesicular, some claystone, blue
802	827	Basalt, grey, hard, fractured, vesicular
827	859	Basalt, grey, hard, some fractures
859	887	Basalt, black, soft, fractured, vesicular w/some claystone & clay, black
887	895	Basalt, grey, hard, some fractures
895	907	Basalt, grey, hard, some fractures & some clay, green, firm
907	920	Basalt, grey, hard, some fractures
920	940	Basalt, black, soft, fractured, vesicular w/claystone, black & blue, medium
940	951	Basalt, black, medium, fractured, some small vesicules
951	966	Basalt, grey, medium, fractured, vesicular
966	990	Basalt, grey, hard, some fractures
990	998	Basalt, dark grey, medium-hard, fractured
998	1013	Basalt, grey, hard, some fractures
1013	1019	Basalt, dark grey, medium, fractured, vesicular
1019	1037	Basalt, dark grey, medium-hard, fractured, vesicular
1037	1070	Basalt, grey, hard, some fractures
1070	1071	Basalt, grey, medium-hard, fractured w/some clear & blue mineral
1071	1074	Claystone, redish brown, medium, fractured, vesicular w/some clear & blue mineral
1074	1080	Basalt, brown, medium, fractured, veiscular w/some clear & blue mineral
1080	1083	Basalt, grey, medium-hard, fractured, vesicular w/blue mineral
1083	1089	Basalt, grey, medium-hard, fractured
1089	1092	Basalt, grey, hard, some fractures
1092	1094	Basalt, dark grey, medium-hard, fracutred
1094	1098	Basalt, grey, hard, some fractures
1098	1107	Basalt, dark grey, hard, fractured, vesicular
1107	1113	Basalt, dark grey, hard, some fractures
1113	1115	Basalt, dark grey, medium-hard, fractured, vesicular

RECEIVED
JUN - 9 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

AMENDED 5-21-96

APPLICATION FOR CHANGE OF WATER RIGHT

Accepted By GD
Date 7-14-93
Is Field Exam. Required? ☒ YES ☐ NO
Determined By

☒ PURPOSE ☐ DIVERSION OR WITHDRAWAL
☒ PLACE ☒ ADDITIONAL POINT OR POINTS

NAME
City of Othello

Bus. Tel. (509) 488-5686
Home Tel.
Other Tel. (509) 488-2385 FAX

ADDRESS	(CITY)	(STATE)	(ZIP CODE)
512 East Main	Othello	WA	99344

APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
		182-D

DECREED RIGHT (TITLE OF CASE)

APPROPRIATIONS MADE (GIVE DATE IF PRIOR TO JUNE 7, 1917 IF SURFACE WATER, OR JUNE 7, 1945 IF GROUND WATER)
Priority date June 1, 1909

IS THE WATER RIGHT RECORDED IN YOUR NAME? ☐ YES ☐ NO
IF NO, GIVE NAME RECORDED UNDER

1. RIGHT CONSISTS OF

WATERS USED FROM (STREAM, LAKE, WELL, OR TRENCH, ETC.)	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
Pump well	200 gpm; 34 AF/year

WATER CURRENTLY USED FOR	TIME OF USE
Municipal supply	continuous

2. LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL

ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
Ne 1/4 NE 1/4	4	15	29 EWM	Adams

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
15&16	25	Original Town of Othello

3. LEGAL DESCRIPTION OF LANDS WATER IS USED ON

Town of Othello, Adams County, Washington

SEPA— THIS APPLICATION IS NOT EXEMPT:
LEAD AGENCY: ECOLOGY
6/9/93 Completed Checklist Received
/ / Determination of Nonsignificance Issued
/ / Determination of Significance Issued
DRAFT EIS ISSUED / /
FINAL EIS ISSUED / /

RECEIVED ORIGINAL APP. 4-6-93.

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS ☐ YES ☒ NO
IF NO, EXPLAIN YOUR INTEREST
Permits are required in order to operate a municipal water system in accordance with existing ordinances.

REASONS FOR THE PROPOSED CHANGE
To allow wastewater disposal through irrigation on those lands outside the City identified in a State waste discharge permit.

ADDED 9th well (#10) 5-21-96

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

CONTINUE ON REVERSE SIDE

CHANGE

4. **CHANGE REQUESTED**

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
Municipal/ Reuse for wastewater disposal	No change	No change

5. **LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL**

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

INTEGRATE ALL WELLS (SEE ATTACHED)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY

6. **IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION**

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED

☐ YES ☐ NO

LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON

All those areas within the corporate limits of Othello Washington AND those lands identified in State Waste Water Discharge Permit #5322 and #5354.

ADDED Well #10 - SE1/4SE1/4 of Sec. 9 - 15/29
5-21-96 (per applicant's request) cdc

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS	IF NO, EXPLAIN YOUR INTEREST
☐ YES ☒ NO	Purveyor of municipal water used outside City limits for supplemental irrigation supply.

* PLEASE NOTE LEGAL LAND OWNER SIGNATURE AND APPLICANT SIGNATURE ARE BOTH REQUIRED. IF THE LEGAL LAND OWNER AND APPLICANT ARE THE SAME, PLEASE SIGN IN BOTH PLACES. THANK YOU.

Ken R. Bays
LEGAL LANDOWNER (PLEASE PRINT)

X Kenneth R. Bays
APPLICANT'S SIGNATURE

X Kenneth R. Bays
LEGAL LANDOWNER SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 3)

City of Othello
LEGAL LANDOWNER'S ADDRESS

S. F. No. 7362—6-45—1M. 9327.

CERTIFICATE RECORD NO. 1 PAGE NO. 182-D UNDER DECLARATION OF CLAIM NO. 150

STATE OF WASHINGTON, COUNTY OF Adams

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY *That* TOWN OF OTHELLO

of Othello, Washington *has filed*

in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 150

to withdraw ground waters of the State from a Pump Well,

located within the NE¼ of NE¼ of Sec. 4, Twp. 15 N., Rge. 29 E.W.M.

(Lots 15 and 16, Block 25 of Original Town of Othello)

for the purpose of Municipal Supply

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 *of Ground Water Certificates at page* 182-D*; the right approved has a priority of* June 1, 1909*; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed* 200 *gallons per minute;* 34 *acre-feet per year; and is appurtenant to the following described lands or place of use:*

Town of Othello, Adams County, Washington.

The right to the use of the ground 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 16th *day of* September, 19 46

RODNEY RYKER
State Supervisor of Hydraulics.

By: Chas J Barthollet
CHAS. J. BARTHOLET, Deputy

Declaration of Claim No. 150

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. 1 *of Ground Water Right Certificates, on page* 182-D *on the* 16th *day of* September, *19* 46

STATE OF WASHINGTON,
County of Adams } *ss.*

I certify that the within was received and duly recorded by me in Volume ..... *of Book of Water Right Certificates, page* ..... *on the* ..... *day of* ....., *19* .....

.....

STATE PRINTING PLANT, OLYMPIA, WASHINGTON

$2.00 recording fee should accompany each declaration.

S. F. No. 7349—6-45—1M. 9180.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Hydraulics

RECEIVED MAR 28 1946 DIVISION OF HYDRAULICS

150

Declaration of Ground Water Claim

(Separate claims should be filed for each well, tunnel or infiltration trench)

No. 1

I, Town of Othello, a municipal corporation
(Name of claimant)

of Othello, Washington
(Complete postoffice address)

do hereby make declaration of claim of vested right to ground water by use prior to June 7, 1945, and file the same with the State Supervisor of Hydraulics, in accordance with Section 9, Chapter 263, Laws of 1945 of the State of Washington, and request a Certificate of Ground Water Right thereunder.

1. SOURCE *from which water is withdrawn is* pump well
(Flowing well, pump well, infiltration trench, or tunnel)

2. LOCATION *is:* Othello, Washington;
(Approximate distance and direction from nearest city or town)

and is more particularly described as follows:

(a) .....
(Give distance and bearing to corner of section or other legal subdivision)

being within NE¼ OF NE¼ *of Sec.* 4, *Twp.* 15 *N., Rge.* 29 E
(Smallest legal subdivision) (E. or W.)

or (b) Within limits of incorporated city or town of Othello,

in Lot S 15,16, *Block* 25 *of* Original Town of Othello
(Name of addition or plat)

County of Adams *within* ..... *area*
(Leave blank)

..... *sub-area* ..... *zone*
(Leave blank) (Leave blank)

(c) The location of the well or other works is shown on the accompanying plat, or other adequate maps or drawings.

(d) The owner of property on which the works are constructed is:

....
(Name) (Post office address)

3. CONSTRUCTION WORK *was begun on* Jan. 1, 1909; *was completed on* June 1, 1909
(Date) (Date)

and the ground water claimed was first used for the purposes set out below on June 1, 1909,
(Date)

since which time the water has been used continuously
(Continuously or intermittently)

from June 1, 1909 *to* date
(Date) (Date)

34 gpm
345

4. QUANTITY *of water claimed and used is* 200 *gallons per minute;* ..... *acre feet per year.*

5. PURPOSE OR PURPOSES *for which water is used* domestic water supply for the Town of Othello.
(Domestic, irrigation, municipal, manufacturing, industrial, etc.)

5. *(Continued)*

(a) FOR MUNICIPAL SUPPLY: *To supply the city, town or community of* Othello *in the county of* Adams, *having a present population of* 400 *and an estimated population of* 600 *in 1948*

(b) FOR IRRIGATION: *The land irrigated has a total area of* ---- *acres, and water is used each year for this purpose from* ..... (Date) *to* ..... (Date)

(c) Legal description of property on which water is used for all purposes other than municipal supply:

6. DESCRIPTION OF WORKS:

(a) WELL: *Depth* 561 *feet. Diameter* 8 *inches or feet. Dug or drilled* drilled *Flowing or pump well* pump well

IF PUMP WELL: *Type and size of pump is* deep well turbine pump

Type and size of motor or engine is electric motor

Depth from ground surface to water level before pumping ..... *feet.*

After continuous operation for at least four hours, the measured discharge of pump is ..... *g.p.m., and the drawdown of water level is* ..... *feet.*

Date of test June 1, 1909

IF FLOWING WELL: *Measured discharge* ---- *g.p.m. on* ..... (Date)

Shut-in pressure at ground surface ..... *lbs. per sq. in. on* ..... (Date)

Water is controlled by ..... (Cap, valve, etc.)

CASING: *(Give diameter, commercial specifications and depth below ground surface of each casing size.)*

8 *inch diameter* steel casing *from* surface *to* 120 *feet*

..... *inch diameter* ..... *from* ..... *to* ..... *feet*

..... *inch diameter* ..... *from* ..... *to* ..... *feet*

..... *inch diameter* ..... *from* ..... *to* ..... *feet*

Describe and show depth of shoe, plug, adapter, liner or other details:

PERFORATED CASINGS OR SCREENS:

---from.....to.....
(Number per foot and size of perforations, or describe screen)

.....from.....to.....

.....from.....to.....

.....from.....to.....

LOG OF WELL: *(Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)*

MATERIAL	Thickness (Feet)	Depth to Bottom (Feet)
140 feet glacial deposits, 421 feet basaltic formation		

(b) INFILTRATION TRENCH: *Covered or open*---

Dimensions: Length.....*ft. Minimum depth*.....*ft. Maximum depth*.....*ft.*

Bottom width.....*ft. Discharge*.....*g.p.m. Date of test*.....

(c) TUNNEL: *Type of lining*---

Dimensions: .....
(Length, course, and cross-sectional size)

Position of water bearing stratum with reference to portal of tunnel.....

.....

Log of tunnel: (Preceding table for log of well may be used, if desired. Give footage from portal and character of materials, as pertinent.) ---

7. *Ownership of each existing well or other works for withdrawal of ground water within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:*

(Name of owner)	(Direction)	(Distance)
Chicago, Milwaukee, St. Paul Railroad Co.	Southwest	1/4 mile

(On accompanying plat or map show location of these existing wells or works.)

8. *Remarks:*

This application is made in accordance with Section 9 of Chapter 263 of Laws of 1945 to acquire water rights for an existing well.

TOWN OF OTHELLO

BY J H Barrett
(Signature of claimant) MAYOR

STATE OF WASHINGTON,
COUNTY OF ADAMS } *ss.*

J. H. Barrett, Mayor of

I, the claimant named in the foregoing claim, being first duly sworn, depose and say that I have read the above and foregoing claim to ground water right; that I know the contents thereof; and that to the best of my knowledge, information and belief, the facts therein stated are true and correct.

J H Barrett

Subscribed and sworn to before me this 11th *day of* February, 19 46

Geo. H. Freese
Notary Public in and for the State of Washington,

Residing at Ritzville

RECEIVED
JUN - 9 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

AMENDED 5-21-96

APPLICATION FOR CHANGE OF WATER RIGHT

Accepted By G.D.
Date 7-14-93
Is Field Exam. Required? ☒ YES ☐ NO
Determined By

☒ PURPOSE ☐ DIVERSION OR WITHDRAWAL
☒ PLACE ☒ ADDITIONAL POINT OR POINTS

NAME
City of Othello

Bus. Tel. (509) 488-5686
Home Tel.
Other Tel. (509) 488-2385 FAX

ADDRESS: 512 East Main | (CITY): Othello | (STATE): WA | (ZIP CODE): 99344

APPLICATION NUMBER | PERMIT NUMBER | CERTIFICATE NUMBER: 183-D

DECREED RIGHT (TITLE OF CASE)

APPROPRIATIONS MADE (GIVE DATE IF PRIOR TO JUNE 7, 1917 IF SURFACE WATER, OR JUNE 7, 1945 IF GROUND WATER)
Priority date April 1, 1940

IS THE WATER RIGHT RECORDED IN YOUR NAME? ☒ YES ☐ NO | IF NO, GIVE NAME RECORDED UNDER

1. RIGHT CONSISTS OF

WATERS USED FROM (STREAM, LAKE, WELL, OR TRENCH, ETC.): Pump well
GALLONS PER MINUTE OR CUBIC FEET PER SECOND: 200 gpm; 148 AF/year

WATER CURRENTLY USED FOR: Municipal supply
TIME OF USE: Continuous

2. LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL

ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
NW 1/4 NW 1/4	3	15	29	Adams

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
1 & 2	20	Original Town of Othello

3. LEGAL DESCRIPTION OF LANDS WATER IS USED ON

Town of Othello, Adams County, Washington

SEPA— THIS APPLICATION IS NOT EXEMPT:
LEAD AGENCY: ECOLOGY
6/9/93 Completed Checklist Received
/ / Determination of Nonsignificance Issued
/ / Determination of Significance Issued
DRAFT EIS ISSUED / /
FINAL EIS ISSUED / /

RECEIVED ORIGINAL APP. 4-6-93.

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS ☐ YES ☒ NO
IF NO, EXPLAIN YOUR INTEREST: Permits are required in order to operate a municipal water system in accordance with existing ordinances.

REASONS FOR THE PROPOSED CHANGE
To allow wastewater disposal through irrigation on those lands outside the City of Othello identified in a State waste discharge permit.

Amended- add 9th well - Well #10- 5-21-96

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

CAC

CONTINUE ON REVERSE SIDE

CHANGE

4. **CHANGE REQUESTED**

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
Municipal Reuse of wastewater disposal	No change	No change

5. **LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL**

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

INTEGRATE ALL WELLS (SEE ATTACHED)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY

6. **IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION**

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED

☐ YES ☐ NO

LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON

All those areas within the corporate limits of Othello Washington AND those lands identified in State Waste Water Discharge Permit #5322 and #5354.

Add Well #10 - SE1/4SE1/4 - Sec. 9, T. 15N., R. 29 E.W.M. - per applicants request 5-21-96 - cac

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS

☐ YES ☒ NO

IF NO, EXPLAIN YOUR INTEREST

Purveyor of municipal water used outside City limits for a supplemental irrigation supply.

* PLEASE NOTE LEGAL LAND OWNER SIGNATURE AND APPLICANT SIGNATURE ARE BOTH REQUIRED. IF THE LEGAL LAND OWNER AND APPLICANT ARE THE SAME, PLEASE SIGN IN BOTH PLACES. THANK YOU.

Ken R. Bays
LEGAL LANDOWNER (PLEASE PRINT)

Kenneth R. Bays
LEGAL LANDOWNER SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 3)

City of Othello
LEGAL LANDOWNER'S ADDRESS

Kenneth R. Bays
APPLICANT'S SIGNATURE

S. F. No. 7362—6-45—1M. 9327.

CERTIFICATE RECORD NO. 1 PAGE NO. 183-D UNDER DECLARATION OF CLAIM NO. 151

STATE OF WASHINGTON, COUNTY OF Adams

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY *That* TOWN OF OTHELLO

of Othello, Washington *has filed*

in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 151

to withdraw ground waters of the State from a Pump Well,

located within the NW¼ of NW¼ of Sec. 3, Twp. 15 N., Rge. 29 E.W.M.

(Lots 1 and 2, Block 20 of Original Town of Othello)

for the purpose of Municipal Supply

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 *of Ground Water Certificates at page* 183-D*; the right approved has a priority of* April 1, 1940*; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed* 200 *gallons per minute;* 148 *acre-feet per year; and is appurtenant to the following described lands or place of use:*

Town of Othello, Adams County, Washington.

The right to the use of the ground 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 16th *day of* September, 19 46

RODNEY RYKER
State Supervisor of Hydraulics.

By: Chas. J. Bartholet

CHAS. J. BARTHOLET, Deputy

Declaration of Claim No. 151

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. 1 *of Ground Water Right Certificates, on page* 183-D *on the* 16th *day of* September, *19* 46

STATE OF WASHINGTON,
County of Adams } *ss.*

I certify that the within was received and duly recorded by me in Volume ..... *of Book of Water Right Certificates, page* ..... *on the* ..... *day of* ....., *19* .....

.....

STATE PRINTING PLANT, OLYMPIA, WASHINGTON

$2.00 recording fee should accompany each declaration

S. F. No. 7349—6-45—1M. 9180.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Hydraulics

RECEIVED MAR 28 1946 DIVISION OF HYDRAULICS

Declaration of Ground Water Claim

(Separate claims should be filed for each well, tunnel or infiltration trench)

No. 2 151

I, Town of Othello, a municipal corporation
(Name of claimant)

of Othello, Washington
(Complete postoffice address)

do hereby make declaration of claim of vested right to ground water by use prior to June 7, 1945, and file the same with the State Supervisor of Hydraulics, in accordance with Section 9, Chapter 263, Laws of 1945 of the State of Washington, and request a Certificate of Ground Water Right thereunder.

1. SOURCE *from which water is withdrawn is* pump well
(Flowing well, pump well, infiltration trench, or tunnel)

2. LOCATION *is:* Othello, Washington;
(Approximate distance and direction from nearest city or town)

and is more particularly described as follows:

(a) .....
(Give distance and bearing to corner of section or other legal subdivision)

being within NW¼ of NW¼ *of Sec.* 3, *Twp.* 15 *N., Rge.* 29 E
(Smallest legal subdivision) (E. or W.)

or (b) Within limits of incorporated city or town of Othello,

in Lot s 1&2, *Block* 20 *of* Original Town of Othello
(Name of addition or plat)

County of Adams *within* .....*area*
(Leave blank)

.....*sub-area* .....*zone*
(Leave blank) (Leave blank)

(c) The location of the well or other works is shown on the accompanying plat, or other adequate maps or drawings.

(d) The owner of property on which the works are constructed is:

....
(Name) (Post office address)

3. CONSTRUCTION WORK *was begun on* .....; *was completed on* April 1, 1940
(Date) (Date)

and the ground water claimed was first used for the purposes set out below on April 1, 1940,
(Date)

since which time the water has been used continuously
(Continuously or intermittently)

from April 1, 1940 *to* date
(Date) (Date)

1486 B

4. QUANTITY *of water claimed and used is* 200 *gallons per minute;* 325 *acre feet per year.*

5. PURPOSE OR PURPOSES *for which water is used* domestic water supply for the Town of Othello.
(Domestic, irrigation, municipal, manufacturing, industrial, etc.)

5. *(Continued)*

(a) FOR MUNICIPAL SUPPLY: *To supply the city, town or community of* Othello *in the county of* Adams, *having a present population of* 400, *and an estimated population of* 600 *in 19*48.

(b) FOR IRRIGATION: *The land irrigated has a total area of* -- *acres, and water is used each year for this purpose from* (Date) *to* (Date)

(c) Legal description of property on which water is used for all purposes other than municipal supply:

--

6. DESCRIPTION OF WORKS:

(a) WELL: *Depth* 697 *feet. Diameter* 8 *inches or feet. Dug or drilled* drilled *Flowing or pump well* pump well

IF PUMP WELL: *Type and size of pump is* depp well turbine pump

Type and size of motor or engine is electric motor

Depth from ground surface to water level before pumping ..... *feet.*

After continuous operation for at least four hours, the measured discharge of pump is ..... *g.p.m., and the drawdown of water level is* ..... *feet.*

Date of test April 1, 1940

IF FLOWING WELL: *Measured discharge* -- *g.p.m. on* (Date)

Shut-in pressure at ground surface ..... *lbs. per sq. in. on* (Date)

Water is controlled by (Cap, valve, etc.)

CASING: *(Give diameter, commercial specifications and depth below ground surface of each casing size.)*

--

8 *inch diameter* steel casing *from* surface *to* 120 *feet*

..... *inch diameter* ..... *from* ..... *to* ..... *feet*

..... *inch diameter* ..... *from* ..... *to* ..... *feet*

..... *inch diameter* ..... *from* ..... *to* ..... *feet*

Describe and show depth of shoe, plug, adapter, liner or other details:

PERFORATED CASINGS OR SCREENS:

-- from ..... to .....
(Number per foot and size of perforations, or describe screen)

..... from ..... to .....

..... from ..... to .....

..... from ..... to .....

LOG OF WELL: *(Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)*

MATERIAL	Thickness (Feet)	Depth to Bottom (Feet)
140 feet glacial deposits, 557 feet basaltic formation		

(b) INFILTRATION TRENCH: *Covered or open* ---

Dimensions: Length ..... *ft. Minimum depth* ..... *ft. Maximum depth* ..... *ft.*

Bottom width ..... *ft. Discharge* ..... *g.p.m. Date of test* .....

(c) TUNNEL: *Type of lining* .....

Dimensions: .....
(Length, course, and cross-sectional size)

Position of water bearing stratum with reference to portal of tunnel .....

.....

Log of tunnel: (Preceding table for log of well may be used, if desired. Give footage from portal and character of materials, as pertinent.)

--

7. *Ownership of each existing well or other works for withdrawal of ground water within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:*

(Name of owner)	(Direction)	(Distance)
Chicago Milwaukee St. Paul Railroad Co.	SW	1/2

(On accompanying plat or map show location of these existing wells or works.)

8. *Remarks:*

This application is made in accordance with Section 9 of Chapter 263 of Laws of 1945 to acquire water rights for an existing well.

TOWN OF OTHELLO

BY J. H. Barrett
(Signature of claimant) MAYOR

STATE OF WASHINGTON,
COUNTY OF Adams } *ss.*

J. H. Barrett, Mayor of

I/the claimant named in the foregoing claim, being first duly sworn, depose and say that I have read the above and foregoing claim to ground water right; that I know the contents thereof; and that to the best of my knowledge, information and belief, the facts therein stated are true and correct.

J. H. Barrett

Subscribed and sworn to before me this 11th *day of* February, *19*46

Geneva Freeman

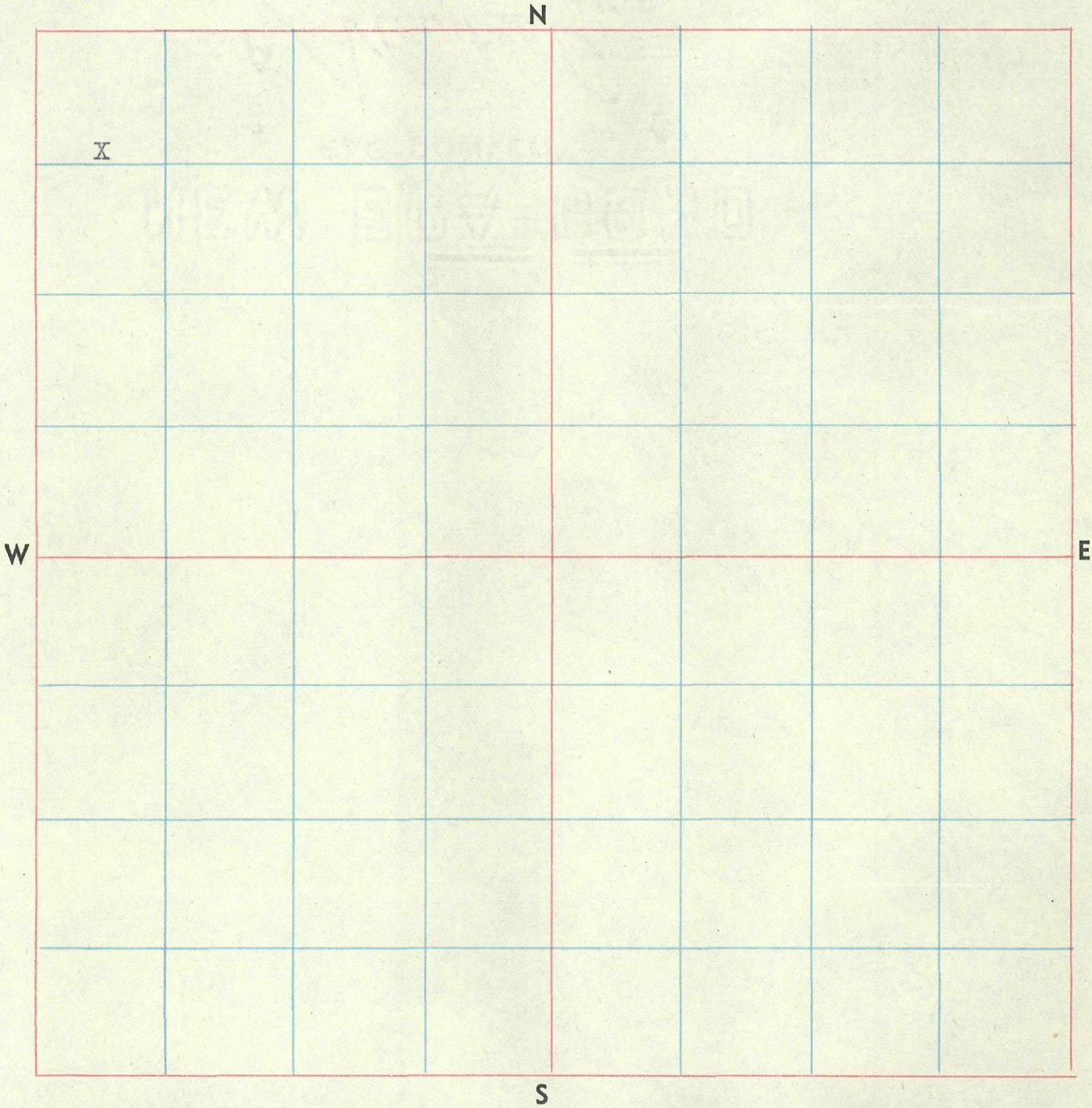
Notary Public in and for the State of Washington,

Residing at Ritzville

S. F. No. 1854-A—6-45—3M. 9183.

SECTION PLAT

Sec. 3 Twp. 15 N. R. 29



Show by a cross (X) the location of the well or other works covered by the application or declaration. Show by circle (O) the locations of other wells or works within a quarter of a mile. Also traveling directions from nearest town on main highway.

Scale: 1 inch = 800 feet.

RECEIVED
JUN - 9 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

AMENDED 5-21-96

APPLICATION FOR CHANGE OF WATER RIGHT

Accepted By G.D
Date 7-14-93
Is Field Exam. Required? ☒ YES ☐ NO
Determined By

☒ PURPOSE ☐ DIVERSION OR WITHDRAWAL
☒ PLACE ☒ ADDITIONAL POINT OR POINTS

NAME: City of Othello
Bus. Tel. (509) 488-5686
Home Tel.
Other Tel. (509) 488-2385

ADDRESS: 512 East Main | (CITY): Othello | (STATE): WA | (ZIP CODE): 99344

APPLICATION NUMBER | PERMIT NUMBER: 4819 | CERTIFICATE NUMBER: 3390-A

DECREED RIGHT (TITLE OF CASE)

APPROPRIATIONS MADE (GIVE DATE IF PRIOR TO JUNE 7, 1917 IF SURFACE WATER, OR JUNE 7, 1945 IF GROUND WATER)

IS THE WATER RIGHT RECORDED IN YOUR NAME? ☒ YES ☐ NO | IF NO, GIVE NAME RECORDED UNDER

1. **RIGHT CONSISTS OF**

WATERS USED FROM (STREAM, LAKE, WELL, OR TRENCH, ETC.): Well
GALLONS PER MINUTE OR CUBIC FEET PER SECOND: 1,130 gpm; 624 AF/year
WATER CURRENTLY USED FOR: Municipal supply
TIME OF USE: continuous

2. **LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL**

ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
NW 1/4 SE 1/4 SE 1/4	34	16	29E	Adams

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

3. **LEGAL DESCRIPTION OF LANDS WATER IS USED ON**

City of Othello, Adams County, Washington

SEPA— THIS APPLICATION IS NOT EXEMPT:
LEAD AGENCY: ECOLOGY
6/9/93 Completed Checklist Received
/ / Determination of Nonsignificance Issued
/ / Determination of Significance Issued
DRAFT EIS ISSUED / /
FINAL EIS ISSUED / /

RECEIVED ORIGINAL APP. 4-6-93.

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS ☐ YES ☒ NO | IF NO, EXPLAIN YOUR INTEREST: Permits are required in order to operate a municipal water system in accordance with existing ordinances.

REASONS FOR THE PROPOSED CHANGE
To allow wastewater disposal through irrigation on these lands outside the City of Othello identified in State waste discharge permit

Amended 5-21-96 to add 9th well - Well #10

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

CONTINUE ON REVERSE SIDE

CHANGE

4. **CHANGE REQUESTED**

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
Municipal / Reuse for wastewater disposal	No change	No change

5. **LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL**

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

INTEGRATE ALL WELLS (SEE ATTACHED)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY

6. **IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION**

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED

☐ YES ☐ NO

LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON

All those areas within the corporate limits of Othello Washington AND those lands identified in State Waste Water Discharge Permit #5322 and #5354.

Amended 5-21-96 add Well #10 - SE1/4SE1/4 of Sec. 9, T. 15 N., R. 29 E.W.M. - cac per applicant's request

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS	IF NO, EXPLAIN YOUR INTEREST
☐ YES ☒ NO	Purveyor of municipal water used outside City limits for a supplemental irrigation source.

* PLEASE NOTE LEGAL LAND OWNER SIGNATURE AND APPLICANT SIGNATURE ARE BOTH REQUIRED. IF THE LEGAL LAND OWNER AND APPLICANT ARE THE SAME, PLEASE SIGN IN BOTH PLACES. THANK YOU.

Ken R. Bays
LEGAL LANDOWNER (PLEASE PRINT)

Kenneth R. Bays
APPLICANT'S SIGNATURE

Kenneth R. Bays
LEGAL LANDOWNER SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 3)

City of Othello
LEGAL LANDOWNER'S ADDRESS

S. P. No. 7231—1-57—311. 61573.

CERTIFICATE RECORD No. 7 PAGE No. 3390-A

STATE OF WASHINGTON, COUNTY OF Adams

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF OTHELLO, WASHINGTON

of , has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a well located within NW¼SE¼SE¼ Sec. 35, Twp. 16 N., R. 29 E.W. M., for the purpose of municipal supply under and subject to provisions contained in Ground Water Permit No. 4819 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 7 at page 3390-A; that the right hereby confirmed dates from September 15, 1958; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 1130 gallons per minute; 624 acre-feet per year for municipal supply.

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

City of Othello, Adams County, Washington.

The right to the use of the ground 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 Water Resources affixed this 29th day of July, 1959.

ENGINEERING DATA

State Supervisor of Water Resources.

S. F. No. 370-B—11-55—75C. 43714.

$10.00 examination fee should accompany each application.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Water Resources

RECEIVED
DEPARTMENT OF CONSERVATION
SEP 15 1958
A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

APPLICATION FOR A PERMIT

To Appropriate Public Ground Waters
OF THE STATE OF WASHINGTON

Application No. G. W. 5002

I, THE CITY OF OTHELLO
(Name of applicant)

of P. O. Box 998, Othello, Adams County, State of Washington
(Complete post office address)

do hereby make application for a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights. This application is made under the provisions of Chap. 263 of the Session Laws of 1945, and amendments thereto of the State of Washington and subject to the rules and regulations of the Department of Conservation and Development, Division of Water Resources.

1. *The proposed appropriation will be from* Well
(Well, tunnel, infiltration trench)

located Southeast Quarter of Section 34, Township 16 North, Range 29 East W.M.,
(Give approximate distance and direction from nearest city or town)
within the city limits of the City of Othello.

Area (Leave blank) *Sub-area* (Leave blank)

Zone (Leave blank)

Applicant's name or number of well or other works, if any

2. *The quantity of water which applicant intends to withdraw for beneficial use is* 1130 ✓ *gallons per minute;* 624 *acre feet per year.*

3. *The use or uses to which water is to be applied* municipal
(Domestic supply, irrigation, municipal, manufacturing, industrial use, etc.)

4. *The time during which water will be required each year* continuous ~~use year around~~

5. *Location of well or other works for withdrawal of water: In county of* Adams

(a) 1550 feet northwest of southeast corner Section 34, Township 16 N, Range 29 EWM
(Give distance and bearing from nearest corner of section or legal subdivision)

being within the NW¼ SE¼ SE¼ *of Sec.* 34, *Twp.* 16 *N., Rge.* 29 EWM
(Give smallest legal subdivision) (E. or W.)

or (b) *If within limits of recorded platted property, town or city: Lot* , *Block* ,

of Unplatted (Give name of plat or addition) within City of Othello (If within town or city, give name)

(c) *Show this location on accompanying section plat, in duplicate. Other adequate maps or drawings will be acceptable.*

OK RAH

6. DESCRIPTION OF WORKS:

(a) Well will be drilled *(Dug or drilled) and have a diameter of* 16 *inches and an estimated depth of* 900 *feet.*

(b) Tunnels or trenches to be described: (Attach additional sheets if needed for full description.)

(c) Distribution system to be described:

(d) If pumps are to be used, give size and type:

(e) Give capacity and type of motor or engine to be used:

(f) If the location of the well, tunnel, or other works is less than one-fourth mile from a natural stream or stream channel, give the distance to the nearest point on each of such channels and the difference in elevation between the stream bed and the ground surface at the source of development:

(g) Ownership of each existing well or other works from which ground water is withdrawn within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:

(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)

SUPPLY THE FOLLOWING INFORMATION ACCORDING TO USE PROPOSED:

7. *For Municipal Supply: To supply the city, town, or community of* Othello *, in the county of* Adams *, having a present population of* 2786 *, and an estimated population of* 4000 *, in 19* 65*.*

8. *For Irrigation: Number of acres to be irrigated ..... acres.*

9. *Legal Description of Property on which water is to be used for all purposes other than municipal supply:*

(Copy legal description from deed)
(If more space is required, attach separate sheet)

(On accompanying plat show location of the existing wells or works)

10. *What interest do you have in the above described property?*.....

.....
(Owner, lessee, contract buyer, etc.)

11. *Do you have any other water rights appurtenant to the above described property?* yes

If so, from what source? wells C-182D; C-183D

12. *Construction work will begin on or before* September, 1956

13. *Construction work will be completed on or before* March, 1957

14. *Water will be put to complete beneficial use on or before* September, 1957

CITY OF OTHELLO, WASHINGTON

Don E. Gray
(Signature of applicant)

By: Don E. Gray, GRAY & OSBORNE
Consulting Engineers

15. *Name and address of owner of land on which well or works are located:* Yakima, Washington

(Name) (Address)

(Signature of legal landowner)

Signed in the presence of us as witnesses:

(Name) (Address of witness)

(Name) (Address of witness)

STATE OF WASHINGTON,
COUNTY OF THURSTON. } *ss.*

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for correction or completion as follows:

In order to retain its priority, this application must be returned to the State Supervisor of Water Resources, with corrections, on or before....., *19*.....

WITNESS my hand this.....*day of*....., *19*.....

State Supervisor of Water Resources.

RECEIVED
JUN - 9 1993
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

AMENDED 5-21-96

APPLICATION FOR CHANGE OF WATER RIGHT

Accepted By G.D.
Date 7-14-93
Is Field Exam. Required? [X] YES [ ] NO
Determined By

[X] PURPOSE [ ] DIVERSION OR WITHDRAWAL
[X] PLACE [X] ADDITIONAL POINT OR POINTS

NAME: City of Othello
Bus. Tel. (509) 488-5686
Home Tel.
Other Tel. (509) 488-2385 FAX

ADDRESS: 512 East Main | (CITY): Othello | (STATE): WA | (ZIP CODE): 99344

APPLICATION NUMBER | PERMIT NUMBER: 6871 | CERTIFICATE NUMBER: 5338-A

DECREED RIGHT (TITLE OF CASE)

APPROPRIATIONS MADE (GIVE DATE IF PRIOR TO JUNE 7, 1917 IF SURFACE WATER, OR JUNE 7, 1945 IF GROUND WATER)

IS THE WATER RIGHT RECORDED IN YOUR NAME? [X] YES [ ] NO | IF NO, GIVE NAME RECORDED UNDER

1. RIGHT CONSISTS OF

WATERS USED FROM (STREAM, LAKE, WELL, OR TRENCH, ETC.): Well
GALLONS PER MINUTE OR CUBIC FEET PER SECOND: 900; 1,440 AF/year

WATER CURRENTLY USED FOR: Municipal supply
TIME OF USE: continuous

2. LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL

ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

~~Approx. 2800 ft. South and 50 ft. West of the NE corner of Section 3~~

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
NE 1/4 NE 1/4 SE 1/4	3	15	29	Adams

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

3. LEGAL DESCRIPTION OF LANDS WATER IS USED ON

City of Othello, Washington

SEPA— THIS APPLICATION IS NOT EXEMPT:
LEAD AGENCY: ECOLOGY
6/9/93 Completed Checklist Received
/ / Determination of Nonsignificance Issued
/ / Determination of Significance Issued
DRAFT EIS ISSUED / /
FINAL EIS ISSUED / /

RECEIVED ORIGINAL APP. 4-6-93.

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS [ ] YES [X] NO | IF NO, EXPLAIN YOUR INTEREST: Permits are required in order to operate a municipal water system in accordance with existing ordinances.

REASONS FOR THE PROPOSED CHANGE

To allow wastewater disposal through the irrigation on lands outside the City of Othello's distribution system and authorized by a State waste discharge permit.

Amended 5-21-96 - to add 9th well (Well #10)

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

cac

CONTINUE ON REVERSE SIDE

CHANGE

ECY 040-1-97
Rev. 1/85 QX A-209
3

4. **CHANGE REQUESTED**

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
Municipal/ Reuse for wastewater disposal	No change	No change

5. **LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL**

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

INTEGRATE ALL WELLS (SEE ATTACHED)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY

6. **IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION**

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED

☐ YES ☐ NO

LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON

All those areas within the corporate limits of Othello Washington AND those lands identified in State Waste Water Discharge Permit #5322 and #5354.

Amended 5-21-96 - Add Well #10 -
SE1/4SE1/4 of Sec. 9, T. 15N., R. 29 E.WM.
Corr

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

(ATTACH SEPARATE SHEET IF NECESSARY)

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS

☐ YES ☒ NO

IF NO, EXPLAIN YOUR INTEREST

Purveyor of municipal water used outside City limits for supplemental mitigation.

* PLEASE NOTE LEGAL LAND OWNER SIGNATURE AND APPLICANT SIGNATURE ARE BOTH REQUIRED. IF THE LEGAL LAND OWNER AND APPLICANT ARE THE SAME, PLEASE SIGN IN BOTH PLACES. THANK YOU.

Ken R. Bays
LEGAL LANDOWNER (PLEASE PRINT)

Kenneth R. Bays
APPLICANT'S SIGNATURE

Kenneth R. Bays
LEGAL LANDOWNER SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 3)

CITY of Othello
LEGAL LANDOWNER'S ADDRESS

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
SUPERSEDING PERMIT

THIS PERMIT SUPERSEDES GROUND WATER PERMIT NO. G3-25032P ISSUED MAY 11, 1977

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
October 20, 1976	G3-25032	G3-25032	

NAME
City of Othello

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
500 East Main	Othello	WA	99344

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
Nine (9) Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	2250	3000

QUANTITY, TYPE OF USE, PERIOD OF USE
2250 gallons per minute; 3000 acre-feet per year, continuously for municipal supply.
"The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply."

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
1375 feet East and 120 feet South of the NW corner of Section 3 (Note: Section 3 is odd-sized).

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.
990 feet West and 1120 feet North of the SE corner of Section 34.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2520 feet North and 130 feet West of the SE corner of Section 3.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2700 feet East and 150 feet North of the SW corner of Section 3 (Note: Section 3 is odd-sized).

Well #6 - Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.
675 feet South and 225 feet West of the NE corner of Section 4.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.
775 feet West and 915 feet North of the SE corner of Section 9.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)
500 feet East and 150 feet North of the SW corner of Section 26.

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)
130 feet South and 150 feet West of the NE corner of Section 5.

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)
(distances to be determined)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SEE ABOVE				36/41	Adams

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 Othello

DESCRIPTION OF PROPOSED WORKS

Nine (9) wells, pumps, storage and distribution system

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	June 1, 2006	June 1, 2007

PROVISIONS

The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply.

This change authorizes nine (9) points of withdrawal under Ground Water Permit G3-25032P, all to be groundwater wells located as follows:

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #6 – Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)

This change amends the place of use as to be follows: The area served by the City of Othello, Washington.

This authorization for the withdrawal of public ground waters within the boundaries of the Columbia Basin Project is based, on a tentative conclusion that public ground waters are available. If, however, it is subsequently determined by the Department that public ground waters are not available in the amounts authorized for withdrawal, the Department shall, by order of notification, withdraw or modify the authority granted therein as may be appropriate. In accordance with WAC 508-14-030(2)(b), no certificate of water right as provided for in RCW 90.44.080, shall be issued by the Department of Ecology until such time as a more definite determination can be reached as to the availability of public ground waters in an area described in WAC 508-14-030(3).

Well #1, shall be decommissioned in accordance with WAC 173-160.

Well #6, as currently constructed, allows interaquifer transfer of water in violation of WAC 173-160-181(3) and WAC 173-160-161(2). This well shall be reconstructed to meet the requirements of the Minimum Standards for Well Construction and Maintenance of Wells, Chapter 173-160 WAC. This may be accomplished by decommissioning the lower portion of the well to a point above the Vantage Interbed or equivalent elevation. Placement of approved sealing materials shall be accomplished as stated in WAC 173-160-381(5). The City's authorized agent shall provide draft written plans for reconstruction of the well for written concurrence prior to releasing the bid for reconstruction.

(Permit provisions continued on Page 3)

This superseding 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 Spokane, Washington,

this 17th day of December, 2001.

Department of Ecology

by _____
George B. Schlender, Section Manager

ENGINEERING DATA
OK CAC

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

The Department recognizes the Saddle Mountains and the Wanapum Basalt Aquifers as two separate aquifers. Due to this fact you will be required to case and seal your well to a minimum depth of 250 feet below land surface to prevent interaquifer transfer of water. A borehole that is a minimum of four-inches greater in diameter than the permanent casing string to be contained within that section of borehole shall be constructed. The permanent casing is then to be placed or set into the borehole. The casing shall be centralized within the borehole. Due to borehole alignment and/or plumbness this may require the use of centralizers. Sealing materials shall be placed from the bottom of the cased interval to the top until undiluted seal material returns to the surface. After the casing is sealed in place, the well may be completed by drilling out of the casing. Your well shall have a maximum depth of 1000 feet below land surface.

To avoid any misunderstandings or problems, prior to any construction of a new well or reconstruction of an existing well, send a copy of the plans for construction or reconstruction to the Department for written concurrence with said plans. The Department may require a videoscan of your well prior to and/or after the installation of casing. The Driller is to keep the Department informed of drilling progress. No pump may be installed until any required videoscans have been completed and then reviewed by the Department.

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and/or WAC 508-64-020 through WAC 508-64-040.

Any future pump test data for the new well shall be submitted as it is obtained to the Department of Ecology.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

This authorization to make use of public waters of the State is subject to existing rights, including any existing rights held by the United States for the benefit of Indians under treaty or otherwise.

Nothing in this authorization shall be construed as satisfying other applicable federal, state, or local statutes, ordinances, or regulations.

All water wells constructed within the State shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

Use of water under this authorization shall be contingent upon the water right holder's utilization of up to date water conservation practices and maintenance of efficient water delivery systems consistent with established regulation requirements and facility capabilities.

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

4601 N. Monroe Street • Spokane, Washington 99205-1295 • (509) 456-2926

COPY

December 17, 2001

City of Othello
500 East Main
Othello, WA 99344

Dear Sir or Madam:

Re: Ground Water Permit No. G3-25032

Enclosed please find the above-referenced permit, which supersedes the original permit issued May 11, 1997, as requested by the application to change the purpose of use, place of use, and add eight (8) additional points of withdrawal.

We are also enclosing a new instruction sheet together with a form for filing Notice of Completion of Construction after the project has been completed. Please note that the form is due in this office on or before June 1, 2006 in order to avoid cancellation proceedings.

Please read the instruction sheet as well as both sides of your permit to insure that the changes have been properly included.

Sincerely,

Cindy A. Christian

Cindy A. Christian
Unit Supervisor
Water Resources Program

CAC:mjw
Enclosures

State of Washington
Department of Ecology

RECEIVED
OCT 20 1976
4:00 p.
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
G 325032	36 41	01	10/20/76	4:00 pm	ON

APPLICANT'S NAME: City of Othello

BUSINESS TEL. 509-488-5686
HOME TEL. N/A

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
512 East Main	Othello	Washington	99344

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE)	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.)
	A Well
TRIBUTARY	SIZE AND DEPTH
	16" 1000'

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)

Municipal Use

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF:	CUBIC FEET PER SECOND (CFS)	OR	GALLONS PER MINUTE	ACRE FEET PER YEAR
			2250 GPM	3630

TIMES DURING YEAR WATER WILL BE REQUIRED

Continuous operation

(Continuous Municipal Supply Use)

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, i-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY
--	--	11,500

DATE PROJECT WAS OR WILL BE STARTED	DATE PROJECT WAS OR WILL BE COMPLETED
Feb. 1977	July 1978

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION
15	25	Plat of town ~~Original Town~~ of Othello	4	15N	29E	

within Gov. Lot 1

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
				Adams

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER

YES

5. LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED*

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM **A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY.** OR, COPY CAREFULLY IN THE SPACE BELOW.

Area served by City of Othello -- municipal water distribution system --

See attached map.

I have ~~examined this application~~ as required by SEPA and find that it is: ☐ ~~not an "action"~~.

☒ categorically exempt.

10/21/76
DATE

SIGNATURE

ECY 040-1-14(4)
Rev. 7-75

COLUMBIA BASIN

APPLICATION

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH T[illegible]ATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONTR[illegible]URCHASER, ETC.)

Municipal purveyor of water

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.) ☒ YES ☐ NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Well No. 1: Certificate #182-D. Well No. 2: Certificate #183-D. Well No. 3: Certificate #3390A. Well No. 4: Certificate #5338A. Well No. 5: Permit #G3-20368P.

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

We propose to drill a 16" well about 1000 feet deep and cased to a depth as may be required. The size of the pump is 14 inch, capable of pumping approximately 2000 gpm at 881 ft head and equipped with a 14" discharge into the City's present distribution system.

REMARKS

7. This well will be drilled adjacent to the Well No. 1 site, which will be abandoned. Because of the decreasing water levels, experienced this past summer, it is mandatory that a supplemental well drilling program be implemented to meet the domestic, industrial and fire flows of the community.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

Lyall H. Mender
APPLICANT'S SIGNATURE

Mayor of Othello
LEGAL LANDOWNER'S SIGNATURE

512 E. Main, Othello, Washington 99344
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY } *ss.*

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before....., *19*.....

Witness my hand this.....*day of*....., *19*.....

.....
Department of Ecology

ECY 040-1-14(5)
Rev. 7-75

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
SUPERSEDING PERMIT

THIS PERMIT SUPERSEDES GROUND WATER PERMIT NO. G3-25033 ISSUED MAY 11, 1977

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
October 20, 1976	G3-25033	G3-25033	

NAME
City of Othello

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
500 East Main	Othello	WA	99344

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
Nine (9) Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	870	2500

QUANTITY, TYPE OF USE, PERIOD OF USE
870 gallons per minute; 2500 acre-feet per year, continuously for municipal supply.
"The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply."

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
1375 feet East and 120 feet South of the NW corner of Section 3 (Note: Section 3 is odd-sized).

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.
990 feet West and 1120 feet North of the SE corner of Section 34.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2520 feet North and 130 feet West of the SE corner of Section 3.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2700 feet East and 150 feet North of the SW corner of Section 3 (Note: Section 3 is odd-sized).

Well #6 - Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.
675 feet South and 225 feet West of the NE corner of Section 4.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.
775 feet West and 915 feet North of the SE corner of Section 9.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)
500 feet East and 150 feet North of the SW corner of Section 26.

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)
130 feet South and 150 feet West of the NE corner of Section 5.

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)
(distances to be determined)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SEE ABOVE				36/41	Adams

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 Othello

DESCRIPTION OF PROPOSED WORKS

Nine (9) wells, pumps, storage and distribution system

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	June 1, 2006	June 1, 2007

PROVISIONS

The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply.

This change authorizes nine (9) points of withdrawal under Ground Water Permit G3-25033P, all to be groundwater wells located as follows:

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #6 – Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)

This change amends the place of use as to be follows: The area served by the City of Othello, Washington

This authorization for the withdrawal of public ground waters within the boundaries of the Columbia Basin Project is based, on a tentative conclusion that public ground waters are available. If, however, it is subsequently determined by the Department that public ground waters are not available in the amounts authorized for withdrawal, the Department shall, by order of notification, withdraw or modify the authority granted therein as may be appropriate. In accordance with WAC 508-14-030(2)(b), no certificate of water right as provided for in RCW 90.44.080, shall be issued by the Department of Ecology until such time as a more definite determination can be reached as to the availability of public ground waters in an area described in WAC 508-14-030(3).

Well #1 shall be decommissioned in accordance with WAC 173-160.

Well #6, as currently constructed, allows interaquifer transfer of water in violation of WAC 173-160-181(3) and WAC 173-160-161(2). This well shall be reconstructed to meet the requirements of the Minimum Standards for Well Construction and Maintenance of Wells, Chapter 173-160 WAC. This may be accomplished by decommissioning the lower portion of the well to a point above the Vantage Interbed or equivalent elevation. Placement of approved sealing materials shall be accomplished as stated in WAC 173-160-381(5). The City's authorized agent shall provide draft written plans for reconstruction of the well for written concurrence prior to releasing the bid for reconstruction.

(Permit provisions continued on Page 3)

This superseding 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 Spokane, Washington,

this 17th day of December, 2001.

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Department of Ecology

by _____
George B. Schlender, Section Manager

ENGINEERING DATA
OK cac

The Department recognizes the Saddle Mountains and the Wanapum Basalt Aquifers as two separate aquifers. Due to this fact you will be required to case and seal your well to a minimum depth of 250 feet below land surface to prevent interaquifer transfer of water. A borehole that is a minimum of four-inches greater in diameter than the permanent casing string to be contained within that section of borehole shall be constructed. The permanent casing is then to be placed or set into the borehole. The casing shall be centralized within the borehole. Due to borehole alignment and/or plumbness this may require the use of centralizers. Sealing materials shall be placed from the bottom of the cased interval to the top until undiluted seal material returns to the surface. After the casing is sealed in place, the well may be completed by drilling out of the casing. Your well shall have a maximum depth of 1000 feet below land surface.

To avoid any misunderstandings or problems, prior to any construction of a new well or reconstruction of an existing well, send a copy of the plans for construction or reconstruction to the Department for written concurrence with said plans. The Department may require a videoscan of your well prior to and/or after the installation of casing. The Driller is to keep the Department informed of drilling progress. No pump may be installed until any required videoscans have been completed and then reviewed by the Department.

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and/or WAC 508-64-020 through WAC 508-64-040.

Any future pump test data for the new well shall be submitted as it is obtained to the Department of Ecology

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

Nothing in this authorization shall be construed as satisfying other applicable federal, state, or local statutes, ordinances, or regulations.

All water wells constructed within the State shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

Use of water under this authorization shall be contingent upon the water right holder's utilization of up to date water conservation practices and maintenance of efficient water delivery systems consistent with established regulation requirements and facility capabilities.

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

4601 N. Monroe Street • Spokane, Washington 99205-1295 • (509) 456-2926

December 17, 2001

City of Othello
500 East Main
Othello, WA 99344

Dear Sir or Madam:

Re: Ground Water Permit No. G3-25033

Enclosed please find the above-referenced permit, which supersedes the original permit issued May 11, 1977, as requested by the application to change the purpose of use, place of use and add eight (8) additional points of withdrawal.

We are also enclosing a new instruction sheet together with a form for filing Notice of Completion of Construction after the project has been completed. Please note that the form is due in this office on or before June 1, 2006 in order to avoid cancellation proceedings.

Please read the instruction sheet as well as both sides of your permit to insure that the changes have been properly included.

Sincerely,

Cindy A. Christian

Cindy A. Christian
Unit Supervisor
Water Resources Program

CAC:mjw
Enclosures

State of Washington
Department of Ecology

APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

RECEIVED
OCT 20 1976
4:00p.
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

☐ SURFACE WATER ☒ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
G3-25033	41	01	10/20/76	4pp	CON

APPLICANT'S NAME: City of Othello
BUSINESS TEL. 509-488-5686
HOME TEL. N/A

ADDRESS (STREET): 512 East Main
(CITY): Othello
(STATE): Washington
(ZIP CODE): 99344

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION:

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE)	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.)
	(A Well)
TRIBUTARY	SIZE AND DEPTH
	13" 907'

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)

Municipal Use

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF:	CUBIC FEET PER SECOND ..... CFS	OR	GALLONS PER MINUTE	ACRE FEET PER YEAR
			1800 GPM	2585

TIMES DURING YEAR WATER WILL BE REQUIRED

Continuous operation

(Continuous Municipal supply)

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, 1-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY
--	--	11,500

DATE PROJECT WAS OR WILL BE STARTED	DATE PROJECT WAS OR WILL BE COMPLETED
December 1976	May 1, 1977

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION
(Lions	Park	Property donated to city	34	16N	29E	

(within NW¼ SE¼ SE¼)

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
				(Adams)

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER

YES

5. LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED*

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY. OR, COPY CAREFULLY IN THE SPACE BELOW.

Area served by City of Othello -- municipal water distribution system --

See attached map.

I have examined this application as required by SEPA and find that it is: ☐ not an "action".

☒ categorically exempt.

10/21/76 DATE

SIGNATURE

EGY 040-1-14(4)
Rev. 7-75

Columbia Basin

APPLICATION

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH THE WATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONTRACT PURCHASER, ETC.)

Municipal purveyor of water

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.) [X] YES [ ] NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Well No. 1: Certificate #182-D. Well No. 2: Certificate #183-D. Well No. 3: Certificate #3390A. Well No. 4: Certificate #5338A. Well No. 5: Permit #G3-20368P.

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

We propose to rehabilitate Well #3 as it currently exists by:

(1) Installing some 600 feet of casing in the uncased portion of the well below 197 feet;

(2) Replacing the existing 350 hp motor with a 400 hp motor;

(3) Modifying the existing 440 feet of 10" x 1-11/16" line shaft and column assy into 640 feet of 10" x 1-15/16" shafting; and

(4) Replacing the existing ten stage, 10-inch pump bowls with higher capacity, 1600 gpm pumps.

REMARKS

7. Due to low static groundwater levels in the Othello area during the irrigation season, Well #3 can supply only 700-800 gpm during much of the hot summer season. The proposed rehabilitation will increase the summer pumpage rate to some 1600-1800 gpm.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

Lyall K. Menser
APPLICANT'S SIGNATURE

Mayor of Othello
LEGAL LANDOWNER'S SIGNATURE

512 E. Main, Othello, Washington 99344
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY } ss.

325033

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before....., 19.....

Witness my hand this.....*day of*....., 19.....

.....
Department of Ecology

FORM 040-1-14(5)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
SUPERSEDING PERMIT
THIS PERMIT SUPERSEDES GROUND WATER PERMIT NO. G3-20368P
ISSUED DECENBER 28, 1973
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
September 18, 1972	G3-20368	G3-20368	

NAME
City of Othello

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
500 East Main	Othello	WA	99344

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
Nine (9) Wells
TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	2000	3024

QUANTITY, TYPE OF USE, PERIOD OF USE
2000 gallons per minute; 3024 acre-feet per year, continuously for municipal supply.
"The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply."

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
1375 feet East and 120 feet South of the NW corner of Section 3 (Note: Section 3 is odd-sized).

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.
990 feet West and 1120 feet North of the SE corner of Section 34.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2520 feet North and 130 feet West of the SE corner of Section 3.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2700 feet East and 150 feet North of the SW corner of Section 3 (Note: Section 3 is odd-sized).

Well #6 - Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.
675 feet South and 225 feet West of the NE corner of Section 4.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.
775 feet West and 915 feet North of the SE corner of Section 9.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)
500 feet East and 150 feet North of the SW corner of Section 26.

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)
130 feet South and 150 feet West of the NE corner of Section 5.

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)
(distances to be determined)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SEE ABOVE				36/41	Adams

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 Othello

DESCRIPTION OF PROPOSED WORKS

Nine (9) wells, pumps, storage and distribution system

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	June 1, 2006	June 1, 2007

PROVISIONS

The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply.

This change authorizes nine (9) points of withdrawal under Ground Water Permit G3-20368P, all to be groundwater wells located as follows:

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼ Sec. 3, T. 15 N., R. 29 E.W.M.

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #6 – Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)

This authorization for the withdrawal of public ground waters within the boundaries of the Columbia Basin Project is based, on a tentative conclusion that public ground waters are available. If, however, it is subsequently determined by the Department that public ground waters are not available in the amounts authorized for withdrawal, the Department shall, by order of notification, withdraw or modify the authority granted therein as may be appropriate. In accordance with WAC 508-14-030(2)(b), no certificate of water right as provided for in RCW 90.44.080, shall be issued by the Department of Ecology until such time as a more definite determination can be reached as to the availability of public ground waters in an area described in WAC 508-14-030(3).

Well #1 shall be decommissioned in accordance with WAC 173-160.

Well #6, as currently constructed, allows interaquifer transfer of water in violation of WAC 173-160-181(3) and WAC 173-160-161(2). This well shall be reconstructed to meet the requirements of the Minimum Standards for Well Construction and Maintenance of Wells, Chapter 173-160 WAC. This may be accomplished by decommissioning the lower portion of the well to a point above the Vantage Interbed or equivalent elevation. Placement of approved sealing materials shall be accomplished as stated in WAC 173-160-381(5). The City's authorized agent shall provide draft written plans for reconstruction of the well for written concurrence prior to releasing the bid for reconstruction.

(Provisions continued on Page 3)

This superseding 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 Spokane, Washington,

this 17th day of December, 2001.

Department of Ecology

by _____
George B. Schlender, Section Manager

ENGINEERING DATA
OK cac

The Department recognizes the Saddle Mountains and the Wanapum Basalt Aquifers as two separate aquifers. Due to this fact you will be required to case and seal your well to a minimum depth of 250 feet below land surface to prevent interaquifer transfer of water. A borehole that is a minimum of four-inches greater in diameter than the permanent casing string to be contained within that section of borehole shall be constructed. The permanent casing is then to be placed or set into the borehole. The casing shall be centralized within the borehole. Due to borehole alignment and/or plumbness this may require the use of centralizers. Sealing materials shall be placed from the bottom of the cased interval to the top until undiluted seal material returns to the surface. After the casing is sealed in place, the well may be completed by drilling out of the casing. Your well shall have a maximum depth of 1000 feet below land surface.

To avoid any misunderstandings or problems, prior to any construction of a new well or reconstruction of an existing well, send a copy of the plans for construction or reconstruction to the Department for written concurrence with said plans. The Department may require a videoscan of your well prior to and/or after the installation of casing. The Driller is to keep the Department informed of drilling progress. No pump may be installed until any required videoscans have been completed and then reviewed by the Department.

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and/or WAC 508-64-020 through WAC 508-64-040.

Any future pump test data for the new well shall be submitted as it is obtained to the Department of Ecology.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

This authorization to make use of public waters of the State is subject to existing rights, including any existing rights held by the United States for the benefit of Indians under treaty or otherwise.

Nothing in this authorization shall be construed as satisfying other applicable federal, state, or local statutes, ordinances, or regulations.

All water wells constructed within the State shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

Use of water under this authorization shall be contingent upon the water right holder's utilization of up to date water conservation practices and maintenance of efficient water delivery systems consistent with established regulation requirements and facility capabilities.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

APPLICATION FOR CHANGE/TRANSFER

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
September 18, 1972	G3-20368	G3-20368P	

NAME
City of Othello

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
500 East Main	Othello	WA	99344

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Nine (9) Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	*MAXIMUM* GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	2000	3024

QUANTITY, TYPE OF USE, PERIOD OF USE

2000 gallons per minute; 3024 acre-feet per year, continuously for municipal supply.
"The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply."

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
1375 feet East and 120 feet South of the NW corner of Section 3 (Note: Section 3 is odd-sized).

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.
990 feet West and 1120 feet North of the SE corner of Section 34.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2520 feet North and 130 feet West of the SE corner of Section 3.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.
2700 feet East and 150 feet North of the SW corner of Section 3 (Note: Section 3 is odd-sized).

Well #6 - Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.
675 feet South and 225 feet West of the NE corner of Section 4.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.
775 feet West and 915 feet North of the SE corner of Section 9.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)
500 feet East and 150 feet North of the SW corner of Section 26.

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)
130 feet South and 150 feet West of the NE corner of Section 5.

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)
(distances to be determined)

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SEE ABOVE				36/41	Adams

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 Othello

DESCRIPTION OF PROPOSED WORKS

Nine (9) wells, pumps, storage and distribution system

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Started	June 1, 2006	June 1, 2007

REPORT

BACKGROUND

An application for change/transfer was submitted by the City of Othello, Washington to the Department of Ecology on June 9, 1993. In a letter from Ecology, dated August 20, 1992, the City of Othello was advised to file the original application to include wastewater disposal as a purpose and identify all lands that received the wastewater through irrigation. The City of Othello provides municipal water to J.R. Simplot and McCain Foods, Inc., which generate this wastewater. The original application requested a change in the purpose of use to include "*wastewater disposal through irrigation*" and a change in the place of use to include "*those lands identified in State Waste Water Discharge Permit Nos. 5322 and 5354*".

In 1997 and 2001, RCW 90.03.252 was amended as follows: "*The permit requirements of RCW 90.03.250 do not apply to the use of reclaimed water by the owner of a wastewater treatment facility under the provisions of RCW 90.46.120 and do not apply to the use of agricultural industrial process water as provided under section 3 of this act.*" Additionally, RCW 90.44.062 was amended to read: "*The permit requirements of RCW 90.44.060 do not apply to the use of reclaimed water by the owner of a wastewater treatment facility under the provisions of RCW 90.46.120.*" The City of Othello is currently authorized for its land application of wastewater through State Waste Water Discharge Permit Nos. 5322 and 5354 approved by the Department of Ecology's Water Quality Program. Since no water right permit is required from the Water Resources Program, no change is required in the purpose of use or place of use as it relates to wastewater disposal under this right.

Under this application the City of Othello also proposed to integrate all of its existing water rights, which would include adding eight (8) points of withdrawal to this right. The change proposes a total of nine (9) points of withdrawal (all groundwater wells) to be used by the City of Othello. Six (6) wells are currently authorized under existing water rights (Wells #1, 2, 3, 4, 5 and 6). Well #7 was drilled under a preliminary permit and Wells #8, 9 and 10 are proposed (not yet drilled). This application was amended on May 21, 1996 to include Wells #9 and 10. The City's place of use under this permit currently states "Area served by City of Othello".

This application is being considered for priority processing under WAC 173-152 as a public health and safety priority by the Washington State Department of Health. The Department of Health (DOH) has requested assistance and expedited action in the processing of this application for change/transfer to allow the City of Othello to establish a new source to address health and safety concerns. The application priority processing was approved by George Schlender, Water Resources Section Supervisor for the Eastern Regional Office.

Attributes of the original Permit (Ground Water Permit G3-20368P)

Name on Permit:	City of Othello
Priority Date:	September 18, 1972
Instantaneous Quantity – Q(i):	2000 gallons per minute
Annual Quantity – Q(a):	3024 acre-feet per year
Source:	A well (#5)
Point of Withdrawal:	SE¼SW¼ of Section 3, Township 15 North, Range 29 E.W.M.
Purpose of Use:	Municipal Supply
Period of Use:	Continuous
Place of Use:	Area served by City of Othello.

Proposed Change/Transfer

Name of Applicant:	City of Othello
Date of Application for Change/Transfer:	June 9, 1993 (Amended on May 21, 1996)
Point of Withdrawal (Diversion):	Nine (9) wells (see list below)
Purpose of Use:	*no change*
Period of Use:	*no change*
Place of Use:	*no change*

In addition to this application, the City of Othello has made applications for change/transfer to all other existing municipal water right certificates and/or permits. Each of these applications will have decisions rendered based on their own respective findings.

A notice of application was duly published in accordance with RCW 90.03.280 in the Othello Outlook on March 7 and March 14, 2001 and no protests were received.

This application is not categorically exempt from the provisions of the State Environmental Policy Act (SEPA) of 1971, Chapter 43.21C RCW. A SEPA Determination of Non-Significance was issued by Ecology on July 27, 2001.

INVESTIGATION

In considering the proposed change/transfer, the investigation included, but was not limited to, research and review of (1) appropriate rules and statutes; (2) Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P and other water rights/claims/applications in the vicinity; (3) water well reports for the applicant's wells, and other wells in the vicinity; (4) USGS topographic maps; (5) Report titled "Design and Analysis, Well No. 7, Othello, Washington" by Hong West & Associates, Inc.; (6) discussions with Department of Ecology regional program staff; including review by Ecology hydrogeologists.

A site visit was conducted by Gene Drury on July 12, 2001 with Curt Andrews, City Engineer and Reuel Klempel, Public Works Director with the City of Othello. The City of Othello is located in Adams County approximately 20 miles south of Moses Lake, Washington and Interstate 90.

Existing water use for the City of Othello is authorized under the following water rights:

CITY OF OTHELLO EXISTING WATER RIGHTS

WATER RIGHT	RECORDED NAME	PRIORITY DATE	Q(i)	Q(a)	PRIMARY Q(a)
182-D	Town of Othello	June 1, 1909	200	34	34
183-D	Town of Othello	April 1, 1940	200	148	148
3390-A	City of Othello	September 15, 1958	1130	624	624
5338-A	City of Othello	March 25, 1964	900	1440	1440
G3-20368P	City of Othello	September 18, 1972	2000	*3024*	778
G3-25032P	City of Othello	October 20, 1976	2250	*3000*	2600
G3-25033P	City of Othello	October 20, 1976	870	*2500*	1476
G3-25933P	City of Othello	April 7, 1978	2000	*3000*	0
TOTAL:			**9550**	---	**7100**

Q(i) = instantaneous quantity in gallons per minute; Q(a) = annual quantity in acre-feet per year

The City of Othello's water rights each authorize one point of withdrawal (a well). The associated rights and wells (points of withdrawal) are located as follows:

CITY OF OTHELLO WELL LOCATIONS (EXISTING):

WATER RIGHT	WELL#	¼¼ (LOCATION)	SEC.	TWP.	RGE.
182-D	1	NE¼NE¼ (Lots 15 & 16, Blk 25, Original Town of Othello)	4	15	29
183-D	2	NW¼ (Lots 1 & 2, Blk 20, Original Town of Othello)	3	15	29
3390-A	3	NW¼SE¼SE¼	34	16	29
5338-A	4	NE¼NE¼SE¼	3	15	29
G3-20368P	5	SE¼SW¼	3	15	29
G3-25032P	6	Gov't Lot 1 (Lot 15, Blk 25, Original Town of Othello)	4	15	29
G3-25033P	3	NW¼SE¼SE¼	34	16	29
G3-25933P	6	Gov't Lot 1 (Lot 15, Blk 25, Original Town of Othello)	4	15	29

In the past, the City of Othello has experienced high levels of fluoride in two of their wells. In a letter to Ecology, dated July 14, 2000 the Washington State Department of Health requested expedited water right processing to address health and safety concerns. They indicated that, historically, fluoride has been detected above the primary maximum contaminant level (PMCL) in two of the City's sources; S06 (Well #4) and S05 (Well #6). The problem with Well #4 has since been fixed and is below the primary maximum contaminant level (PMCL) according to the Department of Health. In order to prevent Well #6 water containing fluoride above the PMCL from entering into the distribution system, DOH has required this well to remain on emergency/stand-by only. The City proposes to seal off the Grande Ronde water containing the high fluoride as soon as funds are made available. Water from the Grande Ronde Basalt formation is not suitable for public water supply as it contains high fluorides and can exhibit warmer temperatures and an unfavorable taste.

A Preliminary Permit was issued by the Department of Ecology on August 6, 1996 under Ground Water Application G3-29644 and authorized the drilling and testing of Well #7 (originally identified as Well #10). The construction of Well #7 was completed on February 15, 1997. This change application proposes to add this well permanently to the City's existing water rights along with three potential new sites. The proposed integration of existing wells will give the City some flexibility in managing its water use under existing rights. The following table describe the wells currently authorized under the above referenced water rights:

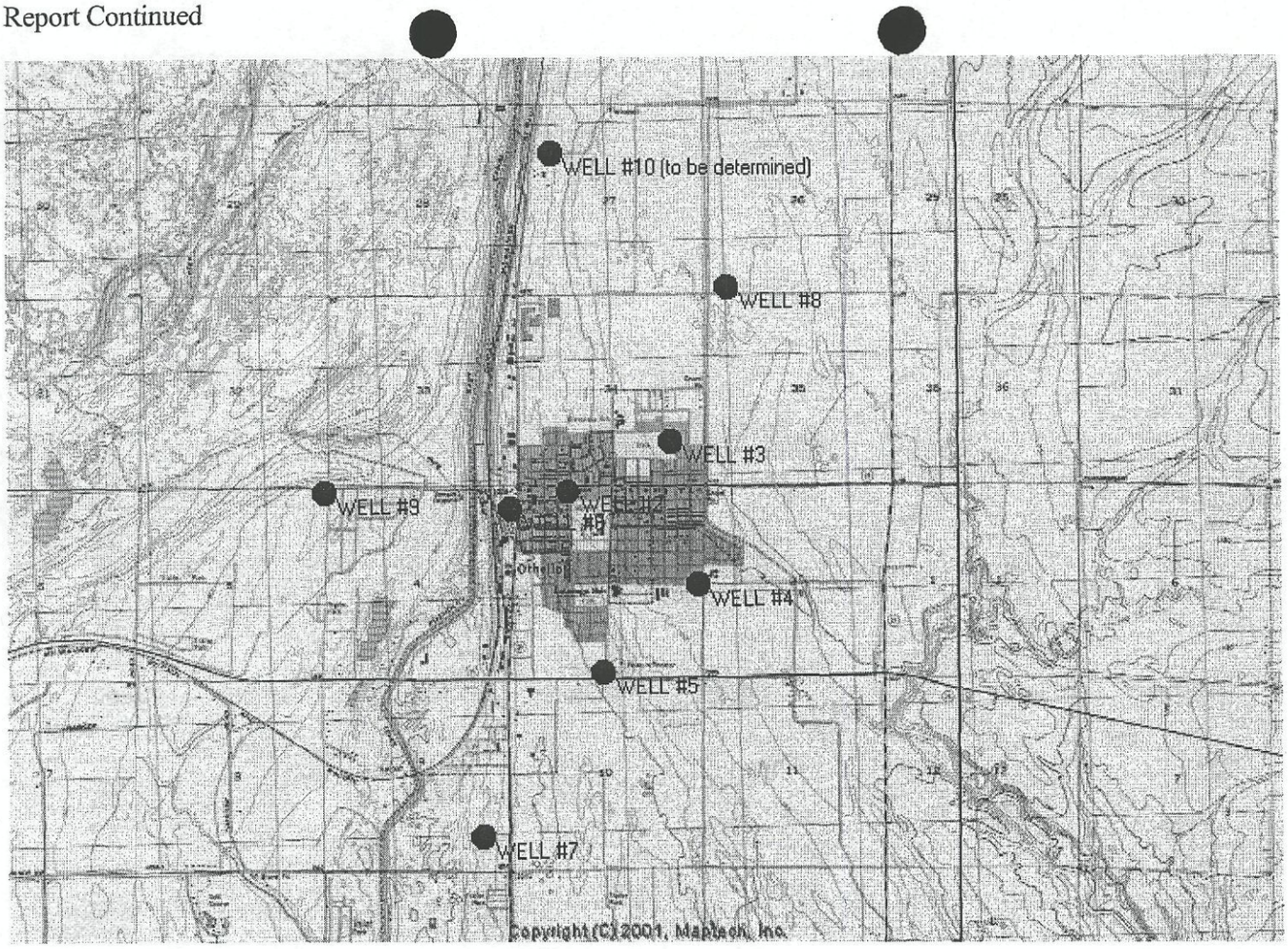
CITY OF OTHELLO WELL SPECIFICATIONS:

Well#	Water Right	Status	Size (in)	Depth (ft)	Pump (type)	Pump (hp)	GPM	DOH ID#	Unique ID#
1	182-D	Not used	8	561	---	---	---	---	---
2	183-D	On-line	10	893	submersible	75	350	S01	No tag
3	3390-A	On-line	16	907	turbine	300	1300	S02	No tag
3	G3-25033P	---	---	---	---	---	---	---	---
4	5338-A	On-line	16	976	turbine	150	600	S06	AEL 069
5	G3-20368P	On-line	16	1007	turbine	350	1500	S07	AFL 223
6	G3-25032P	Back-up	20	1210	turbine	900	3100	S05	ABR 235
6	G3-25933P	---	---	---	---	---	---	---	---
7	new	On-line	16	820	turbine	600	1500	S08	AAP 562
8	proposed	---	---	---	---	---	---	---	---
9	proposed	---	---	---	---	---	---	---	---
10	proposed	---	---	---	---	---	---	---	---

The new well sites are identified as Wells 8, 9 and 10 and are to be located as follows:

CITY OF OTHELLO NEW WELLS (PROPOSED):

WELL#	¼¼ (LOCATION)	SEC.	TWP.	RGE.
8	SW¼SW¼	26	16	29
9	NE¼NE¼	5	15	29
10	NW¼	27	16	29



Evaluation of the Water Right & Beneficial Use Analysis:
The Washington State Supreme Court, in Okanogan Wilderness v. Town of Twisp and Department of Ecology, 133 Wn.2d 769, 947 P.2d 732 (1997), found that applications for change may be granted only to the extent the water has been historically put to beneficial use, as beneficial use determines the measure of a water right. They also found that the existence and quantification of a water right must be determined, including whether or not the water right has been lost for non-use before the Department can approve a change or transfer of the water right.

The original application under Ground Water Permit G3-20368P was filed with the Department on September 18, 1972. An examination was conducted on October 19, 1972 and the original Permit was issued on June 25, 1973. The permit was superseded twice for failing to include the proper provision necessary for permits, which lie within the United States Bureau of Reclamation Columbia Basin Project Boundaries. A superseding permit was issued on December 28, 1973. This permit authorizes the use from Well #5. The construction of this well (#5) was completed on April 9, 1974 and the 16 inch well was constructed to a depth of 1007 feet. A Proof of Appropriation was filed by the City of Othello on September 17, 1976. A field examination was conducted however, certificates are not issued in this area. The permit contains the provision that no Certificate of Water Right, as provided by RCW 90.44.080, will issue under this permit prior to the completion of the comprehensive study nor until a final determination is made by the Department of Ecology as to the availability of public ground waters. Water was historically been used from this well for the City's municipal supply.

The City of Othello water rights authorize a total 9550 gallons per minute and 7100 acre-feet per year. The City has three reservoirs, which store 6 million gallons of water. All of the City of Othello wells are metered and water use data was provided. The City has not exceeded its allocated acre-feet (7100) of water under existing rights. Water use for the year 2000 for City of Othello is summarized in the following table:

CITY OF OTHELLO TOTAL WATER USE FOR YEAR 2000:

WELL#	WATER RIGHT	GALLONS	ACRE-FEET
2	183-D	88,896,282	272.8
3	3390-A G3-25033P	327,792,700	1006
4	5338-A	220,893,400	677.9
5	G3-20368P	465,427,600	1428.3
6	182-D G3-25032P G3-25933P	19,091,100	58.6
7	---	644,986,800	1979.4
	TOTAL	**1,767,087,882**	**5423**

Hydrogeologic Analysis

Applications for change of water right permits and certificates are governed by RCW 90.44.100, which states in part that: the holder of a valid right to withdraw public ground waters may, without losing his priority of right, construct wells at a new location in substitution for, or in addition to, those at the original location, or he may change the manner or the place of use of the water. Such amendment shall be issued by the Department only on the conditions that; (1) the additional or substitute well or wells shall tap the same body of public ground water as the original well or wells; (2) use of the original well or wells shall be discontinued upon construction of the substitute well or wells; (3) the construction of an additional well or wells shall not enlarge the right conveyed by the original permit or certificate; and (4) other existing rights shall not be impaired. The Department may specify an approved manner of construction and shall require a showing of compliance with the terms of the amendment.

The City of Othello is located on top of massive basalt flows that make up the Columbia Basin Plateau. These basalt flows are grouped into three main units; 1) Saddle Mountain Basalt, 2) Wanapum Basalt and 3) Grande Ronde Basalt. Each unit has varying thickness and depths throughout the Plateau and contains numerous individual flows within themselves. All of the City of Othello wells are constructed into the Wanapum Basalt formation with the exception of Well #6, which was constructed into the Grande Ronde Basalts. Well #6 is the deepest City well at 1210 feet. The City plans to modify Well #6 by sealing off the water produced from this formation and withdraw all of its water from the Wanapum Basalt formation due to the water quality concerns.

Well #4 was originally constructed in 1965 to a depth of 905 feet. The well was deepened in 1992 by B.J. Exploration Co. to 1450 feet into the Grande Ronde Basalt formation. In 1994, Well #4 was reconstructed by Irrigators Inc. to a total completed depth of 979 feet into the Wanapum Basalt formation.

Currently, all of the City of Othello primary water wells produce water from the Wanapum formation. The proposed Wells 8, 9 and 10 will also be constructed and completed within the Wanapum formation. The top of the Wanapum Basalt Member (from the USGS WRI Report 87-4238, Sheet Six) should be encountered at a depth below land surface of 250 feet (at the proposed locations). Consequently, a minimum casing and sealing requirement of 250 feet will be required to restrict the wells to the Wanapum Aquifer.

Impairment Analysis

"Impair" or "impairment" means to 1) adversely impact the physical availability of water for a beneficial use that is entitled to protection, including earlier filed applications, and/or 2) to prevent the beneficial use of the water to which one is entitled, and/or 3) to adversely affect the flow of a surface water course at a time when the flows are at or below instream flows levels established by rule (POL-1200); and/or 4) degrade the quality of the source to the point that water is unsuitable for use by existing water right holders (WAC 173-150). Demonstration of impairment would require evidence of a substantial and lasting or frequent impact reflecting such conditions.

Other Water Rights in Surrounding Area:

A review of Ecology records was conducted for existing ground water rights, permits, applications and claims in surrounding area of the proposed new City of Othello wells. The search focused primarily on Sections 4 and 5 of T. 15 N., R. 29 E.W.M. and Sections 21, 22, 26, 27, 28, 32, 33, 34 and 35 of T. 16 N., R. 29 E.W.M. A total of 11 ground water claims, 7 certificates, 4 permits and 2 pending applications where found recorded in this search area. The documents are recorded as follows:

T. 15 N., R. 29 E.W.M., Sec. 4

GWDec #248	Chicago Milwaukee St.
GWDec #249	Chicago Milwaukee St.
Claims:	
146854	Caylor, Kenneth E.
116590	Chicago Milwakee St.
102135	Edson, Blanch H.
131254	Knudwig, William M.
143150	Nimay, Mitchell
128089	Powers, George H.

T. 15 N., R. 29 E.W.M., Sec. 5

GWC #6350	Kenfield of
G3-10734P	Mercer, Drury
G3-27635P	Garza, Lucas Jr.
Claims:	
54259	Heincy, H.E.

T. 16 N., R. 29 E.W.M., Sec. 21

None

T. 16 N., R. 29 E.W.M., Sec. 22

G3-25985P	Taylor T.
G3-29780P	Taylor, T.
Claims:	
33991	Grover, Howard C.

T. 16 N., R. 29 E.W.M., Sec. 26

None

T. 16 N., R. 29 E.W.M., Sec. 27
Claims:
108501 Besas, Peter H.

T. 16 N., R. 29 E.W.M., Sec. 28
None

T. 16 N., R. 29 E.W.M., Sec. 32
GWC #4802 Harder, H.
G3-29851 P.J. Taggeres Co.
Claims:
146486 Wheatheart Northwest

T. 16 N., R. 29 E.W.M., Sec. 33
G3-29902 J.R. Simplot Company
G3-00120C Spokane Rendering Co.

T. 16 N., R. 29 E.W.M., Sec. 34
GWC #4671 McCain Foods, Inc.
GWDec #246 McCain Foods, Inc.
Claims:
79559 Western Farms Assoc.

T. 16 N., R. 29 E.W.M., Sec. 35
None

A review of recorded well logs in this area was also conducted and reviewed by Department of Ecology hydrogeologists. Ecology records indicate approximately nine recorded domestic well logs in the search area. These shallower domestic wells appear to reach their total depth within the Saddle Mountain Basalt member of the Columbia River Basalt Group and range in depth from 180 feet to 305 feet. There has been no reported well interference problems in the past in this area between the City of Othello wells and these recorded domestic wells. This was verified with the City of Othello. The proposed new City of Othello wells will be developed into the middle aquifer (Wanapum) and will contain a minimum of 250 feet of casing to seal off this upper zone (Saddle Mountains). There are no other recorded domestic wells in the immediate vicinity of the City's potential well sites. Consequently, the new City of Othello wells should not cause any impairment of any existing domestic wells.

FINDINGS

There is a water right available for change/transfer under Ground Water Permit G3-20368P for the purpose of continuous municipal supply. Ground water has been historically and beneficially used under this permit by the City of Othello for municipal supply.

When considering an application for change to a water right, Ecology must determine that the proposed change can be made without detriment or injury to existing water rights or applications for water right. Factors considered when determining potential impact include the following:

No Impairment to Existing Rights:
There has been no documented history of pumping interference between existing wells in this area, and it is not anticipated that the proposed new wells would cause any impairment to existing water rights.

No Detriment to the Public Welfare:
There has been no public expression of protest or concern regarding the subject proposal, and no findings through this investigation indicate that there would be any detrimental impact to the public welfare through issuance of the proposed change.

No Enhancement of the Original Right
No withdrawal of water over and above what has been historically put to beneficial use would be authorized through approval of this change.

Same Source of Water:
The ground water to be withdrawn from all wells is supplied by the same body of public water.

CONCLUSION

It is the conclusion of this examiner that, in accordance with Chapters 90.03 and 90.44 RCW and WAC 173-152-050(3)(a), this application to integrate the existing water system to nine (9) points of withdrawal and change the place of use under Ground Water Permit G3-20368P will not enlarge the quantity of water historically put to beneficial use, nor will it impair existing rights or be detrimental to the public welfare provided the terms and conditions below are followed.

RECOMMENDATIONS

The applicant's request to add eight (8) points of withdrawal and integrate the existing water rights under Ground Water Permit G3-20368P is approved, subject to the following provisions:

"The total amount of water authorized for withdrawal under Ground Water Certificate Nos. 182-D, 183-D, 3390-A, 5338-A and Ground Water Permit Nos. G3-20368P, G3-25032P, G3-25033P and G3-25933P shall be limited to 9550 gallons per minute; 7100 acre-feet per year, continuously, for municipal supply."

"This change authorizes nine (9) points of withdrawal under Ground Water Permit G3-20368P, all to be groundwater wells located as follows:

Well #2 - Lots 1 & 2, Block 20, Original Town of Othello within: the NW¼ Sec. 3, T. 15 N., R. 29 E.W.M.

Well #3 - NW¼SE¼SE¼, Sec. 34, T. 16 N., R. 29 E.W.M.

Well #4 - NE¼NE¼SE¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #5 - SE¼SW¼, Sec. 3, T. 15 N., R. 29 E.W.M.

Well #6 – Lot 15, Block 25, Original Town of Othello within: (Government Lot 1) NE¼NE¼ of Sec 4, T. 15, R. 29 E.W.M.

Well #7 - SE¼SE¼, Sec. 9, T. 15 N., R. 29 E.W.M.

Well #8 - SW¼SW¼ of Sec. 26, T. 16 N., R. 29 E.W.M. (PROPOSED)

Well #9 - NE¼NE¼, Sec. 5, T. 15 N., R. 29 E.W.M. (PROPOSED)

Well #10 - NW¼ of Sec. 27, T. 16 N., R. 29 E.W.M. (PROPOSED)

"This authorization for the withdrawal of public ground waters within the boundaries of the Columbia Basin Project is based, on a tentative conclusion that public ground waters are available. If, however, it is subsequently determined by the Department that public ground waters are not available in the amounts authorized for withdrawal, the Department shall, by order of notification, withdraw or modify the authority granted therein as may be appropriate. In accordance with WAC 508-14-030(2)(b), no certificate of water right as provided for in RCW 90.44.080, shall be issued by the Department of Ecology until such time as a more definite determination can be reached as to the availability of public ground waters in an area described in WAC 508-14-030(3)."

"Well #1 shall be decommissioned in accordance with WAC 173-160."

"Well #6, as currently constructed, allows interaquifer transfer of water in violation of WAC 173-160-181(3) and WAC 173-160-161(2). This well shall be reconstructed to meet the requirements of the Minimum Standards for Well Construction and Maintenance of Wells, Chapter 173-160 WAC. This may be accomplished by decommissioning the lower portion of the well to a point above the Vantage Interbed or equivalent elevation. Placement of approved sealing materials shall be accomplished as stated in WAC 173-160-381(5). The City's authorized agent shall provide draft written plans for reconstruction of the well for written concurrence prior to releasing the bid for reconstruction."

"The Department recognizes the Saddle Mountains and the Wanapum Basalt Aquifers as two separate aquifers. Due to this fact you will be required to case and seal your well to a minimum depth of 250 feet below land surface to prevent interaquifer transfer of water. A borehole that is a minimum of four-inches greater in diameter than the permanent casing string to be contained within that section of borehole shall be constructed. The permanent casing is then to be placed or set into the borehole. The casing shall be centralized within the borehole. Due to borehole alignment and/or plumbness this may require the use of centralizers. Sealing materials shall be placed from the bottom of the cased interval to the top until undiluted seal material returns to the surface. After the casing is sealed in place, the well may be completed by drilling out of the casing. Your well shall have a maximum depth of 1000 feet below land surface."

"To avoid any misunderstandings or problems, prior to any construction of a new well or reconstruction of an existing well, send a copy of the plans for construction or reconstruction to the Department for written concurrence with said plans. The Department may require a videoscan of your well prior to and/or after the installation of casing. The Driller is to keep the Department informed of drilling progress. No pump may be installed until any required videoscans have been completed and then reviewed by the Department."

"An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and/or WAC 508-64-020 through WAC 508-64-040." (Installation, operation and maintenance requirements attached hereto)."

"Any future pump test data for the new well shall be submitted as it is obtained to the Department of Ecology."

"The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required."

"This authorization to make use of public waters of the State is subject to existing rights, including any existing rights held by the United States for the benefit of Indians under treaty or otherwise."

"Nothing in this authorization shall be construed as satisfying other applicable federal, state, or local statutes, ordinances, or regulations."

"All water wells constructed within the State shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells)."

"Use of water under this authorization shall be contingent upon the water right holder's utilization of up to date water conservation practices and maintenance of efficient water delivery systems consistent with established regulation requirements and facility capabilities."

Signed at Spokane, Washington
this 24th day of August, 2001

GENE DRURY
Water Resources Program
Department of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

THIS PERMIT SUPERSEDES GROUND WATER PERMIT NO. G3-20368P ISSUED JUNE 25, 1973

☐ SURFACE WATER ☒ GROUND WATER

PERMIT NUMBER	APPLICATION NUMBER	PRIORITY DATE	
G3-20368P	G3-20368	September 18, 1972	

NAME

CITY OF OTHELLO

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
512 East Main Street	Othello,	Washington	99344

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

PUBLIC WATER TO BE APPROPRIATED

SOURCE

a well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	2000	3024

QUANTITY, TYPE OF USE, PERIOD OF USE

2000 gallons per minute; 3024 acre feet per year for municipal supply continuously.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL

150 feet north and 70 feet west from the S¼ corner of Section 3

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SW¼	3	15	29E.		Adams

RECORDED PLATTED PROPERTY

LOT	BLOCK
OF (GIVE NAME OF PLAT OR ADDITION)	LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)

SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	COUNTY

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Othello.

Superseding Permit
12/28/73

CONTINUE ON REVERSE SIDE

DESCRIPTION OF PROPOSED WORKS

The well will be drilled and have a diameter of 16 inches, and depth of 1000 feet.

DEVELOPMENT SCHEDULE

BEGINNING DATE	COMPLETION DATE	DATE COMPLETE APPLICATION OF WATER TO BE MADE
April 1, 1974	April 1, 1975	April 1, 1976 1977

PROVISIONS

The installation and maintenance of an access port as described in Ground Water Bulletin No. 1 shall be required prior to issuance of final Certificate of Water Right.

The total annual withdrawal authorized from this well is 3,024 acre feet. Of this, 778 acre feet will be primary (or additional) and 2,246 acre feet shall be supplemental. The total annual withdrawal from all five wells combined shall not exceed 3,024 acre feet per year based on a population of 9,000.

A suitable measuring device approved by the Department of Ecology shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-040.

Water allocated for irrigation purposes in this permit may be withdrawn until such time as water from Project facilities becomes available to the permittee or his successor in interest for all or a portion of the lands described herein as the place of use. At that time, volumetric withdrawal shall be proportionately reduced to correspond to the acreage, if any, for which project water is not available.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail 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 25th *day of* October, *19*73.

JOHN A. BIGGS, *Director*
Department of Ecology

by R. JERRY BOLLEN
Assistant Director

ENGINEERING DATA
OK.....

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

THIS PERMIT SUPERSEDES GROUND WATER PERMIT NO. G3-20368P ISSUED OCTOBER 25, 1973

☐ SURFACE WATER ☒ GROUND WATER

PERMIT NUMBER	APPLICATION NUMBER	PRIORITY DATE	
G3-20368P	G3-20368	September 18, 1972	

NAME
CITY OF OTHELLO

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
512 East Main Street	Othello,	Washington	99344

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

PUBLIC WATER TO BE APPROPRIATED

SOURCE
a well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	2000	3024

QUANTITY, TYPE OF USE, PERIOD OF USE
2000 gallons per minute; 3024 acre feet per year for municipal supply continuously.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION/WITHDRAWAL
150 feet north and 70 feet west from the S¼ corner of Section 3

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼SW¼	3	15	29E.		Adams

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Othello.

Permit

DESCRIPTION OF PROPOSED WORKS

The well will be drilled and have a diameter of 16 inches, and depth of 1000 feet.

The installation and maintenance of an access port as described in Ground Water Bulletin No. 1 shall be required prior to issuance of final Certificate of Water Right.

The total annual withdrawal authorized from this well is 3,024 acre feet. Of this, 778 acre feet will be primary (or additional) and 2,246 acre feet shall be supplemental. The total annual withdrawal from all five wells combined shall not exceed 3,024 acre feet per year based on a population of 9,000.

DEVELOPMENT SCHEDULE

BEGINNING DATE	COMPLETION DATE	DATE COMPLETE APPLICATION OF WATER TO BE MADE
April 1, 1974	April 1, 1975	April 1, 1976

PROVISIONS

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.

A suitable measuring device approved by the Department of Ecology shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-040.

This permit authorizes the withdrawal of public ground waters within the exterior boundaries of the Columbia Basin Irrigation Project based on a conditional determination that public waters are available for beneficial use, and is issued subject to review and final determination by the Department of Ecology as to the availability of public ground waters based upon conclusions to be derived from a comprehensive, quantitative ground water study now in progress and scheduled for completion in the near future. No Certificate of Water Right, as provided by RCW 90.44.080, will issue under this permit prior to the completion of the comprehensive study nor until a final determination is made by the Department of Ecology as to the availability of public ground waters. Further, this permit is issued subject to any prior right to artificially stored ground water which may be established by declaration as provided in RCW 90.44.130. By acceptance of this permit, permittee expressly consents to this provision.

Water allocated for irrigation purposes in this permit may be withdrawn until such time as water from Project facilities becomes available to the permittee or his successor in interest for all or a portion of the lands described herein as the place of use. At that time, volumetric withdrawal shall be proportionately reduced to correspond to the acreage, if any, for which project water is not available.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail 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 28th *day of* December, *19* 73.

JOHN A. BIGGS, *Director*
Department of Ecology

by R. Jerry Bollen
R. JERRY BOLLEN
Assistant Director

ENGINEERING DATA
OK PMO

S. F. No. 7354—(Rev. 6-70).

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Permit to Appropriate Public Waters of the State of Washington

Book No. ------ of Ground Water Permits, on page G320368P/ under Application No. G320368.

CITY OF OTHELLO

of Othello, Washington

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

Priority date of this permit is September 18, 1972

Source(s) of the proposed ground water appropriation is/~~are~~ A Well

The quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed 2,000 gallons per minute; 3,024 acre-feet per year, to be used for the following purposes: Municipal Supply, as more definitely set out below.

Approximate location(s) of the point(s) of withdrawal is/~~are~~: 150 feet north and 70 feet west from the S¼ corner of Section 3

being within SE¼SW¼

of Sec. 3, Twp. 15 N., Rge. 29 E. W.M., Adams County,

The use, or uses, to which water is to be applied:

~~Domestic~~/municipal supply: 2,000 gallons per minute; 3,024 acre-feet per year, during entire year.

Irrigation: ..... gallons per minute; ..... acre-feet per year from ..... to ....., each year, for the irrigation of ..... acres.

Other use(s): ..... gallons per minute; ..... acre-feet per year, from ..... to ..... each year, for .....

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by City of Othello.

Superceding Permit - 10/25/73

ADDITIONAL LIMITATIONS AND PROVISIONS: The installation and maintenance of an access port as described in Ground Water Bulletin No. ' shall be required prior to issuance of final Certificate of Water Right.

The total annual withdrawal authorized from this well is 3,024 acre feet. Of this, 778 acre feet will be primary (or additional) and 2,246 acre feet shall be supplemental. The total annual withdrawal from all five wells combined shall not exceed 3,024 acre feet per year based on a population of 9,000.

A suitable measuring device approved by the Department of Ecology shall be installed and maintained in accordance with WAC 508-64-020 through WAC 508-64-040.

DESCRIPTION OF PROPOSED WORKS:

The well will be **drilled** (Dug or drilled) and have a diameter of **16** inches, and depth of **1000** feet.

Description of tunnel or infiltration trench: .....

DEVELOPMENT SCHEDULE:

Construction work shall begin on or before **April 1, 1974**

and shall thereafter be prosecuted with reasonable diligence and completed on or before **April 1, 1975**

and complete application of water to proposed use shall be made on or before **April 1, 1976**

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail 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 27th day of June, 1973.

JOHN A. BIGGS, *Director*
Department of Ecology

by R. Jerry Bollen
R. JERRY BOLLEN
Assistant Director

ENGINEERING DATA
OK RP

S. F. No. 370-B—OS—(Rev. 7-70).

$10.00 examination fee should accompany each application.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PRIORITY
Date 9/18/72
Time 1006
Accepted CED

APPLICATION FOR A PERMIT

To Appropriate Public Ground Waters
OF THE STATE OF WASHINGTON

RECEIVED
SEP 19 1972
8:30 am
DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE
SEP 18 10 06 AM '72
DEPT. OF ECOLOGY

509-HU 8-2657

Application No. G. W. G320368

I, City of Othello, Washington
(Name of applicant)

of 512 East Main Street, Othello, Washington 99344
(Complete post office address)

do hereby make application for a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights. This application is made under the provisions of Chap. 263 of the Session Laws of 1945, and amendments thereto of the State of Washington and subject to the rules and regulations of the Department of Ecology.

1. *The proposed appropriation will be from* A Well
(Well, tunnel, infiltration trench)

located within city limits.
(Give approximate distance and direction from nearest city or town)

Area ..... (Leave blank) *Sub-area* ..... (Leave blank)

Zone ..... (Leave blank)

Applicant's name or number of well or other works, if any Well #5

2. *The quantity of water which applicant intends to withdraw for beneficial use is* 2000 *gallons per minute;* 3285 *acre feet per year.*

3. *The use or uses to which water is to be applied* Municipal Supply
(Domestic supply, irrigation, municipal, manufacturing, industrial use, etc.)

4. *The time during which water will be required each year* Continously

5. *Location of well or other works for withdrawal of water: In county of* Adams

FIELD: VERIFY P.O.D.

150 FT. N. & 70 FT. W. FROM THE S¼ CORNER SEC. 3

(a) ~~Approximately 370' - N 11° 00' W from S. E. corner of S. W. 1/4~~
(Give distance and bearing from nearest corner of section or legal subdivision)

being within the ~~S. W. Quarter~~ SE¼ SW¼ *of Sec.* 3 *, Twp.* 15 *N., Rge.* 29E (E. or W.)
(Give smallest legal subdivision)

or (b) *If within limits of recorded platted property, town or city: Lot* -- *, Block* -- *,*

of ----
(Give name of plat or addition) (If within town or city, give name)

(c) *Show this location on accompanying section plat. Other adequate maps or drawings will be acceptable.*

CC: NOTICE & PERMIT TO U.S.B.R.

6. DESCRIPTION OF WORKS:

(a) Well will be drilled *and have a diameter of* 16 *inches and an estimated depth of* 1000 *feet.*
(Dug or drilled)

(b) Tunnels or trenches to be described: (Attach additional sheets if needed for full description.)

None

(c) Distribution system to be described:

Tied to existing municipal water distribution system with new 10" main.

(d) If pumps are to be used, give size and type:

14" vertical turbine

(e) Give capacity and type of motor or engine to be used:

400 HP, vertical, induction type motor

(f) If the location of the well, tunnel, or other works is less than one-fourth mile from a natural stream or stream channel, give the distance to the nearest point on each of such channels and the difference in elevation between the stream bed and the ground surface at the source of development:

Not applicable.

(g) Ownership of each existing well or other works from which ground water is withdrawn within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:

(Name)	(Direction)	(Distance)
None		

SUPPLY THE FOLLOWING INFORMATION ACCORDING TO USE PROPOSED:

7. *For Municipal Supply: To supply the city, town, or community of* Othello *, in the county of* Adams *, having a present population of* 4350 *, and an estimated population of* 9000 *, in 19* 85 *.*

8. *For Irrigation: Number of acres to be irrigated* -- *acres.*

9. *Legal Description of Property on which water is to be used for all purposes other than municipal supply:*

(Copy legal description from deed)
(If more space is required, attach separate sheet)

~~Not applicable~~ AREA SERVED BY CITY OF OTHELLO.

NEED MAP WITH AREA OUTLINED BEFORE PERMIT. REQUESTED PER TELECON. 1/16/72

(On accompanying plat show location of the existing wells or works)

10. *What interest do you have in the above described property?* N. A.

(Owner, lessee, contract buyer, etc.)

11. *Do you have any other water rights appurtenant to the above described property?* N. A.

If so, from what source? 5338-A 182-D 183-D

12. *Construction work will begin on or before* February 1, 1973

13. *Construction work will be completed on or before* December 31, 1973

14. *Water will be put to complete beneficial use on or before* December 31, 1973

, Mayor
(Signature of applicant)

15. *Name and address of owner of land on which well or works are located:*

City of Othello
(Name)

512 East Main Street
Othello, Washington 99344
(Address)

Harry L Dargent, Mayor
(Signature of legal landowner)

Signed in the presence of us as witnesses:

Bonnie B. Holm
(Name)

905 E. Elm, Othello, Wa 99344
(Address of witness)

Phyllis J. John
(Name)

#2 Modern Trailer Ct
(Address of witness) Othello, Wa 99344

STATE OF WASHINGTON,
COUNTY OF THURSTON. } *ss.*

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for correction or completion as follows:

In order to retain its priority, this application must be returned to the Department of Ecology, with corrections, on or before ....., *19*.....

WITNESS my hand this ..... *day of* ....., *19*.....

Department of Ecology.

DIRECTIONS FOR PREPARING APPLICATIONS

1. Initial examination fee of $10.00 should accompany each application. If additional fee is required, you will be notified.

2. Write plainly in ink or use typewriter.

3. Read carefully all questions. Answer only those that apply to your project.

4. Under Question 2 estimate in gallons per minute and acre-feet per year the quantity of water that will be required for your proposed use.

5. A map showing the location of well or other works and place of use, must be made on the enclosed section plat. If for irrigation, show the approximate area to be irrigated. Show also location of other existing wells or other works for withdrawing ground water within a radius of one-quarter mile.

6. In answering Question 5, give the distance and direction of location of well or other construction works for withdrawal of water from the nearest 40-acre corner or other legal subdivision, as

"320 feet north and 1100 feet east from the southwest corner of Sec. 1, Twp. 13 N., Rge. 2 E.W.M.," or

"North 36° 20′ east 500 feet from the northeast corner of NW¼ of SW¼ of Sec. 33, Twp. 12 N., Rge. 3 E.W.M.," or

If within the limits of incorporated town or city:

"Lot 4, Block 6 of Churchill's Addition to the City of Spokane, Washington."

7. Be sure to give on the map brief directions for driving to the location of the well or other works from some town or easily located point on a state highway. This is for our convenience in making the examination.

8. If you have been using ground water since **before** June 7, 1945, it will not be necessary to secure a permit from the state for this purpose.

9. Sign application on the line indicated under Section 14.

SCHEDULE OF FEES DUE IN CONNECTION WITH OBTAINING GROUND WATER RIGHTS

Examination Fees: There is a minimum fee of $10.00 for each application received. This fee covers all withdrawals up to and including 2250 gallons per minute. There is an additional examination fee of $2.00 for each 450 gallons per minute, or fraction thereof, over 2250 gallons per minute.

Fees for Filing and Recording Permits: There is a minimum fee of $5.00 for filing and recording a permit.

For irrigation, permit fees are as follows:

40¢ per acre, up to and including 100 acres;

20¢ per acre over 100 acres to 1,000 acres, inclusive;

10¢ per acre over 1,000 acres.

Permit fee for other uses: Twice the examination fee.

Fee for filing and recording certificate: There is a minimum fee of $5.00.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

March 4, 2014

City of Othello
500 East Maine Street
Othello, Washington 99344

Re: Ground Water Permit No. G3-25933

Dear Sir:

Enclosed is your superseding permit to be retained for your records. Please read the enclosed information sheet, as well as your entire permit.

This permit authorizes you to construct your project and put water to use.

We are enclosing a *Construction Notice* form. Once you begin construction, complete and submit the form to this office. **If you cannot begin your project by November 1, 2014, you must contact this office to apply for an extension.**

If you have any questions, please contact Herman Spangle at 509-329-3488.

Sincerely,

Karen Tusa

Karen Tusa
Water Resources Program
Eastern Regional Office

KT:md
W: Super permits/Tusa/2014/City of Othello G3-25933 cvr letter 3-04-2014.doc
Enclosures: Superseding Permit
Construction Notice
Important Information About Your Water Right Permit

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
SUPERSEDING PERMIT

THIS PERMIT SUPERSEDES GROUND WATER PERMIT NO. G3-25933 ISSUED SEPTEMBER 5, 2013
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
April 17, 1978	G3-25933	G3-25933	

NAME
City of Othello

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
500 East Main Street	Othello	Washington	99344

The applicant is 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
Nine (9) wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	2,000	3,000

QUANTITY, TYPE OF USE, PERIOD OF USE

2,000 gallons per minute, 3,000 acre feet per year for continuous municipal supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL

AT A POINT LOCATED:	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Well #2	-	NW¼	3	15 N	29E	36	Adams
Well #3	SE¼	SE¼	34	16 N	29 E	36	Adams
Well #4	NE¼	SE¼	3	15 N	29 E	36	Adams
Well #5	SE¼	SW¼	3	15 N	29 E	36	Adams
Well #6	NE¼	NE¼	4	15 N	29 E	36	Adams
Well #7	SE¼	SE¼	9	15 N	29 E	36	Adams
Well #8	SW¼	SW¼	26	16 N	29 E	36	Adams
Well #9	NE¼	SW¼	36	16 N	29 E	36	Adams
Well #10	-	NW¼	27	16 N	29 E	36	Adams

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
----	--	15 & 16	29 E.	36	Adams

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The place of use (POU) of this water right is the City of Othello's service area described in the most recent Water System Plan approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

DESCRIPTION OF PROPOSED WORKS

Nine wells, pumps, storage and distribution system

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
November 1, 2014	November 1, 2016	November 1, 2020

PROVISIONS

Use of water under this authorization shall be contingent upon the water right holder's utilization of up to date water conservation practices and maintenance of efficient water delivery systems consistent with established regulation requirements and facility capabilities.

The water source and/or water transmission facilities are not wholly located upon the land owned by the applicant. Issuance of a permit by this Department for appropriation of the waters in question does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtainment of such right is a private matter between applicant and owner of that land.

This authorization to make use of public waters of the State is subject to existing rights, including any existing rights held by the United States for the benefit of Indians under treaty or otherwise.

Nothing in this authorization shall be construed as satisfying other applicable federal, state, or local statutes, ordinances, or regulations.

An approved measuring device shall be installed and maintained for each of the sources identified herein in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly and maintained by the property owner for a minimum of five years, and shall be promptly submitted to Ecology upon request.

The rule above describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

A well log of the completed well shall be submitted by the driller to the Department of Ecology within thirty (30) days of completion of this well. This well log shall be complete and all information concerning the static water level in the completed well in addition to any pump test data shall be submitted as it is obtained.

This superseding 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.

Signed this 4th day of March, 2014, at Spokane, Washington,

Department of Ecology

DATA REVIEW
OK KT

by Keith L. Stoffel, Section Manager

KLS/KT:md
W: Super permits/Tusa/2014/City of Othello G3-25933 permit 3-04-2014.doc

DEPARTMENT OF ECOLOGY
State of Washington

Application for Change/Transfer of Water Right

For Ecology Use (Date Stamp)
RECEIVED
SEP 03 2013
DEPARTMENT O ECOLOGY
EASTERN [illegible] OFFICE

For filing with the Department of Ecology *or* with County Conservancy Boards

A NON-REFUNDABLE MINIMUM FEE OF $50.00 MUST ACCOMPANY THIS APPLICATION IF FILED WITH THE DEPARTMENT OF ECOLOGY

(Check all that apply.)

- ☐ Change purpose(s) of use
- ☐ Add purpose(s) of use
- ☒ Change point(s) of diversion/withdrawal
- ☐ Add point(s) of diversion/withdrawal
- ☐ Change/transfer place of use
- ☐ Other (i.e. consolidation, intertie, trust water)

Explain:_____

IF MORE SPACE IS NEEDED, ATTACH ADDITIONAL SHEETS (PLEASE PRINT OR TYPE CLEARLY)*

FOR OFFICIAL USE ONLY

DATE APPLICATION RECEIVED 8-26-2013
CHECK NO. 42919 FEE $ 500.00
DATE ACCEPTED 8-26-2013 BY ACWCB
CHANGE NO. ADAM-13-05
COUNTY _____ WRIA _____
SPECIAL AREA _____

SEPA: ☐ EXEMPT ☐ NOT EXEMPT
ECY CODING: 001-002-WR10285-000011
APP NO. _____ PERMIT NO. _____
CERT NO. _____ CERT OF CHG NO. _____

☐ **I have participated in a pre-application conference with Ecology.**

1. Applicant Information

APPLICANT/BUSINESS NAME	PHONE NO.	FAX NO.
City of Othello	(509) 488-5686	(509) 488-0102
ADDRESS		
500 East Main Street		
CITY	STATE	ZIP CODE
Othello	WA	99344
EMAIL ADDRESS (IF AVAILABLE)		
tclements@othellowa.gov		

CONTACT (IF DIFFERENT FROM ABOVE)	PHONE NO.	FAX NO.
Lawrence C. Julius, P.E., Gray & Osborne, Inc.	(509) 453-4833	(509) 453-5953
ADDRESS		
107 South Third Street		
CITY	STATE	ZIP CODE
Yakima	WA	98901
EMAIL ADDRESS (IF AVAILABLE)		
ljulius@g-o.com		

LEGAL LAND OWNER or PART OWNER OF PROPOSED PLACE OF USE	PHONE NO.	FAX NO.
A.A.C.C. LLC c/o Merle D. Booker	(509) 989-2324	(509) 297-9295
ADDRESS		
10971 Coyan Road		
CITY	STATE	ZIP CODE
Connell	WA	99326
EMAIL ADDRESS (IF AVAILABLE)		
merle@bookerauction.com		

2. Water Right Information

WATER RIGHT OR CLAIM NUMBER	RECORDED NAME(S)
G3-25933	City of Othello
DO YOU OWN THE RIGHT TO BE CHANGED? ☒ YES ☐ NO IF NO, PROVIDE OWNER(S) NAME and ADDRESS:	
HAS THE WATER BEEN PUT TO BENEFICIAL USE IN THE LAST FIVE (5) YEARS? ☒ YES ☐ NO	

Please attach copies of any documentation that demonstrates consistent, historical use of water since the right was established. Also, if you have a water system plan or conservation plan, please include a copy with your application.

CG3-25933@2
5884073

3. Point(s) of Diversion/Withdrawal:

A. Existing

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Proposed well	9	SE	SW	36	16N	29E	2100450781014	N/A

B. Proposed

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Proposed well	9	NE	SW	36	16N	29E	2110450780100	N/A

DO YOU OWN THE EXISTING AND PROPOSED POINT(S) OF DIVERSION/WITHDRAWAL?

EXISTING: ☐ YES ☒ NO PROPOSED: ☐ YES ☒ NO – IF NO, PROVIDE OWNER(S) NAME: Merle D. Booker

Please include copies of all water well reports involved with this proposal. Also, if you know the distances from the nearest section corner to the above point(s) of diversion/withdrawal, please include that information in Item No. 6 (remarks) or as an attachment.

4. Purpose of Use:

A. Existing

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Municipal supply	2,000	3,000	throughout the year

B. Proposed

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE

5. Place of Use:

A. Existing

LEGAL DESCRIPTION OF LANDS WHERE WATER IS PRESENTLY USED:

The area served by the City of Othello, Washington

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES
					Adams		

DO YOU OWN ALL THE LANDS IN THE EXISTING PLACE OF USE? ☐ YES ☒ NO

IF NO, PROVIDE OWNER(S) NAME: Municipal source serving City of Othello, Washington service area

B. Proposed

LEGAL DESCRIPTION OF LANDS WHERE NEW USE IS PROPOSED:

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES

DO YOU OWN ALL THE LANDS IN THE PROPOSED PLACE OF USE? ☐ YES ☐ NO

IF NO, PROVIDE OWNER(S) NAME:

Attach a detailed map of your proposed change/transfer. The map should show existing and proposed point(s) of diversion/withdrawal, place of use and any other features involved with this application. If platted property, please include a certified copy of the plat map.

Are there any ADDITIONAL WATER rights OR CLAIMS RELATED to the same property as the ONE PROPOSED FOR CHANGE/TRANSFER?

☐ YES ☒ NO – IF YES, PROVIDE THE WATER RIGHT/CLAIM NUMBER(S):

6. Remarks and Other Relevant Information:

IF FOR SEASONAL OR TEMPORARY, START DATE ___/___/_____ END DATE ___/___/_____

Certain applications may incur a Real Estate Excise Tax liability for the seller of the water rights. The Department of Revenue has requested notification of potential taxable water right related actions and therefore may be provided with a copy of this request. For further information, contact: Department of Revenue, Real Estate Excise Tax, PO Box 47477, Olympia, WA 98504-7477. Phone (360) 570-3265.

7. Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I hereby grant staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in preparing this above application, I understand that all responsibility for the accuracy of the information rests with me.

Tim Wilson, Mayor ***Applicant Printed Name – Title***	Mayor Tim Wilson ***Applicant Signature***	8/26/13 ***(Date)***
Tim Wilson, Mayor ***Water Right Holder Printed Name***	Mayor Tim Wilson ***Water Right Holder Signature***	8/26/13 ***(Date)***
Land Owner of Existing Place of Use Printed Name	***Land Owner of Existing Place of Use Signature***	/ / ***(Date)***
AACC, LLC Merle D. Booker ***Land Owner of Proposed Place of Use Printed Name***	AACC LLC ***Land Owner of Proposed Place of Use Signature***	8/26/13 ***(Date)***

Please check the region in which the project is located:

***Submit your application to:** DEPARTMENT OF ECOLOGY CASHIERING SECTION PO BOX 47611 OLYMPIA, WA 98504-7611	☐ Central Regional Office 15 W Yakima Avenue, Suite 200 Yakima, WA 98902 (509) 575-2490	☒ Eastern Regional Office 4601 N. Monroe Street Spokane, WA 99205-1295 (509) 329-3400
	☐ Northwest Regional Office 3190 – 160th Avenue SE Bellevue, WA 98008-5452 (425) 649-7000	☐ Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775 (360) 407-6300

WE ARE RETURNING YOUR APPLICATION FOR THE FOLLOWING REASON(S):

☐ APPLICATION FEE NOT ENCLOSED ☐ MAP NOT INCLUDED or INCOMPLETE

☐ ADDITIONAL SIGNATURES REQUIRED ☐ SECTION _____ IS INCOMPLETE

☐ OTHER/EXPLANATION:_____

STAFF: _____ ***DATE:*** ____/____/____

AMENDED 4-12-95 Recvd #110. 11140

WASHINGTON STATE DEPARTMENT OF ECOLOGY

AMENDED 5-21-96

APPLICATION FOR PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

RECEIVED FEB 22 1994 DEPARTMENT OF ECOLOGY EASTERN REGIONAL OFFICE

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
G329644	36	ADAMS	2-22-94		G.D.

APPLICANT'S NAME — PLEASE PRINT

(CITY OF OTHELLO)

Bus. Tel. 509-488-5686
Home Tel.
Other Tel. Fax 509-488-2385

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
512 E. Main	Othello	WA	99344

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION
N/A

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE)	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.) (~~A Well (No. 7)~~) * (8) WELLS (9)
TRIBUTARY	SIZE AND DEPTH Anticipated Depth, 900ft.; 24" surface casing 20" through unconsolidated, 18" to depth.

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)
Municipal Use; including wastewater disposal through irrigation on lands outside the City (See 5)

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF:	CUBIC FEET PER SECOND (CFS)	OR	GALLONS PER MINUTE (GPM)	ACRE FEET PER YEAR
			2,200	to be determined.

(Continuous Municipal Supply and wastewater disposal through irrigation)

TIMES DURING YEAR WATER WILL BE REQUIRED
As needed for municipal use year round

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, 1-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY
N/A	1,464 residential Sv. 260 Comm, 2 Ind.	7,000

DATE PROJECT WAS OR WILL BE STARTED	DATE PROJECT WAS OR WILL BE COMPLETED
Fall, 1994	Spring, 1995

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION, SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.
Approximate 1200 ft south and 100 ft west of the NE corner of Sec 34, Twn 16N, Range 29E

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
~~SE 1/4 NE 1/4 NE 1/4~~	34	16N	29E	Adams

* SEE ATTACHED - WELL LOCATIONS

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER
No; Mr. Pete Taggares, 850 N. Broadway, Othello, WA 99344

5. LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED*

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM **A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY.** OR, COPY CAREFULLY IN THE SPACE BELOW.

The area served by the City of Othello Municipal Water System. Consistent with existing City water rights, this application is intended to allow irrigation on lands outside the City of Othello's distribution system authorized by State waste discharge permits #5322 and #5354.

*AMENDED: 4/12/95 PER MEETING W/ Hirschi, Mather & Peters.
AMENDED - 5-21-96 per applicant's Request - CAC

I have examined this application as required by SWRA and find that it is: ☐ not an "action". ☐ categorically exempt.

G.D. 4/12/95
DATE

SIGNATURE

ECY 040-1-14
Rev. 8/91 F

APPLICATION

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH THE WATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONTRACT PURCHASER, ETC.)

City of Othello operates the municipal water system on property the water is to be used on.

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.) [XX] YES [ ] NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Existing City Groundwater Permits: 182D, 183D, 3390-A, 5338-A, G3-25033P, G3-20368P, G3-25032P, G3-25933P.

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.

In accordance with the 1991 Draft Water Comprehensive Plan, the City of Othello intends to supplement the existing municipal water system with a new source of supply. The new source will be drilled at the location shown herein, and consist of a 900ft deep, 20" to 24" diameter casing, 600 HP motor with a capacity of about 2,200 gpm. The new source will be integrated into the existing system.

REMARKS

7. The additional source of supply is needed to supplement the existing municipal system in order to accommodate increased industrial and commercial demands. It is also intended to reduce dependence on Well No. 6 (G3-25032P/25933P) which exceeds DOH Fluoride Standards.

8.

COMPLETE THIS SECTION ONLY IF THIS APPLICATION INCLUDES IRRIGATION AS A USE

IN ORDER TO IMPLEMENT THE PROVISIONS OF INITIATIVE MEASURE NUMBER 59, THE FAMILY FARM WATER ACT WHICH WAS PASSED BY THE VOTERS ON NOVEMBER 3, 1977, WE MUST ASK THE FOLLOWING QUESTIONS:

DOES THE TOTAL NUMBER OF ACRES IN WHICH YOU HAVE CONTROLLING INTEREST IN THE STATE OF WASHINGTON EXCEED 2000 ACRES FOR THE FOLLOWING THREE CATEGORIES:

1. LANDS THAT ARE BEING IRRIGATED UNDER WATER RIGHTS ACQUIRED AFTER DECEMBER 8, 1977. YES [ ] NO [ ]
2. LANDS THAT MAY BE IRRIGATED UNDER APPLICATIONS NOW ON FILE WITH THE DEPARTMENT OF ECOLOGY. YES [ ] NO [ ]
3. LANDS THAT MAY BE IRRIGATED UNDER THIS APPLICATION. YES [ ] NO [ ]

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN addition TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

Mr. Pete Taggares
LEGAL LANDOWNERS NAME (PLEASE PRINT)

D. MILO HIRSCHI
APPLICANT'S SIGNATURE
CITY OF OTHELLO
LEGAL LANDOWNER'S SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 5)

850 N BROADWAY, OTHELLO
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARATMENT OF ECOLOGY } ss.

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before ....., *19*.....

Witness my hand this ..... *day of* ....., *19*.....

.....
Department of Ecology

ECY 040-1-14
Rev. 8/91 F

APPENDIX D

Water System City Code, Policies, and Ordinances
2016 Public Works Water System Design Standards
Cross Connection Control Plan
Operation and Maintenance Plan
Emergency Response Plan
Wellhead Protection Plan
Coliform Monitoring Plan
Lead and Copper Rule
Fluoride Blending Plan
Consumer Confidence Report

Chapter 12.16
WATER AND SEWER SERVICE AND RATES*

Sections:

* City or town authorized to contract to provide water service, see RCW 35.91.020.

12.16.005 Connection mandatory.

The city municipal water system is the water system for the city and connection to the system for all water service is mandatory. No other purveyor of water service, potable or otherwise, shall be permitted to provide water service within the city; provided, withdrawals of public water in compliance with Chapter 12.30 will be permitted; and, provided further, that use of other sources of irrigation water may be permitted from time to time by the city council for such periods and upon such terms as the council shall determine. (Ord. 1028 § 1 (part), 1999: Ord. 982 § 1, 1996).

12.16.010 Water and sewer utility applications.

(a) All applications for water and sewer service shall be made at the Othello City Hall on forms furnished by the city. The applicant shall supply such information as is deemed necessary. All applications shall be made by the owner of the property to be served or the owner's authorized agent.

(b) Joint Charging. All charges for water, sewer and garbage payments due the city shall be billed jointly on one statement. All payments received from a user shall be credited first to charges for garbage service, second to charges for sewer service, and third to charges for water service. (Ord. 1478 § 1 (part), 2016: Ord. 1028 § 1 (part), 1999: Ord. 224 § 601.00, 1959: Ord. 164 § 601, 1955).

12.16.020 Deposit.

A deposit of twenty dollars shall be made to the city clerk for water and sewer service when the responsibility for payment of such charges falls upon a tenant rather than the owner of the real property, which deposit shall be paid when the tenant applies for water and/or sewer service, provided no such deposits shall be made or accepted after June 16, 1999. Such deposits shall be returned by the city clerk upon the tenant vacating the premises and ordering the water turned off, and all charges for the use of water and/or sewer services have been paid by the depositor in full, or if the tenant shall have paid on a current and timely basis all utility charges for a period of eighteen months, the clerk shall refund the tenant's deposit. Should the water and/or sewer bill be in the name of the owner of the real property, no deposit shall be required. The owner of real property shall not be relieved of claim of lien accruing upon such property for delinquent payments for water and/or sewer service arising from his delinquency or the delinquency of his tenant(s). (Ord. 1028 § 1 (part), 1999: Ord. 646 § 1, 1981: Ord. 474 § 2, 1974: Ord. 224 § 601.01, 1959: Ord. 164 § 6.01, 1955).

12.16.030 Individual connections.

In making all future connections with the domestic water system, each residence, residential unit, individual business, business enterprise, or business unit, or industrial enterprise or unit, shall be considered an individual consumer and shall be supplied through a separate service connection except as provided for in Section 12.16.090; provided, that the term "future connections" shall be deemed to include any and all connections hereafter made, or modification of existing connections, such as the installation of water meters onto domestic supply lines in those instances where such meters have not been installed. (Ord. 1400 § 5 (part), 2014: Ord. 164 § 602, 1955).

12.16.040 Meter relocation.

When it is necessary for the convenience of the city because of the installation of new water mains, or for any other reason, to change an existing domestic water meter, or domestic water service location, such new location shall be made at the cost and expense of the water department, except that the property owner shall reinstall his domestic water service pipes to connect with the water main meter as relocated at his own expense. (Ord. 164 § 603, 1955).

12.16.050 Owner's responsibility on private service.

Owners of services are responsible for all leaks or damage on account of leaks from privately owned services. Privately owned services shall be deemed to include all domestic service lines between the meter and consumer's property, and all domestic service lines lying, on or under the consumer's property. All water meters shall be and remain the property of the city, and the responsibility of the city. The meters may be removed, replaced or changed as to size and type by the water department whenever deemed necessary. (Ord. 164 § 605, 1955).

12.16.060 Minimum monthly service charge.

Single-family residences, multiple-family residences, commercial and industrial customers inside the city limits, including all commercial single and multiple occupancy buildings and businesses, motels, inns, institutions and schools, and excluding industrial customers with contracted water service agreements, shall be subject to the following monthly service charges.

Effective December 16, 2016, the minimum monthly service charge shall be as listed in the column titled "2017 Minimum Monthly Service Charge"; then on December 16, 2017, the minimum service charge shall be as listed in the column titled "2018 Minimum Monthly Service Charge"; then on December 16, 2018, the minimum service charge shall be as listed in the column titled "2019 Minimum Monthly Service Charge."

Meter Size	Multiplication Factor for Meters Over One Inch	2017 Minimum Monthly Service Charge	2018 Minimum Monthly Service Charge	2019 Minimum Monthly Service Charge
1" or less	1.00	$34.83	$35.53	$36.24
1-1/2"	3.33	$115.99	$118.31	$120.68
2"	5.33	$185.65	$189.36	$193.15
3"	10.00	$348.33	$355.30	$362.40
4"	16.66	$580.34	$591.95	$603.79
6"	33.33	$1,161.02	$1,184.24	$1,207.92
8"	53.33	$1,857.68	$1,894.83	$1,932.73
10"	76.66	$2,670.36	$2,723.76	$2,778.24

(Ord. 1481 § 1 (part), 2016: Ord. 1392 § 1 (part), 2013: Ord. 1329 § 1 (part), 2010: Ord. 1266 § 1 (part), 2008: Ord. 1235 § 1 (part), 2007: Ord. 1168

§ 1 (part), 2003; Ord. 1028 § 1 (part), 1999: Ord. 985 § 1 (part), 1996: Ord. 839 § 1, 1990: Ord. 819 § 1, 1990; Ord. 792 § 1, 1989: Ord. 746 § 1, 1986: Ord. 741 § 4, 1985: Ord. 692 § 3, 1984; Ord. 646 § 3, 1981: Ord. 530 § 2, 1977: Ord. 474 § 4, 1974: Ord. 403 § 2, 1970: Ord. 375, 1968: Ord. 224 § 701.02, 1959: Ord. 162 § 701 (part), 1955).

12.16.070 Volume charge.

Effective December 16, 2016, the volume charge for all metered water consumption shall be as listed in the row titled "2017," then on December 16, 2017, the volume charge for all metered water consumption shall be as listed in the row titled "2018," then on December 16, 2018, the volume charge for all metered water consumption shall be as listed in the row titled "2019":

Volume Charge/2017—2019

Meter Size	Multiplication Factor for Meters Over One Inch	First Block of Water	Second Block of Water	Third Block of Water
1" or less	1	8 units	20 units	Total used less 28 units
1-1/2"	3.33	26 units	66 units	Total used less 92 units
2"	5.33	42 units	106 units	Total used less 148 units
3"	10.00	80 units	200 units	Total used less 280 units
4"	16.66	133 units	333 units	Total used less 466 units
6"	33.33	266 units	666 units	Total used less 932 units
8"	53.33	426 units	1066 units	Total used less 1492 units
10"	76.66	613 units	1533 units	Total used less 2146 units
2017	Price per unit delivered inside the city limits	$0.68	$0.80	$0.91
2017	Price per unit delivered outside the city limits	$1.02	$1.20	$1.37
2018	Price per unit delivered inside the city limits	$0.75	$0.88	$1.00
2018	Price per unit delivered outside the city limits	$1.13	$1.32	$1.51
2019	Price per unit delivered inside the city limits	$0.83	$0.97	$1.10
2019	Price per unit delivered outside the city limits	$1.24	$1.46	$1.66
1 unit = 100 cubic feet of water				

For billing periods where the residential meters are unable to be read due to weather or other disruptions and more than one billing cycle is included in the reading, the residential customer shall only be billed the first block rate for all water consumed during the period.

INDUSTRIAL BULK WATER RATE

Volume Charge/2017—2019

Year		Per Unit Charge for First 50,000 Units	Per Unit Charge for Units Used Greater Than 50,000
2017	Price per unit delivered inside the city limits	$0.70	$0.77
2017	Price per unit delivered outside the city limits	$1.05	$1.16
2018	Price per unit delivered inside the city limits	$0.81	$0.90

Year		Per Unit Charge for First 50,000 Units	Per Unit Charge for Units Used Greater Than 50,000
2018	Price per unit delivered outside the city limits	$1.22	$1.34
2019	Price per unit delivered inside the city limits	$0.95	$1.04
2019	Price per unit delivered outside the city limits	$1.42	$1.56
1 unit = 100 cubic feet of water			

(Ord. 1481 § 1 (part), 2016: Ord. 1392 § 1 (part), 2013: Ord. 1329 § 1 (part), 2010: Ord. 1266 § 1 (part), 2008: Ord. 1258 § 1, 2007: Ord. 1235 § 1 (part), 2007: Ord. 1168 § 1 (part), 2003; Ord. 1116 § 1 (part), 2002: Ord. 1038 § 1, 1999: Ord. 1028 § 1 (part), 1999: Ord. 985 § 1 (part), 1996: Ord. 839 § 2, 1990: Ord. 793 § 1, 1989: Ord. 746 § 1, 1986: Ord. 741 § 4, 1985: Ord. 692 § 3, 1984: Ord. 646 § 3, 1981: Ord. 530 § 2, 1977: Ord. 474 § 4 1974: Ord. 403 § 2, 1970: Ord. 224 § 701.02, 1959: Ord. 162 § 701 (part), 1955).

12.16.080 Water billings.

Monthly water service billings shall run from the sixteenth of one month to the fifteenth of the next month and shall be billed on the last working day of each month.

A user requesting new water service after the sixteenth of the month, or discontinuance of an existing service prior to the fifteenth of the month, shall be billed for a full month's service based on the applicable "Monthly Service Charge" and "Water Use" schedules.

Charges for multiple-family dwellings and multiple commercial occupants shall be billed to a single applicant for the entire complex and consist of the applicable "Monthly Service Charge" and "Water Use" schedules, and shall include all units, whether the unit is occupied or not, whenever the water is on to the entire complex. (Ord. 646 § 4, 1981: Ord. 224 § 701.03, 1959: Ord. 164 § 701 (part), 1955).

12.16.090 Joint users charges.

Where two or more individual unit customers are served by a single meter, and such service has been authorized by the public works director, and if individual water bills are computed, the water bills shall be computed as follows:

(a) A minimum monthly service charge shall be made, based upon the meter size and equally divided by the number of accounts that are served by the individual meter;

(b) All water usage charges shall be divided equally to each individual customer and billed in accordance with the applicable rate schedule. The volume charge shall be equally divided by the number of accounts that are served by the individual meter. In all such cases, all such individual users shall be jointly and severally liable for all water used and be jointly affected by any prohibition herein as to use by others and in case of delinquency of one such joint user, the city shall have the same remedy as though all such joint users were delinquent. (Ord. 1400 § 5 (part), 2014: Ord. 1225 § 1, 2006: Ord. 692 § 5, 1984: Ord. 164 § 701 (part), 1955).

12.16.110 Private uses of city fire hydrants.

Private uses of city fire hydrants must be approved by the municipal services coordinator or the mayor's designee. The user of the city fire hydrant must register with the city's utility billing department and shall pay a refundable deposit of three hundred dollars for a one-inch meter and five hundred dollars for a three-inch meter prior to the public works department issuing the city's meter/backflow device. The registration shall include the identification of an active water account in good standing which shall be responsible for any charges not paid by the user in connection with the use of this meter. This account must remain active and in good standing for all times the user has possession of the city's meter. At the time of application to use the meter, the user shall state the date by which it will be returned to the city. If arrangements have not been made with the city public works department to extend that time, the user will be deemed to have purchased the meter and the cost to the city of a replacement meter plus fifteen percent will be charged to the user's water account identified at the time of registration. Upon return of the city's property and inspection of the property to ensure that it is intact and in full working order, and the utility bill paid in full, the deposit shall be returned to the user by a check issued by the city's finance department. The user shall be charged fifty dollars for metering each month plus the minimum water volume charge established by ordinance for all users inside city limits for all water metered. The user shall permit monthly reading of the meter by a city employee to establish the amount used for monthly billing purposes. Any action to impair the city's ability to read the meter will result in the immediate return of the meter to the city and the user will not be permitted to make use of a city meter again for six months. A failure to return the meter will be deemed to be a purchase of the meter as described above. Privately owned meters are not permitted to be used to withdraw water from city hydrants and any water withdrawn by private meter is deemed a theft of water. (Ord. 1336 § 1, 2011: Ord. 1116 § 3, 2002).

12.16.120 Standby service.

The charge for fire protection service for any user shall be based on the riser or pipe size connection to the water main, and the charge shall

be one dollar per diameter inch per month. No charge shall be made for water used in fire protection and the use of water through a fire protection connection for any other purpose shall be prohibited unless a meter has been installed. (Ord. 646 § 6, 1981: Ord. 530 § 3, 1977: Ord. 474 § 7, 1974: Ord. 403 § 4, 1970: Ord. 224 § 701.06, 1959: Ord. 164 § 701 (part), 1955).

12.16.130 Service outside city limits.

For all water and/or sewer service by users located outside the city limits, excluding customers with contracted water and/or sewer service agreements that specifically provide for such charges, the charge shall be one hundred fifty percent of the applicable rate charged within the city limits, including standby or fire protection service. (Ord. 1116 § 1 (part), 2002: Ord. 403 § 3, 1970: Ord. 224 § 701.07, 1959: Ord. 164 § 701 (part), 1955).

12.16.140 Rereading meter charge.

(a) Obstructed Meter. Whenever it is necessary for the meter reader to return to any meter to read the same because of the fact that the meter is covered

with debris, dirt or other material, or otherwise obstructed by material not placed into position by the city, making access to the meter difficult, then and in that event a service charge of five dollars shall be charged each time the meter reader must return to the premises, and the meter reader shall leave a notice with the occupant of the premises, and shall not return more often than each five days. (Ord. 1028 § 1 (part), 1999: Ord. 224 § 701.08, 1959: Ord. 164 § 701 (part), 1955).

12.16.145 Family apartment.

(a) Whenever an apartment unit is constructed or exists as an extension of a single-family dwelling with common water and sewer service for the express purpose of housing family members or guests, the apartment and single-family dwelling will be considered a single unit for the purpose of determining utility rates; provided, that the following has been observed:

(1) The owner or primary occupant does not receive moneys in any form for apartment rental.

(2) The owner or primary occupant places on file with the city clerk a statement to the fact that the apartment is for the express use of family members and or guests, and that no moneys are received by the owner or primary occupant from the apartment occupant.

(b) In the event that the city determines that the apartment unit is being used as an apartment rental, the city shall have the right to back-bill the owner or primary occupant for six months' back service as a multiple unit and such utilities shall be subject to collection and shut-off as provided for in the Othello Municipal Code.

(c) The owner or primary occupant shall be responsible for notifying the city in the event that the family apartment unit becomes an apartment rental, and thereby subject to multiple utility billings. Once the apartment has become an apartment rental, it shall remain on the city books as a multiple unit regardless of whether the unit is occupied or not, until such time as separate utility service is provided. (Ord. 689 § 2, 1983).

12.16.150 Separate family residences.

The sewer rate for the first unit of a separate family residence and for multiple-family residences, including each unit of an apartment, trailer court, duplex, triplex and all multi-dwellings, shall be as set forth in Appendix S to this chapter per month for the first unit or occupant and as set forth in Appendix S to this chapter for each additional unit or occupant thereafter. (Ord. 958-B § 1 (part), 1995: Ord. 773, 1988: Ord. 772 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 8 (part), 1981: Ord. 591 § 3, 1979: Ord. 474 § 8, 1974: Ord. 224 § 702.01, 1959: Ord. 164 § 702 (part), 1955).

12.16.155 Churches and noncommercial meeting facilities.

The sewer rates for churches and noncommercial meeting facilities wherein no commercial activity is regularly engaged, including sales of food or beverages, services for a fee or sales of goods, shall be as set forth in Appendix S to this chapter per month. (Ord. 958-B § 1 (part), 1995: Ord. 772 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 8 (part), 1981: Ord. 591 § 3, 1979: Ord. 574 § 1, 1978: Ord. 474 (part), 1984).

12.16.180 Schools.

The sewer rate for schools shall be as set forth in Appendix S to this chapter for each school, plus a charge for each student and each employee per month as set forth in Appendix S to this chapter. The number of students and employees, for billing purposes, shall be based upon enrollment figures obtained on October 1st for the regular school year and July 1st for summer school. The figures shall be obtained from the school office. (Ord. 1240 § 1, 2007: Ord. 958-B § 1 (part), 1995: Ord. 772 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 8 (part), 1981: Ord. 591 § 6, 1979: Ord. 224 § 702.04, 1959: Ord. 164 § 702 (part), 1955).

12.16.190 Commercial single occupancy users.

The sewer rates for commercial single occupancy water users shall be as set forth in Appendix S to this chapter per month for up to one thousand cubic feet of water used, plus a charge as set forth in Appendix S to this chapter for each additional one hundred cubic feet of water used. (Ord. 958-B § 1 (part), 1995: Ord. 772 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 8 (part), 1981: Ord. 591 § 7, 1979: Ord. 474 § 11, 1974: Ord. 224 § 702.05, 1959: Ord. 164 § 701 (part), 1955).

12.16.200 Commercial buildings with multiple units.

The sewer rate for a commercial building with multiple units where one water meter is installed for use by all units in the building, such units shall be classified as a multiple commercial unit. Charges for multiple commercial units shall be billed to a single applicant for the entire complex, and the sewer rate shall be as set forth in Appendix S to this chapter for first unit, plus a charge as set forth in Appendix S to this chapter for each additional unit. The sewer rate shall include all units, whether any unit is occupied or not, whenever the water is on to the entire building. (Ord. 1400 § 5 (part), 2014: Ord. 958-B § 1 (part), 1995: Ord. 772 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 8 (part), 1981: Ord. 591 § 8, 1979: Ord. 474 § 12, 1974: Ord. 224 § 702.06, 1959: Ord. 164 § 702 (part), 1955).

12.16.220 Motels.

The sewer rate for motels, hotels and inns shall be as set forth in Appendix S to this chapter per month for each establishment for up to one thousand cubic feet of water used, plus a charge as set forth in Appendix S to this chapter for each additional one hundred cubic feet of water used. (Ord. 958-B § 2 (part), 1995: Ord. 771 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 9, 1981: Ord. 620 § 1, 1980: Ord. 591 § 10, 1979: Ord. 474 § 13, 1974: Ord. 287 § 702.35, 1963: Ord. 164 § 702 (part), 1955).

12.16.230 Industries with no industrial discharge.

The sewer rate for industries with no industrial discharge, but connected to the municipal sewer system for the disposal of human excrement and other waste, shall be as set forth in Appendix S to this chapter per month plus a charge as set forth in Appendix S to this chapter per employee per month over three employees, based on the current payroll of the user each year. (Ord. 1400 § 5 (part), 2014: Ord. 958-B § 2 (part), 1995: Ord. 772 § 2 (part), 1988: Ord. 741 § 3 (part), 1985: Ord. 646 § 8 (part), 1981: Ord. 591 § 11, 1979: Ord. 474 § 14, 1974: Ord. 263 § 702.50, 1962: Ord. 164 § 702 (part), 1955).

12.16.240 Certification of payroll.

Sewer users covered by the rates in Section 12.16.230 regarding industries with no industrial discharge shall certify to the finance department, upon request, their current employee count and remit in full the monthly charges for the sewer service based upon the sewer use rate schedule. (Ord. 1400 § 5 (part), 2014: Ord. 1222 § 2, 2006: Ord. 263 § 702.60, 1962: Ord. 164 § 702 (part), 1955).

12.16.250 Permit—Lien on real property.

In consideration of the city granting a permit to any user, under Section 12.16.230, such user does grant to the city as a condition to the furnishing of the service, a lien upon the real property to which the connections are made or served, for any unpaid charges as provided herein, and the user, its successors, or assigns, shall be bound by all of the terms and conditions of this title, or any other ordinance, regulations, statutes or laws of the city, Adams County, state of Washington, or of the United States, governing, affecting or pertaining to the service rendered by the terms hereof, or the foreclosure of the lien, or the termination of the service. (Ord. 263 § 702.61, 1962: Ord. 164 § 702 (part), 1955).

12.16.260 Turning water off and on—When charged.

Customers shall be charged for turning water on and/or off as follows:

(a) When the water is ordered turned on and service then discontinued in less than thirty days, a full month's service charge will be made to cover the additional expense of turning on and shutting off;

(b) When the water is ordered discontinued and supply ordered renewed by the same consumer in less than thirty days, a full month's service charge will be made to cover the additional expense of turning on and shutting off;

(c) After-hours (after three-thirty p.m.) call-out requests for public works to turn a water meter on or turn off will be charged an after-hours call-out rate (based on current cost to the city) per call-out. This call-out rate may be adjusted by union contract terms;

(d) The fees as described in subsection (c) of this section may be waived, as determined by the public works director, when the water meter is turned on and turned off for repairs only;

(e) When the water is turned off and on for seasonal request, the fee will be fifteen dollars to turn the water off, and fifteen dollars to turn the water on. (Ord. 1457 § 1 (part), 2015: Ord. 1400 § 5 (part), 2014: Ord. 164 § 703, 1955).

12.16.270 Sewer utility billings.

Monthly sewer service billings shall run from the sixteenth of one month to the fifteenth of the next month and shall be billed on the last

working day of each month.

No charge will be made for sewer service to an account that is discontinued between the sixteenth of one month to the fifteenth of the next month; however, one full month's sewer service charge shall be charged during the month that water and sewer service is ordered turned on for an occupant or owner.

Multiple industrial sewer connections to the city collection system serving a single complex shall be billed per the applicable rate schedule for each connection, as provided for in Appendix S to this chapter; except that only one connection shall be billed for the number of employees per month.

Multiple commercial sewer connections to the city collection system serving a single complex shall be billed per the applicable rate schedule for each connection, as provided for in Appendix S to this chapter, except that only one connection shall be billed for the water consumption.

Single-family dwellings billed under Section 12.16.150 are for a single sewer connection to the city collection system, and each additional service, not connected to the user's side sewer, shall be billed as an additional service at the applicable rate for residences. (Ord. 1400 § 5 (part), 2014: Ord. 1226 § 1, 2006: Ord. 646 § 11, 1981: Ord. 164 § 704, 1955).

12.16.280 Charge schedule for future utility connections.

(a) Water System.

(1) Definitions.

"ccf" means one hundred cubic feet.

"Equivalent residential unit" means a volume of water equivalent to an average water consumption of twenty-one ccf per month.

(2) Water utility general facilities charge for single-family residential, multiple-family residential, single unit commercial, and multiple unit commercial connections, including all commercial single and multiple occupancy buildings and businesses, motels, inns, institutions, and schools. The general facilities charge shall be paid to the city by the person desiring to make the connection, and shall be payable at the time the application is made for the permit to perform the work and make the connection.

Effective November 1, 1996, the water general facilities charge shall be as follows, plus applicable state taxes:

Meter Size	General Facilities Charge
1 inch	$ 1,200.00
1-1/2 inches	2,380.00
2 inches	3,820.00
3 inches	7,630.00
4 inches	11,930.00
6 inches	23,860.00

(3) Water utility general facilities charge for industrial users, including handlers or processors of agricultural products, but excluding industrial customers with contracted water service agreements. New industrial customers shall be offered the opportunity to enter into a water service agreement upon terms determined by the council to be in the best interest of the water utility. If a new industry elects not to enter into a water service agreement, then the provisions of this section shall apply.

Effective November 16, 1996, the general facilities charge shall be seven hundred sixteen dollars per ERU, and shall be calculated per the following formula, plus applicable state taxes:

GFC = $716 *average water use (per ccf per month)/21 (per ccf per month)

If the water use for the industrial user exceeds the average water use for which the industrial user has paid a general facilities charge by more than five percent for two consecutive years, the industrial user shall purchase additional capacity in the city's water system by paying an additional general facilities charge calculated by the above formula.

(4) Water utility site facilities charge for single-family residential, multiple-family residential, single unit commercial, and multiple unit commercial connections, including all commercial single and multiple occupancy buildings and businesses, motels, inns, institutions, and schools.

Effective February 16, 2002, the water site facilities charge shall be, for the installation of all water utility connections performed by the city of Othello:

Meter Size	Site Facilities Charge
1 inch or less	$1,200.00
1-1/2 inches or larger	All labor, equipment, material, and restoration costs associated with installation plus 15% for administration.

If the owner provides all labor, equipment, material, and restoration costs associated with the installation, and the city provides and installs the radio read meter and performs an inspection of the connection to the main line to ensure that proper procedures were followed, the following charges apply:

Meter Size	Site Facilities Charge
1 inch or less	$400.00
1-1/2 inches or larger	All labor, equipment, material, and restoration costs associated with installation plus 15% for administration.

(5) All funds collected as water utility general facilities charges, site facilities charges, fire protection connection fees, and main connection charges shall be placed into the water account for use on capital projects of the utility.

(b) Sewer System—Sewer General Facility Charges and Sewer Site Facility Charges.

(1) Definitions.

"Sewer" refers to the city wastewater utility system including both sewage and storm-sewer (aka runoff/storm water/storm wastewater).

(2) Sewer general facilities charges shall be as follows:

(A) Sewer connections within the corporate limits and such other connections which will cause the discharge of sewerage through the existing sewer collection system but excluding the Cunningham Road trunk sewer, the general facilities charge shall be:

	First Unit	Each Additional Unit
Residential		
For each separate family residence or unit as defined in Section 12.16.150	$350.00	$40.00
Commercial, Schools and Institutions		
For each separate occupancy as defined in Sections 12.16.180, 12.16.190, 12.16.200, 12.16.220 and 12.16.230	$350.00	$40.00

(B) Sewer connections outside of the corporate city limits not using or receiving benefits from the existing in-town sewer collection system, but connecting to the Cunningham Road trunk sewer for treatment at the municipal sewer treatment plant, the general facilities charge shall be one hundred fifty percent of the applicable rate charged within the city limits.

(3) Sewer site facilities charge shall be as follows:

(A) Six-inch and smaller lateral side connections for a fee of two hundred fifty dollars.

(B) Sewer site facilities charge for side sewers greater than six inches in diameter shall be based on actual cost to the city for the

installation, but in no case shall it be less than two hundred fifty dollars per connection.

(4) All funds collected as sewer general facility charges, site facility charges, and main connection charges shall be placed into the sewer account for use on capital projects of the utility.

(c) Fire Protection.

(1) The cost for fire protection connections and/or for a domestic service, referred to as a "wet tap," shall be a minimum of one hundred fifty dollars or as established by the public works director. (Ord. 1478 § 1 (part), 2016: Ord. 1400 § 5 (part), 2014: Ord. 1151 § 1, 2003; Ord. 1116 § 1 (part), 2002: Ord. 1011 § 1, 1998; Ord. 998 § 1, 1997: Ord. 985 § 1 (part), 1996: Ord. 875, 1992; Ord. 820 § 1, 1990: Ord. 694 § 1 (part), 1984; Ord. 663 § 2, 1982; Ord. 646 § 10, 1981: Ord. 635 § 1, 1981: Ord. 591 § 12, 1979: Ord. 530 § 4, 1977: Ord. 474 § 15, 1974: Ord. 375, 1968: Ord. 290: Ord. 238: Ord. 164 § 705, 1955).

12.16.285 Main connection charges—General.

(a) There shall be two types of water and sewer facility development projects, referred to:

(1) Private subdivider- or developer-installed utilities; or

(2) Publicly funded installed utilities. These shall be maintained and repaired by the city. All costs and expense of connecting the service line to the main and installing meters shall be borne by the property owner requesting utility services.

(b) Where utilities have been installed at the expense of the private parties through or adjacent to property not within the boundaries of the project for which the utility was required, the developer may request to enter into a reimbursement agreement with the city as provided by state law. If such an agreement is entered into, the city shall not permit other property owners to connect to that installed main without payment of the compensation set forth in that agreement for the term of that agreement.

(c) Where utilities have been installed with public funds through or adjacent to platted areas, the property through which the mains are extended or which are adjacent thereto shall be permitted a connection to the city main only after a payment or satisfactory arrangements for payment has been made to the city in accordance with the schedules established in this chapter.

(d) Where utilities have been installed with public funds through or adjacent to unplatted areas, the platter of those unplatted areas shall be required, as part of the platting procedure, to reimburse the city for that portion of the main through or adjacent to the property to be platted. That reimbursement shall be in accordance with the schedules established in this chapter.

(e) Payment Schedule.

(1) Where utilities have been installed with public funds through unplatted areas, payment of the latecomers main connection charge shall be at the time of connection to the utility or upon platting unless an alternative schedule is arranged through a developers agreement approved by the council.

(2) Where utilities have been installed with public funds through platted areas, the payment of the latecomers main connection charge shall be at the time the property is developed; building construction occurs; or when a change of use occurs, whichever is first. (Ord. 1478 § 1 (part), 2016: Ord. 1368 § 1, 2012: Ord. 1001 § 1 (part), 1997).

12.16.287 Main connection charges.

(a) The city has elected to make the following publicly funded utilities as defined in Section 12.16.285. The city will seek reimbursement for such facilities by creating a right of reimbursement for such charges. Pursuant to Section 12.16.285, the city council has determined the city is entitled to assess the reimbursement associated with each such publicly funded utility as described in this section.

(b) Main Connection Charges—Installed along South Broadway Avenue. Water main (sixteen-inch) installed by the city along South Broadway Avenue between Bench Road and Curtis Street shall cost twenty-five dollars per front foot for each side for property to be subdivided or served by a water connection. That per-front-foot reimbursement rate shall be adjusted upward commencing on June 1, 1999, by the change in the January to January All West Coast Cities CPI-W Index issued in 1999, and shall be so adjusted each June 1, thereafter using the same index or its successor.

(c) Main Connection Charges—Installed along Fourteenth Avenue and Lee Street. Water main (sixteen-inch) installed by the city along Fourteenth Avenue between Olympia Street and Lee Street and along Lee Street between Fourteenth Avenue and Broadway Avenue shall cost twenty-five dollars per front foot for each side for property to be subdivided or served by a water connection. That per-front-foot reimbursement rate shall be adjusted upward commencing on June 1, 1999, by the change in the January to January All West Coast Cities CPI-W Index issued in 1999, and shall be so adjusted each June 1st thereafter using the same index or its successor.

(d) Main Connection Charges—Installed along South 10th Avenue and Scootney Street Extended. Water main (twelve-inch) installed by the city south of McFarland Middle School and along 10th Avenue between Scootney Street Extended and Ash Street shall cost twelve dollars

and eighty-three cents per front foot for each side for property to be subdivided or served by a water connection. The reimbursement allocation between property owners existing at the time of the installation of this water main based on frontage was:

(1) The Othello School District as the owner of McFarland Middle School, with a frontage of one thousand three hundred ninety feet, seventeen thousand eight hundred thirty dollars and ninety two cents;

(2) The Othello School District as the owner of Lutacaga Elementary School, with a frontage of one thousand feet, twelve thousand eight hundred twenty-eight dollars; and for the Michel Family Trust with an agreed frontage of two thousand three hundred ninety feet, thirty thousand six hundred sixty-two dollars and two cents. That per-front-foot reimbursement rate shall be adjusted upward commencing on June 1, 2003, by the change in the January to January All West Coast Cities CPI-W Index issued in 2003, and shall be so adjusted each June 1, thereafter using the same index or its successor.

(e) Main Connection Charges—Installed along Columbia Street and SR 26. A ten-inch water main installed in April 2008 by the city of Othello from the east property line of the Burger King restaurant to an existing waterline located within the 7th Avenue right-of-way located at the City Well No. 5 property for a total of one thousand five hundred forty feet shall cost thirty-one dollars and sixty-six cents per front foot for property to be subdivided or served by a water connection. That per-front-foot reimbursement rate shall be adjusted upward commencing on June 1, 2011, by the change in the January to January All West Coast Cities CPI-W Index issued in 2011, and shall be so adjusted each June 1st thereafter using the same index for a period of ten years.

(f) Main Connection Charges—Installed along Main Street and SR 17. A sixteen-inch water main extension installed as an emergency action by the city of Othello from the existing water in Main Street east to SR 17 then north and east to the wellsite for city of Othello Well No. 9. The reimbursement allocation between property owners existing at the time of the installation of this main:

	Cost Per Foot	Proportional	
Parcel Number		Length	Cost
2100450830100	$77.21	425	$32,814.25
1529030680048	$77.21	110	$8,493.10
1529030680647	$77.21	106	$8,184.26
2100450800100	$77.21	1,042	$80,452.82
1529030680009	$77.21	654	$50,495.34
1529030680008	$77.21	615.5	$47,522.76
1529030682515	$77.21	387	$29,880.27
1529030682520	$77.21	1,929	$148,938.09
1529032820003	$77.21	1,260	$97,284.60
2100450760100	$77.21	310.5	$23,973.71
2100450780100	$77.21	310.5	$23,973.71

(1) That per-front-foot reimbursement rate shall be adjusted upward commencing on June 1, 2017, by the change in the January to January All West Coast Cities CPI-W Index in 2017, and shall be so adjusted each June 1st thereafter using the same index.

(g) Main Connection Charges—Installed along Main Street and SR 17. A six-inch sewer forcemain extension installed by the city of Othello from the existing sewer main in Main Street east to the east side of SR 17. The reimbursement allocation between property owners existing at the time of the installation of this main:

	Cost Per Foot	Proportional	
Parcel Number		Length	Cost
2100450830100	$48.56	1,800	$87,408.86
2100450860100	$48.56	600	$29,136.29
2100450800100	$48.56	1,042	$50,600.02
1529030680048	$48.56	240.5	$11,678.80
1529030680647	$48.56	106	$5,147.41
1529030680009	$48.56	654	$31,758.55

Parcel Number	Cost Per Foot	Proportional	
		Length	Cost
1529030680008	$48.56	615.5	$29,889.98
1529030682515	$48.56	387	$18,792.91

(1) That per-front-foot reimbursement rate shall be adjusted upward commencing on June 1, 2017, by the change in the January to January All West Coast Cities CPI-W Index in 2017, and shall be so adjusted each June 1st thereafter using the same index. (Ord. 1480 § 1, 2016; Ord. 1479 § 1, 2016; Ord. 1478 § 1 (part), 2016; Ord. 1294 § 1, 2009; Ord. 1119 § 1, 2002: Ord. 1001 § 1 (part), 1997).

12.16.290 Side sewer connections by public works department.

All new and replacement connections of lateral building sewer lines to the municipal sewer system shall be performed by a licensed and bonded contractor, under the supervision of the public works director. The contractor will be responsible for the purchase and installation of the riser, saddle or other connecting parts being attached to the municipal sewer line. As part of the new sewer line connection fee, the city shall furnish the saddle (on new connections only). All excavation, trench shoring, piping, bedding, backfill and restoration shall be performed by the applicant for such service in a manner approved by the public works department of the city. The city shall inspect and approve the connection before the contractor backfills the trench. (Ord. 1400 § 5 (part), 2014: Ord. 1116 § 1 (part), 2002: Ord. 646 § 12, 1981: Ord. 238 § 705.03, 1960: Ord. 164 § 705, 1955).

12.16.300 Payments from current expense fund.

The city shall pay to the water and sewer department from the current expense fund, the following amounts:

(a) For each city fire hydrant connected to the water mains of the city, two dollars and fifty cents per month;

(b) For all water and sewer service used in public buildings and parks, an amount figured at regular rates for each service installed. (Ord. 1400 § 5 (part), 2014: Ord. 709, 1984; Ord. 530 § 5, 1977: Ord. 164 § 706, 1955).

12.16.310 Payments on domestic service due.

All charges for domestic water and sewerage service shall be due and payable at the office of the city clerk on or before the tenth day after the bill has been issued, and shall become delinquent after the tenth day. The domestic water and sewage bill shall cover a period of one month and shall be issued upon a single statement. All payments and collections for domestic water service, and sewerage service shall be paid into the water and sewer revenue fund. (Ord. 164 § 707, 1955).

12.16.320 Lien.*

All charges for water and sewer connections and service, and all service charges, provided in this chapter, or as may be hereafter amended, together with penalties and interest thereon, shall be a lien upon the property with which such connections are made or to which such sewerage service or domestic water service is rendered, superior to all other liens and encumbrances whatsoever, except for general taxes and local special assessments. Enforcement of such lien or liens shall be in the manner provided by law. (Ord. 164 § 708, 1955).

* Utility service lien, see RCW 35.21.290.

Sewerage system service lien, see RCW 35.67.200.

12.16.330 Enforcement of lien.

(a) It is the intent of the city that all utility deliveries, whether water, sewer, garbage or some combination thereof, shall be deliveries of services and/or utilities to the property served. All such delivery of utilities and/or services shall be a claim against the property and a claim against the owner of that property served or furnished utilities and/or services. It shall be the responsibility of each property owner served by city utilities to determine the extent of utility services and deliveries being made and/or furnished to the owner's property. It shall be the responsibility of the property owner to pay all claims, charges, penalties and/or costs imposed by the city for the furnishing and/or delivery of utilities and/or services to the owner's property. The property owner's responsibility shall exist independent of any claim of lien the city may have or make pursuant to any statute, rule or regulation. The fact that the owner has directed or allowed the billings for utilities furnished and/or services delivered to the owner's property to be delivered to a tenant or other third person does not in any way reduce or extinguish the property owner's responsibility for water, sewer and/or garbage billings, charges, costs or penalties imposed by the city. Upon a failure to pay the

charges for water service, the amount thereof shall become a lien against the real property furnished the service as provided by law.

(b) Payment for water service for any property shall become due and payable on the tenth day of the month following the month within which the service was rendered. If any amount becomes delinquent for more than thirty days after the original due date of the tenth of the month, the finance department shall give notice in writing to the owner or owner's agent as officially listed in the city records, or the best

address available, of such delinquency, advising that the water service shall be discontinued at the expiration of ten days thereafter unless the account is paid in full.

(c) If the finance department determines it is necessary to terminate the utility service for nonpayment, a notice shall be posted on the service location allowing seven days prior to termination of service. The charge for this posting is twenty dollars, which shall be added to the water service account balance and billed simultaneously with the water/sewer/garbage billing for that month. In the event the city should proceed to terminate water service to any property which has failed to bring its account current after delivery of a written notice to the premises, the employee of the city dispatched to disconnect the water service shall make a reasonable effort to inform the user that water service is being terminated. The city employee may not accept payment of the delinquent amount or other fees from the user,

but the employee shall not terminate water service to the property until the user has been afforded an opportunity of not less than thirty minutes in length to reach the City Hall and arrange to bring the account current. In the event the water service to a property is terminated for nonpayment of service charges, the service shall not be reconnected except after the account is paid in full and a turn on charge of forty dollars is paid.

(d) Residential Rental Units and Tenant Accounts. In the event the city should proceed to terminate water service to any residential rental property which has failed to bring its utility account current after mailing of a written notice to the property owner, the employee of the city dispatched to notify the tenants of the impending termination of water service shall make a reasonable effort to inform the users that water service is being terminated. This notice will allow seven days prior to termination of water service. This is to allow time for the tenant(s) to resolve the delinquency with his or her landlord or to arrange for continued service. If requested, the city shall provide water, sewer, and garbage services to an affected tenant(s) on the same terms and conditions as other residential utility customers. At the end of this seven-day notice of pending disconnection of water service for nonpayment has been provided, if payment has not been made in full, the city shall deliver a thirty-minute notice of the intent to terminate water service. This notice shall be delivered by a city employee in a timely manner that would allow the tenant opportunity to satisfy the account during regular business hours. Included in the notice of the intent to terminate water service shall be information that the lack of running hot and cold water is in violation of the laws of the city related to use of a building for human occupancy and is grounds for eviction from the premises. Any expense, including reasonable attorney fees incurred by the city, as a result of termination of water service, shall become a water service charge against the account. The city employee providing such notice(s) may not accept payment of the delinquent amount from the user. (Ord. 1457 § 1 (part), 2015; Ord. 1400 § 5 (part), 2014: Ord. 1325 § 1, 2010: Ord. 1165 § 1, 2003; Ord. 1049 § 1, 1999: Ord. 1028 § 1 (part), 1999: Ord. 530 § 6, 1977: Ord. 288 § 1, 1963; Ord. 164 § 709, 1963).

12.16.340 Payment of accounts—Dispute resolution.

(a) Water/sewer/utility charges shall be the responsibility of, and billed directly to the property owner of the address designated by the owner in writing. They shall be due and payable on the tenth day of the month following the month in which the service was rendered. If any account becomes delinquent more than thirty days, the city shall give notice in writing to the owner or the address the owner designated as listed in the city utility records, or the best address available, of such delinquency, advising that the city will exercise its statutory right as authorized by this chapter and state law to terminate water service to the premises in question at the expiration of ten days thereafter unless the account is paid in full. Such notice shall indicate that the delinquent user may contact the city or other responsible city official at City Hall during business hours to make arrangements to bring the account current. In the event the city should terminate water service to any property which has failed to bring its account current after mailing of written notice, the employee of the city dispatched to turn off the water service shall make a reasonable effort to inform the user that water service is being terminated. The city employee may not accept payment of the delinquent amount from the user, but the employee shall not terminate water service to the property until the user has been afforded an opportunity of not less than thirty minutes in length to reach the City Hall and arrange to bring the account current.

(b) In the event the water supply is turned off, the same shall not be turned on again until all delinquent utility charges have been paid in full. The account shall be charged the sum provided by city ordinance as a water service turn on charge.

(c) The city shall have a lien against the premises for unpaid water/sewer/utility charges as provided for by state law for unified utility billings.

(d) The city shall inform all customers of the water/sewer/garbage utility of the city of the availability of a dispute resolution system in the event of a disputed water/sewer/garbage utility billing. Such notification shall occur via a notice on each billing that the customer may dispute the correctness of that billing by contacting the city finance office.

(e) Customer Dispute.

(1) At any time before the date of termination of water service for nonpayment of the amount shown on a water/sewer/utility bill, or a notice of termination, a customer may dispute the correctness of all or part of the amount shown in accordance with the provisions of this section.

(2) The procedure for customer disputes shall be as follows:

(A) Before the date of termination, the customer shall notify the finance office, in writing, that the customer disputes all or part of

the amount completely as possible the basis for the dispute.

(B) If the city administrator's office determines that the present dispute is untimely or that the customer previously disputed the correctness of all or part of the amount shown, the finance office shall mail to the customer a notice stating that the present dispute is untimely or invalid. The city shall then proceed as if the customer had not notified the city of the present dispute.

(C) If the city determines that the present dispute is not untimely or invalid under this section, the city, within three days after receipt of the customer's notice, shall arrange an informal meeting between the customer and the finance office.

(D) Based on the city's records, the customer's allegations and all other relevant materials available to the finance office, the administrator shall resolve the dispute, attempting to do so in a manner satisfactory to both the city and the customer.

(E) Within five days of completion of the meeting, the finance office shall mail to the customer a copy of its decision resolving the dispute.

(F) That decision shall be final and binding on the customer.

(3) Utilization of this dispute procedure shall not relieve a customer of his obligation to timely and completely pay all other undisputed charges and/or installments and surcharges, and the undisputed portion of the amount which is the subject of the present dispute. Notwithstanding this section, failure to timely and completely pay all such undisputed amounts shall subject the customer to termination of water service in accordance with the provisions of this section.

(4) Until the date of the decision of the city administrator's office, the city shall not terminate the water service of this customer and shall not issue a notice of termination to this customer solely for nonpayment of the disputed amount. If it is determined that the customer must pay some or all of the disputed amount, the city shall promptly mail to, or personally serve upon the customer, a notice of termination, which shall contain the following:

(A) The amount to be paid;

(B) The date of the notice of termination;

(C) The date of termination, which shall be at least ten days after the date of the notice of termination is issued;

(D) Notice that unless the city receives complete payment of the past due amount shown prior to the date of termination, water service shall be terminated;

(E) An informational telephone number. (Ord. 1400 § 5 (part), 2014: Ord. 1002 § 1, 1997).

Appendix S to Chapter 12.16

Effective December 16, 2015, December 16, 2016, and December 16, 2017, the monthly sewer charges shall be as follows:						
	2016		**2017**		**2018**	
Category	**Effective December 16, 2015: Monthly Charge Inside City Limits**	**Effective December 16, 2015: Monthly Charge Outside City Limits**	**Effective December 16, 2016: Monthly Charge Inside City Limits**	**Effective December 16, 2016: Monthly Charge Outside City Limits**	**Effective December 16, 2017: Monthly Charge Inside City Limits**	**Effective December 16, 2017: Monthly Charge Outside City Limits**
Separate family residence	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24
Per additional residential unit or occupant	$35.39	$53.09	$38.93	$58.39	$42.82	$64.23
Churches and noncommercial meeting facilities	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24
Schools	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24
Schools—Per student and employee	$1.16	$1.74	$1.27	$1.91	$1.40	$2.10
Commercial single occupancy users for up to 1,000 cubic feet	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24

Effective December 16, 2015, December 16, 2016, and December 16, 2017, the monthly sewer charges shall be as follows:						
	2016		2017		2018	
Category	Effective December 16, 2015: Monthly Charge Inside City Limits	Effective December 16, 2015: Monthly Charge Outside City Limits	Effective December 16, 2016: Monthly Charge Inside City Limits	Effective December 16, 2016: Monthly Charge Outside City Limits	Effective December 16, 2017: Monthly Charge Inside City Limits	Effective December 16, 2017: Monthly Charge Outside City Limits
Commercial single occupancy users—Each additional 100 cubic feet of water used over 1,000 cubic feet	$1.52	$2.29	$1.67	$2.52	$1.84	$2.77
Commercial—Multiple occupants—First occupant	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24
Commercial—Multiple occupants—Each additional occupant	$31.46	$47.19	$34.61	$51.91	$38.07	$57.10
Commercial multiple occupancy users—Each additional 100 cubic feet of water used over 1,000 cubic feet	$1.52	$2.29	$1.67	$2.52	$1.84	$2.77
Motels—First 1,000 cubic feet of water used	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24
Motels—Each additional 100 cubic feet of water used	$1.52	$2.29	$1.67	$2.52	$1.84	$2.77
Industries with no industrial discharge	$37.60	$56.40	$41.36	$62.04	$45.49	$68.24
Industries with no industrial discharge—Each additional employee over three	$1.16	$1.74	$1.27	$1.91	$1.40	$2.10

(Ord. 1443 § 1, 2015: Ord. 1376 § 1, 2012: Ord. 1314 § 1, 2009: Ord. 1224 § 1, 2006: Ord. 1116 § 1 (part), 2002: Ord. 1075 § 1, 2000: Ord. 1039 § 1, 1999: Ord. 1029 § 1, 1999: Ord. 958-B (part), 1995).

Chapter 12.20
INSTALLATION, MAINTENANCE AND USE OF SYSTEM

Sections:

12.20.010 Installation and maintenance of mains and lines outside city.

All domestic water mains and lines lying outside the corporate limits of the city shall be installed, owned, and maintained by the consumers and the city shall have no duty to repair or replace such mains or lines. Water meters on such domestic service outside the corporate limits shall be placed, installed, and maintained within the discretion of the water and sewer department, and shall remain the property of the city regardless of location. (Ord. 1400 § 6 (part), 2014: Ord. 164 § 801, September 26, 1955).

12.20.020 Leaks—Shutoff.

The public works director is directed and authorized to immediately shut off all domestic lines whenever the water lines develop leaks or their condition is such as to constitute a danger to the domestic water supplies of the city; such water lines shall remain shut off until properly repaired or replaced. In the event the leaks or defects exist on supply lines to consumers within the city limits or on any portion of the main lines or supply lines outside the city limits the repairs and replacements as may be necessary shall be accomplished by and at the sole expense of the consumer or owner of the property to which the service is provided, subject to the supervision and final approval of the public works director. (Ord. 1400 § 6 (part), 2014: Ord. 164 § 802, September 26. 1955).

12.20.030 Pipe materials.

Only ASTM 3034 sewer pipe type or equivalent quality may be used. No others are permitted. Where connection parallels building nearer than three feet, cast iron pipe will be used. (Ord. 1400 § 6 (part), 2014: Ord. 214 § 1, May 26, 1958).

12.20.050 Mains less than eight inches in diameter.

The city shall not hereafter install any public water mains or laterals which have a diameter of less than eight inches; and the city shall accept no water mains or laterals, having a diameter of less than eight inches for connection to the public water system, constructed and installed by any person, firm or corporation, or sovereignty after the effective date hereof. (Ord. 1400 § 6 (part), 2014: Ord. 164 § 204 added by Ord. 294, August 10, 1964).

12.20.060 Service pipe placement.

All new service pipes shall be placed not less than thirty-six inches below the surface of the ground. (Ord. 1400 § 6 (part), 2014: Ord. 164 § 604, 1955).

12.20.070 Public works director access.

The public works director shall have access, with the consent of the occupant, at proper hours, to all buildings or premises served by the domestic water and sewerage system, for the purpose of inspecting pipes and fixtures, the manner in which domestic water is being used, and the manner in which the provisions of this chapter are being complied with. (Ord. 1400 § 6 (part), 2014: Ord. 540 § 1, 1977: Ord. 164 § 803, 1955).

12.20.080 Fire hydrant operation.

No person other than an authorized employee of the water and sewer department, the fire department or street department, shall operate fire hydrants or interfere with them in any way without first obtaining authority to do so from the water and sewer department. (Ord. 1400 § 6 (part), 2014: Ord. 164 § 804, 1955).

12.20.090 Tampering with system prohibited.

No unauthorized person shall maliciously, wilfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenances or equipment which is a part of the domestic water system or the public sewer and sewage disposal system. (Ord. 1400 § 6 (part), 2014: Ord. 164 § 805, 1955).

Chapter 12.22
CONTAMINATION OF PUBLIC WATER SUPPLY

Sections:

12.22.010 Definitions.

For the purposes of this chapter, the words and phrases set forth in this section are defined as follows:

(a) "Backflow" means the flow other than the intended direction of flow of any foreign liquids, gases, or substances into the distribution system of a public water supply.

(b) "Backflow prevention device" means a device to counteract back pressure or prevent back siphonage.

(c) "Cross-connection" means any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage, or other waste or liquids of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as a result of backflow.

(d) "Supervisor" means the supervisor of the water and sewer department, city of Othello. (Ord. 583 (part), 1978).

12.22.020 Cross-connections—Prohibition.

The installation or maintenance of a cross-connection which will endanger the water quality of the potable water supply of the city of Othello is prohibited. Any such cross-connection now existing or hereafter installed is a nuisance and shall be abated. The control or elimination of cross-connections shall be in accordance with the state of Washington Administrative Code (WAC 246-290-490) or subsequent revisions, together with any future manuals of standard practice pertaining to cross-connection control approved by the Director of the State of Washington Department of Health Services. The water supply will be discontinued to any premises for failure to comply with the provisions of this section and will not be reestablished until compliance is approved by the director. (Ord. 1400 § 7, 2014: Ord. 583 § 1, 1978).

12.22.030 Service—Discontinuance.

Service from the city of Othello water supply system to any premises upon which a private water supply system is used or operated contrary to the provisions of the rules and regulations of the State Board of Health regarding public water supplies may be discontinued or refused upon order of the supervisor. (Ord. 583 § 2, 1978).

12.22.040 Service—Contingent upon installation of backflow prevention device.

Furnishing of any service shall be contingent upon the installation of a backflow prevention device approved by the state of Washington Department of Social and Health Services for the protection of the city water supply from backflow. (Ord. 583 § 3, 1978).

12.22.050 Repayment of charges for testing backflow prevention devices.

The city is authorized to contract for services to inspect, test, repair and maintain each backflow prevention device as may be required by law. Each contractor who inspects, tests or repairs or maintains any backflow prevention device shall submit to the city such written documentation as may be required by the city to verify such services and the cost thereof. The city is authorized to pay the contractor directly, all or any portion of such costs; provided, however, that the city shall be reimbursed the full amount of such costs by the legal owner of the real property upon which such backflow prevention device is located, and nothing herein contained shall relieve the owner of such obligation. There shall be added to the owner's monthly utility billing, the actual amount of such costs which shall be paid within sixty days of the billing date. In the event the owner fails to pay the full amount of such costs within sixty days of the billing date, then in such event, the city shall have the right to discontinue service until such time as the billing is paid in full. (Ord. 810 § 1, 1989).

Chapter 12.30
WATER SYSTEM PROTECTION AND CONTROLS

Sections:

12.30.010 Preamble.

(a) The ordinance codified in this chapter is adopted to insure adequate quantities of water are available from the single source aquifer which supplies the city's wells. Said ordinance is further adopted to insure that water available from the single source aquifer is of the highest quality reasonably possible for introduction into the city's water system.

(b) The availability of safe potable water for use by the city's residents and industries is a priority of the city. To help insure safe and adequate supplies of potable water for the citizens of Othello, the city has determined it is in the best interests of its citizens to adopt regulations which compliment the laws of the state of Washington. The purpose of these rules is to provide a single source of safe potable water to the residents of the city and to protect the wells which supply the city's water system. To insure the protection of the city's potable water sources and to ensure the integrity of the city's water system, this chapter is adopted.

(c) The city shall regulate the introduction of water supplies into the city from sources other than city's wells, and the drilling of water wells within the city to prevent damage to, or the degradation of the city's water supply that may result from contamination and/or withdrawal of underground water, and/or the invasion of the single source aquifer supplying the city's water by unlicensed purveyors, individuals, associations, corporations or entities. This chapter is necessary to protect the public health, safety and welfare, and to secure the city in its rights and responsibilities to provide adequate water supplies for all uses to all persons and entities within the city.

(d) The provisions of this chapter shall not apply to the city's water system or the city's wells or the construction, improvement or maintenance of the city's wells. (Ord. 981 § 1 (part), 1996).

12.30.020 Use and construction of facilities—Private suppliers.

(a) No facility for the withdrawal of public ground waters of the state shall be constructed within city limits, nor shall any existing facility for the withdrawal of public ground waters of the state be used to withdraw public ground water within the city limits, except as hereinafter provided.

(b) No individual, company, association, corporation or entity shall be licensed to do business, nor conduct business in the city as a private supplier of water. "Private supplier of water," as used in this section, means any individual, company, association, corporation or entity engaged in the business of supplying water to individuals, companies or corporations, or any other entity, for domestic or industrial use, on a for-profit or on a

not-for-profit basis; provided, that this section shall not be deemed to exclude suppliers of bottled potable water from doing business in the city.

(c) No individual, company, association, corporation, or entity shall import water from sources outside of the city for industrial use within the city. (Ord. 981 § 1 (part), 1996).

12.30.030 License to withdraw.

(a) Notwithstanding Section 12.30.020(a):

(1) All existing facilities for the withdrawal of public ground water that are in current use and are exempted from the permit provisions of Chapter 90.44 RCW, as now enacted or hereafter amended, and all rules and regulations promulgated thereunder, shall be allowed to continue to operate without further licensure as provided for in this chapter.

(2) All facilities for the withdrawal of public ground water owned and operated by the city shall not be subject to the licensure requirements of this chapter.

(3) All existing facilities for the withdrawal of public ground water subject to the permitting requirements of RCW Chapter 90.44, as now enacted or hereafter amended, and all rules and regulations promulgated thereunder, and for which current valid permits were issued by the appropriate permitting agencies for the withdrawal of public ground water within the city before the effective date of this chapter, shall be allowed to continue to operate without further licensure as provided for in this chapter.

(b) All individuals, companies, associations, corporations or entities seeking to construct and/or operate facilities for the withdrawal of public ground water within the city for any use, and who are not subject to the exemptions of subsection (a) of this section, must obtain a well drilling/operations license from the city before the construction or operation of the facilities may commence.

(c) All applications for a well drilling/operations license shall be made to the city in legible form, and shall contain, at a minimum, the following information:

(1) The name, address and telephone number of the individual, company, association, corporation or entity seeking licensure under this chapter;

(2) A statement by the proposed licensee that all permits required by the state, or any of its agencies or political subdivisions, other than the city, have been approved and issued. The proposed licensee shall list the permitting agencies, identify each permit issued by number, registration or other identifying fixture, and attach copies of each permit to the application. In the event that a testing of the facilities is necessary for any permit to issue, the proposed licensee shall submit a list of the agencies requiring facilities testing, the nature of the testing to be conducted, the time for such testing, and the type and nature of the facilities that must be constructed and/or operated before such testing may commence;

(3) A written description of the proposed well site, including the legal description of the property upon which the well site will be located;

(4) A scale map depicting the exact location of the proposed well site, and any buildings, fixtures, and improvements within one thousand feet of the proposed well site;

(5) A statement by the proposed licensee of the purpose for which the well site will be operated;

(6) A statement by the proposed licensee of the expected average daily withdrawal of water, in gallons,

at the well site, together with an explanation by the proposed licensee of how the expected average daily withdrawal was calculated;

(7) A report from a licensed engineer or engineering firm stating that the firm has inspected the property upon which the well site will be located, and any and all other documents or information deemed necessary by the engineer, and that based upon any examinations and tests performed by the engineer, all federal, state and local rules and regulations related to the location of the well may be complied with, along with a statement that the installation and use of the proposed facilities for the withdrawal of public ground water at the site designated by the proposed licensee provides no statistically significant chance of adversely impacting or degrading city's water supply, including the possibility for contamination or pollution, or the city's ability to provide an adequate supply of water to its residents for all purposes. The report shall set forth all information relied upon in reaching the conclusions contained in the report, including a listing of all tests or analyses performed, the results of any tests or analyses, and an explanation of what specific information was provided by each test or analysis performed;

(8) A statement setting forth the time when the proposed facilities are expected to be constructed, and/or become operational;

(9) A statement setting forth whether the well facilities are currently licensed under this chapter. In the event the well facilities are currently licensed under this chapter, the proposed licensee shall set forth the name, address, and telephone number of the current licensee. The proposed licensee, shall attach a true and correct copy of the current licensee's well drilling/operations license to its application;

(10) Any other information the proposed licensee wishes to include that may aid in the permitting process.

(d) Within ninety days after the submission of a well drilling/operations license application, the city shall determine whether such application is complete. In the event that an application is incomplete, the city shall so inform the proposed licensee by first class and certified mail to the address contained in the application. After the expiration of the ninety-day period, if the city has not informed the proposed licensee that its application is incomplete, the submitted application shall be deemed to be complete. The city shall note the date it determined the application to be complete or incomplete on the first page of the application. Within one hundred eighty days after a complete well drilling/operations license application is received by the city, the city shall either approve or disapprove the proposed licensee's application. In the event that a proposed licensee's application is disapproved, the city shall set forth specific reasons for the application's disapproval. If no decision approving or disapproving a proposed licensee's application has been made within the one hundred eighty day period, the proposed licensee's application shall be deemed approved by the city.

(e) The city shall be entitled to rely on all statements made in the proposed licensee's application, and shall incur no liability based upon their reliance thereon. (Ord. 981 § 1 (part), 1996).

12.30.040 Fees.

The city may charge a reasonable application fee to a proposed licensee, which fee shall not be refundable. That fee shall be established by resolution of the city council. (Ord. 981 § 1 (part), 1996).

12.30.050 Maintenance of city facilities.

The city shall charge every licensee under this chapter a periodic fee for the maintenance and upkeep of the city's water facilities designated or expected to directly service the licensee's property. The fee shall be based

upon the proportion of the facilities designated or expected to directly service the licensee's property in relation to the whole of the city's facilities. One half of the basic charge for service under the provisions of this chapter related to delivery of water shall be the fee charged per month to any licensee unless the city council shall by resolution establish a lower fee. (Ord. 981 § 1 (part), 1996).

12.30.060 Transferability.

Any license granted by the city under this chapter shall not be transferable. A proposed transferee of a well drilling/operations license granted under this section must submit an application as provided for in this chapter, and pay any appropriate fees. In no event shall the city grant a well drilling/operations license to a proposed transferee if there are charges outstanding for the maintenance of city facilities designated or expected to directly service the licensee's property. (Ord. 981 § 1 (part), 1996).

12.30.070 Abandonment of wells.

In the event any well subject to this chapter is abandoned, that well shall be abandoned in compliance with WAC Chapter 173-160 as now adopted or hereafter amended or readopted. (Ord. 981 § 1 (part), 1996).

12.30.080 Statement of policy.

The city recognizes that certain state laws give all persons the right to access public ground waters of the state. The city further recognizes that in order to assure that all residents of the city receive an adequate and safe water supply, it is in the best interests of the public to allow the city to act as the purveyor of water for each and every resident. Because the city has the utmost interest in protecting the health, safety and welfare of its citizens, it shall be the policy of the city to transfer any information contained in the proposed licensee's application to all appropriate agencies. It shall be the policy of the city to do everything in its power to determine whether all licensees under this chapter are making continued efforts to remain in full compliance with all federal, state and local laws, rules and regulations. It shall be the policy of the city to inform all appropriate agencies of a licensee's perceived noncompliance with any federal, state or local law, rule or regulation. Finally, it shall be the policy of the city to aid each and every agency, to the fullest extent practicable, to recognize and abate any threat to the public's water supply brought by a licensee under this chapter. (Ord. 981 § 1 (part), 1996).

12.30.090 Severability.

If any section, sentence, clause or phrase of this chapter should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this chapter. (Ord. 981 § 1 (part), 1996).

Chapter 12.36
UTILITY SERVICE TERMINATIONS

Sections:

12.36.010 Terminations.

Notwithstanding any other ordinance, the city shall have the power and authority, regardless of the status of the payment record of the property served or proposed for service, to either withhold delivery of water and sewer utility service or to terminate any and all existing water and/or sewer utility service to the property involved. The city shall have the power and authority to terminate or deny water and sewer utility service to any property under the following circumstances:

(a) If the property has a residential, industrial, or commercial structure being constructed or remodeled and the construction has not been completed as required by the city, or in a timely manner;

(b) If the property has a residential, industrial or commercial structure being constructed under a building permit issued by the city and no certificate of occupancy has been issued by the city and the structure is being occupied or used;

(c) If the property has been determined to be unfit for occupancy under the International Fire Code (IFC), or if the property has been subject to an order of correction under the IFC and that order has not been carried out in a timely and reasonable manner;

(d) The property has a structure located thereon in violation of the platting or subdivision ordinances of the city. Violations include:

(1) The building of a structure on unplatted land without a waiver from the city council or failing to comply with conditions of permission to build on unplatted land;

(2) The failure to complete a plat or binding site plan application following preliminary approval;

(3) The violation of conditions of a plat or binding site plan including maintaining the performance of a warranty bond.

(e) The property has located upon it a business or occupation being conducted in violation of the occupancy certificate or business licensing rules of the city, including a failure to pay a current license fee. (Ord. 1400 § 10, 2014: Ord. 1174 § 1 (part), 2004).

12.36.020 Hearing.

Any person notified of any of the violations of Section 12.36.010 shall have the opportunity to request a hearing to be held before the city administrator, or in the absence of the city administrator, his/her designee, prior to the termination of utility services to the property alleged to be in violation. Such hearing shall be held within two business days of the request for a hearing. The purpose of such hearing shall be to determine if there is reason to believe the allegations of the city are true. If the city meets its burden at this hearing through the evidence available, then the water and/or sewer utility service to such property shall be terminated. All presumptions at this hearing shall be made in favor of the city. (Ord. 1174 § 1 (part), 2004).

12.36.030 New application for service.

All water and/or sewer utility services terminated by the city pursuant to this section shall require the property owner or the owner's agent to make new application to the city for service. The service shall be restored upon the person requesting service, paying all costs of reconnecting service, if the service had to be physically disconnected to enforce the city's termination order as well as complying with all new service requirements, excluding the general facility charge. (Ord. 1174 § 1 (part), 2004).

Chapter 12.40
EMERGENCY WATER SHORTAGE RESTRICTIONS

Sections:

12.40.001 Purpose and scope.

It is the purpose of this code to:

(a) Provide for the regulation of water facilities maintained by the city of Othello in order to preserve the city's water supply and protect the public health, safety, and welfare.

(b) Establish the authority of the city administrator to declare a water shortage emergency and to impose restrictions on water usage. (Ord. 1437 § 1 (part), 2015).

12.40.005 Definitions.

For purposes of this chapter, the following definitions apply:

(a) "Large water user" shall mean any user of the city water supply whose average use during the thirty days immediately preceding the declaration of a water shortage emergency is equal to or greater than five hundred gallons of city water per minute.

(b) "Water shortage emergency" shall mean an emergency as declared by the city administrator in accordance with Section 12.40.020. (Ord. 1437 § 1 (part), 2015).

12.40.010 Supply shortage.

In case of shortage of supply, the public works department reserves the right to give preference in the matter of furnishing service to customers, as in the judgment of its representatives shall be for the best interest of the city, from the standpoint of public convenience, safety, or necessity. (Ord. 1437 § 1 (part), 2015).

12.40.020 Water conservation and rationing.

When determined necessary by the city administrator to conserve water within the city of Othello water service area during water shortage periods, the city administrator or his/her designee has the authority to declare a water shortage emergency and direct the public works director to implement any or all of the actions as outlined in this chapter for the defined emergency. The city administrator declaration shall define the emergency stage as a temperate, intermediate, or grievous emergency. The public works department shall monitor the supply of and demand for potable water on a daily basis and report the status to the city administrator. The emergency shall remain in effect until such time as the emergency has expired and a notice of cessation by the city administrator has been given, as provided in this chapter. (Ord. 1437 § 1 (part), 2015).

12.40.030 Conservation and rationing program.

Upon declaration of a water shortage emergency, the public works director shall implement a water use reduction program corresponding to the emergency level declared by the city administrator. The water use reduction program shall consist of the following measures and any other measures deemed necessary to maintain the quality and availability of the city's domestic water supply:

(a) Temperate Stage. The public works department shall:

(1) Provide a water shortage emergency public notification in the city's water service area. The notification must direct Othello domestic water system users utilizing city water for irrigation/sprinkling to conform to the following landscape-watering monthly calendar schedule:

(A) Even numbered addresses water on Mondays, Wednesdays and Fridays.

(B) Odd numbered addresses water on Tuesdays, Thursdays, and Saturdays.

(C) There will be no watering scheduled for Sundays.

(D) Irrigation/sprinkler watering shall only be allowed between the hours of three a.m. to seven a.m. and seven p.m. to eleven p.m.

(E) The quantity of water shall be kept at a minimum. Potable water used for irrigation/sprinkling which is found running upon the streets or walkways shall be prima facie evidence of excessive use.

(2) Disseminate water conservation guidelines to all customers within the city's water service area (except for the large water uses to be dealt with separately) asking for a voluntary water use reduction of fifteen percent to twenty-five percent below current usage.

(3) Prepare a water shortage emergency status report that includes a request for a voluntary water use reduction of fifteen percent to twenty-five percent below current usage and distribute to all large water users identified in the city's water utility billing system. The intent of this process is to approach large water users separately from the general/lower volume water users with a written status report providing technical information on their specific water usage supporting the request for voluntary reduction.

(4) Utilize media sources to communicate the water shortage emergency as deemed necessary.

(5) Establish an information source point entitled "Water Shortage Emergency" on the city's official website which provides updated information on water shortage emergency stages, conditions, and requirements.

(6) Ready emergency water supply interties with adjacent water systems to supplement available water supply if necessary.

(b) Intermediate Stage. The public works department shall:

(1) Provide a water shortage emergency public notification in the city's water service area. The notification must direct Othello domestic water system users utilizing city water for irrigation/sprinkling to conform to a mandatory landscape-watering schedule as determined by the public works director as necessary to preserve the city's water supply, which may include prohibition of all landscape watering if necessary.

(2) Comply with subsections (a)(2) and (4) through (6) of this section.

(3) (A) Appoint a water conservation representative(s) to meet with large water users identified in the city's water utility billing system to inform them of the current water shortage condition, (B) implement a mandatory twenty-five percent water use reduction below the most recent nonemergency water shortage year on a month-by-month basis, and (C) communicate the mandatory reduction in writing delivered to large water users.

(4) Prohibit the operation and introduction of water into an ornamental fountain.

(5) Prohibit the washing of streets, sidewalks, driveways, or decks except as necessary for public health and safety.

(6) Prohibit the filling of swimming pools, spas, ponds, and artificial lakes.

(7) Prohibit washing of any vehicles or boats unless at a commercial car washing facility.

(8) Instruct all construction operations receiving water from a city fire hydrant not to use water for any purpose other than those required by regulatory agencies. A water rate surcharge of three hundred percent shall be established for this type of water use.

(9) Require all restaurants to conspicuously post a "Water Shortage Emergency" notice as approved by the public works director and refrain from serving water to customers except upon request.

(10) Require operators of hotels, motels, and other commercial lodging establishments to conspicuously post a "Water Shortage Emergency" notice as approved by the public works director.

(c) Grievous Stage. In addition to the following measures, all measures identified in the intermediate stage shall apply. The public works department shall:

(1) Prohibit all watering of any lawn, yard, city-owned park, landscaping, recreational area, or any other area containing vegetation.

(2) Rescind all fire hydrant meter use permits and issue no new permits.

(3) Close all city-owned swimming pools, wading pools, splash facilities, and the like.

(d) Should the above measures fall short of maintaining enough water supply for the basic functions of health and sanitation, the public works director is authorized to:

(1) Implement further mandatory water use reductions up to fifty percent including a corresponding inclining rate structure.

(2) Implement a rolling system of outages as necessary to preserve basic health and sanitation.

(e) Notice to Water Customers. Notice shall be given advising water customers that the potable city water conservation and rationing program is to be implemented. For temperate stage conditions such notice shall be published at least two days in the official newspaper of the city, and shall contain a description of the programs, the effective date, and the time of implementation, and penalty for violation. For intermediate stage conditions such notice shall be published for at least one day. For grievous stage conditions notification shall be by the most expedient means possible with a follow-up published notification if the grievous stage condition is expected to last more than three consecutive days. Assistance of other local media will be sought throughout the duration of the water shortage in an attempt to further advise water customers; however, such additional media assistance shall not be deemed a condition precedent to effectuating the program on the

date and time specified in the notice of cessation published as required in this section.

(f) Notice of cessation of the water shortage shall be given by publication in the official newspaper of the city; provided, however, that notice of cessation need only be published one time. (Ord. 1437 § 1 (part), 2015).

12.40.040 Accountability of owner, occupant.

For the purposes of this chapter, the legal owner of any premises upon which a violation of this chapter occurs or, in the case of rented or leased premises, the legal occupant thereof shall be deemed accountable for the conduct of all other persons being present thereon or having access to the premises. (Ord. 1437 § 1 (part), 2015).

12.40.050 Violation—Penalties.

(a) It is unlawful for any person or entity to violate any provision of this chapter. Any violation of any provision of this chapter shall be a civil infraction. This chapter shall be enforced in accordance with the provisions of Chapter 1.30 et seq.

(b) Domestic Water Users.

(1) The first violation of this chapter by a person shall be a civil infraction for which no penalty shall be imposed. Rather, for first time violations, the public works director or designee shall issue a written warning to the responsible party.

(2) A second violation of this chapter by the same person shall be a C-8 civil infraction for which a fine of two hundred fifty dollars may be imposed. After a written warning has been issued, each day's violation of any provision of this chapter shall constitute a separate offense and shall subject the offender to the above penalties for each offense.

(c) Commercial and Large Water Users.

(1) The first violation by a commercial or large water user shall be a C-1 infraction for which a fine of five thousand dollars shall be imposed. Each day's violation of any provision of this chapter shall constitute a separate offense and shall subject the offender to the above penalty for each offense.

(d) Authority to Disconnect Customers During a Water Shortage Emergency.

(1) The public works director is authorized to prevent the depletion of city potable water by cutting off service to any water customer violating this chapter after having served a notice of infraction on said customer.

(2) The public works director is further authorized to enter upon the property of a customer (who has violated this chapter), after first making reasonable efforts to contact the owner or person responsible for such premises, and disconnect their property from the city water supply during the declared water shortage emergency.

(3) Once the water shortage emergency ends, the public works director must reconnect the property to the city water supply. The customer responsible for the property shall be responsible for all expenses incurred by the city to reconnect the property to the city water supply. The city is authorized to pursue legal action to collect for these costs if not paid by the customer within thirty days of being delivered with a bill detailing the expenses incurred to reconnect their property to the city water supply. (Ord. 1437 § 1 (part), 2015).

The Othello Municipal Code is current through Ordinance 1481, passed October 24 2016.

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CITY OF OTHELLO
POLICY NO. WSP 01-03

ANNEXATION POLICY

DEPARTMENT: PUBLIC WORKS – WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

The City of Othello will consider all Notices of Intent to Annex or Petitions to Annex into the city limits and will have the opportunity to consider the annexation request. This opportunity includes discussion of the following:

- Whether the annexed area would be required to assume all or a portion of the existing indebtedness of the City.
- Whether simultaneous zoning will be required upon annexation.
- Whether the City wants to geographically modify the proposed annexation.
- Whether the proposed annexation in the best interest of the citizens.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 02-03

ANTI-TERRORISM POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello, Water Department to protect the City's water supply from any threat of terrorism by controlling and maintaining access to any of the City's sources and supply system.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 03-03

DISPUTE OF UTILITY BILL POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

The City of Othello will provide a system to allow citizens to dispute the correctness of all or part of the amounts charged for water, sewer or utilities.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
PROCEDURE NO. WSP 03-03 P

DISPUTE OF UTILITY BILL PROCEDURE

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES PROCEDURE NO:_____

PROCEDURE FOR DISPUTES OF UTILITY BILL

This will provide the procedure for the citizens to present their dispute, and will provide the process for staff review of the dispute.

The customer shall notify the City Clerk's office in writing their dispute of all or part of the utility bill. The Clerk shall determine whether the dispute was filed in a timely manner. If it is determined that the dispute is untimely or invalid, the City shall notify the customer of the decision. If determined that the dispute is filed in a timely manner, the Clerk shall arrange for an informal meeting with the customer, Clerk and City Administrator. The City Administrator shall resolve the dispute, utilizing the records of the utility billing department, the customers report and other relevant material, attempting to do so in a manner satisfactory to the City and customer. The Clerk's office shall mail the customer a copy of the decision, which shall be final and binding. During the time of review of the filed complaint, the City shall not terminate the water service, if delinquent. After the City Administrator makes the decision, and if determined that the customer must pay some or all of the disputed amount and if the amount becomes delinquent, the City shall mail a notice of termination as provided for all other customers.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 04-03

WATER CONSERVATION POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello to preserve and protect its precious water resources. The City of Othello will promote reductions in the amount of water necessary to carry out a beneficial use without a reduction in the value of the good or service the water provides. To do so, it will maintain a conservation plan consisting of three elements: data collection and reporting, demand forecasting for future water needs, and conservation program development and implementation.

Data Collection and Reporting

Plans for water use will contain current available data for all categories listed in the procedures. The City is committed to collecting the data as required, to include a schedule for collection, and improvements necessary to ensure the data are collectable.

Demand Forecasting

Demand forecasting will show demand for 6 and 20 year projections for average daily demand and peak day demand to depict future usage with and without conservation savings. Forecasting must be based on projected population, land use/zoning/capacity, conservation savings, and per capita water use and other non-residential water use.

Water Conservation

The City shall make reasonable efforts to attain maximum utilization of current supplies, reduce peak daily consumption, reduce peak monthly consumption, promote short and long term efficiency, reduce usage from specific customer classes, and develop public education and awareness. The City will actively promote conservation of municipal, industrial and agricultural water use.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 05-03

CROSS CONNECTION CONTROL POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello, Water Department to provide safe drinking water and protect our water system from a backflow incident by following the State Guidelines set forth by the Department of Health under WAC 246-290-490, Cross-Connection Control.

Adoption Date:
Revision Date:

Approved by:_____

EXTRA TERRITORIAL AGREEMENTS FOR WATER SERVICE OUTSIDE CITY LIMITS POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

Pursuant to adoption of Resolution No. 96-06, the Othello City Council shall review all requests for the provision of water and/or sewer utilities whether the request involves property, which is contiguous or non-contiguous. The City Council has the sole and complete discretion to grant permission for the provision, delivery, or furnishing of water and/or sewer utilities to properties beyond the corporate limits of the city.
The City will deliver water and/or sewer utilities to contiguous land only if the developer petitions to annex into the city limits and builds infrastructure that is built to city standards. The City has the option to not require annexation of these lands when it has been determined to be circumstances of compelling need to protect an identified public interest. Such extension on the basis of identified need shall be on a case-by-case basis at the sole discretion of the City Council.

If the City Council determines to grant extension of services to areas outside the current city limits, an extra territorial agreement, covenant running with the land, and power of attorney will be executed.
The City will deliver water and/or sewer utilities to non-contiguous land only when such water is available or when such sewerage capacity is available as determined by the City Council and only upon the conditions listed below:

- Adams County has adopted a comprehensive zoning plan of the area in concert with the City of Othello's.
- The area is within the Urban Service Area, as adopted and amended by the City Council.
- All infrastructure is built to city standards.

It is in the best interest of the City's long-term future.

Adoption Date:
Revision Date:

Approved by:_____

FIRE FLOW PERFORMANCE STANDARD PROCEDURE

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES PROCEDURE NO:_____

Any city project or developer using city water shall provide the following minimum infrastructure to ensure sufficient quantity and pressure at the fire hydrants.

1. Water lines that provide service to more than 10 acres shall be looped to a second source. (A City owned municipal well or water tower could be considered a second source.)
2. There can no be dead end water lines except:
   A. Those that are extended to the edge of the plat for future connection shall be valved off at the nearest tee.
   B. 8" dead end lines to fire hydrants shall not exceed 300 ft. (When possible, service lines shall tap dead end lines to keep water fresh.)
3. All facilities within the City of Othello shall provide the minimum required fire flow for the actual hazard. All fire flow calculations required for buildings shall come from the fire code without allowing for any reductions in the flow, duration, or number of hydrants.
4. Water line sizes shall be as required for the fire flow, but in no case shall any residential municipal water line be less than 8" in diameter. Minimum pipe size in a commercial zone shall be 10"; minimum pipe size in an industrial zone shall be 12" (except for fire hydrant loops within a project).
5. Fire hydrants shall be provided for new developments as required for the hazard, but in no case shall there be more than 500 ft. between hydrants in residential areas, or 400 ft. between hydrants in low hazard commercial areas, or 300 ft. in industrial areas.
6. Existing residential plats shall provide hydrants with no less than 1,000 GPM providing no less than 95% coverage with a 500 ft. radius around each hydrant.
7. If city staff is recommending that a line be upsized for future transmission plans, the City will pay for the cost of materials to upsize the line above that required for the minimum fire flow. (The City does not fund construction of water lines unless they are for the good of the system, in which case, the developer will pay back the cost of the line they would need with special connection fees).
8. All sides of a plat either connect to existing water lines or have stubs out for future connections (unless the side is already platted, has no future needs for additional lines, or there exists a barrier to extending water lines).

9. All parcels within the Utility Service Area must annex and upgrade to the above standards to obtain or continue water service (except for Adams County Water District #1).
10. No new requests to expand a water service outside of the city limits will be approved until the County adopts the City's planning area comprehensive plan.
11. If an existing private water system desires to connect to the city system, their infrastructure shall be upgraded to meet these standards. Funding to upgrade the system shall be paid for by the private system owners or users.
12. City managed satellite systems that do not meet the above standards and are not allowed.
13. All construction shall comply with the current Othello Public Works Design Standards.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 07-03

FIRE FLOW DESIGN PRESSURE POLICY

DEPARTMENT: Public Works-Water Department

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

The design pressure for the minimum required fire flow and pressure of fire sprinkler systems connected to the City of Othello's water system shall be equal to the pressure that will be at that specific site when the City declares that "mandatory conservation measures" (MCM) must be taken. (See water pressure map in WSP 07-02 P)

The point at which mandatory conservation measures must occur is dependent upon the expected time it would take for the supply of water to decrease to the emergency level (normally 30 psi at Well No. 8). If a large amount of water is being used for fire suppression, loss from a line break, or water not being pumped because of an extended power outage, the "water emergency declaration" (WED) must be made when the event happens not waiting until the water drops to the mandatory conservation level.

A water emergency is declared when the pressure drops to 20 psi at the lowest pressure area (which is the minimum water pressure allowed by the Department of Health) measured at Well No. 8 located at 14th Avenue and Lee Road. At which time boil orders, mandatory cease and desist orders, and other emergency procedures will go into effect to retain the remaining water for fire flow and/or emergency use.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP. 08-03

FIRE FLOW POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello to provide a water system that will serve the Fire Department with sufficient water to protect our community.

This will be accomplished by investing in:

- codes and standards that will facilitate a well designed system well into the future,
- planning ahead to predict and upsize needed trunk lines,
- paying the cost to upsize said trunk lines,
- collecting sufficient revenues to regularly upgrade the system and maintain water sources,
- enforcement of minimum performance standards for all replacement and new lines constructed within the service area (see service area map in WSP 08-02 P),
- enforcement of the Uniform Fire Code for hydrant spacing and flow on new and upgraded systems, testing and maintaining the community's fire hydrants to ensure design flow.

Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
POLICY NO. WSP 09-03

FIRE SPRINKLER DESIGN PRESSURE POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello that the design pressure for fire sprinklers within the community of Othello to be equal to the lowest pressure at the site that the City will declare a water emergency.

The City of Othello Fire Flow Policy WSP 08-02 is to always maintain 1.5 million gallons of water in reserve, deliverable within 500 ft. of all buildings at a pressure not less than 20 psi. Therefore the supply system shall provide a minimum normal operating pressure (MNOP) of 30 psi at all times unless there is an emergency or fire.

Adoption Date:
Revision Date:

Approved by :_____

FIRE SPRINKLER DESIGN PRESSURE PROCEDURE

DEPARTMENT: Public Works-Water Department

EFFECTIVE DATE:_____ SUPERSEDES PROCEDURE NO:_____

The maximum design pressure for fire sprinklers shall be calculated based on the minimum normal operating pressure at the site of the facility (see diagram of operating pressures on last page of this procedure).

The minimum allowable water pressure (by the Department of Health) is 20 psi at the lowest pressure area (which is 14th Avenue and Lee Road - Well #8).

Using 60 ft. of water at the point of which the emergency is declared equates to a fire sprinkler design pressure of 25 psi at the lowest pressure area increasing as the elevation drops towards the southwest part of town to the highest pressure area (77 psi) located at the storm water containment basin area (see diagram of operating pressures).

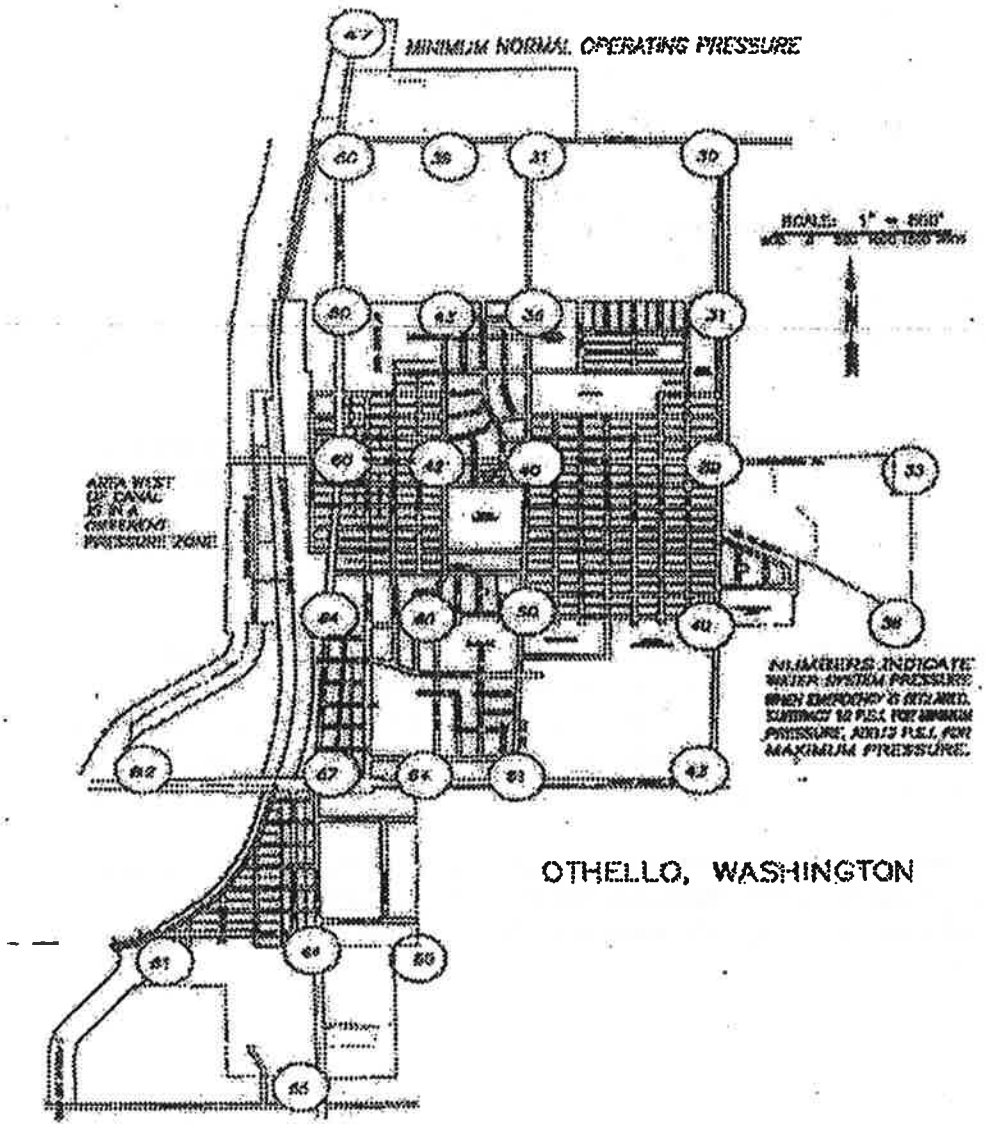
To obtain the available pressure during a fire flow event and the pressure at which the sprinklers must be designed to, subtract the actual static/residual pressure difference obtained from the flow test from the adjusted static pressure shown on the attached sheet. I.E.: 50 psi static, 45 psi when adjacent down stream hydrant is open, equals 5 psi drop at 1000 to 1500 GPM flow.

To determine the minimum normal operating pressure at a given site, subtract the actual elevation of the facility from the tower water level of 1190 ft. (30 psi or 70 ft. of water) and divide by 2.31 (see back of this page for general community MNOP).

To find the fire flow available in the local piping system, flow the hydrant nearest to the facility and determine the differential pressure between the static pressure and the pressure when flowing the hydrant at full flow (which must exceed 1,000 GPM).

The fire sprinkler design pressure shall not exceed the calculated MNOP minus the actual flow differential pressure. Foe example, City Hall is at elevation 1100 so we can expect the MNOP of 39 psi. Actual hydrant flows showed a differential drop in pressure of 6 psi with 1,200 GPM flowing, therefore the fire sprinkler design pressure shall not exceed 33 psi.

The design professional, with concurrence from the owner and insurance company, must consider the importance of the building, it's combustibility, and the contents of the building being protected before establishing the design pressure. The fire sprinkler design professional must realize that the actual available pressure at the site could be considerably less during a fire or major community crisis since the city is only required to maintain 20 psi during an emergency.



Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
POLICY NO. WSP 11-03

LATECOMER AGREEMENTS FOR WATER UTILITIES POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello to recover portions of the city's investment in water utilities that have been installed with public funds through or adjacent to platted or unplatted areas.

If the water utilities have been installed with public funds through or adjacent to platted areas, the property which the water mains are extended through or adjacent to shall be permitted to connect to the city main only upon payment, which has been determined by the Council and adopted as part of Othello Municipal Code, Chapter 12 "Water and Sewer".

If the water utilities have been installed with public funds through or adjacent to unplatted areas, the City will require the developer or owner of those unplatted areas, as part of the platting procedure, to reimburse the City for the portion of the costs of the water main, as determined by the Council and adopted and codified in Othello Municipal Code, Chapter 12 "Water and Sewer".

Waivers to a latecomer's agreement may be granted by the City Council to businesses who provide employment opportunities to the citizens of Othello, and who have broadened the economic base of the community by providing additional employment opportunities.

Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
POLICY NO. WSP 12-03

SAFE WATER SYSTEM POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello, Water Department to provide a safe and secure water system by building, maintaining and operating our system in accordance with our approved performance standards.

Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
POLICY NO. WSP 13-03

SATELLITE SYSTEM POLICY

DEPARTMENT: PUBLIC WORK-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello not to provide satellite management.

Area outside the Urban Growth Area (UGA): City water, if available, can be provided to systems outside the UGA boundaries only if existing systems fail, only if the owners rebuild their system and connect their system to city standards, and it is in the best interest of the city.

Area in the Urban Growth Area (UGA): No satellite systems are allowed. No stand-by interties are allowed. City water, if available, can be provided to systems within the UGA only if the systems annex, build and connect using city standards.

Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
POLICY NO. WSP 14-03

WATER AND SEWER RATE SURCHARGE FOR OUTSIDE CITY LIMITS POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello that customers outside of the city limits that receive the benefit of city water and/or sewer services will be assessed a surcharge above the rate for similar customers inside the city limits.

Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
PROCEDURE NO. WSP 14-03 P

WATER AND SEWER RATE SURCHARGE FOR OUTSIDE CITY LIMITS PROCEDURE

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES PROCEDURE NO:_____

The surcharge for customers outside of the city limits shall be based upon 150% of the rates established for similar customers, as established by City ordinance and amendments thereto.

Adoption Date:
Revision Date:

Approved by :_____

CITY OF OTHELLO
POLICY NO. WSP 15-03

WATER FUND AND WATER RESERVE FUND POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

The City of Othello policy for the Water Fund and Water Reserves Fund will be as follows:

The Water Fund shall maintain a minimum balance of 20% of the annual operations budget. The operations budget includes cost for water administration, water facilities, water operations, water debt payments and water reserve transfers. If at year-end the fund balance of the water fund is over 30% of the next year's annual operating budget, all funds over the 30% will be transferred to reserves. If the 20% minimum fund balance cannot be maintained, the Council will make the rate changes needed to maintain the 20% fund balance.

The Water Reserve Fund shall be divided into three parts: reserve for additional water sources, reserve for general water projects, and emergency reserve. The Water General Facility Fees collected with new water connection will fund the reserve for additional water sources. These funds will be used for the drilling and construction of new wells required for continued growth. This portion of the Water Reserve Fund will not require a minimum balance.

The reserve for general water projects will be funded by means of transfers of funds over 30% of the annual operating budget from the water fund. This portion of the Water Reserve Fund will not require a minimum balance.

The emergency reserve portion of the Water Reserve Fund will maintain a minimum balance of $200,000.00.

Adoption Date:
Revision Date:

Approved by :_____

WATER OUALITY COMPLAINT PROCEDURE

DEPARTMENT: Public Works-Water Department

EFFECTIVE DATE:_____ SUPERSEDES PROCEDURE NO:_____

1. **Water has a bad smell, taste, or color.**
   Interview the customer.
   Find out the location.
   Check to see if well six has been running.
   Check to see if hydrants have been flushed in the area or if there has been a fire in the area.
   Flush the adjacent lines.

2. **Water pressure abnormal.**
   Interview the customer
   Check to see if the meter is all the way on.
   Perform pressure test
   Perform flow test with metering device
   If the tests a conclusive dig and repair.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 16-03

COMPLAINT FOR WATER QUALITY POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

The City of Othello's policy for water quality is to provide quality, good tasting, clean and safe potable water to its customers.

The City Public Works Department will act in the best interest of the water users. If the Public Works Department determines that the complaint is a health-related issue, they will conduct the appropriate tests at the area of concern. If the Public Works Department determines that further response is needed, they will flush and/or chlorinate the area; will conduct further testing of the area; and will meet state standards regarding notification of water users of testing results and procedures.

Adoption Date:
Revision Date:

Approved by :_____

WATER SHORTAGE PROCEDURE

DEPARTMENT: Public Works-Water Department

EFFECTIVE DATE:_____ SUPERSEDES PROCEDURE NO:_____

20 p.s.i. at Lee Road and 14th Avenue is equal to 46 ft. of water in the tank at Lions Park (water level at 1167 ft. above sea level). If all pumps are on at 87 ft. of water in the tank and it continues to drop down to 72 ft. of water (approximately 31 p.s.i.) a water shortage must be declared to stabilize before it drops to 46 ft. (20 p.s.i.) of water.

If a large amount of water is being used for fire suppression, lost in a line break, or water is not being pumped because of an extended power outage, the water shortage can be declared and Simplot ordered to clear their lines and shut down when the event happens, not waiting until the water drops to 72 ft.

As a safety measure, even if there is no water shortage, a major fire at Simplot or McCain Foods will require a closure at the other plant, which will be evacuated and provide extra water for fire fighting.

Procedure:

As the reservoir drops to 72 feet, the Public Works Director shall:
Step 1. Check the historical data chart.

Step 2. Determine if the shortage is minor, moderate or severe. Determine how long it has taken the system to drop to 72 feet (55 p.s.i. at Public Works shop) since the event. If demand is approximately 6000 gallons per minute, there are about three hours in which to correct the problem.

Step 3. Notify the following of a water shortage and projections. (If person is not available, move to next person on list from Public Works Director to City Administrator to Mayor.)

City Administrator	(Calls Mayor)	488-5686
Fire Department	Police Chief	488-3314
Simplot	Plant Manager	488-2671
McCain	Plant Manager	488-9611

Step 4. Request conservation from the industrial users and the public through the Emergency Radio Station and sound the siren for 30 seconds.

Step 5. If shortage continues, the City Administrator, the Public Works Director and the Mayor shall decide when to activate a mandatory conservation plan by contacting water users and require them to reduce consumption as much as possible. For industrial users, that means not starting any new production runs, completing current ones, and being given lead time to prepare to shut down. Put a second notice on the Emergency Radio Station and sound the siren again for 45 seconds.

Step 6. THIS IS A MANDATORY SHUT DOWN FOR LARGE WATER USERS. When the pressure drops to 20 p.s.i. (46 ft.), notify Fire, Police, and industrial users of an emergency, and implement emergency procedures. Place a third notice on the Emergency Radio Station and sound the siren for 60 seconds.

Step 7. If pressure drops below 20 p.s.i., the boil order procedures must be implemented. Boil order procedures are the same as for bacteriological and contamination boil order procedures.

Adoption Date:
Revision Date:

Approved by:_____

WATER SHORTAGE POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello to maintain a minimum 30 pounds per square inch (p.s.i.) at our towers under peak hourly flow conditions, as required by WAC 246-290-230 (4). When the pressure drops below 30 p.s.i., action will be taken to keep our water pressure above 20 psi (state minimum for fire flow WAC 246-290-230 (5)), at the lowest pressure point in our system, which is Lee Road and 14th Avenue.

Adoption Date:
Revision Date:

Approved by:_____

WATER SYSTEM EXPANSION POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello to provide a cost effective and safe water system to the existing ratepayers within the Othello city limits by limiting sprawl development and promoting infill along existing water mains.

The Urban Growth Area (UGA) shall be used to manage efficient growth within a defined urban area. Water can be delivered anywhere inside the UGA if the developer annexes and extends the system per the performance standards. The location of the UGA boundary can be adjusted only during the normal update cycle of the Othello Comprehensive Sewer Plan (next update in 2009).

Landowners outside this line cannot expect to receive city utilities.

Two exceptions to the above policy are:

1. The Bruce industrial area five miles east of Othello is outside the UGA, but could someday have an interlocal intertie agreement between the Port District and City of Othello.
2. All parcels outside the UGA cannot annex into the city and have no assumed or implied right to receive any city utilities. Land outside the UGA may be considered for wholesale utility services without intention of future annexation on a case-by-case basis under a wholesale contract between the City and a utility district. The option to offer extra utility capacity to a utility district is at the sole, arbitrary and final decision of the City. Contract wholesale utility sales outside the UGA shall be done only when it benefits the citizens within the City of Othello Urban Growth Area.

Adoption Date:
Revision Date:

Approved by:_____

CITY OF OTHELLO
POLICY NO. WSP 19-03

WELL HEAD PROTECTION POLICY

DEPARTMENT: PUBLIC WORKS-WATER DEPARTMENT

EFFECTIVE DATE:_____ SUPERSEDES POLICY NO:_____

GENERAL STATEMENT OF POLICY:

It is the policy of the City of Othello Water Department to protect the City's wells and wellheads by following and enforcing the state guidelines set forth by the Department of Health under WAC 246-290-135, Source Water Protection.

Adoption Date:
Revision Date:

Approved by:_____

DOH Questions

1. 5 chapter v. 10 chapter. 5 chapter ok on Omak? Would DOH consider changing?
2. EOY production and consumption
3. SCA info
4. Modeling – EPS required for simple systems?
5. WHPP – does update extend beyond biennial requirements (e.g., contingency plan, etc.) if no new wells.
6. WUE – What does "evaluate" mean?
7. WUE Measures – if City already has inclined block rate, for example, does that count as a measure for this WSP? What about next WSP, do they need to find a new measure or can they use the same one? (What about the next plan, and the next?)
8. Want to prevent WSP from becoming an audit, i.e., a "dumping ground" for all water system information

ORDINANCE NO. 1496

AN ORDINANCE AMENDING OTHELLO MUNICIPAL CODE SECTION 12.20.010 OF CHAPTER 12.20 ENTILITED "INSTALLATION, MAINTENANCE AND USE OF SYSTEM"

THE CITY COUNCIL OF THE CITY OF OTHELLO, WASHINGTON ORDAINS AS FOLLOWS:

Section 1. **Amendment.** Othello Municipal Code Section 12.20.010 of Chapter 12.20 entitled "Installation, Maintenance and Use of System" is amended to provide:

12.20.010 ~~**Installation and maintenance of mains and lines outside city.**~~ **Ownership**

~~All domestic water mains and lines lying outside the corporate limits of the city shall be installed, owned, and maintained by the consumers and the city shall have no duty to repair or replace such mains or lines. Water meters on such domestic service outside the corporate limits shall be placed, installed, and maintained within the discretion of the water and sewer department, and shall remain the property of the city regardless of location.~~

A. City Ownership of Water Mains: The City shall have ownership of all water mains that are located within right-of-way or a municipal easement, provided that the water mains have been accepted by the City Council. City ownership for water mains that extend onto private property without a municipal easement terminates at the downstream side of the isolation valve located in right-of-way, or at the right-of-way line when there is no isolation valve.

B. City Ownership of Service Lines: City ownership extends from the water main to the downstream side of the meter setter when the meter box is located within right-of-way or a municipal easement. City ownership extends from the water main to the isolation valve in the right-of-way when the meter is located on private property; or to the right-of-way line when there is no isolation valve in the right-of-way.

C. City Ownership of Meters: The City shall own all meters regardless of whether they are located within right-of-way or on private property.

D. Private Ownership of Water Mains, Service Lines, Backflow Preventers and Appurtenances: All water mains, service lines, backflow prevention devices, and appurtenances that are not described in A and B of this section are privately owned and all maintenance, repairs, and operations are the private owner's responsibility.

Section 2. **Effective date.** This ordinance shall be in full force and effect five days after its passage and publication of its summary as provided by law.

PASSED by the City Council of Othello, Washington this 28th day of August, 2017.

By: _____
Shawn R. Logan, Mayor

ATTEST:

By: _____
Rebecca P. Ozuna, City Clerk

APPROVED AS TO FORM:

By: _____
Kelly E. Konkright, City Attorney

PASSED the 28th day of August 2017
APPROVED the 28th day of August 2017
PUBLISHED the 6th day of September 2017

ORDINANCE NO.

AN ORDINANCE AMENDING OTHELLO MUNICIPAL CODE SECTIONS 12.16.060 AND 12.16.070 OF CHAPTER 12.16 ENTITLED "WATER AND SEWER SERVICE AND RATES"

THE CITY COUNCIL OF THE CITY OF OTHELLO, WASHINGTON DOES ORDAINS AS FOLLOWS:

Section 1. **Amendment.** Othello Municipal Code Sections 12.16.060 and 12.16.070, of Chapter 12.16 entitled "Water and Sewer Service and Rates" are hereby amended to provide:

12.16.060 Minimum monthly service charge.

Single-family residences, multiple-family residences, commercial and industrial customers, inside the city limits, including all commercial single and multiple occupancy buildings and businesses, motels, inns, institutions and schools, and excluding industrial customers with contracted water service agreements, shall be subject to the following monthly service charges.

Effective December 16, 2013, the minimum monthly service charge shall be as listed in the column titled 2014 Minimum Monthly Service Charge; then on December 16, 2014 the minimum service charge shall be as listed in the column titled 2015 Minimum Monthly Service Charge; then on December 16, 2015 the minimum service charge shall be as listed in the column titled 2016 Minimum Monthly Service Charge.

Meter Size	Multiplication Factor for Meters Over One Inch	2013 Minimum Monthly Service Charge	2014 Minimum Monthly Service Charge	2015 Minimum Monthly Service Charge	2016 Minimum Monthly Service Charge
1" or less	1.00	~~$28.67~~	$30.39	$32.21	$34.15
1-1/2"	3.33	~~$95.48~~	$101.21	$107.28	$113.72
2"	5.33	~~$152.82~~	$161.99	$171.71	$182.01
3"	10.00	~~$286.73~~	$303.93	$322.17	$341.50
4"	16.66	~~$477.71~~	$506.37	$536.75	$568.96
6"	33.33	~~$955.70~~	$1,013.04	$1,073.82	$1,138.25
8"	53.33	~~$1,529.16~~	$1,620.91	$1,718.16	$1,821.25
10"	76.66	~~$2,198.12~~	$2,330.01	$2,469.81	$2,618.00

12.16.070 Volume charge.

Effective December 16, 2013 the volume charge for all metered water consumption shall be as listed in the row titled "2014", then on December 16, 2014 the volume charge for all metered

water consumption shall be as listed in the row titled "2015", then on December 16, 2015 the volume charge for all metered water consumption shall be as listed in the row titled "2016":

Volume Charge/2014 - 2016

Meter Size	Multiplication Factor for Meters Over One Inch	First Block of Water	Second Block of Water	Third Block of Water
1" or less	1	8 units	20 units	Total used less 28 units
1-1/2"	3.33	26 units	66 units	Total used less 92 units
2"	5.33	42 units	106 units	Total used less 148 units
3"	10.00	80 units	200 units	Total used less 280 units
4"	16.66	133 units	333 units	Total used less 466 units
6"	33.33	266 units	666 units	Total used less 932 units
8"	53.33	426 units	1066 units	Total used less 1492 units
10"	76.66	613 units	1533 units	Total used less 2146 units
~~2013~~	Price per unit delivered **inside** the city limits	~~$0.52~~	~~$0.61~~	~~$0.70~~
~~2013~~	Price per unit delivered **outside** the city limits	~~$0.78~~	~~$0.91~~	~~$1.05~~
2014	Price per unit delivered **inside** the city limits	$0.55	$0.65	$0.74
2014	Price per unit delivered **outside** the city limits	$0.83	$0.97	$1.11
2015	Price per unit delivered **inside** the city limits	$0.58	$0.69	$0.79
2015	Price per unit delivered **outside** the city limits	$0.88	$1.03	$1.18
2016	Price per unit delivered **inside** the city limits	$0.62	$0.73	$0.83
2016	Price per unit delivered **outside** the city limits	$0.93	$1.09	$1.25

1 unit = 100 cubic feet of water

For billing periods where the residential meters are unable to be read due to weather or other disruptions and more than one billing cycle is included in the reading, the residential customer shall only be billed the first block rate for all water consumed during the period.

INDUSTRIAL BULK WATER RATE

Volume Charge/2014 - 2016

Year		Per Unit Charge for All Metered Water Delivered
~~2013~~	Price per unit delivered **inside** the city limits	~~$0.54~~
~~2013~~	Price per unit delivered **outside** the city limits	~~$0.81~~
2014	Price per unit delivered **inside** the city limits	$0.57
2014	Price per unit delivered **outside** the city limits	$0.86
2015	Price per unit delivered **inside** the city limits	$0.61
2015	Price per unit delivered **outside** the city limits	$0.91
2016	Price per unit delivered **inside** the city limits	$0.64
2016	Price per unit delivered **outside** the city limits	$0.96

1 unit = 100 cubic feet of water

Section 2. **Effective Date.** This ordinance shall be in full force and effect five days after its passage and publication of its summary as provided by law.

PASSED by the City Council of the City of Othello, Washington, this 9th day of December 2013.

By:_____
Tim Wilson, Mayor

ATTEST:

By:_____
Debbie L. Kudrna, City Clerk

APPROVED AS TO FORM:

By: _____
Katherine Kenison, City Attorney

PASSED the 9th day of December 2013
APPROVED the 9th day of December 2013
PUBLISHED the ___nd day of December 2013

2016 PUBLIC WORKS WATER SYSTEM DESIGN STANDARDS

For reference only, contact City of Othello Public Works Department for current Public Works Design Standards

SECTION 6

6. WATER SYSTEM STANDARDS

6.01 General

The standards established by this chapter are intended to represent the minimum standards for the design and construction of water system facilities. Greater or lesser requirements may be mandated by the City due to localized conditions. Extensions, connections or modifications to the existing system shall be in compliance with the State Department of Health.

6.02 Design Standards

A. Design Standards are divided into the following categories:

1. Any system connected to the City system, whether inside the City limits or not.

B. Detailed plans shall be submitted for the city's review which provides the locations, size, and type of the proposed water system and points of connection. These Plans shall be separate from Sewer Plans.

C. Project plans shall have a horizontal scale 20 feet to the inch and a vertical scale of not more than 5 feet to the inch. Plans shall show:

1. Locations of streets, right-of-ways, existing utilities and water system facilities.
2. Ground surface, pipe type and size, and water valves and hydrants stationing.
3. All known existing structures, both above and below ground, which might interfere with the proposed construction, particularly sewer lines, gas mains, storm drains, overhead and underground power and all underground structures, telephone lines and television cables.
4. All utility easements and applicable County recording number.

D. Computations and other data used for design of the water system shall be submitted to the City for approval.

E. The water system facilities shall be constructed in conformance with these Specifications and current amendments thereto and other applicable standards as allowed by the City.

F. Material and installation specifications shall contain appropriate

requirements that have been established by the industry in its technical publications, such as ASTM, AWWA, WPCF, and APWA standards. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfilling so as not to damage the pipe or its joints.

G. Except as otherwise noted herein, all work shall be accomplished as recommended in applicable American Water Works Association (AWWA) Standards, and according to the recommendations of the manufacturer of the material or equipment concerned.

H. The location of the water mains, valves, hydrants, and principal fittings including modifications shall be staked by the Developer. No deviation shall be made from the required line or grade. The Contractor shall verify and protect all underground and surface utilities encountered during the progress of this work.

I. Prior to final inspection, all pipelines shall be tested and disinfected.

J. Before acceptance of the water system by the City, all pipes, assemblies, and other appurtenances shall be cleaned of all debris and foreign material. After all other work is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections for a new roadway consistent with the original section.

K. The Developer shall be required, upon completion of the work and prior to acceptance by the City, to furnish the City with a written guarantee covering all material and workmanship for a period of two years after the date of final acceptance and he shall make all necessary repairs during that period at their own expense, if such repairs are necessitated as the result of furnishing poor materials and/or workmanship. The Developer shall obtain warranties from the contractors, subcontractors and suppliers of material or equipment where such warranties are required and shall deliver copies to the City upon completion of the work.

6.03 General Requirements

A. Prior to construction, the Contractor shall notify the City for a pre-construction meeting.

B. Work shall be performed only by contractors experienced in laying public water mains.

C. Prior to any work being performed, the Contractor shall contact the City's Public Works Director to set forth his proposed work schedule.

D. The Contractor shall obtain approval of materials to be used from the City's Public Works Director prior to ordering of materials.

E. Water mains shall be laid only in dedicated streets or in easements which have been granted to the City. A street is normally not considered dedicated until the plat which created it has been officially filed with the County Auditor.

F. All water main distribution pipeline construction shall have a minimum 36-inch cover from finished grade and 42-inch cover over transmission mains. Mains shall be laid straight and generally be located parallel to and 12-feet northerly or easterly of street centerline. Water mains shall be extended to the far property line(s) of the property being served. Off-site extensions are required to hydraulically loop existing and new systems. Over sizing of water mains may be required to be installed per City's current Water System Plan.

G. Every cross shall have no less than three valves, every tee shall have no less than two valves, and every elbow not within 400 feet from a valve shall have one valve. An in-line valve shall be installed on straight runs of pipe every 400 feet.

H. Unless otherwise approved or required by the Public Works Director, the water main shall be ductile iron pipe or C900/C905 PVC as shown below. The minimum size for all water lines shall be 8 inches, except for pipes connecting hydrants less than 60’ long.

Pipe Diameter	Class	
	D.I.	PVC
6" through 14"	Class 52	Class 150
16" and larger	Class 50	Class 150

EXCEPTION: 6-inch hydrant spools and pipelines located beneath rock or retaining walls shall be DI. 53.

I. Pipes connecting hydrants to mains shall be 6 inch in diameter or larger and not longer than 60’. 60 plus feet requires 8 inch or larger.

J. Permanent dead end lines are not permitted. Water mains on cul-de-sacs shall extend to the plat line beyond the cul-de-sac to neighboring property for a convenient future connection, and have a 2-inch blow off assembly installed at the termination point. All lines shall be capable of being looped upon full development.

K. All materials shall be new and undamaged.

L. All fittings shall be cement-lined ductile iron.

M. Provide bends in field to suit construction and in accordance with pipe manufacturer's recommendations so as not to exceed allowable deflection at pipe joints.

N. Provide thrust blocking at all fittings and bends in accordance with the City standards and conditions. Blocking to be designed by Developer's Engineer.

O. Provide anchor blocking at all up-thrust vertical bends in accordance with City standards. Blocking to be designed by Developer's Engineer.

P. All valve marker posts shall be painted yellow and marked with the distance to valve being referenced.

Q. Residential water service pipe shall be one-inch K copper with no joints.

R. Commercial service lines between the water main and the water meter shall be 1-inch minimum with a 1-inch meter (no joints)

S. Commercial meter services and meter boxes shall be set to final grade and all adjustments shall be made prior to final pressure testing of the system.

T. All water services shall end within road rights-of-way or easements, except when otherwise approved by the Public Works Director.

U. All water services shall be installed by the City, unless approved by the Public Works Director. All costs associated with this work shall be paid for by the Developer.

V. One sampling station is required for a development in size of 1 to 10 lots. One additional station is required for each additional 50 lots or portions thereof.

W. All new buildings and residences shall include in their water service a suitable pressure reducing valve and expansion tank to protect the plumbing from excessive pressures, unless waived by the City.

X. All new service connections shall comply with the “Accepted procedure and practice in Cross Connection Control Manual” as published by the Pacific Northwest Section of the American Water Works Committee, November 1995, Fifth Edition, and current amendments thereto. A copy

of such is available for review at the Public Works office.

Y. Cut in connections shall not be made on Fridays, holidays or weekends. All tapping sleeves and tapping valves shall be pressure tested prior to making connection to existing mains. Taps are to be made by City personnel (fee is required).

Z. Contractor shall request the Public Works Director approval prior to any water shut-off or turn-on, affecting the water system, a minimum of 48 hours in advance. The Public Works Department shall operate all valves in existing service mains.

AA. Road restoration shall be per City, County or State design and construction standards, as may be applicable. Developer and Contractor shall become familiar with all State, County and City conditions of required permits, and shall adhere to all conditions and requirements.

6.04 Materials & Inspections

A. Inspections

The Contractor shall request for inspection a minimum of 48 hours prior to the Contractor's scheduled need. Inspection shall be required for the following items of work:

1. Pipe and bedding installation.
2. Backfill and compaction.
3. Pressure testing
4. Continuity testing of all pipe locating wire

B. Water Mains & Fittings

1. Water mains to be installed unless otherwise approved (or required) in writing by the City Engineer shall be either ductile iron or C900 or C905 PVC pipe.

2. Ductile Iron shall be:

   a. The ductile iron pipe shall conform to ANSI/AWWA C151/A21.51-91 Standards, and current amendments thereto, except the ductile iron pipe shall be thickness Class 52 for 4" through 14" diameter pipe (except for 6-inch hydrant spools which shall be Class 53) and Class 50 for 16" and larger. Grade of iron shall be a minimum of 60-42-10. The pipe shall be cement lined to a minimum thickness

of 1/16", and the exterior shall be coated with an asphaltic coating. Each length shall be plainly marked with the manufacturer's identification, year case, thickness, class of pipe and weight.

3. PVC pipe shall conform to AWWA C900 or C905, Class 150, capable of connecting to ductile iron fittings. All fittings shall be ductile iron.

4. Type of joint shall be mechanical joint or push-on type, employing a single gasket, such as "Tyton", except where otherwise calling for flanged ends. Bolts furnished for mechanical joint pipe and fittings shall be high strength ductile iron, with a minimum tensile strength of 50,000 psi.

5. Restrained joint pipe, where shown on the Plans shall be push-on joint pipe with "Fast Tight" gaskets as furnished by U.S. Pipe or equal for 12" diameter and smaller pipe and "TR FLEX" as furnished by U.S. Pipe or equal for 16" and 24" diameter pipes. The restrained joint pipe shall meet all other requirements of the non-restrained pipe.

6. All pipe shall be jointed by the manufacturer's standard coupling, be all of one manufacturer, be carefully installed in complete compliance with the manufacturer's recommendations.

7. Joints shall be "made up" in accordance with the manufacturer's recommendations, standard joint materials, including rubber ring gaskets, shall be furnished with the pipe. Material shall be suitable for the specified pipe size and pressures.

8. All fittings shall be short-bodied, ductile iron complying with applicable ANSI/AWWA C110 or C153 Standards for 350 psi pressure rating for mechanical joint fittings and 250 psi pressure rating for flanged fittings. All fittings shall be cement lined and either mechanical joint or flanged, as indicated on the plans.

9. Fittings in areas shown on the Plans for restrained joints shall be mechanical joint fittings with a mechanical joint restraint device. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be Romac "Grip Ring" (retainer glands) or City approved equal.

10. All couplings shall be ductile iron mechanical joint sleeves.

11. The pipe and fittings shall be inspected for defects before

installation. All lumps, blisters and excess coal tar coating shall be removed from the bell and spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire-brushed and wiped clean and dry, and free from oil and grease before the pipe is laid. Any damage to the interior lining caused by cutting or other means must be repaired prior to installation.

12. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. After placing a length of pipe in the trench, the spigot end shall be centered in the bell and pipe forced home and brought to correct line and grade. The pipe shall be secured in place with select backfill tamped under it. Precaution shall be taken to prevent dirt from entering the joint space. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug. If water is in the trench when work resumes, the seal shall remain in place until the trench is pumped completely dry. No pipe shall be laid in water or when trench conditions are unsuitable.
13.

13. The cutting of pipe for inserting fittings or closure pieces shall be done in a neat and workmanlike manner, without damage to the pipe or cement lining, and so as to leave a smooth end at right angles to the axis of the pipe. Pipe shall be laid with bell ends facing in the direction of the laying, unless directed otherwise by the City. Wherever it is necessary to deflect pipe from a straight line, the amount of deflection allowed shall not exceed pipe manufacturer's recommendations.

14. For connection of mechanical joints, the socket, plain end of each pipe and gasket shall be cleaned of dirt before jointing, and shall be jointed according to manufacturer's directions. Bolts shall be tightened alternately at top, bottom and sides, so pressure on gasket is even.

15. For connection of "Tyton" joints, the jointing shall be done according to manufacturer's recommendations, with special care used in cleaning gasket seat to prevent any dirt or sand from getting between the gasket and pipe. Lubricant to be used on the gasket shall be non-toxic and free from contamination. When a pipe length is cut, the outer edge of the cut shall be beveled with a file to prevent injury to the gasket during jointing.

16. Valves, fittings, plugs and caps shall be set and jointed to pipe in the manner as required. All dead ends on new mains shall be

closed with dead end M.J. plugs.

17. Fittings shall be "blocked" with poured-in-place concrete, with a firm minimum bearing against an undisturbed earth wall. Timber blocking and precast concrete blocks shall not be permitted. Thrust blocks shall be poured as soon as possible after setting the fittings in place to allow the concrete to "set" before applying the pressure test. The concrete thrust blocks shall be in place before beginning the pressure test. Anchor blocks shall be allowed to set sufficiently to develop the necessary bond strength between the reinforcing rods and the concrete anchor before beginning the pressure test.

18. All of the new piping, valves and blocking shall have been installed, disinfected and tested up to the point of cutting into existing lines before the crossover is made. The crossover to the existing system shall be in full readiness, including the cut and sized specials. The City shall be given 48 hours notice in advance of the planned "cut-ins". All sleeves shall be ductile iron.

19. All pipe shall be laid on the lines and grades shown on the Drawings. If not pipe grades are shown all pipe shall be laid on a straight grade without localized high points.

C. **Valves**

All valves 14" and larger shall be butterfly valves. All valves 12" and smaller shall be resilient seat gate valves.

1. <u>Resilient-Seated Gate Valves</u>

All gate valves shall conform to ANSI/AWWA C509-87 Standards for resilient-seated, high strength, bronze stemmed gate valves. The valves shall be iron-bodied, iron disk completely encapsulated with polyurethane rubber and bronze, non-rising stem with "O" ring seals. The polyurethane sealing rubber shall be fusion bonded to the wedge to meet ASTM tests for rubber to metal bond ASTM D429. The valves shall open counter-clockwise and be furnished with 2-inch square operating nuts except valves in vaults shall be furnished with hand wheels. All surfaces, interior and exterior shall be fusion bonded epoxy coated, acceptable for potable water.

The valves shall be set with stems vertical. The axis of the valve box shall be common with the axis projected off the valve stem. The tops of the adjustable valve boxes shall be set to the existing or established grade, whichever is applicable.

Valves shall be Clow, Mueller, M&H, or approved equal by the Public Works Director.

2. Butterfly Valves

Butterfly valves shall be of the tight closing rubber seat type with rubber seat either bonded to the body or mechanically retained in the body with no fasteners or retaining hardware in the flow stream. The valves may have rubber seats mechanically affixed to the valve vane. Where threaded fasteners are used, the fasteners shall be retained with a locking wire or equivalent provision to prevent loosening. Rubber seats attached to the valve vane shall be equipped with stainless steel seat ring integral with the body, and the body internal surfaces shall be epoxy coated to prevent tuberculation buildup which might damage the disc-mounted rubber seat.

No metal-to-metal sealing surfaces shall be permitted. The valves shall be bubble-tight at rated pressures with flow in either direction, and shall be satisfactory for applications involving valve operations after long periods of inactivity. Valve discs shall rotate ninety (90) degrees from the full open position to the tight shut position. The valves shall meet the full requirements of AWWA C504, Class 150B.

3. Tapping Sleeves & Tapping Valves

The tapping sleeves shall be stainless steel taping sleeves rated for a working pressure of 200 psi minimum and furnished complete with joint accessories. Tapping sleeves shall be constructed in two sections for ease of installation and shall be assembled around the main without interrupting service.

Mechanical joint style sleeves shall be ductile iron and is required for size-on-size connection to cast iron pipe. Mechanical joint sleeves shall be cast by Clow, Dresser, Mueller, Tyler, U.S. Pipe, or approved equal by the Public Works Director.

Tapping valves shall be provided a flange by mechanical joint outlet for use with ductile iron pipe and shall have oversized seat rings to permit entry of the tapping machine cutters. In all other respects, the tapping valves shall conform to the resilient seat gate valves herein specified with regards to operation and materials.

The installation of the tapping sleeves and valves shall be performed by a qualified contractor.

All taps will be made by the Public Works Department. Fees are required based on the City's actual costs.

4. <u>All Valves</u>

All valves with operating nuts located more than 42" below finished grade shall be equipped with extension stems to bring the operating nut to within 18" of the finished grade.

At the top of the extension stem, there shall be a 2-inch standard operating nut, complete with a centering flange that closely fits the 5-inch pipe encasement of the extension stem. The valve box shall be set in a telescoping fashion around the 5-inch pipe cut to the correct length to allow future adjustment up or down.

Each valve shall be provided with an adjustable two-piece cast iron valve box of five inches minimum inside diameter. Valve boxes shall have a top section with a 16-inch minimum length. The valve boxes and covers shall be Tyler #564-A or approved equal by the Public Works Director.

5. <u>Valve Markers</u>

For each valve outside of asphalt, provide a valve concrete pad 24" x 24" x 6" with reinforcing mesh centered over valve box and set to grade.

D. **Fire Hydrants**

All fire hydrants shall be approved by the National Board of Fire Underwriters and conform to AWWA Specification C502, breakaway type, in which the valve will remain closed if the barrel is broken. The hydrant barrel shall have a diameter of not less than 8-1/2 inches, and the valve diameter shall be not less than 5-1/4 inches. Each hydrant shall be equipped with two 2-1/2 inch hose ports (National Standard Thread), and one 4-1/2 inch pumper connection (National Standard Thread), with permanent 5-inch Storz hydrant adaptor and Storz blind cap which shall be installed on the hydrant prior to installation. Each hydrant shall be equipped with a suitable positive acting drain valve and a 1-1/4 inch counter-clockwise opening pentagonal operating nut. The fire hydrants shall be Waterous Pacer or, if approved by the Public Works Director, M&H 929.

The holding spools between the gate valve and fire hydrant shall be made from 6-inch Class 53 ductile iron pipe, 0.34-inch wall thickness, or C900 PVC. The hydrant and gate valve shall be anchored in place using holding spools and mechanical joint restraint device. Thrust block at all fittings

shall be in accordance with city standards and conditions. Holding spools with length in excess of 17 feet shall be supplied with an M. J. sleeve and mechanical joint restraint device.

The fire hydrants shall be painted per local Fire Marshall requirements with two coats of Preservative Brand caterpillar or international yellow paint. After installation, they shall be wire brushed and field painted with two additional coats of similar yellow enamel paint. Distance to the hydrant valve shall be clearly stenciled in black numerals 2-inches in height on the fire hydrant below the pumper port.

Between the time that the fire hydrant is installed and the completed facility is placed in operation, the fire hydrant shall at all times be wrapped in burlap, or covered in some other suitable manner to clearly indicate that the fire hydrant is not in service.

E. **Blow-offs & Air Relief Assemblies:**

2-inch blow off assemblies shall be installed at the terminus of all dead end water mains. Blow offs utilized by the Contractor for flushing the water main shall be sufficient size to obtain 2.5 feet per second velocity in the main. Temporary blow-offs shall be removed and replaced with a suitably sized watertight brass plug.

2-inch air and vacuum release valves shall be installed at principal high points in the system in accordance with the Standard Detail. The installation of these items shall include connection piping, gate valve, valve box, and all accessories. Valve markers shall be optional with City.

F. **Water Sampling Station**

One water sampling station shall be furnished and installed for each development in size of 1 to 10 lots. One additional sampling station shall be furnished and installed for each additional 50 lots or portion thereof. The water sampling station(s) shall be furnished and installed at a location as determined by the Public Works Director and as further shown on the Standard Detail.

G. **Bedding for Water Mains and Service Lines**

A. Ductile Iron and PVC Pipe (All Sizes),

Pipe bedding material to be installed and compacted under, around and above all pipe as specified in this Section shall be clean, well-graded sand or sand/gravel mixture with a maximum particle size of 5/8 inch, entirely free of clay, silt, organic or deleterious matter

and frozen material. Minimum material weight shall be 110 pounds per cubic foot at 95% relative compaction. Bedding shall conform to the following graduation requirements:

Sieve Size	Percent Passing*
¾" Square	100
3/8" Square	95-100
U.S. No. 8	0-10
U.S. No. 200	0-3
Sand Equivalent	35 MIN.

All percentages are by weight. Native Material may not be used for bedding.

B. Copper, PEX and PVC Less Than 4" Diameter Water Service Pipe

All requirements of 6.04 (F) herein apply, except that bedding material shall be clean sand, free of gravel, with no more than 5% passing the No. 200 Sieve (by weight). All pipe and appurtenances shall be installed in accordance to these and all manufacturer's recommendations and the appropriate AWWA Standards, expect as modified by these Standards. The Contractor's on-site representative shall have, at all times, a copy of the manufacturer's installation booklet.

6.05 Water Pipe Testing & Disinfecting

All pipelines shall be hydrostatically tested and disinfected per current applicable AWWA and WSDOT/APWA Standards prior to acceptance of work. A water hydrant meter shall be required and procured from the City for all water utilized for flushing pipelines. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished, installed and operated by the Contractor. Feed for the pump shall be disinfected treated water from a barrel or other container within the actual amount of "makeup" water, so that it can be measured periodically during the test period. Contractor shall not transport make up water in trucks.

The pipeline shall be backfilled sufficiently to prevent movement of the pipe under pressure. All thrust blocks shall be in place and time allowed for the concrete to cure before testing. Where permanent blocking is not required, the Contractor shall furnish and install temporary blocking.

As soon as pipe is secured against movement under pressure, it may be filled with water. Satisfactory performance of air valves shall be checked while the line is filling.

Contractor shall preflush to a City approved location all water mains after water has remained in the main for 24 hours and no more than 36 hours before flushing the main. A bacteria sample must come back satisfactory before pressure testing of main can be performed.

After the pipe is filled and all air expelled, it shall be pumped to a test pressure of 250 psi or the working pressure of the pipe which ever is less, and this pressure shall be maintained for a period of not less than 30 minutes to insure the integrity of the thrust and anchor blocks. The Contractor/Developer is cautioned regarding pressure limitations on butterfly valves. All tests shall be made with the hydrant auxiliary gate valves open and pressure against the hydrant valve. Hydrostatic tests shall be performed on every complete section of water main between two valves, and each valve shall withstand the same test pressure as the pipe with no pressure active in the section of pipe beyond the closed valve.

TEST WORK SHEET FOR WATER LINES

HYDROSTATIC AND LEAKAGE TEST

Project Name _____

Date _____ **Job No.** _____

Location of Test/Stationing _____

_____

Hydrostatic Test

Test Pressure _____

Time Test Started _____

Time Test Completed _____

Total Time _____ minutes

Test Passed ☐ Yes

☐ No

Defective materials or workmanship, discovered as a result of the tests, shall be replaced by the Contractor at the Contractor's expense. Whenever it is necessary to replace defective material or correct the workmanship, the tests shall be re-run at the Contractor's expense until a satisfactory test is obtained.

As sections of pipe are constructed and before pipelines are placed in service, they shall be thoroughly flushed and disinfected in accordance with DOH requirements and ANSI/AWWA C651.92 and C652.92. These requirements shall be supplemented with the additional information detailed below.

The Contractor shall be responsible for flushing all water mains prior to water samples being acquired. The water mains shall be flushed at a rate to provide a minimum 2.5 feet per second velocity in the main.

In all disinfection processes, the Contractor shall take particular care in flushing and wasting the chlorinated water from the water mains. The disposal of any water containing chlorine shall be performed in accordance with AWWA C651, Section 01100, and any other local requirements. Additionally, the Contractor shall ensure that the chlorinated water does no physical or environmental damage to property, streams, storm sewers or any waterways. The Contractor shall chemically or otherwise treat the chlorinated water to prevent damage to the affected environment, particularly aquatic and fish life of receiving streams.

Chlorine shall be applied in one of the following manners, listed in order of preference, to secure a concentration in the pipe of at least 50 ppm.

1) Injection of chlorine-water mixture from chlorinating apparatus through corporation cock at beginning of section after pipe has been filled, and with water exhausting at end of section at a rate controlled to produce the desired chlorine concentration;

2) Injection similarly of a hypochlorite solution;

3) Placement of dry chlorinated lime throughout pipeline, as constructed, in proper quantities to produce the desired dosage. Filling of pipeline with this method should be at a very slow rate. Pipeline should be filled within two days of placing sterilizing agent.

After the desired chlorine concentration has been obtained throughout the section of line, the water in the line shall be left standing for a period of 24 hours. Following this, the line shall be thoroughly flushed and a water sample collected. The line shall not be placed in service until a satisfactory bacteriological report has been received and must be flushed within 36 hours of filling.

City forces only will be allowed to operate existing and new tie-in valves. The

Contractor's forces are expressly forbidden to operate any valve on any section of line that has been accepted by the City.

6.06 Backflow Prevention and Sprinkler Systems

1. All water systems (i.e. sprinkler systems, swimming pools, laboratories, car washes, funeral homes, or at direction of the Building Department and Public Works Department) connected to the public water system shall have backflow prevention as required by WAC 248-54-285.

2. All fire sprinkler systems that have a fire department connection shall have backflow prevention as required by WAC 248-54-285.

6.07 Staking

All surveying and staking shall be performed by an engineering or surveying firm employed by the Developer and capable of performing such work. The engineer or surveyor directing and/or performing such work shall be currently licensed by the State of Washington to perform said tasks. A preconstruction meeting shall be held with the City prior to commencing staking and notification will be given to the City that the staking is complete prior to beginning construction for their review. The minimum staking of water systems shall be as follows:

A. Provide staking sufficient to satisfy Public Works Director. In new plat development, roadway centerline staking must be readily identifiable.

B. Stake locations of all proposed fire hydrant, blow-off, air-vac, valves, meters, etc.

6.08 Trench Excavation

A. Clearing and grubbing where required shall be performed within the easement or public right-of-way as permitted by the City and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the owner or contractor in accordance with the terms of all applicable permits.

B. Trenches shall be excavated to the line and depth designated by the City to provide a minimum of 36 inches of cover over the pipe. Except for unusual circumstances where approved by the City, the trench sides shall be excavated vertically and the trench width shall be excavated only to such widths as are necessary for adequate working space as allowed by the governing agency and in compliance with all safety requirements of the prevailing agencies. See Detail. The trench shall be kept free from water

until joining is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out.

C. The Contractor shall perform all excavation of every description and whatever substance encountered and boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth six inches below the pipeline grade. Where materials are removed from below the pipeline grade, the trench shall be backfilled to grade with material satisfactory to the City and thoroughly compacted.

D. Trenching and shoring operations shall not proceed more than 100 feet in advance of pipe laying without approval of the City, and shall be in conformance with Washington Industrial Safety and Health Administration (WISHA) and Office of Safety and Health Administration (OSHA) Safety Standard.

H. The bedding course shall be finished to grade with hand tools in such a manner that the pipe will have bearing along the entire length of the barrel. The bell holes shall be excavated with hand tools to sufficient size to make up the joint.

6.09 Backfilling

Native material for backfill: Material must be free of wood waste, debris, clods or rocks greater than three inches in any dimension. Backfilling and surface restoration shall closely follow installation of pipe so that not more than 100 feet is left exposed during construction hours without approval of the City. Selected material shall be placed and compacted around and under the pipe by hand tools. Special precautions should be provided to protect the pipe to a point 12 inches above the crown of the pipe. The remaining backfill shall be compacted to 95 percent of the maximum density in traveled areas and road prisms, 95 percent outside driveway, roadways, road prism, shoulders, parking or other traveled areas. Where governmental agencies other than the City have jurisdiction over roadways, the backfill and compaction shall be done to the satisfaction of the agency having jurisdiction. Typically, all trenches located in roadway sections, roadway "prisms", and in traffic bearing areas shall be required to be backfilled and compacted with crushed surfacing top course. Due to local conditions, as may be specifically approved by the City, suitable excavated backfill material, as determined by the City, may be utilized as backfill, or if such material is not available from trenching operations, the City may order the placing of gravel base conforming with Section 9-03.10 of the WSDOT Standard Specifications for backfilling the trench. All excess material shall be promptly loaded and hauled to waste.

6.10 Street Patching and Restoration

See Chapter 5 for requirements regarding street patching.

6.11 Erosion Control

The detrimental effects of erosion and sedimentation shall be minimized by conforming to the following general principles:

1. Soil shall be exposed for the shortest possible time.
2. Reducing the velocity and controlling the flow of runoff.
3. Detaining runoff on the site to trap sediment.
4. Releasing runoff safely to downstream areas.

In applying these principles, the Developer and/or Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop materials; providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

A. Trench Mulching

Where there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, backfill material shall be compacted and held in place by covering the disturbed area with straw and held with a covering of jute matting or wire mesh anchored in place.

B. Cover-Crop Seeding

A cover crop shall be sown in all areas excavated or disturbed during construction that were not paved, landscaped and/or seeded prior to construction. Areas landscaped and/or seeded prior to construction shall be restored to their original or superior condition.

Cover crop seeding shall follow backfilling operations.

The Developer and/or Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be re-seeded if required and additional measures taken to provide protection from erosion until the cover crop are capable of providing protection.

During winter months, the Contractor may postpone seeding, if conditions are such that the seed will not germinate and grow. The Developer and/or

Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

The cover crop shall be sown at a rate of 10 to 15 pounds of seed per acre using a hand or power operated mechanical seeder capable of providing a uniform distribution of seed.

6.12 Finishing and Cleanup

After all other work on this project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections of a new roadway consistent with the original section, and as hereinafter specified.

On water system construction where all or portions of the construction is in undeveloped areas, the entire area which has been disturbed by the construction shall be shaped so that upon completion the area will present a uniform appearance, blending into the contour of the adjacent properties. All other requirements outlined previously shall be met.

Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees and shrubs. Machine dressing shall be supplemented by handwork to meet requirements outlined herein, to the satisfaction of the Public Works Director.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade. Where the existing surface is below sidewalk and curb, the area shall be filled and dressed out to the walk. Wherever fill material is required in the planting area, the finished grade shall be elevated to allow for final settlement, but nevertheless, the raised surface shall present a uniform appearance.

All rocks in excess of 3-inches in diameter shall be removed from the entire construction area and shall be disposed of the same as required for other waste material. In no instance shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, natural, well-sloped surface.

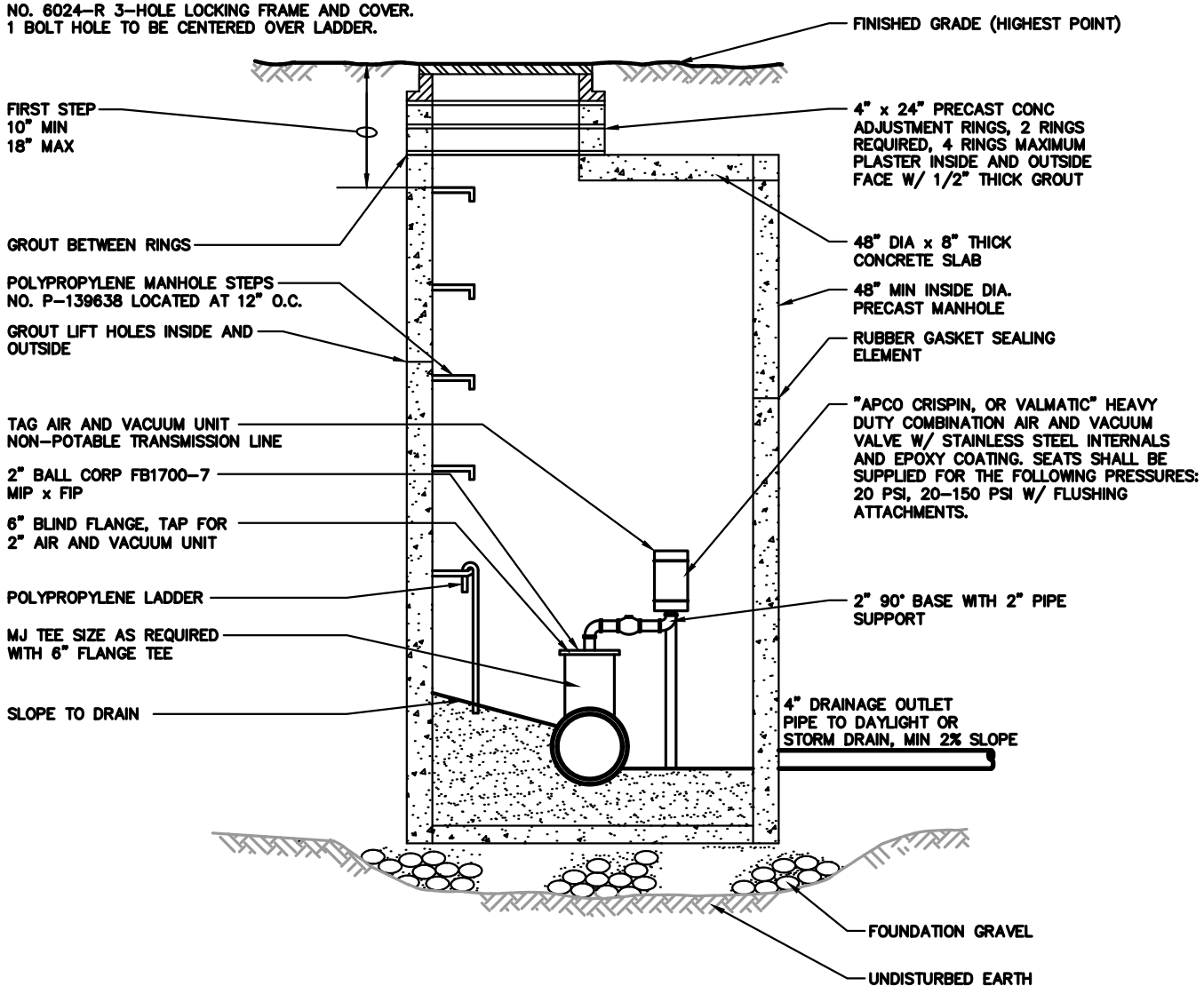
All excavated material at the outer lateral limits of the project shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed to a permitted site capable of handling this material and not placed in areas adjacent to the project. Where machine operations have

broken down brush and trees beyond the lateral limits of the project, the Developer and/or Contractor shall remove and dispose of same and restore said disturbed areas at his own expense.

Drainage facilities such as inlets, catch basins, culverts, and open ditches shall be cleaned of all debris, which is the result of the Developer and/or Contractor's operations. All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities, which have been sprayed by the asphalt cement, shall be cleaned to the satisfaction of the Public Works Director.

Castings for monuments, water valves, vaults and other similar installations, which have been covered with the asphalt material, shall be cleaned to the satisfaction of the Public Works Director.

MANHOLE FRAME AND COVER WITH "SEWER" OR "WATER" LINES, AS THE CASE MAY BE, CAST ON COVER WITH 3" HIGH RAISED LETTERS (NON-SKID PATTERN) AS MANUFACTURED BY "SATHER MANUFACTURING CO. INC." NO. 6024-R 3-HOLE LOCKING FRAME AND COVER. 1 BOLT HOLE TO BE CENTERED OVER LADDER.



NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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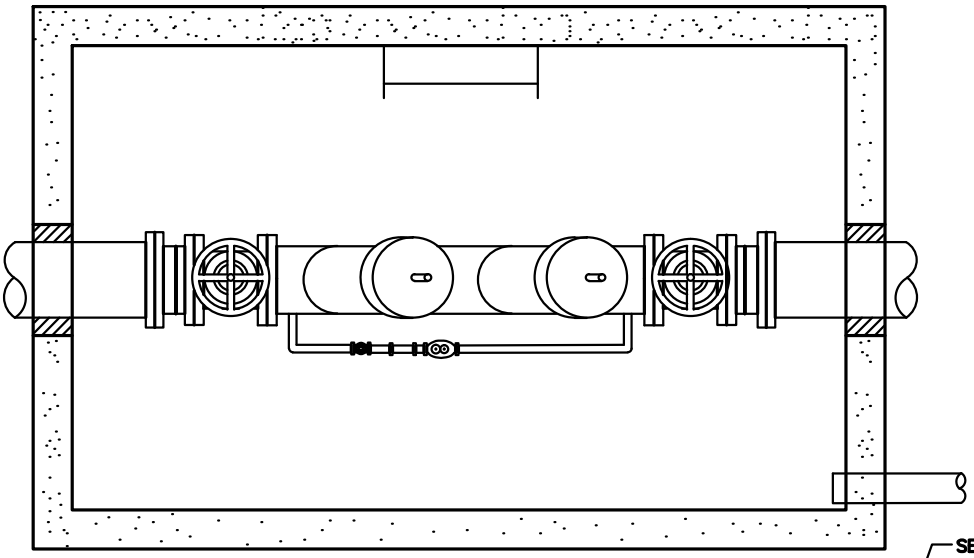
CITY OF OTHELLO

STANDARD DETAILS

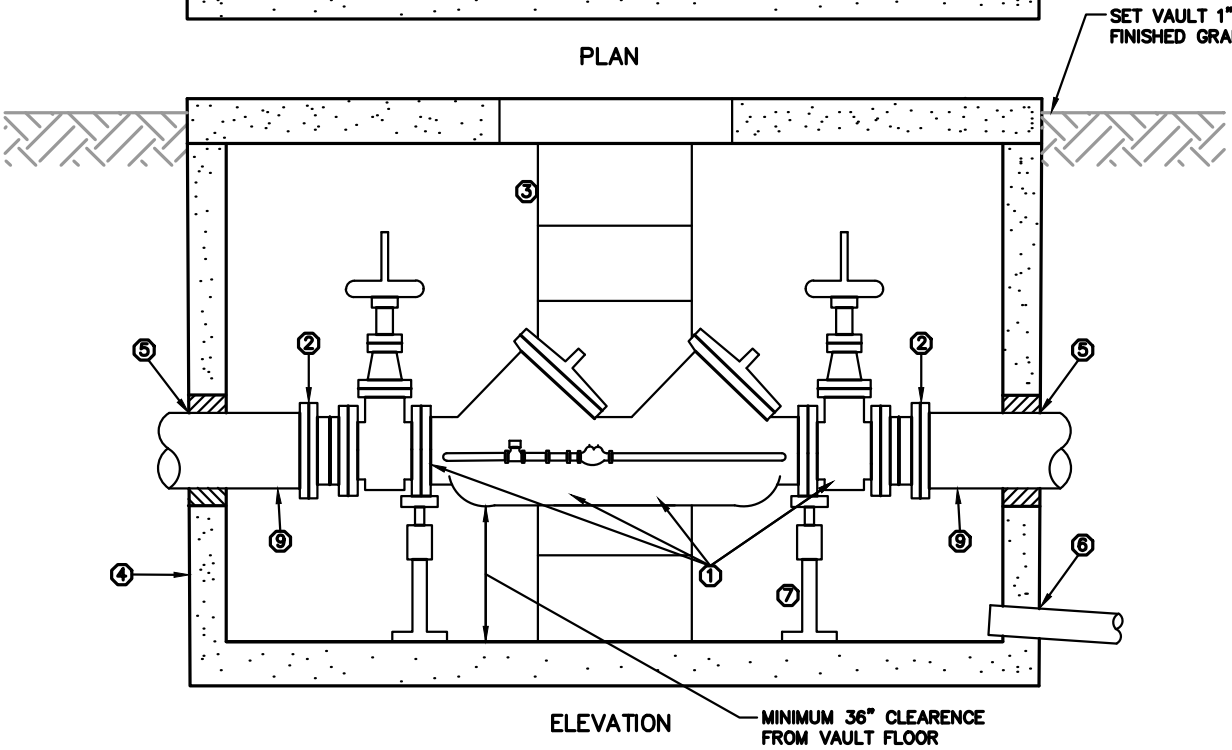
AIR AND VACUUM RELEASE ASSEMBLY

FIGURE W1-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



PLAN



ELEVATION

NOTES:

1. WATTS MODEL 709 DCDA DOUBLE CHECK DETECTOR ASSEMBLY OR EQUAL.
2. UNI-FLANGE WITH SET SCREWS.
3. POLYPROPYLENE LADDER TO BE SECURED TO VAULT OR POLYPROPYLENE MANHOLE STEPS @ 12" ON CENTER.
4. CONCRETE VAULT (5'x9'x7'-2" INSIDE DIMENSIONS) WITH BLCO COVER (H20 LOADING) DOUBLE LEAF DESIGN.
5. WATER TIGHT GROUT. RESTRAINT INLET/OUTLET PIPE WITH WELDED FLANGE OR SHACKLE TO THRUST BLOCK TO PREVENT. SHACKLE THROUGH VAULT IF CHECK VALVE ASSEMBLY IS REMOVED.
6. 4" DRAIN TO DRYWELL.
7. ADJUSTABLE PIPE STANCHION, GRINELL PIPE SUPPORTS.
8. VALVE ASSEMBLY TO BE CENTERED IN VAULT
9. CL 53 D.I. MJ WITH MEGALUGS.

GENERAL NOTES:

1. ASSEMBLY SHALL BE MAINTAINED BY PROPERTY OWNER AND ANNUAL CERTIFICATION REQUIRED.
2. FIRELINE SHALL NOT BE PUT INTO SERVICE UNTIL THE BACKFLOW PREVENTION DEVICE IS APPROVED BY THE DISTRICT.
3. A REDUCED PRESSURE BACKFLOW PREVENTION DEVICE MAY BE REQUIRED BY THE DIRECTION OF THE CITY.
4. PAINT PIPING WITH MARKER PAINT MARINE ENAMEL. MARATHON 1065, TAHOE BLUE.
5. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

CITY OF OTHELLO

STANDARD DETAILS

DOUBLE CHECK DETECTOR ASSEMBLY

FIGURE W2-SHEET 1

REVISION #	DATE
#1	November, 2014
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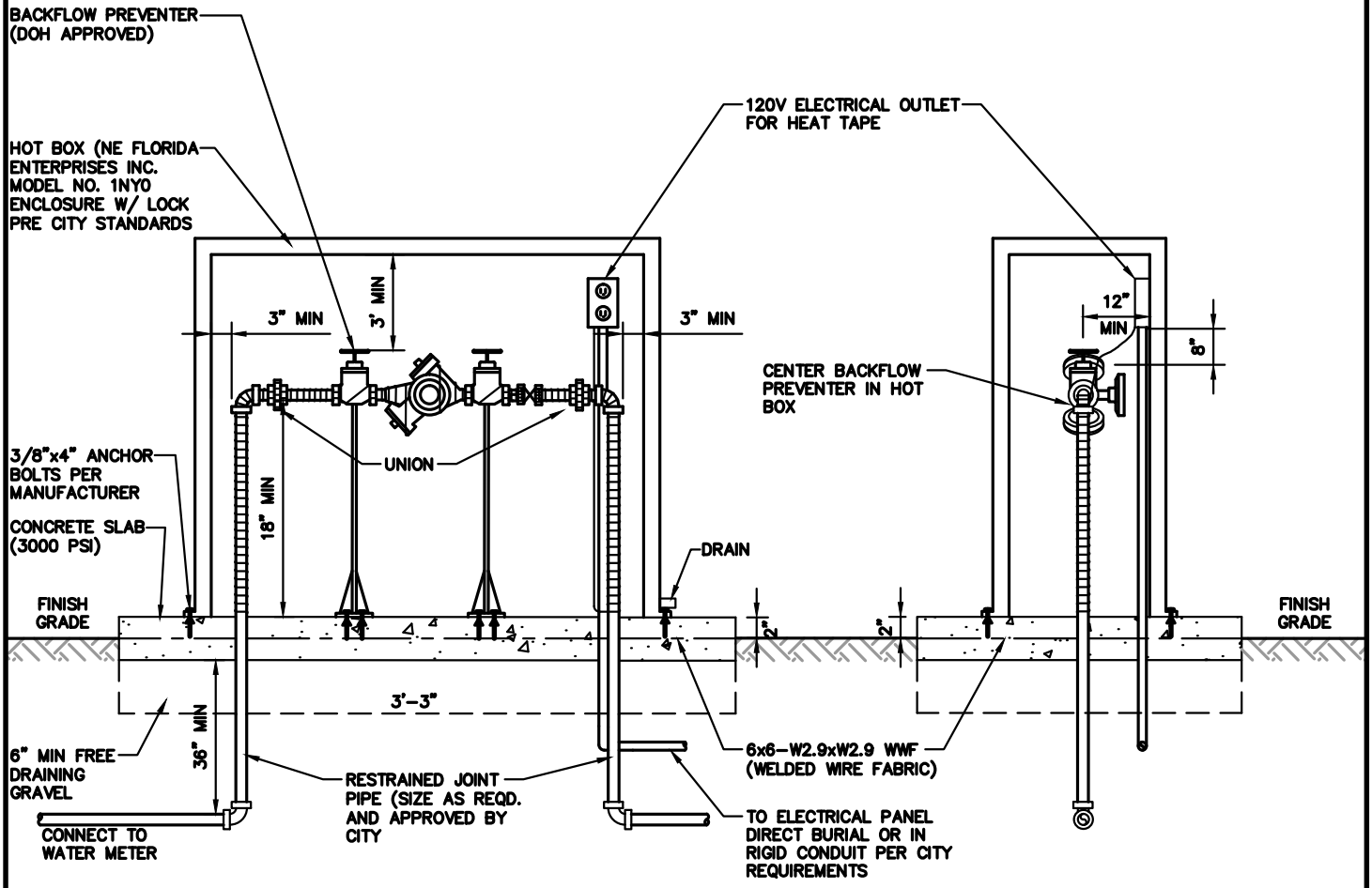

NOTES:

1. PROVIDE CITY APPROVED SUPPORT FOR 2 1/2" AND LARGE DEVICES.
2. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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CITY OF OTHELLO

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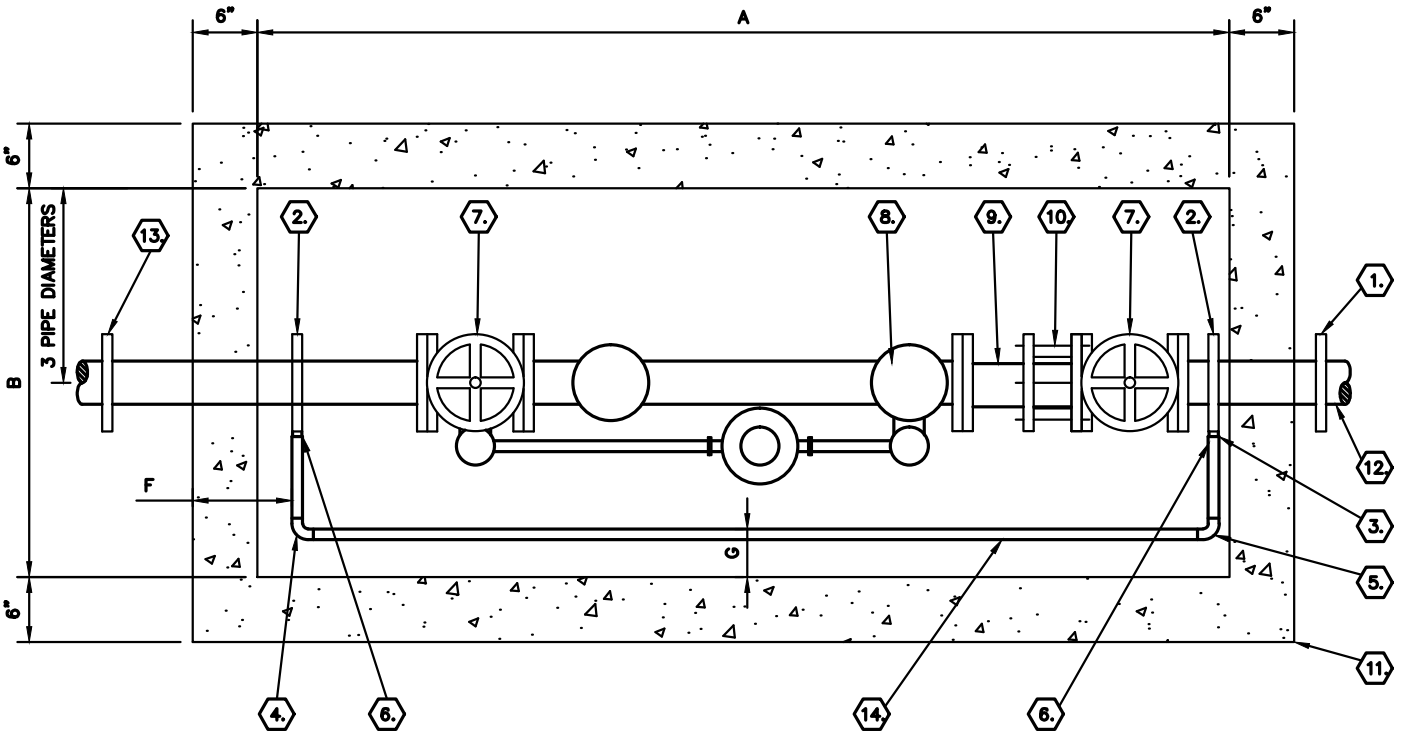
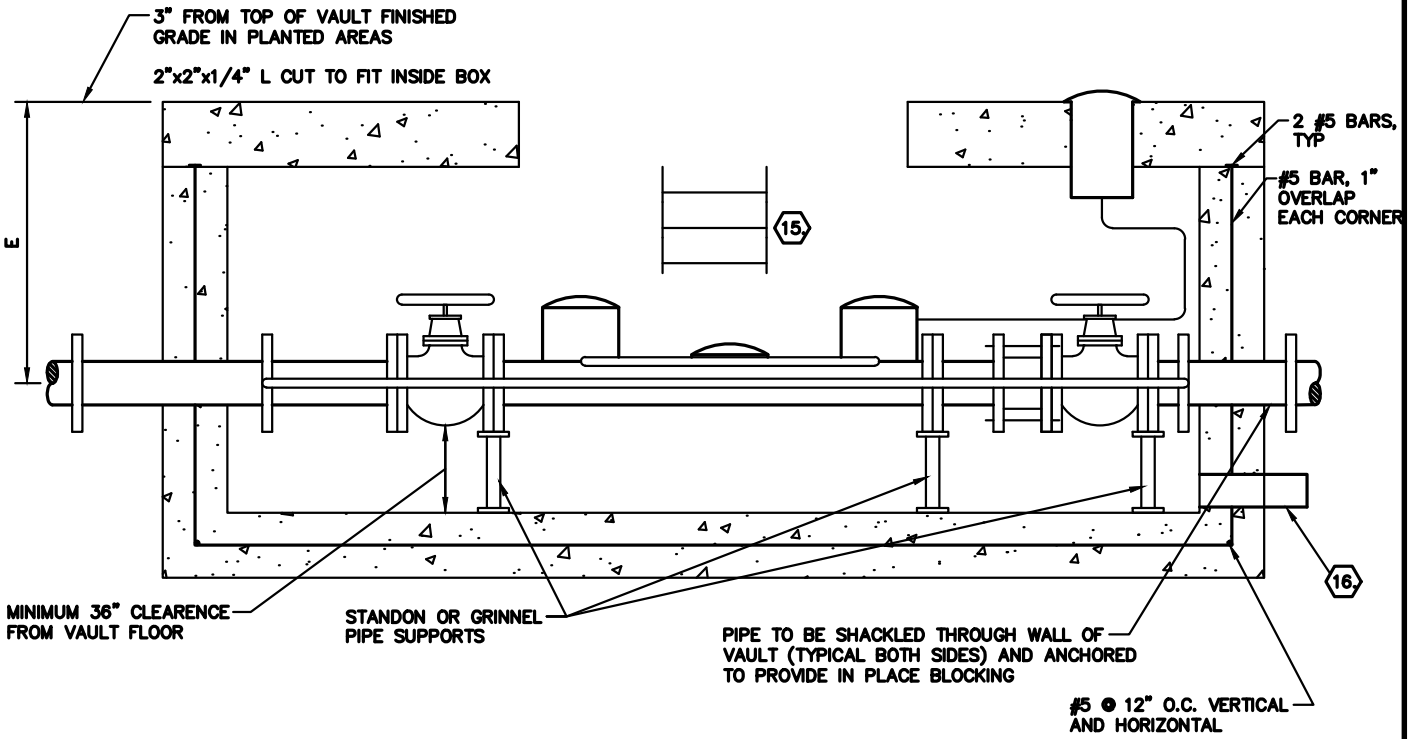
REDUCED PRESSURE BACKFLOW DEVICE

FIGURE W2-SHEET 2

REVISION #	DATE
#1	November, 2014
#2	June, 2016





RADIO READ HEAD NEEDS TO EXTEND THROUGH THE LID OF THE BOX, AS PER THE MANUFACTURER RECOMMENDATION.

NOTES:

1. INSTALL 4" DRAIN PIPE TO DRYWELL
2. BACKFLOW PREVENTOR REQUIRED FOR ALL FIRE LINES AND IRRIGATION LINES, IN SEPARATE VAULTS OR IN BUILDINGS AS PER CITY APPROVAL
3. BRASS DOES NOT NEED TO BE PAINTED, ALL OTHER PIPE TO BE PAINTED WITH MARINE ENAMEL, MARATHON 1065 TAHOE BLUE.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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CITY OF OTHELLO

STANDARD DETAILS

METER AND METER VAULT ASSEMBLY (3" THROUGH 10")

FIGURE W3-SHEET 1

REVISION #	DATE
#1	November, 2014
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MATERIAL LIST

1. 2–FLEX CPLG TO FIT ROCKWELL 441 (4"x3" REDUCER, MJ FOR 3" METER)
2. 2–DOUBLE STRAP SERVICE (STAINLESS STEEL BAND) ROMAC 101 WITH IPS TAP, OR EQUAL.
3. 3–STRAIGHT CPLG BRASS TO OUTSIDE I.P. THREAD MUELLER H–15425, H–15428 110 COMP., OR EQUAL.
4. 1 1/4" BEND CPLG, BRASS TO BRASS, FORD.
5. 1 1/4" BEND CPLG, BRASS TO OUTSIDE I.P. THREAD MUELLER H–15530, OR EQUAL.
6. 1 BALL VALVE WITH PADLOCK WING OFF OF SADDLE OR DIRECT MAIN TAP.
7. 2–RESILIENT SEAT GATE VALVE, FLxFL, (RISING STEM).
8. 3" TO 10" COMPOUND METER WITH STRAINER, SIZE TO BE #1 BADGER RADIO READ AS SPECIFIED BY CITY AND FURNISHED BY CONTRACTOR/DEVELOPER.
9. 14 DI ADAPTER, FLxPE (LENGTH TO FIT).
10. 1–CPLG ADAPTER., FL ROCKWELL 912, OR OWNER APPROVED.
11. CAST IN PLACE OR PRECAST CONCRETE VAULT WITH (H20) BILCO (HATCH SIZE AND LOCATION TO BE APPROVED BY THE CITY).
12. WELDED FL RESTRAINT OR SHACKLE TO THRUST BLOCK TO PREVENT MOVEMENT IF METER IS REMOVED.
13. INSULATED CPLG TO 3" CU SERVICE.
14. UNION.
15. INSTALL POLYPROPYLENE STEPS WITH TELESCOPIC RISER, FASTEN TO WALL WITH STAINLESS STEEL FASTENERS AT MAXIMUM ONE FOOT INTERVALS.
16. PROVIDE 4" DRAIN PIPE (AT PUMP) TO DAYLIGHT, MIN. SLOPE = 2%.
17. WATER METER LAY LENGTH IN PIT WITH SCREEN (5 TIMES PIPE DIA. UP STREAM 3 TIMES DOWN STREAM PIPE DIA.) STRAIGHT PIPE.

NOTES:

1. METERS SHALL BE AS REQUIRED BY THE CITY (RADIO READ BADGER) METERS SHALL READ IN CUBIC FEET.
2. VAULT SHALL BE PRECAST. UTILITY VAULT OR CITY APPROVED EQUAL.
3. ALL PIPE AND FITTINGS 4" AND LARGER SHALL BE DUCTILE IRON.
4. PIPING FROM MAIN TO TO VAULT SHALL BE AS SHOWN IN THE TABLE BELOW. PROVIDE TEE WITH VALVE ON DISTRIBUTION MAIN.
5. ALL PIPING SHALL BE PAINTED (TWO COATS) WITH PARKER PAINT MARINE ENAMEL, MARATHON 1065. TAHOE BLUE.
6. BACKFLOW DEVICE REQUIREMENT SHALL BE DETERMINED BY THE CITY.
7. ALL PROPOSALS ARE TO BE APPROVED BY THE CITY.
8. RADIO READ HEAD TO EXTEND THROUGH THE PIT LID AS PER MANUFACTURER RECOMMENDATION.

METER SIZE	MAIN–LINE	BYPASS	A	B	C	D	E	F	G
3"–4"	4" DI	1–1/2" BRASS	7'–6"	3'–0"	9–1/2"	6"	2'–8"	9"	4'
6"	6" DI	2" BRASS	9'–6"	3'–6"	12"	6"	2'–8"	9"	4"
8'	8" DI	4" DI	11'–0"	4'–0"	12"	9"	3'–6"	14"	6"
0'–10"	10" DI	4" DI	13'–0"	5'–0"	16"	12"	4'–0"	16"	6"

NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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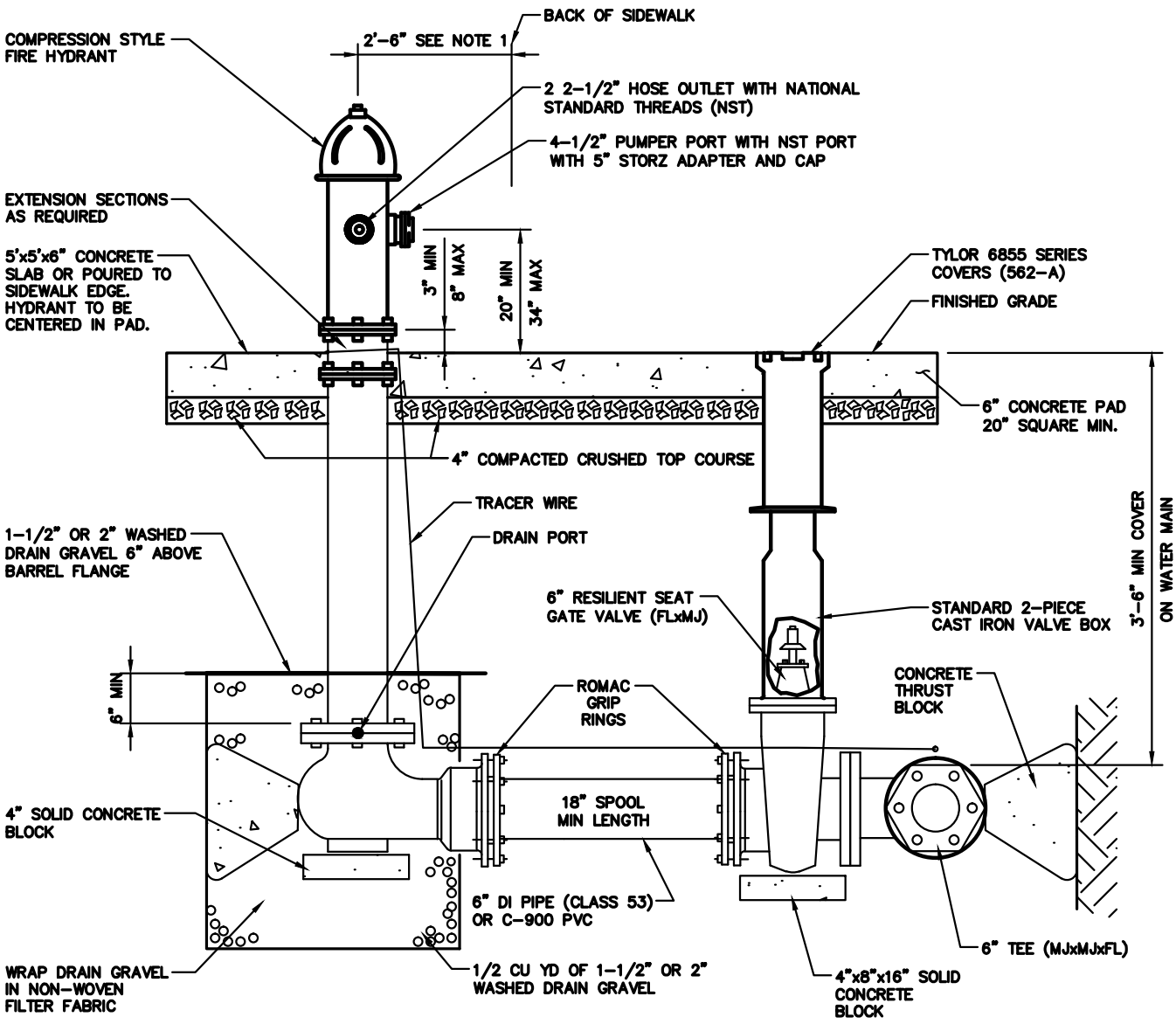
CITY OF OTHELLO
STANDARD DETAILS
METER AND METER VAULT ASSEMBLY (3" THROUGH 10")
FIGURE W3-SHEET 2

REVISION #	DATE
#1	November, 2014
#2	June, 2016



NOTES:

1. 2'-6" FROM BACK OF SIDEWALK OR 6' FROM BACK OF CURB OR 3' INSIDE RIGHT-OF-WAY.
2. PROVIDE 8" PIPE SIZE IF OVER 60' FROM MAINLINE.
3. PROVIDE MIN. 5' CLEAR AND LEVEL AREA AROUND HYDRANT. 2'-6" ALL AROUND MEASURED FROM OPERATOR NUT. GUARD POSTS REQUIRED IF IN PARKING AREA OR IF CONSIDERED A HAZARDOUS AREA AND DEEMED NECESSARY BY THE CITY.
4. PAINT FIRE HYDRANT AND GUARD POSTS WITH TWO (2) COATS YELLOW PAINT AFTER INSTALLATION.
5. FIRE HYDRANT SHALL BE WATEROUS WB67250, MH929, IF APPROVED BY PUBLIC WORKS DIRECTOR.
6. FOR OTHER SPECIFICATIONS, USE WSDOT/APWA STANDARD SPECIFICATIONS.
7. A 5'x5'x6" CONCRETE PAD REQUIRED AROUND THE HYDRANT.
8. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

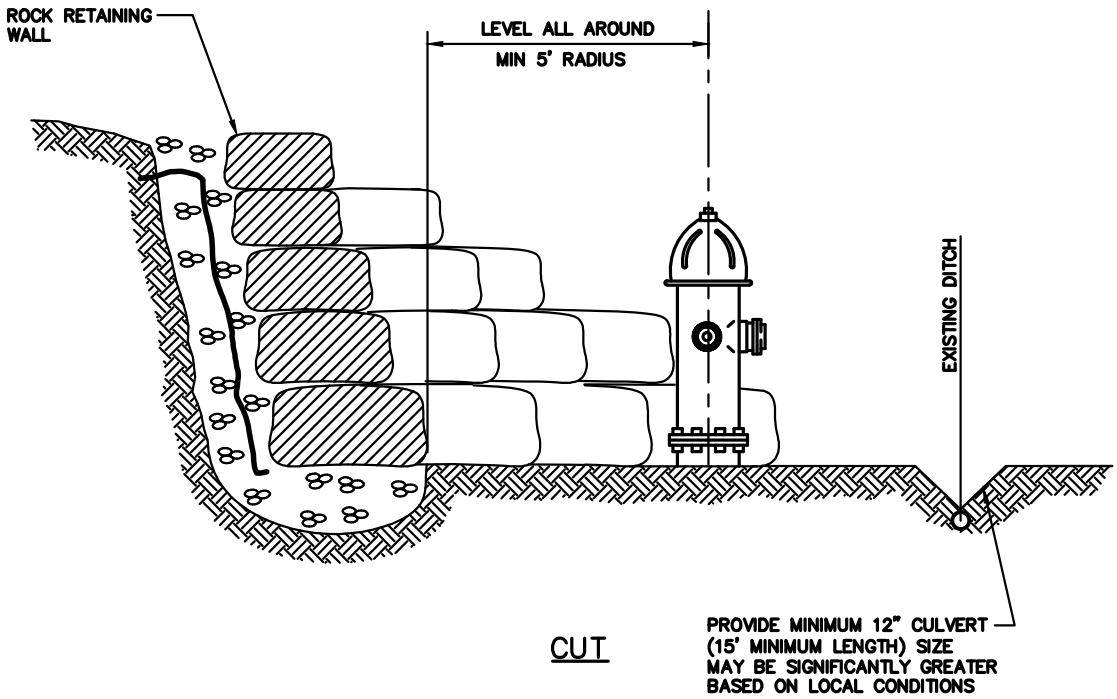
S:\AUTOCAD DRAWINGS\172 OTHELLO\DESIGN STANDARDS\AUTOCAD STANDARD DRAWINGS\W-STANDARD DETAILS\W4-SH 1

CITY OF OTHELLO

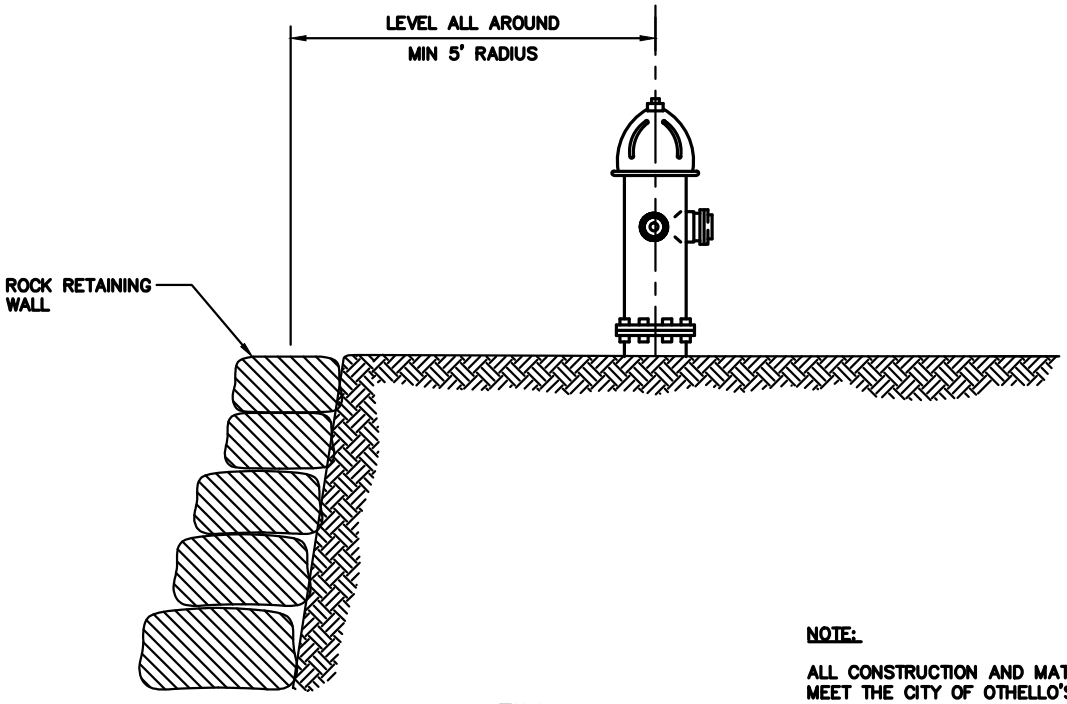
STANDARD DETAILS
FIRE HYDRANT ASSEMBLY

FIGURE W4-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



CUT



FILL

NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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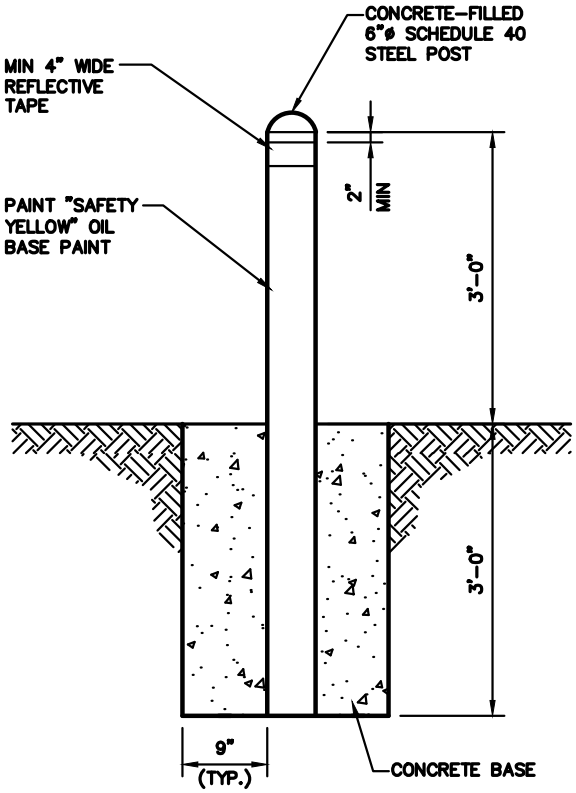
CITY OF OTHELLO

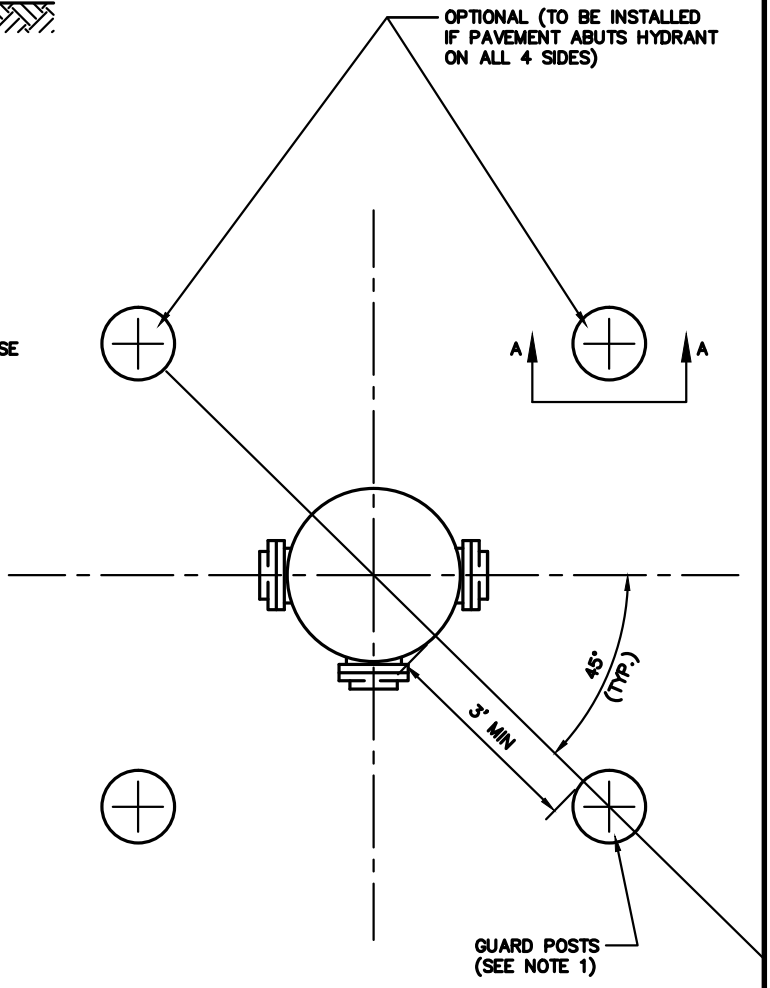
STANDARD DETAILS
FIRE HYDRANT LOCATION IN CUT OR FILL

FIGURE W4-SHEET 2

REVISION #	DATE
#1	November, 2014
#2	June, 2016



SECTION A-A



PLAN

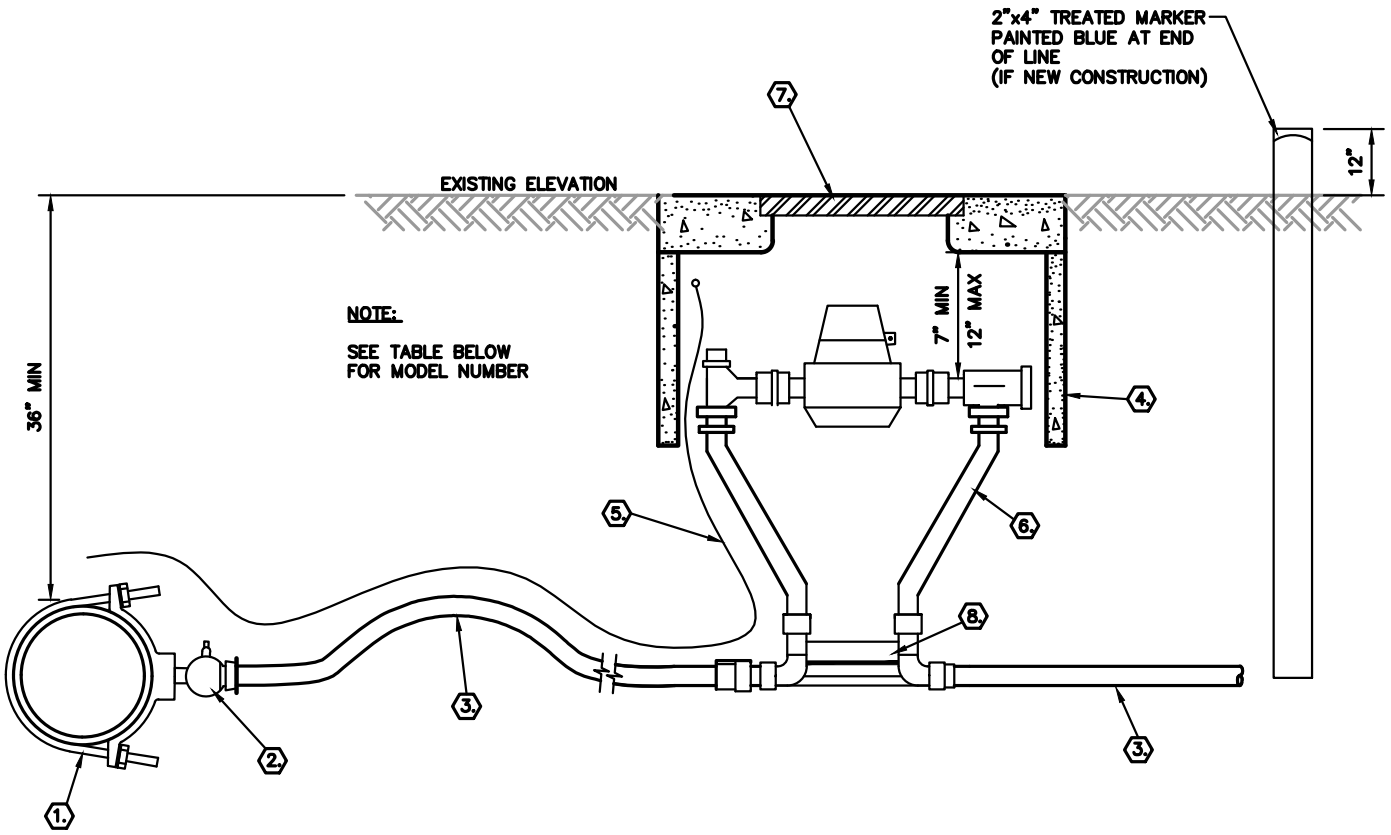
NOTES:

1. WHERE CONCRETE CURBING IS NOT INSTALLED, GUARD POSTS (2 EA. MIN) SHALL BE INSTALLED ON SIDE FACING PAVED SURFACE.
2. GUARD POSTS TO BE PAINTED SAME AS HYDRANT.
3. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

S:\AUTOCAD DRAWINGS\172 OTHELLO\DESIGN STANDARDS\AUTOCAD STANDARD DRAWINGS\W-STANDARD DETAILS\W4-SH 3

CITY OF OTHELLO
STANDARD DETAILS
HYDRANT GUARD POSTS
FIGURE W4-SHEET 3

REVISION #	DATE
#1	November, 2014
#2	June, 2016



DESCRIPTION, ALL NEW CONSTRUCTION	MAKE OR RATING	1"
1. STAINLESS BAND/EPOXY COAT	FORD OR EQUAL	202S-905x1IP
2. CORP STOP/BALL VALVE	FORD OR EQUAL	FB 1100-4Q
3. COPPER PIPE WITH 3' PIGTAIL		TYPE K
4. METER BOX, 24" DEPTH MIN.	OLD CASTLE	1324BCF
5. TRACER WIRE THHN	CU SOLID WIRE	10 GAUGE
6. METER SETTER	FORD OR EQUAL	VBH74-24W-44-44-Q
7. LID METAL (D.I. MAX VIEW COVER)	OLD CASTLE	
8. TIE BAR	FORD OR EQUAL	

NOTES:

1. CONTRACTOR SHALL MAKE COMPLETE CONNECTION IN GOOD WORKING ORDER AND SHALL PROVIDE ALL NECESSARY FITTINGS, COUPLINGS, ETC.
2. CONTRACTOR TO NOTIFY THE CITY OF ANY EXISTING DAMAGED METER BOXES PRIOR TO ANY EXCAVATION FOR THESE SERVICE CONNECTIONS. ANY DAMAGE AS A RESULT OF THE CONTRACTORS WORK SHALL RESULT IN NEW METER BOXES OF EQUAL TYPE AND MATERIAL TO BE INSTALLED AT THE CONTRACTORS EXPENSE.
3. ANY DAMAGE DONE TO EXISTING METERS AS A RESULT OF THE CONTRACTORS OPERATIONS SHALL BE REPAIRED BY THE CITY'S PERSONNEL AND ALL COSTS OF REPAIR OR REPLACEMENT, IF NECESSARY, SHALL BE PAID BY THE CONTRACTOR.
4. ALL FITTINGS SHALL BE BRASS.
5. TRACER WIRE FROM MAIN TO SERVICE METER SHALL BE INSTALLED IN ALL INSTALLATIONS. WIRE SHALL BE VISIBLE IN SERVICE METER BOX.
6. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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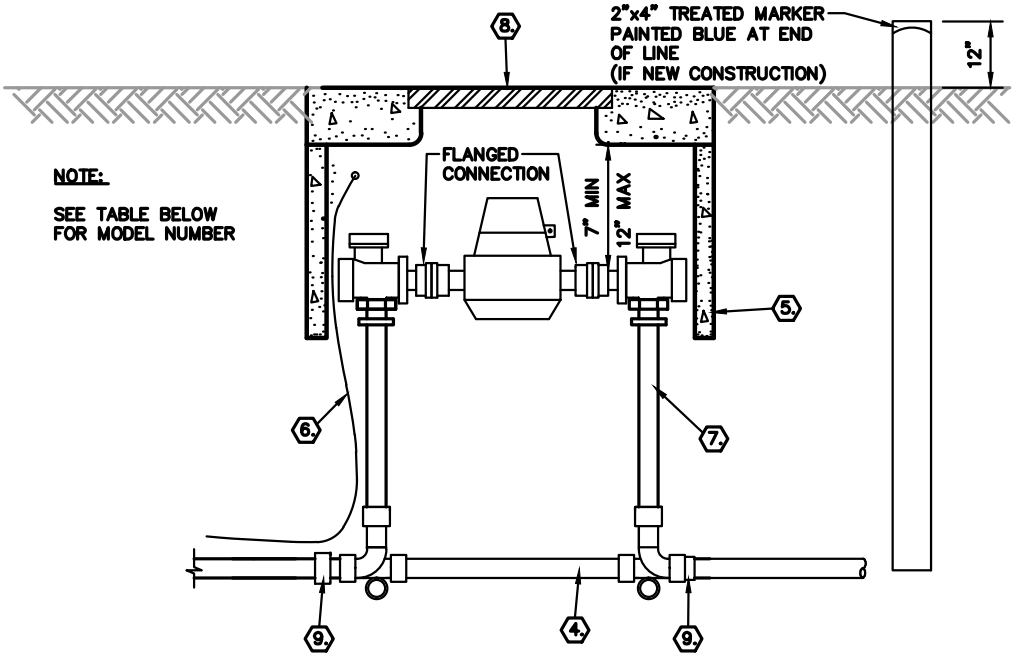
CITY OF OTHELLO

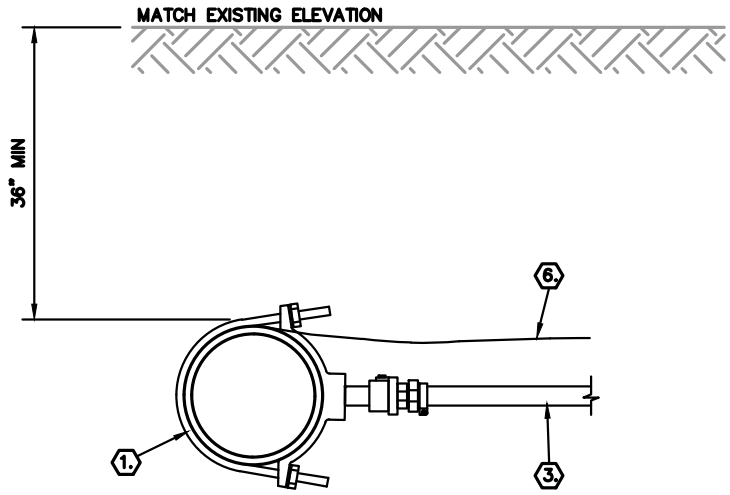
STANDARD DETAILS

1" WATER SERVICE W/ METER SETTER

FIGURE W5-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016





DESCRIPTION, ALL NEW CONSTRUCTION	MAKE OR RATING	1–1/2"	2"
1. DOUBLE STRAP STAINLESS STEEL BAND	ROMAC OR EQUAL	202 IPT	202 IPT
2. CORPORATION STOP	FORD OR EQUAL	FB 1102–6	FB 1102–7
3. SCHEDULE 80 PVC/ BLUE PEX WITH CRUSH SLEEVES			
4. TIE BAR	FORD OR EQUAL		
5. METER BOX, 24" DEPTH REQ. MIN	OLD CASTLE	1730BCF	1730BSF
6. TRACER WIRE THHN	10 GA COPPER WIRE	SOLID	SOLID
7. METER SETTER	FORD OR EQUAL	VBH76–44–77–66	VBH77–44–77–77
8. LID METAL (D.I. MAX VIEW COVER)	OLD CASTLE		
9. COUPLING	FORD OR EQUAL	C87–66	C87–77

NOTES:

1. THE SERVICE LINE TO LOTS OVER 16,000 SF SHALL CONSIST OF 2" COPPER OR 2" RIGID SCHEDULE 80. THE 2" LINE SHALL TERMINATE WITH A 2" BALL VALVE 3' FROM THE STREET RIGHT–OF–WAY LINE INCLUDING A TRACER WIRE CONNECTED TO THE WIRE ON TOP OF THE LINE AND EXTENDING UP THE TREATED 2"x4" MARKER BURIED AT THE END OF BALL VALVE. BEDDING MATERIAL SHALL BE SAND.

2. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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CITY OF OTHELLO
STANDARD DETAILS
1-1/2" & 2" WATER SERVICE
FIGURE W5-SHEET 2

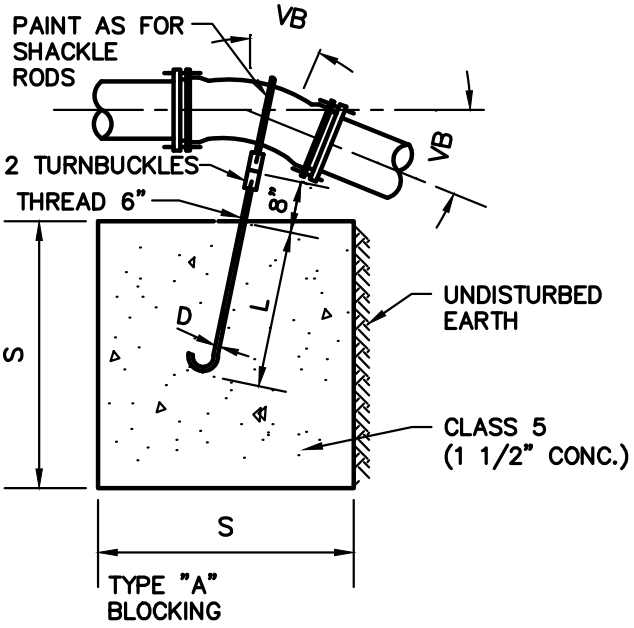
REVISION #	DATE
#1	November, 2014
#2	June, 2016

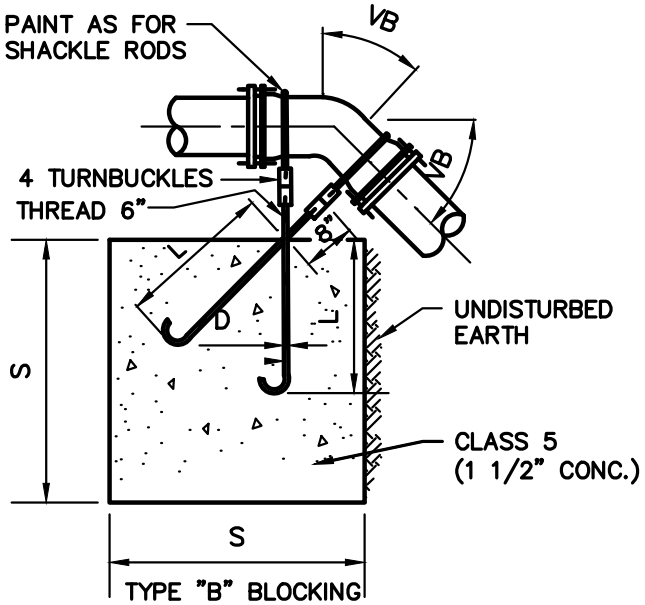
TYPE "A" BLOCKING
FOR 11 1/4°–22 1/2° VERTICAL BENDS

PIPE SIZE NOMINAL DIAMETER– INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	No. OF CU. FT. OF CONC. BLOCKING	S SIDE OF CUBE LIN. FT.	D DIAM. OF SHACKLE RODS (2) INCHES	L DEPTH OF RODS IN CONCRETE LIN. FT.
4"	300	11 1/4	8	2	5/8"	1.5
		22 1/2	11	2.2		2.0
6"	300	11 1/4	11	2.2	5/8"	2.0
		22 1/2	25	2.9		
8"	300	11 1/4	16	2.5	5/8"	2.0
		22 1/2	47	3.6		
12"	250	11 1/4	32	3.2	5/8"	2.0
		22 1/2	88	4.5	7/8"	3.0
16"	225	11 1/4	70	4.1	7/8"	3.0
		22 1/2	184	5.7	1 1/8"	4.0
20"	200	11 1/4	91	4.5	7/8"	3.0
		22 1/2	225	6.1	1 1/4"	4.0
24"	200	11 1/4	128	5.0	1"	3.5
		22 1/2	320	6.8	1 3/8"	4.5

TYPE "B" BLOCKING
FOR – 45° VERTICAL BENDS

		VB		S	D	L
4"	300	45	30	3.1	5/8"	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		232	6.1	3/4"	2.5
16"	225		478	7.8	1 1/8"	4.0
20"	200		560	8.2	1 1/4"	
24"			820	9.4	1 3/8"	4.5





NOTES:

1. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPERS ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND SIZING OF ALL BLOCKING BASED ON SOIL CONDITIONS, TEST PROCEDURES, AND OTHER RELEVANT CONSIDERATIONS.
2. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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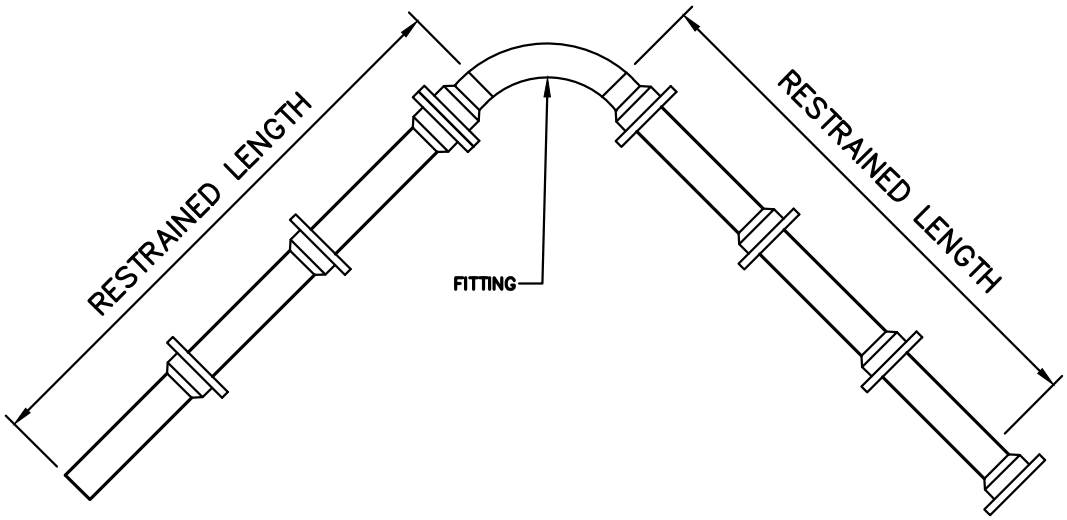
CITY OF OTHELLO
STANDARD DETAILS
ANCHOR BLOCK DETAIL
FIGURE W6-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



PIPE SIZE	90° BEND	45° BEND	22 1/2°	11 1/4°	TEE OR DEAD END CAP
	RESTRAINED LENGTH IN FEET				
4"	40	17	8	4	30
6"	55	23	11	6	39
8"	73	31	15	8	53
10"	88	37	18	9	67
12"	103	43	21	10	82
16"	133	55	27	13	110
18"	145	60	29	15	124

NOTES:

1. RESTRAINED LENGTHS SHOWN ARE MINIMUM AND FOR LINEAL FEET REQUIRED ON EACH SIDE OF FITTING INDICATED.
2. FOOTAGES ARE BASED ON 250 PSI PRESSURE AND 42" COVER. IF PRESSURE IS GREATER OR COVER IS LESS, THE RESTRAINED LENGTH SHALL BE INCREASED. DEVELOPERS ENGINEER TO DESIGN SAME.
3. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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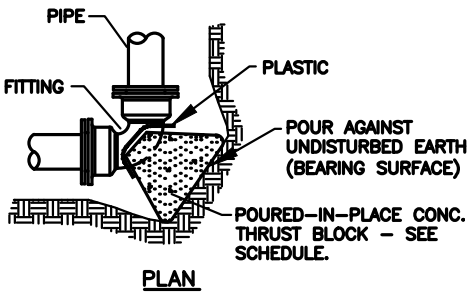
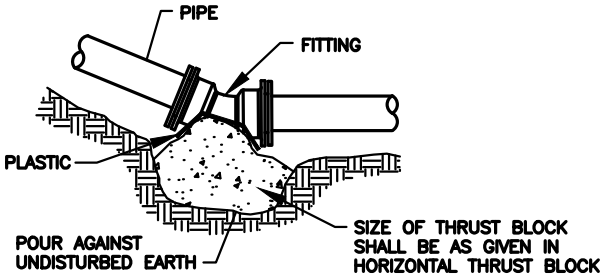
CITY OF OTHELLO
STANDARD DETAILS
THRUST RESTRAINT FOR DUCTILE IRON PIPE
FIGURE W6-SHEET 2

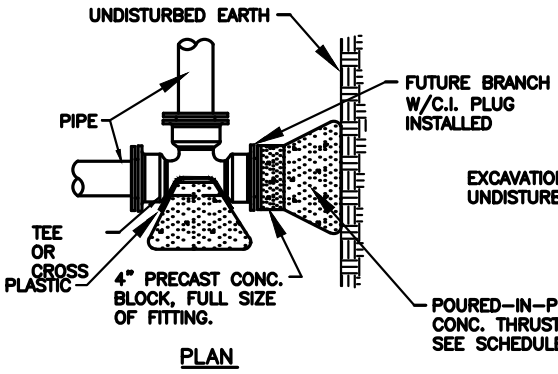
REVISION #	DATE
#1	November, 2014
#2	June, 2016



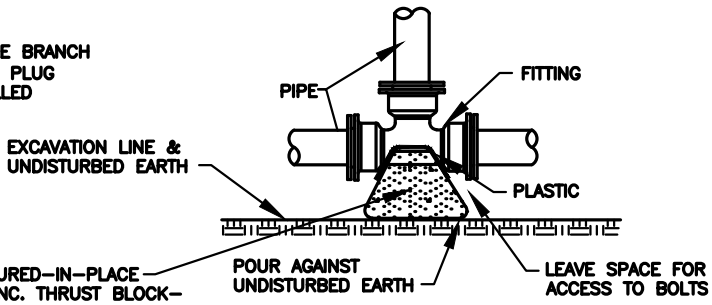
PLAN



SECTION VIEW
VERTICAL BEND
DOWN THRUST



PLAN



PLAN

MINIMUM THRUST BLOCK BEARING AREA REQUIRED *				
SIZE	TEES AND DEAD ENDS	90° BEND	45° BEND	22 1/2° BEND
4" OR LESS	2 SF	3 SF	2 SF	1 SF
6"	4 SF	5 SF	3 SF	2 SF
8"	6 SF	8 SF	5 SF	3 SF
10"	10 SF	13 SF	7 SF	4 SF
12"	13 SF	19 SF	10 SF	6 SF
16"	18 SF	25 SF	14 SF	7 SF
18"	23 SF	32 SF	18 SF	9 SF

* BASED ON A PIPE TEST PRESSURE OF 250 PSI AND BEARING STRENGTH OF SOIL AT 3000 LBS/SQ. FT. FOR OTHER CONDITIONS REVISE AND INCREASE ACCORDINGLY AS APPROVED BY THE ENGINEER.

NOTES:

1. THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND.
2. INCREASE THRUST BLOCK AREA BY 50% IN SAND.
3. WRAP ALL FITTINGS WITH 8–MIL POLYETHYLENE ENCASEMENT.
4. CONCRETE SHALL NOT COME INTO CONTACT WITH PIPE, VALVES, OR FITTINGS.
5. DEAD–END LINES, IF APPROVED, SHALL HAVE A FIRE HYDRANT ASSEMBLY OR A BLOW OFF ASSEMBLY INSTALLED AT THE END OF THE LINE TO FACILITATE FLUSHING.
6. ALL THRUST BLOCKS ARE REQUIRED TO BE FORMED ON THE SIDES WITH SUITABLE MATERIAL AND THE BACK AGAINST UNDISTURBED EARTH.
7. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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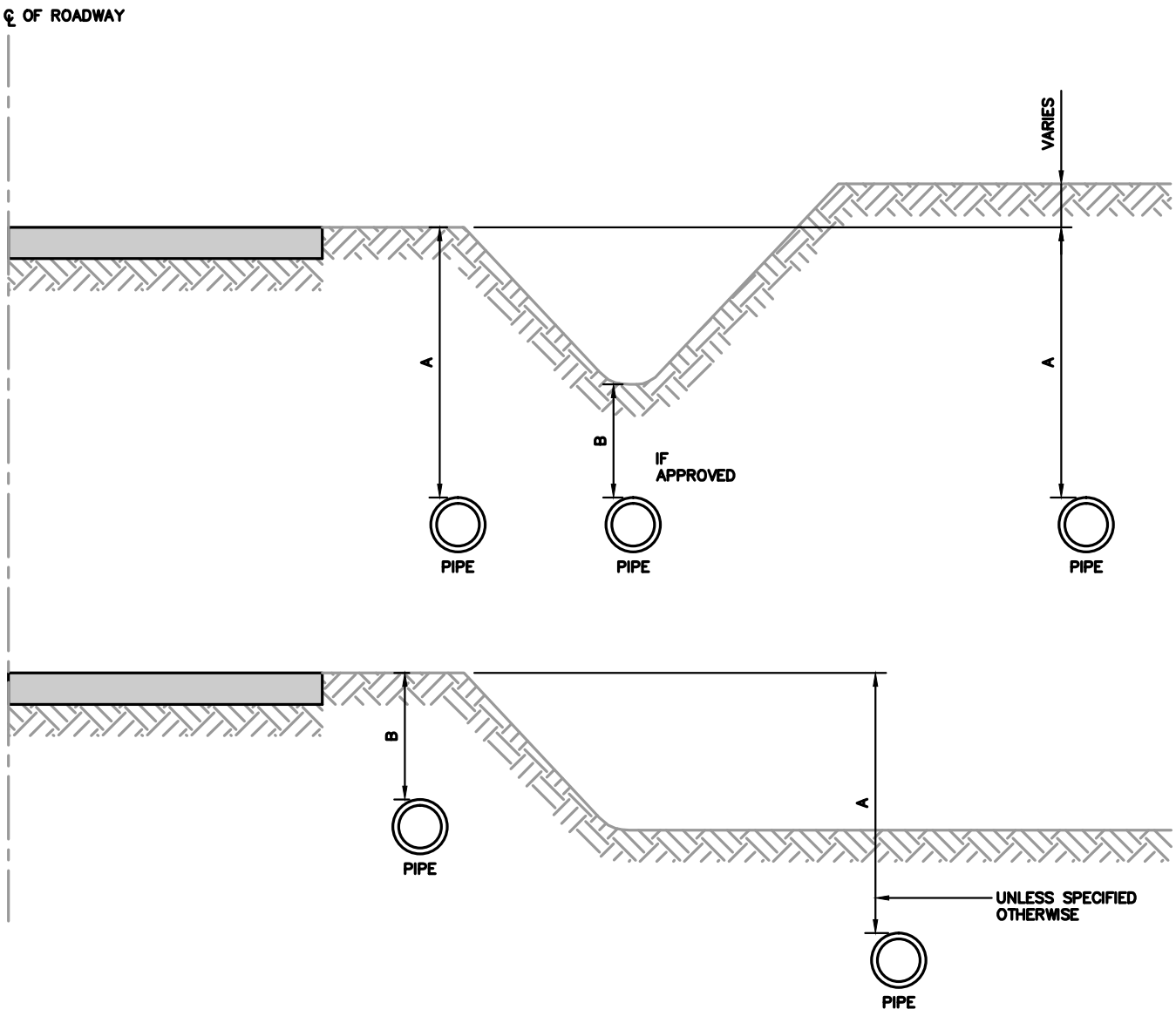
CITY OF OTHELLO
STANDARD DETAILS
THRUST BLOCK DETAIL
FIGURE W6-SHEET 3

REVISIONS	DATE
#1	November, 2014
#2	June, 2016



PIPE SIZE	A	B
6" – 10"	36"	24"
12" – 18"	36"	30"
20" & OVER	42"	36"

NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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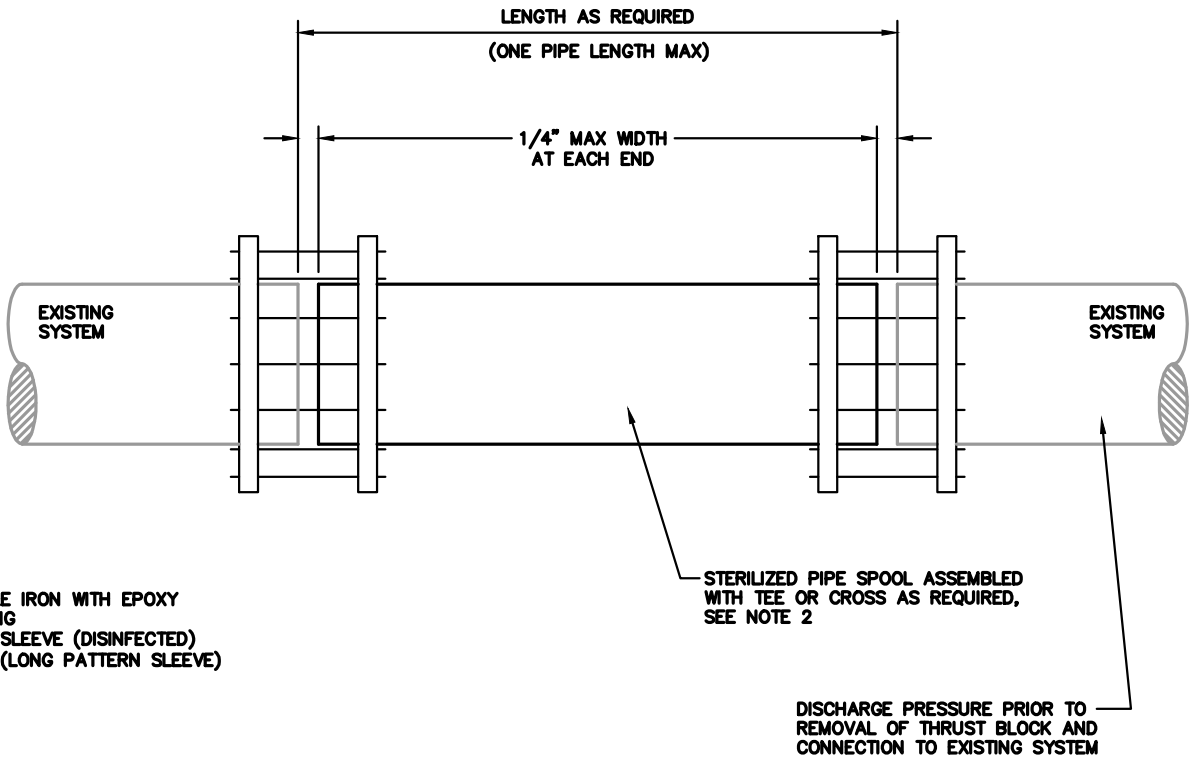
CITY OF OTHELLO

STANDARD DETAILS

WATER MAIN DEPTH REQUIREMENTS (DUCTILE OR PVC PIPE)

FIGURE W7-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



NOTES:

1. NO DEFLECTION SHALL BE ALLOWED AT EITHER COUPLING.
2. ADDITIONAL "IN-LINE" VALVE(S) MAY BE REQUIRED AT THE DIRECTION OF THE CITY.
3. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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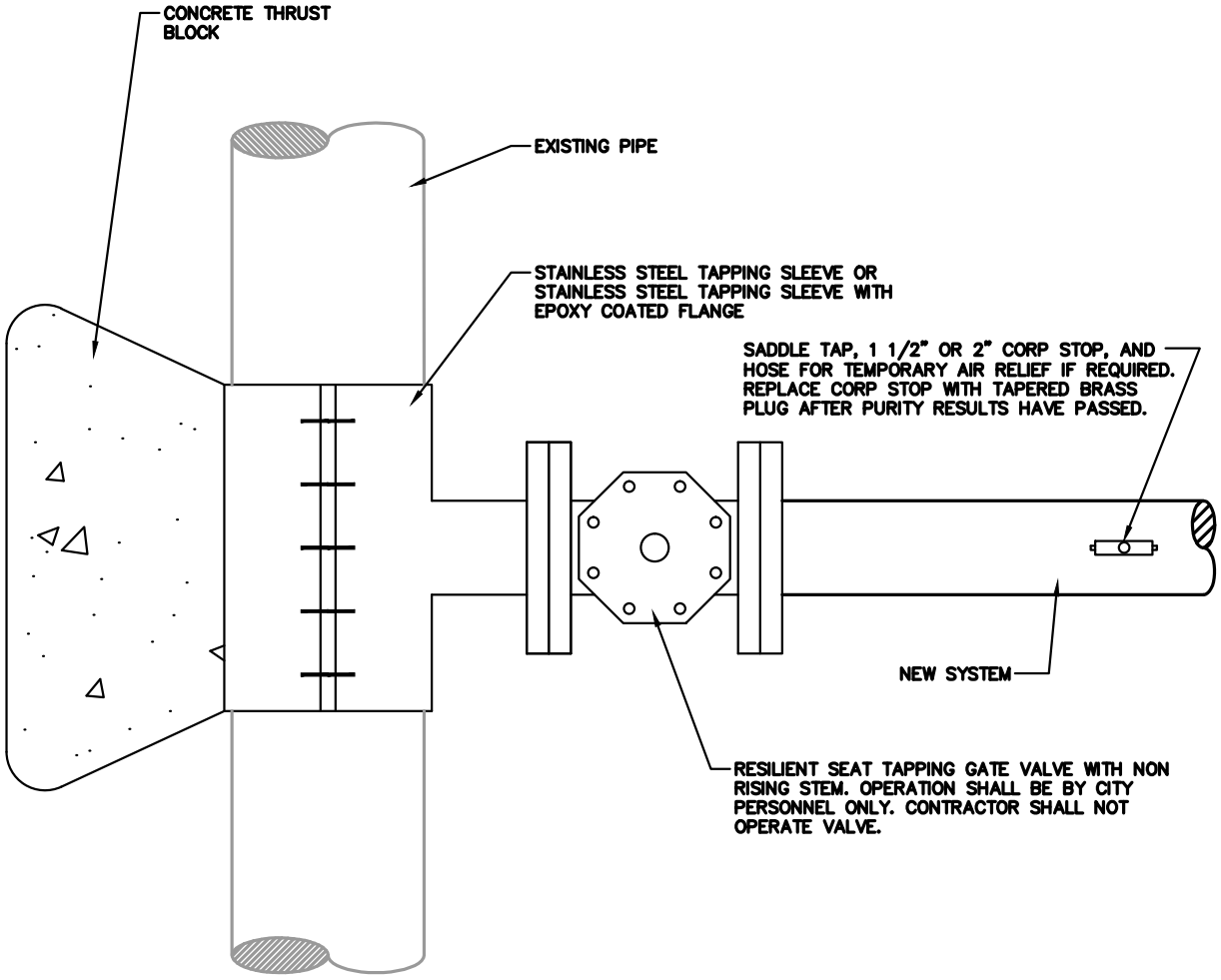
CITY OF OTHELLO
STANDARD DETAILS
CUT IN CONNECTION
FIGURE W8-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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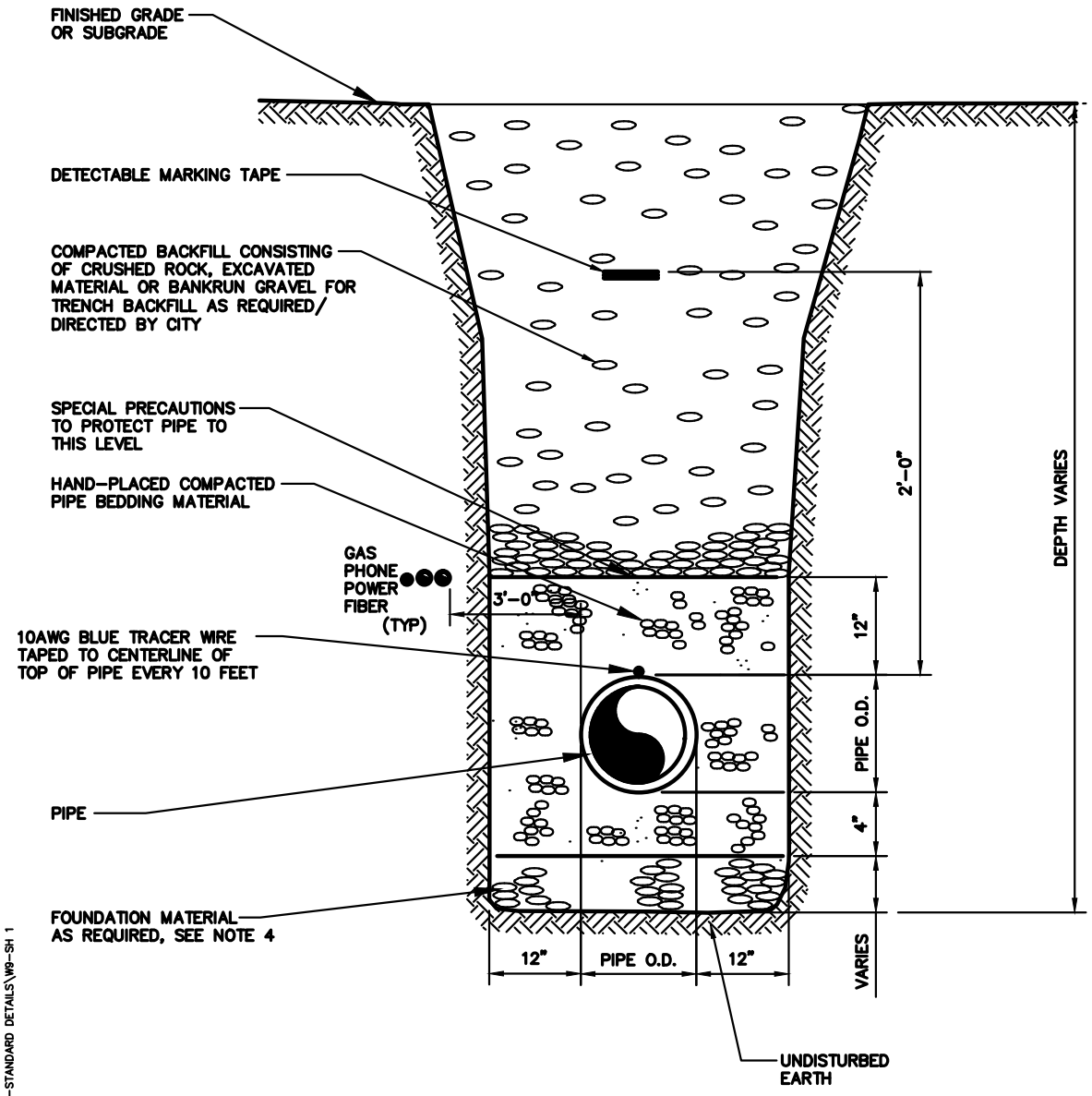
CITY OF OTHELLO

STANDARD DETAILS
WET TAP CONNECTION

FIGURE W8-SHEET 2

REVISION #	DATE
#1	November, 2014
#2	June, 2016



NOTES:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE IN CONFORMANCE WITH THE CITY STANDARDS AND/OR THE STATE OR COUNTY PERMIT REQUIREMENTS (AS MAY BE REQUIRED).
2. ACTUAL SLOPE OF TRENCH SIDES TO BE DETERMINED BY CONTRACTOR TO FIT THE METHOD OF CONSTRUCTION AND ALL SAFETY REQUIREMENTS.
3. NO ADDITIONAL CONDUITS OR PIPES SHALL BE WITHIN 3' OF THE WATER MAIN.
4. EXCAVATE UNSUITABLE MATERIAL DOWN TO UNDISTURBED EARTH AND REPLACE WITH FOUNDATION MATERIAL PER SECTION 9-03.9 (1), "BALLAST", OF THE STANDARD SPECIFICATIONS, AS REQUIRED.
5. TRENCHES MAY BE BEDDED WITH CONTROLLED DENSITY FILL MATERIAL AS APPROVED BY CITY.
6. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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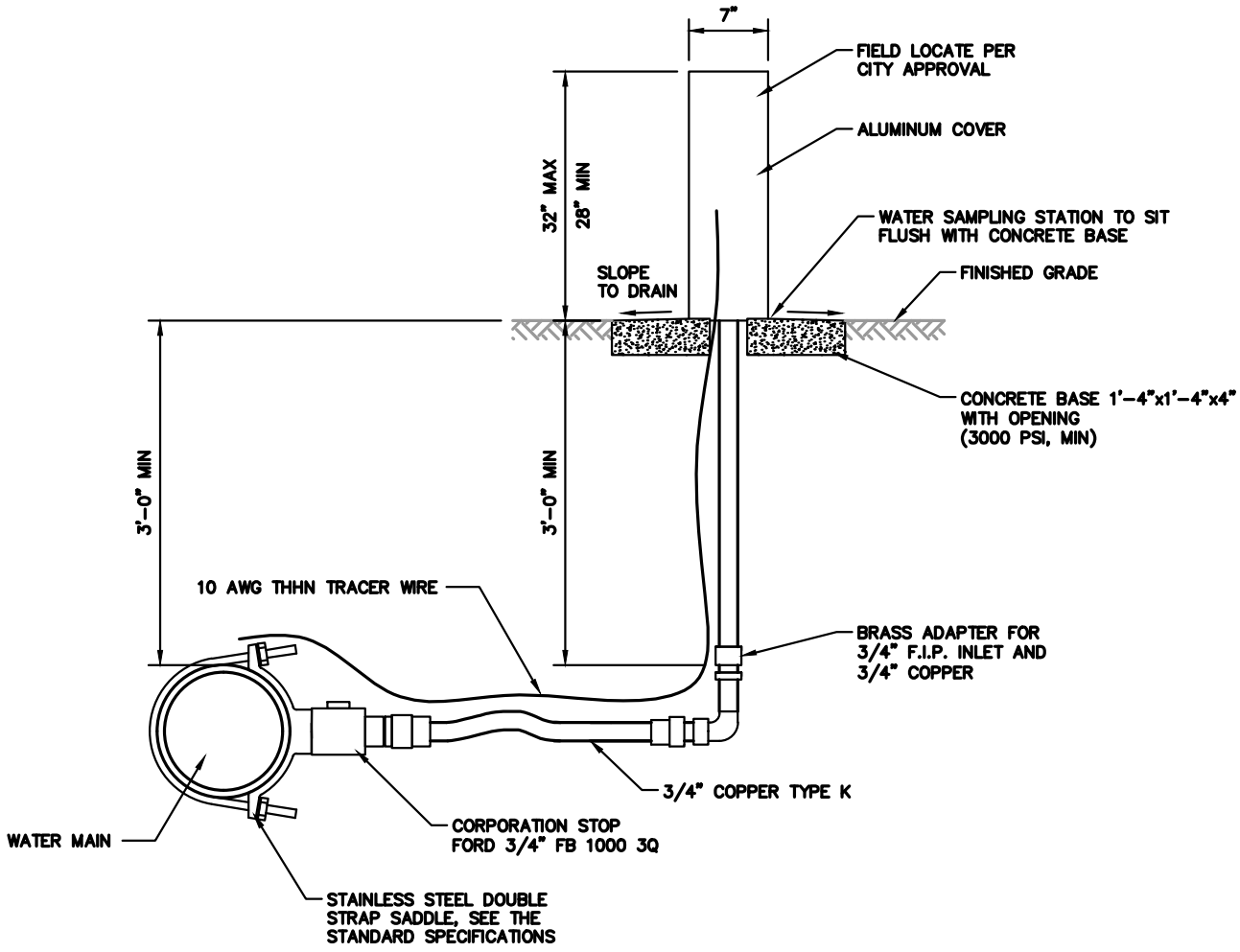
CITY OF OTHELLO

STANDARD DETAILS
WATER MAIN TRENCH SECTION

FIGURE W9-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



KUPFERLE FOUNDRY CO.
"ECLIPSE" NO. 88 OR EQUAL

NOTE:

1. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.
2. 10AWG THHN TRACER WIRE IS TO BE THE COLOR "BLUE" FOR WATER MAINS, SERVICES AND WATER SAMPLING STATIONS. ALL WIRE SPLICES ARE TO BE WATER TIGHT DIRECT BURY.

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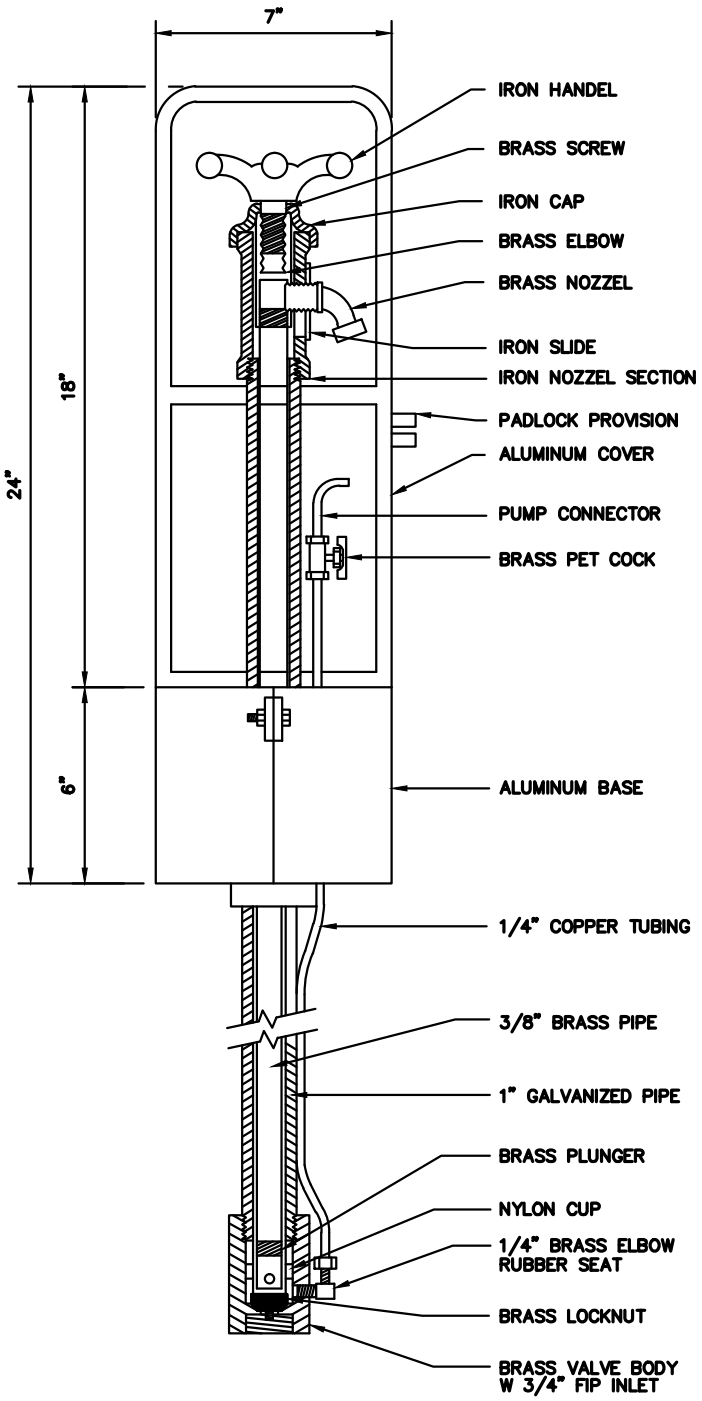
CITY OF OTHELLO

STANDARD DETAILS
WATER SAMPLING STATION

FIGURE W10-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016



KUPFERLE FOUNDRY CO.
"ECLIPSE" NO. 88 OR EQUAL

NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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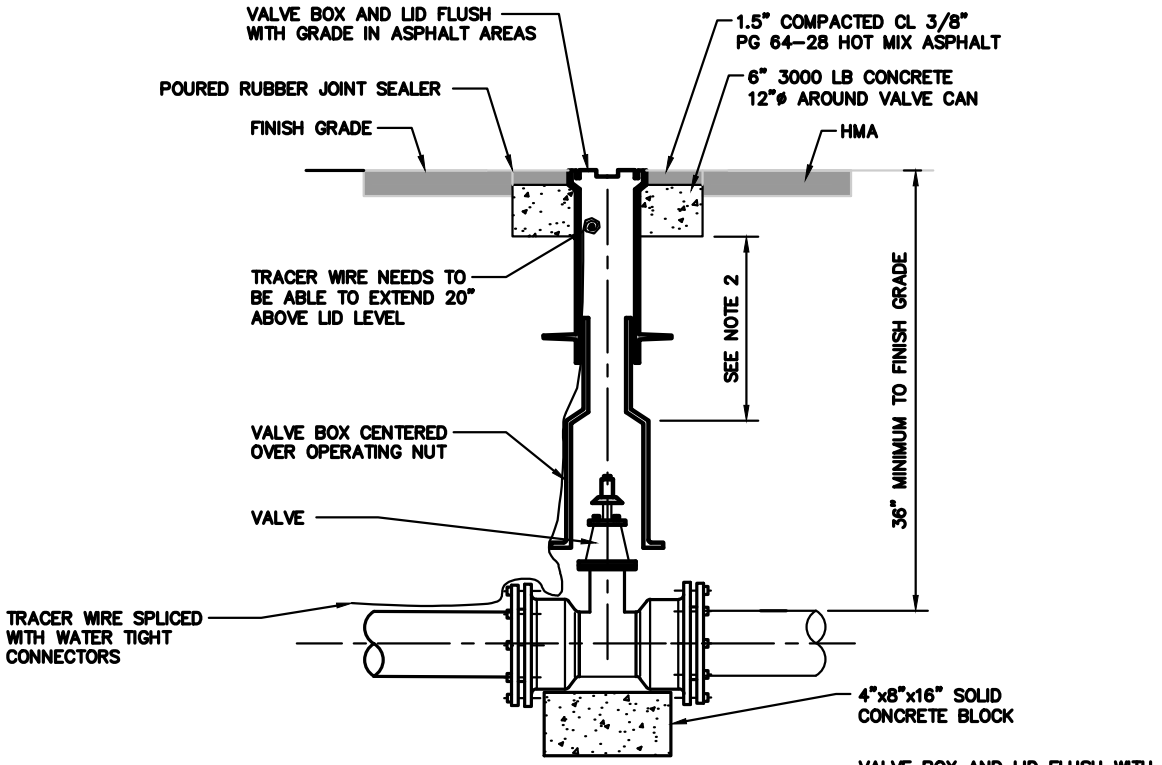
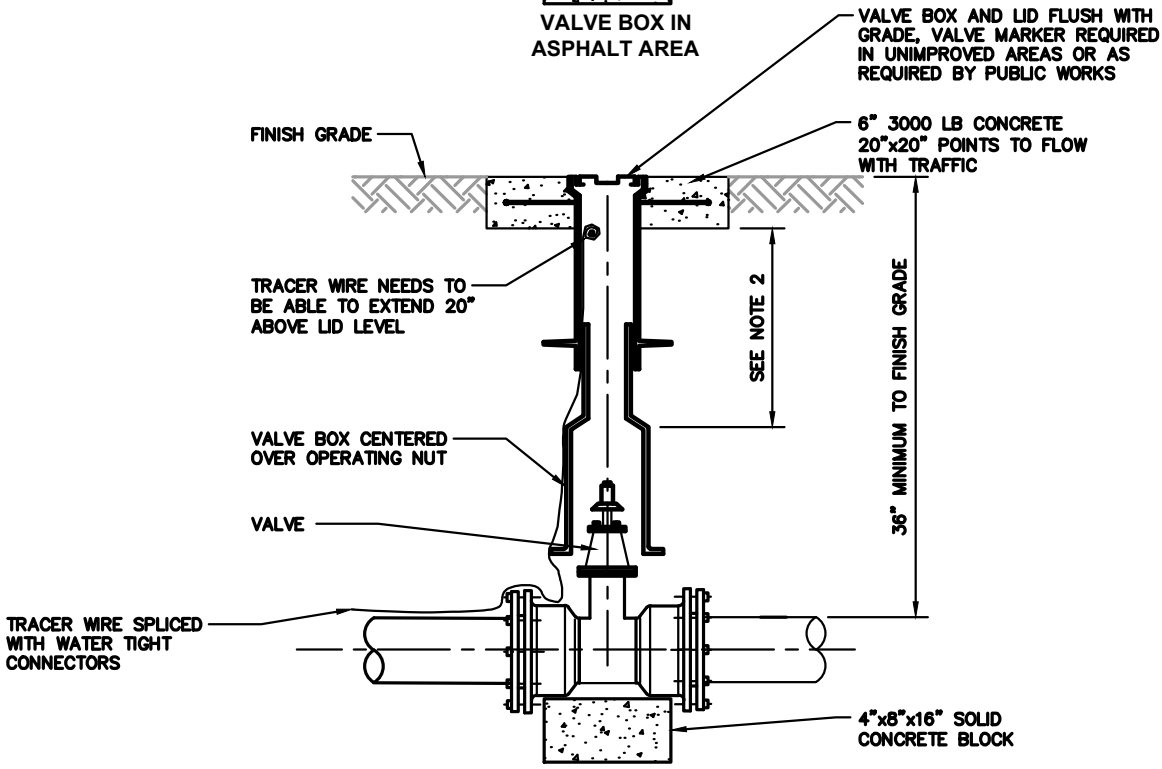
CITY OF OTHELLO
STANDARD DETAILS
WATER SAMPLING STATION
FIGURE W10-SHEET 2

REVISION #	DATE
#1	November, 2014
#2	June, 2016



VALVE BOX IN ASPHALT AREA



VALVE BOX IN UNIMPROVED AREA, MAY REQUIRE VALVE MARKERS, AS PER CITY REVIEW

NOTES:

1. EACH VALVE SHALL BE PROVIDED WITH ADJUSTABLE CAST IRON VALVE BOX OF 5" INSIDE DIAMETER. VALVE BOXES SHALL HAVE A TOP SECTION WITH A 16" MIN. LENGTH. THE VALVE BOX SHALL BE TYLER #6855 OR CITY APPROVED.
2. 18" MINIMUM, 24" MAXIMUM FOR OPERATOR NUT. EXTENSION MAY BE REQUIRED.
3. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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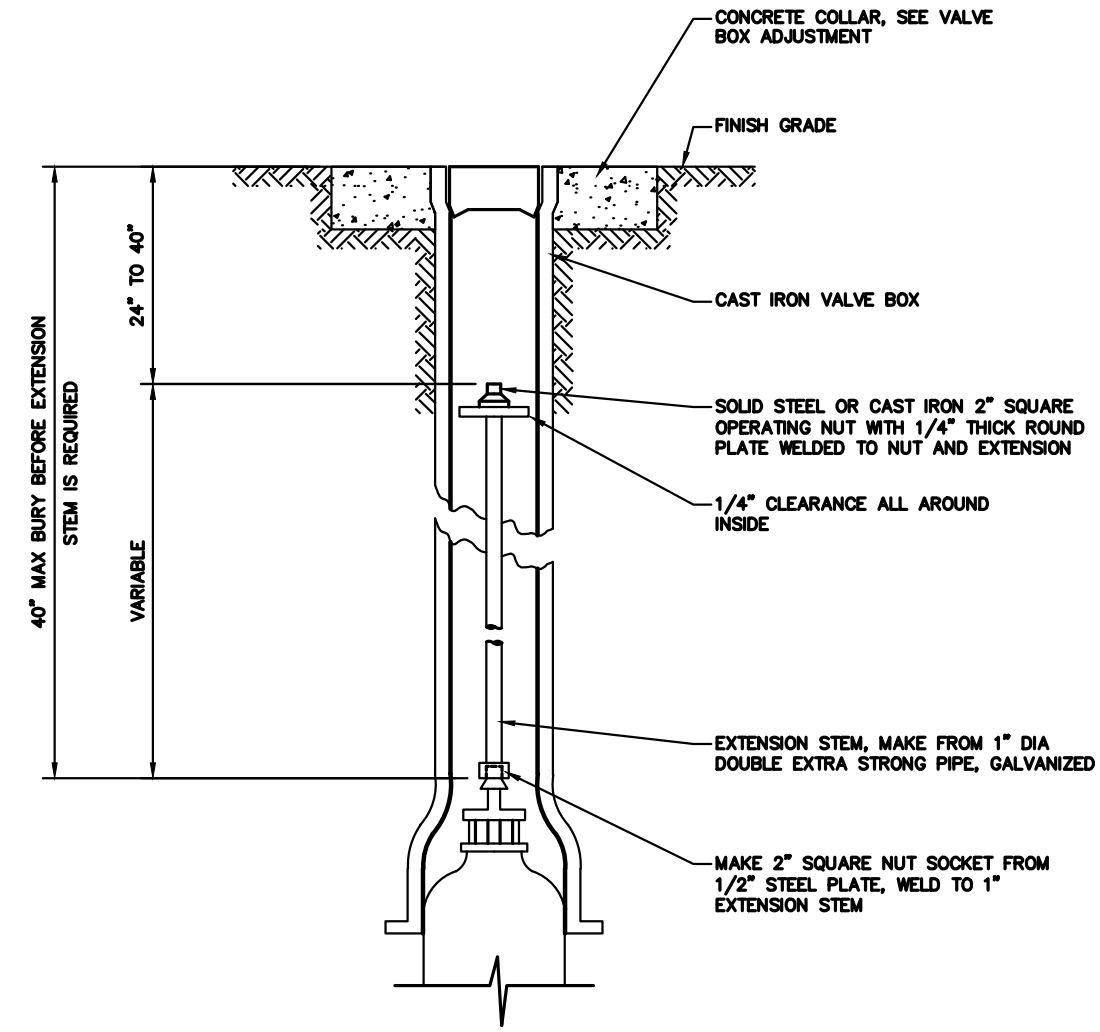
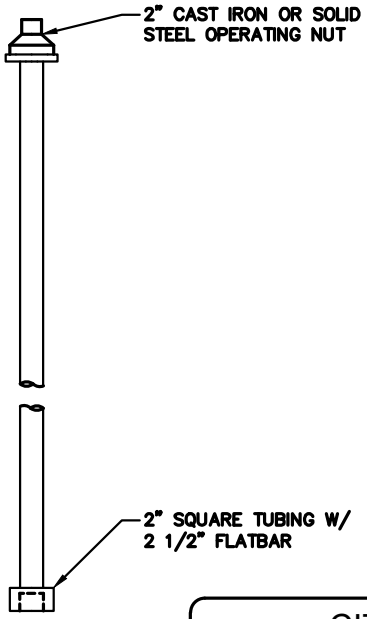
CITY OF OTHELLO
STANDARD DETAILS
VALVE BOX ADJUSTMENT DETAIL
FIGURE W11-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016





NOTE:

ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

CITY OF OTHELLO

STANDARD DETAILS
WATER VALVE STEM EXTENSION

FIGURE W11-SHEET 2

REVISION #	DATE
#1	November, 2014
#2	June, 2016

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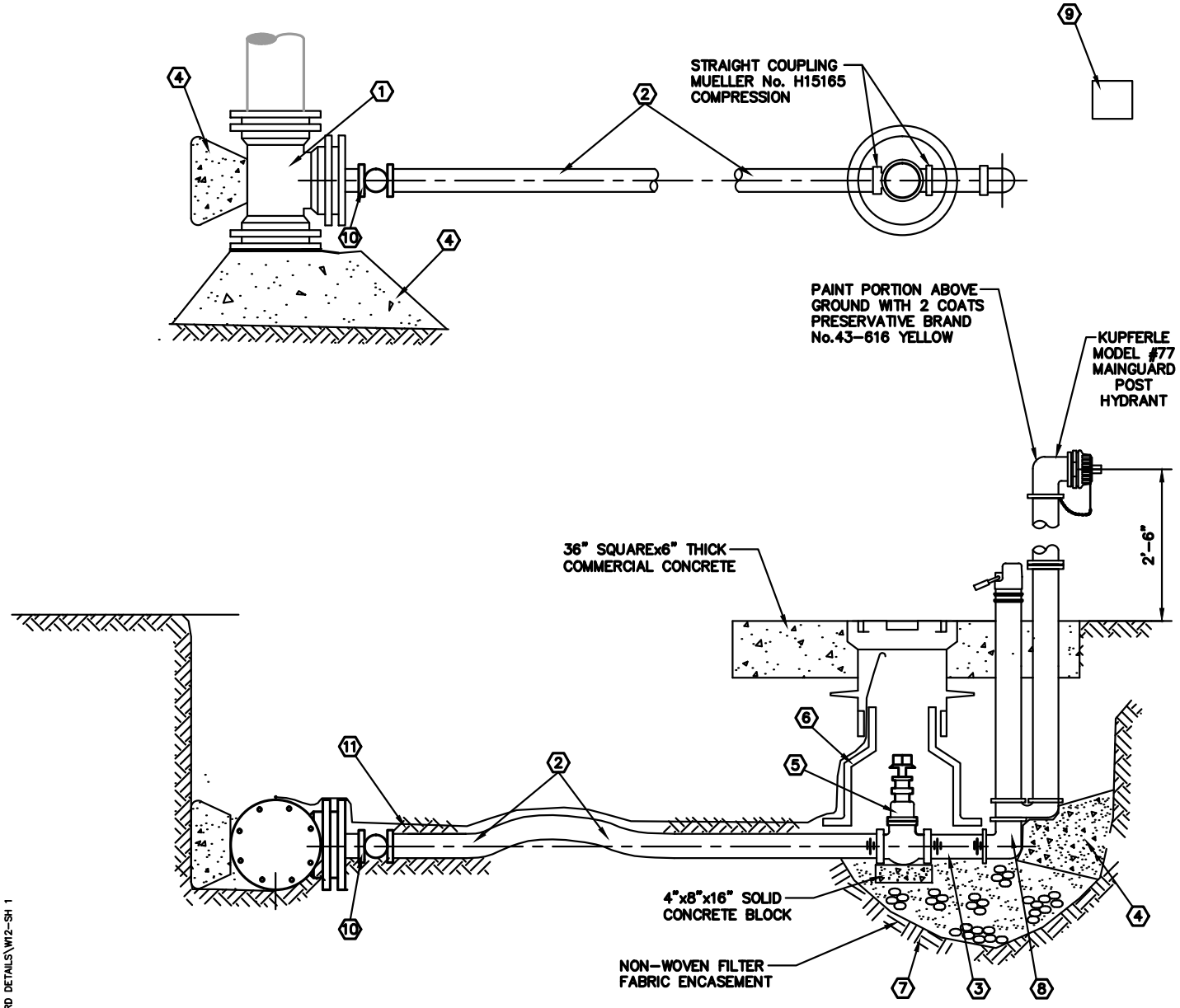

NOTES:

1. MJxMJx6"FL D.I. TEE WITH REDUCING FLANGE TAPPED 2" AND MJ PLUG
2. 2" TYPE "K" COPPER
3. 2" GALVANIZED IRON PIPE
4. CONCRETE THRUST BLOCK
5. 2" AWWA RESILIENT SEAT GATE VALVE THDxTHD WITH OPERATING NUT
6. CAST IRON VALVE BOX, TYLER #6855
7. 1/4 CUBIC YARD WASHED GRAVEL POCKET
8. 2" BRASS STREET "L"
9. VALVE MARKER POST
10. BALL VALVE, FB 500-7 CORP STOP
11. TRACER WIRE, 10 GA
12. CITY WILL REQUIRE BOLLARDS

GENERAL NOTES:

1. TURN NOZZLE TOWARDS ROADSIDE DITCH.
2. INSTALL DIELECTRIC COUPLINGS AT DISSIMILAR METALS.
3. TEMPORARY BLOWOFFS INSTALLED FOR FLUSHING WATERMAIN SHALL BE SIZED TO PROVIDE 2.5fps VELOCITY IN MAIN LINE.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE CITY OF OTHELLO'S DESIGN STANDARDS AND BE APPROVED BY THE CITY.

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CITY OF OTHELLO

STANDARD DETAILS

PERMANENT END-LINE BLOW OFF ASSEMBLY

FIGURE W12-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016

TABLE 8		
APPROPRIATE METHODS OF BACKFLOW PROTECTION FOR PREMISES ISOLATION		
DEGREE OF HAZARD	APPLICATION CONDITION	APPROPRIATE APPROVED BACKFLOW PREVENTER
HIGH HEALTH CROSS-CONNECTION	BACKSIPHONAGE OR BACKPRESSURE BACKFLOW	AG, RPBA, OR RPDA
LOW CROSS-CONNECTION HAZARD	BACKSIPHONAGE OR BACKPRESSURE BACKFLOW	AG, RPBA, RPDA, DCVA, OR DCDA

TABLE 9

SEVERE* AND HIGH HEALTH CROSS-CONNECTION HAZARD PREMISES REQUIRING ISOLATION BY AG OR RPBA

- AGRICULTURAL (FARMS AND DAIRIES)
- BEVERAGE BOTTLING PLANTS
- CAR WASHES
- CHEMICAL PLANTS
- COMMERCIAL LAUNDRIES AND DRY CLEANERS
- PREMISES WHERE BOTH RECLAIMED WATER AND POTABLE WATER ARE PROVIDED
- FILM PROCESSING FACILITIES
- FOOD PROCESSING PLANTS
- HOSPITALS, MEDICAL CENTERS, NURSING HOMES, VETERINARY, MEDICAL AND DENTAL CLINICS, AND BLOOD PLASMA CENTERS
- PREMISES WITH SEPARATE IRRIGATION SYSTEMS USING THE PURVEYOR'S WATER SUPPLY AND WITH CHEMICAL ADDITION+
- LABORATORIES
- METAL PLATING INDUSTRIES
- MORTUARIES
- PETROLEUM PROCESSING OR STORAGE PLANTS
- PIERS AND DOCKS
- RADIOACTIVE MATERIAL PROCESSING PLANTS OR NUCLEAR REACTORS*
- SURVEY ACCESS DENIED OR RESTRICTED
- WASTEWATER LIFT STATIONS AND PUMPING STATIONS
- WASTEWATER TREATMENT PLANTS*
- PREMISES WITH AN UNAPPROVED AUXILIARY WATER SUPPLY INTERCONNECTED WITH THE POTABLE WATER SUPPLY

\+ FOR EXAMPLE, PARKS, PLAYGROUNDS, GOLF COURSES, CEMETERIES, ESTATES, ETC.

* RPBAs FOR CONNECTIONS SERVING THESE PREMISES ARE ACCEPTABLE ONLY WHEN USED IN COMBINATION WITH AN IN-PLANT APPROVED AIR GAP; OTHERWISE, THE PURVEYOR SHALL REQUIRE AN APPROVED AIR GAP AT THE SERVICE CONNECTION.

GENERAL NOTES:

1. ALL BACKFLOW PREVENTION ASSEMBLIES ARE TO BE INSTALLED IN ACCORDANCE WITH WAC 246-290-490
2. THE FOLLOWING TABLES WERE REPRODUCED FROM THE WAC 246-290-490
3. ALL BACKFLOW PREVENTION ASSEMBLIES TO BE INSTALLED SHALL BE APPROVED FOR INSTALLATION IN WASHINGTON STATE AND BE ON THE LATEST VERSION OF THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES

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CITY OF OTHELLO
STANDARD DETAILS
BACKFLOW PREVENTION
FIGURE W13-SHEET 1

REVISION #	DATE
#1	November, 2014
#2	June, 2016

CITY OF OTHELLO, WASHINGTON

CROSS CONNECTION CONTROL

Othello's cross connection control program meets the requirements of WAC 246-290-490. The following paragraphs describe the various program elements as required in the WAC.

Element 1 – Bylaws

The City addresses cross connection control in Chapter 12.22 of the City of Othello's Municipal Code (GMC). A copy of the City's code is attached.

Elements 2 & 3 – Procedures Evaluating New and Existing Service for Potential Hazard and Correcting Same

The City has completed an evaluation of all connections for cross connections. The building official checks the residential plans to insure that all new connections meet the plumbing code. If new industrial or commercial connections occur the plans are sent to the water department for evaluation.

Requirements for correcting cross connections are covered in OMC Chapter 12.22.020. The water supply will be discontinued to any premises for failure to comply with the provisions of the City's Cross Control Plan, and will not be reestablished until compliance is approved.

Element 4 – Certification of Personnel as CCS

Dan Quick, Water System Operator, is a certified Cross Connection Specialist (CCS). He is responsible for implementation of the cross connection control program.

Elements 5 & 6 – Procedures to ensure that Backflow Preventers are Inspected and/or Tested by Qualified Personnel

Othello requires that property owners have their backflow assemblies annually tested by a certified Backflow Assembly Tester (BAT) with the results submitted to Othello for review. In addition, backflow assemblies are tested at installation and after any repair. Backflow assemblies which fail the test will be immediately repaired by the customer or service may be terminated. Test results are kept on file at Othello's public works office on the master list. Othello does not have a certified BAT on staff, but may offer a partial list of esters in the area who are qualified to test backflow preventers per request.

Element 7 – Response to Backflow Incident

Othello's water system has experienced no known backflow incidents. If one were to occur, Othello would take all necessary steps to determine the origin and nature of the cross connection and remedy the problem.

Element 8 – Education

Othello mails an annual report to all customers regarding CCC requirements. The City makes CCC literature provided by DOH available at City Hall.

Element 9 – CCC Records

Othello has developed and updates as necessary a master list of services with installed backflow assemblies. This list includes the locations, types, sizes, brand, model numbers dates of testing, person or company performing the test, and repairs made for all installed backflow assemblies. The list also includes a status field for monitoring progress toward installation of an appropriate backflow prevention device.

Element 10 – Reclaimed Water

Reclaimed water is not utilized within Othello City limits (refer to discussion in **Section 8.6.5.2** of the WSP).

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

Cross-Connection Control Activities (Blue)
Annual Summary Report (ASR) for 2016

PWS ID: 64850R PWS Name: OTHELLO WATER DEPARTMENT County: ADAMS

Part 1: Designated Cross-Connection Control Specialist (CCS) Information

CCS Name	E. Daniel Quick	CCS Phone	509-488-6997	CCS Cert. #	010552	BAT Cert. #	
CCS is: PWS owner or employee							

Part 2: Status of Cross-Connection Control (CCC) Program at End of 2016

Provide information about the status of your CCC Program at the end of the reporting year.

PWS has:		Program Plan Last Updated[3] 09/02/2016
	A written CCC Program Plan[1] ◉ Yes ○ No	
	CCC Implementation activities[2] ◉ Yes ○ No	

[1] Enter "Yes" if PWS has **any** type of written CCC Program Plan, policies, or procedures. Written CCC Program Plan must be part of a Water System Plan (WSP) or Small Water System Management Program (SWSMP).
[2] Enter "Yes" if PWS implemented **any** CCC Program activities during the reporting year, such as establishing legal authority, conducting hazard evaluations, requiring installation of backflow assemblies to protect the PWS, requiring assembly testing, maintaining CCC records, or enforcing the PWS's or CCC Program requirements.
[3] PWS can update the CCC Program Plan at any time (independent of WSP or SWSMP update).

Provide information regarding PWS's specific CCC Program Elements

Program Element Number	Description of Element [See WAC 246-290-490(3)]	This Program Element is:	
		Included in Written Program Plan	Being Implemented or Is Completed
1	Legal Authority Established	◉ Yes ○ No	◉ Yes ○ No
2	Hazard Evaluation Procedures and Schedules	○ Yes ◉ No	◉ Yes ○ No
3	Procedures/Schedules for Ensuring Installation of Backflow Preventers	○ Yes ◉ No	◉ Yes ○ No
4	Certified CCS Provided	◉ Yes ○ No	◉ Yes ○ No
5	Backflow Preventer Inspection and Testing	◉ Yes ○ No	◉ Yes ○ No
6	Assembly Testing Quality Assurance/Quality Control (QA/QC) Program	○ Yes ◉ No	○ Yes ◉ No
7	Backflow Incident Response Procedures	○ Yes ◉ No	◉ Yes ○ No
8	Public Education Program	○ Yes ◉ No	◉ Yes ○ No
9	CCC Records	◉ Yes ○ No	◉ Yes ○ No
10	Reclaimed Water Permit	○ Yes ○ No ◉ N/A	○ Yes ○ No ◉ N/A

Part 3A: PWS Characteristics at End of 2016

Enter the number of connections (new and existing) served by the PWS by type.

Type of Service Connection	Number
Residential (As defined by PWS)	1850
All Other (include dedicated fire lines, dedicated irrigation lines, and PWS-owned facilities such as water and wastewater treatment plants and pumping stations, parks, piers, and docks)	422
Total Number of Connections	2272

Part 3B: Cross-Connection Control for Severe and High-Hazard Premises and High-Hazard Dedicated Lines Served by the PWS

Answer the following questions carefully. These answers control your access to pages 2 and 3 for data entry.

1. Does your PWS serve any severe or high-hazard premises or any high-hazard dedicated fire or irrigation lines? ◉ Yes ○ No

2. Does PWS serve any high-hazard medical premises? ◉ Yes ○ No

- If you answer Yes to both questions, you must enter data in at least one row on page 2 and one row on page 3.
- If you answer Yes to Question 1 and No to Question 2, you must enter data on page 2 only.
- If you answer No to both questions, pages 2 and 3 will be grayed out to prevent data entry.

- Count only premises PWS serves water to.
- Report data as accurately as possible. **DOH currently bases CCC compliance actions on this information.**

Type of Severe or High-Hazard Premises or Dedicated Lines [WAC 246-290-490(4)(b)]	Number of Connections at end of 2016			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP[2]	C. With Column B AG Inspected or RP Tested[3]	D. Granted Exception from Premises Isolation
Agricultural (farms and dairies)				
Beverage bottling plants (including breweries)				
Car washes	2	2	2	0
Chemical plants				0
Commercial laundries and dry cleaners				0
Both reclaimed water and potable water provided				
Film processing facilities				
Dedicated fire lines with chemical addition or using unapproved auxiliary supplies				0
Food processing plants (including canneries, slaughter houses, rendering plants)	30	18	18	0
Hospitals, medical centers, medical, dental and veterinary clinics, mortuaries, nursing homes, etc., reported on Part 3C page 3 (totals imported from page 3)	9	7	7	0
Dedicated irrigation systems using purveyor's water supply and chemical addition[4]				0
Laboratories	1	1	1	0
Metal plating industries				
Petroleum processing or storage plants				0
Piers and docks				
Radioactive material processing plants or nuclear reactors				
Survey access denied or restricted				
Wastewater lift/pump stations (non-residential only)				
Wastewater treatment plants	1	1	1	
Unapproved auxiliary water supply interconnected with potable water supply				
Totals	43	29	29	0

[1] Count multiple connections or parallel installations to the same premises as **separate** connections.

[2] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises preventers only or connections with DCVAs or DCDAs installed for premises isolation. The number in Column B can't be larger than the number in Column A in the same row.

[3] Count only connections whose premises isolation preventers were inspected (AGs) or tested (RPs) during the reporting year.

[4] For example, dedicated irrigation lines to parks, playgrounds, golf courses, cemeteries, estates, etc.

[5] Premises with hazardous materials or processes (requiring isolation by AG or RP), such as aircraft and automotive manufacturers, pulp and paper mills, metal manufacturers, military bases, and wholesale customers that pose a high hazard to the PWS. May be grouped together in categories, for example:"Other manufacturing" or "Other commercial".

Part 3C: Cross-Connection Control for High-Hazard Medical Premises Served by the PWS

- Count only medical premises PWS serves water to.
- Don't count the same premises more than once. If you serve different medical category premises through a single connection, count the connection under the medical category you consider to pose the highest hazard to PWS.
- Report data as accurately as possible. **DOH currently bases CCC compliance actions on this information**

Type of High-Hazard Medical Premises [WAC 246-290-490(4)(b)]	Number of Connections at end of 2016			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP[2]	C. With Column B AG Inspected or RP Tested[3]	D. Granted Exception from Premises Isolation
Hospitals				
Hospitals (include psychiatric hospitals and alcohol and drug treatment centers)	2	2	2	0
Facilities for Treatment and Care of Patients Not Located in Hospitals Counted Above				
Same day surgery centers				
Out-patient clinics and offices	2	2	2	0
Alternative health out-patient clinics and offices				
Psychiatric out-patient clinics and offices				
Chiropractors with water-connected X-ray equipment				
Hospice care centers				
Childbirth centers				
Kidney dialysis centers	1	1	1	0
Blood centers				
Dental clinics and offices	1	1	1	0
Facilities for Housing Patients				
Nursing homes	2	0	0	0
Assisted Living Facilities (formerly Boarding Homes)				
Residential treatment centers				
Other Medical-Related Facilities				
Mortuaries with embalming equipment	1	1	1	0
Morgues and autopsy facilities (not in hospitals)				
Veterinarian offices, clinics and hospitals				
Totals	9	7	7	0

[1] Count multiple connections or parallel installations to the same premises as **separate** connections.

[2] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises preventers only or connections with DCVAs or DCDAs installed for premises isolation. The number in Column B can't be larger than the number in Column A in the same row.

[3] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises backflow preventers only or connections with premises isolation DCVAs or DCDAs isolation.

Part 4A: Backflow Preventer Inventory and Testing Information for 2016

- Complete all fields. Enter **zero (0)**, if no backflow preventers in a specific category.
- Count only backflow preventers relied on to protect the PWS.
- Count AVBs on *irrigation systems only*. Select No to AVB question above Table 2 if PWS doesn't track AVBs.
- Count multiple tests (or failures) for the same backflow preventer as one test (or failure) for that backflow preventer.
- For multiple service connections or parallel installations, count each assembly separately.
- Count RPDAs and DCDAs as ***single*** assemblies. Count the tests of the mainline assembly and bypass assembly as ***one test***. Count the failure of either the mainline or bypass assembly (or the failure of both) as ***one failure***. Count an entire detector assembly taken out of service as ***one assembly removed from service***.
- Count assemblies installed on dedicated fire or irrigation lines as **Premises Isolation Assemblies** in Table 1.

	Backflow Preventer Category and Inspection/Testing Information	Air Gap	RPBA	RPDA	DCVA	DCDA	PVBA	SVBA	AVB
Table 1: Premises Isolation Preventers (include preventers isolating PWS-owned facilities)									
Existing Premises Isolation Backflow Preventers									
1	In service at beginning of 2016	0	59	0	101	0			
2	Inspected and/or tested in 2016[1]	0	0	0	0	0			
3	Failed inspection or test in 2016	0	0	0	0	0			
New Premises Isolation Backflow Preventers									
4	Installed in 2016[2]	0	3	0	27	0			
5	Inspected and/or tested in 2016[1]	0	0	0	0	0			
6	Failed inspection or test in 2016	0	0	0	0	0			
Premises Isolation Backflow Preventers (existing or new)									
7	Removed from service in 2016[3]	0	0	0	0	0			
Total Premises Isolation Preventers at End of 2016		0	62	0	128	0	0	0	0
							Does PWS track AVBs on irrigation systems? ○ Yes ◉ No		
Table 2: In-Premises Preventers (include preventers within PWS-owned facilities)									
Existing In-Premises Backflow Preventers									
8	In service at beginning of 2016	0	0	0	0	0	0	0	unk
9	Inspected and/or tested in 2016[1]	0	0	0	0	0	0	0	unk
10	Failed inspection or test in 2016	0	0	0	0	0	0	0	unk
New In-Premises Backflow Preventers									
11	Installed in 2016[2]	0	0	0	0	0	0	0	unk
12	Inspected and/or tested in 2016[1]	0	0	0	0	0	0	0	unk
13	Failed inspection or test in 2016	0	0	0	0	0	0	0	unk
In-Premises Backflow Preventers (existing or new)									
14	Removed from service in 2016[3]	0	0	0	0	0	0	0	unk
Total In-Premises Preventers at End of 2016[4]		0	0	0	0	0	0	0	0
Grand Totals at End of 2016		0	62	0	128	0	0	0	0

[1] Initial and/or routine annual inspection (for proper installation and approval status) and/or test (for testable assemblies only, using DOH-approved USC field test procedures).

[2] Includes preventers installed on connections where backflow prevention was not previously required and any preventers that replaced those in service at the beginning of the reporting year. Replacement preventers may be of a different type than the originals.

[3] Existing or new preventers taken out of service, whether or not they were replaced by the same or a different type of preventer.

Part 4B: Other Implementation Activities in 2016

Complete all cells. Enter zero if not applicable.

Water Use Questionnaires	
Did your PWS send any water use questionnaires to customers during 2016?	○ Yes ◉ No

On-site Hazard Surveys			
Did your CCS conduct any on-site hazard surveys during 2016?	◉ Yes ○ No Number 31		
	Service Connection Type		
	New	Existing	Total
1. Number of connections surveyed for cross-connection hazards to PWS.	31	2	33
2. Number of connections requiring backflow prevention to protect PWS.[1,2]	31	0	31

New Exceptions to Premises Isolation	
Did your CCS grant any new premises isolation exceptions in 2016 to high-hazard premises?[3]	○ Yes ◉ No

CCC Enforcement Actions	
Did your PWS take any enforcement actions during 2016?[4]	○ Yes ◉ No

[1] Include services where either premises isolation or in-premises preventers were required to protect the PWS.
[2] Include existing services that need new, additional or higher level backflow prevention.
[3] Submit a completed DOH Exception Form (green) for each new exception granted in the reporting year.
[4] "Enforcement actions" means actions taken by the PWS (such as water shut-off, PWS installation or testing of backflow preventer, assessment of fines, etc.) when the customer fails to comply with the PWS's CCC requirements.

Part 5: Backflow Incidents and "Off-Normal" Events in 2016

	Backflow Incidents, Risk Factors, and Indicators during 2016	Number
Backflow Incidents during 2016		
1	Backflow incidents that contaminated the PWS[5].	0
2	Backflow incidents that contaminated the customer's drinking water system ***only***[5].	0
Risk Factors for Backflow during 2016		
3	Distribution main breaks per 100 miles of pipe.	1.00
4	Low pressure events (<20 psi in PWS distribution system).	0
5	Water outage events.	0
Indicators of Possible Backflow during 2016		
6	Total health-related complaints received by PWS.[6]	0
7	Received during BWA or PN events.[7]	0
8	Received during low pressure or water outage events.	0
9	Total aesthetic complaints (color, taste, odor, air in lines, etc.).	7
10	Received during BWA or PN events.[7]	0
11	Number of these complaints received during low pressure or water outage events.	0

[5] Purveyors must submit a Backflow Incident Report form for each backflow incident known to have contaminated the public water system. DOH is also interested in receiving incident report forms for backflow incidents that contaminated the customer's drinking water system only.
[6] Such as stomach ache, headache, vomiting, diarrhea, skin rashes, etc.
[7] "BWA" means Boil Water Advisory and "PN" means Public Notification for water quality reasons.

Part 6: Comments and Clarifications

- Enter comments to:
  - Explain or clarify information in this report.
  - Describe challenges faced or accomplishments made in this reporting year.
  - Share your goals and objectives for the coming reporting year.
- Delete comments that are no longer valid.

Part No.	Date Added	Comments
Pt 1	09-02-2016	The City of Othello has limited resources to establish a complete CCC program. We do require all citizens install a backflow device for all state mandated requirements, but our focus is mainly on all high hazard connections. All new backflow devices are required to be tested prior to use, but getting all citizens that have them in place to do annual testing is an issue in our city.
Pt 1	06-15-2017	Letters to the two assisted living locations will be sent as they do not have premises isolation devices in place. They have both agreed to install the correct Premises Isolation device.

Part 7: Report Certification and Contact Information

I, Daniel Quick , certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	06/15/2017	All ASR Forms Certified/Submitted	06/15/2017

Designated CCS/CCC Program Manager[1]

Name	E. Daniel Quick	Title	CCS Program Manager	CCS Cert #	010552
Email Address	thowes@othellowa.gov	Phone	509-488-6997	Phone Ext	

PWS Manager[2]

Name	E. Daniel Quick	Title	Water System Manager	Operator Cert #	010552
Email Address	dquick@othellowa.gov	Phone	509-989-0687	Phone Ext	

[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).
[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

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

Cross-Connection Control Program Summary (Cream)
Annual Summary Report (ASR) for 2016

PWS ID: 64850R PWS Name: OTHELLO WATER DEPARTMENT County: ADAMS

Describe the characteristics of the PWS's Cross-Connection Control (CCC) Program at the end of 2016.

Part 1: CCC Program Characteristics

A. Type of Program Implemented

Type of Program	Check One
Premises isolation only.	○
Combination program: reliance on both premises isolation and in-premises prevention.	◉
In transition from a combination program to a premises isolation only program.	○

B. Coordination with Authority Having Jurisdiction (AHJ) on CCC Issues

Indicate the status of coordination with AHJs in your service area. The AHJ is the entity that enforces the Uniform Plumbing Code at the local level. The AHJ is usually your county or city building department. Don't list DOH as an AHJ.

AHJ #	Name of AHJ (City or County Building Department)[1]	PWS		AHJ Declined to Coordinate
		Coordinates with AHJ	Has Written Agreement with AHJ	
1	City Building Department	Yes ◉ No ○	Yes ○ No ◉	Yes ○ No ○

[1] Do not enter an individual's name.

C. Corrective/Enforcement Actions Available to the Purveyor

Type of Corrective Action/Enforcement Action	Indicate Whether Available	Most Often Used (Check One)
Purveyor denies or discontinues water service.	Yes ◉ No ○	◉
Purveyor installs backflow assembly and bills customer.	Yes ○ No ◉	○
Purveyor assesses fines (in addition to eliminating or controlling cross connection).	Yes ○ No ◉	○
Purveyor tests backflow assembly and bills customer.	Yes ○ No ◉	○

[1] Enter detailed description of other enforcement actions available to PWS. Don't enter "None", "Not Applicable", or "Not Available."

D. CCC Program Responsibilities
Do not include enforcement action related procedures or circumstances.

CCC Program Activity	Responsible Party (Check one per row)	
	Customer	Purveyor
Hazard Evaluation by DOH-certified CCS	○	◉
Backflow preventer (BP) ownership	◉	○
BP installation	◉	○
BP *initial* inspection (for proper installation - all BPs)	○	◉
BP *initial* test (for testable assemblies)	◉	○
BP *annual* inspection (Air Gaps and AVBs)	◉	○
BP *annual* test (for testable assemblies)	◉	○
BP maintenance and repair	◉	○

E. Backflow Prevention for Fire Protection Systems
Please remember to enter number of days allowed if you require retrofitting.

PWS coordinates with *AHJ* on CCC issues for fire sprinkler systems (FSSs)	Yes ◉ No ○ N/A ○
PWS coordinates with *local Fire Marshal* on CCC issues for FSSs.	Yes ◉ No ○ N/A ○
PWS ensures backflow prevention is installed before serving *new* connections with FSSs.	Yes ◉ No ○
PWS requires retrofits to *high*-hazard FSSs.	Yes ◉ No. of days allowed: 30 No ○ N/A ○
PWS requires retrofits to *low*-hazard FSSs.	Yes ◉ No. of days allowed: 90 No ○ N/A ○

F. Backflow Prevention for Irrigation Systems

Minimum level of backflow prevention required on irrigation systems *without* chemical addition.	Not Addressed ○ AVB ○ PV/SVBA ○ DCVA ◉ RPBA ○
PWS currently inspects AVBs upon *initial* installation.	Yes ◉ No ○ N/A ○
PWS currently inspects AVBs upon repair, reinstallation or relocation.	Yes ◉ No ○ N/A ○

G. Used Water

Does PWS prohibit, by ordinance, rules, policy, by-laws or agreement, the intentional return of used water (e.g. for heating or cooling) into the distribution system?	Yes ◉ No ○
If not prohibited at present, date plan to prohibit use.	N/A
Current number of service connections returning used water to distribution system.	0

H. Backflow Prevention for Unapproved Auxiliary Water Supplies[1] NOT Interconnected with PWS
Show the **minimum** backflow preventer and type of protection required for service connections having unapproved auxiliary water supplies *when they are NOT interconnected to the PWS.*

Existing service connections.	None ◉ DCVA ○ RPBA ○ AG ○
Type of protection required.	N/A ◉ In-premises prevention ○ Premises isolation ○
New service connections.	None ◉ DCVA ○ RPBA ○ AG ○
Type of protection required.	N/A ◉ In-premises prevention ○ Premises isolation ○

[1] An auxiliary water supply is any water supply on or available to customer's premises in addition to the purveyor's potable water supply.

I. Backflow Prevention for Tanker Trucks and Temporary Water Connections

Minimum level of backflow prevention (installed on or associated with the truck) required for tanker trucks taking water from PWS.	AG ○ DCVA ◉ RPBA ○ Not Specified ○ Tanker trucks not allowed ○
PWS requires tanker trucks to obtain water at designated fill sites each equipped with permanently installed backflow preventer(s).	Yes ◉ (Minimum preventer: DCVA ◉ RPBA ○) No ○ N/A ○ No sites provided ○
PWS currently accepts tanker trucks approved by other PWSs without further inspection or testing.	Yes ○ No ◉ N/A ○
Minimum level of backflow prevention required for temporary water connections (e.g., for construction sites).	AG ○ DCVA ◉ RPBA ○ Not specified ○ Temp. connections not allowed ○
PWS provides approved backflow preventer for temporary connections.	Yes ◉ No ○ N/A ○ (Temp. connections not allowed)
PWS requires testing each time the temporary connection backflow preventer is relocated.	Yes ○ No ◉ N/A ○ (Temp. connections not allowed)

J. Backflow Prevention for Non-Residential Connections

For each category shown, indicate whether PWS has non-residential connections of that type and the **minimum** level of ***premises isolation*** backflow prevention required (whether or not PWS currently has that type of customer).

Type of Connection	PWS has Customers of this Type	Minimum Premises Isolation Backflow Prevention Required
Commercial	Yes ◉ No ○	Not Required ○ DCVA ◉ RPBA ○
Industrial	Yes ◉ No ○	Not Required ○ DCVA ◉ RPBA ○
Institutional	Yes ◉ No ○	Not Required ○ DCVA ◉ RPBA ○

K. Backflow Prevention for Wholesale Customers

Indicate whether the PWS requires backflow prevention at interties with wholesale customers (other PWSs).

Type of Intertie	PWS has Customers of this Type	Minimum Backflow Prevention Required (if prevention is required, indicate minimum level).	
Existing	Yes ◉ No ○	Not specified / Not required ○ Always required ◉ Required only if purchaser's CCC program is inadequate ○	Minimum required (if applicable): DCVA ◉ RPBA ○
New	Yes ◉ No ○	Not specified / Not required ○ Always required ◉ Required only if purchaser's CCC program is inadequate ○	Minimum required (if applicable): DCVA ◉ RPBA ○

L. Exceptions to Mandatory Premises Isolation

PWS's written CCC Program Plan *allows* system to grant exceptions to mandatory premises isolation per WAC 246-290-490(4)(b)(iii)	Yes ○ No ◉ Doesn't Address ○
PWS currently grants new Exceptions.	Yes ○ No ◉
PWS granted Exceptions in past reporting years.	Yes ○ No ◉

Part 2: CCC Program Record-Keeping Software

Indicate the type or name of computer software the PWS uses to track CCC records.

BPMS ○	Cross-Track (BMI) ○	Tokay ○	XC2 ○	Custom developed for or by PWS[1] ○
Other non-CCC software (e.g. Excel) ○	Other commercial CCC software (specify) ○		None Used ◉	

[1] Do not include commercial CCC software customized for PWS. If PWS uses customized commercial software, check the box for the appropriate commercial software name.

Part 3: Comments and Clarifications

- Enter comments to:
  - Explain or clarify information in this report.
  - Describe accomplishments made in this reporting year.
  - Identify challenges faced in this reporting year.
  - Share your goals and objectives for the coming reporting year.
- Delete comments that are no longer valid.

No Comments

Part 4: Report Certification and Contact Information

I,Daniel Quick, certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	06/15/2017	**All ASR Forms Certified/Submitted**	06/15/2017

Designated CCS/CCC Program Manager[1]

Name	E. Daniel Quick	**Title**	CCS Program Manager	**CCS Cert #**	010552
Email Address	thowes@othellowa.gov	**Phone**	509-488-6997	**Phone Ext**	

PWS Manager[2]

Name	E. Daniel Quick	**Title**	Water System Manager	**Operator Cert #**	010552
Email Address	dquick@othellowa.gov	**Phone**	509-989-0687	**Phone Ext**	

[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).

[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

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

Backflow Prevention for Severe Health Hazard Facilities (Gray)
Annual Summary Report (ASR) for 2016

PWS ID: **64850R** PWS Name: **OTHELLO WATER DEPARTMENT** County: **ADAMS**

Part 1: Backflow Prevention Status

- Describe the backflow prevention status at the end of the reporting year for each wastewater treatment plant and nuclear facility your system serves.
- If you serve more than one severe health hazard facility, click the "Add Facility" button to display another facility data entry box.
- If you serve more than one connection to the same facility, click the "Add Connection" button to display another connection row for that facility.
- You may add as many facilities and connections as needed.
- To update this form, you may delete facilities and connections which are no longer served.

Facility 1 of 1

Facility Name	City of Othello
Physical Address	2302 W. Cunningham Rd.
City	Othello
Zip	99344
NPDES Permit#	0022357
Facility Type	Wastewater Treatment Plant (WWTP)
Facility Comments	This is not a mechanical plant - this is a bacteriological lagoon system. This is a premises isolation situation, but with a DCVA.

Facility 1 Connection 1 of 1

Connection Name	Othello WWTP
Backflow Prevention Status	Other
Connection Comments	Premises Isolation with DCVA.

Part 2: Report Certification and Contact Information

I,Daniel Quick, certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	06/15/2017	**All ASR Forms Certified/Submitted**	06/15/2017

Designated CCS/CCC Program Manager[1]

Name	E. Daniel Quick	**Title**	CCS Program Manager	**CCS Cert #**	010552
Email Address	thowes@othellowa.gov	**Phone**	509-488-6997	**Phone Ext**	

PWS Manager[2]

Name	E. Daniel Quick	**Title**	Water System Manager	**Operator Cert #**	010552
Email Address	dquick@othellowa.gov	**Phone**	509-989-0687	**Phone Ext**	

[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).
[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

Chapter 12.22
CONTAMINATION OF PUBLIC WATER SUPPLY

Sections:

12.22.010 Definitions.

For the purposes of this chapter, the words and phrases set forth in this section are defined as follows:

(a) "Backflow" means the flow other than the intended direction of flow of any foreign liquids, gases, or substances into the distribution system of a public water supply.

(b) "Backflow prevention device" means a device to counteract back pressure or prevent back siphonage.

(c) "Cross-connection" means any physical arrangement whereby a public water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage, or other waste or liquids of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as a result of backflow.

(d) "Supervisor" means the supervisor of the water and sewer department, city of Othello. (Ord. 583 (part), 1978).

12.22.020 Cross-connections—Prohibition.

The installation or maintenance of a cross-connection which will endanger the water quality of the potable water supply of the city of Othello is prohibited. Any such cross-connection now existing or hereafter installed is a nuisance and shall be abated. The control or elimination of cross-connections shall be in accordance with the state of Washington Administrative Code (WAC 246-290-490) or subsequent revisions, together with any future manuals of standard practice pertaining to cross-connection control approved by the Director of the State of Washington Department of Health Services. The water supply will be discontinued to any premises for failure to comply with the provisions of this section and will not be reestablished until compliance is approved by the

director. (Ord. 1400 § 7, 2014: Ord. 583 § 1, 1978).

12.22.030 Service—Discontinuance.

Service from the city of Othello water supply system to any premises upon which a private water supply system is used or operated contrary to the provisions of the rules and regulations of the State Board of Health regarding public water supplies may be discontinued or refused upon order of the supervisor. (Ord. 583 § 2, 1978).

12.22.040 Service—Contingent upon installation of backflow prevention device.

Furnishing of any service shall be contingent upon the installation of a backflow prevention device approved by the state of Washington Department of Social and Health Services for the protection of the city water supply from backflow. (Ord. 583 § 3, 1978).

12.22.050 Repayment of charges for testing backflow prevention devices.

The city is authorized to contract for services to inspect, test, repair and maintain each backflow prevention device as may be required by law. Each contractor who inspects, tests or repairs or maintains any backflow prevention device shall submit to the city such written documentation as may be required by the city to verify such services and the cost thereof. The city is authorized to pay the contractor directly, all or any portion of such costs; provided, however, that the city shall be reimbursed the full amount of such costs by the legal owner of the real property upon which such backflow prevention device is located, and nothing herein contained shall relieve the owner of such obligation. There shall be added to the owner's monthly utility billing, the actual amount of such costs which shall be paid within sixty days of the billing date. In the event the owner fails to pay the full amount of such costs within sixty days of the billing date, then in such event, the city shall have the right to discontinue service until such time as the billing is paid in full. (Ord. 810 § 1, 1989).

City of Othello

Public Works Department • 111 North Broadway Avenue • Othello, WA 99344 • (509) 488-6997

Backflow Device Permit Information & Application Guide

THE NEED FOR BACKFLOW PREVENTION DEVICES

Every year hundreds of people become ill as a result of consuming contaminated drinking water in their own homes. From drain cleaner entering the water system through the sink and exiting through shower water, to pesticides siphoned from a garden hose and filled into a drinking glass; contamination of the potable water supply can happen in a number of ways. Water supply contamination can be prevented and it is up to the home and business owners to ensure the proper steps are taken to do so.

Over the years, water treatment processes have become more complex in an effort to provide the highest quality water possible to the water utilities customers. The protection of the water sources, rivers, wells, and lakes, combined with new water treatment procedures, enable the water purveyor to achieve this goal.

A cross connection, as defined by the Cross Connection Control Committee of the Pacific Northwest (PNW) Section or the American Water Works Association (AWWA), is "Any actual or potential physical connection between a potable water line and any pipe, vessel, or machine containing a non-potable fluid or has the possibility of containing a non-potable fluid, solid or gas, such that it is possible for the non-potable fluid, solid or gas to enter the potable water system by backflow."

From the Federal Safe Water Drinking Act, the Washington State Department of Health Drinking Water Regulations requires the purveyor of water to develop and implement a cross connection control program using the manual published by the PNW Section - AWWA. The scope and complexity of the program is directly related to the size of the system.

CITY OF OTHELLO CROSS-CONNECTION CONTROL REQUIREMENTS

The City of Othello requires that all new water system installation locations' protect the City of Othello's drinking water supply with the use a backflow prevention device. The owner of the backflow prevention device must apply for a City of Othello Backflow Device Permit (page 5) with the City of Othello Public Works Department. The water customer is required to ensure that these devices are operated, maintained, and tested in accordance with the City of Othello's Cross Connection Control Regulations.

The correct backflow preventer must be installed properly, in the correct location, per the manufacturer specifications in order to comply with OMC 12.22 and the specifications of the City of Othello Backflow Device Permit Application. Per OMC 12.22, all home/business owners' installing a backflow prevention device are required to have the device inspected and approved by the City of Othello Public Works prior to use. A certified backflow tester will then need to test the device upon completion of installation, and yearly thereafter to ensure proper operation. A list of certified backflow testers can be found on page 4 of this packet. For more information on the different types of backflow devices, please see pages 2-3 of this guide.

City of Othello

Public Works Department • 111 North Broadway Avenue • Othello, WA 99344 • (509) 488-6997

Backflow Device Information

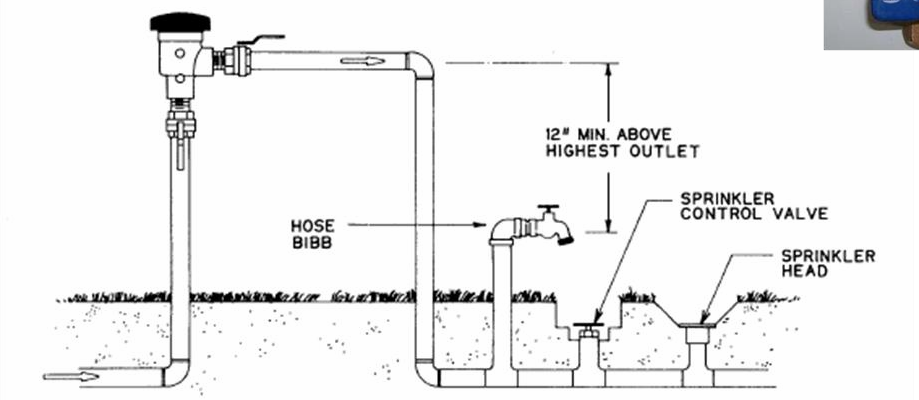
THE FOUR TYPES OF BACKFLOW PREVENTION ASSEMBLIES

Below is an overview of the four types of backflow prevention assemblies. Please select an assembly that most fits your needs, as each assembly has different features and purposes.

Pressure Vacuum Breaker Assembly (PVBA)

A PVB is a mechanical backflow preventer that consists of an independently acting, spring-loaded check valve and an independently acting, spring-loaded air inlet valve on the discharge side of the check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks. A PVB may be used to isolate health or non-health hazards but is effective against backsiphonage only.

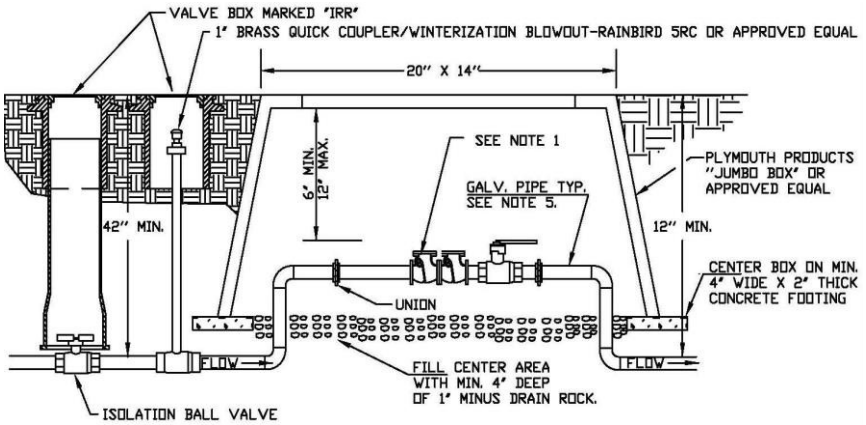
- Used for irrigation systems supplied by City water only
- Installed 12" above highest piping point
- State requires annual testing by State-certified tester



Double Check Valve Assembly (DCVA)

A DCVA is a mechanical backflow preventer that consists of two independently acting, spring-loaded check valves. It includes shutoff valves at each end of the assembly and is equipped with test cocks. A DCVA is effective against backpressure backflow and backsiphonage but should be used to isolate only non-health hazards.

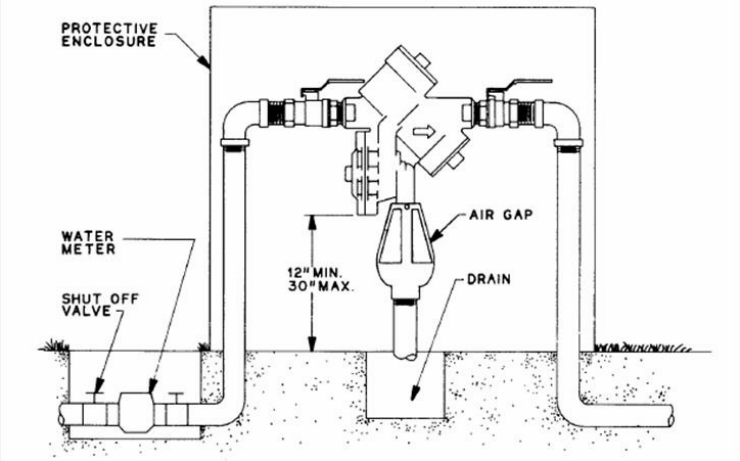
- Highly versatile
- Install anywhere (above or below ground)
- Used for irrigation systems supplied by City water only
- Low-hazard sites such as apartment buildings
- State requires annual testing by State-certified tester



Reduced Pressure Backflow Assembly (RPBA)

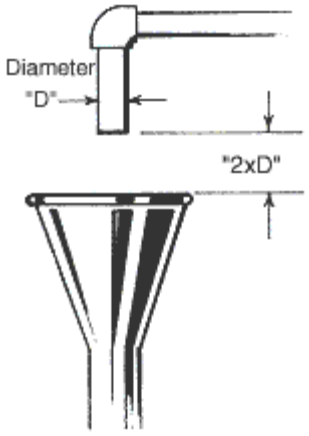
An RPBA is a mechanical backflow preventer that consists of two independently acting, spring-loaded check valves with a hydraulically operating, mechanically independent, spring-loaded pressure differential relief valve between the check valves and below the first check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks. An RPBA is effective against backpressure backflow and backsiphonage and may be used to isolate health or non-health hazards.

- Usually most expensive and complex
- Installed above ground
- Used at high-hazard sites such as hospitals, chemical plants, mortuaries
- Only device that allows for applying fertilizer or other chemicals into irrigation systems
- State requires annual testing by State-certified tester



Air Gap

An air gap is a vertical, physical separation between the end of a water supply outlet and the flood-level rim of a receiving vessel. This separation must be at least twice the diameter of the water supply outlet and never less than one inch. An air gap is considered the maximum protection available against backpressure backflow or backsiphonage, but is not always practical and can easily be bypassed.



- Used for high health hazard situations
- Not always practical
- Vulnerable to bypass arrangements
- Use of an air gap often exposes water to dust, debris, airborne bacteria, and other contaminants and pollutants

BACKFLOW ASSEMBLY TESTERS PRE-APPROVED FOR SUBMITTING TEST REPORTS TO THE CITY OF OTHELLO AND ADAMS COUNTY

The following table lists Backflow Assembly Testers (BATs) that are pre-approved to test backflow assemblies in our water system's service area. We compiled the list by identifying individual testers who requested to work in this area or who previously submitted properly completed test reports to our system. *Note: listing does not constitute an endorsement of these BATs by our system or a certification of the quality of services they provide.*

To appear on our pre-approved BAT list, the tester must:

- Show proof of current BAT certification from DOH;
- Submit documentation that his/her assembly test equipment has been verified for accuracy within the last 12 months and calibrated if needed; and
- Meet other criteria established by our system including current City of Othello business license.

As an alternative to the above, pre-approved testers must document that they appear on the approved BAT list of another nearby water system that has a testing QA/QC program acceptable to our system.

WAC 246-290-490 requires a DOH-certified BAT to test all assemblies (RPBA, RPDA, DCVA, etc.) that protect the distribution system. Assemblies that protect the public water system must be tested in accordance with DOH-approved field test procedures:

- Upon installation, and annually thereafter;
- After repair, reinstallation, or relocation; and
- After a backflow incident.

Note: the DOH BAT certification is a special certification separate from other waterworks operator certification categories, plumbing licenses, contractor registration, etc. Other licenses, certifications and/or registrations may be required to install backflow prevention assemblies and/or perform maintenance work on assemblies within buildings. However, only a currently DOH-certified BAT may test the assemblies that protect the public water system from contamination.

City of Othello

Roylance Backflow Testing	McKinstry Co.	Backflows Northwest	Pacific Fire Inspect Services
Roger Roylance Othello, WA 99344 (509) 488-2349	850 Spokane Falls Blvd Spokane, WA 99202 (509) 747-3389	Jeremy Simkins 223F Cameron Lake Loop Rd Okanogan, WA 98840 (425) 277-2888	Tim Makeeff 725 S. Tacoma Ave. Kennewick, WA 99336 (509) 948-3971
Rell's Fire Protection, Inc.	**Fire Protection**	**D&B Backflow**	**Inland Fire Protection**
7574 Pettigrew Lane Moses Lake, WA 98837 (509) 765-3353	1100 Ahtanum Rd. Yakima, WA 98903 (509) 248-4471	Richard Shubert PO Box 3602 Wenatchee, WA 98801 (509) 670-9867	3028 GS Center Rd. Wenatchee, WA 98801 (509) 884-6717

Adams County

Name	Contact Number	BAT Certificate #
Roylance, Roger	(509) 346 - 3563	B5909

City of Othello

Public Works Department • 111 North Broadway Avenue • Othello, WA 99344 • (509) 488-6997

Backflow Device Permit Application

All home and/or business owners installing a backflow prevention device are required to have a City of Othello Backflow Device Permit on file with the City of Othello Public Work s Department. A Backflow Device Permit will be issued upon successful completion of inspection by the City of Othello Public Works Department. A certified backflow tester must test the device upon completion of installation, and yearly thereafter to ensure proper operation. Backflow test results must be submitted annually to the City of Othello Public Works Department at the address listed below.

OWNER INFORMATION *Please complete the owner/device information portion of this form and return to the address listed below*

CONTACT NAME (PROPERTY OWNER, COMPANY, ETC.): _____

ORGANIZATION NAME (IF APPLICABLE): _____

ADDRESS OF DEVICE: _____

CITY: _____ **STATE:** _____ **ZIP:** _____

PHONE: _____ **FAX:** _____

OWNER SIGNATURE: _____ **DATE:** _____

DEVICE INFORMATION *Please indicate the type of backflow prevention device that will be installed by selecting the corresponding box below. See pages 3-4 for information on backflow device options.*

❑ 1. **AIR GAP/ATMOSPHERIC VACUUM BREAKER**

Used for high health hazard situations and considered the maximum protection available against back-pressure backflow or back-siphonage. Not always practical and can be vulnerable to bypass arrangements.

❑ 2. **PRESSURE VACUUM BREAKER ASSEMBLY (PVBA)**

Used to isolate health or non-health hazards but is effective against back-siphonage only. Must be installed 12" above highest piping point. Requires annual testing by State-certified tester.

❑ 3. **DOUBLE CHECK VALVE ASSEMBLY (DCVA)**

Most commonly used/desirable for testing purposes. Used to isolate non-health hazards. Installed above or below ground and effective against backpressure backflow and back-siphonage. Requires annual testing by State-certified tester.

❑ 4. **REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)**

Used to protect against backpressure backflow and back-siphonage. Installed above ground and used for high-hazard situations. Requires annual testing by State-certified tester

Please submit form to:

City of Othello Public Works Department
111 North Broadway Avenue
Othello, WA 99344
P: (509) 488-6997 F: (509) 488-3701

FOR OFFICE USE ONLY
(TO BE COMPLETED BY CITY OF OTHELLO PUBLIC WORKS DEPARTMENT)

TYPE OF DEVICE:

❑ Reduced Pressure Backflow Assembly (RPBA)
❑ Double Check Valve Assembly (DCVA)
❑ Pressure Vacuum Breaker Assembly (PVBA)
❑ Air Gap/Atmospheric Vacuum Breaker

SERIAL NO.: _____
MODEL NO.: _____
BRAND OF DEVICE: _____
SIZE: _____

PRESSURE RATING: _____ **TEMP.:** _____ **DATE INSPECTED:** _____

❑ **INSPECTION PASSED** ❑ **INSPECTION FAILED**

City of Othello

Public Works Department • 111 North Broadway Avenue • Othello, WA 99344 • (509) 488-6997

Backflow Device Permit Application

INSPECTOR NAME: _____ **INSPECTOR SIGNATURE:** _____

COMMENTS: _____

Cross Connection Control Inspections

In November 2010, Water Tech completed an inspection of all commercial and industrial connections for the proper cross connection control devices. The attached is the results of that inspection.

WATER TECH
"Protecting You And Your Water"

ıtc Certified Member AWWA
Yakima City App.

;borah J. Jordan, Owner
Arthur (Rusty) Jordan
(509) 457-3137

BRUNSWICK BAR & GRILL
28 E. Main St.
Othello, WA 99344

Stationary Pop Machine, uses Pre-mix pop, no assembly required.

THE ROUND-UP MEXICA NIGHT CLUB/CIMARON 5
1460 E. Main St.
Othello, WA 99344
Location: Closet by Dance Hall entrance
Assembly's Protects: Fire Suppression System

Stationary Pop Machine, uses Pre-mix pop, no assembly required.

DOUBLE CHECK VALVE ASSEMBLY
Febco 856 # F0205101241 4"

DOUBLE CHECK VALVE ASSEMBLY BY-PASS
Febco 805 YB # A021869 ¾"

CONOCO SELF SERVE
860 E. Main St.
Othello, WA 99344
509.488.3181
Contact: Ernie/John Lawrence
Location: in storage room
Assembly Protects: Stationary Pop Machine

REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
Febco 825Y # 02916 1"

CASA MEXICANA RESTRAUNT
1224 E. Main St.
Othello, WA 99344
509.488.6163
Contact: Gonzalo

Stationary Pop Machine, uses post-mix pop, no assembly found. WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

GOLDEN FOUNTAIN CHINESE RESTRAUNT
640 E. Main St
Othello, WA 99344
509.488.9920
Location: Hot water tank room
Assembly Protects: Pop & Ice machines

REDUCED PRESURE BACKFLOW ASSEMBLY (RPBA)
Watts 009QT # A32507 ½"

MCDONALDS RESTRAUNT
445 E. Main St.
Othello, WA 99344
509.0721
Contact: Genaro

Stationary Pop Machine, uses post-mix pop, no assembly found. WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

GUADALAJARA RESTRAUNT
810 E. Main St.
Othello, WA 99344
509.488.2828
Contact: Jan
Location: by Ice machine
Assembly Protects: Ice machine

REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
Wilkins 975XL # 571176 1/2"

Location: South wall by pop syrup

Assembly Protects: Stationary Pop Machine
REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
Wilkins 975XL # 508089 ½"

KENTUCKY FRIED CHICKEN/A&W
1180 So. 1st Ave.
Othello, WA 99344
509.488.9888
Contact: Brett Harris

Stationary Pop Machine, uses post-mix pop, no assembly found. The Root beer Pop line is separate from the Stationary Pop Machine water line; it also needs to be protected. WATER TECH recommends 1 (one) RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line of the Stationary Pop Machine and 1 (one) RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line of the Root beer Pop line.

CHINA BUFFET
1458 E. Main St.
Othello, WA 99344
509.488.9798
Contact: Cody
Location: cabinet under Stationary Pop Machine
Assembly Protects: Stationary Pop Machine

DOUBLE CHECK VALVE ASSEMBLY
Watts 007 M1 QT #221339 ½"
The owner installed this assembly after the City of Othello told him the DCVA was OK, but Stationary Pop Machines are required to have a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

AUTO ZONE
1880 E. Main St.
Othello, WA 99344
509.488.0103
Contact: Roy Garza
Location: backroom, SW corner
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames/Colt 200a DC # EG-1571 4"

HOUSE LAUNDRY & DRY CLEANING
265 E. Main St.
Othello, WA 99344

Management not available – needs a RPBA (Reduced Pressure Backflow Assembly) for Premise Isolation on the main domestic water line unless they can supply the City of Othello proof of a backflow assembly already installed on the main domestic water line.

KUO TESTING LABS, INC.
337 So. 1st Ave.
Othello, WA 99344
509.488.0112
Contact: Eugene Kuo
Location: backroom, south wall by double sink
Assembly Protects: Premise Isolation

REDUCED PRESSURE BACKFLOW ASSEMBLY
Watts 009 M3 QT # 151140 ¾"

TOWN HALL PUB
354 So. 1st Ave.
Othello, WA 99344
509.488.5831
Contact: Julian Martinez

Stationary Pop Machine, uses pre-mix pop, does not need an assembly. Ice Machine needs an Air Gap. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line for the Ice Machine.

TIME OUT PIZZA
1025 E. Main St.
Othello, WA 99344
509.488.2788
Contact: Lorna Byington

Stationary Pop Machine, uses post-mix pop, no assembly found. Ice Machine needs an Air Gap. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line for the Ice Machine. The utility sink needs a HBAVB (Hose Bibb Atmospheric Vacuum Breaker) WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line to cover both the Pop Machine and Ice Machine OR a RPBA in a heated box on the building main domestic water line for Premise Isolation.

THE PIZZA FACTORY
103 So. 1st Ave.
Othello, WA 99344
509.855.3669
Contact: Yolanda Voorhies
Location: next to Pop Machine
Assembly Protects: Stationary Pop Machine

DOUBLE CHECK VALVE ASSEMBLY
Watts 007 QT # A29827 ½"
A Stationary Pop Machine requires a RPBA (Reduced Pressure Backflow Assembly) not a DCVA (Double Check Valve Assembly). The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line for the Pop Machine.

4 SEASONS CAR WASH & DETAIL
251 E. Main St.
Othello, WA 99344

Management not available – needs a RPBA (Reduced Pressure Backflow Assembly) for Premise Isolation on the main domestic water line unless they can supply the City of Othello proof of a backflow assembly already installed on the main domestic water line.

CHEVRON PIK-A-POP #12
1235 1st Ave.
Othello, WA 99344
509.488.4213
Contact: Lucy Lauriano

Stationary Pop Machine, uses post-mix pop, no assembly found. Ice Machine needs an Air Gap. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the Ice Machine. WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line to protect both the Pop Machine and the Ice Machine, OR 1 (one) RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation.

LA MEXICANA SUPER MARKET
81 W. Main St.
Othello, WA 99344
509.488.4953
Contact: Socrates
Ice Machine needs an Air Gap. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line to protect the Ice Machine

water line and 1 (one) on the commercial washer main domestic water line OR 1 (one) RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation.

BJ'S SHELL GAS STATION
1220 So. 1st Ave.
Othello, WA 99344
509.488.2666
Contact: Kim Collins
Location: backroom by water heater/ 2 RPBA'S side by side
Assembly Protects: Pop Machine

REDUCED PRESSURE BACKFLOW ASSEMBLY / RIGHT
Watts 009 QT # 83672 ½"

REDUCED PRESSURE BACKFLOW ASSEMBLY / LEFT
Watts 009 QT # 84295 ½"

PRO CAR WASH
136 So. Broadway
Othello, WA 99344
509.488.9555
Contact: Bill Burk
Location: Maintance room, west wall
Assembly Protects: Premise Isolation

DOUBLE CHECK VALVE ASSEMBLY
Watts 007 M1 QT # 169268 1"
The owner installed this assembly after the City of Othello told him the DCVA was OK. Car Washes require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

OTHELLO DENTAL ARTS CLINIC
1355 E. Hemlock St.
Othello, WA 99344
509.488.5216
Contact: Genna & Chris Dorow
Location: Basement, east wall
Assembly Protects: Premise Isolation

REDUCED PRESSURE BACKFLOW ASSEMBLY
Wilkins 975 XL # W290994 1"

BOB'S KORNER
2098 W. Bench Rd.
Othello, WA 99344
509.488.6328
Contact: Dave

Stationary Pop Machine, uses post-mix pop, no assembly found. Ice Machine needs an Air Gap. The city of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line. Employee bathroom sink has a HBAVB (Hose Bibb Atmospheric Vacuum Breaker) on the faucet. WATER RECH recommends 1 (one) RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line to protect both the Stationary Pop Machine and the Ice Machine OR 1 RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation.

LAS PALMAS INC.
1616 S.R. 24
Othello, WA 99344

Stationary Pop Machine, uses Pre-mix pop, no assembly required.

OTHELLO CHURCH OF THE NAZARENE
825 E. Ash St.
Othello, WA 99344
509.488.5896
Contact: Emily
Location: Riser Room/Janitor's Closet
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Wilkins 950 # A01363 3"

OTHELLO CAR WASH
1010 E. Main St.
Othello, WA 99344
509.488.4979
Contact: Steve
Location: Pump House
Assembly Protects: Premise Isolation

REDUCED PRESSURE BACKFLOW ASSEMBLY
Febco 825 Y # 02294 1"

ASHTON FINANCIAL GROUP
445 E. Cedar Blvd.
Othello, WA 99344
509.488.5676
Contact: Ann Ashton
Location: Basement at the Fire Sprinkler Riser
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames 2000 SS # 2BM1067 2 ½"

STEVEN FUNERAL HOME
511 So. 7th Ave.
Othello, WA 99344
509.488.3341
Contact: John
Location: Embalming Room
Assembly Protects: Premise Isolation

REDUCED PRESSURE BACKFLOW ASSEMBLY
Beeco/Hersey FRP II # 127999 1"

OTHELLO WELDING CO.
2680 So. Broadway Ave.
Othello, WA 99344
509.488.9810
Contact: LeRoy Koen
Location: Machine Shop Area
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames 2000 SS # 130208 4"

AVALON
495 No. 13th Ave.
Othello, WA 99344
509.488.9609
Contact: Rick
Location: Ground Vault
Assembly Protects: Premise Isolation

DOUBLE CHECK VALVE ASSEMBLY
Febco 805 Y # 16273 2"

EL JAZMIN GROCERY STORE
531 E. Main St.
Othello, WA 99344
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames "6-DC" #0318D6 6"

U. S. FISH & WILDLIFE NATIONAL REFUGE
515 Morgan Lake Rd.
Othello, WA 99344
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Hersey F.D.C. # 146188 1 ½"

REICHERT'S SHOWHOUSE THEATER
130 No. Broadway Ave.
Othello, WA 99344
509.488.9796
Contact: Bob Reichert
Location: In Storage Room on F/S Valve Riser
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames 2000 SS # 108874 3"

14TH AVENUE CLEANER
475 No. 14th Ave.
Othello, WA 99344
Contact: Tom
Location: Fire Sprinkler Room
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Wilkins 350 # J13494 3"

BROADWAY ANIMAL HOSPITAL
2780 So. Broadway Ave.
Othello, WA 99344
509.488.6206
Contact: Jennifer

Will put 3 (three) HBAVB (Hose Bibb Atmospheric Vacuum Breaker) on their faucets. There will be 2 (two) on the faucets in the large animal barn, and 1 (one) on the faucet on the outside of the animal hospital building.

J.R. SIMPLOT FOOD GROUP
1201 No. Broadway Ave.
Othello, WA 99344
Location: Vault on Broadway Ave.
Assembly Protects: Premise Isolation

DOUBLE CHECK VALVE ASSEMBLY
Febco 805 Y # 981211452 10"

Location: Raw Receiving

DOUBLE CHECK VALVE ASSEMBLY
Ames 2000 SS # 118468 6"

CBHA
475 No. 14th Ave.
Othello, WA 99344
509.488.2349
Contact: Tom
Location: Main Water Shut-Off Room
Assembly Protects: Premise Isolation

REDUCED PRESSURE BACKFLOW ASSEMBLY
Wilkins 975 XL # WL38261 2"

Location: Dental Closet
Assembly Protects: Dental Equipment

REDUCED PRESSURE BACKFLOW ASSEMBLY
Wilkins 975 XL # 1196832 ½"

SVZ
1500 No. Broadway Ave.
Othello, WA 99344
509.488.6563
Contact: Rick

SVZ has 3 (three) RPBA'S (Reduced Pressure Backflow Assembly's) for Premise Isolation. City of Othello has paperwork on file.

COLUMBIA BASIN HEALTH
140 E. Main St.
Othello, WA 99344
Contact: Tom

Columbia Basin Health has 2 (two) RPBA'S (Reduced Pressure Backflow Assembly's) for Premise Isolation and 1 (one) DCVA (Double Check Valve Assembly) for the Fire Suppression System. City of Othello has paperwork on file.

OTHELLO COMMUNITY HOSPITAL
315 No. 14th Ave.
Othello, WA 99344
509.331.2692
Contact: Roger

Othello Community Hospital has Premise Isolation and In-Plant Isolation. City of Othello has paperwork on file.

COVENTRY
430 No. 2nd Ave.
Othello, WA 99344
509.488.1000
Contact: Melinda

Coventry has Premise Isolation and In-Plant Isolation. City of Othello has paperwork on file.

COLUMBIA COLSTOR
185 Lee St.
Othello, WA 99344
509.488.1465
Contact: Dan

Columbia Colstor has Premise Isolation and In-Plant Isolation. City of Othello has paperwork on file.

MCCAIN FOODS
100 Lee St.
Othello, WA 99344
509.488.9611
Contact: Tad Drury

McCain Foods has Premise Isolation and In-Plant Isolation. City of Othello has paperwork on file.

WAL-MART #3217
1860 E. Main St.
Othello, WA 99344

Wal-Mart #3217 has Premise Isolation and In-Plant Isolation. City of Othello has paperwork on file.

CITH OF OTHELLO BUILDINGS, PARKS, POOL, ETC.

All of the City of Othello Parks, Buildings, Pool, etc. have Premise and In-Plant Isolation where necessary. City of Othello has paperwork on file.

CITY OF OTHELLO SCHOOL SYSTEMS

All of the City of Othello School Systems has Premise and In-Plant Isolation where necessary. City of Othello has paperwork on file.

CITY OF OTHELLO FIRE DEPARTMMENT
250 So. Broadway Ave.
Othello, WA 99344
509.987.5074
Contact: Tom Salsbury
Location: SW corner of Apparatus Bags

Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames 30000 SS # 124432 3"

DOUBLE CHECK VALVE ASSEMBLY BY-PASS
Ames 2000 SS # 28932 ¾"

WILBUR-ELLIS
Othello, WA 99344
Contact: Tom
Location: Shop Entrance
Assembly Protects: Premise Isolation

DOUBLE CHECK VALVE ASSEMBLY
Wilkins 350 # A011108 1"

Location: Tank Station
Assembly Protects: Tanks

DOUBLE CHECK VALVE ASSEMBLY
Febco 850 # 9701161225 3"

OTHELLO DIALYSIS
530 So. 1st Ave.
Othello, WA 99344

Othello Dialysis has Premise and In-Plant Isolation. City of Othello has paperwork on file.

MT CARNICERIA RESTRAUNT
201 Hemlock St.
Othello, WA 99344

There is only an Ice Machine. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

POST OFFICE
E. Main St.
Othello, WA 99344
Contact: Tony

Janitor sink in backroom needs a HBAVB (Hose Bibb Atmospheric Vacuum Breaker) on the faucet. The faucet on the front of the building has a HBAVB (Hose Bibb Atmospheric Vacuum Breaker) on it.

BURGER KING
150 E. Columbia St.
Othello, WA 99344
509.488.4968
Contact: Daniel Negret
Location: In cabinet under Stationary Pop Machine
Assembly Protects: Pop Machine

DOUBLE CHECK VALVE ASSEMBLY
Watts 007 QT # 12633 ½"
Stationary Pop Machines are required to have RPBA (Reduced Pressure Backflow Assembly's) instead of DCVA'S.

There is an Ice Machine. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

The Kitchen sink has a Chemical Injector on the main domestic water line.

WATER TECH recommends 1 RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line inside the building somewhere testable for Premise Isolation or outside in a heated box on the main domestic water line after the service meter for Premise Isolation or 3 (three) separate RPBA'S (Reduced Pressure Backflow Assembly's) on the main domestic water lines at each of the points for In-Plant Isolation.

LOS COMPODRES
1244 E. Main St.
Othello, WA 99344
509.488.7777
Contact: Rosalina Sequra
Location: Fire Sprinkler Closet by Cooler & Telephone

Wet Sprinkler System, no Assembly found.
Stationary Pop Machine, no Assembly found.
Ice Machine, no Assembly found. The City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.

WATER TECH recommends 1 (one) DCVA (Double Check Valve Assembly) on the main domestic water line for the Fire System and 1 (one) RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line to protect the Pop Machine and the Ice Machine OR 1 (one) RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation.

BEST WESTERN OTHELLO INN
1020 E. Cedar St.
Othello, WA 99344
509.488.5671
Contact: Jackie/Assistant manger
Location: Laundry room, south wall by water heater & sink
Assembly Protects: Commercial Washers

DOUBLE CHECK VALVE ASSEMBLY
Watts 007 M2QT # 42763 1 ½" Vertical Up – Approved

Pool Area Filter Room, needs a HBAVB (Hose Bibb Atmospheric Vacuum Breaker) on the faucet.
All outside faucets on the Hotel's building needs HBAVB (Hose Bibb Atmospheric Vacuum Breaker).

LEP-RE-KON GROCERY STORE
1115 E. Main St.
Othello, WA 99344
509.488.9992
Contact: Jose Magana
Location: Backroom, N.E. corner of store
Assembly Protects: Fire Suppression System

DOUBLE CHECK VALVE ASSEMBLY
Ames 2000 SS # 2E10549 4"

Stationary Pop Machine, no Assembly found. (Deli Area)
Boilers need to be protected
Ice Machine, no Assembly found, the City of Othello may require a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line.
All Utility sinks in the store need HBAVB (Hose Bibb Atmospheric Vacuum Breakers)

WATER TECH recommends 1 (one) RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line for Premise Isolation, OR 1 (one) for the Pop Machine on the main domestic water line and 1 (one) on the Ice Machine main domestic water line,

OR 1 (one) for the Pop Machine and the Ice Machine together on the main domestic water line.
The Boilers need a RPBA (Reduced Pressure Backflow Assembly) on the main domestic water line and may be able to be covered with the Pop Machine and Ice Machine's RPBA (Reduced Pressure Backflow Assembly) OR 1 (one) RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation.

CHS BEAN PLANT
1296 So. Broadway Ave.
Othello, WA 99344
509.488.9681

WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation unless CHS BEAN PLANT can provide the City of Othello with proof of a Backflow Assembly in place for Premise Isolation.

KELLY BEAN CO.
690 So. Broadway Ave.
Othello, WA 99344
509.488.2643

WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation unless KELLY BEAN CO. can provide the City of Othello with proof of a Backflow Assembly in place for Premise Isolation.

GREEN GIANT FRESH ONIONS
150 So. Highway 17
Othello, WA 99344
509.488.5390

WATER TECH recommends a RPBA (Reduced Pressure Backflow Assembly) in a heated box on the main domestic water line after the service meter for Premise Isolation unless GREEN GIANT FRESH ONIONS can provide the City of Othello with proof of a Backflow Assembly in place for Premise Isolation.

CITY OF OTHELLO, WASHINGTON

OPERATION AND MAINTENANCE PLAN

1.1 Operation & Maintenance Elements

In its 1997 Water System Planning Handbook, the Department of Health identified several elements that are important in a properly managed operation and maintenance (O&M) program. A list of these elements and where they are discussed or presented in this document is provided in Table 1.

Table 1 Operation & Maintenance Program Elements

Operation and Maintenance Component	Location in Plan
Water System Management and Personnel	Appendix D – Emergency Response Plan
Operator Certification	Appendix D – Operation & Maintenance Plan
Routine Operating Procedures	Appendix D – Operation & Maintenance Plan
Coliform Monitoring Plan	Appendix D – Coliform Monitoring Plan
Lead and Copper Rule	Appendix D – Lead and Copper Rule
Fluoride Blending Plan	Appendix D – Fluoride Blending Plan
Emergency Response Plan	Appendix D – Emergency Response Plan
Safety Procedures	Appendix D – Operation & Maintenance Plan
Cross-Connection Control	Appendix D – Cross Connection Control Plan
Customer Complaint Response Program	Appendix D – Operation & Maintenance Plan
Recordkeeping and Reporting	Appendix D – Operation & Maintenance Plan

1.2 System Personnel

The City's water system personnel are listed below. The City's daytime phone number is (509) 488-5686. A comprehensive list of emergency phone numbers is provided in Appendix D – Emergency Response Plan.

Table 2 Operation & Maintenance Program Elements

Name	Title	Certification	Phone
Dan Quick	Water Distribution System Manager	CCS, WDM-2	509-488-6997
James Laird	Wastewater Treatment Plant Operator		509-488-6997

1.3 Major System Components

The locations of the major system components are shown on Figure 3, the water system map. General descriptions of the normal operation of each facility are given in the following sections.

1.3.1 Identification of Major System Components

The major system components consist of the City's eight wells, three reservoirs, and distributions system.

Normal operation of the components are regulated by reservoirs being maintained at operating levels by automated on/off sequences using pre-set pump trigger points. These set points and pump sequences are varied by the Lead Water Position as system demands vary from season to season, sometimes day to day, and as the situation requires. The City's operation procedures for Well 6 are based on the well's designation as a "last on" well (see Appendix D for the City's Fluoride Blending Plan).

The City's wells are controlled by the telemetry system.

1.3.2 Routine System Operation

Startup and Shutdown Procedures

During the normal operation of the water system, various component of the system may start up and shut down based on water consumption within the distribution system. The water system is never shut down in its entirety. During normal operation, the various wells in the system start and stop automatically based upon reservoir level, but each well can be started and stopped remotely via radio telemetry equipment or manually at the well pump in question.

The reservoirs may be isolated and drained for cleaning. This activity does not normally take place more frequently than once every five years for each reservoir.

Shutting off the appropriate valve isolates corresponding sections of pipe. This may occur for either scheduled or emergency maintenance. Notice is given to users whenever it is possible to do so.

Safety Procedures

All safety requirements required by codes are in place. A listing of applicable WAC requirements follows. Safety procedures include lock out tag out procedures, confined space entry procedures for vault entries, traffic control, and utility locates.

WAC 296-155-650: Scope, application, and definitions applicable to this part
WAC 296-155-655: General protection requirements
WAC 296-155-657: Requirements for protective systems
WAC 296-155-66401: Appendix A – Soil Classification
WAC 296-155-66403: Appendix B – Sloping and benching
WAC 296-155-66405: Appendix C – Timber shoring for trenches
WAC 296-155-66407: Appendix D – Aluminum hydraulic shoring for trenches
WAC 296-155-66411: Appendix F – Selection of protective systems
WAC 296-62-14100: Scope and application
WAC 296-62-14105: Definitions
WAC 296-62-14110: General requirements
WAC 296-62-14130: Training
WAC 296-24-23005: Designations
WAC 296-24-23013: Fuel handling and storage
WAC 296-24-23019: Control of noxious gases and fumes

WAC 296-24-23025: Operator training
WAC 296-62-07701: Scope and application
WAC 296-62-07703: Definitions
WAC 296-62-07705: Permissible exposure limits
WAC 296-62-07709: Exposure assessment and monitoring
WAC 296-62-07715: Respiratory protection
WAC 296-62-07717: Protective work clothing and equipment
WAC 296-62-07722: Employee information and training

Meter Reading

Meter are read once a month year round, with the exception of Simplot that is manually read weekly and electronically every minute.

How System Performance is Evaluated

System performance is monitored with the use of radio telemetry units located at each well site. Remote transmitters transmit data and are logged into the program. The water telemetry program is comprised of Windows XP, ModBus, Wonderwater Logger, and Historical Data Manager. This software records pump run times, system pressures, reservoir levels, times and dates, industry consumption, static well levels, communication status, alarms, and power consumption.

1.3.3 Preventative Maintenance Program

The type and frequency of preventative maintenance or inspection required are as follows:

Pump station visual checks	Weekly
Valve exercise program	Bi-annual valve exercise
Water quality sampling	Monthly
Vibration and motor load	Annually
Hydrant flushing of dead end lines	As needed to assure water quality

1.3.4 Equipment, Supplies, and Chemical Listing

There are a variety of water part suppliers in the Moses Lake and Tri-Cities areas that are able to meet all the supply needs for the entire water system. All equipment, supplies, and chemicals used by the water are kept in supply. An adequate supply of repair bands, fittings, gaskets, valves, saddle corp stops, etc. are kept in the in-house inventory to manage emergency repairs.

Service representatives for major water system components and chemical suppliers are as follows:

Oxarc
1500 East Wheeler Road
Moses Lake, WA 98837
(509) 765-9247

Principal service representatives are as follows:

National Waterworks Pasco, WA 800-422-0057 509-547-2410	Western Utility Supply Co. 1215 N. Bradley Rd. Spokane, WA 99212 800-456-0531
Familian Northwest 223 N. Benton St. Kennewick, WA 99336 509-586-8531	HD Fowler PO Box 3055 Wenatchee, WA 98807 509-670-0501

Manufacturers' technical specifications for major system components and chemicals used are on file at the Public Works Department.

Stock of supplies and chemicals needed to assure continuous operation of the water system include a minimal supply of bottled chlorine kept on hand for safety reasons.

1.4 Record Keeping and Reporting

The City keeps the following water system records and data:

Table 3 Record Keeping Practices

Record Type	Comment
Source meter readings	Daily readings kept indefinitely
Maximum Day Demand	Manually recorded, kept indefinitely
Service meter readings	Monthly readings kept for 3 years
Bacteriological test results	Records kept indefinitely
Chlorine use and residual	Records kept indefinitely
Sanitary surveys, other DOH correspond.	Records kept indefinitely
Legal documents	Records kept indefinitely
Backflow Device Inspection Notices	Records kept indefinitely
Backflow Violation Case Files	Records kept indefinitely

The City also keeps water system mapping, including the location of pipelines hydrants, and valves up to date.

1.5 Complaint Response

The City maintains customer complaint records to verify trends that may assist the City to improve service to its customers. Response to questions and complaints is typically verbal, either through a field visit or a telephone call. However, depending on the nature of the question or complaint, written response can also be given. City council meetings, scheduled on the second and fourth Monday of each month, are the main venue for public involvement in the water system.

CITY OF OTHELLO, WASHINGTON

EMERGENCY RESPONSE PLAN

1.1 Objective

The Emergency Response Plan describes means and methods for the City to cope with emergency situations affecting its water utility. It includes a list of important telephone numbers for emergencies, some general considerations that should be kept in mind by City staff during an emergency, and specific emergency response plans. This Plan was created under the guidance of Department of Health Emergency Response Planning Guide for Public Drinking Water Systems. In an effort to protect the citizens of Othello, information from some of the sections has been omitted to protect the water system.

1.2 Description of Water System

Storage is provided in a standpipe system to equalize supply with demand and to maintain a fire fighting and emergency reserve. Only the portion of the reservoir at elevations sufficient to provide water above a suitable pressure (30 psi) is available for operating storage. Another portion of the reservoir stores a volume of water to be used in case of a fire. This water must also be stored at sufficient elevation to be delivered to the fire scene under adequate pressure (20 psi) to the highest point in the City's distribution system (1,121 ft). It is also desirable to maintain some volume of water in storage for emergencies, so that water service can be continued during power failures, pump repairs, etc. A 20 psi minimum pressure is adequate for this purpose.

Othello's water system has three reservoirs with a total capacity of over 6 million gallons. Of this volume, the minimum fire flow requirement for the City is 6,250 gpm for 4 hours, or 1.5 million gallons. Both large industrial customers have this requirement, the fuel storage facility at Columbia Street and Broadway requires a 5,000 gpm flow, and the City's schools require 3,750 gpm flow.

In compliance with the City of Othello policy for an emergency response, the City of Othello maintains a minimum of 28 psi. When the pressure drops below 28 psi, the City needs to start rationing to keep the water pressure above 20 psi at the lowest pressure point in the system, which is Lee Road and 14th Avenue.

1.3 Stages of Water Shortage

Stage 1: Minor Shortage – Voluntary Measures

Initiation of a public information program. Based on experience in other states, a 5 to 10 percent reduction in consumption can be achieved with a voluntary program. A minor shortage concern will be immediately communicated to the primary industrial users, with a request to conserve usage.

Stage 2: Moderate Shortage – Mandatory Measures

Institute mandatory demand reduction measures, enforceable under the authority of WSP 17-03(P), Policy and Procedures, or a revised rate schedule. Based on the experience of utilities in other states, a 10 to 20 percent reduction in consumption can be achieved with a mandatory program. A moderate shortage concern will be communicated to the primary industrial users, with instructions not to start

any new production line runs until further notice. Industrial plants are permitted to complete runs already underway.

Stage 3: Severe Shortage – Mandatory Rationing Program

This action is enforceable under the authority of WSP 17-03(P), Policy and Procedures. This response should be initiated only in rare circumstances. It allows the maximum amount of water savings possible in a community by terminating service to the large users and prohibiting designated residential and commercial uses. Upwards of 70 percent savings can be achieved for extreme immediate demands or long-term emergency management plans.

Table 1 Water Shortage Response Plan

Stage 1 Minor Shortage Voluntary Measures 5% – 10% reduction goal	Stage 2 Moderate Shortage Mandatory Program 10% – 20% reduction goal	Stage 3 Severe Shortage Rationing Program 20% – 30% reduction goal
A. PUBLIC INFORMATION ACTIONS		
- Prepare & distribute water conservation materials (bill insert, etc.) - Prepare & disseminate technical conservation information to specific customer types - Coordinate media outreach program - Issue news releases to the media	- Continue public information program - Communicate with primary industrial users, with instructions not to start any new production line runs until further notice	- Continue public information program - Notify Fire, Police, and industrial users of an emergency and implement emergency procedures
B. Othello ACTIONS		
- Increase enforcement of hydrant opening - Increase meter reading frequency & meter maintenance - Promote intensive leak detection & repair program - Draft & adopt policies banning water waste. A policy could require: ▪ No unfixed leaks; ▪ No hosing of paved surfaces; ▪ No fountains except those using re-circulated water; ▪ No water running onto streets; ▪ No watering during the middle of the day; and ▪ No irrigation runoff - Draft & adopt policies allowing Othello to declare a water emergency and require fixed consumption allotments or % cutbacks (rationing)	- Reduce water usage for main flushing, street cleaning, public fountains, & park irrigation - Watering of schools, commercial areas, etc., restricted to nights or designated irrigation days (parks and cemeteries irrigated with BOR canal water)	- All public water uses not required for health or safety prohibited unless using tank truck water supplies or reclaimed wastewater - Terminate service to the large users - Irrigation schools, commercial areas, etc., severely restricted - Main flushing allowed only for emergency purposes
C. USER RESTRICTIONS		
- Implement voluntary water use reductions (see A. Stage 1)	- Implement policy banning water waste (See B. Stage 1 above) - Industrial users will not start any new production line runs until further notice. Industrial plans are permitted to complete runs already underway - Adopt landscape irrigation restrictions incorporating one or more of the following: ▪ Time of day (e.g., 7 pm to 7 am) ▪ Weekly frequency (e.g., odd/even, time per week) ▪ Sprinkler bans (e.g., hand) - Commercial car washes should intensify voluntary use reductions - Golf course irrigation times and weekly watering limits reduced	- Implement policy allowing utilities to declare a water emergency & to require rationing (see B. Stage 1) - Service to industrial users will be terminated until emergency status is lifted - Car washing permitted only during specified watering hours of designated irrigation days - Times of day restrictions applied to commercial car washes - Watering times & weekly watering limits reduced - Permissible watering hours & weekly frequency for landscaping irrigation further reduced
D. PENALTIES		
- None	- Warning - House call - Shut off and reconnection fee	- Fines
E. PRICING		
- None	- Impose surcharges	- Impose surcharges

1.4 Notification Procedures

1.4.1 Community Emergency Notification System (CENS)

The community emergency notification system (CENS) consists of a command center, siren, radio station, and generator. These components provide a fully-functional system that can communicate with the community of Othello within a three-mile radius of City Hall.

During an event, which requires communication to the public of important information, the person in authority will craft a message, place it on the radio station recording device, and then authorize the siren to go off with the duration of the siren being based on the level of the emergency.

Some of the possible events the CENS will be used for, followed by the person with the authority in which to initiate the process, is listed below. This list is not all-inclusive and those in authority can use the system for other needs as the incident may arise. If the person in authority is not available, then their legal assistant has the authority and obligation to follow through with notifying the public of the event. If in question, ask the City Administrator or Mayor.

Water shortage, boil order	Maintenance Supervisor	509-488-6997
Chemical spill, ammonia release	Fire Chief	509-488-3314
Lock down notice, civil unrest	Police Chief	509-488-3314
Evacuation notice, public notice	Mayor	509-488-5686
Travel warning, natural disaster	Adams Co. Emergency Management	509-488-2061
Canal break, irrigation contamination	E.C.B.I.D. Director	509-488-9671
Long term electrical outage or unstable power supplies	Big Bend Electrical Co-op Avista	509-659-1700 509-488-5218
Surging gas pressure or loss of gas	Cascade Natural Gas	509-765-7896

1.4.2 Operation

Command Center: The City Hall / Police Station is a self-contained facility with office space, meeting rooms, public areas, radio communication, and 24-hour staff. During an event, all City Hall and Police staff will be at the service of the incident commander.

Radio: The 1610 AM radio station is located in City Hall and can be accessed via the microphone upstairs in the computer room or by telephone. The repeating message can be any length, but it is recommended that it not be more than three minutes in duration so that everyone can get the information as rapidly as possible. During the event, all the standard messages such as the traveler's information and activities should not be played. The full instruction book on how to work with the radio station is upstairs by the radio.

Siren: The siren consists of a standard motor siren, powered by a contactor, which is controlled by a pushbutton in the Police Department dispatch facility. The button should be either pushed in fully or released fully as pushing it halfway does not do anything except make the contacts chatter. However, the length of time the button is pushed in will be directly related to the length of time the siren will go off. In other words, the acceleration and deceleration of the siren is set, but the length of time the siren is at full speed is controlled by the operator.

The generator, command center, radio, siren, command center, and dispatch are powered by the backup generator, which should automatically switch over in an emergency even without any operator activity.

1.4.3 Testing

Education:	The key to a successful community emergency notification system is educating the public to be aware of what the siren means and to have batter powered AM radios on hand to listen to the message. Yearly education will be as follows: Plan, Inform, Test, Evaluate.
Procedures:	The procedures for implementing the community emergency notification system must be reviewed annually to ensure that they are effective in their intent. This should be done prior to the above education process and testing.
Siren:	The siren is a relatively simple motor contactor push button, however it still should be tested twice a year.
Radio:	The radio system operates at all times as a tourist and general information radio, however staff may forget how to program or reprogram it as needed. This should be done during the education and test procedures.
Generator:	The generator is a self-starting system, but needs to be checked at least twice a year under load and should be used during the twice yearly siren test to ensure that the complete system is a fully-functional community emergency notification system.

All of the above is controlled, monitored, tested, and regulated by the Police Chief until which time the County has a community emergency notification system in place, which will take over the management of a community emergency.

1.5 Contingency Operation Plan

The wells have two different power companies for electrical power; Avista (Wells No. 2, 3, 4, 5, and 6) and Big Bend Electrical Cooperative (Wells No. 7, 8, and 9). The most probably cause of a temporary condition requiring use of a contingency plan is loss of power to well pumps. In the opinion of the Big Bend utility, wind knocking down power lines is the most likely event. The second most likely event is an ice storm weighing down and breaking power lines. In either even, power can be re-routed from one utility grid to the other within about two hours. Big Bend has informed the City that it is unlikely it would delay more than 8-12 hours in re-establishing power to the grid when the other utility is still functioning.

In the event that one utility does fail, it is the responsibility of the City Administrator to:

- Contact the failed utility to verify how long it will take to get power back online and relay this information to the Water System Manger.
- Implement water shortage response planning as described in this Plan if reservoir levels continue to fall.
- Water quality monitoring requirements are to be satisfied and treatment to be provided, if necessary.

- Notifying customers, if necessary, using the CENS system as described in this Plan. If specific conditions occur, which result in exceeding maximum allowable contaminant levels, the local health jurisdiction and DOH will be contacted for appropriate specific procedures regarding placing emergency sources into service.

Section 1

Emergency Response Mission and Goals

Mission Statement	In an emergency, the mission of the Othello water system is to protect the health of our customers by being prepared to respond immediately to a variety of events that may result in contamination of the water or disruption of supplying water.
Goal 1	Be able to quickly identify an emergency and initiate timely and effective response action.
Goal 2	Be able to quickly notify local, state, and federal agencies to assist in the response.
Goal 3	Protect public health by being able to quickly determine if the water is not safe to drink or use and being able to immediately notify customers effectively of the situation and advise them of appropriate protective action.
Goal 4	To be able to quickly respond and repair damages to minimize system down time.

Section 2

System Information

System identification number	68450	
System name and address	City of Othello 500 E Main St Othello WA, 99344	
Direction to the system	See Figures 1 and 3 of the Water System Plan.	
Basic description and location of system facilities	The location of City facilities are shown in Figures 1 and 3 of the Water System Plan. • The City is located along SR 26 at approximately milepost 41. • From the intersection of SR 26 and S. 1st Ave, proceed along S. 1st Ave until the intersection with E Main St. Follow E. Main St until the intersection with S. 5th Ave. The City Hall is located at this intersection.	
Location/Town	Othello, WA	
Population served and service connections from City of Othello Water System Plan	8,880 people	10,443
System owner	City of Othello	
Name, title, and phone number of person responsible for maintaining and implementing the emergency plan.	Shawn Logan, Mayor	509-488-5686

Section 3

Chain of Command

Name and Title	Responsibilities During Emergency
Mayor	Responsible for guiding City Council in decision-making, should Public Works require its involvement.
Mayor Pro-tem	Responsible for acting as mayor when the mayor is not available.
City Administrator	Responsible for overall management and decision-making for water system. Primary contact for all water system emergencies.
Maintenance Lead	Responsible for functions in the office, including receiving phone calls and keeping a log of events. A scripted message will be prepared by the Public Works staff to answer general questions.

Section 4

Events That Cause Emergencies

Type of Event	Probability of Event (High-Medium-Low)	Risk of Damage from the Event (High-Medium-Low)	Action to be Taken
Earthquake	Low	High	• Check all wells for operation and repair as necessary • Monitor reservoir level and determine if water main breaks have occurred • Check reservoir for cracks, shifting in foundation, cracking or breaks in fittings and pipes leading to and from reservoirs • Check pipes for cracks or breaks in the line • Check chlorination equipment for damage
Floods (canal breaks)	Low	Low	• Check all wells for operation and repair as necessary • Monitor reservoir level and determine if water main breaks have occurred • Check pipes for areas of wash out • Check pipes for cracking or breaks • Check wells to ensure source is not contaminated from flood waters • Increase monitoring for coliform
High Winds	High	Low	• Check structures for damage
Ice Storms	Low	Medium	• Monitor reservoir level and determine if water main breaks have occurred • Check reservoirs for cracking due to ice formation inside the tank • Check pipe lines for breaks or frozen pipes
Droughts	High	Low	• Advise citizens to conserve water
Water Borne Illness	Low	Medium	• Check wells for bacteria • Test water leaving wells to prevent illness • Check the reservoirs to ensure water is safe • Issue notices, such as boil notice, as needed

Type of Event	Probability of Event (High-Medium-Low)	Risk of Damage from the Event (High-Medium-Low)	Action to be Taken
			• Increase monitoring for coliforms • Drain and refill reservoirs • Flush water lines • Notify DOH
Vandalism	Low	Medium	• Check all properties on a regular basis and clean up any signs of problems • Call police to investigate • Call DOH
Terrorism	Low	Medium	• Issue notices to residents as needed • Flush lines • Drain and refill reservoir
System Neglect	Low	Medium	• Follow the operation and maintenance plan in **Appendix D** to avoid issues
Cross-Connections	Low	High	• Follow the guidelines in cross-connection control plan (**Appendix D**) • Prevent backflow problems • Follow backflow incident procedure
Construction Accidents	Medium	Medium	• Check pipe stability if damaged and repair immediately to prevent backflow problems
Electrical Outages	High	Low	• Issue curtail order if needed for extended outages
Chemical Spills	Low	Medium	• Issue a notice to all residences • Follow chemical clean up protocol set up by the EPA • Test the water systems at the wells and the reservoirs • Flush pipelines in effected areas • Follow backflow incident procedures

Section 5

Severity of Emergencies

The system personnel will determine the severity of an emergency, but the Public Works Director will make the final decision. The information for making the decision will accumulate over a period of time and results may change as more information becomes available. The following gives a break down of different severities and the approximate amount of time it will take to resolve the issue.

Level I – <u>Normal (Routine) Emergency</u> (Definition)

Description: The City of Othello water system considers the following as level I emergencies:

- Disruption line breaks
- Short power outages.
- Minor mechanical problems with the wells.
- Other minor situations where it is not likely that public health will be jeopardized

These situations commonly are resolved in 24 hours. If they cannot be resolved in the time frame the situation will be elevated to a level II due to a draw down on the storage level of the water, which could be below a safe operating level.

Level II – <u>Minor Emergency (Alert Status)</u> (Definition)

Description: The City of Othello water system considers the following as level II emergencies:

- Disruption in supply such as a transmission main line break, pump failure with a potential for backflow, and loss of pressure.
- Storage is not adequate to handle disruption is supply.
- An initial positive coliform or E. coli sample.
- An initial primary chemical contaminant sample.
- A disruption in chlorine feed
- A minor act of vandalism.
- Drought, with a noticeable and continuing effect on pump output.

These situations commonly are resolved in 72 hours.

Level III – **Significant Emergency** (Definition)

Description: The City of Othello water system considers the following as level III or actual emergencies:

- A verified acute coliform MCL or E. coli/fecal positive sample requiring immediate consideration of a health advisory notice to customers.
- A confirmed sample of another primary contaminant requiring immediate consideration of a health advisory notice to customers.
- A loss or complete malfunction of the well facilities, including chlorination.
- A major line break or other system failure resulting in a water shortage or requiring system shutdown.
- An act of vandalism or terrorist threat such as intrusion or damage to a primary facility.
- An immediate threat to public health of the customers and an advisory is required.

These situations commonly require more than 72 hours to resolve.

Level IV – **Catastrophic Disaster/Major Emergency** (Definition)

Description: The City of Othello water system considers the following events to be level IV or major emergencies:

- Earthquake that shuts down the system of impacts sources, lines, etc.
- Act of terrorism possibly contaminating the water system with biological or chemical agents.
- Flood that infiltrates system facilities and sources.
- Chemical spill within 2,000 feet of the system's sources.
- Storm that significantly damages power grid and system facilities.

These events often take several days or weeks to resolve before the system returns to normal operation.

Section 6

Emergency Notification

Person or Agency	Phone Number
Water System Personnel	
City Personnel	
Ehman Sheldon	509-486-5686
Terry Clements	509-486-6997
Jim Laird	509-486-6997
Tammie Howes	509-486-6997
Local, State, and Federal Agencies	
Othello Community Hospital	911 or (509) 488-2636
Adams County Fire District No. 5	911 or (509) 488-2951
Washington State Department of Health, Olympia	877-481-4901 (emergency)
Andy Cervantes, P.E., Regional Engineer	509-329-2120
Washington State Dept. of Ecology (DOE), Olympia	360-407-6000
Adams County Public Works	509-659-3276
Adams County Sheriff	509-659-1122
Adams County Public Health Department	509-488-2061
State Division of Emergency Management	800-258-5990
U.S. Environmental Protection Agency	206-754-0500
Utilities	
Power – Big Bend Electrical Co-op	509-659-1700
Avista	509-488-5218
Telephone – Qwest	800-244-1111
Natural Gas – Cascade Natural Gas	509-765-7896
One-Call Locates	800-424-5555
Suppliers, Contractors	
Oxarc	509-765-9247
National Waterworks	509-547-2410
Western Utility Supply Co	800-456-0531
Familian Northwest	509-586-8531
HD Fowler	509-670-0501
Media	
Local newspaper – The Othello Outlook	509-488-3342
City Engineer	
Varela & Associates, Inc	509-328-6066

Notification Procedures

Notifying water system customers

Who is Responsible:	City Administrator
Procedures:	Contact Local newspapers and radio station to keep citizens updated about status of water system during emergencies. For generic information, pamphlets are distributed with bills

Alerting local law enforcement, state drinking water officials, and local health

Who is Responsible:	City Administrator
Procedures:	Contact appropriate officials from Emergency Call List.

Contacting service and repair contractors

Who is Responsible:	City Administrator
Procedures:	Contact appropriate officials from Emergency Call List.

Contact neighboring water systems, if necessary

Who is Responsible:	City Administrator
Procedures:	The City of Warden can be contacted at 509-349-2326 The City of Connell can be contacted at 509-234-2701

Procedures for issuing a health advisory

Who is Responsible:	City Administrator
Procedures:	Contact local newspapers and radio station to keep citizens updated about status of water system during emergencies.

Section 7

Water Sampling

Bacteriological Detection

The persistent detection of coliforms in the water supply, particularly E. coli or fecal bacteria, may require issuing a public boil water notice to ensure the health and safety of the City's water customers. In addition, emergencies such as floods, earthquakes, or other disasters can affect water quality as a result of damage to water system facilities. WAC 246-290-320 requires water utilities to follow specific procedures in the event coliform bacteria are detected in the water system. These procedures are outlined in the sampling requirements in the month following coliform detection.

Standard Operating Procedure of Inorganic Compounds (IOC)

Sampling Kit

2 1 L plastic bottles
1 500 mL plastic bottle
1 chain of custody form
1 freeze pack

Sample Collections

1. Sample as close to the source as possible (before pressure tanks, softeners, etc.).
2. Remove filters, screens, and aerators from faucets prior to sampling.
3. Run water five or more minutes before taking a sample

After Sample Collection

1. Complete the information on the sample label and chain of custody.
2. Pack samples in the cooler provided by the lab. Be sure to place the frozen ice pack in the cooler before shipping or if samples will not be returned to lab immediately. Use packing between bottles to prevent breakage if the bottles are not plastic.
3. Nitrate must be analyzed as soon as possible after sample collection.
4. pH must be analyzed as soon as possible after sample collection.
5. Return or ship the samples to the certified laboratory as soon as possible.

Fires

The availability of adequate water supplies and pressure is an integral part of the City's ability to fight fires within its service area. When fires occur in the City's service area, the local fire authority will contact the City so that the water system components can be managed in such a way as to maximize the flow and pressure to the affected area.

Section 8

Effective Communication

Communication Tips

Do:

- Be prepared.
- Designate a spokesperson.
- Provide complete, accurate, and timely information.
- Tell the truth.
- Express empath.
- Acknowledge uncertainty and offer to get back with more information later.
- Document your communications.

Do not:

- Speculate on the cause or outcome of an incident.
- Blame or debate.
- Minimize or brush off concerns of customers.
- Treat inquiries from interested parties as an annoying distraction from the real business of emergency response.

Spokesperson	Alternate 1	Alternate 2
City Administrator	Mayor	Mayor Pro Tem

Key messages

Develop possible messages in advance, and update them as the emergency develops:

- We are taking this incident seriously and doing everything we can to resolve it.
- Our primary concern is protecting our customers' health.
- Another important concern is keeping the system operational and preventing damage.
- What we know right now is _____
- The information we have is incomplete. We will keep you informed as soon as we know more.
- We have contacted state and local officials to help us respond effectively.
- If you think you may be ill or need medical advice, contact a physician.
- We are sampling the water and doing tests to determine whether there is contamination.

Section 9

Vulnerability Assessment

Vulnerability Assessment

Not included due to security concerns.

Section 10

Response to Specific Events

Construction Accident

Assessment	Construction crews often encounter pipes unexpectedly. Pipe rupture possible.
Immediate action	If a water distribution pipe is ruptured, identify the necessary valves to isolate the line and remove all pressure to it. Identify all connections to isolated line. Perform water quality testing in system to determine if contamination has occurred.
Notifications	Notify all affected water users of the break and expected duration of water loss. If pipe supplies are needed, contact pipe suppliers listed in Call List above.
Follow-up actions	Once line break is repaired, verify that each valve used to isolate the broken section has been returned to an open position.

Severe Weather

Assessment	Othello experiences freezing weather consistently throughout winter months, but these conditions don't necessarily result in emergency situations.
Immediate actions	During an extended storm situation, maintain roads necessary to reach reservoir and source. Should the storm result in damage to system components, the ability to access them in a timely manner is important. There is also a possibility of the reservoir level sensing being affected, in which case the well pumps may require manual operation.
Notifications	Unless major system components must be taken out of service, weather conditions shouldn't require notification of customers.
Follow-up actions	Following an extended period of freezing weather, verify that the reservoir is operating correctly. Examine water use records in the following month to determine if distribution leakage has escalated, indicating the probability of a pipe main break.

Earthquake

Assessment	Historically, the likelihood for an earthquake in Othello is low.
Immediate actions	Verify if the City's pumps and reservoirs are operating correctly. The City has seven sources, so a single failing source is not a direct emergency. Perform bacterial testing to determine if earthquake damage to system has resulted in system contamination. Contact neighboring water systems and/or local grocers to determine availability of potable water in the area.
Notifications	Local police department should be contacted, followed by Department of Health. Public to be notified as necessary, based upon nature and extent of water contamination.
Follow-up actions	Perform necessary system repairs and disinfection, and continue testing until water is determined to be clean and safe.

Vandalism

Assessment	The City has not historically had problems with vandalism on water system infrastructure due to security measures.
Immediate actions	Contact police in all cases to report criminal activity. If the nature of the vandalism indicates a direct threat to water system operation or water quality, perform water testing to determine the extent of the impact. Graffiti or other aesthetic damage should be repaired, but requires no official response beyond police notification.
Notifications	Local police department should be contacted, followed by Department of Health. Public to be notified as necessary, based upon nature and extent of water contamination.
Follow-up actions	Perform necessary system repairs and disinfection, and continue testing until water is determined to be clean and safe.

Power Outages

Assessment	The City of Othello is served by two independent power feeds and believes that power outages will likely be infrequent as a result.
Immediate action	If possible, determine if the power outage will be extended in nature to allow for realistic assessment of the situation.
Notifications	Notify Big Bend Electric and Avista of outage. Number is shown in Section 6. Notify customers of outage and request water conservation.
Follow-up actions	Once power is restored and verify proper system operation. Inspect each electrical component in the field to determine that the component is operational. Order additional diesel supply.

Microbial or Chemical Contamination

Distribution System Contamination
• Perform chemical and free chlorine residual analysis at various locations within the system, including the reservoirs and the system extremities
• Disinfect distribution lines as dictated by the nature of the contamination
Reservoir Contamination
• Re-sample to confirm contamination
• Check distribution system for presence of contamination
• Isolate reservoir from system
• Inspect vent screens, hatches, and piping to identify source of contamination
• If reservoir water is contaminated and therefore considered unsuitable for consumption, drain and clean reservoir.
• Consider disinfecting reservoir if bacteriological standards are exceeded. Follow AWWA Standards by adding chlorine to generate 500 ppm chlorine solution within reservoir.

Section 11

Alternative Water Sources

Intertie to adjacent water supply system

Water systems within one-quarter mile of our system	Feasibility of connecting
The closes water systems are Adams County Water District No. 1 and the cities of Warden and Connell	At this time, the City of Othello is intertied with Adams County Water District No. 1. ACWD1 does receive wholesale water from Othello and does not maintain its own source of supply. Each of the nearby cities is greater than 5 miles away. An intertie would be a significant, expensive undertaking that is not warranted at this time.

Alternative source(s) of water

Alternative sources	Names	Phone	Availability	Is the water safe for drinking?
Bottled Water Supplier	Lindsay Water	509-754-4200	As needed	Yes
Bottled Water Supplier	Cascade Quality Water	509-662-8865	As needed	Yes

Section 12

Curtailing Water Usage

Curtailing Water Use

Water curtailment measures are described in the Water Shortage Response Plan for different stages of water shortage stages.

Section 13

Returning to Normal Operation

Returning to Normal Operations

Action	Description and actions
Inspect, flush, and disinfect the system	Public works staff inspect all system facilities, ensure all water quality tests have been done and the system has been flushed and disinfected if necessary. City staff report to the Public Works Coordinator as to nature of work completed. The Public Works Coordinator will determine when necessary work is completed.
Verification of water quality	Water System Manager verifies water quality sampling results.
Coordinate with DOH	Water System Manager coordinates with DOH on system condition and water quality results.
Notify customers	Public Works Coordinator works with City staff to write notice to customers. This notice will then be distributed to the public.

CITY OF OTHELLO, WASHINGTON

WELLHEAD PROTECTION PLAN

1.1 Objective

The Wellhead Protection Plan presents a program to protect source water used by the public water system. This is accomplished by identifying, monitoring, limiting, and controlling (to the extent feasible), all facilities and activities within the zone of contribution, which may adversely impact source water quality. Source water protection for Group A systems is required under WAC 246-290-135, WAC 246-290-668, and WAC 246-290-690.

Source water protection for the City of Othello takes the form of groundwater protection, for which a wellhead protection program is required. A watershed control program is required for utilities using surface water or ground water under the direct influence of surface water.

1.2 Wellhead Protection Program

1.2.1 Susceptibility Assessment

The Othello water system has been rated as low vulnerability and high reliability. The water for the system is drawn from aquifers protected by many hundreds of feet of overburden and basalt strata. The usually large reserve capacity of the reservoirs also protects the City from unexpected loss of power to distribute water to the system.

1.2.2 Wellhead Protection Area Information

A map including the wellhead protection area is located on the Wellhead Protection Plan Fixed Radii Map. The 6-month, one, five, and ten year radii of protection were calculated for each well using the calculated fixed radius method equation as shown in the table below and on the Wellhead Protection Plan Fixed Radii Map. These radii generally fall within the present City limits, plus at most 0.7 miles in the case of Well No. 6.

Table 1 Wellhead Protection Radii

	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 8	Well 9
Output (gpm)	275	800	430	900	2,000	630	395	1,500
Maximum Output (thousand ft^3/yr)	19,324	56,214	30,215	63,241	35,134 (1)	44,268	27,756	105,401
Porosity	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Open Interval (ft)	577	703	403	441	42	95	455	446
6-Month Radius (ft)	156	241	233	322	778	581	210	413
1-Year Radius (ft)	220	340	329	456	1,100	821	297	585
5-year Radius (ft)	492	761	736	1,019	2,460	1,836	664	1,308
10-year Radius (ft)	696	1,076	1,042	1,440	3,479	2,597	939	1,849

(1) *Well 6 output is maximum output divided by 4.*

Where radius $= \sqrt{Q * t \,/\, (pi * n * h)}$

Q = Maximum Output
t = time in years (0.5, 1, 5, or 10)
n = Porosity (default at 0.22, per DOH guidelines)
h = screened interval of well in feet

1.2.3 Contaminant Source Inventory

A contaminant source inventory has been completed. The inventory is included at the end of this appendix. Previous surveys of the City indicate that the City is subject to residential and commercial activities.

Residential areas can pose a risk through improper disposal of chemicals including motor oil, paint thinner, and gardening chemicals. Adams County Department of Health is responsible for the enforcement of septic system regulations for any septic systems in the area.

The commercial activities in the City include service stations with aboveground and underground storage facilities, auto salving and towing, fertilizer storage, and food processing facilities.

Irrigated agriculture is the foundation of Othello's economy. The agricultural community in the Columbia Basin is an important component to the Ground Water Management Area in Adams, Grant, and Benton Counties. Traditionally, farming practices have relied upon large inputs of fertilizers and pesticides.

SR 17, SR 26, SR 24, and the Columbia Basin Railroad also pass through the wellhead protections area. The risks associated with transportation corridors are from spills and weed control activities.

The contaminant source inventory contains over 60 sites, and is included at the end of this appendix. These sites are typically businesses with the potential for chemical spills or which operate using potentially dangerous materials, and the like.

Each well should have a 100 foot radius sanitary control area around it. The City owns the land the wells are on and also controls the use adjacent properties can be put to.

An educational program to inform citizens about the Wellhead Protection Plan is in place. A wellhead protection brochure was designed for the Othello area, and a copy is available at Public Works. It contains a description of the program, an explanation of general groundwater principles, reasons to protect groundwater, information on the Othello water system, and a list of potential contaminant sources. Othello residents are encouraged to report potential contamination sources for inclusion in the Wellhead Protection Plan.

The final element of the wellhead protection is to communicate to the public the sensitive nature of the wellhead protection zone with permanent signs. Because of the unusual nature of terrorist concerns stemming from the 9/11/01 incidents, the City has opted not to advertise the sensitive nature of the zone. The signs have been temporarily placed in storage until national security issues are adequately addressed.

In addition, the City is aware of the following general list of wells within the future service area. This list includes operating City wells and various others. Most of these wells are shallow. Some, such as the McCain Foods wells, take water from the same source(s) that the City does.

<u>Wells Within the Existing City Limits</u>

1. City wells (8)
2. McCain Well No. 1 (drilled 1963)
3. McCain Well No. 2 (drilled 2003)
4. Weible Well
5. Roberts Well
6. Railroad Well No.1 (unused)
7. City Well No. 1 (decommissioned)

<u>Wells Serving Parcels Adjacent to Othello Water System</u>

1. Hampton’s house
2. Radar Trailer Court
3. Country Meadows (two wells)
4. House south of PJT Park
5. Seilaff home place
6. WSDOT shops
7. Beus Plan wells
8. Bob’s Corner (unused)
9. Edson Tracts (used for irrigation)
10. Eagle Village (unused)
11. Hollenbeck Home
12. McCann Rentals
13. PJT Feedlot (3)

14. Land O'Lakes (unused)

1.2.4 Notification of Findings

The City has made notification of findings to the appropriate regulatory agencies and owner/operators of potential contaminant sources. Examples of the letters sent to potential contaminant sources are included at the end of this appendix.

1.2.5 Contingency Plan

Due to the documented regional declines in the Wanapum aquifer it is unclear whether groundwater alone will be able to support future growth within the City (see Chapter 4 of the Plan). In order to have sufficient potable water over the next 20 years, the City is taking the following steps:

- Budgeting to drill additional wells as needed
- Establishing a "purple pipe" irrigation utility using BOR canal water to supplement new development
- The City has developed a Water Use Efficiency Program
- The City is investigating alternative sources of potable water such as Aquifer Storage Recovery and Industrial Reuse to reduce the City's reliance on groundwater

A contingency plan is needed in the event that a contamination event of natural disaster results in the temporary or permanent loss of one or all of the wells. The City's Emergency Response Plan (Appendix D) addresses how decisions will be made in such a circumstance.

1.2.6 Spill Response Planning

The City's Emergency Response Plan (Appendix D) includes a section on spill control and the appropriate contact personnel.

Source Name	Address	
4 Seasons Car Wash	251 E. Main St.	Othello, WA 99344
ADAMS CNTY MAINT SHOP OTHELLO	2035 W. Highway 26	Othello, WA 99344
AMERIGAS OTHELLO	52 E. Columbia Street	Othello, WA 99344
AT&T OTHELLO WA5290 OTHEWAR0010	1068 S. Highway 24	Othello, WA 99344
Basin Publishing Co	125 S. 1st Avenue	Othello, WA 99344
Berk's Refrigeration	136 S. Broadway Ave.	Othello, WA 99344
Binger's Shell Station	1220 S. 1st Ave.	Othello, WA 99344
BOB BOERSMA	916 E. Olumpia St.	Othello, WA 99344
BOBS KORNER	2098 W. Bench Rd.	Othello, WA 99344
Broadway Towing & Wrecking	W. Moon Rd.	Othello, WA 99344
Broadway Truck & Repair Service	905 S. Broadway Ave.	Othello, WA 99344
Case Power & Equipment	695 S. Broadway Ave.	Othello, WA 99344
CHS Bean Plant	1296 S. Broadway Ave.	Othello, WA 99344
Cenex Land O Lakes	1400 N. Broadway Ave.	Othello, WA 99344
Central Washington Concrete	804 S. Broadway Ave.	Othello, WA 99344
Chevron	1296 S. 1st Ave.	Othello, WA 99344
Columbia Basin Health	475 N. 14th Ave.	Othello, WA 99344
Columbia Basin Health Association	140 E. Main St.	Othello, WA 99344
COLUMBIA COLSTOR INC OTHELLO	185 Lee St.	Othello, WA 99344
Columbia National Wildlife Refuge	735 E. Main St.	Othello, WA 99344
Connell Oil Inc.	607 N. Columbia Ave.	Connell, WA 99326
Conoco Gas / Car Wash	860 E. Main St.	Othello, WA 99344
Conoco Service Station	565 E. Main St.	Othello, WA 99344
Desert Deli	1235 S. 1st Ave.	Othello, WA 99344
DEWEYS TRUCK & AUTO REPAIR	240 E. Main St.	Othello, WA 99344
East Columbia Basin Irrigation District	55 N. 8th St.	Othello, WA 99344
ED MCLANE	1618 S. Nelson St.	Kennewick, WA 99338
Evergreen Implement Inc	1415 S. First St.	Othello, WA 99344
Fresenius Medical Care	330 S. 1st St.	Othello, WA 99344
HILMES CONSTRUCTION INC	1716 S. Broadway Ave.	Othello, WA 99344
INLAND OTHELLO	1298 S. 1st Ave.	Othello, WA 99344
Irrigation Specialists, Inc.	1155 S. Broadway Ave.	Othello, WA 99344
Kuo Testing Labs, Inc.	337 S. 1st St.	Othello, WA 99344
LAWRENCE OIL COMPANY INC	1610 S. Broadway Ave.	Othello, WA 99344
Les Schwab	315 S. Broadway Ave.	Othello, WA 99344
McCain	1200 N. Broadway	Othello, WA 99344
MultiGrafix Othello	105 N. Railroad Ave.	Othello, WA 99344
Multistar Industries Inc Othello	101 W. Fir Street	Othello, WA 99344
Oscar's Towing	2145 W. Moon Road	Othello, WA 99344
Othello Bus Shop	601 E. Juniper	Othello, WA 99344
Othello Dental Arts Clinic	1355 E. Hemlock St.	Othello, WA 99344
Othello Ford New Holland	2405 S. Broadway Ave.	Othello, WA 99344
Othello High School	340 S. 7th Ave.	Othello, WA 99344
Othello Proto Lube	200 S. 1st Ave.	Othello, WA 99344
OTHELLO SCHOOL DISTRICT	601 E. Juniper St.	Othello, WA 99344
Pacific Pride	S. Broadway	Othello, WA 99344
Peak Performance	1055 S. Broadway	Othello, WA 99344
PEGRAM & SONS CONSTRUCTION	13 W. Moon Rd.	Othello, WA 99344
PIK A POP 12	1235 S. 1st St.	Othello, WA 99344
Preferred Transmission Rebuilders	126 S. Broadway Ave.	Othello, WA 99344
Pro Tech Crop Care	155 W. Hudson Street	Othello, WA 99344
T & B FARMS	1099 S. Booker Rd.	Othello, WA 99344
Radiator Shop	645 S. Broadway Ave.	Othello, WA 99344
Rodney's Conoco	1212 E. Main Street	Othello, WA 99344
Rydman DDS	425 E. Hemlock St.	Othello, WA 99344
Simplot Grower Solutions Othello	1201 N. Broadway Ave.	Othello, WA 99344
Steves Body Shop Othello	65 E. Columbia St.	Othello, WA 99344
Sun Fresh Agrichem	1245 Railroad Ave.	Othello, WA 99344

SVZ USA INC OTHELLO	1500 N. Broadway	Othello, WA 99344
Tee Pee Septic, Inc.	1780 S. Roosevelt Ave.	Othello, WA 99344
TESORO WEST COAST MIRASTAR 62042	1580 E. Main St.	Othello, WA 99344
Wal Mart Supercenter 3217	1860 E. Main St.	Othello, WA 99344
Wally Cantu	835 E. Spruce St.	Othello, WA 99344
WILBUR ELLIS COMPANY OTHELLO	910 N. Broadway	Othello, WA 99344
WOODWORKER INC	421 S. Billington Rd.	Othello, WA 99344

Source Name	Address	
Othello Police Department	500 East Main Street	Othello, WA 99344
Adams County Sherriff's Office	2069 W. Highway 26	Othello, WA 99344
Adams County Public Works	500 East Main Street	Othello, WA 99344
Adams County Public Health	425 East Main Street Suite 700	Othello, WA 99344
Adams County Fire District No. 5	220 South Broadway	Othello, WA 99344
Department of Ecology - Spill Response	PO Box 47775	Olympia, WA 98504-7775
Department of Health - Andres Cervantes	16201 East Indiana Ave. Suite 1500	Spokane Valley, WA 99216

November 9, 2010

[Address]

To Whom It May Concern:

The City of Othello water division is required by the Washington State Department of Health to develop a wellhead protection plan. Wellhead protection involves protecting the land area surrounding our wells in order to prevent contamination of our drinking water supply. The well system consists of seven wells, all located within City limits. Part of the plan is this letter of notification to all potential sources of contamination to our wells, including our residents.

This letter is intended to inform you that you are located within wellhead protection zones, and to serve as a reminder that any hazardous material put onto the ground or the City sewer system has the potential of contaminating our drinking water supply. Some potentially harmful activities to avoid are:

- Improper use of the sewer system (dumping paint, household clearners, chemicals, or solvents into the sewer system)
- Dumping motor oil, gasoline, antifreeze, chemicals, or similar fluids onto the ground. These materials can be recycled, free of charge, at most major auto shops and parts stores.
- Heavy use of fertilizers and pesticides.
- Dumping or burying garbage in the ground.

We are fortunate to have a good supply of high quality water. It should be everyone's intent to keep it that way for our continued good use, and for the ones that come along after us. Thank you for following these guidelines. If you have any questions about this matter, please feel free to contact Othello Public Works at 488-6997.

Sincerely,

Tim Wilson, Mayor

November 4, 2010

[Address]

To Whom It May Concern:

As part of the wellhead protection program for the City of Othello, we are hereby informing you of the findings of our wellhead protection area delineation. This is in accordance with State regulations (WAC 246-290-135).

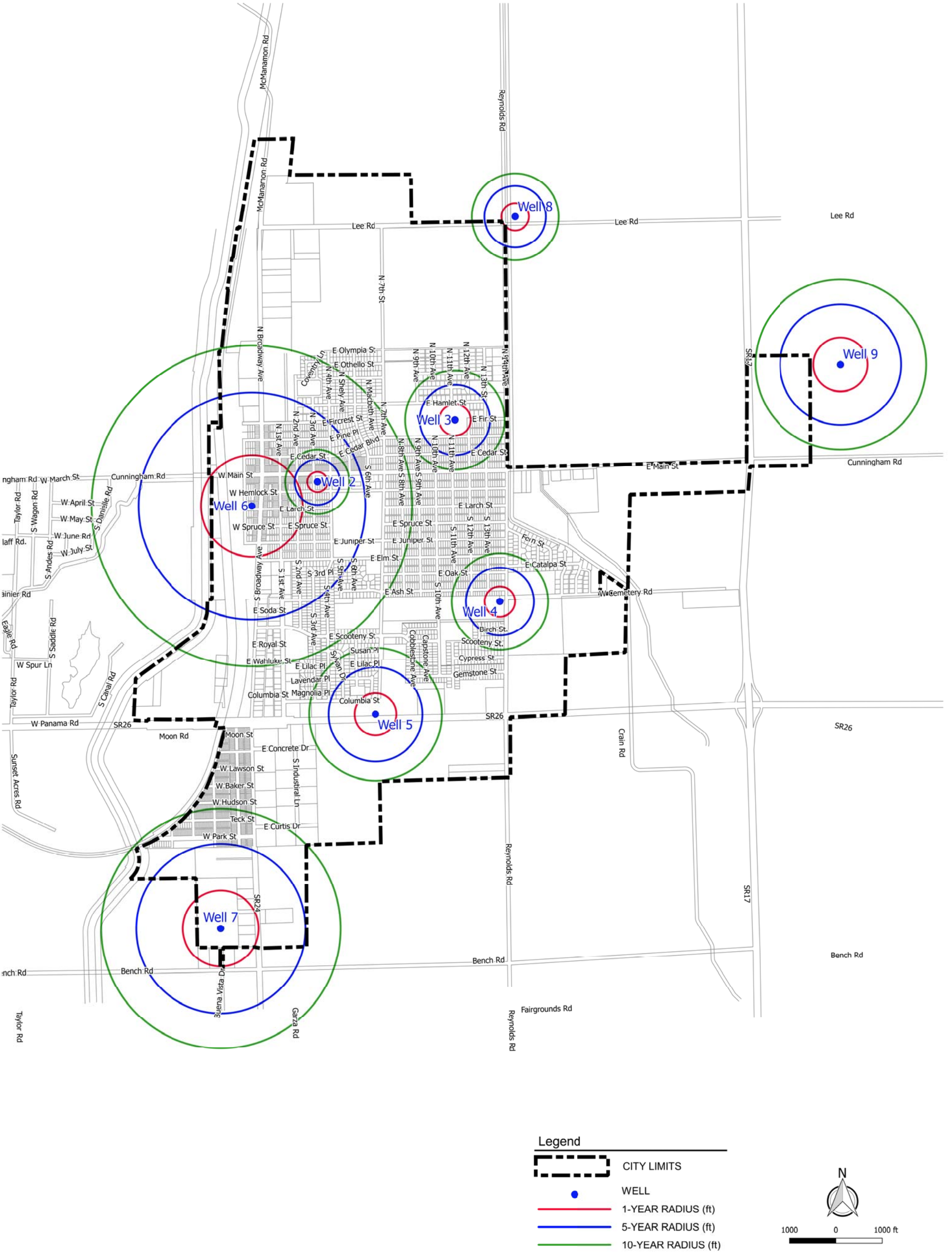
Our City has approximately 2,003 connections, and serves a population of approximately 7,679 people. Due to the groundwater nature of the City's wells, that source of water supply is very vulnerable to contamination.

The enclosed map shows the 6-month and 1,5, and 10 year time of travel boundaries for our wellhead protection area. We have made the decision to define our wellhead protection area as one-half mile beyond our City limits, but not to exceed SR 17, Bench Road, and the Potholes Canal. Any ground water contamination that occurs within this wellhead protection area has a high potential to reach a well. It is therefore of utmost importance to us that all reasonable steps be taken to ensure that land use activities within this area do not contaminate our customers' drinking water supplies.

Thank you for your support in protecting our drinking water.

Sincerely,

Tim Wilson, Mayor



VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

WELLHEAD PROTECTION PLAN
FIXED RADII

VARELA & ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
601-A W Mallon Avenue, Spokane, WA 99201 | P 509.328-6066 | F 509.328.1388 | www.varela-engr.com

MEMO

TO: File

FROM: Nathan Hutchens, EIT

DATE: August 14, 2017

RE: Calculated Fixed Radius

Formula: Washington State Wellhead Protection Program Guidance Document, pg 23

$$R = \sqrt{\frac{Q \times t}{\pi \times n \times H}}$$

where;

R = radius of travel time
Q = pumping rate of well (annual volume in cu.ft.)
t = travel time to well (0.5, 1, 5, and 10 year)
π = 3.1416
n = aquifer porosity; 0.22 (if a site specific estimate of aquifer porosity is lacking, a generalized value of 0.22 may be substituted)
H = open interval or length of well screen; based on well ECY stored well logs from driller, the open interval height of each well is the height of the uncased section plus the height of any perforated or screen sections

Q is given in this case to be the operating rate of each well pump and is not the historical annual pumping rate. See the attached spreadsheet for coefficients use to calculate the radius of travel time for each well as well as the 2011 radii. The table below summarizes the 2017 findings.

Table 1 Wellhead Protection Radii

	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 8	Well 9
Output (gpm)	275	800	430	900	2,000	630	395	1,500
Maximum Output (thousand ft^3/yr)	19,324	56,214	30,215	63,241	35,134 (1)	44,268	27,756	105,401
Porosity	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Open Interval (ft)	577	703	403	441	42	95	455	446
6-Month Radius (ft)	156	241	233	322	778	581	210	413
1-Year Radius (ft)	220	340	329	456	1,100	821	297	585
5-year Radius (ft)	492	761	736	1,019	2,460	1,836	664	1,308
10-year Radius (ft)	696	1,076	1,042	1,440	3,479	2,597	939	1,849

(1) *Well 6 output is maximum output divided by 4.*

2017 Wellhead Protection Plan Fixed Radii

$$r = \sqrt{\frac{Qt}{\pi n H}}$$

Q = Pumping Rate of Well (cubic feet per year)	(ft^3/yr)	(Continuous annual pumping rate)
n = Aquifer Porosity = 0.22	(unitless)	
H = Open Interval or Length of Well Screen	(ft)	(H = 10 ft if interval length unknown)
t= Travel Time to Well (1, 5, 10 years)	(yr)	

2017 Plan

Well	Q (gal/min)	Q (cf/yr)	n (-)	H (ft)	t (yr)	r (ft)
Well 2	275	19,323,529	0.22	577	0.5	156
	275	19,323,529	0.22	577	1	220
	275	19,323,529	0.22	577	5	492
	275	19,323,529	0.22	577	10	696
Well 3	800	56,213,904	0.22	703	0.5	241
	800	56,213,904	0.22	703	1	340
	800	56,213,904	0.22	703	5	761
	800	56,213,904	0.22	703	10	1076
Well 4	430	30,214,973	0.22	403	0.5	233
	430	30,214,973	0.22	403	1	329
	430	30,214,973	0.22	403	5	736
	430	30,214,973	0.22	403	10	1042
Well 5	900	63,240,642	0.22	441	0.5	322
	900	63,240,642	0.22	441	1	456
	900	63,240,642	0.22	441	5	1019
	900	63,240,642	0.22	441	10	1440
Well 6	2000	35,133,690	0.22	42	0.5	778
	2000	35,133,690	0.22	42	1	1100
	2000	35,133,690	0.22	42	5	2460
	2000	35,133,690	0.22	42	10	3479
Well 7	630	44,268,449	0.22	95	0.5	581
	630	44,268,449	0.22	95	1	821
	630	44,268,449	0.22	95	5	1836
	630	44,268,449	0.22	95	10	2597
Well 8	395	27,755,615	0.22	455	0.5	210
	395	27,755,615	0.22	455	1	297
	395	27,755,615	0.22	455	5	664
	395	27,755,615	0.22	455	10	939
Well 9	1500	105,401,070	0.22	446	0.5	413
	1500	105,401,070	0.22	446	1	585
	1500	105,401,070	0.22	446	5	1308
	1500	105,401,070	0.22	446	10	1849

1. Q valume was calculated based on the well pumping rate if well pumped non-stop for one year. Not based on production meters. Well 6 is last on well and does not produce as much as the other City wells. Well 6 Q was equated by the total capacity divided by 4.

2. Open interval is height of well uncased plus height perforated/screened.

Well 2 From Well Log (1940) - Depth = 697', casing from surface to 120', therefore 697-120 = 577'

Well 3 From Well Log (1957) - Depth = 900', casing from surface to 197', therefore 900-197 = 703'

Well 4 From Well Log (1965) - Depth = 905', casing from surface to 826', perforated from 550' to 795', therefore (795-550) + (905' - 826') = 324'

Well 4 From Well Log (1994) - Depth = 976', new perforation from 428' to 436', assumed no changes made to original perforation and no new casing installed, therefore (795-550) + (436-428) + (976-826) = 403'

Well 5 From Well Log (1974) - Depth = 1007', casing from surface to surface to 666', perforated from 550' to 650', therefore (650-550) + (1007 - 666) = 441'

Well 6 From Well Log (1978) - Depth = 1210', casing from surface to 212' and 997' to 1208', perforated from 1015 to 1035 and 1055 to 1075, assumed that blanks installed between bottom of first section of casing and second section of casing except when perforated, therefore (1035 - 1015) + (1075 - 1055) + (1210 - 1208) = 42'

Well 7 From Well Log (1998) - Depth = 820', casing from surface to 670', perforated from 670' to 740' and 795' to 815', assumed blanks installed between screened zones, therefore (740-670) + (815 - 795) + (820 - 815) = 95'

Well 8 From Well Log (2002) - Depth = 951', casing from surface to 398', no screens or perforations, hole backfilled from 853' to 951', therefore 853 - 398 = 455'

Well 9 From Well Log (2015) - Depth = 1040', casing from surface to 1043', screens located fro 418' to 467', 487' to 585', 604' to 684', 724' 833', 850' to 890', 920' to 940', 950' to 970', 1010' to 1040', therefore sum of screened areas = 446'

Coliform Monitoring Plan for: City of Othello

A. System Information

Plan Date: 9/2/2017

Water System Name	**County**	**System I.D. Number**
City of Othello	Adams	64850
Name of Plan Preparer	**Position**	**Daytime Phone**
Dan Quick	Manager	**509-488-5686**
Sources: DOH Source Number, Source Name, Well Depth, Pumping Capacity	S01 – Well 2 – 697' – 275 GPM S02 – Well 3 – 907' – 800 GPM S06 – Well 4 – 976' – 430 GPM S07 – Well 5 – 1,007 – 900 GPM S05 – Well 6 – 1,210' – 2,000 GPM S08 – Well 7 – 820' – 630 GPM S09 – Well 8 – 853' – 395 GPM S10 – Well 9 – 1,042' – 1,500 GPM	
Storage: List and Describe	Reservoir 1 – 1 MG Welded Steel Tank Reservoir 2 – 2 MG Welded Steel Tank Reservoir 3 – 3 MG Welded Steel Tank	
Treatment: Source Number & Process	S02 – Well 3 – Sodium Hypochlorite S06 – Well 4 – Sodium Hypochlorite S07 – Well 5 – Sodium Hypochlorite S05 – Well 6 – Chlorine Gas S08 – Well 7 – Sodium Hypochlorite S09 – Well 8 – Chlorine Gas S10 – Well 9 – Sodium Hypochlorite	
Pressure Zones: Number and name	All sources – Main Zone Intertie – ACWD#1	
Population by Pressure Zone	Main Zone – 7,780 ACWD#1 – 1,100	
Number of Routine Samples Required Monthly by Regulation:		9
Number of Sample Sites Needed to Represent the Distribution System:		9
***Request DOH Approval of Triggered Source Monitoring Plan?**		**Yes** ☐ **No** ☒

*If approval is requested a fee will be charged for the review.

B. Laboratory Information

Laboratory Name KUO Testing Labs, Inc	**Office Phone 509-488-0112** **Toll Free Phone 800-328-0112**
Address 337 S 1st Ave. Othello, WA 99344	**Email** kuotest@atnet.net
Hours of Operation 8:00 AM to 5:00 PM	
Contact Name Front desk	
Emergency Laboratory Name KUO Testing Labs, Inc	**Office Phone 509-488-0112** **Toll Free Phone 800-328-0112**
Address 337 S 1st Ave. Othello, WA 99344	**Email** kuotest@atnet.net
Hours of Operation 8:00 AM to 5:00 PM	
Contact Name Front desk	

C. Wholesaling of Groundwater

	Yes	No
We are a consecutive system and purchase groundwater from another water system.	☐	☒
We sell groundwater to other public water systems.	☒	☐
If yes, Water System Name: Adams County Water District No. 1 Contact Name: Diana Longoria Telephone Numbers Office **509-488-3529** After Hours **509-331-4299**		

D. Routine, Repeat, and Triggered Source Sample Locations*

Location/Address for **Routine Sample Sites**	Location/Address for **Repeat Sample Sites**		Groundwater Sources for **Triggered Sample Sites****
1. Fir and Broadway, SE corner	**1-1**	**Fir and Broadway, SE corner**	**All active sources at the time of contamination.**
	1-2	**110 E. Fir Street**	
	1-3	**120 E. Fir Street**	
2. Columbia and 1st Avenue, NE corner	**2-1**	**Columbia and 1st Avenue, NE corner**	**All active sources at the time of contamination.**
	2-2	**1175 S. 1st Avenue**	
	2-3	**1252 S. 1st Avenue**	
3. Kiwanis Park, NE corner	**3-1**	**Kiwanis Park, NE corner**	**All active sources at the time of contamination.**
	3-2	**700 S. 7th Avenue**	
	3-3	**665 E. Ash**	
4. Lions Park, SE corner of Hamlet and 7th Avenue	**4-1**	**Lions Park, SE corner of Hamlet and 7th Avenue**	**All active sources at the time of contamination.**
	4-2	**905 E. Hamlet**	
	4-3	**915 E. Hamlet**	
5. In front of Convalescent Center on 13th Avenue	**5-1**	**In front of Convalescent Center on 13th Avenue**	**All active sources at the time of contamination.**
	5-2	**495 N. 13th Avenue**	
	5-3	**1255 E. Rainier**	
6. Othello Dental Arts Clinic, NW corner of 14th Avenue and Hemlock	**6-1**	**Othello Dental Arts Clinic, NW corner of 14th Avenue and Hemlock**	**All active sources at the time of contamination.**
	6-2	**1355 E. Hemlock**	
	6-3	**1344 E. Main Street**	
7. 4th Avenue and	**7-1**	**4th Avenue and**	**All active sources at the**

Scootney, SW corner		**Scootney, SW corner**	**time of contamination.**
	7-2	**1020 S. 3rd Avenue**	
	7-3	**1010 S. 3rd Avenue**	
8. 900 E. Sagewood	**8-1**	**900 E. Sagewood**	**All active sources at the time of contamination.**
	8-2	**890 E. Sagewood**	
	8-3	**910 E. Sagewood**	
9. 1065 Cobblestone Ave	**9-1**	**1065 Cobblestone Ave**	**All active sources at the time of contamination.**
	9-2	**1055 Cobblestone Ave**	
	9-3	**1075 Cobblestone Ave**	
10. 1035 S. 11th Ave	**10-1**	**1035 S. 11th Ave**	**All active sources at the time of contamination.**
	10-2	**1025 S. 11th Ave**	
	10-3	**1045 S. 11th Ave**	
11. 1135 S. 11th Ave	**11-1**	**1135 S. 11th Ave**	**All active sources at the time of contamination.**
	11-2	**1125 S. 11th Ave**	
	11-3	**1145 S. 11th Ave**	
12. 1310 Gemstone St	**12-1**	**1310 Gemstone St**	**All active sources at the time of contamination.**
	12-2	**1300 Gemstone St**	
	12-3	**1320 Gemstone St**	
13. 1350 Gemstone St	**13-1**	**1350 Gemstone St**	**All active sources at the time of contamination.**
	13-2	**1340 Gemstone St**	
	13-3	**1360 Gemstone St**	
14. 905 Scootney (Wahitis Elementary School)	**14-1**	**905 Scootney**	**All active sources at the time of contamination.**
	14-2	**1385 E Cypress St**	
	14-3	**1350 E Ash St**	
15. ACWD1 Cunningham Rd	**15-1**	**ACWD1 Cunningham Rd**	**All active sources at the time of contamination.**
	15-2	**600 S Danielle Rd**	
	15-3	**256 W Main St**	

16. 1365 Cypress St	**16-1 1365 Cypress St**	**All active sources at the time of contamination.**
	16-2 1355 Cypress St	
	16-3 1375 Cypress St	
17. 1170 Cypress St	**17-1 1170 Cypress St**	**All active sources at the time of contamination.**
	17-2 1160 Cypress St	
	17-3 1180 Cypress St	
18. 1030 S 10th Ave	**18-1 1030 S 10th Ave**	**All active sources at the time of contamination.**
	18-2 1020 S 10th Ave	
	18-3 1040 S 10th Ave	
19. 215 S 16th Ave	**19-1 205 S 16th Ave**	**All active sources at the time of contamination.**
	19-2 195 S 16th Ave	
	19-3 215 S 16th Ave	
20. 2020 Madera	**20-1 2020 Madera**	**All active sources at the time of contamination.**
	20-2 2010 Madera	
	20-3 2030 Madera	
21. 1700 N Broadway (SVZ)	**21-1 1700 N Broadway**	**All active sources at the time of contamination.**
	21-2 185 E Lee Rd	
	21-3 2050 W McManamon Rd	
22. 2040 S Broadway (School Bus Garage)	**22-1 2040 S Broadway**	**All active sources at the time of contamination.**
	22-2 2030 S Broadway	
	22-3 2050 S Broadway	

E. Reduced Triggered Source Monitoring Justification (add sheets as needed):

F. Routine Sample Rotation Schedule

Month	Routine Site(s)	Month	Routine Site(s)
January	9	July	9
February	9	August	9
March	9	September	9
April	9	October	9
May	9	November	9
June	9	December	9

G. Level 1 and Level 2 Assessment Contact Information

Name **Dan Quick**	**Office Phone 509-488-5686** **After Hours Phone 509-989-0687**
Address **500 E. Main Street Othello, WA 99344**	**Email dquick@othellowa.gov**
Name **Jesse Cowger PE**	**Office Phone 509-328-6066**
Address **601-A W Mallon Ave, Spokane, WA 99201**	**Email jcowger@varela-engr.com**

H. *E. coli*-Present Sample Response

Distribution System *E. coli* Response Checklist				
Background Information	**Yes**	**No**	**N/A**	**To Do List**
We inform staff members about activities within the distribution system that could affect water quality.	☒	☐	☐	☐
We document all water main breaks, construction & repair activities, and low pressure and outage incidents.	☒	☐	☐	☐
We can easily access and review documentation on water main breaks, construction & repair activities, and low pressure and outage incidents.	☒	☐	☐	☐
Our Cross-Connection Control Program is up-to-date.	☒	☐	☐	☐
We test all cross-connection control devices annually as required, with easy access to the proper documentation.	☐	☐	☐	☒
We routinely inspect all treatment facilities for proper operation.	☒	☐	☐	☐
We identified one or more qualified individuals who are able to conduct a Level 2 assessment of our water system.	☒	☐	☐	☐
We have procedures in place for disinfecting and flushing the water system if it becomes necessary.	☒	☐	☐	☐
We can activate an emergency intertie with an adjacent water system in an emergency.	☐	☒	☐	☐
We have a map of our service area boundaries.	☒	☐	☐	☐
We have consumers who may not have access to bottled or boiled water.	☐	☒	☐	☐
There is a sufficient supply of bottled water immediately available to our customers who are unable to boil their water.	☒	☐	☐	☐
We have identified the contact person at each day care, school, medical facility, food service, and other customers who may have difficulty responding to a Health Advisory.	☐	☒	☐	☐
We have messages prepared and translated into different languages to ensure our consumers will understand them.	☒	☐	☐	☐
We have the capacity to print and distribute the required number of notices in a short time period.	☒	☐	☐	☐
Policy Direction	**Yes**	**No**	**N/A**	**To Do List**
We have discussed the issue of *E. coli*-present sample results with our policy makers.	☐	☐	☐	☒
If we find *E. coli* in a routine distribution sample, the policy makers want to wait until repeat test results are available before issuing advice to water system customers.	☐	☐	☐	☒
(Cont.)				

Distribution System *E. coli* Response Checklist				
Potential Public Notice Delivery Methods	**Yes**	**No**	**N/A**	**To Do List**
It is feasible to deliver a notice going door-to-door.	☒	☐	☐	☐
We have a list of all of our customers' addresses.	☒	☐	☐	☐
We have a list of customer telephone numbers or access to a Reverse 9-1-1 system.	☒	☐	☐	☐
We have a list of customer email addresses.	☐	☒	☐	☐
We encourage our customers to remain in contact with us using social media.	☒	☐	☐	☐
We have an active website we can quickly update to include important messages.	☒	☐	☐	☐
Our customers drive by a single location where we could post an advisory and expect everyone to see it.	☒	☐	☐	☐
We need a news release to supplement our public notification process.	☐	☒	☐	☐

Distribution System *E. coli* Response Plan

If we have *E. coli* in our distribution system we will immediately:

1. Call DOH.
2. Collect repeat and triggered source samples per Part D. Collect additional investigative samples as necessary.
3. Determine the area affected and source
4. Inspect our water system facilities, including proper pump operation.
5. Interview staff to determine whether anything unusual was happening in the water system service area, especially since the previous week's sample(s).
6. Review new construction activities, water main breaks, and pressure outages that may have occurred during the previous week.
7. Review Cross-Connection Control Program status.
8. Discuss with DOH whether to issue a Health Advisory based on the findings of steps 3-6.

E. coli-Present Triggered Source Sample Response Checklist – All Sources

Background Information	**Yes**	**No**	**N/A**	**To Do List**
We review our sanitary survey results and respond to any recommendations affecting the microbial quality of our water supply.	☒	☐	☐	☐
We address any significant deficiencies identified during a sanitary survey.	☒	☐	☐	☐
There are contaminant sources within our Wellhead Protection Area that could affect the microbial quality of our source water, and	☐	☒	☐	☐
If yes, we can eliminate them.	☐	☐	☒	☐
We routinely inspect our well site(s).	☒	☐	☐	☐
We have a good raw water sample tap installed at each source.	☒	☐	☐	☐
After we complete work on a source, we disinfect the source, flush, and collect an investigative sample.	☒	☐	☐	☐
Public Notice	**Yes**	**No**	**N/A**	**To Do List**
We discussed the requirement for immediate public notice of an *E. coli*-present source sample result with our water system's governing body (board of directors or commissioners) and received direction from them on our response plan.	☐	☐	☐	☒
We discussed the requirement for immediate public notice of an *E. coli*-present source sample result with our wholesale customers and encouraged them to develop a response plan.	☐	☐	☐	☒
We have prepared templates and a communications plan that will help us quickly distribute our messages.	☒	☐	☐	☐

***E. coli*-Present Triggered Source Sample Response Checklist – All Sources**				
Alternate Sources	**Yes**	**No**	**N/A**	**To Do List**
We can stop using this source and still provide reliable water service to our customers.	☒	☐	☐	☐
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).	☐	☒	☐	☐
We can provide bottled water to all or part of the distribution system for an indefinite period.	☐	☒	☐	☐
We can quickly replace our existing source of supply with a more protected new source.	☐	☒	☐	☐
Temporary Treatment	**Yes**	**No**	**N/A**	**To Do List**
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L	☐	☒	☐	☐
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	☒	☐	☐	☐
We can reduce the production capacity of our pumps or alter the configuration of our storage quantities (operational storage) to increase the amount of time the water stays in the system before the first customer to achieve CT = 6.	☒	☐	☐	☐
We can alter the demand for drinking water (maximum day or peak hour) through conservation messages to increase the time the water is in the system prior to the first customer in order to achieve 4-log virus treatment with chlorine.	☒	☐	☐	☐

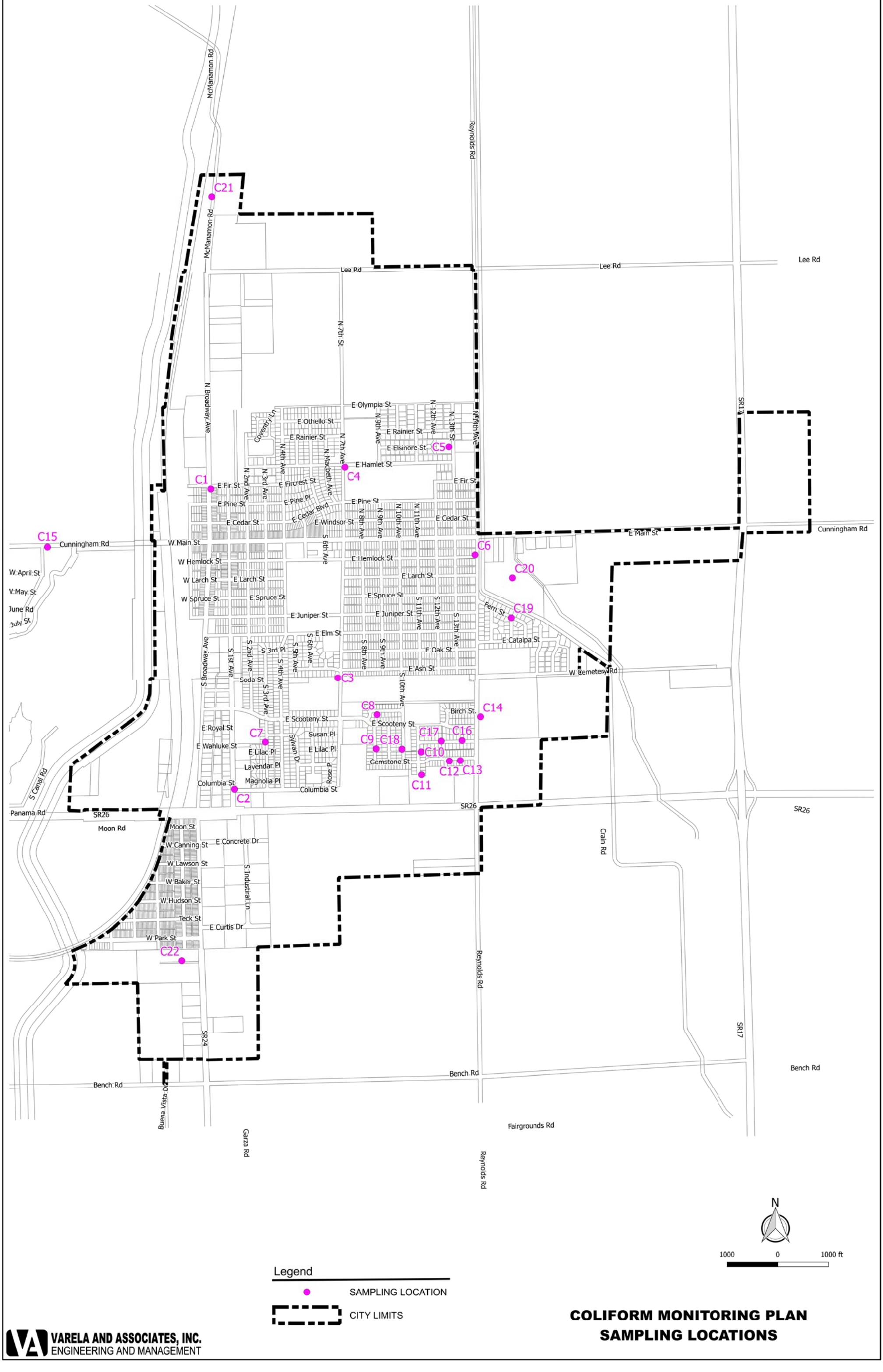
E. coli-Present Triggered Source Sample Response Plan – All Sources

If we have *E. coli* in any Source water we will immediately:

1. Call DOH.
2. Take five additional source samples within 24 hours of positive E. coli test.
3. Shut off source which tested positive for E. coli.
4. Determine the area affected.
5. Inspect our water system facilities, including proper pump operation.
6. Interview staff to determine whether anything unusual was happening in the water system service area, especially since the previous week's samples(s).
7. Review new construction activities, water main breaks, and pressure outages that may have occurred during the previous week.
8. Review Cross-Connection Control Program status.
9. Discuss with DOH whether to issue a Health Advisory based on the findings of steps 3-6.

I. System Map

See attached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E Pine St
E Cedar St
E Windsor St
E Hemlock St
C6
C20
E Larch St
E Spruce St
E Juniper St
C19
E Catalpa St
E Elm St
E Oak St
E Ash St
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Birch St
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E Scooteny St
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C16
C10
C12
C13
C11
E Royal St
E Wahluke St
E Lilac Pl
Susan Pl
Lavendar Pl
Magnolia Pl
Columbia St
C2
Gemstone St
C15
Cunningham Rd
W Main St
W Hemlock St
W Larch St
W Spruce St
W April St
W May St
June Rd
July St
W Cemetery Rd
Fern St
SR17
E Main St
S Broadway Ave
S Canal Rd
Panama Rd
SR26
Moon Rd
Moon St
W Canning St
E Concrete Dr
W Lawson St
W Baker St
W Hudson St
Teck St
E Curtis Dr
W Park St
C22
S Industrial Ln
Crain Rd
SR24
Bench Rd
Buena Vista Dr
Garza Rd
Fairgrounds Rd
N
1000
0
1000 ft
Legend
SAMPLING LOCATION
CITY LIMITS
VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
COLIFORM MONITORING PLAN
SAMPLING LOCATIONS

CITY OF OTHELLO, WASHINGTON

LEAD AND COPPER RULE

1.1 Distribution System Monitoring Requirements

Lead and copper requirements involve both initial and reduced monitoring. Water systems who test below the action levels for lead and copper for two consecutive 6-month monitoring periods are eligible for reduced monitoring. Reduced monitoring sampling must be recorded between June and September.

As of the City's 2017 Water Quality Monitoring Schedule, Othello is eligible for reduced monitoring and must therefore perform lead and copper monitoring once every 3 years between June and September.

1.2 Number of Sample Sites

The number of residential water samples required through the monitoring period is based on population served by the water system. The table below shows monitoring requirements for a range of populations.

Table 1 Tap Samples Required for Lead and Copper Monitoring

Population Served	Initial Monitoring – Number of sample sites	Reduced Monitoring – Number of sample sites
More than 100,000	100	50
10,001 to 1000,000	60	30
3,301 to 10,000	40	20 (1)
501 to 3,300	20	10
101 to 500	10	5
100 or Fewer	5	5

(1) 2017 population served is 8,800 (2017 City of Othello Water System Plan)

1.3 Selecting Sampling Sites

Sampling sites should target homes that are most vulnerable to lead and copper corrosion. The table below shows sampling locations for the City's 2016 routine compliance sampling. The 2016 LCR Sampling Map is attached.

Table 2 2016 LCR Sample Sites

Site	Site Location
1	255 E Hemlock
2	1162 Rose Pl.
3	345 E Fir St.
4	916 Elsinore St.
5	445 E Othello St.
6	736 Juniper
7	651 S 12th Ave
8	225 E Lilac Pl.
9	540 E Othello
10	570 E Ash
11	546 S 2nd
12	655 Ash St.
13	1213 E Larch St.
14	210 S 16th Ave.
15	500 N MacBeth Ave.
16	230 Lavender Pl.
17	415 S 7th Ave.
18	1020 E Elm St.
19	515 E Scootney St.
20	335 E Larch St. Apt. 2

The City intends to use the 2016 sampling locations shown above for future lead and copper sampling requirements. In the event that previous sampling locations are unavailable for monitoring the City will identify new sampling locations within the distribution system.

1.4 Sample Collection Procedures

The locations of the major system components are shown on Figure 3, the water system map. General descriptions of the normal operation of each facility are given in the following sections.

Sampling procedures are outlined below. The City provides instructions to homeowners based on DOH's ***Lead and Copper Sampling Procedure*** **(331-227)**.

1. **Prepare to Collect the Sample**

- Samples should be collected via a regularly used kitchen or bathroom cold-water tap
- Ensure water has been sitting stagnant in the pipes for at least 6 hours, but no more than 12 hours.

- Plan on drawing samples first thing in the morning or after coming home from work or school to ensure that stagnant water conditions are present.

2. Collect Samples

- Use the City provided sampling bottle when drawing water samples.
- Place the open bottle below the faucet and gently open the cold-water tap.
- Fill the sample container to the shoulder of the bottle or the line marked "1,000 ml".
- Cap the bottle tightly.

3. Complete Lab Form and Sample Label

- Water system name and ID number (use "64850" for City of Othello)
- System type (use "Group A" for City of Othello)
- Date and time each sample was collected
- Sample location for each sample (street address or some other location identifier)
- DOH source number (use "distribution" for distribution samples)
- Sample purpose (use "RC" for routine compliance)
- Sample type (use "post-treatment" for distribution samples)

4. Ship the Samples

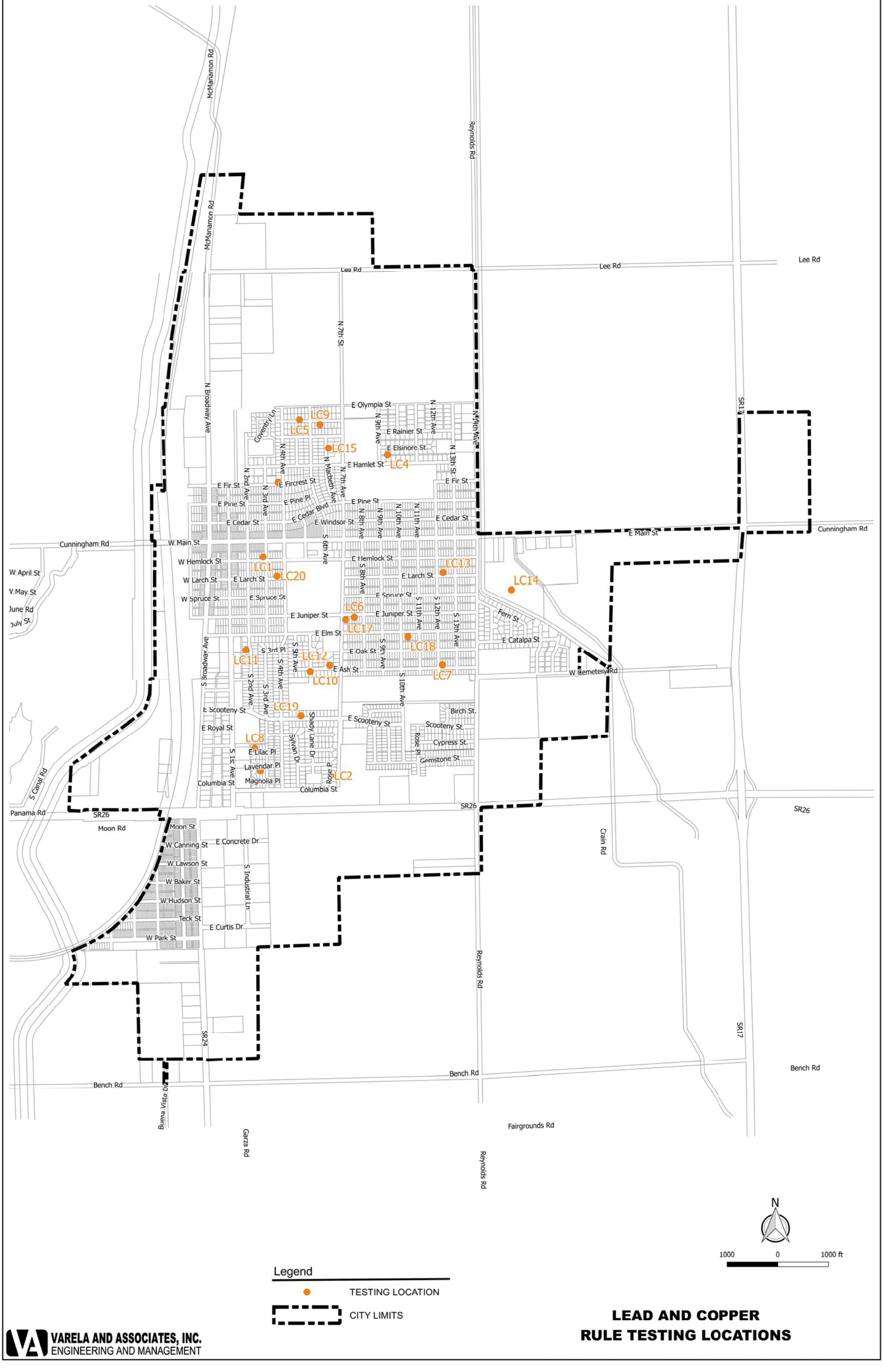
- Package samples with the completed sample information form and send them to the laboratory.
- Provide sample results to homeowners within 30 days of receiving test results from the lab

1.5 Action Levels

The "action level" is the amount of lead or copper that triggers the requirement for a water system to investigate and determine the best way to control corrosion.

The action levels are: 0.015 milligrams per liter (mg/L) for lead
1.3 mg/L for copper

DOH reviews lead and copper samples and informs the City whether sample results exceed the action level. Water systems that exceed the lead action level must begin a public education campaign. Further information on the types of corrosion control treatment and how to select the right treatment for your system, see EPA's ***Revised Guidance Manual for Selecting Lead and Copper Control Strategies*** **(816-R-03-001)**.


McManamon Rd
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E Olympia St
E Rainier St
E Elsinore St
E Hamlet St
E Fircrest St
E Fir St
E Pine St
E Pine Pl
E Cedar Blvd
E Cedar St
E Windsor St
N 2nd Ave
N 3rd Ave
N 4th Ave
N Macbeth Ave
N 7th Ave
N 8th Ave
N 9th Ave
N 10th Ave
N 11th Ave
N 12th Ave
N 13th St
N 14th Ave
Coventry Ln
E Main St
Cunningham Rd
W Main St
W Hemlock St
E Hemlock St
W Larch St
E Larch St
W Spruce St
E Spruce St
E Juniper St
E Elm St
E Oak St
E Ash St
S 3rd Pl
S 5th Ave
S 6th Ave
S 8th Ave
S 9th Ave
S 10th Ave
S 11th Ave
S 12th Ave
S 13th Ave
S 4th Ave
S 2nd Ave
S 3rd Ave
S 1st Ave
S Broadway Ave
E Scooteny St
E Royal St
Shady Lane Dr
Sylvan Dr
Rose Pl
Birch St
Scooteny St
Cypress St
Gemstone St
E Lilac Pl
Lavendar Pl
Magnolia Pl
Columbia St
Rose Pl
LC1
LC2
LC4
LC5
LC6
LC7
LC8
LC9
LC10
LC11
LC12
LC13
LC14
LC15
LC17
LC18
LC19
LC20
Fern St
E Catalpa St
W Cemetery Rd
W April St
W May St
June Rd
July St
S Canal Rd
Panama Rd
SR26
Moon Rd
Moon St
W Canning St
E Concrete Dr
W Lawson St
W Baker St
W Hudson St
Teck St
E Curtis Dr
W Park St
S Industrial Ln
Crain Rd
SR17
SR24
Bench Rd
Buena Vista Dr
Garza Rd
Fairgrounds Rd
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Legend
TESTING LOCATION
CITY LIMITS
VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
LEAD AND COPPER
RULE TESTING LOCATIONS

Community Water System
CONSUMER NOTICE
Lead and Copper Water Sample Results

The City of Othello Water System, I.D. 64850R, is providing you with the lead and copper test results on the water sample collected at your location. Please share this notice with everyone who uses or drinks the water.

The results at _____

are: **lead** _____ **mg/L and copper** _____ **mg/L.**

The maximum contaminant level goal (MCLG) is the level of a contaminant in drinking water below which there are no known or expected risks to health. MCLGs allow for a margin of safety. The regulatory limits for lead and copper are called action levels. An exceedance occurs when the concentration of the lead or copper in more than 10 percent of the tap water samples exceeds an action level.

- The MCLG for lead is "0" and the action level is 15 ppb (or .015 mg/L).
- The MCLG and action level for copper is 1,300 ppb (or 1.3 mg/L).

Lead or copper action level exceedances will trigger corrosion control treatment or other requirements. We will notify all water users if our system exceeds the lead action level.

For more information, please contact: Dan Quick
(owner or operator)

at (509) 488-6997 or 111 N Broadway
(phone number) (address)

This notice is sent to you by City of Othello Water System on 9/7/16

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 women. Lead can cause serious health problems if too much enters 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 liver 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 is 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).

Lead and Copper Consumer Notice 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. (CFR 141.85 (d))

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 for which you received lead and copper samples. In multi-unit structures, only notify 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 end of the monitoring period.

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.

If you are responsible for multiple water systems, you can send to the Office of Drinking Water:

- A list of the water systems you provided Consumer Notices to, with name and PWS ID number.
- Send one copy of the Consumer Notice you used.
- Send one completed certification form (below).

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.

Complete the following items (check all that apply):

☑ I mailed/delivered all Consumer Notices to the water users at all of the lead and copper sampling locations within 30 days of receiving the lead and copper results from the laboratory.

☐ **(For NTNC systems ONLY)** Notice posted at _____ on ___ / ___ / ____ within 30 days of receiving the lead and copper results from the laboratory. (***Only By Department Approval***)

City of Othello — Water System

64850R — PWS ID

Signature of owner or operator

WOM II — Position

9-7-16 — Date

Sent Pages out 7-20-16

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.

KUO TESTING LABS: INORGANIC CHEMICALS (IOCS) REPORT For LEAD & COPPER

System ID No.: 64850R	System Name: City of Othello	Kuo Sample No.: 56089-56098
DOH Source No.: SO93	Sample Type: water	Sample Purpose: C
Date Received: 7-12-2016	Date Reported: 7-19-2016	Supervisor: Dr. Jonathan Cox
County: Adams	Analyst: Kuo Testing Labs	Group (A / B / Other): A
	Specific Collection Location: *(See table below)*	

Send Report To:	Bill To:
City of Othello	City of Othello
111 N. Broadway	111 N. Broadway
Othello, WA 99344	Othello, WA 99344

DOH #	0074 (Copper)	0009 (Lead)
State Reporting Level (SRL)	0.02mg/L	0.001 mg/l
Action Level (AL)	1.3mg/L	0.015mg/L
Test Method	EPA 200.8	EPA 200.8

Kuo Sample No:	Date Sampled	Site / Location	Copper mg/L	Lead mg/L
109-56089	7-12-2016	255 E Hemlock	0.014	<0.001
109-56090	7-12-2016	1162 Rose Pl.	<0.01	<0.001
109-56091	7-12-2016	345 E Fir St.	0.034	<0.001
109-56092	7-12-2016	916 E Elainore St.	0.031	0.002
109-56093	7-12-2016	445 E Othello St.	<0.01	<0.001
109-56094	7-12-2016	736 Juniper	<0.01	<0.001
109-56095	7-12-2016	651 S 12th Ave.	<0.01	<0.001
109-56096	7-12-2016	225 E Lilac Pl.	<0.01	<0.001
109-56097	7-12-2016	540 E Othello	0.011	<0.001
109-56098	7-12-2016	570 E Ash	0.032	<0.001

NOTES:

Lead & Copper- Kuo Testing Labs analyzed all Lead and Copper tests.

FAL (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).
NA (Not Analyzed): in the results column indicates this compound was not included in the current analysis.
ND (Not Detected): in the results column ND indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.
<(0.001): means less than a number. It also indicates that the compound was not detected in the sample at or above the concentration indicated.,
mg/L: means milligrams per liter or parts per million.

J: indicates an estimated concentration. This occurs when an analyte concentration is below the method reporting limit but is above the method detection limit.

Comments: Kuo Testing Labs analyzed all Lead and Copper tests.

Quality Assurance Personnel

7-20-16
Date

KUO TESTING LABS: INORGANIC CHEMICALS (IOCS) REPORT For LEAD & COPPER

System ID No.: 64850R	System Name: City of Othello	Kuo Sample No.: 56099-56108
DOH Source No.: SO93	Sample Type: water	Sample Purpose: C
Date Received: 7-12-2016	Date Reported: 7-19-2016	Supervisor: Dr. Jonathan Cox
County: Adams	Analyst: Kuo Testing Labs	Group (A / B / Other): A
	Specific Collection Location: *(See table below)*	

Send Report To:	Bill To:
City of Othello	City of Othello
111 N. Broadway	111 N. Broadway
Othello, WA 99344	Othello, WA 99344

DOH #	0023 (Copper)	0009 (Lead)
State Reporting Level (SRL)	0.02mg/l	0.001 mg/l
Action Level (AL)	1.3mg/l	0.015mg/l
Test Method	EPA 200.8	EPA 200.8

Kuo Sample No.	Date Sampled	Site/ Location	Copper mg/l	Lead mg/l
109-56099	7-12-2016	546 S 2nd	<0.01	<0.001
109-56100	7-12-2016	655 Ash St.	0.029	<0.001
109-56101	7-12-2016	1213 E Larch St.	<0.01	<0.001
109-56102	7-12-2016	210 S 16th Ave.	<0.01	0.0012
109-56103	7-12-2016	500 N MacBeth Ave.	<0.01	<0.001
109-56104	7-12-2016	230 Lavender Pl.	0.034	<0.001
109-56105	7-12-2016	415 S 7th Ave.	<0.01	<0.001
109-56106	7-12-2016	1020 E Elm St.	0.090	<0.001
109-56107	7-12-2016	515 E Scootney St.	<0.01	<0.001
109-56108	7-12-2016	335 E Larch St. Apt. 2	0.030	<0.001

NOTES:

Lead & Copper- Kuo Testing Labs analyzed all Lead and Copper tests.

FAL (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).
NA (Not Analyzed): in the results column indicates this compound was not included in the current analysis.
ND (Not Detected): in the results column ND indicates this compound was analyzed & not detected at a level greater than or equal to the SRL.
<(0.001): means less than a number. It also indicates that the compound was not detected in the sample at or above the concentration indicated..
mg/L: means milligrams per liter or parts per million.

J: indicates an estimated concentration. This occurs when an analyte concentration is below the method reporting limit but is above the method detection limit.

Comments: Kuo Testing Labs analyzed all Lead and Copper tests.

Quality Assurance Personnel

7-19-16
Date

Lead and Copper Sampling

State regulations require all community and nontransient noncommunity water systems to monitor for lead and copper in drinking water.

Unlike other contaminant monitoring, the samples for lead and copper testing must come from regularly used cold water taps inside your customers' homes.

For assistance, call the nearest Department of Health regional office listed at the end of this brochure.

For More Information

If you have questions about sampling procedures, call our regional office:

- **Eastern Region**
  Spokane Valley
  509-329-2100
- **Northwest Region**
  Kent
  253-395-6750
- **Southwest Region**
  Tumwater
  360-236-3030

Our publications are online at doh.wa.gov/drinkingwater

Other Sampling Publications

Lead and Copper Monitoring (331-111)

Nitrate Sampling Procedure (331-222)

Synthetic Organic Chemical (SOC) Sampling Procedure (331-224)

Inorganic Chemical (IOC) Sampling Procedure (331-221)

Volatile Organic Chemical (VOC) Sampling Procedure (331-220)

Total Trihalomethane (TTHM) Sampling Procedure (331-226)

Haloacetic Acid (HAA5) Sampling Procedure (331-223)

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

DOH 331-227
June 2016

If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/drinkingwater.

Lead and Copper Sampling Procedure

1 Select Homes or Locations for Sampling

There are specific guidelines for selecting the homes or locations where you collect samples, the number of samples required, and setting up a monitoring schedule. For more information, see the publication, Lead and Copper Monitoring (DOH 331-111).

You can:

- Have residents collect the samples. Be sure to provide directions and sampling kits.
- Take the samples yourself. Ask residents to allow system personnel into their homes to take the samples.

2 Prepare to Collect the Sample

- The sample must come from a regularly-used kitchen or bathroom cold-water faucet.
- The object is to get the "first draw" of the water that has been sitting stagnant in the pipes for at least 6 hours, but no more than 12 hours prior to sampling.
- To ensure stagnant water conditions exist, the best sampling times are first thing in the morning, or after residents return home from work or school.
- Make sure that cold water is the last water to go through the faucet before the water sits stagnant in the pipes for the 6 – 12 hours prior to sampling.
- Do not remove the aerator from the faucet before the stagnation time nor before collecting the sample.

3 Collect Samples

- Do not run any water immediately prior to collecting the sample.
- Make sure the water does not go through a hose, water softener, or any kind of filter before it reaches the sample container.
- Place the open bottle below the faucet and gently open the cold-water tap.
- Fill the sample container to the shoulder of the bottle or the line marked "1,000 ml" and turn the water off.
- Cap the bottle tightly.
- Label the bottle (see step 4), and place it in the sample kit provided.

4 Complete Lab Form and Sample Label

You will either provide completed labels to the homeowners, or fill them out when you collect the samples.

Laboratory forms vary, so be sure to include the following:

- Water system name and ID number
- System type (Group A or Group B)
- Date and time each sample was collected
- Sample location for each sample (use the street address or another location identifier for the home or building where the sample was collected)
- DOH source number – write in "distribution" to indicate distribution samples
- Sample purpose (usually "RC" for routine compliance)
- Sample type (post-treatment)

5 Ship the Samples

When the samples are ready for shipping, package them with the completed sample information form and send them to the laboratory.

CITY OF OTHELLO, WASHINGTON

FLUORIDE BLENDING PLAN

1.1 Background

As of 2017 the City of Othello relies on 8 groundwater wells to supply the City's water system. Othello is in compliance with all sampling and contaminant regulations with the exception of elevated fluoride levels in Well 6 which generally exceed the MCL of 4.0 mg/L. The City has prepared this Fluoride Blending Plan to outline the operational and sampling procedures undertaken when Well 6 is in operation.

1.2 Operating Procedures

The City's operation procedures for Well 6 are based on the well's designation as a "last on" well. By designating Well 6 as a "last on" well the City ensures that Well 6 is only operated when all other City wells are in operation and still cannot meet demand. The City uses a telemetry system located at the Public Works building to control the start and stop times of each well based on water levels within the water storage tanks. By ensuring that Well 6 is only in use during periods of high demand the City has been able to dilute fluoride concentrations below the MCL within the distribution system.

1.3 Sampling Procedures

The City increases distribution system and source sampling for Fluoride during times in which Well 6 is in operation. The City monitors Cl_2 and Fluoride levels during week days throughout the system at sample stations. The City concentrates sampling efforts around the susceptible populations including Hiawatha Elementary School and the Avalon Assisted Living Center.

Samples from the distribution system are sent once a week to the lab when Well 6 is in operation.

2015
♦ Annual Drinking Water Quality Report ♦
City of Othello

Traducción disponible del Informe de Calidad del Agua.

Este Informe contiene información muy importante sobre el sistema de agua del pueblo. La información esta disponible en español en la municipalidad.

The City Of Othello, as well as all water providers, are required by the Department of Health, to send you their annual drinking water quality report.

The City of Othello Water Department provides a safe and dependable supply of drinking water that meets or exceeds all federal and state requirements. The City of Othello is served by seven wells. All seven of the wells pump water from the Wanapum Aquifer. Pumped water is fed directly into the distribution system. Water is stored in three tower reservoirs within the City. Full volume capacity totals about six million gallons. Pressure throughout the distribution system is the result of the height of the water in the reservoirs. The storage volume provides protection against fire, power outages, high water use periods, and whether the pumps can meet the demand on the system.

If you have any questions about this report or concerning your water utility, please contact:

City of Othello **500 E Main St** **Othello, WA 99344** **ID #64850R** **509-488-5686 or 488-6997**	**WA State Department of Health** **16201 E. Indiana Ave. , Ste. 1500** **Spokane, WA 99216** **509-456-4430**	**Environmental Protection Agency** **Safe Drinking Water Act Hotline** **1-800-426-4791**

The City of Othello owns the City of Othello Water Department. The Department is responsible to the Mayor and City Council. The Mayor and City Council meet regularly on the 2nd and 4th Mondays of each month at 7:00 p.m. You are welcome to attend these meetings.

The City of Othello routinely monitors for constituents (listed below) in your drinking water according to Federal and State laws. Table 1 shows the results of our monitoring for the period of January 1st to December 31st, 2015. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk.

Below are several categories and some of the constituents that each category may include:

- Microbiological: E. Coli, Giardia, and Cryptosporidium.
- Radioactive Contaminants: beta and alpha emitters and radium.
- Inorganic Contaminants: arsenic, asbestos, chromium, copper, lead, fluoride and nitrate.
- Synthetic Organic Contaminants: pesticides and herbicides.
- Volatile Organic Contaminants: benzene, carbon tetrachloride and trihalomethanes.

In Table 1, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000. Other comparisons are: This is equivalent to one drop of water diluted into approximately the fuel tank capacity of a compact car, or about thirty seconds out of a year.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000. Other examples are: This is equivalent to 1 drop of water diluted into 250 drums or about three seconds out of 100 years.

Action Level - the concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal -The "Goal"(MCLG) is the level of a contaminant in drinking water which there is no known or expected risk to health. MCLGs allow for a margin of safety.

TABLE 1: TEST RESULTS						
Contaminant	**Violation Y/N**	**Avg. Level Detected**	**Unit Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Microbiological Contaminants:						
(1)Total Coliform	Y	N/A	N/A	0	0	Naturally present in the environment
Inorganic Contaminants:						
(2) Fluoride Range detected: 1.68 – 4.75	Y	2.38	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
(3) Nitrate (as Nitrogen) Range detected: 0.11 to 1.14	N	.45	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Disinfection By-Products:						
(5) Trihalomethanes (TTHM)	N	10.2	ppb	80	80	By-product of drinking water chlorination
(6) Haloacetic Acids (HAA5)	N	.55	ppb	60	60	By-product of drinking water disinfection

Inorganic Contaminants

(3) Nitrate. Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

As you can see by the table, our system had two violations. We have learned through our monitoring and testing that some constituents have been detected. We constantly monitor for various constituents in the water supply to meet all regulatory requirements. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. Please see the information below regarding the microbiological tests (coliform) and fluoride levels to explain the violations that were detected in 2015. This high level of fluoride was caused by well #6. The Department of Health has changed the status of well #6 from emergency use only to seasonal, for use during the high demand summer months.

Total Coliform: In January of 2015 during repairs to Well #3 there was an unsatisfactory bacteriological test result after the well was repaired. There was no e-coli or fecal coliform present during the unsatisfactory test. The water from well #3 was chlorinated and cleared of any potential hazards immediately and the subsequent tests were clear. The Total Coliform Rule requires water systems to meet a stricter limit for coliform bacteria. Coliform bacteria are usually harmless, but their presence in water can be an indication of disease-causing bacteria. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. If this limit is exceeded, the water supplier must notify the public by newspaper, television or radio. To comply with the stricter regulations, we have increased the average amount of chlorine in the distribution system.

Flouride: This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). During the tests that only applied to well #6 (not the whole water system) the drinking water had fluoride concentration of 2.07, 2.58, 2.37 and 4.75 in 2015. When the water from well #6 is mixed with the whole water system, the average fluoride for the whole year was 2.38, well below the federal maximum of 4.0 for fluorides, although it is higher than Washington's MCL of 2.0.

Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water, during the well #6 water testing as stated above, did contain more than 4 mg/l of fluoride, and therefore we're required to notify you of this discovery because of potential problems. For more information, please call the City of Othello Public Works Department at 509-488-6997. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.

Nitrates: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Trihalomethanes (TTHM) & Haloacetic Acid (HAA5): The tests for TTHM and HAA5 are done on well systems that use chlorination products for water disinfection. The tests must be done during the warmest part of the year, sometime between July and October.

Lead: In Washington State, lead in drinking water comes primarily from materials and components used in household plumbing. The more time water has been sitting in pipes, the more dissolved metals, such as lead, it may contain. Elevated levels of lead can cause serious health problems, especially in pregnant women and young children. To help reduce potential exposure to lead: for any drinking water tap that has not been used for 6 hours or more, flush water through the tap until the water is noticeably colder before using for drinking or cooking. You can use the flushed water for watering plants, washing dishes or general cleaning. Only use water from the cold-water tap for drinking, cooking and especially for making baby formula. Hot water is likely to contain higher levels of lead. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water is available from EPA's Safe Drinking Water Hotline at 1-800-426-4791 or online at http://www.doh.wa.gov/CommunityandEnvironment /DrinkingWater/RegulationandCompliance/CCRReports. The city tested for lead at one location, and found there was none detected.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791). Please call Public Works @ 488-6997 or City Hall @ 488-5686 if you have questions.

We at the City of Othello Water Department work around the clock to provide top quality water to every tap. We ask that all of our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.

APPENDIX E

Consolidation Feasibility Study Executive Summary (2016)
Water Supply Plan Summary (2016)
ASR Feasibility Study Summary (2017)

Executive Summary

Consolidation Feasibility Study

CITY OF OTHELLO

and

Adams County Water District No.1

Basin View Water Association

Bird Dog Family LTD Partnership II

Highland Estates Water System

Meadow Lane Water Association

Othello Manor Water System

Rainier Tracts Water Association

Summerset West Water Association

August 31, 2016

Introduction and Background

In 2015 Drinking Water State Revolving Fund awarded the City of Othello several grants to study the feasibility of consolidating small water systems into Othello's water system. The goal of these consolidation feasibility studies is to provide the City of Othello and each small water system owner a basis for considering integration of the small water system into the City of Othello's water system. The analysis and alternatives for each system vary depending on the specific locations, conditions, and situations within the small system and its potential impact on the City of Othello's water supply and infrastructure.

Each of the eight individual system studies focuses on a specific individual system and therefore provides a narrow view, analysis and conclusions related only to the individual system with cost distributed on a "by system" basis to the users.

Purpose of Executive Summary

This summary represents the collective findings of the individual studies. The purpose of this Executive Summary is to provide a broader view of the consolidation, not as individual systems, but as groups of individual users, with the primary question to be answered being:

"Does the City have the capacity to extend water service to serve these users and can it be done at the current out of city rate of $51/month while operating at a surplus?"

1.1 Executive Summary

Estimated Impact to the City Water System

Infrastructure

The City has adequate supply, storage and distribution capacity to provide service to the eight systems considered for consolidation. Improvements to the City's existing supply, storage and distribution infrastructure is not required.

Water Rights

- The City has adequate water rights to provide service to the eight systems
- The consolidation study assumes the existing water rights held by the eight systems will be transferred to the City of Othello
- The estimated demands of the eight water systems exceeds the potential volume of water rights transferred to the City

Estimated Cost to Consolidate the Water Systems

The estimated total cost to improve the eight existing systems to the City of Othello standards and extend City water service is estimated as follows (See Figure 1):

Estimated Cost to Improve Individual Systems:	$5,354,000
Estimated Cost to Extend City Water Service:	$3,166,000
Total:	$8,520,000

Potential Funding

- The DWSRF Loan Program provides low-interest construction loans to publicly-owned (municipal) drinking water systems in Washington.
- Projects that involve consolidating two or more systems can receive up to 50 percent principal forgiveness.
- For systems receiving subsidies, loan rates are currently 1% per year with terms up to 24 years.
- Prior to applying for funds the proposed project needs to be included in an APPROVED Water System Plan (WSP) prior to the application deadline (September 30).
- A maximum of $3,000,000 can be awarded to each water system/entity applying this loan cycle. Applications for restructuring (combining) systems may combine loan limits up to a maximum of $6,000,000.

Estimated Debt Service

Annual/monthly debt service on an $8.5 million dollar loan is estimated as follows:

1% for 20 years with no subsidy:	$472,000 / $39,350
1% for 24 years with 50% subsidy:	$200,000 / $16,750

Estimated Revenue

Annual/ monthly revenue of the eight systems is estimated based on current "outside" City water rates as follows:

$398,000 / $33,000

Conclusion

- The City has the supply, storage and distribution system capacity to provide service to the eight identified systems with no improvements needed to existing City infrastructure

- The City's current water rights are adequate to provide service to the eight identified systems

- Consolidation will allow the transfer of additional water rights to the City though the estimated demands from the eight systems will exceed the water rights transferred to the City for a net decrease in available water rights

- The City can extend water service to the eight identified systems, improve the systems existing infrastructure to City standards, and if funded through DWSRF with 50% forgiveness do so with a net surplus at current "outside" City water rates

    - This does NOT include additional operation/maintenance/administrative costs which have not been estimated. The net surplus may cover or defray these potential expenses

- Extending City water system infrastructure to the eight systems may potentially allow other water systems and new developments in the area to connect to the extended City water

system which would bring in additional revenue at little to no additional cost (build it they will come philosophy)

- Extending service to this portion of the "Othello Growth Area" (as defined in Othello's Comprehensive Plan) will:
    - Add users which will spread future costs of infrastructure improvements to more users lowering the future potential "per user" cost of improvements (supply/storage)
    - Utilizing DWSRF to extend City infrastructure through consolidation could potentially reduce by 50% the cost of extending service without consolidation

Important Notes

- One or more of the eight systems refusing to consolidate would affect the conclusions (in some cases significantly)
- Assurances would need to be obtained from DWSRF regarding the 50% principal forgiveness
- The costs estimated herein are "conceptual costs" and would need to be refined if the City desired to move forward with consolidation (this could be done during the forthcoming WSP update)
- The City may want to consider contacting other water systems and/or developers in the area to determine level of interest in consolidation to spread the cost out further
- Moving forward with consolidation will likely require substantial outreach by the City to take the existing interest shown by these systems and generate the momentum needed to turn the conceptual consolidation plan into a reality

The following sections provide supporting information for the above statements. Detailed information regarding the individual systems and consolidation impacts are provided in the eight individual system consolidation studies.

1.2 Estimated Impact to City Water System

1.2.1 Infrastructure (Supply, Storage and Distribution)

The City has adequate supply, storage and distribution capacity to provide service to the eight systems considered for consolidation. Improvements to the City's existing supply, storage and distribution infrastructure is not required to serve the eight systems.

1.2.2 Water Rights

The consolidation studies have evaluated the water rights and concluded the following:

- The City has adequate water rights to provide service to the eight systems
- The consolidation study assumes the existing water rights held by the eight systems will be transferred to the City of Othello
- The estimated demands of the eight water systems exceeds the potential volume of water rights transferred to the City

The following tables indicate which systems have water right certificates, which systems have water rights under the "permit exempt well", the estimated quantity of water rights that could potentially be transferred to the City (actual quantity would be determined by ECY), and the estimated net effect on the City's water rights post-consolidation/transfer.

Table 1: Current City of Othello Water System Demands

System	Water Right Type		Current Water Rights		Est. System Water Use	Net Effect on City Water Rights
	Permit Exempt Well	Water Right Certificate	Qi (gpm)	Qa (ac-ft/yr)	Qa (ac-ft/yr)	Qa (ac-ft/yr)
Adams Co. Water Dist. No.1	n/a	n/a			18.3	-18.3
Basin View Water Assoc.		X	50	38.0	10.6	27.4
Bird Dog Family Partnership II	X			5.6	32.5	-26.9
Highland Estates Water System		X	100	12.6	6.6	6
Meadow Lane Water System	X			5.6	5.6	0
Othello Manor Water System	X			5.6	98.5	-92.9
Rainier Tracts Water Assoc.	X			5.6	6.0	-0.4
Summerset West Water Assoc.		X	100	23.5	27.9	-4.4
Total			250	96.5	206.0	-109.5

Table 2: Post-Consolidation Water Rights - City of Othello

Description	Qi (gpm)	Qa (ac-ft/yr)
Current Water Rights	9,550	7,100.0
Water Rights Held by eight Systems (1)	250	96.5
Post-Consolidation Water Rights (2)	9,800	7,196.5

(1) *From Table 1*
(2) *The actual quantity of transferable water rights will be determined by ECY*

1.3 Estimated Cost to Consolidate the Water Systems

The estimated cost to improve the eight existing systems to the City of Othello standards and extend City water service is estimated as follows (See Figure 1):

Estimated Cost to Improve Individual Systems:	$5,354,000
Estimated Cost to Extend City Water Service:	$3,166,000
Total:	$8,520,000

The following tables estimate the costs summarized above.

Table 3: Estimated Cost to Improve the Individual Systems to City of Othello Water System Standards

System	Estimated Cost (1)	Current Connections	$/Conn.
Adams Co. Wtr Dist. No.1	$ 2,620,000	338	$ 7,800
Basin View Water Assoc.	$ 420,000	22	$ 8,200
Bird Dog Family Partnership II	$ 98,000	51	$ 4,500
Highland Estates Water System	$ 205,000	16	$ 12,800
Meadow Lane Water System	$ 410,000	25	$ 16,400
Othello Manor Water System	$ 36,000	152	$ 200
Rainier Tracts Water Assoc.	$ 380,000	27	$ 14,100
Summerset West Water Assoc.	$ 1,185,000	72	$ 16,500
Total	$ 5,354,000	703	$ 7,600

(1) *From individual system consolidation feasibility reports*

Table 4: Estimated Cost to Extend City Service to Consolidate the Water Systems [(1)]

Description	Est. Quan.	Units	Unit Price	Amount
Transmission Main: 8-inch				
Transmission Main	14,200	LF	$28	$397,600
Valves, fittings, restraints	14,200	LF	$7	$94,667
Fire hydrants	14,200	LF	$9	$127,800
Service connections	14,200	LF	$2	$25,560
Surface Restoration	14,200	LF	$2	$28,400
Transmission Main: 10-inch				
Transmission Main	8,200	LF	$32	$262,400
Valves, fittings, restraints	8,200	LF	$8	$65,600
Fire hydrants	8,200	LF	$9	$73,800
Service connections	8,200	LF	$2	$14,760
Surface Restoration	8,200	LF	$2	$16,400
Transmission Main: 12-inch				
Transmission Main	2,800	LF	$35	$98,000
Valves, fittings, restraints	2,800	LF	$10	$28,000
Fire hydrants	2,800	LF	$9	$25,200
Service connections	2,800	LF	$2	$5,040
Surface Restoration	2,800	LF	$2	$5,600
Transmission Main: 14-inch				
Transmission Main	4,900	LF	$38	$186,200
Valves, fittings, restraints	4,900	LF	$15	$71,867
Fire hydrants	4,900	LF	$9	$44,100
Service connections	4,900	LF	$2	$8,820
Surface Restoration	4,900	LF	$2	$9,800
Railroad Crossings				
16" Casing / 8" Carrier	60	LF	$500	$30,000
24" Casing / 12" Carrier	60	LF	$600	$36,000
Irrigation Canal Crossings				
24" Casing / 10" Carrier	200	LF	$500	$100,000
36" Casing / 14" Carrier	200	LF	$700	$140,000
Other				
PRV Stations	2	EA	$15,000	$30,000
			Subtotal	$1,926,000
			Mobilization 10%	$193,000
			Contingency 20%	$385,000
			Estimated construction cost	$2,504,000
			Environmental approvals allowance (assuming must meet DWSRF loan requirements)	$36,000
			Engineering 25% (design, construction management/inspection)	$626,000
			ESTIMATED PROJECT COST	$3,166,000

(1) *See attached Figure 1*

1.4 DWSRF Consolidation Loan/Grant Funding Program

If consolidation is desired an attractive funding source would be using the DWSRF loan program. Pertinent DWSRF program information is summarized below.

Program Description and Goals

The Washington State Legislature passed laws to create a DWSRF Loan Program consistent with federal law. Loan repayments, loan interest, and State match funds supplement the federal capitalization grant.

The DWSRF Loan Program provides low-interest construction loans to publicly-owned (municipal) drinking water systems in Washington. The DWSRF Loan Program goals are:

- Provide loans to water systems for capital improvements that increase public health protection and compliance with drinking water regulations.
- Protect the health of the people of Washington State by ensuring safe and reliable drinking water.

Subsidy (grant)

DOH is required to award subsidy, or principal forgiveness, in an amount equal to 20 to 30 percent of the capitalization grant award. Principal forgiveness will be awarded based on the following criteria:

- Projects where the average monthly water rate with the loan will exceed 2.0 percent of the median household income (MHI) for the service area (also known as the Affordability Index) can receive up to 30 percent principal forgiveness.
- Projects where the average monthly water rate with the loan will exceed 3.5 percent of the MHI for the service area can receive up to 50 percent principal forgiveness.
- **Projects that involve a consolidation of another system can receive up to 50 percent principal forgiveness.**
- If subsidy funds are still available after awarding subsidy as described above, up to 30 percent principal forgiveness will be awarded to applicants with a debt service coverage ratio of less than 1.20.

Not all systems that qualify for subsidy and are on the eligible funding list may necessarily receive it. There will be a set amount available and it will be awarded based on project score.

Maximum Award

The maximum of $3,000,000 can be awarded to each water system/entity applying this loan cycle. Multiple owners of one project (shared facilities) that are restructuring (combining) systems may combine loan limits up to a maximum of $6,000,000.

Loan Terms

Eligible restructuring/consolidation projects proposed by municipal Group A water systems. Projects must result in a change in ownership.

Interest Rate: 1% interest rate on loan and 50% Principal Forgiveness

Loan Fee: 0

Loan Repayment Period: 24 years or life of the project, whichever is less

Reduced interest and subsidy is limited. Not all water systems that are eligible for subsidies will receive principal forgiveness and reduced interest rates.

Eligibility/Planning Documents

All applicants are required to have an approved water system plan (WSP), a small water system management program (SWSMP), or plan amendment containing the proposed DWSRF project prior to submitting a funding application. Application cycle deadline is generally September 30th of the respective year.

If consolidation were to be pursued the consolidation would need to be included in the City's upcoming WSP update with the final WSP submitted to and approved by DOH prior to September 30. Funding the entire consolidation effort through DWSRF would require a minimum of 2 applications over 2 years

1.5 Estimated Debt Service

The debt service on the estimated costs funded through the DWSRF program is estimated in the following table.

Table 5: Estimated Debt Service

Description	Improve individual systems to City of Othello Water System Standards	Extend City water service	Total
Estimated Cost	$ 5,354,000	$ 3,166,000	$ 8,520,000
DWSRF Loan			
Estimated Annual Debt Service (1)	$ (252,031.37)	$ (149,034.61)	$ (401,065.98)
Estimated Monthly Debt Service	$ (21,002.61)	$ (12,419.55)	$ (33,422.17)
Connections	703	703	703
Monthly cost per connection	$ (30)	$ (18)	$ (48)
DWSRF Loan w/50% loan forgiveness			
Estimated Debt Service (1)	$ (126,015.69)	$ (74,517.31)	$ (200,532.99)
Estimated Monthly Debt Service	$ (10,501.31)	$ (6,209.78)	$ (16,711.08)
Connections	703	703	703
Monthly cost per connection	$ (15)	$ (9)	$ (24)

(1) *Loan terms: 1% annual interest rate, 24 year repayment*

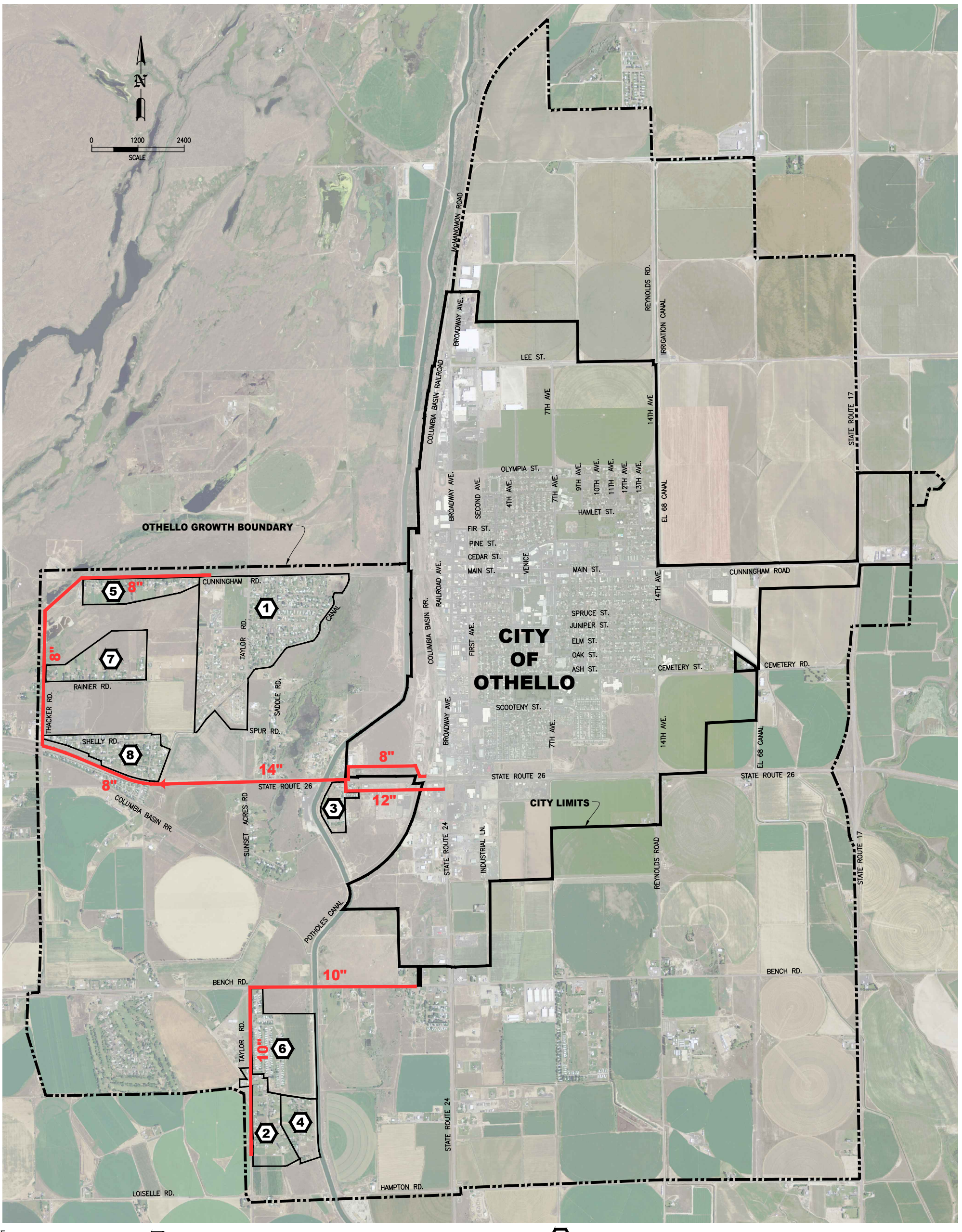
1.6 Estimated Revenue

The potential revenue associated with consolidating the eight systems is estimated in the following table.

Table 6: Estimated Revenue

System	Current Connections	Monthly Water Fee [1] (outside City)	Estimated Monthly Revenue	Estimated Annual Revenue
Adams Co. Wtr Dist. No.1	338	$ 51.23	$17,300	$207,600
Basin View Water Assoc.	51	$ 51.23	$2,600	$31,200
Bird Dog Family Partnership II				
Residential Connections	7	$ 51.23	$400	$4,800
Proposed 100 Unit Housing Development (4-inch Meter)	(n/a)	(n/a)	$2,133	$25,600
Highland Estates Water System	16	$ 51.23	$800	$9,600
Meadow Lane Water System	25	$ 51.23	$1,300	$15,600
Othello Manor Water System				
152 Unit Mobile Home Park (6-inch meter)	(n/a)	(n/a)	$3,625	$43,500
Rainier Tracts Water Assoc.	27	$ 51.23	$1,400	$16,800
Summerset West Water Assoc.	72	$ 51.23	$3,700	$44,400
		Total	$33,200	$397,900
		Estimated Debt Service (DWSRF W/50% loan forgiveness)	($16,700)	($200,500)
		Estimated Net Surplus	$16,500	$197,400

(1) *Does not include overage charges*



1. ADAMS COUNTY WATER DISTRICT #1 – SYSTEM ID: 22525 X
   - 341 CONNECTIONS
   - OTHELLO WATER SYSTEM INTERTIE – UNKNOWN CAPACITY
2. BASIN VIEW WATER ASSOCIATION – SYSTEM ID: 04530 N
   - 22 CONNECTIONS
   - OTHELLO MANOR WATER SYSTEM INTERTIE – 300 GPM
   - WELL #1 – 35 GPM
3. BIRD DOG FAMILY LTD PARTNERSHIP II – SYSTEM ID: 52172 8
   - 58 CONNECTIONS
   - WELL #1 – 33 GPM
4. HIGHLAND ESTATES WATER SYSTEM – SYSTEM ID: 32736 0
   - 16 CONNECTIONS
   - WELL #1 – 56 GPM
5. MEADOW LANE WATER ASSOCIATION – SYSTEM ID: 53190 T
   - 25 CONNECTIONS
   - WELL #1 – 70 GPM
6. OTHELLO MANOR WATER SYSTEM – SYSTEM ID: 64845 3
   - 152 CONNECTIONS
   - WELL #1 – 300 GPM
7. RAINIER TRACTS WATER ASSOCIATION – SYSTEM ID: 70910 M
   - 20 CONNECTIONS
   - WELL #1 – 45 GPM
8. SUMMERSET WEST WATER ASSOCIATION – SYSTEM ID: 85080 M
   - 72 CONNECTIONS
   - WELL #1 – 200 GPM

s:\autocad drawings\172 othello\172-08 system consolidation\17208-figure 1

SCALE:	AS SHOWN
DESIGNED:	–
DRAWN:	TVP
CHECKED:	
APPROVED:	
PROJ. NO.:	172-08
DATE:	8/26/16

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF OTHELLO, WASHINGTON
WATER SYSTEM CONSOLIDATION FEASIBILITY STUDIES

CONSOLIDATION FEASIBILITY STUDY
EXECUTIVE SUMMARY

FIGURE
1

VARELA & ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

601-A W Mallon Avenue, Spokane, WA 99201 | P 509.328-6066 | F 509.328.1388 | www.varela-engr.com

TECHNICAL MEMO

TO: City of Othello, WA

FROM: Jesse Cowger, PE

DATE: August 24, 2016

RE: Water Supply Plan Summary

ATTACH: Water Supply Planning Recommendations – Aspect Consulting – Dec 10, 2014
Well Assessment – Aspect Consulting – Feb 12, 2016
Groundwater Supply Improvements – Aspect Consulting – Jun 21, 2016

Background

The City of Othello relies on wells drilled into the lower Wanapum Basalt aquifer as its sole source of drinking water. Over time the groundwater level in the lower Wanapum Basalt has declined and resulted in progressively lower pumping rates from existing wells. The Washington State Department of Ecology (Ecology) has identified and documented the regional decline of aquifer levels through a series of reports regarding the Columbia Basin Groundwater Management Area (GWMA). Othello recognized the looming threat to its water supply posed by declining aquifer levels and sought assistance from Varela & Associates and Aspect Consulting. The City tasked Varela and Aspect with developing a Water Supply Plan to secure the City's water supply for the future.

Othello received a Pre-Construction Grant from the Washington State Drinking Water State Revolving Fund (DWSRF) to partially fund the Water Supply Plan. The City utilized a combination of local funds and the grant from DWSRF to fund the Water Supply Plan.

Project Description and Scope

In addition to declining aquifer levels, interference between City and private wells exacerbates declining pumping rates in City wells. The City's Well 6 has fluoride (F) concentrations above the MCL and Well 7's capacity has declined possibly due to biofouling. The City also relies heavily on well pumping capacity to meet peak demands due to a lack of equalizing storage volume in reservoirs. Due to these factors, this Water Supply Plan scope includes the following:

- Systematic evaluation of existing wells
- Options for addressing fluoride level above MCL in Well 6
- Options for meeting present and future water demands

Systematic Evaluation of Existing Wells

Refer to attached Aspect Consulting memo dated February 12, 2016 for the full detailed analysis of City wells. The following summarizes the findings and recommendations related to the existing condition of the City's wells:

- The City is doing a good job of managing the effects of seasonal drawdown and well interference by selectively pumping certain wells to maximize yield.

- All City wells except Well 7 show stable well efficiency over time. Well 7 was constructed with a stainless steel screen (all other wells except Well 6 are completed primarily with open borehole in the water bearing zones. Rehabilitation of Well 7 might increase the existing pumping rate of 600 gpm to 900 gpm.

- The City operates a telemetry system collecting and recording water level and flow data from each of the active wells. Much of the historical telemetry data was reportedly corrupted and lost. Maintaining reliable, accurate water level and flow data is critical to managing and optimizing the City's pumping and limiting drawdown in the wells. We recommend that the City routinely archive telemetry data in a secure location to ensure data are available for future use.

- Wells 2, 6, and 8 may be subject to cascading water when pumping causes water levels to draw down below the elevation of uncased water bearing zones. Cascading water may entrain air and negatively affect pump performance. We recommend that the pump performance curves be compared to actual pump yields at operating total head to assess whether cascading water and air entrainment could be affecting pump performance.

- Water rights are not a constraint for the City in managing the well field. Withdrawals from recently constructed Well 9 are limited to 2,000 gpm, 3,000 ac-ft/year, as this well is only authorized under one City water right. We recommend that if and when future water changes are required that Well 9 be added to the right being changed.

- There is record in the files reviewed that proofs of appropriation or requests to extend the development schedules for City water rights were filed with Ecology. If this is the case, we recommend completing proofs of appropriation for five of the City's water rights that are ready for certification, while filing extensions to the development schedules for the remaining rights.

Options for Addressing Fluoride in Well 6

Well 6 has fluoride levels that generally exceed the MCL of 4.0 mg/L. The City attempted to modify the well in the past to decrease the fluoride concentration, but had little success. Due to the fluoride levels exceeding the MCL Othello currently designates Well 6 as an emergency well and only operates it if all other sources of supply cannot meet system demand. Well 6 is the City's largest producing source at 2,500 gpm. The City sees the following Options for future utilization of Well 6:

Option 1: Continue to Utilize Well 6 as an Emergency Source (Do Nothing)

The City can continue to utilize Well 6 on an emergency basis and rely on blending in the distribution system to dilute the fluoride level. The primary benefit of this alternative is no investment is required. This alternative has the disadvantage of lack of flexibility in when the City can utilize Well 6. It would also make it more likely the customers closest to Well 6 would consume water with fluoride levels that exceed the MCL. DOH may not allow the City to operate the well in the fashion indefinitely.

Option 2: Dedicate Well 6 to Supplying Industrial Users

More than half of the water pumped from Othello's wells goes to industrial users. The largest of these industrial users is Simplot, which utilizes roughly 70% of total industrial water supplied by Othello. If a significant portion of Othello's industrial users could utilize water from Well 6 without affecting their industrial processes, then devoting Well 6 to industrial use would effectively reduce the demand on Othello's other wells. The following considerations pertain to feasibility of implementing this option:

- DOH may have water quality requirements for the water used in the industrial processes that would preclude use of water with fluoride concentrations above 4.0 mg/L.
- Water produced from Well 6 has some aesthetic taste and odor issues that may make the water unappealing for some industrial customers.
- Dedicate use of Well 6 would require construction of a dedicated distribution system for industrial supply and would require industrial users to internally separate their potable uses from their industrial uses. This carries with it an increased risk of cross connection between the two systems.
- Well 6 does not currently have a VFD to allow modulation of pumping rate to match demand; however, the City has budgeted for purchase an installation of a VFD for Well 6.
- If the VFD does not provide sufficient range of flow for industrial users, then a dedicated reservoir would also be needed.
- Dedicating a single source to industrial use has potential for reliability issues if the single source breaks down. Installation of a one-way intertie with the City's potable water distribution system could potentially mitigate reliability concerns.

Additional discussions with the City's industrial users are needed to determine whether barriers exist that preclude implementation of this option. The City will investigate this option further and potentially combine discussions with industrial users while investigating the feasibility of industrial wastewater treatment and reuse.

Option 3: Construct Treatment System to Remove Fluoride from Well 6 Water

A Treatment system could remove fluoride from the water produced by Well 6. The following types of treatment methods could likely remove fluoride from Well 6 raw water to levels below the MCL:

- Granular Activated Alumina
- Reverse Osmosis (RO)
- Electrodialysis and Electrodialysis Reversal
- Bone Char

Additional investigation of the raw water properties and constituents is needed to determine which of the preceding treatment methods would make the most sense for Well 6 if implemented. A treatment system would require additional operator expertise and certification and would also have ongoing chemical and membrane/media expenses (depending on the treatment method).

Option 4: Blend Well 6 with other City Well(s)

Well 6 has the highest fluoride concentration of all Othello's wells. Most City wells have average fluoride concentrations around 2.0 mg/L; although some of the wells have occasional spikes up to 3.0 mg/L. Several factors affect the feasibility of blending Well 6 with another City well:

- Capacity: Well 6 is Othello's largest producing source with a current pumping rate of approximately 2,000 gpm. To reliably achieve a blended water fluoride concentration below the MCL the City may need to reduce the pumping rate of Well 6 to allow sufficient dilution of fluoride.
- Proximity of other wells to Well 6:
    - A dedicated main with no service connections is required to blend Well 6 with another well. The well closest to Well 6 is Well 2 which is approximately half a mile away. However, Well 2 has limited reliability; City Staff reports the well runs out of water after roughly 15 minutes of operation. The City has designated Well 2 "Emergency Only".
    - Due to Well 2's lack of capacity (historic pumping rate of approximately 300 gpm) compared to Well 6 and its lack of reliability for extended pumping, blending with Well 2 appears unfeasible.
    - Most City wells (other than Well 2) are 1-2 miles away from Well 6
- Reliability: in order to maintain blended fluoride concentration below the MCL operation of Well 6 becomes contingent upon the operability of the well(s) blended with it. If the blending well becomes inoperable due to mechanical failure, interference issues, capacity decline, or other issues then the City cannot operate Well 6 without supplying the system undiluted water with fluoride concentration likely exceeding the MCL.
- Monitoring: fluoride concentrations in City wells vary throughout the year so DOH would likely require routine monitoring (possibly daily) to demonstrate blended fluoride concentration meets regulatory requirements. The frequency and corresponding expense associated with monitoring blended water quality may affect the feasibility of this Option.

The cost associated with blending Well 6 with other City wells would be considerable due to the high capacity of Well 6 and its proximity to other wells. Blending also has the disadvantage of reduce reliability because Well 6 becomes dependent on the operation of other wells to achieve the desired blended fluoride concentration below the MCL.

Option 5: Use Well 6 as an Aquifer Storage and Recover (ASR) Injection Well

Othello has begun investigating the feasibility of developing a supplemental source of supply to augment its groundwater sources. The supplemental supply would likely include treatment of surface water and may utilize ASR (refer to later section of this memo for details pertaining to the City's plans for a future supplemental source of supply). If the City utilizes Well 6 as the injection well for ASR it may dilute the fluoride concentration in the vicinity of the well. If the City also continues to utilize Well 6 as a recovery well the fluoride concentration may drop below the MCL.

Well 6 is located near the western edge of Othello's system. Initial observations by the City's hydrogeology consultant indicate a well more centrally located betwixt Othello's other wells would be more ideal from an ASR standpoint. However, further analysis is needed to assess the options, combinations, advantages, and disadvantages associated with selecting the injection well(s) for an ASR system.

Utilizing Well 6 for ASR may have operational complexities that affect the well's availability for meeting system demand (e.g. when utilizing Well 6 as an injection well it cannot provide supply to the system). Some of the restrictions on availability could likely be overcome through operational coordination with the City's other wells and the new supplemental source (surface water or industrial). Presumably the City would not inject water during periods of high demand when the City might need Well 6 to meet peak demands.

Discussion of Options for Addressing Fluoride in Well 6

The following table summarizes advantages and disadvantages associated with the options for addressing fluoride in Well 6:

Option	Advantages	Disadvantages
1) Do Nothing	• Low cost	• Well 6 remains emergency source • Customers closest to Well 6 likely exposed to higher levels of fluoride when Well 6 operates
2) Dedicate Well 6 to Industrial Users	• Potentially puts capacity of Well 6 to use for existing industrial customers • Would likely reduce fluoride levels consumed by non-industrial customers	• Acceptability to regulators unknown • Would require dedicated distribution system and potentially storage facilities (significant cost to implement)
3) Treatment System to Remove Fluoride	• Reliable way to reduce fluoride from water produced by Well 6	• Likely significant first cost • Increased operational complexity • Ongoing chemical/media/membrane maintenance
4) Blend with other City Well(s)	• Could achieve blended fluoride levels that meet the MCL.	• Significant first cost associated with mains dedicated to blending • May required blending with multiple sources or reducing pumping rate of Well 6 • Reduces system reliability due to required functionality of blending wells to operate Well 6 • Increased monitoring to demonstrate blended water quality meets regulatory requirements

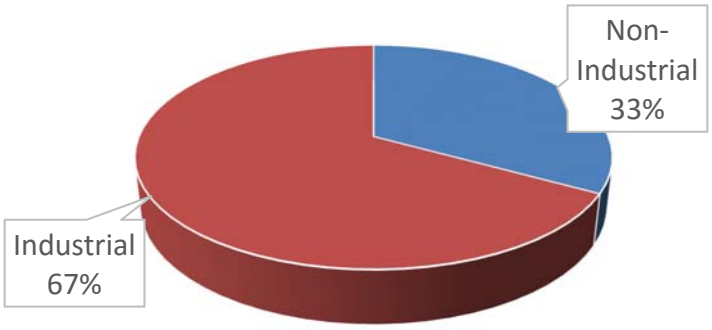
Option	Advantages	Disadvantages
5) Use Well 6 as ASR Injection Well	• May reduce concentration of fluoride in Well 6 to below MCL. • Would not require reducing the pumping rate of Well 6 • If ASR implemented, may slow the decline of the Wanapum aquifer • Supplemental source of supply would reduce the City's reliance on existing sole source aquifer	• Requires construction of supplemental source of supply (high first cost and ongoing operation and maintenance cost) • Non-central location of Well 6 in relation to Othello's other wells may not be ideal from an ASR standpoint • Greater operational complexity

As shown in the preceding table, each option has advantages and disadvantages. Additional investigation and cost estimates are needed to determine which option best serves the City's long-term interests. The results of the City's ASR feasibility study will affect the City's decision as will input from DOH on potentially devoting Well 6 to industrial use. Othello has begun the process of updating its Water System Plan and will further analyze the alternatives discussed herein when formulating the City's capital improvements plan.

Meeting Present and Future Water Demand

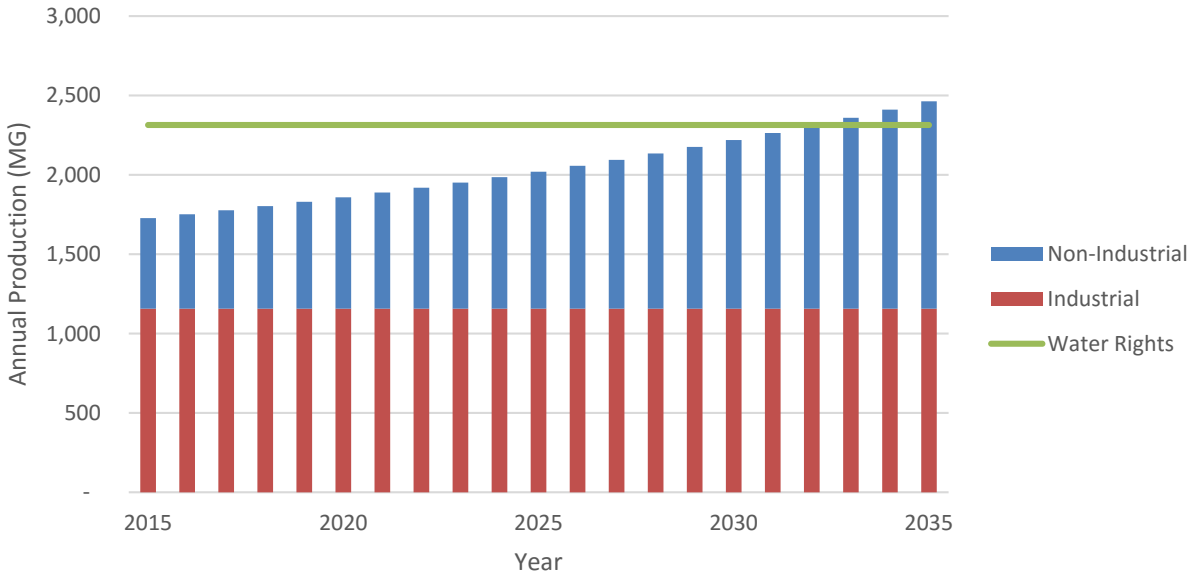
On March 28, 2016 Othello adopted its updated Comprehensive Plan (Comp Plan). The Comp Plan lays out an ambitious vision for growth in Othello which includes population growing from 7,780 in 2015 to 17,825 in 2035. The population growth projected in the Comp Plan equates to an annual rate of 4.23%. In many cases a water systems water demand will increase roughly proportionally to its population growth. However, Othello supplies several large industrial users which make up almost 2/3 of the City's annual demand. For this reason, projections for future demand can be broken into industrial and non-industrial segments.

Ratio of Industrial and Non-Industrial Water Use



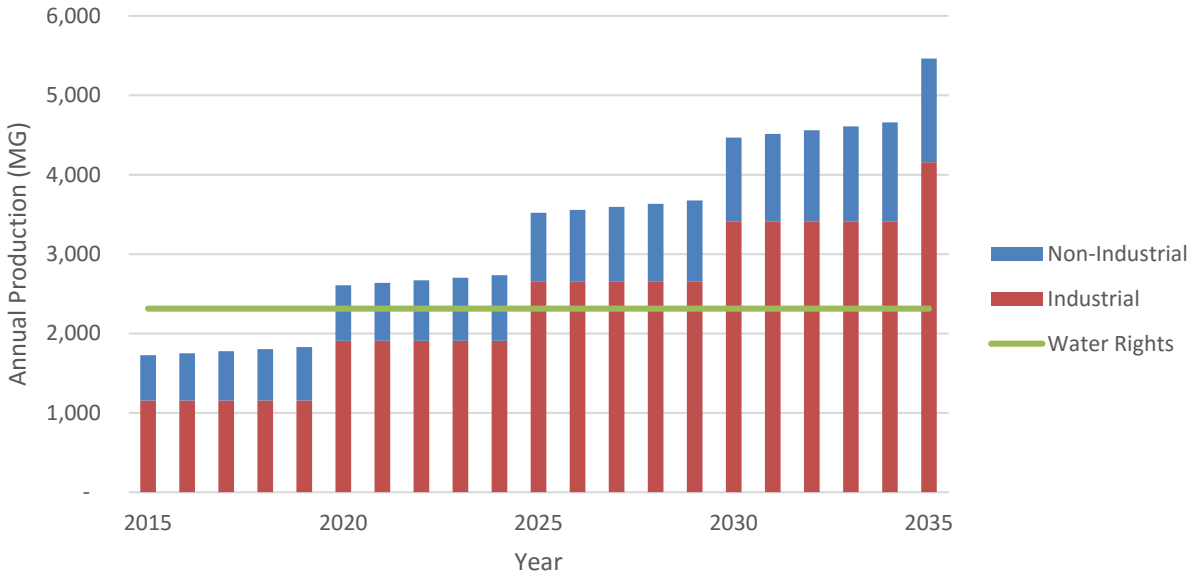
If non industrial water use increases proportionally with projected population growth and industrial demand remains static, the following demand curve results:

Projected Water Demand: No New Industrial Customers



Were Othello to attract additional industrial users to the City, water demand would experience incremental jumps as new industrial users come online. The City's largest industrial customer (Simplot) utilizes approximately 750 MG annually. If a new industrial user similar to Simplot located in Othello roughly every five years the following demand curve would result:

Projected Water Demand: New Industrial Customer Every Five Years



As shown in the preceding graphs, the time frame in which Othello has adequate water rights to meet system demand depends a great deal on whether the City attracts additional industrial users. If no new industrial users locate in the City then Othello's water rights could supply projected demand for the next 17-18 years. The City appears to have insufficient water rights to support addition of a new industrial user similar in size to Simplot at any point in the future. The City's

Comp Plan envisions growth of all sectors in Othello (residential, commercial, industrial, etc.); hence, the City plans the following steps to meet projected water demand and prevent availability of water supply from constraining growth in Othello:

Near Term: Continue to Maintain, Develop, and Rely on Groundwater

In the near term Othello must continue to rely on its groundwater sources and develop additional well(s) to keep up with regional declines in aquifer levels and corresponding declines in exiting well pumping rates. Refer to attached Aspect Consulting memo dated June 21, 2016 for the full detailed recommendations for improving Othello's groundwater supply. The following summarizes the findings and recommendations contained therein:

- Rehabilitate Well 7: it appears the efficiency of Well 7 has decreased over time. Rehabilitation of this well could recover 300 gpm of pumping capacity.
- Install new Wanapum Aquifer Well
- Explore Grande Ronde Aquifer

The City's existing wells tap the Wanapum basalt aquifer which has declined over time and decreased available drawdown and pumping rates of the City's wells. Rehabilitating Well 7 and developing a new Wanapum well will help the City maintain its existing supply capacity at least for the near term. Exploring the Grande Ronde basalt aquifer, which is deeper than the Wanapum basalt, will help the City determine the degree to which Othello may be able to rely on groundwater into the future. If the Grande Ronde has reasonable quality and quantity of water available it may extend the period of time Othello can continue to rely on groundwater supply.

Mid to Long-Term: Develop Supplemental Source of Supply

The available data and analyses to date document a regional decline in ground water levels in the Columbia Basin. The estimates vary on current rate of decline, but it appears Othello may not be able to continue to rely on groundwater indefinitely as its sole source of water supply. In recognition of the possibly finite nature of groundwater supply Othello plans to develop a supplemental source of supply. The City has identified the following possible components of a future supplemental source of supply:

- Surface water from bureau of reclamation irrigation canals treated to drinking water standards for potable use; this source could also be treated to the goundwater anti-degradation standard for injection and storage in the basalt aquifer for later recover via City wells.
- Industrial wastewater treated to anti-degradation standard for groundwater injection and storage in the basalt aquifer for later recovery via City wells. Currently industrial wastewater cannot be utilized for direct potable reuse; future changes in regulation may open doors for direct potable reuse of industrial wastewater.

The City has begun a study to investigate the feasibility of establishing a new source of supply which may employ aquifer storage and recovery (ASR) as a means to store treated water in the basalt aquifer. ASR may prove a useful tool for Othello due to several factors:

- Surface water from Bureau of Reclamation canals is not available for use during the winter. Treating water from the canals and storing it in the aquifer could allow Othello to treat and store the volume of water most useful to the City's situation.

- If the City pursued treatment and reuse of industrial wastewater the treated effluent would need to spend time in an environmental buffer such as a basalt aquifer before it could be utilized for drinking water.

- If the City utilizes Well 6 as the injection well for ASR it may dilute the fluoride concentration in the vicinity of the well (refer to previous discussion of options for Well 6). If the City also continues to utilize Well 6 as a recovery well the fluoride concentration may drop below the MCL.

Capacity of a supplemental source will depend on several factors including availability of raw water, construction and operation cost for treatment, and the City's desired ratio of groundwater Vs. supplement supply. Assuming availability of raw water is not the limiting factor, treatment could be designed for incremental expansion based on the City's needs over time.

The timing for implementation of a supplemental source of supply depends on many factors such as:

- Availability of raw water from Bureau of Reclamation canals, industrial users, or other sources not yet identified.

- Contaminants in raw water and treatment requirements to make raw water suitable for potable consumption or storage via ASR

- Permitting with Department of Ecology for reservoir permit and water rights implications

- Availability of funding

- Rate of aquifer decline and effect on Othello's ability to supply system demand

- Viability of Grande Ronde aquifer; if Grande Ronde is viable source of supply it may extend the timeframe Othello chooses to rely on groundwater

The results of Othello's ASR feasibility study will provide the City with some of the information needed to lay out a more specific timeline for implementation.

CITY OF OTHELLO AQUIFER STORAGE AND RECOVERY

Feasibility Study Report

Prepared for: City of Othello

Project No. 140207-002 • May 2017 Draft

Aspect CONSULTING

earth + water

CITY OF OTHELLO AQUIFER STORAGE AND RECOVERY

Feasibility Study Report

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Acronyms

afy	acre-feet per year
AKART	All-Known Available and Reasonable Treatment
amsl	above mean sea level
Aspect	Aspect Consulting, LLC
ASR	aquifer storage and recovery
BOD	biochemical oxygen demand
CBP	Columbia Basin Project
cfs	cubic feet per second
City	City of Othello
CRBG	Columbia River Basalt Group
DBP	disinfection byproducts
DCV	downhole flow control valve
DOH	Washington State Department of Health
ECBID	East Columbia Basin Irrigation District
Ecology	Washington Department of Ecology
EFS	Ecology's Environmental Facility/Site
FS	feasibility study
ft/d	feet per day
GWMA	Groundwater Management Area of Adams, Lincoln, and Grant Counties
gpm	gallons per minute
HAAs	haloacetic acids
ma	millions of years ago
MCL	maximum contaminant level
MGD	million gallons per day
mg/L	milligrams per liter
µg/L	micrograms per liter
NTU	Nephelometric Turbidity Units

OCR	Office of Columbia River
OM	organic matter
OPI	overriding public interest
ORP	oxidation-reduction potential
Psi	pounds per square inch
SCBID	South Columbia Basin Irrigation District
SCML	secondary maximum contaminant level
THMs	Trihalomethanes
TOC	Total Organic Content
TSS	Total Suspended Solids
UV	ultraviolet
WAC	Washington Advisory Code
WRIA	Water Resource Inventory Area

Executive Summary

This report presents the findings of a Feasibility Study (FS) for an Aquifer Storage and Recovery (ASR) program being considered by the City of Othello (City). Many of the information requirements of the ASR permitting process, as outlined in Washington Advisory Code (WAC) 173-157, are also addressed in this report, along with a plan to collect the additional information needed to support planning and permitting decisions.

The proposed ASR program would be a component of the City's long-term water supply strategy of developing a surface water source from nearby irrigation canals during the summer irrigation season. A new drinking water treatment plant would be designed and constructed to treat surface water to drinking water standards for direct municipal supply. The intent of the new drinking water source is to reduce or eventually replace pumping from the City's existing wells. With the ASR program, the City would recharge the Wanapum Basalt aquifer (the "target aquifer") through a City well (or wells) using excess treatment capacity of the drinking water system. By implementing the proposed ASR program, the City aims to extend the benefits of seasonally available surface water to winter months to augment declining groundwater supplies and support future growth

The daily trends in City water demand during the irrigation season (consistently high demand during the nighttime) indicate that to support ASR, a future surface water source may need to be sized to accommodate average City water demands during the irrigation season in addition to supplying ASR source water. Water is physically and legally available from the potential canal sources to accommodate the anticipated quantities, which are considered in this FS as being between 6 and 12 million gallons per day (MGD).

Planning-level costs for the proposed ASR program are provided in Section 10 of this report. Importantly, the proposed ASR program is predicated on the establishment of a surface water treatment facility for direct potable supplies, where ASR would serve to extend the benefits of that facility by storing excess water for recovery and use when the seasonal surface water source is not available. Planning-level costs for developing the water treatment facility range to more $35 million, depending on treatment capacity. The costs of developing and implementing the ASR program are expected to be nominal (e.g., approximately $200,000 to retrofit two City wells) relative to the cost of establishing a surface water source and treatment facility. Incorporating the proposed ASR program would ensure that the City could realize the water supply benefits of this high capital investment year-round.

The results of this FS indicate that the City's proposed ASR program is technically and legally feasible. The target aquifer is well-suited for storage, having substantial storage space and confining conditions. Water quality analysis and geochemical modeling indicates water from the irrigation canals being considered for source development exhibit good water quality and are geochemically compatible with the native groundwater in the target aquifer.

APPENDIX F

Hydraulic Model Schematic and Sample Outputs

Hydraulic Model Boundary Conditions (No Improvements)

Scenario Description	1MG - 96' tall			2 MG - 116' tall			3 MG - 98' tall			Main Zone	
	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Volume Depleted	
Current ADD	43	1,166	449,208	43	1,166	743,517	43	1,166	1,320,123	2,512,849	(OS, ES, SB depleted)
Current MDD	33	1,176	343,988	33	1,176	569,359	33	1,176	1,010,902	1,924,249	(OS, ES, FS depleted)
Current PHD	7	1,202	75,841	7	1,202	125,529	7	1,202	222,879	424,249	(OS, ES depleted)
6-yr ADD Static Ind Growth	51	1,158	528,782	51	1,158	875,226	51	1,158	1,553,973	2,957,982	(OS, ES, SB depleted)
6-yr ADD Ind Growth	77	1,132	804,322	77	1,132	1,331,292	77	1,132	2,363,723	4,499,337	(OS, ES, SB depleted)
6-yr MDD Static Ind Growth	34	1,175	353,803	34	1,175	585,605	34	1,175	1,039,748	1,979,156	(OS, ES, FS depleted)
6-yr MDD Ind Growth	43	1,166	443,648	43	1,166	734,313	43	1,166	1,303,781	2,481,742	(OS, ES, FS depleted)
6-yr PHD Static Ind Growth	8	1,201	85,656	8	1,201	141,776	8	1,201	251,724	479,156	(OS, ES depleted)
6-yr PHD Ind Growth	17	1,192	175,501	17	1,192	290,484	17	1,192	515,757	981,742	(OS, ES depleted)
20-yr ADD Static Ind Growth	74	1,135	772,186	74	1,135	1,278,101	74	1,135	2,269,281	4,319,567	(OS, ES, SB depleted)
20-yr ADD Ind Growth	233	976	2,430,511	233	976	4,022,915	233	976	7,142,726	13,596,152	(OS, ES, SB depleted)
20-yr MDD Static Ind Growth	37	1,172	387,967	37	1,172	642,152	37	1,172	1,140,148	2,170,268	(OS, ES, FS depleted)
20-yr MDD Ind Growth	63	1,146	657,501	63	1,146	1,088,277	63	1,146	1,932,247	3,678,025	(OS, ES, FS depleted)
20-yr PHD Static Ind Growth	12	1,197	119,820	12	1,197	198,323	12	1,197	352,124	670,268	(OS, ES depleted)
20-yr PHD Ind Growth	37	1,172	389,354	37	1,172	644,448	37	1,172	1,144,223	2,178,025	(OS, ES depleted)

Scenario Description	Well Operating Status (X = Well On)								
	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Well #9	
	275	800	430	900	2,000	630	395	1,200	(gpm)
Current MDD	-	X	X	X	-	X	X	X	(all except largest)
Current PHD	-	X	X	X	X	X	X	X	(all sources on)
6-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
6-yr MDD Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
6-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	(all sources on)
6-yr PHD Ind Growth	-	X	X	X	X	-	X	X	(all sources on)
20-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
20-yr MDD Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
20-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	(all sources on)
20-yr PHD Ind Growth	-	X	X	X	X	-	X	X	(all sources on)

Scenario Description	PRV Pressure Setting (psi)		
	PRV #1	PRV #2 (future)	PRV #3 (future)
Current (all scenarios)	40	-	-
6-yr (all scenarios)	40	40	-
20-yr (all scenarios)	40	40	40

Hydraulic Model Boundary Conditions (with Supply Improvements and Reservoir)

Scenario Description	1MG - 96' tall			2 MG - 116' tall			3 MG - 98' tall			2.5 MG - 90' tall			Main Zone	
	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Volume Depleted	
Current ADD	30	1,179	317,647	30	1,179	525,761	30	1,179	933,493	30	1,179	847,059	1,776,901	(OS, ES, SB depleted)
Current MDD	24	1,185	246,393	24	1,185	407,823	24	1,185	724,095	24	1,185	657,049	1,378,311	(OS, ES, FS depleted)
Current PHD	6	1,203	64,809	6	1,203	107,270	6	1,203	190,458	6	1,203	172,823	362,537	(OS, ES depleted)
6-yr ADD Static Ind Growth	33	1,176	341,744	33	1,176	565,646	33	1,176	1,004,310	33	1,176	911,318	1,911,700	(OS, ES, SB depleted)
6-yr ADD Ind Growth	50	1,159	525,439	50	1,159	869,692	50	1,159	1,544,147	50	1,159	1,401,170	2,939,278	(OS, ES, SB depleted)
6-yr MDD Static Ind Growth	21	1,188	223,251	21	1,188	369,519	21	1,188	656,085	21	1,188	595,337	1,248,856	(OS, ES, FS depleted)
6-yr MDD Ind Growth	27	1,182	281,196	27	1,182	465,428	27	1,182	826,372	27	1,182	749,856	1,572,997	(OS, ES, FS depleted)
6-yr PHD Static Ind Growth	4	1,205	41,667	4	1,205	68,966	4	1,205	122,449	4	1,205	111,111	233,081	(OS, ES depleted)
6-yr PHD Ind Growth	10	1,199	99,612	10	1,199	164,874	10	1,199	292,736	10	1,199	265,631	557,222	(OS, ES depleted)
20-yr ADD Static Ind Growth	46	1,163	483,438	46	1,163	800,173	46	1,163	1,420,715	46	1,163	1,289,167	2,704,325	(OS, ES, SB depleted)
20-yr ADD Ind Growth	109	1,100	1,139,915	109	1,100	1,886,757	109	1,100	3,349,956	109	1,100	3,039,775	6,376,628	(OS, ES, SB depleted)
20-yr MDD Static Ind Growth	21	1,188	223,251	21	1,188	369,519	21	1,188	656,085	21	1,188	595,337	1,248,856	(OS, ES, FS depleted)
20-yr MDD Ind Growth	38	1,171	400,683	38	1,171	663,199	38	1,171	1,177,517	38	1,171	1,068,487	2,241,399	(OS, ES, FS depleted)
20-yr PHD Static Ind Growth	4	1,205	41,667	4	1,205	68,966	4	1,205	122,449	4	1,205	111,111	233,081	(OS, ES depleted)
20-yr PHD Ind Growth	21	1,188	219,098	21	1,188	362,645	21	1,188	643,880	21	1,188	584,262	1,225,624	(OS, ES depleted)

Scenario Description	Well Operating Status (X = Well On)											
	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #7 (rehab)	Well #8	Well #9	Well #10 (proposed)	Well #11 (proposed)	
	275	800	430	900	2,000	630	930	395	1,200	1,500	1,395	(gpm)
Current MDD	-	X	X	X	-	X	-	X	X	-	-	(all except largest)
Current PHD	-	X	X	X	X	X	-	X	X	-	-	(all sources on)
6-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	X	X	-	(all except largest)
6-yr MDD Ind Growth	-	X	X	X	-	-	X	X	X	X	-	(all except largest)
6-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	X	X	-	(all sources on)
6-yr PHD Ind Growth	-	X	X	X	X	-	X	X	X	X	-	(all sources on)
20-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	X	X	X	(all except largest)
20-yr MDD Ind Growth	-	X	X	X	-	-	X	X	X	X	X	(all except largest)
20-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	X	X	X	(all sources on)
20-yr PHD Ind Growth	-	X	X	X	X	-	X	X	X	X	X	(all sources on)

Scenario Description	PRV Pressure Setting (psi)		
	PRV #1	PRV #2 (future)	PRV #3 (future)
Current (all scenarios)	40	-	-
6-yr (all scenarios)	40	40	-
20-yr (all scenarios)	40	40	40

Hydraulic Model Boundary Conditions (with Reservoir)

Scenario Description	1MG - 96' tall			2 MG - 116' tall			3 MG - 98' tall			2.5 MG - 90' tall			Main Zone	
	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Volume Depleted	
Current ADD	30	1,179	317,647	30	1,179	525,761	30	1,179	933,493	30	1,179	847,059	1,776,901	(OS, ES, SB depleted)
Current MDD	24	1,185	246,393	24	1,185	407,823	24	1,185	724,095	24	1,185	657,049	1,378,311	(OS, ES, FS depleted)
Current PHD	6	1,203	64,809	6	1,203	107,270	6	1,203	190,458	6	1,203	172,823	362,537	(OS, ES depleted)
6-yr ADD Static Ind Growth	36	1,173	371,533	36	1,173	614,952	36	1,173	1,091,853	36	1,173	990,755	2,078,338	(OS, ES, SB depleted)
6-yr ADD Ind Growth	54	1,155	558,124	54	1,155	923,792	54	1,155	1,640,201	54	1,155	1,488,331	3,122,117	(OS, ES, SB depleted)
6-yr MDD Static Ind Growth	24	1,185	253,040	24	1,185	418,825	24	1,185	743,628	24	1,185	674,774	1,415,494	(OS, ES, FS depleted)
6-yr MDD Ind Growth	30	1,179	313,881	30	1,179	519,528	30	1,179	922,427	30	1,179	837,017	1,755,836	(OS, ES, FS depleted)
6-yr PHD Static Ind Growth	7	1,202	71,456	7	1,202	118,271	7	1,202	209,992	7	1,202	190,548	399,719	(OS, ES depleted)
6-yr PHD Ind Growth	13	1,196	132,297	13	1,196	218,974	13	1,196	388,791	13	1,196	352,792	740,062	(OS, ES depleted)
20-yr ADD Static Ind Growth	51	1,158	536,362	51	1,158	887,771	51	1,158	1,576,247	51	1,158	1,430,298	3,000,380	(OS, ES, SB depleted)
20-yr ADD Ind Growth	159	1,050	1,659,352	159	1,050	2,746,513	159	1,050	4,876,462	159	1,050	4,424,937	9,282,326	(OS, ES, SB depleted)
20-yr MDD Static Ind Growth	27	1,182	276,175	27	1,182	457,118	27	1,182	811,618	27	1,182	736,468	1,544,911	(OS, ES, FS depleted)
20-yr MDD Ind Growth	44	1,165	458,699	44	1,165	759,226	44	1,165	1,348,013	44	1,165	1,223,197	2,565,939	(OS, ES, FS depleted)
20-yr PHD Static Ind Growth	9	1,200	94,591	9	1,200	156,564	9	1,200	277,981	9	1,200	252,242	529,136	(OS, ES depleted)
20-yr PHD Ind Growth	27	1,182	277,114	27	1,182	458,672	27	1,182	814,377	27	1,182	738,972	1,550,164	(OS, ES depleted)

Scenario Description	Well Operating Status (X = Well On)								
	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Well #9	
	275	800	430	900	2,000	630	395	1,200	(gpm)
Current MDD	-	X	X	X	-	X	X	X	(all except largest)
Current PHD	-	X	X	X	X	X	X	X	(all sources on)
6-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
6-yr MDD Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
6-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	(all sources on)
6-yr PHD Ind Growth	-	X	X	X	X	-	X	X	(all sources on)
20-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
20-yr MDD Ind Growth	-	X	X	X	-	-	X	X	(all except largest)
20-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	(all sources on)
20-yr PHD Ind Growth	-	X	X	X	X	-	X	X	(all sources on)

Scenario Description	PRV Pressure Setting (psi)		
	PRV #1	PRV #2 (future)	PRV #3 (future)
Current (all scenarios)	40	-	-
6-yr (all scenarios)	40	40	-
20-yr (all scenarios)	40	40	40

Hydraulic Model Boundary Conditions (with Supply Improvements)

Scenario Description	1MG - 96' tall			2 MG - 116' tall			3 MG - 98' tall			Main Zone	
	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Depleted (ft)	HGL (elev)	Volume Depleted	Volume Depleted	
Current ADD	43	1,166	449,208	43	1,166	743,517	43	1,166	1,320,123	2,512,849	(OS, ES, SB depleted)
Current MDD	33	1,176	343,988	33	1,176	569,359	33	1,176	1,010,902	1,924,249	(OS, ES, FS depleted)
Current PHD	7	1,202	75,841	7	1,202	125,529	7	1,202	222,879	424,249	(OS, ES depleted)
6-yr ADD Static Ind Growth	47	1,162	484,793	47	1,162	802,416	47	1,162	1,424,698	2,711,907	(OS, ES, SB depleted)
6-yr ADD Ind Growth	73	1,136	756,056	73	1,136	1,251,403	73	1,136	2,221,878	4,229,337	(OS, ES, SB depleted)
6-yr MDD Static Ind Growth	30	1,179	309,814	30	1,179	512,795	30	1,179	910,473	1,733,081	(OS, ES, FS depleted)
6-yr MDD Ind Growth	38	1,171	395,381	38	1,171	654,424	38	1,171	1,161,937	2,211,742	(OS, ES, FS depleted)
6-yr PHD Static Ind Growth	4	1,205	41,667	4	1,205	68,966	4	1,205	122,449	233,081	(OS, ES depleted)
6-yr PHD Ind Growth	12	1,197	127,234	12	1,197	210,595	12	1,197	373,913	711,742	(OS, ES depleted)
20-yr ADD Static Ind Growth	67	1,142	694,032	67	1,142	1,148,743	67	1,142	2,039,605	3,882,381	(OS, ES, SB depleted)
20-yr ADD Ind Growth	160	1,049	1,663,457	160	1,049	2,753,308	160	1,049	4,888,526	9,305,291	(OS, ES, SB depleted)
20-yr MDD Static Ind Growth	30	1,179	309,814	30	1,179	512,795	30	1,179	910,473	1,733,081	(OS, ES, FS depleted)
20-yr MDD Ind Growth	55	1,154	571,828	55	1,154	946,474	55	1,154	1,680,473	3,198,775	(OS, ES, FS depleted)
20-yr PHD Static Ind Growth	4	1,205	41,667	4	1,205	68,966	4	1,205	122,449	233,081	(OS, ES depleted)
20-yr PHD Ind Growth	30	1,179	309,814	30	1,179	512,795	30	1,179	910,473	1,733,081	(OS, ES depleted)

Scenario Description	Well Operating Status (X = Well On)											
	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #7 (rehab)	Well #8	Well #9	Well #10 (proposed)	Well #11 (proposed)	
	275	800	430	900	2,000	630	930	395	1,200	1,500	1,395	(gpm)
Current MDD	-	X	X	X	-	X	-	X	X	-	-	(all except largest)
Current PHD	-	X	X	X	X	X	-	X	X	-	-	(all sources on)
6-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	X	X	-	(all except largest)
6-yr MDD Ind Growth	-	X	X	X	-	-	X	X	X	X	-	(all except largest)
6-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	X	X	-	(all sources on)
6-yr PHD Ind Growth	-	X	X	X	X	-	X	X	X	X	-	(all sources on)
20-yr MDD Static Ind Growth	-	X	X	X	-	-	X	X	X	X	X	(all except largest)
20-yr MDD Ind Growth	-	X	X	X	-	-	X	X	X	X	X	(all except largest)
20-yr PHD Static Ind Growth	-	X	X	X	X	-	X	X	X	X	X	(all sources on)
20-yr PHD Ind Growth	-	X	X	X	X	-	X	X	X	X	X	(all sources on)

Scenario Description	PRV Pressure Setting (psi)		
	PRV #1	PRV #2 (future)	PRV #3 (future)
Current (all scenarios)	40	-	-
6-yr (all scenarios)	40	40	-
20-yr (all scenarios)	40	40	40

DOH WSDM Storage Calculations

Source Capacity			
Sum of all current wells	6355	gpm	
Sum of all 6-year wells	8155	gpm	(+Well 10, rehab Well 7)
Sum of all 20-year wells	9550	gpm	(+Well 11)
Highest Producing Well	2000	gpm	(Well 6)
Reservoir Height			
1 MG Reservoir	96	ft	
2 MG Reservoir	116	ft	
3 MG Reservoir	98	ft	
2.5 MG Reservoir	90	ft	(proposed)
Reservoir Base Elevation			
1 MG Reservoir	1120	ft	
2 MG Reservoir	1099	ft	
3 MG Reservoir	1120	ft	
2.5 MG Reservoir	1126	ft	(proposed)
Reservoir Volume			
1 MG Reservoir	10,417	gal/ft	
2 MG Reservoir	17,241	gal/ft	
3 MG Reservoir	30,612	gal/ft	
2.5 MG Reservoir	27,778	gal/ft	(proposed)
Total (existing)	58,270	gal/ft	
Total (proposed)	86,048	gal/ft	
Fire Flow Requirements			
Largest fire flow	6250	gpm	
Duration	4	hr	
Operating Elevation	1209	ft	
Pressure Requirements			
PHD	30	psi	(service pressure)
ADD + FF	20	psi	(system pressure)
HGL	1169	ft	(from hydraulic model for minimum pressure)

		No Supply Improvements					With Proposed 2.5 MG Reservoir		
Storage Components	Ind Growth	Volume	ES Correct	SS (200*ERU)	Height	Reservoir Level	Volume	Height	Reservoir Level
Freeboard (DS)	Current	451,875		gal	Varies	Above	646,320	Varies	Above 1209 ft
Operational Storage (OS)	Current	233,081		gal	4 ft	1,205 ft	344,192	4 ft	1,205 ft
Equalizing Storage (ES)	Current	191,168	191,168	gal	3 ft	1,206 ft		2 ft	1,207 ft
Equalizing Storage (ES)	6-yr Static	246,075	246,075	gal	4 ft	1,205 ft		3 ft	1,206 ft
Equalizing Storage (ES)	6-yr Growth	748,661	748,661	gal	13 ft	1,196 ft		9 ft	1,200 ft
Equalizing Storage (ES)	20-yr Static	437,186	437,186	gal	8 ft	1,201 ft		5 ft	1,204 ft
Equalizing Storage (ES)	20-yr Growth	1,944,944	1,944,944	gal	33 ft	1,176 ft		23 ft	1,186 ft
Standby Storage (SS)	Current	-3,081,042		2,088,600 gal	36 ft	1,173 ft		24 ft	1,185 ft
Standby Storage (SS)	6-yr Static	-2,627,099		2,478,825 gal	43 ft	1,166 ft		29 ft	1,180 ft
Standby Storage (SS)	6-yr Growth	1,527,979		3,517,595 gal	60 ft	1,149 ft		41 ft	1,168 ft
Standby Storage (SS)	20-yr Static	-1,047,106		3,649,300 gal	63 ft	1,146 ft		42 ft	1,167 ft
Standby Storage (SS)	20-yr Growth	11,418,127		7,606,517 gal	196 ft	1,013 ft		133 ft	1,076 ft
Fire Storage (FS)	Current	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft
Fire Storage (FS)	6-yr Static	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft
Fire Storage (FS)	6-yr Growth	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft
Fire Storage (FS)	20-yr Static	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft
Fire Storage (FS)	20-yr Growth	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft
Dead Storage (DS)	Current	3,217,313		gal	Varies	Below	4,411,758	Varies	Below 1169 ft

		With Supply Improvements					With Proposed 2.5 MG Reservoir			
Storage Components	Ind Growth	Volume	ES Correct	SS (200*ERU)	Height	Reservoir Level	Volume	Height	Reservoir Level	
Freeboard (DS)	Current	451,875		gal	Varies	Above 1209	646,320	Varies	Above 1209 ft	(top of the tank)
Operational Storage (OS)	Current	233,081		gal	4 ft	1,205 ft	344,192	4 ft	1,205 ft	(constant through 20-year)
Equalizing Storage (ES)	Current	191,168	191,168	gal	3 ft	1,206 ft		2 ft	1,207 ft	
Equalizing Storage (ES)	6-yr Static	-23,925	0	gal	0 ft	1,209 ft		0 ft	1,209 ft	
Equalizing Storage (ES)	6-yr Growth	478,661	478,661	gal	8 ft	1,201 ft		6 ft	1,203 ft	
Equalizing Storage (ES)	20-yr Static	-42,064	0	gal	0 ft	1,209 ft		0 ft	1,209 ft	
Equalizing Storage (ES)	20-yr Growth	1,465,694	1,465,694	gal	25 ft	1,184 ft		17 ft	1,192 ft	
Standby Storage (SS)	Current	-3,081,042		2,088,600 gal	36 ft	1,209 ft		24 ft	1,185 ft	
Standby Storage (SS)	6-yr Static	-7,811,099		2,478,825 gal	43 ft	1,209 ft		29 ft	1,180 ft	
Standby Storage (SS)	6-yr Growth	-3,656,021		3,517,595 gal	60 ft	1,149 ft		41 ft	1,168 ft	
Standby Storage (SS)	20-yr Static	-10,248,706		3,649,300 gal	63 ft	1,209 ft		42 ft	1,167 ft	
Standby Storage (SS)	20-yr Growth	2,216,527		7,606,517 gal	131 ft	1,078 ft		88 ft	1,121 ft	
Fire Storage (FS)	Current	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft	
Fire Storage (FS)	6-yr Static	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft	
Fire Storage (FS)	6-yr Growth	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft	
Fire Storage (FS)	20-yr Static	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft	
Fire Storage (FS)	20-yr Growth	1,500,000		gal	26 ft	1,183 ft		17 ft	1,192 ft	
Dead Storage (DS)	Current	3,217,313		gal	Varies	Below 1169	4,411,758	Varies	Below 1169 ft	(bottom of the tank)

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
3rd pl & 4th	1,063.00	Main Zone	17	1,175.54	48.7
April & Andes	965.00	Main Zone	0	1,063.48	42.6
April & Danielle	970.00	Main Zone	0	1,063.48	40.4
Ash & 5th	1,065.00	Main Zone	6	1,175.52	47.8
Ash & 6th	1,070.00	Main Zone	11	1,175.52	45.7
Ash & 7th	1,083.00	Main Zone	13	1,175.58	40.1
Ash & 10th	1,094.00	Main Zone	6	1,175.65	35.3
Ash & 11th	1,096.00	Main Zone	7	1,175.69	34.5
Ash & 12th	1,097.00	Main Zone	11	1,175.74	34.1
Ash & 14th	1,100.00	Main Zone	1	1,175.97	32.9
Canning & Roosevelt	1,026.00	Main Zone	5	1,177.56	65.6
Canning & SR 24	1,037.00	Main Zone	3	1,177.62	60.8
Cedar & 2nd	1,079.00	Main Zone	6	1,174.41	41.3
Cedar & 3rd	1,089.00	Main Zone	7	1,174.42	37.0
Cedar & 4th	1,096.00	Main Zone	3	1,174.45	33.9
Cedar & 7th	1,103.00	Main Zone	0	1,174.59	31.0
Cedar & 8th	1,106.00	Main Zone	4	1,175.10	29.9
Cedar & 10th	1,110.00	Main Zone	5	1,175.54	28.4
Cedar & 11th	1,112.00	Main Zone	6	1,175.59	27.5
Cedar & 14th	1,114.00	Main Zone	12	1,175.75	26.7
Cedar & Broadway	1,061.00	Main Zone	2	1,174.13	48.9
Cedar & Desdemona	1,102.00	Main Zone	4	1,174.54	31.4
Cedar & Railroad	1,056.00	Main Zone	2	1,174.13	51.1
Cemetary & 20th	1,105.00	Main Zone	7	1,176.17	30.8
Cemetery & 18th	1,104.00	Main Zone	4	1,176.05	31.2
Cemetery & 19th	1,104.00	Main Zone	4	1,176.13	31.2
Cemetery &14th	1,099.00	Main Zone	5	1,175.98	33.3
Cendar & Venice	1,100.00	Main Zone	4	1,174.54	32.3
Charla & Diana	970.00	Main Zone	0	1,063.48	40.4
Columbia & 1st	1,045.00	Main Zone	1	1,176.36	56.8
Columbia & 3rd	1,050.00	Main Zone	2	1,176.28	54.6
Columbia & 4th	1,052.00	Main Zone	15	1,176.27	53.8
Columbia & Broadway	1,037.00	Main Zone	5	1,176.23	60.2
Columbia & Sylvan	1,054.00	Main Zone	3	1,176.28	52.9
Concrete & Industrial	1,045.00	Main Zone	12	1,177.25	57.2
Cunningham & Andes	966.00	Main Zone	0	1,063.48	42.2
Cunningham & Danielle	970.00	Main Zone	137	1,063.48	40.4
Cunningham & Taylor	957.00	Main Zone	0	1,063.48	46.1
Cunningham & Wagon	957.00	Main Zone	0	1,063.48	46.1
Curtis & Industrial	1,050.00	Main Zone	3	1,178.87	55.8
Curtis & SR 24	1,039.00	Main Zone	1	1,179.77	60.9
Danielle & Allen	970.00	Main Zone	0	1,063.48	40.4
Danielle & Andes	970.00	Main Zone	0	1,063.48	40.4
Deborah & Kristina	970.00	Main Zone	0	1,063.48	40.4
Eagle & Charla	970.00	Main Zone	0	1,063.48	40.4
Eagle & Talyor	970.00	Main Zone	0	1,063.48	40.4
Elm & 1st	1,054.00	Main Zone	6	1,175.16	52.4
Elm & 2nd	1,058.00	Main Zone	17	1,175.13	50.7
Elm & 4th	1,068.00	Main Zone	11	1,175.38	46.5
Elm & 5th	1,072.00	Main Zone	8	1,175.42	44.7
Elm & 6th	1,078.00	Main Zone	9	1,175.43	42.2
Elm & 7th	1,089.00	Main Zone	11	1,175.43	37.4
Elm & 10th	1,098.00	Main Zone	19	1,175.54	33.5

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
Elm & 12th	1,101.00	Main Zone	14	1,175.74	32.3
Elm & 14th	1,104.00	Main Zone	11	1,175.88	31.1
Elm & Broadway	1,047.00	Main Zone	5	1,175.15	55.4
Fern & 14th	1,108.00	Main Zone	8	1,175.89	29.4
Fern & 15th	1,109.00	Main Zone	10	1,175.92	29.0
Fern & 16th	1,109.00	Main Zone	6	1,175.95	29.0
Fir & 2nd	1,082.00	Main Zone	5	1,173.79	39.7
Fir & 13th	1,116.00	Main Zone	4	1,175.79	25.9
Fir & 14th	1,117.00	Main Zone	2	1,175.75	25.4
Fir & Broadway	1,073.00	Main Zone	3	1,173.62	43.5
Fircrest & 4th	1,096.00	Main Zone	9	1,174.21	33.8
Fircrest & Desdemona	1,102.00	Main Zone	8	1,174.30	31.3
Gemstone & 10th	1,085.00	Main Zone	21	1,175.91	39.3
Gemstone & 14th	1,093.00	Main Zone	17	1,176.04	35.9
Gemstone & Capstone	1,082.00	Main Zone	16	1,175.90	40.6
Gemstone & Cobblestone	1,078.00	Main Zone	16	1,175.90	42.4
Halthaway & Lakespur	1,092.00	Main Zone	6	1,173.85	35.4
Hamlet & 4th	1,095.00	Main Zone	8	1,174.18	34.3
Hamlet & 7th	1,107.00	Main Zone	7	1,174.54	29.2
Hamlet & Desdemona	1,102.00	Main Zone	9	1,174.29	31.3
Hamlet & Macbeth	1,104.00	Main Zone	13	1,174.43	30.5
Hathaway & 2nd	1,085.00	Main Zone	5	1,173.83	38.4
Hemlet & Shelley	1,099.00	Main Zone	10	1,174.21	32.5
Hemlock & 1st	1,062.00	Main Zone	9	1,174.59	48.7
Hemlock & 2nd	1,069.00	Main Zone	8	1,174.62	45.7
Hemlock & 4th	1,090.00	Main Zone	5	1,174.66	36.6
Hemlock & 10th	1,106.00	Main Zone	8	1,175.45	30.0
Hemlock & 12th	1,110.00	Main Zone	12	1,175.64	28.4
Hemlock & 14th	1,111.00	Main Zone	6	1,175.85	28.1
Hemlock & Broadway	1,055.00	Main Zone	11	1,174.55	51.7
Hudson & Roosevelt	1,029.00	Main Zone	7	1,178.43	64.7
J-1	1,077.00	Main Zone	136	1,171.54	40.9
J-4	1,077.00	Main Zone	1,264	1,169.33	39.9
J-5	1,080.00	Main Zone	0	1,172.15	39.9
J-13	1,081.00	Main Zone	7	1,174.09	40.3
J-14	1,096.00	Main Zone	9	1,174.28	33.9
J-17	1,084.00	Main Zone	6	1,173.84	38.9
J-20	1,093.00	Main Zone	1	1,173.87	35.0
J-22	1,091.00	Main Zone	13	1,173.68	35.8
J-23	1,089.00	Main Zone	18	1,173.78	36.7
J-25	1,091.00	Main Zone	0	1,173.52	35.7
J-32	1,086.00	Main Zone	0	1,172.71	37.5
J-62	1,096.00	Main Zone	6	1,174.50	34.0
J-66	1,078.00	Main Zone	6	1,174.41	41.7
J-67	1,070.00	Main Zone	8	1,174.41	45.2
J-68	1,089.00	Main Zone	10	1,174.42	37.0
J-69	1,102.00	Main Zone	2	1,174.59	31.4
J-72	953.00	Main Zone	0	1,063.48	47.8
J-77	999.00	Main Zone	0	1,174.32	75.9
J-80	1,078.00	Main Zone	483	1,171.57	40.5
J-81	1,078.00	Main Zone	1	1,172.31	40.8
J-82	1,073.00	Main Zone	3	1,172.65	43.1
J-84	1,113.00	Main Zone	1	1,174.80	26.7

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-85	1,112.00	Main Zone	7	1,174.87	27.2
J-86	1,112.00	Main Zone	7	1,174.84	27.2
J-87	1,116.00	Main Zone	6	1,175.07	25.6
J-89	1,118.00	Main Zone	2	1,175.18	24.7
J-91	1,116.00	Main Zone	4	1,175.22	25.6
J-92	1,115.00	Main Zone	11	1,175.36	26.1
J-93	1,115.00	Main Zone	0	1,175.62	26.2
J-97	1,120.00	Main Zone	6	1,175.17	23.9
J-99	1,119.00	Main Zone	5	1,175.20	24.3
J-100	1,120.00	Main Zone	7	1,175.33	23.9
J-101	1,118.00	Main Zone	4	1,175.48	24.9
J-102	1,117.00	Main Zone	2	1,175.77	25.4
J-104	1,115.00	Main Zone	6	1,175.84	26.3
J-106	1,120.00	Main Zone	0	1,173.06	23.0
J-107	1,088.00	Main Zone	98	1,171.90	36.3
J-108	1,077.00	Main Zone	1	1,171.60	40.9
J-109	1,119.00	Main Zone	11	1,175.53	24.5
J-112	1,113.00	Main Zone	2	1,176.36	27.4
J-113	1,115.00	Main Zone	2	1,176.76	26.7
J-114	1,115.00	Main Zone	9	1,175.87	26.3
J-115	1,115.00	Main Zone	0	1,175.99	26.4
J-125	1,108.00	Main Zone	33	1,174.51	28.8
J-132	1,106.00	Main Zone	0	1,175.09	29.9
J-134	1,105.00	Main Zone	0	1,175.11	30.3
J-135	1,104.00	Main Zone	0	1,175.10	30.8
J-136	1,104.00	Main Zone	0	1,175.10	30.8
J-137	1,098.00	Main Zone	3	1,174.86	33.3
J-138	1,101.00	Main Zone	6	1,175.06	32.0
J-139	1,103.00	Main Zone	6	1,175.16	31.2
J-140	1,107.00	Main Zone	4	1,175.44	29.6
J-141	1,111.00	Main Zone	8	1,175.64	28.0
J-142	1,112.00	Main Zone	5	1,175.84	27.6
J-145	1,110.00	Main Zone	6	1,175.89	28.5
J-154	1,098.00	Main Zone	5	1,175.15	33.4
J-155	1,101.00	Main Zone	11	1,175.16	32.1
J-156	1,106.00	Main Zone	6	1,175.45	30.0
J-163	1,082.00	Main Zone	19	1,175.63	40.5
J-164	1,075.00	Main Zone	2	1,175.81	43.6
J-166	1,069.00	Main Zone	14	1,175.95	46.3
J-168	1,065.00	Main Zone	0	1,176.03	48.0
J-171	1,097.00	Main Zone	1	1,176.00	34.2
J-173	1,094.00	Main Zone	0	1,175.68	35.3
J-180	1,082.00	Main Zone	9	1,175.21	40.3
J-189	1,081.00	Main Zone	1	1,175.18	40.7
J-190	1,087.00	Main Zone	0	1,175.19	38.2
J-191	1,086.00	Main Zone	18	1,175.19	38.6
J-192	1,092.00	Main Zone	9	1,175.53	36.1
J-193	1,094.00	Main Zone	5	1,175.61	35.3
J-194	1,092.00	Main Zone	5	1,175.66	36.2
J-195	1,095.00	Main Zone	13	1,176.00	35.0
J-198	1,059.00	Main Zone	0	1,176.58	50.9
J-199	1,050.00	Main Zone	0	1,176.67	54.8
J-201	1,058.00	Main Zone	2	1,176.45	51.2

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-202	1,056.00	Main Zone	4	1,176.33	52.1
J-206	1,046.00	Main Zone	6	1,176.40	56.4
J-212	1,060.00	Main Zone	7	1,176.32	50.3
J-213	1,059.00	Main Zone	12	1,175.99	50.6
J-221	1,082.00	Main Zone	1	1,175.83	40.6
J-222	1,086.00	Main Zone	3	1,175.84	38.9
J-226	1,081.00	Main Zone	3	1,175.89	41.1
J-233	1,088.00	Main Zone	19	1,175.94	38.0
J-234	1,075.00	Main Zone	2	1,175.94	43.7
J-235	1,076.00	Main Zone	0	1,175.98	43.3
J-239	1,106.00	Main Zone	9	1,175.98	30.3
J-240	1,105.00	Main Zone	7	1,175.96	30.7
J-241	1,103.00	Main Zone	11	1,175.94	31.6
J-242	1,107.00	Main Zone	11	1,176.07	29.9
J-243	1,107.00	Main Zone	6	1,176.17	29.9
J-244	1,107.00	Main Zone	3	1,176.16	29.9
J-248	1,098.00	Main Zone	0	1,176.02	33.8
J-250	1,097.00	Main Zone	0	1,176.00	34.2
J-251	1,101.00	Main Zone	0	1,176.02	32.5
J-252	1,110.00	Main Zone	0	1,176.35	28.7
J-253	1,111.00	Main Zone	9	1,176.37	28.3
J-254	1,112.00	Main Zone	2	1,176.37	27.8
J-255	1,113.00	Main Zone	0	1,176.49	27.5
J-272	1,092.00	Main Zone	4	1,174.66	35.8
J-273	1,096.00	Main Zone	3	1,174.81	34.1
J-287	1,059.00	Main Zone	13	1,175.67	50.5
J-288	1,057.00	Main Zone	14	1,175.77	51.4
J-292	1,063.00	Main Zone	7	1,175.53	48.7
J-295	1,050.00	Main Zone	5	1,175.55	54.3
J-299	1,045.00	Main Zone	5	1,176.26	56.8
J-302	1,046.00	Main Zone	1	1,176.66	56.5
J-305	1,043.00	Main Zone	2	1,176.37	57.7
J-310	1,020.00	Main Zone	2	1,178.77	68.7
J-311	1,017.00	Main Zone	1	1,178.43	69.8
J-315	1,050.00	Main Zone	3	1,178.28	55.5
J-316	1,048.00	Main Zone	2	1,177.72	56.1
J-319	1,041.00	Main Zone	6	1,180.32	60.3
J-320	1,030.00	Main Zone	6	1,180.79	65.2
J-321	1,028.00	Main Zone	0	1,180.66	66.1
J-322	1,021.00	Main Zone	0	1,180.69	69.1
J-323	1,019.00	Main Zone	27	1,176.31	68.1
J-340	970.00	Main Zone	0	1,063.48	40.4
J-341	970.00	Main Zone	0	1,063.48	40.4
J-344	970.00	Main Zone	0	1,063.48	40.4
J-346	969.00	Main Zone	0	1,063.48	40.9
J-352	960.00	Main Zone	0	1,063.48	44.8
J-355	960.00	Main Zone	0	1,063.48	44.8
J-356	960.00	Main Zone	0	1,063.48	44.8
J-357	960.00	Main Zone	0	1,063.48	44.8
J-358	961.00	Main Zone	0	1,063.48	44.3
J-369	1,098.46	Main Zone	18	1,176.00	33.5
J-374	1,028.00	Main Zone	0	1,176.94	64.4
J-375	1,028.00	Main Zone	0	1,180.67	66.1

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-376	985.00	Main Zone	(N/A)	(N/A)	(N/A)
J-377	988.00	Main Zone	(N/A)	(N/A)	(N/A)
J-378	953.00	Main Zone	(N/A)	(N/A)	(N/A)
J-380	1,005.00	Main Zone	(N/A)	(N/A)	(N/A)
J-381	965.00	Main Zone	(N/A)	(N/A)	(N/A)
J-383	948.00	Main Zone	(N/A)	(N/A)	(N/A)
J-386	1,039.00	Main Zone	0	1,176.47	59.5
J-387	1,032.97	Main Zone	0	1,180.54	63.8
J-388	1,026.00	Main Zone	(N/A)	(N/A)	(N/A)
J-389	938.00	Main Zone	(N/A)	(N/A)	(N/A)
J-390	931.00	Main Zone	(N/A)	(N/A)	(N/A)
J-391	934.00	Main Zone	(N/A)	(N/A)	(N/A)
J-395	912.00	Main Zone	(N/A)	(N/A)	(N/A)
J-398	875.00	Main Zone	(N/A)	(N/A)	(N/A)
J-399	1,039.00	Main Zone	(N/A)	(N/A)	(N/A)
J-400	1,012.00	Main Zone	(N/A)	(N/A)	(N/A)
J-401	1,007.00	Main Zone	(N/A)	(N/A)	(N/A)
J-403	967.00	Main Zone	(N/A)	(N/A)	(N/A)
J-404	964.00	Main Zone	(N/A)	(N/A)	(N/A)
J-405	984.00	Main Zone	(N/A)	(N/A)	(N/A)
J-406	993.00	Main Zone	(N/A)	(N/A)	(N/A)
J-407	961.00	Main Zone	(N/A)	(N/A)	(N/A)
J-409	971.00	Main Zone	0	1,174.22	87.9
J-413	1,022.46	Main Zone	(N/A)	(N/A)	(N/A)
J-415	1,025.07	Main Zone	(N/A)	(N/A)	(N/A)
J-416	1,023.01	Main Zone	(N/A)	(N/A)	(N/A)
J-420	932.79	Main Zone	(N/A)	(N/A)	(N/A)
J-422	1,004.24	Main Zone	(N/A)	(N/A)	(N/A)
J-425	913.69	Main Zone	(N/A)	(N/A)	(N/A)
J-428	958.98	Main Zone	(N/A)	(N/A)	(N/A)
J-429	969.44	Main Zone	(N/A)	(N/A)	(N/A)
J-430	950.54	Main Zone	(N/A)	(N/A)	(N/A)
J-431	1,113.00	Main Zone	0	1,176.26	27.4
J-432	1,115.00	Main Zone	0	1,176.27	26.5
J-433	1,115.00	Main Zone	0	1,176.27	26.5
J-434	1,112.00	Main Zone	0	1,176.26	27.8
J-435	1,115.00	Main Zone	0	1,176.27	26.5
J-436	1,113.00	Main Zone	0	1,176.30	27.4
J-437	1,108.00	Main Zone	0	1,176.19	29.5
J-438	1,109.00	Main Zone	0	1,176.21	29.1
J-439	1,106.00	Main Zone	0	1,176.18	30.4
J-440	1,096.00	Main Zone	0	1,175.97	34.6
J-444	1,097.00	Main Zone	0	1,176.02	34.2
J-445	1,092.00	Main Zone	0	1,175.95	36.3
J-446	1,094.00	Main Zone	0	1,175.95	35.5
J-447	1,091.00	Main Zone	0	1,175.91	36.7
J-448	1,095.00	Main Zone	0	1,175.95	35.0
J-449	1,095.48	Main Zone	0	1,175.96	34.8
J-454	1,050.00	Main Zone	0	1,177.25	55.1
J-455	1,092.15	Main Zone	0	1,175.93	36.2
J-456	1,094.07	Main Zone	0	1,175.94	35.4
J-457	1,103.00	Main Zone	0	1,176.07	31.6
J-458	1,108.92	Main Zone	0	1,175.75	28.9

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-459	1,107.40	Main Zone	0	1,175.75	29.6
J-460	1,111.06	Main Zone	0	1,175.58	27.9
J-461	1,109.00	Main Zone	0	1,175.58	28.8
J-462	1,116.35	Main Zone	0	1,175.78	25.7
J-463	1,042.00	Main Zone	0	1,177.25	58.5
J-464	1,073.00	Main Zone	(N/A)	(N/A)	(N/A)
J-465	1,063.00	Main Zone	(N/A)	(N/A)	(N/A)
J-466	1,039.00	Main Zone	(N/A)	(N/A)	(N/A)
J-467	1,039.47	Main Zone	0	1,179.89	60.8
J-468	1,042.00	Main Zone	(N/A)	(N/A)	(N/A)
J-470	1,120.47	Main Zone	0	1,174.92	23.6
J-471	1,086.97	Main Zone	0	1,172.32	36.9
J-473	1,110.00	Main Zone	(N/A)	(N/A)	(N/A)
J-474	1,099.00	Main Zone	(N/A)	(N/A)	(N/A)
J-475	1,100.00	Main Zone	(N/A)	(N/A)	(N/A)
J-476	1,124.00	Main Zone	(N/A)	(N/A)	(N/A)
J-477	1,125.87	Non-Fire	0	1,181.81	24.2
J-478	1,082.00	Main Zone	(N/A)	(N/A)	(N/A)
J-479	1,034.00	Main Zone	(N/A)	(N/A)	(N/A)
J-480	1,000.68	Main Zone	(N/A)	(N/A)	(N/A)
J-481	1,121.38	Main Zone	0	1,179.72	25.2
J-483	1,126.00	<None>	0	1,183.59	24.9
J-485	976.07	<None>	0	1,174.23	85.7
J-491	1,075.95	<None>	(N/A)	(N/A)	(N/A)
June & Allen	970.00	Main Zone	0	1,063.48	40.4
June & Andes	967.00	Main Zone	0	1,063.48	41.7
June & Danielle	970.00	Main Zone	0	1,063.48	40.4
June & Taylor	966.00	Main Zone	0	1,063.48	42.2
June & Wagon	966.00	Main Zone	0	1,063.48	42.2
Juniper & 1st	1,055.00	Main Zone	11	1,174.99	51.9
Juniper & 2nd	1,060.00	Main Zone	14	1,174.99	49.8
Juniper & 4th	1,072.00	Main Zone	10	1,175.10	44.6
Juniper & 7th	1,090.00	Main Zone	14	1,175.33	36.9
Juniper & 10th	1,101.00	Main Zone	21	1,175.51	32.2
Juniper & 12th	1,104.00	Main Zone	15	1,175.69	31.0
Juniper & 14th	1,107.00	Main Zone	6	1,175.89	29.8
Juniper & Broadway	1,048.00	Main Zone	3	1,175.00	54.9
Kaylee & Kristina	970.00	Main Zone	0	1,063.48	40.4
Larch & 1st	1,058.00	Main Zone	10	1,174.76	50.5
Larch & 2nd	1,064.00	Main Zone	13	1,174.76	47.9
Larch & 4th	1,084.00	Main Zone	10	1,174.76	39.3
Larch & 7th	1,096.00	Main Zone	9	1,175.19	34.3
Larch & 10th	1,105.00	Main Zone	18	1,175.45	30.5
Larch & 12th	1,108.00	Main Zone	20	1,175.63	29.3
Larch & 14th	1,110.00	Main Zone	11	1,175.87	28.5
Larch & Broadway	1,052.00	Main Zone	16	1,174.76	53.1
Lavender & 3rd	1,051.00	Main Zone	14	1,176.13	54.1
Lee & 14th	1,121.00	Main Zone	1	1,174.61	23.2
Lee & Broadway	1,077.00	Main Zone	397	1,171.59	40.9
Lilac & 3rd	1,051.00	Main Zone	14	1,176.05	54.1
Lilac & 7th	1,064.00	Main Zone	6	1,176.08	48.5
Lilac & 7th	1,058.00	Main Zone	9	1,176.09	51.1
Magnolia & 3rd	1,050.00	Main Zone	12	1,176.22	54.6

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
Main & 4th	1,094.00	Main Zone	3	1,174.62	34.9
Main & 1st	1,065.00	Main Zone	14	1,174.44	47.4
Main & 2nd	1,077.00	Main Zone	9	1,174.51	42.2
Main & 3rd	1,089.00	Main Zone	3	1,174.59	37.0
Main & 7th	1,102.00	Main Zone	6	1,175.03	31.6
Main & 8th	1,104.00	Main Zone	5	1,175.15	30.8
Main & 9th	1,106.00	Main Zone	21	1,175.28	30.0
Main & 10th	1,108.00	Main Zone	11	1,175.44	29.2
Main & 11th	1,110.00	Main Zone	6	1,175.58	28.4
Main & 12th	1,111.00	Main Zone	11	1,175.66	28.0
Main & 14th	1,113.00	Main Zone	24	1,175.89	27.2
Main & Broadway	1,058.00	Main Zone	10	1,174.38	50.4
Main & Desdemona	1,100.00	Main Zone	5	1,174.82	32.4
Main & Rairoad	1,053.00	Main Zone	7	1,174.38	52.5
Main & Venice	1,099.00	Main Zone	10	1,174.70	32.8
May & Andes	966.00	Main Zone	0	1,063.48	42.2
May & Danielle	970.00	Main Zone	0	1,063.48	40.4
Oak & 7th	1,085.00	Main Zone	8	1,175.51	39.2
Oak & 10th	1,096.00	Main Zone	19	1,175.57	34.4
Oak & 12th	1,099.00	Main Zone	18	1,175.73	33.2
Oak & 14th	1,102.00	Main Zone	20	1,175.94	32.0
Olympia & 4th	1,095.00	Main Zone	5	1,173.86	34.1
Olympia & 7th	1,110.00	Main Zone	4	1,174.51	27.9
Olympia & 9th	1,113.00	Main Zone	1	1,174.81	26.7
Olympia & 11th	1,117.00	Main Zone	4	1,175.14	25.2
Olympia & 14th	1,120.00	Main Zone	2	1,175.19	23.9
Olympia & Desdemona	1,102.00	Main Zone	6	1,174.20	31.2
Othello & 4th	1,095.00	Main Zone	9	1,174.01	34.2
Othello & 7th	1,109.00	Main Zone	5	1,174.51	28.3
Othello & Desdemona	1,102.00	Main Zone	12	1,174.23	31.2
Pine & 1st	1,072.00	Main Zone	13	1,173.97	44.1
Pine & 2nd	1,080.00	Main Zone	12	1,174.08	40.7
Pine & 4th	1,097.00	Main Zone	13	1,174.37	33.5
Pine & 7th	1,105.00	Main Zone	5	1,174.58	30.1
Pine & 8th	1,107.00	Main Zone	0	1,175.06	29.4
Pine & 9th	1,109.00	Main Zone	1	1,175.28	28.7
Pine & 10th	1,111.00	Main Zone	4	1,175.54	27.9
Pine & 11th	1,113.00	Main Zone	4	1,175.59	27.1
Pine & 13th	1,115.00	Main Zone	16	1,175.71	26.3
Pine & 14th	1,115.00	Main Zone	6	1,175.74	26.3
Pine & Broadway	1,070.00	Main Zone	5	1,173.80	44.9
Pine & Desdemona	1,103.00	Main Zone	10	1,174.39	30.9
Pine & Macbeth	1,104.00	Main Zone	11	1,174.54	30.5
Rainier & 2nd	1,087.00	Main Zone	1	1,173.80	37.6
Rainier & 4th	1,092.00	Main Zone	8	1,174.02	35.5
Rainier & 7th	1,108.00	Main Zone	5	1,174.51	28.8
Rainier & 11th	1,116.00	Main Zone	8	1,175.18	25.6
Rainier & 13th	1,120.00	Main Zone	5	1,175.24	23.9
Rainier & Desdemona	1,102.00	Main Zone	10	1,174.26	31.3
Rainier & Kayllee	970.00	Main Zone	0	1,063.48	40.4
Rainier & Kristina	969.00	Main Zone	0	1,063.48	40.9
Rainier & Larkspur	1,092.00	Main Zone	5	1,173.80	35.4
Rainier & Macbeth	1,105.00	Main Zone	11	1,174.41	30.0

FlexTable: Junction Table

Active Scenario: Current MDD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
Rainier & Shelley	1,099.00	Main Zone	9	1,174.18	32.5
Rainier & Taylor	970.00	Main Zone	0	1,063.48	40.4
Rainier & Wagon	970.00	Main Zone	0	1,063.48	40.4
Rose & Shady	1,057.00	Main Zone	6	1,176.23	51.6
Rose & Sylvan	1,055.00	Main Zone	6	1,176.22	52.4
Royal & Broadway	1,038.00	Main Zone	3	1,175.86	59.6
SR 26 & 14th	1,091.00	Main Zone	1	1,176.20	36.9
SR 26 & 1st	1,045.00	Main Zone	1	1,176.37	56.8
SR 26 & 7th	1,058.00	Main Zone	1	1,176.68	51.3
SR 26 & Broadway	1,037.00	Main Zone	2	1,176.40	60.3
Sagewood	1,084.00	Main Zone	10	1,175.85	39.7
Sagewood & 10th	1,091.00	Main Zone	14	1,175.84	36.7
Scooteny & 1st	1,047.00	Main Zone	6	1,175.75	55.7
Scooteny & 2nd	1,050.00	Main Zone	10	1,175.75	54.4
Scooteny & 3rd	1,053.00	Main Zone	12	1,175.86	53.2
Scooteny & 4th	1,056.00	Main Zone	11	1,175.89	51.9
Scooteny & 7th	1,071.00	Main Zone	7	1,175.90	45.4
Scooteny & 10th	1,091.00	Main Zone	9	1,175.91	36.7
Scooteny & Broadway	1,037.00	Main Zone	4	1,175.76	60.0
Scooteny & Capstone	1,087.00	Main Zone	13	1,175.90	38.5
Scooteny & Cobblestone	1,083.00	Main Zone	13	1,175.90	40.2
Scooteny & Shady	1,061.00	Main Zone	13	1,175.92	49.7
Seilaff ln & Kristina	963.00	Main Zone	0	1,063.48	43.5
Soda & 1st	1,048.00	Main Zone	3	1,175.61	55.2
Soda & 2nd	1,053.00	Main Zone	20	1,175.56	53.0
Soda & 3rd	1,056.00	Main Zone	21	1,175.57	51.7
Soda & Broadway	1,041.00	Main Zone	20	1,175.60	58.2
Spruce & 1st	1,056.00	Main Zone	10	1,174.87	51.4
Spruce & 2nd	1,061.00	Main Zone	12	1,174.88	49.3
Spruce & 4th	1,076.00	Main Zone	10	1,174.89	42.8
Spruce & 7th	1,093.00	Main Zone	17	1,175.24	35.6
Spruce & 10th	1,103.00	Main Zone	19	1,175.47	31.4
Spruce & 12th	1,106.00	Main Zone	18	1,175.64	30.1
Spruce & 14th	1,109.00	Main Zone	6	1,175.89	28.9
Spruce & Broadway	1,050.00	Main Zone	8	1,174.84	54.0
Susan & 7th	1,067.00	Main Zone	6	1,175.98	47.2
Syvan & 3rd	1,052.00	Main Zone	10	1,175.99	53.6
Syvan & 4th	1,054.00	Main Zone	16	1,176.01	52.8
Teck & Roosevelt	1,030.00	Main Zone	3	1,178.77	64.4
Teck & SR 24	1,039.00	Main Zone	3	1,179.08	60.6
WELL 2	1,092.00	Main Zone	0	1,174.62	35.7
WELL 3	1,115.00	Main Zone	-800	1,176.42	26.6
WELL 4	1,098.00	Main Zone	-430	1,176.16	33.8
WELL 5	1,058.00	Main Zone	-900	1,177.21	51.6
WELL 6	1,051.00	Main Zone	0	1,174.76	53.5
WELL 7	1,029.00	Main Zone	-630	1,181.22	65.9
WELL 8	1,122.00	Main Zone	-395	1,175.39	23.1
WELL 9	1,126.00	Non-Fire	-1,200	1,183.75	25.0
Wahluke & 1st	1,046.00	Main Zone	6	1,175.99	56.2
Wahluke & Broadway	1,037.00	Main Zone	5	1,175.99	60.1
Well 10	1,126.00	<None>	(N/A)	(N/A)	(N/A)
Well 11 (proposed)	960.00	Main Zone	0	1,063.48	44.8
Winsor & Desdemona	1,101.00	Main Zone	2	1,174.67	31.9

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
3rd pl & 4th	1,063.00	Main Zone	27	1,201.73	60.0
April & Andes	965.00	Main Zone	0	1,063.46	42.6
April & Danielle	970.00	Main Zone	0	1,063.46	40.4
Ash & 5th	1,065.00	Main Zone	10	1,201.46	59.0
Ash & 6th	1,070.00	Main Zone	18	1,201.46	56.9
Ash & 7th	1,083.00	Main Zone	21	1,201.48	51.3
Ash & 10th	1,094.00	Main Zone	9	1,201.49	46.5
Ash & 11th	1,096.00	Main Zone	12	1,201.50	45.6
Ash & 12th	1,097.00	Main Zone	18	1,201.51	45.2
Ash & 14th	1,100.00	Main Zone	1	1,201.79	44.0
Canning & Roosevelt	1,026.00	Main Zone	7	1,203.60	76.8
Canning & SR 24	1,037.00	Main Zone	4	1,203.65	72.1
Cedar & 2nd	1,079.00	Main Zone	9	1,199.39	52.1
Cedar & 3rd	1,089.00	Main Zone	12	1,199.42	47.8
Cedar & 4th	1,096.00	Main Zone	4	1,199.46	44.8
Cedar & 7th	1,103.00	Main Zone	0	1,199.46	41.7
Cedar & 8th	1,106.00	Main Zone	6	1,200.58	40.9
Cedar & 10th	1,110.00	Main Zone	7	1,201.14	39.4
Cedar & 11th	1,112.00	Main Zone	9	1,201.18	38.6
Cedar & 14th	1,114.00	Main Zone	19	1,201.35	37.8
Cedar & Broadway	1,061.00	Main Zone	3	1,199.25	59.8
Cedar & Desdemona	1,102.00	Main Zone	6	1,199.52	42.2
Cedar & Railroad	1,056.00	Main Zone	3	1,199.25	62.0
Cemetary & 20th	1,105.00	Main Zone	12	1,201.91	41.9
Cemetery & 18th	1,104.00	Main Zone	6	1,201.86	42.3
Cemetery & 19th	1,104.00	Main Zone	6	1,201.90	42.4
Cemetery &14th	1,099.00	Main Zone	7	1,201.82	44.5
Cendar & Venice	1,100.00	Main Zone	6	1,199.65	43.1
Charla & Diana	970.00	Main Zone	0	1,063.46	40.4
Columbia & 1st	1,045.00	Main Zone	1	1,202.53	68.2
Columbia & 3rd	1,050.00	Main Zone	3	1,202.37	65.9
Columbia & 4th	1,052.00	Main Zone	24	1,202.35	65.0
Columbia & Broadway	1,037.00	Main Zone	7	1,202.51	71.6
Columbia & Sylvan	1,054.00	Main Zone	4	1,202.35	64.2
Concrete & Industrial	1,045.00	Main Zone	19	1,203.28	68.5
Cunningham & Andes	966.00	Main Zone	0	1,063.46	42.2
Cunningham & Danielle	970.00	Main Zone	222	1,063.46	40.4
Cunningham & Taylor	957.00	Main Zone	0	1,063.46	46.1
Cunningham & Wagon	957.00	Main Zone	0	1,063.46	46.1
Curtis & Industrial	1,050.00	Main Zone	4	1,204.82	67.0
Curtis & SR 24	1,039.00	Main Zone	1	1,205.70	72.1
Danielle & Allen	970.00	Main Zone	0	1,063.46	40.4
Danielle & Andes	970.00	Main Zone	0	1,063.46	40.4
Deborah & Kristina	970.00	Main Zone	0	1,063.46	40.4
Eagle & Charla	970.00	Main Zone	0	1,063.46	40.4
Eagle & Talyor	970.00	Main Zone	0	1,063.46	40.4
Elm & 1st	1,054.00	Main Zone	10	1,202.01	64.0
Elm & 2nd	1,058.00	Main Zone	28	1,201.79	62.2
Elm & 4th	1,068.00	Main Zone	18	1,201.51	57.8
Elm & 5th	1,072.00	Main Zone	13	1,201.46	56.0
Elm & 6th	1,078.00	Main Zone	15	1,201.43	53.4
Elm & 7th	1,089.00	Main Zone	18	1,201.35	48.6
Elm & 10th	1,098.00	Main Zone	31	1,201.36	44.7

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
Elm & 12th	1,101.00	Main Zone	22	1,201.48	43.5
Elm & 14th	1,104.00	Main Zone	18	1,201.61	42.2
Elm & Broadway	1,047.00	Main Zone	7	1,202.45	67.3
Fern & 14th	1,108.00	Main Zone	13	1,201.60	40.5
Fern & 15th	1,109.00	Main Zone	16	1,201.66	40.1
Fern & 16th	1,109.00	Main Zone	10	1,201.70	40.1
Fir & 2nd	1,082.00	Main Zone	7	1,197.71	50.1
Fir & 13th	1,116.00	Main Zone	6	1,201.42	37.0
Fir & 14th	1,117.00	Main Zone	3	1,201.32	36.5
Fir & Broadway	1,073.00	Main Zone	4	1,197.54	53.9
Fircrest & 4th	1,096.00	Main Zone	15	1,198.67	44.4
Fircrest & Desdemona	1,102.00	Main Zone	13	1,198.85	41.9
Gemstone & 10th	1,085.00	Main Zone	34	1,201.76	50.5
Gemstone & 14th	1,093.00	Main Zone	28	1,201.90	47.1
Gemstone & Capstone	1,082.00	Main Zone	25	1,201.75	51.8
Gemstone & Cobblestone	1,078.00	Main Zone	25	1,201.75	53.5
Halthaway & Lakespur	1,092.00	Main Zone	10	1,197.75	45.8
Hamlet & 4th	1,095.00	Main Zone	13	1,198.53	44.8
Hamlet & 7th	1,107.00	Main Zone	12	1,199.23	39.9
Hamlet & Desdemona	1,102.00	Main Zone	15	1,198.77	41.9
Hamlet & Macbeth	1,104.00	Main Zone	21	1,199.03	41.1
Hathaway & 2nd	1,085.00	Main Zone	7	1,197.74	48.8
Hemlet & Shelley	1,099.00	Main Zone	16	1,198.57	43.1
Hemlock & 1st	1,062.00	Main Zone	15	1,200.81	60.1
Hemlock & 2nd	1,069.00	Main Zone	13	1,200.79	57.0
Hemlock & 4th	1,090.00	Main Zone	7	1,200.76	47.9
Hemlock & 10th	1,106.00	Main Zone	13	1,201.08	41.1
Hemlock & 12th	1,110.00	Main Zone	19	1,201.26	39.5
Hemlock & 14th	1,111.00	Main Zone	10	1,201.51	39.2
Hemlock & Broadway	1,055.00	Main Zone	18	1,200.82	63.1
Hudson & Roosevelt	1,029.00	Main Zone	12	1,204.40	75.9
J-1	1,077.00	Main Zone	221	1,191.23	49.4
J-4	1,077.00	Main Zone	2,052	1,186.22	47.3
J-5	1,080.00	Main Zone	0	1,193.44	49.1
J-13	1,081.00	Main Zone	12	1,198.65	50.9
J-14	1,096.00	Main Zone	15	1,198.88	44.5
J-17	1,084.00	Main Zone	9	1,197.76	49.2
J-20	1,093.00	Main Zone	1	1,197.76	45.3
J-22	1,091.00	Main Zone	21	1,197.24	46.0
J-23	1,089.00	Main Zone	30	1,197.55	47.0
J-25	1,091.00	Main Zone	0	1,196.78	45.8
J-32	1,086.00	Main Zone	0	1,194.73	47.0
J-62	1,096.00	Main Zone	10	1,199.72	44.9
J-66	1,078.00	Main Zone	9	1,199.39	52.5
J-67	1,070.00	Main Zone	13	1,199.39	56.0
J-68	1,089.00	Main Zone	16	1,199.42	47.8
J-69	1,102.00	Main Zone	3	1,199.46	42.2
J-72	953.00	Main Zone	0	1,063.46	47.8
J-77	999.00	Main Zone	0	1,199.94	86.9
J-80	1,078.00	Main Zone	784	1,192.06	49.3
J-81	1,078.00	Main Zone	1	1,194.10	50.2
J-82	1,073.00	Main Zone	4	1,195.02	52.8
J-84	1,113.00	Main Zone	1	1,199.52	37.4

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-85	1,112.00	Main Zone	12	1,199.67	37.9
J-86	1,112.00	Main Zone	12	1,199.65	37.9
J-87	1,116.00	Main Zone	9	1,199.92	36.3
J-89	1,118.00	Main Zone	3	1,200.12	35.5
J-91	1,116.00	Main Zone	6	1,200.24	36.4
J-92	1,115.00	Main Zone	18	1,200.57	37.0
J-93	1,115.00	Main Zone	0	1,201.20	37.3
J-97	1,120.00	Main Zone	9	1,200.01	34.6
J-99	1,119.00	Main Zone	7	1,200.14	35.1
J-100	1,120.00	Main Zone	12	1,200.35	34.8
J-101	1,118.00	Main Zone	6	1,200.74	35.8
J-102	1,117.00	Main Zone	3	1,201.37	36.5
J-104	1,115.00	Main Zone	9	1,201.53	37.4
J-106	1,120.00	Main Zone	0	1,194.67	32.3
J-107	1,088.00	Main Zone	159	1,192.11	45.0
J-108	1,077.00	Main Zone	1	1,191.38	49.5
J-109	1,119.00	Main Zone	18	1,200.80	35.4
J-112	1,113.00	Main Zone	3	1,202.06	38.5
J-113	1,115.00	Main Zone	3	1,202.46	37.8
J-114	1,115.00	Main Zone	15	1,201.61	37.5
J-115	1,115.00	Main Zone	0	1,201.90	37.6
J-125	1,108.00	Main Zone	54	1,199.09	39.4
J-132	1,106.00	Main Zone	0	1,200.54	40.9
J-134	1,105.00	Main Zone	0	1,200.61	41.4
J-135	1,104.00	Main Zone	0	1,200.58	41.8
J-136	1,104.00	Main Zone	0	1,200.59	41.8
J-137	1,098.00	Main Zone	4	1,200.51	44.4
J-138	1,101.00	Main Zone	9	1,200.70	43.1
J-139	1,103.00	Main Zone	10	1,200.78	42.3
J-140	1,107.00	Main Zone	6	1,201.07	40.7
J-141	1,111.00	Main Zone	13	1,201.27	39.1
J-142	1,112.00	Main Zone	7	1,201.51	38.7
J-145	1,110.00	Main Zone	10	1,201.59	39.6
J-154	1,098.00	Main Zone	7	1,200.88	44.5
J-155	1,101.00	Main Zone	18	1,200.83	43.2
J-156	1,106.00	Main Zone	10	1,201.09	41.1
J-163	1,082.00	Main Zone	31	1,201.53	51.7
J-164	1,075.00	Main Zone	3	1,201.73	54.8
J-166	1,069.00	Main Zone	22	1,201.91	57.5
J-168	1,065.00	Main Zone	0	1,202.01	59.3
J-171	1,097.00	Main Zone	1	1,201.85	45.4
J-173	1,094.00	Main Zone	0	1,201.52	46.5
J-180	1,082.00	Main Zone	15	1,201.32	51.6
J-189	1,081.00	Main Zone	1	1,201.33	52.1
J-190	1,087.00	Main Zone	0	1,201.21	49.4
J-191	1,086.00	Main Zone	30	1,201.25	49.9
J-192	1,092.00	Main Zone	15	1,201.41	47.3
J-193	1,094.00	Main Zone	7	1,201.48	46.5
J-194	1,092.00	Main Zone	7	1,201.52	47.4
J-195	1,095.00	Main Zone	21	1,201.85	46.2
J-198	1,059.00	Main Zone	0	1,202.62	62.1
J-199	1,050.00	Main Zone	0	1,202.72	66.1
J-201	1,058.00	Main Zone	3	1,202.49	62.5

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-202	1,056.00	Main Zone	6	1,202.39	63.3
J-206	1,046.00	Main Zone	10	1,202.54	67.7
J-212	1,060.00	Main Zone	12	1,202.36	61.6
J-213	1,059.00	Main Zone	19	1,201.99	61.9
J-221	1,082.00	Main Zone	1	1,201.73	51.8
J-222	1,086.00	Main Zone	4	1,201.73	50.1
J-226	1,081.00	Main Zone	4	1,201.76	52.2
J-233	1,088.00	Main Zone	31	1,201.79	49.2
J-234	1,075.00	Main Zone	3	1,201.89	54.9
J-235	1,076.00	Main Zone	0	1,201.94	54.5
J-239	1,106.00	Main Zone	15	1,201.74	41.4
J-240	1,105.00	Main Zone	12	1,201.72	41.8
J-241	1,103.00	Main Zone	18	1,201.71	42.7
J-242	1,107.00	Main Zone	18	1,201.85	41.0
J-243	1,107.00	Main Zone	10	1,201.91	41.1
J-244	1,107.00	Main Zone	4	1,201.91	41.1
J-248	1,098.00	Main Zone	0	1,201.85	44.9
J-250	1,097.00	Main Zone	0	1,201.85	45.4
J-251	1,101.00	Main Zone	0	1,201.85	43.6
J-252	1,110.00	Main Zone	0	1,202.05	39.8
J-253	1,111.00	Main Zone	15	1,202.07	39.4
J-254	1,112.00	Main Zone	3	1,202.07	39.0
J-255	1,113.00	Main Zone	0	1,202.19	38.6
J-272	1,092.00	Main Zone	6	1,200.54	47.0
J-273	1,096.00	Main Zone	4	1,200.52	45.2
J-287	1,059.00	Main Zone	21	1,201.82	61.8
J-288	1,057.00	Main Zone	22	1,201.91	62.7
J-292	1,063.00	Main Zone	12	1,201.46	59.9
J-295	1,050.00	Main Zone	7	1,202.07	65.8
J-299	1,045.00	Main Zone	7	1,202.51	68.1
J-302	1,046.00	Main Zone	1	1,202.73	67.8
J-305	1,043.00	Main Zone	3	1,202.55	69.0
J-310	1,020.00	Main Zone	3	1,204.73	79.9
J-311	1,017.00	Main Zone	1	1,204.40	81.1
J-315	1,050.00	Main Zone	4	1,204.25	66.7
J-316	1,048.00	Main Zone	3	1,203.71	67.4
J-319	1,041.00	Main Zone	10	1,206.24	71.5
J-320	1,030.00	Main Zone	9	1,206.71	76.5
J-321	1,028.00	Main Zone	0	1,206.58	77.3
J-322	1,021.00	Main Zone	0	1,206.60	80.3
J-323	1,019.00	Main Zone	43	1,202.41	79.4
J-340	970.00	Main Zone	0	1,063.46	40.4
J-341	970.00	Main Zone	0	1,063.46	40.4
J-344	970.00	Main Zone	0	1,063.46	40.4
J-346	969.00	Main Zone	0	1,063.46	40.9
J-352	960.00	Main Zone	0	1,063.46	44.8
J-355	960.00	Main Zone	0	1,063.46	44.8
J-356	960.00	Main Zone	0	1,063.46	44.8
J-357	960.00	Main Zone	0	1,063.46	44.8
J-358	961.00	Main Zone	0	1,063.46	44.3
J-369	1,098.46	Main Zone	30	1,201.86	44.7
J-374	1,028.00	Main Zone	0	1,203.07	75.7
J-375	1,028.00	Main Zone	0	1,206.59	77.3

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-376	985.00	Main Zone	(N/A)	(N/A)	(N/A)
J-377	988.00	Main Zone	(N/A)	(N/A)	(N/A)
J-378	953.00	Main Zone	(N/A)	(N/A)	(N/A)
J-380	1,005.00	Main Zone	(N/A)	(N/A)	(N/A)
J-381	965.00	Main Zone	(N/A)	(N/A)	(N/A)
J-383	948.00	Main Zone	(N/A)	(N/A)	(N/A)
J-386	1,039.00	Main Zone	0	1,202.67	70.8
J-387	1,032.97	Main Zone	0	1,206.45	75.1
J-388	1,026.00	Main Zone	(N/A)	(N/A)	(N/A)
J-389	938.00	Main Zone	(N/A)	(N/A)	(N/A)
J-390	931.00	Main Zone	(N/A)	(N/A)	(N/A)
J-391	934.00	Main Zone	(N/A)	(N/A)	(N/A)
J-395	912.00	Main Zone	(N/A)	(N/A)	(N/A)
J-398	875.00	Main Zone	(N/A)	(N/A)	(N/A)
J-399	1,039.00	Main Zone	(N/A)	(N/A)	(N/A)
J-400	1,012.00	Main Zone	(N/A)	(N/A)	(N/A)
J-401	1,007.00	Main Zone	(N/A)	(N/A)	(N/A)
J-403	967.00	Main Zone	(N/A)	(N/A)	(N/A)
J-404	964.00	Main Zone	(N/A)	(N/A)	(N/A)
J-405	984.00	Main Zone	(N/A)	(N/A)	(N/A)
J-406	993.00	Main Zone	(N/A)	(N/A)	(N/A)
J-407	961.00	Main Zone	(N/A)	(N/A)	(N/A)
J-409	971.00	Main Zone	0	1,199.69	98.9
J-413	1,022.46	Main Zone	(N/A)	(N/A)	(N/A)
J-415	1,025.07	Main Zone	(N/A)	(N/A)	(N/A)
J-416	1,023.01	Main Zone	(N/A)	(N/A)	(N/A)
J-420	932.79	Main Zone	(N/A)	(N/A)	(N/A)
J-422	1,004.24	Main Zone	(N/A)	(N/A)	(N/A)
J-425	913.69	Main Zone	(N/A)	(N/A)	(N/A)
J-428	958.98	Main Zone	(N/A)	(N/A)	(N/A)
J-429	969.44	Main Zone	(N/A)	(N/A)	(N/A)
J-430	950.54	Main Zone	(N/A)	(N/A)	(N/A)
J-431	1,113.00	Main Zone	0	1,201.96	38.5
J-432	1,115.00	Main Zone	0	1,201.98	37.6
J-433	1,115.00	Main Zone	0	1,201.98	37.6
J-434	1,112.00	Main Zone	0	1,201.97	38.9
J-435	1,115.00	Main Zone	0	1,201.98	37.6
J-436	1,113.00	Main Zone	0	1,202.01	38.5
J-437	1,108.00	Main Zone	0	1,201.93	40.6
J-438	1,109.00	Main Zone	0	1,201.95	40.2
J-439	1,106.00	Main Zone	0	1,201.93	41.5
J-440	1,096.00	Main Zone	0	1,201.82	45.8
J-444	1,097.00	Main Zone	0	1,201.87	45.4
J-445	1,092.00	Main Zone	0	1,201.80	47.5
J-446	1,094.00	Main Zone	0	1,201.79	46.6
J-447	1,091.00	Main Zone	0	1,201.76	47.9
J-448	1,095.00	Main Zone	0	1,201.80	46.2
J-449	1,095.48	Main Zone	0	1,201.81	46.0
J-454	1,050.00	Main Zone	0	1,203.28	66.3
J-455	1,092.15	Main Zone	0	1,201.77	47.4
J-456	1,094.07	Main Zone	0	1,201.79	46.6
J-457	1,103.00	Main Zone	0	1,201.85	42.8
J-458	1,108.92	Main Zone	0	1,201.41	40.0

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-459	1,107.40	Main Zone	0	1,201.41	40.7
J-460	1,111.06	Main Zone	0	1,201.18	39.0
J-461	1,109.00	Main Zone	0	1,201.18	39.9
J-462	1,116.35	Main Zone	0	1,201.38	36.8
J-463	1,042.00	Main Zone	0	1,203.28	69.8
J-464	1,073.00	Main Zone	(N/A)	(N/A)	(N/A)
J-465	1,063.00	Main Zone	(N/A)	(N/A)	(N/A)
J-466	1,039.00	Main Zone	(N/A)	(N/A)	(N/A)
J-467	1,039.47	Main Zone	0	1,205.82	72.0
J-468	1,042.00	Main Zone	(N/A)	(N/A)	(N/A)
J-470	1,120.47	Main Zone	0	1,199.11	34.0
J-471	1,086.97	Main Zone	0	1,193.47	46.1
J-473	1,110.00	Main Zone	(N/A)	(N/A)	(N/A)
J-474	1,099.00	Main Zone	(N/A)	(N/A)	(N/A)
J-475	1,100.00	Main Zone	(N/A)	(N/A)	(N/A)
J-476	1,124.00	Main Zone	(N/A)	(N/A)	(N/A)
J-477	1,125.87	Non-Fire	0	1,207.51	35.3
J-478	1,082.00	Main Zone	(N/A)	(N/A)	(N/A)
J-479	1,034.00	Main Zone	(N/A)	(N/A)	(N/A)
J-480	1,000.68	Main Zone	(N/A)	(N/A)	(N/A)
J-481	1,121.38	Main Zone	0	1,205.42	36.4
J-483	1,126.00	<None>	0	1,209.29	36.0
J-485	976.07	<None>	0	1,199.73	96.8
J-491	1,075.95	<None>	(N/A)	(N/A)	(N/A)
June & Allen	970.00	Main Zone	0	1,063.46	40.4
June & Andes	967.00	Main Zone	0	1,063.46	41.7
June & Danielle	970.00	Main Zone	0	1,063.46	40.4
June & Taylor	966.00	Main Zone	0	1,063.46	42.2
June & Wagon	966.00	Main Zone	0	1,063.46	42.2
Juniper & 1st	1,055.00	Main Zone	18	1,202.03	63.6
Juniper & 2nd	1,060.00	Main Zone	22	1,201.61	61.3
Juniper & 4th	1,072.00	Main Zone	16	1,201.44	56.0
Juniper & 7th	1,090.00	Main Zone	22	1,201.29	48.1
Juniper & 10th	1,101.00	Main Zone	34	1,201.31	43.4
Juniper & 12th	1,104.00	Main Zone	24	1,201.43	42.2
Juniper & 14th	1,107.00	Main Zone	10	1,201.61	40.9
Juniper & Broadway	1,048.00	Main Zone	4	1,202.54	66.9
Kaylee & Kristina	970.00	Main Zone	0	1,063.46	40.4
Larch & 1st	1,058.00	Main Zone	16	1,202.76	62.6
Larch & 2nd	1,064.00	Main Zone	21	1,201.27	59.4
Larch & 4th	1,084.00	Main Zone	16	1,201.06	50.6
Larch & 7th	1,096.00	Main Zone	15	1,200.98	45.4
Larch & 10th	1,105.00	Main Zone	30	1,201.11	41.6
Larch & 12th	1,108.00	Main Zone	33	1,201.26	40.4
Larch & 14th	1,110.00	Main Zone	18	1,201.55	39.6
Larch & Broadway	1,052.00	Main Zone	25	1,203.24	65.4
Lavender & 3rd	1,051.00	Main Zone	22	1,202.22	65.4
Lee & 14th	1,121.00	Main Zone	1	1,198.10	33.4
Lee & Broadway	1,077.00	Main Zone	645	1,191.37	49.5
Lilac & 3rd	1,051.00	Main Zone	22	1,202.15	65.4
Lilac & 7th	1,064.00	Main Zone	9	1,202.06	59.7
Lilac & 7th	1,058.00	Main Zone	15	1,202.09	62.3
Magnolia & 3rd	1,050.00	Main Zone	19	1,202.30	65.9

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
Main & 4th	1,094.00	Main Zone	4	1,200.32	46.0
Main & 1st	1,065.00	Main Zone	22	1,200.14	58.5
Main & 2nd	1,077.00	Main Zone	15	1,200.24	53.3
Main & 3rd	1,089.00	Main Zone	4	1,200.34	48.2
Main & 7th	1,102.00	Main Zone	10	1,200.63	42.7
Main & 8th	1,104.00	Main Zone	7	1,200.74	41.9
Main & 9th	1,106.00	Main Zone	34	1,200.88	41.0
Main & 10th	1,108.00	Main Zone	18	1,201.07	40.3
Main & 11th	1,110.00	Main Zone	9	1,201.18	39.4
Main & 12th	1,111.00	Main Zone	18	1,201.28	39.1
Main & 14th	1,113.00	Main Zone	39	1,201.55	38.3
Main & Broadway	1,058.00	Main Zone	16	1,200.07	61.5
Main & Desdemona	1,100.00	Main Zone	7	1,200.42	43.4
Main & Rairoad	1,053.00	Main Zone	12	1,200.10	63.6
Main & Venice	1,099.00	Main Zone	16	1,200.32	43.8
May & Andes	966.00	Main Zone	0	1,063.46	42.2
May & Danielle	970.00	Main Zone	0	1,063.46	40.4
Oak & 7th	1,085.00	Main Zone	13	1,201.41	50.4
Oak & 10th	1,096.00	Main Zone	31	1,201.41	45.6
Oak & 12th	1,099.00	Main Zone	30	1,201.49	44.3
Oak & 14th	1,102.00	Main Zone	32	1,201.73	43.1
Olympia & 4th	1,095.00	Main Zone	7	1,197.62	44.4
Olympia & 7th	1,110.00	Main Zone	6	1,199.06	38.5
Olympia & 9th	1,113.00	Main Zone	1	1,199.53	37.4
Olympia & 11th	1,117.00	Main Zone	6	1,200.01	35.9
Olympia & 14th	1,120.00	Main Zone	3	1,200.01	34.6
Olympia & Desdemona	1,102.00	Main Zone	10	1,198.39	41.7
Othello & 4th	1,095.00	Main Zone	15	1,198.03	44.6
Othello & 7th	1,109.00	Main Zone	7	1,199.06	39.0
Othello & Desdemona	1,102.00	Main Zone	19	1,198.49	41.7
Pine & 1st	1,072.00	Main Zone	21	1,198.49	54.7
Pine & 2nd	1,080.00	Main Zone	19	1,198.65	51.3
Pine & 4th	1,097.00	Main Zone	21	1,199.18	44.2
Pine & 7th	1,105.00	Main Zone	7	1,199.42	40.8
Pine & 8th	1,107.00	Main Zone	0	1,200.44	40.4
Pine & 9th	1,109.00	Main Zone	1	1,200.79	39.7
Pine & 10th	1,111.00	Main Zone	6	1,201.12	39.0
Pine & 11th	1,113.00	Main Zone	6	1,201.18	38.2
Pine & 13th	1,115.00	Main Zone	25	1,201.28	37.3
Pine & 14th	1,115.00	Main Zone	9	1,201.31	37.3
Pine & Broadway	1,070.00	Main Zone	7	1,198.17	55.5
Pine & Desdemona	1,103.00	Main Zone	16	1,199.18	41.6
Pine & Macbeth	1,104.00	Main Zone	18	1,199.41	41.3
Rainier & 2nd	1,087.00	Main Zone	1	1,197.62	47.9
Rainier & 4th	1,092.00	Main Zone	13	1,198.09	45.9
Rainier & 7th	1,108.00	Main Zone	7	1,199.09	39.4
Rainier & 11th	1,116.00	Main Zone	13	1,200.14	36.4
Rainier & 13th	1,120.00	Main Zone	7	1,200.21	34.7
Rainier & Desdemona	1,102.00	Main Zone	16	1,198.62	41.8
Rainier & Kayllee	970.00	Main Zone	0	1,063.46	40.4
Rainier & Kristina	969.00	Main Zone	0	1,063.46	40.9
Rainier & Larkspur	1,092.00	Main Zone	7	1,197.59	45.7
Rainier & Macbeth	1,105.00	Main Zone	18	1,198.93	40.6

FlexTable: Junction Table

Active Scenario: Current PHD

Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
Rainier & Shelley	1,099.00	Main Zone	15	1,198.46	43.0
Rainier & Taylor	970.00	Main Zone	0	1,063.46	40.4
Rainier & Wagon	970.00	Main Zone	0	1,063.46	40.4
Rose & Shady	1,057.00	Main Zone	10	1,202.28	62.9
Rose & Sylvan	1,055.00	Main Zone	10	1,202.27	63.7
Royal & Broadway	1,038.00	Main Zone	4	1,202.39	71.1
SR 26 & 14th	1,091.00	Main Zone	1	1,202.10	48.1
SR 26 & 1st	1,045.00	Main Zone	1	1,202.54	68.2
SR 26 & 7th	1,058.00	Main Zone	1	1,202.72	62.6
SR 26 & Broadway	1,037.00	Main Zone	3	1,202.61	71.7
Sagewood	1,084.00	Main Zone	16	1,201.73	50.9
Sagewood & 10th	1,091.00	Main Zone	22	1,201.69	47.9
Scooteny & 1st	1,047.00	Main Zone	9	1,202.19	67.1
Scooteny & 2nd	1,050.00	Main Zone	16	1,202.07	65.8
Scooteny & 3rd	1,053.00	Main Zone	19	1,202.06	64.5
Scooteny & 4th	1,056.00	Main Zone	18	1,202.03	63.2
Scooteny & 7th	1,071.00	Main Zone	12	1,201.86	56.6
Scooteny & 10th	1,091.00	Main Zone	15	1,201.76	47.9
Scooteny & Broadway	1,037.00	Main Zone	6	1,202.37	71.5
Scooteny & Capstone	1,087.00	Main Zone	21	1,201.75	49.6
Scooteny & Cobblestone	1,083.00	Main Zone	21	1,201.75	51.4
Scooteny & Shady	1,061.00	Main Zone	21	1,201.97	61.0
Seilaff ln & Kristina	963.00	Main Zone	0	1,063.46	43.5
Soda & 1st	1,048.00	Main Zone	4	1,202.17	66.7
Soda & 2nd	1,053.00	Main Zone	33	1,202.01	64.5
Soda & 3rd	1,056.00	Main Zone	34	1,201.99	63.2
Soda & Broadway	1,041.00	Main Zone	32	1,202.36	69.8
Spruce & 1st	1,056.00	Main Zone	16	1,202.10	63.2
Spruce & 2nd	1,061.00	Main Zone	19	1,201.61	60.8
Spruce & 4th	1,076.00	Main Zone	16	1,201.35	54.2
Spruce & 7th	1,093.00	Main Zone	27	1,201.10	46.8
Spruce & 10th	1,103.00	Main Zone	31	1,201.19	42.5
Spruce & 12th	1,106.00	Main Zone	30	1,201.30	41.2
Spruce & 14th	1,109.00	Main Zone	10	1,201.59	40.1
Spruce & Broadway	1,050.00	Main Zone	13	1,202.78	66.1
Susan & 7th	1,067.00	Main Zone	9	1,201.96	58.4
Syvan & 3rd	1,052.00	Main Zone	16	1,202.12	64.9
Syvan & 4th	1,054.00	Main Zone	25	1,202.13	64.1
Teck & Roosevelt	1,030.00	Main Zone	4	1,204.73	75.6
Teck & SR 24	1,039.00	Main Zone	4	1,205.03	71.8
WELL 2	1,092.00	Main Zone	0	1,200.32	46.9
WELL 3	1,115.00	Main Zone	-800	1,202.33	37.8
WELL 4	1,098.00	Main Zone	-430	1,202.02	45.0
WELL 5	1,058.00	Main Zone	-900	1,203.25	62.8
WELL 6	1,051.00	Main Zone	-2,000	1,206.45	67.3
WELL 7	1,029.00	Main Zone	-630	1,207.13	77.1
WELL 8	1,122.00	Main Zone	-395	1,198.88	33.3
WELL 9	1,126.00	Non-Fire	-1,200	1,209.45	36.1
Wahluke & 1st	1,046.00	Main Zone	9	1,202.39	67.7
Wahluke & Broadway	1,037.00	Main Zone	7	1,202.42	71.6
Well 10	1,126.00	<None>	(N/A)	(N/A)	(N/A)
Well 11 (proposed)	960.00	Main Zone	0	1,063.46	44.8
Winsor & Desdemona	1,101.00	Main Zone	3	1,199.94	42.8

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-3	1,208	Lee & Broadway	J-4	10.0	PVC	130.0	525	2.15	2.26
P-4	1,714	J-4	J-5	10.0	PVC	130.0	-490	2.00	2.82
P-5	1,528	J-5	Fir & Broadway	10.0	PVC	130.0	-368	1.50	1.48
P-6	313	Fir & Broadway	Pine & Broadway	10.0	PVC	130.0	-278	1.14	0.18
P-7	833	Pine & Broadway	Main & Broadway	10.0	PVC	130.0	-308	1.26	0.58
P-9	353	Pine & Broadway	Pine & 1st	6.0	AC	130.0	-65	0.73	0.16
P-10	360	Pine & 1st	Pine & 2nd	6.0	AC	130.0	-51	0.58	0.11
P-11	775	Pine & 2nd	Pine & 4th	6.0	AC	130.0	-58	0.66	0.29
P-12	210	Pine & 2nd	J-13	4.0	stl	100.0	-5	0.14	0.01
P-13	689	J-13	J-14	4.0	stl	100.0	-13	0.33	0.19
P-14	739	Fir & Broadway	Fir & 2nd	8.0	PVC	130.0	-92	0.59	0.16
P-15	208	Fir & 2nd	J-17	8.0	Asbestos Cement	130.0	-97	0.62	0.05
P-16	376	J-17	Hathaway & 2nd	8.0	Asbestos Cement	130.0	14	0.09	0.00
P-17	525	Hathaway & 2nd	Halthaway & Lakespur	8.0	Asbestos Cement	130.0	-33	0.21	0.02
P-18	366	Halthaway & Lakespur	J-20	8.0	Asbestos Cement	130.0	-40	0.25	0.02
P-19	101	J-20	Rainier & Larkspur	8.0	Asbestos Cement	130.0	165	1.05	0.07
P-20	465	Rainier & Larkspur	J-22	8.0	Asbestos Cement	130.0	104	0.66	0.13
P-21	471	J-22	J-23	8.0	Asbestos Cement	130.0	-94	0.60	0.11
P-22	201	J-23	Rainier & 2nd	8.0	Asbestos Cement	130.0	-56	0.36	0.02
P-23	364	Rainier & 2nd	Hathaway & 2nd	8.0	Asbestos Cement	130.0	-57	0.36	0.03
P-24	230	J-23	Rainier & Larkspur	8.0	Asbestos Cement	130.0	-56	0.36	0.02
P-25	375	Hathaway & 2nd	J-17	8.0	Asbestos Cement	130.0	-14	0.09	0.00
P-26	196	J-22	J-25	8.0	PVC	130.0	185	1.18	0.16
P-41	272	Olympia & 4th	Othello & 4th	8.0	Asbestos Cement	130.0	-150	0.96	0.15
P-42	301	Othello & 4th	Rainier & 4th	8.0	Asbestos Cement	130.0	-35	0.22	0.01
P-43	578	Rainier & 4th	Hamlet & 4th	8.0	Asbestos Cement	130.0	-103	0.66	0.16
P-44	898	J-17	Fircrest & 4th	8.0	Asbestos Cement	130.0	-130	0.83	0.38
P-45	389	Fircrest & 4th	Hamlet & 4th	8.0	PVC	130.0	55	0.35	0.03
P-46	289	Hamlet & 4th	Hemlet & Shelley	8.0	PVC	130.0	-57	0.36	0.03
P-47	287	Hemlet & Shelley	Hamlet & Desdemona	8.0	PVC	130.0	-109	0.70	0.09
P-48	285	Hamlet & Desdemona	Hamlet & Macbeth	8.0	PVC	130.0	-139	0.89	0.13
P-49	334	Hamlet & Macbeth	Hamlet & 7th	8.0	PVC	130.0	-115	0.74	0.11
P-50	792	Hamlet & Macbeth	Pine & Macbeth	8.0	PVC	130.0	-72	0.46	0.11
P-51	324	Hamlet & Desdemona	Fircrest & Desdemona	8.0	PVC	130.0	-26	0.16	0.01
P-52	287	Fircrest & Desdemona	Pine & Desdemona	8.0	PVC	130.0	-111	0.71	0.09
P-53	269	Pine & Desdemona	Cedar & Desdemona	8.0	PVC	130.0	-151	0.97	0.15
P-54	551	Fircrest & 4th	Fircrest & Desdemona	8.0	PVC	130.0	-77	0.49	0.09

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-55	631	Pine & Desdemona	Pine & 4th	8.0	PVC	130.0	30	0.19	0.02
P-56	358	Pine & 4th	Cedar & 4th	8.0	PVC	130.0	-90	0.57	0.08
P-57	364	Cedar & 4th	Cendar & Venice	8.0	PVC	130.0	-100	0.64	0.09
P-58	400	Cendar & Venice	Cedar & Desdemona	8.0	PVC	130.0	16	0.10	0.00
P-59	306	Cedar & Desdemona	Winsor & Desdemona	8.0	PVC	130.0	-133	0.85	0.13
P-60	342	Winsor & Desdemona	Main & Desdemona	8.0	PVC	130.0	-134	0.86	0.15
P-61	437	Cendar & Venice	Main & Venice	8.0	PVC	130.0	-120	0.77	0.16
P-62	282	Olympia & Desdemona	Othello & Desdemona	8.0	PVC	130.0	-59	0.38	0.03
P-63	630	Othello & Desdemona	Othello & 7th	8.0	PVC	130.0	-135	0.86	0.28
P-64	561	Othello & Desdemona	Othello & 4th	8.0	PVC	130.0	124	0.79	0.22
P-65	158	J-20	Rainier & 4th	8.0	PVC	130.0	-205	1.31	0.15
P-66	297	Rainier & 4th	Rainier & Shelley	8.0	Asbestos Cement	130.0	-146	0.93	0.15
P-67	253	Rainier & Shelley	Rainier & Desdemona	8.0	Asbestos Cement	130.0	-113	0.72	0.08
P-68	320	Rainier & Desdemona	Rainier & Macbeth	8.0	Asbestos Cement	130.0	-138	0.88	0.15
P-69	326	Rainier & Macbeth	Rainier & 7th	8.0	Asbestos Cement	130.0	-113	0.72	0.11
P-70	297	Othello & Desdemona	Rainier & Desdemona	8.0	Asbestos Cement	130.0	-61	0.39	0.03
P-71	583	Rainier & Desdemona	Hamlet & Desdemona	8.0	Asbestos Cement	130.0	-46	0.29	0.04
P-72	580	Rainier & Macbeth	Hamlet & Macbeth	8.0	Asbestos Cement	130.0	-35	0.23	0.02
P-73	582	Rainier & Shelley	Hemlet & Shelley	8.0	Asbestos Cement	130.0	-42	0.27	0.03
P-74	182	Fircrest & 4th	J-14	8.0	PVC	130.0	-117	0.75	0.06
P-75	202	J-14	Pine & 4th	8.0	PVC	130.0	-139	0.89	0.10
P-76	358	Pine & 4th	Cedar & 4th	8.0	PVC	130.0	-90	0.57	0.08
P-77	178	Cedar & 4th	J-62	8.0	PVC	130.0	-105	0.67	0.05
P-78	193	J-62	Main & 4th	8.0	Steel	100.0	-125	0.80	0.12
P-79	393	Cedar & 4th	Cedar & 3rd	6.0	AC	130.0	23	0.26	0.03
P-80	357	Cedar & 3rd	Cedar & 2nd	6.0	AC	130.0	14	0.16	0.01
P-82	343	Cedar & 2nd	J-67	6.0	AC	130.0	6	0.07	0.00
P-83	194	J-67	J-66	4.0	AC	130.0	-2	0.06	0.00
P-84	159	Cedar & 2nd	J-66	6.0	AC	130.0	3	0.03	0.00
P-85	356	J-66	J-68	4.0	Asbestos Cement	130.0	-5	0.13	0.01
P-86	376	J-68	J-62	4.0	Asbestos Cement	130.0	-14	0.36	0.08
P-87	164	Cedar & 3rd	J-68	4.0	Asbestos Cement	130.0	1	0.02	0.00
P-88	276	J-69	Cedar & 7th	4.0	Asbestos Cement	130.0	-2	0.05	0.00
P-89	760	Pine & 1st	Main & 1st	4.0	Asbestos Cement	130.0	-26	0.67	0.47
P-91	338	Cunningham & Taylor	Cunningham & Wagon	12.0	PVC	130.0	1	0.00	0.00
P-92	378	Cunningham & Wagon	Cunningham & Andes	12.0	PVC	130.0	0	0.00	0.00
P-93	1,263	Cunningham & Andes	Cunningham & Danielle	12.0	PVC	130.0	1	0.00	0.00

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-95	1,002	J-77	Main & Rairoad	12.0	PVC	130.0	-137	0.39	0.06
P-98	371	Main & 1st	Main & 2nd	12.0	PVC	130.0	-252	0.71	0.07
P-100	415	Main & 4th	Main & Venice	12.0	PVC	130.0	-247	0.70	0.08
P-101	1,617	J-4	J-80	8.0	Asbestos Cement	130.0	-248	1.59	2.24
P-102	124	J-80	J-5	8.0	Asbestos Cement	130.0	-478	3.05	0.58
P-103	518	J-80	J-81	8.0	Asbestos Cement	130.0	-253	1.62	0.74
P-104	597	J-81	J-82	8.0	Asbestos Cement	130.0	-153	0.98	0.34
P-105	781	J-82	Pine & Broadway	8.0	Asbestos Cement	130.0	-257	1.64	1.15
P-106	489	Pine & Broadway	Cedar & Broadway	8.0	Asbestos Cement	130.0	-168	1.07	0.33
P-107	361	Cedar & Broadway	Main & Broadway	8.0	Asbestos Cement	130.0	-171	1.09	0.25
P-108	1,283	J-81	J-82	8.0	Asbestos Cement	130.0	-101	0.65	0.34
P-109	926	Olympia & 7th	J-84	8.0	PVC	130.0	-111	0.71	0.29
P-110	227	J-84	Olympia & 9th	8.0	PVC	130.0	-39	0.25	0.01
P-111	478	J-84	J-85	8.0	PVC	130.0	-73	0.47	0.07
P-112	319	J-85	J-86	8.0	PVC	130.0	57	0.36	0.03
P-113	898	J-86	Hamlet & 7th	8.0	PVC	130.0	116	0.74	0.30
P-116	708	J-87	Rainier & 11th	8.0	Asbestos Cement	130.0	-76	0.49	0.11
P-117	206	Rainier & 11th	J-89	8.0	Asbestos Cement	130.0	7	0.05	0.00
P-119	699	Olympia & 11th	J-89	8.0	Asbestos Cement	130.0	-48	0.31	0.05
P-127	569	J-5	J-32	12.0	Asbestos Cement	130.0	-600	1.70	0.56
P-128	490	J-32	J-25	12.0	Asbestos Cement	130.0	-794	2.25	0.81
P-129	340	J-25	Olympia & 4th	12.0	Asbestos Cement	130.0	-610	1.73	0.34
P-130	551	Olympia & 4th	Olympia & Desdemona	12.0	Asbestos Cement	130.0	-464	1.32	0.34
P-131	640	Olympia & Desdemona	Olympia & 7th	12.0	Asbestos Cement	130.0	-411	1.17	0.31
P-132	739	Olympia & 7th	Olympia & 9th	12.0	Asbestos Cement	130.0	-371	1.05	0.30
P-133	540	Olympia & 9th	J-87	12.0	Asbestos Cement	130.0	-410	1.16	0.26
P-134	182	J-87	Olympia & 11th	12.0	Asbestos Cement	130.0	-340	0.96	0.06
P-135	529	Olympia & 11th	Rainier & 11th	12.0	Asbestos Cement	130.0	-163	0.46	0.05
P-136	174	Rainier & 11th	J-91	12.0	Asbestos Cement	130.0	-255	0.72	0.04
P-137	304	J-91	J-92	12.0	Asbestos Cement	130.0	-396	1.12	0.14
P-138	381	J-92	J-93	12.0	Asbestos Cement	130.0	-499	1.41	0.27
P-139	567	J-93	Pine & 11th	12.0	Asbestos Cement	130.0	122	0.35	0.03
P-140	368	Pine & 11th	Cedar & 11th	12.0	Asbestos Cement	130.0	81	0.23	0.01
P-141	556	Olympia & 11th	J-97	12.0	PVC	130.0	-132	0.37	0.03
P-142	621	J-97	Olympia & 14th	12.0	PVC	130.0	-91	0.26	0.02
P-143	369	J-89	J-99	8.0	Asbestos Cement	130.0	-43	0.27	0.02
P-144	171	J-99	Rainier & 13th	8.0	Asbestos Cement	130.0	-94	0.60	0.04

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-145	540	J-97	J-99	8.0	PVC	130.0	-46	0.30	0.03
P-146	654	J-100	Rainier & 13th	6.0	AC	130.0	33	0.37	0.09
P-147	494	Rainier & 13th	J-101	6.0	AC	130.0	-65	0.74	0.24
P-148	333	J-101	J-102	6.0	AC	130.0	-91	1.04	0.29
P-149	179	J-102	Fir & 13th	6.0	AC	130.0	-33	0.38	0.02
P-150	501	J-102	J-104	6.0	AC	130.0	-33	0.37	0.07
P-152	2,661	Lee & 14th	J-106	16.0	Asbestos Cement	130.0	963	1.54	1.55
P-153	1,988	J-106	J-107	16.0	Asbestos Cement	130.0	963	1.54	1.16
P-154	604	J-107	Lee & Broadway	16.0	Asbestos Cement	130.0	901	1.44	0.31
P-155	396	J-1	J-108	10.0	PVC	130.0	-136	0.56	0.06
P-156	1,106	J-108	Lee & Broadway	10.0	PVC	130.0	21	0.09	0.01
P-157	1,513	J-108	J-107	10.0	Asbestos Cement	130.0	-158	0.65	0.31
P-159	484	Olympia & 14th	J-100	16.0	Asbestos Cement	130.0	-662	1.06	0.14
P-160	604	J-100	J-109	16.0	Asbestos Cement	130.0	-702	1.12	0.20
P-161	589	J-109	Fir & 14th	16.0	Asbestos Cement	130.0	-771	1.23	0.23
P-162	1,130	Fir & 14th	Main & 14th	16.0	PVC	130.0	-410	0.65	0.14
P-164	1,009	J-112	J-113	16.0	PVC	130.0	-781	1.25	0.40
P-165	524	J-109	J-101	8.0	Asbestos Cement	130.0	57	0.37	0.05
P-166	716	J-101	J-92	8.0	Asbestos Cement	130.0	79	0.51	0.12
P-167	746	J-92	J-86	8.0	Asbestos Cement	130.0	171	1.09	0.52
P-168	750	J-91	J-85	8.0	Asbestos Cement	130.0	138	0.88	0.35
P-170	324	Fir & 13th	J-104	16.0	Asbestos Cement	130.0	-421	0.67	0.04
P-171	217	J-104	J-114	16.0	Asbestos Cement	130.0	-459	0.73	0.03
P-172	168	J-114	J-115	12.0	Asbestos Cement	130.0	-501	1.42	0.12
P-173	582	J-114	Fir & 13th	6.0	AC	130.0	32	0.36	0.07
P-176	508	Fir & 13th	Fir & 14th	8.0	Asbestos Cement	130.0	54	0.35	0.04
P-177	406	Fir & 14th	Pine & 14th	8.0	Asbestos Cement	130.0	27	0.17	0.01
P-178	367	Pine & 14th	Cedar & 14th	8.0	Asbestos Cement	130.0	-31	0.20	0.01
P-179	388	Cedar & 14th	Main & 14th	8.0	Asbestos Cement	130.0	-117	0.75	0.13
P-180	413	Pine & 14th	Pine & 13th	8.0	Asbestos Cement	130.0	52	0.33	0.03
P-181	1,135	Cedar & 14th	Cedar & 11th	8.0	Asbestos Cement	130.0	74	0.47	0.17
P-182	721	Pine & 13th	Pine & 11th	6.0	AC	130.0	37	0.42	0.12
P-183	823	Main & 14th	Main & 12th	12.0	PVC	130.0	305	0.86	0.23
P-184	368	Main & 12th	Main & 11th	12.0	PVC	130.0	269	0.76	0.08
P-185	359	Main & 11th	Main & 10th	12.0	PVC	130.0	351	0.99	0.13
P-186	393	Main & 10th	Main & 9th	12.0	PVC	130.0	380	1.08	0.17
P-187	340	Main & 9th	Main & 8th	12.0	PVC	130.0	360	1.02	0.13

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-188	361	Main & 8th	Main & 7th	12.0	PVC	130.0	337	0.96	0.12
P-189	396	Main & 7th	Main & Desdemona	12.0	PVC	130.0	422	1.20	0.20
P-190	1,180	J-125	J-86	8.0	Asbestos Cement	130.0	-105	0.67	0.33
P-191	284	Olympia & 7th	Othello & 7th	12.0	Asbestos Cement	130.0	67	0.19	0.00
P-192	199	Othello & 7th	J-125	12.0	Asbestos Cement	130.0	-72	0.21	0.00
P-193	112	J-125	Rainier & 7th	12.0	Asbestos Cement	130.0	-1	0.00	0.00
P-194	574	Rainier & 7th	Hamlet & 7th	12.0	Asbestos Cement	130.0	-119	0.34	0.03
P-195	772	Hamlet & 7th	Pine & 7th	12.0	Ductile Iron	120.0	-107	0.30	0.04
P-196	369	Pine & 7th	Cedar & 7th	12.0	Ductile Iron	120.0	-106	0.30	0.02
P-197	358	Cedar & 7th	Main & 7th	6.0	Asbestos Cement	130.0	-108	1.23	0.43
P-198	786	Hamlet & 7th	Pine & 7th	6.0	AC	130.0	-19	0.21	0.04
P-199	181	Pine & 7th	Pine & Macbeth	8.0	Asbestos Cement	130.0	90	0.57	0.04
P-200	313	Pine & Macbeth	Cedar & Desdemona	8.0	Asbestos Cement	130.0	7	0.04	0.00
P-201	364	Pine & 7th	Pine & 8th	6.0	AC	130.0	-114	1.29	0.48
P-202	336	Pine & 8th	Pine & 9th	6.0	AC	130.0	-78	0.88	0.22
P-203	370	Pine & 9th	Pine & 10th	6.0	AC	130.0	-80	0.91	0.26
P-204	385	Pine & 10th	Pine & 11th	8.0	AC	130.0	-74	0.47	0.06
P-205	372	Pine & 10th	Cedar & 10th	6.0	AC	130.0	-10	0.12	0.01
P-206	373	Cedar & 10th	Main & 10th	6.0	AC	130.0	48	0.54	0.10
P-207	739	Pine & 9th	Main & 9th	4.0	AC	130.0	2	0.04	0.00
P-208	172	Pine & 8th	J-132	6.0	AC	130.0	-36	0.41	0.03
P-209	169	J-132	Cedar & 8th	6.0	AC	130.0	-23	0.27	0.01
P-210	196	Cedar & 8th	J-134	6.0	AC	130.0	-19	0.21	0.01
P-211	204	J-134	Main & 8th	6.0	AC	130.0	-40	0.45	0.04
P-212	566	J-132	J-135	6.0	AC	130.0	-13	0.14	0.01
P-213	91	J-135	J-136	6.0	AC	130.0	-13	0.14	0.00
P-214	103	J-136	J-134	6.0	AC	130.0	-21	0.24	0.01
P-215	304	Cedar & 8th	J-136	6.0	AC	130.0	-8	0.09	0.00
P-216	353	J-137	J-138	8.0	PVC	130.0	-153	0.98	0.20
P-217	395	J-138	J-139	8.0	PVC	130.0	-100	0.64	0.10
P-218	740	J-139	J-140	8.0	PVC	130.0	-125	0.79	0.29
P-219	723	J-140	J-141	8.0	PVC	130.0	-103	0.66	0.20
P-220	767	J-141	J-142	8.0	PVC	130.0	-102	0.65	0.20
P-221	228	Main & 14th	J-142	8.0	Asbestos Cement	130.0	86	0.55	0.04
P-222	195	J-142	Hemlock & 14th	8.0	Asbestos Cement	130.0	-21	0.13	0.00
P-223	372	Hemlock & 14th	Larch & 14th	8.0	Asbestos Cement	130.0	-44	0.28	0.02
P-224	165	Larch & 14th	J-145	8.0	Asbestos Cement	130.0	-68	0.44	0.02

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-225	171	J-145	Spruce & 14th	8.0	Asbestos Cement	130.0	5	0.03	0.00
P-226	355	Spruce & 14th	Juniper & 14th	8.0	Asbestos Cement	130.0	-17	0.11	0.00
P-227	386	Juniper & 14th	Elm & 14th	8.0	Asbestos Cement	130.0	31	0.20	0.01
P-228	368	Elm & 14th	Oak & 14th	8.0	Asbestos Cement	130.0	-80	0.51	0.06
P-229	328	Oak & 14th	Ash & 14th	8.0	Asbestos Cement	130.0	-52	0.33	0.02
P-230	952	Main & 14th	J-145	16.0	PVC	130.0	-18	0.03	0.00
P-232	787	Juniper & 14th	Oak & 14th	16.0	PVC	130.0	-295	0.47	0.05
P-233	480	Oak & 14th	Cemetery &14th	16.0	PVC	130.0	-339	0.54	0.04
P-234	761	Hemlock & 14th	Hemlock & 12th	4.0	Asbestos Cement	130.0	17	0.43	0.21
P-235	732	Hemlock & 12th	Hemlock & 10th	4.0	Asbestos Cement	130.0	16	0.41	0.19
P-236	422	J-154	J-155	4.0	Asbestos Cement	130.0	-6	0.16	0.02
P-237	372	J-155	J-139	4.0	Asbestos Cement	130.0	3	0.08	0.00
P-238	733	J-155	J-156	4.0	Asbestos Cement	130.0	-20	0.51	0.28
P-239	208	Main & 7th	J-138	12.0	Ductile Iron	120.0	-200	0.57	0.03
P-240	370	J-138	J-154	12.0	Ductile Iron	120.0	-258	0.73	0.09
P-241	182	J-154	Larch & 7th	12.0	Ductile Iron	120.0	-256	0.73	0.04
P-242	304	Larch & 7th	Spruce & 7th	12.0	Ductile Iron	120.0	-226	0.64	0.06
P-243	443	Spruce & 7th	Juniper & 7th	12.0	Ductile Iron	120.0	-228	0.65	0.08
P-244	361	Juniper & 7th	Elm & 7th	12.0	Ductile Iron	120.0	-279	0.79	0.10
P-245	336	Elm & 7th	Oak & 7th	12.0	Ductile Iron	120.0	-257	0.73	0.08
P-246	370	Oak & 7th	Ash & 7th	12.0	Ductile Iron	120.0	-229	0.65	0.07
P-247	158	Ash & 7th	J-163	12.0	Ductile Iron	120.0	-288	0.82	0.05
P-248	506	J-163	J-164	12.0	Ductile Iron	120.0	-322	0.91	0.18
P-249	335	J-164	Scooteny & 7th	12.0	Ductile Iron	120.0	-281	0.80	0.09
P-250	183	Scooteny & 7th	J-166	12.0	Ductile Iron	120.0	-254	0.72	0.04
P-251	135	J-166	Susan & 7th	12.0	Ductile Iron	120.0	-281	0.80	0.04
P-252	163	Susan & 7th	J-168	12.0	Ductile Iron	120.0	-275	0.78	0.04
P-253	133	J-168	Lilac & 7th	12.0	Ductile Iron	120.0	-329	0.93	0.05
P-256	673	Sagewood & 10th	J-173	10.0	PVC	130.0	173	0.71	0.16
P-258	344	Oak & 10th	Elm & 10th	10.0	PVC	130.0	103	0.42	0.03
P-259	361	Elm & 10th	Juniper & 10th	10.0	PVC	130.0	103	0.42	0.03
P-260	373	Juniper & 10th	Spruce & 10th	10.0	PVC	130.0	108	0.44	0.04
P-261	346	Spruce & 10th	Larch & 10th	10.0	PVC	130.0	87	0.35	0.02
P-262	195	Larch & 10th	J-156	10.0	PVC	130.0	36	0.15	0.00
P-263	750	Juniper & 10th	Juniper & 12th	10.0	Asbestos Cement	130.0	-174	0.71	0.18
P-264	745	Juniper & 12th	Juniper & 14th	10.0	Asbestos Cement	130.0	-186	0.76	0.20
P-265	1,180	Juniper & 10th	Juniper & 7th	10.0	Ductile Iron	120.0	125	0.51	0.18

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-266	552	Juniper & 7th	J-180	10.0	Ductile Iron	120.0	154	0.63	0.12
P-267	591	J-180	Juniper & 4th	10.0	Ductile Iron	120.0	134	0.55	0.10
P-268	754	Larch & 10th	Larch & 12th	4.0	stl	100.0	-12	0.31	0.19
P-270	743	Spruce & 10th	Spruce & 12th	4.0	stl	100.0	-12	0.30	0.17
P-272	756	Juniper & 14th	Juniper & 12th	4.0	stl	100.0	13	0.32	0.20
P-273	763	Juniper & 12th	Juniper & 10th	4.0	stl	100.0	12	0.30	0.18
P-274	191	Hemlock & 12th	J-141	6.0	AC	130.0	-15	0.17	0.01
P-275	201	J-141	Main & 12th	6.0	AC	130.0	-25	0.28	0.02
P-276	371	Hemlock & 12th	Larch & 12th	6.0	AC	130.0	4	0.04	0.00
P-277	343	Larch & 12th	Spruce & 12th	6.0	AC	130.0	-14	0.16	0.01
P-278	389	Spruce & 12th	Juniper & 12th	6.0	AC	130.0	-31	0.35	0.05
P-279	349	Juniper & 12th	Elm & 12th	6.0	AC	130.0	-33	0.37	0.05
P-280	355	Elm & 12th	Oak & 12th	6.0	AC	130.0	7	0.08	0.00
P-281	349	Oak & 12th	Ash & 12th	6.0	AC	130.0	-9	0.10	0.00
P-282	702	Ash & 12th	Ash & 14th	6.0	AC	130.0	-54	0.61	0.23
P-283	362	Ash & 12th	Ash & 11th	6.0	AC	130.0	34	0.38	0.05
P-284	400	Ash & 11th	Ash & 10th	6.0	AC	130.0	26	0.30	0.03
P-285	748	Elm & 12th	Elm & 10th	6.0	AC	130.0	47	0.54	0.19
P-286	1,179	Elm & 10th	Elm & 7th	6.0	AC	130.0	27	0.31	0.11
P-287	1,201	Spruce & 10th	Spruce & 7th	4.0	Asbestos Cement	130.0	14	0.35	0.23
P-288	1,143	Larch & 7th	Larch & 10th	6.0	Asbestos Cement	130.0	-44	0.50	0.26
P-289	1,182	Juniper & 10th	Juniper & 7th	6.0	AC	130.0	35	0.40	0.18
P-290	572	Juniper & 7th	J-180	6.0	AC	130.0	43	0.49	0.12
P-291	149	J-180	J-189	6.0	AC	130.0	35	0.40	0.02
P-292	452	J-189	Juniper & 4th	6.0	AC	130.0	38	0.44	0.08
P-293	1,046	Larch & 7th	J-190	6.0	AC	130.0	4	0.04	0.00
P-295	179	J-190	J-191	6.0	AC	130.0	4	0.04	0.00
P-296	438	J-191	J-180	6.0	AC	130.0	-19	0.21	0.02
P-297	535	J-191	J-189	6.0	AC	130.0	4	0.05	0.00
P-298	715	Oak & 14th	Oak & 12th	4.0	Asbestos Cement	130.0	17	0.44	0.21
P-299	755	Oak & 12th	Oak & 10th	4.0	Asbestos Cement	130.0	15	0.37	0.16
P-300	720	Oak & 10th	J-192	8.0	PVC	130.0	46	0.29	0.04
P-301	473	J-192	Oak & 7th	8.0	PVC	130.0	37	0.24	0.02
P-302	110	Ash & 10th	J-193	4.0	AC	130.0	19	0.49	0.04
P-303	1,113	J-193	Ash & 7th	6.0	AC	130.0	15	0.17	0.03
P-304	879	J-163	J-194	6.0	AC	130.0	-16	0.18	0.03
P-305	353	J-194	J-173	6.0	AC	130.0	-20	0.23	0.02

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-307	315	J-171	J-195	12.0	Asbestos Cement	130.0	-7	0.02	0.00
P-309	917	Gemstone & 14th	SR 26 & 14th	12.0	Asbestos Cement	130.0	-231	0.65	0.15
P-310	2,850	SR 26 & 14th	SR 26 & 7th	12.0	Asbestos Cement	130.0	-232	0.66	0.48
P-311	725	Lilac & 7th	J-198	10.0	Asbestos Cement	130.0	-308	1.26	0.51
P-312	283	J-198	SR 26 & 7th	12.0	Ductile Iron	120.0	-310	0.88	0.10
P-313	283	SR 26 & 7th	J-198	12.0	Asbestos Cement	130.0	336	0.95	0.10
P-314	1,234	J-199	SR 26 & 7th	10.0	PVC	130.0	-22	0.09	0.01
P-316	161	J-198	J-201	10.0	Asbestos Cement	130.0	337	1.38	0.13
P-317	296	J-201	J-202	10.0	Asbestos Cement	130.0	228	0.93	0.12
P-318	323	J-202	Columbia & Sylvan	10.0	Asbestos Cement	130.0	134	0.55	0.05
P-319	309	Columbia & Sylvan	Columbia & 4th	10.0	Asbestos Cement	130.0	62	0.25	0.01
P-320	281	Columbia & 4th	Columbia & 3rd	10.0	Asbestos Cement	130.0	-50	0.20	0.01
P-321	488	Columbia & 3rd	J-206	10.0	PVC	130.0	-175	0.72	0.12
P-322	538	Scooteny & 7th	Scooteny & Shady	8.0	Asbestos Cement	130.0	-35	0.22	0.02
P-323	610	Scooteny & Shady	Scooteny & 4th	8.0	Asbestos Cement	130.0	42	0.27	0.03
P-324	301	Scooteny & 4th	Syvan & 4th	8.0	Asbestos Cement	130.0	-127	0.81	0.12
P-325	1,072	Syvan & 4th	Columbia & 4th	8.0	Asbestos Cement	130.0	-97	0.62	0.26
P-326	845	Syvan & 4th	Rose & Sylvan	8.0	Asbestos Cement	130.0	-98	0.63	0.21
P-327	477	Rose & Sylvan	Columbia & Sylvan	8.0	Asbestos Cement	130.0	-69	0.44	0.06
P-328	303	Rose & Sylvan	Rose & Shady	8.0	Asbestos Cement	130.0	-35	0.22	0.01
P-329	344	Rose & Shady	J-212	8.0	Asbestos Cement	130.0	-100	0.64	0.09
P-330	443	J-212	J-201	8.0	Asbestos Cement	130.0	-107	0.68	0.13
P-331	303	Scooteny & Shady	J-213	8.0	Asbestos Cement	130.0	-90	0.57	0.06
P-332	315	J-213	Lilac & 7th	8.0	Asbestos Cement	130.0	-113	0.72	0.10
P-333	270	Lilac & 7th	Rose & Shady	8.0	Asbestos Cement	130.0	-149	0.95	0.14
P-334	510	J-213	Susan & 7th	8.0	Asbestos Cement	130.0	12	0.07	0.00
P-335	497	Lilac & 7th	Lilac & 7th	8.0	Asbestos Cement	130.0	26	0.17	0.01
P-336	466	Rose & Shady	J-202	8.0	PVC	130.0	-90	0.58	0.10
P-337	281	Syvan & 4th	Syvan & 3rd	8.0	PVC	130.0	52	0.33	0.02
P-338	322	Syvan & 3rd	Scooteny & 3rd	8.0	PVC	130.0	126	0.80	0.13
P-339	325	Syvan & 3rd	Lilac & 3rd	8.0	PVC	130.0	-84	0.54	0.06
P-340	307	Lilac & 3rd	Lavender & 3rd	8.0	PVC	130.0	-98	0.63	0.08
P-341	285	Lavender & 3rd	Magnolia & 3rd	8.0	PVC	130.0	-112	0.71	0.09
P-342	160	Magnolia & 3rd	Columbia & 3rd	8.0	PVC	130.0	-124	0.79	0.06
P-343	388	J-164	J-221	8.0	PVC	130.0	-42	0.27	0.02
P-344	251	J-221	J-222	8.0	PVC	130.0	-43	0.28	0.01
P-345	169	J-222	Sagewood	8.0	PVC	130.0	-46	0.29	0.01

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-348	622	Sagewood & 10th	Sagewood	8.0	PVC	130.0	-29	0.19	0.02
P-349	202	Sagewood	J-226	8.0	PVC	130.0	-85	0.55	0.04
P-350	195	J-226	Scooteny & Cobblestone	8.0	PVC	130.0	-23	0.15	0.00
P-351	266	Scooteny & Cobblestone	Scooteny & Capstone	8.0	PVC	130.0	-28	0.18	0.01
P-352	259	Scooteny & Capstone	Scooteny & 10th	8.0	PVC	130.0	-40	0.26	0.01
P-354	777	Scooteny & Capstone	Gemstone & Capstone	8.0	PVC	130.0	-1	0.01	0.00
P-355	774	Scooteny & Cobblestone	Gemstone & Cobblestone	8.0	PVC	130.0	-8	0.05	0.00
P-356	274	Gemstone & Cobblestone	Gemstone & Capstone	8.0	PVC	130.0	-23	0.15	0.00
P-357	257	Gemstone & Capstone	Gemstone & 10th	8.0	PVC	130.0	-40	0.25	0.01
P-358	775	Gemstone & 10th	Scooteny & 10th	8.0	PVC	130.0	-2	0.01	0.00
P-359	319	Gemstone & 10th	J-233	8.0	PVC	130.0	-59	0.38	0.03
P-360	1,124	J-233	Gemstone & 14th	8.0	PVC	130.0	-56	0.36	0.10
P-361	439	J-226	J-234	8.0	PVC	130.0	-65	0.42	0.05
P-362	469	J-234	J-235	8.0	PVC	130.0	-54	0.35	0.04
P-363	545	J-235	J-168	8.0	PVC	130.0	-54	0.35	0.04
P-364	365	J-234	J-166	8.0	PVC	130.0	-13	0.08	0.00
P-365	320	J-145	Fern & 14th	16.0	PVC	130.0	-98	0.16	0.00
P-366	237	Fern & 14th	Juniper & 14th	16.0	PVC	130.0	-42	0.07	0.00
P-367	286	Fern & 14th	Fern & 15th	8.0	PVC	130.0	-64	0.41	0.03
P-368	452	Fern & 15th	Fern & 16th	8.0	PVC	130.0	-47	0.30	0.03
P-369	787	Fern & 16th	J-239	8.0	PVC	130.0	-35	0.23	0.03
P-370	246	J-239	J-240	8.0	PVC	130.0	58	0.37	0.02
P-371	636	J-240	Fern & 16th	8.0	PVC	130.0	18	0.11	0.01
P-372	454	J-240	J-241	8.0	PVC	130.0	33	0.21	0.02
P-373	847	J-241	Fern & 15th	8.0	PVC	130.0	27	0.17	0.02
P-374	266	J-241	Oak & 14th	8.0	PVC	130.0	-5	0.03	0.00
P-375	317	J-239	J-242	8.0	PVC	130.0	-103	0.66	0.09
P-376	200	J-242	J-243	8.0	PVC	130.0	-142	0.91	0.10
P-377	150	J-243	J-244	8.0	PVC	130.0	30	0.19	0.00
P-378	717	J-244	Cemetary & 20th	8.0	PVC	130.0	-15	0.10	0.01
P-379	338	Cemetary & 20th	Cemetery & 19th	8.0	PVC	130.0	60	0.39	0.03
P-380	311	Cemetery & 19th	Cemetery & 18th	8.0	PVC	130.0	99	0.63	0.08
P-382	1,371	J-248	J-195	12.0	PVC	130.0	53	0.15	0.02
P-384	139	J-250	J-171	12.0	Asbestos Cement	130.0	34	0.10	0.00
P-385	564	Cemetery & 18th	J-251	12.0	PVC	130.0	124	0.35	0.03

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-386	736	J-251	J-248	12.0	PVC	130.0	53	0.15	0.01
P-387	1,216	J-250	J-251	12.0	PVC	130.0	-71	0.20	0.02
P-388	1,824	Cemetery &14th	Oak & 14th	8.0	PVC	130.0	27	0.17	0.04
P-389	518	J-242	Cemetery & 18th	8.0	PVC	130.0	28	0.18	0.01
P-390	547	J-244	Cemetery & 19th	8.0	PVC	130.0	42	0.27	0.03
P-392	359	J-252	J-253	12.0	PVC	130.0	-150	0.42	0.03
P-393	200	J-253	J-254	12.0	PVC	130.0	70	0.20	0.00
P-394	610	J-254	J-112	12.0	PVC	130.0	68	0.19	0.01
P-395	684	J-253	J-255	12.0	PVC	130.0	-228	0.65	0.11
P-396	540	J-255	J-113	12.0	PVC	130.0	-417	1.18	0.27
P-397	1,206	J-255	J-252	12.0	PVC	130.0	189	0.54	0.14
P-398	360	Main & 2nd	Main & 3rd	12.0	PVC	130.0	-261	0.74	0.08
P-399	360	Main & 3rd	Main & 4th	12.0	PVC	130.0	-158	0.45	0.03
P-400	723	Main & 3rd	Hemlock & 2nd	12.0	Asbestos Cement	130.0	-106	0.30	0.03
P-401	383	Hemlock & 2nd	Hemlock & 1st	12.0	Asbestos Cement	130.0	143	0.41	0.03
P-402	425	Hemlock & 1st	Hemlock & Broadway	12.0	Ductile Iron	120.0	162	0.46	0.04
P-403	338	Main & Rairoad	Main & Broadway	12.0	PVC	130.0	30	0.09	0.00
P-404	420	Main & Broadway	Main & 1st	12.0	PVC	130.0	-212	0.60	0.06
P-405	364	Main & Broadway	Hemlock & Broadway	10.0	Asbestos Cement	130.0	-247	1.01	0.17
P-406	389	Hemlock & Broadway	Larch & Broadway	10.0	Asbestos Cement	130.0	-271	1.11	0.21
P-407	359	Larch & Broadway	Spruce & Broadway	10.0	Asbestos Cement	130.0	-169	0.69	0.08
P-408	382	Spruce & Broadway	Juniper & Broadway	10.0	Asbestos Cement	130.0	-228	0.93	0.15
P-409	341	Juniper & Broadway	Elm & Broadway	10.0	Asbestos Cement	130.0	-238	0.97	0.15
P-411	1,125	Elm & Broadway	Soda & Broadway	10.0	Asbestos Cement	130.0	-229	0.94	0.45
P-412	405	Soda & Broadway	Scooteny & Broadway	10.0	Asbestos Cement	130.0	-231	0.94	0.17
P-413	301	Scooteny & Broadway	Royal & Broadway	10.0	Asbestos Cement	130.0	-200	0.82	0.09
P-414	380	Royal & Broadway	Wahluke & Broadway	10.0	Asbestos Cement	130.0	-211	0.86	0.13
P-415	770	Wahluke & Broadway	Columbia & Broadway	10.0	Asbestos Cement	130.0	-199	0.81	0.24
P-416	464	Columbia & Broadway	SR 26 & Broadway	10.0	Asbestos Cement	130.0	-216	0.88	0.17
P-417	709	Hemlock & 2nd	Hemlock & 4th	8.0	Asbestos Cement	130.0	-45	0.29	0.04
P-418	236	Main & 4th	J-272	6.0	AC	130.0	-39	0.44	0.04
P-419	144	J-272	Hemlock & 4th	6.0	AC	130.0	10	0.12	0.00
P-420	459	J-272	J-273	6.0	AC	130.0	-53	0.60	0.15
P-421	538	J-273	J-137	8.0	AC	130.0	-56	0.36	0.05
P-422	747	Hemlock & 2nd	Hemlock & 4th	4.0	Asbestos Cement	130.0	-7	0.18	0.04
P-423	382	Hemlock & 4th	Larch & 4th	6.0	AC	130.0	-47	0.53	0.10
P-424	370	Larch & 4th	Spruce & 4th	6.0	AC	130.0	-56	0.63	0.13

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-425	379	Spruce & 4th	Juniper & 4th	6.0	AC	130.0	-72	0.82	0.21
P-426	712	Spruce & 4th	Spruce & 2nd	6.0	AC	130.0	6	0.07	0.00
P-427	742	Larch & 4th	Larch & 2nd	4.0	Asbestos Cement	130.0	-1	0.02	0.00
P-428	370	Larch & 2nd	Larch & 1st	4.0	Asbestos Cement	130.0	-2	0.05	0.00
P-429	411	Larch & 1st	Hemlock & 1st	4.0	Asbestos Cement	130.0	21	0.53	0.17
P-430	422	Hemlock & 2nd	Hemlock & 1st	4.0	Asbestos Cement	130.0	8	0.19	0.03
P-431	400	Hemlock & 2nd	Larch & 2nd	10.0	Asbestos Cement	130.0	-212	0.87	0.14
P-432	328	Larch & 2nd	Spruce & 2nd	10.0	Asbestos Cement	130.0	-224	0.91	0.13
P-433	401	Spruce & 2nd	Juniper & 2nd	10.0	Asbestos Cement	130.0	-183	0.75	0.11
P-434	367	Spruce & 2nd	Spruce & 1st	10.0	Asbestos Cement	130.0	58	0.24	0.01
P-435	487	Spruce & 1st	Spruce & Broadway	10.0	Asbestos Cement	130.0	80	0.33	0.03
P-436	455	Larch & 1st	Larch & Broadway	8.0	PVC	130.0	-14	0.09	0.00
P-437	376	Larch & Broadway	Spruce & Broadway	8.0	Asbestos Cement	130.0	-92	0.59	0.08
P-438	448	Larch & Broadway	Spruce & Broadway	6.0	AC	130.0	-39	0.44	0.08
P-439	329	Larch & 1st	Spruce & 1st	4.0	Asbestos Cement	130.0	-19	0.48	0.11
P-440	388	Spruce & 1st	Juniper & 1st	6.0	AC	130.0	-52	0.59	0.12
P-441	395	Juniper & 1st	Elm & 1st	6.0	AC	130.0	-61	0.69	0.17
P-442	399	Elm & 1st	Elm & 2nd	8.0	AC	130.0	54	0.35	0.03
P-443	357	Elm & 2nd	Juniper & 2nd	8.0	AC	130.0	123	0.78	0.13
P-444	386	Juniper & 2nd	Spruce & 2nd	8.0	AC	130.0	104	0.66	0.11
P-445	693	Juniper & 4th	Juniper & 2nd	6.0	AC	130.0	37	0.42	0.11
P-446	733	Juniper & 2nd	Juniper & 4th	10.0	Asbestos Cement	130.0	-136	0.56	0.11
P-447	374	Juniper & 4th	Elm & 4th	6.0	AC	130.0	-82	0.93	0.27
P-448	315	Elm & 4th	3rd pl & 4th	6.0	AC	130.0	-69	0.79	0.17
P-449	824	3rd pl & 4th	Soda & 3rd	6.0	AC	130.0	-15	0.17	0.03
P-450	806	Soda & 3rd	Scooteny & 3rd	6.0	AC	130.0	-57	0.65	0.30
P-451	270	Scooteny & 3rd	Scooteny & 4th	8.0	Asbestos Cement	130.0	-61	0.39	0.03
P-453	482	Scooteny & 4th	J-288	8.0	Asbestos Cement	130.0	97	0.62	0.12
P-454	346	J-288	J-287	8.0	Steel	100.0	84	0.53	0.10
P-455	580	3rd pl & 4th	J-287	8.0	Steel	100.0	-71	0.45	0.13
P-456	204	Elm & 4th	Elm & 5th	6.0	AC	130.0	-43	0.49	0.05
P-457	298	Elm & 5th	Elm & 6th	6.0	AC	130.0	-17	0.20	0.01
P-458	611	Elm & 6th	Elm & 7th	6.0	AC	130.0	6	0.07	0.00
P-459	666	Elm & 6th	Ash & 6th	6.0	AC	130.0	-32	0.37	0.09
P-461	875	J-292	J-163	6.0	AC	130.0	-30	0.34	0.10
P-462	587	Ash & 7th	Ash & 6th	8.0	Asbestos Cement	130.0	61	0.39	0.06
P-463	672	Elm & 5th	Ash & 5th	6.0	AC	130.0	-34	0.39	0.10

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-464	185	Ash & 5th	J-292	6.0	AC	130.0	-23	0.26	0.01
P-465	296	Ash & 6th	Ash & 5th	8.0	Asbestos Cement	130.0	18	0.11	0.00
P-466	708	Elm & 2nd	Elm & 4th	4.0	Asbestos Cement	130.0	-19	0.49	0.25
P-467	883	Elm & 2nd	Soda & 2nd	6.0	AC	130.0	-67	0.76	0.44
P-468	866	Elm & 1st	J-295	8.0	Asbestos Cement	130.0	-135	0.86	0.39
P-469	203	J-295	Soda & 1st	8.0	Asbestos Cement	130.0	-105	0.67	0.06
P-470	367	Soda & 1st	Scooteny & 1st	8.0	Asbestos Cement	130.0	-126	0.80	0.14
P-471	382	Scooteny & 1st	Scooteny & 2nd	8.0	Asbestos Cement	130.0	-6	0.04	0.00
P-472	323	Scooteny & 2nd	Scooteny & 3rd	8.0	Asbestos Cement	130.0	-118	0.75	0.11
P-473	701	Scooteny & 2nd	Soda & 2nd	8.0	Asbestos Cement	130.0	102	0.65	0.19
P-474	271	Soda & 3rd	Soda & 2nd	8.0	Asbestos Cement	130.0	21	0.13	0.00
P-475	373	Soda & 2nd	J-295	8.0	Asbestos Cement	130.0	36	0.23	0.01
P-476	632	Soda & 1st	Soda & Broadway	8.0	Asbestos Cement	130.0	19	0.12	0.01
P-477	538	Elm & Broadway	Elm & 1st	6.0	AC	130.0	-14	0.15	0.01
P-478	499	Juniper & Broadway	Juniper & 1st	6.0	AC	130.0	7	0.08	0.00
P-479	381	Juniper & 1st	Juniper & 2nd	6.0	AC	130.0	6	0.06	0.00
P-480	686	Scooteny & 1st	Scooteny & Broadway	6.0	AC	130.0	-12	0.14	0.01
P-481	368	Scooteny & Broadway	Royal & Broadway	6.0	AC	130.0	-47	0.53	0.09
P-482	456	Royal & Broadway	Wahluke & Broadway	6.0	Steel	100.0	-38	0.44	0.13
P-483	786	Wahluke & Broadway	Columbia & Broadway	6.0	AC	130.0	-51	0.58	0.24
P-484	715	Columbia & Broadway	J-299	8.0	Asbestos Cement	130.0	-39	0.25	0.03
P-485	723	J-299	Wahluke & 1st	8.0	Asbestos Cement	130.0	122	0.78	0.27
P-486	698	Wahluke & 1st	Wahluke & Broadway	8.0	Asbestos Cement	130.0	3	0.02	0.00
P-487	735	Wahluke & 1st	Scooteny & 1st	8.0	Asbestos Cement	130.0	114	0.73	0.24
P-488	616	J-199	J-302	8.0	PVC	130.0	22	0.14	0.01
P-490	285	J-206	J-302	10.0	Ductile Iron	120.0	-331	1.35	0.26
P-491	724	J-302	Concrete & Industrial	10.0	Ductile Iron	120.0	-310	1.27	0.59
P-492	193	J-206	Columbia & 1st	10.0	PVC	130.0	150	0.61	0.04
P-493	157	J-299	Columbia & 1st	8.0	Asbestos Cement	130.0	-166	1.06	0.10
P-495	509	J-305	SR 26 & Broadway	6.0	Asbestos Cement	130.0	-20	0.23	0.03
P-496	363	Columbia & 1st	SR 26 & 1st	8.0	Asbestos Cement	130.0	-17	0.11	0.00
P-497	230	SR 26 & 1st	J-305	8.0	PVC	130.0	-18	0.12	0.00
P-499	1,084	Canning & Roosevelt	Hudson & Roosevelt	8.0	Asbestos Cement	130.0	-186	1.18	0.88
P-500	388	Hudson & Roosevelt	Teck & Roosevelt	8.0	Asbestos Cement	130.0	-194	1.24	0.34
P-501	1,308	Teck & Roosevelt	J-310	8.0	Asbestos Cement	130.0	2	0.01	0.00
P-502	610	Hudson & Roosevelt	J-311	8.0	Asbestos Cement	130.0	1	0.01	0.00
P-503	338	Teck & Roosevelt	Teck & SR 24	8.0	Asbestos Cement	130.0	-198	1.27	0.31

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-504	196	Teck & SR 24	Curtis & SR 24	8.0	Asbestos Cement	130.0	-410	2.62	0.69
P-505	908	Curtis & SR 24	Curtis & Industrial	8.0	Asbestos Cement	130.0	207	1.32	0.90
P-506	612	Curtis & Industrial	J-315	8.0	Asbestos Cement	130.0	204	1.30	0.59
P-507	602	J-315	J-316	8.0	Asbestos Cement	130.0	201	1.29	0.57
P-508	506	J-316	Concrete & Industrial	8.0	Asbestos Cement	130.0	200	1.27	0.47
P-509	977	Concrete & Industrial	Canning & SR 24	8.0	Asbestos Cement	130.0	-123	0.78	0.37
P-510	320	Canning & SR 24	Canning & Roosevelt	8.0	Asbestos Cement	130.0	84	0.53	0.06
P-511	1,457	Canning & SR 24	Teck & SR 24	8.0	Asbestos Cement	130.0	-209	1.33	1.47
P-515	716	J-320	J-321	8.0	Asbestos Cement	130.0	83	0.53	0.13
P-516	577	J-321	J-319	8.0	Asbestos Cement	130.0	158	1.01	0.35
P-517	1,385	J-321	J-322	8.0	Asbestos Cement	130.0	-23	0.15	0.02
P-518	316	J-322	J-321	8.0	Asbestos Cement	130.0	52	0.33	0.02
P-519	699	J-322	J-320	8.0	Asbestos Cement	130.0	-75	0.48	0.11
P-520	896	J-323	SR 26 & Broadway	6.0	AC	130.0	-27	0.30	0.08
P-521	352	Cedar & Broadway	Cedar & Railroad	8.0	Asbestos Cement	130.0	2	0.01	0.00
P-522	706	Lee & 14th	WELL 8	10.0	PVC	130.0	-395	1.61	0.78
P-523	128	WELL 2	Main & 4th	12.0	PVC	130.0	0	0.00	0.00
P-524	142	J-93	J-115	10.0	PVC	130.0	-621	2.54	0.36
P-525	106	WELL 3	J-115	10.0	PVC	130.0	800	3.27	0.43
P-526	145	Larch & Broadway	WELL 6	10.0	PVC	130.0	0	0.00	0.00
P-527	124	WELL 4	J-369	10.0	PVC	130.0	430	1.76	0.16
P-528	106	WELL 5	SR 26 & 7th	10.0	PVC	130.0	900	3.68	0.54
P-529	162	J-320	WELL 7	10.0	PVC	130.0	-630	2.57	0.42
P-530	685	Main & Rairoad	Hemlock & Broadway	10.0	PVC	130.0	-175	0.71	0.17
P-531	539	Cunningham & Danielle	April & Danielle	8.0	PVC	130.0	1	0.01	0.00
P-532	411	April & Danielle	May & Danielle	8.0	PVC	130.0	1	0.01	0.00
P-533	419	May & Danielle	June & Danielle	8.0	PVC	130.0	2	0.01	0.00
P-535	826	June & Danielle	Danielle & Allen	8.0	PVC	130.0	2	0.01	0.00
P-536	362	Danielle & Allen	Danielle & Andes	8.0	PVC	130.0	2	0.01	0.00
P-537	996	Danielle & Andes	Rainier & Wagon	8.0	PVC	130.0	1	0.01	0.00
P-538	334	Rainier & Wagon	Rainier & Taylor	8.0	PVC	130.0	1	0.01	0.00
P-539	106	Rainier & Taylor	J-340	8.0	PVC	130.0	1	0.01	0.00
P-540	515	J-340	J-341	8.0	PVC	130.0	0	0.00	0.00
P-541	523	J-341	Eagle & Charla	8.0	PVC	130.0	0	0.00	0.00
P-542	577	Eagle & Charla	Eagle & Talyor	8.0	PVC	130.0	0	0.00	0.00
P-543	244	J-344	Charla & Diana	8.0	PVC	130.0	0	0.00	0.00
P-544	238	Charla & Diana	Eagle & Charla	8.0	PVC	130.0	0	0.00	0.00

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-545	849	J-346	Kaylee & Kristina	8.0	PVC	130.0	0	0.00	0.00
P-546	334	Kaylee & Kristina	Deborah & Kristina	8.0	PVC	130.0	2	0.01	0.00
P-547	346	Deborah & Kristina	Rainier & Kristina	8.0	PVC	130.0	2	0.01	0.00
P-548	408	Rainier & Kristina	Rainier & Kayllee	8.0	PVC	130.0	0	0.00	0.00
P-549	321	Rainier & Kayllee	J-340	8.0	PVC	130.0	-1	0.01	0.00
P-550	755	Rainier & Kayllee	Kaylee & Kristina	8.0	PVC	130.0	2	0.01	0.00
P-551	1,165	Rainier & Kristina	Seilaff ln & Kristina	8.0	PVC	130.0	1	0.01	0.00
P-552	1,056	Seilaff ln & Kristina	J-352	8.0	PVC	130.0	1	0.01	0.00
P-555	664	J-355	Cunningham & Taylor	12.0	PVC	130.0	1	0.00	0.00
P-556	398	J-355	J-352	8.0	PVC	130.0	-1	0.01	0.00
P-557	255	J-72	J-356	12.0	PVC	130.0	0	0.00	0.00
P-558	208	J-356	J-355	12.0	PVC	130.0	0	0.00	0.00
P-559	388	J-356	J-357	8.0	PVC	130.0	0	0.00	0.00
P-560	198	J-357	J-352	8.0	PVC	130.0	0	0.00	0.00
P-561	660	J-358	Seilaff ln & Kristina	8.0	PVC	130.0	0	0.00	0.00
P-562	188	Well 11 (proposed)	Cunningham & Taylor	10.0	PVC	130.0	0	0.00	0.00
P-563	1,164	Cunningham & Taylor	June & Taylor	12.0	PVC	130.0	1	0.00	0.00
P-564	1,246	June & Taylor	Rainier & Taylor	12.0	PVC	130.0	0	0.00	0.00
P-566	1,188	Cunningham & Wagon	June & Wagon	6.0	PVC	130.0	1	0.01	0.00
P-567	1,128	June & Wagon	Rainier & Wagon	6.0	PVC	130.0	0	0.01	0.00
P-568	319	June & Taylor	June & Wagon	6.0	PVC	130.0	1	0.01	0.00
P-569	362	June & Wagon	June & Andes	6.0	PVC	130.0	1	0.01	0.00
P-570	361	June & Andes	June & Allen	6.0	PVC	130.0	1	0.01	0.00
P-571	607	June & Allen	June & Danielle	6.0	PVC	130.0	0	0.00	0.00
P-572	410	June & Allen	Danielle & Allen	6.0	PVC	130.0	0	0.00	0.00
P-573	412	Danielle & Andes	June & Andes	6.0	PVC	130.0	1	0.01	0.00
P-574	369	June & Andes	May & Andes	6.0	PVC	130.0	1	0.02	0.00
P-575	354	May & Andes	April & Andes	6.0	PVC	130.0	1	0.01	0.00
P-576	482	April & Andes	Cunningham & Andes	6.0	PVC	130.0	1	0.01	0.00
P-577	1,313	April & Andes	April & Danielle	6.0	PVC	130.0	0	0.00	0.00
P-578	1,131	May & Andes	May & Danielle	6.0	PVC	130.0	0	0.00	0.00
P-580	129	J-173	Ash & 10th	10.0	PVC	130.0	152	0.62	0.02
P-581	414	Ash & 10th	Oak & 10th	10.0	PVC	130.0	154	0.63	0.08
P-582	162	Ash & 14th	Cemetery &14th	10.0	PVC	130.0	-106	0.43	0.02
P-583	153	Cemetery &14th	J-369	16.0	PVC	130.0	-374	0.60	0.02
P-584	442	J-369	J-250	12.0	Asbestos Cement	130.0	-36	0.10	0.00
P-585	171	Cemetery &14th	J-369	10.0	PVC	130.0	-102	0.42	0.02

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-586	141	2 ML. RES.	J-369	10.0	PVC	130.0	28	0.12	0.00
P-587	216	3 ML. RES.	J-115	10.0	PVC	130.0	86	0.35	0.01
P-588	266	3 ML. RES.	J-115	10.0	PVC	130.0	77	0.32	0.01
P-589	71	1 ML. RES.	J-115	10.0	PVC	130.0	157	0.64	0.01
P-595	398	J-374	Canning & Roosevelt	8.0	Asbestos Cement	130.0	-265	1.69	0.62
P-597	1,137	J-376	J-377	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-601	696	J-375	J-320	16.0	Ductile Iron	120.0	-466	0.74	0.12
P-605	181	J-72	J-383	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-608	335	SR 26 & Broadway	J-386	12.0	Asbestos Cement	130.0	-265	0.75	0.07
P-609	302	J-386	J-374	8.0	Asbestos Cement	130.0	-265	1.69	0.47
P-610	1,239	J-319	J-387	16.0	Ductile Iron	120.0	-466	0.74	0.22
P-611	766	J-387	J-375	16.0	Ductile Iron	120.0	-466	0.74	0.14
P-612	5,325	J-387	J-388	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-614	1,695	J-389	J-378	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-616	2,866	J-381	J-391	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-617	6,415	J-391	J-390	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-624	2,661	J-395	J-398	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-626	58	J-386	J-399	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-627	2,170	J-399	J-400	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-629	1,660	J-323	J-401	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-630	451	J-401	J-380	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-631	3,968	J-398	J-383	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-633	420	J-378	J-403	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-634	1,054	J-403	J-404	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-635	377	J-404	J-405	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-636	1,628	J-405	J-406	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-637	1,712	J-377	J-407	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-638	889	J-407	J-378	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-639	1,292	J-406	J-407	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-643	205	J-409	PRV-1	12.0	PVC	150.0	137	0.39	0.01
P-644	223	PRV-1	Cunningham & Danielle	12.0	PVC	150.0	137	0.39	0.01
P-669	147	J-413	PRV-13	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-670	153	PRV-13	J-388	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-671	224	J-413	J-388	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-673	296	J-415	J-375	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-676	175	J-416	PRV-3	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-677	177	PRV-3	J-415	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-678	194	J-416	J-415	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-681	5,103	J-420	J-376	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-682	163	J-390	PRV-15	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-683	160	PRV-15	J-420	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-684	203	J-390	J-420	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-686	5,123	J-422	J-381	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-687	255	J-422	PRV-2	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-688	230	PRV-2	J-380	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-689	355	J-422	J-380	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-690	1,462	J-391	J-425	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-692	189	J-425	PRV-17	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-693	201	PRV-17	J-395	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-694	163	J-395	J-425	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-696	321	Cunningham & Danielle	J-409	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-699	919	J-405	J-428	8.0	130	150.0	(N/A)	(N/A)	(N/A)
P-700	3,075	J-413	J-429	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-701	680	J-429	J-428	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-702	507	J-428	J-430	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-703	743	J-430	J-389	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-704	248	J-380	J-400	12.0	130	150.0	(N/A)	(N/A)	(N/A)
P-705	690	Main & 14th	J-431	16.0	PVC	130.0	-924	1.47	0.37
P-706	216	J-431	J-112	16.0	PVC	130.0	-847	1.35	0.10
P-707	712	J-431	J-432	12.0	PVC	150.0	-77	0.22	0.01
P-708	425	J-432	J-433	12.0	PVC	150.0	27	0.08	0.00
P-711	614	J-433	J-435	12.0	PVC	150.0	27	0.08	0.00
P-712	838	J-435	J-434	12.0	PVC	150.0	73	0.21	0.01
P-713	403	J-432	J-435	12.0	PVC	150.0	46	0.13	0.00
P-714	510	J-434	J-436	12.0	PVC	150.0	-188	0.53	0.04
P-715	507	J-436	J-432	12.0	PVC	150.0	150	0.43	0.03
P-716	170	J-252	J-436	12.0	PVC	150.0	339	0.96	0.04
P-717	334	J-243	J-437	12.0	PVC	150.0	-179	0.51	0.03
P-718	288	J-437	J-438	12.0	PVC	150.0	-179	0.51	0.02
P-719	255	J-438	J-434	12.0	PVC	150.0	-262	0.74	0.04
P-720	1,585	J-438	J-439	12.0	PVC	150.0	83	0.24	0.03
P-721	917	J-439	Cemetary & 20th	12.0	PVC	150.0	83	0.24	0.02
P-722	811	J-171	J-440	8.0	PVC	150.0	40	0.26	0.03
P-724	544	J-195	J-440	12.0	PVC	150.0	146	0.41	0.03

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-727	325	J-195	J-444	12.0	Asbestos Cement	130.0	-113	0.32	0.01
P-728	332	J-444	Gemstone & 14th	12.0	Asbestos Cement	130.0	-157	0.45	0.03
P-729	1,108	J-444	J-445	8.0	130	130.0	45	0.29	0.06
P-731	325	J-446	Scooteny & 10th	8.0	130	130.0	59	0.38	0.03
P-732	367	J-445	J-446	8.0	130	130.0	22	0.14	0.01
P-733	409	J-233	J-445	8.0	130	130.0	-22	0.14	0.01
P-735	134	Scooteny & 10th	J-447	8.0	PVC	130.0	7	0.05	0.00
P-736	129	J-447	Sagewood & 10th	8.0	PVC	130.0	157	1.00	0.08
P-738	146	J-440	J-449	12.0	PVC	150.0	187	0.53	0.01
P-739	417	J-449	J-446	8.0	PVC	150.0	37	0.23	0.01
P-740	139	J-448	J-449	12.0	PVC	150.0	-150	0.43	0.01
P-744	1,897	Concrete & Industrial	J-454	12.0	PVC	150.0	0	0.00	0.00
P-745	213	J-447	J-455	12.0	PVC	150.0	-150	0.43	0.01
P-747	356	J-455	J-456	12.0	PVC	150.0	-121	0.34	0.01
P-748	172	J-456	J-448	12.0	PVC	150.0	-150	0.43	0.01
P-749	702	J-455	J-456	8.0	PVC	150.0	-29	0.18	0.01
P-750	410	J-242	J-457	8.0	PVC	150.0	0	0.00	0.00
P-751	175	J-156	Hemlock & 10th	10.0	PVC	150.0	10	0.04	0.00
P-752	199	Hemlock & 10th	J-140	10.0	PVC	150.0	18	0.07	0.00
P-753	186	J-140	Main & 10th	10.0	PVC	150.0	-7	0.03	0.00
P-754	728	Elm & 12th	Elm & 14th	8.0	PVC	150.0	-100	0.64	0.14
P-755	340	Larch & 12th	J-458	4.0	stl	100.0	-14	0.37	0.12
P-756	403	J-458	Larch & 14th	4.0	stl	100.0	-13	0.34	0.12
P-757	349	Spruce & 12th	J-459	4.0	stl	100.0	-14	0.35	0.11
P-758	397	J-459	Spruce & 14th	4.0	stl	100.0	-15	0.38	0.14
P-759	336	J-458	J-459	6.0	Steel	140.0	-1	0.01	0.00
P-760	193	J-139	Main & 8th	6.0	130	130.0	21	0.24	0.01
P-761	177	Cedar & 11th	J-460	12.0	Asbestos Cement	130.0	87	0.25	0.00
P-762	198	J-460	Main & 11th	12.0	Asbestos Cement	130.0	87	0.25	0.01
P-763	528	J-460	J-461	8.0	130	130.0	0	0.00	0.00
P-764	386	Cedar & 11th	Cedar & 10th	8.0	130	130.0	63	0.40	0.04
P-765	313	Fir & 14th	J-462	16.0	Asbestos Cement	130.0	-335	0.53	0.03
P-766	171	J-462	Fir & 13th	16.0	Asbestos Cement	130.0	-362	0.58	0.02
P-767	361	J-102	J-462	8.0	130	130.0	-27	0.17	0.01
P-768	389	Main & Venice	Main & Desdemona	12.0	PVC	150.0	-377	1.07	0.12
P-769	195	Main & Desdemona	J-137	8.0	PVC	150.0	-94	0.60	0.03
P-770	431	Concrete & Industrial	J-463	8.0	130	130.0	0	0.00	0.00

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-771	2,658	SR 26 & 14th	J-464	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-772	2,658	J-464	J-465	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-774	2,779	J-465	J-466	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-775	2,701	J-466	J-387	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-777	828	J-454	SR 26 & 7th	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-778	395	Curtis & SR 24	J-467	16.0	Ductile Iron	120.0	-618	0.99	0.12
P-779	1,451	J-467	J-319	16.0	Ductile Iron	120.0	-618	0.99	0.43
P-780	2,674	J-466	J-468	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-781	1,994	J-468	J-454	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-787	1,243	Olympia & 14th	J-470	16.0	Asbestos Cement	130.0	569	0.91	0.27
P-788	1,390	J-470	Lee & 14th	16.0	Asbestos Cement	130.0	569	0.91	0.31
P-790	1,405	J-107	J-471	10.0	Asbestos Cement	130.0	-194	0.79	0.42
P-791	1,312	J-471	J-32	10.0	Asbestos Cement	130.0	-194	0.79	0.39
P-794	2,691	J-473	J-474	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-796	2,392	J-474	J-475	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-797	2,626	J-475	SR 26 & 14th	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-798	2,597	J-475	J-439	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-799	2,233	J-439	J-473	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-800	5,254	J-470	J-476	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-803	1,487	J-476	J-477	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-804	5,153	J-465	J-478	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-805	5,333	J-478	J-474	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-806	5,507	J-388	J-479	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-807	5,280	J-479	J-465	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-808	2,661	J-106	Olympia & 7th	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-809	2,756	J-467	J-468	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-810	2,766	J-468	J-464	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-811	1,619	J-376	J-480	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-812	2,306	J-480	J-416	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-813	3,388	J-113	J-481	16.0	PVC	130.0	-1,200	1.91	2.96
P-814	2,383	J-481	J-477	16.0	PVC	130.0	-1,200	1.91	2.08
P-815	2,704	J-473	J-481	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-816	2,033	J-477	J-483	16.0	PVC	130.0	-1,200	1.91	1.78
P-817	183	J-483	WELL 9	16.0	PVC	130.0	-1,200	1.91	0.16
P-818	175	Well 10	J-483	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-819	169	J-483	2.5 ML. RES (proposed)	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-821	293	J-409	J-485	12.0	PVC	130.0	-137	0.39	0.02

FlexTable: Pipe Table

Active Scenario: Current MDD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-822	1,327	J-485	J-77	12.0	PVC	130.0	-137	0.39	0.08
P-823	3,145	Well 11 (proposed)	J-485	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-834	4,889	WELL 6	J-491	14.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-835	207	J-491	J-4	14.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-836	271	Simplot RES. (proposed)	J-491	24.0	PVC	150.0	(N/A)	(N/A)	(N/A)

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-3	1,208	Lee & Broadway	J-4	10.0	PVC	130.0	820	3.35	5.16
P-4	1,714	J-4	J-5	10.0	PVC	130.0	-815	3.33	7.23
P-5	1,528	J-5	Fir & Broadway	10.0	PVC	130.0	-638	2.61	4.09
P-6	313	Fir & Broadway	Pine & Broadway	10.0	PVC	130.0	-548	2.24	0.63
P-7	833	Pine & Broadway	Main & Broadway	10.0	PVC	130.0	-585	2.39	1.90
P-9	353	Pine & Broadway	Pine & 1st	6.0	AC	130.0	-93	1.05	0.32
P-10	360	Pine & 1st	Pine & 2nd	6.0	AC	130.0	-63	0.71	0.16
P-11	775	Pine & 2nd	Pine & 4th	6.0	AC	130.0	-80	0.91	0.53
P-12	210	Pine & 2nd	J-13	4.0	stl	100.0	-2	0.06	0.00
P-13	689	J-13	J-14	4.0	stl	100.0	-14	0.37	0.23
P-14	739	Fir & Broadway	Fir & 2nd	8.0	PVC	130.0	-95	0.60	0.17
P-15	208	Fir & 2nd	J-17	8.0	Asbestos Cement	130.0	-102	0.65	0.06
P-16	376	J-17	Hathaway & 2nd	8.0	Asbestos Cement	130.0	49	0.31	0.03
P-17	525	Hathaway & 2nd	Halthaway & Lakespur	8.0	Asbestos Cement	130.0	-24	0.16	0.01
P-18	366	Halthaway & Lakespur	J-20	8.0	Asbestos Cement	130.0	-35	0.22	0.01
P-19	101	J-20	Rainier & Larkspur	8.0	Asbestos Cement	130.0	273	1.74	0.17
P-20	465	Rainier & Larkspur	J-22	8.0	Asbestos Cement	130.0	181	1.16	0.36
P-21	471	J-22	J-23	8.0	Asbestos Cement	130.0	-168	1.07	0.32
P-22	201	J-23	Rainier & 2nd	8.0	Asbestos Cement	130.0	-113	0.72	0.07
P-23	364	Rainier & 2nd	Hathaway & 2nd	8.0	Asbestos Cement	130.0	-115	0.73	0.12
P-24	230	J-23	Rainier & Larkspur	8.0	Asbestos Cement	130.0	-84	0.54	0.04
P-25	375	Hathaway & 2nd	J-17	8.0	Asbestos Cement	130.0	-49	0.31	0.03
P-26	196	J-22	J-25	8.0	PVC	130.0	328	2.09	0.45
P-41	272	Olympia & 4th	Othello & 4th	8.0	Asbestos Cement	130.0	-261	1.67	0.41
P-42	301	Othello & 4th	Rainier & 4th	8.0	Asbestos Cement	130.0	-89	0.57	0.06
P-43	578	Rainier & 4th	Hamlet & 4th	8.0	Asbestos Cement	130.0	-179	1.14	0.44
P-44	898	J-17	Fircrest & 4th	8.0	Asbestos Cement	130.0	-209	1.33	0.90
P-45	389	Fircrest & 4th	Hamlet & 4th	8.0	PVC	130.0	120	0.77	0.14
P-46	289	Hamlet & 4th	Hemlet & Shelley	8.0	PVC	130.0	-72	0.46	0.04
P-47	287	Hemlet & Shelley	Hamlet & Desdemona	8.0	PVC	130.0	-174	1.11	0.21
P-48	285	Hamlet & Desdemona	Hamlet & Macbeth	8.0	PVC	130.0	-196	1.25	0.25
P-49	334	Hamlet & Macbeth	Hamlet & 7th	8.0	PVC	130.0	-157	1.00	0.20
P-50	792	Hamlet & Macbeth	Pine & Macbeth	8.0	PVC	130.0	-140	0.89	0.38
P-51	324	Hamlet & Desdemona	Fircrest & Desdemona	8.0	PVC	130.0	-96	0.61	0.08
P-52	287	Fircrest & Desdemona	Pine & Desdemona	8.0	PVC	130.0	-225	1.44	0.33
P-53	269	Pine & Desdemona	Cedar & Desdemona	8.0	PVC	130.0	-235	1.50	0.34
P-54	551	Fircrest & 4th	Fircrest & Desdemona	8.0	PVC	130.0	-115	0.74	0.18

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-55	631	Pine & Desdemona	Pine & 4th	8.0	PVC	130.0	-6	0.04	0.00
P-56	358	Pine & 4th	Cedar & 4th	8.0	PVC	130.0	-182	1.16	0.28
P-57	364	Cedar & 4th	Cendar & Venice	8.0	PVC	130.0	-145	0.92	0.19
P-58	400	Cendar & Venice	Cedar & Desdemona	8.0	PVC	130.0	113	0.72	0.13
P-59	306	Cedar & Desdemona	Winsor & Desdemona	8.0	PVC	130.0	-248	1.58	0.42
P-60	342	Winsor & Desdemona	Main & Desdemona	8.0	PVC	130.0	-251	1.60	0.48
P-61	437	Cendar & Venice	Main & Venice	8.0	PVC	130.0	-264	1.68	0.67
P-62	282	Olympia & Desdemona	Othello & Desdemona	8.0	PVC	130.0	-120	0.76	0.10
P-63	630	Othello & Desdemona	Othello & 7th	8.0	PVC	130.0	-197	1.25	0.57
P-64	561	Othello & Desdemona	Othello & 4th	8.0	PVC	130.0	188	1.20	0.46
P-65	158	J-20	Rainier & 4th	8.0	PVC	130.0	-309	1.97	0.33
P-66	297	Rainier & 4th	Rainier & Shelley	8.0	Asbestos Cement	130.0	-233	1.49	0.36
P-67	253	Rainier & Shelley	Rainier & Desdemona	8.0	Asbestos Cement	130.0	-162	1.04	0.16
P-68	320	Rainier & Desdemona	Rainier & Macbeth	8.0	Asbestos Cement	130.0	-206	1.31	0.31
P-69	326	Rainier & Macbeth	Rainier & 7th	8.0	Asbestos Cement	130.0	-143	0.91	0.16
P-70	297	Othello & Desdemona	Rainier & Desdemona	8.0	Asbestos Cement	130.0	-130	0.83	0.12
P-71	583	Rainier & Desdemona	Hamlet & Desdemona	8.0	Asbestos Cement	130.0	-103	0.66	0.16
P-72	580	Rainier & Macbeth	Hamlet & Macbeth	8.0	Asbestos Cement	130.0	-80	0.51	0.10
P-73	582	Rainier & Shelley	Hemlet & Shelley	8.0	Asbestos Cement	130.0	-85	0.54	0.11
P-74	182	Fircrest & 4th	J-14	8.0	PVC	130.0	-229	1.46	0.22
P-75	202	J-14	Pine & 4th	8.0	PVC	130.0	-258	1.65	0.30
P-76	358	Pine & 4th	Cedar & 4th	8.0	PVC	130.0	-182	1.16	0.28
P-77	178	Cedar & 4th	J-62	8.0	PVC	130.0	-255	1.63	0.26
P-78	193	J-62	Main & 4th	8.0	Steel	100.0	-295	1.88	0.60
P-79	393	Cedar & 4th	Cedar & 3rd	6.0	AC	130.0	30	0.34	0.04
P-80	357	Cedar & 3rd	Cedar & 2nd	6.0	AC	130.0	23	0.26	0.02
P-82	343	Cedar & 2nd	J-67	6.0	AC	130.0	9	0.11	0.00
P-83	194	J-67	J-66	4.0	AC	130.0	-4	0.10	0.00
P-84	159	Cedar & 2nd	J-66	6.0	AC	130.0	4	0.05	0.00
P-85	356	J-66	J-68	4.0	Asbestos Cement	130.0	-9	0.22	0.03
P-86	376	J-68	J-62	4.0	Asbestos Cement	130.0	-30	0.76	0.30
P-87	164	Cedar & 3rd	J-68	4.0	Asbestos Cement	130.0	-5	0.12	0.00
P-88	276	J-69	Cedar & 7th	4.0	Asbestos Cement	130.0	-3	0.08	0.00
P-89	760	Pine & 1st	Main & 1st	4.0	Asbestos Cement	130.0	-51	1.30	1.65
P-91	338	Cunningham & Taylor	Cunningham & Wagon	12.0	PVC	130.0	1	0.00	0.00
P-92	378	Cunningham & Wagon	Cunningham & Andes	12.0	PVC	130.0	0	0.00	0.00
P-93	1,263	Cunningham & Andes	Cunningham & Danielle	12.0	PVC	130.0	1	0.00	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-95	1,002	J-77	Main & Rairoad	12.0	PVC	130.0	-222	0.63	0.16
P-98	371	Main & 1st	Main & 2nd	12.0	PVC	130.0	-298	0.85	0.10
P-100	415	Main & 4th	Main & Venice	12.0	PVC	130.0	-54	0.15	0.00
P-101	1,617	J-4	J-80	8.0	Asbestos Cement	130.0	-417	2.66	5.85
P-102	124	J-80	J-5	8.0	Asbestos Cement	130.0	-765	4.88	1.38
P-103	518	J-80	J-81	8.0	Asbestos Cement	130.0	-436	2.78	2.04
P-104	597	J-81	J-82	8.0	Asbestos Cement	130.0	-263	1.68	0.92
P-105	781	J-82	Pine & Broadway	8.0	Asbestos Cement	130.0	-442	2.82	3.15
P-106	489	Pine & Broadway	Cedar & Broadway	8.0	Asbestos Cement	130.0	-319	2.04	1.08
P-107	361	Cedar & Broadway	Main & Broadway	8.0	Asbestos Cement	130.0	-325	2.08	0.82
P-108	1,283	J-81	J-82	8.0	Asbestos Cement	130.0	-174	1.11	0.92
P-109	926	Olympia & 7th	J-84	8.0	PVC	130.0	-143	0.92	0.46
P-110	227	J-84	Olympia & 9th	8.0	PVC	130.0	-33	0.21	0.01
P-111	478	J-84	J-85	8.0	PVC	130.0	-112	0.71	0.15
P-112	319	J-85	J-86	8.0	PVC	130.0	55	0.35	0.03
P-113	898	J-86	Hamlet & 7th	8.0	PVC	130.0	138	0.88	0.42
P-116	708	J-87	Rainier & 11th	8.0	Asbestos Cement	130.0	-110	0.70	0.22
P-117	206	Rainier & 11th	J-89	8.0	Asbestos Cement	130.0	47	0.30	0.01
P-119	699	Olympia & 11th	J-89	8.0	Asbestos Cement	130.0	-79	0.50	0.12
P-127	569	J-5	J-32	12.0	Asbestos Cement	130.0	-942	2.67	1.29
P-128	490	J-32	J-25	12.0	Asbestos Cement	130.0	-1,310	3.72	2.05
P-129	340	J-25	Olympia & 4th	12.0	Asbestos Cement	130.0	-982	2.78	0.83
P-130	551	Olympia & 4th	Olympia & Desdemona	12.0	Asbestos Cement	130.0	-728	2.06	0.78
P-131	640	Olympia & Desdemona	Olympia & 7th	12.0	Asbestos Cement	130.0	-619	1.76	0.67
P-132	739	Olympia & 7th	Olympia & 9th	12.0	Asbestos Cement	130.0	-475	1.35	0.47
P-133	540	Olympia & 9th	J-87	12.0	Asbestos Cement	130.0	-509	1.44	0.39
P-134	182	J-87	Olympia & 11th	12.0	Asbestos Cement	130.0	-408	1.16	0.09
P-135	529	Olympia & 11th	Rainier & 11th	12.0	Asbestos Cement	130.0	-282	0.80	0.13
P-136	174	Rainier & 11th	J-91	12.0	Asbestos Cement	130.0	-453	1.28	0.10
P-137	304	J-91	J-92	12.0	Asbestos Cement	130.0	-638	1.81	0.33
P-138	381	J-92	J-93	12.0	Asbestos Cement	130.0	-794	2.25	0.63
P-139	567	J-93	Pine & 11th	12.0	Asbestos Cement	130.0	92	0.26	0.02
P-140	368	Pine & 11th	Cedar & 11th	12.0	Asbestos Cement	130.0	39	0.11	0.00
P-141	556	Olympia & 11th	J-97	12.0	PVC	130.0	-53	0.15	0.01
P-142	621	J-97	Olympia & 14th	12.0	PVC	130.0	31	0.09	0.00
P-143	369	J-89	J-99	8.0	Asbestos Cement	130.0	-34	0.22	0.01
P-144	171	J-99	Rainier & 13th	8.0	Asbestos Cement	130.0	-135	0.86	0.08

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-145	540	J-97	J-99	8.0	PVC	130.0	-93	0.60	0.12
P-146	654	J-100	Rainier & 13th	6.0	AC	130.0	41	0.47	0.13
P-147	494	Rainier & 13th	J-101	6.0	AC	130.0	-101	1.15	0.53
P-148	333	J-101	J-102	6.0	AC	130.0	-138	1.56	0.63
P-149	179	J-102	Fir & 13th	6.0	AC	130.0	-52	0.59	0.06
P-150	501	J-102	J-104	6.0	AC	130.0	-52	0.59	0.16
P-152	2,661	Lee & 14th	J-106	16.0	Asbestos Cement	130.0	1,479	2.36	3.43
P-153	1,988	J-106	J-107	16.0	Asbestos Cement	130.0	1,479	2.36	2.56
P-154	604	J-107	Lee & Broadway	16.0	Asbestos Cement	130.0	1,435	2.29	0.74
P-155	396	J-1	J-108	10.0	PVC	130.0	-221	0.90	0.15
P-156	1,106	J-108	Lee & Broadway	10.0	PVC	130.0	30	0.12	0.01
P-157	1,513	J-108	J-107	10.0	Asbestos Cement	130.0	-252	1.03	0.73
P-159	484	Olympia & 14th	J-100	16.0	Asbestos Cement	130.0	-1,057	1.69	0.34
P-160	604	J-100	J-109	16.0	Asbestos Cement	130.0	-1,111	1.77	0.46
P-161	589	J-109	Fir & 14th	16.0	Asbestos Cement	130.0	-1,194	1.91	0.51
P-162	1,130	Fir & 14th	Main & 14th	16.0	PVC	130.0	-557	0.89	0.24
P-164	1,009	J-112	J-113	16.0	PVC	130.0	-782	1.25	0.40
P-165	524	J-109	J-101	8.0	Asbestos Cement	130.0	66	0.42	0.06
P-166	716	J-101	J-92	8.0	Asbestos Cement	130.0	96	0.61	0.17
P-167	746	J-92	J-86	8.0	Asbestos Cement	130.0	234	1.50	0.93
P-168	750	J-91	J-85	8.0	Asbestos Cement	130.0	179	1.14	0.57
P-170	324	Fir & 13th	J-104	16.0	Asbestos Cement	130.0	-693	1.11	0.10
P-171	217	J-104	J-114	16.0	Asbestos Cement	130.0	-754	1.20	0.08
P-172	168	J-114	J-115	12.0	Asbestos Cement	130.0	-822	2.33	0.30
P-173	582	J-114	Fir & 13th	6.0	AC	130.0	52	0.59	0.18
P-176	508	Fir & 13th	Fir & 14th	8.0	Asbestos Cement	130.0	90	0.58	0.11
P-177	406	Fir & 14th	Pine & 14th	8.0	Asbestos Cement	130.0	10	0.07	0.00
P-178	367	Pine & 14th	Cedar & 14th	8.0	Asbestos Cement	130.0	-56	0.36	0.03
P-179	388	Cedar & 14th	Main & 14th	8.0	Asbestos Cement	130.0	-149	0.95	0.21
P-180	413	Pine & 14th	Pine & 13th	8.0	Asbestos Cement	130.0	57	0.37	0.04
P-181	1,135	Cedar & 14th	Cedar & 11th	8.0	Asbestos Cement	130.0	73	0.47	0.16
P-182	721	Pine & 13th	Pine & 11th	6.0	AC	130.0	32	0.36	0.09
P-183	823	Main & 14th	Main & 12th	12.0	PVC	130.0	335	0.95	0.28
P-184	368	Main & 12th	Main & 11th	12.0	PVC	130.0	297	0.84	0.10
P-185	359	Main & 11th	Main & 10th	12.0	PVC	130.0	326	0.92	0.11
P-186	393	Main & 10th	Main & 9th	12.0	PVC	130.0	409	1.16	0.19
P-187	340	Main & 9th	Main & 8th	12.0	PVC	130.0	364	1.03	0.13

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-188	361	Main & 8th	Main & 7th	12.0	PVC	130.0	319	0.91	0.11
P-189	396	Main & 7th	Main & Desdemona	12.0	PVC	130.0	431	1.22	0.21
P-190	1,180	J-125	J-86	8.0	Asbestos Cement	130.0	-139	0.89	0.56
P-191	284	Olympia & 7th	Othello & 7th	12.0	Asbestos Cement	130.0	-7	0.02	0.00
P-192	199	Othello & 7th	J-125	12.0	Asbestos Cement	130.0	-211	0.60	0.03
P-193	112	J-125	Rainier & 7th	12.0	Asbestos Cement	130.0	-126	0.36	0.01
P-194	574	Rainier & 7th	Hamlet & 7th	12.0	Asbestos Cement	130.0	-276	0.78	0.13
P-195	772	Hamlet & 7th	Pine & 7th	12.0	Ductile Iron	120.0	-262	0.74	0.19
P-196	369	Pine & 7th	Cedar & 7th	12.0	Ductile Iron	120.0	-182	0.52	0.05
P-197	358	Cedar & 7th	Main & 7th	6.0	Asbestos Cement	130.0	-185	2.10	1.17
P-198	786	Hamlet & 7th	Pine & 7th	6.0	AC	130.0	-45	0.52	0.19
P-199	181	Pine & 7th	Pine & Macbeth	8.0	Asbestos Cement	130.0	39	0.25	0.01
P-200	313	Pine & Macbeth	Cedar & Desdemona	8.0	Asbestos Cement	130.0	-119	0.76	0.11
P-201	364	Pine & 7th	Pine & 8th	6.0	AC	130.0	-171	1.94	1.03
P-202	336	Pine & 8th	Pine & 9th	6.0	AC	130.0	-100	1.14	0.35
P-203	370	Pine & 9th	Pine & 10th	6.0	AC	130.0	-91	1.04	0.33
P-204	385	Pine & 10th	Pine & 11th	8.0	AC	130.0	-79	0.51	0.06
P-205	372	Pine & 10th	Cedar & 10th	6.0	AC	130.0	-18	0.21	0.02
P-206	373	Cedar & 10th	Main & 10th	6.0	AC	130.0	40	0.45	0.07
P-207	739	Pine & 9th	Main & 9th	4.0	AC	130.0	-10	0.26	0.08
P-208	172	Pine & 8th	J-132	6.0	AC	130.0	-71	0.81	0.10
P-209	169	J-132	Cedar & 8th	6.0	AC	130.0	-46	0.52	0.04
P-210	196	Cedar & 8th	J-134	6.0	AC	130.0	-36	0.41	0.03
P-211	204	J-134	Main & 8th	6.0	AC	130.0	-77	0.87	0.13
P-212	566	J-132	J-135	6.0	AC	130.0	-25	0.28	0.05
P-213	91	J-135	J-136	6.0	AC	130.0	-25	0.28	0.01
P-214	103	J-136	J-134	6.0	AC	130.0	-41	0.46	0.02
P-215	304	Cedar & 8th	J-136	6.0	AC	130.0	-16	0.18	0.01
P-216	353	J-137	J-138	8.0	PVC	130.0	-148	0.95	0.19
P-217	395	J-138	J-139	8.0	PVC	130.0	-87	0.56	0.08
P-218	740	J-139	J-140	8.0	PVC	130.0	-126	0.80	0.29
P-219	723	J-140	J-141	8.0	PVC	130.0	-103	0.66	0.20
P-220	767	J-141	J-142	8.0	PVC	130.0	-111	0.71	0.24
P-221	228	Main & 14th	J-142	8.0	Asbestos Cement	130.0	88	0.56	0.05
P-222	195	J-142	Hemlock & 14th	8.0	Asbestos Cement	130.0	-30	0.19	0.01
P-223	372	Hemlock & 14th	Larch & 14th	8.0	Asbestos Cement	130.0	-59	0.38	0.04
P-224	165	Larch & 14th	J-145	8.0	Asbestos Cement	130.0	-92	0.58	0.04

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-225	171	J-145	Spruce & 14th	8.0	Asbestos Cement	130.0	-22	0.14	0.00
P-226	355	Spruce & 14th	Juniper & 14th	8.0	Asbestos Cement	130.0	-49	0.32	0.02
P-227	386	Juniper & 14th	Elm & 14th	8.0	Asbestos Cement	130.0	0	0.00	0.00
P-228	368	Elm & 14th	Oak & 14th	8.0	Asbestos Cement	130.0	-111	0.71	0.12
P-229	328	Oak & 14th	Ash & 14th	8.0	Asbestos Cement	130.0	-87	0.55	0.06
P-230	952	Main & 14th	J-145	16.0	PVC	130.0	-203	0.32	0.03
P-232	787	Juniper & 14th	Oak & 14th	16.0	PVC	130.0	-458	0.73	0.12
P-233	480	Oak & 14th	Cemetery &14th	16.0	PVC	130.0	-535	0.85	0.09
P-234	761	Hemlock & 14th	Hemlock & 12th	4.0	Asbestos Cement	130.0	18	0.47	0.25
P-235	732	Hemlock & 12th	Hemlock & 10th	4.0	Asbestos Cement	130.0	16	0.40	0.18
P-236	422	J-154	J-155	4.0	Asbestos Cement	130.0	10	0.27	0.05
P-237	372	J-155	J-139	4.0	Asbestos Cement	130.0	12	0.30	0.05
P-238	733	J-155	J-156	4.0	Asbestos Cement	130.0	-19	0.49	0.26
P-239	208	Main & 7th	J-138	12.0	Ductile Iron	120.0	-308	0.87	0.07
P-240	370	J-138	J-154	12.0	Ductile Iron	120.0	-378	1.07	0.18
P-241	182	J-154	Larch & 7th	12.0	Ductile Iron	120.0	-396	1.12	0.10
P-242	304	Larch & 7th	Spruce & 7th	12.0	Ductile Iron	120.0	-337	0.95	0.12
P-243	443	Spruce & 7th	Juniper & 7th	12.0	Ductile Iron	120.0	-355	1.01	0.19
P-244	361	Juniper & 7th	Elm & 7th	12.0	Ductile Iron	120.0	-227	0.64	0.07
P-245	336	Elm & 7th	Oak & 7th	12.0	Ductile Iron	120.0	-208	0.59	0.05
P-246	370	Oak & 7th	Ash & 7th	12.0	Ductile Iron	120.0	-231	0.65	0.07
P-247	158	Ash & 7th	J-163	12.0	Ductile Iron	120.0	-282	0.80	0.04
P-248	506	J-163	J-164	12.0	Ductile Iron	120.0	-340	0.97	0.20
P-249	335	J-164	Scooteny & 7th	12.0	Ductile Iron	120.0	-339	0.96	0.13
P-250	183	Scooteny & 7th	J-166	12.0	Ductile Iron	120.0	-263	0.75	0.05
P-251	135	J-166	Susan & 7th	12.0	Ductile Iron	120.0	-329	0.93	0.05
P-252	163	Susan & 7th	J-168	12.0	Ductile Iron	120.0	-292	0.83	0.05
P-253	133	J-168	Lilac & 7th	12.0	Ductile Iron	120.0	-358	1.02	0.06
P-256	673	Sagewood & 10th	J-173	10.0	PVC	130.0	176	0.72	0.17
P-258	344	Oak & 10th	Elm & 10th	10.0	PVC	130.0	131	0.54	0.05
P-259	361	Elm & 10th	Juniper & 10th	10.0	PVC	130.0	133	0.54	0.05
P-260	373	Juniper & 10th	Spruce & 10th	10.0	PVC	130.0	198	0.81	0.11
P-261	346	Spruce & 10th	Larch & 10th	10.0	PVC	130.0	167	0.68	0.08
P-262	195	Larch & 10th	J-156	10.0	PVC	130.0	117	0.48	0.02
P-263	750	Juniper & 10th	Juniper & 12th	10.0	Asbestos Cement	130.0	-139	0.57	0.12
P-264	745	Juniper & 12th	Juniper & 14th	10.0	Asbestos Cement	130.0	-177	0.72	0.19
P-265	1,180	Juniper & 10th	Juniper & 7th	10.0	Ductile Iron	120.0	38	0.16	0.02

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-266	552	Juniper & 7th	J-180	10.0	Ductile Iron	120.0	-79	0.32	0.04
P-267	591	J-180	Juniper & 4th	10.0	Ductile Iron	120.0	-144	0.59	0.12
P-268	754	Larch & 10th	Larch & 12th	4.0	stl	100.0	-11	0.28	0.15
P-270	743	Spruce & 10th	Spruce & 12th	4.0	stl	100.0	-9	0.23	0.11
P-272	756	Juniper & 14th	Juniper & 12th	4.0	stl	100.0	12	0.31	0.19
P-273	763	Juniper & 12th	Juniper & 10th	4.0	stl	100.0	10	0.24	0.12
P-274	191	Hemlock & 12th	J-141	6.0	AC	130.0	-15	0.17	0.01
P-275	201	J-141	Main & 12th	6.0	AC	130.0	-20	0.23	0.01
P-276	371	Hemlock & 12th	Larch & 12th	6.0	AC	130.0	-2	0.02	0.00
P-277	343	Larch & 12th	Spruce & 12th	6.0	AC	130.0	-29	0.33	0.04
P-278	389	Spruce & 12th	Juniper & 12th	6.0	AC	130.0	-54	0.61	0.13
P-279	349	Juniper & 12th	Elm & 12th	6.0	AC	130.0	-37	0.42	0.06
P-280	355	Elm & 12th	Oak & 12th	6.0	AC	130.0	-3	0.03	0.00
P-281	349	Oak & 12th	Ash & 12th	6.0	AC	130.0	-24	0.27	0.03
P-282	702	Ash & 12th	Ash & 14th	6.0	AC	130.0	-60	0.68	0.28
P-283	362	Ash & 12th	Ash & 11th	6.0	AC	130.0	18	0.20	0.02
P-284	400	Ash & 11th	Ash & 10th	6.0	AC	130.0	6	0.07	0.00
P-285	748	Elm & 12th	Elm & 10th	6.0	AC	130.0	37	0.42	0.13
P-286	1,179	Elm & 10th	Elm & 7th	6.0	AC	130.0	5	0.05	0.00
P-287	1,201	Spruce & 10th	Spruce & 7th	4.0	Asbestos Cement	130.0	9	0.22	0.10
P-288	1,143	Larch & 7th	Larch & 10th	6.0	Asbestos Cement	130.0	-31	0.35	0.14
P-289	1,182	Juniper & 10th	Juniper & 7th	6.0	AC	130.0	11	0.12	0.02
P-290	572	Juniper & 7th	J-180	6.0	AC	130.0	-22	0.25	0.04
P-291	149	J-180	J-189	6.0	AC	130.0	-10	0.12	0.00
P-292	452	J-189	Juniper & 4th	6.0	AC	130.0	-47	0.53	0.11
P-293	1,046	Larch & 7th	J-190	6.0	AC	130.0	-43	0.49	0.23
P-295	179	J-190	J-191	6.0	AC	130.0	-43	0.49	0.04
P-296	438	J-191	J-180	6.0	AC	130.0	-38	0.43	0.08
P-297	535	J-191	J-189	6.0	AC	130.0	-35	0.40	0.08
P-298	715	Oak & 14th	Oak & 12th	4.0	Asbestos Cement	130.0	19	0.48	0.24
P-299	755	Oak & 12th	Oak & 10th	4.0	Asbestos Cement	130.0	10	0.25	0.08
P-300	720	Oak & 10th	J-192	8.0	PVC	130.0	6	0.04	0.00
P-301	473	J-192	Oak & 7th	8.0	PVC	130.0	-9	0.06	0.00
P-302	110	Ash & 10th	J-193	4.0	AC	130.0	10	0.25	0.01
P-303	1,113	J-193	Ash & 7th	6.0	AC	130.0	3	0.03	0.00
P-304	879	J-163	J-194	6.0	AC	130.0	4	0.04	0.00
P-305	353	J-194	J-173	6.0	AC	130.0	-4	0.04	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-307	315	J-171	J-195	12.0	Asbestos Cement	130.0	20	0.06	0.00
P-309	917	Gemstone & 14th	SR 26 & 14th	12.0	Asbestos Cement	130.0	-264	0.75	0.20
P-310	2,850	SR 26 & 14th	SR 26 & 7th	12.0	Asbestos Cement	130.0	-265	0.75	0.62
P-311	725	Lilac & 7th	J-198	10.0	Asbestos Cement	130.0	-325	1.33	0.56
P-312	283	J-198	SR 26 & 7th	12.0	Ductile Iron	120.0	-313	0.89	0.10
P-313	283	SR 26 & 7th	J-198	12.0	Asbestos Cement	130.0	339	0.96	0.10
P-314	1,234	J-199	SR 26 & 7th	10.0	PVC	130.0	19	0.08	0.00
P-316	161	J-198	J-201	10.0	Asbestos Cement	130.0	328	1.34	0.13
P-317	296	J-201	J-202	10.0	Asbestos Cement	130.0	216	0.88	0.11
P-318	323	J-202	Columbia & Sylvan	10.0	Asbestos Cement	130.0	113	0.46	0.04
P-319	309	Columbia & Sylvan	Columbia & 4th	10.0	Asbestos Cement	130.0	30	0.12	0.00
P-320	281	Columbia & 4th	Columbia & 3rd	10.0	Asbestos Cement	130.0	-83	0.34	0.02
P-321	488	Columbia & 3rd	J-206	10.0	PVC	130.0	-214	0.88	0.17
P-322	538	Scooteny & 7th	Scooteny & Shady	8.0	Asbestos Cement	130.0	-88	0.56	0.11
P-323	610	Scooteny & Shady	Scooteny & 4th	8.0	Asbestos Cement	130.0	-61	0.39	0.06
P-324	301	Scooteny & 4th	Syvan & 4th	8.0	Asbestos Cement	130.0	-112	0.72	0.10
P-325	1,072	Syvan & 4th	Columbia & 4th	8.0	Asbestos Cement	130.0	-89	0.57	0.22
P-326	845	Syvan & 4th	Rose & Sylvan	8.0	Asbestos Cement	130.0	-81	0.52	0.15
P-327	477	Rose & Sylvan	Columbia & Sylvan	8.0	Asbestos Cement	130.0	-79	0.50	0.08
P-328	303	Rose & Sylvan	Rose & Shady	8.0	Asbestos Cement	130.0	-13	0.08	0.00
P-329	344	Rose & Shady	J-212	8.0	Asbestos Cement	130.0	-97	0.62	0.08
P-330	443	J-212	J-201	8.0	Asbestos Cement	130.0	-109	0.70	0.13
P-331	303	Scooteny & Shady	J-213	8.0	Asbestos Cement	130.0	-47	0.30	0.02
P-332	315	J-213	Lilac & 7th	8.0	Asbestos Cement	130.0	-113	0.72	0.10
P-333	270	Lilac & 7th	Rose & Shady	8.0	Asbestos Cement	130.0	-170	1.09	0.19
P-334	510	J-213	Susan & 7th	8.0	Asbestos Cement	130.0	46	0.30	0.03
P-335	497	Lilac & 7th	Lilac & 7th	8.0	Asbestos Cement	130.0	42	0.27	0.03
P-336	466	Rose & Shady	J-202	8.0	PVC	130.0	-96	0.62	0.11
P-337	281	Syvan & 4th	Syvan & 3rd	8.0	PVC	130.0	32	0.21	0.01
P-338	322	Syvan & 3rd	Scooteny & 3rd	8.0	PVC	130.0	80	0.51	0.05
P-339	325	Syvan & 3rd	Lilac & 3rd	8.0	PVC	130.0	-64	0.41	0.04
P-340	307	Lilac & 3rd	Lavender & 3rd	8.0	PVC	130.0	-86	0.55	0.06
P-341	285	Lavender & 3rd	Magnolia & 3rd	8.0	PVC	130.0	-109	0.70	0.09
P-342	160	Magnolia & 3rd	Columbia & 3rd	8.0	PVC	130.0	-128	0.82	0.07
P-343	388	J-164	J-221	8.0	PVC	130.0	-5	0.03	0.00
P-344	251	J-221	J-222	8.0	PVC	130.0	-6	0.04	0.00
P-345	169	J-222	Sagewood	8.0	PVC	130.0	-11	0.07	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-348	622	Sagewood & 10th	Sagewood	8.0	PVC	130.0	-47	0.30	0.04
P-349	202	Sagewood	J-226	8.0	PVC	130.0	-74	0.47	0.03
P-350	195	J-226	Scooteny & Cobblestone	8.0	PVC	130.0	28	0.18	0.00
P-351	266	Scooteny & Cobblestone	Scooteny & Capstone	8.0	PVC	130.0	-4	0.02	0.00
P-352	259	Scooteny & Capstone	Scooteny & 10th	8.0	PVC	130.0	-33	0.21	0.01
P-354	777	Scooteny & Capstone	Gemstone & Capstone	8.0	PVC	130.0	8	0.05	0.00
P-355	774	Scooteny & Cobblestone	Gemstone & Cobblestone	8.0	PVC	130.0	11	0.07	0.00
P-356	274	Gemstone & Cobblestone	Gemstone & Capstone	8.0	PVC	130.0	-14	0.09	0.00
P-357	257	Gemstone & Capstone	Gemstone & 10th	8.0	PVC	130.0	-32	0.20	0.01
P-358	775	Gemstone & 10th	Scooteny & 10th	8.0	PVC	130.0	-9	0.06	0.00
P-359	319	Gemstone & 10th	J-233	8.0	PVC	130.0	-56	0.36	0.03
P-360	1,124	J-233	Gemstone & 14th	8.0	PVC	130.0	-60	0.39	0.11
P-361	439	J-226	J-234	8.0	PVC	130.0	-107	0.68	0.13
P-362	469	J-234	J-235	8.0	PVC	130.0	-66	0.42	0.06
P-363	545	J-235	J-168	8.0	PVC	130.0	-66	0.42	0.06
P-364	365	J-234	J-166	8.0	PVC	130.0	-44	0.28	0.02
P-365	320	J-145	Fern & 14th	16.0	PVC	130.0	-283	0.45	0.02
P-366	237	Fern & 14th	Juniper & 14th	16.0	PVC	130.0	-209	0.33	0.01
P-367	286	Fern & 14th	Fern & 15th	8.0	PVC	130.0	-88	0.56	0.06
P-368	452	Fern & 15th	Fern & 16th	8.0	PVC	130.0	-58	0.37	0.04
P-369	787	Fern & 16th	J-239	8.0	PVC	130.0	-41	0.26	0.04
P-370	246	J-239	J-240	8.0	PVC	130.0	60	0.38	0.02
P-371	636	J-240	Fern & 16th	8.0	PVC	130.0	27	0.18	0.01
P-372	454	J-240	J-241	8.0	PVC	130.0	20	0.13	0.01
P-373	847	J-241	Fern & 15th	8.0	PVC	130.0	46	0.29	0.05
P-374	266	J-241	Oak & 14th	8.0	PVC	130.0	-44	0.28	0.01
P-375	317	J-239	J-242	8.0	PVC	130.0	-116	0.74	0.11
P-376	200	J-242	J-243	8.0	PVC	130.0	-112	0.71	0.06
P-377	150	J-243	J-244	8.0	PVC	130.0	22	0.14	0.00
P-378	717	J-244	Cemetary & 20th	8.0	PVC	130.0	-12	0.08	0.00
P-379	338	Cemetary & 20th	Cemetery & 19th	8.0	PVC	130.0	43	0.28	0.02
P-380	311	Cemetery & 19th	Cemetery & 18th	8.0	PVC	130.0	67	0.43	0.04
P-382	1,371	J-248	J-195	12.0	PVC	130.0	21	0.06	0.00
P-384	139	J-250	J-171	12.0	Asbestos Cement	130.0	62	0.18	0.00
P-385	564	Cemetery & 18th	J-251	12.0	PVC	130.0	39	0.11	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-386	736	J-251	J-248	12.0	PVC	130.0	21	0.06	0.00
P-387	1,216	J-250	J-251	12.0	PVC	130.0	-17	0.05	0.00
P-388	1,824	Cemetery &14th	Oak & 14th	8.0	PVC	130.0	42	0.27	0.09
P-389	518	J-242	Cemetery & 18th	8.0	PVC	130.0	-22	0.14	0.01
P-390	547	J-244	Cemetery & 19th	8.0	PVC	130.0	30	0.19	0.01
P-392	359	J-252	J-253	12.0	PVC	130.0	-136	0.39	0.02
P-393	200	J-253	J-254	12.0	PVC	130.0	78	0.22	0.00
P-394	610	J-254	J-112	12.0	PVC	130.0	75	0.21	0.01
P-395	684	J-253	J-255	12.0	PVC	130.0	-229	0.65	0.11
P-396	540	J-255	J-113	12.0	PVC	130.0	-415	1.18	0.27
P-397	1,206	J-255	J-252	12.0	PVC	130.0	186	0.53	0.14
P-398	360	Main & 2nd	Main & 3rd	12.0	PVC	130.0	-313	0.89	0.11
P-399	360	Main & 3rd	Main & 4th	12.0	PVC	130.0	150	0.43	0.03
P-400	723	Main & 3rd	Hemlock & 2nd	12.0	Asbestos Cement	130.0	-468	1.33	0.45
P-401	383	Hemlock & 2nd	Hemlock & 1st	12.0	Asbestos Cement	130.0	-109	0.31	0.02
P-402	425	Hemlock & 1st	Hemlock & Broadway	12.0	Ductile Iron	120.0	-51	0.15	0.01
P-403	338	Main & Rairoad	Main & Broadway	12.0	PVC	130.0	150	0.43	0.03
P-404	420	Main & Broadway	Main & 1st	12.0	PVC	130.0	-225	0.64	0.07
P-405	364	Main & Broadway	Hemlock & Broadway	10.0	Asbestos Cement	130.0	-552	2.25	0.74
P-406	389	Hemlock & Broadway	Larch & Broadway	10.0	Asbestos Cement	130.0	-1,006	4.11	2.42
P-407	359	Larch & Broadway	Spruce & Broadway	10.0	Asbestos Cement	130.0	425	1.74	0.45
P-408	382	Spruce & Broadway	Juniper & Broadway	10.0	Asbestos Cement	130.0	292	1.19	0.24
P-409	341	Juniper & Broadway	Elm & Broadway	10.0	Asbestos Cement	130.0	188	0.77	0.10
P-411	1,125	Elm & Broadway	Soda & Broadway	10.0	Asbestos Cement	130.0	93	0.38	0.08
P-412	405	Soda & Broadway	Scooteny & Broadway	10.0	Asbestos Cement	130.0	-48	0.20	0.01
P-413	301	Scooteny & Broadway	Royal & Broadway	10.0	Asbestos Cement	130.0	-83	0.34	0.02
P-414	380	Royal & Broadway	Wahluke & Broadway	10.0	Asbestos Cement	130.0	-91	0.37	0.03
P-415	770	Wahluke & Broadway	Columbia & Broadway	10.0	Asbestos Cement	130.0	-119	0.49	0.09
P-416	464	Columbia & Broadway	SR 26 & Broadway	10.0	Asbestos Cement	130.0	-165	0.67	0.10
P-417	709	Hemlock & 2nd	Hemlock & 4th	8.0	Asbestos Cement	130.0	38	0.25	0.03
P-418	236	Main & 4th	J-272	6.0	AC	130.0	-96	1.09	0.23
P-419	144	J-272	Hemlock & 4th	6.0	AC	130.0	-123	1.39	0.22
P-420	459	J-272	J-273	6.0	AC	130.0	21	0.24	0.03
P-421	538	J-273	J-137	8.0	AC	130.0	16	0.10	0.00
P-422	747	Hemlock & 2nd	Hemlock & 4th	4.0	Asbestos Cement	130.0	6	0.15	0.03
P-423	382	Hemlock & 4th	Larch & 4th	6.0	AC	130.0	-86	0.97	0.30
P-424	370	Larch & 4th	Spruce & 4th	6.0	AC	130.0	-85	0.97	0.29

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-425	379	Spruce & 4th	Juniper & 4th	6.0	AC	130.0	-45	0.51	0.09
P-426	712	Spruce & 4th	Spruce & 2nd	6.0	AC	130.0	-56	0.64	0.26
P-427	742	Larch & 4th	Larch & 2nd	4.0	Asbestos Cement	130.0	-17	0.43	0.21
P-428	370	Larch & 2nd	Larch & 1st	4.0	Asbestos Cement	130.0	-71	1.82	1.49
P-429	411	Larch & 1st	Hemlock & 1st	4.0	Asbestos Cement	130.0	78	1.99	1.95
P-430	422	Hemlock & 2nd	Hemlock & 1st	4.0	Asbestos Cement	130.0	-6	0.15	0.02
P-431	400	Hemlock & 2nd	Larch & 2nd	10.0	Asbestos Cement	130.0	-412	1.68	0.48
P-432	328	Larch & 2nd	Spruce & 2nd	10.0	Asbestos Cement	130.0	-379	1.55	0.33
P-433	401	Spruce & 2nd	Juniper & 2nd	10.0	Asbestos Cement	130.0	-9	0.04	0.00
P-434	367	Spruce & 2nd	Spruce & 1st	10.0	Asbestos Cement	130.0	-441	1.80	0.50
P-435	487	Spruce & 1st	Spruce & Broadway	10.0	Asbestos Cement	130.0	-449	1.83	0.68
P-436	455	Larch & 1st	Larch & Broadway	8.0	PVC	130.0	-214	1.37	0.48
P-437	376	Larch & Broadway	Spruce & Broadway	8.0	Asbestos Cement	130.0	231	1.47	0.45
P-438	448	Larch & Broadway	Spruce & Broadway	6.0	AC	130.0	98	1.12	0.45
P-439	329	Larch & 1st	Spruce & 1st	4.0	Asbestos Cement	130.0	49	1.25	0.65
P-440	388	Spruce & 1st	Juniper & 1st	6.0	AC	130.0	41	0.46	0.08
P-441	395	Juniper & 1st	Elm & 1st	6.0	AC	130.0	19	0.22	0.02
P-442	399	Elm & 1st	Elm & 2nd	8.0	AC	130.0	149	0.95	0.22
P-443	357	Elm & 2nd	Juniper & 2nd	8.0	AC	130.0	146	0.93	0.19
P-444	386	Juniper & 2nd	Spruce & 2nd	8.0	AC	130.0	5	0.03	0.00
P-445	693	Juniper & 4th	Juniper & 2nd	6.0	AC	130.0	-45	0.51	0.17
P-446	733	Juniper & 2nd	Juniper & 4th	10.0	Asbestos Cement	130.0	168	0.69	0.17
P-447	374	Juniper & 4th	Elm & 4th	6.0	AC	130.0	-39	0.45	0.07
P-448	315	Elm & 4th	3rd pl & 4th	6.0	AC	130.0	-81	0.92	0.22
P-449	824	3rd pl & 4th	Soda & 3rd	6.0	AC	130.0	-52	0.59	0.25
P-450	806	Soda & 3rd	Scooteny & 3rd	6.0	AC	130.0	-28	0.31	0.08
P-451	270	Scooteny & 3rd	Scooteny & 4th	8.0	Asbestos Cement	130.0	67	0.43	0.03
P-453	482	Scooteny & 4th	J-288	8.0	Asbestos Cement	130.0	100	0.64	0.12
P-454	346	J-288	J-287	8.0	Steel	100.0	77	0.49	0.09
P-455	580	3rd pl & 4th	J-287	8.0	Steel	100.0	-57	0.36	0.08
P-456	204	Elm & 4th	Elm & 5th	6.0	AC	130.0	44	0.50	0.05
P-457	298	Elm & 5th	Elm & 6th	6.0	AC	130.0	29	0.32	0.03
P-458	611	Elm & 6th	Elm & 7th	6.0	AC	130.0	32	0.36	0.08
P-459	666	Elm & 6th	Ash & 6th	6.0	AC	130.0	-18	0.21	0.03
P-461	875	J-292	J-163	6.0	AC	130.0	-23	0.26	0.06
P-462	587	Ash & 7th	Ash & 6th	8.0	Asbestos Cement	130.0	33	0.21	0.02
P-463	672	Elm & 5th	Ash & 5th	6.0	AC	130.0	2	0.03	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-464	185	Ash & 5th	J-292	6.0	AC	130.0	-11	0.13	0.00
P-465	296	Ash & 6th	Ash & 5th	8.0	Asbestos Cement	130.0	-3	0.02	0.00
P-466	708	Elm & 2nd	Elm & 4th	4.0	Asbestos Cement	130.0	20	0.52	0.28
P-467	883	Elm & 2nd	Soda & 2nd	6.0	AC	130.0	-46	0.52	0.22
P-468	866	Elm & 1st	J-295	8.0	Asbestos Cement	130.0	-53	0.34	0.07
P-469	203	J-295	Soda & 1st	8.0	Asbestos Cement	130.0	-140	0.90	0.10
P-470	367	Soda & 1st	Scooteny & 1st	8.0	Asbestos Cement	130.0	-36	0.23	0.01
P-471	382	Scooteny & 1st	Scooteny & 2nd	8.0	Asbestos Cement	130.0	108	0.69	0.11
P-472	323	Scooteny & 2nd	Scooteny & 3rd	8.0	Asbestos Cement	130.0	34	0.22	0.01
P-473	701	Scooteny & 2nd	Soda & 2nd	8.0	Asbestos Cement	130.0	57	0.36	0.06
P-474	271	Soda & 3rd	Soda & 2nd	8.0	Asbestos Cement	130.0	-58	0.37	0.03
P-475	373	Soda & 2nd	J-295	8.0	Asbestos Cement	130.0	-80	0.51	0.06
P-476	632	Soda & 1st	Soda & Broadway	8.0	Asbestos Cement	130.0	-109	0.69	0.19
P-477	538	Elm & Broadway	Elm & 1st	6.0	AC	130.0	88	1.00	0.44
P-478	499	Juniper & Broadway	Juniper & 1st	6.0	AC	130.0	100	1.13	0.52
P-479	381	Juniper & 1st	Juniper & 2nd	6.0	AC	130.0	103	1.17	0.42
P-480	686	Scooteny & 1st	Scooteny & Broadway	6.0	AC	130.0	-48	0.55	0.18
P-481	368	Scooteny & Broadway	Royal & Broadway	6.0	AC	130.0	-19	0.22	0.02
P-482	456	Royal & Broadway	Wahluke & Broadway	6.0	Steel	100.0	-16	0.19	0.03
P-483	786	Wahluke & Broadway	Columbia & Broadway	6.0	AC	130.0	-31	0.35	0.09
P-484	715	Columbia & Broadway	J-299	8.0	Asbestos Cement	130.0	7	0.05	0.00
P-485	723	J-299	Wahluke & 1st	8.0	Asbestos Cement	130.0	78	0.50	0.12
P-486	698	Wahluke & 1st	Wahluke & Broadway	8.0	Asbestos Cement	130.0	-35	0.23	0.03
P-487	735	Wahluke & 1st	Scooteny & 1st	8.0	Asbestos Cement	130.0	104	0.67	0.20
P-488	616	J-199	J-302	8.0	PVC	130.0	-19	0.12	0.01
P-490	285	J-206	J-302	10.0	Ductile Iron	120.0	-277	1.13	0.19
P-491	724	J-302	Concrete & Industrial	10.0	Ductile Iron	120.0	-297	1.22	0.55
P-492	193	J-206	Columbia & 1st	10.0	PVC	130.0	52	0.21	0.01
P-493	157	J-299	Columbia & 1st	8.0	Asbestos Cement	130.0	-78	0.50	0.03
P-495	509	J-305	SR 26 & Broadway	6.0	Asbestos Cement	130.0	-32	0.36	0.06
P-496	363	Columbia & 1st	SR 26 & 1st	8.0	Asbestos Cement	130.0	-27	0.17	0.01
P-497	230	SR 26 & 1st	J-305	8.0	PVC	130.0	-29	0.18	0.01
P-499	1,084	Canning & Roosevelt	Hudson & Roosevelt	8.0	Asbestos Cement	130.0	-176	1.13	0.80
P-500	388	Hudson & Roosevelt	Teck & Roosevelt	8.0	Asbestos Cement	130.0	-190	1.21	0.33
P-501	1,308	Teck & Roosevelt	J-310	8.0	Asbestos Cement	130.0	3	0.02	0.00
P-502	610	Hudson & Roosevelt	J-311	8.0	Asbestos Cement	130.0	1	0.01	0.00
P-503	338	Teck & Roosevelt	Teck & SR 24	8.0	Asbestos Cement	130.0	-197	1.26	0.31

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-504	196	Teck & SR 24	Curtis & SR 24	8.0	Asbestos Cement	130.0	-404	2.58	0.67
P-505	908	Curtis & SR 24	Curtis & Industrial	8.0	Asbestos Cement	130.0	205	1.31	0.88
P-506	612	Curtis & Industrial	J-315	8.0	Asbestos Cement	130.0	200	1.28	0.57
P-507	602	J-315	J-316	8.0	Asbestos Cement	130.0	196	1.25	0.54
P-508	506	J-316	Concrete & Industrial	8.0	Asbestos Cement	130.0	193	1.23	0.44
P-509	977	Concrete & Industrial	Canning & SR 24	8.0	Asbestos Cement	130.0	-124	0.79	0.37
P-510	320	Canning & SR 24	Canning & Roosevelt	8.0	Asbestos Cement	130.0	74	0.47	0.05
P-511	1,457	Canning & SR 24	Teck & SR 24	8.0	Asbestos Cement	130.0	-202	1.29	1.38
P-515	716	J-320	J-321	8.0	Asbestos Cement	130.0	82	0.53	0.13
P-516	577	J-321	J-319	8.0	Asbestos Cement	130.0	157	1.00	0.34
P-517	1,385	J-321	J-322	8.0	Asbestos Cement	130.0	-23	0.15	0.02
P-518	316	J-322	J-321	8.0	Asbestos Cement	130.0	52	0.33	0.02
P-519	699	J-322	J-320	8.0	Asbestos Cement	130.0	-75	0.48	0.10
P-520	896	J-323	SR 26 & Broadway	6.0	AC	130.0	-43	0.49	0.20
P-521	352	Cedar & Broadway	Cedar & Railroad	8.0	Asbestos Cement	130.0	3	0.02	0.00
P-522	706	Lee & 14th	WELL 8	10.0	PVC	130.0	-395	1.61	0.78
P-523	128	WELL 2	Main & 4th	12.0	PVC	130.0	0	0.00	0.00
P-524	142	J-93	J-115	10.0	PVC	130.0	-886	3.62	0.70
P-525	106	WELL 3	J-115	10.0	PVC	130.0	800	3.27	0.43
P-526	145	Larch & Broadway	WELL 6	10.0	PVC	130.0	-2,000	8.17	3.22
P-527	124	WELL 4	J-369	10.0	PVC	130.0	430	1.76	0.16
P-528	106	WELL 5	SR 26 & 7th	10.0	PVC	130.0	900	3.68	0.54
P-529	162	J-320	WELL 7	10.0	PVC	130.0	-630	2.57	0.42
P-530	685	Main & Rairoad	Hemlock & Broadway	10.0	PVC	130.0	-385	1.57	0.72
P-531	539	Cunningham & Danielle	April & Danielle	8.0	PVC	130.0	1	0.01	0.00
P-532	411	April & Danielle	May & Danielle	8.0	PVC	130.0	1	0.01	0.00
P-533	419	May & Danielle	June & Danielle	8.0	PVC	130.0	2	0.01	0.00
P-535	826	June & Danielle	Danielle & Allen	8.0	PVC	130.0	2	0.01	0.00
P-536	362	Danielle & Allen	Danielle & Andes	8.0	PVC	130.0	2	0.01	0.00
P-537	996	Danielle & Andes	Rainier & Wagon	8.0	PVC	130.0	1	0.01	0.00
P-538	334	Rainier & Wagon	Rainier & Taylor	8.0	PVC	130.0	1	0.01	0.00
P-539	106	Rainier & Taylor	J-340	8.0	PVC	130.0	1	0.01	0.00
P-540	515	J-340	J-341	8.0	PVC	130.0	0	0.00	0.00
P-541	523	J-341	Eagle & Charla	8.0	PVC	130.0	0	0.00	0.00
P-542	577	Eagle & Charla	Eagle & Talyor	8.0	PVC	130.0	0	0.00	0.00
P-543	244	J-344	Charla & Diana	8.0	PVC	130.0	0	0.00	0.00
P-544	238	Charla & Diana	Eagle & Charla	8.0	PVC	130.0	0	0.00	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-545	849	J-346	Kaylee & Kristina	8.0	PVC	130.0	0	0.00	0.00
P-546	334	Kaylee & Kristina	Deborah & Kristina	8.0	PVC	130.0	2	0.01	0.00
P-547	346	Deborah & Kristina	Rainier & Kristina	8.0	PVC	130.0	2	0.01	0.00
P-548	408	Rainier & Kristina	Rainier & Kayllee	8.0	PVC	130.0	0	0.00	0.00
P-549	321	Rainier & Kayllee	J-340	8.0	PVC	130.0	-1	0.01	0.00
P-550	755	Rainier & Kayllee	Kaylee & Kristina	8.0	PVC	130.0	2	0.01	0.00
P-551	1,165	Rainier & Kristina	Seilaff ln & Kristina	8.0	PVC	130.0	1	0.01	0.00
P-552	1,056	Seilaff ln & Kristina	J-352	8.0	PVC	130.0	1	0.01	0.00
P-555	664	J-355	Cunningham & Taylor	12.0	PVC	130.0	1	0.00	0.00
P-556	398	J-355	J-352	8.0	PVC	130.0	-1	0.01	0.00
P-557	255	J-72	J-356	12.0	PVC	130.0	0	0.00	0.00
P-558	208	J-356	J-355	12.0	PVC	130.0	0	0.00	0.00
P-559	388	J-356	J-357	8.0	PVC	130.0	0	0.00	0.00
P-560	198	J-357	J-352	8.0	PVC	130.0	0	0.00	0.00
P-561	660	J-358	Seilaff ln & Kristina	8.0	PVC	130.0	0	0.00	0.00
P-562	188	Well 11 (proposed)	Cunningham & Taylor	10.0	PVC	130.0	0	0.00	0.00
P-563	1,164	Cunningham & Taylor	June & Taylor	12.0	PVC	130.0	1	0.00	0.00
P-564	1,246	June & Taylor	Rainier & Taylor	12.0	PVC	130.0	0	0.00	0.00
P-566	1,188	Cunningham & Wagon	June & Wagon	6.0	PVC	130.0	1	0.01	0.00
P-567	1,128	June & Wagon	Rainier & Wagon	6.0	PVC	130.0	0	0.01	0.00
P-568	319	June & Taylor	June & Wagon	6.0	PVC	130.0	1	0.01	0.00
P-569	362	June & Wagon	June & Andes	6.0	PVC	130.0	1	0.01	0.00
P-570	361	June & Andes	June & Allen	6.0	PVC	130.0	1	0.01	0.00
P-571	607	June & Allen	June & Danielle	6.0	PVC	130.0	0	0.00	0.00
P-572	410	June & Allen	Danielle & Allen	6.0	PVC	130.0	0	0.00	0.00
P-573	412	Danielle & Andes	June & Andes	6.0	PVC	130.0	1	0.01	0.00
P-574	369	June & Andes	May & Andes	6.0	PVC	130.0	1	0.02	0.00
P-575	354	May & Andes	April & Andes	6.0	PVC	130.0	1	0.01	0.00
P-576	482	April & Andes	Cunningham & Andes	6.0	PVC	130.0	1	0.01	0.00
P-577	1,313	April & Andes	April & Danielle	6.0	PVC	130.0	0	0.00	0.00
P-578	1,131	May & Andes	May & Danielle	6.0	PVC	130.0	0	0.00	0.00
P-580	129	J-173	Ash & 10th	10.0	PVC	130.0	172	0.70	0.03
P-581	414	Ash & 10th	Oak & 10th	10.0	PVC	130.0	159	0.65	0.08
P-582	162	Ash & 14th	Cemetery &14th	10.0	PVC	130.0	-148	0.60	0.03
P-583	153	Cemetery &14th	J-369	16.0	PVC	130.0	-575	0.92	0.03
P-584	442	J-369	J-250	12.0	Asbestos Cement	130.0	45	0.13	0.00
P-585	171	Cemetery &14th	J-369	10.0	PVC	130.0	-157	0.64	0.03

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-586	141	2 ML. RES.	J-369	10.0	PVC	130.0	377	1.54	0.14
P-587	216	3 ML. RES.	J-115	10.0	PVC	130.0	244	1.00	0.10
P-588	266	3 ML. RES.	J-115	10.0	PVC	130.0	218	0.89	0.10
P-589	71	1 ML. RES.	J-115	10.0	PVC	130.0	445	1.82	0.10
P-595	398	J-374	Canning & Roosevelt	8.0	Asbestos Cement	130.0	-243	1.55	0.53
P-597	1,137	J-376	J-377	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-601	696	J-375	J-320	16.0	Ductile Iron	120.0	-464	0.74	0.12
P-605	181	J-72	J-383	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-608	335	SR 26 & Broadway	J-386	12.0	Asbestos Cement	130.0	-243	0.69	0.06
P-609	302	J-386	J-374	8.0	Asbestos Cement	130.0	-243	1.55	0.40
P-610	1,239	J-319	J-387	16.0	Ductile Iron	120.0	-464	0.74	0.22
P-611	766	J-387	J-375	16.0	Ductile Iron	120.0	-464	0.74	0.13
P-612	5,325	J-387	J-388	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-614	1,695	J-389	J-378	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-616	2,866	J-381	J-391	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-617	6,415	J-391	J-390	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-624	2,661	J-395	J-398	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-626	58	J-386	J-399	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-627	2,170	J-399	J-400	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-629	1,660	J-323	J-401	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-630	451	J-401	J-380	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-631	3,968	J-398	J-383	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-633	420	J-378	J-403	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-634	1,054	J-403	J-404	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-635	377	J-404	J-405	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-636	1,628	J-405	J-406	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-637	1,712	J-377	J-407	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-638	889	J-407	J-378	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-639	1,292	J-406	J-407	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-643	205	J-409	PRV-1	12.0	PVC	150.0	222	0.63	0.02
P-644	223	PRV-1	Cunningham & Danielle	12.0	PVC	150.0	222	0.63	0.03
P-669	147	J-413	PRV-2 (alternative)	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-670	153	PRV-2 (alternative)	J-388	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-671	224	J-413	J-388	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-673	296	J-415	J-375	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-676	175	J-416	PRV-3 (alternative)	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-677	177	PRV-3 (alternative)	J-415	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-678	194	J-416	J-415	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-681	5,103	J-420	J-376	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-682	163	J-390	PRV-4 (alternative)	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-683	160	PRV-4 (alternative)	J-420	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-684	203	J-390	J-420	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-686	5,123	J-422	J-381	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-687	255	J-422	PRV-5 (alternative)	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-688	230	PRV-5 (alternative)	J-380	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-689	355	J-422	J-380	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-690	1,462	J-391	J-425	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-692	189	J-425	PRV-6 (alternative)	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-693	201	PRV-6 (alternative)	J-395	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-694	163	J-395	J-425	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-696	321	Cunningham & Danielle	J-409	12.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-699	919	J-405	J-428	8.0	130	150.0	(N/A)	(N/A)	(N/A)
P-700	3,075	J-413	J-429	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-701	680	J-429	J-428	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-702	507	J-428	J-430	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-703	743	J-430	J-389	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-704	248	J-380	J-400	12.0	130	150.0	(N/A)	(N/A)	(N/A)
P-705	690	Main & 14th	J-431	16.0	PVC	130.0	-965	1.54	0.40
P-706	216	J-431	J-112	16.0	PVC	130.0	-854	1.36	0.10
P-707	712	J-431	J-432	12.0	PVC	150.0	-111	0.31	0.02
P-708	425	J-432	J-433	12.0	PVC	150.0	16	0.05	0.00
P-711	614	J-433	J-435	12.0	PVC	150.0	16	0.05	0.00
P-712	838	J-435	J-434	12.0	PVC	150.0	43	0.12	0.00
P-713	403	J-432	J-435	12.0	PVC	150.0	27	0.08	0.00
P-714	510	J-434	J-436	12.0	PVC	150.0	-168	0.48	0.04
P-715	507	J-436	J-432	12.0	PVC	150.0	154	0.44	0.03
P-716	170	J-252	J-436	12.0	PVC	150.0	322	0.91	0.04
P-717	334	J-243	J-437	12.0	PVC	150.0	-144	0.41	0.02
P-718	288	J-437	J-438	12.0	PVC	150.0	-144	0.41	0.02
P-719	255	J-438	J-434	12.0	PVC	150.0	-211	0.60	0.03
P-720	1,585	J-438	J-439	12.0	PVC	150.0	67	0.19	0.02
P-721	917	J-439	Cemetary & 20th	12.0	PVC	150.0	67	0.19	0.01
P-722	811	J-171	J-440	8.0	PVC	150.0	41	0.26	0.03
P-724	544	J-195	J-440	12.0	PVC	150.0	148	0.42	0.03

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-727	325	J-195	J-444	12.0	Asbestos Cement	130.0	-127	0.36	0.02
P-728	332	J-444	Gemstone & 14th	12.0	Asbestos Cement	130.0	-175	0.50	0.03
P-729	1,108	J-444	J-445	8.0	130	130.0	47	0.30	0.07
P-731	325	J-446	Scooteny & 10th	8.0	130	130.0	58	0.37	0.03
P-732	367	J-445	J-446	8.0	130	130.0	20	0.13	0.00
P-733	409	J-233	J-445	8.0	130	130.0	-27	0.17	0.01
P-735	134	Scooteny & 10th	J-447	8.0	PVC	130.0	1	0.01	0.00
P-736	129	J-447	Sagewood & 10th	8.0	PVC	130.0	152	0.97	0.07
P-738	146	J-440	J-449	12.0	PVC	150.0	189	0.54	0.01
P-739	417	J-449	J-446	8.0	PVC	150.0	38	0.25	0.01
P-740	139	J-448	J-449	12.0	PVC	150.0	-151	0.43	0.01
P-744	1,897	Concrete & Industrial	J-454	12.0	PVC	150.0	0	0.00	0.00
P-745	213	J-447	J-455	12.0	PVC	150.0	-151	0.43	0.01
P-747	356	J-455	J-456	12.0	PVC	150.0	-122	0.35	0.01
P-748	172	J-456	J-448	12.0	PVC	150.0	-151	0.43	0.01
P-749	702	J-455	J-456	8.0	PVC	150.0	-29	0.19	0.01
P-750	410	J-242	J-457	8.0	PVC	150.0	0	0.00	0.00
P-751	175	J-156	Hemlock & 10th	10.0	PVC	150.0	88	0.36	0.01
P-752	199	Hemlock & 10th	J-140	10.0	PVC	150.0	90	0.37	0.01
P-753	186	J-140	Main & 10th	10.0	PVC	150.0	61	0.25	0.01
P-754	728	Elm & 12th	Elm & 14th	8.0	PVC	150.0	-94	0.60	0.13
P-755	340	Larch & 12th	J-458	4.0	stl	100.0	-17	0.43	0.15
P-756	403	J-458	Larch & 14th	4.0	stl	100.0	-14	0.37	0.14
P-757	349	Spruce & 12th	J-459	4.0	stl	100.0	-14	0.36	0.12
P-758	397	J-459	Spruce & 14th	4.0	stl	100.0	-17	0.42	0.17
P-759	336	J-458	J-459	6.0	Steel	140.0	-2	0.03	0.00
P-760	193	J-139	Main & 8th	6.0	130	130.0	40	0.45	0.04
P-761	177	Cedar & 11th	J-460	12.0	Asbestos Cement	130.0	38	0.11	0.00
P-762	198	J-460	Main & 11th	12.0	Asbestos Cement	130.0	38	0.11	0.00
P-763	528	J-460	J-461	8.0	130	130.0	0	0.00	0.00
P-764	386	Cedar & 11th	Cedar & 10th	8.0	130	130.0	66	0.42	0.05
P-765	313	Fir & 14th	J-462	16.0	Asbestos Cement	130.0	-561	0.89	0.07
P-766	171	J-462	Fir & 13th	16.0	Asbestos Cement	130.0	-597	0.95	0.04
P-767	361	J-102	J-462	8.0	130	130.0	-36	0.23	0.01
P-768	389	Main & Venice	Main & Desdemona	12.0	PVC	150.0	-333	0.95	0.10
P-769	195	Main & Desdemona	J-137	8.0	PVC	150.0	-160	1.02	0.09
P-770	431	Concrete & Industrial	J-463	8.0	130	130.0	0	0.00	0.00

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-771	2,658	SR 26 & 14th	J-464	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-772	2,658	J-464	J-465	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-774	2,779	J-465	J-466	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-775	2,701	J-466	J-387	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-777	828	J-454	SR 26 & 7th	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-778	395	Curtis & SR 24	J-467	16.0	Ductile Iron	120.0	-611	0.97	0.11
P-779	1,451	J-467	J-319	16.0	Ductile Iron	120.0	-611	0.97	0.42
P-780	2,674	J-466	J-468	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-781	1,994	J-468	J-454	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-787	1,243	Olympia & 14th	J-470	16.0	Asbestos Cement	130.0	1,085	1.73	0.90
P-788	1,390	J-470	Lee & 14th	16.0	Asbestos Cement	130.0	1,085	1.73	1.01
P-790	1,405	J-107	J-471	10.0	Asbestos Cement	130.0	-368	1.50	1.36
P-791	1,312	J-471	J-32	10.0	Asbestos Cement	130.0	-368	1.50	1.27
P-794	2,691	J-473	J-474	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-796	2,392	J-474	J-475	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-797	2,626	J-475	SR 26 & 14th	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-798	2,597	J-475	J-439	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-799	2,233	J-439	J-473	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-800	5,254	J-470	J-476	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-803	1,487	J-476	J-477	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-804	5,153	J-465	J-478	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-805	5,333	J-478	J-474	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-806	5,507	J-388	J-479	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-807	5,280	J-479	J-465	10.0	130	130.0	(N/A)	(N/A)	(N/A)
P-808	2,661	J-106	Olympia & 7th	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-809	2,756	J-467	J-468	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-810	2,766	J-468	J-464	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-811	1,619	J-376	J-480	10.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-812	2,306	J-480	J-416	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-813	3,388	J-113	J-481	16.0	PVC	130.0	-1,200	1.91	2.96
P-814	2,383	J-481	J-477	16.0	PVC	130.0	-1,200	1.91	2.08
P-815	2,704	J-473	J-481	8.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-816	2,033	J-477	J-483	16.0	PVC	130.0	-1,200	1.91	1.78
P-817	183	J-483	WELL 9	16.0	PVC	130.0	-1,200	1.91	0.16
P-818	175	Well 10	J-483	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-819	169	J-483	2.5 ML. RES (alternative)	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)

FlexTable: Pipe Table

Active Scenario: Current PHD

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-821	293	J-409	J-485	12.0	PVC	130.0	-222	0.63	0.05
P-822	1,327	J-485	J-77	12.0	PVC	130.0	-222	0.63	0.21
P-823	3,145	Well 11 (proposed)	J-485	16.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-834	4,889	WELL 6	J-491	14.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-835	207	J-491	J-4	14.0	PVC	150.0	(N/A)	(N/A)	(N/A)
P-836	271	Simplot RES. (alternative)	J-491	24.0	PVC	150.0	(N/A)	(N/A)	(N/A)

FlexTable: PRV Table

Active Scenario: Current MDD

Label	Elevation (ft)	Diameter (Valve) (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Pressure (From) (psi)	Pressure (To) (psi)
PRV-1	971.00	14.0	1,063.42	137	1,174.21	1,063.49	87.9	40.0
PRV-2 (alternative)	1,024.20	8.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-3 (alternative)	1,024.20	14.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-4 (alternative)	931.80	8.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-5 (alternative)	1,005.00	12.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-6 (alternative)	912.60	8.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)

FlexTable: PRV Table

Active Scenario: Current PHD

Label	Elevation (ft)	Diameter (Valve) (in)	Hydraulic Grade Setting (Initial) (ft)	Flow (gpm)	Hydraulic Grade (From) (ft)	Hydraulic Grade (To) (ft)	Pressure (From) (psi)	Pressure (To) (psi)
PRV-1	971.00	14.0	0.00	222	1,199.66	1,063.49	98.9	40.0
PRV-2 (alternative)	1,024.20	8.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-3 (alternative)	1,024.20	14.0	1,116.62	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-4 (alternative)	931.80	8.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-5 (alternative)	1,005.00	12.0	1,097.42	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
PRV-6 (alternative)	912.60	8.0	0.00	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)

FlexTable: Tank Table

Active Scenario: Current MDD

Label	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
2 ML. RES.	1,099.00	1,099.00	1,176.00	1,209.00	28	1,176.00
3 ML. RES.	1,120.00	1,120.00	1,176.00	1,209.00	164	1,176.00
1 ML. RES.	1,120.00	1,120.00	1,176.00	1,209.00	157	1,176.00
2.5 ML. RES (alternative)	1,130.00	1,130.00	0.00	1,209.00	(N/A)	(N/A)
Simplot RES. (alternative)	1,147.00	1,147.00	0.00	1,177.00	(N/A)	(N/A)

FlexTable: Tank Table

Active Scenario: Current PHD

Label	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
2 ML. RES.	1,099.00	1,099.00	1,202.00	1,209.00	377	1,202.00
3 ML. RES.	1,120.00	1,120.00	1,202.00	1,209.00	463	1,202.00
1 ML. RES.	1,120.00	1,120.00	1,202.00	1,209.00	445	1,202.00
2.5 ML. RES (alternative)	1,130.00	1,130.00	0.00	1,209.00	(N/A)	(N/A)
Simplot RES. (alternative)	1,147.00	1,147.00	0.00	1,177.00	(N/A)	(N/A)

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
J-1	Main Zone	1,496	32.0	20.0
Lee & Broadway	Main Zone	1,516	36.6	20.0
J-4	Main Zone	1,998	31.0	20.0
J-5	Main Zone	2,429	33.9	20.0
Fir & Broadway	Main Zone	3,085	35.8	20.0
Pine & Broadway	Main Zone	3,212	38.1	20.0
Main & Broadway	Main Zone	3,779	43.8	20.0
Pine & 1st	Main Zone	2,540	20.0	21.1
Pine & 2nd	Main Zone	2,014	20.0	21.7
Pine & 4th	Main Zone	3,912	24.4	20.0
J-13	Main Zone	695	20.0	22.6
J-14	Main Zone	3,774	22.5	20.0
Fir & 2nd	Main Zone	3,236	25.5	20.0
J-17	Main Zone	3,312	28.2	20.0
Hathaway & 2nd	Main Zone	3,292	27.8	20.0
Halthaway & Lakespur	Main Zone	3,225	20.0	20.0
J-20	Main Zone	3,249	26.9	20.0
Rainier & Larkspur	Main Zone	3,187	26.8	20.0
J-22	Main Zone	3,039	27.5	20.0
J-23	Main Zone	3,170	26.6	20.0
Rainier & 2nd	Main Zone	3,219	24.4	20.0
J-25	Main Zone	2,799	30.7	20.0
J-32	Main Zone	2,415	32.6	20.0
Olympia & 4th	Main Zone	3,024	28.9	20.0
Olympia & Desdemona	Main Zone	3,316	25.8	20.0
Olympia & 7th	Main Zone	3,653	22.9	20.0
Olympia & 9th	Main Zone	3,907	21.0	20.0
Olympia & 11th	Main Zone	4,178	20.3	20.0
Othello & 4th	Main Zone	3,273	26.2	20.0
Rainier & 4th	Main Zone	3,358	28.6	20.0
Hamlet & 4th	Main Zone	3,530	24.3	20.0
Fircrest & 4th	Main Zone	3,646	25.3	20.0
Hemlet & Shelley	Main Zone	3,565	22.8	20.0
Hamlet & Desdemona	Main Zone	3,667	23.7	20.0
Hamlet & Macbeth	Main Zone	3,796	22.4	20.0
Hamlet & 7th	Main Zone	3,917	23.0	20.0
Pine & Macbeth	Main Zone	3,992	21.0	20.0
Fircrest & Desdemona	Main Zone	3,751	21.2	20.0
Pine & Desdemona	Main Zone	3,888	20.6	20.0
Cedar & Desdemona	Main Zone	4,050	23.1	20.0
Cedar & 4th	Main Zone	4,016	24.5	20.0
Cendar & Venice	Main Zone	4,110	21.2	20.0
Winsor & Desdemona	Main Zone	3,601	20.0	20.6
Main & Desdemona	Main Zone	4,405	26.6	20.0

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
Main & Venice	Main Zone	4,278	26.5	20.0
Othello & Desdemona	Main Zone	3,476	24.2	20.0
Othello & 7th	Main Zone	3,710	22.8	20.0
Rainier & Shelley	Main Zone	3,516	23.5	20.0
Rainier & Desdemona	Main Zone	3,592	23.9	20.0
Rainier & Macbeth	Main Zone	3,730	20.5	20.0
Rainier & 7th	Main Zone	3,798	23.0	20.0
J-62	Main Zone	4,087	21.1	20.0
Main & 4th	Main Zone	4,172	28.5	20.0
Cedar & 3rd	Main Zone	1,424	20.0	22.2
Cedar & 2nd	Main Zone	1,185	20.0	20.8
J-66	Main Zone	1,147	20.0	21.9
J-67	Main Zone	1,102	20.0	22.5
J-68	Main Zone	1,098	20.0	22.5
J-69	Main Zone	386	20.0	22.8
Cedar & 7th	Main Zone	4,027	20.0	20.1
Main & 1st	Main Zone	3,886	39.7	20.0
J-72	Main Zone	3,685	20.0	20.1
Cunningham & Taylor	Main Zone	3,827	24.7	20.0
Cunningham & Wagon	Main Zone	3,840	26.5	20.0
Cunningham & Andes	Main Zone	3,840	25.3	20.0
Cunningham & Danielle	Main Zone	3,840	33.4	20.0
J-77	Main Zone	3,840	53.0	20.0
Main & Rairoad	Main Zone	3,840	43.8	20.0
Main & 2nd	Main Zone	3,974	34.4	20.0
J-80	Main Zone	2,451	32.0	20.0
J-81	Main Zone	2,690	25.0	20.0
J-82	Main Zone	2,779	26.1	20.0
Cedar & Broadway	Main Zone	3,571	33.5	20.0
J-84	Main Zone	3,040	20.0	21.0
J-85	Main Zone	3,092	20.0	21.1
J-86	Main Zone	3,374	20.0	20.8
J-87	Main Zone	4,154	20.2	20.0
Rainier & 11th	Main Zone	4,345	20.5	20.0
J-89	Main Zone	2,746	20.0	21.4
Rainier & 13th	Main Zone	1,832	20.0	22.0
J-91	Main Zone	4,506	20.5	20.0
J-92	Main Zone	4,918	21.2	20.0
J-93	Main Zone	6,340	21.4	20.0
Pine & 11th	Main Zone	5,985	20.0	20.1
Cedar & 11th	Main Zone	6,032	20.5	20.0
Main & 11th	Main Zone	5,904	22.2	20.0
J-97	Main Zone	3,322	20.0	20.6
Olympia & 14th	Main Zone	3,278	20.6	20.0

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
J-99	Main Zone	2,319	20.0	20.2
J-100	Main Zone	3,671	20.6	20.0
J-101	Main Zone	2,717	20.0	21.8
J-102	Main Zone	3,168	20.0	21.9
Fir & 13th	Main Zone	6,383	21.8	20.0
J-104	Main Zone	6,955	21.8	20.0
Lee & 14th	Main Zone	1,693	20.1	20.0
J-106	Main Zone	1,259	20.0	21.5
J-107	Main Zone	1,473	32.4	20.0
J-108	Main Zone	1,496	34.6	20.0
J-109	Main Zone	4,427	21.0	20.0
Fir & 14th	Main Zone	5,801	21.9	20.0
Main & 14th	Main Zone	6,498	23.1	20.0
J-112	Main Zone	5,586	21.9	20.0
J-113	Main Zone	4,689	21.5	20.0
J-114	Main Zone	7,000	22.2	20.3
J-115	Main Zone	7,000	25.0	21.8
Pine & 14th	Main Zone	2,854	20.0	20.6
Cedar & 14th	Main Zone	3,223	20.0	22.0
Pine & 13th	Main Zone	1,639	20.0	22.6
Main & 12th	Main Zone	6,078	20.2	20.0
Main & 10th	Main Zone	5,541	23.2	20.0
Main & 9th	Main Zone	5,195	22.7	20.0
Main & 8th	Main Zone	4,929	24.3	20.0
Main & 7th	Main Zone	4,700	26.1	20.0
J-125	Main Zone	3,778	23.1	20.0
Pine & 7th	Main Zone	4,061	22.6	20.0
Pine & 8th	Main Zone	2,140	20.0	22.1
Pine & 9th	Main Zone	1,662	20.0	22.4
Pine & 10th	Main Zone	2,699	20.0	22.1
Cedar & 10th	Main Zone	2,934	20.0	22.0
J-132	Main Zone	1,856	20.0	22.0
Cedar & 8th	Main Zone	1,755	20.0	22.3
J-134	Main Zone	1,992	20.0	20.6
J-135	Main Zone	1,550	20.0	22.4
J-136	Main Zone	1,799	20.0	20.5
J-137	Main Zone	4,509	22.2	20.0
J-138	Main Zone	4,769	26.0	20.0
J-139	Main Zone	4,170	20.0	20.8
J-140	Main Zone	5,536	22.2	20.0
J-141	Main Zone	3,586	20.0	21.7
J-142	Main Zone	3,910	20.0	21.6
Hemlock & 14th	Main Zone	3,220	20.0	22.0
Larch & 14th	Main Zone	3,787	20.0	21.8

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
J-145	Main Zone	6,725	23.1	20.0
Spruce & 14th	Main Zone	4,171	20.0	21.6
Juniper & 14th	Main Zone	6,866	24.4	20.0
Elm & 14th	Main Zone	4,728	20.0	21.4
Oak & 14th	Main Zone	7,147	26.6	20.0
Ash & 14th	Main Zone	7,000	20.8	20.2
Cemetery &14th	Main Zone	7,000	28.7	20.3
Hemlock & 12th	Main Zone	1,985	20.0	22.4
Hemlock & 10th	Main Zone	5,445	20.0	20.1
J-154	Main Zone	4,930	25.4	20.0
J-155	Main Zone	881	20.0	22.7
J-156	Main Zone	5,040	20.0	20.4
Larch & 7th	Main Zone	4,991	26.0	20.0
Spruce & 7th	Main Zone	5,072	26.7	20.0
Juniper & 7th	Main Zone	5,204	29.8	20.0
Elm & 7th	Main Zone	5,321	28.5	20.0
Oak & 7th	Main Zone	5,396	29.4	20.0
Ash & 7th	Main Zone	5,426	29.9	20.0
J-163	Main Zone	5,439	30.1	20.0
J-164	Main Zone	5,478	32.9	20.0
Scooteny & 7th	Main Zone	5,454	34.7	20.0
J-166	Main Zone	5,454	35.4	20.0
Susan & 7th	Main Zone	5,443	36.1	20.0
J-168	Main Zone	5,437	36.5	20.0
Lilac & 7th	Main Zone	5,428	36.4	20.0
SR 26 & 7th	Main Zone	5,439	39.9	20.0
J-171	Main Zone	6,646	24.9	20.0
Sagewood & 10th	Main Zone	5,967	21.5	20.0
J-173	Main Zone	4,000	27.1	21.4
Oak & 10th	Main Zone	5,775	20.9	20.0
Elm & 10th	Main Zone	5,761	21.3	20.0
Juniper & 10th	Main Zone	5,736	23.6	20.0
Spruce & 10th	Main Zone	5,126	20.0	20.4
Larch & 10th	Main Zone	4,970	20.0	20.5
Juniper & 12th	Main Zone	5,593	20.0	20.5
J-180	Main Zone	4,902	28.8	20.0
Juniper & 4th	Main Zone	4,662	34.4	20.0
Larch & 12th	Main Zone	1,685	20.0	22.6
Spruce & 12th	Main Zone	1,836	20.0	22.5
Elm & 12th	Main Zone	3,776	20.0	21.7
Oak & 12th	Main Zone	2,271	20.0	22.4
Ash & 12th	Main Zone	2,307	20.0	22.4
Ash & 11th	Main Zone	1,898	20.0	22.5
J-189	Main Zone	3,686	20.0	21.0

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
J-190	Main Zone	1,962	20.0	22.2
J-191	Main Zone	2,559	20.0	21.9
J-192	Main Zone	3,478	20.0	21.6
J-193	Main Zone	1,346	20.0	22.6
J-194	Main Zone	1,855	20.0	22.4
J-195	Main Zone	6,460	25.8	20.0
Gemstone & 14th	Main Zone	6,172	21.0	20.0
SR 26 & 14th	Main Zone	5,160	20.0	20.6
J-198	Main Zone	5,423	39.7	20.0
J-199	Main Zone	5,297	20.5	20.0
J-201	Main Zone	5,362	38.3	20.0
J-202	Main Zone	5,316	37.5	20.0
Columbia & Sylvan	Main Zone	5,268	37.8	20.0
Columbia & 4th	Main Zone	5,207	38.2	20.0
Columbia & 3rd	Main Zone	5,162	38.7	20.0
J-206	Main Zone	5,107	40.2	20.0
Scooteny & Shady	Main Zone	5,349	29.5	20.0
Scooteny & 4th	Main Zone	5,129	35.1	20.0
Syvan & 4th	Main Zone	5,148	35.4	20.0
Rose & Sylvan	Main Zone	5,280	30.8	20.0
Rose & Shady	Main Zone	5,324	35.5	20.0
J-212	Main Zone	5,298	20.0	20.0
J-213	Main Zone	5,379	31.5	20.0
Lilac & 7th	Main Zone	5,364	33.1	20.0
Syvan & 3rd	Main Zone	5,117	32.9	20.0
Scooteny & 3rd	Main Zone	5,051	36.3	20.0
Lilac & 3rd	Main Zone	5,015	20.0	20.1
Lavender & 3rd	Main Zone	4,931	20.0	20.2
Magnolia & 3rd	Main Zone	5,149	27.0	20.0
J-221	Main Zone	4,422	20.0	21.0
J-222	Main Zone	4,428	20.0	21.0
Sagewood	Main Zone	5,550	20.0	20.2
J-226	Main Zone	5,838	21.5	20.0
Scooteny & Cobblestone	Main Zone	5,382	20.0	20.4
Scooteny & Capstone	Main Zone	5,091	20.0	20.7
Scooteny & 10th	Main Zone	6,132	20.6	20.0
Gemstone & Capstone	Main Zone	4,671	20.0	21.0
Gemstone & Cobblestone	Main Zone	3,908	20.0	21.5
Gemstone & 10th	Main Zone	4,928	20.0	20.9
J-233	Main Zone	4,702	20.0	21.1
J-234	Main Zone	5,578	21.7	20.0
J-235	Main Zone	4,198	20.0	21.1
Fern & 14th	Main Zone	6,811	23.8	20.0
Fern & 15th	Main Zone	3,739	20.0	21.9

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
Fern & 16th	Main Zone	2,984	20.0	22.2
J-239	Main Zone	3,637	20.0	21.9
J-240	Main Zone	3,584	20.0	21.9
J-241	Main Zone	4,427	20.0	21.6
J-242	Main Zone	4,423	20.0	21.5
J-243	Main Zone	5,228	20.0	21.0
J-244	Main Zone	4,005	20.0	21.7
Cemetary & 20th	Main Zone	4,064	20.0	21.7
Cemetery & 19th	Main Zone	4,174	20.0	21.6
Cemetery & 18th	Main Zone	5,388	20.0	20.9
J-248	Main Zone	5,572	20.0	20.8
J-250	Main Zone	6,792	25.6	20.0
J-251	Main Zone	6,376	20.0	20.3
J-252	Main Zone	5,768	20.8	20.0
J-253	Main Zone	5,616	20.2	20.0
J-254	Main Zone	5,247	20.0	20.5
J-255	Main Zone	5,209	20.0	20.3
Main & 3rd	Main Zone	4,070	30.5	20.0
Hemlock & 2nd	Main Zone	4,119	38.7	20.0
Hemlock & 1st	Main Zone	4,065	41.0	20.0
Hemlock & Broadway	Main Zone	3,971	44.9	20.0
Larch & Broadway	Main Zone	4,214	44.1	20.0
Spruce & Broadway	Main Zone	4,279	44.9	20.0
Juniper & Broadway	Main Zone	4,425	42.4	20.0
Elm & Broadway	Main Zone	4,532	40.4	20.0
Soda & Broadway	Main Zone	4,757	41.2	20.0
Scooteny & Broadway	Main Zone	4,824	41.6	20.0
Royal & Broadway	Main Zone	4,856	40.2	20.0
Wahluke & Broadway	Main Zone	4,906	41.0	20.0
Columbia & Broadway	Main Zone	4,970	38.5	20.0
SR 26 & Broadway	Main Zone	5,006	32.7	20.0
Hemlock & 4th	Main Zone	3,758	20.0	20.5
J-272	Main Zone	3,424	20.0	20.9
J-273	Main Zone	2,489	20.0	21.7
Larch & 4th	Main Zone	2,409	20.0	21.8
Spruce & 4th	Main Zone	3,131	20.0	21.2
Spruce & 2nd	Main Zone	4,366	41.0	20.0
Larch & 2nd	Main Zone	4,250	38.2	20.0
Larch & 1st	Main Zone	4,218	20.1	20.0
Juniper & 2nd	Main Zone	4,475	41.0	20.0
Spruce & 1st	Main Zone	4,332	41.1	20.0
Juniper & 1st	Main Zone	4,434	28.7	20.0
Elm & 1st	Main Zone	4,603	33.9	20.0
Elm & 2nd	Main Zone	4,582	32.4	20.0

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
Elm & 4th	Main Zone	4,268	20.0	20.6
3rd pl & 4th	Main Zone	3,600	20.0	21.2
Soda & 3rd	Main Zone	4,780	20.0	20.1
J-287	Main Zone	3,322	20.0	21.4
J-288	Main Zone	3,915	20.0	21.0
Elm & 5th	Main Zone	3,541	20.0	21.3
Elm & 6th	Main Zone	3,012	20.0	21.7
Ash & 6th	Main Zone	4,322	20.0	20.9
J-292	Main Zone	2,756	20.0	21.9
Ash & 5th	Main Zone	3,936	20.0	21.1
Soda & 2nd	Main Zone	4,843	32.8	20.0
J-295	Main Zone	4,780	35.6	20.0
Soda & 1st	Main Zone	4,810	36.6	20.0
Scooteny & 1st	Main Zone	4,873	37.0	20.0
Scooteny & 2nd	Main Zone	4,931	34.5	20.0
J-299	Main Zone	5,021	34.6	20.0
Wahluke & 1st	Main Zone	4,931	29.2	20.0
J-302	Main Zone	5,135	36.3	20.0
Concrete & Industrial	Main Zone	4,948	22.2	20.0
Columbia & 1st	Main Zone	5,071	38.3	20.0
J-305	Main Zone	3,926	20.0	21.0
SR 26 & 1st	Main Zone	4,354	20.0	20.6
Canning & Roosevelt	Main Zone	4,948	20.0	20.1
Hudson & Roosevelt	Main Zone	3,599	20.0	21.3
Teck & Roosevelt	Main Zone	3,719	20.0	21.2
J-310	Main Zone	1,960	20.0	22.3
J-311	Main Zone	2,539	20.0	22.0
Teck & SR 24	Main Zone	3,900	20.0	21.0
Curtis & SR 24	Main Zone	3,724	20.6	20.0
Curtis & Industrial	Main Zone	3,000	20.0	21.7
J-315	Main Zone	3,036	20.0	21.7
J-316	Main Zone	3,482	20.0	21.4
Canning & SR 24	Main Zone	4,531	20.0	20.5
J-319	Main Zone	3,520	20.0	21.3
J-320	Main Zone	3,520	21.2	20.0
J-321	Main Zone	3,413	20.0	21.4
J-322	Main Zone	3,406	20.0	21.4
J-323	Main Zone	1,256	20.0	22.6
Cedar & Railroad	Main Zone	2,909	20.0	20.8
WELL 8	Main Zone	1,100	20.0	21.4
WELL 2	Main Zone	4,173	27.4	20.0
WELL 3	Main Zone	5,706	20.0	22.1
WELL 6	Main Zone	4,214	39.0	20.0
WELL 4	Main Zone	6,649	20.0	20.6

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
WELL 5	Main Zone	5,439	35.3	20.0
WELL 7	Main Zone	3,468	20.0	21.2
April & Danielle	Main Zone	3,687	20.0	20.2
May & Danielle	Main Zone	3,250	20.0	20.6
June & Danielle	Main Zone	2,938	20.0	21.0
Danielle & Allen	Main Zone	2,887	20.0	21.0
Danielle & Andes	Main Zone	2,968	20.0	20.9
Rainier & Wagon	Main Zone	3,096	20.0	20.8
Rainier & Taylor	Main Zone	3,491	20.0	20.3
J-340	Main Zone	3,115	20.0	20.0
J-341	Main Zone	1,846	20.0	20.0
Eagle & Charla	Main Zone	1,418	20.0	20.0
Eagle & Talyor	Main Zone	1,170	20.0	22.4
J-344	Main Zone	1,202	20.0	22.4
Charla & Diana	Main Zone	1,299	20.0	20.0
J-346	Main Zone	1,360	20.0	22.3
Kaylee & Kristina	Main Zone	2,117	20.0	20.4
Deborah & Kristina	Main Zone	2,175	20.0	21.7
Rainier & Kristina	Main Zone	2,446	20.0	20.4
Rainier & Kayllee	Main Zone	2,576	20.0	20.5
Seilaff ln & Kristina	Main Zone	2,376	20.0	20.9
J-352	Main Zone	3,396	20.0	20.5
J-355	Main Zone	3,740	20.0	20.0
J-356	Main Zone	3,688	20.0	20.2
J-357	Main Zone	3,262	20.0	20.6
J-358	Main Zone	1,621	20.0	22.1
Well 11 (proposed)	Main Zone	3,753	20.0	20.1
June & Taylor	Main Zone	3,734	20.2	20.0
June & Wagon	Main Zone	3,086	20.0	20.8
June & Andes	Main Zone	3,146	20.0	20.7
June & Allen	Main Zone	2,453	20.0	21.4
May & Andes	Main Zone	2,627	20.0	21.3
April & Andes	Main Zone	2,671	20.0	21.2
WELL 9	Non-Fire	1,848	20.0	20.3
Ash & 10th	Main Zone	5,867	20.0	20.0
J-369	Main Zone	7,000	29.2	20.4
J-374	Main Zone	5,040	21.2	20.0
J-375	Main Zone	3,520	22.7	20.0
J-376	Main Zone	(N/A)	(N/A)	(N/A)
J-377	Main Zone	(N/A)	(N/A)	(N/A)
J-378	Main Zone	(N/A)	(N/A)	(N/A)
J-380	Main Zone	(N/A)	(N/A)	(N/A)
J-381	Main Zone	(N/A)	(N/A)	(N/A)
J-383	Main Zone	(N/A)	(N/A)	(N/A)

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)
J-386	Main Zone	5,012	28.9	20.0
J-387	Main Zone	3,520	21.5	20.0
J-388	Main Zone	(N/A)	(N/A)	(N/A)
J-389	Main Zone	(N/A)	(N/A)	(N/A)
J-390	Main Zone	(N/A)	(N/A)	(N/A)
J-391	Main Zone	(N/A)	(N/A)	(N/A)
J-395	Main Zone	(N/A)	(N/A)	(N/A)
J-398	Main Zone	(N/A)	(N/A)	(N/A)
J-399	Main Zone	(N/A)	(N/A)	(N/A)
J-400	Main Zone	(N/A)	(N/A)	(N/A)
J-401	Main Zone	(N/A)	(N/A)	(N/A)
J-403	Main Zone	(N/A)	(N/A)	(N/A)
J-404	Main Zone	(N/A)	(N/A)	(N/A)
J-405	Main Zone	(N/A)	(N/A)	(N/A)
J-406	Main Zone	(N/A)	(N/A)	(N/A)
J-407	Main Zone	(N/A)	(N/A)	(N/A)
J-409	Main Zone	3,840	42.2	20.0
J-413	Main Zone	(N/A)	(N/A)	(N/A)
J-415	Main Zone	(N/A)	(N/A)	(N/A)
J-416	Main Zone	(N/A)	(N/A)	(N/A)
J-420	Main Zone	(N/A)	(N/A)	(N/A)
J-422	Main Zone	(N/A)	(N/A)	(N/A)
J-425	Main Zone	(N/A)	(N/A)	(N/A)
J-428	Main Zone	(N/A)	(N/A)	(N/A)
J-429	Main Zone	(N/A)	(N/A)	(N/A)
J-430	Main Zone	(N/A)	(N/A)	(N/A)
J-431	Main Zone	5,885	21.9	20.0
J-432	Main Zone	5,201	20.0	20.1
J-433	Main Zone	4,362	20.0	21.5
J-434	Main Zone	5,561	20.0	20.3
J-435	Main Zone	4,804	20.0	20.7
J-436	Main Zone	5,672	20.0	20.2
J-437	Main Zone	5,251	20.0	21.0
J-438	Main Zone	5,601	20.0	20.8
J-439	Main Zone	3,993	20.0	21.7
J-440	Main Zone	6,341	23.5	20.0
J-444	Main Zone	6,283	21.8	20.0
J-445	Main Zone	4,543	20.0	21.2
J-446	Main Zone	5,161	20.0	20.8
J-447	Main Zone	6,139	24.0	20.0
J-448	Main Zone	6,256	22.7	20.0
J-449	Main Zone	6,292	23.3	20.0
J-454	Main Zone	3,543	20.0	21.3
J-455	Main Zone	6,178	23.1	20.0

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Label	Zone	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)
J-456	Main Zone	6,222	22.4	20.0	J-106
J-457	Main Zone	2,021	20.0	22.5	J-106
J-458	Main Zone	826	20.0	22.3	J-106
J-459	Main Zone	859	20.0	21.1	J-106
J-460	Main Zone	5,957	20.8	20.0	J-106
J-461	Main Zone	1,425	20.0	22.6	J-106
J-462	Main Zone	6,151	21.8	20.0	J-106
J-463	Main Zone	2,960	20.0	21.7	J-106
J-464	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-465	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-466	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-467	Main Zone	3,677	20.5	20.0	J-106
J-468	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-470	Main Zone	2,174	20.3	20.0	J-106
J-471	Main Zone	1,767	30.8	20.0	J-106
J-473	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-474	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-475	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-476	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-477	Non-Fire	1,961	20.0	20.8	J-106
J-478	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-479	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-480	Main Zone	(N/A)	(N/A)	(N/A)	J-106
J-481	Main Zone	2,753	20.0	22.2	J-106
Well 10	<None>	(N/A)	(N/A)	(N/A)	J-106
J-483	<None>	1,855	20.0	85.3	J-106
J-485	<None>	4,986	20.0	23.1	J-106
J-491	<None>	(N/A)	(N/A)	(N/A)	J-106

Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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Cedar & 2nd
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
J-356
Deborah & Kristina
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WELL 8
Rainier & 13th
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Pine & 13th
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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Lee & 14th
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J-346
J-106
Deborah & Kristina
Kaylee & Kristina
J-358
J-106
J-356
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Rainier & Taylor
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J-477
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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Fire Flow Node FlexTable: Fire Flow Report
Active Scenario: Current MDD

Junction w/ Minimum Pressure (Zone)
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WELL 9
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(N/A)
(N/A)
J-106
(N/A)
J-485
J-483
(N/A)

Scenario: Current

APPENDIX G

Determination of Non-Significance
SEPA Checklist (non-project)

Notice of Determination of Non-Significance

Water System Plan: The City of Othello issued a Determination of Non-Significance under the State Environmental Policy Act (SEPA) for the adoption of the Water System Plan. This project does not have any probable significant adverse environmental impacts. This decision was made after review of an environmental checklist and other information on file with the City. Comments on this project will be accepted until 5:00 PM on Sept. 13 at City Hall, 500 E. Main Street, Othello. For additional information please contact the City of Othello at 509-488-5686.

Date: Aug. 31, 2017

DETERMINATION OF NON-SIGNIFICANCE

Project Name: City of Othello Water System Plan

Description of Proposal: Adopt a Water System Plan to provide present and future City staff and officials with an engineering analysis of the existing water system and assist them in setting system priorities and selecting the improvements that best meet Othello's needs. This Plan establishes a recommended order of improvements and prioritizes their implementation. This Plan is in compliance with Washington State Dept. of Health requirements and has been prepared in accordance with WAC 246-290 and the Water System Design Manual.

Proponent: City of Othello

Location: City limits of Othello, WA

Lead Agency: City of Othello
The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

Comment Period: This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below.

Responsible Official: Anne Henning, Community Development Director
500 E. Main Street, Othello, WA 99344; 509-488-5686

Date: August 31, 2017 **Signature:** Anne Henning

Appeals: Procedural appeals of compliance with WAC 197-11 may be made no later than September 13, 2017 by writing to the Responsible Official at the above address. You should be prepared to make specific factual objections. Contact Anne Henning to read or ask about the procedures for SEPA appeals.

SEPA Environmental Checklist

Washington Administrative Code (WAC) 197-11-960

Purpose of checklist:

The State Environmental Policy Act (SEPA), Revised Code of Washington (RCW), Chapter 43.21C, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and agencies identify impacts from your proposal and to help agencies decide whether or not an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe basic information about your proposal. Governmental agencies use this checklist to determine whether or not the environmental impacts of your proposal are significant. Please answer the questions briefly, giving the most precise information or best description known. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply."

Some questions pertain to governmental regulations such as zoning, shoreline, and landmark designations. If you have problems answering these questions, please contact the City of Othello Permit Center for assistance.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. You may be asked to explain your answers or provide additional information related to significant adverse impacts.

Use of checklist for non-project proposals:

Complete this checklist for non-project proposals (e.g., county plans and codes), even if the answer is "does not apply." In addition, complete the supplemental sheet for non-project actions (Part D).

For non-project actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

City of Othello Community Development Department
500 E. Main Street, Othello, Washington
Phone: (509) 488-5686 Fax: (509) 488-0102
www.Othellowa.gov

A. Background

1. Name of proposed project, if applicable:
   Adoption of City of Othello Water System Plan

2. Name of applicant:
   City of Othello

3. Address and phone number of applicant and contact person:
   Applicant: Wade Farris, City Administrator
   Contact person: Anne Henning, Community Development Director

4. Date checklist prepared:
   August 30, 2017

5. Agency requesting checklist:
   Department of Health

6. Proposed timing or schedule (including phasing, if applicable):
   Plan adoption by the end of 2017.
   Capital improvements in the plan are categorized into 6-year and 20-year horizons.

7. Do you have any plans for future additions, expansion, or further activity related to this proposal? If yes, explain.
   Yes, the Plan covers a 20-year planning period during which the City plans to implement capital improvements.

8. List any environmental information that has been or will be prepared related to this proposal.
   None previously. Environmental review of capital improvements will be conducted when each is proposed.

9. Are other applications pending for governmental approvals affecting the property covered by your proposal? If yes, please explain.
   None

10. List any government approvals or permits needed for your proposal:
    Department of Health approval of the Plan

11. Give a brief, complete description of your proposal, including the proposed uses and size of the project and site. There are several questions addressed later in this checklist asking you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)
    The Water System Plan (WSP) is a non-project action; it is a planning document that identifies the City's water system deficiencies and corresponding improvement alternatives. This WSP is in compliance with Washington State DOH requirements and has been prepared in accordance with WAC 246-290 and the Water System Design Manual.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including street address, section, township, and range. If this proposal occurs over a wide area, please provide the range or boundaries of the site. Also, give a legal description, site plan, vicinity map, and topographic map. You are required to submit any plans required by the agency, but not required to submit duplicate maps or plans submitted with permit applications related to this checklist.
City-wide

B. Environmental Elements

Agency use only

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____.
The City is generally flat or gently sloping. Site-specific information will be collected for each project as it is proposed.

b. What is the steepest slope on the site and the approximate percentage of the slope?
Land within the City is general flat or gently sloping. Per the 2015 Comprehensive Plan, there are no slopes in the City in excess of 30%.

c. What general types of soils are found on the site (e.g., clay, sand, gravel, peat, muck)? Please specify the classification of agricultural soils and note any prime farmland.
Most of the City has been classified by USDA/NRCS as Ephrata sandy loam, Neppel fine sandy loam, Royal very fine sandy loam, or Scooteney loam

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, please describe.
Not applicable. Soil stability will be evaluated for each project during review.

e. Describe the purpose, type, and approximate quantities of any filling or proposed grading. Also, indicate the source of fill.
Not applicable. Will be evaluated for each project during review.

f. Could erosion occur as a result of clearing, construction, or use? If so, please describe.
Not applicable. Will be evaluated for each project during review.

g. What percentage of the site will be covered with impervious surfaces after the project construction (e.g., asphalt or buildings)?
Not applicable. Will be evaluated for each project during review.

h. Proposed measures to reduce or control erosion, or other impacts to the earth include:
Not applicable. Will be evaluated for each project during review.

2. Air

Agency use only

a. What types of emissions to the air would result from this proposal (e.g., dust, automobile, odors, industrial wood smoke) during construction and after completion? Please describe and give approximate quantities.
Not applicable. Will be evaluated for each project during review.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, please describe.
Not applicable. Will be evaluated for each project during review.

c. Proposed measures to reduce or control emissions or other impacts to air:
Not applicable. Will be evaluated for each project during review.

3. Water

a. Surface:

1) Is there any surface water body on or in the vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe the type and provide names and into which stream or river it flows into.
The only surface waters in proximity to the City of Othello are irrigation canals and wasteways. According to the Fish and Wildlife Service Wetlands Mapper, there are only 3 wetlands within the City of Othello, and all are small.

2) Will the project require any work within 200 feet of the described waters? If yes, please describe and attach available plans.
Not applicable. Projects will be evaluated for wetlands during review.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
None

4) Will the proposal require surface water withdrawals or diversions? Please provide description, purpose, and approximate quantities:
Not applicable to the adoption of the Plan; however, the City is analyzing using Bureau of Reclamation water from canals for irrigation and/or treating it for potable use. This future potential use will be thoroughly reviewed before implementation.

5) Does the proposal lie within a 100-year floodplain? If so, please note the location on the site plan.
Per FEMA's National Flood Hazard Layer (Official), no portion of City limits is within the 100-year floodplain.

Agency use only

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
None

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Please give description, purpose, and approximate quantities.
Not applicable to the adoption of the Plan; however, the Plan includes two new groundwater wells and rehabilitating an existing well to recover lost pumping capacity

2) Describe waste material that will be discharged into the ground from septic tanks or other sources; (e.g., domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the size and number of the systems, houses to be served; or, the number of animals or humans the systems are expected to serve.
Not applicable to the adoption of the Plan; however the Plan includes discussion of injecting clean water into aquifers, (ASR or aquifer storage recovery).

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal. Include quantities, if known. Describe where water will flow, and if it will flow into other water.
Not applicable. Will be evaluated for each project during review.

2) Could waste materials enter ground or surface waters? If so, please describe.
Not applicable. Will be evaluated for each project during review.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
Not applicable. Will be evaluated for each project during review.

4. Plants

a. Check or circle types of vegetation found on the site
- Deciduous tree: alder, maple, aspen, other
- Evergreen tree: fir, cedar, pine, other
- Shrubs
- Grass
- Pasture
- Crop or grain

- Wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- Water plants: water lily, eelgrass, milfoil, other
- Other types of vegetation

Agency use only

Not applicable. Will be evaluated for each project during review.

b. What kind and amount of vegetation will be removed or altered?
Not applicable. Will be evaluated for each project during review.

c. List threatened or endangered species on or near the site.
Not applicable. Will be evaluated for each project during review.

d. List proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site:
Not applicable. Will be evaluated for each project during review.

5. Animals

a. Circle any birds and animals which have been observed on or near the site:

- Birds: hawk, heron, eagle, songbirds, other;
- Mammals: deer, bear, elk, beaver, other; and,
- Fish: bass, salmon, trout, herring, shellfish, other.

Not applicable. Will be evaluated for each project during review.

b. List any threatened or endangered species known to be on or near the site.
Not applicable. Will be evaluated for each project during review.

c. Is the site part of a migration route? If so, please explain.
All of Adams County and most of Washington State are within the Pacific Flyway; however there are no clearly identifiable landing sites for migratory birds within the City. The most notable migration is of Sandhill Cranes in late March. The birds use surrounding areas, not developed areas within City limits so improvements analyzed in the Plan do not affect migrations.

d. List proposed measures to preserve or enhance wildlife:
Not applicable. Will be evaluated for each project during review.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.
Not applicable. Will be evaluated for each project during review.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, please describe.
Not applicable. Will be evaluated for each project during review.

Agency use only

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts:
Not applicable. Will be evaluated for each project during review.

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, please describe.
Not applicable. Will be evaluated for each project during review.

1) Describe special emergency services that might be required.
Not applicable. Will be evaluated for each project during review. None expected

2) Proposed measures to reduce or control environmental health hazards, if any:
Not applicable. Will be evaluated for each project during review.

b. Noise

1) What types of noise exist in the area which may affect your project (e.g., traffic, equipment, operation, other)?
Not applicable. Will be evaluated for each project during review.

2) What types and levels of noise are associated with the project on a short-term or a long-term basis (e.g., traffic, construction, operation, other)? Indicate what hours the noise would come from the site.
Not applicable. Will be evaluated for each project during review.

3) Proposed measures to reduce or control noise impacts:
Not applicable. Will be evaluated for each project during review.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?
Not applicable. Will be evaluated for each project during review.

b. Has the site been used for agriculture? If so, please describe.
Not applicable. Will be evaluated for each project during review.

c. Describe any structures on the site.
Not applicable. Will be evaluated for each project during review.

d. Will any structures be demolished? If so, please describe.
Not applicable. Will be evaluated for each project during review.

Agency use only

e. What is the current zoning classification of the site?
Not applicable. Will be evaluated for each project during review.

f. What is the current comprehensive plan designation of the site?
Not applicable. Will be evaluated for each project during review.

g. What is the current shoreline master program designation of the site?
Not applicable. Will be evaluated for each project during review.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, please specify.
Not applicable. Will be evaluated for each project during review

i. How many people would reside or work in the completed project?
Not applicable. Will be evaluated for each project during review.

j. How many people would the completed project displace?
Not applicable. Will be evaluated for each project during review.

k. Please list proposed measures to avoid or reduce displacement impacts:
Not applicable. Will be evaluated for each project during review.

l. List proposed measures to ensure the proposal is compatible with existing and projected land uses and plans:
Not applicable. Will be evaluated for each project during review.

9. Housing

a. Approximately how many units would be provided? Indicate whether it's high, middle, or low-income housing.
No housing proposed

b. Approximately how many units, if any, would be eliminated? Indicate whether it's high, middle, or low-income housing.
No housing expected to be eliminated

c. List proposed measures to reduce or control housing impacts:
Not applicable. Will be evaluated for each project during review.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas? What is proposed as the principal exterior building materials?
Not applicable. Will be evaluated for each project during review.

One 2.5 MG reservoir is planned within the next 20 years

b. What views in the immediate vicinity would be altered or obstructed? Agency use only
Not applicable. Will be evaluated for each project during review.

c. Proposed measures to reduce or control aesthetic impacts:
Not applicable. Will be evaluated for each project during review.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
Not applicable. Will be evaluated for each project during review.

b. Could light or glare from the finished project be a safety hazard or interfere with views?
Not applicable. Will be evaluated for each project during review.

c. What existing off-site sources of light or glare may affect your proposal?
Not applicable. Will be evaluated for each project during review.

d. Proposed measures to reduce or control light and glare impacts:
Not applicable. Will be evaluated for each project during review.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?
Not applicable. Will be evaluated for each project during review.

b. Would the project displace any existing recreational uses? If so, please describe.
Not applicable. Will be evaluated for each project during review.

c. Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant:
Not applicable. Will be evaluated for each project during review.

13. Historic and cultural preservation

a. Are there any places or objects on or near the site which are listed or proposed for national, state, or local preservation registers. If so, please describe.
Not applicable. Will be evaluated for each project during review. However, there are currently only two properties on the National Historic Register: Othello Hotel/Old Hotel Art Gallery and First Presbyterian Church of Othello/Othello Museum and Arts Center.

Agency use only

b. Please describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.
Not applicable. Will be evaluated for each project during review.

c. Proposed measures to reduce or control impacts:
Not applicable. Will be evaluated for each project during review.

14. Transportation

a. Identify the public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.
Not applicable. Will be evaluated for each project during review.

b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?
Not applicable. Will be evaluated for each project during review.

c. How many parking spaces would the completed project have? How many would the project eliminate?
Not applicable. Will be evaluated for each project during review.

d. Will the proposal require new roads or streets, or improvements to existing roads or streets, not including driveways? If so, please describe and indicate whether it's public or private.
Not applicable. Will be evaluated for each project during review.

e. Will the project use water, rail, or air transportation? If so, please describe.
Not applicable. Will be evaluated for each project during review.

f. How many vehicular trips per day would be generated by the completed project? Indicate when peak traffic volumes would occur.
Not applicable. Will be evaluated for each project during review.

g. Proposed measures to reduce or control transportation impacts:
Not applicable. Will be evaluated for each project during review.

15. Public services

a. Would the project result in an increased need for public services (e.g., fire protection, police protection, health care, schools, other)? If so, please describe.
Not applicable. Will be evaluated for each project during review

b. Proposed measures to reduce or control direct impacts on public services:
Not applicable. Will be evaluated for each project during review.

16. Utilities

a. Circle the utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.
Not applicable. Will be evaluated for each project during review.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on or near the site:
Not applicable. Will be evaluated for each project during review.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Anne Herring Date Submitted: 8-31-17

D. SEPA Supplemental sheet for non-project actions

Agency use only

Instructions:
Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment. When answering these questions, be aware of the extent of the proposal and the types of activities likely to result from this proposal. Please respond briefly and in general terms.

1. How would the proposal increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?
   The proposal is to adopt the City of Othello Water System Plan (WSP), dated 2017, which provides a plan for continued and improved public water service. It is unlikely that adoption of the WSP will increase the production, storage, or release of toxic or hazardous substances or long-term noise production. If water system improvement projects in the WSP are implemented, noise and emissions to air would temporarily increase during construction.

   Proposed measures to avoid or reduce such increases are:

   a. *Compliance with environmental review and implementation requirements applicable to water system improvement projects included in the WSP (i.e., SEPA and NEPA if applicable).*
   b. *Requiring private and public project proposals in the water system service area to comply with applicable environmental review and implementation regulations.*
   c. *Obtaining permits for water system improvement projects in the WSP from agencies with jurisdiction applicable to water quality, air quality, noise, and toxic or hazardous substances (i.e. Dept. of Ecology, Dept. of Health, etc.)*
   d. *Requiring control measures during construction of water system improvement projects in the WSP and requiring contractors of same to be responsible for implementing appropriate measures during construction in compliance with environmental regulations, including those related to air emissions, noise and discharge to water and production, storage, or release of toxic or hazardous substances.*

2. How would the proposal be likely to affect plants, animals, fish, or marine life?
   If adopted, the WSP will facilitate growth resulting from the provision of continued and improved public water service. Therefore, adoption of the WSP could indirectly affect plants, animals, fish or marine life. In addition, water system improvement projects included in the WSP could have a direct impact on these environmental elements.

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

a. *Compliance with environmental review and implementation requirements applicable to water system improvement projects included in the WSP (i.e., SEPA and NEPA if applicable).*
b. *Requiring private and public project proposals in the water system service area to comply with applicable environmental review and implementation regulations.*
c. *Requiring contractors of water system improvement projects in the WSP to be responsible for implementing appropriate measures during construction in compliance with environmental regulations, including those related to the protection and conservation of plants, animals, fish, or marine life.*
d. *Obtaining permits for water system improvement projects included in the WSP from agencies with jurisdiction applicable to the protection and conservation of plants, animals, fish, or marine life (i.e. Dept. of Ecology, Dept. of Fish & Wildlife, Department of Natural Resources, etc.).*

3. How would the proposal be likely to deplete energy or natural resources?

If adopted, the WSP will facilitate growth resulting from the provision of continued and improved public water service. Therefore, adoption of the WSP could indirectly affect energy or natural resources. In addition, water system improvement projects included in the WSP could have a direct impact on the same environmental elements.

Proposed measures to protect or conserve energy and natural resources are:

a. *Measures may include public conservation education and use of energy efficient materials when economically and otherwise feasible.*
b. *Compliance with environmental review and implementation requirements applicable to water system improvement projects included in the WSP (i.e., SEPA and NEPA if applicable).*
c. *Requiring private and public project proposals in the water system service area to comply with applicable environmental review and implementation regulations.*
d. *Requiring contractors to be responsible for implementing appropriate measures during construction in compliance with environmental regulations, including those related to the protection and conservation of energy and natural resources.*
e. *Obtaining permits for water system improvement projects included in the WSP from agencies with jurisdiction applicable to the protection and conservation of energy and natural resources. (i.e. WA. Dept. of Natural Resources, Dept. of Ecology, etc.).*

4. How would the proposal use or affect environmentally sensitive areas or those designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

There are very few environmentally sensitive areas with the City. All projects will be evaluated for impacts during the review process.

Proposed measures to protect such resources or to avoid or reduce impacts are:

a. *Compliance with environmental review and implementation requirements applicable to water system improvement projects included in the WSP (i.e., SEPA and NEPA if applicable).*
b. *Compliance with City of Othello critical areas regulations.*
c. *Requiring private and public project proposals in the water system service area to comply with applicable environmental review and implementation regulations.*
d. *Obtaining permits from agencies with jurisdiction applicable to water system improvement projects included in the WSP, including those related to environmentally sensitive areas (i.e. Dept. of Ecology, Dept. of Fish & Wildlife, Department of Natural Resources, etc.).*
e. *Requiring contractors of water system improvement projects in the WSP to be responsible for implementing appropriate measures during construction in compliance with environmental regulations, including environmentally sensitive areas or areas designated or eligible or under study for governmental protection.*

5. How would the proposal be likely to affect land and shoreline use? Will it allow or encourage land or shoreline uses incompatible with existing plans?
If adopted, the WSP will facilitate growth resulting from the provision of continued and improved public water service. Therefore, adoption of the WSP could indirectly affect land and shoreline use. In addition, water system improvement projects included in the WSP could have a direct impact on the same environmental elements.

Proposed measures to avoid or reduce shoreline and land use impacts are: Agency use only

a. *Following plans, priorities, guidelines, and rules in the Comprehensive Plan and Municipal Code*
b. *Requiring private and public project proposals in the water system service area to comply with the Comprehensive Plans, Municipal Code, and other applicable review and implementation regulations.*
c. *Compliance with environmental review and implementation requirements applicable to water system improvement projects included in the WSP (i.e., SEPA and NEPA if applicable).*

6. How would the proposal be likely to increase demands on transportation or public services and utilities?
If adopted, the WSP will facilitate growth resulting from the provision of continued and improved public water service. Therefore, adoption of the WSP could indirectly increase

demands on transportation or public services and utilities. In addition, water system improvement projects included in the WSP could have a direct impact on the same public demands.

Proposed measures to reduce or respond to such demand(s) are:

a. *Following plans, priorities, guidelines, and rules in the Comprehensive Plan and Municipal Code*
b. *Requiring private and public project proposals in the water system service area to comply with the Comprehensive Plans, Municipal Code, and other applicable review and implementation regulations.*
c. *Compliance with environmental review and implementation requirements applicable to water system improvement projects included in the WSP (i.e., SEPA and NEPA if applicable).*

7. Identify whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The Washington State Department of Health must approve the WSP. In addition, the City will comply with environmental review and implementation requirements applicable to water system improvement projects included in the WSP. Therefore, the proposal to adopt the City of Othello Water System Plan (WSP) to provide continued and improved public water service is unlikely to conflict with local, state, or federal laws or requirements for the protection of the environment.