



STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
SOUTHWEST DRINKING WATER REGIONAL OPERATIONS  
*PO Box 47823, Olympia, Washington 98504-7823*  
*TDD Relay 1-800-833-6388*

May 23, 2019

Kevin Odegard  
Orchard Beach Community  
Post Office Box 123  
Port Orchard, Washington 98366

Subject: Orchard Beach Community Water System, ID #64031Q, Mason County; Water System Plan, ODW Project #18-1004, APPROVAL

Dear Kevin Odegard:

The Water System Plan (WSP) received by the Office of Drinking Water (ODW) on October 1, 2018, and revised on February 26, 2019, has been reviewed and **APPROVED**.

Approval of this WSP is valid as it relates to the standards outlined in WAC 246-290 revised April 30, 2012, and RCW 70.116 (Municipal Water Law) effective September 2003, and is subject to the qualifications herein. Future changes in the rules and statutes may be more stringent and require facility modification or corrective action.

This approval is valid until **May 22, 2029**, unless ODW requests an update or plan amendment pursuant to WAC 246-290-100(9). Please contact your regional planner two years in advance of this approval expiration date to determine the appropriate path forward.

#### APPROVED NUMBER OF CONNECTIONS

The WSP includes an assessment of the physical and legal ability of this water system to provide water. Based on the analysis presented, the water system demonstrates service capacity to adequately serve a total of 39 Equivalent Residential Units (ERUs) based on Maximum Daily Demand (MDD) of 634 gallons per day per ERU (gpd/ERU). The limiting factor to achieving the utility's intended level of service and reliability is the source capacity.

**The approval establishes the water system is able to serve a total of 39 connections.** The system currently has a large percentage of part-time occupancy of single family homes with a water use of approximately 20 ERUs. For conservative design purposes, it was assumed each connection would transition into a full time single family connection. In addition, during peak



holiday season, the water system characteristics resemble full time occupancy. The approved capacity was determined as follows:

Total Water Budget (ERUs)	39
Current Residential Usage (ERUs)	38
Water Available for Additional Connections (ERUs)	1
Existing Number of Connections (connections)	38
<b>Total Number of Service Connections</b>	<b>38 + 1 = 39</b>

The approved number of connections is based on an assumption that each future connection will use water consistent with an average single-family residence supplied by the water system. Other types of connections, such as apartments, businesses, or parks may use more or less water than an average single-family residence.

You are responsible for permitting additional new connections in a manner that recognizes all new connections added and the water demands associated with each new connection. Your process must ensure an accurate assessment of the remaining service capacity available, expressed as ERUs, so that physical capacity and water right limitations are not exceeded.

The WSP also includes an assessment of the physical and legal ability of this water system to provide water after implementing capital improvements. The Capital Improvement Program (CIP) identifies projects that are intended to increase the system's available capacity, so the system can eventually serve full build-out of the development. The approved connections can be adjusted via WSP amendments at the time of project submittal. The anticipated CIP projects and the corresponding system capacity after the projects are installed is as follows:

Capital Improvement Project	Anticipated Connections*
Increase Installed Well Pump Capacity to 80 gpm	46
New 30,000-gallon Reservoir and Booster Station (101 gpm)	63*

\*The system has a maximum of 63 lots in the development. Installation of the reservoir would increase the physical capacity of the system to 119 ERUs.

#### **LOCAL GOVERNMENT CONSISTENCY**

David Windam, Mason County Community Services Director, signed the local government consistency statement on January 1, 2019. This meets local government consistency requirements for WSP approval pursuant to RCW 90.03.386 and RCW 43.20.

Kevin Odegard  
May, 22 2019  
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## SERVICE AREA AND DUTY TO SERVE

Pursuant to RCW 90.03.386(2), the service area identified in this WSP service area map may now represent an expanded "place of use" for this system's water rights. Future changes in the service area should be made through a WSP amendment.

You have a duty to provide new water service within its retail service area. This WSP includes service policies to describe how your system plans to provide new service within your retail service area.

## WATER RESOURCES

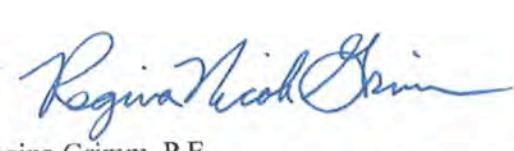
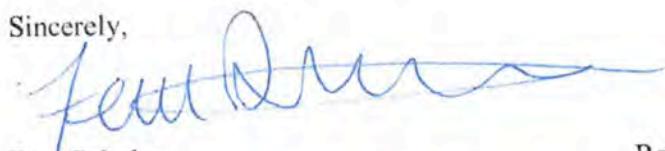
*Our approval of your water system design does not confer or guarantee any right to a specific quantity of water. The approved number of service connections is based on your representation of available water quantity. If the Washington Department of Ecology (Ecology), a local planning agency, or other authority responsible for determining water rights and water system adequacy, determines you have use of less water than you represented, the number of approved connections may be reduced commensurate with the actual amount of water and your legal right to use it.*

## WATERSHED PLANNING

The system is located in Water Resource Inventory Area (WRIA) 14 Kennedy/Goldsborough Watershed. Please contact Ecology for more information regarding watershed planning.

If you have any questions, please contact Fern Schultz at (360) 236-3031 or by e-mail at fern.schultz@doh.wa.gov, or Regina Grimm at (360) 236-3035 or by e-mail at regina.grimma@doh.wa.gov.

Sincerely,



Fern Schultz  
Office of Drinking Water, Regional Planner

Regina Grimm, P.E.  
Office of Drinking Water, Regional Engineer

Enclosures

cc: Doug Eklund, JW Morrissette & Associates  
Mason County Health Department  
Mason County Planning Department  
Tammy Hall, Department of Ecology

Note: While addressing your comments I discovered a few other things that needed updating. They are:

Section 8 Effective Communication: removed reference to Jonathan Wiley (the board will be appointing our own communication specialist from our talented pool of members).

#### 4.3 Source Supply Analysis

4.3.3 Seawater Intrusion (page 26 and 27) was updated to correctly represent that OBCG had chloride testing in 2015 and 2018 in addition to 2010. All of our levels are well below the maximum contamination level. NWS ran the tests for us and we provided the reports to the Department of Ecology as soon as we received them.

Added an additional page to the TOC for the “Supporting Documents” section.

Updated two pages that NWS had numbered incorrectly in the WSP

Corrected WIFI & OPERATING PERMIT intro page from 7.1 to 10.1  
SITE PLAN & MAPS intro page from 7.2 to 10.2

A few general housekeeping changes.

#### 1.1 Ownership and Management (Page 1)

Name of Owner updated to Orchard Beach Community Group, Inc., Owner Contact is c/o Secretary Treasurer, etc.

#### 1.2 History and Background (Page 2)

1.21. History Updated first sentence to “The Orchard Beach Water System is owned by the Orchard Beach Community Group and is governed by a board of directors.”

Capacity Analysis (Page 1-updated replacement page). The system contact information is as follows:

Name of Owner: Orchard Beach Community Group, c/o Secretary/Treasurer, 1217 SW Orchard St., Seattle, WA 98105

Emergency Response Plan-Section 3 Chain of Command – Lines of Authority

Updated Responsibility box for “President” to Initial Contact

December 31, 2018

Kevin Odegard  
Orchard Beach Community Water System  
Post Office Box 123  
Port Orchard, Washington 98366

Subject:      Orchard Beach Community Water System, ID #64031Q, Mason County; Water System Plan, ODW Project #18-1004

Dear Mr. Odegard:

Thank you for submitting the Water System Plan (WSP) for Orchard Beach Community Water System, received by the Office of Drinking Water (ODW) on October 1, 2018. We have reviewed the WSP in accordance with the developed pre-plan checklist from December 6, 2016.

The following comments need to be addressed before I can complete my review.

## GENERAL

1. Owner's Statement of Responsibility – Orchard Beach is governed by a board. As per WAC 246-290-1009(8)(b), the Water System Plan shall be adopted by the elected governing board, not just the board president. **Please provide a copy of the meeting minutes when the WSP was approved by the board.** If your bylaws state that it gives authority to the president of the board with no vote, please include a copy of the bylaws. **The board unanimously agreed on the adoption of the Water System Plan via a personal telephone call from the president to each board member. Confirmation was sent to Northwest Water Systems by email on September 19, 2018. Copy of the email is on page 4 of "Supporting Documents."**
2. Please submit confirmation that an informational meeting for the consumers was held or provide explanation where the information is within the submitted WSP. **At the June 9, 2018 Annual Meeting, members (consumers) were apprised of the Water System Plan and voted to direct the board to proceed with the steps necessary to achieve "green" operating-permit status with DOH. Copy of meeting minutes begin on page 6 of "Supporting Document."**

## CHAPTER 1 SYSTEM DESCRIPTION

3. 1.3 - Inventory of Existing Facilities – Provide date installed, life expectancy of facility, and replacement costs. **See spreadsheet on page 11 of "Supporting Documents."**
4. 1.4 - Related Plans – During a December 6, 2016, e-mail conversation, it was related that a Local Government Consistency (LGC) review would not be needed (Section 10.14). At the time, the code was interpreted to only require an LGC when a service area is expanding. That is no longer current practice. **Please submit a Local Government Consistency checklist (see enclosed.) See signed LGC on page 13 of "Supporting Documents."**
5. 1.6 Retail Service Area – Section 1.9.11 referenced is actually 1.9.9. Please update. **Correction was made. New replacement page 4 provided.**
6. 1.6 Figure 2 – Orchard Beach Service Area Map - **Please include road names, an inset map to show where in Mason County the Service Area is located, and either a different border showing the inclusion of both current connections and retail service and water rights place of use, or remove the current connections hashmarks from the service area map.** The Service Area Map has been printed in color and shows in red the border of the service area. This color map is part of the replacement pages. Additional maps and aerial photos also are provided in the "Supporting Documents" beginning on page 15.

7. 1.7 Future Service Area – Purveyors within counties that have declared a critical water supply service area are required to comply with their counties Coordinated Water System Plan (CWSP), which requires a future service area to be designated. Mason County is not a CWSP county and no future service area designation is needed. **Removed reference in the WSP replacement page 4.**
8. 1.9.5 Non-payment – This section outlines the disconnection policy for Orchard Beach. **Please provide a copy of the customer service agreement, including these policies, or an explanation of how this information is disseminated to the customer. Every member receives a copy of the OBCG directory annually, which includes the bylaws that explain non-payment disconnection. A copy of the directory is provided in “Supporting Documents” beginning on page 20.**
9. 1.9.8 Extension – Extensions will not be approved outside of the designated service area without an amendment or update to this WSP. **Noted in the WSP replacement page 6 “no extensions will be approved outside of the designated service area without an amendment or update to the WSP.”**
10. 1.10.4 Consent Agreements – **Please provide a copy of the customer service agreement, including policies, or an explanation of how this information is disseminated to the customer. Every member receives a copy of the OBCG directory annually, which includes the bylaws that explain current policies for membership. A copy of the directory is provided in “Supporting Documents” beginning on page 20.**

## CHAPTER 2 PLANNING DATA

11. 2.1.4 ERU Analysis – It is unclear what the basis is for assuming the quantity of water used by part time connections. **Please explain how the fractions of the ERUs were derived. If this information was taken from an analogous system, please provide detail. Northwest Water responded to this comment. See NWS response in “Supporting Documents” beginning on page 33.**
12. 2.1.5 System Parameters, ADD, MDD, and PHD – It is not possible to reliably separate distribution leakage from normal system demands when customer demand records are not available. Please explain how the leakage is being taken into account when determining system demands. **Northwest Water responded to this comment. See NWS response in “Supporting Documents” beginning on page 33.**

## CHAPTER 3 SYSTEM ANALYSIS

13. 3.3.3 Source Capacity – Have you considered pump testing S02 and installing a larger size pump now rather than down the road? If you do this during this planning process, you can include the upgraded pump testing and well information in the WSP as an appendix and request approval of connections based on the full source capacity. **The installation of a new pump was considered in June 2017 but tabled because of the cost (and how it would deplete our current reserves). The pump test that was initiated on June 7, 2017 showed 75GPM with no measurable impact to the water table. To upgrade the pump from 5K to a 10K would have required going to 3 phase power which wasn’t available in our area.**

14. 3.6.4 Planning – If the system would like to grow beyond the existing 38 connections to the currently available capacity limit of 39, **please update any pages requesting 38 to requesting 39.** Pages have been updated; see replacement pages 1 (1.0), 2 (1.2), 3 (1.5), 6 (1.9.6), 13 (2.1.1), 17 (Table 5\*\*), 19 (3.2.3), 23 (3.6.4) (“The system currently has the capacity to serve 39 full-time connections; the system requests approval to service 39 connections as full-time connections at this time.”)

## CHAPTER 4 RESOURCE ANALYSIS & WUE

15. General – WAC 246-290-830 details the requirements of water use efficiency goal setting. **Please submit confirmation that a goal setting meeting occurred**, including a screen shot of the public notice two weeks before public forum. **This was discussed at the June 9, 2018 annual meeting (see meeting minutes in Supporting documents beginning on page 47); a notice of that meeting was continually posted at the entrance to the Orchard Beach community (see page 51 of “Supporting Documents”) two months prior and notice mailed to all members.**
16. 4.2.2 Goals – It is unclear if this goal is from the required goal setting meeting or not. **Please update and provide an explanation.** OBCG incorporates the required goal-setting meeting into the Annual Meeting. This was reviewed and discussed at the Annual Meeting held on June 9, 2018. Updated replacement page 25.

## CHAPTER 5 SOURCE PROTECTION

17. General – WAC 246-290-135 details that a contamination inventory including site locations and owners/operators shall be updated every two years. **Please provide inventory of potential groundwater contamination sources located within the wellhead protection area.** Inventory of potential groundwater contamination is detailed in spreadsheet beginning on page 53 of “Supporting Documents.” Septic systems are the only possible contamination liability in the wellhead protection area at this time.
18. General – **Please provide copies or documentation that notification letters have been sent to the addresses compiling the contaminant inventory, regulatory agencies, and your emergency responders.** Letters and maps showing the wellhead protection area were sent to all property owners within the area. Copies begin on page 57 of “Supporting Documents.” Letters and maps were also sent to regulatory agencies and emergency responders. Copies begin on page 131 “Supporting Documents.”
19. Contingency planning – Please consider emergency interties as the water system infrastructure is being upgraded. **Our system’s location does not allow for a practical intertie to another system.** The nearest water system is Rustlewood, which is across Oyster Cove, making it cost-prohibitive to connect. However, we are considering installing a water reservoir tank if/when it is financially feasible.

## CHAPTER 7 DISTRIBUTION DESIGN

20. 7.2 Construction Standards – The standard for distribution pipe size should not be less than 4-inches. A six-inch pipe size is recommended, but water systems can reduce pipe

size to 4-inches if they are not providing fire flow and the smaller size is justified in the hydraulic analysis. Undersized lines in the distribution that are less than 4-inches should be targeted for replacement over time. There are no fire hydrants within our service area, however, we will consider going to a 6" pipe if feasible when planning replacement infrastructure. The WSP page 35 (replacement pages) was annotated accordingly.

## 10-2 SITE PLAN & MAPS

21. OBCG Service Area – Please provide a Service Area Map that shows the retail service area and service area. Delineation between full time, vacation, guest, prospective structures is not needed, but delineation that current connections are not outside the service area is. Please include road names and an inset map to show where in Mason County the Service Area is located. Maps begin on page 15 of “Supporting Documents.” Replacement page 4 -- 1.6 Retail Service Area map in color to showing the Retail Service area and water rights place of use (outlined in red).

## 10-3 HYDRAULIC & CAPACITY ANALYSIS

22. Hydraulic Analysis Results – Please show the pipe velocities in the results summary for the hydraulic analysis. Northwest Water responded to this comment. See NWS response in “Supporting Documents” beginning on page 141.

## 10-4 WATER RIGHTS

23. Water Resources Proof of Appropriation of Water – Please explain the incomplete Water Resources Program Proof of Appropriate of Water form. Per Department of Ecology requirements a completed form is not needed until 2023.

## 10-6 SOURCE PROTECTION AND ASSESSMENT

24. Part I – Please note the Water System Name is misspelled. This error is contained in historical documentation submitted by NWS.
25. Part IV – This states the calculated fixed radius for 6 month is 20 feet, 1 year is 28 feet, 5 year as 63 feet, and 10 year is 89 feet, yet Part IV of the October 1, 2004, Susceptibility Assessment Form states that the 6 month is 440 feet, 1 year is 620, 5 year is 1390, and 10 year is 1970 feet. Please explain the discrepancy. Northwest Water responded to this comment. See NWS response in “Supporting Documents” beginning on page 141.
26. GW Radii – There are two maps, both dated July 16, 2018, with file number 170505 and file name GW Radii that provide different information concerning the Time of Travel. Please update the inaccurate map and explain the discrepancy. Additionally, please update this map to include your calculated fixed distances shown in feet. Northwest

Water responded to this comment. See NWS response in “Supporting Documents” beginning on page 141.

## 10-10.1 COLIFORM PLAN

27. The coliform monitoring plan does not represent the system as a Community system. The current CMP will require revision once the Community group type is reached. **Please submit a CMP to represent the system once it becomes a Group A Community system for review.** An updated “Coliform Monitoring Plan” was created to show accurate sampling sites (with direction from Charese from DOH) and a copy is included with the replacement pages dated 1/21/2019. Also provided for reference is the service area map used to create the new plan so that full-time residences would be used for sampling.

ODW received a letter from Department of Ecology on October 24, 2018, stating this water system plan is not inconsistent with the criteria of RCW 90.03.386(2), and the water right assessment in the plan is accurate.

*The Department’s review of your WSP does not confer or guarantee any right to a specific quantity of water. Our review is based on your representation of available water quantity. If the Washington Department of Ecology, a local planning agency, or other authority responsible for determining water rights and water adequacy determines that you have use of less water than you represent, the number of approved connections may be reduced commensurate with the actual amount of water and your legal right to use it.*

Regulations establishing a schedule of fees for review of planning, engineering, and construction documents were adopted March 18, 2012 (WAC 246-290-990). An itemized invoice showing the amount due of \$491 is enclosed.

Please submit three copies of the revised pages of the WSP and respond to all comments. In order to help facilitate our review process and aid in finding the necessary information, please make sure to reference this numbering system, and summarize your responses to the comments and where each response is located.

If you have any questions, please contact Fern Schultz at (360) 236-3031 or by e-mail at fern.schultz@doh.wa.gov, or Regina Grimm at (360) 236-3035 or by e-mail at regina.grimmm@doh.wa.gov.

Sincerely,

Fern Schultz  
Office of Drinking Water, Regional Planner

Regina N. Grimm, P.E.  
Office of Drinking Water, Regional Engineer

cc: James Farrell, Orchard Beach Community Water System

Kevin Odegard  
December 31, 2018  
Page 7

Anna Perkins, Northwest Water Systems  
Doug Piehl, Northwest Water Systems  
Mason County Community Services  
Alex Paysee, Mason County Public Health  
Tammy Hall, Department of Ecology

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**WATER SYSTEM PLAN  
FOR  
ORCHARD BEACH  
WATER SYSTEM  
64031Q**



**SEPTEMBER 10, 2018**

**PROJECT NUMBER  
170505**

**NORTHWEST WATER SYSTEMS, INC.  
P.O. BOX 123  
PORT ORCHARD, WA 98366  
(360)876-0958**

## Owner's Statement of Responsibility

I, the undersigned, do hereby attest that, I am the owner of this water system and that the information provided in this Water System Plan is accurate to the best of my knowledge.

Signature:

Date: 9-18-2018

# Water System Plan for the Orchard Beach Water System

## EXECUTIVE SUMMARY

The Orchard Beach water system is an existing Group A system located in the Southwest quarter of the Southeast quarter of Section 22, Township 21 North, Range 2 West, W.M situated in Mason County, Washington. The system is a waterfront system located by the Pickering Passage in the Puget Sound that services 9 full-time connections, 25 part-time connection, and 4 recreations connections totaling to 38 connections. The system's elevation ranges from 65 feet to 30 feet. The system has the capacity to serve 39 connections.

The water system is composed of two 6 inch wells with a capacity of 10 gpm and 60 gpm located at 57 feet of elevation. Well water is pumped from SO2 (primary source) and SO1 (backup source) to 8 bladder tanks and out to distribution. SO1 (backup source) comes on only during the peak seasons. The distribution system is comprised of approximately 4,300 feet of 4-inch PVC pipe.

The following is a summary of the characteristics of the water system:

Source:	2 Wells, S01& SO2
Pressurization:	8 Bladder Tanks,
Distribution:	4-inch PVC
Water Rights:	G2-30447
ADD	179 gpd/ERU
MDD	634 gpd/ERUy
PHD	45 gpm
Existing ERU	20.09 ERU*
Existing Capacity	39 ERU

Limitation	ERU Limit
Service Area	63
Water Rights, Instant w/ reservoir withdrawal	181
Water Rights, Instant. Withdrawal wo/reservoir	46
Water Rights, Annual withdrawal	64
Daily Source Production	119
<b>Daily Instantaneous Source Production</b>	<b>39</b>
Distribution System	302

\*See description of calculation of Equivalent Residential Units (ERU) of existing connections.

**Water System Plan  
for the  
Orchard Beach Water System**

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## Acronyms

ADD	Average Daily Demand
C	Coefficient of Friction
ERU	Equivalent Residential Unit
GWI	Groundwater Under the Influence of Surface Water
MCL	Maximum Contaminant Level
MDD	Maximum Daily Demand
MPA	Microscopic Particulate Analysis
NTNC	Non-Transient Non-Community
NWS	Northwest Water Systems, Inc.
PHD	Peak Hourly Demand
ppb	Parts per Billion
ppm	Parts per Million
SMA	Satellite Management Agency
SWL	Static Water Level
SWSMP	Small Water System Management Program
TNC	Transient Non-Community
UTC	Utilities and Transportation Commission
WDM	Water Distribution Manager
WFI	Water Facilities Inventory (form)
WSDOH	Washington State Department of Health
WSP	Water System Plan

All acronyms are used as defined by the Washington State Department of Health Water System Design Manual (Design Manual)

# Water System Plan for the Orchard Beach Water System

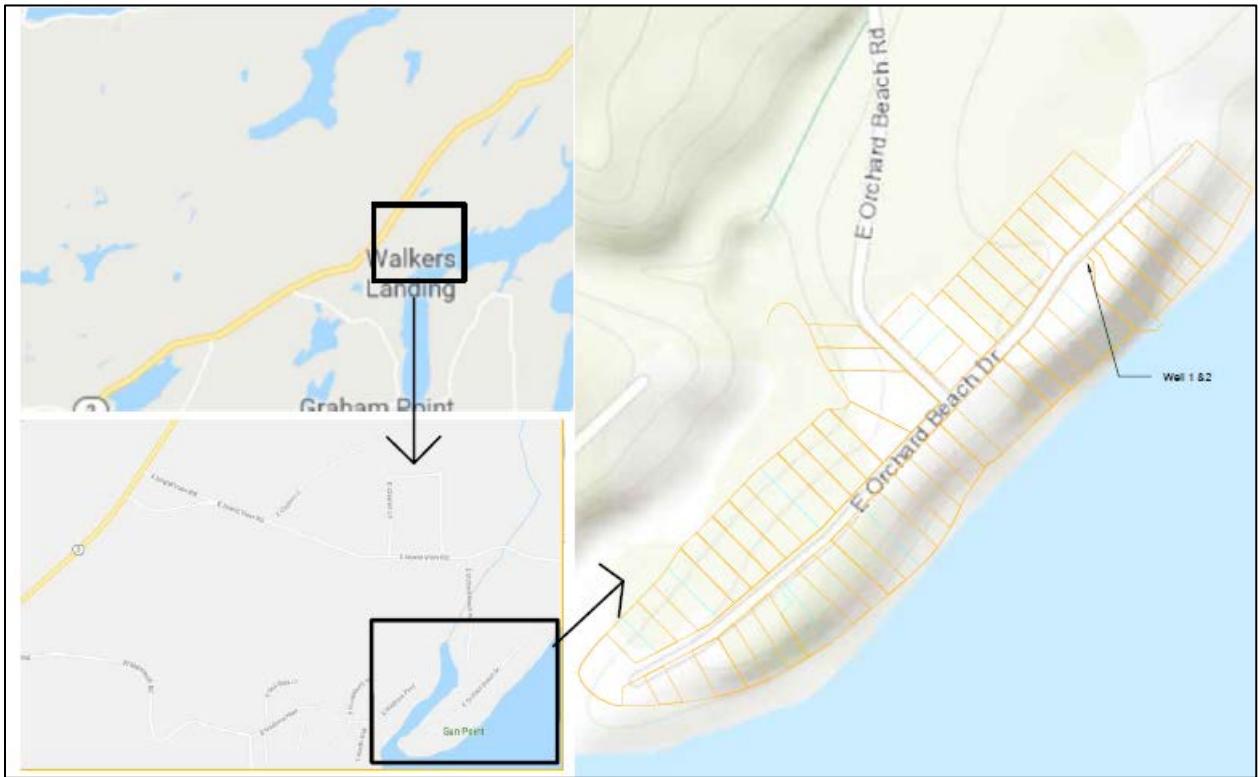
## 1.0 SYSTEM DESCRIPTION

The Orchard Beach water system is in the Southwest quarter of the Southeast quarter of Section 22, Township 21 North, Range 2 West, W.M situated in Mason County, Washington. The system is a waterfront system located by the Pickering Passage in the Puget Sound that services 9 full-time connections, 25 part-time connection, and 4 recreations connections totaling to 38 connections. The system is currently a Group A TNC that is not approved. The system is working on getting approval for a community water system to increase their number of full time connections. The system has the capacity to serve 39 connections.

The majority of the lot sizes are about  $\frac{1}{4}$  acre with elevations ranging from 65 feet to 30 feet. The majority of the lots have natural vegetation with some irrigated lots, and the majority of the lots have simple, averaged sized houses. The water system is composed of two 6 inch wells with a capacity of 10 gpm and 60 gpm located at 57 feet of elevation. Well water is pumped from SO2 (primary source) and SO1 (backup source) to 8 bladder tanks and out to distribution. SO1 (backup source) comes on only during the peak seasons. The distribution system is comprised of approximately 4,300 feet of 4-inch PVC pipe.

### 1.1 Ownership and Management

Water System Name:	Orchard Beach
WSDOH ID Number:	64031-Q
Type of Ownership:	Non-profit Corporation
Type of Management:	SMA
Name of Owner:	Orchard Beach Community Group, Inc.
Owner Contact:	c/o Secretary/Treasurer
Owner Address:	1217 SW Orchard St Seattle, WA 98106
Owner Phone:	(206) 909-0509
Type of Management:	Satellite Management Agency
Name of SMA:	Northwest Water Systems, Inc.
SMA Contact:	Kevin Odegard
SMA Address:	PO Box 123 Port Orchard, WA 98366
SMA Phone:	(360) 876-0958



**Figure 1: Orchard Beach Vicinity Map**

## 1.2 History and Background

### 1.2.1 History

The Orchard Beach Water System is owned by the Orchard Beach Community Group and is governed by an Executive Committee. The system has been in existence since 1963 when SO1 was drilled. There is not a well log for the well, but according to previous correspondences and documentation it appears that the depth is between 72 ft and 82ft. For the remainder of this document, 72 ft will be used as the S01 depth, and the well produces 10 gpm. SO2, the primary well, was drilled in 1989. It is 209 ft. deep and averages 60 gpm. The water is pumped to eight 81 gal. bladder tanks then sent out to distribution. The Orchard Beach service area contains 63 parcels but there are currently only 38 connections. Since only 9 of those connections are full-time, the system currently is a Group A TNC. However, the system is working to approval as a Group A community water system. The system has the capacity to serve 39 connections.

### 1.2.2 Geography

The majority of the proposed service area is sloping to sea level as the water front is approached. The service area is a small peninsula that is surrounded by the Pickering Passage in the Southwest corner. The Northeast part has an elevation of 65 ft and gradually slopes to an elevation of 30 ft as the Southwest tip of the peninsula is

approached. The wells are located on the upper part of the peninsula on tax parcel 221275001901 where the elevation is about 57 feet.

### **1.3 Inventory of Existing Facilities (see spreadsheet in Supporting Documents - Page 11)**

The water is pumped from SO2 (primary pump) into the pumphouse to the 8 bladder tanks using a 5 HP Burkley submersible pump at 60 gpm. During peak season, SO1 which is in the pumphouse will come online using a ½ HP Jacuzzi submersible pump at 10 gpm. The following list contains the major components in the water system:

- 2 wells
- pressure switch
- 8 bladder tanks
- 2 well meters
- service meters
- pumphouse
- electrical service
- isolation valves
- back-up generator
- 4500ft of 4 in PVC distribution piping.

### **1.4 Related Plans**

Municipal Water Law requires Orchard Beach to have a signed consistency statement from Mason County to document that this WSP is consistent with the local area planning. See signed statement on page 13 of additional supporting documents section in the back of this WSP.

Other related plans are WRIA 14 Watershed Management Plan and the Mason County Comprehensive Plan.

### **1.5 Existing Service Area Characteristics**

There are currently 38 connections in the Orchard Beach service area, but there are 63 parcels within the service area. Several of the parcels have private wells which are indicated on the service area map in Section 10.2. The system has the capacity to serve 39 connections.

The service area has a single zoning designation by Mason County. The area is zoned as Rural Residential with a density of one home per 5 acres as shown in the zoning map in Section 10.2.

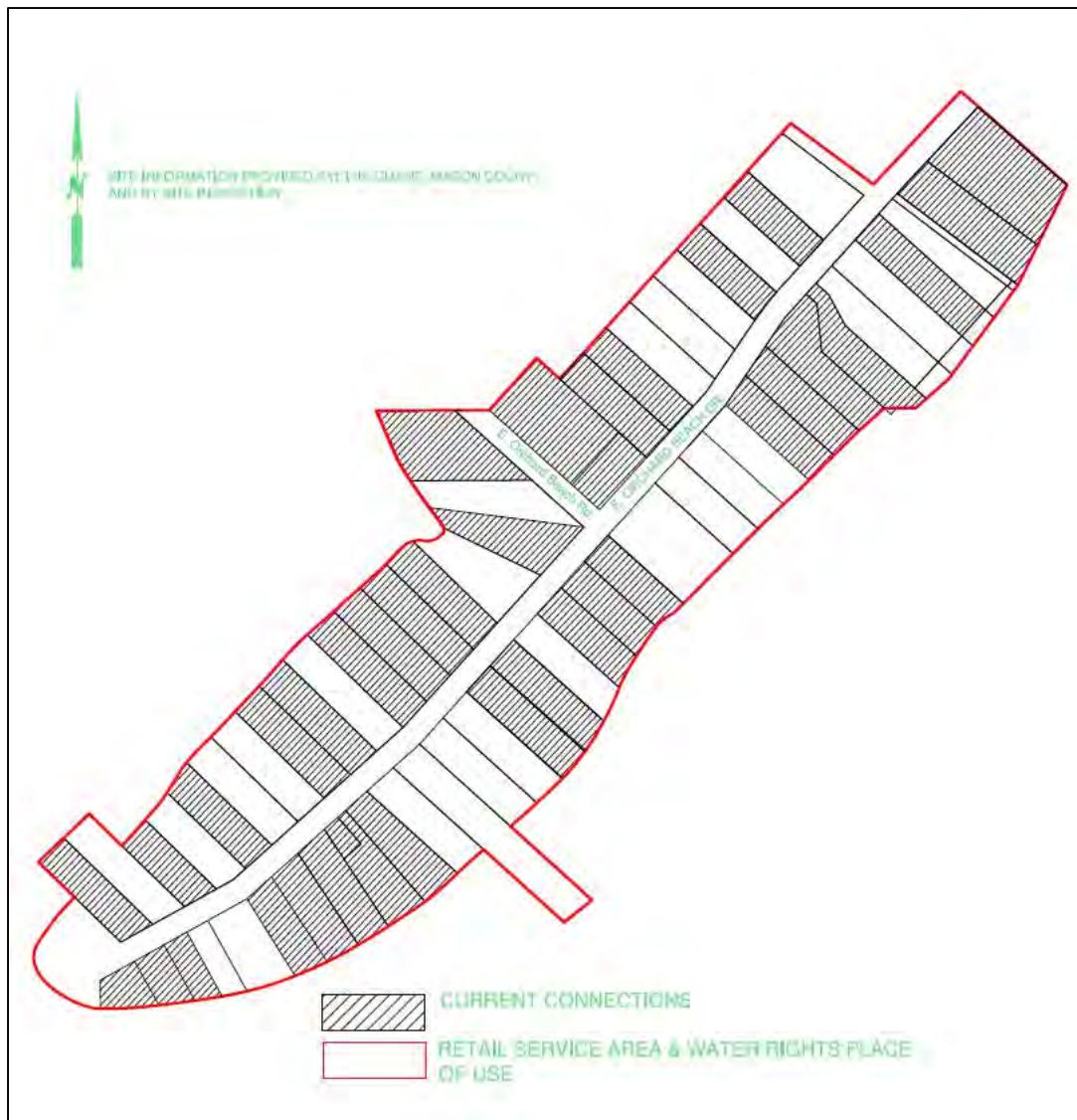
The soil types of the service area are Alderwood gravelly sandy loam, Everett very gravelly sandy loam, Kitsap silt loam, and rough broken land. The wells are located where the soil is Everett very gravelly sandy loam.

The service area is within the Kennedy-Goldsborough watershed. See Figures 3 for more detail. Emergency Response is handled by Mason County Fire District 3.

The Orchard Beach water system is on the border and out-skirts of the Grapeview Commissioner District 3. See Figure 4.

## 1.6 Retail Service Area

The retail service area is where a municipal water supplier has a duty to serve connections under the conditions described in Section 1.9.9. The retail service area is defined in Section 10.2 and shown below in Figure 2.



**Figure 2: Orchard Beach Service Area Map**

## 1.7 Future Service Area

Mason County is not in a Coordinated Water System Plan (CWSP) so no future service area designation is needed.

## 1.8 Service Area Agreements

There are no competing utilities with the Orchard Beach Service Area and Mason County does not have a coordinated water system plan. Thus, no utility coordination is required.

## **1.9 Service Area Policies**

The following are the policies of Orchard Beach Water System:

### **1.9.1 Direct Connection and Satellite Systems**

All direct connection will be from existing lots within the service area. Orchard Beach does not operate as or provide services to satellite systems.

### **1.9.2 Outside Customers and Improvement Districts**

The system will not serve any outside customers or districts.

### **1.9.3 Urban Growth Area**

The system is not located in an urban growth area.

### **1.9.4 Late-Comer Agreements**

Late comer agreements do not apply to the system.

### **1.9.5 Non-payment**

The following are Orchard Beaches procedures for handling non-payment:

The Secretary or other officers will contact any owner for nonpayment. It is the obligation of ALL members to pay the fee for the water service timely.

Any non-compliance to this will result in the water being disconnected to the property and liens on the property for unpaid water fees. This action will be sent by registered mail to the address of record. All fees associated with collections, including but not limited to legal fees, recording fees, the service fees charged by the water system manager to perform disconnections and reconnections of the water service as well as the cost of installation of a lockable device if one is not present are the responsibility of the member. Disconnected property would require the \$500.00 re-hook-up fee, repayment of all collections costs, and the delinquent fees paid in full. The system is governed by the number of users on the system and water may not be available if it is disconnected.

Members that have chosen not to pay the annual fee or are delinquent by over 6 months are considered to have opted out. Members that choose not be part of the water system are considered to have voluntarily opted out. In either option the water supply will be disconnected to the property. They will be contacted via registered mail to the address of record and that they have chosen by defaulting on payment or voluntarily chosen not to be a member of the system. The system is available to service a pre-designated amount of tracts. The Orchard Beach Community Group cannot assure water will be available to any owner in the future that requires water to their property. A lien for unpaid fees will be attached to the property.

This information is disseminated through the Orchard Beach Community Directory Bylaws mailed to every member annually.

#### **1.9.6 Oversizing**

The system is currently working to get approval for 39 full-time connection, and the capacity analysis in Section 10.3 verifies that they are fully capable of servicing 39 full-time connections. If the systems desire to add new connections, an assessment of the system's capacity will be required with possible system upgrades to meet the increased demands.

#### **1.9.7 Cross-Connection Control Program (CCCP)**

The cross-connection control program was adopted by the system in its original small water system plan (SWMP), and it has been updated for systems upgrade to a community water system. A cross connection control specialist through the Northwest Water Systems has been retained. Additional information regarding Cross Connection is included in Section 10.11.

#### **1.9.8 Extension**

No extensions are anticipated or proposed and no extensions will be approved outside of the designated service area without an amendment or update to this WSP.

#### **1.9.9 Duty to Serve**

Orchard Beach Community has a duty to serve all new connections located within their retail service area provided four threshold factors are met (see Section 1.10). In practice, the water system administrators and operators determine whether the system can provide service. If the threshold factors are not evaluated correctly, the system may become over-connected or may turn away legitimate customer. Either of these conditions is likely to result in costly additional engineering or lawsuits that could be avoided by proper planning and understanding of the necessary conditions.

Orchard Beach Community will evaluate requests for service to test whether the four conditions are met. The procedure for determining whether a letter of water availability may be issued is as follows:

1. Check the Water Facilities Inventory (WFI) available on the DOH Sentry database to determine the total number of approved service connections. Confirm that the sum of connected services and released water availability letters is less than this total. This approved limit is established by the State Department of Health from an engineering analysis called a “capacity analysis” and is sufficient to establish that conditions 1 and 3 listed in Section 1.10 are met.
2. The owner shall confirm that the service request is for residential service. The area is not zoned for non-residential use, and the capacity analysis performed in this Water System Plan makes no provision for service to commercial or industrial customers.
3. The owner shall verify that water that the new service requests has been made in a location that may be served from existing water lines. Line extensions require additional engineering analysis prior to approval.

If the request cannot be permitted because these criteria cannot be met, the system shall issue a denial of water service and a brief explanation of the reason of the reason that service cannot be provided. The customer and water system may negotiate a future facility upgrade through a developer extension agreement; however, this may require significant engineering and construction, and would not be done as part of the Duty to Serve.

#### **1.9.10 Annexation**

Annexation will not serve as a term of providing service.

#### **1.9.11 Full-time and Part-time Customer Agreement**

There are 25 part-time and 9 full-time connection. Since the system is working to get approval for all their part-time connections to transition to full-time, a customer agreement addressing fulltime or part-time usage is not necessary.

### **1.10 Conditions of Service**

Orchard Beach Community has a duty to serve all new connections located within its Retail Service Area, so long as the following four threshold factors are met, as described in Washington Administrative Code (WAC) 246-290-106:

- 1. Orchard Beach has sufficient capacity to provide water in a safe and reliable manner.*

Orchard Beach has a BLUE operating permit which means that the system is sufficient to meet existing demands but not new demands. The system has this permit because they have yet to obtain DOH approval. The system has recently obtained a new water right permit, and they are working on obtaining approval and upgrading their system from a Group A TNC to a Group A Community so that more full-time connections can be added.

- 2. The service request is consistent with state and local regulations.*

The provision of service within the Retail Service Area is in the process of DOH approval so that the system is consistent with the Washington State and Mason County regulations.

- 3. Orchard Beach has sufficient water rights to provide service.*

The system has recently obtained a new water right that will allow them to increase the capacity of their system, thus allowing for more full-time connections to be added.

- 4. Orchard Beach can provide service in a timely and reasonable manner.*

#### **1.10.1 Customer Responsibilities**

The only conditions of service are that customers (and potential customers) must:

1. Receive water on a lot within the service area
2. Pay all applicable utility bills and fees
3. Adhere to all system policies (including conservation and cross connection)
4. Be in legal standing with all local, state and federal authorities

#### **1.10.2 Connection Fee Schedule**

New Service Connection	\$ 500
Re-Connection Fee	\$ 500

No new service connections are anticipated once build-out is achieved.

#### **1.10.3 Meter and Materials Specifications**

All connections are metered.

#### **1.10.4 Consent Agreements (disseminated through the OBCG directory see pages 20-31 of Supporting Documents)**

By accepting service, the customer agrees to grant unlimited access at reasonable times within the utility easements held by the water system to complete any and all necessary maintenance, repairs, and inspections. Members are informed through the OBCG annual directory. A copy of the directory is on pages 20-31 of Supporting Documents.

The customer's private property must also be made available for inspection for cross-connections or other potential hazards associated with the water system after legal notice is given as documented in the cross-connection control program. Access to private property may be denied if the customer is willing to install the proper backflow prevention equipment. Access to private property is also granted in the event of a public health emergency related to that property.

### **1.11 Complaints**

Complaints shall be directed to and handled by the system's association. The president or contact person, at their discretion, may refer complaints to the SMA for information, clarification, investigation, or action. All complaints received by either the owner of SMA shall be recorded and kept on file. All complaints shall be made known to both the owner and manager of the system. A form for recording, resolving, and tracking complaints is included in the Section 10.15.

### **1.12 Satellite Management**


The owners of the water system have contracted with Northwest Water Systems, Inc. (NWS) as their Satellite Management Agency. NWS shall have no ownership in the water system.

NWS will provide for daily operation and maintenance of the system as well as many of the contract services, including: minor repairs and adjustments, engineering, and troubleshooting services.

# MASON COUNTY

*Washington*

## Port Districts



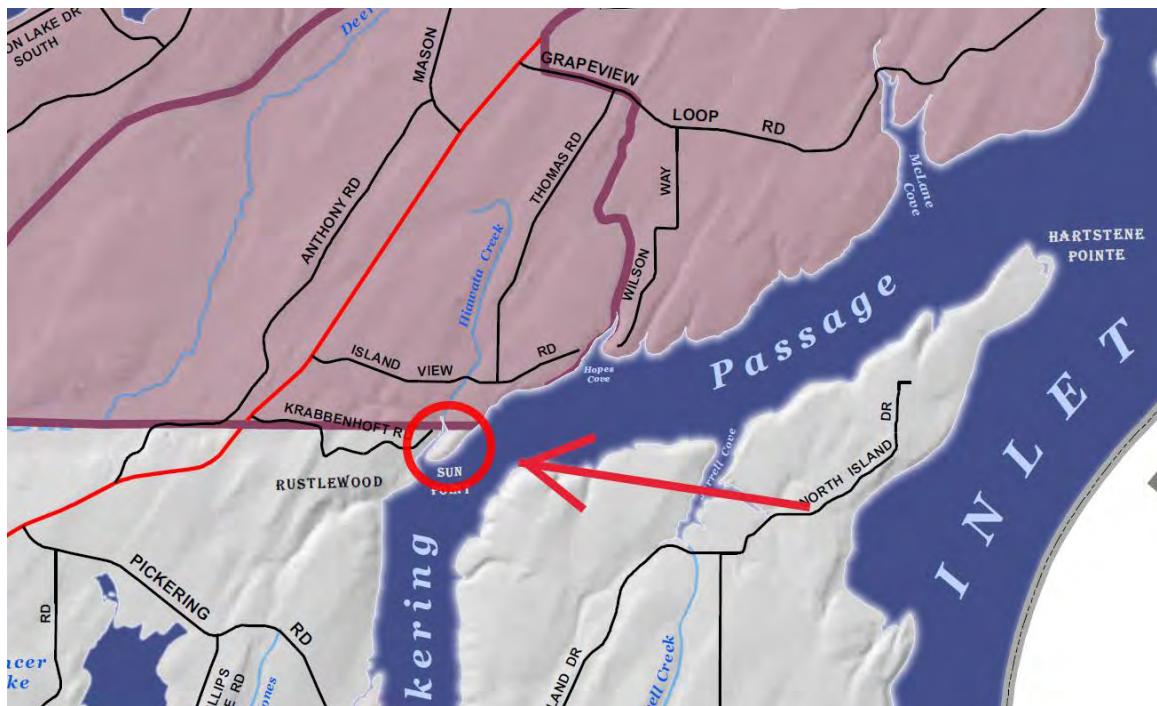
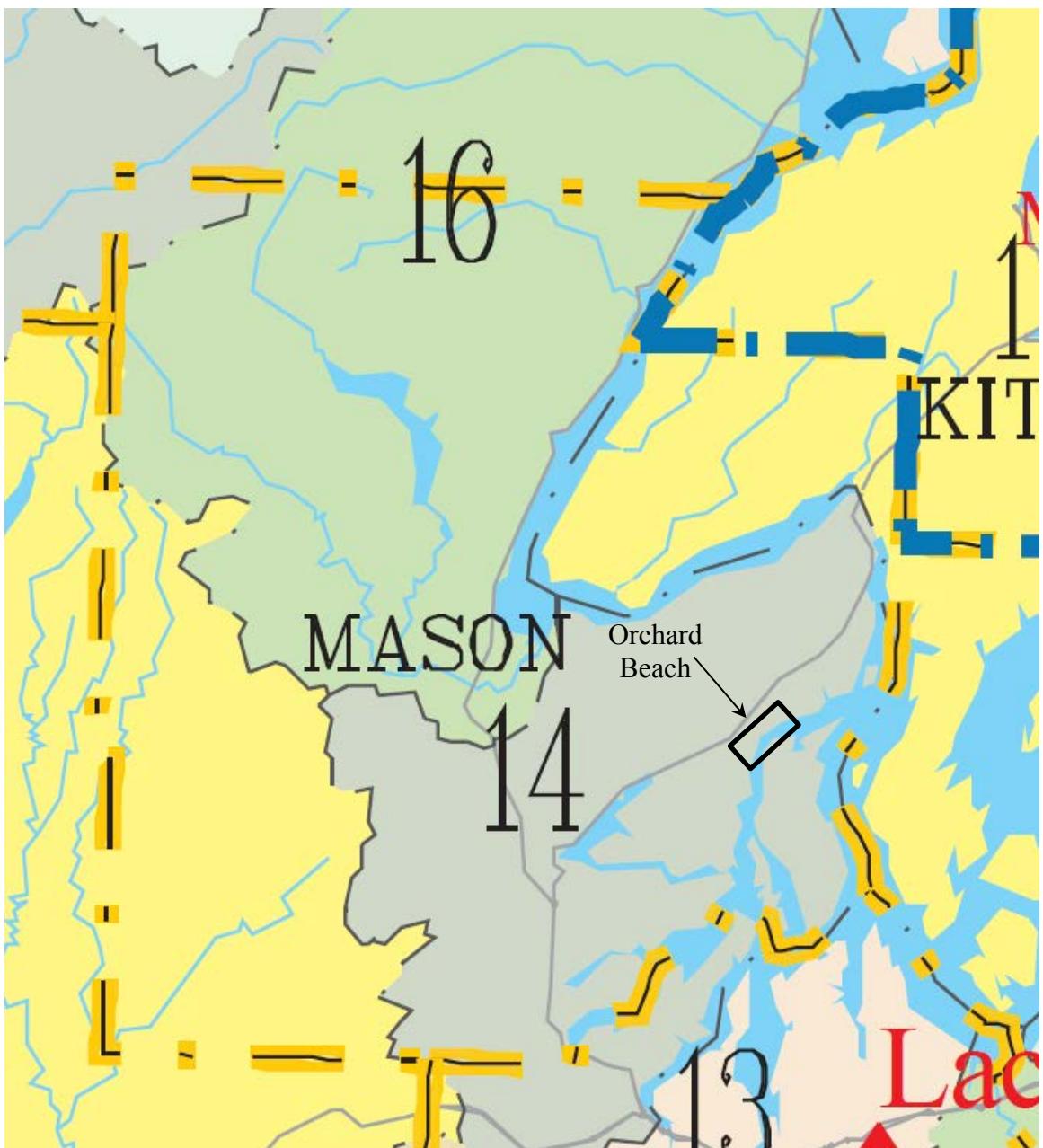


Figure 3. Planning map close-up view





**Figure 4.** Watershed 14 close-up view

## 2.0 BASIC PLANNING DATA

### 2.1 Demand Analysis

#### 2.1.1 Population and Demographics

The Orchard Beach Community is a residential community that is comprised of 9 full-time residents, 25 part-residents, and 4 non-residential/recreational connections, totaling to 38 connections. The system has the capacity to serve 39 connections.

According to the WFI form there is a population of 14 for the full-time connections. The part-time connections vary greatly per month and are primarily used for recreation. For the population of the part-time connections see the WFI.

#### 2.1.2 Meter data

The community has recently installed production meters on all the connections, and there is a month of metering data from June 2018 included in the appendix. Likewise, source meter data from 2012-2017 is provided in the appendix. The water use has increased in 2015 and 2016 due to extensive leaks that have since been fixed. A graph of source usage is provided below in Figure 5.

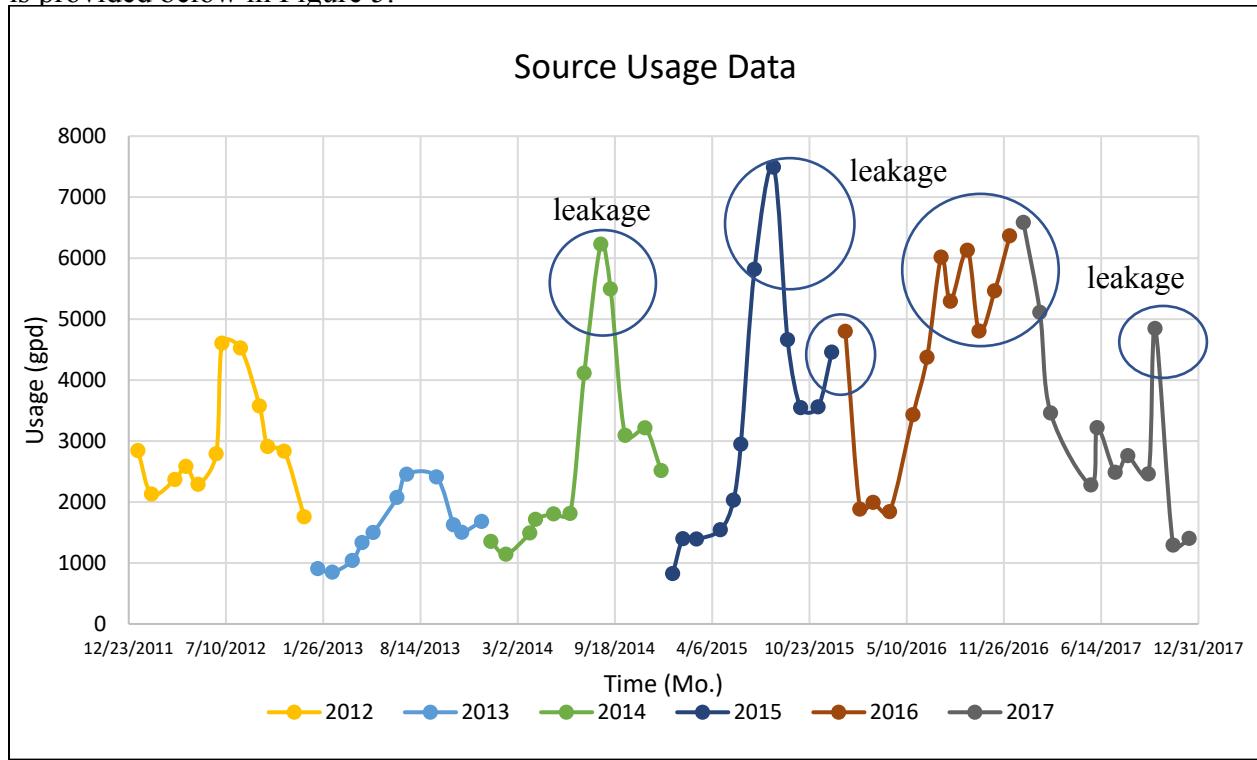


Figure 5. System's usage data

#### 2.1.3 Usage by Customer Class

The system services the following three class of customers:

1. Full-time residents
2. Part-time residents
3. Non-residential/recreational

The full-time residents are the basis for the Equivalent Residential Units (ERU). The part-time connections are only present during peak seasonal or weekends. Similarly, the four recreational units are used primarily on the weekend in the summer months.

#### 2.1.4 ERU Analysis

One ERU is defined as the equivalent usage of one full-time, single family resident. Thus the 9 full time connections provide a total of 9 ERUs.

The occupancy of the part-time owners varies throughout the year, but the primary use is in the summer according to the system. Thus, it was assumed that part time connection yield 3/7 of an ERU during July and August; 2/7 of an ERU during June, September, and December; and 1/7 of an ERU during the rest of the year.

The recreational units are primarily used during the weekends during the summer. Thus, it was estimated that the ERU's during June -September is .09 ERU for each recreational lot and zero during the rest of the year. Table 1 provides a summary of the connection categories and their corresponding ERU's.

**Table 1. Summary of connections and ERU's**

Class	Connections	ERU
Full-time	9	9
Part-time	25	3.6-10.7
recreational	4	.37

#### 2.1.5 System Parameters, ADD, MDD, and PHD

The system has provided their recent service meter data for the month of June. The average daily demand (ADD) of the full-time users is 117 gpd/ERU and it is a reasonable assumption that maximum daily demand (MDD) is 2-3 times higher. Although this data is not sufficient for the capacity analysis, it provides a baseline for comparison for the source ADD and MDD. In the last three years (2015-2017), the system has records of substantial leaks that have been repaired. There are sections in the source meter data where it is evident that significant leaks occurred, particularly in 2016. Therefore, the ADD and MDD from the 2012-2017 data with correction for leakage data was used for the usage calculations yielding an ADD and MDD and 179 and 634 respectively.

The monthly ADD was calculated by dividing the monthly usage by the total monthly ERU's. Because the ADD varies by month with the fluctuation of the part-time and recreational connections the ADD was average for the 5-year data period.

Maximum daily demand (MDD) was calculated by taking the maximum month average daily demand (MMAD) over the peak month period and multiplying it by a factor of 1.7. The MMAD was 373 gpd, in August 2015. The calculated MDD is therefore 634 gpd/ERU.

For further comparison, two analogous systems, Lake Limerick and Collins Lake, were analyzed. Lake Limerick is a larger system with 771 full-time connections and 71 part-

time connections. The Lake Limerick water system plan (WSP #DDR2013-00029) contains a detailed connection analysis that was used to calculate their ADD and MDD. Similarly, Collins Lake has 113 full-time connections, 100 part-time connections, and 1 institutional connection (a fire station). A capacity analysis was done for ODW Project #16-0104 in which the system's ADD and MDD was calculated. Most lots have limited yards or landscaping, with native second growth predominating. Orchard Beach currently most closely resembles Collins Lake in income level, lot development style, and in having a larger number of part time users than Lake Limerick. Therefore, usage is expected to be very similar to Collins Lake. Lake Limerick is used to represent a more upscale community that could potentially develop in the future as the system transitions from part-time to full-time residential use. Below is a comparison of ADD and MDD for the three systems in Table 2.

**Table 2 Comparison of Parameters**

System	ADD (gpd/ERU)	MDD (gpd/ERU)
Orchard Beach	179	634
Collins Lake	129	470
Lake Limerick	218	728

Calculated ADD and MDD for Orchard Beach is between that of Collins Lake and Lake Limerick. Thus, the assumptions used to calculate the usage for Orchard Beach are reasonable.

The peak hourly demand (PHD) can be calculated using the systems MMD. The PHD for the systems existing peak flow period can be calculated using Equation 5-1 of the Design Manual (for  $15 < ERU < 50$ ,  $C=3$ ,  $F=0$ ). A summary of the parameter results is provided in Table 3.

$$PHD = \left( \frac{MDD}{1,440} \right) ((C * N) + F) + 18$$

$$PHD = \left( \frac{634}{1,440} \right) ((3 * 20.09) + 0) + 18 = 44.5 \text{ gpm}$$

**Table 3. Summary of Parameters**

Parameter	Demand	
	Qty.	Unit
ADD	179	gpd/ERU
MDD	634	gpd/ERU
PHD	44.5	gpm
Current System	20.09	Max ERU

The system distribution leakage (DSL) is unknown due to not having production service meters until recently. Because the source metering data was used, the DSL was conservatively factored into the calculations. With the installation of the production meters, the system is recording monthly usage to identify and fix leakage in the system.

### **2.1.6 Pressure Zones**

The system is comprised of a single pressure zone. The elevations of the distribution system range from 65 feet to 30 feet. The system is pressurized by 8 bladder tanks and it can sustain pressure during PHD conditions.

### **2.1.7 Inerties**

No inerties exist or are planned for the Orchard Beach system within the next 20 years.

## **2.2 6 & 20 Year Productions**

The communities service area encompasses approximately 63 lots. Some of these lots are on private wells, and some of the lots are undeveloped. It is estimated that the systems build-out will be 63 connections because there is a potential for the undeveloped lots to be developed and the existing lots might add an additional dwelling unit.

The system currently has 9 full-time connections, 25 part-time connections and 4 recreational connections. This equates to 20.1 ERU.

According to the Mason County Comprehensive Plan, the population for rural areas is projected to increase by 22% from 2016-2036. This equates to 1.1% growth per year. Starting with the current number of ERUs of 20.1, the growth was projected for the community based on the 1.1% growth per year.

In addition, the percentage of part-time to full-time connections per service area is 21% for PUD 3 according to the comprehensive plan. Orchard Beach is currently 73.5 % part-time out of its 34 residential connections. This is much higher than the average for the PUD 3 area. It is assumed that some of Orchard Beach's residence will transition to full-time status based on the information provided by the community and general trends of similar communities. Thus, the part-time to residential connection percentage was decreased incrementally till the community reaches approximately 21 % at 20 years projection. Table 4 is a table of part-time to full-time users for the 6,10, and 20 year projections, and Table 5 shows the final projections based on growth in the area and modified part-time to full-time connections. The process for converting the part-time connections ERU was the same process followed in the capacity analysis. See Section 10.3.

**Table 4. Part-time to Full-time Connection ratios**

	Full-time	Part-time	%
Current	9	25	73.5
6-year	15	20	57
10-year	19	17	47
20-year	30	8	21

**Table 5.** Current, 6yr., 10yr., 20 yr. and build-out projections

	ADD (gpm/ERU)	MDD (gpd/ERU)	Connection	ERU	PHD (gpm)	Annual* (ac-ft/yr)
Current	179	634	38**	20.1	44.5	4.0
6 Year	179	634	39	23.4	48.9	4.7
10 Year	179	634	40	26.7	53.2	5.4
20 Year	179	634	41	33.8	62.6	6.8
Build-out	179	634	63	63	101.2	13.1

\*including DSL \*\*The system has the capacity to serve 39 connections.

### 2.3 Interties

No interties with other system exist or are in the 20-year plan.

### 2.4 Land Use and Zoning

All the service area is zoned for Rural Residential 5 acres as shown in the attached zoning map. All the parcels are smaller than 5 acres, but the majority of the parcels were created before the zoning code. Thus, it is not predicted to change within the 6 and 20 year horizons.

### 2.5 Distribution System Leakage and Volume

The distribution leakage percentage is unknown until sufficient data is received from the service meters which were fully installed as of May 2018.

## 3.0 SYSTEM ANALYSIS

### 3.1 System Design Standards

All design and analysis shall be completed in accordance with the Washington State Department of Health Water System Design Manual (Design Manual).

The following is a brief summary of standards set forth in the Design Manual:

ADD/MDD	Section	5.2
PHD	Equation	5-3
Source	Section	7.3
Bladder Tank	Equation	11-3
Distribution System	Chapter	8
Hydraulic Analysis	Section	8.2
Water Quality	Chapter	12

### 3.2 System Inventory

#### 3.2.1 Sources

The system is serviced by two wells and 8 bladder tanks. The water system will be supplied by a permanent primary source, S02, and a backup source during peak seasons, S01. S01 is a 6-inch drilled well with a depth of 72 feet and a capacity of 10 gpm. S02 is a 6-in well with a depth of 209 and a capacity of 60 gpm.

Table 6 provides a description of the sources and water well reports can be found in Section 10.6.

*Table 6: Source Description*

Parameter	Source 1	Source 2
Unique Well ID:	AHA 945	64031Q
Date Drilled:	9/15/1963	2/20/1989
Depth of Well:	72'	209'
Depth of Screen:	unknown	201' to 209'
Static Water Level:	65'	30'
Pumping Rate:	10 gpm	60 gpm
Drawdown Level:	4'	67'
Condition	fair	good
Life Expectancy	20 years	40 years
Capacity Trends	Unknown	Unknown
SWL variations	Unknown	Unknown
Screen Conditions	unknown	good
Submersible Pump	0.5 hp	5 hp

### **3.2.2 Water Quality**

No primary contaminants are present in levels above the state trigger level. Secondary contaminants above state maximum contaminant levels have been identified. However, treatment of all secondary contaminants above the established Maximum Contaminant Level (MCL) is not required by WAC 246-290-320 (3)(D) for existing water systems unless the community decided to implement treatment.

### **3.2.3 Distribution System**

The distribution system is composed of approximately 4,300 lineal feet of 4" PVC pipe. The distribution is a looped system with 38 connections and a varying elevation of 65' to 30'. It is assumed that delivered water has the same water quality as the source water. The system has the capacity to serve 39 connections.

## **3.3 System Capacity Analysis**

### **3.3.1 Service Area**

This system serves the residential connections surrounding parts of E. Orchard Beach Dr; a current parcel map is attached in Section 10.2. There are no parcel limitations to the service area based on the water rights. Some parcels are not buildable or have private wells, but given that others may desire accessory dwelling units, a total of 63 connections is assumed to constitute build-out of the service area.

### **3.3.2 Water Rights**

The system's water rights are limited to 80 gpm instantaneous withdrawal and 13 ac-ft/year annual withdrawal. The ERU limited by instantaneous water rights with a reservoir is calculated below:

$$N_{wr,instant} = \frac{Q_{wr,instant} * 1440}{MDD} = \frac{80 \frac{\text{gal}}{\text{min}} * 1,440 \frac{\text{min}}{\text{day}}}{634 \frac{\text{gpd}}{\text{ERU}}} = 181 \text{ ERU}$$

The ERUs limited by the instantaneous water right without storage is calculated by rearranging Equation 5.1 (for 15<ERU< 50, C = 3 and F= 0) and using 80 gpm for the PHD.

$$\text{PHD} = \frac{MDD}{1440} (N * C + F) + 18 \rightarrow N = \left( \frac{1440 (\text{PHD} - 18)}{MDD} - F \right) \frac{1}{C}$$
$$N_{wr,instant} = \left( \frac{1440 \frac{\text{min}}{\text{day}} * (80\text{gpm} - 18)}{634 \frac{\text{gpd}}{\text{ERU}}} - 0 \right) \frac{1}{3} = 46 \text{ ERU}$$

The maximum ERU that may be supported by the annual water right can be calculated by dividing the permitted water right by the average annual consumption per ERU once converted into the same units as follows:

$$N_{wr,annual} = \frac{Q_{wr,annual}}{ADD * 365} = \frac{13 \frac{acft}{yr}}{\frac{179 gal}{day} * \frac{1 acft}{325,851 gal} * \frac{365 day}{yr}} = 64 ERU$$

### 3.3.3 Source Capacity

The system is served by the following wells as summarized in Table 7.

**Table 7. Existing Wells**

Well	S01	S02
Depth (ft)	72	209
Capacity (gpm)	10	60

The daily and yearly source capacity is calculated using Equation 6-3 from the Design Manual. Currently S02 is used as year-round permanent source, and S01 is only used when S02 is offline for maintenance. However, S01 is capable of being a year-round permanent source if the demand required. It is assumed that at full time operation both wells run at a maximum of 18 hour per day to avoid impacting the screens.

The source capacity based on the maximum day demand is calculated as follows where the time (t) is 18 hours per day.

$$N_{source,day} = \frac{\sum Q_j t_j}{MDD}$$

$$N_{source,day} = \frac{[(70 gpm) * (18 \frac{hr}{day}) (60 \frac{min}{hr})]}{634 \frac{gpd}{ERU}} = 119 ERU$$

The above daily source capacity is a theoretical calculation that requires a reservoir. However, Orchard Beach currently does not have a reservoir. Using the inverted form of Equation 5-1, the source instantaneous capacity can be calculated as follows (for 15<ERU<50, C=3 and F=0):

$$N = \left( \frac{1440 (PHD - 18)}{MDD} - F \right) \frac{1}{C}$$

$$N = \left( \frac{1440 \frac{min}{day} (70 gpm - 18)}{634 gpd} - 0 \right) \frac{1}{3} = 39 ERU$$

The current limiting source capacity is the instantaneous capacity of 39 ERUs. However, the system plans to install a new pump in S02 and retest the well. The new pump will

increase the total source production to 80 gpm based on their water rights. Recalculating the instantaneous source capacity using a PHD of 80 gpm the new capacity is 46 ERU.

### 3.3.4 Distribution System

A hydraulic analysis was completed using EPAnet for PHD conditions at build-out. Demand was increased until the pressure at any node dropped below 30 psi or the max velocity in any of the pipes exceeded 8 fps. The pressure in the nodes dropped below 30 when the flowrate leaving the source was 560 gpm. This rate exceeds the maximum velocity of 8 fps velocity in a 4" diameter pipe. Thus, the limiting capacity factor is the maximum velocity of 8 fps or 313 gpm. The capacity can be solved for by rearranging Equation 5-1 of the WSDM (for  $251 < \text{ERU} < 500$ ,  $C=1.8$  and  $F=125$ ). This was completed using the max allowable flow rate and MDD.

$$\text{PHD} = \frac{\text{MDD}}{1440} (N * C + F) + 18 \rightarrow N = \left( \frac{1440 (\text{PHD} - 18)}{\text{MDD}} - F \right) \frac{1}{C}$$

$$N_{\text{Distribution}} = \left( \frac{1440 \frac{\text{min}}{\text{day}} * (313 \text{gpm} - 18)}{634 \text{ gpd}} - 125 \right) \frac{1}{1.8} = 302 \text{ ERU}$$

Using Equation 5-1 in the WSDM, the Distribution System limits the system to 303 ERU.

### 3.3.5 Summary

The current system limits are shown in Table 8 below.

**Table 8. Limiting Factors**

Limitation	ERU Limit
Service Area	63
Water Rights, Instant w/ reservoir withdrawal	181
Water Rights, Instant. Withdrawal wo/reservoir	46
Water Rights, Annual withdrawal	64
Daily Source Production	119
<b>Daily Instantaneous Source Production</b>	<b>39</b>
Distribution System	302

The most limiting factor is the daily instantaneous source production which is 39 ERU. However, with the installation of a new pump, the source capacity will increase to 80 gpm. If this is the case, the new limiting capacity will be 46 ERU based on the source capacity.

## 3.4 Distribution System

### *Distribution System Description*

The distribution system is comprised of the following components:

Pipe	~4,300' 4"
Isolation Valves	5
Blow-offs	5 Blow-off,
Service Connections	all connections are metered

Pressure Zones	1
Condition	fair (all)
Sewer Line Separation	10' minimum
Dead Ends	3
System Leaks	substantial leaks have been fixed in past few years
Replacement Program	20 years recommended replacement
Pressure monitoring	recommended
Changes in Distribution	None anticipated
Hydrant Locations	None required

### *Distribution Hydraulic Analysis*

A Hydraulic Analysis is included in Section 10.3. The hydraulic analysis was performed for full build-out flows at 64 connections. The highest pressures would be experienced during static conditions (60 psi). The lowest pressures are experienced during the PHD condition. According to DOH standards the pressure during PHD conditions has to be at least 30 psi at all the connections in the system.

Nodes were placed along the distribution system and each node represents two connection except the ones that are at the end of the distribution system. The demand of the nodes that serviced two connections were doubled. The demand at the nodes was increased until the flow leaving the pumphouse was at PHD flow which is the worst-case scenario. A summary of the simulation results is provided in the follow Table 9 and the complete hydraulic analysis is included in Section 10.3.

**Table 9. Hydraulic Analysis Summary**

Parameter	Build out
ERU	64
PHD (gpm)	103
PHD low pressure requirement (psi)	30
Lowest pressure connections	36.4
Peak Line Velocity (ft/s)	2.6

According to the hydraulic analysis, the system is capable handling additional connections at PHD conditions until build-out is reached.

### **3.5 Summary of Deficiencies**

The system has recently addressed a couple of deficiencies in their system. They have obtained a new water right and have implemented production meters on all the connections minus the ones that are vacant.

### **3.6 Selection and Justification of Proposed Improvements**

The Orchard Beach system is an older system that will be needing some updates in the next 20 years.

#### **3.6.1 Sources**

The system currently has two wells. SO1 was installed in 1963 and is 55 years old. SO2 was installed in 1989 and is 29 years old. Currently both wells are operational however,

should the primary well fail, the backup well (SO1) is not capable of supplying the system with enough water. Thus, it is recommended that another backup well be drilled.

#### **3.6.2 Storage**

As the system get closer to build-out they need to install a reservoir and booster system to meet the increased PHD flow and maintain within their water rights.

#### **3.6.3 Distribution**

The distribution system is comprised of approximately 4,300 feet of 4-inch PVC pipe and it is about 51 years old. The system is looking at replacing or fixing parts of the distribution due to sever leakage that has occurred over the past several years.

#### **3.6.4 Planning**

The submittal of this WSP should meet all system planning requirements at this time. The system currently has the capacity to serve 39 full-time connections; the system requests approval to serve 39 connections as full time connections at this time.

## **4.0 Resource Analysis & Water Use Efficiency (WUE)**

The Municipal Water Law was passed in 2003 to give municipal water suppliers flexibility in their water rights while requiring conservation. The WUE program became effective on January 22, 2007 and established certain responsibilities that water suppliers must fulfill. The requirements and deadlines are listed below in Table 10.

**Table 10: Summary of WUE Program Requirements**

Requirement	Deadline for MWS under 1,000 connections
Include WUE program in planning documents	Current
Submit first annual WUE report	July 1, 2018
Submit service meter installation schedule	Upon connection to the system
Set your own WUE goals	At WSP public meeting
Meet distribution leakage standard	3 years after installing all service meters
Complete installation of all service meters	Upon connection to the system

This chapter summarizes Orchard Beach's compliance with conservation planning requirements including the actions taken to promote water use efficiency, and the conservation program that Orchard Beach will implement. The applicable WUE program requirements and guidelines are contained in *Water Use Efficiency Guidebook*, Third Edition, January 2011 (DOH 331-375).

### **4.1 Metering Program**

#### **4.1.1 Source Meters**

Both of Orchard Beach' sources are metered. Any additional sources that are added to the system will be metered when installed.

#### **4.1.2 Service Meters**

All of Orchard Beach's active connections have recently been metered as of May/June 2018. The meters are being read bi-monthly.

#### **4.1.3 Water Loss Action Control Plan**

Distribution system leakage (DSL) is calculated based on 3 -years of averaged data from the source and service meter data. To comply with WUE standards, the system must have a DSL of 10% or less. Alternatively, for systems that 500 connections or less can apply for an exception that allows for up to 20% DSL as long as the requirements in WAC 246-290-820(5) are satisfied. Since, Orchard Beach has only recently installed service meters, the DSL of the system is unknown. When the system has 3-years of service meter data, the DSL will be assessed, and if it is greater than 10% or an exception of 20%, a Water Loss Action Control Plan will be created.

### **4.2 Water Use Efficiency Program**

An effective WUE program is based on metering data and system demand. Currently Orchard Beach is lacking sufficient water usage data since the service meters have only recently been implemented. The WUE plan will be updated once sufficient meter data has been collected.

#### **4.2.1 Current Program**

In the past Orchard Beach's conservation program has been informal. Based on the source meter reading and historical water patterns, the system would identify leaks and update them. With the recent installation of the service meters, the system can now more accurately identify leakage and resolve them.

#### **4.2.2 Goals**

The system goal is to collect data from their service meters to identify and fix distribution leakage. Their goal is to have their leakage under 10%. The board determined this as a goal and it was discussed with the members at the annual meeting in June 2018.

#### **4.2.3 Measures and Implementation**

A system with less than 500 connections must evaluate or implement at least one WUE measure. Orchard Beach is currently implementing customer education that is carried out more than once a year which counts toward meeting the program requirements for WUE measures. Orchard Beach Community has increased customer education efforts to promote water conservation.

#### **4.2.4 Consumer Education Program**

Annual customer education regarding the importance of using water efficiently is a required element of all WUE programs, once per year, information about water conservation will be distributed to the customers.

#### **4.2.5 Annual Reports**

Orchard Beach will collect meter data and report total production, in gallons, from all sources for the year and total authorized consumption, in gallons, from all customers for the year to DOH in their annual WUE report.

#### **4.2.6 Estimated Water Savings**

The systems estimated savings from their customer education is unknown since the system has had a number of substantial leaks in the past several years. In addition, the customer usage was unknown since there were no service meters installed. Once the system has obtained sufficient service meter data, the system will be able to estimate their water saving based on the goals that are set.

#### **4.2.7 Water Rates**

The WUE Rule requires the evaluation of a rate structure that encourages water demand efficiency. There are two options that Orchard Beach could look at implementing that would promote customer water savings now that their system has service meters. An inclining block rate allows the establishment of tiers of use in which the amount charged per unit of water (i.e. dollars per 1,000 gallons) increases as customer consumption increases. This system encourages user to use water more efficiently. However, with high ratio of seasonal connections to full time connections, the system might fail to be financially viable. Another option is to employ seasonal rates. Seasonal rates are like inclining block rates but only implements a tiered water rate during the peak seasons. This option would promote conservation during the peak season and would not affect the financial viability of the system as much as the inclining block rates.

#### **4.2.8 Effectiveness of Program**

The effectiveness on the system's goal to reduce leakage will be evident as accurate metering data is compiled.

## 4.3 Source Supply Analysis

### 4.3.1 Conservation

The water system conservation program can be achieved through public education, system measures, and conservation pricing (if needed). Orchard Beach's conservation plan is outlined in WUE in Section 4.2

### 4.3.2 Long Term Trends

The systems usage has been relatively consistent over the past decade as shown in Figure 6. The system has had several substantial leaks as shown by the large spikes in usage on the plot which have been fixed. The historical consistency of the water usage is possible because the system has not expanded drastically in the last decade. As the system gains approval for more full-time connections, the overall usage will likely increase. However, the system has recently obtained new water rights to allow for an increase in usage.

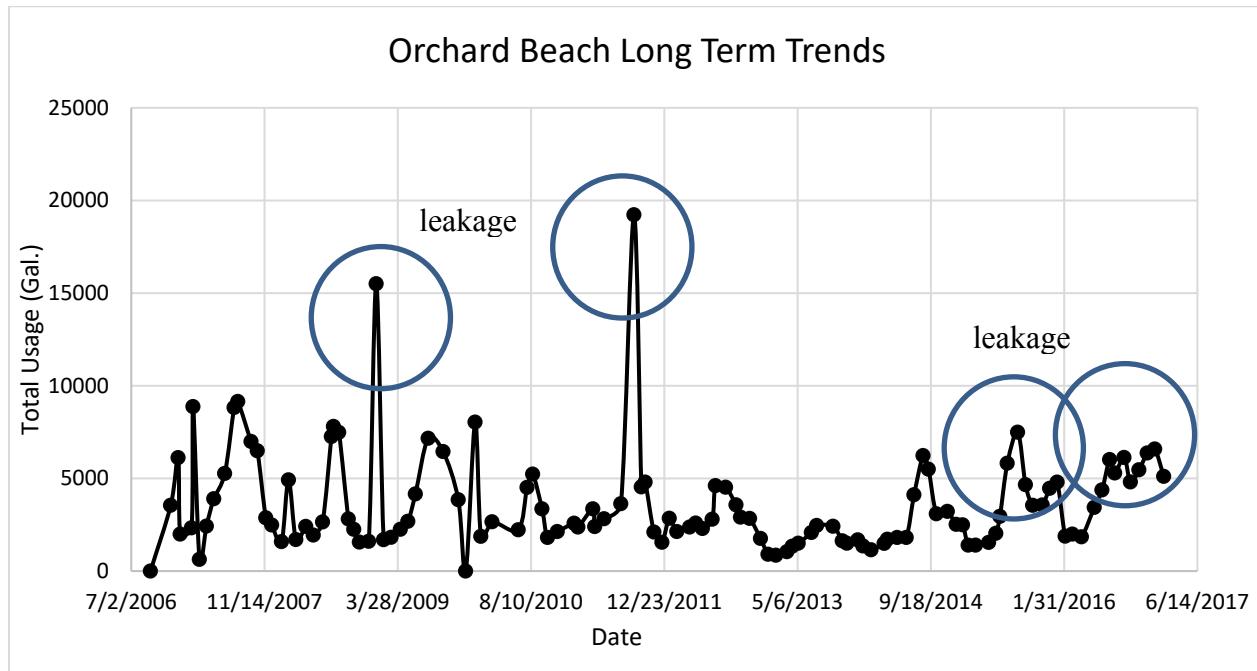


Figure 6: Orchard Beach's Usage Data from 2006 to 2017

### 4.3.3 Seawater Intrusion

The wells are located approximately 57 ft above sea level and are approximately 250 ft from the shoreline. Although the wells are in close proximity to the Pickering Passage, the water in the Kennedy-Goldsborough watershed flows from the inland at higher elevation to the sea level. In addition, the static water level of SO2 (primary well) is 30 ft which is 171 ft above the well's screen. This creates a high artesian pressure which prevents seawater intrusion. Another indication of seawater intrusion is the increasing levels of chloride and conductivity in the water. The conductivity was 118 umho/cm (SO1) and 114 umho/cm (SO2) in 2010. This amount of conductivity is below the maximum contamination level of 700 umho/cm. The conductivity when tested in 2015 and 2018 were well below the maximum contamination level of 700 umho/cm.

Likewise, the chloride was 10 ppm (SO<sub>1</sub> & SO<sub>2</sub>) when tested in 2010; 2015 4.6 mg/L; 2018 3.1 mg/L which show very low chloride concentrations, indicating safe "background levels." The testing for 2010 (10 ppm), 2015 (4.6 mg/L), and 2018 (3.1 mg/L) are well below the 250 ppm maximum contamination level.

Therefore, the probability of seawater intrusion in Orchard Beach's sources is super low.

#### **4.3.4 Reclaim/Reuse**

The system size is not large enough to use reclaimed water use.

#### **4.3.5 Treatment**

Orchard Beach does not have any treatment. There has been an exceedance of the secondary contamination level for iron and manganese in Well 2 (primary). However, the system is not required unless treatment is necessitated by declining water quality or increasing customer complaints.

#### **4.3.6 Water Right Evaluation**

Orchard Beach recently obtained a new water right permit (G2-30447) that allows for 80 gpm of instantaneous flow and a quantity of 13.0 ac-ft/yr. The water right permit is included in Section 10.5.

### **4.4 Water Supply Reliability**

Orchard Beach's wells are in the Kennedy-Goldsborough Watershed, WRIA 14 which is replenished from local streams and rivers and from the annual rain fall in during the rainy season. Historically, this is a reliable watershed and the water uses is regulated through water rights by the department of ecology. Orchard Beach has recently updated their water right and it is sufficient for providing water to all its connections throughout buildout.

#### **4.4.1 Water Shortage Planning**

The water shortage planning is described in the emergency response plan in Section 10.9.

#### **4.4.2 Water Level Monitoring**

The static water level is shall be monitored quarterly.

#### **4.4.3 Interties**

The water system does not have any interties with other systems.

## **5.0 SOURCE PROTECTION**

### **5.1 Wellhead Protection**

The wellhead protection program was developed as part of source approval when the wells were drilled. The following susceptibility assessment, protection area, and contamination source inventory will provide the necessary documentation to make educated management and land use decisions to prevent aquifer contamination. Source water quality information may be found in Sections 10.7.

#### **5.1.1 Susceptibility Assessment**

The Ground Water Susceptibility Assessment for Orchard Beach is included in Section 10.6 and the results of the assessment are summarized in this Section.

#### **5.1.2 Wellhead Protection Area**

A map supplied with the susceptibility assessments in Section 10.6 show the 100-foot protected radius as well as the 6-month, 1-year, 5-year, and 10-year travel radii. The well protection radii were calculated using the formula found in the susceptibility assessment as provided by the WSDOH.

#### **5.1.3 Contamination Source Inventory (*spreadsheet on pages 53-54 of Supporting Documents*)**

The following are potential sources of contamination:

1. Residential Septic Systems
2. Residential Use of Chemicals (Pesticides, herbicides, etc)
3. Private and County Roadways

Since land use and zoning throughout the service area is unlikely to change, changes in, or addition of, sources of contamination are unlikely. In the event of source contamination, the contaminated source will be taken off-line, and customers will be notified of the event. The system will notify WSDOH and proceed according to the department's directives. Bottled water or trucked in water may be provided until the contamination is resolved. Notification of protection area sent to residents.

#### **5.1.4 Contingency Planning**

If either source fails or becomes contaminated, the second source can be used to serve the needs of the water system. However, if SO2 fails, SO1 cannot keep up with the demands of the system. Replacing SO1 or adding another well would add more redundancy to the system if the primary well were to fail. If both sources become contaminated, or if other problems with the water system develop, bottled water would be provided, and/or an alternate source would be sought. Currently, Orchard Beach's mains are 4" making it infeasible to connect to another system.

In case of a system failure, the first point of contact is Northwest Water Systems (NWS) as the Satellite Management Agency. NWS in consultation with the WSDOH and the Orchard Beach Community Group, will develop a strategy to resolve the issue.

## **5.2 Watershed Control**

As a system which exclusively utilizes groundwater, no watershed control program is necessary.

## **5.3 Water Quality Analysis**

### **5.3.1 Asbestos**

The system was test for asbestos in 2008 and the results did not exceed the maximum contamination level (MCL).

### **5.3.2 Bacteriological Testing**

The coliform monitoring schedule is followed. The coliform samples are taken once a quarter. The system has not had an exceedance for total coliform bacteria since 2004.

### **5.3.3 Inorganic Chemicals (IOC)**

The last full IOC sample that was taken was in 2010. Well 2 had an exceedance for iron and manganese. However, the system is not required to treat secondary contaminants.

### **5.3.4 Lead and Copper**

The last lead and copper sample was taken in 2010 and the results did not exceed the MCL.

### **5.3.5 Nitrates**

The water is test for nitrates once a year and there has not been any exceedances in the results.

### **5.3.6 Radionuclides**

The sources were tested for radionuclides in 2010 and the results did not exceed the MCL.

### **5.3.7 VOCs and SOCs**

The water was last tested for volatile organic compounds (VOC) and synthetic organic contaminants in 2010 and 2008 respectively. There were no exceedances in the results.

## **6.0 OPERATION AND MAINTENANCE**

The Orchard Beach Water System is owned by the Orchard Beach Community Inc. The system is managed by Northwest Water Systems, Inc., a state approved Satellite Management Agency (SMA #119). Minor maintenance is accomplished by NWS and the system. Larger maintenance projects involving pipes and valving are contracted with All American Water Works and projects involving wells, pump, or pressure tanks is contracted to Arcadia Drilling.

### **6.1 Management and Personnel**

As owner of the Orchard Beach water system, the Orchard Beach Community has primary responsibility for the water system.

Kevin Odegard and NWS, as the Certified Operator for the system, are responsible for day to day operation of the system and making routine decisions. They are responsible for taking samples, recording meter readings and performing routine inspections. NWS shall consult with Orchard Beach Community on all major decisions.

### **6.2 Operator Certification**

Table 11 provides the certifications carried by personnel directly involved with the system.

*Table 11: Operators Certifications*

<b>Operator</b>	<b>Certification</b>	<b>Cert. #</b>	<b>Exp. date</b>
Kevin Odegard	WDMIII, CCS, WDS, WTPO I	006962	1.2019
Kevin Odegard	BAT	B2353	1.2019
Kevin Odegard	Specialty Plumber PL03	PL ODEGAKR931MC	3.2019
Kevin Odegard	Specialty Electrician EL03	EL ODEGAKR935KN	3.2019
Jen Trenary	WDM-II, CCS	013640	2019
Sean Burns	WDM-1, CCS	012946	12.2018

## 6.4 Routine Operation and Maintenance

Table 12 provides major system components and operating parameters.

**Table 12. Major System Components and Operating Parameters**

Component	Operational Parameters	Relationship to Other Components	Other Notes And Information
Well 1	Backup	Source	
Well 2	Permanent	Source	
Well Pump 1	On/off	Controlled by pressure switch and bladder tanks	
Well Pump 2	On/off	Controlled by pressure switch and bladder tanks	
Pressure Relieve Valve	100 psi	ASME pressure relief valve	
Bladder Tanks			8-81 gal tanks
Electrical Service	On line	Generator transfer switch for auxiliary power	
Distribution System	On line		
Isolation Valves	Open		
Service Meters	On line		Specified
Backup Generator	Stand By		Auto-cycling

The routine operation and maintenance schedule is shown in Table 13.

**Table 13: O&M Schedule**

Function	Frequency
Water Quality Sampling	Quarterly, as required by WQMS
Cross-Connection Inspection	Annual, as needed
System Flushing	Semi-Annual
Inspection Equipment	Monthly
Exercise All Valves	Annual
Check Tank Pre-Charge	Annually, drain and recharge
Static Water Levels	Quarterly
Record Source Meters	Monthly
Sweep/Clean Pumphouse	Monthly

### Equipment, Supplies, and Chemical Listing

Any necessary repair items would be regularly stocked by any repair company who would be called to fix the deficiency.

#### Suppliers:

Well, pumps, pressure tanks	Arcadia Drilling (360) 426-3395
Pipe, valves	All American Waterworks (360) 790-6894
Construction Materials	Various
Test Kits, Chlorine, salt, meters	Northwest Water (360) 876-0958

## **6.5 Water Quality Sampling Procedures & Plan**

The system operator will take water samples in accordance with the water quality monitoring schedule (WQMS). Orchard Beach does is currently a Group A TNC system and does not have WQMS. When the system updates to a Group A community water system, the WSDOH will create a WQMS that will be added to this WSP. Required monitoring shall be completed in accordance with the Water Quality Monitoring Report. Waivers may be applicable for IOC, VOC, SOC, and Radionuclide monitoring.

Application for waivers, as provided by the state, shall be made in the applicable year.

## **6.6 Coliform Monitoring Plan and Map**

Coliform Monitoring shall be completed in accordance with the Coliform Monitoring Plan. The Coliform Monitoring Plan is included in Section 10.10. The system has a waiver for reduced testing once a quarter. This waiver is included in Section 10.10. When the system achieves more than 25 full-time connections, the Coliform Monitoring Plan will be updated in accordance to WQMS.

The primary sites for coliform monitoring are routine sample stations located throughout the community as designated on the site map in Section 10.10.

## **6.7 Emergency Response Program**

All primary response is handled by the operator. The operator will evaluate any trouble reported and either respond in person or contact an outside support provider if the scope of work exceeds their capacity. Table 14 is a quick reference of the detailed contact list for the system that is in Section 10.9.

**Table 14: Emergency Contact Information**

<b>Emergency contact</b>	<b>Phone number(s)</b>	<b>Emergency contact</b>	<b>Phone number(s)</b>
24 Hour Fire/Police/Medical Emergency Services	911	Fire Department / Ambulance Service	360-275-9487 Day 911 Night
Local Law Enforcement (Mason County Sheriff)	360-277-3097 Day 911 Night		
County environmental health (Shelton Office)	360-427-9670	DOH regional engineer (Regina Grimm)	360-236-3035
Department of Ecology Spill Response NW Regional Office	360-407-6300	DOH emergency After hours #	877-481-4901
Engineering consultant Northwest Water Systems	360-876-0958	Pump service: Arcadia Drilling	360-426-3395
Electric utility: Mason County PUD 3	360-275-2833 Day/Night	Electrician: Arcadia Drilling	360-426-3395
Twiss Analytical Laboratories	360-779-5141	DOH Coliform Monitoring and Water Quality:	253-395-6775

## **6.8 Cross Connection Control Program**

The cross-connection control program is provided in Section 10.11.

## **6.9 Record Keeping**

The system generates several different types of records that must be kept. The water system maintains these records. The records and the periods over which records are maintained are shown in Tables 15.

**Table 15: Record Keeping**

Type of Record	Time Kept	Reporting
Utility Billing Records	3 years	N/A
Receipts	3 years	N/A
Power Bills	3 years	N/A
Taxes	Indefinitely	N/A
Check Registers	3 years	N/A
Taxes and Financial Reports	7 years	N/A
System Planning Documents	Until Irrelevant	As Requested
Engineering Drawings	Indefinitely	As Requested
WFI	Current	Annually
Contracts	as necessary	N/A
Work Orders	3 years	N/A
Operating Permit	Current	N/A
Correspondence with Customers	Indefinitely	Upon Request
Correspondence with Government	Indefinitely	N/A
Site Visit Reports	1 year	Upon Request
Bacteriological Tests	Indefinitely	Monthly
Nitrate Tests	Indefinitely	Annually
IOC	Indefinitely	Upon Testing
VOC	Indefinitely	Upon Testing
SOC	Indefinitely	Upon Testing
Radionuclide	Indefinitely	Upon Testing
Lead and Copper	Indefinitely	Upon Testing
Other Water Quality	Indefinitely	Upon Testing
Contracts	Indefinitely	N/A
CCC Documents	Indefinitely	Upon Request
Water Well Reports	Indefinitely	Upon Request
Drawdown Tests	Indefinitely	Upon Request
Source Meter Readings	Indefinitely	Upon Request

Complaints shall be directed to and handled by the owner of the system. The owner, at their discretion, may refer complaints to the SMA for information, clarification, investigation, or action. All complaints received by either the owner or the SMA shall be recorded and kept of file. All complaints shall be made known to both the owner and manager of the system.

## **6.10 O&M Deficiencies**

There are no deficiencies.

## **7.0 DISTRIBUTION DESIGN AND CONSTRUCTION STANDARDS**

All distribution projects shall be designed and stamped by a professional engineer. All projects shall be submitted to the WSDOH for their review and approval.

Any construction began prior to WSDOH approval may be subject to fines.

The following projects do not require a project report and may be completed at the system's discretion, as long as the work is consistent with the standards set forth in this design.

- Addition of valves, fittings, service connection, meters
- Repair or replacement of any components with like components
- Maintenance of existing components
- Construction of any component not in contact with potable water

### **7.1 Policies and Procedures for Outside Parties**

No outside parties are permitted to work on the system unless specifically contracted to complete work under the direct supervision and direction of the system.

#### **7.1.1 Design Documents**

All design documents shall be completed and stamped by a professional engineer and submitted to the WSDOH for review and approval. Designs shall specify materials and methods conforming to the WAC, WSDOH, AWWA, and WSDOL professional standards. Special attention shall be paid to the WSDOH Design Manual, applicable AWWA Manuals, and 10 States Standards. In the event that conflicting standards are presented the most conservative standard shall be adopted. If a standard other than the most conservative standard is proposed engineering justification for the more lenient standard must be provided. All system components in contact with potable water shall conform to NSF 61 standards.

#### **7.1.2 System Hydraulics**

The system shall be designed such that all lines are looped whenever possible. All dead end lines shall have blow-off assemblies. The system high point shall have an air release valve.

Pressures throughout the system shall be maintained between 30 and 100 psi.

Pipe flow velocities shall remain below 8 ft/sec, unless higher flow rates can be justified.

All designs shall take into consideration the possibility of future expansion.

### **7.1.3 Redundancy**

Redundancy shall be provided for source and pressurization of water service. Redundant features include:

- Multiple wells and well pumps, with the ability to fully supply the system with only one well
- Multiple treatment units, with the ability to supply MDD with the loss of one of the treatment units; additionally, treatment is for secondary MCL only, allowing treatment bypass if necessary.
- Multiple booster pumps; MDD can be supplied by only one of the 3 identical booster pumps, and 95% of PHD can be supplied by only 2 of the 3 booster pumps.
- A backup generator on an automatic transfer switch is sized to power one of the well pumps and all of the booster pumps, capable of supplying MDD and MDD, and supplying the system for up to 6 days of ADD without fuel refill.

## **7.2 Construction Standards\***

All construction shall be completed according to the standards set forth in the WAC, WSDOH, AWWA, and 10 States Standards. In the event that conflicting standards are presented the most conservative standard shall be adopted. If a standard other than the most conservative standard is proposed engineering justification for the more lenient standard must be provided.

The following specific standards must be maintained:

1. Pipe sizes under 4-inch shall be a minimum of Schedule 40 PVC
2. Pipe sizes 4-inch and above shall be a minimum of AWWA C900
3. All valves and fittings shall be the same size as run of pipe they are serving
4. All blow-offs, service connections, and trench details shall at a minimum conform to the “standard details” as shown in the appendices of the design report.
5. Trench depths shall be no more than 4-feet
6. Disinfection shall be followed according to the standard details as shown in the appendices of the design report.

### **7.2.1 Construction Certification and Follow-up**

The design engineer will inspect and certify construction at all applicable phases. These phases shall include:

- Completion of Trenches
- Pipe Installation
- Disinfection
- Pressure Testing
- Final Inspection
- Water Quality Sampling

Some of these inspections may be combined into a single visit, if applicable.

\*There are no fire hydrants within OBCG service area, however, OBCG will consider going to a 6" pipe if feasible when planning replacement infrastructure.

The certifying engineer shall submit a Certificate of Completion Report to the WSDOH. Any deviations from the submitted design shall be addressed and documented by the submitting engineer in the design report.

## **8.0 IMPROVEMENT PROGRAM**

### **8.1 Prioritizing Improvements**

Improvements are prioritized according to the following criteria listed from highest to lowest in importance:

1. Public Health Risks
2. Adequate Supply
3. WSDOH Operation and Design Standards
4. Achieving Conservation Goals
5. Regularly Scheduled Improvements
6. Aesthetic and Optional Improvements

### **8.2 Prioritizing List of Improvements**

1. Distribution Leakage
2. Fix Well #1 casing
3. Replace SO1
4. Reservoir and Booster System
5. Treatment System

#### **8.2.1 Distribution Leakage**

The system has had several substantial leaks in the past couple of years. With the new production service meters installed, the system is working to more efficiently identify distribution leaks and fix them.

#### **8.2.2 Well #1 Casing Adjustment**

The SO1 Well casing height does not meet regulation standard. The system has decided to have the additional length welded on to the existing casing to satisfy the regulation. It is recommended that height of the casing be adjusted so that it is 18" above the concrete floor.

#### **8.2.3 Well #1 Replacement**

The system is currently supplied by SO2 which produces 60 gpm. SO1 is a back-up source if SO2 is being serviced or if it fails. However, SO1 only produces 10 gpm and is not able to meet the demands of the system if SO2 fails. Thus, it is recommended that SO1 be replaced with a higher output well to increase the redundancy of the system.

#### **8.2.4 Reservoir and Booster System**

The system is limited to 80 gpm by their water rights which can only service 46 ERU's without a reservoir. As the system adds more connections a reservoir and booster system will be needed to meet the systems demand while staying within their water rights. It is estimated that the system will need about 30,000-gallon reservoir at build-out which includes equalizing storage of about 3,450 gallons and stand by storage of 26,000 gallons. The system does not currently have enough real estate for the proposed reservoir and booster system. Thus, they will need to purchase more land before implementing this update.

#### **8.2.5 Treatment System**

The iron and manganese levels exceed the secondary maximum contamination level. The system is not required by DOH to treat for secondary contaminant at this time. Thus, it is an optional improvement.

All the list of improvements is listed in the order of their priority.

### **8.3 Assessment of Alternatives**

All the improvements are listed in order of their importance.

### **8.4 Improvement Schedule**

Table 16 provides an overview of the likely schedule for capital improvements projects. See Section 9 for details of the financial program. The system should keep future improvements in mind and revisit a potential schedule for these improvements. All funds will come from consumer usage and connection fees.

**Table 16: Improvement Schedule**

<b>Improvement</b>	<b>Cost</b>	<b>Schedule</b>
Distribution Leakage	variable	On going
SO1 Casing Adjustment	\$1,000	2020 – pending funds
SO1 Replacement	\$30,000	Pending funds
Reservoir/Booster System	\$75,000	
Treatment System	\$50,000	Upon community vote

### **8.5 Inventory and Assessment**

A table of the systems inventory and costs are provided in Section 10.12.

## **9.0 FINANCIAL PROGRAM**

The financial analysis in this Section has been prepared under the assumption of a 3% ongoing annual inflation. Profit and loss analyses from 2015-2017 is attached in Section 10.12. Orchard collects revenue from hook-up fees and flat fee rates. A 10 year budget projection has been prepared and it is attached in Section 10.12.

### **9.1 Income**

The initial cost of hookup is a one-time fee of \$500 and the annual flat fee rate is \$500. It is recommended that the system increases the initial connection cost to \$5,000 for brand new connections to cover costs associated with providing additional connections. The systems budget currently accounts for capital replacement, and the capital improvement will be paid through financing and new connections fees. If the system wishes to save for the capital improvement in the budget, it is recommended that they increase their annual fees to \$670.

### **9.2 Expenses**

Operating expenses anticipated by the water system in the next 10 years are shown in Section 10.12. Fees are assumed to increase at 3% per year in accordance with inflation, except sampling and permitting which is increased at 5%. Sampling and engineering expenses tend to be variable. Most of the engineering fees will be incurred during preparation of this WSP. Sampling fees vary dependent on the sampling required and if for example, repeat coliform samples are required.

### **9.3 Reserve Accounts**

The operating and emergency reserve funds have been the responsibility of the systems community group. Both funds will ensure the water system's expenses will not result in cash shortages effecting system operations. The short-lived assets reserve will pay for annual replacement of the system components.

### **9.4 Affordability**

The per-connection financial obligation is \$500 per year. The average median household income in Mason County from 2012-2016 was \$51,764. The results in a water system affordability index of 0.9%. This is lower than the 1.5% guideline estimated by DOH.

### **9.5 Current and Projected Rates**

A seasonal tiered rate schedule is recommended to promote water conservation during the peak usage months. The following recommended tiered rate will allow for the system to remain financially viable while promoting water conservation.

The following rate structure is proposed:

0,000-3,000 gal.	\$41.66/month*
3,001-5,000 gal.	\$0.012/gal.
5,001-10,000 gal.	\$0.017/gal.
10,001+ gal.	\$0.022/gal.

\* based on \$500 annual fee.

## **10.0 MISCELLANEOUS DOCUMENTS**

The following Miscellaneous and Supporting Documents are included:

- 10.1 WFI and Operating Permit
- 10.2 Site Plan and Maps
- 10.3 Hydraulic and Capacity Analysis
- 10.4 Meter Data
- 10.5 Water Rights
- 10.6 Source Protection and Assessment
- 10.7 Water Quality Report
- 10.8 O&M Procedures
- 10.9 Emergency Response Plan
- 10.10 Coliform Monitoring Plan
- 10.11 Cross Connection Control Plan
- 10.12 Financial Documents
- 10.13 Inventory and Capital Improvements
- 10.14 Sanitary Survey
- 10.15 Correspondence
- 10.16 Corporate Documents
- 10.17 MWL Attachment 2 and 5

# 10.1 WIFI & OPERATING PERMIT

# WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

RETURN TO: Southwest Regional Office POB 87423 Olympia WA 98504-7823

1. SYSTEM ID NO.	2. SYSTEM NAME Orchard Beach Community	3. COUNTY Mason	4. GROUP <b>A</b>	5. TYPE <b>community</b>
6. PRIMARY CONTACT NAME & MAILING ADDRESS Kevin Odegard Northwest Water Systems P.O. Box 123 Port Orchard, WA 98366		7. OWNER NAME & MAILING ADDRESS Orchard Beach Community Group James Farrell 13205 SE 339 <sup>th</sup> Auburn, WA 98092	8. Owner Number: TITLE: President	
STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS 7245 Bethel-Burley Rd		STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS		
CITY Port Orchard	STATE WA	ZIP 98367	CITY	STATE ZIP

9. 24 HOUR PRIMARY CONTACT INFORMATION Primary Contact Daytime Phone: (360) 876-0958	10. OWNER CONTACT INFORMATION Owner Daytime Phone: (253)-939-2569
Primary Contact Evening Phone: Same	Owner Evening Phone: (253)-569-8206
Primary Contact Mobile/Cell Phone: Fax: (360) 876-5601 E-mail: info@nwwatersystems.com	Owner Mobile/Cell Phone: Fax (360)-664-0915 E-Mail: cefarrel@comcast.net

WAC 246-290-420() requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)		
<input type="checkbox"/> Not applicable (Skip to #12)		
<input type="checkbox"/> Owned and Managed	SMA NAME: Northwest Water Systems, Inc.	SMA Number: 119
<input checked="" type="checkbox"/> Managed Only		
<input type="checkbox"/> Owned Only		

12. WATER SYSTEM CHARACTERISTICS (mark ALL that apply)		
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Hospital/Clinic	<input checked="" type="checkbox"/> Residential
<input type="checkbox"/> Commercial / Business	<input type="checkbox"/> Industrial	<input type="checkbox"/> School
<input type="checkbox"/> Day Care	<input type="checkbox"/> Licensed Residential Facility	<input type="checkbox"/> Temporary Farm Worker
<input type="checkbox"/> Food Service/Food Permit	<input type="checkbox"/> Lodging	<input type="checkbox"/> Other (church, fire station, etc.):
<input type="checkbox"/> 1,000 or more person event for 2 or more days per year	<input type="checkbox"/> Recreational / RV Park	

13. WATER SYSTEM OWNERSHIP (mark only one)	14. STORAGE CAPACITY (gallons)			
<input checked="" type="checkbox"/> Association	<input type="checkbox"/> County	<input type="checkbox"/> Investor	<input type="checkbox"/> Special District	0
<input type="checkbox"/> City / Town	<input type="checkbox"/> Federal	<input type="checkbox"/> Private	<input type="checkbox"/> State	

SOURCE NUMBER	16. SOURCE NAME LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	17. INTERTIE SYSTEM ID NUMBER	18. SOURCE CATEGORY				19. USE PERMANENT	20. SOURCE METERED SEASONAL EMERGENCY	21. TREATMENT				22. DEPTH OPEN INT (FEET)	23. CAPACITY (GALLONS PER MINUTE)	24. SOURCE LOCATION										
			WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING			SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER			RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	None	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER
S01	Well #1 AHA945		X							X	X									52	10	SW SE	22	21N	02W
S02	Well #2 AHA944		X							X	X									209	60	SW SE	22	21N	02W

If this water system serves 100 OR MORE single-family residences, please enter the total number of service connections on line 25, then skip to lines 29, 35 and 36. If this water system serves LESS THAN 100 single-family residences, complete entire form.	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
<b>25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)</b>			
A. Full Time Single Family Residences (Occupied 180 days or more per year)	9		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	25		
<b>26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)</b>			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
<b>27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)</b>			
A. Recreational Services (Campsites, RV Sites, Spigots, etc.)	4		
B. Institutional, Commercial or Industrial Services	0		
<b>28. TOTAL SERVICE CONNECTIONS</b>	38		

#### 29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 14

<b>30. PART-TIME RESIDENTIAL POPULATION</b>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?	3	3	4	6	10	15	20	20	10	4	3	4
B. How many days per month are they present?	8	8	8	8	8	8	8	8	8	8	8	8
<b>31. TEMPORARY &amp; TRANSIENT USERS</b>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month are they present?												
<b>32. REGULAR NON-RESIDENTIAL USERS</b>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month?												
B. How many days per month are they present?												

<b>33. ROUTINE COLIFORM SCHEDULE</b>	JAN 1	FEB 0	MAR 0	APR 1	MAY 0	JUN 0	JUL 1	AUG 0	SEP 0	OCT 1	NOV 0	DEC 0
<b>34. GROUP B NITRATE SCHEDULE</b> <i>This will be suppressed for all Group A systems</i>	QUARTERLY				ANNUALLY				ONCE EVERY 3 YEARS			
					SO1,SO2							

#### 35. Reason for Submitting WFI: (To be completed by system submitting form – not a Sentry feed)

X Update-Change  Update-No Change  Inactivate  Re-Activate  Name change  New System  Other \_\_\_\_\_

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PRINT NAME: \_\_\_\_\_ TITLE: \_\_\_\_\_

Last Permit Color Issued: Blue

Last Permit Issued Date: 12/1/2017

Last Permit Issued Definition: Blue: Systems in this category are considered adequate for existing uses but are not considered adequate for adding new service connections.

Current Color: Blue  
**7/12/2018**

Current Color is what the calculated permit color would be based on information as of

Current Color Definition: Blue: Systems in this category are considered adequate for existing uses but are not considered adequate for adding new service connections.

Override Comments:

Current Permit Conditions:

1. System lacks Department design approval and needs to bring system into compliance by getting required Department approval.

---

[Home Page](#) | [Find Water Systems](#) | [Find Water Quality](#) | [Downloads/Reports](#)

[DOH Home](#) | [Community and Environment](#) | [Drinking Water Home](#) | [Drinking Water Contacts](#)

[Access Local Health](#) | [Privacy Notice](#) | [Disclaimer/Copyright Information](#)

*Links to external resources are provided as a public service and do not imply endorsement  
by the Washington State Department of Health*

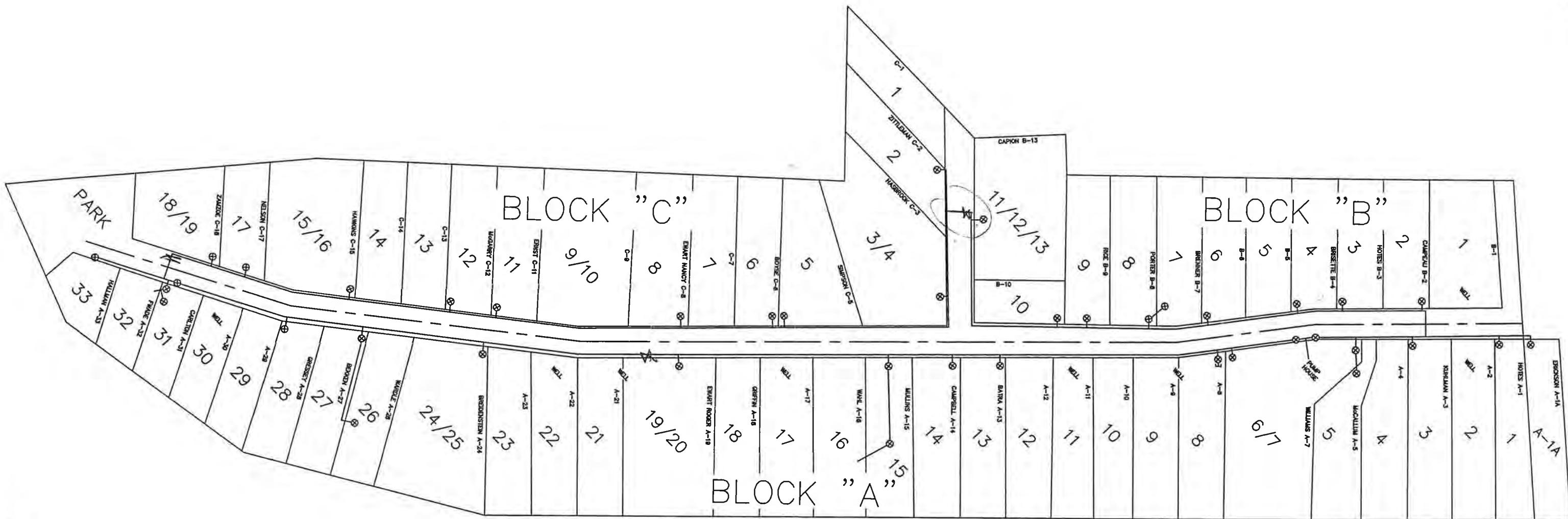
Department of Health, Office of Drinking Water

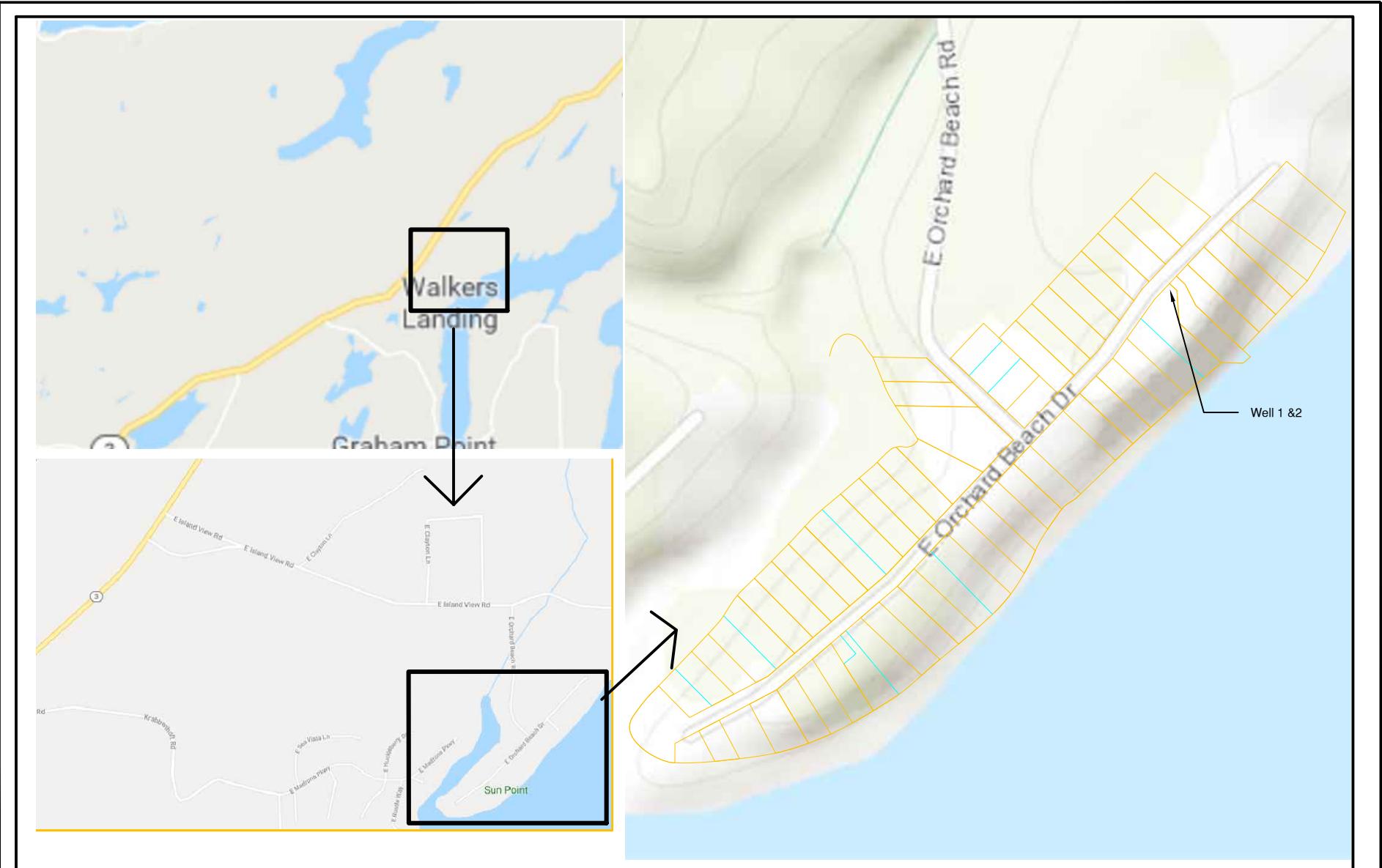
**Mail:**

**Street Address:**  
243 Israel Road S.E. 2nd floor  
Tumwater, WA 98501

PO BOX 47822  
Olympia, WA  
98504-7822

## 10.2 SITE Plan & MAPS





SITE INFORMATION PROVIDED BY: THE CLIENT, MASON COUNTY, AND BY GOOGLE MAPS

THIS IS NOT A SURVEY. PROPERTY LINES AND ELEVATIONS SHOWN ARE BASED UPON THE AVAILABLE INFORMATION IS APPROXIMATE ONLY.



DRAWN BY:	SYSTEM	
CHECKED BY:	ORCHARD BEACH COMMUNITY WATER SYSTEM	
REVISION		
FILE NO.	170505	FILE NAME
DESCRIPTION	SITE MAP	DATE
		JULY 18, 2018
	SCALE	NTS
NORTHWEST WATER SYSTEMS, INC.		
DESIGN - CONSULTING - MANAGEMENT		
P.O. BOX 123		
PORT ORCHARD, WA 98366		
(360) 876-0958		

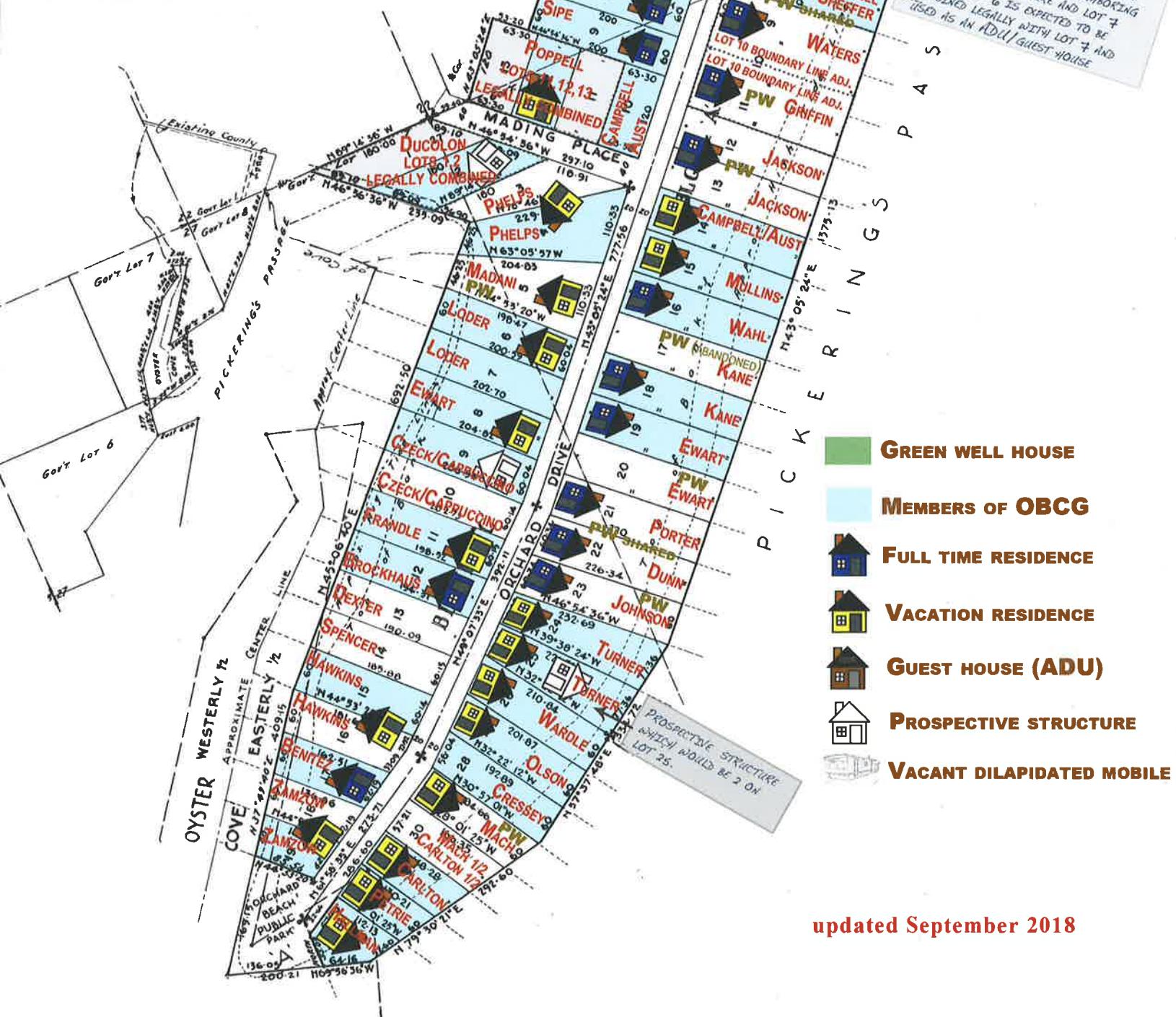
# OBCG SERVICE AREA for Water System Plan (WSP)

Current number of lots in service area = 63

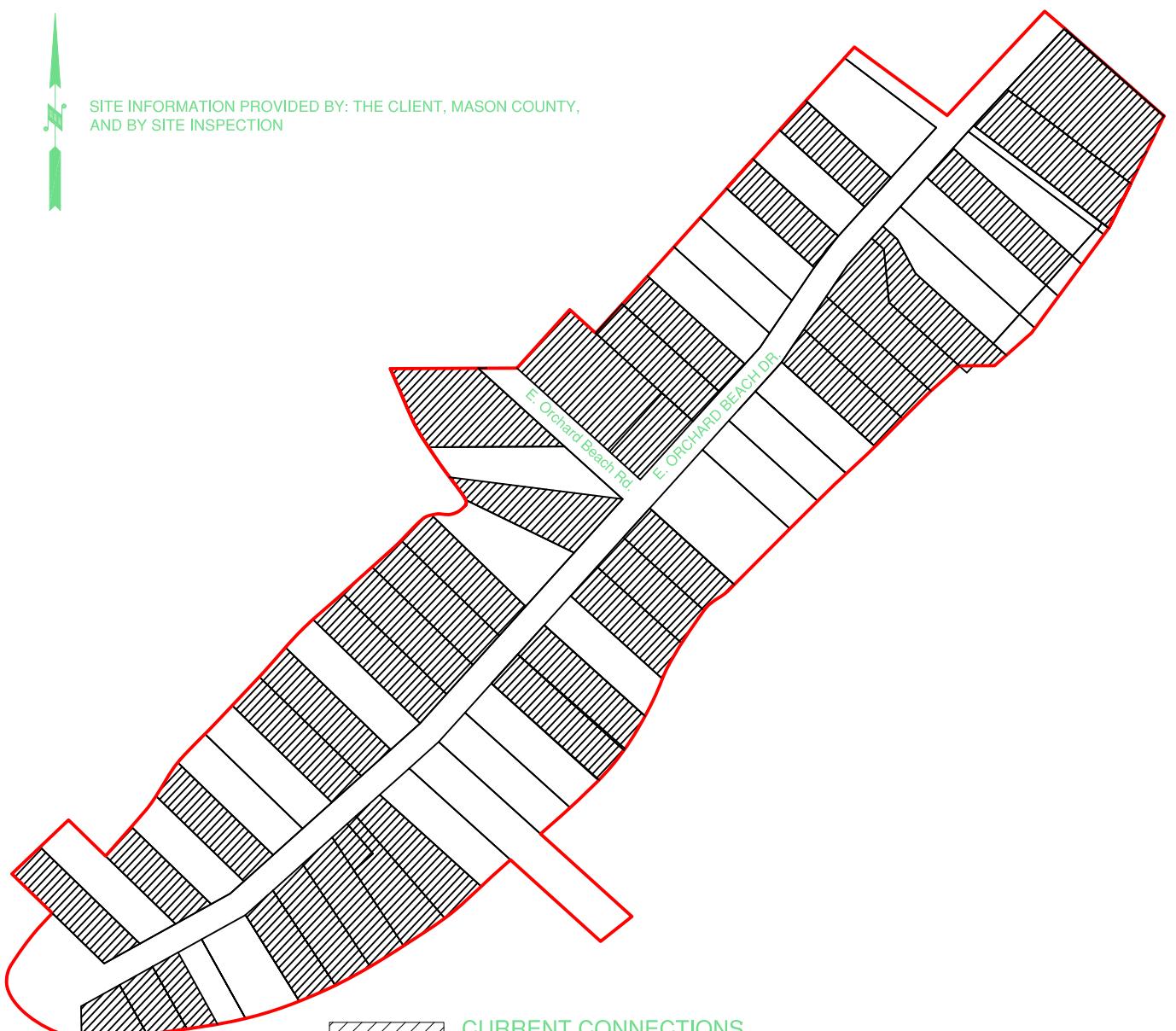
Private wells = PW (9 active, 1 abandoned)

The Madings Orchard Beach original plat had 65 private lots. At some point two properties north of the plat were included in the water community, bringing the total number of lots to 67.

Six of the 67 lots have been legally combined via a recorded DCP or boundary line adjustment, thus reducing the number of lots. B11, B12, and B13 were combined into one, as were C1 and C2; A10 was split as a boundary line adjustment, with half going to A9\* and the other half to A11\*



SITE INFORMATION PROVIDED BY: THE CLIENT, MASON COUNTY,  
AND BY SITE INSPECTION




CURRENT CONNECTIONS

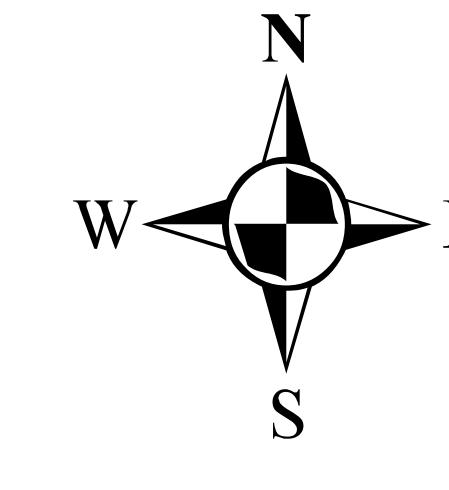


RETAIL SERVICE AREA & WATER RIGHTS PLACE  
OF USE

DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	ORCHARD BEACH		ORCHARD BEACH COM.
REVISION	FILE NO.	FILE NAME	FILE NAME
	170505		SHEET NO.
DESCRIPTION	DATE	JUNE 23, 2018	SCALE 1" = 250'
NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958			



# Mason County Development Areas Map Panel 6 of 10



# **County Commissioners**

---

Ordinance Number

---

Randy Neatherlin, District 1                      Date

---

Tim Sheldon, District 2                      Date

---

Terri Jeffreys, District 3                      Date

---

Shannon Goudy, Clerk of the Board              Date

## Legend

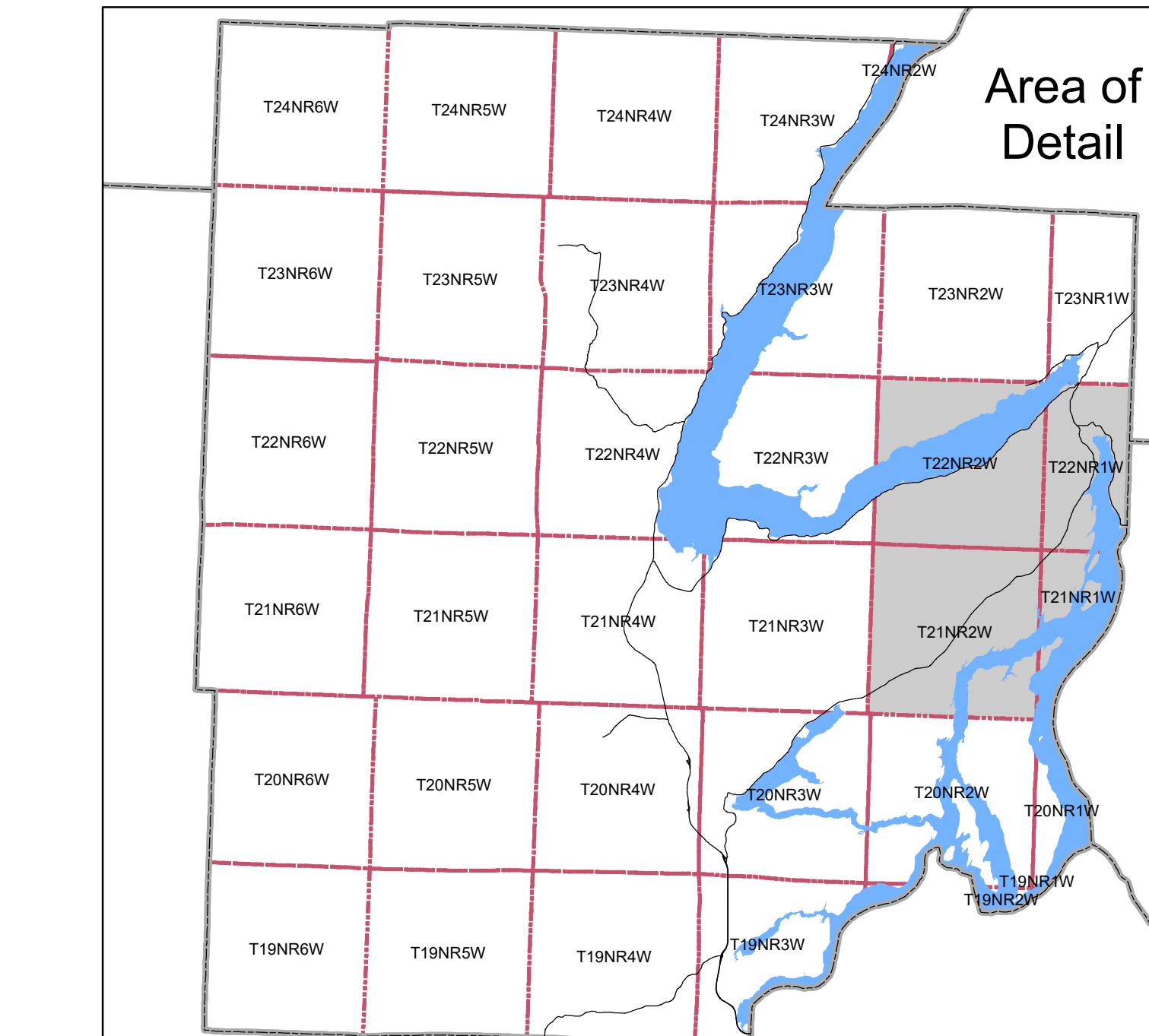
**Development Areas**

- Parcels
- Townships

**Zoning Descriptions**

- Rural Multi Family
- Inholding Lands
- Rural Residential 2.5 Acres
- Rural Residential 5 Acres
- Rural Residential 10 Acres
- Rural Residential 20 Acres

Development Area	Zoning Description	Symbol	Description	Symbol	Description
Long Term Commercial Forest	Rural Tourist	Green	Rural Tourist-Campground	Purple	City
Long Term Commercial Forest	Rural Tourist	Green	Rural Tourist-Campground	Purple	Shelton Urban Growth A
Long Term Commercial Forest	Rural Commercial 1	Red with dots	Rural Commercial 2	Red	Urban Growth Area
Long Term Commercial Forest	Rural Commercial 3	Red with dots	Rural Commercial 5	Red	Indian Reservation
Olympic National Forest	Rural Industrial	Grey	Water	Blue	Olympic National Park



Map produced by: Mason County GIS Department  
Project file name: Development\_Areas\_Panel\_6.mxd  
Publication Date: 5/13/2013  
Map created with ArcGIS 10.0

Zoning information from the Mason County Planning Department.  
Parcel and Township information from the Mason County GIS  
Department.

This map is intended to show the zoning designation of properties; and, therefore, some shorelines and water bodies are not shown or are partially hidden.

## DISCLAIMER AND LIMITATION OF LIABILITY

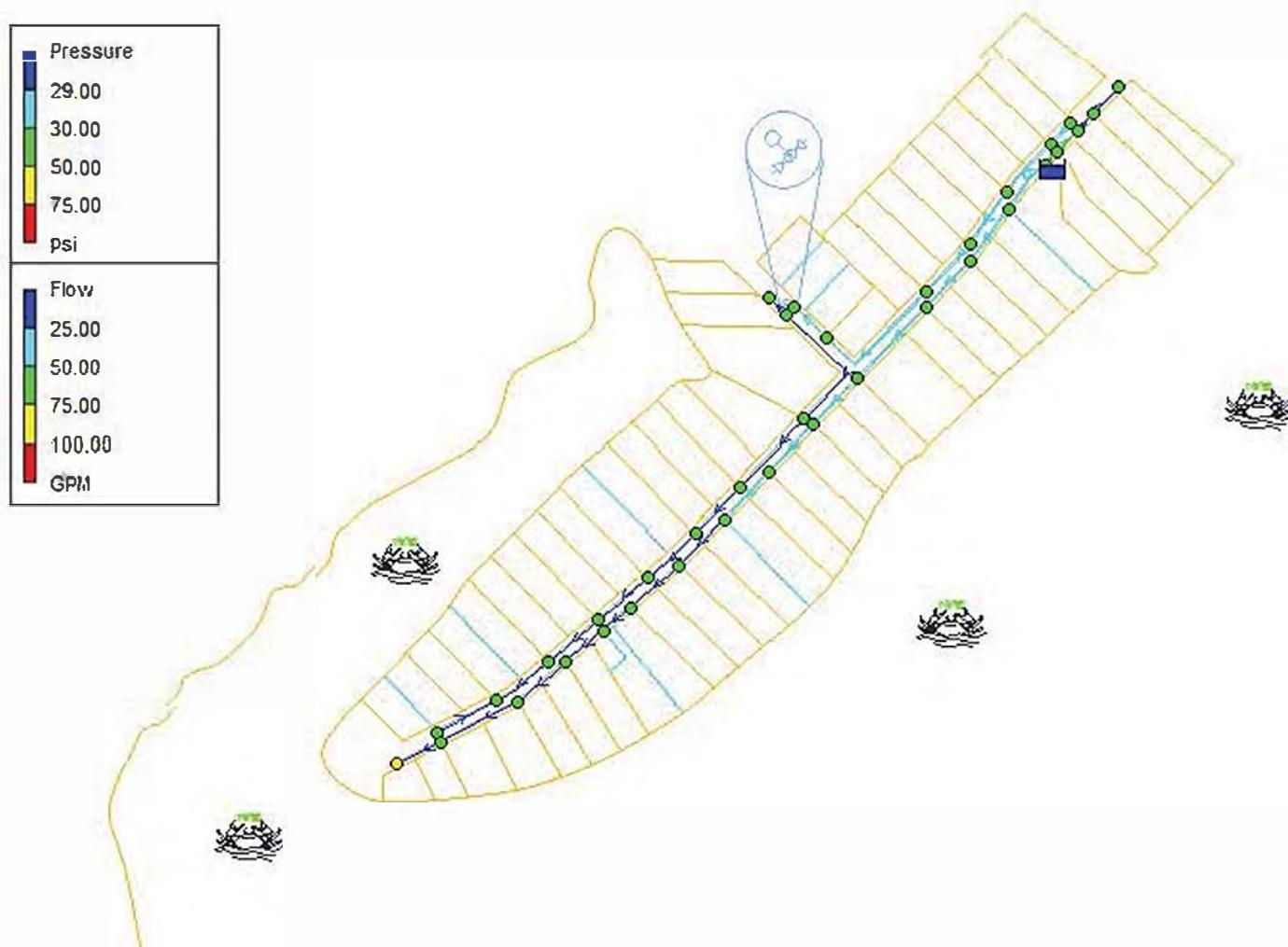
# 10.3 HYDRAULIC & CAPACITY ANALYSIS

## Orchard Beach Hydraulic Analysis Results

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc 12	2.91	149.29	38.69	0.00
Junc 14	2.91	149.13	36.45	0.00
Junc 15	2.91	149.13	36.45	0.00
Junc 16	1.45	149.13	36.45	0.00
Junc 17	2.91	149.11	36.44	0.00
Junc 21	2.91	149.05	38.58	0.00
Junc 22	2.91	148.92	39.83	0.00
Junc 23	2.91	148.81	39.78	0.00
Junc 24	2.91	148.72	40.61	0.00
Junc 25	2.91	148.55	40.53	0.00
Junc 26	2.91	148.50	47.01	0.00
Junc 27	2.91	148.49	47.01	0.00
Junc 28	2.91	148.42	41.34	0.00
Junc 29	2.91	148.38	40.46	0.00
Junc 30	2.91	148.36	40.45	0.00
Junc 31	2.91	148.35	42.62	0.00
Junc 32	2.91	148.35	44.78	0.00
Junc 33	2.91	148.35	46.51	0.00
Junc 34	2.91	148.35	46.95	0.00
Junc 35	2.91	148.35	49.11	0.00
Junc 36	2.91	148.35	51.28	0.00
Junc 37	2.91	148.35	49.11	0.00
Junc 38	2.91	148.36	45.65	0.00
Junc 39	2.91	148.37	44.79	0.00
Junc 40	2.91	148.39	43.93	0.00
Junc 41	2.91	148.41	43.94	0.00
Junc 42	2.91	148.45	41.36	0.00
Junc 43	2.91	148.50	39.65	0.00
Junc 44	2.91	148.56	38.38	0.00
Junc 45	2.91	148.64	40.57	0.00

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc 46	2.91	148.73	40.61	0.00
Junc 47	2.91	148.89	39.82	0.00
Junc 48	2.91	149.01	39.87	0.00
Junc 49	2.91	149.15	39.93	0.00
Junc 50	0.00	149.39	40.03	0.00
Junc 51	2.91	149.23	38.66	0.00
Junc 52	2.91	148.49	47.01	0.00
Resvr 1	-103.31	149.40	0.00	0.00

## Orchard Beach Hydraulic Analysis Map



# Orchard Beach Water System

## Capacity Analysis Report

### 1.0 Project Description

The Orchard Beach Water System (WSID 64031 Q) is a Group A Type TNC water system located on the East side of Mason County by the Pickering Passage. The system services 9 full-time connections, 25 part-time connection, and 4 non-residential recreational connection, totaling to 38 connections.

### 1.1 System Description

The water system is supplied from two active wells. SO2 is the primary well and SO1 is the backup source during peak demands. The wells pump to eight bladder tanks and then out to distribution.

The system came into service 1963. SO1 is 72 ft. deep providing 10 gpm, and it is the backup source for peak conditions. SO2, the primary source, is 209 ft. deep and provides 60 gpm.

The system contact information is as follows:

Water System Name:	Orchard Beach Water System
WSDOH ID Number:	64031 Q
Name of Owner:	Orchard Beach Community Group c/o Secretary/Treasurer
Owner's Address:	1217 SW Orchard St Seattle, WA 98106
Primary Contact:	Kevin Odegard
Contact Address:	PO Box 123 Port Orchard, WA 98366
Contact Phone:	(360) 876-0958

### 1.2 Submittal Purpose

The system is submitting a capacity analysis to satisfy the conditions of a recently granted water right, and it is the first step in satisfying DOH planning requirements.

### 2.0 Planning Data

The system has a Small Water System Management Plan (SWSMP) and is in the process of updating it. This capacity analysis is being submitted in the process of updating the plan.

### 3.0 Analysis of Alternatives.

The system has chosen to provide a limiting factors capacity analysis to verify that their system can sufficiently operate within their water rights.

## **4.0 Design Standards**

Unless otherwise referenced, DOH Publication number 331-123 titled the “Water System Design Manual” (WSDM) is the standard used for this report.

## **5.0 Water Quantity**

The system has a primary water right certificate, G2-30447, for an instantaneous withdrawal of 80 gpm and an annual withdrawal of 13 ac-ft/year. There are no expressed limitations on the number of connections for which the water right has been issued; however, the place of use of the water system’s current service area contains 63 parcels.

## **6.0 Engineering Calculations**

### **6.1 System Demands**

System’s production usage was analyzed to determine the system’s demand. The system has recently completed installation of service meters for all the existing service connections. However, there is limited data from these meters as many of the meters have only been recently installed. Therefore, primarily production meter data was used to estimate usage.

The system has 38 connections total, 25 of which are seasonal or vacation connections, 4 are non-residential for recreational use, and 9 are permanent connections. The system has a high ratio of part time to full time connections. Based on input from the system, the part-time connections are almost entirely used more in line with recreational usage.

Therefore, we are considering part-time residential occupancy to be 1/7<sup>th</sup> during the off season; 2/7<sup>th</sup> for June, September, and December; and 3/7<sup>th</sup> for July and August. For the recreational connections, we assumed that they would only be in use 2 days during the weekend for June -September. Table 6-1.1 provides a summary of the occupancy.

**Table 6-1.1 Monthly Usage**

Month	Full-time	Part-time	Rec	Total	ERU
January	9	4		13	12.57
February	9	4		13	12.57
March	9	4		13	12.57
April	9	4		13	12.57
May	9	4		13	12.57
June	9	7	4	20	16.52
July	9	11	4	24	20.09
August	9	11	4	24	20.09
September	9	7	4	20	16.52
October	9	4		13	12.57
November	9	4		13	12.57
December	9	7		16	16.14

The system has provided their recent service meter data for the month of June. The ADD of the full-time users is 116 gpd/ERU and it is a reasonable assumption that MDD is 2-3

times higher. Although this data is not sufficient for the capacity analysis, it provides a baseline for comparison for the source ADD and MDD. In the last three years (2015-2017), the system has records of substantial leaks that have been repaired. There are sections in the source meter data where it is evident that significant leaks occurred, particularly in 2016. Therefore, the ADD and MDD from the 2012-2017 data with correction for leakage data was used for the usage calculations yielding an ADD and MDD and 179 and 634 respectively.

Maximum daily demand (MDD) was calculated by taking the maximum month average daily demand (MMAD) over the peak month period and multiplying it by a factor of 1.7. The MMAD was 373 gpd, in August 2015. The calculated MDD is therefore 634 gpd/ERU.

For further comparison, two analogous systems, Lake Limerick and Collins Lake, were analyzed. Lake Limerick is a larger system with 771 full-time connections and 71 part-time connections. The Lake Limerick water system plan (WSP #DDR2013-00029) contains a detailed connection analysis that was used to calculate their ADD and MDD. Similarly, Collins Lake has 113 full-time connections, 100 part-time connections, and 1 institutional connection (a fire station). A capacity analysis was done for ODW Project #16-0104 in which the system's ADD and MDD was calculated. Most lots have limited yards or landscaping, with native second growth predominating. Orchard Beach currently most closely resembles Collins Lake in income level, lot development style, and in having a larger number of part time users than Lake Limerick. Therefore, usage is expected to be very similar to Collins Lake. Lake Limerick is used to represent a more upscale community that could potentially develop in the future as the system transitions from part-time to full-time residential use. Below is a comparison of ADD and MDD for the three systems in Table 6-1.2.

**Table 6-1.2 Comparison of Parameters**

System	ADD (gpd/ERU)	MDD (gpd/ERU)
Orchard Beach	179	634
Collins Lake	129	470
Lake Limerick	218	728

Calculated ADD and MDD for Orchard Beach is between that of Collins Lake and Lake Limerick. Thus, the assumptions used to calculate the usage for Orchard Beach are reasonable.

Table 6-1.3 provides a summary of Orchard Beach's system parameters used throughout the analysis. ERU's during the maximum month were used to calculate the MDD.

**Table 6-1.3 Summary of Parameters**

Parameter	Demand	
	Qty.	Unit
ADD	179	gpd/ERU
MDD	634	gpd/ERU
Current System	20.09	Max ERU

The existing PHD is calculated using Equation 5-1 of the Design Manual (for  $15 < \text{ERU} < 50$ ,  $C=3$ ,  $F=0$ ).

$$\text{PHD} = \left( \frac{\text{MDD}}{1,440} \right) ((C * N) + F) + 18$$

$$\text{PHD} = \left( \frac{634}{1,440} \right) ((3 * 20.09) + 0) + 18 = 44.5 \text{ gpm}$$

## 6.2 Limiting Factors

Each component of the system is analyzed below to determine the most constraining limitation on the ongoing expansion of the system. Demands from Section 6.1 are used for determining the limitation imposed by each component.

### 6.2.1 Service Area

This system serves the residential connections surrounding parts of E. Orchard Beach Dr; a current parcel map is attached. There are no parcel limitations to the service area based on the water rights. Some parcels are not buildable or have private wells, but given that others may desire accessory dwelling units, a total of 63 connections is assumed to constitute build-out of the service area.

### 6.2.2 Water Rights

The system's water rights are limited to 80 gpm instantaneous withdrawal and 13 ac-ft/year annual withdrawal. The ERU limited by instantaneous water rights with a reservoir is calculated below:

$$N_{wr,instant} = \frac{Q_{wr,instant} * 1440}{MDD} = \frac{80 \frac{\text{gal}}{\text{min}} * 1,440 \frac{\text{min}}{\text{day}}}{634 \frac{\text{gpd}}{\text{ERU}}} = 181 \text{ ERU}$$

The ERUs limited by the instantaneous water right without storage is calculated by rearranging Equation 5.1 (for  $15 < \text{ERU} < 50$ ,  $C = 3$  and  $F = 0$ ) and using 80 gpm for the PHD.

$$\text{PHD} = \frac{MDD}{1440} (N * C + F) + 18 \rightarrow N = \left( \frac{1440 (\text{PHD} - 18)}{MDD} - F \right) \frac{1}{C}$$

$$N_{wr,instant} = \left( \frac{1440 \frac{\text{min}}{\text{day}} * (80\text{gpm} - 18)}{634 \frac{\text{gpd}}{\text{ERU}}} - 0 \right) \frac{1}{3} = 46 \text{ ERU}$$

The maximum ERU that may be supported by the annual water right can be calculated by dividing the permitted water right by the average annual consumption per ERU once converted into the same units as follows:

$$N_{wr,annual} = \frac{Q_{wr,annual}}{ADD * 365} = \frac{13 \frac{\text{acft}}{\text{yr}}}{\frac{179 \text{ gal}}{\text{day}} * \frac{1 \text{ acft}}{325,851 \text{ gal}} * \frac{365 \text{ day}}{\text{yr}}} = 64 \text{ ERU}$$

### 6.2.3 Source Capacity

The system is served by the following wells:

**Table 6-2 Existing Wells**

Well	S01	S02
Depth (ft)	72	209
Capacity (gpm)	10	60

The daily and yearly source capacity is calculated using Equation 6-3 from the Design Manual. Currently S02 is used as year-round permanent source, and S01 is a seasonal source that is only used about 4 months out of the year. However, S01 is capable of being a year-round permanent source if the demand required. It is assumed that at full time operation both wells run at a maximum of 18 hour per day to avoid impacting the screens.

The source capacity based on the maximum day demand is calculated as follows where the time (t) is 18 hours per day.

$$N_{source,day} = \frac{\sum Q_j t_j}{MDD}$$

$$N_{source,day} = \frac{[(70 \text{ gpm}) * (18 \frac{\text{hr}}{\text{day}}) (60 \frac{\text{min}}{\text{hr}})]}{634 \frac{\text{gpd}}{\text{ERU}}} = 119 \text{ ERU}$$

The above daily source capacity is a theoretical calculation that requires a reservoir. However, Orchard Beach currently does not have a reservoir. Using the inverted form of Equation 5-1, the source instantaneous capacity can be calculated as follows (for 15<ERU<50, C=3 and F=0):

$$N = \left( \frac{1440 (PHD - 18)}{MDD} - F \right) \frac{1}{C}$$

$$N = \left( \frac{1440 \frac{\text{min}}{\text{day}} (70 \text{ gpm} - 18)}{634 \text{ gpd}} - 0 \right) \frac{1}{3} = 39 \text{ ERU}$$

The current limiting source capacity is the instantaneous capacity of 39 ERUs. However, the system plans to install a new pump in SO2 and retest the well. The new pump will increase the total source production to 80 gpm based on their water rights. Recalculating the instantaneous source capacity using a PHD of 80 gpm the new capacity is 46 ERU.

#### 6.2.4 Distribution System

A hydraulic analysis was completed using EPAnet for PHD conditions at build-out. Demand was increased until the pressure at any node dropped below 30 psi or the max velocity in any of the pipes exceeded 8 fps. The pressure in the nodes dropped below 30 when the flowrate leaving the source was 560 gpm. This rate exceeds the maximum velocity of 8 fps velocity in a 4" diameter pipe. Thus, the limiting capacity factor is the maximum velocity of 8 fps or 313 gpm. The capacity can be solved for by rearranging Equation 5-1 of the WSDM (for  $251 < \text{ERU} < 500$ ,  $C=1.8$  and  $F=125$ ). This was completed using the max allowable flow rate and MDD.

$$\text{PHD} = \frac{MDD}{1440} (N * C + F) + 18 \rightarrow N = \left( \frac{1440 (\text{PHD} - 18)}{MDD} - F \right) \frac{1}{C}$$

$$N_{\text{Distribution}} = \left( \frac{1440 \frac{\text{min}}{\text{day}} * (313 \text{ gpm} - 18)}{634 \text{ gpd}} - 125 \right) \frac{1}{1.8} = 302 \text{ ERU}$$

Using Equation 5-1 in the WSDM, the Distribution System limits the system to 303 ERU.

#### 6.2.5 Summary

The current system limits are shown in the table below.

Table 6-3 Limiting Factors

Limitation	ERU Limit
Service Area	633
Water Rights, Instant w/ reservoir withdrawal	181
Water Rights, Instant. Withdrawal wo/reservoir	46
Water Rights, Annual withdrawal	64
Daily Source Production	119
<b>Daily Instantaneous Source Production</b>	<b>39</b>
Distribution System	302

The most limiting factor is the daily instantaneous source production which is 39 ERU. However, with the installation of a new pump, the source capacity will increase to 80

gpm. If this is the case, the new limiting capacity will be 46 ERU based on the source capacity.

## **7.0 Conclusions**

The Orchard Beach Water system is currently operating within their water rights and capacity as their maximum number of ERU'S is 20.09, and the system has capacity to transition all their part time connections to full-time connections.

## **8.0 Recommendations**

Now that system has finished installing individual service meters, it is recommended that they continue to identify and fix leaks. It is expected that a later analysis accounting for leaks will result in a downward revision of ADD, MDD, and PHD, thus increasing the number of connections that the system has the capacity to serve. In addition, it is recommended that they update their system to a Group A Community System so that they can increase the number of full-time connections.

## **9.0 Report Preparation**

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Port Orchard, WA 98366  
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Report Prepared By:

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Anna Parkinson

Under the Direction of:

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Doug Piehl, P.E.

### Appendices

Orchard Beach Meter Data  
Service Area maps and plat  
Hydraulic Analysis  
Water Rights Permit  
WFI

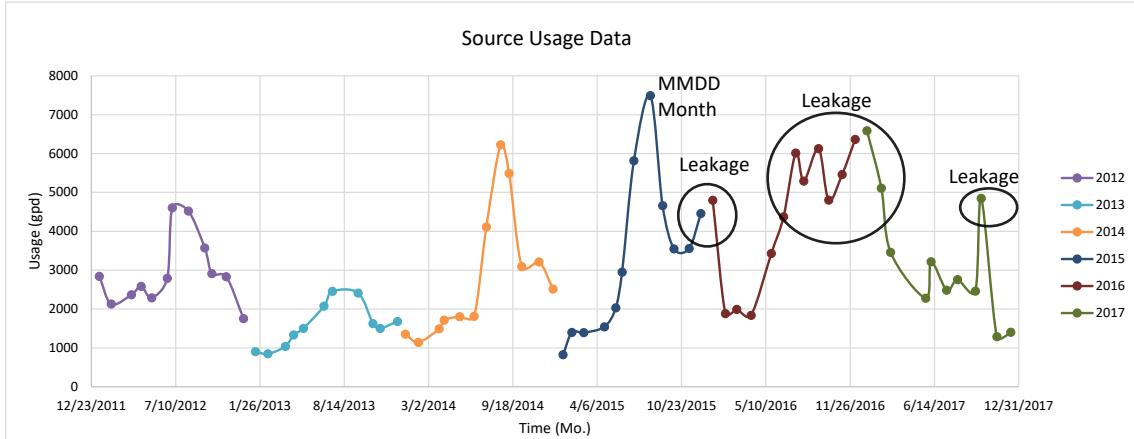
## Orchard Beach Source Meter Data 2012-2017

Water System Name: Orchard Beach State ID: 64031Q					Water System Name: Orchard Beach State ID: 64031Q					Initial Static Water Level:		
Source: SO1 Tag No.: AHA945		Source: SO2 Tag No.: AHA944		Initial Static Water Level:			Initial Static Water Level:					
Date	SWL	Source Meter Reading (gal.)	Usage (gal.)	SWL Increase/Decrease	Daily Usage (gpd)	SWL	Source Meter Reading (gal.)	Usage (gal.)	SWL Increase/Decrease	Daily Usage (gpd)	Number of Connections	Average Daily Demand gpd/ERU
1/11/2012		164417	0		0		11036081	79630		2844	12.57	226
2/8/2012		164417	0		0		11095700	59619		2129	12.57	169
3/27/2012		164417	0		0		11209400	113700		2369	12.57	188
4/19/2012		164417	0		0		11268820	59420		2583	12.57	206
5/1/2012		164417	0		0		11326043	57223		2289	12.57	182
6/20/2012		164417	0		0		11429275	103232		2790	16.14	173
7/2/2012		164417	0		0		11484530	55255		4605	20.09	229
8/9/2012		164417	0		0		11656460	171930		4524	20.09	225
9/17/2012		164417	0		0		11795870	139410		3575	16.14	221
10/4/2012		164417	0		0		11845340	49470		2910	12.57	231
11/7/2012		164417	0		0		11941660	96320		2833	12.57	225
12/18/2012		164417	0		0		12013670	72010		1756	16.14	109
1/15/2013		164417	0		0		12039027	25357		906	12.57	72
2/14/2013		164417	0		0		12064470	28443		848	12.57	67
3/27/2013		164417	0		0		12107100	42630		1040	12.57	83
4/16/2013		164417	0		0		12133800	26700		1335	12.57	106
5/9/2013		164417	0		0		12168309	34509		1500	12.57	119
6/27/2013		164417	0		0		12270020	101711		2076	16.14	129
7/17/2013		164417	0		0		12319110	49090		2455	20.09	122
9/16/2013		164417	0		0		12466220	147110		2412	16.14	149
10/21/2013		165080	663		4		12523013	56793		1623	12.57	129
11/7/2013		165090	10		1		12548541	25528		1502	12.57	119
12/18/2013		165098	8		0		12617472	68931		1681	16.14	104
1/6/2014		165098	0		0		12643163	25691		1352	12.57	108
2/6/2014		165098	0		0		12678622	35459		1144	12.57	91
3/27/2014		165098	0		0		12751787	73165		1493	12.57	119
4/8/2014		165098	0		0		12772380	20593		1716	12.57	137
5/15/2014		165098	0		0		12839169	66789		1805	12.57	144
6/18/2014		165098	0		0		12900756	61587		1811	16.14	112
7/17/2014		165098	0		0		13020072	119316		4114	20.09	205
8/20/2014		165098	0		0		13231840	211768		6228	20.09	310
9/9/2014		165098	0		0		13341700	109860		5493	16.14	340
10/9/2014		165098	0		0		13434448	92748		3092	12.57	246
11/19/2014		165098	0		0		13566255	131807		3215	12.57	256
12/22/2014		165098	0		0		13649236	82981		2515	16.14	156
1/15/2015		174610	9512		396		13699573	50337		2097	12.57	66
2/5/2015		176124	1514		72		13727420	27847		1326	12.57	111
3/5/2015		181832	5708		204		13760670	33250		1188	12.57	111
4/23/2015		182772	940		19		13835375	74705		1525	12.57	123
5/20/2015		182772	0		0		13890190	54815		2030	12.57	161
6/4/2015		182772	0		0		13934411	44221		2948	16.52	179
7/2/2015		182772	0		0		14097238	162827		5815	20.09	290
8/10/2015		182777	5		0		14389416	292178		7492	20.09	373
9/8/2015		182777	0		0		14524614	135198		4662	16.14	289
10/5/2015		182777	0		0		14620361	95747		3546	12.57	282
11/10/2015		182777	0		0		14748544	128183		3561	12.57	283
12/8/2015		182777	0		0		14873350	124806		4457	16.14	276
1/5/2016		182777	0		0		15007667	134317		4797	12.57	382
2/4/2016		182857	80		3		15064067	56400		1880	12.57	150
3/2/2016		182881	24		1		15117865	53798		1993	12.57	159
4/5/2016		182881	0		0		15180452	62587		1841	12.57	146
5/23/2016		182990	109		2		15345000	164548		3428	12.57	273
6/21/2016		182990	0		0		15471840	126840		4374	16.52	265
7/20/2016		182990	0		0		15646271	174431		6015	20.09	299
8/8/2016		182990	0		0		15746802	100531		5291	20.09	283
9/12/2016		182990	0		0		15961271	214469		6128	16.14	380
10/6/2016		182990	0		0		16076543	115272		4803	12.57	382
11/7/2016		182990	0		0		16251311	174768		5462	12.57	434
12/8/2016		182990	0		0		16448636	197325		6365	16.14	394
1/5/2017		183009	19		1		16633017	184381		6585	12.57	524
2/8/2017		183009	0		0		16806803	173786		5111	12.57	407
3/2/2017		183009	0		0		16882905	76102		3459	12.57	275
5/24/2017		183050	41		0		17072094	189189		2279	12.57	181
6/6/2017		183050	0		0		17113939	41845		3219	16.14	199
7/13/2017		184380	1330		36		17204600	90661		2450	20.09	124
8/8/2017		184380	0		0		17276350	71750		2760	20.09	137
9/19/2017		184380	0		0		17379644	103294		2459	16.14	152
10/3/2017		184380	0		0		17447500	67856		4847	12.57	386
11/9/2017		184380	0		0		17495300	47800		1292	12.57	103
12/12/2017		184380	0		0		17541617	46317		1404	16.14	87

2012-2017

ADD	183
MADD	373
MDD	634

## Orchard Beach Monthly Usage Graph



## Orchard Beach June Service Meter Data

OWNER LAST NAME	LOT(s)	Additional LOT(s)	Address	Connec tion	Meter installed	5/6/18	6/3/18	Gals Used May 6- June 3	6/30/18	Gals Used June 3-June 30
Benitez	C17		41	1	✓	340,340	344,820	4,480	348,616	3,796
Brockhaus	C12		101	1	✓	72,186	72,389	1,523	1,090	840
Campbell/Aust	A14	B10	210	1	✓	36,430	38,230	1,800	40,154	1,924
Campbell/Aust	B10			1	✓					
Carlton	A31	1/2 of A30	30	1	✓	47,340	48,280	940	51,389	3,109
Casey	B8		251	1	✓	15,110	21,650	6,540	26,404	4,754
Cressey	A28		60	1	✓			0	0	0
Czeck/Cappuccino	C9	C10	131	1	✓	30	30	0	30	0
Ducolon	C2	C1	291	1	✓	74,470	74,470	0	74,471	1
Eide	A7	B5, B6	300	1	✓	279,050	280,390	1,340	281,991	1,601
Eide	A6	Connection is read through A7 meter		1						
Emtman	A1	1st Lot North of A1	360	1	✓	51,460	52,950	1,490	53,581	631
Erickson	A1	2nd Lot North of A1	380	1	✓	234,800	240,820	6,020	252,249	11,429
Ewart	C8		141	1	✓	35,560	35,600	40	35,939	339
Ewart, R.	A19	A20	150	1	✓	214,960	215,580	620	216,862	1,282
Frandle	C11		111	1	✓	25,150	35,580	10,430	36,643	1,063
Frett/Cowan	A2	A3	340	1	✓	45,230	45,720	490	46,383	663
Hallman	A33		10	1	✓	43,460	44,430	970	45,061	631
Hawkins	C15	C16	61	1	✓	720	720	0	720	0
Kane	A18	A17	180	1	✓	8,780	11,150	2,370	12,968	1,818
Loder/Green	C6	(Main house)	161	1	✓	38,980	39,940	960	41,050	1,110
Loder/Green	C7	Rec. Lot		1	✓	0	0	0	0	0
Lu	A5	A4	320	1	✓	24,140	24,370	230	24,411	41
McKenney	B4		301	1	✓	148,330	149,440	1,110	150,964	1,524
Mullins	A15		200	1	✓	80,100	83,730	3,630	85,436	1,706
Olson	A27		70	1	✓					
Petrie	A32		20	1	✓	56,770	57,110	340	57,348	238
Phelps/Hasbrook	C4	C3	201	1	✓	44,230	44,370	140	44,880	510
Poppell	B12	B11, B13	261	1	✓	30,240	30,240	0	30,274	34
Rice aka Sipe	B9		241	1	✓	12,320	16,870	4,550	21,070	4,200
Sheffer (owner) formerly Farrell	A8		270	1	✓	0	0	0	0	0
Turner	A24	Original house	100	1	✓	5,360	6,840	1,480	14,076	7,236
Turner new meter	A25	Old fire station/apartment		1	✓				0	0
Wahl	A16		190	1	✓	110,090	111,570	1,480	113,398	1,828
Wardle	A26		80	1	✓	32,290	32,490	200	32,765	275
Zamzow/Campeau	B2		321	1	✓	0	0	0	0	0
Zamzow	C19	C18	21	1	✓	28,730	31,780	3,050	36,661	4,881
								56,223		57,464

## Lake Limerick Usage Summary

Snowbirds 71

Well #1	Well #2	Well #3a	Well #3b	Well #4	Well #5	Well #6	Monthly Production		System		Days	FT	PT	SB	ERU	gpd/conn	gpd/ERU	Date	Gal/Month
							ADD (gpd)	Production	ADD (gpd)	Production									
Jan-08	302126	0	504300	1010500	1289100	1222600	484600	4,813,226	31	155265	774	351	0	809	442.4	191.9	Jan-08	4,813,226	
Feb-08	302416	0	493000	1103400	1120300	870100	4,621,316		29	149075	774	351	0	809	424.7	184.2	Feb-08	4,621,316	
Mar-08	300020	0	498800	1110100	1123600	1000100	578900	4,611,520	31	159018	774	351	0	809	453.0	196.5	Mar-08	4,611,520	
Apr-08	320817	0	440200	1003600	1488200	1066700	702300	5,021,817	30	161994	774	351	24	833	432.4	194.5	Apr-08	5,021,817	
May-08	82504	0	540200	1002300	1502800	1844700	1301600	6,274,104	31	209137	774	351	47	856	525.0	244.2	May-08	6,274,104	
Jun-08	1181990	0	3844900	6406900	1756000	190700	635800	14,016,290	30	452138	774	351	71	880	1071.4	513.7	Jun-08	14,016,290	
Jul-08	195378	166500	2721000	5466000	1912900	209300	13200	10,683,378	31	356113	774	351	71	880	843.9	404.6	Jul-08	10,683,378	
Aug-08	102326	0	1890300	2940100	890600	135200	1897200	7,855,726	31	253411	774	351	71	880	600.5	287.9	Aug-08	7,855,726	
Sep-08	0	0	1163700	2211400	1940200	653300	1013500	6,982,100	30	225229	774	351	47	856	565.4	263.0	Sep-08	6,982,100	
Oct-08	0	0	117800	1910300	369400	0	961900	4,359,400	31	145213	774	351	47	856	364.8	169.7	Oct-08	4,359,400	
Nov-08	0	0	701200	1511800	389600	41300	412300	3,056,200	30	98587	774	351	0	809	280.9	121.8	Nov-08	3,056,200	
Dec-08	66497	0	855400	1699200	301600	147200	414800	3,484,697	31	116157	774	351	0	809	330.9	143.6	Dec-08	3,484,697	
Jan-09	0	0	1089600	2180700	682300	120200	433100	4,505,900	31	145352	774	351	0	809	414.1	179.6	Jan-09	4,505,900	
Feb-09	-	-	940100	1940200	850300	80000	658900	4,469,500	28	144177	774	351	0	809	410.8	178.2	Feb-09	4,469,500	
Mar-09	-	-	860097	1570205	1043749	583247	832363	4,889,661	31	174631	774	351	0	809	497.5	215.8	Mar-09	4,889,661	
Apr-09	-	-	895,203	1,634,295	1086351	607053	866537	5,089,239	30	161469	774	351	24	833	438.2	197.1	Apr-09	5,089,239	
May-09	89162	0	889400	1314200	1502400	1587000	1174200	6,556,362	31	218545	774	351	47	856	548.6	255.2	May-09	6,556,362	
Jun-09	143392	0	2102400	4001300	1680200	1300200	1412900	10,640,392	30	343238	774	351	71	880	813.4	390.0	Jun-09	10,640,392	
Jul-09	335702	0	2740200	4842000	2043500	1714700	1136600	12,812,902	31	427097	774	351	71	880	1012.1	485.3	Jul-09	12,812,902	
Aug-09	0	0	1808400	2921600	1521600	840800	1021000	8,113,400	31	261723	774	351	71	880	620.2	297.4	Aug-09	8,113,400	
Sep-09	0	0	915700	1865300	1179400	680200	1050200	5,690,800	30	183574	774	351	47	856	460.9	214.3	Sep-09	5,690,800	
Oct-09	0	0	922000	1886700	0	547200	927600	4,283,500	31	142783	774	351	47	856	358.5	166.7	Oct-09	4,283,500	
Nov-09	22141	0	673300	1754200	0	266200	304200	3,020,041	30	97421	774	351	0	809	277.6	120.4	Nov-09	3,020,041	
Dec-09	16905	22700	901600	1123200	0	528000	504900	3,092,105	31	103070	774	351	0	809	293.6	127.4	Dec-09	3,092,105	
Jan-10	13165	8800	1487500	2747200	0	326800	75800	4,659,265	31	150299	774	351	0	809	428.2	185.8	Jan-10	4,659,265	
Feb-10	0	7200	1824300	2105400	0	0	3,936,900	28	126997	774	351	0	809	361.8	157.0	Feb-10	3,936,900		
Mar-10	0	7900	1019600	3520500	0	308300	166600	5,022,900	31	179389	774	351	0	809	511.1	221.7	Mar-10	5,022,900	
Apr-10	0	0	1238400	2993700	643900	400100	847200	6,123,300	30	197526	774	351	24	833	527.2	237.2	Apr-10	6,123,300	
May-10	0	0	968500	1887200	898400	566400	1233100	5,553,600	31	185120	774	351	47	856	464.7	216.2	May-10	5,553,600	
Jun-10	-	-	1,395,136	2617664	1695584	604768	1955616	8,268,768	30	266734	774	351	71	880	632.1	303.1	Jun-10	8,268,768	
1,581,272	-	-	1,525,930	2863070	1854545	661465	2138955	10,625,237	31	354175	774	351	71	880	839.3	402.4	Jul-10	10,625,237	
Aug-10	-	-	1,438,734	2699466	1748571	623667	2016729	8,527,167	31	275070	774	351	71	880	651.8	312.5	Aug-10	8,527,167	
Sep-10	-	-	-	1047700	1279400	770900	1488200	4,586,200	30	147942	774	351	47	856	371.4	172.7	Sep-10	4,586,200	
Oct-10	-	-	-	789200	1301000	488500	1522400	4,100,200	31	136673	774	351	47	856	343.1	159.6	Oct-10	4,100,200	
Nov-10	0	0	170000	516800	1554200	950000	962000	4,153,000	30	133668	774	351	0	809	381.7	165.6	Nov-10	4,153,000	
Dec-10	26172	0	375200	1218500	1050400	1404300	159200	4,233,772	31	141126	774	351	0	809	402.1	174.4	Dec-10	4,233,772	
Jan-11	383507	0	558200	1325900	954600	1305400	7100	4,534,707	31	146281	774	351	0	809	416.8	180.8	Jan-11	4,534,707	
Feb-11	5161	0	767400	1687300	514100	994700	0	3,968,661	28	128021	774	351	0	809	364.7	158.2	Feb-11	3,968,661	
Mar-11	0	52400	1159600	1531800	888800	700600	306000	4,363,800	31	155850	774	351	0	809	444.0	192.6	Mar-11	4,363,800	
Apr-11	0	20000	1068900	1367000	839700	554300	47900	3,898,800	30	125735	774	351	24	833	335.6	151.0	Apr-11	3,898,800	
May-11	0	44100	1049000	1372500	510800	938000	500	3,915,200	31	130507	774	351	47	856	327.6	152.4	May-11	3,915,200	
Jun-11	98736	0	1613800	612300	1075200	583000	5,659,936	30	182679	774	351	71	880	432.7	207.5	Jun-11	5,659,936		
Jul-11	8078	0	1279300	2272300	1076300	1110600	1016700	6,718,278	31	223943	774	351	71	880	530.7	254.5	Jul-11	6,718,278	
Aug-11	0	0	1561700	2093300	1318700	1436300	1697600	8,107,600	31	261535	774	351	71	880	619.8	297.2	Aug-11	8,107,600	
Sep-11	0	0	1397100	2334700	842000	1183400	841700	6,598,900	30	212686	774	351	47	856	534.4	248.6	Sep-11	6,598,900	
Oct-11	0	0	1454600	2023400	729800	70000	408400	4,686,200	31	156207	774	351	47	856	392.2	182.4	Oct-11	4,686,200	
Nov-11	0	0	1419600	1910500	196100	53500	406400	3,986,100	30	128584	774	351	0	809	366.3	158.9	Nov-11	3,986,100	
Dec-11	0	0	1454700	1940400	129800	169200	206800	3,900,900	31	130300	774	351	0	809	370.5	160.7	Dec-11	3,900,900	
Jan-12	0	0	142900	1854800	32200	66200	614500	3,980,600	31	128406	774	351	0	809	365.8	158.7	Jan-12	3,980,600	
Feb-12	15600	0	450000	614400	1166200	276600	1258100	3,780,900	29	121965	774	351	0	809	347.5	150.7	Feb-12	3,780,900	
Mar-12	6160	0	701900	1105400	956300	224400	591900	3,586,060	31	123657	774	351	0	809	352.3	152.8	Mar-12	3,586,060	
Apr-12	9280	0	369200	705000	558500	136400	1727700	3,506,060	30	113099	774	351	24	833	301.9	135.8	Apr-12	3,506,060	
May-12	24013	0	260700	571700	575200	1784250	1657900	4,873,763	31	162459	774	351	47	856	407.8	189.7	May-12	4,873,763	
Jun-12	54604	0	431000	616700	1366200	1522800	711400	4,702,704	30	151700	774	351	71	880	359.5	172.4	Jun-12	4,702,704	
Jul-12	92079	0	867300	1317500	1650800	1589800	1275300	6,792,779	31	226426	774	351	71	880	536.6				

## Collins Lake Usage Summary

### System Demands

#### ERU calculation

	Connections	ERU
Full time	120	120
Part time	93	15.8
Non-res.	2	0.2
Commercial	1	1
<b>Total</b>	<b>216</b>	<b>137</b>

(summer and/or weekends, 0.17 factor)  
 (community beach connections)  
 (fire station - occupied 24 hours/day)

ADD  
monthly  
annual

129.54	gpd/ERU
3886	gal/ERU
6,484,756	gallons
19.901	ac-ft/yr

MMAD      **277.0** gpd/ERU (Sept 2013)  
**MDD**      **470.9** gpd/ERU (1.7 PF )

**PHD, exist**      **132.12** gpm      (C=2.0, F = 75)

**ERU, b-o**      **270** ERU  
**PHD, b-o**      **217.79** gpm      (C=1.8, F = 125)

### Source and Storage Requirements

#### Source

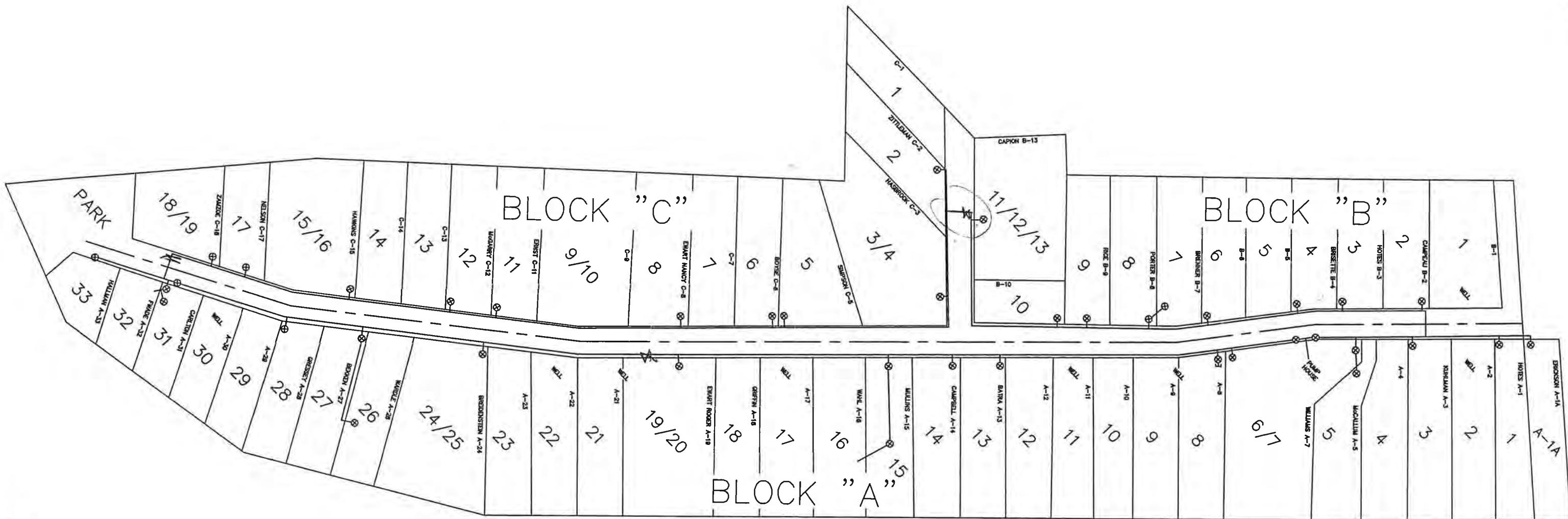
Q S01	52 gpm	(WFI = 60 gpm)
Q S03	49 gpm	(WFI = 50 gpm)
Q total	101 gpm	
	145,440 gpd	
N source	<b>308.88</b> ERU	
<b>MDD flow</b>	<b>88.3</b> gpm (min. source capacity)	
	(system never run out of water in the past)	

#### Storage (Reservoir #2)

	Existing	Build-out	
Op	845.97	845.97 gallons	(12' diameter, 95 feet high, lag pump on at 93', pump off
EQ	4,668	17,518 gallons	(S01 and S03 total flow)
FSS	19,542	19,542 gallons	Mason county: 500 gpm for 30 min, existing residential)
Dead	30624.04	30624.04 gallons	
<b>V required</b>	<b>55,680</b>	<b>68,530 gallons</b>	
<b>V avail.</b>	<b>80,000 gallons (Reservoir #2 only)</b>		

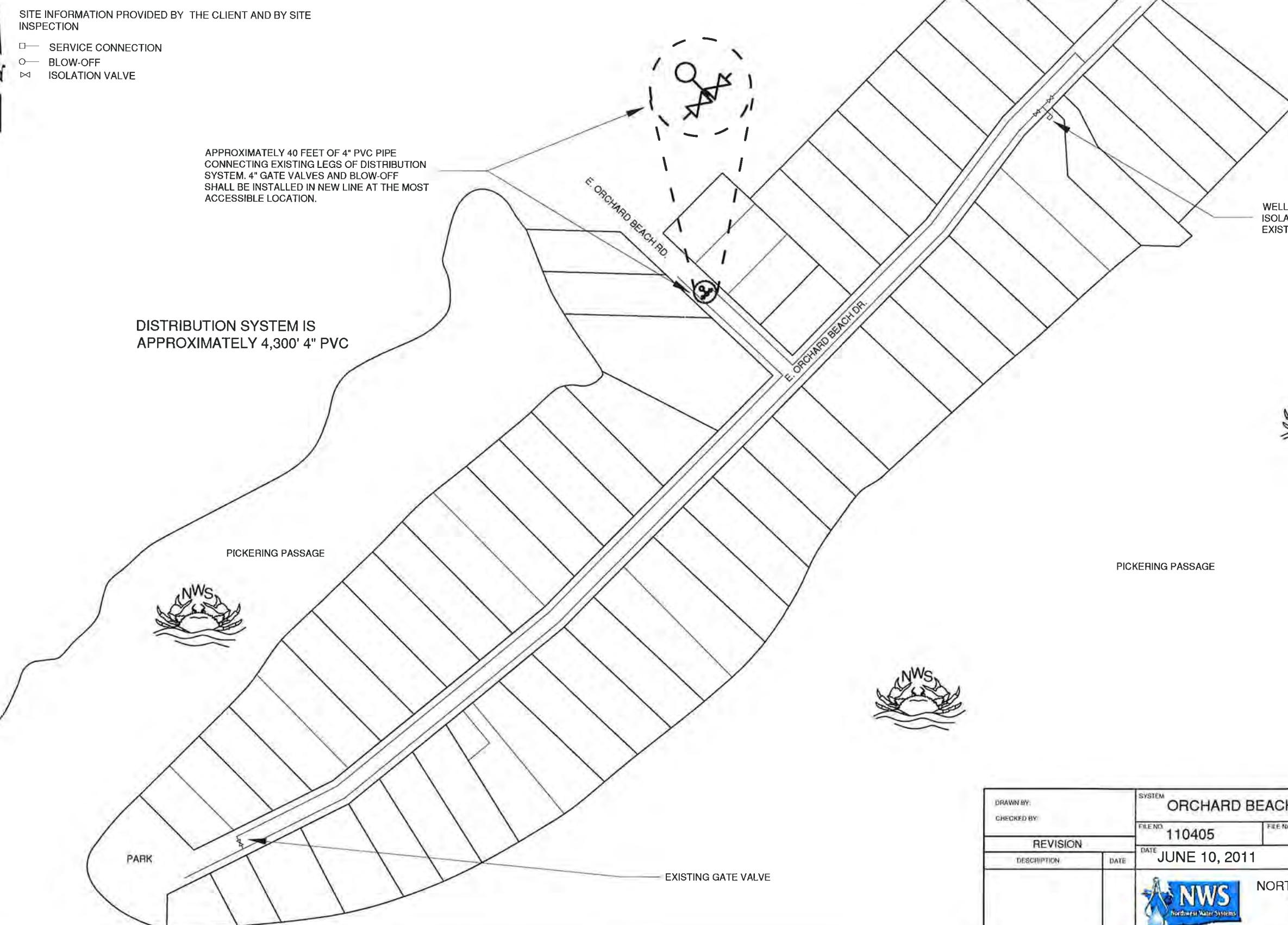
#### Note:

- WSP: Reservoir #2 pressurizes the system by gravity, hydraulic analysis confirms pressure adequacy (30 psi at all connections)
- Fire station pump water out of Collins Lake water system when needed
- Standby and fire flow storage are usually nested



SITE INFORMATION PROVIDED BY THE CLIENT AND BY SITE  
INSPECTION

- — SERVICE CONNECTION
- — BLOW-OFF
- ☒ — ISOLATION VALVE



DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	ORCHARD BEACH		ORCHARD BEACH
REVISION	FILE NO.		FILE NAME
	110405		SITE
DESCRIPTION	DATE		SCALE
	JUNE 10, 2011		1" = 150'
		NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958	NWS Northwest Water Systems

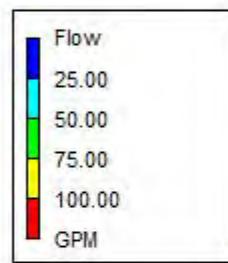
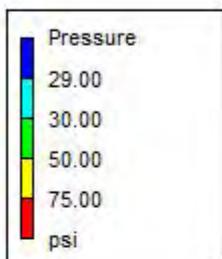
## Orchard Beach Capacity Analysis

Network Table - Nodes at 1:00 Hrs

Node ID	Elevation ft	Demand GPM	Head ft	Pressure psi
Junc 12	60	16.00	146.97	37.68
Junc 14	65	16.00	143.36	33.95
Junc 15	65	16.00	143.34	33.95
Junc 16	65	8.00	143.34	33.94
Junc 17	65	8.00	142.76	33.69
Junc 21	60	16.00	141.33	35.24
Junc 22	57	16.00	138.39	35.27
Junc 23	57	16.00	135.82	34.15
Junc 24	55	16.00	133.65	34.08
Junc 25	55	16.00	129.54	32.30
Junc 26	40	16.00	128.46	38.33
Junc 27	40	16.00	128.24	38.23
Junc 28	53	16.00	126.47	31.83
Junc 29	55	16.00	125.65	30.61
Junc 30	55	16.00	125.25	30.44
Junc 31	50	16.00	125.00	32.50
Junc 32	45	16.00	124.86	34.60
Junc 33	41	16.00	124.81	36.31
Junc 34	40	16.00	124.80	36.74
Junc 35	35	16.00	124.80	38.91
Junc 36	30	16.00	124.79	41.07
Junc 37	35	16.00	124.81	38.91
Junc 38	43	16.00	125.11	35.58
Junc 39	45	16.00	125.46	34.86

## Orchard Beach Capacity Analysis

Node ID	Elevation ft	Demand GPM	Head ft	Pressure psi
Junc 40	47	16.00	125.86	34.17
Junc 41	47	16.00	126.26	34.34
Junc 42	53	16.00	127.21	32.15
Junc 43	57	16.00	128.41	30.94
Junc 44	60	16.00	129.91	30.29
Junc 45	55	16.00	131.67	33.22
Junc 46	55	16.00	133.79	34.14
Junc 47	57	16.00	137.52	34.89
Junc 48	57	16.00	140.39	36.13
Junc 49	57	16.00	143.69	37.56
Junc 50	57	8.00	149.19	39.95
Junc 51	60	16.00	145.57	37.08
Junc 52	40	16.00	128.25	38.24
Resrv 1	149.4	-568.00	149.40	0.00





STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

May 9, 2018

Orchard Beach Community Group

Attn: Erika Aust

2411 Tyndell Circle SW

Tumwater WA 98512

Re: Water Right Permit No. G2-30447

Dear Ms. Aust:

Enclosed is your permit to be retained for your records. Please read the enclosed information sheet, as well as your entire permit.

You must meet the provisions of your permit before we will issue a final *Certificate of Water Right*.

Our information indicates your system has been completed. We are enclosing a *Proof of Appropriation of Water* form which is to be filed when the water has actually been put to full beneficial use. This form will need to include your County Assessor's Parcel Number and must be notarized.

If you cannot put the water to full beneficial by **April 1, 2023**:

- You may submit the *Proof of Appropriation* for a lesser quantity, or
- You must contact this office to apply for an extension.

If you have any questions, please contact Ecology at 360-407-6300.

Sincerely,

*Ann Mainwaring for  
Michael Gallagher*

Michael J. Gallagher

Section Manager

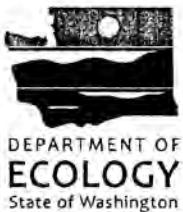
Water Resources Program

Enclosures: Permit

Proof of Appropriation of Water

Important Information About Your Water Right





State of Washington  
WATER RIGHT PERMIT

PRIORITY DATE  
12/6/2007

WATER RIGHT NUMBER  
G2-30447

MAILING ADDRESS  
ORCHARD BEACH COMMUNITY GROUP  
2411 TYNDELL CIRCLE SW  
TUMWATER WA 98512

SITE ADDRESS (IF DIFFERENT)  
ORCHARD BEACH COMMUNITY WATER SYSTEM  
300 E ORCHARD BEACH DRIVE  
GRAPEVIEW WA

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
80	GPM	13.0

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)			PERIOD OF USE (mm/dd)
	NON- ADDITIVE	ADDITIVE	UNITS	NON- ADDITIVE	ADDITIVE		
Municipal Supply	16.6	63.4	GPM	7.6	5.4	01/01 - 12/31	

Remarks: Annual and instantaneous quantities are partially non-additive to Water Right Certificates Nos. G2-27588 and G2-28106.

ADDITIVE	IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION			
	NON- ADDITIVE	ADDITIVE	WATER SYSTEM ID		CONNECTIONS	
0	0		64031Q			

Source Location

COUNTY MASON	WATERBODY		TRIBUTARY TO			WATER RESOURCE INVENTORY AREA		
	GROUNDWATER					14-KENNEDY-GOLDSBOROUGH		
SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
WELL 1	221275001901	AHA945	21N	02W	22	SW SE	47.2874	-122.9170
WELL 2	221275001901	AHA944	21N	02W	22	SW SE	47.2874	-122.9170

Datum: NAD83/WGS84

### **Place of Use (See Attached Map)**

#### **LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE**

The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health for Orchard Beach Water System, so long the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

### **Proposed Works**

Well 1 (AHA945): 6 inches x 82 feet

Well 2 (AHA944): 6 inches x 209 feet

### **Development Schedule**

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	Completed	April 1, 2023

### **Measurement of Water Use**

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Upon Request by Ecology
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

### **Provisions**

***Withdrawals under this water right and Water Right Certificates Nos. G2-27588 and G2-28106 shall not exceed a total of 80 gallons per minute and 13.0 acre-feet per year.***

#### **Wells, Well Logs and Well Construction Standards**

All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction". Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.

All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. Reference this tag number when submitting water use and water quality data.

Installation and maintenance of an access port as described in WAC 173-160-291(3) is required.

#### **Measurements, Monitoring, Metering and Reporting**

An approved measuring device shall be installed and maintained for each of the sources identified under this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173. WAC 173-173 describes the requirements for data accuracy, device installation and

operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

#### **Pumping Test Requirement**

Prior to increasing the pumping rate of Well 2, the water right holder shall conduct a 24-hour pumping test at the proposed increased rate of withdrawal and promptly submit all pumping test data to the Department of Ecology's Southwest Regional Office Water Resources Program.

#### **Chloride Monitoring**

Well 2 (AHA944) shall be sampled and tested for chloride and conductivity concentrations, at least once every three years, during the month of September. Samples shall be analyzed by a state-accredited laboratory and the results submitted to the Department of Ecology's Southwest Regional Office by January 31<sup>st</sup> of the year immediately following the sampling event.

The following data shall be submitted:

- Laboratory results of chloride and conductivity testing.
- Depth to static water level, concurrent with chloride and conductivity sampling, with the pump off long enough to allow for stabilization.

The monitoring frequency may be increased in the future if there is a progressive increase in chloride and conductivity levels.

#### **Department of Health Requirements**

Prior to any new construction or alterations of a public water supply system, the State Board of Health rules require public water supply owners to obtain written approval from the Office of Drinking Water of the Washington State Department of Health. Please contact the Office of Drinking Water at Southwest Drinking Water Operations, 243 Israel Road S.E., PO Box 47823, Tumwater, WA 98504-7823.

#### **Water Use Efficiency**

The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

#### **Non-Additive to Confirmed Claims**

The water use authorized under this filing shall be considered non-additive to any water rights confirmed for Water Right Claim No. G2-128521CL as a result of a general adjudication through a Superior Court if undertaken in the future.

#### **Proof of Appropriation**

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof inspection may include, as appropriate, the sources, system instantaneous capacity, beneficial use, annual quantity, place of use, and satisfaction of provisions.

**Schedule and Inspections**

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

**Permit Subject to Cancellation**

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

Given under my hand and the seal of this office at Olympia, Washington this 10 day of 2018,  
2018.

Department of Ecology

*Ann-Marie Swanson for*

OK MP

by Michael Gallagher

Michael J. Gallagher  
Section Manager



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

For Ecology Use  
(Date Stamp)

**Water Resources Program**  
**PROOF OF APPROPRIATION OF WATER**

Reviewed by:

Name:	Water Right File Number:		
Mailing Address:	City:	State:	Zip Code:
Phone Number: (      ) -	Email Address:		
Contact Name: (If Different)			
Mailing Address:	City:	State:	Zip Code:
Phone Number: (      ) -	Email Address:		
<b>DESCRIPTION/PURPOSE OF WATER USE</b>			
Date water was completely applied to beneficial use:	Time of year water is used: <input type="checkbox"/> Continuous/Year Round <input type="checkbox"/> Seasonal	If seasonally, list the annual start and end date: Start: _____ End: _____	
<b>Irrigation</b> (Include map or aerial photograph showing all irrigated lands)			
Type of System: (Wheel/Hand-Lines, etc.)	Number of Acres Irrigated:	Type of Crop(s):	
<b>Municipal or Domestic Supply</b> Number of domestic units or equivalent residential units being served:			
<b>Industrial or Commercial</b> Type of industry or commercial business:			
If a waste water discharge permit is required, provide permit number:			
<b>Other Use of Water</b> Describe:			

**WATER USE AND MEASUREMENT**

Is an approved measuring device installed?

 Yes     No

Date measuring device installed:

If no measuring device installed, describe Ecology approved alternative measuring method:

Current Meter Reading: (Specify units i.e. gallons, cubic-feet or acre-feet)

Recording Date:

**MAXIMUM RATE OF DIVERSION/WITHDRAWAL**

Maximum Instantaneous Rate:

Cubic feet per second

Or

Gallons per minute

**MAXIMUM ANNUAL QUANTITY DIVERTED/WITHDRAWN**

Annual Quantity of Diversion/Withdrawal:

Cubic-Feet	Or	Gallons	Or	Acre-feet
(1 cubic foot = 7.48 gallons)		(1 acre-foot = 325,851 gallons)		

**DESCRIPTION OF PLACE OF USE**

Legal description of specific area on which water is beneficially used:

(Attach a map or aerial photograph showing the boundaries of the place of use and include parcel number(s))

(Parcel numbers not needed for municipal supply)

**SOURCE(S) AND LOCATION(S)**

Source Number	Parcel Number	Well ID Number	1/4	1/4	Section	Township	Range	County
#1								
#2								
#3								
#4								

**FOR SURFACE WATER DIVERSION**

Type of Diversion: (Pump, Gravity flow, etc.)

Description of Water Delivery System:

I, \_\_\_\_\_, and \_\_\_\_\_ do certify that I/we have completed  
(Please Print) (Please Print)  
appropriation of water under water right file number, \_\_\_\_\_. This notice and attached documents are  
true and accurate statements and describe and support my/our assertion that I/we have satisfied the terms of this  
water right in compliance with the law.

Permittee(s) Signature

Permittee(s) Signature

Date

State of: \_\_\_\_\_

} §

County of: \_\_\_\_\_

Signed and sworn to (or affirmed) before me on this \_\_\_\_\_ day of \_\_\_\_\_.

\_\_\_\_\_  
Signature

Seal  
or  
Stamp

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

My Appointment Expires \_\_\_\_\_



# WATER FACILITIES INVENTORY (WFI) FORM

Quarter: 3

Updated: 03/10/2017

Printed: 6/22/2018

WFI Printed For: On-Demand

Submission Reason: No Change

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822

1. SYSTEM ID NO. 64031 Q	2. SYSTEM NAME ORCHARD BEACH COMMUNITY	3. COUNTY MASON	4. GROUP A	5. TYPE TNC					
6. PRIMARY CONTACT NAME & MAILING ADDRESS  KEVIN R. ODEGARD [OPERATIONS SUPERV] PO BOX 123 PORT ORCHARD, WA 98366		7. OWNER NAME & MAILING ADDRESS  ORCHARD BEACH COMMUNITY GROUP JAMES FARRELL 13205 SE. 339TH AUBURN, WA 98092	8. OWNER NUMBER: 004284						
STREET ADDRESS IF DIFFERENT FROM ABOVE  ATTN ADDRESS 7245 BETHEL-BURLEY RD SE CITY PORT ORCHARD STATE WA ZIP 98367		STREET ADDRESS IF DIFFERENT FROM ABOVE  ATTN ADDRESS CITY STATE ZIP							
9. 24 HOUR PRIMARY CONTACT INFORMATION  Primary Contact Daytime Phone: (360) 876-0958 Primary Contact Mobile/Cell Phone: (253) 377-1865 Primary Contact Evening Phone: (xxx)-xxx-xxxx Fax: (360) 876-4196 E-mail:xxxxxxxxxxxxxxxxxxxx		10. OWNER CONTACT INFORMATION  Owner Daytime Phone: (253) 939-2569 Owner Mobile/Cell Phone: Owner Evening Phone: Fax: E-mail:xxxxxxxxxxxxxxxxxxxx							
11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)  <input type="checkbox"/> Not applicable (Skip to #12) <input type="checkbox"/> Owned and Managed <input checked="" type="checkbox"/> Managed Only <input type="checkbox"/> Owned Only									
SMA NAME: Northwest Water Systems, Inc. SMA Number: 119									
12. WATER SYSTEM CHARACTERISTICS (mark all that apply)  <input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial / Business <input type="checkbox"/> Day Care <input type="checkbox"/> Food Service/Food Permit <input type="checkbox"/> 1,000 or more person event for 2 or more days per year									
<input type="checkbox"/> Hospital/Clinic <input type="checkbox"/> Industrial <input type="checkbox"/> Licensed Residential Facility <input type="checkbox"/> Lodging <input type="checkbox"/> Recreational / RV Park									
<input checked="" type="checkbox"/> Residential <input type="checkbox"/> School <input type="checkbox"/> Temporary Farm Worker <input type="checkbox"/> Other (church, fire station, etc.):									
13. WATER SYSTEM OWNERSHIP (mark only one)  <input checked="" type="checkbox"/> Association <input type="checkbox"/> County <input type="checkbox"/> City / Town									
<input type="checkbox"/> Investor <input type="checkbox"/> Federal <input type="checkbox"/> Private									
<input type="checkbox"/> Special District <input type="checkbox"/> State									
14. STORAGE CAPACITY (gallons)									
15	16 SOURCE NAME  LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER.  Example: WELL #1 XYZ456  IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	17 INTERTIE  INTERTIE SYSTEM ID NUMBER	18 SOURCE CATEGORY  RANNEY / INF. GALLERY SPRING IN SPRINGFIELD WELL IN A WELL FIELD WELL FIELD SPRING	19 USE  PERMANENT OTHER SEASONAL EMERGENCY NONE	20 SOURCE METERED  X X X Y X	21 TREATMENT  IRRADIATION (UV) FLUORIDATION FILTRATION CHLORINATION	22 DEPTH  DEPTH TO FIRST OPEN TERRVAL IN FEET	23 CAPACITY (GALLONS PER MINUTE)	24 SOURCE LOCATION  SECTION NUMBER 1/4, 1/4 SECTION TOWNSHIP RANGE
Source Number									
S01	WELL #1 AHA945		X				52	10	SW SE 22 21N 02W
S02	WELL #2 AHA944		X				209	60	SW SE 22 21N 02W

# WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
64031 Q	ORCHARD BEACH COMMUNITY	MASON	A	TNC

		ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)			34	Unapproved
A. Full Time Single Family Residences (Occupied 180 days or more per year)		9		
B. Part Time Single Family Residences (Occupied less than 180 days per year)		25		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)				
A. Apartment Buildings, condos, duplexes, barracks, dorms		0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year		0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year		0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)				
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)		4	4	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.		0	0	
28. TOTAL SERVICE CONNECTIONS			38	

29. FULL-TIME RESIDENTIAL POPULATION													
A. How many residents are served by this system 180 or more days per year? <u>14</u>													
30. PART-TIME RESIDENTIAL POPULATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?		3	3	4	6	10	15	20	20	10	4	3	4
B. How many days per month are they present?		8	8	8	8	8	8	8	8	8	8	8	8
31. TEMPORARY & TRANSIENT USERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?													
B. How many days per month is water accessible to the public?													
32. REGULAR NON-RESIDENTIAL USERS		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?													
B. How many days per month are they present?													
33. ROUTINE COLIFORM SCHEDULE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
* Requirement is exception from WAC 246-290		1	0	0	1	0	0	1	0	0	1	0	0
34. NITRATE SCHEDULE (One Sample per source by time period)		QUARTERLY				ANNUALLY				ONCE EVERY 3 YEARS			
						S01, S02							

35. Reason for Submitting WFI:

Update - Change     Update - No Change     Inactivate     Re-Activate     Name Change     New System     Other \_\_\_\_\_

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

PRINT NAME: \_\_\_\_\_ TITLE: \_\_\_\_\_

# 10.4 METER DATA

## Orchard Beach Source Meter Data 2012-2017

Water System Name: Orchard Beach State ID: 64031Q					Water System Name: Orchard Beach State ID: 64031Q							
Source: SO1 Tag No.: AHA945		Source: SO2 Tag No.: AHA944		Initial Static Water Level:			Initial Static Water Level:					
Date	SWL	Source Meter Reading (gal.)	Usage (gal.)	SWL Increase/Decrease	Daily Usage (gpd)	SWL	Source Meter Reading (gal.)	Usage (gal.)	SWL Increase/Decrease	Daily Usage (gpd)	Number of Connections	Average Daily Demand (gpd/ERU)
1/11/2012		164417	0		0		11036081	79630		2844	12.57	226
2/8/2012		164417	0		0		11095700	59619		2129	12.57	169
3/27/2012		164417	0		0		11209400	113700		2369	12.57	188
4/19/2012		164417	0		0		11268820	59420		2583	12.57	206
5/1/2012		164417	0		0		11326043	57223		2289	12.57	182
6/20/2012		164417	0		0		11429275	103232		2790	16.14	173
7/2/2012		164417	0		0		11484530	55255		4605	20.09	229
8/9/2012		164417	0		0		11656460	171930		4524	20.09	225
9/17/2012		164417	0		0		11795870	139410		3575	16.14	221
10/4/2012		164417	0		0		11845340	49470		2910	12.57	231
11/7/2012		164417	0		0		11941660	96320		2833	12.57	225
12/18/2012		164417	0		0		12013670	72010		1756	16.14	109
1/15/2013		164417	0		0		12039027	25357		906	12.57	72
2/14/2013		164417	0		0		12064470	28443		848	12.57	67
3/27/2013		164417	0		0		12107100	42630		1040	12.57	83
4/16/2013		164417	0		0		12133800	26700		1335	12.57	106
5/9/2013		164417	0		0		12168309	34509		1500	12.57	119
6/27/2013		164417	0		0		12270020	101711		2076	16.14	129
7/17/2013		164417	0		0		12319110	49090		2455	20.09	122
9/16/2013		164417	0		0		12466220	147110		2412	16.14	149
10/21/2013		165080	663		4		12523013	56793		1623	12.57	129
11/7/2013		165090	10		1		12548541	25528		1502	12.57	119
12/18/2013		165098	8		0		12617472	68931		1681	16.14	104
1/6/2014		165098	0		0		12643163	25691		1352	12.57	108
2/6/2014		165098	0		0		12678622	35459		1144	12.57	91
3/27/2014		165098	0		0		12751787	73165		1493	12.57	119
4/8/2014		165098	0		0		12772380	20593		1716	12.57	137
5/15/2014		165098	0		0		12839169	66789		1805	12.57	144
6/18/2014		165098	0		0		12900756	61587		1811	16.14	112
7/17/2014		165098	0		0		13020072	119316		4114	20.09	205
8/20/2014		165098	0		0		13231840	211768		6228	20.09	310
9/9/2014		165098	0		0		13341700	109860		5493	16.14	340
10/9/2014		165098	0		0		13434448	92748		3092	12.57	246
11/19/2014		165098	0		0		13566255	131807		3215	12.57	256
12/22/2014		165098	0		0		13649236	82981		2515	16.14	156
1/15/2015		174610	9512		396		13699573	50337		2097	12.57	66
2/5/2015		176124	1514		72		13727420	27847		1326	12.57	111
3/5/2015		181832	5708		204		13760670	33250		1188	12.57	111
4/23/2015		182772	940		19		13835375	74705		1525	12.57	123
5/20/2015		182772	0		0		13890190	54815		2030	12.57	161
6/4/2015		182772	0		0		13934411	44221		2948	16.52	179
7/2/2015		182772	0		0		14097238	162827		5815	20.09	290
8/10/2015		182777	5		0		14389416	292178		7492	20.09	373
9/8/2015		182777	0		0		14524614	135198		4662	16.14	289
10/5/2015		182777	0		0		14620361	95747		3546	12.57	282
11/10/2015		182777	0		0		14748544	128183		3561	12.57	283
12/8/2015		182777	0		0		14873350	124806		4457	16.14	276
1/5/2016		182777	0		0		15007667	134317		4797	12.57	382
2/4/2016		182857	80		3		15064067	56400		1880	12.57	150
3/2/2016		182881	24		1		15117865	53798		1993	12.57	159
4/5/2016		182881	0		0		15180452	62587		1841	12.57	146
5/23/2016		182990	109		2		15345000	164548		3428	12.57	273
6/21/2016		182990	0		0		15471840	126840		4374	16.52	265
7/20/2016		182990	0		0		15646271	174431		6015	20.09	299
8/8/2016		182990	0		0		15746802	100531		5291	20.09	283
9/12/2016		182990	0		0		15961271	214469		6128	16.14	380
10/6/2016		182990	0		0		16076543	115272		4803	12.57	382
11/7/2016		182990	0		0		16251311	174768		5462	12.57	434
12/8/2016		182990	0		0		16448636	197325		6365	16.14	394
1/5/2017		183009	19		1		16633017	184381		6585	12.57	524
2/8/2017		183009	0		0		16806803	173786		5111	12.57	407
3/2/2017		183009	0		0		16882905	76102		3459	12.57	275
5/24/2017		183050	41		0		17072094	189189		2279	12.57	181
6/6/2017		183050	0		0		17113939	41845		3219	16.14	199
7/13/2017		184380	1330		36		17204600	90661		2450	20.09	124
8/8/2017		184380	0		0		17276350	71750		2760	20.09	137
9/19/2017		184380	0		0		17379644	103294		2459	16.14	152
10/3/2017		184380	0		0		17447500	67856		4847	12.57	386
11/9/2017		184380	0		0		17495300	47800		1292	12.57	103
12/12/2017		184380	0		0		17541617	46317		1404	16.14	87

2012-2017

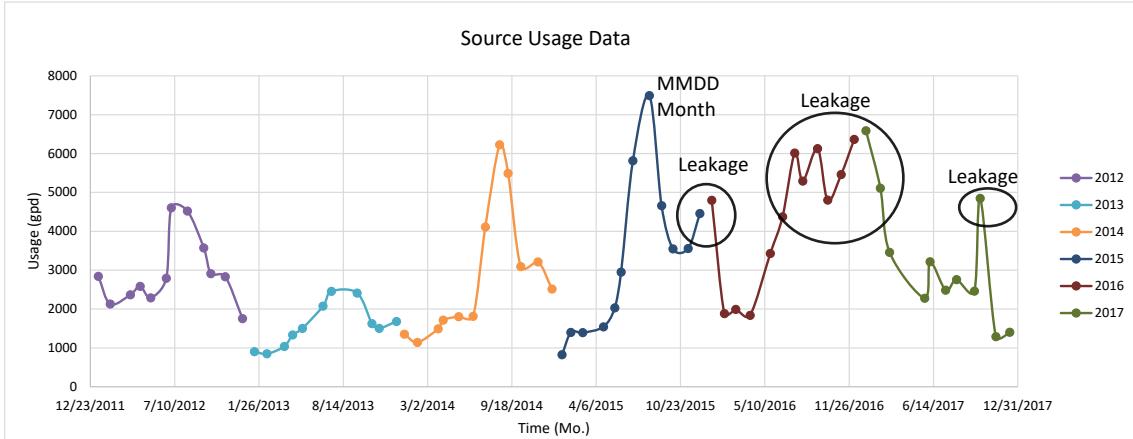
ADD	183
MADD	373
MDD	634

leakage

leakage

leakage

## Orchard Beach Monthly Usage Graph



**Orchard Beach June Service Meter Data**

OWNER LAST NAME	LOT(s)	Additional LOT(s)	Address	Connec tion	Meter installed	5/6/18	6/3/18	Gals Used May 6- June 3	6/30/18	Gals Used June 3-June 30
Benitez	C17		41	1	✓	340,340	344,820	4,480	348,616	3,796
Brockhaus	C12		101	1	✓	72,186	72,389	1,523	1,090	840
Campbell/Aust	A14	B10	210	1	✓	36,430	38,230	1,800	40,154	1,924
Campbell/Aust	B10			1	✓					
Carlton	A31	1/2 of A30	30	1	✓	47,340	48,280	940	51,389	3,109
Casey	B8		251	1	✓	15,110	21,650	6,540	26,404	4,754
Cressey	A28		60	1	✓			0	0	0
Czeck/Cappuccino	C9	C10	131	1	✓	30	30	0	30	0
Ducolon	C2	C1	291	1	✓	74,470	74,470	0	74,471	1
Eide	A7	B5, B6	300	1	✓	279,050	280,390	1,340	281,991	1,601
Eide	A6	Connection is read through A7 meter		1						
Emtman	A1	1st Lot North of A1	360	1	✓	51,460	52,950	1,490	53,581	631
Erickson	A1	2nd Lot North of A1	380	1	✓	234,800	240,820	6,020	252,249	11,429
Ewart	C8		141	1	✓	35,560	35,600	40	35,939	339
Ewart, R.	A19	A20	150	1	✓	214,960	215,580	620	216,862	1,282
Frandle	C11		111	1	✓	25,150	35,580	10,430	36,643	1,063
Frett/Cowan	A2	A3	340	1	✓	45,230	45,720	490	46,383	663
Hallman	A33		10	1	✓	43,460	44,430	970	45,061	631
Hawkins	C15	C16	61	1	✓	720	720	0	720	0
Kane	A18	A17	180	1	✓	8,780	11,150	2,370	12,968	1,818
Loder/Green	C6	(Main house)	161	1	✓	38,980	39,940	960	41,050	1,110
Loder/Green	C7	Rec. Lot		1	✓	0	0	0	0	0
Lu	A5	A4	320	1	✓	24,140	24,370	230	24,411	41
McKenney	B4		301	1	✓	148,330	149,440	1,110	150,964	1,524
Mullins	A15		200	1	✓	80,100	83,730	3,630	85,436	1,706
Olson	A27		70	1	✓					
Petrie	A32		20	1	✓	56,770	57,110	340	57,348	238
Phelps/Hasbrook	C4	C3	201	1	✓	44,230	44,370	140	44,880	510
Poppell	B12	B11, B13	261	1	✓	30,240	30,240	0	30,274	34
Rice aka Sipe	B9		241	1	✓	12,320	16,870	4,550	21,070	4,200
Sheffer (owner) formerly Farrell	A8		270	1	✓	0	0	0	0	0
Turner	A24	Original house	100	1	✓	5,360	6,840	1,480	14,076	7,236
Turner new meter	A25	Old fire station/apartment		1	✓				0	0
Wahl	A16		190	1	✓	110,090	111,570	1,480	113,398	1,828
Wardle	A26		80	1	✓	32,290	32,490	200	32,765	275
Zamzow/Campeau	B2		321	1	✓	0	0	0	0	0
Zamzow	C19	C18	21	1	✓	28,730	31,780	3,050	36,661	4,881
								56,223		57,464

## 10.5 WATER RIGHTS



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

May 9, 2018

Orchard Beach Community Group

Attn: Erika Aust

2411 Tyndell Circle SW

Tumwater WA 98512

Re: Water Right Permit No. G2-30447

Dear Ms. Aust:

Enclosed is your permit to be retained for your records. Please read the enclosed information sheet, as well as your entire permit.

You must meet the provisions of your permit before we will issue a final *Certificate of Water Right*.

Our information indicates your system has been completed. We are enclosing a *Proof of Appropriation of Water* form which is to be filed when the water has actually been put to full beneficial use. This form will need to include your County Assessor's Parcel Number and must be notarized.

If you cannot put the water to full beneficial by **April 1, 2023**:

- You may submit the *Proof of Appropriation* for a lesser quantity, or
- You must contact this office to apply for an extension.

If you have any questions, please contact Ecology at 360-407-6300.

Sincerely,

*Ann Mainwaring for  
Michael Gallagher*

Michael J. Gallagher

Section Manager

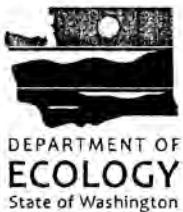
Water Resources Program

Enclosures: Permit

Proof of Appropriation of Water

Important Information About Your Water Right





State of Washington  
WATER RIGHT PERMIT

PRIORITY DATE  
12/6/2007

WATER RIGHT NUMBER  
G2-30447

MAILING ADDRESS  
ORCHARD BEACH COMMUNITY GROUP  
2411 TYNDELL CIRCLE SW  
TUMWATER WA 98512

SITE ADDRESS (IF DIFFERENT)  
ORCHARD BEACH COMMUNITY WATER SYSTEM  
300 E ORCHARD BEACH DRIVE  
GRAPEVIEW WA

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
80	GPM	13.0

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)			PERIOD OF USE (mm/dd)
	NON- ADDITIVE	ADDITIVE	UNITS	NON- ADDITIVE	ADDITIVE		
Municipal Supply	16.6	63.4	GPM	7.6	5.4	01/01 - 12/31	

Remarks: Annual and instantaneous quantities are partially non-additive to Water Right Certificates Nos. G2-27588 and G2-28106.

ADDITIVE	IRRIGATED ACRES		PUBLIC WATER SYSTEM INFORMATION			
	NON- ADDITIVE	ADDITIVE	WATER SYSTEM ID		CONNECTIONS	
0	0		64031Q			

Source Location

COUNTY MASON	WATERBODY		TRIBUTARY TO			WATER RESOURCE INVENTORY AREA		
	GROUNDWATER					14-KENNEDY-GOLDSBOROUGH		
SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWP	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
WELL 1	221275001901	AHA945	21N	02W	22	SW SE	47.2874	-122.9170
WELL 2	221275001901	AHA944	21N	02W	22	SW SE	47.2874	-122.9170

Datum: NAD83/WGS84

### **Place of Use (See Attached Map)**

#### **LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE**

The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health for Orchard Beach Water System, so long the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

### **Proposed Works**

Well 1 (AHA945): 6 inches x 82 feet

Well 2 (AHA944): 6 inches x 209 feet

### **Development Schedule**

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	Completed	April 1, 2023

### **Measurement of Water Use**

How often must water use be measured?	Monthly
How often must water use data be reported to Ecology?	Upon Request by Ecology
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

### **Provisions**

***Withdrawals under this water right and Water Right Certificates Nos. G2-27588 and G2-28106 shall not exceed a total of 80 gallons per minute and 13.0 acre-feet per year.***

#### **Wells, Well Logs and Well Construction Standards**

All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction". Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.

All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. Reference this tag number when submitting water use and water quality data.

Installation and maintenance of an access port as described in WAC 173-160-291(3) is required.

#### **Measurements, Monitoring, Metering and Reporting**

An approved measuring device shall be installed and maintained for each of the sources identified under this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173. WAC 173-173 describes the requirements for data accuracy, device installation and

operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

#### **Pumping Test Requirement**

Prior to increasing the pumping rate of Well 2, the water right holder shall conduct a 24-hour pumping test at the proposed increased rate of withdrawal and promptly submit all pumping test data to the Department of Ecology's Southwest Regional Office Water Resources Program.

#### **Chloride Monitoring**

Well 2 (AHA944) shall be sampled and tested for chloride and conductivity concentrations, at least once every three years, during the month of September. Samples shall be analyzed by a state-accredited laboratory and the results submitted to the Department of Ecology's Southwest Regional Office by January 31<sup>st</sup> of the year immediately following the sampling event.

The following data shall be submitted:

- Laboratory results of chloride and conductivity testing.
- Depth to static water level, concurrent with chloride and conductivity sampling, with the pump off long enough to allow for stabilization.

The monitoring frequency may be increased in the future if there is a progressive increase in chloride and conductivity levels.

#### **Department of Health Requirements**

Prior to any new construction or alterations of a public water supply system, the State Board of Health rules require public water supply owners to obtain written approval from the Office of Drinking Water of the Washington State Department of Health. Please contact the Office of Drinking Water at Southwest Drinking Water Operations, 243 Israel Road S.E., PO Box 47823, Tumwater, WA 98504-7823.

#### **Water Use Efficiency**

The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

#### **Non-Additive to Confirmed Claims**

The water use authorized under this filing shall be considered non-additive to any water rights confirmed for Water Right Claim No. G2-128521CL as a result of a general adjudication through a Superior Court if undertaken in the future.

#### **Proof of Appropriation**

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof inspection may include, as appropriate, the sources, system instantaneous capacity, beneficial use, annual quantity, place of use, and satisfaction of provisions.

**Schedule and Inspections**

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

**Permit Subject to Cancellation**

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

Given under my hand and the seal of this office at Olympia, Washington this 10 day of 2018,  
2018.

Department of Ecology

*Ann-Marie Swanson for*

OK MP

by Michael Gallagher

Michael J. Gallagher  
Section Manager



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

For Ecology Use  
(Date Stamp)

**Water Resources Program**  
**PROOF OF APPROPRIATION OF WATER**

Reviewed by:

Name:	Water Right File Number:		
Mailing Address:	City:	State:	Zip Code:
Phone Number: (      ) -	Email Address:		
Contact Name: (If Different)			
Mailing Address:	City:	State:	Zip Code:
Phone Number: (      ) -	Email Address:		
<b>DESCRIPTION/PURPOSE OF WATER USE</b>			
Date water was completely applied to beneficial use:	Time of year water is used: <input type="checkbox"/> Continuous/Year Round <input type="checkbox"/> Seasonal	If seasonally, list the annual start and end date: Start: _____ End: _____	
<b>Irrigation</b> (Include map or aerial photograph showing all irrigated lands)			
Type of System: (Wheel/Hand-Lines, etc.)	Number of Acres Irrigated:	Type of Crop(s):	
<b>Municipal or Domestic Supply</b>			
Number of domestic units or equivalent residential units being served:			
<b>Industrial or Commercial</b>			
Type of industry or commercial business:			
If a waste water discharge permit is required, provide permit number:			
<b>Other Use of Water</b>			
Describe:			

**WATER USE AND MEASUREMENT**

Is an approved measuring device installed?

 Yes     No

Date measuring device installed:

If no measuring device installed, describe Ecology approved alternative measuring method:

Current Meter Reading: (Specify units i.e. gallons, cubic-feet or acre-feet)

Recording Date:

**MAXIMUM RATE OF DIVERSION/WITHDRAWAL**

Maximum Instantaneous Rate:

Cubic feet per second

Or

Gallons per minute

**MAXIMUM ANNUAL QUANTITY DIVERTED/WITHDRAWN**

Annual Quantity of Diversion/Withdrawal:

Cubic-Feet	Or	Gallons	Or	Acre-feet
(1 cubic foot = 7.48 gallons)		(1 acre-foot = 325,851 gallons)		

**DESCRIPTION OF PLACE OF USE**

Legal description of specific area on which water is beneficially used:

(Attach a map or aerial photograph showing the boundaries of the place of use and include parcel number(s))

(Parcel numbers not needed for municipal supply)

**SOURCE(S) AND LOCATION(S)**

Source Number	Parcel Number	Well ID Number	1/4	1/4	Section	Township	Range	County
#1								
#2								
#3								
#4								

**FOR SURFACE WATER DIVERSION**

Type of Diversion: (Pump, Gravity flow, etc.)

Description of Water Delivery System:

I, \_\_\_\_\_, and \_\_\_\_\_ do certify that I/we have completed  
(Please Print) (Please Print)  
appropriation of water under water right file number, \_\_\_\_\_. This notice and attached documents are  
true and accurate statements and describe and support my/our assertion that I/we have satisfied the terms of this  
water right in compliance with the law.

Permittee(s) Signature

Permittee(s) Signature

Date

State of: \_\_\_\_\_

} §

County of: \_\_\_\_\_

Signed and sworn to (or affirmed) before me on this \_\_\_\_\_ day of \_\_\_\_\_.

\_\_\_\_\_  
Signature

Seal  
or  
Stamp

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

My Appointment Expires \_\_\_\_\_

**Form 2-1a Water Right Self-Assessment**  
**For Existing Water Right(s) Status (current 38 connections)**

Permit Certificate or Claim #	Name of Rightholder or Claimant	Priority Date	Source Name/ Number	Primary or Supplemental	Existing Water Rights		Existing Consumption		Current Water Right Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. G2-30447	Orchard Beach Community	12/06/2007	Orchard Beach Well #1 & #2		80 gpm	13 acf/year	70 gpm	4 acf/year	0 gpm excess	9 acf/year excess
2.										
3.										
4.										
<b>Claims</b> 1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	*****	80 gpm	13 acf/year	70 gpm	4 acf/year	0 gpm excess	9 acf/year excess
Intertie Name/Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Current Intertie Supply Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	*****						
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) Requested			Maximum Annual Volume (Qa) Requested			
1.										
2.										
3.										
4.										

**Form 2-1a Water Right Self-Assessment**  
**For Existing Water Right(s) Status (6 year projection)**

Permit Certificate or Claim #	Name of Rightholder or Claimant	Priority Date	Source Name/ Number	Primary or Supplemental	Existing Water Rights		Existing Consumption		Current Water Right Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. G2-30447	Orchard Beach Community	12/06/2007	Orchard Beach Well #1 & #2		80 gpm	13 acf/year	70 gpm	4.8 acf/year	0 gpm excess	8.2 acf/year excess
2.										
3.										
4.										
<b>Claims</b> 1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	***** *	80 gpm	13 acf/year	70 gpm	4.8 acf/year	0 gpm excess	8.2 acf/year excess
Intertie Name/Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Current Intertie Supply Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	***** *						
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) Requested			Maximum Annual Volume (Qa) Requested			
1.										
2.										
3.										
4.										

**Form 2-1a Water Right Self-Assessment**  
**For Existing Water Right(s) Status (20 year projection)**

Permit Certificate or Claim #	Name of Rightholder or Claimant	Priority Date	Source Name/ Number	Primary or Supplemental	Existing Water Rights		Existing Consumption		Current Water Right Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. G2-30447	Orchard Beach Community	12/06/2007	Orchard Beach Well #1 & #2		80 gpm	13 acf/year	80 gpm	5.4 acf/year	0 gpm excess	7.6 acf/year excess
2.										
3.										
4.										
<b>Claims</b> 1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	***** *	80 gpm	13 acf/year	80 gpm	5.4 acf/year	0 gpm excess	7.6 acf/year excess
Intertie Name/Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Current Intertie Supply Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	***** *						
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) Requested			Maximum Annual Volume (Qa) Requested			
1.										
2.										
3.										
4.										

**Form 2-1b Water Rights Self-Assessment**  
**For Projected Water Right(s) Status (63 ERU)**

Permit Certificate or Claim #	Name of Rightholder or Claimant	Priority Date	Source Name/ Number	Primary or Supplemental	Existing Water Rights		Forecasted Water Use From Sources (Build-out Demand)		Forecasted Water Right Status (Excess/Deficiency – Build-out Water Right)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. G2-30447	Orchard Beach Community	12/06/2007	Orchard Beach Well #1 & #2		80 gpm	13 acf/year	80 gpm	13 acf/year	0 gpm excess	0 acf/year excess
2.										
3.										
4.										
<b>Claims</b> 1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	*****	80 gpm	13 acf/year	80 gpm	13 acf/year	0 gpm excess	0 acf/year excess
Intertie Name/Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Current Intertie Supply Status (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.										
2.										
3.										
4.										
<b>TOTAL</b>	*****	*****	*****	*****						
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) Requested		Maximum Annual Volume (Qa) Requested				
1.										
2.										
3.										
4.										

## 10.6 SOURCE PROTECTION

**Ground Water Contamination  
Susceptibility Assessment Survey Form**  
Version 2.2

Important! Please complete one form for each ground water source (well, well field, spring) used in your system.  
Photocopy as necessary.

**Part I: System Information**

Well Owner: **Orchard Beach Community**  
Water System Name: **Orcahrd Beach**  
County: **Mason**  
Source Name: **Well 1**  
Source Number: **SO1**  
Number of Connections: **38**

Latitude: **47d17'15"N** Longitude: **122d55'1"W**

How was lat/long determined?

- GPS device
- survey
- topographic map
- other

\*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

**Part II: Well Construction and Source Information**

1) Date well originally constructed: **Sept. 1952** last reconstructed: n/a

2) Well Driller: John Webber, Driller  
Olympic Highway South  
Shelton, WA 98584

3) Type of Well:

- Drilled: **cable(?)** (rotary, bored, cable, dug)
  - Other: (spring, lateral collection, driven, jetted, other)
- Comments:

4) Well Report Available? **yes** yes/no (limited, used SO2 report as well)

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets. Engineering reports, well reconstruction logs.

5) Average pumping rate: **10 gpm**

Source of information: **WFI**

If not documented, how was the pumping rate determined?  
estimated from midpoint of pump curve

6) Is this source treated? **No** yes/no (disinfection, filtration, carbon filter, airstripper, other)

If so, what type of treatment:

purpose of treatment (describe materials to be removed or controlled by treatment):

7) If source is chlorinated, is a chlorine residual maintained?

Residual level (at point closest to source):

<b>n/a</b>	yes/no
<b>n/a</b>	ppm

### Part III: Hydrogeologic Information

1) Depth to top of open interval: **72 ft**

2) Depth to groundwater (static water level):

**50 ft (assumed)**

flowing artesian well/spring

How was the water level determined: sea level

3) If the source is a flowing well or spring, what is the confining pressure?

**n/a psi**

**n/a ft**

4) If the source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source:

yes/no

5) Wellhead elevation (height above mean sea level): **50 ft**

how was elevation determined?

- topographic map
- drilling/well log
- altimeter
- other

6) Confining layers: (This can be completed only for those sources with a drilling log, well log, or geologic report describing subsurface conditions. Please refer to assistance package for example.)

**Yes** (yes/no) Is there evidence of a confining layer in the well log?

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the bottom of the lowest confining layer?

**no** (yes/no)

7) Sanitary setback: **40 ft** (If less than 100 feet, describe the site conditions):

Some cabins within 100' SCA, Orcahrd Beach Drive ~40'

8) Wellhead Construction:

- in wellhouse
- in doghouse
- outside

controlled access:

other uses for wellhouse:

9) Surface seal:

- 18 ft
- >18 ft
- <18 ft (no DOE approval)
- <18 ft (with DOE approval, include documentation)

no surface seal

unknown (unlikely)

10) Annual rainfall:

- <10 in/yr
- 10-25 in/yr

>25 in/yr

#### **Part IV: Mapping Your Ground Water Resource**

1) Annual volume of water pumped: **9,228** Cubic Feet

How was this determined?

meter

estimated:

pumping rate:

**10** gpm

pumping capacity:

**10** gpm

other:

aquifer/screen

**15** ft

2) "Calculated Fixed Radius" estimate of groundwater movement: (see Instruction Packet)

groundwater travel time; 6 mo.

**20** ft

$$r = [(Q*t)/(\pi*\eta H)]^{0.5}$$

groundwater travel time; 1 yr.

**28** ft

where: r = radius (ft)

groundwater travel time; 5 yr.

**63** ft

Q = flow (ft<sup>3</sup>/yr)

groundwater travel time; 10 yr.

**89** ft

t = time (yr)

length of screened/open interval:

**1** ft

$\eta$  = porosity (0.25 assumed)  
H = screen/aquifer height (ft)

3) Is there a river, lake, pond, stream, or other surface water body within the six month travel boundary?

yes/no (if yes, identify on a map and describe below)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the six month time of travel boundary? (if yes, identify on a map and describe below)

No

#### **Part V: Assessment of Water Quality**

1) Regional sources of risk to groundwater:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

	6 mo.	1 yr	5 yr	unknown
likely pesticide application			<b>no</b>	
stormwater injection wells			<b>no</b>	
other injection wells			<b>no</b>	
abandoned ground water well			<b>no</b>	
landfills, dumps, disposal areas			<b>no</b>	
known hazardous materials clean-up site			<b>no</b>	
water systems with water quality problems			<b>no</b>	
population density >1 house/acre			<b>yes</b>	
residences commonly having septic tanks			<b>no</b>	
wastewater treatment lagoons			<b>no</b>	
sites used for land application of waste			<b>no</b>	

Identify on a map all of the risks listed above which are located within the six month time of travel boundary. (Please include a map of the wellhead and time of travel areas within this form. Please indicate any of the following.) If other potential sources of groundwater contamination exist within the ten year time of travel circular zone around your supply, please describe:

none

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions:  
(Unless listed on the assessment, MCLs are listed in assistance package.)

	MCL/detection	level >MCL?
A. Nitrate:	10 mg/l	<0.2
B. VOCs:	5 ug/l	ND
C. EDB:	0.05 ug/l	ND
D. DBPC:	0.2 ug/l	ND
E. Other SOC (detectable)		n/a

If any SOC's in addition to EDB/DBPC were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list methods here:

n/a

F. Bacterial Contamination:

Are any bacteriological test samples available	<b>yes</b>	yes/no
Any bacterial detection from the source within past 3 years:	<b>no</b>	yes/no
Any bacterial detection in the distribution system and attributed to the source within the past 3 years:	<b>n/a</b>	yes/no

**Part VI: Geographic or Hydrologic Factors contributing to a non-Circular Zone of Contribution**

The following questions will help identify those groundwater systems which may not be accurately represented by the calculated field radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the ten year time of travel zone of the CFR?

(does the largest circle extend over a stream, river, lake, or up a steep hillside, mountain or ridge?)

**no** yes/no      if yes, describe with references to the map produced in Part IV:

[Large empty rectangular box for map description]

2) Aquifer Material

A) Does the drilling, well, or other geologic/engineering report identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

**no** yes/no

B) Does the drilling, well, or other geologic/engineering report identify that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

**no** yes/no

3) Is the source located in an aquifer with a high horizontal flow rate?

(These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

**no** yes/no

4) Are there other high capacity wells (agricultural, municipal, and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gpm within:

- 6 mo. travel time
- 1 yr. travel time
- 5 yr. travel time
- no 10 year travel time

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within:

- 6 mo. travel time
- 1 yr. travel time
- 5 yr. travel time
- no 10 year travel time

5) Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the contribution zone for this source. Reference them to locations on the map in Part IV.

**Well is located on a peninsula near Pickering Passage. Groundwater flow is from inland towards the saltwater.**

September 15, 1963

Report of well situated on portion of Tract 6, Block "A",  
Hedding Orchard Beach, Mason County, Washington.

Information supplied by John A. Webber, Olympic Highway Co.  
Phone 426-2455.

DEPTH of Well - - - - - 72 feet

Water level beneath Ground Surface - - - - -

Drillers Name - - - - - John A. Webber

Date Drilled - - - - - (approx.) September, 1952

Well Casing NOT perforated.

Materials penetrated - - - - - Gravel, Sand and Hardpan (typical)

Flow capacity - - - - - 500 G.p.m.

Pump rating and type - - - - - 3/4 H.P. ; Jet Type pump



SITE INFORMATION PROVIDED BY:  
THE CLIENT AND BY MASON  
COUNTY GIS



Note:  
SO1 & SO2 are  
approximate  
locations

DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	Orchard Beach		Orchard Beach Community
REVISION	FILE NO.	FILE NAME	SHEET NO.
	170505	GW Radii	
DESCRIPTION	DATE	July 16, 2018	SCALE 1" = 30'
NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958			

**Ground Water Contamination  
Susceptibility Assessment Survey Form  
Version 2.2**

**IMPORTANT!**

Please complete one form for each ground water source  
(well, wellfield, spring) used in your water system.  
Photocopy as necessary.

**PART I: System Information**

Well owner/manager : RICHARD SIMPSON PRES. / S. BLAIR GRIFFIN MGR.

Water system name : ORCHARD BEACH COMMUNITY WATER SYSTEM

County: MASON

Water system number: 64031Q

Source number: SO-2

Well depth: 209 (ft.) (From WFI form)

Source name: WELL #2

WA well identification tag number: A H A - 9 . 4 . 4

N/A well not tagged

Number of connections: 32

Population served: 80

Township: 21N

Range: 02W

Section: 22

1/4 1/4 Section: SE-SW

Latitude/longitude (if available): N/A / \_\_\_\_\_

How was lat./long. determined?

global positioning device  survey  topographic map  
 other: \_\_\_\_\_

\* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

**PART II: Well Construction and Source Information**

1) Date well originally constructed: 2 / 20 / 89 month/day/year FROM ATTACHED WELL LOG.

last reconstruction:   /  /   month/day/year

information unavailable

SO-  october 1, 2004  
ORCHARD BEACH #64031Q

2) Well driller: DAVIS DRILLING, BELFATR, WA. 98528

DRILLER WAS DWANE KNAPP LIC.#1706,

CONTRACTOR REGISTRATION # DAVIS\*169NO

  well driller unknown

3) Type of well:

  Drilled:   rotary   bored XX cable (percussion)   Dug

  Other:   spring(s)   lateral collector (Ranney)

  driven   jetted   other: \_\_\_\_\_

Additional comments: \_\_\_\_\_

4) Well report available? XX YES (attach copy to form)   NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: 60 (gallons/min)

Source of information: WELL LOG /PUMP TESTER # 0797 2/20/89

If not documented, how was pumping rate determined? \_\_\_\_\_

  Pumping rate unknown

6) Is this source treated?   YES XX NO

If so, what type of treatment:

  disinfection   filtration   carbon filter   air stripper   other

Purpose of treatment (describe materials to be removed or controlled by treatment):

7) If source is chlorinated, is a chlorine residual maintained:   YES XX NO

Residual level: N/A (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

- (less than) 20 ft     20-50 ft     50-100 ft     100-200 ft  (greater than) 200 ft  
 information unavailable

2) Depth to ground water (static water level):

- (less than) 20 ft     20-50 ft     50-100 ft     (greater than) 100 ft

N/A flowing well/spring (artesian)

How was water level determined?

well log     other: \_\_\_\_\_

depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

N/A psi (pounds per square inch)

or

N/A feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source:  YES  N/A  NO

5) Wellhead elevation (height above mean sea level): 25 (ft)

How was elevation determined?  topographic map  Drilling/Well Log  altimeter

other: USING PICKERING PASSAGE AT HIGH TIDE TO TOP OF WELL #2 CASING.

information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

evidence of a confining layer in well log WELL ATTACHED.

no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the bottom of the lowest confining layer?  YES  NO

information unavailable

7) Sanitary setback:

- (less than) 100 ft\*  100-120 ft  120-200 ft  (greater than) 200 ft  
\* if less than 100 ft describe the site conditions:

8) Wellhead construction:

- wellhead enclosed in a wellhouse  
 controlled access (describe): COVERED WITH A LOCKED COVER  
 other uses for wellhouse (describe): CONTAINS 8 - 85 GALLON  
PRESSURE TANKS

- no wellhead control

9) Surface seal:

- 18 ft SURFACE SEAL WAS BETONITE  
 (less than) 18 ft (no Department of Ecology approval)  
 (less than) 18 ft (Approved by Ecology, include documentation)  
 (greater than) 18 ft  
 depth of seal unknown  
 no surface seal

10) Annual rainfall (inches per year):

- (less than) 10 in/yr  10-25 in/yr  (greater than) 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 21,024,000 (gallons)

How was this determined?

meter

estimated:  pumping rate (60 GAL. PER. MIN.)  $2/3 \times 31,536,000$

XX pump capacity (31,536,000 PER. YR.)

other: \_\_\_\_\_

2) "Calculated Fixed Radius" estimate of ground water movement:  
(see Instruction Packet)

6 month ground water travel time: 440 (ft)

1 year ground water travel time: 620 (ft)

5 year ground water travel time: 1390 (ft)

10 year ground water travel time: 1970 (ft)

Information available on length of screened/open interval?

YES  NO

Length of screened/open interval: 8 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary?  YES  NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary?  YES  NO (mark and identify on map).

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PART V: Assessment of Water Quality**

## 1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application				X
stormwater injection wells				X
other injection wells				X
abandoned ground water well			X	
landfills, dumps, disposal areas				X
known hazardous materials clean-up site				X
water system(s) with known quality problems				X
population density (greater than) 1 house/acre	X			
residences commonly have septic tanks	X			
Wastewater treatment lagoons				X
sites used for land application of waste	X			
				SEPTIC TANKS

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

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PART V: Assessment of water quality (cont.)

1) Regional sources of risk to ground water: (cont)

- 6 MONTHS TRAVEL TIME 440 FT. RADIUS 0.22 ON MAP:  
WELL #2, RESIDENTIAL, SEPTIC TANKS, PICKERING  
PASSAGE, PRIVATE WELLS, ORCHARD BEACH ROAD THAT  
IS PAVED.
- 1 YEAR TRAVEL TIME 620 FT. RADIUS 0.31 ON MAP:  
RESIDENTIAL, SEPTIC TANKS, PRIVATE WELLS, OYSTER  
COVE, PICKERING PASSAGE, ORCHARD BEACH ROAD,  
ORCHARD BEACH DRIVE, ALL ROADS ARE PAVED.
- 5 YEAR TRAVEL TIME 1,390 FT. RADIUS 0.695 ON MAP:  
RESIDENTIAL, SEPTIC TANKS, PRIVATE WELLS, OYSTER  
COVE, PICKERING PASSAGE, ORCHARD BEACH ROAD,  
ORCHARD BEACH DRIVE, ISLAND VIEW ROAD, AND THOMAS  
ROAD, ALL ROADS ARE PAVED, AND TIP OF RUSSELWOOD.
- 10 YEAR TRAVEL TIME 1,970 FT. RADIUS 0.985 ON MAP:  
RESIDENTIAL, SEPTIC TANKS, PRIVATE WELLS, OYSTER  
COVE, PICKERING PASSAGE, ORCHARD BEACH ROAD,  
ISLAND VIEW ROAD, THOMAS ROAD, ALL ROADS ARE PAVED.  
AND PART OF MADRONA ROAD IN RUSLLWOOD DEVELOPMENT

NOTE: LAND ELEVATION RAISING UP TO 100 FT, ABOVE  
WELL #2 IN THE 5 AND 10 YEAR TRAVEL TIME.

MAP USED WAS A 7 1/2 MINUTE U.S. GEOLOGICAL  
SURVEY TOPOGRAPHIC MAP.

WELLS # 1&2 ARE ABOUT 8 FT. APART, WELL #1 IS  
INSIDE THE PUMP HOUSE AND WELL #2 IS JUST  
OUTSIDE THE DOOR, AND IS 1 1/2 feet FROM SIDE  
PUMP HOUSE.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions:  
(Unless listed on assessment, MCLs are listed in assistance package.)

A. <u>Nitrate</u> : (Nitrate MCL = 10 mg/l )	<u>YES</u>
Results greater than MCL	____
(less than) 2 mg/liter nitrate	<u>X</u>
2-5 mg/liter nitrate	____
(greater than) 5 mg/liter nitrate	____
Nitrate sampling records unavailable	____
B. <u>VOCs</u> : (VOC detection level: 0.5 ug/l or 0.0005 mg/l.)	<u>YES</u>
Results greater than MCL or SAL	____
VOCs detected at least once	<u>X</u>
VOC test performed but never detected	____
VOC sampling records unavailable	____
C. <u>EDB/DBCP</u> :	<u>YES</u>
(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)	____
EDB/DBCP detected below MCL at least once	____
EDB/DBCP detected above MCL at least once	____
EDB/DBCP never detected	____
EDB/DBCP tests required but not yet completed	____
EDB/DBCP tests not required	<u>X</u>
D. <u>Other SOCs</u> (pesticides and other synthetic organic chemicals):	<u>YES</u>
Other SOCs detected	____
Other SOC tests performed but none detected *	____
Other SOC tests not performed	____

\*If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

E. Bacterial contamination:

YES

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.

Source sampling records for bacteria unavailable

XX

**Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution**

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

XX YES      — NO

Describe with references to map produced in Part IV:

SEE SURVEY FORM VER. 2.2 ON PAGE 6a.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

— YES      XX NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

XX YES      — NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

   YES      XX NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
6 month travel time	<u>  </u>	<u>  </u>	<u>XX</u>
6 month-1 year travel time	<u>  </u>	<u>  </u>	<u>XX</u>
1-5 year travel time	<u>  </u>	<u>  </u>	<u>XX</u>
5-10 year travel time	<u>  </u>	<u>  </u>	<u>XX</u>

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
1 year travel time	<u>  </u>	<u>XX</u>	<u>  </u>
1-5 year travel time	<u>  </u>	<u>XX</u>	<u>  </u>
5-10 year travel time	<u>  </u>	<u>XX</u>	<u>  </u>

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

SEE SURVEY FORM VER. 2.2 ON PAGE 6a

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File Original and First Copy with  
Department of Ecology

Second Copy—Owner's Copy  
Third Copy—Driller's Copy

# WATER WELL REPO.

STATE OF WASHINGTON

Water Right Permit No. \_\_\_\_\_

OWNER: Name Orchard Beach Water system

Address Orchard Drive Shelton WA

(2) LOCATION OF WELL: County Mason

SW : SE : Sec. 22 T. 21 N. R. 2W W.M.

(2a) STREET ADDRESS OF WELL (or nearest address): \_\_\_\_\_

(3) PROPOSED USE:  Domestic      Industrial  Municipal   
 Irrigation       Test Well      Other   
 DeWater

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated with at least one entry for each change of information.

(4) TYPE OF WORK: Owner's number of well  
(if more than one) 2

Abandoned  New well  Method: Dug  Bored   
Deepened  Cable  Driven   
Reconditioned  Rotary  Jetted

(5) DIMENSIONS: Diameter of well 6 inches.  
Drilled 209 feet. Depth of completed well 209 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 · Diam. from 0 ft. to 201 ft.  
Welded  · Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Liner installed  · Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Threaded  · Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Perforations: Yes  No

Type of perforator used \_\_\_\_\_  
SIZE of perforations \_\_\_\_\_ in. by \_\_\_\_\_ in.  
perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Screens: Yes  No

Manufacturer's Name Cook

Type stainless

Diam. 5" Slot size 18 from 201 ft. to 206 ft.  
Diam. 5" Slot size 20 from 206 ft. to 209 ft.

Gravel packed: Yes  No  Size of gravel \_\_\_\_\_

Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Surface seal: Yes  No  To what depth? 18 ft.

Material used in seal Betonite

Did any strata contain unusable water? Yes  No

Type of water? \_\_\_\_\_ Depth of strata \_\_\_\_\_

Method of sealing strata off \_\_\_\_\_

(7) PUMP: Manufacturer's Name Berkley

Type: sub. H.P. 5

(8) WATER LEVELS: Land-surface elevation above mean sea level \_\_\_\_\_ ft.

Static level 30 ft. below top of well Date \_\_\_\_\_

Artesian pressure \_\_\_\_\_ lbs. per square inch Date \_\_\_\_\_

Artesian water is controlled by \_\_\_\_\_ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes  No  If yes, by whom? 0797

Yield: 60 gal./min. with 67 ft. drawdown after 24 hrs.

60      67      48      "

Recovery data (time taken as zero when pump turned off) (water level measured from well lop to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	97	1 min.	62	2 min.	47
3 min.	37	4 min.	33	5 min.	31
6 min.	30				

Date of test 2/20/89

Baller test \_\_\_\_\_ gal./min. with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.

Airtest \_\_\_\_\_ gal./min. with atom set at \_\_\_\_\_ ft. for \_\_\_\_\_ hrs.

Artesian flow \_\_\_\_\_ g.p.m. Date \_\_\_\_\_

Work started \_\_\_\_\_ 19. Completed \_\_\_\_\_ Feb. \_\_\_\_\_ 19\_\_\_\_

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Davis Drilling  
(PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address Belfair WA 98528

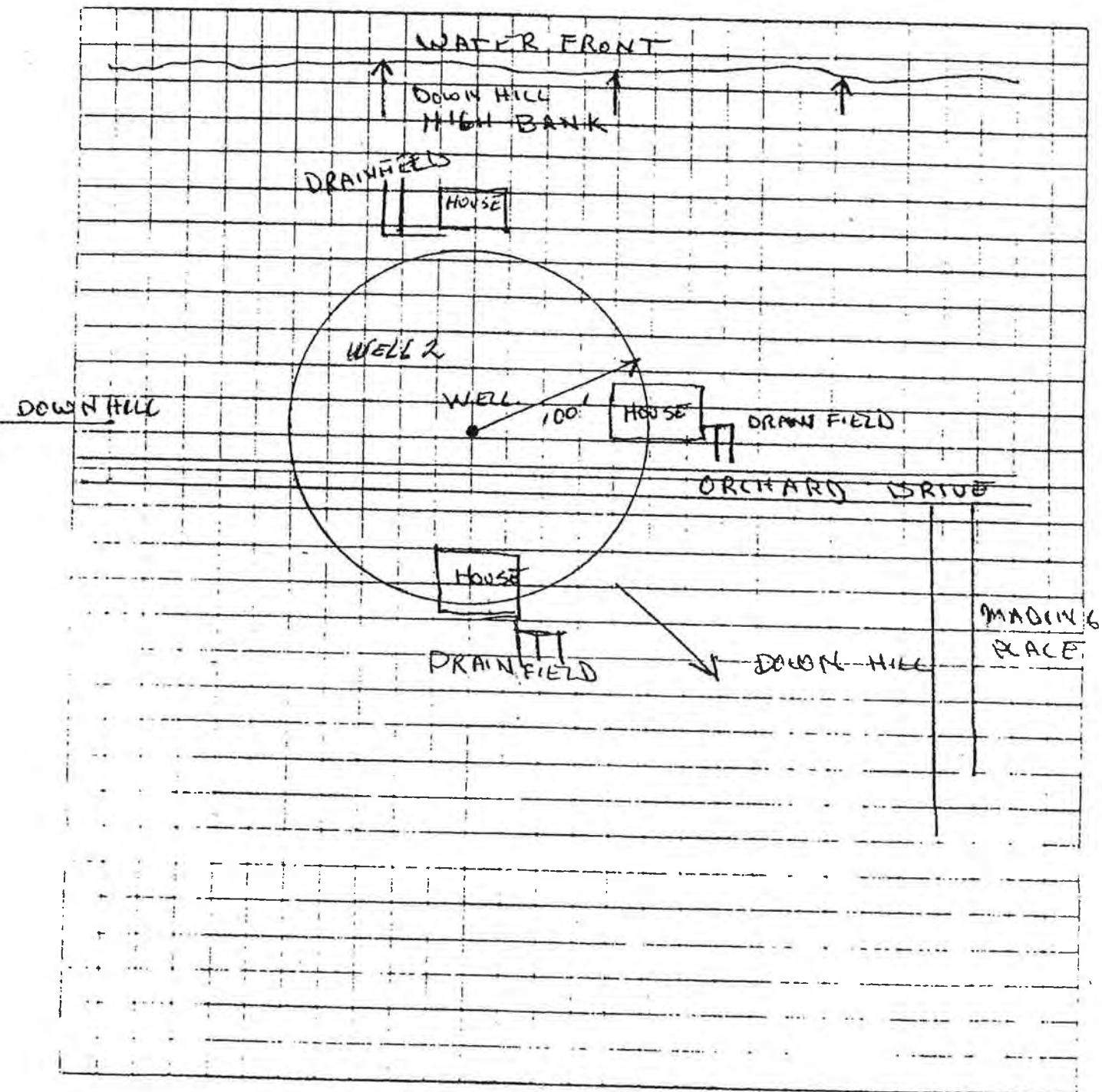
(Signed) Dave Knapp License No. 1706  
(WELL DRILLER)

Contractor's Registration No. DAV1SD#169N0 Date Feb. \_\_\_\_\_ 19\_\_\_\_

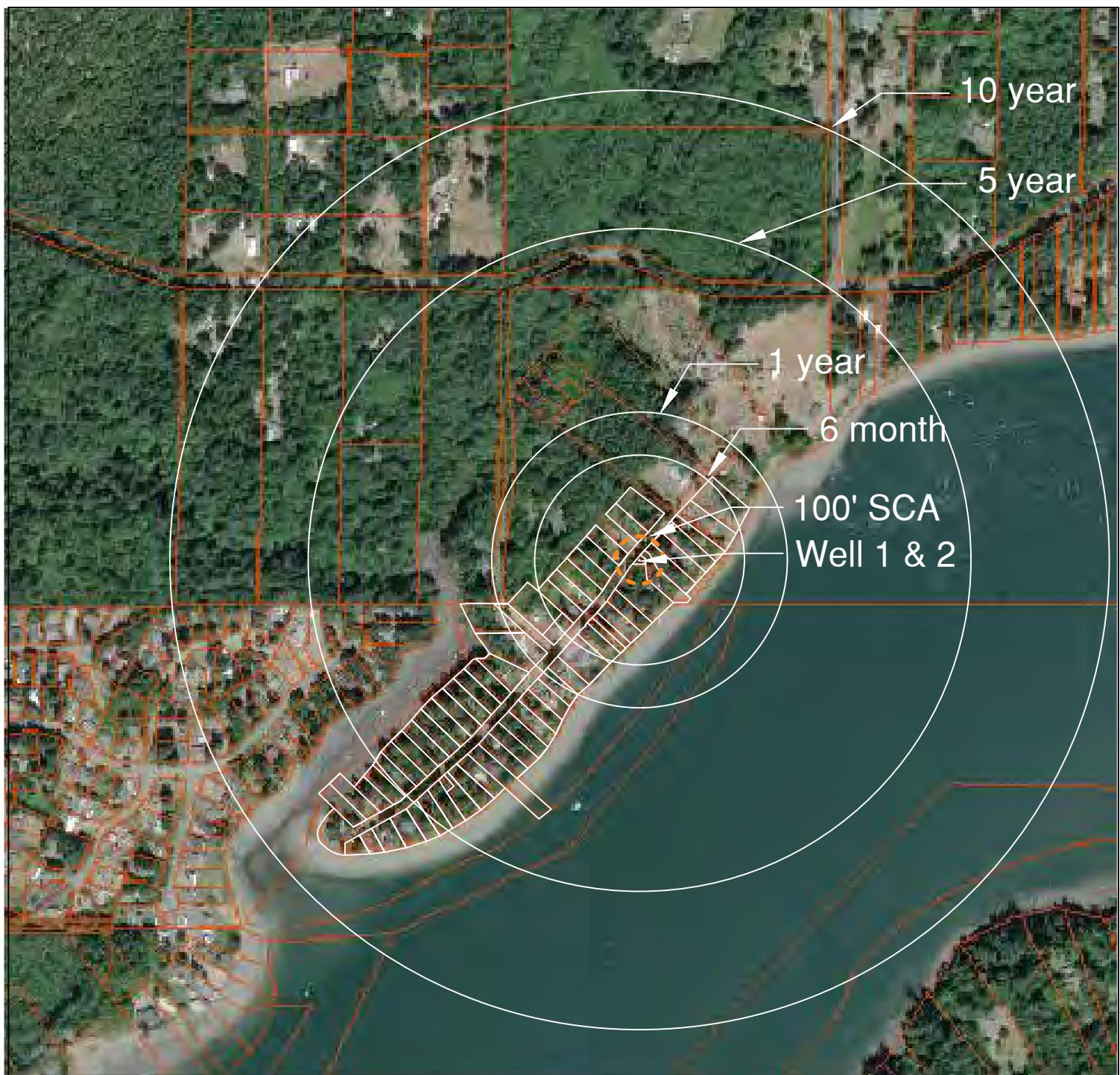
NEW SYSTEMS

3 SOURCE LOCATION AND PROTECTION SKETCH

Show: Well site, radius of protection control and distances to property lines, roads and potential sources of contamination. Show direction of ground slope and spring collection, if applicable.



Not to Scale



SITE INFORMATION PROVIDED BY:  
THE CLIENT AND BY MASON  
COUNTY GIS

Note:  
SO1 & SO2 are  
approximate  
locations

DRAWN BY: CHECKED BY:	SYSTEM Orchard Beach	OWNER Orchard Beach Community	
	FILE NO. 170505	FILE NAME GW Radii	
REVISION		SHEET NO.	
DESCRIPTION	DATE July 16, 2018	SCALE 1" = 600'	
		NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958	

# 10.7 WATER QUALITY REPORTS



# Division of Environmental Health Office of Drinking Water

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date	9/8/2015
Lab Number	225
Lab Name	Centric Lab, a Spectra Lab Co
Sample Number	04644
Source	02
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	IOC_SHORT-INORGANIC SHORT FORM
Sample Location	s02 s/t
Sample Type	Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0021	CHLORIDE	EQ	4.6000	250.0000	mg/L	20.0000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date	4/25/2018
Lab Number	089
Lab Name	Water Management Laboratory Inc
Sample Number	96184
Source	Dist
Analyte Group	MICRO-MICROBIOLOGICAL
Test Panel	COLI_AP-ABSENCE / PRESENCE
Sample Location	360 e orchard bch dr
Sample Type	Post-Treatment / Finished

DOH	Analyte	Result Range	A/P	Units	Maximum Contaminant Level	State Reporting Limit
0001	TOTAL COLIFORM	EQ	A	/100ml		

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Collect Date	2/13/2018
Lab Number	225
Lab Name	Centric Lab, a Spectra Lab Co
Sample Number	97702
Source	01
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	NIT-NITRATE SUITE
Sample Location	ph dst hb
Sample Type	Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0020	NITRATE-N	LT	0.5000	10.0000	mg/L	0.5000

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Collect Date	2/13/2018
Lab Number	225
Lab Name	Centric Lab, a Spectra Lab Co
Sample Number	97701
Source	02
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	NIT-NITRATE SUITE
Sample Location	s02 s/t
Sample Type	Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0020	NITRATE-N	LT	0.5000	10.0000	mg/L	0.5000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 2/3/2010  
 Lab Number 010  
 Lab Name Twiss Analytical Laboratories, Inc  
 Sample Number 84001  
 Source 01  
 Analyte Group IOC-INORGANIC CONTAMINANTS  
 Test Panel IOC-COMPLETE INORGANIC ANALYSIS  
 Sample Location ph hb

<b>Analyte</b>		<b>Maximum Contaminant Level</b>					
<b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Units</b>	<b>State Reporting Limit</b>	
	0008	IRON	EQ	0.5900	0.3000	mg/L	0.1000
	0010	MANGANESE	EQ	0.1060	0.0500	mg/L	0.0100
	0009	LEAD	EQ	0.0010		mg/L	0.0010
	0015	HARDNESS	EQ	45.0000		mg/L	10.0000
	0016	CONDUCTIVITY	EQ	118.0000	700.0000	Umhos/cm	70.0000
	0017	TURBIDITY	EQ	1.9000		NTU	0.1000
	0004	ARSENIC	LT	0.0030	0.0104	mg/L	0.0030
	0005	BARIUM	LT	0.4000	2.0000	mg/L	0.4000
	0006	CADMIUM	LT	0.0020	0.0050	mg/L	0.0020
	0007	CHROMIUM	LT	0.0200	0.1000	mg/L	0.0200
	0011	MERCURY	LT	0.0004	0.0020	mg/L	0.0004
	0012	SELENIUM	LT	0.0100	0.0500	mg/L	0.0100
	0013	SILVER	LT	0.1000	0.1000	mg/L	0.1000
	0014	SODIUM	LT	5.0000		mg/L	5.0000
	0018	COLOR	LT	15.0000	15.0000	CU	15.0000
	0019	FLUORIDE	LT	0.5000	4.0000	mg/L	0.5000
	0020	NITRATE-N	LT	0.5000	10.0000	mg/L	0.2000
	0021	CHLORIDE	LT	20.0000	250.0000	mg/L	20.0000
	0022	Sulfate	LT	50.0000	250.0000	mg/L	50.0000
	0023	COPPER	LT	0.0200		mg/L	0.0200
	0024	ZINC	LT	0.2000	5.0000	mg/L	0.2000
	0110	BERYLLIUM	LT	0.0008	0.0040	mg/L	0.0008
	0111	NICKEL	LT	0.1000	0.1000	mg/L	0.1000
	0112	ANTIMONY	LT	0.0060	0.0060	mg/L	0.0060
	0113	THALLIUM	LT	0.0020	0.0020	mg/L	0.0020

◀ ◀ ▶ ▶  
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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 2/3/2010  
 Lab Number 010  
 Lab Name Twiss Analytical Laboratories, Inc  
 Sample Number 84001  
 Source 01  
 Analyte Group IOC-INORGANIC CONTAMINANTS  
 Test Panel IOC-COMPLETE INORGANIC ANALYSIS  
 Sample Location ph hb

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0114	NITRITE-N	LT	0.2000	1.0000	mg/L	0.2000
0116	CYANIDE	LT	0.1000	0.2000	mg/L	0.0100
0161	TOTAL NITRATE/NITRITE	LT	0.5000		mg/L	0.5000

◀◀▶▶  
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Collect Date 2/3/2010  
 Lab Number 010  
 Lab Name Twiss Analytical Laboratories, Inc  
 Sample Number 84002  
 Source 02  
 Analyte Group IOC-INORGANIC CONTAMINANTS  
 Test Panel IOC-COMPLETE INORGANIC ANALYSIS  
 Sample Location ph hb

<b>Analyte</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
<b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>				
	0008	IRON	EQ	0.5740	0.3000 mg/L	0.1000
	0010	MANGANESE	EQ	0.1080	0.0500 mg/L	0.0100
	0004	ARSENIC	EQ	0.0060	0.0104 mg/L	0.0030
	0015	HARDNESS	EQ	43.3000	mg/L	10.0000
	0016	CONDUCTIVITY	EQ	114.0000	700.0000 Umhos/cm	70.0000
	0017	TURBIDITY	EQ	2.6000	NTU	0.1000
	0005	BARIUM	LT	0.4000	2.0000 mg/L	0.4000
	0006	CADMIUM	LT	0.0020	0.0050 mg/L	0.0020
	0007	CHROMIUM	LT	0.0200	0.1000 mg/L	0.0200
	0009	LEAD	LT	0.0010	mg/L	0.0010
	0011	MERCURY	LT	0.0004	0.0020 mg/L	0.0004
	0012	SELENIUM	LT	0.0100	0.0500 mg/L	0.0100
	0013	SILVER	LT	0.1000	0.1000 mg/L	0.1000
	0014	SODIUM	LT	5.0000	mg/L	5.0000
	0018	COLOR	LT	15.0000	15.0000 CU	15.0000
	0019	FLUORIDE	LT	0.5000	4.0000 mg/L	0.5000
	0020	NITRATE-N	LT	0.5000	10.0000 mg/L	0.2000
	0021	CHLORIDE	LT	20.0000	250.0000 mg/L	20.0000
	0022	Sulfate	LT	50.0000	250.0000 mg/L	50.0000
	0023	COPPER	LT	0.0200	mg/L	0.0200
	0024	ZINC	LT	0.2000	5.0000 mg/L	0.2000
	0110	BERYLLIUM	LT	0.0008	0.0040 mg/L	0.0008
	0111	NICKEL	LT	0.1000	0.1000 mg/L	0.1000
	0112	ANTIMONY	LT	0.0060	0.0060 mg/L	0.0060
	0113	THALLIUM	LT	0.0020	0.0020 mg/L	0.0020

◀ ▶ ⟲ ⟳  
Records 1 - 25 of 28



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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 2/3/2010  
 Lab Number 010  
 Lab Name Twiss Analytical Laboratories, Inc  
 Sample Number 84002  
 Source 02  
 Analyte Group IOC-INORGANIC CONTAMINANTS  
 Test Panel IOC-COMPLETE INORGANIC ANALYSIS  
 Sample Location ph hb

Analyte		Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
DOH	Num	Analyte Name				
	0114	NITRITE-N	LT	0.2000	mg/L	0.2000
	0116	CYANIDE	LT	0.1000	mg/L	0.0100
	0161	TOTAL NITRATE/NITRITE	LT	0.5000	mg/L	0.5000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date	7/22/2010
Lab Number	010
Lab Name	Spectra Laboratories - Kitsap, LLC
Sample Number	47203
Source	Dist
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	LCR-LEAD COPPER
Sample Location	e xxxxxxxx41
Sample Type	Unknown

Analyte DOH Num		Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0009	LEAD		LT	0.0010		mg/L	0.0010
0023	COPPER		LT	0.0200		mg/L	0.0200

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 5/19/2010  
 Lab Number 010  
 Lab Name Swiss Analytical Laboratories, Inc  
 Sample Number 49701  
 Source 01  
 Analyte Group VOC-VOLATILE ORGANIC CONTAMINANTS  
 Test Panel VOC1-VOLATILE ORGANIC  
 Sample Location wh source hb

<b>Analyte DOH</b>				<b>Maximum Contaminant Level</b>		<b>State Reporting Limit</b>
<b>Num</b>	<b>Analyte Name</b>	<b>Result Range</b>	<b>Result Quantity</b>		<b>Units</b>	
0027	CHLOROFORM	LT	0.5000		ug/L	0.5000
0028	BROMODICHLOROMETHANE	LT	0.5000		ug/L	0.5000
0029	DIBROMOCHLOROMETHANE	LT	0.5000		ug/L	0.5000
0030	BROMOFORM	LT	0.5000		ug/L	0.5000
0045	VINYL CHLORIDE	LT	0.5000	2.0000	ug/L	0.5000
0046	1,1 DICHLOROETHYLENE	LT	0.5000	7.0000	ug/L	0.5000
0047	1,1,1 TRICHLOROETHANE	LT	0.5000	200.0000	ug/L	0.5000
0048	CARBON TETRACHLORIDE	LT	0.5000	5.0000	ug/L	0.5000
0049	BENZENE	LT	0.5000	5.0000	ug/L	0.5000
0050	1,2 DICHLOROETHANE	LT	0.5000	5.0000	ug/L	0.5000
0051	TRICHLOROETHYLENE	LT	0.5000	5.0000	ug/L	0.5000
0052	1,4 DICHLOROBENZENE	LT	0.5000	75.0000	ug/L	0.5000
0053	CHLOROMETHANE	LT	0.5000		ug/L	0.5000
0054	BROMOMETHANE	LT	0.5000		ug/L	0.5000
0055	CHLOROETHANE	LT	0.5000		ug/L	0.5000
0056	METHYLENE CHLORIDE (DICHLOROMETHANE)	LT	0.5000	5.0000	ug/L	0.5000
0057	TRANS- 1,2 DICHLOROETHYLENE	LT	0.5000	100.0000	ug/L	0.5000
0058	1,1 DICHLOROETHANE	LT	0.5000		ug/L	0.5000
0059	2,2 DICHLOROPROPANE	LT	0.5000		ug/L	0.5000
0060	CIS- 1,2 DICHLOROETHYLENE	LT	0.5000	70.0000	ug/L	0.5000
0062	1,1 DICHLOROPROPENE	LT	0.5000		ug/L	0.5000
0063	1,2 DICHLOROPROPANE	LT	0.5000	5.0000	ug/L	0.5000
0064	DIBROMOMETHANE	LT	0.5000		ug/L	0.5000
0065	CIS- 1,3 DICHLOROPROPENE	LT	0.5000		ug/L	0.5000
0066	TOLUENE	LT	0.5000	1000.0000	ug/L	0.5000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 5/19/2010  
 Lab Number 010  
 Lab Name Twiss Analytical Laboratories, Inc  
 Sample Number 49701  
 Source 01  
 Analyte Group VOC-VOLATILE ORGANIC CONTAMINANTS  
 Test Panel VOC1-VOLATILE ORGANIC  
 Sample Location wh source hb

<b>Analyte</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
<b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>				
	0067	1,1,2 TRICHLOROETHANE	LT	0.5000	5.0000 ug/L	0.5000
	0068	TETRACHLOROETHYLENE	LT	0.5000	5.0000 ug/L	0.5000
	0069	TRANS- 1,3 DICHLOROPROPENE	LT	0.5000	ug/L	0.5000
	0070	1,3 DICHLOROPROPANE	LT	0.5000	ug/L	0.5000
	0071	CHLOROBENZENE	LT	0.5000	100.0000 ug/L	0.5000
	0072	1,1,1,2 TETRACHLOROETHANE	LT	0.5000	ug/L	0.5000
	0073	ETHYLBENZENE	LT	0.5000	700.0000 ug/L	0.5000
	0074	M/P XYLEMES (MCL FOR TOTAL)	LT	0.5000	ug/L	0.5000
	0075	O-XYLENE (MCL FOR TOTAL)	LT	0.5000	ug/L	0.5000
	0076	STYRENE	LT	0.5000	100.0000 ug/L	0.5000
	0078	BROMOBENZENE	LT	0.5000	ug/L	0.5000
	0079	1,2,3 TRICHLOROPROPANE	LT	0.5000	ug/L	0.5000
	0080	1,1,2,2 TETRACHLOROETHANE	LT	0.5000	ug/L	0.5000
	0081	O-CHLOROTOLUENE	LT	0.5000	ug/L	0.5000
	0082	P- CHLOROTOLUENE	LT	0.5000	ug/L	0.5000
	0083	M- DICHLOROBENZENE	LT	0.5000	ug/L	0.5000
	0084	1,2 DICHLOROBENZENE	LT	0.5000	600.0000 ug/L	0.5000
	0085	TRICHLOROFLUOROMETHANE	LT	0.5000	ug/L	0.5000
	0086	BROMOCHLOROMETHANE	LT	0.5000	ug/L	0.5000
	0087	ISOPROPYLBENZENE	LT	0.5000	ug/L	0.5000
	0088	N-PROPYLBENZENE	LT	0.5000	ug/L	0.5000
	0089	1,3,5 TRIMETHYLBENZENE	LT	0.5000	ug/L	0.5000
	0090	TERT- BUTYLBENZENE	LT	0.5000	ug/L	0.5000
	0091	1,2,4 TRIMETHYLBENZENE	LT	0.5000	ug/L	0.5000
	0092	SEC- BUTYLBENZENE	LT	0.5000	ug/L	0.5000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 5/19/2010  
 Lab Number 010  
 Lab Name Swiss Analytical Laboratories, Inc  
 Sample Number 49701  
 Source 01  
 Analyte Group VOC-VOLATILE ORGANIC CONTAMINANTS  
 Test Panel VOC1-VOLATILE ORGANIC  
 Sample Location wh source hb

<b>Analyte</b>	<b>DOH Num</b>	<b>Analyte Name</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
	0103	DBCP	LT	0.5000	0.2000	ug/L	0.5000
	0093	P-ISOPROPYLTOLUENE	LT	0.5000		ug/L	0.5000
	0094	N-BUTYLBENZENE	LT	0.5000		ug/L	0.5000
	0095	1,2,4 TRICHLOROBENZENE	LT	0.5000	70.0000	ug/L	0.5000
	0096	NAPHTHALENE	LT	0.5000		ug/L	0.5000
	0097	HEXACHLOROBUTADIENE	LT	0.5000		ug/L	0.5000
	0098	1,2,3 TRICHLOROBENZENE	LT	0.5000		ug/L	0.5000
	0104	DICHLORODIFLUOROMETHANE	LT	0.5000		ug/L	0.5000
	0160	TOTAL XYLEMES	LT	0.5000	10000.0000	ug/L	0.5000
	0031	TOTAL TRIHALOMETHANE	ND		80.0000	ug/L	

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 7/30/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 22515  
 Source 01  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel HERB1-CHLOROPHOXY HERBICIDES  
 Sample Location sample hb

<b>Analyte</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>	
<b>DOH</b>	<b>Num</b>						
	0037	2,4 - D	LT	0.5000	70.0000	ug/L	0.5000
	0038	2,4,5 TP (SILVEX)	LT	1.0000	50.0000	ug/L	1.0000
	0134	PENTACHLOROPHENOL	LT	0.2000	1.0000	ug/L	0.2000
	0135	2,4 DB	LT	1.0000	ug/L	1.0000	
	0136	2,4,5 T	LT	0.4000	ug/L	0.4000	
	0137	DALAPON	LT	5.0000	200.0000	ug/L	5.0000
	0138	DICAMBA	LT	0.2000	ug/L	0.2000	
	0139	DINOSEB	LT	1.0000	7.0000	ug/L	1.0000
	0140	PICLORAM	LT	0.5000	500.0000	ug/L	0.5000
	0220	BENTAZON	LT	0.5000	ug/L	0.5000	
	0221	DICHLOPRROP	LT	0.5000	ug/L	0.5000	
	0222	TOTAL DCPA	LT	1.0000	ug/L	1.0000	
	0223	ACIFLUORFEN	LT	2.0000	ug/L	2.0000	
	0224	CHLORAMBEN	LT	0.2000	ug/L	0.2000	
	0225	DCPA ACID METABOLITES	LT	0.1000	ug/L	0.1000	
	0226	3,5 DICHLORBENZOIC ACID	LT	0.5000	ug/L	0.5000	

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 7/30/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 22515  
 Source 01  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel INSECT1-CARBAMATE INSECTICIDES  
 Sample Location sample hb

<b>Analyte</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
<b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>				
	0141	3-HYDROXYCARBOFURAN	LT	2.0000	ug/L	2.0000
	0142	ALDICARB	LT	1.0000	ug/L	1.0000
	0143	ALDICARB SULFONE	LT	0.7000	ug/L	0.7000
	0144	ALDICARB SULFOXIDE	LT	1.8000	ug/L	1.8000
	0145	CARBARYL	LT	2.0000	ug/L	2.0000
	0146	CARBOFURAN	LT	2.0000	40.0000 ug/L	2.0000
	0147	METHOMYL	LT	4.0000	ug/L	4.0000
	0148	OXAMYL	LT	10.0000	200.0000 ug/L	10.0000
	0326	BAYGON	LT	1.0000	ug/L	1.0000
	0327	METHiocarb	LT	4.0000	ug/L	4.0000

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Collect Date 7/30/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 22515  
 Source 01  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel PEST1-GENERAL PESTICIDE SUITE  
 Sample Location sample hb

<b>Analyte DOH</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
<b>Num</b>	<b>Analyte Name</b>					
0033	ENDRIN	LT	0.0500	2.0000	ug/L	0.0500
0034	LINDANE (BHC - GAMMA)	LT	0.0400	0.2000	ug/L	0.0400
0035	METHOXYCHLOR	LT	10.0000	40.0000	ug/L	10.0000
0036	TOXAPHENE	LT	2.0000	3.0000	ug/L	2.0000
0117	ALACHLOR	LT	0.4000	2.0000	ug/L	0.4000
0118	ALDRIN	LT	0.1000		ug/L	0.1000
0119	ATRAZINE	LT	0.5000	3.0000	ug/L	0.5000
0120	BENZO (A) PYRENE	LT	0.0400	0.2000	ug/L	0.0400
0121	BUTACHLOR	LT	0.4000		ug/L	0.4000
0122	CHLORDANE (TOTAL)	LT	0.4000	2.0000	ug/L	0.4000
0123	DIELDRIN	LT	0.1000		ug/L	0.1000
0124	DI (ETHYLHEXYL) ADIPATE	LT	1.3000	400.0000	ug/L	1.3000
0125	DI (ETHYLHEXYL) PHTHALATE	LT	1.3000	6.0000	ug/L	1.3000
0126	HEPTACHLOR	LT	0.0900	0.4000	ug/L	0.0900
0127	HEPTACHLOR EPOXIDE	LT	0.1000	0.2000	ug/L	0.1000
0128	HEXACHLOROBENZENE	LT	0.5000	1.0000	ug/L	0.5000
0129	HEXACHLOROCYCLOPENTADIENE	LT	0.5000	50.0000	ug/L	0.5000
0130	METOLACHLOR	LT	1.0000		ug/L	1.0000
0131	METRIBUZIN	LT	0.2000		ug/L	0.2000
0132	PROPACHLOR	LT	0.1000		ug/L	0.1000
0133	SIMAZINE	LT	0.1500	4.0000	ug/L	0.1500
0134	PENTACHLOROPHENOL	LT	0.2000	1.0000	ug/L	0.2000
0153	PCB (AS TOTAL AROCHLORS)	LT	0.5000	0.5000	ug/L	0.5000
0173	AROCHLOR 1221	LT	100.0000		ug/L	100.0000
0174	AROCHLOR 1232	LT	2.5000		ug/L	2.5000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 7/30/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 22515  
 Source 01  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel PEST1-GENERAL PESTICIDE SUITE  
 Sample Location sample hb

<b>Analyte</b>		<b>Maximum Contaminant Level</b>				
<b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Units</b>	<b>State Reporting Limit</b>
	0175	AROCHLOR 1242	LT	1.5000	ug/L	1.5000
	0176	AROCHLOR 1248	LT	0.5000	ug/L	0.5000
	0177	AROCHLOR 1254	LT	0.5000	ug/L	0.5000
	0178	AROCHLOR 1260	LT	1.0000	ug/L	1.0000
	0179	BROMACIL	LT	0.2000	ug/L	0.2000
	0180	AROCHLOR 1016	LT	0.4000	ug/L	0.4000
	0190	TERBACIL	LT	0.2000	ug/L	0.2000
	0202	DIAZINON	LT	0.2000	ug/L	0.2000
	0208	EPTC	LT	0.3000	ug/L	0.3000
	0232	4,4 DDD	LT	0.1000	ug/L	0.1000
	0233	4,4 DDE	LT	0.1000	ug/L	0.1000
	0234	4,4 DDT	LT	0.1000	ug/L	0.1000
	0236	CYANAZINE	LT	0.2000	ug/L	0.2000
	0239	MALATHION	LT	0.2000	ug/L	0.2000
	0240	PARATHION	LT	0.2000	ug/L	0.2000
	0243	TRIFLURALIN	LT	0.2000	ug/L	0.2000
	0244	ACENAPHTHYLENE	LT	0.2000	ug/L	0.2000
	0245	ACENAPHTHENE	LT	0.2000	ug/L	0.2000
	0246	ANTHRACENE	LT	0.2000	ug/L	0.2000
	0247	BENZO (A) ANTHRACENE	LT	0.2000	ug/L	0.2000
	0248	BENZO (B) FLUOROANTHENE	LT	0.2000	ug/L	0.2000
	0249	BENZO (G,H,I) PERYLENE	LT	0.2000	ug/L	0.2000
	0250	BENZO (K) FLUORANTHENE	LT	0.2000	ug/L	0.2000
	0251	CHRYSENE	LT	0.2000	ug/L	0.2000
	0252	DIBENZO (A,H) ANTHRACENE	LT	0.2000	ug/L	0.2000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 7/30/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 22515  
 Source 01  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel PEST1-GENERAL PESTICIDE SUITE  
 Sample Location sample hb

<b>Analyte</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
<b>DOH</b>	<b>Num</b>					
	0253	FLUORANTHENE	LT	0.2000	ug/L	0.2000
	0254	FLUORENE	LT	0.2000	ug/L	0.2000
	0255	INDENO(1,2,3-CD)PYRENE	LT	0.2000	ug/L	0.2000
	0256	PHENANTHRENE	LT	0.2000	ug/L	0.2000
	0257	PYRENE	LT	0.2000	ug/L	0.2000
	0258	BENZYL BUTYL PHTHALATE	LT	0.6000	ug/L	0.6000
	0259	DI-N-BUTYL PHTHALATE	LT	0.6000	ug/L	0.6000
	0260	DIETHYL PHTHALATE	LT	0.6000	ug/L	0.6000
	0261	DIMETHYL PHTHALATE	LT	0.6000	ug/L	0.6000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 7/22/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 21598  
 Source 02  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel HERB1-CHLOROPHOXY HERBICIDES  
 Sample Location source hb

<b>Analyte</b>	<b>DOH</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
Num	Analyte Name					
0037	2,4 - D	LT	0.5000	70.0000	ug/L	0.5000
0038	2,4,5 TP (SILVEX)	LT	1.0000	50.0000	ug/L	1.0000
0134	PENTACHLOROPHENOL	LT	0.2000	1.0000	ug/L	0.2000
0135	2,4 DB	LT	1.0000		ug/L	1.0000
0136	2,4,5 T	LT	0.4000		ug/L	0.4000
0137	DALAPON	LT	5.0000	200.0000	ug/L	5.0000
0138	DICAMBA	LT	0.2000		ug/L	0.2000
0139	DINOSEB	LT	1.0000	7.0000	ug/L	1.0000
0140	PICLORAM	LT	0.5000	500.0000	ug/L	0.5000
0220	BENTAZON	LT	0.5000		ug/L	0.5000
0221	DICHLOPROP	LT	0.5000		ug/L	0.5000
0222	TOTAL DCPA	LT	1.0000		ug/L	1.0000
0223	ACIFLUORFEN	LT	2.0000		ug/L	2.0000
0224	CHLORAMBEN	LT	0.2000		ug/L	0.2000
0225	DCPA ACID METABOLITES	LT	0.1000		ug/L	0.1000
0226	3,5 DICHLORBENZOIC ACID	LT	0.5000		ug/L	0.5000

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Collect Date 7/22/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 21598  
 Source 02  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel INSECT1-CARBAMATE INSECTICIDES  
 Sample Location source hb

<b>Analyte</b>		<b>Maximum Contaminant Level</b>				
<b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Units</b>	<b>State Reporting Limit</b>
	0141	3- HYDROXYCARBOFURAN	LT	2.0000	ug/L	2.0000
	0142	ALDICARB	LT	1.0000	ug/L	1.0000
	0143	ALDICARB SULFONE	LT	0.7000	ug/L	0.7000
	0144	ALDICARB SULFOXIDE	LT	1.8000	ug/L	1.8000
	0145	CARBARYL	LT	2.0000	ug/L	2.0000
	0146	CARBOFURAN	LT	2.0000	40.0000 ug/L	2.0000
	0147	METHOMYL	LT	4.0000	ug/L	4.0000
	0148	OXAMYL	LT	10.0000	200.0000 ug/L	10.0000
	0326	BAYGON	LT	1.0000	ug/L	1.0000
	0327	METHiocarb	LT	4.0000	ug/L	4.0000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 7/22/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 21598  
 Source 02  
 Analyte Group SOC-SYNTETIC ORGANIC CONTAMINANTS  
 Test Panel PEST1-GENERAL PESTICIDE SUITE  
 Sample Location source hb

<b>Analyte DOH</b>		<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>		<b>State Reporting Limit</b>
<b>Num</b>	<b>Analyte Name</b>			<b>Units</b>		
0033	ENDRIN	LT	0.0500	2.0000	ug/L	0.0500
0034	LINDANE (BHC - GAMMA)	LT	0.0400	0.2000	ug/L	0.0400
0035	METHOXYCHLOR	LT	10.0000	40.0000	ug/L	10.0000
0036	TOXAPHENE	LT	2.0000	3.0000	ug/L	2.0000
0117	ALACHLOR	LT	0.4000	2.0000	ug/L	0.4000
0118	ALDRIN	LT	0.1000		ug/L	0.1000
0119	ATRAZINE	LT	0.5000	3.0000	ug/L	0.5000
0120	BENZO (A) PYRENE	LT	0.0400	0.2000	ug/L	0.0400
0121	BUTACHLOR	LT	0.4000		ug/L	0.4000
0122	CHLORDANE (TOTAL)	LT	0.4000	2.0000	ug/L	0.4000
0123	DIELDRIN	LT	0.1000		ug/L	0.1000
0124	DI (ETHYLHEXYL) ADIPATE	LT	1.3000	400.0000	ug/L	1.3000
0125	DI (ETHYLHEXYL) PHTHALATE	LT	1.3000	6.0000	ug/L	1.3000
0126	HEPTACHLOR	LT	0.0900	0.4000	ug/L	0.0900
0127	HEPTACHLOR EPOXIDE	LT	0.1000	0.2000	ug/L	0.1000
0128	HEXAChLOROBENZENE	LT	0.5000	1.0000	ug/L	0.5000
0129	HEXAChLOROCYCLOPENTADIENE	LT	0.5000	50.0000	ug/L	0.5000
0130	METOLACHLOR	LT	1.0000		ug/L	1.0000
0131	METRIBUZIN	LT	0.2000		ug/L	0.2000
0132	PROPACHLOR	LT	0.1000		ug/L	0.1000
0133	SIMAZINE	LT	0.1500	4.0000	ug/L	0.1500
0134	PENTACHLOROPHENOL	LT	0.2000	1.0000	ug/L	0.2000
0153	PCB (AS TOTAL AROCHLORS)	LT	0.5000	0.5000	ug/L	0.5000
0173	AROCHLOR 1221	LT	100.0000		ug/L	100.0000
0174	AROCHLOR 1232	LT	2.5000		ug/L	2.5000

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Collect Date 7/22/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 21598  
 Source 02  
 Analyte Group SOC-SYNTETIC ORGANIC CONTAMINANTS  
 Test Panel PEST1-GENERAL PESTICIDE SUITE  
 Sample Location source hb

Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0175	AROCHLOR 1242	LT	1.5000		ug/L	1.5000
0176	AROCHLOR 1248	LT	0.5000		ug/L	0.5000
0177	AROCHLOR 1254	LT	0.5000		ug/L	0.5000
0178	AROCHLOR 1260	LT	1.0000		ug/L	1.0000
0179	BROMACIL	LT	0.2000		ug/L	0.2000
0180	AROCHLOR 1016	LT	0.4000		ug/L	0.4000
0190	TERBACIL	LT	0.2000		ug/L	0.2000
0202	DIAZINON	LT	0.2000		ug/L	0.2000
0208	EPTC	LT	0.3000		ug/L	0.3000
0232	4,4 DDD	LT	0.1000		ug/L	0.1000
0233	4,4 DDE	LT	0.1000		ug/L	0.1000
0234	4,4 DDT	LT	0.1000		ug/L	0.1000
0236	CYANAZINE	LT	0.2000		ug/L	0.2000
0239	MALATHION	LT	0.2000		ug/L	0.2000
0240	PARATHION	LT	0.2000		ug/L	0.2000
0243	TRIFLURALIN	LT	0.2000		ug/L	0.2000
0244	ACENAPHTHYLENE	LT	0.2000		ug/L	0.2000
0245	ACENAPHTHENE	LT	0.2000		ug/L	0.2000
0246	ANTHRACENE	LT	0.2000		ug/L	0.2000
0247	BENZO (A) ANTHRACENE	LT	0.2000		ug/L	0.2000
0248	BENZO (B) FLUOROANTHENE	LT	0.2000		ug/L	0.2000
0249	BENZO (G,H,I) PERYLENE	LT	0.2000		ug/L	0.2000
0250	BENZO (K) FLUORANTHENE	LT	0.2000		ug/L	0.2000
0251	CHRYSENE	LT	0.2000		ug/L	0.2000
0252	DIBENZO (A,H) ANTHRACENE	LT	0.2000		ug/L	0.2000

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Collect Date 7/22/2008  
 Lab Number 046  
 Lab Name Edge Analytical - Burlington  
 Sample Number 21598  
 Source 02  
 Analyte Group SOC-SYNTHETIC ORGANIC CONTAMINANTS  
 Test Panel PEST1-GENERAL PESTICIDE SUITE  
 Sample Location source hb

Analyte			Maximum Contaminant Level	Units	State Reporting Limit
DOH Num	Analyte Name	Result Range	Result Quantity		
0253	FLUORANTHENE	LT	0.2000	ug/L	0.2000
0254	FLUORENE	LT	0.2000	ug/L	0.2000
0255	INDENO(1,2,3-CD)PYRENE	LT	0.2000	ug/L	0.2000
0256	PHENANTHRENE	LT	0.2000	ug/L	0.2000
0257	PYRENE	LT	0.2000	ug/L	0.2000
0258	BENZYL BUTYL PHTHALATE	LT	0.6000	ug/L	0.6000
0259	DI-N-BUTYL PHTHALATE	LT	0.6000	ug/L	0.6000
0260	DIETHYL PHTHALATE	LT	0.6000	ug/L	0.6000
0261	DIMETHYL PHTHALATE	LT	0.6000	ug/L	0.6000

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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 4/21/2010  
 Lab Number 166  
 Lab Name Benchmark Analytics  
 Sample Number 18401  
 Source 01  
 Analyte Group RAD-RADIONUCLIDES  
 Test Panel RAD-RADIONUCLIDES  
 Sample Location ph source hb

Analyte		Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
DOH Num	Analyte Name					
0166	RADIUM 228	EQ	1.0100	5.0000	pCi/L	1.0000
0039	RADIUM 226	LT	1.0000	3.0000	pCi/L	1.0000

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Collect Date 3/17/2010  
 Lab Number 166  
 Lab Name Benchmark Analytics,A Microbac Lab  
 Sample Number 97401  
 Source 01  
 Analyte Group RAD-RADIONUCLIDES  
 Test Panel RAD-RADIONUCLIDES  
 Sample Location ph hb  
 Sample Type Pre-Treatment / Raw

<b>Analyte</b> <b>DOH</b>	<b>Num</b>	<b>Analyte Name</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
	0166	RADIUM 228	EQ	27.2300	5.0000	pCi/L	1.0000
	0165	GROSS ALPHA	EQ	5.3600		pCi/L	3.0000

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For technical issues with this website send email to DOH IT Service Desk or call 360-236-4357.



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**View Sample Detail - WSID 64031Q - ORCHARD BEACH COMMUNITY**

Collect Date 3/17/2010  
 Lab Number 166  
 Lab Name Benchmark Analytics  
 Sample Number 97402  
 Source 02  
 Analyte Group RAD-RADIONUCLIDES  
 Test Panel RAD-RADIONUCLIDES  
 Sample Location ph hb

<b>Analyte</b>		<b>DOH</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
0166	RADIUM 228		EQ	10.9200	5.0000	pCi/L	1.0000
0165	GROSS ALPHA		EQ	2.9500		pCi/L	3.0000

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Collect Date 4/21/2010  
 Lab Number 166  
 Lab Name Benchmark Analytics  
 Sample Number 18402  
 Source 02  
 Analyte Group RAD-RADIONUCLIDES  
 Test Panel RAD-RADIONUCLIDES  
 Sample Location ph source hb

<b>Analyte</b>		<b>DOH</b>	<b>Result Range</b>	<b>Result Quantity</b>	<b>Maximum Contaminant Level</b>	<b>Units</b>	<b>State Reporting Limit</b>
0039	RADIUM 226		EQ	0.0500	3.0000	pCi/L	1.0000
0166	RADIUM 228		EQ	0.8900	5.0000	pCi/L	1.0000

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## 10.8 O&M PROCEDURES

## 10.9 Operation and Maintenance Procedures

### Maintenance Schedule

Function	Frequency
Water Quality Sampling	Quarterly, as required by WQMS
Cross-Connection Inspection	Annual, as needed
System Flushing	Semi-Annual
Inspection Equipment	Monthly
Exercise All Valves	Annual
Check Tank Pre-Charge	Annually, drain and recharge
Static Water Levels	Quarterly
Record Source Meters	Monthly
Sweep/Clean Pumphouse	Monthly

#### General System Maintenance:

Look for leaks in pumphouse or any other problems. (i.e. rodents, insects, holes in walls or ceilings, or anything out of ordinary) Note on work orders. Use weed eater to clear vegetation in summer months.

Pre-Charge Tanks. If they sound defective, cycle the pump to determine “on” and “off” pressures. Verify pressure with your own gauge. If they have a separate hose bib, attach a hose and close the shut-off valve to the tank so water cannot enter. Open the hose bib and drain the water out of the tank. Check the tank charge and recharge it if necessary with an air compressor. Set pressure 2-4 psi below pump cut-in pressure. If no hose bib available to drain the tank, make a note. To check tanks with no hose bibs there are two options.

Turn off the pump feeding the tanks. Open up the sample tap in pump house (this will drain all tanks). Check the tank charge and recharge if necessary with an air compressor. Set pressure 2-4 psi below pump cut-in. Put reservoir back online and turn well back on. This method does require the system to be shut down.

The other method is to close the shut off valve to the tank so no water can enter. Then break the union to the tank (water will go everywhere). Once tank is empty check charge and recharge if necessary with an air compressor. Set pressure to 2-4 psi below pump cut-in. Retighten union and open up valve for tank to refill. If using this method ensure there is a floor drain in pump house so water can exit.

Static Water Levels. Remove the vent pipe or sounding tube cap and take the static water level by pointing the sonic sounder down the opening. Manually switch well pump(s) on to verify operation.

Reservoir and Booster Pumps. The reservoir shall be visually inspected for leaks and general condition monthly. The reservoir shall be drained and flushed annually or as needed. Check general condition of booster pump monthly; check system pressure and VFD set points (if present).

Generator. All O&M specifications for the generator listed in the owner's manual shall be followed. In addition, the following O&M procedures shall be followed:

- 1) change oil no less than once each year
- 2) manually start and observe generator no less than once each year
- 3) visually inspect generator no less than once a month
- 4) check fuel level/pressure no less than once a month
- 5) thorough inspection of generator and motor every five years
- 6) thorough inspection of generator and motor after every heavy use
- 7) filling of the propane tank annually, and after each significant use

If any of the above specifications are in conflict with the owner's manual, the more conservative specification shall be followed.

In the event of a power outage the following procedures shall be followed:

- 1) check level of reservoir, system pressure, visually inspect pumphouse equipment
- 2) check fuel level for the generator
- 3) if reservoir is >50% full and pressures are good, monitor system and record trends
- 4) if reservoir is <50% full, call in additional expertise (if necessary) and then distribute outdoor watering ban notices door to door, starting with homes that are in process of using water outdoors.
- 5) Monitor system and record trends (water levels, water use, generator fuel levels)
- 6) If the reservoir levels continue to drop, shut off water to all homes using water outdoors
- 7) If necessary, restrict flow in submersible pump, measure amperage use, and start second submersible pump under restricted flow. Slowly open each gate valve on the submersible pumps, while measuring amperage until actual amperage used matches generator rated output.
- 8) Carefully monitor the temperature and operation of the generator. Shut down second submersible pump if it appears as though the generator temperature is increasing.
- 9) If water levels continue to drop, or if the generator appears to show signs of stress, contact a source of portable power generation to be brought in to the system

## 10.9 EMERGENCY PLAN

## **Emergency Response**

---

This section includes the following information:

**Emergency Response Plan** - Provides phone lists for emergency contacts and response actions for specific events.

**Water Shortage Plan** - Provides a framework for establishing voluntary and mandatory water use restrictions if the water system experiences a water shortage due to a natural disaster or other unplanned event.

A quick reference list for emergency contacts is provided below. A longer list with additional contacts is provided in the Emergency Response Plan (7b).

<b>Emergency Contacts</b>	<b>Phone</b>
Fire/Police/Emergency	911
Mason County Environmental Health	360-427-9670
Washington DOH SWRO	360-236-3030
Washington DOH Coliform Manager	360-236-3044
Washington DOH Emergency Hotline (24-hour)	877-481-4901
Electrical utility: Mason Electric PUD 3	360-275-2833
Pump repair: Arcadia Drilling	360-426-3395
Satellite management agency / Engineer / Media contact Northwest Water Systems, Inc. (NWS) (24-hour)	360-876-0958

**Describe what you will do if the following emergencies happen to your system:**

Power outage	<u>Contact Mason County PUD 3</u>
Well pump failure	<u>Contact Arcadia Drilling, notify NWS</u>
Water line break	<u>Isolate, Contact Arcadia Drilling</u>
Electrical problem	<u>Contact Arcadia Drilling</u>
Coliform MCL violations	<u>Post notice, take additional samples</u>

# Emergency Response Plan

## Section 1: Emergency Response Mission and Goals

Statement: Safe and reliable drinking water is vital to every community. Protecting the water supply is a high priority. Preparing for emergencies is a vital step to maintaining these priorities.

Goal #1: Understand and organize a communication network.

Goal #2: Determine the possible emergencies and likelihood of occurrence.

Goal #3: Establish appropriate levels of security.

Goal #4: Evaluate alternative sources of water and the viability of each.

## Section 2: System Information

Person responsible for maintaining and implementing emergency plan

Name: Kevin Odegard	Phone: 360-876-0958
Title: Manager, WDMIII, CCS, BAT	Cell: above number is 24-hr.

## Section 3: Chain of Command – Lines of Authority

Name	Title	Responsibility	Phone Number
Kevin Odegard	Manager, WDMIII	Manage, responder	360-876-0958
James Farrell	President	Quarantine	253-939-2569

## Section 4: Events That Cause Emergencies

Type of Event	Probability	Comments
Contamination	Possible	Determine source and correct
Line Breaks	Possible	Determine location, isolate, and correct
Power Outage	Likely	Connect generator, if available
Water Shortages	Unlikely	Notify users and set limits
Natural Disasters	Unlikely	Dependent on disaster
Terrorism/Vandalism	Unlikely	Abandon source until safe

## Section 5: Severity of Emergencies

Definitions and Descriptions
<b>Level I:</b> Minor failure, failure which requires mechanical repairs or replacement, will not take more than one day and water quality is not affected..
<b>Level II:</b> Major failure, requires costly mechanical repairs or replacement, will not take more than a week and water quality is not affected.
<b>Level III:</b> Catastrophic correctible failure, water source can not be used, but corrections can be made and the water system will be usable in the foreseeable future. Alternative sources may or may not be sought
<b>Level IV:</b> Catastrophic uncorrectable failure, water source will not be able to be used in the foreseeable future if at all. Source is abandoned and alternatives are sought.

## Section 6: Emergency Notification

<b>Local Notification List</b>	Day	Evening
Police/Fire/Ambulance/Imminent Risk	911	911
Local Health Jurisdiction (Mason County)	360-427-9670	
Water Testing Laboratory: Twiss	360-779-5141	360-779-5141
Local Emergency Management	911	911
Water System Operator: NWS	360-876-0958	360 876-0958
Neighboring System		
System Owner Rep: Jim Farrell	253-939-2569	253-939-2569
News Media Contact: NWS	360-876-0958	360-876-0958
Engineer: NWS	360-876-0958	360-876-0958

<b>State Notification List</b>	Day	Evening
State Police	360-478-4646	360-478-4646
Division of Drinking Water Regional Office	360-236-3030	
State Testing Laboratory	360-407-6445	
DOH Regional Engineer	360-236-3030	
DOH Coliform	360-236-3044	
24-hr DOH Emergency Number	877-481-4901	877-481-4901
DOE Spill Response	360-407-6300	
Call Before You Dig	800-424-5555	800-424-5555

<b>Service/Repair Notification List</b>	Day	Evening
Electrician: Arcadia Drilling	360-426-3395	360-426-3395
Electric Utility: Mason County PUD 3	360-275-2833	360-275-2833
Pump Specialist: Arcadia Drilling	360-426-3395	360-426-3395
Other: All American Waterworks	360-790-6894	

<b>Notification Procedures</b>	Who is Responsible	Procedures
Notifying customers	SMA	Door to door, telephone, or fliers to all
Alerting law enforcement, DOH, and local health authority	SMA	Telephone nature of emergency and assistance required.
Contacting service & repair contractors	SMA	Telephone communication of the services required.
Contact neighboring water systems, if necessary	SMA	Telephone communications of the nature of the emergency.
Procedures for issuing a health advisory	SMA, DOH	Door to door, telephone, or fliers to notify all in the area.
Other procedures, as necessary	SMA	Decisions based on situation.

## **Section 7: Water Quality Sampling**

Water sampling	Basic steps to conduct sampling
Coliform	See Coliform Monitoring Plan
Chlorine residual	Colorimetric; Draw 5 ml sample, add reagent and compare to color wheel
Nitrate/Nitrite	Flush tap 10 minutes, fill 1 cube container, get lab within 24 hours
Total organic carbon	See sampling techniques provided by lab or water system manager
Total halogenated organic carbon (TOX)	See sampling techniques provided by lab or water system manager
Cyanide	Flush tap 10 minutes, fill 1 cube container, get to lab within 24 hours

## **Section 8: Effective Communication**

Develop possible messages in advance and update them as the emergency develops:

Our water system has experienced a failure. The proper authorities have been notified and professionals are evaluating the situation as I am speaking. As I do not currently have all the necessary information available, I will refrain from comment at this time until a complete evaluation of the situation has been made and I have had a chance to discuss the ramifications. Thank you for your time and your concern, and I will inform you of any information I receive.

Emergency numbers shall be distributed: in water billing.

## **Section 9: Vulnerability Assessment**

	Description	Vulnerability	Mitigating Actions	Security Improvements
Source	Inside pumphouse	Minimal	Sealed Well Head	None
Storage	None	NA	NA	NA
Treatment	None	NA	NA	NA
Pumping	Inside pumphouse	Minimal	Locked Door	None

## **Section 10: Response Actions for Specific Events**

	Assessment / Immediate Actions	Notifications	Follow-up Actions
Power outage	Temporary Start emergency generator, if applicable	None	Restore to normal operations
Waterline break	Requires repair Call repair facility	Notify residents and inform of progress	Sample and flush as needed
Chlorine failure	Requires repair Call repair facility	Inform on how to make water safe to consume	Perform applicable sampling and flushes
Treatment equipment	Requires repair Call repair facility	Inform on how to make water safe to consume	Perform applicable sampling and flushes
Pump failure	Requires repair Call repair facility	Notify residents and inform of progress	Restore to normal operations
Microbial contamination	Variable Follow coliform monitoring plan	Per coliform monitoring plan	Flush, sample, ensure safety

Chemical Contamination	Variable Inform residents, identify contamination	Notify residents and inform of progress	Flush, sample, ensure safety
Vandalism or Terrorism	Variable Inform residents, identify contamination	Notify residents and inform of progress	Flush, sample, ensure safety
Reduction or loss	Variable Determine extent of problem	Notify residents and inform of progress	Further curtail usage, check for leaks
Drought	Variable Determine extent of problem	Notify residents and inform of progress	Further curtail usage, check for leaks
Flood	Variable Determine extent of problem	Notify residents and inform of progress	Flush, and sample, ensure safety
Earthquake	Requires repair Call repair facility	Notify residents and inform of progress	Restore to normal operations
Hazardous materials	Long term loss Inform residents, identify contamination	Notify residents and inform of progress	Flush, and sample, ensure safety
Electronic equipment	Requires repair Call repair facility	Notify residents and inform of progress	Restore to normal operations

## Section 11: Alternative Water Sources

Water systems within one-quarter mile	Feasibility of connecting
None	

Alternative Sources	Name	Phone	Available	Safe
None				

## Section 12: Curtailing Water Usage

Water Curtailment Measure	Actions
Inform residents prior to an emergency situation to voluntarily reduce usage	Pass out pamphlets on how water can be saved with letters of concern
Check water meters and investigate possible system leakage	Call repair facility to fix any problems
Actively pursue a water curtailment plan, ask residents for ideas, decide on enforcement	Write plan down and distribute to residents
Enforce water curtailment plan, determine usage limitations	Make observations and suggestions, write and collect fines
Examine alternative sources and determine viability.	Contact neighboring facilities to determine availability

## **Section 13: Returning to Normal Operation**

Action	Description and actions
Ensure equipment is operational	Physically inspect rotating equipment, water leaks
Check incoming voltage	Use multimeter and check incoming voltage
Check system pressures	Inspect pressure switch and ensure the on and off pressures correlate with the gage
Perform water samples	Draw water sample and deliver to testing laboratory
Restore system to normal	Inform residents of full operational capacity

## **Section 14: Training**

Water system manager	Trained on proper sampling techniques, and basic mechanical knowledge to determine extent of problem.
Water system manager	Expected to be the immediate responder and make proper decisions on what to do
Field support	Trained on the existing equipment and be available for repair response
Admin support	Trained on giving information and documentation of incidents and accidents

## **Section 15: Plan Approval**

This plan is officially in effect when reviewed, approved, and signed by the following:

Name and Title	Signature	Date
Kevin Odegard, Operations Supervisor		

# WATER SHORTAGE PLAN

## Section 1: Events that Cause Water Shortages

Type of Event	Probability or Risk (high-med-low)	Immediate or Anticipated Event	Comments
Drought	low	none	This area is not known for drought
Water contamination	low	none	A practice of conservative planning
Inadequate planning to meet demand	low	none	A practice of conservative planning
Shallow wells	low	none	Wells in area are good producers
Inadequate pumping equipment	low	none	A practice of conservative planning
Water waste	med	System leaks and excessive use	Correctible situations

## Section 2: Evaluate Supply and Demand

Evaluate the source of supply

source ID	Water Rights	Source Capacity	Distribution Capacity	Well Capacity
S01		10 gpm		
S02		60 gpm		
Total	80 gpm	13 af/y	70 gpm	

Evaluate Demand

ADD:  MDD:  PHD:  Storage:

How does the existing system meet demands?

% ADD  % MDD  % PHD  % Storage

## Section 3: Defining Stages and Criteria of a Water Shortage

Stage I: Minor Shortage - Voluntary Measures	Reducing water consumption during a potential or actual water shortage
Stage II: Moderate Shortage- Mandatory Measures	Mandatory demand reduction during an actual water shortage
Stage III: Severe - Rationing Program	Institute rationing program during long periods of drought without causing hardship

## Section 4: Alternate Water Sources

Intertie to Adjacent Water Supply System

Water system within 1/4 mile	Feasibility of connection

#### Switching to back-up sources

Source Description	Well ID	Required Testing	Special considerations
AHA945	S01	none	

## Section 5: Effective Communication

Key Messages, develop possible messages in advance, and update over time.

Due to recent weather conditions we have taken the precaution of issuing a mandatory reduction in water use effective immediately. Informational pamphlets are enclosed. We are doing everything in our power to conserve water and explore options for alternative sources. We will get you information as we receive it.

## Section 6: Demand Reduction Alternatives

Water Conservation Measures	Actions possible for implementation
Voluntary Program	Prepare and distribute water conservation material. Prepare conservation retrofit kits. Coordinate media outreach program. Issue news releases to the media.

Water Curtailment Measures	Actions necessary for implementation
Conservation rate base and water audits	Use service meters and implement a conservation rate. Compare source meter readings with service meters to determine system leakage.

## Section 7: Water Shortage Response Actions

Stage	Criteria	Actions	Messages
1	Potential water shortage	Reduce water consumption	Implement voluntary water use reductions. Initiate a public information program.

Stage	Criteria	Actions	Messages
2	Actual water shortage	Mandatory demand reduction	Reduce water usage for main flushing. Restrict/reduce outdoor watering and institute fines.

Stage	Criteria	Actions	Messages
3	Periods of long drought	Institute rationing program	All public water uses not required for health or safety prohibited. Irrigation strictly prohibited.



**Planning • Management • Engineering**  
**P.O. Box 123 • Port Orchard, WA 98366 • 888-881-0958**

Month xx, 20xx

## **Residents of Orchard Beach Community**

You will experience sporadic water outages on Month xx, 20xx from approximately x:xx a/pm until x:xx a/pm. \_\_\_\_\_ will be onsite performing system upgrades. Please plan ahead to avoid any inconvenience.

If you have any questions concerning the planned outage, please contact Northwest Water Systems.

Thank you.

# Stop Water Waste

*It's easier  
than you think!*

## Residential Water Use Efficiency

Water is essential to our health, our communities, our environment, and our economy. As our state population grows, the demand for water will continue to rise. Not only must water systems ensure a safe and clean supply of water, but they also must ensure that there is enough water available to supply their customers every day of the year.

Water is a shared resource. Other uses include agriculture, fish habitat, industry, hydropower, and recreation. All of these uses add up and can put enormous pressure on local water supplies, especially during summer when the demand is highest.

Depleting reservoirs and groundwater can put water supplies, human health, and the environment at serious risk. Lower water levels can contribute to higher concentrations of natural or human pollutants. Using water more efficiently helps maintain supplies at safe levels, protecting human health and the environment.

The tips you'll find within this brochure are designed to not only save water, but also save you money on your water, energy/gas, and wastewater bills. Maybe all three!

## Eliminating Waste Makes Sense

Public water systems are the second largest water user in the state. They use about 18% annually of the total amount of freshwater withdrawn from surface and groundwater sources. By comparison, agriculture uses about 60% of the state's water every year, while industry and hydropower use about 8%.

A lot of hard work goes into providing the water that comes out of your tap every day. When the Department of Health adopted new water efficiency regulations in 2007, many water systems took notice and began to re-think just how efficient they can be. Now more than ever, they are taking action to find and fix leaks in their water distribution system, thereby eliminating waste.

### DID YOU KNOW?

The average person unknowingly wastes up to 30 gallons of water every day.



Think of "water efficiency" as a way to eliminate wasteful water practices and promote the long-term goal of saving water. Wasteful water practices are unnecessary and costing you money.

By making just a few small changes to your daily routine, you can save a significant amount of water, money, and preserve water supplies for the future.

As a customer of a water utility, think about:

- How much water is necessary for a specific purpose or task.
- How you can help minimize the impact of water use on local water supplies.

Ask yourself what you can do to eliminate wasteful practices and **use only what you need!**

- **Is your toilet leaking or faucet dripping?**  
If yes, then stop wasting water and fix it right away—or have someone fix it for you.
- **Do you leave the water on when brushing your teeth or doing the dishes?**  
If yes, make a conscious decision to stop wasting water. Change your habits and turn it off.
- **Are you watering your lawn too often?**  
If you're not sure, evaluate how much water your lawn needs and adjust watering times.
- **Did you really need that much water to accomplish the task?**  
No matter what it is you're doing, always ask yourself if you need that much water. Stop wasting water!

## Water Waste Adds Up: Drops Turn Into Gallons

Count the number of drips in 30 seconds to see how many gallons is wasted.

	1 Day	1 Year
5 drops	0.8	292
10 drops	1.6	584
15 drops	2.4	876
20 drops	3.2	1,168
25 drops	4	1,460
30 drops	4.8	1,752

## Go Green: Reduce Energy and Water Use

It takes a lot of energy to treat and deliver the water to everyone in your community. Considerable amounts of energy also go to heat water for laundry, bathing, cooking, dishwashing, and cleaning our homes. Homes with electric water heaters use 25% of their electricity to heat water.

### DID YOU KNOW?

About 4% of the nation's electricity consumption is used moving or treating water and wastewater.



## Look for the WaterSense Label

WaterSense is a program sponsored by the U.S. Environmental Protection Agency. Much like the ENERGY STAR symbol for energy-efficient products and practices, WaterSense is the symbol for water-efficient products, services, and practices.

WaterSense helps consumers identify products that meet EPA's criteria for water efficiency and performance. WaterSense labeled products use 20% less than standard products.

Best of all, they work!

All WaterSense labeled products have been tested to ensure savings and performance. Look for WaterSense labeled products and start saving water today!



Visit [www.epa.gov/watersense](http://www.epa.gov/watersense) to learn more.

### DID YOU KNOW?

If a family of four replaces its older, inefficient toilets with new WaterSense toilets, it could save more than 16,000 gallons per year and \$2,000 in water and wastewater bills over the lifetime of the toilets.



One of the simplest ways to save both water and energy is to install water-efficient plumbing fixtures. This will save you money on your water and energy bills—it takes less energy to heat less water.

Look for WaterSense labeled products to save the most money. You can let these products do the saving for you!

- **High Efficiency Toilets** use 1.28 gallons per flush or less. Plus, they now have flush ratings that can tell you just how well they perform.
- **Faucet aerators** are very inexpensive and easy to install.
- **Low-flow showerheads.** Look for those that use 2 gallons per minute or less.
- **High Efficiency Washing machines.** Look for ENERGY STAR rated machines with low water use per load (water factor of 4.5 or lower).

### DID YOU KNOW?

Gardening professionals agree that most lawns and yards receive more water than they need. Over-watering creates runoff that carries toxic fertilizers and pesticides into our streams, rivers, and lakes—where it can contaminate drinking water supplies too!



## \$\$ Great Water/Money Saving Tips \$\$

Visit these Web sites to find rebates near you or simply ask your water or wastewater utility if they offer rebates.

[www.epa.gov/watersense/rebate\\_finder\\_saving\\_money\\_water.html](http://www.epa.gov/watersense/rebate_finder_saving_money_water.html)

[www.toiletrebate.com/index.php](http://www.toiletrebate.com/index.php)

[www.greenplumbersusa.com/green-plumber-water-rebates-in-your-area](http://www.greenplumbersusa.com/green-plumber-water-rebates-in-your-area)

Install moisture control sensors or rain sensors on your automated irrigation systems. These devices know when to water your lawn, keeping it healthy and green. Best of all they can substantially reduce your water bill and save a ton of water.

## Leak Repair

Many homes waste (and pay for) thousands of gallons of water each year because they don't fix leaks that can be easily repaired. Fix it yourself or ask a friend to help you.

### DID YOU KNOW?

In one year, water leaks in your home can waste enough water to fill a backyard swimming pool.



Replacement parts are inexpensive and can save you more than 10% on your water bill. In most cases, fixing a leaky toilet should cost you about \$10 or less in parts.

You can fix most dripping faucets or showerheads by replacing worn washers. To check your toilet for leaks, drop food coloring in the toilet tank. If color appears in the bowl without flushing, you have a leak.

## Water Saving Ideas

- Collect rainwater to irrigate indoor/outdoor plants.
- Install WaterSense labeled low-flow showerheads and save 3 gallons per minute.
- Take shorter showers by 2-3 minutes and save up to 10 gallons per shower.
- If you don't like mowing your yard, get rid of it and replace it with native or drought resistant (xeriscape) landscaping.
- Install WaterSense labeled low-flow fixtures or aerators for every faucet in the house.
- Most landscapes will do well being watered two or three times per week.
- To reduce evaporation, water the lawn in the early morning or evening. Watering during the heat of the day, or when it's windy, wastes water and is much less effective.
- Place a 2" to 4" layer of mulch around plants and trees to avoid excess evaporation and retain moisture.
- Consider using a commercial car wash that recycles water or wash your car on your lawn.
- Sell your lawn mower and use that money as a down payment to replace your lawn with a flower or vegetable garden.
- Protect water quality by limiting or eliminating the use of fertilizers, weed killers, and pesticides.
- Install micro/drip irrigation systems or use soaker hoses to water outdoors.

## How You Can Help

Understanding what you can do to save water is where it all begins. You can get the biggest water savings in your home by installing WaterSense fixtures and fixing leaks.

Since outdoor use often doubles in the summertime, use the tips in this brochure to think about what you can do to use less while still maintaining a healthy landscape. Limiting the use of fertilizers and pesticides will also help keep water clean and protect public health.

Using less water leaves more of it in the ground or in our streams, rivers, and lakes. This benefits the environment and provides recreational opportunities for you and your community.

Do what you can to avoid unnecessary water use. You will contribute to the long-term health, adequate future water supply, and sustainability of your watershed!

To learn more about how you can use water efficiently, contact your local water system for more information or visit our Web site at  
[www.doh.wa.gov/ehp/dw/programs/wue.htm](http://www.doh.wa.gov/ehp/dw/programs/wue.htm)

### *More Information*

Washington State Department of Health

Office of Drinking Water

(360) 236-3100 • 1-800-521-0323

[www.doh.wa.gov/ehp/dw](http://www.doh.wa.gov/ehp/dw)



Dear Resident:

Due to the unusually dry weather this summer and the number of homes on the Orchard Beach Water System watering their lawns and gardens, the water system has been running at nearly full capacity. In order to ensure a reliable supply of safe water, we are encouraging homeowners to begin conserving water use as much as possible. Please refer to the Water Conservation Brochure for some ideas on how your family can conserve water and protect our environment.

In addition to voluntary conservation practices listed in the brochure, we are also requiring that all homes adhere to the following irrigation schedule:

**Homes with an odd number street address**  
**Homes with an even number street address**

**Water on odd days only**  
**Water on even days only**

Failure to water according to the above schedule may result in the following penalties:

1 <sup>st</sup> violation	Warning
2 <sup>nd</sup> violation	\$50 fee
3 <sup>rd</sup> violation	Water Shut-off

Thank you for your cooperation in ensuring our community maintains a safe and reliable supply of water. If you have any questions, or would like further information, please contact Northwest Water at (360) 876-0958.

Sincerely,

Orchard Beach Water System



## PUBLIC NOTICE CERTIFICATION *E. coli*-MCL Violation

Within 10 days after notifying your customers about an *E. coli*-MCL violation, you must complete this form and send it to our regional office along with a copy of each type of notice you distributed to your customers (hand-delivered notices, news releases, newspaper articles, and so on).

By completing this form, you certify that:

- You met all of the public notification requirements.
- You will meet future requirements for notifying new billing units of the violation or situation.

If the boil water advisory remains in effect more than three months, you must re-notify your water users and send another completed copy of this *Public Notice Certification* to us.

**Complete the following items, sign the form and mail it to the nearest regional office, addresses below:**

Water System: \_\_\_\_\_ ID #: \_\_\_\_\_ County: \_\_\_\_\_

Violation Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Violation Type: \_\_\_\_\_

**This public water system certifies that it gave this public notice to water users, following state and federal requirements for delivery, content, and deadlines.**

Yes  
 No

**Distribution was completed Yes  No  on \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_.**

**Check all that apply:**

- Hand delivery,  
 News release (TV, radio, newspaper)  
 Posting at \_\_\_\_\_ (by DOH approval only),  
 Other \_\_\_\_\_ (by DOH approval only).

**Were the water users notified within 24 hours? Yes  No**

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Signature of owner or operator

---

Position

---

Date

If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at [www.doh.wa.gov/drinkingwater](http://www.doh.wa.gov/drinkingwater).

**Northwest Regional Office:**  
20425 72nd Ave S Suite 310  
Kent WA 98032  
(253) 395-6775  
Fax: (253) 395-6760  
Email: dw.nwro@doh.wa.gov

**Southwest Regional Office:**  
PO Box 47823  
Olympia WA 98504-7823  
(360) 236-3030  
Fax (360) 664-8058  
Email: swro.coli@doh.wa.gov

**Eastern Regional Office:**  
16201 E Indiana Ave Suite 1500  
Spokane Valley WA 99216  
(509) 329-2100  
Fax: (509) 329-2104  
Email: mark.steward@doh.wa.gov

## **DRINKING WATER WARNING**

### ***E. coli* MCL Violation**

The Orchard Beach Community Water System, ID 64031-Q, located in Mason County is contaminated with *E. coli* bacteria.

*E. coli* bacteria were detected in the water supply on \_\_\_\_\_. These bacteria can make you sick and are a particular concern for people with compromised immune systems. Boiled or purchased bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until further notice. Boiling kills bacteria and other organisms in the water.

What should you do? **DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST.** Bring all water to a rolling boil, for 1 minute, and let it cool before using. Boiling kills bacteria and other organisms in the water.

*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.

What happened? What is the suspected or known source of contamination?

The following is being done to correct the problem:

We will consult with the State Department of Health about this incident. We will provide you notification when you no longer need to boil the water. We anticipate resolving the problem by \_\_\_\_\_.

For more information please contact: \_\_\_\_\_  
(owner/operator)                                  (phone #)                                  (address)    (email)

*Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

This notice is sent to you by Orchard Beach Community Water System on \_\_\_\_/\_\_\_\_/\_\_\_\_

# 10.10 COLIFORM MONITORING PLAN

# Coliform Monitoring Plan

<b>Water System Name:</b>	Orchard Beach Community	<b>Population Served:</b>	14
<b>System ID Number:</b>	64031Q	<b>Active Connections:</b>	38
<b>Number of Active Sources:</b>	2	<b>Storage Capacity:</b>	0 gallons
<b>Source #:</b> SO1	<b>Capacity:</b> 10gpm	<b>Treated:</b>	
<b>DOE Tag:</b> Well	<b>Depth:</b> 72ft	<b>Treatment Description:</b>	
<b>Type:</b> AHA945	<b>Metered:</b> Yes		
<b>Source #:</b> SO2	<b>Capacity:</b> 60gpm		
<b>DOE Tag:</b> Well	<b>Depth:</b> 209ft		
<b>Type:</b> AHA944	<b>Metered:</b> Yes		

Number of Routine Samples Required by Regulations:	1/Qrt	Number of Sample Sites Needed to Represent the Distribution System:	2
--	-------	---	---

Location/Address for <u>Routine</u> Sample Sites	Location/Address for <u>Repeat</u> Sample Sites	Groundwater Sources for Triggered Sample Sites**
x1. C-12 - 101 E Orchard Beach Dr (Brockhaus)	.1-1. C-12 (101 E Orchard Beach Dr - Brockhaus) .1-2. C-17 (41 E Orchard Beach Dr - Benitez) .1-3. B-8 (251 E Orchard Beach Dr - Casey)	S01 well 1 S02 well 2
x2. B-8 251 E Orchard Beach Dr (Casey)	.2-1. B-8 (251 E Orchard Beach Dr - Casey) .2-2. A-1A (380 E Orchard Beach Dr - Erickson) .2-3. C-12 (101 E Orchard Beach Dr - Brockhaus)	S01 well 1 S02 well 2

Month	Site	Month	Site	Month	Site
January	A	May		September	
February		June		October	B
March		July	A	November	
April	B	August		December	

Alternative routine sample sites are allowed at the DOH and/or Certified Operations discretion only if the routine designated sample is not available during routine sample collection times. If alternative sites become routine (more than twice per reporting year) the CMP shall be updated to reflect any and all changes and disclosed to all parties.

A Treatment Technique Trigger is defined as a confirmed total coliform sample occurrence (two or more total coliform positive samples, no E. coli) or if a system fails to collect the required repeat coliform samples. This triggers the requirement to perform a Level 1 assessment. A level 1 assessment is basic water system evaluation that an owner, Certified Operator, or other person knowledgeable of the water system may do. There are 3 main

1. Investigation: Identify any sanitary defects that allowed coliform to enter the distribution system or a failure or imminent failure of an existing barrier.
2. Discussion: Evaluate what was identified during the assessment that might have allowed the contamination to occur and the corrective action needed to remedy the problem.
3. Corrective action: Record the steps taken to correct the sanitary defect that may have allowed the continuation to occur.

Under any circumstance, if an E. coli positive sample occurs, contact DOH immediately. A Boil Water Advisory and public notification will be required. Attached to this is a boil water advisory notice for distribution.

Additionally, if an E. coli positive sample occurs, or a second Trigger Violation occurs within a rolling 12-month period, this then triggers a Level II Assessment. While this assessment contains the same 3 main elements, DOH requires it to be performed by an Engineer, Certified Operator with a Water Distribution Manager Level II or higher, or Health Department staff. Contact DOH for guidance on this requirement.

<b>Public Notificatoin Requirements</b>
E. Coli MCL violation- Issued within 24 hours (Tier 1) <ul style="list-style-type: none"><li>• Routine total coliform-positive; <i>repeat E. Coli-positive</i>.</li><li>• Routine <i>E. Coli-</i> positive; repeat total coliform-positive.</li><li>• Routine <i>E. Coli-positive</i>; system fails to take all repeat samles.</li><li>• Repeat total coliform-positive; sample not tested for <i>E. Coli</i>.</li></ul>
Treatment technique violation- Issued within 30 days (Tier 2) <ul style="list-style-type: none"><li>• System fails to conduct a required assessment within 30 days of the treatment technique trigger.</li><li>• System fails to correct a sanitary defect within required timeframe.</li><li>• Seasonal system fails to complete state-approved start-up procedure to serving water to the public.</li></ul>
Monitoring violation- Issued within one year (Tier 3) <ul style="list-style-type: none"><li>• System fails to collect routine samples.</li><li>• Routine total coliform- positive; sample not tested for <i>E. Coli</i></li></ul>
Reporting violation- Issued within one year (Tier 3) <ul style="list-style-type: none"><li>• System fails to submit a monitoring report or completed assessment form in a timely manner.</li><li>• System fails to notify us of an <i>E. Coli-</i> positive sample in a timely manner.</li><li>• Seasonal system fails to submit certification completion of approved start-up procedure.</li></ul>

Should any questions or concerns arise, contact DOH. Safe drinking water is highest priority for any water system. Maintaining an open line of communication with DOH may be the difference in best determining the correct approach to a water quality event and the best resolution. Rules and regulations change, and DOH can provide guidance that can make the requirements easy to comply with.

This document was prepared by: Northwest Water Systems      Date: 5/1/2017



SITE INFORMATION PROVIDED BY: THE CLIENT, MASON COUNTY,  
AND BY SITE INSPECTION

- SERVICE CONNECTION
- BLOW-OFF
- △ ISOLATION VALVE

360 E Orchard Beach Drive

Site Group I:  
Routine and Repeat Site 1

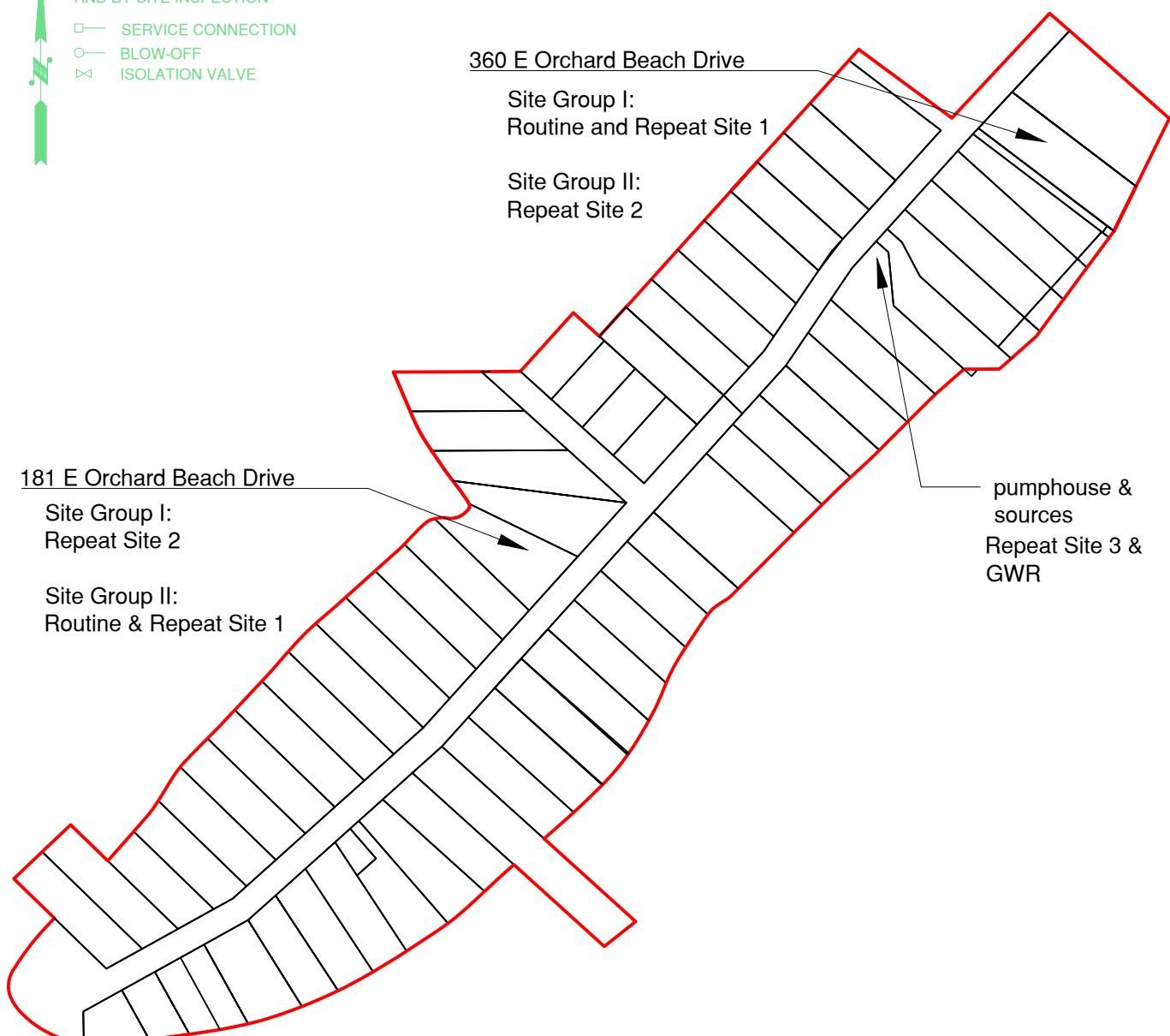
Site Group II:  
Repeat Site 2

181 E Orchard Beach Drive

Site Group I:  
Repeat Site 2

Site Group II:  
Routine & Repeat Site 1

pumphouse &  
sources  
Repeat Site 3 &  
GWR



DRAWN BY:	SYSTEM		OWNER
CHECKED BY:			<b>ORCHARD BEACH COM.</b>
REVISION		FILE NO.	FILE NAME
DESCRIPTION	DATE	170505	FILE NAME
			SCALE SHEET NO.
		JUNE 23, 2018	1" = 3000'
NORTHWEST WATER SYSTEMS, INC.		DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958	



MAR 28 2018

STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
SOUTHWEST DRINKING WATER REGIONAL OPERATIONS  
*PO Box 47823, Olympia, Washington 98504-7823*  
*TDD Relay 1-800-833-6388*

March 22, 2018

No Action Req'd  
Klo -

Kevin R Odegard  
Northwest Water Services  
Post Office Box 123  
Port Orchard, Washington 98366

Subject: Orchard Beach Community, ID #64031, Mason County; Potential Coliform Monitoring Schedule Change to Monthly

Dear Kevin R Odegard:

The Orchard Beach Community water system currently collects routine coliform bacteriological samples according to a reduced schedule. These samples provide information on the bacteriological integrity of the water your system provides for public consumption. Because of the reduced schedule, any missed sample puts consumers at a higher level of risk to bacteriological contamination for a longer period of time.

With adoption of the Revised Total Coliform Rule (RTCR) in April 2016, the Office of Drinking (ODW) has accepted that water systems on reduced schedules must follow the new regulation. In accordance with WAC 246-290-300(3)(e)(ii), ODW can allow less than monthly samples when your system serves an average daily population of less than twenty-five. However, that allowance requires that your system:

- (A) Uses only protected groundwater sources,
- (B) Has a clean compliance history for a minimum of twelve months,
- (C) Has no sanitary defects or significant deficiencies,
- (D) Has detected no total coliform-positive routine or repeat samples in the previous month, and
- (E) Has collected and submitted for analysis one routine sample during one of the previous two months.

Your water system currently has a reduced coliform sampling schedule with the expectation that your system meets the above-listed conditions. This letter provides notice that starting April 1, 2018, we will be enforcing all of these criteria and changing your schedule to monthly if your status relative to any one of these criteria changes.



Northwest Water Services

March 22, 2018

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To remain on your current schedule, we recommend that your system closely guard its operations and maintenance according to 'best professional practices'. Practices such as flushing, monitoring for potential cross connections, providing fast and appropriate care during any line break, and proper start-up and shut down.

We understand that this is a significant and important change that will help protect public health. We appreciate your understanding and support.

If you have any questions or need assistance, you can contact me at (360) 236-3045 or by e-mail at charese.cryderman@doh.wa.gov.

Sincerely,



Charese Cryderman  
Office of Drinking Water, Coliform Program Manager

Enclosure

cc: Maria Machado, Mason County Public Health  
Regina Grimm, ODW

## 10.11 CROSS-CONNECTION CONTROL PLAN



Planning • Management • Engineering  
P.O. Box 123 • Port Orchard, WA 98366 • 888-881-0958 • 360-876-0958

## CROSS-CONNECTION CONTROL PROGRAM

Orchard Beach Community Water System  
ID#64031-Q

### A. Requirement for Program

**Orchard Beach Community Water System** (State ID#64031-Q) hereinafter referred to as the “Purveyor”, has the responsibility to protect the public water system from contamination due to cross-connections. A cross-connection may be defined as *“any actual or potential physical connection between a potable water line and any pipe, vessel, or machine that contains or has a probability of containing a non-potable gas or liquid, such that it is possible for a non-potable gas or liquid to enter the potable water system by backflow.”*

All public water systems are required to develop and implement cross-connection control (CCC) programs. The CCC requirements are contained in Washington Administrative Code (WAC) 246-290-490 of the Group A Drinking Water Regulations. The minimum required elements of a CCC program are:

1. Establishment of legal authority and program policies;
2. Evaluation of premises for cross-connection hazards;
3. Elimination and/or control of cross connections;
4. Provision of qualified personnel;
5. Inspection and testing of backflow assemblies;
6. Quality control of testing process;
7. Response to backflow incidents;
8. Public education for consumers;
9. Record keeping for CCC program; and
10. Special requirements for reclaimed water use.

Other CCC program requirements include:

1. Coordination with the Authority Having Jurisdiction (AHJ), i.e., the local building or plumbing official, regarding CCC activities;
2. Prohibition of the return of used water into the public water system (PWS) distribution system; and
3. Inclusion of a written CCC program in a Water System Plan (WSP) or Small Water System Management Program (SWSMP).

### B. Program Objectives

The objectives of the CCC program are to:

1. Reasonably reduce the risk of contamination of the public water distribution system; and
2. Reasonably reduce the Purveyor's exposure to legal liability arising from the backflow of any contaminant originating from the customer's plumbing system and then supplied to other customers.

## C. Summary of Program Decisions

The following table summarizes the major policy and program decisions adopted for the **Orchard Beach Community Water System**. The items in the table represent CCC Program areas that have more than one acceptable approach or option.

**CCC Program Decision Summary Table for the  
Orchard Beach Community Water System**

Decision Item	Decision
<b>1. Type of Program [General, WAC 246-290-490(2)(e)]</b>	
a. Premises isolation only	
b. Premises isolation and in-premises protection (combination program)	X
<b>2. Extent of Coordination with AHJ [WAC 246-290-490(2)(d)]</b>	
a. Information exchange	X
b. Interaction	
c. Joint program	
<b>3. Relationship with Customer [Element 1]</b>	
a. Signed service agreement or contract	
b. Ordinance/resolution; implied service agreement	X
<b>4. Enforcement of Corrective Action [Element 1]</b>	
a. Rely upon shut-off of water service	X
b. Rely upon purveyor-installed premises isolation	X
<b>5. Assessment and Re-assessment of Hazard [Element 2]</b>	
a. By purveyor's staff or equivalent	
b. By Northwest Water Systems' cross-connection control specialist (CCS); report reviewed by CCS	X
<b>6. Location and Ownership of Premises Isolation Assembly [Element 3]</b>	
a. On purveyor's service line	X
b. On customer's service line	X
<b>7. CCS Option – Purveyor's Program Management [Element 4]</b>	
a. Purveyor's staff member certified	
b. Inter-agency agreement or use other agency's CCS	
c. Contract with Northwest Water Systems' CCS	X
<b>8. Testing of Assemblies [Element 5]</b>	
a. By purveyor's staff or purveyor-employed backflow assembly tester (BAT)	
b. By customer-employed/contracted BAT	X
<b>9. Cost Recovery [WAC 246-290-100(4)(h) and –105(4)(p)]</b>	
a. Borne by all customers (general water rates)	X
b. Assessed to specific class (commercial meters)	
c. Each customer directly bears cost	X

## D. Required Elements of Program

The **Washington State Department of Health (DOH)** drinking water regulations for Group A public water systems, WAC 246-290, require CCC programs to include certain minimum elements. The elements are listed in WAC 246-290-490(3). This section describes how the water system intends to comply with each of the required program elements. Elements are numbered the same as they appear in the WAC.

**Element 1:** *Adoption of a written legal instrument authorizing the establishment and implementation of a CCC program.*

**Orchard Beach Community Water System** has adopted a cross-connection control policy upon contracting Northwest Water Systems as their management company, which authorizes the Purveyor to implement a CCC program. The policy also authorizes the system to take corrective action when customers do not comply with the CCC program requirements. The primary method for protection of the distribution system will be the installation of a backflow assembly by the customer or Northwest Water Systems will contract with an L&I registered contractor, at the customer's expense.

<b><i>Legal Instrument Status</i></b>	<b><i>Schedule</i></b>
<i>Preparation of proposed legal instrument</i>	<i>June 2011</i>
<i>Adoption of legal instrument</i>	<i>June 18, 2011</i>
<i>Legal instrument becomes effective</i>	<i>July 1, 2011</i>

**Element 2:** *Development and implementation of procedures and schedules for evaluating new and existing service connections to assess the degree of hazard.*

### Initial Cross-Connection Hazard Surveys

The procedures for evaluating the backflow prevention requirements for new and existing customers are as follows:

1. For all ***new services***, the Purveyor will require that the customer either submit an on-site CCC Hazard Field Survey report completed by a customer employed, DOH-certified CCS; or allow access of the Purveyor employed/contracted DOH-certified CCS to complete an on-site CCC Hazard Field Survey of the possible hazard(s) posed by the proposed plumbing system(s). Cost of the survey to be borne by the customer.
2. For all ***existing services***, the Purveyor will require the customer to submit to the Purveyor, within 30 days of notification, either an on-site CCC Hazard Field Survey report completed by a customer employed, DOH-certified CCS; or submit a customer-completed and signed CCC Hazard Survey Questionnaire.
3. For all existing services, should the customer fail to supply the required information for a hazard assessment, the Purveyor may have the assessment made by a CCS employed by the Purveyor, require the installation of an RPBA for premises isolation, or take other such actions consistent with the previously stated policies and bill the customer for the associated costs.

## Cross-Connection Hazard Survey Schedule for Initial Hazard Assessments

The schedule for initial hazard assessment is outlined in the following table. The schedule starts from the date the CCC program is established.

Initial Assessment Task	Schedule
Assessment of all new connections	Within 30 days of issue
Identification and assessment of high-hazard premises which are listed on Table 9 of Washington Administrative Code (WAC) 246-290-490	Within 6 months
Identification and assessment of hazardous premises supplemental to Table 9 of WAC 246-290-490	Within 9 months
Identification of residential connections with special plumbing facilities and/or water use on the premises	Within 12 months

## Cross-Connection Hazard Survey Schedule for Subsequent Hazard Re-Assessments

For subsequent cross-connection hazard surveys, procedures for evaluating the backflow prevention requirements are:

1. For Single Family/Duplex Residential & Non-residential Recreational (*private campsites/RV sites*) Connections, the Purveyor will require the customer to submit to the Purveyor, within 30 days of purveyor notification, a completed “CCC Hazard Survey form”. The procedure used for evaluating the hazard re-assessment and the potential change in the required backflow prevention will be the same as used for the initial hazard assessment. The frequency of hazard re-assessments will be every 3 years.
2. For all Other Non-residential Connections (*commercial, business, schools, daycares, churches, institutional, agricultural, medical, industrial, food service/processing, etc.*), the Purveyor will require the customer to submit to the Purveyor, within 30 days of purveyor notification, an on-site CCC Hazard Field Survey conducted by a customer employed DOH-certified CCS. The frequency of the hazard re-assessments will be every 2 years.

*With an accumulation of data and an aggressive customer education program the time interval for re-surveys may be lengthened or shortened as deemed necessary and acceptable to the Purveyor, CCS, and DOH.*

The Purveyor will inform the customer that the Purveyor's survey of a customer's premises (whether by a representative of the Purveyor or through the evaluation of a questionnaire completed by the customer) is for the sole purpose of establishing the Purveyor's minimum requirements for the protection of the public water supply system, and that the required backflow protection will be commensurate with the Purveyor's assessment of the degree of hazard.

The Purveyor will also inform the customer or any regulatory agencies that the Purveyor's survey, requirements for the installation of backflow prevention assemblies, lack of requirements for the installation of backflow prevention assemblies, or other actions by the purveyor's personnel or agent do not constitute an approval of the customer's plumbing system or an assurance to the customer or any regulatory agency of the absence of cross connections.

**Element 3:** *Development and implementation of procedures and schedules for elimination and/or control of cross-connections.*

## **Backflow Assembly Requirements**

The following service policy shall apply to all new and existing customers:

1. The Purveyor will require that water service to all **non-residential customers** (except non-residential recreational connections) be isolated at the meter, or connection point, by a DOH-approved DCVA or RPBA, commensurate with assessed degree of hazard and acceptable to the Purveyor. All high-hazard connections of the type described in Table 9 of WAC 246-290-490 shall be isolated with an RPBA, RPDA, or Air Gap, commensurate with assessed degree of hazard in accordance with current regulation requirements.
2. The Purveyor will require all **residential and non-residential, recreational customers** with facilities of the type described in Table 9 of WAC 246-290-490 to be isolated with an RPBA, RPDA, or Air Gap, commensurate with assessed degree of hazard in accordance with current regulation requirements. All other residential customers with special plumbing or water use on the premises will be protected with a DCVA or RPBA, commensurate with assessed degree of hazard installed for either premise or fixture isolation. “Special plumbing” includes, but is not limited to, the following:
  - a. A lawn irrigation system;
  - b. A solar heating system;
  - c. An auxiliary source of supply, e.g., a well or creek;
  - d. Piping for livestock watering, hobby farming, etc.;
  - e. Residential fire sprinkler system, other than flow through; and
  - f. Property containing a small boat moorage.
3. For all customers that have a written service contract with the Purveyor, any required backflow preventer shall be:
  - Purchased and installed by the customer (at the customer's expense) downstream of the meter or connection point in accordance with the Purveyor's standards described hereinafter; and
  - Maintained, tested, and inspected in accordance with the Purveyor's standards described hereinafter.

For new customers, the Purveyor will not turn on water (except for testing purposes) at the connection until the customer complies with the above requirements.

The failure of the customer to comply with the Purveyor's installation and maintenance requirements shall constitute a breach of contract by the customer. The Purveyor may then proceed with corrective action provisions stipulated in the contract.

4. Customers without written contracts are considered to have an implied contract that requires the customer to bear all reasonable costs of service. The Purveyor will install the required DCVA or RPBA on the service, upstream of the meter or elsewhere within the utility held easement, and charge the customer for the cost of the initial installation and testing, and all future maintenance, testing, and repair, as set forth in the Purveyor's schedule of rates and charges. The failure of the customer to pay these costs shall constitute a breach of contract by the customer, and the Purveyor will proceed with the

established delinquency of payment procedures. As an alternative, the customer may sign a service contract and install the required backflow preventer downstream of the meter in accordance with the Purveyor's installation standards described hereinafter.

5. All backflow prevention assemblies relied upon by the Purveyor to protect the public water system shall meet the definition of "approved backflow prevention assembly" as contained in WAC 246-290-010. The Purveyor's CCS will obtain and maintain a current list of backflow prevention assemblies approved for installation in Washington State from the DOH Office of Drinking Water.

All backflow assemblies will be installed:

- In the orientation for which they are approved;
- In a manner and location that facilitates their proper operation, maintenance, and testing or inspection;
- In a manner that will protect them from weather-related conditions such as flooding and freezing; and
- In compliance with applicable safety regulations.

Installation standards contained in the most recently published edition of the Pacific Northwest Section, American Water Works Association (PNWS-AWWA) *CCC Manual* or the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USCFCCCHR) *CCC Manual* shall be followed.

***The Purveyor has no regulatory responsibility or authority over the installation and operation of the customer's plumbing system. The customer is solely responsible for compliance with all applicable regulations and for prevention of contamination of his/her plumbing system from sources within his/her premises. Any action taken by the Purveyor to survey plumbing, inspect or test backflow prevention assemblies, or to require premises isolation (installation of DCVA or RPBA on service) is solely for the purposes of reducing the risk of contamination of the Purveyor's distribution system.***

Except for easements containing the Purveyor's distribution system, the Purveyor will not undertake work on the customer's premises unless the customer has provided written request and signed authorization.

6. The following table shows the schedule that the Purveyor will follow for installation of backflow assemblies when they are required (based on the hazard evaluation).

Type of Service	Schedule
New connections with cross-connection hazards	Before service is initiated
Existing connections with Table 9-type hazards and other high cross-connection hazards	Within 30 days after notification
Existing connections with other than Table 9 of WAC 246-290-490 or high cross-connection hazards	Within 90 days after notification
Existing fire protection systems using chemicals or supplied by unapproved auxiliary water source	Within 30 days after notification
Existing fire protection systems not using chemicals and supplied by purveyor's water	Within 90 days after notification

**Element 4:** *Provision of qualified personnel, including at least one person certified as a CCS, to develop and implement the CCC program.*

1. **Program Administration:** The responsibility for administration of the CCC Program rests with the Purveyor. General policy direction and risk management decisions are established by **the Purveyor's DOH-certified CCS**.
2. The Purveyor will employ, or otherwise have on staff, at least one DOH-certified CCS to develop and implement the CCC program. As an alternative, or when no staff or employees are properly qualified, the Purveyor may retain a DOH-certified CCS on contract to provide the necessary expertise and services.
3. The following cross-connection related tasks will be performed by or under the direction of the Purveyor's certified CCS (on staff or under contract):
  - Preparation of and recommendations regarding changes to the CCC program;
  - Performance of and/or reviews of CCC hazard evaluations;
  - Recommendations on the type of backflow assembly to be installed;
  - Inspections of backflow assemblies for proper application and installation;
  - Reviews of backflow assembly inspection and test reports;
  - Recommendations and/or the granting of exceptions to mandatory premises isolation;
  - Participation in or cooperation with other water utility staff in the investigation of backflow incidents and other water quality problems;
  - Completion of Backflow Incident Reports; and
  - Completion of CCC Activity and Program Summary Reports.

The following table identifies the current CCS employed or retained on contract by the Purveyor to manage the Purveyor's CCC program and/or act as the CCC technical resource for the Purveyor:

Name of CCS	Jen Trenary, Northwest Water Systems, Inc.
Address	PO Box 123
City, State, Zip	Port Orchard, WA 98366
Telephone Number	(360) 876-0958
CCS Certification Number	013640

Name of CCS	Kevin Odegard, Northwest Water Systems, Inc.
Address	PO Box 123
City, State, Zip	Port Orchard, WA 98366
Telephone Number	(360) 876-0958
CCS Certification Number	006962

**Element 5:** *Development and implementation of procedures to ensure that approved backflow prevention assemblies are inspected and/or tested (as applicable).*

## **1. Inspection and Testing of Backflow Assemblies**

All backflow prevention assemblies that the Purveyor relies upon for protection of the water system will be subject to inspection and, if applicable, testing. Inspection and testing of backflow prevention assemblies will be as follows:

- The Purveyor's DOH-certified CCS will inspect backflow prevention assemblies for proper application (i.e., to ensure that backflow prevention assemblies installed are commensurate with the assessed degree of hazard).
- Either a DOH-certified CCS or backflow assembly tester (BAT) will perform inspections of backflow prevention assemblies for correct installation.
- A DOH-certified backflow assembly tester (BAT) will test all backflow prevention assemblies the Purveyor relies upon to protect the public water system.

## **2. Frequency of Inspection and Testing**

Inspection and testing of backflow prevention assemblies will be conducted:

- At the time of installation;
- Annually after installation;
- After a backflow incident; and
- After repair, reinstallation, relocation, or re-plumbing.

The Purveyor may require a backflow prevention assembly to be inspected and/or tested more frequently than once a year, when it protects against a high-health hazard or when it repeatedly fails tests or inspections.

## **3. Responsibility for Inspection and Testing**

The Purveyor will be responsible for inspection and testing of all purveyor-owned backflow prevention assemblies.

The Purveyor will require the customer to be responsible for inspection and testing of backflow prevention assemblies owned by the customer. The customer shall employ, at customer expense, a DOH-certified BAT to conduct the inspections and tests within the time period specified in the testing notice sent by the Purveyor. The test report shall be completed and signed by the BAT and returned to the Purveyor's CCS, by the due date specified by the Purveyor. The customer may request an extension of the due date for returning a test report by submitting a written request to the Purveyor.

## **4. Approved Test Procedures**

The Purveyor will require that all backflow prevention assemblies relied upon to protect the public water system be tested in accordance with DOH-approved test procedures as specified in WAC 246-290-490(7)(d). Any proposal to use alternate test procedures must be approved by the Purveyor's CCS.

## **5. Notification of Inspection and/or Testing**

The Purveyor will notify in writing all customers who own backflow prevention assemblies that are relied upon to protect the public water system to have their backflow prevention

assembly (ies) inspected and/or tested. Notices will be sent out not less than 30 days before the due date of the inspection and/or test. The notice will also specify the date by which the inspection/test report must be received by the Purveyor.

## 6. Enforcement

When a customer fails to send in the inspection/test report within 45 days after the notification date, and the Purveyor has not approved an extension to the due date, the Purveyor will take the following action:

- The Purveyor will send a second notice giving the customer an additional 15 days to send in the report. The notice will also inform the customer that failure to satisfactorily respond to the request will result in Enforcement &/or Corrective actions as provided by the CCC Policy and/or Service Agreements.
- The Purveyor will send copies of the second notice to the owner and occupants of the premises (if different).
- If the owner and/or occupants have not responded satisfactorily to the Purveyor within 15 days of the due date specified in the second notice, the Purveyor will implement the Enforcement &/or Corrective actions as provided by the CCC Policy and/or Service Agreements.

**Element 6:** *Development and implementation of a backflow prevention assembly testing quality assurance/quality control program.*

The Purveyor will maintain a list of local, DOH-certified BATs that are pre-approved by the Purveyor to perform the following activities:

- *Backflow assembly inspection for proper installation; and*
- *Backflow assembly testing.*

The list will be compiled of individual testers who have requested to work in the system's area, who have previously submitted properly completed test reports, or are listed on the DOH list of certified testers.

## Quality Assurance

The Purveyor's CCS will review within 30 days of receipt the backflow assembly inspection/test report forms submitted by the customer.

The Purveyor's CCS will provide follow-up on test reports that are deficient in any way.

The Purveyor's CCS will report incidences of fraud or gross incompetence on the part of any BAT or CCS to DOH Operator Certification program staff.

**Element 7:** *Development and implementation (when appropriate) of procedures for responding to backflow incidents.*

### 1. Backflow Incident Response Plan

The Purveyor's CCS will participate in developing a backflow incident response plan that will be part of the water system's emergency response program as required by WAC 246-290-415(2). The incident response plan will include, but will not be limited to:

- Notification of affected population;
- Notification and coordination with other agencies, such as DOH, the AHJ, and other local health jurisdictions;
- Identification of the source of contamination;
- Isolation of the source of contamination and the affected area(s);
- Cleaning, flushing, and other measures to mitigate and correct the problem; and
- Apply corrective action to prevent future backflow occurrences.

## 2. Technical Resources

The Purveyor will use the most recently published edition of the manual, *Backflow Incident Investigation Procedures*, published by the PNWS-AWWA as a supplement to the Backflow Incident Response Plan for the **Orchard Beach Water System**.

**Element 8:** *Development and implementation of a cross-connection control public education program.*

### 1. Customer Education

The Purveyor will distribute at regular intervals (at least annually), public education materials to system customers. For residential customers, such materials will describe the cross-connection hazards in homes and the recommended backflow prevention assemblies or devices that should be installed by the homeowner to reduce the hazard to the public water system. The education program will emphasize the responsibility of the customer in preventing the contamination of the public water supply. The Purveyor's staff will produce the public education materials or the Purveyor will obtain brochures from national backflow associations, such as PNWS-AWWA, Spokane Regional Cross-Connection Control Committee (SRC4), Western Washington Cross-Connection Prevention Professionals Group (The Group), USC FCCCHR, the American Backflow Prevention Association (ABPA), and/or Other water utilities.

The information distributed by the Purveyor will include, but not be limited to, the following subjects:

- Cross-connection hazards in general;
- Irrigation system hazards and corrective actions;
- Fire sprinkler cross-connection hazards;
- Importance of annual inspection and/or testing of backflow assemblies; and
- Thermal expansion in hot water systems when backflow assemblies are installed for premises isolation.

**Element 9:** *Development and maintenance of cross-connection control records.*

### 1. Types of Records and Data to be Maintained

The Purveyor will maintain records of the following types of information required by WAC 246-290-490:

- Service connections/customer premises information including:
  - Assessed degree of hazard; and
  - Required backflow prevention assembly to protect the public water system.

- Backflow prevention assembly inventory and information including:
  - Air gap (AG) location, installation and inspection dates, inspection results and person conducting inspection;
  - Backflow prevention assembly location, assembly description (type, manufacturer, make, model, size, and serial number), installation, inspection and test dates, test results and data, and person performing test; and
  - Information on atmospheric vacuum breakers (AVB) used in limited situations for lawn irrigation system applications, including manufacturer, make, model, size, dates of installation and inspections, and person performing inspections.

The Purveyor will maintain records on all backflow prevention assemblies that protect the public water system from contamination. At a minimum, the Purveyor will maintain records on all premises isolation backflow prevention assemblies required to protect the public water system.

## **2. Reports to be Prepared and Submitted to DOH**

The Purveyor or CCS will prepare the following reports required by WAC 246-290-490 including:

- Cross-connection control program activities report for the calendar year, to be sent to DOH when requested;
- Cross-connection control program summary information, when required, or when there are significant policy changes;
- Backflow incident reports to DOH and the AHJ; and
- Documentation when exceptions to mandatory premises isolation are granted.

**At a minimum, the Purveyor's CCS will prepare and sign the Exceptions reports.**

**Element 10:** *Additional cross-connection control requirements for reclaimed water.*

At this time the **Orchard Beach Community Water System** does not receive or distribute reclaimed water. In the event that reclaimed water use is proposed within the PWS's service area, the Purveyor will make all cross-connection control requirements mandated by the Permitting Authority in accordance with Chapter 90.46 RCW part of the written CCC program plan and comply with such additional requirements.

## **E. Other Provisions**

**Coordination With the Authority Having Jurisdiction:** Both WAC 246-290-490 and the Uniform Plumbing Code (as amended for Washington) require coordination between purveyors and the Authority Having Jurisdiction in all matters concerning cross-connection control.

- a. Identification of the Authority Having Jurisdiction (AHJ) - the AHJ that enforces the plumbing code for the premises served by the Purveyor is **Mason County, Department of Community Development, Building Department, Attn: Mark Core, 426 W Cedar St. (PO Box 186), Shelton, WA 98584, (360) 275-8733.**
- b. Coordination with the Authority Having Jurisdiction - A letter indicating that this cross-

connection control program has been implemented has been provided on 2-6-2007.

- c. Description of Coordination with the AHJ - The Purveyor coordinates with the AHJ as follows: **Coordination consists of information sharing only**. However, the Purveyor requests the opportunity to review any plumbing plans for new or existing connections to the water system when permits are applied for. The Purveyor further agrees to inform the AHJ whenever a backflow incident or a shut-off occurs.
- d. Delineation of Responsibilities - The Purveyor and the AHJ are responsible for the following CCC activities in the **Orchard Beach Community Water System**. AHJ reviews new construction drawings; the Purveyor is responsible for all other Cross-Connection Control evaluations, tests, inspections, and record keeping.
- e. Notification of the Authority Having Jurisdiction - The Purveyor will inform the AHJ when there is a:
  - Change in plumbing that requires a plumbing permit;
  - Change in the use of any part of the premises that alters the cross-connection hazard level; or
  - Backflow incident.

## F. Relationship to Other Planning and Operations Program Requirements

The Purveyor will consider the requirements and consequences of the CCC program on the utility's planning and operations requirements. Such considerations include, but are not limited to ensuring:

- And promoting adequate communication between CCC program personnel and other water utility staff;
- That adequate training is provided to all staff to recognize potential cross-connection control problems;
- That cross-connection issues be considered in water quality investigations;
- That the design of the water distribution system makes adequate provisions for expected head losses incurred through the installation of experienced by backflow assemblies;
- That CCC program personnel be consulted in the design of water and wastewater treatment facilities and when proposals are made to receive or distribute reclaimed water;
- That operations under normal and abnormal conditions do not result in excessive pressure losses; and
- That adequate financial and administrative resources are available to carry out the CCC program.

**NWS**  
**Northwest Water Systems, Inc.**  
**Port Orchard, WA 98366**  
**360-876-0958**

## **ORCHARD BEACH COMMUNITY WATER SYSTEM**

### **Cross-Connection Control Policy**

#### **Finding of Fact**

Whereas it is the responsibility of a water purveyor to provide water to the customer at the meter that meets Washington state water quality standards;

Whereas it is the water purveyor's responsibility to prevent the contamination of the public water system from the source of supply (i.e., to the customer's connection to the service pipe or meter);

Whereas it is a requirement of the Washington State Department of Health (DOH) for the Purveyor to establish a cross connection-control program satisfactory to DOH;

Whereas cross-connections within the customer's plumbing system pose a potential source for the contamination of the public water supply system;

Now be it resolved that Northwest Water Systems, Inc. hereinafter referred to as the Purveyor, establishes the following service policy to protect this community-owned water system from the risk of contamination. For public health and safety, this policy shall apply equally to all new and existing customers.

#### **Definitions**

Unless otherwise defined, all terms used in this resolution pertaining to cross-connection control have the same definitions as those contained in WAC 246-290-010 of the Washington State Drinking Water Regulations.

#### **Prevention of Contamination**

The customer's plumbing system, starting from the termination of the Purveyor's water service pipe, shall be considered a potential high-health hazard requiring the isolation of the customer's premises by a DOH-approved, customer-installed and maintained reduced-pressure principle backflow assembly (RPBA) or reduced-pressure detector assembly (RPDA). The RPBA or RPDA shall be located at the end of the Purveyor's water service pipe (i.e., immediately downstream of the meter). Water shall only be supplied to the customer through a DOH-approved, customer-installed and maintained RPBA or RPDA.

Notwithstanding the aforesaid, the Purveyor, upon an assessment of the risk of contamination posed by the customer's plumbing system and use of water, may allow:

- A single-family or duplex residential customer to connect directly to the water service pipe, i.e., without a purveyor-approved DCVA or RPBA.
- Any customer other than a single-family or duplex residential customer, as a minimum, to be supplied through a DOH-approved, customer-installed and maintained double-check valve assembly (DCVA) or double-check detector assembly (DCDA).
- Any customer, other than a single-family or duplex residential customer to connect directly to the water service pipe (i.e., without a purveyor-approved DCVA or RPBA), PROVIDED THAT the customer installs and maintains backflow assemblies, at the point of hazard, that are commensurate with the degree of hazard assessed by the Purveyor.

## **Conditions for Providing Service**

Water service is provided based on the following terms and limitations:

1. The customer agrees to take all measures necessary to prevent the contamination of the plumbing system within his/her premises and the Purveyor's distribution system that may occur from backflow through a cross connection. These measures shall include the prevention of backflow under any backpressure or backsiphonage condition, including the disruption of the water supply from the Purveyor's system that may occur during routine system maintenance or during emergency conditions, such as a water main break.
2. The customer agrees to install, operate, and maintain at all times his plumbing system in compliance with the current edition of the Uniform Plumbing Code having jurisdiction as it pertains to the prevention of contamination and protection from thermal expansion, due to a closed system that could occur with the present or future installation of backflow assemblies on the customer's service and/or at plumbing fixtures.
3. For cross-connection control or other public health-related surveys, the customer agrees to provide for the Purveyor's employees or agents free access to all parts of the premises during reasonable working hours of the day for routine surveys and at all times during emergencies.
4. Where agreement for free access for the Purveyor's survey is denied, the Purveyor may supply water service provided that premises isolation is provided through a DOH- approved reduced-pressure principle backflow assembly (RPBA)
5. The customer agrees to install all backflow prevention assemblies requested by the Purveyor and to maintain those assemblies in good working order. The assemblies shall be of a type, size, and make approved by DOH and acceptable to the Purveyor. The assemblies shall be installed in accordance with the recommendations given in the most recently published edition of the *Cross Connection Control Manual, Accepted Procedures and Practice*, published by the Pacific Northwest Section, American Water Works Association.

6. The customer agrees to:
  - (a) Have all assemblies (e.g., RPAs and/or DCVAs) that the Purveyor relies upon to protect the public water distribution system tested upon installation, annually thereafter and/or more frequently if requested by the Purveyor, after repair, and after relocation;
  - (b) Have all testing done by a purveyor-approved and currently DOH-certified Backflow Assembly Tester (BAT);
  - (c) Have the RPBA or DCVA tested in accordance with DOH-approved test procedures; and
  - (d) Submit to the Purveyor the results of the test(s) on Purveyor-supplied test report forms within the time period specified by the Purveyor.
7. The customer agrees to bear all costs for the aforementioned installation, testing, repair, maintenance and replacement of the RPBA, RPDA, DCVA or DCDA installed to protect the Purveyor's distribution system.
8. At the time of application for service, if required by the Purveyor, the customer agrees to submit to the Purveyor plumbing plans and/or a cross-connection control survey of the premises conducted by a purveyor-approved and DOH-certified Cross-Connection Control Specialist (CCS).
9. The cross-connection control survey shall assess the cross-connection hazards and list the backflow assemblies provided within the premises. The results of the survey shall be submitted prior to the Purveyor turning on water service to a new customer. The cost of the survey shall be borne by the customer.
10. For classes of customers other than single-family residential, when required by the Purveyor, the customer agrees to periodically submit a cross-connection control re-survey of the premises by a DOH-certified CCS acceptable to the Purveyor. The Purveyor may require the re-survey to be performed in response to changes in the customer's plumbing or water use, or performed periodically (annually or less frequently) where the Purveyor considers the customer's plumbing system to be complex or subject to frequent changes in water use. The cost of the re-survey shall be borne by the customer.
11. Within 30 days of a request by the Purveyor, a residential customer shall agree to complete and submit to the Purveyor a "Cross-Connection Control Survey" form for the purpose of surveying the health hazard posed by the customer's plumbing system on the Purveyor's distribution system. Further, the residential customer agrees to provide within 30 days of a request by the Purveyor an on-site cross-connection control inspection of the premises by the Purveyor's, DOH-certified CCS.
12. The customer agrees to obtain prior approval from the Purveyor for all changes in water use, and alterations and additions to the plumbing system, and shall comply with any additional requirements imposed by the Purveyor for cross-connection control.

13. The customer agrees to immediately notify the Purveyor and the local health jurisdiction of any backflow incident occurring within the customer's premises (i.e., entry of any contaminant/pollutant into the drinking water) and shall cooperate fully with the Purveyor to determine the reason for the backflow incident.
14. The customer acknowledges the right of the Purveyor to discontinue the water supply within 72 hours of giving notice to the customer, or a lesser period of time if required to protect public health, if the customer fails to cooperate with the Purveyor in the survey of premises, in the installation, maintenance, repair, inspection, or testing of backflow prevention assemblies or air gaps required by the Purveyor, or in the Purveyor's effort to contain a contaminant or pollutant that is detected in the customer's system.
15. Without limiting the generality of the foregoing, in lieu of discontinuing water service, the Purveyor may install an RPBA on the service pipe to provide premises isolation, and recover all costs for the installation and subsequent maintenance and repair of the assembly, appurtenances, and enclosure from the customer as fees and charges for water. The failure of the customer to pay these fees and charges may result in termination of water service in accordance with the Purveyor's water billing policies.
16. The Purveyor will require premises isolation for a customer that is of the high-hazard type or category requiring "Mandatory Premises Isolation" established by the DOH regulations (Table 9, WAC 246-290-490).
17. Where the Purveyor imposes mandatory premises isolation in compliance with DOH regulations, or agrees to the customer's voluntary premises isolation through the installation of a RPBA immediately downstream of the Purveyor's water meter, the customer acknowledges his obligation to comply with the other cross-connection control regulations having jurisdiction (i.e., Uniform Plumbing Code). Although the Purveyor's requirements for installation, testing, and repair of backflow assemblies may be limited to the RPBAs used for premises isolation, the customer agrees to the other terms herein as a condition of allowing a direct connection to the Purveyor's service pipe.
18. The customer agrees to indemnify and hold harmless the Purveyor for all contamination of the customer's plumbing system or the Purveyor's distribution system that results from an unprotected or inadequately protected cross connection within the customer's premises. This indemnification shall pertain to all backflow conditions that may arise from the Purveyor's suspension of water supply or reduction of water pressure, recognizing that the air gap separation otherwise required would require the customer to provide adequate facilities to collect, store, and pump water for his/her premises.
19. The customer agrees that, in the event legal action is required and commenced between the Purveyor and the customer to enforce the terms and conditions herein, the substantially prevailing party shall be entitled to reimbursement of all incurred costs and expenses including, but not limited to, reasonable attorney's fees as determined by the Court.

20. The customer acknowledges that the Purveyor's survey of a customer's premises is for the sole purpose of establishing the Purveyor's minimum requirements for the protection of the public water supply system, commensurate with the Purveyor's assessment of the degree of hazard.
21. It shall not be assumed by the customer or any regulatory agency that the Purveyor's survey, requirements for the installation of backflow prevention assemblies, lack of requirements for the installation of backflow prevention assemblies, or other actions by the Purveyor's personnel constitute an approval of the customer's plumbing system or an assurance to the customer of the absence of cross connections therein.
22. The customer acknowledges the right of the Purveyor, in keeping with changes to Washington State regulations, industry standards, or the Purveyor's risk management policies, to impose retroactive requirements for additional cross-connection control measures.

The Purveyor will record the customer's agreement to the above terms for service on an "Application for Water Service," "Application for Change of Water Service," or other such form prepared by the Purveyor and signed by the customer.

### **Implementation of the Cross-Connection Control Policy**

The Purveyor will engage the services of a DOH-certified CCS to develop, implement and be in responsible charge of the Orchard Beach Community Water System's cross-connection control program.

The Purveyor, under the direction of the aforementioned CCS, will prepare a written cross-connection control program plan to implement the requirements of this resolution. The written program shall be consistent with this resolution and shall comply with the requirements of Chapter 246-290 WAC (Group A Drinking Water Regulations).

The Purveyor will use the most recently published editions of the following publications as references and technical aids:

1. *Cross-Connection Control Manual, Accepted Procedures and Practice*, published by the Pacific Northwest Section, American Water Works Association, or latest edition thereof.
2. *Manual of Cross-Connection Control*, published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California, or latest edition thereof.
3. *Cross-Connection Control Guidance Manual for Small Water Systems*, published by the DOH Office of Drinking Water.

The Purveyor will incorporate the written program plan into the Water System Plan or Small Water System Management Program and will submit the plan to DOH for approval when requested.

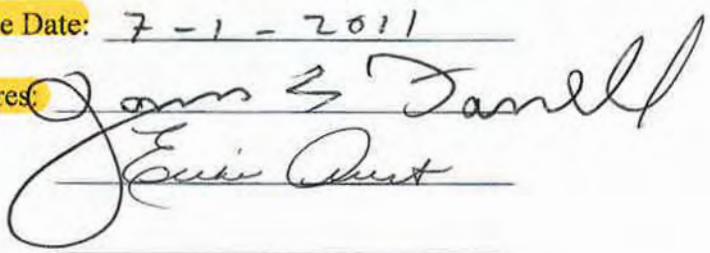
The Purveyor, in consultation with the aforementioned CCS, shall have the authority to make reasonable decisions related to cross connections in cases and situations not provided for in the resolution or written program.

If any provision in this resolution, or in the written cross-connection control program is found to be less stringent than or inconsistent with the Drinking Water Regulations (Chapter 246-290 WAC), or other Washington state statutes or rules, the more stringent state statute, rule, or regulation shall apply.

Resolution Passed: 6-18-2011

Effective Date: 7-1-2011

Signatures:

Two handwritten signatures are shown. The top signature is "John S. Danell" and the bottom signature is "Eric Amt". Both signatures are written in cursive ink on a white background.

# **Orchard Beach Community Water System**

## **Backflow Incident Response Plan**

### **A. General**

This Backflow Incident Response Plan should be considered a supplement to the Purveyor's Emergency Plan.

Purveyors should immediately begin a backflow incident investigation whenever the initial evaluation of a water quality complaint indicates that:

1. A backflow incident has occurred (i.e., drinking water supply has been contaminated) or may have occurred; or
2. The complaint can't be explained as a "normal" aesthetic problem.

Also, whenever a water main break (or power outage for pumped systems) causes a widespread loss of water pressure in the system (creating backsiphonage conditions), purveyors should initiate a check of distribution system water quality as a precursor to the need for a backflow incident investigation.

WAC 246-290-490 requires purveyors to notify DOH, the Local Administrative Authority and local health jurisdiction as soon as possible, but no later than the end of the next business day when a backflow incident contaminates the potable water supply (in the distribution system and/or in the customer's plumbing system). Purveyors should include a list of emergency contact telephone numbers at the beginning of the water system's O & M Manual, so that the information is readily available when an incident occurs.

A backflow incident investigation is often a team effort. The investigation should be made by or initially led by the DOH-certified Cross-Connection Control Specialist employed by the Purveyor. The investigation team may include state health (regional) staff, local health personnel and/or local plumbing inspectors.

Purveyors can get more detailed guidance on how to respond to a backflow incident from the manual, *Backflow Incident Investigation Procedures*, published by the Pacific Northwest Section, American Water Works Association (PNWS-AWWA). Contact information for the PNWS-AWWA is provided in Appendix F.

## **B. Short List of Tasks**

Small water system purveyors can use the following short list of tasks as initial guidance for dealing with backflow incidents. Purveyors should consult the most recently published edition of the PNWS-AWWA *Backflow Incident Investigation Procedures Manual* referenced above for greater detail as soon as possible after learning of a possible or confirmed backflow incident. Note: the water system is referred to as the Purveyor in the short task list.

### **1. Customer Notification**

- a. As soon as possible, the Purveyor will notify customers not to consume or use water.
- b. The Purveyor will start the notification with the customers nearest in location to the assumed source of contamination (usually the customer(s) making the water quality complaint).
- c. The Purveyor will inform the customer about the reason for the backflow incident investigation and the Purveyor's efforts to restore water quality as soon as possible. The Purveyor will let the customer know that customers will be informed when they may use water, the need to boil water used for consumption until a satisfactory bacteriological test result is obtained from the lab, etc.
- d. Where a customer cannot be contacted immediately, the Purveyor will place a written notice on the front door handle, and a follow-up visit will be made to confirm that the customer received notice about the possible contamination of the water supply.
- e. When dealing with a backflow incident, the Purveyor will let customers know that it could take several days to identify the source and type of contaminant(s) and to clean and disinfect the distribution system.

### **2. Identification of Source of Contamination**

- a. The Purveyor will give consideration to the distribution system as a potential source of the contaminant (e.g., air valve inlet below ground).
- b. The Purveyor will not start flushing the distribution system until the source of contamination is identified (flushing may aggravate the backflow situation, and will likely remove the contaminant before a water sample can be collected to fully identify the contaminant).
- c. The Purveyor will conduct a house-to-house survey to search for the source of contamination and the extent that the contaminant has spread through the distribution system. Note: a check of water meters may show a return of water (meter running backward) to the distribution system.
- d. When the cross connection responsible for the system contamination is located, the

Purveyor should discontinue water service to that customer, until the customer completes the corrective action ordered by the Purveyor.

### **3. Isolation of Contaminated Portion of System**

- a. The Purveyor will isolate the portions of the system that are suspected of being contaminated by closing isolating valves; leave one valve open to ensure that positive water pressure is maintained throughout the isolated system.
- b. The Purveyor will be sure to notify all affected customers in the isolated area first and then notify other customers served by the system.

### **4. Public Health Impacts**

- a. The Purveyor will seek immediate input from and work with state and local health agencies to accurately communicate and properly mitigate potential health effects resulting from the backflow incident.
- b. If appropriate, the Purveyor will refer customers that may have consumed the contaminant or had their household (or commercial) plumbing systems contaminated to public health personnel and Local Administrative Authorities (plumbing inspectors).

### **5. Cleaning/Disinfecting the Distribution System**

- a. The Purveyor will develop and implement a program for cleaning the contaminated distribution system consistent with the contaminant(s) identified.
- b. Where both chemical and bacteriological contamination has occurred, the Purveyor will disinfect the system after the removal of the chemical contaminant.
- c. Where any bacteriological contamination is suspected, the Purveyor will provide field disinfection.

## C. Additional Information on Cleaning/Disinfecting the Distribution System

Most chemical or physical contaminants can be flushed from the water distribution system or customer's plumbing system with adequate flushing velocity. However, this may not be the case in systems where scale and corrosion deposits (e.g., tuberculation on old cast iron mains) provide a restriction to obtaining adequate flushing velocity, or where chemical deposits or bacteriological slimes (biofilm) are present (on which the chemical contaminant may adhere).

To remove a chemical or physical contaminant from the distribution system, purveyors may need to:

1. Physically clean the affected area using foam swabs (pigs); and/or
2. Alter the form of the chemical contaminant (e.g., through oxidation using chlorination or addition of detergents).

When adding any chemical (including chlorine) to remove a contaminant from the distribution system, it is essential that the Purveyor fully understand the chemistry of the contaminant. **Adding the wrong chemical could make the contaminant more toxic to customers and/or more difficult to remove from the distribution system.**

To disinfect water mains using the "slug" or "continuous flow" method, a field unit should be used for chlorine injection, such as a chemical feed - metering or proportioning pump for sodium hypochlorite. Purveyors should contact the appropriate DOH regional office to discuss proposed approaches to contaminant removal and disinfection prior to taking corrective action.

# 10.12 FINANCIAL DOCUMENTS

## **Orchard Beach Expenses 2015-2018**

	2015	2016	2017	2018
<b>Annual Expenses</b>				
Operator Fees	2,400	2,400	2,400	2,400
Electricity	840	840	840	840
Insurance	1,600	1,600	1,600	1,600
Health Permit	10	10	10	10
License for wal	10	10	10	10
other expenses	250	250	250	250
Total	5,110	5,110	5,110	5,110
<b>Maintance and Repair</b>				
repairs	1,950	1,968	1,632	3,224
engineering	0	0	0	5,000
total	12,170	12,188	11,852	18,444

## SIX YEAR BUDGET PROJECTION

System Name: Orchard Beach Community

System ID Number: 64031-Q

<i>System Information:</i>	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<i>Number of active connections</i>	38	38	38	38	38	39	39	39	39	40	40
<i>Annual water rate per connection</i>	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
<i>Additional Connection Fee</i>						\$5,000				\$5,000	

### Notes:

\* A 3% rate of inflation is assumed for most expenses, except permits / fees, estimated at 5% annual inflation.

\*\* Engineering services includes preparation of the WSP and capacity analysis in 2018.

RESERVE ACCRUAL	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning Balance	7,000	8,391	9,624	10,694	11,596	12,325	18,375	19,242	19,920	20,403	26,185
Deposits to Reserve	1,391	1,233	1,070	902	729	6,050	867	678	483	5,782	575
* Emergency/O&M Reserve	8,391	9,624	10,694	11,596	12,325	18,375	19,242	19,920	20,403	26,185	26,760
Beginning Balance	20,000	32,045	44,090	56,135	68,180	80,225	92,270	104,315	116,360	128,405	140,450
Deposits to Reserve	12,045	12,045	12,045	12,045	12,045	12,045	12,045	12,045	12,045	12,045	12,045
** Replacement Reserve Balance	32,045	44,090	56,135	68,180	80,225	92,270	104,315	116,360	128,405	140,450	152,495

**Capital Replacements Worksheet**  
**for the**  
**Orchard Beach Water System**

Reserve Balance	\$20,000
Assessment	\$0
Total Available Funding	\$20,000
Inflation Rate	2.5%
Savings Account Interest Rate	3.5%
Interest Compoundings per Year	1
Mid-term / Long term break	30

Component	Service Life	Age	Life	Unit Price	Units	Replacement Cost	Long Term Future Cost	Present Reserve Balance	Current Reserve Future worth	Remaining Cost	Mid-Term Reserve Payment	Long Term Reserve Payment
S01*	80	55	25	\$0	1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
S02	80	29	51	\$15,000	1	\$15,000	\$52,846	\$1,176	\$6,800	\$13,070	\$0	\$337
S01 Pump (1/2HP)	25	38	1	\$6,000	1	\$6,000	\$0	\$0	\$0	\$0	\$286	\$0
S02 Pump (5HP)	25	29	1	\$6,000	1	\$6,000	\$0	\$0	\$0	\$0	\$286	\$0
Source Meter	15	15	1	\$500	2	\$1,000	\$0	\$0	\$0	\$0	\$75	\$0
Distribution Meter	15	0	15	\$250	38	\$9,500	\$0	\$0	\$0	\$0	\$713	\$0
Pump Controls	20	29	1	\$2,000	1	\$2,000	\$0	\$0	\$0	\$0	\$116	\$0
New Pressure Tanks	10	0	10	\$250	3	\$750	\$0	\$0	\$0	\$0	\$82	\$0
Old Pressure Tanks	10	5	5	\$250	5	\$1,250	\$0	\$0	\$0	\$0	\$136	\$0
Generator	30	11	19	\$11,000	1	\$11,000	\$0	\$0	\$0	\$0	\$447	\$0
Distribution pipe 4"	80	51	29	\$50	4700	\$235,000	\$480,906	\$18,431	\$49,984	\$210,575	\$0	\$8,810
Valve 6"	25	51	1	\$600	1	\$600	\$0	\$0	\$0	\$0	\$29	\$0
Valve 4"	25	51	1	\$400	4	\$1,600	\$0	\$0	\$0	\$0	\$76	\$0
Blow-off	30	51	1	\$2,500	1	\$2,500	\$0	\$0	\$0	\$0	\$102	\$0
Pump House**	60	51	9	\$5,000	1	\$5,000	\$6,244	\$392	\$534	\$4,572	\$0	\$551
								CIP Reserve Payment		\$2,347	\$9,698	
*replacement of S01 is included in capital improvements								Total Annual Payments		\$12,045		
** assuming existing slab is still usable. Full replacement will be about \$ 10, 000 and higher.												

**Capital Improvement Worksheet**  
**for the**  
**Orchard Beach Water System**

Reserve Balance	\$0
Assessment	\$0
Total Available Funding	\$0
Inflation Rate	2.5%
Savings Account Interest Rate	3.5%
Interest Compoundings per Year	1
Mid-term / Long term break	20

Component	Replacement Time (yr)	Unit Price	Units	Replacement Cost	Long Term Future Cost	Present Reserve Balance	Current Reserve Future worth	Remaining Cost	Mid-Term Reserve Payment	Long Term Reserve Payment		
S01 Casing Replacement	2	\$1,000	1	\$1,000	\$0	\$0	\$0	\$0	\$516	\$0		
S01 Replacement	10	\$30,000	1	\$30,000	\$0	\$0	\$0	\$0	\$3,273	\$0		
Reservoir	30	\$57,000	1	\$57,000	\$119,561	\$0	\$0	\$57,000	\$0	\$2,316		
Booster Pump	30	\$7,500	2	\$15,000	\$31,464	\$0	\$0	\$15,000	\$0	\$609		
Booster Pump Controls	30	\$2,000	1	\$2,000	\$4,195	\$0	\$0	\$2,000	\$0	\$81		
						CIP Reserve Payment		\$3,273	\$3,007			
						Total Annual Payments						

## 10.14 SANITARY SURVEY

**WASHINGTON STATE DEPARTMENT OF HEALTH**  
**Third-Party Sanitary Survey Checklist**

System Name: **ORCHARD BEACH COMMUNITY**

Survey Date: **4/25/14**

PWS ID#: **64031 Q**

County: **MASON**

System Type: **TNC**

Persons Attending Inspection:

**LOGAN ARNOLD, NWS**

Inspector's Name: **CAROL SPAULDING**

**PART A: SUMMARY OF SIGNIFICANT DEFICIENCIES AND SIGNIFICANT FINDINGS**

The following is a completed sanitary survey checklist and summary of inspection findings. This completed sanitary survey checklist is the basis for the cover letter you receive from your local health jurisdiction or from the WA Dept. of Health (DOH). The cover letter documents any significant deficiencies or significant findings that must be corrected. The cover letter may also summarize observations concerning compliance with certain rules, and offer recommendations you can use to make improvements to the operation and management of your water system. Contact your DOH regional office with any questions you have about this survey.

**Bolded and highlighted** checklist items represent significant deficiencies that, if left uncorrected, create a significant public health risk. **Highlighted** checklist items represent significant findings that, if left uncorrected, create a significant risk to the physical safety, security, or reliability of the public drinking water supply. You will be required to take some sort of corrective action for each checklist answer that is **bolded and highlighted**, or highlighted.

Significant deficiencies and significant findings identified during this sanitary survey:

Significant deficiencies or significant findings identified in the previous sanitary survey that remain unaddressed:

Observations and recommendations identified during this survey

Observation: Change of ownership pending. See Part C: Operations and Management and Cover Letter for more information.

Observation: Unapproved system.

**PART B: GENERAL WATER SYSTEM DESCRIPTION**

Provide a general description of the water system including changes, updates, connections, source(s), storage, number of pressure zones, treatment, and control system(s) and alarm(s). Make corrections and updates to the purveyor's water facilities inventory form (WFI).

There are two sources on the system SO2 is the primary with SO1 activated during peak demand. The wells pump to 8 bladder style pressure tanks then out to distribution. According to the March 2014 WFI this unapproved system serves 9 fulltime family residences 25 part time residences and 4 recreational services. The system was reclassified to Transient Non Community (TNC) in 2010. Department of Health records indicate the approval process that was started in 2004 has not been completed.

**PART C: OPERATIONS and MANAGEMENT**

1. <u>Community (≤1,000 connections):</u> Has the water system taken the online Capacity Assessment Survey?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
2. Were water system records available for your review?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
3. Has the purveyor developed and implemented either a Small Water System Management Program or a Water System Plan?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3a. If no, are the following planning documents complete and up to date:	
Service Area and Facility Map	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Cross-Connection Control Program	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Partial
Source Water Protection Program	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Emergency Response Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Operation and Maintenance Program	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Coliform Monitoring Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Component Inventory and Assessment	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Asset Replacement and Other System Improvements	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Budget	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
4. Does the purveyor plan to make capital improvements in the next 1-3 years? <i>If yes, describe below</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Is there a backup operator available if the regular one is not available? <i>If yes, provide contact info below</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Were the water system's current and future water quality monitoring requirements reviewed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7. Was water quality sample results and trends reviewed with the purveyor?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
8. Does the system have emergency power?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9. Does the system experience frequent power outages (>2 per year)? <i>If yes, explain below</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
10. Does the system experience frequent water outages (>2 per year)? <i>If yes, explain below</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11. Does there appear to be adequate reliability provided for this system? <i>If no, explain below</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Describe the general level of planning and management documents developed by this water system and any recommendations for additional development, including updates, system management practices and processes, water rates, etc.

5. Northwest Water Systems technicians, 1-888-881-0958

A Small Water System Management Program (SWSMP) was prepared for the Orchard Beach Community Group Inc. by Northwest Water Systems (NWS) in 2011 in accordance with Washington Administrative Code (WAC) 246-290-105 and the Department of Health (DOH). The corporation is governed by its officers, (aka Executive committee), who include the president, Vice President, Secretary/Treasurer and a trustee. Significant expenditures are subject to approval by the Executive Committee and presented to the membership during the annual meeting.

8. Honda G6 series commercial generator

Recent information from the current president, James Farrell, indicates the systems will be changing ownership after the association votes on the issue June 21, 2014. A change of ownership legal documentation will need to be sent to the Department of Health Office of Drinking Water.

## PART D: SOURCES

(This page may be reproduced to add more sources)

12. Did you observe a source connected to the water system that is NOT listed on the WFI and in active use?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>12a. If so, has the source received written DOH approval? (confirm with DOH post-survey)</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13. DOH Source Number:	SO# 1	SO# 2
14. Source Name from the WFI: (For example, North Well; Well #2; ABC334.)	WELL #1 WELL #2	
15. Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)	AHA945 AHA944	
16. Source Use: P - Permanent S - Seasonal E - Emergency	P P	
<b>17. If this is an emergency source, should it be disconnected?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<b>18. Is the source a potential GWI source?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>WELL</b> (if there is no well, skip to question 34)		
<b>19. Is the Sanitary Control Area (SCA) free of unmitigated potential sources of contamination?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
20. Is the wellhead located in a pit or vault?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>21. Is the wellhead at risk of submergence?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>22. Is the well cap sealed, watertight, and free of unprotected openings?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>23. Is the well casing free of any unprotected openings?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
24. Is there a vent on the well?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>24a. If yes, is the vent protected? (24 non-corrodible mesh screen or slots)</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>25. Are conduits and junction boxes sealed to prevent contaminant entry?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
26. Is the well unreasonably at risk to physical damage?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
27. Is there a raw water source sample tap?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
28. Is the source metered?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
28a. If yes, is the source meter read at least monthly?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
28b. If yes, are the water production records maintained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
29. Is the wellhouse properly constructed and maintained? If no, explain below	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
30. Is there evidence of rodent infestation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
31. Is the wellhouse adequately protected from unauthorized access?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>32. Is there a pump control valve or vacuum relief valve without an air gap on the valve discharge pipe?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
<b>33. Are the source pump and pump controls operational and adequate to prevent chronic water outages or premature pump failure? If no explain below</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>SPRING</b> (if there is no spring, skip to question 41)		
<b>34. Is the springbox (structure, hatch, and overflow) constructed to prevent the entry of contaminants or direct surface drainage? If yes, describe below.</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
35. Is there a raw water source sample tap?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
36. Is the source metered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
36a. If yes, is the source meter read at least monthly?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
36b. If yes, are the water production records maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
37. Is the springhouse properly constructed and maintained? If no, explain below	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
38. Is there evidence of rodent infestation?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
39. Is the springhouse and spring box adequately protected from unauthorized access?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>40. Is the Sanitary Control Area (SCA) free of unmitigated potential sources of contamination?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	

Describe and evaluate the source facilities including maintenance, operations, sanitary and security observations and any major change made to the source such as pump replacement, deepening or reconstruction:

There are two wells on the system with SO2 acting as primary and SO1 engaged during peak demand. The pitless adapter style SO2 well located adjacent to the well/pump house and to the right of the entrance, was drilled in 1989 by Davis Drilling to a depth of 209 feet with a 6 inch casing and a Bentonite seal to 18 feet. A Berkley 5 HP submersible pump with a capacity of 60gpm was installed.

Continue on next page with Source narrative information

Describe and evaluate the source facilities including maintenance, operations, sanitary and security observations and any major change made to the source such as pump replacement, deepening or reconstruction (*continued*):

The well head is enclosed in corrugated metal structure with a wooden lid secured with a padlock.

Existing records indicate SO1 was drilled in approximately 1952 by John Webber to a depth of 72 feet. The current Jacuzzi ½ HP submersible pump was installed in 1980 with a capacity of 10gpm. SO1 is located inside the well/pump house encased in the concrete floor with approximately 4.5 inches of rise between the floor and the top of the well head instead of the required 6 inches of height. Rather than remove the concrete in order to raise the casing, the Orchard Beach Group in coordination with the DOH Regional Engineer decided that SO1, (well #1) would be replaced by a projected date of 2021.

The well/pump house is of wood framed construction with insulated finished walls, concrete floor and footings with a screened floor drain to daylight, ventilation, lighting, heat source and a locking metal door.

A private drive way that slopes away from the wells is located within approximately 10 feet of SO1 and 4 feet of SO2. Orchard Beach Road is located approximately 8 feet down gradient of the north west side of the well house. No other sources of contamination appear to be within the Sanitary Control Area.

**PART E: DISINFECTION (if no disinfection, answer question 41 and skip rest of Part E)**

41. Does the operator <u>batch</u> chlorinate the source, the distribution system, or the reservoir just before collecting routine or repeat coliform samples? If yes, provide details below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
42. Did you observe disinfection treatment connected to the water system in active use that is NOT listed on the WFI? If yes, explain below	<input type="checkbox"/> Yes <input type="checkbox"/> No
43. Is ultraviolet light (UV) used for disinfecting a drinking water source? If no, skip to question 46.	<input type="checkbox"/> Yes <input type="checkbox"/> No
44. Is the UV unit sized for the maximum flow rate, and is there a UV transmittance sensor controlling a solenoid valve or other device to shut off supply if the UV light fails?	<input type="checkbox"/> Yes <input type="checkbox"/> No
45. Describe the UV equipment including:  UV manufacturer and model number: Cleaning frequency of quartz sleeve :	Rated capacity (gpm) : Mo/Yr UV light last replaced:
46. Is there continuous chlorination? If no, skip to Part F	<input type="checkbox"/> Yes <input type="checkbox"/> No
46a. If yes, please measure the free chlorine residual from a representative location in the distribution system.  Location description:	Free chlorine residual:
47. Is there a water supply line plumbed directly into a chlorine solution tank without a reduced pressure backflow assembly on the supply line?	<input type="checkbox"/> Yes <input type="checkbox"/> No
48. Is there a post-treatment sample tap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
49. Does the chlorine compound meet NSF/ANSI Standard 60? - <i>household bleach exempted</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
50. Is a backup chemical feed pump or spare parts for the operating chemical feed pump available onsite?	<input type="checkbox"/> Yes <input type="checkbox"/> No
51. According to the operator, is there a DOH requirement for Chlorine Contact Time? If no, skip to Part F  51a. If yes, measure and record the free chlorine residual at the CT6 compliance location: <i>Describe compliance sampling location below – location must be prior to the first service connection downstream of chlorine addition.</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
52. Is the chlorine pump and pump controls constructed and maintained to provide uninterrupted, reliable CT6 treatment? If no, describe below.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Describe the chlorination facilities including purpose for chlorination, concerns with maintenance or operations, purveyor's record keeping of monthly reports, and sanitary and security observations:

**PART F: TREATMENT**

53. Is there any treatment other than chlorination or UV in use? <i>If no, skip Part F.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
54. Did you observe a treatment process connected to the water system in active use that is NOT listed on the WFI? <i>If yes, describe below.</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
55. Is there a water supply line plumbed directly into a chemical solution tank (e.g., fluoride saturator) without a reduced pressure backflow assembly on the supply line?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
56. Are primary contaminant treatment facilities (e.g., nitrate, corrosion control, arsenic) operating properly? <i>If no, describe below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
57. Do the water treatment chemicals meet NSF/ANSI Standard 60?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
58. Is there a post-treatment sample tap?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Describe the treatment facilities including purpose for treatment, concerns with maintenance or operations, purveyor's record keeping of monthly reports, and sanitary and security observations:

**PART G: BOOSTER PUMPING FACILITIES and CONTROLS**

59. Are there any booster pumps in use? <i>If no, skip Part G</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
60. Are the booster pumps in good working condition? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
61. Are pump and pump controls operational and adequate to prevent chronic water outages or premature pump failure? <i>If no explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
62. If there is a booster pump house/pump station, is it secure against unauthorized entry? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
63. Is the booster pump house/pump station properly constructed and maintained? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Describe and evaluate the pump facilities and controls including maintenance, operations, sanitary and security observations:

## PART H: PRESSURE TANKS

64. Are there any pressure tanks in use? <i>If no, skip Part H</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
65. For systems using an air compressor, is the compressor an oil-free type or does it use food-grade oil?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
66. Are valves present to isolate pressure tanks for maintenance or repair?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
67. Is there an ASME pressure relief valve installed between each pressure tank and any shutoff valve? (see DOH publication #331-429)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
68. Are the pressure tanks in good working condition? <i>If no, explain below</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Describe and evaluate the pressure tanks including maintenance, operational, sanitary and security observations:

There are 8, 81 gallon bladder style pressure tanks on the system. The tanks have individual gate valves to expedite repairs or replacement. The tanks are drained annually and pressure checks conducted. The 100psi ASME pressure relief valve exits with a screened blow off to the outside.

## PART I: FINISHED WATER STORAGE

Insert Tank Names		
71. Is the storage tank protected from unauthorized entry or vandalism? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
72. Is the reservoir roof free of any unprotected openings? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
73. Is the access hatch constructed and sealed to prevent the entry of contaminants? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
74. If able to open hatch, is the stored water free of visible contaminants? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
75. Is there a dedicated air vent on the storage tank?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
75a. If yes, is the air vent constructed to prevent the entry of contaminants? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
76. Is the overflow line constructed to prevent contaminants from entering the tank? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
77. Does the overflow line discharge near ground level?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
78. Is the overflow line discharge area protected from potential erosion?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
79. Does the overflow line discharge into a storm drain or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
79a. If yes, is there an air gap at the discharge of the overflow OR does the overflow drop at least 34 vertical feet measured from the overflow connection to the reservoir down to the receiving water body?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
80. Does the overflow line discharge directly into a sanitary sewer without an air gap?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
81. Can the reservoir be isolated from the rest of the water system and be drained through a dedicated drain line?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
82. When was the tank inspected last? <i>Explain below if necessary</i>		
83. What is the tank cleaning frequency? <i>Explain below if necessary</i>		
84. Does the tank size, operation, and internal piping configuration appear to provide adequate water turnover (i.e. separate inlet/outlet, baffling or mixing to reduce stagnant water)? <i>If no, explain below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> unk
85. Does the tank show signs of excessive leakage, significant structural cracking, or advanced concrete spalling?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Describe and evaluate the finished water storage facilities including volume, operational draw down, configuration of the inlet/outlet piping, any concerns about operations and maintenance, and sanitary and security observations:

#### PART J: DISTRIBUTION SYSTEM

86. Is a complete, up to date and accurate map of the distribution system maintained?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
87. Does the system provide adequate pressure throughout the distribution system? If no, explain below	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
88. Are proper procedures followed for disinfection of new construction or repairs?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
89. Are there blow-offs to flush the system?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
90. Does the purveyor seasonally or annually flush the distribution system? If yes, describe below	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
91. Does the purveyor exercise its distribution system valves? If yes, describe below	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Describe and evaluate the distribution system including maintenance, operational, sanitary and security observations:

89 & 90. The status of blow offs is unknown at this time. The 2003 sanitary survey reports there are 2 inch blow offs at end of each branch and the 2009 survey says there are none.

91. The isolation valves in the pump house are exercises annually or as needed.

The distribution system consists of two branches that serve both sides of Orchard Beach Drive and Orchard Beach Road. The water enters the well/pump house from SO2 via a 2 inch galvanized iron pipe past the 8, 81 gallon pressure tanks exiting the well/pump house branching to the north and south along Orchard Beach Drive and south east along Orchard Beach Road. SO1 feeds into the manifold at the fifth pressure tank connection. According to the 2003 sanitary survey the water mains are predominately 6 inch PVC pipe.

**PART K: CROSS CONNECTION CONTROL (CCC)**

92. Does the water system serve a single connection? <i>If yes, refer the purveyor to the Uniform Plumbing Code and skip Part K</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
93. Is the water system known to serve one or more high health hazard premises, such as those listed in Table 9 in WAC 246-290-490? <i>If yes, describe the premise(s) below.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
94. Has the purveyor established the legal authority to implement a CCC program (i.e., formally adopted an ordinance, resolution, by-laws, or other document defining the purveyor's CCC program requirements, and empowering the purveyor to enforce them)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
95. Has the purveyor designated a CCC Specialist (CCS) to be in responsible charge of the CCC program?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
95a. If yes, has the CCS conducted a hazard evaluation to identify high health hazard premises?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
95b. If yes, has the purveyor completed installation of a backflow prevention assembly on the service line to each identified high health hazard premise?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
96. Has each testable backflow prevention assembly installed for premises isolation been tested by a DOH certified backflow assembly tester (BAT) within the past 12 months?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<b>97. Did you observe the end of a hose connected to the potable water system submerged in a pool, hot tub, watering trough, or other non-potable body of water observed during the survey?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>98. This question only applies to a facility operating a sewage dump station: Is there a sewage dump station without a reduced pressure backflow assembly on the water supply at the dump station?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

Additional cross connection control program comments:

A Cross Connection Control Plan was created for the system by NWS but has not been signed by the HOA. When the document is signed, implementation will proceed.

**PART L: OPERATOR**

99. Is the operator of the water system certified?

 Yes  No

100. Describe the operator's certification level (if certified), duration of employment with this water system, relationship with the system (e.g., contract operator, SMA, direct hire employee, volunteer, temporary, or owner), and duties and responsibilities

Orchard Beach Community has a contract with Northwest Water Systems, inc. (NWS) to manage their water system. The certified operator for NWS is Kelly Racker, operator #011822. Her certifications include, WDM3 (Water Distribution Manager for up to 55,000 connections, CPS (Cross Connection Control Specialist) and currently WTTOIT (Water Treatment Plant Operator in training). The NWS technicians work under her direction.

For this system, the technician, Logan Arnold, is responsible for monthly inspections of the water system which includes checking the performance of the pressure tanks for pressure and leaks, recording monthly source meter readings to a excel spreadsheet, and collecting monthly bacteriological samples.

Additional duties and responsibilities performed throughout the year by NWS technicians include; collecting annual nitrate samples and compliance samples when needed, cycling pumps and record recovery time, drain and recharge pressure tanks, turn well house heaters on for the winter and off for the summer, exercise the distribution valves and flush the system according to the system plan.

101. Does the operator conduct self-inspections of the water system? If yes, describe frequency and scope of these self-inspections below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
102. Is the operator performing measurements and calibration of water treatment monitoring equipment consistent with manufacturer recommendations? If no, describe below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
103. Is the operator using proper inputs to treatment plant operations reports, such as correct volume, peak flow rate, time, and making the proper calculations? If no, describe below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
104. Does the operator take compliance water quality samples at the proper location? If no, describe below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

Additional operator comments:

101. Monthly water system inspections by the SMA are described above in Part L: OPERATOR.

**PART M: FIELD NOTES AND OTHER**

Descriptions of any water quality tests, physical measurements, or simple repairs completed during the inspection:

**PART N: SUPPLEMENTAL NOTES AND SAFETY CONCERNs**

Supplemental comments from other parts of the checklist, and documentation of field safety concerns:

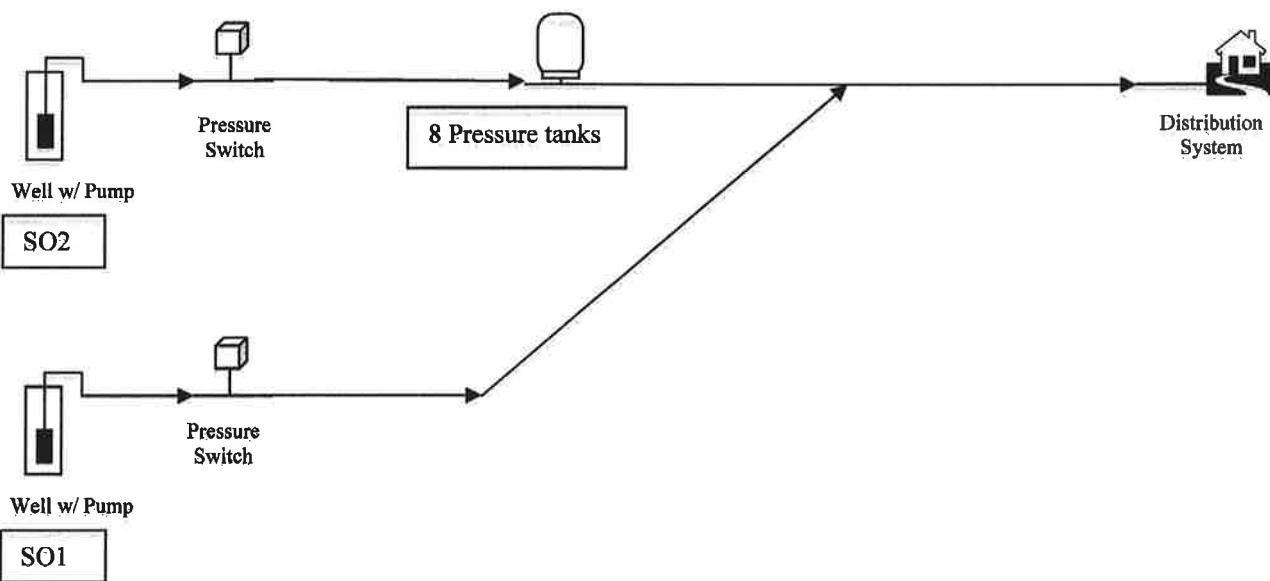
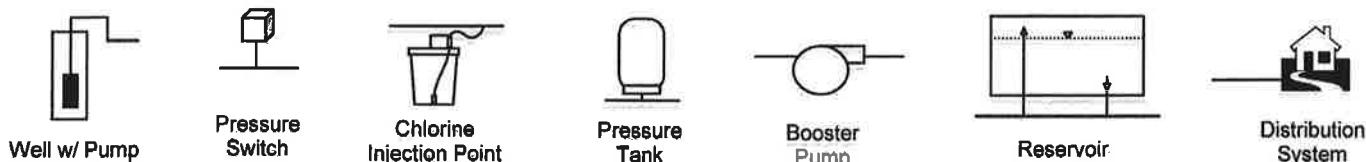
## Group A Small Water System Sanitary Survey Checklist Report

### PART O: WATER SYSTEM FACILITIES FIELD SCHEMATIC

Use the space below to sketch a simple schematic of the water system facilities. You may use the templates shown below to help build your schematic. The sketch should show location of sources, treatment, pressure tanks, booster pumps, storage tanks, and a simple representation of the distribution system. Include direction of flow (directional arrows) and brief description of how the controls function.

Source Name:	WELL # 1 (AHA945)	WELL #2 (AHA944)
	(64031 Q)	
		Source Number: SO1 & SO2

Example templates you can use to build your schematic:



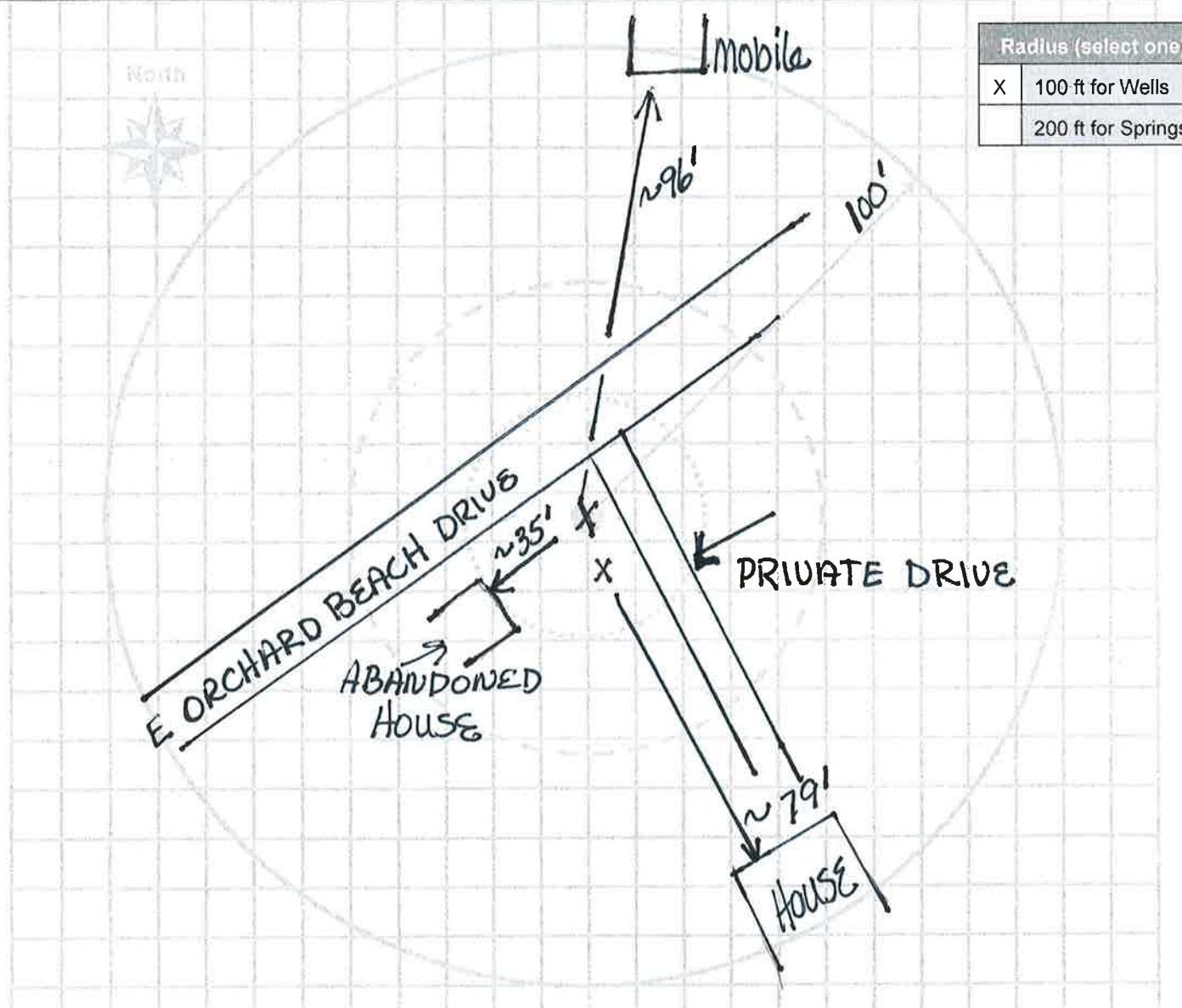
# Group A Sanitary Water System Sanitary Survey Checklist Report

## PART P: INVENTORY OF POTENTIAL SOURCES OF CONTAMINANTS WITHIN THE SANITARY CONTROL AREA

Use the graph below to locate any potential biological and chemical contaminants found within the source's Sanitary Control Area (SCA). The SCA is the protective area within 100 feet of wells or 200 feet of springs.

Source Name: WELL # 1 (AHA945) WELL #2 (AHA944) (64031 Q) Source Number: SO1 & SO2

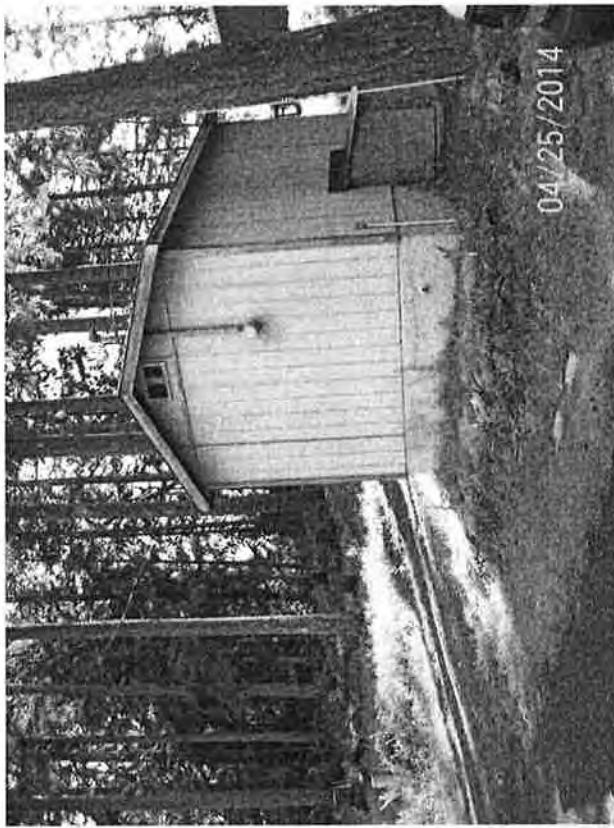
Radius (select one)	
<input checked="" type="checkbox"/> X	100 ft for Wells
<input type="checkbox"/>	200 ft for Springs



**Description of Features Shown on the SCA Schematic**

A.	C.	E.
B.	D.	F.
<b>Sources of Contamination</b>		
Abandoned water wells	Feet	Sources of Contamination
Animal burial		Dumpsters
Biological contaminants		Fuel tanks (above or below ground)
Buildings		Graveyards
Chemical contaminants		Hazardous waste disposal site
Drainfields and septic tanks		Hazardous waste facility
Drug lab		Irrigation canal
Dry wells		Landfill, dump, disposal area
		Pesticide application
		Pesticide storage
		Roads and parking lots
		Sewer lines, gravity or pressure
		Storm water catch basins
		Surface water
		Wastewater spray irrigation
		Other:

ORCHARD BEACH COMMUNITY #64031 Q  
CAROL SPAULDING 4/25/2014



VIEW OF SO1 WELL/PUMP HOUSE FROM  
ORCHARD BEACH DRIVE.  
SO2 PITLESS ADAPTER STYLE WELL HEAD  
WITH SCREENED AIR VENTS & SEALED CAP.

ORCHARD BEACH COMMUNITY #64031 Q  
CAROL SPAULDING 4/25/2014

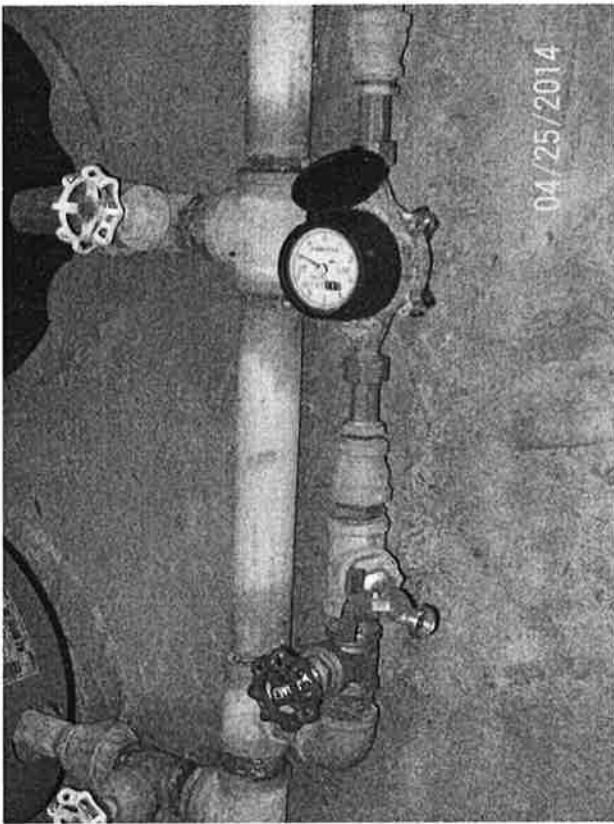


OVERALL VIEW OF THE MAJOR PART OF THE WELL/PUMP HOUSE . FROM RIGHT, SO<sub>2</sub> METER, SO<sub>1</sub> WELL HEAD, SO<sub>1</sub> METER , INDIVIDUAL TANK ISOLATION VALVES & MANIFOLD CONNECTIONS.



AT RIGHT, INLET FROM SO<sub>2</sub> INCLUDING SOURCE METER AT BOTTOM CENTER. ABOVE THE METER IS THE SAMPLE TAP, PRV WITH SCREENED BLOW OFF PIPE TO THE OUTSIDE & PRESSURE SWITCHES FOR BOTH WELLS.

ORCHARD BEACH COMMUNITY #64031 Q  
CAROL SPAULDING 4/25/2014

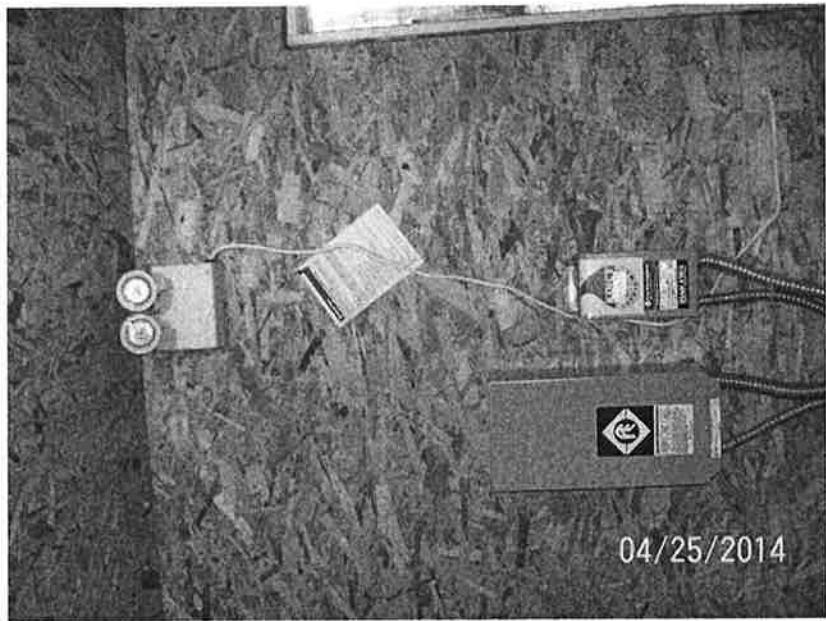


FROM THE RIGHT A CLOSE UP VIEW OF SO1  
WITH SCREENED AIR VENT, ISOLATION VALVE,  
& METER.

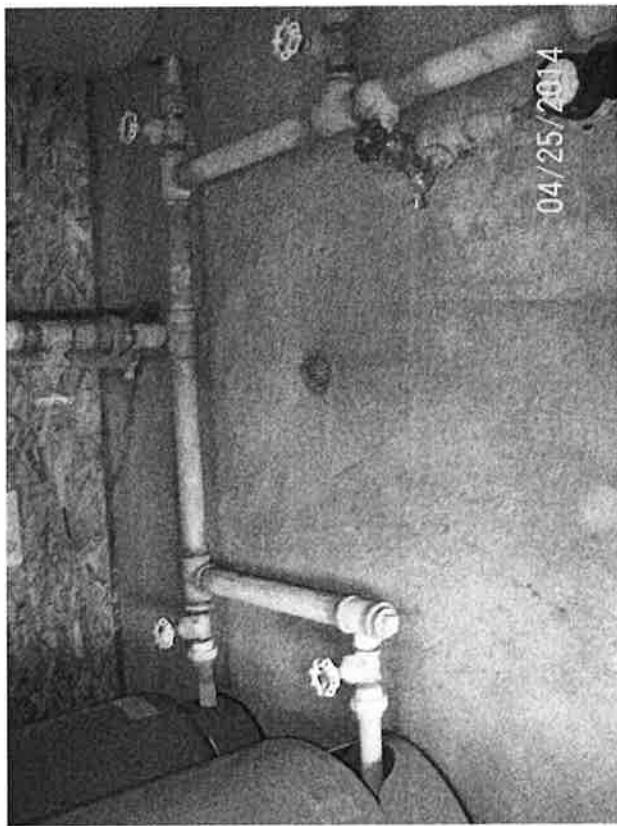
FROM RIGHT, SO1 METER, SAMPLE TAP &  
ISOLATION VALVE.



ORCHARD BEACH COMMUNITY #64031 Q  
CAROL SPAULDING 4/25/2014



AT TOP, EMERGENCY LIGHT SYSTEM . FROM  
LOWER LEFT, POWER BOX AND PUMP  
MOTOR CONTROL UNIT.



VIEW OF THE PRESSURE TANK MANIFOLD  
CONNECTIONS WITH THE OUTLET TO  
DISTRIBUTION AT CENTER TOP AND FLOOR  
DRAIN.

ORCHARD BEACH COMMUNITY #64031 Q  
CAROL SPAULDING 4/25/2014



AT CENTER, GENERATOR POWER SERVICE &  
MANUAL SHUT OFF.  
  
HONDA GX SERIES COMMERCIAL  
GENERATOR.

ORCHARD BEACH COMMUNITY #64031 Q  
CAROL SPAULDING 4/25/2014



SERIALIZED  
SCREENED FLOOR DRAIN OUTLET PIPE.  
04/25/2014

# 10.15 CORRESPONDENCE

**From:** [Doug Piehl](#)  
**To:** [Anna Parkinson](#)  
**Subject:** FW: Preplan Meeting Notes Orchard Beach Water System  
**Date:** Thursday, July 19, 2018 10:57:07 AM  
**Attachments:** [PreplanChecklistOrchardBeachDecember62016.doc](#)

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Below is a letter from DOH about the WSP requirements.

Doug Piehl, P.E.  
Design Engineer,  
Northwest Water Systems, Inc.  
(360) 876-0958 Ext 110

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**From:** Erika Aust & Eric Campbell [mailto:[eeanda@yahoo.com](mailto:eeanda@yahoo.com)]  
**Sent:** Thursday, June 07, 2018 11:53 AM  
**To:** Doug Piehl  
**Subject:** Fw: Preplan Meeting Notes Orchard Beach Water System

Sent from Yahoo Mail for iPhone

Begin forwarded message:

On Monday, December 12, 2016, 7:41 AM, Clark, Susan P (DOH) <[susan.clark@doh.wa.gov](mailto:susan.clark@doh.wa.gov)> wrote:

Erika – Thank you for meeting with Regina and me (with Marie Peter, Department of Ecology joining us via telephone) on December 6, 2016 to discuss options available to your water system to obtain approval for the current connections (currently installed meters) and ultimately obtain approval for full build-out of your community pending water right availability. We appreciate your patience as we worked through the details of your system.

To document our conversation, we offer the following. Should you have any concerns or questions regarding the documentation of our conversation, please either let me (before December 16, 2016) or Regina know.

**Summary – Current Situation:**

- Orchard Beach is an unapproved water system, hence the current blue operating permit.
- Orchard Beach currently has water rights for approximately 5.4 acre/feet per year.

- Orchard Beach has a water right application pending at the Department of Ecology to ensure adequate water supply for full buildout of the community.
- Orchard Beach has a Small Water System Management Program (SWSMP) developed in 2011.
- Orchard Beach currently has 8 full-time residents, 25 part-time and 4 recreational connections. One existing home is currently on the market. (Some of these connections do not have built structures, but they are being counted as connections because a meter has been installed.)
- Orchard Beach is interested in obtaining system approval (a green operating permit) for the current connections prior to receiving a decision on its water right application given it may be sometime before a water right decision is made.

Approval for Current Connections– Phase I:

To obtain system approval, Orchard Beach should submit the following information to the ODW:

- An updated SWSMP and a capacity analysis – titled Water System Plan (often referred to as a “SWSMP Plus”). The document should include the contents of chapters 1, 4, 5, 6, 8, 9 and 10 in the attached WSP checklist. (*Please note that Local Government Consistency is not required at this stage; however, the submittal should include documentation that a meeting of the consumers and approval of the WSP by the system’s board has occurred.*) The capacity analysis should include current water use data. See chapters 2 and 3 in the attached WSP checklist. We agreed that the capacity analysis can take into account part time water use to reflect the actual water use of current system demographics when calculating MDD and PHD for the system.
- To allow consideration of part time customers, we will request that Orchard Beach has an agreement in place with its customers limiting water use to full-time and part-time use, consistent with current use/current commitments and covering a time period “pending a decision on Orchard Beach’s water right application”.
- Since the system is not fully metered at this time and service meter readings are not available the system may want to consider using an analogous system approach for estimating water demands.

Approval – Additional Connections/Build-out – Phase II:

To obtain approval for full-build following water right approval, Orchard Beach should submit the following information to ODW:

- Its Water System Plan, updated as may be necessary, and a revised capacity

analysis to address full-buildout. This evaluation can be an amendment to the water system plan that was approved for Phase 1.

Thank you again – Susan

Susan Clark, Regional Planner

Office of Drinking Water

**From:** Erika Aust & Eric Campbell <[eeanda@yahoo.com](mailto:eeanda@yahoo.com)>  
**Sent:** Friday, August 24, 2018 10:50 AM  
**To:** Anna Parkinson <[anna@nwwatersystems.com](mailto:anna@nwwatersystems.com)>  
**Subject:** Fw: Small Water System Management Program Guide

[Sent from Yahoo Mail for iPhone](#)

Begin forwarded message:

On Friday, April 20, 2018, 10:17 AM, Grimm, Regina (DOH) <[Regina.Grimm@DOH.WA.GOV](mailto:Regina.Grimm@DOH.WA.GOV)> wrote:

Hi Erika,

Attached is a copy of the SWSMP guide that we talked about on the phone. It is designed to be a do-it-yourself guide for water systems. As you go through the document it includes instructions on completing each chapter. If you have any questions on filling this out please contact Fern or I and we can walk you through it.

Also, just so it is documented for posterity, you had asked whether it is ok for the current active accounts to change from part time to full time after the water rights have been approved. This is definitely ok because the water rights that ecology is issuing is assuming full time use at each connection. The WFI form should be used to update any changes in the status of your customers from part time to full time.

Best,

Regina

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**Regina Grimm, P.E.**  
Regional Engineer, DOH Division of Environmental Health  
Office of Drinking Water, Southwest Regional Office  
Ph: 360-236-3035 Fax: 360-236-3029  
Physical Address: 243 Israel Road Southeast, Tumwater  
Mailing Address: PO Box 47823, Olympia 98504-7823  
<http://www.doh.wa.gov/ehp/dw/>

# 10.15 Corporate Documents

**CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM  
CONTRACT # 18060501**

This agreement was created by and between Northwest Water Systems, Inc., (hereinafter known as "NWS"), a Washington Corporation and Orchard Beach Community Group (hereinafter known as the "Owner") on the 6<sup>th</sup> day of June 2018.

Whereas the **Owner** owns and operates a public water system known as Orchard Beach Community Water System (hereinafter known as "System"), and such water system is identified by the Washington State Department of Health under identification number 64031Q as a Group A Transient Non-Community water system; and

Whereas **NWS** is a State Department of Health approved Satellite Management Agency authorized to provide Management and Operations Services, and is in the business of managing and operating public water systems; and

Whereas the **Owner** desires to contract with **NWS** to obtain Management Services for the **System**, and **NWS** wants to contract with the **Owner** to provide Management Services for the **System**;

Now, therefore, the parties, **NWS** and the **Owner** hereby agree as follows:

**SECTION 1: EFFECTIVE DATE**

This contract agreement is effective as of                   /01/2018.  
(month/day/year)

**SECTION 2: PARTIES INFORMATION**

**SUBSECTION A: NWS**

Mailing Address: <u>PO Box 123</u> <u>Port Orchard, WA 98366</u>	Telephone Number: <u>1-888-881-0958</u>
Principal Contact: <u>Kevin Odegard</u>	Satellite Management Agency Number: <u>119</u>
NWS Operator in Responsible Charge: <u>Kevin Odegard</u>	Website: <u>www.nwwatersystems.com</u>

**SUBSECTION B: OWNER/AUTHORIZED REPRESENTATIVE**

Billing Address: <u>1217 SW Orchard</u> <u>Seattle, WA 98106</u>	Primary Telephone Number: <u>                  </u>
Principal Contact Name: <u>                  </u>	Secondary Telephone Number: <u>                  </u>
Secondary Contact Name: <u>                  </u>	Principal Contact Email Address: <u>                  </u>
	Secondary Contact Email Address: <u>                  </u>

**SECTION 3: SYSTEM LOCATION**

Street: 300 Orchard Beach Drive  
City: Grapeview  
State: WA  
Zip: 98426  
County: Mason

Notes/ Keys/Access Code/ Needed info: \_\_\_\_\_

**CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM  
CONTRACT # 18060501**

## **SECTION 4: SERVICE REPAIR PROVIDER**

**Service Repair Providers** include but are not limited to Well Drillers, Pump Installers, Plumbers, Electricians, Excavation Services/Main Installation, etc.

The purpose of the **Service Repair Provider Section** is to state the **Owner's** preferred service provider in the case of emergencies. Identifying one service repair provider is required.

**Selected Service Repair Provider:** (hereinafter known as “**Primary Service Provider**”) If left blank, **NWS** will choose service provider at own discretion in the case of an emergency. **NWS** reserves the right to use subcontractors for repairs as necessary.

1. All American Waterworks
2. \_\_\_\_\_

## **SECTION 5: SERVICES**

The **Services Section** is organized into **Included**, **Required** and **Other Services**.

### **INCLUDED SERVICES**

Provide daily scheduled operation and maintenance of the **System** in accordance with accepted public health practices. Daily O&M does not mean or imply that **NWS** will visit the **System** on a daily basis. Routine operation and maintenance includes, but is not limited to the following items:

- Act as the point of contact in emergency situations by providing a 24-hour emergency response telephone number. This includes, but is not limited to assisting in the development of a remedial action-plan in the case of an emergency.
- Revise the **System's** WFI and submit to DOH.
- Recommend ongoing maintenance strategies to the **Owner**.
- Adjust **System** components according to operational needs.
- Perform maintenance on equipment or provide consultation regarding routine and scheduled upgrades or repairs, this excludes project management\*.
- Perform routine water quality monitoring, interpret results, maintain adequate records and manage follow-up action to comply with State and/or Federal drinking water regulations.
  - Repeat water sampling will be performed at the current **Other Services** rate.
  - Special purpose, lead and copper water sampling, investigative coliform samples required to eliminate boil water advisories, and samples associated with repairs or construction will be performed at the current **Other Services** hourly rate. Lead & copper bottles will be delivered to and picked up from the **System's** point of contact as an included service.
  - If house by house delivery is needed, said work will be billed at the **Other Services** rate. Any additional action will be performed at the current **Other Services** hourly rate.
- Develop and implement a coliform monitoring plan.
- Analyze and review recording-instrument readings and laboratory tests and maintain a record of this information.
- Maintain **System** files, documents, onsite visit records and correspondence with the **Owner**.
- Make the current **System** information available to **System** customers and **Owner** upon request\*.
- Represent the **System** during media interaction\*.

**CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM**  
**CONTRACT # 18060501**

- Biennial meetings at system location. Meeting at the NWS office on the off year if requested. Any meetings requested outside of this time frame are billed hourly at the *Other Services* hourly rate\*.

\* Includes up to one hour per event.

- Implement scheduled preventative maintenance programs. (See Tasks Below)

The following tasks and data collection are water system specific and are to be performed on a periodic timeline relevant to each item. Site visits are necessary to perform the tasks and data collection. Boxes that are checked will be part of the *Included Services* at the agreed upon frequency.

**Tasks:**

**Frequency/Notes:**

<input checked="" type="checkbox"/> Site visit schedule	<u>Monthly</u>
<input checked="" type="checkbox"/> Source meter reading(s)	<u>Monthly</u>
<input checked="" type="checkbox"/> Reservoir hatch, vent, screen inspection	<u>Annually</u>
<input checked="" type="checkbox"/> Static Water Level Measurement	<u>By Request</u>
<input checked="" type="checkbox"/> Check Well Pump Operation	<u>Monthly</u>
<input checked="" type="checkbox"/> Check Booster Pump Operation	<u>Monthly</u>
<input checked="" type="checkbox"/> Clean & inspect interior & Exterior of Pumphouse	<u>As Needed</u>
<input checked="" type="checkbox"/> Pressure tank(s) Maintenance	<u>Monthly</u>
<input checked="" type="checkbox"/> Recharge tanks(s) (requires hose bibs & valves)	<u>Annually</u>
<input checked="" type="checkbox"/> Auxiliary Power Exercise	<u>By Request</u>

## REQUIRED SERVICES

**Required Services** are services that are not part of *Included Services*, but are necessary for **NWS** to effectively manage the **System**. The **System** agrees to use **NWS** for all **Required Services** that are applicable to the **System** unless otherwise agreed upon and delineated in this contract.

- Prepare and deliver the annual Consumer Confidence Report if required. **Owner** is to notify **NWS** in advance if prefers to deliver Reports.
- Prepare and submit the annual Water Use Efficiency Report.
- Implement an existing Cross-Connection Control Program. As your Satellite Management Agency and operator in responsible charge, Northwest Water Systems is required to implement a Cross-Connection Control Program for your water system. Inspections as needed, administration and compliance.
- Correspondence and onsite meetings with health department and regulatory agencies. **NWS** is to participate in representing the **System** during a Department of Health Sanitary Survey.
- The issuance of official Letter of Water Availability to customers of the **System**.
- Meet public notification requirements according to WAC 246-290; Part 7. Reporting; Subpart A – Public Notification and Consumer Information.
- Participate in implementation of remedial actions in emergencies. This includes following Department of Health directives to address the situation. In emergency situations actions will be taken to protect public health and safety of the **System**.

## OTHER SERVICES

The following list of *Other Services* represents typical water system management services provided by **NWS** to other systems similar in class and size to the **System**. This is not an all-inclusive list. All services provided by **NWS** to the **Owner** that are not expressly articulated in the *Included Services* section will be billed at the applicable hourly rate to the **Owner**.

- Arrange for Leak Detection Services.

**CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM  
CONTRACT # 18060501**

- Maintain as-built **System** drawings.
- Verify locations and causes of malfunctions.
- Perform and/or arrange for emergency and/or urgent repairs after **NWS** has been notified that repairs are needed.
- All support associated with RCW 19.122.027, the One Call Locate program. Provide assistance marking water lines upon locate request.
- Research and complete census information of the users on the water system.
- Small Water System Management Program record compilation and updates.
- System flushing.

## **SECTION 6: CHARGES FOR SERVICE**

**Included Services** are billed in advance as a monthly fee of \$199.08. \* If the **System** is not 100% built out, a \$6.00 charge will be added to the **Included Services** monthly fee for every additional active connection added beyond the 38<sup>th</sup> connection.

\*Included Services rates will be reviewed quarterly to confirm the reflection of actual service time needed to effectively operate the water system.

**Required Services** are a flat rate expense set by **NWS**, the costs are as follows:

- Consumer Confidence Reports are created for a flat fee of \$56.58 and sent for \$2.31 per active connection.
- Cross Connection Control- The monthly base cross connection fee is included in the monthly **Included Services rate**. This fee covers having a DOH certified Cross-Connection Control Specialist on call 24/7/365. Implementing the components of a Cross-Connection Control program requiring a Cross Connection Control Specialist are billed at \$131.84 per hour. The administrative components of implementing the Cross Connection Control Program are billed at \$65.92 per hour.
- Representing the **System** at a Department of Health Sanitary Survey is a flat fee of \$113.16 for up to 2 hours, including travel time. Follow up required to complete the deficiencies identified by DOH is included in this 2 hours of included time, with overage being billed hourly at the current **Other Services** hourly rate.
- Issuance of Water Availability Letters cost \$78.49 for up to 30 minutes research, with overage being billed hourly at hourly at the current **Other Services** rate.
- Response to emergency situations is billed at the **Other Services** hourly rate.
- Meeting public notification requirements via mail is a flat fee of \$56.58 for up to 60 minutes time spent, with overage being billed hourly at the current **Other Services** rate with an additional \$1.13 charge per active connection. This includes but is not limited to water use efficiency reports, boil water notices, etc.
- Meeting public notification requirements involving door to door notification is billed at the current **Other Services** hourly rate.

**Other Services** will be charged on a Time-and-Materials basis. **Other Services** hours are billed at \$99.42 per hour in fifteen-minute increments. All hourly work performed between the hours of 5:00 PM and 8:00 AM Monday – Friday, any major holiday, and Saturday – Sunday is completed at time-and-a-half, including necessary travel time.

## **SECTION 7: TERMS & CONDITIONS**

This contract must be accepted within **60 days** of the date of creation found at the top of the first page of this contract.

## **CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM CONTRACT # 18060501**

The Washington State Department of Health requires that **NWS** take immediate action to correct emergencies that may impact public health, safety and/or property damage. This includes but is not limited to water quality problems, defined as water sample test results exceeding primary water quality standards. Refer to **SECTION 8: REPAIRS & IMPROVEMENTS** regarding Emergency Repair details.

The **System** must take responsibility for subscribing the **System** to the One-Call Locate service as applicable, in accordance with RCW 19.122.030.

Proposals will be presented to the **Owner**, either in writing or verbally, prior to commencement of **Other Services** upon request.

The **Owner** is responsible to update primary contact information, and inform **NWS** of ownership changes.

On the **Effective Date** of the contract the **System** has the following active connections: **38**. The **Owner** is responsible for updating **NWS** with any changes in active connections. A connection is considered Active when water is available for consumption.

The **Owner** is financially responsible for all back payments related to undisclosed Active Connections. Undisclosed Active Connections incur an additional 50% penalty fee for negligent or willful misrepresentation of a connection's status.

This Contract includes all of the terms and conditions of **NWS'** Satellite Management Agency Plan as it currently exists, and as amended in the future. Without limiting the foregoing, it is agreed as follows:

- **NWS** does not own the water system.
- **NWS'** responsibility is limited to the services included in this contract.
- **NWS** has no responsibility in the event that the **System**'s source is interrupted, the volume thereof is reduced, or the water is contaminated.
- **NWS** is not responsible for failure to perform in situations beyond human control. This includes natural disasters, vandalism and terrorism.
- The **Owner** hereby grants **NWS** license to enter the pump house and all utility easements in the performance of **NWS'** responsibilities under this contract.
- Work requiring engineering services are explicitly excluded from this contract, and require independent proposals.

All invoices to the System are due 15 days from the date of the invoice. There will be a 30 day grace period from the date the invoice is due. Any invoice that extends past the grace period will be subject to a 1.5% per month late charge calculated and applied the day directly following the grace period. Subsequent late charges are calculated based on the invoice amount plus any previous late charges.

The fees for services increases February 1<sup>st</sup> of every year by the inflation rate from January 1<sup>st</sup> to December 31<sup>st</sup> of the preceding year. This inflation rate is identified in the Consumer Price Index posted by the Federal Government.

**Reimbursable** Expenses include but are not limited to such items as laboratory fees, copying and reproduction expenses, postage, water system permit & DOH fees and other similar incidental expenses. **Reimbursable** expenses will be invoiced at cost plus 20%.

If **System** has continuous disinfection and fails to take and report chlorine residuals for two consecutive months, **System** must install a remote monitoring system or **NWS** will collect, analyze, record, and submit the records of the **System**'s Chlorine residuals to the Department of Health monthly as **Other Services**.

## **SECTION 8: REPAIRS & IMPROVEMENTS**

Prior to the effective date of this contract, the following repairs and/or improvements shall be completed at **Owner's** expense:

**None**

*(List Repairs/Improvements)*

The **Owner** authorizes **NWS** to complete reports, studies, or other analyses as required by regulation, directed by DOH, or deemed as in the System's best interest by **NWS** that cost less than or equal to \$ \_\_\_\_\_. **NWS** shall provide the System contact with a copy of any such report.

## **CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM CONTRACT # 18060501**

The **Owner** authorizes NWS to perform or arrange for necessary maintenance repairs that cost less than \$\_\_\_\_\_ . Such repairs are to be performed at NWS' professional discretion and will be billed as a Reimbursable Expense on the **Owner's** monthly statement. Examples include rodent traps, replacing light bulbs, tank replacements, or any other needed equipment change out.

Routine and scheduled upgrades or repairs will be performed through an operating agreement with the **Primary Service Provider** unless **System** principal contact or **Owner** specifies otherwise. Verbal and/or written approval from the **System** principal contact or **Owner** will be sought prior to performance of routine and/or scheduled upgrades and repairs.

Emergency and/or urgent repairs will be performed through an operating agreement with the **Primary Service Provider**. If the **Primary Service Provider** is unwilling or unable to perform the work needed to repair the **System** or do so on an acceptable time schedule NWS will contact a qualified and certified service repair provider to perform the work. Unless the **System** principal contact or **Owner** is unavailable, verbal and/or written approval from the **System** principal contact or **Owner** will be sought prior to performance of repairs. If NWS cannot reach the **Owner**, NWS has authorization to take the necessary actions to protect public health and safety and/or to prevent/minimize property damage. The **Owner** is responsible for all expenses associated with resolving emergencies. NWS will work with the **System** to arrange timing of repairs for work related to public health issues, with the limitation of adhering to the Department of Health's requirements. Charges from repair providers or other contractors will be billed directly to the **Owner**. **Owner** may elect to resolve public health issues in-house, contingent on the involvement of personnel certified to perform the required work. In the case of an imminent health threat, steps to resolve the issue must be taken within the framework of a time schedule determined by NWS. If the time schedule is not met, NWS will resolve the water quality issue at **Owner's** expense.

## **SECTION 9: DURATION**

This contract shall remain in effect for a period of one year from the **Effective Date**. The contract will renew automatically on the annual anniversary date of the **Effective Date** with no action on the part of either party.

The contract may be terminated at any time by NWS due to non-payment of agreed upon fees and charges by **Owner**. The contract may be terminated at any time by **Owner** due to non-performance by NWS. The contract may be terminated at any time by either party if either party is unable or unwilling to comply with applicable government regulations. The contract may also be terminated without cause upon mutual agreement by all parties and with at least 60 days' prior notice. Any termination notice must be in writing. (E-mail or Mail)

NWS shall provide the Local Health Jurisdiction and the State Department of Health written notification within 30 days of any contract termination.

## **SECTION 10: INTEGRATION**

This Contract constitutes the entire agreement between the parties. There are no other verbal or written agreements or representations which modify or affect this contract.

Amendments or addendums to this contract specific to the **System** shall be in writing and shall be signed by NWS and the **Owner**.

Amendments of addendums to this contract that are general in nature, applying to large groups or all systems managed by NWS, may be implemented through a notice provided to the System Contact as identified in this agreement. These updates to this agreement are typically the result of regulatory changes to rules, policies, or emphases; or the result of internal changes at NWS in an attempt to more effectively and fairly serve our clients.

## **SECTION 11: INDEMNIFICATION**

The **Owner** shall indemnify and hold NWS harmless from loss, damage, or defense costs including attorneys' and defense fees arising from actual or alleged negligent acts or omissions of the **Owner**, its officers, employees, subcontractors or other agents, limited to the performance of the **Owner's** services set forth in this agreement.

**CONTRACT FOR MANAGEMENT AND OPERATION OF A SATELLITE WATER SYSTEM  
CONTRACT # 18060501**

NWS shall indemnify and hold the **Owner** harmless from loss, damage, or defense costs including attorneys' and defense fees arising from actual or alleged negligent acts or omissions of NWS, its officers, employees, subcontractors or other agents, limited to the performance of the NWS services set forth in this agreement.

**SECTION 12: AUTHORITY**

By signing this contract, I \_\_\_\_\_, certify that I am the **Owner**, or am an authorized agent of the **Owner**, and have the legal right to enter the **System** into a binding agreement with NWS.

**SECTION 13: PARTIES SIGNATURES**

**ORCHARD BEACH COMMUNITY WATER SYSTEM**

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Signature

---

Print Name

---

Title

---

Date

**NWS REPRESENTATIVE**

---

Signature (on behalf of Northwest Water Systems)

---

Print Name

---

Title

---

Date

## Complaint Report Form

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

Name of Individual Issuing Complaint: \_\_\_\_\_

Phone Number or other Contact information: \_\_\_\_\_

Location of Interest: \_\_\_\_\_

Description of Complaint:

Initial Response to Complaint:

Action to Be Taken:

Scheduled Date:

Action Completed By:

Date:

Results/Findings:

Follow-up:

† Contacted Issuer of Complaint      Date: \_\_\_\_\_ Initials \_\_\_\_\_

Further Action Required:

# 10.16 MWL Attachments 2 & 5

## **Attachment 2: Municipal Water Law Water System Plan/Owner Water System Management Program General Approval Checklist**

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For each element, please identify where in your Water System Plan (WSP) or Owner Water System Management Program (SWSMP) submittal the requirements of the Municipal Water Law identified in the column labeled “Element” are addressed.

The “Application” column identifies the type of plan (WSP or SWSMP) and the size of system the element applies to.

<b>Application</b>	<b>Element</b>	<b>Addressed in plan on pages indicated</b>	<b>Documentation Attached</b>
<b>Water rights and system capacity</b>			
WSP and SWSMP All size systems	<p>The water rights self-assessment you have included in your WSP and SWSMP must be complete and must adequately reflect your water right status. Please review your self-assessment for completeness, accuracy and consistency with your water rights.</p> <p>If there are factors (i.e. supplemental, seasonal, etc.) to your water right that are not addressed in the self-assessment format, provide additional statements on how those factors affect your self-assessment.</p>	Page(s) <u>10.5</u>	yes
WSP and SWSMP All size systems	The system capacity analysis must incorporate the water right quantity parameters (QaQi) found in your water rights self-assessment. Identify the number of connections, population served, and/or Equivalent Residential Units (ERUs) that you are currently serving and identify your current instantaneous and annual water usage. Water use demand should not exceed existing water right QaQi.	Page(s) <u>3.3</u>	yes
WSP All size systems	The system capacity analysis must incorporate the water right quantity parameters (QaQi) found in your water rights self-assessment. For a 6-year planning horizon, evaluate the number of connections, population served, and/or Equivalent Residential Units (ERUs) that you are planning on serving, utilizing historical water usage and future population projections. Water use demand projections should not exceed existing water right QaQi.	Page(s) <u>2.2</u>	
<b>Service Area Delineation</b>			
WSP and SWSMP All size systems	Provide a map and description of the water system service area. The map must delineate your retail service area (existing and future) as well any other service area (existing and future) you wish to include in your water right place of use. Provide clear differentiation between the two boundaries.	Page(s) <u>1.6</u>	Yes
WSP and SWSMP All size systems	Provide a copy of the land use map(s) for jurisdictions served by your system.	Page(s) <u>1.6</u>	Yes

<b>Application</b>	<b>Element</b>	<b>Addressed in plan on pages indicated</b>	<b>Documentation Attached</b>
<b>Conservation</b>			
WSP and SWSMP All size systems	<p>New language has been added to RCW 70.119A, which states, "...municipal water suppliers shall continue to meet the existing conservation requirements of the department and shall continue to implement their current water conservation programs."</p> <p>Describe what, if any, previous efforts will be discontinued. For discontinued efforts, identify why continuation of these efforts would be ineffective or provide documentation that the discontinued program had a prescribed end date or savings level.</p>	Page(s) _n/a_____	n/a
WSP All size systems	Must meet current conservation requirements. Please review the requirements (attached) and provide identification of where in your current WSP each of the elements is included.	Page(s) 4.2_____	
SWSMP All size systems	Provide a completed Water Conservation Program (Element 14 of the SWSMP).	Page(s) n/a	
WSP Systems serving 1000 or more connections	Describe the projects, technologies, and other cost-effective measures that comprise your water conservation program.	Must be attached	n/a
WSP Systems serving 1000 or more connections	Describe the improvements in the efficiency of water system use resulting from implementation of your water conservation program over the last six years.	Page(s) _n/a_____	
WSP Systems with inchoate water rights serving 1000 or more connections	Provide a demand forecast for the next 6-years based on the water savings expected from the planned conservation measures.	Page(s) _n/a_____	
WSP Systems with inchoate water rights serving 1000 or more connections	Provide a demand forecast for the next 6-years based on the water savings expected if implementing additional conservation measures that were considered cost-effective, including those that were not chosen to be implemented at this time.	Must be attached	n/a

<b>Application</b>	<b>Element</b>	<b>Addressed in plan on pages indicated</b>	<b>Documentation Attached</b>
<b>Reclaimed Water</b>			
WSP Systems with greater than 1000 connections	Exploring opportunities for water reclamation is an element of the Municipal Water Law that must be addressed in this plan  Systems > 1000 Connections must complete <a href="#">Attachment 9: Water Reclamation Checklist for Systems with 1,000 or more Connections</a> or provide comparable documentation.	Page(s) <u>n/a</u>	
<b>Duty to Serve</b>			
WSP All size systems	Describe how your system responds to requests for new water service by providing:  1. The process for service requests, including timeframes 2. How you determine that your system's capacity is adequate to provide new water service (including sufficient water rights) 3. Conditions of a non-technical nature that may affect your ability to provide new water service (annexation procedures, water rights issues, local ordinances, etc.) 4. Your system's procedures for granting or requesting extensions of time during a water service related project, and describe your procedure for handling disputes and appeals when water service requests are denied	Must be attached	Section 10
<b>Local Government Consistency</b>			
WSP or SWSMP All size systems	<i>Consistency with applicable adopted local plans, regulations and policies must be determined prior to plan submittal. For each appropriate planning agency provide a completed "Consistency Statement Checklist" or analogous documentation.</i>	Must be attached	Section 10
<b>Watershed Coordination</b>			
WSP or SWSMP All size systems In Watershed Planning Process per RCW 90.82	If your system is located in an area developing a watershed plan per RCW 90.82, describe your efforts to coordinate with the local planning unit. We have attached a list of Water Resource Inventory Areas (WRIA) where watershed plans are currently in development along with contact names for each area.	May need to be attached.	n/a

## **Attachment 5: Water System Plan and Small Water System Management Program Consistency Statement Checklist**

---

This checklist is intended to ensure consistency of water system planning documents with adopted local comprehensive plans and development regulations. Each local planning jurisdiction in which the water utility provides service will review the relevant water system planning information and provide a signed consistency statement to the utility for submittal to the Department of Health. If the local planning agency will not respond, the highest authority within the utility (chair of governing body, executive director of private companies, etc.) must sign to verify consistency of the plan information.

Water System Name: **Orchard Beach Water System**

PWS ID: **64031-Q**

Planning Document Title: **Orchard Beach Water System Plan**

Plan Date: **Aug 2018**

Local Planning Jurisdiction: **Mason County**

<b>Consistency Statement</b> (Reference Municipal Water Law Section 5 and 8, amendment to chapter 90.03.386 and chapter 43.20 RCW)	<b>Page(s) in Planning Document (completed by utility)</b>	<b>Yes – No – Not Applicable</b>
The retail service area, and any other areas not served by a separate public water system, and land use identified in the WSP is consistent with the <i>adopted comprehensive plan and adopted development regulations and policies</i> .	Section 1.6	
<b>For WSPs only:</b> The growth projection used to forecast water demand for the retail service area is consistent with the adopted city/county's population growth projections (and commercial development projection if applicable). If a different growth projection was used, the alternative growth projection and methodology proposed is acceptable based on explanation given.	Section 2.2	
<b>For WSPs only:</b> New potential large water users (that may have a significant impact on the water system) that the city/county is aware of have been identified in the WSP.	none	
<b>For city-owned systems only:</b> All policies regarding water service outside the corporate boundaries are included in this WSP. These policies are consistent with the adopted <i>comprehensive plan and development regulations</i> .	n/a	
<b>Where the local planning agency is unable to sign a Consistency Statement:</b> Provide documentation of efforts to coordinate with local agencies with a 60-day timeline for local agency to respond. Include: name of contact, date, type of effort attempted, and response from local agency.	n/a	

I certify that the above statements are true to the best of my knowledge and that these statements support the conclusion that the subject-planning document is consistent with adopted comprehensive plans, development regulations, and other policies.

---

Signature

---

Date

---

Printed Name, Title, & Jurisdiction

**\*\*For any issues of inconsistency, please provide comments on how they can be resolved. \*\***

**Direction below is provided as guidance for consistency verification. This list is not comprehensive.**

**For service area:**

A copy of the adopted land use/zoning map that corresponds to the service area should be included. The uses provided in the WSP should be consistent with the adopted land use/zoning map.

Water systems may have policies on extensions of water service outside of their existing boundaries. These must be consistent with the local planning jurisdiction's (both city and county) adopted comprehensive plan and development regulations.

Under the Growth Management Act (GMA), domestic water service is considered both an urban and rural service. Unless the comprehensive plan and development regulations specifically limit water service or have an alternative definition of rural service than what is provided in the GMA, water service is allowed anywhere within the county.

**For demand forecasting:**

Water demand forecasts for the next six years and the 20-year planning horizons should be included. These forecasts should be consistent with the local population growth rate projections.

If the local population growth rate projections are not used, provide a detailed explanation on why the projections chosen more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

Potential large water users may be identified by the following sources of information:

- Local planning agency
- Water utility
- Economic Development Council

## **11.0 SUPPORTING DOCUMENTS**

Supporting Documents related response to comment letter from Department of Health:

- 11.1 Email verifying the WSP was approved by board
- 11.2 Meeting minutes to members regarding WSP
- 11.3 Spreadsheet Inventory Existing Facilities with year installed, etc
- 11.4 Local Government Consistency checklist approval
- 11.5 Maps and diagrams showing service area, roads & location
- 11.6 OBCG Directory with Bylaws for non-payment & consent
- 11.7 Northwest Water Response to ERU Analysis, System Parameters
- 11.8 Meeting minutes of goal setting and photo of public notice
- 11.9 Contamination inventory spreadsheet
- 11.10 Contamination letters sent to owner's, regulators & emergency responders
- 11.11 Northwest Water Response to Hydraulic & Capacity Analysis; Source Protection Assessment

11.1 Email verifying the WSP was approved by board

## Orchard Beach Community Group -- WSP/SWSMP signed doc

From: Erika Aust & Eric Campbell (eeanda@yahoo.com)  
To: doug@nwwatersystems.com; anna@nwwatersystems.com  
Cc: cefarrel@comcast.net; toddorjim@msn.com; tommullins@sinbon.us  
Date: Wednesday, September 19, 2018, 7:34 PM PDT

Doug and Anna,

Attached is the signed WSP/SWSMP document as it was unanimously agreed to by the Orchard Beach Community Group board.

Please advise us of the next steps in the process and know that we are available to answer any questions that may arise during the process.

Thank you for your professional assistance as we move forward to attain "green" status with Department of Health.

--Erika



Orchard Beach WSP\_rev. 9-11-18.pdf

13.3MB

## 11.2 Meeting minutes to members regarding WSP

Orchard Beach Community Group  
Board meeting Minutes  
August 12, 2018  
Meet at Erika's Place 4:00pm – 6:00pm  
Attending were Jim Farrell, Erika Aust, Jim Loder and Tom Mullins

Jim F. Called the meeting to order at 4:02pm. The board reviewed the agenda and thanked Erika for her work with Fern prior to the meeting.

Jim L. provided and update on finances and the board discussed option for outstanding payments due the community from members who were struggling to meet their commitments. Jim L will follow-up with those homeowners and include a “past due” portion with the 2018-19 billing set to go out later this month.

Erika walked the board through the written responses from DOH. Erika noted that because we are an existing system, a site visit wasn't needed from DOH, and outlined next steps.

We're close to being ready to submit our updated small water system plan. NWS has updated the document and the board approved the plan for submission to DOH. Our goals are to get our system status to “Green”, and continue to stabilize finances in anticipation of future upgrades to the water system if there is a need to increase the volume of members.

We will seek water rights for 39 connections as part of this plan. Ultimately, we may want to allow for 63 (that would cover the whole plat, but the reality is many of the properties will have a private well, or will not be developed).

We discussed the need to address water use and how to incentivize conservation. We need properties to use under 3000 gal a month, both to be good stewards of the water, and to offset any anomaly. We discussed a tier rate system and will bring that to the members next June.

The board also discussed the need to formalize our definition of a connection to ensure the plan aligns with our practice. DOH and State law provide guidance that a connection is defined as one connection per legal property and or any dwelling that uses water for potable purposes. Two dwellings on the same property can share a connection provided they are within 150ft of each other and one is used as the primary occupancy,

Ultimately, it is our responsibility to define the specifics of a connection.

The meeting ended at 6:15pm

OBCG annual meeting June 9, 2018

Attendance:

Jim Farrell, president, 270 Orchard Beach Drive

Erika Aust, vice president, 210 Orchard Beach Drive

Tom Mullins, trustee, 200 Orchard Beach Drive

Tom Mach, 50 Orchard Beach Drive

Chris Farrell, 270 Orchard Beach Drive

Roger Ewart, 150 Orchard Beach Drive

Chuck and Jill Wardle, 80 Orchard Beach Drive

Patrick Brockhaus, 101 Orchard Beach Drive

Charlene Ernst, 111 Orchard Beach Drive

Eric Campbell, 210 Orchard Beach Drive

Kate and Tom Eide, 300 Orchard Beach Drive

Curt/Melody Casey, 251 Orchard Beach Drive

Kyle Emtman, 360 Orchard Beach Drive

Dan/DeeDee Benitez, 41 Orchard Beach Drive

Renee Cappuccino and Steve Czeck, Lot C10, Orchard Beach Drive

Laura Petrie, 20 Orchard Beach Drive

Bob Waters, 260 Orchard Beach Drive

The meeting was called to order @ 1 p.m., with a welcome to the 22 people attending.

A motion to approve the agenda was made by Chuck Wardle and seconded by Melody Casey; it carried unanimously.

A motion to approve the minutes of the 2017 annual meeting was made by Chuck Wardle and seconded by Chris Farrell; it carried unanimously.

**Treasurer's Report**

The report was offered by Jim Farrell, president, and Erika Aust, vice president, on behalf of secretary/treasurer Jim Loder, who was absent due to illness.

- Checking account: Erika had communicated with Heritage Bank and shared that OBCG has a balance of \$7,119.88 in checking, not counting a recent premium payment to Douglas Insurance, the system's insurance agent. The payment was estimated at approximately \$1,600, for liability.

Jim volunteered that OBCG's old insurance carrier had decided to get out of the business of insuring water systems, so a new carrier has the policy.

- Savings account: Erika reported a balance of at \$22,017.29. Interest accrued for May was 54 cents.

### **Old business**

Jim Farrell explained that in 2017 and early 2018, repairs were made to two areas where the water line was broken. Also, three of the seven bladder tanks (for water storage) inside the OBCG wellhouse had to be replaced. Each new tank has a capacity of 83 gallons and a lifespan of 6-10 years, and is warranted for six years.

Patrick Brockhaus, who caused one of the breaks in the line, is reimbursing the OBCG for the repair and inquired about the cost. Erika Aust explained that one break cost approximately \$1,600 to repair, the second was approximately \$1,900, but she did not know which was which without checking further.

### **New business**

Erika reported a major accomplishment: in May, her four years of work with the Department of Ecology (which regulates the withdrawal of water from the ground) had finally led to its approval of the OBCG application for an expanded water right. This is important for two reasons. First, because there is such a backlog of water right applications, the state has started allowing those seeking new or expanded water rights to essentially buy their way into the fast lane by paying approved third-party vendors to get involved in the processing. However, by establishing a productive relationship with Ecology regulators and continuing to work with them directly, Erika managed to avoid the third-party route and still accelerate the processing of the OBCG application (originally filed in 2007). This has saved OBCG members an estimated \$15,000. Second, the larger water right will greatly help OBCG's effort to move from a "blue" operating permit from the state Department of Health to a "green" permit.

This news led to an extended discussion about what the water right approval and the ongoing work to go "green" mean to OBCG members, and the timeline for achieving green status. The "blue" operating permit we have now means our system's ability to draw and distribute water is unverified, and as a result OBCG is not allowed to support new water-service connections. Obtaining a "green" permit will allow OBCG the freedom to accommodate requests for new connections.

The Department of Health insists that as one of the conditions of seeking "green" status, OBCG must be able to draw enough water to support full-time residency at each one of the 67 lots originally platted in Madings Orchard Beach. Although we expect some growth, it is highly unlikely that Orchard Beach will ever be fully "built out," with every dwelling occupied full-time. Even so, OBCG still must prove that it can accommodate full build-out, and the approval of an expanded water right means we may now draw enough water to meet that standard, as unrealistic as it may be.

The immediate benefit of the water right expansion is that Health no longer requires OBCG member properties to be labeled as “full time” or “part time,” as they have been in the OBCG directory, which will help when properties are marketed or sold. Also, Erika explained, if a well belonging to one of our neighbors were to fail, Health says we can connect that neighbor to our system – so no one needs to fear being without water.

Erika reported that with the expanded water right in hand, the remaining steps in seeking “green” should be down to two: submit a Capacity Analysis (CA), and a Small Water System Management Plan (SWSMP), to the state Department of Health. Northwest Water Systems, which is already under contract to OBCG for other compliance-related services, can prepare both documents for an estimated total cost of \$10,000.

The discussion also covered how meter readings in April and May indicated a major loss of water from the OBCG system (more than 40,000 gallons in May alone, equal to more than 400% of what is being consumed by members). Erika explained that the Department of Health is a stickler about water conservation and allows only 10% leakage. If we do not address the water loss, the effort to go “green” will have to add a third step, in the form of a document (prepared at extra cost) detailing our plan for bringing the leakage within the 10% limit.

Following further discussion about detecting the leaks, and lots that have wells and also are connected to the system, and what constitutes a “connection,” two motions were made and approved.

- Tom Eide made a motion to find and fix the leaks. Kyle Emtman seconded the motion, and it carried unanimously.
- Kyle Emtman made a motion to authorize the OBCG board to move forward with its efforts to pursue a “green” operating permit from the state Department of Health. Jill Wardel seconded the motion, and it carried with one member opposed.

Also, an Action Item was created – to verify the readings of the meters on Well #2 (primary) and Well #1 (backup), in case inaccurate readings are actually the reason for the apparent water loss.

#### New water rates

Jim F. raised the question about whether the \$400 annual fee for water access should be increased. He and Erika related the board’s discussions about needing to increase the OBCG’s reserve, to accommodate the eventual replacement of the water mains (now 44 years into an assumed 70-year lifespan) and the ability to address future repairs should there be another break in the water main, or some catastrophic event.

The membership discussion that followed ranged from concerns about the lack of a strong reserve and the choice between assessments and a fee increase, to the possibility of moving to a tiered-rate structure (those consuming above a certain level would pay more) and whether the board has a savings target in mind. It was noted that the SWSMP that will be prepared need to contain a budget for future capital investments.

Chuck Wardle made a motion to raise the annual fee to \$500. Chris Farrell seconded the motion. After discussion about whether a \$100 increase would do enough to increase the OBCG reserve, and the

possibility of seeking another fee increase based on recommendations from Northwest Water Systems, Chuck called for the question. The motion carried with one opposed.

#### **Other**

- Erika reported about her June 7, 2018 meeting with Northwest Water Systems to discuss an update of our existing contract, plus future work products (the CA, and SWSMP) and the possibility of also paying NWS to take over the reading of meters.

An Action Item was created, to share the NWS contract proposal with members.

- Roger Ewart asked about shared water lines (an issue being addressed on two adjacent lots) and whether OBCG could position itself to replace our own water mains, over time. There was also discussion about heavy items (like piles of soil and/or gravel) being left on the right-of-way above the water mains, which could cause issues.
- Kate Eide wondered if our insurance policy could be expanded to cover catastrophic failures of the system; Jim F. said he would check with our insurance agency.

#### **Proposed Changes to Bylaws**

This was tabled, without a motion, as the board is continuing to discuss possible changes.

With no further business, and nothing more for the good of the order, Curtis Casey made a motion to adjourn, which was seconded by Tom Mullins, trustee. The motion carried and the meeting was adjourned at 2:38 p.m.

### 11.3 Spreadsheet Inventory Existing Facilities with year installed, etc

## Orchard Beach Water System

### Inventory Existing Facilities

Component	Install Date	Service Life	Age	Life	Unit Price	Units	Replacement Cost	Long Term Future Cost
S01*	1963	80	55	25	\$0	1	\$0	\$0
S02	1989	80	29	51	\$15,000	1	\$15,000	\$52,846
S01 Pump (1/2HP)	1980	25	38	1	\$6,000	1	\$6,000	\$0
S02 Pump (5HP)	1989	25	29	1	\$6,000	1	\$6,000	\$0
Source Meter	2003	15	15	1	\$500	2	\$1,000	\$0
Distribution Meter (Service Meters)	2011-18	15	0	15	\$250	38	\$9,500	\$0
Pump Controls	1989	20	29	1	\$2,000	1	\$2,000	\$0
New Pressure Tanks	2018	10	0	10	\$250	3	\$750	\$0
Old Pressure Tanks	2013	10	5	5	\$250	5	\$1,250	\$0
Generator	2007	30	11	19	\$11,000	1	\$11,000	\$0
Distribution pipe 4"	1967	80	51	29	\$50	4700	\$235,000	\$480,906
Blow-off	1967	30	51	1	\$2,500	1	\$2,500	\$0
Pump House**	1967	60	51	9	\$5,000	1	\$5,000	\$6,244

\*replacement of S01 is included in capital improvements

\*\* assuming existing slab is still usable. Full replacement will be about \$ 10,000 and higher.

### Capital Improvement Worksheet

Component	Replacement Time (yr)	Unit Price	Units	Replacement Cost	Long Term Future Cost
S01 Casing Replacement	2	\$1,000	1	\$1,000	\$0
S01 Replacement	10	\$30,000	1	\$30,000	\$0
Reservoir	30	\$57,000	1	\$57,000	\$119,561
Booster Pump	30	\$7,500	2	\$15,000	\$31,464
Booster Pump Controls	30	\$2,000	1	\$2,000	\$4,195

## 11.4 Local Government Consistency checklist approval

## **Local Government Consistency Determination Form**

Water System Name: Orchard Beach Water System PWS ID: 64031-Q

Planning/Engineering Document Title: Orchard Beach Water System Plan Plan Date:  
Aug 2018

Local Government with Jurisdiction Conducting Review: Mason County

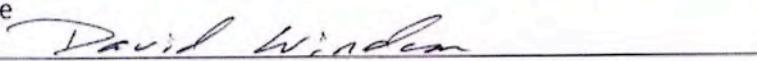
Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

<b>Local Government Consistency Statement</b>	<b>For use by water system</b>	<b>For use by local government</b>
	Identify the page(s) in submittal	Yes or Not Applicable
a) The water system service area is consistent with the adopted <u>land use and zoning</u> within the service area.	Section 1.6 Page 4	
b) The <u>growth projection</u> used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Section 2.2 Page 16	
c) For <u>cities and towns that provide water service</u> : All water service area policies of the city or town described in the plan conform to all relevant <u>utility service extension ordinances</u> .	N/A	
d) <u>Service area policies</u> for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Section 1.6 Page 4 if applicable	
e) <u>Other relevant elements</u> related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature



11/8/19

Date

## 11.5 Maps and diagrams showing service area, roads & location

# OBCG SERVICE AREA - Madings Orchard Beach Plat Map

Current number of lots in service area = 63

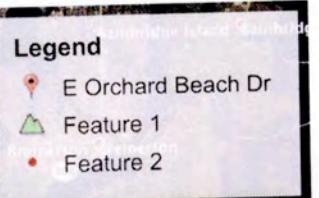
OBCG Member = 38

Private wells = PW (9 active, 1 abandoned)



## Orchard Beach Drive

Location within Mason County at Sun Point on Walkers Landing off Pickering Passage



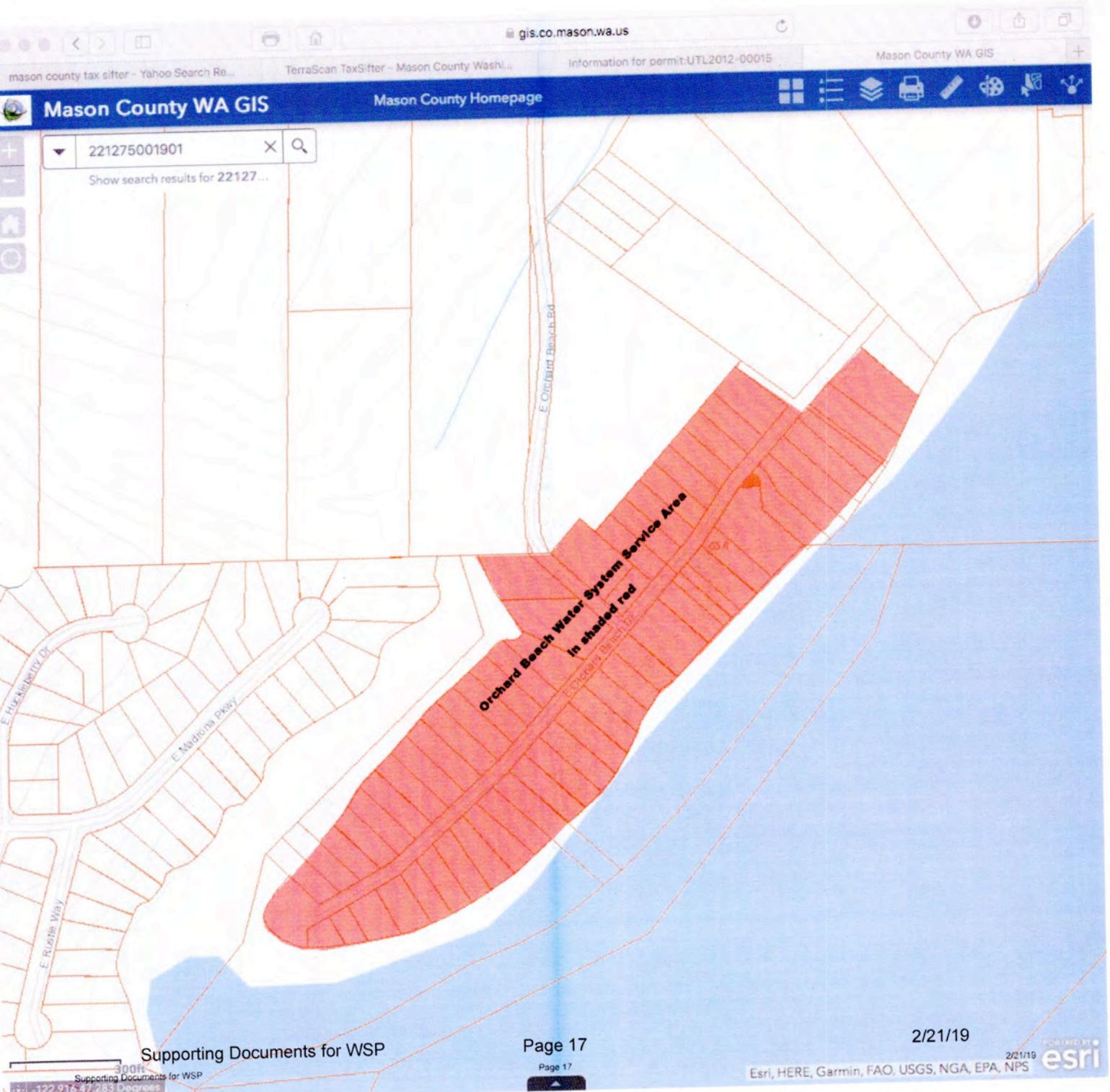
## Orchard Beach Drive

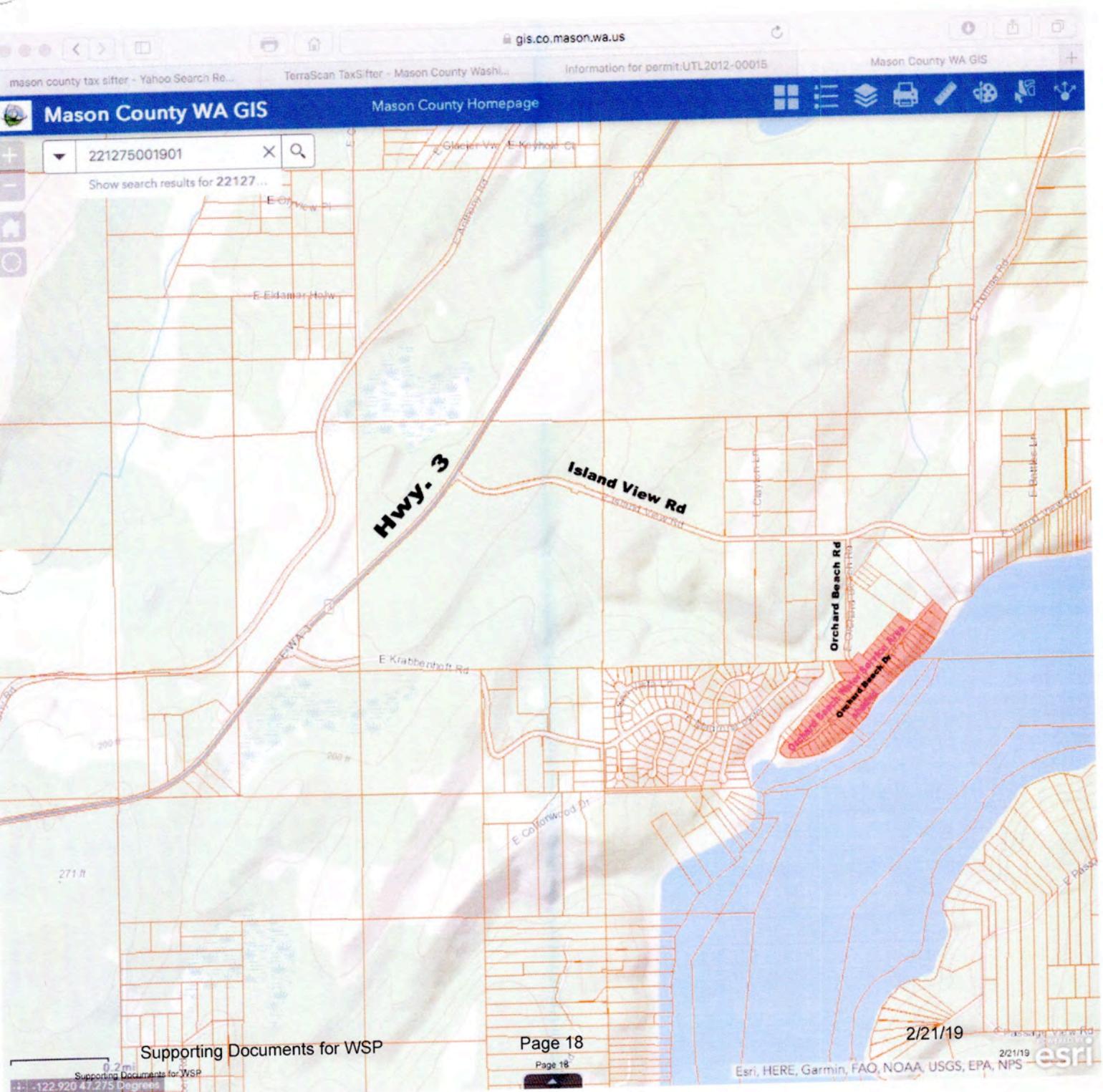
Location within Mason County at Sun Point -- Walkers Landing -- Pickering Passage.  
10 miles outside of Shelton via Hwy. 3, Right on Island View Road, Right on Orchard Beach Road  
Orchard Beach Drive is at the "T" off Orchard Beach Road.

### Legend

- E Orchard Beach Dr
- Feature 1
- Feature 2







## 11.6 OBCG Directory with Bylaws for non-payment & consent

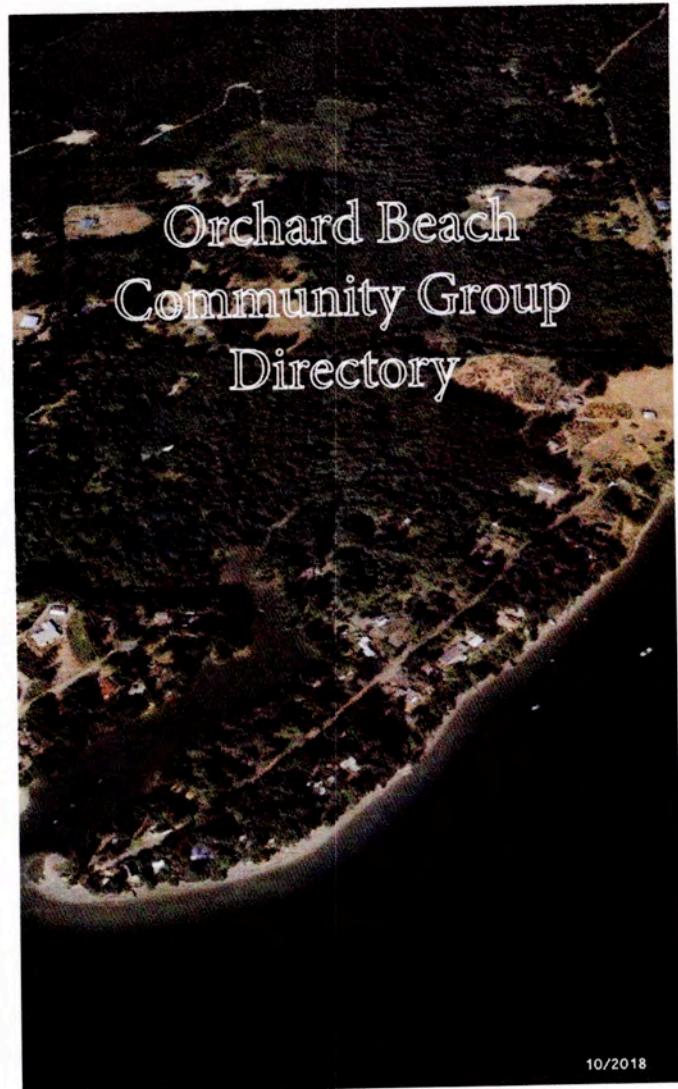
**MADINGS ORCHARD BEACH**  
AN ADDITION TO MASON COUNTY WASHINGTON  
SEC. 22 & 27 TWP. 21 N. R 2 W. WM.

Connected lots = blue  
Private well = PW  
Green Community Well



Supporting Documents for WSP

Page 20



2/21/19

This directory is for the use  
of Orchard Beach Community Group members only.

**Group Officers**

- President: **Jim Farrell**  
13205 SE 339th St  
Auburn, WA 98092-8556  
253-939-2569
- Vice-President: **Erika Aust**  
2411 Tyndell Circle SW  
Tumwater, WA 98512  
360-250-9110
- Secretary/Treasurer: **James Loder**  
1217 SW Orchard St  
Seattle, WA 98106  
206-909-0509
- Trustee: **Tom Mullins**  
21407 92nd Ave West  
Edmonds, WA 98020  
425-775-1824 *Edmonds*

**For maintenance and repair phone:**

Northwest Water Systems  
360-876-0958

To report a power outage phone Mason County PUD#3:  
360-426-8255

Supporting Documents for WSP

The Orchard Beach water system is classified as a "Group A Transient Non-Community water system" under Chapter 246-290 of the Washington Administrative Code.

Member properties are identified on the back cover of this directory.

**What does *that* mean?**

Information about property owners/listings comes from the Mason County assessor and treasurer and includes terms that may be unfamiliar. Here are general definitions:

TESTAMENTARY – sometimes referred to as a "will trust."  
ET UX – abbreviation form of *et uxoris*, Latin for "and wife."  
ET AL – abbreviated form of *et alia*, Latin for "and others."  
TRUSTEE – a person or organization with responsibility for managing another's property or other assets through a trust.  
TRS/REV TRS – trustee of a revocable trust.  
TRSE – trustee of a trust.  
RTA – revocable trust agreement.

2/21/19

NOTES

OWNER/TENANT

BENITEZ, DANIEL & DEANN  
41 E ORCHARD BEACH DRIVE  
GRAPEVIEW, WA 98546  
602-478-1614  
ddllbenitez@yahoo.com  
Community water lot(s): C17  
22127-50-03017

BROCKHAUS, PATRICK J  
101 E ORCHARD BEACH DRIVE  
GRAPEVIEW, WA 98546  
360-463-0171  
Community water lot(s): C12  
22127-50-03012

CAMPBELL, ERIC J & ERIKA E AUST  
2411 TYNDELL CIR SW  
TUMWATER, WA 98512-6253  
210 E ORCHARD BEACH DR  
360-480-2945  
Community water lot(s): A14, B10  
22127-50-01014; 22127-50-02010

CARLTON et al, GLENN T.  
JULIE RUPPETEAU  
21829 NE 154th ST  
WOODENVILLE, WA 98077  
30 E ORCHARD BEACH DR  
425-788-2346 (h), 206-947-7200 (cell)  
glentc@outlook.com  
Community water lot(s): A31  
Other lot(s): 1/2 of A30  
22127-50-01031

OWNER/TENANT

CASEY, ALLEN CURTIS & MELODY  
251 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
360-490-9571; 360-490-0015  
allencasey@outlook.com  
Community water lot(s): B8  
22127-50-02008

CRESSEY, ALAN F  
6334 5TH AVE NE  
SEATTLE, WA 98115-6518  
60 E ORCHARD BEACH DR  
206-523-5891  
acressey@yahoo.com  
Community water lot(s): A28  
22127-50-01028

CZECK, STEVE & RENÉ CAPPUCCINO  
1703 E COLUMBIA STREET  
SEATTLE, WA 98112  
121 & 131 E ORCHARD BEACH DR  
651-757-6307  
steve.czeck@gmail.com; renecappuccino@gmail.com  
Community water lot(s): C9  
Other lot(s): C10  
22127-50-03009; 22127-50-03010

DEXTER ET AL, STANLEY G  
C/O JEANETTE L CARTER  
10386 RAINIER AVE S  
SEATTLE, WA 98178-2614  
91 E ORCHARD BEACH DR  
Community water lot(s): 0  
Other lot(s): C13  
22127-50-03013

FOURTH: The corporation shall have all powers granted by law necessary and proper to carry out its above-stated purposes consistent with its qualifications under 501 (c) (3).

FIFTH: All corporate activities should be governed by the Board of Directors and as provided in the corporate by-laws. Three directors shall constitute a quorum and all decisions shall require the majority vote of the quorum to be binding.

SIXTH: In the event of dissolution, the assets of the corporation shall be distributed only to a recipient or recipients, to be selected by the Board of Directors, that would qualify for exemption as an organization described in Section 501 (c) (3) of the Internal Revenue Code of 1954, as amended, or a successor statute.

SEVENTH: The address of the initial registered office of the corporation is..."

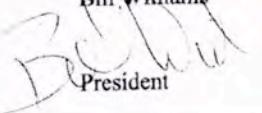


information is up to date and an emergency contact is on record with the Secretary.

Any changes, additions or deletions to this document will be attached as an Addendum and not change the By-Laws as written above.

The above By-Laws negates any prior By-Laws and are considered active as of the date of this document.

Approver by:  
Bill Williams

  
President

Date 12/15/2

OWNER/TENANT

DUCOLON, FREDRIC D  
291 ORCHARD BEACH RD  
GRAPEVIEW, WA 98546-9459  
253-884-9906; 253-509-9339  
Community water lot(s): C2  
Other lot(s): C1  
22127-50-03001

H & M DUNN FAMILY LLC  
6044 4TH AVE NE  
SEATTLE, WA 98115-6512  
120 E ORCHARD BEACH DR  
Community water lot(s): 0  
Other lot(s): A22  
22127-50-01022

EIDE ET UX, THOMAS A  
KATHERINE K FARRELL  
8317 MOON VALLEY RD SE  
NORTH BEND, WA 98046  
300 E ORCHARD BEACH DR  
206-947-4208; 360-888-7222  
Thomas.eide@gmail.com  
Community water lot(s): A7  
Other lot(s): A6, B5, B6  
22127-50-02005; 22127-50-02006; 22127-50-01006/7

EMTMAN, KYLE & MICHELLE  
5970 NE Arrowhead Drive  
KENMORE, WA 98028-6310  
360 E ORCHARD BEACH DR  
425-894-8155  
Kemtman@hotmail.com  
Community water lot(s): A1  
22122-43-00040

ARTICLES OF INCORPORATION  
Filed with the Secretary of State - August 27, 1974

For this directory the Articles include only the first six relevant sections...not included are the signatory pages.

"ARTICLES OF INCORPORATION  
OF  
ORCHARD BEACH COMMUNITY GROUP

The undersigned, acting as the incorporators of a non-profit corporation under the provisions of RCW 24.03 adopt the following Articles of Incorporation for such corporation:

FIRST: The name of the corporation is ORCHARD BEACH COMMUNITY GROUP.

SECOND: The period of its duration is perpetual.

THIRD: The purposes for which this corporation is formed are as follows:

A) To maintain a community water system and undertake other community projects and activities as decided by the Board of Directors and to promote the general interest and welfare of the Orchard Beach Community.

OWNER/TENANT

ERICKSON, RONDEAU B & CAROLA A  
380 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9676  
360-426-8328  
caerickson@aol.com  
Community water lot(s): A1  
22122-43-00050; 22122-43-00070

EWART, NANCY L  
6319 55TH PL NE  
MARYSVILLE, WA 98270-9003  
141 E ORCHARD BEACH DR  
360-657-3660; 425-309-2075  
Community water lot(s): C8  
22127-50-03008

EWART, ROGER W  
150 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9674  
360-819-0355  
Rogerewart@gmail.com  
Community water lot(s): A19  
Other lot(s): A20  
22127-50-01019; 22127-50-01020

FRANDLE, WENDY  
PO BOX 673  
GRAPEVIEW, WA 98546  
111 E ORCHARD BEACH DR  
206-409-2518  
WFrandle@me.com  
Community water lot(s): C11  
22127-50-03011

registered mail to the address of record and that they have chosen by defaulting on payment or voluntarily chosen not to be a member of the system. The system is available to service a pre-designated amount of tracts. The Orchard Beach Community Group cannot assure water will be available to any owner in the future that requires water to their property. A lien for unpaid fees will be attached to the property.

**Membership obligation, liability and action:**

The membership is responsible to maintain the water lines on their property in good working order as not to disrupt or contaminate the main system.

It is the responsibility of all members to report any water leakage or breakage they observe on the mainline or any tract that uses the system. The Orchard Beach Community group is ONLY responsible for maintaining the well and the main lines.

Any member should report to a property owner or officer of any action they observe that may damage the lines, that is but not limited to, heavy vehicles parking on the lines, digging or contracted to dig or work near or on the line etc. The damage is the responsibility of the property owner of record to correct in accordance with governing agencies. Emergency repairs will be performed as needed by a licensed water system management company or their contractors to correct the issue and restore water to the other members. Any additional damage to the system will also be the responsibility of the property owner.

Damage or breakage reported or observed on personal property is the obligation of the property owner. In the event that the personal water line damage or breakage is noted, the property owner will be notified and immediate action to repair the damage is required. If the executive committee is unable to contact the property owner action will be taken to fix or repair the problem and cost incurred will be levied to the property owner. It is imperative that the contact

water system will be assessed a \$500.00 hook-up fee. In addition, the agreed to annual fee must be paid in advance to being hooked-up. Approval of new additions to the existing system will be determined by the system availability to meet regulatory requirements for the water system and how many users it can accommodate.

**Payment of the annual fee:**

The fee is due within 30 days of being sent. Payments may be split into 2 equal payments. One half of the fee due upon receipt and the second payment due within 6 months. The Secretary/Treasurer must be notified if the 2 equal payment options are chosen.

**Nonpayment:**

The Secretary or other officers will contact any owner for nonpayment. It is the obligation of ALL members to pay the fee for the water service timely.

Any non-compliance to this will result in the water being disconnected to the property and liens on the property for unpaid water fees. This action will be sent by registered mail to the address of record. *All fees associated with collections, including but not limited to legal fees, recording fees, the service fees charged by the water system manager to perform disconnections and reconnections of the water service as well as the cost of installation of a lockable device if one is not present are the responsibility of the member.* Disconnected property would require the \$500.00 re-hook-up fee, repayment of all collections costs, and the delinquent fees paid in full. The system is governed by the number of users on the system and water may not be available if it is disconnected.

**Opting Out:**

Members that have chosen not to pay the annual fee or are delinquent by over 6 months are considered to have opted out. Members that choose not be part of the water system are considered to have voluntarily opted out. In either option the water supply will be disconnected to the property. They will be contacted via

**OWNER/TENANT**

FRETT, DENNIS KARL & KELLY GRACE  
31012 157TH PLACE SE  
KENT WA 98042  
340 E ORCHARD BEACH DR  
253-315-2974  
Community water lot(s): A2  
Other lot(s): A3  
22127-50-01002; 22127-50-01003

HALLMAN ET AL, LYLE J  
C/O DAVID W STANLEY  
7355 EARL AVE NW  
SEATTLE, WA 98117-5942  
10 E ORCHARD BEACH DR  
206-383-5370  
golfstan@msn.com  
Community water lot(s): A33  
22127-50-01033

HAWKINS, ERIC K  
c/o MARLA McNARY  
PO BOX 606  
FALL CITY, WA 98024  
61 E ORCHARD BEACH DR  
Community water lot(s): C15  
Other lot(s): C16  
22127-50-03015; 22127-50-03016

JOHNSON, RICHARD A.  
110 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9674  
360-426-2518  
Community water lot(s): 0  
Other lot(s): A23  
22127-50-01023

OWNER/TENANT

KANE, LAUREN  
PO BOX 522  
TALKEETNA, AK 99676  
180 E ORCHARD BEACH DR  
907-715-9108; 909-733-4971 (office)  
llkane@bellsouth.net  
Community water lot(s): A18  
Other lot(s): A17  
22127-50-01017; 22127-50-01018

KRISE, DAVID M & GLORIA JUNE  
350 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9676  
360-426-9542  
Community water lot(s): 0  
Other lot(s): A1, B1  
22127-50-01001; 22122-43-00030

LODER ET AL, JAMES W  
C/O TODD B GREEN  
1217 SW ORCHARD ST  
SEATTLE, WA 98106  
171 & 161 E ORCHARD BEACH DR  
206-909-0509 (J); 206-909-1127 (T)  
Toddorjim@msn.com  
Community water lot(s): C6  
Other lot(s): C7 (recreational hookup)  
22127-50-03006; 22127-50-03007

2. The President shall preside at all meetings. He shall be the Chairman of the Executive Committee and an ex-officio member of all other committees. He shall have such other powers and duties as may be prescribed by the group or the executive committee.
3. The Vice-President shall preside over all meetings of the group and executive committee in the absence of the President. In addition the Vice-President will assist the President and other executive officers duties when necessary.
4. The Secretary-Treasurer shall be the secretary of and attend all meetings of the members. They shall record the proceedings of each meeting and give required notices of meetings to members of the group or the executive committee. The position requires that the secretary maintain an up-to-date list of all members. In addition, he/she will keep accurate records of all money of the group received and disbursed.
5. All significant expenditures on behalf of the group are subject to approval of the Executive Committee. A current financial report will be presented to the members at the member meeting. The report will then be voted on for approval.
6. The Trustee shall have such powers and duties as may be prescribed by the members of the group or executive committee. He/she shall appoint members to his committee as he deems necessary.

Executive Committee may empower an advisor or advisory group to be considered as a non-voting member of the executive committee. They may take on the supervisory role specifically as they relate to the water system. They may attend all meetings of the group or officers.

**Fees:**

All tracts in the Orchard Beach Community Group of which the water system is supplying water, shall be assessed an annual fee accepted and approved by attending member vote. This is a system maintenance fee and not to be considered a water usage fee. All tracts that are not currently on the system and apply to be connected to the

active members prior to the meeting.

3. Meeting Notes will be taken by the secretary for actions that need to be taken and input from members will be documented.

4. Special meetings may be called at the request of the President or any member of the executive committee. Any topics deemed to be major or controversial will be voted upon by the members of that group. A special meeting vote on the action will be taken. The aforementioned vote need not require a special meeting of the all members group.

5. A majority of the members present at any meeting properly called shall constitute a quorum for the transaction of business.

6. Voting will follow standard corporate procedures. Issue of vote, seconded, and voted on by parties present. Simple majority rules.

7. Nomination of officers can be made by any member present at the meeting.

8. The election of officers of the group shall be held at the meeting set forth by the President. Nominations, seconded and voted by present members will determine the officers of the group and duration of service.

9. Meeting of the group shall be attended by active members of the group, those eligible to be a member, their spouses and any individuals specifically invited by the executive committee.

#### Officers:

1. The officers (aka executive committee) of the group shall be: President, Vice-President, Secretary/Treasurer and Trustee. The officers serve on a voluntary basis. The immediate past President of the association shall serve as a non-voting advisor to the executive committee. Officers shall hold office until the next election meeting, held every three years, or until a successor has been voted on. An officer may be removed, with or without cause by an affirmative vote of the majority of members present at the election meeting. If there is a vacancy of any office for any cause, said vacancy will be filled for the unexpired term by an Executive Committee member. All standing officers are exempt from the annual maintenance fee for one owned property.

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Supporting Documents for WSP

#### OWNER/TENANT

LU, MINH C & LOAN T  
5737 110TH AVE SE  
BELLEVUE, WA 98006-2607  
320 E ORCHARD BEACH DR  
206-354-2564  
Community water lot(s): A5  
Other lot(s): A4, B7  
22127-50-01004; 22127-50-01005; 22127-50-02007

MACH, THOMAS B  
3306 E ROCKY DR NW  
BREMERTON, WA 98312-1912  
50 E ORCHARD BEACH DR  
Community water lot(s): 0  
Other lot(s): A LOT: 29 & ELY 1/2 LOT: 30  
22127-50-01029; 1/2 22127-50-01030

MADANI, MOSTAFA & SALIHA  
12237 SE 259TH PL  
KENT, WA 98030  
181 E ORCHARD BEACH DR  
253-223-1096; 360-426-3708  
abcs\_webdesign@hotmail.com  
Community water lot(s): 0  
Other lot(s): C5  
22127-50-03005

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2/21/19

OWNER/TENANT

MCKENNEY, SHANE  
301 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
360-463-9208  
SZMcKenney@yahoo.com  
Community water lot(s): B4  
22127-50-02004

MULLINS, THOMAS H & ELLA A  
21407 92ND AVE W  
EDMONDS, WA 98020-3968  
200 E ORCHARD BEACH DR  
425-478-7937  
ellamullins@gmail.com  
Community water lot(s): A15  
22127-50-01015

OLSON, DAVID  
7683 SE 27TH ST #116  
MERCER ISLAND, WA 98040-2804  
70 E ORCHARD BEACH RD  
206-236-8815  
Community water lot(s): A27  
22127-50-01027

OSBORNE, ROSS & MICHELLE  
14044 SE 159TH PLACE  
RENTON, WA 98058  
240 E ORCHARD BEACH DR  
425-577-0914  
rossosborne9964@comcast.net  
Community water lot(s):  
Other lot(s): A11, 1/2 of A10  
1/2 22127-50-01010; 22127-50-01011

2010

**Orchard Beach Community Group Inc.  
By-Laws**

The name of the group is the Orchard Beach Community Group Inc. Its headquarters shall be in Orchard Beach, County of Mason, and State of Washington

**Objectives:**

The SOLE objective of the group is to maintain the community water system under the guide lines of Mason County and other governing agencies to assure a supply of water to all active members, in good standing, that is safe and adequate. The water system is only responsible for the main-line and well maintenance and property owners are responsible for any of the system that is on their property.

**Membership:**

Membership shall be limited to those owning property/ properties or tracts that are of record in Mason County. Membership is not compulsory, but by choice for those who choose to be hooked to the Community Water System. The membership is governed by the amount of properties the system can accommodate set forth by the governing bodies for water systems in the County and State.

**Meetings:**

Meetings will be held annually and meeting notices will be sent approx. 20 days prior to all active members of the time and place of meetings. It is the obligation of the members to contact the Secretary/Treasurer, of any change of mailing address or if the property has changed ownership. The time and place will be decided by the executive committee or officers.

1. Any member can request an emergency meeting by first contacting the officers in writing to make a final decision if a full membership meeting is required or a meeting with the officers only is adequate.
2. Inasmuch as possible the topics and agenda will be sent to all

OWNER/TENANT

WARDLE, CHARLES & M JILL  
74410 DEBAST ROAD  
RAINIER, OR 97048-3114  
80 E ORCHARD BEACH DR  
503-556-3939;  
360-430-3399 (C. cell); 503-866-1562 (J. cell)  
Chuckwardle@msn.com  
Community water lot(s): A26  
22127-50-01026

WATERS, ROBERT & ELLEN M  
260 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9675  
360-426-9765  
nybob1@centurylink.net  
Community water lot(s):  
Other lot(s): A9, B3, 1/2 of A10  
1/2 22127-50-01010; 22127-50-01009; 22127-50-02003

ZAMZOW, MAUNTRECE D  
3306 E ROCKY DR NW  
BREMERTON, WA 98310-1912  
21 E ORCHARD BEACH DR  
321 E ORCHARD BEACH DR  
360-627-8537  
Community water lot(s): C19, B2  
Other lot(s): C18  
22127-50-03018; 22127-50-03019; 22127-50-02002

OWNER/TENANT

PETRIE, SHELLEY L & LAURA C  
5651 41ST AVE SW  
SEATTLE, WA 98136  
20 E ORCHARD BEACH DR  
206-937-1817 (h); 360-490-7893 (beach house);  
708-218-7383; (L. cell) 630-699-4882 (S. cell)  
laura.petrie@mac.com  
Community water lot(s): A32  
22127-50-01032

PHELPS, INGRID  
19673 40TH PL NE  
LAKE FOREST PK, WA 98546  
201 E ORCHARD BEACH DR  
206-240-8162  
ingrid\_seattle@yahoo.com  
Community water lot(s): C4  
Other lot(s): C3  
22127-50-03003

POPPELL, BRIAN & RENA  
32902 47TH AVE SW  
FEDERAL WAY, WA 98023  
261 E ORCHARD BEACH RD  
206-369-8151, 253-732-4022  
rbpoppell@comcast.net  
Community water lot(s): B12  
Other lot(s): B11, B13  
22127-50-02012

OWNER/TENANT

PORTER, JANET D  
130 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9674  
Community water lot(s): 0  
Other lot(s): A21  
22127-50-01021

RICE, DAVID A & KRISTI  
6020 128TH ST E  
PUYALLUP, WA 98373  
230 E ORCHARD BEACH DR  
253-508-9297  
d\_kpropainting.net  
Community water lot(s): 0  
Other lot(s): A12, A13  
22127-50-01012; 22127-50-01013

SHEFFER, ANNE (*FARRELL, JAMES E & CHRISTINE*)  
4527 35TH AVE S  
SEATTLE WA 98118  
270 E ORCHARD BEACH DR  
253-939-2569 (Jim's cell)  
cefarrel@comcast.net (Jim & Chris)  
Community water lot(s): A8  
22127-50-01008

SIPE (Rice), SANDRA K  
241 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9675  
Community water lot(s): B9  
22127-50-02009

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Supporting Documents for WSP

OWNER/TENANT

SPENCER TRS ET UX, JOSEPH E  
LISA M PEDERSEN TRSE/PEDERSEN-SPENCER TRUST  
6143 SEABECK HOLLY RD NW  
SEABECK, WA 98380-8866  
(360) 830-4768  
jspencer98380@gmail.com  
Community water lot(s): 0  
Other lot(s): C14  
22127-50-03014

TURNER, RAY  
949 S MADISON AVE  
PASADENA, CA 91106  
100 E ORCHARD BEACH DR  
626-319-2914  
rayturnerstudio@gmail.com  
Community water lot(s): A24, A25-A  
22127-50-01024; 22127-50-01025

WAHL, DIANE M  
190 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546-9674  
360-490-7847  
dwahl12@hotmail.com  
Community water lot(s): A16  
22127-50-01016

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## 11.7 Northwest Water Response to ERU Analysis, System Parameters



**Planning • Management • Engineering**  
P.O. Box 123 • Port Orchard, WA 98366 • 888-881-0958 • 360-876-0958  
[www.nwwatersystems.com](http://www.nwwatersystems.com)

January 22, 2019

Fern Schultz  
Southwest Drinking Water Operations  
PO Box 47923  
Olympia, WA 98504-7823

Re: Orchard Beach Community Water System, ID #64031Q, Mason County; Water System Plan, ODW Project #18-1004

Dear Ms. Fern Schultz,

Please see the following responses to your questions for comments 11,12,22,25 & 26. The Orchard Beach system has chosen to address the remainder of the comments.

*11. 2.1.4 ERU Analysis -It is unclear what the basis is for assuming the quantity of water used by part time connections. Please explain how the fraction of the ERUs were derived. If this information was taken from an analogous system, please provide detail.*

The system's connections recently became fully metered and so lacks sufficient historical data for a distribution meter based analysis. Thus, several assumptions had to be made based on the overall source meter data and information provided by the system. It is evident that more water is being used in the summer; thus, the assumption was made that the part-time residences are present 3/7 of a week during July and August; 2/7 of a week during June through September and December; and 1/7 of a week during the remainder months. Please see section 2.1.4 paragraph 2 for a rewording of this section.

Since the system does not have sufficient service meter data for the capacity analysis, the source meter data was used, and several assumptions had to be made. To further support the assumptions that were made, the calculated ADD and MDD for Orchard Beach was compared to two analogous systems, Lake Limerick and Collins Lake. Orchard Beach more closely resembles Collins Lake in income level, lot development style, and in having a larger number of part time users than Lake Limerick. Orchard Beach's usage is closer to that of Collins Lake which is to be expected indicating that assumption made about the part time usage were not unreasonable. A comparison of the three systems' usage is shown in Table 2 on pg. 15.

*12. 2.1.5 System Parameters, ADD, MDD, and PHD – It is not possible to reliably separate distribution leakage from normal system demands when customer demand records are not available. Please explain how the distribution system leakage (DSL) is being taken into account when determining system demands.*

The system does not have sufficient service meter data off which to calculate distribution leakage. Thus, we were only able to calculate ADD off source meter data (which includes DSL). Since MDD and PHD are calculated based on ADD, these parameters are also inflated due to the included DSL. The system's actual demand is likely much lower than the calculated demand, but this conservative approach was only taken because DSL cannot be accurately separated without sufficient service meter data. Circumstantial leakage identified by spikes in the source meter data (Figure 5, pg 13) during non-peak seasons were not included in the

usage calculations. Although the system does not have written record of these leaks, they have confirmed that several substantial leaks were found and repaired within the past few years.

22. *Hydraulic Analysis Results-Please show the pipe velocities in the results summary for the hydraulic analysis.*

Please see that attached hydraulic summary addition with pipe velocities.

25. *Part IV- This states the calculated fixed radius for 6 month is 20 feet, 1 year is 28 feet, 5 year as 63 feet, and 10 year is 89 feet, yet Part IV of the October 1, 2004 Susceptibility Assessment Form states that the 6 month is 440 feet, 1 year is 620 feet, 5 year is 1390, and 10 year is 1970 feet. Please explain the discrepancy.*

Although both of Orchard Beach's wells are in close proximity, there are two individual source water protection forms for the two wells because the wells are in different aquifers. The first source water protection form in this appendix is for SO1 and it was completed with the 2011 SWSMP. The second one, completed on October 1, 2004, is for SO2. SO2 is the primary well and it has a lot larger time travel delineation than SO1 because SO1 is only used during peak seasons (summers and holidays). Therefore, there is a difference in the GW radii.

26. *GW Radii- There are two maps, both dated July 16, 2018, with file number 170505 and file name GW Radii that provide different information concerning the Time of Travel. Please update the inaccurate map and explain the discrepancy. Additionally, please update this map to include your calculated fixed distances shown in feet.*

The first map shows the GW radii for SO1 and the second map shows GW radii for SO2. The previous submitted GW radii maps were not clearly labeled to differentiate between the two sources. In addition, both maps were updated to include the calculated fixed distances in feet. The updated maps have been included with this comment response letter.

Sincerely,  
NORTHWEST WATER SYSTEMS, INC.

Anna Parkinson  
Enclosure:  
Revise Ch2 from WSP  
Revised Hydraulic analysis summary  
GW radii maps

## 2.0 BASIC PLANNING DATA

### 2.1 Demand Analysis

#### 2.1.1 Population and Demographics

The Orchard Beach Community is a residential community that is comprised of 9 full-time residents, 25 part-residents, and 4 non-residential/recreational connections, totaling to 38 connections.

According to the WFI form there is a population of 14 for the full-time connections. The part-time connections vary greatly per month and are primarily used for recreation. For the population of the part-time connections see the WFI.

#### 2.1.2 Meter data

The community has recently installed production meters on all the connections, and there is a month of metering data from June 2018 included in the appendix. Likewise, source meter data from 2012-2017 is provided in the appendix. The water use has increased in 2015 and 2016 due to extensive leaks that have since been fixed. A graph of source usage is provided below in Figure 5.

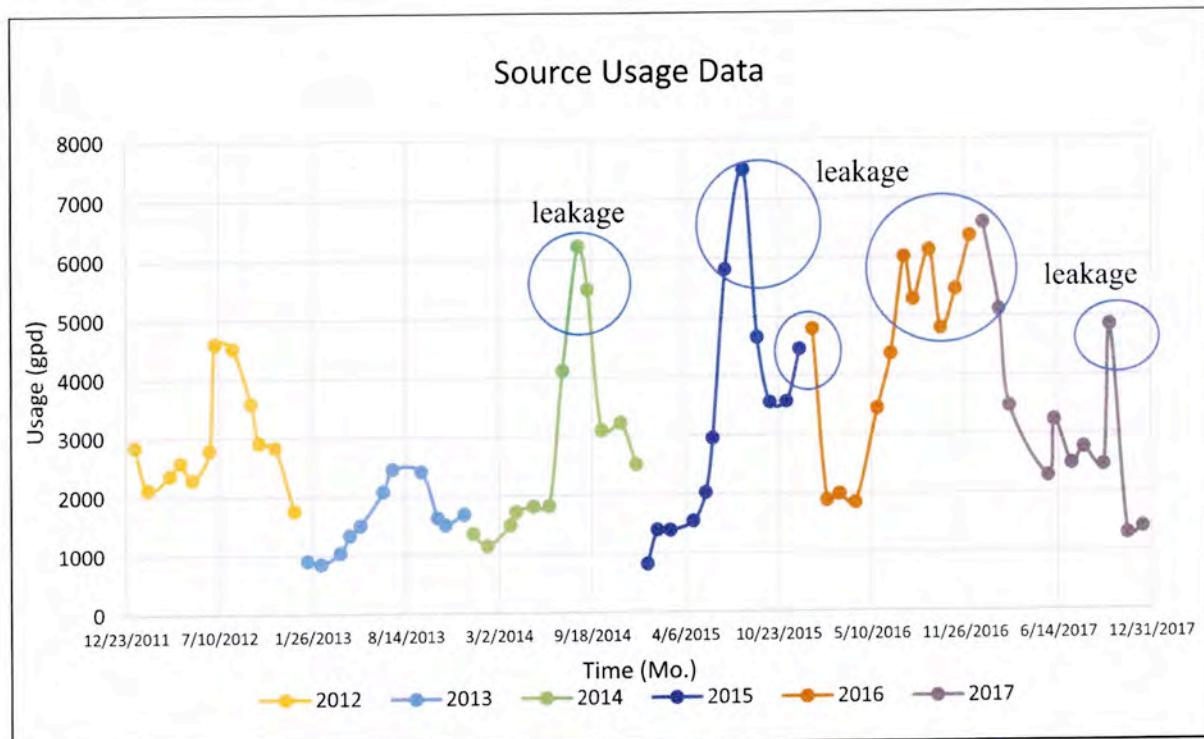


Figure 5. System's usage data

#### 2.1.3 Usage by Customer Class

The system services the following three class of customers:

1. Full-time residents
2. Part-time residents
3. Non-residential/recreational

The full-time residents are the basis for the Equivalent Residential Units (ERU). The part-time connections are only present during peak seasonal or weekends. Similarly, the four recreational units are used primarily on the weekend in the summer months.

#### 2.1.4 ERU Analysis

One ERU is defined as the equivalent usage of one full-time, single family resident. Thus the 9 full time connections provide a total of 9 ERUs.

The occupancy of the part-time owners varies throughout the year. Based on the source meter data and information from the system, it is evident that the majority of the part-time residences are present in the summer but there is some usage throughout the year. Thus, it was assumed that part time connections are present 3 out of 7 days a week during July through August yielding 3/7 of an ERU. For June through September and December, it was assumed that the part-time connections are present 2 out of 7 days each week yielding 2/7 of an ERU for those months, and finally, it was assumed that the part-time connections are only present 1 out of 7 days a week the rest of the year yielding 1/7 of an ERU. To further support the assumptions that were made, the calculated ADD and MDD for Orchard Beach was compared to two analogous systems, Lake Limerick and Collins Lake. See section 2.1.5 for a more in-depth explanation.

The recreational units are primarily used during the weekends during the summer. Thus, it was estimated that the ERU's during June -September is .09 ERU for each recreational lot and zero during the rest of the year. Table 1 provides a summary of the connection categories and their corresponding ERU's.

**Table 1. Summary of connections and ERU's**

Class	Connections	ERU
Full-time	9	9
Part-time	25	3.6-10.7
recreational	4	.37

#### 2.1.5 System Parameters, ADD, MDD, and PHD

The system has provided their recent service meter data for the month of June. The average daily demand (ADD) of the full-time users is 117 gpd/ERU and it is a reasonable assumption that maximum daily demand (MDD) is 2-3 times higher. Although this data is not sufficient for the capacity analysis, it provides a baseline for comparison for the source ADD and MDD. In the last three years (2015-2017), the system has records of substantial leaks that have been repaired. There are sections in the source meter data where it is evident that significant leaks occurred, particularly in 2016. Therefore, the ADD and MDD from the 2012-2017 data with correction for leakage data was used for the usage calculations yielding an ADD and MDD and 179 and 634 respectively.

The monthly ADD was calculated by dividing the monthly usage by the total monthly ERU's. Because the ADD varies by month with the fluctuation of the part-time and recreational connections the ADD was average for the 5-year data period.

Maximum daily demand (MDD) was calculated by taking the maximum month average daily demand (MMAD) over the peak month period and multiplying it by a factor of 1.7. The MMAD was 373 gpd, in August 2015. The calculated MDD is therefore 634 gpd/ERU.

For further comparison, two analogous systems, Lake Limerick and Collins Lake, were analyzed. Lake Limerick is a larger system with 771 full-time connections and 71 part-time connections. The Lake Limerick water system plan (WSP #DDR2013-00029) contains a detailed connection analysis that was used to calculate their ADD and MDD. Similarly, Collins Lake has 113 full-time connections, 100 part-time connections, and 1 institutional connection (a fire station). A capacity analysis was done for ODW Project #16-0104 in which the system's ADD and MDD was calculated. Most lots have limited yards or landscaping, with native second growth predominating. Orchard Beach currently most closely resembles Collins Lake in income level, lot development style, and in having a larger number of part time users than Lake Limerick. Therefore, usage is expected to be very similar to Collins Lake. Lake Limerick is used to represent a more upscale community that could potentially develop in the future as the system transitions from part-time to full-time residential use. Below is a comparison of ADD and MDD for the three systems in Table 2.

**Table 2 Comparison of Parameters**

System	ADD (gpd/ERU)	MDD (gpd/ERU)
Orchard Beach	179	634
Collins Lake	129	470
Lake Limerick	218	728

Calculated ADD and MDD for Orchard Beach is between that of Collins Lake and Lake Limerick. Thus, the assumptions used to calculate the usage for Orchard Beach are reasonable.

The peak hourly demand (PHD) can be calculated using the systems MMD. The PHD for the systems existing peak flow period can be calculated using Equation 5-1 of the Design Manual (for  $15 < ERU < 50$ ,  $C=3$ ,  $F=0$ ). A summary of the parameter results is provided in Table 3.

$$PHD = \left( \frac{MDD}{1,440} \right) ((C * N) + F) + 18$$

$$PHD = \left( \frac{634}{1,440} \right) ((3 * 20.09) + 0) + 18 = 44.5 \text{ gpm}$$

**Table 3. Summary of Parameters**

Parameter	Demand	
	Qty.	Unit
ADD	179	gpd/ERU
MDD	634	gpd/ERU
PHD	44.5	gpm
Current System	20.09	Max ERU

The system distribution leakage (DSL) is unknown due to not having sufficient service meters data. Thus, ADD was calculated off the source meter data which includes DSL. Since MDD and PHD are based on ADD, these parameters are also inflated due to DSL. The system actual demand is likely much lower than the calculated demand, but this conservative approach was only taken because DSL cannot be accurately separated without sufficient service meter data. With the installation of the production meters, the system is recording monthly usage which can be used in the future to account for DSL separately.

#### **2.1.6 Pressure Zones**

The system is comprised of a single pressure zone. The elevations of the distribution system range from 65 feet to 30 feet. The system is pressurized by 8 bladder tanks and it can sustain pressure during PHD conditions.

#### **2.1.7 Inerties**

No inerties exist or are planned for the Orchard Beach system within the next 20 years.

#### **2.2 6 & 20 Year Productions**

The communities service area encompasses approximately 63 lots. Some of these lots are on private wells, and some of the lots are undeveloped. It is estimated that the systems build-out will be 63 connections because there is a potential for the undeveloped lots to be developed and the existing lots might add an additional dwelling unit.

The system currently has 9 full-time connections, 25 part-time connections and 4 recreational connections. This equates to 20.1 ERU.

According to the Mason County Comprehensive Plan, the population for rural areas is projected to increase by 22% from 2016-2036. This equates to 1.1% growth per year. Starting with the current number of ERUs of 20.1, the growth was projected for the community based on the 1.1% growth per year.

In addition, the percentage of part-time to full-time connections per service area is 21% for PUD 3 according to the comprehensive plan. Orchard Beach is currently 73.5 % part-time out of its 34 residential connections. This is much higher than the average for the PUD 3 area. It is assumed that some of Orchard Beach's residents will transition to full-time status based on the information provided by the community and general trends of similar communities. Thus, the part-time to residential connection percentage was decreased incrementally till the community reaches approximately 21 % at 20 years projection. Table 4 is a table of part-time to full-time users for the 6,10, and 20 year

projections, and Table 5 shows the final projections based on growth in the area and modified part-time to full-time connections. The process for converting the part-time connections ERU was the same process followed in the capacity analysis. See Section 10.3.

**Table 4. Part-time to Full-time Connection ratios**

	Full-time	Part-time	%
Current	9	25	73.5
6-year	15	20	57
10-year	19	17	47
20-year	30	8	21

**Table 5. Current, 6yr., 10yr., 20 yr. and build-out projections**

	ADD (gpm/ERU)	MDD (gpd/ERU)	Connection	ERU	PHD (gpm)	Annual* (ac-ft/yr)
Current	179	634	38	20.1	44.5	4.0
6 Year	179	634	39	23.4	48.9	4.7
10 Year	179	634	40	26.7	53.2	5.4
20 Year	179	634	41	33.8	62.6	6.8
Build-out	179	634	63	63	101.2	13.1

\*including DSL

### 2.3 Interties

No interties with other system exist or are in the 20-year plan.

### 2.4 Land Use and Zoning

All the service area is zoned for Rural Residential 5 acres as shown in the attached zoning map. All the parcels are smaller than 5 acres, but the majority of the parcels were created before the zoning code. Thus, it is not predicted to change within the 6 and 20 year horizons.

### 2.5 Distribution System Leakage and Volume

The distribution leakage percentage is unknown until sufficient data is received from the service meters which were fully installed as of May 2018.

## Orchard Beach Capacity Analysis

Node ID	Demand GPM	Pressure psi
Junc 12	2.91	38.69
Junc 14	2.91	36.45
Junc 15	2.91	36.45
Junc 16	1.45	36.45
Junc 17	2.91	36.44
Junc 21	2.91	38.58
Junc 22	2.91	39.83
Junc 23	2.91	39.78
Junc 24	2.91	40.61
Junc 25	2.91	40.53
Junc 26	2.91	47.01
Junc 27	2.91	47.01
Junc 28	2.91	41.34
Junc 29	2.91	40.46
Junc 30	2.91	40.45
Junc 31	2.91	42.62
Junc 32	2.91	44.78
Junc 33	2.91	46.51
Junc 34	2.91	46.95
Junc 35	2.91	49.11
Junc 36	2.91	51.28
Junc 37	2.91	49.11
Junc 38	2.91	45.65
Junc 39	2.91	44.79
Junc 40	2.91	43.93
Junc 41	2.91	43.94
Junc 42	2.91	41.36
Junc 43	2.91	39.65
Junc 44	2.91	38.38
Junc 45	2.91	40.57

## Orchard Beach Capacity Analysis

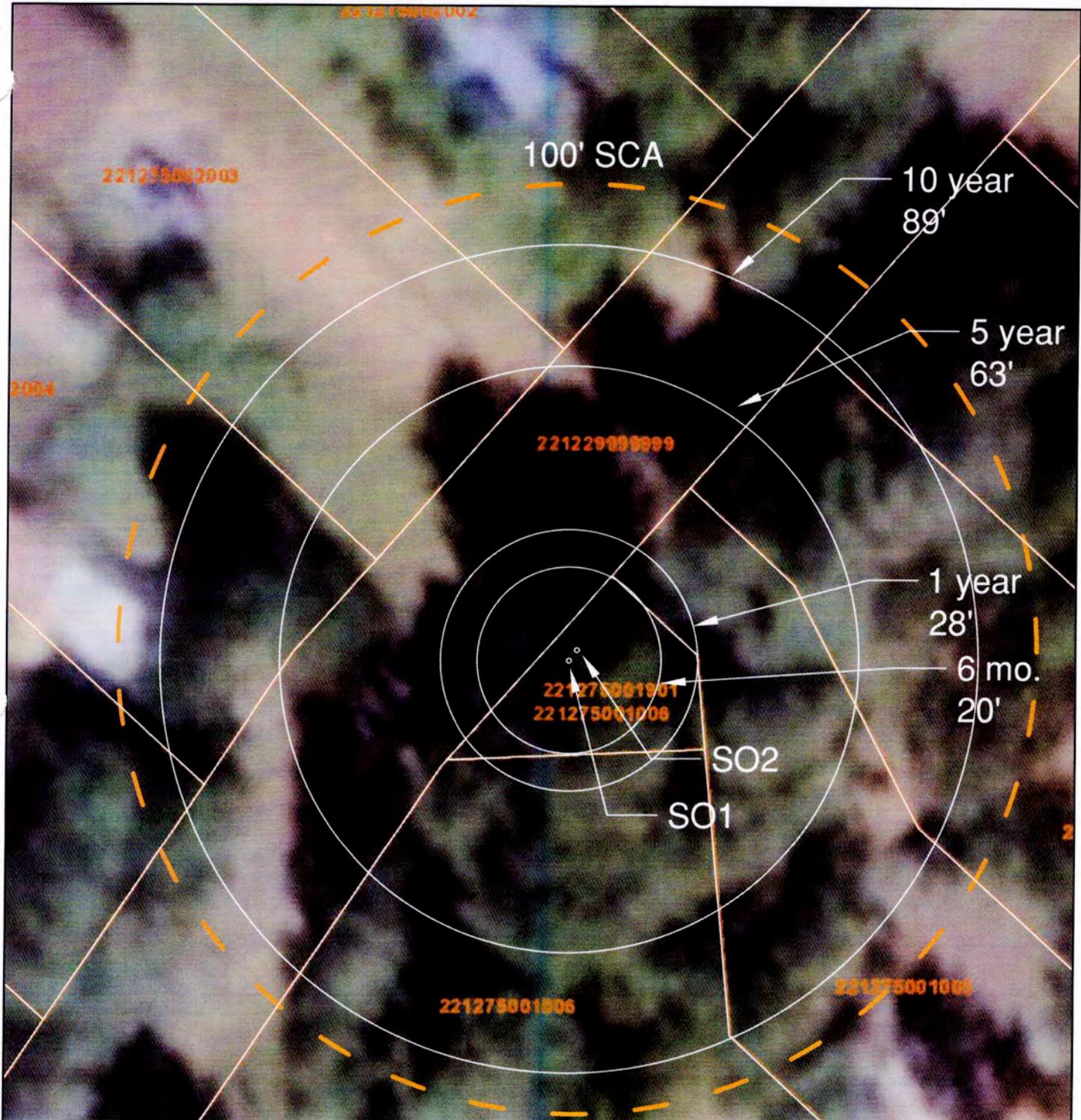
Node ID	Demand GPM	Pressure psi
Junc 46	2.91	40.61
Junc 47	2.91	39.82
Junc 48	2.91	39.87
Junc 49	2.91	39.93
Junc 50	0.00	40.03
Junc 51	2.91	38.66
Junc 52	2.91	47.01
Resvr 1	-103.31	0.00

## Orchard Beach Capacity Analysis

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft
Pipe 5	103.31	2.64	6.12
Pipe 6	103.31	2.64	6.12
Pipe 7	55.52	1.42	1.94
Pipe 8	52.61	1.34	1.76
Pipe 9	4.37	0.11	0.02
Pipe 10	1.45	0.04	0.00
Pipe 11	45.34	1.16	1.33
Pipe 12	42.43	1.08	1.18
Pipe 13	39.52	1.01	1.03
Pipe 14	36.61	0.93	0.90
Pipe 15	33.70	0.86	0.77
Pipe 16	30.79	0.79	0.65
Pipe 17	27.88	0.71	0.54
Pipe 18	24.97	0.64	0.44
Pipe 19	2.91	0.07	0.01
Pipe 20	19.15	0.49	0.27
Pipe 21	16.24	0.41	0.20
Pipe 22	13.33	0.34	0.14
Pipe 23	10.42	0.27	0.09
Pipe 24	7.51	0.19	0.05
Pipe 25	4.60	0.12	0.02
Pipe 26	1.69	0.04	0.00
Pipe 27	-1.22	0.03	0.00
Pipe 28	2.91	0.07	0.01
Pipe 29	44.87	1.15	1.31
Pipe 30	41.96	1.07	1.15
Pipe 31	39.05	1.00	1.01
Pipe 32	36.14	0.92	0.88
Pipe 33	33.23	0.85	0.75
Pipe 34	30.32	0.77	0.63

## Orchard Beach Capacity Analysis

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft
Pipe 35	27.41	0.70	0.52
Pipe 36	24.50	0.63	0.43
Pipe 37	21.59	0.55	0.34
Pipe 38	18.68	0.48	0.26
Pipe 39	15.77	0.40	0.19
Pipe 40	12.86	0.33	0.13
Pipe 41	9.95	0.25	0.08
Pipe 42	4.13	0.11	0.02



SITE INFORMATION PROVIDED BY:  
THE CLIENT AND BY MASON  
COUNTY GIS

Note:  
SO1 & SO2 are  
approximate  
locations

DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	Orchard Beach		Orchard Beach Community
REVISION	FILE NO.	FILE NAME	SHEET NO.
	170505	GW Radii for SO1	
DESCRIPTION	DATE	SCALE	1" = 30'
	July 16, 2018		
NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958			



SITE INFORMATION PROVIDED BY  
THE CLIENT AND BY MASON  
COUNTY GIS

Note:  
SO1 & SO2 are  
approximate  
locations

DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	Orchard Beach		Orchard Beach Community
REVISION	FILE NO.	FILE NAME	SHEET NO.
	170505	GW Radii for SO2	
DESCRIPTION	DATE	SCALE	1" = 600'
	July 16, 2018		
NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958			

## 11.8 Meeting minutes of goal setting and photo of public notice

OBCG annual meeting June 9, 2018

Attendance:

Jim Farrell, president, 270 Orchard Beach Drive

Erika Aust, vice president, 210 Orchard Beach Drive

Tom Mullins, trustee, 200 Orchard Beach Drive

Tom Mach, 50 Orchard Beach Drive

Chris Farrell, 270 Orchard Beach Drive

Roger Ewart, 150 Orchard Beach Drive

Chuck and Jill Wardle, 80 Orchard Beach Drive

Patrick Brockhaus, 101 Orchard Beach Drive

Charlene Ernst, 111 Orchard Beach Drive

Eric Campbell, 210 Orchard Beach Drive

Kate and Tom Eide, 300 Orchard Beach Drive

Curt/Melody Casey, 251 Orchard Beach Drive

Kyle Emtman, 360 Orchard Beach Drive

Dan/DeeDee Benitez, 41 Orchard Beach Drive

Renee Cappuccino and Steve Czeck, Lot C10, Orchard Beach Drive

Laura Petrie, 20 Orchard Beach Drive

Bob Waters, 260 Orchard Beach Drive

The meeting was called to order @ 1 p.m., with a welcome to the 22 people attending.

A motion to approve the agenda was made by Chuck Wardle and seconded by Melody Casey; it carried unanimously.

A motion to approve the minutes of the 2017 annual meeting was made by Chuck Wardle and seconded by Chris Farrell; it carried unanimously.

**Treasurer's Report**

The report was offered by Jim Farrell, president, and Erika Aust, vice president, on behalf of secretary/treasurer Jim Loder, who was absent due to illness.

- Checking account: Erika had communicated with Heritage Bank and shared that OBCG has a balance of \$7,119.88 in checking, not counting a recent premium payment to Douglas Insurance, the system's insurance agent. The payment was estimated at approximately \$1,600, for liability.

Jim volunteered that OBCG's old insurance carrier had decided to get out of the business of insuring water systems, so a new carrier has the policy.

- Savings account: Erika reported a balance of at \$22,017.29. Interest accrued for May was 54 cents.

### **Old business**

Jim Farrell explained that in 2017 and early 2018, repairs were made to two areas where the water line was broken. Also, three of the seven bladder tanks (for water storage) inside the OBCG wellhouse had to be replaced. Each new tank has a capacity of 83 gallons and a lifespan of 6-10 years, and is warranteed for six years.

Patrick Brockhaus, who caused one of the breaks in the line, is reimbursing the OBCG for the repair and inquired about the cost. Erika Aust explained that one break cost approximately \$1,600 to repair, the second was approximately \$1,900, but she did not know which was which without checking further.

### **New business**

Erika reported a major accomplishment: in May, her four years of work with the Department of Ecology (which regulates the withdrawal of water from the ground) had finally led to its approval of the OBCG application for an expanded water right. This is important for two reasons. First, because there is such a backlog of water right applications, the state has started allowing those seeking new or expanded water rights to essentially buy their way into the fast lane by paying approved third-party vendors to get involved in the processing. However, by establishing a productive relationship with Ecology regulators and continuing to work with them directly, Erika managed to avoid the third-party route and still accelerate the processing of the OBCG application (originally filed in 2007). This has saved OBCG members an estimated \$15,000. Second, the larger water right will greatly help OBCG's effort to move from a "blue" operating permit from the state Department of Health to a "green" permit.

This news led to an extended discussion about what the water right approval and the ongoing work to go "green" mean to OBCG members, and the timeline for achieving green status. The "blue" operating permit we have now means our system's ability to draw and distribute water is unverified, and as a result OBCG is not allowed to support new water-service connections. Obtaining a "green" permit will allow OBCG the freedom to accommodate requests for new connections.

The Department of Health insists that as one of the conditions of seeking "green" status, OBCG must be able to draw enough water to support full-time residency at each one of the 67 lots originally platted in Madings Orchard Beach. Although we expect some growth, it is highly unlikely that Orchard Beach will ever be fully "built out," with every dwelling occupied full-time. Even so, OBCG still must prove that it can accommodate full build-out, and the approval of an expanded water right means we may now draw enough water to meet that standard, as unrealistic as it may be.

The immediate benefit of the water right expansion is that Health no longer requires OBCG member properties to be labeled as “full time” or “part time,” as they have been in the OBCG directory, which will help when properties are marketed or sold. Also, Erika explained, if a well belonging to one of our neighbors were to fail, Health says we can connect that neighbor to our system – so no one needs to fear being without water.

Erika reported that with the expanded water right in hand, the remaining steps in seeking “green” should be down to two: submit a Capacity Analysis (CA), and a Small Water System Management Plan (SWSMP), to the state Department of Health. Northwest Water Systems, which is already under contract to OBCG for other compliance-related services, can prepare both documents for an estimated total cost of \$10,000.

The discussion also covered how meter readings in April and May indicated a major loss of water from the OBCG system (more than 40,000 gallons in May alone, equal to more than 400% of what is being consumed by members). Erika explained that the Department of Health is a stickler about water conservation and allows only 10% leakage. If we do not address the water loss, the effort to go “green” will have to add a third step, in the form of a document (prepared at extra cost) detailing our plan for bringing the leakage within the 10% limit.

Following further discussion about detecting the leaks, and lots that have wells and also are connected to the system, and what constitutes a “connection,” two motions were made and approved.

- Tom Eide made a motion to find and fix the leaks. Kyle Emtman seconded the motion, and it carried unanimously.
- Kyle Emtman made a motion to authorize the OBCG board to move forward with its efforts to pursue a “green” operating permit from the state Department of Health. Jill Wardel seconded the motion, and it carried with one member opposed.

Also, an Action Item was created – to verify the readings of the meters on Well #2 (primary) and Well #1 (backup), in case inaccurate readings are actually the reason for the apparent water loss.

#### **New water rates**

Jim F. raised the question about whether the \$400 annual fee for water access should be increased. He and Erika related the board’s discussions about needing to increase the OBCG’s reserve, to accommodate the eventual replacement of the water mains (now 44 years into an assumed 70-year lifespan) and the ability to address future repairs should there be another break in the water main, or some catastrophic event.

The membership discussion that followed ranged from concerns about the lack of a strong reserve and the choice between assessments and a fee increase, to the possibility of moving to a tiered-rate structure (those consuming above a certain level would pay more) and whether the board has a savings target in mind. It was noted that the SWSMP that will be prepared need to contain a budget for future capital investments.

Chuck Wardle made a motion to raise the annual fee to \$500. Chris Farrell seconded the motion. After discussion about whether a \$100 increase would do enough to increase the OBCG reserve, and the

possibility of seeking another fee increase based on recommendations from Northwest Water Systems, Chuck called for the question. The motion carried with one opposed.

#### Other

- Erika reported about her June 7, 2018 meeting with Northwest Water Systems to discuss an update of our existing contract, plus future work products (the CA, and SWSMP) and the possibility of also paying NWS to take over the reading of meters.

An Action Item was created, to share the NWS contract proposal with members.

- Roger Ewart asked about shared water lines (an issue being addressed on two adjacent lots) and whether OBCG could position itself to replace our own water mains, over time. There was also discussion about heavy items (like piles of soil and/or gravel) being left on the right-of-way above the water mains, which could cause issues.
- Kate Eide wondered if our insurance policy could be expanded to cover catastrophic failures of the system; Jim F. said he would check with our insurance agency.

#### Proposed Changes to Bylaws

This was tabled, without a motion, as the board is continuing to discuss possible changes.

With no further business, and nothing more for the good of the order, Curtis Casey made a motion to adjourn, which was seconded by Tom Mullins, trustee. The motion carried and the meeting was adjourned at 2:38 p.m.

Ochard Beach  
Annual Meeting

June 9, 2018

1:00<sup>o</sup> PM

Farrell's E-270

## 11.9 Contamination inventory spreadsheet

# OBCG WELLHEAD PROTECTION AREA PROPERTY OWNERS -- NOTIFICATION LETTERS SENT

<b>FirstName</b>	<b>LastName</b>	<b>Parcel ID</b>	<b>MailingAddress</b>	<b>City</b>	<b>ST</b>	<b>Zip</b>	<b>NOTES</b>
ERIC J & ERIKA E AUST	CAMPBELL	22127-50-01014, 22127-50-02010	2411 TYNDELL CIR SW	TUMWATER	WA	98512	Septic
ALLEN CURTIS & MELOD CASEY		22127-50-02010	251 E ORCHARD BEACH DRIVE	GRAPEVIEW	WA	98546	Septic
FREDRIC D	DUCOLON	22127-50-03002, 22127-50-003001	291 ORCHARD BEACH ROAD	GRAPEVIEW	WA	98546	Septic
THOMAS A & KATHERIN	EIDE ET UX	22127-50-02005, 22127-50-02006,					
KYLE & MICHELLE	EMTMAN	22127-50-01006, 22127-50-01007	8317 MOON VALLEY RD SE	NORTH BEND	WA	98046	Septic
RONDEAU B & CAROL A	ERICKSON	22122-43-00050, 22122-43-00070	5970 NE ARROWHEAD DRIVE	KENMORE	WA	98028	Septic
NANCY L	EWART	22127-50-03008	380 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
ROGER W	EWART	22127-50-01019, 22127-50-01020	6319 55TH PL NE	MARYSVILLE	WA	98270	Septic
DENNIS KARL & KELLY G FRET		22127-50-01002, 22127-50-01003	150 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
LAUREN	KANE	22127-50-01017, 22127-50-01018	31012 157TH PLACE SE	KENT	WA	98042	Septic
DAVID M & GLORIA JUN KRISE		22127-50-01001, 22127-50-00030	PO BOX 522	TALKEETNA	AK	99676	Septic
JAMES W	LODER et al	22127-50-03006, 22127-50-03007	350 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
MINH C & LOAN T	LU	22127-50-01004, 22127-50-01005,	1217 SW ORCHARD ST	SEATTLE	WA	98106	Septic
MOSTAFA & SALIHA	MADANI	22127-50-02007	5737 110TH AVE SE	BELLEVUE	WA	98006	Septic
SHANE	McKENNEY	22127-50-03005	12237 SE 259TH PL	KENT	WA	98030	Septic
THOMAS & ELLA	MULLINS	22127-50-02004	301 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
ROSS & MICHELLE	OSBORNE	22127-50-01015	21407 92ND AVE W	EDMONDS	WA	98020	Septic
INGRID	PHELPS	22127-50-01010, 22127-50-01011	14044 SE 159TH PLACE	RENTON	WA	98058	Septic
BRIAN & RENA	POPPELL	22127-50-03003, 22127-50-03004	19673 40TH PL NE	LAKE FOREST PK	WA	98546	Septic
DAVID & KRISTI	RICE	22127-50-02011, 22127-50-02012,	32902 47TH AVE SW	FEDERAL WAY	WA	98023	Septic
ANNE	SHEFFER	22127-50-02013	6020 128TH ST E	PUYALLUP	WA	98373	Septic
SANDRA K	SIPE	22127-50-01008	4527 35TH AVE S	SEATTLE	WA	98118	Septic
DIANE	WAHL	22127-50-02009	241 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
ROBERT & ELLEN M	WATERS	22127-50-01016	190 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
MAUNTRECE D	ZAMZOW	22127-50-01009, 22127-50-01010,	260 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
		22127-50-02003	3306 E ROCKY PT DR NW	BREMERTON	WA	98312	Septic
DAVID	CALLAN, et ux	22122-43-00010	390 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic

JOHN & DEBORAH	HALL	22122-43-00000	15920 BRIDGEWATER CLUB BLVD	CARMEL	IN	46033	Septic
DEAN & CYDNEY	ELLIOTT	22122-43-00080	2534 GRAYSBY AVE	SAN PEDRO	CA	90732	Septic
JAMES M.	LUCKEY JR. TRSE	22122-50-00001	1208 MUIRFIELD COURT	TARPON SPRINGS	FL	34688	Septic
MELVIN A.	KELLEY et al	22122-43-00060	391 E ORCHARD BEACH DR	GRAPEVIEW	WA	98546	Septic
KRIS	WALKER	22122-43-00130	1801 CHUCKANUT RIDGE DR	BOW	WA	98232	Septic
MICHAEL	PRITCHARD	22122-43-00120, 22122-43-00110, 22122-43-00100, 22122-43-00090	3631 HENDERSON BLVD SE	OLYMPIA	WA	98501	Septic
CHARLES FRANCES	BRACKEN	22122-43-00020	161 E ORCHARD BEACH RD 1001 COOPER POINT RD SW, STE	GRAPEVIEW	WA	98546	Septic
PAUL & JEANETTE	GRIFFEN	22122-34-03000, 22122-34-03020	140-215	OLYMPIA	WA	98502	Septic
BILL & KATHERINE	MORISSETTE	22127-51-00023	522 E MADRONA PKWY	GRAPEVIEW	WA	98546	Septic
CHARLES & VICKI	MOORE	22127-51-00022	520 E MADRONA PKWY	GRAPEVIEW	WA	98546	Septic

## OBCG WELLHEAD PROTECTION AREA



**11.10 Contamination letters sent to owner's, regulators & emergency responders**

January 15, 2019

ERIC & ERIKA CAMPBELL/AUST  
2411 TYNDELL CIR SW  
TUMWATER, WA 98512

**Subject: Notification of Wellhead Protection Area**

Dear ERIC & ERIKA:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01014, 22127-50-02010**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

ALLEN CURTIS & MELODY CASEY  
251 E ORCHARD BEACH DRIVE  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear ALLEN CURTIS & MELODY:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-02010**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

FREDRIC D DUCOLON  
291 ORCHARD BEACH ROAD  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear FREDRIC D:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-03002, 22127-50-003001**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

THOMAS A & KATHERINE FARRELL EIDE  
8317 MOON VALLEY RD SE  
NORTH BEND, WA 98046  
**Subject: Notification of Wellhead Protection Area**

Dear THOMAS A & KATHERINE FARRELL:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s)** **22127-50-02005, 22127-50-02006, 22127-50-01006, 22127-50-01007**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

KYLE & MICHELLE EMTMAN  
5970 NE ARROWHEAD DRIVE  
KENMORE, WA 98028

**Subject: Notification of Wellhead Protection Area**

Dear KYLE & MICHELLE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00040**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

RONDEAU & CAROL ERICKSON  
380 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear RONDEAU & CAROL:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00050, 22122-43-00070**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

NANCY EWART  
6319 55TH PL NE  
MARYSVILLE, WA 98270  
**Subject: Notification of Wellhead Protection Area**

Dear NANCY:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-03008**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

ROGER EWART  
150 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear ROGER:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01019, 22127-50-01020**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

DENNIS & KELLY FRET  
31012 157TH PLACE SE  
KENT, WA 98042

**Subject: Notification of Wellhead Protection Area**

Dear DENNIS & KELLY:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01002, 22127-50-01003**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

LAUREN KANE  
PO BOX 522  
TALKEETNA, AK 99676  
**Subject: Notification of Wellhead Protection Area**

Dear LAUREN:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01017, 22127-50-01018**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

DAVID & GLORIA KRISE  
350 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear DAVID & GLORIA:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01001, 22127-50-00030**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

JAMES & Todd LODER/GREEN  
1217 SW ORCHARD ST  
SEATTLE, WA 98106

**Subject: Notification of Wellhead Protection Area**

Dear JAMES & Todd:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-03006, 22127-50-03007**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

MINH & LOAN LU  
5737 110TH AVE SE  
BELLEVUE, WA 98006

**Subject: Notification of Wellhead Protection Area**

Dear MINH & LOAN:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01004, 22127-50-01005, 22127-50-02007**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

MOSTAFA & SALIHA MADANI  
12237 SE 259TH PL  
KENT, WA 98030

**Subject: Notification of Wellhead Protection Area**

Dear MOSTAFA & SALIHA:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-03005**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

SHANE MCKENNEY  
301 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear SHANE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-02004**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

THOMAS & ELLA MULLINS  
21407 92ND AVE W  
EDMONDS, WA 98020

**Subject: Notification of Wellhead Protection Area**

Dear THOMAS & ELLA:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01015**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

ROSS & MICHELLE OSBORNE  
14044 SE 159TH PLACE  
RENTON, WA 98058

**Subject: Notification of Wellhead Protection Area**

Dear ROSS & MICHELLE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01010, 22127-50-01011**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

INGRID PHELPS  
19673 40TH PL NE  
LAKE FOREST PK, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear INGRID:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-03003, 22127-50-03004**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

BRIAN & RENA POPPELL  
32902 47TH AVE SW  
FEDERAL WAY, WA 98023  
**Subject: Notification of Wellhead Protection Area**

Dear BRIAN & RENA:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-02011, 22127-50-02012, 22127-50-02013**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

DAVID & KRISTI RICE  
6020 128TH ST E  
PUYALLUP, WA 98373  
**Subject: Notification of Wellhead Protection Area**

Dear DAVID & KRISTI:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01012, 22127-50-01013**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

ANNE SHEFFER  
4527 35TH AVE S  
SEATTLE, WA 98118  
**Subject: Notification of Wellhead Protection Area**

Dear ANNE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01008**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

SANDRA SIPE  
241 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear SANDRA:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-02009**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

DIANE WAHL  
190 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear DIANE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01016**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

ROBERT & ELLEN WATERS  
260 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear ROBERT & ELLEN:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-01009, 22127-50-01010, 22127-50-02003**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

MAUNTRECE D ZAMZOW  
3306 E ROCKY PT DR NW  
BREMERTON, WA 98312

**Subject: Notification of Wellhead Protection Area**

Dear MAUNTRECE D:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-50-02002**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

DAVID CALLAN  
390 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear DAVID:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00010**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

JOHN & DEBORAH HALL  
15920 BRIDGEWATER CLUB BLVD  
CARMEL, IN 46033

**Subject: Notification of Wellhead Protection Area**

Dear JOHN & DEBORAH:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00000**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

DEAN & CYDNEY ELLIOTT  
2534 GRAYSBY AVE  
SAN PEDRO, CA 90732

**Subject: Notification of Wellhead Protection Area**

Dear DEAN & CYDNEY:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00080**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

JAMES M. LUCKEY JR.  
1208 MUIRFIELD COURT  
TARPON SPRINGS, FL 34688  
**Subject: Notification of Wellhead Protection Area**

Dear JAMES M.:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-50-00001**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

## Orchard Beach Community Group wellhead protection area



January 15, 2019

MELVIN A. KELLEY  
391 E ORCHARD BEACH DR  
GRAPEVIEW, WA 98546  
**Subject: Notification of Wellhead Protection Area**

Dear MELVIN A.:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00060**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

KRIS WALKER  
1801 CHUCKANUT RIDGE DR  
BOW, WA 98232  
**Subject: Notification of Wellhead Protection Area**

Dear KRIS:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00130**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

MICHAEL PRITCHARD  
3631 HENDERSON BLVD SE  
OLYMPIA, WA 98501  
**Subject: Notification of Wellhead Protection Area**

Dear MICHAEL:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00120, 22122-43-00110, 22122-43-00100, 22122-43-00090**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

CHARLES FRANCES BRACKEN  
161 E ORCHARD BEACH RD  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear CHARLES FRANCES:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-43-00020**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

PAUL & JEANETTE GRIFFEN  
1001 COOPER POINT RD SW, STE 140-215  
OLYMPIA, WA 98502  
**Subject: Notification of Wellhead Protection Area**

Dear PAUL & JEANETTE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22122-34-03000, 22122-34-03020**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

BILL & KATHERINE MORISETTE  
522 E MADRONA PKWY  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear BILL & KATHERINE:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-51-00023**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA

January 15, 2019

CHARLES & VICKI MOORE  
520 E MADRONA PKWY  
GRAPEVIEW, WA 98546

**Subject: Notification of Wellhead Protection Area**

Dear CHARLES & VICKI:

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s) 22127-51-00022**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

We realize that you are already careful to protect the environment. We hope that informing you of your location in our wellhead protection area will result in your continued commitment and awareness to increase precautions to ensure that your activities on your property will not impact our drinking water.

Potentially polluting and harmful activities that should be avoided include the improper disposal of paint, paint thinners, cleaning solvents, and used motor oil. Any unwanted or unused household hazardous materials can be disposed at your local solid waste landfill or hazardous waste disposal facility.

Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



January 15, 2019

**Subject: Notification of Wellhead Protection Area**

Dear :

The Orchard Beach Community Group water system has taken steps to protect our valuable drinking water supply by establishing a local wellhead protection plan. A wellhead protection plan is developed by delineating the geographic area where the water supplies originate and protecting that area from pollutant sources. The purpose of this letter is to tell you that your property (**Tax Parcel Number(s)**) is within a portion the 10-year groundwater travel radius (483 feet from the well) wellhead protection area which contributes groundwater to our drinking water supply. The area enclosed by the radius is shown in the attached map.

This letter is not an agreement but serves as a notification, which is required by the Department of Health for Washington State. One element of our local wellhead protection plan involves creating more awareness of the need to take precautions to prevent groundwater contamination in this area. We are asking for your commitment to join us in this effort.

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Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. Please let us know if you have any questions or comments.

Sincerely,

Jim Farrell  
President, Orchard Beach Community Group.

Orchard Beach Community Group wellhead protection area



OBCG WELLHEAD PROTECTION AREA



Planning • Management • Engineering

P.O. Box 123 • Port Orchard, WA 98366 • 1-888-881-0958

January 15, 2019

Department of Ecology – SW Regional Office  
PO Box 47775  
Olympia, WA 98504-7775

**Subject: Orchard Beach Community Water System Notification of Wellhead Protection Area**

Dear Department of Ecology:

As part of our wellhead protection program and in accordance with state regulations (WAC 246-290-135), the Orchard Beach Community Water System hereby informs you of the findings of our wellhead protection area delineation.

The enclosed map shows the 1, 5, and 10-year travel boundaries for our wellhead protection areas located in Township 21N, Range 2W and includes portions of Sections 22 and 27. Please review the map and correlate it with your land-use planning. Any groundwater contamination that occurs within this wellhead protection area has a potential to reach our wells. It is of importance to us that all reasonable steps are taken to ensure that land use activities within this area do not contaminate our drinking water supply. Please return notification if you are aware of an unidentified potential source of contamination located within the wellhead protection area.

In addition, please note the location of the wellhead in the event of an emergency. Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. If you have any questions, contact Northwest Water Systems.

Sincerely,

---

Anna Parkinson  
Northwest Water Systems  
On behalf of the Orchard Beach Community Group

CC: Orchard Beach Community Group



SITE INFORMATION PROVIDED BY:  
THE CLIENT AND BY MASON  
COUNTY GIS

Note:  
SO1 & SO2 are  
approximate  
locations

DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	Orchard Beach		Orchard Beach Community
REVISION	FILE NO.	FILE NAME	SHEET NO.
	170505	GW Radii for SO2	
DESCRIPTION	DATE	SCALE	1" = 600'
	July 16, 2018		
NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958			



Planning • Management • Engineering

P.O. Box 123 • Port Orchard, WA 98366 • 1-888-881-0958

January 15, 2019

Mason County Community Development  
615 W Alder St  
Shelton, WA 98584

**Subject: Orchard Beach Community Water System Notification of Wellhead Protection Area**

Dear Mason County:

As part of our wellhead protection program and in accordance with state regulations (WAC 246-290-135), the Orchard Beach Community Water System hereby informs you of the findings of our wellhead protection area delineation.

The enclosed map shows the 1, 5, and 10-year travel boundaries for our wellhead protection areas located in Township 21N, Range 2W and includes portions of Sections 22 and 27. Please review the map and correlate it with your land-use planning. Any groundwater contamination that occurs within this wellhead protection area has a potential to reach our wells. It is of importance to us that all reasonable steps are taken to ensure that land use activities within this area do not contaminate our drinking water supply. Please return notification if you are aware of an unidentified potential source of contamination located within the wellhead protection area.

In addition, please note the location of the wellhead in the event of an emergency. Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. If you have any questions, contact Northwest Water Systems.

Sincerely,

---

Anna Parkinson  
Northwest Water Systems  
On behalf of the Orchard Beach Community Group

CC: Orchard Beach Community Group.



SITE INFORMATION PROVIDED BY  
THE CLIENT AND BY MASON  
COUNTY GIS

Note:  
SO1 & SO2 are  
approximate  
locations

DRAWN BY:	SYSTEM		OWNER
CHECKED BY:	Orchard Beach		Orchard Beach Community
REVISION	FILE NO.	FILE NAME	SHEET NO.
	170505	GW Radii for SO2	
DESCRIPTION	DATE	July 16, 2018	SCALE 1" = 600'
		NORTHWEST WATER SYSTEMS, INC. DESIGN - CONSULTING - MANAGEMENT P.O. BOX 123 PORT ORCHARD, WA 98366 (360) 876-0958	



Planning • Management • Engineering

P.O. Box 123 • Port Orchard, WA 98366 • 1-888-881-0958

January 15, 2019

Mason County Department of Emergency Management  
100 W Public Works Dr  
Shelton, WA 98584

**Subject: Orchard Beach Community Water System Notification of Wellhead Protection Area**

Dear Mason County:

As part of our wellhead protection program and in accordance with state regulations (WAC 246-290-135), the Orchard Beach Community Water System hereby informs you of the findings of our wellhead protection area delineation.

The enclosed map shows the 1, 5, and 10-year travel boundaries for our wellhead protection areas located in Township 21N, Range 2W and includes portions of Sections 22 and 27. Please review the map and correlate it with your land-use planning. Any groundwater contamination that occurs within this wellhead protection area has a potential to reach our wells. It is of importance to us that all reasonable steps are taken to ensure that land use activities within this area do not contaminate our drinking water supply. Please return notification if you are aware of an unidentified potential source of contamination located within the wellhead protection area.

In addition, please note the location of the wellhead in the event of an emergency. Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. If you have any questions, contact Northwest Water Systems.

Sincerely,

---

Anna Parkinson  
Northwest Water Systems  
On behalf of the Orchard Beach Community Group

CC: Orchard Beach Community Group



SITE INFORMATION PROVIDED BY:  
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Note:  
SO1 & SO2 are  
approximate  
locations

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CHECKED BY:	Orchard Beach		Orchard Beach Community
REVISION	FILE NO.	FILE NAME	SHEET NO.
	170505	GW Radii for SO2	
DESCRIPTION	DATE	July 16, 2018	SCALE 1" = 600'
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January 15, 2019

Mason County Public Health District  
415 N 6<sup>th</sup> Street  
Shelton, WA 98584

**Subject: Orchard Beach Community Water System Notification of Wellhead Protection Area**

Dear Mason County:

As part of our wellhead protection program and in accordance with state regulations (WAC 246-290-135), the Orchard Beach Community Water System hereby informs you of the findings of our wellhead protection area delineation.

The enclosed map shows the 1, 5, and 10-year travel boundaries for our wellhead protection areas located in Township 21N, Range 2W and includes portions of Sections 22 and 27. Please review the map and correlate it with your land-use planning. Any groundwater contamination that occurs within this wellhead protection area has a potential to reach our wells. It is of importance to us that all reasonable steps are taken to ensure that land use activities within this area do not contaminate our drinking water supply. Please return notification if you are aware of an unidentified potential source of contamination located within the wellhead protection area.

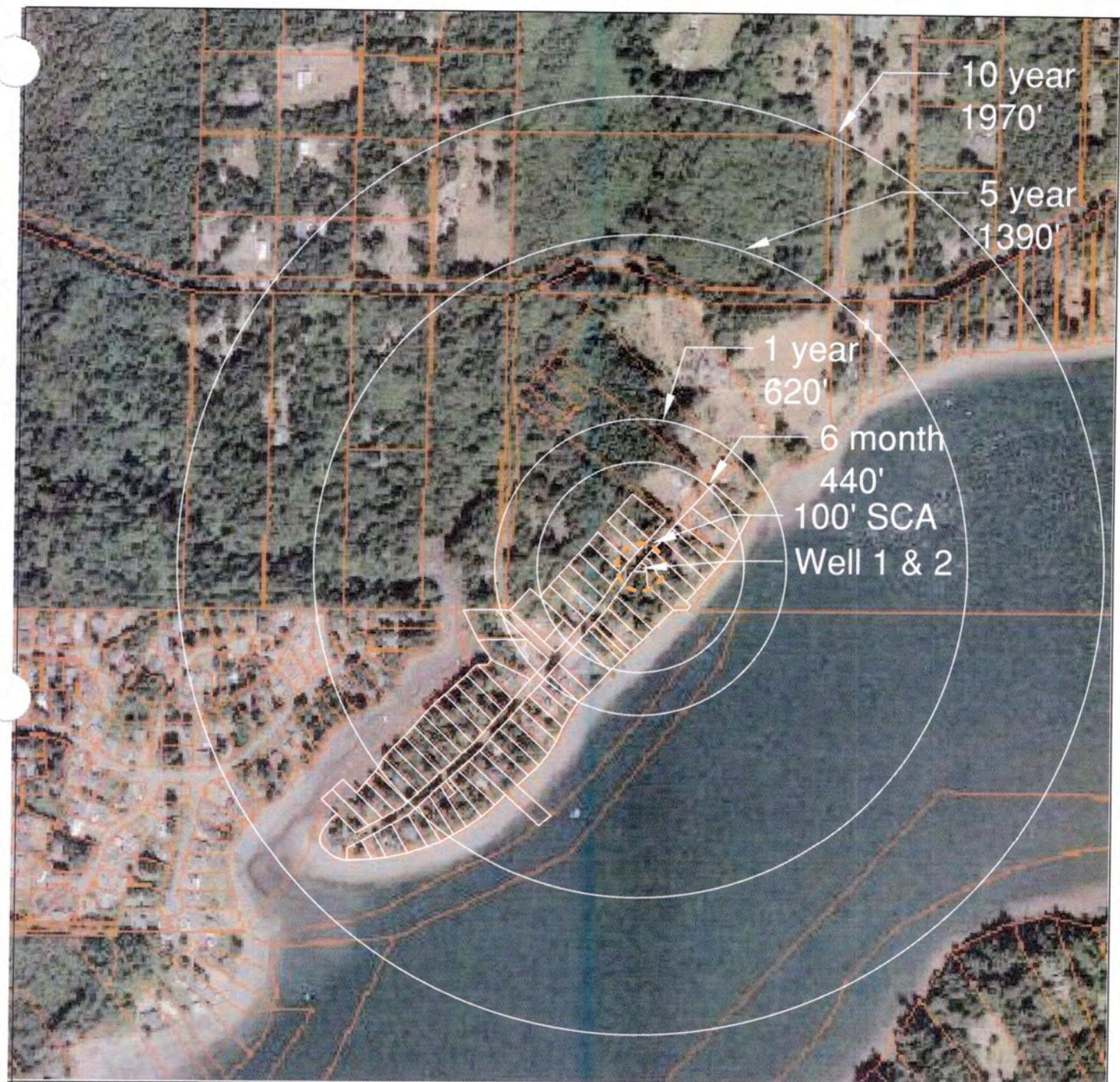
In addition, please note the location of the wellhead in the event of an emergency. Thank you for your cooperation and assistance in helping us ensure safe, clean drinking water. If you have any questions, contact Northwest Water Systems.

Sincerely,

---

Anna Parkinson  
Northwest Water Systems  
On behalf of the Orchard Beach Community Group

Cc: Orchard Beach Community Group

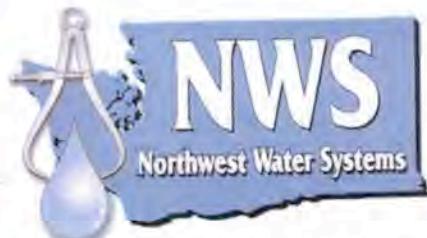


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## 11.11 Northwest Water Response to Hydraulic & Capacity Analysis; Source Protection Assessment



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[www.nwwatersystems.com](http://www.nwwatersystems.com)

January 22, 2019

Fern Schultz  
Southwest Drinking Water Operations  
PO Box 47923  
Olympia, WA 98504-7823

Re: Orchard Beach Community Water System, ID #64031Q, Mason County; Water System Plan, ODW Project #18-1004

Dear Ms. Fern Schultz,

Please see the following responses to your questions for comments 11,12,22,25 & 26. The Orchard Beach system has chosen to address the remainder of the comments.

*11. 2.1.4 ERU Analysis -It is unclear what the basis is for assuming the quantity of water used by part time connections. Please explain how the fraction of the ERUs were derived. If this information was taken from an analogous system, please provide detail.*

The system's connections recently became fully metered and so lacks sufficient historical data for a distribution meter based analysis. Thus, several assumptions had to be made based on the overall source meter data and information provided by the system. It is evident that more water is being used in the summer; thus, the assumption was made that the part-time residences are present 3/7 of a week during July and August; 2/7 of a week during June through September and December; and 1/7 of a week during the remainder months. Please see section 2.1.4 paragraph 2 for a rewording of this section.

Since the system did does not have sufficient service meter data for the capacity analysis, the source meter data was used, and several assumptions had to be made. To further support the assumptions that were made, the calculated ADD and MDD for Orchard Beach was compared to two analogous systems, Lake Limerick and Collins Lake. Orchard Beach more closely resembles Collins Lake in income level, lot development style, and in having a larger number of part time users than Lake Limerick. Orchard Beach's usage is closer to that of Collins Lake which is to be expected indicating that assumption made about the part time usage were not unreasonable. A comparison of the three systems' usage is shown in Table 2 on pg. 15.

*12. 2.1.5 System Parameters, ADD, MDD, and PHD – It is not possible to reliably separate distribution leakage from normal system demands when customer demand records are not available. Please explain how the distribution system leakage (DSL) is being taken into account when determining system demands.*

The system does not have sufficient service meter data off which to calculate distribution leakage. Thus, we were only able to calculate ADD off source meter data (which includes DSL). Since MDD and PHD are calculated based on ADD, these parameters are also inflated due to the included DSL. The system's actual demand is likely much lower than the calculated demand, but this conservative approach was only taken because DSL cannot be accurately separated without sufficient service meter data. Circumstantial leakage identified by spikes in the source meter data (Figure 5, pg 13) during non-peak seasons were not included in the

usage calculations. Although the system does not have written record of these leaks, they have confirmed that several substantial leaks were found and repaired within the past few years.

22. *Hydraulic Analysis Results-Please show the pipe velocities in the results summary for the hydraulic analysis.*

Please see that attached hydraulic summary addition with pipe velocities.

25. *Part IV- This states the calculated fixed radius for 6 month is 20 feet, 1 year is 28 feet, 5 year as 63 feet, and 10 year is 89 feet, yet Part IV of the October 1, 2004 Susceptibility Assessment Form states that the 6 month is 440 feet, 1 year is 620 feet, 5 year is 1390, and 10 year is 1970 feet. Please explain the discrepancy.*

Although both of Orchard Beach's wells are in close proximity, there are two individual source water protection forms for the two wells because the wells are in different aquifers. The first source water protection form in this appendix is for S01 and it was completed with the 2011 SWSMP. The second one, completed on October 1, 2004, is for S02. S02 is the primary well and it has a lot larger time travel delineation than S01 because S01 is only used during peak seasons (summers and holidays). Therefore, there is a difference in the GW radii.

26. *GW Radii- There are two maps, both dated July 16, 2018, with file number 170505 and file name GW Radii that provide different information concerning the Time of Travel. Please update the inaccurate map and explain the discrepancy. Additionally, please update this map to include your calculated fixed distances shown in feet.*

The first map shows the GW radii for S01 and the second map shows GW radii for S02. The previous submitted GW radii maps were not clearly labeled to differentiate between the two sources. In addition, both maps were updated to include the calculated fixed distances in feet. The updated maps have been included with this comment response letter.

Sincerely,  
NORTHWEST WATER SYSTEMS, INC.

Anna Parkinson  
Enclosure:  
Revise Ch2 from WSP  
Revised Hydraulic analysis summary  
GW radii maps

# Orchard Beach Water System

## Capacity Analysis Report

### 1.0 Project Description

The Orchard Beach Water System (WSID 64031 Q) is a Group A Type TNC water system located on the East side of Mason County by the Pickering Passage. The system services 9 full-time connections, 25 part-time connection, and 4 non-residential recreational connection, totaling to 38 connections.

### 1.1 System Description

The water system is supplied from two active wells. SO2 is the primary well and SO1 is the backup source during peak demands. The wells pump to eight bladder tanks and then out to distribution.

The system came into service 1963. SO1 is 72 ft. deep providing 10 gpm, and it is the backup source for peak conditions. SO2, the primary source, is 209 ft. deep and provides 60 gpm.

The system contact information is as follows:

Water System Name:	Orchard Beach Water System
WSDOH ID Number:	64031 Q
Name of Owner:	Orchard Beach Community Group c/o Secretary/Treasurer
Owner's Address:	1217 SW Orchard St Seattle, WA 98106
Primary Contact:	Kevin Odegard
Contact Address:	PO Box 123 Port Orchard, WA 98366
Contact Phone:	(360) 876-0958

### 1.2 Submittal Purpose

The system is submitting a capacity analysis to satisfy the conditions of a recently granted water right, and it is the first step in satisfying DOH planning requirements.

### 2.0 Planning Data

The system has a Small Water System Management Plan (SWSMP) and is in the process of updating it. This capacity analysis is being submitted in the process of updating the plan.

### 3.0 Analysis of Alternatives.

The system has chosen to provide a limiting factors capacity analysis to verify that their system can sufficiently operate within their water rights.

## 2.0 BASIC PLANNING DATA

### 2.1 Demand Analysis

#### 2.1.1 Population and Demographics

The Orchard Beach Community is a residential community that is comprised of 9 full-time residents, 25 part-residents, and 4 non-residential/recreational connections, totaling to 38 connections.

According to the WFI form there is a population of 14 for the full-time connections. The part-time connections vary greatly per month and are primarily used for recreation. For the population of the part-time connections see the WFI.

#### 2.1.2 Meter data

The community has recently installed production meters on all the connections, and there is a month of metering data from June 2018 included in the appendix. Likewise, source meter data from 2012-2017 is provided in the appendix. The water use has increased in 2015 and 2016 due to extensive leaks that have since been fixed. A graph of source usage is provided below in Figure 5.

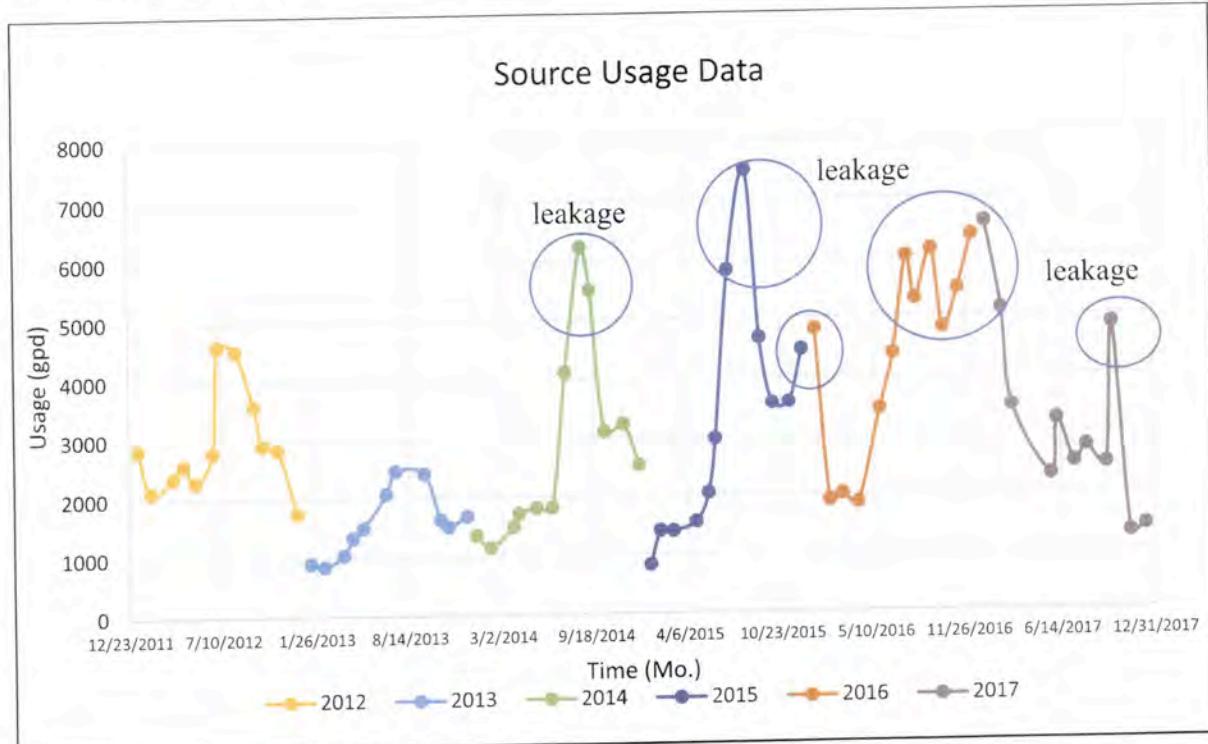


Figure 5. System's usage data

#### 2.1.3 Usage by Customer Class

The system services the following three class of customers:

1. Full-time residents
2. Part-time residents
3. Non-residential/recreational

The full-time residents are the basis for the Equivalent Residential Units (ERU). The part-time connections are only present during peak seasonal or weekends. Similarly, the four recreational units are used primarily on the weekend in the summer months.

#### 2.1.4 ERU Analysis

One ERU is defined as the equivalent usage of one full-time, single family resident. Thus the 9 full time connections provide a total of 9 ERUs.

The occupancy of the part-time owners varies throughout the year. Based on the source meter data and information from the system, it is evident that the majority of the part-time residences are present in the summer but there is some usage throughout the year. Thus, it was assumed that part time connections are present 3 out of 7 days a week during July through August yielding 3/7 of an ERU. For June through September and December, it was assumed that the part-time connections are present 2 out of 7 days each week yielding 2/7 of an ERU for those months, and finally, it was assumed that the part-time connections are only present 1 out of 7 days a week the rest of the year yielding 1/7 of an ERU. To further support the assumptions that were made, the calculated ADD and MDD for Orchard Beach was compared to two analogous systems, Lake Limerick and Collins Lake. See section 2.1.5 for a more in-depth explanation.

The recreational units are primarily used during the weekends during the summer. Thus, it was estimated that the ERU's during June -September is .09 ERU for each recreational lot and zero during the rest of the year. Table 1 provides a summary of the connection categories and their corresponding ERU's.

**Table 1. Summary of connections and ERU's**

Class	Connections	ERU
Full-time	9	9
Part-time	25	3.6-10.7
recreational	4	.37

#### 2.1.5 System Parameters, ADD, MDD, and PHD

The system has provided their recent service meter data for the month of June. The average daily demand (ADD) of the full-time users is 117 gpd/ERU and it is a reasonable assumption that maximum daily demand (MDD) is 2-3 times higher. Although this data is not sufficient for the capacity analysis, it provides a baseline for comparison for the source ADD and MDD. In the last three years (2015-2017), the system has records of substantial leaks that have been repaired. There are sections in the source meter data where it is evident that significant leaks occurred, particularly in 2016. Therefore, the ADD and MDD from the 2012-2017 data with correction for leakage data was used for the usage calculations yielding an ADD and MDD and 179 and 634 respectively.

The monthly ADD was calculated by dividing the monthly usage by the total monthly ERU's. Because the ADD varies by month with the fluctuation of the part-time and recreational connections the ADD was average for the 5-year data period.

Maximum daily demand (MDD) was calculated by taking the maximum month average daily demand (MMAD) over the peak month period and multiplying it by a factor of 1.7. The MMAD was 373 gpd, in August 2015. The calculated MDD is therefore 634 gpd/ERU.

For further comparison, two analogous systems, Lake Limerick and Collins Lake, were analyzed. Lake Limerick is a larger system with 771 full-time connections and 71 part-time connections. The Lake Limerick water system plan (WSP #DDR2013-00029) contains a detailed connection analysis that was used to calculate their ADD and MDD. Similarly, Collins Lake has 113 full-time connections, 100 part-time connections, and 1 institutional connection (a fire station). A capacity analysis was done for ODW Project #16-0104 in which the system's ADD and MDD was calculated. Most lots have limited yards or landscaping, with native second growth predominating. Orchard Beach currently most closely resembles Collins Lake in income level, lot development style, and in having a larger number of part time users than Lake Limerick. Therefore, usage is expected to be very similar to Collins Lake. Lake Limerick is used to represent a more upscale community that could potentially develop in the future as the system transitions from part-time to full-time residential use. Below is a comparison of ADD and MDD for the three systems in Table 2.

**Table 2 Comparison of Parameters**

System	ADD (gpd/ERU)	MDD (gpd/ERU)
Orchard Beach	179	634
Collins Lake	129	470
Lake Limerick	218	728

Calculated ADD and MDD for Orchard Beach is between that of Collins Lake and Lake Limerick. Thus, the assumptions used to calculate the usage for Orchard Beach are reasonable.

The peak hourly demand (PHD) can be calculated using the systems MMD. The PHD for the systems existing peak flow period can be calculated using Equation 5-1 of the Design Manual (for  $15 < ERU < 50$ ,  $C=3$ ,  $F=0$ ). A summary of the parameter results is provided in Table 3.

$$PHD = \left( \frac{MDD}{1,440} \right) ((C * N) + F) + 18$$

$$PHD = \left( \frac{634}{1,440} \right) ((3 * 20.09) + 0) + 18 = 44.5 \text{ gpm}$$

**Table 3. Summary of Parameters**

Parameter	Demand	
	Qty.	Unit
ADD	179	gpd/ERU
MDD	634	gpd/ERU
PHD	44.5	gpm
Current System	20.09	Max ERU

The system distribution leakage (DSL) is unknown due to not having sufficient service meters data. Thus, ADD was calculated off the source meter data which includes DSL. Since MDD and PHD are based on ADD, these parameters are also inflated due to DSL. The system actual demand is likely much lower than the calculated demand, but this conservative approach was only taken because DSL cannot be accurately separated without sufficient service meter data. With the installation of the production meters, the system is recording monthly usage which can be used in the future to account for DSL separately.

#### **2.1.6 Pressure Zones**

The system is comprised of a single pressure zone. The elevations of the distribution system range from 65 feet to 30 feet. The system is pressurized by 8 bladder tanks and it can sustain pressure during PHD conditions.

#### **2.1.7 Inerties**

No inerties exist or are planned for the Orchard Beach system within the next 20 years.

#### **2.2 6 & 20 Year Productions**

The communities service area encompasses approximately 63 lots. Some of these lots are on private wells, and some of the lots are undeveloped. It is estimated that the systems build-out will be 63 connections because there is a potential for the undeveloped lots to be developed and the existing lots might add an additional dwelling unit.

The system currently has 9 full-time connections, 25 part-time connections and 4 recreational connections. This equates to 20.1 ERU.

According to the Mason County Comprehensive Plan, the population for rural areas is projected to increase by 22% from 2016-2036. This equates to 1.1% growth per year. Starting with the current number of ERUs of 20.1, the growth was projected for the community based on the 1.1% growth per year.

In addition, the percentage of part-time to full-time connections per service area is 21% for PUD 3 according to the comprehensive plan. Orchard Beach is currently 73.5 % part-time out of its 34 residential connections. This is much higher than the average for the PUD 3 area. It is assumed that some of Orchard Beach's residents will transition to full-time status based on the information provided by the community and general trends of similar communities. Thus, the part-time to residential connection percentage was decreased incrementally till the community reaches approximately 21 % at 20 years projection. Table 4 is a table of part-time to full-time users for the 6, 10, and 20 year

projections, and Table 5 shows the final projections based on growth in the area and modified part-time to full-time connections. The process for converting the part-time connections ERU was the same process followed in the capacity analysis. See Section 10.3.

**Table 4. Part-time to Full-time Connection ratios**

	Full-time	Part-time	%
Current	9	25	73.5
6-year	15	20	57
10-year	19	17	47
20-year	30	8	21

**Table 5. Current, 6yr., 10yr., 20 yr. and build-out projections**

	ADD (gpm/ERU)	MDD (gpd/ERU)	Connection	ERU	PHD (gpm)	Annual* (ac-ft/yr)
Current	179	634	38	20.1	44.5	4.0
6 Year	179	634	39	23.4	48.9	4.7
10 Year	179	634	40	26.7	53.2	5.4
20 Year	179	634	41	33.8	62.6	6.8
Build-out	179	634	63	63	101.2	13.1

\*including DSL

### 2.3 Interties

No interties with other system exist or are in the 20-year plan.

### 2.4 Land Use and Zoning

All the service area is zoned for Rural Residential 5 acres as shown in the attached zoning map. All the parcels are smaller than 5 acres, but the majority of the parcels were created before the zoning code. Thus, it is not predicted to change within the 6 and 20 year horizons.

### 2.5 Distribution System Leakage and Volume

The distribution leakage percentage is unknown until sufficient data is received from the service meters which were fully installed as of May 2018.

## Orchard Beach Capacity Analysis

Node ID	Demand GPM	Pressure psi
Junc 12	2.91	38.69
Junc 14	2.91	36.45
Junc 15	2.91	36.45
Junc 16	1.45	36.45
Junc 17	2.91	36.44
Junc 21	2.91	38.58
Junc 22	2.91	39.83
Junc 23	2.91	39.78
Junc 24	2.91	40.61
Junc 25	2.91	40.53
Junc 26	2.91	47.01
Junc 27	2.91	47.01
Junc 28	2.91	41.34
Junc 29	2.91	40.46
Junc 30	2.91	40.45
Junc 31	2.91	42.62
Junc 32	2.91	44.78
Junc 33	2.91	46.51
Junc 34	2.91	46.95
Junc 35	2.91	49.11
Junc 36	2.91	51.28
Junc 37	2.91	49.11
Junc 38	2.91	45.65
Junc 39	2.91	44.79
Junc 40	2.91	43.93
Junc 41	2.91	43.94
Junc 42	2.91	41.36
Junc 43	2.91	39.65
Junc 44	2.91	38.38
Junc 45	2.91	40.57

## Orchard Beach Capacity Analysis

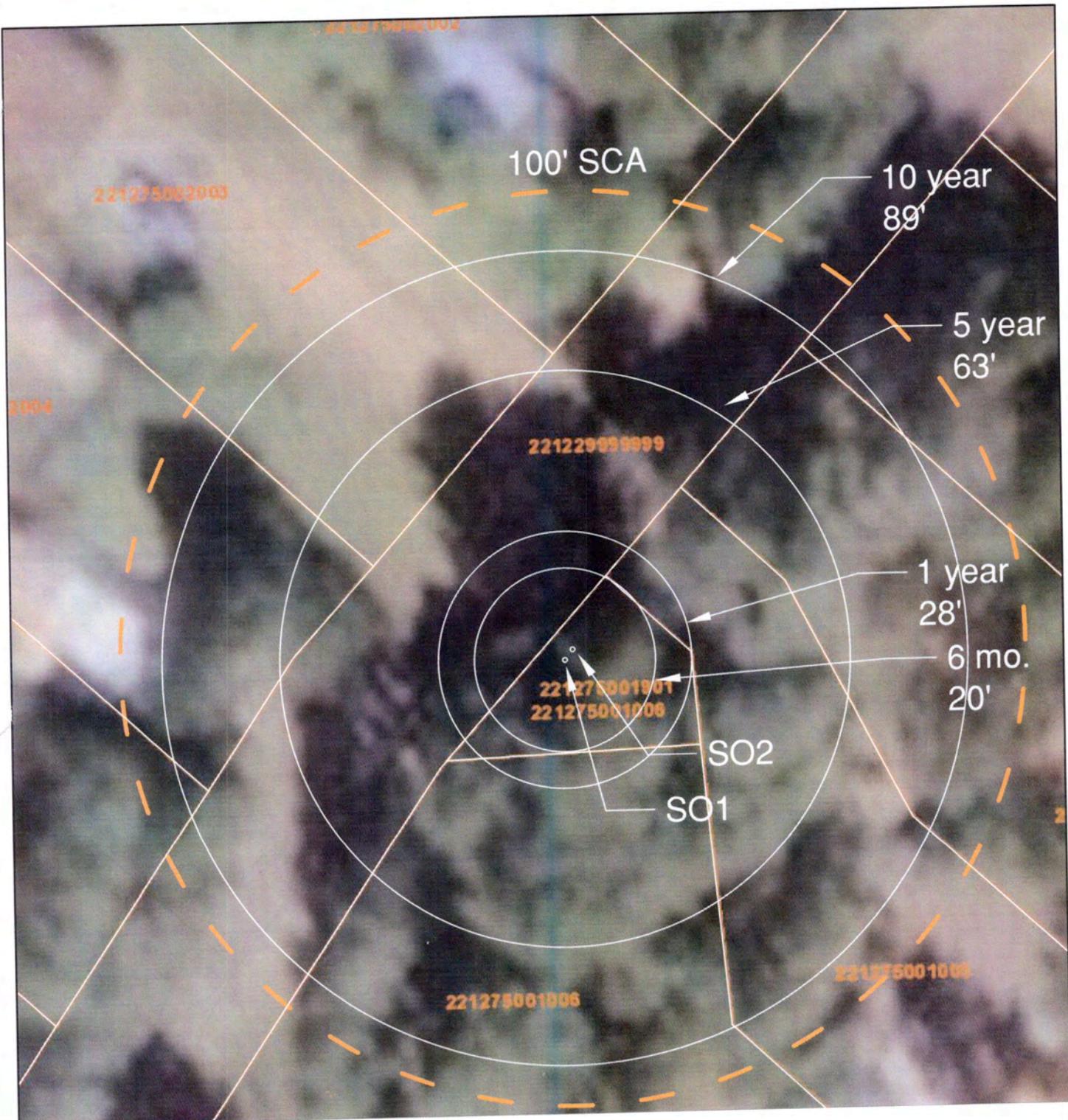
Node ID	Demand GPM	Pressure psi
Junc 46	2.91	40.61
Junc 47	2.91	39.82
Junc 48	2.91	39.87
Junc 49	2.91	39.93
Junc 50	0.00	40.03
Junc 51	2.91	38.66
Junc 52	2.91	47.01
Resvr 1	-103.31	0.00

## Orchard Beach Capacity Analysis

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft
Pipe 5	103.31	2.64	6.12
Pipe 6	103.31	2.64	6.12
Pipe 7	55.52	1.42	1.94
Pipe 8	52.61	1.34	1.76
Pipe 9	4.37	0.11	0.02
Pipe 10	1.45	0.04	0.00
Pipe 11	45.34	1.16	1.33
Pipe 12	42.43	1.08	1.18
Pipe 13	39.52	1.01	1.03
Pipe 14	36.61	0.93	0.90
Pipe 15	33.70	0.86	0.77
Pipe 16	30.79	0.79	0.65
Pipe 17	27.88	0.71	0.54
Pipe 18	24.97	0.64	0.44
Pipe 19	2.91	0.07	0.01
Pipe 20	19.15	0.49	0.27
Pipe 21	16.24	0.41	0.20
Pipe 22	13.33	0.34	0.14
Pipe 23	10.42	0.27	0.09
Pipe 24	7.51	0.19	0.05
Pipe 25	4.60	0.12	0.02
Pipe 26	1.69	0.04	0.00
Pipe 27	-1.22	0.03	0.00
Pipe 28	2.91	0.07	0.01
Pipe 29	44.87	1.15	1.31
Pipe 30	41.96	1.07	1.15
Pipe 31	39.05	1.00	1.01
Pipe 32	36.14	0.92	0.88
Pipe 33	33.23	0.85	0.75
Pipe 34	30.32	0.77	0.63

## Orchard Beach Capacity Analysis

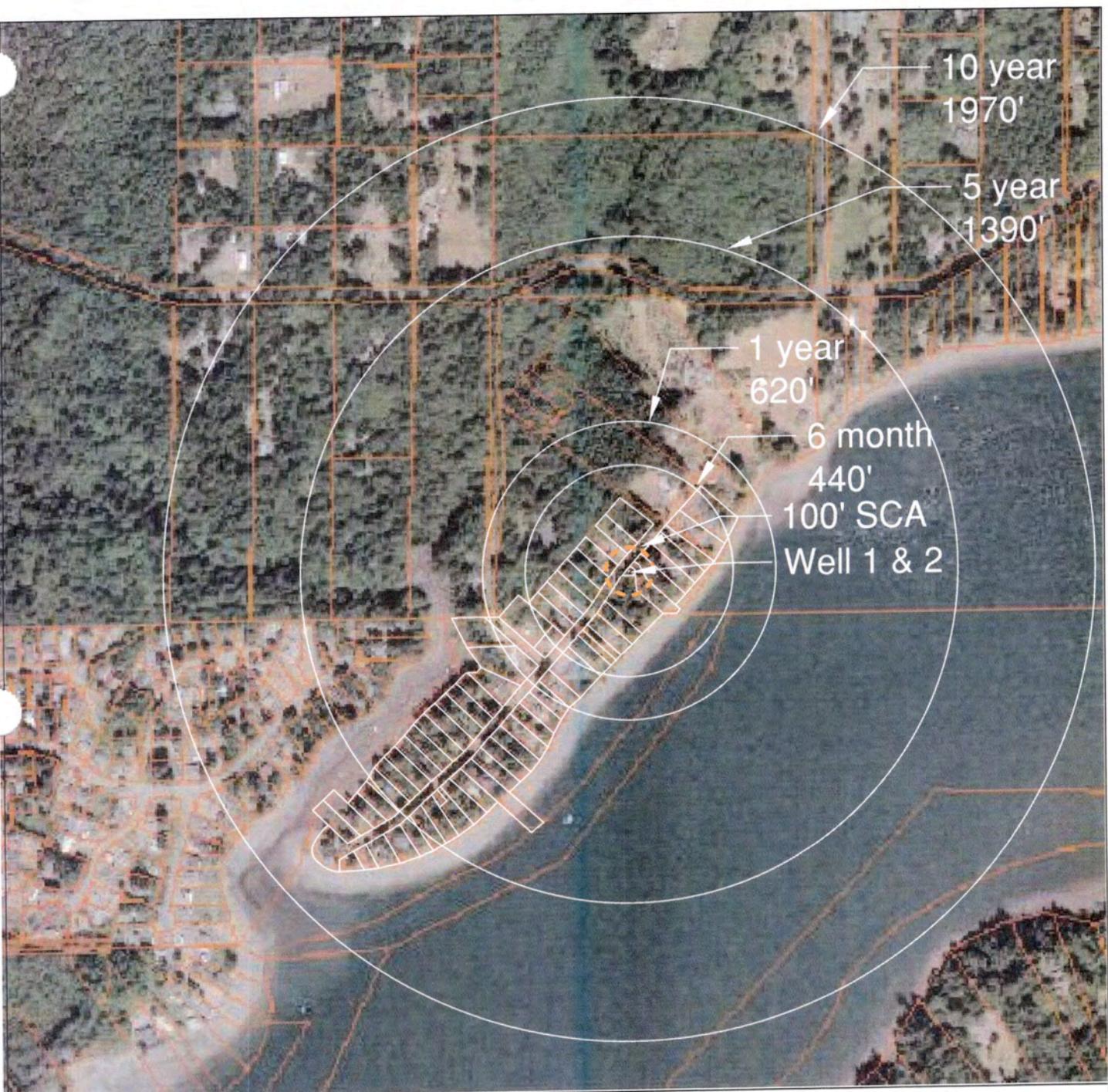
Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft
Pipe 35	27.41	0.70	0.52
Pipe 36	24.50	0.63	0.43
Pipe 37	21.59	0.55	0.34
Pipe 38	18.68	0.48	0.26
Pipe 39	15.77	0.40	0.19
Pipe 40	12.86	0.33	0.13
Pipe 41	9.95	0.25	0.08
Pipe 42	4.13	0.11	0.02



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