



**Oak Lodge Water District Office  
14496 SE River Road  
Oak Grove, OR 97267  
September 19, 2017 at 6:00 p.m.**

1. Call to Order and Flag Salute
2. Introduction of future General Manager: Sarah Jo Chaplen
3. Call for Public Testimony

Members of the public are welcome to testify for a maximum of three minutes on each agenda item.

4. Presentations
  - Clackamas River Water Providers (Kim Swan)
  - OLWSD Education and Outreach (Lara Christensen)
5. Resolution to adopt OLWSD Design and Construction Standards
6. Clackamas 800 Radio Group Lease Agreement
7. Consider approving Director Gibson to comment on proposed Clackamas County Coordinating Committee (C4) Bylaws
8. Consent Agenda
  - July 2017 Financial Reports
    - Approval of Water July 2017 Check Run
    - Approval of Sanitary July 2017 Check Run
  - August 9, 2017 Board Meeting Minutes
  - August 10, 2017 Board Meeting Minutes
  - August 14, 2017 Board Meeting Minutes

- August 15, 2017 Board Meeting Minutes
- August 24, 2017 Board Meeting Minutes
- August 31, 2017 Board Meeting Minutes

9. Department Reports

- Finance
- Field Operations
- Plant Operations
- Technical Services

10. Call for Public Comment

11. Business from the Board

12. Adjourn



## AGENDA ITEM

---

**Agenda Item:** Introduction of future General Manager Sarah Jo Chaplen  
**Item No.:** 2  
**Presenters:** Board

---

### **Background:**

The Board of Directors has hired Sarah Jo Chaplen as the next General Manager of Oak Lodge Water Services District. This time will be used to introduce her to the public. Sarah Jo's first day working at the District will be September 27<sup>th</sup>.



## AGENDA ITEM

---

<b>Agenda Item:</b>	Call for Public Testimony
<b>Item No.:</b>	3
<b>Presenters:</b>	N/A

---

### **Background:**

Members of the public are invited to identify agenda items on which they would like to comment or provide testimony. The Board may elect to limit the total time available for public comment or for any single speaker depending on meeting length.



## STAFF PRESENTATION

---

**To:** Board of Directors  
**From:** Lara Christensen, Outreach & Program Specialist, OLWSD  
Kim Swan, Water Resource Manager, CRWP  
**Agenda Item:** Outreach and Education Presentation  
**Item No.:** 4  
**Date:** September 19, 2017

---

### Background

To better inform the public on what each of the District functions are, Staff perform presentations from time-to-time. This month, Education and Outreach is being highlighted.

### **Public Outreach and Education & Public Involvement and Participation Programming:**

Oak Lodge Water Services provides comprehensive public outreach and education as well as public involvement and information for district residents, as based on federal and state requirements of the Clean Water Act and the Safe Drinking Water Act. Staff responsible for these programs will present an overview of the programs and take questions from the board.

As amended in 1972, the law became commonly known as the **Clean Water Act** (CWA). The 1972 amendments: Established the basic structure for regulating pollutant discharges into the **waters** of the United States. Gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry. – <https://www.epa.gov/laws-regulations/history-clean-water-act>

The **Safe Drinking Water Act** (SDWA) is the federal law that protects public **drinking water** supplies throughout the nation. Under the SDWA, EPA sets standards for **drinking water** quality and with its partners implements various technical and financial programs to ensure **drinking water** safety. – <https://www.epa.gov/sdwa>

### **Attachments**

1. Clackamas River Water Providers PowerPoint Presentation
2. Oak Lodge Water Services PowerPoint Presentation

# The Clackamas River Water Providers (CRWP)

*Working together to protect and conserve  
our drinking water*

# Clackamas River Water Providers

- Created in 2007 by an ORS Chapter 190 Agreement
- IGA signors:
  - City of Estacada
  - Clackamas River Water
  - City of Lake Oswego
  - The North Clackamas County Water Commission
  - South Fork Water Board
  - Sunrise Water Authority
  - City of Tigard (2012)

# Clackamas River Water Provider Members

\*Conservation programs and services are provided to these members

\*



\*



\*



\*



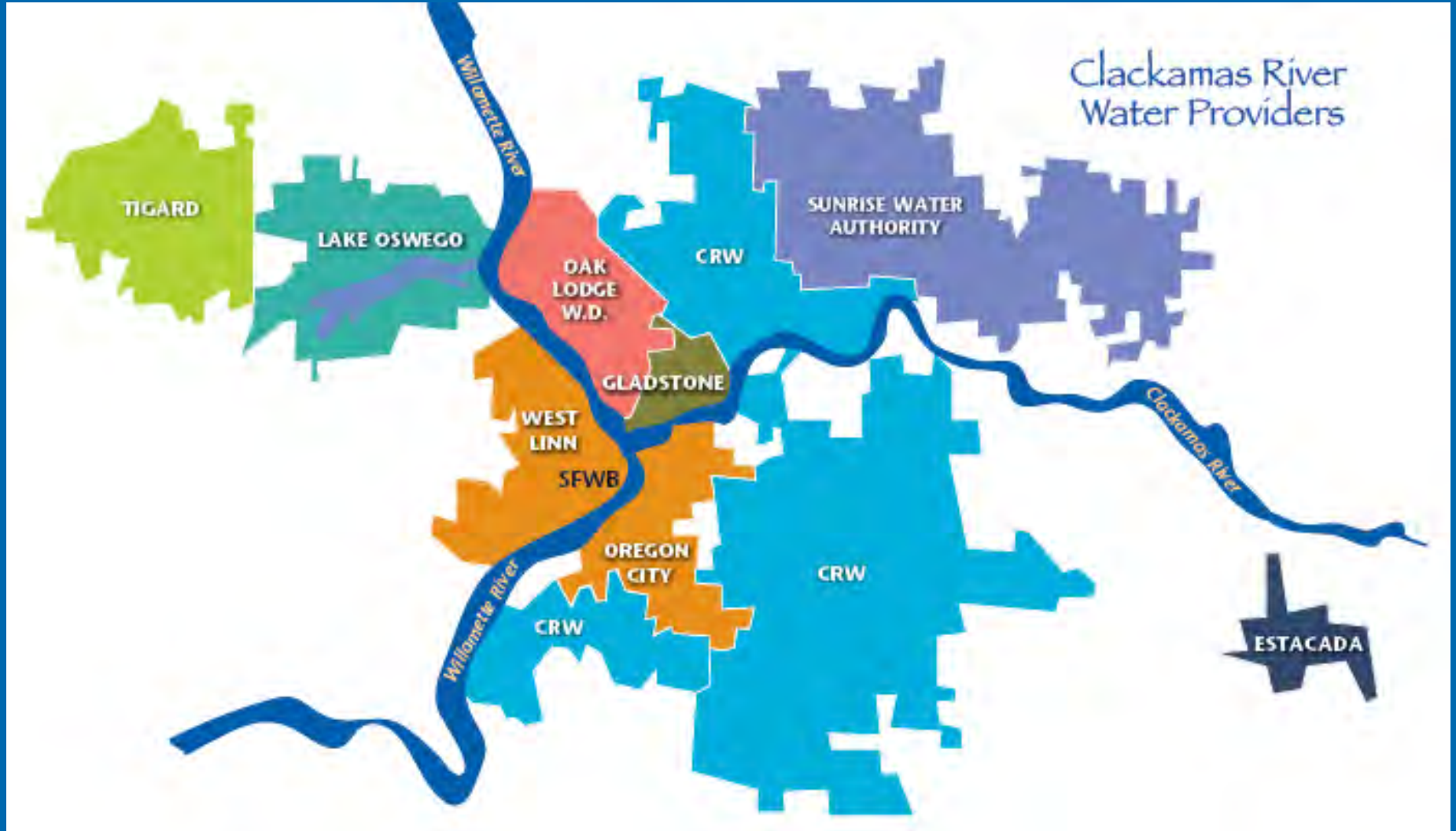
\*



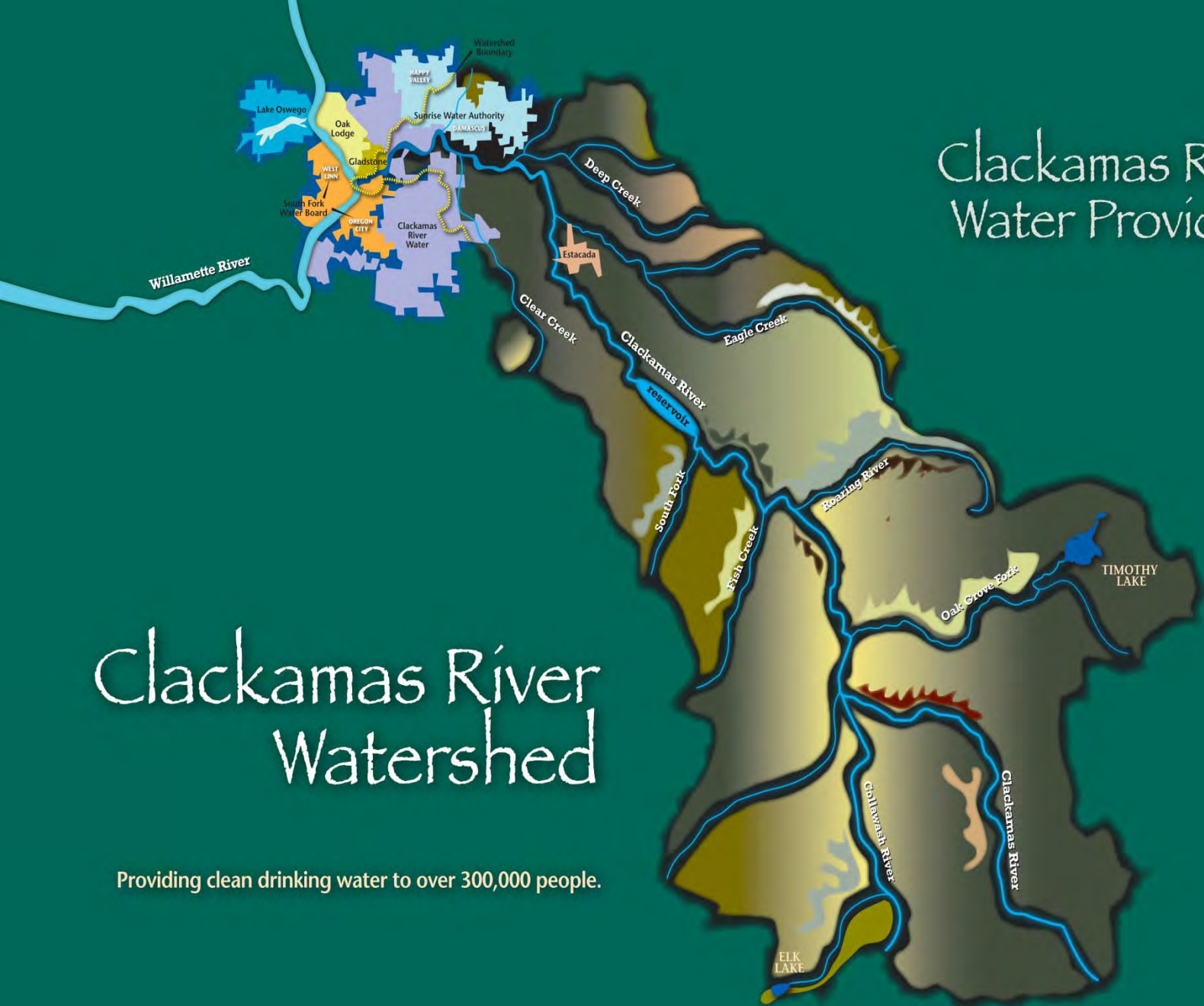
(Oregon City and West Linn)



# Clackamas River Water Providers



# Clackamas River Water Providers



# Clackamas River Watershed

Providing clean drinking water to over 300,000 people.

# CRWP Mission

- To foster closer relationships with each other
- To collectively fund and coordinate efforts regarding source water protection, public outreach and water conservation
- To realize economies of scale and save money by sharing in costs
- To speak in one voice regarding water resource issues

- While through the CRWP projects and staff are jointly funded, each individual organization retains their own individual autonomy.

# How the CRWP Functions

- IGA and By Laws
- CRWP Board
- Bi-monthly Meetings
- 5 year Workplan and Annual Budget Process

# CRWP Programs

- Source Water Protection Program
- Public Outreach & Education Program

# Source Water Protection Program Goals

- Identify, prevent, minimize and mitigate activities that have known or potentially harmful impacts on drinking water quality.
- Promote public awareness and stewardship of healthy watershed ecology in collaboration with other stakeholders.


# CRWP Watershed Programs

- Studies, Risk Assessments, Water Quality Monitoring
- Hazardous Material Spill Prevention Efforts
- Pesticide Reduction Program
- Septic System Program
- Drug Take Back Boxes
- Recreation mitigation
- Water Quality Permits
- Forestry and PGE Efforts
- Disaster Preparedness



# Pesticide Reduction Program

**FIELD TO FAUCET**  
**A Partnership for Clean Water  
 in the Clackamas River Watershed**



Supported by the Clackamas River Water Providers and the Clackamas Soil and Water Conservation District

Pesticide WISE	PLEDGE TODAY!	Pesticide FREE
	<p>Protect bees, butterflies, and other critters as well as pets, children, and your drinking water when you take the 'Parting with Pesticides' Pledge and receive a FREE yard sign!</p>	
 <p>Clackamas River Basin Council            PO Box 1869            Clackamas, OR 97015            (503) 303-4372  <a href="http://www.ClackamasRiver.org">www.ClackamasRiver.org</a>  <a href="mailto:info@clackamasriver.org">info@clackamasriver.org</a></p>		<p>NONPROFIT ORG            US POSTAGE PAID            CLACKAMAS, OR            PERMIT NO. 47</p>
<p>Free Pesticide WISE or Pesticide FREE Yard Sign!</p>		
		

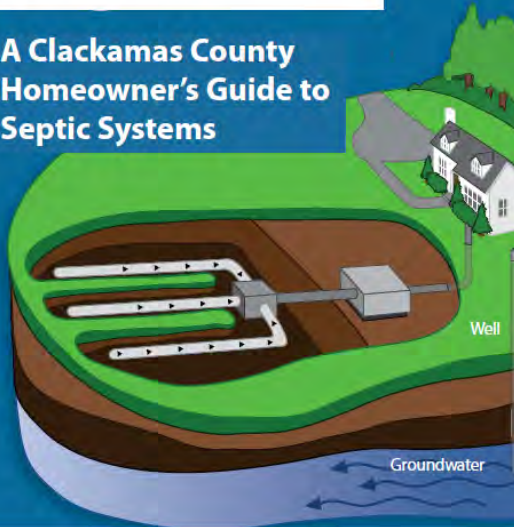
**Take the Pledge**  
 Parting with Pesticides




# Septic System Program

Do your Part —  
Be SepticSmart!

A Clackamas County  
Homeowner's Guide to  
Septic Systems



Based on: EPA **septicSMART**  
U.S. Environmental Protection Agency

Sponsored by: Clackamas River Water Providers Conservation District  
 DEQ  
 CANBY UTILITY  
 CLACKAMAS COUNTY

5 Things You Should  
Ask Before Buying  
a Home With  
a Septic System



Your partners in clean water:



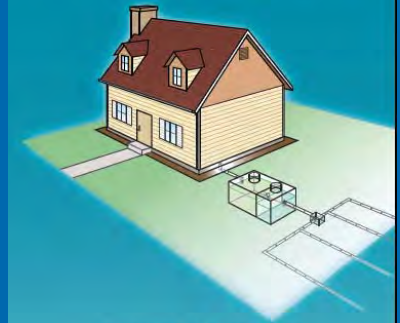
## SEPTIC SYSTEM MAINTENANCE

A Clackamas County guide  
to the proper care and  
maintenance of your Onsite  
Wastewater Treatment  
System



## Financial Assistance For Septic System Owners

in the Clackamas River Watershed



A properly functioning  
septic system can save you  
money and help protect our  
water quality.



# Recreation and PPCP

## DID YOU KNOW?

The Clackamas River provides drinking water to almost 300,000 people.



Simple ways you can help us protect our drinking water source!

## DID YOU KNOW?

The Clackamas River provides drinking water to almost 300,000 people.



## Help us protect our drinking water source!

- Stash your trash
- Clean-up after your pets
- Stay on trails - It helps keep stream bank from eroding
- Use restroom! Keep human waste out of the river
- Adopt clean boating practices

The Clackamas River belongs to us all.

Please use it wisely.



Clackamas River Water Providers  
Working together to protect and conserve our drinking water.



## How to properly DISPOSE

of unwanted or expired medications






Drop-Off Locations & Hours

# Hazardous Materials Program

Clackamas River  
**drinking water**  
protection

Learn how you can help to prevent spills  
& protect our drinking water source



## REPORT SPILLS CALL 911



**Help us protect your drinking water**  
The Clackamas River supplies high quality drinking water for over 300,000 people in Clackamas and Washington Counties.

**REPORT HAZARDOUS SPILLS** or discharges of wastewater into a storm sewer system by calling 9-1-1, and ask the dispatcher to notify Water Environment Services (WES). For other spill or pollution related questions contact WES at 503-742-4567. Facilities may also need to contact OERS (Oregon Emergency Response System) at 800-452-0311.

**PLAN AHEAD**  
Facilities storing dangerous or hazardous materials are encouraged to add spill kits, install secondary containment equipment, and develop spill response plans.

**ON-SITE EMERGENCY CONTACT**

NAME:	TITLE:
PHONE:	EMAIL:
NOTES:	SPILL RESPONSE CONTRACTOR:




## Clackamas River Water Providers Financial Assistance Program



**Spill Prevention Cost Share**

**What does it cover?**  
50% of the cost to purchase and/or install secondary containment equipment, up to \$1,000. Equipment may include spill kits, spill pallets, double walled tanks, repairs to floor drains, installation of shut-off valves, and construction of berms.

**Who is eligible?**  
Businesses located in the Clackamas Industrial Area and up-stream from Clackamas River Water Providers drinking water intakes. Funding is available first come, first served, until program funds are depleted.

**How do I apply?**  
Complete the application on page two, and follow the instructions.

**Eligibility Requirements**

- Secondary containment or spill prevention devices must provide 110% containment of the largest container, or 10 percent of the total volume stored at the location, and constructed of impervious materials or coated with a chemical resistant coating compatible with the hazardous material being stored.
- Constructed containment may include cast-in-place, extruded concrete berms, or pre-manufactured synthetic or fiberglass berms. Installation of recessed floor sumps or recessed containment trenches or receptacles.
- Repair work, or purchase and installation of materials has to have been completed within the last six (6) months to qualify.
- For Cost Share Program provide CRWP with a receipt or invoice and documentation (photos) of the work completed or equipment purchased for reimbursement.

**Questions?**  
If you are not sure if your business is located within the watershed, or want to learn more about free technical assistance, email [kims@clackamasproviders.org](mailto:kims@clackamasproviders.org) or call 503-723-3510.

For more information visit [www.clackamasproviders.org](http://www.clackamasproviders.org)





# Public Education & Outreach Program Goals

- To educate our public regarding source water protection and watershed issues, nonpoint source pollution, drinking water treatment and distribution, indoor and outdoor water use, and water conservation.
- This allows us to provide a holistic view of how our water resources are connected and why it is important to protect and conserve the water we get from the Clackamas River.

# Public Outreach & Water Conservation Programs

- Youth Education
- Partnerships
- Community events and presentations
- Conservation Rebate Program
- Residential Landscape Water Audits
- Outreach materials and conservation tools

# General Outreach

Do you know the value of your tap water?

Clackamas River Water Providers  
Working together to protect and conserve our drinking water.

## The Clackamas River Watershed

Providing a drinking water supply to nearly 400,000 people

Clackamas River Water Providers  
Working together to protect and conserve our drinking water.

July 2016 News

### Water Supply Update Summer 2016

During the summer months we think about water. Lots of water... like, swimming in pools, washing our cars, watering our gardens and running our sprinklers. But, did you ever stop to think that summer is a time when our region's water supply is most strained and resources are limited? This winter, snow packs reached their peak in April but early warm temperatures resulted in early snow melt and warmer than usual temperatures are expected to continue through September. Though it has been a bit cooler and we've had some rain, let's not forget conditions can change. As much as we all love summer, it's important that we use water wisely during these warm, dry months.

Conserving our precious water source, the Clackamas River is a big job, but easily accomplished when we all help. Visit the CRWP website at [www.clackamasproviders.org](http://www.clackamasproviders.org) and find helpful outdoor and indoor water saving tips and take advantage of our rebate program and receive up to \$485 in rebates.

#### What's Inside:

Water Supply	P1
Landscapes	P2
Quality/Lead	P2
Water Smart Rebates	P3
Summer Quiz	P3
Interview	P4
Water Protection	P5

### Water Efficient Landscaping

Developing a low water use, low maintenance landscape begins with an analysis of your landscape conditions. This can be done by you or a landscape professional that can provide advice and/or do the entire landscape plan for you. There are also a number of books available to help you develop a landscape plan.

**Site Analysis.** To begin a site analysis start by creating a list of your property using graph paper to position your house, walls, patios, trees, fences, etc. Highlight everything that privacy, view, outdoor activities, sun, shade etc. Look at soil wind patterns, topography and orientation, existing water precipitation, water data, landscape purposes, and irrigation.

With tracing paper over the base map, take into consideration needs you determined earlier (play area, patio) and show negative factors that play a role in the existing landscape you select and group plants in the right place.

**Getting into the Zone.** Use of landscape and watering zone because different plants have different watering needs and

different micro-climates. Zoning your landscape low-water use zones. Irrigation is only used here when new plants are added so they can get established. Moderate water use zone plants in this area require a little more water than nature can provide. High water use zones are where thirsty plants such as turf, vegetable gardens, and annuals are planted.

Christine Hollenbeck Public Education and Conservation  
Kim Swan Water Resource

## From the forest to the tap

Clackamas River Water Providers

## How Water Systems Work

Providing clean, safe, drinking water 365 days a year.

Clackamas River Water Providers

We are the beneficiaries of a magnificent water network handed down to us by previous generations.

## Protecting Water Quality SOURCE to TAP

Safe drinking water is our top priority. Your drinking water is monitored and protected, from source to tap.

Infographic concept courtesy of Willamette Water Supply Program.

# Conservation Program

**YOUR WATER CYCLE**  
www.clackamasproviders.org

Condensation & Precipitation  
Evaporation  
Water Collection  
Water Treatment  
Water Storage  
Water Transmission  
Wastewater  
Return Flow

Did you know that the water you're using is always on the move?

Because Earth's water is always on the move it gets recycled **over and over.**

**Do your PART, be water smart!**

- **Water your garden** before 10am and after 6pm when temperatures are cooler
- **Adjust your sprinklers** so they are watering your plants and lawn not sidewalks and walkways
- **Wash only full loads** of laundry and dishes
- **Turn the faucet off** while brushing your teeth
- **Sweep your sidewalks and drive ways** instead of spraying them off with water

REGIONAL WATER TREATMENT CORPORATION  
Clackamas River Water Providers

## "How I Can Protect and Conserve My Drinking Water"

This year's winning drawing is by **Alexis Clark**, age 10 and **Claire Furness**, age 10  
Holcomb Elementary • Teacher: Mrs. Harrington, 4th grade



Water Conservation Calendar 2018 Clackamas River

**WATER LEAN GROW GREEN**

Clackamas River Water Providers  
clackamasproviders.org


**Back to Basics**




# Rebates and Landscape Audits

UP TO \$485 IN  
**rebates!**  
Clackamas  
river  
water  
providers  
are offering 6  
water conservation  
rebates\*

\* Up to \$485 in rebates available!




Make  
every DROP  
COUNT!




offering

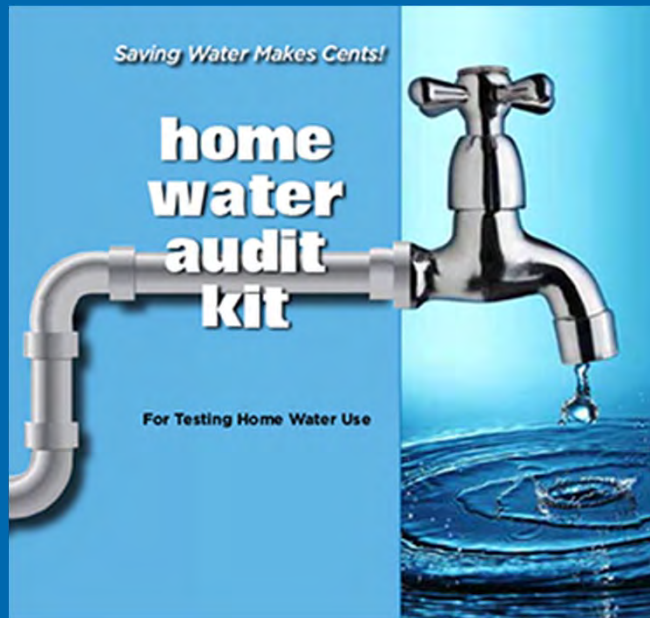
**FREE**  
**Residential**  
**Landscape**  
**Water**  
**Audits**



Assess your lawn, garden  
and irrigation systems



# Conservation Tools



- Leak Detection Tablets
- Toilet Displacement Bag
- Faucet Aerators
- Shower Heads
- Shower timers
- Watering Gauge
- Hose Nozzles

# Visit us at [www.clackamasproviders.org](http://www.clackamasproviders.org)



Working together to protect and conserve our drinking water.

[Home](#) - [About](#) - [Watershed Protection](#) - [Water Conservation](#) - [News and Resources](#) - [Contact](#)



## What's New?



### Get a FREE Landscape Water Audit

NEW this summer season participating Clackamas River Water Providers members are offering FREE landscape water audits.

### Help Save Water and Money!

Saving water and saving money is what a landscape water audit is all about. Our landscape Auditor will assess your lawn and garden areas, irrigation system and more. When the audit is complete you will receive a detailed report with recommendations.

Not all CRWP members are eligible, view our [brochure](#) for more information and customer eligibility. You may contact Christine at [christine@clackamasproviders.org](mailto:christine@clackamasproviders.org) or call 503 723 3511 for more information.

### [New](#) [The 2016 CRWP Drinking Water Customer Survey – On Source Water Protection](#)



#### Water Conservation

Except for the air we breathe, water is the single most important element of our lives. It is too precious to waste. Regardless of the availability of water now and in the future, we must get the most for our [current supply](#).



#### Our Programs

The Clackamas River Water Providers are implementing a [variety of programs](#) to protect and conserve our water resources. These include water conservation programs, watershed programs, and water quality programs.



#### Watershed Protection

Sustaining a precious resource a top priority. By preserving the Clackamas River as a high quality drinking water source we can help minimize future drinking water treatment costs, while being good stewards of the river.

[Newsletter Signup](#)  
[Newsletter](#)  
[Annual Report](#)  
[How Water Systems Work](#)  
[Interactive Map](#)

[Home](#)  
[About Us](#)  
[Watershed Protection](#)  
[Water Conservation](#)  
[CRWP News](#)  
[Contact Us](#)

© ClackamasProviders.org

**Kimberly Swan**

**Water Resource Manager**

Clackamas River Water Providers

14275 S. Clackamas River Rd.

Oregon City, OR 97045

(503) 723-3510

(503) 723-3508 (fax)

[kims@clackamasproviders.org](mailto:kims@clackamasproviders.org)

**Christine Hollenbeck**

**Public Education & Outreach  
Coordinator**

Clackamas River Water Providers

14275 S. Clackamas River Rd.

Oregon City, OR 97045

(503) 723-3511

(503) 723-3508 (fax)

[christine@clackamasproviders.org](mailto:christine@clackamasproviders.org)



## Education & Outreach and Public Involvement & Participation

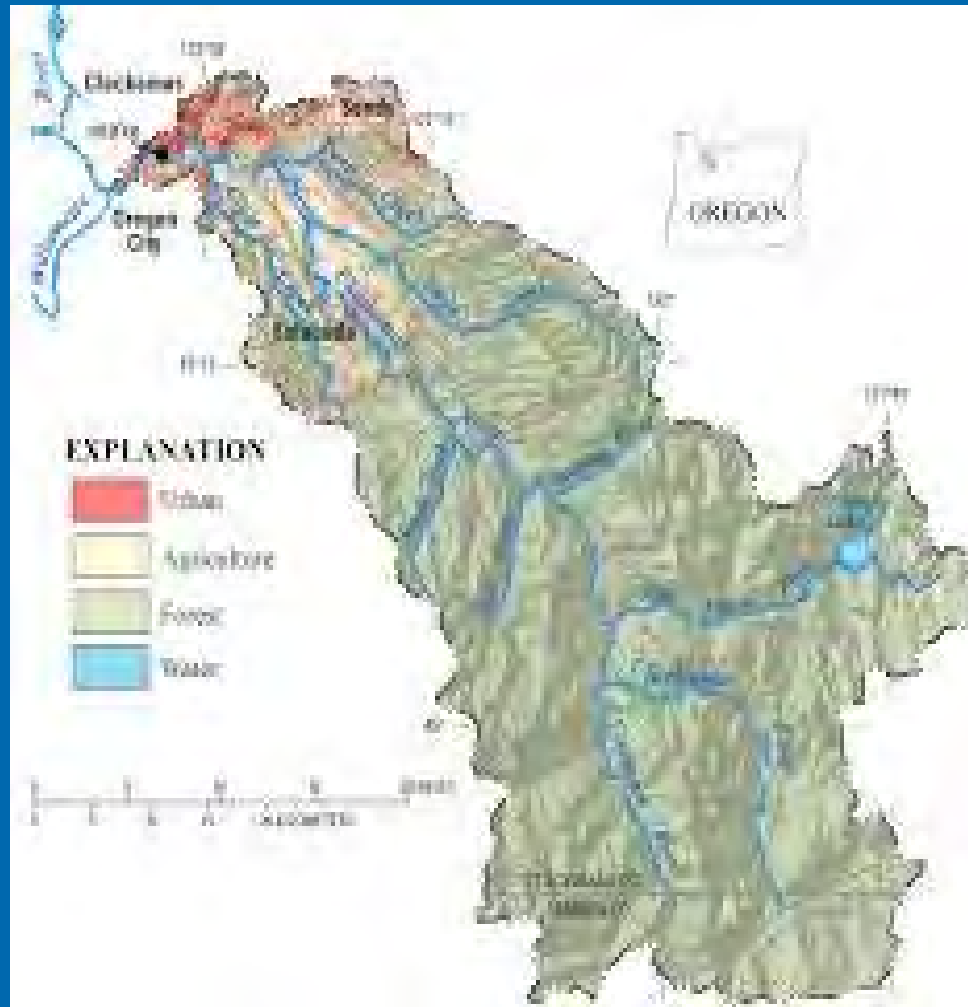


[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

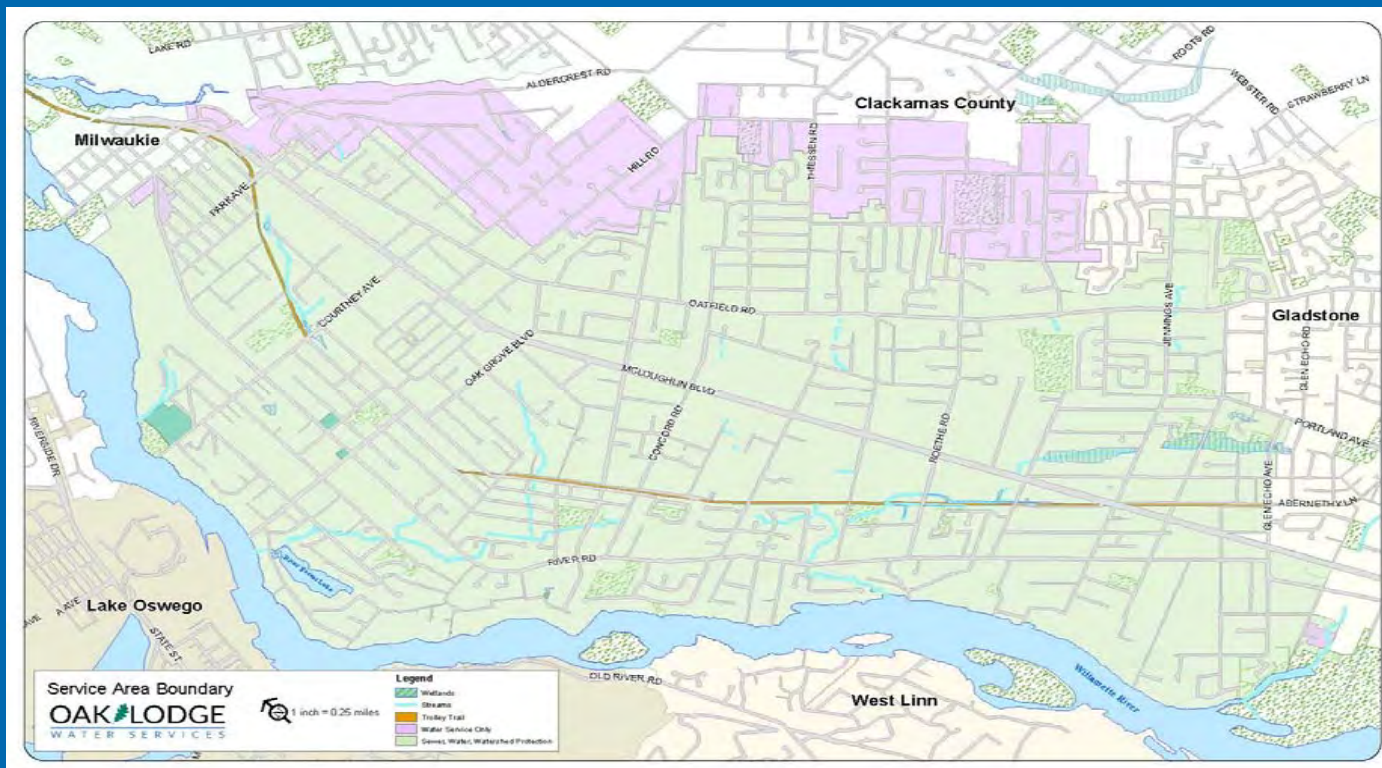
# Federal and State Regulations

- Clean Water Act (1972)
- Safe Drinking Water Act (1974)

# Safe Drinking Water Act = CRWP



# Clean Water Act = OLWS NPDES MS4 Permitting Program





➤ OLWS operates under the EPA's:

- \* National Pollutant Discharge Elimination System's (NPDES)

- \* Municipal Separate Storm Sewer System (MS4) Discharge Permit

- \* Non-point source pollution

# NPDES MS4 Permit shared with 13 co-permittees

Co-permittees include:

- \* Clackamas County
- \* City of Gladstone
- \* City of Happy Valley
- \* City of Johnson City
- \* City of Lake Oswego
- \* City of Milwaukie
- \* City of Oregon City

- \* City of Rivergrove
- \* City of West Linn
- \* City of Wilsonville
- \* **Oak Lodge Water Services**
- \* CCSD #1
- \* Surface Water Management Agency  
of Clackamas County



[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

MS4 Permit:  
requires a  
Storm Water  
Management  
Plan (SWMP)  
& “Minimum  
measures”

# 6 original Minimum Control Measures *plus*:

- Construction Site Runoff Control
- Illicit Discharge Detection and Elimination
- Pollution Prevention/Good Housekeeping
- Post-Construction Runoff Control
- *Public Education and Outreach*
- *Public Involvement/Participation*
- Program Effectiveness
- Total Maximum Daily Loads

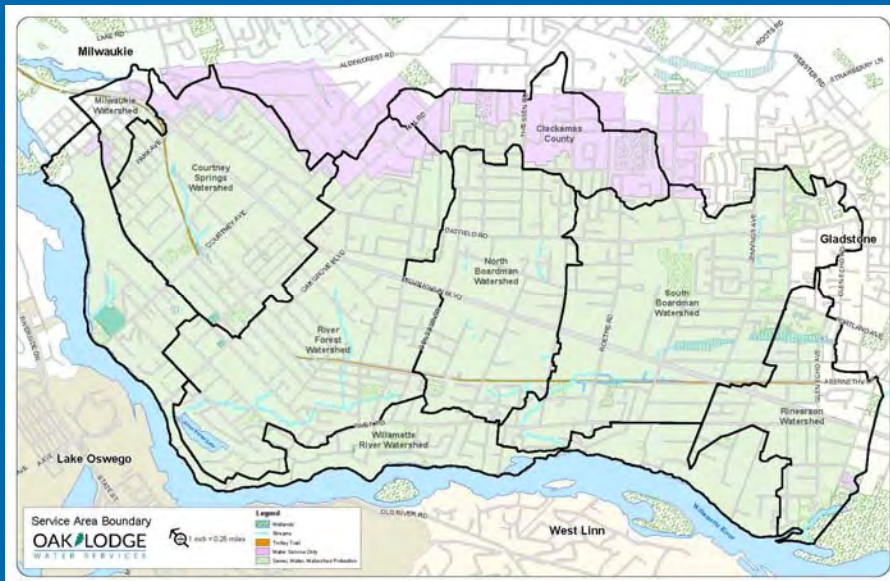
# How the OLWS SWMP Functions:

- District allocates FTE to cover the requirements of the permit
- FTE includes staff for minimum measures and additional requirements
- Under the Technical Services Department
- Storm Water Management “Team” implements the SWMP programs and reports back

# Public Education & Outreach Implementation Goals

- Create an informed and knowledgeable community that disposes of materials with the intent of controlling stormwater pollution
- Make district residents aware of how their behavior and actions either pollute or protect our waterways

# OLSD Education and Outreach



- Public Education and Outreach – Reduction of Common Discharges
- Privately Owned SWM Facility Education
- Effectiveness Evaluation
- Employee Training
- Public Involvement and Participation

# Reduce common discharges:

Goal to track program messages delivered, type of communication, and numbers affected.



Pesticides



Herbicides



Fertilizers



# *Influencing Behaviors!*

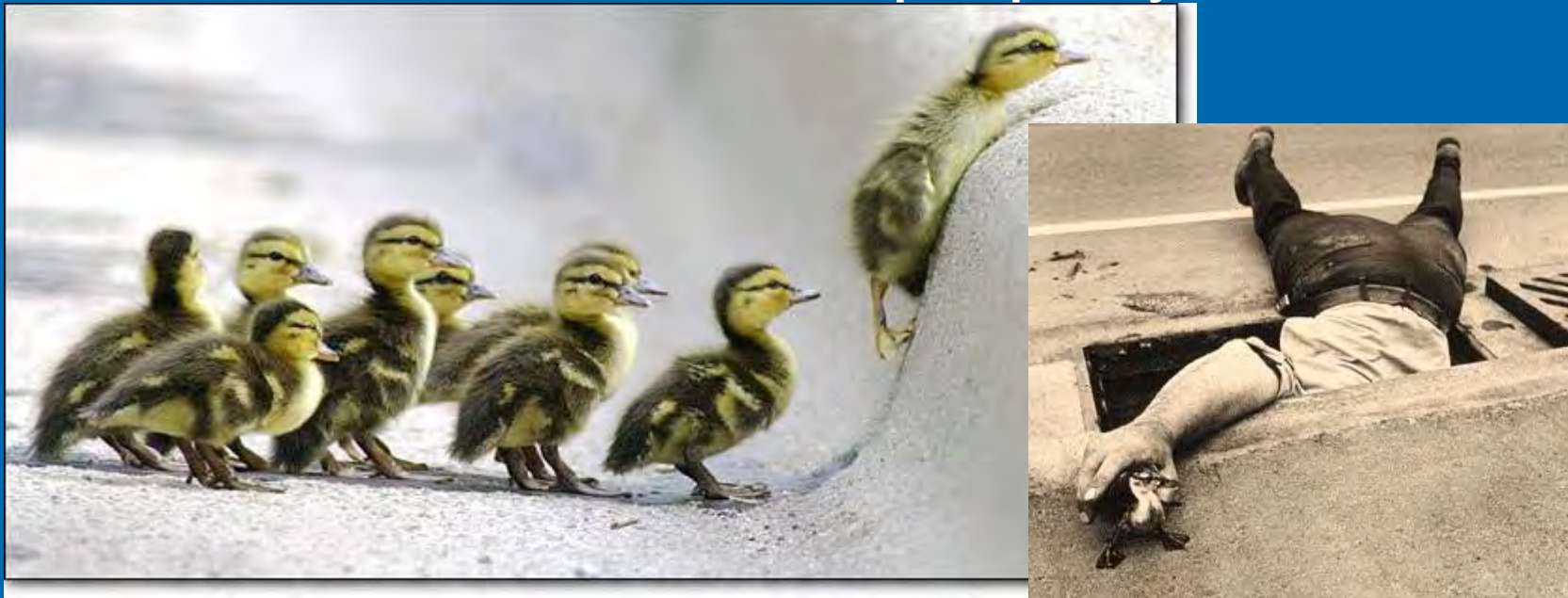
- littering
- disposing of trash and recyclables
- disposing of pet-waste,
- applying lawn-chemicals
- washing cars
- changing motor-oil
- disposing leftover paint and household chemicals.



From the EPA website: <https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>

# Privately Owned SWM Facility Education

- Participation in the Stormdrain Cleaning Assistance Program (SCAP)
- Mailers sent to 200+ property owners



# Effectiveness Evaluation

Provide/compile information regarding a public education effectiveness evaluation over the permit term



Report on activities annually



# Employee Training

- Track the number of employees receiving training in SWM annually
- Attend relevant stormwater management related training based on need and availability



# Public Involvement/Participation Goals

- Engage community through opportunities to participate
- Form partnerships
- Combine efforts to encourage co-permittees to work towards the same stormwater goals



# Use Community Capital

- Public involvement builds on community capital—the wealth of interested citizens and groups—to help:
  - prevent stormwater pollution,
  - undertake group activities that highlight storm drain pollution, and
  - contribute volunteer community actions to restore and protect local water resources.

➤ From the EPA website:<https://www.epa.gov/npdes/stormwater-discharges-municipal-sources#publiceducation>

# Request and receive public input on:

- The SWMP
- The pollutant load reduction benchmarks
- Other required documents...  
... prior to the permit renewal deadlines.



*“The benefits of public education efforts cannot be understated, especially on topics such as ‘nonpoint source’ or ‘stormwater’ pollution.”*

From the EPA website: <https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>





# OLWS Outreach Strategy

- OLWS cultivates relationships with community partners, which allows the District to meet permit requirements effectively within a streamlined program budget.
- By working with many partners, OLWS broadens community awareness of our impacts on water quality.



# OLWS Education/Outreach Partners

- Audubon's Backyard Habitat Program
- Clackamas County Water Education Team
- Clackamas River Water Providers
- Clean Rivers Coalition
- Customers/Public
- Dig In (formerly SOLVE)
- Ecology in Classrooms and Outdoors (ECO)
- North Clackamas Urban Watershed Council (NCUWC)
- Schoolyard Farms
- School partners:
  - Candy Lane Elementary
  - New Urban ES
  - Oak Grove ES
  - Riverside ES
  - View Acres ES
  - Rex Putnam High School





**Lara Christensen**

**Outreach & Program Specialist**

Oak Lodge Water Services

14496 SE River Rd.

Oak Grove, OR 97267

(503) 353-4207

[lara@olwsd.org](mailto:lara@olwsd.org)

<http://www.oaklodgewaterservices.org/sanitary-sewer/page/education-and-outreach>

<http://www.oaklodgewaterservices.org/surface-water>

**OAK LODGE**  
WATER SERVICES  
**STAFF REPORT**

---

**To:** Board of Directors  
**From:** Markus Mead, Development Review Specialist  
**Agenda Item:** Design and Construction Standards  
**Item No.:** 5  
**Date:** Sept 19, 2017

**Background**

The Design and Construction Standards are an essential component of the District's infrastructure. They implement the District's policies and provide guidance to OLWSD staff, developers and District consultants for new utility installation, repairs, inspections and utility performance substantiation, plan document archival and processing.

Design and Construction Standard documents are routinely amended to reflect updated policies, practices, industry standards and technologies. OLSD and OLWD previously had separate "code" which included their respective Design and Construction Standards.

**Overview**

Design and Construction Standards provide guidance on both designing and construction of sanitary sewer, surfacewater, and water. This document is separated into Divisions and Sections. Sections are guidance design-related for design engineers / applicants and staff to apply. Divisions are guidance construction-related for inspectors and contractors to follow. Sanitary sewer and water detail drawings are included.

The proposed document includes greater detail than previous documents and will greatly increase the Districts' utility systems integrity by providing design engineers with clear standards and reducing error potential by District staff.

Highlights of the changes to OLSD's past Design and Construction Standards include:

- The addition of water as a utility
- Re-introduction of PVC as an acceptable material for sanitary mains and laterals
- The addition of Standard Detail drawings for Sanitary and Water
- New Language regarding authority differences between OLWSD and Clackamas County

No fee or revenue changes are included in this document.

**Staff Recommendation**

Staff recommends adoption of the proposed Design and Construction Standards.

**Attachments**

1. Proposed OLWSD Design and Construction Standards
2. Resolution 17-14

**Sample Motion**

*I move to* approve Resolution No. 17-14 adopting the Design and Construction Standards for the Oak Lodge Water Services District effective October 20, 2017.





# **ENGINEERING DESIGN AND CONSTRUCTION STANDARDS**

**SECTION 1 GENERAL DESIGN AND APPLICATION SUBMITTAL REQUIREMENTS**

**SECTION 2 STORMWATER DESIGN**

**SECTION 3 WASTEWATER DESIGN**

**SECTION 4 WATER DESIGN**

**DIVISION 1 GENERAL CONSTRUCTION**

**DIVISION 2 STORMWATER CONSTRUCTION**

**DIVISION 3 WASTEWATER CONSTRUCTION**

**DIVISION 4 WATER CONSTRUCTION**

**DRAWINGS SANITARY DETAILS**

**DRAWINGS WATER DETAILS**

**Staff:**

Jason Rice, PE	Interim General Manager and District Engineer
Todd Knapp	Superintendent, Water
Gary Floyd	Technical Services Specialist
Martin Guenther	Wastewater Inspector
Richard Pauker, CESCL	Stormwater Inspector
Markus Mead, AICP, CESCL	Development Review Specialist



## **ENGINEERING DESIGN AND CONSTRUCTION STANDARDS**

This document is intended to be updated annually. If errors are found, please cite them and submit them to Oak Lodge Water Services Technical Services Department:

Phone: (503) 654-7765

Email: [Permits@OLWSD.org](mailto:Permits@OLWSD.org)

# SECTION 1—GENERAL DESIGN AND APPLICATION SUBMITTAL REQUIREMENTS

## TABLE OF CONTENTS

<b>1.0000 GENERAL</b> .....	<b>1</b>
1.0010 AUTHORITY AND PURPOSE AND ALTERNATIVE DESIGN PROPOSALS .....	1
1.0020 ENGINEERING POLICY .....	2
1.0030 APPLICABILITY AND PERMIT TYPES.....	2
1.0040 CONFLICTING CODES, REGULATIONS, RULES, STANDARDS .....	3
1.0050 STANDARD SPECIFICATIONS .....	3
1.0060 APPROVAL OF ALTERNATE MATERIALS OR METHODS .....	3
1.0070 SPECIAL DESIGN PROBLEMS .....	4
1.0080 REVISIONS TO DESIGN STANDARDS .....	4
1.0090 DEFINITIONS AND ABBREVIATIONS.....	4
<b>1.1000 CONSTRUCTION PLANS</b> .....	<b>11</b>
1.1010 GENERAL INFORMATION.....	11
1.1020 PLAN PREPARATION 11	
1.1021 Sheet Size 12	
1.1022 Scale of Plans 12	
1.1030 REQUIRED SHEETS 12	
1.1031 Title Sheet 12	
1.1032 Plan Sheet 13	
1.1033 Profile Sheet 14	
1.1034 Detail Sheets 15	
1.1040 SUPPORTING INFORMATION .....	15
1.1041 Facility Plan 15	
1.1042 Erosion Control Plan .....	15
1.1043 Information Required on Erosion Control Drawings .....	16
1.1050 PLAN SUBMITTAL AND REVIEW PROCEDURES .....	18
1.1060 AS-BUILT PLAN REQUIREMENTS .....	19
1.1061 Storm Drains 19	
1.1062 Sanitary Sewer 19	
1.1063 Water Main 20	
1.1064 Plan Quality and Miscellaneous Requirements .....	21
1.1065 Permit and Approval Vesting and Amendments .....	22
1.1066 Permit Amendments .....	22
1.1067 Permit Required .....	22
1.1068 Disconnections 22	
1.1069 REPLACEMENT SERVICE LATERAL INSTALLATIONS .....	23
1.1070 Building Sewer Repair .....	23

1.1071 CONNECTION TO CESSPOOLS AND SEPTIC TANKS.....	23
1.1072 Sanitary Sewer Backflow .....	23
1.1073 Ownership And Acceptance And Bonding.....	24
1.1074 Inspections and Authority.....	24
1.1075 Inspection Request .....	25
1.1076 installation Without Inspection .....	25
END OF SECTION	27

## **1.0000 GENERAL**

---

### **1.0010 AUTHORITY AND PURPOSE AND ALTERNATIVE DESIGN PROPOSALS**

The District's Design and Construction Standards establish and provide specific, technical direction for the design and construction of public sanitary sewer, public water and public and private watershed protection projects. Through the adoption of these standards, the District endorses a comprehensive set of design and construction practices that are designed to deliver high quality improvements to the District's customers.

Infrastructure improvements are conditioned through the Clackamas County development review, and/or building permit, and/or plumbing permit, and/or District-specific permit process, these standards, and other District policies adopted by the District. No relevant utility or infrastructure construction shall commence prior to the District approval of the construction plans. Designs submitted shall be stamped by a Registered Professional Engineer licensed to practice by the State of Oregon.

The purpose of these Design Standards is to provide a consistent policy under which certain physical aspects of public facility design are constructed. Most of the elements contained in these standards are Infrastructure oriented and it is intended that they apply to both public improvements under District contract and public improvements under private contract designated herein.

These Design Standards cannot provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. It is expected that engineers will bring to each project the best of skills from their respective disciplines.

The Design Standards are also not intended to unreasonably limit any innovative or creative effort, which could result in better quality, better cost savings, and/or better life cycles. Any proposed departure from the Design Standards will be judged, however, on the likelihood that such departure will produce a compensating or comparable result in every way adequate for the user and District's customer. Alternate materials, methods or design will be considered for approval by the District's Engineer as the need arises and conditions warrant modification. This consideration will be on a case-by-case basis and require sufficient justification prior to approval. The justification shall be submitted in writing and shall state the standard being changed and the rationale. If the proposed alternative cannot be agreed to, the owner shall submit a variance as described in the District's Rules and Regulations.

The purpose of this Chapter is to describe the permit types, common scenarios activating those permits, common permit review procedures and responsibilities. These are provided as examples and any application may vary depending on relative conditions.

## 1.0020 ENGINEERING POLICY

It shall be the policy of the District to require compliance with all state and federal standards for professional engineers.

All engineering plans, reports, or documents shall be prepared by a registered professional engineer, or by a subordinate employee under the engineer's direction, and shall be signed by the engineer and stamped with the engineer's seal to indicate the engineer's responsibility for them. This engineer is designated by these Standards to be the Design Engineer. Through the permit review process, it shall be the Design Engineer's responsibility to review any proposed public facility extension, modification, or other change with the District prior to engineering or proposed design work to determine any special requirements (conditions) or whether the proposal is permissible.

A "Not Approved For Construction" and/or a "Plans Approved for Construction" stamp of the District on the plans, etc., for any job, does not in any way relieve the Design Engineer of responsibility to meet all requirements of the District or obligation to protect life, health, and property of the public. The plan for any project shall be revised or supplemented at any time it is determined that the full requirements of the District have not been met.

## 1.0030 APPLICABILITY AND PERMIT TYPES

These Design Standards shall govern all construction and upgrading of all public and privately financed public facilities in the District and applicable work within its service areas.

**1.0031 Line extension permits** are required to install, lengthen, enlarge, amend, repair, replace, upgrade or alter any exiting sanitary sewer main line or other portion of the public system other than a side sewer lateral. Line extensions include vertical alignment changes. Any alteration to a public main line is considered a "line extension" The County equivalent permit numbers are typically "Z....xxx" and/or "SC.....xxx" and include subdivisions, partitions, design review, site clearing and similar applications. Line extension permits are to be garnered for any relevant activity within the District Boundary and / or Service Area.

**Utility service connection permits** are required to install new, or lengthen, enlarge, amend, repair, replace, upgrade or alter any exiting sanitary sewer main line or other portion of the public system other than a sanitary sewer main line or other portion of the public system not a line extension. The County equivalent permits are "Z....xxx" and/or "SC.....xxx" and include design review, tenant improvements, site clearing, building and occupancy permits and similar applications. Utility Connection Permits are to be garnered for any relevant activity within the District Boundary and / or Service Area.

**Virtual Connection: Utility service connection permits** are required for virtual connections to evaluate the effluent volume and strength (see definition "virtual connection"). Virtual connections do not typically install, lengthen, enlarge, amend, repair, replace, upgrade or alter any exiting sanitary sewer main line or other portion of the public system and may not have any sanitary sewer work outside the building envelope at all. The County equivalent permits are "Z....xxx and / or B...xxxx" and

include design review, tenant improvements, building and occupancy permits, process changes and similar applications. Utility Connection Permits are to be garnered for any relevant activity within the District Boundary and / or Service Area.

**Utility disconnection permits** are required for any property(ies), existing service(s) either physical or virtual to be disconnected from the sanitary sewer system. Disconnection permits shall be required when a structure(s) is demolished wholly or may be required at the District's discretion if the structure(s) is partially demolished.

**Erosion Control Permit:** The District issues Erosion Control/Surface water Management Permits within its jurisdictional area. All construction activities affecting areas 500 square feet or greater within the District shall obtain an Erosion Control/Surface Water Management Permit. Construction activities affecting areas 250 square feet or greater within the undisturbed buffer, sensitive areas, or riparian areas must also obtain an Erosion Control/ Surface Water Management Permit. An Erosion Control/Surface Water Management Permit is also required to discharge to the District's surface water system.

**Water Service:** See OLWSD Standards Section 4.

#### **1.0040 CONFLICTING CODES, REGULATIONS, RULES, STANDARDS**

Where these Design Standards conflict with other applicable codes, Regulation or Rule or Standard, the more restrictive code shall prevail.

#### **1.0050 STANDARD SPECIFICATIONS**

All construction design detail, workmanship, and materials shall be in accordance with the current edition of the District Standards.

#### **1.0060 APPROVAL OF ALTERNATE MATERIALS OR METHODS**

Any substitution material or alternate method not explicitly approved herein will be considered for approval as set forth in Subsection 1.0010 (Authority and Purpose and Rules and Regulations Section 111.02 Variances and Exemptions). Persons seeking such approvals shall make an application in writing. Approval of any major deviation from these Design Standards will be in written form. Approval of minor matters will be made in writing if requested.

Any alternate must meet or exceed the minimum requirements set in these Design Standards.

The request must meet the requirements of Rules and Regulations Section 111.02 Variances and Exemptions, and the written application shall include, but is not limited to, the manufacturer's specifications and testing results, design drawings, calculations, and other pertinent information.

Any deviations or special problems shall be reviewed on a case-by-case basis and approved by the District Engineer. When requested by the District, full design calculations shall be submitted for review with the request for approval.

### **1.0070 SPECIAL DESIGN PROBLEMS**

Special applications not covered in these Design Standards require review and approval by the District Engineer. Submittal of full design calculations, supplemental drawings, and information will be required prior to any approval.

Such applications which may require special review and approval are among, but not limited to, the following.

Sewer Force Mains	Water Distribution Pump Stations
Relining of Existing Sewers	Relining of Existing Water Mains
Internal Sealing of Existing Sewers	Water Pressure Regulating Devices
Sewer Regulatory Devices	Energy Dissipaters
Sewage Pump Stations	Water Reservoirs
Sewer Siphons	Water Treatment Plants
Sewage Treatment Plants	Water Flow
	Measurement/Monitoring/Telemetry Devices
Sewer Flow Measurement/Monitoring Devices	Storm Sewer

### **1.0080 REVISIONS TO DESIGN STANDARDS**

It is anticipated that revisions to these Design Standards will be made from time to time. The date appearing on the title page is the date of the latest revision. Users should apply the latest published issue to the work contemplated.

Parenthetical notations at the end of sections indicate the most recent change to those sections. All sections without notations are from the original Design Standards as adopted. Some sections may be changed more than once and it shall be the user's responsibility to maintain their copy of these Design Standards with the latest changes.

### **1.0090 DEFINITIONS AND ABBREVIATIONS**

#### **AASHTO**

American Association of State Highway and Transportation Officials.

#### **Approved backflow prevention device**

A backflow prevention device that has been investigated and approved by the Oregon State Health Division.

#### **As-built plans**

Plans signed and dated by the Design Engineer indicating that the plans have been reviewed and revised, if necessary, to accurately show all as-built construction details.

#### **Back siphonage**

Backflow that results from negative pressure (partial vacuum) in the supply piping system.

#### **Backflow**

The reverse of flow from its normal or intended direction of flow. Backflow can be caused by back pressure or back siphonage.



**Backflow preventer**

An approved device or means to prevent backflow into the potable water system.

**Building service lateral / sewer lateral**

See Rules and Regulations definitions “sewer lateral”

**Building sewer**

See Rules and Regulations definitions “building sewer”

**Building supply**

See Rules and Regulations definitions “service line”.

**CBE**

Crushed based equivalent (CBE) is the number that directly relates the traffic coefficient to the number of inches of rock.

**Collection systems**

Facilities maintained by the District connected thereto for the collecting, pumping, conveying, and controlling of wastewater.

**Core**

To cut and remove a portion of pipe with a circular hollow drill.

**Cross-connection**

Any actual or potential physical connection between a potable waterline and any pipe or vessel containing a nonpotable or potable (e.g., well) fluid (suspended solid or gas) so that it is possible to introduce the nonpotable fluid into the potable fluid by backflow.

**Curb**

The concrete structure indicating the edge of the vehicular roadway within the overall right-of-way.

**Cut sheets**

Sheets of tabulated data, indicating stationings, structures, fittings, angle points, beginning of curve, points on curve, end of curves, storm drain slope, staking offset, various elevations, offset cuts, and storm drain depths for streets, waterlines, sanitary sewers, and storm drains.

**Datum**

The vertical elevation control.

**Dedication**

The legal conveyance of land, typically from a private property owner to the District.

**Definition of words**

That, whenever, in these Standards, the words "directed", "required", "permitted", "ordered", "designated," or words of like importance are used, they shall be understood to mean the direction, requirement, permission, or order of designation of the District Engineer. Similarly, the words "approved", "acceptable", or "satisfactory", shall mean approved by, acceptable to, or satisfactory to the District Engineer.

**Design Engineer**

The engineer, licensed by the State of Oregon as a Professional Engineer under whose direction plans, profiles, and details for the work are prepared and submitted to the District for review and approval, or who is in charge of and responsible for construction of the improvement.

**Detention**

The holding of runoff for a designed period of time and then releasing it to the natural water course.

**Development**

See Rules and Regulations definitions “development”

**Domestic sewage**

The liquid and water-borne waste derived from ordinary living processes, free from industrial wastes, and of such character to permit satisfactory disposal without special treatment into the public sewer or by means of a private sewage disposal system.

**Double check detector check valve assembly**

A line-sized, approved, double check valve assembly with a parallel meter and meter-sized, approved, double check valve assembly. The purpose of this assembly is to provide backflow protection for the distribution system and, at the same time, provide a metering of the fire system showing any system leakage or unauthorized use of water.

**Double check valve assembly**

An assembly composed of 2 single, independently acting, approved check valves, including tightly closing shutoff valves located at each end of the assembly and fitted with properly located test cocks.

**Drainage facilities**

Pipes, ditches, detention basins, creeks, culvert bridges, etc., used singularly or in combination with each other for the purpose of conveying or storing storm water runoff.

**Easement**

Areas located outside of dedicated rights-of-way, which are granted to the District for special uses.

**(Private) Easement**

An area on a parcel that benefits other parcel(s) by granting special uses.

**Erosion control, post construction**

The re-establishment of groundcover or landscaping prior to the removal of temporary erosion control measures.

**Erosion prevention and sediment control**

Measures that are required for construction sites where the ground surface will be disturbed with clearing, grading, fills, excavations, and other construction activities, in order to prevent and/or control eroded material and sediment from leaving the construction site and entering the public storm system and/or a water quality resource area.

**Erosion, visible or measurable**

Includes, but is not limited to: deposits of mud, dirt, sediment, or similar material, exceeding ½ cubic foot in volume on public or private streets, adjacent property, or into the storm and surface water system, either by direct deposit, dropping discharge, or as a result of the action of erosion.

**Fire hydrant assembly**

The fire hydrant and attached auxiliary valve from a water main to a hydrant.

**Fire protection service**

A metered connection to the public water main intended only for the extinguishment of fires and the flushing necessary for its proper maintenance.

**Flood or flooding**

A general and temporary condition of partial or complete inundation or normally dry land areas from the overflow of inland or tidal waters, and/or the unusual and rapid accumulation of runoff of surface waters from any source.

**Grade**

The degree of inclination of a road or hillside.

**Impervious areas**

Those hard surface areas located upon real property which either prevent or retard saturation of water into the land surface and cause water to run off the land surface in greater quantities or at an increased rate of flow from that present under natural conditions preexistent to development.

**Industrial waste**

Solid, liquid, or gaseous waste resulting from any industrial, manufacturing, trade, or business process due to development, recovery, or processing of natural resources.

**Interceptor sewer**

The primary public sanitary sewer which conveys wastewater directly into the wastewater treatment plant.

**Irrigation service**

A metered connection intended for seasonal use and delivering water, which is not discharged to the sanitary sewer.

**Lateral sewer**

See Rules and Regulations definitions “sewer lateral”.

**Longitudinal joint**

A joint which follows a course approximately parallel to the centerline of the roadway.

**Manager**

See Rules and Regulations definitions “administrator”.

**Natural drainageway**

A natural depression which collects drainage of surface water. It may be permanently or temporarily inundated.

**Natural grade**

The grade of the land in an undisturbed state.

**Natural resource**

A functioning natural system such as a wetland or stream.

**Natural resource area**

The land containing the natural resources to be protected.

**On-site detention**

The storage of excess runoff on a development site prior to its entry into a public storm drain system. Stored runoff is gradually released after the peak of the runoff has passed.

**Owner**

The owner of record of real property as shown on the latest tax rolls or deed records of the county or a person who furnishes evidence that they are purchasing a parcel of property under a written recorded land sale contract.

**Peak runoff**

The maximum water runoff rate (cfs) determined for the design storm.

**Person**

Individual firm, corporation, association, agency, or other entity.

**Plans**

Construction plans, including system plans, sewer plans, and profiles, cross sections, detailed drawings, etc., or reproductions thereof, approved or to be approved by the District Engineer, which show the location, character, dimensions, and details for the work to be done, and which constitute a supplement to these standards.

**Potable water**

Water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the health authority having jurisdiction.

**Private collection system**

A privately owned and maintained lateral sewer system installed to serve multiunit structures on single ownership properties which cannot legally be further divided.

**Private storm drain**

A storm drain located on private property serving one or more structures or inlets and is not owned or maintained by the District.

**Public sanitary sewer**

Sanitary main in public right-of-way or easement operated and maintained by the District for carrying sewage and industrial wastes.

**Public storm drain**

Any storm sewer in public right-of-way or easement operated and maintained by the District.

**Release rate**

The controlled rate of release of drainage, storm, and runoff water from property, storage pond, runoff detention pond, or other facility during and following a storm event.

**Right-of-way**

All land or interest therein which (by deed, conveyance, agreement, easement, dedication, usage, or process of law) is reserved for or dedicated to the use of the public for sidewalk, utility, and/or roadway purposes.

**Roadway**

All of that portion of the right-of-way used or to be used for vehicle movement which exists between the curbs, proposed curb lines, or edges of pavement.

**Sedimentation**

Deposition of debris and soil.

**Sewage**

Water-carried wastes from residences, business buildings, institutions, and industrial establishments, except industrial wastes.

**Sewer Main**

The portion of the public sewerage system which is primarily installed to receive wastewater directly from individual residences and other individual public or private structures.

**Silt**

Fine textured soil particles, including clay and sand, as differentiated from coarse particles of sand and gravel.

**Siltation**

Deposition of (silt) fine textured waterborne sedimentation.

**Standard drawings**

The drawings of structures or devices commonly used on public improvements and referred to on construction plans contained in the OLWSD Design and Construction Standards.

**Structures**

Those structures designated on the standard plans such as catch basins, manholes, etc.

**Transverse joint**

A joint, which follows a course approximately perpendicular to the centerline of the roadway.

**Trunk sewer**

(Interceptor) A sanitary sewer which is primarily intended to receive wastewater from a collector sewer, another trunk sewer, an existing major discharge of raw or inadequately treated wastewater, or water pollution control facility.

**Uniform Plumbing Code**

The Uniform Plumbing Code adopted by the International Association of Plumbing and Mechanical Officials (current edition), as revised by the State of Oregon, called the "Oregon State Plumbing Specialty Code".

**Wastewater**

The total fluid flow in the sanitary sewerage system which includes industrial waste, sewage, or any other waste (including that which may be combined with any ground water, surface water, or storm water) that may be discharged into the sanitary sewerage system.

**Water distribution system**

Water pipelines, pumping stations, reservoirs, valves, and ancillary equipment used to transmit water from a supply source through a service meter.

**Water main**

A water supply pipe for public use.

**Water service line**

The pipe connection from the District water main to the users' water meter, hydrant, backflow prevention device, or fire sprinkler double check valve.

**Virtual Connection**

A change in "service class" or occupancy or operational change which results in an increase in wastewater volume, strength or load using the existing sewer lateral or service line. Typically, these are tenant improvements or accessory dwelling units, but could also be commercial/industrial process changes.

## **1.1000 CONSTRUCTION PLANS**

---

### **1.1010 GENERAL INFORMATION**

Prior to any construction work and plan approval, complete construction plans, specifications and all other necessary submittals shall be submitted to the District Engineer for review. Submittal requirements consist of design plans (where required), drainage calculations, and other information as necessary. Conditions of approval from the Development Plan Review process, or as specified by the District, the Planning Commission, Hearings Officer or the Planning Director shall be shown on the design plans.

### **1.1020 PLAN PREPARATION**

Construction plans and specifications shall be prepared by a professional engineer licensed by the State of Oregon, as specified in Subsections 1.1020 (Plan Preparation) and 1.1030 (Required Sheets).

Typical permit submittal items include:

- Complete OLWSD Plan Review Application Form
- Preliminary Site Plan: A site plan containing proposed storm sewer and / or surfacewater facilities.
- Details
- Profile plans
- Fee
- Drainage Fixture schedule
- Statement of occupancy(ies) for any and all relevant structures with sanitary sewer connection.
- Note, all submitted Site plans, grading plans, storm drainage plans, and associated calculations must be stamped and signed by a professional engineer licensed by the State of Oregon and meet the standards of the District.
- Engineer's statement (calculation) of disturbed area.
- Engineer cost estimate of storm sewer / surfacewater facilities including installation
- Downstream analysis.
- Preliminary and final plat
- Utility maintenance agreement(s)
- Geotechnical Report / Soil Report / Infiltration Analysis
- Storm Report
- Erosion Prevention / Sediment Control plan and details and narrative
- Performance bond
- Warranty bond
- DEQ Approval letter
- As-builts for any site work.

### **1.1021 Sheet Size**

All construction plans shall be clearly and legibly drawn in ink "D"- size sheets. Sheets shall have a 1½-inch clear margin on the left edge and a ½-inch margin on all other edges.

### **1.1022 Scale of Plans**

When plans are prepared for developer financed projects, the scale of drawings shall be as follows. Horizontal scales shall be 1" = 10', 20', 30', 40', or 50', vertical scales shall be 1" = 2', 4', 5', or 10'. For subdivision plans it is preferred that all plan views and profile views of the plan set are drawn at a common scale, if more than one scale is necessary, the difference should be large enough to be noticeable (e.g. 1" = 20' & 1" = 50'). When a scale is used which is smaller than 1" = 20' (e.g. 1" = 40') intersection details showing fittings and valves shall be provided at a larger scale.

Architectural scales (e.g., ¼" = 1'0") are not permitted unless approved.

Letter size shall not be smaller than 0.10 inch.

### **1.1030 REQUIRED SHEETS**

Construction plan submittals shall contain the following minimum sheets: title sheet (unless not required by the District Engineer) plan and profile sheet(s), and detail sheet(s). A title block shall appear on each sheet of the plan set and shall be placed on the lower right-hand corner of the sheet, across the bottom edge of the sheet or across the right-hand edge of the sheet. The title block shall include the names of the project, the engineering firm, the owner, the sheet title, and page number.

The seal and signature of the Design Engineer responsible for preparation of the plans shall appear on each sheet as well as the Design Engineer's phone number.

The description and date of all revisions to the plans shall be shown on each sheet affected, and shall be approved and dated by the Design Engineer as evidenced by signature or initial.

### **1.1031 Title Sheet**

All subdivision projects and multiple sheet improvement projects shall have a title sheet as the first page of the construction plans. This sheet shall contain the following minimum information.

1. Site plan of entire project with street right-of-way and/or subdivision layout at a 1" = 100' scale. A 1" = 200' scale may be used if project size is too large. The site plan shall also be a composite utility plan showing all properties served by proposed sewer, water, and storm facilities, in addition to the proposed facility.
2. Vicinity map at a 1" = 1000' scale or greater. Map shall show the location of the project in respect to the nearest major street intersection.
3. Index of sheets.
4. Complete legend of symbols used.



5. General and construction notes pertinent to project, space permitting. If space does not permit a separate note page shall be used.
6. Temporary and/or permanent benchmarks used along with their descriptions, elevations of benchmark, and datum.
7. Design Engineer's name, address, phone number, and seal.
8. Developer's/owner's name, address, and phone number for public improvements with private financing.
9. Statement referencing District Infrastructure Design and Construction Specifications.
10. Provide contact phone number for all affected utility companies.
11. Show tax lot numbers or lot and block designations.
12. Conditions of approval.

All plans shall contain revision dates in the title block.

### **1.1032 Plan Sheet**

The plan view of each sheet shall be drawn at the appropriate scale showing the following minimum information.

1. Adjacent street curbs, property lines, right-of-way lines, utility easements referenced to property lines, street centerlines, and intersections. Show property corner and curb elevations to determine water service level, serviceability of lot/property for sanitary sewer, points of disposal for building storm drains, and how new curbs will join to existing curbs.
2. Location of all underground utilities within 100 feet of project (if they are affected by the project), existing power/telephone poles and guy anchors, valves, manholes, catch basins, fire hydrants, meter boxes and vaults, signs, etc.
3. Location of all water courses, railroad crossings, culverts, bridges, large water transmission pipes and gravity sewers, and/or storm drains within 200 feet of proposed gravity sewer and storm drain extensions if they affect the design of the project. All water courses shall show the 100-year flood plain as indicated on the U.S. Army Corps of Engineers and Federal Emergency Management Agency (FEMA) maps.
4. On sewer and storm drain plans, each manhole, catch basin, and cleanout shall be numbered and stationed. Stationing shall tie to existing street monuments, property corners, or manholes. Each separate line shall be separately designated (e.g., sewer line 'A', storm line 'A', etc.).
5. On street plans, horizontal stationing shall show points of tangency and curvature for centerline; curve data shall show tangent length, radius

distance, centerline curve length, and delta angle. Centerline intersection stationing, in both directions, shall be shown.

6. Where streets are being widened, edge of pavement elevations shall be shown to determine pavement cross-slope to new curb or pavement edge.
7. On water plans, show all fittings and valves and identify by type (e.g., MJ x MJ, FLG x MJ, etc.); fire hydrants; intersection details for valves and fittings (required when scale of plans is smaller than 1" = 20', e.g., 1" = 40').
8. On all plans, show stubouts and blockouts for future developments.

### **1.1033 Profile Sheet**

Profiles for construction plans shall be the same horizontal scale as the plan sheet. Where profiles are drawn on the same sheet as the plan view, the profile shall be immediately below the plan view. The following minimum information shall be shown.

1. For sewers and storm drains, show locations of manholes, catch basins, and cleanouts, with each numbered and stationed as indicated in Subsection 1.1032 (Plan Sheet) item 4.
2. Existing profile at centerline of proposed utility or street. Profiles at the right-of-way lines will be required if grade differences are significant.
3. Proposed profile grade, as appropriate, for all sewers, storm drains, and waterlines, giving pipe size, length between structures or fittings, slope, backfill and pipe material, sewer inverts, rim elevations, etc. Extension of the profile of streets for future extensions (stub streets) will be extended at least 200 feet for local streets or as required by the District Engineer.
4. Existing underground utilities that cross the alignment of the proposed facility.
5. Beginning of all vertical curves, points of vertical intersection, end of vertical curve, low point of sag curve, and length of vertical curve. Profiles of existing centerline grade shall extend a minimum of 250 feet beyond the end of the improvement.
6. Clearly show all potential conflicts with existing public and private utilities (i.e., pipes, conduits, vaults, cathodic protection systems, etc.) that impact proposed design.
7. Profiles for ditch and creek flowlines shall extend a minimum of 200 feet beyond the project, both upstream and downstream. Typical cross sections at 50-foot intervals shall also be submitted.

**SPECIAL NOTE:** District as-builts are only to be used as an aid to the engineer. When a potential conflict may occur, the Design Engineer shall field locate, or cause to be located, and verify the alignment, depth, and inverts of all existing facilities shown on the plans that will be crossed by the proposed facility.

### **1.1034 Detail Sheets**

Detailed drawings shall be included with all construction plans where District standard drawings do not exist. If a standard drawing, such as sewer manholes, must be modified to fit existing or unique conditions, the modified drawing shall be shown on the plans. When appropriate, due to required detail complexity, a separate detail sheet shall be drawn. When District standard drawing appurtenances or construction installations are to be used, a reference to the specific standard drawing number shall be made on the title sheet.

### **1.1040 SUPPORTING INFORMATION**

The Design Engineer shall submit sufficient supporting information to justify the proposed design. Such information shall include, but not be limited to, the following:

1. Design calculations.
2. Hydrology and hydraulic calculations with basin maps.
3. Alternate materials specifications including manufacturer's design application recommendation.
4. Grading plan support information to include as appropriate.
  - a. Soils classification report
  - b. Hydrology report
  - c. Geotechnical engineer's report

#### **1.1041 Facility Plan**

When designing sanitary or storm sewer facilities, a facility plan shall be submitted with the construction plans when required by the District Engineer. This plan shall be used to identify and analyze the proposed extension of facilities. The topographic plan shall show all upstream and tributary areas within no less than 200 feet of the proposed development.

The plan shall include existing contours at 2-foot intervals, or as approved by the District, including location of existing structures and public and private utilities.

#### **1.1042 Erosion Control Plan**

The erosion control plan shall address the measures as required by the Erosion Prevention and Sediment Control Plans, Technical Guidance Handbook (ECTGH) (Clackamas County Department of Utilities, 2001). Construction projects beginning prior to May 1 or those projects anticipating construction activity between November 1 and April 30 will be required to submit a plan addressing "wet weather" measures as outlined in the ECTGH. Construction activity is assumed as "active" until all permanent vegetation and/or erosion protection is established.

The plan shall include existing contours at 2-foot intervals, or as approved by the District, including location of erosion control facilities (i.e., silt fence, straw mulch, sediment ponds, etc.); outlet structures (i.e., catch basins, culverts, creeks, etc.); and existing public and private utilities.

### **1.1043 Information Required on Erosion Control Drawings**

The following items must be depicted on ESCP drawings, as applicable:

- a. Total property boundary including surface area of the development.
- b. Areas of soil disturbance (including, but not limited to, showing cut and fill areas and pre-and post-development elevation contours);
- c. Drainage patterns before and after finish grading;
- d. Discharge points;
- e. Areas used for the storage of soils or wastes;
- f. Areas where vegetative practices are to be implemented;
- g. All erosion and sediment control measures or structures;
- h. Identify the type of seed mix (percentages of the various seeds of annuals, perennials and clover) and other plantings.
- i. Critical riparian areas, sensitive preserved vegetative areas, including trees and their root zones.
- j. Runoff controls to minimize erosion and scour. BMPs such as, diversion, slope drains, diversion dikes, check dams and drainage swales.
- k. Stabilized site entrances and access roads including, but not limited to construction entrances, roadways and equipment parking areas (for example, using geotextile fabric underlay).
- l. Perimeter sediment control, including storm drain inlet protection as well as all sediment basins, traps, and barriers.
- m. Stockpile management, including dust control and location.
- n. Concrete truck and other concrete equipment washout areas.
- o. Impervious structures after construction is completed (including buildings, roads, parking lots and outdoor storage areas);
- p. Springs, wetlands and other surface waters on site or adjacent to the site;
- q. Temporary and permanent stormwater conveyance systems;
- r. Onsite water disposal locations (for example, for dewatering);
- s. Storm drain catch basins depicting inlet protection, and a description of the type of catch basins used (for example, field inlet, curb inlet, grated drain and combination);
- t. Septic drain fields;
- u. Existing or proposed drywells or other UICs;
- v. Drinking water wells on site or adjacent to the site

- w. Planters;
- x. Sediment and erosion controls including installation techniques;
- y. Natural buffer zones and any associated BMPs for all areas within 50 feet of a waters of the state;
- z. Detention ponds, storm drain piping, inflow and outflow details.

**Narrative Site Description:** Describe the nature of the construction activity and the final use of the site, that is what will the site be used for at the completion of the construction. The narrative shall also contain the following:

**Water Quality Requirements for TMDL and 303(d) Listed Waterbodies.** If there is a potential for discharge of stormwater to directly discharge or discharge through a conveyance system to a portion of a waterbody that is listed for turbidity or sedimentation or that has an established Total Maximum Daily Load (TMDL) for sedimentation or turbidity from the construction site, then one or more of the BMPs listed below must be implemented. Identify the selected BMP(s) in the ESCP as one that addresses this condition of the permit, and provide the rationale for choosing the selected BMP(s). The 303(d) list can be found at: the Oregon DEQ website. . Search under Category 5 (303(d)) and Category 4a (TMDL approved). If none, state “no water quality requirements.” On the narrative.

**Inspector Qualification Information:** Provide the following information on the Erosion and Sediment Control Inspector. This is a person that works for the applicant and not a government employee. The consultant, general contractor, project manager, or person who prepared the ESCP may be designated with their agreement as the initial or final ESC Inspector. Upon designating an inspector(s), submit to OLWSD their name(s), and contact information including the following:

- Any Erosion Control Certification Information (E.g. CESCL, CPESC or equivalent)
- Application Date:
- Project Name:
- Plan Prepared By:
- Company Name:
- E-mail Address:
- Emergency Phone Number

### **Natural Buffer Zone**

If a “waters of the state” is within the project site or within 50 feet of the project boundary, and a natural buffer exists within 50 feet of the water of the state, the ESCP must delineate and protect this area with orange fencing or flagging and maintain existing buffer until completion of project. All discharge must be filtered prior to entering the natural buffer to avoid sediment build up. If scour is an issue, an energy dissipater may need to be installed.

Natural Buffer means, for the purposes of this permit, an area of undisturbed natural cover surrounding surface waters within which construction activities are restricted. Natural cover includes the natural vegetation, exposed rock, and barren ground that existed prior to commencement of earth-disturbing activities.

If project will reduce natural buffer zone under 50 feet of waters of the state, the ESCP must include one or more of the following BMPs to control and treat sediment and turbidity:

- i. Compost berms, compost blankets, or compost socks;
- ii. Erosion control mats;
- iii. Tackifiers used in combination with perimeter sediment control BMPs;
- iv. Water treatment by electro-coagulation, flocculation, filtration; or
- iv. Other substantially equivalent sediment or turbidity BMP approved by DEQ or Agent

If no natural buffer zone(s) will be affected by the project, on the narrative state the following: “no natural buffer zone impacts will be realized by the proposal.”

**Additional Information:** The District may also require the applicant to provide additional information as indicated in these Standards or the Rules and Regulations.

### **1.1050 PLAN SUBMITTAL AND REVIEW PROCEDURES**

For utility or erosion control permit review, the property owner shall make a relevant application to the District. This submittal is separate from the Clackamas County or other Agency or District submittal. Other agencies such as Clackamas County do not provide application materials to OLWSD. The applicant or property owner must submit to OLWSD separately.

Construction plans for all privately financed Infrastructure facility improvements shall be submitted to the District Engineer. The District Engineer will coordinate the plan review and approval of all construction plans which will include review for compliance with all District Infrastructure Standard Construction Specifications, rules, and the project conditions of approval.

All plan submittals shall include information required in Subsection 1.1040 (Supporting Information) along with all other information requested by the District Engineer. This information is to include, but not be limited to, construction cost estimates, easement documents, right-of-way dedications, executed agreements, and a plan check and inspection fee. All submittals will be reviewed for completeness and the Design Engineer notified if required information is missing. Submittals should be made in a timely manner as lack of information to the District may impede the review process.

Three (3) sets of completed construction plans shall be submitted for the review. A complete construction cost estimate will be submitted for review and determining review fees. Once the plans are deemed complete, a detailed review will begin on a “first-in, first-out” basis. If the submittal is not complete, notification will be given by the District to the Design Engineer specifying information needed.

Upon completion of the detailed review, the District will notify the Design Engineer, by way of letter, any revisions or “Red-line comments” the District may have. The Design Engineer will revise the plans, addressing all items in the District’s letter, and return three (3) sets of revised plans to the District for approval.

### **1.1060 AS-BUILT PLAN REQUIREMENTS**

For all Infrastructure facility improvements the Design Engineer shall submit certified As-built drawings for all plans, which were approved for construction and a copy of the recorded plat. One set of As-built drawings shall be submitted for preliminary review. If the first submittal is not acceptable, the District Engineer will notify the Design Engineer of information needed for resubmittal.

As-built drawings and plat drawings shall meet the requirements of Subsections 1.1020 (Plan Preparation), 1.1030 (Required Streets), and 1.1060 (As-Built Plan Requirements) and shall be of archival quality. At a minimum, one (1) hard copy shall be submitted and one (1) electronic copy shall be submitted in PDF file format and one (1) copy of drafting software such as .DWG shall be submitted on disc (with no sticker or attachment to the disc), a USB drive or email. As-built drawings shall include all field changes.

The Design Engineer shall submit, along with the As-built drawings, a statement certifying that all work for which plans were approved has been completed in accordance with the OLWSD Design and Construction Standard Specifications.

The words "as-built drawing" shall appear as the last entry in the revision block along with the month, day, and year the as-built drawing was prepared.

**NOTE:** Actual location and depth from finish grade of any other utilities encountered during construction shall be shown and noted on both plan and profile of the as-built plans.

### **1.1061 Storm Drains**

The following minimum information shall be noted on storm drain as-built drawings.

1. Station of wye or tee into main line. Tie end of branch line to nearest property corner at right-of-way line and distance back from the face of curb.
2. Alignment changes, grade changes, and changes in construction materials. If changed alignment results in station changes, a station equation shall be shown as appropriate at a manhole.
3. Other change altering the approved plans.
4. Other items as determined by the District.

### **1.1062 Sanitary Sewer**

The following minimum information shall be noted on sanitary sewer as-built drawings.

1. Station of wye or tee into main line. Tie end of service lateral to nearest property corner at right-of-way line and distance back from the face of curb.
2. Depth at the end of service lateral measured from existing ground to invert of pipe. When required by the District Engineer, invert elevations shall be noted.
3. Length of service lateral measured from centerline of sewer main to end of pipe.
4. Alignment changes, grade changes, and changes in construction materials. If changed alignment results in station changes, a station equation shall be shown as appropriate at a manhole.
5. Other changes altering the approved plans.
6. Provide complete test results to the District Engineer.
7. Type of pipe, backfill material and location.
8. All rim and invert elevations on manholes, catch basins, and clean outs.
9. Other items as determined by the District.

### **1.1063 Water Main**

The following minimum information shall be noted on water main as-built drawings.

1. Station and/or property line/corner to valves (not at standard location), all fittings, blow-offs, and dead-ended lines.
2. All changes from standard 36-inch depth cover. Limits shall be shown on plan with annotated reason for change. Actual pipe elevation (top of pipe) will be taken at every fitting.
3. Show alignment changes, grade changes, and changes in construction materials. If changed alignment results in station changes, a station equation shall be shown as appropriate at a valve.
4. Identify types of fittings (i.e., MJ x MJ, FLG x MJ, etc.); provide information in the form of an inventory list on construction drawings.
5. Other change altering the approved plans.
6. Provide design calculations and complete test results to the District Engineer.
7. Actual location and depth, from finish grade of street, of any other utilities encountered during construction.
8. Other items as determined by the District.



## **1.1064 Plan Quality and Miscellaneous Requirements**

All submitted items shall be in both hard copy as described in this Section and as electronic documents in PDF format. Plan sheets shall be collated into one single file. Multiple individual sheets will not be accepted. OLWSD and other relevant details, notes and conditions shall be contained on the plan(s). Digital plans shall be vector-based, produced directly from drafting software such as AutoCAD. Scanned documents will be accepted only with prior approval and shall be at 360dpi minimum resolution.

If plans contain excessive linework, layers, have callouts that interfere with interpretation or are otherwise difficult to read, OLWSD shall at its discretion, reject the plans. Any incomplete or rejected submittal shall count as a submittal for inclusion in the review fee order.

Each submittal shall contain responses to the relevant previous comments and/or conditions of approval as satisfied by the plans or submittal as a narrative in a “findings” format. The initial submittal narrative shall contain the land use decision conditions of approval with OLWSD-related items responded to and successive submittals shall contain response(s) to the relevant comments from previous review(s).

Redlines are to be performed by the applicant or owner and shall be performed on all plan copies and shall be incorporated onto the final approved drawing set. Following engineering approval, three sets of final plans and one PDF shall be submitted to OLWSD.

The applicant or owner coordinates with Clackamas County to establish a pre-construction meeting. The applicant shall coordinate with OLWSD to attend this meeting. If OLWSD is unable to do so, OLWSD shall require an individual pre-construction meeting on-site or at the OLWSD office.

Engineering review fees include one engineering review, one revision and plat review for a partition or subdivision. Engineering review fees for design reviews with no plat include one review and two revisions. Additional reviews are paid for with additional fees. Additional reviews are, for fee purposes, considered as new submittals and full review fees are charged.

### **1.1065 Permit and Approval Vesting and Amendments**

All OLWSD permits are valid for six months with an automatic six-month extension upon confirmation from the owner or applicant. Following the extension or non-response from the owner or applicant, a new permit shall be garnered by the owner and be subject to all relevant fees and/or regulations. Upon the date the District deems the application to the District to be complete, the application shall be vested with those current rules, regulations standards and other requirements being current at the date deemed complete. Other agency or jurisdictional approvals do not apply. The following are the vesting time ranges per OLWSD permit. In the following the shortest time period applies if there are multiple permits referenced. Permit vesting shall consider section 1.1067 Permit Amendments in this Chapter.

### **1.1066 Permit Amendments**

Should conditions or plans change from the original or approved conditions, the owner shall immediately apply for and obtain from the District an amendment to the permit prior to conducting any further work other than or different from that approved in the original permit. This includes submittal of updated permit application materials, and payment of amendment charges prior to the start of construction activities or other as determined by the General Manager. Permit amendments would not extend the vesting timeline.

### **1.1067 Permit Required**

A permit is required prior to work commencement. Failure to acquire permit(s) equate to a violation of the Rules and Regulations and Standards. An individual service connection permit and lateral shall be required for each individual house, dwelling, building or other structure or connection (physical or virtual) requiring sanitary sewage disposal. No installer shall install a sewer connection(s) in public rights-of-way or public easements not covered by the District's issued permit. The issuance of a permit by the District will not relieve the permit holder from the responsibility of obtaining such other permits or licenses as may be required by other governmental agencies. Multiple multi-family residential connections to a single service lateral are allowed only if the units are on the same taxlot. Multiple non-residential connections to a single service lateral are allowed only if the units are in a contiguous structure.

### **1.1068 Disconnections**

Property owners may voluntarily disconnect from the sanitary sewer system. Disconnections shall prevent debris, inflow and other undesired substances into the public sanitary sewer system. The service lateral shall be capped at the property line or edge of public easement and inspected by OLWSD. Main lines may be required to be capped (plugged) at the District's discretion.

### **1.1069 REPLACEMENT SERVICE LATERAL INSTALLATIONS**

If new service lateral alignment is proposed, the existing lateral shall be removed at main, plugged with a Cherne Plug, and inspected by OLWSD prior to burial. The existing lateral shall be grouted at both the upstream and downstream ends.

If the existing lateral alignment is used, a new side sewer lateral shall be installed. The lateral shall conform to current District standards and requirements. Replacing laterals may be performed by pipe bursting or trenching.

### **1.1070 Building Sewer Repair**

OLWSD's purview is the public sanitary sewer system. Only the Clackamas County Building Official shall permit and / or inspect sewer plumbing on private property (notwithstanding public easements).

### **1.1071 CONNECTION TO CESSPOOLS AND SEPTIC TANKS**

Direct connection from all plumbing fixtures in the structure(s) to the sanitary sewer system is required. Any connections to a cesspool, septic tank or kitchen grease trap shall be removed and proper connection directly made to the public sewer system. Cesspools and septic tanks shall be abandoned in accordance with Clackamas County and Oregon Department of Environmental Quality requirements.

### **1.1072 Sanitary Sewer Backflow**

The District reserves the right to require backwater valves to be installed on sanitary sewer laterals whenever conditions warrant at the District's discretion. Typically, conditions involve flood-related locations or high water tables.

### **1.1073 Ownership And Acceptance And Bonding**

Performance and Warranty Bond: See Rules and Regulations 205.50.01. This bond is separate from any other agency(ies)'s bond such as Clackamas County. The owner shall submit a separate bond document to OLWSD not combined with any other agency(ies).

Prior to commencement of construction, the owner shall submit a combined performance and warranty bond to the District. The bond or deposit shall be in the amount of 100% of sanitary, surfacewater (private) and public water work to be performed. The performance bond shall automatically transform into a warranty bond upon completion of the improvement and the approval and acceptance thereof by the District. At that time, the applicant shall execute and deliver to the District a bill of sale or other document in form approved by the District transferring all right and title to the sewer main extension to the District, and a statement of value of the work completed. The warranty portion of the bond shall guarantee the associated infrastructure against any defects of labor and material for a period of one year from the date of acceptance by the District. Upon acceptance by the District of the infrastructure and the security for the one year guarantee, the relevant infrastructure shall be incorporated in the District's system and be a part thereof and shall be maintained by the District, subject to the guarantee requirement for the first year.

### **1.1074 Inspections and Authority**

Engineering Review / Line Extension: OLWSD inspects public main lines, side sewer laterals and all fittings, manholes, cleanouts and any other facility(ies) in the public right-of-way or easement. These utilities are installed by the owner. OLWSD inspects the pipe zone within six (6) inches surrounding the main line and / or side sewer lateral or other facilities including backfill, bedding, concrete and associated installation. Clackamas County generally inspects all other backfill and compaction and road surfaces.

Engineering Review / Surfacewater facilities on private property (outside the public right-of-way): OLWSD inspects any water quality facility including swales, rain gardens or other pollution control device such as mechanical filter. OLWSD also inspects stormwater detention and/or retention facilities including swales, rain gardens or other pollution control device such as mechanical pipes.

Clackamas County inspects the following:

- all plumbing on private property for sanitary sewer and storm sewer and
- rain drains and stormwater infrastructure in the public right-of-way.

Utility Connection Permits / Sanitary Sewer: OLWSD inspects public main lines, side sewer laterals and all fittings, manholes, cleanouts and any other facility(ies) in the public right-of-way or easement.

Utility Connection Permits / Water: OLWSD inspects public main lines, side sewer laterals and all fittings, manholes, cleanouts and any other facility(ies) in the public right-of-way or easement. These utilities are installed by the District.

Design Review and Utility Connection Permits and Other Applicable / Erosion Prevention / Sediment Control: OLWSD inspects all applicable sites and associated erosion prevention / sediment control and pollution control measures. These measures are installed by the owner.

### **1.1075 Inspection Request**

The District requires a twenty-four hour notice of inspection request which must be made either in person or via personal phone conversation as prescribed by the District. All relevant installations are to be inspected before their completion and while the installation and connections are still uncovered.

### **1.1076 installation Without Inspection**

In the event an excavation is backfilled without an inspection first being completed by the District, then the owner shall cause the pipe to be exposed for the required inspection. All costs incurred in excavating a line for inspection shall be borne by the owner.

### **1.1078 CHARGES FOR ADDITIONAL INSPECTIONS**

Excess Inspection Fee (see Fee Schedule) shall apply as follows:

Where the pipe is laid and back-filled and/or connection of the building and/or side sewer made to the sanitary sewer system of the District without prior inspection and approval thereof by an inspector of the District, or the District's delegee.

For each re-inspection and/or retesting of the pipe to be made because of the failure of the installer to comply with the ordinances, rules and regulations of the District and the Oregon State Plumbing Specialty Code and/or failure of the pipe to meet the minimum leakage requirements set by the District upon testing thereof.

Should the owner wish an inspection outside of the regular working hours (7:30 am to 3:30 pm Monday through Friday) of the District, the applicant must apply to the District twenty-four hours in advance and make a deposit of triple the Excess Inspection Fee.

### **1.1079 Construction Quality**

If any work done under a permit granted by the District is not in accordance with the provisions of this code, and if the installer doing the work shall refuse to construct properly and complete such work, notice of such failure or refusal shall be given to the installer stating the nature of the violation and providing a reasonable time for corrections thereof. The installer shall, within the period of time stated in such notice, correct and complete the work. In the event the work is not so corrected and completed within the stated time, the District may cause said work to be completed if, in its opinion, the failure constitutes a hazard to safety or health, and the cost of such work and any materials necessary therefore shall be charged to the installer and shall be payable by the installer immediately upon notice and demand thereof given to the installer.

### **1.1079 Construction Duration**

All work within the limits of any public right-of-way shall be completed with due diligence. If any excavation is left open beyond a time reasonably necessary to complete the same, the District may cause the excavation to be backfilled and the public right-of-way restored. Any costs of such work shall be charged to the property owner and shall be payable immediately to the District upon written notice and demand for the amount thereof given to the installer.

### **1.1080 Damage**

Should any installer or person damage any portion of the system during repair, installation or any other activity, the District reserves the right to charge the property owner for reimbursement of all time, materials and resources allocated to the associated correction, inspection and assessment and any other related work.

### **1.1081 DEQ Authority and Process**

The Oregon DEQ shall approve each sanitary sewer line extension in the District's service area. The Oregon DEQ reviews proposed sanitary sewer installation plans for every line extension and charges associated fees. For this review Clackamas County provides the land Use Compatibility Statement. The Oregon DEQ shall be contacted by the applicant to submit the application and shall assure that the Oregon DEQ has provided the District the Sanitary Sewer Extension Approval.

### **1.1082 AGENCY COORDINATION**

The District coordinates with CCDTD on land use development proposals within the County. The County has a policy to coordinate the review of development applications with the District, for proposals within the District's jurisdiction, to ensure that approval is not granted in the absence of adequate utilities or a mechanism to provide them concurrently with development.

END OF SECTION

# SECTION 2—STORMWATER AND EROSION CONTROL DESIGN STANDARDS

## TABLE OF CONTENTS

<b>2.0000 Stormwater and Surfacewater Design .....</b>	<b>1</b>
2.0001 DEFINITIONS .....	1
2.0002 Relationship to OLWSD Rules and Regulations.....	10
2.0003 Ownership Of Stormwater System.....	10
2.0004 OLWSD Authority: Storm/Surfacewater System.....	10
2.0005 OLWSD Authority; Erosion Prevention / Sediment Control and 1200C .....	10
2.0006 CONNECTION TO THE STORM SEWER SYSTEM .....	10
2.0007 PERMIT APPLICATIONS (THE OWNER OR INSTALLER).....	11
2.0008 PERMIT REQUIRED .....	11
2.0009 AGENCY COORDINATION.....	11
2.009.1 Preliminary Statements of Feasibility: Surfacewater .....	11
2.0010 GENERAL DESIGN REQUIREMENTS .....	12
2.0011 Site Drainage Plans .....	13
A. Existing Drainage Plan .....	13
B. Proposed Drainage Plan .....	13
C. Drainage Calculations .....	14
2.0012 Minimum Design Criteria.....	14
A. Storm Detention Facility .....	14
B. Water Quality Facility.....	14
C. Conveyance Piping.....	14
2.0020 STORMWATER DETENTION/RETENTION .....	15
2.0021 Development Not Requiring Detention .....	15
2.0022 Floodplain Information .....	15
2.0023 Emergency Overflow.....	15
2.0024 Detention Facilities.....	16
2.0025 Infiltration Facilities [Underground Injection Control (UIC)] .....	16
2.0030 WATER QUALITY FACILITIES .....	17
2.0031 Criteria for Requiring Construction of a Water Quality Facility .....	17
2.0032 Plan Requirements .....	17
2.0033 Facility Design.....	18
2.0040 EROSION CONTROL.....	18
2.0050 PRIVATE DRAINAGE SYSTEMS.....	18
2.0051 Subdivisions .....	18
2.0052 Subsurface Drainage .....	18
<b>2.1000 SURFACEWATER AND EROSION PERMIT PROCEDURES AND REQUIREMENTS .....</b>	<b>19</b>
2.1001 General Notes .....	19
2.1002 OBJECTIVES.....	19



2.1003 DISCHARGE REGULATIONS.....	20
2.1003.01 PURPOSE.....	20
2.1003.02 DISCHARGE REGULATIONS.....	20
2.1003.02.01 Discharge to Sanitary Sewer System .....	20
2.1003.02.02 Discharge to Public Stormwater System .....	20
2.1003.02.03 Discharge to Creeks or Drainageways .....	21
2.1003.02.04 State Discharge Limitations .....	21
2.1003.02.05 Local Discharge Limitations .....	21
2.1003.03 PRETREATMENT FACILITIES .....	21
2.1003.03.01 Plans, Specifications, and Construction .....	21
2.1003.03.02 Facility Operations and Maintenance Agreement.....	22
2.1003.03.03 Sampling and Monitoring Facility .....	22
2.1003.03.04 Sampling .....	22
2.1003.03.05 Reporting Requirements .....	22
2.1003.03.06 Inspection and Right-of-Entry .....	22
2.1003.04 DISCHARGE TO STORM DRAIN FACILITY .....	23
2.1003.04.01 Plans, Specifications, and Construction .....	23
2.1004 EROSION CONTROL AND ENVIRONMENTAL PROTECTION .....	24
2.1004.01 PURPOSE.....	24
2.1004.01.01 General Policy.....	24
2.1004.02 EROSION CONTROL.....	24
2.1004.02.01 Erosion Control Requirements.....	24
2.1004.02.02 Plans, Specifications, and Construction .....	25
2.1004.02.03 Inspection.....	25
2.1004.02.04 Maintenance .....	25
2.1004.02.05 Deposit of Sediment.....	26
2.1004.02.06 NPDES Permit .....	26
2.1004.03 AIR POLLUTION.....	26
2.1004.03.01 Dust Control .....	26
2.1004.04.01 Construction of New Facilities .....	27
2.1004.04.02 Pollutants .....	27
2.1004.04.03 Alterations .....	27
2.1004.04.04 Construction Activities.....	27
2.1004.05 NATURAL RESOURCE PROTECTION .....	27
2.1004.05.01 Fish and Wildlife Habitat .....	27
2.1004.05.02 Sensitive Areas .....	27
2.1004.05.03 Study Requirements .....	28
2.1004.05.04 Tree Replacement within Buffer .....	28
2.1004.05.05 Sensitive Area Buffer .....	29
2.1004.05.06 Plans, Specifications, and Construction .....	29
2.1004.05.07 Hazardous Chemicals, Pesticides, Fertilizers.....	29
2.1005 ADDITIONAL SURFACE WATER MANAGEMENT STANDARDS.....	30
2.1005.01 PURPOSE.....	30
2.1005.02 GENERAL STANDARDS.....	30
2.1005.02.01 Requirements.....	30

2.1005.03 WATER QUANTITY STANDARDS .....	32
2.1005.03.010 Conveyance Standards.....	32
2.1005.03.02 Off-site Flows, Springs, and Groundwater.....	33
2.1005.03.03 Curb Drains.....	33
2.1005.03.04 Onsite Detention Design Criteria .....	33
2.1005.03.05 Onsite Detention Design Method.....	35
2.1005.03.06 Infiltration/Retention Systems .....	36
2.1005.04 WATER QUALITY STANDARDS .....	37

## 2.0000 Stormwater and Surfacewater Design

---

### 2.0001 DEFINITIONS

The following are definitions of general applicability throughout the Oak Lodge Water Services Rules and Regulations and definitions specific to this Chapter. Additional definitions specific to other Chapters are provided within each specific Chapter.

**AWWA** American Water Works Association

**Best Management Practices (BMP)** Requirements, methods, measures, practices, or design and performance standards imposed on an owner or operator that facilitate compliance with this Code, applicable water quality standards or with requirements for dredged fill materials. BMPs may cover treatment requirements, operating and maintenance procedures, schedules of activities, prohibitions of activities, and other management practices to control plant site run-off, spillage, leaks, sludge or water disposal, or drainage from raw material storage.

**Board** The Board of Directors of Oak Lodge Water Services District.

**Bond** As required by the District, a surety bond, cash deposit or escrow account, assignment of savings, irrevocable letter of credit or other means acceptable to or required by the District to guarantee that work is completed in compliance with project's surface water plan, in compliance with all District requirements, and for a maintenance period of one year thereafter. The District may require both performance bond and maintenance bond.

**Bioswale** Landscaped elements designed to remove silt and pollution from surface runoff water. They consist of a drainage course with gently sloped sides (less than six percent) and filled with vegetation.

**Buffer** Generally, the zone contiguous with a sensitive area that is required for water quality. The critical functions of a riparian buffer (those associated with an aquatic system) include shading, input of organic debris and coarse sediments, uptake of nutrients, stabilization of banks, interception of fine sediments, overflow during high water events, protection from disturbance by humans and domestic animals, maintenance of wildlife habitat, and room for variation of aquatic system boundaries over time due to hydrologic or climatic effects. The relevant regulatory agency's definition shall supersede this definition.

**Business Customer** A person who resides or conducts business or other activities on a parcel zoned for business. Mere ownership and activities that are necessary to prevent or abate nuisance conditions or to avoid deterioration of a business parcel shall not constitute "residing" or "conducting business or other activities."

**Business Parcel** A parcel of land, which is zoned for business use.

**Conservation Easements** A voluntary agreement that allows a property owner to permanently limit the type and amount of development on their property while retaining private ownership.

**Construction Activity** Ground disturbance activities including, but not limited to, clearing, grading, excavation, or filling, or activities subject to a building permit.

**Contractor** A person duly licensed or approved by the State of Oregon to perform the type of work to be done under a permit or contract issued by the District.

**County** Clackamas County, Oregon.

**Customer** A residential, commercial business, industrial, or other customer.

**Customer Charge** The periodic charges applied to all customers of the District's Surface Water Management system for the cost of planning, program development, public education, operation, maintenance, and replacement; including any other costs, such as but not limited to, debt service, capital improvements, administration, etc. This does not include charges from specific fees related to permits or one-time service fees.

**Detention** The release of surface water runoff from a site at a slower rate than it is collected by the drainage system, the difference being held in temporary storage.

**Development** Any human-induced change to improved or unimproved real estate, including but not limited to construction, installation, or expansion of a building or other structure; land division; drilling; and site alteration such as that due to land surface mining, dredging, clearing, grading, excavation, filling, construction of earthen berms, paving, or improvements for use as parking or storage.

**Discharge** Any addition of water, storm water, wastewater, process water or any pollutant or combination of pollutants to waters of the State, directly or indirectly, by actions of dumping, spilling, disposing or physically connecting to the public storm system or natural drainage conveyance.

**District** Oak Lodge Water Services District.

**Drainageway** A channel such as an open ditch that carries surface water.

**Dwelling Unit** As defined by Clackamas County.

**Easement** An interest or right to use or occupy real property for construction and maintenance of facilities.

**Engineer** A registered professional engineer licensed to practice in the State of Oregon.

**Equivalent Service Unit (ESU)** A configuration of development resulting in impervious surfaces on a parcel, which contributes runoff to the stormwater system. One ESU is equal to 2,500 square feet of impervious surface area.

**Erosion** Erosion is the movement of soil particles resulting from the flow or pressure from water, wind, or earth movement. Visible or measurable, construction-related erosion includes, but is not limited to:

1. Deposits of mud, dirt, sediment or similar material exceeding ½ cubic foot in volume on public or private streets, adjacent property, or into the storm and

surface water system, either by direct deposit, dropping, discharge, or as a result of the action of erosion during the construction period.

2. Evidence of concentrated flows of water over bare soils; turbid or sediment-laden flows; or evidence of onsite erosion such as rivulets or bare soil slopes, where the flow of water is not filtered or captured on the site.
3. Earth slides, mudflows, earth sloughing, or other earth movement, which results in material leaving the property.

**Erosion Control Plan** A plan containing a list of best management practices (BMP) to be used during construction to control and limit soil erosion.

**Excavation** The mechanical removal of earth material.

### **Fences**

Structures that consist of concrete, brick, wood, plastic, or metal posts located in the ground, connected by wood, metal, or plastic, and capable of allowing passage of water.

### **GIS**

Geographic Information System is a system of hardware and software used for storage, retrieval, mapping and analysis of geographic data.

### **Groundwater**

Water found underground in the cracks and spaces of soil, sand and rock.

### **Hazardous Materials**

Materials described as hazardous by the Department of Environmental Quality, including any toxic chemicals listed as toxic under Section 307(a) of the Clean Water Act or Section 313 of Title III of SARA.

### **Hearings Officer**

Officer appointed by the General Manager or the Board of Directors, for hearings of appeals of administrative actions.

### **Highly Erodible**

Soils with erosion (K) factors greater than 0.25, as listed in the Soil Survey of Clackamas County Area, Oregon, developed by the Soil Conservation Service.

### **Impervious Surface**

That surface area, which either prevents, or retards the entry of water into the soil mantle and/or causes water to run off the surface in greater quantities or at an increased rate. Impervious surfaces may include, but are not limited to, rooftops, concrete or asphalt paving, walkways, patios, driveways, parking lots, oiled macadam, gravel, or other surfaces which similarly resist infiltration or absorption of moisture.

### **Industrial Waste**

Any liquid, gaseous, radioactive or solid waste substance, or a combination thereof, resulting from any process of industry, manufacturing, trade or business, or from the

development or recovery of any natural resources, or as defined by the Oregon State Department of Environmental Quality or the United States Environmental Protection Agency, exclusive of domestic sewage.

### **Infiltration System**

A drainage facility designed to use the hydrologic process of surface and storm water runoff soaking into the ground, commonly referred to as recharge, to dispose of surface and stormwater runoff.

### **In-Lieu Fee**

A fee paid to the District to cover onsite water quality or water quantity facilities from a site on which stormwater management is not practical.

### **In-Line Detention**

Detention located in a stream channel, a drainageway, or in a regional or subregional piped system. In-line detention mixes flows to be detained with flows from other areas.

### **Inspector**

A person authorized by the District to inspect construction sites and activities affecting surface water.

### **Metro**

The Metropolitan Service District organized and operating under ORS Chapter 268 and its Charter in portions of Washington, Multnomah and Clackamas Counties to provide planning and other services.

### **Municipal Separate Storm Sewer System (MS4)**

A conveyance or system of conveyances (including roads, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a public body. The system is designed and used for collecting storm water, and is not a combined sewer or part of a Publically Owned Treatment Works (POTW).

### **National Pollutant Discharge Elimination System (NPDES) Permit**

A permit issued pursuant to Chapter 402 of the Clean Water Act (40 CFR 122, 123, 124, and 504).

### **Non-Single-Family Customer (or User)**

A person or property owner who resides or conducts business or other activities on a parcel that is other than a single-family parcel, including multi-family developments, commercial or industrial zoned parcels.

### **Oak Lodge Sanitary District Plant List**

A document maintained by the District that lists native plant and tree species that are allowed and approved by the District in its plan reviews for replanting vegetation.

## **Open Space**

1. Land within a development that has been dedicated in common to the ownership within the development or to the public specifically for the purpose of providing places for recreational uses or scenic purposes.
2. Land designated by local, state, or federal agencies for preservation.

## **Owner**

The owner of record title or the purchasers under a recorded sale agreement and other persons having an interest of record in the described real property.

## **Parcel of Land**

A lot, parcel, block or other tract of land that is occupied or may be occupied by a structure or structures or other use, and includes yards and other undeveloped areas required under the zoning, subdivision or other development ordinances.

## **Perennial Stream**

A permanently flowing (non-intermittent) stream.

## **Permit**

Any authorization required pursuant to this or any other regulation of the District.

## **Permittee**

The person issued a building permit, development permit or any other permit described in this Code is issued.

## **Person**

Any individual, firm, company, corporation, partnership association, entity, public corporation, political subdivision, governmental agency, municipality, industry, or any department or agency thereof.

## **Pollutant**

Any of the following, but not restricted to: oil, grease, soil, mining waste, spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, heavy metals, asbestos, wrecked or discharged equipment, cellar dirt and untreated industrial, municipal and agricultural discharges into water.

## **Post-developed**

Conditions at the site after development.

## **Pre-developed**

Conditions at the site immediately before application for development. Man-made site alterations or activities made without an approved development permit will not be considered as pre-developed conditions.

## **Pretreatment**

The reduction of the total suspended solids, including sediments and turbidity-causing

materials and the removal of petroleum hydrocarbons, fats, oils, and grease through physical straining, settling processes or filtering of runoff.

### **Private Storm System**

That portion of the storm system owned and/or maintained by any person or entity other than the District and is located outside the public right-of-way, except as otherwise approved by the District.

### **Property (or the Site)**

The real property undergoing development.

### **Public Stormwater System**

Those portions of the stormwater system that are in the public ROW. Natural waterways are defined under State and Federal regulations.

### **Public Right-of-Way**

Any public highway, road, street, avenue, alleyway, public place, public easement, or public right-of-way.

### **Rational Method**

A formula for estimating maximum discharge of runoff at a point, using flow (Q), runoff coefficient (C), rainfall intensity (I) for selected recurrence interval, and area (A), in the formula:  $Q=CIA$ .

### **Redevelopment**

A project that proposes to add, replace, and/or alter impervious surface (for purposes other than routine maintenance, such as resurfacing) on a site that is already developed. Requirements related to redevelopment shall be met when the project impacts greater than 500 square feet of impervious surface area.

### **Retention**

The process of collecting and holding surface water runoff with no surface outflow.

### **Sensitive Areas**

Existing or created wetlands, including all mitigated wetlands, Rivers, streams, sloughs, swamps, creeks and impoundments; limits defined by wetlands reports approved by the U.S. Army Corp of Engineers (USACE), Oregon Department of State Lands (DSL), and / or Clackamas County.

### **Standard Methods**

The examination and analytical procedures set forth in the most recent edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, AWWA, and Water Environment Federation.

### **Stop Work Order**

An Order issued by the District for violation of the Rules and Regulations. All work contributing to the violation must cease when a Stop Work Order is issued and the Stop Work Order will stay in place until such time as removed by the District in writing.



**Storm Drain Facility**

A constructed or natural feature that conveys surface water flows or runoff during rain events, including but not limited to pipes, streets, ditches, streams, pollution reduction manholes, and detention facilities.

**Storm Drainage/Storm Sewer**

A pipe, or any method of conveyance that carries stormwater, surface runoff, or drainage.

**Stormwater**

Waters on the surface of the ground or underground resulting from precipitation.

**Stormwater Management**

A program to provide surface water quality and quantity controls through nonstructural methods and capital improvement projects. Nonstructural controls include maintenance of surface water facilities, public education, water quality monitoring, implementation or intergovernmental agreements to provide for regional coordination, and preparation of water quality control ordinances and regulations. Also, "surfacewater management"

**Stormwater Quality Treatment Facility**

Stormwater Quality Treatment Facility refers to any structure or drainageway that is designed, constructed, and maintained to collect, filter, retain, or detain surface water runoff during and after a storm event for the purpose of water quality improvement. It may include, but is not limited to constructed wetlands, water quality swales, and ponds.

**Stream**

A drainageway that is determined to be jurisdictional by the USACE or DSL. Also referred to as creek.

**Top-of-bank**

The point closest to the boundary of the active floodplain of a stream where a break in the slope of the land occurs such that the grade beyond the break is flatter than 3:1 at any point for a minimum distance of 25 feet measured perpendicularly from the break.

**Treatment**

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in water to a less harmful state prior to discharging to Waters of the State.

**Undeveloped Land**

Land left in its natural state, free from any structures, roadways, placement of impervious materials or any other man created alteration.

**User**

Any person or entity in whose name service is rendered as evidenced by the signature on the application or contract for that service, or in the absence of a signed instrument, but the receipt and payment of utility bills regularly issued in his/her/its name. A user, under this system and structure of rates, is either single-family or non- single-family.

### **User – Non-Single-family**

Any user whose impervious surface results from the development of land for purposes of operating a dwelling unit for occupancy by more than one single-family or for other business, industrial, commercial or institutional purposes and to whom utility services are provided at a distinct service location.

### **Variance**

A discretionary decision to permit modification of the terms of any part of this Code based on a demonstration of unusual hardship or exceptional circumstance unique to a specific property.

### **WES**

Clackamas County Water Environment Services is the wastewater and surface water management agency for Clackamas County.

### **Water Quality Facility**

A facility specifically designed for pollutant removal.

### **Water Quality Standards**

The Federal Clean Water Act, the Code of Federal Regulations, ORS Chapter 468 and OAR Chapter 340 Division 41.

### **Water Treatment Bioswale/Water Quality Swale**

A vegetated natural depression, wide shallow ditch, or similar constructed facility used to filter runoff for the purpose of improving water quality.

### **Waters of the State**

Those waters defined in ORS Chapter 468B.005, or as amended, which include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

### **Wetland**

Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are those areas identified and delineated by a qualified wetlands specialist as set forth in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, January 1987, or by a DSL/COE 404 permit. Wetlands may also consist of:

1. **Constructed Wetlands.** As defined in Section 404 of the Clean Water Act, constructed wetlands are those areas developed as a water quality or quantity facility, subject to maintenance as such. These areas must be clearly

separated from existing or created wetlands.

2. **Created Wetlands.** Created wetlands are those wetlands developed in an area previously identified as a non-wetland to replace or mitigate wetland destruction or displacement.
3. **Existing Wetlands.** Wetlands identified and delineated as set forth in the Federal Manual for Identifying the Delineating Jurisdictional Wetlands, January 1987, or as amended, by a qualified wetlands specialist.

**Work Area**

Areas of disturbance for activities defined under “Development”. Work Area includes areas used for storage of equipment or materials that are used for these activities.

### **2.0002 Relationship to OLWSD Rules and Regulations**

The following standards, procedures and rules are adopted by reference in section 202.05 of OLWSD Rules and Regulations and have the full force and effect of the OLWSD Rules and Regulations.

### **2.0003 Ownership Of Stormwater System**

The public storm sewer system is located on or within public and private property. Generally, Clackamas County owns the storm sewer and surfacewater facilities in the public right-of-way (ROW). OLWSD assists in maintaining some infrastructure in the public rights-of-way through various agreements, but does not generally own or is responsible for the drainage function of that system.

Property owners generally own and maintain storm sewer and surfacewater facilities on private property regardless of the authority, ownership or responsibility of the water entering those privately-owned facilities.

### **2.0004 OLWSD Authority: Storm/Surfacewater System**

OLWSD's authority is derived from its compliance responsibilities with the District's MS4 permit. Compliance with this permit includes water quality monitoring, associated reporting, assuring new development and construction adheres to surfacewater standards for volume, rate and quality and erosion prevention / sediment control and to retrofit existing developed areas to improve water quality, perform watershed assessment. The District is a co-permittee with Clackamas County MS4 Permit with authority allocated to each separate jurisdiction.

Clackamas County recognizes that the District has responsibility for operating, planning, and regulating surface water management systems in Comprehensive Plan Chapter Public Facilities and Services Policies 19-26 which requires all new developments to meet the development standards of the appropriate service provider.

### **2.0005 OLWSD Authority; Erosion Prevention / Sediment Control and 1200C**

OLWSD is responsible for "small lot" construction and development on tax lot(s) that are less than one acre (43,560sf). Construction, development and ground disturbing activities on lot(s) greater than one acre are required to obtain a 1200C permit from the Oregon Department of Environmental Quality which performs permit application review and inspection.

### **2.0006 CONNECTION TO THE STORM SEWER SYSTEM**

Any connection (either piped or release) to the stormwater / storm sewer / surfacewater system must be requested by the Property Owner, at owner's expense to the appropriate regulatory authority, to connect directly with the proper public stormwater in accordance with the provisions of these regulations. Such request shall be made through complete application to connect to the stormsewer system.

## **2.0007 PERMIT APPLICATIONS (THE OWNER OR INSTALLER)**

The installer of work covered by these regulations shall make application for a permit on forms provided by the District. The Property Owner or representative must also sign the permit application as acknowledgement of the work proposed to be performed. The permit application shall be supplemented by any plans, specifications or other information considered necessary by the General Manager or designee.

## **2.0008 PERMIT REQUIRED**

An OLWSD-issued permit is required prior to any work commenced. Failure to acquire permit(s) equate to a violation of the Rules and Regulations. The issuance of a permit by the District will not relieve the permit holder from the responsibility of obtaining such other permits or licenses as may be required by other governmental agencies.

## **2.0009 AGENCY COORDINATION**

The District coordinates with CCDD and DEQ on land use and/or development proposals within the County. In the Clackamas County Comprehensive Plan Chapter 11 Policy 1 of City, Special District and Agency Coordination's Policy 1 authorizes the County to: *"Participate in interagency coordination efforts with federal, state, Metro, special purpose districts and cities. The County will maintain an updated list of federal, state and regional agencies, cities and special districts and will invite their participation in plan revisions, ordinance adoptions, and land use actions which affect their jurisdiction or policies."* The County has a policy to coordinate the review of development applications with the District, for proposals within the District's jurisdiction, to ensure that approval is not granted in the absence of adequate surfacewater management facilities per Clackamas County Zoning and Development Ordinance.

### **2.009.1 Preliminary Statements of Feasibility: Surfacewater**

The District signs preliminary statements of feasibility for surfacewater management as the surfacewater management authority subject to the following conditions: OLWSD requests Clackamas County to co-sign the Statement. OLWSD does not own the stormwater conveyance system and cannot authorize connections to that system. The owner of the system reconciles existing capacity to proposed impacts. Some development proposals may require use of public easements which OLWSD cannot determine access rights. Other conditions may apply depending on the proposal.

## 2.0010 GENERAL DESIGN REQUIREMENTS

**Performance Standards:** Storm drainage design within a development area must include provisions to adequately control runoff from all public and private streets and the roof, footing, and area drains of residential, multi-family, commercial, and/or industrial buildings. The design must ensure future extension of the drainage system to the entire drainage basin in conformance with the adopted Storm Drainage Master Plans and Strategic Plans and these Design Standards. These provisions include:

1. Surface or subsurface drainage, caused or affected by the changing of the natural grade of the existing ground or removal of natural ground cover or placement of impervious surfaces, shall not be allowed to flow over adjacent public or private property in a volume or location materially different from that which existed before development occurred, but shall be collected and conveyed in an approved manner to an approved point of disposal.
2. Surface water entering the subject property shall be received at the naturally occurring locations and surface water exiting the subject property shall be discharged at the natural locations with adequate energy dissipaters within the subject property to minimize downstream damage and with no diversion at any of these points.
3. The approved point of disposal for all storm water may be a storm drain or a detention or retention pond or other approved by Clackamas County or other relevant agency. Existing open channels, creeks or streams are approved points of disposal after the stormwater has been treated for water quality. Acceptance of proposed systems will depend upon the prevailing site conditions, capacity of existing downstream facilities, and functional performance of the alternate design.
4. When private property must be crossed in order to reach an approved point of disposal, it shall be the developer's responsibility to acquire a recorded drainage easement. Temporary drainage ditch facilities, when approved, must be engineered to contain the storm water without causing erosion or other adverse effects to the private property.
5. The peak discharge from the subject property may not be increased from conditions existing prior to the proposed development, except where it can be satisfactorily demonstrated by the applicant that there is no adverse impact.
6. Retention/detention facilities will be required where necessary to maintain surface water discharge rates at or below the existing storm peak discharge, except where it can be demonstrated by the applicant that no adverse impact will result from not providing said facilities.
7. Permanent stormwater quality control facilities will be required for all new developments and redevelopments and construction projects including public road expansion projects.
8. Drainage from roofs, footings, and downspouts shall drain to a private stormwater management system. Systems other than residential drywells (or

soakage trenches) shall be designed by an engineer and reviewed by OLWSD staff for approval.

9. Vegetation shall be established on areas disturbed by/or on areas of construction, as necessary, to minimize erosion in accordance with OLWSD or DEQ standards.

All storm drain system designs shall make adequate provisions for collecting all storm water runoff. The system shall accommodate all runoff from upstream tributary areas whether or not such areas are within the proposed development. The amount of runoff to be accommodated shall be based upon ultimate development of all upstream tributary areas.

Proposed storm drain systems shall not discharge flows into inadequate downstream systems unless approved by Clackamas County or relevant agency.

10. Applicant must obtain all necessary permits (Division of State Lands, Army Corps of Engineers, Oregon Department of Fish and Wildlife, etc.)

## **2.0011 Site Drainage Plans**

### **A. Existing Drainage Plan**

Provide a topographical contour map defining existing conditions to include the following minimum information.

1. 2' contour intervals; slopes over 10% may use 5' intervals; extend contours a minimum of 100 feet beyond property.
2. All structures, buildings, parking lots, and utilities on the property.
3. Locations of all existing drainage facilities and watercourses, including wetlands and floodplain areas and overland drainage, intercepted drainage or areas of high water tables.
4. Locations of all subsurface water outlets (e.g., springs).
5. Arrows to indicate direction of flow for all drainage information.
6. All existing on-site storm and surfacewater infrastructure.

### **B. Proposed Drainage Plan**

Show proposed site grading and drainage facilities on a topographical contour map. Unless the detail for proposed improvements will obscure the conditions shown on the existing drainage plan, proposed site grading and drainage may be shown on the existing drainage plan. The following minimum information shall also be shown.

1. Finished contours of the property, after development, at 2' or 5' intervals as required.
2. Percent grade for graded slopes; elevations, dimensions and locations for all graded slopes.

3. Cut/fill areas; structural fill placement areas; erosion/sedimentation control methods; reseeding areas.
4. All proposed drainage facilities—including but not limited to public and private systems; paved areas, curbs, sidewalks; drainage ditches, culverts.
5. On-site basin plan showing drainage areas with respective treatment facilities. (For example, the drainage area for each proposed swale, and/or catch basin, and/or inlet, and/or mechanical filter, and/or outlet.

**C. Drainage Calculations**

Furnish such supporting information as required per Subsection 305 of these Design Standards.

**2.0012 Minimum Design Criteria**

**A. Storm Detention Facility**

Storm detention facilities shall be designed to provide storage up to the 25-year storm event, with the safe overflow conveyance of the 100-year storm event. Calculations of site discharge for both the existing and proposed conditions shall be required using the Unit Hydrograph Method. Storms to be evaluated shall include the 2-, 5-, 10-, 25-, and 100-year events. Allowable postdevelopment discharge rate for the 2-, 5-, 10-, and 25-year events shall be that of the predevelopment discharge rate. An outfall structure such as a “V-Notch” weir or a single or multiple orifice structure shall be designed to control the release rate for the above events. No flow control orifice smaller than 1.0 inch shall be allowed. If the maximum release rate cannot be met with all the site drainage controlled by a single 1.0-inch orifice, the allowable release rate provided by a 1.0-inch orifice will be considered adequate as approved by the District Engineer.

See Appendix 3 in this Chapter for additional standards and guidance.

**B. Water Quality Facility**

All Water Quality Facilities shall meet the design requirements of the current City of Portland, Stormwater Management Manual, as amended and adopted by the District and the requirements of Appendix 3 in this Chapter. Proposed facilities shall be of this design or equivalent. If this design is not used, a variance application shall be submitted.

See Appendix 3 in this Chapter for additional standards and guidance.

**C. Conveyance Piping**

**1. Time of Concentration**

Overland flow of runoff to the initial catchment point into the storm drain system shall be a minimum of 5 minutes.



## **2. Velocity and Slope**

All storm drains shall be on a grade which produces a mean velocity when flowing full, of at least 2' per second. The slope shall not be less than .0055.

## **3. Velocity in Natural Channels**

Control of discharge from developed areas to natural channels shall be such that the average velocity resulting from all design storms less than or equal to the 10-year event remains below the erosive velocity of the channel.

## **4. Manning's Equation**

When calculating minimum pipe slopes and velocities, the Design Engineer shall use the Manning pipe friction formula.

## **5. Pipe Coefficient**

The storm drainpipe roughness coefficient to be used in the Manning formula shall be not less than 0.013.

## **6. Design Storm**

The minimum design storm is the 100-year event.

## **2.0020 STORMWATER DETENTION/RETENTION**

### **2.0021 Development Not Requiring Detention**

In general, all developments will be required to provide on-site detention, unless the developer can demonstrate by a hydraulic analysis that proposed development will not significantly increase stormwater runoff volumes or peak discharge.

However, water quality facilities may still be required.

### **2.0022 Floodplain Information**

Floodplain information, delineating the 100-year floodplain limits, shall be shown where it occurs within the development. Floodplain limits shall be based on maps prepared by the U.S. Army Corps of Engineers and the Federal Emergency Management Agency (FEMA). Where better information is available, it shall be used by the Design Engineer.

### **2.0023 Emergency Overflow**

The Design Engineer shall assess the impacts of system failure for on-site detention. Overflow may occur due to rainfall intensity which exceeds the design storm, debris blockage of storm drain system, or some other reason.

The storm drain system shall be designed such that overflows do not cause inundation of neighboring properties. Potential overflow routes shall be adequately protected from erosion.

If surface detention (e.g., pond) is used, an overflow system shall be included to provide controlled discharge of design storm event for developed conditions as required by OLWSD, without overtopping any part of the pond embankment or exceeding the capacity of the emergency spillway. The overflow design shall assume failure of the normal outlet control structure. An emergency spillway shall be able to safely pass all flows over the pond embankment without overtopping the embankment. Sufficient armoring will be required to the toe on each face of the embankment to prevent failure of the embankment from erosion.

#### **2.0024 Detention Facilities**

Detention volume storage methods, in order of preference, are the following.

1. Surface storage—pond
2. Combination pond and water quality treatment
3. Roadside swales overflowing to a stormwater system.
4. Underground storage by tank or vault will be approved by the District Engineer only when a pond is impracticable.

#### **2.0025 Infiltration Facilities [Underground Injection Control (UIC)]**

Infiltration facilities, also known as Underground Injection Control or UIC facilities (UICs) are governed by the Oregon Department of Environmental Quality (DEQ) pursuant to OAR 340-106-0001 and OAR 340-044-0005 (or equivalent). Stormwater UICs include drywells, storm sumps, french drains, infiltration trenches and galleries, and other devices designed or intended to dispose of stormwater directly below the soil without the benefit of surface infiltration.

Any person seeking to install a UIC within the District must first obtain a permit from DEQ. The OLWSD does not authorize, permit or review UICs. All other UICs, including those that accept stormwater from any residential driveway, commercial parking lot, street, etc., must be registered and permitted or rule authorized by DEQ.

## **2.0030 WATER QUALITY FACILITIES**

### **2.0031 Criteria for Requiring Construction of a Water Quality Facility**

A water quality facility shall be constructed unless, in the judgment of the District Engineer, any of the following conditions exists. The applicant or owner may use the below to substantiate a variance request to water quality facility installation.

1. The site topography or soils makes it impractical, or ineffective to construct an on-site facility.
2. The site is small compared to the development plan, and the loss of area for the on-site facility would preclude the effective development.
3. There is a more efficient and effective regional site within the subbasin that was designed to incorporate the development.
4. The development is for the construction of 1-or 2-family (duplex) dwellings on existing lots of record and not part of a subdivision with water quality treatments required for the subject impervious area(s).

If construction of an on-site facility is not required, then the District Engineer may require that development to construct an off-site treatment facility that will treat an equal or greater volume of stormwater elsewhere within the District. It is the developments responsibility to acquire the land necessary offsite to construct the proposed facility and to provide proof to the District Engineer that land has been acquired prior to the Land Use Application being deemed complete by the District. If the District is not furnished with adequate proof of ownership, then the application will not be deemed complete.

### **2.0032 Plan Requirements**

When construction of water quality facilities is required the following shall be contained on the plan(s):

1. The application shall include a set of construction plans prepared by the Design Engineer that certifies the proposed water quality facilities have been designed in accordance with the criteria required in these Standards.
2. A financial assurance, meeting the requirements of the community development code is provided for the construction of the water quality facility.
3. An operation and maintenance plan shall be prepared showing how the water quality facility is to be maintained.
4. A landscape plan shall be prepared for the proposed facility.
5. A list of recommendations by a Geotechnical Engineer may be required at the discretion of the District Engineer.

## **2.0033 Facility Design**

All Water Quality Facilities shall meet the design requirements of the current City of Portland, Stormwater Management Manual, as amended and adopted by OLWSD. See Appendix 3 for additional information.

## **2.0040 EROSION CONTROL**

All relevant construction activities shall provide erosion prevention measures and sediment control practices during all phases of construction to prevent and restrict the discharge of sediments in accordance with the District's Rules and Regulations and OAR 340-41-455(3)<sup>1</sup> (or equivalent). See Appendix 3 of this section for Erosion Prevention and Sediment Control standards.

## **2.0050 PRIVATE DRAINAGE SYSTEMS**

### **2.0051 Subdivisions**

When subdivision lots drain to the rear it may be necessary to provide a private drainage system in private easements. This system shall be for collection of roof drains, footing drains, and surface runoff. This system shall be designed to meet the Uniform Plumbing Code requirements.

### **2.0052 Subsurface Drainage**

Subsurface drains (underdrains) shall be provided at the following locations:

1. Where existing springs and field tile intercepted during construction activity for other facilities; i.e., sewer, water, mains, street excavations, foundations, etc. Subsurface drains are not needed if the tile is removed.
2. Where high ground water exists or when it is necessary to reduce the piezometric surface to an acceptable level to prevent land slippage or underfloor flooding of buildings.

---

<sup>1</sup> At time of composition

## **2.1000 SURFACEWATER AND EROSION PERMIT PROCEDURES AND REQUIREMENTS**

---

### **2.1001 General Notes**

The following notes shall be contained in any submitted surfacewater permit application:

1. Erosion Control must be inspected prior to construction commencement. Call OLSD at least 24 hours in advance of needing inspection. No inspections will be scheduled after 1:30PM
2. Additional erosion control measures, and/or permits and/or fees may be required if the project scope changes from the approved plans.
3. Utility Placement Permits (Road Opening) may be required by Clackamas County if work enters the public right-of-way or other applicable area.
4. All hazardous chemicals, which are delivered to or stored at the job site during construction, restoration, or maintenance activities shall be stored, covered, and protected from the weather. None of the materials shall be exposed during storage. Hazardous chemicals shall be disposed of in such a manner that pollution of soil, groundwater, surface water.
5. The use of hazardous chemicals including, but not limited to, pesticides (including insecticides, herbicides, defoliants, soil sterilants) and fertilizers, must strictly adhere to federal, state, and local regulations.

### **2.1002 OBJECTIVES**

The District provides surface water management through maintenance of surface water facilities, public education, water quality monitoring, implementation of intergovernmental agreements to provide for interjurisdictional coordination, and preparation of water quality and quantity control ordinances and regulations.

The objectives of this section are to:

1. Prevent or minimize the introduction of pollutants to surface waters;
2. Meet Federal National Pollutant Discharge Elimination System (NPDES) permit requirements;
3. Prevent future pollution and erosion through implementation of Best Management Practices (BMP);
4. Provide for the equitable distribution of the costs of the surface water management program; and
5. Better manage and control surface water within the District.

## **2.1003 DISCHARGE REGULATIONS**

### **2.1003.01 PURPOSE**

This chapter provides for the regulation of discharge of stormwater, pretreatment facilities, and storm drainage facility connection.

### **2.1003.02 DISCHARGE REGULATIONS**

An Erosion Control/Surface Water Management Permit is required to discharge to the District's sanitary sewer system, any public stormwater system, creeks, or other drainageways. Before discharging to any constructed or natural systems within the District, an Erosion Control/Surface Water Management Permit authorizing such discharge shall first be secured in writing from the District and fees paid. No person shall discharge or cause to be discharged, directly or indirectly, any quantity of stormwater, pollutant substance, or wash water into the public stormwater system unless an Erosion Control/Surface Water Management Permit is obtained from the District

#### **2.1003.02.01 Discharge to Sanitary Sewer System**

Discharge or contribution to the discharge of any stormwater or other unpolluted water is not allowed into the District's sanitary sewer system without specific approval from the District.

#### **2.1003.02.02 Discharge to Public Stormwater System**

All discharges to the public stormwater system shall have authorization from the utility's owner; Clackamas County. Prohibited stormwater discharge activities include, but are not limited to, the following:

1. Introduction of pollutants or waters to the public stormwater system containing pollutants or concentrations at levels equal to or in excess of those necessary to protect waters of the State.
2. Failure to abide by the terms of any Erosion Control/Surface Water Management Permit, MS4 permit, NPDES permit, statute, administrative rule, ordinance, stipulated and final order or decree, or other permit or contract.
3. Discharges of non-stormwater or spills or dumping of materials other than stormwater into public storm system unless pursuant to a conditional Erosion Control/Surface Water Management Permit approved by the District and in compliance therewith.
4. Illegal or unpermitted connection or methods of conveyance to the public stormwater system.

5. Any discharge that will violate federal, state, or local water quality standards.

### **2.1003.02.03 Discharge to Creeks or Drainageways**

New storm drains and roof drains are not allowed to drain directly into creeks or drainageways or encroach into the buffer unless an Erosion Control/Surface Water Management Permit is obtained from the District. Encroachment into buffer areas must be approved by the District and will require mitigation. Existing and replacement storm drains shall be constructed according to current state and federal regulations. Non-single family development shall provide an approved water quality facility prior to any discharge from the site to a storm drain system, a creek or drainageway, as approved by the District.

### **2.1003.02.04 State Discharge Limitations**

State requirements and limitations on discharges shall apply in any case where they are more stringent than Federal requirements and limitations or those provided in this chapter.

### **2.1003.02.05 Local Discharge Limitations**

The District retains the right to establish by ordinance more stringent limitations or requirements on discharges if such limitations or requirements are deemed necessary to comply with this chapter.

## **2.1003.03 PRETREATMENT FACILITIES**

The District may require that pretreatment facilities are necessary to comply with water quality standards. Before constructing or operating any pretreatment facilities within the District, an Erosion Control/Surface Water Management Permit authorizing such connection shall first be secured in writing from the District and fees paid.

### **2.1003.03.01 Plans, Specifications, and Construction**

1. The District may require plans, specifications, and other information relating to the construction or installation of pretreatment facilities.
2. Pretreatment facility construction and installation shall not commence until written approval of plans and specifications by the District is obtained.
3. Every facility for the pretreatment and handling of surface water discharged from non-single family residential development sites shall be constructed in accordance with approved plans and specifications.
4. The applicant shall notify the District when the facility is ready for final

construction inspection. The inspector shall then inspect the facility construction. If such construction meets the previous permit requirements, a pretreatment facility approval shall be issued.

### **2.1003.03.02 Facility Operations and Maintenance Agreement**

The District may require an Operations and Maintenance Agreement for pretreatment facilities. This agreement may set forth operations and maintenance, sampling, access, and other requirements. This agreement will provide for District access to inspect the facility. This agreement will be recorded in the County records against the affected property.

Every facility for the pretreatment and handling of surface water discharged shall be installed, maintained, and repaired at the expense of the facility owner discharging the surface water. The owner shall be responsible for maintaining and repairing pretreatment facilities using BMPs, as determined by the District or authorized representative.

### **2.1003.03.03 Sampling and Monitoring Facility**

A person constructing a pretreatment facility, as required by the District, shall also install and maintain, at the expense of the facility, owner a suitable sampling access point for checking and investigating the discharge from the pretreatment facility to the public storm system. The sampling point shall be in accordance with specifications approved by the District.

### **2.1003.03.04 Sampling**

Samples discharged into the public surface water system shall be representative of the use and shall be taken after treatment, if any, and before dilution by other water. The sampling method shall be one approved by the District and in accordance with best engineering practices. All sample analysis shall be performed in accordance with the procedures set forth in 40 CFR Part 136<sup>2</sup>, as amended.

### **2.1003.03.05 Reporting Requirements**

The District may require the permit holder to submit a compliance report indicating the quantity and quality of surface water discharge, the need for pretreatment to comply with applicable standards, and the operation and maintenance schedule of the pretreatment facility.

### **2.1003.03.06 Inspection and Right-of-Entry**

---

<sup>2</sup> Or equivalent



The District or authorized representatives may inspect the monitoring facilities of any permittee to determine the compliance with the requirements of this Code. The discharger shall allow the District or authorized representatives to enter upon the premises at any reasonable hour for the purpose of inspection, sampling, or records examination. The District shall also have the right to install on the user's property such devices as are necessary to conduct sampling, inspection, compliance, monitoring, and/or metering operations. The right of entry includes but is not limited to access to those portions of the premises that contain facilities for sampling, measuring, treating, transporting, or otherwise handling surface water and storing records, reports, or other related documents.

#### **2.1003.04 DISCHARGE TO STORM DRAIN FACILITY**

An Erosion Control/Surface Water Management Permit is required to discharge or drain to any storm drain facility, including but not limited to pipes, streets, ditches, streams, pollution reduction manholes, and detention facilities, whether constructed or natural. Before discharging or draining to any storm drain facilities within the District, an Erosion Control/Surface Water Management Permit authorizing such discharge shall first be secured in writing from the District and fees paid.

##### **2.1003.04.01 Plans, Specifications, and Construction**

The District may require plans, specifications, and other information relating to the construction or installation of storm drain facility connections.

1. Storm drain facility connections construction and installation shall not commence until a written permit and approval of plans and specifications by the District is obtained.
2. Every storm drain facility connection shall be constructed in accordance with approved plans and specifications and shall be installed, maintained, and repaired at the expense of the facility owner connecting to a storm drainage facility.
3. The applicant shall notify the District when the connection is ready for inspection. The inspector shall then inspect the connection construction therein, and if such construction meets the previous requirement as approved in the permit, a connection approval shall be issued.

## **2.1004 EROSION CONTROL AND ENVIRONMENTAL PROTECTION**

### **2.1004.01 PURPOSE**

This Article provides for the regulation of erosion and pollution control to maintain and protect water quality and natural resources in accordance with federal, state, and local water quality standards.

#### **2.1004.01.01 General Policy**

1. To comply with water quality standards set forth in OAR 340-041<sup>3</sup>, it is the District's policy to prevent erosion and eliminate or reduce the amount of sediment and other pollutants reaching the public storm and surface water system.
4. The provisions of this Chapter apply during construction activities and until permanent erosion and pollution control measures are in place, or the site is stabilized and/or the District closes the associated permit(s) as described herein, unless otherwise noted.
5. This chapter is intended to regulate construction activities and other activities that accelerate erosion. It is the District's policy to require temporary and permanent measures for all construction projects to lessen the adverse effects of site alteration on the environment.
6. Nothing in this section shall relieve any person from obligation to comply with the regulations or permits of any federal, state, or local authority.

### **2.1004.02 EROSION CONTROL**

#### **2.1004.02.01 Erosion Control Requirements**

1. Where the District determines that erosion control facilities are necessary to comply with water quality standards, an Erosion Control/Surface Water Management Permit is required for construction and operation of such facilities. Before constructing any erosion control facilities within the District, an Erosion Control/Surface Water Management Permit authorizing such facilities shall first be secured in writing from the District and fees paid. Erosion control facilities and measures shall meet requirements of the current "*Clackamas County Water Environment Services Erosion Prevention Planning and Design Control Manual.*"
2. The permittee or owner is responsible for the cost of installation, maintenance, and repair of all erosion control facilities required by an Erosion Control/Surface Water Management Permit, including both

---

<sup>3</sup> Or equivalent

temporary and permanent facilities, as applicable.

3. The permittee or owner shall use BMPs, as determined by the District or Authorized designee.
4. No visible or measurable erosion shall leave the property during any construction or other erosion accelerating activity. The permittee/owner, along with any person who causes such visible or measurable erosion, shall be responsible for cleanup, damages, and fines. Cleanup responsibilities may involve, but are not limited to public facilities, resources, and areas impacted by a project including, but not limited to, creeks, drainageways, wetlands, catch basins, storm drains, and sensitive areas.

#### **2.1004.02.02 Plans, Specifications, and Construction**

In addition to the requirements of these Standards and Rules and Regulations, the District may require plans, specifications, and other information relating to the construction or installation of erosion control facilities or restoration plans. Erosion control facility construction and installation shall not commence until the permittee receives the District's written approval of erosion control plans and specifications. All erosion control facilities shall be constructed in accordance with approved plans and specifications.

#### **2.1004.02.03 Inspection**

The erosion control facilities and measures necessary to meet the requirements of this subsection shall be installed by the owner and shall be inspected by the District prior to the start of any construction activity. The owner shall notify the District when the erosion control facility is ready for final construction inspection. The District's inspector shall then inspect the facility construction prior to final approval.

#### **2.1004.02.04 Maintenance**

1. Maintenance of existing facilities shall be the responsibility of the property owner or applicant.
2. The permittee or owner shall maintain the erosion control facilities and BMPs in conformance with the approved erosion control plan.
3. If adequate maintenance is not performed, the maintenance standards and schedule shall be reviewed and enforced by the District and the owner or permittee shall be responsible to the District for costs incurred.
4. Where an erosion control plan is not effective or sufficient as determined by the District through a site inspection, the District may issue a stop work order and the permittee or owner shall be required to submit a

revised plan to the District. Upon approval of the revised plan by the District, the permittee or owner shall immediately implement the additional facilities and techniques of the revised plan.

5. In cases where erosion is occurring in violation of this Code, the District may require the owner/permittee to install interim control measures prior to submittal of the revised erosion control plan.

#### **2.1004.02.05 Deposit of Sediment**

No person shall drag, drop, track, or otherwise place or deposit, or permit to be deposited, mud, dirt, rock or other such debris on a public street or into any part of the public storm and surface water system, or any part of a private storm and surface water system, which drains or connects to the public stormwater and surface water system. Any such deposit or material shall be immediately removed using hand labor or mechanical means. No material shall be washed or flushed into any part of the storm and surface water system without erosion control measures installed to the satisfaction of the District, and any such action shall be a violation.

#### **2.1004.02.06 NPDES Permit**

Any construction activity disturbing one (1) or more acres of land shall obtain an NPDES Stormwater Discharge Permit issued by DEQ and submit a copy of the permit application, plans and associated reports and issued permit to OLWSD.

### **2.1004.03 AIR POLLUTION**

#### **2.1004.03.01 Dust Control**

Dust and other particulate matters containing pollutants that settle on property or are carried to surface waters through rainfall or other means shall be minimized to the maximum extent practicable, utilizing all measures necessary, including but not limited to:

1. Sprinkling with water, haul and access roads and other exposed dust producing areas,
2. Establishing temporary vegetative cover,
3. Placing wood chips or other effective mulches on vehicle and pedestrian use areas;
4. Maintaining the proper moisture condition on all fill surfaces,
5. Pre-wetting cut and borrow area surfaces, and
6. Using of covered haul equipment.

## **2.1004.04 WATER QUALITY MAINTENANCE**

### **2.1004.04.01 Construction of New Facilities**

Construction of new water quality facilities between stream banks shall be pursuant to permits issued by jurisdictional state and federal agencies (i.e., USACE and DSL) and applicable regulations.

### **2.1004.04.02 Pollutants**

Pollutants in the DEQ current toxics standards identified in OAR 340-041<sup>4</sup>, such as, but not limited to, fuels, lubricants, asphalt, concrete, bitumens, raw sewage, other harmful materials, and trash or debris, shall not be discharged into rivers, streams, impoundments, wetlands, sensitive areas, undisturbed buffers, or any storm drainage system, or at such proximity that the pollutants flow to these watercourses.

### **2.1004.04.03 Alterations**

The withdrawal of water from a stream, impoundment, wetland, or sensitive area, shall not result in altering or further degradation of the temperature or water quality of the waterbody in violation of OAR-340-041<sup>5</sup>.

### **2.1004.04.04 Construction Activities**

All sediment-laden water from construction activities shall be routed through sedimentation basins, filtered, or otherwise treated to remove the sediment load before the water is discharged into the surface water system.

## **2.1004.05 NATURAL RESOURCE PROTECTION**

### **2.1004.05.01 Fish and Wildlife Habitat**

Construction activities shall be done in a manner that minimizes adverse effects on wildlife and fishery resources pursuant to the requirements of local, state, and federal agencies charged with wildlife and fish protection.

### **2.1004.05.02 Sensitive Areas**

An Erosion Control/Surface Water Management Permit is required for activities disturbing sensitive areas that would affect water quality by altering or affecting sensitive areas and associated buffers. These activities include, but are not limited to:

1. landscaping;
2. construction activities;

---

<sup>4</sup> Or equivalent

<sup>5</sup> Or equivalent

3. tree cutting;
4. vegetation removal; and
5. streambank restoration.

Before conducting construction activities in sensitive areas within the District, an Erosion Control/Surface Water Management Permit authorizing such activities shall first be secured in writing from the District and fees paid (see Fee Schedule).

Sensitive Areas applicable to the District include:

1. Existing or created wetlands, including all mitigated wetlands; limits defined by wetlands reports approved by the USACE, DSL, and/or Clackamas County;
2. Rivers, streams, springs, sloughs, swamps, creeks; Impoundments (lakes and ponds).

Sensitive areas, for the purposes of this chapter, do not include water quality facilities, such as constructed wetlands or the undisturbed buffers adjacent to sensitive areas.

#### **2.1004.05.03 Study Requirements**

An approved study may be required by the District identifying areas on the parcel which are, or may be, sensitive areas when, in the opinion of the District:

1. An area or areas on a parcel may be classified as a sensitive area; or
2. Designed as a natural resource or equivalent by Clackamas County.

#### **2.1004.05.04 Tree Replacement within Buffer**

Existing trees within the sensitive area buffer or riparian area are encouraged to remain in place. If a tree is removed from the buffer area the following conditions apply.

1. Any trees removed a diameter at breast height (DBH) of at least 3-inches shall be replaced at a ratio of 4:1 (four trees planted for every one removed) within a time frame, location(s), and species identified in the approved site restoration plan.
2. An Erosion Control/Surface Water Management Permit shall first be secured from the District if the tree removal activity causes ground disturbance greater than 250 square feet.
3. Trees removed by or requiring removal as a result of natural causes (e.g. wind storm, disease (requires report from Certified Arborist to validate and document disease), wildlife activities) do not have to be replaced.

4. Types of trees allowed for replacement are those identified in the *Oak Lodge Sanitary District Plant List*, except as allowed in a plan approved by the District.

#### **2.1004.05.05 Sensitive Area Buffer**

The District may require that the buffer be fenced, signed, delineated, or otherwise physically set apart from parcels that will be developed. In any new development or redevelopment, the buffer shall be contained in a tract, and shall not be a part of any parcel to be used for the construction. The District reserves the right to require separate tracts for buffers; however, conservation easements will be considered and allowed if the developer can demonstrate that restrictions for activities on the parcel will protect the resource associated with the buffer. Restrictions may include permanent signage, fencing, documentation with the title of the property, or other methods approved by the District.

#### **2.1004.05.06 Plans, Specifications, and Construction**

In addition to requirements in these Standards, the District may require additional plans, specifications, and other information relating to construction within, variances from, and restoration of buffers. Construction and restoration shall not commence until written approval of plans and specifications by the District is obtained and shall occur in accordance with approved plans and specifications.

The applicant shall notify the District when the facility is ready for final construction inspection. The inspector shall then inspect the facility construction therein.

#### **2.1004.05.07 Hazardous Chemicals, Pesticides, Fertilizers**

The use of hazardous chemicals including, but not limited to, pesticides (including insecticides, herbicides, defoliants, soil sterilants) and fertilizers, must strictly adhere to federal, state, and local regulations.

All hazardous chemicals, which are delivered to or stored at the job site during construction, restoration, or maintenance activities shall be stored, covered, and protected from the weather. None of the materials shall be exposed during storage. Hazardous chemicals shall be disposed of in such a manner that pollution of soil, groundwater, surface water, or air does not occur. In no case shall hazardous materials be disposed of in drainageways.

## **2.1005 ADDITIONAL SURFACE WATER MANAGEMENT STANDARDS**

### **2.1005.01 PURPOSE**

This Article provides for additional treatment design, water quality, quantity, and natural resource protection standards.

### **2.1005.02 GENERAL STANDARDS**

#### **2.1005.02.01 Requirements**

1. All development shall be planned, designed, constructed, and maintained to:
  - (a) Protect and preserve existing streams, creeks, natural drainage channels and wetlands, and to meet state and federal requirements.
  - (b) Protect property from flood hazards identified by the District.
  - (c) Provide records or show on District stormwater studies a system by which storm/surface water within the development will be controlled without causing damage or harm to the natural environment, or to property or persons.
2. All stream crossings and obstructions must be approved by USACE, DSL, Clackamas County, and other authorized federal, state, and local agencies.
3. In the event a development or any part thereof is traversed by any water course, channel, stream or creek, gulch or other natural drainage channel, adequate easements for purposes of surface water drainage maintenance shall be provided to the District. This does not imply a maintenance obligation by the District.
4. Facilities developed on site, including flow discharge from site, shall be constructed in a manner consistent with "*OLSD Surface Water Master Plan*".
5. All storm conveyance pipes, vaults, detention facilities, or other water quality or quantity facilities shall be built to specifications of the District.
6. All surface water facilities shall be constructed per specifications of the District.
7. Inspection of surface water facilities and approval of shop drawings shall be provided by the developer's engineer.
8. Following completion of construction, the engineer shall submit a document, stamped by a professional engineer, indicating all surface



water systems have been inspected and installed per approved plans and approved changes.

9. Maintenance is required for all onsite surface water facilities. The maintenance program must be approved by the District. The District may require a recorded Operations and Maintenance Agreement for onsite facilities.
10. As-built plans of facilities, easements for all facilities, and approved maintenance plans shall be provided to the District upon completion of construction. Record drawings may be substituted for as-built plans when determined appropriate by the District or authorized representative.
11. Each surface water system shall have adequate easements and access for construction, operation, and maintenance. A commercial or industrial user having ownership or control of onsite detention facilities shall maintain such facilities in compliance with this Code and provide documentation of annual maintenance.
12. All surface water facilities shall be maintained as needed and as approved by the District. Proof of maintenance shall be annually submitted in accordance with a schedule approved by the District. If the facility is not maintained, the District may perform the inspection, maintenance, and documentation and charge the owner of the facility.
13. Site plans, grading plans, storm drainage plans, and associated calculations must be stamped and signed by a professional engineer licensed by the State of Oregon and meet the standards of the District.
14. Permittees or owners shall provide a performance bond or other surety acceptable to the District prior to recording of the plat for residential developments or the issuance of building permits for commercial or industrial developments. The amount of the performance bond shall be in the amount of 125 percent of the engineer's cost estimate for all approved but uncompleted surface water and buffer improvements.
15. A maintenance bond shall be provided to the District prior to release of the performance bond. The maintenance bond shall be in favor of the District, in the amount of 25 percent of the actual construction cost, for a period of one year from the date of final District inspection and acceptance of all completed buffer mitigation and public surface water facilities. During construction and the guarantee period, the District may perform work if the owner fails to do so, and charge the Bond. At the end of the one year guarantee period, the residual bond amount shall be released and remitted to the owner. Nothing herein shall limit the owner's responsibility for repair and maintenance to the amount of the bond.

16. The permittee or owner is responsible for complying with federal, state and local regulations.
17. All developments and redevelopments shall provide water quantity, water quality, and infiltration systems to meet requirements of subsection 2.1005.03 and 2.1005.04.
18. Development projects shall not be phased or segmented in such a manner to avoid the requirements of the Code.

## **2.1005.03 WATER QUANTITY STANDARDS**

### **2.1005.03.010 Conveyance Standards**

1. Surface water collection systems shall be sized for post-developed conditions in accordance with the following criteria:
  - (a) Storm sewers and outfall pipes draining less than 640 acres: 25-yr, 24-hr design storm
  - (b) Sewers and outfall pipes draining greater than 640 acres: 50-year, 24-hour design storm
  - (c) Creek or stream channels draining less than 250 acres: 25-year, 24-hour design storm
  - (d) Creek or stream channels draining greater than 250 acres: 50-year, 24-hour design storm
  - (e) Creek or stream channels draining greater than 640 acres: 100-year, 24-hour design storm
2. Drainage areas may use alternate calculation methods such as SBUH, HEC 1, HSPF, or SWMM, or others as approved by the District.
3. Drainage areas smaller than 1 acre shall use a rational method for determining conveyance flows.
4. Exceptions must be documented and approved by the District.
5. Instream or in-line detention can only be used in locations approved by the USACE, DSL, any other authorized federal, state, or local agency, and approval from the District.
6. District may require facilities to bring drainage including off-site drainage from private property to a public facility identified in the District's *Surface Water Master Plan*.
7. Public drainage facilities shall comply with Clackamas County standards,

unless amended by the District.

### **2.1005.03.02 Off-site Flows, Springs, and Groundwater**

The property owner shall be responsible to provide a drainage system for all water onsite and for water entering the property from offsite.

1. Surface water, springs, and groundwater shall be incorporated into the drainage design.
2. The owner is also responsible for springs and groundwater that surface during construction and within the warranty period of the drainage system.
3. During development or redevelopment of a property, the District may require the owner to install a drainage system with adequate capacity to convey offsite drainage to meet the needs identified in the adopted capital improvement plan of the *Surface Water Master Plan*.
  - (a) The drainage system shall be designed and installed consistent with standards described in subsections 2.1005.03.04 and 2.1005.03.05.
  - (b) In such case, the District may contribute a portion of the funding for the conveyance facility when funding is available.

### **2.1005.03.03 Curb Drains**

Where a drainage system of catch basins and pipes is available, all drains that extend to the curb must be connected to the storm system.

### **2.1005.03.04 Onsite Detention Design Criteria**

The District may require that the applicant design and construct a detention and drainage system which will ensure that offsite impacts caused by that development can be mitigated.

1. Onsite storm quantity detention facilities shall be designed to capture and detain runoff as follows:
  - (a) 2-year, 24-hour post-developed runoff rate to a ½ of the 2-year, 24-hour pre-developed discharge rate;
  - (b) In areas with limited downstream capacity that cannot be upgraded, (see Standards for maps of specific areas), detention shall be designed to reduce the 25-year, 24-hour, post-developed runoff rate to a 2-year, 24-hour pre-developed discharge rate,

and, from the 2-year, 24-hour, post developed rate, to ½ of the 2-year, 24-hour pre-developed discharge rate.

2. Downstream analysis shall demonstrate adequate conveyance capacity to the distance where the project site contributes less than 15 percent of the upstream drainage area OR 1500 feet downstream of the project, whichever is greater. If the downstream analysis crosses the jurisdictional boundary of another surface water management agency, that agency must be notified by the developer or owner and given the opportunity to review and comment on the analysis.
3. Detention is required for residential subdivisions and partitions of parcels with the potential to create more than two additional lots as currently zoned, and for developments and redevelopments. Two lot partitions that cannot be further partitioned under current zoning, detention is not required if there are no downstream impacts. All subdivisions and partitions must include a drainage plan for each proposed lot. Infiltration facilities are required where soil conditions permit.
4. Open detention facilities shall be planted with vegetation as per the *Oak Lodge Sanitary District Plant List*, available from the District. Planting schedule and maintenance of vegetation shall be approved by the District.
5. Flow Control Exemption

Onsite detention is not required for all development that discharges to surface waters because flow control is not always needed to protect stream morphology from hydromodification impacts.

Based on the flow control exemption criteria and conditions outlined in the *Discharge of Stormwater to High Order Streams; Determining Exempt Reaches* (Herrera Environmental Consultants and Northwest Hydraulic Consultants, April 13, 2004), onsite detention is not needed for direct discharges to the Willamette River.

An exemption to the onsite detention requirement of subsection 2.1005.03.04 will be granted when ALL of the following conditions apply:

1. The entire development site discharges directly to the Willamette River; and
2. The project site is drained by a conveyance system that is comprised entirely of man-made conveyance elements (e.g., pipes, , culverts, outfall protection, etc.) and extends to the ordinary high water line of the Willamette River; and
3. The flow path distance from the project site to the 100-year floodplain of the Willamette River is less than one half mile;
4. The conveyance system between the project site and the exempt receiving water shall have sufficient hydraulic capacity to convey

discharge from future buildout conditions (under current zoning) of the site, and the existing development condition from the remaining drainage area contributing to the conveyance system, based on the conveyance standards outlined in Section 2.1005.03.01; and

5. Any erodible elements of the man-made conveyance system must be adequately stabilized to prevent erosion under the conditions noted above.

### **2.1005.03.05 Onsite Detention Design Method**

1. The procedure for determining the detention quantities is set forth in *Chapter 2, Facility Design, Portland, Oregon, Portland Stormwater Management Manual, 2008*<sup>6</sup>. Local rainfall data and information shall apply. The design criteria shall be as noted in the Code. Engineers desiring to utilize a procedure other than as set forth in the Code shall obtain the approval of the District prior to submitting calculations utilizing the proposed procedure.
2. The sizing of stormwater quantity detention facilities shall be based on the impervious area to be created by the development, including structures and all roads and impervious areas.
3. For single family and duplex residential subdivisions or partitions, stormwater quantity detention facilities shall be sized for the impervious areas to be created by the subdivision or partitions, including all residences on individual lots at a rate of one Equivalent Service Unit (ESU) of impervious surface area per dwelling unit, plus all roads. If actual impervious area is to be greater than one ESU per dwelling unit, then the actual impervious numbers shall be used. Such facilities shall be constructed as a part of the subdivision or partition.
4. Redevelopment of sites shall require detention for the areas impacted by construction.
5. Regional detention and water quality facilities are encouraged. Where topography allows, detention and water quality facilities may be sized and constructed to provide detention and treatment for more than one development. Maintenance must be provided for the facility. Easements and access must also be provided.
6. Each development shall address drainage for groundwater and springs. Existing problems shall be addressed in plans submitted for review and approval. Groundwater and springs that are encountered during development shall be the responsibility of the developer to address.

---

<sup>6</sup> Or equivalent

Plans for drainage of these waters shall be submitted to the District for review and approval prior to construction.

7. Fees in-lieu of detention and treatment for water quality may be applied under the following conditions:
  - (a) Regional detention and treatment downstream is available and has been identified.
  - (b) Downstream detention and treatment is constructed or an agreement has been approved by the District on implementation of downstream detention and treatment.
  - (c) Fees in lieu of detention and treatment will be applied as a percentage of facility costs, including engineering, maintenance, and administration. Percentage of costs will be based on percentage of use of facility(s).

### **2.1005.03.06 Infiltration/Retention Systems**

Infiltration systems are encouraged for all new developments and redevelopments to infiltrate runoff from storm events up to one-half inch of rainfall in 24 hours.

1. Treatment shall occur prior to or concurrent with infiltration systems in accordance with OLWSD Rules, Regulations and Standards.
2. Infiltration system capacity may be incorporated into the detention system design, in order to reduce the required detention volume. Infiltration facilities shall be sized to infiltrate the design runoff volume within a maximum of 96 hours.
3. Infiltration requirements may be waived, or reduced, if it can be demonstrated by a registered professional engineer that infiltration will destabilize the soil, cause adverse structural or environmental impacts, or due to site constraints such as high groundwater, springs, or impermeable soils.
4. Infiltration will be allowed in the District with consideration of soil and subsurface drainage capacity. Infiltration systems will be designed for 3 inches of rain within a 24-hour period.
5. Use of infiltration systems will require an engineering report documenting the year- round infiltration capacity of the soil/ground as well as a percolation test. DEQ approval is required for use of infiltration.

## **2.1005.04 WATER QUALITY STANDARDS**

All new developments and re-developments shall provide on-site water quality facilities, as required by the District. Water quality facilities shall be designed to capture and treat the first 1-inch of stormwater runoff from a 24 hour storm event.

Accepted types of vegetated treatment facilities include vegetated swales, filter strips, constructed wetlands, wet ponds and extended dry detention ponds. Alternative systems may be used with approval by the District and shall be designed to provide equivalent treatment as is provided with a vegetated system, as described in the July 1, 2013 CCSD#1 Stormwater Standards (*Appendix F - Proprietary Stormwater Treatment Technology Policy, Appendix H - Vegetated Stormwater Quality Facility Design Criteria*<sup>7</sup> and the “Surface Water Quality Facilities Technical Guidance Handbook”, developed by Portland and Lake Oswego, Clackamas County, and the Unified Sewerage Agency, now known as Clean Water Services.

### **END OF SECTION**

---

<sup>7</sup> Or equivalent

# SECTION 3—WASTEWATER DESIGN STANDARDS

## TABLE OF CONTENTS

<b>3.0000 SANITARY SEWERS .....</b>	<b>1</b>
3.0010 GENERAL DESIGN REQUIREMENTS .....	1
3.0011 Pipe Materials and Size .....	1
3.0012 Minimum Design Criteria.....	2
A. Velocity .....	2
B. Manning Equation.....	2
C. Pipe Coefficient .....	2
3.0020 ALIGNMENT AND COVER.....	2
3.0021 Right-of-Way Location .....	2
3.0022 Minimum Cover .....	2
3.0023 Separation with Waterlines .....	3
3.0024 Easements .....	3
3.0025 Relation to Watercourses.....	4
3.0030 STRUCTURES.....	4
3.0031 Manholes.....	4
3.0032 Cleanouts .....	5
3.0040 LATERALS.....	6
3.0050 CONNECTION TO EXISTING SEWERS .....	6
<b>3.1000 SEWAGE PUMP STATION DESIGN STANDARDS .....</b>	<b>7</b>
3.1010 GENERAL .....	7
3.1020 DESIGN .....	7
3.1030 MATERIALS.....	8
3.1031 Pumps .....	8
3.1032 Piping and Valves .....	8
3.1033 Electrical.....	8
3.1034 Controls .....	8
3.1035 Alarms and Telemetry.....	8
3.1036 Landscaping and Fencing.....	8
3.1037 Additional Features .....	8
3.1038 Force Main .....	9
3.1040 CONSTRUCTION .....	9
3.1041 Design Codes.....	9
3.1042 Steel Fabrications .....	9
3.1043 Operating and Maintenance Data .....	9
3.1044 Spare Parts .....	9



## 3.0000 SANITARY SEWERS

---

### 3.0010 GENERAL DESIGN REQUIREMENTS

**Performance Standards:** Sanitary sewer system design shall meet the policies and guidelines of the adopted OLWSD Rules, Regulations and Design and Construction Standards and its updates.

Sanitary sewer systems shall be designed to provide gravity service to all areas of development unless approved by District City Engineer as stated below.

Sanitary sewer system capacity shall be designed for ultimate development density of the tributary area. The system shall allow for future system extension and for future development.

Sanitary sewers shall be designed to remove the domestic sewage from residential, commercial or industrial buildings, and all public and private establishments.

Storm water, including street, roof, or footing drainage, shall not be discharged into the sanitary sewer system but shall be removed by a system of storm drains or by some other method separate from the sanitary sewer system.

Unpolluted or noncontact cooling waters shall not be discharged into sanitary sewers. The overflow drains and filter backwash lines of swimming pools and hot tubs shall drain into a sanitary sewer.

In general, sewer systems shall be designed to allow for future loads and for ultimate development of the specific drainage area or basin concerned.

As a condition of sewer service, all developments will be required to provide public sewers to adjacent upstream parcels in order to provide for an orderly development of the drainage area. This shall include street frontage of the property to adjoining properties when the main is located in the street right-of-way. This shall include trunk sewers that are oversized to provide capacity for upstream development.

All sewer mainlines shall be located within the public right-of-way or public easement as directed by the District Engineer. These lines are placed in the public streets and right-of-way for ease of maintenance and access, control of the facility, operation of the facility, and to provide required replacement and/or repair.

Design shall comply with Oregon Department of Environmental Quality sewer design guidelines<sup>1</sup>), and the requirements of OLWSD.

District Engineer approval will be required for any sanitary lift or pump stations.

### 3.0011 Pipe Materials and Size

All public sanitary sewers including mains and laterals shall be constructed with PVC SDR 35 pipe as specified in the District's Design and Construction Standards Division 3 (Sanitary Sewer Construction Standards). The District Engineer shall have discretion for requiring alternative pipe materials. Class 50 ductile-iron pipe, C900 PVC pipe, or HDPE SDR 11 (new) or SDR 17 (bursting) pipe may be required with authorization from the District Engineer. Circumstances include but are not limited to areas of unstable soils, high groundwater, shallow rock, railroad crossings or creek crossings.

Private sanitary sewers shall meet the appropriate sections of the Oregon Plumbing Specialty Code.

All sanitary sewer main lines shall be a minimum diameter of 8 inches. A 6 inch diameter sewer will be allowed only with the District Engineer's approval and shall be submitted as a variance request.

New and reconstructed light rail and freight rail construction may require improvements to the sanitary sewer system at utility crossing locations. All existing pipes or pipes on the second half of useful life within the rail zones shall be replaced to current standards. Metallic or conductive pipe materials are not

---

<sup>1</sup> OAR 340, and Division 52 at time of adoption

approved pipe materials at rail crossings. Pipes are to be centered under rail tracks to avoid joints underneath rail lines. All new pipe installations must identify practical future replacement options for the sewer pipe under rails in case of future failure of utility. All pipes shall be sized for full build-out and future flows. This sizing includes allowance for trenchless technologies. Where lining is anticipated, pipe size shall account for future lining thickness.

### 3.0012 Minimum Design Criteria

In general, sewer systems should be designed to care for future loads which may reasonably be expected within a period of 30 to 50 years, and for ultimate development of the specific drainage area concerned.

#### A. Velocity

All sanitary sewers shall be designed on a grade which produces a mean velocity, when flowing half-full or full, of no less than 2.5 feet per second. Where velocities greater than 15 fps are attained, special provisions shall be made to protect against displacement by erosion and shock. The minimum grades for the various sizes of pipe are as follows.

Inside Pipe Diameter (inches)	Grade (feet per 100 feet)
6	0.77
8	0.53
10	0.39
12	0.31
15	0.23
18	0.18
21	0.15
24	0.13
27	0.11
30	0.09
36	0.07

In general, slopes greater than those shown above are desirable and are particularly recommended on sewers which dead end and will not be extended so they have adequate slope to self clean.

#### B. Manning Equation

When calculating minimum pipe slopes and velocities, the Design Engineer shall use the Manning pipe friction formula.

#### C. Pipe Coefficient

The minimum pipe roughness coefficient for sanitary sewers shall be 0.013.

### 3.0020 ALIGNMENT AND COVER

#### 3.0021 Right-of-Way Location

Sanitary sewer lines shall be located in the street right-of-way, 5 feet north and west of centerline whenever possible. All changes in direction of pipe shall be made at a manhole.

Sewers shall be located in the street right-of-way. If streets have curved alignments, the center of the manhole shall not be less than 6 feet from the curb face on the outside of the curve, nor the sewer centerline less than 6 feet from the curb face on the inside of the curve.

Curved alignments will not be permitted.

#### 3.0022 Minimum Cover

All sanitary sewers shall be laid at a depth sufficient to drain building sewers, to protect against damage by frost or traffic, and to drain basement sewers, where practical. Sufficient depth shall mean the minimum cover from the top of the pipe to finish grade at the sewer alignment. In new residential hillside

subdivisions, mainline and lateral sewers shall be placed in the street at a depth sufficient to drain building sewers on the low side of the street.

Sanitary sewers shall be constructed with 5 feet minimum cover in all parts of the public ROW or easement.

Where the topography is relatively flat and existing sewers are shallow (5 feet or less) the minimum cover shall be 3 feet. Where required for additional strength when cover is minimal, ductile-iron pipe or C900 PVC pipe and/or CDF backfill may be required by the District Engineer.

Deviation from the above standards will be considered on a case-by-case basis when one of the following circumstances exists.

1. Underlying rock strata—required: A request in writing to the District Engineer, together with submittal of a soils report, with a plan and profile certifying that bed rock exists 3 feet below the undisturbed ground surface at all investigated alignments.
2. A ditch or stream must be crossed—required: A plan and profile; horizontal scale 1 inches = 20 feet, vertical scale 1 inches = 2 feet.
3. Other circumstances which the installer desires to vary the standards shall be submitted as a variance.

### **3.0023 Separation with Waterlines**

Water mains shall be installed a minimum clear distance of 10 feet horizontally from sanitary sewers and shall be installed to go over the top of such sewers with a minimum of 18 inches of clearance at intersections of these pipes (in accordance with the requirements of OAR <sup>2</sup>Public Water Systems or equivalent). Exceptions shall first be approved by the District Engineer. In all instances the distances shall be measured edge to edge. The minimum spacing between water mains and storm drains, gas lines, and other underground utilities, excepting sanitary sewers, shall be 3 feet horizontally when the standard utility location cannot be maintained.

Where water mains are being designed for installation parallel with other water mains, utility pipe, or conduit lines, the vertical location shall be 12 inches below (or in such a manner which will permit future side connections of mains, hydrants, or services) and avoid conflicts with parallel utilities without abrupt changes in vertical grade of the above mentioned main, hydrant, or service. Where crossing of utilities are required; the minimum vertical clearance shall be 6 inches.

### **3.0024 Easements**

Sewers placed in easements along a property line shall have the easement centered on the property line and the sewer shall be offset 18 inches from the property lines. For sewers placed in easements located other than along a property line, the sewer shall be placed in the center of the easement. The conditions of the easement shall be such that the easement shall not be used for any purpose which would interfere with the unrestricted use for sewer main purposes. Under no circumstances shall a building, wall, fence, or permanent structure be placed over a sanitary sewer main or sewer easement without District approval. This shall include overhanging structures with footings located outside the easement.

Easements for sewers shall have a minimum width of 20 feet. In some instances larger width easements may be required, such as excessively deep pipes or location of a building near the easement.

Easement locations for public sewer mains serving a PUD, apartment complex, or commercial/industrial development shall be in parking lots, private drives, or similar open areas which will permit an unobstructed vehicle access for maintenance by District personnel.

All easements must be furnished to the District Engineer for review and approval prior to recording. Easements shall state that the District will not in any way be responsible for replacing landscaping

---

<sup>2</sup> Chapter 333, at time of adoption

including any shrubs or trees, fencing, or other structures or improvements that may exist or have been placed in the easement.

### **3.0025 Relation to Watercourses**

Generally, the top of all sanitary sewers entering, crossing or adjacent to streams shall be at a sufficient depth below the natural bottom of the streambed to protect the sewer line. 1 foot of cover is required where the sewer is in rock; 3 feet of cover is required in other materials. In paved channels, the top of the sewer line shall be placed at least 6 inches below rock grade of the bottom of the channel, except as provided above.

Sewers located along streams shall be located outside of the streambed and sufficiently removed therefrom to provide for future, possible stream channel widening. All manhole covers shall be watertight at or below the 100-year flood elevation.

Sewers crossing streams or drainage channels shall be designed to cross the stream as nearly perpendicular to the stream channel as possible, and shall be free from change of grade. The minimum cover shall be 36 inches from the bottom of the streambed or drainage channel.

Pipe material shall be ductile iron with an 18-foot length of pipe centered on the stream or drainage channel centerline. The ductile-iron pipe shall extend to a point where a 1-to-1 slope begins at the top of the bank and slopes down from the bank away from the channel centerline and intersects the top of the pipe.

Concrete encasement will be required when the above cover requirements cannot be met. Each deviation from the above requirements will be reviewed on a case-by-case basis and submitted as a variance request.

## **3.0030 STRUCTURES**

### **3.0031 Manholes**

Manholes shall conform to ASTM C-478.

Manholes shall be located at all changes in slope, alignment, pipe size, and at all pipe junctions with present or future sanitary sewers.

Manhole spacing shall not be greater than 00 feet. Spacing may be increased in special circumstances with District Engineer approval and submitted as a variance.

Manholes outside of vehicle or pedestrian travelways shall have a tamper proof lid.

Designs for manholes are shown in the OLWSD standard drawings. They are suitable for most conditions.

All sanitary manholes shall be of watertight construction. If ground water or surface drainage can be expected, watertight covers shall be used.

New designs or revisions should not be shown on the construction drawings unless the standard designs are not suitable. New or revised designs may be necessary if:

1. 1 or more of the sewers to be connected to the manhole is over 36 inches in diameter (smaller diameters may require a special design if the manhole is at an alignment change.)
2. Several sewers will be connected to the manhole.
3. There is less than 90 degrees between the incoming and outgoing sewer.
4. The manhole will be subject to unusual structural loads.
5. Diversion or other flow control measures are required.

Where 1 or more of conditions a), b), or c) are encountered, a drawing of the manhole base should be made to determine if it is feasible to use designs shown in the standard drawings. It may be necessary to restrict the options to a specific standard drawing specified by a note on the construction drawings. If a special design is required for any reason, it will be necessary to show the details on the construction drawings and to provide structural calculations as needed.

Some alternate manhole features are shown in the standard drawings. Where these features are required, they must be specified by a note on the construction drawings. Some examples are:

1. Slab tops must be used in lieu of cones where there will be less than 4 feet between the manhole shelf and the top of the manhole lid.
2. Watertight manhole frames and covers are to be used if floodwaters are expected to cover the manhole top or if the manhole must be located in the street gutter. Such conditions should be avoided wherever feasible.
3. Tamperproof manhole frames (7 inches depth) and covers are required in all areas outside the paved public right-of-way or pedestrian travel ways. Rims shall be 1 foot above the finished grade if not in a paved way.

Standards for elevation differences at manholes have been established to compensate for normal energy losses and to prevent surcharging of a sewer by a larger sewer. For purposes of slope calculation and for establishing elevation differences, the elevations are given at the intersection of the sewer centerlines (usually the center of the manhole). The rules for elevation differences at manholes are:

1. The crowns of incoming sewers shall be at least as high as the crown of the outgoing sewer.
2. If the incoming and outgoing sewers are of equal size and are passing straight through the manhole, no added elevation change is required.
3. If sewers intersect or the alignment changes at the manhole, the invert elevation difference shall be at least 0.10 feet for 0°-45° of horizontal deflection angle, and 0.20 feet for over 45° of horizontal deflection angle.
4. The slope of a sewer within a manhole shall be no less than the slope of the same sewer outside of the manhole.
5. Drop connections are required when the vertical distance between flow lines exceeds 2 feet. The diameter of the drop connection must be specified on the construction drawings. The diameter of the drop connection shall be the same size as the diameter of the incoming sewer. Outside drop assemblies only, will be permitted, see the standard drawings.
6. All connections must enter the manhole through a channel in the base. This includes drop connections and connections to existing manholes.

Where conditions make compliance with these rules impractical, exceptions will be permitted. It will be necessary, however, for the Design Engineer to provide a complete analysis of the need for such designs.

### **3.0032 Cleanouts**

Cleanouts will not be approved as substitutes for manholes on public sewer lines.

### **3.0040 LATERALS**

Laterals are those sewer lines which connect buildings to the sewer mains. They are comprised of the privately-owned part of the lateral located on private property, and the District-owned part of the lateral located in the road right-of-way or District easement.

Each individual building site shall be connected by a separate, lateral connected to the sewer main. Each individual property shall have an individual lateral. Exceptions to this standard shall be applied for as a variance request and approved by the District Engineer or designee.

If a structure is replaced (e.g. demolished and rebuilt or replaced with alternative structure), a new lateral is required. A new tap and lateral pipe and cleanout is required to be installed. If the existing lateral alignment is re-used, new materials shall be installed. If a different alignment is proposed, the exiting sewer in the public ROW or easement shall be abandoned and disconnected at the main. If there are multiple existing laterals (in use or existing) all unused laterals shall be disconnected at the main.

Where the invert of the lateral entering a manhole is less than two feet above the manhole invert, a formed channel will be constructed utilizing Portland Cement concrete. The sewage entering the manhole will follow a smooth concrete channel transitioning evenly from the invert of the inlet pipe into main channel. Sewage will not be allowed to fall freely to the manhole base.

The minimum inside diameter of a District-owned lateral shall be 4 inches for single family residences and multifamily complexes of three Equivalent Dwelling Units or less.

A 6 inch diameter District-owned lateral is required for any commercial properties.

A 6 inch diameter District-owned lateral is required for any residential properties or complexes of four Equivalent Dwelling Units or more.

An 8 inch diameter District-owned lateral is required for properties with an 8-inch diameter privately-owned lateral and must have a manhole installed at the property owner's cost at the point of connection to the main line. Laterals shall be built to the same construction standards and of the same materials as the sewer mainline. Laterals in general shall be placed at 90° to the main sewer line to avoid excessive exposure to other utilities during excavation for construction or maintenance of the laterals. The preferred angle is 90°. Other angles may be approved for atypical conditions on a case-by-case basis and submitted as an alternate request described in Section 1. Lateral connections may be made at manholes (90° to sewer mainline) if such placement would not interfere with other present or future connections to the manhole. Laterals will run straight from the tap to the clean out, with no bends and no intentional flexing of the pipe. Manhole taps are allowed when no other alternative exists. If an existing hole is in the manhole, it may be used only after approval by OLWSD. All manhole taps are to be requested with a variance application.

The minimum slope of sewer service lines shall be 2% (¼ inch per foot), except for unusual conditions, when a slope of 1% (⅛ inch per foot) may be approved. It will be necessary, however, for the Design Engineer to provide a complete analysis of the need for any sewer service lateral slope less than 2%. The maximum slope shall be 100% (45° or 1 foot per foot).

Laterals shall be installed with a clean out located at the edge of the road right-of-way or at the edge of a District easement. If a Public Utility Easement is present, the clean out must still be located in the road right-of-way, not in or behind the PUE. A 4 inch lateral must have a 4 inch clean out and a 6 inch lateral must have a 6 inch clean out. The clean out riser shall extend to 6 inches below final grade, be easily accessible, have a threaded plug, and be contained within a traffic-rated protective box set to final grade. A watertight plug shall be installed in the end of the lateral and a 2x4 wood marker shall be placed at the lateral end from pipe invert to at least 36 inches above the finish grade. The marker top shall be painted green and marked with the depth of the lateral measured from ground to invert of pipe.

### **3.0050 CONNECTION TO EXISTING SEWERS**

Connections to, and extensions of, existing sewers will occur to facilitate new development. Certain requirements will be placed on the Design Engineer as to permitted methods and/or locations.

Connections to existing manholes shall be made with the following guidelines.

1. Where the invert of the connecting pipe is more than 2 feet above the manhole shelf, the Contractor will be required to construct an outside drop with the inlet pipe invert being located at the manhole shelf. The sewage entering the manhole will follow a smooth concrete channel transition from the inlet pipe into the main channel.
2. Where the invert is required to enter below the shelf of the manhole, the inlet pipe will not enter below a point where the crown of the new inlet pipe is below the crown of the outlet pipe. The base of the manhole will be rebuilt if damaged in this process. The sewage will enter the main flow in a smooth channel transitioning from the inlet pipe to the main channel.
3. No pipe will enter an existing manhole where the angle between the incoming flow and the outgoing flow is greater than 90°.

New laterals shall be connected by core drilling a hole in the existing main line and installing an Inserta Tee (or equivalent) per the manufacturer's instructions.

In the case where the new lateral diameter is only 2 inches smaller than the existing main diameter (for example, a 4 inches tap on a 6-inch main or a 6-inch tap on an 8-inch main), a section of main line shall be removed and a PVC tee shall be spliced in with Fernco Strongback (or equivalent) couplers. After this type of tap is bedded and trench compaction is completed, the main line will be TV inspected at the Contractor's expense to show that the new PVC tee is properly aligned with the existing main line.

If an 8 inches lateral is to be connected to an 8 inches existing main line, then a manhole shall be required at the point of connection.

New and reconstructed light rail and freight rail construction may require improvements to the existing sanitary sewer system at utility crossing locations. All existing clay asbestos-cement pipes or pipes on the second half of useful life within the rail zones must be replaced to current standards. Existing metallic or conductive pipe materials are not approved pipe materials at rail crossings and must be replaced to current standards.

## **3.1000 SEWAGE PUMP STATION DESIGN STANDARDS**

---

### **3.1010 GENERAL**

The pump station shall be a submersible pump type facility.

Station shall include: submersible pumps, wet well, valve vault, associated piping and valves, electrical controls, instrumentation, telemetry, access road, fencing, landscaping, and potable water supply, and shall generally conform to the District rules, regulations and standards.

Pump station shall be designed to pump the peak wastewater flow from the service area. When the service area is not built out, staging of pump station capacity will be allowed.

Where the flow is substantial or where environmental damage may occur due to power failure, the District Engineer may require permanent standby power.

Wet well-mounted or wet well/dry well stations will not be allowed.

### **3.1020 DESIGN**

Pump station shall be designed to meet the minimum requirements and guidelines standards of the Department of Environmental Quality (DEQ),<sup>3</sup> regulations.

Design shall be by registered engineer experienced in design of such facilities.

---

<sup>3</sup> OAR Chapter 340, Division 52 at time of adoption

Service area, peak flow, and pump station calculations shall be submitted to the District Engineer.

Wet well shall be designed to provide 4 hours of storage above high water alarm.

### **3.1030 MATERIALS**

#### **3.1031 Pumps**

A minimum of 2 pumps shall be supplied. Each pump shall be capable of pumping the peak wastewater flow. Where more than 2 pumps are used, the station shall be able to pump peak wastewater flow when the largest pump is out of service.

Pumps shall be submersible pumps manufactured by Hydronix (or equal), explosion-proof, suitable for hazardous location, and shall be UL or FM listed.

#### **3.1032 Piping and Valves**

Piping and fittings shall be ductile iron.

Valves shall be metal, suitable for wastewater use. Valves shall be designed for wastewater service.

Provide pressure gages on pump discharge piping.

#### **3.1033 Electrical**

Electrical controls shall be located above ground mounted in a waterproof enclosure. Electrical panels shall be UL listed. The pump station wet well shall be considered a hazardous location.

#### **3.1034 Controls**

Controls may be mechanical relays or programmable logic controllers.

Pumps shall alternate lead-lag position with each pumping cycle.

Bubbler shall control pump start/stop.

Float activated alarm shall indicate high water level.

An auxiliary power connector and manual transfer switch shall be provided.

#### **3.1035 Alarms and Telemetry**

Alarms shall be telemetered to the OLWSD SCADA system.

Alarms include:

Pump failure

Power failure

Telemetry failure

High water level

Bypass

#### **3.1036 Landscaping and Fencing**

A 6-foot chain link fence with 3 strands of barbed wire and redwood slats shall surround the pump station. Access for easy maintenance shall be incorporated in the design.

#### **3.1037 Additional Features**

Provide 1-inch hose bib at valve vault. Potable water shall be provided by reduced pressure backflow preventer.

Provide positive ventilation in valve vault.

Odor control as required.



### **3.1038 Force Main**

Force main shall be designed for a nominal flow velocity in the range of 3 to 5 feet per second.

## **3.1040 CONSTRUCTION**

### **3.1041 Design Codes**

Pump station and related facilities will be constructed to Electrical and Building Codes.

### **3.1042 Steel Fabrications**

Steel fabrications shall be hot dipped galvanized; painting required on valves, piping, and pipe fittings.

### **3.1043 Operating and Maintenance Data**

Compile product data and related information appropriate for District maintenance and operation of products furnished under the Contract.

Prepare operating and maintenance manual.

Instruct District personnel in the maintenance of products and in the operation of equipment and systems.

### **3.1044 Spare Parts**

Supply 2 sets each of all gaskets, bearings, and mechanical seals for rotating equipment.

**END OF SECTION**

# SECTION 4—WATER DESIGN STANDARDS

## TABLE OF CONTENTS

<b>4.0000 WATER MAINS.....</b>	<b>1</b>
4.0010 GENERAL DESIGN REQUIREMENTS .....	1
4.0011 Pipe Materials and Size .....	1
4.0012 Grid System .....	2
4.0013 Dead-End Mains .....	2
4.0014 Restrained Joints .....	2
4.0020 ALIGNMENT AND COVER.....	2
4.0021 Right-of-Way Location .....	2
4.0022 Minimum Cover .....	2
4.0023 Separation with Sewer Lines .....	2
4.0024 Easements .....	3
4.0030 APPURTENANCES .....	3
4.0031 Valves .....	3
4.0032 Fire Hydrants.....	3
4.0033 Pressure-Reducing and Air Release Valves.....	4
4.0040 BACKFLOW PREVENTION .....	4
4.0050 WATER SERVICE LINES.....	4
4.0051 Fire Service .....	5
4.0052 Fire Vaults .....	5
4.0060 SYSTEM TESTING.....	5
4.0070 WATER QUALITY SAMPLING STATIONS.....	5
4.0080 WATER SERVICE/PERMIT APPLICATION AND METERS .....	5
4.0081 Deposits And Establishment Of Credit .....	6
4.0082 Water Service Connection .....	6

## 4.0000 WATER MAINS

---

### 4.0010 GENERAL DESIGN REQUIREMENTS

**Performance Standards:** Water distribution systems shall be designed to meet State Water Administrative Rules, AWWA Standards, and guidelines of these Design Standards.

Water system design shall provide adequate flow for fire protection and maximum water usage and consumption. Required water system demands shall be met by maintaining the minimum operating pressures required by the District. For single-family residential areas, the minimum static pressure shall be 35 PSI, and the minimum fire flow shall be 1,000 GPM. For all other developments, the required fire flow shall be as determined by the Fire Marshal.

Water system design shall meet distribution needs for maximum water usage and consumption within a given pressure zone. New water systems shall allow for future extensions beyond present development.

When water systems are designed where velocities are greater than 5 fps, special provisions shall be made to protect against displacement by erosion and shock.

All waterlines shall be located within the public right-of-way or as directed by the District Engineer. These lines are placed in the public right-of-way for ease of maintenance and access, control of the facility, operation of the facility, and to permit required replacement and/or repair. The District Engineer, under special conditions, may allow a public waterline to be located within a public water easement as referenced in Subsection 4.0024 (Easements).

#### 4.0011 Pipe Materials and Size

All public water distribution systems shall be constructed with ductile-iron pipe. All such pipe shall be cement mortar-lined pipe with push-on or mechanical type joints. When a corrosive potential condition is encountered, all ductile-iron pipe and fittings will be polyethylene encased with an 8 mil tubing meeting manufacturer and AWWA standards. Where an active cathodic protection system is encountered as a result of other utilities, a deviation from the normal pipe design/material/installation practice may be required by the District Engineer.

All pipe, valves and fittings shall be pressure rated for 250 or 350 PSI. All fittings shall be factory cement lined and coated.

Water distribution main sizes shall generally conform to the following.

**4-inch:** May only be used with approval of the District Engineer in residential zones on dead-end streets with a center line distance of less than 250 feet measured from the center of the intersecting street to the radius point of the cul-de-sac; with service to not more than 12 residences; and shall be connected to a looped minimum 6-inch main. Fire hydrants are not permitted on four-inch lines. All 4-inch lines shall terminate with a standard blowoff (standard drawing 413.)

**6-inch:** Minimum size residential subdivision distribution water main for the grid (looped) system, not to exceed an unsupported length of 600 feet and shall not be permanently dead-ended. Looping of the distribution grid shall be at least every 600 feet.

**8-inch:** Minimum size for primary feeder mains in residential subdivisions.

**10 inches and Up:** As required for primary feeder lines in subdivisions, industrial, larger, and commercial areas.

Velocity in distribution mains shall be designed not to exceed 5' per second. Velocity in service lines, as defined in Subsection 4.0050 (Water Service Lines), shall not exceed 10' per second. Standard trench section (standard drawing 402) will be utilized for all water pipe installed.

New construction and reconstruction of light rail and freight rail may require improvements to the water system at utility crossing locations. Existing pipes in the second half of their useful life within the rail

zones must be replaced to current standards. Metallic or conductive pipe materials are not approved pipe materials at light rail crossings.

All waterlines are to be encased through rail line crossings. Each casing pipe segment is to be positioned under rail tracks to avoid joints underneath rail lines. Metallic or conductive pipe materials are not approved at rail crossings (including pipes used as encasement conduit).

#### **4.0012 Grid System**

The distribution system mains shall be looped at all possible locations. All developments will be required to extend mains across existing or proposed streets for future extensions of other developments within the District. All terminations shall be planned and located such that new or existing pavement will not have to be cut in the future when the main is extended. The installation of permanent dead-end mains greater than 250 feet, upon which fire protection depends and the dependence of relatively large areas on single mains, will not be permitted.

#### **4.0013 Dead-End Mains**

Dead-end mains which will be extended in the future shall be provided with a properly sized blowoff (see standard drawings 413).

Permanent dead-end mains shall terminate with a standard blowoff assembly (see standard drawings 413).

#### **4.0014 Restrained Joints**

Restrained joints shall be required for transmission pipelines which cross unstable land, railroad tracks, freeways, watercourses, or other locations which could either result in unusual ground movements or could result in significant damage to property or life should a leak occur.

### **4.0020 ALIGNMENT AND COVER**

#### **4.0021 Right-of-Way Location**

Water systems shall be located south and east from the right-of-way centerline or as directed by the Engineer. Generally, the waterline will be located 4' from curblin e or edge of pavement. Except as provided in Subsection 4.0024 (Easements), all waterlines shall be in the public right-of-way.

Curved alignment for waterlines or mains is permitted and shall follow the street centerline when practical. The minimum allowed radius shall be based on allowable pipe deflection for the pipe diameter and the pipe laying length, but not to exceed 3° joint deflection.

#### **4.0022 Minimum Cover**

The standard minimum cover over buried water mains within the street right-of-way shall be 36" from finish grade.

The minimum cover for mains in easements across private property shall be 48" from finish grade.

Finish grade shall normally mean the existing or proposed pavement elevation. Where the main is located in the cut or fill side slope or where mains are located in easements, finish grade shall mean final ground elevation at the water main alignment.

#### **4.0023 Separation with Sewer Lines**

Water mains shall be installed a minimum clear distance of 10' horizontally from sanitary sewers, and shall be installed to go over the top of such sewers with a minimum of 18 inches of clearance at intersections of these pipes. When physical conditions render this spacing impossible or impractical, then ductile-iron water pipe with watertight joints or concrete encasements is required for the sewer line. Wherever it is necessary for sewer and water lines to cross each other, the crossing should be at an angle of approximately 90 degrees and the sewer shall either be located 18 inches or more below the water line or be constructed of ductile-iron water pipe with watertight joints for a distance of 9 feet on both

sides of the water line. Exceptions shall first be approved by the District Engineer. In all instances, the distances shall be measured edge to edge. The minimum spacing between water mains and storm drains, gas lines, and other underground utilities, excepting sanitary sewers, shall be 3' horizontally when the standard utility location cannot be maintained.

Where water mains are being designed for installation parallel with other water mains, utility pipe, or conduit lines, the vertical separation shall be 12" below or in such a manner which will permit future side connections of mains, hydrants, or services, and avoid conflicts with parallel utilities without abrupt changes in vertical grade of the above mentioned main, hydrant, or service. Where crossing of utilities are required, the minimum vertical clearance shall be 6".

#### **4.0024 Easements**

Mains placed in easements along a property line, shall have easements centered on the property line and shall be offset 18 inches from the property line. Mains placed in easements along a right-of-way line shall be offset a minimum 3 feet from the right-of-way line and within a minimum 10-foot-wide easement. For mains placed in easements located other than along a property or right-of-way line, the main shall be placed in the center of the easement. Easements, when required, shall be exclusive and a minimum of 15' in width. The conditions of the easement shall be such that the easement shall not be used for any purpose which would interfere with the unrestricted use for water main purposes. Under no circumstances shall a building or structure be placed over a water main or water main easement. This includes overhanging structures with footings located outside the easement.

Easement locations for public mains serving a PUD, apartment complex, or commercial/industrial development shall be in parking lots, private drives, or similar open areas which will permit unobstructed vehicle access for maintenance by District personnel.

All easements must be furnished to the District General Manager for review and approval prior to recording.

### **4.0030 APPURTENANCES**

#### **4.0031 Valves**

Valves shall be the same size as the mains in which they are installed. Valve types and materials shall conform to the Design and Construction Standards.

Distribution system valves shall be located at the tee or cross fitting. There shall be a sufficient number of valves so located that not more than 4, and preferably 3 valves, must be operated to effect any one particular shutdown. The spacing of valves shall be such that the length of any one particular shutdown in commercial or industrial areas shall not exceed 500 feet nor 800 feet in other areas.

Valves shall be installed at each cross, tee, or any tap 4 inches or greater in diameter connected to the main line. Intersections shall be valved in at least 2 branches and cross-intersections shall be valved at all branches. Transmission water mains shall have valves at not more than 1,000-foot spacings. Hazardous crossings such as creeks, railroad and freeway crossings, shall be valved on each side.

Distribution tees and crosses for future branch lines on transmission mains may be required at the direction of the District Engineer.

#### **4.0032 Fire Hydrants**

The water system shall be designed to provide adequate flow as required. The distribution system shall be designed in commercial/industrial areas to accommodate fire flows up to 1,500 GPM. Minimum fire flow in single-family residential areas shall be 1,000 GPM.

The distribution of hydrants shall be based upon the Oregon Fire Code Section 507.5.1 through 507.5.6. See Appendix C<sup>1</sup>

Residential hydrants shall be located as nearly as possible to the corner of street intersections and not more than 500 feet from any cul-de-sac radius point.

No fire hydrant shall be installed on a main of less than 6" inside diameter. The hydrant lead shall be a minimum 6" inside diameter.

All fire hydrants will be located behind the existing or proposed sidewalk or in the planter strip. Hydrants shall be placed as to not interfere with driveways and curb ramps. If any public hydrant encroaches on private property, an easement will be provided as directed by the District Engineer.

No hydrant shall be installed within 5' of any existing aboveground utility and there shall not be any utility facilities installed closer than 5' from an existing hydrant.

Hydrant installation shall conform to standard drawing 411. Full-depth hydrants will be required in all installations. Installation of hydrant extensions will not be allowed, unless approved by the District Engineer.

Hydrants shall not be located within 20' of any building, and shall not be blocked by parking. The large hydrant port should face the road or travelway.

Guard posts shall adhere to Oregon Fire Code section 507<sup>2</sup>. Use of posts other than at the 4 corners may be approved by the District Engineer.

Use of posts other than at the 4 corners may be approved by the District Engineer.

#### **4.0033 Pressure-Reducing and Air Release Valves**

The District's water distribution system is divided into several pressure zones. Where water systems cross these zone lines, a pressure-reducing valve station will be required. The specific design and location for such valves will be reviewed and approved by the District's Engineer.

When designated by the District Engineer, air release valves, per standard drawing 413, shall be installed. Such valves will be required on large diameter lines at all high points in grade.

#### **4.0040 BACKFLOW PREVENTION**

Backflow prevention devices shall be required on all non-residential properties and water services equal to or greater than 1½ inches.

#### **4.0050 WATER SERVICE LINES**

The sizes of water service lines which may be used are ¾", 1", 2", 4", 6", 8", 10", and 12". Water service lines will be reviewed for effects on the distribution system and shall not be greater in size than the distribution main.

For 2" and greater services, a design drawing must be submitted showing the vault and fitting requirements with the expected flow (normal and maximum day flow) requirements and proposed usage.

Domestic service lines ¾" through 2" shall normally extend from the main to behind the curb, with a meter curb stop and meter box located at the termination of the service connection (standard drawings 420). Meter to be provided and installed by District. Meter boxes are to be provided by the developer. In general, individual service connections shall terminate in front of the property to be served and shall be located 18 inches each side of a common side property line.

---

<sup>1</sup> Or equivalent

<sup>2</sup> Or equivalent

When a corrosive potential condition is encountered and the copper service passes over or under an active cathodic protection system, the service will be installed in a Schedule 40 PVC conduit for a distance of 10 feet on each side of the active system. All conduit placements will be as-built.

#### **4.0051 Fire Service**

There are 4 categories of private fire services: 1) hydrants, 2) fire sprinkler lines, 3) combination hydrant and fire sprinkler lines, and 4) combination plumbing and fire sprinkler heads.

The water fire service line shall normally extend from the main to the property line and end with a vault metering device and valves. An approved backflow prevention device will be required of the property being served.

#### **4.0052 Fire Vaults**

A vault will be required when a development provides fire sprinklers. The vault drawing will be included on construction drawings submitted to the District. The vault shall contain all valves, fittings, meters, and appurtenances required for fire service to the development.

#### **4.0060 SYSTEM TESTING**

All new water systems (lines, valves, hydrants, and services) shall be individually pressure tested, chlorinated, and tested for bacteria. All testing shall be performed in accordance with Division 4 (Water Construction Standards) of the Standard Construction Specifications and in the presence of a District Inspector.

#### **4.0070 WATER QUALITY SAMPLING STATIONS**

Water sampling stations will be required as directed by the District.

#### **4.0080 WATER SERVICE/PERMIT APPLICATION AND METERS**

The owner of the premises to be served, or the owner's duly authorized agent, will apply for water service in writing on regular application forms furnished by the District. No service will be provided until the District approves the application and required payments are made.

The District will provide water service only from mains located within public roads, streets, alleys, or public easements, public rights of way, and to property abutting such mains, and to dwellings, and other structures, and premises fronting such thoroughfares with sufficient frontages on the same to provide for appropriate service from such thoroughfares.

All applications will include the signature of the applicant, the location of the premises for which the service is requested, the address to which all bills be sent, and such additional data, as the Board from time to time may require, including a plot plan of the area to be served. District personnel will regard as confidential, additional information furnished by an applicant, at the District's request; provided, however, the District will in no way be responsible for its use of said information, which will be at its direction. Failure to supply such information when requested shall be deemed sufficient cause to deny the application.

Applications for service will be considered merely as a request for service, and will not bind the District or Board, to provide such service. Charges made for the installation of water service will be paid in full, and before installation, by the District.

Each dwelling, or building, or premises must be provided with its own water service connection, and meter. No person will furnish water to any other building, property, or premises, without first obtaining written approval of the District, and then, only according to the specific term of any such authorization that might be granted.

The District will not permit so-called "spider connections" which would provide service from one road or street, to premises abutting, or dwellings fronting, on another road or street. The District will provide each

dwelling with a separate service connection, and no other occupant of such dwelling, will furnish water to any other dwelling, or premise.

Meters will be set at property lines, and the service pipe from the main to the meter, as well the meter and the meter box will be the property of the District and not the person owning the premises or paying for the installation.

#### **4.0081 Deposits And Establishment Of Credit**

At the time a written application is made for water service, the applicant will pay to the District an amount sufficient to cover the cost of the installation according to schedules established by the District.

After such installation is made the facilities will be the property of the District and the cost of installation will not be refunded to the customer or owner of the premises served.

The District may at its discretion require an advance cash deposit for water service, either for new services, new premises, or for turning on water at an inactive service. An advanced cash deposit may be required if the credit of the applicant is unknown or has not been established or for other good cause. Advance deposits for water service so collected will be applied to bills rendered after one year, until all deposits have been used to pay for water supplied to the premises. The Board may require replenishment of deposits as a prerequisite to continuation of service. Deposits or payments made to cover costs of new service installations will not be considered such deposits, as herein described.

#### **4.0082 Water Service Connection**

Unless otherwise requested and approved in writing, service connections will be  $\frac{3}{4}$ " and meters will be first quality  $5/8$ " x  $\frac{3}{4}$ " meters, with such fittings, connections, yoke, or setter, a meter box, shut off cocks, etc. as the District may require.

When in the judgement of the District personnel, unusual conditions exist which require greater attention, extra fittings, meter boxes, vaults, or other safeguards, to assure adequate volume and pressure of water to an individual service, and or to minimize repair and maintenance problems, inherent in the installation, the District may require the applicant to meet the cost of such additional fittings, meter vaults, or other safeguards, at customary District charges that will be charged to the applicant, and be in addition to the usual meter and service installation charges, and considered a part of it.

When meters are required to be installed in driveways or roadways or under other circumstances, that in the opinion of the District personnel may cause unusual installation or maintenance problems, the District will have the right to require concrete meter vaults, or other devices to likewise be installed. The cost of such vaults or other protective devices will be borne by the owner of the property requesting the service installation.

Services larger than  $3/4$ ", may, in the discretion of the Board, be installed when requested in writing, provided the system can adequately serve such larger connections without interfering with the water service of others. The charges made for the installation of larger services will be sufficient to cover all costs thereof, and the minimum or "ready to serve/ charge will be higher than for standard  $3/4$ " service connections.

The Board may require persons requesting large service connections for fire protection, to pay for an equitable portion of the cost of feeder mains needed to supply the required flow. Each such case will be considered separately on its merits and the circumstances applicable to the case. The Board may also enter into special service contracts, in which higher minimum charges are established sufficient to cover the cost of the service rendered.

All District rules, and regulations rates and charges are subject to change or modification by the Board. All special contracts will be in writing, signed by the proper person, or customer and the District.

### **END OF SECTION**



# DIVISION 1—GENERAL CONSTRUCTION REQUIREMENTS

## TABLE OF CONTENTS

<b>101 DEFINITIONS AND ABBREVIATIONS .....</b>	<b>1</b>
101.01 DEFINITIONS .....	1
101.02 ABBREVIATIONS .....	4
<b>102 INSTRUCTIONS TO BIDDERS .....</b>	<b>4</b>
<b>103 AWARD AND EXECUTION OF CONTRACT .....</b>	<b>4</b>
<b>104 SCOPE OF WORK .....</b>	<b>5</b>
104.01 PLANS AND SPECIFICATIONS.....	5
104.02 PRECEDENCE OF CONTRACT DOCUMENTS.....	5
104.03 SHOP DRAWINGS AND OTHER SUBMITTALS .....	5
104.04 CHANGES IN THE WORK .....	6
104.05 FORCE ACCOUNT WORK .....	6
104.06 SALVAGE .....	6
<b>105 CONTROL OF WORK .....</b>	<b>6</b>
105.01 AUTHORITY OF THE DISTRICT ENGINEER .....	6
105.02 AUTHORITY AND DUTIES OF INSPECTORS.....	7
105.03 RESPONSIBILITY OF CONTRACTOR.....	7
105.04 NOTIFICATION OF UTILITIES AND AGENCIES .....	7
105.05 UTILITIES AND EXISTING IMPROVEMENTS .....	8
105.06 SURVEY SERVICE.....	9
105.07 PROTECTION OF SURVEY MARKERS.....	9
105.07.01 Permanent Survey Markers .....	9
105.07.02 Construction and Survey Markers .....	9
105.08 PROTECTION OF PROPERTY.....	9
105.09 USE OF WORK DURING CONSTRUCTION.....	10
105.10 FURNISHING TEMPORARY SERVICES AND FACILITIES.....	10
105.11 VERBAL AGREEMENTS OR REPRESENTATIONS.....	10
105.12 WATER AND AIR POLLUTION CONTROL .....	10
105.13 NOISE .....	10
105.14 ACCESS TO THE WORK.....	10
105.15 DEFECTIVE OR UNAUTHORIZED WORK .....	11
<b>106 CONTROL OF MATERIALS.....</b>	<b>11</b>
106.01 PREFERENCE FOR USE OF OREGON PRODUCTS.....	11
106.02 QUALITY OF WORK .....	11
106.03 SAMPLING AND TESTING .....	11
106.04 CERTIFICATION.....	12

106.05	INSPECTION BY OTHERS .....	12
106.06	STORAGE AND PROTECTION OF ITEMS OF WORK.....	12
106.07	TRADE NAMES, EQUALS, OR SUBSTITUTIONS .....	12
<b>107</b>	<b>LEGAL RELATIONS AND RESPONSIBILITIES.....</b>	<b>13</b>
107.01	LAWS AND REGULATIONS .....	13
107.02	SUBCONTRACTORS .....	13
107.03	NO WAIVER OF LEGAL RIGHTS .....	13
107.04	OTHER CONTRACTS .....	13
107.05	LIABILITY AND INDEMNIFICATION .....	14
107.06	INSURANCE .....	14
107.06.01	General .....	14
107.06.02	Review and Approval of Insurance .....	15
107.06.03	Workers' Compensation, the Federal Longshoremens' and Harborworkers' Act, and the Federal Jones Act.....	15
107.06.04	General Liability and Automobile Liability .....	15
107.06.05	Claims on Project.....	16
107.06.06	Builders Risk Insurance .....	16
107.06.07	Insurance for Work in Railroad Rights-of-Way .....	17
107.07	ROYALTIES AND PATENTS.....	17
107.08	PERMITS .....	17
107.09	COMPLIANCE WITH ORS CHAPTER 279A, B, AND C (PUBLIC CONTRACTING CODE) .....	17
107.10	LABOR.....	17
107.11	OVERTIME .....	18
107.12	SAFETY .....	18
107.12.01	Employee Safety.....	18
107.12.02	Public Safety and Convenience.....	18
107.12.03	Safety Program .....	18
107.13	RIGHTS-OF-WAY, EASEMENTS, AND PREMISES .....	19
107.14	12-MONTH MAINTENANCE AND WARRANTY .....	19
<b>108</b>	<b>PROSECUTION AND PROGRESS OF WORK.....</b>	<b>19</b>
108.01	CONTRACTOR'S CONSTRUCTION SCHEDULE.....	19
108.02	PRECONSTRUCTION CONFERENCE .....	20
108.03	NOTICE TO PROCEED.....	20
108.04	CONTRACT TIME.....	20
108.05	SUSPENSION OF WORK .....	20
108.06	DELAYS AND EXTENSIONS OF TIME .....	21
108.07	LIQUIDATED DAMAGES .....	21
108.08	CONTRACTOR'S REPRESENTATIVE .....	22
108.09	CONFLICTS, ERRORS, OMISSIONS, AND ADDITIONAL DRAWINGS .....	22
108.10	DISTRICT'S RIGHT TO DO WORK .....	22
108.11	TERMINATION FOR DEFAULT .....	22
108.12	TERMINATION IN THE PUBLIC INTEREST .....	23

# 101 DEFINITIONS AND ABBREVIATIONS

---

Unless otherwise defined in the contract documents the following definitions and abbreviations shall apply wherever used.

The words "directed, required, permitted, ordered, requested, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory," or words of like import, refer to actions, expressions, and prerogatives of the District Engineer.

Command type sentences are used, but are not exclusive of other directives, throughout these Standard Specifications. In all cases the command expressed or implied is directed to the Contractor.

The specifications contained herein are divided into categories: (1) Division; (2) Section; and (3) Subsection, and are designated as in the following example:

**Division:        DIVISION 3—SANITARY SEWER CONSTRUCTION STANDARDS**

**Section:        302 MANHOLES AND CONCRETE STRUCTURES**

**Subsections: 302.03 CONSTRUCTION**

**302.03.01 General**

**A.        Excavation and Backfill**

**1.        (as needed)**

**a.        (as needed)**

## 101.01 DEFINITIONS

### **Acceptance of work**

All work required by the contract documents and/or conditions of approval will be considered accepted upon approval of the Certificate of Completion by District.

### **Advertisement**

The public announcement inviting bids for work to be performed or materials to be furnished.

### **Attorney**

The District's Attorney .

### **Certificate of Completion**

Standard District form, which must be signed by the Contractor.

### **Certificate of Compliance**

Standard District form, which must be signed by the Contractor, stating compliance with the contract documents and/or conditions of approval.

### **Change order**

A written order issued by the District Engineer to the Contractor directing changes in the work, subject to approval of District.

### **District**

Oak Lodge Water Services District.

### **District Engineer**

The District Engineer, or General Manager, of the District , acting either directly or through authorized representatives.

**Contract**

The document entitled "contract" or "agreement" which is executed by the Contractor and the District; authorizing ordinance; advertisement calling for bids; bid; instructions to bidder; plans; and all specifications, addenda, permits, performance bond, insurance certificates, and change order for any approved revisions made during the performance of the work to any of the above listed documents, collectively referenced as the "contract documents."

**Contract cost**

The aggregate amount of price promised to be paid by District to Contractor upon fulfillment of the Contract.

**Contract item**

A specific unit of work for which a price or basis of payment is provided in the Contract.

**Contractor**

Any individual, firm, copartnership, corporation, or any combination thereof who has entered into a Contract with the District for a particular project. In the case of work being done under permit issued by the District, the permittee shall be construed to be the Contractor.

**Day**

Calendar day; i.e., any and every day shown on the calendar, Sundays and holidays included.

**Easement**

The right to use a defined area of property for specific purpose or purposes as set forth in the specifications.

**Improvement**

General term encompassing all phases of work to be performed under a Contract for a Local improvement District and synonymous with the terms "project" or "work."

**Inspector**

The authorized representative of the District .

**Lump sum**

A method of payment providing for one all-inclusive payment for the work described to be done, complete and accepted without further measurement, as such work is covered under the applicable lump sum pay item.

**Notice**

A written communication delivered, by hand or by mail, to the authorized individual, member of the firm, or officer of the corporation for which it is intended. If delivered or sent by mail it shall be addressed to the last known business address of the individual, firm, or corporation. In the case of a Contract with two or more persons, firms, or corporations, notice to one shall be deemed notice to all.

**OSHD Standard Specification**

The latest edition of the Specification Document published by the State of Oregon entitled Standard Specifications for Highway Construction, Oregon State Highway Division. This document is available from the Oregon State Highway Division, Salem, Oregon.

**Plans**

The official Plans, profiles, cross sections, elevations, details and other working, supplementary and detail drawings, or reproductions thereof..

**Project**

General term encompassing all phases of the work to be performed under the Contract and is synonymous with the term improvement or work.

**Provide**

When related to an item of work, the word provide shall be understood to mean furnish and install the work complete in place.

**Reference specifications**

Bulletins, standards, rules, methods of analysis or test, codes and specifications of other agencies, engineering societies, or industrial associations referred to in the contract documents. All such references specified herein refer to the latest edition thereof, including any amendments thereto which are in effect and published at the time of advertising for bids or of issuing the permit for the project.

**Right-of-way**

-See CC DTD Definition

**Roadway**

See CC DTD Definition

**Shop drawings and submittals**

Supplementary plans or data or other information which the Contract requires the Contractor to submit to the District Engineer.

**Special Specifications**

Requirements peculiar to the project and changes and modifications of the Standard Specifications.

**Specified**

As used herein, the word specified, or as specified, means as required by the Contract.

**Standard plans or drawings**

Details of structures, devices, or instructions adopted by District as a standard and referred to in the Contract.

**Standard Specifications**

The terms, directions, provisions and requirements set forth herein.

**Station**

A distance of 100 feet measured horizontally along the established centerline of a street, sewer, or other work, unless specified otherwise.

**Street**

See CC DTD Definition **Subcontractor**

An individual, partnership, firm, corporation, or any combination thereof, to whom the Contractor sublets part of the Contract.

**Substantial completion**

The work (or a specified part thereof) has progressed to the point where, in the opinion of the District Engineer, it is sufficiently complete in accordance with the contract documents and/or conditions of approval, so that the work (or specified part) can be utilized for the purposes for which it is intended.

**Surety**

The corporate body which is bound with and for the Contractor, for the acceptable performance of the Contract, and for their payment of all obligations arising out of the Contract.

**Unit price**

A contract item of work providing for payment based on specific unit of measurement; e.g., linear foot or cubic yard.

**Use of pronoun**

As used herein, the singular shall include the plural, and the plural the singular; and the term "person" includes natural person or persons, firm, copartnership, corporation or association, or combination thereof.

**Utility**

Tracks, overhead or underground wires, pipelines, conduits, ducts, or structures, owned, operated or maintained in or across a public right-of-way or easement.

**Work**

All material, labor, tools, equipment, and all appliances, machinery, transportation, and appurtenances necessary to perform and complete the Contract, and such additional items not specifically indicated or described which can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure.

**Working day**

Calendar day, any and every day shown on the calendar, excluding Saturdays, Sundays and legal holidays.

**101.02 ABBREVIATIONS**

AAN	American Association of Nurserymen
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors of America
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforced Steel Institute
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
ITE	Institute of Traffic Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NLMA	National Lumber Manufacturer's Association
ODOT	Oregon Department of Transportation
OLWSD	Oak Lodge Water Services District
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Administration
OSHD	Oregon State Highway Division
PCA	Portland Cement Association
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
USASI	United States of America Standards Institute
WWPA	Western Wood Products Association

**102 INSTRUCTIONS TO BIDDERS**

---

See Oak Lodge Water Services District Purchasing Rules.

**103 AWARD AND EXECUTION OF CONTRACT**

---

See Oak Lodge Water Services District Purchasing Rules.

## **104 SCOPE OF WORK**

---

### **104.01 PLANS AND SPECIFICATIONS**

The contract documents and/or conditions of approval will govern the work to be done. Anything mentioned in the Specifications and not shown on the Plans and detailed drawings, or shown on the Plans and detailed drawings and not mentioned in the Specifications, shall be of like effect as though shown or mentioned in both. Specifications and Plans referred to in any of the contract documents and/or conditions of approval shall be considered as being included in the document in which such reference is made. When a particular standard plan or Specification is referred to, such reference shall be to the standard plan or Specification which is in force at the time of advertising for bids. The phrases, "Contractor shall", "Contractor will", etc. may not always be specifically stated in all paragraphs but is considered understood where not specifically stated otherwise.

### **104.02 PRECEDENCE OF CONTRACT DOCUMENTS**

In case of conflict, the order of precedence of the following documents in controlling the work shall be:

1. Contract
2. Addenda
3. Bid
4. Permits from outside agencies required by law
5. Special Specifications (Provisions)
6. Plans
7. Standard plans and standard details
8. Standard/Technical Specifications

Change orders, supplemental agreements and approved revisions to Plans and Specifications will take precedence over contract documents listed above.

### **104.03 SHOP DRAWINGS AND OTHER SUBMITTALS**

Plans furnished and included with Specifications indicate the work proposed and the intended results.

By approving and submitting shop drawings, product data and samples, the Contractor represents that they have determined and verified all materials, field measurements, and field construction criteria related thereto, and that they have checked and coordinated the information contained within such submittals with the requirements of the work and of the contract documents and/or conditions of approval and that they have checked and coordinated the information contained within such submittals with the requirements of the work and of the contract documents and/or conditions of approval.

All required shop drawings, product data and samples shall be furnished to the District Engineer for their review and any required testing before any of the work or related work is performed or products or material ordered prior to the District Engineer's review and completion of any testing will be at Contractor's risk.

The District Engineer will review all shop drawings, product data and samples and conduct such tests as are required by the contract documents and/or conditions of approval within a reasonable time but in no event will the District Engineer be required to complete such review or conduct such tests in less than 14 days after submission. The Development Review Engineer will mail a letter stating one of the following:

1. Make corrections/additions noted: make the necessary changes and resubmit 1 set for review.
2. Set is ready for approval: send 6 drawing sets and 2 shall be returned to the Designing Engineer.

The review by the District Engineer of any shop drawings, product data, samples, construction methods and equipment or other submittals is only for conformance with the general design concept of the project and does not extend to consideration of structural integrity, safety, detailed compliance with contract requirements, or any other obligation of the Contractor. Any action shown is subject to the requirements of the plans and specifications. The Contractor is responsible for confirming and correlating all dimensions; fabricating and construction techniques; coordinating their entire work in strict accordance with the contract documents and/or conditions of approval. The review does not relieve Contractor from

their obligation fully to perform all Contract requirements, nor shall such review give rise to any right of action or suit in favor of Contractor or third persons, against the District.

#### **104.04 CHANGES IN THE WORK**

Without invalidating the agreement and without notice to a surety, District may, at any time, order additions, deletions or revisions in the work: these will be authorized by a written amendment, a change order, or a work directive change.

Upon receipt of any such document, Contractor shall promptly proceed with the work involved that will be performed under the applicable conditions of the contract documents (except as otherwise specifically provided).

#### **104.05 FORCE ACCOUNT WORK**

The Contractor shall perform work on a force account basis upon written notice by the District Engineer. If the District Engineer determines that the work increases the amount due under the Contract, payment will be made pursuant as force account work.

The Contractor must maintain records in such a manner as to provide a clear distinction between direct cost of work performed on force account basis and costs of all other operations performed in connection with the Contract.

Daily, furnish to the District Engineer signed reports itemizing materials used and setting forth the cost of labor and charges for equipment rental, delineating whether said equipment is Contractor or Subcontractor owned. Provide names, identifications, and classifications of workmen, the hourly rate of pay and hours worked, and the size, type, and identification number of equipment and hours of equipment operation.

Substantiate material charges by vendor's invoices, submit such invoices with the reports; or, if not available, submit with subsequent reports. In the event said vendor's invoices are not submitted within 30 days after completion of the force account work owner reserves the right to establish the cost of such materials.

The District Engineer will compare their records with the reports furnished by the Contractor, make any necessary adjustments, compile the costs of work paid for on a force account basis and issue a change order covering the work.

#### **104.06 SALVAGE**

When shown or specified, carefully salvage and stockpile within the construction area all castings, pipe and any discarded facilities, to be disposed of by owner.

### **105 CONTROL OF WORK**

---

#### **105.01 AUTHORITY OF THE DISTRICT ENGINEER**

The District Engineer will decide all questions which may arise as to quantity, quality, and acceptability of materials furnished and work performed, the rate of progress of the work; interpretation of the Plans and Specifications; the measurement of all quantities; and the acceptable fulfillment of the Contract on the part of the Contractor. The District Engineer's estimates, decisions and approval signify favorable opinion and qualified consent; it does not carry with it certification or assurance of completeness, quality or accuracy concerning details. Such approval does not relieve Contractor from responsibility for errors, improper fabrication, improper construction methods, nonconformance to requirements or for deficiencies within their control.

It is further understood that all work to be done under the Contract will not be considered completed until it has passed final inspection by the District Engineer and is accepted by the District. It is further understood that the authority of the District Engineer is such that the Contractor shall at all times carry out



and fulfill the instructions and directions of the District Engineer insofar as they concern the work to be done under the Contract.

The District Engineer shall have the authority to order unacceptable work to be corrected, removed or replaced, and unauthorized work to be removed and, pending completion of such order, to deduct the estimated cost thereof from any monies due, or to become due the Contractor including retainage. This authority shall take precedence over any and all requirements of the specifications for payment set forth elsewhere in the specifications.

At the District Engineer's sole discretion, minor defects in the work may be accepted subject to a reasonable deduction from the Contract price or other credits to the owner. Such determination by the District Engineer shall be final.

The District Engineer is not authorized to waive any written notice required of the Contractor by the Contract.

### **105.02 AUTHORITY AND DUTIES OF INSPECTORS**

The District Engineer may appoint assistants to inspect all materials used and all work done. Such inspection may extend to any or all parts of the work and to the preparation or manufacture of materials to be used. Inspectors will not be authorized to revoke, alter, enlarge, or relax the provisions of the Contract. An Inspector is placed on the work to keep the District Engineer informed of progress of the work and the manner in which it is being done. In addition, the Inspector shall call to the attention of Contractor any deviation from the Plans, or Specifications.

An Inspector will not be authorized to approve or accept any portion of the work or to issue instructions contrary to the Plans and Specifications under this Contract. Furthermore, the Inspector is not authorized to waive any written notices required by the Contract. The Inspector will have authority to reject defective material and to suspend any work that is being improperly done, subject to final decision by the District Engineer.

### **105.03 RESPONSIBILITY OF CONTRACTOR**

Do all work and furnish all labor, materials, equipment, tools, and machines necessary for the performance and completion of the project in accordance with the Contract. Be obligated to determine and be responsible for the method of construction.

Contractor shall be solely liable for any accident, loss or damage happening to work referred to in the Contract prior to completion and acceptance thereof.

### **105.04 NOTIFICATION OF UTILITIES AND AGENCIES**

Obtain prior approval from Clackamas County for closing or partial closing of any street. When performing work in streets and easements, whether inside or outside District's legal boundaries, notify all of the affected utilities and local agencies about the operations so as to properly coordinate and expedite the work in such a manner as to cause the least amount of conflict and interference between the operations and those of other agencies.

The Contractor and its Subcontractors must comply with all provisions of ORS and<sup>1</sup>including notification of all owners of underground facilities at least 48 business day hours but not more than 10 business days before beginning work. Notify the following utilities and agencies in writing at least 2 working days before commencing any work on the project.

1. District Technical Services Department
2. Northwest Natural Gas Co.
3. Oregon Department of Transportation
4. Portland General Electric Co.
5. Comcast

---

<sup>1</sup> 757.541 to 757.562 and 757.993 at time of adoption

6. Century Link
7. Water Environment Services of Clackamas County

Other applicable municipalities, agencies or special districts or providers

The District shall relocate or cause to be relocated all privately or publicly owned utility conduits, lines, poles, mains, pipes, and such other facilities within the jurisdiction and control of the District where such relocation is necessary in order to conform said utility and other facilities with the plans and ultimate requirements of the project. If desirable for specific reasons, or for convenience of field operations, contact the above listed utilities.

## **105.05 UTILITIES AND EXISTING IMPROVEMENTS**

Information shown as to location of existing water courses, drains, sewer lines, or utility lines is provided for Contractor's information and convenience and is not, in any way, warranted to be accurate by the District. Contractor shall verify all such information and shall deal with varying conditions at its own expense.

Operation of water valves and hydrants by unauthorized personnel is strictly prohibited. Obtain written permission from and pay any fee required from the District prior to using hydrant water.

Provide for the flow of sewers, drains, or water courses interrupted during the progress of the work, and restore such drains or water courses as approved by the District Engineer, at no additional cost to the District.

Be responsible for all costs for the repair of any and all damage to any utility, whether previously known or disclosed during the work, as may be caused by the work. Maintain in place utilities not shown on the drawings to be relocated or altered by others. If Contractor requires temporary relocation, for their convenience or because of their method of construction or as a result of site conditions, Contractor shall bear all costs for said temporary relocation. Maintain utilities which have been relocated by others in their relocated positions in order to avoid interference with structures which cross the project work.

Make excavations and borings ahead of work, as necessary, to determine the exact location of interfering utilities or underground structures. When this is not feasible or practical or the need for such work was not foreseen, the utility owners or the District shall have the right to enter upon the right-of-way and upon any structure therein for the purpose of making new installations, changes or repairs. Conduct operations so as to provide the time needed for such work to be accomplished during the progress of the improvement, at no additional cost to the owner.

It is understood that there will be interfering utilities, service laterals, and other underground pipes, drains or structures encountered on underground projects that are not shown or are shown incorrectly on the plans and/or have not been previously discovered in the field. Contractor agrees this is a normal and usual occurrence in the construction of underground improvements. Furthermore, bidders understand and agree that work in some cases must be done in close proximity to said utilities and underground pipes, drains, and structures not shown or shown incorrectly on the plans which may require a change in operations and may cause sloughing of the trench, additional traffic control, additional pavement and backfill costs, and time; the Contractor agrees that a reasonable number of these occurrences are usual and ordinary on underground projects and are reflected in the bid and plan of operation.

The District Engineer will require a reasonable amount of time to perform design changes necessitated by directly conflicting utilities and/or the utility owners will require a reasonable amount of time to make necessary utility relocations.

The Bidders agree to provide for these conflicts and interferences and agree to provide for a reasonable amount of time for design changes and/or utility relocations due to said interference in the bid and understand that no additional compensation for interruption of schedule, extended overhead, delay or any other impact claim or ripple effect or any other costs whatsoever or additional time will be made for these conflicts or interferences.

## **105.06 SURVEY SERVICE**

Give notice to the District Engineer not less than 3 working days in advance of when survey services will be required in connection with the laying out of any portion of the work.

The District Engineer will furnish appropriate offset lines and grades as they deem necessary for all projects involving trenching operations. Contractor will be responsible for the transfer of the offset lines or grades into the ditch, to batter boards, or any other point within the work. Work done without lines and grades having been established by the District Engineer or work done beyond the lines and grades will be considered as unauthorized and will not be paid for and may be ordered removed, replaced, or corrected at no expense to the District.

## **105.07 PROTECTION OF SURVEY MARKERS**

### **105.07.01 Permanent Survey Markers**

Notify the District Engineer not less than three working days prior to starting work in order that the District Engineer may take necessary measures to ensure the preservation of survey monuments, stakes, lot stakes, and bench marks. Do not disturb permanent survey monuments, stakes, lot stakes, or bench marks without the consent of the District Engineer, and notify the District Engineer and bear the expense of replacing any that may be disturbed.

When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, preserve the monument, and adjust the monument cover to the new grade at no expense to District.

### **105.07.02 Construction and Survey Markers**

Preserve construction survey stakes and marks for the duration of their usefulness during construction. If any construction survey stakes are lost or disturbed through negligence of Contractor, and in the judgment of the District Engineer need to be replaced, such replacement shall be by the District Engineer at the expense of Contractor. The cost of replacement shall be charged against, and shall be deducted from payments for Contract work.

## **105.08 PROTECTION OF PROPERTY**

Protect all public and private property, insofar as it may be endangered by operations and take every reasonable precaution to avoid damage to such property.

Restore and bear the cost of any public or private improvement, facility, structure, or land and landscaping within the right-of-way or easement which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the work. Restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, rebuilding, or otherwise effecting restoration thereof, or if this is not feasible, make a suitable settlement with the District of the damaged property.

Give reasonable notice to occupants of buildings on property adjacent to the work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate plants, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

Protect all designated trees, lawns and planted areas within the right-of-way or easements. Restore all on-surface disturbed areas, by methods as set forth in the technical specifications. If conditions are such that the method specified cannot be done, provide erosion control surface covering of such quality and quantity as will prevent erosion from occurring, without adverse impacts to the environment, if required by conditions existing at the site, at no additional cost to the District.

Review with the District Engineer the location, limits and methods to be used prior to clearing work. Clearing and grubbing shall be performed in strict compliance with all local, State and federal laws and requirements pertaining to clearing and burning, and particularly in conformity with the provisions of ORS

Chapter 477, and all subsequent amendments, which require, among other things, filing with the State Forester a general description of the right-of-way to be cleared before the start of clearing operations. Obtain the required permit from the State Forester and District and perform clearing work in conformance thereto.

### **105.09 USE OF WORK DURING CONSTRUCTION**

The District shall have the right to take possession of and use any completed or partially completed portions of the work. Such use shall not be considered as final acceptance of the work or portions thereof.

Such action by the District will not relieve the Contractor of responsibility for injury or damage to said completed portions of the work resulting from use by public traffic, action of the elements, Contractor's operations, defective work, or negligence, or from any other cause, except for injury or damage resulting from District's negligence. Contractor will not be required to again clean up such portions of the work prior to final acceptance, excepting for such clean up as results from Contractor's operations or defective work. Use of any completed or partially completed portions of the work does not relieve Contractor from the warranty responsibility nor shall the warranty period commence to run until final completion and acceptance of the work.

### **105.10 FURNISHING TEMPORARY SERVICES AND FACILITIES**

Install, furnish and maintain temporary light, power, water and any temporary services or facilities complete with connecting piping, wiring, lamps, and similar equipment during construction of the work, including testing and start up. Remove temporary facilities upon completion of work. Obtain all permits and bear all costs in connection with temporary services and facilities. Conform to applicable statutes, rules, codes, and other requirements in the use of these facilities.

### **105.11 VERBAL AGREEMENTS OR REPRESENTATIONS**

No verbal agreement or conversation by or with any officer, agent or employee of the District, either before or after execution of the Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract. Any such verbal agreement or conversation is in no way binding upon the District.

### **105.12 WATER AND AIR POLLUTION CONTROL**

During the term of the Contract, Contractor's operations shall conform to applicable laws and regulations of the Oregon DEQ, and other agencies of the State and Federal Government, District Erosion Control Plans, as well as other local ordinances and resolutions designed to prevent, control, and abate water and air pollution.

During all phases of the work, or when directed, protect work sites, storage and disposal areas from washout and erosion, and take precautions to control or abate dust nuisance and air pollution by cleaning up, sweeping, sprinkling, covering, enclosing, or sheltering work areas, and stockpiles, and by promptly removing from paved streets earth or other material which may become airborne or may be washed into waterways or drainage systems.

### **105.13 NOISE**

Conform and comply with applicable noise regulations as established in the Clackamas County Code. Work hours are restricted to the hours of 7:00 a.m. to 7:00 p.m. during the weekdays and 8:00 a.m. to 5:00 p.m. on the weekends.

### **105.14 ACCESS TO THE WORK**

Provide access to the work for representatives of the District, the State of Oregon, the Federal Government, and other entities having jurisdiction in the area.

Allow access to the District Engineer or their representatives to all parts of the work and to plants of manufacturers at all times. Furnish them with every reasonable facility for ascertaining if the work meets requirements and intent of the Contract.

### **105.15 DEFECTIVE OR UNAUTHORIZED WORK**

All work which does not conform to the requirements of the Contract shall be considered as unacceptable.

Upon discovery immediately remove unacceptable and defective work and replace by work and materials which conform to the Contract. This provision shall have full effect regardless of the fact that the unacceptable work may have been done or the defective materials used with the full knowledge of the Inspector.

## **106 CONTROL OF MATERIALS**

---

### **106.01 PREFERENCE FOR USE OF OREGON PRODUCTS**

Preference may be given to services, articles or materials produced or manufactured in Oregon, if price, fitness, availability and quality are otherwise equal. These provisions do not apply to Contracts on projects financed wholly or in part by federal funds.

### **106.02 QUALITY OF WORK**

Materials, parts, products and equipment which are to be incorporated into the work shall be new and shall conform to the contract documents.

### **106.03 SAMPLING AND TESTING**

Tests of the work may be made by the District at any time during construction of the work or during the production, fabrication, or preparation and use of materials, parts, products, and equipment.

District reserves the right to require samples and to test products for compliance with pertinent requirements irrespective of prior certification of the products by the manufacturer.

When such tests of the work are necessary, as determined by the District Engineer, such tests will be made by and at the expense of District unless otherwise specified. Provide such facilities and cooperate as required for collecting and forwarding samples and do not incorporate into the work until tests have been made and found acceptable. In all cases furnish the required samples without charge and in ample time to permit testing prior to use. Provide safety measures and devices to protect those who take the samples.

In the absence of any reference Specification, it shall be understood that materials shall meet the Specifications and requirements of ASTM, as directed by the District Engineer. When there is no pertinent coverage under ASTM, the material concerned shall meet Specifications and requirements of applicable commercial standards of the Commodity Standards Division of the U.S. Department of Commerce. Lacking such coverage, materials shall meet requirements established by reputable industry for a high-quality product of the kind involved.

All testing shall be performed by the testing laboratory, the District Engineer, or as directed by the District Engineer.

In the event the District Engineer requests tests and the work fails, the Contractor shall bear all costs for this test and all subsequent testing necessary to meet specified requirements.

## **106.04 CERTIFICATION**

The District Engineer may, at their sole discretion and in lieu of any other required sampling and testing, accept from Contractor 2 copies of the manufacturer's certification with respect to the product involved, under conditions set forth as follows:

1. Certification shall state that the named product conforms to District's requirements and that representative samples thereof have been sampled and tested as specified.
2. Certification shall either be accompanied by a certified copy of test results or certify that such test results are on file with the manufacturer and will be furnished to the District Engineer upon request.
3. Certification shall give the name and address of the manufacturer and the testing agency and the date of tests; and shall set forth the means of identification which will permit field determination of the product delivered to the project as being the product covered by the certification.
4. Contractor shall not be responsible for any costs of certification or for any costs of the sampling and testing of products in connection therewith.

## **106.05 INSPECTION BY OTHERS**

Inspection of work by persons other than representatives of the District will not constitute inspection by the District.

## **106.06 STORAGE AND PROTECTION OF ITEMS OF WORK**

Store items to be incorporated into the work to assure the preservation of their quality and fitness for the work. Stored items, even though approved before storage, may be reinspected and are subject to rejection prior to being incorporated into the work. Stored items shall be located so as to facilitate their prompt inspection.

## **106.07 TRADE NAMES, EQUALS, OR SUBSTITUTIONS**

In order to establish a basis of quality, certain processes, types of machinery or equipment, or kinds of materials may be specified—either by description of process, by designating a manufacturer by name and referring to their brand or product designation, or by specifying a kind of material. It is not the intent of these specifications to exclude other processes, equipment, or materials of equal value, utility, or merit.

Whenever a process is designated; a manufacturer's name, brand, or item designation is given; or a process or material covered by patent is designated or described; it shall be understood that the words "or equal" follow such name, designation, or description, whether in fact they do so or not. This "or equal" clause is not a warrantee, either expressed or implied, by the District that an equal exists.

The Contractor may offer to furnish materials or equipment of equal or better quality and performance than that specified as a substitute after the Contract is executed. If the offer necessitates changes to, or coordination with, any other portion of the work, the data submitted shall include drawings and details showing all such changes. Contractor agrees to perform these changes as part of the substitution of material or equipment. Acceptance by the District Engineer shall not relieve the Contractor from full responsibility for the efficiency, sufficiency, quality, and performance of the substituted material or equipment in the same manner and degree as the material and equipment specified by name. Any cost differential associated with a substitution shall be reflected in the Contract price and the Contract shall be appropriately modified by change order.

If the bid includes a list of equipment, materials, or articles for which Contractor must name the manufacturer at time of submission of the bid, no substitutions therefore will be permitted.

All materials or equipment of equal or better quality offered by the Contractor for substituting shall be approved by the District Engineer prior to incorporation into the project.

## **107 LEGAL RELATIONS AND RESPONSIBILITIES**

---

### **107.01 LAWS AND REGULATIONS**

Comply with all federal and State laws; all local laws, ordinances, and regulations; and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of work. Observe and comply with all such laws, ordinances, regulations, orders, and decrees. Protect and indemnify District and their representatives against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order, or decree—whether by Contractor, their Subcontractors, suppliers of materials or services, or others engaged by the Contractor or their employees.

In addition to those set forth herein, the District's Public Contracting rules and the Statutes of the State of Oregon for public works contracts, ORS Chapters 279A and 279C, are incorporated by reference into the Contract.

### **107.02 SUBCONTRACTORS**

After Contract award and notice of Contractor/Subcontractor agreements have been submitted, work shall not be transferred or subcontracted without prior consent of the District.

Use of subcontractors, material suppliers or equipment suppliers shall in no way release Contractor from any obligations of contract with the District.

Contractor will provide in all subcontract agreements that the Subcontractor, material supplier and equipment supplier will be bound by the terms and conditions of this Contract to the extent that they relate to the Subcontractor's work, material or equipment. All Subcontractor's agreements will also provide that they are assignable to the District at District's option, in the event this agreement is terminated for default of Contractor.

### **107.03 NO WAIVER OF LEGAL RIGHTS**

The District shall not be precluded by any measurement, estimate or certificate made either before or after completion and acceptance of work or payment therefore, from showing the true amount and character of work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate or certificate is untrue or incorrectly made, or that work or materials do not conform in fact to the Contract. The District shall not be precluded, notwithstanding any such measurement, estimate or certificate, or payment in accordance therewith, from recovering from the Contractor and their sureties such damages as it may sustain by reason of their failure to comply with terms of the Contract, or from enforcing compliance with the Contract. Neither acceptance by the District, or by any representative or agent of the District, of the whole or any part of the work, nor any extension of time, nor any possession taken by the District, nor any payment for all or any part of the project, shall operate as a waiver of any portion of the Contract or of any power herein reserved, or any right to damages herein provided. A waiver of any breach of the Contract shall not be held to be a waiver of any other breach.

### **107.04 OTHER CONTRACTS**

The District reserves the right to award other contracts or issue permits for work that may require coordination with the work to be performed under this Contract.

When separate contracts or permits are awarded or issued for different portions of the Project, "the Contractor" in the contract documents in each case shall be the contractor who signs each separate contract.

**Mutual Responsibility of Contractors:** The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate their work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other separate Contractor, the Contractor shall inspect and promptly report to the District Engineer any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to inspect and report shall constitute an acceptance of the other Contractor's work as fit proper to receive the work, except as to defects which may develop in the other separate contractor's work after the execution of the Contractor's work.

Should the Contractor cause damage to the work or property of any separate contractor which results in a claim against the District, and if the claim is not satisfied by Contractor and the separate contractor sues the District or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the District shall notify the Contractor who shall defend if requested such proceedings at the Contractor's expense, and if any judgment or award against the District arises therefrom the Contractor shall pay or satisfy it and shall reimburse the District for all attorney's fees and court or arbitration costs which the District has incurred.

The Contractor shall be responsible for any cutting, fitting and patching that may be required to complete the work except as otherwise specifically provided in the Contract. The Contractor shall not endanger any work of any other contractors by cutting, excavating or otherwise altering any work and shall not cut or alter the work of any other contractor. Any costs caused by defective or ill-timed work shall be borne by the party responsible therefore.

If a dispute arises between the separate contractors as to their responsibility for cleaning up, the District may clean up and charge the cost thereof to the several contractors as the District Engineer shall determine to be just.

## **107.05 LIABILITY AND INDEMNIFICATION**

The Contractor shall assume all responsibility for the work and shall bear all losses and damages directly or indirectly resulting to the Contractor, to the District, to the District Engineer, and to their officers, agents, and employees on account of (a) the character or performance of the work, (b) unforeseen difficulties, (c) accidents, or (d) any other cause whatsoever.

The Contractor shall defend, indemnify, and hold harmless the District, the Design Engineer, and their officers, agents and employees from all claims, loss, damage, and injury of every kind directly or indirectly arising out of this Contract. The Contractor shall assume this responsibility even if (a) fault is the basis of the claim, and (b) any act, omission or conduct of the District connected with the Contract is a condition or contributory cause of the claim, loss, damage or injury.

The Contractor shall not be liable for, nor be required to defend, or indemnify the District or the Design Engineer relative to any claim, loss, damage, or injury resulting solely from acts or omissions by the District, the Design Engineer, or their officers, agents or employees. The Contractor shall not be liable for, not be required to defend, or indemnify the District or the Design Engineer relating to any claim loss, damage, or injury arising from the use of any maps, drawings, reports, surveys, designs, or specifications furnished by the District, Design Engineer, or their officers, agents, or employees.

Any specific duty or liability imposed or assumed by the Contractor, as may be otherwise set forth in the contract documents, shall not be construed as a limitation or restriction of the general liability or duty imposed upon the Contractor by this section.

The Contractor shall assume all responsibility for the work.

## **107.06 INSURANCE**

### **107.06.01 General**

The Contractor shall provide and maintain during the life of this Contract the insurance coverage designated hereafter. All costs for such insurance shall be born by the Contractor and shall be included in the Contract price.



Prior to execution by the District and before commencing work under this Contract, Contractor shall furnish the District Engineer with certificates of insurance specified herein showing the name of the insurance carrier, coverage, type, amount (or limits), policy numbers, effective and expiration dates, description of operations covered, and containing substantially the following cancellation provision:

"The insurance covered by this certificate will not be canceled or materially reduced, except after 30 days written notice has been received by the District."

In case of the breach of any provision of this Article, the District, at its option, may take out and maintain, at the expense of the Contractor, such insurance as the District may deem proper. The District may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Contract.

#### **107.06.02 Review and Approval of Insurance**

The Contractor shall not commence work under this Contract nor allow any subcontractor to commence work on a subcontract until the Contractor has obtained all the insurance required hereunder and such insurance has been approved by the Attorney. All policies or insurance and certificates of insurance shall be satisfactory to the District. Approval of the insurance shall not relieve or decrease the liability of the Contractor hereunder.

#### **107.06.03 Workers' Compensation, the Federal Longshoremens' and Harborworkers' Act, and the Federal Jones Act**

The Contractor shall provide and shall require all subcontractors to provide workers' compensation coverage for all persons employed under this Contract including the Contractors' partners and any individual regardless of relation to the Contractor's partners and any individual regardless of relation to the Contractor or to the partners who provide work under this Contract. The Contractor shall be required to assure that subject workers will receive the compensation for compensable injuries provided in ORS Chapter 656 either by:

1. a carrier-insured employer; or
2. a self-insured employer as provided by ORS 656.407.

In addition to the statutory benefits outlined above, the Contractor and all Subcontractors shall provide employers' liability insurance with limits of not less than:

1. \$2,000,000 each occurrence
2. \$2,000,000 disease each employee
3. \$2,000,000 disease—policy

Evidence of such coverage, including the guaranty or warrant period, shall be filed with the District and maintained for the duration of the Contract.

The Contractor shall defend, indemnify, and hold harmless, the District and the District's officers, agents, and employees against any liability that may be imposed upon them by reason of the Contractor's or Subcontractor's failure to provide workers' compensation and employers liability coverage.

#### **107.06.04 General Liability and Automobile Liability**

The Contractor shall provide a general liability policy that provides coverage for bodily injury including personal injury and property damage liability insurance and automobile liability insurance. Such insurance must protect the Contractor, the District, and their officers and employees from all things or damage which may arise out of this Contract or in connection therewith, including all operations of Subcontractors. Such insurance shall provide coverage for not less than the amounts for which public bodies are responsible as set forth in ORS Chapter 30.260 - 30.300, Tort Actions against public bodies, but in no event less than the following limits of liability:

The policy shall contain an endorsement that the aggregate applies separately to this Contract.

##### **Commercial General Liability Insurance**

1. \$2,000,000 each occurrence limit

2. \$3,000,000 general aggregate
3. \$3,000,000 products/completed operations aggregate
4. \$3,000,000 personal and advertising injury
5. \$2,000,000 limited job site pollution occurrence sublimit

**Comprehensive Automobile Liability Insurance Including Coverage for all Owned, Hired, And Nonowned Vehicles.**

1. \$2,000,000 each occurrence combined single limit
2. \$3,000,000 aggregate bodily injury and property damage  
or  
\$2,000,000 each person bodily injury
3. \$2,000,000 each occurrence bodily injury
4. \$2,000,000 each occurrence property damage
5. \$2,000,000 each occurrence pollution occurrence sublimit

The insurance shall be written on a comprehensive form which includes broad form property damage on an occurrence basis. Unless excluded by Special Specification, the general liability policy shall include, without deductible, coverage for premises operations, explosion and collapse hazard, underground hazard, products, completed operations, contractual insurance, and independent contractors. Such insurance shall be maintained until the expiration of the guaranty period required by the Contract. Failure to maintain liability insurance as provided above shall, at District's option, because for immediate termination of the Contract.

The Contractor shall provide a letter from the insurance company which states that such insurance shall be without prejudice to coverage otherwise existing.

The District, its officers, agents, and employees, shall be named additional insureds in the Contractor's General Liability Insurance policy.

The policy shall also provide for a Cross Liability Endorsement or Separation of Insureds Endorsement.

The policy shall be endorsed to provide an Amendment - Aggregate Limits of Insurance (per project) specifying that a separate aggregate limit of liability applies to this Contract.

If there are insufficient insurance proceeds and assets of the Contractor to fully indemnify the District, its officers, employees, agents, and the District Engineer, then the District, its officers, employees, and agents would be indemnified first with any remaining insurance proceeds and assets to be used to indemnify the District Engineer.

If set forth in the Special Specifications, additional insureds may be the District Engineer, other governmental bodies with jurisdiction in the area involved in the project, and their officers and employees and such agents as may be specified.

**107.06.05 Claims on Project**

The Contractor, when notified of a claim by an affected party shall:

1. Refer claim to the Contractor's insurance carrier or claims administrator.
2. Contractor's insurer will copy the District on acknowledgment of claim.
3. Contractor's insurer will copy the District on notice to claimant of disposition of claim.

**107.06.06 Builders Risk Insurance**

During construction, Contractor shall obtain and maintain for the benefit of the parties to the Contract as their interest may appear, all-risk builder's risk insurance to the extent of 100% of the value of the project. Coverage shall also include: (1) formwork in place; (2) form lumber on site; (3) temporary structures; (4) equipment; and (5) supplies related to the work while at the site. Such insurance shall be endorsed to require 30 days' written notice to the District prior to cancellation or change of the policy. One (1) copy of the policy and 2 certificates of such insurance shall be delivered to the District before commencing work and shall be subject to review and approval by the District. The District may temporarily waive delivery of

the copy of the policy. In the event Contractor fails to maintain such insurance, the District may arrange therefore; and any premium incurred shall be to the account of Contractor.

#### **107.06.07 Insurance for Work in Railroad Rights-of-Way**

During construction in railroad rights-of-way, Contractor shall obtain and maintain insurance as required by the individual railroads.

#### **107.07 ROYALTIES AND PATENTS**

Contractor shall pay all royalties and license fees required to perform the work. Defend and indemnify District, from all loss or damage that may result from the Contractor's wrongful or unauthorized use of any patented article or process.

#### **107.08 PERMITS**

Contractor shall obtain all Municipal, County, State, federal, or other permits or licenses necessary or incident to performance of the work under this Contract. Work within the railroad right-of-way requires permit by the rail authority and railroad operators in addition to the above. Comply with all permit requirements pertaining to the project.

#### **107.09 COMPLIANCE WITH ORS CHAPTER 279A, B, AND C (PUBLIC CONTRACTING CODE)**

Comply, and require all Subcontractors to comply, with the District's Public Contracting Rules, the requirements of the applicable State statutes, and be subject to the applicable liabilities provided in ORS Chapter 279A, B and C, such as, but not limited to, the statutes that are numbered and referenced, and incorporated herein by an abbreviated subject matter, and listed below and the statutes required to be set forth as conditions in public contracts, which follows.

##### **LIST**

1. ORS 279C.375 Award of contract; Bond; Waiver of bond in case of emergency.
2. ORS 279C.540 Maximum hours of labor on public contracts; holidays; exceptions.
3. ORS 279C.840 Workers on public works to be paid not less than prevailing rate of wage.
4. ORS 279C.845 Certification of rate of wage by Contractor or Subcontractor.
5. ORS 279C.850 Inspection to determine whether prevailing rate of wage being paid; proceedings to require payment of prevailing rate of overtime.
6. ORS 279C.855 Liability of Violations.

#### **107.10 LABOR**

Upon notification in writing from the District Engineer, remove immediately from the job for its duration any laborer, workman, mechanic, foreman, superintendent, or other person employed who is found to be incompetent, intemperate, troublesome, disorderly or otherwise objectionable, or who fails or refuses to perform their work properly or acceptably.

Comply with provisions of the District's Equal Opportunity Policy and to ORS Chapter 659 relative to unlawful employment practices and discrimination by employers against any employee or applicant for employment because of race, religion, color, sex, or national origin. Particular reference is made to ORS 659.030, which states that it is unlawful employment practice for any employer, because of the race, religion, color, sex, or national origin of any individual, to refuse to hire or employ or to bar or discharge from employment such individual or to discriminate against such individual in compensation or in terms, conditions or privileges of employment.

## **107.11 OVERTIME**

In addition to the requirements set forth in Specification 107.09, Contractor shall notify the District Engineer of any overtime operations as soon as possible. The Contractor must provide documentation to the District Engineer's satisfaction justifying the overtime work (ORS 279C.520).

In the event that the Contractor wishes to proceed with an overtime operation, the Contractor must first notify and obtain approval from the District Engineer to do so, prior to commencing such work.

For overtime work requested by the Contractor, the Contractor shall pay the applicable wage rate for the District Engineer's Inspector, engineering and operations personnel, and other staff required at the project during the overtime hours.

This section does not apply to labor performed in the manufacture or fabrication of any material ordered by the Contractor or manufactured or fabricated in any plant or place other than the place where the main Contract is to be performed.

## **107.12 SAFETY**

### **107.12.01 Employee Safety**

The Contractor shall at all times be responsible for the safety of their employees and their Subcontractor's employees. The Contractor shall maintain the job site and perform the work in a manner which meets the District's responsibility under statutory and common law for the provision of a safe place to work and which complies with the District's written safety regulations, if any.

Conduct the project with proper regard for the safety and convenience of the public. When the project involves use of public ways, provide necessary flag persons and install and maintain means of reasonable access to all fire hydrants, service stations, warehouses, stores, houses, garages, and other property. Private residential driveways shall be closed only with approval of the District Engineer or specific permission of the property owner. Do not interfere with normal operation of public transit vehicles unless otherwise authorized. Do not obstruct or interfere with travel over any public street or sidewalk without approval. At all times provide open trenches and excavations with secured and adequate barricades or fences of an approved type which can be seen from a reasonable distance. Close up or plate all open excavations at the end of each working day in all street areas unless approved otherwise by the District Engineer and in all other areas when it is reasonably required for public safety or as directed by the District Engineer. At night, mark all open work and obstructions by lights. Install and maintain all necessary signs, lights, flares, barricades, railings, runways, stairs, bridges, and facilities. Observe all safety instructions received from the District Engineer or governmental authorities, but following of such instructions shall not relieve Contractor from its responsibility or liability for accidents to workmen or damage or injury to person or property.

### **107.12.02 Public Safety and Convenience**

The Contractor shall at all times conduct their work so as to insure the least possible obstruction to traffic and convenience to the general public and residents in the vicinity of the work and to insure the protection of persons and property. No road or street shall be closed to the public except with the permission of the District Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks, private and public driveways and proper functioning of all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses. The Contractor will minimize inconvenience to others due to mud and dust.

### **107.12.03 Safety Program**

The Contractor shall adopt a written safety program complying with the requirements of employee and public safety set forth hereinabove and as described in the Special Conditions. The safety program shall also comply with OAR Chapter 437, Division 3, regarding general safety and health provisions.

**107.13 RIGHTS-OF-WAY, EASEMENTS, AND PREMISES**

Confine construction activities within property lines, right-of-way, limits of easements and limits of construction permits as shown or specified in the contract documents unless arrangements are made with owner(s) of adjacent private property. If additional space or property is needed to accommodate Contractor's method for construction of the work or for the convenience of the Contractor, Contractor shall bear all related costs and responsibilities. Prior to the use of any private property outside the specified boundaries, file with the District Engineer written permission from the property owner(s).

Do not unreasonably encumber the specified work areas with materials and equipment. Obtain and bear the costs of permits for special occupancy and use of the specified work areas from the proper agencies. Comply with all requirements regarding signs, advertisements, fires and smoking.

**107.14 12-MONTH MAINTENANCE AND WARRANTY**

In addition to and not in lieu of any other warranties required under the Contract make all necessary repairs and replacements to remedy, in a manner satisfactory to the District Engineer and at no cost to District, any and all defects, breaks, or failures of the work occurring within 12 months following the date of substantial completion due to faulty or inadequate materials or workmanship. Repair damage or disturbances to other improvements under, within, or adjacent to the work, whether or not caused by settling, washing, or slipping, when such damage or disturbance is caused, in whole or in part, from activities of the Contractor in performing their duties and obligations under this Contract when such defects or damage occur within the warranty period. The 12-month maintenance period required shall, with relation to such required repair, be extended 1 year from the date of completion of such repair.

If Contractor, after written notice, fails within 10 days to proceed to comply with the terms of this section, District may have the defects corrected, and Contractor and Contractor's surety shall be liable for all expense incurred. In case of an emergency where, in the opinion of the District Engineer, delay would cause serious loss or damage, repairs may be made without notice being given to Contractor and Contractor or surety shall pay the cost of repairs. Failure of the District Engineer to act in case of an emergency shall not relieve Contractor or surety from liability and payment of all such costs.

In addition to the above provisions, District waterline facilities installed by the Contractor under this Contract that require repair or replacement during the 12-month maintenance period shall be repaired by the District or under the direction of the District and the Contractor and Contractor's surety shall be liable for all expenses incurred.

**108 PROSECUTION AND PROGRESS OF WORK**

---

**108.01 CONTRACTOR'S CONSTRUCTION SCHEDULE**

Within 30 days of Contract award or 1 week in advance of starting work, whichever is earlier, submit for written approval a proposed construction schedule to the District Engineer. Contractor may not commence work until construction schedule is approved by the District Engineer.

If it is desirable to carry on operations in more than one location simultaneously, submit a schedule for each location at least 1 week in advance of beginning such operations. In the event that the Contractor's proposed construction schedule does not meet the necessary construction program schedule as determined by District, immediately resubmit a schedule that conforms as approved. Contractor shall not commence work until schedule is approved by the District Engineer.

The schedule shall show the proposed order of work and indicate the time required for completion of the major items of work. This working schedule shall take into account the passage and handling of traffic with the least practicable interference therewith and the orderly, timely and efficient prosecution of work. It will also be used as an indication of the sequence of the major construction operations and as a check on the progress of work.

## **108.02 PRECONSTRUCTION CONFERENCE**

Attend a preconstruction conference, if requested, at a time, prior to start of work, designated by the District Engineer. Comply with information and instructions provided at the preconstruction conference as recorded in the minutes of the meeting.

## **108.03 NOTICE TO PROCEED**

Unless stated otherwise in the Special Specifications, written Notice to Proceed will be given by the District Engineer within 30 days after the performance and payment bond and all required insurances have been filed with and approved by the District and the Contract has been executed. Do not commence work under the Contract until such written notice has been given.

Notice to Proceed may be delayed up to an additional 30 days (for a total of sixty 60 days) from date of Contract by the District Engineer if, in the District Engineer's opinion, necessary easements or permits have not been obtained, or required utility relocation, construction, or reconstruction has not been completed or has not progressed to a degree that will allow initial contract work to commence.

Commence work within 10 working days after the date of the Notice to Proceed, or such other date as may be fixed by the Notice to Proceed, which date shall establish the date for commencement of the Contract time. Notify the District Engineer 48 hours in advance of the time and place work will be started.

## **108.04 CONTRACT TIME**

Time shall be considered the essence of the Contract.

Upon commencement of work, Contractor shall provide adequate labor, materials, and equipment, and work shall be performed vigorously and continuously in accordance with a schedule which will ensure completion within the specified time limit. Failure to diligently pursue the work may jeopardize additional contract time.

## **108.05 SUSPENSION OF WORK**

If the work is suspended for convenience: Temporarily suspend work on the Project wholly or in part for convenience of the District as directed by the District Engineer. In the event of such suspension, the District Engineer shall, except in emergency, and except as hereinafter provided, give Contractor 3 days' notice. Work shall be resumed within 5 days after notice has been given by the District Engineer to Contractor to do so. The District Engineer shall allow Contractor an extension of time for completion corresponding to the total period of temporary suspension, and shall reimburse Contractor for necessary rental of unused equipment, services of watch persons, and other unavoidable expenses accruing by reason of the suspension, as stipulated in Subsection 108.05 (E), Delays and Extensions of Time.

If work is suspended by the District Engineer: Immediately suspend work on the project, wholly or in part, as directed by the District Engineer, for reasonable periods of time as the District Engineer may deem necessary, when conditions are unsuitable for satisfactory performance of the work. The District shall allow the Contractor an extension of time for completion corresponding to the total period of suspension, but the Contractor shall not be entitled to reimbursement for any costs or damages arising under this clause.

If work is suspended for cause: Immediately suspend work on the Project wholly or in part as directed by the District Engineer for such periods as the District Engineer may deem necessary due to: (1) failure to correct unsafe conditions for working personnel, the general public, or District's employees, (2) failure to immediately correct defective and unacceptable work in accordance with Subsection 105.15, (3) failure to carry out provisions of the contract documents and/or conditions of approval, and (4) failure to carry out orders or directives.

Voluntary suspension by Contractor: There shall be no voluntary suspension or slowing of operations without the prior written approval of the District Engineer and such approval shall not relieve Contractor from the responsibility to complete the Contract work within the prescribed Contract time. Should

operations be discontinued, Contractor shall notify, in writing, the District Engineer at least 24 hours in advance of resuming operations.

**Responsibilities of Contractor:**

1. At the commencement of and during any suspension of work, protect all work performed to prevent any damage or deterioration of the work. Provide temporary protection devices to warn, safeguard, protect, guide, and inform traffic during suspension, the same as though the work had been continuous and without interferences.
2. Bear all costs for providing suitable provisions for traffic control and for maintenance and protection of the work during suspension unless the suspension was for convenience.

In all cases of suspension, except voluntary suspension by Contractor, work will be resumed only upon written order of the District Engineer or District.

**108.06 DELAYS AND EXTENSIONS OF TIME**

If the Contractor is significantly delayed due to court orders enjoining the prosecution of this Project, unavoidable strikes, acts of God, unusual and extraordinary action of the elements that are of such severity to stop all progress of the work, or act or neglect of the District not authorized by the Contract, the Contractor shall, within 48 hours of the start of the occurrence, give notice to the District Engineer of the cause of the potential delay and estimate the possible time extension involved. Within 10 days after the cause of the delay has been remedied the Contractor shall give notice to the District Engineer of any actual time extension requested as a result of the aforementioned occurrence.

No extension of time will be considered for weather conditions normal to the area and time of year in which the work is being performed. Delays in delivery of equipment or material purchased by the Contractor or their Subcontractors (including District-selected equipment) shall not be considered as a just cause for delay, when timely ordering would have made the equipment available. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting, delivery, and installation of all equipment and materials. Extensions of time will be considered for delayed delivery of the District specified equipment "without equal."

Within a reasonable period after the Contractor submits to the District Engineer a written request for an extension of time the District Engineer will make the decision on each request, for District Manager approval.

An adjustment of Contract time as herein provided shall be the Contractor's sole remedy for any delay in completion of the project arising from causes beyond the control of the Contractor, except for unreasonable delay caused by acts or omissions of the District or persons acting therefor. In no event shall the Contractor be entitled to collect or recover any damages, loss or expense incurred by reason of such delay, except for an unreasonable delay caused by acts or omissions of the District or persons acting therefor. However, if Contractor is delayed due solely to a breach by the District, Contractor will be entitled to recover damages limited to reimbursement for necessary rental of unused equipment, services of watch persons, documented direct overhead costs, documented direct unavoidable expenses accruing by reason of the suspension, plus 15% of the foregoing damages to cover normal Contractor profit. Contractor shall not be entitled to indirect costs or any other damages arising out of the delay, including but not limited to, interruption of schedules, or any other impact claim or ripple effect. If a delay is caused by the District and Contractor (joint delay), Contractor shall be entitled to a time extension only, by reason of such joint delay.

**108.07 LIQUIDATED DAMAGES**

Time shall be considered the essence of the Contract. If Contractor fails to complete the project or to deliver the supplies or perform the services within the time specified in the Contract or any extension thereof by the District, the actual damage to District for the delay will be substantial but will be difficult or impractical to determine.

It is therefore agreed that Contractor will pay to District, not as a penalty but as liquidated damages, the per diem amount of 0.5% of the total contract or modification thereof for each and every calendar day elapsed in excess of the Contract time or the final adjusted Contract time applicable to the work required under the Contract.

Permitting Contractor to continue and finish the work or any part thereof after the Contract time or adjusted Contract time, as pertinent, has expired shall in no way operate as a waiver on the part of the District or any of its rights under the Contract.

Payment of liquidated damages shall not release Contractor from obligations in respect to the fulfillment of the entire Contract, nor shall the payment of such liquidated damages constitute a waiver of District's right to collect any additional damages which may be sustained by failure of Contractor to carry out the terms of the Contract, it being the intent of the parties that said liquidated damages be full and complete payment only for failure of Contractor to complete the work on time.

### **108.08 CONTRACTOR'S REPRESENTATIVE**

Designate, in writing before starting work, an authorized representative who shall have complete authority to represent and to act for Contractor, in all directions given by the District Engineer. Contractor, or its authorized representative shall supervise the work, and shall be present on site continually during its progress.

If Contractor or its authorized representative is not present, directions may be given by the District Engineer or their authorized representative to the workmen and such order shall be received and followed. Any direction will be confirmed in writing upon request from the Contractor.

Keep a complete copy of the Plans and Specifications on or near the site at all time.

### **108.09 CONFLICTS, ERRORS, OMISSIONS, AND ADDITIONAL DRAWINGS**

Check and compare all Plans and Specifications prior to construction and notify the District Engineer of any discrepancies or omissions in order to permit correction by the District Engineer. Coordination of Plans and Specifications is intended. Furnish labor and materials as required for the work. Should any work or materials be reasonably required or intended for carrying the project to completion which are omitted on the Plans and Specifications, furnish same as fully as if particularly delineated or described. The intent of the Plans and Specifications is to show and describe a complete project within the limits stated. Dimensions shown on Plans shall be followed, rather than scale measurements. Whenever it appears that the Plans are not sufficiently detailed or explicit, the District Engineer may furnish additional detail drawings or written instructions and Contractor shall perform the work in accordance with the additional details or instructions.

### **108.10 DISTRICT'S RIGHT TO DO WORK**

Failure or refusal to comply with any of the terms or conditions of the Contract will permit the District to supply or correct any deficiency or defect or take other appropriate action without prejudice to any other remedy. Such action by District shall be taken only after 7 days notice by the District Engineer to Contractor and their surety, unless in the judgment of the District Engineer an emergency or danger to the work or to the public exists, in which event action of the District as set forth above may be taken without any notice whatsoever. The cost of such action by the District shall be deducted from the payment then or thereafter due Contractor. Pay the District any costs in excess of such payment due.

### **108.11 TERMINATION FOR DEFAULT**

If the Contractor should be adjudged bankrupt, or if they should make a general assignment for the benefit of their creditors, or if a receiver should be appointed on account of insolvency, or if they should refuse to or fail to supply enough properly skilled workmen or proper materials for the efficient prosecution of the Project, disregard laws, ordinances or the instructions of the District Engineer, or otherwise be in violation of any provision of the Contract, the District may, without prejudice to any other right or remedy and after giving the Contractor and its surety 7 days' written notice, terminate the services of the



Contractor and take possession of the premises and of all materials, tools and appliances thereon as well as all other materials whether on the premises or not, on which the Contractor has received partial payment and finish the work by whatever method it may deem expedient.

In the event action as above indicated is taken by the District, the Contractor, or its surety, shall provide the District Engineer with immediate and peaceful possession of all of the materials, tools and appliances located on the premises as well as all other materials whether on the premises or not, on which the Contractor has received any progress payment. Upon termination, in the event that the surety does not complete the Contract, at the election of the District, Contractor shall assign any and all Subcontractors and material contracts to the District or District's designee. Further, the Contractor shall not be entitled to receive any further payment until the work is completed. On completion of the work, determination shall be made by the District Engineer of the total amount the Contractor would have been entitled to receive for the work, under the terms of the Contract, had Contractor completed the work. If the difference between said total amount and the sum of all amounts previously paid to the Contractor, which difference will hereinafter be called the "unpaid balance," exceeds the expense incurred by the District in completing the work, including expense for additional managerial and administrative services, such excess will be paid to the Contractor, with the consent of the surety. If, instead, the expense incurred by the District exceeds the unpaid balance, the amount of the excess shall be paid to the District by the Contractor or their surety. The expense incurred by the District as herein provided, and the damage incurred through the Contractor's default, shall be as determined and certified by the District Engineer.

In addition to and apart from the above-mentioned right of the District to terminate the employment of the Contractor, the Contract may be canceled at the election of the District for any willful failure or refusal on the part of the Contractor to faithfully perform the Contract according to all of its terms and conditions; provided, however, that in the event the District should cancel the Contract, neither the Contractor nor its surety shall be relieved from damages or losses suffered by the District on account of the Contractor's breach of Contract.

The District may, at its discretion, avail itself of any or all of the above rights or remedies and its invoking of any one of the above rights or remedies will not prejudice or preclude the District from subsequently invoking any other right or remedy set forth above or elsewhere in the Contract.

None of the foregoing provisions shall be construed to require District to complete the work, not to waive or in any way limit or modify the provisions of the Contract relating to the fixed and liquidated damages suffered by District on account of failure to complete the Project within the time prescribed.

## **108.12 TERMINATION IN THE PUBLIC INTEREST**

It is hereby agreed that the District has the right to terminate the Contract in whole or in part when it is considered to be in the public interest.

In the event the Contract is terminated as being in the public interest the Contractor shall be entitled to a reasonable amount of compensation for preparatory work and for all costs and expenses arising out of the termination excluding lost profits.

The amount to be paid to the Contractor:

1. Shall be determined on the basis of the Contract price in the case of any fully completed separate item or portion of the work for which there is a separate or unit Contract price; and
2. In respect to any other work, the Contractor will be paid a percent of the Contract price equal to the percentage of the work completed.

### **END OF DIVISION**

# Division 2 — STORMWATER CONSTRUCTION STANDARDS

**301 GENERAL**..... 1

## **301 GENERAL**

---

Stormwater construction standards apply to infrastructure on private property only (outside the public ROW). Construction of this infrastructure is regulated by the Oregon Specialty Plumbing Code and permitted and inspected by the local Building Official which is the Clackamas County Building Department. OLWSD’s design standards of water quality and quantity facilities apply; see OLWSD Chapter 2.

# DIVISION 3 - WASTEWATER CONSTRUCTION STANDARDS

## TABLE OF CONTENTS

<b>301 PIPE AND FITTINGS (SANITARY SEWER)</b> .....	<b>1</b>
301.01 DESCRIPTION.....	1
301.02 MATERIALS.....	1
301.02.01 General .....	1
301.02.02 Ductile-Iron Pipe .....	1
301.02.03 PVC Nonpressure Pipe.....	1
301.02.04 HDPE Pipe .....	1
301.02.05 Lateral Markers .....	1
301.02.06 Jointing Materials .....	1
A. Ductile-Iron Pipe.....	1
B. PVC Pipe.....	1
C. HDPE Pipe .....	2
301.02.07 Proof Tests.....	2
A. General.....	2
B. Ductile-Iron Pipe.....	2
D. PVC Pipe .....	2
301.02.8 Fittings.....	3
A. General.....	3
B. Ductile-Iron Pipe.....	3
D. PVC Pipe .....	3
E. HDPE Pipe .....	3
301.02.9 Pipe Coupling Adapters .....	3
A. PVC Pipe, and Ductile-Iron Pipe .....	3
B. HDPE Pipe .....	3
301.03 CONSTRUCTION .....	4
301.03.01 Excavation and Backfill .....	4
301.03.02 Line and Grade for Gravity and Pressure Sewers .....	4
A. Line and Grade for Laterals .....	4
301.03.03 Pipe Distribution and Handling .....	4
301.03.04 Pipe Laying and Jointing of Pipe and Fittings.....	4
A. General.....	4
301.03.05 Installation of Tees and Laterals .....	5
301.03.06 Lateral Markers .....	5
301.03.07 Testing .....	5
A. General.....	5
B. Cleaning Prior to Testing and Acceptance.....	6
C. Testing Procedure .....	6
D. Time of Test .....	6

E. Repairs .....	6
F. Air Testing .....	6
301.03.08 Deflection Test for PVC Pipe and HDPE Pipe.....	8
301.03.09 Subsequent Failure.....	8
301.03.10 Rail Lines Crossing Sanitary Sewer .....	8
301.03.11 Television Inspection of Sanitary Sewers .....	8
<b>302 MANHOLES AND CONCRETE STRUCTURES.....</b>	<b>9</b>
302.01 DESCRIPTION.....	9
302.02 MATERIALS.....	9
302.02.01 Base Rock.....	9
302.02.02 Forms .....	9
302.02.03 Concrete and Reinforced Steel.....	9
302.02.04 Cement Mortar .....	9
302.02.05 Manholes.....	9
A. Standard Precast Manhole Sections.....	9
B. Precast Concrete Bases.....	9
C. Poured in Place Manhole Bases .....	9
D. Manhole Grade Rings .....	9
E. Jointing Materials .....	10
302.02.06 Pipe and Fittings .....	10
302.02.07 Manhole Frames and Covers.....	10
A. General.....	10
B. Materials .....	10
C. Inspection .....	10
D. Cap Screws .....	10
302.02.08 Steps for Precast Manholes.....	10
302.02.09 Nonshrink Grout.....	11
302.03 CONSTRUCTION .....	11
302.03.01 General .....	11
A. Excavation and Backfill .....	11
B. Base Rock .....	11
C. Foundation Stabilization .....	11
302.03.02 Manholes.....	11
302.03.03 Drop Assemblies.....	12
302.03.04 Pipe Stubouts and Manholes .....	12
302.03.05 Manhole Grade Rings .....	12
302.03.06 Adjustment of Manholes and Cleanouts to Grade .....	12
302.03.07 Vacuum Testing .....	12
302.03.08 Placing Precast Units .....	13
302.03.09 Cleaning.....	13
<b>303 WORK ON EXISTING SANITARY SEWERS .....</b>	<b>13</b>
303.01 DESCRIPTION.....	13
303.02 MATERIALS.....	13
303.02.01 Inside Drops (Oregon Drops).....	14

303.03 CONSTRUCTION .....	14
303.03.01 Excavation and Backfill .....	14
303.03.02 Manholes Over Existing Sewers .....	14
303.03.03 Connection to Existing Main .....	14
303.03.04 Removal of Existing Pipes, Manholes, and Appurtenances .....	14
303.03.05 Filling Abandoned Manholes.....	15
303.03.06 Existing Manhole Frames and Covers .....	15
303.03.07 Permanent Plugs .....	15
303.03.08 Adjusting Existing Structures to Grade .....	15
303.03.09 Reconstruct Manhole Base.....	15
303.03.11 Connection to Existing Manholes .....	15

## **301 PIPE AND FITTINGS (SANITARY SEWER)**

---

### **301.01 DESCRIPTION**

This section covers the following work: (1) gravity and pressure sewer mains, (2) fittings, and (3) laterals and cleanouts and manholes and pump stations.

### **301.02 MATERIALS**

#### **301.02.01 General**

Use all sewer pipe and fittings of the size, strength, material and joint type specified on the drawings and/or the proposal. Use jointing material as hereinafter specified for each pipe material. Each piece of pipe shall be clearly identified as to strength, class and date of manufacture. The manufacturer or fabricator shall furnish appropriate certification, based on manufacturers routine quality control tests, that the materials in the pipe and fittings meet the requirements specified herein. Strength, permeability, hydrostatic tests, and pipe joints will be used as the basis of acceptance as described under proof tests herein.

It is not intended that materials listed herein are to be considered equal or generally inter changeable for all applications. The Design Engineer shall determine the materials suitable for the project and so specify.

#### **301.02.02 Ductile-Iron Pipe**

Ductile-iron pipe centrifugally cast of 60-42-10 iron shall conform to ANSI A21.51 Class 150 or AWWA C151, with Push-on Joint or Mechanical Joints as specified, conforming to ANSI Specification A21.11/AWWA C111. Ductile-iron pipe shall be lined with cement mortar and seal coated in accordance with ANSI Standard A21.4/AWWA C104.

When specified, tube type polyethylene encasement shall conform to ANSI A21.5/AWWA C105.

#### **301.02.03 PVC Nonpressure Pipe**

PVC sewer pipe shall conform to ASTM D 3034 SDR 35 or C900.

#### **301.02.04 HDPE Pipe**

HDPE pipe sizing shall conform with ASTM F714 or D3035. HDPE pipe material shall conform to ASTM D 3350. Pipe size and pipe dimension ratio shall be specified in the plans.

#### **301.02.05 Lateral Markers**

A 2-inch x 4-inch stake painted green shall extend from the lateral end to a minimum of 3 feet above the ground.

#### **301.02.06 Jointing Materials**

Only lubricants for jointing materials approved by the manufacturer shall be used.

Furnish in duplicate a certified statement from the manufacturer of the gaskets, setting forth the basic polymer used in the gaskets and results of the tests of the physical properties of the compound. Gaskets shall be shipped in containers with identification of the batch from which the gaskets were fabricated.

##### **A. Ductile-Iron Pipe**

Rubber gaskets shall conform to ANSI A21.11/AWWA C111.

##### **B. PVC Pipe**

Rubber gaskets for PVC pipe shall conform to ASTM F 477. Solvent weld (glued) joints will not be allowed.

**C. HDPE Pipe**

HDPE pipe shall be joined via butt fusion welds in accordance with ASTM F 2620. The technician performing butt fusion welds shall be certified by the manufacturer or other certifying agency. Alternately, electrofusion polyethylene fittings may be used.

**301.02.07 Proof Tests**

**A. General**

The intent of this requirement is to prequalify a joint system, components of which meet the joint requirements, as to the water tightness capability of that joint system. This proof test shall be understood to apply to all sanitary sewers. Material and test equipment for proof testing shall be provided by the manufacturer. Joints shall meet the requirements of yard testing specified below. The pipe manufacturer shall submit results of the yard tests made, certified by a testing agency acceptable to the District Engineer. In general, each pipe material and joint assembly shall be subject to the following three proof tests at the discretion of the District Engineer.

**1. Pipe in Straight Alignment**

No more than 5 pipes selected from stock by the District Engineer or the testing agency shall be assembled according to the manufacturer’s installation instructions with the ends suitable plugged and restrained against internal pressure. The pipe shall be subjected to 13-PSI hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe shall be grounds for rejection of the pipe.

**2. Pipe in Maximum Deflected Position**

A test section shall be deflected as described hereinafter for each pipe material. The pipe shall be subjected to 10-PSI hydrostatic pressure for 10 minutes. Free movement of water through the pipe joint or pipe wall shall be grounds for rejection of the pipe.

**3. Joints Under Differential Load**

The test section shall be supported on blocks or otherwise as described hereinafter for each pipe material. There shall be no visible leakage when the stressed joint is subjected to 10-PSI internal hydrostatic pressure for 10 minutes.

**B. Ductile-Iron Pipe**

For deflected position, create a position ½ inch wider than the fully compressed section on 1 side of the outside perimeter.

For differential load, support so that one of the pipes is suspended freely between an adjacent pipe, load bearing only on the joints. Apply a force per the following table along a longitudinal distance of 12 inches, immediately adjacent to 1 of the joints.

PIPE SIZE	FORCE - POUNDS	PIPE SIZE	FORCE - POUNDS
4 inches	1,000	15 inches	3,700
6 inches	1,500	18 inches	4,400
8 inches	2,000	21 inches	5,000
10 inches	2,500	24 inches	5,500
12 inches	3,000	and over	----

**D. PVC Pipe**

PVC pipe joints shall be tested by and meet the requirement of ASTM C 3212 for gravity sewers and ASTM D 3139 for pressure sewers.

### 301.02.8 Fittings

#### A. General

Provide tee fittings in the sewer main for lateral connections. Tees for laterals shall be 4 inches inside diameter, unless otherwise specified. All fittings shall be of sufficient strength to withstand all handling and load stresses encountered. All fittings shall be of the same materials as the pipe unless otherwise specified. Material joining the fittings to the pipe shall be free from cracks and shall adhere tightly to each joining surface. Use the same type of joints on all fittings that are used on the main sewer pipe. Tee fittings shall not be closer than 12 inches to any joint or bell of main line sewer which is 12 inches or less in diameter.

#### B. Ductile-Iron Pipe

Use mechanical joint cast-iron fittings conforming to ANSI A21.10/AWWA C110, and a class of at least equal to that of the adjacent pipe. Use push-on fittings of gray cast iron with body thickness and radii of curvature conforming to ANSI A21.10 and joints conforming to ANSI A21.11/AWWA C111.

#### D. PVC Pipe

PVC pipe shall be connected to sanitary manholes only thru formed or cored holes using an approved boot type adapter specifically manufactured for the intended service and approved by the District Engineer. PVC pipe adapters shall be Fernco CMA, Romac LCT, Tylox Manhole Adapters, Vassalo Series 32850, Kor-N-Seal, Sealtite, Z-Lok-XP, or equal commercial product. Field-fabricated waterstops or improvised adapters such as gaskets stretched over the pipe will not be allowed.

Adapters requiring the use of grout for installation (sanded collars) shall be anchored and finished using an approved nonshrink grout. Mortar is not acceptable. Sanded collars will be allowed only on poured-in-place MH bases.

#### E. HDPE Pipe

Polyethylene fittings shall be manufactured in accordance with ASTM D 3261 for molded polyethylene fittings and ASTM F 1055 for electrofusion polyethylene fittings.

### 301.02.9 Pipe Coupling Adapters

#### A. PVC Pipe, and Ductile-Iron Pipe

Use flexible mechanical compression joint coupling with stainless steel shear proof bands such as a Fernco Strongback or approved equal.

#### B. HDPE Pipe

Electrofusion couplers shall be used to join pipe between manholes. Electrofusion couplers shall conform to ASTM F 1055.



## **301.03 CONSTRUCTION**

### **301.03.01 Excavation and Backfill**

Conform to the requirements of Standard Detail 302 for pipe bedding and Section 1 for public easements (Excavation, Embankment, Bedding, and Backfill). All excavation shall be unclassified. Clackamas County public road standards supersede OLWSD standards outside of pipe zone.

### **301.03.02 Line and Grade for Gravity and Pressure Sewers**

Do not deviate from line or grade, as established by the Design Engineer, more than ½ inch for line and ¼ inch for grade, provided that such variation does not result in a level or reverse sloping invert. Measure for grade at the pipe invert, not at the top of the pipe, because of permissible variation in pipe wall thickness. Establish line and grade for pipe by the use of lasers or by transferring the cut from the offset stakes to batter boards at maximum intervals of 25 feet.

#### **A. Line and Grade for Laterals**

The Design Engineer will establish line and grade to the tract of land to be serviced by the sewer system. At the preselected location of a lateral a stake will be driven into the ground showing the depth of excavation required at the property line.

The lateral must be laid perpendicular to the main whenever possible. Lay the pipe on a straight line and at a minimum of 2% grade between the tee and the clean out. The lateral shall be installed with the same accuracy as the main sewer and shall be a minimum of 5 feet deep in all parts of the road right of way or easement.

### **301.03.03 Pipe Distribution and Handling**

Distribute material on the job no faster than it can be used to good advantage. Unload pipe only by means recommended by the pipe manufacturer. Do not unload pipe of any size by dropping to the ground. Do not distribute more than 1 week's supply of material in advance of laying, unless approved.

Pipe shall not be unloaded or stored in the public right-of-way or easement unless it has been certified and accepted by the Design Engineer. Inspect all pipe and fittings prior to lowering into trench to ensure no cracked, broken, or otherwise defective materials are used. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after laying.

Use proper implements, tools, and facilities for the safe and proper protection of the work. Lower pipe into the trench in such a manner as to avoid any physical damage to the pipe. Remove all damaged pipe from the job site. Do not drop or dump pipe into trenches.

### **301.03.04 Pipe Laying and Jointing of Pipe and Fittings**

#### **A. General**

Proceed with pipe laying upgrade with spigot ends pointing in direction of flow. Place pipe in such a manner as to ensure a continuous and uniform bearing and support for the full length of the pipe between joints. Take care to properly align the pipe before forced entirely home. Upon completion of pipe laying all pipe joints shall be in the "home" position, which is defined as the position where the least gap (if any) exists, when the pipe components that comprise the join are fitted together as tightly as the approved joint design will permit. Gaps at pipe joints shall not exceed that allowed by the manufacturer's recommendations.

Take special care to prevent movement of the pipe after installation when laid within a movable trench shield.

When laying operations are not in progress, protect the open end of the pipe from entry of foreign material and block the pipe to prevent movement or creep of gasketed joints.

Plug or close off pipes which are stubbed out for manhole construction or for connection by others.

When cutting and/or machining the pipe is necessary, use only tools and methods recommended by pipe manufacturer.

When shown or approved to deflect pipe from a straight line, either in the vertical or horizontal plane, or when long-radius curves are shown, the amount of deflection shall not exceed that specified or approved by the District Engineer. The pipe manufacturer's recommendation will serve as a guide, but the decision of the District Engineer shall be final.

The contractor shall at all times provide and maintain ample means and devices to remove and dispose of all water entering the trench excavation during the process of laying the pipe. Water and debris shall not enter into the Districts sewer system. Water and debris shall be disposed of in an approved manner.

### **301.03.05 Installation of Tees and Laterals**

Provide pipe bedding material compacted to a minimum of 90% of maximum density as determined by ASTM D 1557/AASHTO T-180 under all tee fittings, extending to the springline of the fittings. Place pipe bedding material on undisturbed native material or compacted foundation stabilization material.

Use pipe and fittings for laterals of one type of material throughout; no interchanging of pipe and fittings will be allowed. Use 4 inch diameter pipe for residential laterals when not otherwise specified. Commercial and Industrial laterals must be a minimum of 6 inch diameter.

Connect laterals to manholes only when directed. Connections to existing manholes shall be by way of a core drilled hole and use a Kor-N-Seal boot or equivalent.

Provide ends of all laterals with approved watertight plugs, or caps, suitably braced to prevent blowoff during internal air testing.

Any new sanitary sewer tap location(s) must be a minimum distance of two (2) linear feet on either side of the main line from any other existing tap / lateral location.

### **301.03.06 Lateral Markers**

In new subdivisions, undeveloped areas, and where connections will not be made in the Contract, after the service line is installed, block the capped or plugged end and install 2 inch x 4 inch marker. Extend markers at least 3 feet above the ground surface. Paint the top portion of the marker green. Write the depth of the lateral on the marker with permanent ink.

Take precautions during the backfilling operation to ensure the position and location of the marker. If the marker is broken or knocked out of vertical alignment during the backfilling operation, reopen the trench and replace the marker.

In new subdivisions, at the time the curbs are poured, an S shall be stamped in the top of curb at each point a lateral crosses beneath the curbline.

### **301.03.07 Testing**

#### **A. General**

All gravity sanitary sewers shall successfully pass an air test prior to acceptance and shall be free of leakage. Manholes shall be tested as specified in Section 3.0041 (Manholes and Concrete Structures).

All pressure sewer force mains shall be tested in accordance with applicable portions of Division and Section 4, when not otherwise specified.

Lines shall be cleaned prior to any television inspection.

A television inspection of the sanitary sewer pipe shall be performed. Any defects in material or workmanship shall be satisfactorily corrected prior to final acceptance of the work.

No private plumbing can be connected to a new sanitary system installation without District approval. The District will not approve or accept a sanitary system installation if any private plumbing has been connected to it.

## **B. Cleaning Prior to Testing and Acceptance**

Prior to testing and television inspection of the sewer system hydro clean all parts of the system and remove all debris.

Upon the District Engineer's final manhole-to-manhole inspection of the sewer system, if any foreign matter is still present in the system, hydroclean the system a second time as required and remove the debris.

## **C. Testing Procedure**

Perform the tests in a manner satisfactory to the District Engineer. Calibrate gauges for air testing with a standardized test gauge provided by the Contractor at the start of each testing day. The calibration shall be witnessed by the City Engineer; notify the City Engineer 24 hours prior to each test.

## **D. Time of Test**

Make tests of sections of constructed sanitary sewer for acceptance only after all service connections, manholes, backfilling, and compaction are completed between the stations to be tested. The District may require testing of manhole-to-manhole sections as they are completed in order to expedite the acceptance of sections of sewer and allow connections prior to the whole system being completed.

## **E. Repairs**

Repair or replace, in a manner satisfactory to the District Engineer, any section of pipe not meeting the air test requirements, or which has leakage.

Infiltration of ground water in an amount greater than herein specified, following a successful air test as specified, shall be considered as evidence that the original test was in error or that subsequent failure of the pipeline has occurred. Correct such failures occurring within the warranty period in a manner satisfactory to the City Engineer at the Contractor's sole expense.

The Contractor, in contracting to do this work, agrees that the leakage allowances as indicated herein are fair and practical.

## **F. Air Testing**

### **1. General**

The District Engineer may, at any time, require a calibration check of the instrumentation used. Use a pressure gauge having minimum divisions of 0.10 PSI and an accuracy of 0.0625 PSI. (1 ounce per square inch.) All air used shall pass through a single control panel.

All plugs used to close the sewer for the air test must be capable of resisting the internal pressures and must be securely braced. Place all air testing equipment above ground and allow no one to enter a manhole or trench where a plugged sewer is under pressure. Release all pressure before the plugs are removed. The testing equipment used must include a pressure relief device designed to relieve pressure in the sewer under test at 10 PSI or less and must allow continuous monitoring of the test pressures in order to avoid excessive pressure. Use care to avoid the flooding of the air inlet by infiltrated ground water. (Inject the air at the upper plug if possible.) Use only qualified personnel to conduct the test.

Do not coat pipes for sewers internally or externally with any substance of any type in an attempt to improve its performance when air tested.

## **2. Ground Water**

The presence of ground water will affect the results of the test. Determine the average height of ground water over the sewer immediately before starting the test.

In every case, determine the height of the water table at the time of the test by exploratory holes or such other methods satisfactory to the District Engineer. The District Engineer will make the final decisions regarding test height for the water in the pipe section being tested.

## **3. Method**

Use the Time-Pressure Drop Method for all air testing. The test procedures are described as follows:

1. Clean the sewer to be tested and remove all debris where noted.
2. Wet the sewer prior to testing, if desirable.
3. Plug all sewer outlets with suitable test plugs. Brace each plug securely.
4. Check the average height of the ground water over the sewer. The test pressures required below shall be increased 0.433 PSI for each foot of average water depth over the sewer.
5. Add air slowly to the section of sewer being tested until the internal air pressure is raised to 4.0 PSIG greater than the average back pressure of any ground water that may submerge the pipe.
6. After the internal test pressure is reached, allow at least 2 minutes for the air temperature to stabilize, adding only the amount of air required to maintain pressure.
7. After the temperature stabilization period, disconnect the air supply.
8. Determine and record the time in seconds that is required for the internal air pressure to drop from 3.5 PSIG to 2.5 PSIG greater than the average back pressure of any ground water that may submerge the pipe.

## **4. Acceptance**

The sewer shall be considered acceptable when tested as described herein before if the section under test does not lose air at a rate greater than 0.0015 cfm per square foot of internal sewer surface.

For test sections containing over 625 square feet of surface area, the time measured by this method for 1.0 PSI pressure drop shall be calculated according to the following formula:

$$T = d^2L/42$$

T = test duration, seconds  
d = pipe diameter, inches  
L = section length, feet  
42 = conversion factor

For test sections containing less than 625 square feet of internal surface area, the time measured by this method for 1.0 PSI pressure drop shall be calculated according to the following formula:

$$T = 56d$$

The internal surface area of pipeline sections may be calculated using the formula:

$$A = \pi Ld/12$$

The surface areas of lateral lines of differing lengths and diameters may be accommodated in Equations 1 and 2 above by using the sums  $d_1^2L_1 + \dots + d_n^2L_n$  and  $d_1 + \dots + d_n$  in place of  $d^2L$  and  $d$ , respectively.

### **301.03.08 Deflection Test for PVC Pipe and HDPE Pipe**

In addition to air testing, perform a deflection test for all sanitary sewers constructed of PVC pipe or HDPE pipe after the trench backfill and compaction has been completed. The test shall be conducted by pulling an approved mandrel through the completed pipeline a minimum of 30 days after compaction is completed. The diameter of the mandrel shall be 95% of the internal pipe diameter. Conduct testing on a manhole-to-manhole basis and only after the line has been completely flushed clean with water. Locate and repair any sections failing to pass the test and retest the section, at the Contractor's sole expense.

### **301.03.09 Subsequent Failure**

No infiltration of ground water in the system is allowed. No standing water is allowed.

### **301.03.10 Rail Lines Crossing Sanitary Sewer**

New and reconstructed light rail and freight rail construction may require improvements to the sanitary sewer system at all utility crossing locations. Each utility crossing area is to be minimized. All existing pipes on the second half of useful life within the rail zones shall be replaced to current standards. Metallic or conductive pipe materials are not approved pipe materials at rail crossings. Pipes are to be centered under rail tracks to avoid joints underneath rail lines. All new pipe installations must identify practical future replacement options for the sewer pipe under rails in case of future failure of utility.

### **301.03.11 Television Inspection of Sanitary Sewers**

Upon completion of all sewer construction, repairs, cleaning, and required tests, the Contractor shall notify the District Engineer 24 hours prior to when the television inspection will be performed.

Subsequent to being notified, the District Engineer shall commence examination of lines. Findings will be recorded.

When performing television inspections, water shall be added and a one-inch measuring ball shall be utilized.

Upon correction of deficiencies revealed by television inspection, the Contractor shall notify the District Engineer; the same steps listed above may be repeated until all work is acceptable.

The District may, at its own option, perform a deflection test.

## **302 MANHOLES AND CONCRETE STRUCTURES**

---

### **302.01 DESCRIPTION**

This section covers the work necessary for the construction of the following items: (1) manholes, (2) drop assemblies, and (3) concrete encasement.

### **302.02 MATERIALS**

#### **302.02.01 Base Rock**

¾-inch minus base rock, conforming to the requirements for crushed aggregate material in Detail Drawing 302.

#### **302.02.02 Forms**

Forms for exposed surfaces shall be steel or plywood. Others shall be matched boards, plywood or other approved material. Form all vertical surfaces. Trench walls, large rock, or earth shall not be used as form material.

#### **302.02.03 Concrete and Reinforced Steel**

Concrete and reinforcing steel shall conform to Section 205 (Materials—Types and Use).

#### **302.02.04 Cement Mortar**

When specified for use, cement mortar shall conform to Detail Drawing 305 for concrete equivalencies. Mortar mixed for longer than 30 minutes shall not be used.

#### **302.02.05 Manholes**

##### **A. Standard Precast Manhole Sections**

Furnish sections as specified conforming to the details on the standard drawings and to ASTM C 478. Cones shall have same wall thickness and reinforcement as manhole section. Provide eccentric cones with precast grooves for all manholes over 6 feet in depth. Flat slab tops with precast grooves reinforced to withstand AASHTO H20 loading shall be provided for manholes 4 feet deep from crown of pipe and less. Top and bottom of all sections shall be parallel.

Prior to the delivery of any size of precast manhole section on the job site, yard permeability tests will be conducted at the point of manufacture. The precast sections to be tested will be selected at random from the stockpiled material that is to be supplied for the job. All test specimens will be mat tested, and shall meet the permeability test requirements of ASTM C 14 and ASTM C 497.

##### **B. Precast Concrete Bases**

Manholes shall be constructed using precast, reinforced concrete bases. Construction of precast bases shall conform to the requirements of ASTM C478. The base riser section shall be integral with the base slab.

##### **C. Poured in Place Manhole Bases**

The Contractor may use poured in place manhole bases only when pouring a new base over an existing main line. Concrete shall conform to Section 3.0030 (Manholes and Concrete Structures).

##### **D. Manhole Grade Rings**

Concrete grade rings for extensions shall be a maximum of 6 inches high.

**E. Jointing Materials**

Preformed plastic gaskets conforming to the requirements of AASHTO M-198 or joints using confined O-ring with rubber gaskets conforming to ASTM C443 shall be used.

**302.02.06 Pipe and Fittings**

Conform to requirements of Section 3.

**302.02.07 Manhole Frames and Covers**

**A. General**

1. All castings shall be true to size, weight and tolerances shown on the standard drawings. Delivered weight shall be +/- 5% of the specified weight. The bearing seat shall not rock when checked by the test jig. The foundry shall supply all test gauges and shall not subcontract any of the work other than testing procedure, patterns, and machining and cartage. The casting shall not be made by the open mold method and shall be free of porosity, shrink cavities, cold shuts, or cracks, or any defects which would impair serviceability. Repair of defects by welding, or by the use of "smooth-on" or similar material will not be permitted. All castings shall be shot or sandblasted, and the application of paint or other coating will not be permitted. Standard manhole frames are required in state, county and public road right-of-ways. Suburban manhole frames are acceptable in private roads, driveways, and easements. Only 2-hole lids will be accepted. In landscaped easements MH frames must be set slightly above final grade.
2. All manhole frames and covers located outside of the right-of-way shall be tamper-proof.

**B. Materials**

Conform to ASTM A 48, Class 30B with the following revisions:

Tensile Strength	30,000 PSI
Traverse Strength:	(1.2 inch diam. bar - 18 inch centers)
Load - Pounds	2,600 - 3,000
Deflection - Inches	0.22 - 0.34
Brinell Hardness (as cast)	173 - 200

The foundry shall certify as to the tensile and traverse properties and the Brinell Hardness. The District reserves the right to require a Rough Traverse bar (size of bar 1.2 inch diam. by 20 inch long) and/or a tensile bar as per ASTM A 48 for each 20 castings or heat when less than 20 castings are made.

**C. Inspection**

Notify the City at least 24 hours in advance of casting the units or bars. At least 24 hours notice shall also be given prior to final gauging and inspection. When directed, the following strength test shall be made on the manhole cover. The cover, while resting its frame, shall sustain a concentrated load of 40,000 lbs. applied at its center through a 2½-inch plug. The District Engineer may, at any time, require up to 5% of the job and/or order to be tested in this manner. In case of failure during the test, additional covers shall be furnished until the tests prove satisfactory. Covers that do not pass this test shall not be used.

**D. Cap Screws**

Cap screws and washers for tamperproof and watertight manhole covers shall be stainless steel with 60,000 PSI minimum tensile strength conforming to ASTM A 453.

**302.02.08 Steps for Precast Manholes**

Steps for precast manholes shall be of ¾-inch diameter structural steel in conformance with the standard details or be of steel reinforced polypropylene plastic, M.A. Industries, Inc., No

PS-2PFS, or Lane No. P-13850, or approved equal. All steps shall be in conformance with ASTM C-478 and shall be aligned vertically. All steps within a manhole shall be of the same design, type and size (mixing of unmatched steps within the same manhole is not permitted). Loose steps shall be cause for rejection of that manhole cone or section.

Steps of ¾-inch diameter structural steel shall conform to ASTM A 36 and galvanized in accordance to ASTM A 123. Steps shall be safety type 12 inch x 8 inch x 2 inch pattern as shown on the standard plans.

Steel reinforced polypropylene steps are to be driven into pre-formed holes in precast concrete manhole cones and sections by the manhole manufacturer prior to delivery to job site and shall be in conformance with the following specifications:

- ASTM A-615 Grade 60, ½ inch deformed steel rod
- ASTM 2146-78 Type II, Polypropylene

#### **302.02.09 Nonshrink Grout**

Nonshrink grout shall be Sika 212, Euco N-S, Five-Star, or equal nonmetallic cementitious commercial grout exhibiting zero shrinkage per ASTM C-827 and CRD-C-621. Grout shall not be amended with cement or sand, and shall not be reconditioned with water after initial mixing. Unused grout shall be discarded after 20 minutes and shall not be used.

Nonshrink grouts shall be placed or packed only with the use of an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted. The bonding agent shall be compatible with the brand of grout being used. Water as a substitute for commercial bonding agent for nonshrink grout will not be allowed in sanitary sewer construction.

### **302.03 CONSTRUCTION**

#### **302.03.01 General**

##### **A. Excavation and Backfill**

Conform to applicable provisions in Section 204 (Excavation, Embankment, Bedding, and Backfill). Backfill around manholes shall be of the same quality as the trench backfill immediately adjacent. All excavation shall be unclassified.

##### **B. Base Rock**

Place crushed aggregate base rock and thoroughly compact with a mechanical vibrating or power tamper.

##### **C. Foundation Stabilization**

If material in bottom of excavation is unsuitable for supporting manholes and other sewer appurtenances, excavate below subgrade as directed and backfill to required grade with rock conforming to Foundation Stabilization in Detail Drawing 304.

#### **302.03.02 Manholes**

All manholes, except as otherwise specified, shall be constructed using precast, reinforced concrete base sections, riser sections, and other precast appurtenances conforming to ASTM C478. Base riser sections shall be integral with the base slabs.

Preformed plastic gaskets shall be installed in strict accordance with the manufacturer's recommendation. Only pipe primer furnished by the gasket manufacturer will be approved. When using preformed plastic gaskets, manhole sections with chips or cracks in the joint surfaces shall not be used. Completed manholes shall be rigid and all manholes for sanitary sewers shall pass the vacuum test. Construct manhole inverts in conformance with the standard drawings with smooth transitions to ensure an unobstructed flow through manhole. Cover exposed edges of pipe completely with grout. Trowel all grouted surfaces smooth.



The inside of all manholes will be grouted smooth with all spaces between risers, rings, and cones filled with grout flush with the inside of the manhole.

Holes for installing pipe into precast manhole sections shall be cast in place or core drilled.

Channels shall conform accurately to sewer grade. Channel shall be formed to accept a 7 inch x 30 inch cylinder into the pipes. Construct cast in place channel and shelf, in 1 operation. Finish concrete shelf between channels with a brush.

### **302.03.03 Drop Assemblies**

Construct drop assemblies at locations indicated and as shown on the standard drawings.

### **302.03.04 Pipe Stubouts and Manholes**

Install stubouts from manholes at locations as shown or directed. Pipe connections to the cone section of a manhole are strictly prohibited.

### **302.03.05 Manhole Grade Rings**

In general, manhole grade rings will be used on all manholes in streets or roads or other locations where a subsequent change in existing grade may take place. Extensions will be limited to a maximum height of 12 inches.

Install appropriate combination of grade rings to a height that will accommodate the finish manhole surface elevation as shown on the drawings. Lay grade rings in mortar with sides plumb and tops level. All mortared sanitary sewer manhole necks and all grade ring joints made with mortar shall be constructed using an approved commercial concrete bonding agent applied to all cured concrete surfaces being mortared. No joints, necks, frames, or grade rings on sanitary sewers shall be mortared without an approved bonding agent. Water as a substitute for commercial concrete bonding agent will not be approved. Grade ring extensions shall be watertight. All mortared sanitary sewer manhole necks and all grade ring joints made with mortar shall be constructed using an approved commercial concrete bonding agent applied to all cured concrete surfaces being mortared. No joints, necks, frames, or grade rings on sanitary sewers shall be mortared without an approved bonding agent. Water as a substitute for commercial concrete bonding agent will not be approved.

### **302.03.06 Adjustment of Manholes and Cleanouts to Grade**

The frame and cover will be adjusted to final grade after the first lift of AC has been placed and prior to the final lift. The void between the frame and the first lift of AC will be filled with Type B grout conforming to Section 205 (Materials—Types and Use). The manhole frame must be flush with the final grade of the roadway without the use of paving rings.

### **302.03.07 Vacuum Testing**

Manholes shall be vacuum tested.

For manholes with poured bases constructed over existing main lines, the top of the existing main shall not be “cut out” until the manhole vacuum test has been witnessed and approved by an OLWSD inspector.

1. Each manhole may be tested immediately after assembly and prior to backfilling for Contractor information and ease of repair if necessary. Acceptance testing will be accomplished after backfilling and final paving is complete.
2. All lift holes shall be plugged with an approved nonshrink grout. Manhole frame to grade ring or cone connection shall use commercial concrete bonding agent and nonshrink grout.
3. All pipes entering the manhole shall be plugged, taking care to securely brace the plug from being drawn into the manhole.

4. The test head shall be placed at the inside of the top of the manhole frame and the seal inflated in accordance with the manufacturer's recommendations. The seal at grade rings and frame shall be subject to the test.
5. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With valves closed, the time shall be measured for the vacuum to drop to 9 inches. The manhole shall pass if the time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury meets or exceeds the values indicated below.

DEPTH OF MANHOLE (FEET)	ALLOWABLE TIME (SECONDS)		
	48-INCH	60-INCH	72-INCH
8	20	23	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

6. If the manhole fails the initial test, necessary repairs shall be made with an approved nonshrink, quick-setting grout. Retesting shall proceed until a satisfactory test is obtained.

#### **302.03.08 Placing Precast Units**

If material in bottom of trench is unsuitable for supporting unit, excavate as directed and backfill to required grade with foundation stabilization material in conformance with Section 204 (Excavation, Embankment, Bedding, and Backfill). Set units to grade at locations shown or directed.

#### **302.03.09 Cleaning**

Upon completion, clean each structure of all silt, debris, and foreign matter.

## **303 WORK ON EXISTING SANITARY SEWERS**

---

### **303.01 DESCRIPTION**

This section covers the work necessary to join new work to existing, the abandoning of sanitary sewer lines, and adjusting existing utility structures to finished grades.

### **303.02 MATERIALS**

Conform to requirements of Section 205 (Materials—Types And Use) and to the requirements for related work referred to herein.

### **303.02.01 Inside Drops (Oregon Drops)**

This type of connection will only be allowed with prior approval by the District Engineer and shall conform to the requirements of the standard drawing.

## **303.03 CONSTRUCTION**

### **303.03.01 Excavation and Backfill**

Conform to requirements of Section 204 (Excavation, Embankment, Bedding, and Backfill). All excavation shall be unclassified.

### **303.03.02 Manholes Over Existing Sewers**

The Contractor shall be totally responsible for maintaining adequate capacity for flow at all times and adequately protecting new and existing work.

Construct manholes over existing operating sewer lines at locations shown. Perform necessary excavation and construct new manholes in conformance with applicable requirements of Section 302 (Manholes and Concrete Structures).

Construct manholes as shown on the detail drawings or standard drawings. Densify the concrete base by vibrating or working as approved and screed to provide a level, uniform bearing for precast sections.

Place the first precast section of manhole in concrete base before concrete has set and deposit sufficient mortar on the base to assure a watertight seal between the base and the manhole wall. First section shall be properly located and plumb. Stacking additional precast manhole sections shall be prohibited until the concrete has cured a sufficient amount to support the additional weight in moist conditions.

Prevent broken material or debris from entering sewer flow. Maintain flow through approved sewer lines at all times. Protect new concrete and mortar for a period of 7 days after placing. All sanitary sewer manholes shall be vacuum tested in accordance with Subsection 302.03.07 (Vacuum Testing).

### **303.03.03 Connection to Existing Main**

Connections of laterals to existing sewer mains shall be made watertight. Transition couplings between dissimilar pipe materials shall be made using approved commercial adapters with stainless steel bands such as Fernco, Calder, or equal.

New taps made to existing main lines shall be made by installation of an Inserta Tee or equal unless the tap diameter is within 2 inch of the main diameter (such as a 4 inch on 6 inch tap or a 6 inch on 8 inch tap). In those cases, a section of main line must be cut out and a PVC tee fitting spliced into the main with Fernco Strongbacks or equivalent. The Contractor shall be totally responsible for maintaining adequate capacity for flow at all times and for containing all wastewater within the system at all times. A written plan for pump-around or containment of sewage must be approved by the District before work may begin. Special care must be taken to compact bedding material under the new tap to provide proper support of the main. The Contractor must TV inspect the new tap section of main after backfilling and compaction is completed to confirm that the new tap section of the main is properly aligned with the existing main at both ends. This TV inspection is to take place with a District inspector present.

Taps shall be installed without protrusion into or damage to the existing sewer. No compromise of the sewer will be allowed, such as undermining and settlement of the sewer grade, debris in the sewer, or longitudinal or transverse cracking of the sewer pipe.

### **303.03.04 Removal of Existing Pipes, Manholes, and Appurtenances**

Existing pipelines, manholes, and appurtenances which lie in the line of and are to be replaced by the new construction shall be removed from the site and disposed of as provided for in Section 203 (Clearing and Grubbing).

### **303.03.05 Filling Abandoned Manholes**

Existing manholes shown to be abandoned shall be filled with granular material as specified in Section 204 (Excavation, Embankment, Bedding, and Backfill). Compact to at least 90% maximum density as determined by ASTM D1557. Remove manhole frame and cover and plug all pipes with permanent plugs as specified in Section 303.03.07 (Permanent Plugs). Break or perforate the bottom to prevent the entrapment of water.

### **303.03.06 Existing Manhole Frames and Covers**

Manhole frames and covers removed by the Contractor which will not be reused on the project shall become the property of the District. Notify the District Engineer a minimum of 1 day prior to removal to arrange for picking up the removed frames and covers.

### **303.03.07 Permanent Plugs**

Clean interior contact surfaces of all pipes to be cut off or abandoned. Construct concrete plug in end of all pipe 18 inches or less in diameter. Minimum length of concrete plugs shall be 8 inches. For pipe 21 inches and larger, the plugs may be constructed of common brick or concrete block. Plaster the exposed face of block or brick plugs with mortar. All plugs shall be watertight and capable of withstanding all internal and external pressures without leakage.

### **303.03.08 Adjusting Existing Structures to Grade**

Existing manholes, and similar structures shall be brought to the specified finished grade by methods of construction, as required in Section 510 (Adjustment of Existing Structures to Grade).

### **303.03.09 Reconstruct Manhole Base**

Conform to applicable requirements of Section 302 (Manholes and Concrete Structures). Exercise caution in chipping out existing concrete base so as to prevent cracking of manhole walls. Prevent all material from entering the sewer flow. Pour new base to a minimum of 6 inches below the lowest projection of the pipe. Construct new channels to the elevations shown. Conform to details for channel construction in the standard drawings. Repair any cracks which occur as a result of work operations with new grout to form a watertight seal.

### **303.03.10 Manhole Required**

If a connection is to be an 8-inch tap on the same size receiving line, then a manhole shall be required to make the connection.

### **303.03.11 Connection to Existing Manholes**

All sanitary sewer pipe connections, including those at invert level and penetrations for drop connectors, conduits, and pass-throughs, shall conform to the requirements of applicable portions of Sections 301(Pipe and Fittings [Sanitary Sewer]) and 302 (Manholes and Concrete Structures).

**END OF DIVISION**

# DIVISION 4—WATER CONSTRUCTION STANDARDS

## TABLE OF CONTENTS

<b>401 GENERAL</b> .....	<b>1</b>
<b>402 WATER WORKS MATERIALS</b> .....	<b>1</b>
402.01 DUCTILE-IRON FITTINGS .....	1
402.02 MECHANICAL JOINTS.....	1
402.02.01 Megalug/RomaGrip Pipe Restraint .....	1
402.03 FLANGED JOINTS .....	1
402.04 FLANGED PIPE OR SPOOLS.....	2
402.05 DUCTILE-IRON PIPE .....	2
402.06 POLYETHYLENE ENCASEMENT .....	2
402.07 VALVES (GENERAL) .....	2
402.07.01 Gate Valves.....	2
402.07.02 Butterfly Valves .....	3
402.08 FIRE HYDRANT ASSEMBLY .....	3
402.09 CAST-IRON VALVE BOXES .....	3
402.12 2INCH SERVICE SADDLES.....	3
402.13 COPPER PIPE.....	3
402.14 BRASS FITTINGS.....	3
402.15 CORPORATION STOPS .....	3
402.16 CURB STOPS.....	3
402.17 COPPER COUPLINGS.....	3
402.19 WATERLINE MATERIALS AT LIGHT RAIL CROSSINGS.....	4
<b>403 CONSTRUCTION</b> .....	<b>4</b>
403.01 STORAGE OF EQUIPMENT AND MATERIALS .....	4
403.02 PLACING PIPE AND FITTINGS .....	4
403.03 WET TAPPING EXISTING MAIN .....	5
403.04 POLYETHYLENE ENCASEMENT OF PIPE AND FITTINGS .....	5
403.05 PLACING VALVE UNITS .....	5
403.06 PLACING FIRE HYDRANT ASSEMBLIES.....	5
403.07 COPPER SERVICE INSTALLATION .....	6
403.08 PLACING PERMANENT BLOWOFF ASSEMBLIES.....	7
403.10 REMOVING EXISTING WATER WORKS MATERIALS .....	7
403.11 ABANDONING EXISTING MAINS AND VALVES .....	7
403.12 MAINTAINING SERVICE.....	7
403.13 FLUSHING .....	7
403.14 TESTING AND CHLORINATION.....	8
403.15 CUTIN AND CONNECTION TO EXISTING MAINS.....	9
403.16 CLAY DAMS .....	10

## **401 GENERAL**

---

The following specifications, in conjunction with applicable requirements of other parts of the contract documents, the plans, and addenda, shall govern the character and quality of material, equipment and construction procedures for water work. All work done shall be in compliance with the requirements and restraints of OSHA, the State of Oregon Accident Prevention Division regulations and the Workers' Compensation Board. In addition, all work shall be completed in conformance with State of Oregon, Clackamas County, and/or City of Milwaukie and/or City of Gladstone street opening permits.

## **402 WATER WORKS MATERIALS**

---

### **402.01 DUCTILE-IRON FITTINGS**

All fittings shall conform to ANSI/AWWA Specification C110/A21.10 or ANSI/AWWA Specification C153/A21.53. All ductile-iron fittings shall be Class 350. Fittings shall be furnished with flanged or mechanical joints as specified on the plans. Fittings shall be ductile-iron fittings conforming to AWWA C110 and for compact C153. Fusion bonded epoxy fittings shall be U.S. pipe Permafuse or equal. Fittings shall be factory lined with cement mortar or cement lined to factory standards. No field coating with cement will be approved, other than for minor repairs. Fittings shall be new and free of defects in coating, body, and lining. During installation, fittings shall be properly aligned and bolted securely to provide watertight joints.

Fittings must be manufactured to conform to ANSI/AWWA standards.

### **402.02 MECHANICAL JOINTS**

Mechanical joints, including accessory glands, gaskets, and bolts, shall conform to the requirements of ANSI/AWWA C111/A21.11, except where specifically modified in AWWA C153 for compact ductile-iron fittings. As stated in AWWA C111, Tbolts shall be made of either highstrength cast iron containing a minimum of 0.50% copper, or highstrength, low alloy, steel. Bolts shall be marked to identify material and producer. Contractor shall provide the District with the bolt manufacturer's specifications, which shall give the following information: manufacturer's name, type of material, and identifying mark. Follower glands for mechanical joints shall be domestic made only.

Mechanical joint gaskets shall be made of vulcanized synthetic rubber and shall be no more than 3 years old.

The recommended installation procedures in AWWA specification C111, Appendix A, "Notes on Installation of Mechanical Joints," including bolt torque ranges, shall be followed.

#### **402.02.01 Megalug/RomaGrip Pipe Restraint**

RomaGrip/Megalug glands shall be RomaGrip/Megalug brand, as manufactured by Romac/Ebaa Iron Sales, Inc., only. RomaGrip/Megalug shall be used on ductile-iron pipe and fittings.

### **402.03 FLANGED JOINTS**

Flanges shall conform to ANSI specification B16.1 for Class 125 flanges and shall conform in all other respects to ANSI/AWWA C110/A21.11. Bolts for assembly of flanged joints shall be of the size and quantity shown in Table 10.14 on Page 34 of AWWA C110. As stated in AWWA C110, bolts shall conform to ANSI B18.2.1, Square and Hex Bolts and Screws Inch Series, Including Hex Cap Screws and Lag Screws. Nuts shall conform to ANSI B18.2.2, Square and Hex Nuts. Threads shall conform to ANSI B1.1, Standard for Unified Inch Screw Threads (UN and UNR Thread Form), Class 2A, external, and Class 2B, internal.

Bolts and nuts shall be of lowcarbon steel conforming to the requirements of ASTM A307, Standard Specifications for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength, Grade B.

Contractor shall provide the District with the manufacturer's specifications regarding the bolts to be used on the project.

Flange gaskets shall be full face, 1/8" thick, red rubber or approved equal.

#### **402.04 FLANGED PIPE OR SPOOLS**

Flanged pipe or spools shall conform to the latest edition of ANSI/ANWA C115/A21.15. Flanges shall conform to requirements as specified in Subsection 402.04 (Flanged Joints). Pipe used shall be Class 53 DI. Pipe shall be furnished with coatings as specified in "Ductile-Iron Pipe". Threads on the flanges and pipe barrel shall be taper pipe threads (NPT) in accordance with ANSI B1.20.1.

When ordering, the following minimum information shall be provided to the manufacturer: Pipe size and finished length (flg. to flg., flg. to p.e.).

Manufacturer shall provide the following information: Length and weight shown on each pipe, flange manufacturer marking, country where cast, and DI or CI stamped on flanges. If fabricator is other than flange manufacturer, fabricator's mark shall be stamped with metal die on each flange after assembly. Also, manufacturer shall provide statement that the flange pipe complies with the specified standards.

#### **402.05 DUCTILE-IRON PIPE**

Ductile-iron pipe shall be Class 52. Physical properties shall not be less than 604210 iron and pipe shall conform to the latest revision of ANSI/AWWA specification C151/A21.51. Ductile-iron pipe shall be factory lined with cement mortar and bituminous seal coat and coated outside with asphaltic seal coat. Pushon rubber gasketed joints shall be installed using field-lok or approved equal locking gaskets. Pushon and mechanical pipe joints shall conform to ANSI/AWWA Specification C111/A21.11 and flanged joints shall conform to ANSI/AWWA C115/A21.15.

#### **402.06 POLYETHYLENE ENCASEMENT**

Polyethylene film shall conform to ASTM standard specification D124878, having a minimum thickness of 0.008" (8 mil).

Polyethylene sheets shall be used to wrap all mechanical joints and flanged connections. Fittings shall be wrapped in three layers of polyethylene sheet secured with polyethylene tape prior to backfilling.

When required, polyethylene tubing used on mains shall be held in place with 2inch-wide adhesive tape which is compatible with polyethylene, with plastic binder twine, with nylon tie straps, or other method approved by the District Engineer.

#### **402.07 VALVES (GENERAL)**

All valves shall be designed to AWWA specifications and shall have standard 2inchsquare operating nut unless otherwise shown on the plans. All pipe valves and fittings shall be pressure rated at 250 to 350 PSI and shall open counter clockwise. All fittings shall be factory cement lined and coated.

##### **402.07.01 Gate Valves**

2 inch gate valves shall be resilient wedge double disc, nonrising stem with "O" ring packing, complying with AWWA Class C specifications. Gate valves 4" through 10" shall be resilient wedge, nonrising stem with "O" ring packing, complying with AWWA Class C specifications. The valves shall be designed to withstand water working pressures of 150 PSI or more. All valves shall be furnished with a 2 inch-square operating nut and shall open counter clockwise when viewing valve from above.

Operation of the valve shall permit full withdrawal of the disc from the waterway to provide a clear unrestricted passage when the valve is in the open position. The valve shall be furnished with mechanical joint ends unless otherwise specified. Where flanges are furnished on valves, they shall conform to ANSI Specification B16.1, Class 125.

Valves located within vaults must have both hand wheel and rising stems.

#### **402.07.02 Butterfly Valves**

All butterfly valves shall be rubberseat type and bubbletight at 250 PSI pressure with flow in either direction. They shall be designed for direct burial and be satisfactory for application involving valve operation after long periods of inactivity. Valves shall conform to AWWA specification C504. All valves shall be Mueller or approved equal. Operating nut for the valve shall be located on the side of the main shown on the plans.

#### **402.08 FIRE HYDRANT ASSEMBLY**

Fire hydrants shall conform to AWWA specification C502. The hydrants shall have a 5¼inch minimum valve opening with a 6inch mechanical joint inlet, a 6inch mechanical joint by flanged resilient wedge auxiliary gate valve, two 2½inch hose nozzles, one 4½" pumper nozzle, a 1½inch pentagon operating nut (opening counter clockwise), and a safety flange. The hydrant color shall be yellow (Miller Safety Yellow OE 40). The fire hydrant depth of bury shall be arranged to match the grade of the surrounding ground. See standard drawing no. 411 for additional requirements.

Fire hydrants shall be Mueller Centurion A-423, M&H 929 Reliant, or Clow Medallion F-2545. No other manufacturer will be accepted by the District.

#### **402.09 CAST-IRON VALVE BOXES**

Valve boxes shall be manufactured using domestic cast iron only. Valve boxes shall be the cast iron "Vancouver" pattern (10" or 18" tall casting) with standard lid. Valve riser pipe from the valve to the cast-iron top shall be 6inch PVC sewer pipe or approved equal for the Vancouver box. A self-centering valve cover shall be compatible with 6-inch valve riser pipe, VC212 or approved equal. See standard drawing no. 310.

Valve box castings shall be smooth and uniform. Box lid shall not protrude above the rim and lids shall seat flat without rocking. Boxes of uneven thickness, pitted, or otherwise flawed in the casting will be rejected. PVC sewer pipe shall be cut off smooth with no sharp edges.

#### **402.12 2INCH SERVICE SADDLES**

Generally, 2" water services shall be connected with a 2" Ford FB1000-7-Q Corporation Stop or approved equal at the main. Service saddles may be approved by the District Engineer. Where approved, service saddles shall be 2" AWWA/CC threads, double strap, stainless steel. Body of saddle shall be ductile iron coated with nylon, and straps, bolts, washers, and nuts shall be stainless steel.

#### **402.13 COPPER PIPE**

Service lines shall be soft temper, copper water tube Type K, meeting ASTM B88 specifications.

#### **402.14 BRASS FITTINGS**

All brass components shall be designated "lead-free", containing no more than .25% lead by a weighted average when used with respect to the wetted surfaces of pipe, fittings, and fixtures.

#### **402.15 CORPORATION STOPS**

Corporation stops shall be Ford FB1000-x-Q or approved equal. See standard drawings no. 320 and 323.

#### **402.16 CURB STOPS**

Curb stops shall be 1" Ford angle ball valves, or approved equal, with padlock wings (meets ANSI/AWWA C800 Standard).

#### **402.17 COPPER COUPLINGS**

Straight couplings, copper to inside iron pipe thread shall be Ford compression or equal. Copper couplings, copper to outside iron pipe threads, shall be Ford compression union or equal.



## **402.19 WATERLINE MATERIALS AT LIGHT RAIL CROSSINGS**

New and reconstructed light rail and freight rail construction may require improvements to the water system at all utility crossing locations. Each utility crossing area is to be minimized. All existing water pipes or pipes within the rail zones shall be replaced to current standards and encased. Metallic or conductive pipe materials are not approved pipe materials at rail crossings. Pipes are to be centered under rail tracks to avoid joints underneath rail lines. All accessible structures must be located a minimum of 15' from the gate arms outside of the rail crossings.

## **403 CONSTRUCTION**

---

### **403.01 STORAGE OF EQUIPMENT AND MATERIALS**

Unless otherwise noted on the plans or in the special provisions, it shall be the responsibility of the Contractor to locate a storage site for all equipment and materials and gain approval from the District Engineer.

Prior approval shall be obtained from the governing agency for any storage of equipment or materials within the right of way (i.e., stringing of pipe).

### **403.02 PLACING PIPE AND FITTINGS**

The pipe shall be laid true to line, without objectionable breaks in grade and shall be firmly bedded for the entire length of the pipe.

Where conflicts arise between the designed grade of the waterline and an existing underground structure, the depth of the trench may be increased to permit proper installation of the waterline. Payment for over excavation shall begin once the extra depth reaches 18" below the designed grade.

Care shall be taken to clean joints and to keep them free of water during construction. Whenever water is excluded from the interior of the pipe, adequate backfill shall be deposited on the pipe to prevent floating. In the event of any flotation occurring, the pipe so affected shall be removed from the trench, replaced and relaid at the Contractor's expense.

Each section of the pipe and each fitting shall be thoroughly cleaned before it is lowered into the trench. Cleaning of each pipe or fitting shall be accomplished by swabbing out, brushing out, blowing out with compressed air, washing to remove all foreign matter. The most efficient method of cleaning out pipe and fittings will be determined on the job by the District Engineer.

If clean pipe sections and fittings cannot be placed in the trench without getting dirt into the open ends, the District Engineer will require that a piece of tightly woven canvas be tied over the ends of the pipe or fitting until it has been lowered into position in the trench. After the pipe or fitting has been lowered into the trench, all foreign matter shall be completely brushed from the bell and spigot ends before assembly. At the end of each day, or during suspension of the work, the pipe ends shall be securely closed by means of a secure plug or approved equivalent. Water in the trench shall not be allowed to enter the pipe and fittings.

If it is necessary to cut the pipe to lay it on curves or to cause a change in direction, the Contractor shall cut the pipe as required for proper installation. Where the cut length of pipe is to be installed into the bell end of another pipe, the cut end shall be beveled to ensure a proper seal. To set valves and fittings properly, the pipe shall be cut to the exact length required to obtain the designated locations. The cost of cutting the pipe shall be included in the unit prices bid.

Dead end lines, where a standard 2- or 4inch blowoff assembly is not required by the plans, shall be provided with a ¾inch corporation stop 18 inches from the plugged end of the pipe. This will allow for air removal and release of line pressure during future waterline extension. No extra payment shall be made for this installation.

### **403.03 WET TAPPING EXISTING MAIN**

When specified, wet taps on existing water main are required to minimize interruption of service to customers. Typically, wet taps will only be performed under the direction of District personnel. Tapping sleeve and valve shall conform to standard drawing no. 408.

Before attaching tapping sleeve, care shall be taken to clean water main of all debris and defects. Attach sleeve and valve to the main. Then attach proper tapping machine to valve. Pressure test this assembly before making tap. After making tap, remove the tapping machine and inspect fitting and valve for leaks. If any such leaks are found, Contractor shall be required to repair the defect. Attach branch main to valve and install pipe. Tapping sleeve and valve shall be wrapped in 8 mil plastic and tape in accordance with Subsection 403.04 (Polyethylene Encasement of Pipe and Fittings). New connection shall be securely blocked using appropriate size thrust block based on the size and pressure of the water main to be constructed. Taps shall be made no closer than 18" from end of sleeve to nearest joint.

Excavation for tap shall be such as to fully expose main with a minimum depth below main of 12 inches. A minimum of 18" of main shall be exposed from the end of the tapping sleeve. Also, excavate enough area to accommodate tapping machine and workers. Backfilling shall be in accordance with OLWSD backfill standards.

### **403.04 POLYETHYLENE ENCASEMENT OF PIPE AND FITTINGS**

When specified, install polyethylene encasement, tube type, on all pipe and appurtenances. Polyethylene film shall conform to ASTM standard specification D124878, having a minimum thickness of 0.008" (8 mil). Install this encasement in accordance with AWWA C105, Method A, 1 length of polyethylene tube for each length of pipe. The use of polyethylene sheets will not be allowed on pipe segments, only fittings. Sand backfill shall be placed within the pipe zone and bedding area wherever polyethylene encasement is used.

Polyethylene sheets may be used to cover valves and fittings. Valves shall be wrapped up to the bottom of the operating nut. Three layers of polyethylene shall be wrapped snugly around the pipe and held in place by using an adhesive tape compatible with polyethylene, plastic binder twine, or nylon tie straps. Backfill material shall not be allowed to get under the polyethylene, and pockets in the polyethylene which can trap backfill material shall be eliminated.

### **403.05 PLACING VALVE UNITS**

A valve unit shall consist of a valve, bolts, gaskets, followers, self-centering valve cover, PVC riser pipe, and cast-iron valve box, complete with cover.

Valves shall be placed in a vertical position at locations shown on the plans. The Contractor shall check each valve to determine that the valve is properly adjusted to seat securely and open fully. Valves not meeting these requirements shall not be installed. Self-centering valve covers, valve boxes, and PVC riser pipe shall be placed in a vertical position over the valve operating nut and the backfill shall be carefully compacted around the box. Any valve boxes found off center from the valve operating nut shall be removed and replaced into the proper position. The top of the valve box shall be adjusted to meet finish grade. PVC riser pipe shall extend up outside the valve box 7 inches on the Vancouver box to allow future raising of the box. Notches shall be cut into the rim of the valve box on a line passing through the center of the box as detailed on standard drawing no. 313. Valve boxes shall be placed so that the notches line up parallel with the water main below. A collar of concrete with a depth of 4", 24" x 24" square, shall be placed around the top of all valve boxes not in a paved area.

The Contractor shall not operate any valve touching potable water.

### **403.06 PLACING FIRE HYDRANT ASSEMBLIES**

The fire hydrant assembly shall consist of a mechanical joint hydrant, mechanical joint by flange auxiliary gate valve, cast-iron valve box, galvanized bolts, gaskets and tie rods.

The fire hydrant shall be placed in a vertical position on a precast concrete slab having a bearing surface of not less than 1 square foot. Hydrant drain holes shall not be blocked. Not less than 4 cubic feet of clean drain rock shall be placed around the base of the hydrant for drainage. See standard drawing no. 313 for other requirements. Fire hydrant extension kits may be installed with approval by the District Engineer. Where approved, fire hydrant extension kits may only be installed by District water crews. In no instance will more than one fire hydrant extension kit per hydrant be installed.

### **403.07 COPPER SERVICE INSTALLATION**

Where indicated on the drawings or as determined in the field, the Contractor will be required to install copper water services. This will require the Contractor to make all taps for the service; install new copper pipe or transfer existing copper pipe to new main and install corporation stops, meter setters (when approved), and meter box; and make connection to customer service pipe. See standard drawings no. 320 and 323 for installation requirements.

Where new 1-inch angle meter stops shall be installed set at the same elevation as the existing angle meter stop with a maximum of 2 inches away from connection point on the existing meter. All new copper pipe and service fittings shall be kept clean and free of debris. Copper service line shall have a flexed "goose neck" installed before the angle stop to prevent pullouts. Contractor will make connection of new angle meter stop or meter setter to existing meter. Contractor shall only have to remove the existing angle meter stop, connect the new angle meter stop, and flush the new service. A dielectric union shall be installed between the check valve and any metal service pipe on the customer side of the water meter.

Where new services are installed, new meter boxes shall be set with the top of the box at finish grade. Meter boxes shall be: (1) located behind the sidewalk where there is sufficient right-of-way; (2) within the planter strip, excluding water quality facilities; and (3) within the sidewalk with the back of the meter box at the back edge of the sidewalk. The longest dimension of the box shall be set perpendicular to the centerline of the street. A new meter box shall be provided where, in the opinion of the District Engineer, an existing meter box is cracked, broken, or has missing parts. Where an existing meter must be relocated, Contractor shall provide and install the new copper service, angle meter stop, and meter box complete and adjusted, to finished grade.

All copper service pipe shall be bedded and covered with  $\frac{3}{4}$ " minus crushed aggregate to a depth of 6 inches on all sides.

Service lines shall be located in a direct line between the meter and a point on the main directly opposite the meter. Service lines shall have a minimum cover of 30 inches except where crossing road ditches where the cover may be reduced to 24 inches at said road ditch.

Where existing copper service is to be transferred to new main, and the existing main is to remain live, Contractor shall disconnect corporation stop from old main and install a lead-free brass plug. Contractor shall provide excavation down to old corporation stop, select backfill and compaction. Excavation and backfill shall be considered incidental to the project. Contractor shall perform surface restoration according to the bid item for that work.

All new services crossing existing metal gas lines shall have PVC sleeves as discussed on standard drawings no. 420.

Corporation stops shall be set at a 30 degree angle up from horizontal. Taps shall be a minimum distance of 18 inches from the bell or spigot end of the main or another service tap.

Where a new section of copper service is to be installed, it shall be Type K, seamless soft annealed copper pipe conforming to ASTM B88. There shall be no splicing of copper unless service is longer than 60 feet or as approved by the District Engineer (unique conditions). When splicing is approved between 2 pieces of copper, it shall be done with a 3 piece copper to copper union. No more than 1 splice per service shall be made and splicing shall be made outside of the existing or proposed travel lane. Existing galvanized service lines encountered by the Contractor shall be replaced with copper service pipe up to and through the angle meter stop.

Where 1½"-2" services are to be installed, the new main shall be tapped with 1½"-2" corporation stop, 1½"-2" copper tubing, 1½"-2" Ford angle ball valve stop with padlock wings, and Ford meter swivel single check valve shall then be installed to the new meter location. Copper service line shall have a flexed "goose neck" installed before the angle stop to prevent pullouts. See standard drawing no. 321.

Once the new copper services are installed by the Contractor and the new waterline facilities are pressure tested, chlorinated and accepted, Contractor shall relocate existing meters to their new locations and replumb the service. It shall be the responsibility of the Contractor to coordinate this with the District Construction Inspector. Placement of new sidewalks or other surface restoration shall not take place until meters have been installed.

#### **403.08 PLACING PERMANENT BLOWOFF ASSEMBLIES**

A standard blowoff assembly shall consist of a main size x MJ cap tap 2", 2" x 1' brass nipple, 2" resilient wedge gate valve, 2" x 18" galvanized nipple, 2" galvanized 90° bend, 2" galvanized piping, 2 valve boxes, galvanized coupling and brass or PVC plug. The blowoff assembly shall be placed as shown in standard drawing no. 313.

Payment for the blowoff assembly shall include furnishing, transporting, assembling and placing of the complete assembly, blocking, plus backfill and servicing. Main line thrust blocking shall be paid under separate bid item, if needed.

#### **403.10 REMOVING EXISTING WATER WORKS MATERIALS**

When the Contractor removes existing pipe, gate valve units, fittings, fire hydrant units or other items to allow installation of the work specified herein, the Contractor shall haul the removed water works material away. Title to the removed materials shall transfer to the Contractor, except when otherwise specified.

The District reserves the right to designate other water works materials to be removed. The Contractor shall remove the designated water works materials and haul them to the District's designated storage yard.

#### **403.11 ABANDONING EXISTING MAINS AND VALVES**

Any existing water lines that are abandoned shall be severed and plugged as directed by the District Engineer. All abandoned valve boxes shall be removed, gravel filled, compacted, and asphalt plugged at no additional cost.

#### **403.12 MAINTAINING SERVICE**

The Contractor shall schedule construction work specified herein to maintain a continuous water service to existing water users. Where it is necessary to shut down service to make required interties, the Contractor shall notify the District at least five working days prior to a planned water service shut down to allow the District to notify users of the impending loss of water service. Contractor may be required to make necessary service shutdowns of affected businesses after regular business hours at no additional cost to the District.

#### **403.13 FLUSHING**

The new pipeline shall be flushed, pressure tested, and disinfected before any connection to the existing water system is made. Temporary blowoffs and chlorination points shall be provided by Contractor at all deadends and points of connection to the existing system. The new waterline shall be built as close as possible, as determined by the District Engineer, to the existing water system at points where connections are to be made.

All pipe, valves and fittings shall be thoroughly flushed prior to pressure testing and chlorination. Flushing shall be done through blowoff units, hydrants, individual services, and main at a minimum velocity of 2.5 F/S. All water used during flushing operations shall be measured through a Pitot Blade and stop watch. All results shall be reported to the District Engineer on a daily basis.

Prior to any flushing procedures taking place, the Contractor shall issue a flushing plan providing direction of flow, water damage control and a written schedule to the District Engineer for approval. A 48hour notice shall be given to the District Engineer prior to any system shutdown or flushing procedures. Under no circumstance shall the Contractor operate any District valves without prior approval by the District Engineer.

The following chart shows minimum temporary blowoff/inlet sizes which shall be provided by the Contractor. Gate valves shall be provided on blowoff and inlet pipes to pressure test against, and to keep the pipe interior clean when backflow device is removed.

<b>REQUIRED OPENINGS TO FLUSH PIPELINES</b>		
<b>NOMINAL PIPE SIZE (INCHES)</b>	<b>FLOW REQUIRED TO PRODUCE 2.5 FPS VELODISTRICT(GPM)</b>	<b>MINIMUM INLET &amp; OUTLET PIPE SIZE REQUIRED (INCHES)</b>
4	110	2
6	240	2
8	430	4
10	660	4
12	950	4
14	1290	6
16	1690	6
18	2140	6
20	2640	6
24	3800	6

All flushing and testing water shall be delivered to the new waterline through Oregon State Health Division approved double check valve backflow prevention devices.

The Contractor shall provide or obtain a backflow prevention device. Certified backflow tester shall test device and furnish documentation to District Construction Inspector after device is installed on site.

After flushing, the new system shall be pressure tested and disinfected. Payment for this item shall be included in the price bid for pipeline installation work.

#### **403.14 TESTING AND CHLORINATION**

All of the pipe, fittings, services, and individual valves, except the last connection with the existing main, after being placed, must be pressure tested, conforming to AWWA C600 Section 4 specifications. If the Contractor elects to test the line in sections, the lengths of the sections and provisions for testing shall be subject to approval by the District Engineer.

Before testing the pipeline for leakage, the pipeline shall be thrust blocked. The interior of the pipeline shall be thoroughly cleaned to remove all foreign matter.

The Contractor shall furnish necessary thrust blocks, pumps, medium range pressure gauges, means of measuring water loss, and all other equipment, materials and labor required for making the tests.

All air vents shall be open during the filling of the pipeline with water. After a test section is completely filled, it shall be allowed to stand under slight pressure for at least 24 hours to allow the lining to absorb what water it will and to allow the escape of air from any small air pockets. During this period, the bulkheads, valves and exposed connections shall be examined for leaks. If any are found, they shall be stopped. The pressure shall then be raised slowly to the minimum hydrostatic pressure of 180 pounds per square inch, or 1.5 times the normal working pressure, whichever is higher, measured at the point of highest elevation and shall be maintained for a period of at least 1 hour, beginning at a time of day to be mutually agreed upon between the Contractor and the District Engineer.

Test pressure shall not exceed 150% of pipe pressure rating.

No leakage is acceptable. While the pipe is under pressure and stabilized, an inspection for leaks along the pipeline shall be made by the Contractor. The gauges should be graduated at 2 PSI increments. Any leaks found shall be recorded and shall be repaired by the Contractor. All such repairs shall be made subject to the approval of the District Engineer.

The Contractor, at their own expense, shall perform any excavation required to locate and repair leaks or other defects which may develop under the test. He shall remove backfill and paving already placed, shall replace such removed material, and shall make all repairs necessary to secure the required watertightness. All repairs and retests shall be made at the Contractor's sole expense.

All leakage tests shall be made in the presence of the District Engineer or District Inspector.

The pipeline shall be thoroughly chlorinated and flushed in accordance with the Oregon State Health Division's publication, "Public Water Systems", ORS Chapter 333. All chlorinated water shall be discharged into the public sanitary sewer system. If a sanitary sewer is not available, the Contractor shall employ the use of storage tanks, basins, or other means to transport or treat the chlorinated water for discharge to an approved point of disposal. Adequate quantities of chlorine in a water solution shall be added to the pipeline and shall be allowed to stand a sufficient length of time to sterilize the interior of the pipeline. The chlorinated water shall be flushed from the pipeline and a water sample shall be taken from the pipeline. The water sample shall be tested biologically and an acceptable certification that the water is safe for domestic water consumption shall be obtained before placing the pipeline into service. If the water is not safe, the Contractor shall chlorinate and flush the line and take new samples until an acceptable safe water certification is obtained.

Chlorine may be applied by the following methods: Liquid chlorine gas/water mixture, direct chlorine gas feed, or calcium hypochlorite and water mixture. The chlorination agent shall be applied at the beginning of the section adjacent to the feeder connection and shall be injected through a corporation cock, hydrant, or other connection ensuring treatment of the entire line. Water shall be fed slowly into new line with chlorine applied in amounts to produce a dosage greater than 50 ppm but not more than 200 ppm throughout the system. After 24 hours, a residual of not less than 25 ppm shall be produced in all parts of the line. If the check measurement taken after the 24-hour period indicates a free chlorine residual of less than 25 ppm, the system shall be flushed, rechlorinated, and rechecked until a final residual of 25 ppm or more is achieved and at no additional expense to the District.

During the chlorination process, all valves and accessories shall be operated. All parts of the line and services shall be chlorinated. After chlorination, the water shall be flushed from the line at its extremities until the replacement water tests are equal chemically and bacteriologically to those of the permanent source of supply. Care shall be taken to prevent discharge of chlorinated water directly to running streams. The water should be spread over the ground or held in ditches or seepage ponds. A minimum of 24 hours after dechlorination, the District shall take two consecutive sets of samples, taken at least 24 hours apart. At least one set of samples shall be collected from every 1,200 feet of the new water main, plus one set from the end of the line, and one set from each branch. Water samples will be taken for bacteriological tests by the District.

The Contractor shall furnish and place all necessary fittings required for the testing, chlorinating and flushing of the pipeline. If a corporation stop is removed, the hole shall be filled with a lead-free brass plug.

Water used in testing and flushing the pipeline shall be purchased from the District.

### **403.15 CUTIN AND CONNECTION TO EXISTING MAINS**

After new waterline is flushed, pressure tested and disinfected, but prior to any cut-in and connects, Contractor shall hold an onsite pre-connection meeting. Those to attend shall include onsite foreman, District Inspector, District Operations Personnel, and District Engineer.

This meeting shall take place prior to each connection and no longer than 1 week prior to the connection. At this meeting, Contractor shall have all fittings, pipe, chlorine swabbing equipment, pumps and hoses,

and all equipment needed to make the cut-in connect. Cut-in schedule and shutdown coordination shall be discussed.

Once the bacteria test has been passed, cut-ins and connections to the existing water system shall be made by the Contractor. All fittings necessary for the cut-in and pumps adequate to handle water in the trench shall be on hand and ready for service before connection is commenced. If the new waterline is opened to the air before Contractor and District personnel are ready to proceed with the connection, or if new waterline is contaminated by dirt or dirty water, the new waterline shall be disinfected again.

Fittings and pipe for cut-ins shall be swabbed out thoroughly with a 1% chlorine solution (½ pound of 64% calcium hypochlorite in 4 gallons of water). Swabbing equipment and solution shall be kept clean and fresh.

During each connection, work shall proceed without breaks until the connection is completed and water service is turned back on. Ground water shall not be allowed around any of the existing piping during the connection.

After the connection is completed and water service is turned back on, a visual leak inspection of all fittings shall be done by the Inspector prior to backfilling.

### **403.16 CLAY DAMS**

Where indicated on the plans, or as directed by the District Engineer, the Contractor shall place clay dams to prevent ground water movement along the trench. Dams shall be made of impervious backfill material composed of particles at least 50% of which pass a no. 200 sieve, and with a plasticity index not less than 20, unless otherwise indicated on the plans.

A dam shall fill the trench completely from side to side and top to bottom, except for the volume occupied by the pipeline and any materials required for surface restoration. Pipe in contact with clay dam will be wrapped with 2 layers of 8-mil polyethylene.

Flow shall be considered in design of water and storm drain system.

### **END OF DIVISION**

# OAK LODGE


WATER SERVICES

## SEWER SYSTEM STANDARD DETAILS INDEX

STANDARD DETAILS

300	INDEX
301	CONSTRUCTION NOTES
302	TYPICAL TRENCH DETAIL
303	MANHOLE-TYPICAL
304	MANHOLE - FLAT TOP
305	POURED-IN-PLACE SADDLE MANHOLE BASE SHEET 1 OF 2
306	POURED-IN-PLACE SADDLE MANHOLE BASE SHEET 2 OF 2
307	PRECAST MANHOLE BASE
308	FRAME & COVER (STANDARD)
309	FRAME & COVER (SUBURBAN)
310	FRAME & COVER (SECURE / WATERTIGHT)
311-319*	NOT USED
320	SERVICE CONNECTION TO MANHOLE
321	SERVICE CONNECTION TO MANHOLE - INSIDE DROP
322	MANHOLE - OUTSIDE DROP
323	SERVICE LATERAL
324	HOUSE / PUBLIC SEWER MAIN CONNECTION -TYPICAL
325	6" TAP ON AN EXISTING 8" MAIN LINE

\* PLACEHOLDER FOR FUTURE DETAILS

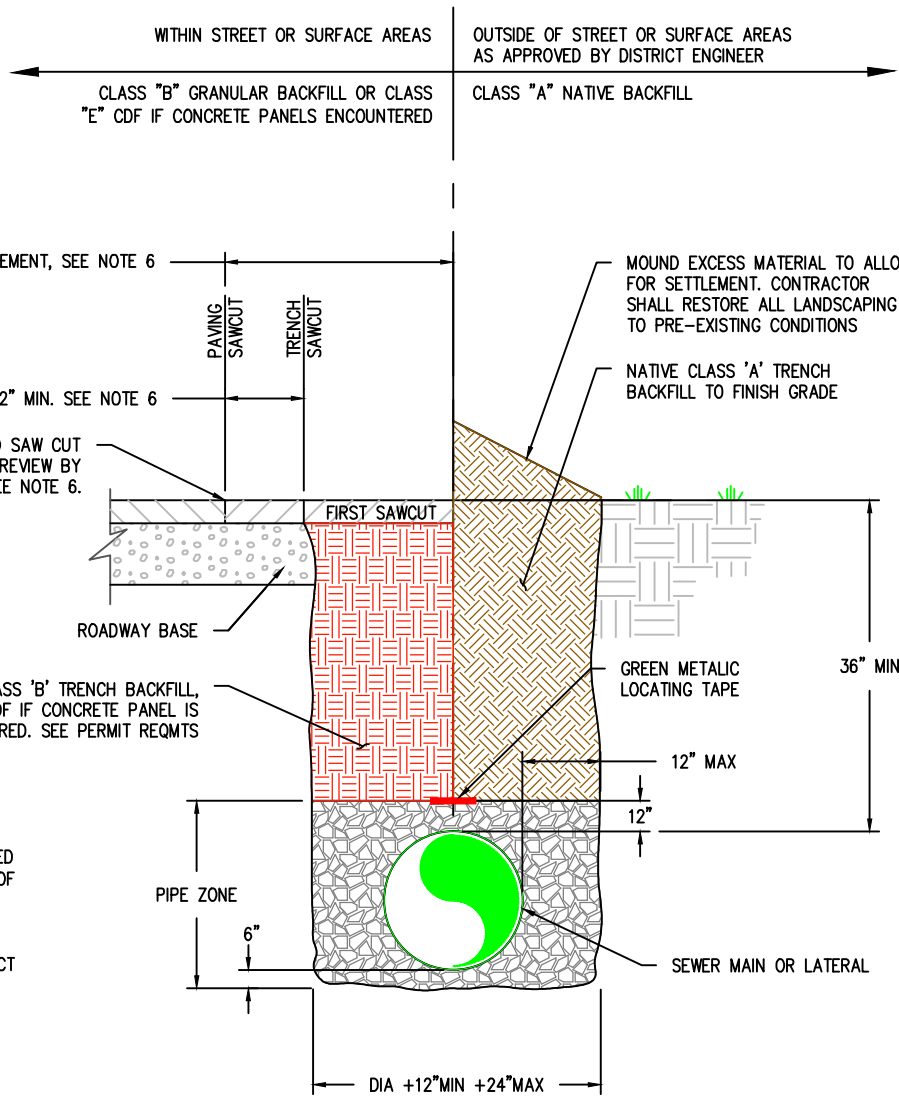
 <p><b>OAK LODGE</b> WATER SERVICES</p> <p>SANITARY SYSTEM STANDARD DRAWING</p>	<p>SANITARY SEWER SYSTEM STANDARD DRAWING INDEX</p>				<p>DRAWING NO.</p> <h1>300</h1>
	NO.	REVISIONS	DATE	BY	APPROVED
	1				
	2				
	3				
4				DISTRICT ENGINEER	
					<p>DATE: 9/12/2017</p> <p>SCALE: NTS</p>



NOTES:

1. CONSTRUCTION OF IMPROVEMENTS SHALL BE IN ACCORDANCE WITH OAK LODGE WATER SERVICES (OLWS a.k.a. DISTRICT) DEVELOPER EXTENSION AGREEMENT (as applicable), DISTRICT STANDARD DETAILS AND THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, MOST CURRENT EDITION, AS ISSUED BY THE OR. STATE DEPT. OF TRANSPORTATION.
2. A PRE-CONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION AND 48 HOURS ADVANCE NOTIFICATION OF THE LOCAL MUNICIPALITY, OLWS AND ALL AFFECTED UTILITY COMPANIES PRIOR TO THE ACTUAL START OF WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE PROVISIONS OF THE ROAD OPENING PERMIT AS ISSUED BY CLACKAMAS COUNTY.
4. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY, LOCATE AND PROTECT ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR REPAIRING ANY UTILITIES DAMAGED DURING CONSTRUCTION. SHOW THESE UTILITIES ON THE AS-BUILTS. IF A UTILITY IS DAMAGED, THE CONTRACTOR SHALL NOTIFY THE AFFECTED UTILITY COMPANY IMMEDIATELY.
5. WATER MAIN TRENCH SECTION AND ALL EXCAVATED AREAS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS, THE ROAD OPENING PERMIT, AND WITH SECTION 01140.40 OF THE STANDARD SPECIFICATIONS. COMPACTION TESTING SHALL BE REQUIRED DURING BACKFILLING OPERATIONS WITHIN ALL ROADWAYS AND AT THE DISCRETION OF THE DISTRICT. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RECOMPACT AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.
6. RESTORATION OF DAMAGED ROAD SURFACING SHALL BE IN ACCORDANCE WITH CLACKAMAS COUNTY REQUIREMENTS. ALL OTHER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR AS DIRECTED BY THE DISTRICT. THIS INCLUDES SHOULDERS, LANDSCAPING, WALLS, DRIVEWAYS, FENCES AND OTHER IMPROVEMENTS.
7. POLYVINYL CHLORIDE PIPE (PVC) SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-3034, SDR 35, AND JOINT TYPE SHALL BE ELASTOMERIC GASKET CONFORMING TO ASTM D-3212.
8. MANHOLES TO BE PRECAST CONCRETE SECTIONS WITH MINIMUM INSIDE DIAMETER OF 48-INCHES, CONFORMING TO THE REQUIREMENTS OF ASTM C-478, EXCEPT AS NOTED ON THE PLANS. POURED IN PLACE MANHOLES MAY BE SUBSTITUTED.
9. POLYVINYL CHLORIDE PIPE (PVC) SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS. PVC SEWER PIPE SHALL BE CONNECTED TO CONCRETE MANHOLES BY MEANS OF AN APPROVED COUPLING WITH AN ELASTOMERIC GASKET, AN APPROVED WATERSTOP OR FLEXIBLE SLEEVE. USE OF PORTLAND CEMENT GROUT FOR CONNECTION OF PVC SEWER PIPE TO MANHOLES WILL NOT BE PERMITTED.
10. AFTER THE CONTRACTOR HAS BACKFILLED THE PIPE ZONE OF THE TRENCH AS REQUIRED, HE SHALL THEN BACKFILL THE BALANCE OF THE TRENCH, WITH THE TYPE OF BACKFILL SPECIFIED, IN ONE FOOT (1') LAYERS, MECHANICALLY COMPACTING EACH LAYER TO 95% OF MAXIMUM DENSITY IN ROADWAYS AND 85% TO 90% IN ALL OTHER AREAS. MAXIMUM RELATIVE DENSITY SHALL BE DETERMINED PER AASHTO T-180. IN PLACE, DENSITY SHALL BE DETERMINED PER AASHTO T-191, T-205 OR T-238. ANY SUBSEQUENT SETTLEMENT OF THE TRENCH OR DITCH DURING THE GUARANTEE PERIOD SHALL BE CONSIDERED TO BE THE RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE DISTRICT OR THE OWNER.
11. SANITARY SEWER PIPE AND APPURTENANCES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH OLWS STANDARDS. LEAKAGE TESTS INCLUDE AN AIR TEST OF THE SEWER MAINS AND SERVICE CONNECTIONS AND A WATER EXFILTRATION TEST OR VACUUM TEST OF THE MANHOLES. ANY PORTION OF THE SEWER WHICH FAILS TO PASS THESE TESTS SHALL BE EXCAVATED, REPAIRED OR REALIGNED, AND RETESTED. IN ADDITION TO HYDROSTATIC OR AIR TESTING, SANITARY SEWERS CONSTRUCTED OF PVC SEWER PIPE SHALL BE DEFLECTION TESTED NO LESS THAN 30-DAYS AFTER THE TRENCH BACKFILL AND COMPACTION HAS BEEN COMPLETED. THE TEST SHALL BE CONDUCTED BY PULLING AN APPROVED SOLID POINTED MANDREL 95% OF THE INSIDE DIAMETER THROUGH THE PIPELINE ON A MANHOLE TO MANHOLE BASIS.
12. UNLESS OTHERWISE SPECIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER, EACH SERVICE CONNECTION SHALL BE LAID IN A SEPARATE TRENCH ON A STRAIGHT LINE AND GRADIENT FROM THE TEE TO THE END OF THE SERVICE CONNECTION. AT THE PROPERTY LINE THE SERVICE CONNECTION SHALL BE AT LEAST 6 FEET BELOW THE GRADE OF THE STREET CENTER LINE. NO SERVICE CONNECTION SHALL BE LAID ON A SLOPE OF LESS THAN TWO PERCENT, UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR SHOWN ON THE PLANS. THE ENGINEER WILL PROVIDE A CUT STAKE AT THE TERMINAL POINT OF EACH SERVICE CONNECTION. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, THE CONTRACTOR WILL USE A GRADING LINE TO LAY THE PIPE AND THE SERVICE CONNECTION SHALL BE INSTALLED WITH THE SAME ACCURACY AS THE MAIN SEWER. EACH SERVICE CONNECTION SHALL BE PLUGGED WITH A RUBBER RING PLUG. A 2 X 4 MARKER PAINTED GREEN SHALL BE PLACED AT THE END OF EACH SERVICE CONNECTION, AND SHALL EXTEND FROM THE END OF THE PIPE TO A POINT ONE FOOT (1') ABOVE THE SURFACE OF THE GROUND. A DETECTABLE GREEN MAGNETIC TAPE ("THORDURATEC SAFETY GREEN SANITARY SEWER RIBBON OR EQUAL") WITH THE WORD "SEWER" AT REGULAR INTERVALS SHALL BE PLACED ALONG THE SERVICE CONNECTION FROM THE MAINLINE TEE TO THE GROUND SURFACE.
13. IN EASEMENT AREAS ALL MANHOLES SHALL HAVE TAMPER-PROOF LIDS PER OLWS SPECIFICATIONS, OR APPROVED EQUAL.
14. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE AND MAINTAIN AMPLE MEANS AND DEVICES TO REMOVE AND DISPOSE OF ALL WATER ENTERING THE TRENCH EXCAVATION DURING THE PROCESS OF LAYING THE PIPE. WATER AND DEBRIS SHALL NOT ENTER INTO THE DISTRICT'S SEWER SYSTEM. WATER AND DEBRIS SHALL BE DISPOSED OF IN AN APPROVED MANNER.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

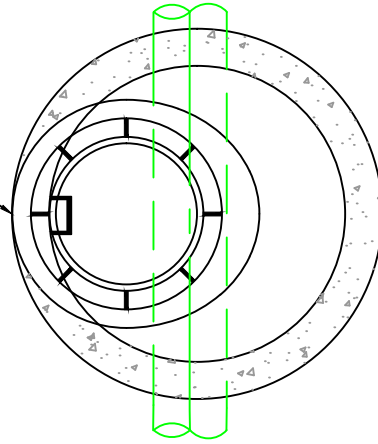


**NOTES:**

1. PIPE ZONE MATERIAL SHALL BE 3/4"-0" CRUSHED ROCK GRANULAR BACKFILL COMPACTED TO 95% OF AASHTO T-99.
2. CLASS "A" NATIVE BACKFILL MAY ONLY BE USED OUTSIDE OF PAVED AREAS AND REQUIRES DISTRICT APPROVAL. BACKFILL SHALL BE COMPACTED TO 90% OF AASHTO T-99 IN LIFTS NOT EXCEEDING 18" (LOOSE MEASURE).
3. CLASS "B" 3/4"-0" CRUSHED ROCK GRANULAR BACKFILL SHALL BE USED WITHIN PAVED AREAS. BACKFILL SHALL BE COMPACTED TO 95% OF AASHTO T-99.
4. BACKFILL SHALL BE PLACED AND COMPACTED IN A MAXIMUM OF 24-INCH LIFTS. COMPACTION TESTING REQUIRED AT A FREQUENCY OF 1 TEST EVERY 100 FEET OF TRENCH.
5. RESURFACING TO BE MINIMUM 4 INCHES 1/2-INCH LEVEL 2 HMAC (PG 64-22) OR MATCH EXISTING, WHICHEVER IS GREATER.
6. SAWCUT WIDTH AND AC PAVEMENT REPLACEMENT SHALL BE PER APPLICABLE JURISDICTIONAL REQUIREMENTS. SAWCUT CLEAN EDGE FOR AC PAVEMENT REPLACEMENT. SAND SEAL JOINT.
7. PROVIDE CLASS "E" CDF BACKFILL FOR ALL TRENCH CROSSINGS LOCATED IN VEHICLE TRAVEL LANES OF ARTERIAL & COLLECTOR STREETS, OR WHERE CONCRETE PANELS ARE ENCOUNTERED. IF THESE SPECIFICATIONS CONFLICT WITH THE SPECIFICATIONS OF ANOTHER APPLICABLE JURISDICTION, THE MORE STRINGENT SPECIFICATION SHALL GOVERN.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

LOCATE FRAME AND COVER OVER LEDGE OF AT LEAST 12" IN WIDTH

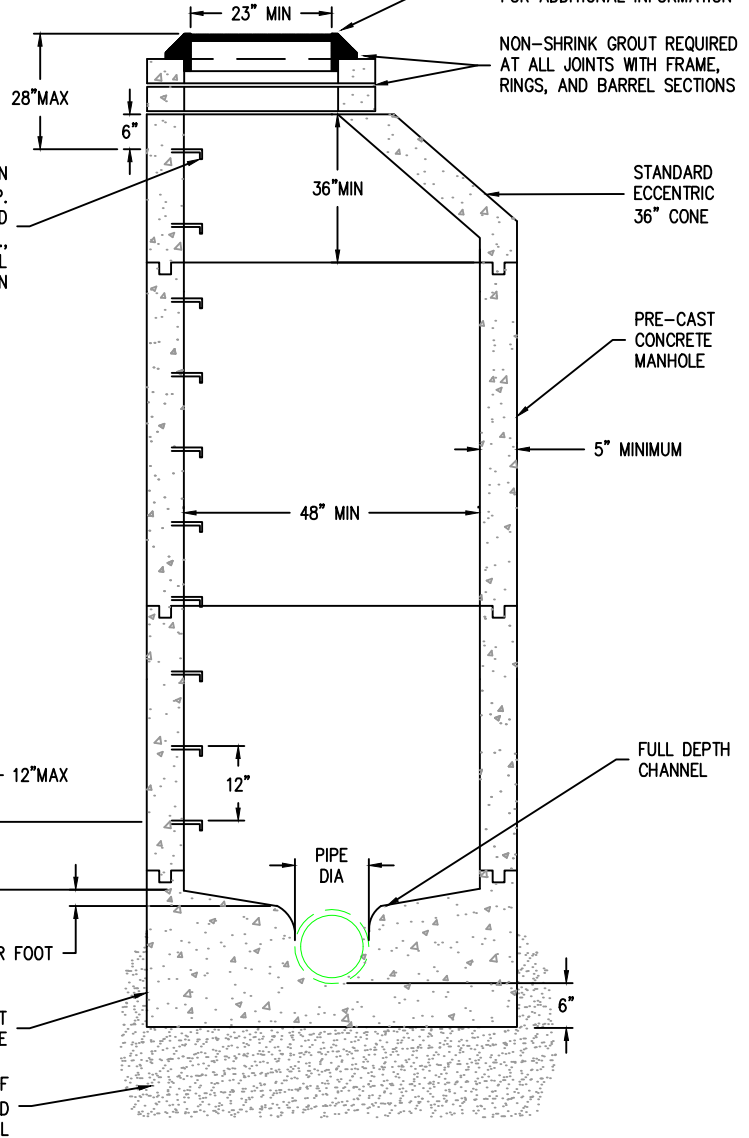


PLAN

MANHOLE FRAME MUST BE FLUSH WITH ROADWAY WITHOUT THE USE OF PAVING RINGS, SEE NOTE 5 FOR ADDITIONAL INFORMATION

NON-SHRINK GROUT REQUIRED AT ALL JOINTS WITH FRAME, RINGS, AND BARREL SECTIONS

POLYETHYLENE STEPS W/ IRON REINFORCEMENT, 8"x12" WIDE, 2" DROP. LOCATE FIRST STEP OVER SHELF AND INSTALL W/ 3" IMBED AT 12" O.C., TYP., U.N.O., SEE NOTE 6 FOR ADDITIONAL INFORMATION



SECTION

NOTES:

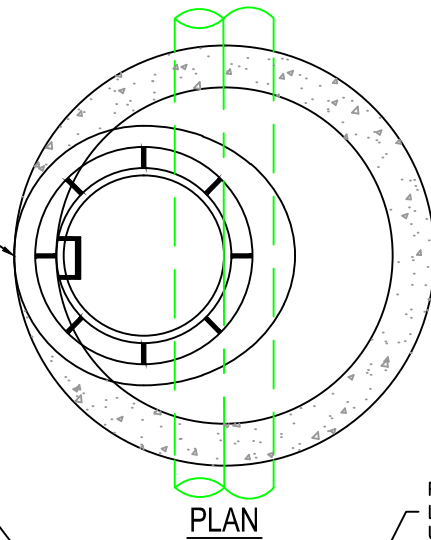
1. MANHOLE LID TO BE FLUSH WITH ROADWAY OR 6" ABOVE FINISH GRADE IN EASEMENTS UNLESS OTHERWISE SPECIFIED.
2. SHELF SHALL NOT BE BELOW THE SPRING LINE OF THE PIPE.
3. STRUCTURE OPENINGS TO BE PRE-CAST OR CORE DRILLED ONLY.
4. ALL PRE-CAST MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
5. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.
6. STEPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478. MANHOLE STEPS MUST BE TIGHT AND FIRMLY EMBEDDED. ALL STEPS WITHIN A MANHOLE SHALL BE OF THE SAME DESIGN, TYPE, AND (MIXING OF UNMATCHED STEPS IS NOT PERMITTED). MANHOLES UNDER 3' DEEP DO NOT REQUIRE STEPS.
7. ALL PIPE CONNECTIONS TO MANHOLE SHALL BE WATERTIGHT.
8. CHANNEL MUST HAVE A MINIMUM OF 0.2' DROP BETWEEN INLET AND OUTLET.
9. CHANNELS MUST BE ABLE TO PASS A 7"x30" CYLINDER INTO PIPES.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

LOCATE FRAME AND COVER OVER LEDGE OF AT LEAST 12" IN WIDTH

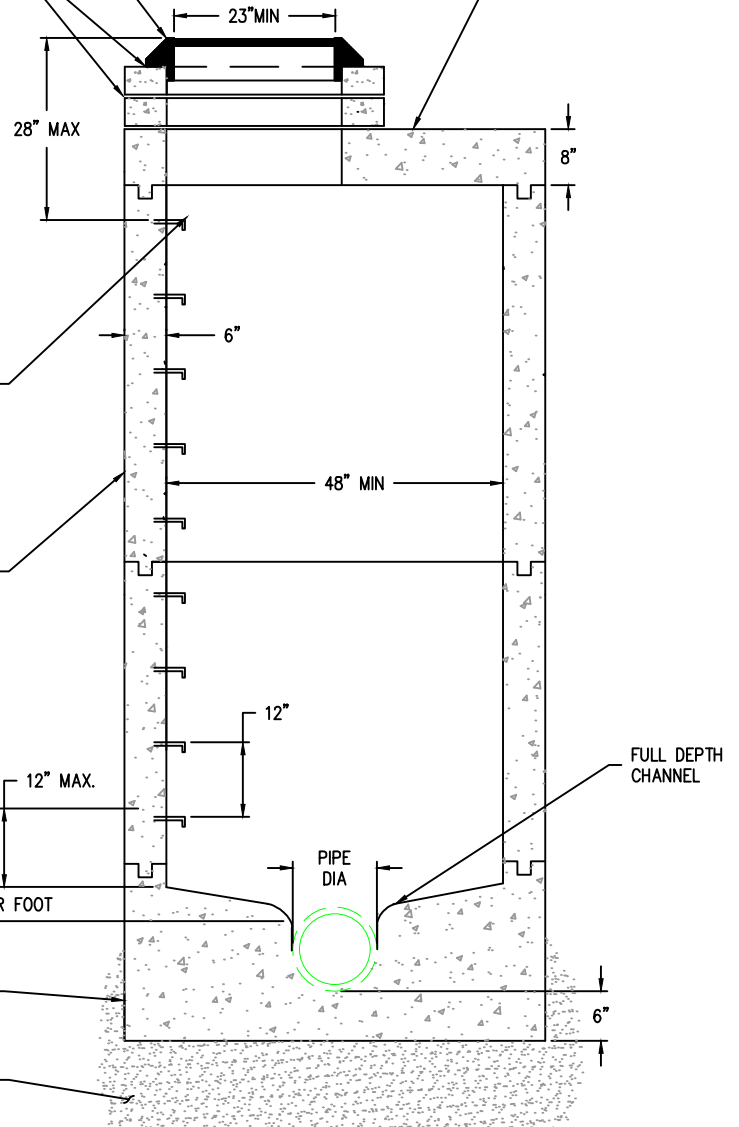
MANHOLE FRAME MUST BE FLUSH WITH ROADWAY WITHOUT THE USE OF PAVING RINGS, SEE NOTE 7 FOR ADDITIONAL INFORMATION

NON-SHRINK GROUT REQUIRED AT ALL JOINTS WITH FRAME, RINGS, AND BARREL SECTIONS



PLAN

PRE-CAST CONCRETE FLAT LID W/ ECCENTRIC OPENING, U.N.O., SEE NOTE 11



SECTION

NOTES:

1. FLAT TOP IS REQUIRED WHEN HEIGHT FROM SHELF TO TOP OF LAST BARREL SECTION IS 4' OR LESS.
2. SHELF SHALL NOT BE BELOW THE SPRING LINE OF THE PIPE.
3. STRUCTURE OPENINGS TO BE PRE-CAST OR CORE DRILLED ONLY.
4. ALL PRE-CAST MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
5. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.
6. STEPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478. MANHOLE STEPS MUST BE TIGHT AND FIRMLY EMBEDDED. ALL STEPS WITHIN A MANHOLE SHALL BE OF THE SAME DESIGN, TYPE, AND (MIXING OF UNMATCHED STEPS IS NOT PERMITTED.) MANHOLES UNDER 3' DEEP DO NOT REQUIRE STEPS.
7. MANHOLE LID TO BE 6" ABOVE FINISH GRADE IN EASEMENTS UNLESS OTHERWISE SPECIFIED.
8. ALL PIPE CONNECTIONS TO MANHOLE SHALL BE WATERTIGHT.
9. CHANNEL MUST HAVE A MINIMUM OF 0.2' DROP BETWEEN INLET AND OUTLET.
10. CHANNELS MUST BE ABLE TO PASS A 7"x30" CYLINDER INTO PIPES.
11. CONCENTRIC LID REQUIRED WHEN HEIGHT FROM SHELF TO TOP OF LAST BARREL SECTION IS 3' OR LESS.

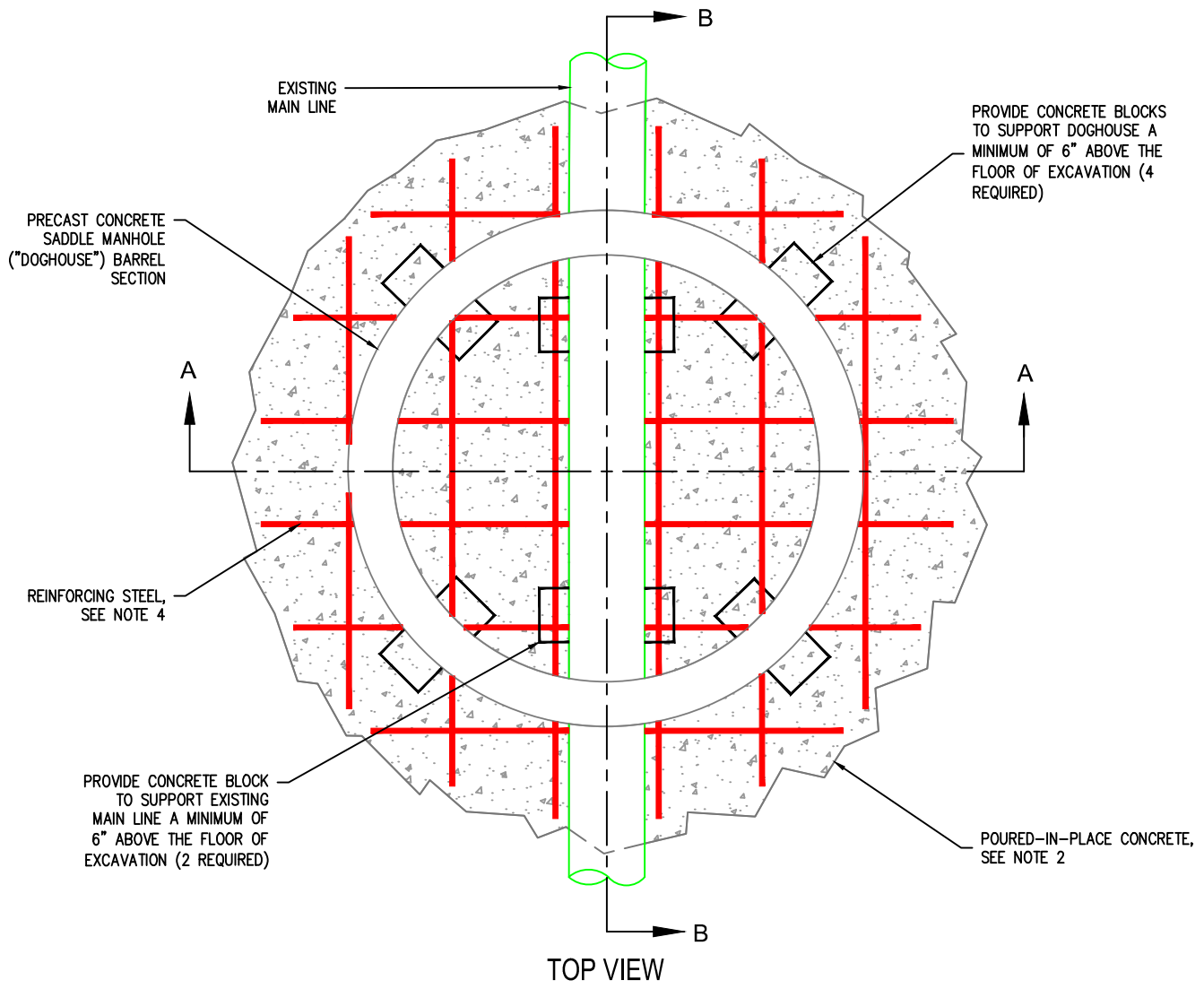
POLYETHYLENE STEPS W/ IRON REINFORCEMENT, 8"x12" WIDE, 2" DROP. LOCATE FIRST STEP OVER SHELF AND INSTALL W/ 3" IMBED AT 12" O.C., TYP., U.N.O., SEE NOTE 6 FOR ADDITIONAL INFORMATION

REINFORCED PRE-CAST CONCRETE MANHOLE

PRE-CAST CONCRETE BASE

12" MINIMUM OF 3/4"-0" COMPACTED BASE MATERIAL

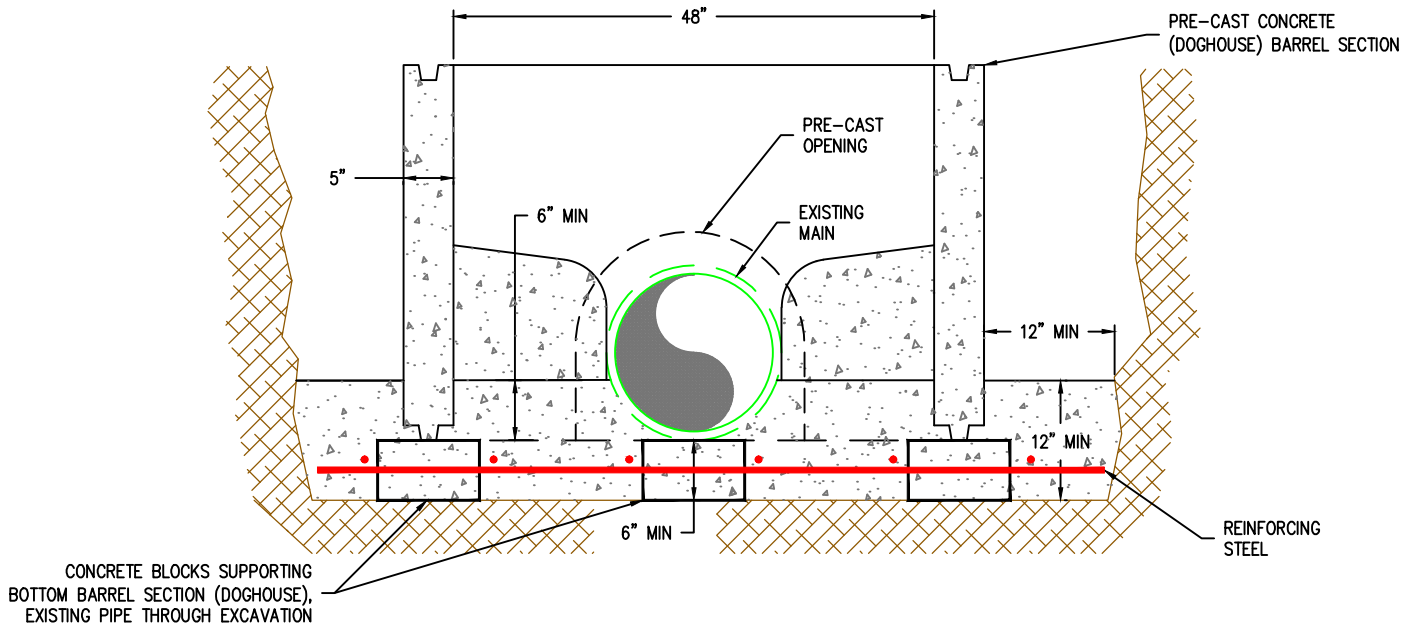
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



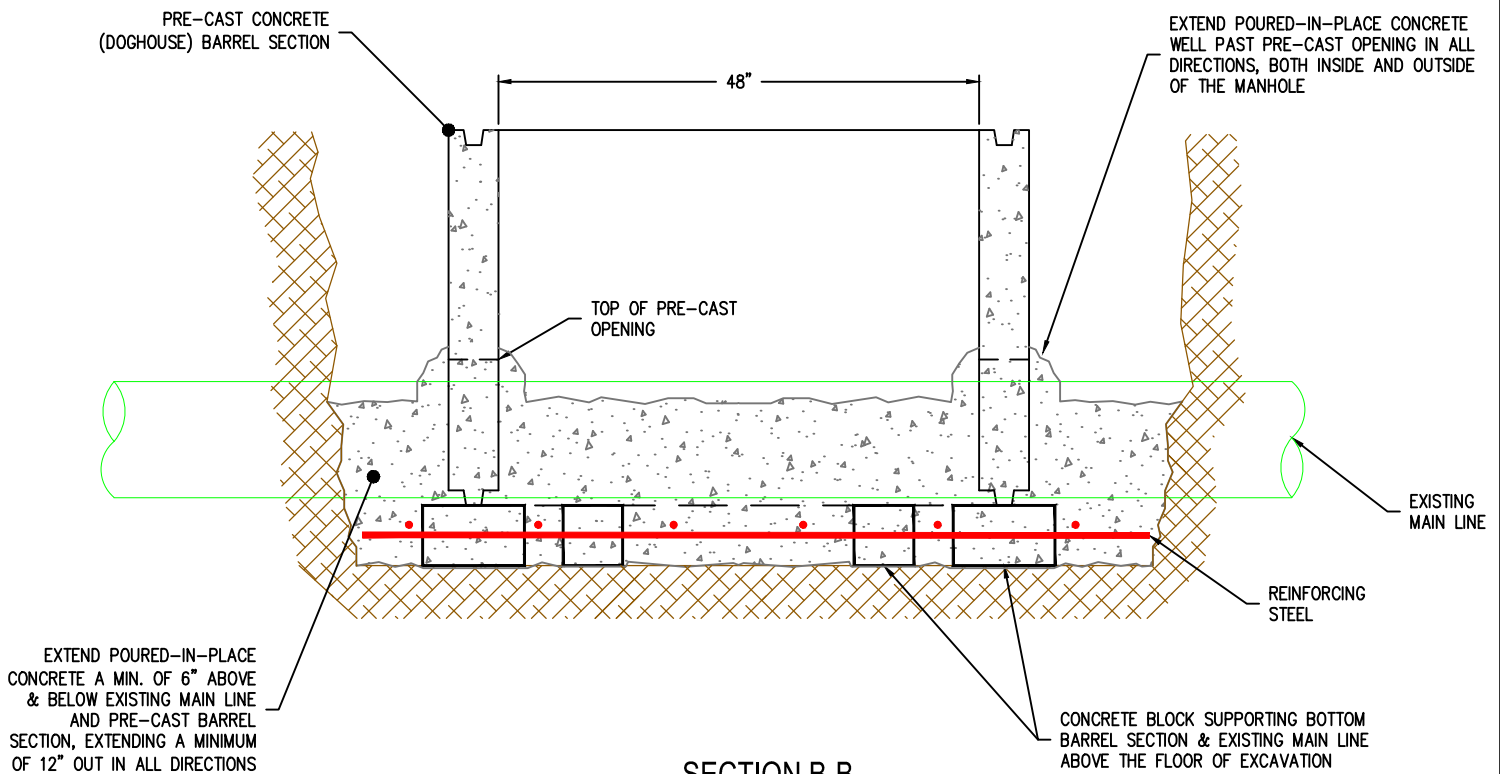
TOP VIEW

1. POURED-IN-PLACE BASE IS ALLOWED ONLY FOR NEW MANHOLES CONSTRUCTED OVER EXISTING MAIN LINES. ALL OTHER MANHOLE BASES MUST BE PRE-CAST UNITS.
2. A MINIMUM OF 6" OF POURED-IN-PLACE CONCRETE MUST BE PROVIDED UNDER ALL PARTS OF THE EXISTING MAIN AND UNDER THE BOTTOM OF THE DOGHOUSE. THIS CONCRETE MUST EXTEND 12" OUTSIDE OF THE MANHOLE WALL IN ALL DIRECTIONS AND MUST EXTEND 6" ABOVE THE BOTTOM OF THE DOGHOUSE BOTH INSIDE AND OUTSIDE THE MANHOLE.
3. THE POURED CONCRETE MUST HAVE A MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD AND MEET A MINIMUM 3000 psi COMPRESSION TEST AFTER 28 DAYS.
4. REINFORCING SHALL BE #5 REBAR AT 12" ON CENTER, EACH WAY, OR TWO (2) MATS OF 6 x 6 x 10 GAUGE SHEET MESH. CENTER REINFORCING WITHIN POURED-IN-PLACE CONCRETE SLAB WITH 3" COVER.
5. THE DIAMETER OF THE PRE-CAST OPENINGS IN THE DOGHOUSE CAN BE NO MORE THAN 6" GREATER THAN THE OUTSIDE DIAMETER OF THE EXISTING MAIN. THE DOGHOUSE SHALL BE PLACED SO THAT THE EXISTING MAIN IS CENTERED IN THE OPENING.
6. IF THE EXISTING MAIN IS PVC OR HDPE, SANDED COLLARS MUST BE INSTALLED ON THE MAIN AND CENTERED IN THE PRE-CAST OPENINGS.
7. PIPE CONNECTIONS MUST BE MADE TO THE PRE-CAST OR CORED HOLES WITH KOR-N-SEAL BOOTS OR EQUIVALENT WHENEVER POSSIBLE. SANDED COLLARS WILL BE ACCEPTED ONLY WHEN THEY ARE POURED INTO THE MANHOLE BASE.
8. THE ANNULAR SPACES BETWEEN THE EXISTING MAIN AND THE PRE-CAST OPENINGS MUST BE FILLED WITH CONCRETE WHICH EXTENDS WELL BEYOND THE OPENINGS IN ALL DIRECTIONS, BOTH INSIDE AND OUTSIDE OF THE MANHOLE.
9. NOTE THAT THE TOP OF EXISTING MAIN IS NOT TO BE "CUT OUT" UNTIL A MANHOLE VACUUM TEST HAS BEEN WITNESSED AND APPROVED BY THE OLWS INSPECTOR. THE OPENING IN THE PIPE IS TO BE NEATLY FINISHED AND SHALL BE SIZED TO ALLOW A 7" x 30" CYLINDER TO PASS INTO ALL PIPES.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

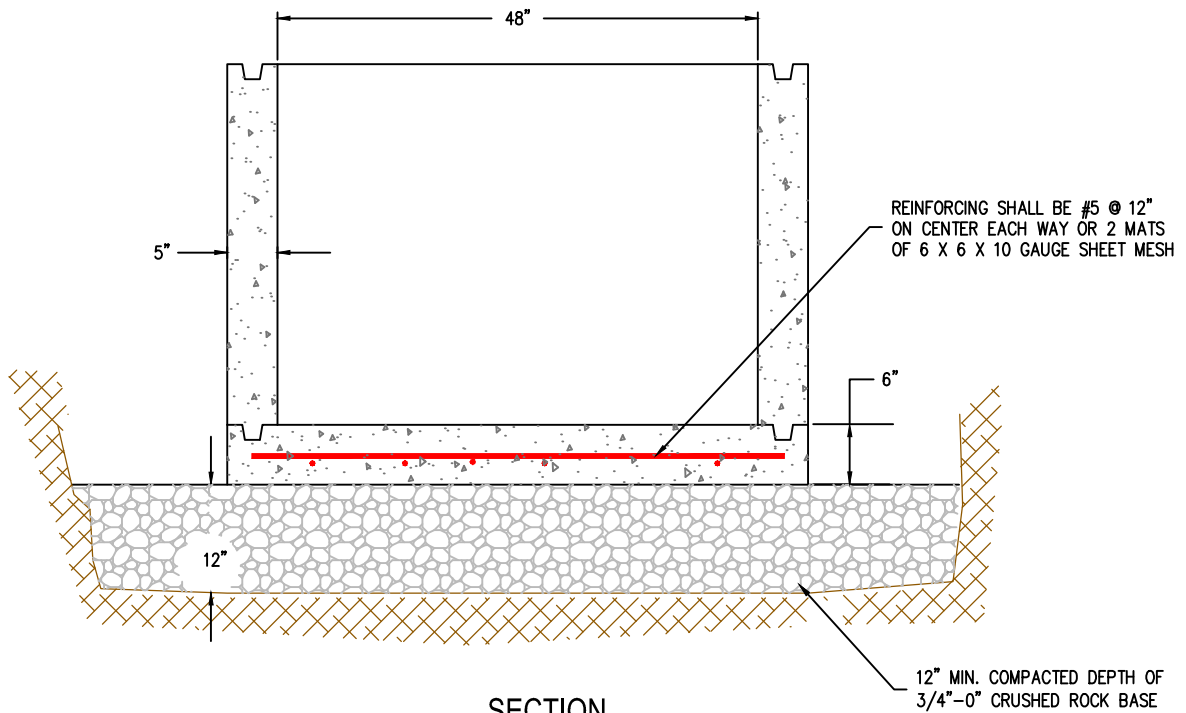


**SECTION A-A**



**SECTION B-B**

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

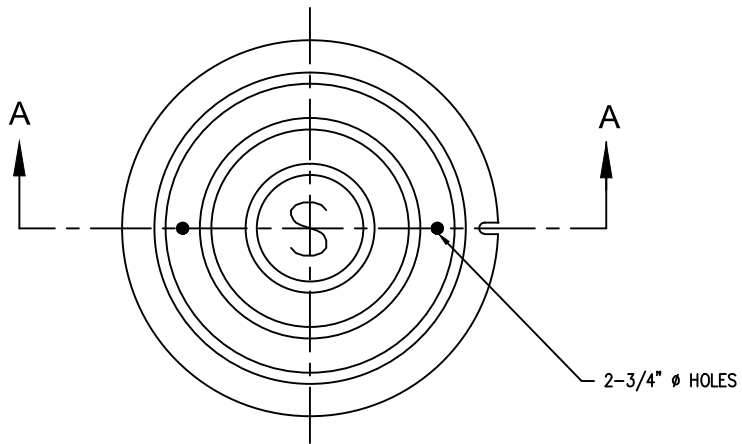


SECTION

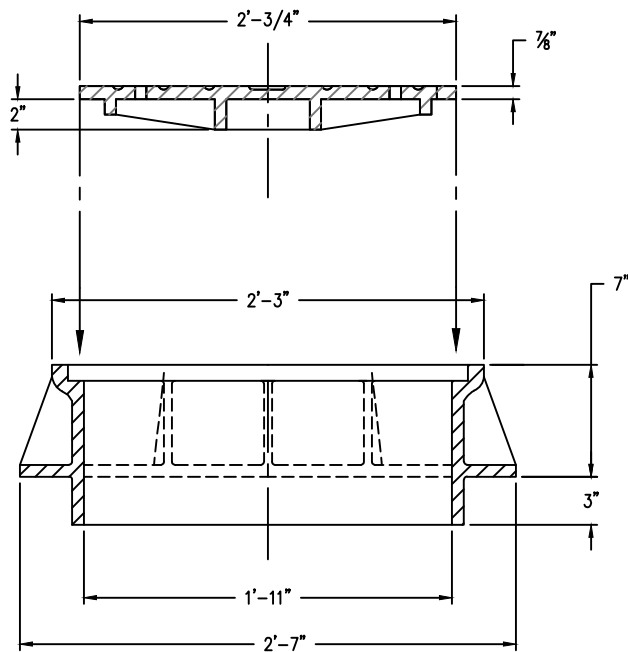
NOTES:

1. ALL MANHOLE BASE SECTIONS SHALL BE PRE-CAST CONCRETE, EXCEPT THOSE LOCATED OVER EXISTING MAIN LINES.
2. PIPE CONNECTIONS MUST BE MADE TO PRE-CAST OR CORED HOLES WITH A KOR-N-SEAL BIT OR EQUIVALENT. SANDED COLLARS ARE NOT ACCEPTABLE.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



TOP VIEW



SECTION A-A

NOTES:

1. STANDARD FRAME AND COVER TO BE USED ON COLLECTOR, ARTERIAL, AND INDUSTRIAL STREETS OR AS NOTED ON CONSTRUCTION PLANS.
2. SANITARY COVER WILL HAVE TWO 3/4" Ø HOLES.

**OAK LODGE**

WATER SERVICES

SANITARY SYSTEM STANDARD DRAWING

FRAME & COVER (STANDARD)

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

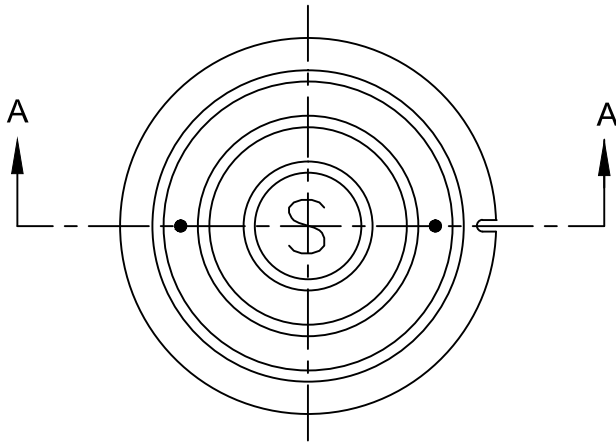
DRAWING NO.

308

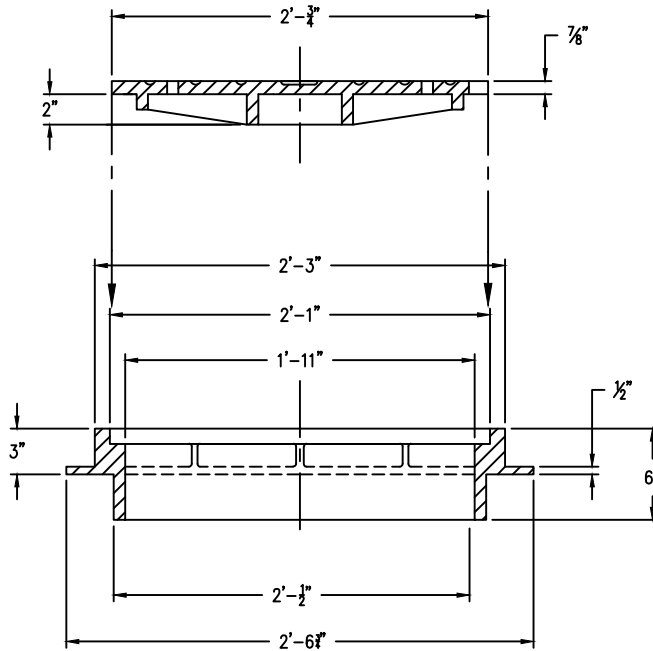
DATE: 9/12/2017

SCALE: NTS





TOP VIEW



SECTION A-A

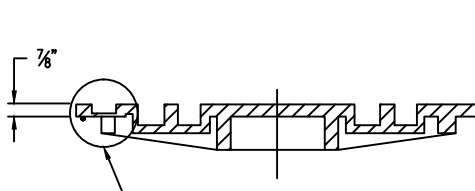
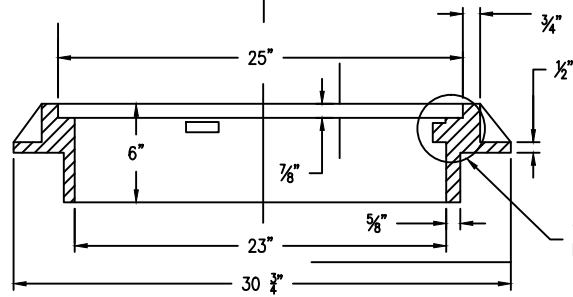
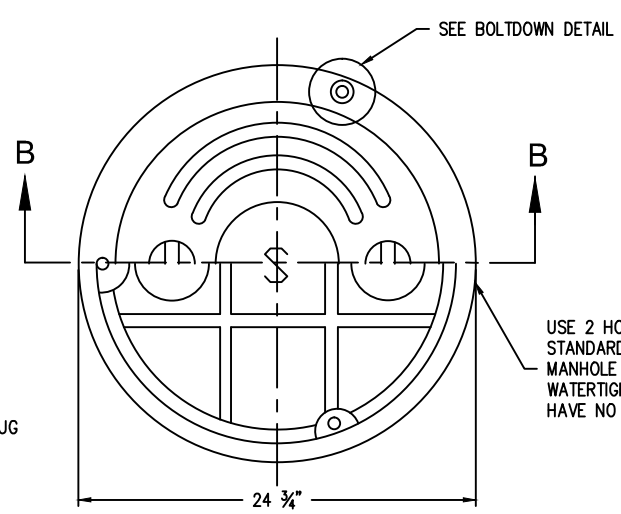
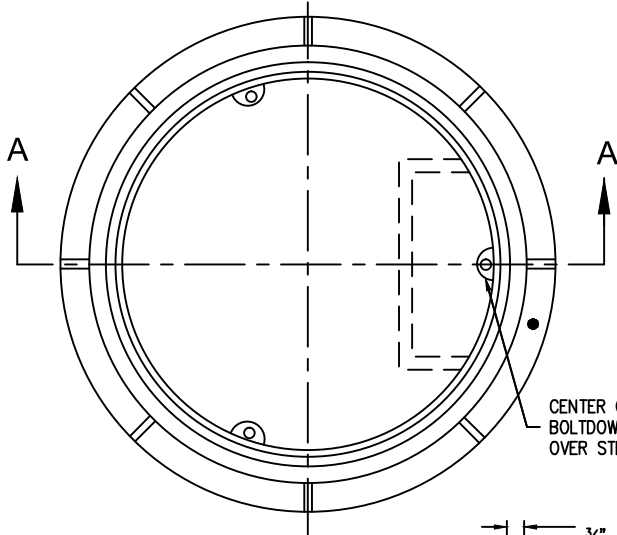
NOTES

1. COVER AND FRAME SHALL BE OF GRAY CAST IRON  
A.S.T.M. A-48 CLASS 30
2. SUBURBAN FRAME & COVER CAN BE USED IN  
EASEMENTS AND SUBDIVISION STREETS EXCEPT  
COLLECTOR, ARTERIAL, AND INDUSTRIAL STREETS, OR  
AS NOTED ON CONSTRUCTION PLANS.
3. SANITARY COVER WILL HAVE TWO 3/4" Ø HOLES.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

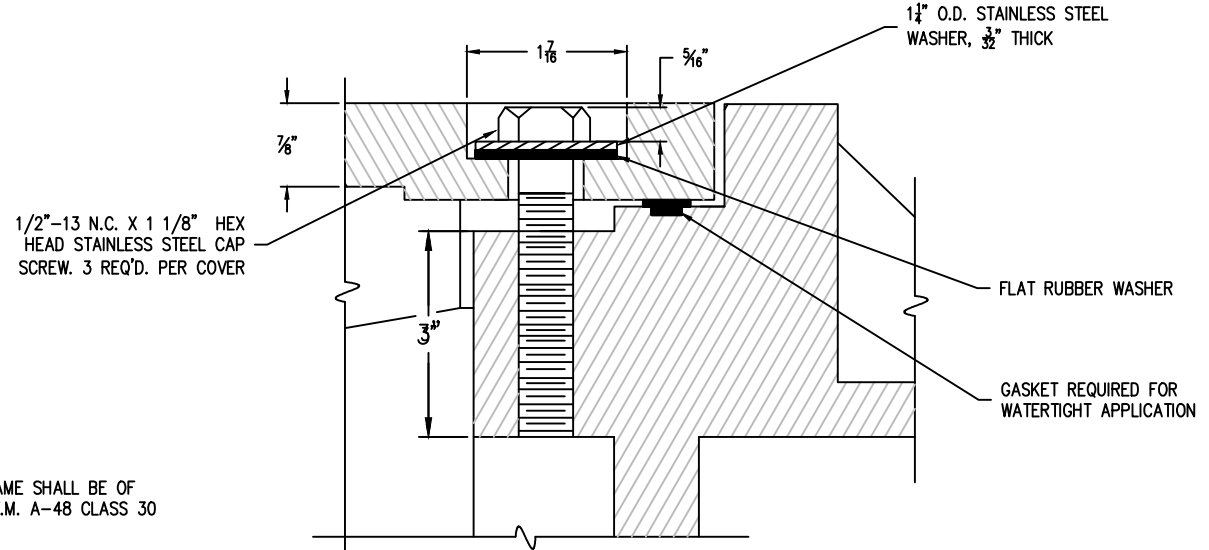
**TAMPERPROOF MANHOLE RING**

**3-BOLTDOWN COVER**



**SECTION A-A**

**SECTION B-B**



**BOLT-DOWN DETAIL**

NOTE: COVER AND FRAME SHALL BE OF GRAY CAST IRON A.S.T.M. A-48 CLASS 30

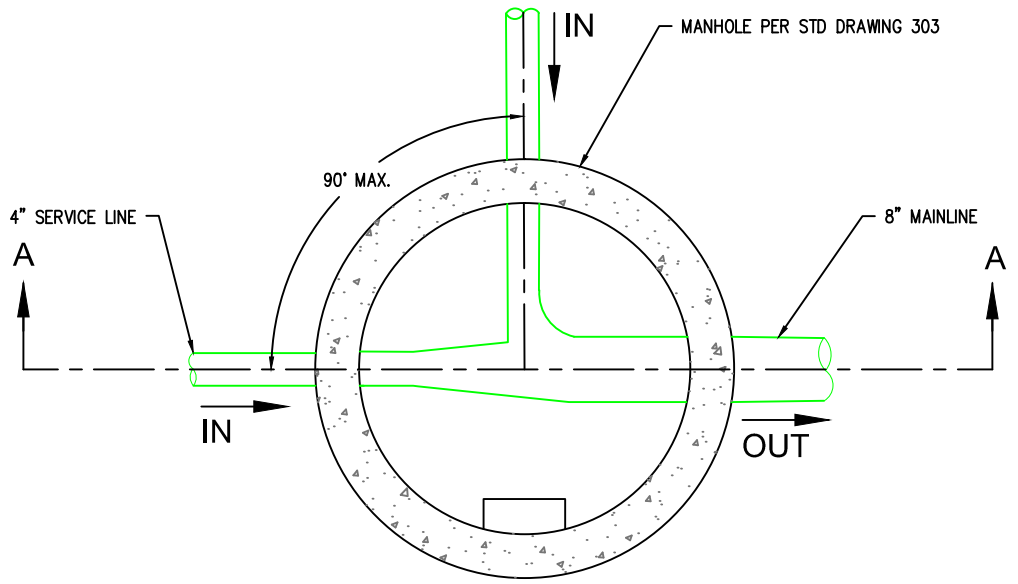
**OAK LODGE**  
 WATER SERVICES  
 SANITARY SYSTEM STANDARD DRAWING

**FRAME & COVER (SECURE / WATERTIGHT)**

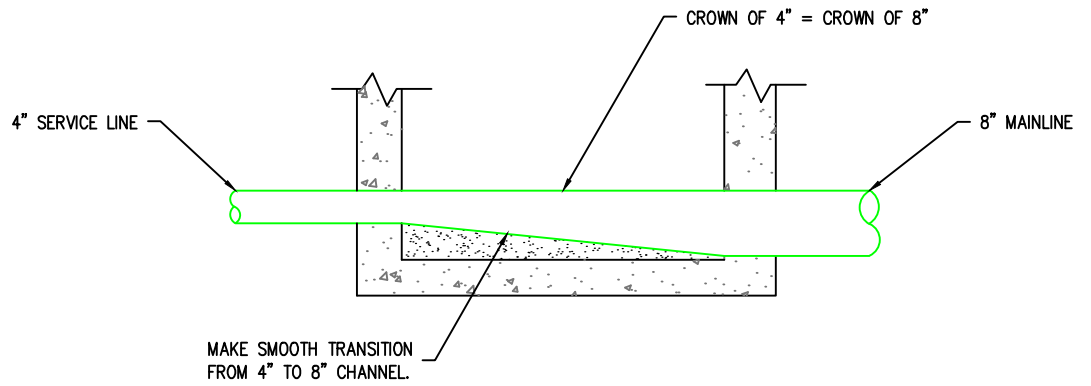
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DRAWING NO.  
**310**

DATE: 9/12/2017  
 SCALE: NTS



PLAN



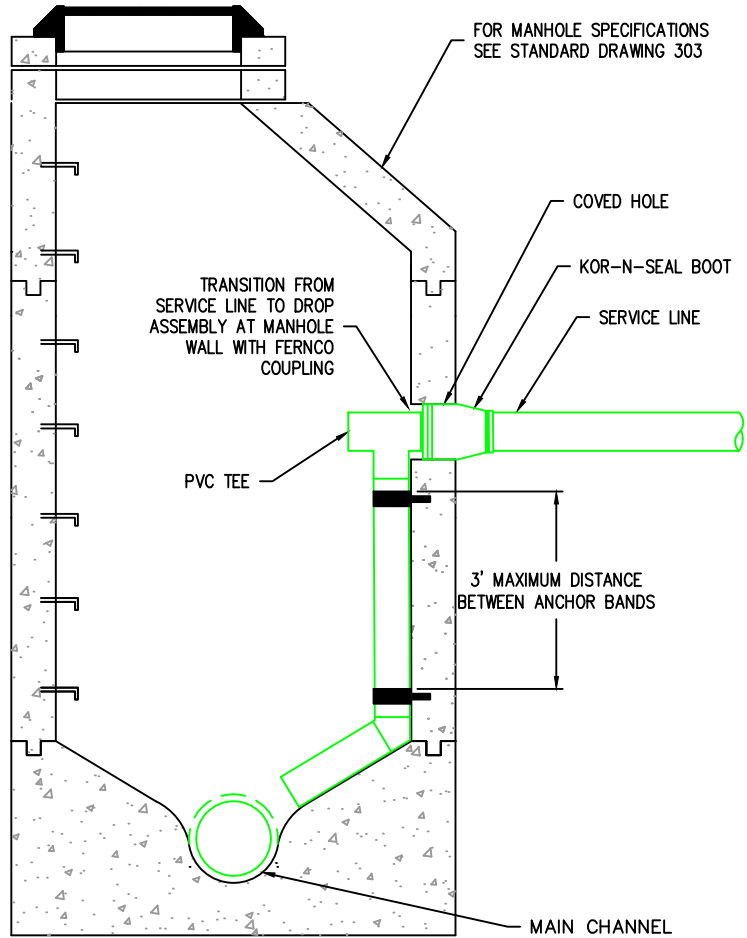
SECTION A-A

NOTES:

1. CHANNEL MANHOLE TO MATCH INLET & OUTLET PIPE DIAMETERS & PROVIDE SMOOTH TRANSITION.
2. MATCH CROWN OF INLET & OUTLET PIPES & CHANNELIZATION.

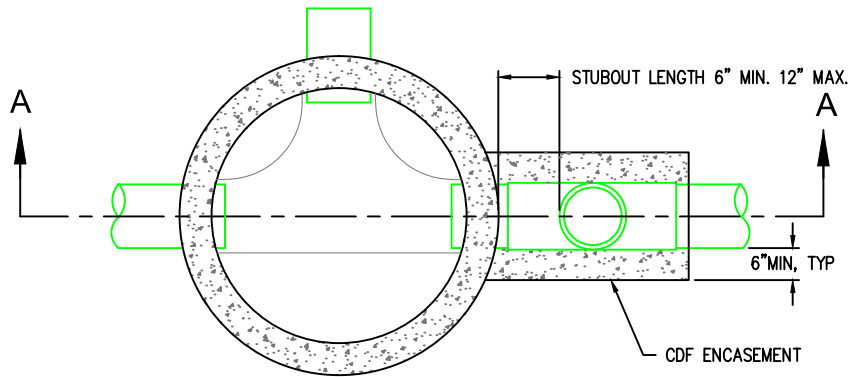
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

1. THE DISTRICT MAY ALLOW INSIDE DROP SERVICE CONNECTIONS AT THE DISCRETION OF THE DISTRICT ENGINEER.
2. INSIDE DROPS MAY BE 4" OR 6" & SHALL BE SIZED TO MATCH THE INFLOW PIPE.
3. THE ENTRY POINT IN THE MANHOLE WALL MUST BE CORE DRILLED.
4. THE SERVICE LATERAL IS TO BE SEALED INTO THE CORED HOLE WITH A KOR-N-SEAL BOOT OR EQUIVALENT.
5. THE SERVICE LATERAL WILL COUPLE DIRECTLY TO A PVC SLIP TEE IN THE MANHOLE TO ALLOW THE DROP PIPE TO CONTACT THE MH WALL FOR ITS ENTIRE LENGTH.
6. THE DROP PIPE, 45° BEND, AND EXTENSION PIPE ARE TO HAVE GLUED JOINTS.
7. THE DROP PIPE EXTENSION MUST CONVEY SEWAGE ALL THE WAY TO THE MAIN CHANNEL.
8. THE DROP PIPE IS TO BE SECURED TO THE MANHOLE WALL BY:
  - STAINLESS STEEL STRAPS MEASURING A MINIMUM OF 1-1/2" WIDE BY 1/8" THICK;
  - STRAP SPACING WILL BE 3' ON CENTER, WITH A MINIMUM OF 2 STRAPS;
  - EACH STRAP WILL BE SECURED TO THE WALL BY A PAIR OF 5/16" STAINLESS STEEL WEDGE ANCHORS.
9. THE ANNULAR SPACE AT THE CORED HOLE IS TO BE GROUTED NEATLY AFTER ASSEMBLY.

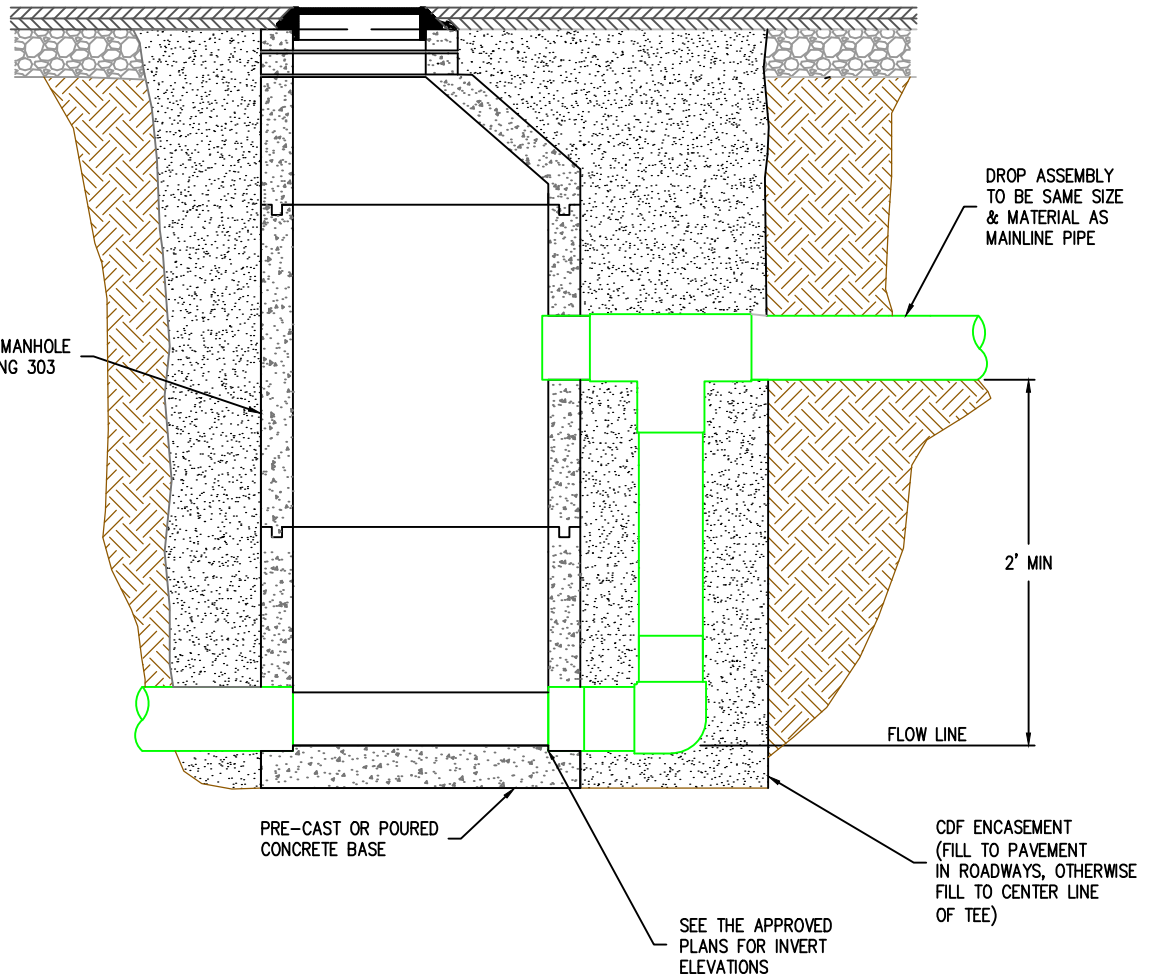


SECTION

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

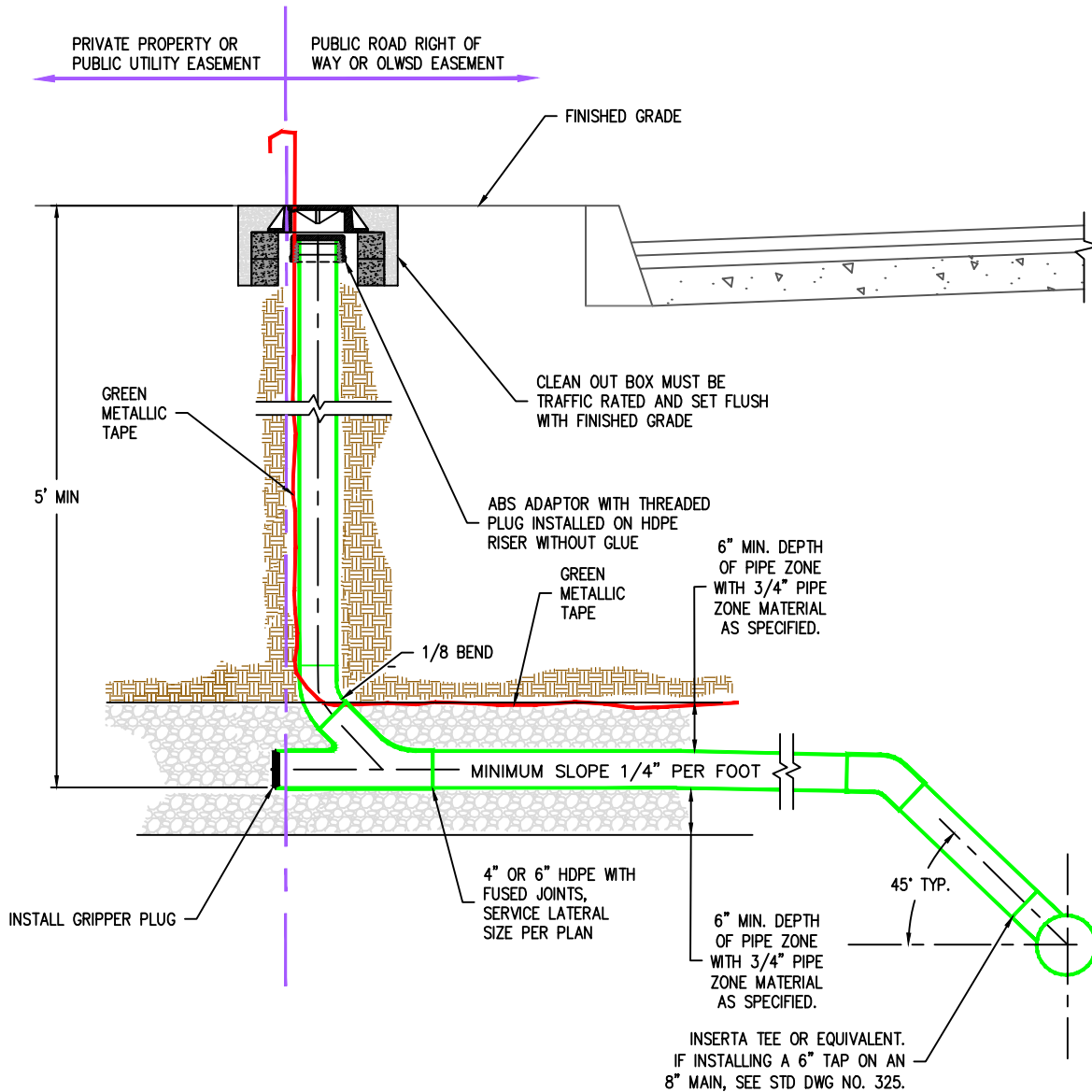


PLAN



SECTION A-A

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



**NOTES:**

1. LATERALS ARE TO BE CONSTRUCTED OF HDPE WITH FUSED JOINTS, INCLUDING THE JOINTS ON THE CLEAN OUT WYE AND RISER. THE JOINTS MAY BE BUTT-FUSED WITH ALL INTERNAL BEADS REMOVED, OR THEY MAY BE FUSED THRU THE USE OF ELECTROFUSION COUPLINGS.
2. 4" LATERALS MUST HAVE 4" CLEAN OUT RISERS, AND 6" LATERALS MUST HAVE 6" CLEAN OUT RISERS.
3. FACTORY MOLDED CLEAN OUT WYES ARE PREFERRED. IF FABRICATED WYES ARE USED THEY MUST HAVE ALL INTERNAL BEADS REMOVED BY HAND AND MUST BE INSPECTED BY OLWS BEFORE THEY ARE FUSED ONTO THE LATERAL.
4. THE CLEAN OUT RISER MUST BE LOCATED WITHIN 6" OF THE PROPERTY LINE AND JUST INSIDE THE ROAD RIGHT OF WAY OR THE OLWS EASEMENT. THE CLEAN OUT RISERS MAY NOT BE LOCATED ON PRIVATE PROPERTY OR IN A PUBLIC UTILITY EASEMENT.
5. THE LATERAL MUST BE INSTALLED WITH A MINIMUM GRADE OF 2% AND MUST RUN PERPENDICULAR FROM THE MAIN TO THE CLEAN OUT.
6. THE CLEAN OUT RISER MUST BE TOPPED WITH AN ABS ADAPTER AND THREADED PLUG. THE ADAPTER SHOULD BE INSTALLED ONTO THE HDPE RISER WITHOUT THE USE OF GLUE.
7. THE CLEAN OUT MUST BE PROTECTED BY A TRAFFIC RATED BOX. EITHER A CAST IRON UNIT OR A COMBINATION CONCRETE AND CAST IRON UNIT IS ACCEPTABLE.
8. EITHER SDR 11 OR SDR 17 HDPE PIPE AND FITTINGS ARE ACCEPTABLE.
9. LATERALS MUST BE TV'D IMMEDIATELY AFTER INSTALLATION WITH AN OLWS INSPECTOR PRESENT.

**OAK LODGE**

WATER SERVICES

SANITARY SYSTEM STANDARD DRAWING

SERVICE LATERAL

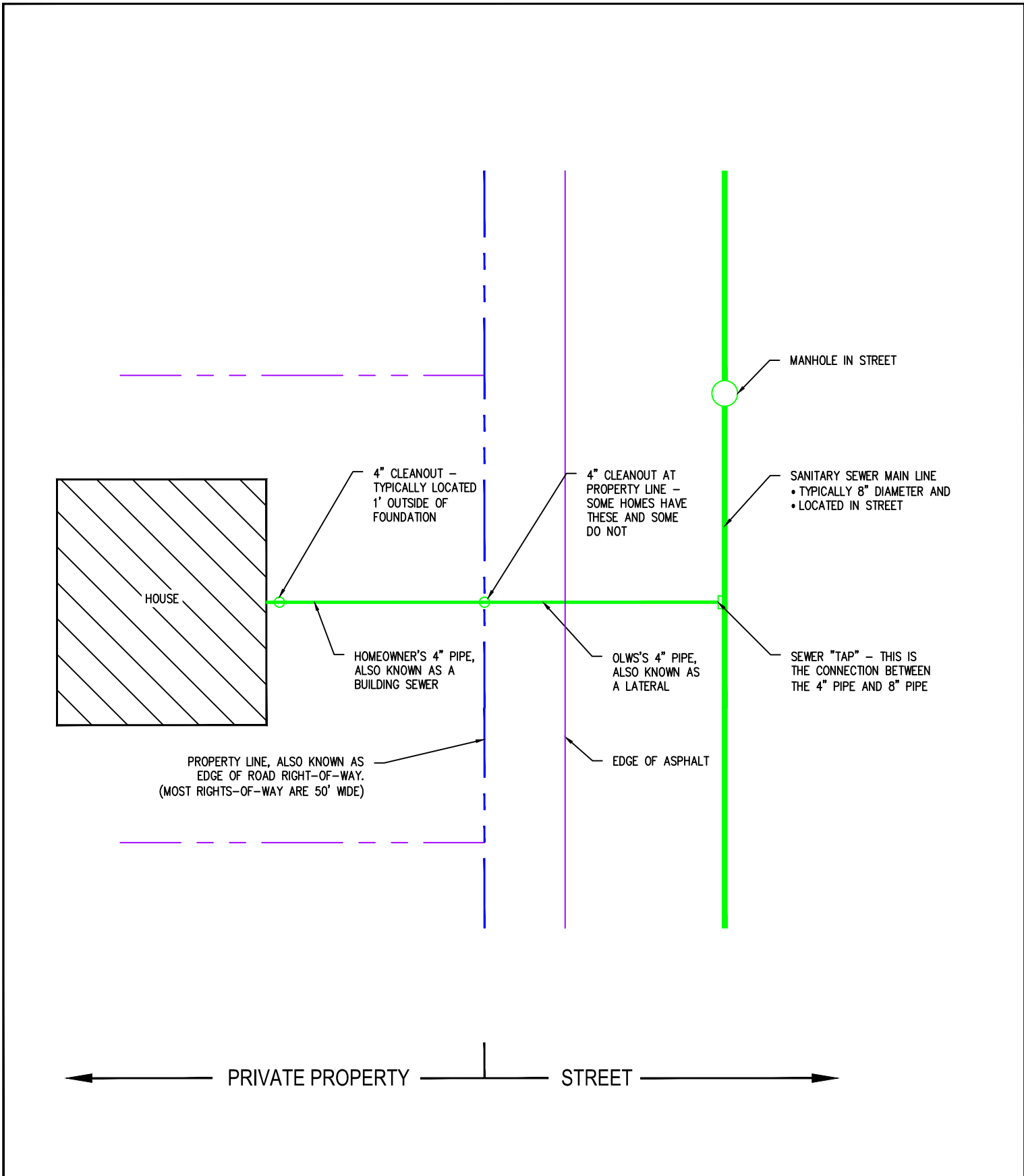
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DRAWING NO.

323

DATE: 9/12/2017

SCALE: NTS



**OAK LODGE**  
 WATER SERVICES

SANITARY SYSTEM STANDARD DRAWING

HOUSE / PUBLIC SEWER MAIN CONNECTION -TYPICAL

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

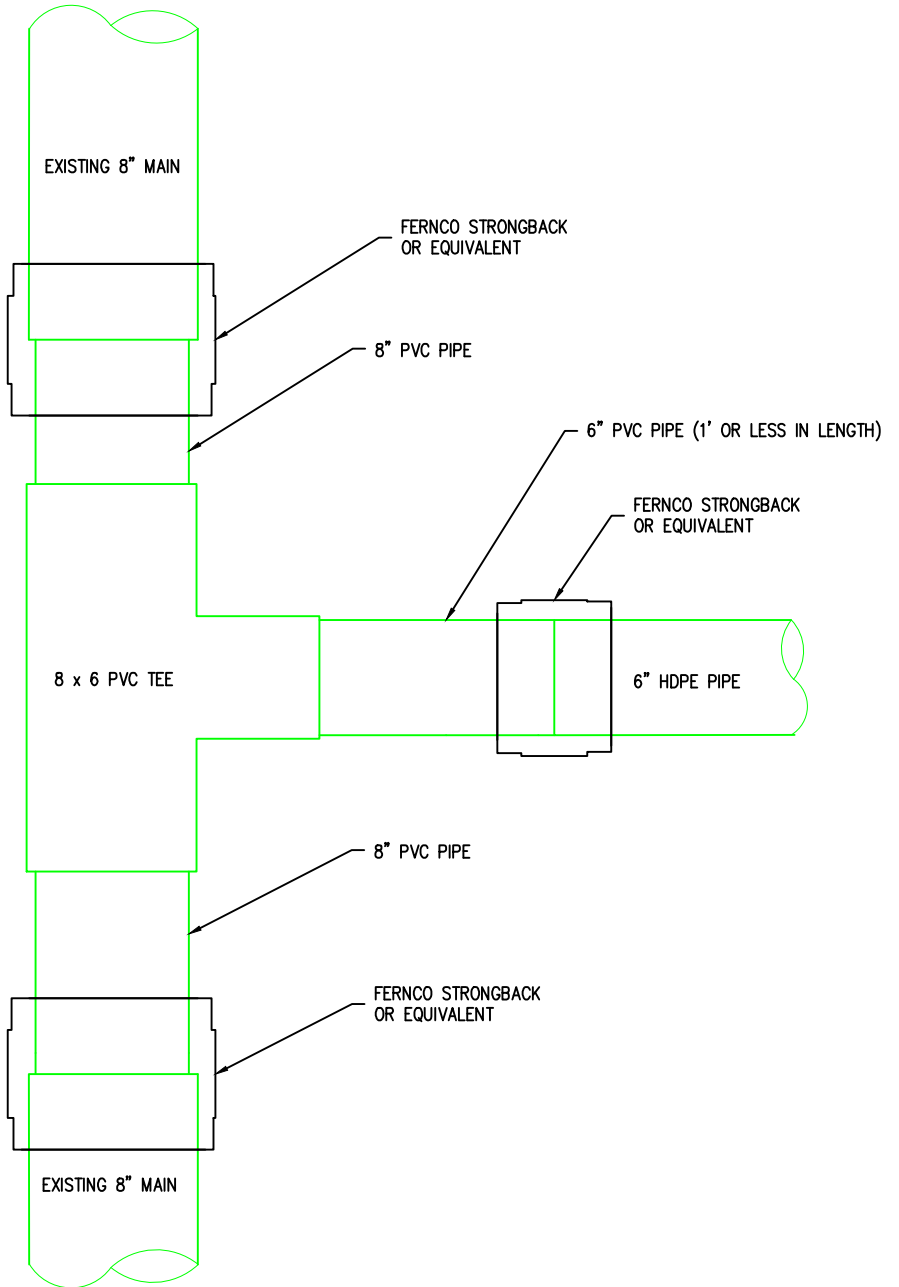
DRAWING NO.

**324**

DATE: 9/12/2017

SCALE: NTS

APPROXIMATELY 30"–36" OF MAIN MUST BE REMOVED TO INSTALL TEE



**NOTE:**

1. THE TEE MUST HAVE  $\frac{3}{4}$ " – 0" BACKFILL KNIFED IN UNDERNEATH FOR SUPPORT. OLSD MAY REQUIRE A MAIN LINE TV INSPECTION AFTER COMPACTION TAKES PLACE TO CONFIRM PROPER ALIGNMENT.
2. OLWS CODE DOES NOT ALLOW THE INSTALLATION OF A 6" INSERTA TEE ON AN 8" MAIN LINE AS IT WEAKENS THE STRUCTURAL INTEGRITY OF THE MAIN LINE. INSTEAD, A SECTION OF MAINLINE MUST BE REMOVED AND AN 8"x 6" PVC TEE SPLICED IN TO PROVIDE THE NEW TAP. NOTE THAT THIS OPERATION MAY REQUIRE THE SUBMISSION OF A WRITTEN "PUMP AROUND PLAN" FOR DISTRICT REVIEW.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



# OAK LODGE

WATER SERVICES

## WATER SYSTEM STANDARD DETAILS INDEX

### STANDARD DETAILS

400	INDEX
401	CONSTRUCTION NOTES
402	TYPICAL PIPE TRENCH DETAIL
403	THRUST BLOCKING
404	STRADDLE THRUST BLOCK FOR CAST IRON PIPE
405	STRADDLE THRUST BLOCK FOR DUCTILE IRON PIPE
406	SHACKLE RODS AND TIE RODS
407	RESTRAINED JOINT PIPE
408	TAPPING AND CUT-IN METHODS
409	STEEL CASING DETAIL
410	ISOLATION VALVE DETAILS
411	FIRE HYDRANT ASSEMBLY
412	FIRE HYDRANT LOCATIONS
413	BLOWOFF ASSEMBLY
414-419*	NOT USED
420	3/4" AND 1" WATER SERVICE ASSEMBLY
421**	1 1/2" AND 2" WATER SERVICE ASSEMBLY
422**	3" AND LARGER WATER SERVICE VAULT
423	SERVICE CONNECTIONS AND METER LOCATION

\* PLACEHOLDER FOR FUTURE DETAILS

\*\* DETAIL FORTHCOMING



WATER SYSTEM STANDARD DRAWING

### WATER SYSTEM STANDARD DRAWING INDEX

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DRAWING NO.

400

DATE: 9/12/2017

SCALE: NTS

NOTES:

1. CONSTRUCTION OF IMPROVEMENTS SHALL BE IN ACCORDANCE WITH OAK LODGE WATER SERVICES (OLWS a.k.a. DISTRICT) DEVELOPER EXTENSION AGREEMENT (as applicable), DISTRICT STANDARD DETAILS AND THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, MOST CURRENT EDITION, AS ISSUED BY THE OR. STATE DEPT. OF TRANSPORTATION.
2. A PRE-CONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION AND 48 HOURS ADVANCE NOTIFICATION OF THE LOCAL MUNICIPALITY, OLWS AND ALL AFFECTED UTILITY COMPANIES PRIOR TO THE ACTUAL START OF WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE PROVISIONS OF THE ROAD OPENING PERMIT AS ISSUED BY CLACKAMAS COUNTY.
4. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY, LOCATE AND PROTECT ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR REPAIRING ANY UTILITIES DAMAGED DURING CONSTRUCTION. SHOW THESE UTILITIES ON THE AS-BUILTS. IF A UTILITY IS DAMAGED, CONTRACTOR SHALL NOTIFY THE AFFECTED UTILITY COMPANY IMMEDIATELY.
5. WATER MAIN TRENCH SECTION AND ALL EXCAVATED AREAS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS, WITH SECTION 01140.40 OF THE STANDARD SPECIFICATIONS, AND WITH CLACKAMAS COUNTY ROAD OPENING PERMIT. COMPACTION TESTING SHALL BE REQUIRED DURING BACKFILLING OPERATIONS WITHIN ALL ROADWAYS AND AT THE DISCRETION OF THE DISTRICT. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RECOMPACT AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.
6. RESTORATION OF DAMAGED ROAD SURFACING SHALL BE IN ACCORDANCE WITH CLACKAMAS COUNTY'S REQUIREMENTS. ALL OTHER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR AS DIRECTED BY THE DISTRICT. THIS INCLUDES SHOULDERS, LANDSCAPING, WALLS, FENCES, DRIVEWAYS, AND OTHER IMPROVEMENTS.
7. THE WATER MAIN SHALL BE INSTALLED WITH A MINIMUM OF 36" OF COVER. INSTALLATION OF MAIN WITH GREATER THAN 60" OF COVER SHALL BE ACCEPTABLE ONLY UNDER THE DIRECTION OF THE DISTRICT. ALL SERVICES, FIRE HYDRANTS, AND THRUST BLOCKING SHALL BE INSPECTED BY THE DISTRICT BEFORE BURY.
8. DISTRICT APPROVED THRUST RESTRAINTS ARE REQUIRED FOR ALL UNRESTRAINED FITTINGS.
9. A SANITARY GAP MUST BE PROVIDED BETWEEN THE EXISTING AND NEW WATER SYSTEMS. CONNECTION TO THE EXISTING WATER SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR ONLY AFTER COMPLETING OF AN ACCEPTABLE HYDROSTATIC PRESSURE TEST AND THE PIPELINE IS DISINFECTED AND RECEIPT OF APPROVAL OF WATER QUALITY TEST RESULTS FROM THE TESTING LAB.
10. CONTRACTOR SHALL PERFORM PRESSURE TEST AT 200psi, INCLUDING HYDRANTS AND SERVICE LINES. MAINLINE SHALL BE TESTED IN SECTIONS OF NO MORE THAN 1,500 FEET. PRESSURE DROP SHALL NOT EXCEED 2psi IN 30 MINUTES. THE DISTRICT INSPECTOR HAS DISCRETION TO MODIFY THE TESTING REQUIREMENTS AS S/HE DEEMS APPROPRIATE.
11. A PIPE PLUG SHALL BE USED ON EACH JOINT DURING INSTALLATION TO PROTECT AGAINST FLOODING OF THE PIPE.
12. NO OTHER UTILITIES SHALL BE INSTALLED WITHIN 36" HORIZONTALLY OF ANY ACTIVE WATER LINE UNLESS OTHERWISE PRE-APPROVED BY THE DISTRICT.
13. CONTRACTOR SHALL POTHOLE A SUFFICIENT DISTANCE AHEAD TO VERIFY DEPTH OF ALL EXISTING WATER MAINS AND CROSSING UTILITIES PRIOR TO CONSTRUCTION AND CONNECTIONS AND TO ANTICIPATE ANY NECESSARY CHANGES IN FITTINGS OR ALIGNMENT.
14. AN AS-BUILT RECORD MUST BE SUBMITTED TO THE DISTRICT BEFORE WATER SERVICE WILL BE PROVIDED.
15. DEFLECTION AT PIPE AND FITTING JOINTS WILL BE ALLOWED UP TO 3.0" (11" OVER 18') OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS LESS.
16. CONTRACTOR SHALL ONLY DISPOSE OF WASTE MATERIAL AT SITES APPROVED BY CLACKAMAS COUNTY. STOCKPILE MATERIALS ONLY ON DISTRICT APPROVED SITES.
17. HATCH NOTE: ALL VAULT HATCHES 2'x2' OR LARGER SHALL BE HINGED, SPRING ASSIST OPENING, INCLUDE RECESSED PADLOCK HASP, DRAINABLE FRAME (C OR U CHANNEL WITH PIPE CONNECTION), H2O RATED MINIMUM, ALUMINUM OR GALVANIZED STEEL. IF HATCH WILL BE LOCATED IN A TRAVELED AREA (ROAD OR DRIVEWAY), SUBMIT MANUFACTURER'S STATEMENT THAT HATCH IS RATED FOR CONTINUOUS AND DELIBERATE H2O TRAFFIC SERVICE. HATCHES SHALL BE CAST INTO VAULT LID OR RISER.
18. ALL PIPE 3" AND LARGER SHALL BE DUCTILE IRON (DI) MINIMUM CLASS 52 (12" AND SMALLER), EXCEPT WHERE TRENCH BACKFILL AND LOADING DICTATE A STRONGER CLASS PIPE OR IN AREAS WHERE PRESSURE EXCEEDS 150 PSI. ALL HYDRANT RUNS AND PIPING INSTALLED WITH MEGA-LUG TYPE JOINT RESTRAINTS SHALL BE DUCTILE IRON PIPE CLASS 52, NO EXCEPTIONS. PIPING INSTALLED WITHIN VAULTS OR OTHER EXPOSED AREAS SHALL BE DUCTILE IRON CLASS 53.
19. CASINGS SHALL BE NEW STEEL, HDPE OR PVC; MATERIAL AND WALL THICKNESS AT THE DISCRETION OF THE DISTRICT. PIPE THROUGH CASINGS SHALL BE SUPPORTED WITH RUNNERS SPACED NO FARTHER THAN 8 FEET APART. RUNNERS SHALL BE MANUFACTURED PRODUCTS (PSI, CALPICO, OR APPROVED EQUAL), NO BLOCKS AND STRAPS. CASING ENDS SHALL BE CAPPED WITH MANUFACTURED CASING END SEALS.
20. CONTRACTORS WORKING WITHIN THE RIGHT OF WAY OR ON EXISTING DISTRICT INFRASTRUCTURE SHALL BE LICENSED, BONDED AND HAVE EXPERIENCE INSTALLING PUBLIC DOMESTIC WATER SYSTEMS AND BE PREPARED TO PRESENT EXAMPLES OF 5 SUCH PROJECTS UPON REQUEST BY THE DISTRICT.

CONSTRUCTION NOTES

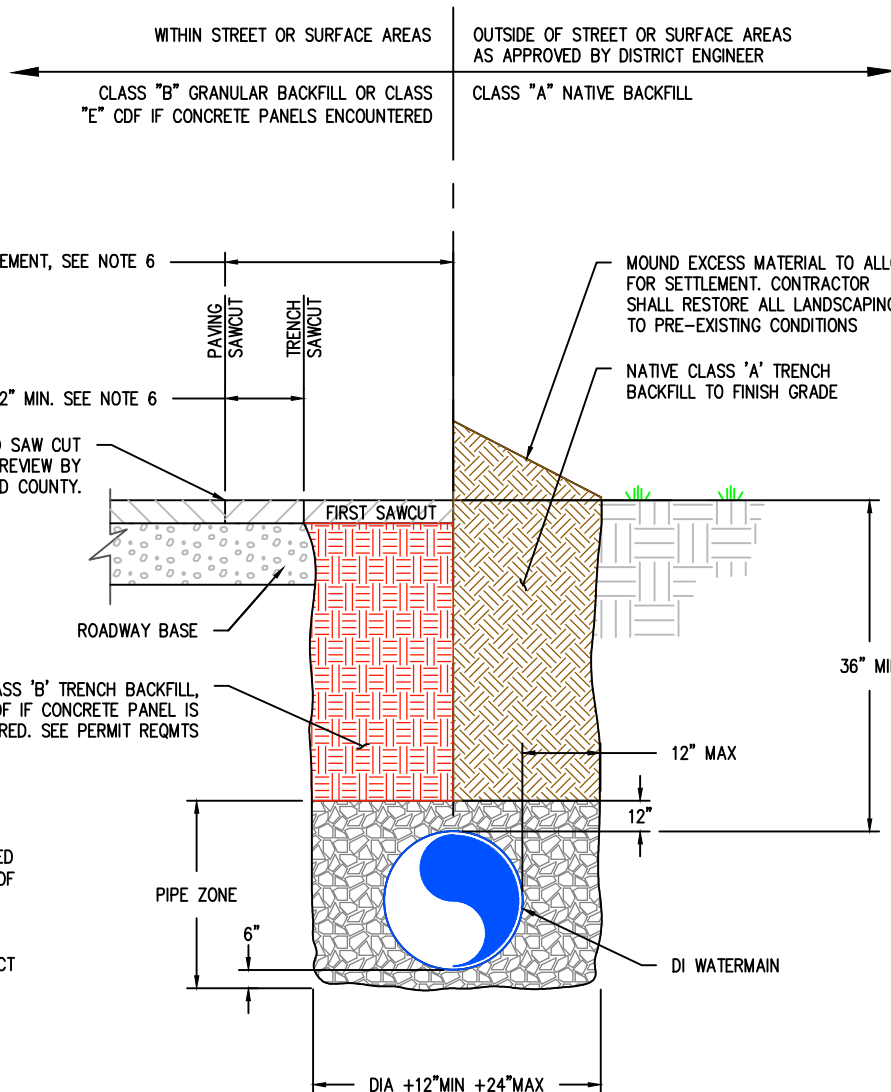
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DRAWING NO.

401

DATE: 9/12/2017

SCALE: NTS



**NOTES:**

1. PIPE ZONE MATERIAL SHALL BE 3/4"-0" CRUSHED ROCK GRANULAR BACKFILL COMPACTED TO 95% OF AASHTO T-99.
2. CLASS "A" NATIVE BACKFILL MAY ONLY BE USED OUTSIDE OF PAVED AREAS AND REQUIRES DISTRICT APPROVAL. BACKFILL SHALL BE COMPACTED TO 90% OF AASHTO T-99 IN LIFTS NOT EXCEEDING 18" (LOOSE MEASURE).
3. CLASS "B" 3/4"-0" CRUSHED ROCK GRANULAR BACKFILL SHALL BE USED WITHIN PAVED AREAS. BACKFILL SHALL BE COMPACTED TO 95% OF AASHTO T-99.
4. BACKFILL SHALL BE PLACED AND COMPACTED IN A MAXIMUM OF 24-INCH LIFTS. COMPACTION TESTING REQUIRED AT A FREQUENCY OF 1 TEST EVERY 100 FEET OF TRENCH.
5. COMPLETE SURFACE AND PAVEMENT RESTORATION IN ACCORDANCE WITH THE PROVISIONS OF THE ROAD OPENING PERMIT FROM CLACKAMAS COUNTY.
6. SAWCUT WIDTH AND AC PAVEMENT REPLACEMENT SHALL BE PER APPLICABLE JURISDICTIONAL REQUIREMENTS. SAWCUT CLEAN EDGE FOR AC PAVEMENT REPLACEMENT. SAND SEAL JOINT.
7. PROVIDE CLASS "E" CDF BACKFILL FOR ALL TRENCH CROSSINGS LOCATED IN VEHICLE TRAVEL LANES OF ARTERIAL & COLLECTOR STREETS, OR WHERE CONCRETE PANELS ARE ENCOUNTERED. IF THESE SPECIFICATIONS CONFLICT WITH THE SPECIFICATIONS OF ANOTHER APPLICABLE JURISDICTION, THE MORE STRINGENT SPECIFICATION SHALL GOVERN.

TYPICAL PIPE TRENCH DETAIL

DRAWING NO.  
**402**

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DATE: 7/7/2017  
 SCALE: NTS

(HORIZONTAL) BEARING AREA OF THRUST BLOCKS IN SQUARE FEET							(VERTICAL) VOLUME OF THRUST BLOCK IN CUBIC YARDS					
FITTING SIZE	TEE, WYE, DEAD END AND HYDRANT	STRADDLE BLOCK	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22-1/2° BEND	11-1/4° BEND	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
				A-1	A-2							
4	1.0	2.2	1.4	1.9	1.4	1.0	---	---	---	---	---	---
6	2.1	5.0	3.0	4.3	3.0	1.6	1.0	---	1.3	---	---	---
8	3.8	8.7	5.3	7.6	5.4	2.9	1.5	1.0	2.3	1.1	---	---
10	5.9	13.6	8.4	11.8	8.4	4.6	2.4	1.2	3.7	1.8	---	---
12	8.5	19.6	12.0	17.0	12.0	6.6	3.4	1.7	5.5	2.8	1.2	---
14	11.5	---	16.3	23.0	16.3	8.9	4.6	2.3	7.6	3.9	1.7	---
16	15.0	---	21.3	30.0	21.3	11.6	6.0	3.0	9.9	5.1	2.3	0.9
18	19.0	---	27.0	38.0	27.0	14.6	7.6	3.8	---	---	---	---
20	23.5	---	33.3	47.0	33.3	18.1	9.4	4.7	---	---	---	---
24	34.0	---	48.0	68.0	48.0	26.2	13.6	6.8	---	---	---	---

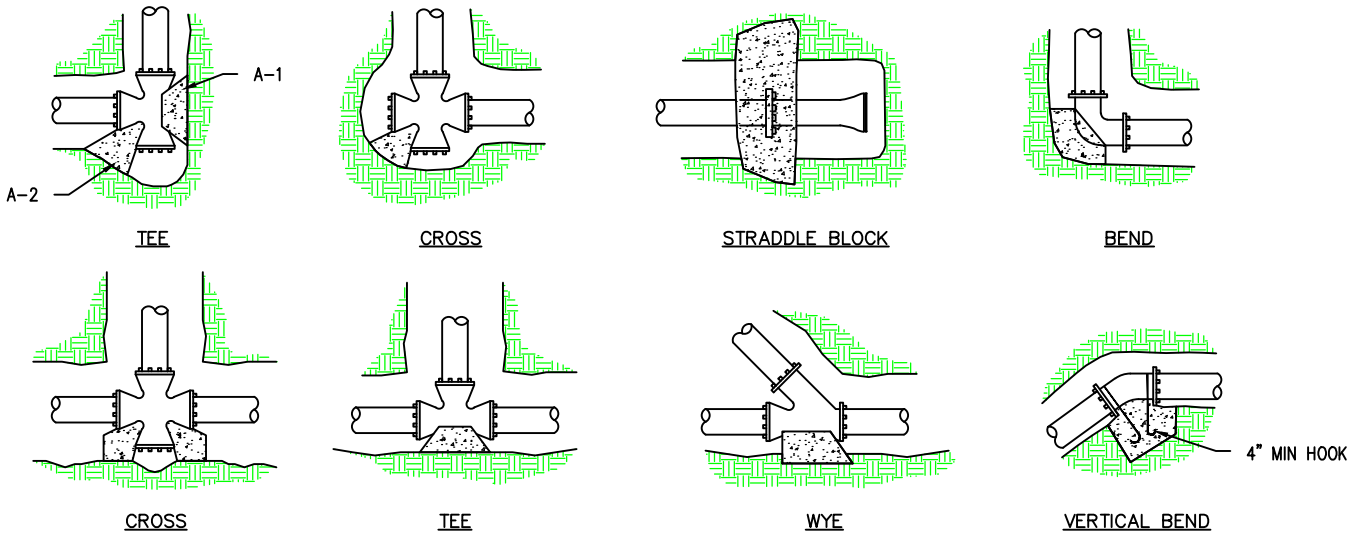
NOTES:

- ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:

$$\text{BEARING AREA} = ( \text{TEST PRESSURE} / 150 ) \times ( 2000 / \text{SOIL BEARING STRESS} ) \times ( \text{TABLE VALUE} )$$

- ABOVE VOLUMES BASED ON TEST PRESSURE OF 150 PSI AND THE WEIGHT OF CONCRETE = 4050 POUNDS PER CUBIC YARD. TO COMPUTE FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION:

$$\text{VOLUME} = ( \text{TEST PRESSURE} / 150 ) \times ( \text{TABLE VALUE} )$$

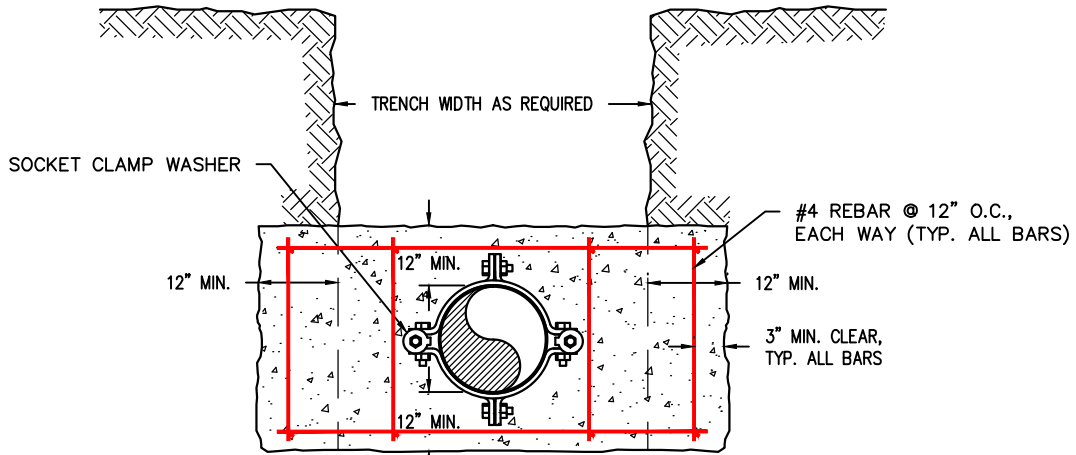


NOTES:

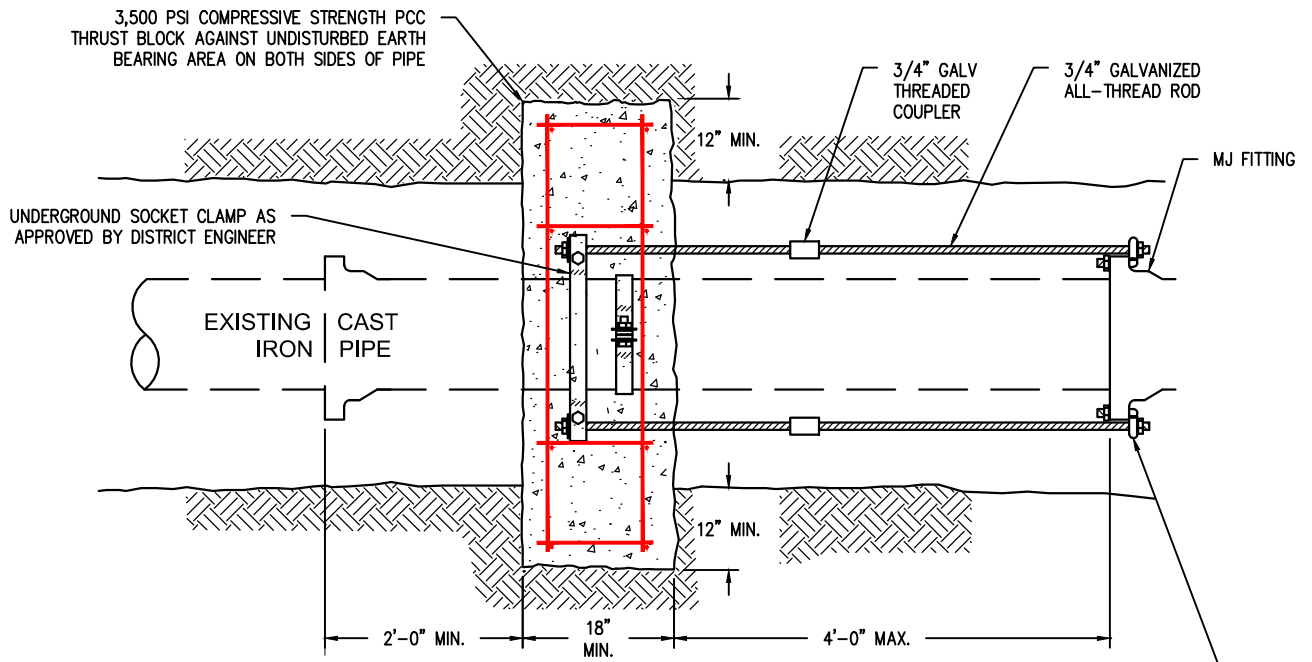
- CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- CONCRETE SHALL BE 3000 PSI MIN. 28 DAY COMPRESSIVE STRENGTH.
- INSTALL ISOLATION MATERIAL BETWEEN PIPE AND/OR FITTINGS BEFORE POURING CONCRETE BLOCKING.
- CONCRETE SHALL BE KEPT CLEAR OF ALL JOINTS AND ACCESSORIES.
- TIE RODS SHALL BE DEFORMED GALVANIZED COLD ROLLED STEEL, 40000 PSI TENSILE STRENGTH.

RODS FOR VERTICAL BENDS		
FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	30"
14"-16"	#8	36"

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



**SECTION**

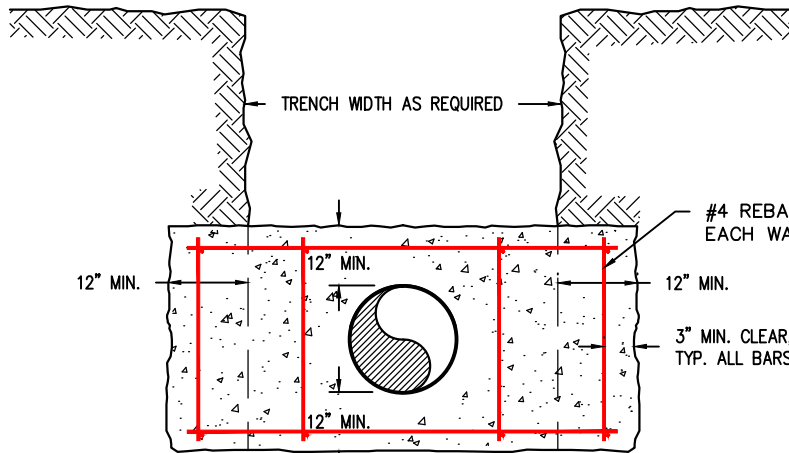


**PLAN**

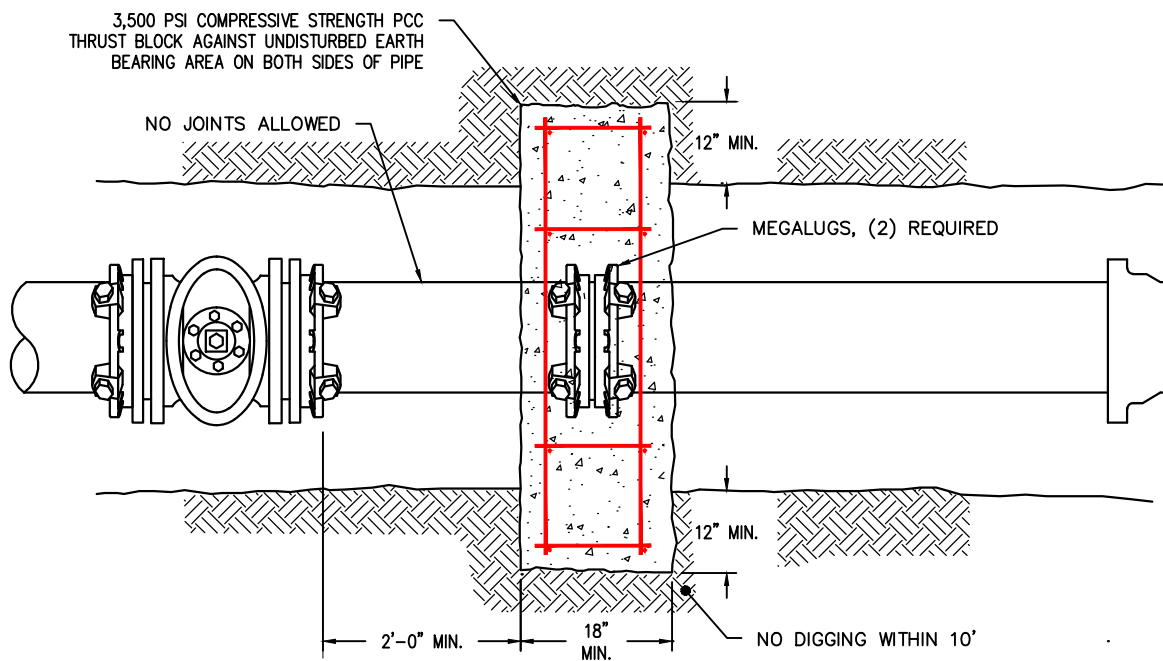
3/4" GALV EYE BOLT (AWWA C111) OR ROMAC INDUSTRIES DUCTILE LUG

**NOTE:**  
CONCRETE STRADDLE BLOCKS FOR 12" AND LARGER WATER MAINS SHALL BE DESIGNED AND STAMPED BY ENGINEER OF RECORD.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



**SECTION**



**PLAN**

**NOTE:**  
 CONCRETE STRADDLE BLOCKS FOR 12" AND LARGER WATER MAINS SHALL BE DESIGNED AND STAMPED BY ENGINEER OF RECORD.

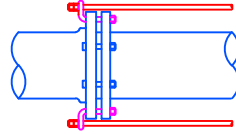
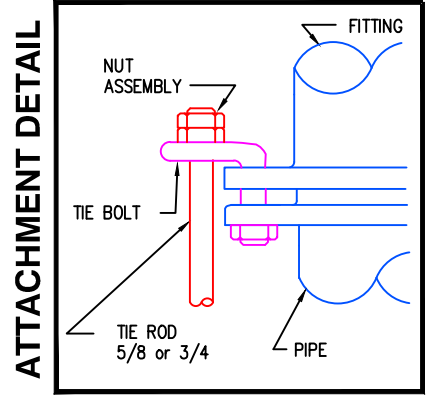
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

**TIE ROD SELECTION TABLES**

ASTM A242 (COR-TEN® OR EQUAL) STEEL					ROD DIAMETER: 5/8" OR (3/4")			
PIPE DIAMETER	NUMBER OF TIE RODS PER JOINT				MAXIMUM TIE ROD LENGTH, FEET			
	TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND
3	2 -	2 -	2 -	2 -	100 --	100 --	100 --	100 --
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)
8	4 (3)	2 (2)	2 (2)	2 (2)	50 (50)	50 (70)	90 (100)	100 (100)
10	6 (4)	4 (2)	2 (2)	2 (2)	40 (60)	60 (50)	60 (80)	100 (100)
12	8 (6)	4 (4)	2 (2)	2 (2)	60 (60)	60 (80)	50 (80)	100 (100)
14	10 (5)	6 (4)	4 (2)	2 (2)	60 (70)	60 (60)	80 (60)	80 (100)
16	12 (8)	8 (6)	4 (3)	2 (2)	60 (50)	60 (70)	60 (70)	60 (90)
18	16 (12)	8 (6)	6 (3)	3 (2)	50 (50)	50 (60)	70 (50)	70 (70)

ASTM A36 STEEL OR 304SS					ROD DIAMETER: 5/8" OR (3/4")			
PIPE DIAMETER	NUMBER OF TIE RODS PER JOINT				MAXIMUM TIE ROD LENGTH, FEET			
	TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND
3	2 -	2 -	2 -	2 -	100 --	100 --	100 --	100 --
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)
8	4 (3)	3 (2)	2 (2)	2 (2)	50 (50)	70 (70)	90 (100)	100 (100)
10	6 (4)	4 (4)	2 (2)	2 (2)	70 (60)	60 (90)	60 (80)	100 (100)
12	8 (6)	6 (4)	4 (2)	2 (2)	80 (90)	80 (80)	100 (80)	100 (100)
14	12 (8)	8 (6)	4 (4)	2 (2)	70 (90)	80 (90)	80 (100)	80 (100)
16	16 (10)	10 (6)	4 (4)	3 (2)	70 (80)	80 (70)	90 (90)	90 (90)
18	- (14)	12 (8)	6 (4)	3 (2)	-- (80)	80 (80)	70 (70)	70 (70)



TIE BOLT  
STAR SUPPLY CORPORATION OR APPROVED EQUAL

**GENERAL NOTES**

- 1) TIE RODS SHALL BE "ALL THREAD" ROD OF EITHER ASTM A242 (COR-TEN), GALVANIZED OR EPOXY COATED A36 STEEL, OR 304 STAINLESS STEEL. UNCOATED MILD STEEL WILL NOT BE ALLOWED.
- 2) TIE RODS SHALL HAVE "NATIONAL-COARSE" THREAD WITH EITHER TWO NUTS OR ONE SELF-LOCKING NUT AT EACH END (ALL NUTS SHALL BE GALVANIZED). NUTS ARE TO BE STAR NATIONAL TIENUT OR NUT OF EQUIVALENT OR GREATER OUTER DIAMETER.
- 3) NUMBER OF TIE RODS PER JOINT SHALL BE IN ACCORDANCE WITH TIE ROD SELECTION TABLES ABOVE UNLESS OTHERWISE SHOWN ON APPROVED DESIGN PLANS.
- 4) TIE ROD ASSEMBLY SHALL BE COATED WITH 2 COATS OF COAL TAR EPOXY. EPOXY SHALL BE APPLIED ONLY AFTER ASSEMBLY IS COMPLETE SO THAT NO ADDITIONAL DAMAGE TO COATING OCCURS. ANY DAMAGE SHALL BE TOUCHED UP PRIOR TO BURY.
- 5) TIE RODS SHALL BE ASSEMBLED SYMMETRICALLY ABOUT EACH JOINT (IF AN EVEN NUMBER OF RODS ARE USED THEN EACH ROD SHALL HAVE A ROD LOCATED ON THE DIRECT OPPOSITE SIDE OF JOINT. IF 3 OR 6 RODS ARE USED THEN AN EQUAL NUMBER OF UNSHACKLED BOLT HOLES SHALL BE LEFT BETWEEN ANY TWO TIE RODS.)
- 6) TIE ROD NUTS SHALL BE TIGHTENED UNIFORMLY AT EACH JOINT PRIOR TO COATING.
- 7) TIE ROD LENGTHS SHALL NOT EXCEED THOSE LISTED IN ABOVE TABLES, UNLESS SPECIFICALLY SHOWN ON APPROVED PLANS.
- 8) TIE ROD COUPLINGS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIECOUPLING" OR APPROVED EQUAL.
- 9) TIE RODS SHALL BE ATTACHED TO JOINTS WITH TIE BOLTS. TIE BOLTS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIEBOLT" OR APPROVED EQUAL. "DUC-LUGS" ARE NOT ALLOWED.
- 10) 20" FITTINGS AND LARGER SHALL HAVE TIE ROD DESIGN INCLUDED ON DESIGN PLANS.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

RESTRAINED JOINT PIPE IS APPROPRIATE TO USE IN MANY SITUATIONS. HOWEVER, THE DISTRICT WILL BE THE SOLE DETERMINER IF THE APPLICATION IS APPROPRIATE ON A GIVEN JOB. TYPICAL APPLICATIONS INCLUDE:

1. DEAD END MAINS THAT MAY BE EXTENDED.
2. SOILS NOT SUPPORTIVE OF THRUST BLOCKING.
3. INSUFFICIENT BEARING SOIL BEHIND FITTINGS.
4. VERTICAL BENDS (not covered here. must be designed by engineer for each job)

THE FOLLOWING PRODUCTS ARE PRE-APPROVED FOR USE IN RESTRAINED JOINT APPLICATIONS. ALL RESTRAINED JOINT PIPE SHALL BE DUCTILE IRON, UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.

1. GRIFFIN: SNAP-LOK or BOLT-LOK
2. US PIPE: TR-FLEX or FIELD-LOK GASKET
3. PACIFIC STATES: THRUST-LOCK
4. EBAA IRON: MEGALUG
5. ROMAC: ROMA-GRIP

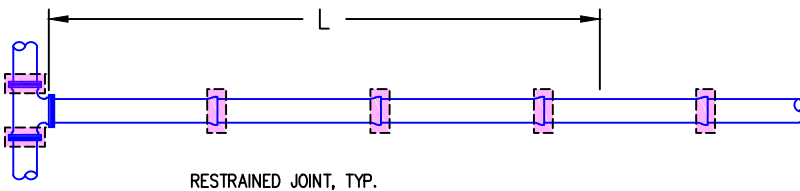
THE FOLLOWING TABLE HAS BEEN DEVELOPED USING THE DUCTILE IRON PIPE RESEARCH ASSOCIATION RESTRAINED JOINT CALCULATOR. THE FOLLOWING CONDITIONS MUST BE MET FOR THESE RESULTS TO BE VALID. IF ANY OF THESE CONDITIONS CANNOT BE MET, PROJECT SPECIFIC CALCULATIONS MUST BE PROVIDED:

- A) THIS TABLE ONLY FOR BARE DUCTILE IRON PIPE. ANY OTHER TYPES OF PIPE WILL REQUIRE RE-EVALUATION.
- B) PIPE LAYING CONDITION TYPE 4 or 5. SELECT GRANULAR BEDDING MATERIAL BELOW PIPE. PIPE ZONE MATERIAL EXTENDING TO TOP OF PIPE MECHANICALLY COMPACTED. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
- C) BEDDING SAND IS WELL GRADED WITH FINES. IF GRAVELLY SAND IS USED, LENGTHS MUST BE MULTIPLIED BY 1.3
- D) DEPTH OF COVER IS 3 FEET MINIMUM.
- E) 300psi TEST PRESSURE MAXIMUM. FOR HIGHER TEST PRESSURE, TABLE LENGTHS MUST BE MULTIPLIED BY THE PROPORTIONAL DIFFERENCE. EXAMPLE: FOR 350psi,  $350/300=1.17$  THEREFORE, LENGTHS MUST BE MULTIPLIED BY 1.17

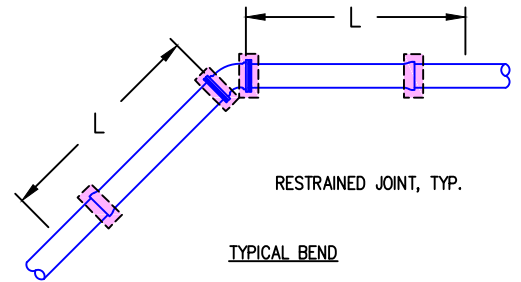
THE LENGTH "L" GIVEN BELOW INDICATES THE DISTANCE THAT PIPE MUST BE RESTRAINED PAST THE FITTING JOINT. ALL JOINTS WITHIN THIS DISTANCE MUST BE RESTRAINED, INCLUDING THE FITTING.

PIPE DIAMETER	RESTRAINED LENGTH, "L"						
	11¼' BEND	22½' BEND	45' BEND	90' BEND	TEE w/SAME SIZE BRANCH*	DEAD END	REDUCER **
4"	3'	5'	11'	25'	26'	50'	30'
6"	4'	7'	14'	36'	48'	72'	37'
8"	5'	10'	19'	46'	70'	94'	67'
10"	6'	11'	24'	56'	90'	114'	70'
12"	7'	13'	28'	66'	110'	134'	71'
16"	10'	17'	35'	85'	151'	175'	104'
18"	11'	19'	40'	95'	170'	196'	106'

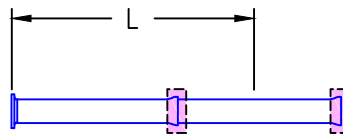
\* assumes all three legs restrained, and a minimum 5' stick of pipe in each run leg.  
 \*\* assumes reducer down 2 sizes. (example 12"x8"). Larger reductions shall be treated as a tee.



TYPICAL TEE



TYPICAL BEND

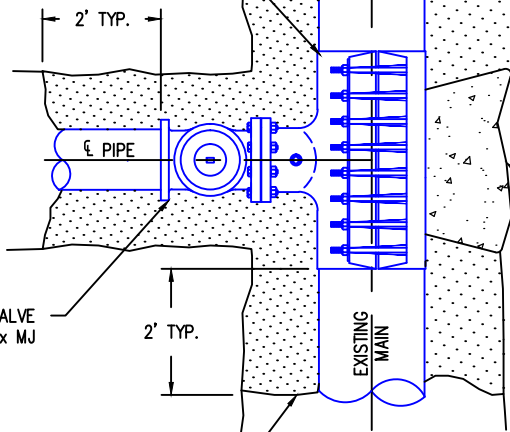


DEAD END

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



FABRICATED STEEL OR DUCTILE IRON MECHANICAL JOINT TAPPING SLEEVE, ROMAC OR APPROVED EQUAL.



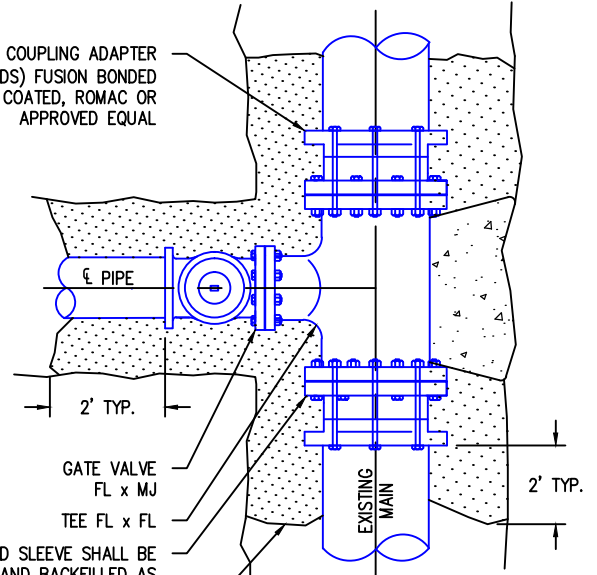
TAPPING VALVE  
FL x MJ

2' TYP.

LIVE TAP

VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN IN THE ELEVATION BELOW

FLANGED COUPLING ADAPTER (BOTH ENDS) FUSION BONDED EPOXY COATED, ROMAC OR APPROVED EQUAL



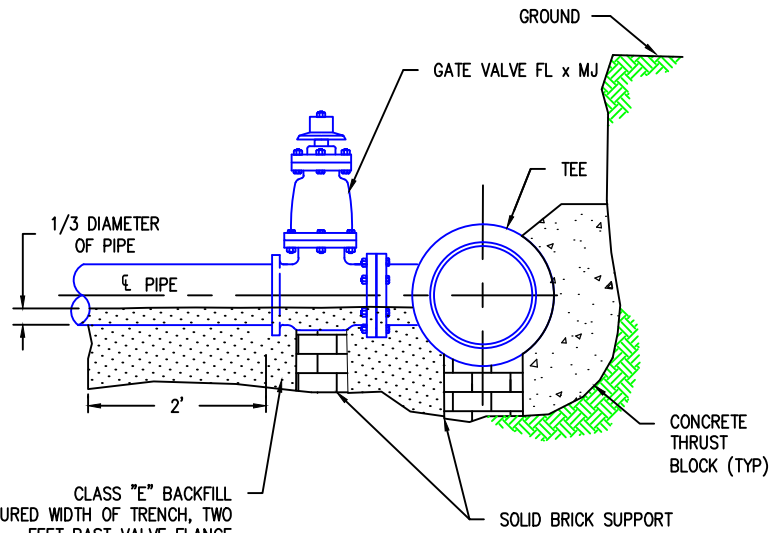
VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN IN THE ELEVATION BELOW

PROVIDE VALVE(S) ON MAINLINE WHEN REQUESTED BY DISTRICT

CUT-IN-TEE

NOTES:

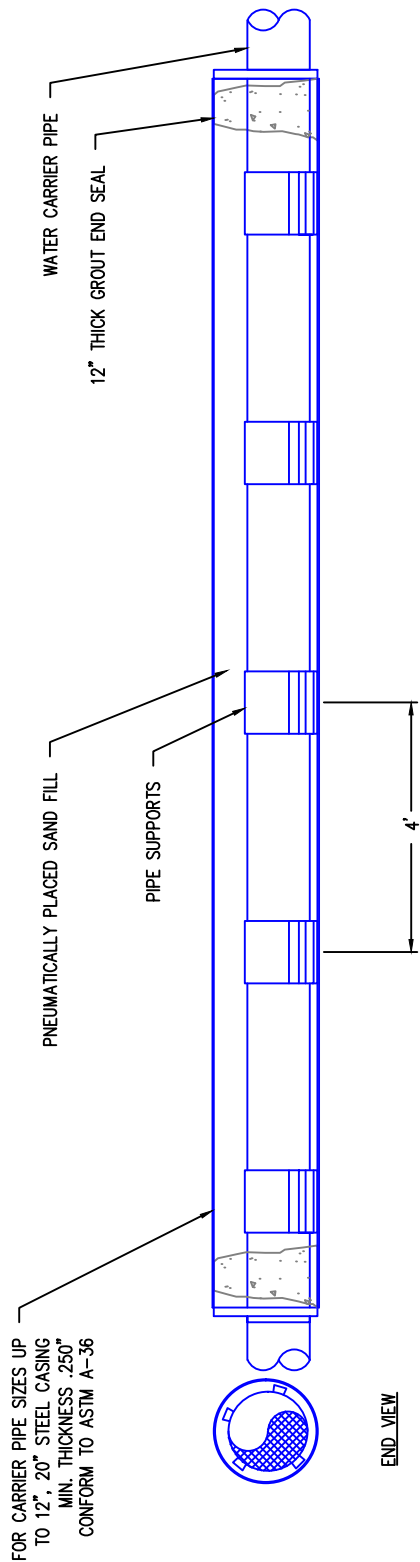
1. TAPPING TEE SHALL BE STAINLESS STEEL MECHANICAL SLEEVE.
2. CONNECTIONS TO EXISTING SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF THE DISTRICT AND WILL NOT BE ALLOWED ON FRIDAYS, HOLIDAYS OR WEEKENDS. VALVES SHALL BE OPERATED BY DISTRICT ONLY, CONTRACTOR SHALL NOT OPERATE VALVE.
3. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCK AND CONTROL DENSITY BACKFILL ARE POURED.
4. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.
5. TEST TAPPING SLEEVE PRIOR TO CUTTING EXISTING MAIN.



CLASS "E" BACKFILL  
POURED WIDTH OF TRENCH, TWO FEET PAST VALVE FLANGE UP TO 1/3 DIAMETER OF PIPE

ELEVATION

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



**NOTES:**

1. CARRIER PIPE SHALL BE PRESSURE TESTED AND VIDEO TAPED (AT SEWER CROSSINGS ONLY) PRIOR TO FILLING VOIDS WITH SAND.
2. CARRIER PIPE WITHIN THE LENGTH OF THE ENCASUREMENT PIPE SHALL HAVE RESTRAINED JOINTS.
3. PIPE SUPPORTS FOR PVC AND DIP ARE CALIPICO MODEL PX OR EQUIVALENT, SIZE SKID HEIGHT TO PROVIDE 4" GAP BETWEEN PIPE BELL AND TOP OF CASING.

STEEL CASING DETAIL

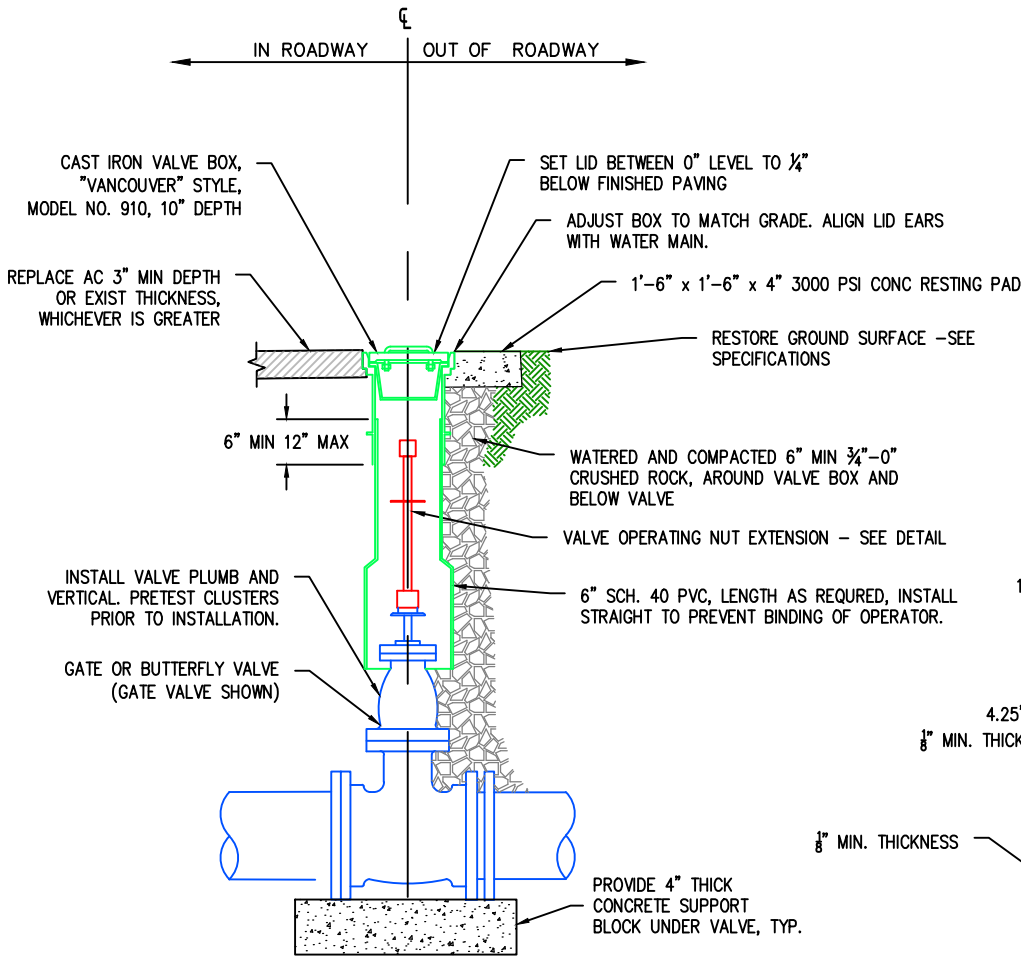
DRAWING NO.

409

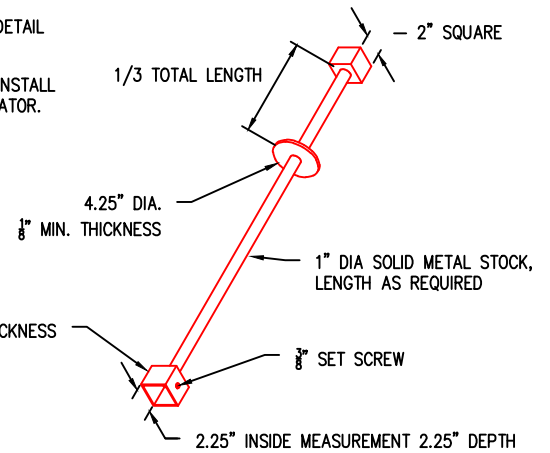
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DATE: 7/7/2017

SCALE: NTS



ISOLATION VALVE DETAIL



OPERATING NUT EXTENSION

ISOLATION VALVE NOTES:

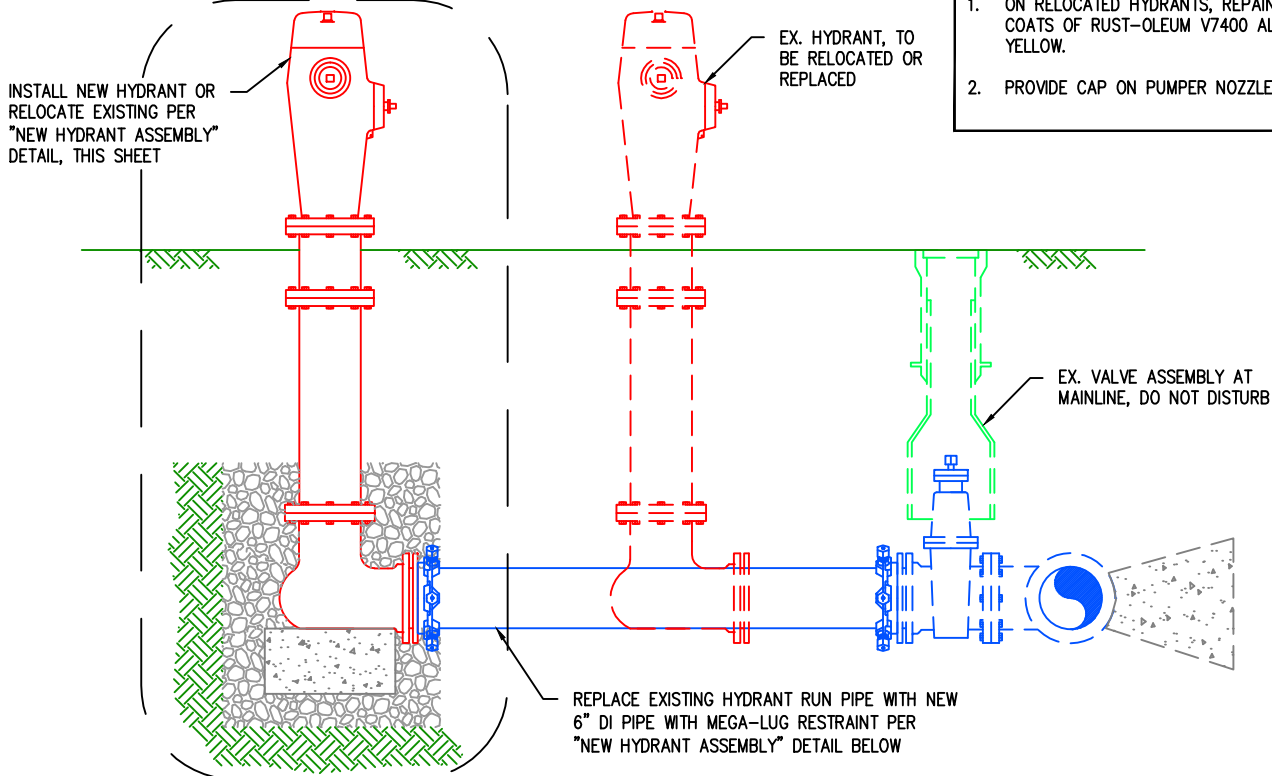
1. VALVES SHALL BE INSTALLED AT NO MORE THAN 1,000 FT SPACING.
2. ISOLATION VALVES 2" AND LARGER ARE TO BE NRS RESILIENT SEAT GATE VALVES MEETING AWWA C509 OR C515. VALVES 14" AND LARGER SHALL BE BUTTERFLY VALVES MEETING AWWA C504.
3. BACKFILL AROUND VALVE BOXES SHALL BE COMPACTED USING A JUMPING JACK.
4. OLYMPIC FOUNDRY MODEL NUMBERS SHOWN. OWNER APPROVED EQUALS WILL BE ALLOWED.
5. IN-LINE VALVES SHALL BE RESTRAINED WITH DEVICES SHOWN IN STANDARD DETAIL 307. USE ONE FULL STICK OF PIPE ON EACH SIDE OF VALVE.
6. ALL VALVES SHALL BE SUPPLIED WITH VALVE BOX, LID AND DUST PAN. LID SHALL HAVE RECESSED HANDLE. VALVE BOX EARS TO BE INSTALLED WITH THE EARS PARALLEL TO THE DIRECTION OF WATER FLOW.
7. ALL VALVES THAT WILL BE PART OF A CUT-IN CONNECTION OR HOT TAP ON AN EXISTING MAIN SHALL BE PRE-PRESSURE TESTED ON BOTH SIDES OF THE SEAT PRIOR TO INSTALLATION.

EXTENSION NOTES:

1. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN 3.5 FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG, ONLY ONE EXTENSION PER VALVE. ALL EXTENSIONS ARE TO MADE OF STEEL SIZED AS NOTED, AND PAINTED WITH TWO COATS OF CARBON ELASTIC (ATCO NO. 2221) AS SPECIFIED BY PRESERVATIVE PAINT CO. OR APPROVED EQUAL.
2. FOR EXTENSIONS LONGER THAN 4 FEET AND/OR VALVES LARGER THAN 12" DIAMETER, BAR SHALL BE 1/4" DIAMETER.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

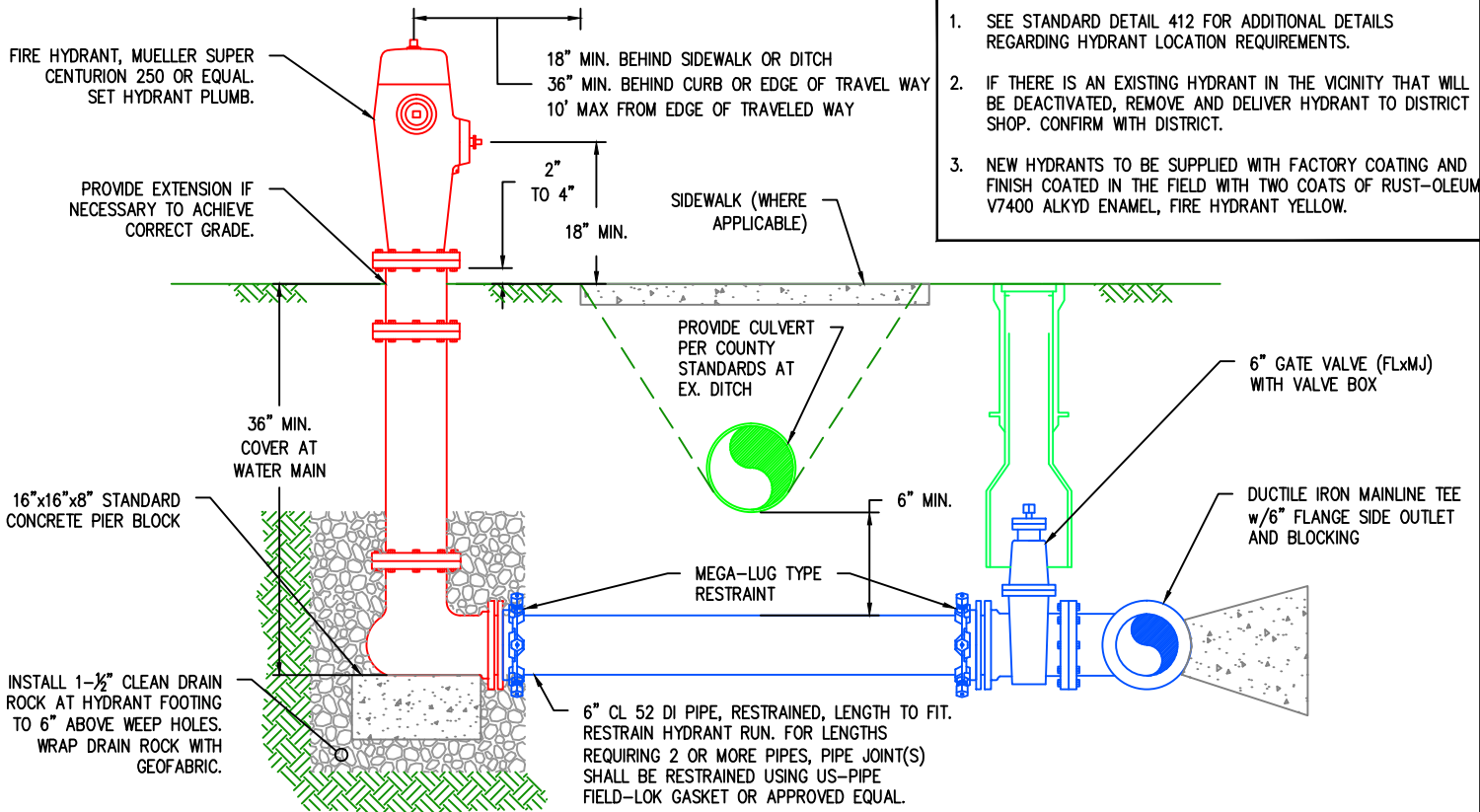
## HYDRANT RELOCATION



### RELOCATED HYDRANT NOTES:

1. ON RELOCATED HYDRANTS, REPAINT HYDRANTS WITH TWO COATS OF RUST-OLEUM V7400 ALKYD ENAMEL, FIRE HYDRANT YELLOW.
2. PROVIDE CAP ON PUMPER NOZZLE PER DISTRICT STANDARDS.

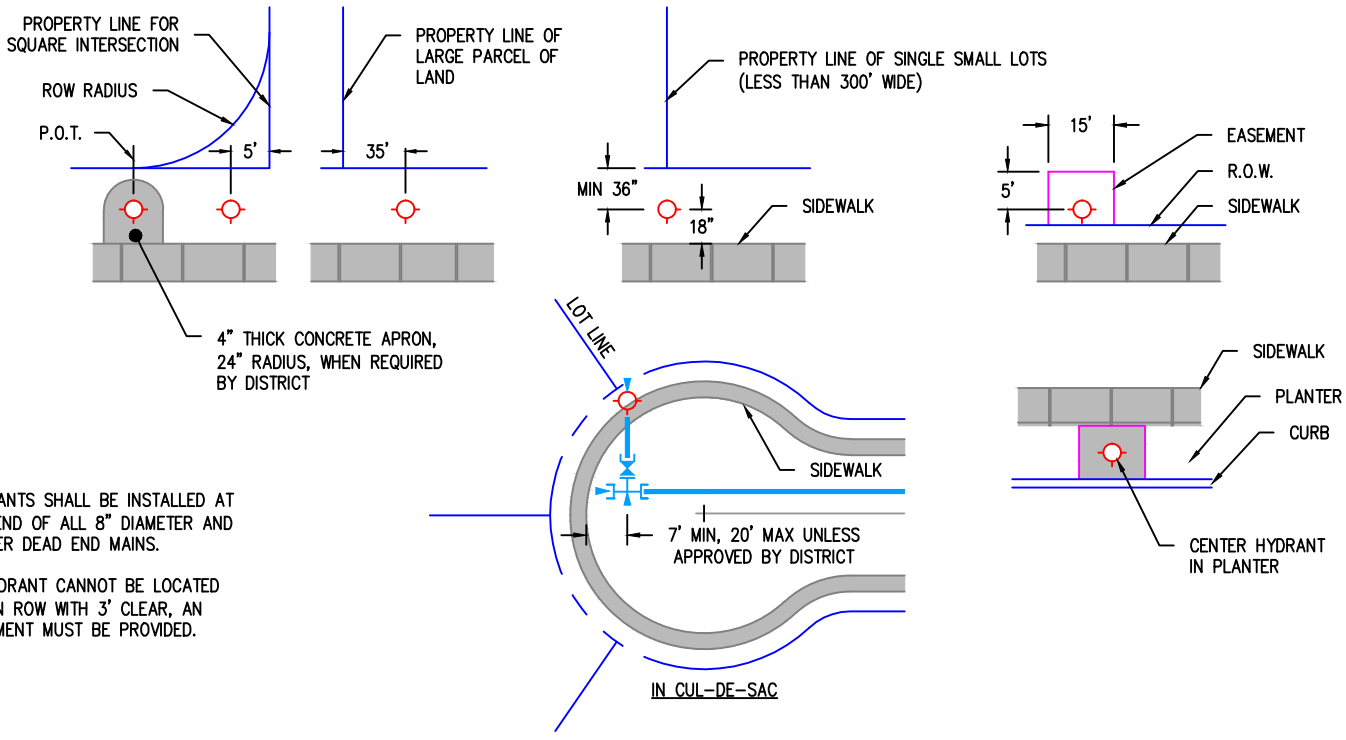
## NEW HYDRANT ASSEMBLY



### NEW HYDRANT NOTES:

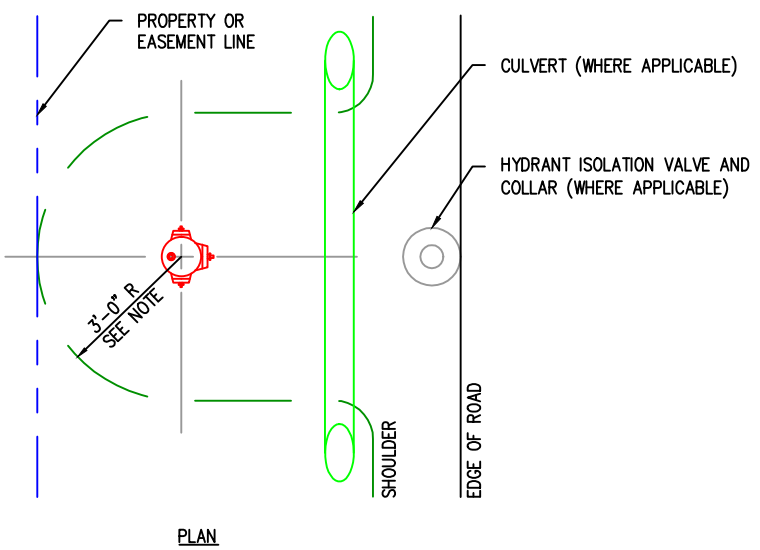
1. SEE STANDARD DETAIL 412 FOR ADDITIONAL DETAILS REGARDING HYDRANT LOCATION REQUIREMENTS.
2. IF THERE IS AN EXISTING HYDRANT IN THE VICINITY THAT WILL BE DEACTIVATED, REMOVE AND DELIVER HYDRANT TO DISTRICT SHOP. CONFIRM WITH DISTRICT.
3. NEW HYDRANTS TO BE SUPPLIED WITH FACTORY COATING AND FINISH COATED IN THE FIELD WITH TWO COATS OF RUST-OLEUM V7400 ALKYD ENAMEL, FIRE HYDRANT YELLOW.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

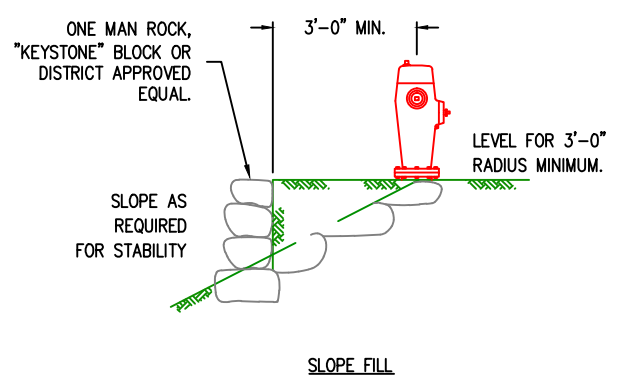
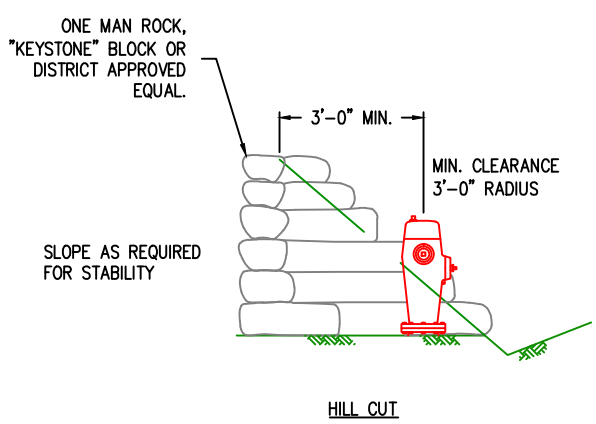


- NOTES:
1. HYDRANTS SHALL BE INSTALLED AT THE END OF ALL 8" DIAMETER AND LARGER DEAD END MAINS.
  2. IF HYDRANT CANNOT BE LOCATED WITHIN ROW WITH 3' CLEAR, AN EASEMENT MUST BE PROVIDED.

**TYPICAL HYDRANT LOCATIONS**



- NOTES:
1. SURFACE TO BE FREE FROM OBSTRUCTIONS, LEVEL AND UNIFORMLY GRADED AROUND HYDRANT (3' MIN. RADIUS).
  2. ROCKERY OR KEYSTONE TYPE RETAINING WALL TO BE PROVIDED WHERE NECESSARY IN CUT AND FILL AREAS.

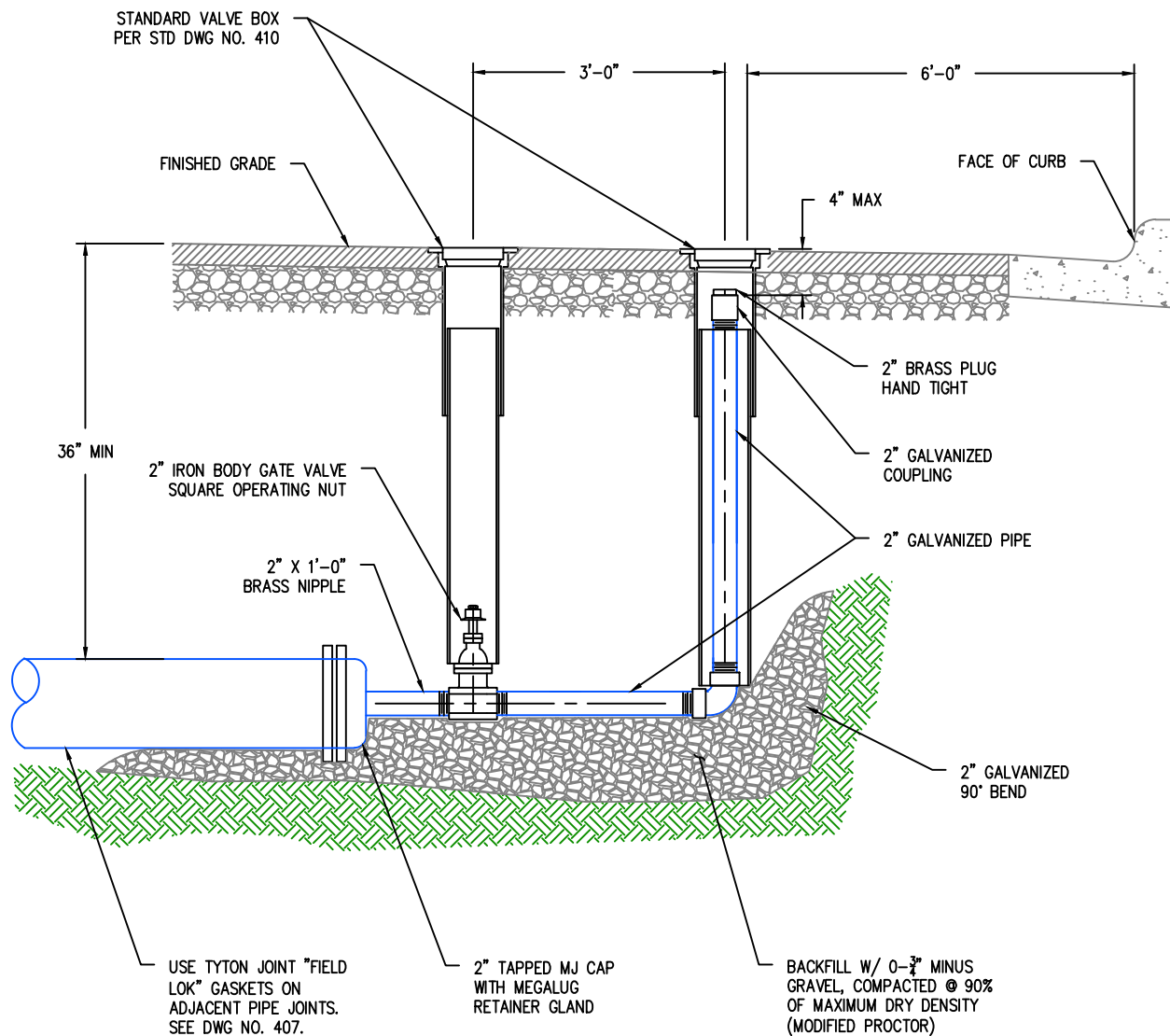


**GRADING REQUIREMENTS FOR HYDRANT INSTALLATION**

**OAK LODGE**  
 WATER SERVICES  
 WATER SYSTEM STANDARD DRAWING

FIRE HYDRANT LOCATIONS				
NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DRAWING NO.  
**412**  
 DATE: 7/7/2017  
 SCALE: NTS



**BLOWOFF ASSEMBLY**

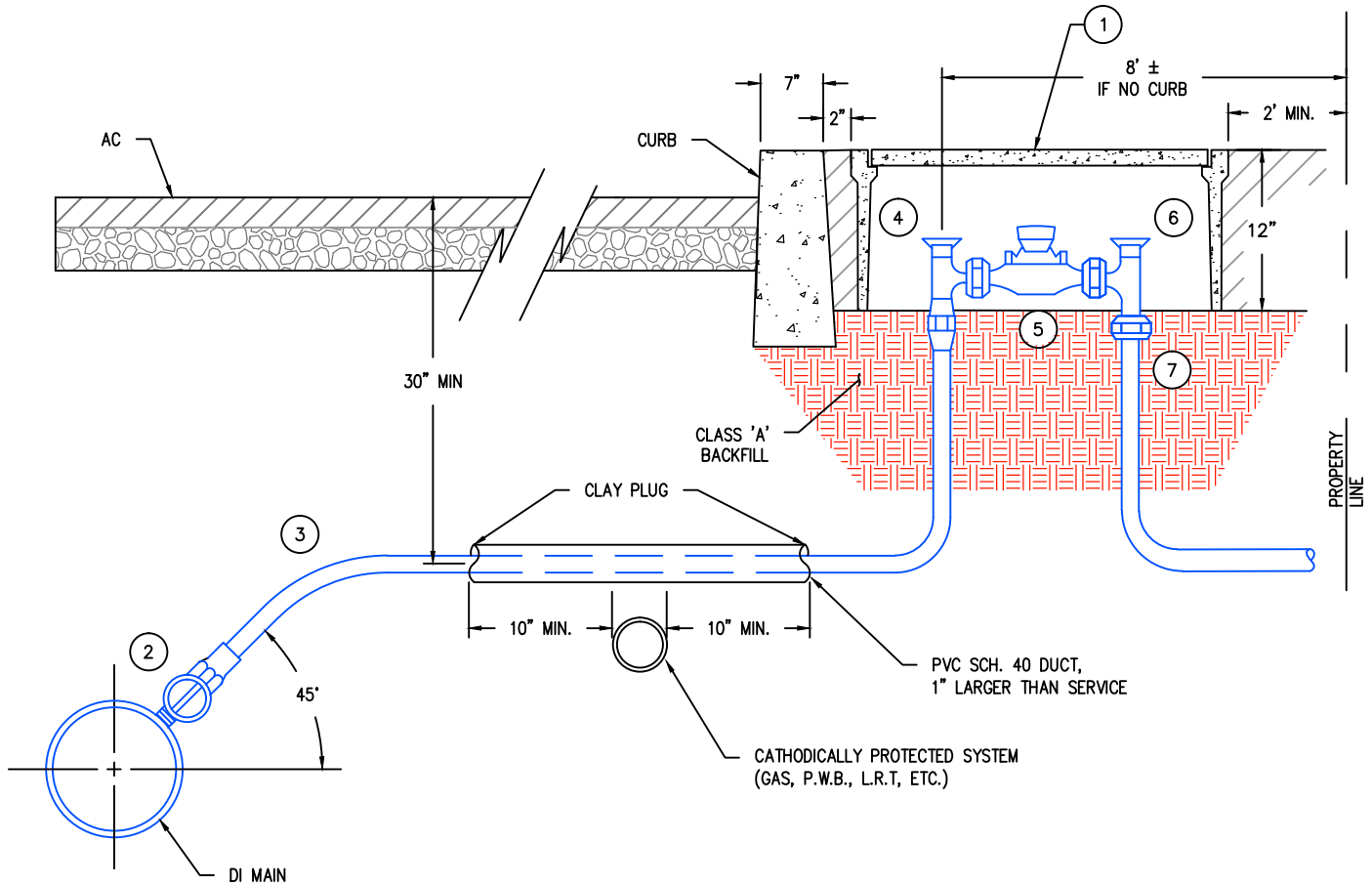
DRAWING NO.

**413**

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER

DATE: 9/12/2017

SCALE: NTS



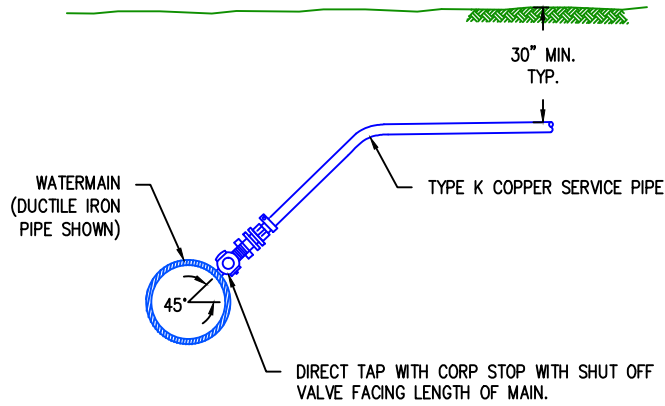
**NOTES:**

1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE DISTRICT. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4" MINUS CRUSHED AGGREGATE AND COMPACTED TO 95% MAX. DENS. AS DETERMINED BY AASHTO T-180.
2. WHEN AN ACTIVE CATHODIC PROTECTED SYSTEM IS ENCOUNTERED, SCH. 40 PVC SHALL BE INSTALLED AS SHOWN ABOVE WITH CLAY PLUG.
3. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER ASSEMBLY.
4. NO METER SHALL BE INSTALLED ON PRIVATE PROPERTY WITHOUT EASEMENT.

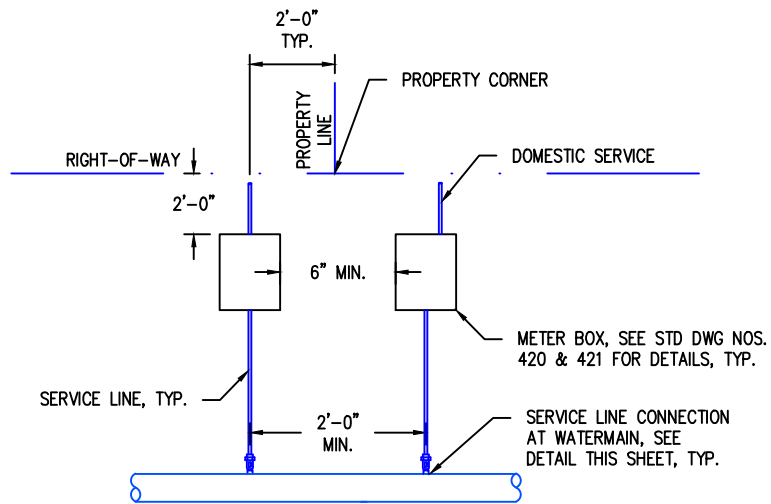
**MATERIALS:**

1. BROOKS METER BOX, #37 BOTTOM, TOP AND CI LID REQUIRED IN DRIVABLE AREA. (#37-T FULL CI COVER IF DANGER OF HEAVY TRAFFIC). OR OLDCASTLE/CARSON 1118BCF (HEAVYWALL) COMPOSITE BOTTOM, TOP AND DUCTILE IRON COVER REQUIRED IN DRIVABLE AREA.
2. CORPORATION STOP PER DWG NO. 423.
3. 3/4" SOFT TEMPER, TYPE 'K' COPPER TUBING COMPLYING WITH ASTM B-88.
4. 3/4" GROUND KEY ANGLE METER STOP (METERED SWIVEL NUT x COPPER COMPRESSION ADAPTER), FORD (KV43-332W-Q-NL).
5. WATER METER, TO BE SUPPLIED AND INSTALLED BY DISTRICT.
6. 3/4" GROUND KEY ANGLE METER STOP (METERED SWIVEL NUT x F.I.P.T.), 3/4"x1" FORD (KV13-342W-NL).
7. 1" PEX OR COPPER PIPING; PVC NOT ALLOWED.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



**COPPER SERVICE LINE**



**METER LOCATION PLAN**

**NOTES:**

1. INDIVIDUAL SERVICE CONNECTIONS, LINES, AND METER BOXES REQUIRED FOR EACH LOT/SERVICE.
2. CORPORATION STOP: AWWA I.P. THREAD INLET WITH GROUND KEY, COMPRESSION ADAPTER CONNECTION FOR TYPE K COPPER, SIZE TO MATCH SERVICE PIPE SIZE. PROVIDE BALL VALVE CORPORATION STOPS EQUAL TO FORD MODEL FB1100-3-Q-NL (3/4") OR FB1100-4-Q-NL (1"). INSTALL AT 45° FOR COPPER SERVICE LINES W/OPERATING NUT AT 3 OR 9 O'CLOCK POSITION.

NO.	REVISIONS	DATE	BY	APPROVED
1				
2				
3				
4				DISTRICT ENGINEER



**OAK LODGE WATER SERVICES**

**RESOLUTION NO. 2017-14**

**A RESOLUTION ADOPTING DISTRICT DESIGN AND CONSTRUCTION STANDARDS.**

**WHEREAS**, construction in the District occurs on a regular basis; and

**WHEREAS**, Design and Construction Standards promote consistency and describe expectation about improving sanitary, stormwater and water infrastructure; and

**WHEREAS**, District Staff developed a set of Design and Construction Standards incorporating local, state and federal government practices; and

**WHEREAS**, the Design and Construction Standards will be updated annually to incorporate changes in best practices.

**WHEREAS**, the Design and Construction Standards will be kept on file and on the District's website for inspection.

**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF OAK LODGE WATER SERVICES:**

**Section 1.** The Board hereby adopts Attachment "A" to this Resolution that is the Districts Design and Construction Standards.

**Section 2.** Staff shall publicly post the document for 30 days from adoption prior to implementation.

**Section 3.** Staff shall keep the Design and Construction Standards on file and on the District's website for inspection.

**INTRODUCED AND ADOPTED THIS 17th DAY OF SEPTEMBER 2017**

OAK LODGE WATER SERVICES DISTRICT

By: \_\_\_\_\_  
Jim Martin, President

By: \_\_\_\_\_  
Jason Rice, Secretary



## STAFF REPORT

---

**To:** Board of Directors  
**From:** Jason Rice, Interim General Manager  
**Agenda Item:** Clackamas 800 Radio Group Lease Agreement  
**Item No.:** 6  
**Date:** September 13, 2017

---

### Action Requested

Approve Interim General Manager Jason Rice and District Counsel Clark Balfour to sign an updated lease agreement with Clackamas 800 Radio Group for space at the View Acres Reservoir site.

### Background

Due to the nature of water towers and reservoirs usually existing at higher elevations than the surrounding areas, it makes them ideal candidates for placing radio signal repeaters; the District's View Acres site is no exception.

Back in May of 2002 the District entered into a Lease Agreement with then "Clackamas County" for the use of the View Acres site for the purposes of installing a trunked 800 MHz wireless network to support police, fire and other governmental functions. That agreement was set on a term of 15 years.

Now 2017, the Lease has expired and needs renewing to keep the facility active for the next 20 years.

Only a few changes were made to the original agreement, those being:

- The name of the Lessee now being "Clackamas 800 Radio Group
- The term of the agreement has been changed from 15 years to 20 years
- The original agreement had terms for capital improvements which have been completed. The District does not need any further improvements, so this language has been removed.
- The annual compensation has been reduced from \$5,000/mo with a 5% increase each year to \$25,000/year with a 1% increase each year.

## Attachments

1. Current Site Rental charges by site for Clackamas 800 Radio Group
2. Proposed Lease Agreement

## Suggested Motion

"I move to approve Interim General Manager Jason Rice to sign the proposed lease agreement with Clackamas 800 Radio Group."

# CLACKAMAS COUNTY 800 MHz RADIO SYSTEM

## Radio Site Locations - Site Lease Cost

April 19, 2017

1	Carver	0.00
2	Skyland	11,124.00
3	Damascus	14,832.00
4	Wilsonville	12,360.00
5	Mt Scott	0.00
6	Mt View Water Tank	0.00
7	Petes Mountain	16,150.42
8	Polivka	6,721.16
9	Sandy	12,360.00
10	View Acres	71,277.54
11	Brightwood	0.00
12	Crutcher	0.00
13	Tom Dick & Harry	0.00
14	Lindhart	0.00
15	Timberline	0.00
16	Canby	12,360.00
17	Day Hill	16,390.00
18	Highland	0.00
19	Redland Rd	13,178.74
20	Angel Falls	0.00
21	Oak Grove	0.00
22	Whalehead	0.00
23	Goat Mountain	24,947.00
24	Sawtell	0.00
25	LO#2	0.00
26	Lake Oswego / Canterbury	In WCCCA Cost
	<b>Total</b>	<b>\$ 211,700.86</b>

## LEASE AGREEMENT

**THIS INDENTURE OF LEASE**, made and entered into as of \_\_\_\_ day of \_\_\_\_, 2017 by and between the **OAK LODGE WATER SERVICES DISTRICT**, a water and sewer special service district created pursuant to ORS Chapters 198, 264, and 450, hereinafter called “Lessor” and **CLACKAMAS 800 RADIO GROUP (C800)**, an ORS 190 Organization, hereinafter called “Lessee”.

### WITNESSETH:

**WHEREAS**, Lessor is the owner of a water reservoir site located on SE View Acres Road in unincorporated Clackamas County, Oregon, which property is more particularly described in Exhibit “A” which is attached hereto and incorporated herein by reference; and

**WHEREAS**, Lessee is desirous of continuing to locate thereon certain facilities of Lessee’s trunked 800 MKz wireless communications network facility to support police, fire, and other governmental functions of Lessee and other governmental public safety or public works providers as Lessee may authorize, which facilities are described in Exhibit “B” attached hereto and by this reference incorporated herein; and

**WHEREAS**, Lessor is willing to enter into a Lease Agreement with Lessee to permit the location of these facilities pursuant to the terms of this Agreement.

**NOW THEREFORE**, the parties agree as follows:

1. **TERM**: The term of this lease shall be for a period of twenty (20) years beginning on the first day of the month following the approval and signing of this agreement by

Oak Lodge Water Services District and Clackamas County, and ending at 12:00 p.m., midnight, on the 30<sup>th</sup> day of the commencement month, year 2037, unless the lease is renewed pursuant to section 3 of this Agreement, and in such event terminable pursuant to the terms of this Agreement and the renewal agreement.

2. DESCRIPTION OF LEASEHOLD PROPERTY: That portion of the property described in Exhibit “A,” attached hereto and incorporated herein by reference, upon which is situated a 12’ X 24’ prefabricated structure, wave guide bridge, antennas, standby generator, 500-gallon fuel tank, and a 20’ X 20’ X 150’ high monopole self-supporting antenna structure, which facilities are more particularly described in Exhibit “B,” attached hereto and incorporated herein by reference.
3. RENEWAL OPTION: Lessor grants to Lessee an option to extend the term of this Lease for two additional terms of five (5) years each. The Lease will automatically be extended unless one or both parties gives written notice of intent not less than twelve (12) months prior to the expiration of this leasehold period. Such extended term of this Lease shall be on the same terms and conditions as those herein set forth in Section 4(a) below, unless the parties agree otherwise, effective upon commencement of the renewed or extended lease terms.
4. LEASE PAYMENTS: Lessee covenants and agrees to pay as rent for said premises herein leased the annual base rental of \$25,000 commencing with the date of commencement of lease, and thereafter on the June 30 of each year following during said Lease term or renewal term thereof; provided further, that in addition to the basic rental obligation as set forth above, Lessee shall pay to Lessor an additional monthly rental determined as follows:

- a. Subject to subsection d) of this section, during the lease term hereinabove set forth, or any extension thereof, Lessee's monthly rental payment shall be increased annually on the yearly anniversary date of this lease by an amount of 1.0% of the monthly rental provided during the preceding or then concluding year of the lease.
- b. Lessee further agrees to pay to Lessor when billed, all lawful assessments and charges which, during the term of this Lease or any renewal hereof, Lessor is required to pay because of Lessee's use and occupancy of the leased premises, including any real property or personal property tax assessments which Lessor shall receive and be required to pay as a result of Lessee's lease and operations from or upon said leased premises.
- c. Lessee shall be responsible for Lessor's cost in preparing this agreement and any successor agreements. Lessee may, with the consent of the Lessor, prepay all, or a portion, of the rental payments in advance of the date when the would otherwise be due.

IN CONSIDERATION of the leasing of said premises and of the mutual agreements hereinafter contained, each party hereto does hereby expressly covenant and agree to with the other as follows:

- a) The Lessee accepts said lease and agrees to pay to the order of the Lessor the rentals stated for the full term of this Lease in advance at the times and in the manner aforesaid, including the yearly incremental increases herein to be determined as hereinabove set forth.

- b) Lessee shall use said demised premises during the term of this Lease for the maintaining and operation of the facilities described in Exhibit “B” attached hereto and incorporated herein by reference. Lessee shall not use these facilities for any purpose other than public safety communication.
- c) Lessee has examined said property to and as a condition precedent to his acceptance and execution hereof, and is satisfied with the physical condition thereof, and its taking possession thereof shall be conclusive evidence thereof by Lessee who admits that no representation as to the condition thereof has been made by Lessor or its agents, which is not expressly endorsed hereon; and Lessee likewise agrees and admits that no agreement or promise to improve said property, either before or after the execution hereof, not contained herein, has been made by Lessor or its agents.
- d) Lessee agrees that no advertising sign of any sort will be attached to any facility placed or existing upon said premises; however, Lessee may erect or place on its premises for identification purposes a single non-illuminated sign of not more than six (6) square feet in size.
- e) Lessor does hereby acknowledge and does grant to Lessee the right, at Lessee’s expense, to locate upon or construct, as the case may be, the new facilities to said leased property as hereinabove set forth in Exhibit “B,” and to provide access thereto by way of the existing asphalt road from S.E. View Acres Road together with the gravel access drive also described in Exhibit “B”. Lessee understands and agrees that the access road use here granted by Lessor and any extension thereof as required to the premises here leased, shall be a non-exclusive right and that the maintenance of said access drive shall be a joint obligation of all parties making use of the access



drive, including Lessor and Lessee, making use thereof, and that any improvement of said access road required or desired by Lessee shall be at Lessee's sole expense.

- f) Lessee here represents to Lessor that it will not make any unlawful, improper, or offensive use of said premises here leased, nor will Lessee suffer any strip or waste thereof, nor will Lessee permit any objectionable noise, odor, or activity to be emitted from said premises or do anything about or upon said premises in any way tending to create a nuisance, nor shall Lessee in any way interfere with Lessor's use of the remainder of the aforesaid "Reservoir Property," and recognizes that this Lease is granted by Lessor on the basis of such representation by Lessee, to-wit: that Lessee's operation will in no way interfere with, harm, or damage Lessor's present or future intended use of said property for the benefit of the residents and inhabitants of the Oak Lodge Water Services District. Lessee also understands that Lessor has or may lease to other parties properties adjacent to or in the proximity of the premises herein let to Lessee, and that those other Lessees do or may conduct upon those premises operations or activities substantially similar to those here anticipated by Lessee and that it is possible that some electronic or other interference could result to Lessee's operations as a result thereof and that if such event occurs Lessor cannot and will not be responsible therefor. Lessor shall, however, be require Lessee and each new applicant for a similar lease to complete intermodulation studies on all of the frequencies they intend to use on the site and of all existing frequencies then in use on the site. These studies will be made available to each prior Lessee at least sixty (60) days prior to activation by the Lessee, or Lessees, of adjacent leases, of its facilities. The purpose of this interchange of information is to promote cooperative use of the

site by all users. If these studies show that the proposed Lessees or parties utilizing the site interfere with the operation of previous Lessees, it shall be the responsibility of the proposed party to resolve these issues to the satisfaction of the existing site users. Subject to Subsection (t) of this section, Lessor shall have the right to site its own telecommunications facilities on the site and within the leased premises without regard to the requirements of this subsection. Lessor shall also have the right to lease the right to site telecommunications facilities on the leased premises to other lessors, so long as such use does not interfere with Lessee's present or future use of these facilities.

- g) Lessee further agrees to secure and maintain during the term of this lease or any renewal thereof, at its own expense, such liability and damage and other insurance coverage as Lessor may reasonably require to protect, indemnify, and defend Lessor and Lessor's facilities located adjacent to the demised premises from liability or damages of any form or description including claims from adjacent property owners arising from the erection, maintenance, or operations of "Lessee's" facilities. Lessor acknowledges, accepts, and agrees that the lessee is self-insured from liability and property damage. If not otherwise specified by the Lessor, said self-insurance coverage shall be to the same extent as the Lessee would provide for its own facilities. Lessee further agrees that as a condition of this Lease, to provide written proof of such insurance or self-insurance coverage to Lessor, which insurance or self-insurance coverage shall contain provision that the same may not be canceled or in any way abrogated by the insurance carrier, Lessee, or otherwise, except upon a thirty (30) day written notice being first furnished Lessor of such intent. Lessee agrees that

the failure to maintain such insurance or self-insurance coverage as required by Lessor at all times shall be considered a major default under the terms of this lease. Lessee's insurance or self-insurance obligation hereunder shall not be less than \$2,000,000 for general liability and property damage liability for any one accident and/or occurrence.

- h) Lessee shall comply at Lessee's expense with all laws, regulations, and ordinances of the County of Clackamas, State of Oregon, or other public authority respecting the use of said premises, including all applicable noise ordinances, and regulations.
- i) Lessee shall pay for all heat, lights, water, power, or other services or utilities used in or on the above demised premises during the term of this Lease, and Lessee understands that Lessor shall not be required to extend or provide any said services or utilities for use by Lessee during the term of this Lease or any extension thereof.
- j) Lessor shall not be required to make any repairs, alterations, additions, or improvements to or upon the premises during the term of this Lease, unless specifically provided for herein.
- k) Lessee agrees to maintain in a good order and repair during the term of this Lease, all facilities erected or located upon the demised premises.
- l) It shall be lawful for Lessor, its agents or representatives, at any reasonable time to enter into or upon the demised premises for the purpose of examining the condition thereof or for any other lawful purpose.
- m) The Lessee will not assign, transfer, pledge, hypothecate, surrender, or dispose of this Lease or any interest therein, or permit any other person or persons whatsoever to occupy the demised premises without the written consent of the Lessor being first

obtained in writing, which consent will not be unreasonably withheld; however, Lessee or its assignee agrees to compensate Lessor for any expenses related thereto, including Lessor's attorney fees and costs. This Lease is personal to said Lessee's interest in whole or part cannot be sold, assigned, transferred, seized, or taken by operation of law or under or by virtue of any execution or legal process, attachment, or proceeding instituted against said Lessee or under or by virtue of any bankruptcy or insolvency proceedings had in regard to the Lessee.

- n) The Lessee will not permit any lien of any kind, type, or description to be placed or imposed upon the leased premises, or any part thereof, or the real estate upon which it stands.
- o) Lessee shall keep the demised premises free and clear of rubbish, debris, and obstruction and will save harmless and protect Lessor against any injury, whether to Lessor or to Lessor's property or to any other person or property, caused by Lessee's failure in that regard.
- p) At the expiration of said Lease term, or any extension thereof, or upon any sooner termination thereof, the Lessee will quit and deliver up said leased premises and all future erections or additions to or upon the same, to Lessor peaceably, quietly, and in good order and condition, subject to reasonable use and wear thereof, damage by fire, the elements, or other casualty alone excepted; provided, however, Lessee shall be required to remove all new facilities described in Exhibit "B" by the termination date of this lease or upon any sooner termination thereof unless Lessor consents in writing to allow the facilities to remain.

- q) Lessor here covenants that it has good and sufficient title to the herein demised premises, and Lessor also expressly agrees that Lessee paying the rents and keeping the covenants of this lease, shall peaceably and quietly enjoy and occupy said premises during this Lease term without hindrance, interruption, ejection, or molestation by Lessor or by any other person or persons whomever.
- r) Lessor agrees to fully cooperate with Lessee in the application of any permits necessary for the operation of the equipment thereof.
- s) It is understood that all property installed by the Lessee shall remain the personal property of the Lessee and following the termination of this Lease. Lessee shall be allowed ninety (90) days to remove same from the premises unless the termination is as a result of Lessee's twelve (12) month termination notice.
- t) Lessee agrees to allow Lessor to utilize the antenna structure for the placement of other antennas at no cost to the Lessor as long as the Lessor's antennas do not affect the current and/or future use of the antenna structure by the Lessee. Lessor shall submit to the Lessee in writing the antennas they propose to install on the antenna structure, including appropriate structural loading calculations, and Lessee shall approve such use in writing. Such approval shall not be unreasonably withheld.
- u) Lessee shall indemnify and hold harmless Lessor, its officers, directors, employees, agents, affiliates and subsidiaries, from and against any and all claims arising from Lessee's use of Lessor's property, or the conduct of its business or from any activity, work or thing done, permitted or suffered by Lessee in or about the property, and shall further indemnify and hold harmless Lessor from and against any and all claims arising from any breach or default by Lessee in the performance of its obligations

hereunder and from and against any and all costs and expenses and liabilities, including, but not limited to, attorney fees and litigation costs, incurred in connection with such claim.

- v) Lessee shall at its own expense, maintain a card-activated security system for gate access as well as a closed-circuit camera system interconnected with the County's emergency 911 system.

**PROVIDED ALWAYS**, and these presents are upon this condition, that if the Lessee shall be in arrears in the payment of said rent for a period of twenty (20) days after the same becomes due, and if said default shall continue for ten (10) days or more after written notice is given by Lessor, or if said Lessee shall fail or neglect to keep, perform, or observe any of the covenants and agreements contained herein on Lessee's part to be done, kept, performed, and observed and such default shall continue for ten (10) days or more after written notice of such failure or neglect shall be given to Lessee, or if said Lessee shall be declared bankrupt or insolvent according to law or if any assignment of Lessee's property shall be made for the benefit of creditors, or if on the expiration of this Lease or any renewal thereof, Lessee fails to surrender possession of said demised premises, then and in either or any said cases or events, Lessor or those having Lessor's estate in the premises may lawfully at its option, immediately or at any time thereafter, without notice or demand, enter into and upon said demised premises and every part thereof and repossess the same as of Lessor's former estate, and expel said Lessee and those claiming by, thereof or under Lessee and remove Lessee's effects at Lessee's expense, forcibly if necessary, and store the same, all without being deemed guilty of

trespass or without prejudice to any remedy with otherwise might be used for arrears of rent or preceding breach of covenant.

If Lessor or Lessee shall institute any suit or action for any relief against the other, declaratory or otherwise, arising out of this Lease, including any suit by Lessor for the recovery of rent, additional rent or other payments hereunder, possession of the premises or to enforce compliance with any term, covenants, and conditions of this Lease, in addition to the costs and disbursements provided by statute, the prevailing party shall be entitled to such additional sum as the Court may adjudge reasonable for attorneys' fees to be allowed herein. Lessee also agrees to pay and discharge all Lessor's costs and expenses, including Lessor's attorneys' fees, that shall arise from enforcing any provisions or covenants of this Lease even though no suit or action is filed.

Any waiver by Lessor of any breach of any covenant herein contained to be kept and performed by Lessee shall not be deemed or considered as a continuing waiver, and shall not operate to bar or prevent Lessor from declaring a forfeiture for any succeeding breach hereof of the same condition or covenant or otherwise.

Any notice required by the terms of this Lease to be given by one party hereto to the other shall be in writing, contained in sealed envelope, deposited in the United States certified mail with postage pre-paid, and if intended for Lessor herein, shall be addressed to General Manager, Oak Lodge Water Services District, 14496 S.E. River Road, Milwaukie, OR 97267-1199; and if intended for Lessee, to Manager, Clackamas 800 Radio Group, 11300 SE Fuller Rd Milwaukie, OR 97222, provided however that either party hereto may by the process indicated above advise the other of a change of address

to which notices herein required shall thereafter be directed. Any such notice shall be deemed conclusively to have been delivered to the addressee thereof forty-eight (48) hours after the deposit in the United States certified mail.

All rights, remedies, and liabilities herein given to or imposed upon either of the parties hereto shall extend to, insure to the benefit of and bind, as the circumstances may require, the heirs, executors, administrators, successors, and assigns of such parties.

**IN WITNESS WHEREOF**, the respective parties have executed this instrument in duplicate, on the day and year first hereinabove written.

OAK LODGE WATER SERVICES DISTRICT

CLACKAMAS 800 RADIO  
GROUP

X

\_\_\_\_\_  
Jason Rice  
Interim General Manager

X

\_\_\_\_\_  
County Administrator

APPROVED AS TO FORM

APPROVED AS TO FORM

X

\_\_\_\_\_  
Clark Balfour  
Board Attorney

X

\_\_\_\_\_  
Clackamas County Counsel

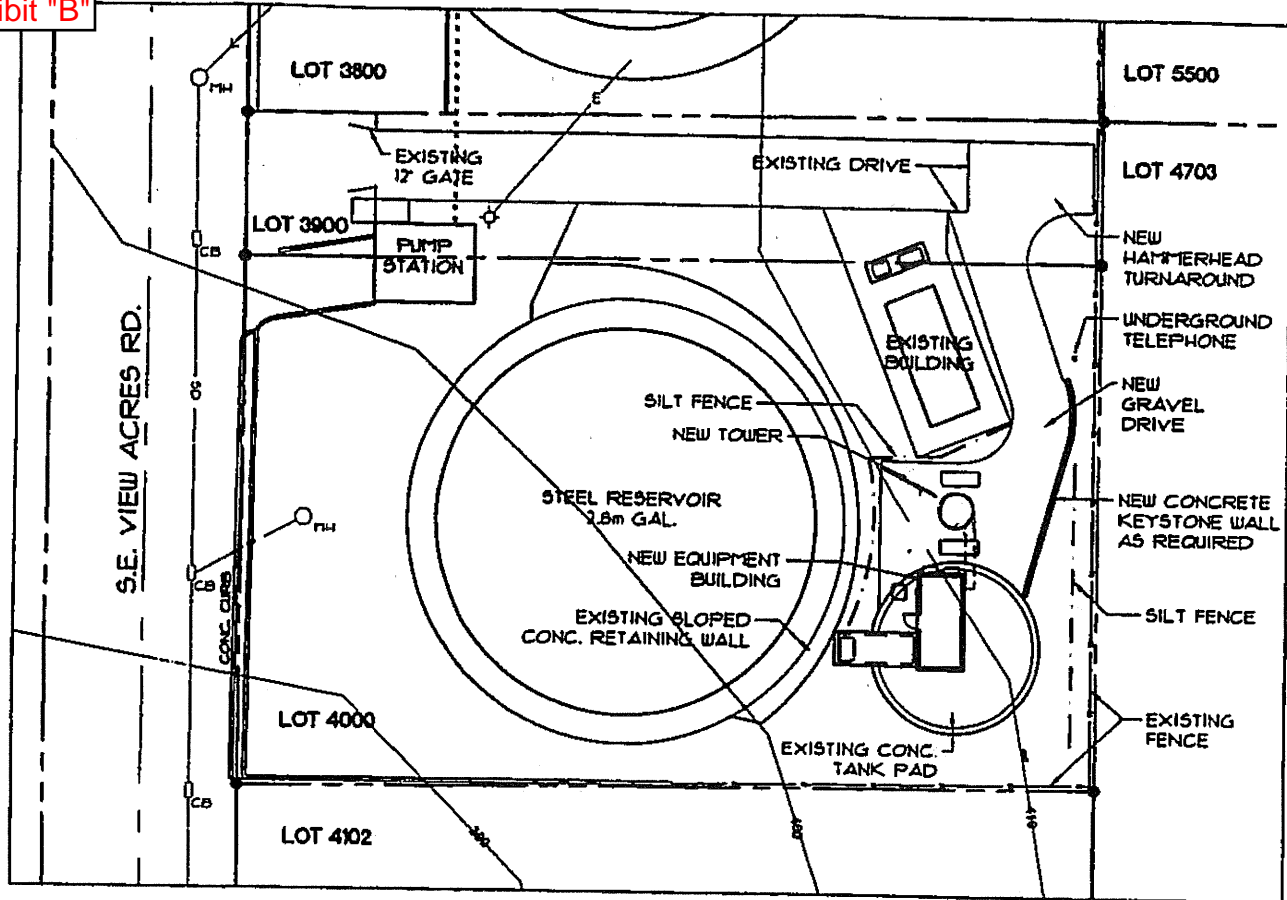


**Exhibit 'A'**  
May 24, 2002

The following is Exhibit 'A' to a Lease between Oak Lodge Water District and Clackamas County dated May 24, 2002.

**Legal Description of the leased property:**

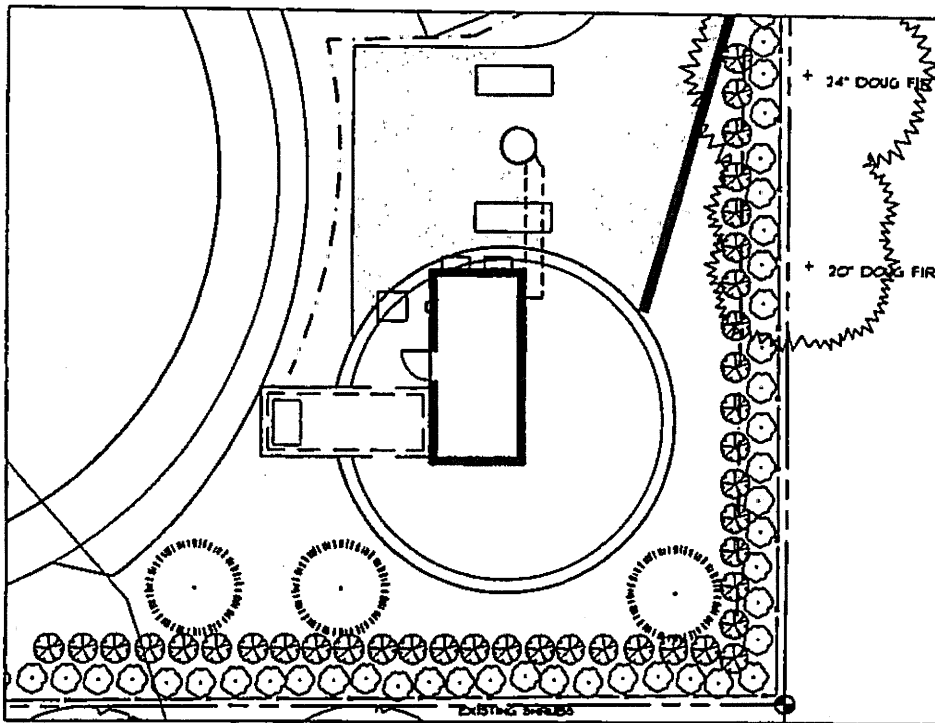
Certain property owned by Oak Lodge Water District located at 4410 SE View Acres Road, Clackamas, Oregon – Parcel 22E07BB-04000 / Township 2 South, Range 2 East, Section 7BB, Tax lot 3900 and 4000 located in Clackamas County, Oregon.



**SITE PLAN**  
1" = 40'-0"

**LOCATION:**  
T25 R2E SEC 07BB LOTS 03900 AND 04000  
OWNER: OAK LODGE WATER DISTRICT  
ZONE: R-10

**JOB SITE COPY**

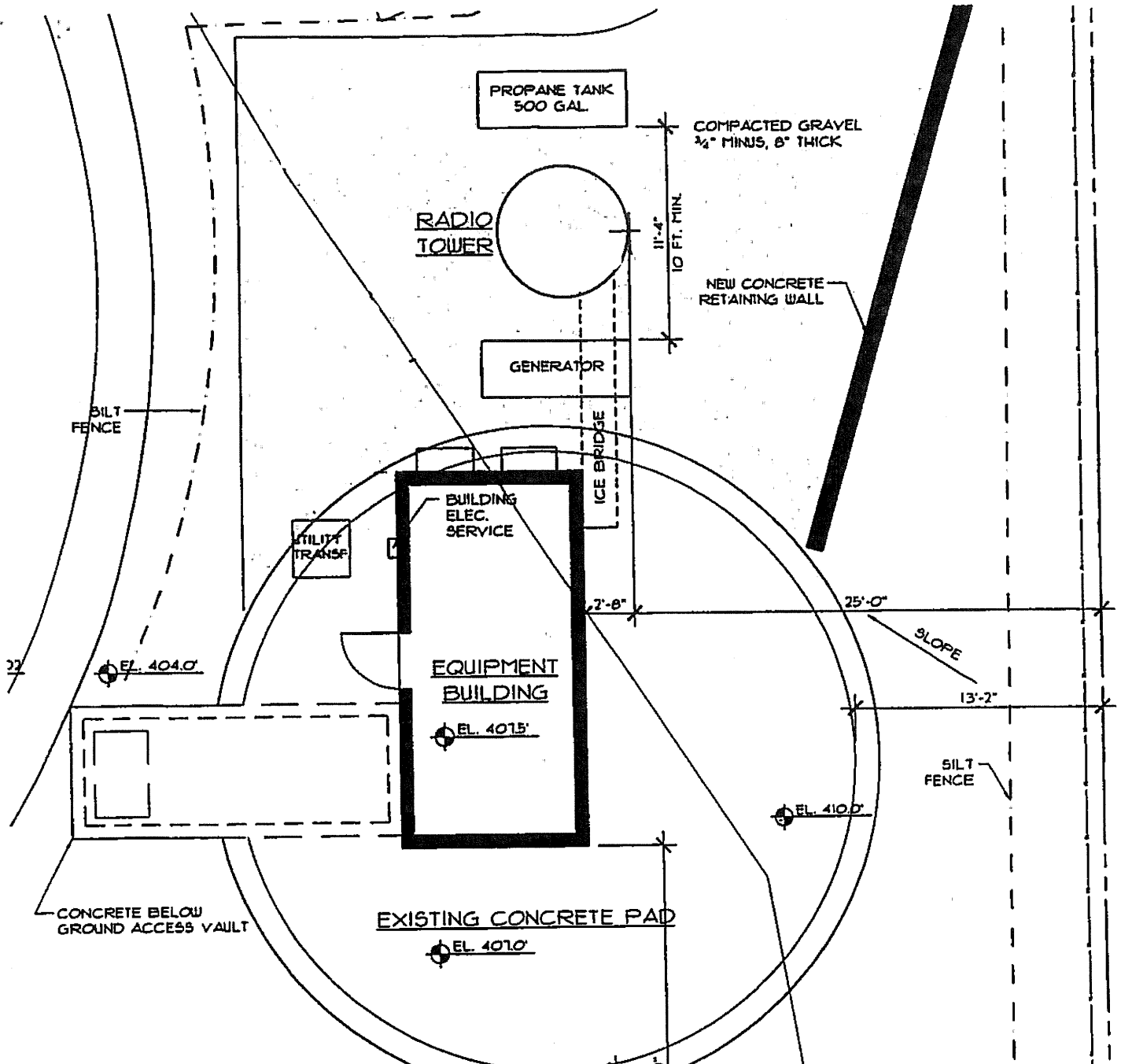


**LANDSCAPE PLAN**  
1" = 20'-0"

Approved plans and specifications shall be kept on the job site when work is in progress.

- EXISTING SHRUBS:**  
THUJA OCCIDENTALES 'EMERALD'
- NEW SHRUBS:**  
BERBERIS AQUAFOLIUM, 5 GAL. SET AT SPACES BETWEEN EXISTING SHRUBS, APPROX. 3' O.C.
- NEW TREES:**  
DOUGLAS FIR, APPROX. 6' SPACE 15 FT.





**NOTES:**

1. TOWER 150 FT. SELF-SUPPORTING STRUCTURE. SEE STRUCTURAL.
2. EQUIPMENT BUILDING PRE-FABRICATED. SEE PLANS.
3. DRIVEWAY TO BE 4" OF ¾" MINUS OVER 8" OF 4" MINUS BANK/PIT RUN GRAVEL.
4. CONCRETE GENERATOR AND PROPANE TANK PADS 3'x8'x6" W/ 14 @ 12" O.C. EA. WAY.
5. SLOPE CUT AREAS AT 4:1 TO EXISTING GRADE. COVER WITH ¾" MINUS GRAVEL.

**FACILITY PLAN**  
1/8" = 1'-0"

REGISTERED ARCHITECT  
RANDY R. TOMIC  
LAKE OSWEGO, OREGON  
STATE OF OREGON

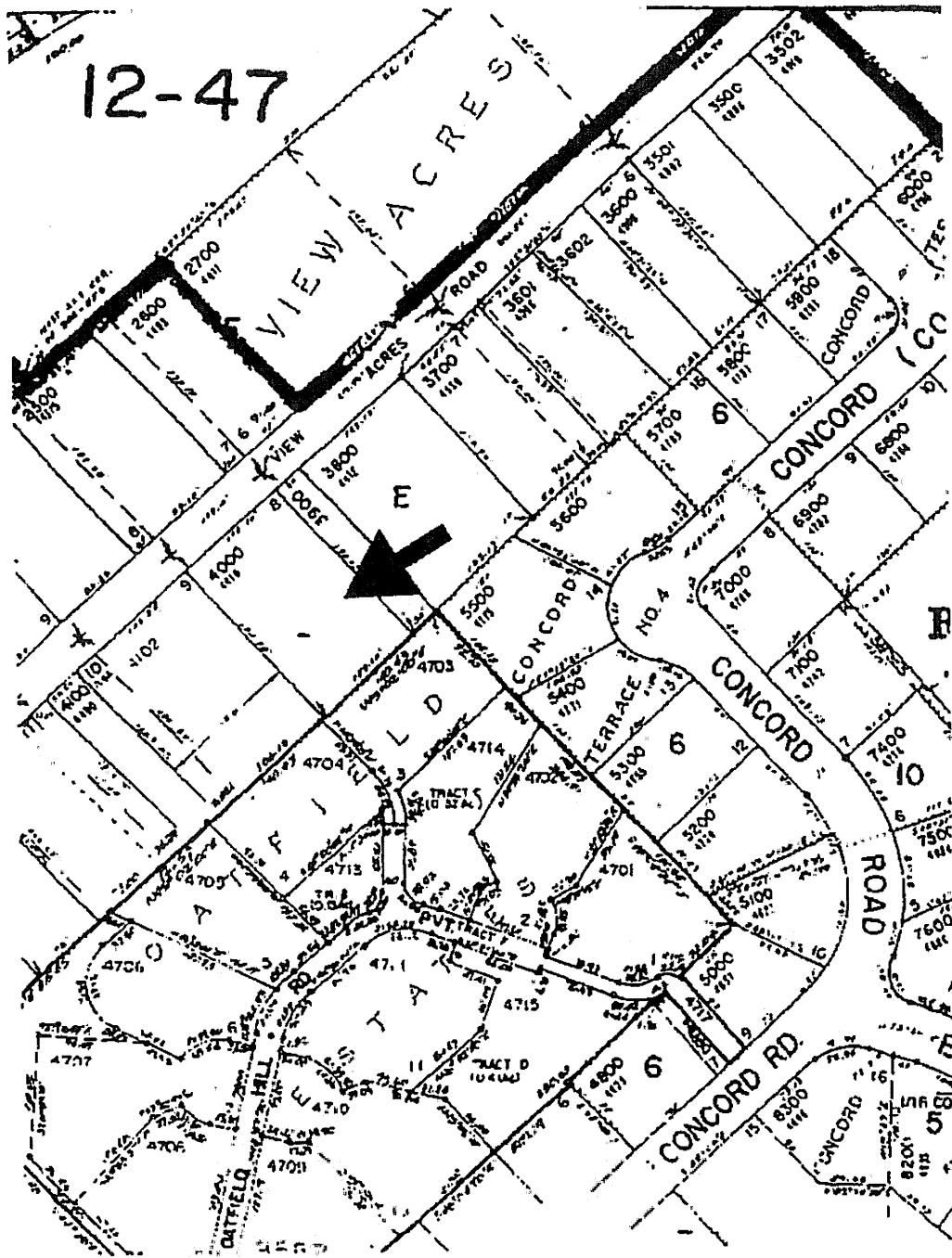
**GREENSTREET**  
architecture  
P.O. BOX 82125, PORTLAND, OR 97282  
T: 503.227.4797 F: 503.231.0017

**CLACKAMAS COUNTY COMMUNICATIONS**  
VIEW ACRES  
SE VIEW ACRES, MILWAUKEE, OREGON, CLACKAMAS COUNTY

EXHIBIT **B**  
PAGE **2 OF 4**

FACILITY PLAN	
ISSUE RECORD	12-06-01
PROJECT	2001
SCALE	1/8" = 1'-0"

12-47

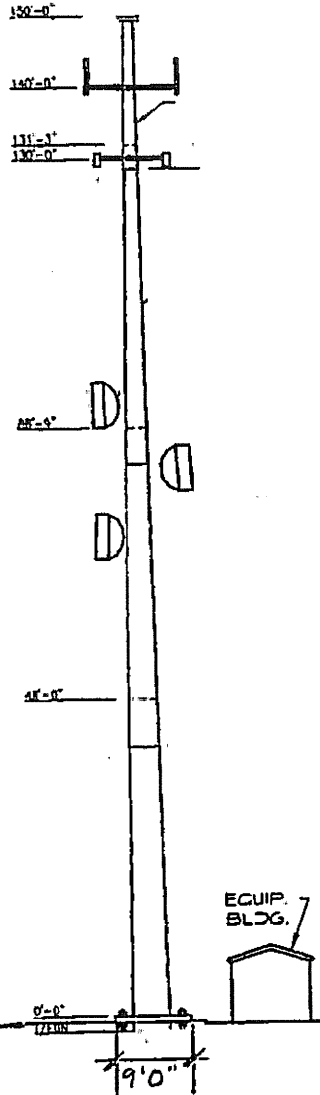


N.W. 1/4 N.W. 1/4 SEC. 7 T.2S. R.2E. W.M. CLACKAMAS COUNTY

**GREENSTREET**  
 architecture  
 128 82125, PORTLAND, OR 97262  
 503.479.7177 F. 503.231.8817

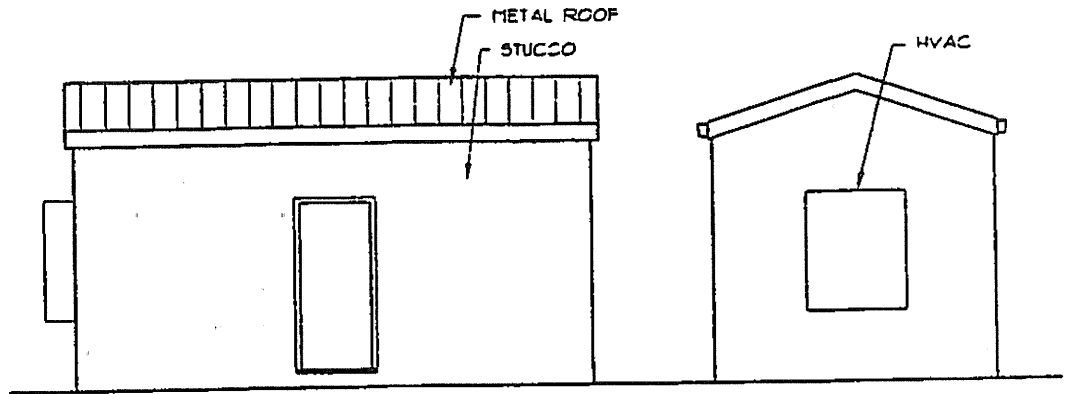
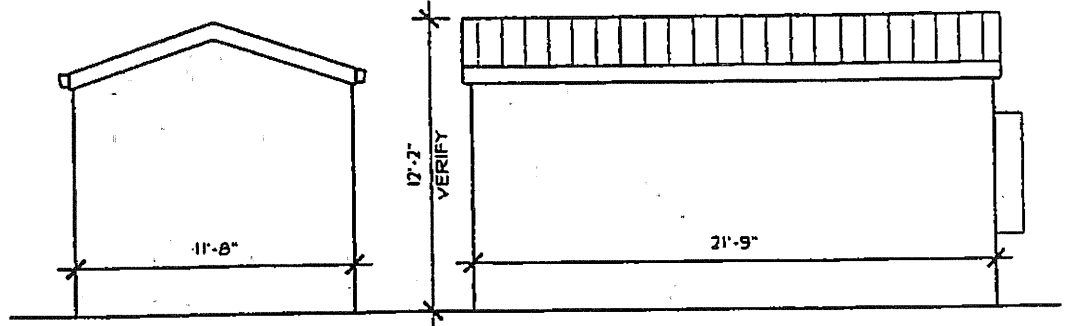
**CLACKAMAS COUNTY COMMUNICATIONS**  
 VIEW ACRES  
 SE VIEW ACRES, MILWAUKEE, OREGON, CLACKAMAS COUNTY EXHIBIT **A**

ASSESSOR'S MAP	
FILE RECORD	06-06-01
PROJECT	300'
SCALE	



**TOWER ELEVATION**

1" = 30'-0"



**ELEVATIONS - PREFABRICATED EQUIPMENT BUILDING**

1/2" = 1'-0"



**GREENSTREET**  
architecture

P.O. BOX 93125, PORTLAND, OR 97283  
T 503.227.4797 F 503.231.6817

**CLACKAMAS COUNTY COMMUNICATIONS**

VIEW ACRES

SE VIEW ACRES, MILWAUKEE, OREGON, CLACKAMAS COUNTY

VICINITY PLAN

FILE RECORD CD-201

PROJECT 220

SCALE 1/2"

EXHIBIT B 4

PAGE 4 OF 4





## STAFF REPORT

---

**To:** Board of Directors  
**From:** Jason Rice, Interim General Manager  
**Agenda Item:** Consider approving Director Gibson to comment on proposed Clackamas County Coordinating Committee (C4) Bylaws  
**Item No.:** 7  
**Date:** September 13, 2017

---

### Action Requested

Director Gibson seeks to gain approval from the Board to speak on behalf of the District as it relates to proposed C4 Bylaw amendments.

### Background

The Clackamas County Coordinating Committee (C4) is considering an amendment to their bylaws on October 5, 2017. As a voting member of C4, OLWSD will have the opportunity to vote on the attached amendments. Nancy Gibson, OLWSD's designated C4 member, has been engaged in the discussions regarding the bylaw proposals and is seeking the Board's direction on the recommended changes

### Suggested Motion

I move to approve Director Gibson to speak for (or against) the recommended changes to the C4 bylaws when C4 reconvenes on October 5<sup>th</sup>.

---

**Thursday, September 07, 2017**  
**6:45 PM – 8:30 PM**

**Development Service Building**  
Main Floor Auditorium, Room 115  
150 Beavercreek Road, Oregon City, OR 97045

---

**AGENDA**

- 6:45 p.m. Pledge of Allegiance**
- Welcome & Introductions**  
*Chair Jim Bernard & Mayor Brian Hodson, Co-Chairs*
- Housekeeping**
- Approval of June 01, 2017 C4 Minutes **Page 02**
- 6:50 p.m. Bylaw Discussion**
- Updated Draft Bylaws (Action Item) **Page 04**
- 7:20 p.m. County-wide Housing Needs Assessment: Next Steps**
- Draft Work Program **Page 11**
  - Draft Scope of Work (Action Item) **Page 13**
- 7:40 p.m. C4 Retreat Agenda Recap**
- Retreat Outcome Prioritization **Page 17**
- 8:05 p.m. Updates/Other Business**
- JPACT/MPAC Updates
  - Other Business
- 8:30 p.m. Adjourn**



**Thursday, June 01, 2017**  
**6:45 PM – 8:30 PM**

**Development Service Building**  
Main Floor Auditorium, Room 115  
150 Beaver Creek Road, Oregon City, OR 97045

**DRAFT MINUTES**

**Attendance:**

**Members:** **Canby:** Brian Hodson (Co-Chair); **Clackamas County: Chair** Jim Bernard (Co-Chair); Commissioner Paul Savas; **CPOs:** Laurie Swanson (Molalla); Marjorie Stewart (Firwood) (Alt.); **Hamlets:** John Meyer (Mulino); **Happy Valley:** Markley Drake; **Lake Oswego:** Jeff Gudman; **Metro:** Carlotta Collette; **Milwaukie:** Mark Gamba; **Molalla:** Jimmy Thompson; Elizabeth Kline (Alt); **Oregon City:** Dan Holladay; **Sandy:** Carl Exner; **Sanitary Districts:** Nancy Gibson (Oak Lodge Water Services); **Transit:** Dwight Brashear (SMART); Julie Wehling (Canby)

**Staff:** Chris Lyons (PGA); Caren Anderson (PGA)

**Guests:** Jaimie Lorenzini (Happy Valley); John Lewis (Oregon City); Mary Jo Cartasegna (BCC); Mark Ottenad (Wilsonville); Megan McKibben (Congressman Schrader); Karen Buehrig (DTD); Stephen Williams (DTD); Zoe Monahan (Tualatin)

The C4 Meeting was recorded and the audio is available on the County's website at <http://www.clackamas.us/c4/meetings.html> Minutes document action items approved at the meeting.

<u>Agenda Item</u>	<u>Action</u>
Approval of May 4, 2017 C4 Minutes	Minutes moved, seconded and approved.
July & August Meeting Dates	Discussion about meeting dates and holidays in July and August. Recommendation to not meet in July and integrate the August meeting into the retreat – moved, seconded and approved.
2017 C4 Retreat Agenda	Discussion held around the retreat agenda in the packet. Additional topic and detail for consideration include: <ul style="list-style-type: none"> <li>• Clackamas Community College – Have a job training presentation</li> <li>• Economic Development – small and large city facilitated break out session to discuss best practices</li> <li>• Map with poverty, affordable housing</li> </ul> Outcome of retreat will be to bring forward work plan for the year.
R1ACT Appointments recommendation	Draft memo and letter nominating stakeholders seats presented in packets. Recommendation to have Jeff Gudman (Urban Cities) and Bill

	Merchant (Rural Cities) represent and submit memo to ODOT – moved, seconded and approved. Mayor Gudman abstained from voting.
2017 State Legislative Update	Chris Lyons provided handouts and updated the group on Transportation and other issues.
Metro 2018 RTP Call for Projects Discussion	Steve Williams provided handouts in the packet and presented on the RTP processes, criteria and timelines.  It was recommended that we hold a local and regional process to put forward a revised set of criteria – Moved, seconded and approved.
Willamette Falls Locks Public Comment	Informational letter received from the Willamette Falls Locks Working group asking friends and stakeholders to submit comments during the upcoming public comment period for USACE ‘s “Final Disposition Study Tentatively Selected Plan”. Draft letter provided in packet to be submitted during the public comment period to USACE – moved, seconded and approved.
JPACT/MPAC Updates	Information shared through R1ACT discussion.
C4 Bylaws Subcommittee	The committee will be giving a presentation and recommendation at the C4 Retreat.
Other Business	Remember to register for the C4 Retreat in August This Saturday is the Willamette Falls Riverwalk at OMSI

Adjourned

## MEMORANDUM

**To:** Clackamas County Coordinating Committee (C4)  
**From:** Trent Wilson, Clackamas County Government Affairs Specialist  
**Date:** September 01, 2017  
**Subject:** Updated Draft Bylaws

---

### Overview:

Staff presented at the C4 retreat the recommendations from the C4 Bylaws Subcommittee, which shaped the attached draft bylaws included in the September 07 C4 packet. Primary recommendations included:

- How agendas are formed
- Securing a placeholders for Villages should they be reinstated
- Meeting notices for C4 meetings
- Clarifying there are no alternates for the co-chair positions in the event of a meeting absence, which does not prohibit that jurisdiction's alternate from attending or voting, only from acting as a replacement co-chair
- Updating and simplifying the definition of Hamlets in the Section 7

Additional discussion at the retreat included the following recommendations:

- The inclusion of Housing as a footnote, noting relationship to land use issues. This update can be found in the "definitions" portion of the draft bylaws, section 7.
- Consideration of Sturgis as a replacement parliamentary procedure to Robert's Rules Revised.

Finally, it was discussed at the C4 Retreat that the C4 Metro Subcommittee would have the opportunity to discuss at future C4 Metro Subcommittee meetings ways to improve the bylaws language that guides the role and business procedure of the C4 Metro Subcommittee. After they reach agreement, the C4 Metro Subcommittee will propose to the C4 body an update to the C4 bylaws pertaining to that section.

### Recommendation:

Staff recommends C4:

- A) Consider the addition of Sturgis Rules of Order as possible parliamentary procedure replacement, and
- B) Advance (or amend and advance) the draft bylaws included in this packet. This would start the 30-day review process, as guided by Section 8 of the bylaws. C4 would have the opportunity to formally adopt the new bylaws on October 5, 2017.

**CLACKAMAS COUNTY COORDINATING COMMITTEE BY-LAWS**

1. **PURPOSE**

The Clackamas County Coordinating Committee (C-4) was founded by the County to promote a partnership between the County, its Cities, Special Districts, Hamlets, Villages, and Community Planning Organizations (CPOs).

C-4's primary functions are to:

- Enhance coordination and cooperation between the jurisdictions
- Establish unified positions on land use and transportation plans
- Provide a forum for issues of mutual benefit and interest
- Promote unified positions in discussions at the state and regional levels

2. **MEMBERSHIP POLICY BODY**

Committee membership shall consist of representatives from the following jurisdictions, communities, and districts:

<b>Voting Body</b>		<b>Members</b>	<b>Votes</b>
<i>* = Urban Jurisdiction</i>			
<i>^ = Urban &amp; Rural Representation</i>			
<b>County</b>	Board of County Commissioners^	2	2
<b>Cities</b>	Barlow	1	1
	Canby	1	1
	Estacada	1	1
	Gladstone*	1	1
	Happy Valley*	1	1
	Johnson City*	1	1
	Lake Oswego*	1	1
	Milwaukie*	1	1
	Molalla	1	1
	Oregon City*	1	1
	Portland*	1	1
	Rivergrove*	1	1
	Sandy	1	1
	Tualatin*	1	1
	West Linn*	1	1
	Wilsonville*	1	1
	<b>Communities</b>	CPOs^	1
Hamlets		1	1
<u>Villages</u>		<u>1</u>	<u>1</u>
<b>Districts</b>	Fire*	1	1
	Sanitary*	1	1
	Water*	1	1
<b>Total</b>		<b><u>2324</u></b>	<b><u>2324</u></b>

<b>Non-Voting Body</b>		<b>Members</b>
<b>Regional</b>	Metro*	1
	Clackamas Citizen from MPAC	1
<b>Transit</b>	Rural	1
	Urban*	1
<b>Other</b>	Port of Portland*	1
<b>Total</b>		<b>5</b>

At a minimum, Clackamas County Board of Commissioners will select its two (2) elected representatives in February of odd-numbered years and notify the Secretary of C-4 by letter signed by the Chair or a designee appointed by the Chair.

At a minimum, the cities shall provide the names of their elected C-4 representatives and alternates by letter signed by the Mayor or their designee in February of each odd-numbered year to the Secretary of C-4.

The special districts/authorities representatives shall be designated by agreement among districts/authorities represented. The Hamlet ~~or~~ **and Villages** representative shall be designated by agreement among the County's Hamlets **and Villages** represented. The process for designating the representatives shall be established by agreement among each of the groups of Districts/Authorities and Hamlets/**Villages**. Each of these entities shall submit the names of their elected C-4 representative and alternate to the Secretary of C-4 by letter signed by the Chairs of the Boards represented in February of every even-numbered year.

The CPO representative and alternate shall be determined in a process that is guided by the County and includes the opportunity for input of each of the County's recognized CPOs and the County's Committee for Citizen Involvement (CCI). That selection process shall be completed by February of each even-numbered year and the name of the representative and alternate shall be submitted to the C-4 Secretary.

Each jurisdiction with a voting membership shall have one (1) vote, with the exception of the County which has two (2) votes. The cities, special districts, and Clackamas County representatives to JPACT and MPAC are encouraged but not required to have their representative as a voting member or alternate on C-4.

The Metro Council shall provide the name of their C-4 representative and alternate by letter signed by the Metro President or his/her designee in February of each odd-numbered year.

The representatives from the Port of Portland, the transit agencies, and the Clackamas Citizen from MPAC are not elected officials, and their membership is determined by appointment from their respective organizations.

3. EXECUTIVE COMMITTEE

The Executive Committee shall be comprised of a representative of: (a) the board of county commissioners, (b) an urban city, (c) a rural city, (d) water and sewer districts, (e) fire districts, and f) Hamlets, Villages, and CPOs. ~~The Executive's Committee will shall establish-set~~ the agendas for meetings of C-4, including additional agenda request items that may be made -as set forth in section 5(G) of these Bylaws. and ~~may to~~ make recommendations to the C-4 body on action items as appropriate. C-4 Metro Jurisdiction cities and Rural Cities shall elect their respective Executive Committee representatives annually at the March C-4 Regular meeting. Special Districts shall annually determine their own Executive Committee representative selection process and shall submit the name of the appointment by a letter signed by the chairs of the special district boards to the Secretary of C-4 at or before the March C-4 meeting.

4. OFFICERS

The co-chairs of the Executive Committee will also serve as the co-chairs of C-4 and shall be elected annually at their March meeting by members of the Executive Committee from among its members. The County member will co-chair the Executive Committee and C-4. The secretary of the Executive Committee and C-4 shall be a county staff member designated by the Board of County Commissioners.

5. PROCEDURES

A. Meetings

All meetings of C-4 and any of its subcommittees are considered public meetings under Oregon's Public Meetings Law. Meetings will be held monthly on a day to be determined by C-4 or called as needed by the co-chairs or by a vote of C-4. The secretary is responsible for notifying members of the meeting time and place and for preparing the agenda. Meeting notices will be provided to the C-4 members, interested parties, and to the public as soon as practicable and shall include a list of the principal subjects anticipated to be considered.

B. Quorum

A quorum of C-4 shall consist of a majority of the participating jurisdictions' voting members.

C. Voting

Votes in C-4 shall carry by a simple majority of those present, provided that no action shall be taken unless a quorum is present. Only members or their designated alternate shall have voting rights.

D. Alternates

A designated alternate will sit in the absence of a member and shall have full voting rights. Alternates will be appointed by the member jurisdiction. There shall be no alternates for either of the co-chair positions.

E. Records

All C-4 actions shall be documented in the form of minutes, memoranda and special reports. The secretary will be responsible for such documentation and distribution of such minutes, memoranda and reports.

F. Rules

Meetings shall be conducted in accordance with Roberts' Rules newly revised.

Commented [WT1]: Potential change to Sturgis

G. Additional Agenda Requests~~Agenda Items~~

Before presentation to C-4 for action, agenda items shall be presented to the Executive Committee for consideration and placement on the agenda of an upcoming meeting of C-4. Only voting members of C-4 shall be eligible to recommend agenda placement items. If the Executive Committee declines to place an item on the C-4 agenda, then any voting member may present the agenda item for consideration of placement as an agenda item to the entire C-4 body. The matter shall be presented by the voting member under "other business." If C-4 votes in the affirmative to place the matter on the agenda, then it will be placed as an agenda item on the next meeting agenda. If that agenda is full, then not later than the following meeting, unless a later agenda date is otherwise agreed to by the voting C-4 members present. ~~sent to the member jurisdictions and to all fire districts, water districts/authorities and sanitary sewer districts/authorities for discussion by the governing body.~~ Compliance with this ~~section~~requirement may be waived where circumstances warrant faster action by an majority affirmative vote of two-thirds of those C-4 voting members present.

6. ADVISORY SUBCOMMITTEES:

A. Metro Subcommittee

C-4 members who are within the Metro jurisdiction shall be a subcommittee of C-4 named Metro subcommittee. This subcommittee shall at a minimum be the body which nominates and elects cities' representatives to: Joint Policy Advisory Committee on Transportation (JPACT); Metro Policy Advisory Committee (MPAC) and associated technical committees: Transportation Policy Advisory Committee (TPAC); and Metro Technical Advisory Committee (MTAC) respectively. These nominations and elections shall occur in November of each even numbered year in accordance with Metro Charter requirements.

Commented [WT2]: To be updated pending a future recommendation by the C4 Metro Subcommittee and approval by the larger C4 body.

B. Rural Cities Subcommittee

C-4 members who are outside of the Metro jurisdiction shall be a subcommittee of C-4 named Rural Cities subcommittee. This subcommittee shall at a minimum develop positions relative to transportation issues and related funding for presentations to the ODOT Region 1 Area Commission on Transportation (R1ACT). The Rural Cities subcommittee shall also consider coordination with the County, State, and other jurisdictions as appropriate, on land use, planning, or other issues that may uniquely affect these cities located outside of the Metro boundaries.

C. Management Advisory Subcommittee

The administrator of each city, district, authority and county shall serve as a Management Advisory Subcommittee. This subcommittee will provide overview and advice to C-4 and support the work of the Technical Subcommittees. The subcommittee shall also have the responsibility, as directed by C-4, of constituting any ad hoc subcommittees or other groups established for information and advice on specific issues. The Management Advisory Subcommittee shall meet as needed.

D. Technical Advisory Subcommittees

C-4 shall be informed and advised by the following standing Technical Advisory Committees, as well as other ad hoc subcommittees established and chartered at the direction of the co-chairs for information and advice on specific issues, plans or projects of interest to C-4.

1. Clackamas Transportation Advisory Committee (CTAC)

The membership of CTAC shall consist of staff representatives of all agencies on the policy body and is to review transportation plans, projects, and funding issues, and make recommendations to C-4. CTAC shall operate under the same procedures as the policy body, and will meet as needed to be determined by committee members. Member cities will have only one vote when votes are required.

2. Land Use Advisory Subcommittee

The membership of this subcommittee shall consist of the planning directors or the staff persons with lead planning responsibility for all agencies on the policy body. The subcommittee is to focus on land use issues and transportation issues that may have an impact on land use. The subcommittee shall operate under the same procedures as the policy body, and will meet as needed to be determined by subcommittee members or when scheduled by the chairman or by a vote of the subcommittee.

7. DEFINITIONS

Urban cities are those incorporated cities located, either fully or partially, within Clackamas County and also located within Metro's Urban Growth Boundary.

Rural Cities are those incorporated cities located within Clackamas County and also located outside Metro's Urban Growth Boundary.

The Hamlets ~~and Villages~~ of are designated communities recognized by Clackamas County as participating in the Hamlets and Villages Program, include: Beaverreek, Molalla Prairie, Mulino and Stafford.

Housing as a topic of discussion is not specifically found in the primary functions of the bylaws, but is understood by C-4 to be fall within land use and transportation issues.

Community Planning Organizations (CPOs) are officially recognized by the County and statutorily defined public bodies that consist of citizen volunteers who represent their



neighborhoods on issues of importance to local communities and make decisions and recommendations to the County.

8. AMENDMENTS

These by-laws may be amended from time to time by a majority of the members of C-4, provided that all voting members of C-4 and all fire districts, water districts/authorities and sanitary sewer districts/authorities have been sent copies of the proposed amendments thirty (30) days prior to the meeting where action on the rules is scheduled.

Adopted on September 26, 2001

Amended on March 3, 2005

Amended on February 5, 2009

Amended on January 7, 2010

Amended on November 3, 2011

Amended on April 4, 2013

Amended on December 5, 2013

Amended on January 5, 2017

Adopted on October 4

Commented [WT3]: Pending adoption.

**MEMORANDUM**

**To:** Clackamas County Coordinating Committee (C4)  
**From:** Trent Wilson, Clackamas County Government Affairs Specialist  
**Date:** September 01, 2017

**Subject:** County-wide Housing Needs Assessment: Next Steps

---

**Overview:**

Attendees at the C4 retreat agreed with the proposed county-wide housing needs assessment draft scope of work (included in the September 7 C4 packet) and recommended Clackamas County move forward with a Request For Proposal process that would return bids and provide more understanding of potential costs.

As the County moves forward with the RFP, staff is also requesting C4 consider the enclosed draft Work Program and select a C4 representative to serve on a Working Group – a small group that will participate in the RFP bid selection and help guide the housing needs assessment process as it advances.

**Recommendation:**

Staff recommends C4 reach agreement on the draft work program and select a C4 member(s) to participate in the Working Group.

# C4: Housing Needs Assessment **Draft** Work Program

## Overview

As part of the Scope of Work being discussed for the county-wide Housing Needs Assessment for Clackamas County, this Draft Work Program outlines the proposed timeline for the C4 approval process to move forward with a Scope of Work and the proposed Work Program that commences if the County and cities agree to move forward.

## Timeline

### *Approval of Scope of Work*

- 2017 Aug: C4 Retreat – Discuss scope of work and agree on any changes.
- 2017 Aug: Scope of work - Refined by C4 staff and sent to C4 Members and City Managers for council discussion.
- 2017 Sept: Approval Discussion – Cities and county discuss with their councils/commissions the scope of work and financial commitment. Cities and county will also designate a point of contact for project moving forward.
- 2017 Nov: C4 Meeting – C4 Members report back about lingering questions on Scope of Work, financial commitment, or other remaining questions.

### *Work Program*

Once C4 members agree to participate in the county-wide Housing Needs Assessment and the Scope of Work is approved by C4 as a body, the following process is the proposed process:

	C4 Committee	C4 Working Group	County Staff
Approve HNA Scope of Work	X		
Prepare HNA RFP		X	
Advertise			X
Review Proposals		X	
Select Consultant	X	X	
Prepare Contract			X
Review Progress (6 Monthly meetings)		X	
Publish Report		X	
Adopt Report	X		

## Working Group

If the county and cities agree to proceed with the scope of work, a Working Group will be created to help manage the RFP and Study process. Below is the proposed Working Group composition.

- 1 C4 Member
- 2 County Staff (including the Housing Community Development Director)
- 3 City Representatives

# DRAFT Clackamas County Housing Needs Assessment

## PURPOSE:

The Clackamas County Housing Needs Assessment (HNA) should provide the following information and analysis:

1. Provide an in-depth analysis of the current as well as the future needs for affordable, workforce and other housing options primarily of current and future community households, reported incrementally in relation to the Area Median Income (AMI).
2. Develop a set of quantifiable recommendations to bridge those identified gaps.
3. Form a foundation of understanding based on segregated data sets for each Jurisdiction for strategic planning to address local housing needs. The researcher should also be able to present the data for countywide issues as well.
4. Provide information necessary to meet Oregon’s Statewide Planning Housing Goal (Department of Land Conservation and Development Goal 10 – Housing – See Attachment).

## STUDY AREA

The study area includes 12 of the 14 cities and the unincorporated area of Clackamas County (Jurisdictions). Taken from the 2010 Census and 2015 American Community Survey (ACS) 5-Year Estimates is information on the Total Population and Total # of Housing Units in each Jurisdiction. The City of Milwaukie and the City of Wilsonville have completed their own Housing Needs Assessments and are not part of the Jurisdictions included in the HNA. However their information needs to be incorporated in all discussions concerning countywide goals, objectives and issues.

	2010 Census		2015 ACS	
	Pop	# Units	Pop	# Units
City of Canby	15,829	5,890	16,951	6,134
City of Gladstone	11,497	4,779	11,741	4,946
City of Rivergrove	289	133	355	156
City of Johnson City	566	278	573	287
City of Estacada	2,695	1,155	2,968	1,343
City of West Linn	25,109	10,035	25,963	10,271
City of Happy Valley	13,903	4,708	16,462	5,489
City of Molalla	8,108	3,017	8,726	3,184
City of Sandy	9,570	3,768	10,134	4,156
City of Oregon City	31,859	12,900	34,480	13,313
City of Lake Oswego	36,619	16,995	37,628	17,073
City of Barlow	135	45	147	48
City of Milwaukie*	20,291	9,138	20,566	9,308
City of Wilsonville*	19,509	8,487	20,803	8,488
Unincorporated Clackmas County	180,013	75,617	181,941	75,558

# DRAFT Clackamas County Housing Needs Assessment

## PROJECT GOALS & OBJECTIVES

The Jurisdictions desire to have a wide range of quality housing options, both rental and for sale products, available for existing and future Clackamas County residents. In order to accomplish this, the HNA must:

- Analyze current housing conditions and project future housing needs.
- Define the gap between the current housing options and the number and type of housing units needed by households in each Jurisdiction. This information should be segregated by jurisdiction so that their planning staff can use the geographic specific data in local planning initiatives.
- Assess and illustrate the current balance of housing stock in each Jurisdiction.
- Assess the condition of the housing stock within each Jurisdiction and explore available methods to improve and maintain quality housing.
- Take into account housing needs of the Portland Metro region as a whole, including the need for affordable housing, especially as it relates to the location of such housing proximate to job sites.
- Identify barriers or constraints to developing or rehabilitating housing both economically and efficiently. (i.e. What are the costs of rehabs and how accessible are those costs to home/landowners?)
- Establish criteria for housing development based on the employment growth rate, income levels, family composition in both new construction and rehabilitation or infill for existing neighborhoods.
- Using existing transportation data, predict the impact of future transportation patterns, constraints, and challenges on projected employment and housing patterns.
- Identify needs of low-income and special needs populations such as the elderly and disabled.
- Identify needs of workforce and labor housing (i.e. farming, tourism/mountain)
- Provide a framework for meeting the demands of the changing (and growing) housing market.

## MINIMUM REQUIRED DATA ELEMENTS

The Consultant selected to complete the HNA is free to develop specific methodology as they deem appropriate. However, the final document should, at a minimum, quantify the following data elements:

1. Existing Housing stock
  - a. By tenure – rent, own
    - Rental to be broken down into short-term and long term lease
  - b. By type – single, multi family, manufactured, rental, senior
    - Subsidized, income-restricted units (project based, tax credit, etc.)
    - Age-restricted units (both subsidized and market rate)

# DRAFT Clackamas County Housing Needs Assessment

- Handicap-accessible units (both subsidized and market rate)
  - Special needs units (e.g., D.O.C. transitional housing)
  - Units in mobile home parks, RV parks, and manufactured housing
  - Unrestricted market-rate units
  - Single-family and multi-family
- c. By value – property values, rents
  - d. By age and condition
  - e. Vacancy rates
2. Housing & Land Issues
    - a. Buildable Land Inventory
    - b. Housing market turnover/sales data
    - c. Building permit history
    - d. Land Use Projects – where is the development occurring and where is it likely to occur in the future?
    - e. Where are the areas most susceptible to gentrification
    - e-f. Rental Housing Demand
    - f-g. Infrastructure capacity/challenges (if applicable)
    - g-h. Rehab of existing housing stock
    - h-i. Development of new housing stock
  3. Demographics – now and future (5 yr., 10 yr., 15 yr.)
    - a. Population and demographic trends
    - b. Households by income, age, size
    - c. Wages and household income
    - d. Migration patterns (if available)
  4. Economics
    - a. Economic base – by industry and key employer
    - b. Anticipated employment trends
    - c. Commuting patterns – employment and services (ex. education, retail, health care, manufacturing, etc.)
    - d. Workforce Housing Needs and Availability
    - e. Future growth and projects (as identified in this process)

## RESEARCH QUESTIONS

1. What can our cities and county expect with respect to economic, employment, and population change in the next 5- 10- and 15-years?
2. Based on market and gathered research information, what is the nature and extent of short-to-mid-term housing demand in our Jurisdictions?
- ~~3.~~ What are the housing demands in each Jurisdictions?
- ~~4.~~3. What will the demands be for the different housing types over the next 15-years?
- ~~5.~~4. What are the development action steps recommended for each jurisdiction?

## DRAFT Clackamas County Housing Needs Assessment

- 6.5. How should each jurisdiction prioritize the needed actions steps?
- 7.6. What funding opportunities are available to assist in meeting the action items?
- 7. What development opportunities are available to assist in meeting the action items?
- 8. What are the barriers to address housing needs in each jurisdiction? (e.g. zoning code, land use issues, access to services such as transit, childcare, distance to jobs)
- 8.9. How many “oversized houses” exist in each jurisdiction, and are there land use codes preventing conversion of those houses into multifamily housing?

DRAFT

## 2017 C4 Retreat Outcome Prioritization

The following list represents the action items from the 2017 C4 Retreat. C4 members will have the opportunity on September 7 to prioritize these discussion and provide additional feedback on preferred approach and details expected from these discussions. The C4 Executive Committee will use this prioritization process to help set the C4 agenda, and staff will use this information to help prepare meeting materials, speakers, and other support as needed.

**Outcomes:** *Please rank the following items to help the C4 Executive Committee set future agendas.*

### **Bylaws:**

\_\_\_: Approve recommendations from C4 Bylaws Subcommittee/C4 Retreat discussion

\_\_\_: C4 Metro Subcommittee to discuss their section in bylaws and propose updates to C4 body

### **Housing:**

\_\_\_: County-wide Housing Needs Assessment

\_\_\_: SDC, CET, and other funding ideas

\_\_\_: Shared information regarding Housing toolkits

### **Transportation:**

\_\_\_: Local funding discussion

\_\_\_: Metro Pilot Criteria Discussion

\_\_\_: Regional Bond Updates

\_\_\_: Tolling: Updates from ODOT as needed

\_\_\_: Transit – First and last mile connections

\_\_\_: Transit – Funding

\_\_\_: Vehicle Registration Fee

**Other:** *Please provide additional information below to help guide the C4 Executive Committee and staff.*

---

---

---



## Parliamentary Procedure at a Glance

(Based on *The Standard Code of Parliamentary Procedure* by Alice Sturgis)

### Principal Motions (Listed in Order of Precedence)

TO DO THIS	YOU SAY THIS	May You Interrupt Speaker?	Must You Be Seconded?	Is The Motion Debatable?	What Vote is Required?
*Adjourn the meeting	"I move the meeting be adjourned"	NO	YES	YES (RESTRICTED)	MAJORITY
*Recess the meeting	"I move that the meeting be recessed until..."	NO	YES	YES**	MAJORITY
Complain about noise, room temperature, etc.	"I rise to the question of personal privilege"	YES	NO	NO	NONE
Postpone temporarily (Table)	"I move that this motion be tabled"	NO	YES	NO	MAJORITY (REQUIRES TWO-THIRDS IF IT WOULD SUPPRESS)
End debate	"I move to vote immediately"	NO	YES	NO	TWO-THIRDS
*Limit debate	"I move that each speaker be limited to a total of two minutes per discussion"	NO	YES	YES**	TWO-THIRDS
*Postpone consideration of an item to a certain time	"I move to postpone this item until 2:00pm..."	NO	YES	YES**	MAJORITY
*Have something referred to committee	"I move this matter be referred to..."	NO	YES	YES**	MAJORITY
*Amend a motion	"I move to amend this motion by..."	NO	YES	YES	MAJORITY
*Introduce business (the Main Motion)	"I move that..."	NO	YES	YES	MAJORITY
*Amend a previous action	"I move to amend the motion that was adopted..."	NO	YES	YES	MAJORITY
Ratify action taken in absence of a quorum or in an emergency	"I move to ratify the action taken by the Council..."	NO	YES	YES	MAJORITY
Reconsider	"I move to reconsider..."	YES	YES	YES**	MAJORITY
Rescind (a main motion)	"I move to rescind the motion..."	NO	YES	YES	MAJORITY
Resume consideration of a tabled item	"I move to resume consideration of...?"	NO	YES	NO	MAJORITY

\*Amendable

\*\*Debatable if no Other Motion is Pending

## Parliamentary Procedure at a Glance

(Based on *The Standard Code of Parliamentary Procedure* by Alice Sturgis)

### Incidental Motions

TO DO THIS	YOU SAY THIS	May You Interrupt Speaker?	Must You Be Seconded?	Is The Motion Debatable?	What Vote is Required?
Vote on a ruling by the Chair	"I appeal the Chair's decision"	YES	YES	YES	MAJORITY
Consider something out of its scheduled order	"I move to suspend the rules and consider..."	NO	YES	NO	TWO-THIRDS
To discuss an issue without restrictions of parliamentary rules	"I move that we consider informally..."	NO	YES	NO	MAJORITY
To call attention to a violation of the rules or error in procedure, and to secure a ruling on the question raised	"I rise to a point of order"	YES	NO	NO	NONE
To ask a question relating to procedure	"I rise to a parliamentary inquiry"	YES	NO	NO	NONE
To allow the maker of a motion to remove the motion from consideration	"I move to withdraw my motion"	YES	NO	NO	NONE
To separate a multi-part question into individual questions for the purpose of voting	"I move division of the question"	NO	NO	NO	NONE
To verify an indecisive voice or hand vote by requiring voters to rise and be counted	"I move to divide the Assembly"	YES	NO	NO	NONE

\*Amendable

\*\*Debatable if no Other Motion is Pending

## THE CHIEF PURPOSES OF MOTIONS

PURPOSE	MOTION
Present an idea for consideration and action	Main motion Resolution Consider informally
Improve a pending motion	Amend Division of question
Regulate or cut off debate	Limit or extend debate Close debate
Delay a decision	Refer to committee Postpone to a certain time Postpone temporarily Recess Adjourn
Suppress a proposal	Table Withdraw a motion
Meet an emergency	Question of privilege Suspend rules
Gain information on a pending motion	Parliamentary inquiry Request for information Request to ask member a question Question of privilege
Question the decision of the presiding officer	Point of order Appeal from decision of chair
Enforce rights and privileges	Division of assembly Division of question Parliamentary inquiry Point of order Appeal from decision of chair
Consider a question again	Resume consideration Reconsider Rescind Renew a motion Amend a previous action Ratify
Change an action already taken	Reconsider Rescind Amend a previous action
Terminate a meeting	Adjourn Recess

*(From The Standard Code of Parliamentary Procedure by Alice Sturgis)*

## Parliamentary Strategy

(From *The Standard Code of Parliamentary Procedure* by Alice Sturgis)

TO SUPPORT A MOTION		TO OPPOSE A MOTION
<ol style="list-style-type: none"><li>1. Second it promptly and enthusiastically.</li><li>2. Speak in favor of it as soon as possible.</li><li>3. Do your homework; know your facts; have handouts, charts, overhead projector slides, etc., if appropriate.</li><li>4. Move to amend motion, if necessary, to make it more acceptable to opponents.</li><li>5. Vote against motion to table or to postpone, unless delay will strengthen your position.</li><li>6. Move to recess or postpone, if you need time to marshal facts or work behind the scenes.</li><li>7. If defeat seems likely, move to refer to committee, if that would improve chances.</li><li>8. If defeat seems likely, move to divide question, if appropriate, to gain at least a partial victory.</li><li>9. Have available a copy of the organization's standing rules, its bylaws, and <i>The Standard Code of Parliamentary Procedure</i>, in case of a procedural dispute.</li><li>10. If motion is defeated, move to reconsider, if circumstances warrant it.</li><li>11. If motion is defeated, consider reintroducing it at a subsequent meeting.</li></ol>		<ol style="list-style-type: none"><li>1. Speak against it as soon as possible. Raise questions; try to put proponents on the defensive.</li><li>2. Move to amend the motion so as to eliminate objectionable aspects.</li><li>3. Move to amend the motion to adversely encumber it.</li><li>4. Draft a more acceptable version and offer as amendment by substitution.</li><li>5. Move to postpone to a subsequent meeting.</li><li>6. Move to refer to committee.</li><li>7. Move to table.</li><li>8. Move to recess, if you need time to round up votes or obtain more facts.</li><li>9. Question the presence of a quorum, if appropriate.</li><li>10. Move to adjourn.</li><li>11. On a voice vote, vote emphatically.</li><li>12. If the motion is adopted, move to reconsider, if you might win a subsequent vote.</li><li>13. If the motion is adopted, consider trying to rescind it at a subsequent meeting.</li><li>14. Have available a copy of the organization's standing rules, its bylaws, and <i>The Standard Code of Parliamentary Procedure</i>, in case of a procedural dispute.</li></ol>



## STAFF REPORT

---

**To:** Board of Directors  
**From:** Jason Rice, Interim General Manager  
**Agenda Item:** Consent Agenda  
**Item No.:** 8  
**Date:** September 13, 2017

---

### **Background:**

The Board of Directors has a standing item on the regular monthly meeting agenda called "Consent Agenda." This subset of the regular agenda provides for the Board to relegate routine business functions not requiring discussion to a consent agenda where all included items can be acted upon by a single act.

The Consent Agenda includes:

- July 2017 Financial Reports
  - Approval of Water July 2017 Check Run
  - Approval of Sanitary July 2017 Check Run
- August 9, 2017 Board Meeting Minutes
- August 10, 2017 Board Meeting Minutes
- August 14, 2017 Board Meeting Minutes
- August 15, 2017 Board Meeting Minutes
- August 24, 2017 Board Meeting Minutes
- August 31, 2017 Board Meeting Minutes

Board members may request to remove an item from the Consent Agenda to discuss separately.

### **Options for Consideration:**

1. Approve the consent agenda as listed on the meeting agenda.
2. Request one or more items listed on the consent agenda be pulled from the consent agenda for discussion.

### **Recommendation:**

Approve the items listed under the Consent Agenda.

**Sample motion:** *"I move to approve the consent agenda."*

Approved \_\_\_\_\_ Date \_\_\_\_\_



## MONTHLY FINANCIAL REPORT

---

**To:** Board Directors  
**From:** Kelly Stacey, Finance Director  
**Agenda Item:** July 2017 Financial Reports  
**Item No.:** 8  
**Date:** Sept 19, 2017

---

### Reports:

- Monthly Overview
- Retail Water Sales Fiscal Year Comparison (Graph)
- Detailed Monthly Finance Report-Water
- Detailed Monthly Finance Report-Wastewater/Watershed Protection
- Monthly Checks and Electronic Withdrawals - Water
- Cash Disbursement Activity Summary - Wastewater/Watershed Protection
- Bank Reconciliations - LGIP
- Cash and Investments Account Balances

**Oak Lodge Water Services  
Monthly Overview  
July 2017**

This report summarized the revenues and expenditures for July 2017. Also incorporated in this report are account balance reconciliations, including all cash and investment activity as well as checks and withdrawals.

The **water** division's liquid cash and investment assets equal \$2,489,086.20 as of July 31, 2017; consisting of \$289,373.16 in checking, and \$2,199,713.04 in the Local Government State Investment Pool (LGIP). The **wastewater/watershed protection** division's liquid cash and investment assets equal \$7,961,732.37 as of July 31, 2017; consisting of \$584,486.53 in checking, and \$7,377,245.84 in the Local Government State Investment Pool (LGIP). The total cash and investment assets for the Oak Lodge Water Services is \$10,450,818.57.

The **water** division checks, electronic withdrawals and bank drafts for July 2017, total \$823,070.34 and include checks 39234 through 39327 (there was no voided checks). The accounts payable cash disbursements for the **wastewater/watershed protection** divisions total \$820,496.56. Soon there will be one system for reporting expenditures, making it much easier to report monthly cash outlay.

**Water** sales revenue for the month of July 2017 is \$361,511.43. Attached you will find the District's comparison for one-month (July 2016 vs. July 2017) water service charge and water consumption on the graph (page 2A). **Wastewater/watershed protection** revenue billed for the month of July 2017 is \$780,698.45.

The **water** division had 10 SDCs in the month of July 2017 (compared to 4 for July 2016) for a total of 10 SDCs for the 2017/2018 FY. SDC revenue for fiscal year 2017/18 is 53.41% of budget as of July 31, 2017 (I am working on gathering similar data for the wastewater/watershed protection to be included in this report in the future).

Due to the Accela conversion, we were not able to load the 2017/2018 budget into the Incode software. As soon as November we will be able to develop new reports with accurate budget-to-actual comparisons containing all the Divisions in one report.



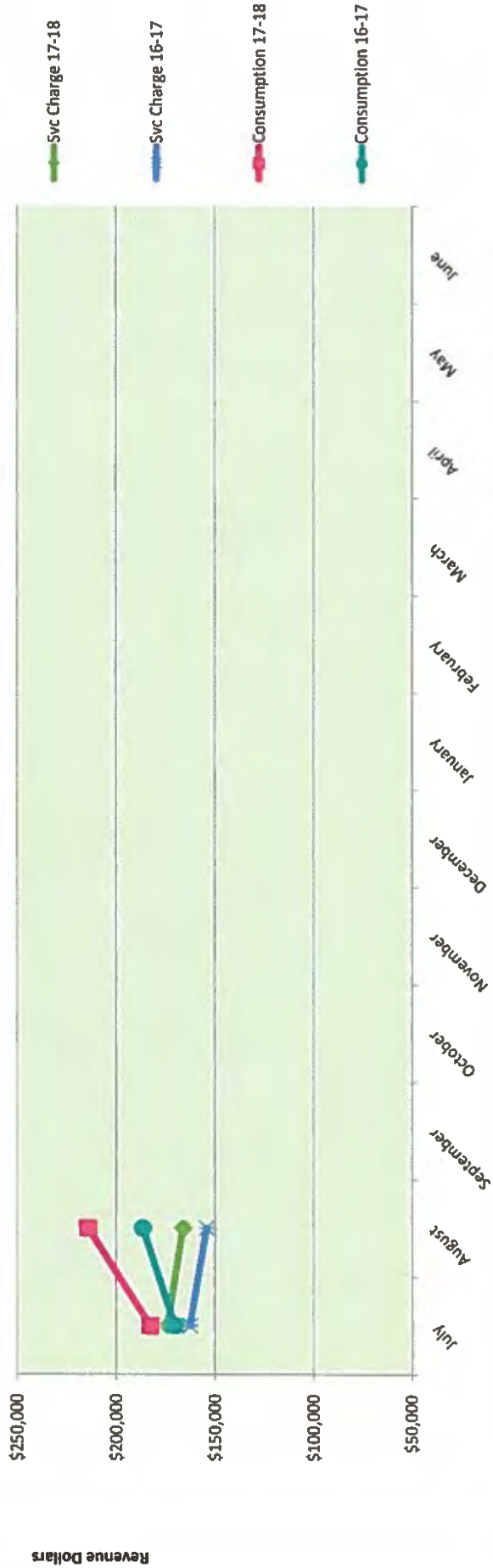
**Oak Lodge Water District July - Dec/Oak Lodge Water Services Jan-June**

**Retail Water Sales Fiscal Year with Service Base and Consumption**

	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>Total</u>
<b>Svc Charge 16-17</b>	\$ 162,724	\$ 154,362											\$ 317,086
<b>Svc Charge 17-18</b>	\$ 174,106	\$ 166,506											\$ 340,611
<b>Consumption 16-17</b>	\$ 170,420	\$ 186,670											\$ 357,089
<b>Consumption 17-18</b>	\$ 182,797	\$ 214,412											\$ 397,209

**GRAPH:**

**Base rate vs. Consumption  
with New Service Base and Consumption**





Oak Lodge Water District

# Budget Report Account Summary

For Fiscal: 2017-2018 Period Ending: 07/31/2017

	Original Total Budget	Current Total Budget	Period Activity	Fiscal Activity	Variance Favorable (Unfavorable)	Percent Used
<b>Fund: 10 - General</b>						
<b>Revenue</b>						
<b>Category: 000 - No Category</b>						
<u>10.4000</u>	Water Sales	0.00	0.00	355,130.77	355,130.77	355,130.77 0.00 %
<u>10.4001</u>	CRW Water Sales	0.00	0.00	3,734.66	3,734.66	3,734.66 0.00 %
<u>10.4005</u>	Penalty Charges	0.00	0.00	2,646.00	2,646.00	2,646.00 0.00 %
<u>10.4006</u>	Service Installations	0.00	0.00	4,340.00	4,340.00	4,340.00 0.00 %
<u>10.4200</u>	Rents and Leases	0.00	0.00	10,186.55	10,186.55	10,186.55 0.00 %
<u>10.4300</u>	Contract Services	0.00	0.00	2,415.24	2,415.24	2,415.24 0.00 %
<u>10.4400</u>	Miscellaneous Income	0.00	0.00	10,354.56	10,354.56	10,354.56 0.00 %
	<b>Category: 000 - No Category Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>388,807.78</b>	<b>388,807.78</b>	<b>388,807.78 0.00 %</b>
	<b>Revenue Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>388,807.78</b>	<b>388,807.78</b>	<b>388,807.78 0.00 %</b>
<b>Expense</b>						
<b>Category: 460 - Personnel</b>						
<u>10.5600</u>	Salary & Wages - Office	0.00	0.00	27,935.29	27,935.29	-27,935.29 0.00 %
<u>10.5612</u>	Clerk Temporary	0.00	0.00	720.00	720.00	-720.00 0.00 %
<u>10.5621</u>	Temporary / Summer	0.00	0.00	3,055.00	3,055.00	-3,055.00 0.00 %
<u>10.5700</u>	Salary & Wages - Field	0.00	0.00	55,430.11	55,430.11	-55,430.11 0.00 %
<u>10.5780</u>	Overtime & Standby	0.00	0.00	108.00	108.00	-108.00 0.00 %
<u>10.5800</u>	Public Retirement (PERS)	0.00	0.00	14,988.15	14,988.15	-14,988.15 0.00 %
<u>10.5810</u>	Social Security	0.00	0.00	5,395.98	5,395.98	-5,395.98 0.00 %
<u>10.5820</u>	Medicare	0.00	0.00	1,261.96	1,261.96	-1,261.96 0.00 %
<u>10.5830</u>	TriMet Tax	0.00	0.00	647.27	647.27	-647.27 0.00 %
<u>10.5840</u>	Workers Compensation	0.00	0.00	25,944.60	25,944.60	-25,944.60 0.00 %
<u>10.5860</u>	Medical Insurance	0.00	0.00	51,040.80	51,040.80	-51,040.80 0.00 %
<u>10.5870</u>	Dental Insurance	0.00	0.00	4,772.57	4,772.57	-4,772.57 0.00 %
<u>10.5880</u>	Other Personal Services	0.00	0.00	1,466.14	1,466.14	-1,466.14 0.00 %
	<b>Category: 460 - Personnel Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>192,765.87</b>	<b>192,765.87</b>	<b>-192,765.87 0.00 %</b>
<b>Category: 550 - Materials and Services</b>						
<u>10.6000</u>	Uniforms	0.00	0.00	143.99	143.99	-143.99 0.00 %
<u>10.6005</u>	Training and Travel	0.00	0.00	685.00	685.00	-685.00 0.00 %
<u>10.6010</u>	Safety Program	0.00	0.00	876.25	876.25	-876.25 0.00 %
<u>10.6025</u>	Telephone	0.00	0.00	724.51	724.51	-724.51 0.00 %
<u>10.6030</u>	Office Supplies	0.00	0.00	478.59	478.59	-478.59 0.00 %
<u>10.6035</u>	Postage	0.00	0.00	300.00	300.00	-300.00 0.00 %
<u>10.6040</u>	Dues & Subscriptions	0.00	0.00	16,071.00	16,071.00	-16,071.00 0.00 %
<u>10.6075</u>	Administrative Fees & Taxes	0.00	0.00	6,195.01	6,195.01	-6,195.01 0.00 %
<u>10.6085</u>	Service & Maintenance Contract	0.00	0.00	18,216.76	18,216.76	-18,216.76 0.00 %
<u>10.6095</u>	PGE	0.00	0.00	4,634.69	4,634.69	-4,634.69 0.00 %
<u>10.6096</u>	NW Natural	0.00	0.00	264.66	264.66	-264.66 0.00 %
<u>10.6101</u>	Vehicle Equipment Maintenance	0.00	0.00	275.96	275.96	-275.96 0.00 %
<u>10.6111</u>	Distribution System Maint.	0.00	0.00	25,067.31	25,067.31	-25,067.31 0.00 %
<u>10.6120</u>	Building and Grounds	0.00	0.00	800.00	800.00	-800.00 0.00 %
<u>10.6135</u>	Public Information	0.00	0.00	81.04	81.04	-81.04 0.00 %
<u>10.6146</u>	Contract Meter Reading	0.00	0.00	3,291.93	3,291.93	-3,291.93 0.00 %
<u>10.6900</u>	Miscellaneous	0.00	0.00	250.00	250.00	-250.00 0.00 %
	<b>Category: 550 - Materials and Services Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>78,356.70</b>	<b>78,356.70</b>	<b>-78,356.70 0.00 %</b>
<b>Category: 650 - Capital Outlay</b>						
<u>10.6500</u>	Water System Capital Outlay	0.00	0.00	28,150.00	28,150.00	-28,150.00 0.00 %

**Budget Report**

For Fiscal: 2017-2018 Period Ending: 07/31/2017

	Original Total Budget	Current Total Budget	Period Activity	Fiscal Activity	Variance Favorable (Unfavorable)	Percent Used
<u>10.6510</u> Vehicle & Equipment	0.00	0.00	1,400.00	1,400.00	-1,400.00	0.00 %
<b>Category: 650 - Capital Outlay Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>29,550.00</b>	<b>29,550.00</b>	<b>-29,550.00</b>	<b>0.00 %</b>
<b>Expense Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>300,672.57</b>	<b>300,672.57</b>	<b>-300,672.57</b>	<b>0.00 %</b>
<b>Fund: 10 - General Surplus (Deficit):</b>	<b>0.00</b>	<b>0.00</b>	<b>88,135.21</b>	<b>88,135.21</b>	<b>88,135.21</b>	<b>0.00 %</b>
<b>Fund: 40 - System Development</b>						
<b>Revenue</b>						
<b>Category: 000 - No Category</b>						
<u>40.4040</u> SDC Reimbursement	0.00	0.00	40,060.00	40,060.00	40,060.00	0.00 %
<b>Category: 000 - No Category Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>40,060.00</b>	<b>40,060.00</b>	<b>40,060.00</b>	<b>0.00 %</b>
<b>Revenue Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>40,060.00</b>	<b>40,060.00</b>	<b>40,060.00</b>	<b>0.00 %</b>
<b>Fund: 40 - System Development Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>40,060.00</b>	<b>40,060.00</b>	<b>40,060.00</b>	<b>0.00 %</b>
<b>Fund: 50 - CIP</b>						
<b>Expense</b>						
<b>Category: 650 - Capital Outlay</b>						
<u>50.5100</u> Replacement & Renewal	0.00	0.00	918.56	918.56	-918.56	0.00 %
<b>Category: 650 - Capital Outlay Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>918.56</b>	<b>918.56</b>	<b>-918.56</b>	<b>0.00 %</b>
<b>Expense Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>918.56</b>	<b>918.56</b>	<b>-918.56</b>	<b>0.00 %</b>
<b>Fund: 50 - CIP Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>918.56</b>	<b>918.56</b>	<b>-918.56</b>	<b>0.00 %</b>
<b>Report Surplus (Deficit):</b>	<b>0.00</b>	<b>0.00</b>	<b>127,276.65</b>	<b>127,276.65</b>	<b>127,276.65</b>	<b>0.00 %</b>

Expenditure Status Report  
 Oak Lodge Sanitary District  
 7/1/2017 through 7/31/2017

Account Number	Adjusted Appropriation	Expenditures	Year-to-date Expenditures	Year-to-date Encumbrances	Balance	Prct Used
400	OLWSD GENERAL FUND					
400-000	WATER ADMINISTRATION					
400-000-5302	0.00	99.00	99.00	0.00	-99.00	0.00
Total	0.00	99.00	99.00	0.00	-99.00	0.00
400-100	ADMINISTRATION					
400-100-5301	0.00	3,966.84	3,966.84	0.00	-3,966.84	0.00
400-100-5302	0.00	845.50	845.50	0.00	-845.50	0.00
400-100-5305	0.00	91.21	91.21	0.00	-91.21	0.00
400-100-5306	0.00	1,633.01	1,633.01	0.00	-1,633.01	0.00
400-100-5307	0.00	80.00	80.00	0.00	-80.00	0.00
400-100-6504	0.00	588.88	588.88	0.00	-588.88	0.00
400-100-6509	0.00	342.00	342.00	0.00	-342.00	0.00
Total	0.00	7,547.44	7,547.44	0.00	-7,547.44	0.00
400-200	SANITARY SEWER SERVICE OPERATIONS					
400-200-5102	0.00	3,205.95	3,205.95	0.00	-3,205.95	0.00
400-200-5103	0.00	658.56	658.56	0.00	-658.56	0.00
400-200-5301	0.00	2,199.87	2,199.87	1,004.70	-3,204.57	0.00
400-200-5302	0.00	840.00	840.00	0.00	-840.00	0.00
400-200-5306	0.00	2,448.18	2,448.18	0.00	-2,448.18	0.00
400-200-5307	0.00	10,058.00	10,058.00	0.00	-10,058.00	0.00
400-200-5310	0.00	139.05	139.05	0.00	-139.05	0.00
400-200-6504	0.00	12,174.54	12,174.54	0.00	-12,174.54	0.00
400-200-6505	0.00	0.00	0.00	2,489.82	-2,489.82	0.00
400-200-6506	0.00	1,617.06	1,617.06	26,663.96	-28,281.02	0.00
400-200-6509	0.00	9,030.00	9,030.00	15,720.60	-24,750.60	0.00
400-200-6800	0.00	1,525.86	1,525.86	0.00	-1,525.86	0.00
Total	0.00	43,897.07	43,897.07	45,879.08	-88,776.15	0.00
400-300	SURFACE WATER MANAGEMENT OPERATIONS					
400-300-5103	0.00	210.51	210.51	0.00	-210.51	0.00

**Expenditure Status Report**  
 Oak Lodge Sanitary District  
 7/1/2017 through 7/31/2017

400 OLLWSD GENERAL FUND

<u>Account Number</u>	<u>Adjusted Appropriation</u>	<u>Expenditures</u>	<u>Year-to-date Expenditures</u>	<u>Year-to-date Encumbrances</u>	<u>Balance</u>	<u>Prct Used</u>
400-300-5301 MATERIALS & SUPPLIES	0.00	44.34	44.34	289.51	-343.85	0.00
400-300-5306 TELECOMMUNICATION SERVICES	0.00	202.20	202.20	0.00	-202.20	0.00
400-300-5307 OFFICE SYSTEMS MAINTENANCE	0.00	2,500.00	2,500.00	0.00	-2,500.00	0.00
400-300-5504 UTILITIES	0.00	24.99	24.99	0.00	-24.99	0.00
Total SURFACE WATER MANAGEMENT OPERATIONS	0.00	2,982.04	2,982.04	289.51	-3,281.55	0.00
Total OLLWSD GENERAL FUND	0.00	54,525.55	54,525.55	46,178.59	-100,704.14	0.00

Expenditure Status Report

Oak Lodge Sanitary District  
 7/1/2017 through 7/31/2017

502 OLWSD SSS STATE LOANS DEBT SERVICE FUND

Account Number	Adjusted Appropriation	Expenditures	Year-to-date Expenditures	Year-to-date Encumbrances	Balance	Prc't Used
502-200	0.00	428,185.00	428,185.00	0.00	-428,185.00	0.00
502-200-8000	0.00	158,813.00	158,813.00	0.00	-158,813.00	0.00
502-200-9000	0.00	586,998.00	586,998.00	0.00	-586,998.00	0.00
Total OLWSD SSS STATE LOANS DEBT SERVICE FUND						

SANITARY SEWER SERVICE OPERATIONS

PRINCIPAL PAYMENTS - SRF LOAN

INTEREST PAYMENTS - SRF LOAN

Total OLWSD SSS STATE LOANS DEBT SERVICE FUND

**For OLWD Board Meeting of: Sept 19, 2017**

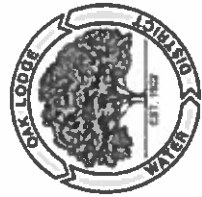
**To:** Oak Lodge Water District Commissioners

**From:** Kelly Stacey, Finance Director

For July 2017, the water division issued checks numbered 39234 through 39327, which include accounts payable and payroll checks as well as all electronic withdrawals and bank drafts, totaling \$823,070.34. There were no voided checks in July 2017. Attached you will find a report showing all checks and electronic withdrawals for July 2017. Payroll checks and electronic withdrawals include all employees of the district.

Following the list of water division checks is a list of sanitary divisions accounts payable transactions. The use of two different financial systems makes it difficult to have uniform reports. As I work on combining staff reports and informational data, we are also implementing our combined financial software. It is my plan to have a uniform, combined report for checks and withdrawals by the November board meeting.

In the meantime, if you have any questions or concerns, please call or email me and I will do my best to answer your questions.



Oak Lodge Water District

# Bank Transaction Report

## Transaction Detail

Issued Date Range: 07/01/2017 - 07/31/2017

Cleared Date Range: -

Issued Date	Cleared Date	Number	Description	Module	Status	Type	Amount
Bank Account: 2908192046 - OAK LODGE WATER DISTRICT							
07/07/2017	07/31/2017	39234	Convergence Northwest, Inc	Accounts Payable	Pending Clear	Check	-4,840.02
07/07/2017	07/31/2017	39235	Special Districts Health Insurance Sv	Accounts Payable	Pending Clear	Check	-42,277.27
07/07/2017	07/31/2017	39236	Tyler Technologies, Inc.	Accounts Payable	Pending Clear	Check	-260.00
07/14/2017	07/31/2017	39238	Sexton, Timothy J	Payroll	Pending Clear	Check	-962.63
07/14/2017	07/31/2017	39239	Yohn, Clay B	Payroll	Pending Clear	Check	-284.22
07/14/2017	07/31/2017	39240	Ace Hardware #11075	Accounts Payable	Pending Clear	Check	-6.59
07/14/2017	07/31/2017	39241	Alexin Analytical Laboratories	Accounts Payable	Pending Clear	Check	-527.00
07/14/2017	07/31/2017	39242	Carlson Testing, Inc.	Accounts Payable	Pending Clear	Check	-748.50
07/14/2017	07/31/2017	39243	Cintas Corporation	Accounts Payable	Pending Clear	Check	-1,465.00
07/14/2017	07/31/2017	39244	Cintas Corporation - 463	Accounts Payable	Pending Clear	Check	-83.65
07/14/2017	07/31/2017	39245	Coastal Farm & Home Supply	Accounts Payable	Pending Clear	Check	-251.98
07/14/2017	07/31/2017	39246	Consolidated Supply Co.	Accounts Payable	Pending Clear	Check	-33,095.00
07/14/2017	07/31/2017	39247	Express Employment Professionals	Accounts Payable	Pending Clear	Check	-1,620.00
07/14/2017	07/31/2017	39248	H.D. Fowler Company	Accounts Payable	Pending Clear	Check	-5,004.56
07/14/2017	07/31/2017	39249	Iron Mountain Records Mgmt.	Accounts Payable	Pending Clear	Check	-584.16
07/14/2017	07/31/2017	39250	J. Thayer Company	Accounts Payable	Pending Clear	Check	-144.51
07/14/2017	07/31/2017	39251	James W Fowler Co	Accounts Payable	Pending Clear	Check	-126,707.20
07/14/2017	07/31/2017	39252	Kaiser Permanente	Accounts Payable	Pending Clear	Check	-23,210.00
07/14/2017	07/31/2017	39253	Michael Chamberlain	Accounts Payable	Pending Clear	Check	-182.31
07/14/2017	07/31/2017	39254	Nancy Gibson Comp	Accounts Payable	Pending Clear	Check	-150.00
07/14/2017	07/31/2017	39255	Napa Auto Parts - Store #07078	Accounts Payable	Pending Clear	Check	-5.29
07/14/2017	07/31/2017	39256	NCCWC	Accounts Payable	Pending Clear	Check	-66,761.86
07/14/2017	07/31/2017	39257	Oak Lodge Sanitary District	Accounts Payable	Pending Clear	Check	-150.40
07/14/2017	07/31/2017	39258	Oak Lodge Sanitary District	Accounts Payable	Pending Clear	Check	-100.48
07/14/2017	07/31/2017	39259	Olson Bros Service Inc	Accounts Payable	Pending Clear	Check	-1,187.12
07/14/2017	07/31/2017	39260	Pacific Truck Colors, Inc.	Accounts Payable	Pending Clear	Check	-1,400.00
07/14/2017	07/31/2017	39261	Portland Engineering Inc	Accounts Payable	Pending Clear	Check	-120.00
07/14/2017	07/31/2017	39262	RH2 Engineering, Inc.	Accounts Payable	Pending Clear	Check	-22,551.37
07/14/2017	07/31/2017	39263	Stacey Staples	Accounts Payable	Outstanding	Check	-6.93
07/14/2017	07/31/2017	39264	Stafford Homes and Land LLC	Accounts Payable	Pending Clear	Check	-500.00
07/14/2017	07/31/2017	39265	Temp Control Mechanical Service Corp	Accounts Payable	Pending Clear	Check	-4,017.00
07/14/2017	07/31/2017	39266	Timothy Sexton	Accounts Payable	Pending Clear	Check	-20.00
07/14/2017	07/31/2017	39267	Total Building Maintenance	Accounts Payable	Pending Clear	Check	-348.00
07/14/2017	07/31/2017	39268	Tyler Technologies, Inc.	Accounts Payable	Pending Clear	Check	-2,389.90
07/14/2017	07/31/2017	39269	US BANK EQUIPMENT FINANCE	Accounts Payable	Pending Clear	Check	-222.20
07/14/2017	07/31/2017	39270	Verizon Wireless	Accounts Payable	Pending Clear	Check	-509.88



Bank Transaction Report

Issued Date Range: 07/01/2017 - 07/31/2017

Cleared Date Range: -

Issued Date	Cleared Date	Number	Description	Module	Status	Type	Amount
07/14/2017	07/31/2017	39271	Waste Management	Accounts Payable	Pending Clear	Check	-132.87
07/14/2017	07/31/2017	39272	Wright Imaging	Accounts Payable	Pending Clear	Check	-2,862.52
07/31/2017		39273	KROGSTAD, JOHN	Payroll	Outstanding	Check	-2,102.94
07/31/2017	07/31/2017	39274	Sexton, Timothy J	Payroll	Pending Clear	Check	-1,076.47
07/31/2017		39275	Yohn, Clay B	Payroll	Outstanding	Check	-437.07
07/31/2017		39276	Ace Hardware #11075	Accounts Payable	Outstanding	Check	-195.82
07/31/2017		39277	Aflac	Accounts Payable	Outstanding	Check	-799.68
07/31/2017		39278	AnswerNet Portland	Accounts Payable	Outstanding	Check	-159.17
07/31/2017		39279	BTL NW	Accounts Payable	Outstanding	Check	-216.99
07/31/2017		39280	Bullard Law	Accounts Payable	Outstanding	Check	-7,460.50
07/31/2017		39281	Cintas Corporation	Accounts Payable	Outstanding	Check	-181.88
07/31/2017		39282	Cintas Corporation - 463	Accounts Payable	Outstanding	Check	-167.30
07/31/2017		39283	Clackamas Comm. Federal CU	Accounts Payable	Outstanding	Check	-206.00
07/31/2017		39284	Clackamas County Sheriff	Accounts Payable	Outstanding	Check	-250.00
07/31/2017		39285	Comcast Cable	Accounts Payable	Outstanding	Check	-214.63
07/31/2017		39286	Community Newspapers	Accounts Payable	Outstanding	Check	-44.73
07/31/2017		39287	Consolidated Supply Co.	Accounts Payable	Outstanding	Check	-4,788.90
07/31/2017		39288	Convergence Northwest, Inc	Accounts Payable	Outstanding	Check	-3,750.20
07/31/2017		39289	Costco Wholesale	Accounts Payable	Outstanding	Check	-334.08
07/31/2017		39290	CTX-Xerox	Accounts Payable	Outstanding	Check	-148.73
07/31/2017		39291	Dr. Lance F. Harris D.C.	Accounts Payable	Outstanding	Check	-90.00
07/31/2017		39292	Express Employment Professionals	Accounts Payable	Outstanding	Check	-832.50
07/31/2017		39293	Ferrari Enterprises	Accounts Payable	Outstanding	Check	-28,150.00
07/31/2017		39294	JUSTIN CLAXTON	Accounts Payable	Outstanding	Check	-59.98
07/31/2017		39295	Kaiser Permanente	Accounts Payable	Outstanding	Check	-859.05
07/31/2017		39296	Local Government Personnel Ins	Accounts Payable	Outstanding	Check	-2,068.43
07/31/2017		39297	Metereaders, LLC	Accounts Payable	Outstanding	Check	-3,291.93
07/31/2017		39298	NCCWC	Accounts Payable	Outstanding	Check	-90,769.44
07/31/2017		39299	NW Natural	Accounts Payable	Outstanding	Check	-264.66
07/31/2017		39300	Oak Lodge Sanitary District	Accounts Payable	Outstanding	Check	-1,397.50
07/31/2017		39301	One Call Concepts	Accounts Payable	Outstanding	Check	-1,221.00
07/31/2017		39302	Oregon AFSCME Council 75	Accounts Payable	Outstanding	Check	-511.21
07/31/2017		39303	Oregon Dept of Revenue	Accounts Payable	Outstanding	Check	-16,725.96
07/31/2017		39304	Void Check	Accounts Payable	Voided	Check	0.00
07/31/2017		39305	Peterson IV, Inc.	Accounts Payable	Outstanding	Check	-59.98
07/31/2017		39306	Portland General Electric	Accounts Payable	Outstanding	Check	-4,634.69
07/31/2017		39307	Portland Water Bureau	Accounts Payable	Outstanding	Check	-16,071.00
07/31/2017		39308	Rory Martin	Accounts Payable	Outstanding	Check	-600.00
07/31/2017		39309	Roseanne Knowles	Accounts Payable	Outstanding	Check	-140.70
07/31/2017		39310	Steve Lewis	Accounts Payable	Outstanding	Check	-800.00
07/31/2017		39311	Traver's Cleaning Service Inc.	Accounts Payable	Outstanding	Check	-35.00
07/31/2017		39312	Tyler Technologies, Inc.	Accounts Payable	Outstanding	Check	-1,982.99
07/31/2017		39313	United Rentals Northwest, Inc.	Accounts Payable	Outstanding	Check	-918.56

Bank Transaction Report

Issued Date	Cleared Date	Number	Description	Module	Status	Type	Amount
07/31/2017		39314	Webert, Loyd J.	Accounts Payable	Outstanding	Check	-295.86
07/31/2017		39315	Wright Imaging	Accounts Payable	Outstanding	Check	-2,706.36
07/14/2017	07/31/2017	39327	KROGSTAD, JOHN	Payroll	Pending Clear	Check	-2,043.54
07/14/2017	07/31/2017	DFT0000292	Payroll EFT	Payroll	Pending Clear	EFT	-45,043.22
07/14/2017	07/31/2017	DFT0000293	Payroll EFT	Payroll	Pending Clear	EFT	-25,497.70
07/31/2017	07/31/2017	DFT0000295	Payroll EFT	Payroll	Pending Clear	EFT	-24,905.73
07/31/2017	07/31/2017	DFT0000296	Payroll EFT	Payroll	Pending Clear	EFT	-43,340.18
07/31/2017		DFT0000297	Wells Fargo Remittance Center	Accounts Payable	Outstanding	Bank Draft	-3,066.87
07/15/2017	07/31/2017	EFT0000911	JULY 2017 POSTAGE	General Ledger	Pending Clear	EFT	-300.00
07/15/2017		EFT0000912	7/15/17 PAYROLL TAXES	General Ledger	Outstanding	EFT	-31,294.54
07/15/2017	07/31/2017	EFT0000913	7/15/17 VALIC DEF COMP	General Ledger	Pending Clear	EFT	-1,860.46
07/15/2017	07/31/2017	EFT0000914	7/15/17 PAYROLL TAXES	General Ledger	Pending Clear	EFT	-150.00
07/27/2017	07/31/2017	EFT0000915	7/27/17 PERS PAYMENT	General Ledger	Pending Clear	EFT	-89,889.13
07/31/2017		EFT0000916	7/31/17 PAYROLL TAXES	General Ledger	Outstanding	EFT	-31,309.84
07/31/2017		EFT0000917	7/31/17 VALIC DEF COMP	General Ledger	Outstanding	EFT	-1,456.82
07/31/2017		EFT0000918	7/31/17 NATIONWIDE DEF COMP	General Ledger	Outstanding	EFT	-200.00
Bank Account 2908192046 Total: (95)							-823,070.34
Report Total: (95)							-823,070.34

**OAK LODGE WATER SERVICES**  
**Board of Directors' Cash Disbursement Approval Report**  
**For the Month of July 2017**

<b>CASH DISBURSEMENT ACTIVITY SUMMARY</b>	
<b>Expenditures:</b>	
Capital Items	7,217.42
Materials & Services	129,254.59
Subtotal	<u>136,472.01</u>
Personnel Services	96,397.63
Debt Service	<u>586,998.00</u>
<b>Total Expenditures</b>	<b>819,867.64</b>
<b>Other:</b>	
Transfers & Investments	8,719.48
Customer Refunds	628.92
Customer Returned Items	112.76
<b>Total Cash Disbursements</b>	<b><u>829,328.80</u></b>
Checkbook Register Control	<b>829,328.80</b>
Variance	-

**ACCOUNTS PAYABLE CASH DISBURSEMENT ACTIVITY RECONCILIATION**

Grand Total A/P Cash Disbursements Per A/P Check History Listing	820,496.56
Less:	
Customer Refunds	(628.92)
Debt Service	(586,998.00)
Payroll Expenses Processed through Accounts Payable	<u>(96,397.63)</u>
<b>Adjusted Grand Total A/P Cash Disbursements</b>	<b>136,472.01</b>
Cash Disbursement Activity Summary Control	136,472.01
Variance	-

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/> Vendor Name : ACF WEST INC., GEOSYNTHETIC PRODUCTS (Count: 1)							
117717	7/27/2017	002021	ACF WEST INC., GEOSYNTHETIC PRODUCTS	10252433	7/11/2017	SOCKS/SEDIMENT BAGS	394.00
<input type="checkbox"/> Vendor Name : AFSCME COUNCIL 75 (Count: 1)							
117682	7/14/2017	002943	AFSCME COUNCIL 75	2017-06	6/30/2017	UNION DUES AND PEOPLE CONTRIBUTIONS	1,197.22
<input type="checkbox"/> Vendor Name : AKS ENGINEERING & FORESTRY (Count: 2)							
117683	7/14/2017	002962	AKS ENGINEERING & FORESTRY	5948-02	6/27/2017	RIVER FOREST SEWER CAPACITY EVALUATION	6,221.17
117683	7/14/2017	002962	AKS ENGINEERING & FORESTRY	5948-01	6/7/2017	RIVER FOREST SEWER CAPACITY EVALUATION	996.25
<input type="checkbox"/> Vendor Name : AMAZON COM (Count: 1)							
1140	7/21/2017	001909	AMAZON.COM	121DRZY8DYQ0N4 WT0C60	7/16/2017	BUSINESS ACCOUNT PRIME MEMBERSHIP FEE	99.00
<input type="checkbox"/> Vendor Name : ANSWERNET (Count: 1)							
1135	7/11/2017	002210	ANSWERNET	068-78225	6/21/2017	TELEPHONE ANSWERING SERVICE	91.00
<input type="checkbox"/> Vendor Name : APEX LABS (Count: 3)							
117701	7/18/2017	002279	APEX LABS	17G0227	7/5/2017	NPDES LAB TESTING	2,200.00
117701	7/18/2017	002279	APEX LABS	17G0235	7/5/2017	BIOLOGICALS LAB TESTING	225.00
117701	7/18/2017	002279	APEX LABS	17G0245	7/5/2017	BLUE SKY LAB TESTING	160.00
<input type="checkbox"/> Vendor Name : ASSURED TECHNOLOGY SOLUTIONS (Count: 1)							
1135	7/11/2017	000087	ASSURED TECHNOLOGY SOLUTIONS	TB23852	6/5/2017	ATS CLOUD CONTROLLER ANNUAL LICENSE AND SERVICE	105.00
Count: 129							
Filter is Empty							

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/> Vendor Name	AT&T (Count 1)						
117718	7/27/2017	000096	AT&T	030-477-5253-001	7/13/2017	LONG DISTANCE PHONE SERVICES	737.50
<input type="checkbox"/> Vendor Name	AUTHORIZE.NET (Count 1)						
11143	7/31/2017	002687	AUTHORIZE.NET	2017-07-31 JANECHECK	7/31/2017	ECHECK-NET BATCH FEE	91.21
<input type="checkbox"/> Vendor Name	BESTLINE PAINTING, INC (Count 1)						
117719	7/27/2017	002967	BESTLINE PAINTING, INC.	4888	7/22/2017	LABOR - 4 LOCATIONS/LIFT RENTAL	7,950.00
<input type="checkbox"/> Vendor Name	BMS TECHNOLOGIES (Count 2)						
117684	7/14/2017	002969	BMS TECHNOLOGIES	54171	7/13/2017	PREBILL AMOUNT FOR FIRST BILLING	1,928.50
117684	7/14/2017	002969	BMS TECHNOLOGIES	54172	7/13/2017	DEPOSIT FOR STATEMENTS AND ENVELOPES	1,302.00
<input type="checkbox"/> Vendor Name	BROWN AND CALDWELL (Count 1)						
117685	7/14/2017	000161	BROWN AND CALDWELL	53294799	6/26/2017	TASK ORDER 4: MS4 PERMIT RENEWAL	3,216.55
<input type="checkbox"/> Vendor Name	CENTURY LINK (Count 5)						
117720	7/27/2017	001319	CENTURY LINK	503-T02-0800 883B	7/17/2017	COMMUNICATION SERVICES 503-T02-0800 883B	334.50
117720	7/27/2017	001319	CENTURY LINK	503-653-1654 664B	7/14/2017	FAX LINE (ADMIN) 503-653-1654 664B	211.16
117720	7/27/2017	001319	CENTURY LINK	503-654-1356 965B	7/13/2017	SCADA ALARM LINE 503-654-1356-965B	101.66
117720	7/27/2017	001319	CENTURY LINK	503-353-4200 410B	7/13/2017	COMMUNICATION SERVICES 503-353-4200 410B	92.93
<b>Count: 129</b>							
Filter is Empty							

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
117720	7/27/2017	001319	CENTURY LINK	503-654-8169 760B	7/13/2017	FAX LINE (OPS) 503-654-8169 760B	49.44
<input type="checkbox"/> Vendor Name : CHEVRON U.S.A. INC. (Count: 2)							
117702	7/18/2017	000219	CHEVRON U.S.A. INC.	50833569	7/6/2017	FUEL FOR VEHICLES	122.73
117702	7/18/2017	000219	CHEVRON U.S.A. INC.	50596593	6/7/2017	LATE PAYMENT PENALTY	78.83
<input type="checkbox"/> Vendor Name : CITY OF GLADSTONE (Count: 1)							
117686	7/14/2017	000532	CITY OF GLADSTONE	2017-06-30	6/30/2017	5% CITY OF GLADSTONE RIGHT-OF-WAY FEES	4,767.16
<input type="checkbox"/> Vendor Name : CITY OF MILWAUKIE (Count: 2)							
117703	7/18/2017	000800	CITY OF MILWAUKIE	32-1210-00	6/30/2017	SERVICE CHARGES TO OTHERS	1,322.25
117721	7/27/2017	000800	CITY OF MILWAUKIE	201707067073	6/30/2017	WRF SWEEPING SERVICE	400.00
<input type="checkbox"/> Vendor Name : CLACKAMAS COUNTY (Count: 1)							
117722	7/27/2017	000257	CLACKAMAS COUNTY	32886/E25882	6/30/2017	VEH18 1993 VOLVO VACTOR MAINTENANCE	4,041.94
<input type="checkbox"/> Vendor Name : COMCAST CABLE (Count: 2)							
1135	7/11/2017	001854	COMCAST CABLE	8778 10 899 0000634	6/9/2017	DATA LINES (INTERNET)	714.10
1141	7/27/2017	001854	COMCAST CABLE	8778 10 899 0000634	7/1/2017	PS#2 COMMUNICATION LINES, 1716 SE OAK	714.10
<input type="checkbox"/> Vendor Name : CORRECT EQUIPMENT, INC (Count: 1)							
117723	7/27/2017	001540	CORRECT EQUIPMENT, INC.	35539	7/20/2017	PUMP RINGS/WEAR PLATES/FREIGHT	1,617.06
<input type="checkbox"/> Vendor Name : CUES, INC (Count: 1)							

Count: 159

<Filter is Empty>

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Gcheck Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
117724	7/27/2017	000332	CUES, INC	481966	5/10/2017	TIRES FOR 6 INCH CONFIGURATION	436.26
<input type="checkbox"/> Vendor Name : CUSIP GLOBAL SERVICES S&P GLOBAL MARKET INTEL (Count: 1)							
11135	7/11/2017	002964	CUSIP GLOBAL SERVICES, S&P GLOBAL MARKET INTEL	3524852	6/22/2017	CUSIP ISSUER NAME CHANGE PROCESSING FEE	428.00
<input type="checkbox"/> Vendor Name : DETEMPLE COMPANY, INC. (Count: 2)							
117725	7/27/2017	001765	DETEMPLE COMPANY, INC.	SV00015150	7/24/2017	HVAC QUARTERLY MAINTENANCE	716.50
117725	7/27/2017	001765	DETEMPLE COMPANY, INC.	SV00015149	7/24/2017	HVAC QUARTERLY MAINTENANCE	284.50
<input type="checkbox"/> Vendor Name : ESRI INC (Count: 1)							
117687	7/14/2017	000444	ESRI, INC.	93304247	6/16/2017	ESRI GIS SOFTWARE MAINT., 3-YR ELA	10,000.00
<input type="checkbox"/> Vendor Name : EXPRESS EMPLOYMENT (Count: 4)							
117704	7/18/2017	002147	EXPRESS EMPLOYMENT	19101752	6/28/2017	OPERATOR SUPPORT	1,276.00
117704	7/18/2017	002147	EXPRESS EMPLOYMENT	19127619	7/3/2017	OPERATOR SUPPORT	1,276.00
117726	7/27/2017	002147	EXPRESS EMPLOYMENT	19195531	7/19/2017	OPERATOR SUPPORT	1,276.00
117726	7/27/2017	002147	EXPRESS EMPLOYMENT	19169856	7/12/2017	OPERATOR SUPPORT	1,020.80
<input type="checkbox"/> Vendor Name : GENERAL EQUIPMENT COMPANY (Count: 3)							
117688	7/14/2017	000512	GENERAL EQUIPMENT COMPANY	62565	6/19/2017	GAGE FOR AQUATECH	58.61
117688	7/14/2017	000512	GENERAL EQUIPMENT COMPANY	62540	6/15/2017	GAGE FOR AQUATECH	51.33
117688	7/14/2017	000512	GENERAL EQUIPMENT COMPANY	62563	6/19/2017	GAGE FOR AQUATECH	51.33
<input type="checkbox"/> Vendor Name : GRAINGER, INC (Count: 2)							
117727	7/27/2017	001346	GRAINGER, INC.	9498942995	7/13/2017	RESPIRATORS	246.20
117727	7/27/2017	001346	GRAINGER, INC.	9504206740	7/19/2017	REDUCING BUSHING/SAFETY GLASSES/FILTER/CARTRIDGE	160.39
Count: 129							
<Filter is Empty>							

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/>	Vendor Name	H.D. FOWLER COMPANY (Count 1)					
117728	7/27/2017	000560	H.D. FOWLER COMPANY	14555168	7/5/2017	FLUORESCENT GREEN MARKING PAINT	244.80
<input type="checkbox"/>	Vendor Name	H.R. ANSWERS (Count 1)					
117729	7/27/2017	001619	H.R. ANSWERS	40044	7/12/2017	SALARY SURVEY AND JOB DESCRIPTION	447.75
<input type="checkbox"/>	Vendor Name	HACH COMPANY (Count 1)					
117730	7/27/2017	000561	HACH COMPANY	10531415	7/10/2017	HACH WIMS RENEWAL	2,558.00
<input type="checkbox"/>	Vendor Name	HML, INC. (Count 1)					
117735	7/11/2017	002950	HML, INC.	54375	6/21/2017	SLUDGE PATHOGEN REDUCTION LAB TESTING	1,100.00
<input type="checkbox"/>	Vendor Name	JOHN CRANE, INC. (Count 1)					
117731	7/27/2017	000653	JOHN CRANE, INC.	3361268	5/18/2017	MECHANICAL SEAL PS #2 AND #3	206.07
<input type="checkbox"/>	Vendor Name	KRAMERS METRO MAILING SERVICE (Count 1)					
117689	7/14/2017	000693	KRAMERS METRO MAILING SERVICE	946033A	7/6/2017	BILLING STATEMENT PREP & DELIVERY TO USPS	353.05
<input type="checkbox"/>	Vendor Name	LEVEL 3 COMMUNICATIONS LLC (Count 1)					
117690	7/14/2017	001852	LEVEL 3 COMMUNICATIONS LLC	57059997	7/24/2017	DATA LINE (T-1)	346.55
<input type="checkbox"/>	Vendor Name	LGPI (Count 1)					
117691	7/14/2017	000744	LGPI	13255	7/11/2017	LGPI MEMBERSHIP RENEWAL (DISTRICT)	795.50
Count: 129							
<Filter is Empty>							



Check/Tran	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/>	7/18/2017	002069	MADISON BIOSOLIDS, INC. (Count: 1)	0000433-IN	7/3/2017	BIOSOLID SPREADING - OVER LAND	2,858.31
<input type="checkbox"/>	7/18/2017	002664	MISSION COMMUNICATIONS, LLC (Count: 1)	1009067	6/12/2017	ANNUAL SERVICE MISSION MANHOLE MONITORS	909.60
<input type="checkbox"/>	7/27/2017	002971	MOD SUPER FAST PIZZA, LLC (Count: 1)	Ref000056012	7/21/2017	ON-ACCOUNT BALANCE REFUND	286.35
<input type="checkbox"/>	7/3/2017	001329	NATIONWIDE RETIREMENT SOLUTIONS, STANDARD CORE PAYROLL (Count: 3)	2017-06-30	6/30/2017	457B PLAN PAYROLL DEDUCTIONS	2,153.21
<input type="checkbox"/>	7/14/2017	001329	NATIONWIDE RETIREMENT SOLUTIONS, STANDARD CORE PAYROLL	2017-07-15	7/15/2017	NATIONWIDE RETIREMENT SOLUTIONS 457B	2,243.25
<input type="checkbox"/>	7/31/2017	001329	NATIONWIDE RETIREMENT SOLUTIONS, STANDARD CORE PAYROLL	2017-07-31	7/31/2017	NATIONWIDE RETIREMENT SOLUTIONS 457B	2,243.25
<input type="checkbox"/>	7/14/2017	002414	NCUWC (Count: 1)	20	6/30/2017	STREAMSIDE STEWARD PROGRAM (SSP)	10,107.60
<input type="checkbox"/>	7/14/2017	002744	NET ASSETS CORPORATION (Count: 1)	86-201706	7/3/2017	ELECTRONIC LIEN DOCKET REPORTING SERVICE	707.00
<input type="checkbox"/>			NORTHSTAR CHEMICAL, INC (Count: 1)				
Count: 129							
<Filter is Empty>							

Invoice History Browse  
Oak Lodge Sanitary District

Check #	Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
117733	7/27/2017	002394	NORTHSTAR CHEMICAL, INC.	105268	6/30/2017	SODIUM HYPOCHLORITE	587.50
<input type="checkbox"/> Vendor Name : OAK LODGE WATER SERVICES DISTR (Count: 7)							
117694	7/14/2017	000895	OAK LODGE WATER SERVICES DISTR	Payroll6/30/17	6/30/2017	PAYROLL	88,535.70
117707	7/18/2017	000895	OAK LODGE WATER SERVICES DISTR	06-00980-001	6/30/2017	PS #2 WATER SERVICE 06-00980-001	287.25
117707	7/18/2017	000895	OAK LODGE WATER SERVICES DISTR	99-00079-000	6/30/2017	PLANT FIRE LINE SERVICE 99-00079-000	279.35
117707	7/18/2017	000895	OAK LODGE WATER SERVICES DISTR	99-00997-000	6/30/2017	PLANT WATER SERVICE 99-00997-000	120.58
117707	7/18/2017	000895	OAK LODGE WATER SERVICES DISTR	99-00060-001	6/30/2017	FIRE LINE WATER SERVICE 99-00060-001	116.67
117707	7/18/2017	000895	OAK LODGE WATER SERVICES DISTR	99-00071-001	6/30/2017	ADMIN WATER SERVICE 99-00071-001	58.60
117707	7/18/2017	000895	OAK LODGE WATER SERVICES DISTR	99-00061-001	6/30/2017	HYDRO WATER SERVICE 99-00061-001	10.64
<input type="checkbox"/> Vendor Name : OCD AUTOMATION, INC. (Count: 2)							
117734	7/27/2017	002548	OCD AUTOMATION, INC.	1886	7/18/2017	OLSD MAINTENANCE - SCADA WORK	1,080.00
117734	7/27/2017	002548	OCD AUTOMATION, INC.	1875	6/29/2017	OLSD SCADA MAINTENANCE	480.00
<input type="checkbox"/> Vendor Name : OFFICE DEPOT (Count: 1)							
1135	7/11/2017	000012	OFFICE DEPOT	939879136	6/28/2017	DESKTOP DEPOSIT PROCESSING OFFICE SUPPLIES	65.43
<input type="checkbox"/> Vendor Name : OLSON BROS SERVICE, INC (Count: 2)							
117708	7/18/2017	000914	OLSON BROS. SERVICE, INC.	2017-06 (a)	7/1/2017	FUEL FOR VEHICLES	472.35
117708	7/18/2017	000914	OLSON BROS. SERVICE, INC.	1114410	6/30/2017	VEH07 2004 STERLING DUMP TRUCK MAINTENANCE	66.53
<input type="checkbox"/> Vendor Name : OPENEDGE (Count: 1)							
1132	7/5/2017	002686	OPENEDGE	2017-06-30 OE	6/30/2017	OPENEDGE MERCHANT FEES	455.18
Count: 129							
<Filter is Empty>							

Invoice History Browse  
Oak Lodge Sanitary District

Check Trn	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/> Vendor Name : OPTUM BANK (Count: 1)							
1131	7/3/2017	002939	OPTUM BANK	2017-06-30	6/30/2017	HEALTH SAVINGS ACCOUNT PAYROLL DEDUCTIONS	25.00
<input type="checkbox"/> Vendor Name : OREGON DEQ (Count: 3)							
117695	7/14/2017	000356	OREGON DEQ	R70031	7/6/2017	CWSRF LOAN DEBT SERVICE	461,998.00
117695	7/14/2017	000356	OREGON DEQ	R70030	7/6/2017	CWSRF LOAN DEBT SERVICE	125,000.00
117709	7/18/2017	000356	OREGON DEQ	WQ18WSC-0241	6/7/2017	WASTEWATER SYSTEM OPERATOR CERTIFICATE	840.00
<input type="checkbox"/> Vendor Name : OREGONIAN PUBLISHING COMPANY (Count: 1)							
1135	7/11/2017	000930	OREGONIAN PUBLISHING COMPANY	2017-06-26	6/26/2017	OREGONIAN NEWSPAPER SUBSCRIPTION	32.49
<input type="checkbox"/> Vendor Name : OWEN EQUIPMENT (Count: 1)							
117735	7/27/2017	000130	OWEN EQUIPMENT	00178609	6/14/2017	FOOTAGE COUNTER FOR AQUATECH	3,102.66
<input type="checkbox"/> Vendor Name : PAUL H. ROEGER, P.E. (Count: 1)							
117696	7/14/2017	002963	PAUL H. ROEGER, P.E.	2017-06-22	6/22/2017	LEGAL DESCRIPTION & MAPS FOR BOUNDARIES	975.00
<input type="checkbox"/> Vendor Name : PECK RUBANOFF & HATFIELD PC (Count: 1)							
117736	7/27/2017	002601	PECK RUBANOFF & HATFIELD PC	03508	7/6/2017	LEGAL SERVICES - GENERAL ADVICE	638.00
<input type="checkbox"/> Vendor Name : PITNEY BOWES, INC. (Count: 2)							
1135	7/11/2017	001027	PITNEY BOWES, INC.	3303912662	6/27/2017	Postage Machine Equipment Rental	147.84
1135	7/11/2017	001027	PITNEY BOWES, INC.	2017-06-30	6/30/2017	POSTAGE	100.00
Count: 129							
Filter is Empty							

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input checked="" type="checkbox"/> Vendor Name: PORTLAND GENERAL ELECTRIC (Count: 7)							
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0008 45162-908025 7	6/26/2017	PLANT ELECTRICITY SERVICE 45162-908025-7	22,253.18
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0004 24643-43400.1	6/26/2017	PS #2 ELECTRIC SERVICE 24643-43400-1	1,145.64
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0008 41581-346975 5	6/25/2017	PS #3 ELECTRIC SERVICE 41581-346975-5	1,053.24
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0008 45162-641007 7	6/27/2017	ADMIN ELECTRICITY SERVICE 45162-641007-7	554.41
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0008 45162-174425 6	6/27/2017	PS #5 ELECTRIC SERVICE 45162-174425-6	252.14
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0008 45162-283746 3	6/22/2017	PS #6 ELECTRIC SERVICE 45162-283746-3	96.51
117710	7/18/2017	001039	PORTLAND GENERAL ELECTRIC	0008 45162-173445 5	6/27/2017	PS #4 ELECTRIC SERVICE 45162-173445-5	42.54
<input checked="" type="checkbox"/> Vendor Name: REECE, REBECCA (Count: 1)							
117697	7/14/2017	001112	REECE, REBECCA	2017-07-06	6/30/2017	BUSINESS MILEAGE EXPENSE REIMBURSEMENT	18.19
<input checked="" type="checkbox"/> Vendor Name: RELAY RESOURCES (Count: 2)							
117711	7/18/2017	001875	RELAY RESOURCES	93370	6/30/2017	LANDSCAPING SERVICE	4,368.06
117711	7/18/2017	001875	RELAY RESOURCES	1072998	6/30/2017	DOCUMENT STORAGE/ARCHIVE	265.20
<input checked="" type="checkbox"/> Vendor Name: RICOH AMERICAS CORPORATION (Count: 1)							
117737	7/27/2017	002103	RICOH AMERICAS CORPORATION	5049453337	7/14/2017	RICOH AFICIO MP C6501SP NETWORK COPIER SUPPLIES	306.17
<input checked="" type="checkbox"/> Vendor Name: SEATTLEACE, LLC (Count: 6)							
117738	7/27/2017	000193	SEATTLEACE, LLC	012068/m	7/10/2017	MISC MATERIALS AND SUPPLIES	107.96
Count: 129							

Invoice History Browse  
Oak Lodge Sanitary District

Check Tran	▲	Check Transfer Date	Vendor #	Vendor Name	▲	Invoice #	Invoice Date	Description	Total Amount
117738		7/27/2017	000193	SEATTLE ACE, LLC		012094/m	7/18/2017	FASTENERS/ADAPTERS/PRIMER	82.62
117738		7/27/2017	000193	SEATTLE ACE, LLC		012115/m	7/26/2017	VARIOUS MATERIALS AND SUPPLIES	74.91
117738		7/27/2017	000193	SEATTLE ACE, LLC		012072/m	7/12/2017	LIQUID NAILS	14.36
117738		7/27/2017	000193	SEATTLE ACE, LLC		012075/m	7/12/2017	RING WIRE/FASTENERS	5.78
117738		7/27/2017	000193	SEATTLE ACE, LLC		012108/m	7/24/2017	WEED CLEANUP BETWEEN WRF FENCE AND TRUSTLE	4.99
<input type="checkbox"/> Vendor Name SECURE PACIFIC CORPORAATION (Count: 2)									
117712		7/18/2017	000046	SECURE PACIFIC CORPORATION		127993	6/27/2017	ANNUAL FIRE SYSTEM TESTING SERVICE	173.75
117712		7/18/2017	000046	SECURE PACIFIC CORPORATION		128018	6/28/2017	ANNUAL FIRE SYSTEM TESTING SERVICE	152.50
<input type="checkbox"/> Vendor Name SITEGROUND.COM (Count: 2)									
1134		7/11/2017	002860	SITEGROUND.COM		2017-06-28	6/28/2017	CLOUD WEB HOSTING SERVICE	19.80
1136		7/13/2017	002800	SITEGROUND.COM		2017-07-08	7/8/2017	CLOUD (1 MONTH) (RENEWAL)	80.00
<input type="checkbox"/> Vendor Name STAPLES ADVANTAGE (Count: 3)									
117713		7/18/2017	002833	STAPLES ADVANTAGE		3344717069	6/30/2017	JANITORIAL SUPPLIES	125.99
117713		7/18/2017	002833	STAPLES ADVANTAGE		3344717068	6/30/2017	JANITORIAL SUPPLIES	36.61
117713		7/18/2017	002833	STAPLES ADVANTAGE		3345455147	7/4/2017	JANITORIAL SUPPLIES	119.80
<input type="checkbox"/> Vendor Name STEIN OIL CO INC (Count: 1)									
1135		7/11/2017	001218	STEIN OIL CO INC		CL22253	6/30/2017	DIESEL FUEL FOR VEHICLES	1,080.70
<input type="checkbox"/> Vendor Name THE CHURCH OF JESUS CHRIST (Count: 1)									
117739		7/27/2017	002973	THE CHURCH OF JESUS CHRIST		Ref000056033	7/24/2017	UB ON-ACCOUNT BALANCE REFUND	342.57
<input type="checkbox"/> Vendor Name U.S. CRANE & HOIST, INC (Count: 1)									
Count: 129 Filter by Inputs									

Check Tran	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
117740	7/27/2017	001327	U.S. CRANE & HOIST, INC	23579	6/5/2017	LOAD TEST PORTABLE HOIST	402.50
<input type="checkbox"/> Vendor Name UNIFIRST CORPORATION (Count 4)							
117698	7/14/2017	001504	UNIFIRST CORPORATION	335 2499279	7/3/2017	UNIFORMS AND JANITORIAL SERVICES	303.15
117698	7/14/2017	001504	UNIFIRST CORPORATION	335 2501445	7/10/2017	JANITORIAL SERVICES (ADMIN)	60.05
117741	7/27/2017	001504	UNIFIRST CORPORATION	335 2503602	7/17/2017	UNIFORMS & JANITORIAL SERVICES	364.16
117741	7/27/2017	001504	UNIFIRST CORPORATION	335 2505809	7/24/2017	JANITORIAL SERVICES (ADMIN)	63.95
<input type="checkbox"/> Vendor Name UNION PACIFIC RAILROAD COMPANY (Count 1)							
117699	7/14/2017	001310	UNION PACIFIC RAILROAD COMPANY	287682212	6/19/2017	UNION PACIFIC LAND LEASE, SEWER	6,893.70
<input type="checkbox"/> Vendor Name VERIZON WIRELESS (Count 3)							
117700	7/14/2017	002374	VERIZON WIRELESS	9787602192 (a)	6/15/2017	CELLULAR TELEPHONE SERVICES	980.52
117700	7/14/2017	002374	VERIZON WIRELESS	9787602192 (b)	6/29/2017	TABLET EQUIPMENT	799.96
117742	7/27/2017	002374	VERIZON WIRELESS	9789339790	7/15/2017	CELLULAR TELEPHONE SERVICES	1,065.43
<input type="checkbox"/> Vendor Name WASTE MANAGEMENT OF OREGON (Count 3)							
117714	7/18/2017	002507	WASTE MANAGEMENT OF OREGON	8677214-1574-5	7/1/2017	SOLID WASTE DISPOSAL 12-67103-23006	2,095.92
117714	7/18/2017	002507	WASTE MANAGEMENT OF OREGON	8678098-1574-1	7/1/2017	SOLID WASTE DISPOSAL PLANT 12-67042-63001	124.97
117714	7/18/2017	002507	WASTE MANAGEMENT OF OREGON	8678097-1574-3	7/1/2017	ADMIN SOLID WASTE DISPOSAL 12-67076-73008	39.80
<input type="checkbox"/> Vendor Name WATER ENVIRONMENT SERVICES (Count 1)							
117715	7/18/2017	000261	WATER ENVIRONMENT SERVICES	03-08238-01	6/26/2017	SERVICE CHARGES TO OTHERS	135.00
<input type="checkbox"/> Vendor Name WELLS FARGO BANK (Count 2)							
Count: 129							
Filter is Empty >							

Invoice History Browse  
Oak Lodge Sanitary District

Check #	Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
1137	7/13/2017	002277	WELLS FARGO BANK	2017-06-30 WFAN	6/30/2017	WEB PAYMENT MERCHANT VOLUME FEES	1,673.73
1138	7/13/2017	002277	WELLS FARGO BANK	2017-06-30 WFOnsite	6/30/2017	ON-SITE PAYMENT MERCHANT VOLUME FEES	104.45
<input type="checkbox"/> Vendor Name WELLS FARGO BANK, N.A. (182) (Count 1)							
1133	7/12/2017	002276	WELLS FARGO BANK, N.A. (182)	2017-06-30 WFCCA	6/30/2017	COMMERCIAL CHECKING ANALYSIS SERVICE FEE	1,169.12
<input type="checkbox"/> Vendor Name WELLS FARGO BUSINESS CARD (Count 1)							
1141	7/27/2017	001375	WELLS FARGO BUSINESS CARD	2017-07-22	7/22/2017	REWARDS ANNUAL MEMBERSHIP FEE	50.00
<input type="checkbox"/> Vendor Name WESCO (Count 1)							
1135	7/11/2017	001368	WESCO	17154	4/18/2017	CLOTHES ORDER - OLWSD EMBROIDERY	48.96
<input type="checkbox"/> Vendor Name XEROX CORPORATION (Count 1)							
117716	7/18/2017	001400	XEROX CORPORATION	089777334	7/1/2017	PRINTER COPIES	44.25
Count: 129							
<input type="checkbox"/> Filter is Empty >							

Invoice History Browse  
Oak Lodge Sanitary District

Check Tran	Check Transfer	Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input checked="" type="checkbox"/> Check Transfer # : 1130 (Count: 1)								
1130	7/3/2017	001329		NATIONWIDE RETIREMENT SOLUTIONS, STANDARD CORE PAYROLL	2017-06-30	6/30/2017	457B PLAN PAYROLL DEDUCTIONS	2,153.21
<input checked="" type="checkbox"/> Check Transfer # : 1131 (Count: 1)								
1131	7/3/2017	002939		OPTUM BANK	2017-06-30	6/30/2017	HEALTH SAVINGS ACCOUNT PAYROLL DEDUCTIONS	25.00
<input checked="" type="checkbox"/> Check Transfer # : 1132 (Count: 1)								
1132	7/3/2017	002686		OPENEDGE	2017-06-30 OE	6/30/2017	OPENEDGE MERCHANT FEES	455.18
<input checked="" type="checkbox"/> Check Transfer # : 1133 (Count: 1)								
1133	7/12/2017	002276		WELLS FARGO BANK, N.A. (182)	2017-06-30 WFCCA	6/30/2017	COMMERCIAL CHECKING ANALYSIS SERVICE FEE	1,169.12
<input checked="" type="checkbox"/> Check Transfer # : 1134 (Count: 1)								
1134	7/11/2017	002800		SITEGROUND.COM	2017-06-28	6/28/2017	CLOUD WEB HOSTING SERVICE	19.80
<input checked="" type="checkbox"/> Check Transfer # : 1135 (Count: 11)								
1135	7/11/2017	002210		ANSWERNET	068-78225	6/21/2017	TELEPHONE ANSWERING SERVICE	91.00
1135	7/11/2017	000087		ASSURED TECHNOLOGY SOLUTIONS	TB23852	6/5/2017	ATS CLOUD CONTROLLER ANNUAL LICENSE AND SERVICE	105.00
1135	7/11/2017	001854		COMCAST CABLE	8778 10 899 0000634	6/9/2017	DATA LINES (INTERNET)	714.10
1135	7/11/2017	002964		CUSIP GLOBAL SERVICES, S&P GLOBAL MARKET INTEL	35224852	6/22/2017	CUSIP ISSUER NAME CHANGE PROCESSING FEE	428.00
1135	7/11/2017	002950		HML, INC.	54375	6/21/2017	SLUDGE PATHOGEN REDUCTION LAB TESTING	1,100.00
<b>Count: 25</b>								
<input type="text"/> Filter is Empty								



Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/> 1135	7/11/2017	000012	OFFICE DEPOT	939879136	6/28/2017	DESKTOP DEPOSIT PROCESSING OFFICE SUPPLIES	65.43
<input type="checkbox"/> 1135	7/11/2017	000930	OREGONIAN PUBLISHING COMPANY	2017-06-26	6/26/2017	OREGONIAN NEWSPAPER SUBSCRIPTION	32.49
<input type="checkbox"/> 1135	7/11/2017	001027	PITNEY BOWES, INC.	3303912662	6/27/2017	Postage Machine Equipment Rental	147.84
<input type="checkbox"/> 1135	7/11/2017	001027	PITNEY BOWES, INC.	2017-06-30	6/30/2017	POSTAGE	100.00
<input type="checkbox"/> 1135	7/11/2017	001218	STEIN OIL CO INC	CL22253	6/30/2017	DIESEL FUEL FOR VEHICLES	1,080.70
<input type="checkbox"/> 1135	7/11/2017	001368	WESCO	17154	4/18/2017	CLOTHES ORDER - OLWSD EMBROIDERY	48.96
<input type="checkbox"/> Check Transfer # 1136 (Count: 1)							
<input type="checkbox"/> 1136	7/13/2017	002800	SITEGROUND.COM	2017-07-08	7/8/2017	CLOUD (1 MONTH) (RENEWAL)	80.00
<input type="checkbox"/> Check Transfer # 1137 (Count: 1)							
<input type="checkbox"/> 1137	7/13/2017	002277	WELLS FARGO BANK	2017-06-30 WFAN	6/30/2017	WEB PAYMENT MERCHANT VOLUME FEES	1,673.73
<input type="checkbox"/> Check Transfer # 1138 (Count: 1)							
<input type="checkbox"/> 1138	7/13/2017	002277	WELLS FARGO BANK	2017-06-30 WFOntsite	6/30/2017	ON-SITE PAYMENT MERCHANT VOLUME FEES	104.45
<input type="checkbox"/> Check Transfer # 1139 (Count: 1)							
<input type="checkbox"/> 1139	7/14/2017	001329	NATIONWIDE RETIREMENT SOLUTIONS, STANDARD CORE PAYROLL	2017-07-15	7/15/2017	NATIONWIDE RETIREMENT SOLUTIONS 457B	2,243.25
<input type="checkbox"/> Check Transfer # 1140 (Count: 1)							
<input type="checkbox"/> 1140	7/21/2017	001909	AMAZON.COM	I21DRZY8DYQ0N4 WT0C60	7/16/2017	BUSINESS ACCOUNT PRIME MEMBERSHIP FEE	99.00
<b>Count: 25</b>							
<Filter is Empty >							

Invoice History Browse  
Oak Lodge Sanitary District

Check Trar	Check Transfer Date	Vendor #	Vendor Name	Invoice #	Invoice Date	Description	Total Amount
<input type="checkbox"/> Check Transfer # 1141 (Count 2)							
1141	7/27/2017	001854	COMCAST CABLE	8778 10 899 0000634	7/1/2017	PS#2 COMMUNICATION LINES, 1716 SE OAK	714.10
1141	7/27/2017	001375	WELLS FARGO BUSINESS CARD	2017-07-22	7/22/2017	REWARDS ANNUAL MEMBERSHIP FEE	50.00
<input type="checkbox"/> Check Transfer # 1142 (Count 1)							
1142	7/31/2017	001329	NATIONWIDE RETIREMNT SOLUTIONS, STANDARD CORE PAYROLL	2017-07-31	7/31/2017	NATIONWIDE RETIREMENT SOLUTIONS 457B	2,243.25
<input type="checkbox"/> Check Transfer # 1143 (Count 1)							
1143	7/31/2017	002687	AUTHORIZE NET	2017-07-31 ANECHECK	7/31/2017	ECHECK, NET BATCH FEE	91.21
<b>Count: 25</b>							
<Filter is Empty>							

# Commercial Checking Acct Public Funds

Account number:

■ July 1, 2017 - July 31, 2017 ■ Page 1 of 6

WELLS  
FARGO

OAK LODGE WATER SERVICES DISTRICT  
14611 SE RIVER RD  
OAK GROVE OR 97267-1109

## Questions?

Call your Customer Service Officer or Client Services  
**1-800-AT WELLS** (1-800-289-3557)  
5:00 AM TO 6:00 PM Pacific Time Monday - Friday

Online: [wellsfargo.com](http://wellsfargo.com)

Write: Wells Fargo Bank, N.A. (182)  
PO Box 63020  
San Francisco, CA 94163

## Account summary

### Commercial Checking Acct Public Funds

Sanitary

Account number	Beginning balance	Total credits	Total debits	Ending balance
4123813552	\$720,338.57	\$748,993.23	-\$884,845.27	\$584,486.53

OAK LODGE WATER SERVICES DISTRICT  
14496 SE RIVER RD  
MILWAUKIE OR 97267-1115

## Questions?

Available by phone 24 hours a day, 7 days a week:  
**1-800-CALL-WELLS** (1-800-225-5935)

Online: [wellsfargo.com](http://wellsfargo.com)

Write: Wells Fargo Bank, N.A. (115)  
P.O. Box 6995  
Portland, OR 97228-6995



## IMPORTANT ACCOUNT INFORMATION

For business banking customers who receive a paper statement for an analyzed checking account, the standard monthly fee per statement is \$5.00 per account.

For wholesale banking customers, the paper statement fee may vary. Please refer to the annual pricing terms applicable to your account.

## Account summary

### Analyzed Business Checking - PF

Water

Account number	Beginning balance	Total credits	Total debits	Ending balance
2908192046	\$279,301.50	\$733,673.65	-\$723,601.99	\$289,373.16

Oak Lodge Water Services  
 LGIP RECONCILIATION  
 As of JULY 31, 2017

Water LGIP Acct no: 5289	General		SDC	Capital	Reserve	Totals
As of JUNE 30, 2017	545,237.90	0.00	85,441.58	1,228,884.30	637,288.94	2,496,852.72
Deposits	-	-	-	-	-	-
Interest/Fees	624.61	-	97.88	1,407.77	730.06	2,860.32
Transfer of Funds	(300,000.00)	-	-	-	-	(300,000.00)
Transfer to Checking	-	-	-	-	-	-
Rounding Adjustment	-	-	-	-	-	-
As of JULY 31, 2017	245,862.51	-	85,539.46	1,230,292.07	638,019.00	2,199,713.04
<b>LGIP Statements</b>	<b>#5289</b>					
LGIP Stmt Beginning Balance						2,496,852.72
Deposits						2,860.32
Interest/Fees						
Transfer from Checking	-					-
Transfer Funds - SDC's	-					(300,000.00)
Ending Statement Bal.	-					2,199,713.04
DIFF IN G/L & BANK BALANCE						-

Sanitary LGIP Acct No	5790	GO Bond 3968	Debt Svc 3869	SDC 3810	5002	Totals
As of JUNE 30, 2017	2,026,277.87	785,270.58	1,226,945.59	319,510.38	3,008,642.99	7,366,647.41
Deposits	-	-	-	-	1,525.86	1,525.86
Interest/Fees	2,495.37	937.06	1,510.99	393.48	3,705.67	9,042.57
Transfer of Funds	-	-	-	-	-	-
Transfer to Checking	-	-	-	-	-	-
Transfer to WF Savings	-	-	-	-	-	-
Rounding Adjustment	-	-	-	-	-	-
As of JULY 31, 2017	2,028,773.24	786,207.64	1,228,456.58	319,903.86	3,013,874.52	7,377,215.84
<b>LGIP Statements</b>	<b>#5289</b>					
LGIP Stmt Beginning Balance						7,366,647.41
Deposits						1,525.86
Interest/Fees						9,042.57
Transfer from Checking						-
Transfer Funds - SDC's						
Ending Statement Bal.						7,377,215.84
DIFF IN G/L & BANK BALANCE						-



Monthly Local Government Statement of Account Balance and Transactions

Oak Lodge Water District

Account:

000005289

July 31, 2017

Page 1 of 1

Kelly Stacey  
Oak Lodge Water Services District  
14496 SE River Rd  
Milwaukie, OR 97267

Beginning Balance	Debits		Credits		Interest Amount	Fee Amount	Ending Balance
	Count	Amount	Count	Amount			
\$2,496,852.72	1	300,000.00	0	0.00	2,860.37	0.05	\$2,199,713.04

Effective Date	Posting Date	Description / Comments	Document Number	Item Count	Debit Amount	Credit Amount	Balance
<b>OR Treasury-Outgoing ACH</b>							
7/14/2017	7/14/2017	Voice Response Withdrawal	DVA6396334		300,000.00		
		End of day balance					2,196,852.72
<b>OR Treasury</b>							
7/31/2017	7/31/2017	Interest Credit	EI073117			2,860.37	
7/31/2017	7/31/2017	ACH Direct Deposit Fee	FEE073117		0.05		
		End of day balance					2,199,713.04

Fees

Description	Item Count	Amount	Current Rate
ACH Direct Deposit Fee	1	0.05	0.0500

Interest

Effective Date	Rate
7/1/2017	1.4500%
<b>Average Annualized Rate:</b>	<b>1.4500%</b>

Note: The average annualized rate for the month is not the exact rate at which your account earned unless you had the exact same balance every day during the month.



Monthly Local Government Statement of Account Balance and Transactions

Oak Lodge Sanitary District

Account:

0000005790

July 31, 2017

Page 1 of 1

Kelly Stacey  
Oak Lodge Water Services District  
14496 SE River Rd  
Milwaukie, OR 97267

Beginning Balance	Debits		Credits		Interest Amount	Fee Amount	Ending Balance
	Count	Amount	Count	Amount			
\$2,026,277.87	0	0.00	0	0.00	2,495.37	0.00	\$2,028,773.24

Effective Date	Posting Date	Description / Comments	Document Number	Item Count	Debit Amount	Credit Amount	Balance
		OR Treasury					
7/31/2017	7/31/2017	Interest Credit	EI073117			2,495.37	
		End of day balance					2,028,773.24

Interest

Effective Date	Rate
7/1/2017	1.4500%
<b>Average Annualized Rate:</b>	<b>1.4500%</b>

Note: The average annualized rate for the month is not the exact rate at which your account earned unless you had the exact same balance every day during the month.



Monthly Local Government Statement of Account Balance and Transactions

Oak Lodge Sanitary Dst, GO Bond Debt Ser      Account:      0000003968

July 31, 2017      Page 1 of 1

Kelly Stacey  
Oak Lodge Water Services District  
14496 SE River Rd  
Milwaukie, OR 97267

Beginning Balance	Debits		Credits		Interest Amount	Fee Amount	Ending Balance
	Count	Amount	Count	Amount			
\$785,270.58	0	0.00	0	0.00	967.06	0.00	\$786,237.64

Effective Date	Posting Date	Description / Comments	Document Number	Item Count	Debit Amount	Credit Amount	Balance
		OR Treasury					
7/31/2017	7/31/2017	Interest Credit	EI073117			967.06	
		End of day balance					786,237.64

Interest

Effective Date	Rate
7/1/2017	1.4500%
<b>Average Annualized Rate:</b>	<b>1.4500%</b>

Note: The average annualized rate for the month is not the exact rate at which your account earned unless you had the exact same balance every day during the month.



Monthly Local Government Statement of Account Balance and Transactions

Oak Lodge Sanitary Dist Debt Serv Fund Account: 0000003869

July 31, 2017

Page 1 of 1

Kelly Stacey  
Oak Lodge Water Services District  
14496 SE River Rd  
Milwaukie, OR 97267

Beginning Balance	Debits		Credits		Interest Amount	Fee Amount	Ending Balance
	Count	Amount	Count	Amount			
\$1,226,945.59	0	0.00	0	0.00	1,510.99	0.00	\$1,228,456.58

Effective Date	Posting Date	Description / Comments	Document Number	Item Count	Debit Amount	Credit Amount	Balance
		OR Treasury					
7/31/2017	7/31/2017	Interest Credit	EI073117			1,510.99	
		End of day balance					1,228,456.58

Interest

Effective Date	Rate
7/1/2017	1.4500%
<b>Average Annualized Rate:</b>	<b>1.4500%</b>

Note: The average annualized rate for the month is not the exact rate at which your account earned unless you had the exact same balance every day during the month.





Monthly Local Government Statement of Account Balance and Transactions

Oak Lodge Sanitary Dist/SDC Account

Account:

000003810

July 31, 2017

Page 1 of 1

Kelly Stacey  
Oak Lodge Water Services District  
14496 SE River Rd  
Milwaukie, OR 97267

Beginning Balance	Debits		Credits		Interest Amount	Fee Amount	Ending Balance
	Count	Amount	Count	Amount			
\$319,510.38	0	0.00	0	0.00	393.48	0.00	\$319,903.86

Effective Date	Posting Date	Description / Comments	Document Number	Item Count	Debit Amount	Credit Amount	Balance
		OR Treasury					
7/31/2017	7/31/2017	Interest Credit	EI073117			393.48	
		End of day balance					319,903.86

Interest

Effective Date	Rate
7/1/2017	1.4500%
<b>Average Annualized Rate:</b>	<b>1.4500%</b>

Note: The average annualized rate for the month is not the exact rate at which your account earned unless you had the exact same balance every day during the month.



Monthly Local Government Statement of Account Balance and Transactions

Oak Lodge Sanitary District

Account:

0000005002

July 31, 2017

Page 1 of 1

Kelly Stacey  
Oak Lodge Water Services District  
14496 SE River Rd  
Milwaukie, OR 97267

Beginning Balance	Debits		Credits		Interest Amount	Fee Amount	Ending Balance
	Count	Amount	Count	Amount			
\$3,008,642.99	0	0.00	1	1,525.86	3,706.07	0.40	\$3,013,874.52

Effective Date	Posting Date	Description / Comments	Document Number	Item Count	Debit Amount	Credit Amount	Balance
<b>OR Treasury</b>							
7/17/2017	7/17/2017	TES Clackamas County TT	AT6420398			1,525.86	
		End of day balance					3,010,168.85
<b>OR Treasury</b>							
7/31/2017	7/31/2017	Interest Credit	EI073117			3,706.07	
7/31/2017	7/31/2017	Manual Transfer-In Fee	FEE073117		0.40		
		End of day balance					3,013,874.52

Fees

Description	Item Count	Amount	Current Rate
Manual Transfer-In Fee	1	0.40	0.4000

Interest

Effective Date	Rate
7/1/2017	1.4500%
<b>Average Annualized Rate:</b>	<b>1.4500%</b>

Note: The average annualized rate for the month is not the exact rate at which your account earned unless you had the exact same balance every day during the month.

**Oak Lodge Water Services**

<b>Water Division</b>		
<b>Account Balances As of:</b>		
<b>July 31, 2017</b>	<b>Interest Rate</b>	
<b>Account</b>		
Wells Fargo Bank Checking	0.00%	\$289,373.16
Local Government Investment Pool 5289	1.45%	\$2,199,713.04
<b>Total</b>		<b>\$ 2,489,086.20</b>

<b>Wastewater and Watershed Protection Division</b>		
<b>Account Balances As of:</b>		
<b>July 31, 2017</b>	<b>Interest Rate</b>	
<b>Account</b>		
Wells Fargo Bank Checking	0.00%	\$556,122.61
Local Government Investment Pool 5790	1.45%	\$2,028,773.24
Local Government Investment Pool 3968	1.45%	\$786,237.64
Local Government Investment Pool 3869	1.45%	\$1,228,456.58
Local Government Investment Pool 3810	1.45%	\$319,903.86
Local Government Investment Pool 5002	1.45%	\$3,013,874.52
<b>Total</b>		<b>\$ 7,933,368.45</b>

**Grand Total                      \$ 10,422,454.65**



OAK LODGE WATER SERVICES

Minutes

Board of Directors – Special Meeting, Executive Session  
August 09, 2017

Board of Directors - Members Present:

Jim Martin,	Chair
Susan Keil,	Vice Chair
Nancy Gibson,	Director
Lynn Fisher,	Director
Kevin Williams,	Director

Board of Directors - Members Absent:

None,

Oak Lodge Water Services Staff Present:

None,

SPECIAL MEETING

**1. Call to Order / Pledge of Allegiance**

Chair Martin called the Special Meeting of the Board of Directors to order at 8:15 a.m. PDT and the group immediately started the Executive Session.

**2. Executive Session**

Chair Martin recessed the public meeting and convened the Executive Session at 8:16 a.m. citing ORS 192.660(a) – To consider the employment of a public officer, employee, staff member or individual agent.

**3. Executive Session recessed**

Chair Martin recessed the Executive Session at 12:00 p.m.

**4. Executive Session reconvened**

Chair Martin reconvened the Executive Session at 1:00 p.m.

**5. Executive Session ended**

Chair Martin closed the Executive Session at 4:02 p.m.

**6. Public Meeting Session restarted**

7. Chair Martin closed the Executive Session at 4:03 p.m. No business to be completed.

**8. Public Comment Period**

No public testimony.

**9. Public Meeting Adjourned**

Chair Martin adjourned the special meeting at 4:03 p.m.

Respectfully submitted,

---

Jason Rice

---

Jim Martin

Acting General Manager

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

Chair, Board of Directors

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



OAK LODGE WATER SERVICES

Minutes

Board of Directors – Special Meeting, Executive Session  
August 10, 2017

Board of Directors - Members Present:

Jim Martin,	Chair
Susan Keil,	Vice Chair
Nancy Gibson,	Director
Lynn Fisher,	Director
Kevin Williams,	Director

Board of Directors - Members Absent:

None,

Oak Lodge Water Services Staff Present:

None,

SPECIAL MEETING

**1. Call to Order / Pledge of Allegiance**

Chair Martin called the Special Meeting of the Board of Directors to order at 8:55 a.m. PDT and the group immediately started the Executive Session.

**2. Executive Session**

Chair Martin recessed the public meeting and convened the Executive Session at 8:56 a.m. citing ORS 192.660(a) – To consider the employment of a public officer, employee, staff member or individual agent.

**3. Executive Session recessed**

Chair Martin recessed the Executive Session at 11:15 a.m.

**4. Executive Session reconvened**

Chair Martin reconvened the Executive Session at 1:00 p.m.

**5. Executive Session ended**

Chair Martin closed the Executive Session at 4:25 p.m.

**6. Public Meeting Session restarted**

7. Chair Martin closed the Executive Session at 4:25 p.m. No business to be completed.

**8. Public Comment Period**

No public testimony.

**9. Public Meeting Adjourned**

Chair Martin adjourned the special meeting at 4:25 p.m.

Respectfully submitted,

---

Jason Rice  
Acting General Manager

---

Jim Martin  
Chair, Board of Directors

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

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



OAK LODGE WATER SERVICES

Minutes

Board of Directors – Special Meeting, Executive Session  
August 14, 2017

Board of Directors - Members Present:

Jim Martin,	Chair
Susan Keil,	Vice Chair
Nancy Gibson,	Director
Lynn Fisher,	Director
Kevin Williams,	Director

Board of Directors - Members Absent:

None,

Oak Lodge Water Services Staff Present:

None,

SPECIAL MEETING

**1. Call to Order / Pledge of Allegiance**

Chair Martin called the Special Meeting of the Board of Directors to order at 6:00 pm PDT and the group immediately started the Executive Session at 6:01 p.m.

**2. Call for Public Testimony**

No public testimony.

**3. Executive Session**

Chair Martin recessed the public meeting and convened the Executive Session at 6:01 p.m. citing ORS 192.660 (2)(a) - To consider the employment of a public officer, employee, staff member or individual agent.

**4. Executive Session adjourned**

Chair Martin closed the Executive Session at 7:11 p.m.

**5. Public Meeting Session restarted**

Chair Martin closed the Executive Session at 7:12 p.m. No business to be completed.

**6. Public Comment Period**

No public testimony.

**7. Public Meeting Adjourned**

Chair Martin adjourned the special meeting at 7:12 p.m.

Respectfully submitted,

\_\_\_\_\_  
Jason Rice  
Acting General Manager

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

\_\_\_\_\_  
Jim Martin  
Chair, Board of Directors

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





OAK LODGE WATER SERVICES  
Minutes  
Board of Directors – Regular Meeting  
August 15, 2017

Board of Directors - Members Present:

Jim Martin, Chair  
Susan Keil, Vice Chair  
Lynn Fisher, Director  
Kevin Williams, Director

Board of Directors - Members Absent:

Nancy Gibson, Director

Oak Lodge Water Services Staff Present:

Jason Rice, Acting General Manager  
Kelly Stacey, Finance Director  
Rich Ludlow, Interim Operations Manager  
Todd Knapp, Field Operations Superintendent  
Clark Balfour, District Attorney,

Visitors Present:

Ernie Platt, Sunrise Water Authority  
Thelma Haggemiller, Local Resident  
Eugene Whitley, Local Resident  
Eric Hofeld, Sunrise Water Authority  
Monica Stone, OLWS Staff  
Paul Gornick, Budget Committee.

## REGULAR MEETING

### 1. Call to Order and Flag Salute

Jim Martin called the regular meeting to order at 6:00pm and Acting General Manager Jason Rice led the pledge of allegiance.

### 2. Call for Public Testimony

After the pledge, Thelma Haggemiller brought up the issue of the beavers & referenced her email. Wildwood Rec Area needs beavers as their resident beaver was killed on the highway and their wetlands are drying up without beavers. Acting General Manager Jason Rice forwarded the information to the Clackamas County Roads Department to see if they were trapping and they are not trapping anymore, but they are aware of the need for beavers. Director Fisher brought up that on Risley at Riverforest Creek on the Risley side that a couple of branches are gnawed reflecting signs of beaver activity. They are not currently causing issues so they are not trapping in our area now. The Board thanked Thelma for bringing this to their attention.

Eugene Whitley, brought up First agenda item is thank you to Field Operations Superintendent Todd Knapp and team for replacing my water meter cover. He also brought up that two people have called him questioning the new average bill mentioned of \$156.00 for the combined water and sewer bills. Will bills really be this high? Secondly, what is the cost to do billing once per month for the services rendered? He also mentioned that this area has a lot of people on fixed incomes, that this is not a wealthy area.

Finance Director Kelly Stacey responded that there were issues with managing the workload around monthly billing, and that basically everything would double, that meters would have to be read, bill would need to be mailed out. One idea to remedy the issue is that customers are welcome to make payments each month, in two smaller payments, with no penalty. Another letter is going to go out which will address this and other FAQ's.

No other public testimony.

### **3. Presentation of the District's 4<sup>th</sup> Consecutive Annual NACWA Gold Award**

Jason Rice introduced the award, stating that this is the fourth consecutive year that we have received this award for not violating our permit, and if we continue this pattern through December of this year we will receive the platinum award. This is a mark that all operators can strive for. OLWS Staff Monica Stone and Rich Ludlow were thanked, and all others involved in doing this work, including operators. Other departments recognized as a team effort included plant operations and collection crews, and the whole district, public outreach, office, the whole crew. The whole board offered congratulations. This will be mentioned in the next newsletter.

A new addition to the team is the new Plant Superintendent, David Mendenhall, and staff has already been hearing great things from staff about working with him. He introduced himself as coming from Las Vegas, where he most recently managed the Waste Water Treatment Plant, but had been at the City for 26 years. He and his wife moved to Vancouver area to be closer to other family.

He also mentioned he is familiar with the NACWA Award and this is a nice thing to come in to. He was welcomed by all.

David was asked what kind of sewer system he managed in Las Vegas and it was determined that the Las Vegas system and our systems are similar, except for the total flow, and very familiar to him. He mentioned that the Las Vegas system flows in to Lake Mead, and that he is excited to be working on our system now.

### **4. Correction to Resolution 2017-13**

Acting General Manager Jason Rice introduced the correction to Resolution 2017-13 was incorrectly approved as 2017-12 at the July 18, 2017 Board Meeting. He reviewed the content of the resolution, and that the sanitation district had a consumption based policy using a winter average of three billing cycles over six months. This resolution reduces the

averaging data to a twice per year reading. The goal is to capture the winter usage, not the irrigation.

Now audience was asked for questions and there were none.

**Director Williams moved to adopt the Resolution for 2017-13 adopting the consumption based billing policy for sanitary sewer. Vice Chair Keil seconded the motion.**

**Ayes: 4**

**Nays: None**

**Motion carried 4-0**

## 5. Consent Agenda

- July 18, 2017 Board Meeting Minutes

Acting GM Jason Rice stated that normally this is a much larger section but due to vacations this is limited and Financial records for July and August are to be presented in September.

**Correction to minutes: Under Visitors Steven Cade is listed as a local resident but it should be changed to listing him as a Budget Committee member. Vice Chair moved to approve Motion as amended. Director Williams seconded the motion.**

**Ayes: 4**

**Nays: None**

**Motion carried 4-0**

## 6. Department Reports

**Finance Report:** Financial Director Kelly Stacey stated we are in the thick of implementation of the new financial/accounting/billing system. We are doing setup in a live Accela system, and working on getting ready to transfer our June 30 numbers to the new system within the week. Next week Accela will be on site starting with AP, cashiering, the whole GL then by next Friday, the 25th we will be "live" with the GL and accounts payable. Next comes to payroll. We have already done our "Business Process Study" for UB because it takes a lot of work especially because we have the two different accounts. OLWS Staff Elaine Murray is beginning work on this & getting the templates set up and everybody is busy. Director Fisher asked if we expect to have a single accounts payable system and Kelly answered "yes", starting next week, by Friday, we will have one bank account and we will be keeping funds categorized through our new combined General Ledger and so it's all underway. Director Fisher asked if we will then be able to send one payment for both for water and waste water on one check? Kelly answered, yes. Director Keil told Kelly that it is remarkable that she has pulled this off, and Kelly stated that it has been a lot of work, and kind of fun in a way, and that she has learned a lot. It's nice seeing it come together in the end. Jason Rice recognized that staff have worked hard to support one another, to cover the staff that have been pulled out for trainings, including Jeff, Rebecca, Elaine & others have had to pick up the slack, and he appreciates all the hard work.

Jason and Kelly are reviewing the 80+ HR Manager applications and narrowing down to the better qualified applicants – each of them reviewing and composing their own list of approx. 10-15. Hopefully some of those applicants may be on both Jason’s and Kelly’s list, which will narrow the search. Hope is to have someone on board in mid to late September start. Kelly said there are some very qualified candidates.

The Bond Refinance – Kelly has now talked to all three attorneys and the consensus is we need to get some judicial ok if we want to go with the route of the Geo-bond. We could look at switching and doing a revenue bond or we can go through that process. Both (Piper Jaffrey & Qu Won have both said that now is a pretty good time to go forward and we don’t know what is going to happen with rates. They have both been working on some numbers. Vice Chair asked if we had side by side comparisons on Geo & Revenue bonds? Kelly said no but she thinks she has received some new numbers this afternoon but hasn’t had time to really compare – maybe a \$50,000 difference based on cost & rate; but revenue bond requires more of a reserve. Qu Won suggested that RFP’s could be presented to local banks for better terms (15-year terms v/s 10-years). Piper Jaffrey said that we may not need a Financial Advisor, that we may only need a Pricing Advisor, which could save us \$10,000-\$15,000. To go out on a public bid, you need to have either a Financial Advisor or Pricing Advisor, as well as an underwriter, and bond council, which Piper Jaffrey is to us now. Group agreed to target this for further review in September.

**Sanitary Operations Report:** Former Interim Operations Superintendent Rich Ludlow presented an opportunity which OLWS Staff Monica Stone found at a Biosolids Conference she attended. The Hayden Area Wastewater District in Idaho has a Belt Filter Press that they don’t need anymore, the unit is about 13 years old (they are converting to a different press), and appears to be in good shape. We got an offer from the manufacturer to buy it back for \$20,000 and manufacturer’s intent was to trailer mount it and use as a portable rental unit, so it is in good enough shape for the manufacturer to be interested in it. In talking with Jason this purchase would be in the “signature authority area” he stated that for this meeting, this is an informational conversation. Rich added that he is interested in Belt Filter Press because it would give us redundancy. There is budget money and a capital project to do improvements in the solids building with that work focused on our Belt Filter Press to do an overhaul, which is nearing 20 years. We don’t have any problems with our unit but Rich says he is being pre-emptive as units usually need refurbishing at about 20 years. Rich did get quotes on renting a unit for this while our unit is being refurbished and estimates approximately two months to refurbish. The quotes for transporting are \$12,000 each way, totaling \$24,000 and \$15,000 per month to rent. The cost of a technician for set it up is another \$5,000. The overhaul itself is about \$160,000. The grand total is about \$219,000. Rich mentioned that he believes it is a great deal and it is the fraction of the cost of a new unit. He proposed that we move ahead with this purchase and it is in the realm of Jason’s authority. He reminded all that this is a benefit of networking of conferences. Rich & Monica were thanked for finding the unit and creating the opportunity.

Rich mentioned a second item requiring authorization, that it is in the OLWS capital plan and that we have approval for initial payment of leasing a vacuum truck. Staff requests that the board approve the procurement of a “Positive Displacement Vacuum” truck for

districtwide use. Rich described the background information from the OLWS capital plan document that and the approach is to finance the procurement of a lease agreement that makes 5 equal payments of \$62,387.67/year each for 5 years with a lease option at year six to either make a final payment of \$120,000 or refinance the balance or return the truck to the vendor that provided it from the lease-return option. This gives us some flexibility at the end of the 5 years if it is not working out for us. The lease agreement also finances the total of \$398,543.00 which with the truck cost and interest rate of 2.93% is a good offer. Procurement should be conducted under the state purchasing agreement with Freightliner for the chassis with all additions to the chassis falling under the agreement as supported of all the email statement from Oregon DAS. The total amount comes to less than the total proposed in the capital plan. Staff recommends approval of procurement authorizing Acting GM Jason Rice to sign the lease agreement.

Questions: Director Williams asked what does the lease speak to regarding maintenance? Response that the maintenance would still be our responsibility, there is no maintenance included in the lease agreement – this is just the financing options to spread it out over several years budget wise and have a buy-back if it doesn't work out or upgrade it. Vice Chair Keil asked if we have to retain it for the full five years if is not performing? Rich responded they have warranties on it. If it is a lemon they will work with us. Director Williams asked if it is the 2100? Rich responded that they came and demonstrated it for us a few months ago, that it is the latest model. Everybody was pretty impressed with it compared to our vintage 90's model. Rich added that it takes 6 months for the unit to build up so that is the concern getting it here this month v/s next with winter coming. Jason recommends we move forward with this now because the signing contract is beyond Jason's authority to sign – he needs board approval.

**Vice Chair Keil moved to authorize Acting General Manager, Jason Rice to execute this contract. The motion was seconded by Director Williams.**

**Ayes: 4**

**Nays: None**

**Motion carried 4-0**

#### **Water Operations Report:**

Field Operations Superintendent Todd Knapp mentioned two water main projects, upgrading the old two-inch mains to a six inch and a four inch. He shared that at Rex Putman High School OLWS did a vault that was really nasty as far as depth and trying to get it resolved. The Valley View project is still going. They have installed flapper valves for the over flows. The roof on the old tank update –trying to get off the roof via pressure washing has been notoriously difficult so they rented a heated pressure washer where they heat it up and that was also difficult. Basically, staff said that they can't get everything off as the manufacturer won't warranty the coating. Sandblasting is the last resort if the heated process fails. They were able to get in the steps–which will make it easier to get up.

Water use is at 5.3 million gallons above average, you can refer to the 10 year average in the chart of the board packet.

Acting GM Jason Rice added in spirit of the consolidation that at the management team weekly meetings, staff had discussed an issue that was arising that two of the three biosolids haulers were going on vacation so the staff member recognized the situation might warrant staff cross-training. So the management team determined that the water staff has the correct driving certifications, Class A CDL, and we trained everyone that we could. Over the last few weeks we have been double hauling as a team, with water crew matched up with sanitation crew – one has a trailer and one doesn't, but they have been able to move more solids out of the plant. The goal is to get everyone trained to backup biosolids hauling.

This was for the benefit of the plant, and has now evolved to other ways to support staff inter-departmentally, such as sanitary field staff help hanging red tags for water shutoffs because tags stack up. In addition, management began talking now about how to help each other during storms during the next rainy season. We have identified the trouble catch basins and culverts and that we usually get calls on, and we could have staff proactively inspecting them and are starting to identify these. The nice thing about this that we are starting to bring these teams together and are learning about where support can be offered. This is a really good thing these teams coming together, and more of these possibilities the better. We had the sanitary T.V. crew out helping the Valley View water project by TV'ing the storm line recently.

You can see these day-to-day operations are in a better place because of the consolidation and they just didn't exist before. This feels good, and we are looking for more opportunities, which will start to take place. Board reflected positively on these changes.

Acting GM Jason Rice announced that Interim Operations Superintendent Rich Ludlow is moving on to Clark Regional Utilities. As a result, we will be losing his expertise. He thanked Rich for all of his hard work, mentioning that he has saved the district a large amount of money by filling in as superintendent for the last year. He appreciated him for all of his work and shared that it has been a pleasure working together. Rich thanked Jason and looked back on his work here. He reflected on the many accomplishments that occurred during an interesting transitional period for the district, and that there are quite a few. He mentioned that "when you are in the trenches you just move on to the next project but when the transition starts to happen you look back you see the accomplishments. It really has been a good time. A lot of challenges but a lot of successes, too."

Director Fisher wished Rich well with his new endeavors.

#### **Technical Services Report:**

Jason Rice shared that has been working on writing the OLWS Water Master Plan RFP which should go out to the public in the next month, and needs Todd Knapp to approve it. Other tasks include that OLWS has an on-call contract due to expire, a landscaping services and janitorial services contracts that needs renewing. He let the board know that these contracts will start to appear before the board for approval.

Director Fisher asked about the OLWS tenant down on Addie Street. Jason responded that she has found a new place with reasonable rent and will be moving out at the end of

August, which resolves the issue for the district. He mentioned that he has yet to hear about whether North Clackamas Parks and Recreation District will create the new associated park, and if not then OLWS will want to sell that property. Director Fisher shared that things are on hold at the Parks District until Happy Valley completes its division off at the end of the year.

## **7. Call for Public Comment**

Budget Committee member Paul Gornick asked if they should assist the board in evaluating the bond review issue? Vice Chair Keil responded that it would be great to have support from the Budget Committee for Director Stacey as needed.

There was no other public comment.

## **8. Business from the Board**

Director Fisher shared information about the Oak Grove Community Council meeting and the new storage facility in the Oak Grove area, at the corner of Kellogg and Oak Grove Boulevard. There will be no onsite parking and this type of facility is not what the community wanted. Tangent to Oak Grove in Milwaukie, there will be a new development with 92 new homes built in a wetland and traffic coming out on Rusk Road, and already approved initially by the Milwaukie City Council. Third, the Oatfield House will have a public hearing about tearing down the structure and build several homes there instead. MAPIT group conducted the "wish list" exercise and merged with the Jennings Lodge CPO "wish list" exercise to focus the list of projects. Oak Grove Council has a new, young person on the board after resignation of one of its members. The District Advisory Board for North Clackamas Parks and Recreation is still on hiatus until Happy Valley leaves, standard meetings will be on hold this Thursday because they will be going on a tour.

Vice Chair Keil updated the Board on the Chamber of Commerce Public Policy committee meeting, stating Rian Windscheimer, the Region One Director of Oregon Department of Transportation updated the group about the recent funding that has come through, and that she will follow up to share a visual infographic from that update. She also mentioned a presentation from Terry Gibson that about the goals for more business interests and business oriented thinking for in Oak Grove – through MAPIT and the .

President Martin reported on the Sunrise Water Authority Meeting, but the meeting was moved and he has nothing further to report.

Director Williams updated the group that he could not attend the Jennings Lodge CPO's second annual picnic in July because he was out of town, and shared a flier for the upcoming meeting. The county planning director will be at the meeting and share the overlay zones. He wanted citizens to be able to attend and speak up to protect this area. The meeting will be held at the Church of the Nazarene, from 7-8:30 p.m. at 4180 SE Jennings Ave.

Director Gibson was absent, so did not report.

**9. Recess to Executive Session**

Recessed regular meeting at 6:55 p.m. Convenes Executive Session under ORS 192.660(2)(a)(i).

**10. Adjourn Executive Session**

Chair Martin adjourned the executive session at 8:40 p.m. There we no actions taken by the Board.

**11. Reconvene Public Meeting**

**12. Adjourn**

Chair Martin adjourned the regular meeting at 8:41 p.m.

Respectfully submitted,

\_\_\_\_\_  
Jason Rice  
Acting General Manager

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

\_\_\_\_\_  
Jim Martin  
Chair, Board of Directors

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





OAK LODGE WATER SERVICES  
Minutes

Board of Directors – Special Meeting  
August 24, 2017

Board of Directors - Members Present:

Jim Martin,	Chair
Susan Keil,	Vice Chair
Nancy Gibson,	Director
Lynn Fisher,	Director
Kevin Williams,	Director

Board of Directors - Members Absent:

None,

Oak Lodge Water District (OLWSD) Staff Present:

None,

Visitors Present:

Thelma Haggenmiller, Local Resident

SPECIAL MEETING

**1. Call to Order / Pledge of Allegiance**

Chair Martin called the Special Meeting of the Board of Directors to order at 4:30 pm PDT and the group immediately started the Special Meeting.

Introduction of new OLWS Operations Superintendent David Mendenhall.

**2. Call for Public Testimony**

No public testimony.

**3. Discussion of Belt Press Purchase**

Acting General Manager Jason Rice provided an overview of the proposed belt press purchase, shared information that the expected winning bid price is \$5,000 higher than the originally estimated \$20,000. Jason Rice informed the Board that the belt press had been personally inspected by Rich Ludlow and found in good condition and will offer flexibility and functional redundancy for the biosolids operations at the Water Reclamation Facility. Staff will then need to coordinate transport of the belt press to Oak Lodge would travel with the trailer to mount and bring back the belt press on the flatbed. We will continue to use both existing belt presses, and have the ability to take one press off line for repair. Total costs will be no more than \$50,000-60,000, and will all fall under the capital improvement program plan. This will leave money available to repair existing presses.

Director Kevin Williams commented on the record that review of this project carried with it a time-sensitive deadline, which required the Board to convene a special meeting to review and vote on the proposal. The deadline for bidding on the belt press was August 30, 2017. Director Williams requested that in the future deadlines such as these be put into the Board Packets to be publicly posted for review.

**4. Public Comment Period**

Thelma Haggemiller commented that there was no publicly posted agenda emailed to the interested parties list or posted to the website. Board requested that staff address this issue for future meetings. Acting GM Jason Rice said he would follow up to address the issue.

**Director Keil moved that the Board authorize Jason Rice to sign a purchase agreement with the Hayden Area Regional Sewer Board in the amount not to exceed \$35,000 for the purchase of the used Andritz 1.5 meter Belt Filter Press. Director Williams seconded the motion.**

**Ayes: Gibson, Fisher, Keil, Martin, Williams**

**Nays: None**

**The motion carried 5-0.**

Vice Chair Keil requested that the minutes from this Special Meeting be emailed to the interested parties list.

Chair Martin adjourned meeting at 4:43 p.m.

Respectfully submitted,

\_\_\_\_\_  
Jason Rice  
Acting General Manager

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

\_\_\_\_\_  
Jim Martin  
Chair, Board of Directors

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



OAK LODGE WATER SERVICES

Minutes

Board of Directors – Special Meeting, Executive Session  
August 31, 2017

Board of Directors - Members Present:

Jim Martin,	Chair
Susan Keil,	Vice Chair
Nancy Gibson,	Director
Lynn Fisher,	Director
Kevin Williams,	Director

Board of Directors - Members Absent:

None,

Oak Lodge Water Services Staff Present:

None,

Visitors Present:

Clark Balfour, District Counsel.

SPECIAL MEETING

**1. Call to Order / Pledge of Allegiance**

Chair Martin called the Special Meeting of the Board of Directors to order at 6:00 pm PDT and the group immediately started the Executive Session at 6:01 p.m.

**2. Call for Public Testimony**

No public testimony.

**3. Executive Session**

Chair Martin recessed the public meeting and convened the Executive Session at 6:01 p.m., regarding matters contained within ORS 192.660(2)(a).

**4. Executive Session adjourned**

Chair Martin closed the Executive Session at 7:50 p.m.

**5. Public Meeting Session restarted**

Chair Martin closed the Executive Session at 7:50 p.m. No business to be completed.

**6. Public Comment Period**

No public testimony.

**7. Public Meeting Adjourned**

Chair Martin adjourned the special meeting at 7:51 p.m.

Respectfully submitted,

---

Jason Rice

---

Jim Martin

Acting General Manager

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

Chair, Board of Directors

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



## STAFF REPORT

---

**To:** Oak Lodge Water Services Board of Directors  
**From:** Kelly Stacey, Finance Director  
**Agenda Item:** August 2017 Financial/Admin Update  
**Item No.:** 9a  
**Date:** September 13, 2017

Below is an update of various efforts of the Finance/Administration department.

### **Accela implementation:**

The Accela implementation is going well. We are live with our general ledger, which includes accounts payable and purchase orders. We are posting our payroll and utility billing information into the system which is temporarily adding some additional work. We are working at an aggressive speed to get all the modules implemented.

Payroll is underway. The initial templates are due next week, followed by our set-up and parallel processing, with a go-live date in December.

At the same time, we are working on Utility billing and the cleanup of our customer accounts. The convergence of the two utilities it has proven to be a monumental task. Our staff is doing a great job working through all the issues and look forward to the completion of the project. Foreseeing no issues, the schedule has us going live with utility billing is the end of February for the March 1 billing. We appreciate all the patience of our customers as we move forward and work out all the bumps that are sure to arise over the next few months. The balance of the modules (Inventory, capital assets, work orders, and employee self-service) will come at the end with much less disruption.

Accela staff has been great to work with. They are very patient and responsive to our questions and concerns.

### **HR Manager Replacement:**

We have reviewed the application for the HR Manager position and have narrowed them down to 10 that we plan to interview this week. We plan to narrow the field to our top 3-5 candidates and invite them back for second interviews after Sarah Jo starts working here, with the plan to have the person onboard by mid-October.

### **Office Move:**

Over the last couple of weeks, we have moved Jeff and Rebecca to this office. We are working through some cross training and getting a second computer at the counter to facilitate taking both water and sanitary payments by one person.



## WATER DIVISION OPERATIONS STAFF REPORT

---

**To:** Board of Directors  
**From:** Todd Knapp, Water Superintendent  
**Agenda Item:** Field Operations Report  
**Item No.:** 9b  
**Date:** September 19, 2017

### **Background**

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

### **Operations Administration**

There was a large main break on Oatfield Rd, the main caused fair amount of damage, about 1,200 square feet of pavement needed to be replaced.



Valley View reservoir project update, progress has been slow, leaks in the original water stop were discovered and are being dealt with.

I've recently taken over field operations for the collections system, it's been a real eye opener, I went out with the crew for both cleaning and TVing, been working with David to get my bearings but at the same time, gleaning all I can from Rich before he leaves.

### **Field Operations Monthly Report for August 2017**

Maintenance work highlights for the month:

- The collections field crew helped with the water Red Tags

- The water field crew helped Haul Biosolids
- Water main project completed on Torbank Rd
- Meters replaced, services and leaks (See chart)
- Water consumption for **August 154,085,000 Gallons** 9.5MG up from the 10-year average.

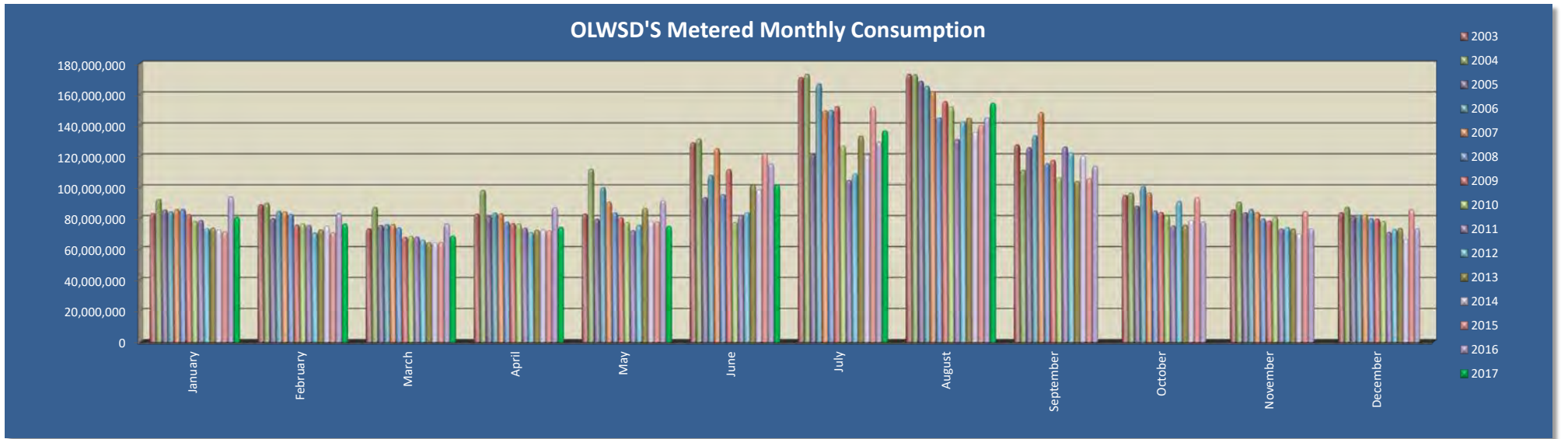
### Attachments

1. Sanitary Cleaning Report
2. Valley View Historical Report
3. Water Statistics

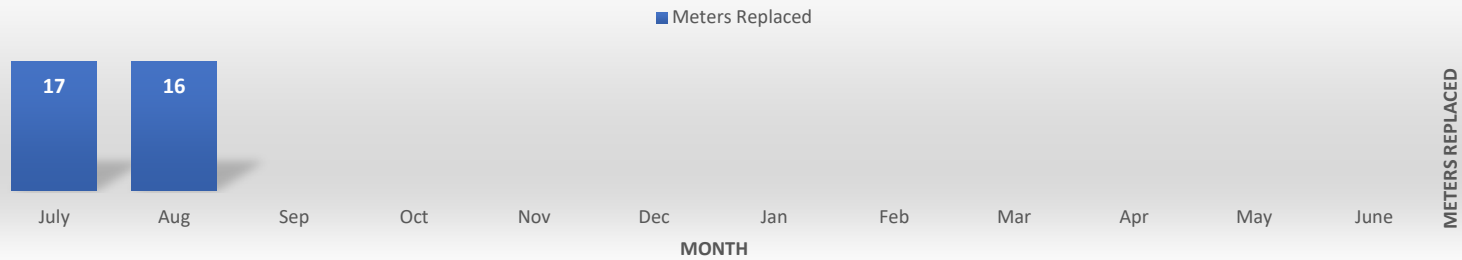




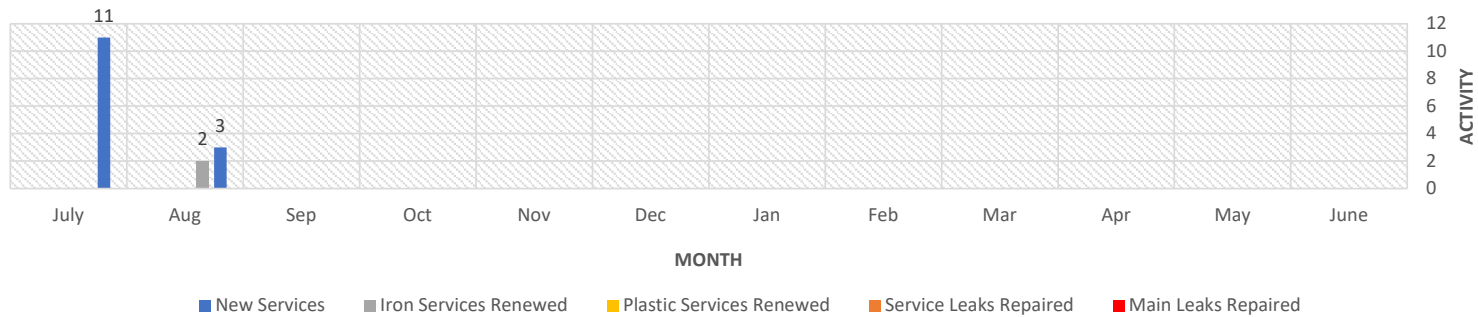
Year	Month												Total Yearly Con	Average Daily Demand
	January	February	March	April	May	June	July	August	September	October	November	December		
2003	82,674,600	88,370,400	72,820,000	82,357,000	82,416,000	128,520,000	170,652,000	172,726,000	127,198,000	94,416,000	85,037,000	83,285,000	1,270,472,000	3.48
2004	91,933,000	89,441,000	86,755,000	97,665,000	111,392,000	130,863,000	172,883,000	172,499,000	110,696,000	95,973,000	90,079,000	86,823,000	1,337,002,000	3.66
2005	84,976,000	79,415,000	74,996,000	80,616,000	79,088,000	92,885,000	120,871,000	168,248,000	125,172,000	87,512,000	83,230,500	80,773,500	1,157,783,000	3.17
2006	83,697,000	84,098,667	75,580,333	83,028,000	99,436,000	107,501,000	166,449,000	164,957,000	132,989,000	100,180,000	85,350,000	81,587,000	1,264,853,000	3.47
2007	85,179,000	83,766,000	75,622,455	82,508,545	90,129,000	124,696,000	149,207,000	161,512,000	147,980,000	96,159,000	83,445,000	81,921,000	1,262,125,000	3.46
2008	85,466,000	82,200,000	73,405,000	77,221,722	83,162,278	94,885,000	149,422,000	144,592,000	114,830,000	84,307,000	79,094,000	79,319,000	1,147,904,000	3.14
2009	82,042,000	75,196,000	67,364,000	76,238,000	79,968,000	111,127,286	151,804,000	155,069,000	117,099,000	83,457,000	77,782,000	79,107,000	1,156,253,286	3.17
2010	77,735,000	75,975,000	67,986,000	75,943,000	76,903,000	76,720,000	125,996,000	151,590,000	105,880,000	81,052,000	80,389,000	77,515,000	1,073,684,000	2.94
2011	78,266,000	74,983,000	67,462,000	73,285,000	71,613,000	81,189,000	104,328,000	130,684,000	125,733,000	74,646,000	72,657,000	70,555,000	1,025,401,000	2.81
2012	73,041,000	70,104,000	65,501,000	70,380,000	75,148,000	83,256,000	108,236,000	142,023,000	121,981,000	90,545,000	73,672,000	72,454,000	1,046,341,000	2.87
2013	73,277,000	72,051,000	63,866,000	71,906,000	86,085,000	101,278,000	132,837,000	144,354,000	103,403,000	75,217,000	72,624,000	73,180,000	1,070,078,000	2.93
2014	72,052,000	74,566,000	63,886,000	72,171,000	77,889,000	97,978,000	120,411,000	135,271,000	120,008,000	78,257,000	69,534,000	66,200,143	1,048,223,143	2.87
2015	70,840,857	70,318,000	63,972,000	71,515,000	77,173,000	121,185,000	151,728,000	139,696,000	105,238,000	92,781,000	83,966,000	85,368,000	1,133,780,857	3.11
2016	93,522,000	82,637,000	76,044,000	86,443,000	90,989,000	114,745,667	128,722,333	144,599,000	113,212,000	77,196,000	72,766,000	72,839,000	1,153,715,000	3.16
2017	80,205,000	75,867,000	68,040,000	73,822,000	74,515,000	101,310,000	136,262,000	154,085,000						
2018														
2019														
2020														
10 Year Average	78,644,686	75,389,700	67,752,600	74,892,472	79,344,528	98,367,395	130,974,633	144,196,300	114,153,778	81,939,778	75,831,556	75,170,794		10 Year ADD
														3.05



## REPLACED METER CHART 2017 - 2018



## SERVICE and MAIN ACTIVITY 2017 - 2018



Fiscal Year	Month	New Services	Meters Replaced	Iron Services Renewed	Plastic Services Renewed	Service Leaks Repaired	Main Leaks Repaired
2018	June						
2018	May						
2018	Apr						
2018	Mar						
2018	Feb						
2018	Jan						
2017	Dec						
2017	Nov						
2017	Oct						
2017	Sep						
2017	Aug	3	16	2			
2017	July	11	17				
<b>Yearly Total</b>		<b>14</b>	<b>33</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>



## Sanitary Staff Report

---

**To:** Board of Directors  
**From:** David Mendenhall, Plant Superintendent  
**Agenda Item:** Plant Operations Report  
**Item No.:** 9c  
**Date:** September 11, 2017

### **Background:**

The Board has requested updates at the Regular Meetings of the Board on the status of the District's Operations.

### **Operations Administration**

David Mendenhall started on August 14<sup>th</sup> as the Plant Superintendent.

Rich Ludlow leaves OLWS on September 15<sup>th</sup> and heads off to Clark County WA. We thank him for his service and all the extra duties he took on during the transition. And I especially want to thank him for all his assistance getting me familiar with the District and the plant and getting me information I needed to get up to speed.

Ashley Reeder, our seasonal worker completed her post here at the end of August. She did a lot of cleaning throughout the plant and assisted Operations and Maintenance with confined space entry and other helper tasks. She was able to get a full-time job in her area of study with Wilsonville water treatment.

The Hayden (ID) Area Regional Sewer Board accepted our offer of \$26,000 for their Andritz belt press. Staff is coordinating the disassembly of the ladders, platforms and controllers from the press by Hayden staff, the removal of the press from the building in Idaho by a rigging company, the attachment to a flatbed and the moving of it to the plant by a freight hauler. Estimates are running under \$15,000 to accomplish that. Our own trailer proved to be a little too close to the hauling limits. Once the press is delivered here we will figure out how to integrate into our existing process, get it on the trailer, and do the work to get it installed.

### **Water Reclamation Facility Operations for August 2017**

All NPDES permit and safety compliance requirements were met for the month of August.

An important milestone was reached at the end of August. Operations staff determined after reviewing data, trends, and current conditions that the plant solids have been sufficiently reduced to allow for biosolids removal that matches the production of the

plant. The plant is very stable and effluent quality continues to be excellent with sample results consistently meeting the more stringent requirements we anticipate being required with the pending permit renewal. Operations is planning to continue to operate at the current parameters and optimize for the next month and get ready for the change of seasons. The solids related numbers are a little higher than the projected target but the performance results indicate a good range has been reached. Since last year at about this time, staff has reduced the solids inventory from almost 300,000 lbs. to 95,000 lbs.

Results came back from the second round of biosolids samples that were sent out in July. They show the plant can meet Class 'A' biosolids with at least 3 stages of aerobic digestion but not with just the first two. This information helps to make decisions about future biosolids programs and equipment usage and maintenance.

### **Plant Maintenance Monthly Report for August 2017**

Preventive Maintenance (PM) was the emphasis this month to prepare pumps, screens, and instrumentation for the heavier loads of the season change. Some highlights:

- Load tested the backup generators and performed preventive maintenance on the switch gear.
- Performed checks and calibrations on all Variable Frequency Drives (VFD) for the corresponding pumps.
- Performed calibrations on the harmonic filters related to VFDs.
- Replaced all air filters on blowers.
- Did the extensive PMs on the grit classifier.
- Performed calibrations on the various pump station flow meters.

Repairs and rebuilds include:

- Unplugged pump station pumps 7 times (flushable wipes)
- Disassembled and adjusted the internal wear plates on Digester Sludge Pump 1. This corrected a trip out situation. The pump is back in service.
- Replaced a wash water valve on the belt filter press.



## STAFF REPORT

---

**To:** Board of Directors  
**From:** Jason Rice, Interim General Manager  
**Agenda Item:** Technical Services Report  
**Item No.:** 9d  
**Date:** September 13, 2017

---

Below is an update of various efforts for the Technical Services Program.

### **Capital Improvement Program:**

#### Water Master Plan

Staff is preparing a Request for Proposals to perform Water Master Planning services for the District. This plan will include at least:

- An updated list of Capital Project needs for the next 10 years
- Rate Study
- System Development Charge (SDC) Study

#### OLWSD Master On-call Contract

The Sanitary District had an active contract that expires December 31, 2017. Since this contract is about to expire, Staff is preparing an RFP for Master On-call Services that can be released to the public on or around October 1, 2017. As a coordinated effort between Sanitary and Water, the District's SCADA system, the system that allows our infrastructure to talk and report outward, will be added to this Master On-Call list.

### **Other Projects:**

#### Employee Handbook

Bollard Law is still finalizing this document. Once received by District Staff, it will be distributed to ASFCME representatives for a two-week review. Following this review, Management plans on addressing any concerns or questions with the Union prior to the October Board Meeting.

#### Water Building Expansion

The plan set, bid documents and specification of materials for the west and east expansions are nearing completion. Currently staff is expecting to bid this work out late October to early November with construction planned for summer 2018.

Expansion to the north has been put on hold due to lack of contact with property owner about purchasing the land.

#### Rules and Regulations Update

This document has now been reviewed by Staff and will be sent to Legal Counsel for final review and formatting. Staff's goal is to have this document ready for Board Approval (via Ordinance) at the October and November Board Meetings.

#### Janitorial and Landscaping Services Contract

The Sanitary District had an active contract that expires October 31, 2017. Since this contract is about to expire, Staff is preparing to seek out savings and security through a newly updated contract.

#### **Outreach and Education**

Since the last board meeting OLWS staff provided one tour for the "Willamette View Outdoor Grounds and Garden Committee", a group of 11 residents of the retirement community.

September brings planning meetings for events and experiential programs, during which OLWS staff will organize activities for the coming school year with outreach program partners. Water and stormwater activities are an essential part of visits to classrooms, and field time activities also bring with them a focus on stormwater. Most school programs include a tour of the Water Reclamation Facility, all of which will be scheduled for this fall and next spring.

**Permitting**

	<b>This Month</b>	<b>Last Month</b>	<b>Year-to-Date</b>	<b>This Month Last Year</b>	<b>Last Year-to-Date</b>
Building Permits Review	7	5	12	13	-
Fees Received	\$0.00	\$0.00	\$0	\$0.00	\$4.00
Erosion Control Permits	2	2	4	4	3,233
Fees Received	\$1,066.11	\$1,049.67	\$2,116	\$1,507.95	\$2,300.46
P/E Cost	\$757.60	\$49.23	\$807	\$1,097.40	\$1,181.50
Ops Cost	\$638.01	\$543.49	\$1,182	\$708.90	\$4.00
SS Connections (New EDUs)	6	5	11	3	20,660
SDC Fees Received	\$30,990.00	\$25,825.00	\$56,815	\$15,495.00	\$11.00
SS Permits	6	5	11	9	2,666
Fees Received	\$1,625.28	\$1,000.00	\$2,625	\$2,665.75	\$3,178.82
P/E Cost	\$926.39	\$750.01	\$1,676	\$2,568.40	\$31.00
SS Inspections	0	10	10	11	5
Residential	9	10	19	5	0
Commercial	0	0	0	0	6
Main	0	0	0	6	655.9688
Staff Cost	\$777.90	\$1,253.30	\$2,031	\$558.61	\$12.00
Pre-applications	0	2	2	-	-
Fees Received	\$0.00	\$0.00	\$0	\$400.00	\$0.00
Development Review	1	2	3	3	12
Review Fees Received	\$0.00	\$0.00	0	\$400.00	\$400.00
Ops Cost	\$0.00	\$0.00	0	\$492.45	\$1,084.14
P/E Cost	\$3,292.93	\$2,872.83	\$6,166	\$6,947.82	\$9,610.68

Permit Fees Outstanding           \$13,473.72

**Attachments**

1. "Development Review Status" tracker



<b>Project Status</b>	<b>Address</b>	<b>Type of Development</b>	<b>Notes</b>	<b>Last Updated</b>
Complete	15415 SE River Rd.	3-parcel Partition (2 new homes)	Project complete. Sanitary Inspections complete. Erosion Control ongoing (SFD). Awaiting asbuilts. Unknown timeline.	9/1/17
Under Construction	14400 SE Lee Ave.	Z0071-16 Duplex on existing lot. (SFR previously demolished)	Erosion Control inspections ongoing. Sanitary Sewer installed. Unknown Timeline	9/1/17
Under Construction	2009 SE Courtney Ave.	3-parcel Partition (1 new home & 1 new duplex. Existing home is on the Historical Register as a	Erosion Control inspections ongoing. Sanitary Sewer installed. Sewer connections installed. SFDs under construction. Unknown timeline.	9/1/17
Under Construction	15448 SE East Ave. (Zetterberg Estates)	18-Unit Multi-Family	Sanitary sewer Inspections complete. Erosion Control inspetions ongoing. Unknown timeline.	9/1/17
Under Construction	5210 SE Roethe Rd.	6-lot Subdivision (5 new homes)	Public infrastructure installed and approved. In 11-month warranty period. SFDs under construction. Warranty period ends July 2017. Final SS	9/1/17
Under Construction	14911 SE McLoughlin	Lew's Dairy Freeze Remodel to MOD Pizza	Engineering plans approved. Building permit approved. Under construction. Erosion control ongoing.	9/1/17
Under Construction	Lot east of 18390 SE Woodcock Ave.	2-parcel partition	Plans approved. Inspections ongoing (EPSC) SS inspections complete.	9/1/17
Under Construction	2312 SE Risley Ave	3-lot partition	Engineering plans approved. Building permits approved. Expire March 2018.	9/1/17
Under Construction	4900 SE Meldrum	2-lot partition ZPAC0181-16	Public infrastructure installed and approved. In 11-month warranty period. SFDs under construction. Warranty period ends March 2018.	9/1/17
Plan Review	13012 SE Oatfield	Proposed subdivision; 9 potential lots.	Engineering planset (2nd review) submitted. Revised set submitted and under review.	9/1/17
Plan Review	4281 SE Manewell Lane	A four-lot SFR minor subdivision.	Z0640-16 Land use comments sent. Awaiting engineering plans. County expiration timeline.	9/1/17
Plan Review	18122 SE McLoughlin Blvd	Z0482-16-D Commercial Design Review: Fuel Island	Engineering plans (2nd review) complete and pending approval. Awaiting fees.	9/1/17
Plan Review	18121 SE River Rd. (Jennings Lodge Estates)	62-lot Subdivision (Zone Change R-10 to R-8.5 not approved by CC. (Applicant has filed an appeal with the Land Use Board of Appeals)	Received Engineering Plans 3rd plan submittal.	9/1/17
Plan Review	3816 SE Hill Rd	Z0428-16 8-lot subdivision	Received Engineering Plans (2nd review) comments sent. Awaiting 3rd plan submittal.	9/1/17
Plan Review	13715 SE River Road	Z0399-17 Rose Villa - 28 Homes	Awaiting Engineering Plans. County expiration timeline.	9/1/17
Plan Review	17908 and 17900 SE Addie Street.	Z0200-17-D_BOARDMAN_WETLAND	Land use comments sent. Awaiting engineering plans. County timeline for expiration.	9/1/17
Plan Review	6460 Glen Echo Avenue	Z0461-16_Gladstone_Glen_Echo. (OLSD Service area / out of OLSD Boundary).	10-lot subdivision. Gladstone Plan Review. Gladstone Inspection . OLWSD receives approved plans and asbuilts and inspection reports.	9/1/17
plan review	5215 SE Roethe Rd	2-parcel partition / 2-year extension Z0014-17. previous Z0555-12-M	Land use comments sent. Awaiting engineering plans. Land Use timeline.	9/1/17
Plan Review	SE Manewal at SE Towery LN	Z0157-17_Manewal_South	Land use comments sent. Reviewed by OLWSD Counsel. Land Use / Partition Land Use Review. Z0156-17 (for original tax lot 2300) is now void. Z0157-17 for original tax lot 800 and now east one-half of 2300 is revised and is now the only Partition application for Tasso Homes on Manewal. Engineering Plans submitted Sept. 5. Awaiting land use decision.	9/1/17
Plan Review	SE Courtney at SE Rupert	Z0061-17-D 10-unit apartment	Land Use Comments sent. Awaiting engineering plans. County Land Use Timeline.	9/1/17

<b>Project Status</b>	<b>Address</b>	<b>Type of Development</b>	<b>Notes</b>	<b>Last Updated</b>
Plan Review	15510 SE Wallace Street	Z0593-16 13 lot subdivision	Land Use Comments sent. Awaiting engineering plans. County Land Use Timeline.	9/1/17
Plan Review	13715 SE River Road	Zone Change	Rose Villa Zone Change Z0066-17	9/1/17
Plan Review	Taxlots 2000 & 2100 located behind 15026 & 15018 SE Linden Ln.	3-parcel partition	Z0305-15-M ** Line Extension **	9/1/17
Pre-Application	3901 SE NAEF RD	ZPAC0124-16 A Partition application with two existing light industrial buildings.	Pre-application comments sent. Awaiting land use / subdivision application. Expires Sept. 2017.	9/1/17
Pre-Application	18107 SE Addie Street.	ZPAC0167-16 4-plex	Pre-application comments sent. Awaiting land use / subdivision application. Expires Dec. 2017	9/1/17
Pre-Application	14501 SE Laurie Ave	Z0050-17 2-lot partition	Land use comments sent. Awaiting engineering plans. County expiration timeline.	9/1/17
Pre-Application	Willamette View	Riverview Dining Facility Replacement / Expansion; Z0239-17	Engineering Plan review #2. County expiration timeline.	9/1/17
Pre-Application	2818 SE Park Avenue	Commercial with underground parking	Pre-app comments submitted. Awaiting Land Use Application. County expiration timeline.	9/1/17
Pre-Application	3260 SE Oak Grove Blvd	130000+ mini storage facility	Land use comments sent. Awaiting engineering plans.	9/1/17
Pre-Application	15007 SE McLoughlin Blvd	LA Fitness TI	ZPAC0031-17.Awaiting land use/design review application.	9/1/17
Pre-Application	16005 SE River Forest Pl	two-parcel partiion	ZPAC0027-17.Awaiting land use application.	9/1/17
Pre-Application	18107 SE Blanton	3-lot partition	ZPAC0063-17 Awaiting land use application.	9/1/17
Pre-Application	2615 SE VINEYARD WAY	two-parcel partition	Attended pre-app. Awaiting Land Use application. County expiration timeline.	9/1/17
Pre-Application	19421 SE KAY ST	two-parcel partition	Attended pre-app. Awaiting Land Use application. County expiration timeline.	9/1/17
Pre-Application	15314 SE RUPERT DR	7-lot subdivision	Seven-lot minor subdivision for one existing and six new home sites. Attended pre-app. Awaiting Land Use application. County expiration timeline.	9/1/17
Pre-Application	18107 SE Addie Street	Subdivision: 5 units / 6 lots	ZPAC0096-17 to build 5 units and partition 6 lots at	9/1/17



## AGENDA ITEM

---

**Agenda Item:** Public Comment Period  
**Item No.:** 10  
**Presenters:** N/A

*Members of the public are invited to address the Board on any relevant topic. The Board may elect to limit the total time available for public comment or for any single speaker depending on meeting length.*



## AGENDA ITEM

---

**Agenda Item:** Business from the Board  
**Item No.:** 11  
**Presenters:** Board Members

---

### **Background:**

The Board of Directors appoints District representatives from time to time to serve as liaisons or representatives of the District to committees or community groups.

Directors assigned specific roles as representatives of the District are placed on the agenda to report to the Board on the activities, issues, and policy matters related to their assignment.



**REGIONAL SOLUTIONS OFFICE  
GOVERNOR KATE BROWN**

**WORKFORCE HOUSING INITIATIVE  
REQUEST FOR INFORMATION**

The Governor's office hopes you will join in our efforts to help create paths forward to address an issue facing many Oregon communities, namely a lack of workforce housing. In her travels across the state, Governor Kate Brown heard time and again, from companies and communities alike, that the lack of workforce housing presents a clear threat to continued growth and prosperity. With her leadership, state agencies are looking at their current programs and tools to find opportunities to partner with communities, the business sector, and private housing developers to address the workforce housing shortage in Oregon.

The goal of this RFI is to further refine those tools and think about what other resources would be helpful in addressing this shortage. We hope to hear about examples of development projects and other efforts to address the housing shortage. We plan to use the information gathered during this process to develop and refine a Request for Proposals that will select a handful of pilot communities across the state to test these tools and create models for moving communities forward on workforce housing.

This problem has developed over decades and will not be solved overnight, but the Governor is committed to finding new ways forward. This RFI represents the next step in finding that path, and we thank you in advance for your participation.

Please review the attached RFI. If you are interested in submitting information, you may send your response to the RFI to [lisa.howard@oregon.gov](mailto:lisa.howard@oregon.gov). Alternatively, you may register and submit the information via the Oregon Procurement Information Network using the instructions below.

**To log into ORPIN as a supplier:**

- Go to the ORPIN website at <http://orpin.oregon.gov>.
- Log in with your username and password. If you do not have an account, click on Supplier Registration and follow the steps to set up a user account and company registration.
- Go to Browse Opportunities. Select Advanced Search.
- Enter DASPS-2839-17 into the Opportunity Field and click the Search button.
- Open the document summary by clicking on the search result.

**To log into ORPIN as an internal (state agency) user:**

- Go to the ORPIN website at <http://orpin.oregon.gov>.
- Log in with your username and password. If you do not have an account, send a request to the Help Desk at [info.orpin@oregon.gov](mailto:info.orpin@oregon.gov).
- Go to Browse Opportunities. Select Advanced Search.
- Enter DASPS-2839-17 into the Opportunity Field and click the Search button.
- Open the document summary by clicking on the search result.

State of Oregon



Department of Administrative Services  
State Procurement Office  
REQUEST FOR INFORMATION (RFI)

Seeking Information About  
**Workforce Housing Initiative For  
Governor's Office - Regional Solutions Program  
Oregon Housing and Community Services Department  
Business Oregon**

**Department of Land Conservation and Development  
Oregon Department of Transportation  
Department of Environmental Quality  
Department of State Lands**

ORPIN Number DASPS-2839-17

Date of Issue: September 1, 2017

**Responses Due Date: October 2, 2017**

Issuing Office: DAS/SPO State Procurement Office

Contact Name: Timothy Jenks

Address: 1225 Ferry Street SE U140

City, State, Zip: Salem, OR 97301-4285

Phone (voice): 503-378-4778

Phone (fax): 503-373-1626

E-mail: [tim.jenks@oregon.gov](mailto:tim.jenks@oregon.gov)

## **Introduction**

The State of Oregon acting by and through its Regional Solutions Program in the Governor's Office is issuing this Request for Information (RFI) to solicit information from entities actively engaged in producing workforce housing that will support economic growth and permanent family wage jobs in Oregon. The Regional Solutions program works across state agencies to align resources and policies to address economic development priorities. This RFI is jointly designed by the Governor's Office and Regional Solutions agencies, who have identified tools to support workforce housing public private partnerships, including access to loans, grants and targeted technical assistance (Appendix 1).

In order to assess solutions to the workforce housing crisis, we seek responses from any private or public entity with information related to workforce housing. This may include developers, municipalities, employers, financial institutions, philanthropic organizations or other groups. Entities are invited to respond individually or jointly. Responses to this RFI will assist in identifying best practices for possible inclusion in future procurement documents. Understanding the opportunities and obstacles around workforce housing will provide a framework for designing a Request for Proposals (RFP) to meet community needs.

## **Background**

One of the most pervasive constraints to economic growth that Governor Kate Brown has heard throughout the state is a lack of workforce housing. Good jobs go unfilled because candidates can't find an appropriate place to live. This is a lost opportunity for Oregon workers and employers.

While Oregon Housing and Community Services (OHCS) is working to address housing needs below 60% Area Median Income (AMI), there are no dedicated tools for "missing middle" housing and the market is not producing enough new housing supply to meet the needs of the workforce above 60% AMI. This lack of "workforce housing" undermines community vitality, hitting rural areas particularly hard. Oregonians with lower to mid-range salaries struggle to find a suitable home for their family near their work. And employers ranging from manufacturing and engineering to health and education are unable to reach their full potential.

Governor Brown directed Regional Solutions agencies to find solutions to the workforce housing problem. In recent months, Regional Solutions and OHCS convened roundtable conversations with housing developers and business leaders. These meetings helped all participants better understand the challenges and opportunities related to workforce housing. Employers, developers, and state agencies expressed a strong interest in working collaboratively to alleviate this problem.

This RFI is the next step to inform the Governor's Workforce Housing Initiative, which may include pilot projects in interested communities and access to additional state resources. We know Oregon's housing challenges developed over many years and are fraught with complexity. Regional Solutions is encouraged by the diverse partners and leaders who have joined us in this endeavor. The intent of this RFI is to broaden and deepen the dialogue as well as determine practical next steps to: 1) increase the availability of workforce housing in target communities within the next two years; 2) identify successful approaches for expansion to other communities; 3) inform longer range housing strategies and discussions with the Oregon legislature.

\*Note: Workforce Housing is defined for purposes of this Initiative as homes (rental or owned) for Oregonians with incomes between 60%-120% AMI.

## **Objectives**

The objectives of this Workforce Housing Initiative RFI are to:

- Gain insight that will help build a sound Request for Proposals (RFP) to solicit pilot projects that will produce workforce housing, thus enabling job retention and creation.
- Leverage limited state investments with investments from other partners including employers, local jurisdictions and/or philanthropy to produce workforce housing.
- Find innovative and replicable solutions to a decades-long issue in Oregon.
- Deepen the state’s understanding of workforce housing challenges, qualifying and quantifying the challenges with discrete numbers and examples.
- Gain a better understanding of the various entities, coalitions, efforts, and projects engaged in addressing workforce housing challenges linked to economic development efforts.
- Enhance the quantity and quality of the “Workforce Housing Initiative Draft Tools” (further referred to in this document as “draft tools”).

## **Questions**

- What is the workforce housing need in your community? Be specific with criteria and metrics. Examples might include data from a recently completed Housing Needs Analysis, Housing Market Study, or quantified numbers of units from employers. Identify if the priority is homeownership or rental.
- What are the barriers to development in your community? These could be regulatory, statutory, financial, market-driven, related to local capacity, or other.
- Is your community or organization ready to participate in a pilot program? Examples of a readiness metric might include a recently completed Goal 10 analysis for communities, employer engagement, and public or private investment in addressing the issue.
- What do you see as the unique challenges and opportunities related to workforce housing in your area? Is your community already pursuing some solutions?
- Are there identified project sites and developers actively working on feasibility? If applicable, provide financial analysis about funding gaps and provide lender feedback about the project(s).
- How would you apply the draft tools to address workforce housing needs in a community (or several communities) in Oregon? Be specific and realistic in applying the tools and dollar allocation from flexible pots.
  - Who would you partner with in meeting those needs?
  - What resources would you use to leverage and maximize state resources on the table?
- What other tools would be most helpful to you in addressing this initiative? Are you aware of success stories in Oregon or other states?



- With economic development as the target of this initiative, how would you engage employers in addressing the workforce housing needs of their workers? How would the proposed housing project assist an employer in retaining jobs or creating jobs?
- Please provide any other insight you think would be helpful to us in crafting an RFP.

## **PARTICIPATION IN THIS RFI**

### **RESPONDER PARTICIPATION**

Responders can be developers, employers, cities, or other engaged parties actively working to address housing issues and opportunities. Responses can be submitted by an individual or jointly by a team. Responders submitting timely responses to this RFI that identify innovative solutions to the workforce housing crisis may be invited to meet with the Regional Solutions team to discuss their solution and its components including gaps in financing, hurdles and other obstacles identified through this RFI process.

It is very important that the state support its local businesses and various socioeconomic programs, including but not limited to, the Office of Minority, Women and Emerging Small Business (OMWESB) registered and disabled veteran-owned businesses. A listing of OMWESB certified firms is available at <https://oregon4biz.diversitysoftware.com/FrontEnd/VendorSearchPublic.asp>.

This RFI may or may not result in a Request for Proposals (RFP). Responses provided to this RFI will be used only for general information purposes and will not be considered binding on any party. Responses provided to this RFI will also not have any impact on any RFP selection process.

Submission of a response to the RFI does not constitute an agreement between the State and the Respondent, nor does it secure or imply that Respondent will be selected or given any preferential access or availability to future funding opportunities that may arise as a result of this RFI.

### **RESPONDER SUBMISSION**

Information and responses to questions should be succinct providing the reviewer adequate information to determine workforce housing needs, hurdles and gaps to completing a successful workforce housing project. Identify the RFI name and number, the contact person name, agency name and address. Responses can be emailed to [Tim.Jenks@Oregon.Gov](mailto:Tim.Jenks@Oregon.Gov) or mailed to The Department of Administrative Services, Procurement Services, 1225 Ferry Street SE U140, Salem, OR 97301.

All responses and any accompanying documentation become the property of the State of Oregon, subject to the Oregon Public Records Law, and will not be returned.

Regional Solutions will not be responsible for any error or omissions from downloading the RFI. The official RFI document is the one held at the Regional Solutions office.

### **COSTS and FEES**

All costs associated with responder's preparation and submission of this RFI are the sole responsibility of the Responder and shall not be borne by Regional Solutions or the State of Oregon.

### **General Process Information**

**SCHEDULE**

Following are key dates specific to this RFI:

RFI Issued	September 1, 2017
Questions for Clarification	September 15, 2017
Closing	October 2, 2017

**Public Record/Confidential or Proprietary Information**

This RFI and one copy of each original response received in response to it shall be kept by Regional Solutions and made a part of a file or record that may be open to public inspection. If an RFI response contains any information that is considered a trade secret under ORS 192.501(2), or is otherwise exempt from disclosure under the Oregon Public Records Law, ORS 192.410 through 192.505, if applicable, the vendor shall complete and submit the Affidavit of Trade Secret (Attachment A to this RFI) and a fully redacted version of its response, clearly identified as the redacted version.

If applicable, the Oregon Public Records Law exempts from disclosure only bona fide trade secrets, and some exemptions from disclosure apply only “unless the public interest requires disclosure in the particular instance.” Therefore, non-disclosure of documents or any portion of a document submitted as part of a response to this RFI may depend upon official or judicial determinations made pursuant to the public records laws and requirements. If applicable, Regional Solutions may give vendor notice of any required disclosure and cooperate with vendor, at vendor’s expense, in seeking reasonable protective arrangements. However, Regional Solutions shall not be required to act in a manner which would result in any sanctions or other penalties.

Vendors are cautioned that cost information generally is not considered a trade secret under Oregon Public Records Law (ORS 192.410 through 192.505) and identifying the submission, in whole, as exempt from disclosure is not acceptable.

**Attachment A – AFFIDAVIT OF TRADE SECRET**

\_\_\_\_\_ (Affiant), being first duly sworn under oath, and representing [insert Vendor Name] (hereafter “Vendor”), hereby deposes and swears or affirms under penalty of perjury that:

1. I am an employee of the Vendor, I have knowledge of the Request for Information referenced herein, and I have full authority from the Vendor to submit this affidavit and accept the responsibilities stated herein.
2. I am aware that the Vendor has submitted a submission, dated on or about [insert date] (the “Submission”), to Regional Solutions in response to Request for Information (RFI)#DASPS-2839-17, for the Workforce Housing Initiative and I am familiar with the contents of the RFI and Submission.
3. I have read and am familiar with the provisions of Oregon’s Public Records Law, Oregon Revised Statutes (“ORS”) 192.410 through 192.505, and the Uniform Trade Secrets Act as adopted by the State of Oregon, which is set forth in ORS 646.461 through ORS 646.475. I understand that the Submission is a public record held by a public body and is subject to disclosure under the Oregon Public Records Law unless specifically exempt from disclosure under that law.
4. I have reviewed the information contained in the Submission. The Vendor believes the information listed in Exhibit A is exempt from public disclosure (collectively, the “Exempt Information”), which is incorporated herein by this reference. It is my opinion that the Exempt Information constitutes “Trade Secrets” under either the Oregon Public Records Law or the Uniform Trade Secrets Act as adopted in Oregon because that information is either:
  - A. A formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information that:
    - i. is not patented,
    - ii. is known only to certain individuals within the Vendor’s organization and that is used in a business the Vendor conducts,
    - iii. has actual or potential commercial value, and
    - iv. gives its user an opportunity to obtain a business advantage over competitors who do not know or use it. or
  - B. Information, including a drawing, cost data, customer list, formula, pattern, compilation, program, device, method, technique or process that:
    - i. Derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and
    - ii. Is the subject of efforts by the Vendor that are reasonable under the circumstances to maintain its secrecy.
5. I understand that disclosure of the information referenced in Exhibit A may depend on official or judicial determinations made in accordance with the Public Records Law.

\_\_\_\_\_  
Affiant’s Signature

State of \_\_\_\_\_)

) ss:

County of \_\_\_\_\_)

Signed and sworn to before me on \_\_\_\_\_ (date) by \_\_\_\_\_ (Affiant’s name).

\_\_\_\_\_  
Notary Public for the State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**EXHIBIT A**

Vendor identifies the following information as exempt from public disclosure:

## **TOOLS TO SUPPORT PUBLIC-PRIVATE PARTNERSHIP FOR WORKFORCE HOUSING**

With the leadership of Governor Kate Brown, Regional Solutions agencies are looking at their current programs and tools to find opportunities to partner with communities, the business sector, and private housing developers to address the workforce housing shortage in Oregon. This problem has developed over decades and will not be solved overnight, but the Governor is committed to finding new ways forward.

The initial search uncovered the following tools, which agency directors and the Governor's staff are vetting with a variety of stakeholders.

### **Pilot Project Fund**

Agencies have identified two separate sources of flexible funds to support a limited number of pilot projects that will be selected through an RFI/RFP process:

- 1) Up to \$1 million in funding for predevelopment, site readiness, gap funding on mixed income multifamily rentals. Funding will also support community readiness and innovative partnerships and programs, such as employer assisted housing initiatives, land trusts, and homebuyer education.
- 2) Funding for public/private partnerships with traded-sector companies that demonstrate a concrete link between a housing project (unit production) and permanent job creation or retention.

### **Loans**

Agencies have identified two pools of loan funds. These loan funds can be deployed independently or as part of a pilot project:

- 1) Up to \$3 million in loan funding targeted to workforce housing projects and infrastructure that supports workforce housing projects. These loans currently bear an interest rate of 3.89 percent with initial loan terms starting at 25 years or the useful life of a project. Terms can be extended.
- 2) Loan funds targeted at a variety of other specific infrastructure needs, like water or waste water, and mostly used for municipal systems, not developments.

### **Available Property**

Agencies have prepared lists of properties they own that are in the queue for sale or under consideration for sale.

### **Community Readiness Assistance/Planning Tools**

Agencies have identified three separate opportunities for grant funds/program participation related to workforce housing:

- 1) Grants to local governments to complete studies of housing stocks and needs and develop strategies and codes to meet needs.
- 2) Grants that focus on the nexus between land use and transportation. These grants can help update code to promote efficient land use and transportation systems and help communities identify ways to meet these goals on site-specific projects.
- 3) Urban growth boundary expansion pilot project for affordable housing. Only two communities will be selected for this opportunity, one under 25,000 and one over 25,000.

### **Revitalization Grants**

The Oregon Main Street (OMS) Revitalization Grant has funded workforce housing projects. Funds can be used by OMS Network communities to acquire, rehabilitate, or construct compatible in-fill buildings in designated downtown areas that spur economic development and commercial historic district revitalization, including creation of upper-floor housing.

August 24,2017

To: Oak Lodge Water Services Board

From: Kevin Williams, Director

Re: Jennings Lodge CPO meeting

I attended the CPO meeting last evening and listened to a presentation from Mike McAllister, Clackamas County Planning Director. He spoke about Base Zoning Districts ie; R75, R10, R15 and what they mean. He then moved onto descrbing the various methods of creating Overlay Zones to control how spaces are used after being zoned for development and subsequent construction.

There are several single purpose zones including the following: Environmental, Wildlife, Historic Preservation, Airports and Mineral/Aggregate Zones. A Community can choose to do a Community Design Plan that includes any of these features along with any special attributes that residents want to protect.

There was a great deal of discussion about the seeming lack of protection for trees when these developers come riding in to build sub-divisions. I didnt hear a soul in the room advocating for the removal of trees. Actually it was quite the opposite. Commissioner Savas was in attendance and stated that the County will follow our codes for those elements that are used to review permits by our staff.

What this means to me is that if we want to weigh in on saving the canopy for the obvious reasons that we need the trees, we could. We would have to develop language for the code that could for example state " any trees removed for the development of this property will have have the requirement of the planting of a replacement tree."

The next topic was a discussion of an application by Tasso Homes to do a three lot division of a lot on SE Manewal Lane. The CPO voted to reccommend to the County that they deny the permit based on the application being incomplete and other problems with the division. Interestingly, there are no provisions that were discussed for stormwater. The neighbors that currently live there stated that stormwater runoff is a problem now and with no provisdions to deal with it the impermeable surfaces added with the street and homes will only add to the problem.