LAKE WHATCOM WATER & SEWER DISTRICT

1220 Lakeway Drive
Bellingham, WA, 98229

(360) 734-9224
Fax 738-8250

MEMORANDUM

Date: March 4, 2021

From: Lake Whatcom Water & Sewer District

RE: Meeting Procedures During the Covid-19 Emergency

Lake Whatcom Water & Sewer District continues to operate under adjusted procedures in order to provide continuous service to our customers. That said, we are taking precautions in an effort to protect the health and safety of our staff, commissioners, and customers. Our lobby is currently closed to the public, and we are practicing social distancing guidelines as suggested by Governor Inslee and the CDC.

For the foreseeable future, Commissioners will be attending regular meetings by phone. Per Governor Inslee's Proclamation No. 20-28.3 amending his Stay Home, Stay Health proclamation, the District will provide access to interested public via phone/internet utilizing the GoToMeeting platform.

If you would like to attend the March 10, 2021 work session or regular meeting, details can be found below. In this evolving climate, we are committed to doing everything possible to provide opportunity for public comment as well as promote health and safety. As such, the District requests that if possible, public submit comments in written form by noon the day before a scheduled meeting for inclusion in the meeting discussion.

We appreciate your understanding and patience during these uncertain times. If you have any questions, please contact Administrative Assistant Rachael Hope at rachael.hope@lwwsd.org or 360-734-9224.

March 10, 2021 Work Session & Regular Board Meeting
Work Session – 5:30 PM - 6:30 PM (PST)
Regular Board Meeting – 6:30 PM - 8:30 PM (PST)

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LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR MEETING OF THE BOARD OF COMMISSIONERS
AGENDA
March 10, 2021
6:30 p.m. – Regular Session

1. CALL TO ORDER

2. ROLL CALL

3. CONFIRMATION OF COMPLIANCE WITH REMOTE MEETING ATTENDANCE PROTOCOLS

4. PUBLIC COMMENT OPPORTUNITY
   At this time, members of the public may address the Board of Commissioners. Please state your name prior to making comments.

5. ADDITIONS, DELETIONS, OR CHANGES TO THE AGENDA

6. CONSENT AGENDA

7. SPECIFIC ITEMS OF BUSINESS
   A. Presentation—Sudden Valley Water Treatment Plant Alternative Analysis
   B. Customer Appeal—District Lien Against Property (2591 Lake Whatcom Boulevard)
   C. Customer Appeal—Petition to Waive or Adjust Connection Requirements (2377 North Shore Road)
   D. Customer Appeal—Petition to Waive or Adjust Connection Requirements (1834 Lake Louise Road)
   E. Lake Whatcom Boulevard Sewer Interceptor CIPP Project Public Works Contract Award
   F. Comment on Department of Ecology Draft Puget Sound Nutrient General Permit

8. OTHER BUSINESS

9. STAFF REPORTS
   A. General Manager

10. PUBLIC COMMENT OPPORTUNITY

11. ADJOURNMENT

AGENDA BILL Item 6	**Consent Agenda**			
DATE SUBMITTED:	March 4, 2021	MEETING DATE:	March 10, 2021	
TO: BOARD OF COMMISSIONERS		FROM: Rachael Hope		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. See below		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

****TO BE UPDATED 3.10.2021****

BACKGROUND / EXPLANATION OF IMPACT

- Minutes from the February 24, 2021 Regular Board Meeting
- Payroll for Pay Period #05 (02/20/2020 through 03/05/2021) total to be added
- Payroll Benefits for Pay Period #05 total to be added
- Accounts Payable Vouchers total to be added

FISCAL IMPACT

Fiscal impact is as indicated in the payroll/benefits/accounts payable quantities defined above. All costs are within the Board-approved 2021 Budget.

RECOMMENDED BOARD ACTION

Staff recommends the Board approve the Consent Agenda.

PROPOSED MOTION

A recommended motion is:

"I move to approve the Consent Agenda as presented."

LAKE WHATCOM WATER AND SEWER DISTRICT
1220 Lakeway Drive
Bellingham, WA 98229

REGULAR SESSION OF THE BOARD OF COMMISSIONERS

Minutes

February 24, 2021

Board President Laura Abele called the Regular Session to order at 8:01 a.m.

Attendees:	Commissioner Laura Abele	General Manager Justin Clary
	Commissioner Todd Citron	District Engineer/Assistant GM Bill Hunter
	Commissioner John Carter	Finance Manager/Treasurer Debi Denton
	Commissioner Bruce Ford	Operations Manager Brent Winters
	Commissioner Leslie McRoberts	Recording Secretary Rachael Hope

Also in attendance were District residents Emma Martin and Stetson Shearer. All attendees participated remotely by phone or video conferencing.

Roll Call

General Manager Justin Clary performed a roll call to identify those in attendance, and then verbally confirmed that the meeting was noticed in accordance with Resolution No. 859 allowing remote meeting attendance as well as in compliance with current statutory requirements. It was confirmed that all participants were able to be heard and hear each other clearly.

Changes to Agenda

Clary requested the addition of Item 7D, C1802-EUC Request to Reject All Bids Associated with Project. The Board agreed.

Consent Agenda

Action Taken

McRoberts moved, Citron seconded, approval of:

- **Minutes from the February 10, 2021 Regular Board Meeting**
- **Payroll for Pay Period #04 (02/06/2021 through 02/19/2021) totaling $47,355.76**
- **Payroll Benefits for Pay Period #04 totaling $52,540.56**
- **Accounts Payable Vouchers totaling $153,322.77**

Motion passed.

Customer Appeal – Water/Sewer Utility Bill – 2591 Lake Whatcom Boulevard

Denton explained that the District received a letter from Emma Martin dated February 8, 2021, requesting an appeal to the Board for relief from a lien filed by the District against property that Ms. Martin recently

purchased (2591 Lake Whatcom Boulevard). The District filed a lien on June 14, 2017 for recovery of outstanding and future sewer bill payments (the property is not served by District water) that ultimately accumulated between November 1, 2016, and January 19, 2021 due to the prior property owner's failure to pay for service.

District Administrative Code Section 2.10.3 defines the District's process for water and sewer service billing. Per Paragraph 5 of this section "All unpaid water and sewer service charges when delinquent 60 days or more shall be a lien against the property being served." Staff has explained to Ms. Martin that the District is a public agency that must consistently administer its policies, as defined in the Administrative Code, and that staff does not have the authority to reduce sewer charges or remove a lien against a property.

Ms. Martin elected to appeal the General Manager's decision to the Board, as allowed under the Administrative Code. Ms. Martin proposed a reduction of the outstanding balance to account for extenuating circumstances specific to the property. This customer request would reduce Ms. Martin's lien obligation by $2,213.61. Discussion followed, including input from Ms. Martin and Mr. Shearer. The Board requested that the agenda item be brought back at the March 10 Regular Board Meeting to allow Ms. Martin and Mr. Shearer to research further why the lien had not been satisfied during the sale process.

Sudden Valley Community Association Developer Extension Agreement No. D0801 – Area Z Fire Hydrant Extension Final Acceptance

Hunter summarized that the Sudden Valley Community Association (SVCA) has completed all requirements of Developer Extension Agreement (DEA) No. D1801—Area Z Fire Hydrant Extension authorized by the Board of Commissioners during a regular meeting held on July 25, 2018. The scope of the project included extension of a water main and installation of a new fire hydrant in SVCA's Area Z maintenance yard to comply with fire protection requirements for a new 60-foot x 90-foot fabric storage building for storage of winter emergency supplies (sand, de-icer) and equipment. The fire hydrant was required to be within 400 feet of the structure.

Per the DEA, final acceptance by the District initiates the two (2) year maintenance bond period, which guarantees that the facilities accepted by the District remain free of defects and in proper working order during that period, with any maintenance or repair the responsibility of the SVCA.

Action Taken

Citron moved, Carter seconded, to accept Developer Extension Agreement No. D1801—Area Z Fire Hydrant Extension as complete. Motion passed.

Accessory Dwelling Unit Regulation Policy Discussion

Clary explained that during recent Commissioner briefings, discussion occurred regarding the District's policy in relation to permitting and billing associated with accessory dwelling units (ADUs), regulated under the District's administrative code. With an increased statewide focus on affordable housing, the Board of Commissioners has indicated a desire to review current policy related to ADU regulation.

There are relatively few existing ADUs within the District's service area, and Whatcom County Code constraints on development of new ADUs within the watershed limit the likelihood of a significant number of additional ADUs being constructed. Of additional note, Sudden Valley Community Association restrictive covenants prohibit ADUs, so the potential for additional ADUs in the District's most-populated area is eliminated. Further, the current water service rate structure is set at a low consumption rate that appropriately accommodates an ADU separately. Therefore, staff recommended that the District maintain

current ADU policies regarding water and sewer rates, and that no changes to the Administrative Code be made. Discussion followed with the Board indicating a desire to revisit this topic during a future meeting.

Rejection of all Bids Received Associated with the Euclid Sewer Pump Station Improvements Project

The Euclid Sewer Pump Station is located along the westerly shore of Lake Whatcom at an approximate address 1700 Euclid Avenue. The pump station and system controls were last upgraded 22 years ago in 1999. This project consists of the replacement of the power service with a 3-phase 480 volt service, refurbishment of existing pumps, temporary bypass pumping, site, stormwater and retaining wall improvements, electrical and automatic control improvements, automatic transfer switch, and stationary generator installation.

Clary explained that two bids were received in response to the District's advertisement for bids. However, the low bid contained a material defect that requires the District to consider the bidder unresponsive. The remaining bid exceeded our Engineer's Estimate (and funding allocated to the project in the 2021 Budget) by approximately $225,000.

The approved 2021 Budget includes $455,700 for the construction contract. The sole responsive bid amount was $679,806.75 (including 8.5% sales tax) if all of the unit price and additive alternate work is performed. As a result, the difference between the 2021 Budget and remaining bid was $224,106.75 (i.e., approximately 50% over the District's budget).

Due to the significant exceedance of the District's budgeted funds for the project by the one responsive bid received, staff recommended that the Board reject all bids associated with Euclid Sewer Pump Station Improvements project, as allowed under Advertisement for Bids and the Instruction to Bidders Section 0.13, Contract Award, Paragraph B, of the bid documents. Discussion followed.

> **Action Taken**
>
> **Carter moved, Roxanne seconded, to reject all bids received during the February 17, 2021 bid opening for the Euclid Sewer Pump Station Improvements project, as allowed under the Instruction to Bidders Section 0.13, Paragraph B, of the bid documents. Motion passed.**

General Manager's Report

Clary updated the Board on several topics, including the District's continued response to the COVID-19 pandemic, the Puget Sound nutrient general permit public comment period, and recognized District staff for working diligently in response to recent emergency repairs.

Engineering Department Report

Hunter highlighted several areas, including the large number of water and sewer availability forms issued in the past 12 months, the Sudden Valley Water Treatment Plant 20 Year Facility Plan, updates to the SCADA system by the District's on-call consultant, and progress on an update on the District's Emergency Response Plan in accordance with the America's Water Infrastructure Act of 2018. Discussion followed.

Finance Department Report

Denton reported that the Finance Department has been busy facilitating the rate study, getting year end information to the contracted accounting firm, and implementation of the rate increase for 2021, which will appear of the March 1 bills for the Geneva/North Shore service area.

Operations & Maintenance Department Report

Winters gave a brief report on field crew operations, including water plant operations, the Division 30 water main repair status, and upcoming arrival of a new service truck. Discussion followed.

With no further business, Abele adjourned the Regular Session 9:48 a.m.

_____

Board President, Laura Abele

Attest: _____

Recording Secretary, Rachael Hope

Minutes approved by motion at ☐ Regular ☐ Special Board Meeting on _____

Date Minutes Approved

AGENDA BILL Item 7.A	**Sudden Valley Water Treatment Plant Alternatives Analysis Briefing #5**		
DATE SUBMITTED:	March 2, 2021	MEETING DATE:	March 10, 2021
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, Assist. GM/District Engineer	
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS		1. Draft Technical Memorandum – Backwash Systems Analysis	
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐ / INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

The existing Sudden Valley Water Treatment Plant (SVWTP) is located along Morning Beach Drive near the shores of Lake Whatcom and was constructed in 1972. The treatment plant utilizes chemical coagulation, flocculation, rapid media filtration, chemical pH adjustment, and gas chlorine disinfection prior to temporary storage within a 225,000-gallon reservoir also located at the site.

In July 2020, Gray & Osborne (G&O) completed a condition assessment in which engineers evaluated the SVWTP from a process, structural/architectural, mechanical, and electrical perspective. The assessment identified both high and low priority items that should be completed to maintain current and reliable function of the SVWTP into the future.

Following the condition assessment, G&O was contracted to perform an alternatives analysis to help the District select and prioritize specific short- and long-term improvements to the treatment equipment and processes currently in use. The work has been broken down by major systems. For each system, G&O will develop alternatives and document each in the form of a technical memorandum. The results from each system analysis will be presented to the Board at regularly scheduled board meetings.

All of the technical memoranda will ultimately be attached and summarized in an Alternatives Analysis Report. The Report will include comparisons and rankings, recommendation on modifications to system, cost estimates, figures to relay relative space requirements, and more.

The major systems as written in the scope of work agreement are:

- Pump Performance Test *(Presented to Board 9/30/2020, Briefing #1)*
- Chemical Systems Analysis *(Presented to Board 11/25/2020, Briefing #2)*
- Disinfection Systems Analysis *(Presented to Board 2/10/2021, Briefing #4)*

- **Backwash Systems Analysis**
- Filtration System Analysis *(Presented to Board 12/30/2020, Briefing #3)*
- Tier 2/3 Seismic and Structural Analysis *(Presented to Board 11/25/2020, Briefing #2)*
- Structural/Arch Workspace Analysis
- NACE III Coating Inspection *(Presented to Board 9/30/2020, Briefing #1)*

G&O has completed the Backwash Systems Analysis. The draft technical memorandum is attached, less 163 pages of Exhibit C – Ecology Water Treatment Plant General Permit and Exhibit D – EPA Filter Backwash Recycle Rule reference materials. Please contact District staff to obtain the fully 201-page memorandum, if desired. The consultant will summarize alternatives in a presentation, and collect Board comments or questions.

During the December 30, 2020 Briefing #3 on the Filtration System Analysis, six (6) long-term goals and objectives were introduced for consideration and discussion. Staff invites the Board and interested public to consider these goals, edit/refine them, and suggest additional ones. As the District begins evaluating the numerous combinations of subsystem alternatives of a whole solution, these goals list will help highlight the best ones. In no particular priority the key long-term goals and objectives so far are:

- G1 - Maintain exceptional water quality performance record
- G2 - Accommodate immediate need for additional space and separation of chemicals/electrical equipment
- G3 - Provide adequate equipment and process redundancy
- G4 - Improve access and flexibility for equipment repair/rehabilitation and/or future expansion
- G5 - Provide capacity for full buildout flow (1,400 gpm)
- G6 - Provide treatment equipment for 30-50 year time period

FISCAL IMPACT

This presentation is for discussion only; it is too early in the planning process to estimate fiscal impacts of plant improvements.

APPLICABLE EFFECTIVE UTILITY MANAGEMENT ATTRIBUTE(S)

Product Quality
Operational Optimization
Infrastructure Strategy and Performance
Water Resource Sustainability

RECOMMENDED BOARD ACTION

No action is recommended at this time.

PROPOSED MOTION

Not applicable.

Gray & Osborne, Inc.
CONSULTING ENGINEERS

TECHNICAL MEMORANDUM 20434-7

TO:	BILL HUNTER, P.E., ASSISTANT GENERAL MANAGER/DISTRICT ENGINEER
FROM:	KEITH STEWART, P.E. RUSSELL PORTER, P.E.
DATE:	FEBRUARY 25, 2021
SUBJECT:	SUDDEN VALLEY WTP BACKWASH SYSTEMS ANALYSIS LAKE WHATCOM WATER & SEWER DISTRICT, WHATCOM COUNTY, WASHINGTON G&O #20434.00

INTRODUCTION

In 2019, the Lake Whatcom Water & Sewer District (District) contracted with Gray & Osborne to perform a condition assessment for their existing Sudden Valley Water Treatment Plant (WTP) as part of a larger effort to analyze the District's water treatment facilities in order to prioritize funds for rehabilitation, modification, and/or replacement projects. The goal of the assessment and subsequent analysis is to identify potential improvements for the existing structures and treatment processes in an attempt to maximize treatment efficiency and extend the operational life of these facilities. The reports and technical memoranda generated as part of this assessment project will be used to develop a strategy for prioritizing modifications to the WTP to ensure it can efficiently and cost-effectively provide clean potable water for its existing and projected customers.

This memorandum summarizes the assessment of the existing filter backwash system at the WTP, provides a description of alternative backwash handling and storage methods, and provides analysis and preliminary cost estimates for these alternatives.

Final recommendations for backwash system modifications will be presented in the final alternatives analysis report, which is scheduled to be completed in spring 2021. This final report will consider all of the alternatives and recommendations compiled for each of the treatment systems and will provide a coordinated set of recommendations based on capital costs, District needs, operational costs, and other factors.

1130 Rainier Avenue S., Suite 300 Seattle, Washington 98144 (206) 284-0860 Fax (206) 283-3206

BACKGROUND AND EXISTING FACILITIES

Background

The District operates three Group A water systems – South Shore (DOH 95910), Eagleridge (DOH 08118), and Agate Heights (DOH 52957) – all of which are in and around the shores of Lake Whatcom, which lies southeast of Bellingham in Whatcom County, Washington. The District serves approximately 3,900 residential and commercial water system connections with a residential population of approximately 10,000 people.

The South Shore system is the largest of the three systems and is supplied wholly by water treated at its Sudden Valley Water Treatment Plant. In addition to the WTP, the District also owns and maintains surface water source, storage, and distribution system facilities. The distribution system includes multiple pressure zones, four booster stations, and approximately 2.8 million gallons (MG) of storage in five reservoirs. The District also maintains a secondary intertie with the City of Bellingham Water System (DOH 50600) that is used only during emergency situations.

The existing WTP is a rapid-rate direct filtration plant with a rated capacity of 2.0 million gallons per day (MGD), which is equivalent to approximately 1,400 gallons per minute (gpm), but currently operates at a reduced flow of 1.0 MGD (700 gpm). The maximum allowable water right for this source is 1,526 gpm; however, the equipment and components listed in the alternatives below will be sized to accommodate the WTP's rated flow of 1,400 gpm. This design flow is suitable to serve the projected buildout water demand of 1.3 MGD as listed in the District's 2018 Water System Comprehensive Plan.

The WTP is located at 22 Morning Beach Drive in Bellingham, Washington, and is housed in a partially below-grade concrete building located adjacent to Morning Beach Park. The facility was constructed in 1972 and has undergone several minor improvements since that time but was most recently upgraded in 1992. Two centrifugal raw water pumps pump water from the Lake Whatcom intake to the WTP where alum coagulant is injected. After mixing with coagulant, water enters the flocculation tank before entering the filter distribution trough and the mixed-media filters. Water proceeds through the filters, into the underdrain system, then exits the filter through the filter discharge piping. The filter discharge piping includes injection points for both soda ash (pH adjustment) and chlorine. This piping then directs the filtered water to the below-grade clearwell. Two transfer pumps located in the WTP move water from the clearwell to the chlorine contact basin (CCB), which is a welded steel reservoir located adjacent to the WTP that provides additional chlorine contact time. From the CCB, four

finished water pumps pump water to the District's storage reservoirs and distribution system for consumption. Additional information on the filter backwash system – which is the primary subject of this memorandum – is provided below.

Historical WTP Performance

Historically, the plant has performed well and provides high-quality finished water with turbidities of less than 0.1 nephelometric turbidity units (NTU). Raw water is collected from the adjacent Lake Whatcom from an intake located at a depth of approximately 80 feet and approximately 350 feet from the typical shoreline. Lake Whatcom is a large lake that is moderately developed on the northern and western shores but is largely undeveloped on its eastern shore. Raw water quality from the Lake Whatcom source is fairly consistent with turbidity below 1.0 NTU for most of the year. Turbidity increases during the spring and fall runoff season, but typically remains below 5.0 NTU during these periods. Raw water pH is typically between 7.5 and 7.7 and raw water temperature varies between 5 and 8 degrees Celsius.

Filter Backwash System

The WTP utilizes a backwash system to maintain the performance of their mixed-media filter beds. The backwash system consists of four media filters, backwash supply, flow measurement, and waste handling system and each of these components is described in greater detail below.

During normal filter operation, water is distributed evenly to all four filter cells and flows through the filter media and into the respective underdrain chambers. As it passes through the filter media, flocculated sediment and small particles are trapped and removed by the media while filtered water passes into the underdrain system and on through the discharge piping to the clearwell.

As additional particles are adsorbed onto the filter media, the head loss through the filter media and the water level within the filter vessel increases. To remove the adsorbed particles from the filter media, each filter bed is individually backwashed daily prior to filter operation. Table 1 summarizes critical design criteria for the existing filter backwash system and Figure A-1 in Exhibit A shows photographs of the existing equipment. During the backwash of a filter cell, finished water from the distribution system served by the Division 7 Reservoir flows upward through the filter at approximately 1,300 gpm (18.0 gpm/sf) for approximately 9 minutes. At this loading rate, the media bed is fluidized to remove the accumulated sediment particles and the particle-laden backwash water flows into the filter cell waste trough and then to the backwash storage basin. The recently completed WTP Assessment Report (Assessment

Report) produced by Gray & Osborne in 2020 noted that the filters and backwash sequence appear to be performing adequately and do not show a noticeable decrease in performance, filter run times, or rebound after backwashing within the last several years.

TABLE 1

Filter Backwash System Summary

Parameter	Value
Filter Type	Direct Filtration, Rapid-Rate Mixed Media
Filter Area (sf)	288 (4 filters @ 72 sf each)
Fluid Type	Finished Water
Backwash Flow Rate (gpm)	1,300
Backwash Loading Rate (per bed, gpm/sf)	18.0
Backwash Duration (min., per bed)	9–10 (1)
Backwash Volume (gal, total)	45,000

(1) Includes 2 minutes of surface wash, 2.5 minutes of surface wash and backwash, and 5 minutes of backwash. Time listed does not include up to 20 minutes of settling, equalization, and/or drainage or up to 15 minutes of filter to waste. Estimated volume for filter to waste is 10,000 to 15,000 gallons.

The backwash flow rate to the filter cells is measured by a Badger® magnetic flow meter installed in 1992 on the backwash supply piping located on the south wall of the WTP. The meter has not been recalibrated since its installation, but according to WTP staff the meter provides consistent performance when compared to previously recorded values. The Assessment Report did note that the existing backwash flow meter is an old model and is likely no longer supported by the manufacturer, which will make it difficult to complete calibration and/or repairs.

After the backwash sequence (including up to 15 minutes for the filter-to-waste cycle) is completed, the filters return to normal operation and water flows through the filters and into the clearwell. According to WTP staff, the entire backwash process for all four filters typically takes 120 to 160 minutes.

Water from the filter backwash process exits the filter vessel via the backwash waste trough and proceeds to a temporary storage basin. The backwash storage basin is located underground between the Main Building and the Finished Water Pump Building, has a volume of approximately 16,000 to 17,000 gallons, and provides flow attenuation for the spent backwash water. Backwash water within the basin is pumped via one of two submersible pumps to a manhole near the Finished Water Pump Building, then flows by gravity to the Afternoon Beach Lift Station. This lift station then pumps the wastewater to the municipal gravity sewer system where water proceeds to the City of Bellingham's

Post Point Wastewater Treatment Plant (WWTP) for treatment. Overflow from the backwash basin is directed back to Lake Whatcom.

Two backwash pumps are installed within the backwash basin. The larger pump is capable of pumping approximately 400 gpm while the smaller pump is capable of pumping approximately 180 to 200 gpm. Operation of either pump is controlled by a set of level floats within the backwash basin. WTP staff select which pump operates using a manual selector switch within the Main Building, and typically utilize the larger pump during the dry summer months and the smaller pump in the wet winter months. The pumps operate in this fashion so as not to overwhelm the Afternoon Beach Lift Station. The limited capacity of the smaller pump used during winter restricts the speed at which the WTP can complete a backwash sequence because staff must wait for the backwash basin to empty (partially) before backwashing additional filters. This process is cumbersome, time-consuming, and requires visual inspection of the basin during the backwash sequence. It is also noteworthy that the WTP does not maintain any redundant pumps for the backwash basin should either pump fail or be taken offline for maintenance.

The Assessment Report noted that the backwash basin is small and that the current backwash disposal process is expensive as a result of charges incurred while discharging to the municipal sewer system. Although the current backwash procedure provides adequate backwash of the filter vessels, the process is cumbersome for WTP staff and costs for disposal will continue to increase as a result of future sewer discharge rate increases. Backwashing less frequently is one option to reduce operating costs; however, discussions with WTP staff indicate that the current summer filter run time of 12 to 16 hours is the maximum run time possible based on turbidity readings during filter operation. As such, given the current water quality and operational parameters, extending the filter run times by backwashing less frequently, or operating the filters over the course of multiple days, is not feasible.

In order to provide a cost-effective option for backwash waste disposal, reduce operational costs, and provide a convenient and efficient system for WTP staff, the District is interested in investigating alternative methods for spent backwash water handling and disposal. The backwash sequence and components in use at the WTP should have the capacity to handle both current and design flows, sufficient volume for waste handling, provide a convenient and efficient way for WTP staff to backwash all four filters, and should provide redundancy or auxiliary accommodations/connections so that the WTP can remain in operation even if specific components must be taken offline for maintenance or rehabilitation.

To accomplish these goals, we have identified three alternatives that are feasible for the District's WTP operations. The next section describes these three alternatives with variations for backwash waste handling.

ALTERNATIVES ANALYSIS

In this section, three alternatives for backwash waste handling are presented. The alternatives are based around the various discharge locations, and within each alternative there are two options for temporary storage and handling. The alternatives discussed are continued discharge to the municipal sewer system, discharge to Lake Whatcom, or recycling flows back through the treatment system. A general description, specifics about the proposed alternative, impacts to existing buildings and supporting systems, (HVAC, electrical, structural, etc.), advantages/disadvantages, and a cost estimate are provided for each alternative.

Alternative B1 – Discharge to Municipal Sewer

General

This alternative includes continued discharge to the municipal sewer. The alternative is further divided into Options B1A and B1B for both below- and above-grade storage, respectively.

Backwash

In this alternative, all backwash waste would be pumped to the municipal sewer system via the existing Afternoon Beach Lift Station with improvements to optimize operations. The District would continue to pay municipal discharge rates to the City of Bellingham (City).

The District has noted that the current process is expensive and it may be possible to reduce the cost by coordinating with the City to meter the flows to the sewer system during non-peak hours. Typically, municipal sewer systems experience periods of high flows between approximately 6:00 and 9:00 a.m., and again between 5:00 and 10:00 p.m. This is often referred to as a diurnal peak and these peaks typically correspond to times when water system demand is high. Pumping spent backwash water to the sewer system during peak hours further increases the peak flows to the treatment facility, which places additional stress on the wastewater treatment facility equipment. If the District was able to send the backwash waste to the sewer system outside of these windows, it may be possible to negotiate a lower charge which will reduce the overall cost.

Because the existing backwash storage basin is not large enough to contain and store the full volume of a complete backwash sequence (approximately 50,000 gallons), additional storage volume would allow for operational flexibility. This additional storage volume will allow staff to manually initiate the filter backwash sequences during normal working hours, then temporarily store the backwash volume until non-peak discharge hours or would allow them the flexibility to discharge the backwash water at a constant, low flow rate throughout a 24-hour period. It will also allow the staff to sequentially backwash each filter without waiting for the backwash basin to drain to the lift station.

Currently, the WTP staff operate the filters at 700 gpm and backwash each filter once per day prior to operation. To accommodate the full design flow of 1,400 gpm, it is assumed that the WTP staff will need to backwash twice as often to maintain filter performance. Thus, for the design flow of 1,400 gpm it is estimated that 120,000 gallons of storage must be provided. This volume includes two full backwash sequences of 50,000 gallons each plus 20,000 gallons of storage for spare/flexible capacity (20 percent). This storage volume could be provided by new below-grade or above-grade tankage, each of which are described as Options B1A and B1B below.

Both options for additional storage volume are shown on Figure A-2 in Exhibit A. Option B1A is for a new below-grade tank. While a concrete reservoir is one possibility, it is more cost effective to provide detention tank storage similar to those used for stormwater detention. In this alternative, the existing backwash storage basin could be utilized to provide additional attenuation volume, could be abandoned in place and bypassed, or could be removed. Given the added flexibility that this basin could provide, this alternative includes continued use of the existing basin, but modifying the components to include a gravity or pumped drainage to the proposed detention tank. For the purposes of this analysis, it is assumed that the backwash waste will need to be pumped from the existing backwash storage basin to the proposed detention tank, although a more thorough survey and field investigation may show that gravity drainage between the two tanks is feasible. The detention tank would provide below-grade storage and would drain by gravity to a separate submersible pump station – also located below grade. This pump station would accommodate up to three pumps (two duty, one redundant) and would include valves and controls to allow the WTP staff or the programmable logic controller (PLC) to remotely start the pumps based on a timer so that the backwash can be distributed to the lift station during off-peak hours. The detention tank could be made from polyethylene or fiber reinforced plastic (FRP) materials and would consist of prefabricated sections joined in the field. The system includes three access ports to allow for inspection and can accommodate various instruments and floats to provide information on the level within the tank. The tank could be installed within the adjacent land associated with Morning Beach Park. This location would allow access to the tank for WTP staff and still provide an open park setting for use by the general

public. Preliminary design criteria for a detention-style tank suitable for this application are provided in Table 2.

Option B1B includes installation of an above-grade concrete storage tank. For this option, the existing below-grade storage basin could be utilized, but instead of pumping to an existing manhole, the pumps would pump backwash water to a new above-grade temporary storage tank located adjacent to the existing CCB. The proposed tank would include inlet piping, a center drain connection for full and complete drainage, access ladder, roof safety railing, level monitoring instrumentation, and access hatches. To ensure that the existing backwash storage basin provides sufficient flexibility and storage to allow WTP staff to sequentially backwash each filter, the existing 200 and 400 gpm pumps should be replaced with larger 600 to 800 gpm submersible pumps. The pumps could be operated with variable frequency drive (VFD) motor starters and discharge from the existing backwash basin would be controlled by adjusting the pump motor speed to maintain the desired flow of 600 to 800 gpm. Gravity discharge from the proposed tank would be controlled by a mechanized butterfly valve and flow meter. The flow meter will measure the flow through the piping and the position of the butterfly valve will be adjusted by the PLC in order to maintain the desired flow to the Afternoon Beach Lift Station.

Design criteria for the proposed above-grade tank are provided in Table 2.

TABLE 2

Alternative B1 Storage Tank Design Criteria

Parameter	Value
New Below-Grade Tank	
Type	Prefabricated (FRP, PE)
Quantity (number of sections)	7
Diameter (ft)	8
Length (ft)	48
Footprint (sf)	7,200
Volume (gal)	123,000
Inlet/Outlet	Pipe Connection
Instrumentation	Ultrasonic Level Sensor High-Alarm Float Switch Duplex Pump Station (floats, ultrasonic level sensor)
New Above-Grade Tank	
Type	Cast-in-Place Concrete, Cylindrical
Diameter (ft)	26
Base Elevation (ft)	342
Overflow Elevation (ft)	377
Volume (gal)	138,000
Volume per Foot (gal/ft)	3,942
Inlet/Outlet	Elevated Inlet Center Drain Connection
Instrumentation	Ultrasonic Level Sensor High-Alarm Float Switch Magnetic Flow Meter Electrically Actuated Butterfly Flow Control Valve

Both Options B1A and B1B will require that any solids accumulated during temporary storage be removed on a regular basis. Based on discussions with WTP staff and our understanding of backwash timing and the backwash storage basin, it is likely that a significant majority (more than 90 percent) of solids are currently discharged to the Afternoon Beach Lift Station. The storage options noted above will provide additional volume and flexibility to retain backwash solids; however, a large portion of these solids should remain suspended and will proceed to the lift station as they do in the current process. Any solids retained within the proposed tank should be removed on a semiregular basis and appropriate access ports and hatches will be provided on the tanks to facilitate this removal. For the purposes of this analysis, it is estimated that solids will need to be removed two times per year and that solids can be removed with a vactor

truck, then deposited to the Afternoon Beach Lift Station or directly to the City WWTP. Alternatively, mixing equipment could be added to the tank that would help more solids remain suspended so that they could be pumped to the downstream municipal sewer.

It should be noted that depending on other changes or modifications made by the District to the current disinfection system, it may also be feasible to utilize the existing CCB for temporary backwash waste storage. This would potentially eliminate the need to construct an additional storage tank but would remove the CCB from use for the disinfection system. A final alternatives analysis report proposed as part of this project will be provided separately from this technical memorandum and will combine all of the various options and recommendations for each treatment component. However, each of the recommendations or alternatives presented herein will depend on the full scale of changes desired by the District over the long-term planning process and should always be considered within the full scale of potential changes for the WTP.

Building and Other

No other modifications to the Main Building or Finished Water Pump Building are proposed as part of this alternative. There will be various modifications to the existing Supervisory Control and Data Acquisition (SCADA) system that are required, but these services and modifications will be provided by the District's preferred telemetry and integration service provider.

Site improvements included with this alternative include grading and earthwork required to create a flat and suitable area for the proposed backwash storage tank. Prior to construction of the proposed tank (Option B1B), a thorough geotechnical investigation should be completed. Given the slope of the adjacent terrain, a retaining wall may be required to provide suitable slope stabilization. For the purposes of this investigation, it is assumed that a retaining wall is not required for construction of the new tank and that only basic earthwork and grading are required.

Regardless of which option is selected, modifications to the existing electrical system will be required. For both options (B1A and B1B), the existing backwash basin submersible pumps must be replaced with larger equipment and new flow meters must be installed. Additionally, Option B1B includes the installation of an electrically actuated valve. This additional/new equipment will increase the electrical load on the facility. Additionally, new VFD motor starters are larger than the existing non-VFD starters and may require additional space for new motor control center (MCC) buckets or a reconfiguration of the existing MCCs. For the purposes of this investigation, it is assumed that the existing electrical service to the site is sufficient to accommodate the proposed loads and that a new electrical supply will be sub-fed from the existing Finished

Water Pump Building. A formal electrical analysis should be completed once the size of the proposed electrical loads are defined to confirm this assumption and an assessment of the capacity for the existing MCCs to accept new larger VFD motor starters should be completed.

The new facility will be subject to all applicable stormwater requirements for construction of new structures. The construction of a new tank adjacent to the existing WTP would be subject to the stipulations listed by Whatcom County for the Lake Whatcom Watershed. These requirements will include the need to provide either full infiltration on site or advanced treatment for phosphorous removal. Design of the required stormwater facilities will be provided once the building footprint and paving have been finalized, but a budgetary estimate for the anticipated requirements has been included with the alternative cost estimate included in Exhibit B. In addition, it should be noted that these regulations restrict clearing of the site so that only 35 percent of the existing tree canopy can be cleared.

It is important to note that this alternative will require additional design and coordination with various stakeholders, one of which includes the Sudden Valley Community Association (SVCA). The SVCA owns much of the property adjacent to the WTP and would need to be consulted prior to implementation of any of the alternatives discussed in this memorandum. Furthermore, the District must consider that the property adjacent to the WTP is a public park with waterfront access and use of this public space will likely need to be maintained at all times. Other stakeholders include neighboring residential landowners and utility providers serving the area.

Advantages and Disadvantages

Both Options B1A and B1B maintain the current discharge location and sequence, which is familiar to WTP staff.

One advantage to Option B1A is that the proposed location for construction of the storage tank is open and accessible. One disadvantage to Option B1A is that a new pump station is required, which increases the electrical load to the facility and increases the complexity of the system.

One advantage to Option B1B is that the system could flow by gravity to the existing Afternoon Beach Lift Station. One disadvantage to Option B1B is that it requires construction of a new structure, which will require additional geotechnical investigation and stormwater treatment systems.

Cost Estimate

Option B1A for this alternative is estimated to cost approximately $1,494,000 while Option B1B is estimated to cost approximately $1,022,000. Both of these cost estimates include contingency (25 percent), Washington State sales tax (9.0 percent), and design/project administration (25 percent). A budgetary cost estimate for this alternative is provided in Exhibit B.

Alternative B2 – Discharge to Lake Whatcom

General

This alternative includes revising the existing backwash discharge so that it discharges to Lake Whatcom instead of the municipal sewer system. Similar to Alternative B1, this alternative is further divided into Options B2A and B2B for both below- and above-grade storage, respectively.

Backwash

Discharges to surface water governed by the State of Washington are covered by the National Pollutant Discharge Elimination System (NPDES) Permit which is managed by the Washington State Department of Ecology (Ecology). Ecology maintains a general permit (General Permit) available to all WTPs for discharge of backwash waste and this permit allows WTPs to discharge backwash water to surface water such as Lake Whatcom if they adhere to the requirements listed in the General Permit. The current General Permit is included in Exhibit C, but the key components are summarized below:

- Facilities (WTPs) may discharge to surface water if they provide potable water (more than 35,000 gallons per day) and the discharge is part of a normal operating process (filtration, backwash, etc.).
- Water discharged meets specific maximum requirements for settleable solids, residual chlorine, and pH.
- Facilities must have a valid and current Operation and Maintenance Manual.
- Facilities must complete additional water quality monitoring based on their maximum rate of water production, and must monitor and record these analyses and their results using a web-based monitoring system.

- Provide notice to various stakeholders, including Ecology, in the event that a system disruption or anomaly occurs.

To apply for coverage under the General Permit, the District must complete and sign the application form as well as provide documentation of adherence to all aspects of the General Permit. Conditions for adequate public notice and compliance with all applicable State Environmental Policy Act (SEPA) requirements must also be met. If coverage under the General Permit is granted, the District would need to reapply for coverage every 5 years. This reapplication process is very simple and minimal effort is needed to complete the reapplication process.

Coverage under the General Permit is utilized by many WTPs in Washington State and could potentially reduce the operational costs by reducing the volume sent to the City municipal sewer system.

Discharge limits are highlighted in Section S-2.2 of the General Permit, but include maximum daily limits on settleable solids (0.2 mL/L), total residual chlorine (0.07 mg/L), and pH (9.0). Additional monitoring parameters are listed in Exhibit C (Section S-5.2) and include various inorganic parameters analyzed on a monthly or quarterly basis.

Although no historical data exists for these analytes for the backwash discharge, the WTP staff recently collected samples to estimate potential compliance and treatment required for adherence to the conditions set forth in the General Permit. For this, two 1,000 mL bottles (A and B) were filled every 60 seconds during a backwash cycle (one filter only, Filter 4) on January 26, 2021. A composite sample included 100 mL from each time point listed in Table 3 and was collected later on February XX. These samples were then analyzed by the District (pH, chlorine) as well as a local commercial analytical laboratory (TSS, turbidity). Results of these analyses are shown in Table 3.

TABLE 3

Backwash Discharge Sample Analysis Summary

Sample	Elapsed Time (min) (1)	pH (2)	Total Residual Chlorine (mg/L) (3)	Total Suspended Solids (TSS, mL/L) (4)	Turbidity (NTU) (5)
1	1.0	6.92	0.02	145	36
2	2.0	6.91	0.08	300	70
3	3.0	6.86	0.06	310	90
4	4.0	7.01	0.05	270	39
5	5.0	7.17	0.61	41	9.5
6	6.0	7.24	0.70	19	9.2
7	7.0	7.31	0.81	8	4.8
8	8.0	7.38	0.82	6	1.7
C	(6)				

(1) Two-liter sample collected from the backwash waste discharge trough at each time point. One liter used for pH, residual chlorine, TSS, and turbidity samples, and 1 liter used for settleability analysis.
(2) Measured using the District's pH sensor.
(3) Measured using the District's HACH handheld pocket colorimeter.
(4) Measured by Edge Analytical via Method I-3765-85.
(5) Measured by Edge Analytical via SM180.1.
(6) Sample C was a composite sample; 100 mL of sample was collected at each of the time points listed above, then were combined into a 1,000 mL bottle to create a single sample for analysis.

To estimate the settleability of the backwash waste, samples were collected from various time points in the backwash cycle and were allowed to settle. At various times during the settling process, the volume of clear water (supernatant) was measured and recorded. After 24 hours of settling, the supernatant solution was transferred to a separate container, measured for pH and chlorine residual, then submitted to a commercial laboratory for TSS and turbidity analysis. The results of these analyses are provided in Table 4.

TABLE 4

Backwash Discharge Settleability Analysis Summary

Parameter	Clear Volume (mL) (1)			
	Sample 1	Sample 4	Sample 8	Composite
Settling Time (min)				
1	1,000	1,000	1,000	
5	920	1,000	1,000	
15	920	990	1,000	
30	960	980	1,000	
60	960	975	1,000	
240 (4 hours)	960	975	1,000	
480 (8 hours)	960	975	1,000	
1,440 (24 hours)	960	975	1,000	
Other				
pH (2)	6.92	6.99	7.36	
Chlorine Residual (mg/L) (2)	0.07	0.05	0.84	
Total Suspended Solids (mL/L) (2)	—	—	—	
Turbidity (NTU) (2)	—	—	—	

(1) Value listed is the approximate volume of supernatant (clear volume) within the graduated cylinder after the time noted.
(2) Value recorded was measured from sample supernatant after 24 hours of settling time.
(3) Value recorded was measured from sample supernatant after 8 hours of settling time.

The data listed in Table 3 suggest that the proposed backwash discharge to Lake Whatcom would meet permit requirements for pH, but would need additional treatment or accommodations to meet the requirements for residual chlorine and possibly settleable solids. The data in Table 4 suggest that the solids entrained within the backwash water settle rapidly as indicated by the large volume of clear water within the sample and the low rate of change in the clear water volume over a 24-hour period.

Various chemical compounds can be used for dechlorination, most commonly sulfur dioxide gas, sodium metabisulfite, sodium sulfite, calcium thiosulfate, and ascorbic acid. Sulfur dioxide is a hazardous gas similar to chlorine but could be successful at removing chlorine down to the proposed maximum threshold of 0.07 mg/L. Calcium thiosulfate solution is a safer and more user-friendly solution when compared to sodium metabisulfite and sodium sulfite, and does not have safety concerns associated with compressed sulfur dioxide gas. To remove 0.8 mg/L residual chlorine with calcium thiosulfate, which is very conservative given the data in Tables 3 and 4, it is estimated that 9 pounds per day per million gallons per day would be required. Given the potential

daily discharge of up to 50,000 gallons, this results in a consumption of up to 1 pound per day. Dechlorination equipment provided with this alternative includes a duplex chemical metering pump system, chemical storage space, and connections to the existing or proposed piping system. This equipment would be housed within a small freestanding building near the backwash storage tank and assumes that the building would be installed on a concrete slab. Sodium thiosulfate is commercially available as a ready-to-use liquid in drums or totes and costs approximately $0.40 per pound.

In addition to dechlorination, the backwash system may require additional treatment or accommodations for reducing and monitoring settleable solids in the discharge water.

To ensure that the discharge requirements listed in the General Permit for settleable solids are met, it is recommended that the District install storage facilities for this alternative. Options and inclusions for these facilities are similar to those described in Alternative B1 (for both below- and above-grade tanks). Some key differences for storage tanks in Alternative B2 are that the tank will be designed to discharge to either Lake Whatcom or the Afternoon Beach Lift Station. During normal operation, backwash supernatant will be pumped to the outfall diffuser within Lake Whatcom; however, the tank will also include accommodations to divert the pumped flow to the lift station during periods where the discharge water quality does not meet the requirements set forth in the NPDES permit. Additionally, monitoring and sampling piping will be provided so the WTP staff can monitor water quality at various locations within the tank and from the discharge stream. Lastly, the tanks will need to be larger to provide sufficient volume to accommodate solids accumulated during the settling process.

Both Options B2A and B2B will require that solids accumulated during storage/settling be removed on a regular basis. Solids retained within the proposed tank should be removed and appropriate access ports and hatches will be provided on the tank to facilitate this removal. It is estimated that solids will need to be removed three to four times per year, and that solids can be removed with a vactor truck, then deposited to the lift station or directly to the City WWTP. Other decanting and/or separation facilities are also feasible if additional separation of solids is desired. Given the data for TSS in Table 3, the average TSS concentration for backwash water is 137 mg/L. If a conservative value of 150 mg/L is combined with an average daily backwash volume of 50,000 gallons (189,270 liters) it is estimated that approximately 22,900 pounds of solids will be generated per year. This weight is equivalent to approximately 68,000 gallons of slurry/sludge if we assume a solids concentration of 4 percent. Table 5 highlights design criteria for the tanks proposed with Alternative B2.

TABLE 5

Alternative B2 Storage Tank Design Criteria

Parameter	Value
New Below-Grade Tank	
Type	Prefabricated (FRP, PE)
Quantity (number of sections)	11
Diameter (ft)	8
Length (ft)	48
Footprint (sf)	14,500
Volume (gal)	193,000
Inlet/Outlet	Pipe Connection
Instrumentation	Ultrasonic Level Sensor High-Alarm Float Switch Duplex Pump Station (floats, ultrasonic level sensor)
New Above-Grade Tank	
Type	Cast-in-Place Concrete, Cylindrical
Diameter (ft)	30
Base Elevation (ft)	342
Overflow Elevation (ft)	382
Volume (gal)	211,400
Volume per Foot (gal/ft)	5,285
Inlet/Outlet	Elevated Inlet Center Drain Connection
Instrumentation	Ultrasonic Level Sensor High-Alarm Float Switch Magnetic Flow Meter Electrically Actuated Butterfly Flow Control Valve

Building and Other

Modifications to the Main Building, Finished Water Pump Building, and associated electrical systems are identical to those described in Alternative B1. Stormwater and land acquisition components are also identical. Proposed facilities for this alternative are shown on Figure A-3 in Exhibit A.

This alternative will include installation of a concrete slab and small building. This building would be located near the storage tank discharge connection, which should provide sufficient reaction time prior to discharge to Lake Whatcom. The new building will house the dechlorination system as well as the backwash discharge monitoring

equipment. This alternative will also require construction of an outfall discharge within Lake Whatcom. The discharge should be located at depth (greater than 60 feet) and should be constructed as far away from the WTP intake piping as feasible. The outfall should have a diffuser on the outlet end to reduce the potential for lakebed erosion and should be constructed from ductile iron or high-density polyethylene (HDPE) materials.

Advantages and Disadvantages

One advantage to Option B2A or B2B is that backwash is no longer discharged to the City municipal sewer system. One disadvantage to Option B2A or B2B is that it will require construction within Lake Whatcom, will require additional water quality monitoring, and may require additional treatment for dechlorination and to reduce solids within the discharge. There may also be resistance to discharging a "waste" stream to Lake Whatcom by community members and the general public.

One advantage to Option B2A is that the proposed location for construction of the storage tank is open and accessible. The space would be maintained as a public park and would only be unavailable for use during the active construction period. One disadvantage to Option B2A is that a new pump station is required, which increases the electrical load to the facility and increases the complexity of the system.

One advantage to Option B2B is that a new separate pump station is not required, and the system could conceivably drain by gravity to the Lake Whatcom outfall. One disadvantage to this option is that it requires construction of a new structure, which will require additional geotechnical investigations and stormwater treatment systems.

Cost Estimate

Option B2A for this alternative is estimated to cost approximately $2,126,000 while Option B2B is estimated to cost approximately $1,819,000. Both of these cost estimates include contingency (25 percent), Washington State sales tax (9.0 percent), and design/project administration (25 percent). A budgetary cost estimate for this alternative is provided in Exhibit B.

Alternative B3 – Recycle Backwash Flows to Treatment System

General

This alternative includes revising the backwash handling system so that backwash supernatant can be redirected through the existing treatment equipment. Similar to

Alternative B1, this alternative is further divided into Options B3A and B3B for both below- and above-grade storage, respectively.

Backwash

Prior to 2004, the United States Environmental Protection Agency (EPA) enacted a rule allowing water treatment facilities to recycle spent filter backwash water from a direct filtration plant back through the treatment process and into the distribution system. In 2004, the EPA amended this rule to include more stringent water quality requirements in order to continue this process. The rule is commonly referred to as the Filter Backwash Recycling Rule (FBRR) and is employed by several WTPs in the Pacific Northwest. In this alternative, the WTP would temporarily store backwash waste within a below- or above-grade tank, allow the solids entrained with this water to settle, then reintroduce the supernatant (uppermost clear water layer) back into the treatment process. According to the FBRR, recycled water must be reintroduced so that is undergoes every step of treatment, which in this case means that it must be introduced prior to chemical addition and the existing flocculation tank. Connection at this location is feasible and would require minimal modifications or disruptions to the existing treatment equipment.

There are additional monitoring, recording, and reporting requirements that must be completed for compliance. These requirements include both additional water quality and treatment process parameters and the key components to the existing *FBRR Technical Guidance Manual* are provided in Exhibit D. Additional guidance is available in the 2019 *Water System Design Manual* (Washington State Department of Health) as well from the *10 State Standards Water Treatment Guidance* (2018). In general, the additional monitoring requirements are not significant and would not increase the WTP staff operation and maintenance requirements.

To ensure that the discharge requirements for backwash recycle are met, the District will need to install additional storage/settling facilities to reduce the solids loading to the filters from the recycled flow. Options for providing these additional storage facilities are identical to those described in Alternative B2 for both below- and above-grade facilities. The only difference with this alternative is that the storage tank supernatant will be directed back to the treatment process instead of to the municipal sewer system or to Lake Whatcom. During normal operation, backwash supernatant will drain (or be pumped) to the connection point upstream of the flocculation tank; however, the tank will also include accommodations to drain to the Afternoon Beach Lift Station during periods where the discharge water quality does not meet the requirements set forth in the FBRR. Additionally, monitoring and sampling piping will be provided so the WTP staff can monitor water quality at various locations within the tank and from the discharge stream. Lastly, the maximum percentage of flow that can be recycled during filtration is

10 percent. For the current operational flow of 700 gpm, this equates to a recycle flow of 70 gpm (630 gpm raw water). In order to recycle a typical backwash sequence volume of 42,000 gallons (approximately 85 percent of the total volume), this would require approximately 10 hours of recycle flow – which is feasible given the current filtration and backwash sequences utilized at the WTP. For the full design flow of 1,400 gpm, a recycle flow of 140 gpm (1,260 gpm raw water) is allowed, which will result in a backwash volume pump time of approximately 5 hours.

Additionally, adjustment of disinfection chemicals and/or other chemicals utilized at the WTP (alum, soda ash) may be required during recycle events. This will add complexity and could impact overall water quality.

Both Options B3A and B3B will require that solids accumulated during storage/settling be removed on a regular basis. Solids retained within the proposed tank should be removed and appropriate access ports and hatches will be provided on the tanks to facilitate this removal. For the purposes of this analysis, it is estimated that solids will need to be removed three to four times per year, and that solids can be removed with a vactor truck, then deposited to the Afternoon Beach Lift Station or directly to the City WWTP.

Building and Other

Modifications to the Main Building and associated electrical systems are identical to those described in Alternative B1. Stormwater and land acquisition components are also identical. The proposed facilities for this alternative are shown on Figure A-4 in Exhibit A.

Both Options B3A and B3B will require modification of the existing WTP raw water piping. Although gravity drainage from an above-grade tank (Option B3B) to a new connection point at the WTP is feasible, gravity feed will result in lower flow control and more operator interaction. To provide additional flow control and less operator interaction with the system, both Options B3A and B3B include a small duplex pump station that will pump water from the proposed tank to the raw water connection location. Option B3A includes a new submersible pump station within a below-grade manhole while Option B3B includes centrifugal pumps housed within a small building adjacent to the proposed storage tank. The raw water connection location could be outside the footprint of the Main Building below grade, or piping could be brought within the footprint of the Main Building and be connected above grade just downstream of the existing raw water flow meter. From this connection location, recycled water will continue through the normal treatment process and equipment.

Advantages and Disadvantages

The advantage to Alternative B3 is that it no longer discharges backwash waste to the City municipal sewer system which could potentially reduce operational costs for backwash waste handling. Additionally, the monitoring requirements for Alternative B3 are less intensive than those required to discharge backwash to Lake Whatcom (Alternative B2). Lastly, Alternative B3 would allow a more full and complete utilization of the District's surface water right. One disadvantage is that this alternative will likely require approval from the Washington State Department of Health prior to implementation. Additionally, introduction of backwash recycle water may negatively impact the existing treatment process and/or finished water quality – although it is not likely that these negative impacts would be significant.

One advantage to Option B3A is that the proposed location for construction of the storage tank is open and accessible. The space would be maintained as a public park and would only be unavailable for use during the active construction period. A disadvantage to this alternative is that a new pump station is required, which increases the electrical load to the facility and increases the complexity of the system.

One disadvantage to Option B3B is that it requires construction of a new structure, which will require additional geotechnical investigations and stormwater treatment systems.

Cost Estimate

Option B3A for this alternative is estimated to cost approximately $1,889,000 while Option B3B is estimated to cost approximately $1,564,000. Both of these cost estimates include contingency (25 percent), Washington State sales tax (9.0 percent), and design/project administration (25 percent). A budgetary cost estimate for this alternative is provided in Exhibit B.

SUMMARY

Alternative Summary

Each of the alternatives is briefly described below and Table 6 provides a summary and comparison for the various alternatives.

Alternative B1 – Discharge to the Municipal Sewer System

Under this alternative, the WTP will continue to discharge backwash waste to the municipal sewer system. To potentially reduce costs through off-peak discharge and to

help reduce backwash time and improve discharge water quality, this alternative includes two options for additional storage and settling volume. Option B1A includes installation of a new below-grade storage facility, new duplex pump station adjacent to the Main Building, and replacement of the existing backwash discharge pumps. Option B1B includes installation of an above-grade concrete storage tank adjacent to the existing CCB and replacement of the existing backwash storage basin submersible pumps.

Solids handling will be provided by discharging and draining the tank to the municipal sewer several times each year.

Alternative B2 – Discharge to Lake Whatcom

This alternative will direct backwash waste to a new outfall in Lake Whatcom but will maintain a connection to the City's municipal sewer system in the event that spent backwash water does not meet NPDES discharge water quality requirements. The District will apply for coverage under the WTP General Permit for Backwash Discharge as governed by Ecology.

To provide operational flexibility and to help ensure that the water quality stipulations of the General Permit are met, this alternative includes two options for additional storage and settling volume. Option B2A includes installation of a new below-grade storage facility, duplex pump station, and replacement of the existing backwash discharge pumps. Option B2B includes installation of an above-grade concrete storage tank adjacent to the existing CCB, new duplex pump station, and replacement of the existing backwash discharge pumps. Both alternatives include a new building to house the dechlorination and discharge monitoring equipment.

Solids handling will be provided by discharging and draining the tank to the municipal sewer several times each year.

Additional water quality monitoring will be required to ensure that the discharge water meets NPDES discharge requirements.

Alternative B3 – Backwash Recycling

This alternative will direct backwash supernatant back to the existing raw water piping upstream of the existing flocculation tank but will maintain a connection to the City's municipal sewer system in the event that recycle water does not meet water quality requirements. The District will provide information to DOH in compliance with the EPA FBRR.

This alternative includes two options for additional storage and settling volume. Option B3A includes installation of a new below-grade storage facility, duplex recycle pump station, and replacement of the existing backwash discharge pumps. Option B3B includes installation of an above-grade concrete storage tank adjacent to the existing CCB, duplex recycle pump station, and replacement of the existing backwash discharge pumps. For either tank option, supernatant from the storage/settling volume will be pumped to a connection within the Main Building upstream of the existing flocculation tank. This will allow the recycled water stream to flow through the entire treatment process. Both alternatives include a new building to house the backwash recycle pumps and associated electrical and monitoring equipment.

Solids handling will be provided by pumping and draining the tank to the municipal sewer several times each year.

Additional water quality monitoring will be required to ensure that the discharge water meets FBRR discharge requirements.

TABLE 6

Alternatives Summary

Alt. Option	Description	Capital Cost	Advantages	Disadvantages
B1A	Discharge to Municipal Sewer – Below-Grade Tank	$1,494,000	• Familiar process • No additional water quality monitoring required	• Requires additional pump station • Permit and land acquisition
B1B	Discharge to Municipal Sewer – Above-Grade Tank	$1,022,000	• Familiar process • No additional water quality monitoring required	• Permit and land acquisition
B2A	Discharge to Lake Whatcom – Below-Grade Tank	$2,126,000	• Reduces sewer discharge costs	• Requires additional pump station • Additional water quality monitoring required • Increases system complexity • Permit and land acquisition
B2B	Discharge to Lake Whatcom – Above-Grade Tank	$1,819,000	• Reduces sewer discharge costs	• Requires additional pump station • Additional water quality monitoring required • Increases system complexity • Permit and land acquisition
B3A	Backwash Recycle – Below-Grade Tank	$1,889,000	• Less monitoring than Alt. B2 • Greater use of full water right • Reduces sewer discharge costs	• Requires additional pump station • Additional water quality monitoring required • May affect current water quality • Increases system complexity • Permit and land acquisition
B3B	Backwash Recycle – Above-Grade Tank	$1,564,000	• Less monitoring than Alt. B2 • Greater use of full water right • Reduces sewer discharge costs	• Requires additional pump station • Additional water quality monitoring required • May affect current water quality • Increases system complexity • Permit and land acquisition

The current estimated annual cost for discharge to the municipal sewer is approximately $45,000. This was estimated using the monthly billing sheet provided by the District proportioning the calculated backwash flows (50,000 gallons per day) to the total metered flows, then applying this same ratio to the monthly cost. Dividing the capital costs listed in Table 6 by the current estimated annual cost for sewer discharge, the minimum payback period can be calculated. The payback periods for the options listed in Table 6 range between 22 and 40 years and represent the ***minimum*** period since the costs listed in Table 6 do not include additional operational costs for chemicals, electrical, maintenance, etc., which are very difficult to estimate at this point in time. This minimum payback period is relatively high, and as such the District must weigh the value of reducing annual operational costs against the potential increase in system complexity, required monitoring, and the planning and expenditures required to complete Alternative B2 or B3.

Recommendations

It is difficult to provide a backwash system recommendation without considering the other issues that are being considered at the treatment plant. For example, if the District decides to construct a new CCB, then utilizing the existing CCB as a backwash storage and/or recycle tank becomes more favorable as the capital costs to implement this change are less and the minimum payback period decreases. This economy of scale when considering the modifications for the WTP can help drive the decision-making process.

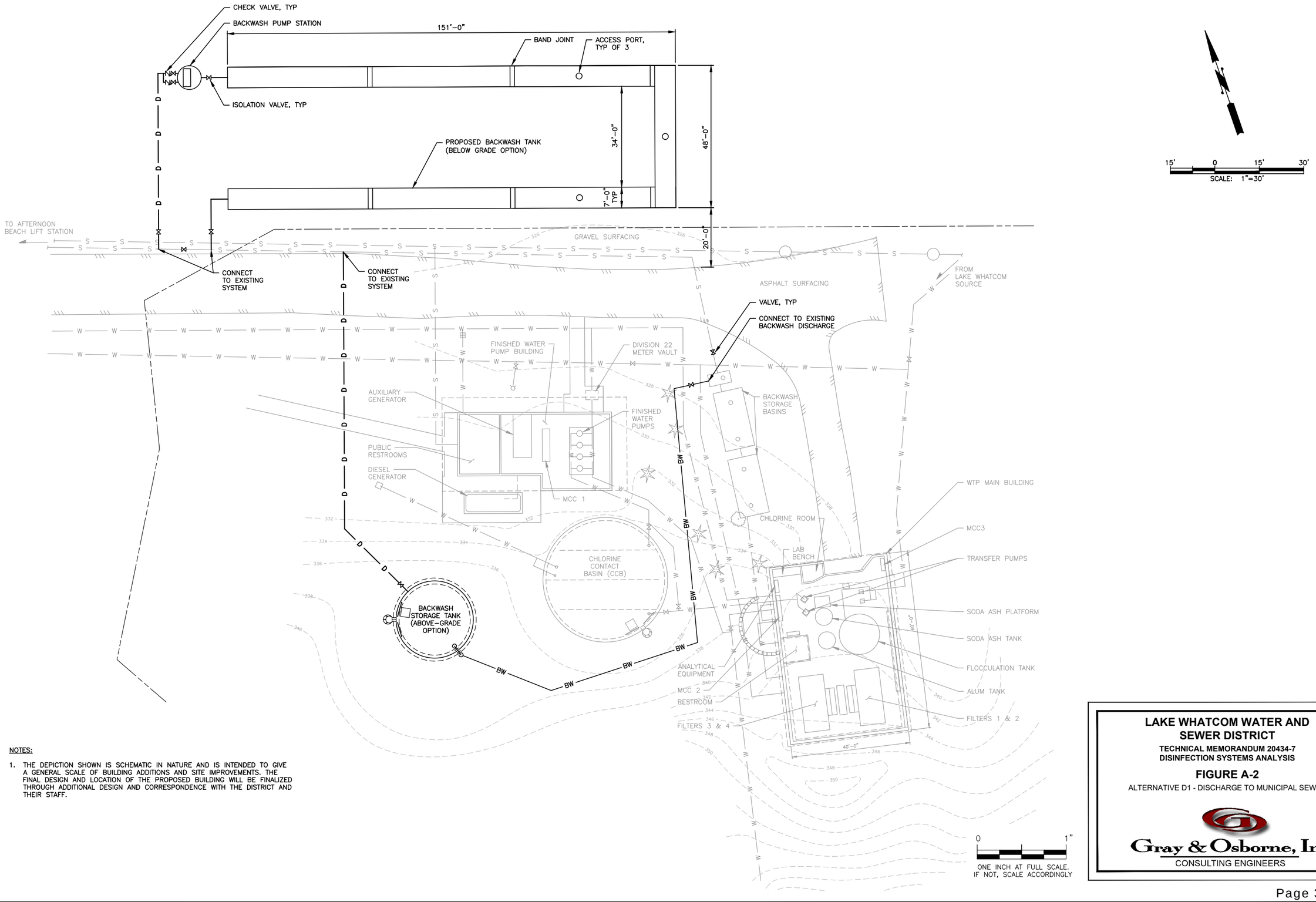
Consequently, the final filtration recommendation will be deferred until the summary report is prepared that contains all of the information in the various technical memoranda to provide an optimized recommendation for the entire filter plant to ensure the District's goal of continuing to provide high-quality treated water for decades to come.

EXHIBIT A

FIGURES

FIGURE A-1

Photographs of Existing Backwash Components



NOTES:

1. THE DEPICTION SHOWN IS SCHEMATIC IN NATURE AND IS INTENDED TO GIVE A GENERAL SCALE OF BUILDING ADDITIONS AND SITE IMPROVEMENTS. THE FINAL DESIGN AND LOCATION OF THE PROPOSED BUILDING WILL BE FINALIZED THROUGH ADDITIONAL DESIGN AND CORRESPONDENCE WITH THE DISTRICT AND THEIR STAFF.

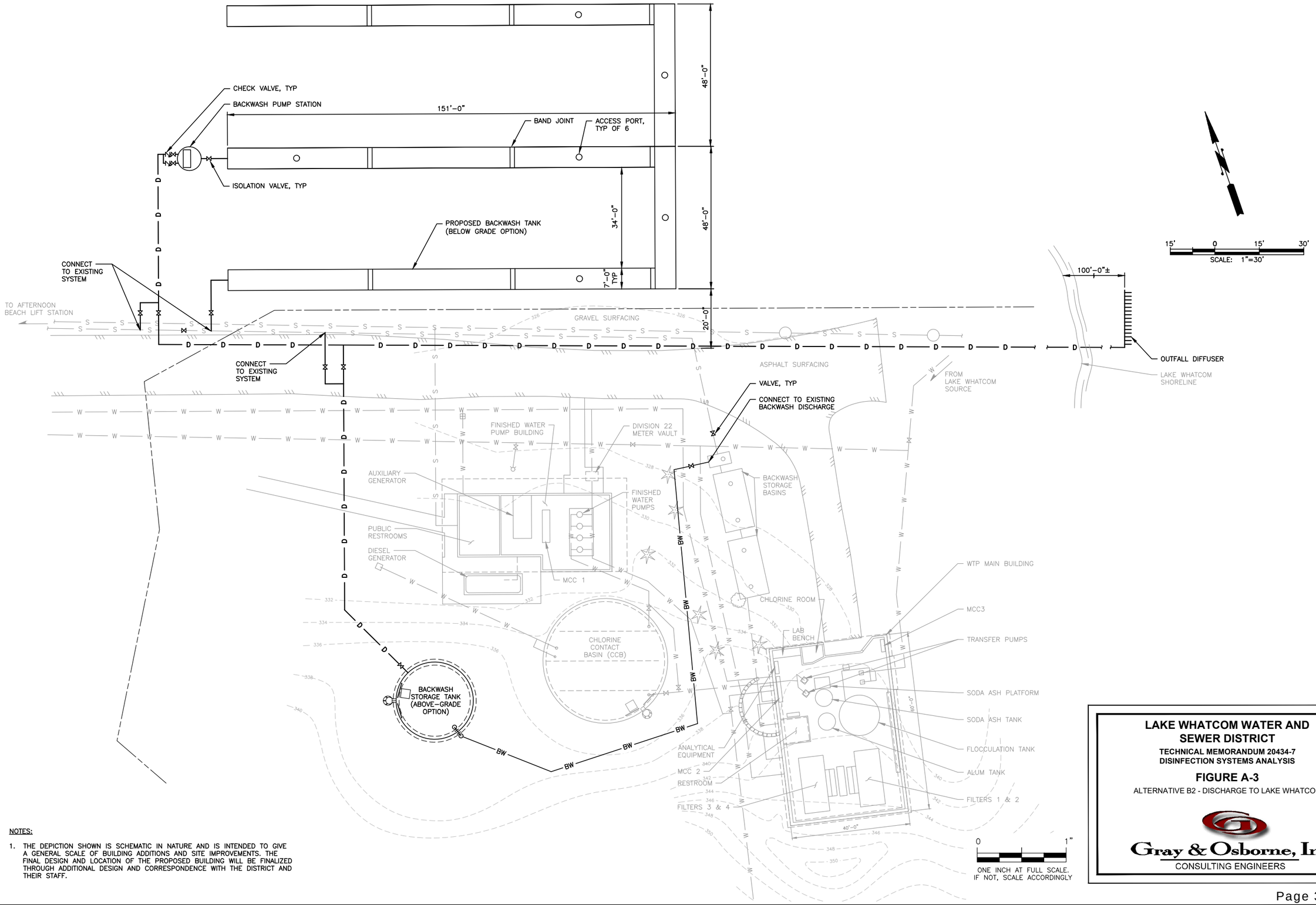
LAKE WHATCOM WATER AND SEWER DISTRICT

TECHNICAL MEMORANDUM 20434-7
DISINFECTION SYSTEMS ANALYSIS

FIGURE A-2

ALTERNATIVE D1 - DISCHARGE TO MUNICIPAL SEWER

Gray & Osborne, Inc.
CONSULTING ENGINEERS



NOTES:

1. THE DEPICTION SHOWN IS SCHEMATIC IN NATURE AND IS INTENDED TO GIVE A GENERAL SCALE OF BUILDING ADDITIONS AND SITE IMPROVEMENTS. THE FINAL DESIGN AND LOCATION OF THE PROPOSED BUILDING WILL BE FINALIZED THROUGH ADDITIONAL DESIGN AND CORRESPONDENCE WITH THE DISTRICT AND THEIR STAFF.

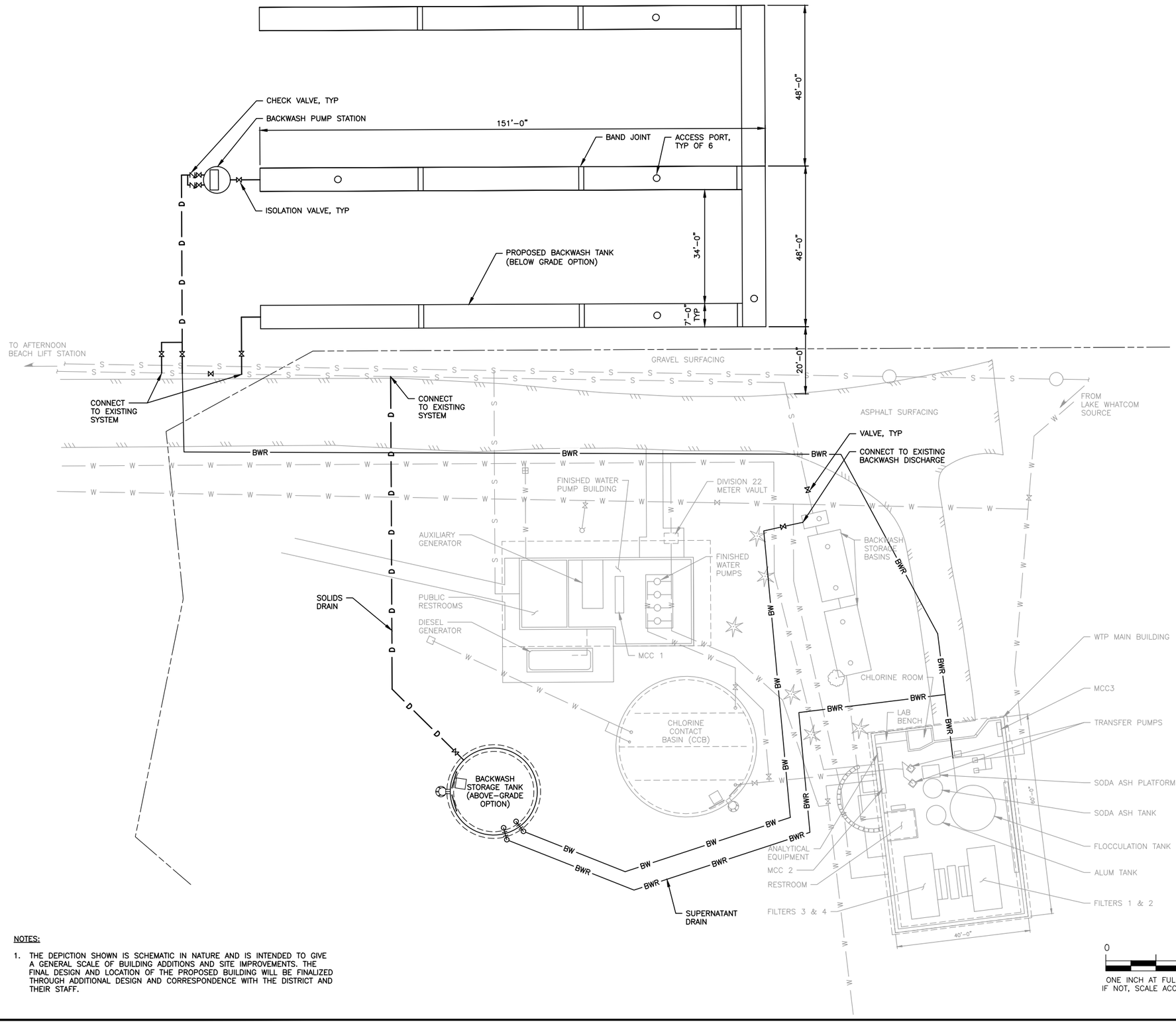
LAKE WHATCOM WATER AND SEWER DISTRICT

TECHNICAL MEMORANDUM 20434-7
DISINFECTION SYSTEMS ANALYSIS

FIGURE A-3

ALTERNATIVE B2 - DISCHARGE TO LAKE WHATCOM

Gray & Osborne, Inc.
CONSULTING ENGINEERS



15' 0 15' 30'

SCALE: 1"=30'

NOTES:

1. THE DEPICTION SHOWN IS SCHEMATIC IN NATURE AND IS INTENDED TO GIVE A GENERAL SCALE OF BUILDING ADDITIONS AND SITE IMPROVEMENTS. THE FINAL DESIGN AND LOCATION OF THE PROPOSED BUILDING WILL BE FINALIZED THROUGH ADDITIONAL DESIGN AND CORRESPONDENCE WITH THE DISTRICT AND THEIR STAFF.

0 1"

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

LAKE WHATCOM WATER AND SEWER DISTRICT

TECHNICAL MEMORANDUM 20434-7
DISINFECTION SYSTEMS ANALYSIS

FIGURE A-4

ALTERNATIVE B3 - BACKWASH RECYCLE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

EXHIBIT B

RECOMMENDED ALTERNATIVE COST ESTIMATES

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-7
Alternative B1 - Option A
Discharge to Municipal Sewer and Construction of New Below Grade Storage Tank
February 11, 2021
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 72,000	$ 72,000
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 40,000	$ 40,000
5	Stormwater Improvevments	1	LS	$ 15,000	$ 15,000
6	Site Piping & Appurtenances	1	LS	$ 50,000	$ 50,000
7	120,000 Gallon Storage Tank	1	LS	$ 350,000	$ 350,000
8	Duplex Pump Station	1	LS	$ 120,000	$ 120,000
9	Pump Replacement	1	LS	$ 80,000	$ 80,000
10	Electrical Modifications	1	LS	$ 75,000	$ 75,000
11	Telemetry / SCADA Modifications	1	LS	$ 50,000	$ 50,000

Subtotal*	**$**	**877,000**
Contingency (25%)	$	219,300
Subtotal	**$**	**1,096,300**
Washington State Sales Tax (9.0%)**	$	98,700
Subtotal	**$**	**1,195,000**
Design and Project Administration (25.0%)***	$	298,800
TOTAL CONSTRUCTION COST	**$**	**1,494,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-7
Alternative B1 - Option B
Discharge to Municipal Sewer and Construction of New Above Grade Storage Tank
February 11, 2021
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 50,000	$ 50,000
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 60,000	$ 60,000
5	Stormwater Improvevments	1	LS	$ 50,000	$ 50,000
6	Site Piping & Appurtenances	1	LS	$ 35,000	$ 35,000
7	120,000 Gallon Storage Tank	1	LS	$ 200,000	$ 200,000
8	Duplex Pump Station	1	LS	$ -	$ -
9	Pump Replacement	1	LS	$ 80,000	$ 80,000
10	Electrical Modifications	1	LS	$ 50,000	$ 50,000
11	Telemetry / SCADA Modifications	1	LS	$ 50,000	$ 50,000

Subtotal*	**$**	**600,000**
Contingency (25%)	$	150,000
Subtotal	**$**	**750,000**
Washington State Sales Tax (9.0%)**	$	67,500
Subtotal	**$**	**817,500**
Design and Project Administration (25.0%)***	$	204,400
TOTAL CONSTRUCTION COST	**$**	**1,022,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-7
Alternative B2 - Option A
Discharge to Lake Whatcom and Construction of New Below Grade Storage Tank
February 11, 2021
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 103,000	$ 103,000
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 40,000	$ 40,000
5	Stormwater Improvevments	1	LS	$ 15,000	$ 15,000
6	Site Piping & Appurtenances	1	LS	$ 100,000	$ 100,000
7	193,000 Gallon Storage Tank	1	LS	$ 500,000	$ 500,000
8	Duplex Pump Station	1	LS	$ 120,000	$ 120,000
9	Pump Replacement	1	LS	$ 80,000	$ 80,000
10	Backwash Treatment and Monitoring	1	LS	$ 100,000	$ 100,000
11	Solids Handling	1	LS	$ 15,000	$ 15,000
12	Electrical Modifications	1	LS	$ 100,000	$ 100,000
13	Telemetry / SCADA Modifications	1	LS	$ 50,000	$ 50,000

Subtotal*	**$**	**1,248,000**
Contingency (25%)	$	312,000
Subtotal	**$**	**1,560,000**
Washington State Sales Tax (9.0%)**	$	140,400
Subtotal	**$**	**1,700,400**
Design and Project Administration (25.0%)***	$	425,100
TOTAL CONSTRUCTION COST	**$**	**2,126,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-7
Alternative B2 - Option B
Discharge to Lake Whatcom and Construction of New Above Grade Storage Tank
February 11, 2021
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 88,000	$ 88,000
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 50,000	$ 50,000
5	Stormwater Improvevments	1	LS	$ 50,000	$ 50,000
6	Site Piping & Appurtenances	1	LS	$ 100,000	$ 100,000
7	211,000 Gallon Storage Tank	1	LS	$ 290,000	$ 290,000
8	Duplex Pump Station	1	LS	$ 120,000	$ 120,000
9	Pump Replacement	1	LS	$ 80,000	$ 80,000
10	Backwash Treatment and Monitoring	1	LS	$ 100,000	$ 100,000
11	Solids Handling	1	LS	$ 15,000	$ 15,000
12	Electrical Modifications	1	LS	$ 100,000	$ 100,000
13	Telemetry / SCADA Modifications	1	LS	$ 50,000	$ 50,000

Subtotal*	**$**	**1,068,000**
Contingency (25%)	$	267,000
Subtotal	**$**	**1,335,000**
Washington State Sales Tax (9.0%)**	$	120,200
Subtotal	**$**	**1,455,200**
Design and Project Administration (25.0%)***	$	363,800
TOTAL CONSTRUCTION COST	**$**	**1,819,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-7
Alternative B3 - Option A
Backwash Recycling and Construction of New Below Grade Storage Tank
February 11, 2021
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 79,000	$ 79,000
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 40,000	$ 40,000
5	Stormwater Improvevments	1	LS	$ 15,000	$ 15,000
6	Site Piping & Appurtenances	1	LS	$ 55,000	$ 55,000
7	193,000 Gallon Storage Tank	1	LS	$ 500,000	$ 500,000
8	Duplex Pump Station	1	LS	$ 120,000	$ 120,000
9	Pump Replacement	1	LS	$ 80,000	$ 80,000
10	Backwash Treatment and Monitoring	1	LS	$ 30,000	$ 30,000
11	Solids Handling	1	LS	$ 15,000	$ 15,000
12	Electrical Modifications	1	LS	$ 100,000	$ 100,000
13	Telemetry / SCADA Modifications	1	LS	$ 50,000	$ 50,000

Subtotal*	**$**	**1,109,000**
Contingency (25%)	$	277,300
Subtotal	**$**	**1,386,300**
Washington State Sales Tax (9.0%)**	$	124,800
Subtotal	**$**	**1,511,100**
Design and Project Administration (25.0%)***	$	377,800
TOTAL CONSTRUCTION COST	**$**	**1,889,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

LAKE WHATCOM WATER AND SEWER DISTRICT

SUDDEN VALLEY WTP ASSESSMENT AND ALTERNATIVES ANALYSIS PROJECT
PRELIMINARY COST ESTIMATE

Technical Memorandum 20434-7
Alternative B3 - Option B
Backwash Recycling and Construction of New Above Grade Storage Tank
February 11, 2021
G&O# 20434.00

NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization and Demobilization	1	LS	$ 63,000	$ 63,000
2	Minor Change	1	LS	$ 15,000	$ 15,000
3	Erosion / Sedimentation Control	1	LS	$ 10,000	$ 10,000
4	Site Improvements	1	LS	$ 50,000	$ 50,000
5	Stormwater Improvevments	1	LS	$ 50,000	$ 50,000
6	Site Piping & Appurtenances	1	LS	$ 45,000	$ 45,000
7	211,000 Gallon Storage Tank	1	LS	$ 290,000	$ 290,000
8	Duplex Pump Station	1	LS	$ 120,000	$ 120,000
9	Pump Replacement	1	LS	$ 80,000	$ 80,000
10	Backwash Treatment and Monitoring	1	LS	$ 30,000	$ 30,000
11	Solids Handling	1	LS	$ 15,000	$ 15,000
12	Electrical Modifications	1	LS	$ 100,000	$ 100,000
13	Telemetry / SCADA Modifications	1	LS	$ 50,000	$ 50,000

Subtotal*	**$**	**918,000**
Contingency (25%)	$	229,500
Subtotal	**$**	**1,147,500**
Washington State Sales Tax (9.0%)**	$	103,300
Subtotal	**$**	**1,250,800**
Design and Project Administration (25.0%)***	$	312,700
TOTAL CONSTRUCTION COST	**$**	**1,564,000**

* Costs listed are in 2020 dollars

** Current sales tax rate is 8.7%.

*** Standard project design and administration fees are 25% of the subtotal including contingency and tax and is provided for planning purposes only.

AGENDA BILL Item 7.B	**Customer Appeal of District Lien Against Property 2591 Lake Whatcom Boulevard**			
DATE SUBMITTED:	March 4, 2021	MEETING DATE:	March 10, 2021	
TO: BOARD OF COMMISSIONERS		FROM: Debi Denton, Finance Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Letter from Emma Martin dated February 8, 2021		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

Through its Administrative Code, the District has set policy on how it administers its services, including water/sewer utility billing and payment collection processes. To maintain consistency, District staff implements the Administrative Code as written. Per Section 2.1, "The General Manager shall be the administrator of the District. Appeals of the General Manager's instructions, interpretation of District policy, or decisions may be made to the Board of Commissioners in writing for consideration before a regular or special meeting of the Board." Section 3.7 of the District's Administrative Code defines the process for appeals to the Board.

The District has received a letter (attached) from Emma Martin dated February 8, 2021, requesting an appeal to the Board for relief from a lien filed by the District against property that Ms. Martin recently purchased (2591 Lake Whatcom Boulevard). The District filed a lien on June 14, 2017 for recovery of outstanding and future sewer bill payments (the property is not served by District water) that ultimately accumulated between November 1, 2016, and January 19, 2021 due to the prior property owner's failure to pay for service.

District Administrative Code Section 2.10.3 defines the District's process for water and sewer service billing. Per Paragraph 5 of this section "All unpaid water and sewer service charges when delinquent 60 days or more shall be a lien against the property being served." Staff has explained to Ms. Martin that the District is a public agency that must consistently administer its policies, as defined in the Administrative Code, and that staff does not have the authority to reduce sewer charges or remove a lien against a property.

Ms. Martin was not satisfied with this response and elected to appeal the General Manager's decision to the Board, as allowed under the Administrative Code. Ms. Martin has proposed a reduction of the outstanding balance to account for extenuating circumstances specific to the property.

Following provides a summary of events relative to Ms. Martin's appeal:

- January 15, 2021: the District received a phone call from Stetson Shearer (Ms. Martin's partner) informing us that they had just purchased 2591 Lake Whatcom Boulevard during a foreclosure proceeding and requested information on the lien that was pending on the property.
- January 19, 2021: District staff emailed the activity detail documenting the outstanding charges to the new owners.
- January 26, 2021: District received a phone call from Ms. Martin requesting the outstanding charges be reversed since the home was vacant. Staff explained that the District was never informed of the vacancy and that no request to suspend billing, as is allowed within the administrative code, was ever submitted by the previous owner.
- February 9, 2021: the District received a letter of appeal via email dated February 8, 2021, to the Board of Commissioners from Ms. Martin (attached).

During its regularly scheduled meeting on February 24, 2021, the Board formally considered Ms. Martin's appeal. During its deliberation, the Board recognized that the purchase/sale of the subject property did not follow the traditional real estate transaction process, which would have included of payment of all liens on the property as a condition of the sale. Due to this, the Board was hesitant to take action on the appeal during the meeting. The Board instead chose to postpone action on the appeal to a future meeting, and requested that Ms. Martin and Mr. Shearer contact the bank and/or Sheriff's Office to inquire about how the proceeds from the sale might have paid off all liens. Ms. Martin and Mr. Shearer agreed, and indicated that they would try to provide the necessary information to the District by March 3.

The District received information from Mr. Stetson on March 3 on a potential means for paying off the full amount of the lien through request for surplus funds of the sale. At the time of meeting packet production, the District is working with its legal counsel on determining appropriate action, which will hopefully be available by the March 10 meeting.

FISCAL IMPACT

Customer request would reduce Ms. Martin's lien obligation by $2,213.61 (from $3,241.16 to $1,027.55).

RECOMMENDED BOARD ACTION

To maintain consistency of application, staff recommends that the Board uphold its policies, as implemented by staff.

PROPOSED MOTION

Should the Board wish to uphold current policy, as defined in the Administrative Code and implemented by staff, a recommended motion is:

> "I move to uphold the District Administrative Code as written and implemented by the General Manager, and decline Ms. Martin's appeal for lien adjustment."

Should the Board wish to grant an exception to the Administrative Code to allow for reduction in the lien against Ms. Martin's property as requested, a recommended motion is:

> "I move to grant an exception to Administrative Code Section 2.10.3 and reduce the payment obligation associated with property located at 2591 Lake Whatcom Boulevard from $3,241.16 to 1,027.55."

February 8, 2021

To the Lake Whatcom Board of Commissioners,

My name is Emma Martin and I recently purchased my first home located at 2591 Lake Whatcom Blvd on 1/15/2021. The home currently has a lien on it in the amount $3,241.16. I would like to request a leniency on this amount due to the home being vacant since 2016.

According to the electricity provider for the home, PSE, the electrical service was disconnected on 11/4/2016 and remains disconnected to this day (service lines are laying on the ground in the driveway). In speaking with the neighbors there was an arc flash near the meter base of the residence and the fire department came out to inspect. The arc flash caused the service line to melt and disconnect from the power lines. The firefighters found that the house was vacant. As of now, the service line is still disconnected and we are working with PSE to get this repaired. Since this event on 11/2016, we know this home was vacant. We also know that the water source for the home is a well located roughly 30 vertical feet below the 1st floor of the home. In order to pump water into the home for service, an electric pump must be used. Therefore there would be no water used to dispose into the sewer system since 2016 due to there being no electricity in the home.

I understand that situations like this are a time consuming process for your utility. I believe this was simply a lack of communication between the previous customer and your utility. Your shutoff notices began on 3/27/17 and continued through 11/20. There was both a lack of action from the previous home owner and your utility to follow through with the shut off process. To resolve this issue, I would like to propose the following;

The fees associated with service prior to the electrical service being disconnected on 11/4/2016 will be paid in full. Late fees and associated lien fees will be paid in full. The service fees during the vacancy will be paid at a proposed reduction; According to your master fees and charges schedule, the monthly charge of $163.40 is made up of an account charge of $7.76 and a volume charge per dwelling unit of $155.64. We would like to propose paying the full account charge during the vacancy period as well as 25% of the volume charge to help compensate for your infrastructure maintenance and improvements. In total, we would like to propose a total payoff of $1,027.55 for all charges prior to and including 1/1/2020.

The vacancy of this home is a valid reason for the charge reduction of this account but I also request your board grant leniency in these challenging times as I take on the exhausting task of repairing a home that has been neglected for the last 5 years. I look forward to your response and hope that I can have these funds transferred to your utility expeditiously.

Thank you,

Emma Martin
6 Bowline Ct, Bellingham, WA 98229
206-734-5754

PUGET SOUND ENERGY

January 20, 2021

STETSON SHEARER
3200 130th AVE NE
BELLEVUE, WA. 98005-1350

Dear Stetson Shearer:

RE: 2591 Lake Whatcom Blvd, Bellingham, WA 98229

Thank you for taking the time to contact Puget Sound Energy with your account inquiry.

At your request I am writing to advise the location above has been disconnected since 11/04/2016.

Your safety is our top priority. We can be reached 24-hours a day to report a natural gas or electrical emergency or a power outage at 1-888-225-5773 or by TTY at 1-800-962-9498.

For non-emergency inquires, you can reach us via our website: PSE.com. While visiting PSE.com register for a "My PSE Account", a convenient online account management feature, where you can sign up for paperless billing, pay online, print bills, view payment arrangements, and discover ways to save energy. Our Customer Care Center is available Monday through Friday, 7:30 am to 6:30 pm at 1-888-225-5773 or by TTY at 1-800-962-9498 for all billing and service inquiries.

We appreciate the opportunity to serve you.

Sincerely,

Customer Care
PUGET SOUND ENERGY
www.pse.com


Service Line Laying
on ground
Taken on 1/15/2021
2591 Lake Whatcom Blvd

		Chg/pymnt	Cumulative	Proposed
1/1/16	Bill	148.03		
1/13/16	Payment	-148.03		
3/1/16	Bill	151.74		
3/9/16	Payment	-151.74		
5/1/16	Bill	151.74		
5/26/16	Payment	-151.74		
7/1/16	Bill	151.74		
7/28/16	Payment	-151.74		
9/1/16	Bill	151.74		
9/12/16	Payment	-151.74		
9/12/16	Payment	-151.74		
11/1/16	Bill	151.74		
1/1/17	Bill	151.74	151.74	$43.76
3/1/17	Bill	170.7	170.7	$48.50
3/23/17	Shut off Notice	0	0	$0.00
5/1/17	Bill	171.08	171.08	$48.59
5/24/17	Shut Off Notice	0	0	$0.00
6/27/17	Lien Fee	150	150	$150.00
7/1/17	Bill	171.08	171.08	$48.59
7/25/17	Shut Off Notice	0	0	$0.00
9/1/17	Bill	171.08	171.08	$48.59
9/25/17	Shut Off Notice	0	0	$0.00
11/1/17	Bill	171.08	171.08	$48.59
1/1/18	Bill	171.08	171.08	$48.59
3/1/18	Bill	174.97	174.97	$49.56
3/26/18	Shut Off Notice	0	0	$0.00
5/1/18	Bill	175.36	175.36	$49.66
6/7/18	Shut Off Notice	0	0	$0.00
7/1/18	Bill	175.36	175.36	$49.66
7/30/18	Shut Off Notice	0	0	$0.00
9/1/18	Bill	175.36	175.36	$49.66
9/24/18	Shut Off Notice	0	0	$0.00
11/1/18	Bill	175.36	175.36	$49.66
11/21/18	Shut Off Notice	0	0	$0.00
1/1/19	Bill	175.36	175.36	$49.66
3/1	Bill	179.34	179.34	$50.66
3/21/19	Shut Off Notice	0	0	$0.00
5/1/19	Bill	179.74	179.74	$50.76
5/22/19	Shut Off Notice	0	0	$0.00
9/1/20	Bill	167.49	167.49	$47.69
9/28/20	Shut Off Notice	0	0	$0.00
11/1/20	Bill	167.49	167.49	$47.69
11/25/20	Shut Off Notice	0	0	$0.00
1/1/21	Bill	167.49	167.49	$47.69
	Total	$3,241.16	$3,241.16	$1,027.55

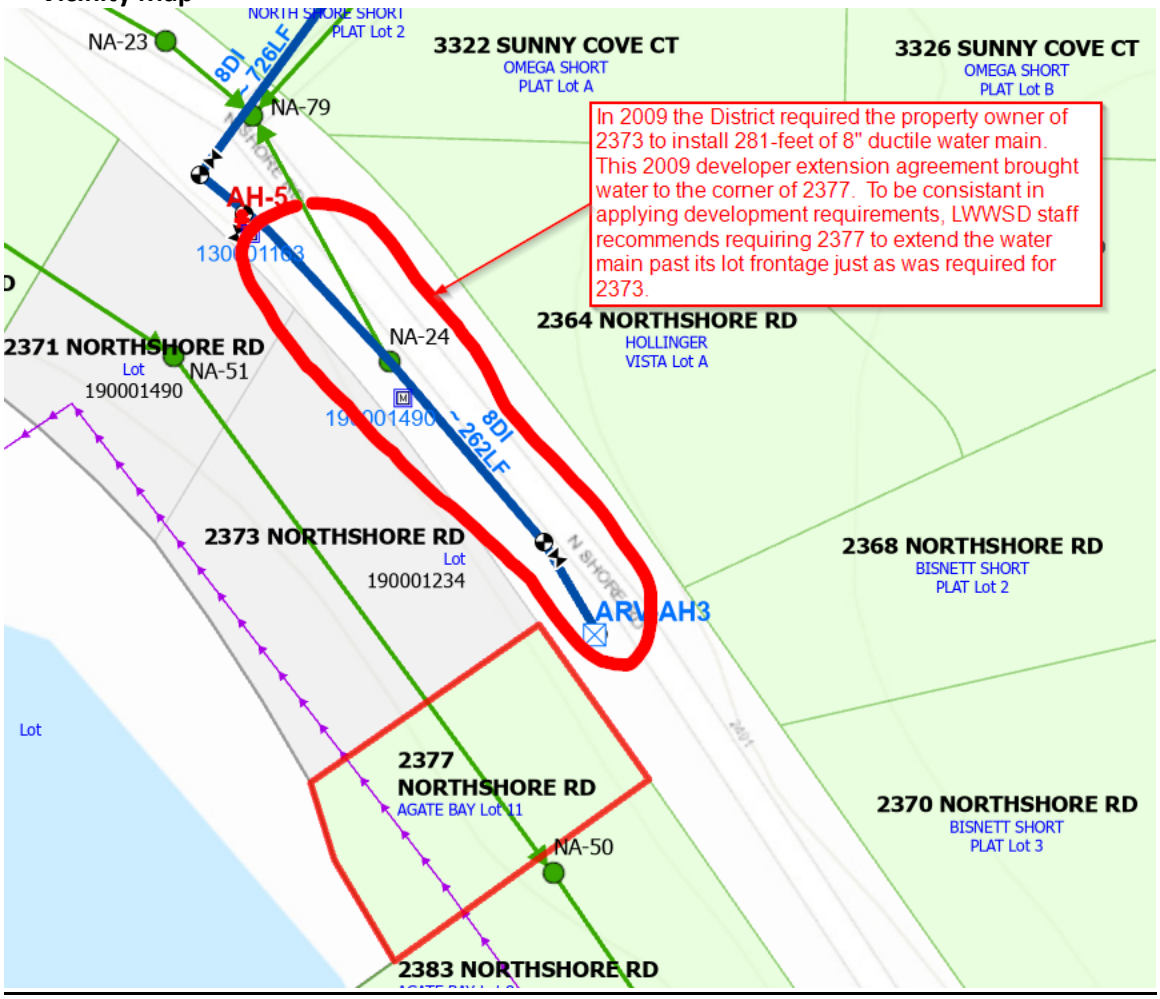
AGENDA BILL Item 7.C	**Petition to Waive or Adjust Connection Requirements 2377 North Shore Road Single Family Residence**		
DATE SUBMITTED:	March 3, 2021	MEETING DATE:	March 10, 2021
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, District Engineer / Assistant General Manager	
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS		1. Petition to Board for Waiver letter from AVT Consulted dated 2/14/2021	
		2. Aerial Exhibit	
		3. Appendix C, District Water Comprehensive Plan	
		4. Appendix I, District Water Comprehensive Plan	
		5. As-Builts of existing water system in vicinity	
		6. Excerpts from District Administrative Code	
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒ / INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

Ali Taysi with AVT Consulting submitted a petition (with multiple attachments) to waive or reduce connection requirements regarding the extension of approximately 80-feet of water main across the lot frontage of 2377 North Shore Road. The subject property is a sewer-only customer that draws drinking water directly from Lake Whatcom.

In 2009 the property adjacent (2373 North Shore Road) to Mr. Chang's property was required to extend approximately 281-feet of 8-inch diameter ductile iron water main at total cost of $33,430 as documented in a Latecomer's Agreement recorded on August 25, 2009. This 2009 extension brought the 8-inch water main to Mr. Chang's northwest property corner. See vicinity map below for reference.

Vicinity Map



District staff has had occasional correspondence with Mr. Chang, and his consultants, beginning around 2012. In accordance with the District's Administrative Code, it has been conveyed that a public water main extension is required as a condition of connection to District water.

APPLICATION OF DISTRICT ADMINISTRATIVE CODE AND POLICIES

The District's Administrative Code Section 3.4, Requirements for Water and Sewer Service, identifies connection requirements based on several parcel attributes, such as location (inside UGA or LAMIRD), proximity to water and/or sewer mains, and the type of proposed development.

2377 North Shore Road (Assessor Parcel Number 380325-402544-0000) Facts

- Proposed development is a single parcel with single family residence.
- Located outside a UGA or LAMIRD.
- Proximity to District public water systems.
  - Water main at northwest property corner on North Shore Road.
- Proximity to District public sewer systems.
  - Current Lake Whatcom Water and Sewer District sewer customer.

Sewer Service Analysis
Property is currently served by Lake Whatcom Water and Sewer District's public sewer system. There are no further sewer requirements.

Water Service Analysis
Applicable Administrative Code Section 3.4.2.B, Water Service Inside or Outside UGA or LAMIRD

> *B. Sufficient Water System within 200-feet of Property. Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement and in accordance with current District Standards.*
>
> *If District determines that a public water main extension is not warranted, the District will install a water service from the main to meter. Meters will be set adjacent to the main near the edge of the public right-of-way or easement corridor in which the public water main is located. The property Owner installs the private water service line from the meter to the building. Properties not fronting the public water main such as those located beyond the end of the main or behind lots fronting the main will require a longer private water service line installed by the Owner from their property to the meter.*

Therefore, extension of the District's water main across the subject property's frontage with North Shore Road is warranted as a condition of water service.

EVALUATION OF PETITION TO WAIVE OR ADJUST CONNECTION REQUIREMENTS
The District's Administrative Code provides a framework to evaluate petitions to waive or adjust connection requirements. The applicable Administrative Code Section is 3.4.4, Petition to Waive or Adjust Connection Requirements, is provided for reference:

> ***3.4.4 Petition to Waive or Adjust Connection Requirements***
> *The Owner may petition the Board of Commissioners to waive or adjust the connection requirements if the parcel is located such that service is unlikely to be extended to the parcel within the next 20 years as determined by the District. The Board of Commissioners will evaluate the petition considering:*
> 1. *Expansion of the system to serve the new development is considered part of the cost of the new development.*
> 2. *Costs for some developments will be more than others due to location and physical challenges.*
> 3. *Waiving connection requirements will make it increasingly more difficult and costly to serve the same development in the future.*
> 4. *Some required improvements may not be immediately placed into service but will greatly reduce the costs and complexity to serve the development in the future (example, building a waterline across the parcel frontage that remains dry until service is extended to the site).*
> 5. *A distance of approximately ½ mile is considered close enough to require connection. Longer distances to connect to the system may be appropriate for larger developments.*
> 6. *It is considered a minimum requirement to construct the system across or through the development whether they are immediately used for service or are placed into service in the future.*
>
> *If the connection requirement is waived or the required system improvements cannot immediately be placed into service, the Owner may develop an alternate and temporary water supply and/or onsite sewage disposal systems in accordance with Whatcom County and State*

regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service. [Resolution No. 757]

Evaluation of Petition:

February 14, 2021 Petition Paragraph 4 (excerpt)

The reason for this request is that we believe it is extremely unlikely that the water main will be extended beyond the 2377 property frontage either by the District or any other property owners in the vicinity within the near term, or within the next 20-year period.

LWWSD Staff Response. It has been 12 years since 2373 Northshore Road was required to extend the water main 281-feet. This is the same water main 2377 Northshore Road now desires to use for its connection, without extending the water main across its frontage. If the extension is waived, further extensions will be less desirable to nearby properties and the system is less likely to expand its service area.

February 14, 2021 Petition Paragraph 6 (excerpt)

…Furthermore, Appendix I of the Comprehensive Plan, which includes the capital facilities plan for the District, does not include any current funding for expansion of the service area, or any planned funding through 2027.

LWWSD Staff Response. The District has an active construction project to expand the Agate Heights Water Treatment Plant capacity from 57 equivalent residential units (ERU) to 81 ERU. The total project costs including construction, engineering, and inspection is $359,000. Therefore, the District is actively developing/expanding the Agate Heights Water System.

February 14, 2021 Petition Paragraph 8 (excerpt)

…The next five houses to the east along Northshore Road beyond 2377 are currently developed, are drawing water directly from Lake Whatcom, and sit below this steep bank. They share access from a single access point onto Northshore Road, and a common driveway that parallels Northshore Road. This access point and common driveway are approximately 800' past the 2377 property. If the water main was extended at this time across the frontage of the 2377 property, then in order to serve any of the remaining houses along this stretch, the next extension would need to be over 800' in length, in an area of right of way that is difficult to work in, resulting in a high design and development cost.

LWWSD Staff Response. The best location of a water main along this stretch is in the North Shore Road right-of-way rather than cutting down low near the Lake. This is encouraged by Whatcom County to keep development as far from the lake shore as possible. From the assessor maps it appears these parcels front North Shore Road. The residences along this stretch would connect to the main by private service lines that run up to the water main in the North Shore Road right-of-way. This configuration would avoid installing the public water main in a steep slope.

FISCAL IMPACT

None

APPLICABLE EFFECTIVE UTILITY MANAGEMENT ATTRIBUTE(S)

Infrastructure Strategy and Performance

RECOMMENDED BOARD ACTION

Staff recommends maintaining the District's Administrative Code requirements to construct a public water main extension past and/or through parcel as a condition of water service.

The considerations outlined in the Section 3.4.4 of the Administrative Code point towards requiring the water main extension. The considerations, with staff comments, are:

1. Expansion of the system to serve the new development is considered part of the cost of the new development.
2. Costs for some developments will be more than others due to location and physical challenges. *[LWWSD Staff Comment] In 2009, the property owner of 2373 North Shore Road extended the 8-inch diameter ductile iron water main 281-feet at a cost of $33,430. For the subject property (2377 North Shore Road) the length of extension across the lot frontage is approximately 80-feet (only 28% the length of the previous extension).*
3. Waiving connection requirements will make it increasingly more difficult and costly to serve the same development in the future. *[LWWSD Staff Comment] This is a good example where 2377 North Shore Road is benefitting from the District's 2009 decision to require 2373 North Shore Road to extend the main past its lot frontage to provide for systematic and incremental development of the water system.*
4. Some required improvements may not be immediately placed into service but will greatly reduce the costs and complexity to serve the development in the future (example, building a waterline across the parcel frontage that remains dry until service is extended to the site).
5. A distance of approximately ½ mile is considered close enough to require connection. Longer distances to connect to the system may be appropriate for larger developments. *[LWWSD Staff Comment] The subject property abuts the existing District water main.*
6. It is considered a minimum requirement to construct the system across or through the development whether they are immediately used for service or are placed into service in the future.

PROPOSED MOTION

Recommended motion is:

> "I move to deny the petition and maintain the District's Administrative Code development requirements that require a public water main extension past and/or through the parcel located at 2377 North Shore Road as a condition of water service."

AVT CONSULTING
LAND USE / PERMITS / FEASIBILTY

Ali V. Taysi
1708 F Street
Bellingham, WA 98225
Phone 1 (360) 305-2124
www.avtplanning.com
ali@avtplanning.com

February 14, 2021

Lake Whatcom Water
& Sewer District
Board of Commissioners
1220 Lakeway Drive
Bellingham, WA 98229

Re: 2377 North Shore Drive – water extension waiver request petition

Dear Board Commissioners:

I am writing to you on behalf of Mr. Norman Chang, the owner of the property addressed as 2377 North Shore Drive, situated along Lake Whatcom. The property is currently developed with a single-family residence and takes water supply directly from Lake Whatcom; however the property is located within the Agate Heights service area of the Lake Whatcom Water & Sewer District. Mr. Chang desires to purchase a water service connection from the District. The existing District water main is located on the same side of the street as this property (the lake side of Northshore Road); the main terminates at the corner of the property but does not cross the frontage of the property.

Section 3.4.2 of the District Administrative Code governs service to single parcels with existing single-family residences. Subsection 2.B requires connection and concurrent extension of a water main across the full property frontage when the property is within 200' of an existing main. This same section indicates that if the District determines that a public water main extension is not warranted, the District can provide a private service lateral with no main extension. The process and criteria for making this determination are described in more detail in section 3.4.4 of the administrative code.

Pursuant to this section, a property owner may petition the Board of Commissioners to waive or adjust the connection requirements if the parcel is located such that service is unlikely to be extended to the parcel within the next 20 years as determined by the

District. On behalf of Mr. Chang we are requesting that the Board of Commissioners grant a waiver from the requirement to construct a main extension when providing a service connection to the existing residence at 2377 Northshore Road.

The reason for this request is that we believe it is extremely unlikely that the water main will be extended beyond the 2377 property frontage either by the District or any other property owners in the vicinity within the near term, or within the next 20-year period. The reasoning behind this conclusion is provided in this letter request and substantiated by the Districts planning documents attached hereto.

The District engages in planning through their Comprehensive Plan, which was most recently updated and adopted in 2019. The District planning documents (Sections 1.6 and 1.8, excerpts attached) indicate that funding sources for expansion of service areas typically come from developers engaged in new development, or through an LID process initiated by a private property owner, but not through District initiated expansion projects. The properties to the east of 2377 Northshore Road are all zoned Rural 5 Acre and have limited to no future subdivision or development capacity. This makes it very unlikely that additional services would be desired by a private developer.

Despite these conditions, the District commissioned a review of potential expansion of this service area to assess its viability. Appendix C of the Comprehensive Plan analyzes this service area expansion, specifically the potential to connect to the Agate Bay Mobile Home Park system to the east. The analysis that was conducted in Appendix C does not reach the conclusion that the District should proceed with this expansion; to the contrary it indicates that further study is needed to evaluate the viability of an expansion. Furthermore, Appendix I of the Comprehensive Plan, which includes the capital facilities plan for the District, does not include any current funding for expansion of the service area, or any planned funding through 2027. Expansion options to the east along North Shore are identified as “unfunded and unscheduled”. Instead, the funding plans for this area identify improvements to the existing Agate Heights system as a first step and priority. These existing system improvements are funded and on-going.

The Districts policy documents and past practice do not support District initiated service area expansion projects. The Districts expansion analysis raises cost and value questions, and there is a lack of near or middle term planning/funding for implementation of an extension. For these reasons it seems unlikely that the District would engage in eastward expansion in a reasonable time period. It is unnecessary and inequitable to burden a private property owner with a main extension cost at this time, which would not serve any additional lots, and would not contribute to a planned near or middle term service area expansion effort.

In addition to short and middle term District planning not contemplating an expansion, existing conditions to the east do not facilitate piecemeal expansion by private parties. This stretch of Northshore Road has a steep vertical bank along the water side, where the line is located, complicating the design and construction, as well as expense, of main extension. The next five houses to the east along Northshore Road beyond 2377 are

currently developed, are drawing water directly from Lake Whatcom, and sit below this steep bank. They share access from a single access point onto Northshore Road, and a common driveway that parallels Northshore Road. This access point and common driveway are approximately 800' past the 2377 property. If the water main was extended at this time across the frontage of the 2377 property, then in order to serve any of the remaining houses along this stretch, the next extension would need to be over 800' in length, in an area of right of way that is difficult to work in, resulting in a high design and development cost. This would likely preclude any of these immediately adjacent property owners from pursuing extension of the line on their own behalf. These conditions also encourage a consolidated extension plan with all design and construction work occurring at the same time, instead of short piece meal extensions of the line. As noted, properties further east from these 5 residences are located outside the existing service area and would require a service area expansion, which as discussed in this request, is unlikely.

If a waiver from the extension requirement is granted, the District administrative code (Section 3.4.4 and 3.4.5, attached) provides a protection for the District, which is the execution of a covenant to bind the property owner to contribute to future connections at a pro-rata share. This provision ensures that a property owner pays their fair share but will result in a more efficient and equitable implementation of the main extension. In order to protect the District in the event that a future water main extension is undertaken, Mr. Chang will agree to sign a covenant binding the 2377 property to participate in a pro-rata share of the future extension. A Covenant will ensure that the District recoups the appropriate contribution from the owner of the 2377 Northshore Road property at the time of line extension, while also reducing cost and burden on the property owner at this time.

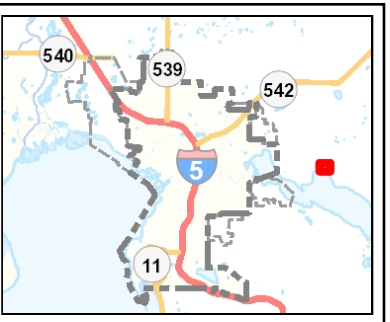
We believe that this request is reasonable and appropriate at this time. The District is not engaged in near or middle term planning for eastward expansion of the system. Questions remain as to the long-term viability of an expansion. Funding is not planned for an expansion. Physical conditions support a consolidated design and construction effort to expand eastward along North Shore. The proposed covenant will protect the District from any risk associated with approval of the requested waiver. For all of these reasons it is unnecessary and inequitable to require a water main extension across the 2377 property at this time, and a waiver from this requirement is appropriate. We appreciate your consideration of this waiver petition request. If possible, we would like the opportunity to present this request to you in person at your next available meeting. Please don't hesitate to contact me with any questions related to this request and/or an invitation to present at your meeting. Thank you.

Sincerely,

ALI TAYSI
AVT Consulting LLC

City of Bellingham WASHINGTON

CityIQ Map



Legend

- Buildings
- Docks
- Sewer Access Points
- Sewer Lateral Lines
- Sewer Gravity Mains
  - City Mains, Inactive
  - City Mains, Active
  - City Mains, Under Construction
  - WD10, A; Private Mains, Active; PVT, A; WWU, A
  - Private Mains, Under Construction
- Sewer Pressurized Mains
  - COB - Active
  - COB - Under Constr.
  - COB - Inactive
  - Private, Active
- Tax Parcels
  - Care Facility
  - Hospital
  - Schools
  - <all other values>
- Washington Roads Labels
- Bellingham Streets Street View
- County Roads Detail
- Bellingham Bicycle Routes
  - Existing Bicycle Facility
  - Other Bicycle Routes
  - Trails
- Bike Friendly Trails
- Sidewalks
- Residential Parking Enforcement Zon
  - RPZ1
  - RPZ2
- Pedestrian Master Plan
  - YES, Complete
  - YES, Incomplete
  - NO, Complete
  - NO, Incomplete

Notes

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497 0 248 497 Feet

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Appendix C – North Shore Water Consolidation Feasibility Study

Wilson
SURVEY/ENGINEERING

TO:	Patrick Sorensen, General Manager, Lake Whatcom Water & Sewer District
	Bill Hunter, PE, District Engineer / Assistant Manager, Lake Whatcom Water & Sewer District
FROM:	Melanie Mankamyer, PE
SUBJECT:	North Shore Water System Consolidation Feasibility Study
	Amendment Incorporating Comprehensive Water System Plan Updates
JOB NO.:	2016-093
DATE:	December 7, 2017

Purpose
The purpose of this technical memorandum is to present the revised cost estimates for the North Shore Water System Consolidation Study that incorporate updates to several base assumptions that came out of the recent Comprehensive Water System Plan.

Background
In June 2017 the District completed a study of several alternatives for extending water along the North Shore Road, consolidating existing water systems, and making potable water available to adjacent residential properties. The analyses were based on the design standards in the District's 2010 Comprehensive Water System Plan

With the recent work to update the Comprehensive Water System Plan nearing completion, several of the design standards were revised. This Amendment incorporates those changes into the cost analyses and the results are presented below.

Analysis
The change in the design standards that had the greatest impact on the water system consolidation cost estimate was lowering the required fire flow from 750 gpm to 500 gpm. The North Shore service area is zoned rural and is not in a UGA where it would be important to match the fire flow requirements of the adjacent water purveyors (in case the area was annexed). By reducing the fire flow requirements, the locations where water main size was previously twelve inches could be reduced to eight inches in diameter.

The second change was to reduce the projected water demands for the service area. There have been substantial reductions in water use since the last Comprehensive Water System Plan, and the potential future water system customers are anticipated to have water use patterns closer to the Agate Heights area than the Eagleridge area. This allowed the water treatment plant size to be reduced.

Overall the reduction in the projected costs was approximately 10%. As before, the cost share per connection was determined using three participation levels - 50%, 75% and 90%. The updated cost share range shown in Table 1 below is based on the Alternative Project Costs divided by the projected number of participants for each Alternative. The lowest value represents Alternative 2 which has the highest potential number of new connections.

Table 1. Updated Estimated Cost Share Per Connection

	Cost Share per Connection	
	Lump Sum Fee (range)	**Annualized Fee (based on 20-year Bond repayment at 2.73%)**
50% Participation	$42,800 - $50,300	$2,800 - $3,300
75% Participation	$29,900 - $35,100	$1,960 - $2,300
90% Participation	$25,500 - $29,900	$1,670 - $1,960

** Lump sum fee includes an estimate for the service connection including the meter assembly*
If the District pursues and secures a DWSRF Loan with up to 50% principal forgiveness for a consolidation project, then the project costs would be greatly reduced and the connection share would also be much less.

Planning
Also as part of the Comprehensive Water System Plan planning effort, the District reviewed options for phasing the implementation of the North Shore water system consolidation, and making it possible for small developer extensions to accomplish portions of the water main work. This effort defined three potential phases for implementation, with the first two phases having a significantly reduced scope.

Currently the Agate Heights water system has very few uncommitted water service connections. In order to increase the number of connections available, and improve the water treatment plant reliability and resiliency, the Agate Heights Phase 1 improvements would replace the existing plant with a package plant that has twice the capacity and multiple filter units. With this increase in plant capacity, storage capacity becomes the limiting factor, but over 50 additional connections would become available.

The potential Agate Heights Phase 2 improvements extend the distribution main to the two closest Group A water systems - the Agate Bay Trailer Park (25 ERUs) and the Russell Group (The Forks Restaurant). This phase would add a new reservoir, a second water plant module, and about 3,000 feet of 8-inch water mains. This project would qualify for a Drinking Water Consolidation Loan which provides up to 50% principal forgiveness (depending on the availability of funds). The principal forgiveness would substantially reduce the project costs to the District, and the amount needed to be recovered from new connections.

The final Phase 3 improvements would add a second new reservoir, additional plant capacity and consolidate the District's Eagleridge water system. It may also extend the distribution system to the east end of North Shore Road.

LAKE WHATCOM WATER AND SEWER DISTRICT
Whatcom County, Washington

NORTHSHORE CONSOLIDATION FEASIBILITY STUDY

WHATCOM COUNTY, WASHINGTON

Department of Health Contract N21980

WILSON ENGINEERING, LLC
Consulting Engineers
805 Dupont Street, Suite 7
Bellingham, Washington 98225
Project # 2016-093
August 2017

LAKE WHATCOM WATER AND SEWER DISTRICT
NORTHSHORE CONSOLIDATION FEASIBILITY STUDY
TABLE OF CONTENTS

Exhibits not included as part of this Water System Plan. Available at lwwsd.org

LAKE WHATCOM WATER AND SEWER DISTRICT
NORTHSHORE CONSOLIDATION FEASIBILITY STUDY

Whatcom County, Washington

1.0 INTRODUCTION

The Washington State Department of Health (DOH) has entered into an interagency agreement with Lake Whatcom Water and Sewer District of Whatcom County (LWWSD) to prepare and submit a feasibility study evaluating consolidating three existing Group A water systems on the north shore of Lake Whatcom: Eagleridge (#08118), Agate Heights (#52957), and Agate Bay Trailer Park (#00496). In addition, two Group B water systems and numerous individual homes will be considered for consolidation. All are within the District's service area boundary as shown in Figure 1.

Development of this area has resulted in several private water systems, individual wells and individual surface water withdrawals that generally have limited or no fire flow capacity and are relatively expensive to operate due to their small size. The goal of this study is to examine the feasibility of combining the systems into one system that would result in improved water quality and quantity, and increased safety and reliability.

The study area is classified as Rural and with R5A zoning (one unit per five acres). This area is shown in Figure 2. Note that 90% of the lakefront development has already occurred, and at density levels much higher than one unit per five acres.

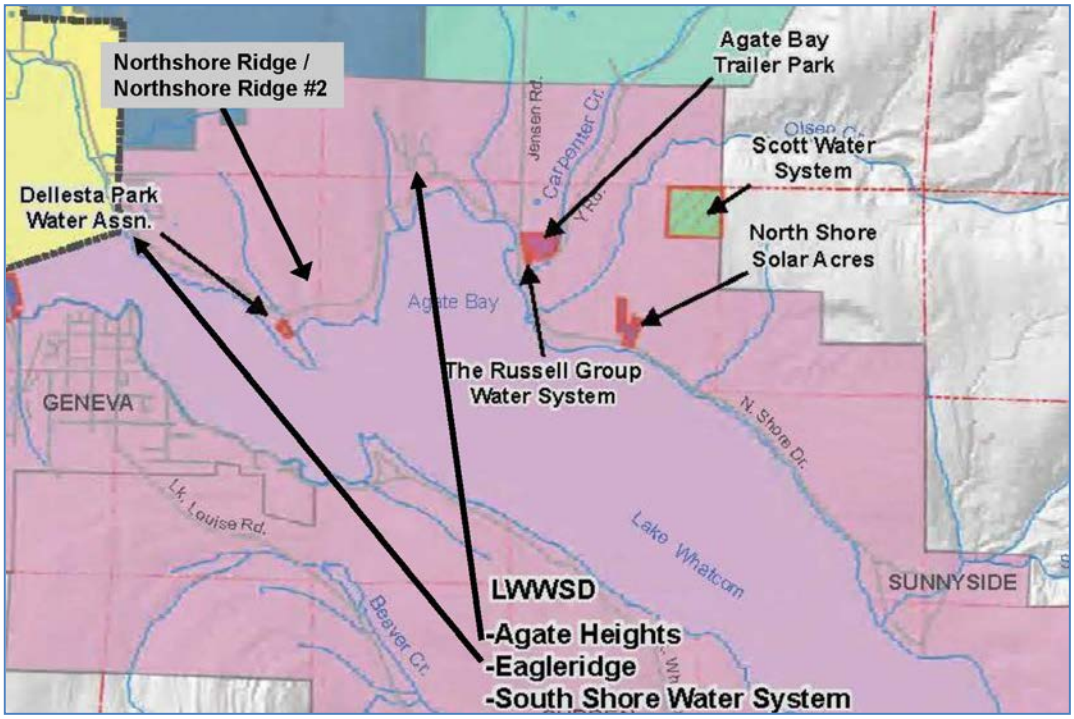

Figure 1. North Shore Area from Whatcom County Coordinated Water System Plan Map

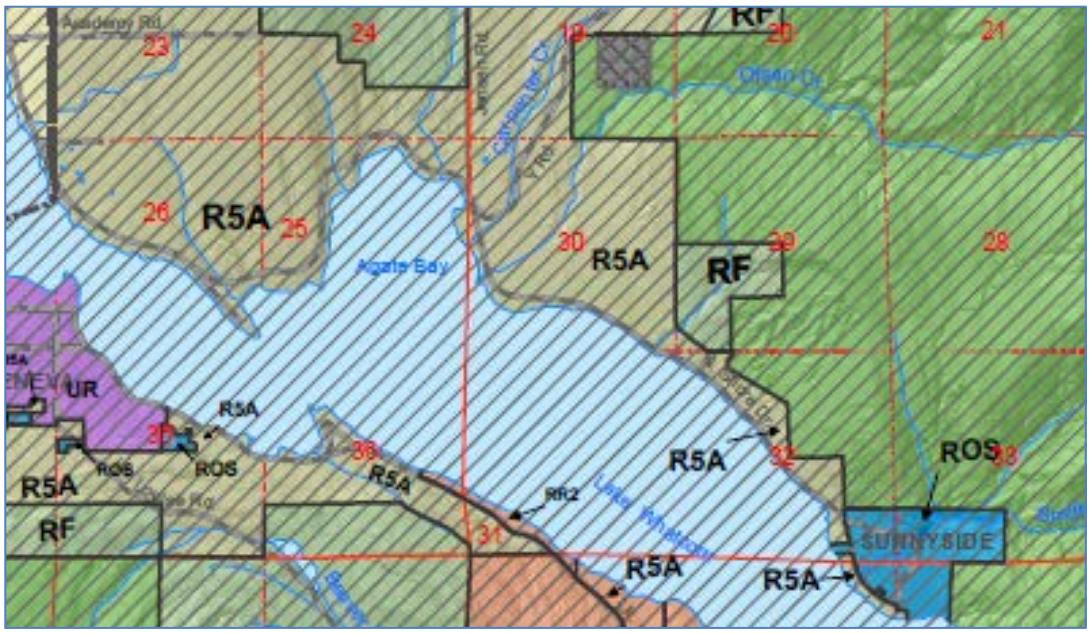

Figure 2. Whatcom County Zoning for North Shore Area

2.0 NORTHSHORE STUDY AREA EXISTING CONDITIONS

The Northshore area of Lake Whatcom Water and Sewer District is located 5 miles east of the center of Bellingham and abuts the City limits on its western edge. The study area is zoned rural - R5A (rural 1 unit per 5 acres). Water facilities inventory forms (WFI's) for several of the systems are included in the Exhibit 1. The Group A systems are (1) Eagleridge (LWWSD), (2) Agate Heights (LWWSD), (3) Agate Bay Trailer Park, and (4) Russel Group (The Fork restaurant). In addition there are several Group B water systems which include (5) North Shore Solar Acres, (6) North Shore Ridge, (7) North Shore Ridge #2, and (8) Dellesta Park. There are also 330 existing private residences within the study area that are on private wells or direct lake draws. The estimated number of existing potential water services with the study area total approximately 525. The subject individual water systems are shown on Figure 1 and the capacity of each is listed below.

- Eagleridge Water System – water source is City of Bellingham; 70 connections; capacity = 85
- Agate Heights Water System – water source is a District-owned well; 39 connections (44 ERUs); capacity = 48 connections (54 ERUs)
- Agate Bay Trailer Park Water System – Group A, well source, 25 connections
- Russell Group (restaurant) – Group A, well source, one connection
- Dellesta Park – Group B, well source, 5 connections (capacity=7)
- North Shore Solar Acres – Group B, well source, 6 connections
- Northshore Ridge – Group B, well source, 4 connections
- Northshore Ridge #2 – Group B, well source, 3 connections

2.1 Source of Supply

For the consolidated water system, the District plans to use its Agate Heights well as the Source of Supply, and maintain the connection to the City of Bellingham at Eagleridge as an emergency intertie.

Well - The District's well at Agate Heights is a 10-inch artesian well with a pumped capacity of 494 gpm (322 gpm from artesian pressure). A 100-ft radius protective zone is provided with a

Restrictive Covenant for the well.

Water Rights – The District has several water rights (Permits and Certificates) associated with this well that total 438 gpm:

1. G22681P - 60 gpm instantaneous; 32.4 acre-ft/yr annual
2. G22763P - 360 gpm instantaneous; 465.9 acre-ft/yr annual
3. G23449 - 18 gpm instantaneous; 8.6 acre-ft/yr annual

Water Quality – The water from the existing well needs to be treated to remove manganese. The Agate Heights Water Treatment Plant is currently a 30 gpm Filtronics package treatment system which is nearing capacity. The District plans to increase the capacity of the water treatment plant to accommodate localized demand even if the consolidation project is not constructed.

2.2 Storage

The Agate Heights water system has two reservoirs at two different elevations. The lower 80,000 gallon reservoir is filled at a rate of 30-gpm by the system transmission pumps, which is activated when the treatment plant is operated. The upper 105,000 gallon reservoir is filled at a rate of 21 gpm. The source is the lower reservoir. The existing reservoirs currently provide equalizing, standby, and fire storage for the Agate Heights water system.

2.3 Booster Pumps / Transmission Pumps

The Eagleridge water system currently uses booster pumps to maintain water pressure. With the consolidated water system, these booster pumps would no longer be needed. The Agate Heights water treatment plant pumps are sized to match the treatment plant capacity. The transmission pumps for the filling the upper tank are converted booster pumps, repurposed when the upper tank was installed.

2.4 Distribution System

The water distribution systems both consist entirely of 8-inch ductile iron pipe. Eagleridge currently provide 750 gpm for fire protection and Agate Heights currently provide 500-750 gpm for fire protection.

3.0 SYSTEM DEMANDS

For this feasibility study, we have developed three scenarios based on different projections for system expansion:

- Alternative 1 – Match District sewer service area
- Alternative 2 – Extend water to east end of Northshore Road
- Alternative 3 – Extend only to Group A systems at Y Road

The service areas and proposed schematic facility locations for each of these Alternatives are included in Exhibit 2.

We reviewed the Average Day Demand (ADD) and Maximum Day Demand (MDD) values for both the Eagleridge and Agate Heights water systems listed in the 2010 Water Comprehensive Plan

and the 2016 Water Use Efficiency Plan Update since the customers on these systems would be similar to the new customers incorporated into the consolidated water system. The average of the four ADD values in these two reports is 243 gpd/ERU. Given that the existing data set is a small number of customers, and that the DOH Manual recommends using 350 gpd/ERU as a minimum, this analysis used 350 gpd/ERU for ADD.

The average of the four MDD values in these two reports is 680 gpm/ERU. When good metered data is not available, the DOH Manual recommends using two times the ADD for MDD. This analysis used 700 gpd/ERU for MDD.

The resulting PHD (peak hourly demand) is computed using DOH'S PHD Worksheet (See Appendix 8) for each Alternative. In addition to PHD, this water system will provide residential fire flows of 750 gpm.

4.0 SYSTEM ANALYSIS

Analysis is performed in accordance with DOH "Water System Design Manual" as described below. The amount of water supply and storage are interdependent. For instance, equalizing storage is used to supply the difference between pumping rate and demand rate. When demand rates are greater than pumping rates, water in storage is used to supply the difference. When demand rates are less than pumping rates, storage is replenished. The greater the capacity of the water supply the less equalizing storage needed. The minimum capacity of the source(s) must be equal to or greater than the maximum daily demand.

4.1 Source of Supply

The 10-inch well at Agate Heights has been performance tested at 494-gpm, however the current pump capacity is limited to 30-gpm. The District holds water rights on this well for 438 gpm. The MDD (maximum daily demand) for the system is projected to be 700 gpd/ERU. To meet MDD for any of the Alternatives, the treatment plant and pumping capacity will need to be increased.

The size of water treatment plant that each Alternative would need is calculated as follows and listed in the table below:

Build out rate = (700 gpd/parcel X Build-out ERUs) / (1,440 mins/day) = Plant Size (gpm)

Scenario:	Build-out ERUs	Minimum Plant Size (*)
Alternative #1	405	200 gpm
Alternative #2	530	260 gpm
Alternative #3	355	175 gpm

4.2 Storage

Storage required consists of the sum of operating storage, equalizing storage and the greater of standby storage or fire flow storage. Currently Agate Heights has an 80,000 gallon reservoir and a 105,000 gallon reservoir. For this analysis, we excluded the 105,000 gallon reservoir, which serves the upper pressure zone and provides fire suppression storage for the Lake Whatcom Residential and Treatment Center. Eagleridge relies on storage capacity provided by the City of Bellingham.

The total storage volume is the sum of several components. Operating storage is the volume between the "off" and "on" control levels in the reservoir. Equalizing storage is equal to the product of 150 and the difference in peak hourly demand (PHD) and supply rate. Standby storage is equal to twice the ADD of 350 gpd/ERU x N ERUs. Minimum fire suppression storage for the residential portion of this system is 45,000-gallons; however this is nested with standby storage; resulting in the larger of the two values being applicable. Dead storage is the volume in the bottom of the tank below the "silt guard" outlet plus the volume at the top of the tank above the "off" probe. The "total storage required" is the sum of each of these values and can be compared with "storage available" as reflected in the table below. The table also indicates the minimum additional storage volume required. Please note that these values are based on a DOH Design Manual ADD of 350 gpd/ERU and highly sensitive to that value because the largest component of storage (Standby Storage) is equal to two times ADD times the number of ERUs. For example, if the calculated average for ADD of 243 gpd/ERU (see Section 3) were used, the total required storage for Alternative #1 would be reduced by about 82,000 gallons to 230,000 gallons. Using the lower value for ADD will require DOH approval.

Scenario:	Total Required Storage (gallons)	Storage Available (gallons)	Additional Storage Needed (gallons)
Alternative #1	312,000	80,000	232,000
Alternative #2	403,000	80,000	323,000
Alternative #3	274,000	80,000	194,000

4.3 Transmission Pumps

The transmission pump system needs to deliver the treated water to the storage reservoir(s). The flow rates will be sized to match the water treatment plant capacity, and the required pumping head will be calculated based on the elevation head and the friction head.

4.3 Distribution System

The consolidated system will provide 750 gpm fire flow and ensure that a minimum pressure of 20 psi is maintained at each service meter during a fire flow event. Supplying fire flows is the driving factor in the sizing of the distribution system. The hydraulic analyses indicated that the majority of the distribution pipe will need to be 12-inch diameter in order to meet the fire flow scenarios. The remainder will be a minimum of 8-inch diameter.

The District standard practice is to install fire hydrants every 600 feet along the distribution mains.

5.0 PROJECT COST ESTIMATE AND FUNDING OPTIONS

5.1 Project Cost Estimate

We have evaluated three scenarios and developed planning level cost estimates for each. The first is Alternative1 which matches the existing District sewer service area (ending approximately at the east side of Agate Bay). Alternative 2 extends water service to the east end of Northshore Road. Alternative 3 limits the water system extension to only as far as needed to connect the existing Group A water systems and end at the Y Road. These preliminary, planning level cost estimates are included in Exhibit 3.

The preliminary project cost estimate for Alternative 1 is $6.3M to $6.9M. This includes engineering, permitting, and surveying in addition to construction costs and 10-20% contingency. It does not include the cost of metered service connections since the level of participation is unknown, and those costs are typically born directly by the property owners. The build-out number of Equivalent Residential Units (ERUs) assumed for Alternative 1 is 405 (120 from existing service areas).

The Alternative 2 scenario builds on Alternative 1, and adds about 11,750 feet of water main, nineteen fire hydrants, a larger storage reservoir, and a larger water treatment plant and transmission pumps. The build-out number of Equivalent Residential Units (ERUs) assumed for Alternative 2 is 530 (120 from existing service areas).

The preliminary project cost estimate for Alternative 2 is $9.1 to $10M. Again, this includes engineering, permitting, and surveying in addition to construction costs and 10-20% contingency. It does not include the cost of metered service connections since the level of participation is unknown, and those costs are typically born directly by the property owners.

Alternative 3 is a reduction from Alternative 1 - it has about 3,650 feet less of water main and 6 fewer fire hydrants. It also reduces the number of potential future customers by about 50 - the build-out number of Equivalent Residential Units (ERUs) assumed for Alternative 3 is 355 (120 from existing service areas).. The preliminary project cost estimate for Alternative 3 is about $5.7 to $6.2M.

5.2 Financing Options

There are several potential sources of funds for financing a drinking water project of this size. The Drinking Water State Revolving Fund (DWSRF) Loan program specifically targets projects that consolidate existing Group A water systems and will forgive up to 50% of the loan principal for these projects, subject to funding availability. These loans typically have a payback period of 24 years, so collection can also occur over time, and substantially reduce the up-front costs to participants. The Public Works Trust Fund would also fund a project like this, though funds are not reliably available. The District could issue a Revenue Bond, which would typically have a 20 year payback. The final possible funding source considered was USDA-Rural Development, which has a term of up to 40 years, but will only fund projects that have no other financing options. A summary of rates and terms for these options is listed below.

Funding Source	Interest Rate	Loan Term
Drinking Water State Revolving Fund (DWSRF) Consolidation Loan • Potential for 50% principal forgiveness (if funds are available)	1.5%	24 years
Public Works Trust Fund Loan	1-2%	20 years
Revenue Bond (as of 4/20/17; AA Bond Rating)	2.73%	20 years
USDA-Rural Development (as of 7/1/17) • Funding source of last resort	3.25%	up to 40 years

Of these options, the DWSRF Loan with the 50% principal forgiveness is the most attractive financing option because it substantially reduces the amount of capital expenditures that need to

be recovered. However, there is the uncertainty that funds would be available for the principal forgiveness portion of the loan. Loan applications are typically accepted in September, and are funded based on how well the project scores on Department of Health evaluation criteria.

The Revenue Bond is a funding source that is more under the control of the District than any of the loan options. The District has an AA Bond Rating and has obtained financing for capital project using Revenue Bonds in the past. Because the District has bonding capacity, it is less likely to qualify for funding from USDA-Rural Development.

5.3 Cost Sharing Options

We have identified three potential methods the District could use to collect payments over time - a Utility Local Improvement District (ULID), a "Special Benefit Area" fee assessed upon connection, or a fixed debt-service/capital charge on the water bill. The underlying assumption for all of these options is that the costs will be borne by the new connections or assessed properties, and not by existing District customers.

The main advantage of a ULID is that it would assess all of the properties that benefit from the improvement, whether they connect or not. It also allows the assessment to be paid over time - typically 20 years with interest. It would address the inherent inequity of those who connect subsidizing fire protection for neighbors who elect not to connect. The disadvantage of a ULID is the high costs associated with creating the ULID and the hurdle that the assessment must be no more than the amount the property's value is increased by the assessment. The area to be served is already 90% built-out, and these homes already have some source for water. We assume, therefore, that the assessment needed would exceed the amount allowed under the ULID statute.

The "Special Benefit Area" fee would be similar to a ULID, without using the formal ULID process. The project costs would be divided amongst an estimated number of likely connections. It would be possible to pay over time with a security interest recorded against the property.

It is challenging to predict the number of properties that would connect to the public water system if it is installed. Typically, a municipal purveyor cannot compel connection to a public water system, and there is a contingent of property owners who are not interested in connecting to public water. There are, however, approximately 250 residences on surface water withdrawals - some with permits, some with claims and some with applications pending. Of the 118 with permits, the Department of Ecology (DOE) estimates that about 64 include a provision "to connect to a public water supply when connection to such system is practical and discontinue use from the lake." DOE has indicated that the 42 pending applications would be similarly provisioned, as would any new applications for surface water withdrawals. The District has also been requiring new sewer-only customers to sign a Covenant that requires them to connect to water when it is available. The number of these covenants in place is unknown, and many probably overlap with the DOE provisional water rights. Figure 3 shows the status of surface water rights based on DOE's database. Note that the map excludes District customers but not others on wells or small water systems. These are red on the map, since they do not having a ***surface*** water right.

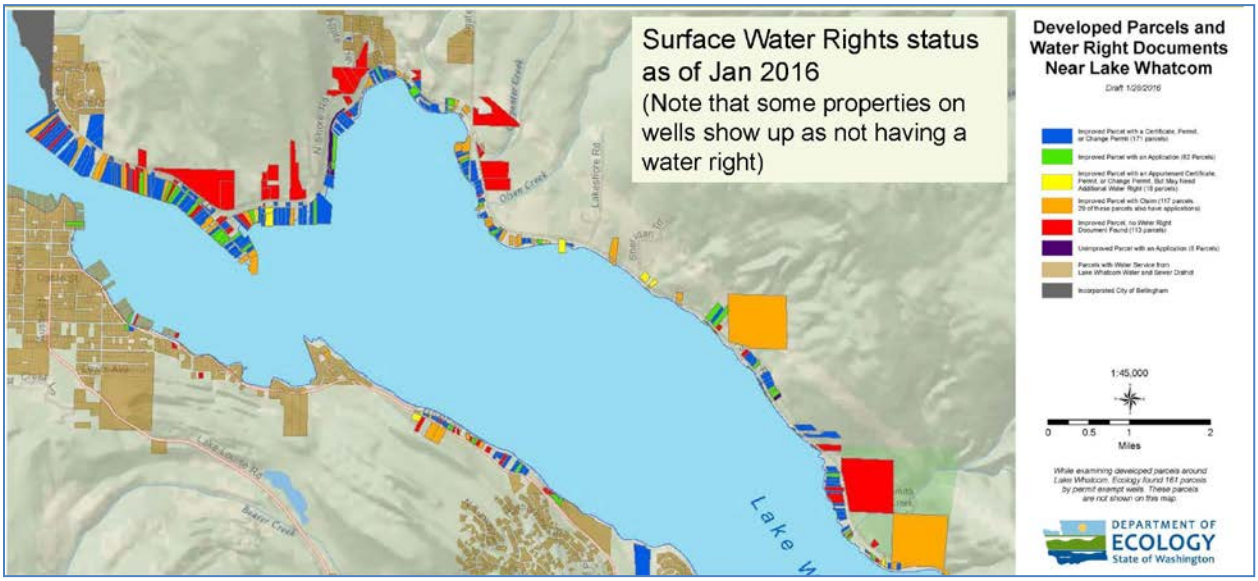

Figure 3. Department of Ecology Surface Water Right Status Map

The third option for cost recovery is adding a capital recovery charge to the water bills. This fee would not apply to existing District water customers on the North Shore. This is a simple approach, and allows the cost share to be adjusted as new connections are added. It may be interesting to investigate adding a capital recovery charge for the portion of the water system needed to provide fire protection to the sewer bills of the existing district customers. This would capture some of those who benefit from the fire protection provided by the improvements, but elected not to connect to public water.

The cost share per connection was determined using three participation levels - 50%, 75% and 90%. The cost share range shown in Table 1 below is based on the Alternative Project Costs divided by the projected number of participants for each Alternative. The lowest value represents Alternative 2 which has the highest potential number of new connections.

Table 1. Estimated Cost Share Per Connection

	Cost Share per Connection	
	Lump Sum Fee (range)	**Annualized Fee (based on 20-year Bond repayment at 2.73%)**
50% Participation	$48,000 - $56,500	$3,146 - $3,704
75% Participation	$33,500 - $39,200	$2,196 - $2,570
90% Participation	$28,500 - $33,300	$1,868- $2,183

* Lump sum fee includes an estimate for the service connection including the meter assembly

If the District pursues and secures a DWSRF Loan with up to 50% principal forgiveness for a consolidation project, then the project costs would be greatly reduced and the connection share would also be much less.

The District recently had its general facilities / connection charge for future connections reviewed. The analysis conducted did not include this potential project as a future capital investment because it was assumed that the project would be paid for by those who benefit. It also did not include the potential new customers associated with this system expansion.

Because of the size of this system expansion when compared to the existing District water utility assets, it may be beneficial to consider establishing a separate general facilities / connection charge for the North Shore. The majority of the water infrastructure is in the South Shore water system, and the majority of customers are served by the South Shore system. The general facilities / connection charge is the "buy-in" for the new customers to the existing system and the consolidation project is essentially installing a new water system for the North Shore service area. It would follow that the cost share per connection above would be the basis for a new general facilities / connection charge specifically for the North Shore, with the appropriate incorporation of the existing assets at Eagleridge and Agate Heights to the "buy-in" calculation.

5.4 Example Rates and Charges

Example Bi-monthly water charges: These numbers are very preliminary and are based on existing District water rates and average water use by Agate Heights water system customers.

- Base Rate = $62.31/two months
- Water Usage over 600 cubic feet (CF) = $8.85/100 CF
- Bi-monthly Base + average usage = $171.43 ($85.72/month)

As an example, a property with a one-inch water service and an average of 750 gallons per day water use would have a total monthly bill in the range of $213.10 to $253.10.

6.0 PUBLIC MEETING AND OUTREACH FEEDBACK

A public meeting was held on June 20, 2017, at 6:30pm at the North Whatcom Fire Hall. The meeting was well attended with 54 individuals and couples signing in. Several District Commissioners were in attendance, along with the General Manager and Assistant General Manager. The consolidation Alternatives and preliminary cost estimates were presented and the floor was open for questions and discussion. There were many comments and questions before the meeting was adjourned at 7:36 pm. There were two main themes of the discussion - comments of support for the project and comments against the project as promoting growth and development in the Lake Whatcom watershed.

A questionnaire was also available and 47 were filled out and returned that evening. Several more were returned the next day. A copy of the questionnaire and the raw results are included in Exhibit 4. The questionnaire gathered some basic information (property use, water source) in addition to interest in connecting to public water. It also polled motivations to connect and financial priorities.

The initial questionnaire responses were evenly split between those who wanted to connect to public water and those who didn't (21 yes / 21 no). Six respondents wrote in "maybe" or "depends". There were also recurring items that came up under "motivation" such as fire protection/safety that were added to the second generation questionnaire.

6.1 Summary of Questionnaire Responses

On July 10, 2017, the District sent a follow-up letter with the updated questionnaire to all property owners within the potential service area. The letter indicated that responses should be returned by July 31, 2017.

As of August 24, 2017, the District received 253 questionnaire responses, both from the public meeting and the subsequent mailing to the properties in the area. The mailing included existing District water customers in Eagleridge and Agate Heights, and did not exclude those who had submitted responses at the public meeting since not all of the responses received included addresses. There are known duplicates in the data set that can be identified by names or addresses, and there are probably also unknown duplicates in the responses that did not include a name or address.

The raw questionnaire data is included in Exhibit 4. In analyzing the data, we used addresses to identify 21 responses came from existing District customers. These responses are not included in the summary results listed below.

The breakdown of the questionnaire responses are listed below:

1. What is the current use of your property?
   - Single Family 200
   - Vacant 19
   - Other 12
   - No entry 1

2. What is the water source for your property?
   - Lake Draw 109
   - Well/Lake Draw 2 (checked two boxes)
   - Well 52
   - Shared Well 40
   - Water System 9
   - Rainwater 3
   - Other 6
   - None/No entry 11

3. Are you interested in connecting to a public water system? (broken down by water source)

Water Source:	**Yes**	**No**	**Maybe/Depends**
Lake Draw	29	53	27
Well/Lake Draw	2		
Well	14	23	15
Shared Well	15	12	13
Water System	3	1	5
Rainwater	1	1	1
Other	2	3	1
None	7		1
No entry	1	2	
TOTAL	**74**	**95**	**63**

4. If you are interested, what is your motivation to connect to a public water system?

	Yes	Maybe/Depends
• Reliability	62	36
• Water Quality	59	23
• Water Quantity	20	15
• Fire protection	23	12
• Other	6	8

5. If you are interested, what will drive your decision-making process? (Rank 1-4 with 1 being most important)

	Yes				**Maybe/Depends**			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Overall cost to connect	38	18	4	0	36	18	0	0
Ability to pay connection fee over time	11	17	17	3	4	18	15	3
Estimated water bills	5	23	22	3	7	25	15	1
Other *	11	4	0	8	4	1	2	7

*"Other" includes: water pressure, less maintenance, timing, wants public sewer included, access to water, fire protection, monitored supply, ability to keep current water source for irrigation, will water use be limited, wants mineral-free water, resale of property, clogged intakes.

The "Comments" section of the questionnaire was well used. All of the comments are included with the raw questionnaire data in Exhibit 4. A summary of the most common comments is provided below.

The two main concerns of those who responded that they were not interested in connecting to public water were the costs associated with it and that they see public water as promoting growth in the Lake Whatcom watershed. These properties already have a water source that they are happy with. It is interesting to note that one "No" response was interested in fire protection, and another was interested in connecting to public sewer.

The primary concern of those who responded with "maybe/depends" is cost. Several also expressed concern about promoting growth and four expressed interest in a sewer connection.

The comments received by those who were interested in connecting to public water included general statements of support for the project, interest in fire protection, and interest in access to a potable water source with good quality water. There were two "yes" responders interested in connecting to public sewer. Most of the vacant properties indicated that they would connect considering the current circumstances where the Hirst decision has effectively placed a moratorium on using individual wells for new development.

It is interesting to note that three responders indicated that they are using rain water harvesting as their water source, which confirms that development has not been prevented from occurring even with the "moratorium" on individual wells. One is very interested in connecting to public water, one has just spent $18,000 for the rainwater system and is not interested in public water.

6.2 Other Concerns / Comments

Several brought up the question of whether they would be able to continue to use their existing water source for irrigation, or as a back-up supply. This is a question best answered by the Department of Ecology. We have not pursued this subject with them.

There were several questions at the public meeting about whether the District would force residences to connect. In general, the District does not have the authority to compel connection to public water. The District does have the authority to compel connection to public sewer, and has a policy that connecting to water is required with a sewer connection, where water is available. It was brought up that the District has been requiring sewer-only connections to sign a Covenant that would require connection to public water when it is available.

7.0 SUMMARY AND CONCLUSIONS

All of the water system consolidation Alternatives are technically feasible - the District has sufficient water rights on a well with sufficient production capacity, and the ability to expand the water treatment plant at the existing site. Potential challenges include obtaining a site for the new water reservoir, and underground conditions (possible rock). The financial feasibility of this project depends on the participation of enough parties to make the financial commitment acceptable. Overall costs and the ability to pay over time will be key to achieving reasonable participation levels of those in the “maybe/depends” category.

The public process for this project has raised other factors to consider which are discussed below.

7.1 Public Health

Water quality was the second highest potential motivation for connecting to public water. The District recently completed a program to test the lake waters along the east end of Northshore Road for phosphorus and fecal coliform. This area does not have public sewer, and there are about 100 homes on septic systems, many of which are older and quite close to the Lake. The test results indicate that human fecal coliform bacteria are leaching into the Lake.

These results were not widely distributed prior to the District distributing the water consolidation questionnaire. It raises the question as to whether some of the lake draw respondents would change their response from “no” to “yes” with this additional information.

7.2 Fire Protection

Several of the questionnaire responders indicated that they were also interested in the fire protection that a public water system would bring. Given that there is a significant percentage of the properties in the service area that are not interested in connecting to public water, the District should consider its options on cost recovery for providing hydrants and fire storage for those who benefit from this infrastructure but are not “paying customers”.

7.3 Protection of Lake Whatcom

Many of the questionnaire responders who were against the consolidation project expressed concern that extending public water would promote growth in the watershed and harm the lake in

the process. The District is not the Land Use Authority - Whatcom County is. It should be noted that other sources of water are available - surface water for those next to the Lake, and rainwater harvesting for those not able to drill a well. At this time, the Hirst decision has halted the use of permit-exempt wells in Whatcom County, but that is not preventing development in the watershed - it is promoting the proliferation of rainwater harvesting systems. It should be noted that the proposed service area is already 90% built-out, and the availability of public water will have no impact on whether properties are able to subdivide.

There were a few responses that requested a sewer extension and indicated that they would be more interested in connecting to sewer, and that they felt extending sewer would do more to protect the lake than extending water. The District agrees there is a benefit to extending sewer and eliminating septic systems, but is constrained by the Growth Management Act (GMA) on how it proceeds since the un-sewered area is outside of an Urban Growth Area (UGA) or a Limited Area of More Intense Rural Development (LAMIRD).

7.4 Next Steps

The information the District has gathered under this study has been very informative and the District will continue to process and discuss these results. One possible future activity would be to "map" the results of those interested vs not interested, and the properties with covenants that require them to connect. Another potential follow on effort would be a sensitivity analysis on the project cost estimate to see what assumptions have a significant impact on costs (e.g. level of fire protection or standby storage). Reducing the overall costs will be critical in maximizing the number of properties that connect to public water.

Appendix I – Capital Improvement Plan – 2017 Update

Active Capital Improvement Projects

(values updated 11/17/2017)

Category	Project #	Project Title / Tasks	Projected Budget to Completion	Spent to Date	Amount Remaining	Notes
Grant, Loan, and Bond Funded Projects						
Sewer	C1705	Geneva and Par Sewer Pump Stations				
		Geneva Pump Station Construction Estimate	$ 500,000.00	$ -	$ 500,000.00	RH2 estimate $493k
		Geneva Force Main Construction Estimate	$ 90,622.83	$ -	$ 90,622.83	RH2 estimate range $65k - $100k
		Assign Remaining 2016 Revenue Bond Funds	$ 590,622.83	$ -	$ 590,622.83	
Sewer/Storm Water Contingency Fund Projects						
Sewer	C1607	Lake Whatcom North Shore Water Quality Testing				Coodination with City/County
		Herrera - Quality Assurance Project Plan	$ 18,052.00	$ 18,052.00	$ -	Original Agreement
		Herrera - Sampling, Data Analysis, Reporting	$ 69,295.00	$ 69,295.00	$ -	Amendment #1
		T&M Consultants for 2017 (Herrera, Attorney, Wilson)	$ 18,000.00	$ 15,006.95	$ 2,993.05	Misc Support
		T&M Consultants for 2018	$ 50,000.00	$ -	$ 50,000.00	Misc Support
		Grand Total for Sewer/Storm Water Contingency Projects	$ 155,347.00	$ 102,353.95	$ 52,993.05	
Rate Funded Projects						
Sewer	C1407	Lowe Sewer PS VFD	$ 10,000.00	$ 6,548.68	$ 3,451.32	
Water	C1504	Reservoir Site Security	$ 5,000.00	$ 3,049.89	$ 1,950.11	
Water	C1605	Water System Plan Update	$ 111,813.00	$ 95,038.00	$ 16,775.00	Incl T/O Amend #1
Water	C1610	Little Strawberry Water Leak on Bridge	$ 10,000.00	$ -	$ 10,000.00	
Sewer	C1611	Country Club Sewer Pump Station				
		BHC Design, Permitting, Bidding	$ 206,222.00	$ 55,774.44	$ 150,447.56	Incl Amend #3
		BHC Services During Construction - Estimate	$ 80,000.00	$ -	$ 80,000.00	BHC estimate $75k
		Construction - Estimate	$ 450,000.00	$ -	$ 450,000.00	BHC estimate $435k
General	C1704	Replace Server Hardware and Reorganize Virtual Servers	$ 35,000.00			
Sewer	C1705	Geneva and Par Sewer Pump Stations				
		RH2 Design, Permitting, Bidding	$ 269,288.00	$ 118,069.50	$ 151,218.50	Incl Amend #2
		RH2 Services During Construction - Estimate	$ 80,000.00	$ -	$ 80,000.00	
		Par Construction Estimate	$ 400,000.00	$ -	$ 400,000.00	RH2 estimate $386k
		Geneva Pump Station Construction Estimate	$ -	$ -	$ -	See bond funded projects above
		Geneva Force Main Construction Estimate	$ -	$ -	$ -	See bond funded projects above
Sewer	C1707	Beaver, Flat Car Level Transmitter Replacement	$ 50,000.00	$ 2,538.42	$ 47,461.58	
Sewer	C1709	CMOM	$ 25,000.00		$ 25,000.00	
Water	C1710	Eagleridge Booster Station - Fire Pump Controls	$ 10,000.00		$ 10,000.00	
Water	C1713	Eagleridge Booster Station - Decommission Pumps	$ 45,000.00		$ 45,000.00	
Sewer	C1716B	Geneva Booster Station - PRV's,Backflow, Roof	$ 40,000.00	$ 5,429.43	$ 34,570.57	
		Grand Total for Rate Funded Projects	$ 1,827,323.00	$ 286,448.36	$ 1,505,874.64	

Program Area / CIP Project # / CIP Project Name		Fund	Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Both Water and Sewer													
0175	Shake Alert Pilot Program - Integrate Device into SCADA - Auto Close Exist Seismic Valve at Div 22 Res		15,000	15,000									
A0005	Accounting & Administration Server - Replace/Update Hardware, Network Security, & OS		75,000			25,000			25,000			25,000	
E0001	Replace Backhoe and Add Trailer		87,550	87,550									
E0002	Replace 5-yard Dump Truck		123,600					123,600					
E0007	Replace Mini Excavator		66,950								66,950		
E0008	Replace Flush and Vac Truck		420,000		420,000								
V0001	Replace Tool Truck (7 tool trucks in fleet)		325,000	65,000		65,000		65,000		65,000		65,000	
V0002	Replace Administrative Staff Vehicle (4 cars in fleet)		52,000				26,000				26,000		
V0003	Replace Locator / Meter Reading Van		28,000									28,000	
V0004	Replace Light-Duty Truck		35,000	35,000									
		Subtotal	**1,228,100**	**202,550**	**420,000**	**90,000**	**26,000**	**188,600**	**25,000**	**65,000**	**92,950**	**118,000**	
Sewer System													
0032a	Agate Bay Sewer Pump Station - Predesign and Shorelines Permitting		100,000					100,000					
0032b	Agate Bay Sewer Pump Station - Design and Bidding		125,000						125,000				
0032c	Agate Bay Sewer Pump Station - Construction		525,000							525,000			
0044a	Edgewater Pump Station - Predesign and Shorelines Permitting		100,000	100,000									
0044b	Edgewater Pump Station - Design and Bidding		100,000		100,000								
0044c	Edgewater Pump Station - Construction		500,000			500,000							
0053a	Dellesta Pump Station - Predesign and Shorelines Permitting		100,000	100,000									
0053b	Dellesta Pump Station - Design and Bidding		100,000			100,000							
0053c	Dellesta Pump Station - Construction		500,000				500,000						
0055a	Rocky Ridge Pump Station - Predesign and Shorelines Permitting		100,000			100,000							
0055b	Rocky Ridge Pump Station - Design and Bidding		100,000				100,000						
0055c	Rocky Ridge Pump Station - Construction		555,000					555,000					
0056a	Lakewood Pump Station - Predesign and Shorelines Permitting		100,000				100,000						
0056b	Lakewood Pump Station - Design and Bidding		100,000					100,000					
0056c	Lakewood Pump Station - Construction		595,000						595,000				
0128c	Camp Firwood Automatic Transfer Switch and Replace Fence		20,000	20,000									
0128d	Airport Sewer Pump Station Stationary Generator		55,000	55,000									
0157	Install Ball Check Valves at Cable, Ranch House, Flat Car, Beaver		106,090				106,090						
0161	Stationary Generator Closed Loop Cooling Retrofit - North Point, SV, Flat Car, Beaver		212,180						212,180				
0163a	Euclid Sewer Pump Station - Replace Controls, Add Transfer Switch, and Stationary Generator - Permitting		31,827	31,827									
0163b	Euclid Sewer Pump Station - Replace Controls, Add Transfer Switch, and Stationary Generator - Construction		127,308		127,308								
0171	Sudden Valley Sewer Pump Station - Recondition Electrical Controls		159,135							159,135			
0172	Flat Car Sewer Pump Station - Recondition Electrical Controls		159,135								159,135		

Program Area / CIP Project # / CIP Project Name		Fund	Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
0173	Beaver Sewer Pump Station- Recondition Electrical Controls		159,135									159,135	
A0010	Update Sewer Comprehensive Plan (Current Plan Dated 6-14-2014)		142,055		71,027						71,027		
E0003	Replace Sewer Camera Vehicle		77,613					77,613					
E0004	Replace Camera Equipment		39,140					39,140					
S0001a	EPA Capacity, Management, Operations, & Maintenance (CMOM) Projects - Sewer I&I		30,000	30,000									
S0001b	EPA Capacity, Management, Operations, & Maintenance (CMOM) Projects - Sewer I&I		60,000		60,000								
S0001c	EPA Capacity, Management, Operations, & Maintenance (CMOM) Projects - Sewer I&I		1,320,000			165,000	165,000	165,000	165,000	165,000	165,000	165,000	165,000
	Subtotal		**6,398,618**	**336,827**	**358,335**	**865,000**	**971,090**	**1,036,753**	**1,097,180**	**849,135**	**395,162**	**324,135**	**165,000**
Water System													
0083	South Shore Water System - SVWTP - Transfer and Transmission Pump VFD's		554,529								554,529		
0084a	Agate Heights Water System - Phase 1 WTP Upgrade 1/3 capacity (from 30gpm to 60gpm) - Prelim Design & Permitting		51,500	51,500									
0084b	Agate Heights Water System - Phase 1 WTP Upgrade 1/3 capacity (from 30gpm to 60gpm)		82,400		82,400								
0144	South Shore Water System - 1992 SVWTP 0.235MG Chlorine Contact Tank Seismic Retrofit - Priority 2		165,500							165,500			
0146	South Shore Water System - 1971 Division 22 0.5MG Reservoir Seismic Retrofit and Coatings - Priority 3		389,350									389,350	
0147	South Shore Water System - 1973 Division 30 0.15MG Reservoir Seismic Retrofit and Coatings - Priority 4		573,947										573,947
0164	Demolish Old Concrete Reservoir at 1010 Lakeview Street		35,000			35,000							
0166	South Shore Water System - SVWTP - Convert from Chlorine Gas to Liquid		106,090							106,090			
0176	SVWTP - Replace 6 Turbimeters and 2 Chlorine Analyzers		38,000	38,000									
0177	Water Meter Registers		284,000	284,000									
0187	Fire Flow Improvements - Remove Deficient Fire Hydrant ID 22-112 (Low flow and pressure) at top of Kinglet Ct		2,000		2,000								
0188	Fire Flow Improvements - Hydraulic Model Calibration of Assumed Pipe Friction Loss Factor (C-Factor) in Areas of Fire Flow Deficiencies		25,000		25,000								
0189	Fire Flow & Seismic Improvements - Replace Division 7 Reservoir (Applied for $1.5M Grant + $215k matching District Funds = $1.7M Total Project Cost)		202,658			202,658							
W0002	Water System Rehab and Replacement Projects		1,760,000			220,000	220,000	220,000	220,000	220,000	220,000	220,000	220,000
W0002b	Water System Rehab and Replacement Projects		140,000		140,000								
W0003	SVWTP Filter 3&4 Media - Replace		24,238								24,238		
W0005	Reservoirs - Inspection & Maintenance		60,000	30,000					30,000				
W0007	SVWTP Filter 1&2 Media - Replace		24,238									24,238	
	Subtotal		**4,518,450**	**403,500**	**249,400**	**457,658**	**220,000**	**220,000**	**250,000**	**491,590**	**798,767**	**633,588**	**793,947**
* Note: Cost Estimates in 2016 Dollars	**Grand Total**		**12,145,168**	**942,877**	**1,027,735**	**1,412,658**	**1,217,090**	**1,445,353**	**1,372,180**	**1,405,725**	**1,286,879**	**1,075,723**	**958,947**

Capital Improvement Project List

Unscheduled Projects

CIP #	Project Name		Cost Est in Year $		Business Risk Exposure
Both Water and Sewer					
0169	Centimeter-Grade GPS Receiver		$15,000.00	in 2015	1
0142	Upgrade Shop Security Cameras and Coverage		$15,000.00	in 2016	1
0100	Car-Port Along Fence to Cover District Vehicles/Equipment		$250,000.00	in 2012	1
0143	Public Art at Cable Street (need to develop scope/fee and see if Board is interested)		$10,000.00	in 2016	1
0134	Kubota Jack Hammer Attachment		$11,500.00	in 2017	1
		Subtotal	$301,500.00		
Sewer System					
0124	Rehabilitate Old Flat Car Sewer Pump Station - Construction		$75,000.00	in 2015	42
0151	Pigging - Lake Whatcom Boulevard Interceptor		$50,000.00	in 2016	21
0152	Pigging - Lake Louise Road Interceptor		$30,000.00	in 2016	21
0153	Pigging - Cable Street Force Main		$35,000.00	in 2016	21
0154	Pigging - Plum Basin Gravity Outlet at Lake Whatcom Boulevard Interceptor		$20,000.00	in 2016	18
0160	Sudden Valley Sewer Pump Station - Recondition Drywell Pumps and Motors		$20,000.00	in 2016	14
0170	Telemtry-SCADA Reconfiguration between Beaver and Flat Car		$25,000.00	in 2015	14
0156	Austin Sewer Pump Station - Install Ball Check Valves and Flow Meter		$15,000.00	in 2016	12
0162	Lowe Sewer Pump Station - Retrofit Overhead Power to Underground Power		$50,000.00	in 2016	12
0155	Lake Whatcom Boulevard - Replace ~200LF at Gravity Outlet		$50,000.00	in 2016	9
0159	Airport Sewer Pump Station - Increase Pump Capacity (higher head pumps)		$30,000.00	in 2016	4
		Subtotal	$400,000.00		
Water System					
0148	South Shore Water System - 1979 Geneva 0.5MG Reservoir Seismic Retrofit - and Coatings Priority 5		$505,000.00	in 2016	50
0184	South Shore Water System - SVWTP - Replace Alum Tank		$10,000.00	in 2018	18
0110	Security - Intrusion Alarms at Reserviors, Cameras as SVWTP AHWTP		$10,000.00	in 2015	18
0084c	Agate Heights Water System - Phase 3 WTP Upgrade 3/3 capacity, Tank 2 of 2, Main Ext		$7,000,000.00	in 2017	6
0084b	Agate Heights Water System - Phase 2 WTP Upgrade 2/3 capacity, Tank 1 of 2, Main Ext to Trailer Park and Forks Restaurant		$1,350,000.00	in 2017	6
0183	South Shore Water System - SVWTP - Remodel Entrance to have Roll-Up Door		$50,000.00	in 2018	5
0180	South Shore Water System - New South Geneva Reservoir		$200,000.00	in 2017	5
0179	South Shore Water System - Main Extension to Sudden Valley Campground (funded by DEA)		$1.00	in 2018	4
0178	South Shore Water System - Glen Cove System Consolidation		$600,000.00	in 2017	4
0186	Water Main Extension - Lake Whatcom Boulevard between Strawberry Pt and Sudden Valley (funded by DEA or ULID)		$1.00	in 2018	4
0181	South Shore Water System - Reduce Number of Pressure Reducing Valves		$10,000.00	in 2018	2
0182	All Water Systems - Pressure Monitoring and Alarming for Major Pressure Zone Areas		$25,000.00	in 2018	2
0185	South Shore Water System - SVWTP - Fiber Comm from SVPS to WTP (completes circuit from Shop to WTP)		$200,000.00	in 2018	2
0135	Automatic Valve Excerciser (need to get quote)		$25,000.00	in 2016	1
0165	South Shore Water System - SVWTP - Spare Transfer Pump		$10,000.00	in 2016	1
		Subtotal	$9,995,002.00		

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862LF 6DI
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229LF 8PVC
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202LF 8PVC
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sized main in adequate condition within 200 feet of the property, the Owner may develop an onsite sewage disposal system in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service."

If the parcel is located **outside** UGA or LAMIRD:

A. **Sufficient Sewer Main within 150-feet of Property**. Connection to the District system is required, and shall be in accordance with current District Standards.

B. **Sufficient Sewer Main more than 150-feet from Property**. The Owner may develop an onsite sewage disposal system in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service." The Owner also has the option of extending the main to and past the parcel provided Whatcom County determines the extension is consistent with the County's Comprehensive Plan and the District's Sewer Comprehensive Plan is amended to include the extension.

C. **Health Department Required Connection.** The Owner may connect even if more than 150 feet from a sufficient sewer main and outside a UGA or LAMIRD if connection is required by Whatcom County Health Department. The connection shall be made in accordance with current District Standards. [Resolution No. 757]

2. WATER SERVICE INSIDE OR OUTSIDE UGA OR LAMIRD:

A. **District Water System Adjacent to Property and Main is Sufficient**. Connection to District water system is required. The connection shall be made in accordance with current District Standards.

B. **Sufficient Water System within 200-feet of Property**. Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement and in accordance with current District Standards.

If District determines that a public water main extension is not warranted, the District will install a water service from the main to meter. Meters will be set adjacent to the main near the edge of the public right-of-way or easement corridor in which the public water main is located. The property Owner installs the private water service line from the meter to the building. Properties not fronting the public water main such as those located beyond the end of the main or behind lots fronting the main will require a longer private water service line installed by the Owner from their property to the meter.

C. **Sufficient Water System more than 200-feet from Property**. District has the option of extending and/or replacing mains to within 200 feet of the property and then requiring the Owner to complete the extension and/or replacement past or through their property. The Owner extension and/or replacement of the main will be by Developer Extension Agreement and in accordance with current District Standards. If the District elects not to bring a sufficiently sized main in adequate condition within 200 feet of the property, the Owner may develop an alternate and temporary water supply in accordance with Whatcom

County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service." [Resolution No. 757]

3.4.3 Other Development

All other developments (such as but not limited to subdivisions, plats, short plats, commercial, institutional, industrial, etc.) shall connect to the District's water and sewer system as follows:

1. SEWER SERVICE

   Site is located **inside** UGA or LAMIRD:

   A. Connection to District sewer system is required. The developer shall extend the sewer system past and/or through property by Developer Extension Agreement and in accordance with current District Standards. Improvements shall be sized, designed, and constructed per District Standards to serve full build-out of the area.

   Site is located **outside** UGA or LAMIRD:

   A. **Sufficient Sewer Main within 150-feet of Site**. Parcels within 150-feet of sufficient sewer main shall connect to the District sewer system in accordance with current District Standards.

   B. **Sufficient Sewer Main more than 150-feet from Property**. The Owner may develop an onsite sewage disposal system in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service." The Owner also has the option of extending the main to and past the parcel provided Whatcom County determines the extension is consistent with its Comprehensive Plan and the extension is amended to the District's Sewer Comprehensive Plan. The sewer extension and connections shall be in accordance with current District Standards.

   C. **Health Department Required Connection.** The Owner may connect even if more than 150 feet from a sufficient sewer main and outside a UGA or LAMIRD if connection is required by Whatcom County Health Department. The connection shall be made in accordance with current District Standards. [Resolution No. 757]

2. WATER SERVICE INSIDE OR OUTSIDE UGA OR LAMIRD:

   A. Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement per current District Standards. [Resolution No. 757]

3.4.4 Petition to Waive or Adjust Connection Requirements

The Owner may petition the Board of Commissioners to waive or adjust the connection requirements if the parcel is located such that service is unlikely to be extended to the parcel within the next 20 years as determined by the District. The Board of Commissioners will evaluate the petition considering:

1. Expansion of the system to serve the new development is considered part of the cost of the new development.

2. Costs for some developments will be more than others due to location and physical challenges.
3. Waiving connection requirements will make it increasingly more difficult and costly to serve the same development in the future.
4. Some required improvements may not be immediately placed into service but will greatly reduce the costs and complexity to serve the development in the future (example, building a waterline across the parcel frontage that remains dry until service is extended to the site).
5. A distance of approximately ½ mile is considered close enough to require connection. Longer distances to connect to the system may be appropriate for larger developments.
6. It is considered a minimum requirement to construct the system across or through the development whether they are immediately used for service or are placed into service in the future.

If the connection requirement is waived or the required system improvements cannot immediately be placed into service, the Owner may develop an alternate and temporary water supply and/or onsite sewage disposal systems in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service. [Resolution No. 757]

3.4.5 Covenant Binding Property Regarding Future Water and/or Sewer Service

The covenant runs with the land and is signed and notarized by the property owner and District General Manager. The owner records the document at the County Auditor's office and delivers the original to the District. The covenant allows the owner to develop a temporary water supply and/or onsite disposal system, restricts the owner from protesting the formation of a utility local improvement district to extend water and/or sewer to the parcel, and requires the owner to connect to the District system when service becomes available at such time as the District so determines. [Resolution No. 757]

3.5 Permits and Connection Charges

3.5.1 Permit Fees

At the time the Water and/or Sewer Permit is applied for, the applicant shall pay to the District, or its designated representative, the Permit Fee in accordance with the District's current Master Fees and Charges Schedule. The Permit Fee is a component of the connection charge. Water and/or Sewer Permits are not transferable, nor are the fees or charges paid for them refundable.
[Resolution Nos. 757, 799]

3.5.2 Connection Charges

A. Property owners seeking to connect serviceable properties to the District's water and/or sewer system will be charged a connection fee at the time of issuance of a connection permit so that they will bear an equitable share of the cost of the existing system and the cost of the facilities planned for construction within the next ten years. Connection charges shall be in accordance with the District's current Master Fees and Charges Schedule.

B. Property owners issued connection permits before or after the date of this Resolution shall have 365 days from the date of issuance of said connection permit to make a District-approved connection to the District water and/or sewer system without being subject to any increase or additional fees in the connection charge. After 365 days have elapsed, the connection permit

AGENDA BILL Item 7.D	**Petition to Waive or Adjust Connection Requirements 1834 Lake Louise Road 3 Lot Short Plat**		
DATE SUBMITTED:	March 3, 2021	MEETING DATE:	March 10, 2021
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, District Engineer / Assistant General Manager	
GENERAL MANAGER APPROVAL			
ATTACHED DOCUMENTS		1. Petition to Board for Waiver email from Mr. Pinnow dated 2/24/2021	
		2. Preliminary Short Plat Map	
		3. Email dated 2/3/2021 from Mr. Pinnow re: conflict of environmental goals and impacts	
		4. Letter dated 4/14/2020 from District defining connection requirements	
		5. Letter dated 6/24/2019 from Whatcom County Health Department re: Pinnow Short Plat	
		6. District Administrative Code Section 3.4, Requirements for Water and Sewer Service	
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒ / INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

Mr. Luke Pinnow is subdividing a 17-acre parcel located at 1834 Lake Louise Road into three (3) lots (see attached Preliminary Short Plat Map). There is one existing single family residence on the parcel (located on proposed Lot 2) that is served by the Lake Whatcom Water and Sewer District's public water system and a private on-site sewage system.

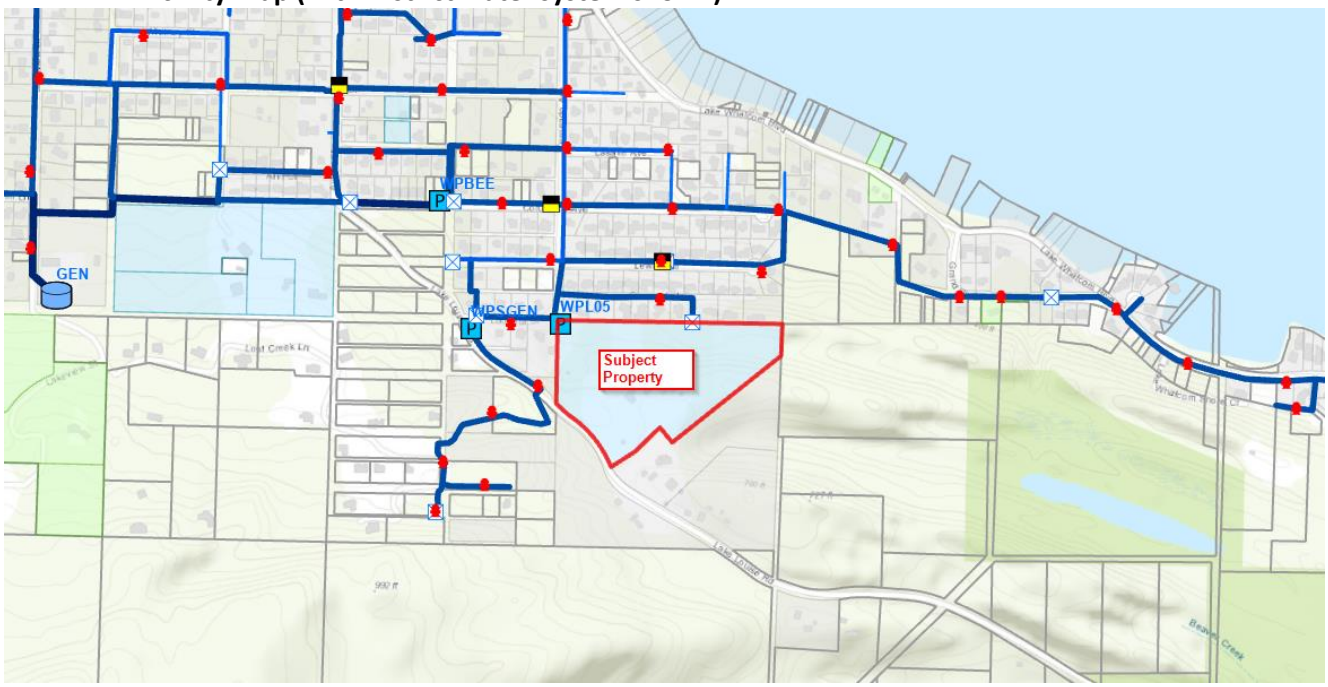
Mr. Pinnow is petitioning the Board for a waiver to the requirement of extending a water main past and/or through the property as a condition of short plat development. He is requesting that the Board allow two additional water service connections to the LID #5 Booster Pump Station, which was originally designed to serve eight single-family homes. Currently there are five connections on the system.

In April 2020 the District issued a letter (attached) to Jesse Stoner, Mr. Pinnow's land development consultant, outlining District requirements for water service. In summary, the letter states that the District can provide water service to the two new proposed lots, but requires system improvements through a Developer Extension Agreement. Improvements include installing a new 8-inch diameter water main along the west property line and along the frontage of Lake Louise Road. The

improvements are depicted in the attached technical memorandum prepared by Wilson Engineering dated April 14, 2020.

Following are maps and exhibits for quick reference depicting the property location and proposed improvements.

Vicinity Map (with District water system shown)



Preliminary Short Plat Map

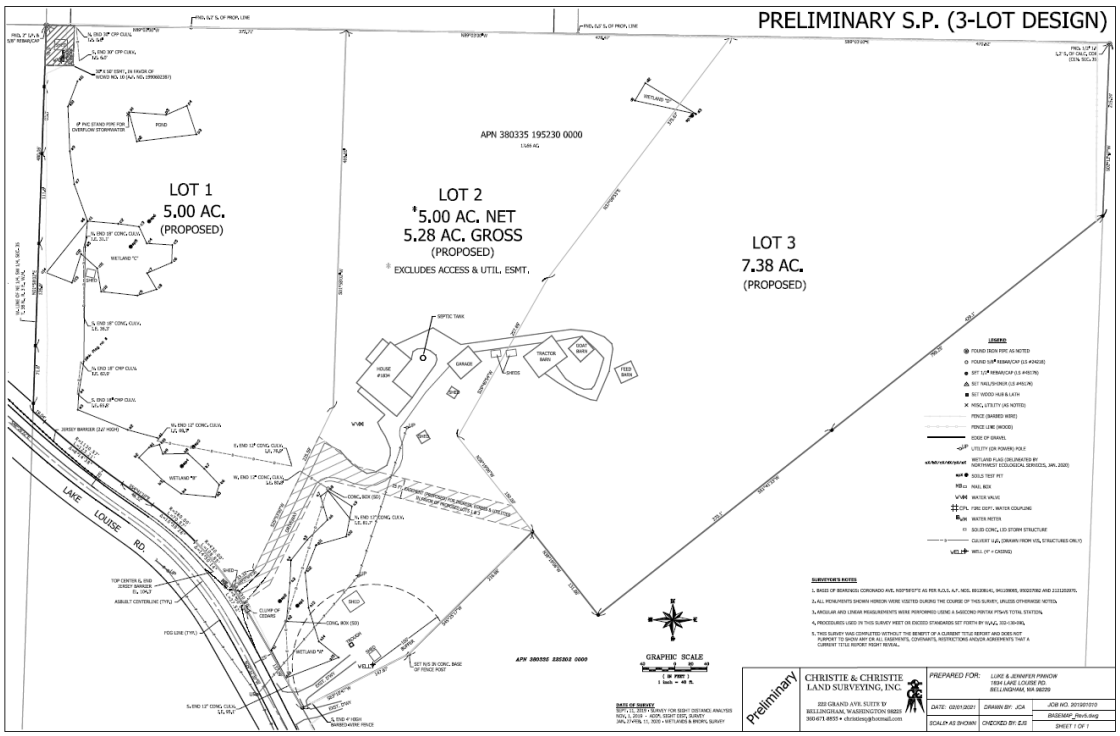


Figure 1 from Wilson Engineering April 14, 2020 Memorandum

APPLICATION OF DISTRICT ADMINISTRATIVE CODE AND POLICIES

The District's Administrative Code Section 3.4, Requirements for Water and Sewer Service, identifies connection requirements based on several parcel attributes such as location (inside UGA or LAMIRD), proximity to water and/or sewer mains, and the type of proposed development.

1834 Lake Louise Road (Assessor Parcel Number 380335-195230-0000) Facts

- Proposed development is a 3-lot short plat
- Property is not located within a UGA or LAMIRD
- Proximity to District public water systems:
  - South Geneva Booster pressure zone. The parcel is located approximately 130-feet from the an 8-inch diameter water distribution main located along Lake Louise Road
  - LID #5 Booster Station. The LID #5 booster station is located at the northwest corner of the property.
- Proximity to District public sewer systems:
  - Adjacent to the Lake Louise Road Sewer Interceptor on Lake Louise Road (pressure system).
  - There is a gravity public sewer main at Lookout Avenue approximately 65 feet from the northwest corner of the parcel (most likely more than 150-feet from any future residential structure).

Sewer Service Analysis

Applicable Administrative Code Section 3.4.3.1, Sewer Service

- *Site is located outside UGA or LAMIRD*
- *Sufficient Sewer Main within 150-feet of Site. Parcels within 150-feet of sufficient sewer main shall connect to the District sewer system in accordance with current District Standards.*

Other applicable sewer policy decisions – July 29, 2020 Board Meeting Minutes:

On-site Sewage Disposal System-to-Sewer Conversion Program Policy

Clary commented a work session was held by the Board on July 8, 2020 to discuss the District's current policy requiring the abandonment of on-site sewage disposal systems (septic systems) and connection to District sewers. During the work session, the Board requested that this topic be included for discussion during its next regular business meeting in order to note the Board's consensus that they did not wish to make changes to the policy at this time. Discussion followed, including a determination not to implement any revisions to the existing on-site sewage disposal system-to-sewer conversion policy.

Included in that policy review was a memorandum issued by staff dated April 7, 2020 that analyzed specific parcels near District public sewer mains. The memo reviewed the application of the Growth Management Act (GMA) in relation to District policies summarized as follows in the memorandum (underlining added):

> ***Interpretation of Sewer Line Extension Definition***
> *Under RCW 90.48.110, the Washington State Department of Ecology (Ecology) must approve sewer comprehensive plans. The review includes review of GMA compliance; Ecology may not approve a sewer comprehensive plan that it determines violates the GMA. Chapter 173-240 of the Washington Administrative Code (WAC) specifies how Ecology will review sewer comprehensive plans. Section 173-240-020(13) defines a "sewer line extension" as "any pipe added or connected to an existing sewerage system, together with any pump stations: Provided, That the term does not include gravity side sewers that connect individual building or dwelling units to the sewer system when these side sewers are less than one hundred fifty feet in length and not over six inches in diameter." As extension of public sewers outside of UGAs and LAMIRDs is generally not permitted under the GMA (unless allowed for reasons cited in the preceding bullet), this WAC has implications specific to requiring connection of properties outside of the Geneva UGA or Sudden Valley LAMIRD. Ecology's interpretation of the GMA under this WAC is that <u>any pressure</u> (e.g., grinder pump-served) system connecting to District sewer outside of a UGA/LAMIRD is a sewer line extension that is <u>not allowed under GMA</u>. For <u>gravity connections</u>, under the WAC, regardless of the distance between sewer main and property line, if the distance between the <u>property line and the structure to be served is greater than 150 feet</u> (i.e., side sewer length), then it is considered a sewer line extension that is <u>not allowed under GMA</u>. The District administrative code requirement for connection of any properties within a specific distance to a sewer main, without regard to whether it is a pressure line or its length, is not consistent with a combined reading of the GMA and this WAC.*

The District policy in effect since this determination has been to not compel parcels adjacent to public sewer mains to connect when it conflicts with GMA. However, the District allows voluntary sewer connections (both pressure and gravity) so long as it complies with the District's Administrative Code (parcel is within 150-feet of public sewer main, either pressure or gravity) and the provisions in the agreement with the City of Bellingham for treatment of wastewater.

Therefore, it is determined that the subject property and newly created short plat lots are not compelled to connect District sewer, as doing so would conflict with GMA. However, the newly created lots could voluntarily pursue sewer connections if the City of Bellingham authorizes the connections under the terms of the District-City agreement for treatment of wastewater.

Water Service Analysis

Applicable Administrative Code Section 3.4.3.2, Water Service Inside or Outside UGA or LAMIRD

- *Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement per current District Standards. [Resolution No. 757]*

Therefore, as is indicated in the letter defining connection requirements from staff dated April 14, 2020, extension of District water main through the extent of the subject property is a condition of development.

EVALUATION OF PETITION TO WAIVE OR ADJUST CONNECTION REQUIREMENTS

The District's Administrative Code provides a framework to evaluate petitions to waive or adjust connection requirements. The applicable Administrative Code Section 3.4.4, Petition to Waive or Adjust Connection Requirements, is provided for reference:

3.4.4 Petition to Waive or Adjust Connection Requirements

The Owner may petition the Board of Commissioners to waive or adjust the connection requirements if the parcel is located such that service is unlikely to be extended to the parcel within the next 20 years as determined by the District. The Board of Commissioners will evaluate the petition considering:

1. *Expansion of the system to serve the new development is considered part of the cost of the new development.*
2. *Costs for some developments will be more than others due to location and physical challenges.*
3. *Waiving connection requirements will make it increasingly more difficult and costly to serve the same development in the future.*
4. *Some required improvements may not be immediately placed into service but will greatly reduce the costs and complexity to serve the development in the future (example, building a waterline across the parcel frontage that remains dry until service is extended to the site).*
5. *A distance of approximately ½ mile is considered close enough to require connection. Longer distances to connect to the system may be appropriate for larger developments.*
6. *It is considered a minimum requirement to construct the system across or through the development whether they are immediately used for service or are placed into service in the future.*

If the connection requirement is waived or the required system improvements cannot immediately be placed into service, the Owner may develop an alternate and temporary water supply and/or onsite sewage disposal systems in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service. [Resolution No. 757]

Evaluation of Petition:

February 24, 2021 Petition Paragraph 1:

As I am sure you are aware, my wife and I are in the midst of a short plat division at 1834 Lake Louise Rd. I would like to petition to the Board for a waiver to the requirement of extending the water main through the property (Resolution No. 757). We are requesting that the Board allow us to add two additional users to LID W-5. LID W-5 was originally designed to service 8 single family homes. Currently we are one of the 5 users on the system.

LWWSD Staff Response. The LID #5 water booster pump station was constructed around 1999 to serve the subject property and four (4) other water connections. These properties

were experiencing seasonal problems with their individual wells. According to the October 1998 Project Report prepared by Wilson Engineering, it was sized for eight (8) connections since there were three (3) additional residences in the area that might also have issues with their wells in the future. The pump station was designed for a peak hour demand of 29 gpm for eight (8) residences based on Table 1 in Appendix B of the LID #5 Project Report (assumed to be the precursor of the PHD equation in the current DOH Design Manual). The water booster station was located close to the existing water main and access road, and the service meters were located adjacent to the booster station. The properties served all have very long service lines on their side of the water meter.

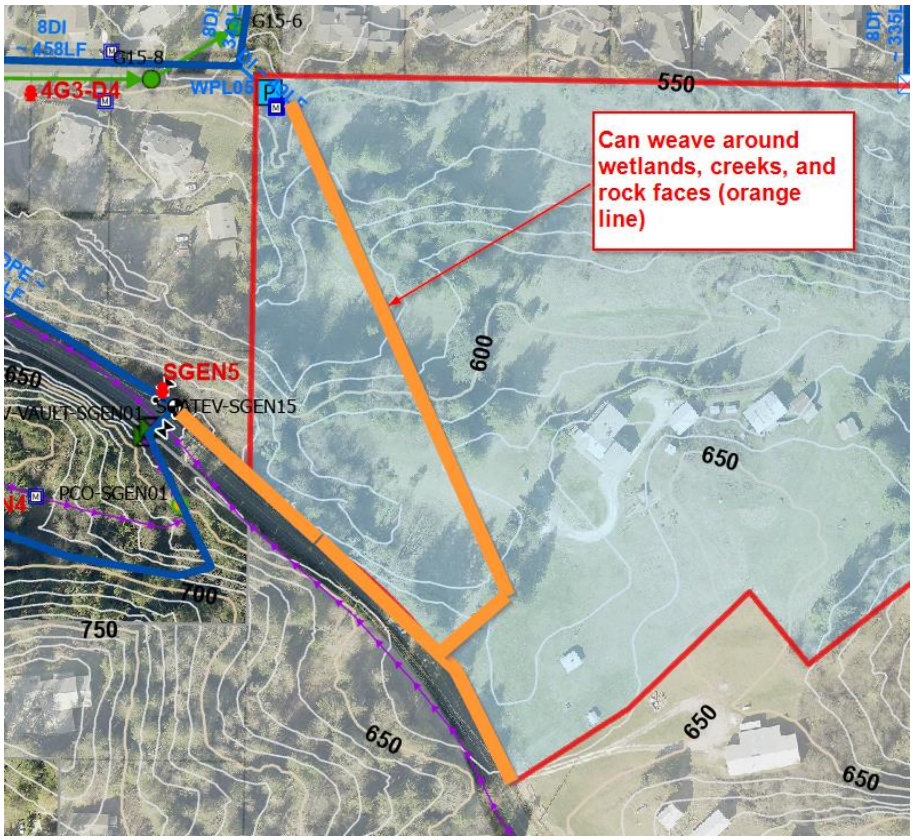
February 24, 2021 Petition Paragraph 2:
Our entire property sits within the Lake Whatcom Watershed and the proposed water main extension would run through at least 2 of the 3 wetlands that are on the property. These wetlands are produced by an unnamed creek tributary to Lake Whatcom. We believe it would not be feasible to extend the water main without seriously disturbing the creek and wetlands. Not only would the proposed extension impact critical areas, it also would traverse a nearly vertical, rocky face that required blasting to construct Lake Louise Road (see the areas with a jersey barrier marked on the attached map).

LWWSD Staff Response. Refer to the staff response to Mr. Pinnow's February 3 email below.

February 3, 2021 email:
Below are sections of the June 2018 Final Water System Comprehensive Plan:

- *"There are cliffs within the service area (100% slopes). Steep slope areas would be avoided if possible when selecting construction locations for water system improvements."*
- *"The water system projects are not expected to harm endangered, threatened or sensitive species or their habitats, as the projects generally take place in traveled right-of-ways and previously disturbed areas."*
- *"The Critical Areas Ordinance of Whatcom County classifies some areas as environmentally sensitive for wetlands and steep slopes. Lake Whatcom, Austin Creek, Beaver Creek, Whatcom Creek and other unnamed creeks tributary to Lake Whatcom would be classified as Critical Areas."*
- *The District's water system construction projects will have minimal impact on plants and animals, negligible impacts on fish, and none on marine life, as most proposed facilities will be located within existing right-of-ways, or previously disturbed areas.*
- *To the largest extent possible, District projects will be confined to traveled right-of-ways, or previously disturbed areas, to avoid directly impacting wildlife habitat, wetlands or historic or cultural sites.*

LWWSD Staff Response. The proposed water main extension alignment shown in the April 14, 2020 letter is schematic. Now that there is an actual wetland delineation survey, the proposed water main extension alignment can weave around wetlands, critical areas, and steep rock faces as needed to minimize and/or avoid environmental impacts. The goal is to meet the "past and/or thru the property" requirement in the District's Administrative Code. The exact alignment can be adjusted to avoid/minimize geotechnical and environmental challenges. Following is an example of a schematic alignment that might avoid steep rock faces by connecting LID #5 Booster to Lake Louise Road further southeast on Lake Louise Road.



February 24, 2021 Petition Paragraph 3:

The neighboring properties that are already being served by LID W-5 are not large enough to be subdivided in the future. We believe this shows that no additional extension is likely to be conducted within the next 20 years as referred to in Section 3.4.4.

LWWSD Staff Comments. The 2018 Water System Comprehensive Plan briefly notes a future plan is to construct a reservoir at the top of this highest pressure zone and convert the South Geneva Booster Pump Station to a transmission pump station to feed the future reservoir (page 11 in comprehensive plan). A future reservoir is not scheduled or funded in the District's system reinvestment plan. Most likely it would be funded through a future local improvement district or developer extension agreement.

While it is unlikely that new customers will connect along Lake Louise Road, combining the two service areas (South Geneva Booster and LID #5 Booster) provides significant benefits to all of the customers in the proposed upper pressure zone. It enables the District to eliminate one pump station, add a single standby generator to the remaining station to improve operational resiliency, and have the infrastructure in place ready to benefit from a future reservoir (including fire flow and operational standby storage). The South Geneva Booster station is newer (installed in 2008 vs 1999), has the hydraulic capacity to serve the highest parcels in the service area, and the pumps have variable frequency drives (VFDs) to maintain pressure.

Construction of the proposed water main extension running past and/or through the subject property would immediately benefit the District and its customers by eliminating the operational and maintenance costs of LID #5. Further, it reduces the number of very long private services lines and provides infrastructure for future a reservoir.

FISCAL IMPACT

None

APPLICABLE EFFECTIVE UTILITY MANAGEMENT ATTRIBUTE(S)

Infrastructure Strategy and Performance

RECOMMENDED BOARD ACTION

Staff recommends maintaining the District's Administrative Code requirements to construct a public water main extension past and/or through the subject parcel.

Under the District's Administrative Code, short plats have a more stringent extension requirement than a single parcel with a single family residence. The considerations outlined in Section 3.4.4 of the Administrative Code point towards requiring the water main extension. The considerations, with staff comments, are:

1. Expansion of the system to serve the new development is considered part of the cost of the new development. *[LWWSD Staff Comment] The cost of the improvements would be distributed amongst the 3 new lots created through the short plat process.*
2. Costs for some developments will be more than others due to location and physical challenges. *[LWWSD Staff Comment] As Mr. Pinnow notes, the property has unique physical challenges including wetlands, critical areas, steep rock faces, etc., but are not necessarily the only reasons to reduce or eliminate the requirement for an extension.*
3. Waiving connection requirements will make it increasingly more difficult and costly to serve the same development in the future.
4. Some required improvements may not be immediately placed into service but will greatly reduce the costs and complexity to serve the development in the future (example, building a waterline across the parcel frontage that remains dry until service is extended to the site). *[LWWSD Staff Comment] By tying the LID #5 and South Geneva Booster pressures zone together, all of the customers served by those zones will benefit in the long term by a more resilient system with a future addition of a stationary generator, and possibly a reservoir. It will also reduce District maintenance staff time to operate and maintain one less pressure zone and booster station.*
5. A distance of approximately ½ mile is considered close enough to require connection. Longer distances to connect to the system may be appropriate for larger developments. *[LWWSD Staff Comment] The length of water main extension would be approximately 0.22 miles, less than half the distance of what is considered "close enough."*
6. It is considered a minimum requirement to construct the system across or through the development whether they are immediately used for service or are placed into service in the future.

PROPOSED MOTION

Recommended motion is:

> "I move to decline the petition and maintain the District's Administrative Code development requirements that require a public water main extension past and/or through the parcel located at 1834 Lake Louise Road from the LID #5 Booster Station to the existing 8-inch diameter water main on Lake Louise Road, connecting the LID #5 Booster Pump pressure zone to the South Geneva Booster Pump pressure zone, as a condition of water service."

Bill Hunter

From: Luke Pinnow <lukepinnow@hotmail.com>
Sent: Wednesday, February 24, 2021 10:14 AM
To: Justin Clary
Cc: Kristin Hemenway; Rich Munson; Bill Hunter
Subject: RE: 1834 lake louise road
Attachments: 2020-04-14 1834 Lake Louise Road - Requirements for Water.pdf; BASEMAP_Rev5_020121.pdf

Hi Justin,

As I am sure you are aware, my wife and I are in the midst of a short plat division at 1834 Lake Louise Rd. I would like to petition to the Board for a waiver to the requirement of extending the water main through the property (Resolution No. 757). We are requesting that the Board allow us to add two additional users to LID W-5. LID W-5 was originally designed to service 8 single family homes. Currently we are one of the 5 users on the system.

Our entire property sits within the Lake Whatcom Watershed and the proposed water main extension would run through at least 2 of the 3 wetlands that are on the property. These wetlands are produced by an unnamed creek tributary to Lake Whatcom. We believe it would not be feasible to extend the water main without seriously disturbing the creek and wetlands. Not only would the proposed extension impact critical areas, it also would traverse a nearly vertical, rocky face that required blasting to construct Lake Louise Road (see the areas with a jersey barrier marked on the attached map).

The neighboring properties that are already being served by LID W-5 are not large enough to be subdivided in the future. We believe this shows that no additional extension is likely to be conducted within the next 20 years as referred to in Section 3.4.4.

I hope I have provided enough information to you and the Board to be able to take this under consideration.

Thank you for your time,

Luke Pinnow
206.753.7651

From: Bill Hunter <bill.hunter@lwwsd.org>
Sent: Tuesday, February 16, 2021 12:35 PM
To: Luke Pinnow <lukepinnow@hotmail.com>
Cc: Justin Clary <justin.clary@lwwsd.org>; Kristin Hemenway <kristin.hemenway@lwwsd.org>; Rich Munson <rich.munson@lwwsd.org>
Subject: RE: 1834 lake louise road

PRELIMINARY S.P. (3-LOT DESIGN)

FND. 2" I.P. & 5/8" REBAR/CAP

FND. 0.2' S. OF PROP. LINE

N89°03'00"W 372.71'

FND. 0.5' S. OF PROP. LINE

N89°03'00"W 478.47'

S89°03'00"E 470.62'

FND. 1/2" I.P. 1.2' S. OF CALC. COR. (CEN. SEC. 35)

SHED

N. END 30" CPP CULV. I.E. 0.6'

S. END 30" CPP CULV. I.E. 6.0'

30' X 50' ESMT. IN FAVOR OF WCWD NO. 10 (A.F. NO. 1990602387)

16.5'

63.3'

480.06'

111.6'

126.9'

N01°58'02"E

W. LINE OF NE 1/4, SW 1/4, SEC. 35 T. 38 N., R. 3 E., W.M.

71.8'

19.04'

S48°26'32"E

469.00'

S01°58'02"W

215.24'

S02°12'47"W

APN 380335 195230 0000

17.66 AC.

6" PVC STAND PIPE FOR OVERFLOW STORMWATER

POND

WETLAND "D"

375.67'

N37°09'53"E

LOT 1
5.00 AC.
(PROPOSED)

LOT 2
*5.00 AC. NET
5.28 AC. GROSS
(PROPOSED)

* EXCLUDES ACCESS & UTIL. ESMT.

LOT 3
7.38 AC.
(PROPOSED)

N. END 18" CONC. CULV. I.E. 31.1'

WETLAND "C"

SHED

S. END 18" CONC. CULV. I.E. 36.3'

pink flag no #

N. END 18" CMP CULV. I.E. 62.9'

S. END 18" CMP CULV. I.E. 65.8'

SEPTIC TANK

HOUSE #1834

GARAGE

SHEDS

TRACTOR BARN

GOAT BARN

FEED BARN

SHED

S29°40'54"W

227.69'

JERSEY BARRIER (2.5' HIGH)

W. END 12" CONC. CULV. I.E. 69.3'

E. END 12" CONC. CULV. I.E. 76.9'

WETLAND "B"

W. END 12" CONC. CULV. I.E. 80.8'

225.59'

S25°53'09"W

DRIVEWAY

25 FT. EASEMENT (PROPOSED) FOR INGRESS, EGRESS & UTILITIES IN FAVOR OF PROPOSED LOTS 1 & 3

CONC. BOX (SD)

N. END 12" CONC. CULV. I.E. 81.7'

N38°49'06"W 150.00'

S51°41'33"W 370.1'

N38°13'06"W 131.86'

S45°25'17"W 216.88'

429.1'

709.25'

LAKE LOUISE RD.

R=1130.57'
L=123.21'
Δ=6°14'38"

S5°41'10"E 46.32'

R=380.00'
L=70.57'
Δ=10°38'26"

R=430.00'
L=108.85'
Δ=14°30'14"

TOP CENTER E. END JERSEY BARRIER EL. 104.3'

ASBUILT CENTERLINE (TYP.)

FOG LINE (TYP.)

SHED

33.33'

N59°22'58"E

MB

R=430.00'
L=37.52'
Δ=5°00'04"

CLUMP OF CEDARS

CONC. BOX (SD)

TROUGH

WETLAND "A"

SHED

WELL

100' BUFFER

SET N/S IN CONC. BASE OF FENCE POST

147.67'

S63°10'47"W

EXST. D'WY

EXST. D'WY

S. END 4' HIGH BARBED-WIRE FENCE

S. END 12" CONC. CULV. I.E. 95.1'

N29°32'30"W 137.09'

25'

APN 380335 225202 0000

GRAPHIC SCALE
40 0 20 40
(IN FEET)
1 inch = 40 ft.

LEGEND

- FOUND IRON PIPE AS NOTED
- FOUND 5/8" REBAR/CAP (LS #24218)
- SET 1/2" REBAR/CAP (LS #45176)
- SET NAIL/SHINER (LS #45176)
- SET WOOD HUB & LATH
- MISC. UTILITY (AS NOTED)
- FENCE (BARBED WIRE)
- FENCE LINE (WOOD)
- EDGE OF GRAVEL
- UP UTILITY (OR POWER) POLE
- WETLAND FLAG (DELINEATED BY NORTHWEST ECOLOGICAL SERVICES, JAN. 2020)
- spX SOILS TEST PIT
- MB MAIL BOX
- WV WATER VALVE
- CPL FIRE DEPT. WATER COUPLING
- WM WATER METER
- SOLID CONC. LID STORM STRUCTURE
- CULVERT U.G. (DRAWN FROM VIS. STRUCTURES ONLY)
- WELL WELL (4" ⌀ CASING)

SURVEYOR'S NOTES

1. BASIS OF BEARINGS: CORONADO AVE. N00°58'07"E AS PER R.O.S. A.F. NOS. 891208141, 941108065, 950207082 AND 2121202970.
2. ALL MONUMENTS SHOWN HEREON WERE VISITED DURING THE COURSE OF THIS SURVEY, UNLESS OTHERWISE NOTED.
3. ANGULAR AND LINEAR MEASUREMENTS WERE PERFORMED USING A 5-SECOND PENTAX PTS-V5 TOTAL STATION.
4. PROCEDURES USED IN THIS SURVEY MEET OR EXCEED STANDARDS SET FORTH BY W.A.C. 332-130-090.
5. THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT AND DOES NOT PURPORT TO SHOW ANY OR ALL EASEMENTS, COVENANTS, RESTRICTIONS AND/OR AGREEMENTS THAT A CURRENT TITLE REPORT MIGHT REVEAL.

DATE OF SURVEY
SEPT. 11, 2019 - SURVEY FOR SIGHT DISTANCE ANALYSIS
NOV. 1, 2019 - ADD'L SIGHT DIST. SURVEY
JAN. 27-FEB. 11, 2020 - WETLANDS & BNDRY. SURVEY

Preliminary

CHRISTIE & CHRISTIE LAND SURVEYING, INC.
222 GRAND AVE. SUITE 'D'
BELLINGHAM, WASHINGTON 98225
360-671-8855 • christiesq@hotmail.com

PREPARED FOR: LUKE & JENNIFER PINNOW
1834 LAKE LOUISE RD.
BELLINGHAM, WA 98229

DATE: 02/01/2021	DRAWN BY: JCA	JOB NO. 201901010
		BASEMAP_Rev5.dwg
SCALE: AS SHOWN	CHECKED BY: EJS	SHEET 1 OF 1

Bill Hunter

From: Luke Pinnow <lukepinnow@hotmail.com>
Sent: Wednesday, February 3, 2021 8:19 AM
To: Bill Hunter
Subject: Re: 1834 lake louise road
Attachments: BASEMAP_Rev5_020121.pdf

Hi Bill,

I wanted to follow up with you to talk through the water service to the proposed subdivision. As you know, our water comes through LID W-5 that was originally designed to service 8 single family homes. Currently we are one of the 5 users on the system. In our original correspondence with Kristin (see below) it was indicated that we could add the two additional services to LID W-5 with applicable fees.

After a later review by you and your team it was determined that there would need to be an extension of the water main. I have attached the proposed map that was submitted to the county, and you can see that the water main extension would run directly through at least 2 of the 3 wetlands that are on the property. I am hoping that you and your team could review this decision and allow us to connect to the users to LID W-5 without filing a developer extension agreement.

I have included some of my research below, as I believe the proposal is in direct conflict with the Water Districts environmental goals and impacts as stated in Administrative Code 6.3.

- This is us: "A small distribution booster station was added in 1999 at Lookout Ave. / Coronado Ave. in the Geneva Area. The District received a request for water service from 5 single-family homeowners with failing individual wells. The booster station was required since the houses would not have adequate pressure due to their elevation relative to the existing reservoir and their distance from the water main. The homeowners formed LID W-5, plans were approved by DOH, and construction was completed in 1999.
- Below are sections of the June 2018 Final Water System Comprehensive Plan
    - "There are cliffs within the service area (100% slopes). Steep slope areas would be avoided if possible when selecting construction locations for water system improvements."
    - "The water system projects are not expected to harm endangered, threatened or sensitive species or their habitats, as the projects generally take place in traveled right-of-ways and previously disturbed areas."
    - "The Critical Areas Ordinance of Whatcom County classifies some areas as environmentally sensitive for wetlands and steep slopes. Lake Whatcom, Austin Creek, Beaver Creek, Whatcom Creek and other unnamed creeks tributary to Lake Whatcom would be classified as Critical Areas."
    - The District's water system construction projects will have minimal impact on plants and animals, negligible impacts on fish, and none on marine life, as most proposed facilities will be located within existing right-of-ways, or previously disturbed areas.

- To the largest extent possible, District projects will be confined to traveled right-of-ways, or previously disturbed areas, to avoid directly impacting wildlife habitat, wetlands or historic or cultural sites.

Thank you for taking the time to review this, Bill.

Luke Pinnow

Subject: 1834 Lake Louise Road - Water Connections
From: "Kristin Hemenway" <kristin.hemenway@lwwsd.org>
Date: 3/9/20 2:37 pm
To: "jesse@larrystoner.net" <jesse@larrystoner.net>
Cc: "Bill Hunter" <bill.hunter@lwwsd.org>, "Rich Munson" <rich.munson@lwwsd.org>

Hi Jesse,

We were able to obtain the original booster pump station design report from Wilson Engineering. The booster pump system that serves these homes is located at Lookout and Coronado. The booster pump station was designed to serve 8 homes and currently serves 5 homes. The addition of 2 single family residential connections is acceptable per the report.

The water meters for the homes (one for each additional lot) will be located adjacent to the cluster of meters currently operating off the booster pump system (near Lookout and Coronado) and therefore will require long service lines. Each home on each parcel must have its own meter (Lake Whatcom Water and Sewer District Administrative Code 4.3.3) and service line. The new water service lines will require recorded easements if they are not fully located within the boundary of the property to which they serve. Service lines and meter box installation requirements are detailed in the District Construction Standards.

Currently the District is able to serve 2 additional homes with water. Current water connection charges are $8,253 per connection (single family residence). Do you have any correspondence from the Department of Health specifying that they will require septic systems for the new construction? I will add that information to the project files. Down the road, someone may wonder why these properties are not connected to sewer and this will prevent confusion.

Please let me know if you have any further questions.

Kristin

From: Luke Pinnow
Sent: Wednesday, January 20, 2021 8:30 AM
To: bill.hunter@lwwsd.org <bill.hunter@lwwsd.org>
Subject: 1834 lake louise road

Hi Bill,

Lake Whatcom Water & Sewer District

1220 Lakeway Dr
Bellingham, WA 98229

Office Hours: Mon-Thu
8am - 5 pm
360-734-9224

www.lwwsd.org
Fax: 360-738-8250

April 14, 2020

Jesse Stoner
Larry Stoner Land Development Consultants
4340 Pacific Hwy Ste 202
Bellingham, WA 98226

Re 1834 Lake Louise Road Short Plat
Requirements for Water Service

Dear Mr. Stoner:

This letter serves to follow up on your inquiry of water service to a proposed 3-lot short plat with one of those lots having an existing residence currently served by District water. In summary the District can provide water service to the two new proposed lots, but will require system improvements through a Developer Extension Agreement. Improvements include installing a new 8" water main along the west property line and along the frontage of Lake Louise Road. The improvements are depicted in the attached technical memorandum prepared by Wilson Engineering dated April 14, 2020.

District Administrative Code Section 3.4 – Requirements for Water and Sewer Service provides connection requirements for various types of improvements. Subsection 3.4.3 – Other Development, specifically includes short plats and is applicable to this 1834 Lake Louise Road Short Plat Project. It states:

> *2. WATER SERVICE INSIDE OR OUTSIDE UGA OR LAMIRD:*
> *A. Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement per current District Standards. [Resolution No. 757]*

To begin a Developer Extension Agreement (DEA) process, please submit the attached DEA application form along with required documents and processing fee. Once we receive the DEA application, staff will prepare an agenda bill with specific project information, system information, and staff recommendations for board consideration at a regular public meeting of the Board of Commissioners. The board will evaluate staff recommendations and consider any developer petitions to waive or adjust connection requirements in accordance with District Administrative Code 3.4.4 - Petition to Waive or Adjust Connection Requirements. The full text of the District's Administrative Code can be found online at www.lwwsd.org.

Please contact me if you have any further questions.

Sincerely,
Lake Whatcom Water and Sewer District

Bill Hunter, P.E.
District Engineer / Assistant General Manager

Attachments: Wilson Engineering Memorandum Dated 4/14/2020
Developer Extension Agreement Application Form
Sample Developer Extension Agreement
Master Fees and Charges

WILSON ENGINEERING
805 Dupont Street, Ste. #7, Bellingham, Washington 98225
Telephone: (360) 733-6100 • Facsimile: (360) 647-9061

MEMORANDUM

TO: LWWSD –Bill Hunter, PE and Justin Clary, PE

FROM: Melanie Mankamyer, PE

SUBJECT: 1834 Lake Louise Road Proposed Short Plat Water Supply Analysis

DATE: April 14, 2020

Introduction / Background

Lake Whatcom Water and Sewer District (LWWSD) has been approached by the owners/agents of the property at 1834 Lake Louise Road regarding water availability for two additional lots that would be created by the short plat subdivision process.

The property currently has a District water service that is in the LID #5 water booster pump station service area. The property is also adjacent to the South Geneva service area, which is served by its own water booster pump station.

The LID #5 water booster pump station was constructed around 1999 to serve the subject property and four (4) other water connections. These properties were experiencing seasonal problems with their individual wells. According to the October 1998 Project Report prepared by Wilson Engineering, it was sized for eight (8) connections since there were three (3) additional residences in the area that might also have issues with their wells in the future. The pump station was designed for a peak hour demand of 29 gpm for eight (8) residences based on Table 1 in Appendix B of the LID #5 Project Report (assumed to be the precursor of the PHD equation in the current DOH Design Manual). The water booster station was located close to the existing water main and access road, and the service meters were located adjacent to the booster station. The properties served all have very long service lines on their side of the water meter.

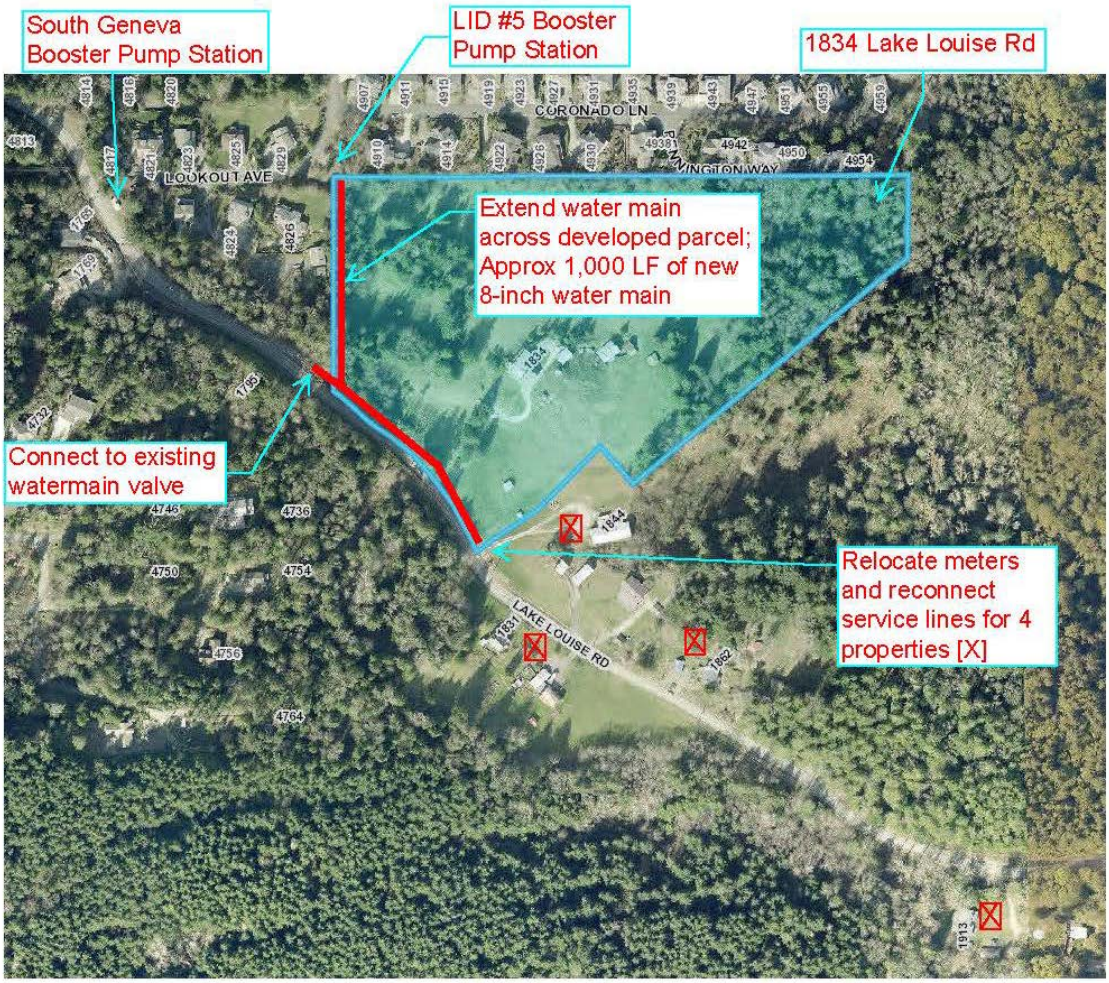
The South Geneva water booster pump station was constructed around 2008 to serve the properties included in the South Geneva Developer Extension Agreement, and also be able to supply a future water reservoir that would serve the development and other properties located near and above the existing Geneva water reservoir. The pump station was designed for a peak hour demand of 42 gpm based fourteen (14) residences using the PHD equation in the DOH Design Manual (Equation 3-1 in the 2019 Manual). This booster station pumps to services at a much higher elevation than the LID #5 booster station.

Note that neither booster station is sized to provide fire flows. The fire hydrant installed on Lake Louise Road will not be operational until there is a reservoir at a suitable elevation for the service area.

Water Supply Considerations

According to the District Admin Code, the subdivision will be required to extend the water main across the property. This memo assumes that about 1,000 feet of new 8-inch pipe will be required along both the west property line and the southwest property line(adjacent to Lake Louise Road). This will enable the existing water meters to be relocated closer to the properties served and reduce the service line lengths. See Figure 1, below.

Figure 1. Lake Louise Road Short Plat Water Supply Schematic



The maximum day demand (MDD) used for the design of the South Geneva booster station was 800 gpd/ERU, which was the standard at the time for areas of unknown water usage. The equivalent MDD for LID #5 design was 660 gpd/ERU. We reviewed the water use data for the two service areas to determine the MDD for these particular properties based on metered water use, which include large lots that could have high volumes of irrigation. We used a modified "maximum month" approach to determine the MDD for these two service areas based on the most recent 3 years of metered data. This data is bimonthly so we modified the maximum month adjustment factor from 1.65 to 2 (this factor is to account for not having daily data) There are 4 readings that are over 4,500 CF/2 months that skew the results upward. Including those, the MDD ranges from 515 to 629 gpd/ERU. Not using those readings, the MDD is more in the 350-450 gpd/ERU range. The MDD for the whole Geneva area is 370 gpd/ERU. The raw data for this analysis is attached.

If the MDD for these properties is 500 gpd/ERU or less, then the South Geneva Booster can supply 22 connections - all 14 properties that it was originally designed for and 8 from the LID #5 booster (existing properties and new short plat parcels). If the MDD is 630 gpd/ERU, then the South Geneva Booster can only supply eighteen (18) connections in its current configuration.

Combining the two service areas enables the District to eliminate one pump station, and add a standby generator to the remaining station to improve operational reliability. The South Geneva Booster station

is newer (installed in 2008 vs 1999), has the hydraulic capacity to serve the highest parcels in the service area, and the pumps have VFDs to maintain pressure. It is the logical choice for the near term, and appears to have a location adjacent to the station suitable for a standby generator.

When the South Geneva Booster station reaches the end of its useful life, the District could install the replacement booster station at the LID #5 booster station site. This location has better access from an operations and maintenance standpoint. The new booster station would be designed to supply all future connections in the combined service area. Once the new station was up and running, the South Geneva booster could be abandoned. To ensure that this future booster station is sized appropriately, we recommend that daily readings be recorded of the South Geneva booster station discharge during the high water use months (June - September).

Recommendations

Our recommendation is that, for the near term, all of the services in these two areas be connected to the South Geneva Booster station. This allows the District to discontinue operating the LID #5 pump station. The South Geneva Booster is a newer pump station and can meet the water supply needs for the highest elevation parcels.

We recommend that a standby generator and automatic transfer switch be installed at the South Geneva Booster station to keep it operational during power outages.

We recommend that the District collect daily data during the high water use months (June - September) for this service area, so future pump designs can be based on a more representative MDD.

In the future, a new package pump station could be installed at the LID #5 location and the South Geneva Booster can be abandoned.

South Geneva Booster Annual Consumption (cubic feet) Summary

Year	4736 Lost Creek Ln	4746 Lost Creek Ln	4754 Lost Creek Ln	4770 Lost Creek Ln	Total (cu ft)	Avg Daily Demand / ERU (Gallons)
2016	3269	5626	3281	6046	18222	93.4
2017	11278	5268	3866	10988	31400	160.9
2018	11310	4923	3010	8482	27725	142.0
2019	9095	4795	3050	7317	24257	124.3

4736 Lost Creek Ln		4746 Lost Creek Ln		4754 Lost Creek Ln		4770 Lost Creek Ln	
CF	Read Date	CF	Read Date	CF	Read Date	CF	Read Date
993	2/18/2020	646	2/18/2020	891	2/18/2020	943	2/18/2020
854	12/18/2019	737	12/18/2019	648	12/18/2019	859	12/18/2019
1328	10/21/2019	685	10/21/2019	586	10/21/2019	887	10/21/2019
2438	8/19/2019	875	8/19/2019	500	8/19/2019	1754	8/19/2019
2388	6/20/2019	898	6/20/2019	400	6/20/2019	1914	6/20/2019
1028	4/22/2019	742	4/22/2019	375	4/22/2019	881	4/22/2019
1059	2/19/2019	858	2/19/2019	541	2/19/2019	1022	2/19/2019
604	12/17/2018	641	12/17/2018	453	12/17/2018	897	12/17/2018
1788	10/22/2018	481	10/2/2018	553	10/22/2018	657	10/22/2018
4618	8/20/2018	247	9/11/2018	560	8/20/2018	1195	9/11/2018
2192	6/19/2018	914	8/20/2018	492	6/19/2018	2728	8/20/2018
906	4/19/2018	1156	6/19/2018	450	4/19/2018	1420	6/19/2018
1202	2/20/2018	569	4/19/2018	502	2/20/2018	814	4/19/2018
1045	12/18/2017	915	2/20/2018	524	12/18/2017	771	2/20/2018
6600	10/18/2017	700	12/18/2017	598	10/18/2017	698	12/18/2017
1177	8/21/2017	668	10/18/2017	573	8/21/2017	1813	10/18/2017
844	6/19/2017	1210	8/21/2017	450	6/19/2017	5752	8/21/2017
772	4/19/2017	1366	6/19/2017	543	4/19/2017	1193	6/19/2017
840	2/21/2017	523	4/19/2017	1178	2/21/2017	704	4/19/2017
984	12/19/2016	801	2/21/2017	834	12/19/2016	828	2/21/2017
800	10/20/2016	673	12/19/2016	570	10/20/2016	800	12/19/2016
853	8/22/2016	647	10/20/2016	378	8/22/2016	715	10/20/2016
450	6/22/2016	962	8/22/2016	515	6/22/2016	1165	8/22/2016
182	4/22/2016	1680	6/22/2016	505	4/22/2016	787	6/22/2016
	2/17/2016	774	4/22/2016	479	2/17/2016	1704	4/22/2016
6	12/16/2015	890	2/17/2016	469	12/16/2015	875	2/17/2016
		744	12/16/2015			954	12/16/2015

LID5 Booster Annual Consumption (cubic feet) Summary

Year	1831 Lk Louise Rd	1834 Lk Louise Rd	1844 Lk Louise Rd	1862 Lk Louise Rd	1913 Lk Louise Rd	Total (cu ft)	Avg Daily Demand / ERU (Gallons)
2016	7250	3857	1631	7147	10080	29965	122.8
2017	9365	9658	1643	12713	8670	42049	172.3
2018	5491	7996	2528	8930	10863	35808	146.8
2019	4830	30122	683	9296	9856	54787	224.6

1831 Lk Louise Rd		1834 Lk Louise Rd		1844 Lk Louise Rd		1862 Lk Louise Rd		1913 Lk Louise Rd	
CF	Read Date	CF	Read Date	CF	Read Date	CF	Read Date	CF	Read Date
509	2/18/2020	460	2/18/2020	160	2/18/2020	2247	2/18/2020	1503	2/18/2020
501	12/18/2019	496	12/18/2019	118	12/18/2019	557	12/18/2019	1058	12/18/2019
808	10/21/2019	624	10/21/2019	100	10/21/2019	683	10/21/2019	1327	10/21/2019
1288	8/19/2019	1942	8/19/2019	143	8/19/2019	1179	8/19/2019	1505	8/19/2019
886	6/20/2019	21392	6/20/2019	120	6/20/2019	2957	6/20/2019	3307	6/20/2019
669	4/22/2019	3778	4/22/2019	95	4/22/2019	1686	4/22/2019	1458	4/22/2019
678	2/19/2019	1890	2/19/2019	107	2/19/2019	2234	2/19/2019	1201	2/19/2019
558	12/17/2018	943	12/17/2018	282	12/17/2018	1306	12/17/2018	1341	12/17/2018
763	10/22/2018	495	10/22/2018	343	10/22/2018	1590	10/22/2018	1087	10/22/2018
1974	8/20/2018	490	9/11/2018	722	8/20/2018	1666	8/20/2018	763	9/11/2018
900	6/19/2018	1423	8/20/2018	455	6/19/2018	1444	6/19/2018	2102	8/20/2018
618	4/19/2018	1286	6/19/2018	303	4/19/2018	1210	4/19/2018	2852	6/19/2018
495	2/20/2018	566	4/19/2018	423	2/20/2018	1714	2/20/2018	1670	4/19/2018
183	1/7/2018	2793	2/20/2018	230	12/18/2017	1562	12/18/2017	1048	2/20/2018
6922	12/18/2017	861	12/18/2017	192	10/18/2017	1896	10/18/2017	950	12/18/2017
53	10/18/2017	5191	10/18/2017	80	9/8/2017	3171	8/21/2017	1120	10/18/2017
466	8/21/2017	1800	8/21/2017	317	8/21/2017	1331	7/6/2017	1214	8/21/2017
666	6/19/2017	981	6/19/2017	312	6/19/2017	2814	6/19/2017	1406	6/19/2017
513	4/19/2017	376	4/19/2017	213	4/19/2017	1030	4/19/2017	1562	4/19/2017
745	2/21/2017	449	2/21/2017	299	2/21/2017	909	2/21/2017	2418	2/21/2017
545	12/19/2016	423	12/19/2016	213	12/19/2016	1248	12/19/2016	1337	12/19/2016
802	10/20/2016	795	10/20/2016	218	10/20/2016	1247	10/20/2016	1348	10/20/2016
2667	8/22/2016	947	8/22/2016	311	8/22/2016	954	8/22/2016	3221	8/22/2016
2154	6/22/2016	477	6/22/2016	328	6/22/2016	2041	6/22/2016	1507	6/22/2016
562	4/22/2016	728	4/22/2016	288	4/22/2016	1021	4/22/2016	1248	4/22/2016
520	2/17/2016	487	2/17/2016	273	2/17/2016	636	2/17/2016	1419	2/17/2016
616	12/16/2015	301	12/16/2015	366	12/16/2015	902	12/16/2015	1024	12/16/2015

Confirmed leak; adjusted to 2,000 CF

WHATCOM COUNTY
Health Department

Regina A. Delahunt, Director
Greg Stern, M.D., Health Officer

Memorandum

TO: Craig Ostrom
Planning & Development Services

FROM: Sarah Cierebiej
Environmental Health

DATE: June 24, 2019

SUBJECT: PRE2019-00038
Pinnow Short Plat
1834 Lake Louise Road
APN: 380335 195230

The Whatcom County Health Department (WCHD) has reviewed the proposed project referenced above in accordance with WCC 24.05 On- Site Sewage Regulations, WCC 24.11 Drinking Water, WCC 21.03.060 2(e), and WCC 21.04 Short Subdivisions. The applicant is proposing a 3 lot subdivision.

Water Supply

The property is in the drinking water service area of the Lake Whatcom Water and Sewer District. If the District is not willing or able to serve the project and provides the applicant with a Public Water System Denial form, the applicant may drill a well. The applicant must provide an approved well site inspection prior to preliminary approval.

Wells drilled after January 2018 require a note pertaining to ESSB 6091, RCW 58.17 and Whatcom County Ordinance 2018-020 on the face of the plat. Exact wording will be provided once the well site inspection is approved by WCHD.

If Lake Whatcom Water and Sewer District is willing to serve the project, a “will serve” letter or a Developer Extension Agreement application will be required prior to preliminary approval.

The single family residence located on 1834 Lake Louise Road (Lot 2) appears to be connected to Lake Whatcom Water and Sewer District for drinking water. An approved Water Availability Form for an existing connection will be required prior to preliminary approval.

509 Girard Street
Bellingham, WA 98225-4005
360.778.6000 | FAX 360.778.6001
WhatcomCountyHealth
WhatcomCoHealth

Whatcom County HEALTH Department

1500 North State Street
Bellingham, WA 98225-4551
360.778.6100 | FAX 360.778.6101
www.whatcomcounty.us/health

Sewage Disposal

An on-site sewage system (OSS) subdivision application demonstrating adequate soils or an approved OSS design for each lot must be submitted and approved by WCHD prior to preliminary approval. All soils approvals for the plat must be located outside of critical areas and their associated buffers.

The single family residence located on 1834 Lake Louise Road (Lot 2) is served by an existing unpermitted on-site sewage system (OSS). As part of OSS subdivision application approval, the applicant will need to demonstrate a reserve area for the unpermitted OSS and provide a current (less than 3 years old) satisfactory Report of System Status (ROSS) inspection completed by licensed Operation and Maintenance Specialist.

3.3.4 Repeat Violation Penalty

A person who repeats a violation shall be subject to a penalty as set forth in the Master Fees and Charges Schedule. Failure to correct a violation within the time limit provided in the Notice of Violation, shall be subject to a penalty as set forth in the Master Fees and Charges Schedule, from the date of the time limit provided in the Notice of Violation. Each day that a violation of this Code continues may be deemed a separate violation. [Resolution Nos. 783, 799]

3.3.5 Water Loss As A Result of Damage

Charges shall be levied for the loss of water resulting from damage to the District's water system facilities caused by persons other than District employees. In addition to paying for repairs, the party responsible for the damage shall be charged the District's estimated cost. [Resolution No. 783]

3.4 Requirements for Water and Sewer Service

3.4.1 Capacity and Connection Availability

There is overall system capacity when the system as a whole has the capability to serve additional service connections. There may be localized areas in the system that are insufficient in size or are in too poor condition to allow local connections, but the system can still be considered to have overall system capacity. Water and/or sewer connections are available on a first come, first served basis, where capacity exists. [Resolution No. 757]

3.4.2 Single Parcel with Single Family Residence.

A request for service or request for denial of service by an Owner of a single parcel for a single family residence shall be reviewed by determining: (1) the parcel's distance to the District's water and sewer system, and (2) the sufficiency of the size and condition of the mains serving the parcel as determined by the District.

1. SEWER SERVICE

   If the parcel is located **inside** UGA or LAMIRD:

   A. **District Sewer Adjacent to Property and Main is Sufficient**. Connection to District sewer is required. The connection shall be made in accordance with current District Standards.

   B. **Sufficient Sewer Main within 200-feet of Property**. Connection to the District sewer is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement and in accordance with current District Standards.

   C. **Sufficient Sewer Main more than 200-feet from Property**. District has the option of extending and/or replacing mains to within 200 feet of the property and then requiring the Owner to complete the extension and/or replacement past or through their property. The Owner extension and/or replacement of the main will be by Developer Extension Agreement and in accordance with current District Standards. If the District elects not to bring a sufficiently

sized main in adequate condition within 200 feet of the property, the Owner may develop an onsite sewage disposal system in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service."

If the parcel is located **outside** UGA or LAMIRD:

A. **Sufficient Sewer Main within 150-feet of Property**. Connection to the District system is required, and shall be in accordance with current District Standards.

B. **Sufficient Sewer Main more than 150-feet from Property**. The Owner may develop an onsite sewage disposal system in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service." The Owner also has the option of extending the main to and past the parcel provided Whatcom County determines the extension is consistent with the County's Comprehensive Plan and the District's Sewer Comprehensive Plan is amended to include the extension.

C. **Health Department Required Connection.** The Owner may connect even if more than 150 feet from a sufficient sewer main and outside a UGA or LAMIRD if connection is required by Whatcom County Health Department. The connection shall be made in accordance with current District Standards. [Resolution No. 757]

2. WATER SERVICE INSIDE OR OUTSIDE UGA OR LAMIRD:

A. **District Water System Adjacent to Property and Main is Sufficient**. Connection to District water system is required. The connection shall be made in accordance with current District Standards.

B. **Sufficient Water System within 200-feet of Property**. Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement and in accordance with current District Standards.

If District determines that a public water main extension is not warranted, the District will install a water service from the main to meter. Meters will be set adjacent to the main near the edge of the public right-of-way or easement corridor in which the public water main is located. The property Owner installs the private water service line from the meter to the building. Properties not fronting the public water main such as those located beyond the end of the main or behind lots fronting the main will require a longer private water service line installed by the Owner from their property to the meter.

C. **Sufficient Water System more than 200-feet from Property**. District has the option of extending and/or replacing mains to within 200 feet of the property and then requiring the Owner to complete the extension and/or replacement past or through their property. The Owner extension and/or replacement of the main will be by Developer Extension Agreement and in accordance with current District Standards. If the District elects not to bring a sufficiently sized main in adequate condition within 200 feet of the property, the Owner may develop an alternate and temporary water supply in accordance with Whatcom

County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service." [Resolution No. 757]

3.4.3 Other Development

All other developments (such as but not limited to subdivisions, plats, short plats, commercial, institutional, industrial, etc.) shall connect to the District's water and sewer system as follows:

1. SEWER SERVICE

   Site is located **inside** UGA or LAMIRD:

   A. Connection to District sewer system is required. The developer shall extend the sewer system past and/or through property by Developer Extension Agreement and in accordance with current District Standards. Improvements shall be sized, designed, and constructed per District Standards to serve full build-out of the area.

   Site is located **outside** UGA or LAMIRD:

   A. **Sufficient Sewer Main within 150-feet of Site**. Parcels within 150-feet of sufficient sewer main shall connect to the District sewer system in accordance with current District Standards.

   B. **Sufficient Sewer Main more than 150-feet from Property**. The Owner may develop an onsite sewage disposal system in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service." The Owner also has the option of extending the main to and past the parcel provided Whatcom County determines the extension is consistent with its Comprehensive Plan and the extension is amended to the District's Sewer Comprehensive Plan. The sewer extension and connections shall be in accordance with current District Standards.

   C. **Health Department Required Connection.** The Owner may connect even if more than 150 feet from a sufficient sewer main and outside a UGA or LAMIRD if connection is required by Whatcom County Health Department. The connection shall be made in accordance with current District Standards. [Resolution No. 757]

2. WATER SERVICE INSIDE OR OUTSIDE UGA OR LAMIRD:

   A. Connection to the District water system is required. Owner extends and/or replaces main past and/or through property and connects to the sufficient main by Developer Extension Agreement per current District Standards. [Resolution No. 757]

3.4.4 Petition to Waive or Adjust Connection Requirements

The Owner may petition the Board of Commissioners to waive or adjust the connection requirements if the parcel is located such that service is unlikely to be extended to the parcel within the next 20 years as determined by the District. The Board of Commissioners will evaluate the petition considering:

1. Expansion of the system to serve the new development is considered part of the cost of the new development.

2. Costs for some developments will be more than others due to location and physical challenges.
3. Waiving connection requirements will make it increasingly more difficult and costly to serve the same development in the future.
4. Some required improvements may not be immediately placed into service but will greatly reduce the costs and complexity to serve the development in the future (example, building a waterline across the parcel frontage that remains dry until service is extended to the site).
5. A distance of approximately ½ mile is considered close enough to require connection. Longer distances to connect to the system may be appropriate for larger developments.
6. It is considered a minimum requirement to construct the system across or through the development whether they are immediately used for service or are placed into service in the future.

If the connection requirement is waived or the required system improvements cannot immediately be placed into service, the Owner may develop an alternate and temporary water supply and/or onsite sewage disposal systems in accordance with Whatcom County and State regulations after executing a "Covenant Binding Property Regarding Future Water and/or Sewer Service. [Resolution No. 757]

3.4.5 Covenant Binding Property Regarding Future Water and/or Sewer Service

The covenant runs with the land and is signed and notarized by the property owner and District General Manager. The owner records the document at the County Auditor's office and delivers the original to the District. The covenant allows the owner to develop a temporary water supply and/or onsite disposal system, restricts the owner from protesting the formation of a utility local improvement district to extend water and/or sewer to the parcel, and requires the owner to connect to the District system when service becomes available at such time as the District so determines. [Resolution No. 757]

3.5 Permits and Connection Charges

3.5.1 Permit Fees

At the time the Water and/or Sewer Permit is applied for, the applicant shall pay to the District, or its designated representative, the Permit Fee in accordance with the District's current Master Fees and Charges Schedule. The Permit Fee is a component of the connection charge. Water and/or Sewer Permits are not transferable, nor are the fees or charges paid for them refundable.
[Resolution Nos. 757, 799]

3.5.2 Connection Charges

A. Property owners seeking to connect serviceable properties to the District's water and/or sewer system will be charged a connection fee at the time of issuance of a connection permit so that they will bear an equitable share of the cost of the existing system and the cost of the facilities planned for construction within the next ten years. Connection charges shall be in accordance with the District's current Master Fees and Charges Schedule.

B. Property owners issued connection permits before or after the date of this Resolution shall have 365 days from the date of issuance of said connection permit to make a District-approved connection to the District water and/or sewer system without being subject to any increase or additional fees in the connection charge. After 365 days have elapsed, the connection permit

AGENDA BILL Item 7.E	**Lake Whatcom Boulevard Sewer CIPP Project Public Works Contact Award**			
DATE SUBMITTED:	March 4, 2021	MEETING DATE:	March 10, 2021	
TO: BOARD OF COMMISSIONERS		FROM: Bill Hunter, District Engineer / Assistant General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Bid Result Analysis 2. Bid Tabulation		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

This project is the first of a series of projects in the coming years to systematically rehabilitate degraded gravity pipe segments along the Lake Whatcom Boulevard Sewer Interceptor to improve flow capacity.

Last fall Wilson Engineering completed a hydraulic analysis that prioritized segments for rehabilitation, ranking them from the greatest positive impact to the least impact, on improving hydraulic capacity.

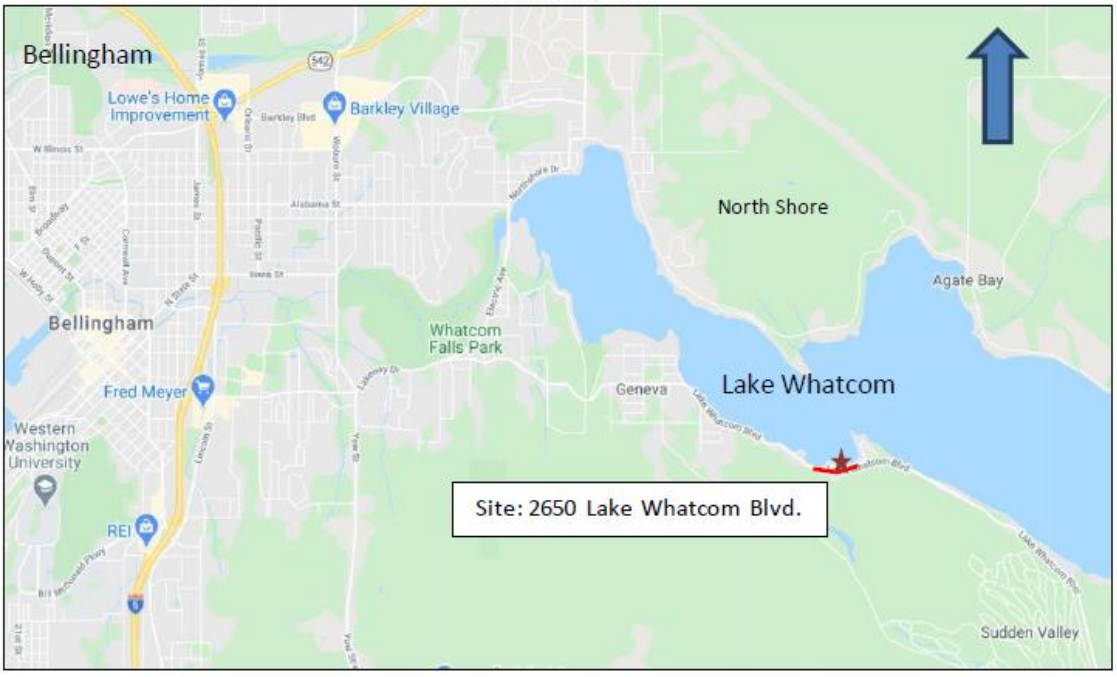
This project focuses on those segments identified as providing the greatest positive impact to flow capacity. The segments are located along Lake Whatcom Boulevard just west of Strawberry Point. To optimize the return on investment of District funds, the project has been divided into four separate schedules. The base bid (Schedule A) includes the two segments identified and budgeted in the District's 2021 approved budget. The optional additive bid alternates (Schedules B and C) were developed to increase the scope of work beyond the base bid to try and take advantage of some economy of scale with mobilization/ demobilization and additional quantity, and to provide the Board with the option to allocate additional available funding resources if bid prices were favorable. Optional Schedule D includes pressure testing and chemical grouting deficient pipe joints before lining pipe. Below is a summary of each schedule.

- **Schedule A Base Bid** includes a base bid to line approximately 693 feet of 10-inch diameter sanitary sewer pipe, traffic control, sewage bypass pumping, and grouting and restoring sewer lateral connections. These are the segments identified in the approved 2021 Budget and provide the greatest flow capacity improvement.
- **Schedule B Additive Bid Alternate** provides an option to line an additional 438 feet of 14-inch diameter sanitary sewer pipe, traffic control, and sewage bypass pumping. If the Board desires to allocate additional funding, this segment would provide the next greatest flow capacity improvement following the Schedule A work.

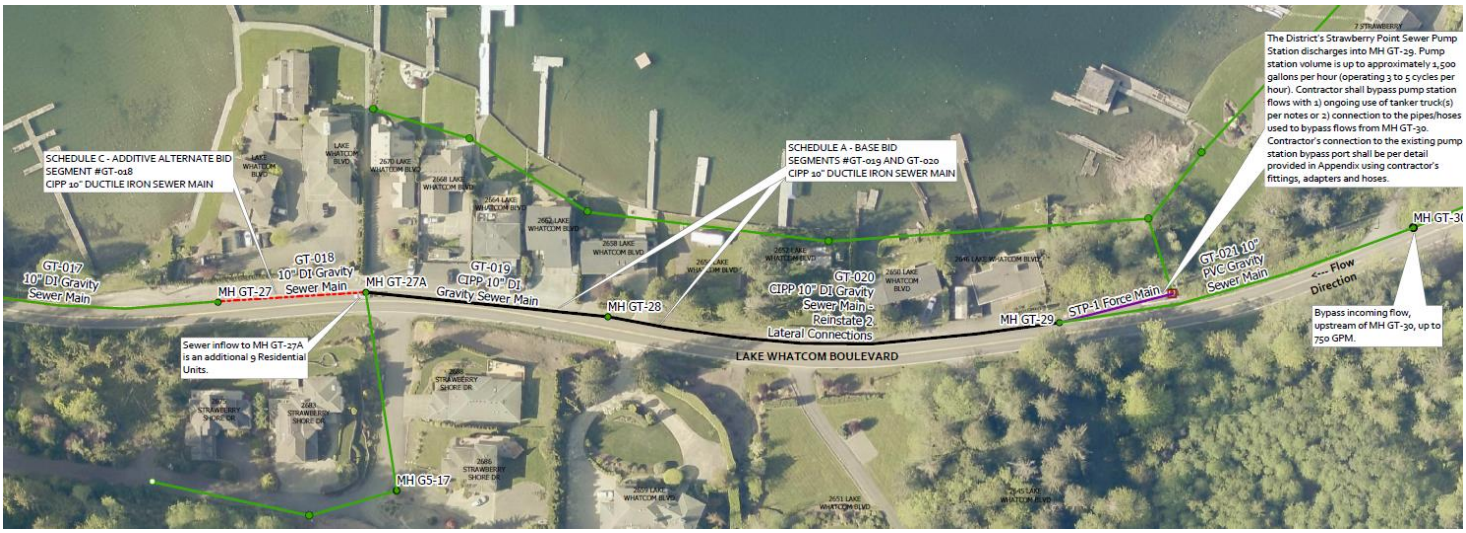
- **Schedule C Additive Bid Alternate** provides an option to line an additional 170 feet of 10-inch diameter sanitary sewer pipe, traffic control, and sewage bypass pumping. This section is located immediately downstream of the Schedule A segment. If the Board desires to allocate somewhat more funds and take advantage of the mobilization/demobilization economies of scale, then this section makes the most sense due to the proximity of Schedule A work.
- **Schedule D Additive Bid Alternate** provides an option to pressure test and grout leaking pipe joints. The intent during construction was to pressure test joints that appear suspect to leakage following the heavy pipe cleaning work. However, during the bid process District staff learned that if ductile iron pipe shows no signs of separation or leakage, then there is most likely no issues that will need pressure testing or grouting. Since all of the pipe sections identified in this project are ductile iron pipe that have recently been visually inspected by District crews, and no joint problems were seen, it is anticipated that the ductile iron pipe joints are tight and that this bid schedule is not needed for this project. Note that if this project included clay pipe, then this schedule would be recommended, but that is not the case for this current project. Cost data collected during this bid will help staff budget future projects that rehabilitate clay pipe that has deficient joints.

Below are map exhibits that show locations of proposed work.

Vicinity Map
Bellingham, WA



Schedule A Base Bid (Solid Black) and Schedule C Additive Bid Alternate (Dashed Red)



Schedule B Additive Bid Alternate (Dashed Black)

The District published an advertisement for bids in the Bellingham Herald on February 3, 2021. A non-mandatory pre-bid meeting was held on February 17, 2021. Bids were due on March 3, 2021. Three bids were received.

Staff is in the process of reviewing mandatory and supplemental bidder responsibility criteria and will make a verbal recommendation at the Board meeting.

FISCAL IMPACT

The approved 2021 Budget includes $95,000 for the construction contract to rehabilitate pipe segments from MH GT-29 to MH GT-27, approximately 700 linear feet (LF) that are identified in the final hydraulic analysis as "Priority 1" pipe segments prepared by Wilson Engineering at the end of

2020. The low bid amount for Schedule A – Base Bid (693 LF of 10" Pipe) is $98,894.50 (including 8.5% sales tax). This is approximately 4% over the District's 2021 approved budget for the identified work.

An analysis of the additive bid alternate schedules shows there is a direct correlation to length of pipe repaired vs. unit price, regardless of pipe diameter (10-inch vs 14-inch). In essence there are economies of scale based on length of pipe included in the scope of work the District should consider.

If only Schedule A – Base Bid (693 LF of 10" Pipe) is selected, the overall unit price is $142.70/LF. Compare this to if Schedules A + B + C (1,301 LF of 10" & 14" Pipe) is selected, the overall unit price is $121.64/LF. There is a potential savings of $21.06/LF by taking advantage of the economy of scale of the project scope, this equates to about a 15% savings in overall unit price costs.

The total project cost for Schedules A + B + C including 8.5% state sales tax is $158,258.10. The District would need to allocate an additional $63,258.10 of funding.

The District has approximately $385,055 of unallocated sewer funds that were carried over from 2020 to 2021 that could be utilized to increase the scope of this project.

APPLICABLE EFFECTIVE UTILITY MANAGEMENT ATTRIBUTE(S)

Operational Optimization
Infrastructure Strategy and Performance

RECOMMENDED BOARD ACTION

Staff recommends that the Board select Schedules A + B + C to take advantage of the unit price economy of scale, utilize unallocated sewer funds, and make significant headway in increasing the flow capacity of the Lake Whatcom Boulevard Sewer Interceptor, thereby reducing future risk of sewer overflows during wet weather events.

To do this, approximately $65,000 of additional funding would need to be allocated to the project from the $385,055 of extra unallocated sewer capital funds carried over from 2020.

It should be noted that depending on which additive bid alternate schedules are selected will determine the low bidder. In the Instruction to Bidders including in the bid documents paragraph 0.13.D states:

> *The apparent low Bidder(s), for purpose of award, shall be the responsive Bidder(s) offering the low aggregate amount for the base Bid plus selected additive or deductive Bid alternates and meeting all other Bid submittal requirements.*

Staff is evaluating mandatory and supplemental bidder responsibility criteria for the two possible low bidders. A verbal recommendation for the lowest responsible bidder will be made at the Board meeting and subject to the Boards selection of additive bid alternates.

PROPOSED MOTION

Select One Motion Below:

"I move the District select only Schedule A Base Bid."

or,

"In addition to Schedule A Base Bid, I move the District select additive bid alternate Schedule(s) _____[*fill in B, C, and/or D*]."

Recommended motion depends on which additive bid alternates are selected by the Board. Below are the 4 permutations for Schedules A, B, & C.

Select One Motion Below:

Only Schedule A – Base Bid Selected

"I move to direct $5,000 of the unallocated sewer capital funds carried over from 2020 towards the 2021 Lake Whatcom Boulevard CIPP Project construction contract, for a total construction budget of $100,000."

"I move to award the 2021 Lake Whatcom Boulevard Sewer CIPP Project public works contract, including only Schedule A Base Bid to **Insta-Pipe** for a total contract price of **$98,894.50,** including 8.5% sales tax, and authorize the general manager to execute the contract."

Schedules A + B Selected

"I move to direct $45,000 of the unallocated sewer capital funds carried over from 2020 towards the 2021 Lake Whatcom Boulevard CIPP Project construction contract, for a total construction budget of $140,000."

"I move to award the 2021 Lake Whatcom Boulevard Sewer CIPP Project public works contract, including Schedule A Base Bid and Schedule B Additive Bid Alternate to **Michel's Corporation** for a total contract price of **$139,353.06**, including 8.5% sales tax, and authorize the general manager to execute the contract."

Schedules A + C Selected

"I move to direct $25,000 of the unallocated sewer capital funds carried over from 2020 towards the 2021 Lake Whatcom Boulevard CIPP Project construction contract, for a total construction budget of $120,000."

"I move to award the 2021 Lake Whatcom Boulevard Sewer CIPP Project public works contract, including Schedule A Base Bid and Schedule C Additive Bid Alternate to **Insta-Pipe** for a total contract price of **$117,089.95**, including 8.5% sales tax, and authorize the general manager to execute the contract."

Schedules A + B + C Selected

"I move to direct $65,000 of the unallocated sewer capital funds carried over from 2020 towards the 2021 Lake Whatcom Boulevard CIPP Project construction contract, for a total construction budget of $160,000."

"I move to award the 2021 Lake Whatcom Boulevard Sewer CIPP Project public works contract, including Schedule A Base Bid and Schedule B Additive Bid Alternate to **Michel's Corporation** for a total contract price of **$158,258.10**, including 8.5% sales tax, and authorize the general manager to execute the contract."

Bid Result Analysis

2021 LAKE WHATCOM BLVD SEWER CIPP PROJECT

Summary of Bid Schedules (Includes 8.5% Sales Tax)	ENGINEER'S ESTIMATE	INSTA-PIPE	MICHEL'S CORPORATION	INSITUFORM
SCHEDULE A - Base Bid (693 LF of 10" Pipe)	$91,975.45	$98,894.50	$105,997.99	$133,306.36
SCHEDULE B - Additive Bid Alternate (438 LF of 14" Pipe)	$59,462.34	$72,310.91	$33,355.07	$24,730.41
SCHEDULE C - Additive Bid Alternate (170 LF of 10" Pipe)	$20,398.00	$18,195.45	$18,905.04	$17,549.88
SCHEDULE D - Additive Bid Alternate (Joint Pressure Testing and Grouting)	$13,128.50	$45,987.24	$23,438.17	$32,258.14

Per Lineal Foot Unit Price Analysis (Includes 8.5% Sales Tax)	ENGINEER'S ESTIMATE	INSTA-PIPE	MICHEL'S CORPORATION	INSITUFORM
SCHEDULE A - Base Bid (693 LF of 10" Pipe)	$132.72	$142.70	$152.96	$192.36
SCHEDULE B - Additive Bid Alternate (438 LF of 14" Pipe)	$135.76	$165.09	$76.15	$56.46
SCHEDULE C - Additive Bid Alternate (170 LF of 10" Pipe)	$119.99	$107.03	$111.21	$103.23

Combinations of Additive Bid Alternates Total Pipe Unit Price Analysis (Includes 8.5% Sales Tax)	ENGINEER'S ESTIMATE	INSTA-PIPE	MICHEL'S CORPORATION	INSITUFORM
SCHEDULE A - Base Bid (693 LF of 10" Pipe)	$132.72	$142.70	$152.96	$192.36
SCHEDULE A + B (693 LF of 10" + 438 LF of 14" = 1131 LF Total Pipe)	$133.90	$151.38	$123.21	$139.73
SCHEDULE A + C (693 LF + 170 LF of 10" = 863 LF Total Pipe)	$130.21	$135.68	$144.73	$174.80
SCHEDULE A + B + C (693 LF + 170 LF of 10" + 438 LF of 14" = 1301 LF Total Pipe)	$132.08	$145.58	$121.64	$134.96

Cells shaded in order of best unit price value, darkest green is best value

Combinations of Additive Bid Alternates Total Project Cost (Includes 8.5% Sales Tax)	ENGINEER'S ESTIMATE	INSTA-PIPE	MICHEL'S CORPORATION	INSITUFORM
SCHEDULE A - Base Bid (693 LF of 10" Pipe)	$91,975.45	$98,894.50	$105,997.99	$133,306.36
SCHEDULE A + B (693 LF of 10" + 438 LF of 14" = 1131 LF Total Pipe)	$151,437.79	$171,205.41	$139,353.06	$158,036.76
SCHEDULE A + C (693 LF + 170 LF of 10" = 863 LF Total Pipe)	$112,373.45	$117,089.95	$124,903.03	$150,856.23
SCHEDULE A + B + C (693 LF + 170 LF of 10" + 438 LF of 14" = 1301 LF Total Pipe)	$171,835.79	$189,400.86	$158,258.10	$175,586.64

Cells shaded in order of least total project cost, darkest blue is least total cost

LAKE WHATCOM WATER & SEWER DISTRICT
1220 LAKEWAY DRIVE
BELLINGHAM, WA 982298
(360) 734-9224

BID TABULATION

PROJECT NAME	PROJECT #	BID OPENING DATE & TIME	PAGE # OF #	LOCATION
2021 LAKE WHATCOM BLVD SEWER CIPP PROJECT	C2114	3/3/2021 2:05 PM		LAKE WHATCOM WATER & SEWER DISTRICT BOARD ROOM (BROADCAST VIA GOTO MEETING)

NAME OF FIRM	ENGINEER'S ESTIMATE		INSTA-PIPE		MICHEL'S CORPORATION		INSITUFORM	
Item	Description	Quantity	Unit		Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
SCHEDULE A BASE BID												
1	Mobilization and Demobilization	1	LS		$ 6,000.00	$ 6,000.00	$ 14,000.00	$ 14,000.00	$ 43,570.00	$ 43,570.00	$ 17,291.00	$ 17,291.00
2	Traffic Control	1	LS		$ 3,000.00	$ 3,000.00	$ 7,500.00	$ 7,500.00	$ 5,025.00	$ 5,025.00	$ 10,807.00	$ 10,807.00
3	Sewage Bypass	1	LS		$ 6,000.00	$ 6,000.00	$ 9,000.00	$ 9,000.00	$ 4,093.00	$ 4,093.00	$ 5,965.00	$ 5,965.00
4	Heavy Cleaning of 10-inch Diameter Sewer Main	693	LF		$ 7.00	$ 4,851.00	$ 10.00	$ 6,930.00	$ 4.00	$ 2,772.00	$ 4.00	$ 2,772.00
5	10-inch Diameter CIPP Sewer Main Repair	693	LF		$ 83.00	$ 57,519.00	$ 69.00	$ 47,817.00	$ 50.00	$ 34,650.00	$ 114.00	$ 79,002.00
6	Trim Protruding Lateral	2	EA		$ 1,200.00	$ 2,400.00	$ 100.00	$ 200.00	$ 785.00	$ 1,570.00	$ 811.00	$ 1,622.00
7	Lateral Reconnection with Top Hat Liner	2	EA		$ 2,500.00	$ 5,000.00	$ 2,850.00	$ 5,700.00	$ 3,007.00	$ 6,014.00	$ 2,702.00	$ 5,404.00
	Total Base Bid (does not include Washington State Sales Tax)					$ 84,770.00		$ 91,147.00		$ 97,694.00		$ 122,863.00
SCHEDULE B ADDITIVE BID ALTERNATE												
8	Additional Traffic Control	1	LS		$ 1,500.00	$ 1,500.00	$ 4,000.00	$ 4,000.00	$ 3,400.00	$ 3,400.00	$ 5,404.00	$ 5,404.00
9	Additional Sewage Bypass	1	LS		$ 6,000.00	$ 6,000.00	$ 2,640.00	$ 2,640.00	$ 1,500.00	$ 1,500.00	$ 1,621.00	$ 1,621.00
10	Heavy Cleaning of 14-inch Diameter Sewer Main	438	LF		$ 8.00	$ 3,504.00	$ 12.00	$ 5,256.00	$ 4.00	$ 1,752.00	$ 4.00	$ 1,752.00
11	Additional 14-inch Diameter CIPP Sewer Main Repair	438	LF		$ 100.00	$ 43,800.00	$ 125.00	$ 54,750.00	$ 55.00	$ 24,090.00	$ 32.00	$ 14,016.00
	Total Additive Alternate (does not include Washington State Sales Tax)					$ 54,804.00		$ 66,646.00		$ 30,742.00		$ 22,793.00
SCHEDULE C ADDITIVE BID ALTERNATE												
12	Additional Traffic Control	1	LS		$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,889.00	$ 1,889.00	$ 5,404.00	$ 5,404.00
13	Additional Sewage Bypass	1	LS		$ 2,000.00	$ 2,000.00	$ 1,500.00	$ 1,500.00	$ 1,255.00	$ 1,255.00	$ 1,081.00	$ 1,081.00
14	Heavy Cleaning of 10-inch Diameter Sewer Main	170	LF		$ 7.00	$ 1,190.00	$ 12.00	$ 2,040.00	$ 6.00	$ 1,020.00	$ 6.00	$ 1,020.00
15	Additional 10-inch Diameter CIPP Sewer Main Repair	170	LF		$ 83.00	$ 14,110.00	$ 69.00	$ 11,730.00	$ 78.00	$ 13,260.00	$ 51.00	$ 8,670.00
	Total Additive Alternate (does not include Washington State Sales Tax)					$ 18,800.00		$ 16,770.00		$ 17,424.00		$ 16,175.00
SCHEDULE D ADDITIVE BID ALTERNATE												
16	Mobilization / Demobilization for Pipe Joint Pressure Testing & Chemical Grouting	1	LS		$ 3,500.00	$ 3,500.00	$ 12,400.00	$ 12,400.00	$ 11,147.00	$ 11,147.00	$ 8,916.00	$ 8,916.00
17	Pressure Testing 10-inch to 14-inch Diameter Sewer Mainline Pipe Joint	25	EA		$ 200.00	$ 5,000.00	$ 604.00	$ 15,100.00	$ 290.00	$ 7,250.00	$ 454.00	$ 11,350.00
18	Chemical Grouting 10-inch to 14-inch Diameter Sewer Mainline Pipe Joint	15	EA		$ 150.00	$ 2,250.00	$ 778.97	$ 11,684.55	$ 147.00	$ 2,205.00	$ 551.00	$ 8,265.00
19	Chemical Grout (Materials)	50	GAL		$ 27.00	$ 1,350.00	$ 64.00	$ 3,200.00	$ 20.00	$ 1,000.00	$ 24.00	$ 1,200.00
	Total Additive Alternate (does not include Washington State Sales Tax)					$ 12,100.00		$ 42,384.55		$ 21,602.00		$ 29,731.00
	BID GURANTEE FOR PROJECTS OVER $35,000? (YES OR NO)					N/A		YES		YES		YES
	ADDENDUM ACKNOWLEDGED? (YES OR NO)					N/A		YES		YES		YES

AGENDA BILL Item 7.F	**District Comment on the Department of Ecology Draft Puget Sound Nutrient General Permit**			
DATE SUBMITTED:	March 4, 2021	MEETING DATE:	March 10, 2021	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. Draft Comment Letter regarding the Draft Puget Sound Nutrient General Permit		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☒	INFORMATIONAL /OTHER ☐

BACKGROUND / EXPLANATION OF IMPACT

In January 2020, the Washington State Department of Ecology (Ecology) announced the initiation of the development of a draft Nutrient General Permit that would focus on limiting discharge of excess nutrients, particularly nitrogen, to the Puget Sound from domestic wastewater treatment plants (WWTPs). Ecology's development of a general permit is intended reduce nitrogen concentrations in WWTP effluent, which contribute to low oxygen levels in Puget Sound. The City of Bellingham's Post Point WWTP, which treats the District's wastewater through an interlocal agreement, is one of the WWTPs that will be regulated under the General Permit (in addition to an Individual Permit specific to the Post Point WWTP).

Throughout 2020, Ecology convened through a series of meetings a General Permit Advisory Committee comprised of regional treatment plant representatives, state agencies, the U.S. Environmental Protection Agency, and the environmental community. The Washington Association of Sewer and Water Districts (WASWD) was represented on the Committee by Judi Gladstone (WASWD executive director) and Jeff Clarke (Mukilteo Water & Wastewater District commissioner). The committee members brought a diverse array of perspectives to both the process undertaken, and the final recommendations to be considered for incorporation into the draft General Permit.

Within the interlocal agreement between the City of Bellingham and the District for conveyance to and treatment of wastewater generated by the District at the Post Point WWTP is a clause that the District is responsible for payment for any capital improvements to the WWTP at its current allocated capacity (4.8%). It is anticipated that implementation of the General Permit and any associated Individual Permit will require significant upgrades to the WWTP (conceptual level estimates by the City of Bellingham have indicated ultimate upgrades in the $300-500 million range, which would equate to $14.4-24 million for the District). Therefore, though the District does not own or operate a WWTP that will be regulated under the Nutrient General Permit, it will likely be impacted by the actual requirements that are implemented. In working with WASWD, the District has developed a draft letter (attached) for consideration for submittal prior to the March 15, 2021, closure of the public comment period.

FISCAL IMPACT

No fiscal impact is anticipated associated with submitting the proposed comment letter to Ecology.

RECOMMENDED BOARD ACTION

Staff recommends approval of submittal of the proposed comment letter to Ecology.

PROPOSED MOTION

Should the Board wish to approve issuance of the proposed comment letter, as written, a recommended motion is:

> "I move to authorize the general manager to issue the comment letter to the Department of Ecology regarding the preliminary draft Puget Sound Nutrient General Permit, as presented."

Should the Board wish to approve issuance of the proposed comment letter with revisions, a recommended motion is:

> "I move to authorize the general manager to issue the comment letter to the Department of Ecology regarding the preliminary draft Puget Sound Nutrient General Permit, with the following revision(s):
>
> 1) _____
> 2) _____."

1220 Lakeway Drive
Bellingham, WA 98229
(360) 734-9224

March 10, 2021

Eleanor Ott, PE
Washington State Department of Ecology
PO Box 47696
Olympia, WA 98504-7696

Re: Preliminary Draft Puget Sound Nutrient General Permit Comments

Dear Ms. Ott:

The Lake Whatcom Water and Sewer District, authorized as a special purpose district under Title 57 Revised Code of Washington, operates water and sewer utilities located wholly within the Lake Whatcom Watershed. Operating utilities within this environmentally sensitive area, which serves as the drinking water source for over 100,000 people, the District takes seriously its commitment to sound environmental stewardship. The District also recognizes that its environmental footprint is larger than its service area—all wastewater collected by the District is conveyed out of the watershed for treatment at the City of Bellingham's Post Point Wastewater Treatment Plant, the effluent of which is discharged to Puget Sound.

As a partner in funding any capital improvements to the Post Point WWTP, the District has closely followed the development of the preliminary draft Puget Sound Nutrient General Permit. The District fully recognizes the Department of Ecology's responsibility to maintain compliance with water quality standards and to address dissolved oxygen impairment in sensitive areas of the Sound. The District is, however, concerned with implementation of the new regulatory requirements defined within the proposed Permit without Ecology having first verified the modeling results upon which the Permit is based with sufficient sampling and data analysis, or fully exploring the effectiveness and costs of removal technologies. The District believes that the significant investments in nutrient control that will be required of treatment plants will have broad societal impacts on affordability, equity, energy use, and greenhouse gas emissions. It is with these concerns that the District Board of Commissioners has authorized the issuance of this letter as the District's formal comments on the preliminary draft Permit.

The District submits the following comments on the preliminary draft Permit issued by Ecology on January 26, 2021:

1. *Better scientific foundation*: Since discussions began about the general permit, utilities have disputed the science behind the proposed regulations. Gaps in data, uncertainties, and understanding of local and regional impacts have not been explained. This has been particularly true for dissolved oxygen standards, which are over 50 years old, and have no scientific basis. Without reliable science that demonstrates how permit requirements will produce significant benefits to the Puget Sound ecosystem, major expenditures of public money to meet Permit requirements

could be wasted at the expense of more beneficial actions for Puget Sound water quality.

2. *Better distinction between regions of the Sound*: There may be reasons to require improvements to certain facilities, depending on their location and circumstances. However, the proposed permit treats all plants throughout the region as contributing to the dissolved oxygen problem based on nitrogen concentrations and flows, and not factoring in locations. The District believes this to be incorrect and not backed by the science. A facility discharging to a confined inlet with sensitive receptors is not the same as one that releases into the middle of Central Puget Sound. Ecology's maps show what appear to be highly localized areas of dissolved oxygen impacts, yet the draft Permit treats it as a Sound-wide problem.

3. *More sound basis for triggers*: The draft Permit relies on a statistical method—"bootstrapping"—to turn minimal amounts of data into measurements of current discharge levels. While we have not seen any report showing how many monitoring points the various plants have available for this calculation method, Ecology staff has implied that at some facilities it might be a dozen or less over three years. This is not sufficient data to accurately characterize a facility's nutrient loading through seasonal variations, weather swings and pandemics. Since all agree that more data is needed, the monitoring program should not only support robust data acquisition for characterization, but also be designed to evaluate optimization since this will, at least initially, be the primary means by which nutrient levels are kept below action levels.

4. *Better defined tiers and triggers*: The proposed "tiers and triggers" are going to tip most plants into significant expenditures in the near term. Even plants that are comfortably under the 10 milligram per liter (mg/L) nitrogen level are required to carry out "optimization" programs, many of which can be costly. Very small plants will likely be kicked into Tier 3 actions—in many cases requiring significant reconstruction with new technology. In some cases, large plants have no space for expansion or reconstruction, and may need to seek to build entirely new facilities elsewhere. Since the "tiers and triggers" are what will set requirements for plants, they need to realistically take into account concerns about science, the insignificance of contributions of small facilities, and timing of required improvements.

5. *More realistic timelines*: The draft Permit requires action on extremely aggressive schedules in several ways. Significant increases in monitoring would be required just one month after the Permit's effective date. Many utilities are not able to add staff and budget in that timeframe. It is also unknown whether commercial labs (or Ecology staff) can handle the surge in new sampling and data generation. The draft Permit is also unrealistic in its schedule for treatment improvements. Major facility improvements require ten or more years to plan, design, permit, construct, and put into operation. The 5% margin allowed over current levels, especially combined with the aggressive timeline for compliance, is likely insufficient to prevent moratoria on new connections with the growth faced by the region. In addition, WQBELs are not expected to be established before 2023. Planning facilities before these limits are known could result in unnecessary or ineffective and costly facilities. Having WQBELs set for each plant before major investments are required ensures better

outcomes for the region and that limited funds are wisely spent. Finally, annual nutrient optimization plan submittal and review by Ecology raises real concerns about the financial and personnel needs locally and at Ecology in order to accomplish this in a timely fashion. Scientific scrutiny and discussion with the plants will be something akin to a discharge permit renewal. This will take time that the draft Permit does not seem to allow for. The District supports the Utility Caucus Proposal which was presented to Ecology and the Advisory Committee in October 2020. This document advances more realistic timelines for steps in the permit.

The District feels it important to reiterate its commitment to protecting the water quality of Puget Sound; however, it has significant concerns related to the draft Permit being based on disputed science, unrealistic timelines for compliance, and apparent disregard for the costs of facility improvements that will ultimately be borne by the general public through significant rate increases. The District strongly encourages that Ecology considers permit requirements that will produce effective and affordable protection of Puget Sound water quality.

Sincerely,

Lake Whatcom Water and Sewer District

Justin L. Clary, PE
General Manager

cc: Bellingham City Council
Washington State Legislators, 40th and 42nd Districts
Washington Association of Sewer and Water Districts

AGENDA BILL Item 9.A		**General Manager's Report**		
DATE SUBMITTED:	March 4, 2021	MEETING DATE:	March 10, 2021	
TO: BOARD OF COMMISSIONERS		FROM: Justin Clary, General Manager		
GENERAL MANAGER APPROVAL				
ATTACHED DOCUMENTS		1. General Manager's Report		
TYPE OF ACTION REQUESTED		RESOLUTION ☐	FORMAL ACTION/ MOTION ☐	INFORMATIONAL /OTHER ☒

BACKGROUND / EXPLANATION OF IMPACT

Updated information from the General Manager in advance of the Board meeting.

FISCAL IMPACT

None.

RECOMMENDED BOARD ACTION

None required.

PROPOSED MOTION

None.

LAKE WHATCOM WATER AND SEWER DISTRICT

General Manager's Report

Upcoming Dates & Announcements

Regular Meeting – Wednesday, March 10, 2021 – 6:30 p.m.

Important Upcoming Dates

Lake Whatcom Water & Sewer District			
Regular Board Meeting	Wed Mar 31, 2021	8:00 a.m.	Remote Attendance
Employee Staff Meeting	Thu Mar 11, 2021	8:00 a.m.	Remote Attendance Commissioner Abele to attend
Investment Comm. Meeting	Wed Apr 28, 2021	10:00 a.m.	Remote Attendance
Safety Committee Meeting	Thu Mar 25, 2021	8:00 a.m.	Remote Attendance
Lake Whatcom Management Program			
Data Group Meeting	Thu Mar 11, 2021	9:00 a.m.	Remote Attendance
Policy Group Meeting	Wed Jun 2, 2021	3:00 p.m.	Remote Attendance
Joint Councils Meeting	Wed Mar 31, 2021	6:30 p.m.	Remote Attendance
Other Meetings			
WASWD Section III Meeting	Tue Apr 13, 2021	7:00 p.m.	Remote Attendance
Whatcom Water Districts Caucus Meeting	Wed Mar 17, 2021	1:00 p.m.	Remote Attendance
Whatcom County Council of Governments Board Meeting	Wed May 12, 2021	3:00 p.m.	Remote Attendance

Committee Meeting Reports

Safety Committee:

- The committee met on February 23; discussion included status on review/approval of various District-specific safety programs, the status on a noise study for District equipment to be incorporated into the hearing conservation program, the status on various trainings/certifications (CPR/first aid/AED, flagger/traffic control, forklift, respirator/SCBA), and the implementation of electronic safety form software.

Investment Committee:

- No committee meeting has been held since the last board meeting.

Upcoming Important Board Meeting Topics

- Sudden Valley water treatment plant alternatives analysis
- Budget amendment associated with the Division 30 emergency water main repair
- Termination of the emergency declaration associated with the Division 30 water main repair
- Accessory dwelling unit policy discussion

2021 Initiatives Status

Administration and Operations

Six-Year Business Plan

- Develop department-specific business plans that define staffing, facility, and equipment needs necessary to meet level-of-service standards over the six-year planning horizon.
  The management team has initiated plan development taking into consideration the results of the Effective Utility Management self-assessment completed in 2020.

Rate Study

- Conduct a rate study for the water and sewer utilities for the six-year planning horizon, including funding strategies related to significant capital improvements anticipated during and beyond the planning horizon.
  A contract for the rate study has been executed and work is proceeding.

Investment Policy Review

- Conduct a comprehensive review of the District's investment policy aimed at optimizing return on investments while sufficiently protecting District funds.
  The investment policy was discussed by the board during its February 10 work session. Revisions will be presented in a resolution for board consideration following completion of board discussion on the District's fiscal management policies (March 10 work session).

Capital Improvement Program Support

- Support the Engineering Department through management of specific capital improvement project(s).
  The general manger is managing the Eagleridge Water Booster-Metering Station Conversion project (District Project No. C2011).

Fill Anticipated Finance Manager Position Vacancy

- With the retirement of the District's Finance Manager anticipated in July 2021, engage in a recruitment and hiring process that allows for seamless transition of leadership in the Finance Department.
  Advertisement for applications was issued on February 24, 2021; first review of applicants is scheduled to begin March 25, 2021.

Negotiate Successor District-AFSCME Agreement

- With the current labor agreement scheduled to expire December 31, 2021, negotiate a successor agreement that aligns with District financial capacity and Board goals.
  To be initiated summer 2021.

Emergency Response/System Security

America's Water Infrastructure Act-compliant Risk Management Program

- Conduct a USEPA-compliant risk and resilience assessment by June 30, 2021.
  Sewer and water utility assessments are complete and were certified on February 8, 2021.
- Develop a USEPA-compliant emergency response plan by December 31, 2021.
  Update to the District's emergency response plan is underway.

Community/Public Relations

General

- Website
  The District's web content is reviewed and updated on a regular basis.
- Social Media
  Posts are made to District Facebook and LinkedIn pages regularly; Nextdoor is regularly monitored for District-related posts.
- Press Releases
  Press releases were issued on February 24 (public notification of daytime road closures assoc. with Division 30 water main repairs) and March 1 (EnviroStars certification).

Intergovernmental Relations

- *J Clary and R Munson attended the Whatcom County Natural Hazard and Mitigation Plan update meeting on February 24 and are scheduled to attend the next meeting on March 9.*
- *J Clary presented on District services and 2020-21 projects to the Sudden Valley Community Association board during its February 25 meeting.*
- *J Clary attended the WASWD general managers' meeting on March 3.*
- *J Clary is scheduled to attend the WASWD Section III meeting on March 9.*
- *J Clary is scheduled to attend the Whatcom Water Alliance meeting on March 10.*
- *J Clary and R Munson are scheduled to attend the Water and Sewer Risk Management Pool semi-annual membership meeting on March 11.*

Public Works Board

- Pursue appointment as WASWD representative on the Washington State Public Works Board.
  Following board approval, J Clary submitted an application for appointment to the Public Works Board on February 11, 2021.

Lake Whatcom Water Quality

Management Program

- Participate in meetings of Lake Whatcom Management Program partners.
  J. Clary met with city/county staff on March 2 in preparation for the Joint Councils meeting, and is scheduled to attend the Data Group meeting on March 11.

Onsite Septic System Conversion Program

- Pursue connection of the one remaining septic-served parcel located within 200 feet of District sewer system identified in the memorandum to the Board dated April 9, 2020.
  To be initiated.