



SILVER LAKE WATER & SEWER DISTRICT Wastewater Comprehensive Plan

G&O #16497
December 2018



Gray & Osborne, Inc.

SILVER LAKE WATER & SEWER DISTRICT

SNOHOMISH COUNTY

WASHINGTON



WASTEWATER COMPREHENSIVE PLAN



G&O #16497
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EXECUTIVE SUMMARY

Silver Lake Water & Sewer District owns, operates, and maintains a sewer collection system service an area of southeast Snohomish County. The Silver Lake Water & Sewer District Wastewater Comprehensive Plan (the Plan) provides a long-term planning strategy for the District's sewer utility over the next 20-year planning period. The Plan has been prepared consistent with Department of Ecology requirements as specified in the Washington Administrative Code (WAC) Chapter 173-240-050 *General Sewer Plan*. The Plan represents a commitment by the District to pursue and implement the Plan's recommendations and capital improvements.

PLAN SUMMARY

Chapters 1 and 2 of the Plan provide background data, including a description of the service area, service area policies, and population projections. Chapter 3 presents applicable wastewater regulatory requirements. Chapter 4 characterizes the existing and projected wastewater flows. Chapter 5 provides background information about the District's existing facilities, including lift stations, force mains, and gravity systems. Chapter 6 is an evaluation of the collection system, including a description of the District's hydraulic model, an evaluation of treatment agreements, major gravity lines, lift stations, and force mains for existing and future flows. Chapter 7 presents a brief summary of the District's operation and maintenance program. Chapter 8 presents the recommended capital improvements, and Chapter 9 presents financing for the recommended improvements and operation of the District. The nine chapters of this report are followed by appendices containing backup documentation.

STUDY AREA

The study area for this plan covers approximately 10,029 acres, of which approximately 7,954 acres are within the current District boundary. The study area also includes the Cross Valley Water District (CVWD) Agreement Area, which is located outside the District boundary. The agreement between the District and CVWD indicates that the District will operate and maintain this area for sewer service. The District will continue to be responsible for transmission of sewer flows from this agreement area to the Everett South End Interceptor. Therefore, this portion of the service area has been included in the flow projections, hydraulic modeling, and the facility analysis for the District, to ensure that the capacity of District facilities is sized to include flows from this area. Other areas that could be served by the District in the future include a portion of Cross Valley's current service area, but outside the agreement areas, and an area not yet claimed by any service provider - the Little Bear Creek basin. These areas are currently outside the Snohomish County Urban Growth Area and thus cannot be served with sewer at this time.

The former Cathcart Landfill property is within the current District boundary. For the purposes of estimating flows at buildout, this report assumes that the property will be developed as presented in the 2015 *Snohomish County GMA Comprehensive Plan*, with zoning for commercial, industrial, and residential land uses.

POPULATION PROJECTIONS

The District’s sewer service population, as of December 2015, was estimated at 49,181 people served by 16,277 connections. Based on population growth rates established by the Puget Sound Regional Council, the District’s sewer service population is estimated to grow to 65,690 people by 2036. Currently, there are areas within the District that are provided water service by the District, but are on septic systems. The District anticipates having sewer service available to all its water customers by the year 2041.

Table E-1 presents the projected population for the District and the projected sewered population for the 20-year planning period. Chapter 2 details the source of the population projections.

TABLE E-1

Service Area Population Projections⁽¹⁾

Year	Sewered Connections	Sewered Population ⁽³⁾
2015	16,277	49,181
2016	16,631	50,251
2017	16,924	51,136
2018	17,442	52,701
2019	17,837	53,894
2020	18,239	55,109
2021	18,644	56,333
2022	19,053	57,569
2023	19,466	58,817
2024	19,884	60,080
2025	20,042	60,557
2026	20,199	61,031
2036	21,741	65,690
Buildout ⁽²⁾	22,456 ⁽⁴⁾⁽⁵⁾	67,851 ⁽⁴⁾⁽⁵⁾

- (1) Includes District and Cross Valley Agreement Area.
- (2) Buildout is projected to be reached in the year 2041.
- (3) Based on 3.02 persons per connection.
- (4) Based on PSRC growth projections.
- (5) Does not assume any annexation by Everett.

WASTEWATER DESIGN CRITERIA

Tables E-2 and E-3 present the wastewater flow design criteria used for the Plan. Table E-2 shows the projected peak domestic flow, infiltration and inflow, and total peak wet weather flows for the areas inside the District and including those areas, located outside the District currently covered under the CVWD Agreement.

TABLE E-2

Summary of Wastewater Design Criteria Sewer Service Area⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	49,181	64,117	67,851
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	1,878 gpm	2,449 gpm	2,592 gpm
Average Domestic Flow	2.70 mgd	3.53 mgd	3.73 mgd
Peaking Factor ⁽²⁾	1.56	1.56	1.56
Peak Domestic Flow ⁽³⁾	3,030 gpm	3,920 gpm	4,143 gpm
Sewered Area	6,861 acres	7,448 acres	7,595 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow ⁽⁴⁾	6.86 mgd	7.45 mgd	7.59 mgd
Peak Wet Weather Flow ⁽⁵⁾	7,834 gpm	9,100 gpm	9,417 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	3.43 mgd	3.72 mgd	3.80 mgd
Maximum Month Flow ⁽⁶⁾	6.14 mgd	7.25 mgd	7.53 mgd

- (1) Includes connections within the District as well as the current proposal for Cathcart development and contract service areas lying outside the District's boundary (CVWD), and AWWD Agreement Areas.
- (2) Peaking Factor based flow metering data.
- (3) Includes 100 gpm peak flow from Cathcart Landfill Treatment Facility.
- (4) Peak hourly. Infiltration and Inflow Rate is based on flow metering data. I/I is applied only to the sewered areas, including public right-of-way.
- (5) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly Infiltration and Inflow.
- (6) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

TABLE E-3

Summary of Wastewater Design Criteria for Everett Agreement Area⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	42,630	54,894	57,959
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	1,628 gpm	2,097 gpm	2,214 gpm
Average Domestic Flow	2.34 mgd	3.02 mgd	3.19 mgd
Peaking Factor ⁽²⁾	1.56	1.56	1.56
Peak Domestic Flow ⁽³⁾	6,796 gpm	7,781 gpm	8,027 gpm
Sewered Area	5,928 acres	6,339 acres	6,442 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow ⁽⁴⁾	5.93 mgd	6.34 mgd	6.44 mgd
Peak Wet Weather Flow ⁽⁵⁾	6,796 gpm	7,781 gpm	8,027 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	2.96 mgd	3.17 mgd	3.22 mgd
Maximum Month Flow ⁽⁶⁾	5.31 mgd	6.19 mgd	6.41 mgd

- (1) Includes connections within the District as well as the current proposal for Cathcart development and contract service areas lying outside the District’s boundary (CVWD).
- (2) Peaking Factor based flow metering data.
- (3) Includes 100 gpm peak flow from Cathcart Landfill Treatment Facility.
- (4) Peak hourly. Infiltration and Inflow Rate is based on flow metering data. I/I is applied only to the sewered areas, including public right-of-way.
- (5) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly Infiltration and Inflow.
- (6) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

CAPITAL IMPROVEMENT PLAN

The Plan contains a list of projects for the District’s capital improvement plan for the 6-year, 10-year, and 20-year planning horizons. These projects include improvements to the South End Interceptor, lift station upgrades, force main upgrades, concrete sewer rehabilitation, and the District’s financial share of improvements scheduled for the Everett Water Pollution Control Facility (WPCF). The District may reprioritize projects in the future to accommodate other agencies and unforeseen events. Table E-4 summarizes the District’s estimated annual capital improvement costs for the 10-year planning horizon.

TABLE E-4

Capital Improvement Plan Summary

Year	Annual Capital Improvement Cost
2017	\$772,000
2018	\$6,575,000
2019	\$4,241,000
2020	\$3,634,000
2021	\$1,724,000
2022	\$3,009,000
2023	\$3,152,000
2024	\$6,961,000
2025	\$6,468,000
2026	\$3,165,000
Average 2017-2026	\$3,970,000

FINANCIAL

The District intends to perform regular rate studies to fund the proposed capital improvement plan, general administration, operation, and maintenance through a combination of rates, system development charges, and loans.

A positive net income was realized by the District in each of the last 12 years.

CHAPTER 1

INTRODUCTION

Silver Lake Water & Sewer District (District) owns, operates, and maintains a sewer collection system serving an area of southeast Snohomish County. The Silver Lake Water & Sewer District Wastewater Comprehensive Plan (the Plan) is an update of the 2011 Silver Lake Water & Sewer District *Wastewater Comprehensive Plan*. The Plan is prepared to conform to the requirements of the Revised Code of Washington (RCW) 90.48 and the Washington Administrative Code (WAC) 173-240-050.

WASTEWATER SYSTEM OWNERSHIP AND MANAGEMENT

The District is governed by a Board of Commissioners who are elected for a 6-year term. The current commissioners are Bill Anderson, Anne Backstrom, and Rod Keppler. The General Manager of the District is Curt Brees. The District office is located at 15205 41st Avenue SE, Bothell, Washington 98012, in Snohomish County as shown in Figure 1-1.

PURPOSE

The Plan has been developed to address the existing and future wastewater service issues facing the District. Issues include: (1) the potential for expanded sewer service in the Cross Valley Water District service agreement area, in the vicinity of Lowell Larimer Road; and (2) annexations of District service area by the City of Everett. Growth in the CVWD agreement area will likely necessitate new sewer mains and pump stations. The District will also continue to plan for the potential loss of additional service area to Everett in order to ensure the financial viability of the District going forward.

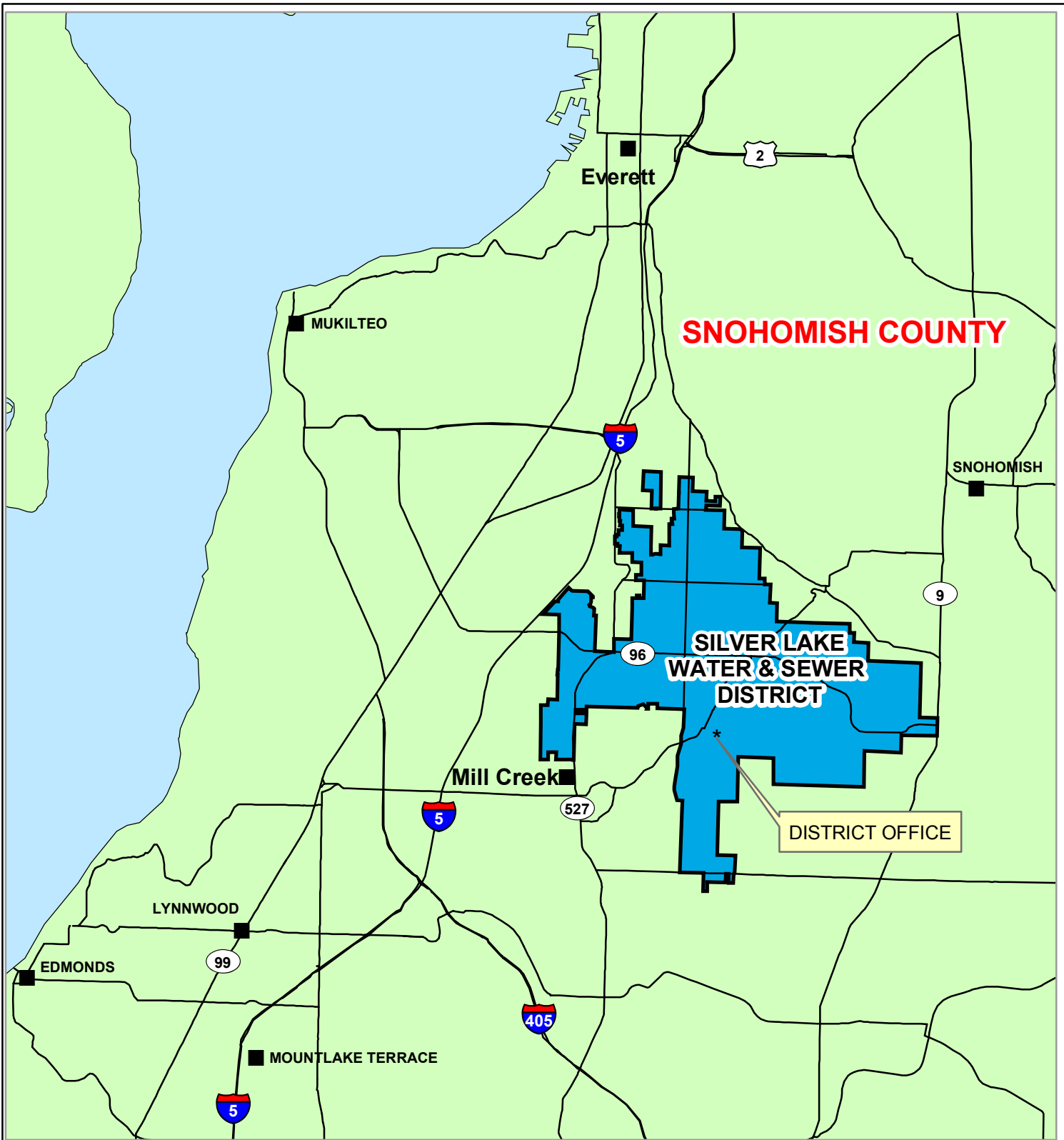
While the District has experienced rapid population growth over the last two decades, growth is expected to taper as the District approaches buildout. Since 1995, when Snohomish County implemented the Growth Management Act, the District's population has more than doubled to an estimated 53,024, as of 2015 (approximately 49,181 served by sewer). Based on Puget Sound Regional Council (PSRC) projections, the population in 2036 (62,050) is estimated increase by just over 15 percent over the 2015 population.

The purpose of this Plan is to address these issues, assess the condition and capabilities of the existing sewer system, develop a plan for future service within the defined study area, and to determine required system improvements, including project construction schedules and costs.

SCOPE

This Wastewater Comprehensive Plan is organized into the following chapters:

- Chapter 1, **Introduction**, includes descriptions of the purpose and scope of the Plan and background information to address the issues discussed in this Plan.
- Chapter 2, **Basic Planning Data**, reviews general planning issues, including study area boundaries, physical environment, growth management, land use zoning, and population projections.
- Chapter 3, **Regulatory Requirements**, consists of pertinent regulations that apply to the District's wastewater collection and pumping facilities.
- Chapter 4, **System Design Criteria**, includes key terms for the discussion of wastewater flows and development of design criteria for existing and future flows.
- Chapter 5, **Existing Facilities**, wastewater collection system and sewer agreements with adjacent utilities are described.
- Chapter 6, **Collection System Evaluation**, describes a computer model of the sewer collection system components, including lift stations, force mains, and major gravity lines; and evaluates the future service system of the study area and provides recommendations for the plan that will best meet the District's future needs. The chapter also provides modeling results at current and future flows to identify system capacity deficiencies.
- Chapter 7, **Operation and Maintenance Program**, provides an overview of the District's operation and maintenance program. This chapter provides a description of the District's operational scheme and describes the maintenance program, including recording keeping, and preventative maintenance procedures.
- Chapter 8, **Capital Improvement Plan**, recommends sewer system improvements and provides an implementation schedule for those improvements.
- Chapter 9, **Financial Program**, provides an assessment of current financial status of the utility, discusses available and potential revenue sources for system improvements, develops cost for additional staff, and reviews O&M costs related to the recommended CIP.



SILVER LAKE WATER
& SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN

FIGURE 1-1
LOCATION MAP



BACKGROUND INFORMATION

HISTORY OF WASTEWATER SYSTEM DEVELOPMENT

In the 1960s, Snohomish County encouraged the formation of a sewer district in the area east of Silver Lake, due to the lack of adequate soils for septic tank disposal systems and the failure of septic tank drain fields. In 1967, at the time of its formation, the Fircrest Sewer District covered approximately 1,600 acres in the west portion of the Snohomish River Drainage Basin. The Fircrest Sewer District joined with the Silver Lake Water District in 1981. When the Districts joined, the sewer district boundaries were expanded to be consistent with the water district.

The Fircrest Sewer District's *1967 Comprehensive Plan* proposed a sewage collection and disposal system, which would be designed to meet the projected expansion of the service area. The proposed system consisted of gravity lines, lift stations, and force mains, which would convey all wastewater into an oxidation ditch treatment facility. The oxidation ditch was to be located within the flood plain of the Snohomish River, and the effluent from the proposed oxidation ditch was to discharge into the Snohomish River. The facilities were to be constructed in stages, as the growing population of the area would allow. However, public sentiment prohibited the construction of the oxidation ditch treatment facility, and an alternative plan was developed to discharge sewage to the City of Everett (Everett) for treatment.

In 1970 and 1971, major portions of a wastewater collection system were constructed to transmit wastewater to Everett. The system consisted of 12-inch and 18-inch trunk sewers, four lift stations (Lift Stations 1, 2, 3, and 4), and 8-inch and 10-inch force mains. The system was configured so that all wastewater from the service area was delivered to Lift Station 1, which pumped into the Everett sewer system at a point north of Silver Lake. The sewage collection system continued to develop through developer extensions and utility local improvement districts (ULIDs) until the next major expansion of the Fircrest Sewer District in 1980.

From 1977 to 1980, four lift stations to serve new developments were constructed including Woodlands East (1977), Woodlands North (1979), Shelfield (1979) and The Point (1980). An agreement was signed to allow a developed area in the southwest portion of the service area to discharge by gravity to the Alderwood Water & Wastewater District (AWWD) trunk sewer system and to the King County Department of Natural Resources' treatment plant. The recommendations of the *1980 Sewerage System General Comprehensive Plan* were to provide the facilities necessary to discharge all sewage from the service area to Everett, except for the areas that could discharge by gravity to AWWD. In 1980, the Fircrest Sewer District area covered approximately 4,220 acres.

From 1982 to 1987, after the merger with Silver Lake Water District, the major expansions to the sewer system included four lift stations with accompanying gravity lines and force mains. The lift stations included Valmont (1982), Silver Crest (1986),

Townsend Lane (1987), and Pioneer Trails (1987). The Silver Crest Lift Station was constructed to drain an area in the southern part of the District to AWWD, while the other three lift stations became part of the system, which discharged to Everett. The location of discharge to Everett remained at a point north of Silver Lake, with the entire wastewater flows passing through Lift Station 1. The District's service area in 1987 was approximately 8,800 acres.

From 1988 to 1995, three lift stations were added including Windsong Terrace (1988), Silver Firs (1994), and Mill Creek Gateway (1995), and the location of discharge to the Everett system was altered due to the construction of the 30- and 36-inch Everett South End Interceptor. The Interceptor was completed in 1991 and eliminated Lift Station 1. The District completed the necessary alterations to its sewer system for discharge to Everett at a new location located northeast of Silver Lake. Annexations by the City of Everett reduced the District's service area to 7,635 acres in 1997.

Between 1997 and 2003, nine new lift stations were constructed by developers. These lift stations include Highlands No. 1 (1997), Highlands 2 (1999), Waldenwood East (1999), Thomas Lake (2000), Luschenshire (2001), Highlands East (2001), Creekside (2001), Remlinger Park (2002), and Lowell Larimer 1 (2003). In 2000, the Silver Crest Lift Station was removed with flows conveyed by gravity to the existing Pioneer Trails Lift Station, and Lift Station 3 was upgraded. In 2001, the Shelfield Lift Station was removed and the drainage was transferred to the new Creekside Lift Station. In 2003, the District boundary encompassed 7,765 acres.

The District has purchased capacity within Everett's sewer facilities to provide for future wastewater flow. Per the 2000 Agreement, the District is allowed to discharge 11,500 gpm, peak wet weather flow, into the Everett South End Gravity Interceptor.

From 2003 to 2010, the District continued to expand and improve its network of lift stations. Four new lift stations were constructed by developers, including the 164th Street, 180th Street, Lowell Larimer 2, and Sector 7 Lift Stations. Lift stations upgraded by the District included Lift Station 2, Lift Station 4, Pioneer Trails, Woodlands North, and Woodlands East. Both the Woodlands North and East Lift Station facilities received new emergency generators. Four lift stations were removed, including the Remlinger Park, Mill Creek Gateway, Luschenshire, and Townsend Lane Lift Stations. Remlinger Park Lift Station was relocated to the 164th Street Lift Station. In 2010, the Sector 7 Lift Station was decommissioned and a new Sector 7 station constructed at a new location 300 feet to the east. The new Sector 7 Lift Station also receives flows from the decommissioned Luschenshire and Cathcart sewer basins, including flows from the Cathcart landfill lagoon.

Between 2003 and 2010, the District's service area changed, a new Headquarters was constructed (2006), and the District's sewer conveyance infrastructure continued to expand. The District annexed an area to the south, from 164th Street SE to 180th Street SE, between 35th Avenue SE and the Snohomish County Urban Growth Boundary. The

District also annexed an area south of 180th Street SE, east of Sunset Road. The City of Everett annexed two sections of the District's service area in 2005: Cascade Highlands (between 100th Street SE and 108th Street SE and between 27th Avenue SE and 31st Avenue SE) and Murphy's Corner, a commercial area along the SR 527 corridor (between 123rd Street SE and 132nd Street SE). These net effect of these annexations was to increase the District's service area to 7,952 acres.

Since 2010, capital improvement efforts have focused on renovating and improving existing sewers and lift stations. The District improved three lift stations (Valmont, the Point, and Lift Station 3), upgraded the Decant Facility, and rehabilitated 6,350 feet of sewer main.

The District currently maintains approximately 163 miles of gravity sewer main, 12.5 miles of sewer force main, and 22 sewage lift stations. Some of these facilities are located outside the District boundaries, serving residential development located within Cross Valley Water District. Since the 2011 *Wastewater Comprehensive Plan Update*, the number of customer accounts has increased from 14,500 to more than 16,300.

The District updated its Interlocal Agreement with Alderwood Water & Wastewater District in 2008, 2010 and 2013.

The District updated its Interlocal Agreement with Cross Valley Water District in 2010.

The District updated its Interlocal Agreement with the City of Everett in 2010, 2012 and replaced all prior agreements in 2015 with a comprehensive 50-year operational agreement defining criteria for operation following annexations. The operational entity will switch at defined connections rather than immediate transfer of customers to Everett following an annexation.

PROJECTS COMPLETED SINCE THE 2011 WASTEWATER PLAN

Table 1-1 provides a list of the projects identified in the 2011 *Wastewater Comprehensive Plan* that have been completed over the last 5 years.

TABLE 1-1

Projects Completed Since 2011 Wastewater Comprehensive Plan

Name	Year	Funding
Sewer Lift Stations		
Valmont Lift Station Improvements	2011	District
The Point Lift Station Improvements	2011	District
Lift Station 3 Improvements	2012	District
General System Improvements		
Concrete Sewer I/I Study	2012	District
2012 Sewer Rehabilitation	2012	District
Decant Facility Improvement	2014	District
2015 Sewer Rehabilitation	2015	District
Emergency Response Plan Update	2015	District
Wastewater Comprehensive Plan Update	2017	District
Manhole Grade Adjustments	Annual	District
Force Main Projects		
Silver Firs Force Main Rehabilitation	2015	Developer/District
Gravity Sewer Projects		
South End Interceptor Upgrade	2011	District
2012 Sanitary Sewer Rehabilitation	2012	District
51 st Avenue SE Gravity Rehabilitation	2015	Developer/District

Ongoing sewer agreement projects include the City of Everett Water Pollution Control Facility and Outfall Improvements (G-3).

ADJACENT PURVEYORS

The service area boundary for the District is bordered by the City of Everett to the north, Alderwood Water & Wastewater District (AWWD) to the west and south, and Cross Valley Water District (CVWD) to the east.

WASTEWATER SYSTEM RESOLUTIONS

Wastewater service and design standards are governed by the following resolutions. These resolutions are included in Appendix A.

- Resolution 651, passed on June 28, 2010, adopted new sewer connection charges, effective to building permits issued after August 14, 2010.
- Resolution 738, passed on April 27, 2017, adopted new sewer service charges, effective May 1, 2017.
- The District’s Standards were last updated in 2017 by Resolution No. 735.

INVENTORY OF EXISTING FACILITIES

The District does not own wastewater treatment facilities. Sewage generated in the southwest region of the service area flows by gravity into the AWWD system and from there to the King County Department of Natural Resources, Wastewater Treatment Division for treatment and disposal. The 180th Street Lift Station also pumps to AWWD. Sewage from the remaining service area is pumped, or flows by gravity, west and north to the City of Everett Water Pollution Control Facility (WPCF).

The District's collection system includes 22 lift stations, approximately 12.5 miles of force main, and approximately 163 miles of gravity lines. An inventory and schematics of these facilities are presented in Chapter 5, including a discussion of the sewer agreements the District maintains with Everett, AWWD, CVWD, and Snohomish County Public Works.

RELEVANT PLANNING DOCUMENTS

The following planning documents were prepared either for the District or for adjacent sewer systems.

SILVER LAKE WATER & SEWER DISTRICT DOCUMENTS

- Silver Lake Water District, *Wastewater Comprehensive Plan*, Gray & Osborne, Inc., 2011.
- Silver Lake Water & Sewer District, *Comprehensive Water System Plan*, Gray & Osborne, Inc., 2017.
- Silver Lake Water District, *Water and Wastewater System Operations and Maintenance Manual*, Gray & Osborne, Inc., November 2005.
- Silver Lake Water District, *Emergency Response Plan*, Gray & Osborne, Inc., 2014.

GMA COMPREHENSIVE PLANS

- *City of Everett Comprehensive Plan*, 2015.
- *City of Mill Creek Comprehensive Plan*, 2015.
- *Snohomish County GMA Comprehensive Plan General Policy Plan*, February 2016.

Population projections, zoning and land use, and urban growth areas (UGAs) presented in this Plan are consistent with the information presented in these documents.

COMPREHENSIVE SEWER PLANS

- *Cross Valley Water District Sewer System Plan*, PACE, April 2010.
- *City of Everett, Comprehensive Sewer Plan*, May 2014.
- *Alderwood Water & Wastewater District Sanitary Sewer Comprehensive Plan*, BHC, Inc., July 2009.

OTHER DOCUMENTS

- *2015 Sub-County (Small Area) Forecasts of Population and Employment, Central Puget Sound Region*, Puget Sound Regional Council, 2015.
- *City of Snohomish General Sewer Plan and Wastewater Facilities Plan Update*, CH2M Hill, February 2011.
- *City of Everett Water Pollution Control Facility Engineering Report*, Corollo Engineering, Inc., April 2010.

In order to provide consistency between the District's *Wastewater Comprehensive Plan* and the *Comprehensive Water System Plan*, the same information is used for land use, population projections, and system policies, where appropriate.

INTERLOCAL AGREEMENTS

The District maintains agreements with the City of Everett and AWWD that provide for the disposal of all wastewater generated within the District. The District also has an agreement with Snohomish County and the City of Everett for the conveyance of leachate from the Cathcart Landfill to Everett for treatment. The District has an agreement with Cross Valley Water District to provide sewer service within the Cross Valley Water District from the Silver Lake Water and Sewer District boundary to Lowell-Larimer Road. A copy of each agreement is included in Appendix B and a further discussion is included in Chapter 5.

CHAPTER 2

BASIC PLANNING DATA

INTRODUCTION

The configuration of a sewer system can be influenced by many factors including development trends, political considerations, and topography. Sewer lines normally follow natural drainage patterns to maximize gravity flow. A comprehensive sewer plan establishes a sewer service area based on topography, the drainage characteristics of the area, and the sewer provider's growth objectives. Modifications may then be made in consideration of the influence of existing facilities, political boundaries, and growth patterns before finalizing a specific plan. A comprehensive sewer plan must permit sufficient flexibility to provide for existing areas of need and the future development of areas in the planning basin.

STUDY AREA

The study area for the Plan covers approximately 10,029 acres, of which approximately 7,954 acres are within the current District boundary. The study area boundary and the existing boundary of the District are presented in Figure 2-1.

The study area includes areas located within the Cross Valley Water District's (CVWD) boundary (see Figure 2-2). The District currently operates and maintains facilities located between the District's service area boundary and Lowell-Larimer Road, three parcels northeast of Lowell-Larimer Road, and also an area north of 156th Street SE - the Willows Creek Division 2 subdivision. Although the CVWD area is located outside of the District boundary, sewer flows from the area will continue to be pumped to the District's system. These areas are included in the 2009 Amendment to Interlocal Agreement between the District and CVWD (approved in 2010) and the 1998 Pilling Property Interlocal Agreement, that promote the cooperation of both Districts in providing water and sewer service to certain properties near or adjacent to the common boundary lines of the Districts within the Snohomish County UGA. Copies of these agreements are provided in Appendix B.

CVWD currently does not have a sewage treatment plant, relying on adjacent sewer service purveyors to convey sewage for treatment. If this situation remains, there are significant areas outside of the District's current boundary within the CVWD service area that can be served by the District by gravity. Most of these areas are outside of the Snohomish County Urban Growth Area (UGA) and cannot be developed to urban densities at the present time. However, since the District can potentially serve these areas by gravity, they are included in the study area in order to analyze the impacts of providing service in the future. These areas are shown as the "Future Service Area" on Figure 2-1.

The District currently has an agreement with AWWD to convey sewage from several locations within AWWD's sewer service area, prior to resending the flows back to AWWD. Some of the flows from these areas are conveyed by gravity; however, there are some AWWD basins that flow to the 180th Street Lift Station prior to being pumped back to the AWWD system. These areas are included in the study area to analyze capacity. Their associated flow is estimated in Chapter 4, but since their properties are not served directly by the District, their population is not included in this chapter.

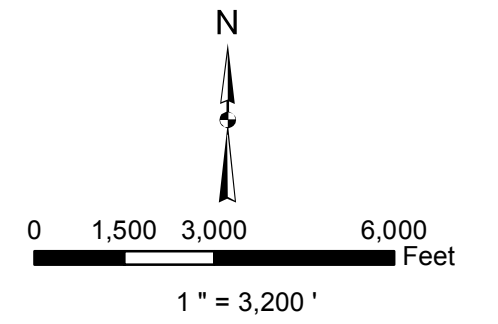
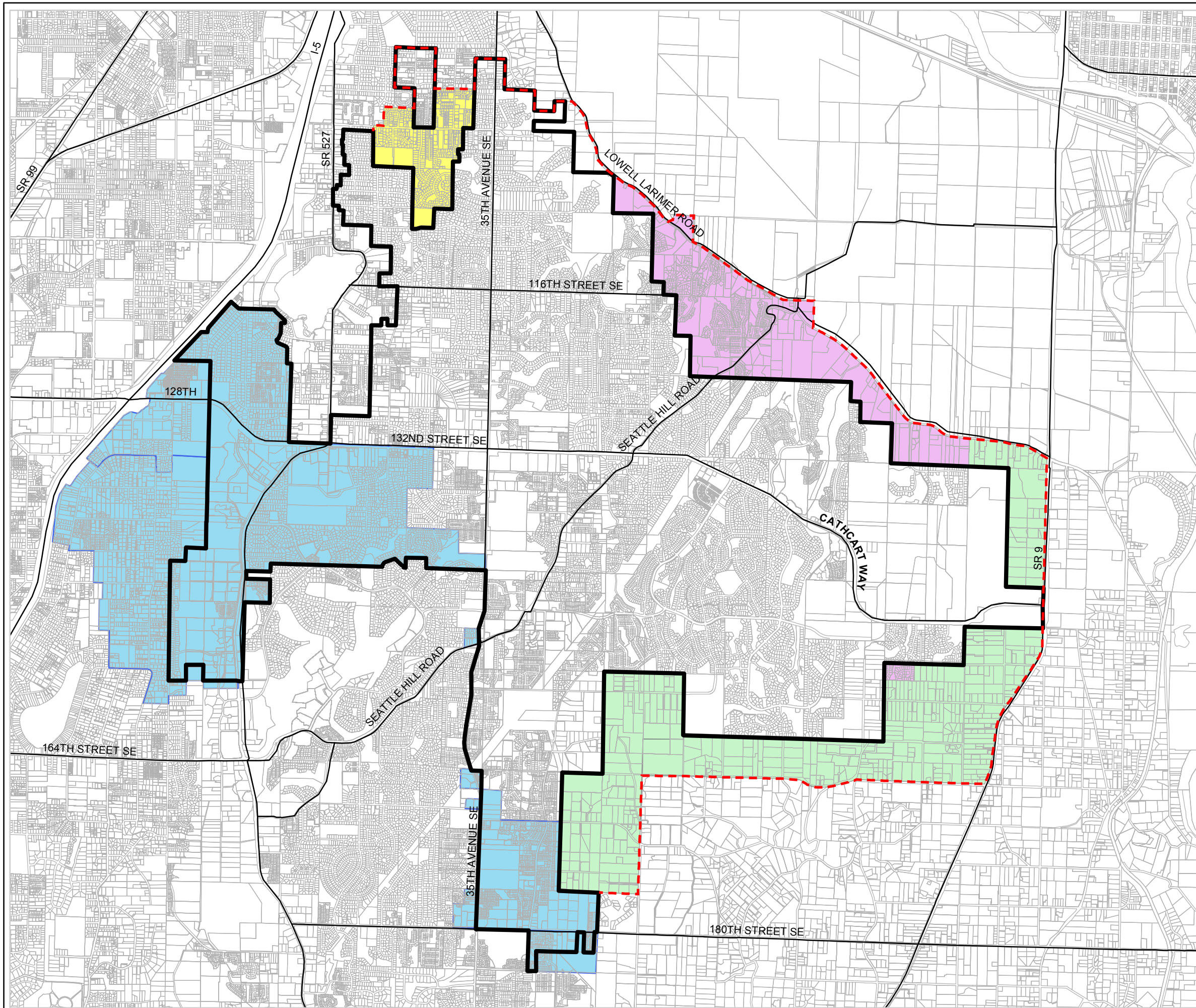
The District also receives flows from the area described as the Everett Gravity Basin in Figure 2-1. Like the AWWD pass-through agreements described above, flows from this basin are conveyed through the District's gravity sewer network before being passed back to Everett. Their associated flow is estimated in Chapter 4, but since their properties are not served directly by the District, their population is not included in this chapter.

A significant portion of the District's service area lies within the City of Everett (Everett) Urban Growth Area (UGA). The District has entered into an agreement with Everett for the transfer of the District facilities and customers within the Everett UGA. The agreement details five service transfer areas located within the District boundary as shown on Figure 2-3. The transfer of service is based on the "60-percent date" upon which Everett has annexed 60 percent or more of the water connections within a service transfer area. Everett may notify the District in writing of its intent to assume District facilities, capacities, and customers within the area. The agreement also defines a "date of notice" for each transfer area. If the 60-percent date precedes the date of notice, then the transfer is effective 6 years after the 60-percent date occurs; if the 60-percent date occurs after the date of notice, then the transfer is effective on the 60-percent date. The dates of notice range from 2020 to 2050.

A significant portion of the District's service area also lies within the City of Mill Creek and their UGA, shown in Figure 2-3. The City of Mill Creek does not own or provide water or sewer service. The City is served by AWWD and the District. It is not anticipated that annexation of the UGA by the City of Mill Creek will change any of the current arrangements for water and sewer service. The current franchise with the City of Mill Creek prohibits the City from providing water or sewer service before the year 2040.

WATER SYSTEM

The District owns and operates a water distribution and storage system. Historically, all water for the District was purchased directly from the City of Everett. The Clearview Water Supply Agency (CWSA) was formed by an interlocal agreement between Alderwood Water & Wastewater District (AWWD), CVWD, and the District. In 2005, the District began receiving water through the CWSA facilities on the southeast side of the District. Water is also purchased from the Alderwood Water & Wastewater District through a master meter in the southwest part of the District. Within the District's service area are three storage reservoirs with a total capacity of 16.4 million gallons (MG). The



LEGEND


- - - STUDY AREA
- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- EVERETT PASSTHROUGH AREA
- POTENTIAL FUTURE SERVICE AREA
- AWWD AGREEMENT AREA
- CVWD AGREEMENT AREA

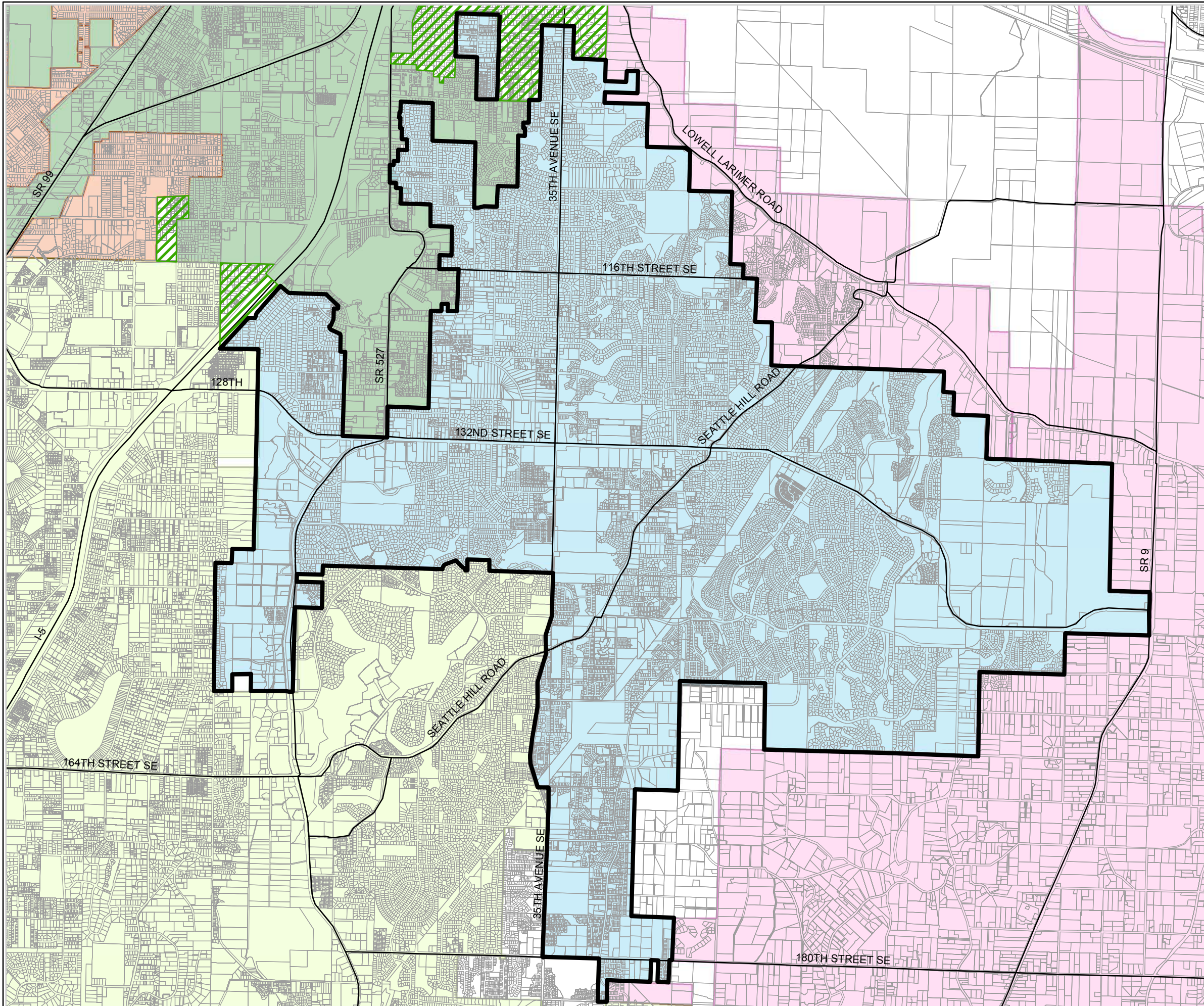
SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN

FIGURE 2-1

STUDY AREA AND DISTRICT BOUNDARY


Gray & Osborne, Inc.
 CONSULTING ENGINEERS



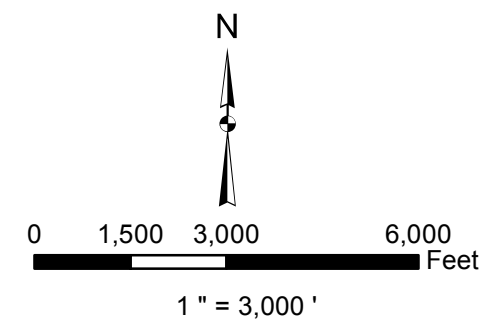
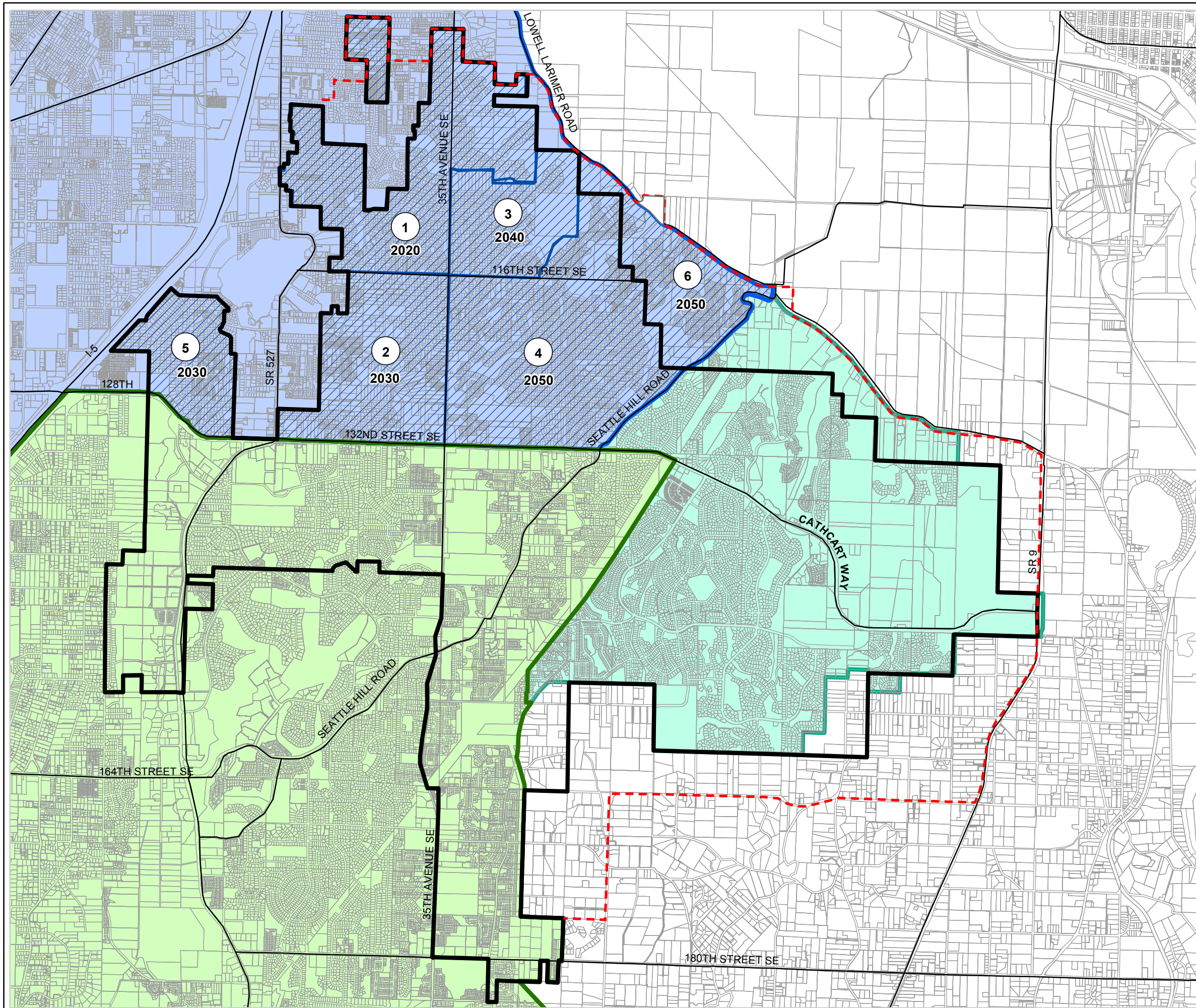
LEGEND

- SILVER LAKE WATER & SEWER DISTRICT
- EVERETT SERVICE AREA OUTSIDE CITY LIMITS
- ALDERWOOD WATER & WASTEWATER DISTRICT
- CROSS VALLEY WATER DISTRICT
- MUKILTEO WATER & WASTEWATER DISTRICT
- CITY OF EVERETT

SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN
FIGURE 2-2
ADJACENT PURVEYORS



Gray & Osborne, Inc.
CONSULTING ENGINEERS



LEGEND

- - - STUDY AREA
- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- ▨ SERVICE TRANSFER AREAS
- CITY OF EVERETT UGA
- CITY OF MILL CREEK UGA
- SNOHOMISH COUNTY UGA

SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN

FIGURE 2-3

UGA BOUNDARIES

Gray & Osborne, Inc.
CONSULTING ENGINEERS

main transmission lines in the water system are 8-, 10-, 12-, and 16-inch ductile iron pipes.

All water received by the District is produced from the Everett Spada Lake Basin facilities. A detailed description of District Water System is included in the 2017 Comprehensive Water Plan.

There are no public wells located within the District's service area. Decommissioning private wells is a condition of service for connection to the water system.

GROWTH MANAGEMENT ACT

The Growth Management Act (GMA) was enacted in 1990 to address the population growth that occurred in Washington State during the 1980s. To ensure a continuation of Washington's high quality of life, officials across the state have addressed growth management within various levels of government. The basic objective of the GMA is to encourage county and city governments to develop and implement a 20-year comprehensive plan that incorporates their vision of the future, within the framework of the broader needs of the state.

Under the GMA, municipalities must coordinate their planning efforts with those of the county. The planning effort of a municipality includes the establishment of an UGA. Generally, municipalities are to provide basic urban services, including water, sewer, education, police, and fire protection to all areas within their established UGAs. The District study area includes portions of the UGAs of three municipalities: the City of Everett (Everett), the City of Mill Creek (Mill Creek), and unincorporated Snohomish County (Snohomish County). The UGAs within the District for Everett, Mill Creek, and Snohomish County are shown in Figure 2-3. The District provides water and sewer services to the area within its service area boundary, plus some areas outside its service area, by interlocal agreement, while the remaining basic urban services are provided according to UGA jurisdiction.

PLANNING PERIOD

Due to the District's growth history and the need to provide wastewater services for future growth, the District's sewer system is in need of continuous evaluation and improvement. A planning period for the District's sewer system should be long enough to be useful for an extended period of time, but not so long as to be impractical. The District has adopted 6-year, 10-year, and 20-year planning periods to allow for the implementation of its capital improvement program. The 6-year planning period for the District's Capital Improvement Plan is 2022, the 10 year is 2026, and the 20 year is 2036. The District will also analyze a buildout scenario to ensure proper sizing of facilities.

ZONING AND LAND USE

The land use zoning for the study area is established in the land use planning sections of the GMA Comprehensive Plans of Everett, Mill Creek, and Snohomish County. Though the majority of the study area is zoned for residential development, the allowable density in terms of units per acre varies according to UGA jurisdiction. The land use within the study area for Everett, Mill Creek, and Snohomish County is presented in Figure 2-4, Future Land Use.

To assess the growth potential of the District, undeveloped areas are identified within the District and the study area. Undeveloped areas are defined as parcels with a use code of “910 Undeveloped (Vacant) Land.” Site-sensitive areas are defined as areas with steep slopes and wetlands identified in the National Wetlands Inventory. All other land not in the right of way is taken as “developed.” The portions of the District’s study area identified as developed, site-sensitive, undeveloped, and public areas are listed in Table 2-1.

TABLE 2-1

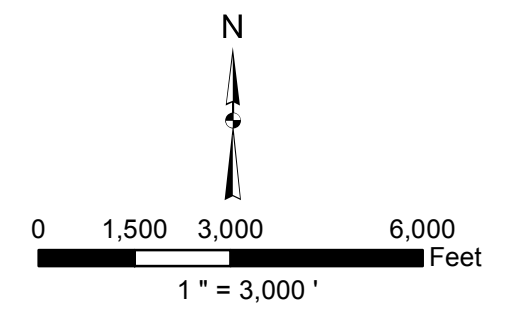
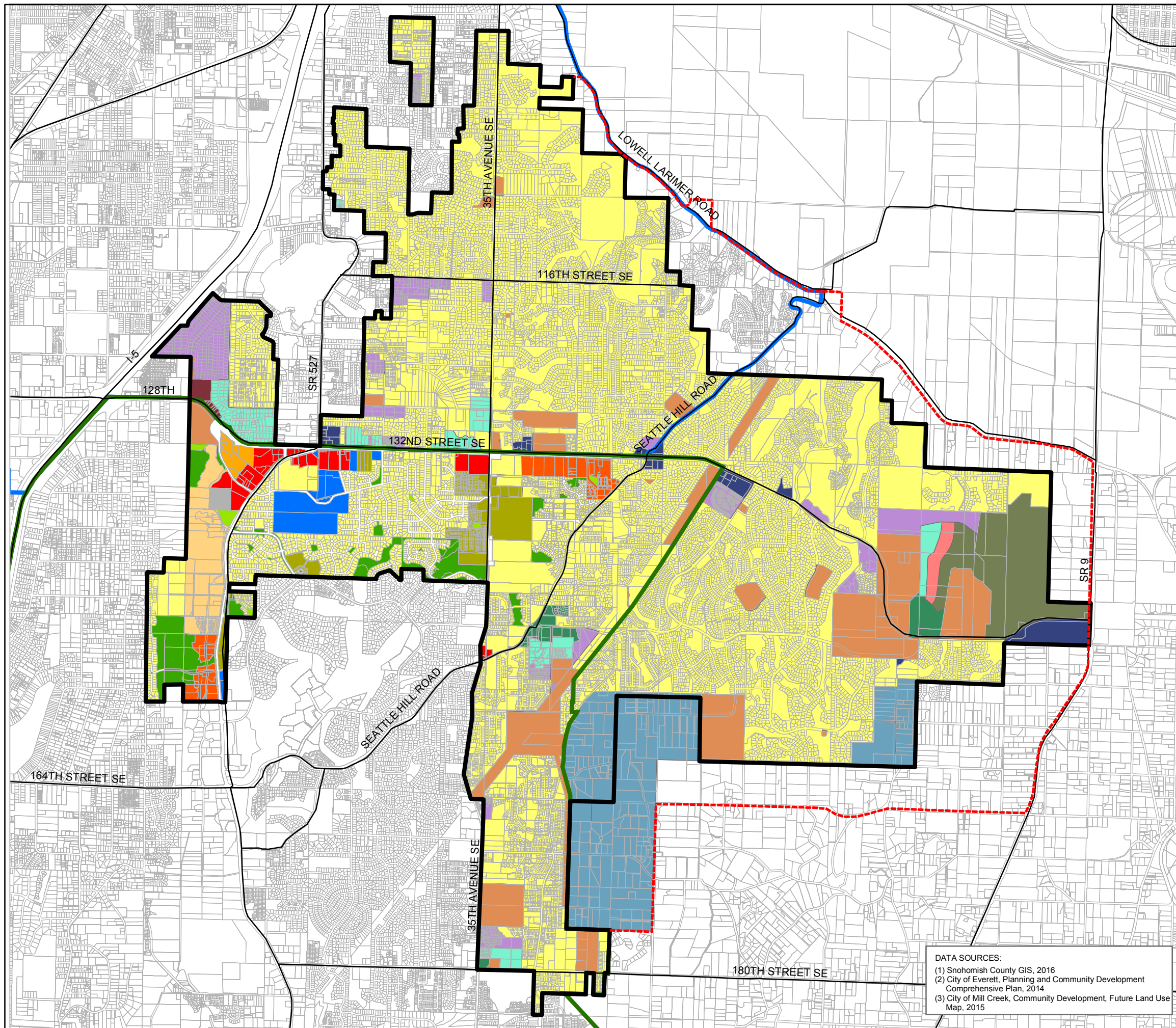
Summary of Study Area Lands

Area Description	Developed Area (acres)	Site-Sensitive Area (acres)	Undeveloped Area (acres)	Roads & Public ROW (acres)	Total Area (acres)
Service Area⁽¹⁾ Within District Boundary					
Everett	1,728	376	127	334	2,565
Mill Creek	1,617	430	296	250	2,593
Snohomish County	1,330	702	274	282	2,588
Outside UGA within District Boundary	3	4	180	21	208
Total: District	4,678	1,512	877	887	7,954
Service Area Outside District Boundary					
CVWD Agreement Area	481	5	43	45	574
Total: Service Area	5,159	1,517	920	932	8,528
Outside Service Area					
Future Service Area ⁽²⁾	0	0	1,185	79	1,264
Total: Study Area	5,159	1,517	2,105	1,011	9,792

(1) The Service Area is defined as any area for which the District provides sewer service.

(2) The Future Service Area represents the region outside the Snohomish County UGA that could be reasonably served by the District’s gravity sewers, shown on Figure 2-1.

The service area of 8,528 acres contains 920 acres of undeveloped area. In general, to determine the remaining population holding capacity, the acreage of the undeveloped area is combined with the applicable zoning and land use in dwelling units per acre to determine the number of potential dwelling units. For zoning and land use that is



Legend

- - - STUDY AREA
- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- CITY OF MILL CREEK UGA
- CITY OF EVERETT UGA
- MILL CREEK**
- LAND USE**
- Business Park
- Community Business
- High Density Residential
- Low Density Residential
- Medium Density Residential
- Mixed Use / High Density Residential
- Open Space - Private
- Open Space - Public
- Public and Quasi Public
- Town Center
- SNOHOMISH COUNTY LAND USE**
- Incorporated City
- Public/Institutional Use
- Rural Residential (1 DU/5 Acres Basic)
- Urban Center
- Urban Commercial
- Urban High Density Residential
- Urban High Density Residential/Urban Industrial (overlapping designations)
- Urban Industrial
- Urban Low Density Residential (4 - 6 DU/Acre)
- Urban Medium Density Residential
- Urban Village

SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER SYSTEM PLAN
FIGURE 2-4
FUTURE LAND USE

DATA SOURCES:
 (1) Snohomish County GIS, 2016
 (2) City of Everett, Planning and Community Development Comprehensive Plan, 2014
 (3) City of Mill Creek, Community Development, Future Land Use Map, 2015

specified as a range, such as four to six dwelling units per acre, a mean value of five dwelling units per acre is applied. The generation of the holding capacity of undeveloped areas is based on zoning and land use as presented in Tables 2-2 and 2-3. The undeveloped area totals are consistent with the values presented in Table 2-1.

The exception to this rule is the calculation of potential additional housing units on undeveloped land in the CVWD agreement area. When this agreement was negotiated in 2006, a detailed estimate of potential developable lots found that the area had capacity for 1,794 lots. This lot count is taken as the holding capacity for the area. Based on the District's report that as of 2015, the CVWD agreement area contains 604 sewer connections, it is assumed that the area has the capacity for 1,190 additional connections.

The Future Service Area represents the region outside the Snohomish County UGA, shown on Figure 2-1, that could be reasonably served by the District's gravity sewers. Since the area lies outside the UGA it has not been zoned for residential development. For the purposes of this report, it is assumed that if the UGA were expanded to include this area, the zoning would allow for five dwelling units per acre.

TABLE 2-2

Zoning and Land Use for Undeveloped Areas Within the District

Zoning and Land Use (units/Acre) ⁽¹⁾	UGA Undeveloped Areas (acres)				UGA Undeveloped Units ⁽²⁾			
	Everett	Mill Creek	Snohomish County	Outside UGA ⁽³⁾	Everett	Mill Creek	Snohomish County	Outside UGA ⁽³⁾
3 to 5	52	145	2		208	578	6	
4 to 6				180				900
5 to 10	64				480			
10 to 12	11	0.2	49		121	2	539	
24		2				59		
30		25				755		
Public Use/Commercial		122	223					
Total	127	295	274	180	809	1,395	545	900

- (1) Zoning and Land Use taken from the applicable GMA Comprehensive Plan for the UGA Undeveloped Area, as shown on Figure 2-4.
- (2) The UGA Undeveloped Units are calculated by multiplying the UGA Undeveloped Area by the mean zoning and land use for the area.
- (3) Currently, this area is outside the UGA and cannot be sewerred. If UGA expansion occurs, it is assumed these areas would be redesignated to a minimum density of four to six dwelling units per acre. For this analysis, an average density of five dwelling units per raw acre is assumed.

TABLE 2-3

Zoning and Land Use for Undeveloped Areas Outside District

Zoning and Land Use (units/Acre) ⁽¹⁾	Undeveloped Areas (acres)				Undeveloped Units ⁽²⁾			
	CVWD ⁽⁴⁾	Unserved Areas in Everett UGA	Future Service Area ⁽³⁾	Total Area	CVWD ⁽⁴⁾	Unserved Areas in Everett UGA	Future Service Area ⁽³⁾	Total Units
3 to 5	550	42		592	1,090	168	5,925	1,258
4 to 6			1,185	1,185				5,925
5 to 10				0				0
Total	550	42	1,185	1,777	1,090	168	5,925	7,183

- (1) Zoning and Land Use taken from the applicable GMA Comprehensive Plan for the UGA Undeveloped Area, as shown on Figure 2-4.
- (2) The UGA Undeveloped Units are calculated by multiplying the UGA Undeveloped Area by the mean zoning and land use for the area.
- (3) Assumes that zoning for the area outside the Snohomish County Urban Growth Area (UGA) will be developed at 5 dwelling units/acre.
- (4) Based on CVWD lot projections performed by Gray & Osborne in 2007.

SERVICE AREA CHARACTERISTICS

TOPOGRAPHY

The topography of the District has a significant influence on the sewer system. The northern and eastern portions of the District slopes northeast towards the Snohomish Valley floor, while the southern and western portions slope southwest towards the Alderwood Water & Wastewater District service area (North Creek and Sammamish River). In the northeast portion of the District, the terrain slopes sharply from elevations of approximately 400 feet to the valley floor, with elevations of less than 20 feet. The majority of the District's service area, which sits on a plateau above the valley floor, is generally rolling terrain. Figure 2-5 shows the topography within the Districts study area.

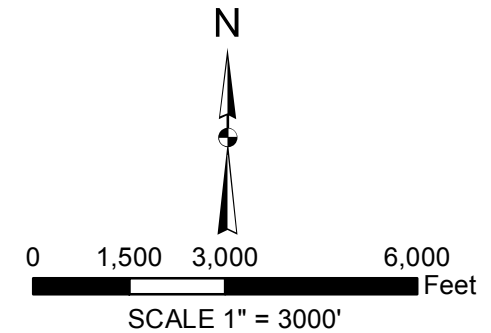
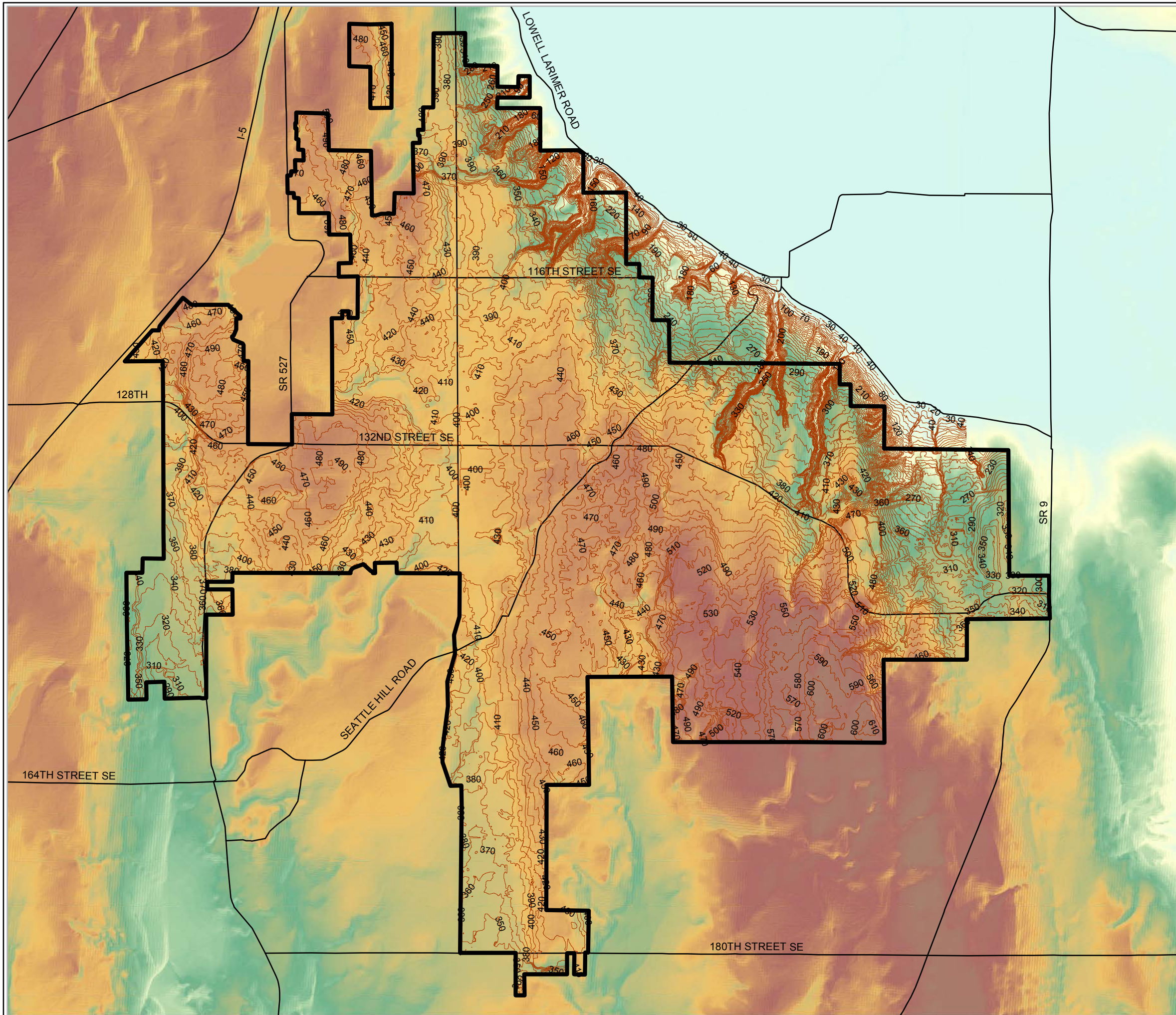
GEOLOGY





The geology within the District is characterized by moderately well-drained soils underlain by compact glacial till materials. The depth to the hardpan varies from a few inches to twenty feet. Though the surface drainage in many areas is good, internal drainage is retarded by the substratum. The groundwater in the glacial till areas is less likely to be affected during the summer season than the more permeable soils. Groundwater is evidenced along the steep ravines overlooking the Snohomish River Valley and a number of low, poorly drained areas are located throughout the District.

SOILS

The classification of soils within the District is provided by the 1983 *Soils Survey for Snohomish County Area*, compiled by the Natural Resource Conservation Service (formerly known as the Soil Conservation Service). The two major classifications of soils within the District are Alderwood gravelly, sandy loam and Alderwood urban land complex. The location of these soils is shown on Figure 2-6. The average slopes are from two to eight percent, except for the steep areas, that slope downwards toward Lowell-Larimer Road and the Snohomish River Valley floor.

Alderwood gravelly, sandy loam is moderately well drained and lies over somewhat deep hardpan. Alderwood soils were formed from glacial till, and native vegetation is mainly conifers and hardwoods. The surface layer is very dark grayish brown gravelly sandy loam to about 7 inches. The upper portion of the strata is dark yellowish brown and dark brown very gravelly sandy loam to about 23 inches. The lower level is olive brown very gravelly sandy loam for about five inches. Depth to hardpan ranges from 20 to 40 inches. Permeability is somewhat quick above the hardpan but very slow through it. A seasonal perched water table is located at a depth of 18 to 36 inches between January and March. The Alderwood urban land complex is similar in characteristics to the Alderwood series, and consists mostly of Alderwood gravelly, sandy loam with 25 percent urban land.



- LEGEND:**
-  SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
 -  10' CONTOURS
- ELEVATION:**
-  1500
 -  0

Source: SLWSD, NAIP 2015, USGS 10m DEM

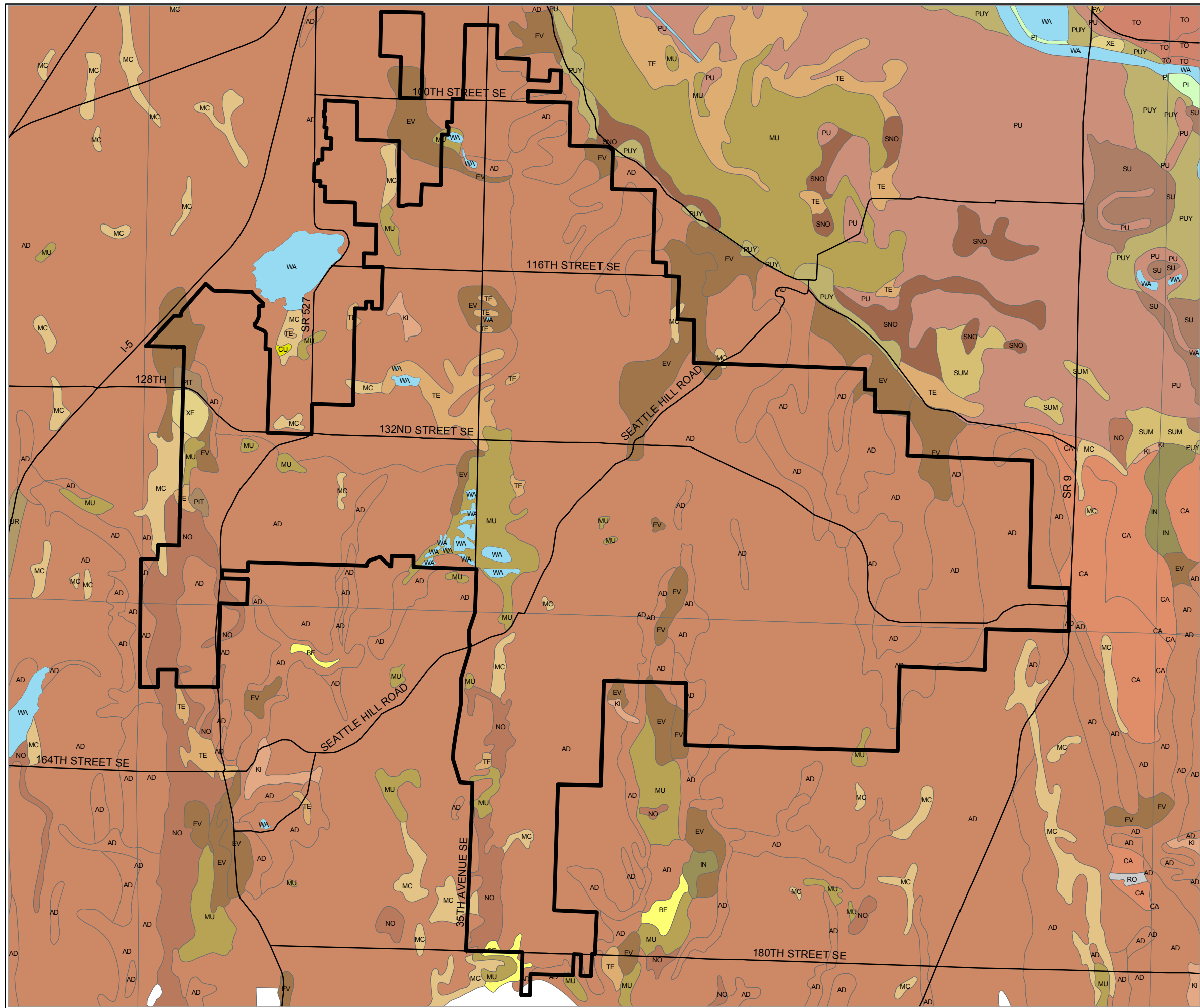
SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN

FIGURE 2-5

TOPOGRAPHY





SCALE 1" = 3,000'

LEGEND:

SILVER LAKE WATER & SEWER DISTRICT BOUNDARY

SOILS

- ALDERWOOD - AD
- BELLINGHAM - BE
- CATHCART - CA
- CUSTER - CU
- EVERETT - EV
- INDIANOLA - IN
- KITSAP - KI
- MCKENNA - MC
- MUKILTEO - MU
- NORMA - NO
- PASTIK - PA
- PILCHUCK - PI
- PITS - PIT
- PUGET - PU
- PUYALLUP - PUY
- RIVERWASH - RI
- ROCK OUTCROP - RO
- SNOHOMISH - SNO
- SULTAN - SU
- SUMAS - SUM
- TERRIC MEDISAPRISTS - TE
- TOKUL - TO
- URBANLAND - UR
- XERORTENTS - XE
- WATER - WA

SOURCE: U.S. DEPARTMENT OF AGRICULTURE

SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN

FIGURE 2-6

SOILS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

The Alderwood series has poor soil characteristics for normal septic system design. The main limitations are the depth to the weakly cemented hardpan and wetness. Onsite disposal systems can fail or function improperly during periods of high rainfall. Effluent from absorption fields flows laterally above the hardpan and can seep at the bottom of steep slopes. Additional information on proper soils for onsite disposal system design can be found in the DOH Basic Principles of Onsite Sewage (1992) and WAC 246-272A, Table V.

SITE SENSITIVE AREAS

The site sensitive areas that are applicable to the District include steep slopes, poorly drained soils, and identified wetlands (based on National Wetlands Inventory).

The wetlands within the District are mostly located along the southern end of 35th Avenue SE, spanning both sides of the roadway between 132nd Street SE and 144th Street SE. The wetlands were identified on the National Wetland Inventory Maps as Palustrine systems (see Figure 2-7). Palustrine wetlands include all nontidal wetlands with dominate species of trees, shrubs, persistent emergents, emergent mosses or lichens, including wetlands in tidal areas where salinity is less than 0.5 percent. Palustrine wetlands can be located shoreward of lakes or rivers, on river floodplains, in isolated catchments, or on slopes. These wetlands are fed by the Silver Lake Creek that flows from Silver Lake through Ruggs Lake. The wetlands discharge to Penny Creek (North Creek system). Other isolated wetlands may exist throughout the District.

The steep slopes in the northeast sector of the District include deep ravines with seasonal groundwater seepage. Building within these areas must meet Snohomish County critical area regulations and guidelines.

FUTURE SERVICE AREA

A significant portion of the District's current service area (approximately one third) lies within the City of Everett (Everett) Urban Growth Area (UGA). As annexation occurs, the District has transferred sewer service of these areas over to the City of Everett. It is likely that the City of Everett will continue to annex portions of the District's service area located within the Everett UGA.

CVWD currently does not have a sewage treatment plant, relying on adjacent sewer service purveyors to convey sewage for treatment. If this situation remains, there are significant areas outside of the District's current boundary within the CVWD service area that can be served by the District by gravity. Most of these areas are outside of the Snohomish County Urban Growth Area (UGA) and cannot be developed to urban densities at the present time. However, since the District can potentially serve these areas by gravity, they are included in the study area in order to analyze the impacts of providing service in the future. These areas are shown as the "Future Service Area" on Figure 2-1.

HISTORICAL SEWER SERVICE CONNECTIONS

Table 2-4 provides the number of historical sewer service connections within the boundaries of the District and also the connections served by interlocal agreement with Cross Valley Water District, from 2009 to 2017.

TABLE 2-4

Historical Sewer Connections

Year	Total Sewer Connections ⁽¹⁾	District Sewer Connections ⁽²⁾
2009	14,243	13,826
2010	14,517	14,064
2011	14,811	14,284
2012	15,146	14,561
2013	15,512	14,909
2014	15,894	15,290
2015	16,277	15,673
2016	16,631	16,022
2017	16,924	16,289

(1) Sewer connections served by District, including CVWD ILA areas.

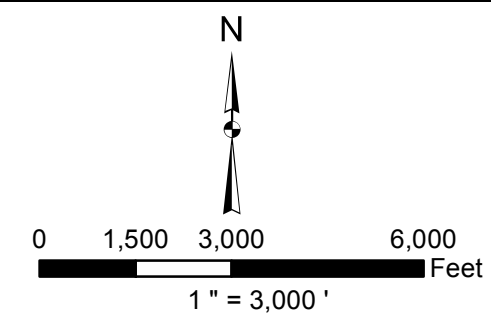
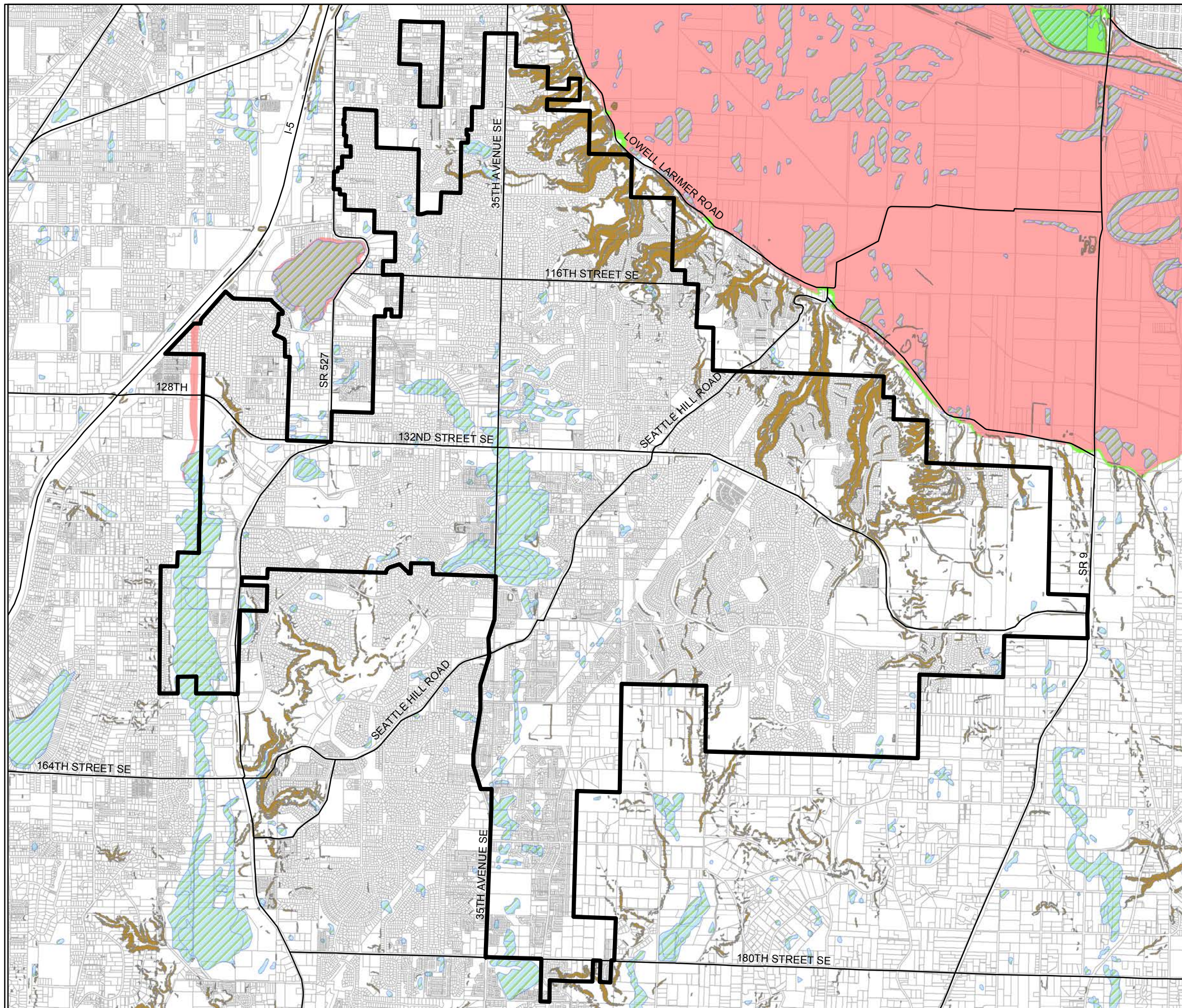
(2) Includes only connections within District boundary.

POPULATION




To evaluate the sewer system’s existing facilities and determine requirements for future facilities, the District’s existing and projected sewer population is estimated and used to project future sewerage flows.

EXISTING POPULATION



The District has historically estimated its customer population based on an estimated density of 2.86 persons per water connection (ppc) since over 95 percent of the water (and sewer) connections are for residential properties. This method has been applied in the District’s Wastewater Comprehensive Plans since 1998. However, this method generates a population only within the District’s boundary because it is based only on water connections. There are several hundred sewer customers lying outside the District’s boundary, in the Cross Valley Water District’s service area, which are served by Interlocal Agreement by the District. Additionally, the population density has increased to 3.02 ppc since the 2010 census. Therefore, the sewer population for this plan is calculated using 3.02 ppc for all commercial and residential connections.



LEGEND:

-  SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
-  WETLANDS
-  STEEP SLOPE

FEMA ZONE

-  100-YEAR FLOOD PLAIN
-  500-YEAR FLOOD PLAIN

SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN
FIGURE 2-7
SITE SENSITIVE AREAS


Gray & Osborne, Inc.
CONSULTING ENGINEERS

According to District records, there were a total of 17,549 water service connections in 2015, for a population estimate of 53,024 within the District. However, not all of these people are connected to the sewer collection system. Based on the connection data, there are 1,876 more water connections than sewer connections, as of 2015. The difference between water and sewer connections within the District will diminish over time as unsewered properties are connected to new sewer extensions, and property is developed that removes non-sewered customers. For the purposes of this Plan, it is assumed that non-sewered properties within the District will convert to sewer at a linear rate between 2016 and buildout.

PROJECTED POPULATION

The present and future population of the District is estimated using data from Puget Sound Regional Council (PSRC) 2015 small area forecast. The forecast data is presented for regions known as Forecast Analysis Zones (FAZs). The District’s service area overlaps three FAZs, as shown in Figure 2-8. The FAZ data provided by PSRC includes forecasts of populations within each zone from 2010 through 2040 in 10 year increments. These forecasts were used to develop annual growth rates for each FAZ. These growth rates and the average growth rates within the District as a whole are presented in Table 2-5. Table 2-6 lists the historical and projected population for the District, along with the number of sewer connections.

TABLE 2-5

Population Growth Rates⁽¹⁾

Year Range	FAZ 7335	FAZ 7340	FAZ 7425	District⁽²⁾
2010-2025	0.68%	1.04%	2.05%	1.52%
2026-2030	0.21%	-0.05%	0.32%	0.19%
2031-2035	0.18%	-0.31%	0.33%	0.11%
2036-2040	0.38%	-0.32%	0.65%	0.31%
2040+	1.00%	1.00%	1.00%	1.00%

(1) Data from PSRC 2015 Small Area Forecasts.

(2) Based on the current District boundary.

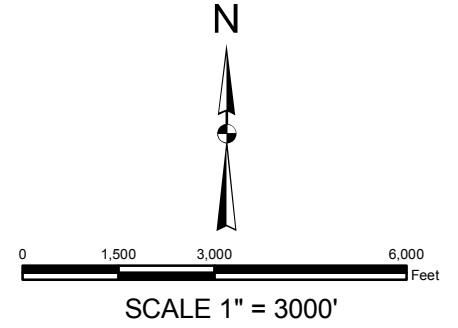
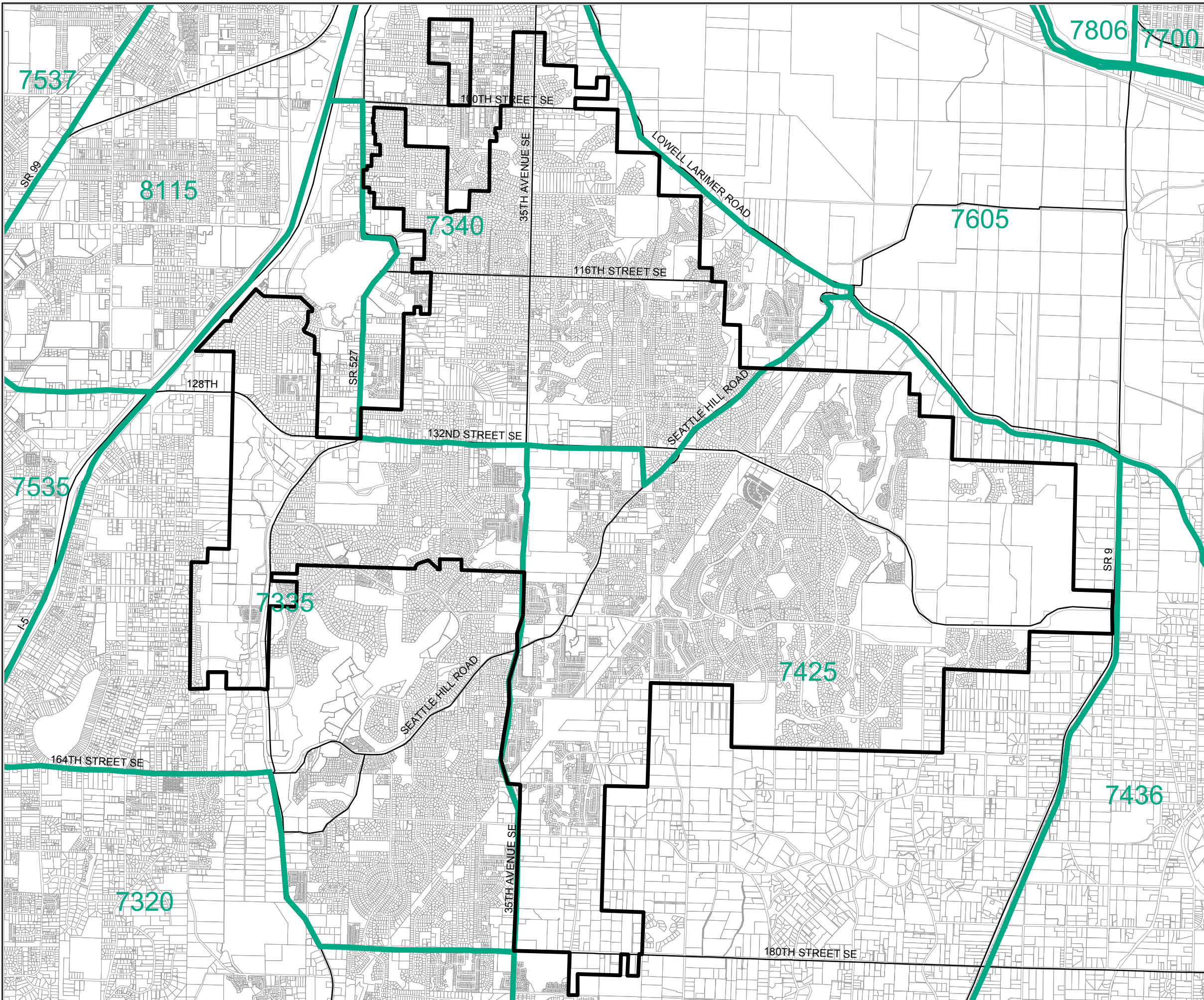
Population forecasts for areas outside of the District’s current boundary include areas within the current CVWD Agreement area. Connections within the current CVWD Agreement area are assumed to grow linearly at 46 connections per year until they reach their holding capacity in the same year as the district.

TABLE 2-6

Historical and Projected Sewered Population

Year	District Sewer Connections⁽¹⁾	District Sewered Population⁽²⁾	Service Area Sewer Connections⁽³⁾	Service Area Sewered Population⁽²⁾
2009	13,826	41,775	14,243	43,035
2010	14,064	42,494	14,517	43,863
2011	14,284	43,159	14,811	44,751
2012	14,561	43,996	15,146	45,764
2013	14,909	45,048	15,512	46,870
2014	15,290	46,199	15,894	48,024
2015	15,673	47,356	16,277	49,181
2016	16,022	48,410	16,631	50,251
2017	16,289	49,217	16,924	51,136
2018	16,700	50,459	17,442	52,701
2019	17,050	51,517	17,837	53,894
2020	17,406	52,592	18,239	55,109
2021	17,765	53,677	18,644	56,333
2022	18,128	54,774	19,053	57,569
2023	18,496	55,886	19,466	58,817
2024	18,868	57,010	19,884	60,080
2025	18,980	57,348	20,042	60,557
2026	19,091	57,683	20,199	61,031
2027	19,202	58,019	20,355	61,503
2028	19,314	58,357	20,513	61,980
2029	19,425	58,693	20,670	62,454
2030	19,521	58,983	20,812	62,883
2031	19,616	59,270	20,952	63,306
2032	19,712	59,560	21,094	63,736
2033	19,807	59,847	21,235	64,162
2034	19,902	60,134	21,376	64,588
2035	20,040	60,551	21,559	65,141
2036	20,176	60,962	21,741	65,690
Buildout w/o FSA ⁽⁴⁾	21,198	64,048	22,456	67,851
Buildout w/FSA ⁽⁴⁾	21,198	64,048	28,381	85,753

- (1) Sewer connection growth inside District includes a linear conversion of non-sewered properties to sewered properties, reaching parity at buildout in 2041.
- (2) Based on sewer service connections at 3.02 ppc.
- (3) The Service Area is defined as any area for which the District provides sewer service shown on Figure 2-1.
- (4) Future Service Area, as shown on Figure 2-1.



LEGEND

- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- FUTURE ANALYSIS ZONE BOUNDARY

SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER SYSTEM PLAN

FIGURE 2-8

FAZ BOUNDARIES



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CONSULTING ENGINEERS

DISTRICT POPULATION HOLDING CAPACITY

The population holding capacity of the District is presented in Table 2-7. The developed population is added to the potential undeveloped population to get the holding capacity in the District based on zoning and land use, per FAZ. The population holding capacity of the District, based on the current District boundary is calculated to be 64,048. Assuming a population growth rate of one percent beyond the PSRC planning numbers, the approximate year for buildout is 2041. However, with additional sewerred dwelling units in the CVWD ILA area, the service area buildout population is estimated at 68,153.

TABLE 2-7

Population Holding Capacity⁽¹⁾

UGA	2015 Developed Population ⁽²⁾	Undeveloped		Service Area Within District	Service Area Outside District	Future Service Area
		Units ⁽³⁾	Population			
Everett	17,172	809	2,444	19,616	2,309	0
Mill Creek	17,146	1,395	4,214	21,360	0	0
Snohomish County	17,333	545	1,647	18,980	3,113	0
Snohomish County (Outside UGA)	1,373	900	2,719	4,092	0	17,903
District Total	53,024	3,649	11,024	64,048	5,422	17,903

- (1) Based on current zoning for undeveloped areas plus current population, and a population density of 3.02 ppc.
- (2) Developed population in 2015, based on water service connections, within the District.
- (3) Undeveloped units, within the District, as calculated in Table 2-2.

POPULATION PROJECTION EVALUATION

The projected population holding capacity (also known as “buildout”) from previous wastewater comprehensive plans are listed in Table 2-8. The buildout date for the 2018 Plan is based on an assumed growth rate of 1.0 percent beyond the PSRC planning period of 2040. Differences in the population holding capacity between the current Plan and the 2011 *Wastewater Comprehensive Plan* are due to a more restrictive definition of “undeveloped land,” changes in planned use for the former Cathcart Landfill properties. The population projections also do not include any reductions in population that may result from future annexations by the City of Everett.

TABLE 2-8

Population Holding Capacity Projections within District Boundary

Plan Year	Projected Buildout Year	Projected Buildout Population
1991	2020	60,624
1998	2026	67,328
2003	2057	74,667
2011	2051	72,266
2015	2041	64,048

Past plans have focused on the number of areas that do not have sewer connections. Based on the difference between water connections, as reported in Water Use Efficiency reports, and sewer connections within the District, there are approximately 1,876 domestic water connections that do not have sewer service, which is higher than the 1,279 unsewered connections reported in the previous plan. However, it is assumed that these unsewered connections will be provided with sewer service due to redevelopment and sewer service being extended into previously unsewered areas. These unsewered areas are primarily in the vicinities of Ruggs Lake and Silver Acres. Sewer service has been partially extended into these areas, and it is only a matter of time until these areas are fully served.

Of larger significance is the potential for sewer service outside of the current District boundary. If the Snohomish County UGA is expanded for urban development, the District could be the logical sewer service provider for a significant area. If CVWD elects to serve these areas, the District may be responsible for conveying these flows for treatment, either to Everett or AWWD, because CVWD does not have any agreements of their own for sewage treatment. This potential future service area can have significant impact on future capacity requirements for District lift stations and gravity mains, as well as providing additional revenue and operation and maintenance expenses. Expansion of the Snohomish County UGA is not a certainty, so the Plan will provide long-term planning in either event to be prepared for either future circumstance.

CHAPTER 3

REGULATORY REQUIREMENTS

INTRODUCTION

Wastewater collection system planning includes an analysis of the District’s ability to comply with the applicable regulatory requirements while providing a high level of service for existing and future customers. These requirements are outlined in federal, state, and local regulations, and enforced by a number of agencies. This chapter presents the various legislation, regulations, permits, agencies, and design standards that may affect District wastewater operations. The discussion presented here is general in nature; specific issues will be addressed as they occur within the context of following chapters.

LEGISLATION, REGULATIONS, AND PERMITS

In this section, the various state and federal legislation that may affect District operations are discussed, as well as other relative permits, programs, and regulations. Table 3-1 provides a list of state and federal regulations that may apply to the District:

TABLE 3-1

Existing Wastewater Regulations⁽¹⁾

Regulation	Action Required by District?	Action Required by Other?
Federal Clean Water Act	No	Everett/King County DNR
CSO Control Policy Strategy	No	Everett/King County DNR
National Environmental Policy Act (NEPA)	No	Everett/King County DNR
Reclaimed Water Standards	No	Everett/King County DNR
EPA Capacity, Management, Operation and Management ⁽²⁾	No	Everett/King County DNR
State Water Pollution Control Act	No	Everett/King County DNR
State Environmental Policy Act (SEPA)	Yes	Everett/Mill Creek/Snohomish Co
Growth Management Act	Yes	Everett/Mill Creek/Snohomish Co
Hydraulic Project Approval	Project Specific	
State Ecology Orange Book ⁽³⁾	Yes	

(1) Wastewater regulations as of October 2016.

(2) CMOM is currently not promulgated as rule, but is guidance from the EPA.

(3) Guidance document for wastewater system design.

FEDERAL CLEAN WATER ACT

The Federal Water Pollution Control Act is the principal law regulating the water quality of the nation's waterways. Though originally enacted in 1948, it was significantly revised in 1972 and 1977, when it was commonly titled the "Clean Water Act" (CWA). The CWA has been amended several times since 1977. The 1987 amendments replaced the Construction Grants program with the Clean Water State Revolving Fund (SRF), which provides low-cost loans for a range of water quality infrastructure projects. The SRF loan program is administered by the Washington State Department of Ecology, described in state law as the Washington State Water Pollution Control Revolving Fund.

The National Pollutant Discharge Elimination System (NPDES) is established by Section 402 of the CWA and subsequent amendments to regulate point sources of water pollution. The Washington State Department of Ecology (Ecology) administers NPDES permits for wastewater treatment facilities and other private and municipal wastewater discharge sources under the authority delegated by the United States Environmental Protection Agency (EPA). Most NPDES permits are valid for 5 years and place limits on the quantity and quality of pollutants that may be discharged.

Section 307 of the CWA established the National Pretreatment Program. This program is designed to protect publicly owned treatment facilities and limits the amount of industrial or other non-residential pollutant discharged to municipal sewer systems. Ecology also administers the Pretreatment Program and has delegated authority over the program to the City of Everett and King County Department of Natural Resources, for their respective service areas. The District may be affected by pretreatment requirements of King County and Everett, as well as increased costs associated with treatment requirements imposed by future permit modifications.

The 1985 enactment of the Revised Code of Washington (RCW) 90.48.480 and Washington State Administrative Code (WAC) 173-245 required all municipalities with combined sewer overflows (CSOs) to develop a plan to reduce annual CSOs to one event per year. The National CSO Control Strategy (1989, Federal Register 37370) officially classified combined sewer overflows as point source discharges subject to regulation under NPDES and CWA. In 1994, EPA published a CSO Control Policy Strategy (Federal Register 18688) that limits CSOs to four to six events per year depending on the sensitivity of the receiving water.

In Washington State, Ecology also administers the NPDES Stormwater Management Program under a delegated agreement with EPA. Ecology has been delegated authority to administer both individual and general NPDES programs for all dischargers other than federal facilities and tribes. Ecology uses both the Federal Clean Water Act and the State Water Pollution Control Act to authorize implementation of the Stormwater NPDES Program. In addition to State requirements, the District must also coordinate stormwater permitting requirements per the Phase 2 General Municipal Stormwater Permits issued to Everett and Mill Creek, and the Phase 1 Stormwater Permit issued to Snohomish County.

A Section 401 Water Quality Certification is required under the CWA for any activity that requires another federal permit, and that may result in discharge to surface waters including excavation activities that occur in streams, wetlands, or other waters of the United States.

Section 404 of the CWA regulates discharges of fill or dredged materials in wetlands, including any related draining, flooding, and excavation. Pipeline and lift station projects in wetlands may require a Section 404 permit, National Environmental Policy Act (NEPA) documentation (generally provided by the Corps of Engineers), Endangered Species Act consultation, and National Historic Preservation Act (NHPA) consultation with the Washington State Department of Archaeology & Historic Preservation in addition to any related local permits.

Wetlands Executive Order 11990

This order directs federal agencies to minimize degradation of wetlands and enhance and protect the natural and beneficial values of wetlands. Assurances must be provided that the natural and beneficial values of wetlands will be protected and enhanced by the discharge or develop a Mitigation Bank Plan and purchase credits from an approved habitat mitigation bank, if the project area is within an established Bank Service Area. The Corps will generally issue a permit, once Endangered Species Act and National Historic Preservation Act, Section 106 consultations are completed. These processes can add up to a year to a project permitting schedule and sometimes more if impacts to listed species and associated critical habitat are significant.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) was established in 1969 and requires federal agencies to determine and consider environmental impacts on all projects requiring federal permits or funding. If environmental impacts of a proposed project are determined to be insignificant, a Finding of No Significant Impact (FONSI) is issued, otherwise an Environmental Impact Statement (EIS) is required. The State Revolving Fund Loan Program requires State Environmental Review Process (SERP) review similar to NEPA documentation, but with a less rigorous alternatives analysis requirement that relies on the alternatives analysis from the Engineering Report/Facilities Planning processes.

RECLAIMED WATER STANDARDS

The standards for the use of reclaimed water are outlined in RCW 90.46 and in WAC 173-219, adopted in January 2018. Reclaimed water is the effluent derived from a wastewater treatment system that has been adequately and reliably treated, such that it is no longer considered wastewater and is suitable for a beneficial use or a controlled use that would not otherwise occur. The legislature has declared that “the utilization of

reclaimed water by local communities for domestic, agricultural, industrial, recreational, and fish and wildlife habitat creation and enhancement purposes (including wetland enhancement) will contribute to the peace, health, safety, and welfare of the people of the State of Washington.”

The generation of Class A reclaimed water (the highest quality) has four minimum requirements that are described below:

1. **Continuously Oxidized** – Wastewater that at all times has been stabilized such that the monthly average BOD₅ and TSS are less than 30 mg/L, is non-putrescible, and contains dissolved oxygen.
2. **Continuously Coagulated** – Oxidized wastewater that at all times has been treated by a chemical or equally effective method to destabilize and agglomerate colloidal and finely suspended matter prior to filtration.
3. **Continuously Filtered** – Oxidized and coagulated wastewater that at all times has been passed through a filtering media so that the turbidity of the filtered effluent does not exceed an average of 2 nephelometric turbidity units (NTU), determined monthly, and does not exceed 5 NTU at any time.
4. **Continuously Disinfected** – Oxidized, coagulated, and filtered wastewater that at all times has been disinfected to kill or inactivate pathogenic organisms. A group of indicator microorganisms, coliform bacteria, are used to measure the effectiveness of the disinfection process. The Class A reclaimed water standard is a total coliform density of 2.2 per 100 milliliters (ml) for the median of the last 7 days of samples, with no sample having a density greater than 23 per 100 ml.

Reclaimed water may be used to recharge groundwater by surface percolation or through direct injection, as long as the quality of the reclaimed water meets groundwater recharge criteria which are defined in the Reuse Standards. Groundwater recharge projects must also be in compliance with the State’s groundwater regulations listed in WAC 173-200. This regulation contains groundwater quality criteria that are to be met in the saturated zone. Recharge of groundwater with reclaimed water would require a state waste discharge permit issued by Ecology. Ecology may also require the development of a groundwater monitoring program to ensure degradation does not occur.

Discharge of reclaimed water for the purpose of stream flow augmentation, fish and wildlife habitat, irrigation supply, or water right replenishment or transfer must comply with WAC Chapter 173-201A. A beneficial use of the reclaimed water must be established for the project to be accepted as a stream flow augmentation project.

Short-term storage or an alternative disposal system (e.g., an outfall) must be provided for situations where the reclaimed water cannot be used due to bad weather, reduced demand, etc. Provisions must also be made for storage or disposal of water that does not meet the treatment and water quality criteria, perhaps due to a treatment upset or equipment failure.

The Reuse Standards require reliability for individual treatment units such as biological treatment, secondary clarification, coagulation, filtration, and disinfection. Generally, if long-term storage or an alternative disposal method is not available, the facility must have redundant units each capable of treating the entire flow, or short-term storage with standby replacement equipment provided. Furthermore, coagulation and chlorination unit processes must have standby chemical feed equipment provided, regardless of storage and disposal options, to ensure uninterrupted chemical feed.

The rule refers to a Reclaimed Water Facilities Manual, a.k.a., the “Purple Book,” for supplemental guidance on implementing the rule. Gray & Osborne, Inc. was retained by the Washington Coalition for Clean Water and the Washington State Department of Ecology (Ecology) to assist in development of the manual, which was released in draft form for review by stakeholders. The Purple Book is currently being revised to ensure consistency with WAC 173-219.

The District does not operate a wastewater treatment facility, so they are not directly involved in the decision to treat effluent for reuse. If the City of Everett were to choose to pursue reuse as a treatment option, with reuse within the District being proposed, the District would support these efforts.

The District discharges a portion of its collected sewage to Alderwood Water and Wastewater District for conveyance and treatment at the King County Department of Natural Resources Treatment Facility. In the future, some of this wastewater will be conveyed to the Brightwater Reclaimed Water Facility, in Woodinville, several miles to the south of the District. At this time, the cost to utilize reclaimed wastewater within the District from the Brightwater facility has been determined to be cost-prohibitive due to the distance to that facility.

CAPACITY, MANAGEMENT OPERATION AND MAINTENANCE

The Environmental Protection Agency (EPA) has drafted an amendment to the NPDES regulations to address Sanitary Sewer Overflows (SSOs). The legal basis for this Capacity, Management Operation and Maintenance (CMOM) regulation is that nearly all collection systems have unplanned releases at some time and that these releases must be regulated under the jurisdiction of the Clean Water Act. The adoption date for the final regulation is unknown at this time.

The draft collection system regulatory requirements are as follows:

1. Meet additional general sewer system performance standards including up to date system maps, information management systems and odor control requirements.
2. Maintain program documentation including the goals, organizational and legal authority of the organization operating the collection system.
3. Develop an overflow response plan that can respond to releases in less than one hour and is demonstrated to have sufficient and adequate personnel and equipment, etc. Estimated volumes and duration of overflows must be measured and reported to the regulatory agency.
4. Plan for system maintenance and evaluation requirements that will mandate that the entire collection system be cleaned on a scheduled basis (for example, once every 5 years), be regularly inspected through TV work and that a program for short and long term rehabilitation and replacement be generated. EPA has suggested a 1-1/2 to 2 percent system replacement rate, which implies that an entire collection system is replaced in a 50 to 70 year time period.
5. Develop a capacity assurance and management plan with flow meters to model I/I and system capacity. Ensure pump stations are properly metered, operated and maintained.
6. Develop a self-audit program to evaluate and adjust performance.
7. Develop a program to communicate information on problems, costs and improvements to the public and decision-makers.

This draft program would issue NPDES permits for tributary collection systems (owned and operated by local governments) that do not have NPDES permits for their own treatment plant(s). These requirements may be issued through a general NPDES permit instead of individual permits. Communities that have NPDES permits through their treatment plants would have these new CMOM requirements added to the existing permits.

There may be some relaxation of these requirements for small communities with design flows less than 1 mgd. However, it is uncertain exactly how streamlining will be applied, and the integrity of the collection system may be more important than size in determining which requirements will apply to a community. Because the underlying legal authority for this program is the Federal Clean Water Act, these regulatory requirements would also be subject to citizen lawsuits.

ENDANGERED SPECIES ACT

The 1973 Endangered Species Act (ESA) “provide(s) a means whereby the ecosystems upon which endangered and threatened species depend may be conserved...” The ESA authorizes the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to list species as endangered or threatened and to identify and designate the critical habitat of listed species. USFWS has jurisdiction over all terrestrial and freshwater plants and animals, while NMFS is responsible for the protection of all marine species.

While Washington coastal salmonid stocks originating in Grays Harbor, Willapa Bay and along the west coast north of the Columbia River have not been listed for protection under the ESA (except Lake Ozette sockeye), the National Marine Fisheries Service listed Lower Columbia River Chinook Salmon, Coho Salmon, Chum Salmon and Steelhead as threatened during the early 2000’s. These ESA listings were confirmed during 2011 and 2012 by NMFS 5-year salmon status reviews.

ESA listings significantly impact activities that may affect salmon and trout habitat, such as water use, land use, construction activities, and wastewater treatment and disposal. Impacts of ESA regulations include longer timelines for permitting processes and more stringent regulation of construction impacts and development.

It is illegal for the government or individuals to “take” a listed species. “Take” is interpreted by the federal courts to include, “significant modification or degradation of critical habitat” that impairs essential behavior patterns. Section 4(d) of the ESA directs the Services to issue regulations to conserve species listed as threatened. This applies particularly to “take,” which can include any act that kills or injures fish, and may include habitat modification. The ESA prohibits any take of endangered species, but some take of threatened species that does not interfere with salmon survival and recovery can be allowed.

District activities will need to comply with any future provisions of the Section 4(d) rule, as well as revised critical areas ordinances adopted by local governments served by the District.

FEDERAL CLEAN AIR ACT

The Federal Clean Air Act requires all wastewater facilities to plan to meet the air quality needs of the region. The permitting of facilities is based upon a mass balance being performed to review if a facility is required to seek an air permit from a federal and/or local permitting agency. At this time it is not anticipated that the current or future facilities would require a federal permit since only large wastewater treatment facilities are required to have permits. Puget Sound Clean Air Agency is the regional air quality authority, which does not require a permit for the construction and operation of collection

system facilities. Puget Sound Clean Air Agency is the air authority for King, Pierce, and Snohomish Counties.

STATE WATER POLLUTION CONTROL ACT

The intent of the state Water Pollution Control Act is to “...maintain the highest possible control standards to ensure the purity of all waters of the state consistent with public health and the enjoyment...the propagation and protection of wildlife, birds, game, fish and other aquatic life, and the industrial development of the state.”

Under the RCW 90.48 and the WAC 173-220, Ecology issues permits under the NPDES program for wastewater treatment facilities. Permits issued under this rule must ensure discharges meet surface water quality standards outlined in WAC 173-201A and meet minimum discharge standards of WAC 173-221, for publicly owned treatment works (POTW's), or WAC 173-221A (other facilities).

WAC 173-216 covers issuance of State Waste Discharge Permits that allow for industrial discharges to a POTW of municipal/industrial discharges to land or into groundwater. Discharges under State Waste Discharge Permits must comply with federal pretreatment standards and/or local limits (if discharge is to a POTW) or with state groundwater standards (WAC 173-200).

STATE ENVIRONMENTAL POLICY ACT

The WAC 173-240-050(n) requires a statement in all wastewater comprehensive plans regarding proposed projects in compliance with the State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA), if applicable. The capital improvements proposed in this plan will fall under SEPA regulations. A non-project SEPA checklist is included in Appendix C of this report to comply with the requirements of SEPA. In most cases a Determination of Non-Significance (DNS) is issued. However, if a project will have a probable significant adverse environmental impact that cannot be mitigated, an EIS will be required. Utility lines eight inches in diameter or smaller are categorically exempt from SEPA review. However, the District may wish to prepare a SEPA review for construction projects in environmentally sensitive areas.

GROWTH MANAGEMENT ACT

The Washington State Growth Management Act (GMA) was enacted in 1990 and requires certain local governments to plan for the population growth that will occur over the next twenty years within an established Urban Growth Area. The GMA also requires cities and the county to classify critical areas (wetlands, aquifer recharge areas, fish and wildlife habitat areas, geologically hazardous areas, and frequently flooded areas) and to establish development regulations to protect these areas.

The District is not required to plan under the GMA. However, the District's water and wastewater plans must be approved by Ecology and Snohomish County. In addition, the GMA requires that the District's plans be consistent with planning efforts of local governments within the District's boundary.

HYDRAULIC PROJECT APPROVAL

Under the Washington State Hydraulic Code (WAC 220-110), the Washington State Department of Fish and Wildlife (WDFW) requires a Hydraulic Project Approval (HPA) for activities that will "use, divert, obstruct, or change the natural flow or bed" of any waters of the state. For District activities such as pipeline crossings of streams, an HPA may be required, and must include provisions necessary to minimize project specific and cumulative impacts to fish.

Because of ESA listings throughout Washington, WDFW and NMFS are in the process of revising the Hydraulic Code to protect species listed as threatened or endangered. If NMFS determines that the revisions are sufficient to protect listed species, the State hopes the revised code will constitute an acceptable Habitat Conservation Plan under Section 10 of the ESA. If the acceptable Habitat Conservation Plan is approved, NMFS issues an Incidental Take Permit allowing incidental take of a listed species if the permittee has complied with the Habitat Conservation Plan. This Incidental Take Permit expires after an agreed upon period of time, and may then be revised by NMFS.

SHORELINE MANAGEMENT ACT PERMIT

A Shoreline Substantial Development Permit is required on all projects that cost \$5,000 or more that are located on the water or within a shoreline area. Shorelines are defined by lakes or reservoirs of 20 acres or greater, streams with a mean annual flow of 20 cubic feet per second or greater, marine waters, and an area inland 200 feet from the ordinary high water mark. There are no known areas of Shorelines within the District.

FLOODPLAIN DEVELOPMENT PERMIT

Local governments that are participating in the National Flood Insurance Program are required to review projects (including wastewater collection facilities) in a mapped floodplain and impose conditions to reduce potential flood damage from floodwater. A Floodplain Development Permit is required prior to construction. Areas where a Floodplain Development Permit may be required include the flood hazard areas shown in Figure 2-7, Site Sensitive Areas. Floodplain areas are located primarily northeast of District Boundaries, within the Snohomish River Valley. However, a small floodplain area exists where wetlands are located, at the intersection of 35th Avenue SE and 144th Street SE. This floodplain area is associated with Thomas Lake and Penny Creek Pond.

LOCAL PERMITS

The District has franchise agreements with Snohomish County and the City of Mill Creek to allow construction and maintenance of facilities in their respective right of ways. Under these agreements, a Right-of-Way Use Permit is issued that specifies construction standards such as traffic control, work hours, and safety issues, as well as design and restoration standards.

Depending on the type of project, local jurisdictions may require other permits, such as conditional use permits, building permits, and land disturbing activity permits.

REGULATORY AGENCIES

The above regulations, permits, and programs are administered by various local, state, and federal agencies. The history, purpose, and authority of these agencies are discussed below.

United States Environmental Protection Agency

The stated mission of the EPA is to protect human health and to safeguard the natural environment upon which life depends. EPA's purpose includes protecting all Americans from significant human health risks, ensuring that national environmental efforts are based on the best available scientific information, ensuring that federal laws are enforced fairly, and that environmental protection contributes to making our communities and ecosystems diverse, sustainable, and economically productive. The Washington State Department of Ecology (Ecology) currently administers NPDES permits and SRF loans on behalf of the EPA.

United States Fish and Wildlife Service

Under the ESA, USFWS is responsible for the protection of all non-marine life such as Bull Trout. Though USFWS may choose to invoke the blanket prohibitions of Section 9, the "threatened" status of Bull Trout allows more flexibility to establish regulations designed to protect these species. These regulations, known collectively as the Section 4(d) rule, outline activities likely to result in a "take" of a threatened species, as well as exempted activities.

National Marine Fisheries Service

Under the ESA, NMFS is responsible for the protection of marine life, including anadromous salmon such as the Puget Sound chinook. When a species is listed as "endangered" the prohibitions against "take" of the species are immediate under Section 9 of the ESA. Though NMFS may choose to invoke the blanket prohibitions of Section 9, the "threatened" status of the Puget Sound chinook allows more flexibility to establish regulations designed to protect these species. These regulations, known

collectively as the Section 4(d) rule, outline activities likely to result in a “take” of a threatened species, as well as exempted activities.

United States Army Corps of Engineers

Under the Clean Water Act (CWA), the US Army Corps of Engineers (Corps) is authorized to regulate discharge of fill and dredged material to waters of the United States, including wetlands. The Corps employs a system of General or Nationwide Permits for blanket authorization of activities, such as utility lines that have minimal adverse impact on the environment. In situations where adverse impact is probable, the Corps may issue an Individual Permit after reviewing an analysis of alternatives. Enforcement actions may be brought by the Corps or the EPA.

Washington State Department of Ecology

The mission of Ecology’s Water Quality Program is to “Protect and Restore Washington’s waters.” The program also aims to provide water quality partners with technical, financial, and education assistance. Ecology performs various functions under state and federal authority and has both local and regional offices. Ecology is also responsible for awarding low-interest loans for water pollution control projects through the Clean Water State Revolving Fund (SRF), and grants and low-interest loans through the Centennial Clean Water Fund.

Ecology issues permits under the State Water Pollution Control Act, Section 401 Water Quality Certification, and NPDES permits in compliance with the CWA under EPA authority. Ecology also reviews and approves plans for Large On-site Septic Systems (LOSS) if they are found to discharge to surface water or are land disposal systems over 100,000 gallons per day (gpd), and all systems receiving state or federal construction grants under the CWA. Systems up to 100,000 gpd capacity, including those with mechanical treatment components that rely on subsurface disposal to a drain field are reviewed and permitted under the Department of Health authority. Systems smaller than 3,500 gpd are considered “small on-site systems” and are under the authority of local health districts.

Ecology regulates discharge of waste to the state’s groundwater, discharge of industrial or commercial waste to sewers, and the use of reclaimed water through the State Waste Discharge permit program. Ecology’s regional offices issue Temporary Modification of Water Quality Criteria Permits for construction near or in water that might cause short-term water quality violations.

Washington State Department of Fish and Wildlife

Under WAC 220-110 and RCW 75.20, any form of work that uses, diverts, obstructs, or changes the natural flow or bed of any fresh water of the state requires hydraulic project approval (HPA) from WDFW. Approval would be required for all District construction projects that cross or otherwise take place in streams.

State and Local Health Departments

The Washington State Department of Health was formed in 1989 and is the primary state agency responsible for preserving public health. The Washington State Department of Health issues Waste Discharge Permits for reclaimed water use in conjunction with Ecology and approves on-site wastewater disposal systems between 3,500 and 100,000 gpd. Local health districts should be contacted whenever there is a sanitary sewer overflow (SSO) in areas where there is a potential of likelihood of public contact.

The Snohomish Health District is the local health department governing the District. In general, local health departments may adopt and enforce local regulation when they are consistent with or more stringent than state regulations. The local health departments have approval authority for on-site systems with design flows of up to 3,500 gpd.

CITY AND COUNTY PLANNING POLICIES

District planning policies should be consistent with those of the affected Cities and Snohomish County. Accordingly, adoption of this Plan will require approval by the Cities as well as Snohomish County.

DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE STANDARDS

In 2008, Ecology updated its *Criteria for Wastewater Works Design*. It serves as a guide for the design of wastewater collection, treatment, and reclamation systems. These criteria provide a basis for the design of collection and treatment systems as well as to aid regulating agencies in their determination of whether an approval, permit, or certificate should be issued. All wastewater facilities must meet Ecology, local, and District design standards. The District's design standards are included in Appendix D.

PRETREATMENT REQUIREMENTS

Publicly owned treatment works are subject to local and Federal pretreatment standards (40 Code of Federal Register, Part 403). The required pretreatment within the District will be a function of the level of pretreatment required by the City of Everett and King County's NPDES permits, and the reclamation options that may be implemented in the future. District planning will be coordinated with Everett and King County to incorporate any pretreatment that may be required. District clients that discharge wastewater with

excessive levels of Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), or Fats, Oils, and Greases may be required to implement pretreatment if it is determined by Everett or King County that such discharges adversely affect proper handling and treatment.

GRAVITY SYSTEM

Ecology's design criteria, outlined in the Orange Book, requires that gravity systems be designed large enough to carry peak hourly flows, as well as steep enough to provide a minimum scouring velocity of 2 feet per second when flowing full. The District also has minimum standards for manhole construction and details specifying trench configuration, depth of cover, bedding materials, and road overlays that meet or exceed Ecology's standards. The current District design standards for gravity systems are consistent with those of Ecology.

LIFT STATIONS

Lift stations and force mains must also be designed according to Ecology guidelines. The District's design standards currently meet or exceed Ecology standards. The District's standards specify self-priming surface mounted pump configurations on wet wells for lift stations, but the District also maintains a number of lift stations with wet well/dry well configurations and will consider duplex submersible pump stations for new construction and for upgrade/replacement of surface mounted self-priming stations. The District has standards for pump controls and telemetry. The current District design standards for lift stations are consistent with those of Ecology and are included in Appendix D.

ON-SITE SEPTIC SYSTEMS

In some cases wastewater may be treated and disposed of on-site either by individual septic systems or community on-site systems. As of 2015, it is estimated that there are approximately 1,876 septic systems within the District's sewer service area, Municipalities, such as cities and counties, are required under the GMA to eventually provide wastewater collection services to all residents of the Urban Growth Area that are currently not connected. The District is planning for service to all areas within its sewer boundary whether or not the area is currently sewered or incorporated. Service to areas currently on septic systems will be by developer extension or ULIDs.

CHAPTER 4

SYSTEM DESIGN CRITERIA

INTRODUCTION

Adequate design of the District's wastewater conveyance facilities requires the determination of the quantity of wastewater from contributing sources. The District's wastewater is predominantly domestic in origin, with lesser amounts contributed by commercial and industrial businesses and by public use facilities, such as schools, parks, hospitals, and municipal functions. Infiltration and inflow contributions result from groundwater and surface water entering the sewer system during periods of rainfall or as a result of high groundwater levels.

Data from previous years are used to estimate unit quantities for critical parameters related to population, land use, and overall land area in the existing service area. These unit quantities are then applied to the projected future population, comprehensive land use, and the future land area that may be served to determine the design criteria for selecting and sizing various components required to serve the study area in future years.

DEFINITION OF TERMS

In this chapter wastewater characteristics for the existing service area are analyzed and projections made for future conditions. The terms and abbreviations used in the analysis are described as follows:

WASTEWATER

Wastewater is defined as wastes carried by water from residential, business, and public use facilities, together with quantities of groundwater and surface water which enter the sewer system through defective piping and direct surface water inlets. The total wastewater flow is quantitatively expressed in millions of gallons per day (mgd) or in gallons per minute (gpm).

DOMESTIC WASTEWATER

Single- and multi-family residences generate domestic wastewater. Domestic wastewater flow is generally expressed as a unit flow based on the average contribution from each person per day. The unit quantity is expressed in terms of gallons per capita per day (gpcd).

INDUSTRIAL WASTEWATER

The District serves one industrial wastewater discharge customer: the Cathcart Landfill. Leachate from the landfill is pretreated by Snohomish County prior to discharge to the District's collection system. See Appendix B for a copy of the interlocal agreement with Snohomish County that outlines the conditions and requirements of the Cathcart Landfill for pretreatment and discharge.

INFILTRATION

Infiltration is defined as groundwater, which enters a sewer system by means of defective pipes, pipe joints, or manhole walls. Infiltration quantities generally exhibit seasonal variation in response to groundwater levels. Storm events can typically trigger a rise in groundwater levels and an increase of infiltration flows. The highest infiltration flows are observed following significant storm events or following prolonged periods of precipitation. Since infiltration is related to the total amount of piping and appurtenances in the ground and not to any specified water use component, it is generally expressed in terms of the total land area being served or in terms of the lengths and diameters of sewer pipe.

INFLOW

Inflow is surface water that enters the sewer system from yard, roof, and footing drains, from cross-connections with storm drains, and through holes in manhole covers. Peak inflow can occur during heavy storm events when storm sewer systems are surcharged, resulting in hydraulic backups and local ponding. Inflow is expressed in terms of gallons per acre per day (gpad).

AVERAGE DRY WEATHER FLOW (ADWF)

Average dry weather flows consists of wastewater that flows during periods when the groundwater table is low and the precipitation is at its lowest of the year. The dry weather flow period normally occurs from June to September. The average dry weather flow is taken to be the average daily flow during the three lowest consecutive flow months of the year.

PEAK DOMESTIC FLOW

Peak domestic flow is wastewater from domestic sources during the peak hour of a day. Peak domestic flow is an estimate of the domestic wastewater produced by the simultaneous discharge to the sewer system by the entire population of a drainage basin. A peaking factor can be determined by taking the ratio of the peak hour flow to the average day flow.

MAXIMUM MONTH FLOW

Maximum month flow is the average daily flow during the highest flow month of the year. This flow is composed of the normal domestic flow with contributions to the sewer system from infiltration and inflow. Maximum Month Flow is used in the District's agreements for purchased capacity in wastewater treatment facilities. By agreement, the District is allowed to discharge a Maximum Month flow of 6.6 mgd to the Everett Water Pollution Control Facility (WPCF). This is expressed as the total volume of flow for the month divided by the number of days in that month.

PEAK WET WEATHER FLOW (PWWF)

The peak wet weather flow (PWWF) is the highest wet weather flow during the day. This flow includes contributions to the sewer system from infiltration and inflow and from peak domestic discharge. PWWF is used in sizing and evaluating the hydraulic capacity of conveyance and pumping components of a wastewater collection system. By agreement, the District is allowed to discharge a Peak Hourly Flow of 11,500 gpm to the Everett South End Interceptor.

WASTEWATER FLOW DESIGN CRITERIA

In order to properly design the District's sanitary sewer facilities, it is necessary to determine the unit quantities for each of the major components that constitute the volume of sewage flows. The two unit quantities to be identified are domestic wastewater and infiltration and inflow. The domestic wastewater unit is generally expressed as gallons per capita per day (gpcd).

Estimates of sewage flows for the study area and individual drainage basins require the application of the unit flow design criteria to the size of the contributing area, the comprehensive land use for the contributing area, and the projected population to be served within the contributing area.

AVERAGE DOMESTIC FLOW

Winter water production records are used to identify the average domestic flow value. To negate the effect of irrigation water use, which is water that generally does not enter the sewer system, water billing records are utilized during the winter period to estimate the amount of water that is generally discharged to the sewer system. The District's records for January, February, November and December, of 2013 through 2015 are used to determine per capita winter water use. For each month, the water consumed in mgd, the number of customers served, and the estimated population served are used to calculate per capita water usage. The calculated values are presented in Table 4-1. The results indicate the per capita average winter water production is 56.2 gpcd. Not all of the winter water used reaches the sewer collection system as wastewater, due to small amounts of outdoor use, so an average domestic flow of 55 gpcd is used in the calculation

of existing and future sewage flows in the District. This unit flow is slightly less than the value of 60 gpcd that was used in the District’s 2011 *Wastewater Comprehensive Plan*, which reflects a trend toward more efficient indoor plumbing fixtures.

TABLE 4-1
Winter Water Use

Year	Average Winter Use (MGD)⁽¹⁾	Domestic Water Connections⁽²⁾	Population⁽³⁾	Per Capita Use (GPCD)⁽⁴⁾
2013	2.84	16,215	48,969	58.0
2014	2.79	16,617	50,183	55.7
2015	2.82	16,963	51,228	55.0
Average	2.82	16,215	50,127	56.2

- (1) Winter use is defined as the months of January, February, November and December of the specified calendar year.
- (2) Domestic connections defined as commercial, residential (multi-family and single-family), and schools.
- (3) Population based on 3.02 persons per domestic connection.
- (4) Winter use divided by population equals per capita use.

Wastewater Flow Estimation

In order to develop current I/I rates, lift station run-time data from 2015 has been used to estimate flows during wet and dry weather events. Totalized run times were provided by the District for each month of 2015 and hourly data were provided for 48-hour periods selected to represent dry- and wet-weather flows. These run times were multiplied by estimated pump flow rates to estimate total flow through the District’s lift stations. Flows from upstream lift stations were subtracted from the flows of downstream lift stations for each time frame to isolate the flows associated with each lift station basin.

For gravity sewer basins, flows have been based on the winter water use for that basin, adding the I/I flows measured in 2009 to each basin for wet weather flows. No new estimations of I/I will be possible for the gravity basins without the installation of flow meters in those basins.

Lift Station Flow Estimation

The flow rate for each of the District's lift stations was estimated using the flow capacity measured during startup (listed in Table 5-1). Each lift station was assumed to run only one pump at a time. For lift stations with across-the-line starters and two pumps, the listed capacities were assumed to represent the constant flow rate of a single pump. For lift stations with variable frequency drives (VFDs), the District supplied the typical operating engine speed, and the pump rate was estimated based on the appropriate pump curve, scaled back to the given frequency, and a system curve, using available information about pipe material and diameter and static lift requirements. A similar

pump and system curve method was used for lift stations with three pumps, since for these stations startup testing was typically performed with two pumps running in parallel. The combined average monthly wastewater flow through all District lift stations in 2015 is graphed on Figure 4-1. The average monthly flow for each lift station basin is listed in Table 4-2.

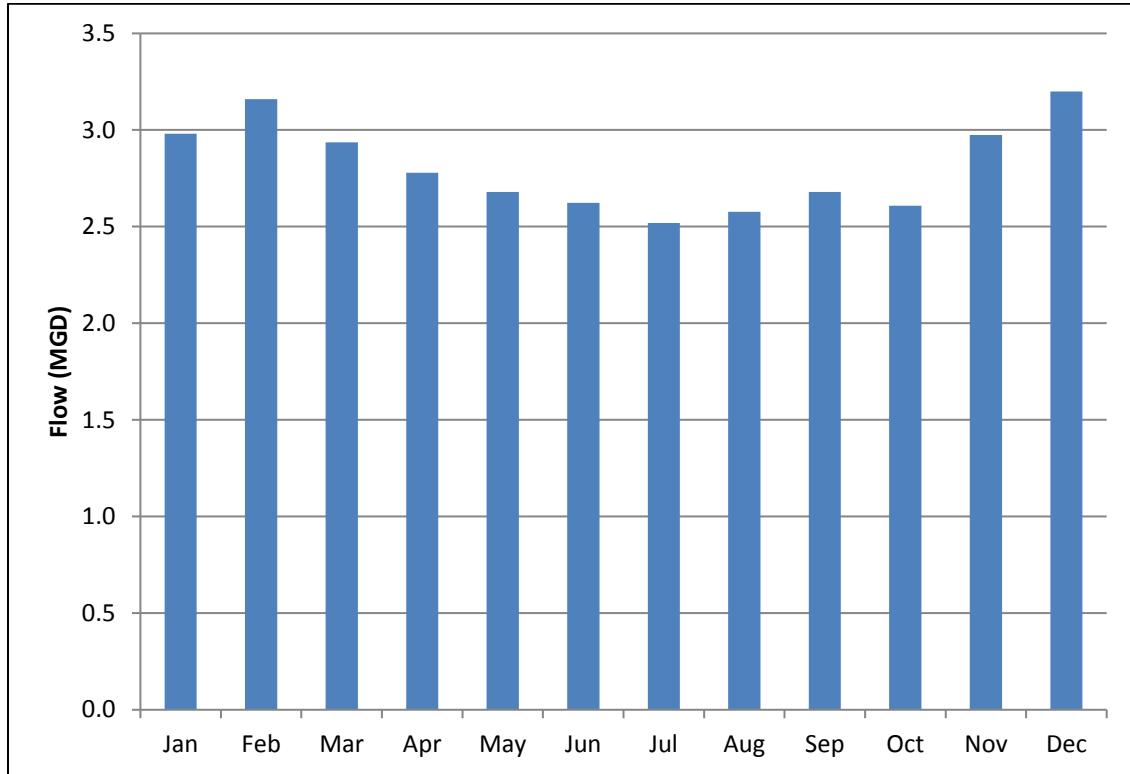


FIGURE 4-1

2015 Monthly Lift Station Wastewater Flows, All Stations

TABLE 4-2

Estimated Lift Station Flows for 2015

Lift Station	Flow Rate per Pump (gpm)	Average Daily Flow (mgd)												Avg.
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
164 th Street	1,100	0.25	0.26	0.26	0.25	0.26	0.25	0.25	0.24	0.25	0.25	0.26	0.27	0.25
Creekside	300	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.07	0.09	0.06
Glacier Peak ⁽¹⁾	130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highlands East	700	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.08	0.09	0.09	0.08
Highlands 1	300	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Highlands 2	300	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lift Station 2	1,850	0.39	0.43	0.46	0.42	0.46	0.44	0.44	0.46	0.43	0.44	0.38	0.22	0.42
Lift Station 3	1,330	0.32	0.34	0.31	0.30	0.30	0.31	0.30	0.29	0.26	0.24	0.29	0.37	0.30
Lift Station 4	900	0.23	0.26	0.20	0.17	0.16	0.16	0.16	0.16	0.18	0.15	0.20	0.28	0.19
Lowell-Larimer 1	530	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Lowell-Larimer 2	665	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06
Pioneer Trails	1,730	0.57	0.67	0.56	0.54	0.46	0.48	0.41	0.41	0.45	0.42	0.61	0.72	0.53
Silver Firs	755	0.13	0.13	0.14	0.13	0.13	0.14	0.13	0.14	0.14	0.14	0.14	0.14	0.14
Sector 7	1,210	0.29	0.29	0.26	0.24	0.17	0.13	0.13	0.14	0.19	0.19	0.28	0.29	0.22
The Point	300	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.04
Thomas Lake	890	0.24	0.23	0.22	0.22	0.22	0.20	0.20	0.21	0.22	0.21	0.22	0.24	0.22
Valmont	480	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Waldenwood	770	0.05	0.05	0.04	0.04	0.04	0.05	0.04	0.07	0.07	0.11	0.10	0.13	0.07
Windsong Terrace	250	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.05	0.06	0.04
Woodland East ⁽¹⁾	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woodland North ⁽¹⁾	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Everett Total		2.92	3.10	2.87	2.71	2.61	2.55	2.45	2.49	2.59	2.57	2.94	3.17	2.75
180 th Street	850	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.09	0.08	0.08	0.08	0.07
Grand Total		2.98	3.16	2.94	2.78	2.68	2.62	2.52	2.58	2.68	2.65	3.03	3.25	2.82

(1) Pumped less than 10,000 gpd.

AVERAGE DRY WEATHER FLOW (ADWF)

Based on the flow data obtained, it appears that June, July, and August were the driest three sequential months of 2015, averaging 2.57 mgd of pumped flows. For the same basins, this is only 10 percent higher than the average domestic flow calculated using winter water use data, which suggests that the estimated pump flow rates are reasonably accurate. To obtain an estimate for the total district ADWF, the average domestic flow for the gravity basins (0.90 mgd) is added to the lift station basin flows, yielding a total ADWF of 3.47 mgd.

DOMESTIC FLOW PEAKING FACTOR

Since wastewater flows vary over the course of a day, the average daily flow is multiplied by a series of peaking factors to create a diurnal (24 hour) flow distribution. The diurnal curve serves to approximate the expected flow variation throughout the course of a day and reflects the reality of the sewer system operation more accurately than a steady-state simulation. Since the available flow data is based on pump run times, the estimated flows for individual basins reflect the on/off nature of the lift station pump cycles rather than the actual domestic use pattern. Therefore, the domestic diurnal flow curve was based on the system-wide sum of all pumped flows for each hour. Hourly pump run time data was available for two days near the end of the longest dry period of 2015 (May 28 and 29). To determine the diurnal peaking factors for the district, the sum of flows at each hour were averaged between the two days and divided by the average daily flow for those two days (1,707 gpm). The resulting diurnal curve is shown in Figure 4-2. The peaking factors noted within the system range from 0.24 at 3:00 a.m. to 1.56 at 7:00 a.m. and 8:00 a.m.

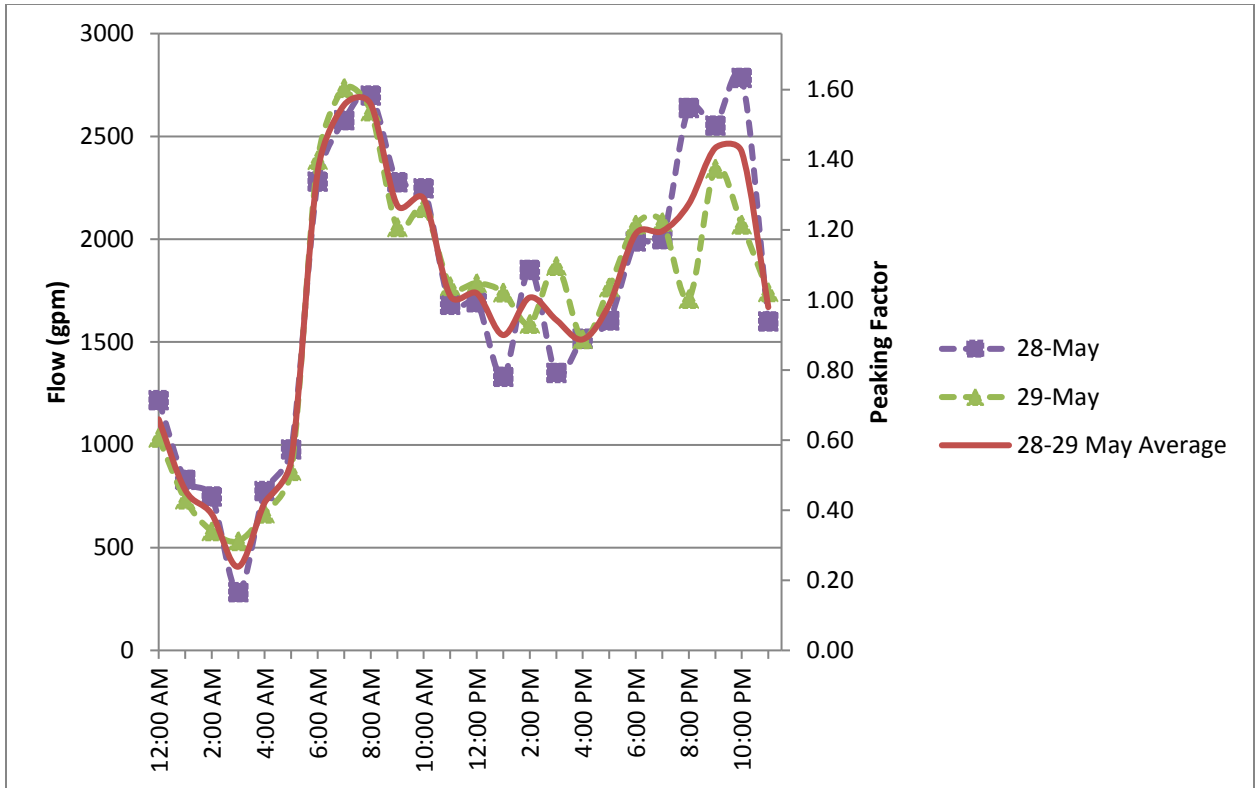


FIGURE 4-2

Domestic Diurnal Curve: Sum of Dry Weather Flows at Lift Stations by Hour

INFILTRATION AND INFLOW

Infiltration and inflow (I/I) is estimated by subtracting dry weather flow from wet weather flow. Since the Agreement with the City of Everett regulates discharge to the South End Interceptor on the basis of Peak Wet Weather Flow (PWWF) and Maximum Month Flow (MMF), I/I is calculated on the basis of peak hour and maximum month.

For this Plan, infiltration and inflow is expressed in units of gallons per acre per day (gpad). The developed sewer service area is comprised of approximately 4,845 acres, and includes portions of the CVWD Agreement area. This estimate was developed by extending a collection zone buffer 150 feet from all existing sewer mains, which is the typical distance from center of the right of way to the back of a lot line. As areas develop in accordance with the population projections set forth in Chapter 2, the total acreage for the service area will increase over time. At the time of Buildout, the total developed sewer service area is approximately 6,717 acres.

The estimate of PWWF is taken from the peak hour of the wettest period in the years 2013 to 2015. December of 2015 was the wettest month, with 10.3 inches of rain total. December 8, 2015, (a Friday) was the wettest day of this month, with 1.5 inches of rain,

and was preceded by three days averaging 0.8 inches of rain each. The PWWF was calculated by subtracting flow data from a comparable dry-weather day. May 29, 2015, was selected as a comparable dry-weather day because it followed a 14-day period of no measurable rainfall and was the same day of the week (a Friday). As shown on Figure 4-3, PWWF of 2,979 gpm occurred at 8:00 p.m. Dividing by the total developed basin area for lift station basins (3,799 acres) yields 1,129 gpad for the pumped sewer basins. This value is essentially identical to the PWWF I/I rate obtained in the 2011 Wastewater Comprehensive Plan (1,134 gpad).

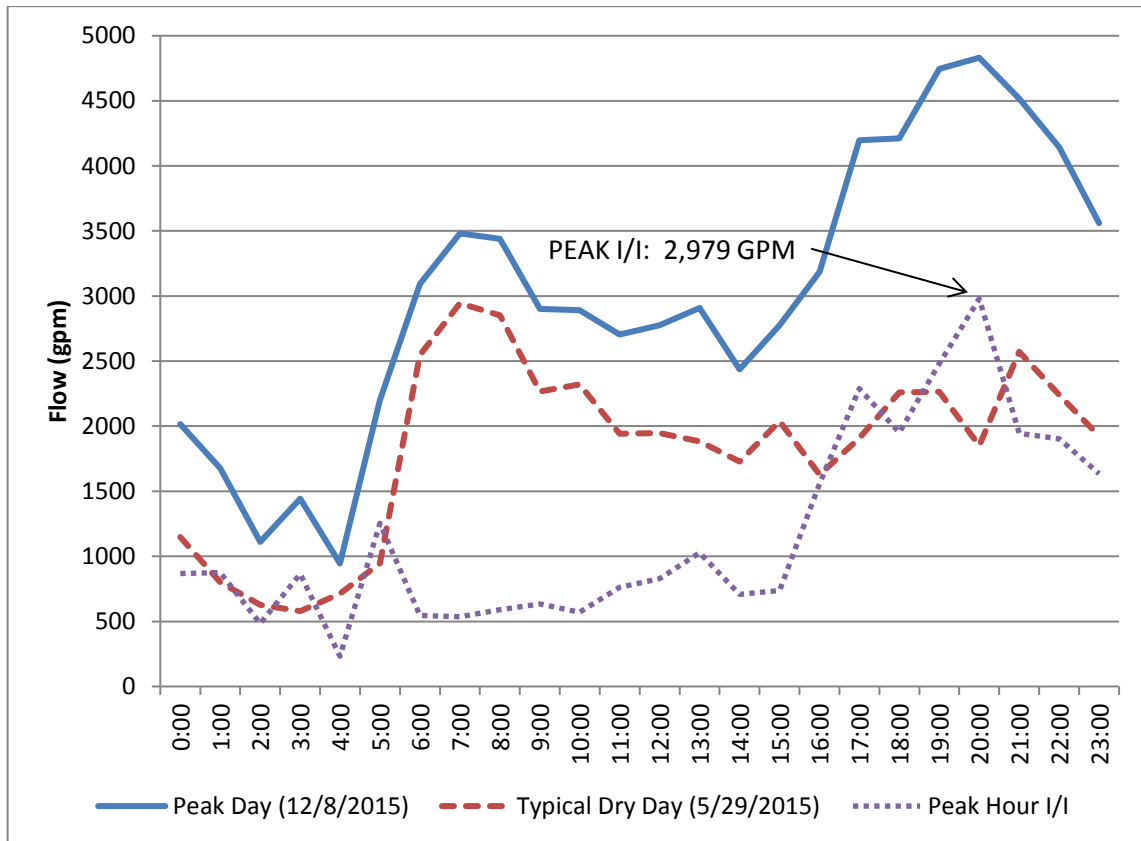


FIGURE 4-3

Peak Hour Infiltration/Inflow Derived from Aggregate Pump Run-Time Data

Generally, I/I rates can be expected to increase over time, as the system ages and deteriorates. This number will be used for the existing flow projections, in the Everett basin, but future I/I rates will be reduced to meet the District’s standard of 1,000 gpad for peak hourly I/I, under the assumptions that the District will successfully undertake an Infiltration and Inflow reduction program. Flow projections for the Alderwood drainage basins will utilize 1,000 gpad for peak hourly, since accurate flow data was not obtained.

EPA Inflow Analysis

In their publication *I/I Analysis and Project Certification* (1985), the EPA defines inflow as average daily flow during periods of significant rainfall (i.e., any storm event that creates surface ponding and surface runoff). Inflow above 275 gallons per capita per day (gpcd) is considered excessive. As reported in Table 4-7, the peak wet weather flow in service area in 2015 was 7,834 gpm or 11.28 mgd. The sewered population in the service area in 2015 was 49,181. Therefore, peak inflow in 2015 was 229 gpcd, which is below the criteria for excessive inflow.

EPA Infiltration Analysis

The EPA defines infiltration as the average dry weather flow per capita during a 7 to 14-day period with seasonal high groundwater. Infiltration above the national average of 120 gpcd is considered excessive. The EPA recommends estimating infiltration by measuring night flows on dry days during periods of high groundwater. Lift station runtime data between midnight and 6:00 a.m. for 12/8/2015 (the day used for calculating peak hour I/I) indicated a night-time flow of 1,445 gpm or 2.08 mgd. In 2015, there were 14,281 connections in the sewer basins with lift stations or 43,129 persons, based on 3.02 persons per connection. Therefore, peak infiltration in 2015 was 48 gpcd, well below the EPA threshold for excessive infiltration.

MAXIMUM MONTH FLOW

The maximum winter month flow is used for the calculation of the District's share in the Everett Water Pollution Control Facility (WPCF). The calculations include the average dry weather flow with contributions from peak infiltration and inflow. Utilizing wet weather flow data from lift stations in December 2015, the total monthly flow was 3.50 mgd, or 2,430 gpm. The maximum monthly I/I value in lift station basins is calculated as follows:

$$\frac{(\text{MMF} - \text{ADWF})}{\text{Lift Station Basin Area}} = \frac{3.50 \times 10^6 \text{ gpd} - 2.57 \times 10^6 \text{ gpd}}{3,800 \text{ acres}} = 243 \text{ gpad}$$

Flow projections for the Alderwood and Everett gravity basins will utilize 500 gpad for maximum month I/I, since flow data was not obtained for basins without lift stations. The combined maximum monthly I/I for the district is calculated by taking a weighted average of the lift station basins and the gravity basins:

$$\frac{243 \text{ gpad} \times 3,800 \text{ acres} + 500 \text{ gpad} \times 1,045 \text{ acres}}{4,845 \text{ acres}} = 300 \text{ gpad.}$$

SUMMARY OF WASTEWATER FLOW DESIGN CRITERIA

The wastewater flow design criteria for the District are summarized in Tables 4-3 through 4-8. These tables contain the calculated values for total flow generated in the District based on developed land area and population projections. Design criteria for the Everett Agreement Area, to include the CVWD Agreement Area, are listed in Table 4-3, with the Potential Future Service Area added to the current Everett basin in Table 4-4. Design criteria for the AWWD Agreement Area are listed in Table 4-5, with the AWWD basins outside the District added to the current AWWD basin in Table 4-6. Design criteria for the full District are listed in Table 4-7, with the Potential Future Service Area added in Table 4-8.

TABLE 4-3

Wastewater Design Criteria for Everett Agreement Area⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	42,630	54,894	57,959
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	1,628 gpm	2,097 gpm	2,214 gpm
	2.34 mgd	3.02 mgd	3.19 mgd
Peaking Factor	1.56	1.56	1.56
Peak Domestic Flow ⁽²⁾	2,640 gpm	3,371 gpm	3,553 gpm
Sewered Area	5,984 acres	6,350 acres	6,442 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow	5.93 mgd	6.34 mgd	6.44 mgd
Peak Wet Weather Flow ⁽³⁾	6,796 gpm	7,781 gpm	8,027 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	2.99 mgd	3.18 mgd	3.22 mgd
Maximum Month Flow ⁽⁴⁾	5.34 mgd	6.19 mgd	6.41 mgd

- (1) Includes the CVWD Agreement Area.
- (2) Includes 100 gpm peak flow from Cathcart Landfill Facility.
- (3) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly I/I Flow.
- (4) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

TABLE 4-4

Wastewater Design Criteria for Everett Plus Potential Future Service Areas⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	42,630	69,214	75,859
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	1,628 gpm	2,644 gpm	2,897 gpm
	2.34 mgd	3.81 mgd	4.17 mgd
Diurnal Peaking Factor	1.56	1.56	1.56
Peak Domestic Flow ⁽²⁾	2,640 gpm	4,224 gpm	4,620 gpm
Sewered Area	5,984 acres	7,296 acres	7,624 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow	5.98 mgd	7.30 mgd	7.62 mgd
Peak Wet Weather Flow ⁽³⁾	6,796 gpm	9,290 gpm	9,914 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	2.99 mgd	3.65 mgd	3.81 mgd
Maximum Month Flow ⁽⁴⁾	5.34 mgd	7.45 mgd	7.98 mgd

- (1) Includes the Everett and CVWD Agreement Areas, plus areas identified in Figure 4-4.
- (2) Includes 100 gpm peak flow from Cathcart Landfill Facility.
- (3) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly I/I Flow.
- (4) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

TABLE 4-5

Wastewater Design Criteria for Current AWWD Agreement Area⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	6,551	9,223	9,891
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	250 gpm	352 gpm	378 gpm
Average Domestic Flow	0.36 mgd	0.51 mgd	0.54 mgd
Diurnal Peaking Factor	1.56	1.56	1.56
Peak Domestic Flow	390 gpm	550 gpm	589 gpm
Sewered Area	933 acres	1,109 acres	1,153 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow	0.93 mgd	1.11 mgd	1.15 mgd
Peak Wet Weather Flow ⁽²⁾	1,038 gpm	1,320 gpm	1,390 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	0.47 mgd	0.55 mgd	0.58 mgd
Maximum Month Flow ⁽³⁾	0.83 mgd	1.06 mgd	1.12 mgd

- (1) Includes the 180th Street Lift Station basin and the AWWD gravity basin.
- (2) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly I/I Flow.
- (3) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

TABLE 4-6

Wastewater Design Criteria for Potential AWWD Agreement Area⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	9,278	15,628	17,216
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	354 gpm	597 gpm	658 gpm
Average Domestic Flow	0.51 mgd	0.86 mgd	0.95 mgd
Diurnal Peaking Factor	1.56	1.56	1.56
Peak Domestic Flow	553 gpm	931 gpm	1,026 gpm
Sewered Area	1,202 acres	1,788 acres	1,935 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow	1.20 mgd	1.79 mgd	1.93 mgd
Peak Wet Weather Flow ⁽²⁾	1,387 gpm	2,173 gpm	2,369 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	0.60 mgd	0.89 mgd	0.97 mgd
Maximum Month Flow ⁽³⁾	1.11 mgd	1.75 mgd	1.91 mgd

- (1) Includes the 180th Street Lift Station basin and the AWWD gravity basin.
- (2) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly I/I Flow.
- (3) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

TABLE 4-7

Wastewater Design Criteria for Total Current Service Area⁽¹⁾

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	49,181	64,117	67,851
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	1,878 gpm	2,449 gpm	2,592 gpm
Average Domestic Flow	2.70 mgd	3.53 mgd	3.73 mgd
Diurnal Peaking Factor	1.56	1.56	1.56
Peak Domestic Flow ⁽²⁾	3,030 gpm	3,920 gpm	4,143 gpm
Sewered Area	6,917 acres	7,459 acres	7,595 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow	6.92 mgd	7.46 mgd	7.59 mgd
Peak Wet Weather Flow ⁽³⁾	7,834 gpm	9,100 gpm	9,417 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	3.43 mgd	3.72 mgd	3.80 mgd
Maximum Month Flow ⁽⁴⁾	6.14 mgd	7.25 mgd	7.53 mgd

- (1) Includes the Everett, AWWD, and CVWD Agreement Areas.
- (2) Includes 100 gpm peak flow from Cathcart Landfill Facility.
- (3) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly I/I Flow.
- (4) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

TABLE 4-8**Wastewater Design Criteria for Total Current Plus Potential Future Service Areas**

Design Criteria	2015	2036	2041 (Buildout)
Sewered Population	49,181	78,437	85,751
Per Capita Domestic Flow	55 gpcd	55 gpcd	55 gpcd
Average Domestic Flow	1,878 gpm	2,996 gpm	3,275 gpm
Average Domestic Flow	2.70 mgd	4.31 mgd	4.72 mgd
Diurnal Peaking Factor	1.56	1.56	1.56
Peak Domestic Flow ⁽²⁾	3,030 gpm	4,774 gpm	5,209 gpm
Sewered Area	6,917 acres	8,405 acres	8,777 acres
Peak Hourly I/I Rate	1,000 gpad	1,000 gpad	1,000 gpad
Peak Hourly I/I Flow	6.92 mgd	8.40 mgd	8.78 mgd
Peak Wet Weather Flow ⁽³⁾	7,834 gpm	10,610 gpm	11,304 gpm
Maximum Month I/I Rate	500 gpad	500 gpad	500 gpad
Maximum Month I/I Flow	3.43 mgd	4.20 mgd	4.39 mgd
Maximum Month Flow ⁽⁴⁾	6.14 mgd	8.51 mgd	9.10 mgd

- (1) Includes the Everett, AWWD, and CVWD Agreement Areas, plus areas identified in Figure 4-4.
- (2) Includes 100 gpm peak flow from Cathcart Landfill Facility.
- (3) Peak Wet Weather Flow is sum of Peak Domestic Flow and Peak Hourly I/I Flow.
- (4) Maximum Month Flow is sum of Average Domestic Flow and Maximum Month I/I Flow.

EVERETT SERVICE TRANSFER AREA IMPACTS

As described in Chapter 2, the District has entered into an agreement with Everett for the transfer of the District facilities and customers within the Everett UGA. Upon transfer of these service areas, the District's capacity share in the Everett WPCF will reduce based on the number of water connections present at the time of transfer, as defined in the 2015 agreement. The largest possible capacity reduction is a service transfer at buildout, since that is the greatest number of connections that will be transferred. As indicated in Table 4-9, the projected flows for the transfer areas at buildout are roughly equal to or slightly in excess of the associated capacity reduction. This calculation assumes MMF based on 500 gpad and PWWF based on 1,000 gpad for the transfer areas. These actual I/I for the transfer areas are likely higher than these values, meaning that the District may have a greater safety margin than is indicated in this conservative projection.

TABLE 4-9

Impact of Everett Service Transfer Areas on Projected Flow and Service Capacity

	Projected Flows at Buildout		Associated Everett Capacity	
	MMF ⁽¹⁾ (mgd)	PWWF ⁽²⁾ (gpm)	MMF (mgd)	PWWF (gpm)
Current Everett Basin	6.57	9228	6.60	11500
Transfer Area 1	0.62	647	0.60	1,039
Transfer Area 2	0.45	468	0.43	750
Transfer Area 3	0.23	242	0.23	395
Transfer Area 4	0.76	797	0.70	1,226
Transfer Area 5	0.27	269	0.28	494
Transfer Area 6	0.22	217	0.22	387
Everett Basin Minus Transfer Areas	4.02	6,588	4.14	7,208

(1) Projected MMF is calculated as peak domestic flow plus an assumed max monthly I/I (500 gpad).

(2) Projected PWWF is calculated as peak domestic flow plus an assumed peak wet weather I/I (1,000 gpad).

FLOWS FROM OUTSIDE THE DISTRICT

The District receives flows from several areas outside its boundary that must be included in its design criteria.

CVWD Agreement Area

Flows from the CVWD agreement area have been estimated using pump flow data from the Lowell Larimer 1 and Lowell Larimer 2 lift stations, which are discussed earlier in this chapter. Population growth for this area is discussed in Chapter 2.

Everett Agreement Area

The District receives non-revenue, passthrough flows that enter the District’s sewer mains from an area north of the District boundary between 35th Avenue SE and State Route 527, shown on Figure 2-1, and return to Everett through to the South End Interceptor. The majority of these flows enter the Lift Station 4 sewer basin, and are already included in Table 4-2. This area is composed primarily of single-family residential properties, a middle school, and an elementary school. The residential properties are fully developed, with no capacity for additional growth. Each of the 553 parcels is assumed to have a single sewer connection, with the same population density as the District (3.02 persons per connection) and a total population of 1,670. The developed area (194 acres) is assumed to have a peak I/I rates of 1,000 gpad and a maximum monthly I/I rate of 500 gpad. The area therefor assumed to generate MMF of 0.20 mgd and PWWF of 0.39 mgd. After the transfer of District facilities and customers in the Everett UGA, flows from this area will no longer pass through District sewers.

AWWD Agreement Area

The District’s AWWD agreements identifies an area West of the District boundary with the potential to send flows to the District Alderwood Gravity Basin, as shown on Figure 2-1. In the Alderwood Water and Wastewater District’s 2009 Comprehensive Sewer Plan (AWWD Plan), this area is composed of three sewer basins: NC-1, NC-2, and NC-9. The northern-most basin (NC-1) is prepared to send flows to the District from a pump station that is waiting to be brought online; the lower two basins (NC-2 and NC-9) are currently not sewered, and may eventually connect to the District by gravity, but no connections have yet been established. According to the AWWD Plan, basin NC-1 has relatively little room for growth, but basins NC-2 and NC-9 are expected to grow by roughly 450 percent during the study period. The developed area is assumed to grow proportionally with the population and is assumed to have the same I/I rates as described above for the Everett Agreement Area. A summary of the projected sewered population and developed area is listed in Table 4-10.

TABLE 4-10

AWWD Agreement Area: Projected Sewered Population and Area

AWWD Basin	2012 ⁽¹⁾	2026 ⁽¹⁾	2040 ⁽¹⁾ (AWWD Buildout)
Sewered Population			
NC-1	1,330	1,529	1,585
NC-2	770	2,736	3,522
NC-9	627	1,995	2,831
Total Sewered Population	2,727	6,260	7,938
Developed Area⁽²⁾ (acres)			
Percent of Total Area (868 acres)	31%	71%	90%
Total Developed Area	268	616	781

(1) These dates were as published in the Alderwood Water and Wastewater District's 2009 Comprehensive Sewer Plan.

(2) Since the population is expected to grow through new development, the total sewered area is assumed to increased proportionally with the sewered population until it reaches 90 percent of total available area in 2040.

POTENTIAL FUTURE SERVICE AREAS

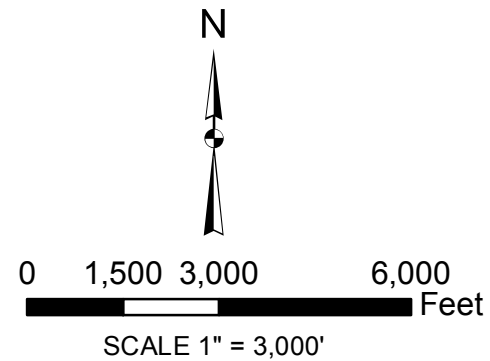
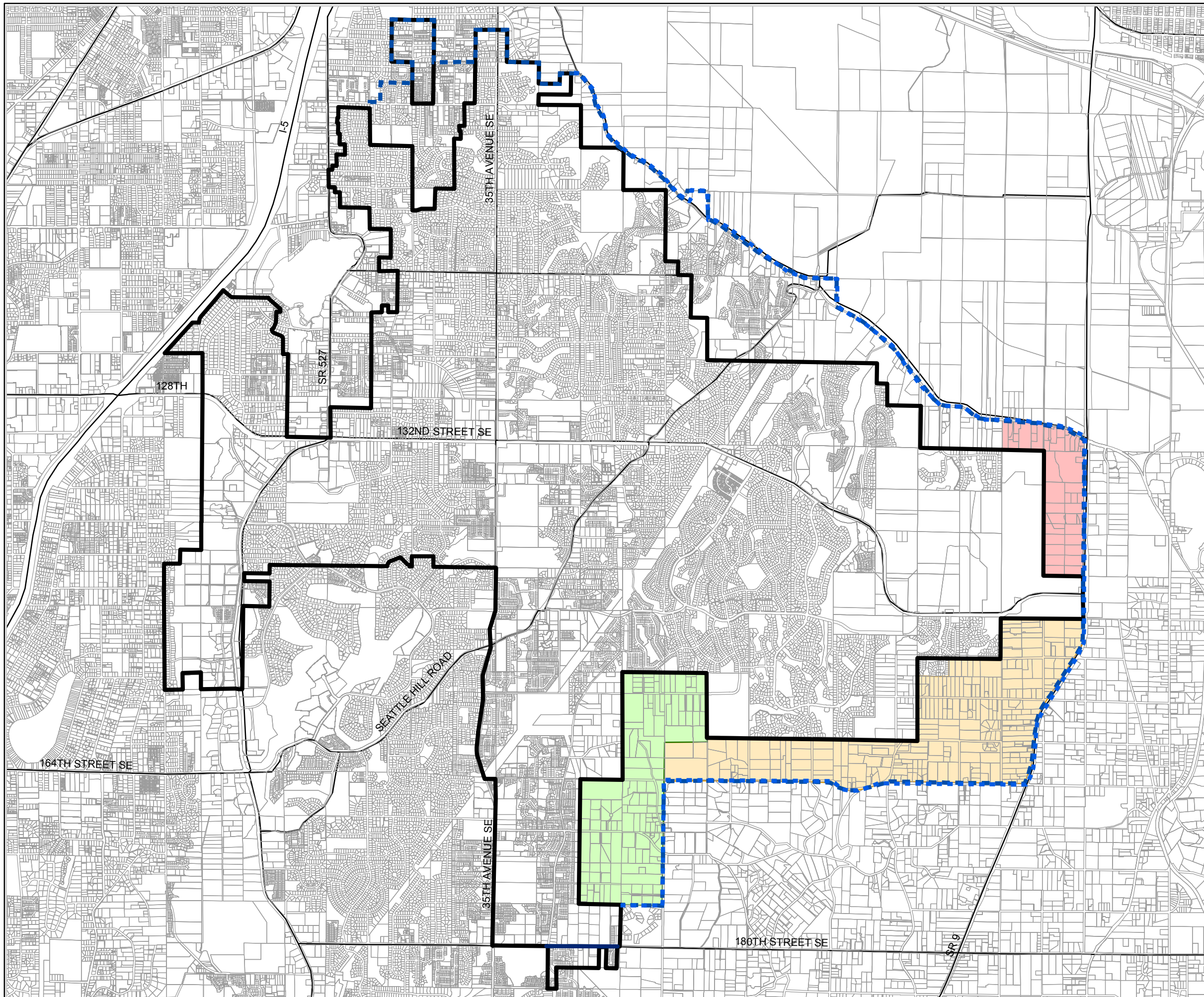
Included in the study area are those areas lying outside the District’s current boundaries and the Urban Growth Area (UGA) that could most likely be served by gravity into the District. These areas include portions of the Cross Valley Water District (CVWD) for which an agreement has not been made for sewer service and an area yet to be claimed by any service provider for future sewer service – the Little Bear Creek area. Table 4-11 shows the size, estimated population, and peak hourly flows should these areas be served

by the District in the future. These areas of potential future service are shown in Figure 4-4.

TABLE 4-11
Areas of Potential Future Service⁽¹⁾

Area Description	Acreage	Estimated Population⁽²⁾	Peak Wet Weather Flow (gpm)⁽³⁾
Little Bear Creek ⁽⁴⁾	402	6,100	510
South CVWD Area ⁽⁵⁾	614	9,300	780
Area East of Cathcart ⁽⁶⁾	166	2,500	210
Total	1,182	17,900	1,500

- (1) Areas already within the CVWD Agreement area are not included in this table. See Figure 4-4.
- (2) Based on 5 dwelling units per acre, 3 persons per dwelling unit.
- (3) PWWF = (acreage)*(1,000 gpad) + (population)*(55 gpcd)
- (4) Area lies east of the Thomas Lake and 164th Street SE basins, in an area yet to be claimed by any service provider.
- (5) All CVWD non-agreement areas lying south of the District boundary, between 55th Avenue and SR 9, and north of 164th Street.
- (6) Area lies between CVWD Agreement area and SR 9, north of District boundary.



- LEGEND**
- STUDY AREA
 - SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
 - AREA EAST OF CATHCART
 - LITTLE BEAR CREEK
 - SOUTH CVWD AREA

**SILVER LAKE WATER
& SEWER DISTRICT**
 WASTEWATER COMPREHENSIVE PLAN
 FIGURE 4-4
 AREAS OF POTENTIAL FUTURE SERVICE


Gray & Osborne, Inc.
 CONSULTING ENGINEERS

CHAPTER 5

EXISTING FACILITIES

INTRODUCTION

The District's original wastewater collection system was constructed and brought online in 1970 and 1971. Additional sewer facilities have been constructed within the District over the past 45 years. The District has agreements with Everett and AWWD that provide for the treatment and disposal of all wastewater generated within the District. The majority of the wastewater collected in the District flows to the City of Everett's Wastewater Pollution Control Facility (WPCF), located approximately 6 miles to the north of the District boundary. The District's remaining wastewater flows through the Alderwood Water and Wastewater District's (AWWD) sewer system before continuing on to the King County Department of Natural Resources (KCDNR) for treatment. The District also has an agreement with Snohomish County and Everett for the conveyance of leachate from the Cathcart Landfill to Everett for treatment. Copies of these agreements are located in Appendix B.

EXISTING WASTEWATER COLLECTION SYSTEM

The District's wastewater collection system consists of 22 sewage lift stations, approximately 12.5 miles of force main, and 163 miles of gravity sewer line. A schematic representation of the District's lift stations and force mains is shown in Figure 5-1.

SEWAGE LIFT STATIONS

An inventory of the District's sewage lift stations is presented in Table 5-1. The three lift stations with the highest capacity are Lift Station 2, Pioneer Trails, and Lift Station 3. The drainage basin areas for each lift station, as well as the areas that drain to Everett or AWWD by gravity, are shown in Figure 5-2. None of the District's lift stations have a bypass connected to waters of the state. The District maintains redundant pumps, standby generators with automatic transfer switches and SCADA alarms at each station to prevent overflows in the system.

FORCE MAINS

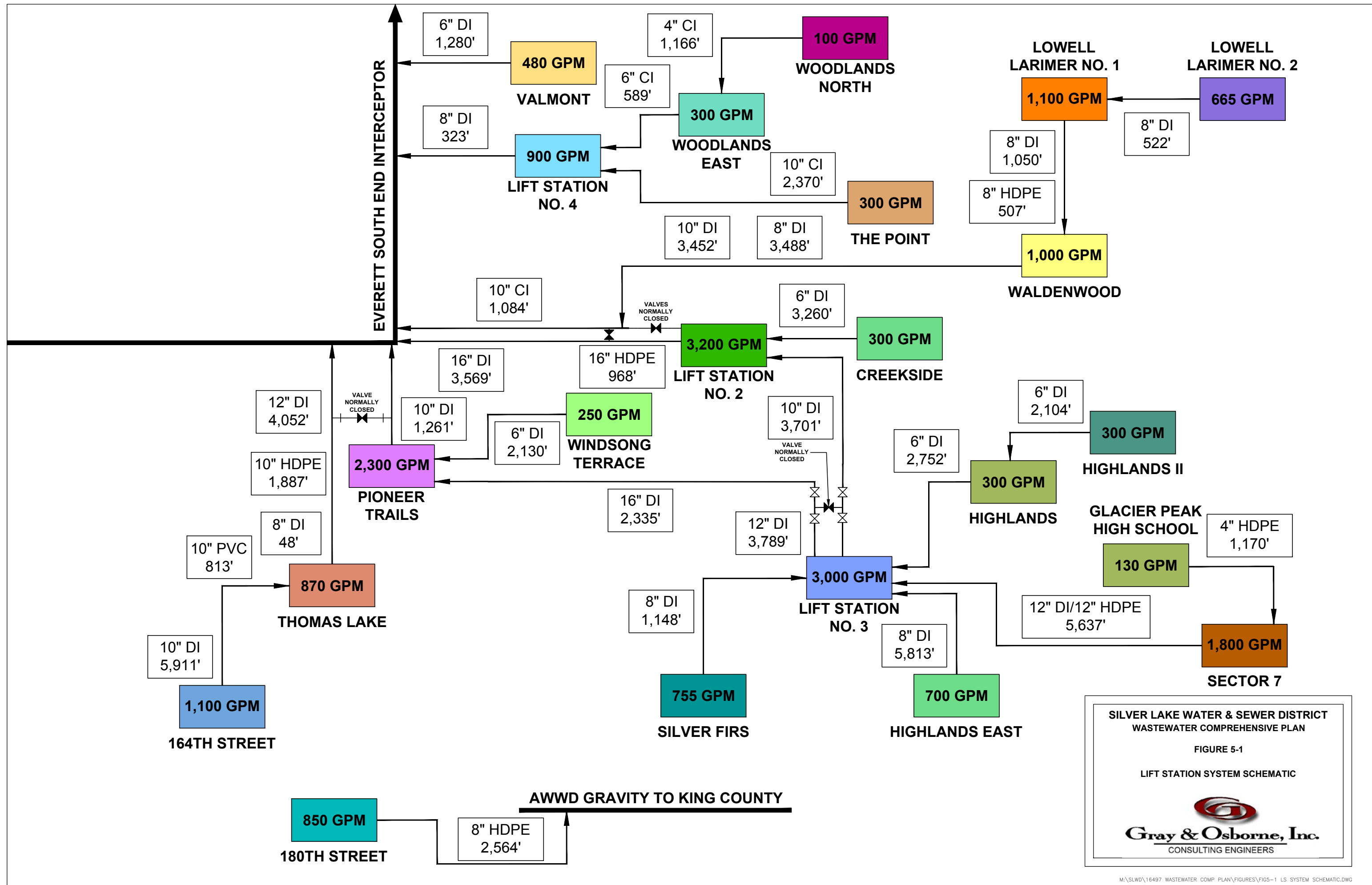
An inventory of the District's force mains, sorted by pipe diameter, is presented in Table 5-2. A summary of the force main for each sewage lift station is presented in Table 5-3.

TABLE 5-1


Inventory of Sewage Lift Stations

No.	Lift Station ⁽¹⁾	Year On-Line	Station Type	Station Serial No.	Pump Model	No. of Pumps	Capacity ⁽²⁾ (gpm)	TDH ⁽³⁾ (ft)	Motor Power (hp)	Impeller Size (inch)	Auxiliary Power ⁽⁴⁾	Generator Enclosure	Fuel Type
1	164 th Street	2003	Vacuum Lift	16-7232-V	6D3B	2	1,100	92	40	11.125	60 kW	Quiet Site	Propane
2	180 th Street	2007	Vacuum Lift	16-08306-N	6D3B	2	850	95	40	10.875	75 kW	Quiet Site	Diesel
3	Creekside	2001	Vacuum Lift	16-6925-F	4C3B	2	300	136	30	11.625	80 kW	Quiet Site	Propane
4	Glacier Peak	2011	Submersible			2	130		5		None	N/A	N/A
5	Highlands East	2001	Vacuum Lift	16-06978-W	4D4B	2	700	215	75	14.750	100 kW	Quiet Site	Diesel
6	Highlands I	1997	Vacuum Lift	16-6077	4C3B	2	300	94	20	10.000	65 kW	Quiet Site	Propane
7	Highlands II	1999	Vacuum Lift	16-6364	4C3B	2	300	118	30	10.750	60 kW	Quiet Site	Diesel
8	Lift Station 2	2005	Wet Pit/Dry Pit	12-07200-00-V	8D4C	3	3,200	210	125 ⁽⁵⁾	15.000	300 kW	Quiet Site	Diesel
9	Lift Station 3	2000	Wet Pit/Dry Pit	11-7187	6D4C	3	3,000 ⁽⁷⁾	130	75 ⁽⁵⁾	15.000	300 kW	Alum-Tek	Diesel
10	Lift Station 4	2005	Vacuum Lift	1607723	6B3B	2	900	31	10	10.500	40 kW	NAE ⁽⁶⁾	Diesel
11	Lowell Larimer 1	2003	Vacuum Lift	16-6714-K	4D4B	2	1,100 ⁽⁷⁾	170	75	13.750	215 kW	Quiet Site	Diesel
12	Lowell Larimer 2	2004	Vacuum Lift	16-07466-00-V	4C3B	2	665	40	15	11.500	47 kW	Quiet Site	Propane
13	Pioneer Trails	1987	Wet Pit/Dry Pit	9-7259	6D4C	2	2,300 ⁽⁷⁾	121	75 ⁽⁵⁾	12.625	175 kW	NAE ⁽⁶⁾	Diesel
14	Silver Firs	1994	Wet Pit/Dry Pit	8-8384	4D3	2	755	121.5	40	11.750	60 kW	Quiet Site	Propane
15	Sector 7	2010	Wet Pit/Dry Pit	12 7208	6D5	3	1,800	353	200 ⁽⁵⁾	18.000	450 kW	Alum-Tek	Diesel
16	The Point	2011	Vacuum Lift	16-08807-00-E	4D4B	2	300	166	50	12.875	100 kW	Alum-Tek	Diesel
17	Thomas Lake	2000	Vacuum Lift	25-0241	6C3B	3	870 ⁽⁷⁾	46.5	15	11.625	80 kW	Quiet Site	Propane
18	Valmont	2011	Vacuum Lift	28-00234-00-W	4C3B	2	480	137	30	11.875	60 kW	Alum-Tek	Diesel
19	Waldenwood	1999	Wet Pit/Dry Pit	11-7186	6D5	2	1,000 ⁽⁷⁾	331	150 ⁽⁵⁾	17.50	300 kW	Quiet Site	Diesel
20	Windsong Terrace	1988	Vacuum Lift	15-3673	4B2D	2	250	70	10	8.750	30 kW	NAE ⁽⁶⁾	Propane
21	Woodlands East	2005	Vacuum Lift	16-07724-00-V	4C2B	2	300	95	20	9.875	35 kW	Quiet Site	Propane
22	Woodlands North	1979	Wet Pit/Dry Pit	08-7662-C	4D3	2	100	156	40	12.000	60 kW	Quiet Site	Propane

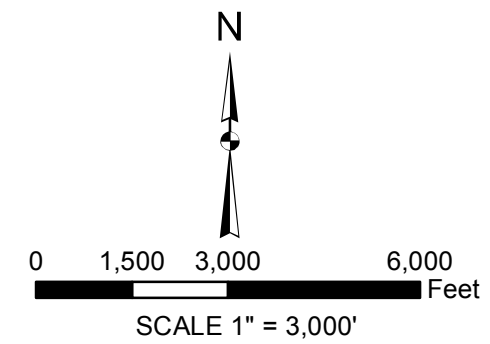
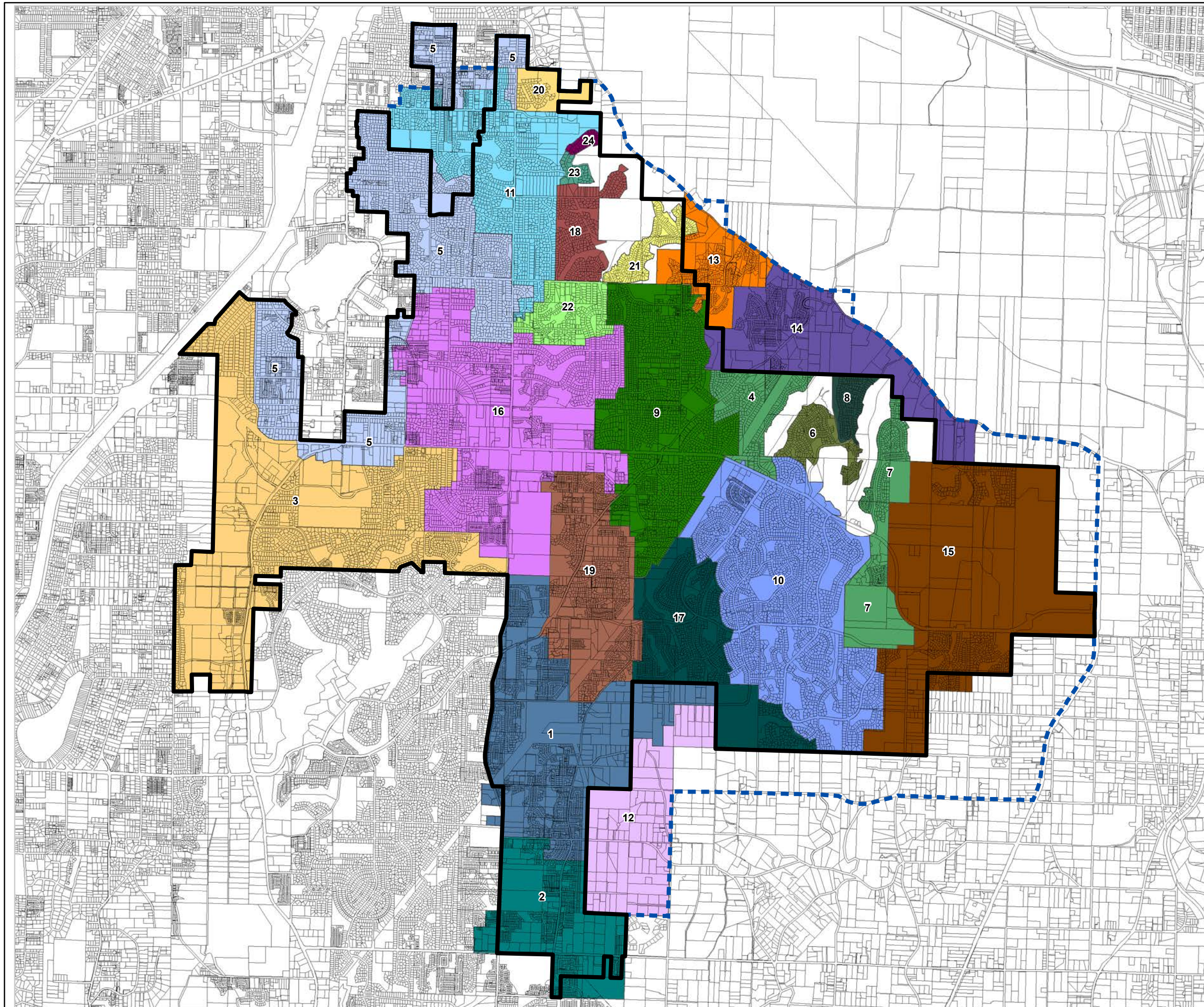
- (1) The location of each sewage lift station is shown in Figure 5-3.
- (2) Capacity with one pump out of service, based on tests performed at startup, except where noted.
- (3) Total Dynamic Head.
- (4) Size.
- (5) Variable Frequency Drive (VFD).
- (6) Non-acoustic enclosure.
- (7) Based on tests performed in 2017.



SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 FIGURE 5-1
 LIFT STATION SYSTEM SCHEMATIC



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- LEGEND:**
- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
 - STUDY AREA
 - 1 164TH STREET
 - 2 180TH STREET
 - 3 ALDERWOOD GRAVITY
 - 4 CREEKSIDE
 - 5 EVERETT GRAVITY
 - 6 HIGHLANDS
 - 7 HIGHLANDS EAST
 - 8 HIGHLANDS II
 - 9 LIFT STATION NO. 2
 - 10 LIFT STATION NO. 3
 - 11 LIFT STATION NO. 4
 - 12 LITTLE BEAR CREEK GRAVITY
 - 13 LOWELL LARIMER NO. 1
 - 14 LOWELL LARIMER NO. 2
 - 15 SECTOR 7
 - 16 PIONEER TRAILS
 - 17 SILVER FIRS
 - 18 THE POINT
 - 19 THOMAS LAKE
 - 20 VALMONT
 - 21 WALDEN WOOD
 - 22 WINDSONG TERRACE
 - 23 WOODLANDS EAST
 - 24 WOODLANDS NORTH

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 FIGURE 5-2
 DRAINAGE BASINS



Gray & Osborne, Inc.
 CONSULTING ENGINEERS

TABLE 5-2

Inventory of Force Mains⁽¹⁾

Pipe Diameter ⁽²⁾	Length (LF)	Length (Miles)
18"	968	0.18
16"	5,904	1.12
12"	9,426	1.79
10"	17,008	3.22
8"	15,660	2.97
6"	14,485	2.74
4"	2,336	0.44
Total (LF)	65,787	12.46

- (1) District-owned force mains are Ductile Iron, Cast Iron, or HDPE.
 (2) Refers to inner diameter of D.I and C.I. pipes; outer diameter of HDPE pipes.

The length and capacity of each force main is provided in Table 5-3, with the capacity as calculated for a maximum velocity of 8 feet per second. The location of each force main is shown in Figure 5-3.

TABLE 5-3

Inventory of Lift Station Force Mains⁽¹⁾

Lift Station (Force Main Source)	Diameter (inches)	Length (LF)	Capacity ⁽²⁾ (gpm)
164 th Street ⁽³⁾	10 PVC	813	1,958
	10 D.I.	5,911	
180 th Street	8 D.I.	0	1,253
	8 O.D. DR11 HDPE	2,564	
Creekside	6 D.I.	3,260	705
Glacier Peak	4 O.D. HDPE	1,170	313
Highlands East	8 D.I.	5,813	1,253
Highlands I	6 D.I.	2,752	705
Highlands II	6 D.I.	2,104	705
Lift Station 2 ⁽³⁾	18 O.D. HDPE	968	4,136
	16 ⁽⁴⁾ D.I.	3,569	5,013
	10 ⁽⁵⁾ C.I.	1,084	1,958
Lift Station 3 ⁽⁶⁾	16 D.I.	2,335	5,013
	12 D.I.	3,789	2,820
	10 D.I.	3,701	1,958
Lift Station 4	8 D.I.	323	1,253
Lowell Larimer 1	8 D.I.	1,050	1,253
	8 O.D. HDPE ⁽³⁾	507	949

TABLE 5-3 – (continued)

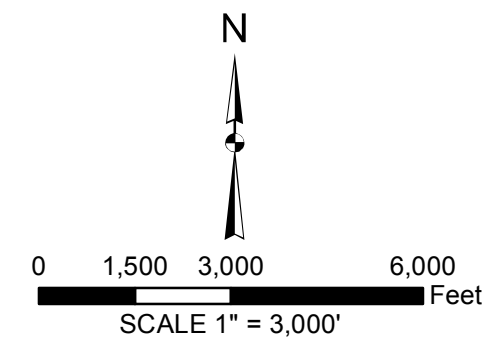
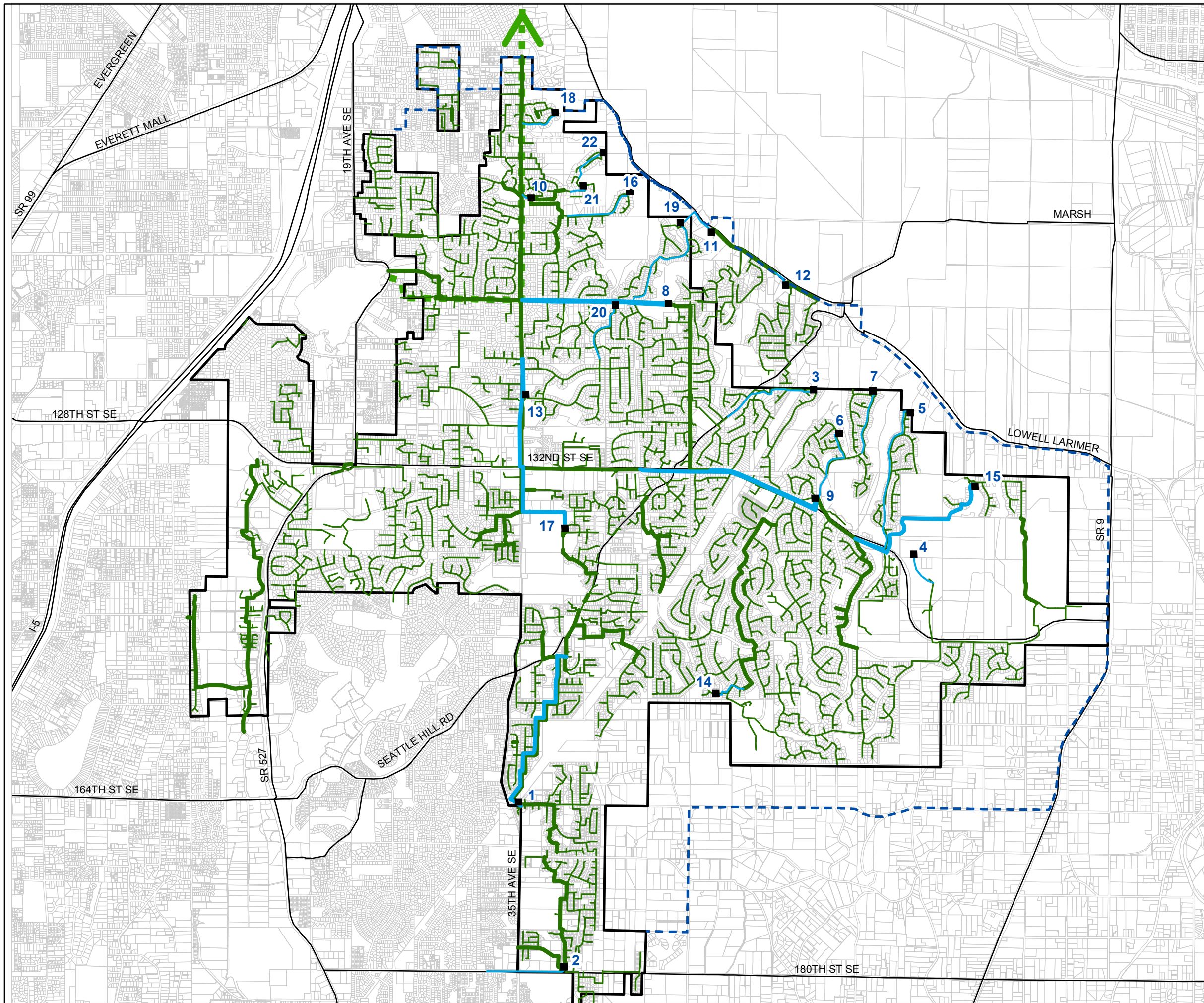
Inventory of Lift Station Force Mains⁽¹⁾

Lift Station (Force Main Source)	Diameter (inches)	Length (LF)	Capacity ⁽²⁾ (gpm)
Lowell Larimer 2	8 D.I.	522	1,253
Pioneer Trails	10 D.I. ⁽⁷⁾	1,261	1,958
The Point	6 C.I.	2,370	705
Sector 7	12 D.I./12 O.D. HDPE	5,637	2,075
Silver Firs	8 D.I.	1,148	1,253
Thomas Lake ⁽³⁾	8 D.I.	48	1,253
	12 D.I. ⁽⁷⁾	4,291	2,820
	10 O.D. HDPE	1,887	1,311
Valmont	6 D.I.	1,280	705
Waldenwood ⁽³⁾	10 D.I.	3,452	1,958
	8 D.I.	3,488	1,253
Windsong Terrace	6 D.I.	2,130	705
Woodlands East	6 C.I.	589	705
Woodlands North	4 C.I.	1,166	313

- (1) Except where noted, lengths are as measured from District GIS, as received in April 2017.
- (2) Capacity based on maximum velocity of eight feet per second (8 fps).
- (3) Lengths based on as-builts.
- (4) 16-inch FM from Lift Station 2 and 10-inch FM from Waldenwood Lift Station run parallel for 3,414 LF and can be shared.
- (5) This section of 10-inch FM coming from Lift Station 2 is normally closed.
- (6) Two force mains (10 inch and 12 inch) flow from Lift Station 3. The 10-inch FM can be opened to convey flows to Lift Station 2. The 12 inch increases in size to a 16 inch and conveys flows to Pioneer Trails Lift Station.
- (7) 12-inch FM from Thomas Lake and 10-inch FM from Pioneer Trails run parallel for 958 LF and can be shared.

GRAVITY MAINS

An inventory of the District’s gravity sewer lines, sorted by pipe diameter and pipe material, is presented in Table 5-4. All concrete sewer lines were installed prior to 1980, while all PVC and D.I. sewer line has been installed from 1980 to the present. The 8-inch gravity sewers collect sewage flows within residential areas. Gravity sewers larger than 8-inch collect sewage flows from smaller pipes and convey the flow to lift stations or larger trunk lines. The data in Table 5-4 was taken from the District GIS Database/Map. The City of Everett South End Interceptor (30- and 36-inch pipes) are owned and maintained by Everett, and therefore, these are not counted in the District’s inventory.



- NO. LIFT STATION**
- 1 164TH STREET
 - 2 180TH STREET
 - 3 CREEKSIDE
 - 4 GLACIER PEAK
 - 5 HIGHLANDS EAST
 - 6 HIGHLANDS
 - 7 HIGHLANDS II
 - 8 LIFT STATION NO. 2
 - 9 LIFT STATION NO. 3
 - 10 LIFT STATION NO. 4
 - 11 LOWELL LARIMER NO. 1
 - 12 LOWELL LARIMER NO. 2
 - 13 PIONEER TRAILS
 - 14 SILVER FIRS
 - 15 SECTOR NO. 7
 - 16 THE POINT
 - 17 THOMAS LAKE
 - 18 VALMONT
 - 19 WALDENWOOD
 - 20 WINDSONG TERRACE
 - 21 WOODLANDS EAST
 - 22 WOODLANDS NORTH

LEGEND

- LIFT STATION
- ▭ STUDY AREA
- ◆ EVERETT SOUTH END INTERCEPTOR
- ▭ SILVER LAKE WATER & SEWER DISTRICT
- ▭ PARCELS

FORCE MAIN DIAMETER:

- ▬ 10-INCH OR MORE
- ▬ 8-INCH OR LESS

GRAVITY SEWER DIAMETER:

- ▬ 8-INCH OR LESS
- ▬ 10-INCH OR GREATER

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 FIGURE 5-3
 EXISTING FORCE MAINS
 AND MAJOR GRAVITY LINES

TABLE 5-4

Inventory of Gravity Mains⁽¹⁾

Pipe Diameter	Pipe Material⁽²⁾	Length (LF)	Length (Miles)
18"	D.I.	1,070	0.20
16"	D.I.	4,975	0.94
14"	D.I.	444	0.08
12"	D.I.	3,803	0.72
10"	D.I.	11,961	2.27
8"	D.I.	41,167	7.80
D.I. Subtotal		63,419	12.01
18"	PVC	7,470	1.41
15"	PVC	8,113	1.54
12"	PVC	21,726	4.11
10"	PVC	19,234	3.64
8"	PVC	599,186	113.48
PVC Subtotal		655,728	124.19
8"	HDPE	394	0.07
HDPE Subtotal		394	0.07
36"	CONC	600	0.11
18"	CONC	9,030	1.71
12"	CONC	3,852	0.73
10"	CONC	3,530	0.67
8" ⁽³⁾	CONC	108,121	20.48
Concrete Subtotal		125,132	23.70
Unspecified Material		17,585	3.33
Total		862,258	163.31

- (1) Data based on District GIS Database/Map.
- (2) D.I. = Ductile Iron; PVC = Poly Vinyl Chloride; HDPE = High Density Polyethylene; CONC = Concrete.
- (3) The GIS database includes 3,123 feet of concrete pipe with unspecified diameter; this pipe is assumed to be 8 inch.

DISTRICT SEWER AGREEMENTS

All wastewater collected within the District is transported for treatment to either Everett or KCDNR via the Alderwood Water & Wastewater District (AWWD). Interlocal sewer service agreements have been established with Everett and AWWD for disposal of wastewater collected within the District. The District also maintains an interlocal agreement with Cross Valley Water District to provide sewer service within areas along Lowell Larimer Road. The District has an agreement with Snohomish County and Everett for the conveyance of leachate from the Cathcart Landfill, located in the eastern

portion of the District's service area. Figure 5-4 illustrates the regional sewer system relative to the District. Figure 5-5 illustrates the service agreement areas.

CITY OF EVERETT AGREEMENT

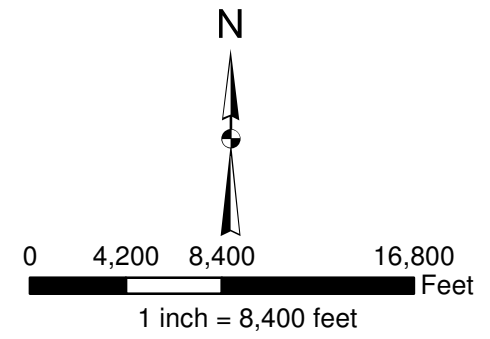
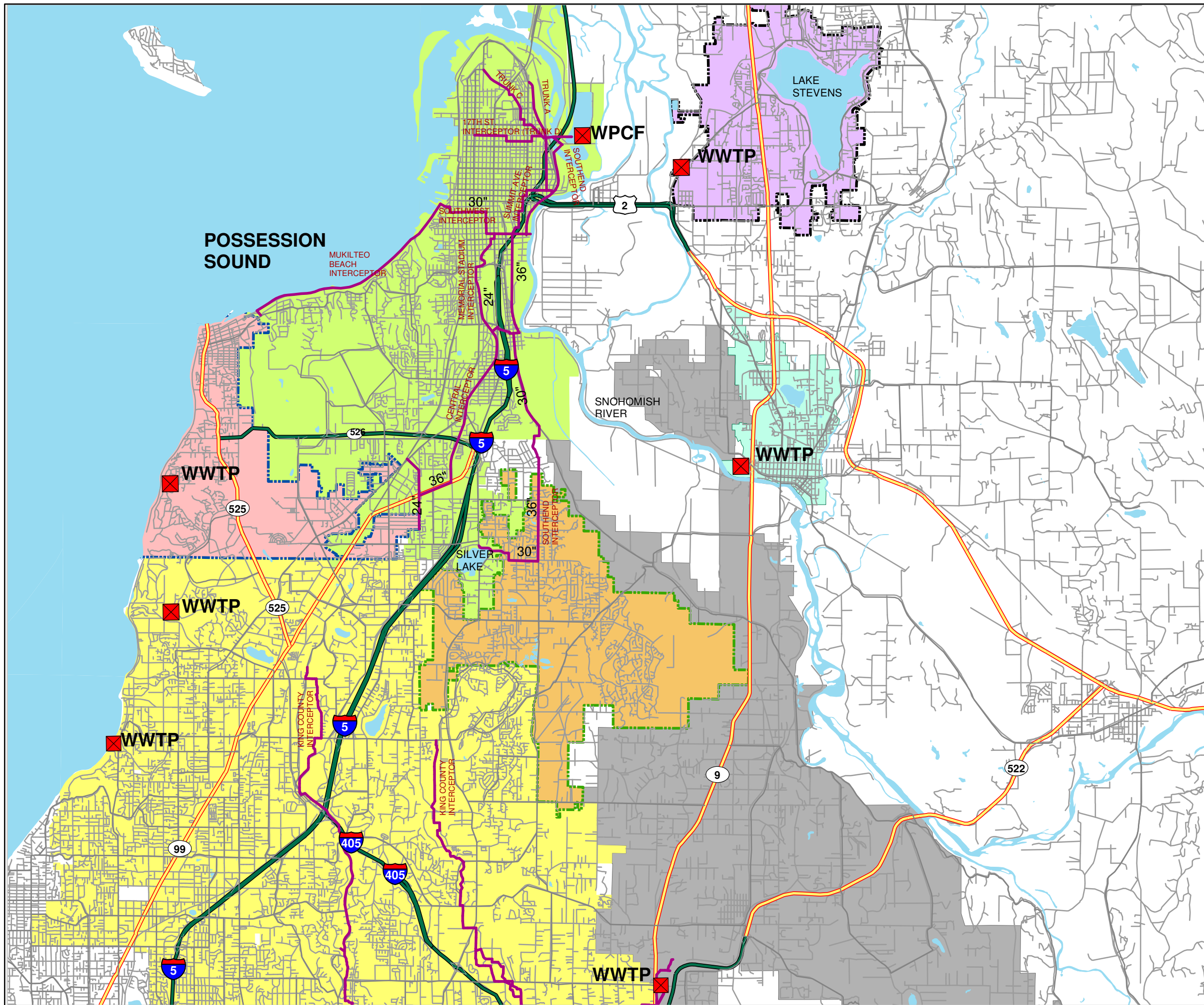
In 1982, the District entered into the existing sewer agreement with Everett. The 1982 agreement rescinded the two prior agreements of 1970 and 1974, which established a cost sharing arrangement based on the number and type of connections within the District. The cost sharing arrangement is now based upon the District's required capacity within components of Everett's sewer system, including interceptor lines and Water Pollution Control Facility (WPCF). The agreement was amended in 1991, as the District purchased additional capacity within Everett's wastewater facilities. This capacity increase was reaffirmed in the 2015 Sewage and Annexation Agreement. Under the agreement the District shares in the capital cost of facilities based on the percentage of the facility capacity required to service the District's wastewater flow. These improvement contributions cease when the WPCF reaches a capacity of 40.4 mgd, maximum winter month flow.

A summary of the District's purchased capacity in Everett's wastewater system covered in the agreement, including the share of construction costs incurred by the District, is presented in Table 5-5. The District's purchased capacities are for Peak Wet Weather Flow for conveyance and headworks; and Maximum Month Flow for the WPCF. Flow definitions are presented in Chapter 4.

The agreement with Everett does not specify wastewater characterization requirements for the wastewater delivered by the District. Therefore, the District is not required to conduct any sampling for wastewater characterization parameters within its collection system.

As part of the agreement with Everett, the District pays a wastewater disposal operation and maintenance charge. This charge is based on the number of connections within the District that ultimately discharge to the Everett system. A copy of the 2015 agreement between the District and Everett is included in Appendix B.


The purchased capacities in Everett facilities were based on the populations and land use zonings in the District's *1988 Sewerage System General Comprehensive Plan Update*.

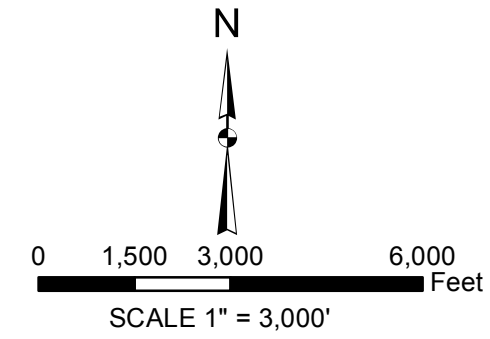
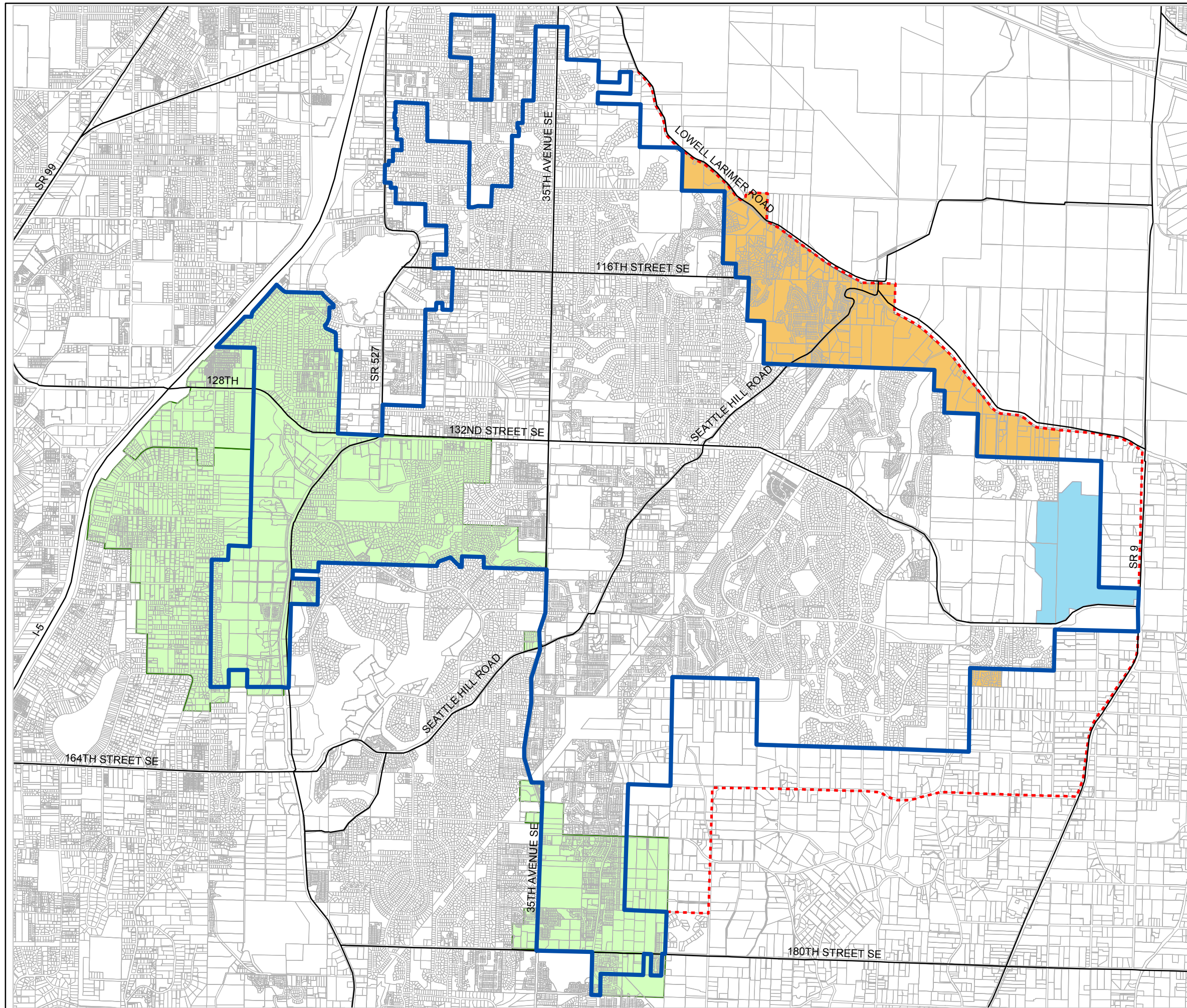


- WWTP - WASTEWATER TREATMENT PLANT
 - WPCF - WATER POLLUTION CONTROL FACILITY
- LEGEND:**
- INTERCEPTORS
 - WATER
 - LAKE STEVENS SEWER DISTRICT
 - MUKILTEO WATER & WASTEWATER DISTRICT
 - SILVER LAKE WATER & SEWER DISTRICT
 - CITY LIMITS OF EVERETT
 - CITY LIMITS OF SNOHOMISH
 - ALDERWOOD WATER & WASTEWATER DISTRICT
 - CROSS VALLEY WATER DISTRICT

SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN

FIGURE 5-4
REGIONAL SEWERS


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LEGEND

- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- STUDY AREA
- AWWD AGREEMENT AREA
- CATHCART AGREEMENT AREA
- CVWD AGREEMENT AREA

NOTE:
 EVERETT AGREEMENT AREA INCLUDES ALL AREAS WITHIN THE SILVER LAKE WATER & SEWER DISTRICT BOUNDARY AND CROSS VALLEY WATER DISTRICT AGREEMENT AREA.

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 FIGURE 5-5
 SEWER AGREEMENT AREAS

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 CONSULTING ENGINEERS

TABLE 5-5

District Purchased Capacity in Everett Sewer Facilities

Everett Facility	District Purchased Capacity	Total Facility Capacity	District Portion of Cost⁽³⁾
South End Interceptor⁽¹⁾			
South End Extension	11,500 gpm	16,000 gpm	72%
To Southwest Interceptor	11,500 gpm	32,000 gpm	36%
Northern Segment	11,500 gpm	45,000 gpm	26%
Everett Treatment Facilities			
Headworks ⁽¹⁾	11,500 gpm	80,000 gpm	14%
WPCF ⁽²⁾	6.6 mgd	40.4 mgd	16%

- (1) Capacity for Peak Hour Flow.
- (2) Capacity for Maximum Month Flow.
- (3) District portion of cost is the percentage of the total facility capacity purchased by the District.

ALDERWOOD WATER & WASTEWATER DISTRICT AGREEMENT

In 1978, the District entered into an agreement with the AWWD. Subsequent agreements and amendments were superseded by an agreement signed in July of 2006 and updated in 2010 and 2013.

Connections in the southwest and southern portion of the District have been designated to discharge through the AWWD sewer system to the King County wastewater treatment facilities. The area covered in the agreement is shown in Figure 5-5. The agreement specifies that the District constructs and maintains sewer system facilities within the area in accordance with all King County regulations and conditions of the agreement between AWWD and the County. For the area designated in the agreement, the District pays AWWD a sewage disposal charge based upon the number of connections, and a sewer connection charge for any new developments. Individual connections are responsible to King County for their treatment impacts at the time service is provided.

According to the agreement, the wastewater discharged by the District may be limited by the capacity of the AWWD system. The District is not allowed to surcharge any component of AWWD’s wastewater collection facilities. As part of the agreement AWWD is to provide sufficient capacity in downstream facilities to handle the peak flow from the District area designated in the agreement and shown in Figure 5-5. A copy of the agreement between AWWD and the District is included in Appendix B.

Provisions of the agreement allow for AWWD sewer flows to enter District facilities prior to being discharged back to AWWD for transmission to KCDNR. These areas are shown in Figure 5-5, and include areas that drain to the District’s 180th Street Lift Station

and the District's North Creek Sewer Interceptor, which is aligned in Main Street in Mill Creek.

CROSS VALLEY WATER DISTRICT AGREEMENT

In 1994 the District entered into an interlocal agreement with the Cross Valley Water District (CVWD) to provide sewer service to an undeveloped area along Lowell-Larimer Road. This agreement was subsequently updated in 2001, 2007, and again in 2010. The area covered in the agreement is shown in Figure 5-5. A copy of the agreement between CVWD and the District is included in Appendix B.

This area is located outside of the District boundary. However, it is anticipated that the District will provide sewer service in this area for the near future. Future flows from this CVWD Agreement Area are projected through buildout, and new conveyance infrastructure has been proposed in Chapter 8 to handle the future flows.

For the District to provide sewer service within the study area directly east of the existing agreement area, an amended agreement would need to be negotiated between the District and CVWD and urban growth boundaries would require expansion by Snohomish County.

SNOHOMISH COUNTY CATHCART LANDFILL AGREEMENT

In 1989, the District entered into an agreement with Snohomish County and the City of Everett for the disposal of leachate from the 587-acre Cathcart Landfill site. The Cathcart Landfill (now closed) is located in the southeast portion of the study area and flows by gravity to the Sector 7 Lift Station. This agreement was amended in April 2008. The landfill location is shown on Figure 5-5. Leachate from the landfill undergoes a pretreatment process in a lagoon prior to discharging to the District's sewer system. The agreement allows a maximum leachate flow of 100 gallons per minute. The volume of leachate received from Cathcart is monitored by Snohomish County, and shall at no time exceed 144,000 gallons per day. A copy of the agreement between the District, Snohomish County and the City of Everett is also included in Appendix B.

As part of the agreement with Snohomish County, wastewater from the landfill must meet the wastewater characterization requirements as specified in the Industrial Waste Discharge Permit (IWDP) for the Cathcart Landfill. Snohomish County monitors the parameters of BOD, TSS, pH, oils and grease, total organic carbon, and total metals. The Maximum Contaminant Levels (MCLs) are specified in the IWDP. A copy of the IWDP for the Cathcart Landfill is included in Appendix E.

In addition, as shown on Figure 2-4, Snohomish County has zoned the land near Cathcart Landfill for a variety of residential, commercial, and industrial uses. The number of sewer connections in these areas at buildout has been calculated using the methodology described in Chapter 2.

CHAPTER 6

COLLECTION SYSTEM EVALUATION

INTRODUCTION

The components of the existing sewer collection system are evaluated based on the design criteria for wastewater flows in Chapter 4 and the District's future population and land use zoning in Chapter 2. The capacity of the District's sewer system is evaluated with respect to the physical capacity of its lift stations, force mains, and gravity mains and the legal boundaries of its interlocal agreements.

Capacity evaluation is performed by modeling each system component (e.g., lift station, gravity main, etc.) and generating the Peak Wet Weather Flow (PWWF) to that component from the contributing area and units or connections. This process of system modeling and flow generation is performed using the InfoSewer hydraulic model software, developed by Innovyze, Inc., is used to develop total flows and analyze the capacity and identify limitations of the wastewater collection system.

HYDRAULIC MODEL

This chapter presents a hydraulic model of the District's collection system and explains the development of the hydraulic model and the assumptions included in the model. The output from this model is used to evaluate the capacity of the existing collection system and to identify improvements that will be necessary in the future. The model is intended to be updated and maintained periodically and used as a tool to aid in future planning and design efforts.

The model is developed with InfoSewer software, by Innovyze, Inc. As InfoSewer is GIS-compatible, the hydraulic model can be integrated into the District GIS system, and potentially also be integrated into the Everett and King County hydraulic models.

MODEL SYSTEM REQUIREMENTS

The District's hydraulic model is run on a Windows-based desktop computer. The following is a partial list of hardware and software used in the creation of the model:

- **Excel (by Microsoft):** Used to view and display tabular data, and for simple repetitive data manipulations (such as changing elevations to account for different vertical datum on record drawings).
- **ArcMap (by ESRI):** Used to enter and store graphical data, view horizontal plans of the collection system, and produce maps displaying model results.

- InfoSewer version 7.6 (by InnoVyzte, Inc.):** A program that is fully integrated with ArcMap, used to facilitate data entry, run flow simulations, and to view vertical profiles of the collection system.

GIS CAPABILITIES

The InfoSewer software operates using ESRI’s ArcMap GIS software program as a platform. GIS files for sewer system manholes, pipes, parcels, basins, etc., are imported into the model, and InfoSewer performs the hydraulic calculations. Geographic location of the system elements can be manipulated directly through ArcMap.

MODEL ELEMENTS

The hydraulic model uses a database that contains the location data for the sewer system elements (i.e., manholes, pipes, lift stations, and force mains) and hydrologic data including system loading, element sizes/diameters, pump flows, system controls, etc. Necessary data for the hydraulic model are shown in Table 6-1.

TABLE 6-1

Collection System Information

Category	Gravity Sewers/ Force Mains	Manholes	Pumps	Wet Wells
Identification No.	Name (from District, e.g., SM38-027)	Name (from District, e.g., MH 63-6)	Lift Station Name	Lift Station Name
Location	Determined by upstream and downstream manholes	Location (X and Y coordinate, imported from GIS base map) ⁽¹⁾	Wet well and Force Main Locations	Location (X and Y coordinate, imported from GIS base map) ⁽¹⁾
Elevations	Upstream and Downstream Invert Elevations	Rim and Bottom Elevation ⁽²⁾	--	Ground and Bottom Elevation ⁽²⁾
Size	Pipe Diameter, Length (Calculated from X and Y coordinates of manholes and wet wells)	Manhole Diameter		Wet Well Diameter, Depth (calculated from ground and bottom elevations)
Flow Criteria	Pipe Roughness, Pipe Shape	Headloss	Pump Capacity, float settings, and whether pumps are VFD or Constant Speed	--
Other Information	Sewer Basin			

(1) Horizontal Datum – Washington State Plane North – 83 ft.

(2) Vertical Datum – NAVD 88.

Collection system information was obtained primarily from the District’s GIS base map (updated April 2017). Information from the District’s previous sewer model (developed for MOUSE) was used where information was missing in the base map. The base map and MOUSE databases were combined and compared in Excel to convert all data to a common datum, to define links between system elements, and to eliminate duplicate features. Following the import of the consolidated database to InfoSewer, the model network was visually inspected to correct geographic errors and InfoSewer’s integrated error check tools were used to identify errors such as mismatched crowns, missing data, or reverse slopes. Where invert elevations of manholes were missing, the invert elevations were linearly interpolated between known inverts. Where manhole rim elevations were unknown, LIDAR contours were used to estimate the ground elevation at the manhole locations. Element data modified by hand were flagged for identification later. Approximately 6 percent of pipes and manholes required manual adjustment. Where available, record drawings were consulted to correct or confirm conflicting or data that appeared “out of norm.”

For simplicity, all lift stations were modeled as constant-discharge pumps, so that the lift stations produce a constant discharge regardless of head conditions. Force mains and pump curves were not included in the model.

Wet well loading and remaining capacity for each lift station is included in Appendix F.

FLOW LOADING

Domestic Flow

Domestic flow demand for each basin (either gravity or lift station tributary area) was estimated by multiplying the number of connections in that basin by the District average winter water use value of 55 gpcd and by 3.0215 persons per connection. This domestic average daily flow was determined for each basin and was loaded evenly across the basin on a per-manhole basis, excluding outlet manholes. The current and projected domestic average daily flows for each basin are in Table 6-2.

TABLE 6-2

Projected Domestic Connections and Flows

No.	Basin Name	2015	Buildout (2041)	2015	Buildout (2041)
		Connections		Flow (gallons/day)	
1	164 th Street	1,391	1,497	231,160	248,721
2	180 th Street	680	958	113,004	159,143
3	Bakerview	-	164	-	27,199
4	Creekside	309	330	51,350	54,794
5	Glacier Peak HS	-	-	(1)	(1)
6	Highlands East	378	379	62,817	62,983
7	Highlands I	299	300	49,689	49,888
8	Highlands II	168	169	27,919	28,085
9	Lift Station 2	1,681	1,722	279,353	286,097
10	Lift Station 3	2,216	2,327	368,260	386,757
11	Lift Station 4	694	827	115,331	137,380
12	Lowell Larimer 1	261	384	43,374	63,814
13	Lowell Larimer 2	401	868	66,639	144,246
14	Lowell Larimer 3	-	282	-	46,786
15	Lowell Larimer 4	-	247	-	41,125
16	Pioneer Trails	1,501	3,313	249,440	550,538
17	Sector 7	433	1,657	71,957	275,434
18	Silver Firs	836	837	138,929	139,115
19	The Point	294	295	48,858	49,106
20	Thomas Lake	1,070	1,429	177,815	237,521
21	Valmont	63	66	10,469	10,886
22	Waldenwood	246	246	40,881	40,893
23	Windsong Terrace	256	298	42,543	49,594
24	Woodlands East	33	34	5,484	5,650
25	Woodlands North	27	28	4,487	4,653
26	Everett Gravity	1,696	2,374	281,846	394,486
27	Alderwood Gravity	1,472	2,300	244,621	382,223
28	Little Bear Creek Gravity			(2)	(2)
	Total Everett Basin	14,253	20,073	2,368,599	3,335,753
	Total AWWD Basin	2,152	3,258	357,625	541,367
	Total ⁽³⁾	16,405	23,330	2,726,224	3,877,119

- (1) Flows from Glacier Peak HS occur only during sporting events and are considered negligible.
- (2) Little Bear Creek Gravity basin must be collected and pumped into the 180th Street Lift Station, or yet-to-be-constructed gravity system, located outside the District. Therefore, no portion of the District's current collection system would receive flows from this basin.
- (3) Areas outside the District boundary and CVWD Agreement areas are not included.

Since wastewater flows vary over the course of a day, the average daily flow is multiplied by a series of peaking factors to create a diurnal (24-hour) flow distribution. The diurnal curve serves to approximate the expected flow variation throughout the course of a day and reflects the reality of the sewer system operation more accurately than a steady-state simulation. The demand curve was developed using the hourly peaking factors associated with dry-day flows (based on data from May 2015, described previously in Chapter 4). Since the available flow data is based on pump run times, the estimated flows for individual basins reflect the on/off nature of the lift station pump cycles rather than the actual domestic use pattern. Therefore, in order to smooth out these pump-induced flow aberrations, the domestic diurnal flow curve was based on the sum of all pumped flows system-wide for each hour. The resulting curve is shown in Figure 6-1. Additionally, the District’s service area is fairly homogenous basin-to-basin in terms of land use, comprising mainly residential development, so flow patterns throughout the district should be well-approximated by the composite system curve. The peaking factors noted within the system range from 0.24 at 3:00 a.m. to 1.56 at 7:00 and 8:00 a.m.

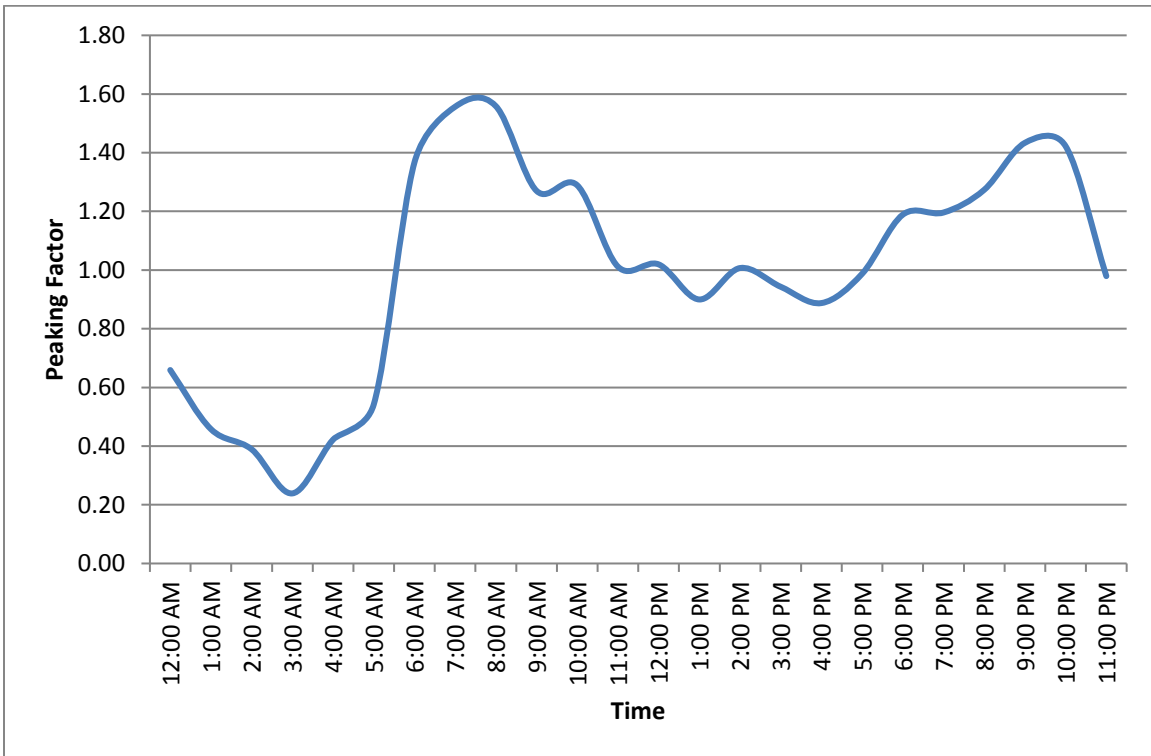


FIGURE 6-1

Domestic Diurnal Curve: Average of May 28 and 29, 2015

Infiltration and Inflow

Infiltration and inflow (I/I) loading was distributed evenly within each basin on a per-manhole basis based on the PWWF for that basin. The following method was used to develop PWWF for 2015 I/I flows.

The average month I/I flow was first determined by subtracting the minimum monthly flow from the maximum monthly flow (in most cases, these months were July and December, respectively), using 2015 pump runtime data. The total system-wide monthly I/I flow was then summed, and each basin was assigned a fractional responsibility for the total I/I flow within the entire system. The determination of monthly I/I flow and the fractional responsibility per basin is shown in Table 6-3.

TABLE 6-3

Maximum Month Infiltration and Inflow by Basin, 2015

No.	Basin Name	Maximum Month Flow (gpd)	Minimum Month Flow (gpd)	Monthly I/I (gpm)	Monthly I/I (gpad)	Basin Fraction ⁽¹⁾
1	164 th Street	271,876	246,541	18	45	2.1%
2	180 th Street	83,742	73,052	7	48	0.9%
3	Creekside	91,219	53,942	26	340	3.1%
4	Glacier Peak HS ⁽²⁾	0	0	0	0	0.0%
6	Highlands	43,315	36,904	4	104	0.5%
7	Highlands II	44,013	37,302	5	184	0.6%
5	Highlands East	94,026	78,852	11	83	1.3%
8	Lift Station 2	465,000	219,000	171	440	20.5%
9	Lift Station 3	368,590	298,698	49	90	5.8%
10	Lift Station 4	279,752	158,399	84	287	10.1%
11	Lowell Larimer 1	44,512	34,271	7	87	0.9%
12	Lowell Larimer 2	61,266	52,385	6	32	0.7%
13	Pioneer Trails	716,959	411,705	212	481	25.4%
14	Silver Firs	288,032	133,513	107	335	12.9%
15	Sector 7	143,790	134,146	7	29	0.8%
16	The Point	46,452	38,149	6	84	0.7%
17	Thomas Lake	241,104	203,393	26	109	3.1%
18	Valmont	9,848	7,339	2	78	0.2%
19	Waldenwood	129,769	38,554	63	1,633	7.6%
20	Windsong Terrace	61,935	31,742	21	295	2.5%
21	Woodlands East	4,471	3,271	1	90	0.1%
22	Woodlands North	4,645	3,290	1	132	0.1%

TABLE 6-3 – (continued)

Maximum Month Infiltration and Inflow by Basin, 2015

No.	Basin Name	Maximum Month Flow (gpd)	Minimum Month Flow (gpd)	Monthly I/I (gpm)	Monthly I/I (gpad)	Basin Fraction ⁽¹⁾
23	Everett Gravity ⁽³⁾	--	--	256	500	--
24	Alderwood Gravity ⁽³⁾	--	--	246	500	--
Total Everett Basin				1,082	261	
Total AWWD Basin				254	392	
Total				1,336	278	100%

- (1) Defined as: (maximum month I/I flow for one basin) / (sum of maximum month I/I flows for all basins)
- (2) Glacier Peak High School lift station serves only the athletic field concession stand and restrooms. I/I is assumed to be negligible.
- (3) Pump runtime data was not available for the gravity basins, so maximum monthly I/I was assigned at a rate of 500 gpad and multiplied by basin area to estimate flow in gpm.

Some basins have higher potential for I/I flows, whether due to the age or condition of infrastructure, soil conditions, or basin size.

A system-wide peak hour I/I flow rate was determined by comparing the difference between flows during a heavy wet-weather storm event that occurred on December 8, 2015 and flows during an average dry day (flows from May 28, 2015 were used). The difference in flow between these days was taken to represent the system-wide peak hour I/I flow, which was determined to be 2,300 gpm. For 2015 flows, the basin fractions determined for the maximum month I/I analysis were then used to assign each basin a portion of the peak hour I/I flow. The peak hour I/I flow determined for each basin was divided and allocated on a per-manhole basis, in the same manner as the domestic demand flows.

I/I has been assumed to increase or decrease over time to an I/I rate of 1,000 gallons per acre per day (gpad) in all basins at buildout. This is the typical rate per acre for gravity sewer basins in the region. This assumption implies that most of the sewer basins will receive more I/I flows over time, and that the District will reduce I/I in basins with flows in excess of 1,000 gpad. The peak hour I/I flow rates and the inferred per-acre flow rates for each basin are summarized in Table 6-4.

TABLE 6-4

Projected Peak Hour Infiltration and Inflow by Sewer Basin

No.	Basin Name	2015			Buildout		
		Area (acres)	I/I (gpad) ⁽¹⁾	I/I (gpm)	Area (acres)	I/I (gpad) ⁽¹⁾	I/I (gpm)
1	164 th Street	558	140	54	603	1,000	419
2	180 th Street	224	147	23	307	1,000	213
	Bakerview	0	0	0	100	1,000	69
3	Creekside	110	1,045	80	114	1,000	79
4	Glacier Peak HS ⁽²⁾	--	--	--	--	--	--
5	Highlands East	62	320	14	62	1,000	43
6	Highlands	37	565	14	37	1,000	25
7	Highlands II	182	257	32	182	1,000	126
8	Lift Station 2	559	1,354	526	564	1,000	391
9	Lift Station 3	776	277	149	807	1,000	560
10	Lift Station 4	423	883	259	429	1,000	298
11	Lowell Larimer 1	103	307	22	140	1,000	97
12	Lowell Larimer 2	286	96	19	432	1,000	300
	Lowell Larimer 3	0	0	0	88	1,000	61
	Lowell Larimer 4	0	0	0	77	1,000	54
13	Pioneer Trails	635	1,479	652	694	1,000	482
14	Sector 7	518	918	330	783	1,000	544
15	Silver Firs	338	88	21	338	1,000	235
16	The Point	98	260	18	98	1,000	68
17	Thomas Lake	345	336	81	364	1,000	253
18	Valmont	32	241	5	32	1,000	22
19	Waldenwood	56	5,026	195	56	1,000	39
20	Windsong Terrace	102	909	65	104	1,000	72
21	Woodlands East	13	276	3	13	1,000	9
22	Woodlands North	10	407	3	10	1,000	7
23	Everett Gravity ⁽³⁾	737	1,000	512	770	1,000	535
24	Alderwood Gravity ⁽³⁾	710	1,000	493	846	1,000	588
Total Everett Basin		5,980	735	3,053	6,897	1,000	4,789
Total AWWD Basin		933	795	516	1,153	1,000	801
Total		6,914	743	3,569	8,050	1,000	5,590

(1) Gallons per acre per day

(2) Glacier Peak High School lift station serves only the athletic field concession stand and restrooms. I/I is assumed to be negligible.

(3) Pump runtime data was not available for the gravity basins, so I/I was assigned at a rate of 1,000 gpad

In order to fit the peak hour I/I flow to a dynamic flow model, the peak hour value was distributed across a 24-hour cycle to approximate a typical storm in the region. The maximum flow rate of the December 8, 2015 storm occurred at 7:00 p.m. This hour was assigned a peaking factor of 1.0 to represent the total peak hour I/I, and the rest of the 24-hour curve was produced by dividing the hourly flow by the peak flow, producing a fractional multiplier for each hourly time step. The peaking factors noted within the system range from 0.2 at in the hours prior to the storm, which represents the base wet-weather I/I, to 1.0 at 7:00 p.m., representing the full peak hour I/I. The diurnal curve applied to the I/I flows is shown in Figure 6-2.

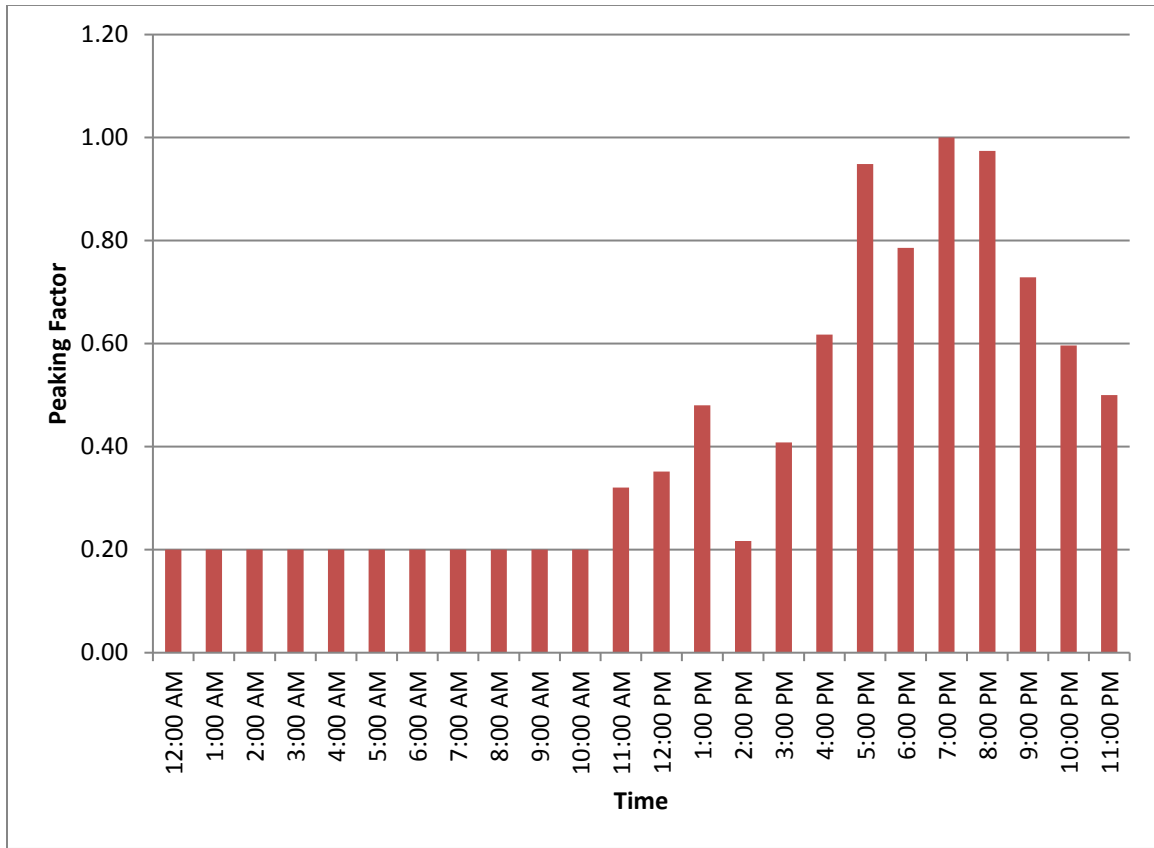


FIGURE 6-2

24-Hour Storm Diurnal Curve

MODEL LABELING

When possible, identifying names for pipes and manholes have been taken directly from the District’s GIS database or previous MOUSE model to be consistent with the District’s identifications. The model requires each pipe and manhole to be designated with a unique identifier. Where duplicate identifiers were found within the District’s database,

it was necessary to change the identification of these elements for the model, generally by appending a letter (A, B, and so on).

Lift station wet wells, pumps, and force mains are assigned labels based on the lift station's name.

MODELING SCENARIOS

Three scenarios of projected flows have been modeled, reflecting current demand within the District and potential future demand at buildout. These scenarios use a similar dynamic flow simulation to assess the limitations of the sewer system under different domestic and I/I loadings. Each scenario applies the diurnal curve shown in Figure 6-1 to the domestic flow generated by either the current (2015) or buildout (2041) populations, as listed in Table 6-2. This 24-hour diurnal curve is repeated five times for a total of 120 hours. Each scenario also applies a series of storm diurnal curves to simulate the peak hour I/I generated by wet weather flows, as listed in Table 6-4. The first 72 hours of the simulation includes only the base wet weather I/I flow (using the lowest multiplier in the storm diurnal curve of 0.07) to represent a wet season day with no significant storm activity. This allows time for the sewer flows to fully distribute throughout the system, as the model starts at hour 0 with no flow in any pipes. Starting at hour 73 (start of day four), the storm diurnal curve is applied to represent a day with a typical hourly distribution of rainfall. At hour 97 (end of day four), the storm diurnal curve is removed and only the base flow multiplier is applied to the I/I flow for the final 24 hours. Peak flows within the system occur between hour 91 and 95, when the highest peaking factor is applied to the I/I flows.

Gravity pipes throughout the system were assigned a Manning's roughness coefficient of 0.013, which reflects the roughness of typical concrete pipe. This coefficient is a conservative parameter in the model, as much of the District's system consists of plastic pipes which are smoother and have greater capacity.

2015 Flows, Existing System

This scenario simulates the current (2015) domestic and peak hour I/I flows to the District's sewer system as it currently exists. All lift stations are assumed to be operating at their rated capacity.

Flows from Lift Station 3 were split between Lift Stations 2 and Pioneer Trails based on the head loss through the force mains. A field test of the force mains revealed that with two pumps running at full speed, Pioneer Trails receives approximately 55 percent of the flow pumped from Lift Station 3 when all valves to both lift stations are fully open.

Projected Buildout Flows, Existing System

This scenario simulates the domestic flow generated by the projected buildout population and the peak hour I/I flow associated with future wear on gravity mains and additional sewer area.

Flows were split from Lift Station 3 with two-thirds going to Pioneer Trails Lift Station and one-third going to Lift Station 2. Projected flows from the future Bakerview development located south of 108th Street SE and west of 47th Avenue SE in Everett, in the central-north area of the District's service area, were added to the Lift Station 4 basin.

Additionally, flows from AWWD's Lift Station 11 were added to a manhole located approximately at the intersection of Dumas Road and North Creek Drive in Mill Creek (identified as MH 41-6 in the model). AWWD plans to direct flows from Lift Station 11 to the District's gravity main that runs south along North Creek Drive and Main Street in Mill Creek. The main eventually discharges back to AWWD's gravity system near the intersection of Main Street and Mill Creek Boulevard. The District's main consists of 15-inch to 18-inch pipes, and the modeling shows that the main is capable of conveying the peak flow from this lift station of 800 gpm in addition to the buildout demands and peak I/I within the District's basin.

The District is considering decommissioning the Windsong Lift Station, diverting flows tributary to this lift station by gravity flow to the Waldenwood Lift Station. This possibility was included in the modeling and the possible system improvements required to implement this change are included in the following sections.

Variations of this scenario include multiple different loading locations for the potential Lowell Larimer 3 and Lowell Larimer 4 developments in order to determine whether the downstream lift stations have capacity for these developments.

Projected Buildout Flows, Existing System with Lowell Larimer Development

One area of significant potential growth outside of the existing sewer area has been identified within the east portion of the Lowell Larimer 2 basin. This future development has been divided into two likely sewer basins, referred to as Lowell Larimer 3 and Lowell Larimer 4. These basins and probable locations for lift stations are shown in Figure 6-3. Three scenarios were considered to determine the most feasible conveyance route for the anticipated flows from the new developments. Table 6-5 summarizes the destination of flows from the new developments in each scenario. A detailed description of these alternatives is provided in Appendix I.

TABLE 6-5

Lowell Larimer 3 and 4 Scenarios

Scenario	Lowell Larimer 3 Discharge Location	Lowell Larimer 4 Discharge Location	Force Main Labels in Figure 6-3
1	Highlands II	Sector 7	8A and 9B
2	Lowell Larimer 4	Sector 7	8C and 9B
3	Lowell Larimer 2	Lowell Larimer 3	8B and 9A

Since the gravity sewer networks for Lowell Larimer 3 and 4 have not yet been developed, the domestic and I/I flows for these sewer basins were applied as point loads at their point of discharge. The flow rates for these basins are listed in Tables 6-2 and 6-3 and follow the same diurnal curves shown in Figures 6-1 and 6-2.

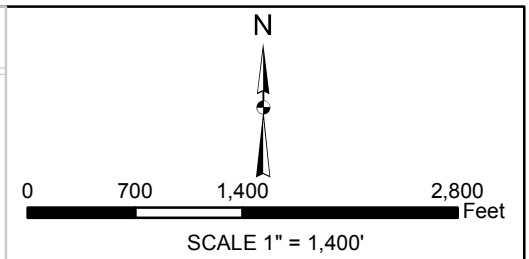
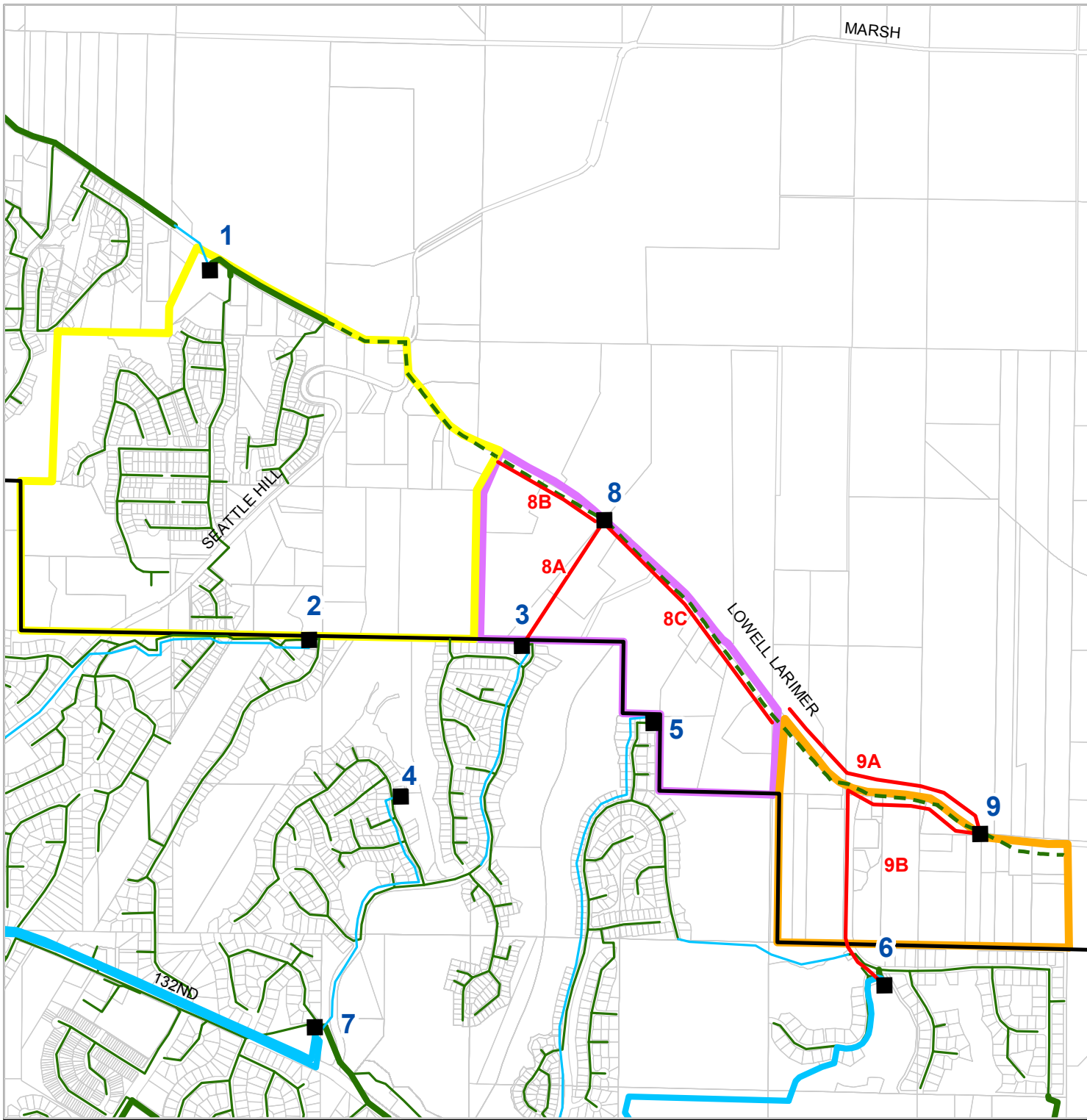
MODELING RESULTS

Gravity main capacity deficiencies identified by the model are discussed below. These deficiencies are illustrated in Figure 6-4.

2015 Flows

Deficiency Area 1

- The flow through the gravity main upstream of the Pioneer Trails Lift Station, particularly in the 18-inch section along 35th Avenue from 132nd Street SE to the lift station, occasionally exceed the main’s capacity due to the grade of the existing pipeline and cycling of pumps from Lift Station 3. This section is shown as deficiency area 1 in Figure 6-4. Surcharging is less than 1 foot during peak flows.
- If more flow from Lift Station 3 were directed to Lift Station 2 instead of Pioneer Trails Lift Station, the surcharging in the 18-inch main on 35th Avenue SE upstream of Pioneer Trails Lift Station discussed previously would be alleviated. Discharge from Lift Station 3 was modeled to send a maximum of 1,000 gpm to Pioneer Trails Lift Station and the remaining 2,000 gpm to Lift Station 2. The gravity network between Lift Station 2 and the Lift Station 3 discharge manhole (MH 36-116) currently has sufficient capacity to accept over 2,000 gpm from Lift Station 3. The capacity of the gravity mains between these three lift stations is shown in Figure 6-5.



NO. LIFT STATION

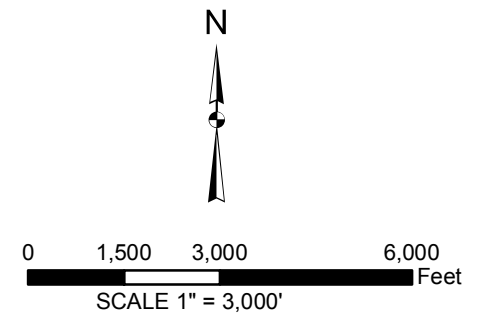
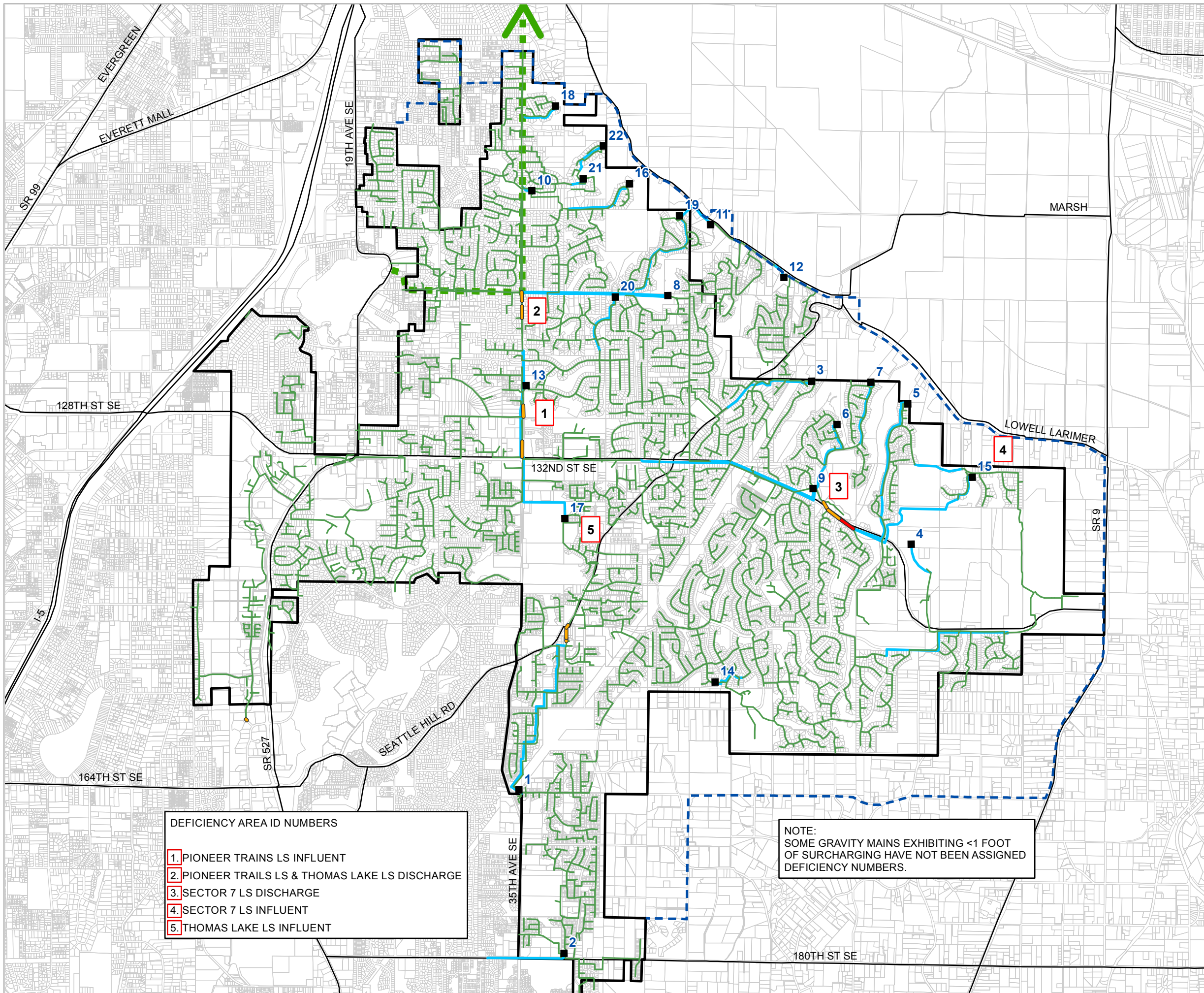
- 1 Lowell Larimer 2
- 2 Creekside
- 3 Highlands II
- 4 Highlands
- 5 Highlands East
- 6 Sector 7
- 7 Lift Station 3
- 8 Lowell Larimer 3
- 9 Lowell Larimer 4

LEGEND:

- LIFT STATION
- - - NEW GRAVITY SEWER
- NEW FORCE MAIN
- ▭ DISTRICT BOUNDARY
- ▭ PARCELS
- EXISTING FORCE MAIN DIAMETER:**
 - 8-INCH OR LESS
 - 10-INCH OR MORE
- EXISTING GRAVITY SEWER DIAMETER:**
 - 8-INCH OR LESS
 - 10-INCH OR MORE
- SEWER BASINS:**
 - ▭ LOWELL LARIMER 2 BASIN
 - ▭ LOWELL LARIMER 3 BASIN
 - ▭ LOWELL LARIMER 4 BASIN

SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN
FIGURE 6-3

PROPOSED LOCATIONS FOR NEW
LOWELL LARIMER LIFT STATIONS



- NO. LIFT STATION**
- 1 164TH STREET
 - 2 180TH STREET
 - 3 CREEKSIDE
 - 4 GLACIER PEAK
 - 5 HIGHLANDS EAST
 - 6 HIGHLANDS
 - 7 HIGHLANDS II
 - 8 LIFT STATION NO. 2
 - 9 LIFT STATION NO. 3
 - 10 LIFT STATION NO. 4
 - 11 LOWELL LARIMER NO. 1
 - 12 LOWELL LARIMER NO. 2
 - 13 PIONEER TRAILS
 - 14 SILVER FIRS
 - 15 SECTOR NO. 7
 - 16 THE POINT
 - 17 THOMAS LAKE
 - 18 VALMONT
 - 19 WALDENWOOD
 - 20 WINDSONG TERRACE
 - 21 WOODLANDS EAST
 - 22 WOODLANDS NORTH

- LEGEND**
- LIFT STATION
 - GRAVITY SEWER DEFICIENCIES
 - ↘ <1 FOOT SURCHARGING
 - ↘ >1 FOOT SURCHARGING
 - ↘ SANITARY SEWER OVERFLOW
 - STUDY AREA
 - NO DEFICIENCY
 - FORCE MAIN
 - ▭ SILVER LAKE WATER & SEWER DISTRICT
 - ◆ EVERETT SOUTH END INTERCEPTOR
 - PARCELS

- DEFICIENCY AREA ID NUMBERS**
- 1. PIONEER TRAINS LS INFLUENT
 - 2. PIONEER TRAILS LS & THOMAS LAKE LS DISCHARGE
 - 3. SECTOR 7 LS DISCHARGE
 - 4. SECTOR 7 LS INFLUENT
 - 5. THOMAS LAKE LS INFLUENT

NOTE:
SOME GRAVITY MAINS EXHIBITING <1 FOOT
OF SURCHARGING HAVE NOT BEEN ASSIGNED
DEFICIENCY NUMBERS.

SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN
FIGURE 6-4
MODELED DEFICIENCIES UNDER
EXISTING FLOWS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Deficiency Area 2

- The model shows minor surcharging of less than 1 foot in the gravity main along 35th Avenue approaching the South End Interceptor. This surcharging is due mainly to the flat slope of the sewer main. Since the surcharging is relatively minor and no odor complaints have been received from this area, it is recommended that the District install flow monitoring equipment to confirm flow depth during storm events.

Deficiency Area 3

- The model shows surcharging in a segment of gravity main downstream from the Sector 7 discharge manhole. This surcharging may not occur in practice, and is likely a reflection of the model using the full discharge capacity of the Sector 7 Lift Station (1,800 gpm) and introducing the flow to the gravity main instantaneously at full speed rather than gradually ramping up. It is recommended that the District confirm this surcharging by testing two pumps simultaneously at a variety of variable frequency drive (VFD) settings. Hydraulic modeling of the pumps and force main indicate that a setting of 94 percent power (1,400 gpm) should be sufficient to prevent surcharging.

Deficiency Areas 4 and 5

- No surcharging is observed in Deficiency Areas 4 and 5 under existing flows. These areas are listed due to projected surcharging at buildout.

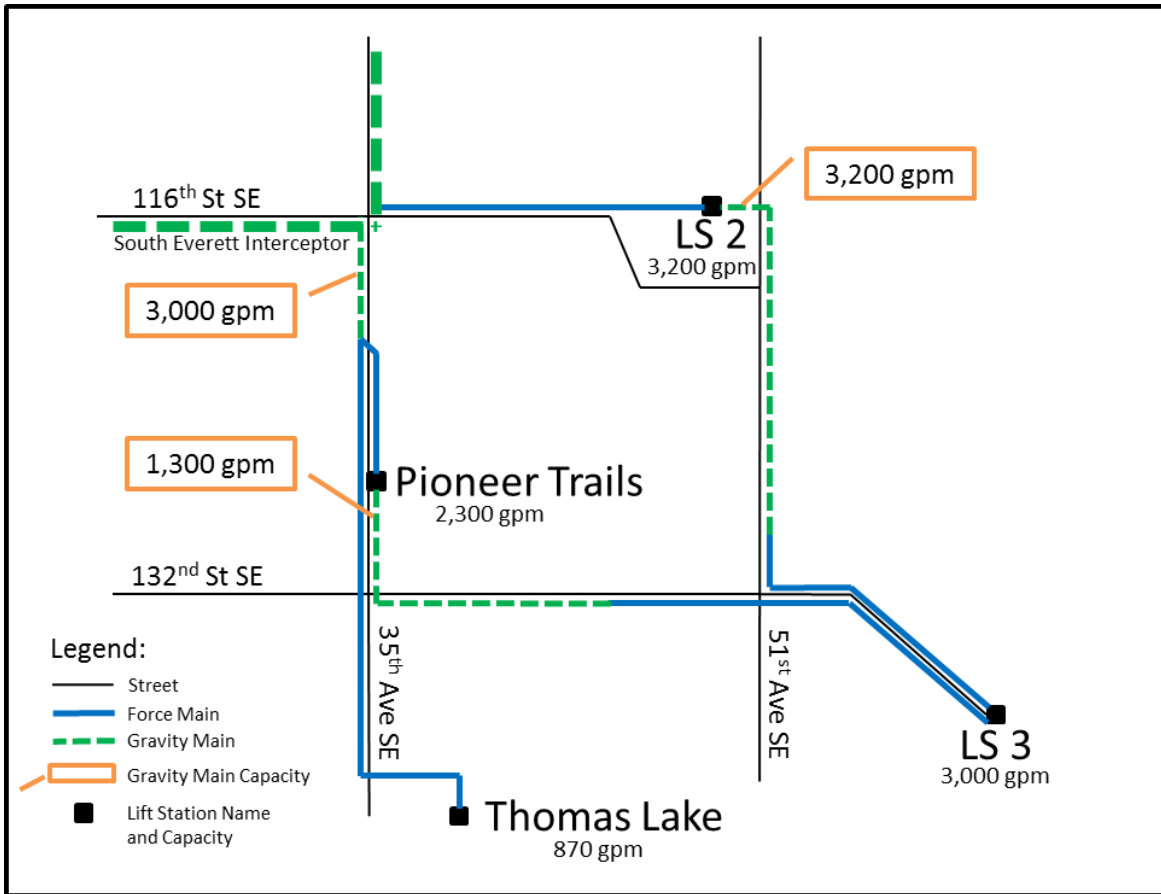


FIGURE 6-5

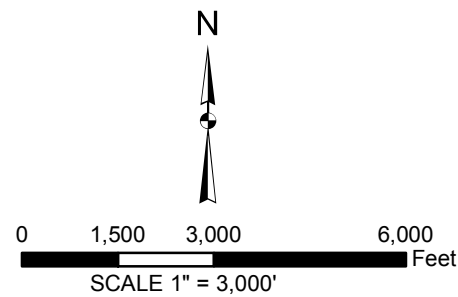
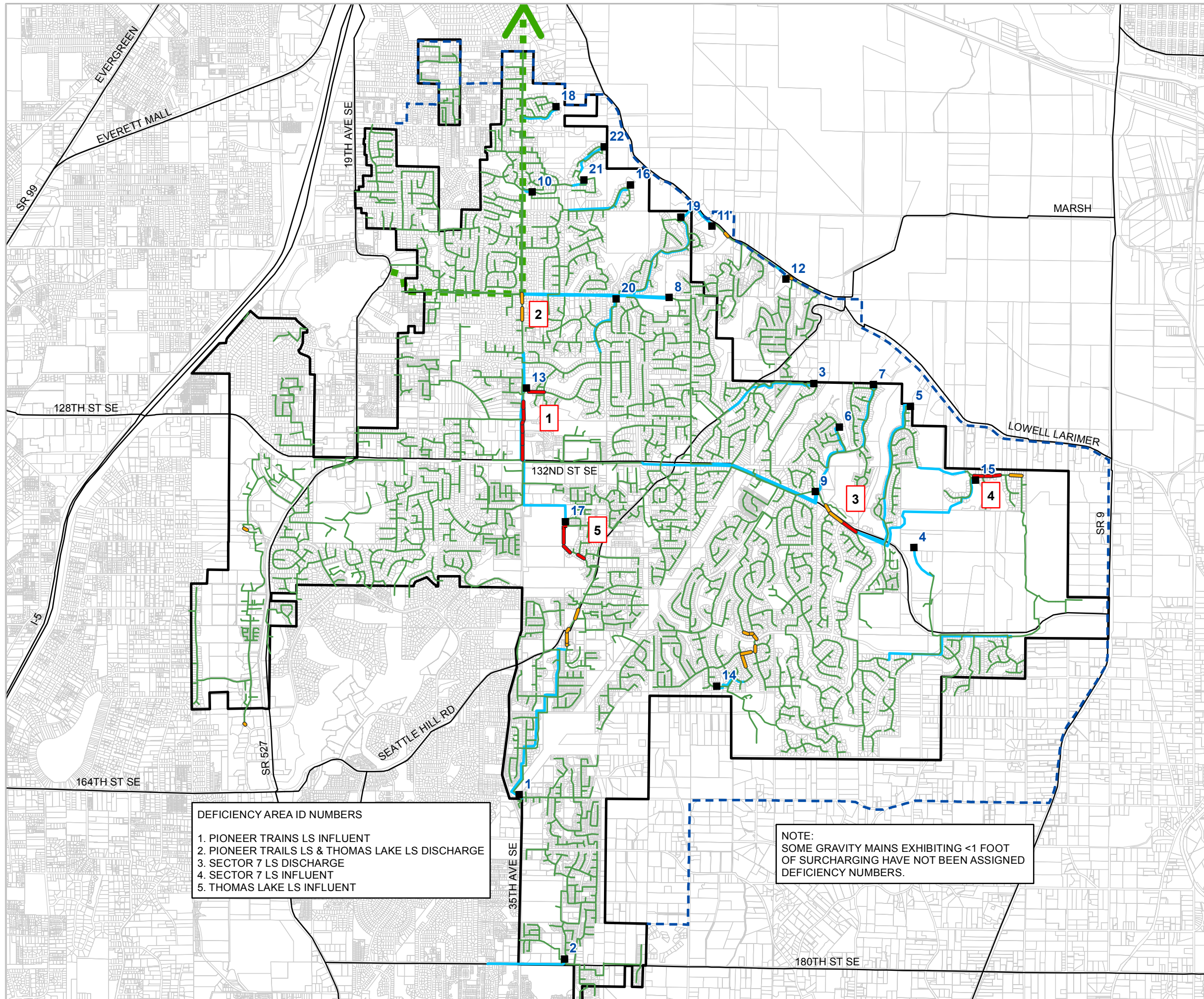
Capacity of Gravity Mains Near Pioneer Trails and Lift Station 2

Projected Buildout Flows

Model results indicate that the majority of the existing sewer collection system can adequately accommodate the projected flows at buildout, although several deficiencies are identified. These deficiencies are shown in Figure 6-6. The results of the buildout flow model, with the recommended operational and capital improvements, are shown in Figure 6-7.

Deficiency Area 1

- The deficiency noted previously in the 18-inch main from 132nd Place SE to Pioneer Trails Lift Station surcharges several feet, as do pipes in the surrounding area, as the flows tributary to the lift station exceed the lift station's pump capacity. Note that this occurs even with peak hour I/I reduced from current conditions (1,500 gpad) to 1,000 gpad.



- NO. LIFT STATION**
- 1 164TH STREET
 - 2 180TH STREET
 - 3 CREEKSIDE
 - 4 GLACIER PEAK
 - 5 HIGHLANDS EAST
 - 6 HIGHLANDS
 - 7 HIGHLANDS II
 - 8 LIFT STATION NO. 2
 - 9 LIFT STATION NO. 3
 - 10 LIFT STATION NO. 4
 - 11 LOWELL LARIMER NO. 1
 - 12 LOWELL LARIMER NO. 2
 - 13 PIONEER TRAILS
 - 14 SILVER FIRS
 - 15 SECTOR NO. 7
 - 16 THE POINT
 - 17 THOMAS LAKE
 - 18 VALMONT
 - 19 WALDENWOOD
 - 20 WINDSONG TERRACE
 - 21 WOODLANDS EAST
 - 22 WOODLANDS NORTH

- LEGEND**
- LIFT STATION
 - GRAVITY SEWER DEFICIENCIES
 - ↘ <1 FOOT SURCHARGING
 - ↘ >1 FOOT SURCHARGING
 - ↘ SANITARY SEWER OVERFLOW
 - STUDY AREA
 - NO DEFICIENCY
 - FORCE MAIN
 - ▭ SILVER LAKE WATER & SEWER DISTRICT
 - ◆ EVERETT SOUTH END INTERCEPTOR
 - PARCELS

DEFICIENCY AREA ID NUMBERS

- 1. PIONEER TRAILS LS INFLUENT
- 2. PIONEER TRAILS LS & THOMAS LAKE LS DISCHARGE
- 3. SECTOR 7 LS DISCHARGE
- 4. SECTOR 7 LS INFLUENT
- 5. THOMAS LAKE LS INFLUENT

NOTE:
SOME GRAVITY MAINS EXHIBITING <1 FOOT OF SURCHARGING HAVE NOT BEEN ASSIGNED DEFICIENCY NUMBERS.

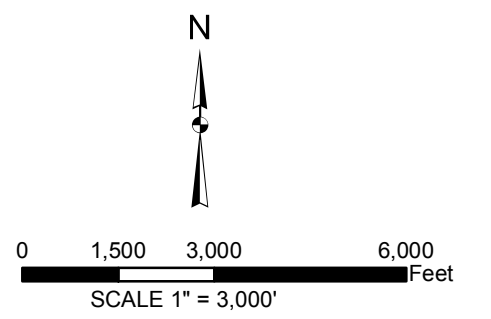
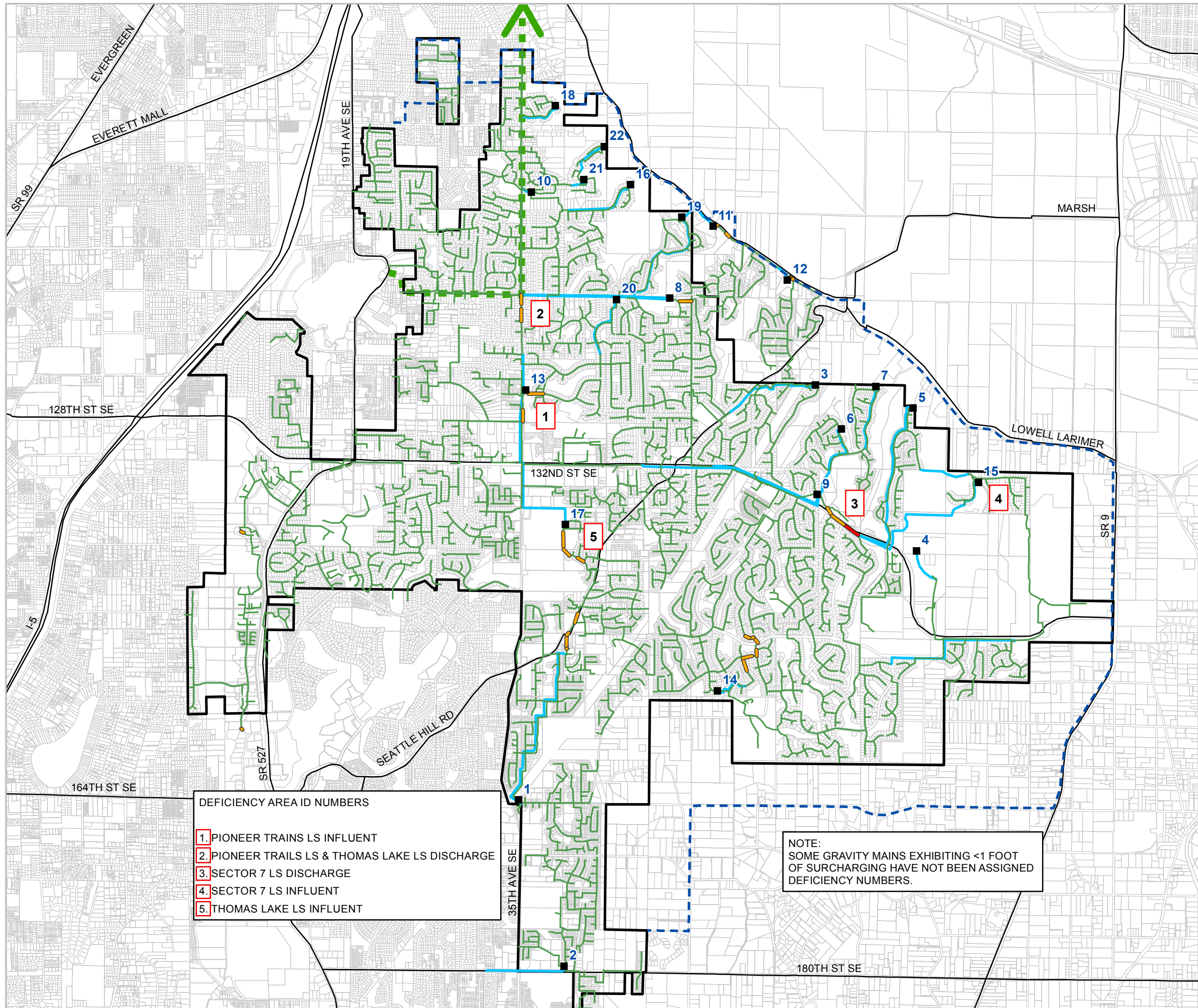
SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN

FIGURE 6-6

MODELED DEFICIENCIES AT BUILDOUT

Gray & Osborne, Inc.
CONSULTING ENGINEERS



- NO. LIFT STATION**
- 1 164TH STREET
 - 2 180TH STREET
 - 3 CREEKSIDE
 - 4 GLACIER PEAK
 - 5 HIGHLANDS EAST
 - 6 HIGHLANDS
 - 7 HIGHLANDS II
 - 8 LIFT STATION NO. 2
 - 9 LIFT STATION NO. 3
 - 10 LIFT STATION NO. 4
 - 11 LOWELL LARIMER NO. 1
 - 12 LOWELL LARIMER NO. 2
 - 13 PIONEER TRAILS
 - 14 SILVER FIRS
 - 15 SECTOR NO. 7
 - 16 THE POINT
 - 17 THOMAS LAKE
 - 18 VALMONT
 - 19 WALDENWOOD
 - 20 WINDSONG TERRACE
 - 21 WOODLANDS EAST
 - 22 WOODLANDS NORTH

- LEGEND**
- LIFT STATION
 - GRAVITY SEWER DEFICIENCIES
 - <1 FOOT SURCHARGING
 - >1 FOOT SURCHARGING
 - SANITARY SEWER OVERFLOW
 - STUDY AREA
 - NO DEFICIENCY
 - ▭ SILVER LAKE WATER & SEWER DISTRICT
 - ◆ EVERETT SOUTH END INTERCEPTOR
 - FORCE MAIN
 - PARCELS

- DEFICIENCY AREA ID NUMBERS**
- 1. PIONEER TRAILS LS INFLUENT
 - 2. PIONEER TRAILS LS & THOMAS LAKE LS DISCHARGE
 - 3. SECTOR 7 LS DISCHARGE
 - 4. SECTOR 7 LS INFLUENT
 - 5. THOMAS LAKE LS INFLUENT

NOTE:
SOME GRAVITY MAINS EXHIBITING <1 FOOT OF SURCHARGING HAVE NOT BEEN ASSIGNED DEFICIENCY NUMBERS.

SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN
FIGURE 6-7
MODELED DEFICIENCIES AT BUILDOUT
WITH PROPOSED IMPROVEMENTS

Repartitioning of flows from Lift Station 3, with 1/3 of flows (1,000 gpm) to Pioneer Trails Lift Station and 2/3 of flows (2,000 gpm) to Lift Station 2, reduces the surcharging to less than 1 foot.

Deficiency Area 2

- The deficiency within the 35th Avenue SE main from 121st Place SE to 116th Street SE, downstream of the Pioneer Trails and Thomas Lake Lift Station force main discharges, is also increased under buildout flows. Surcharging of several feet is noted during peak flows.

Reducing the pumped flow from Pioneer Trails Lift Station to 2,000 gpm (about 90 percent motor power) would mitigate the surcharging seen in this section of pipe. With this modification, the 18-inch main along 35th Avenue SE flows full in the model with surcharging reduced to approximately one foot during peak hour I/I flows. However, if Pioneer Trails were operated at 2,000 gpm, then repartitioning flows from Lift Station 3 as described previously would be all the more critical to preventing surcharging in the Pioneer Trails influent pipe.

Alternatively, extending the Pioneer Trails force main by 1,850 feet would allow it to connect directly to the South Everett Interceptor, thus bypassing the 18-inch main and eliminating the capacity issue.

Deficiency Area 3

- The model shows surcharging along 134th Place SE in the gravity mains downstream of the discharge manhole for the Sector 7 and Highlands lift stations. This surcharging is projected to occur at flows above 1,400 gpm. Since the capacity of Sector 7 is 1,800 gpm with two pumps running, the District should install flow monitors in this section of sewer and test for surcharging. If it is observed, Sector 7 lift station discharge should be restricted to prevent excessive surcharging.

Deficiency Area 4

- The existing 8-inch main along 132nd Place SE, west from 82nd Drive SE to the Sector 7 Lift Station does not have capacity for the projected buildout flows within the Sector 7 basin. The main is fairly flat in this area and was sized along with the original lift station, when flows were estimated to be lower. The main could accommodate the flows if it is upsized to 12 inches.

Deficiency Area 5

- The gravity mains upstream of the Thomas Lake Lift Station show significant surcharging at buildout flow with the lift station at its current capacity (870 gpm). This surcharging can be significantly reduced by increasing the pumping capacity and wet well storage volume of the Thomas Lake Lift Station.

Other Lift Stations

- At buildout, Lift Stations 3 and 4, and Waldenwood Lift Station receive incoming peak hour flow slightly in excess of its pumping capacity, but this flow is attenuated by the wet well and does not cause surcharging in the upstream pipes.

Projected Buildout Flows, Existing System with Lowell Larimer Development

The projected buildout flows from Lowell Larimer 3 and 4 have been added to the buildout model described previously. Each of the three scenarios for routing flows from these new lift stations have been tested, and their impacts are summarized in this section. (Refer to Table 6-5 for a description of the three scenarios).

- Scenario 1:
 - Peak flows to Highlands I would be within 5 percent of the station capacity (300 gpm).
- Scenario 2:
 - Peak flows to Lift Station 3 would increase by approximately 100 gpm over the existing buildout scenario expansion, but these peaks would not surcharge the influent pipes.
- Scenario 3:
 - Peak flows to Lowell Larimer 2 would be within 10 percent of the station capacity (665 gpm).

Any of these scenarios are possible from a system capacity standpoint. These will likely be developer-funded, so constructability, cost, and location of development will likely determine final discharge point for force main flow. Force main locations will be reviewed at time of development.

Results Summary

Tables 6-6 and 6-7 summarize the deficiencies observed in the model results.

TABLE 6-6

Existing Loads Model Results Summary

No. ⁽¹⁾	Location	Deficiency	Action
1	18-inch gravity line on 35 th Avenue SE from 121 st Place SE to 116 th Street SE (from the Pioneer Trails and Thomas Lake force main discharge to the Everett South End Interceptor)	Surcharging due to Pioneer Trails and Thomas Lake Lift Station pumps cycling on and off.	Install flow monitors to confirm surcharging. Limit maximum discharge from Pioneer Trails Lift Station (LS) to 2,000 gpm.
2	18-inch gravity line on 35 th Avenue SE from 132 nd Street SE to Pioneer Trails Lift Station	Surcharging at peak hour I/I due to Lift Station 3 pumps cycling on and off.	Limit maximum flow to Pioneer Trails LS from Lift Station 3 to 1,000 gpm and send remaining flows to Lift Station 2.
3	12-inch gravity line on Cathcart Way, east of Snohomish Cascade Dr, at discharge MH for Section 7 force main.	Surcharging at peak hour I/I due to two pumps from Section 7 LS discharging simultaneously	District should install flow monitors to confirm presence of surcharge when Sector 7 is running two pumps.

(1) Numbers correspond to Deficiency Area ID Numbers listed in Figure 6-4.

TABLE 6-7

Buildout Loads Model Results Summary

No. ⁽¹⁾	Location	Deficiency	Improvement
1	18-inch gravity line on 35 th Avenue SE from 121 st Place SE to 116 th Street SE (from the Pioneer Trails and Thomas Lake force main discharge to the Everett South End Interceptor)	Surcharging due to Pioneer Trails Lift Station (LS) and Thomas Lake LS pumps cycling on and off	Extend Thomas Lake force main and/or Pioneer Trails force main to discharge directly to 36-inch interceptor. or Limit maximum discharge from Pioneer Trails Lift Station to 2,000 gpm.
2	18-inch gravity line on 35 th Avenue SE from 132 nd Street SE to Pioneer Trails Lift Station	Surcharging due to Lift Station 3 pumps cycling on and off and projected peak hour I/I flows	Limit maximum flow to Pioneer Trails LS from Lift Station 3 to 1,000 gpm and send remaining flows to Lift Station 2.

TABLE 6-7 – (continued)

Buildout Loads Model Results Summary

No. ⁽¹⁾	Location	Deficiency	Improvement
3	12- to 16-inch gravity line on Cathcart Way, crossing Snohomish Cascade Drive, near discharge MH for Section 7 force main	Surcharging at peak hour I/I due to Section 7 LS pumps cycling on and off and peak hour I/I flow	District should install flow monitors to confirm presence of surcharge when Sector 7 is running two pumps.
4	132 nd Place SE from 82 nd Drive SE to Sector 7 LS	Existing pipe capacity (diameter/grade) insufficient to handle projected flow to Lift Station	Increase gravity main capacity by replacing existing pipe with larger diameter pipe (12 inches or greater).
5	Influent pipes vicinity Thomas Lake LS	Sanitary sewer overflow due to inadequate capacity at Thomas Lake LS	Increase Thomas Lake LS capacity to 1,200 gpm.

(1) Numbers correspond to Deficiency Area ID Numbers listed in Figure 6-6.

SEWAGE LIFT STATION CAPACITY EVALUATION

The capacity evaluation of the sewage lift stations in the District is conducted by establishing the future contributing area to each existing lift station. The topography and drainage features of the study area are used to assist in the determination of the future drainage basins. The existing sewage lift stations, including pumping capacities, are summarized in Chapter 5. In conducting the capacity evaluation for the District’s sewage lift stations, projected wastewater flows from Lift Station 3 are divided between Lift Station 2 and Pioneer Trails. The existing piping arrangement of force mains and gravity lines allows such flexibility in the handling of peak flows from Lift Station 3.

The results of the sewage lift station capacity evaluation are presented in Table 6-8.

TABLE 6-8

Major Lift Station Capacity Evaluation Summary

Lift Station	Existing Capacity (gpm)	Projected Peak Hour Influent Flow (gpm)	
		Existing	Buildout ⁽¹⁾
Lift Station 2	3,200	1,540 ⁽²⁾	2,740 ⁽³⁾
Lift Station 3	3,000	2,150	3,200 ⁽⁴⁾
Lift Station 4	900	580	880
Pioneer Trails	2,300	2,130 ⁽²⁾	2,100 ⁽³⁾
Sector 7	1,800	400	1,030
Thomas Lake	870	600	1,120
Waldenwood	1,000	1,200	1,200

- (1) Buildout includes the future Lowell Larimer 3 and 4 developments using Scenario 2, as previously discussed.
- (2) Assumes 55 percent flow from Lift Station 3 is conveyed to Pioneer Trails Lift Station and 45 percent to Lift Station 2.
- (3) Assumes repartitioning of flows from Lift Station 3 such that no more than 1,000 gpm (approximately 30 percent) is conveyed to Pioneer Trails Lift Station and the remainder is conveyed to Lift Station 2.
- (4) Assumes Sector 7 pumps are throttled down to 1,400 gpm (approximately 90 percent motor power). Incoming flows to Lift Station 3 will exceed pumping capacity, though no surcharging upstream is noted in the modeling. The Lift Station appears to have sufficient storage to handle the additional peak flow.

The results presented in Table 6-8 indicate that the current capacity of the District’s major lift stations is sufficient to handle projected flows at buildout with minor operational modifications.

In order for the Waldenwood Lift Station to pump flows from the Windsong basin along with all projected buildout flows, the pump station capacity must be increased. The peak flow to the Waldenwood Lift Station by buildout is approximately 1,200 gpm, exceeding the current 1,000 gpm capacity of the lift station. It is recommended that the capacity of the lift station be increased to 1,200 gpm.

The Thomas Lake lift station requires capacity improvements as well. The lift station’s current capacity of 870 gpm is sufficient for the existing flow, but by buildout, the peak tributary flow is estimated at 1,120 gpm. It is recommended that the capacity of the lift station be increased to 1,200 gpm.

Additionally, with the rebalancing of flows from Lift Station 3, sending more flow to Lift Station 2 and less to Pioneer Trails Lift Station, the required pumping capacity of Pioneer Trails Lift Station may be decreased to approximately 2,000 gpm. This alleviates the capacity issues downstream of the Pioneer Trails force main discharge, as previously described.

Finally, Lift Station 3 will require a capacity increase to 3,200 gpm at buildout. This could be accomplished with the existing pumps and impellers by installing 125-hp motors and VFDs.

SEWER AGREEMENT CAPACITY EVALUATION

The capacity evaluation for the District’s sewer agreements focuses primarily on the District’s purchased capacity within the Everett sewer system. The District’s agreement with Everett and the purchased capacities are summarized in Chapter 5. Although flows are also calculated for the discharge to the Alderwood Water & Wastewater District (AWWD) system, the agreement with AWWD does not specify limits for peak flow from the District area covered in the agreement (see Chapter 5). The District’s sewer collection system is connected to AWWD at various points in the southwest portion of the study area. The capacity evaluation is presented in Table 6-9. Table 6-9 is based on the District’s current District Boundary and Agreement Areas.

TABLE 6-9

Sewer Agreement Capacity Evaluation Summary

Discharge Description	Purchase Capacity	Peak Wet Weather Flow	
		2015	Buildout
Everett Interceptor	11,500 gpm	5,900 gpm	8,768 gpm
Everett WPCF	6.60 mgd	4.55 mgd	6.58 mgd
Headworks	11,500 gpm	5,900 gpm	8,768 gpm
Flow to Alderwood ⁽¹⁾	⁽²⁾	1,543 gpm	2,552 gpm ⁽³⁾

- (1) Total flow through several connections to AWWD’s collection system.
- (2) Capacity not specified in AWWD Agreement.
- (3) Includes 800 gpm peak flow from AWWD Lift Station 11 directed through District’s system to discharge back into AWWD’s North Creek Basin.

The results of the capacity evaluation indicate that the District’s purchased capacity in Everett facilities is sufficient through buildout in the District.

Depending on growth within the Everett Water Pollution Control Facility (WPCF) service area, future regulations pertaining to treatment facilities, and the ability of Everett to expand their conveyance and treatment facilities, there may be a need in the future to divert some flows within the District to the south into the AWWD system. Other factors include growth within the District, annexations by the City of Everett, and zoning changes by the cities of Mill Creek, Everett, or Snohomish County.

CHAPTER 7

OPERATION AND MAINTENANCE PROGRAM

INTRODUCTION

This Chapter summarizes the operation and maintenance programs maintained by the District to ensure performance and reliability of the wastewater collection system. The District maintains and services approximately 12.5 miles of force main, 163 miles of gravity sewer main, 22 lift stations, and a SCADA system. This Chapter includes a discussion of the responsibility and authority, normal system operation, routine preventative maintenance criteria, current staffing organization and needs, new construction, records, safety and emergency response procedures.

There are two primary objectives of this Chapter. The first objective is to provide documentation of satisfactory wastewater management operations in accordance with WAC 173-240. This objective includes a description of the staff organization, existing facilities and their normal operation, as well as safety procedures and an emergency response program. A more detailed Operations and Maintenance Program has been prepared in a separate document entitled “Water System & Wastewater System Operation and Maintenance Manual” prepared by Gray & Osborne updated March 2018.

WASTEWATER SYSTEM ORGANIZATION

The District is governed by a three-member Board of Commissioners. Currently, the three Board members are Bill Anderson, Anne Backstrom and Rod Keppler. The District General Manager oversees the daily operations of the District. The General Manager is Curt Brees.

The District Headquarters and Operations Facility are located at 15205 41st Avenue SE in Mill Creek.

The Board of Commissioners set the general policies for the operation of the District. As of May 2017, the District employs a field staff of 17 and an office and administrative staff of 14, including a licensed professional engineer. A complete organizational chart for the District is presented in Figure 7-1. This chart illustrates the specific personnel positions and corresponding responsibility for the District’s wastewater system.

The Operation and Maintenance staff is a collectively pooled work group consisting of staff charged with water and sewer maintenance duties. Routine wastewater utility work and assignments include, at a minimum, the following tasks:

- Side sewer inspection, maintenance, replacement and repair
- Sewer gravity and force main maintenance, inspections and repair

- Wet well maintenance and repair
- Lift station maintenance and repair
- Gravity manhole inspection and repair
- Plan review and project punch list preparation

OPERATOR CERTIFICATION

There are currently no Washington State certification requirements for wastewater collection system operators. However, the Department of Ecology encourages participation for utilities that do not operate a wastewater treatment plant. Collection crew members are expected to have a mechanical aptitude, with experience with pipelines and pumps and their controls preferred. Both the District and the Department of Ecology encourage participation in a program of collection system certification. The District currently has 18 employees that have certification as a Collection System Maintenance Operator.

PROFESSIONAL GROWTH REQUIREMENTS

Operator training is an important component in maintaining a safe and reliable wastewater collection system. At a minimum, all personnel performing wastewater system related duties receive training in the following areas:

- Confined space
- Trenching and shoring
- Traffic flagging
- First Aid/CPR/blood borne pathogens
- OSHA safety training

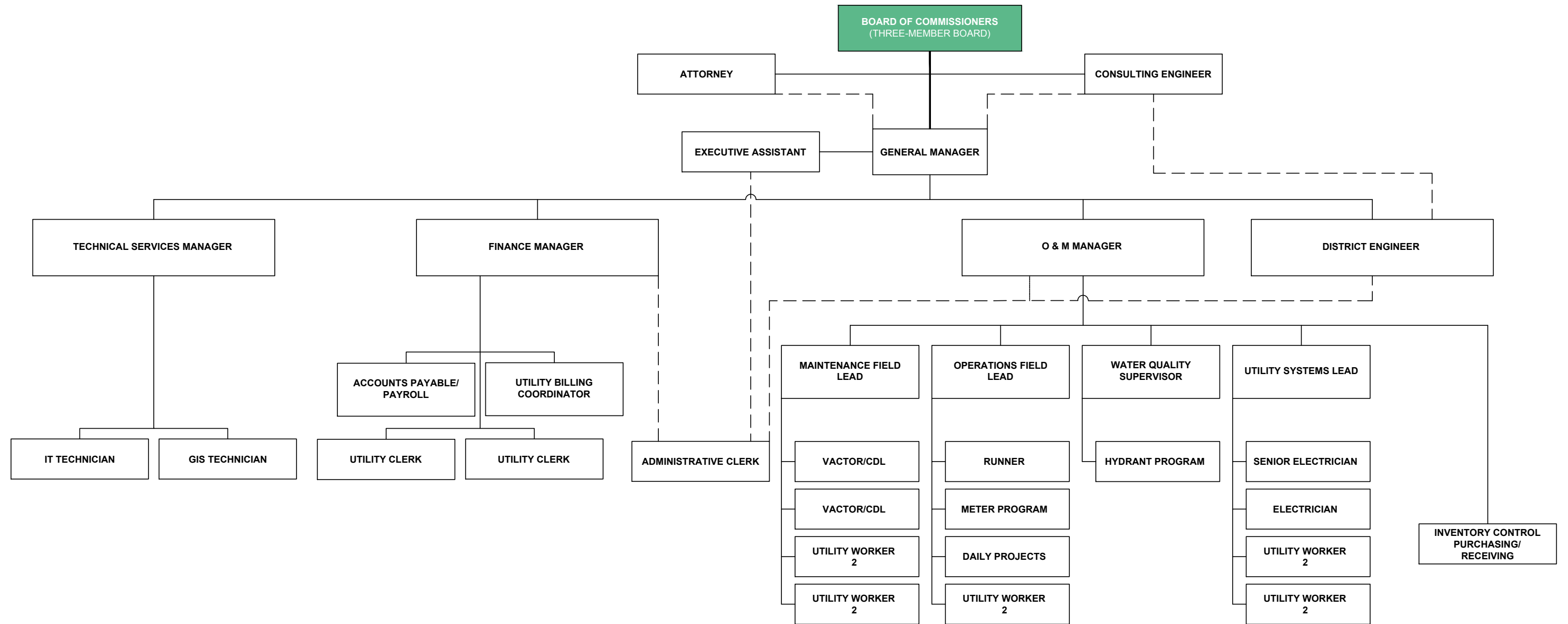
In addition, three staff members have active CESCL (Certified Erosion and Sediment Control Lead) certification, which is valid for 3 years.

SYSTEM OPERATION AND CONTROL

The locations of the major system components are shown on Figure 5-3. A description of the normal operation of each facility is given in Chapter 5.

SCADA SYSTEM

The existing Supervisory Control and Data Acquisition (SCADA) system monitors the operation of various wastewater system components. The Master Control Panel (MCP), which is the logic center of the SCADA system, is located at the District Headquarters. It consists of an operator interface, a programmable logic controller (PLC), and a communication network. The SCADA system provides an analog display of all the District's lift stations.



SILVER LAKE WATER & SEWER DISTRICT

FIGURE 7-1
DISTRICT ORGANIZATIONAL CHART



Examples of the SCADA system's ability to monitor flows and sound alarms follow:

Monitors

- Pump motor speed and amperage
- Wet well levels
- Monitor pump run times, and pump failures
- Generator status, along with run, starts, and fail counts
- Communications, control panel and commercial power, fail counts and hours

Alarms

- High and low wet well level
- Wet well high float emergency
- Communication failure
- Pump fail
- Generator run or fail
- Intrusion alarm
- Commercial power fail
- Control panel power fail

The SCADA system has the capacity to add additional lift stations. Additional information can be found in the Silver Lake Water & Sewer District "Water System & Wastewater System Operation and Maintenance Manual."

LIFT STATIONS

Each lift station has a redundant pump that allows the station to operate at full capacity with a pump out of service. The lift station is controlled locally by a PLC. District lift stations operate based on wet well level, which is controlled by a bubbler system. Each bubbler system has a backup compressor in the event of failure. The lift station also has a backup float to start pumps in the event of bubbler system failure. The SCADA provides monitoring and communication with the PLC to let District operators know if any failures at the station, but control of the station is independent of the SCADA system.

ROUTINE AND PREVENTATIVE MAINTENANCE PROGRAM

Planning for present and future maintenance of the wastewater system facilities is as important as planning gravity sewer main extensions, lift stations, force mains, and other physical improvements. The maintenance effort must be continuous in order for the District to continue to fulfill its role as a wastewater collector in the future.

The role of maintenance is to preserve the value and performance of the physical infrastructure and ensure that the District can continue to provide a safe and reliable wastewater collection system. The most cost-effective method for maintaining a wastewater collection system is to provide a planned preventative maintenance (PM) program. Through a planned PM program, the optimum level of maintenance activities can be provided for the least total maintenance cost.

The District's PM program involves defining the tasks to be performed, scheduling the frequency of each task, and providing necessary staff to perform the task.

SCADA SYSTEM

The SCADA system is monitored continuously to ensure that it is operating correctly. After hours if a SCADA alarm is activated, it contacts an "on-call" staff member for investigation and response.

LIFT STATIONS AND GENERATOR MAINTENANCE

The District visits and inspects each lift station on a twice-weekly basis. Lift stations wet wells are cleared of accumulated debris biannually or as needed. Additional detail can be found in the Silver Lake Water & Sewer District "Water System & Wastewater System Operation and Maintenance Manual."

All the lift stations are provided with a backup generator that will operate the station during a loss of commercial power. Generators are exercised weekly.

The majority of the District's lift stations are surface-mounted vacuum prime stations, which make maintenance accessibility and maintenance removal of pumps relatively easy. The below grade stations have lifting devices for the pumps that allow for easy clearing of clogs and rags, which is the most common type of emergency maintenance performed at these stations.

FORCE MAINS

The District has a goal to exercise force main valves on an annual basis. The District's force mains are designed to achieve scouring velocities that self-clean under normal system operations and are also flushed on an annual basis. Air and vacuum relief assemblies may be located at the contained high points in the force mains. These assemblies are checked annually or as needed to ensure property operation. Failure of the assembly may cause an air blockage in the force main, which can reduce or prevent flow through the force main and damage lift station pumps.

MANHOLES AND GRAVITY SEWER LINES

The District's manholes are inspected and gravity lines jetted once every 3 years. In some cases segments of pipe have been identified to receive more frequent inspection and jetting.

EMERGENCY RESPONSE PROGRAM

Wastewater utilities have the responsibility to provide collection of wastewater in a reliable manner at all times. Therefore, utilities must reduce or eliminate the effects of natural disasters, accidents, and intentional acts.

The District plans to have all operators trained and certified to NIMS level 100, 200 and 700 by the end of 2019. The District also participates in the Snohomish County Hazard Mitigation Program, which develops County-side planning documents and coordinates with a number of agencies and first-responders. The District also participates in the Snohomish County Regional Utility Coordinating Group and the Snohomish County Emergency Planning Group, which meet to discuss emergency planning, coordination, and even conduct emergency exercises.

EMERGENCY PROCEDURES

Though it is not possible to anticipate all potential disasters affecting the District's wastewater system, formulating procedures to manage and remedy several common emergencies is appropriate. The District has completed a Vulnerability Assessment and Emergency Response Plan (VA/ERP) and updates it as appropriate. The last update was completed in 2013.

Power Failure

Various types of weather can cause loss of power, such as wind, lightning, freezing rain, and snowstorms. Power may also be lost through traffic accidents. The District has an on-site generator at the District headquarters to maintain business functions and to maintain operation of the SCADA system master telemetry unit. The District has auxiliary power at 21 of its 22 lift stations to allow operation in the event of a power failure (Glacier Peak High School concessions lift station does not have auxiliary power). Should power be interrupted, Snohomish County PUD will be contacted to determine the estimated length of the power outage. If an extended power outage is anticipated, District crews report to check sites for problems and monitor fuel levels.

Severe Earthquake

A severe earthquake may not only have a substantial impact on the District's wastewater system but also the adjacent purveyors, including the City of Everett and King County

collection and wastewater treatment facilities. Table 7-1 presents potential effects of a severe earthquake on the wastewater system components.

TABLE 7-1

Emergency Response Procedures for an Earthquake

Wastewater System Component	Potential Effects	Recommended Actions
Lift Stations	Station surcharge and backup into residential side sewers	Check telemetry and dispatch pump trucks and portable generator trucks as necessary.
Force Mains	Broken force main	Dispatch pump truck and repair crew
Gravity Sewer and Manholes	Broken sewer pipe or manhole	Dispatch pump truck and repair crew

Emergency Bypass Pumping

The District has planned to purchase emergency bypass pumping equipment for its lift stations. (See item G-9 in the Capital Improvements Plan, Chapter 8). These pumps will be mobile units that can be deployed to any lift station in the event of complete pump failure. The District intends to purchase a combination of pumps to accommodate the range of head conditions within their lift stations.

SAFETY PROCEDURES

Work place hazards for this system are primarily limited to confined space entry, electrical equipment, health hazards associated with sewage, and traffic hazards associated with doing work in the right of way. Staff is trained as to proper entry into confined spaces such as below grade equipment vaults and wet wells. Staff uses WISHA, traffic control, portable lighting systems, trench shoring systems, and first aid training to ensure job safety.

CUSTOMER RESPONSE

The District maintains a log of public communications with respect to the wastewater system. Depending on the nature of the issue, a staff member may be contacted to confirm if a public health issue is apparent. If the issue does not require immediate attention, a work order will be completed and staff will respond as soon as feasible.

CHAPTER 8

CAPITAL IMPROVEMENT PLAN

INTRODUCTION

This chapter presents a 10-year Capital Improvement Plan (CIP). Wastewater capital improvements have been scheduled and prioritized on the basis of growth, regulatory requirements, component reliability, system benefit, and cost. For the proposed projects identified in this chapter, more detailed project descriptions and preliminary project cost estimates are presented in Appendix G. A wastewater base map illustrating the locations of the proposed improvement projects is included in the back sleeve of this Plan (Figure 8-1).

Other capital improvement projects may arise in the future that are not identified as part of the District's CIP presented in this Chapter. Such projects may be deemed necessary for remedying an emergency situation, accommodating improvements proposed by other agencies, or addressing unforeseen problems with the District's wastewater system. Due to budgetary constraints, the construction of these projects may require that the proposed completion date for projects in the CIP be rescheduled. When new information becomes available, the District retains the flexibility to reschedule, add to, or delete proposed projects, and to expand or reduce the scope of the projects, as best determined by the District's Board of Commissioners. Additionally, future planning efforts by Snohomish County, the City of Everett, and the City of Mill Creek may affect land use zoning and service requirements within the District. Annexation or work performed by these agencies may force the District to construct or relocate wastewater lift stations, force mains, or gravity mains. New developments may create streets or provide alignments and locations of facilities that are different than shown on the Plan. Each capital improvement project will be reevaluated to consider the most recent planning efforts as the proposed completion date for the project approaches.

PROPOSED SYSTEM IMPROVEMENTS FROM 2017 TO 2026

This section lists the capital improvements recommended for the next 10 years. These projects were selected in order to improve or maintain functionality in the District's equipment and infrastructure, to increase capacity based on the flow modeling performed in Chapter 6, or to address safety concerns. These improvements were developed with the input of the District engineer and operators. All costs are presented without adjustment for inflation over time, except for those associated with the Everett Water Pollution Control Facility which assumes an inflation rate of 3 percent.

EVERETT WATER POLLUTION CONTROL FACILITY

The District shares financial responsibility for the Everett Water Pollution Control Facility. The City of Everett has identified four capital projects totaling \$108.8 million between 2017 and 2026, the District's share of which is \$17.8 million.

T-1: WPCF Capacity Expansion Phase C 2 and 3 (2021–2027)

Total Project Cost: \$78,800,000
District Share: \$12,877,000

T-2: WPCF Emergency Generators (2018)

Total Project Cost: \$300,000
District Share: \$49,000

T-3: WPCF Lagoon Capacity Expansion (2018-2024)

Total Project Cost: \$21,500,000
District Share: \$3,513,000

T-4: WPCF North Chlorine Building Replacement and Fen Upgrade (2017-2019)

Total Project Cost: \$7,300,000
District Share: \$1,192,000

T-5: 12th Street NE Dike/Estuary Restoration (2018-2020)

Total Project Cost: \$880,000
District Share: \$143,000

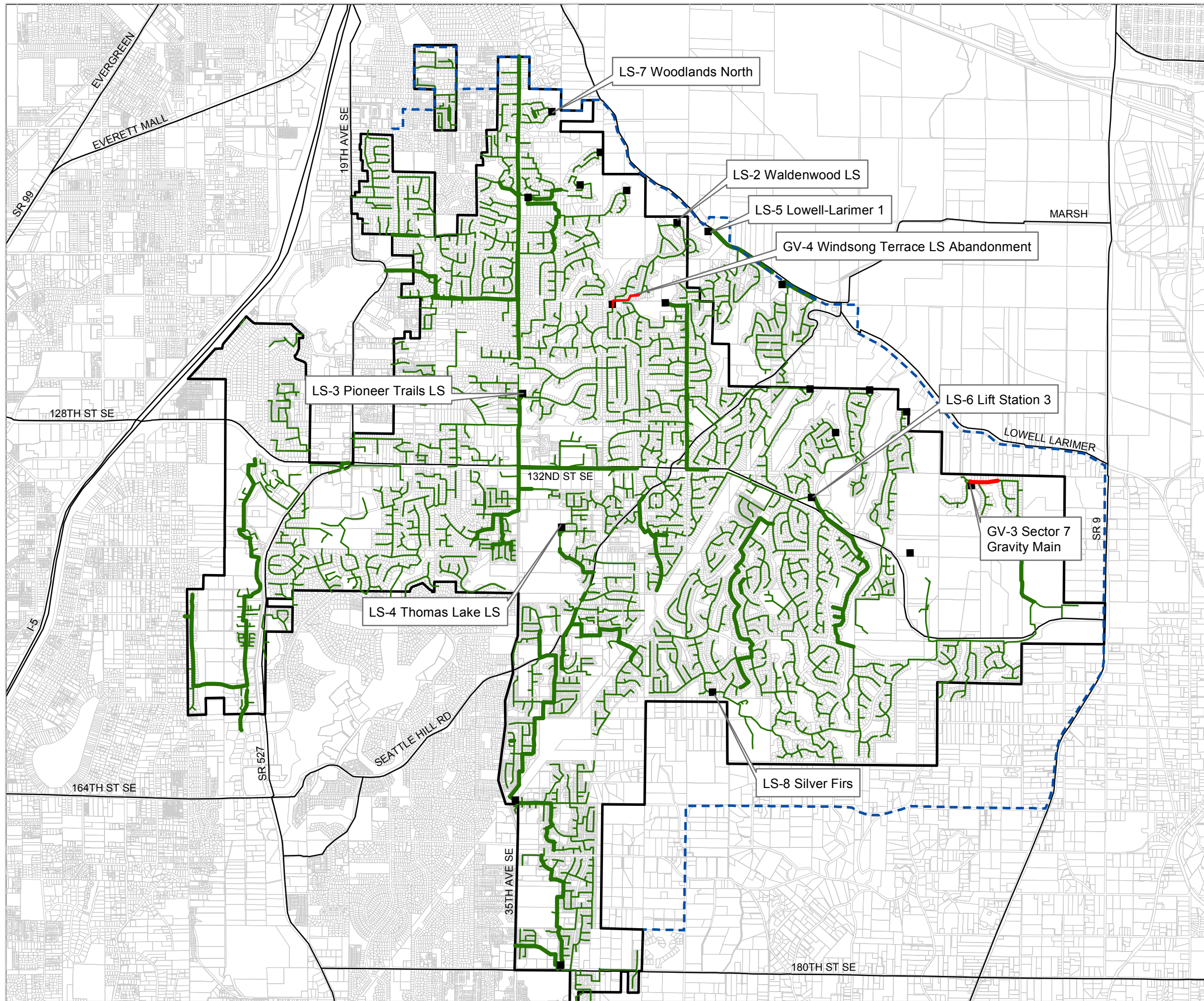
LIFT STATIONS

The following sections provide summarized descriptions of the capital improvements proposed for the District's lift stations. Detailed cost estimates are available in Appendix G.

LS-1: General LS Improvements (2018-2025)

In order to improve lift station safety, security, and operations, the District intends to:

- Conduct new draw-down tests at seven lift stations;
- Install triple-strand barbed wire at five lift stations;
- Install personnel-gates at Highlands East and Creekside;
- Replace all bubblers with transducers at all lift stations;



- LEGEND**
- LIFT STATION
 - ▭ STUDY AREA
 - ▭ SILVER LAKE WATER & SEWER DISTRICT
 - ▭ PARCELS
 - GRAVITY SEWER:**
 - 8-INCH OR LESS
 - 10-INCH OR GREATER

SILVER LAKE WATER & SEWER DISTRICT

WASTEWATER COMPREHENSIVE PLAN

FIGURE 8-1

CAPITAL IMPROVEMENT PROJECTS



- Install ladder-ups where not present;
- Install an exhaust pipe extension elbow for the generator at Highlands II;
- Pump grout under undermined wet well top slab at Highlands II;
- Commission a geotechnical evaluation of the hill slopes at Woodlands East and Woodlands North;
- Refinish and recoat the package station base plate at Highlands East.

Estimated Construction Cost: \$148,000

Construction Management: \$22,000

Estimated Total Project Cost: \$170,000

LS-2: Waldenwood Lift Station Improvements (2018-2019)

In order to address future capacity requirements and improve station operations, the District intends to:

- Perform a station, pump, and force main evaluation and predesign report;
- Upgrade pumps and motors to 1,200 gpm capacity;
- Replace VFDs and mount above grade;
- Install a new wet well and convert existing wet well into a rock catch;
- Install an air vent with carbon filter;
- Replace an isolation valve;
- Evaluate bearing wear/pump run frequency;
- Install generator with sound-attenuated enclosure;
- Install flow meter;
- Perform a surge analysis.

Estimated Construction Cost: \$2,027,000

Engineering, CM, Permitting, and Administration: \$608,000

Estimated Total Project Cost: \$2,635,000

LS-3: Pioneer Trails Lift Station Improvements (2018-2019)

In order to address future capacity requirements, replace aging equipment and improve system operation, the District intends to:

- Perform a station and force main evaluation and predesign report;
- Replace the generator (175kW) and install sound-attenuated enclosure;
- Install a new wet well with submersible pumps;
- Install flow meter;
- Replace the transfer switch;
- Replace the roof on the electrical rack.

Estimated Construction Cost: \$1,886,000

Engineering, CM, Permitting, and Administration: \$566,000
Estimated Total Project Cost: \$2,452,000

LS-4: Thomas Lake Lift Station Improvements (2019-2020)

In order to address future capacity requirements and improve lift station operation, the District intends to:

- Perform a station and force main evaluation and predesign report;
- Install new 12-foot wet well;
- Install new submersible pumps (1,200 gpm station capacity);
- Install check valve vault and flow meter vault;
- Rehab existing wet well and convert to rock catch;
- Test for hydrogen sulfide formation;
- Install a forced-air odor control vent;
- Replace propane generator with a diesel generator with sound-attenuating enclosure.

Estimated Construction Cost: \$1,641,000
Engineering, CM, Permitting, and Administration: \$492,000
Estimated Total Project Cost: \$2,133,000

LS-5: Lowell-Larimer 1 Improvements (2020-2021)

In order to improve lift station operations, the District intends to:

- Relocate the existing surge valve out of the wet well into a new surge vault;
- Install a new flow meter vault;
- Install a sound-attenuating enclosure for the generator.

Estimated Construction Cost: \$378,000
Engineering, CM, Permitting, and Administration: \$113,000
Estimated Total Project Cost: \$491,000

LS-6: Lift Station 3 Improvements (2020)

In order to address future capacity requirements and extend the useful life of the lift station, the District intends to:

- Rehab existing wet well;
- Upsize the motors to 100 hp;
- Replace transfer switch;
- Replace suction inlet isolation valve.

Wet well resurfacing will occur during summer months to avoid bypass pumping.

Estimated Construction Cost: \$270,000
Engineering, CM, and Administration: \$81,000
Estimated Total Project Cost: \$351,000

LS-7: Woodlands North Rehab (2022)

In order to extend the useful life of the lift station, the District intends to:

- Replace the existing pumps and motor starters (installed in 1979);
- Perform a wet well rehabilitation.

Estimated Construction Cost: \$134,000
Engineering, CM, and Administration: \$40,000
Estimated Total Project Cost: \$174,000

LS-8: Silver Firs Rehab (2022-2023)

In order to extend the useful life of the lift station, the District intends to:

- Replace the existing pumps and motor starters (installed in 1994);
- Perform a wet well rehabilitation;
- Install a diesel generator with a sound-attenuating enclosure.

Estimated Construction Cost: \$665,000
Engineering, CM, and Administration: \$200,000
Estimated Total Project Cost: \$865,000

LS-9: Lift Station 4 Improvements (2020, 2025-2026)

In order to extend the useful life of the lift station, the District intends to:

- Install a valve vault and replace the existing impellers (2020);
- Replace the existing pumps and motor starters (installed in 2005) with submersible pumps;
- Perform a wet well rehabilitation;
- Install a flow meter vault;
- Install a diesel generator with a sound-attenuating enclosure.

Estimated Construction Cost: \$1,008,000
Engineering, CM, and Administration: \$178,000
Estimated Total Project Cost: \$1,186,000

LS-10: Lift Station 3 Force Main Replacement (2024-2025)

In order to address future growth and improve force main reliability, the District intends to replace the existing 10-inch cast iron force main with a 16-inch ductile iron force main.

Estimated Construction Cost: \$2,460,000
Engineering, CM, and Administration: \$435,000
Estimated Total Project Cost: \$2,895,000

GRAVITY IMPROVEMENTS

The following sections provide summarized descriptions of the capital improvements proposed for the District's gravity mains. Detailed cost estimates are available in Appendix G.

GV-1: Concrete Sewer Rehabilitation (2019–2038)

The District intends to replace or line 7,000-foot sections of concrete sewer every 2 years, utilizing TV inspections in the intermediate years to identify and prioritize sections for repair or replacement. This schedule will allow for the District's 109,000 feet of concrete sewer main to be lined or replaced over a period of approximately 30 years.

Estimated Project Cost: \$500,000 (every two years)
Estimated Total Cost: \$2,500,000 (first 10 years)

GV-2: Annual Manhole Grade Adjustments (2018–2028)

This project performs sewer manhole ring and cover adjustments after developers, the cities, or the county perform road improvement projects. Although the actual cost depends on the amount of road reconstruction and pavement overlays, the District intends to budget \$75,000 annually for this type of work.

Estimated Annual Cost: \$75,000
Estimated Total Cost: \$750,000 (first 10 years)

GV-3: Enlarge Sector 7 Gravity Mains (2025)

The District intends to upsize a section of 8-inch gravity main to 12-inch to increase capacity, as shown on Figure 8-1.

Estimated Construction Cost: \$334,000
Engineering, CM, and Administration: \$100,000
Estimated Total Project Cost: \$434,000

GV-4: Windsong Terrace Lift Station Abandonment (2018-2019)

In order to reduce future labor costs associated with the upkeep of the lift station, the District intends to:

- Install a new gravity sewer from the existing Windsong Terrace Lift Station wet well to the Waldenwood sewer basin;
- Acquire easements as needed;
- Demolish existing Windsong Terrace Lift Station.

Estimated Construction Cost: \$543,000
Engineering, CM, and Administration: \$163,000
Estimated Total Project Cost: \$706,000

GENERAL PROJECTS

The following sections provide summarized descriptions of the capital improvements proposed for the District’s centralized equipment and infrastructure.

G-1: Headquarters Improvements (2017-2018)

The District is constructing a new storage building, extending an existing shop bay, modifying the driveway and parking lot, and constructing drainage improvements. Project costs will be funded by both the water and sewer system funds.

Estimated Total Project Cost: \$4,800,000
Estimated Sewer System Project Cost: \$2,100,000

G-2: Wastewater Comprehensive Plan (2027)

The District updates its Sewer Comprehensive Plan every 10 years to determine the required improvements.

Estimated Project Cost: \$100,000

G-3: Vector Truck Replacement (2019, 2021)

The District plans replace its two existing Vector trucks.

Total Estimated Sewer System Project Cost: \$300,000 (2019), \$300,000 (2021)

G-4: GFC/Rate Study (2018)

The District plans to conduct a rate study for the purpose of updating the General Facilities Charge and sewer rates.

Estimated Total Project Cost: \$100,000

Estimated Sewer System Project Cost: \$50,000

G-5: Asset Management System (2018)

The District plans to utilize an asset management system and software to better maintain the water system and high level of service. Project costs will be funded by both the water and sewer system funds.

Estimated Total Project Cost: \$200,000

Estimated Sewer System Project Cost: \$100,000

G-6: Financial Management System (2018)

The District plans to purchase new billing software to improve utility billing. The funding cost of this software will be split between the District's water and wastewater utilities. The cost shown is only for the sewer utility's portion, 47 percent of the total cost.

Estimated Total Project Cost: \$250,000

Estimated Sewer System Project Cost: \$125,000

G-7: Security Upgrades (2017-2021)

The District identified a number for security upgrades as part of its Vulnerability Assessment.

Total Project Cost: \$500,000

G-8: Contract TV Inspection (2018-2028)

The District intends to contract for TV inspection work to identify sewer mains for rehabilitation. The District intends to inspect all its concrete sewers in 2018 and 2019 and spend approximately \$50,000 annually from then on.

Total Project Cost: \$550,000

G-9: Portable Emergency Pump (2018-2019)

The District plans to purchase a trailer-mounted portable sewage pump for the purpose of providing reliability in the event of multiple pump failures at any of its lift stations. The pump will be sized to provide full capacity to all of the District’s dual-pump stations, and single-pump capacity to the District’s three-pump stations.

Total Project Cost: \$100,000

DEVELOPER EXTENSION PROJECTS

The District is currently aware of several projects that will be designed, constructed, and financed by developers. Table 8-1 provides a list of known developer extensions, their location and the project number. Changes to the projects may occur in the future.

TABLE 8-1

Developer Extension Projects

Project Number	Name	Location
DE-1	Lowell Larimer 3	Lowell Larimer Road
DE-2	Lowell Larimer 4	Lowell Larimer Road
DE-3	G.O. East/Bakerview	South of “The Point” subdivision

CAPITAL IMPROVEMENTS PLAN SCHEDULE

Table 8-2 provides a summary of each capital improvement project and the proposed schedule for implementation. Table 8-3 provides a schedule recommending the amount each project should be financed each year. Several projects span multiple years. The District can reschedule its capital improvement projects as needed to accommodate unanticipated projects in the future.

TABLE 8-2

Capital Improvement Project Summary

Project Number	Project Title	Years Active	Total Estimated Cost⁽¹⁾
T-1	WPCF Capacity Expansion – Phase C 2 and 3	2021-2026	\$12,877,000
T-2	WPCF Emergency Generators	2018	\$49,000
T-3	WPCF Lagoon Capacity Expansion/Facility Plan	2018-2024	\$3,513,000
T-4	WPCF North Chlorine Building Replacement and Fen Upgrade	2017-2019	\$1,192,000
T-5	12 th Street NE Dike/Estuary Restoration	2018-2020	\$143,000
LS-1	General LS Improvements	2018-2025	\$170,000
LS-2	Waldenwood LS Improvements	2018-2019	\$2,635,000
LS-3	Pioneer Trails LS Improvements	2018-2019	\$2,452,000
LS-4	Thomas Lake LS Improvements	2019-2020	\$2,133,000
LS-5	Lowell Larimer I LS Improvements	2021	\$491,000
LS-6	Lift Station 3 Improvements	2019	\$351,000
LS-7	Woodlands North Rehab	2022	\$174,000
LS-8	Silver Firs Rehab	2023	\$865,000
LS-9	Lift Station 4 Improvements	2020-2026	\$1,186,000
LS-10	Lift Station 3 Force Main Replacement	2024-2025	\$2,895,000
GV-1	Concrete Main Rehabilitation	2026 ⁽²⁾	\$2,500,000
GV-2	Annual Manhole Grade Adjustments	2026 ⁽²⁾	\$750,000
GV-3	Sector 7 Gravity Main	2025	\$434,000
GV-4	Windsong Terrace Lift Station Abandonment	2018-2019	\$706,000
G-1	Headquarters Upgrade	2018, 2020	\$2,210,000
G-2	Wastewater Comprehensive Plan	-- ⁽³⁾	-- ⁽³⁾
G-3	Vactor Truck Replacement	2018	\$600,000
G-4	GFC/Rate Study	2018	\$50,000
G-5	Asset Management System	2018	\$50,000
G-6	Financial Management System	2018	\$125,000
G-7	Security Upgrades	2021	\$500,000
G-8	Contract TV Inspection	2018-2028	\$550,000
G-9	Portable Emergency Pump	2018-2019	\$100,000
		Total	\$39,701,000

- (1) All project costs in 2017 dollars (ENR CCI = 10720).
- (2) Annual project with total costs over a 10-year period.
- (3) Project is scheduled in 2027 for \$100,000.

TABLE 8-3

Capital Improvement Project Schedule

Project Number	Total Project Cost ⁽¹⁾	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
LS-1	\$170,000	-	\$30,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	-
LS-2	\$2,635,000	-	\$2,035,000	\$600,000	-	-	-	-	-	-	-
LS-3	\$2,452,000	-	\$368,000	\$2,084,000	-	-	-	-	-	-	-
LS-4	\$2,133,000	-	-	\$320,000	\$1,813,000	-	-	-	-	-	-
LS-5	\$491,000	-	-	-	\$74,000	\$417,000	-	-	-	-	-
LS-6	\$351,000	-	-	-	\$351,000	-	-	-	-	-	-
LS-7	\$174,000	-	-	-	-	-	\$174,000	-	-	-	-
LS-8	\$865,000	-	-	-	\$130,000	\$735,000	-	-	-	-	-
LS-9	\$1,186,000	-	-	-	\$120,000	-	-	-	-	\$160,000	\$906,000
LS-10	\$2,895,000	-	-	-	-	-	-	-	\$434,000	\$2,461,000	-
GV-1	\$2,500,000	-	-	\$500,000	\$500,000	-	\$500,000	-	\$500,000	-	\$500,000
GV-2	\$750,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
GV-3	\$434,000	-	-	-	-	-	-	-	-	\$434,000	-
GV-4	\$706,000	\$106,000	\$600,000	-	-	-	-	-	-	-	-
G-1	\$2,210,000	\$442,000	\$1,768,000	-	-	-	-	-	-	-	-
G-2 ⁽²⁾	-	-	-	-	-	-	-	-	-	-	-
G-3	\$600,000	-	\$300,000	-	\$300,000	-	-	-	-	-	-
G-4	\$50,000	-	\$50,000	-	-	-	-	-	-	-	-
G-5	\$50,000	-	\$50,000	-	-	-	-	-	-	-	-
G-6	\$125,000	-	\$125,000	-	-	-	-	-	-	-	-
G-7	\$500,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	-	-	-	-	-
G-8	\$550,000	-	\$100,000	\$100,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
G-9	\$100,000	-	\$50,000	\$50,000	-	-	-	-	-	-	-
Subtotal	\$21,927,000	\$723,000	\$5,651,000	\$3,849,000	\$3,533,000	\$1,397,000	\$819,000	\$145,000	\$1,079,000	\$3,200,000	\$1,531,000
T-1	\$12,877,000	-	-	-	-	\$327,000	\$2,190,000	\$2,190,000	\$3,268,000	\$3,268,000	\$1,634,000
T-2	\$49,000	-	\$49,000	-	-	-	-	-	-	-	-
T-3	\$3,513,000	-	\$41,000	\$41,000	-	-	-	\$817,000	\$2,614,000	-	-
T-4	\$1,192,000	\$49,000	\$792,000	\$351,000	-	-	-	-	-	-	-
T-5	\$143,000	-	\$42,000	-	\$101,000	-	-	-	-	-	-
Subtotal	\$17,774,000	\$49,000	\$924,000	\$392,000	\$101,000	\$327,000	\$2,190,000	\$3,007,000	\$5,882,000	\$3,268,000	\$1,634,000
Total	\$39,701,000	\$772,000	\$6,575,000	\$4,241,000	\$3,634,000	\$1,724,000	\$3,009,000	\$3,152,000	\$6,961,000	\$6,468,000	\$3,165,000

(1) All project costs in 2017 dollars (ENR CCI = 10720).

(2) Project is scheduled in 2027 for \$100,000.

CHAPTER 9

FINANCIAL PROGRAM

INTRODUCTION

This chapter presents the financial program for the District's wastewater utility. Financial planning is one of the most important aspects of a wastewater plan, since it outlines the District's current financial condition and how the capital projects included in the Plan will be financed. A discussion of funding sources is provided in Appendix H. Through the financial program the District's customers and Board of Commissioners are assured that the capital improvement schedule can be implemented and informed of how these costs will be allocated to new and existing customers. Thus, a financial program makes the difference between a "wish list" and the implementation of the CIP. The financial program plays a key role in establishing wastewater rates and other charges that reflect the actual costs of providing wastewater service to the District. Rate studies are an important tool used to maintain rates at a level needed to fund maintenance, operation, and capital improvement projects.

EXISTING SERVICE RATES AND CHARGES

The existing service rates and charges were established by District resolutions. The resolutions specify base rate, volume rate, and general facilities charge. The District resolutions are provided in Appendix A.

SEWER RATES

Table 9-1 summarizes the monthly base rate in effect April 27, 2017. Service rates are based on location, customer class, and in some cases, water consumption. Accounts outside the District are billed 125 percent of the service base rate. By Interlocal Agreement, Cross Valley Water District customers are billed 117 percent of the service base rate.

TABLE 9-1

Existing Sewer Rates

Year 2017 Rates^{1,2} (Resolution No. 738, April 27, 2017)		
Everett Basin	Monthly Base Rate	Volume Rate
Low Income Senior Citizen	\$40.55 per Dwelling Unit	N/A
Single-Family Residential	\$54.00 per Dwelling Unit	N/A
Duplex	\$52.95 per Dwelling Unit	N/A
Multi-Family Residential	\$52.95 per Dwelling Unit	N/A
Schools	\$54.00 per Water Meter	\$7.20 per CCF
Commercial	\$54.00 per Water Meter	\$7.20 per CCF
Industrial	\$57.25 per Water Meter	\$7.65 per CCF
Alderwood Basin	Monthly Base Rate	Volume Rate
Low Income Senior Citizen	\$42.25 per Dwelling Unit	N/A
Single-Family Residential	\$56.35 per Dwelling Unit	N/A
Duplex	\$52.10 per Dwelling Unit	N/A
Multi-Family Residential	\$52.10 per Dwelling Unit	N/A
Schools	\$56.35 per Water Meter	\$7.50 per CCF
Commercial	\$56.35 per Water Meter	\$7.50 per CCF
Industrial	\$59.15 per Water Meter	\$7.90 per CCF

- (1) Accounts outside the District shall be billed 125 percent of the above service rates.
- (2) By Interlocal Agreement Cross Valley Sewer Customers shall be billed 117 percent of the above service rates.

GENERAL FACILITIES CHARGE

General facilities charges were revised by District Resolution No. 674, passed in November 10, 2011. The charge amount is based upon the use of the property for which the sewer service is applied, according to the schedule in Tables 9-2 and 9-3. The charge is imposed on new customers requesting sewer service. Table 9-3 reflects AWWD fees effective as of January 1, 2018. The general facilities charge will be reviewed in 2018 or 2019 following the completion of this Plan.

TABLE 9-2

Existing General Facilities Charge (Resolution No. 674, November 11, 2011)

General Facility Charge (Everett Sewer Basin)				
Meter Size/Customer Class	Factor Ratio	General Facility Charge	Inspection Fee	Total (per Meter)
Meter Size Connections				
5/8" or 3/4"	1.00	\$4,595	\$480	\$5,075
1"	2.50	\$11,490	\$480	\$11,970
1.5"	5.00	\$22,975	\$480	\$23,455
2"	8.00	\$36,760	\$480	\$37,240
3"	15.00	\$68,925	\$480	\$69,405
4"	25.00	\$114,875	\$480	\$115,355
6"	50.00	\$229,755	\$480	\$230,235
8"	80.00	\$367,605	\$480	\$368,085
10"	115.00	\$528,430	\$480	\$528,910
12"	168.75	\$775,415	\$480	\$775,895
Multiple Dwelling Unit Connections				
Duplex/ADU per unit	0.85	\$3,905	\$480	\$8,290
Multi-Family, per unit	0.70	\$3,215	\$480	Varies
Duplex total costs are based on two dwelling units connected to one sewer connection.				

TABLE 9-3

Existing General Facilities Charge (Resolution No. 674, November 11, 2011)

General Facility Charge (AWWD Sewer Basin)					
Meter Size/Customer Class	Factor Ratio	General Facility Charge	Inspection Fee	AWWD Fee	Total (per Meter)
Meter Size Connections					
5/8" or 3/4"	1.00	\$2,190	\$480	\$1,826	\$4,496
1"	2.50	\$5,475	\$480	\$4,565	\$10,520
1.5"	5.00	\$10,950	\$480	\$9,130	\$19,560
2"	8.00	\$17,520	\$480	\$14,608	\$31,600
3"	15.00	\$32,850	\$480	\$27,390	\$58,830
4"	25.00	\$54,750	\$480	\$45,650	\$97,730
6"	50.00	\$109,500	\$480	\$91,300	\$194,980
8"	80.00	\$175,200	\$480	\$146,080	\$311,680
10"	115.00	\$251,850	\$480	AWWD Will Set	\$252,330
12"	168.75	\$369,565	\$480		\$370,045
Multiple Dwelling Unit Connections					
Duplex/ADU per unit	0.85	\$1,860	\$480	\$1,826	\$7,852
Multi-Family, per unit	0.70	\$ 1,535	\$480	\$1,826 (F) \$1,278 (Add)	Varies
Duplex total costs are based on two dwelling units connected to one sewer connection.					

FINANCIAL STATUS OF EXISTING WASTEWATER UTILITY

REVENUES AND EXPENSES

The District's major revenues are sewer service rates, general service fees, investment income, and developer contributions. District expenditures include operations, maintenance, administration, depreciation, and debt service. The wastewater utility revenues and expenses for 2012 through 2016 are summarized in Tables 9-4, 9-5, and 9-6.

TABLE 9-4

Operating Revenues and Expenses (2012–2016)

Operating Revenue	2012	2013	2014	2015	2016
Service Charges	\$10,471,233	\$10,937,675	\$11,681,347	\$12,312,927	\$12,745,229
Permits	\$168,480	\$178,416	\$199,571	\$178,272	\$179,568
Miscellaneous	\$128,378	\$166,188	\$138,983	\$152,266	\$204,072
Total Operating Revenue	\$10,768,091	\$11,282,280	\$12,019,901	\$12,643,465	\$13,128,869
Operating Expense					
Operation Expenses	\$5,707,123	\$6,504,305	\$7,026,509	\$7,344,750	\$7,702,083
Maintenance Expenses	\$156,581	\$140,880	\$139,046	\$151,949	\$107,268
General and Administrative	\$1,395,836	\$1,408,673	\$1,634,529	\$1,745,000	\$1,927,987
Depreciation	\$1,534,493	\$1,630,900	\$1,713,884	\$1,764,115	\$1,851,145
Total Operating Expense	\$8,794,033	\$9,684,757	\$10,513,968	\$11,005,815	\$11,588,483
Net Operating Income	\$1,974,059	\$1,597,522	\$1,505,933	\$1,637,650	\$1,540,386

TABLE 9-5

Non-Operating Revenues and Expenses (2012–2016)

Non-Operating Revenue	2012	2013	2014	2015	2016
Investment and Assessment Income	\$27,981	\$22,723	\$15,286	\$13,788	\$75,666
Gain on Disposal of Assets	\$18,151	\$5,605	\$4,365	\$139,287	\$656
Total Non-Operating Revenue	\$57,593	\$28,328	\$19,651	\$153,075	\$76,322
Non-Operating Expense					
Interest on Long-Term Debt – Net of Amount Capitalized	\$24,786	\$47,500	\$66,135	\$53,531	\$37,986
Amortization of Debt Discount and Issue Costs	(\$79)	(\$7,504)	(\$6,330)	(\$5,133)	(\$3,908)
Restatement- Change in Accounting Principles	\$0	\$0	\$929,171	\$0	\$0
Loss on Disposal of Assets	\$0	\$0	\$0	\$0	\$0
Total Non-Operating Expense	\$24,707	\$39,996	\$988,977	\$48,397	\$34,078

TABLE 9-6

Historical Revenues and Expenses Summary (2012–2016)

	2012	2013	2014	2015	2016
Operating Revenue	\$10,768,091	\$11,282,280	\$12,019,901	\$12,643,465	\$13,128,869
Other Revenue	\$57,593	\$28,328	\$19,651	\$153,075	\$76,322
Total Revenue	\$10,825,684	\$11,310,608	\$12,039,552	\$12,796,540	\$13,205,191
Operating Expenses	\$8,794,033	\$9,684,757	\$10,513,968	\$11,005,815	\$11,588,483
Other Expenses	\$24,707	\$39,996	\$988,977	\$48,397	\$34,078
Total Expenses	\$8,818,739	\$9,724,753	\$11,502,945	\$11,054,212	\$11,622,561
Income Before Capital Contributions	\$2,006,945	\$1,585,854	\$536,607	\$1,742,327	\$1,582,630
Capital Contributions	\$2,127,426	\$3,270,863	\$3,977,118	\$2,469,181	\$2,234,991
Change in Net Position	\$4,134,372	\$4,856,717	\$4,513,725	\$4,211,508	\$3,817,620

FINANCIAL ANALYSIS

The District reviews sewer service rates on an annual basis. In addition, the District practice is to retain the services of an outside consultant to reform a rate and general facility charge study every 5 to 10 years. Rates are adjusted as necessary to adequately maintain the system’s facilities and fund system replacement.

The District’s Capital Improvement Program presented in Chapter 8 includes improvements of approximately \$39,701,000 during the 10-year planning period. These improvements will be funded through the capital improvement fund and the construction fund. The District has sufficient reserves to accommodate the currently identified CIP.

PROJECTED OPERATING BUDGET

A pro forma operating budget for the 6-year planning period is provided in Table 9-7. As shown in the table the District expects a positive net income for the next 6 years.

TABLE 9-7

District Projected Operating Forecast

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Operating Income										
Sewer Sales	\$13,289,002	\$13,887,007	\$14,511,922	\$15,164,959	\$15,847,382	\$16,560,514	\$17,305,737	\$18,084,496	\$18,898,298	\$19,748,721
Other Incomes	\$288,000	\$293,760	\$299,635	\$305,628	\$311,740	\$317,975	\$324,335	\$330,821	\$337,438	\$344,187
New Connection Revenues	\$3,246,490	\$3,311,420	\$3,377,648	\$3,445,201	\$3,514,105	\$3,584,387	\$3,656,075	\$3,729,197	\$3,803,780	\$3,879,856
Interest Income	\$112,500	\$115,875	\$119,351	\$122,932	\$126,620	\$130,418	\$134,331	\$138,361	\$142,512	\$146,787
Total Operating Income	\$16,935,992	\$17,608,062	\$18,308,557	\$19,038,720	\$19,799,847	\$20,593,295	\$21,420,478	\$22,282,874	\$23,182,028	\$24,119,551
Operating Expenses										
Labor Expenses	\$1,776,162	\$1,829,447	\$1,884,330	\$1,940,860	\$1,999,086	\$2,059,059	\$2,120,830	\$2,184,455	\$2,249,989	\$2,317,489
Sewer Treatment Expenses	\$7,737,355	\$8,124,223	\$8,530,434	\$8,956,956	\$9,404,803	\$9,875,044	\$10,368,796	\$10,887,235	\$11,431,597	\$12,003,177
Lift Stations	\$310,500	\$319,815	\$329,409	\$339,292	\$349,470	\$359,955	\$370,753	\$381,876	\$393,332	\$405,132
Vehicles, Equipment, Facilities	\$102,000	\$105,060	\$108,212	\$111,458	\$114,802	\$118,246	\$121,793	\$125,447	\$129,211	\$133,087
Maintenance and Operations	\$750	\$773	\$796	\$820	\$844	\$869	\$896	\$922	\$950	\$979
Administration	\$500,000	\$525,000	\$551,250	\$578,813	\$607,753	\$638,141	\$670,048	\$703,550	\$738,728	\$775,664
Total Expenses	\$10,426,767	\$10,904,317	\$11,404,431	\$11,928,198	\$12,476,759	\$13,051,313	\$13,653,116	\$14,283,486	\$14,943,807	\$15,635,527
Net Income Before Depreciation	\$6,509,225	\$6,703,745	\$6,904,126	\$7,110,522	\$7,323,088	\$7,541,982	\$7,767,362	\$7,999,388	\$8,238,221	\$8,484,024
Total Depreciation	\$1,654,911	\$1,671,460	\$1,688,175	\$1,705,056	\$1,722,107	\$1,739,328	\$1,756,721	\$1,774,289	\$1,792,031	\$1,809,952
Net Income After Depreciation	\$4,854,314	\$5,032,285	\$5,215,951	\$5,405,466	\$5,600,981	\$5,802,654	\$6,010,641	\$6,225,100	\$6,446,190	\$6,674,072
Capital Funding Requirements										
Other Source (Use - Bond Principal)	(\$846,486)	(\$866,486)	(\$346,486)	-	-	-	-	-	-	-
Planned Capital Improvements	768,137	\$1,047,214	\$354,627	\$495,749	\$337,488	\$87,853	\$439,574	\$4,449,635	\$6,226,954	\$5,964,567
Ending Cash and Investments	\$38,208,147	\$42,998,192	\$49,201,205	\$55,815,978	\$62,801,578	\$70,255,708	\$77,583,496	\$81,133,249	\$83,144,516	\$85,663,973

(1) All values are in 2017 dollars.

APPENDIX A
DISTRICT RESOLUTIONS

**SILVER LAKE WATER & SEWER DISTRICT
SNOHOMISH COUNTY, WASHINGTON**

RESOLUTION NO. 757

A RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE SILVER LAKE WATER & SEWER DISTRICT, SNOHOMISH COUNTY, WASHINGTON, ADOPTING THE 2018 COMPREHENSIVE SEWER SYSTEM PLAN AND APPROVING THE PLAN FOR PUBLIC DISTRIBUTION IN ACCORDANCE WITH RCW 57.16.010 (7).

WHEREAS, Silver Lake Water & Sewer District (“District”) is a municipal corporation providing water and sewer utility services pursuant to Title 57 RCW; and

WHEREAS, RCW 57.16.010(2) authorizes the District to adopt a general comprehensive sewer system plan and the District has previously done so by the adoption of the 2011 Comprehensive Sewer System Plan on the 14th, Day of April, 2011 by Resolution No. 667 (the "2011 Plan"); and the 2011 Plan was approved by all public agencies with jurisdiction, including the Washington State Department of Ecology, Snohomish County Health Department, Snohomish County and by the cities which are included, all or part, within the District's corporate or service area boundaries; and

WHEREAS, the District’s Board of Commissioners now deems it desirable and appropriate to adopt an updated and revised comprehensive sewer system plan entitled "2018 Wastewater Comprehensive Plan" dated March 2018 (the "2018 Plan") which was prepared by Gray & Osborne, Inc., the District's Consulting Engineers, and designated as G&O No. 16497; and

WHEREAS, the 2018 Plan is incorporated herein in full by this reference; and

WHEREAS, based on a SEPA Checklist prepared regarding the proposed adoption of the 2018 Plan, a SEPA Determination of Non-Significance (“DNS”) was issued by Curt Brees, District General Manager, and the District's Responsible SEPA Official ("District Responsible SEPA Official"), on March 23, 2018, and public notice of such action and the opportunity to comment on the SEPA Checklist and DNS was published in accordance with state law; and

WHEREAS, notice of a Public Hearing at the Administration Building of the Silver Lake Water & Sewer District at 15205 41st Avenue SE, Bothell, Washington 98012, at 5:30 p.m. or as soon thereafter as can be heard, on Thursday, March 22, 2018, for the purpose of accepting public testimony on the adoption of the District 2018 Plan was published in the Herald newspaper on March 17th, 2018; and


WHEREAS, the District held a Public Hearing on the 2018 Plan on March 22nd, 2018 at 5:30 pm at the District administrative office at 15205 41st Avenue SE, Bothell, WA, and the District’s Board of Commissioners considered public input and testimony from the public on the 2018 Plan.

NOW THEREFORE, BE IT RESOLVED, by the Board of Commissioners of Silver Lake Water & Sewer District, Snohomish County, Washington, as follows:

1. The 2018 Plan is hereby approved and adopted as the District's Comprehensive Sewer System Plan effective the date set forth below and is further approved for public distribution in accordance with state law.

2. Pursuant to RCW 57.16.010(7), the 2018 Plan shall be submitted to all required jurisdictions and agencies, including the legislative authority of Snohomish County, the legislative authority of all cities which are included, all or in part, within the District's corporate or service area boundaries, and to all state agencies with jurisdiction, including the Washington State Department of Ecology, for approval by those jurisdictions and agencies as provided and required by law.


ADOPTED by the Board of Commissioners at a regular open public meeting of the Silver Lake Water & Sewer District, Snohomish County, Washington this 12th day of April, 2018.



President and Commissioner



Secretary and Commissioner



Commissioner

CERTIFICATION

I, the undersigned, Secretary of the Board of Water Commissioners of Silver Lake Water & Sewer District, Snohomish County, Washington (the "District"), hereby certify as follows:

1. The attached copy of Resolution No. 757 (the "Resolution") is a full, true and correct copy of the Resolution duly adopted at a regular meeting of the Board of Commissioners of the District held at the regular meeting place thereof on April 12th, 2018, as that Resolution appears on the minute book of the District; and the Resolution will be in full force and effect immediately following its adoption; and

2. A quorum of the members of the Board of Commissioners was present throughout the meeting and a majority of those members present voted in the proper manner for the adoption of the Resolution.

IN WITNESS WHEREOF, I have hereunto set my hand this 12th day of April, 2018.

**SILVER LAKE WATER-SEWER DISTRICT,
SNOHOMISH COUNTY, WASHINGTON**



Anne Backstrom, Secretary

**SILVER LAKE WATER & SEWER DISTRICT
SNOHOMISH COUNTY, WASHINGTON
RESOLUTION NO. 674**

A RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE SILVER LAKE WATER & SEWER DISTRICT, SNOHOMISH COUNTY, WASHINGTON, ESTABLISHING GENERAL FACILITY CHARGES FOR NEW WATER AND SEWER CONNECTIONS AND REPEALING RESOLUTION NO. 651.

WHEREAS, RCW 57.08.005 (11) authorizes the Silver Lake Water & Sewer District Board of Commissioners ("District") to fix rates and charges for water and sewer supplied, and to charge property owners seeking to connect to the District's systems, as a condition to granting the right to so connect, in addition to the cost of the connection, such reasonable connection charge as the Board of Commissioners shall determine to be proper in order that those property owners shall bear their equitable share of the cost of the system; and

WHEREAS, the Board of Commissioners of the Silver Lake Water & Sewer District contracted with Financial Consulting Services Group (FCSG) to prepare the 2010 Utility Rate Study, which included a section on water and sewer General Facility Charges and fees; and

WHEREAS, the Board of Commissioners set a hearing date of May 13, 2010 to consider the FCSG 2010 Utility Rate Study, and notice of such hearing was published April 22, 2010 in the Everett Herald; and

WHEREAS, the Board of Commissioners received the 2010 Utility Rate Study from FCS Group and discussed the various service rates and General Facility Charge issues presented in the report; at the Hearing of May 13, 2010; and

WHEREAS, the 2010 Utility Rate Study's section on water and sewer General Facility Charges include a financial analysis of the District's existing cost basis, under the plant in service methodology for the fiscal period ended December 31, 2008, and the future cost basis using future project cost estimates based on the District's draft Water and Sewer Comprehensive Plans; and

WHEREAS, the portion of the water and sewer general facility charges calculated using the existing cost basis, under the plant in service methodology, resulted in a significantly higher water and sewer general facility charge than currently adopted and based on 1999 and 2001 financial statements and adopted capital projects; and

WHEREAS, the under valuation of the District's current water and sewer General Facility Charge means that new customers are not fully paying for their equitable portion of the District's existing water and sewer system; and

thereafter as can be heard, on Thursday, November 10, 2011, for the purpose of considering changes to the District General Facility Charges was published in the Everett Herald on October 28, 2011; and

WHEREAS, such notice was posted on the District web page www.slwsd.com; and

WHEREAS, the Board of Commissioners held a Public Hearing in the Administration Building of the Silver Lake Water & Sewer District 15205 41st Ave. SE, Bothell, WA, at 5:30 p.m., or as soon thereafter as could be heard, on Thursday November 10, 2011 for the purpose of considering changes to the District General Facility Charges and to receive public testimony on the adjustment of and possible increase to District General Facility Charges; and

WHEREAS, the water and sewer General Facility Charges and service fees set forth in this resolution in Exhibits A and B, attached hereto and made a part of this resolution, shall be considered the General Facility Charge for the District's sewer and water utilities; and it is found and declared that the classifications, charges, and fees set forth in Exhibits A and B attached to this resolution are fair and equitable; and

WHEREAS, the water and sewer General Facility Charges set forth in exhibits A and B have been rounded to the nearest \$5.00 for administrative efficiency; now

BE IT RESOLVED by the Board of Commissioners of the Silver Lake Water & Sewer District, Snohomish County, Washington as follows:

1. **FINDINGS:** The Board of Commissioners adopt as findings, the preceding recitals to this Resolution.
2. **DEFINITIONS:** For the purpose of determining rate classification for water and sewer General Facility Charges for new water and sewer connection charges and upsizing of existing water and sewer connections, the following definitions shall apply, unless otherwise provided for:

Accessory Dwelling Unit (ADU) or Dwelling Unit means any building or portion of a building which contains complete housekeeping facilities for one family, including provisions for sleeping, eating, cooking and sanitation, physically separated from any other dwelling unit which may be in the same building.

Alderwood Water and Wastewater (AWWD) Drainage Basin means an area identified by the District where the sewer flows are delivered to the Alderwood Water and Wastewater Drainage Basin for sewer collection and then sent to King County Metro Sewer for sewer treatment per interlocal agreements.

Commercial means all customers receiving water and sewer service or discharging domestic flows to the District's sewer system without one or more dwelling units.

Schools, churches, public agencies, and parks are examples of commercial class customers.

Condominium means a multifamily dwelling structure consisting of attached dwelling units owned individually and not in common by one owner.

Credit for Existing Water and Sewer Connection (Upsizing) means a credit a customer can apply for when they are requesting or are required to increase their existing meter size to meet an increased water or sewer service demand.

Duplex or Two-Family Dwelling means a detached structure containing two dwelling units.

ERU means Equivalent Residential Unit.

Everett Drainage Basin means an area identified by the District where sewer flows are delivered to the City of Everett for sewer treatment per interlocal agreement.

Factor Ratio means the percentage increase used to calculate a larger meter size's water and sewer General Facility Charge from the base meter size.

Fire Meter means a water meter, regardless of size, that is dedicated and plumbed solely to provide water to a fire suppression or fire sprinkler system. Fire meters can be installed in any structure(s).

Irrigation Meter means a water meter that is dedicated and plumbed solely to provide water to an irrigation system or sprinkler system.

Meter Size means the size of the water meter requested or required to meet water and sewer demands.

Mobile Home Park means a residential use in which a tract of land is rented for the use of more than one (1) mobile or modular home occupied as a dwelling unit.

Multifamily Structure means a structure or portion of a structure containing three (3) or more dwelling units, including mobile home parks with more than one dwelling unit.

Side Sewer Inspection – New Connection means when a new side sewer connection is made to the main sewer line or when the location of an existing side sewer is changed requiring a new as-built drawing to be created. Customers shall not be charged the side sewer inspection fee when the repairs to their side sewer lines do not require either a new connection to the main sewer line or a revised as-built drawing being created.

Single-family Dwelling (SFD) Unit means a detached structure containing one (1) dwelling unit and having a permanent foundation or attached dwelling units with separate ownership of each dwelling unit including the fee simple interest of the respective

underlying real property for such dwelling unit. Each single-family dwelling unit shall have its own water meter.

Water Meter Installation Charge means when a customer requests a new meter be installed to serve their property or that an existing meter be relocated to a new location. The short side of the street means the shorter distance from the water line to the property. The long side of the street means the longer distance from the water line to the property.

3. **ADOPTION OF RATES:**

The water and sewer General Facility Charges set forth on Exhibits A and B, attached hereto and incorporated by this reference are hereby adopted effective November 11, 2011.

4. **OTHER CHARGES, ASSESSMENTS, AND FEES:**

The General Facility Charges set forth in Exhibits A and B are not in lieu of any U.L.I.D. assessments, latecomers fees, other agency general capital facility or capacity charges, or other District fees and charges for services. Examples of other District fees may include, but are not limited to, water meter installation and permit fees, side sewer inspections, water main tapping, latecomer agreement fees, returned check, and flow tests.

5. **APPLICATION FOR NEW OR UPSIZED WATER AND/OR SEWER CONNECTION:**

Customers requesting or required to connect a new or upsized water and/or sewer connection to the District's water and sewer systems must make application to the District. The General Manager or designee may require the applicant to submit additional plans or engineering reports to substantiate the size of their required water meter and/or sewer connection.

The District must receive payment in full of all water and/or sewer General Facility Charges and other fees prior to issuing a water and/or sewer permit and prior to the customer physically connecting to the District's water and sewer system.

6. **CREDIT FOR EXISTING WATER AND SEWER CONNECTION (UPSIZING):**

Customers requesting or required to upsize existing water and/or sewer connection may request a credit for their existing water and/or sewer connection. The credit amount shall be the initial general facility paid for the existing water and/or sewer connection. If the amount paid for the existing water and sewer connection cannot be determined, then a base credit of \$100.00 for a water connection and \$1,000.00 for a sewer connection shall be provided to the customer. The following examples of the credit calculation are provided:

Example of 2" Meter Upsized from 1" Meter (Everett Basin)

	Water	Sewer
Cost of Upsized 2" Meter	28,320.00	35,720.00
Initial GFC Paid for 1" Meter	(4,968.15)	(5,819.15)
2" GFC Charge Due	\$ 23,351.85	\$ 29,900.85

Example of 1" Meter Upsized from 5/8" Meter (value unknown - Everett Basin)

	Water	Sewer
Cost of Upsized 1" Meter	8,850.00	11,165.00
Initial GFC Paid for 5/8" Meter	(100.00)	(1,000.00)
1" GFC Charge Due	\$ 8,750.00	\$ 10,165.00

7. REQUIRED WATER METER AND SIDE SEWER INSPECTION:

All new or upsized water and/or side sewer connections must be inspected by the District prior to acceptance. The District may schedule the inspection of the water connection. The customer or their contractor must call the District to schedule an inspection of the side sewer. The physical side sewer connection must be visible to the District at the time of the inspection. The District may require customers, at their own expense, who have back filled the sewer trench, to re-open the sewer trench so a side sewer inspection can be conducted.

8. CHARGES AND FEES BY INTERLOCAL AGREEMENT AGENCIES:

In addition to the fees and charges assessed by the District for each new or upsized water and/or sewer connection, customers may be required to pay directly to the District or directly to another agency their respective General Facility Charges, capacity fees, or other fees adopted by the respective agency. Customers requesting a new or upsized water and/or sewer connection within the Alderwood Drainage Basin must complete and submit a King County Metro Sewer Use Certification form to the District.

9. NON TRANSFERABLE:

Existing water and sewer connections and issued water and/or sewer permits are provided to a specific property and are not transferable to another property or parcel. Existing water and/or sewer connections on a subject property that is being subdivided can transfer the existing water and/or connections to one of the newly created parcels by submitting a written request to the District. The property or parcel from which such connection(s) are transferred, forfeits any and all rights of connection to the District utility systems.

**10. GENERAL FACILITY CHARGES – WATER AND SEWER SERVICE
OUTSIDE THE DISTRICT BOUNDARIES:**

Properties outside the District's corporate boundaries connecting to, using or benefiting from the use of the District's water and sewer general facilities shall be required to pay the District's General Facility Charge(s) as a condition of water and/or sewer service.

11. EFFECTIVE DATE:

The effective date of this Resolution shall be November 11, 2011. Any applicant for a new or upsized water and/or sewer connection shall pay the appropriate General Facility Charge for the subject property, provided however, any applicant for a new or upsized water and/or sewer connection who presents to the District a building permit issued prior to December 30, 2011, for the construction of buildings on the subject property to be connected to the District system(s) shall be assessed the District's General Facility Charge(s) adopted in Resolution No. 651.

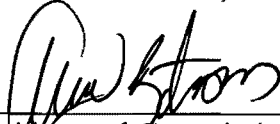
12. SEVERABILITY:

Should any part or provision of this Resolution be declared by a court of competent jurisdiction to be invalid, the same shall not affect the validity of the Resolution as a whole, or any part thereof, other than the part declared to be invalid.

13. REPEALER:

District Resolution No. 651 providing for water and sewer General Facility Charges, customer classification, or information services definitions is hereby repealed, subject to the proviso set forth in Section 11 above.

ADOPTED by the Board of Commissioners, at a regular meeting of the Silver Lake Water & Sewer District, Snohomish County, Washington this 10th day of November, 2011.



President and Commissioner

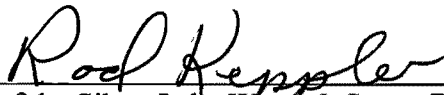


Secretary and Commissioner



Commissioner

I CERTIFY the above to be a true and correct copy of Resolution No. 674 adopted by the Board of Commissioners of the Silver Lake Water & Sewer District, this 10th day of November, 2011, as said Resolution appears in the records of the Silver Lake Water & Sewer District.



Secretary of the Silver Lake Water & Sewer District Board of Commissioners

Exhibit A		
General Facility Charge - Water		
Meter Size / Customer Class	Factor Ratio	General Facility Charge
5/8 * 3/4"	1.00	3,540
1"	2.50	8,850
1.5"	5.00	17,700
2"	8.00	28,320
3"	15.00	53,100
4"	25.00	88,500
6"	50.00	177,000
8"	80.00	283,200
10"	115.00	407,100
12"	168.75	597,375
Duplex/ADU per unit	0.85	3,010
MultiFamily, per unit	0.70	2,480
Fire Meter	0.05	185
In addition to General Facility Charges, the District may charge a water meter installation and permit fee.		

Exhibit B		
General Facility Charge - Sewer (Everett Basin)		
Meter Size / Customer Class	Factor Ratio	General Facility Charge
5/8 * 3/4"	1	4,595
1"	2.50	11,490
1.5"	5.00	22,975
2"	8.00	36,760
3"	15.00	68,925
4"	25.00	114,875
6"	50.00	229,755
8"	80.00	367,605
10"	115.00	528,430
12"	168.75	775,415
Duplex/ADU per unit	0.85	3,905
MultiFamily, per unit	0.70	3,215
In addition to General Facility Charges, the District may charge a sewer inspection fee.		

Exhibit B		
General Facility Charge - Sewer (AWWD Basin)		
Meter Size / Customer Class	Factor Ratio	General Facility Charge
5/8 * 3/4"	1	2,190
1"	2.50	5,475
1.5"	5.00	10,950
2"	8.00	17,520
3"	15.00	32,850
4"	25.00	54,750
6"	50.00	109,500
8"	80.00	175,200
10"	115.00	251,850
12"	168.75	369,565
Duplex/ADU per unit	0.85	1,860
MultiFamily, per unit	0.70	1,535
In addition to General Facility Charges, the District may charge a sewer inspection fee.		
In addition to the District's fees and charges, customers connecting in the AWWD Drainage Basin have to pay a connection charge assessed by Alderwood Water and Wastewater District and King County Metro prior to connecting to the District's system.		

SILVER LAKE WATER-SEWER DISTRICT
SNOHOMISH COUNTY, WASHINGTON
RESOLUTION NO.735

A RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE SILVER LAKE WATER & SEWER DISTRICT, SNOHOMISH COUNTY, WASHINGTON, ADOPTING THE UPDATED DISTRICT STANDARDS FOR WATER AND SEWER SYSTEMS AND INFRASTRUCTURE

BE IT RESOLVED by the Board of Commissioners of the Silver Lake Water & Sewer District, Snohomish County, Washington as follows:

WHEREAS, State law authorizes the District to update its Standard for Water and Sewer Systems and Infrastructure (Standards) on a periodic basis; and

WHEREAS, at the direction of the Commissioners, District staff and Gray & Osborne, engineers for the District, have reviewed, changed and updated the 2014 Standards; and

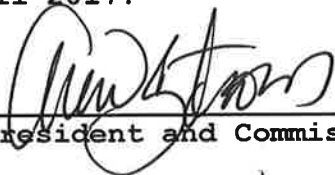
WHEREAS, District staff and engineers from Gray & Osborne recommend adoption of the Silver Lake Water & Sewer District Standards for Water and Sewer Systems and Infrastructure; and

WHEREAS, these updated Standards have been presented to the Commissioners and the Commissioners have reviewed these Standards.

NOW THEREFORE, BE IT RESOLVED THAT:

1. The Commissioners of the Silver Lake Water & Sewer District hereby adopt the newly updated Silver Lake Water & Sewer District Standards for Construction of: Water Systems, Sanitary Sewer Systems and Sewage Lift Stations dated April, 2017. (2017 District Standards) These 2017 District Standards are effective as of the date of adoption of this resolution.
2. The Commissioners hereby direct staff to use and follow these 2017 District Standards for any and all development of, improvements or additions to and extensions to the District Water and Sewer Systems as well as for operational practices as such apply to the District systems.

ADOPTED by the Board of Commissioners at a regular meeting of the Silver Lake Water & Sewer District, Snohomish County, Washington this 27th day of, April 2017.



President and Commissioner



Secretary and Commissioner



Commissioner

I CERTIFY the above to be a true and correct copy of Resolution No. 735 adopted by the Board of Commissioners of the Silver Lake Water & Sewer District this 27th day of, April 2017 as said Resolution appears in the records of the Silver Lake Water & Sewer District.



Secretary of the Silver Lake Water & Sewer District

**SILVER LAKE WATER & SEWER DISTRICT
SNOHOMISH COUNTY, WASHINGTON
RESOLUTION NO. 738**

**A RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE SILVER
LAKE WATER & SEWER DISTRICT, SNOHOMISH COUNTY,
WASHINGTON, ADOPTING WATER AND SEWER RATES AND
DEFINITIONS FOR CUSTOMER CLASSIFICATIONS AND REPEALING
RESOLUTIONS NO. 711 AND NO. 712.**

WHEREAS, RCW 57.08.081 authorizes the Silver Lake Water & Sewer District's Board of Commissioners ("District") to fix rates and charges for providing sewer service and facilities to those whom sewer service is available, and for providing such service; and to fix rates and charges for providing water service, such rates and charges to be fixed as deemed necessary by the District's Board of Commissioners so that uniform charges will be made for the same class of customer or service and facility; and

WHEREAS, RCW 57.08.081 authorizes the District's Board of Commissioners in classifying customers to consider in its discretion several factors including the difference in cost to various customers, the location of the various customers inside and outside the District's service boundaries, the difference in cost of maintenance, operation, repair and replacement of the various parts of the system, the different character of the service furnished to various customers, the quantity and quality of the service and facility furnished, the time of its use, the achievement of water conservation goals, and the discouragement of wasteful practices and any other matters which present a reasonable difference as a ground for a distinction in the establishment of water and sewer rates and charges; and

WHEREAS, pursuant to RCW 57.08.005, the District possesses full authority to regulate and control the use, content, distribution, and price of its water supply and water system and the use and operation of its sewer system and the rates to be charges relating thereto; and

WHEREAS, previous District resolutions adopted by the Board of Commissioners have provided for and authorized the District to increase water and sewer rates based on increases to the wholesale charges for water and sewer billed to the District by the City of Everett, the Clearview Water Supply Agency, and the Alderwood Water and Wastewater District ("Wholesale Providers"); and

WHEREAS, at the Board of Commissioners public meeting on March 23, 2017 the Commissioners discussed the expected increases to water and sewer rates charged to the District by the Wholesale Providers starting in 2017; and

WHEREAS, the Wholesale Providers, in accordance with their respective long-term agreements with the District, have provided written notice to the District of their respective 2017 Wholesale Sewer and Water Rate Increases; and

WHEREAS, such Wholesale Sewer and Water Rate Increases are determined by formulas and criteria set forth in each Wholesale Provider's Agreement with the District as applied to prior year's costs and expenses; and

WHEREAS, the District is contractually bound to the Wholesale Providers to pay such increases, and a direct pass-through in a fair and equitable manner to each of the District customer classifications of such future increases of such wholesale charges by the Wholesale Providers or other water or sewer service providers, needs to be made based on information made available to the District from its Wholesale Providers at this time, and such increases need to be fair and equitable to the various District customer classes when each such increase should occur; and

WHEREAS, subsequent to the adoption of this Resolution, should District Staff determine that District water and sewer rates need to be increased in whole or in part due to District costs and expenses, then District Staff shall provide a report to the Board of Commissioners detailing the analysis that indicates rate increase(s) to cover these direct costs and expenses of the District is needed; and

WHEREAS, when District Staff reports that all or part of a proposed rate increase for water and sewer utilities is due to direct costs and expenses of the District's operations, staff shall recommend to the Board of Commissioners that the Board schedule a Public Hearing on such proposed rate increase(s); and

WHEREAS, the Board of Commissioners shall consider scheduling a Public Hearing inviting comments from the general public on any proposed rate increases that are in whole or in part due to direct costs and expenses of the District; and

WHEREAS, the State of Washington Public Works Trust Fund program has enacted rules that limit access to Public Works Trust Fund loans to public water purveyors that have adopted a rate-based water conservation program; and

WHEREAS, the State of Washington Department of Ecology has enacted rules that encourage water purveyors to adopt a rate-based water conservation program; and

WHEREAS, on April 27, 2017, the Board of Commissioners passed Resolution No. 734, adopting the District's Water Use Efficiency Program, which included a component for a rate-based water conservation program; and

WHEREAS, the Board of Commissioners directed staff to implement a Summer Seasonal Water Rate based conservation model; and

WHEREAS, the Summer Seasonal Water Rate will be four consecutive months, with customers billed bi-monthly water in even months; and the summer seasonal months shall be May, June, July, and August. Customers billed bi-monthly in odd months; the summer seasonal months shall be June, July, August and September. Customers being billed monthly; the summer seasonal months shall be May, June, July, and August; and

WHEREAS, the water and sewer rates and service fees and charges set forth in this Resolution in Exhibits “A” and “B” attached hereto and made a part of this Resolution shall be considered rates and charges for the District’s sewer and water utilities; and it is found and declared that the classifications, rates, fees and charges set forth in Exhibits “A” and “B” attached to this Resolution are fair and equitable; and

WHEREAS, Resolution No. 738 provides for customer classification and information services definitions to provide guidance to District Staff to implement and administer utility service to various classes of customers in a variety of situations; and

WHEREAS, such definitions and guidance to staff help clarify for staff how to administer rates and charges to customers in various situations and setting forth such definitions and guidance in the same resolution that presents the water and sewer rate tables facilitate District Staff efforts to share such administrative matters with customers; and

WHEREAS, the Board of Commissioners has determined to now reiterate and republish in this resolution these definitions for customer classification and information services now, therefore,

BE IT RESOLVED by the Board of Commissioners of the Silver Lake Water & Sewer District, Snohomish County, Washington as follows:

1. **FINDINGS:** The preceding recitals to this Resolution are adopted in full by this reference.
2. **DEFINITIONS:** For the purpose of determining rate classifications for water and sewer rates and service fees and charges, and capital facility fees or connection charges, the following definitions shall apply, unless otherwise provided for:

Active Account Status means a customer has a water and/or sewer connection to the District’s system.

Commercial means all customers discharging domestic flows to the District sewer system without dwelling units. A school is a commercial class customer.

Condominium means real property, portions of which are designated for separate ownership and the remainder of which is designated for common ownership solely by the owners of those portions. Real property is not a condominium unless the undivided interests in the common elements are vested in the unit owners, and unless a declaration and a survey map and plans have been recorded pursuant Chapters 64.32 and 64.34 RCW.

Customers Outside the District's Corporate Boundaries means any customer, either an individual, corporate, or public agency, which is located outside the corporate boundaries of the Silver Lake Water & Sewer District.

Delinquent Notice – Door Hanger means when a notice is posted to, or otherwise provided to a property informing the resident that their utility service is scheduled for disconnection due to non-payment of District utility charges, non-compliance with back flow assembly regulations or other violations of District specifications and regulations.

Delinquent Service Disconnection (Lock) means when the District disconnects or shuts off utility service to a property due to non-payment of charges. District personnel shall have the authority to determine whether an account is locked off or not. Not locking a service shall not decrease the District's fees, charges and rates applicable to such service or account.

Disconnected Account Status means a customer that has requested their water and/or sewer connection be temporarily removed, for a period of time not to exceed 365 days, for the purposes of property improvement, reconstruction, or renovation.

Domestic User means any and all customers of the District discharging domestic wastewater only to the District sewerage system.

Domestic Wastewater means water carrying human waste, including kitchen, bath and laundry waste from residences, buildings, industrial establishments or other places, together with such groundwater infiltration or surface water as may be present.

Duplex or Two-Family Dwelling means a detached structure containing two dwelling units.

Dwelling Unit means any building or portion of a building which contains complete housekeeping facilities for one family, including provisions for sleeping, eating, food preparation, and sanitation, physically separated from any other dwelling unit which may be in the same building and with an exit, through a corridor or otherwise, to the outside. For the purposes of this definition, travel between dwelling units through a lockable door is physical separation. An Accessory Dwelling Unit (ADU) is a dwelling unit that is part of the same property as the main home. Fee simple interest in the real property upon which the ADU is located cannot be conveyed separately from the main home.

Estimated Closing Bill means the preparation by the District of a property's utility bill at a future date when requested by a customer, title company or escrow company, relating to the termination or closing of a water or sewer service account.

Equivalent Residential Unit or ERU means:

- a. For commercial customers, for calculation of monthly sewer service charges, an ERU equals the total cubic feet of water utilized by the user for a month divided by 750;
- b. For industrial customers, for calculation of monthly sewer service charges, an ERU equals the total cubic feet of sewage flow to the District's sewer system for a month divided by 750;
- c. For industrial customers, for calculation of sewer General Facility Charges, an ERU equals the design capacity in total gallons of sewage that such customer's facilities may deliver to the District sewer system in a month divided by 750.

Hotel means a building in which lodging is provided for guests for compensation and in which no provision is made for cooking in the rooms. Hotels are a commercial class customer.

Hydrant Rental means when a customer requests use of a metered hydrant for one or more days. Water consumption means the usage of water, as measured by the hydrant's meter, which will be charged in addition to the rental rate at the per unit water rate adopted by the District. The first day of service means the first day a customer takes possession of the hydrant from the District. Each subsequent day means each consecutive day.

Mobile Home Park means a residential use in which a tract of land is rented for the use of more than one (1) mobile or modular home occupied as a dwelling unit.

Multifamily Structure means a structure or portion of a structure containing three (3) or more dwelling units, including mobile home parks with more than one dwelling unit.

Surcharge means a percentage or fixed dollar amount in excess of an adopted water or sewer rate. A surcharge of 25% shall equate to the water or sewer rate times 1.25 equals the surcharge rate. For example, a service rate of \$10.00 shall equate to a surcharge rate of \$12.50 ($\$10.00 * 1.25 = \12.50).

Single-family Dwelling (SFD) Unit means a detached structure containing only one (1) dwelling unit and having a permanent foundation. Each single-family dwelling unit shall have its own water meter.

Terminated Account Status means a customer that has requested their water and/or sewer connection be permanently removed from the District's system or the District has determined that a water or sewer connection has been abandoned or should otherwise be terminated.

Summer Seasonal Water Rates mean that the water per unit (consumption) rate shall be higher for four (4) billing months of the summer. The Water Summer Seasonal months for bi-monthly customers billed every even month, currently Cycle 1 and Cycle 7 shall be May, June, July and August. The Water Summer Seasonal months for bi-monthly

customers billed every odd month, currently Cycle 2, shall be June, July and August, and September. The Water Summer Seasonal months for customers billed monthly, currently Cycle 3, shall be May, June, July and August.

3. **ADOPTION OF RATES:**

The water and sewer rates and the service fees and charges set forth on Exhibits “A” and “B”, attached hereto are hereby adopted effective May 1, 2017. For the purposes of bi-monthly water and sewer rates, the 2017 rates shall be effective for Cycle 1 and Cycle 7 on May 1, 2017, billed June 2017. For the purposes of bi-monthly water and sewer rates, the 2017 rates shall be effective for Cycle 2 on June 1, 2017, billed in July 2017. For the purposes of monthly water and sewer rates, the 2017 rates shall be effective for Cycles 3 on May 1, 2017, billed in May 2017.

4. **OTHER CHARGES, ASSESSMENTS, AND FEES:**

The water and sewer rates, service fees, and other charges set forth in Exhibits “A” and “B”, attached hereto, are not in lieu of any Utility Local Improvement District assessments, permit fees, connection charges, general facility fee or any other fees or charges of the District heretofore or hereafter adopted.

5. **ACCOUNT STATUS:**

Accounts shall either have a status of Active, Temporary Disconnection, or Terminated.

6. **ACTIVE ACCOUNTS:**

Any customer receiving utility service to property that is connected to the water and/or sewer system and not on any other status is an active account. Active accounts shall be billed the rates for water and sewer service in effect at the time such service is available to or provided to the property. An Active Account may be shut-off from service by action of the District or request of the property owner. Shutting off a water meter will not change an account’s active status.

7. **TEMPORARY DISCONNECTION OF A WATER OR SEWER SERVICE:**

Any property owner in the District may request in writing, on a form provided by the District, that their water and/or sewer service at their property be temporarily disconnected for the purposes of property improvements, service relocation, or other renovations. Upon receipt of written request to temporarily disconnect a water and/or sewer service, if the request is granted by the District, the District shall remove the meter and/or inspect the capping of the sewer line in a manner prescribed by the District and place the account on Disconnected Account status for a period not to exceed three hundred sixty-five (365) days. An account on disconnected status shall be billed the base monthly service rate as adopted by the Board of Commissioners. The account party, for any account placed on Disconnected Status, shall pay all delinquent charges prior to the water or sewer service being re-established. In addition to the monthly service rates, the District shall charge the customer the costs of removing, re-installing, and inspecting the water and or sewer service at the rates adopted by the Board of Commissioners.

The General Manager is authorized to terminate any account on Disconnected Account Status for more than three hundred sixty-five (365) days and file a lien against the property to which utility service was previously made available or provided in the manner set forth in RCW 57.08.081 or as amended for any outstanding charges.

8. **TERMINATION OF WATER OR SEWER SERVICE:**

Any property owner in the District may request in writing, on a form provided by the District, that District water and/or sewer service be terminated to their property. Upon receipt of a written request for termination of a water and/or sewer service, if the request is granted by the District, the District shall prepare a final bill to the customer, and, following the payment of the final bill in full, remove the water meter and cap the sewer line in a manner prescribed by the District once all fees and charges are paid.

The owner of property that has previously been disconnected from the District's water or sewer system may request that the property be reconnected to the water or sewer system. If utility service is available, the District may approve the request, under the District's most current new connection standards, and the property owner shall pay to the District the water and sewer connection charges in effect at the time of such reconnection and any other new account fees and charges at the rate set forth by the Board of Commissioners at the time their request for reconnection and utility service is received.

9. **WATER WHOLESALE RATES:**

Master meters shall be required for all municipal water purveyors purchasing water from the District. The water wholesale rates set forth in Exhibit "A" shall include the base meter charge and an overage charge that is twenty five percent (25%) more than the overage charge provided in Exhibit "A". The Board of Commissioners may approve by interlocal agreement, with a municipal water or municipal purveyor, a different surcharge percentage or calculation method.

10. **WATER OR SEWER SERVICE OUTSIDE THE DISTRICT BOUNDARIES:**

The water and sewer rates for water and/or sewer services for properties outside the District's corporate boundaries to which the District serves water or sewer or both shall include a charge that is twenty five (25%) more than the rates set forth in Exhibit "A" and Exhibit "B" of this Resolution. The Board of Commissioners may approve by inter-local agreement with a water district or municipal water or sewer purveyor a different surcharge percentage or calculation method. Provided any property outside the District's corporate boundaries served water and/or sewer by the District that meets any of the following conditions shall not be charged a surcharge:

- a. Property located north of 100 St. SE.
- b. Property isolated from service from any other purveyor of such services by topography, critical areas, steep slopes and the like.
- c. Areas consisting of not more than 5 lots served by the District.

- d. Developments within the corporate boundaries of another provider yet served by the District on an interim basis while awaiting construction of system improvements to be served by the other provider.
- e. Developments within the corporate boundaries of another provider in an area in which system development for both providers is in place, yet certain customers outside the District's corporate boundaries can only be served by the District's system(s).

11. **GENERAL FACILITY CHARGES – SEWER SERVICE OUTSIDE THE DISTRICT BOUNDARIES:**

Properties outside the District's corporate boundaries, using or benefiting from the use of the District's water and sewer general facilities, shall pay a General Facility Charge as adopted by the District as a condition of water and sewer service.

12. **SEVERABILITY:**

Should any part or provision of this Resolution be declared by a court of competent jurisdiction to be invalid, the same shall not affect the validity of the Resolution as a whole, or any part thereof, other than the part declared to be invalid.

13. **EFFECTIVE DATE/REPEALER:**

The provisions of this Resolution shall be effective the date set forth below, provided the provisions set forth in Section 3, herein, regarding the adoption of water and sewer rates and service fees and charges shall be effective the dates set forth therein. Any and all prior sections of District Resolutions providing for water and sewer rates or customer classification or information services definitions in conflict with this Resolution are hereby repealed and superseded.

ADOPTED by the Board of Commissioners, at a regular meeting of the Silver Lake Water & Sewer District, Snohomish County, Washington this 27th day of April, 2017.

President and Commissioner

Raul Keppeler

Secretary and Commissioner

Bill Anderson

Commissioner

I CERTIFY the above to be a true and correct copy of Resolution No. 738 adopted by the Board of Commissioners of the Silver Lake Water & Sewer District, this 27th day of April, 2017, as said Resolution appears in the records of the Silver Lake Water & Sewer District.

Raul Keppeler

Secretary of the Silver Lake Water & Sewer District Board of Commissioners

2017 Rate Table
Exhibit A - Water Rates

Customer Class	Base Rate		Per Unit Water Use (100 cu ft = 1 CCF)	
	Standard Of Measure	Monthly Base Rate	Winter	Summer
	Residential			
Low Income Senior Citizen	Per Dwelling Unit	\$ 3.75	\$ 1.90	\$ 2.35
Single Family Residential	Per Dwelling Unit	\$ 7.60	\$ 1.90	\$ 2.35
Duplex	Per Dwelling Unit	\$ 7.60	\$ 1.90	\$ 2.35
Multi-Family	Per Dwelling Unit	\$ 7.60	\$ 1.90	\$ 2.35
Outside District Boundaries at 125%	Per Dwelling Unit	\$ 9.50	\$ 2.38	\$ 2.94
Schools				
Schools	Per Meter	\$ 7.60	\$ 1.90	\$ 2.35
Commercial & Irrigation				
Commercial & Irrigation	Per 5/8" to 1" Meter	\$ 7.60	\$ 1.90	\$ 2.35
Commercial & Irrigation	Per 1.5" Meter	\$ 22.30	\$ 1.90	\$ 2.35
Commercial & Irrigation	Per 2" Meter	\$ 33.70	\$ 1.90	\$ 2.35
Commercial & Irrigation	Per 3" Meter	\$ 69.70	\$ 1.90	\$ 2.35
Commercial & Irrigation	Per 4" Meter	\$ 69.70	\$ 1.90	\$ 2.35
Commercial & Irrigation	Per 6" Meter	\$ 69.70	\$ 1.90	\$ 2.35
Commercial & Irrigation	Per 8" Meter	\$ 307.10	\$ 1.90	\$ 2.35
Wholesale Master Meter at 125%	Per 8" Meter	\$ 170.60	\$ 2.38	\$ 2.94
Fire Sprinklers				
5/8" Residential	Per 5/8" to 1" Meter	\$ 5.20	\$ 1.90	\$ 2.35
Commercial	Per 1.5" Meter	\$ 15.35	\$ 1.90	\$ 2.35
Commercial	Per 2" Meter	\$ 23.15	\$ 1.90	\$ 2.35
Commercial	Per 3-6" Meter	\$ 47.60	\$ 1.90	\$ 2.35
Commercial	Per 8" Meter	\$ 210.60	\$ 1.90	\$ 2.35
Future rate increases in the wholesale water charge to the District by either the City of Everett or the Clearview Water Supply Agency shall be passed on to each class of customer as an increase to these rates.				
Accounts outside the District shall be billed 125% of the above service rates.				
Bill Period Ending In	Billing Cycle #	Summer Seasonal Months		
Even Months	Cycles 1, 3, and 7	May - June - July - August		
Odd Months	Cycle 2	June - July - August - September		

2017 Rate Table

Exhibit B - Sewer Rates

Customer Class	Base Rate		Per Unit Base Rate Includes (7.5 Units)
	Standard Of Measure	Monthly Base Rate	
Everett Basin			
Low Income Senior Citizen	Per Dwelling Unit	\$ 40.55	N/A
Single Family Residential	Per Dwelling Unit	\$ 54.00	N/A
Duplex	Per Dwelling Unit	\$ 52.95	N/A
Multi-Family	Per Dwelling Unit	\$ 52.95	N/A
Schools	Per Water Meter	\$ 54.00	\$ 7.20
Commercial	Per Water Meter	\$ 54.00	\$ 7.20
Industrial	Per Water Meter	\$ 57.25	\$ 7.65
Alderwood Basin			
Low Income Senior Citizen	Per Dwelling Unit	\$ 42.25	N/A
Single Family Residential	Per Dwelling Unit	\$ 56.35	N/A
Single Family Res. - Outside District	Per Dwelling Unit	\$ 70.45	N/A
Duplex	Per Dwelling Unit	\$ 52.10	N/A
Multi-Family	Per Dwelling Unit	\$ 52.10	N/A
Schools	Per Water Meter	\$ 56.35	\$ 7.50
Commercial	Per Water Meter	\$ 56.35	\$ 7.50
Industrial	Per Water Meter	\$ 59.15	\$ 7.90
Future rate increases in the wholesale sewer treatment charge to the District by either the City of Everett or the Alderwood Water and Wastewater District shall be passed on to each class of customer as an increase to these rates.			
Accounts outside the District shall be billed 125% of the above service rates.			
By Interlocal Agreement Cross Valley Sewer Customers shall be billed 117% of the above service rates.			

APPENDIX B

INTERLOCAL AGREEMENTS

Return Name & Address

SILVER LAKE WATER AND SEWER DISTRICT
P.O. BOX 13888
Mill Creek, WA 98082-1888



201504070753 65 PGS
04/07/2015 2:02pm \$136.00
SNOHOMISH COUNTY, WASHINGTON

Document Title(s)

SEWAGE AND Annexation Agreement
Between City of Everett and Silver
LAKE WATER AND SEWER DISTRICT

Reference Number(s) of Related Document(s)

Additional Reference #'s on Page _____

Grantor(s)

City of EVERETT

Additional Grantors on Page _____

Grantee(s)

SILVER LAKE WATER AND SEWER
DISTRICT

Additional Grantees on Page _____

Legal Description (abbreviated form: ie Lot/Block/Plat or Section/Township/Range)

_____ Complete Legal on Page _____

Assessor's Property Tax Parcel/Account Number

_____ Additional Parcel #'s on Page _____

The Auditor/Recorder will rely on the information provided on this form. The responsibility for the accuracy of the indexing information is that of the document preparer.

I am requesting an emergency nonstandard recording for an additional fee as provided in RCW 36.18.010. I understand that the recording process requirements may cover up or otherwise obscure some part of the text of the original document.

Richard D. Moore

Authorized Signature of Requesting Party

SEWAGE AND ANNEXATION AGREEMENT
BETWEEN
CITY OF EVERETT
AND
SILVER LAKE WATER AND SEWER DISTRICT

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Exhibits

- Exhibit A: Service Transfer Areas Map (and other boundaries)
- Exhibit B: SLWSD Connection Points
- Exhibit C: Everett Sewer System - Capacity Facilities
- Exhibit D: Purchase, Sale or Lease of Capacity
- Exhibit E: EWPCF - Headworks
- Exhibit F: Stormwater Policy and Procedure for Separating Costs
- Exhibit G: Stormwater Reduction Percentage
- Exhibit H: Payments Based on Cycle Everett Revenue Threshold Factor

**SEWAGE AND ANNEXATION AGREEMENT
BETWEEN
CITY OF EVERETT
AND
SILVER LAKE WATER AND SEWER DISTRICT**

This Sewage and Annexation Agreement (“*Agreement*”) is dated for reference purposes the 31st day of March, 2015 (“*Effective Date*”), and is by and between the City of Everett, a Washington municipal corporation (“*Everett*”) and Silver Lake Water and Sewer District, a Washington municipal corporation (“*District*”) (individually a “*Party*” and collectively the “*Parties*”).

RECITALS

- A. The Parties are each authorized to operate sewer and water systems and to enter into agreements regarding water and regarding the conveyance, treatment and disposal of sewage.
- B. Everett and District are parties to the Agreement for Sewage Disposal dated June 16, 1982, as amended by amendments dated January 23, 1985; March 19, 1986; December 12, 1991; June 28, 2000; September 20, 2010; and May 15, 2012 (as amended, the “*1982 Sewage Agreement*”).
- C. Everett and the District are parties to the Agreement between the City of Everett and the Silver Lake Water District Concerning Annexations of Portions of the District to the City dated December 12, 1991 (the “*1991 Annexation Agreement*”).
- D. The Parties desire to enter into this Agreement in order to provide for sewage service for the next fifty (50) years. Except as otherwise provided below, this Agreement supersedes and replaces the 1982 Sewage Agreement in its entirety.
- E. During this 50 year period, the Parties also desire to enter into this Agreement to plan cooperatively for future annexations of areas within the District by Everett and the possible transfer to Everett of certain District assets and transfer of customer water and sewer service. This promotes mutual long range predictability in customer base, staffing levels, capital facility needs, water demand, sewage conveyance and treatment, and fiscal planning and viability. Except as otherwise provided below, this Agreement replaces and supersedes the 1991 Annexation Agreement in its entirety.
- F. Everett and the District have authority to enter into this Agreement under the provisions of RCW 35.67.300, Chapter 57.08 RCW, Chapter 39.34 RCW, Chapter 35.13A RCW and other Washington statutes.

AGREEMENT

The Parties agree as follows:

1. DEFINITIONS

- A. “*Actual District CE’s*” are defined in Section 5.C (4) of this Agreement.
- B. “*Adjustment Notice*” is defined in Section 8.B (3) (a).
- C. “*Adjustment Provisions*” are defined in Section 8.B (2) of this Agreement.
- D. “*Agreed Capacity*” is the agreed capacity that Everett and District have designated for each Everett Capacity Facility for the purposes of determining District’s percentage share of capital costs. The Agreed Capacities are shown in the table contained in Section 5.B (2) (b) of this Agreement. For the EWPCF, the Agreed Capacity is attained when there is capacity to treat both the liquid and solids at the stated flow rate. Therefore, the 40.4 MGD Agreed Capacity shown in the table will be met when there have been facilities constructed to treat both the liquid and solids waste streams associated with the maximum average wet month flow of 40.4 MGD.
- E. “*Agreement*” means this document and is defined in the first paragraph of this Agreement.
- F. “*Calculated Single Family Sewer Rate*” is defined in Section 5.C (3) (a) of this Agreement.
- G. “*Capacity Buyer*” is defined in Section 4.F. (2) of this Agreement.
- H. “*Claims*” means any and all losses, claims, demands, expenses (including, but not limited to, attorney’s fees and litigation expenses), penalties, permit violations, fines, claims of violation of regulation(s), suits, governmental or regulatory proceedings, judgments and damage, irrespective of the type of relief sought or demanded, such as money or injunctive relief, and irrespective of whether the damage alleged is bodily injury, damage to property, economic loss, general damages, special damages, consequential damages or other kind of damages.
- I. “*Connection Point(s)*” are defined in Section 3.A of this Agreement and are shown in Exhibit B attached to this Agreement.
- J. “*Construction and Design Costs*” mean all costs relating to financing, permitting, design and construction of a public works project, including without limitation all costs of engineers, surveyors, design professionals and other consultants; all costs of construction contractors and subcontractors for labor, materials, equipment, and overhead, and contractor claims or other project

claims; all costs related to right-of-way and land costs; all costs for testing and inspection; legal fees; and interim financing costs.

- K. “**District**” means the Silver Lake Water and Sewer District and is defined in the first paragraph of this Agreement.
- L. “**District Capacity Rights**” are defined in Section 4.A of this Agreement.
- M. “**District CE’s**” are defined in the table in Section 5.C (2) of this Agreement.
- N. “**District Everett Sewer Basin**” represents the area from which the District delivers sewage to Everett. As of the Effective Date of this Agreement, the District Everett Sewer Basin includes the Service Transfer Areas 1-6 and the Mill Creek MUGA-Everett Sewer Basin area as shown in the attached Exhibit A.
- O. “**District Indebtedness**” means the District’s water-sewer related indebtedness and includes general obligation bonds, revenue bonds, loans from State and Federal funds or programs, and temporary, emergency and interim loans. District Indebtedness includes utility local improvement district (ULID) bonds, local improvement district (LID) bonds, or general obligation bonds, but only to the extent that the revenue necessary to pay such ULID bonds, LID bonds or general obligation bonds transfers to Everett upon transfer of a Service Transfer Area. For example, payments in connection with an LID bond secured by real property are usually paid by property owners in the LID area by property taxes, and such tax payments would not be available to Everett. Accordingly, that LID bond would not be part of District Indebtedness for the purposes of this Agreement.
- P. “**District Monthly M&O Charge per District CE**” is defined in Section 5.C (3) (a) of this Agreement.
- Q. “**District Percentage Share of Total Everett Costs**” is defined in Section 5.C (2) of this Agreement.
- R. “**Effective Date**” is defined in the first paragraph of this Agreement.
- S. “**EMC**” is Everett Municipal Code.
- T. “**Everett**” is the City of Everett and is defined in the first paragraph of this Agreement.
- U. “**Everett Capacity Facilities**” are defined in Section 4.A of this Agreement.

- V. “**Everett Sewer Indebtedness**” is all Everett indebtedness and other financial obligations related to sewage collection and treatment for the Everett sewer system, including without limitation parity and non-parity bonds, revenue bonds, general obligation bonds, utility local improvement district (ULID) bonds, Public Works Trust Fund loans, other State or Federal loans, City inter-fund loans, capitalized leases, and any other financial obligation that is a financial encumbrance on the Everett sewer ratepayer.
- W. “**EWPCF**” means the Everett Water Pollution Control Facility on Smith Island, excluding the headworks and influent pumps and excluding the structures related to these pumps.
- X. “**Final Court Decision**” is defined in Section 7.F of this Agreement.
- Y. “**Force Majeure Event**” is defined in Section 9.C of this Agreement.
- Z. “**gpm**” means gallons per minute.
- AA. “**Headworks at EWPCF**” means the facilities through which the District’s sewage flows at the EWPCF prior to entering Diversion Structure # 1. Diversion Structure # 1 is prior to the primary clarifiers. Headworks at EWPCF is shown on Exhibit E attached to this Agreement.
- BB. “**Maximum Month Flow**” means the 30 consecutive days of highest inflow into the EWPCF within a calendar year.
- CC. “**MGD**” means million gallons per day.
- DD. “**Monthly M&O Charge**” is defined in Section 5.C (4) of this Agreement.
- EE. “**New Everett Sewer Indebtedness**” or “**NESI**” is all Everett Sewer Indebtedness incurred after the Effective Date. For Everett Sewer Indebtedness that was incurred prior the Effective Date, but refunded by Everett after the Effective Date, the refunded debt principal amount will continue to not be included in New Everett Sewer Indebtedness, but any additional or increased principal obligations in the refunded bond issue will be included in New Everett Sewer Indebtedness. For the purposes of this definition, a bond is “incurred” on the closing date of the bond sale, a loan is “incurred” when the loan agreement is fully executed, and a capitalized lease is “incurred” when the lease is fully executed.
- FF. “**Newly Annexed Area**” is defined in Section 7.B (2) of this Agreement.
- GG. “**Outstanding District Indebtedness**” is defined in the table in Section 7.C (4) (a) of this Agreement.
- HH. “**1982 Sewage Agreement**” is defined in Recital B of this Agreement.

- II. "**1991 Annexation Agreement**" is defined in Recital C of this Agreement.
- JJ. "**Request Resolution Period**" is defined in Section 7.F of this Agreement.
- KK. "**Service Area**" means the District's sewer service area as of the Effective Date of this Agreement, as such sewer service area may be modified or amended by a District-approved Sewer Comprehensive Plan during the term of this Agreement.
- LL. "**Service Transfer Area**" is defined in Section 7.B (1) of this Agreement, and each Service Transfer Area is shown on Exhibit A to this Agreement. Five of the Service Transfer Areas are located within the District's corporate boundaries, while the Service Transfer Area Six, located north of Seattle Hill Road and along Lowell Larimer Road, is almost entirely located within the Cross Valley Water District, a Title 57 RCW water-sewer district. The District provides only sewer service within Service Transfer Area Six. The District owns and operates sewer facilities and may further develop sewer infrastructure to provide sewer service to properties within Service Transfer Area Six in accordance with the District-Cross Valley Water District Interlocal Agreements and amendments dated October 16, 2001; December 14, 2006; February 20, 2007; and March 18, 2010.
- MM. "**Sewage**" means sanitary sewage, consisting of domestic, commercial, and industrial wastewater (subject to pretreatment requirements), and infiltration and inflow.
- NN. "**Shared Treatment and General Costs**" are defined in the table in Section 5.C (2) of this Agreement.
- OO. "**Sixty-Percent Date**" is defined in Section 7.B (2) of this Agreement.
- PP. "**Stormwater**" means any flow occurring during or following any form of natural precipitation, and resulting from such precipitation, including snowmelt.
- QQ. "**Stormwater Reduction Percentage**" is defined in the table in Section 5.C (2) of this Agreement and as set forth in Exhibit G.
- RR. "**transfer**" as used in Section 7 of this Agreement means the process of transferring Service Transfer Areas from the District to Everett, as set forth in Section 7 of this Agreement and pursuant to RCW 35.13A.070 and other Washington statutes.
- SS. "**Twelve-Month Percentage Floor**" is defined in Section 5.C (3) (b) of this Agreement.
- TT. "**Total Everett Costs**" are defined in Section 5.C (1) of this Agreement.

UU. “**Urban Growth Area**” or “**UGA**” means the Urban Growth Area determined by Snohomish County in accordance with RCW 36.70A.110 in cooperation with Everett, as such UGA may be modified or amended during the term of this Agreement.

VV. “**Water Connections**” are defined in Section 7.B. (2) of this Agreement.

WW. “**Water Main Owner**” and “**Water Main Non-Owner**” are defined in Section 7.E (2) (a) of this Agreement.

2. **TERM OF AGREEMENT**

This Agreement will remain in effect for a term of fifty (50) years, beginning on the Effective Date. This agreement may be amended at any time by mutual written agreement of the Parties.

However, as described in Section 8 below, the Parties shall meet during the first quarter of 2040 to discuss possible revisions to this Agreement. Further, no later than five (5) years prior to the end of this Agreement, the Parties shall meet to discuss extension of this Agreement. The Parties may renew and extend this Agreement by mutual written agreement upon such terms and conditions as the Parties may agree. If such an agreement is not reached, this Agreement shall terminate at the end of its term.

3. **PERMISSION TO DISCHARGE SEWAGE / CONNECTION POINTS**

A. Connection Points.

Subject to the provisions of this Agreement, the District shall have the right to discharge sewage from the District into the Everett sewer system by existing connections (“**Connection Points**”) to the Everett South End Interceptor Extension as shown on Exhibit B attached to this Agreement. Subject to Everett approval, the District may install additional or relocated Connection Points at the District’s sole expense. Everett has no obligation under this Agreement to accept sewage from outside of the District’s Service Area or to accept sewage at locations other than Connection Points.

B. Operation and Maintenance of Connection Points.

Everett shall own, maintain, and operate the Connection Points.

C. Connection Point Flow Monitoring.

At the written request of Everett, the District shall at the District’s sole expense perform a flow monitoring study at the Connection Points that will best measure District sewage discharge quantity and quality entering the Everett sewer system. Everett may make such requests no more than once every five (5) years. The District shall begin the flow monitoring study within sixty (60) days after receipt of the request from Everett. The flow monitoring study

must (1) include the entire month of the Maximum Month Flow as identified by Everett within the five month period of November through March, (2) be performed with equipment and devices suitable and appropriate for the measurement of flows at the Connection Points, and (3) be performed by a qualified party. The District shall promptly provide to Everett the written results of the flow monitoring study. This Section C does not restrict Everett from undertaking other flow monitoring studies in addition to the District’s flow monitoring studies. If the location has access to telemetry, both Parties shall have the right to establish a connection to the signal.

4. DISTRICT CAPACITY RIGHTS

A. Grant of District Capacity Rights

Subject to the terms of this Agreement, Everett grants the following capacity rights (“*District Capacity Rights*”) to District in the following Everett sewer facilities (“*Everett Capacity Facilities*”) as shown on Exhibit B and Exhibit C attached to this Agreement:

Segment	Everett Capacity Facility	District Capacity Right
A	South End Interceptor Extension from SMH 2085Y06 to SMH 2085Z08	831 gpm
B	South End Interceptor Extension from SMH 2085Z08 to SMH 2085Z07	5,400 gpm
C	South End Interceptor Extension from SMH 2085Z07 to South End Interceptor South Segment SMH 0885Z02 (Shadow Wood Screen)	11,500 gpm
D	South End Interceptor South Segment from SMH 0885Z02 (Shadow Wood Screen) to South End Interceptor North Segment (upstream end of SML 0585C0A)	11,500 gpm
E	South End Interceptor North Segment (upstream end of SML 0585C0A) to EWPCF’s Headworks	11,500 gpm
F	Headworks at EWPCF	11,500 gpm
G	Sewage Treatment Plant (Everett Water Pollution Control Facility-EWPCF)	6.6 MGD
The District Capacity Rights listed in “gpm” are determined as the maximum 60-minute volume in gallons averaged over 60 minutes. The District Capacity Rights listed in “MGD” are determined as maximum average wet month (30 consecutive days) flow.		
The “segment” designation is only for clarity and is shown in attached <u>Exhibit C</u> .		

B. Everett Capacity Facilities.

Everett shall size, design, construct, maintain, repair, and operate the Everett Capacity Facilities to make the District Capacity Rights available when needed to the District on a continuous basis and allow the District to use when needed the full volume of the District Capacity Rights. Nothing in this Agreement limits or otherwise affects Everett's authority to use the capacity in the Everett Capacity Facilities that is in excess of the District Capacity Rights. District Capacity Rights only confer on District the rights granted under this Agreement and do not constitute ownership of or any other interest or right in any Everett Capacity Facility or any other facility in the Everett sewer system.

C. District Sewage Flows in Excess of District Capacity Rights.

(1) Remedial Measures. The District shall begin remedial measures no later than thirty (30) days after the occurrence of either of the following events:

(a) District sewage flows in any Everett Capacity Facility are measured in excess of District Capacity Rights.

(b) District sewage flows in any Everett Capacity Facility are reasonably projected to exceed District Capacity Rights within three (3) years.

Everett and the District shall meet to discuss and coordinate appropriate District remedial measures. Unless otherwise agreed in writing by Everett and the District, the District's remedial measures shall at minimum include the District taking all reasonable steps to reduce delivery of sewage, with the objective of curing excess sewage flows and preventing, for the remainder of the term of this Agreement, District sewage flows being in excess of District Capacity Rights.

(2) Everett Options. If the District's remedial measures under Section 4.C(1) do not cure or prevent excess District sewage flows in the reasonable judgment of Everett, then Everett may, so long as Everett is not in default under this Agreement, exercise one or more of the following options to remedy and prevent future excess sewage flows in the most cost-effective manner:

(a) Moratorium on New Tributary Connections. Everett may require that the District not allow any new connections that would contribute to District sewage flows being in excess of District Capacity Rights. In order to exercise this option, Everett shall deliver notice to the District. No later than thirty (30) days after delivery of the notice, the District shall not allow any such new connections, except for connections the District is already contractually required to provide through, for example, prior payment of District connection charges or utility local improvement assessments. The District shall not allow any new connections if so barred or prohibited by order of the Washington State Department of Ecology.

(b) Forced Purchase of Additional Capacity Rights. Provided Everett has existing unused capacity to sell, Everett may require the District to purchase additional District Capacity Rights by payment of a capacity charge to Everett for such additional rights.

Everett will calculate the amount of the charge using the methodology set forth on Exhibit D attached to this Agreement. In order to exercise this option, Everett shall deliver notice to the District. The District shall pay the charge by the later of (i) the date when the District first uses the additional District Capacity Rights or (ii) thirty (30) days after delivery of the notice to the District. The District acknowledges and agrees that the purchase of additional District Capacity Rights will cause an increase in the District's share of capital costs, as calculated in accordance with Section 5.B.(2) of this Agreement.

(c) Facility Improvement. Everett may re-size, re-design, re-construct or otherwise improve or expand or replace the Everett Capacity Facilities so that the Everett Capacity Facilities can serve the additional capacity required by the District. The District shall pay to Everett all Construction and Design Costs incurred by Everett for the improvement of the Everett Capacity Facilities, except for the portion of the Construction and Design Costs attributable to the capacity requirements of entities other than District. The District shall pay its portion of the Construction and Design Costs in accordance with the procedures for the payment of capital costs under Section 5.B (2) (d) of this Agreement.

(d) Refusal to Accept Sewage. Everett may refuse to accept District sewage flows in excess of District Capacity Rights.

(3) Excess Flow Indemnity. In addition to any other indemnity or defense obligation that the District may have under this Agreement, the District shall indemnify and defend Everett and its officers, employees and agents, from and against any and all Claims arising from or relating to discharge of any sewage by District into the Everett sewer system in excess of District Capacity Rights. However, Everett shall take reasonable actions to mitigate the effect of discharge of sewage by District into the Everett sewer system in excess of District Capacity Rights.

D. Everett Capacity Facilities Insufficient for District Capacity Rights

(1) Remedial Measures. Everett shall begin remedial measures no later than thirty (30) days after the District gives Everett notice that there exists a reasonable projection that, within the three (3) years after the delivery date of the notice, the District will have sewage to deliver to the Everett sewer system and the District has District Capacity Rights for such sewage, but the District will be unable to deliver the sewage because an Everett Capacity Facility will have insufficient capacity. Unless otherwise agreed in writing by Everett and the District, Everett's remedial measures to cure such insufficient capacity must include one or both of the following:

(i) Discharge Reduction. At Everett's sole expense, Everett shall take reasonable steps to reduce discharge into the Everett sewer system from persons other than the District to create the capacity to partially or fully satisfy the District's Capacity Rights.

(ii) Improvement of Facilities. At Everett's sole expense, Everett shall re-size, re-design, re-construct or otherwise improve or expand the Everett Capacity Facility.

(2) Temporary Everett Use. Everett shall preserve District Capacity Rights in the Everett Capacity Facilities. Everett, upon obtaining the District's prior written approval, may temporarily use the District's unused capacity in the Everett Capacity Facilities as necessary for Everett sewer system operation, maintenance, and management.

(3) Full Capacity Indemnity. In addition to any other indemnity or defense obligation that Everett may have under this Agreement, Everett shall indemnify and defend District and its officers, employees and agents from and against any and all Claims arising from or relating to the circumstance where the District has sewage to deliver to the Everett sewer system and has District Capacity Rights for such sewage, but the District is unable to deliver the sewage because an Everett Capacity Facility has insufficient capacity. However, the District shall take reasonable actions to mitigate the effect of such a circumstance.

E. District Non-Use of District Capacity Rights / Use of Other Utility.

The District has no obligation under this Agreement to deliver sewage to Everett or to use the District Capacity Rights (and the District may choose, after notification to Everett, to serve portions of the District's Everett Sewer Basin by delivering sewage to a utility other than Everett), but failure to use District Capacity Rights will not cause any refund of any payment made under Section 5.A or Section 4.C (2) (b) and will not cause refund or alteration of any payments due under Section 5.B. Notwithstanding the foregoing, the District shall not enter into any contract that would obligate sending sewage from within Everett's UGA, as it exists as of the Effective Date of this Agreement as identified on Exhibit A, to an entity other than Everett.

F. District Sale of District Capacity Rights.

The District may sell all or a portion of the District Capacity Rights to a buyer (a "**Capacity Buyer**"), subject to the following conditions:

- (1) The Capacity Buyer's sewer service area is within Snohomish County.
- (2) The Capacity Buyer is an entity with a sewer agreement with Everett, is a city, or is a special purpose district organized pursuant to Titles 35, 35A, 54 or Title 57 RCW.
- (3) The District is not in default under this Agreement and is current on all payments to Everett required under this Agreement.
- (4) The Capacity Buyer is not in default under any payment obligation required by any agreement with Everett.
- (5) The District, the Capacity Buyer, and Everett execute an assignment and assumption agreement in a form reasonably acceptable to Everett, under which the Capacity Buyer assumes all of District's rights, obligations and limitations under this Agreement with respect to the portion of District Capacity Rights being sold and with respect to the sewage that the Capacity Buyer will discharge into the Everett sewer system pursuant to the District

Capacity Rights. The assignment and assumption agreement will include a provision acknowledging and agreeing that the Capacity Buyer may only use the District Capacity Rights by discharging sewage into the Everett sewer system at Connection Point(s) approved by Everett.

(6) Everett reasonably determines that the Capacity Buyer's financial condition is sufficient to support the assumption of District's obligations under this Agreement.

(7) The sale of the District Capacity Rights does not cause Everett to pay for any capital cost or consultant expense.

(8) If requested by Everett, the Capacity Buyer is the lead agency for the purpose of SEPA review of the sale of District capacity if the Parties determine that SEPA applies to such sale.

5. CHARGES, PAYMENTS, AND FEES

A. Capacity Right Charge.

After the Effective Date of this Agreement, except as provided in Section 4. C. (2) (b) and (c), if the District desires to acquire additional District Capacity Rights from Everett and such capacity is available or may be made available, at the sole discretion of Everett, the District shall pay a capacity right charge to Everett for such additional District Capacity Rights, as calculated by Everett in accordance with the methodology set forth in Exhibit D attached to this Agreement. Everett agrees that the capacity right charge set forth in Exhibit D includes all compensation to Everett for Everett's capital costs related to the additional District Capacity Rights up to the date of purchase of the additional District Capacity Rights. After such purchase date, the District shall pay the District's increased share of capital costs, as calculated in accordance with Section 5.B of this Agreement

B. Payments for Capital Costs.

(1) District Share of Capital Costs Incurred Before Effective Date. For any capital cost related to an Everett Capacity Facility incurred by Everett before the Effective Date of this Agreement, the District shall pay Everett in accordance with the terms of the 1982 Sewage Agreement.

(2) District Share of Capital Costs Incurred After Effective Date.

(a) Calculation of District Share. For any capital cost related to an Everett Capacity Facility incurred by Everett on or after the Effective Date of this Agreement, the District shall pay to Everett an amount equal to the capital cost multiplied by District's percentage share, which percentage share is calculated by dividing the then-current District Capacity Right for the Everett Capacity Facility by the Agreed Capacity of the Everett Capacity Facility. Capital costs include Design and Construction Costs for capital improvement, protection, or replacement of any portion of any Everett Capacity Facility (including without limitation any upgrade mandated by regulatory requirements) and include all costs related to an

Everett Capacity Facility that by accounting rules are capital costs. However, costs for improvements to the Smith Island dikes (such as raising or widening) are capital costs, but costs for maintenance of the dikes (such as ditch cleaning) are not capital costs. Further, for the sake of clarity, the parties agree that the District's percentage share of the capital costs for Everett's upcoming solids stream facilities project (e.g. digester or equivalent) at the EWPCF will be the then-current District Capacity Right for the EWPCF divided by the EWPCF Agreed Capacity, which as of the Effective Date of this Agreement is 16.34%. If this project constructs facilities that treat both the liquid and solids waste streams associated with maximum average wet month flow in excess of 40.4 MGD, then the capital costs arising from such excess will be subject to Section 5.B.(2)(c) below.

(b) Table. The table below shows the Everett Capacity Facilities, their Agreed Capacities (which are fixed for the term of this Agreement, but subject to Section 8 below), and the District percentage share based upon District Capacity Rights as of the Effective Date of this Agreement. The Everett Capacity Facilities are also shown on Exhibit C attached to this Agreement.

Segment	Everett Capacity Facility	Agreed Capacity of Everett Capacity Facility	District Percentage Share
A	South End Interceptor Extension from SMH 2085Y06 to SMH 2085Z08	5,500 gpm	831/5,500 = 15.11%
B	South End Interceptor Extension from SMH 2085Z08 to SMH 2085Z07	13,400 gpm	5,400/13,400 = 40.30%
C	South End Interceptor Extension from SMH 2085Z07 to South End Interceptor South Segment SMH 0885Z02 (Shadow Wood Screen)	16,000 gpm	11,500/16,000 = 71.88%
D	South End Interceptor South Segment from SMH 0885Z02 (Shadow Wood Screen) to South End Interceptor North Segment (upstream end of SML 0585C0A)	32,000 gpm	11,500/32,000 = 35.94%
E	South End Interceptor North Segment (upstream end of SML 0585C0A) to EWPCF's Headworks	45,000 gpm	11,500/45,000 = 25.56%
F	Headworks at EWPCF	80,000 gpm	11,500/80,000 = 14.38%
G	EWPCF	40.4 MGD	6.6/40.4 = 16.34%
The District Capacity Rights listed in "gpm" are determined as the maximum 60-minute volume in gallons averaged over 60 minutes. The District Capacity Rights listed in "MGD" are determined as maximum average wet month (30 consecutive days) flow.			
The "segment" designation is only for clarity and is shown in attached <u>Exhibit C</u> .			

(c) Capital Costs of Expansion. If a capital project expands an Everett Capacity Facility so that its capacity at the completion of the project is in excess of the Agreed Capacity, then District shall pay its share of the capital expansion project costs as calculated by Section 5.B above, except that such capital costs shall also be prorated so that District does not pay for the portion of the project that expands the Everett Capacity Facility in excess of the Agreed Capacity.

(d) Payment Procedure.

(i) Progress Payments. For capital costs that Everett pays by making progress payments to persons such as contractors or engineers, the District will pay to Everett an amount equal to each Everett progress payment multiplied by the District's percentage share within thirty (30) days after receipt of a bill from Everett, except for any disputed amounts. After completion of the project and release of all claims, the Parties will establish and adjust final total costs.

(ii) Non-Progress Payments. For capital costs (e.g., pump replacement, dike upgrades or other similar items) related to an Everett Capacity Facility that Everett does not pay by progress payments, the District shall pay to Everett an amount equal to the District's percentage share of the capital cost within thirty (30) days after documentation of the cost incurred by Everett and receipt of a bill from Everett.

(3) Reclassified Capital Costs. If a project at inception is not classified as capital cost but later becomes classified as a capital cost, then Everett shall provide written notice to the District describing the reclassified project (with total budget and project schedule), stating the reason for the reclassification and stating the dollar amount by year that was previously included in the District's Monthly M&O Charge for the project. Effective upon such notice: (i) Everett shall not include the reclassified project in future calculations of the Monthly M&O Charge and (ii) the District shall pay for the reclassified project as a capital cost in accordance with this Section 5.B, but the District will receive credit for the amounts the District has already paid for the reclassified project in the Monthly M&O Charge.

C. Monthly Maintenance and Operations Charge.

(1) Definition of Total Everett Costs. The term "**Total Everett Costs**" is defined by the following equation. (Everett shall recalculate Total Everett Costs effective each April 1st based on previous calendar-year data, and such recalculated Total Everett Costs will remain in effect until March 31st of the next calendar year.)

Total Everett Costs =

$$\begin{aligned} & \text{Everett Collection Costs} + \text{Everett Treatment Costs} \\ & + \text{Everett Annual Debt Principal Costs} \end{aligned}$$

Variable	Definition
<i>Everett Collection Costs</i>	Represents all costs of sewage collection for the Everett sewer system (as of the Effective Date of this Agreement, Everett program 109), but does not include depreciation (Budgetary and Accounting Reporting System (BARS) Account 400), amortization (BARS Account 403), or interfund transfers out for new sewer connections costs (BARS Account 900).
<i>Everett Treatment Costs</i>	Represents all costs of sewage treatment for the Everett sewer system (as of the Effective Date of this Agreement, Everett programs 111 and 112), but does not include depreciation (BARS account 400), amortization (BARS account 403), or interfund transfers out for new sewer connections costs (BARS Account 900).
<i>Everett Annual Debt Principal Costs (EADPC)</i>	Represents the total annual debt service principal costs on all New Everett Sewer Indebtedness. EADPC will be phased in as follows: <ul style="list-style-type: none"> • 2013-16: no EADPC will be included in Total Everett Costs; • 2017-20: 50% of EADPC will be included in Total Everett Costs; • 2021 and after: 100% of EADPC will be included in Total Everett Costs.

(2) Definition of District Percentage Share of Everett Total Costs.

The term “***District Percentage Share of Total Everett Costs***” is defined by the following equation. (Everett shall recalculate District Percentage Share of Total Everett Costs effective each April 1st based on previous calendar-year data, and such recalculated District Percentage Share of Total Everett Costs will remain in effect until March 31st of the next calendar year.)

$$\text{District Percentage Share of Total Everett Costs} = \frac{\left(\left(\frac{\text{District CE's}}{\text{Total Everett CE's}} \right) \times \text{Shared Treatment and General Costs} \right) + (1\% \times (\text{Shared Other Collection Costs}))}{\text{Total Everett Costs}}$$

Variable	Definition
<i>District CE's</i>	District customer equivalents, which is the number of single family residences whose sewage the District discharges to Everett, plus the total average monthly water usage (based on the previous calendar year) of all other metered usage whose sewage the District discharges to Everett, divided by 900 cubic feet per month, <i>i.e.</i> , $\text{District CE's} = \text{Single Family Residences} + \frac{\text{Other Total Monthly Average Water Usage}}{900}$ <p>The District may count duplexes as either two single family residences or</p>

	<p>as other metered sewage. As of the Effective Date of this Agreement, the number of District CE's is 14048. Everett will recalculate District CE's by March 1st of each calendar year based on the previous calendar-year data and will provide the recalculated number to the District within thirty (30) days after the recalculation. The recalculated number for District CE's will take effect as of April 1st of the calendar year and will remain in effect until March 31st of the next calendar year.</p>																																								
<p><i>Total Everett CE's</i></p>	<p>Total number of customer equivalents for all sewage received by the Everett sewer system and received by the EWPCF, including all sewage received from Everett's wholesale customers such as District. As of the Effective Date of this Agreement, the number of Total Everett CE's is 64821. Everett will recalculate Total Everett CE's by March 1st of each calendar year based on the previous calendar year data and provide the recalculated number to the District within thirty (30) days after the recalculation. The recalculated number for Total Everett CE's will take effect on April 1st of the calendar year and will remain in effect until March 31st of the next calendar year.</p>																																								
<p><i>Shared Treatment and General Costs</i></p>	<p><i>Shared Treatment and General Costs = O&M Accounts × (1 – Stormwater Reduction Percentage/100)</i></p> <p>For the purposes of this equation, the "<i>Stormwater Reduction Percentage</i>" is calculated in accordance with the attached <u>Exhibit G</u>. "O&M Accounts" is the sum of the following Everett BARS accounts or their successors:</p> <table border="0"> <thead> <tr> <th><u>Account</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>408</td> <td>Utility Tax</td> </tr> <tr> <td>626</td> <td>Training</td> </tr> <tr> <td>640</td> <td>Treatment Supervision</td> </tr> <tr> <td>641</td> <td>Chemicals</td> </tr> <tr> <td>642</td> <td>Treatment Operations</td> </tr> <tr> <td>643</td> <td>Biosolids Management</td> </tr> <tr> <td>646</td> <td>Treatment Lab</td> </tr> <tr> <td>647</td> <td>Industrial Waste</td> </tr> <tr> <td>648</td> <td>Waste Monitoring</td> </tr> <tr> <td>650</td> <td>Maintenance Supervision/Engineering</td> </tr> <tr> <td>651</td> <td>Treatment Structure Maintenance</td> </tr> <tr> <td>652</td> <td>Treatment Equipment Maintenance</td> </tr> <tr> <td>907</td> <td>Customer Services</td> </tr> <tr> <td>920</td> <td>Administrative General</td> </tr> <tr> <td>921</td> <td>Office Expense</td> </tr> <tr> <td>923</td> <td>Outside Services</td> </tr> <tr> <td>925</td> <td>Injuries and Damages</td> </tr> <tr> <td>926</td> <td>Employee Pension/Benefits</td> </tr> <tr> <td>932</td> <td>Maintenance of General Plant</td> </tr> </tbody> </table>	<u>Account</u>	<u>Description</u>	408	Utility Tax	626	Training	640	Treatment Supervision	641	Chemicals	642	Treatment Operations	643	Biosolids Management	646	Treatment Lab	647	Industrial Waste	648	Waste Monitoring	650	Maintenance Supervision/Engineering	651	Treatment Structure Maintenance	652	Treatment Equipment Maintenance	907	Customer Services	920	Administrative General	921	Office Expense	923	Outside Services	925	Injuries and Damages	926	Employee Pension/Benefits	932	Maintenance of General Plant
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925	Injuries and Damages																																								
926	Employee Pension/Benefits																																								
932	Maintenance of General Plant																																								

<i>Shared Other Collection Costs</i>	Represents the sum of the following Everett BARS accounts or their successors:	
	<u>Account</u>	<u>Description</u>
	670	Supervision
	671	Manhole Structures
	673	Clean Mains
	674	Repair Mains
	677	Inspect Mains
	903	Customer Records
	Shared Other Collection Costs excludes costs of construction and maintenance of lateral or collector service lines to customers within the City of Everett. As of the Effective Date of this Agreement, this exclusion is accomplished by not including Everett BARS account 675 in Shared Other Collection Costs.	

(3) Definition of District Monthly M&O Charge per District CE.

(a) General Definition. Subject to Section 5.C (3) (b) below, the term “*District Monthly M&O Charge per District CE*” is defined by the following equation. Everett shall recalculate District Monthly M&O Charge per District CE effective each April 1st, and such recalculated District Monthly M&O Charge per District CE will remain in effect until March 31st of the next calendar year.

<p><i>District Monthly M&O Charge Per District CE =</i></p> $\left(\frac{\text{District Percentage Share of Total Everett Costs}}{\text{District CE's} / \text{Total Everett CE's}} \right) \times \text{Calculated Single Family Sewer Rate} \times 1.20$
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Variable	Definition
<i>Calculated Single Family Sewer Rate</i>	The Everett retail single family monthly sewer service rate established by Everett ordinance that is in effect on April 1st, <u>but excluding the stormwater portion of such rate</u> , as revised from time-to-time by Everett ordinance. The Calculated Single Family Sewer Rate stays in effect from April 1 until the next March 31. For example, the Calculated Single Family Sewer Rate per single family residence per month is \$36.31 (<i>i.e.</i> , \$49.50 ordinance rate - \$13.19 stormwater portion) for calendar year 2014. Accordingly, \$36.31 would be used as the Calculated Single Family Sewer Rate in the above equation from April 1, 2014 until March 31, 2015. The Calculated Single Family Sewer Rate excludes all capital costs related to new facilities that collect, store, convey, or treat only stormwater from computation of the sewer service rate, using the policy and procedures listed in Exhibit F.

(b) Twelve-Month Percentage Floor. The District M&O Monthly Charge per District CE is subject to a percentage floor calculation based on amount of New Everett Sewer Indebtedness as of January 1st of each calendar year. In particular, the amount of New Everett Sewer Indebtedness as of January 1st of each calendar year determines the “*Twelve-*

Month Percentage Floor” that will be in effect from April 1 of that calendar year until March 31 of the following calendar year, as shown in the table below:

New Everett Sewer Indebtedness (NESI) as of January 1	Twelve-Month Percentage Floor for April 1 to the following March 31
less than or equal to \$200 million	70%
over \$200 million and less than or equal to \$250 million	65%
over \$250 million and less than or equal to \$300 million	60%
over \$300 million and less than or equal to \$350 million	55%
over \$350 million	50%

Accordingly, if the District M&O Monthly Charge Per District CE for April 1 of a calendar year to March 31 of the following calendar year calculated by Section 5.C.(3)(a) above yields less per single family residence per month than the then-current Twelve Month Percentage Floor multiplied by the Calculated Single Family Sewer Rate, then the District M&O Monthly Charge Per District CE for such April 1 to March 31 will automatically increase to equal the Twelve Month Percentage Floor multiplied by the Calculated Single Family Sewer Rate.

- Numerical Example #1. *Assumptions:* The Calculated Single Family Sewer Rate is \$50.00/month for calendar year 2030; the New Everett Sewer Indebtedness as of January 1, 2030 is less than or equal to \$200 million; and the 2030-2031 District M&O Monthly Charge Per District CE according to the equation in Section 5.C (3) (a) above is \$34.00/month. *Calculation:* The District M&O Monthly Charge per District CE would automatically increase to \$35.00/month [*i.e.*, 70% of the 2030 Calculated Single Family Sewer Rate].

- Numerical Example #2. *Assumptions:* The Calculated Single Family Sewer Rate is \$50.00/month for calendar year 2030; the New Everett Sewer Indebtedness as of January 1, 2030 is less than or equal to \$200 million; and the 2030-2031 District M&O Monthly Charge Per District CE according to the equation in Section 5.C (3) (a) above is \$40.00/month. *Calculation:* The District M&O Monthly Charge per District CE would be \$40.00 [*i.e.*, because 40.00 is more than 70% of the 2030 Calculated Single Family Sewer Rate].

(4) Monthly M&O Charge. The District shall pay to Everett a monthly maintenance and operations charge (“**Monthly M&O Charge**”) in an amount equal to the District Monthly M&O Charge Per District CE multiplied by the Actual District CE’s for that month. For the purposes of this calculation, the “**Actual District CE’s**” are defined as the actual number of single family residences during that month whose sewage the District discharged to Everett, plus the actual total water usage for that month of all other metered usage whose sewage that the District discharges to Everett, divided by 900 cubic feet per month, *i.e.*, *Actual District CE’s = Single Family Residences + ((Other Total Water Usage)/900)*. The District shall pay the Monthly M&O Charge within thirty (30) days after receiving an invoice from Everett, except for any disputed amounts.

(5) Drainage Exclusion. The Monthly M&O Charge shall not include costs of stormwater and surface water drainage within the City of Everett. Such costs are represented as of the Effective Date of this Agreement by Everett program 123 and are excluded from the calculation of Total Everett Costs, Shared Treatment and General Costs, and Shared Other Collection Costs.

(6) 1982 Sewage Agreement. The Monthly M&O Charge takes effect as of the first April 1st after the Effective Date of this Agreement. The District shall pay for maintenance and operations costs prior to the Effective Date of this Agreement in accordance with the 1982 Sewage Agreement.

D. Payments Based on Cycle Everett Revenue Threshold Factor.

The Cycle Everett Revenue Threshold Factor is defined in Exhibit H. The Parties shall perform the calculations and make payments to each other as described in Exhibit H.

6. OTHER RESPONSIBILITIES AND OBLIGATIONS

The District is responsible at its sole risk and expense for the delivery of sewage to the Everett sewer system at the Connection Points and the payment of all costs incident to the collection of such sewage and its delivery to the Everett sewer system. The District shall be responsible for the construction, maintenance and operation of sewer facilities upstream from the Connection Points. The District shall also comply with the following:

A. Design and Construction Standards.

Design and construction standards and methods for all sewer facilities upstream of the Connection Points shall conform to then-prevailing written specifications, codes, methods, and standards of the State or to the written specifications, codes, methods and standards included in a duly adopted District sewer comprehensive plan or project engineering reports, if such comprehensive plan or engineering reports are approved by Washington State Department of Ecology or successor agency. Everett reserves the right to (but is not obligated to) make any inspection of construction plans or inspection of construction deemed necessary to enforce this requirement and to reject any such plans or work not conforming to such written specifications, codes, methods, and standards. In the event of such rejection, District shall not allow the rejected work to be connected upstream of the Connection Points.

B. Maintenance and Operation Standards.

District shall cause to be operated and maintained at no expense to Everett, except as provided for in Section 6.F., all sewer facilities located upstream from the Connection Points. All such maintenance and operation shall conform to the most current written specifications, codes, methods, and standards of the State or to the written specifications, codes, methods and standards included in a duly adopted District sewer comprehensive plan or project engineering reports, if such comprehensive plan or engineering reports are approved by Washington State Department of Ecology or successor agency. Everett reserves the right to (but is not obligated to) inspect particular District sewage facilities it has reasonable cause to believe are not being

maintained as required by this subsection. If the District fails to perform such maintenance, Everett may perform such maintenance at the District's cost. If requested by Everett, the District shall file, in accordance with EMC 14.04.150.B.4 or successor ordinance, with the Everett Public Works Department any and all existing drawings describing and locating certain trunks, laterals and any special facilities associated to the sewer facilities located upstream from the Connection Points.

C. Sewage Standards.

(1) General. All sewage delivered by District to the Everett sewer system must conform to the requirements set forth in the then-prevailing law applicable to Everett sewage, including without limitation all applicable Everett ordinances (for example, Chapter 14.40 EMC, Wastewater Pretreatment Regulations and its successors) and all applicable state or federal wastewater regulations and guidance documents.

(2) Pretreatment. Everett shall administer, implement and enforce the provisions of Everett's wastewater pretreatment regulations within the District Everett Sewer Basin. The District shall cooperate with Everett in Everett's administration of these regulations, including notifying Everett of any Significant Industrial Users of which the District is aware. The District grants Everett the authority and access necessary to inspect all sewer facilities upstream of the Connection Points for the purpose of enabling Everett to comply with all conditions of current or future National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permits related to federal, state, and Everett pretreatment regulations. This includes, but is not limited to, the monitoring of wastes and necessary construction of monitoring station facilities at customer locations. The District grants Everett the authority to issue permits, authority to require monitoring, and enforcement authority with respect to Significant Industrial Users (as defined in Chapter 14.40 EMC or its successor) that discharge upstream of the Connection Points.

D. Sewage Indemnity.

In addition to any other indemnity or defense obligation that District may have under this Agreement, the District shall indemnify and defend Everett and its officers, employees and agents, from any and all Claims arising from or relating to discharge of any sewage by District into the Everett sewer system if such sewage contains pollutants or other materials that cause Everett to violate any permit issued by any state or federal agency or that cause damage to any portion of the Everett sewer system or to third parties. This indemnity and defense obligation applies regardless of the identity of the person who released the pollutant or other material into the District sewer system that was later discharged into the Everett sewer system, except that this indemnity and defense obligation does not apply if such person is operating pursuant to a pretreatment or other permit issued by Everett or Everett has received, at least 6 months prior, actual knowledge such person should be operating pursuant to such permit(s).

E. Sewer Rates.

The District shall maintain its sewer rates so that the District sewer collections are sufficient for the District to pay its obligations under this Agreement.

F. Everett Use of District Sewer Facilities.

Everett may discharge sewage into District sewer facilities pursuant to RCW 35.13A.050. In the event Everett does so, Everett shall compensate the District for use of District facilities by paying the District: (1) Everett's pro-rata share of any debt payments owed by the District for the financing of the District facility and (2) Everett's pro-rata share of District's maintenance and operation expenses for the District facility. For the purposes of this Section 6.F, Everett's pro-rata share will be based on the amount of sewage discharged by Everett into the District facility in comparison to the total amount of sewage discharged into the District facility by persons other than Everett. The District shall invoice Everett semi-annually for the Everett use of District facilities, and Everett shall pay the invoices within thirty (30) days, except for any disputed amounts.

G. District Everett Sewer Basin.

The District shall not provide sewer service outside of District Service Area boundaries (depicted as District Study Area on Figure 2-1 in District's April 2011 Final Wastewater Comprehensive Plan) without Everett approval. Therefore, the District shall not expand the District Everett Sewer Basin outside of the District Service Area boundaries without the approval of Everett, which Everett may refuse in Everett's sole discretion. If the District transfers District Capacity Rights to a Capacity Buyer, then the District Everett Sewer Basin will be deemed to also include the area from which the Capacity Buyer delivers sewage to Everett under this Agreement, which area is subject to Everett's prior approval at Everett's sole discretion. Regardless of the foregoing, the District Everett Sewer Basin will automatically contract by subtraction of each Service Transfer Area from the District Everett Sewer Basin on the effective date of transfer of the Service Transfer Area from the District to Everett in accordance with Section 7 below.

7. ANNEXATION AND SERVICE TRANSFER AREAS

A. Annexation.

The Parties anticipate during the term of this Agreement that Everett will annex areas within Everett's UGA located within the District's Service Area, as permitted by applicable law. In exchange for the agreements under this Section 7, pursuant to RCW 35.13A.070, Chapter 39.34 RCW and other statutes and as such statutes may be modified, amended or superseded, the District agrees that it will not oppose annexation of areas within the Everett UGA, as such UGA exists as of the Effective Date of this Agreement and as the UGA may be later modified. The District reserves the right to object to and oppose any expansion of Everett's UGA in accordance with applicable law, if the District Board of Commissioners determines such UGA expansion to be contrary to the District's financial, operational or management interests.

B. Service Transfer Areas.

(1) Service Transfer Areas. As more specifically set forth in this Section 7, Everett may require the District to transfer to Everett areas that Everett has annexed. For the purposes of order and clarity, the Parties have agreed this will be accomplished by dividing a portion of the Everett UGA into six areas, which are designated on Exhibit A attached (each such area, a “**Service Transfer Area**”). Once the Sixty-Percent Date (as defined in Section 7.B.(2) below) is reached for a Service Transfer Area, then Everett may require transfer of the Service Transfer Area from the District to Everett on the date calculated in accordance with Section 7.B.(3) below. Until such transfer occurs in accordance with this Section 7, the District's control, management, operation and ownership of District facilities within an Everett-annexed area remain unchanged and customers within such an annexed area remain District customers.

(2) Sixty-Percent Date. Whenever Everett annexes an area within a Service Transfer Area (such annexed area, a “**Newly Annexed Area**”), the Parties will calculate as of the date of such annexation the total number of Water Connections (as defined below) within the Newly Annexed Area and within all previously Everett-annexed areas within the Service Transfer Area. If such calculation demonstrates that the total number of Water Connections within the Newly Annexed Area and all such previously annexed areas is equal to or greater than sixty percent (60%) of the total number of Water Connections within the entire Service Transfer Area, then the annexation date of the Newly Annexed Area is permanently designated as the “**Sixty-Percent Date**” for that Service Transfer Area. For the purposes of this Agreement, “**Water Connections**” means all District and Everett water connections in a Service Transfer Area, regardless of the meter size or type of property served by the connection. For the purposes of Service Transfer Area Six, Water Connections also includes all water connections to the Cross Valley Water District water system, regardless of the meter size or type of property served by the connection.

(3) Dates of Transfer for Service Transfer Areas.

(a) Service Transfer Area One.

If the Sixty-Percent Date for Service Transfer Area One is on or after January 1, 2014, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area One. The transfer is effective on the date of delivery of the notice or January 1, 2020, whichever date is later.

(b) Service Transfer Area Two.

(i) If the Sixty-Percent Date for Service Transfer Area Two is before January 1, 2024, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Two. The transfer is effective six (6) years after the date of delivery of the notice.

(ii) If the Sixty-Percent Date for Service Transfer Area Two is on or after January 1, 2024, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Two. The transfer is effective on the date of delivery of the notice or January 1, 2030, whichever date is later.

(c) Service Transfer Area Three.

(i) If the Sixty-Percent Date for Service Transfer Area Three is before January 1, 2034, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Three. The transfer is effective six (6) years after the date of delivery of the notice.

(ii) If the Sixty-Percent Date for Service Transfer Area Three is on or after January 1, 2034, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Three. The transfer is effective on the date of delivery of the notice or January 1, 2040, whichever date is later.

(d) Service Transfer Area Four.

(i) If the Sixty-Percent Date for Service Transfer Area Four is before January 1, 2044, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Four. The transfer is effective six (6) years after the date of delivery of the notice.

(ii) If the Sixty-Percent Date for Service Transfer Area Four is on or after January 1, 2044, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Four. The transfer is effective on the date of delivery of the notice or January 1, 2050, whichever date is later.

(e) Service Transfer Area Five.

(i) If the Sixty-Percent Date for Service Transfer Area Five is before January 1, 2024, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Five. The transfer is effective six (6) years after the date of delivery of the notice.

(ii) If the Sixty-Percent Date for Service Transfer Area Five is on or after January 1, 2024, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Five. The transfer is effective on the date of delivery of the notice or January 1, 2030, whichever date is later.

(f) Service Transfer Area Six.

(i) If the Sixty-Percent Date for Service Transfer Area Six is before January 1, 2044, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Six. The transfer is effective six (6) years after the date of delivery of the notice.

(ii) If the Sixty-Percent Date for Service Transfer Area Six is on or after January 1, 2044, then Everett may at any time after the Sixty-Percent Date provide notice to the District requiring transfer from the District to Everett of all of Service Transfer Area Six. The transfer is effective on the date of delivery of the notice or January 1, 2050, whichever date is later.

(4) Failure to Achieve Sixty-Percent Date. If a Sixty-Percent Date is not reached for a Service Transfer Area during the term of this Agreement, then Everett shall not, pursuant to Chapter 35.13A RCW or otherwise, require the District to transfer any portion of such Service Transfer Area until after the expiration of this Agreement.

C. Effect of Transfer of a Service Transfer Area.

(1) Transfer of Property. As of the effective date of the transfer of a Service Transfer Area, all District real and personal property within the Service Transfer Area becomes the property of Everett, subject to the following clarifications and exceptions:

(a) Service Transfer Area One. The property to be transferred to Everett includes without limitation District Reservoir No. 3 and Booster Station No 3. The property to be transferred to Everett does not include the 8-inch water line in 35th Avenue SE from 108th Street SE to 116th Street SE, which will remain within Service Transfer Area Three and will be transferred to Everett at the same time as transfer of Service Transfer Area Three.

(b) Service Transfer Area Two. The property to be transferred to Everett does not include the 12-inch water line in 132nd Street SE between 19 the Avenue SE and 35th Avenue SE, which the Parties agree will be permanently be owned and remain in the control of the District. The property to be transferred to Everett does not include the 8-inch water line in 35th Avenue SE from 116th Street SE to 128th Street SE, which will remain within Service Transfer Area Four and will be transferred to Everett at the same time as transfer of Service Transfer Area Four.

(c) Service Transfer Area Three. The property to be transferred to Everett does not include the 12-inch water line in 116th Street SE from 35th Avenue SE to 43rd Drive SE, which will remain within Service Transfer Area Four and will be transferred to Everett at the same time as transfer of Service Transfer Area Four.

(d) Service Transfer Area Four. The property to be transferred to Everett includes without limitation the 12-inch water line in 132nd Street SE between 35th Avenue SE and Seattle Hill Road. The property to be transferred to Everett does not include the 16-inch water line in 132nd Street SE from 35th Avenue SE to Seattle Hill Road, which the

Parties agree will be permanently owned and remain in the control of the District. The property to be transferred to Everett does not include 12-inch water line in Seattle Hill Road from 132nd Street SE to District Master Meter No. 6, which will remain within Service Transfer Area Six and will be transferred to Everett at the same time as transfer of Service Transfer Area Six.

(e) Service Transfer Area Five. No clarifications or exceptions.

(f) Service Transfer Area Six. The property to be transferred includes without limitation all lift stations within Service Transfer Area Six.

(2) Transfer of Maintenance and Operational Responsibility. As of the effective date of the transfer of a Service Transfer Area, Everett is exclusively responsible to manage, control, maintain and operate all real and personal property transferred to Everett within the Service Transfer Area.

(3) Transfer of Customers.

(a) Customers Are Everett Customers After Transfer. As of the effective date of the transfer of a Service Transfer Area, all District customers within the Service Transfer Area become Everett customers and Everett has the authority to fix and collect service and other charges from all owners and occupants of property within the Service Transfer Area.

(b) Billings for Service Prior to Transfer. Until the last business day of the month following the effective date of transfer of a Service Transfer Area, the District shall continue to collect all customer billings for the Service Transfer Area for utility services provided by the District prior to the effective date of the transfer of the Service Transfer Area. As of the first day of the second month after the effective date of the transfer of the Service Transfer Area, Everett shall purchase from the District all outstanding customer accounts receivable for the Service Transfer Area at one hundred percent (100%) face value. At Everett's request, the District shall provide to Everett a trial balance of customer accounts receivable with a notation of any account that has previously been disconnected for non-payment. The District shall work in good faith with Everett to provide additional customer account and billing information as requested by Everett. Each Party shall provide their full cooperation and assistance to the other Party to carry out and perform their respective obligations as provided in this subsection and as required in chapter 35.13A RCW. The District shall forward to Everett all customer payments from a Service Transfer Area received by the District after the effective date of transfer of the Service Transfer Area.

(4) Responsibility for Outstanding District Indebtedness.

(a) Everett Payment Responsibility. As of the effective date of the transfer of a Service Transfer Area, Everett shall pay to the District the Service Transfer Area's Share of Outstanding District Indebtedness, which is defined by the following equation:

Service Transfer Area's Share of Outstanding District Indebtedness =

$$\frac{((\text{District Revenue from Service Transfer Area})/(\text{Total District Revenue}))}{\times \text{Outstanding District Indebtedness}}$$

Term	Definition
<i>District Revenue from Service Transfer Area</i>	Sum all of water and sewer rate based revenue generated from the Service Transfer Area during the 12 months prior to the effective date of the transfer of the Service Transfer Area.
<i>Total District Revenue</i>	Sum of all water and sewer rate based revenue from the District generated during the 12 months prior to the effective date of transfer of the Service Transfer Area.
<i>Outstanding District Indebtedness</i>	The total outstanding District Indebtedness as of the effective date of the transfer of service area, but excluding that portion of any outstanding District Indebtedness that Everett has an already-existing obligation to pay.

(b) Payment. Everett shall pay the Service Transfer Area's Share of Outstanding District Indebtedness either by single lump sum payment or by debt service payments.

(i) Lump Sum. If Everett elects to make the lump sum payment, then Everett shall pay the District an amount equal to the Service Transfer Area's Share of District Indebtedness not later than 90 days from the effective date of transfer. Effective upon such lump sum payment, Everett has no further obligations in connection with the Service Transfer Area regarding Outstanding District Indebtedness.

(ii) Debt Service Payments. If Everett instead elects to make debt service payments to the District, then Everett shall, no later than thirty (30) days prior to any date on which the District is obligated to make a payment on Outstanding District Indebtedness, pay the District an amount equal to Everett's pro-rata amount of such District payment calculated in accordance with the Service Transfer Area's Share of Outstanding District Indebtedness. In the event of a refunding of all or part of Outstanding District Indebtedness, the amount and due dates of Everett's periodic payments will be adjusted to share in the benefits of the refunding.

(c) District Remains Responsible for Other Indebtedness. Everett is not responsible under this Agreement for District Indebtedness that is not a Service Transfer Area's Share of Outstanding District Indebtedness for the District.

(5) Assumption of District Contracts. Everett has no obligation to assume or to accept assignment of any District contracts except as required by RCW 35.13A.050 and as such statute may be modified or superseded, provided Everett shall assume and accept assignment of (a) "latecomers" agreements pursuant to Chapter 57.22 RCW relating to property transferred to Everett under Section 7.B.& C. above and (b) contracts where Everett has previously provided the District with written acknowledgement signed by the Everett Public Works Director stating that Everett will assume and accept assignment of that contract. Everett

shall assume and accept assignment of such “latecomer” agreements and “acknowledged” contracts as of the effective date of the transfer of the Service Transfer Area. However, as provided in Section 4.E., the District shall not enter into any contract that would obligate the District to send sewage from within Everett’s UGA, as it exists as of the Effective Date of this Agreement as identified in Exhibit A, to an entity other than Everett. Accordingly, the Parties agree that Everett will have no obligation to assume or to accept assignment of any such District contract, including, for example, contracts that would purport to require Everett to deliver sewage from within Everett’s UGA, as it exists as of the Effective Date of this Agreement as identified in Exhibit A, for treatment elsewhere than the EWPCF.

(6) Adjustment of District Capacity Rights. Effective on the date of transfer of a Service Transfer Area, the District Capacity Right for each Everett Capacity Facility will automatically adjust in accordance with the equation below. After such transfer date, the District shall pay the District’s decreased share of capital costs, as calculated in accordance with Section 5.B of this Agreement.

$\begin{aligned} & \text{District Capacity Right for Everett Capacity Facility as of Transfer of Service Transfer Area} = \\ & \text{District Capacity Right for Everett Capacity Facility Immediately Before Transfer} - \\ & (\text{Reduction Factor for Everett Capacity Facility}) \times (\text{Service Transfer Area CE's}) \end{aligned}$
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Variable	Definition	
<i>Service Transfer Area Customer Equivalents</i>	<p>Service Transfer Area customer equivalents as of the effective date of transfer of the Service Transfer Area, which is the number of single family residences in the Service Transfer Area, plus the total monthly average water usage of all other metered usage within the Service Transfer Area (based on the average monthly water usage during the 12-month period prior to the effective date of the transfer of the Service Transfer Area), divided 900 cubic feet per month, <i>i.e.</i>,</p> $\begin{aligned} \text{Service Transfer Area CE's} = \\ & \text{Single Family Residences} \\ & + \frac{\text{Other Total Monthly Average Water Usage}}{900} \end{aligned}$	
<i>Reduction Factor for Everett Capacity Facility</i>	<i>Everett Capacity Facility</i>	<i>Reduction Factor</i>
	South End Interceptor Extension from SMH 2085Y06 to SMH 2085Z08	$\frac{831}{21,050}$
	South End Interceptor Extension from SMH 2085Z08 to SMH 2085Z07	$\frac{5400}{21,050}$
	South End Interceptor Extension from SMH 2085Z07 to South End Interceptor South Segment SMH	$\frac{11,500}{21,050}$

0885J02 (Shadow Wood Screen)	
South End Interceptor South Segment from SMH 0885Z02 (Shadow Wood Screen) to South End Interceptor North Segment (upstream end of SML 0585C0A)	11,500 <u>21,050</u>
South End Interceptor North Segment (upstream end of SML 0585C0A) to EWPCF's Headworks	11,500 <u>21,050</u>
Headworks at EWPCF	11,500 <u>21,050</u>
Sewage Treatment Plant (Everett Water Pollution Control Facility- EWPCF)	6.6 <u>21,050</u>
<p>Note: 21,050 remains constant throughout the term of this Agreement. It is based on the number of District customer equivalents estimated to be within the District Everett Sewer Basin by the time of full build-out of the District's service area, all as set forth in the District's Sewer Comprehensive Plan dated April 11, 2011.</p>	

(7) Withdrawal of Service Transfer Area from District. As of the effective date of the transfer of a Service Transfer Area, Everett and the District shall take all necessary action to remove the transferred Service Transfer Area from the District's corporate area. Upon such removal: (a) the Service Transfer Area will cease to be part of the District's corporate area (b) the Service Transfer Area shall not be computed or included as part of the sixty (60) percent area or assessed valuation of real property within the District for the purposes of any future assumption by Everett of the entire District not included within another city as provided in RCW 35.13A.030 or successor statute.

(8) District Reservation of Capacity in Facilities within Service Transfer Areas. If on the effective date of transfer of a Service Transfer Area such Service Transfer Area contains District facilities transferred to Everett that serve any portion of other Service Transfer Areas not yet transferred to Everett, then, pursuant to RCW 35.13A.050 and as such statute may be modified or superseded, Everett shall for the economically useful life of such transferred facilities make available to the District sufficient capacity in such transferred facilities to serve the sewage or water requirements of Service Transfer Areas not yet transferred to Everett. Provided, in compensation for such use of transferred facilities, the District shall pay Everett based on the same methodology used when Everett pays the District for use of District facilities under Section 6.F of this Agreement.

(9) District Special Basin Benefit Charges. Beginning on the effective date of the transfer of Service Transfer Area Six, Everett shall collect the District Special Basin Benefit Charges as set forth in then existing or future District resolutions for each new sewer connection in Service Transfer Area Six. Everett shall remit to the District all such charges that Everett collects

D. Reservoir No. 3 and Agreements Regarding Water.

The Parties acknowledge that it is in the best financial and water system planning interests of each Party to share water storage in District's Reservoir No. 3, which as of the Effective Date of this Agreement serves customers in Service Transfer Areas One through Four, plus approximately 620 Everett customers. The following provisions govern the Parties' obligations with respect to Reservoir No. 3:

(1) **Reservoir Ownership.** As of the effective date of the transfer of Service Transfer Area One, Reservoir No. 3 becomes the property of Everett, and Everett is responsible for its operation and maintenance.

(2) **Determination of Capacity Share.** The Parties acknowledge and agree that the water storage capacity of Reservoir No. 3 is four million two hundred thousand gallons (4.2 MG). The table below shows the capacity requirements for the Service Transfer Areas and existing Everett customers as of the Effective Date of this Agreement. Accordingly, as of the Effective Date of this Agreement, Everett's capacity share of Reservoir No. 3 is 0.43MG (which is a percentage share of 10.37%), and the District's capacity share of Reservoir No. 3 is 3.77 MG (which is a percentage share of 89.63%).

Service Transfer Area	Water Connections	Percentage Share (%)	Reservoir No 3 Capacity Share (MG)
1	1,819	30.44 %	1.28
2	869	14.54%	0.61
3	551	9.22%	0.39
4	2,117	35.43%	1.49
Existing Everett Customers as of Effective Date of Agreement (Estimate)	620	10.37%	0.43
Total	5,976	100%	4.2

(3) **Adjustment of Capacity Share after Transfer of Service Transfer Area.** Effective upon the transfer of a Service Transfer Area from the District to Everett, the capacity share of Reservoir No. 3 for that Service Transfer Area will transfer to Everett. (For example, as of the effective date of transfer of Service Transfer Area One, Everett's capacity share of Reservoir No. 3 will be 1.71 MG (which is a percentage share of 40.81%), and the District's capacity share of Reservoir No. 3 will be 2.49 MG (which is a percentage share of 59.19%).

(4) **Shared Operation and Maintenance Costs.** Beginning on the Effective Date of this Agreement, the Parties shall share the annual operation and maintenance costs and capital costs for Reservoir No. 3, including extraordinary costs such as for reservoir recoating. Each Party's share of all such costs will be calculated in accordance with their percentage shares

of Reservoir No. 3 at the time that the cost is incurred. The owner of Reservoir No. 3 shall inform the other Party of any extraordinary operation and maintenance or capital cost before it is undertaken by the owner. The owner shall invoice the other Party for the other Party's portion of such operation and maintenance cost or capital cost at the end of each calendar year, shall provide documentation of such total maintenance and operation cost incurred the prior year, and then the other Party shall pay the owner the other Party's share of such costs within sixty (60) days of the receipt of such invoice, except for any disputed costs.

(5) Master Meter Relocation. Promptly after the effective date of transfer of any Service Transfer Area, the Parties shall relocate the master meter(s) to the new connection point(s) between Everett and District water supply systems, as mutually agreed to by the Parties. The Parties shall equally share the cost of the relocation of the master meter(s).

(6) Charge for Water. The District shall pay Everett for all water delivered to the District at Everett's then-current rate for retail single family customers. The District may withdraw its capacity share in Reservoir No. 3 through the master meter(s) referenced above over a twenty-four (24) hour period (midnight to midnight) and use such capacity for any purpose without incurring an Everett peaking charge, standby charge, or other penalty or charge. If the District uses more than its capacity share in Reservoir No. 3 during such a twenty-four (24) hour period, the District shall pay Everett for the overage at twice the then-current Everett rate for retail single family customers. (The 2013 Everett rate for retail single family customers was \$1.74/ccf or \$2300/MG.)

(7) Murphy's Corner Standby Connection. The Parties acknowledge and agree that there is a connection at Murphy's Corner (19th Avenue SE & 132nd Avenue SE) that allows either Party to open valving to provide extra water for its water system in an emergency. If Everett uses any water from this connection, Everett shall pay the District for the water used at twice the current District rate for retail single family customers. (The 2013 District rate is \$1.75-2.20/ccf or \$2340-2940/MG.) If the District uses water from this connection, the District shall pay Everett for the water used according to Section 7. D. (6).

(8) Regulatory Water Storage Requirements. As of the Effective Date of this Agreement, the Parties may use and report its respective capacity share in Reservoir No. 3 to state and federal public agencies with jurisdiction to satisfy regulatory requirements, including but not limited to water system plan requirements enforced or imposed by the Washington State Department of Health.

E. Operational Procedures and Principles.

This Section 7.E contains general operational rules and procedures which have been observed by the Parties in connection with providing water service to areas within the District which have been annexed by Everett prior to the Effective Date of this Agreement. It is the Parties' intent to set forth these general rules and procedures and be guided by them in the continued future operation of both Everett's and the District's water systems. It is not the intent of the Parties that the following principles should cover every circumstance, but rather that such principles and procedures should be adhered to when applicable and that instances not included

below should be administered in a manner generally in keeping with the policies of both Parties and settled in a manner which is fair and reasonable.

(1) Master Meters. As described above in Section 7.D(5), the Parties shall make the necessary revisions required to, as completely as practicable, place or relocate the “master meters” through which the District may continue to purchase its water directly from Everett. If it is determined by the Parties that “master metering” of the total water supply provided to the District is impractical (particularly with reference to customers along the common boundary line between Everett and the District), then Everett may periodically read the meters necessary to completely account for all water supplied to the District and add or subtract, as the case may be, such readings to (or from) the appropriate “master meter” reading to arrive at the correct total water consumption of the District. As a matter of convenience, the District shall provide to Everett at Everett’s request individual customer meter readings taken by the District for purposes of billing District customers, as Everett determines that such meter readings are necessary to supplement or correct the “master meter” consumption readings.

(2) Water Mains. Except as otherwise provided in this Agreement, if a water main is located in a street (or right-of-way or easement) contiguous to the boundary line separating areas served by Everett from areas served by the District and the water main is a common water main serving both Everett and District customers, then the following subsections will govern the water main:

(a) The Party in whose area the water main is physically located owns the water main and is solely responsible to operate and maintain the water main at that Party’s sole expense. For the purposes of this subsection (2), this Party is referred to as the “**Water Main Owner**” and the other Party is the “**Water Main Non-Owner**.”

(b) If a customer of the Water Main Non-Owner desires installation of new water service on the water main, then the Water Main Owner shall provide the required labor and materials to complete the service installation in accordance with the Water Main Non-Owner’s requirements. The Water Main Non-Owner shall pay the Water Main Owner for the actual cost of such service installation. The Water Main Non-Owner shall maintain all customer relations and contacts, including the application for service, turn-ons, shut-offs, and subsequent billings for water service. The Water Main Owner owns the installed water service from the water main to the water meter as of the initial turn-on, and the Water Main Non-Owner shall reimburse the Water Main Owner for the costs of operation and maintenance of the installed service. The procedure in this subsection (b) applies to individual, residential and nominal sized commercial services. In the event a service of any classification is requested which is two (2) inches in diameter or larger, or a service which is intended to serve more than one residence or commercial structure, the Parties shall first determine whether the supply of water available at the proposed point of connection is sufficient to provide adequate water service for the proposed connection before the installation of such connection may be undertaken.

(a) In the event certain operational or other problems of mutual concern occur which cannot be remedied by reference to this Agreement, then the Parties agree

to attempt to resolve such problems in a manner which will be neither detrimental nor harmful to either Party from an operational or financial viewpoint

F. Court Decision Regarding Section 7.

The parties acknowledge and agree that this Section 7 represents an interconnected and negotiated agreement regarding annexation and transfer matters. Accordingly, if the Snohomish County Superior Court or other court of competent jurisdiction renders a final decision holding that any portion of this Section 7 is contrary to law or otherwise unenforceable, and the time for appeal of such decision has passed or any appeal of such decision has been concluded and such decision was substantially affirmed on appeal (the "**Final Court Decision**"), then Section 7 shall be terminated in accordance with and to the degree required to comply with such Final Court Decision. In the event Section 7 is so terminated, in whole or in part, both Parties shall have the right within ninety (90) days after the Final Court Decision to request in writing from the other party further amendments to Section 7 to modify and amend as appropriate the terms that have been found to be unenforceable, and the Parties will seek to resolve the request within 180 days after delivery of the request (such 180 days, the "**Request Resolution Period**"). In the event the Parties do not reach agreement on such further amendment(s) of Section 7 within the Request Resolution Period, then the request for amendment will be resolved by the arbitration process set forth in Section 8.B.(3) (c)-(f), with such arbitration limited to Section 7 and with all provisions of Section 7 deemed to be Adjustment Provisions for the purposes of the arbitration. However, Section 8.B.(3)(c) - (f) are modified for the purposes of the arbitration as follows: 8.B.(3)(c) is modified so that the deadline for the Arbitration Notice is thirty (30) days after the expiration of the Request Resolution Period and Section 8.B.(3)(e) is modified so that the adjustment decision may be retroactive back no earlier than the date of the Final Court Decision.

8. MID-TERM REOPENER MEETING AND ARBITRATION

A. Mid-Term Re-opener Meeting. During the first quarter of 2040, the Parties shall meet face-to-face at least twice to discuss in good faith possible revisions to this Agreement. If the Parties come to agreement, the Parties will execute an amendment this Agreement.

B. Equitable Adjustment by Arbitration.

(1) Arbitration Purpose. The Parties have agreed to the arbitration provisions in this Section 8.B in order to create a mechanism at the mid-term of the Agreement (that is, in 2040) for equitable adjustment of certain provisions of this Agreement, in the event that either Party believes that amendments arising from the mid-term re-opener meeting in Section 8.A above are insufficient. The Parties acknowledge and agree that this Agreement, among other things, is intended to allocate costs between the ratepayers of Everett and the ratepayers of the District. Through extensive negotiation, the Parties have attempted to define in this Agreement certain equations and formulas that will accomplish this. However, the parties recognize that they cannot anticipate all future circumstances, particularly in light of the fifty-year term of this Agreement.

(2) Adjustment Provisions. The following provisions of this Agreement (the "**Adjustment Provisions**") are the only provisions subject to equitable adjustment by arbitration:

(a) Capacity Price. Exhibit D is subject to equitable adjustment. The Parties acknowledge and agree that Exhibit D is intended to calculate a fair price for capacity in Everett Capacity Facilities.

(b) Capital Costs. The Agreed Capacity of each Everett Capacity Facility in Section 5.B is subject to equitable adjustment. The parties agree that the Agreed Capacity is intended to operate to create a fair District percentage share of capital costs for each Everett Capacity Facility.

(c) Use of the Other Party's Facilities. The compensation formula in Section 6.F and Section 7.C (8) is subject to equitable adjustment. The Parties acknowledge and agree that the formula is intended to fairly allocate maintenance and operation costs between the Parties for use of facilities.

(d) District Indebtedness. The formula for calculation of Service Transfer Area's Share of Outstanding District Indebtedness in Section 7.C (4) is subject to equitable adjustment. The Parties acknowledge and agree that such calculation is intended to transfer to Everett a fair prorated share of the District's debt upon the transfer of a Service Transfer Area to Everett.

(e) Reservoir No. 3. The formula for calculation of the Party's shares of costs related to Reservoir No. 3 under Section 7.D (4) is subject to equitable adjustment. The Parties acknowledge and agree that the formula is intended to fairly allocate costs between the Parties for Reservoir No. 3.

(f) Stormwater Reduction Percentage. The *Flow Cost %*, *BOD Cost %*, *TSS Cost %*, and *FOG Cost %*, which are all contained in Exhibit G, are each subject to equitable adjustment. The Parties acknowledge and agree that these are intended to allocate costs correctly between the Flow Component, BOD Component, and TSS Component, and the FOG Component, as such terms are defined in Exhibit G.

(g) 900 cf/month as Equivalent Residential Unit. This Agreement uses 900 cf/month in three equations: District CEs (Section 5.C (2)), Monthly M&O Charge (Section 5.C (4)), and Service Transfer Area Customer Equivalents (Section 7.C (6)). The Parties agree that 900 cf/month is the current assumption for an equivalent residential unit and is subject to equitable adjustment, either upward or downward. The Parties acknowledge and agree 900 cf/month is intended to be a reasonable and widely used number representing an equivalent residential unit, as used in the sewer utility industry.

(3) Process for Arbitration.

(a) Adjustment Notice. If a Party desires equitable adjustment by arbitration, the Party shall provide notice to the other Party (the "*Adjustment Notice*") no earlier than July 1, 2040 and no later than September 30, 2040. Any notice delivered outside of such notice periods is ineffective.

(b) Negotiation. Upon delivery of the Adjustment Notice, the Parties shall in good faith negotiate, with the object of agreeing to an amendment to the Adjustment Provisions.

(c) Arbitration Notice. If the Parties are unable to agree to an amendment to the Adjustment Provisions after delivery of the Adjustment Notice, then either Party may, no later November 15, 2040, provide notice to the other Party that it desires arbitration. An arbitration notice delivered after such date shall not be effective. The arbitration will be conducted by a three member panel. The Parties shall each select one panel member, and those two panel members will select the third panel member. Each Party shall pay the costs of its chosen arbitrator, with all other arbitration costs split evenly between the Parties.

(d) Scope of Panel Authority. The arbitration panel's authority is limited to adjustment of the operation of the Adjustment Provisions, with object of adjustment only as necessary to cause the Adjustment Provisions to operate fairly and equitably between the Parties and their ratepayers. With respect to rebuttal, the arbitration panel shall give the greater weight to relevant law, circumstances and facts that have changed or become known since the Effective Date of the Agreement (or the effective date of amendments to the Agreement, as applicable).

(e) Adjustment Decision. The arbitration panel shall promptly issue an adjustment decision, which shall include specific adjustments to the Adjustment Provisions, along with supporting reasoning. The adjustment decision takes effect upon issuance and has the same effect as an amendment to this Agreement. An adjustment decision is prospective only and has no retroactive effect, unless the arbitration panel determines that the Adjustment Provisions have caused clear, significant and unavoidable past unfairness, in which case the adjustment decision may as determined by the arbitrator be retroactive back no earlier than December 31, 2035. Unless otherwise provided by the adjustment decision, the adjustment decision is effective until the end of the term of the Agreement. However, the Parties may revise or terminate an adjustment decision by mutual agreement contained in an amendment to this Agreement.

(f) Post-Arbitration Proceedings. The adjustment decision is binding on the Parties. Proceedings after the issuance of the adjustment decision (such as appeals or motions to vacate or modify the decision) will be governed by Chapter 7.04A RCW or successor statute.

9. DEFAULT

A. Breach of Obligation to Pay Money.

A Party is in default of this Agreement if it fails to pay money when due under this Agreement, the Party has failed to dispute the amount owing by written notice to the other Party, and the failure continues for a period of thirty (30) days after notice of default delivered by

the non-defaulting Party. If the default is not cured within such thirty (30) days, the non-defaulting Party may:

(1) Terminate this Agreement by delivering to the defaulting Party a notice of intent to terminate, which must include a termination date not earlier than ninety (90) days after delivery of the notice of intent to terminate. If the default is not cured before the termination date, then this Agreement terminates on the termination date.

(2) If the defaulting Party is the District, Everett may exercise one, some or all of the following options:

(a) Everett may require that District not allow any new connections upstream of the Connection Point; or

(b) Everett may require that District cure its default by transferring to Everett unused District Capacity Rights that have equivalent value to the amount of money that the District is in default, when the value of the unused District Capacity Rights is determined by using the same methodology as shown in Exhibit D attached.

Nothing in Section 9.A (2) limits Everett's right to terminate this Agreement in accordance with Section 9.A (1) if District remains in default after the exercise of an option under Section 9.A (2). The rights granted the Parties under this Section 9.A are in addition to any other remedy the non-defaulting Party may have at law or equity.

B. Other Breaches.

A Party is in default of this Agreement if it breaches any provision of this Agreement other than an obligation to pay money and such breach continues for a period of thirty (30) days after notice of default delivered by the non-defaulting Party, except that, if the cure cannot be reasonably completed within the thirty (30) day period, the breaching Party is not in default if it commences in good faith to cure the breach within the thirty (30) day period and thereafter diligently proceeds to complete the cure.

(1) If the breach is a breach of Section 6 of this Agreement and after such thirty (30) days the defaulting Party remains in default or is not diligently proceeding to complete the cure, the non-defaulting Party may terminate this Agreement by delivering to the defaulting Party a notice of intent to terminate, which must include a termination date not earlier than one hundred-twenty (120) days after delivery of the notice of intent to terminate. If the default is not cured before the termination date, then this Agreement terminates on the termination date. This right of termination is in addition to any other remedy the non-defaulting Party may have at law or equity.

(2) If the breach is not a breach of Section 6 or 9A of this Agreement and after such thirty (30) days the defaulting Party remains in default or is not diligently proceeding to complete the cure, then the non-defaulting Party has all remedies available at law or equity, except that the non-defaulting Party may not seek to terminate this Agreement.

C. Force Majeure.

If a Party to this Agreement is unable to perform its obligations under this Agreement because of acts of God, war, civil commotion, riots, strikes, picketing, other labor disputes, damage to work in progress by reason of fire or other casualty, severe weather or any other cause beyond the reasonable control of that Party (a "*Force Majeure Event*"), that Party shall promptly deliver written notice to the other and shall do everything reasonably possible to resume performance of its obligations under this Agreement. Effective upon delivery of the written notice, that delivering Party will be excused from its performance of its obligations under this Agreement for a reasonable period of time to the extent affected by the Force Majeure Event. Notwithstanding the foregoing, a Party's obligations to pay money to the other Party or to indemnify or defend the other Party shall not be excused for any period of time by a Force Majeure Event and always remain in full force and effect.

10. **INDEMNITY**

A. General Indemnity. To the extent of a Party's breach of this Agreement, willful violation of applicable state or federal laws, rules or regulations, gross negligence or intentional misconduct, each Party shall defend and indemnify the other Party and its officers, employees and agents, from any and all Claims arising from or relating to this Agreement. This indemnity and defense obligation is in addition to any other indemnity or defense obligation that a Party may have under this Agreement.

B. RCW 4.24.115 / Title 51 RCW. With respect to any portions of this Agreement subject to RCW 4.24.115, in the event of any concurrent negligence on the part of Everett or any of its contractors, subcontractors, or agents, and District, or any of its contractors, subcontractors, or agents, the indemnification obligations of the indemnitor under this Agreement shall be valid and enforceable only to the extent of the negligence of the indemnitor. To the extent that the indemnity provisions of this Agreement apply, the Parties specifically and expressly waive their immunity under Industrial Insurance, Title 51 RCW, and acknowledge that this waiver was mutually negotiated by Parties.

11. **MISCELLANEOUS PROVISIONS.**

A. Governing Law. The laws of the State of Washington, without giving effect to principles of conflict of laws, shall govern all matters arising out of or relating to this Agreement.

B. Venue. Everett and District shall bring any litigation arising out of or relating to this Agreement only before the Snohomish County Superior Court. **THE PARTIES HEREBY WAIVE THEIR RIGHTS TO TRIAL BY JURY IN ANY LITIGATION BETWEEN THE PARTIES ARISING FROM OR RELATING TO THIS AGREEMENT.**

C. Complete Agreement. This Agreement constitutes the entire agreement of the Everett and District relating to the subject matter of this Agreement. This Agreement supersedes and replaces all other written or oral agreements thereto.

D. Amendment. No amendment to this Agreement will be effective unless it is in

writing and signed by Everett and District, with the Mayor signing for the Everett and an authorized representative signing for the District.

E. Waiver. No waiver of satisfaction of any condition or nonperformance of an obligation under this Agreement will be effective unless it is in writing and signed by the party granting the waiver, and no such waiver will constitute a waiver of satisfaction of any other condition or nonperformance of any other obligation.

F. Severability. Except as provided in Section 7.F, if any provision of this Agreement is unenforceable to any extent, the remainder of this Agreement, or the application of that provision to any persons or circumstances other than those as to which it is held unenforceable, will not be affected by that unenforceability and will be enforceable to the fullest extent permitted by law.

G. Notice. For a notice under this Agreement to be valid, it must be in writing and the sending party must use one of the following methods of delivery: (A) personal delivery to the address stated below; (B) first class postage prepaid U.S. Mail to the address stated below; or (C) nationally recognized courier to the address stated below, with all fees prepaid.

Notice to Everett	Notice to District
Public Works Director City of Everett 3200 Cedar St. Everett, WA 98201	General Manager Silver Lake Water and Sewer District 15205 - 41st Ave. SE Bothell, WA 98012-6114

A Party may change its address stated above by delivering written notice to the other Party of the new address.

H. Assignment/Dissolution. Except as provided in Section 4.F, no part of this Agreement or any rights, duties, or obligations described in this Agreement may be assigned or delegated to another without the express written consent of both Everett and District, which may be denied in either Party's sole discretion. Neither Party may terminate its obligations under this Agreement without the consent of the other Party.

I. Successors. This Agreement shall be binding upon Everett and District and their respective successors.

J. Relinquishment and Termination of Old Agreements. As of the Effective Date of this Agreement, the Parties relinquish, extinguish, terminate and release the 1982 Sewage Agreement and the 1991 Annexation Agreement and the rights and obligations set forth in those agreements, and the terms and conditions of the 1982 Sewage Agreement and 1991 Annexation Agreement shall have no further force and effect, except for (1) any indemnity obligations contained in such agreements regarding occurrences prior to the Effective Date of this Agreement, (2) any provisions in either agreement that such agreement designates as surviving agreement termination, and (3) as necessary to enforce the District's obligations under Sections 5.B(1) and 5.C(6) of this Agreement. For purposes of clarity, the District agrees that

this Section 11.J includes a complete release of any claim or other right against Everett that the District may have in relation to the Everett \$30.67 monthly sewer rate effective April 1, 2014, through March 31, 2015, including claims described in the District's letter to the City disputing such rate dated May 19, 2014.

K. Consent. Whenever it is provided in this Agreement that the consent or approval of either Party is required, in each such instance such consent or approval shall not be unreasonably withheld, unless this Agreement expressly states that such consent or approval is at that Party's sole discretion. If a Party fails to respond to request for consent or approval within sixty (60) days after delivery of the request, then the requesting Party may deliver a notice of second request to the other Party at the address in Section 11.G., stating that the request will be deemed consented to and approved unless the other Party responds within thirty (30) days after the second request. If the other Party does not respond with such thirty (30) days, then the request shall be deemed consented to and approved. This Section 11.K. does not apply to requests for amendments of this Agreement.

L. Duty to Disclose. Each Party shall disclose to the other Party any major financial, economic planning, regulatory or operational changes or issues when such changes or issues become actually known to the disclosing Party. Such disclosures may include, but are not limited to, changes in accounting practices; rate calculation variables; federal or state regulatory mandates, orders or directives; and revisions or changes in capital project scopes that have major financial, transmission or capacity impacts on the other Party. Each Party shall notify the other Party in writing of such change or issue as soon as practicable and shall provide the other Party a reasonable time to review, evaluate and meet with Party representatives to discuss any such changes or issues. Each Party shall provide the other Party with all reasonably requested information and documentation to assist the Party in its review process. Regardless of the foregoing, in no event will any breach of this Section 11.L. by a Party operate to relieve the other Party of the other Party's obligations to comply with all provisions of this Agreement, including without limitation all obligations to accept sewage or to pay money under this Agreement.

M. Recitals Incorporated by Reference. The Recitals set forth above are incorporated into this Agreement in full by this reference.

N. No Third Party Beneficiaries. Except as expressly set forth in this Agreement, nothing in this Agreement is intended to confer upon any person or entity, other than the Parties hereto, any rights, benefits, privileges or obligations. No such third-party shall have any right to enforce any of the terms of this Agreement unless expressly stated otherwise.

O. Exhibits Incorporated by Reference. Exhibits A, B, C, D, E, F, G and H attached to this Agreement and are incorporated by reference as if set forth in full in this Agreement.

P. Survival. The following Sections survive termination of this Agreement: Sections 4.C.(3), 4.D.(3), 6.D, and 10.

Q. Records. Everett and the District shall keep books and records in order to establish rates, volumes of sewage delivered and discharged into the Everett sewer system

wherever such volumes are measured, total volumes of sewage transmitted and treated by Everett facilities, and the number of residential customers and residential customer equivalents reported by Everett and District. The books and records required by this paragraph shall be available for examination by either Party during normal business hours for a period of seven (7) years upon fifteen (15) days prior written notice.

R. Compliance with the Washington State Public Records Act. Both Everett and District are subject to the Public Records Act, chapter 42.56 RCW. All records owned, used or retained by the Parties are public records subject to disclosure unless exempt under the Public Records Act, whether or not such records are in the possession or control of Everett or District. The Parties shall cooperate with each other so that the each Party may comply with all of its obligations under the Public Records Act.

S. Recording. The District shall record this Agreement with the Snohomish County Auditor following its execution by the Parties. The Parties shall evenly split the recording fee.

[Signature page follows]


**SILVER LAKE WATER AND
SEWER DISTRICT ("DISTRICT")**


PRESIDENT

ATTEST:


SECRETARY

APPROVED AS TO FORM:


DISTRICT ATTORNEY

CITY OF EVERETT ("EVERETT")

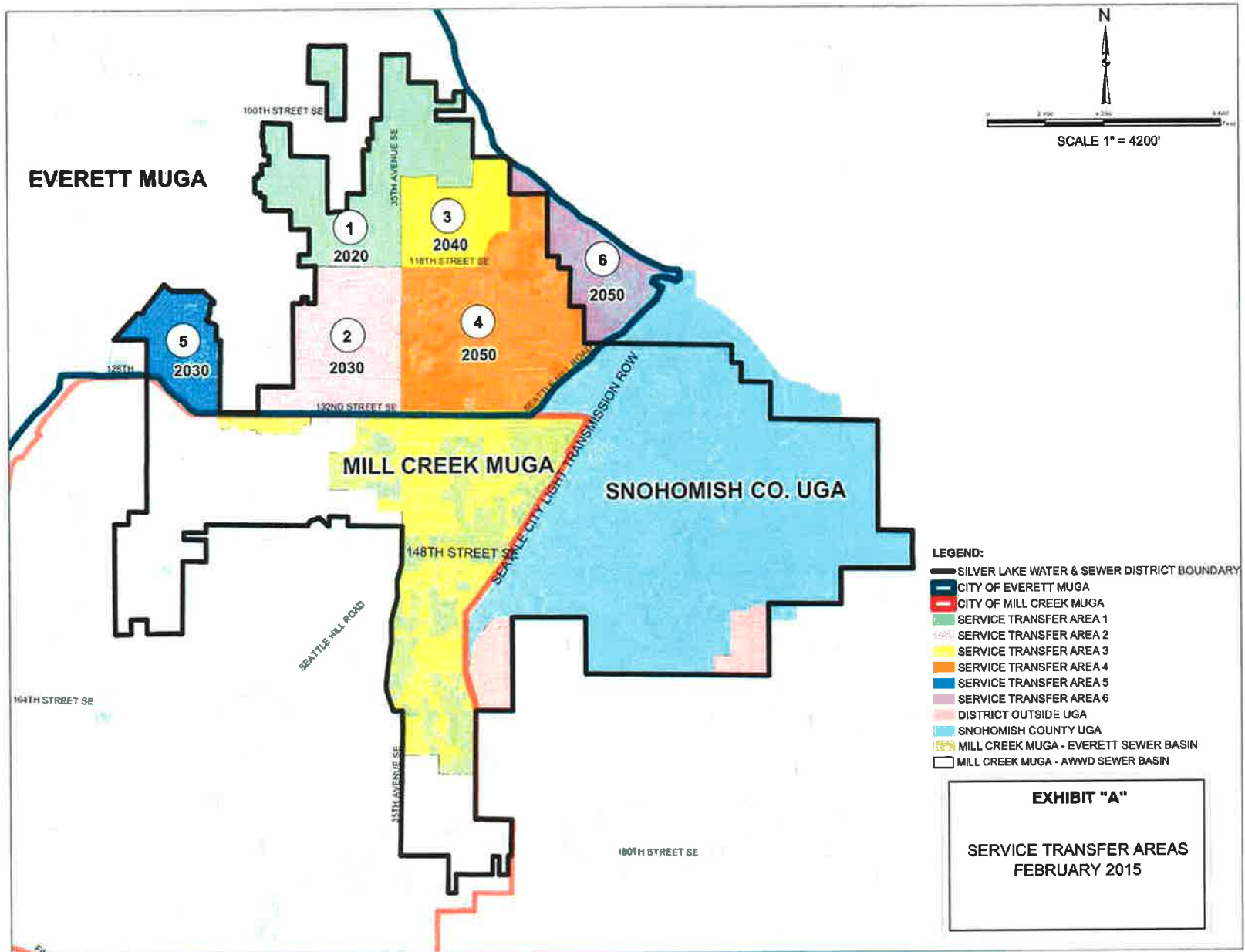

MAYOR

ATTEST:


CITY CLERK

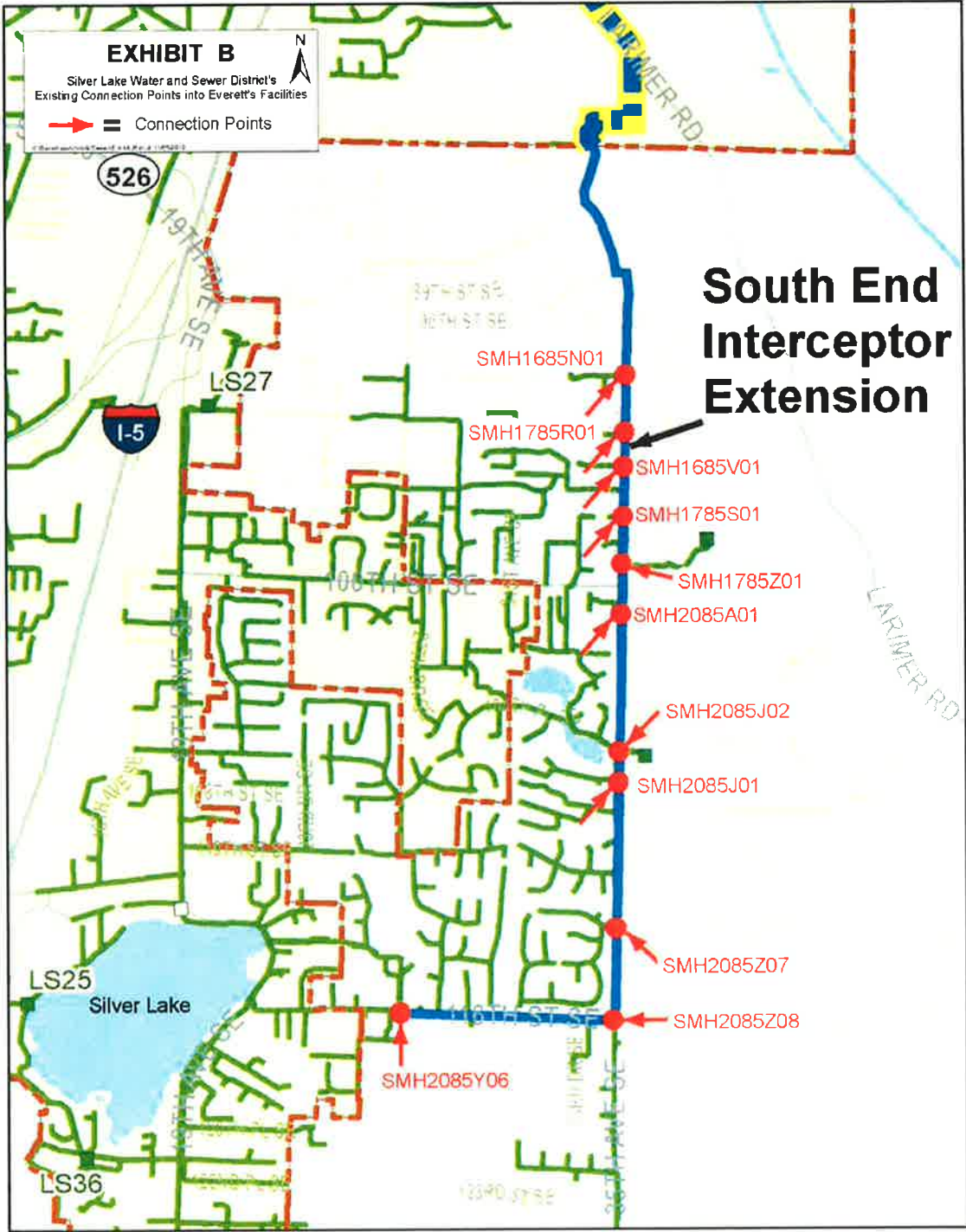
APPROVED AS TO FORM:


CITY ATTORNEY



- LEGEND:**
- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
 - CITY OF EVERETT MUGA
 - CITY OF MILL CREEK MUGA
 - SERVICE TRANSFER AREA 1
 - SERVICE TRANSFER AREA 2
 - SERVICE TRANSFER AREA 3
 - SERVICE TRANSFER AREA 4
 - SERVICE TRANSFER AREA 5
 - SERVICE TRANSFER AREA 6
 - DISTRICT OUTSIDE UGA
 - SNOHOMISH COUNTY UGA
 - MILL CREEK MUGA - EVERETT SEWER BASIN
 - MILL CREEK MUGA - AWWD SEWER BASIN

EXHIBIT "A"
SERVICE TRANSFER AREAS
FEBRUARY 2015



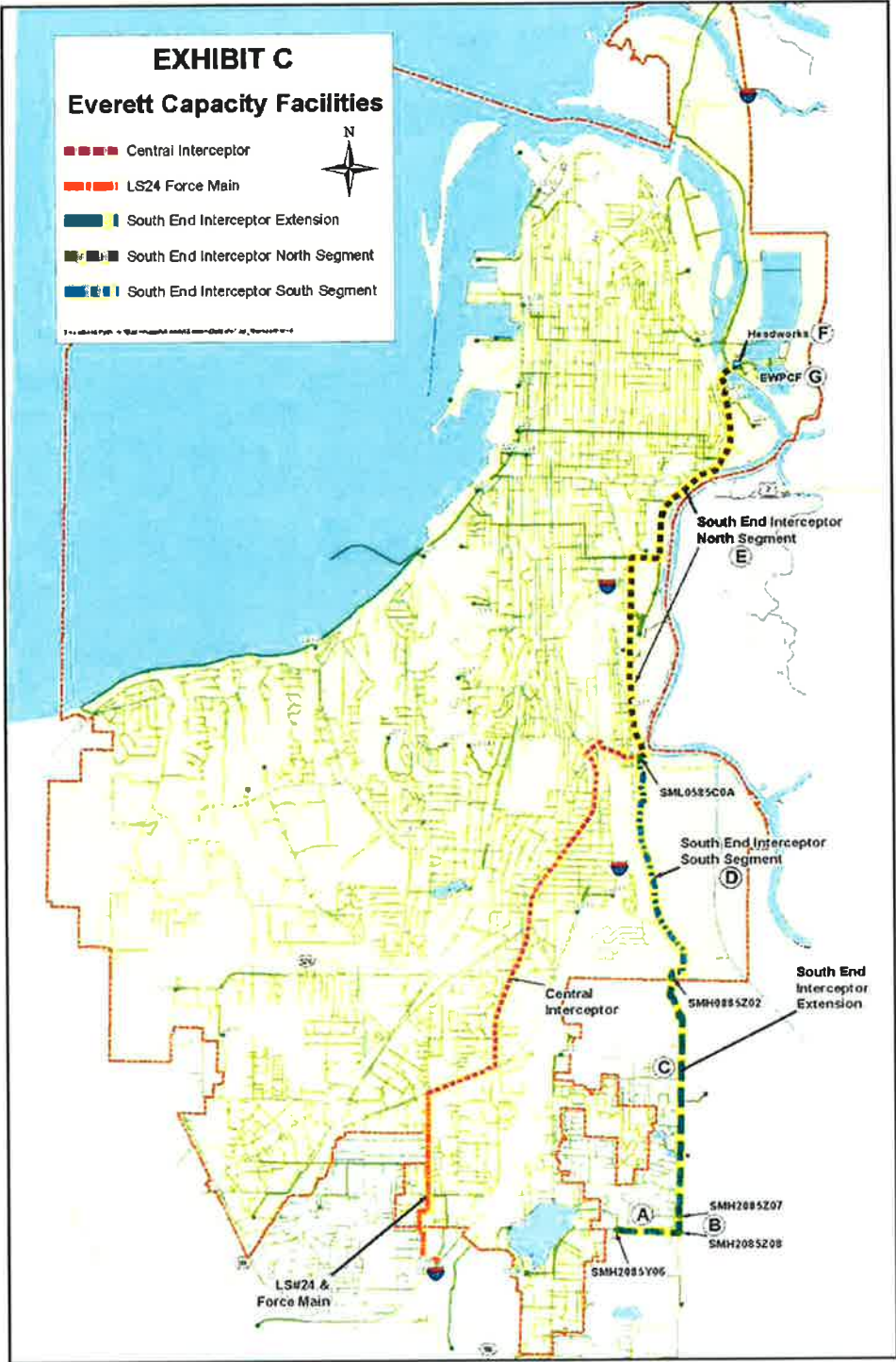


Exhibit C

EXHIBIT D

PURCHASE, SALE OR LEASE OF CAPACITY

I. Purchase by District of Additional District Capacity Rights in an Everett Capacity Facility

A. Definitions

“Asset Value” is the non-depreciated book value for an asset that is part of an Everett Capacity Facility, calculated at the time of the completion of construction of the asset.

“Asset Other Funding” is the amount of funding used by Everett in connection with the design and construction of an asset that is part of an Everett Capacity Facility from sources other than Everett utility revenue bonds or Everett utility revenues. Asset Other Funding includes without limitation federal and state grants, capital cost contributions from Everett’s wholesale customers or from developers or other persons, and funding through Local Improvement District (LID) assessments. Asset Other Funding also includes the non-depreciated book value of any asset donated to Everett that is part of the Everett Capacity Facility, calculated as of the date of donation. Asset Other Funding does not include connection charges paid to Everett by retail customers.

“Net Asset Value” for an asset is the difference between Asset Value and Asset Other Funding, *i.e.*, $\text{Net Asset Value} = \text{Asset Value} - \text{Asset Other Funding}$.

“Total Net Current Value” is the sum total of all Net Asset Values for all assets that are part of an Everett Capacity Facility.

“Total Interest” is the sum total of all simple interest on the Net Asset Values of all assets that are part of an Everett Capacity Facility, calculated for up to ten (10) years for each such asset based on the interest rates available to Everett at the time of construction of the asset. However, Total Interest cannot exceed Total Net Current Value. If Total Interest exceeds Total Net Current Value, then Total Interest is deemed to equal Total Net Current Value.

“Net Total Capacity” is the total capacity of the Everett Capacity Facility less the Capacity Rights that have been purchased by others, at the time that the District purchases additional District Capacity Rights.

“Additional District Capacity Rights” is the amount of additional District Capacity Rights being purchased by the District.

- B. Purchase Price Equation. The purchase price of capacity in an Everett Capacity Facility is calculated as follows:

$$\text{Purchase Price} = (\text{Total Net Current Value} + \text{Total Interest}) \times \frac{\text{Additional District Capacity Rights}}{\text{Net Total Capacity}}$$

II. Purchase by Everett of District Capacity Rights in an Everett Capacity Facility

A. Definitions

“District Capital Contribution” is a capital cost contribution made by the District to Everett in connection with the design and construction of an asset that is part of an Everett Capacity Facility.

“District Other Funding” is the amount funding used by the District to make the District Capital Contribution for an asset that is part of an Everett Capacity Facility from sources other than District utility revenue bonds or District utility revenues. Other Funding includes without limitation federal and state grants, and funding through Local Improvement District (LID) assessments.

“Net District Capital Contribution” for an asset is the difference between District Capital Contribution and District Other Funding, *i.e.*, Net District Capital Contribution = District Capital Contribution – District Other Funding.

“Total Net District Capital Contribution” is the sum total of all Net District Capital Contributions for all assets that comprise an Everett Capacity Facility.

“Total Interest” is the sum total of all interest on the Net District Capital Contributions of all assets are part of an Everett Capacity Facility, calculated for up to ten (10) years on each Net District Capital Contribution based on the interest rate available to the District at the time of the District Capital Contribution. However, Total Interest cannot exceed Total Net District Capital Contribution. If Total Interest exceeds the Total Net District Capital Contribution, then Total Interest is deemed to equal the Total Net District Capital Contribution.

“Total District Capacity Rights” is the total current District Capacity Rights in the Everett Capacity Facility, including the amount of District Capacity Rights being purchased by Everett.

“*District Capacity Rights To Be Purchased*” is the amount of District Capacity Rights being purchased by Everett.

“*Total Useful Life*” is the total useful life of the Everett Capacity Facility, beginning on the date it entered service and ending on the reasonably calculated date when it will leave service.

- B. Purchase Price Equation. The purchase price of capacity in an Everett Capacity Facility is calculated as follows:

$$\text{Purchase Price} = (\text{Total Net District Capital Contribution} + \text{Total Interest}) \times \frac{\text{District Capacity Rights To Be Purchased}}{\text{Total District Capacity Rights}}$$

- C. Lease Rate Equation. In order to calculate the annual lease rate for an amount of District Capacity Rights, first calculate the purchase price for the to-be-leased District Capacity Rights in accordance with II.B above. Using that purchase price, the annual lease rate to be paid by Everett for District Capacity Rights in an Everett Capacity Facility is:

$$\text{Annual Lease Rate} = \frac{\text{Purchase Price}}{\text{Total Useful Life}}$$

Exhibit E EWPCF – HEADWORKS

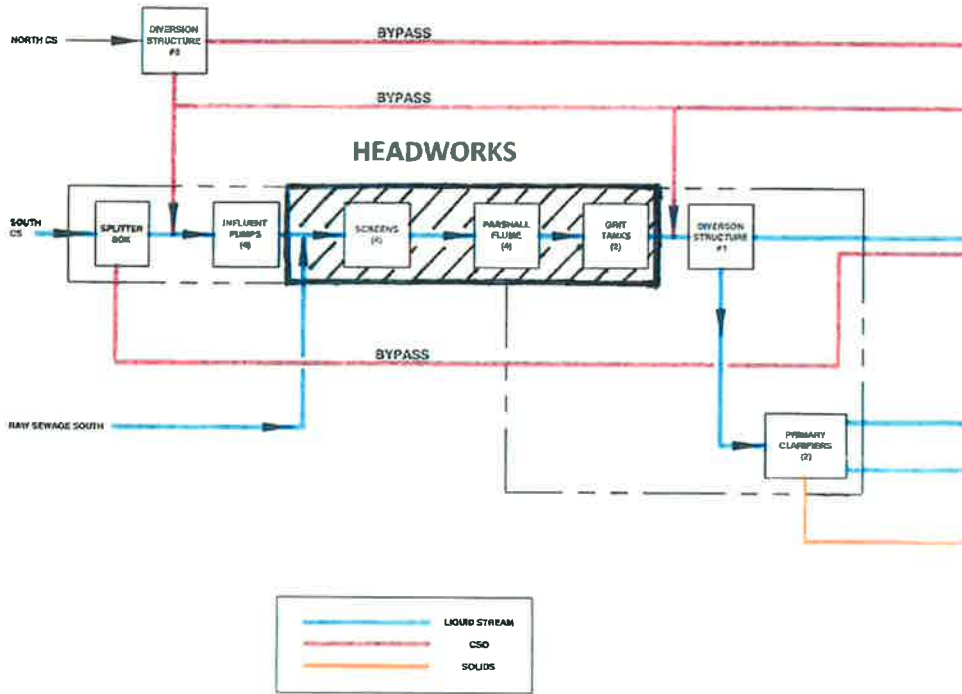


EXHIBIT F

STORMWATER POLICY AND PROCEDURE FOR SEPARATING COSTS

Below is Everett's policy for separating stormwater capital costs and sewer capital costs. As set forth in Section 5.C.(3)(a) of the Agreement, capital costs of stormwater facilities will be excluded from the Calculated Single Family Sewer Rate, and capital costs of sewer facilities will be included in the Calculated Single Family Sewer Rate.

For all capital facility projects that modify Everett's combined sewer system:

1. Stormwater Facilities. Those facilities that are installed to collect, store, convey or treat only stormwater are "stormwater facilities" to be paid for out of stormwater revenue.
2. Sewer Facilities. Any facility that collects, stores, conveys or treats water which includes any sewage are "sewer facilities" to be paid for out of sewer revenues. One example of a sewer facility is a CSO or combined sewer overflow.
3. Projects with a Stormwater Facility and a Sewer Facility. Where there is a project that includes both types of facilities, capital costs will be allocated between the project sewer facility and the project stormwater facility as follows:
 - Construction Bid Items. A separate bid schedule shall be used that states which project construction items are associated with the sewer facility and with the stormwater facility. Each schedule will include restoration costs associated with its respective type of facility. Costs of the sewer bid items are sewer facility costs, and costs of stormwater bid items are stormwater facility costs.
 - Non-Construction Bid Items. The costs of items not included in the separate bid schedules (*e.g.*, study, design, construction management, and joint construction costs like mobilization and restoration) shall be split where possible based on directly related costs. For example, the cost of design and permitting for restoration of a street where only a stormwater facility is being installed is a stormwater facility cost. If it is not possible or practicable to split any particular capital cost based on the method of directly related costs, then the stormwater facility portion of the entire project cost will equal the entire project cost multiplied by the total of the stormwater construction bid items divided by the entire project construction cost for both sewer and stormwater facilities.

EXHIBIT G

STORMWATER REDUCTION PERCENTAGE

As set forth in the definition of Shared Treatment and General Costs in Section 5.C.(2) of this Agreement, the Parties have agreed that the Shared Treatment and General Costs will be reduced to account for the percentage of the Shared Treatment and General Costs attributable to stormwater. This percentage is referred to as the Stormwater Reduction Percentage, which is defined as follows:

<p><i>Stormwater Reduction Percentage =</i></p> <p><i>(Flow Component × Flow Cost %) + (BOD Component × BOD Cost %) + (TSS Component × TSS Cost %) + (FOG Component × FOG Cost %)</i></p>
--

<p><i>Component Equations</i></p>
<p><i>Flow Component = $\frac{Q_{Annual} - Q_{Driest}}{Q_{Annual}}$</i></p> <p><i>BOD Component = $\frac{SWBOD \times Flow\ Component}{Influent\ BOD}$</i></p> <p><i>TSS Component = $\frac{SWTSS \times Flow\ Component}{Influent\ TSS}$</i></p> <p><i>FOG Component = 0</i></p> <p>The FOG Component relates to fats, oil, and grease. It is deemed to be 0 for the term of the Agreement.</p>

Variable	Definition
<i>QAnnual</i>	The five year daily average of the total volume of influent (in MGD) flowing into EWPCF. QAnnual will be updated by Everett every five years based on average of trailing five years data, with the first update effective April 1, 2019, based on data from 2014 to 2018.
<i>QDriest</i>	The five year daily average of the total volume of influent (in MGD) flowing into EWPCF during driest calendar month of the calendar year. Driest calendar month is the month during which the EWPCF receives

	the least total influent by volume. <i>QDriest</i> will be updated by Everett every five years based on average of trailing five years data, with the first update effective April 1, 2019, based on data from 2014 to 2018.
<i>SWBOD</i>	Stormwater biological oxygen demand, as calculated in accordance with the methodology shown in the study completed by the Environmental Protection Agency (EPA) entitled Nationwide Urban Runoff Program (NURP) dated 1983. In this study, the SWBOD is 8 mg/l for mixed land use. Everett and District agree that this SWBOD number will be updated by Everett after each new EPA NURP study that determines a different SWBOD for mixed land use, with the SWBOD update effective at the same time that the five-year update of <i>QAnnual</i> and <i>QDriest</i> take effect.
<i>Influent BOD</i>	The five year average of the influent biological oxygen demand (in mg/l) in the influent flow into the EWPCF. As of the Effective Date of this Agreement, the Influent BOD is 297 mg/l, based on average of trailing five years data (2009-2013). Influent BOD will be updated by Everett every five years based on average of trailing five years data, with the first update effective April 1, 2019 based on data from 2014 to 2018.
<i>SWTSS</i>	Stormwater total suspended solids, as calculated in accordance with the methodology shown in the 1983 NURP. In the 1983 NURP study, the SWTSS is 67 mg/l for mixed land use. Everett and District agree that SWBOD number will updated by Everett after each new EPA NURP study that determines a different SWTSS for mixed land use, with the SWTSS update effective at the same time that the five-year update of <i>QAnnual</i> and <i>QDriest</i> take effect takes effect.
<i>Influent TSS</i>	The five year average of the TSS (in mg/l) in the influent flowing into the EWPCF. As of the Effective Date of this Agreement, the Influent TSS is 245 mg/l, based on average of trailing five years data (2009-2013). Influent TSS will be updated by Everett every five years based on average of trailing five years data, with the first update effective April 1, 2019 based on data from 2014 to 2018.
<i>Flow Cost %</i>	Percentage of total treatment cost attributable to flow. Fixed at 10% for entire term of Agreement, unless adjusted in accordance with Agreement Section 8.
<i>BOD Cost %</i>	Percentage of total treatment cost attributable to biological oxygen demand. Fixed at 55% for entire term of Agreement, unless adjusted in accordance with Agreement Section 8.
<i>TSS Cost %</i>	Percentage of total treatment cost attributable to total suspended solids. Fixed at 25% for entire term of Agreement, unless adjusted in accordance with Agreement Section 8.
<i>FOG Cost %</i>	Percentage of total treatment cost attributable to fats, oil, and grease. Fixed at 10% for entire term of Agreement, unless adjusted in accordance with Agreement Section 8.
<i>MGD</i>	million gallons per day

<i>BOD</i>	biological oxygen demand
<i>TSS</i>	total suspended solids
<i>mg/l</i>	mg/l = milligrams per liter

As of the Effective Date of this Agreement, the Stormwater Reduction Percentage is 5.32%, which is calculated as follows:

$$\begin{aligned}
 \text{Flow Component} &= \frac{18.8 \text{ MGD} - 13.3 \text{ MGD}}{18.8 \text{ MGD}} \\
 &= 0.29 \\
 \\
 \text{BOD Component} &= \frac{8 \text{ mg/l} \times 0.29}{297 \text{ mg/l}} = 0.008 \\
 \\
 \text{TSS Component} &= \frac{67 \text{ mg/l} \times 0.29}{245 \text{ mg/l}} = 0.079 \\
 \\
 \text{FOG Component} &= 0
 \end{aligned}$$

$$\begin{aligned}
 \text{Stormwater Reduction Percentage} &= \\
 &= (0.29 \times 10\%) + (0.008 \times 55\%) + (0.079 \times 25\%) + (0 \times 10\%) = 5.32\%
 \end{aligned}$$

EXHIBIT H

PAYMENTS BASED ON CYCLE EVERETT REVENUE THRESHOLD FACTOR

A. Introduction

Every four years, the Parties will calculate whether either Party is entitled to a payment from the other Party based on the calculation of the Cycle Everett Revenue Threshold Factor. The calculation of the Cycle Everett Revenue Threshold Factor is defined and described in detail below in Section B. The Cycle Everett Revenue Threshold Factor is a percentage that reflects the relationship between Everett sewer service revenue and Everett sewer expenses during the preceding four years (*i.e.*, a four year cycle). For example, a Cycle Everett Revenue Threshold Factor equal to 100% generally represents a situation where Everett sewer service revenue and Everett sewer expenses were equal during the preceding four years. A Cycle Everett Revenue Threshold Factor less than 100% generally means that Everett sewer service expenses exceeded sewer service revenues. A Cycle Everett Revenue Threshold Factor more than 100% generally means that Everett service revenues exceeded sewer expenses. All of this, including what counts for the purposes of determining revenues and expenses in the calculation of the Cycle Everett Revenue Threshold Factor, is described in Section B.

The Parties have agreed that, if Cycle Everett Revenue Threshold Factor is less than 100%, then Everett is owed payment from the District. The Parties have also agreed that, if Cycle Everett Revenue Threshold Factor is more than 115%, then the District is owed payment from Everett. If the Cycle Everett Revenue Threshold Factor lies in between those percentages, then no payment is owed. Section C sets forth how such payments are calculated. Finally, Section D contains examples of calculations, with Example 1 as a situation where the Cycle Everett Revenue Threshold Factor is more than 115%, and Example 2 as a situation where Cycle Everett Revenue Threshold Factor is less than 100%.

B. Calculation of Cycle Everett Revenue Threshold Factor

Cycle Everett Revenue Threshold Factor =

$$\left[\frac{(\text{Cycle Net Everett Sewer Service Revenue})}{(\text{Cycle Net Everett Sewer Expenses})} \right] \times 100\%$$

Example References: In Example 1 in Section D, the Cycle Everett Revenue Threshold Factor is $\$127,325,669.36/\$110,396,360.91 \times 100\% = 115.3350\%$. In Example 2 in Section D, the Cycle Everett Revenue Threshold Factor is $\$109,986,360.94/\$110,396,360.91 = 99.629\%$.

Calculation of Numerator and Denominator of Cycle Everett Revenue Threshold Factor

Numerator: Cycle Net Everett Sewer Service Revenue

Cycle Net Everett Sewer Service Revenue

$$\begin{aligned}
 &= (\text{Total Everett Sewer Service Revenue}_{\text{year1}} - \text{Everett Multiplier Revenue}_{\text{year1}}) \\
 &+ (\text{Total Everett Sewer Service Revenue}_{\text{year2}} - \text{Everett Multiplier Revenue}_{\text{year2}}) \\
 &+ (\text{Total Everett Sewer Service Revenue}_{\text{year3}} - \text{Everett Multiplier Revenue}_{\text{year3}}) \\
 &+ (\text{Total Everett Sewer Service Revenue}_{\text{year4}} - \text{Everett Multiplier Revenue}_{\text{year4}})
 \end{aligned}$$

Example References: In Example 1 in Section D, Cycle Net Everett Sewer Service Revenue is \$127,325,669.36. In Example 2 in Section D, Cycle Total Net Everett Sewer Service Revenue is \$109,986,986.94.

Variables in Cycle Net Everett Sewer Service Revenue

Definition

Total Everett Sewer Service Revenue

For a calendar year, the Total Everett Sewer Service Revenue is the annual total sewer service revenues collected by Everett as of December 31st of the calendar year, which is the sum of the following Everett BARS general ledger accounts or their successors:

BARS Account	Account Description
3435010946401	Mukilteo Collection
3435011146401	Mukilteo Treatment
3435010946403	Alderwood Collection
3435011146403	Alderwood Treatment
3435010946405	Silver Lake Collection
3435011146405	Silver Lake Treatment
3435111146000	Flat Rate Treatment
3435110946000	Flat Rate-Coll. & Trnsm
3435110946100	M.S./Gen-Col & Trnsm
3435111146100	M.S./Gen-Treatment
3435210900000	Self Service City - Cl & Tr
3435211146100	Self Service City-Treatment
3435011146407	Marysville Treatment
3435411146100	High Strength Testing
3435411146101	High Strength Permit/Compliance
3437011142101	Comm. Hauler - Out City

Total Everett Sewer Service Revenue does not include Everett revenues received from new sewer connections permits, general facility services or other one time new connection services or fees. Total Everett Sewer Service Revenue does not include any payment paid under this Exhibit H.

If Everett adds new sewer customers, then the Parties will review the above-listed BARS accounts (or their successors). The Parties will add accounts to the above list as necessary so

	<p>that the sewer service revenue received by Everett for the new customers are captured in the Total Everett Sewer Service Revenue to the same extent as existing Everett sewer customers.</p> <p>The Parties by mutual agreement may add or subtract BARS accounts (or their successors) from the list above by letter agreement, countersigned by the Mayor on behalf of Everett and an authorized District representative for the District.</p>														
<p><i>Everett Multiplier Revenue</i></p>	<p>For each calendar year, Everett Multiplier Revenue is defined as :</p> $\text{Total Everett Wholesale Sewer Service Revenue} - (\text{Total Everett Wholesale Sewer Service Revenue}) / (1.2)$ <p>For a calendar year, Total Everett Wholesale Service Revenue is the sum of the following BARS accounts or their successors:</p> <table border="1"> <thead> <tr> <th>BARS Account</th> <th>Account Description</th> </tr> </thead> <tbody> <tr> <td>3435010946401</td> <td>Mukilteo Collection</td> </tr> <tr> <td>3435011146401</td> <td>Mukilteo Treatment</td> </tr> <tr> <td>3435010946403</td> <td>Alderwood Collection</td> </tr> <tr> <td>3435011146403</td> <td>Alderwood Treatment</td> </tr> <tr> <td>3435010946405</td> <td>Silver Lake Collection</td> </tr> <tr> <td>3435011146405</td> <td>Silver Lake Treatment</td> </tr> </tbody> </table> <p>If Everett adds new wholesale sewer customers, then the Parties will review the above-listed BARS accounts (or their successors). The Parties will add accounts to the above list as necessary so that the sewer service revenue received by Everett for the new wholesale customers are captured in the Total Everett Wholesale Service Revenue to the same extent as existing Everett wholesale sewer customers.</p> <p>The Parties by mutual agreement may add or subtract BARS accounts (or their successors) from the list above by letter agreement, countersigned by the Mayor on behalf of Everett and an authorized District representative for the District</p>	BARS Account	Account Description	3435010946401	Mukilteo Collection	3435011146401	Mukilteo Treatment	3435010946403	Alderwood Collection	3435011146403	Alderwood Treatment	3435010946405	Silver Lake Collection	3435011146405	Silver Lake Treatment
BARS Account	Account Description														
3435010946401	Mukilteo Collection														
3435011146401	Mukilteo Treatment														
3435010946403	Alderwood Collection														
3435011146403	Alderwood Treatment														
3435010946405	Silver Lake Collection														
3435011146405	Silver Lake Treatment														
Denominator: Cycle Net Everett Sewer Expenses															
<p><i>Cycle Net Everett Sewer Expenses</i></p> $= (\text{Total Everett Sewer Expenses}_{\text{year1}} + \text{Principal}_{\text{year1}} - \text{Total Sewer Expense Adjustment}_{\text{year1}})$ $+ (\text{Total Everett Sewer Expenses}_{\text{year2}} + \text{Principal}_{\text{year2}} - \text{Total Sewer Expense Adjustment}_{\text{year2}})$ $+ (\text{Total Everett Sewer Expenses}_{\text{year3}} + \text{Principal}_{\text{year3}} - \text{Total Sewer Expense Adjustment}_{\text{year3}})$ $+ (\text{Total Everett Sewer Expenses}_{\text{year4}} + \text{Principal}_{\text{year4}} - \text{Total Sewer Expense Adjustment}_{\text{year4}})$ <p><u>Example References:</u> In Example 1 and in Example 2 in Section D, Cycle Net Everett Sewer Expenses is \$110,396,360.91.</p>															

Variables in Cycle Net Everett Sewer Expenses	Definition																					
<i>Total Everett Sewer Expenses</i>	<p>For a calendar year, the Total Everett Sewer Expenses is the annual sum of the following functions or their successors:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Function</th> <th style="text-align: center;">Function Description</th> <th style="text-align: center;">Percentage of Function Included in Total Everett Sewer Expenses</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">109</td> <td style="text-align: center;">Sewer Collection</td> <td style="text-align: center;">100%</td> </tr> <tr> <td style="text-align: center;">111</td> <td style="text-align: center;">Sewer Treatment</td> <td style="text-align: center;">100%</td> </tr> <tr> <td style="text-align: center;">112</td> <td style="text-align: center;">Biosolids Management</td> <td style="text-align: center;">100%</td> </tr> <tr> <td style="text-align: center;">113</td> <td style="text-align: center;">Industrial Pretreatment</td> <td style="text-align: center;">100%</td> </tr> <tr> <td style="text-align: center;">133</td> <td style="text-align: center;">Construction Inspection-Sewer</td> <td style="text-align: center;">100%</td> </tr> <tr> <td style="text-align: center;">935</td> <td style="text-align: center;">Records Management</td> <td style="text-align: center;">50%</td> </tr> </tbody> </table> <p>Total Everett Sewer Expenses does not include any payment paid under this <u>Exhibit H</u>. The Parties by mutual agreement may add or subtract items (or their successors) from the list above by letter agreement, countersigned by the Mayor on behalf of Everett and an authorized District representative for the District</p>	Function	Function Description	Percentage of Function Included in Total Everett Sewer Expenses	109	Sewer Collection	100%	111	Sewer Treatment	100%	112	Biosolids Management	100%	113	Industrial Pretreatment	100%	133	Construction Inspection-Sewer	100%	935	Records Management	50%
Function	Function Description	Percentage of Function Included in Total Everett Sewer Expenses																				
109	Sewer Collection	100%																				
111	Sewer Treatment	100%																				
112	Biosolids Management	100%																				
113	Industrial Pretreatment	100%																				
133	Construction Inspection-Sewer	100%																				
935	Records Management	50%																				
<i>Principal</i>	For a calendar year, Principal is the sum of all principal payments that Everett made on sewer-related indebtedness.																					
<i>Total Sewer Expense Adjustment</i>	<p>For a calendar year, the Total Sewer Expense Adjustment is the annual sum of the following BARS accounts or their successors:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Item</th> <th style="text-align: center;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">BARS Account 900</td> <td style="text-align: center;">Connection fees transferred to Construction Fund</td> </tr> <tr> <td style="text-align: center;">BARS Account 403</td> <td style="text-align: center;">Depreciation</td> </tr> <tr> <td style="text-align: center;">BARS Account 404</td> <td style="text-align: center;">Amortization</td> </tr> </tbody> </table> <p>The Parties by mutual agreement may add or subtract items (or their successors) from the list above by letter agreement, countersigned by the Mayor on behalf of Everett and an authorized District representative for the District.</p>	Item	Description	BARS Account 900	Connection fees transferred to Construction Fund	BARS Account 403	Depreciation	BARS Account 404	Amortization													
Item	Description																					
BARS Account 900	Connection fees transferred to Construction Fund																					
BARS Account 403	Depreciation																					
BARS Account 404	Amortization																					

C. Determination of Payments Based on Cycle Everett Revenue Threshold Factor

1. Annual Data Sharing During the Four-Year Cycle. By April 1st of each calendar year, Everett will provide the District the previous calendar year's Total Everett Sewer Service Revenue, Total Everett Sewer Expenses, Principal and the Total Sewer Expense Adjustment, all based on unaudited financial statements. Once such calculations for a calendar year are complete, the calculations will not be later adjusted.

2. Time of Calculation of Cycle Everett Revenue Threshold Factor. Once every four years beginning in 2016, Everett will calculate and provide to the District the Cycle Everett Revenue Threshold Factor based on the preceding four years. This calculation and delivery must occur no later than the April 1st of the calendar year after completion of the four-year cycle. For example, no later than April 1, 2016, Everett will calculate the Cycle Everett Revenue Threshold Factor for the preceding four years, with 2012 as year one, 2013 as year two, 2014 as year three,

and 2015 as year four. Additional Cycle Everett Revenue Threshold Factors will be calculated by April 1, 2020, April 1, 2024, and each four years after that, until the expiration or termination of this Agreement. If the Agreement expires or terminates and four years has not elapsed since the last calculation of a Cycle Everett Revenue Threshold Factor, then the four year cycle will be shortened to fit, and Everett will calculate the Cycle Everett Revenue Threshold Factor using only the data for the years since that last calculation.

3. Payment Obligations. Based on the Cycle Everett Revenue Threshold Factor, the Parties are obligated to pay as follows:

Cycle Everett Revenue Threshold Factor	Payment Obligation
Greater than 115%	Everett obligated to pay District as calculated under Section C.4 below
Less than 100%	District obligated to pay Everett as calculated under Section C.5 below
Less than or equal to 115% and greater than or equal to 100%	No payment obligation

4. Calculation of Everett Payment Obligation

<p><i>Everett Payment Obligation =</i></p> <p>$(\text{Cycle Everett Revenue from Charges to District}) \times (\text{Cycle Everett Revenue Threshold Factor} - 115\%)$</p> <p><u>Example Reference:</u> In Example 1 in Section D, the Everett Payment Obligation is \$84,373.57, based on a Cycle Everett Revenue from Services to District of \$25,184,336.50, and a Cycle Everett Revenue Threshold Factor of 115.335%.</p>					
Variable	Definition				
<i>Cycle Everett Revenue from Services to District</i>	<p>Cycle Everett Revenue from Services to District is the sum of the following BARS accounts or their successors, when totaled for the four years of the cycle:</p> <table style="margin-left: 40px;"> <tr> <td>3435010946405</td> <td>Silver Lake Collection</td> </tr> <tr> <td>3435011146405</td> <td>Silver Lake Treatment</td> </tr> </table> <p><u>Example Reference:</u> In Example 1 in Section D, the Cycle Everett Revenue from Services to District is \$25,184,336.50.</p>	3435010946405	Silver Lake Collection	3435011146405	Silver Lake Treatment
3435010946405	Silver Lake Collection				
3435011146405	Silver Lake Treatment				

5. Calculation of District Payment Obligation

District Payment Obligation =

(Cycle Everett Revenue from Charges to District) × (100% – Cycle Everett Revenue Threshold Factor)

Example Reference: In Example 2 in Section D, the District Payment Obligation is \$80,671.72, based on a Cycle Everett Revenue from Services to District of \$21,754,837.84, and a Cycle Everett Revenue Threshold Factor of 99.6292%.

6. When Payment Due

All payments under this Exhibit H are due within ninety days after the delivery of the calculation of the Cycle Everett Revenue Threshold Factor to the District.

D. Examples

Example 1 - Cycle Everett Revenue Threshold Factor Greater than 115%

	Cycle Years				Cycle Total
	Example Year 1	Example Year 2	Example Year 3	Example Year 4	
Mukilteo Water and Wastewater District	\$ 657,790.69	\$ 780,468.65	\$ 881,929.58	\$ 1,029,469.96	\$ 3,349,658.88
Alderwood Water and Waste Water District	\$ 1,915,797.83	\$ 2,273,094.13	\$ 2,568,596.36	\$ 2,998,303.78	\$ 9,755,792.10
Silver Lake Water and Sewer District	\$ 4,945,584.81	\$ 5,867,936.38	\$ 6,630,768.11	\$ 7,740,047.20	\$ 25,184,336.50
Everett	\$ 18,737,654.80	\$ 22,232,227.42	\$ 25,122,416.98	\$ 29,325,213.93	\$ 95,417,513.13
Total Everett Sewer Service Revenue	\$ 26,256,828.13	\$ 31,153,726.58	\$ 35,203,711.03	\$ 41,093,034.87	\$ 133,707,300.61
Less Sewer Multiplier Revenue	\$ (1,253,195.56)	\$ (1,486,916.53)	\$ (1,680,215.68)	\$ (1,961,303.49)	\$ (6,381,631.25)
Net Everett Sewer Service Revenue	\$ 25,003,632.58	\$ 29,666,810.05	\$ 33,523,495.36	\$ 39,131,731.38	\$ 127,325,669.36
BARS Division 109, 111, 112	\$ 27,209,215.00	\$ 30,229,437.87	\$ 31,136,321.00	\$ 33,899,318.83	\$ 122,474,292.70
BARS Division 113, 133, and 50% 935	\$ 782,901.93	\$ 869,804.04	\$ 895,898.17	\$ 975,399.04	\$ 3,524,003.18
Total Everett Sewer Expenses	\$ 27,992,116.93	\$ 31,099,241.91	\$ 32,032,219.17	\$ 34,874,717.87	\$ 125,998,295.88
Annual Principal Payment	\$ 2,578,080.63	\$ 2,864,247.58	\$ 2,950,175.01	\$ 3,211,969.81	\$ 11,604,473.03
Less Everett Connection 900	\$ (1,043,812.00)	\$ (1,043,812.00)	\$ (1,043,812.00)	\$ (1,043,812.00)	\$ (4,175,248.00)
Less Depreciation 403 & 404	\$ (5,757,790.00)	\$ (5,757,790.00)	\$ (5,757,790.00)	\$ (5,757,790.00)	\$ (23,031,160.00)
Net Everett Sewer Expenses	\$ 23,768,595.56	\$ 27,161,887.49	\$ 28,180,792.18	\$ 31,285,085.68	\$ 110,396,360.91
Cycle Everett Revenue Threshold Factor					115.335%

Cycle Everett Revenue Threshold Factor	115.3350%
Threshold	115.0000%
Difference	0.00335

Cycle Everett Revenue from Charges to District (Not Multiplier Portion)	\$ 20,986,947.08
Multiplied by 0.00335	\$ 70,311.31
Cycle Everett Revenue from Charges to District (Multiplier Portion)	\$ 4,197,389.42
Multiplied by 0.00335	\$ 14,062.26
Everett Payment Obligation	\$ 84,373.57

EXHIBIT H

Example 2 - Cycle Everett Revenue Threshold Factor Under 100%

	Cycle Years				Cycle Total
	Example Year 1	Example Year 2	Example Year 3	Example Year 4	
Mukilteo Water and Wastewater District	\$ 657,790.69	\$ 702,931.58	\$ 738,078.15	\$ 794,715.78	\$ 2,893,516.20
Alderwood Water and Waste Water District	\$ 1,915,797.83	\$ 2,047,269.46	\$ 2,149,632.93	\$ 2,314,588.51	\$ 8,427,288.73
Silver Lake Water and Sewer District	\$ 4,945,584.81	\$ 5,284,975.57	\$ 5,549,224.35	\$ 5,975,053.11	\$ 21,754,837.84
Everett	\$ 18,737,654.80	\$ 20,023,526.36	\$ 21,024,702.68	\$ 22,638,067.46	\$ 82,423,951.30
Total Everett Sewer Service Revenue	\$ 26,256,828.13	\$ 28,058,702.97	\$ 29,461,638.11	\$ 31,722,424.86	\$ 115,499,594.07
Less Sewer Multiplier Revenue	\$ (1,253,195.56)	\$ (1,339,196.10)	\$ (1,406,155.91)	\$ (1,514,059.57)	\$ (5,512,607.13)
Net Everett Sewer Service Revenue	\$ 25,003,632.58	\$ 26,719,506.87	\$ 28,055,482.21	\$ 30,208,365.29	\$ 109,986,986.94
BARS Division 109, 111, 112	\$ 27,209,215.00	\$ 30,229,437.87	\$ 31,136,321.00	\$ 33,899,318.83	\$ 122,474,292.70
BARS Division 113, 133, and 50% 935	\$ 782,901.93	\$ 869,804.04	\$ 895,898.17	\$ 975,399.04	\$ 3,524,003.18
Total Everett Sewer Expenses	\$ 27,992,116.93	\$ 31,099,241.91	\$ 32,032,219.17	\$ 34,874,717.87	\$ 125,998,295.88
Annual Principal Payment	\$ 2,578,080.63	\$ 2,864,247.58	\$ 2,950,175.01	\$ 3,211,969.81	\$ 11,604,473.03
Less Everett Connection 900	\$ (1,043,812.00)	\$ (1,043,812.00)	\$ (1,043,812.00)	\$ (1,043,812.00)	\$ (4,175,248.00)
Less Depreciation 403 & 404	\$ (5,757,790.00)	\$ (5,757,790.00)	\$ (5,757,790.00)	\$ (5,757,790.00)	\$ (23,031,160.00)
Net Everett Sewer Expenses	\$ 23,768,595.56	\$ 27,161,887.49	\$ 28,180,792.18	\$ 31,285,085.68	\$ 110,396,360.91
Cycle Everett Revenue Threshold Factor					99.629%

Threshold	100.0000%
Cycle Everett Revenue Threshold Factor	99.6292%
Difference	0.00371

Cycle Everett Revenue from Charges to District (Not Multiplier Portion)	\$ 18,129,031.53
Multiplied by 0.00371	\$ 67,226.43
Cycle Everett Revenue from Charges to District (Multiplier Portion)	\$ 3,625,806.31
Multiplied by 0.00371	\$ 13,445.29
District Payment Obligation	\$ 80,671.72

Exhibit H

SILVER LAKE WATER DISTRICT - ALDERWOOD WATER DISTRICT
AGREEMENT FOR SEWAGE DISPOSAL

THIS AGREEMENT made as of this 23rd day of
MAY, 1985, between the Silver Lake Water District,
a municipal corporation of the State of Washington, hereinafter
referred to as "SILVER LAKE" and the Alderwood Water District, a
municipal corporation of the State of Washington, hereinafter
referred to as "ALDERWOOD";

W I T N E S S E T H:

WHEREAS, SILVER LAKE and ALDERWOOD have entered into
long-term agreements for sewage disposal with the City of Everett,
hereinafter referred to as "EVERETT"; and

WHEREAS, a portion of SILVER LAKE'S service area lying
West of Highway I-5 and North of ALDERWOOD'S boundary can best be
serviced by gravity sewers into ALDERWOOD'S system; and

WHEREAS, SILVER LAKE'S Agreement with EVERETT allows
SILVER LAKE to discharge sewage in other flow directions upon
appropriate notification to EVERETT; and

WHEREAS, ALDERWOOD owns and operates sanitary sewer
facilities which are so located and have adequate capacity to
serve the aforementioned portion of SILVER LAKE'S service area
without the need for the construction of a lift station; and

WHEREAS, SILVER LAKE desires to deliver sanitary sewage
collected in the aforementioned portion of SILVER LAKE'S service
area to ALDERWOOD for transmission to EVERETT for treatment and
disposal in accordance with the SILVER LAKE-EVERETT Agreement
Amendment dated January 23, 1985; and

WHEREAS, ALDERWOOD desires to transmit sanitary sewage
collected from SILVER LAKE from the aforementioned portion of
SILVER LAKE'S service area for treatment and disposal in accor-
dance with the ALDERWOOD-EVERETT Agreement dated December 30, 1981;

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

I.

All deliveries of sewage collected by SILVER LAKE and delivered to ALDERWOOD'S existing facilities for transmittal by ALDERWOOD to EVERETT from within SILVER LAKE'S service area as shown on Exhibit "A" attached hereto, shall be accepted by ALDERWOOD pursuant to the terms, conditions and limitations in this Agreement.

II.

ALDERWOOD shall transmit sewage received from SILVER LAKE'S service area as shown in Exhibit "A" to EVERETT for treatment and disposal pursuant to the terms of this Agreement.

III.

For the disposal of sewage hereafter collected by SILVER LAKE and transmitted by ALDERWOOD to EVERETT, SILVER LAKE will report directly to EVERETT its residential customers and/or residential customer equivalents as provided in its Agreement with EVERETT. No additional monthly service charge shall be paid by SILVER LAKE to ALDERWOOD for the privilege of using ALDERWOOD'S sewer system pursuant to this Agreement.

IV.

In consideration of ALDERWOOD'S transmitting sewage to EVERETT, SILVER LAKE agrees to pay ALDERWOOD a square footage charge based on gross area to cover the cost of the following:

- (1) EVERETT'S capacity charge;
- (2) Downstream ULID area charges; and
- (3) A "wheeling" charge based on ALDERWOOD'S projected expenses during the term of the EVERETT Agreement.

"Gross Area" for the purpose of this Agreement shall mean the following:

- (1) Total area of any future plats subject to this Agreement; or

- (2) For individual residences, the total square footage of the tax parcel the residence is located on; or
- (3) For ULID's to be formed by SILVER LAKE, the total assessed area contained within the ULID.

V.

SILVER LAKE and ALDERWOOD agree that as of the date of this Agreement, those charges are as follow:

Everett Capacity Charge	\$.035 per sq. ft.
Downstream ULIDs	\$.055 per sq. ft.
Wheeling Charge	\$.025 per sq. ft.

As of the date of this Agreement, the square footage charge, computed on the basis of the agreed figures, will be \$0.1150 per square foot. Future increases in the square footage charge will be determined by reference to the percentage increase, if any, in the Seattle-Everett Consumer Price Index for Urban Wage Earners and Clerical Workers computed on an annual basis as of January 1st of each year; said percentage increase to be applied only to the Wheeling Charge component of the square footage charge. Should such Index not be available at some future date, then a comparable Index shall be used.

VI.

The square footage charge is to be collected by SILVER LAKE from property owners within SILVER LAKE'S service area as described on Exhibit "A" as a condition of hooking up to SILVER LAKE'S sewer system. Square footage charges collected by SILVER LAKE are to be paid to ALDERWOOD within thirty (30) days of the date collected by SILVER LAKE.

VII.

For purposes of determining maintenance responsibility, SILVER LAKE and ALDERWOOD shall share any maintenance costs resulting from a sewer blockage in ALDERWOOD'S 8 through 12-inch diameter sanitary sewer facility between SILVER LAKE'S point of connection and ALDERWOOD'S point of connection to EVERETT'S pump station on a

pro-rata basis as determined by the number of residential customer equivalents each has connected to the sewer facility above the point of blockage. If it shall become necessary to repair, reconstruct or replace any portion of ALDERWOOD'S 8 through 12-inch sanitary sewer facility between the EVERETT pump station and any SILVER LAKE customer connection to the sewer facility, SILVER LAKE and ALDERWOOD agree that the same pro-rata formula shall be used to determine each agency's fair share of the costs associated with such repair, reconstruction or replacement. Any such repair, reconstruction or replacement shall be done and/or supervised by ALDERWOOD. Payment for such costs as itemized in this section shall be made by SILVER LAKE within 30 days of billing by ALDERWOOD.

VIII.

All local sewers, including side sewers, located within SILVER LAKE'S service area as shown on Exhibit "A" carrying sewage to be delivered to ALDERWOOD shall be constructed, tested and maintained by SILVER LAKE in accordance with the terms of the SILVER LAKE-EVERETT Agreement dated June 16, 1982. SILVER LAKE shall submit engineering plans to ALDERWOOD for approval for public sewer systems proposed to be constructed in the Agreement area at least 60 days prior to construction, and shall notify ALDERWOOD at least seven days prior to beginning actual construction work.

Any connecting sewer facility constructed by SILVER LAKE within the boundaries of ALDERWOOD shall be constructed to ALDERWOOD'S standards. Upon completion and acceptance thereof, such portion of sewer facility within ALDERWOOD'S boundary shall become the property of ALDERWOOD, and ALDERWOOD shall have the right to allow its customers to connect without any payment or reimbursement to SILVER LAKE or its contractor or agent.

IX.

Any controversy or claim arising out of or related to this contract or the breach thereof shall be settled by a Board

of three arbitrators, one of whom shall be selected by ALDERWOOD and one by SILVER LAKE and the third selected jointly by the first two, and the parties hereto agree that any decision of the arbitrators shall be binding upon both parties hereto and judgment upon the award rendered may be entered in any court having jurisdiction thereof, all in accordance with Chapter 7.04 RCW. Any costs, expenses and legal fees incurred in arbitration or other legal action shall be awarded to the prevailing party.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of this 23rd day of MAY, 1985.

SILVER LAKE WATER DISTRICT:

Red Kuppeler
President
[Signature]
Commissioner
Leo Wilson

ATTESTED TO:

By Leo Wilson
Secretary-Commissioner

ALDERWOOD WATER DISTRICT:

C.H. Conrad
President
[Signature]
Commissioner
Ken Colby
Commissioner

ATTESTED TO:

By Ken Colby
acting Secretary-Commissioner

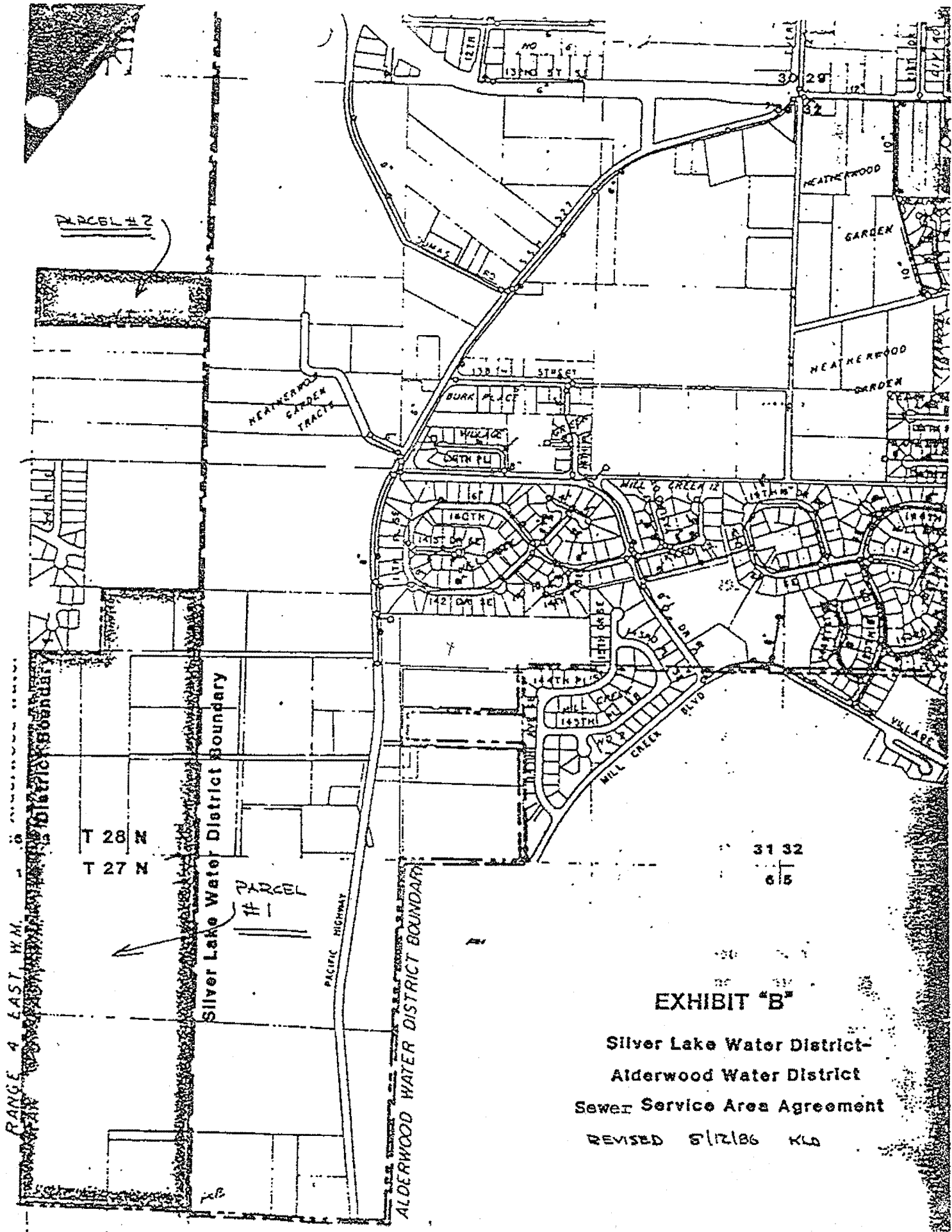


EXHIBIT "B"

**Silver Lake Water District-
Alderwood Water District
Sewer Service Area Agreement
REVISED 5/12/86 KLB**

SILVER LAKE - ALDERWOOD WATER DISTRICT
AGREEMENT FOR SEWAGE DISPOSAL
UNANNEXED AREA

Two tracts of land, the boundaries of which are more particularly described as follows:

PARCEL NO. 1:

BEGINNING AT THE S.E. CORNER OF THE WEST 1/2 OF THE N.W. 1/4 OF SECTION 6, T 27 N, R 5 E, W.M.;

THENCE WESTERLY, IN AND ALONG THE SOUTH LINE OF SAID WEST 1/2 TO THE S.W. CORNER THEREOF, WHICH IS ALSO IN THE WEST LINE OF SAID SECTION 6;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID SECTION 6, TO THE N.W. CORNER THEREOF, WHICH POINT IS IN THE WEST LINE OF SECTION 31, T 28 N, R 5 E, W.M.; AND IS ALSO THE S.W. CORNER OF SAID SECTION 31;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID SECTION 31 TO THE NORTH LINE OF THE S.W. 1/4 OF THE S.W. 1/4 OF SAID SECTION 31;

THENCE EASTERLY, IN AND ALONG SAID NORTH LINE TO A POINT WHICH IS 480 FEET, MORE OR LESS, FROM THE WEST LINE OF SAID SECTION 31;

THENCE NORTHERLY, IN AND ALONG A LINE WHICH IS 480 FEET, MORE OR LESS, EAST OF AND PARALLEL TO THE WEST LINE OF SAID SECTION 31, TO A POINT WHICH IS 440 FEET, MORE OR LESS, FROM SAID NORTH LINE;

THENCE EASTERLY, IN AND ALONG A LINE WHICH IS 440 FEET, MORE OR LESS, NORTHERLY OF AND PARALLEL TO THE NORTH LINE OF THE S.W. 1/4 OF THE S.W. 1/4 OF SAID SECTION 31 TO A POINT ON THE WEST LINE OF THE EAST 1/2 OF THE WEST 1/2 OF SAID SECTION 31;

THENCE SOUTHERLY, IN AND ALONG THE WEST LINE OF THE EAST 1/2 OF THE WEST 1/2 OF SAID SECTION 31, TO A POINT IN THE SOUTH LINE OF SAID SECTION 31, WHICH POINT IS ALSO THE N.E. CORNER OF THE W 1/2 OF THE N.W. 1/4 OF SECTION 6, T 27 N, R 5 E, W.M.;

THENCE SOUTHERLY, IN AND ALONG THE EAST LINE OF SAID W 1/2 OF SAID NW 1/4 TO THE S.E. CORNER THEREOF AND THE TRUE POINT OF BEGINNING.

AGREEMENT FOR SEWAGE DISPOSAL - Continued

PARCEL NO. 2:

BEGINNING AT THE N.E. CORNER OF THE S.W. 1/4 OF THE N.W. 1/4 OF SECTION 31; T 28 N, R 5 E, W.M.;

THENCE SOUTHERLY, IN AND ALONG THE EAST LINE OF SAID SUBDIVISION A DISTANCE OF 560 FEET MORE OR LESS;

THENCE WESTERLY, IN AND ALONG A LINE WHICH IS 560 FEET, MORE OR LESS, SOUTH OF THE NORTH LINE OF SAID SUBDIVISION, TO A POINT IN THE WEST LINE OF SAID SECTION 31;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID SECTION 31 A DISTANCE OF 560 FEET MORE OR LESS TO THE N.W. CORNER OF THE S.W. 1/4 OF THE N.W. 1/4 OF SAID SECTION 31;

THENCE EASTERLY, IN AND ALONG THE NORTH LINE OF SAID SUBDIVISION TO THE N.E. CORNER THEREOF AND THE TRUE POINT OF BEGINNING.

SILVER LAKE/ALDERWOOD
PROPOSED AMENDMENT
TO THE
SEWER SERVICE AGREEMENT

ADDITIONAL SERVICE AREA

Beginning at a point in the south line of the N. 1/2 of the S. 1/2 of Section 31, T. 28 N., R. 5 E., W.M.; which point is also the N.W. corner of the S.W. 1/4 of the S.E. 1/4 of said Section 31;

Thence easterly, in and along the north line of said S.W. 1/4 of the S.E. 1/4 a distance of 825 feet more or less;

Thence southerly, in and along a line which is 825 feet more or less west of and parallel to the west line of said S.W. 1/4 of the S.E. 1/4 a distance of 292 feet more or less;

Thence westerly, in and along a line which is 292 feet more or less south of and parallel to the north line of said S.W. 1/4 of the S.E. 1/4 to the west line thereof;

Thence southerly, in and along the west line of said S.E. 1/4 of the S.W. 1/4 to a point which is 538 feet more or less south of the N.W. corner of said S.W. 1/4 of the S.E. 1/4;

Thence easterly, in and along a line which is 538 feet more or less south of and parallel to the north line of said S.W. 1/4 of the S.E. 1/4 to a point which is 828 feet more or less east of the west line of said S.W. 1/4 of the S.E. 1/4;

Thence southerly, in and along a line which is 828 feet more or less easterly of and parallel to the west line of said S.W. 1/4 of the S.E. 1/4 to the south line of said Section 31;

PROPOSED SEWER SERVICE AGREEMENT - Continued

Thence westerly, in and along the south line of said Section 31 to the S.W. corner of the S.W. 1/4 of the S.E. 1/4 thereof, which point is also the N.E. corner of the N.W. 1/4 of Section 6, T. 27 N., R. 5 E., W.M.;

Thence southerly, in and along the east line of said N.W. 1/4 to the south line thereof;

Thence westerly, in and along the south line of said N.W. 1/4 to the S.W. corner of the E. 1/2 of said N.W. 1/4;

Thence northerly, in and along the west line of said E. 1/2 of the N.W. 1/4 to the N.W. corner thereof, which point is also the S.W. corner of the E. 1/2 of the W. 1/2 of Section 31, T. 28 N., R. 5 E., W.M.;

Thence northerly, in and along the west line of the E. 1/2 of the W. 1/2 of said Section 31, to a point in the north line of said Section 31, which point is also the S.E. corner of the W. 1/2 of the S.W. 1/4 of Section 30, T. 28 N., R. 5 E., W.M.;

Thence northerly, in and along the east line of said W. 1/2 to the N.E. corner thereof;

Thence westerly, in and along the north line of the S.W. 1/4 of said Section 30, to the west line thereof; which point is also in the east right-of-way line of Interstate 5;

Thence northeasterly, in and along the east right-of-way line of Interstate 5 to the south right-of-way line of Nels Peters Road;

Thence southeasterly and easterly, in and along the south right-of-way line of Nels Peters Road to the west line of the N.E. 1/4 of said Section 30;

Thence southerly, in and along the west line of said N.E. 1/4 to the south line thereof;

PROPOSED SEWER SERVICE AGREEMENT - Continued

Thence easterly, in and along the south line of said N.E. 1/4 to the N.W. corner of the E 1/2 of the S.E. 1/4 of said Section 30;

Thence southerly, in and along the west line of said E. 1/2 of the S.E. 1/4 to south line of said Section 30;

Thence easterly, in and along the south line of said Section 30 to the west right-of-way line of the Bothell - Everett Highway (SSH527);

Thence southwesterly and southerly, in and along the west right-of-way line of SSH527 to the south line of the N. 1/2 of the S. 1/2 of Section 31, T. 28 N., R 5 E., W.M.;

Thence easterly, in and along the south line of the N. 1/2 of the S. 1/2 of said Section 31 to the N.W. corner of the S.W. 1/4 of the S.E. 1/4 of said Section 31 and the point of beginning.

AGREEMENT FOR SEWAGE DISPOSAL
BETWEEN
ALDERWOOD WATER DISTRICT
AND
SILVER LAKE WATER DISTRICT

THIS AGREEMENT is made and entered into this 16TH day of SEPT., 1991, between ALDERWOOD WATER DISTRICT, a municipal corporation of the State of Washington ("Alderwood") and SILVER LAKE WATER DISTRICT, a municipal corporation of the State of Washington ("Silver Lake").

I.

R E C I T A L S

1.1 Alderwood and the Municipality of Metropolitan Seattle ("METRO") have entered into a long-term agreement for sewage disposal, dated December 1, 1966.

1.2 Alderwood has constructed the North Creek trunk sewer which connects to METRO's interceptor sewer at the King/Snohomish County line. Ultimately, Alderwood and Silver Lake shall construct the North Creek trunk sewer to the east-west centerline of Section 30, Township 28 North, Range 5 East, W.M.

1.3 Portions of Silver Lake Water District are within the Lake Washington Drainage Basin Comprehensive Plan area and can be served by the North Creek trunk sewer.

1.4 Silver Lake desires to deliver sanitary sewage collected by Silver Lake to Alderwood for transmission to METRO for treatment and disposal. Alderwood presently has the capacity and facilities to provide service to portions of Silver Lake on a limited basis.

1.5 Silver Lake is a sewer customer of Alderwood.

1.6 Alderwood has an agreement dated 1978 with Silver Lake as successor-in-interest to Fir Crest Sewer District, subsequently amended in 1986, which governed provision of sewer service to portions of Silver Lake. The parties have concluded that changing circumstances warrant revocation and rescission of that agreement and subsequent amendment and substitution of a new agreement.

II.

AGREEMENT

Now, therefore, for and in consideration of the mutual benefits and covenants set forth below, it is agreed as follows:

2.1 RESCISSION. The December 18, 1978 agreement and the October 6, 1986 amendment to that agreement between Alderwood and Silver Lake are each hereby revoked and rescinded.

2.2 COLLECTION AREAS - DELIVERY AND ACCEPTANCE. All deliveries of sewage collected by Silver Lake within the areas described in Exhibit "A" and Exhibit "B" and delivered to Alderwood facilities for transmittal by Alderwood to METRO shall be accepted by Alderwood pursuant to the terms of this Agreement.

2.3 SPECIAL PROVISIONS APPLICABLE ONLY TO AREA DESIGNATED IN EXHIBIT "B". The area described on Exhibit "B" shall be governed by provisions (a) through (g); all other provisions are applicable to the property described in Exhibits "A" and "B".

(a) All property owners and/or developers requesting service shall be required to extend the gravity system to the furthest point of their property or to participate in the area-wide sewerage system.

(b) No pumping of sewage shall be allowed which will prevent the extension of the North Creek trunk sewerline or other lateral extensions.

(c) Silver Lake shall own, operate and maintain all sewer lines within the agreement area with the exception of the North Creek trunk sewerline. Alderwood shall ultimately own, operate and maintain the North Creek trunk sewerline in its entirety from the southern boundary of the agreement area to the East-West centerline of Section 30, Township 28 North, Range 5 East W.M. However, because incremental construction is imminent, any portion of such North Creek Trunkline not receiving sewage from customers of Alderwood shall be owned, operated and maintained by Silver Lake.

When one or more customers of Alderwood is served by any portion of the North Creek Trunk sewerline, then ownership of such portion and responsibility of operation and maintenance thereof shall revert to Alderwood, and Silver Lake shall be so notified in writing.

(d) Silver Lake will encourage the extension of the North Creek trunk sewerline which is presently estimated to be approximately 18 inches in diameter through the agreement area by requiring the owners/developers to extend the trunkline or to participate in the cost of construction thereof.

(e) Design and construction of the North Creek Trunk sewerline shall conform to Alderwood specifications and design standards and must have Alderwood's written approval. Silver Lake shall furnish Alderwood with one set of reproducible engineering as-built plans of the North Creek trunk sewerline and shall allow Alderwood to inspect the construction thereof.

(f) All developer/owner plan submittals shall be processed by Silver Lake according to the rules and regulations of Alderwood and METRO. All testing and infiltration controls shall conform to METRO regulations.

(g) The parties recognize that the construction of the North Creek Trunk Sewerline will ultimately serve approximately 910 acres (61.9%) in Alderwood and 560 acres (38.1%) in Silver Lake. Whenever a property owner (developer) in the agreement area desires sewer services and proposes to develop or improve property across the general route of the North Creek Trunk Sewerline, the General Manager of each District shall meet and review the public sewer system construction requirements to be imposed on the property owner (developer). If the parties determine that such property owner (developer) shall construct the segment of the North Creek Trunk Sewerline across the proposed development, as part of the development requirement, then Alderwood's consulting engineer shall prepare a construction cost estimate and preliminary engineering plans establishing the grade and alignment of the North Creek Trunk Sewerline from the existing trunk sewer to the East-West line of Section 30, Township 28 North, Range 5 E.W.M. Silver Lake shall

pay 38.1% of the cost of such preliminary engineering. The property owner (developer) shall install such segment of the North Creek Trunk Sewerline conforming to the grade and route and of such size as determined by the preliminary engineering plans. All other property owners in the agreement area not developing across the route of the North Creek Trunk Sewerline or that will be or ultimately be served by the North Creek Trunk Sewerline shall pay to Silver Lake the connection charge required in Paragraph 2.6 plus their fair pro-rated share of the cost of the above North Creek Trunk Sewerline as determined by Alderwood after consulting with Silver Lake. Silver Lake shall submit the monies collected to Alderwood within thirty (30) days of the collection date.

2.4 INSUFFICIENT CAPACITY - SURCHARGING. Alderwood shall accept sewage from Silver Lake until Alderwood, in its sole discretion, determines that there is insufficient capacity in Alderwood's sewer system to accept additional sewage from Silver Lake. After making such determination, Alderwood shall notify Silver Lake in writing of Alderwood's intention to restrict acceptance of or to stop accepting additional sewage from Silver Lake six (6) months prior to the effective date of such notice. Except in the case of surcharging hereafter described, Silver Lake shall have the right to continue to deliver its sewage to Alderwood from customers connected to Alderwood's sewer system on the date of restriction; but shall not allow any additional connections to Alderwood's sewer system after the date of restriction, except for properties which have already: a) paid connection fees; b) been specially assessed for sewer improvements; or c) received a written one (1) year commitment from Silver Lake to deliver sewer service; provided that Alderwood is notified of the written commitment thirty (30) days prior to its effective date and has approved the same in writing; and provided further that the foregoing exceptions shall not apply to any moratorium imposed by the State Department of Ecology or the Municipality of Metropolitan Seattle, (METRO).

Alderwood shall be under no obligation to construct any new or additional sewage facilities to accept additional sewage from Silver Lake as a consequence of giving a notice of restriction.

Should any portion of Alderwood's sewer system becomes surcharged (i.e., sewage level rises above the crown [top] of the sewer pipe), because of flows from Silver Lake exceeding Alderwood's capacity, Silver Lake shall immediately take action to reduce flows to a level where the surcharging no longer exists. Alderwood shall give notice in writing to Silver Lake if a surcharge condition exists and Silver Lake shall not allow any additional connections after the date of the above notice. However, additional connections may be allowed if and when Silver Lake constructs improvements to allow such connections without surcharging the Alderwood system.

2.5 SEWAGE DISPOSAL CHARGES. Silver Lake shall pay to Alderwood during the term of this Agreement a sewage disposal charge equal to the METRO sewage disposal charge to Alderwood for each residential customer or residential customer equivalent collected from Silver Lake and delivered to Alderwood plus seventeen percent (17%) of Alderwood's retail sewer rate in the METRO service area. The sewage disposal charge to Silver Lake from Alderwood shall in no case be less than Fifteen and 75/100 Dollars (\$15.75) per month per "residential customer" or "residential customer equivalent". The term "residential customer" shall mean a single family residence billed by Silver Lake for sewer charges.

The term "residential customer equivalent" shall mean the number of billing units billed by Silver Lake for sewer service in the areas covered by this agreement, excluding residential customers. That number shall be determined by dividing the total metered water used (measured in cubic feet) by Silver Lake's non-residential customers during each month by 980.750 ~~sq.~~

The monthly sewage disposal charge paid by Silver Lake to Alderwood shall be determined by multiplying the monthly rate described above, by the number of residential customers and

residential customer equivalents. An additional charge may be made for sewage or waste of unusual quality or composition requiring special treatment, or Alderwood may require pre-treatment of such sewage or waste. An additional charge may be made for quantities of storm or groundwaters entering sewerage facilities of Silver Lake which are in excess of the minimum standards then in effect and established by the general rules and regulations of METRO. The amount of such additional charges shall be determined by Alderwood.

If Alderwood and METRO amend their agreement for sewage disposal, dated December 1, 1966, and modify the "residential customer equivalent" factor, then the numerical amount in the foregoing paragraph shall be modified accordingly.

2.6 CONNECTION CHARGES. In addition to the foregoing charges, Silver Lake shall pay to Alderwood a connection charge of Ten Cents (\$.10) per square foot of gross area of property within the agreement area described in Exhibits "A" and "B" connecting to sewer system after the date of this Agreement. Such connection charge shall be paid within 30 days following the date of connection. Included with the payment to Alderwood shall be the billing address and legal description for each property connected.

2.7 MONTHLY REPORTS - STATEMENTS. For customers subject to this Agreement, Silver Lake shall submit a monthly written report to Alderwood by the end of each month, setting forth (1) the total number of sewer customers billed by Silver Lake during such month; (2) the number of residential customers billed by Silver Lake during such month; and (3) the total water consumption during such month based on bi-monthly meter readings for all non-residential customers billed by Silver Lake. The monthly water consumption report shall be taken from the bi-monthly water meter records and may be adjusted to exclude water which does not enter the sanitary facilities of a customer. Where actual sewage flow from an individual is metered, the metered sewage flows shall be reported in lieu of adjusted water consumption.

If Silver Lake shall fail to submit the required monthly report when due, then Alderwood may make its own estimates of the number of residential customers and residential customer equivalents, and determine sewage disposal charges therefrom. Silver Lake shall pay Alderwood according to such billing. If Silver Lake subsequently submits the required monthly report and establishes an overcharge, then Silver Lake shall be given credit for such overcharge.

A statement of the amount of the monthly sewage disposal charge shall be submitted by Alderwood to Silver Lake on or before the 20th day of each month following such monthly report, and payment for such charge shall be due on the last day of the month in which the statement is received. If any charge or portion thereof due to Alderwood shall remain unpaid for 15 days following its due date, Silver Lake shall be charged with and pay to Alderwood interest on the amount unpaid from its due date until paid at the rate of 8% per annum and Alderwood may, upon failure to pay such amount, enforce payment by any remedy available at law or equity.

2.8 METRO AGREEMENT AND RULES AND REGULATIONS. As to areas subject to this agreement, Silver Lake shall comply with all conditions of the December 1, 1966 agreement for sewage disposal between Alderwood and METRO, including subsequent amendments, and shall comply with METRO's rules and regulations regarding disposal of sewage into METRO's sewerage system and the construction and use of local sewerage facilities. Silver Lake shall comply with all conditions of future agreements and/or amendment agreements between Alderwood and METRO.

2.9 ANNEXATION. Silver Lake agrees that Alderwood has facilities in place which will best serve that area between the Districts and not now annexed to either District, and will encourage and recommend that this unannexed area, as shown on

Exhibit "C", attached hereto and incorporated by this reference herein, be annexed to the Alderwood Water District.

2.10 ENGINEERING, INSPECTION AND TESTS. Silver Lake shall be responsible for the delivery of its sewage to Alderwood's sewerage system at such points as Alderwood shall determine. Detailed construction plans and specifications for proposed Silver Lake sewers that would be subject to this Agreement shall be subject to the review and approval by Alderwood and METRO. Prior to construction, Silver Lake shall submit to Alderwood for approval two sets of plans and specifications bearing the stamp of a professional engineer registered in the State of Washington. Alderwood will forward one set of plans and specifications to METRO for its approval. Silver Lake shall be responsible for inspecting the construction of Silver Lake sewerage facilities, including all side sewers up to the connection with the building plumbing to ensure compliance with rules and regulations adopted by METRO.

Silver Lake shall perform a leakage test on every section of Silver Lake's sewer system by the internal hydrostatic pressure or air test method. All testing shall conform to the latest edition of "standard specifications for municipal public works construction" prepared by the Washington State Chapter, American Public Works Association (APWA).

A record of leakage tests containing the location of Silver Lake's public sewer testing, the date of test, and the results thereof shall be submitted to Alderwood prior to the acceptance of each sewer system by Silver Lake. Side sewers shall also be tested for their entire length from Silver Lake's public sewer in the street to the connection with the building plumbing. The method of testing side sewers shall be determined by Silver Lake, but in no case shall the leakage rate exceed the limits of the exfiltration test established by APWA standards.

2.11 TERM. Subject to the terms of Paragraph 2.4, the term of this Agreement shall be the same as the METRO agreement, dated December 1, 1966, or as hereafter amended.

2.12 GENERAL PROVISIONS.

(a) This Agreement shall be for the benefit of and binding upon the heirs and assigns of the parties hereto.

(b) Any notices required or permitted under this Agreement shall be delivered to the business offices of the parties hereto.

(c) This Agreement, and its attachments, contain the entire understanding between the parties. Any prior or contemporaneous agreements, promises, negotiations, or representations not expressly set forth herein are of no force or effect. Subsequent modifications or amendments to this Agreement shall be in writing and signed by the parties hereto. The parties agree to consider plans proposed by either to turn certain expected sewer flows north to Everett which would be of mutual benefit to the parties.

(d) This Agreement shall be interpreted and enforced according to the laws of the State of Washington. Any suit to enforce the provisions of this Agreement shall be brought in Snohomish County Superior Court, Snohomish County, Washington.

(e) The parties agree that in the event either party resorts to litigations to enforce this Agreement, the court in such litigation shall award reasonable costs and expenses, including attorneys' fees and costs and fees incurred on appeal, to the prevailing party.

(f) If any provision of this Agreement is declared invalid, illegal or incapable of being enforced by any court of competent jurisdiction, all of the remaining provisions of this Agreement shall nevertheless continue in full force and effect, and

no provision shall be deemed to depend upon any other provision unless so expressed herein.

SILVER LAKE WATER DISTRICT

By [Signature]
Commissioner/President

By [Signature]
Commissioner/Vice President

By W. A. Anderson
Commissioner/Secretary

ALDERWOOD WATER DISTRICT

By [Signature]
Commissioner/President

By [Signature]
Comm./Vice President

By [Signature]
Commissioner/Secretary

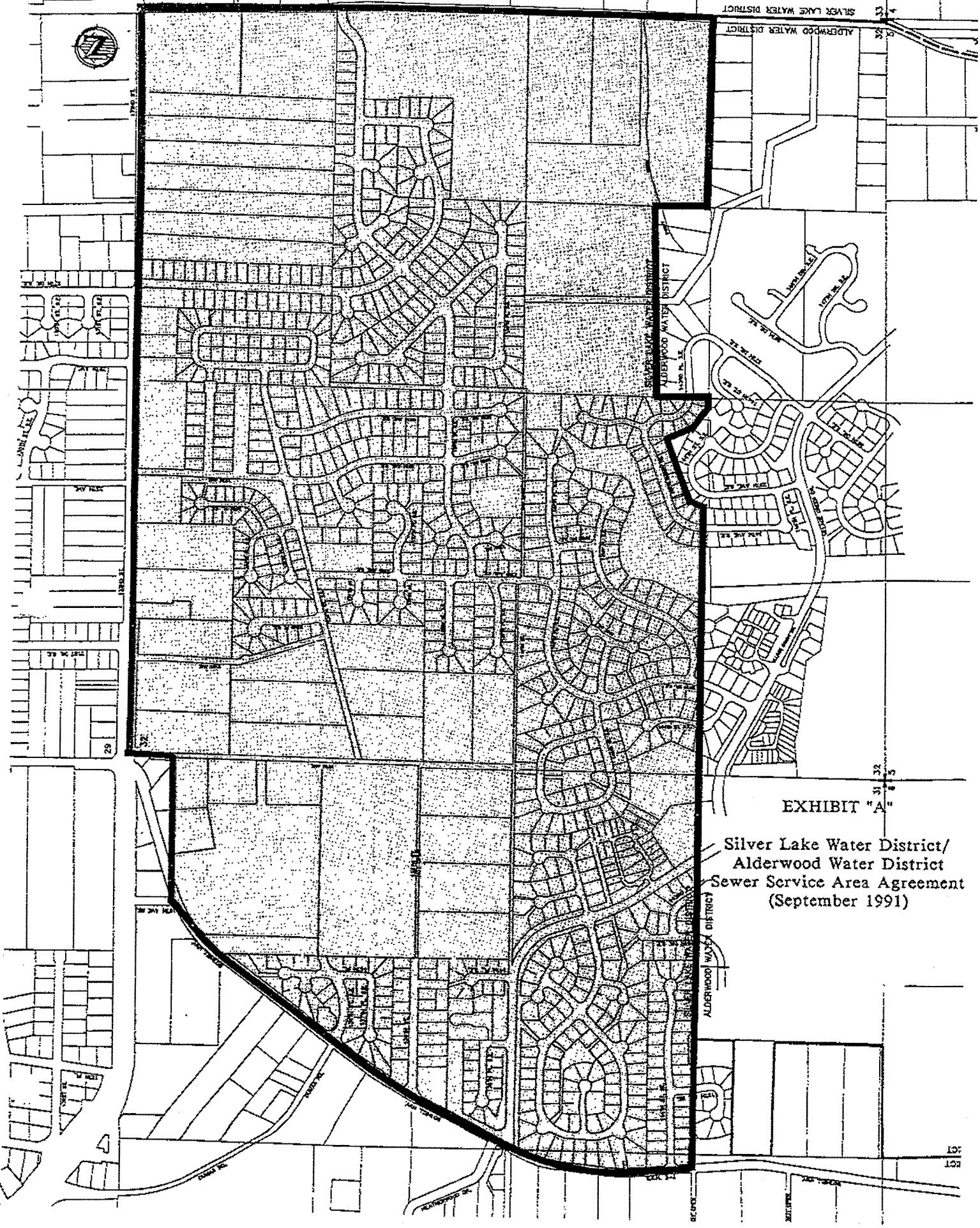


EXHIBIT "A"

Silver Lake Water District/
Alderwood Water District
Sewer Service Area Agreement
(September 1991)

SEPTEMBER 1991

SILVER LAKE/ALDERWOOD
EXHIBIT "A"
SEWER SERVICE AREA

ADDITIONAL SERVICE AREA

BEGINNING AT A POINT IN THE SOUTH LINE OF THE NORTH 1/2 OF THE SOUTH 1/2 OF SECTION 31, T 28 N, R 5 E, W.M.; WHICH POINT IS ALSO THE NORTHWEST CORNER OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 31;

THENCE EASTERLY, IN AND ALONG THE NORTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 A DISTANCE OF 825 FEET MORE OR LESS;

THENCE SOUTHERLY, IN AND ALONG A LINE WHICH IS 825 FEET, MORE OR LESS, WEST OF AND PARALLEL TO THE WEST LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 A DISTANCE OF 292 FEET MORE OR LESS;

THENCE WESTERLY, IN AND ALONG A LINE WHICH IS 292 FEET, MORE OR LESS, SOUTH OF AND PARALLEL TO THE NORTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 TO THE WEST LINE THEREOF;

THENCE SOUTHERLY, IN AND ALONG THE WEST LINE OF SAID SOUTHEAST 1/4 OF THE SOUTHWEST 1/4 TO A POINT WHICH IS 538 FEET, MORE OR LESS, SOUTH OF THE NORTHWEST CORNER OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4;

EXHIBIT "A"

EXHIBIT "A" - SEWER SERVICE AREA - CONTINUED

THENCE EASTERLY, IN AND ALONG A LINE WHICH IS 538 FEET, MORE OR LESS, SOUTH OF AND PARALLEL TO THE NORTH LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 TO A POINT WHICH IS 828 FEET, MORE OR LESS, EAST OF THE WEST LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4;

THENCE SOUTHERLY, IN AND ALONG A LINE WHICH IS 828 FEET, MORE OR LESS, EASTERLY OF AND PARALLEL TO THE WEST LINE OF SAID SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 TO THE SOUTH LINE OF SAID SECTION 31;

THENCE WESTERLY, IN AND ALONG THE SOUTH LINE OF SAID SECTION 31 TO THE SOUTHWEST CORNER OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 THEREOF, WHICH POINT IS ALSO THE NORTHEAST CORNER OF THE NORTHWEST 1/4 OF SECTION 6, T 27 N, R 5 E, W.M.;

THENCE SOUTHERLY, IN AND ALONG THE EAST LINE OF SAID NORTHWEST 1/4 TO THE SOUTH LINE THEREOF;

THENCE WESTERLY, IN AND ALONG THE SOUTH LINE OF SAID NORTHWEST 1/4 TO THE SOUTHWEST CORNER OF THE EAST 1/2 OF SAID NORTHWEST 1/4;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID EAST 1/2 OF THE NORTHWEST 1/4 TO THE NORTHWEST CORNER THEREOF, WHICH POINT IS ALSO THE SOUTHWEST CORNER OF THE EAST 1/2 OF THE WEST 1/2 OF SECTION 31 T 28 N, R 5 E, W.M.;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF THE EAST 1/2 OF THE WEST 1/2 OF SAID SECTION 31, TO A POINT IN THE NORTH LINE OF SAID SECTION 31, WHICH POINT IS ALSO THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 30, T 28 N, R 5 E, W.M.;

THENCE NORTHERLY, IN AND ALONG THE EAST LINE OF SAID W 1/2 TO THE NORTHEAST CORNER THEREOF;

EXHIBIT "A"

EXHIBIT "A" - SEWER SERVICE AREA - CONTINUED

THENCE WESTERLY, IN AND ALONG THE NORTH LINE OF THE
SOUTHWEST 1/4 OF SAID SECTION 30, TO THE WEST LINE THEREOF;
WHICH POINT IS ALSO IN THE EAST RIGHT-OF-WAY LINE OF INTERSTATE
5;

THENCE NORTHEASTERLY, IN AND ALONG THE EAST RIGHT-OF-WAY
LINE OF INTERSTATE 5 TO THE SOUTH RIGHT-OF-WAY LINE OF NELS
PETERS ROAD;

THENCE SOUTHEASTERLY AND EASTERLY, IN AND ALONG THE SOUTH
RIGHT-OF-WAY LINE OF NELS PETERS ROAD TO THE WEST LINE OF THE
NORTHEAST 1/4 OF SAID SECTION 30;

THENCE SOUTHERLY, IN AND ALONG THE WEST LINE OF SAID
NORTHEAST 1/4 TO THE SOUTH LINE THEREOF;

THENCE EASTERLY, IN AND ALONG THE SOUTH LINE OF SAID
NORTHEAST 1/4 TO THE NORTHWEST CORNER OF THE EAST 1/2 OF THE
SOUTHEAST 1/4 OF SAID SECTION 30;

THENCE SOUTHERLY, IN AND ALONG THE WEST LINE OF SAID EAST 1/2
OF THE SOUTHEAST 1/4 TO SOUTH LINE OF SAID SECTION 30;

THENCE EASTERLY, IN AND ALONG THE SOUTH LINE OF SAID SECTION
30 TO THE WEST RIGHT-OF-WAY LINE OF THE BOTHELL - EVERETT
HIGHWAY (SSH527);

THENCE SOUTHWESTERLY AND SOUTHERLY, IN AND ALONG THE WEST
RIGHT-OF-WAY LINE OF SSH527 TO THE SOUTH LINE OF THE NORTH 1/2
OF THE SOUTH 1/2 OF SECTION 31, T 28 N, R 5 E, W.M.;

THENCE EASTERLY, IN AND ALONG THE SOUTH LINE OF THE NORTH 1/2
OF THE SOUTH 1/2 OF SAID SECTION 31 TO THE NORTHWEST CORNER OF
THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 31 AND
THE POINT OF BEGINNING.

EXHIBIT "A"

SILVER LAKE

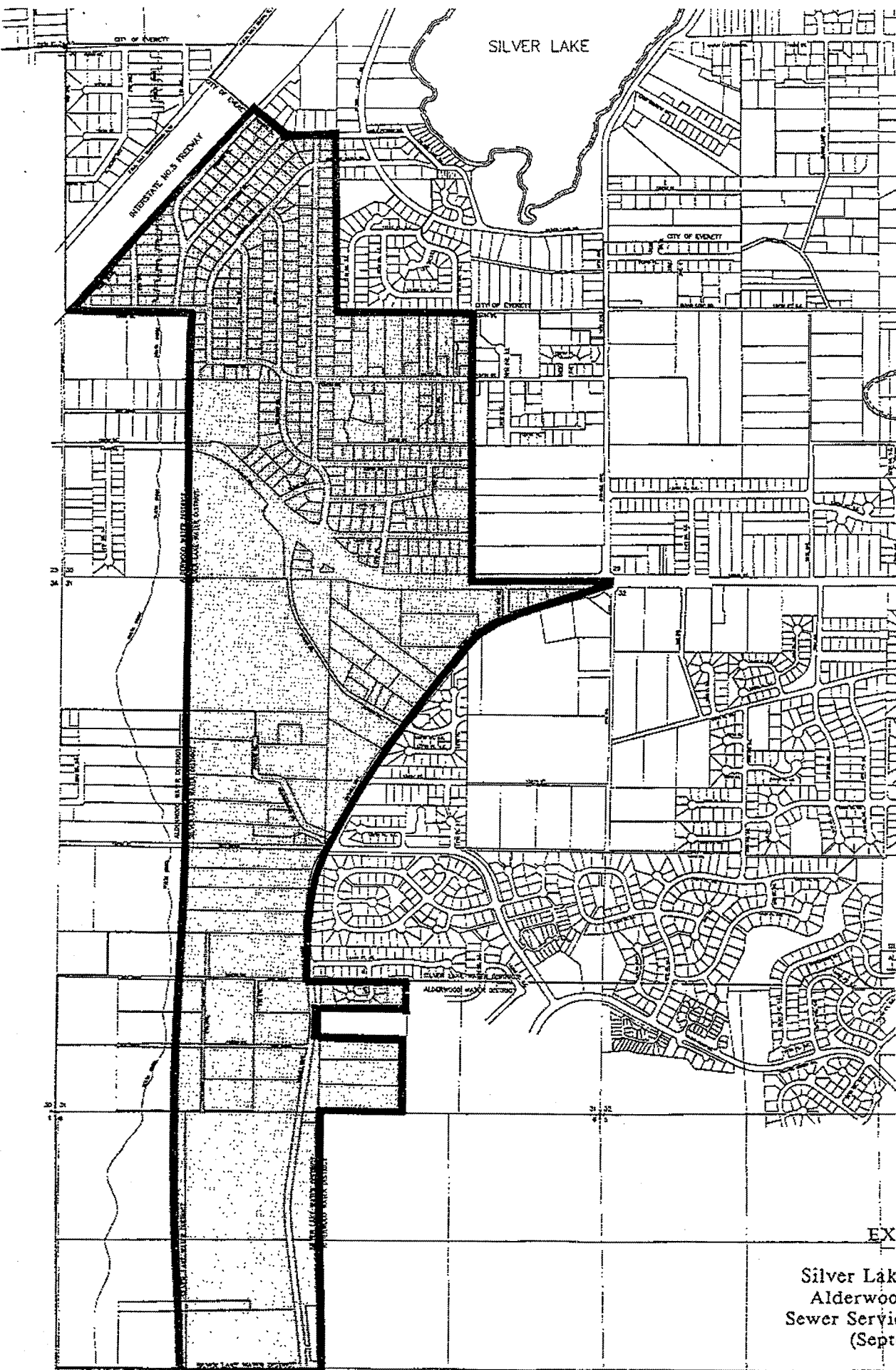


EXHIBIT "B"

Silver Lake Water District/
Alderwood Water District
Sewer Service Area Agreement
(September 1991)

SEPTEMBER 1991

SILVER LAKE/ALDERWOOD WATER DISTRICT

EXHIBIT "B"

SEWER SERVICE AREA

BEGINNING AT THE NORTHEAST CORNER OF SECTION 32, TWP 28 N, RNG 5 E, W.M.;

THENCE SOUTHERLY ALONG THE EASTERLY BOUNDARY OF SAID SECTION 32 TO THE SOUTHEAST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 32;

THENCE WESTERLY ALONG THE SOUTH LINE OF SAID NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 32 TO THE SOUTHWEST CORNER OF SAID NORTHWEST 1/4 OF SOUTHEAST 1/4 OF SAID SECTION 32;

THENCE NORTHERLY ALONG THE WESTERLY BOUNDARY OF SAID NORTHWEST 1/4 FOR A DISTANCE OF 325 FEET, MORE OR LESS, TO THE SOUTHEAST CORNER OF LOT 9 OF THE PLAT OF LAKEVIEW FARMS;

THENCE WESTERLY ALONG THE SOUTHERLY LOT LINE OF LOT 9 TO THE EASTERLY RIGHT-OF-WAY LINE OF 29TH AVENUE;

THENCE CONTINUING WESTERLY FOR A DISTANCE OF FIFTY (50) FEET, MORE OR LESS, TO A POINT ON THE WESTERLY BOUNDARY OF 29TH AVENUE, SAID POINT ALSO BEING THE NORTHEASTERLY CORNER OF LOT 36 OF THE PLAT OF MILL CREEK NO. 6;

THENCE WESTERLY ALONG THE NORTHERLY BOUNDARY OF SAID PLAT OF MILL CREEK, DIVISION NO. 6, TO WESTERLY LINE OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 32;

EXHIBIT "B"

EXHIBIT "B" - SEWER SERVICE AREA - CONTINUED

THENCE SOUTHERLY ALONG SAID WESTERLY LINE TO SOUTHWEST CORNER OF SAID NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 32;

THENCE WESTERLY TO THE SOUTHWEST CORNER OF LOT 130 OF THE PLAT OF MILL CREEK NO. 6;

THENCE NORTHERLY ALONG THE SOUTH AND WESTERLY LOT LINES OF LOTS 130, 131, 132, AND 133 TO THE NORTH WESTERLY CORNER OF LOT 133 OF SAID MILL CREEK NO. 6;

THENCE WESTERLY TO THE MOST SOUTHERLY SOUTHEAST CORNER OF LOT 135 OF SAID PLAT OF MILL CREEK NO. 6;

THENCE SOUTHERLY AND SOUTHEASTERLY ALONG THE SOUTH LOT LINES OF LOTS 135, 136, 137, 138, 139, 140, 141 AND 142 TO A POINT ON THE NORTHERLY LINE OF THE SOUTH 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 32;

THENCE WESTERLY IN AND ALONG SAID NORTHERLY LINE TO THE WESTERLY BOUNDARY OF SECTION 32;

THENCE CONTINUING WESTERLY IN AND ALONG THE NORTH LINE OF THE SOUTH 1/2 OF THE SOUTH 1/2 OF SECTION 31, TWP 28 N, RNG 5 E, W.M., TO THE CENTERLINE OF THE BOTHELL-EVERETT HWY (SSH 527);

THENCE NORTHERLY IN AND ALONG SAID CENTERLINE OF THE BOTHELL-EVERETT HIGHWAY TO THE CENTERLINE INTERSECTION OF THE BOTHELL-EVERETT HIGHWAY AND 16TH AVENUE SOUTHEAST;

THENCE EASTERLY PARALLEL TO THE NORTH LINE OF SECTION 32 TO A POINT ON THE EAST BOUNDARY OF SAID SECTION 32, SAID POINT ALSO BEING A POINT ON THE WESTERLY BOUNDARY OF THE AFOREMENTIONED SECTION 31;

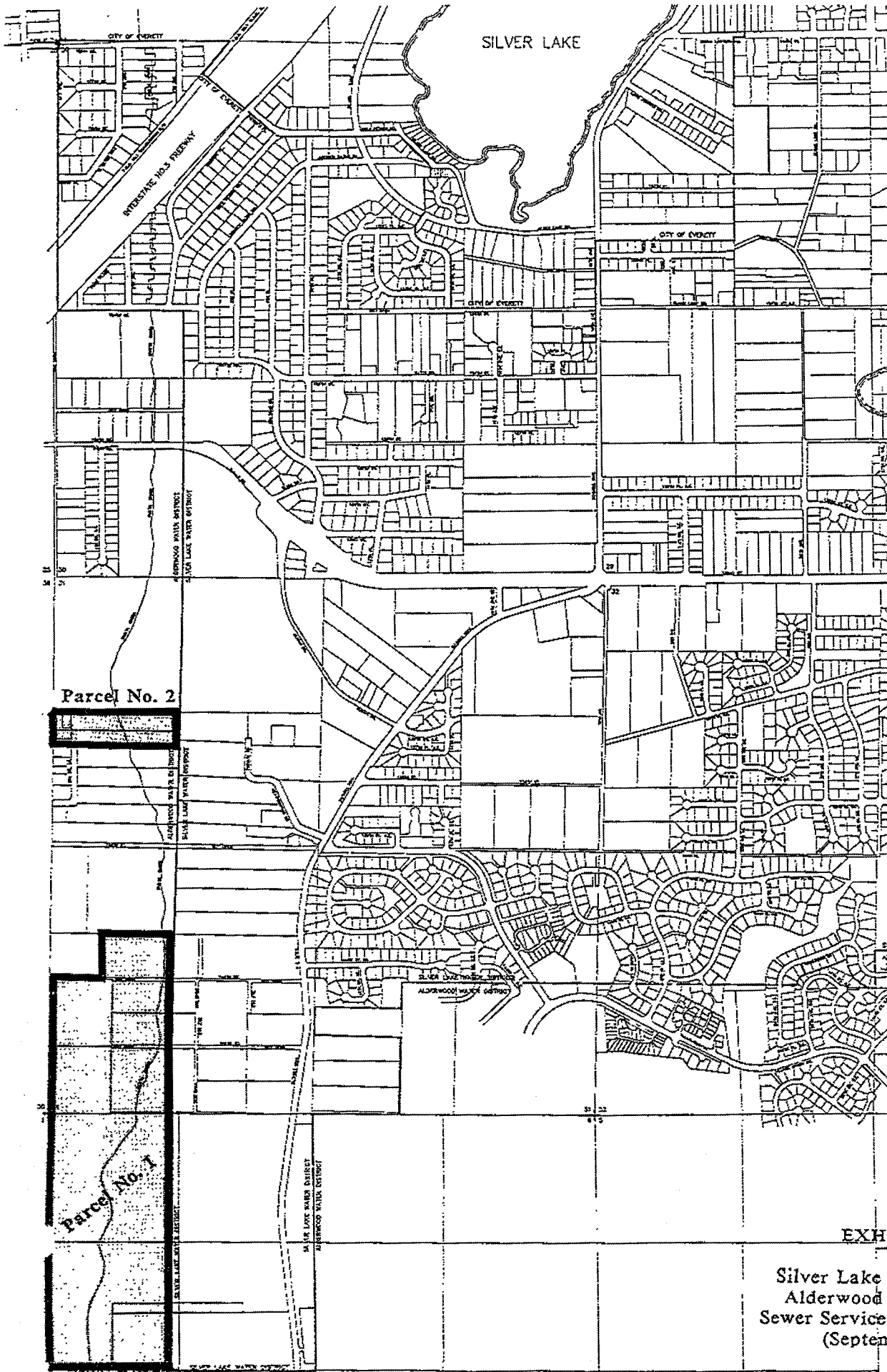
EXHIBIT "B"

EXHIBIT "B" - SEWER SERVICE AREA - CONTINUED

THENCE NORTHERLY ALONG SAID WESTERLY BOUNDARY TO THE
NORTHWEST CORNER OF SECTION 32;

THENCE EASTERLY ALONG THE NORTHERLY LINE OF SECTION 32 TO
THE NORTHEAST CORNER OF SAID SECTION 32, SAID CORNER POINT
ALSO BEING THE POINT OF BEGINNING.

EXHIBIT "B"



Parcel No. 2

Parcel No. 1

EXHIBIT "C"

Silver Lake Water District/
Alderwood Water District
Sewer Service Area Agreement
(September 1991)

SEPTEMBER 1991

SILVER LAKE/ALDERWOOD WATER DISTRICT

AGREEMENT FOR SEWAGE DISPOSAL
UNANNEXED AREA

Two tracts of land, the boundaries of which are more particularly described as follows:

PARCEL NO. 1:

BEGINNING AT THE SOUTHEAST CORNER OF THE WEST 1/2 OF THE NORTHWEST 1/4 OF SECTION 6, T 27 N, R. 5 E, W.M.;

THENCE WESTERLY, IN AND ALONG THE SOUTH LINE OF SAID WEST 1/2 TO THE SOUTHWEST CORNER THEREOF, WHICH IS ALSO IN THE WEST LINE OF SAID SECTION 6;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID SECTION 6, TO THE NORTHWEST CORNER THEREOF, WHICH POINT IS IN THE WEST LINE OF SECTION 31, T 28 N, R 5 E, W.M.; AND IS ALSO THE SOUTHWEST CORNER OF SAID SECTION 31;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID SECTION 31 TO THE NORTH LINE OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION 31;

THENCE EASTERLY, IN AND ALONG SAID NORTH LINE TO A POINT WHICH IS 480 FEET, MORE OR LESS, FROM THE WEST LINE OF SAID SECTION 31;

THENCE NORTHERLY, IN AND ALONG A LINE WHICH IS 480 FEET, MORE OR LESS, EAST OF AND PARALLEL TO THE WEST LINE OF SAID SECTION 31, TO A POINT WHICH IS 440 FEET, MORE OR LESS, FROM SAID NORTH LINE;

EXHIBIT "C"

AGREEMENT FOR SEWAGE DISPOSAL - Continued

THENCE EASTERLY, IN AND ALONG A LINE WHICH IS 440 FEET, MORE OR LESS, NORTHERLY OF AND PARALLEL TO THE NORTH LINE OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION 31 TO A POINT ON THE WEST LINE OF THE EAST 1/2 OF THE WEST 1/2 OF SAID SECTION 31;

THENCE SOUTHERLY, IN AND ALONG THE WEST LINE OF THE EAST 1/2 OF THE WEST 1/2 OF SAID SECTION 31, TO A POINT IN THE SOUTH LINE OF SAID SECTION 31, WHICH POINT IS ALSO THE NORTHEAST CORNER OF THE WEST 1/2 OF THE NORTHWEST 1/4 OF SECTION 6, T 27 N, R 5 E, W.M.;

THENCE SOUTHERLY, IN AND ALONG THE EAST LINE OF SAID W 1/2 OF SAID NORTHWEST 1/4 TO THE SOUTHEAST CORNER THEREOF AND THE TRUE POINT OF BEGINNING.

PARCEL NO. 2:

BEGINNING AT THE NORTHEAST CORNER OF THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 31; T 28 N, R 5 E, W.M.;

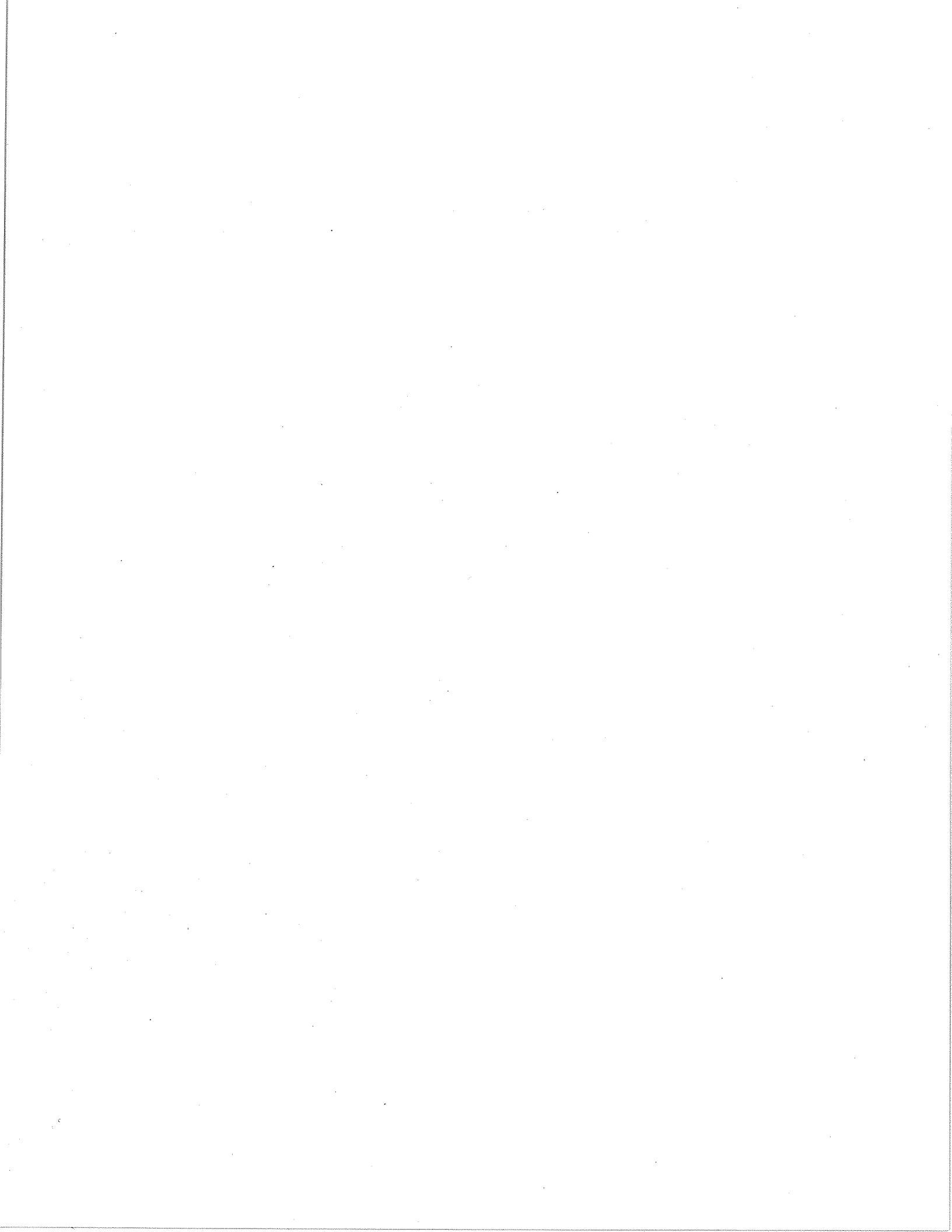
THENCE SOUTHERLY, IN AND ALONG THE EAST LINE OF SAID SUBDIVISION A DISTANCE OF 560 FEET MORE OR LESS;

THENCE WESTERLY, IN AND ALONG A LINE WHICH IS 560 FEET, MORE OR LESS, SOUTH OF THE NORTH LINE OF SAID SUBDIVISION, TO A POINT IN THE WEST LINE OF SAID SECTION 31;

THENCE NORTHERLY, IN AND ALONG THE WEST LINE OF SAID SECTION 31, FOR A DISTANCE OF 560 FEET MORE OR LESS TO THE NORTHWEST CORNER OF THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF SAID SECTION 31;

THENCE EASTERLY, IN AND ALONG THE NORTH LINE OF SAID SUBDIVISION TO THE NORTHEAST CORNER THEREOF AND THE TRUE POINT OF BEGINNING.

EXHIBIT "C"



AGREEMENT FOR SEWAGE DISPOSAL
AND INTERIM WATER SUPPLY
BETWEEN
ALDERWOOD WATER & WASTEWATER DISTRICT
AND
SILVER LAKE WATER DISTRICT

This AGREEMENT ("Agreement") is made and entered into this 21 day of July, 2006, between ALDERWOOD WATER AND WASTEWATER DISTRICT, a Municipal corporation of the State of Washington ("Alderwood") and SILVER LAKE WATER DISTRICT, a Municipal corporation of the State of Washington ("Silver Lake") (individually a "Party" and collectively the "Parties")

I.

RECITALS

1.1 Alderwood and the Municipality of Metropolitan Seattle ("METRO") have entered into a long-term Agreement for sewage disposal, dated December 1, 1966 and as thereafter amended in August 1981, January 1984, December 1991 and October 1992.

1.2 METRO subsequently has merged with the Metropolitan King County Council ("King County") and King County has taken over all active METRO Contracts including those with Alderwood.

1.3 Alderwood constructed the North Creek trunk sewer, which connects to King County's interceptor sewer at the King/Snohomish County line.

1.4 Alderwood subsequently sold the North Creek trunk sewer to King County.

1.5 Silver Lake desires to deliver sanitary sewage, collected by Silver Lake, to Alderwood for transmission to King County for treatment and disposal. Alderwood

presently has the capacity and facilities to provide service to portions of Silver Lake on a limited basis.

1.6 Silver Lake is a sewer customer of Alderwood pursuant to existing interlocal agreements.

1.7 The most feasible and economical method to provide Silver Lake's desired sanitary sewer services described in paragraph 1.5 above is to use portions of Silver Lake's gravity sewer lines and, for specific areas in Alderwood, Silver Lake's 164th St. Lift station or Silver Lake's future 180th St. Lift Station.

1.8 Construction of Silver Lake's 180th St. Lift Station is expected to occur following approval of this Agreement.

1.9 All parcels referenced herein are legally described and depicted in Exhibit 1, which is attached hereto and incorporated herein as if fully set forth.

1.10 With approval of both Districts' Board of Commissioners, Silver Lake recently annexed property adjacent to both Districts, referenced in this Agreement as parcel B.

1.11 Alderwood and Silver Lake agree Alderwood can supply water to parcels B, E and F from Alderwood transmission line on 180th Street SE on an interim basis.

1.12 Such transmission line is an Alderwood extension of the Clearview facilities jointly constructed by both Alderwood and Silver Lake as well as Cross Valley Water District.

1.13 Alderwood commits to supply water to Silver Lake to meet the water needs of parcels B, E and F and Silver Lake agrees to purchase water from Alderwood to serve this area on an interim basis.

1.14 Alderwood has an Agreement dated the 13th day of June 1996 with Silver Lake that governs provision of sewer service to portions of Silver Lake. The parties have concluded that changing circumstances warrant revocation and rescission of that Agreement and substitution of a new Agreement.

II.

AGREEMENT

Now, therefore, and in consideration of the mutual benefits and covenants set forth below, it is agreed as follows:

2.1 RESCISSION. The June 1996 Agreement between Alderwood and Silver Lake is revoked and rescinded.

2.2 RECITALS. The preceding recitals are adopted herein as if set forth in full.

SEWER DISPOSAL

3.1 COLLECTION AREAS - DELIVERY AND ACCEPTANCE.

3.1 A. All deliveries of sewage collected by Silver Lake within parcels A, B, E and F and delivered to Alderwood facilities for transmittal by Alderwood to King County shall be accepted by Alderwood pursuant to the terms of this Agreement. To collect and deliver sewage from parcels B, E and F, Silver Lake, using Developer Extension Agreements with property owners and developers in these areas shall build a lift station on 180th St. and force main with sufficient capacity to handle flows from parcels B, D, E and F and sufficient length to reach a manhole in Alderwood's system to avoid potential surcharging in Alderwood's collection line in 180th St. west of 35th Ave. SE.

3.1 B. All deliveries of sewage collected by Silver Lake within parcel H and delivered to Alderwood facilities for transmittal by Alderwood to King County shall be accepted by Alderwood on an interim basis pursuant to the terms of this Agreement. At such time as Alderwood provides for both sewer and water infrastructure improvements to serve parcel H, without the use of Silver Lake systems, Alderwood may require Silver Lake to transfer customers in parcel H to Alderwood upon 60 days notice.

3.1 C. All deliveries of sewage collected by Alderwood within parcels C and D and delivered to Silver Lake facilities for transmittal by Silver Lake to Alderwood's sewage transmission lines shall be accepted by Silver Lake pursuant to the terms of this Agreement.

3.1 D. All deliveries of sewage collected by Alderwood within parcel G and delivered to Silver Lake facilities shall be accepted by Silver Lake pursuant to the terms of this Agreement.

3.2 A. INSUFFICIENT CAPACITY - SURCHARGING. -
ALDERWOOD

Alderwood shall accept sewage from Silver Lake from those parcels described in subsections A and B of Section 3.1 above, until Alderwood, in its sole discretion, determines that there is insufficient capacity in Alderwood's sewer system to accept additional sewage from Silver Lake. After making such determination, Alderwood shall notify Silver Lake in writing of Alderwood's intention to restrict acceptance of, or to stop accepting, additional sewage from Silver Lake in the parcels described in subsections A and B of Section 3.1 above, six (6) months prior to the effective date of such notice.

Except in the case of surcharging hereafter described, Silver Lake shall have the right to continue to deliver its sewage to Alderwood from Silver Lake customers connected to Alderwood's sewer system prior to the date of restriction; but shall not allow any additional connections to Alderwood's sewer system after the date of restriction, except for properties which have already: a) paid connection fees; or b) been assessed for sewer improvements pursuant to ULID procedures; provided that the foregoing exceptions shall not apply to any moratorium imposed by the State Department of Ecology or King County that specifically applies to properties which have already paid connection fees or been specially assessed for sewer improvements.

Alderwood shall be under no obligation to construct any new or additional sewage facilities to accept additional sewage from Silver Lake as a consequence of giving a notice of restriction; provided, Alderwood will use its reasonable efforts to prioritize design and construction efforts to remedy the insufficient capacity problem.

Should surcharging occur in any of the lines servicing the parcels described in subsections A and B of Section 3.1 above, Alderwood shall move expeditiously to upgrade said lines.

Except as provided herein, should any portion of Alderwood's sewer system become surcharged (i.e., sewage level rises above the crown [top] of the sewer pipe), because of flows from Silver Lake exceeding Alderwood's capacity, Silver Lake shall immediately take action to reduce flows to a level where the surcharging no longer exists. Alderwood shall give notice in writing to Silver

Lake if a surcharge condition exists and Silver Lake shall not allow any additional connections after the date of the above notice until Alderwood system improvements alleviating the surcharge condition have been constructed. However, additional connections may be allowed if and when Silver Lake constructs improvements to allow such connections without surcharging the Alderwood system.

3.2 B. INSUFFICIENT CAPACITY - SURCHARGING SILVER LAKE

Silver Lake shall accept sewage from Alderwood from those parcels described in subsections C and D of Section 3.1 above until Silver Lake, in its sole discretion, determines that there is insufficient capacity in Silver Lake's sewer system to accept additional sewage from Alderwood. After making such determination, Silver Lake shall notify Alderwood in writing of Silver Lake's intention to restrict acceptance of, or to stop accepting, additional sewage from Alderwood six (6) months prior to the effective date of such notice. Except in the case of surcharging hereafter described, Alderwood shall have the right to continue to deliver its sewage to Silver Lake from customers connected to Silver Lake's sewer system prior to the date of restriction; but shall not allow any additional connections to Silver Lake's sewer system after the date of restriction, except for properties which have already: a) paid connection fees; or b) been assessed for sewer improvements pursuant to ULID procedures; provided that the foregoing exceptions shall not apply to any moratorium imposed by the State Department of Ecology or King County that specifically applies to properties which have already paid connection fees or been specially assessed for sewer improvements.

Silver Lake shall be under no obligation to construct any new or additional sewage facilities to accept additional sewage from Alderwood as a consequence of giving a notice of restriction; provided, Silver Lake will use its reasonable efforts to prioritize design and construction efforts to remedy the insufficient capacity problem.

3.3 SEWAGE DISPOSAL CHARGES - SILVER LAKE.

On a monthly basis, and as more fully set forth in Section 3.6 herein, Silver Lake shall pay to Alderwood during the term of this Agreement a sewage disposal charge equal to the King County sewage disposal charge to Alderwood for each residential customer or residential customer equivalent in parcels A, B, E, F and H, plus twelve percent (12%) of Alderwood's retail sewer rate in the King County service area. Any adjustment to this rate shall only be applied prospectively from the date of Silver Lake's receipt of written notice from Alderwood of such adjustment.

The term "residential customer" shall mean a single family residence billed by Silver Lake for sewer charges. The term "residential customer equivalent" shall mean the number of billing units billed by Silver Lake for sewer service in the areas covered by this Agreement, excluding residential customers. That number shall be determined by dividing the total metered water used (measured in cubic feet) by Silver Lake's non-residential sewer customers in the areas covered by this Agreement during each month by 750.

The monthly sewage disposal charge paid by Silver Lake to Alderwood shall be determined by multiplying the monthly rate described above, by the number of residential customers and residential customer equivalents. An

additional charge may be made for sewage or waste of unusual quality or composition requiring special treatment, or Alderwood may require pre-treatment of such sewage or waste. An additional charge may be made for quantities of storm or groundwaters entering sewerage facilities of Silver Lake, which are in excess of the minimum standards then in effect and established by the general rules and regulations of King County. By mutual agreement, the Parties shall determine the amount of such additional charges based on industry standards for "cost of service rate setting".

If Alderwood and King County amend their agreement for sewage disposal, dated December 1, 1966, and modify the "residential customer equivalent" factor, then the numerical amount in the foregoing paragraph shall be modified accordingly.

3.4 SEWAGE DISPOSAL CHARGES - ALDERWOOD

By the end of each month, Alderwood shall pay to Silver Lake during the term of this Agreement a sewage disposal charge equal to the ratio of Alderwood residential customers and residential customer equivalents in parcels D (D) to the number of Silver Lake residential customers and residential customer equivalents in parcels B, E and F (B+E+F) multiplied by Silver Lake's monthly operation and maintenance cost for 180th St. Lift Station (Lift Station Costs). The formula is $D/B+E+F \times \text{Lift Station Costs} = \text{Alderwood's monthly remittance to Silver Lake.}$

3.5 CONNECTION CHARGES.

In addition to the foregoing charges, Silver Lake shall pay to Alderwood a connection charge equal to Alderwood's General Facility Charge, now in effect or as

may be hereafter modified, applicable to the particular Silver Lake customer. Such connection charge shall be paid within 30 days following the date of connection of property within parcels A, B, E, F and H. Included with the payment to Alderwood shall be the billing address and legal description for each property connected. In addition, all properties are subject to payment of the capacity charge levied by King County. Silver Lake shall report all new connections to its sewer system subject to this Agreement to King County on standard reporting forms as developed by King County.

3.6 MONTHLY REPORTS - STATEMENTS.

Silver Lake shall submit a monthly written report to Alderwood by the 10th of each month, setting forth (1) the total number of active residential and residential customer equivalent sewer customers billed by Silver Lake during such month, less the number of active residential customers and residential customer equivalents billed by Alderwood in parcel G (see paragraph below), (2) the monthly operation and maintenance cost for 180th St. Lift Station and (3) a total water consumption report during such month based on monthly meter readings for all active non-residential customers billed by Silver Lake in parcels A, B, E, F and H to verify the calculation of customer equivalents. The monthly water consumption report shall be taken from the monthly water meter records and may be adjusted to exclude water, which does not enter the sanitary facilities of a customer. The parties agree 15% of water usage by active metered non-residential customers does not enter the sanitary facilities of such customers. Where actual sewage flow from an individual is metered, the metered sewage

flows shall be reported in lieu of adjusted water consumption.

By the 10th of the month, Alderwood shall calculate "residential customer" and "residential customer equivalent" for all customers within parcel G and provide such information to Silver Lake. Silver Lake shall subtract this number from the total number of "residential customers" and "residential customer equivalents" used to calculate the monthly sewage disposal charge paid by Silver Lake to Alderwood.

If Silver lake shall fail to submit the required monthly report when due, then Alderwood may make its own estimates of the number of residential customers and residential customer equivalents, and determine sewage disposal charges therefrom. Silver Lake shall pay Alderwood according to such billing. If Silver Lake subsequently submits the required monthly reports and establishes an overcharge, then Silver Lake shall be given credit for such overcharge.

A statement of the amount of the monthly sewage disposal charge shall be submitted by Alderwood to Silver Lake on or before the 20th day of each month following such monthly report, and payment for such charge shall be due on the last day of the following month in which the statement is received. If any charge or portion thereof due to Alderwood shall remain unpaid for 15 days following its due date, Silver Lake shall be charged with and pay to Alderwood interest on the amount unpaid from its due date until paid at the rate of 8% per annum and Alderwood may, upon failure to pay such amount, enforce payment by any remedy available at law or equity.

3.7 KING COUNTY AGREEMENT AND RULES AND REGULATIONS.

As to areas subject to this Agreement, Silver Lake agrees and shall comply with all conditions of the December 1, 1966 Agreement, as amended and as may be amended subsequent to the effective date of this Agreement, for sewage disposal between Alderwood and King County. Silver Lake shall comply with King County's rules and regulations regarding disposal of sewage into King County's sewerage system and the construction and use of local sewerage facilities. Silver Lake agrees and shall comply with all conditions of future agreements between King County and Alderwood relating disposal of sewage into King County's sewerage system and the construction and use of local sewerage facilities.

ANNEXATION

4.1 ANNEXATION. Alderwood agrees that Silver Lake is the more appropriate District to best serve water and sewer to those areas depicted and described as parcels E and F. Alderwood shall encourage and recommend that this un-annexed area be annexed to Silver Lake.

INTERIM WATER SERVICE

5.1 SERVICE AREA. The provisions of this Section 5 shall apply to parcels B, E and F.

5.2 DELIVERY OF WATER. Alderwood agrees to deliver to Silver Lake and Silver Lake agrees to pay Alderwood for delivery of potable water to be used by Silver Lake to supply on an interim basis all or portions of parcels B, E and F for customers seeking water service from Silver Lake.

5.3 POINTS OF DELIVERY. Alderwood shall deliver water to Silver Lake at agreed connection points along Alderwood's transmission water lines in or adjacent to

parcel B in Silver Lake. Silver Lake shall install a master meter at each connection point at Silver Lake's expense. A master meter installation shall include telemetry of flow data and any necessary control functions and shall meet the specifications and approval of Alderwood. The actual point of connection point shall be the upstream flange of the valve downstream of each master meter and check valve.

5.4 Quantity of Water. Alderwood and Silver Lake acknowledge that each have made, and will continue to make, significant capital investments in the Clearview Group water facilities which are designed and constructed to transmit water from Everett's pipeline 5 to serve both Alderwood and Silver Lake. Silver Lake has a 9 million gallon a day share in the current Clearview Facility capacity. Such share may increase in the future to 12 million gallons a day. All water obtained from Alderwood's transmission line shall be charged against Silver Lake's share of Clearview Facility capacity. Silver Lake shall not take more than 750,000 gallons a day from connections to Alderwood's Clearview transmission line. Delivery of water to Silver Lake from Alderwood's transmission line from the Clearview Reservoir will be treated as though it was delivered directly to Silver Lake from the Clearview pipeline. Alderwood and Silver Lake agree Silver Lake's cost of water for parcels B, E and F will be the same as its cost of water taken by Silver Lake directly from the Clearview pipeline; provided, Silver Lake will ensure any water taken in this manner will be included in Silver Lake's monthly water amount for calculation of water consumption by the Clearview Water Supply Agency.

MISCELLANEOUS PROVISIONS

6.1 TERM. The term of this Agreement shall be the same as the METRO Agreement, dated December 1, 1966, and as thereafter amended, or as hereafter may be amended.

6.2 GENERAL PROVISIONS.

(a) Neither Party shall have the right to assign this Agreement or any of its rights and obligations hereunder except either by operation of law or by voluntary agreement.

(b) Any notices required or permitted under this Agreement shall be delivered to the business offices of the Parties hereto.

(c) This Agreement, and its attachments, contain the entire understanding between the Parties. Any prior or contemporaneous agreements, promises, negotiations, or representations not expressly set forth herein are of no force or effect. Subsequent modifications or amendments to this Agreement shall be in writing and signed by the Parties hereto. The Parties agree to consider plans proposed by either to turn certain expected sewer flows north to Everett which would be of mutual benefit to the parties.

(d) This Agreement shall be interpreted and enforced according to the laws of the State of Washington. Any suit to enforce the provisions of this Agreement shall be brought in Snohomish County Superior Court, Snohomish County, Washington.

(e) The Parties agree that in the event either party resorts to litigations to enforce this Agreement, the court in such litigation shall award reasonable costs and expenses, including attorney's fees and costs and fees incurred on appeal, to the prevailing party.

(f) If any provision of this Agreement is declared invalid, illegal or incapable of being enforced by any court of competent jurisdiction, all of the remaining provisions of this Agreement shall nevertheless continue in full force and effect, and no provision shall be deemed to depend upon any other provision unless so expressed herein.

(g) Pursuant to RCW 39.34.040, this Agreement shall be filed with the Snohomish County Auditor or, alternatively, listed by subject on a public agency's web site or other electronically retrievable public source, following its approval and execution by the Parties.

(h) This Agreement may be signed in counterparts and, if so signed, shall be deemed one integrated Agreement.

SILVER LAKE WATER DISTRICT

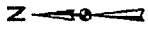
ALDERWOOD WATER AND WASTEWATER DISTRICT

BY: Bill Anderson
Commissioner/President

BY: Ray M. Seng
Commissioner/President

DATE: July 21, 2006

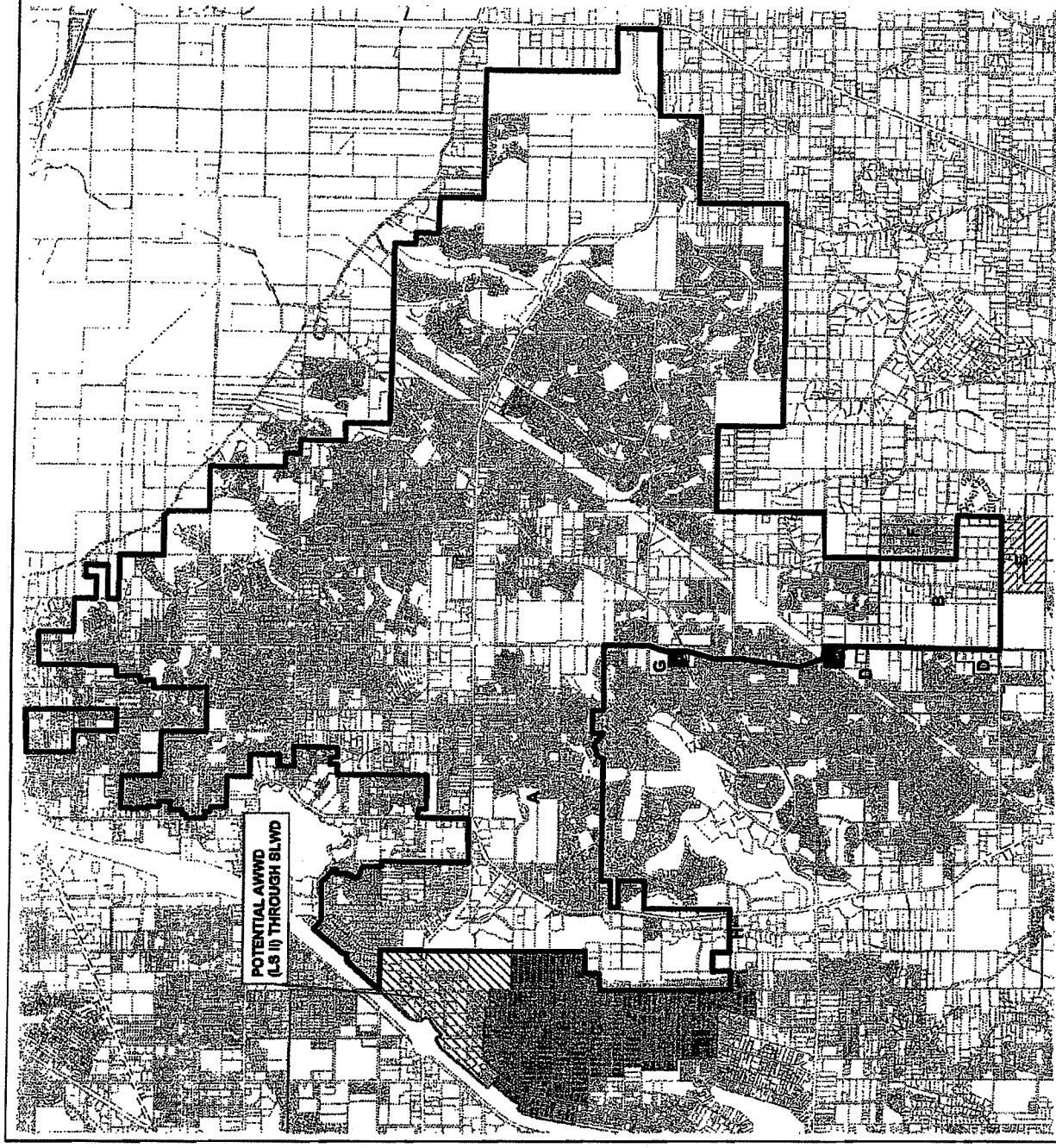

DATE: July 17, 2006



0 1,500 3,000 6,000 Feet
SCALE 1" = 3000'

- LEGEND**
- SILVER LAKE WATER DISTRICT BOUNDARY
 - ALDERWOOD WATER AND WASTEWATER DISTRICT
 - A - SLWD GRAVITY FLOWS TO AAWWD
 - B - SLWD-180TH BASIN, FLOWS TO AAWWD
 - C - AAWWD GRAVITY FLOWS TO SLWD
 - D - AAWWD FLOWS TO SLWD 180TH ST LS
 - E - POTENTIAL 180TH BASIN (SOUTH OF 180TH ST BASIN)
 - F - POTENTIAL 180TH BASIN (EAST OF 180TH ST BASIN)
 - G - AAWWD FLOWS TO SLWD 164TH ST LS
 - H - AAWWD WATER SERVED BY SLWD
 - POTENTIAL AAWWD (LS II) THROUGH SLWD

SILVER LAKE WATER DISTRICT
AAWD AGREEMENT AREAS
JULY 2006



POTENTIAL AAWWD
(LS II) THROUGH SLWD

**SILVER LAKE WATER DISTRICT
PARCEL A
BOUNDARY DESCRIPTION
JULY 2006**

BEGINNING AT THE POINT OF INTERSECTION OF THE NORTH BOUNDARY LINE OF THE NORTHEAST QUARTER OF SECTION 32, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM AND THE NORTHERLY EXTENSION OF THE EAST BOUNDARY LINE OF THE PLAT OF EVERGREEN GLADE AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE SOUTHERLY ALONG SAID EAST LINE TO THE SOUTHEAST CORNER OF SAID PLAT;

THENCE WESTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID PLAT AND THE PLAT OF HEATHERWOOD WEST TO THE WEST BOUNDARY LINE OF SAID QUARTER SECTION;

THENCE SOUTHERLY ALONG SAID WEST LINE TO THE SOUTHWEST CORNER THEREOF;

THENCE EASTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID QUARTER SECTION TO THE NORTHEAST CORNER OF TRACT 993 OF THE PLAT OF RHOD-A ZALEA GARDENS DIVISION 1 AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINES OF TRACT 993, TRACT 504 AND TRACT 999 OF SAID PLAT TO THE NORTH BOUNDARY LINE OF SAID PLAT;

THENCE EASTERLY ALONG SAID NORTH LINE TO THE EAST BOUNDARY LINE OF SAID PLAT;

THENCE SOUTHERLY ALONG SAID EAST LINE TO THE SOUTH BOUNDARY LINE THEREOF;

THENCE WESTERLY ALONG THE SOUTH LINE OF SAID PLAT AND THE SOUTH BOUNDARY LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 32 TO THE POINT OF INTERSECTION OF SAID LINE AND LOT 33 OF THE PLAT OF MILL CREEK 6 AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE NORTHWESTERLY AND NORTHERLY ALONG THE EAST BOUNDARY LINE OF THE PLAT OF MILL CREEK 6 TO THE NORTHEAST CORNER OF LOT 36 OF SAID PLAT;

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THENCE WESTERLY ALONG THE NORTH BOUNDARY LINE OF SAID PLAT, WHICH BORDERS LOT 36 THROUGH LOT 43, TO THE WEST BOUNDARY LINE OF THE SOUTHEAST QUARTER OF SECTION 32;

THENCE SOUTHERLY ALONG SAID WEST LINE TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 32;

THENCE WESTERLY ALONG THE NORTH BOUNDARY LINE OF TRACT 249 OF THE PLAT OF MILL CREEK 6 TO THE POINT OF INTERSECTION OF SAID NORTH LINE AND THE EAST BOUNDARY LINE OF LOT 95 OF SAID PLAT;

THENCE NORTHEASTERLY ALONG THE EAST LINE OF LOT 95 TO THE NORTH BOUNDARY LINE OF SAID LOT;

THENCE NORTHWESTERLY ALONG THE NORTH LINES OF LOT 95 THROUGH LOT 92 TO THE NORTHEAST CORNER OF LOT 92;

THENCE CONTINUE NORTHWESTERLY TO THE POINT OF INTERSECTION OF THE WESTERLY EXTENSION OF SAID NORTH LINE OF LOT 93 AND THE SOUTHEAST CORNER OF LOT 136 OF THE PLAT OF MILL CREEK 6;

THENCE SOUTHWESTERLY ALONG THE SOUTH BOUNDARY LINES OF LOT 136 THROUGH LOT 140 TO THE SOUTHWEST CORNER OF LOT 140 OF SAID PLAT;

THENCE CONTINUE SOUTHWESTERLY ALONG THE EAST BOUNDARY LINES OF LOT 141 AND LOT 142 OF SAID PLAT TO THE NORTHEAST CORNER OF LOT 143 OF SAID PLAT;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINE OF LOT 143 TO THE POINT OF INTERSECTION OF SAID LINE AND THE NORTH BOUNDARY LINE OF THE SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 32, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE WESTERLY ALONG SAID NORTH LINE TO THE EAST BOUNDARY LINE OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE CONTINUE WESTERLY ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID QUARTER SECTION 31 TO THE NORTHWEST CORNER OF LOT 14 OF THE PLAT OF MILL CREEK 9 AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE SOUTHERLY ALONG THE WEST BOUNDARY LINE OF SAID PLAT TO THE NORTHEAST CORNER OF TRACT 273;

THENCE WESTERLY ALONG THE NORTH BOUNDARY LINE OF TRACT 273 OF SAID PLAT TO THE NORTHWEST CORNER OF SAID TRACT;

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THENCE SOUTHERLY ALONG THE WEST BOUNDARY LINE OF SAID TRACT TO THE SOUTHWEST CORNER THEREOF;

THENCE EASTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID TRACT TO THE POINT OF INTERSECTION OF SAID SOUTH LINE AND THE WEST BOUNDARY LINE OF LOT 9 OF SAID PLAT;

THENCE SOUTHERLY ALONG THE WEST LINES OF LOT 9 THROUGH LOT 1 OF SAID PLAT TO THE SOUTH BOUNDARY LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 31;

THENCE WESTERLY ALONG SAID SOUTH LINE TO THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SECTION 6, TOWNSHIP 27 NORTH, RANGE 5 EAST, WM;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINE OF SAID QUARTER SECTION TO THE SOUTHEAST CORNER THEREOF;

THENCE WESTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID QUARTER SECTION TO THE SOUTHWEST CORNER THEREOF;

THENCE NORTHERLY ALONG THE WEST BOUNDARY LINE OF SAID QUARTER SECTION TO THE NORTHWEST CORNER THEREOF;

THENCE CONTINUE NORTHERLY ALONG THE WEST BOUNDARY LINE OF THE SOUTHWEST QUARTER OF SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM TO THE SOUTHWEST CORNER OF THE PLAT OF ROYALWOOD DIVISION 4-A AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE EASTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID PLAT TO THE SOUTHEAST CORNER THEREOF;

THENCE CONTINUE EASTERLY ALONG THE SOUTH BOUNDARY LINE OF PARCEL NUMBER 3-022, SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM DESCRIBED AS THE SOUTH 15 FEET OF THE WEST 493.20 FEET OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER EXCEPT THE WEST 238.26 FEET TO THE SOUTHEAST CORNER THEREOF;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PARCEL 3-022 TO THE SOUTHWEST CORNER OF PARCEL NUMBER 3-005, SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM DESCRIBED AS THE WEST HALF FDT BEGINNING AT THE QUARTER CORNER ON THE SOUTH LINE OF SAID SECTION S 89°54'00" W 1044.50 FEET THENCE N 00°02'30" E 1323.60 FEET TO TRUE POINT OF BEGINNING THENCE CONTINUE ALONG THE SAME COURSE 437.43 FEET THENCE N 89°46'20" W

948.67 FEET THENCE S 00°02'30" W 440.15 FEET THENCE S 89°56'00" E 948.51 FEET TO THE POINT OF BEGINNING LESS THE SOUTH 15 FEET FOR ROAD;

THENCE CONTINUE NORTHERLY ALONG THE WEST BOUNDARY LINE OF SAID PARCEL NUMBER 3-005 TO THE NORTHWEST CORNER THEREOF;

THENCE EASTERLY ALONG THE NORTH BOUNDARY LINE OF SAID PARCEL 3-005 TO THE NORTHWEST CORNER OF PARCEL NUMBER 3-034, SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM DESCRIBED AS ALL THAT PORTION FDT LYING WITHIN THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER BEGINNING AT THE QUARTER CORNER ON SOUTH LINE OF SECTION THENCE S 89°54'00" W 1044.50 FEET THENCE N 00°02'30" E 1323.60 FEET TO THE POINT OF BEGINNING THENCE CONTINUE ALONG THE SAME COURSE 437.43 FEET THENCE N 89°46'20" W 948.67 FEET THENCE S 00°02'30" W 440.15 FEET THENCE S 89°56'00" E 948.51 FEET TO THE TRUE POINT OF BEGINNING LESS THE SOUTH 15 FEET FOR ROAD;

THENCE CONTINUE EASTERLY ALONG THE NORTH BOUNDARY LINE OF SAID PARCEL 3-034 TO THE POINT OF INTERSECTION OF SAID LINE AND THE WEST BOUNDARY LINE OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SAID SECTION 31;

THENCE NORTHERLY ALONG SAID WEST LINE TO THE SOUTHEAST CORNER OF THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE CONTINUE NORTHERLY ALONG THE WEST BOUNDARY LINE OF THE EAST HALF OF SAID QUARTER TO THE NORTH BOUNDARY LINE OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE WESTERLY ALONG SAID NORTH LINE TO THE INTERSECTION OF SAID LINE AND THE EAST RIGHT-OF-WAY BOUNDARY LINE OF INTERSTATE ROUTE 5;

THENCE NORTHEASTERLY ALONG SAID RIGHT-OF-WAY LINE TO THE POINT OF INTERSECTION OF SAID LINE AND THE NORTHWESTERLY EXTENSION OF THE SOUTH RIGHT-OF-WAY BOUNDARY LINE OF PETERS PLACE;

THENCE SOUTHEASTERLY AND EASTERLY ALONG SAID RIGHT-OF-WAY LINE AND THE SOUTH RIGHT-OF-WAY BOUNDARY LINE OF 118TH PLACE SE TO THE POINT OF INTERSECTION OF SAID LINE AND THE WEST RIGHT-OF-WAY BOUNDARY LINE OF SILVER LAKE DRIVE;

THENCE SOUTHEASTERLY ALONG SAID RIGHT-OF-WAY LINE TO THE POINT OF INTERSECTION OF SAID LINE AND THE NORTHERLY EXTENSION OF THE EAST BOUNDARY LINE OF PARCEL NUMBER 1-040, SECTION 30, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM DESCRIBED AS BEGINNING AT A POINT 284 FEET WEST OF THE SOUTHEAST CORNER OF GOVERNMENT LOT 5 THENCE NORTH 74 FEET TO

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THE POINT OF BEGINNING THENCE CONTINUE NORTH 16 FEET THENCE WEST 50 FEET THENCE SOUTH 16 FEET THENCE EAST 50 FEET TO THE POINT OF BEGINNING;

THENCE SOUTHERLY ALONG SAID EXTENDED EAST LINE TO THE SOUTHEAST CORNER OF SAID PARCEL AND THE NORTH BOUNDARY LINE OF THE PLAT OF SILVER LAKE VISTA AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE WESTERLY ALONG THE NORTH LINE OF SAID PLAT TO THE WEST BOUNDARY LINE THEREOF;

THENCE SOUTHERLY ALONG SAID WEST LINE TO THE SOUTHWEST CORNER OF SAID PLAT;

THENCE CONTINUE SOUTHERLY ACROSS SILVER LAKE ROAD TO THE POINT OF INTERSECTION OF THE SOUTHEASTERLY EXTENSION OF SAID WEST LINE AND THE EAST RIGHT-OF-WAY BOUNDARY LINE OF 13TH DRIVE SE;

THENCE SOUTHWESTERLY ALONG SAID RIGHT-OF-WAY LINE TO THE NORTHWEST CORNER OF LOT 90 OF THE PLAT OF SILVER LAKE TERRACE AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE SOUTHEASTERLY ALONG THE NORTH BOUNDARY LINES OF LOT 90 THROUGH LOT 86 TO THE EAST BOUNDARY LINE OF SAID PLAT;

THENCE SOUTHERLY ALONG SAID EAST LINE TO THE NORTH BOUNDARY LINE OF GRANT BESSE'S SILVER LAKE 2 ½ ACRE TRACTS AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE EASTERLY ALONG SAID NORTH LINE TO THE WEST BOUNDARY LINE OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 30, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE SOUTHERLY ALONG SAID WEST LINE TO THE NORTH BOUNDARY LINE OF THE NORTHEAST QUARTER OF SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE EASTERLY ALONG SAID NORTH LINE TO THE NORTHEAST CORNER OF SAID SECTION;

THENCE CONTINUE EASTERLY ALONG THE NORTH BOUNDARY LINE OF SECTION 32, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM TO THE NORTHERLY EXTENSION OF THE EAST BOUNDARY OF THE PLAT OF EVERGREEN GLADE AND THE TRUE POINT OF BEGINNING.

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON

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**SILVER LAKE WATER DISTRICT
PARCEL B
BOUNDARY DESCRIPTION
JULY 2006**

BEGINNING AT THE SOUTHWEST CORNER OF SECTION 9, TOWNSHIP 27 NORTH,
RANGE 5 EAST, WM;

THENCE EASTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID SECTION TO
THE EAST BOUNDARY LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER
THEREOF;

THENCE NORTHERLY ALONG SAID EAST LINE TO THE NORTH BOUNDARY LINE
OF THE SOUTHWEST QUARTER OF SAID SOUTHEAST QUARTER;

THENCE WESTERLY ALONG SAID NORTH LINE TO THE WEST BOUNDARY LINE OF
SAID QUARTER SECTION;

THENCE NORTHERLY ALONG SAID WEST LINE TO THE CENTERLINE OF RIGHT-
OF-WAY OF 169TH STREET SE;

THENCE WESTERLY ALONG SAID CENTERLINE OF RIGHT-OF-WAY TO THE POINT
OF INTERSECTION OF SAID LINE AND THE EAST BOUNDARY LINE OF THE WEST
HALF OF THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 9,
TOWNSHIP 27 NORTH, RANGE 5 EAST, WM;

THENCE NORTHERLY ALONG SAID EAST LINE TO THE NORTHEAST CORNER OF
PARCEL NUMBER 2-019, SECTION 9, TOWNSHIP 27 NORTH, RANGE 5 EAST, WM
DESCRIBED AS THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF
THE NORTHWEST QUARTER LESS THE SOUTH 165 FEET THEREOF TO THE NORTH
BOUNDARY LINE THEREOF;

THENCE WESTERLY ALONG SAID NORTH LINE TO THE POINT OF INTERSECTION
OF SAID LINE AND THE WEST BOUNDARY LINE OF SAID SECTION;

THENCE SOUTHERLY ALONG SAID WEST LINE TO THE TRUE POINT OF
BEGINNING

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON

**SILVER LAKE WATER DISTRICT
PARCEL C
BOUNDARY DESCRIPTION
JULY 2006**

BEGINNING AT THE SOUTHEAST CORNER OF SECTION 36, TOWNSHIP 28 NORTH, RANGE 4 EAST, WM, SITUATED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID SECTION TO THE NORTHWEST CORNER OF THE PLAT OF RIVER CROSSING III AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 200410285115; SITUATED IN THE SOUTHWEST QUARTER OF SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM;

THENCE EASTERLY ALONG THE NORTH BOUNDARY LINE OF SAID PLAT TO THE SOUTHEAST CORNER OF PARCEL NUMBER 3-005, SAID SECTION;

THENCE NORTHERLY ALONG THE WEST BOUNDARY LINE OF SAID PARCEL TO THE NORTHWEST CORNER OF SAID PARCEL;

THENCE EASTERLY ALONG THE NORTH BOUNDARY LINE OF SAID PARCEL TO THE SOUTHEAST CORNER OF LOT 4 PER SHORT PLAT 346(10-84) AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 8506050243;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PARCEL AND ADDITIONAL PARCELS TO THE NORTHEAST CORNER OF PARCEL NUMBER 2-003 OF SHORT PLAT ZA8707320SP AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 8808300202, LOCATED IN THE NORTHWEST QUARTER OF SECTION 31, TOWNSHIP 28 NORTH, RANGE 5 EAST, WM

THENCE WESTERLY ALONG THE NORTH BOUNDARY LINE OF SAID PARCEL AND ADDITIONAL PARCELS TO THE INTERSECTION OF THE EAST BOUNDARY LINE OF NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 36, TOWNSHIP 28 NORTH RANGE 4 EAST, WM;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID SECTION TO THE SOUTHEAST CORNER OF THE PLAT OF SUNSET WEST, AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 1956648 LOCATED IN THE NORTHEAST QUARTER OF SECTION 36, TOWNSHIP 28 NORTH, RANGE 4 EAST, WM;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PLAT TO THE NORTH EAST CORNER OF LOT 10 OF SAID PLAT;

THENCE WESTERLY ALONG THE NORTH BOUNDARY LINE OF LOT 10 TO THE NORTHWEST CORNER OF LOT 12 OF SAID PLAT;

THENCE SOUTHERLY ALONG THE WEST BOUNDARY LINE OF SAID LOT AND ADDITIONAL LOTS OF SAID PLAT TO THE CENTERLINE RIGHT OF WAY OF 135TH STREET SE;

THENCE WESTERLY ALONG THE CENTERLINE RIGHT OF WAY OF SAID STREET TO THE CENTERLINE RIGHT OF WAY OF CASCADIAN WAY;

THENCE NORTHERLY ALONG THE CENTERLINE RIGHT OF WAY OF CASCADIAN WAY TO THE INTERSECTION OF SAID RIGHT OF WAY AND THE CENTERLINE OF MEADOW PLACE SOUTHEAST;

THENCE WESTERLY ALONG SAID CENTERLINE OF RIGHT-OF-WAY AND THE CENTERLINE OF MEADOW PLACE SOUTHWEST TO THE POINT OF INTERSECTION OF SAID LINE AND THE SOUTHWESTERLY EXTENSION OF THE NORTH BOUNDARY LINE OF LOT 9 OF THE PLAT OF ALDERWOOD MANOR NUMBER 25 AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 1031677;

THENCE NORTHWESTERLY ALONG THE NORTH BOUNDARY LINE OF SAID LOT TO THE EAST RIGHT OF WAY BOUNDARY LINE OF INTERSTATE ROUTE 5; LOCATED IN THE NORTHWEST QUARTER OF SECTION 36, TOWNSHIP 28 NORTH, RANGE 4 EAST, WM;

THENCE SOUTHWESTERLY ALONG SAID EAST RIGHT OF WAY BOUNDARY LINE TO THE INTERSECTION OF THE EXTENSION OF THE NORTH BOUNDARY LINE OF LOT 5 OF THE PLAT OF ALDERWOOD MANOR NUMBER 26, RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 1046401;

THENCE SOUTHEASTERLY ALONG SAID NORTH BOUNDARY LINE AND ITS SOUTHEASTERLY EXTENSION TO THE POINT OF INTERSECTION OF THE CENTERLINE OF MEADOW ROAD,

THENCE SOUTHWESTERLY ALONG SAID CENTERLINE OF MEADOW ROAD TO THE INTERSECTION OF THE CENTERLINE OF 143RD STREET SOUTHWEST;

THENCE EASTERLY ALONG SAID CENTERLINE TO THE INTERSECTION OF SAID CENTERLINE WITH THE NORTHERN EXTENSION OF THE EAST BOUNDARY LINE OF THE BENDER ADDITION PLAT AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 9610235002;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PLAT AND LOT 15 OF THE PLAT OF ALDERWOOD MANOR NUMBER 24, AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 1018084, TO THE INTERSECTION OF THE SOUTHERN BOUNDARY LINE EXTENSION OF SAID LOT WITH THE CENTERLINE RIGHT OF WAY OF 146TH STREET SOUTHWEST;

THENCE EASTERLY ALONG SAID CENTERLINE TO THE EASTERLY EXTENSION OF THE EAST BOUNDARY OF LOT 50 OF THE PLAT OF ALDERWOOD MANOR NUMBER 26 RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 1046401, LOCATED IN THE SOUTHEAST QUARTER OF SECTION 36, TOWNSHIP 28 NORTH, RANGE 4 EAST, SITUATED IN SNOHOMISH COUNTY, WASHINGTON;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINE OF SAID LOT TO THE SOUTHEAST CORNER OF SAID LOT;

THENCE WESTERLY 100 FEET MORE OR LESS ALONG THE SOUTH BOUNDARY LINE OF SAID LOT AND THE NORTH BOUNDARY OF LOT 48 OF SAID PLAT;

THENCE SOUTHERLY ALONG A LINE A PARALLEL DISTANCE OF 303 FEET MORE OR LESS FROM THE WEST RIGHT OF WAY OF 2ND AVENUE FROM LOT 48 TO THE INTERSECTION OF THE NORTH BOUNDARY LINE OF LOT 55 OF SAID PLAT;

THENCE EASTERLY ALONG THE NORTH BOUNDARY OF SAID LOT AND THE EXTENSION THEREOF TO THE CENTERLINE OF THE RIGHT OF WAY OF 2ND AVENUE WEST;

THENCE SOUTHERLY ALONG SAID CENTERLINE OF RIGHT OF WAY TO THE POINT OF INTERSECTION OF SAID LINE AND THE CENTERLINE OF RIGHT OF WAY OF 155TH STREET SOUTHWEST/SOUTHEAST;

THENCE EASTERLY AND SOUTHWESTERLY ALONG SAID CENTERLINE OF RIGHT OF WAY AND THE CENTERLINE OF RIGHT OF WAY OF CASCADIAN WAY TO THE POINT OF INTERSECTION OF THE WESTERLY EXTENSION OF THE NORTH BOUNDARY LINE OF LOT 1 OF SHORT PLAT SP67(2-78), RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 7804070340, LOCATED IN THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 27 NORTH, RANGE 4 EAST, WM;

THENCE EASTERLY ALONG THE NORTH BOUNDARY LINE OF SAID LOT AND LOT 27 OF THE PLAT OF MARTHA LAKE EAST SHORE DIVISION NUMBER 3 AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON,

AUDITOR'S FILE NUMBER 839051 AND THE EXTENSION THEREOF TO THE SOUTHWEST CORNER OF THE PLAT OF ALDER LANE RECORDED IN SNOHOMISH COUNTY, WASHINGTON; AUDITOR'S FILE NUMBER 2009278, LOCATED IN THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 27 NORTH, RANGE 5 EAST, WM;

THENCE NORTHERLY ALONG THE WEST BOUNDARY LINE OF SAID PLAT TO THE NORTHWEST CORNER OF SAID PLAT;

THENCE EASTERLY ALONG THE NORTH LINE OF SAID PLAT TO THE SOUTH WEST CORNER OF PARCEL 3-016 OF SHORT PLAT SP141(4-77) AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 7804250446;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PARCEL 3-016, TO THE SOUTH BOUNDARY LINE OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 27 NORTH, RANGE 5 EAST, WM;

THENCE WESTERLY ALONG SAID SOUTH LINE TO THE SOUTHWEST CORNER OF SAID SECTION 6;

THENCE NORTHERLY ALONG THE WEST BOUNDARY LINE OF SECTION 6 TO THE TRUE POINT OF BEGINNING.

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

**SILVER LAKE WATER DISTRICT
PARCEL D
BOUNDARY DESCRIPTION
JULY 2006**

BEGINNING AT THE SOUTHEAST CORNER OF SECTION 8, TOWNSHIP 27
NORTH, RANGE 5 EAST WM;

THENCE NORTHERLY ALONG THE CENTERLINE OF THE RIGHT OF WAY OF
35TH AVENUE SOUTHEAST TO THE POINT OF INTERSECTION OF THE RIGHT
OF WAY AND THE EASTERLY EXTENSION OF THE NORTH BOUNDARY LINE
OF PARCEL NUMBER 4-028 OF THE SHORT PLAT 175 (8-73) RECORDED
UNDER SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILING NUMBER
2320424;

THENCE WESTERLY ALONG SAID NORTH LINE TO THE NORTHWEST
CORNER OF PARCEL NUMBER 4-028 SAID SECTION;

THENCE SOUTHERLY ALONG THE WEST LINE OF SAID PARCEL AND
PARCEL NUMBER 4-030 SAID SECTION TO THE SOUTHWEST CORNER OF
PARCEL NUMBER 4-030;

THENCE WESTERLY ALONG THE NORTH BOUNDARY LINE OF PARCEL
NUMBER 4-015 AND PARCEL NUMBER 4-017 SAID SECTION TO THE
NORTHWEST CORNER OF PARCEL NUMBER 4-017;

THENCE SOUTHERLY ALONG THE WEST LINE OF SAID PARCEL TO THE
INTERSECTION OF THE SOUTHWEST CORNER OF PARCEL NUMBER 4-017
AND THE NORTHEAST CORNER OF LOT 1 OF THE PLAT OF CANTERBURY
ESTATES AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON,
AUDITOR'S FILE NUMBER 200408185175;

THENCE EASTERLY 25 FEET MORE OR LESS TO THE EAST BOUNDARY LINE
OF SAID PLAT;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PLAT TO
THE INTERSECTION OF THE EXTENSION OF SAID LINE AND THE SOUTH
SECTION LINE OF SECTION 8, TOWNSHIP 27, NORTH RANGE 5 EAST, WM;

THENCE EASTERLY ALONG SAID SECTION LINE TO THE SOUTHEAST
CORNER OF SAID SECTION 8 AND THE POINT OF BEGINNING.

TOGETHER WITH:

BEGINNING AT THE SOUTHEAST CORNER OF PARCEL NUMBER 1-030
LOCATED IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF
SECTION 8 TOWNSHIP 27 NORTH RANGE 5 EAST WM, SNOHOMISH COUNTY,
WASHINGTON;

THENCE NORTHERLY ALONG THE EAST BOUNDARY LINE OF SAID PARCEL
TO THE NORTHEAST CORNER OF SAID PARCEL;

THENCE WESTERLY ALONG THE NORTH BOUNDARY OF SAID PARCEL LINE
TO THE NORTHEAST CORNER OF PARCEL NUMBER 1-033 AS DESCRIBED BY
BLA 96-104291, AUDITOR'S FILE NUMBER 9608070344, RECORDED IN
SNOHOMISH COUNTY, WASHINGTON;

THENCE WESTERLY 265 FEET MORE OR LESS ALONG THE NORTH
BOUNDARY LINE OF PARCEL NUMBER 1-033 TO THE INTERSECTION OF THE
NORTHERLY EXTENSION OF PARCEL NUMBER 1-008 AS DESCRIBED BY BLA
96-104291;

THENCE SOUTHERLY 165 FEET MORE OR LESS ALONG THE NORTHERLY
EXTENSION OF PARCEL NUMBER 1-008 TO THE NORTHEAST CORNER OF
PARCEL NUMBER 1-008;

THENCE SOUTHERLY ALONG THE SOUTH LINE OF SAID PARCEL AND
PARCEL NUMBER 1-030, SAID SECTION, TO THE SOUTHEAST CORNER OF
SAID PARCEL;

THENCE EASTERLY TO THE SOUTHEAST CORNER OF PARCEL NUMBER 1-
030 AND THE POINT OF BEGINNING.

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

**SILVER LAKE WATER DISTRICT
PARCEL E
BOUNDARY DESCRIPTION
JULY 2006**

THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 16,
TOWNSHIP 27 NORTH, RANGE 5 EAST, WM;

TOGETHER WITH:

THE EAST 951 FEET MORE OR LESS OF THE NORTH HALF OF THE
NORTHWEST QUARTER OF SAID SECTION 16

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON

**SILVER LAKE WATER DISTRICT
PARCEL F
BOUNDARY DESCRIPTION
JULY 2006**

BEGINNING AT THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 27 NORTH, RANGE 5 EAST, WM AND THE TRUE POINT OF BEGINNING;

THENCE EASTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID QUARTER SECTION TO THE EAST BOUNDARY LINE OF THE WEST HALF OF THE EAST HALF OF SAID SECTION;

THENCE NORTHERLY ALONG SAID EAST BOUNDARY LINE TO THE CENTERLINE OF RIGHT-OF-WAY OF 169TH STREET SE;

THENCE WESTERLY ALONG SAID CENTERLINE TO THE WEST BOUNDARY LINE OF THE EAST HALF OF SAID SECTION;

THENCE SOUTHERLY ALONG SAID WEST BOUNDARY LINE TO THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 9 AND THE TRUE POINT OF BEGINNING;

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON

**SILVER LAKE WATER DISTRICT
PARCEL G
BOUNDARY DESCRIPTION
JULY 2006**

BEGINNING AT THE NORTHWEST CORNER OF LOT 3 BLOCK 1 OF BURLEY'S GARDEN TRACTS, AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 165686, LOCATED IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 5 TOWNSHIP 27 NORTH RANGE 5 EAST WM;

THENCE EASTERLY ALONG THE NORTH LINE OF SAID LOT TO THE WEST RIGHT OF WAY LINE OF 35TH AVENUE SOUTHEAST;

THENCE SOUTHERLY ALONG SAID WEST RIGHT OF WAY LINE TO THE SOUTHEAST CORNER OF BLK 001 D-01 SAID SECTION;

THENCE WESTERLY ALONG THE SOUTH BOUNDARY LINE OF SAID PARCEL TO THE INTERSECTION OF THE WESTERLY EXTENSION OF THE SOUTH BOUNDARY LINE OF SAID PARCEL WITH THE SOUTHERLY EXTENSION OF THE EAST RIGHT OF WAY OF 33RD AVENUE SOUTHEAST;

THENCE NORTHERLY ALONG SAID EAST LINE AND ITS SOUTHERLY EXTENSION TO THE NORTHWEST CORNER OF LOT 3 BLOCK 1 OF BURLEY'S GARDEN TRACTS AND THE POINT OF BEGINNING;

TOGETHER WITH:

BEGINNING AT THE NORTHEAST CORNER OF SECTION 8, TOWNSHIP 27 NORTH, RANGE 5 EAST, WM;

THENCE SOUTHERLY ALONG THE EAST BOUNDARY LINE OF SAID SECTION 8 TO THE SOUTHEAST CORNER OF PARCEL 1-002, SAID SECTION;

THENCE WESTERLY ALONG THE SOUTH BOUNDARY LINE TO THE SOUTHEAST CORNER OF PARCEL 1-002 AND THE RIGHT OF WAY OF 35TH AVENUE NORTHEAST;

THENCE WESTERLY ACROSS 35TH AVENUE NORTHEAST TO THE SOUTHEAST CORNER OF PARCEL 1-028, SAID SECTION;

THENCE WESTERLY ALONG THE SOUTH BOUNDARY LINE OF PARCEL 1-028 AND PARCEL 1-001 TO THE SOUTHWEST CORNER OF PARCEL 1-001, SAID SECTION;

THENCE NORTHERLY ALONG THE WEST BOUNDARY LINE OF PARCEL 01-001 AND ITS EXTENSION TO THE INTERSECTION OF THE NORTHEAST CORNER OF LOT 8 OF THE PLAT OF RIDGEWOOD NUMBER 5 AS RECORDED IN SNOHOMISH COUNTY, WASHINGTON, AUDITOR'S FILE NUMBER 8102195003 AND THE NORTH SECTION LINE OF SECTION 8, TOWNSHIP 27 NORTH, RANGE 5E WM;

THENCE EASTERLY ALONG SAID SECTION LINE TO THE POINT OF BEGINNING.

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

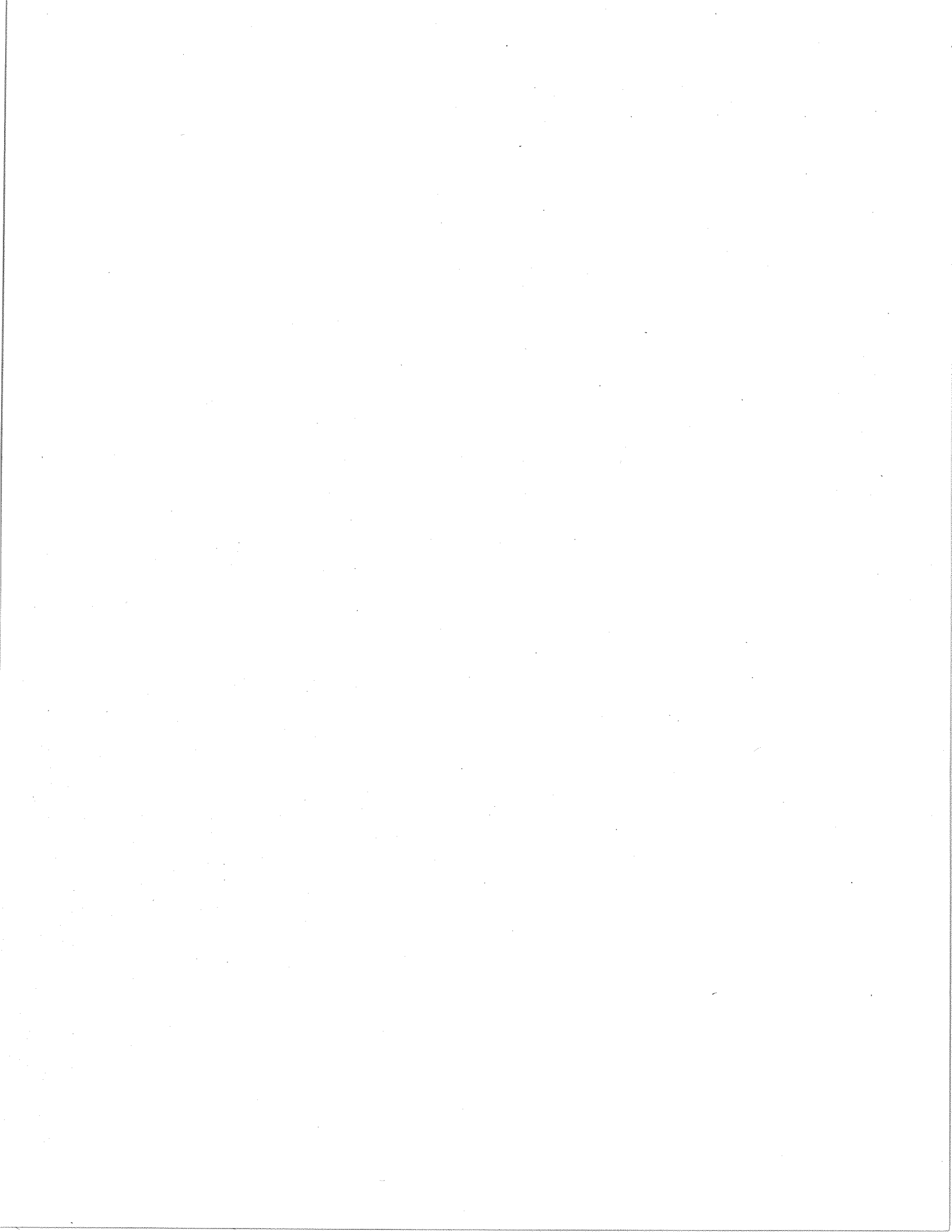
**SILVER LAKE WATER DISTRICT
PARCEL H
BOUNDARY DESCRIPTION
JULY 2006**

**SOUTHWEST 1/4 OF LOT 5 AND SOUTHWEST 1/4 OF LOT 6 OF WAKEFIELD
CENTER BINDING SITE PLAN 03-54 RECORD OF SNOHOMISH COUNTY
AFN 200312055017 BEING A PORTION OF NORTHEAST 1/4 OF SOUTHWEST 1/4
OF SECTION 6 TOWNSHIP 27 NORTH RANGE 5 EAST, W.M.**

SITUATED IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

**SILVER LAKE WATER DISTRICT
POTENTIAL AWWD
(LS II) THROUGH SLWD
JULY 2006**

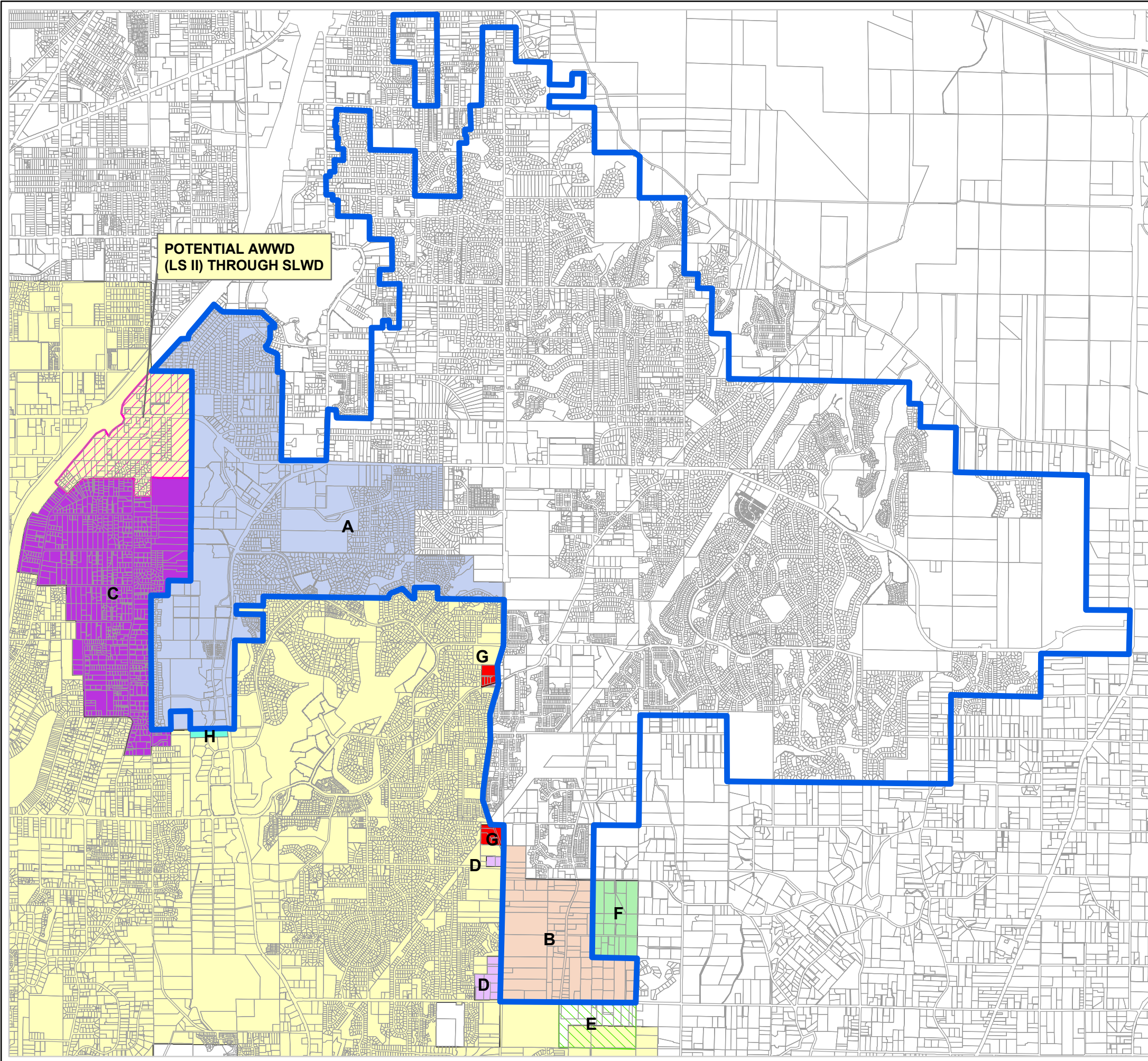
AN AREA NORTH OF AREA C, WEST OF AREA A AND SOUTH OF INTERSTATE ROUTE 5 HAS BEEN IDENTIFIED AS A POTENTIAL ALDERWOOD WATER DISTRICT SERVICE AREA THAT WOULD FLOW THROUGH SILVER LAKE WATER DISTRICT'S SERVICE AREA. NO LEGAL DESCRIPTION OF THE AREA HAS BEEN PREPARED AT THIS TIME.





SCALE 1" = 3000'

POTENTIAL AWWD
(LS II) THROUGH SLWD



LEGEND

- SILVER LAKE WATER DISTRICT BOUNDARY
- ALDERWOOD WATER AND WASTEWATER DISTRICT
- A - SLWD GRAVITY FLOWS TO AWWD
- B - SLWD-180TH BASIN, FLOWS TO AWWD
- C - AWWD GRAVITY FLOWS TO SLWD
- D - AWWD FLOWS TO SLWD 180TH ST LS
- E - POTENTIAL 180TH BASIN (SOUTH OF 180TH ST BASIN)
- F - POTENTIAL 180TH BASIN (EAST OF 180TH ST BASIN)
- G - AWWD FLOWS TO SLWD 164TH ST LS
- H - AWWD WATER SERVED BY SLWD
- POTENTIAL AWWD (LS II) THROUGH SLWD

SILVER LAKE WATER DISTRICT

AWWD AGREEMENT AREAS
JULY 2006



After recording return to:
Alderwood Water & Wastewater District
Attn: Nancy Davidson
3626 156th Street SW
Lynnwood, WA 98087



201010210316 7 PGS
10/21/2010 1:02pm \$68.00
SNOHOMISH COUNTY, WASHINGTON

**NO EXCISE TAX
REQUIRED**

OCT 20 2010

KIRKE SIEVERS, Snohomish County Treasurer

By KIRKE SIEVERS

Agencies: Alderwood Water & Wastewater District and
Silver Lake Water and Sewer District
Tax Account No.: N/A
Legal Description: N/A
Reference No. of Documents Affected: ~~Not Applicable~~ 200608300571
Filed with the Auditor pursuant to RCW 39.34.040
Document Title:

AMENDMENT NO. 1 TO
AGREEMENT FOR SEWAGE DISPOSAL AND INTERIM WATER SUPPLY
BETWEEN
ALDERWOOD WATER & WASTEWATER DISTRICT
AND
SILVER LAKE WATER AND SEWER DISTRICT

This Amendment to the July 21, 2006 Agreement (Agreement) between Alderwood Water and Wastewater District, a municipal corporation of the State of Washington and Silver Lake Water and Sewer District, a municipal corporation of the State of Washington is made and entered into this ___ day of October, 2010.

1. Throughout the Agreement, "Silver Lake Water District" shall be replaced with "Silver Lake Water and Sewer District."
2. The map for the Agreement and this Amendment is provided as Attachment 1.
3. Part I. RECITALS: Section 1.11 shall be replaced in its entirety with the following:

"Alderwood and Silver Lake agree Alderwood can supply water to parcels B, E, F and K from Alderwood transmission line on 180th Street SE on an interim basis."

4. Part I. RECITALS: Section 1.13 shall be replaced in its entirety with the following:

"Alderwood commits to supply water to Silver Lake to meet the water needs of Parcel B, E, F, and K and Silver Lake agrees to purchase water from Alderwood to serve this area on an interim basis."

5. Part I. RECITALS: Add 1.15 stating:

"Alderwood desires to deliver sanitary sewage, collected by Alderwood to Silver Lake for transmission to King County for treatment and disposal. Silver Lake presently has the capacity and facilities to provide service to portions of Alderwood on a limited basis."

6. Part III. SEWER DISPOSAL: Add 3.1 E. stating:

"All deliveries of sewage collected by Silver Lake within parcel J shown in Attachment 1 and delivered to Alderwood facilities shall be accepted by Alderwood pursuant to the terms of this Agreement."

7. Part III. SEWER DISPOSAL: Add 3.1 F. stating:

"All deliveries of sewage collected by Alderwood within parcel I shown in Attachment 1 and delivered to Silver Lake facilities shall be accepted by Silver Lake pursuant to the terms of this Agreement."

8. Part III. SEWER DISPOSAL: Section 3.2. A. shall be replaced in its entirety with the following:

"INSUFFICIENT CAPACITY - SURCHARGING ALDERWOOD

Alderwood shall accept sewage from Silver Lake from parcels A, B, E, F, H and J until Alderwood, in its sole discretion, determines that there is insufficient capacity in Alderwood's sewer system to accept additional sewage from Silver Lake. After making such determination, Alderwood shall notify Silver Lake in writing of Alderwood's intention to restrict acceptance of, or to stop accepting, additional sewage from Silver Lake from the parcels A, B, E, F, H and J six (6) months prior to the effective date of such notice.

Except in the case of surcharging hereafter described, Silver Lake shall have the right to continue to deliver its sewage to Alderwood from Silver Lake customers connected to Alderwood's sewer system prior to the date of restriction; but shall not allow any additional connections to Alderwood's sewer system after the date of restriction, except for properties which have already: a) paid connection fees; b) been identified as a public health hazard, such as a failed septic system; or c) been assessed for sewer improvements pursuant to ULID procedures; provided that the foregoing exceptions shall not apply to any moratorium imposed by the State Department of Ecology or King County that specifically applies to properties which have already paid connection fees or been specially assessed for sewer improvements.

Alderwood shall be under no obligation to construct any new or additional sewage facilities to accept additional sewage from Silver Lake as a consequence of giving a notice of restriction; provided, Alderwood will use its reasonable efforts to prioritize design and construction efforts to remedy the insufficient capacity problem.

Should surcharging occur in any of the lines servicing parcels A, B, E, F, H and J, Alderwood shall move expeditiously to upgrade said lines.

Except as provided herein, should any portion of Alderwood's sewer system become surcharged (i.e., sewage level rises above the crown [top] of the sewer pipe), because of flows from Silver Lake exceeding Alderwood's capacity, Silver Lake shall immediately take action to reduce flows to a level where the surcharging no longer exists. Alderwood shall give notice in writing to Silver Lake if a surcharge condition exists and Silver Lake shall not allow any additional connections after the date of the above notice, except for public health hazards such as a failing septic system, until Alderwood's system improvements alleviating the surcharge condition have been constructed. However, additional connections may be allowed if and when Silver Lake constructs improvements to allow such connections without surcharging the Alderwood system."

9. Part III. SEWER DISPOSAL: Section 3.2. B. shall be replaced in its entirety with the following:

"INSUFFICIENT CAPACITY - SURCHARGING SILVER LAKE

Silver Lake shall accept sewage from Alderwood from parcels C, D, G and I until Silver Lake, in its sole discretion, determines that there is insufficient capacity in Silver Lake's sewer system to accept additional sewage from Alderwood. After making such determination, Silver Lake shall notify Alderwood in writing of Silver Lake's intention to restrict acceptance of, or to stop accepting, additional sewage from Alderwood six (6) months prior to the effective date of such notice.

Except in the case of surcharging hereafter described, Alderwood shall have the right to continue to deliver its sewage to Silver Lake from customers connected to Silver Lake's sewer system prior to the date of restriction; but shall not allow any additional connections to Silver Lake's sewer system after the date of restriction, except for the properties which have already: a) paid connection fees; or b) has been identified as a public health hazard, such as a failed septic system; or c) been assessed for sewer improvements pursuant to ULID procedures; provided that the foregoing exceptions shall not apply to any moratorium imposed by the State Department of Ecology or King County that specifically applies to properties which have already paid connection fees or been specially assessed for sewer improvements.

Silver Lake shall be under no obligation to construct any new or additional sewage facilities to accept additional sewage from Alderwood as a consequence of giving a notice of restriction; provided, Silver Lake will use its reasonable efforts to prioritize design and construction efforts to remedy the insufficient capacity problem.

Should surcharging occur in any of the lines servicing the parcels C, D, G and I, Silver Lake shall move expeditiously to upgrade said lines.

Except as provided herein, should any portion of Silver Lake's sewer system become surcharged (i.e., sewage level rises above the crown [top] of the sewer pipe), because of flows from Alderwood exceeding Silver Lake's capacity, Alderwood shall immediately take action to reduce flows to a level where the surcharging no longer exists. Silver Lake shall give notice in writing to Alderwood if a surcharge condition exists and Alderwood shall not

allow any additional connections after the date of the above notice, except for public health hazards such as a failing septic system, until Silver Lake system improvements alleviating the surcharge condition have been constructed. However, additional connections may be allowed if and when Alderwood constructs improvements to allow such connections without surcharging the Silver Lake's system."

10. Part III. SEWER DISPOSAL: Section 3.3 SEWAGE DISPOSAL CHARGES - SILVER LAKE, the first paragraph shall be replaced in its entirety with the following:

"On a monthly basis, and as more fully set forth in Section 3.6 herein, Silver Lake shall pay to Alderwood during the term of this Agreement a sewage disposal charge equal to the King County sewage disposal charge to Alderwood for each residential customer or residential customer equivalent in parcels A, B, E, F, H and J, plus five percent (5%) of Alderwood's retail sewer rate in the King County service area. Any adjustment to this rate shall only be applied prospectively from the date of Silver Lake's receipt of written notice from Alderwood of such adjustment.

11. Part III. SEWER DISPOSAL: Section 3.4 SEWAGE DISPOSAL CHARGES - ALDERWOOD shall be replaced in its entirety with the following:

"3.4 A. By the end of each month, Alderwood shall pay to Silver Lake during the term of this Agreement a sewage disposal charge equal to the ratio of Alderwood residential customers and residential customer equivalents in parcel D (D) to the number of Silver Lake residential customers and residential customer equivalents in parcels B, E and F (B+E+F) multiplied by Silver Lake's monthly operation and maintenance cost for 180th St. Lift Station (Lift Station costs). The formula is $D / (B+E+F) * \text{Lift Station Costs} = \text{Alderwood's monthly remittance to Silver Lake}$.

3.4 B. On a monthly basis, and as more fully set forth in Section 3.6 herein, Alderwood shall pay to Silver Lake during the term of this Agreement a sewage disposal charge equal to five percent (5%) of Silver Lake's retail sewer rate in the King County service area for each residential customer or residential customer equivalent in parcels I shown in Attachment 1. Any adjustment to this rate shall only be applied prospectively from the date of Alderwood's receipt of written notice from Silver Lake of such adjustment."

12. Part III. SEWER DISPOSAL: Section 3.5 CONNECTION CHARGES shall be replaced in its entirety with the following:

"3.5 A. CONNECTION CHARGES - SILVER LAKE

In addition to the foregoing charges, Silver Lake shall pay to Alderwood a connection charge equal to Alderwood's General Facility Charge now in effect or as may be hereafter modified, applicable to the particular Silver Lake customer. Such connection charge shall be paid within 30 days following the date of connection of property within parcels A, B, E, F, H, and J. Included with the payment to Alderwood shall be the billing address and property tax parcel number for each property connected. In addition, all properties are subject to payment of the capacity charge levied by King County. Silver Lake

shall report all new connections to its sewer system subject to this agreement to King County on standard reporting forms as developed by King County. ”

3.5 B. “CONNECTION CHARGES - ALDERWOOD

Alderwood shall pay to Silver Lake a connection charge equal to Silver Lake’s General Facility Charge now in effect or as may be hereafter modified, applicable to the particular existing or new Alderwood customer. Such connection charge shall be paid within 30 days following the date of connection of property to Silver Lake’s system within parcel I. Included with the payment to Silver Lake shall be the billing address and property tax parcel number for each property connected.”

13. Part V. INTERIM WATER SERVICE: Section 5.1 shall be replaced in its entirety with the following:

“The provisions of this Section 5 shall apply to parcels B, E, F and K.”

14. Part V. INTERIM WATER SERVICE: Section 5.2 shall be replaced in its entirety with the following:

“DELIVERY OF WATER. Alderwood agrees to deliver to Silver Lake and Silver Lake agrees to pay Alderwood for delivery of potable water to be used by Silver Lake to supply on an interim basis all or portions of parcels B, E, F and K for customers seeking water service from Silver Lake.”

15. Part V. INTERIM WATER SERVICE: Add 5.5 stating:

“Notwithstanding other provisions in this Agreement, the Parties recognize that Snohomish County seeks to develop Tambark Creek Park (Park) within parcel K in Silver Lake. The County Plan for the Park provides for a passive park with one building for restroom facilities. This restroom facility is near to 35th Ave. SE and west of Tambark Creek. Providing water service to this restroom facility from Silver Lake’s water system is cost prohibitive. Alderwood presently has a water line in 35th Ave SE adjacent to Tambark Creek Park property. Alderwood agrees to provide one water service connection from its water line in 35th Ave SE to Silver Lake to allow Snohomish County to obtain water service to its planned restroom facility for the Park by connection to Alderwood’s water line in 35th Ave. SE. This connection will provide water to the Park’s restroom facility only and such facility will remain a customer of Silver Lake. Silver Lake shall require Snohomish County to enter into a Developer Extension Agreement with Silver Lake to provide for Snohomish County construction of required water line improvements to serve the restroom facility in the Park. Snohomish County shall be required to pay Alderwood’s water connection charge to Alderwood as a condition of connection to the Alderwood system. Silver Lake shall collect its water connection charge from Snohomish County. Should either connection charge not be paid by Snohomish County for whatever reason then the Parties agree this section 5.5 is void and unenforceable. Silver Lake shall be responsible for meter maintenance and operation to serve this facility. Silver Lake shall reimburse Alderwood for water provided to this customer meter the Alderwood water commodity charge for its single

family customer in place at the time the meter is read by Silver Lake. Silver Lake shall read this meter consumption at least every two months. Alderwood shall not charge any base service rate for this connection. Silver Lake shall provide for sewer service."

16. Part VI. MISCELLANEOUS PROVISIONS: Section 6.2 GENERAL PROVISIONS subsection (h) shall be replaced in its entirety with the following:

"(h) This Agreement and any amendment to it may be signed in counterparts and, if so signed, shall be deemed one integrated agreement."

All other terms and conditions of the Agreement are to remain in full force and effect.

In witness whereof, the parties hereto have accepted this Amendment No. 1, which will become effective upon the execution by both Districts.

SILVER LAKE WATER & SEWER
DISTRICT

ALDERWOOD WATER &
WASTEWATER DISTRICT

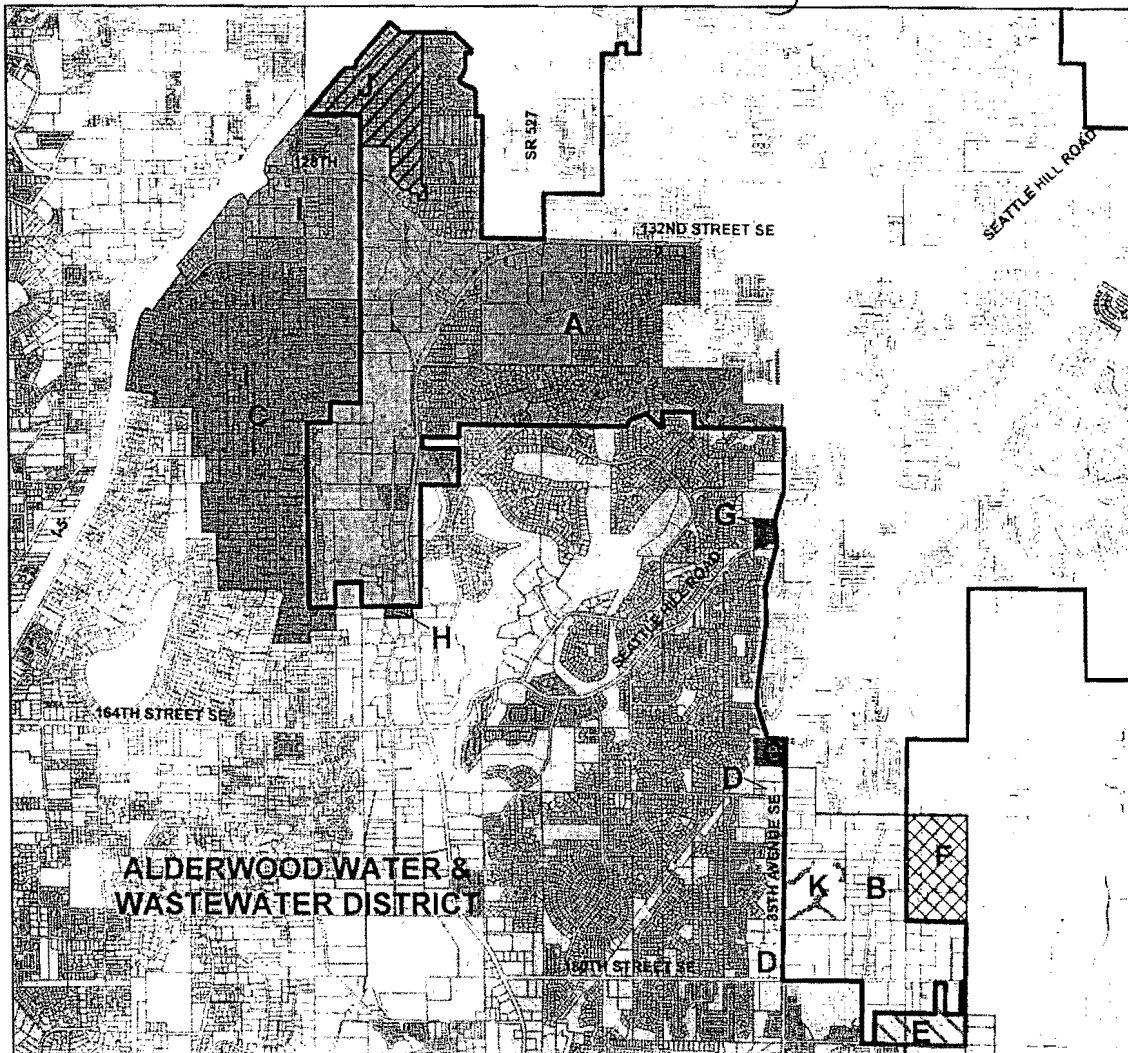
BY: Red Heppeler
Commissioner/President

BY: Paul D. McIntyre
Commissioner/President

DATE: 10-18-10

DATE: 10/18/2010

Vicinity Map



LEGEND

- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- ALDERWOOD WATER AND WASTEWATER DISTRICT
- A - SLWSD GRAVITY FLOWS TO AWWD
- B - SLWSD-180TH BASIN FLOWS TO AWWD
- C - AWWD GRAVITY FLOWS TO SLWSD
- D - AWWD FLOWS TO SLWSD 180TH ST LS
- E - POTENTIAL 180TH BASIN (SOUTH OF 180TH ST BASIN)
- F - POTENTIAL 180TH BASIN (EAST OF 180TH ST BASIN)
- G - AWWD FLOWS TO SLWSD 164TH ST LS
- H - AWWD WATER SERVED BY SLWSD
- I - AWWD (LS #) THROUGH SLWSD
- J - SERVED BY GRAVITY TO AWWD OR THROUGH AWWD LS #1
- K - AWWD WATER SLWSD SEWER TO 180TH ST LS

AWWD / SLWSD AGREEMENT AREAS
 SEPTEMBER 2010
 ATTACHMENT 1



AMENDMENT NO. 2 TO
2006 AGREEMENT FOR SEWAGE DISPOSAL AND INTERIM WATER
SUPPLY BETWEEN
ALDERWOOD WATER & WASTEWATER DISTRICT
AND
SILVER LAKE WATER & SEWER DISTRICT
AS AMENDED IN 2010

This AMENDMENT NO. 2 to the AGREEMENT (“Agreement”) between the Parties dated July 21, 2006 as amended by Amendment No. 1 dated October 18, 2010 is made and entered into this 6th day of MAY 2013, between ALDERWOOD WATER & WASTEWATER DISTRICT (“Alderwood”), and SILVER LAKE WATER & SEWER DISTRICT (“Silver Lake”), each of which is a municipal corporation of the State of Washington (individually a “Party” and collectively the “Parties”).

I.
RECITALS

1.1 Alderwood and Silver Lake separately own and operate water and sewer facilities (“Facilities”) located in southwest Snohomish County.

1.2 The municipal territories of the respective Parties are adjacent to and touching one another in the area of the city of Mill Creek.

1.3 Alderwood has a contract with King County which requires Alderwood to deliver certain sewage to the County’s treatment facilities in King County and south Snohomish County.

1.4 Alderwood has reconstructed a sewer lift station (Lift Station 11) in order to re-route sewage from a certain portion of Alderwood’s service area in the vicinity of 128th Street east of Interstate 5 (shown on Attachment 1 as Parcel I) to King County in compliance with its contractual obligations, and expects to start such routing by 2016.

1.5 Due to geography the most cost-effective and environmentally-sound way to deliver sewage from the reconstructed lift station to King County is by routing it through a section of sewer lines owned and maintained by Silver Lake.

1.6 Alderwood and Silver Lake have signed several agreements and amendments providing for cooperation and use of each other’s facilities for providing water and sewer services to their respective service areas, including on July 21, 2006 and October 18, 2010.

1.7 Silver Lake is desirous of signing a Wholesale Water Supply Agreement with Alderwood to supply water economically to the western portion of its service area.

1.8 The Parties wish to enter into this Amendment No. 2 to provide more detail regarding provision of water and sewer service to each other, and to modify past agreements to make such inter-District cooperation more economical for both Parties.

II. AMENDMENT NO. 2

Now, therefore, and in consideration of the mutual benefits and covenants set forth below, the Parties agree to amend the Agreement dated July 21, 2006 as amended by Amendment No. 1 dated October 18, 2010 as follows:

Section 1. Water Supply Agreement.

Part V. INTERIM WATER SERVICE shall be replaced in its entirety with the following:

“WHOLESALE WATER SERVICE

5A.1 Wholesale Water Supply Agreement. Alderwood shall provide a Wholesale Water Supply Agreement to Silver Lake for its signature. Said Agreement shall be substantially the same as the Agreement signed in 2010 between Alderwood and the Mukilteo Water & Wastewater District, and shall be available to Silver Lake for signature on or before May 1, 2013.

5A.2 Wholesale Connection Points. Alderwood will provide Silver Lake with a maximum of two connection points to furnish wholesale water to the Silver Lake system. Silver Lake will pay for designing and installing the equipment to make such connections, and will do so per specifications provided by Alderwood. These connection points will be located as follows:

- A. State Route 527 and 156th Street SE
- B. Mill Creek Boulevard and Trillium Boulevard

INTERIM WATER SERVICE

5B.1 Applicability. The provisions of Sections 5B.2 – 5B.5 shall apply to parcels B, E, F and K as identified on Attachment 1.

5B.2 Interim delivery of water. Alderwood agrees to deliver to Silver Lake and Silver Lake agrees to pay Alderwood for delivery of potable water to be used by Silver Lake to supply on an interim basis all or portions of parcels B, E, F and K for customers seeking water service from Silver Lake.

5B.3 Interim Points of Delivery. Alderwood shall deliver water to Silver Lake at agreed connection points along Alderwood's transmission water lines in or adjacent to parcel B in Silver Lake. Silver Lake shall install and own a master meter at each connection point at Silver Lake's expense. A master meter installation shall include telemetry of flow data and any necessary control functions and shall meet the specifications and approval of Alderwood. The actual point of connection shall be the upstream flange of the valve downstream of each master meter and check valve.

5B.4 Quantity of Interim Water.

- i. Alderwood and Silver Lake acknowledge that each has made, and will continue to make, significant capital investments in the Clearview Group water facilities which are designed and constructed to transmit water from Everett's Pipeline 5 to serve both Alderwood and Silver Lake. Silver Lake has a 9 million gallon a day share in the current Clearview Facility capacity. Such share may increase in the future to 12 million gallons a day.
- ii. All water obtained from Alderwood's transmission line shall be charged against Silver Lake's share of Clearview Facility capacity. Silver Lake shall not take more than 750,000 gallons a day from connections to Alderwood's Clearview transmission line. Delivery of water to Silver Lake from Alderwood's transmission line from the Clearview Reservoir will be treated as though it was delivered directly to Silver Lake from the Clearview pipeline. Silver Lake will ensure any water taken in this manner will be included in Silver Lake's monthly water amount for calculation of water consumption by the Clearview Water Supply Agency.
- iii. Silver Lake's cost of water for parcels B, E and F will be the same as its cost of water taken by Silver Lake directly from the Clearview pipeline.

5B.5 Tambark Creek Park. Notwithstanding other provisions of this Agreement, the Parties recognize that Snohomish County seeks to develop Tambark Creek Park (Park) within parcel K in Silver Lake. The County Plan for the Park provides for a passive park with one building for restroom facilities near to 35th Ave. SE and west of Tambark Creek. Providing water service to this restroom facility from Silver Lake's water system is cost-prohibitive. Alderwood presently has a water line in 35th Ave. SE adjacent to Tambark Creek Park property. Alderwood agrees to provide two water service connections from its water line in 35th Ave. SE to Silver Lake to allow Snohomish County to obtain water service to its planned restroom facility and adjacent landscaping for the Park by connections to

Alderwood's water line in 35th Ave. SE. These connections will provide water to the Park's restroom facility and adjacent landscaping only. The Park shall at all times remain a customer of Silver Lake. Silver Lake shall require Snohomish County to enter into a Developer Extension Agreement with Silver Lake to provide for Snohomish County construction of required water line improvements to serve the westside restroom facility and adjacent landscaping in the Park. Snohomish County shall be required to pay Alderwood's water connection charges to Alderwood as a condition of connection to the Alderwood system. Silver Lake shall collect its water connection charges from Snohomish County. Should either connection charge not be paid by Snohomish County for whatever reason the Parties agree this section 5B.5 is void and unenforceable. Silver Lake shall be responsible for meter maintenance and operation to serve these facilities. Silver Lake shall reimburse Alderwood for water provided to this customer meter the Alderwood commodity charge for its single family customer in place at the time the meter is read by Silver Lake. Silver Lake shall read this meter consumption at least every two months. Alderwood shall not charge any base service rate for this connection. Silver Lake shall provide for sewer service to the Park."

Section 2. Sewer Service.

Part 3.5 B. CONNECTION CHARGES – ALDERWOOD shall be replaced in its entirety with the following:

- i. "At such time as Alderwood connects parcel I to Silver Lake's system, Alderwood shall pay to Silver Lake a sum equal to thirty-two percent (32%) of Silver Lake's Sewer General Facility Charges for the number of Equivalent Residential Units (ERUs) in parcel I at the time of the execution of this Amendment.
- ii. For any property located in parcel I that connects to Silver Lake's system after execution of this Amendment No. 2, Alderwood shall pay to Silver Lake a connection charge equal to Silver Lake's General Facility Charge now in effect or as may hereafter be modified, applicable to the particular existing or new Alderwood customer. Such connection charge shall be paid within thirty (30) days following the date of connection of property to Silver Lake's system."

All other terms and conditions of the Agreement are to remain in full force and effect.

In witness whereof, the Parties hereto have accepted this Amendment No. 2, which will become effective upon its execution by both Districts.

SILVER LAKE WATER
& SEWER DISTRICT

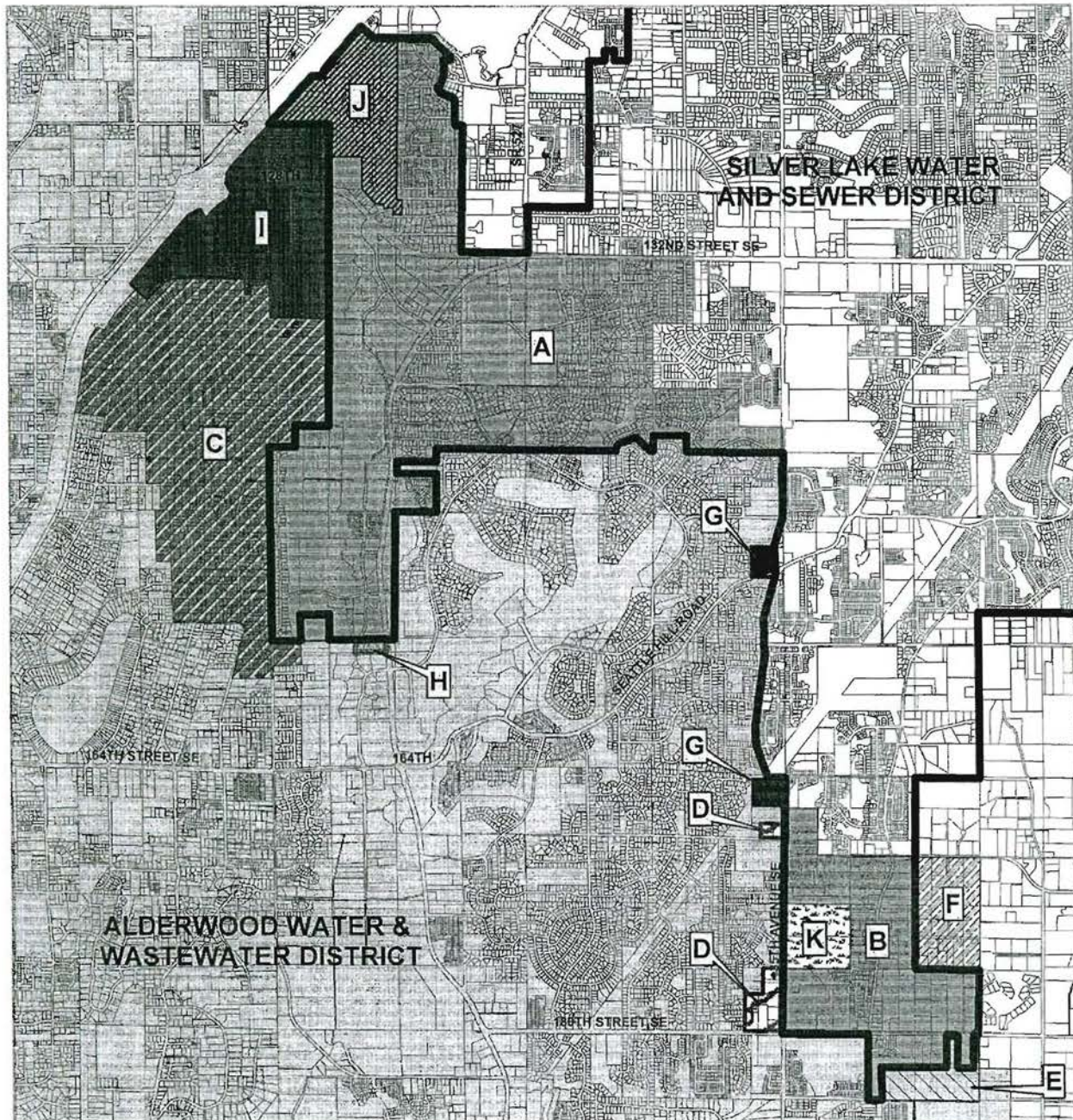
ALDERWOOD WATER
& WASTEWATER DISTRICT

BY: Rod Kuppel
Commissioner/President

BY: Laura D. Lane
Commissioner/President

DATE: 4-25-13

DATE: MAY 6, 2013



LEGEND

- SILVER LAKE WATER & SEWER DISTRICT BOUNDARY
- ▨ ALDERWOOD WATER AND WASTEWATER DISTRICT
- ▨ A - SLWSD GRAVITY FLOWS TO AAWWD
- ▨ B - SLWSD-180TH BASIN, FLOWS TO AAWWD
- ▨ C - AAWWD GRAVITY FLOWS TO SLWSD
- ▨ D - AAWWD FLOWS TO SLWSD 180TH ST LS
- ▨ E - POTENTIAL 180TH BASIN (SOUTH OF 180TH ST BASIN)
- ▨ F - POTENTIAL 180TH BASIN (EAST OF 180TH ST BASIN)
- ▨ G - AAWWD FLOWS TO SLWSD 164TH ST LS
- ▨ H - AAWWD WATER SERVED BY SLWSD
- ▨ I - AAWWD (LS II) THROUGH SLWSD
- ▨ J - SERVED BY GRAVITY TO AAWWD OR THROUGH AAWWD LS 11
- ▨ K - AAWWD WATER, SLWSD SEWER TO 180TH STREET LS

AAWWD / SLWSD AGREEMENT AREAS
MAY 2013
ATTACHMENT 1

SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
PILLING PROPERTY INTERLOCAL AGREEMENT

This Agreement entered into this 22nd day of December, 1998 between the Cross Valley Water District (hereinafter referred to as "Cross Valley" and the Silver Lake Water District (hereinafter referred to as "Silver Lake"),

W I T N E S S E T H:

WHEREAS, the Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington; and

WHEREAS, the Districts desire to enter into this Agreement pursuant to the authority granted in Chapter 39.34 of the Revised Code of Washington and RCW 57.08.045; and

WHEREAS, each District has the authority to construct, condemn and purchase, acquire, add to, alter, maintain and operate waterworks, and sewer systems, within or without their corporate limits, for the purpose of furnishing its inhabitants or any other persons with an ample supply of water and for the purpose of disposing of wastewater; and

WHEREAS, the Districts wish to protect and promote their interests and the interests of their rate payers and to provide water service and sewer service to certain customers located within their respective Districts by using water lines and sewer lines owned and operated by Silver Lake; and

WHEREAS, state law does not allow a special purpose water and sewer district to extend service to customers located within the boundaries of a different water and sewer district; and

WHEREAS, both Districts desire to cooperate in providing water and sewer service to certain properties near or adjacent to the Districts common boundary lines; and

WHEREAS, both Districts recognize that the other District has the sole lawful authority to provide water and sewer service to properties within its jurisdiction; and

WHEREAS, by interlocal agreement the Districts may provide for water and sewer service by one District in the other District's area.

NOW, THEREFORE, the Districts do hereby agree as follows:

Section 1. Purpose.

The purpose of this Agreement is to provide temporary water and sewer service by Silver Lake to the Pilling Property area as shown on Exhibit "A" attached hereto (hereinafter Area "A") using water and sewer systems owned and operated by Silver Lake. All deliveries of water and sewer service by Silver Lake within Area "A", shall be allowed by Cross Valley pursuant to the terms, conditions, and limitations of this Agreement.

Section 2. Area "A" New Customers - Interim Service.

Silver Lake shall have the right and permission of Cross Valley to extend temporary water and sewer service to new customers and properties within Area "A". Nothing herein shall require Silver Lake to provide service to properties within Area "A". As a condition of any such new temporary service extension, Silver Lake shall require from property owners within Area "A" as a condition of water service to such property owner, a Letter of Approval of Connection to Silver Lake Facilities by Cross Valley. Cross Valley may collect any and all of its connection charges and fees prior to issuing Letter of Approval. Silver Lake may collect any and all connection charges, capital improvement charges, monthly rates and charges and other fees which would be collected by Silver Lake in accordance with its Resolutions and regulations for services provided in Area "A". Nothing herein shall preclude Silver Lake from entering into a water and sewer service extension agreement with individual property owners within Area "A".

4:19 PM 12/01/98

All new water and sewer facilities shall be constructed in accordance with the more stringent standards and specifications of the two Districts and shall be constructed to facilitate future connection to the Cross Valley Water District water and sewer system, if feasible. Cross Valley Water District shall review and comment on plans and specifications prior to construction.

Section 3. Area "A" Maintenance and Repair.

All maintenance, operation, and repair costs and expenses of the water and sewer systems shall be the sole responsibility of Silver Lake, until take over by Cross Valley.

Section 4. Transfer of Customers Area "A".

At such time Cross Valley has facilities and infrastructure to serve both water and sewer to all property within area "A" it may request assumption of service to such property. Upon request from Cross Valley, Silver Lake, shall transfer to Cross Valley customers within Area "A" 180 days from notice of such transfer. Silver Lake shall provide to Cross Valley a current list of the names and addresses of all customers within the Agreement area; provided Silver Lake shall send notice of take over to all customers being served advising them that Cross Valley will be their new water and sewer purveyor and that billing and payment of future service bills shall be handled by Cross Valley.

Section 5. Water Quality.

Each District warrants that it will purvey water meeting the state water quality standards and requirements to the other District and to all residents within the other District. Each District agrees to protect, hold harmless, indemnify and defend the other for any claim, demand or suit arising out of purveying water to customers within the other District or the wholesaling of water to the other District.

Section 6. Service Responsibility

Nothing herein requires Silver Lake to extend service to any property owners within Area "A". Extension of utility service

outside its boundaries and into Area "A" is left to the sole discretion of Silver Lake.

Section 7. Miscellaneous.

a. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their successors and assigns.

b. This document constitutes the entire agreement of the parties with respect to the subject matter hereof and may be modified only by an agreement in writing signed by all the parties hereto.

c. Waiver by any party of any term or condition of this Agreement shall not be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any subsequent breach, whether of the same or of a different provision of this Agreement.

d. If any provision of this Agreement is held invalid or unenforceable, the remainder of the Agreement shall not be affected and shall remain in full-force and effect.

e. Any notices required or permitted under this Agreement shall be delivered to the respective District's business office.

Section 7. Arbitration.

Any controversy or claim arising out of or related to this contract or the breach thereof shall be settled by a Board of three arbitrators one of whom shall be selected by Cross Valley and one by Silver Lake and the third selected jointly by the first two, and the parties hereto agree that any decision of the arbitrators shall be binding upon both parties hereto and judgment upon the award rendered may be entered in any court having jurisdiction thereof, all in accordance with Chapter 7.04 RCW. Any costs, expenses, and legal fees incurred in arbitration or other legal action shall be awarded to the prevailing party.

Section 8. Effective Date, Duration, and Termination.

This Agreement shall become effective on the date on which this Agreement has been duly authorized and executed by the Districts. This agreement may be terminated by mutual agreement of the Districts.

4:19 PM 12/01/98

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of this _____ day of _____, 1998.

SILVER LAKE WATER DISTRICT:

CROSS VALLEY WATER DISTRICT

Red Kuppel
President

[Signature]
President

[Signature]
Commissioner

[Signature]
Commissioner

Bill Anderson
Commissioner

Commissioner

ATTESTED TO:

ATTESTED TO:

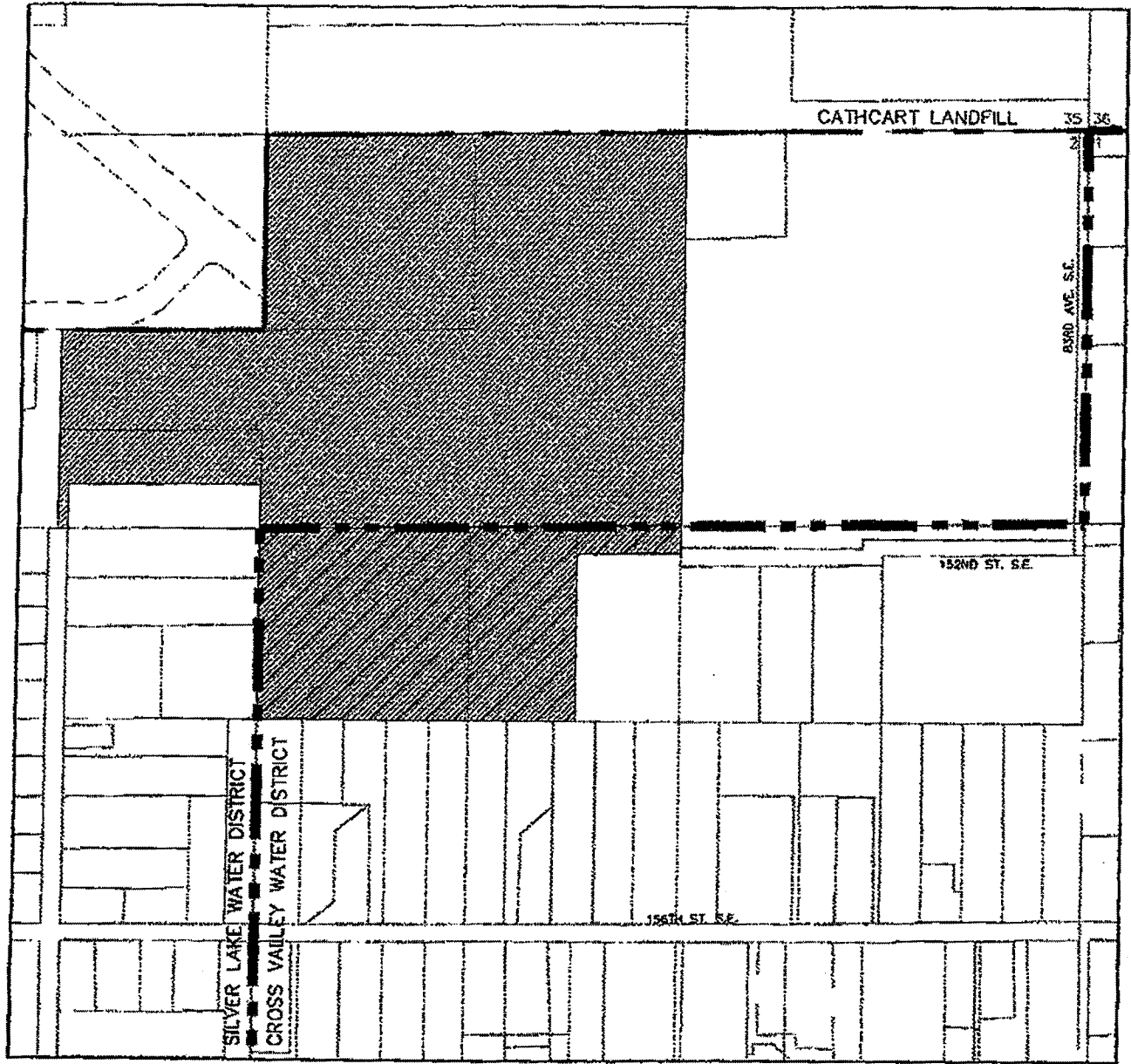
Bill Anderson
Secretary-Commissioner

[Signature]
Secretary-Commissioner

**PILLING PROPERTY
LEGAL DESCRIPTION OF
INTERLOCAL AGREEMENT AREA**

BEGINNING AT THE NORTHWEST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 2, TOWNSHIP 27N, RANGE 5E, W.M.; THENCE SOUTH ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION; THENCE EAST ALONG THE SOUTH LINE OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION; THENCE NORTH ALONG THE EAST LINE OF THE WEST HALF OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION; THENCE EAST ALONG THE SOUTH LINE OF THE NORTH 92.5 FEET OF THE EAST HALF OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER; THENCE NORTH ALONG THE EAST LINE OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION; THENCE WEST ALONG THE NORTH LINE OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION TO THE TRUE POINT OF BEGINNING.

SEE EXHIBIT A FOR VICINITY MAP



VICINITY MAP
 SCALE: 1" = 500'

LEGEND



PILLING PROPERTY



INTERLOCAL AGREEMENT AREA

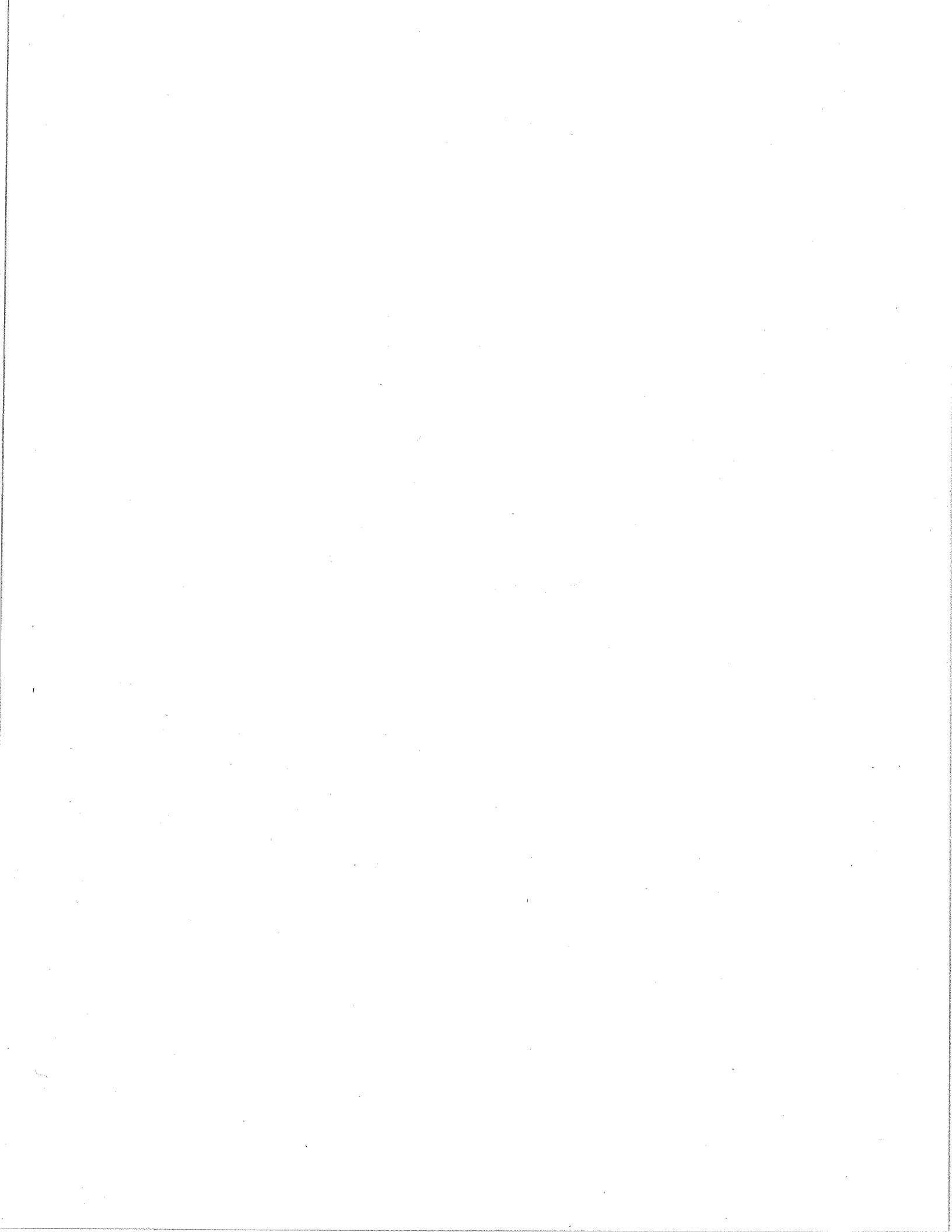


SILVER LAKE WATER DISTRICT
 SERVICE AREA BOUNDARY

SILVER LAKE WATER DISTRICT
 PILLING PROPERTY
 INTERLOCAL AGREEMENT AREA
 EXHIBIT A



Gray & Osborne, Inc.
 CONSULTING ENGINEERS



SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
INTERLOCAL AGREEMENT

This Agreement entered into this 16 day of OCTOBER, 2001 between the Cross Valley Water District (hereinafter referred to as "Cross Valley" and the Silver Lake Water District (hereinafter referred to as "Silver Lake"),

W I T N E S S E T H:

WHEREAS, the District's entered into this agreement in 1994, and;

WHEREAS, the Districts have determined to re-execute this agreement to clarify the legal authority to provide water and sewer service in each others district; and

WHEREAS, the Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington; and

WHEREAS, the Districts desire to enter into this Agreement pursuant to the authority granted in Chapter 39.34 of the Revised Code of Washington and RCW 57.08.007; and

WHEREAS, each District has the authority to construct, condemn and purchase, acquire, add to, alter, maintain and operate waterworks, and sewer systems, within or without their corporate limits, for the purpose of furnishing its inhabitants or any other persons with an ample supply of water and for the purpose of disposing of wastewater; and

WHEREAS, the Districts wish to protect and promote their interests and the interests of their rate payers and to provide water service and sewer service to certain customers located within their respective Districts by both using water lines and sewer lines owned and operated by the other District and by providing for the wholesale of water between the Districts; and

WHEREAS, Cross Valley has provided service to certain properties within the City Farms area of the Silver Lake as a private and public water purveyor; and

WHEREAS, state law does not allow a special purpose water and sewer district to extend service to customers located within the boundaries of a different water and sewer district without such district's consent and approval; and

WHEREAS, both Districts desire to cooperate in providing water and sewer service to certain properties near or adjacent to the Districts common boundary lines; and

WHEREAS, both Districts recognize that the other District has the sole lawful authority to provide water and sewer service to properties within its jurisdiction; and

WHEREAS, in accordance with RCW 57.08.007, and by interlocal agreement the Districts may provide for water and sewer service by one District in the other District's area.

NOW, THEREFORE, the Districts do hereby agree as follows:

Section 1. Purpose.

The purpose of this Agreement is to provide delivery of water service to properties within the City Farms area as shown on Exhibit "A" attached hereto (hereinafter Area "A") of Silver Lake Water using water systems owned and operated by Cross Valley. It is the further purpose of this agreement to provide future wholesale of water by Silver Lake to Cross Valley for water service to properties within an area of Cross Valley as shown on Exhibit "B" attached hereto (hereinafter Area "B") and to provide for future sewer service by Silver Lake to properties within Area "B". All deliveries of water by Cross Valley from existing facilities owned and operated by Cross Valley within Area "A", shall be allowed by Silver Lake pursuant to the terms, conditions, and limitations of this Agreement. All deliveries of sewer by Silver Lake within Area "B", shall be allowed by Cross Valley pursuant to the terms, conditions, and limitations of this Agreement.

Section 2. Area "A" New Customers - Interim Service.

Cross Valley shall have the right and permission of Silver Lake to provide service to existing customers and to extend service to new customers and properties within Area "A". As a condition of any such new service extension, Cross Valley shall collect from property

owners within Area "A" as a condition of water service to such property owner by Cross Valley all then existing Silver Lake water connection charges, capital improvement charges and other fees, except meter installation charges which will be retained by Cross Valley, which would be collected by Silver Lake for water service in accordance with its Resolutions and regulations. Such Silver Lake charges collected by Cross Valley are to be paid to Silver Lake within thirty days of the date collected by Cross Valley.

Section 3. Area "A" Maintenance and Repair.

All maintenance, operation, and repair costs and expenses of the water system shall be the sole responsibility of Cross Valley. Any and all construction, repair, reconstruction, replacement or other work on the existing system shall be done by Cross Valley. All new service line installation shall be constructed in accordance with Silver Lake standards and specifications. Any extension of the water system within Area "A" caused by a subdivision of property or new development within Area "A" shall be constructed in accordance with Silver Lake standards and specification. Any construction or improvement of the water facilities within Area "A" for existing general system improvements by Cross Valley may be constructed to Cross Valley standards and specification. The existing water system lines set forth on Exhibit "A", which is incorporated herein as a part of this agreement, are integral to the integrity of operation of Cross Valley's system and shall be retained by Cross Valley.

For those projects requiring construction in accordance with Silver Lake standards and specifications, Cross Valley shall submit engineering plans to Silver Lake for approval at least 60 days prior to construction, and shall notify Silver Lake at least seven days prior to beginning actual construction work.

Section 4. Transfer of Customers Area "A".

At its sole discretion and election, Silver Lake may give notice to Cross Valley that Silver Lake intends to take over the customers within Area "A" 60 days from such notice. Cross Valley shall provide to Silver Lake a current list of the names and addresses of all Cross Valley water customers within the Agreement

area. Silver Lake shall send notice of take over to all customers being served by Cross Valley advising them of their new water purveyor and that billing and payment of future water bills shall be handled by Silver Lake.

At such time of notice Cross Valley shall wholesale to Silver Lake sufficient water to serve all properties within Area "A" whether then being served or not should Silver Lake decide to purchase water from Cross Valley. Nothing herein shall require Silver Lake to purchase water from Cross Valley.

At the time of take over of the water system, Silver Lake shall be responsible for maintenance and operation of the water system within Area "A", except for those lines set forth on Exhibit "A".

Section 5. Area "B" New Sewer Customers.

Silver Lake shall have the right and permission of Cross Valley to extend sewer service to customers and properties within Area "B". Any and all construction of sewer facilities within Area "B", shall be constructed in accordance with Silver Lake standards and specifications. Silver Lake shall maintain and operate such sewer system. Silver Lake may collect any and all connection charges, capital improvement charges, monthly rates and charges and other fees which would be collected by Silver Lake in accordance with its Resolutions and regulations. Nothing herein shall preclude Silver Lake from entering into a sewer service extension agreement with individual property owners within Area "B".

Section 6. Silver Lake Wholesale of Water to Cross Valley - Area "B".

Subject to the provisions of Section 8, Silver Lake agrees to wholesale water to Cross Valley sufficient to serve all customers and properties within Area "B". Any and all costs of construction, maintenance and repair of facilities required to wholesale water to Cross Valley, such as master meter(s), shall be paid solely by Cross Valley. Such facilities shall be constructed in accordance with Silver lake standards and specification. Nothing herein shall require Cross Valley to purchase water from Silver Lake. Provided, however, that both water and sewer shall be provided by Silver Lake

for that area delineated by the number 1 within Area "B" set forth on Exhibit "C" incorporated herein, which comprises approximately 20 lots of Waldenwood Subdivision, Phase II.

Section 7. Water Quality.

Each District warrants that it will purvey water meeting the state water quality standards and requirements to the other District and to all residents within the other District. Each District agrees to protect, hold harmless, indemnify and defend the other for any claim, demand or suit arising out of purveying water to customers within the other District or the wholesaling of water to the other District.

Section 8. Delinquent Account Collection. In order to ensure that each District can protect revenue sources and protect bond covenants as well as the operational integrity of its system, every customer of both water and sewer service in Area "B" shall be treated as though that customer was receiving both water and sewer service from Silver Lake. Any and all remedies for non-payment of utility bills, including but not limited to cut off of service as authorized by RCW 57.08.090, shall pertain to Silver Lake. At all times that Silver Lake is providing sewer service to a customer within Area "B" that is being provided water service by Cross Valley, Cross Valley shall apply any water bill payment first to any Silver Lake sewer bill for the same customer that is 30 days past due. Such Cross Valley payment shall be forwarded to Silver Lake within 30 days. Should delinquency by any such customer continue, Cross Valley shall turn off that customer's water service as provided by state law.

Section 9. Water Service to Cathcart Landfill. Both Districts understand that in order to provide water to the Snohomish County Cathcart Landfill, Cross Valley has purveyed water to Cathcart even though it is in Silver Lake. Both Districts agree and understand that at such time that Silver Lake can serve water to Cathcart, Silver Lake may give notice to Cross Valley that Silver Lake will take over service of water to Cathcart and Cross Valley will cease water delivery to Cathcart.

Section 10. Miscellaneous.

a. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their successors and assigns.

b. This document constitutes the entire agreement of the parties with respect to the subject matter hereof and may be modified only by an agreement in writing signed by all the parties hereto.

c. Waiver by any party of any term or condition of this Agreement shall not be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any subsequent breach, whether of the same or of a different provision of this Agreement.

d. If any provision of this Agreement is held invalid or unenforceable, the remainder of the Agreement shall not be affected and shall remain in full-force and effect.

e. Any notices required or permitted under this Agreement shall be delivered to the District's business office.

Section 11. Arbitration.

Any controversy or claim arising out of or related to this contract or the breach thereof shall be settled by a Board of three arbitrators one of whom shall be selected by Cross Valley and one by Silver Lake and the third selected jointly by the first two, and the parties hereto agree that any decision of the arbitrators shall be binding upon both parties hereto and judgment upon the award rendered may be entered in any court having jurisdiction thereof, all in accordance with Chapter 7.04 RCW. Any costs, expenses, and legal fees incurred in arbitration or other legal action shall be awarded to the prevailing party.

Section 12. Effective Date, Duration, and Termination.

This Agreement shall become effective on the date on which this Agreement has been duly authorized and executed by the Districts. As to Area "A", this Agreement shall terminate at such time as Silver Lake's system is able to serve the properties within Area "A" receiving water from Cross Valley and Silver Lake has accomplished take over of water service in Area "A". This agreement maybe terminated at an earlier date by mutual agreement of the Districts.

/
/
/

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of this 16th day of OCTOBER, 2001.

SILVER LAKE WATER DISTRICT:

CROSS VALLEY WATER DISTRICT

Rod Koppke
President

[Signature]
President

Bill Anderson
Commissioner

Rob Deierling
Commissioner

Roger Sumner
Commissioner

Gregory Dery
Commissioner

ATTESTED TO:

ATTESTED TO:

Roger Sumner
Secretary-Commissioner

Rob Deierling
Secretary-Commissioner

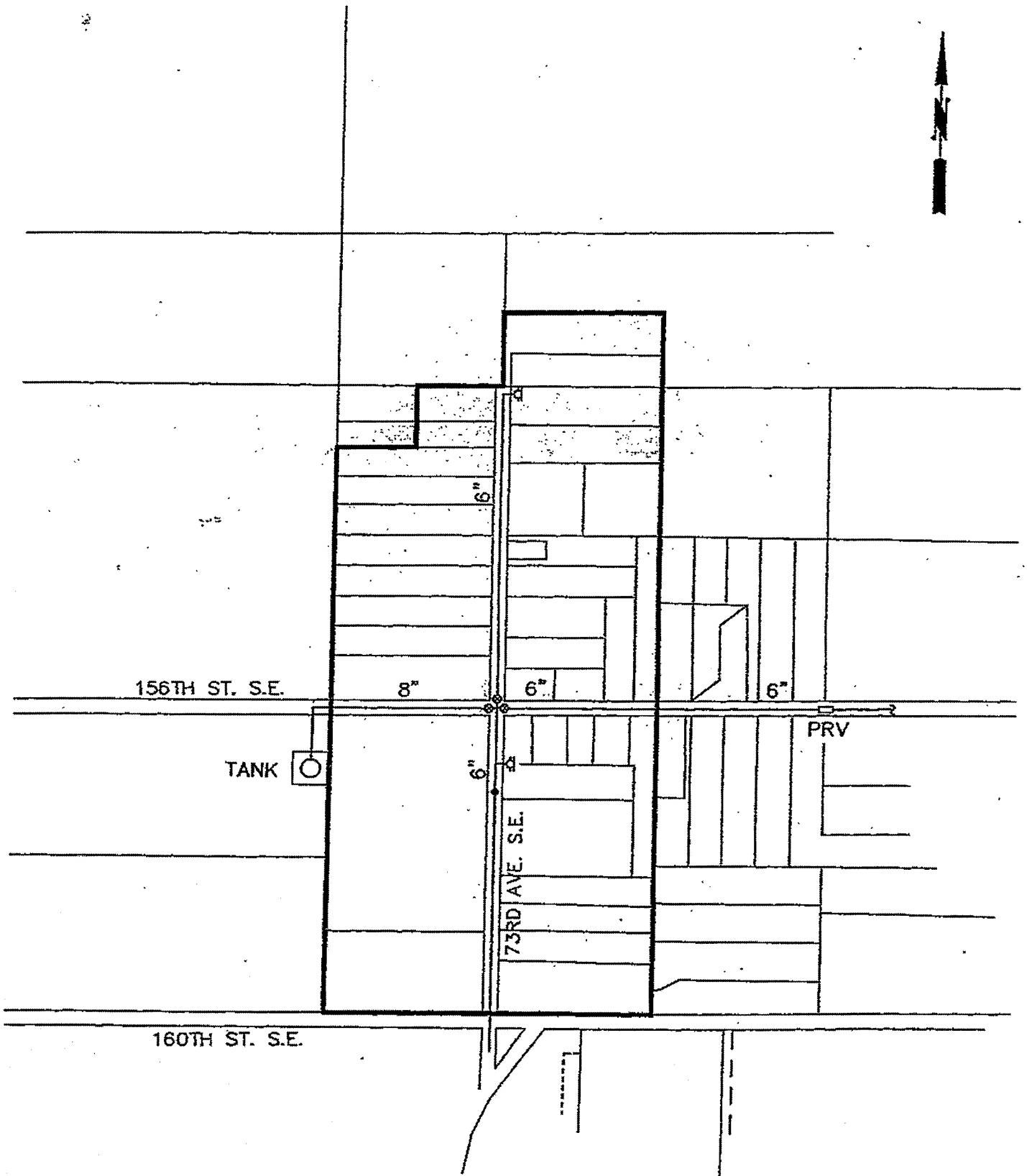


EXHIBIT A

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

EXHIBIT A

That portion of the West 1/2, Section 2, Township 27, Range 5 East described as follows:

Beginning at the SW corner of Lot 57 of the Plat of City Farms, thence Northerly along the West line of said Plat to the SW corner of Lot 49 of said Plat, thence Easterly along the South line of said Lot 49 to the SE corner of the West 1/2 of said Lot 49 thence Northerly along the East line of the West 1/2 of said Lot 49 and Lot 48 to the South line of Lot 47 of said Plat, thence Easterly along the South line of said Lot 47 to the SW corner of Lot 46 of said Plat, thence Northerly along the West line of said Lot 46 to the NW corner of said Lot 46, thence Easterly along the North line of said Lot 46 to the NE corner of said Lot 46 and the North-South centerline of said Section 2, thence Southerly along said North-South centerline to the North margin of 160th Street S.E., thence Westerly along said North margin to the West line of the NE 1/4 of the SW 1/4 of said Section 2, thence Northerly along said West line to the SW corner of said Lot 57 and the true point of beginning.

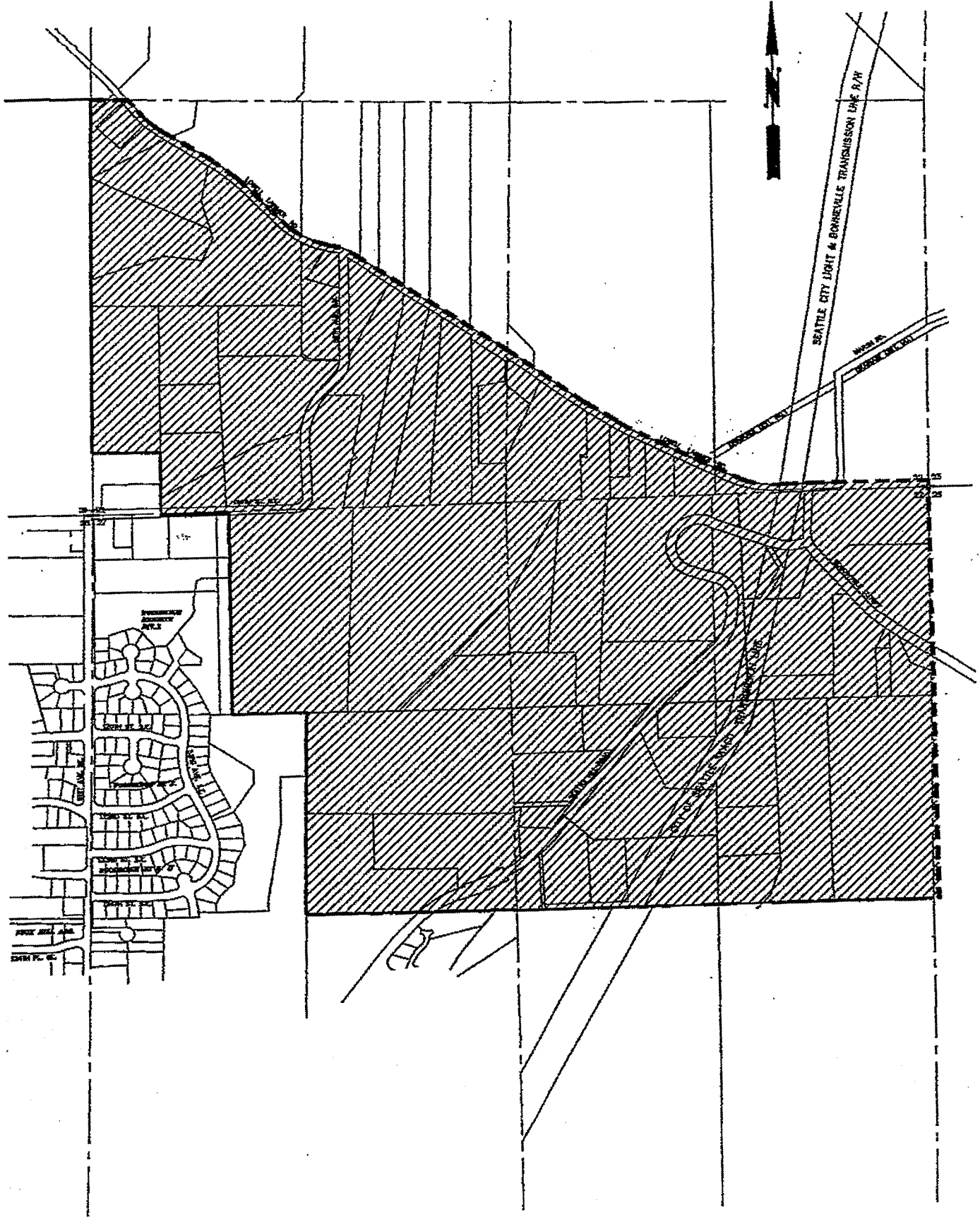


EXHIBIT B

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

EXHIBIT B

Beginning at the southeast corner of Lot 9 Plat of Woodridge Heights Division 1 being the true point of beginning; thence northerly along the east line of said Plat to the northeast corner of Tract 999 of said Plat; thence westerly along the north line of said Tract 999 to a point lying 800.25 feet east of the west line of Section 27, Township 28 N, Range 5 E, W.M.; thence northerly to a point on the southerly margin of 116th Street S.E. said point lying 825 feet east and 30 feet south of the northwest corner of said Section 27; thence westerly along the southerly margin of 116th Street S.E. a distance of 420 feet; thence northerly across 116th Street S.E. a distance of 60 feet to a point on the northerly margin of 116th Street S.E. said point lying 405 feet east of the west line of Section 22, Township 28 N, Range 5 E, W.M.; thence continuing northerly a distance of 400 feet to a point lying 405 feet east of the west line of said Section 22; thence westerly a distance of 405 feet to a point on the west line of said Section 22 said point lying 430 feet north of the southwest corner of said Section 22; thence northerly along the west line of said Section 22 to the northeasterly margin of Lowell-Larimer Road; thence southeasterly along said northeasterly margin of Lowell-Larimer Road to the intersection of the easterly margin of Marsh Road and East Lowell-Larimer Road; thence continuing easterly to the east line of said Section 22; thence southerly along the east line of said Sections 22 and 27 to the southeast corner of said Section 27; thence westerly along the south line of said Section 27 to the southeast corner of Lot 9 Plat of Woodridge Heights Division 1 and the true point of beginning.

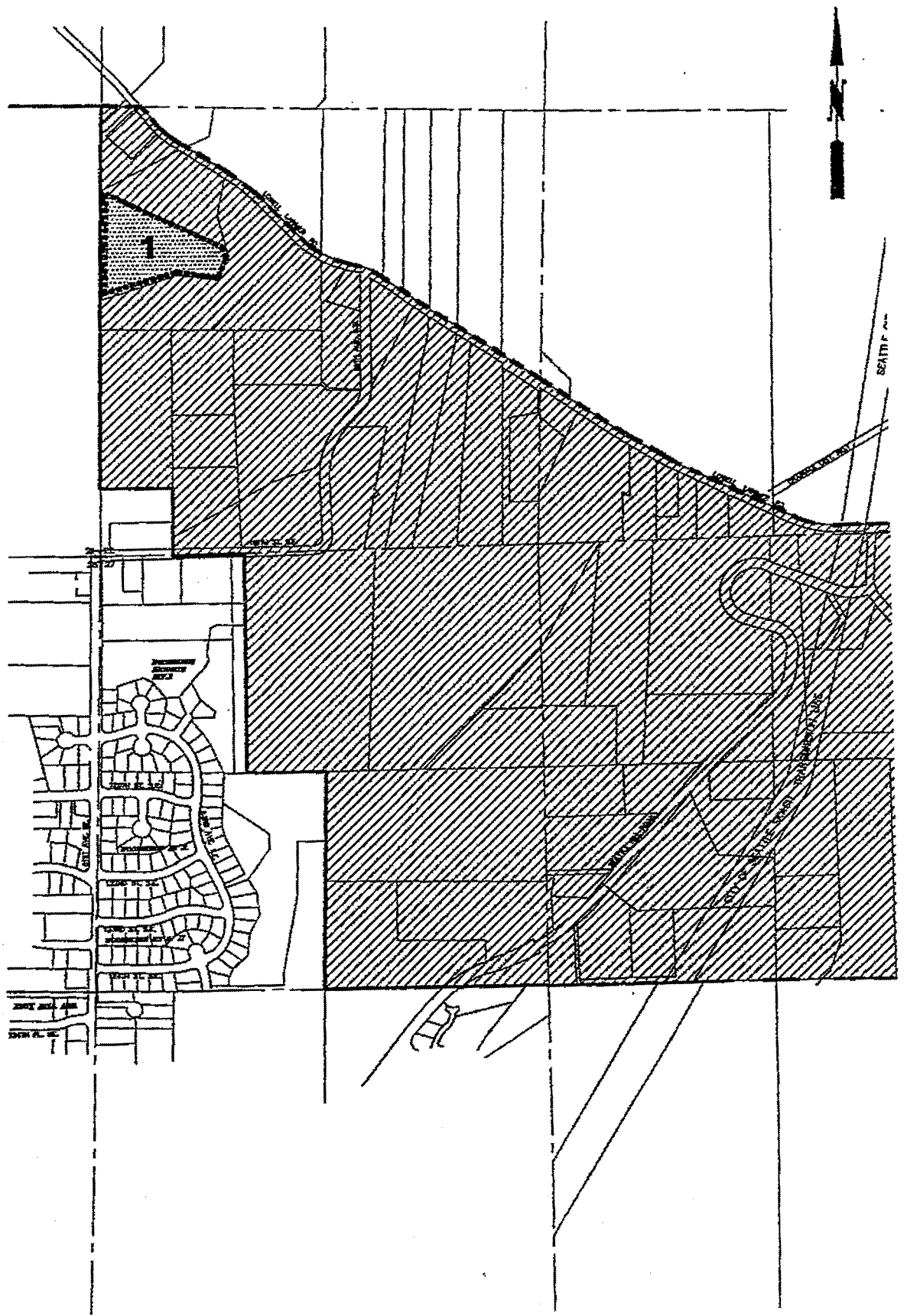


EXHIBIT C

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

PARCEL 1, EXHIBIT C

That portion of Section 22, Township 28 N, Range 5 E, W.M. described as follows:

BEGINNING AT A POINT 504.38 FEET SOUTH OF THE NORTHWEST
CORNER OF THE N.W. 1/4 S.W 1/4; THENCE S 65° 57' 15" E A
DISTANCE OF 827.05 FEET; THENCE S 14° 27' 30" E A DISTANCE OF
55.97 FEET; THENCE S 22° 24' 00" W A DISTANCE OF 160.80 FEET;
THENCE N 82° 59' 00" W A DISTANCE OF 243.70 FEET; THENCE S 72°
06' 00" W A DISTANCE OF 232.90 FEET; THENCE S 76° 00' 00" W A
DISTANCE OF 269.40 FEET TO THE WEST LINE OF SECTION 22;
THENCE NORTH TO THE POINT OF BEGINNING.



SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
AGREEMENT AS TO SERVICE LOTS BY DISTRICT
FOR THE PLAT OF THE VILLAGE AT OUTCROP CREEK

This agreement entered into this 22 day of August, 2002 between Cross Valley Water District and the Silver Lake Water District to finalize which lots will be ultimately served by Cross Valley Water District. The road alignment of the Plat of The Village at Outcrop Creek was laid out with existing topography and does not closely follow the District Boundary between Silver Lake Water District and Cross Valley Water District. Cross Valley Water District lies south'ery of the north line of the southwest one-quarter of the northeast one-quarter of Section 2, Township 27 North, Range 5 East of the Willamette Meridian which splits approximately ten lots in the Plat of The Village at Outcrop Creek. The lots to be served by Cross Valley Water District, at such time Cross Valley is able to and does serve lots within this plat in accordance with the terms of that certain interlocal agreement between the parties dated December 22, 1998, will be per attached 'Exhibit A' and described as follows: Lot 18 of Division 1 of the Plat of Outcrop Creek, Lots 1 through 34 of Division 2 of the Plat of Outcrop Creek and Lots 7 through 29 of Division 3 of the Plat of Outcrop Creek. One lot in Division 1, 34 lots in Division 2 and 23 lots in Division 3 for a total of fifty-eight (58) lots.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of this 22nd day of August, 2002.

SILVER LAKE WATER DISTRICT

By: B. Curran

CROSS VALLEY WATER DISTRICT

By: W. D. Piercing

Its: General Manager

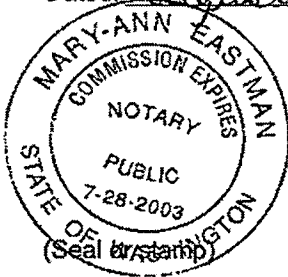
Its: PRESIDENT AND COMMISSIONER

REPRESENTATIVE ACKNOWLEDGMENT

STATE OF WASHINGTON)
) ss.
COUNTY OF Snohomish)

I certify that I know or have satisfactory evidence that, Patrick Curran
_____ is/are the person(s) who appeared before me, and said
person(s) acknowledged that (he/she/they) signed this instrument, on oath stated that (he/she)
was authorized to execute the instrument and acknowledged it as the General Manager of
Silver Lake Water Dist to be the free and voluntary act of such party for the uses and
purposes mentioned in the instrument.

Dated: August 22, 02



Mary Ann Eastman
(Signature)

Mary Ann Eastman
(print name)

NOTARY PUBLIC in and for Washington State, residing
at Everett, WA

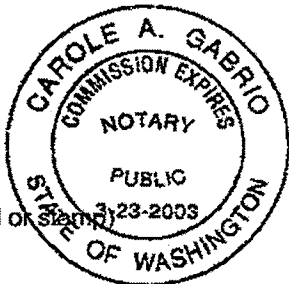
My appointment expires 7-28-03

REPRESENTATIVE ACKNOWLEDGMENT

STATE OF WASHINGTON)
) ss.
COUNTY OF Snohomish)

I certify that I know or have satisfactory evidence that, DALE DEIERLING
_____ is/are the person(s) who appeared before me, and said
person(s) acknowledged that (he/she/they) signed this instrument, on oath stated that (he/she)
was authorized to execute the instrument and acknowledged it as the PRESIDENT of
CROSS VALLEY WATER DISTRICT to be the free and voluntary act of such party for the uses and
purposes mentioned in the instrument.

Dated: AUGUST 20, 2002



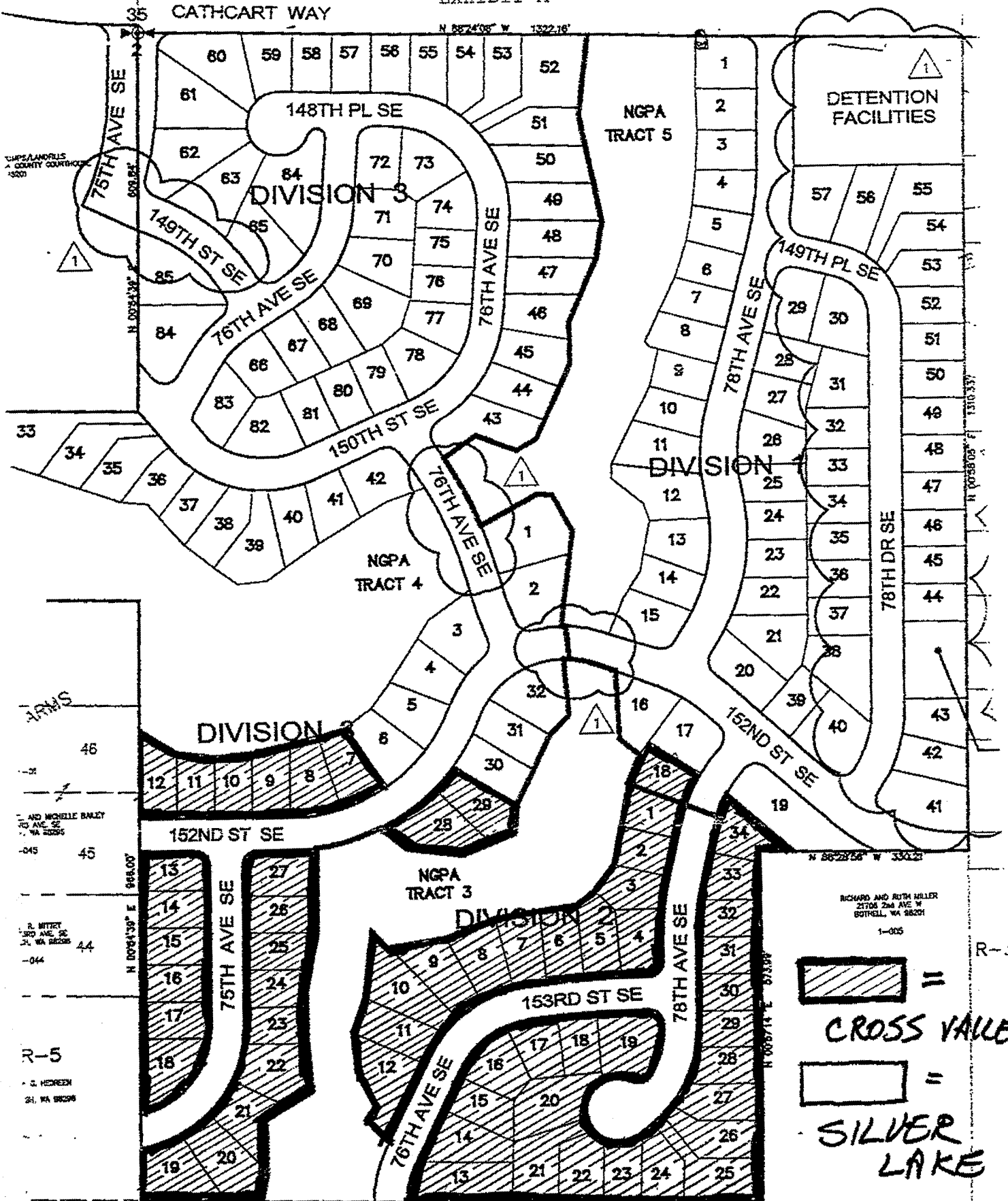
Carole A. Gabrio
(Signature)

CAROLE A. GABRIO
(print name)

NOTARY PUBLIC in and for Washington State, residing
at Snohomish

My appointment expires 3-23-2003

EXHIBIT A



WAPSANDRILLS COUNTY COURTHOUSE 1500

ARMS



AND MICHELLE BAILEY 701 7th Ave SE WA 98205

R. MITCHELL 2100 2nd Ave SE WA 98205

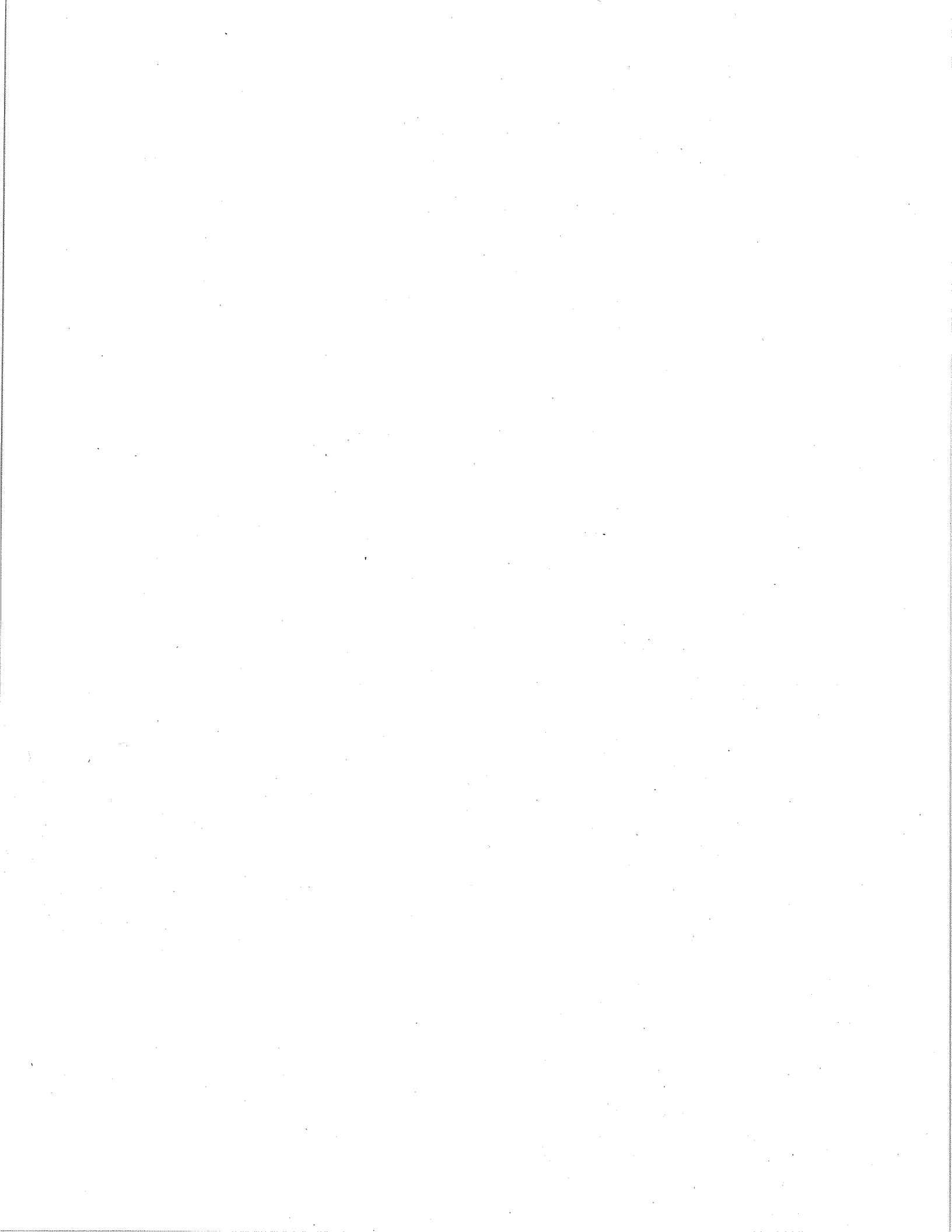
R-5

C. HEDREN 21 WA 98205

RICHARD AND RUTH MILLER 21706 2nd Ave N BETHEL, WA 98201

 =
 CROSS VALLEY
 =
 SILVER LAKE

PLAT OF CITY FARMS
 37 36 35 34 33 R-5 32 31 30 29 28 27
 ANDREW G. HEDREN RICHARD L. R. TIMOTHY MONTAGUE WILFRED E. PILING TERESE ANNETTE GARY PENHOOK BRUCE MCCORMACK KERRY WADE MILLER



SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
AMENDMENT TO INTERLOCAL AGREEMENT FOR
LOWELL LARIMER SERVICE AREA

This Agreement is an amendment to an Agreement between the Cross Valley Water District (hereinafter referred to as "Cross Valley" and the Silver Lake Water District (hereinafter referred to as "Silver Lake"),

RECITALS

1.1 The Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington.

1.2 In 1994 the Districts entered into an Interlocal Agreement pursuant to Chapter 39.34 of the Revised Code of Washington and RCW 57.08.044 to provide for joint sewer and water service in an area within Cross Valley. The agreement was re-executed in 2001.

1.3 Silver Lake now provides water and sewer service to single family residences within the area depicted by the number 1 on Exhibit C to the 2001 agreement.

1.4 No additional infrastructure other than side sewers need to be constructed in the area depicted by the number 1 on Exhibit C to the 2001 agreement to serve approximately an additional 10 lots in the Waldenwood subdivisions.

1.5 It appears no other properties in this general area can be served by gravity lines connecting to the existing sewer infrastructure currently operated by Silver Lake.

NOW, THEREFORE, for and in consideration of the mutual benefits and covenants set forth below, the Districts do hereby agree as follows:

Section 1. Purpose. The purpose of this Amendment to the 2001 Agreement is to amend and replace and redefine the legal description of the area delineated by the number 1 within the Area B set forth on Exhibit C

of the 2001 Agreement between Cross Valley Water District and Silver Lake Water District entered into on October 16, 2001.

Section 2. Amended Area Section 6 of the 2001 Agreement is amended to reference Exhibit C as attached to this Amendment and incorporated herein.

Section 3. No Other Amendments All other terms and conditions of the aforesaid Interlocal Agreement between Cross Valley and Silver Lake dated October 16, 2001 shall remain the same.

Section 4. Counterparts. This Agreement may be signed in counterparts, and, if so signed, shall be deemed one intergrated Agreement.

IN WITNESS WHEREOF, This Agreement has been executed by the undersigned Party on the date set forth.

SILVER LAKE WATER DISTRICT:

CROSS VALLEY WATER DISTRICT

Bill Anderson
President

Ginger Day
President

Paul Kuppel
Commissioner

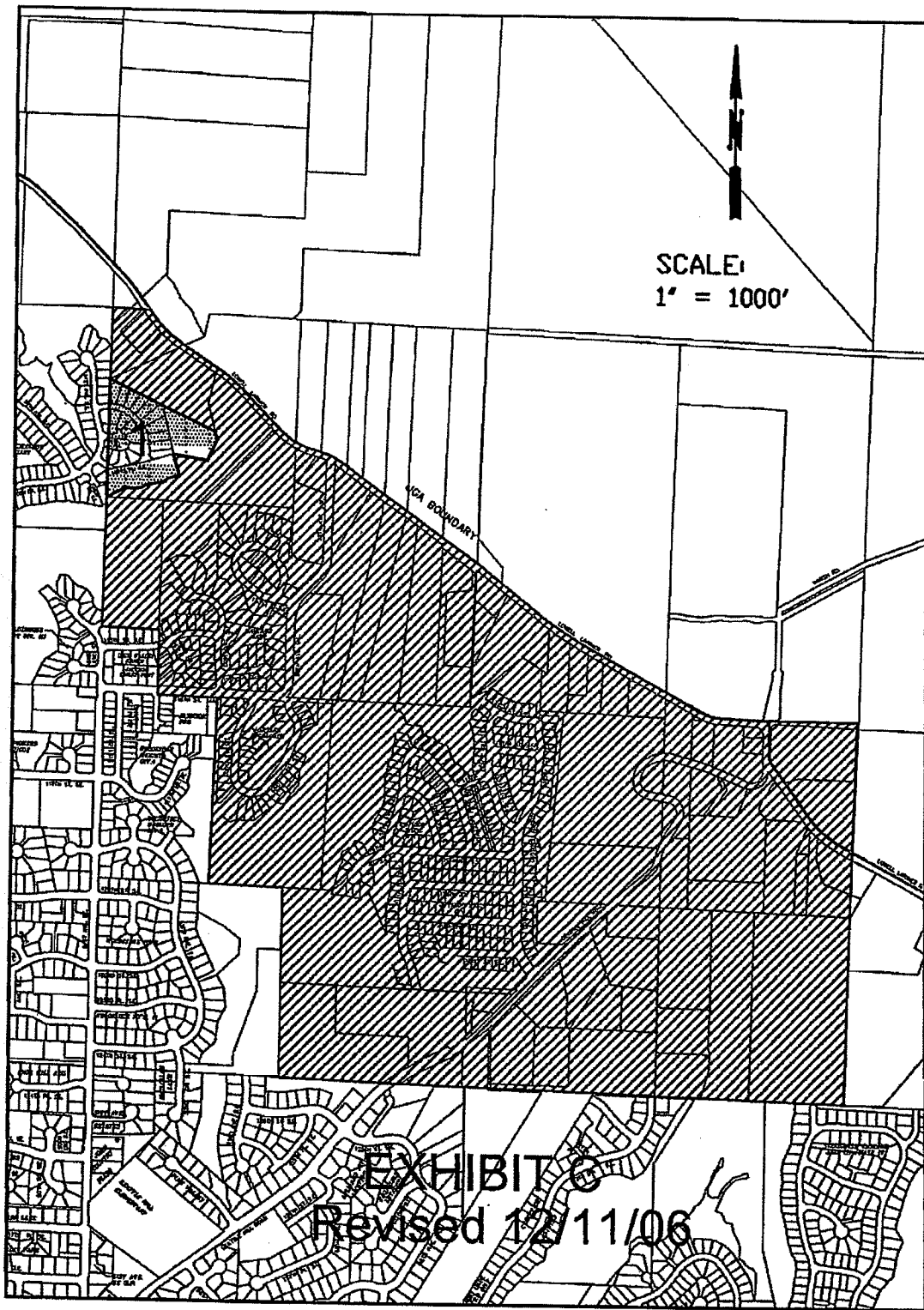
[Signature]
Commissioner

[Signature]
Secretary - Commissioner

[Signature]
Secretary - Commissioner

Date: 12-14-06

Date: 03-20-07



SCALE:
1' = 1000'

EXHIBIT C
Revised 12/11/06

Legal Description - Exhibit C:

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 28 NORTH, RANGE 5 EAST, W.M., IN SNOHOMISH COUNTY, WASHINGTON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 22; THENCE SOUTH 00° 01'54" EAST ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER A DISTANCE OF 504.38 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 65° 27'39" EAST 827.05 FEET; THENCE SOUTH 13° 57'54" EAST 55.97 FEET; THENCE SOUTH 22° 53'36" WEST 160.80 FEET; THENCE NORTH 82° 29'24" WEST 243.70 FEET; THENCE SOUTH 72° 35'36" WEST 232.90 FEET; THENCE SOUTH 76° 29'36" WEST 245.90 FEET TO A POINT ON THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 22; THENCE NORTH 00° 01'54" WEST ALONG SAID WEST LINE A DISTANCE OF 641.19 FEET TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH THAT PORTION OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 28 NORTH, RANGE 5 EAST, W.M., IN SNOHOMISH COUNTY, WASHINGTON; MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 22; THENCE SOUTH 00° 01'54" EAST ALONG THE WEST LINE THEREOF A DISTANCE OF 1145.57 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 76° 29'36" EAST 245.90 FEET; THENCE NORTH 72° 35'36" EAST 232.90 FEET; THENCE SOUTH 82° 29'24" EAST 7.09 FEET; THENCE SOUTH 18° 38'33" EAST 156.21 FEET; THENCE SOUTH 86° 08'12" WEST 31.43 FEET; THENCE SOUTH 67° 44'48" WEST 53.97 FEET; THENCE SOUTH 49° 40'39" WEST 30.64 FEET; THENCE SOUTH 76° 50'25" WEST 85.42 FEET; THENCE SOUTH 74° 05'19" WEST 42.12 FEET; THENCE SOUTH 64° 36'55" WEST 43.25 FEET; THENCE SOUTH 80° 51'33" WEST 38.09 FEET; THENCE NORTH 88° 31'20" WEST 38.80 FEET; THENCE SOUTH 88° 45'40" WEST 45.48 FEET; THENCE SOUTH 53° 14'31" WEST 46.12 FEET; THENCE SOUTH 65° 44'14" WEST 41.96 FEET; THENCE SOUTH 43° 24'56" WEST 17.49 FEET; THENCE SOUTH 65° 01'53" WEST 31.13 FEET; THENCE NORTH 89° 17'20" WEST 13.45 FEET TO A POINT ON THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 22; THENCE NORTH 00° 01'54" WEST ALONG SAID WEST LINE A DISTANCE OF 190.31 FEET TO THE TRUE POINT OF BEGINNING.

WRITTEN BY: _____

CHECKED BY: _____

MAP CHECKED BY: _____

SILVER LAKE WATER-SEWER DISTRICT
CROSS VALLEY WATER DISTRICT
2009 AMENDMENT TO INTERLOCAL AGREEMENT

This Amendment entered into this 18th day of MARCH, 2009 between the Cross Valley Water District (hereinafter referred to as "Cross Valley") and the Silver Lake Water-Sewer District (hereinafter referred to as "Silver Lake") (Cross Valley and Silver Lake are herein referred to singularly as "District" and collectively as "Districts") amends the Interlocal Agreement between the Districts dated October 16, 2001 as amended by Agreement signed by the Districts on December 14, 2006 and February 20, 2007, respectively, (hereinafter referred to as 2007 Amendment) redefining and replacing Exhibit C of the Interlocal Agreement dated October 16, 2001.

WITNESSETH:

WHEREAS, the Districts entered into an Interlocal Agreement dated October 16, 2001 regarding the provision of water and sewer service in each other's District (herein referred to as "Interlocal"). A copy of the Interlocal is attached to this Amendment as Exhibit A-1; and

WHEREAS, the Districts amended this Interlocal to redefine and replace Exhibit C of the Interlocal by the 2007 Amendment; and

WHEREAS, the Districts wish to amend the Interlocal to expand the sewer service area for Silver Lake within Cross Valley's boundaries (Area B); and

WHEREAS, certain property within this expanded service area in Cross Valley designated as Valley Investments-Farm Worker Housing site depicted and described on Exhibit B-1 (Valley Investments) is outside the Urban Growth Area as defined by Snohomish County and has a Zoning Designation of Riverway Commercial Farmland; and

WHEREAS, Valley Investments has requested sewer service from Cross Valley and Silver Lake; and

WHEREAS, Snohomish County Planning and Development Services have determined that the Valley Investment property is allowed sewer service since the property meets SCC 30.29.110 (1) an exception to SCC prohibition of sewer service outside of a UGA; and

WHEREAS, Valley Investments has received approval of the Washington State Department of Health (DOH) for construction of Farm Worker Housing on its site provided such housing is connected to public sewer; and

WHEREAS, DOH has issued to Valley Investments a Construction Permit for Migrant Farm Worker Housing for its site in Cross Valley; and

WHEREAS, Silver Lake is the only viable sewer provider for the Valley Investments Migrant Farm Worker Housing; and

WHEREAS, the Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington; and

WHEREAS, the Districts desire to enter into this Amendment pursuant to the authority granted in Chapter 39.34 of the Revised Code of Washington and RCW 57.08.007; and

WHEREAS, each District has the authority to construct, condemn and purchase, acquire, add to, alter, maintain and operate waterworks, and sewer systems, within or without their corporate limits, for the purpose of furnishing its inhabitants or any other persons with an ample supply of water and for the purpose of disposing of wastewater; and

WHEREAS, the Districts wish to protect and promote their interests and the interests of their rate payers and to provide water service and sewer service to certain customers located within their respective Districts by both using water lines and sewer lines owned and operated by the other District and by providing for the wholesale of water between the Districts; and

WHEREAS, state law does not allow a special purpose water and sewer district to extend service to customers located within the boundaries of a different water and sewer district without such district's consent and approval; and

WHEREAS, both Districts desire to cooperate in providing water and sewer service to certain properties near or adjacent to the Districts' common boundary lines; and

WHEREAS, both Districts recognize that the other District has the sole lawful authority to provide water and sewer service to properties within its jurisdiction; and

WHEREAS, in accordance with RCW 57.08.007, and by interlocal agreement, the Districts may provide for water and sewer service by one District in the other District's area.

NOW, THEREFORE, the Districts do hereby agree as follows:

Section 1. Purpose.

The purpose of this Amendment is to add lands to Area "B" as described in the Interlocal so as to allow additional land area to be subject to the terms of the Interlocal to provide for future sewer service by Silver Lake to properties within Area "B."

Section 2. Expanded Area B.

Area "B" of the Interlocal is amended to add the lands as described and depicted on Exhibit B-1 attached hereto. For ease of future administration of the Interlocal, the Districts

agree that Exhibit B-1 may be inserted as the substitute exhibit for Exhibit B in the Interlocal and Exhibit C-1 of the 2007 Amendment may be inserted as the substitute for Exhibit C in the Interlocal.

Section 3. A new paragraph is added to Section 5 of the Interlocal to read as follows:

The sewer rate applied by Silver Lake to sewer customers within Area B shall be calculated at 117%, or as otherwise set by written mutual agreement of the Districts' Boards of Commissioners, of the then current rate as now or hereafter amended for Silver Lake sewer customers residing within its Everett sewer basin; that is, Silver Lake customers within its own jurisdiction whose sewer flows through piping and sewer facilities to the Everett Water Pollution Control Facility.

Section 4. A new sub-paragraph (f) is added to Section 10 of the Interlocal to read as follows:

Cross Valley shall indemnify, defend and hold the District and its elected and appointed officials, officers, employees, agents and volunteers (collectively the "District") harmless from and against all damages, losses, expenses and all claims, demands, payments, suits, actions, liabilities, including regulatory enforcement actions, recoveries, and judgments of every nature and description including attorneys' fees and costs (collectively "Claims" or "Damages") incurred by or brought or recovered against the District relating to or arising out of, directly or indirectly, the District providing sewer service to the property located along the 5300 block of Lowell-Larimer Road, Everett, Washington 98296 having Tax Parcel No. 280522-003-015-00 and legally described on Exhibit D attached hereto and incorporated herein by this reference (the "Property"), provided, however, Cross Valley's obligation to indemnify, defend and hold the District harmless under this provision shall not apply to any Claims or Damages arising out of or related to, directly or indirectly, the District's operation of its sewer system to serve the Property .

District and Cross Valley agree that all third party claims for Damages against District for providing sewer service to Tax Parcel No. 280522-003-015-00 not related to, directly or indirectly, the District's operation of its sewer system for which Cross Valley's insurance carrier does not accept defense of District may be tendered by District to the Cross Valley who shall, if so tendered by District, accept and undertake to defend or settle with the Claimant. District retains the right to approve claims investigation and legal counsel assigned to said claim or actions acting reasonably and all investigation and legal work product regarding said claim shall be performed under a fiduciary relationship to the District.

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Section 4. Incorporation and Ratification.

All other terms of the October 16, 2001 Interlocal are hereby ratified and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of this 18th day of March, 2009.¹⁰

SILVER LAKE WATER DISTRICT:

Bill Anderson
President

Paul Keppeler
Commissioner

Jim Hyatt
Commissioner

ATTESTED TO:
Jim Hyatt
Secretary-Commissioner

CROSS VALLEY WATER DISTRICT:

[Signature]
President

[Signature]
Commissioner

[Signature]
Commissioner

ATTESTED TO:
[Signature]
Secretary-Commissioner

**SILVER LAKE WATER-SEWER DISTRICT
CROSS VALLEY WATER DISTRICT
2008 AMENDMENT TO INTERLOCAL AGREEMENT
EXHIBIT A-1 - OCTOBER 16, 2001 INTERLOCAL AGREEMENT**

SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
INTERLOCAL AGREEMENT

EX. A-1

This Agreement entered into this 16 day of OCTOBER, 2001 between the Cross Valley Water District (hereinafter referred to as "Cross Valley" and the Silver Lake Water District (hereinafter referred to as "Silver Lake"),

W I T N E S S E T H:

WHEREAS, the District's entered into this agreement in 1994, and;

WHEREAS, the Districts have determined to re-execute this agreement to clarify the legal authority to provide water and sewer service in each others district; and

WHEREAS, the Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington; and

WHEREAS, the Districts desire to enter into this Agreement pursuant to the authority granted in Chapter 39.34 of the Revised Code of Washington and RCW 57.08.007; and

WHEREAS, each District has the authority to construct, condemn and purchase, acquire, add to, alter, maintain and operate waterworks, and sewer systems, within or without their corporate limits, for the purpose of furnishing its inhabitants or any other persons with an ample supply of water and for the purpose of disposing of wastewater; and

WHEREAS, the Districts wish to protect and promote their interests and the interests of their rate payers and to provide water service and sewer service to certain customers located within their respective Districts by both using water lines and sewer lines owned and operated by the other District and by providing for the wholesale of water between the Districts; and

WHEREAS, Cross Valley has provided service to certain properties within the City Farms area of the Silver Lake as a private and public water purveyor; and

WHEREAS, state law does not allow a special purpose water and sewer district to extend service to customers located within the boundaries of a different water and sewer district without such district's consent and approval; and

WHEREAS, both Districts desire to cooperate in providing water and sewer service to certain properties near or adjacent to the Districts common boundary lines; and

WHEREAS, both Districts recognize that the other District has the sole lawful authority to provide water and sewer service to properties within its jurisdiction; and

WHEREAS, in accordance with RCW 57.08.007, and by interlocal agreement the Districts may provide for water and sewer service by one District in the other District's area.

NOW, THEREFORE, the Districts do hereby agree as follows:

Section 1. Purpose.

The purpose of this Agreement is to provide delivery of water service to properties within the City Farms area as shown on Exhibit "A" attached hereto (hereinafter Area "A") of Silver Lake Water using water systems owned and operated by Cross Valley. It is the further purpose of this agreement to provide future wholesale of water by Silver Lake to Cross Valley for water service to properties within an area of Cross Valley as shown on Exhibit "B" attached hereto (hereinafter Area "B") and to provide for future sewer service by Silver Lake to properties within Area "B". All deliveries of water by Cross Valley from existing facilities owned and operated by Cross Valley within Area "A", shall be allowed by Silver Lake pursuant to the terms, conditions, and limitations of this Agreement. All deliveries of sewer by Silver Lake within Area "B", shall be allowed by Cross Valley pursuant to the terms, conditions, and limitations of this Agreement.

Section 2. Area "A" New Customers - Interim Service.

Cross Valley shall have the right and permission of Silver Lake to provide service to existing customers and to extend service to new customers and properties within Area "A". As a condition of any such new service extension, Cross Valley shall collect from property

owners within Area "A" as a condition of water service to such property owner by Cross Valley all then existing Silver Lake water connection charges, capital improvement charges and other fees, except meter installation charges which will be retained by Cross Valley, which would be collected by Silver Lake for water service in accordance with its Resolutions and regulations. Such Silver Lake charges collected by Cross Valley are to be paid to Silver Lake within thirty days of the date collected by Cross Valley.

Section 3. Area "A" Maintenance and Repair.

All maintenance, operation, and repair costs and expenses of the water system shall be the sole responsibility of Cross Valley. Any and all construction, repair, reconstruction, replacement or other work on the existing system shall be done by Cross Valley. All new service line installation shall be constructed in accordance with Silver Lake standards and specifications. Any extension of the water system within Area "A" caused by a subdivision of property or new development within Area "A" shall be constructed in accordance with Silver Lake standards and specification. Any construction or improvement of the water facilities within Area "A" for existing general system improvements by Cross Valley may be constructed to Cross Valley standards and specification. The existing water system lines set forth on Exhibit "A", which is incorporated herein as a part of this agreement, are integral to the integrity of operation of Cross Valley's system and shall be retained by Cross Valley.

For those projects requiring construction in accordance with Silver Lake standards and specifications, Cross Valley shall submit engineering plans to Silver Lake for approval at least 60 days prior to construction, and shall notify Silver Lake at least seven days prior to beginning actual construction work.

Section 4. Transfer of Customers Area "A".

At its sole discretion and election, Silver Lake may give notice to Cross Valley that Silver Lake intends to take over the customers within Area "A" 60 days from such notice. Cross Valley shall provide to Silver Lake a current list of the names and addresses of all Cross Valley water customers within the Agreement

area. Silver Lake shall send notice of take over to all customers being served by Cross Valley advising them of their new water purveyor and that billing and payment of future water bills shall be handled by Silver Lake.

At such time of notice Cross Valley shall wholesale to Silver Lake sufficient water to serve all properties within Area "A" whether then being served or not should Silver Lake decide to purchase water from Cross Valley. Nothing herein shall require Silver Lake to purchase water from Cross Valley.

At the time of take over of the water system, Silver Lake shall be responsible for maintenance and operation of the water system within Area "A", except for those lines set forth on Exhibit "A".

Section 5. Area "B" New Sewer Customers.

Silver Lake shall have the right and permission of Cross Valley to extend sewer service to customers and properties within Area "B". Any and all construction of sewer facilities within Area "B", shall be constructed in accordance with Silver Lake standards and specifications. Silver Lake shall maintain and operate such sewer system. Silver Lake may collect any and all connection charges, capital improvement charges, monthly rates and charges and other fees which would be collected by Silver Lake in accordance with its Resolutions and regulations. Nothing herein shall preclude Silver Lake from entering into a sewer service extension agreement with individual property owners within Area "B".

Section 6. Silver Lake Wholesale of Water to Cross Valley - Area "B".

Subject to the provisions of Section 8, Silver Lake agrees to wholesale water to Cross Valley sufficient to serve all customers and properties within Area "B". Any and all costs of construction, maintenance and repair of facilities required to wholesale water to Cross Valley, such as master meter(s), shall be paid solely by Cross Valley. Such facilities shall be constructed in accordance with Silver lake standards and specification. Nothing herein shall require Cross Valley to purchase water from Silver Lake. Provided, however, that both water and sewer shall be provided by Silver Lake

for that area delineated by the number 1 within Area "B" set forth on Exhibit "C" incorporated herein, which comprises approximately 20 lots of Waldenwood Subdivision, Phase II.

Section 7. Water Quality.

Each District warrants that it will purvey water meeting the state water quality standards and requirements to the other District and to all residents within the other District. Each District agrees to protect, hold harmless, indemnify and defend the other for any claim, demand or suit arising out of purveying water to customers within the other District or the wholesaling of water to the other District.

Section 8. Delinquent Account Collection. In order to ensure that each District can protect revenue sources and protect bond covenants as well as the operational integrity of its system, every customer of both water and sewer service in Area "B" shall be treated as though that customer was receiving both water and sewer service from Silver Lake. Any and all remedies for non-payment of utility bills, including but not limited to cut off of service as authorized by RCW 57.08.090, shall pertain to Silver Lake. At all times that Silver Lake is providing sewer service to a customer within Area "B" that is being provided water service by Cross Valley, Cross Valley shall apply any water bill payment first to any Silver Lake sewer bill for the same customer that is 30 days past due. Such Cross Valley payment shall be forwarded to Silver Lake within 30 days. Should delinquency by any such customer continue, Cross Valley shall turn off that customer's water service as provided by state law.

Section 9. Water Service to Cathcart Landfill. Both Districts understand that in order to provide water to the Snohomish County Cathcart Landfill, Cross Valley has purveyed water to Cathcart even though it is in Silver Lake. Both Districts agree and understand that at such time that Silver Lake can serve water to Cathcart, Silver Lake may give notice to Cross Valley that Silver Lake will take over service of water to Cathcart and Cross Valley will cease water delivery to Cathcart.

Section 10. Miscellaneous.

a. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their successors and assigns.

b. This document constitutes the entire agreement of the parties with respect to the subject matter hereof and may be modified only by an agreement in writing signed by all the parties hereto.

c. Waiver by any party of any term or condition of this Agreement shall not be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any subsequent breach, whether of the same or of a different provision of this Agreement.

d. If any provision of this Agreement is held invalid or unenforceable, the remainder of the Agreement shall not be affected and shall remain in full-force and effect.

e. Any notices required or permitted under this Agreement shall be delivered to the District's business office.

Section 11. Arbitration.

Any controversy or claim arising out of or related to this contract or the breach thereof shall be settled by a Board of three arbitrators one of whom shall be selected by Cross Valley and one by Silver Lake and the third selected jointly by the first two, and the parties hereto agree that any decision of the arbitrators shall be binding upon both parties hereto and judgment upon the award rendered may be entered in any court having jurisdiction thereof, all in accordance with Chapter 7.04 RCW. Any costs, expenses, and legal fees incurred in arbitration or other legal action shall be awarded to the prevailing party.

Section 12. Effective Date, Duration, and Termination.

This Agreement shall become effective on the date on which this Agreement has been duly authorized and executed by the Districts. As to Area "A", this Agreement shall terminate at such time as Silver Lake's system is able to serve the properties within Area "A" receiving water from Cross Valley and Silver Lake has accomplished take over of water service in Area "A". This agreement may be terminated at an earlier date by mutual agreement of the Districts.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of this 16th day of OCTOBER, 2001.

SILVER LAKE WATER DISTRICT:

Paul Kupper
President

Bill Anderson
Commissioner

Roger Sumner
Commissioner

ATTESTED TO:

Roger Sumner
Secretary-Commissioner

CROSS VALLEY WATER DISTRICT

[Signature]
President

Paul Deierling
Commissioner

Gregory Perry
Commissioner

ATTESTED TO:

Paul Deierling
Secretary-Commissioner

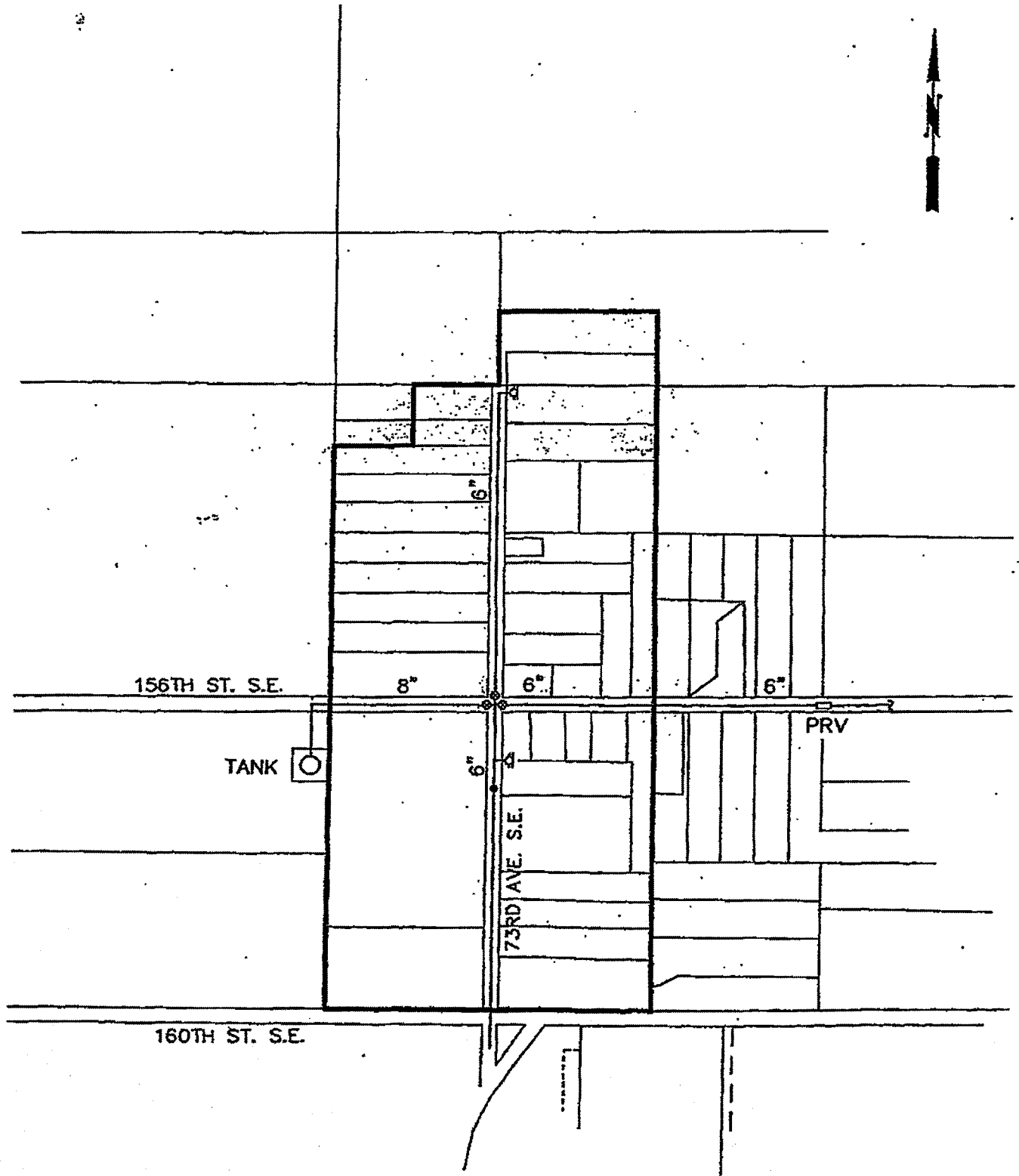


EXHIBIT A

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

EXHIBIT A

That portion of the West 1/2, Section 2, Township 27, Range 5 East described as follows:

Beginning at the SW corner of Lot 57 of the Plat of City Farms, thence Northerly along the West line of said Plat to the SW corner of Lot 49 of said Plat, thence Easterly along the South line of said Lot 49 to the SE corner of the West 1/2 of said Lot 49 thence Northerly along the East line of the West 1/2 of said Lot 49 and Lot 48 to the South line of Lot 47 of said Plat, thence Easterly along the South line of said Lot 47 to the SW corner of Lot 46 of said Plat, thence Northerly along the West line of said Lot 46 to the NW corner of said Lot 46, thence Easterly along the North line of said Lot 46 to the NE corner of said Lot 46 and the North-South centerline of said Section 2, thence Southerly along said North-South centerline to the North margin of 160th Street S.E., thence Westerly along said North margin to the West line of the NE 1/4 of the SW 1/4 of said Section 2, thence Northerly along said West line to the SW corner of said Lot 57 and the true point of beginning.

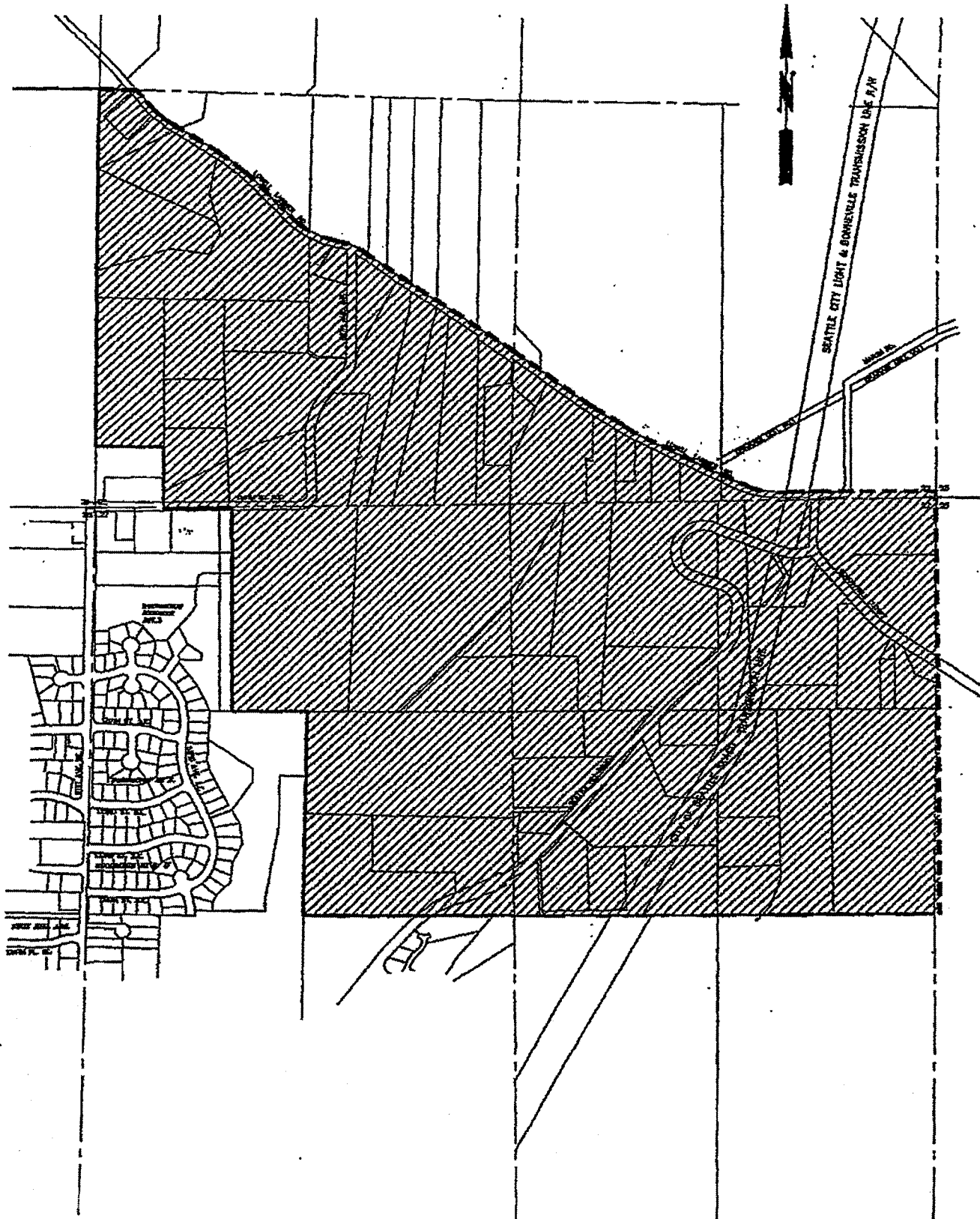


EXHIBIT B

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

EXHIBIT B

Beginning at the southeast corner of Lot 9 Plat of Woodridge Heights Division 1 being the true point of beginning; thence northerly along the east line of said Plat to the northeast corner of Tract 999 of said Plat; thence westerly along the north line of said Tract 999 to a point lying 800.25 feet east of the west line of Section 27, Township 28 N, Range 5 E, W.M.; thence northerly to a point on the southerly margin of 116th Street S.E. said point lying 825 feet east and 30 feet south of the northwest corner of said Section 27; thence westerly along the southerly margin of 116th Street S.E. a distance of 420 feet; thence northerly across 116th Street S.E. a distance of 60 feet to a point on the northerly margin of 116th Street S.E. said point lying 405 feet east of the west line of Section 22, Township 28 N, Range 5 E, W.M.; thence continuing northerly a distance of 400 feet to a point lying 405 feet east of the west line of said Section 22; thence westerly a distance of 405 feet to a point on the west line of said Section 22 said point lying 430 feet north of the southwest corner of said Section 22; thence northerly along the west line of said Section 22 to the northeasterly margin of Lowell-Larimer Road; thence southeasterly along said northeasterly margin of Lowell-Larimer Road to the intersection of the easterly margin of Marsh Road and East Lowell-Larimer Road; thence continuing easterly to the east line of said Section 22; thence southerly along the east line of said Sections 22 and 27 to the southeast corner of said Section 27; thence westerly along the south line of said Section 27 to the southeast corner of Lot 9 Plat of Woodridge Heights Division 1 and the true point of beginning.

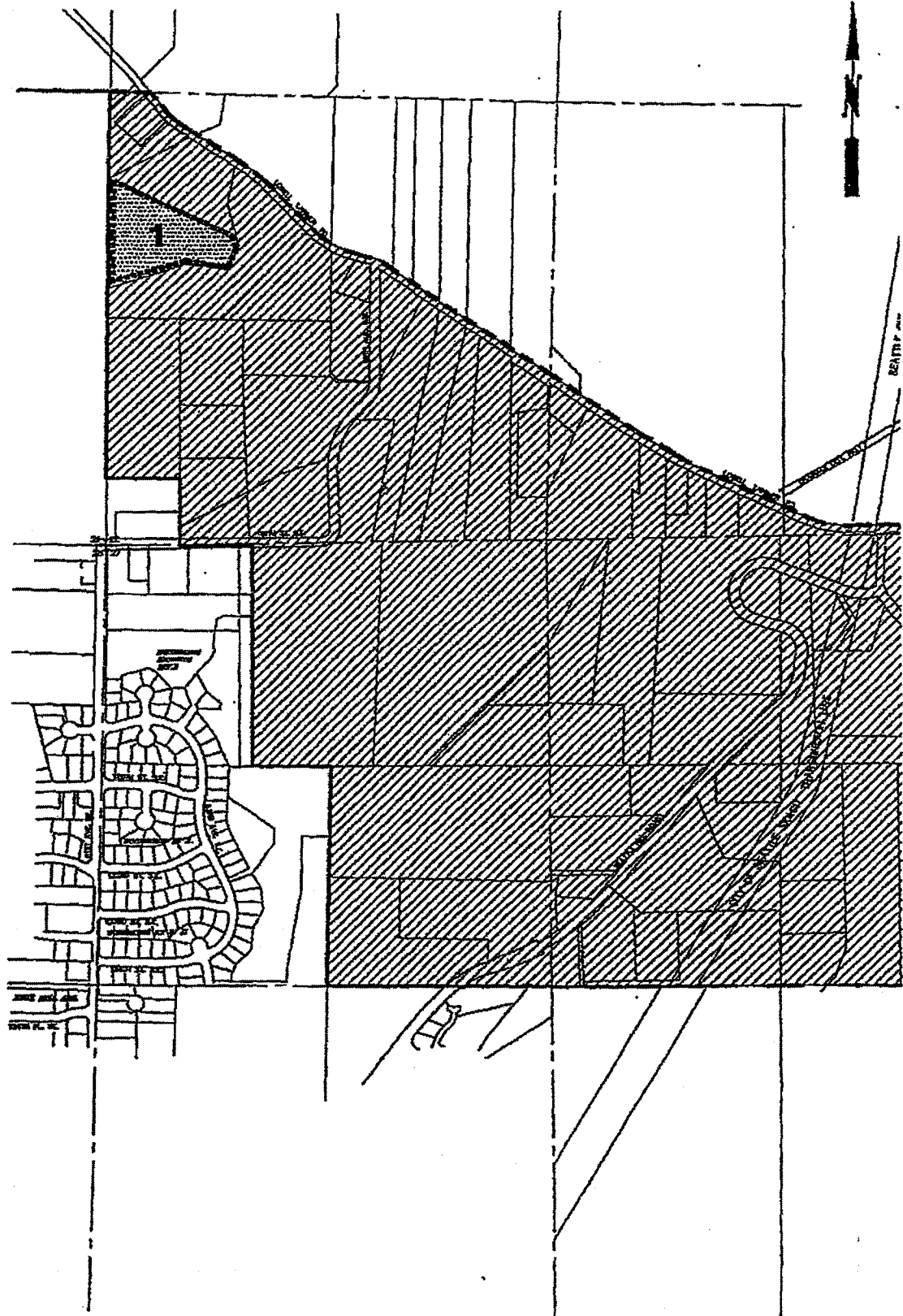


EXHIBIT C

SILVER LAKE WATER DISTRICT
LEGAL DESCRIPTION
PARCEL I, EXHIBIT C

That portion of Section 22, Township 28 N, Range 5 E, W.M. described as follows:

BEGINNING AT A POINT 504.38 FEET SOUTH OF THE NORTHWEST
CORNER OF THE N.W. 1/4 S.W 1/4; THENCE S 65° 57' 15" E A
DISTANCE OF 827.05 FEET; THENCE S 14° 27' 30" E A DISTANCE OF
55.97 FEET; THENCE S 22° 24' 00" W A DISTANCE OF 160.80 FEET;
THENCE N 82° 59' 00" W A DISTANCE OF 243.70 FEET; THENCE S 72°
06' 00" W A DISTANCE OF 232.90 FEET; THENCE S 76° 00' 00" W A
DISTANCE OF 269.40 FEET TO THE WEST LINE OF SECTION 22;
THENCE NORTH TO THE POINT OF BEGINNING.

**SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
2008 AMENDMENT TO INTERLOCAL AGREEMENT
EXHIBIT B-1 - LEGAL DESCRIPTION & MAP FOR AREA B**

2009 AMENDMENT
EXHIBIT B-1
LEGAL DESCRIPTION

BEGINNING at the Southwest corner, of the Southeast quarter, of the Northwest quarter, of Section 27, Township 28 North, Range 5 East, of the W.M.; THENCE Northerly to the Northwest corner, of said subdivision; THENCE Westerly, along the North line, of the Southwester quarter, of the Northwest quarter, of said Section 27, to a point lying 800.25 feet East, of the West line, of said Section 27; THENCE Northerly, to a point on the Southerly margin of 116th Street S.E., said point lying 825 feet East and 30 feet South of the Northwest corner, of said Section 27; THENCE Westerly, along the Southerly margin of 116th Street S.E. 420 feet; THENCE Northerly. 60 feet to a point on the Northerly margin of 116th Street S.E., said point lying 405 feet East, of the West line of Section 22, Township 28 North, Range 5 East, of the W.M.; THENCE continuing Northerly 400 feet, to a point lying 405 feet East, of the West line, of said Section 22; THENCE Westerly 405 feet, to a point on the West line of said Section 22, said point lying 430 feet North, of the Southwest corner of said Section 22; THENCE Northerly, to the Northwest corner, of the Southwest quarter, of said Section 22; THENCE Westerly, to the Southwest corner, of the Southeast quarter, of the Northeast quarter, of Section 21, Township 28 North, Range 5 East, of the W.M.; THENCE Northerly, along the West line of said subdivision, to the Northeasterly margin of Lowell-Larimer Road; THENCE Southeasterly, along the Northeasterly margin of said Lowell-Larimer Road, to the following described line; BEGINNING at the Northeast corner, of the Northwest quarter, of the Southwest quarter, of said Section 22; THENCE North $87^{\circ}29'48''$ West 500.00 feet, along the North, of said subdivision; THENCE South $01^{\circ}54'04''$ West 200.00 feet; THENCE South $44^{\circ}22'49''$ West 207.86 feet, to the Northeasterly margin of Lowell-Larimer Road and the TERMINUS of this line description; THENCE North $44^{\circ}22'49''$ East 207.86 feet; THENCE North $01^{\circ}54'04''$ East 200.00 feet, to the North line, of the Northwest quarter, of the Southwest quarter, of said Section 22; THENCE South $87^{\circ}29'48''$ East 500.00 feet, to the Northeast corner of said subdivision; THENCE continuing Easterly 50.00 feet, along the North line, of the Northeast quarter, of the Southwest quarter, of said Section 22; THENCE Southerly, parallel with and 50.00 feet Easterly of the West line of said subdivision, to the Northeasterly margin of Lowell-Larimer Road; Thence continuing Southeasterly, along the Northeasterly margin of Lowell-Larimer Road to its intersection with the Easterly margin of Marsh Road; THENCE continuing Southerly and Southeasterly, along the Easterly and Northeasterly margin of Lowell-Larimer Road, to the East line, of the Southeast quarter, of Section 26, Township 28 North, Range 5 East, of the W.M.; THENCE Southerly, to the Southeast corner of said Section 26; THENCE Westerly, to the Southwest corner, of said Southeast quarter; THENCE Northerly, to the Northwest corner, of the South half, of said Southeast quarter; THENCE Westerly, along the Southerly line, of the North half, of the Southwest quarter, of said Section 26, to the East line, of Tract 902, Snohomish Cascade Sector 8, Division 2, as recorded under Auditor's Fee Number 200203135008, records of Snohomish County, Washington; THENCE Northerly, to the Northeast corner of said

EXHIBIT B-1

Plat; THENCE Westerly, along the North line of said Plat, to the West line, of the Northeast quarter, of the Southwest quarter, of said Section 26; Thence Northerly, to the Northwest corner, of the Northeast quarter, of the Southwest quarter, of said Section 26; THENCE Westerly, to the Southwest corner, of the Northwest quarter, of Section 26; THENCE Westerly, to the Southwest corner, of the Northeast quarter, of said Section 27; THENCE Westerly to the Southwest corner, of the Southeast quarter, of the Northwest quarter, of said Section 27 and the POINT OF BEGINNING.

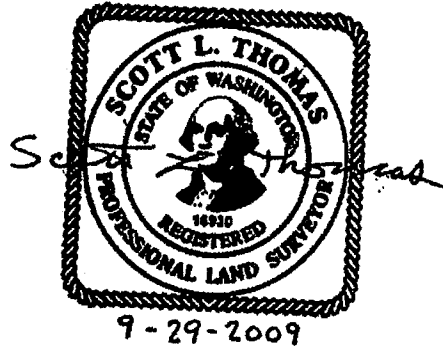
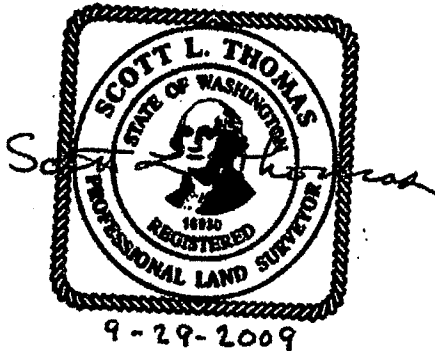


EXHIBIT B-1
VALLEY INVESTMENTS
FARM WORKER HOUSING SITE

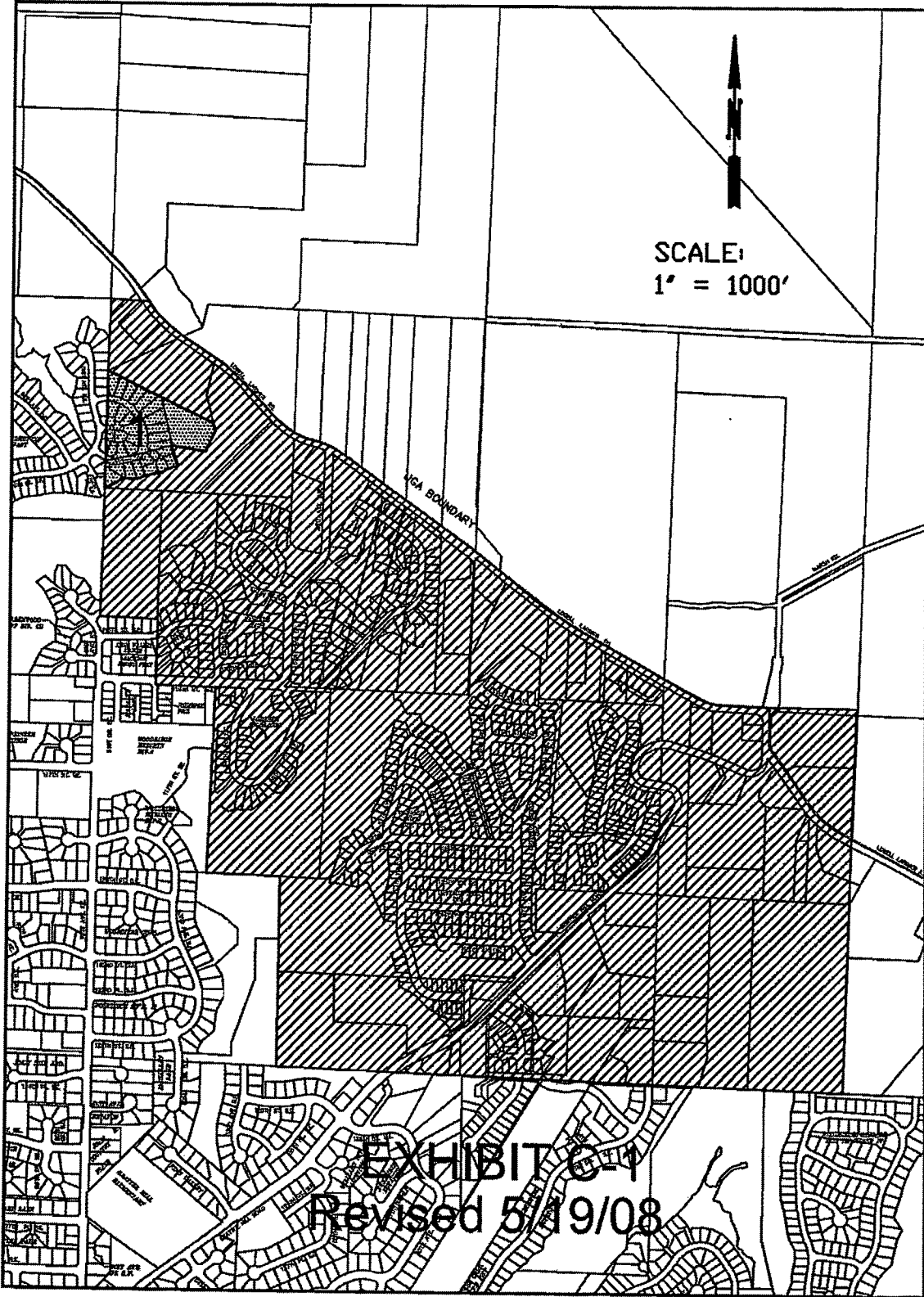
That portion of the Northwest quarter, of the Southwest, of Section 22, Township 28 North, Range 5 East, of the W.M., lying Northeasterly of Lowell-Larimer Road and Easterly of the following described line:

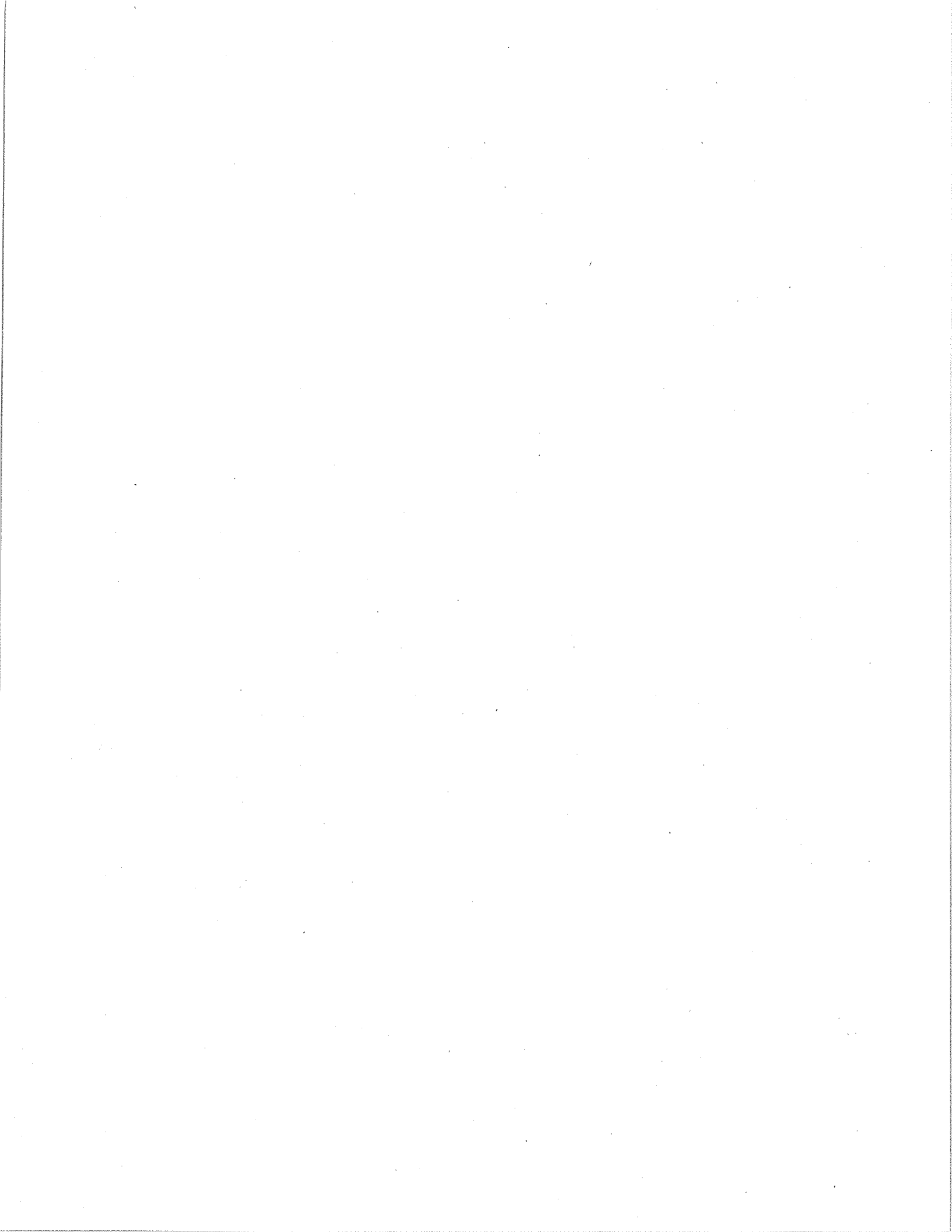
COMMENCING at the Northeast corner, of said Northwest quarter, of the Southwest quarter; THENCE North $87^{\circ}29'48''$ West, along the North line thereof 500.00 feet to the TRUE POINT OF BEGINNING; THENCE South $01^{\circ}54'04''$ West 200.00 feet; THENCE South $44^{\circ}22'49''$ West 207.86 feet, to the Northeasterly right-of-way of said Lowell-Larimer Road and TERMINUS of said Line;
TOGETHER WITH the West 50.00 feet, of that portion of the Northeast quarter, of the Southwest quarter, of said Section 22, lying Northeasterly of Lowell-Larimer Road.



**SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
2008 AMENDMENT TO INTERLOCAL AGREEMENT
EXHIBIT C-1 - REPLACES 2001 EXHIBIT C**

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**AGREEMENT BETWEEN SNOHOMISH COUNTY, THE CITY OF
EVERETT AND SILVER LAKE WATER DISTRICT**

THIS AGREEMENT is made and entered into as of the 5th day of April, 1989, by and between SNOHOMISH COUNTY, WASHINGTON (hereinafter referred to as "County"), the SILVER LAKE WATER DISTRICT (hereinafter referred to as "District") and the CITY OF EVERETT, WASHINGTON (hereinafter referred to as "Everett"), all of which are organized under the laws of the State of Washington.

WHEREAS, the District presently owns and operates a wastewater conveyance system consisting in part of trunk sewers, lateral sewers, pump stations and force mains operated for the benefit of the citizens of the District; and

WHEREAS, in addition to its own facilities, District has contracted with Everett for treatment of wastewater from the District; and

WHEREAS, County presently owns and operates a municipal solid waste sanitary landfill (Cathcart), which is within the District Service Area, that collects and treats leachate; and

WHEREAS, District is willing to accept leachate that is pre-treated in accordance with Everett's industrial waste pretreatment requirements from County upon certain terms and conditions; and

WHEREAS, it is in the interest of the parties and the public health, safety and welfare of all the people residing in County and Everett that this Agreement be entered into;

NOW, THEREFORE, in consideration of the mutual promises and covenants herein contained and for other good and valuable consideration, it is hereby agreed as follows:

1. AUTHORITY FOR CONTRACT, COMPLETENESS, TERM

This Agreement is made and entered into pursuant to the authority vested in County, Everett and District by the provisions of RCW 39.34 (Interlocal Cooperation Act). This contract, except

where otherwise provided, shall be complete within itself and shall remain in full force and effect until altered, cancelled or terminated in accordance with the terms contained herein.

2. DEFINITION OF TERMS.

A. "Agreement Area" shall mean that area generally described in Exhibit A attached hereto.

B. "Maximum Daily Flow" shall be defined as the maximum total quantity of flow that County may discharge in any twenty-four (24) hour period commencing at 12:00 A.M. and terminating at 12:00 P.M. any calendar day.

"Maximum Hourly Flow" shall mean the total quantity of flow recorded over a 60 minute period.

C. "Capital Costs" shall mean all expenditures associated with but not limited to planning, designing, inspection, administration, financing, land acquisition, legal counsel, engineering, consulting and other related work for preparation of this Agreement and for upgrading, expanding and/or improving operation and maintenance of District wastewater facilities including those facilities obtained by the District by contract with Everett.

D. "Assessment Fee" shall be \$0.03 per square foot for the total gross area of the Cathcart Landfill. Such fee shall be payable before the time of connection.

E. "District Sewer System or Collection System" shall mean the sanitary sewage lines, gravity sewer lines 6-inches and larger, pump stations, force mains, siphons, manholes, interceptors, treatment plant, sludge disposal facilities and appurtenances owned and operated by District or contracted for with Everett.

F. "County Public Works Department" shall mean the Snohomish County Department of Public Works Solid Waste Division as now designated to provide solid waste management and disposal

for County or such subsequent agency as may supersede this designation.

G. "County Leachate Facilities" shall mean the leachate collection, transmission line and pretreatment system owned and operated by County and located in the general facility of the Cathcart Landfill.

H. "Flow Meter" shall mean a flow measuring device such as a Parshal flume, Palmer Bowlus flume, or other measuring device permanently installed in a structure, above or below ground and accessible for operation and maintenance. The device shall be designed to measure the peak, average daily and low flow rates from the County leachate facility. The flow measuring device shall be provided with a continuous operating flow meter to include sensing device for measuring the flow rate, together with a non-resetting totalizer and chart recorder or similar recording device approved by District and Everett. The flow meter and equipment furnished shall be suitable for the environment in which it will be installed.

I. "Leachate" shall mean the liquid waste, pre-treated in accordance with the Industrial Pretreatment Program of Everett and Everett Pretreatment Permit Number 7701 as now or hereafter amended, from the Cathcart Landfill.

J. "May" shall mean permissive, "shall" shall mean mandatory.

K. "Metering" shall mean a permanently installed flow measuring device with telemetry to a flow meter, recorder and totalizer.

L. "GPD" shall mean gallons per day.

M. "Industrial pretreatment regulations with the City of Everett" shall be as defined by Ordinance No. 1308-86 and any subsequent modifications as are officially adopted by City Council action and by Everett Pretreatment Permit No. 7701 as now or hereafter amended.

N. "Wastewater Facilities" shall mean the structures, equipment and processes required to collect and transport domestic and industrial wastes and dispose of the effluent and waste by-products.

3. PERMISSION FOR THE COUNTY TO DISCHARGE LEACHATE, CAPACITY REQUIREMENTS

A. Subject to the terms of this agreement, District hereby agrees to allow County permission to discharge pre-treated leachate which complies with Everett Pretreatment Permit Number 7701 as now or hereafter amended via a transmission line into District Sewer System in accordance with all terms set forth in this Agreement. The only point of connection to District's sewer system shall be as described in Exhibit "B" attached and herein incorporated into this Agreement. Such discharge shall never exceed a pumping rate of 12,000 gallons per hour or a maximum daily flow of 144,000 GPD.

B. Discharge of pre-treated leachate shall be coordinated with the District so as to minimize downstream impact on pump stations and trunk sewer integrity and capacity to the greatest extent possible. County shall be liable to mitigate any odor problems that might arise as a result of the discharge of pre-treated leachate into District's facilities.

C. County agrees that any and all discharge of leachate into District facilities shall be subject to the Pretreatment Regulations of Everett as now or hereafter amended and all such local police power necessary for Everett and District to enforce such regulations.

D. County agrees to submit for review and approval its plans and specifications for the County Leachate Facilities to District, Everett and the Department of Ecology (hereinafter DOE). County shall not build its Leachate Facilities prior to approval of District, Everett, the Snohomish County Health District and the DOE.

4. **MONTHLY SEWER SERVICE BILLINGS**

A. District agrees to accept and convey the County's leachate and County agrees to pay for such service at the rates in effect for that billing period for that class of customers defined by District Resolution as industrial users of District with similar strength waste, that are tributary to Everett. Payment to District will be based on County installed permanent flow meter at the Cathcart treatment facility and reported to Everett as required by Everett's Industrial Pretreatment Permit No. 7701 as now or hereafter amended. County will immediately forward copy of such Everett flow meter report to the District. District shall present a statement to County as determined by that period's flow report.

B. County flowmeter and other sampling equipment shall be calibrated and/or certified as to accuracy based upon the manufacturers' recommended schedule. District shall have the right to have any such flowmeter and other sampling equipment recalibrated and/or re-certified at any time upon ten (10) days notice. District may take its own samples at open flow meter locations to conduct its own tests.

C. County shall pay such charges as are due to District within thirty (30) days of receipt of District's statement. Payment will be based upon actual total flow as reported to Everett under the Industrial Pretreatment Permit times District's then authorized charges. Payments not made within thirty (30) days shall become delinquent. Delinquent charges shall accrue interest on the unpaid balance, from the date of delinquency until paid, at an interest rate of 1% per month.

D. In addition to payment of District rates as provided in paragraph 4 (A) above, County shall pay High Strength Waste Charges directly to Everett based on its rates for customers with similar strength waste.

5. FEES

A. County shall pay to District in accordance with the District's regulations a facility hookup fee. The amount of the fee is to be calculated based upon the quantity of capacity requirements used by County in equivalent households. This is calculated to be \$651,000 for the County's facilities based upon a maximum flow of 144,000 GPD with an equivalent household being equal to 221 GPD.

In addition a General Facilities fee of \$0.03 per square foot of gross area served is required by District regulations. The total gross area of Cathcart landfill consists of 200 acres. A General Facilities fee of \$261,360.00 is required by District regulations. A total fee of \$912,360.00 is due and payable in full before connection to the sewer system.

B. County shall pay to District all capital costs as defined herein.

C. Upon payment of all sums due under A and B above, District shall service County's capacity requirements as set forth in paragraph 3 above.

D. County capacity requirements, as set forth in paragraph 3 above were established by County and submitted by County to District for this Agreement. If County's sewage flow exceeds its capacity requirements, County shall pay any and all damages, fines or penalties incurred by District that are in any manner related to or arising from County exceeding its stated capacity requirements. County shall also pay all additional fees, capital costs and assessments or other charges of the District in accordance with the District's rules and regulations in effect at that time for such additional capacity, if District determines to provide such capacity to the County. Nothing herein shall obligate District to provide County with additional capacity requirements.

E. County shall have the right to utilize said capacity requirements as it deems appropriate as long as such use remains within the regulations of District and the requirements of

Everett's Industrial Pretreatment Regulations. Nothing herein shall be deemed to allow County to transfer said capacity rights to property outside of the Agreement Area.

6. METERING

County shall install a permanent flow meter, with totalizer, at the direction of Everett, at its Cathcart Facility. This meter shall be utilized for billing purposes. County shall install a flow measuring device, such as a Parshal flume, in a separate sampling manhole immediately upstream from its connection to District collection system. Such measuring device must be approved by the District prior to installation. No connections to the sewer line between the metering manhole and sampling station and District collection system are permitted. The metering manhole shall be accessible to District twenty-four (24) hours per day seven (7) days per week. Flow meter and flow measuring devices as described in Section 2 of this Agreement shall be installed and maintained by County at County's expense. County shall install and maintain running time meters (RTM) on its pumps and shall calibrate to the extent possible such RTM's to the flow meter so as to act as a backup in case of failure of the flow meter. Design, construction and maintenance standards and methods for all County leachate facilities shall be equal to or better than the rules and regulations of District and Everett and shall be consistent with APWA, DSHS and DOE standards.

7. MAINTENANCE AND OPERATION

County shall operate and maintain all facilities of County subject to this Agreement and located upstream from the point of connection set forth in Exhibit "B". District shall maintain and operate all of its facilities located downstream from the point of connection. Everett shall maintain and operate all of its facilities located downstream from the point of connection. All such maintenance and operation shall be consistent with good

sanitary engineering practice in accordance with all applicable laws, standards and requirements as may be applicable to these specific facilities.

8. NOTIFICATION TO THE COUNTY

A. District and Everett agree to provide the County with copies of newly enacted rate increases within thirty (30) days, when possible, of the enactment of a new rate schedule.

B. District and Everett agree to provide the County with copies of newly enacted Ordinances or regulations if they are covered by the Agreement (i.e. pretreatment, connection charge modifications, etc.).

9. INSURANCE - LIABILITY

Each party shall secure and maintain with responsible insurers and/or self insure all such insurance as is customarily maintained with respect to sewage systems of like character against loss of or damage to the sewer facilities operated and maintained respectively by the Parties against public and other liability to the extent that such insurance can be issued and maintained at reasonable costs. Liability for damages resulting from the operation of its leachate facilities or by County discharge of leachate and not caused or occasioned by any negligent act of District, shall be the sole responsibility of County. Any liability for damages resulting from the operation of its wastewater facilities and not caused or occasioned by any act of County nor caused in whole or in part by County discharge of leachate shall be the sole responsibility of District. County hereby agrees to indemnify and hold harmless District against and for any and all third party claims, damages, and injuries arising out of County's operation of its leachate facilities or caused in whole or in part by County discharge of leachate to District's sewer system. County shall reimburse District for any and all fines, penalties, fees or assessments placed against District by

any regulatory agency for violations of its rules and regulations that are caused in whole or in part by the operation by County of its leachate facilities or by County discharge of leachate to District's sewer system.

10. RESOLUTION OF DISPUTES

In the event any dispute shall arise among the parties to this contract as to the term of the contract or any parties performance, the Parties agree that such dispute shall be resolved by arbitration pursuant to RCW 7.04. Each party to this contract shall select an arbitrator and the panel so selected shall render a decision which shall be final and binding on all parties.

11. ASSIGNMENT

County shall not have the right to assign this Agreement or any of its rights or obligations hereunder by operation of law or by voluntary agreement without the written consent of District and this Agreement shall be binding upon and inure to the benefit of the respective successors and assigns of the parties hereto.

12. TERM OF AGREEMENT

It is anticipated that the improvements currently planned will serve County and District requirements for transmission and treatment of sewage until at least December 31, 2010. In the event that unforeseen circumstances at any time affect the capability of said District facilities or Everett facilities to continue to serve County, the Parties shall negotiate terms and conditions for continued leachate transmission and treatment service for County and/or District.

In the event either District or County gives written notice to the other parties of its intent to continue said service at any time between January 1, 2010 and December 31, 2010, the Parties shall be required to continue leachate transmission and treatment service for County and/or District in the capacities described

herein for an additional five (5) year period. Upon receipt of said notice, the remaining parties shall propose terms and conditions for the continuance of said service. Said proposal may be based on all conditions then existing, including but not limited to capital and operating costs of service, other alternatives for service, growth patterns of service areas, annexations and annexation policies, and state, federal and local laws, rules, regulations and policies. In the event that the parties do not reach agreement on terms and conditions for continued service, the parties shall resolve the issues under the procedures set forth in Section 10. Service may be continued for additional five (5) year periods through December 31, 2032 pursuant to the foregoing procedure.

13. CANCELLATION OR ALTERATION OF AGREEMENT

This agreement may not be cancelled by any party without good cause and then only upon five (5) years written advance notice.

This agreement may be altered through a process of negotiation which may be invoked by any party through written notice given thirty (30) days in advance of the first negotiation session. If after good faith bargaining no agreement can be reached the issue shall be submitted to arbitration in accordance with Section 10 of this agreement.

14. COUNTY/EVERETT SOLID WASTE PLANNING

A. As the ultimate leachate treatment facility for the County's solid waste disposal facility, the County's discharge of leachate from the County's solid waste disposal facility at Cathcart and the acceptance of said leachate into the City of Everett wastewater transmission and treatment facilities constitutes joint City/County solid waste planning, meeting the intent of RCW 70.95.080 and the guidelines therefor. City and County agree to conform their respective solid waste management comprehensive plans to include the County's Cathcart solid waste

disposal site as an alternative disposal site for City of Everett solid waste, regardless of whether the City determines to utilize said County's solid waste disposal facility.

City and County agree and jointly submit to the State Department of Ecology, as the authorized representation of both parties, that the discharge of Cathcart leachate into the City's wastewater transmission and treatment facilities places the County's solid waste disposal site at Cathcart in the jurisdiction of the City for solid waste planning purposes, within the intent of RCW 70.95.130, regardless of whether the City determines to utilize the County's solid waste disposal facilities in the execution of the City's Solid Waste Management Comprehensive Plan.

B. In the event that City determines to utilize the County solid waste disposal facility at Cathcart or other County operated landfill, as part of the execution of the City's Solid Waste Management Comprehensive Plan, disposal fees for City of Everett residents and haulers shall be reasonable and shall be no greater than disposal fees charged by the County to non-City residents and non-City haulers for regular disposal. City accepts that the County may charge a reasonable rate differential for intermittent use in the event that City does not deliver all of its waste stream to the County's facilities or uses the County facilities for by-pass or other irregular disposal.

C. City and County recognize mutual interests in future closed landfill regulations and agree to coordinate their positions before state and federal administrative and legislative bodies to advocate that any new regulations for closed landfills consider fiscal impacts and provide appropriate fiscal arrangements for impacted agencies.

D. County and City will review sewage sludge utilization regulations and recommend modifications which will encourage environmentally sound sludge utilization within Snohomish County. Sludge utilization options shall include but not be limited to agricultural and silvicultural utilization and

at the sites or facilities of which non-City waste is finally disposed. The County may, at its option, cause City solid waste to be disposed at the same sites or facilities at which County waste is disposed.

reclamation of construction sites. In addition to utilization, County and City will develop guidelines for sludge disposal at Cathcart or other appropriate sludge disposal sites.

IN WITNESS WHEREOF, the parties have caused this agreement to be executed this 5th day of April, 1989.

Approved as to form:

CITY OF EVERETT

[Signature]
Everett City Attorney

By: [Signature]
Mayor

[Signature]
CITY CLERK

Approved as to Form:

SNOHOMISH COUNTY, WASHINGTON

[Signature]
Deputy Prosecuting Attorney
Reviewed by Risk Management
Approved () Other ()
[Signature] 4-4-89

GARY WEIKEL
By: [Signature] Administrator
Executive APR 05 1989 D-14

Approved as to form:

SILVER LAKE WATER DISTRICT

[Signature]
Attorney for Silver Lake Water District

By: [Signature]
Commissioner

By: [Signature]
Commissioner

By: [Signature]
Commissioner / Secretary

EXHIBIT A

CATHCART SANITARY LANDFILL

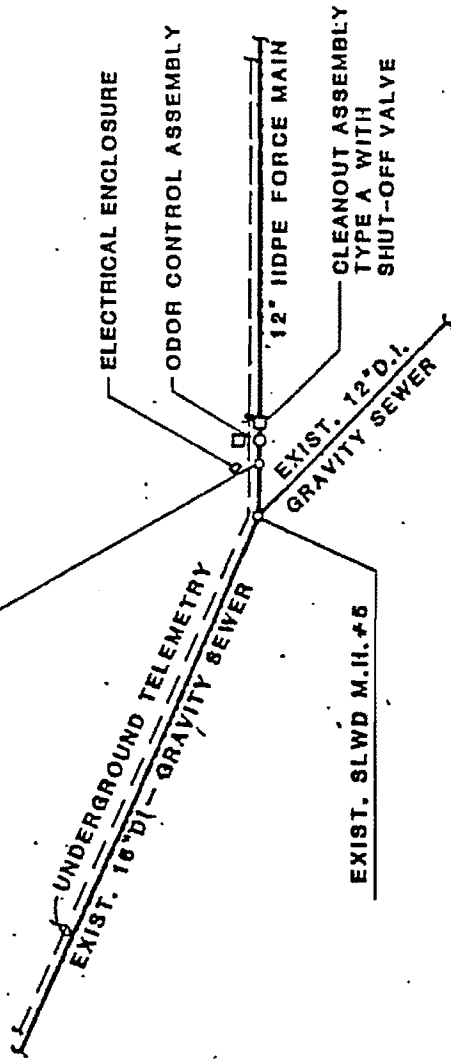
Legal Description

The West 1/2 of the NW 1/4 together with the NW 1/4 of the SW 1/4 and the SW 1/4 of the SW 1/4 and the SE 1/4 of the SW 1/4 of Section 36, Township 28, Range 5, East, W.M., except State Highway 9 located therein, Snohomish County, Washington.

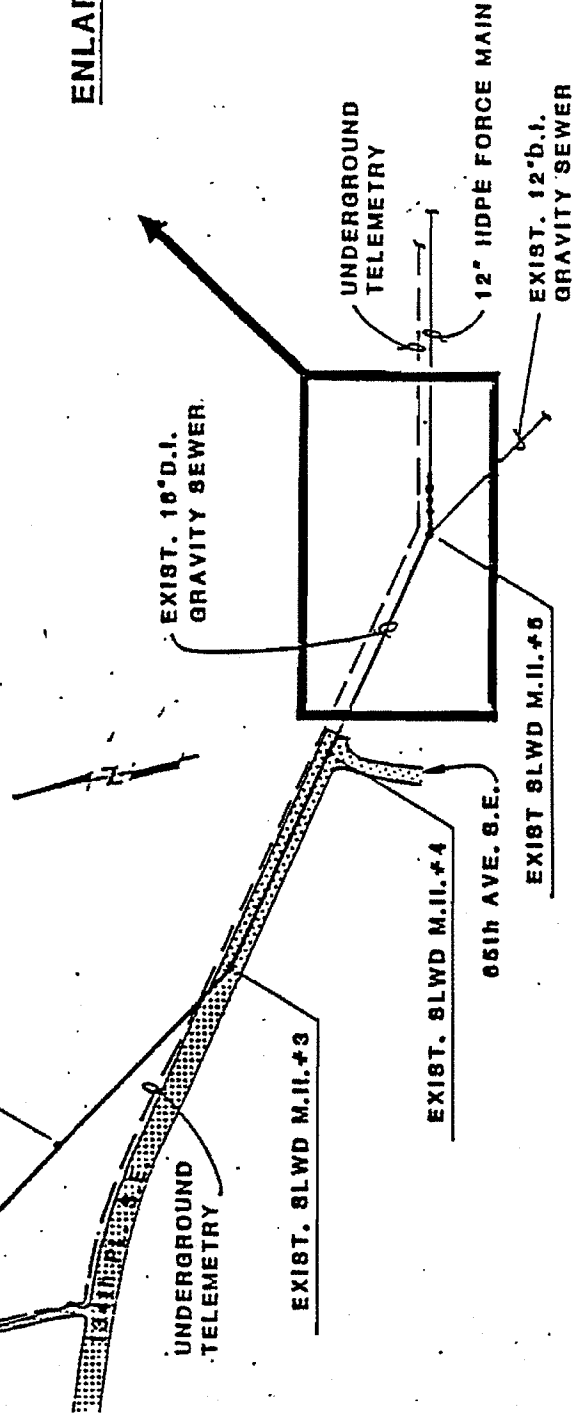
The lands herein described contain an area of 197.82 acres, more or less.

EXHIBIT B

MONITORING STATION FOR CITY
OF EVERETT INDUSTRIAL WASTE
PRETREATMENT PROGRAM



ENLARGED VIEW



12" FORCE MAIN CONNECTION TO SLWD M.H. #5

07/88

N



SILVER LAKE WATER DISTRICT

WATER & SEWER SERVICE

January 19, 1999

Jeff Kelley-Clarke, Director
Snohomish County Solid Waste Management Division
2930 Wetmore
Everett, WA 98201

Re: Contingency Agreement

Dear Mr. Kelley-Clarke:

Pursuant to the discussions we have held over the last month, the Silver Lake Water District Board of Directors has agreed that an agreement between the District and the County to provide additional off-peak pumping capacity would be a benefit to the County without jeopardizing the District's facilities. We understand that previous experience indicates that you will only rarely need to use this capacity, but that in those circumstances this agreement will provide to the County significant cost savings and reduce the risk involved in over-the-road transport of leachate. Therefore, the Board is ready to make the following agreement with the County. Please review it and sign at the bottom to indicate acceptance of its terms.

1. Whenever the County determines that unusual weather conditions may bring leachate levels close to acceptable maximums in the lagoons at its pretreatment plant in the Cathcart area, the County shall notify the District that it may need to pump higher than normal volumes through the pipeline. Whenever possible, this notification shall be provided at least 24 hours in advance of any excess pumping. The County shall include a proposed pumping plan, including:
 - daily volumes
 - duration
 - daily pumping schedule
2. Upon receipt of notification from the County, the District shall expeditiously determine whether the extra volumes can be received on the proposed schedule without significantly impacting normal operations. As soon as possible, the District will respond to the County with either an approval

for extra pumping or a denial of the same. In the former case, the District shall also note any requested changes in the proposed pumping plan.

3. Following receipt of approval from the District, the County shall be allowed to utilize the proposed pumping plan if the need arises until the weather problems lessen, or until the District notifies the County that a change is needed. Once a pumping plan is approved, the District shall provide at least 48 hours advance notice before requiring the County to return to normal pumping levels.
4. The District shall bill the County at the then-current regular rate for all leachate pumped to them up to the normal 144,000 gallons each day. For all leachate pumped in excess of 144,000 gallons, but less than 200,000 gallons, in a given day, the District shall bill the County at the rate of \$.03 (three cents) per gallon. For all leachate pumped in excess of 200,000 gallons in a given day, the District shall bill the County at the rate of \$.04 (four cents) per gallon.
5. At no time shall the County pump in excess of 250,000 gallons per day to District facilities.
6. The District may amend the prices for flows in excess of 144,000 gpd listed in this agreement at such time as it changes other rates charged to customers for receiving waste. At that time, the District and the County shall develop a revised written agreement to cover the new rates for excess flows. Nothing herein affects or limits the authority of the District to set regular rates for industrial users, including the County, for its flows up to 144,000 gpd at such time as the District Commissioners, in their sole discretion, elect to do so.
7. The following pumping plan will be used whenever flows up to 200,000 gallons in a given day is allowed:

Midnight - 5:00 AM	2,875 gallons @ 10 min intervals
5:00 AM - Midnight	1,000 gallons @ 10 min intervals


The following pumping plan will be used whenever flows up to 250,000 gallons in a given day is allowed:

Midnight - 5:00 AM	4,500 gallons @ 10 min intervals
5:00 AM - Midnight	1,000 gallons @ 10 min intervals

8. Either party may terminate this agreement by providing thirty days notice in writing to the other party.

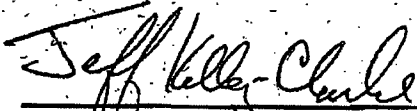
9. Except for terms changed by this agreement, all terms of the contract between the County and the District dated April 5, 1989 shall remain in full force and effect.

Sincerely,



Patrick Curran, General Manager
Silver Lake Water District

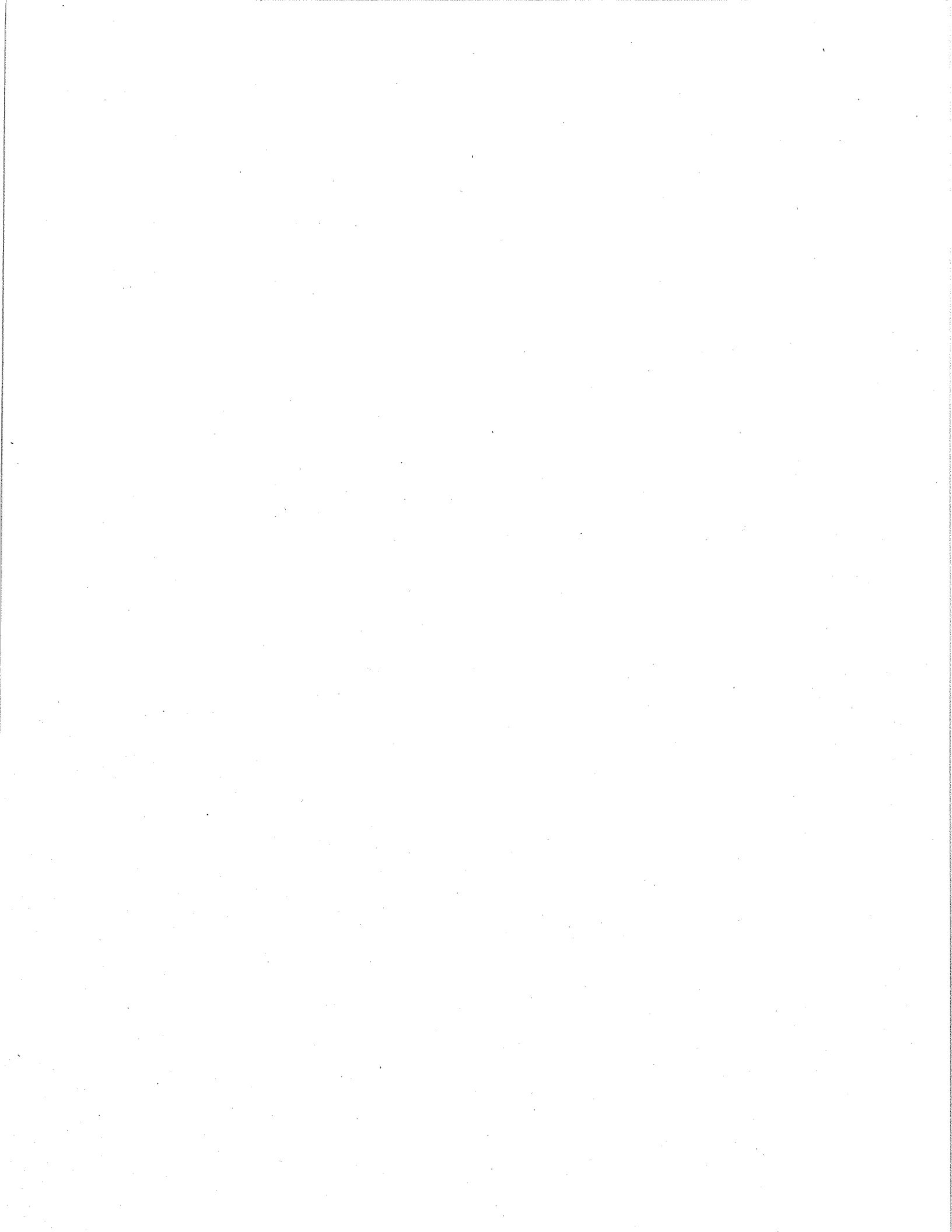
Signature on the lines below constitutes acceptance of the terms stated in the letter above:



Jeff Kelley-Clarke
for Snohomish County



Patrick Curran
for Silver Lake Water District



AMENDMENT NO. 1

**AGREEMENT BETWEEN SNOHOMISH COUNTY, THE CITY OF
EVERETT AND SILVER LAKE WATER DISTRICT**

THIS AMENDMENT NO. 1 to that certain Agreement Between Snohomish County, the City of Everett and the Silver Lake Water District (the "Agreement") dated April 5, 1989, is made by and between Snohomish County (the "County"), the Silver Lake Water and Sewer District, formerly the Silver Lake Water District, (hereinafter referred to as the "District"), and the City of Everett ("Everett"), all of which are organized under the laws of the State of Washington.

RECITALS

WHEREAS, the existing agreement between the County, the District and Everett identifies a discharge point of leachate to the District's wastewater conveyance system; and

WHEREAS, development and improvements have occurred in and around the County's property; and

WHEREAS, the District has constructed and continues to construct additional wastewater facilities to serve this development; and

WHEREAS, the County continues to maintain a closed municipal solid waste sanitary landfill (Cathcart), a Vactor Decant Facility, and a Solid Waste Transfer Station, which is within the District Service Area, that collects and treats wastewater; and

WHEREAS, a new point of connection and discharge for the County's industrial treated wastewater has been established by mutual consent of the County, the District and Everett;

NOW THEREFORE, for and in consideration of the mutual benefits and promises set forth below, the parties agree to amend the Agreement as follows:

1. Section 2, DEFINITION OF TERMS, is hereby amended as follows:

A. "Agreement Area" shall mean that area generally described in Exhibit A - 1 attached hereto and incorporated herein by this reference.

I. "Leachate," "pretreated leachate," and "industrial waste water" shall mean the liquid waste, pretreated in accordance with the Industrial Pretreatment Program of Everett and Everett Pretreatment Permit Number 7701 as now or hereafter amended, that originates from the Vactor Decant Facility, Solid Waste Transfer Station, Leachate Pretreatment Facility, closed Cathcart Landfill or other County operated industrial facilities located in the Agreement Area as described in Exhibit A -1 attached hereto and incorporated herein by this reference.

O. "GPM" shall mean gallons per minute.

P. "Off-peak hours" shall mean the hours between 2200 and 0400.

2. Subsection A, of Section 3, PERMISSION FOR THE COUNTY TO DISCHARGE LEACHATE, CAPACITY REQUIREMENTS, is hereby amended as follows:

A. Subject to the terms of this agreement, District hereby agrees to allow County permission to discharge leachate from the County Leachate Facilities via a transmission line into District Sewer System in accordance with all terms set forth in this Agreement. The only point of connection to discharge leachate to District's Sewer System shall be as identified in Exhibit B-1 attached hereto and incorporated herein by this reference. Such discharge shall not exceed a rate of 100 GPM except that once the District's Snohomish Cascade Lift Station has been upgraded and is operational to service the County's Cathcart facilities and surrounding areas, such discharge may be at a rate of up to 400 GPM during off-peak hours. The maximum daily flow shall not exceed 144,000 GPD.

3. Subsection A, of Section 14, COUNTY/EVERETT SOLID WASTE PLANNING, is hereby amended as follows:

A. Pursuant to the Interlocal Agreement Between Snohomish County and Everett Regarding Solid Waste Management, dated November 5, 2003, joint planning and solid waste disposal system responsibilities are defined in compliance with Chapter 70.95 RCW and authorized by chapter 39.34 RCW to allow for interlocal cooperation for joint implementation of solid waste activities. (Refer to Exhibit C for a copy of the interlocal agreement.)

EXCEPT AS EXPRESSLY PROVIDED BY THIS AMENDMENT NO. 1, ALL OTHER TERMS AND CONDITIONS OF THE AGREEMENT AMONG THE PARTIES DATED APRIL 5, 1989 SHALL REMAIN IN FULL FORCE AND EFFECT.

Dated this 9th day of April, 2008.

"EVERETT"
CITY OF EVERETT

By: Ray Stephenson
Mayor
Attest: Sharon Marka
City Clerk

Approved as to form only:

By: [Signature]
Everett City Attorney, *Interim*

"COUNTY"
SNOHOMISH COUNTY

Approved as to form only:

By: _____
Executive

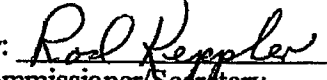
By: _____
Deputy Prosecuting Attorney

"DISTRICT"
**SILVER LAKE WATER AND
SEWER DISTRICT (Successor
to the Silver Lake Water District)**

Approved as to form:

By: 
Commissioner

By: _____
Attorney for Silver Lake Water and
Sewer District

By: 
Commissioner/Secretary

"COUNTY"
SNOHOMISH COUNTY

Approved as to form only:

By: _____
Executive

Peter B. Camp
PETER B. CAMP
Executive Director

By: _____
Deputy Prosecuting Attorney

Dei Mac 3/18/08

"DISTRICT"
SILVER LAKE WATER AND
SEWER DISTRICT (Successor
to the Silver Lake Water District)

Approved as to form:

By: _____
Commissioner

By: _____
Attorney for Silver Lake Water and
Sewer District

By: _____
Commissioner/Secretary

COUNCIL USE ONLY	
Approved:	<u>4-9-08</u>
Docfile:	<u>D-19</u>

EXHIBIT A-1
CATHCART SANITARY LANDFILL
LEGAL DESCRIPTION

(28053600200700) E1/2 SE1/4 NE1/4 SEC 35 & TH PTN W1/2 NW1/4 SEC 36 TWP 28 N, RGE 05 E, WM, SNOHOMISH COUNTY, WASHINGTON DAF: COM NW COR SD SEC 36 FR WH W1/4 SEC COR BEAR S01*13'43"W 2627.50 FT; TH S01*13'43"W ALG W SEC LN THOF 1033.72 FT TO N LN S 280.00 FT NW1/4 NW1/4 SEC 36 & TPB; TH CONT S01*13'43"W ALG SD W SEC LN 280.03 FT TO NE COR SE1/4 NE1/4 SD SEC 35; TH N87*39'43"W ALG N LN SD SE 1/4 NE1/4 661.14 FT TO W LN E1/2 SD SE1/4 NE1/4 TH S01*13'54"W ALG SD W LN 1313.80 FT TO S LN SD SE1/4 NE1/4; TH S87*39'59"E ALG SD S LN 661.20 FT TO E1/4 COR SD SEC 35; TH S88*14'03"E ALG E-W CTR SEC LN SD SEC 36 DIST 1320.47 FT TO E LN W1/2 NW1/4 SD SEC; TH N01*13'34"E ALG SD E LN 1542.37 FT TO N LN S 235.00 FT NW1/4 NW1/4 SD SEC TH N87*57'23"W ALG SD N LN 607.40 FT TO E LN W 713.00 FT SD SEC 36; TH N01*13'43"E ALG SD E LN 400.04 FT TO N LN S 635.00 FT SD NW1/4 NW1/4; TH N87*57'23"W ALG SD N LN 284.45 FT; TH S44*23'31"W 480.34 FT TO N LN S 280.00 FT SD NW1/4 NW1/4; TH N87*57'23"W ALG SD N LN 100.00 FT TO W LN SD SEC 36 & TPB; AKA LOT 2 SNO CO BLA FN 05-118347 REC AFN 200510170215;

Together with:

TH PTN SW1/4 SEC 36 TWP 28 N, RGE 05 E, WM, SNOHOMISH COUNTY, WASHINGTON DAF: BEG W1/4 COR SD SEC 36; TH S01*14'29"W ALG W LN SD SEC DIST 2632.03 FT TO SW SEC COR THOF; TH S88*10'33"E ALG S LN SD SEC DIST 50.81 FT TO SLY MGN CATHCART WAY PER SNO CO R/W PLAN 132ND ST SE EXT DATED AUG 4 1999 SNO CO ENG SURV 3571 & BEG NON TANG 1000.00 FT RAD CRV L CTR OF WH BEAR N24*13'04"W; TH NELY ALG SD MGN & CRV THRU C/A 11*18'01" ARC DIST 197.23 FT TH CONT ALG SD SLY MGN FOL CRSE & DIST: TH S90*00'00"E 273.55 FT; TH N73*00'00"E 68.60 FT; TH N50*00'00"E 85.55 FT; TH N00*00'00"W 235.34 FT; TH N52*26'32"E 68.57 FT TO BEG 950.00 FT RAD CRV TO R; TH NELY ALG SD MGN & CRV THRU C/A 38*46'22" ARC DIST 642.88 FT; TH S88*47'08"E 1304.84 FT TO WLY MGN ST HWY SR9; TH N04*18'52"E ALG SD WLY MGN 102.42 FT; TH N01*13'25"E ALG SD WLY MGN 515.34 FT TO N LN SE1/4 SW1/4 SD SEC 36; TH N88*12'18"W ALG SD N LN 1255.15 FT TO NW COR SD SE1/4 SW1/4; TH N01*13'57"E ALG E LN W1/2 SW1/4 SD SEC DIST 1316.69 FT TO N LN SD SW1/4 THOF; TH N88*14'03"W ALG SD N LN 1320.47 FT TO TPB; AKA LOT 1 SNO CO BLA FN 05-118349 REC AFN 200510170216

Together with:

(28053500400100) TH PTN E1/2 SE1/4 SEC 35 TWP 28 N, RGE 05 E, WM, SNOHOMISH COUNTY, WASHINGTON LY N CATHCART WAY PER SNO CO R/W PLAN 132ND ST SE EXT DATED AUG 4 1999 SNO CO ENG SURV 3571 DAF: COM E1/4 SEC COR SD SEC 35 FR WH SE SEC COR THOF BEAR S01*14'29"W 2632.03 FT; TH N87*39'59"W ALG N LN SD SE1/4 879.53 FT TPB; TH S44*52'05"E 272.05 FT; TH S01*14'29"W PLW E LN SD SEC DIST 691.54 FT TH S45*24'38"E 320.83 FT TO W LN E 450.00 FT SD SEC; TH S01*14'29"W ALG SD W LN 1010.61 FT TO N LN S 535.00 FT SD SEC; TH N88*24'09"W ALG SD N LN 150.00 FT TO W LN E 600.00 FT SD SEC; TH S01*14'29"W ALG SD W LN 428.01 FT TO NLY MGN SD CATHCART WAY; TH S88*24'09"E ALG SD NLY MGN 436.14 FT TO BEG NON TANG 950.00 FT RAD CRV TO L CTR WH BEAR N05*21'43"W TH NELY ALG SD MGN & CRV THRU C/A 10*06'15" ARC DIST 167.53 FT TO E LN SD SEC 35; TH N01*14'29"E ALG SD E SEC LN 2490.20 FT TO E1/4 SEC COR THOF; TH N87*39'59"W ALG N LN SE1/4 SD SEC 879.53 FT TO TPB; AKA LOT 2 SNO CO BLA FN 05-118351 REC AFN 200510170217

Together with:

(28053500100600) TH PTN E1/2 W1/2 SE1/4 NE1/4 SEC 35 TWP 28 N, RGE 05 E, WM, SNOHOMISH COUNTY, WASHINGTON DAF: COM E1/4 SEC COR SD SEC 35 FR WH NE SEC COR THOF BEAR

N01*13'43"E 2627.50 FT; TH N87*39'59"W ALG S LN SD NE1/4 879.53 FT TO TPB; TH
N44*52'05"W 143.05 FT; TH N07*36'51"E 667.00 FT TH N09*50'57"E 556.99 FT TO N LN SD SE1/4
NE1/4 TH S87*39'43"E ALG SD N LN 163.78 FT TO E LN W1/2 SD SE1/4 NE1/4; TH S01*13'54"W
ALG SD E LN 1313.80 FT TO S LN SD NE1/4; TH N87*39'59"W ALG SD S LN 218.33 FT TO TPB;
AKA LOT 2 SNO CO BLA FN 05-118352 REC AFN 200510170218

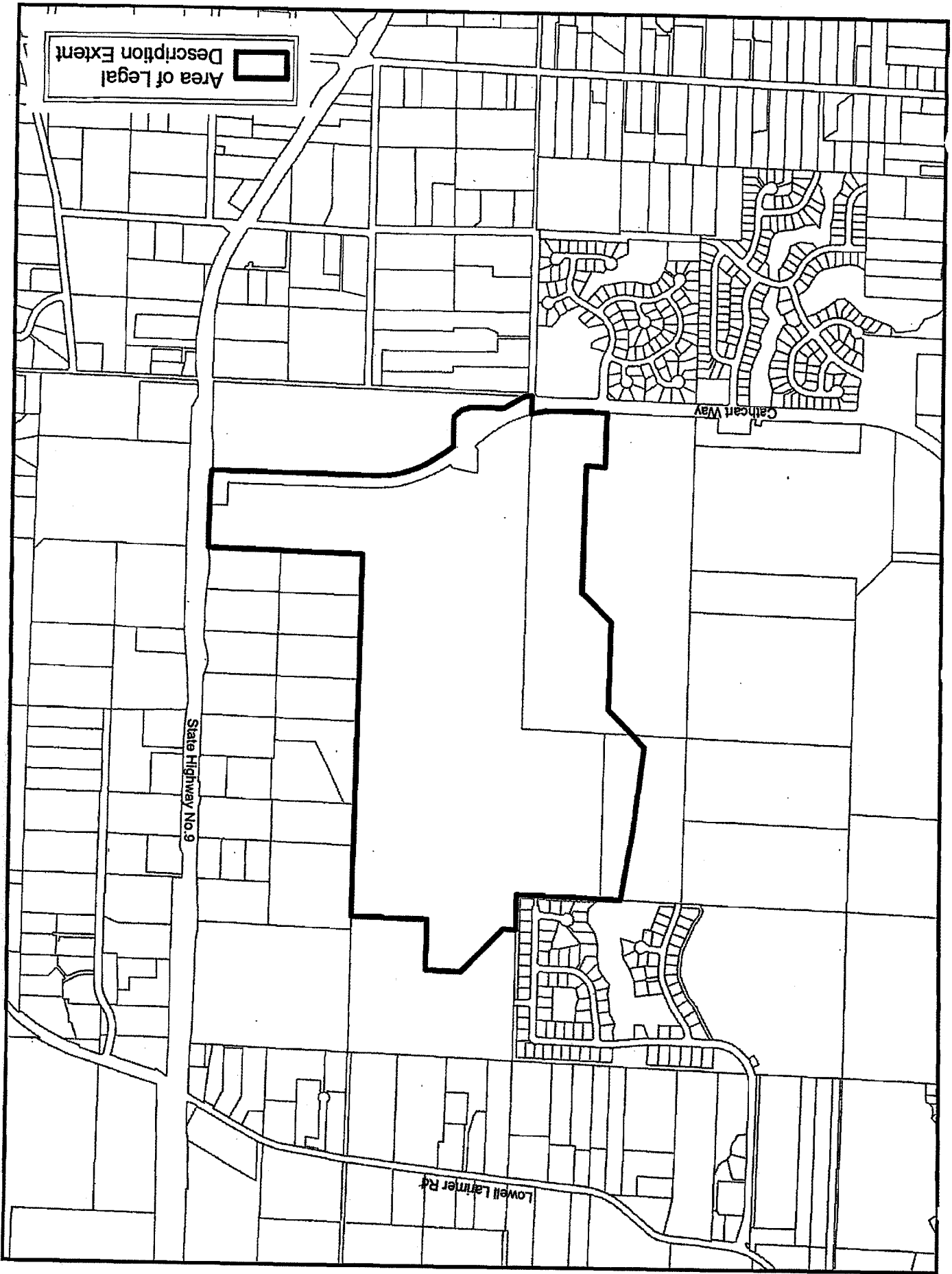
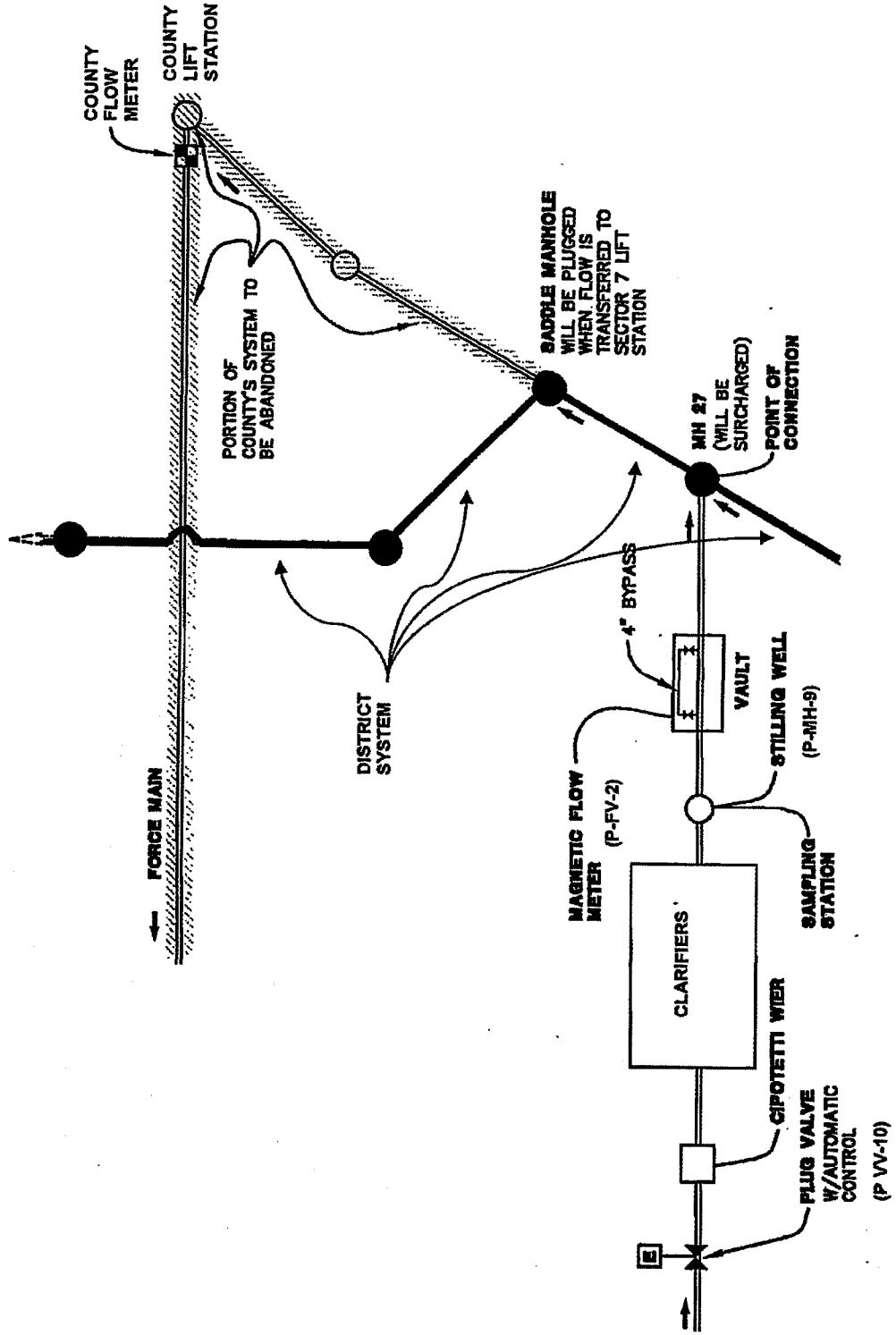


EXHIBIT A-1

EXHIBIT B-1



APPENDIX C
SEPA CHECKLIST

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals: [\[help\]](#)

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [\[help\]](#)

1. Name of proposed project, if applicable: [\[help\]](#)

Wastewater Comprehensive Plan

2. Name of applicant: [\[help\]](#)

Silver Lake Water and Sewer District

3. Address and phone number of applicant and contact person: [\[help\]](#)

**Curt Brees, General Manager
15205 41st Ave SE,
Bothell, WA 98012
(425) 337-3647**

4. Date checklist prepared: [\[help\]](#)

Decemner 26, 2017

5. Agency requesting checklist: [\[help\]](#)

Silver Lake Water and Sewer District

6. Proposed timing or schedule (including phasing, if applicable): [\[help\]](#)

Each project proposed in the Wastewater Comprehensive Plan will be completed on a project-specific basis. The recommendations will be proposed on the current ten-year and future twenty-year planning periods.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [\[help\]](#)

This proposal is non-project action, therefore the question does not apply.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [\[help\]](#)

Each capital project will be evaluated on a project specific basis.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. [\[help\]](#)

None known.

10. List any government approvals or permits that will be needed for your proposal, if known. [\[help\]](#)

Washington State Department of Health, Snohomish County, City of Everett, and the City of Mill Creek will provide review, comment, and approval of the Plan.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) [\[help\]](#)

The proposed Wastewater Comprehensive Plan (Plan) is a planning document that meets the requirements of WAC 173-240.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. [\[help\]](#)

The study area for this Plan covers approximately 10,029 acres, of which approximately 7,954 acres are within the current District boundary. The District's service area consists of portions of the UGAs of Cities of Everett and Mill Creek as well as the city limits of Mill Creek and unincorporated Snohomish County.

B. ENVIRONMENTAL ELEMENTS [\[help\]](#)

1. Earth [\[help\]](#)

a. General description of the site: [\[help\]](#)

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? [\[help\]](#)

The northern and eastern portions of the District slopes northeast towards the Snohomish Valley floor, while the southern and western portions slope southwest towards the Alderwood Water & Wastewater District service area. In the northeast portion of the District, the terrain slopes sharply from elevations of approximately 400 feet to the valley floor. The majority of the District's service area, which sits on a plateau above the valley floor, is generally rolling terrain. The average slopes are from two to eight percent, except in for the steep areas, that slope downwards toward Lowell-Larimer Road and the Snohomish River Valley floor.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [\[help\]](#)

The classification of soils within the District is provided by the 1983 *Soils Survey for Snohomish County Area*, compiled by the Natural Resource Conservation Service (formerly known as the Soil Conservation Service). The two major classifications of soils within the District are Alderwood gravelly sandy loam and Alderwood urban land complex.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [\[help\]](#)

To be determined on a project specific basis.

- e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [\[help\]](#)

To be determined on a project specific basis.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [\[help\]](#)

To be determined on a project specific basis.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [\[help\]](#)

To be determined on a project specific basis.

2. Air [\[help\]](#)

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [\[help\]](#)

To be determined on a project specific basis.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any: [\[help\]](#)

To be determined on a project specific basis.

3. Water [\[help\]](#)

- a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. [\[help\]](#)

To be determined on a project specific basis.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. [\[help\]](#)

To be determined on a project specific basis.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. [\[help\]](#)

To be determined on a project specific basis.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

To be determined on a project specific basis.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [\[help\]](#)

To be determined on a project specific basis.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [\[help\]](#)

To be determined on a project specific basis.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

To be determined on a project specific basis.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. [\[help\]](#)

To be determined on a project specific basis.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. [\[help\]](#)

To be determined on a project specific basis.

2) Could waste materials enter ground or surface waters? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe. [\[help\]](#)

To be determined on a project specific basis.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: [\[help\]](#)

To be determined on a project specific basis.

4. Plants [\[help\]](#)

a. Check the types of vegetation found on the site: [\[help\]](#)

___deciduous tree: alder, maple, aspen, other

___evergreen tree: fir, cedar, pine, other

___shrubs

___grass

___pasture

___crop or grain

___Orchards, vineyards or other permanent crops.

___wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

___water plants: water lily, eelgrass, milfoil, other

___other types of vegetation

To be determined on a project specific basis.

b. What kind and amount of vegetation will be removed or altered? [\[help\]](#)

To be determined on a project specific basis.

c. List threatened and endangered species known to be on or near the site. [\[help\]](#)

To be determined on a project specific basis.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [\[help\]](#)

To be determined on a project specific basis.

e. List all noxious weeds and invasive species known to be on or near the site. [\[help\]](#)

To be determined on a project specific basis.

5. **Animals** [\[help\]](#)

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. [\[help\]](#)

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

- b. List any threatened and endangered species known to be on or near the site. [\[help\]](#)

To be determined on a project specific basis.

- c. Is the site part of a migration route? If so, explain. [\[help\]](#)

The entire Puget Sound basin is a part of the Pacific Flyway.

- d. Proposed measures to preserve or enhance wildlife, if any: [\[help\]](#)

To be determined on a project specific basis.

- e. List any invasive animal species known to be on or near the site. [\[help\]](#)

To be determined on a project specific basis.

6. **Energy and Natural Resources** [\[help\]](#)

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [\[help\]](#)

Not applicable.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis. The majority of the projects identified are underground utility projects.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: [\[help\]](#)

To be determined on a project specific basis.

7. **Environmental Health** [\[help\]](#)

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. [\[help\]](#)

To be determined on a project specific basis.

- 1) Describe any known or possible contamination at the site from present or past uses. [\[help\]](#)

To be determined on a project specific basis.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity. [\[help\]](#)

To be determined on a project specific basis.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project. [\[help\]](#)

To be determined on a project specific basis.

- 4) Describe special emergency services that might be required. [\[help\]](#)

To be determined on a project specific basis.

- 5) Proposed measures to reduce or control environmental health hazards, if any: [\[help\]](#)

None required.

- b. Noise [\[help\]](#)

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [\[help\]](#)

To be determined on a project specific basis.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. [\[help\]](#)

To be determined on a project specific basis.

- 3) Proposed measures to reduce or control noise impacts, if any: [\[help\]](#)

None required.

8. **Land and Shoreline Use** [\[help\]](#)

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [\[help\]](#)

The majority (over 90 percent) of the District's service area consists of single family and multi-family housing.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [\[help\]](#)

No.

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: [\[help\]](#)

No.

- c. Describe any structures on the site. [\[help\]](#)

To be determined on a project specific basis.

- d. Will any structures be demolished? If so, what? [\[help\]](#)

To be determined on a project specific basis.

- e. What is the current zoning classification of the site? [\[help\]](#)

To be determined on a project specific basis.

- f. What is the current comprehensive plan designation of the site? [\[help\]](#)

To be determined on a project specific basis.

- g. If applicable, what is the current shoreline master program designation of the site? [\[help\]](#)

No shorelines are designated within the service area.

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [\[help\]](#)

To be determined on a project specific basis. The District has a number of wetland and steep slope areas identified within the service area.

- i. Approximately how many people would reside or work in the completed project? [\[help\]](#)

To be determined on a project specific basis. The District has a current service area population of approximately 54,194.

j. Approximately how many people would the completed project displace? [\[help\]](#)

None. The Plan identifies projects required to accommodate growth.

k. Proposed measures to avoid or reduce displacement impacts, if any: [\[help\]](#)

Not applicable.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [\[help\]](#)

The Plan must be reviewed and approved by the City of Mill Creek and Snohomish County Planning to ensure consistency with land use plans.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any: [\[help\]](#)

None.

9. **Housing** [\[help\]](#)

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [\[help\]](#)

The District's Plan will accommodate growth consistent with the current zoning and future land use.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [\[help\]](#)

None.

c. Proposed measures to reduce or control housing impacts, if any: [\[help\]](#)

Not applicable.

10. **Aesthetics** [\[help\]](#)

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [\[help\]](#)

To be determined on a project specific basis.

b. What views in the immediate vicinity would be altered or obstructed? [\[help\]](#)

To be determined on a project specific basis.

b. Proposed measures to reduce or control aesthetic impacts, if any: [\[help\]](#)

To be determined on a project specific basis.

11. **Light and Glare** [\[help\]](#)

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [\[help\]](#)

To be determined on a project specific basis.

- b. Could light or glare from the finished project be a safety hazard or interfere with views? [\[help\]](#)

To be determined on a project specific basis.

- c. What existing off-site sources of light or glare may affect your proposal? [\[help\]](#)

To be determined on a project specific basis.

- d. Proposed measures to reduce or control light and glare impacts, if any: [\[help\]](#)

None required.

12. **Recreation** [\[help\]](#)

- a. What designated and informal recreational opportunities are in the immediate vicinity? [\[help\]](#)

To be determined on a project specific basis.

- b. Would the proposed project displace any existing recreational uses? If so, describe. [\[help\]](#)

To be determined on a project specific basis.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [\[help\]](#)

None required.

13. **Historic and cultural preservation** [\[help\]](#)

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe. [\[help\]](#)

None.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [\[help\]](#)

None.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [\[help\]](#)

To be determined on a project specific basis.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required. [\[help\]](#)

None required.

14. Transportation [\[help\]](#)

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [\[help\]](#)

To be determined on a project specific basis.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [\[help\]](#)

To be determined on a project specific basis.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [\[help\]](#)

To be determined on a project specific basis.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [\[help\]](#)

To be determined on a project specific basis.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [\[help\]](#)

To be determined on a project specific basis.

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis.

h. Proposed measures to reduce or control transportation impacts, if any: [\[help\]](#)

To be determined on a project specific basis.

15. Public Services [\[help\]](#)

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [\[help\]](#)

To be determined on a project specific basis.

b. Proposed measures to reduce or control direct impacts on public services, if any. [\[help\]](#)

To be determined on a project specific basis.

16. Utilities [\[help\]](#)

a. Circle utilities currently available at the site: [\[help\]](#)
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system,
other _____

c. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [\[help\]](#)

To be determined on a project specific basis.

C. Signature [\[help\]](#)

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____
Name of signee _____
Position and Agency/Organization _____
Date Submitted: _____

D. Supplemental Sheet for Non-Project Actions

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Silver Lake Water and Sewer District's Wastewater Comprehensive Plan recommends capital improvements such as lift station or gravity main rehabilitation. All proposed projects will be completed in compliance with all state and federal regulations and appropriate City and County ordinances. It is anticipated that these capital improvements will have no discharge to water, emissions to air, or production storage, or release of toxic or hazardous substances, and no production of noise, other than those produced temporarily by normal pipeline construction activities.

Proposed measures to avoid or reduce such increases are:

To be determined on a project specific basis.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

No work will be performed in streams, lakes, or marine waters, therefore, no impacts would result to or marine life. Any urban runoff or erosion would be controlled at project-specific construction sites. The capital improvements recommended in the Wastewater Comprehensive Plan will be implemented in an existing urban environment, thus producing no impacts to animals whose habitats typically reside in rural settings.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

For any construction project, individual SEPA documents will be prepared for each project. Impacts to plants, animals, fish, or marine life will be determined on a project-specific basis. Trenchless construction methods will also be considered to minimize environmental disturbance. Any rehabilitation plan associated with project-specific construction will take into account the protection or replacement of important plant species.

3. How would the proposal be likely to deplete energy or natural resources?

To be determined on a project specific basis.

Proposed measures to protect or conserve energy and natural resources are:

Specific project designs typically take into account energy-efficient pumps or pump stations, thereby reducing demand for energy resources.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

The siting of public facilities such as lift stations and force mains takes into account environmentally sensitive areas during the planning and design phases. Therefore,

environmentally sensitive areas can either be mitigated or avoided all together. A SEPA document will be provided for each specific project.

Proposed measures to protect such resources or to avoid or reduce impacts are:

To be determined on a project specific basis.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Effects to land use will be determined on a project specific basis. However, it is not likely that any proposed projects will take place in and around shorelines. Each proposed project will be completed in compliance with all state, county, city, and federal regulations, including District resolutions.

Proposed measures to avoid or reduce shoreline and land use impacts are:

To be determined on a project specific basis.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

It is anticipated that the proposed projects will have minimal effects on transportation or public services and utilities. However, gravity main rehabilitation may have some temporary impacts on traffic flow, as sewer pipes are typically within road rights-of-way.

Proposed measures to reduce or respond to such demand(s) are:

To be determined on a project-specific basis.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

All proposed projects will be completed in compliance with all state and federal regulations and City ordinances.

WAC 197-11-970 Determination of Non-significance (DNS).

DETERMINATION OF NONSIGNIFICANCE

Description of Proposal: **Silver Lake Water & Sewer District Wastewater Comprehensive Plan**

Proponent: **Silver Lake Water & Sewer District**

Location of proposal, including street address, if any: **The District's service area consists of portions of the Urban Growth Areas of Cities of Everett and Mill Creek as well as areas within the city limits of Mill Creek and unincorporated Snohomish County.**

Lead Agency: **Silver Lake Water & Sewer District**

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by 4/9/18.

Responsible official: **Curt Brees**

Position/title: **General Manager**

Phone: **(425) 337-3647**

Address: **15205 41st Avenue SE, Bothell, WA 98012**

Date: 5/23/18 Signature: _____



APPENDIX D

DESIGN STANDARDS



DISTRICT STANDARDS

FOR THE CONSTRUCTION OF:

- **WATER SYSTEMS**
- **SANITARY SEWER SYSTEMS**
- **SEWAGE LIFT STATIONS**

2014



SILVER LAKE WATER & SEWER DISTRICT

**Address: 15205 41st Avenue SE
Bothell, Washington 98012**
Phone No.: (425) 337-3647
Fax No.: (425) 337-4399

DISTRICT STANDARDS

2014

Commissioners

Bill Anderson

Anne Backstrom

Rod Keppler

District Manager

Patrick Curran

District Engineer

Richard Gilmore, P.E.

District Consulting Engineer

Gray & Osborne, Inc.

G&O #14454

The standards within are presented to inform the Developer/Contractor/Customer of the general minimum requirements necessary in the construction and acceptance of water and sewage facilities within the Silver Lake Water & Sewer District service area.

Silver Lake Water & Sewer District does not assume responsibility for keeping this material current. The District should be consulted in case of doubt on the applicability of any item(s) within. Some of the information contained within is based on governmental codes and ordinances, and industry standards and are subject to change in the event that such governing codes and ordinances are changed.

SILVER LAKE WATER & SEWER DISTRICT DISTRICT STANDARDS 2014

Major Modifications to 2012 Standards Include:

GENERAL

- Mylars are no longer required for project completion.

WATER SYSTEMS

- Cross-connection policies for duplex, condominiums and townhouses have been modified/clarified.
- Recycled concrete is not allowed in water trench sections.
- The use of dry chlorinated lime for achieving disinfection is not allowed.
- Native backfill for pipe bedding is unacceptable.

SEWER SYSTEMS

- Recycled concrete is not allowed in sewer trench sections.
- Connection to existing District sewers may be allowed to use inside drop with prior District approval.
- New Standard Detail VI-S16A for vertical riser on a private side sewer has been added.

Additional modifications have been made throughout the 2014 District Standards. Please review the entire document for conformance to these Standards.

SILVER LAKE WATER & SEWER DISTRICT
DISTRICT STANDARDS

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**DEVELOPER EXTENSION CHECK LIST
SILVER LAKE WATER & SEWER DISTRICT**

NAME OF DEVELOPMENT _____ EXT # _____
 DEVELOPER _____ PHONE _____
 ADDRESS _____
 CONTRACTOR _____ PHONE _____
 ENGINEER _____ PHONE _____
 DISTRICT PROJECT NO. _____ G&O PROJECT NO. _____

Date

Pre Construction

_____ Sign Developer Extension Agreement
 _____ Pre Design Meeting
 _____ Preliminary Plan Review by District Engineer (Provide 3 Sets of Prints)
 _____ Approval of Water/Sewer Plans by District Manager
 _____ Department of Ecology Approval (If required)
 _____ Site Plan Construction Approval/Snohomish County
 _____ Snohomish County/City/State Right of Way Use Permit
 _____ Other Permits, Specify _____
 _____ Pre-Construction Meeting
 _____ Certificate of Insurance (Provided by Contractor)
 _____ Performance Bond
 _____ Proposed Construction Schedule
 _____ Received all Required Recorded Offsite Easements

Construction

Water

_____ Approval of Materials to be Used
 _____ System Pressure Tested
 _____ Purification Tested
 _____ Water Turned On
 _____ Meter check valves and gaskets received (1")
 _____ Radio units received (greater than 2")

Sewer

_____ Approval of Materials to be Used
 _____ System Pressure Tested
 _____ Flushed
 _____ T.V.'d, Mandrel Pulled, Line Plugs Pulled

Post Construction

_____ As-Built Survey Completed
 _____ As-Builts Reviewed & Red-Line Sent to Engineer
 _____ Red Lines Returned to District and 1 Set Blue Lines
 _____ Mylar, four Sets of prints and electronic file of Plans in District Office
 _____ Itemized List of Costs Water/Sewer
 _____ Bill of Sale Water/Sewer
 _____ Copy of Recorded Plat Received
 _____ All Developer Fees Paid
 _____ Final Punch List
 _____ 2 Year Maintenance Bond Received
 _____ Compaction Reports

_____ Backflow Prevention Assembly Test Report Received
_____ Confirmation that on-site wells have been decommissioned
_____ Written Easements and Exhibits for water and sewer systems
_____ Written easement for access to backflow assemblies
_____ Project Accepted as Complete by District
_____ Declaration of Construction Sent to Department of Ecology (Sewer Only)

GENERAL DRAFTING REQUIREMENTS

Plans for all water and sewer system improvements shall be accurate, legible and properly detailed, and afford the maximum degree of understandability.

CONSTRUCTION PLANS

Construction Plans for the water and sewer system improvements shall meet the following minimum requirements:

- (1) The Plans shall be separate from those plans for plat improvements, storm drainage improvements, road and street improvements and drawings and plans for any other utility. Plans for water system improvements shall be separate from those for sanitary sewer system improvements. Line weights and screening are to be selected to show new work clearly with existing utilities in background.
- (2) The Plans shall be prepared in AutoCAD DWG format (Release 2010, Civil 3D, or earlier version) with entities placed on unique layers as listed in "As-Built Drawings and Electronic Files" for incorporation into the District's GIS unless otherwise pre-approved by the District.
- (3) **The size of each Plan sheet shall be 22" x 34"**.
- (4) The sheet material for the construction plans shall be Mylar, Vellum or equivalent durable material. Paper diazo reproductions, or photographic reproductions are not acceptable.
- (5) The Plans shall include a suitable title block/plate, which states the names and addresses of the property owner/Developer, Engineer, general notes, the scale, the date and the stamp and signature of the Design Engineer. This information should be located on the right side or lower right hand corner of the Plan.
- (6) The Plans shall provide a legend of symbols used, to ensure clarity.
- (7) The Plans shall have a legal description of the developing property and a location/vicinity or index map that clearly shows the project and its boundaries in relationship to the nearest street intersections.
- (8) To the maximum extent possible, the north arrow shall be oriented to the top or to the left of each Plan.
- (9) The horizontal scale of the Plans shall be 1-inch = 50 feet. In circumstances where the clarity of the Plans would otherwise be unacceptable due to the complexity of the work, or the number of other simultaneous construction elements within the same Project (such as for a major street/road improvement) are extensive, the District will consider a horizontal scale of 1-inch = 20 feet upon written request with justification provided. **The vertical datum plane for the Plans shall be NAVD 88.** An elevation benchmark shall be clearly identified. Note: Some District elevation records for existing structures are NGVD 29. When this occurs, elevations should be converted to NAVD 88 wherever shown on the Plans with a parenthetic note stating "(Existing elevation converted from NGVD 29 to NAVD 88)".
- (10) Profile views are required for all sewer system construction Plans. **Profile view shall be oriented directly above or below the respective Plan view.**

- (11) The Plans shall be prepared and stamped by a civil engineer with current registration in the State of Washington.
- (12) The Plans shall indicate and identify all property and lot lines, street rights-of-way that have been vacated shall be shown as such on the Plans. The area included in the Plan shall be enough to locate the property from an existing street intersection unless waived by the District. The Plans shall indicate and identify all existing buildings; structures; underground power, electrical, telephone, natural gas, cable television, storm drainage, and appurtenances; street, alley and driveway pavement; stream crossings; trees to be saved, new trees, landscaping, green belt; and other known physical features within the project area which will affect the execution of the system improvement construction. This information should not obscure any water or sewer improvement information.
- (13) Where proposed easements are incorporated in the Plans, and they are defined as a constant width on each side of the pipeline/structure, a segment of said easement shall be shown and labeled as “Typical” and shown as Silver Lake Water & Sewer District sewer and/or water easement.
- (14) Provide the following additional information when required for clarity:
 - a. Site grading plan
 - b. Plan for other utilities
 - c. Plan of future phases of same project
 - d. Contour maps or street profiles
- (15) Upon approval of the construction concept, the original Plans shall be submitted to the District for signature as “approved for construction.” The originals will be returned to the Design Engineer and a minimum of four (4) prints of the signed “approved” Plans shall be provided to the District prior to scheduling a pre-construction conference with the District. Additional copies will be required if right-of-way utility use permit application is necessary for construction of the water or sewer facilities.
- (16) The Plans shall have a revision block located in the border frame that will be blank on the initial “approved for construction drawings” when signed by the District and will be used to document significant modifications made and approved by the District during the course of construction.

AS BUILT DRAWINGS AND ELECTRONIC FILES

- (1) Upon completion of construction and prior to acceptance, drawings corrected to reflect “As-Built” conditions shall be returned to the District. All constructed facilities and easements shall be placed to scale on these drawings. Each drawing shall include a project number provided by the District.
- (2) Prior to project acceptance, the Developer shall be responsible for an “As-Built Survey.” This survey may be performed by a licensed surveyor of the Developer’s choosing. If the Developer is unable to perform the survey, the District shall perform the survey at cost to the Developer. The “As-Built Survey” shall be limited to surface water and sewer features, shall be performed in the appropriate datum, shall be incorporated into the record drawings, and shall be submitted to the District electronically prior to project acceptance.

- (3) All dimensions shall be corrected to concur with field location. No scratch out of dimensions and notes will be accepted. Remove erroneous and “not applicable” notes and correctly include the new location information and dimensions.
- (4) If reprinted, the drawings shall include a reference block to the prior approved construction drawings that provides the name and date of signature of the design engineer, the name of the District approving personnel and date of approval.
- (5) Prior to receiving District acceptance, Developers/Owners of commercial properties, industrial properties and residential/multi-family properties shall submit to the District, drawing files in AutoCAD DWG format (Release 2010, Civil 3D, or earlier version), on CDROM, accompanied by the original mylar record drawings which indicate the water and sewer services. Additionally, electronically scanned copies of the final record drawings in TIF or PDF format (at 200 DPI or best resolution for legibility) are required. The AutoCAD files submitted shall include electronic copies of the project base map containing the water and sewer system as submitted on the mylar record drawings. These files shall include electronic files for the “As-Built Survey.” All AutoCAD files shall be submitted with the mylar record drawings. The Developer shall be responsible for any required changes to the mylar record drawings or electronic AutoCAD files, which are not representative of as-built conditions.

Final record drawings shall incorporate all changes from the original approved plans and shall reflect as-built conditions. If the property has existing water and sewer infrastructure which are not on the District’s G.I.S., the Developer/Owner shall also include the existing facilities. The AutoCAD drawing files shall be supplied in the format listed below:

The entities shall be placed on a unique layer as listed. Any other unique features not listed shall be given a descriptive layer name. A layer list shall be provided with the drawing files to indicate what additional layer names represent. All pertinent text information provided on the drawings shall be placed in a layer called REFTEXT. Associated leaders, dimension lines and arrows can also be placed in this layer.

Lines which are intended to remain separate shall be represented by separate polylines. The AutoCAD drawing file shall be drawn with one drawing unit = 1 foot and shall be supplied showing the complete plat on one drawing file. Drawing files shall be tied to the Washington State Plane (North Zone) coordinate system, NAD 83 datum, in U.S. feet.

The following drawing entities shall be developed as single points representing the location of the center of the item they represent. The proper symbols will be allocated to these points by the District once the drawing is translated into the Silver Lake Water & Sewer District’s GIS. The points shall be placed on the proper layers as listed below:

<u>Entity</u>	<u>Layer</u>
1. Set monument in Case	MON
2. Existing Property Corner	PROPCOR
3. Fire hydrant	WHYD
4. Sanitary sewer manhole	SSMAN
5. Sanitary sewer cleanout	SSCO
6. Sanitary sewer force main air-vac assembly	SS FM-AV
7. Water valve	WVALV(size)
8. Double check valve assembly	DCV
9. Water meter	WM(size)
10. Blowoff assembly	WBLOWOFF
11. Utility vault – water and sewer only	VAULT
12. Air vacuum and release assembly	WAIRVAC
13. Backflow preventer assembly	WBFP
14. Fire department connection	WFDC
15. Sewer lift station	SLS
16. Master meter	WMM
17. Pressure reducing valve vault	WPRVA
18. Booster station	WBS

The following drawing entities shall be developed as polylines. Each entity shall be placed on the proper layer as listed.

<u>Entity</u>	<u>Layer</u>
1. Water Polyines shall run between valves and/or pipe intersection to intersection (8" waterlines) would be located on Layer WL8, and 12" on WL12, etc.)	WL(size)

- | | | |
|----|---|-------------|
| 2. | Sanitary sewer lines shall run between manholes as a single polyline. (e.g., 8" sewer lines shall be located on layer SS8). | SSL(size) |
| 3. | Sanitary side sewer stub shall run between main line and end of stub. | SSTUB(size) |
| 4. | Record drawing information for sanitary side sewer stubs shall be placed on its own layer. | SSTUB-TXT |
| 5. | Water service lines shall run from main line to meter box (e.g., 1" waterlines shall be located on layer WS1) | WLS(size) |
| 6. | Centerline polylines shall run from intersection to intersection (one per road). | CL |
| 7. | Sewer force mains shall start at lift stations and terminate at discharge point. | SSFMS(size) |

The AutoCAD files shall be structured so that the following drawing entities are developed using closed polygons.

<u>Entity</u>	<u>Layer</u>
1. Parcels (property lines)	PROP
2. Water Easements	WEASE
3. Sewer Easements	SSEASE
4. Right-of-Way	ROW
9. Reservoirs	RESERVOIR

GENERAL NOTES

1. LOCATIONS SHOWN OF EXISTING UTILITIES AND IMPROVEMENTS ARE APPROXIMATE ONLY, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXACT LOCATIONS OF ALL UTILITIES AND IMPROVEMENTS TO AVOID DAMAGE OR DISTURBANCE.
2. ALL WORK AND MATERIALS MUST BE IN ACCORDANCE WITH THE LATEST REVISION, INCLUDING ADDENDA AND UPDATES, OF THE SILVER LAKE WATER & SEWER DISTRICT STANDARDS. CONTRACTOR TO HAVE THESE STANDARDS ON JOBSITE.
3. ROAD RESTORATION SHALL BE PER APPLICABLE CITY OF EVERETT/CITY OF MILL CREEK/SNOHOMISH COUNTY/WSDOT STANDARDS.
4. CONTRACTOR SHALL CALL “DIAL DIG” (1-800-424-5555), 2 FULL WORKING DAYS PRIOR TO CONSTRUCTION, FOR AID IN LOCATING ANY EXISTING UNDERGROUND UTILITIES.
5. THE CONTRACTOR SHALL KEEP TWO SETS OF PLANS ONSITE AT ALL TIMES FOR RECORDING “AS BUILT” INFORMATION. ONE SET SHALL BE SUBMITTED TO SILVER LAKE WATER & SEWER DISTRICT AT COMPLETION OF CONSTRUCTION.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE SILVER LAKE WATER & SEWER DISTRICT FOR A PRECONSTRUCTION MEETING.
7. THE CONTRACTOR SHALL COORDINATE WITH THE DISTRICT FOR A FIELD MEETING PRIOR TO INSTALLATION OF ANY REDUCED PRESSURE BACKFLOW ASSEMBLY OR REDUCED PRESSURE DETECTOR ASSEMBLY.
8. EACH WATER AND SEWER CONSTRUCTION DRAWING SHEET SHALL HAVE THE FOLLOWING DISTRICT SIGNATURE BLOCK.

SILVER LAKE WATER & SEWER DISTRICT
APPROVED FOR CONSTRUCTION

BY: _____ DATE: _____
DISTRICT OFFICIAL

DISTRICT PROJECT NUMBER: _____

“THESE PLANS ARE APPROVED FOR CONSTRUCTION FOR THE PERIOD NOTED ON THE DEVELOPER EXTENSION AGREEMENT. THE DISTRICTS RESERVES THE RIGHT TO MAKE REVISIONS, MODIFICATIONS, AND CHANGES SHOULD CONSTRUCTION BE DELAYED BEYOND THIS TIME LIMIT.”

RECORD DRAWING DOCUMENTATION OF
SILVER LAKE WATER & SEWER DISTRICT APPROVAL FOR CONSTRUCTION
Original approval signatures not replicated

Design Engineer: _____ Signed On: _____

SLWSD Approved for Construction by: Richard Gilmore _____

the: District Engineer _____ Signed On: _____

**PLANS AND CONSTRUCTION CHECK LIST
SILVER LAKE WATER & SEWER DISTRICT**

YES *NO*

- | | | |
|-------|-------|--|
| _____ | _____ | District Assigned Project No. |
| _____ | _____ | Current version of District Standards used in design: March 2014. |
| _____ | _____ | Construction Plans signed and dated by a Washington State licensed engineer. |
| _____ | _____ | Construction plans expire 1 year from date of District approval. |
| _____ | _____ | Cover sheet showing entire property and location of improvements has been included. |
| _____ | _____ | Plans showing Erosion Control, Grading, Street Improvements, Storm Drainage, and Landscaping have been included. |
| _____ | _____ | Engineering scale and north arrow are shown for each plan view. |
| _____ | _____ | Plans sheets are 22" x 34". |
| _____ | _____ | Horizontal scale: 1-inch = 50 feet, Vertical Scale: 1 inch = 5 feet (or as otherwise approved by the District). |
| _____ | _____ | Vertical datum is NAVD 88 with conversion factor noted to NGVD 29. |
| _____ | _____ | District General Notes are included on first water plan sheet and sewer plan sheet. |
| _____ | _____ | District Approval Block is included on each water and sewer plan sheet. |
| _____ | _____ | Location of streets, right-of-ways, easements, existing utilities and water system facilities have been located and/or called out. |
| _____ | _____ | All flood plains, wetlands, steep slope, and/or sensitive areas are clearly identified. |
| _____ | _____ | Existing and proposed grades have been shown and labeled. |
| _____ | _____ | Stationing has been provided for the site area and on all structures to be constructed. |
| _____ | _____ | Match lines and title blocks are shown correctly. |
| _____ | _____ | All existing/proposed utilities are shown on Plans. |
| _____ | _____ | District system standard details have been referenced. |
| _____ | _____ | Road restoration has been performed per County, City, and/or State standards. |

_____ All public rights-of-way, front lot corners and a property line stakes are clearly identified.

_____ Fenced easement areas provided with access gates of matching construction.

WATER

_____ Property lines, water meters, water valves, hydrants, and paving locations are shown.

_____ Mains are located 10 feet northerly or easterly of street centerline (or District approved location).

_____ Water main easements are minimum of 15-feet wide.

_____ A minimum of 3'-6" cover over all 8-inch or less sized water mains except 4'-0" cover in easements. A minimum 4'-0" cover on all water mains 12-inches and larger.

_____ Fire hydrant spacing does not exceed 600 feet and/or located no more than 350 feet from the back of any proposed lot.

_____ Each hydrant shall be marked 1 foot offset from the center line of the street with a Type III blue reflector.

_____ Pipes connecting hydrants to mains are at least 6 inches in diameter and not longer than 50 feet.

_____ Only one fire hydrant is installed on any dead-end 8-inch run.

_____ Valve spacing has not been exceeded (1,000 feet maximum spacing).

_____ Valves are installed on each leg of all tees and crosses, except fire hydrant tees unless required by the District.

_____ Valves are installed at each end of easements.

_____ All valves 14 inches and larger are ductile iron butterfly valves.

_____ All valves 12 inches and smaller are ductile iron resilient seated gate valves.

_____ Approved backflow assemblies is provided for all connections other than single family residential.

_____ All backflow assemblies are located immediately behind and on the property side of the water service box unless internal location in a building receives prior District approval.

_____ District approved air and vacuum assemblies are located at all isolated high point(s) in system.

- _____ _____ Blow-off assemblies are located at all isolated low point(s) and dead ends in system. Fire hydrants may be required in lieu of blowoff assemblies at the discretion of the District.
- _____ _____ All dead end mains are closed with dead end MJ caps, plugs, thrust blocks, and blowoff assemblies or hydrants.
- _____ _____ All pipeline deflections are designed and constructed in accordance with pipe manufacturer's recommendations.
- _____ _____ Thrust blocks, anchor blocks or restrained joint pipe have been provided for all fittings and bends.
- _____ _____ Minimum size service lines between water main and a single water meter is 1-inch for single-family and 2-inch for commercial and multi-family. Pipes and fittings have been inspected for defects before installation, and are clearly labeled and identified by manufacturer in regards to Class.
- _____ _____ Valves have been set with vertical stems.
- _____ _____ Operating nut of all valves is within 3'-6" of finished grade, 2-inch standard nut, and 5-inch soil pipe will be used in assembly. Stem extension required if greater in depth than 3'-6".
- _____ _____ Valves located in easements or outside of paved areas are set to grade and have concrete collars.
- _____ _____ Valve markers have been placed at edge of right-of-way opposite the valve and painted and stenciled appropriately.
- _____ _____ Guard posts have been installed and painted for each hydrant, if required by District.
- _____ _____ All water services are located within public road rights-of-way or District approved easements.
- _____ _____ Meter service, radio unit, and meter boxes have been set to final finished grade elevations and adjusted prior to final pressure test (unless otherwise approved by the District).
- _____ _____ Water meters larger than 1-inch have been furnished and installed by the Contractor.
- _____ _____ All pipes have been tested and disinfected to District and AWWA standards prior to acceptance.
- _____ _____ Service gaskets and dual check valves have been provided to the District.
- _____ _____ Backflow assemblies have been tested and installed on all services other than single family residential connections, certified and written test results have been provided to the District.

SEWER

YES *NO*

- | | | |
|-------|-------|--|
| _____ | _____ | Property lines, sewer main, manholes, side sewer, and paving locations are shown. |
| _____ | _____ | Mains are located 5 feet south or west of centerline (or District approved location). Sewer main easements are minimum of 15 feet wide. |
| _____ | _____ | All-weather access is provided to manholes in easements suitable for vactor trucks. |
| _____ | _____ | All pipelines shall have a minimum cover of 3 feet. (Side sewer laterals in public rights-of-way shall have a minimum of 5-foot cover at right-of-way line). |
| _____ | _____ | All sewer main crossings and parallel sewer mains have 10-foot horizontal spacing and 18 inches of vertical separation from the nearest water main. |
| _____ | _____ | Pipes between manholes are straight in alignment. |
| _____ | _____ | Pipes are designed for no less than the following minimum grade:
8 inch gravity main - 0.5%
6 inch side sewer - 2.0%
8 inch gravity dead end - 1.0%. |
| _____ | _____ | Steeper slopes may be required depending on topography and tributary flows (at the discretion of the District). Other diameter pipe lines must conform to DOE design standards. |
| _____ | _____ | Side sewer laterals are located at downstream sewer locations (10 feet from the side lot line and 15 feet (typical) past the street right-of-way line). |
| _____ | _____ | Backwater valves provided for all side sewers where potential exists for sewer main to back up into the served facility. |
| _____ | _____ | Sewers on 18% slope or greater are anchored securely with concrete anchors or equal:
18 to 35% - 36 feet center to center
35 to 50% - 24 feet center to center
50% and over - 16 feet center to center. |
| _____ | _____ | Manhole spacing has not exceeded 400 feet (unless approved by District). |
| _____ | _____ | Manholes are a minimum of 8 feet from rim to invert (unless approved by District). |

- _____ _____ Manholes are located at all changes in grade, pipe alignment, pipe intersections, and termination points. Clean-outs are not acceptable as a substitute except as approved by the District.
- _____ _____ Manholes are not located in low points of vertical curves or curb flow lines (gutter sections).
- _____ _____ Manholes are located at the terminus of all sewer mains (unless approved by the District).
- _____ _____ Drop connections must be approved by District.
- _____ _____ Manholes and cleanouts have locking lids.
- _____ _____ Manholes and cleanouts located in easement areas or outside of paved areas have concrete collars and green carsonite markers.
- _____ _____ Manholes have a 0.10 foot drop across the channel.
- _____ _____ Match crowns of the pipes where a smaller sewer joins a larger one.
- _____ _____ Invert and rim elevations are shown on plan and profile for all manholes.
- _____ _____ Correct invert elevation at point of connection (field verified) is shown on the plans.
- _____ _____ Manhole steps and ladders are polypropylene.
- _____ _____ Individual tee connections have been used for side sewer lines (or District approved alternative).
- _____ _____ All pipe bedding has been field inspected prior to backfill.
- _____ _____ Side sewer stubs have been provided for each lot that requires service (no double side sewer connections).
- _____ _____ Inspection of side sewer has been completed prior to backfill of line.
- _____ _____ Markers have been provided at the termination of all side sewer stubs and stenciled appropriately.
- _____ _____ Side sewer cleanouts have been placed at no more than 100-foot spacing.
- _____ _____ Commercial, Industrial, and School food establishments have grease interceptor(s) installed outside of the building (interceptor installed as close as possible to source of grease/fat).
- _____ _____ All pipes have been tested prior to acceptance.

ADDITIONAL REQUIREMENTS MAY BE MANDATED BY THE DISTRICT, ON A CASE BY CASE BASIS, DUE TO SITE SPECIFIC CONDITIONS.

**SILVER LAKE WATER & SEWER DISTRICT
PRE-CONSTRUCTION MEETING CHECK LIST**

CONSTRUCTION UNDER 2014 SLWSD DEVELOPER STANDARDS

Date: _____

PROJECT NAME: _____ G&O NO.: _____

Developer: _____ Phone: _____

Contractor: _____ Phone: _____

Superintendent/Foreman: _____ Phone: _____

Designer: _____ Staking By: _____

Suppliers/Materials: _____

GENERAL Start Date: _____

- _____ Performance Bond required. _____ Yes _____ No
- _____ Certificate of Insurance.
- _____ Submit material list for approval of all items prior to ordering and start of construction (Sewer & Water).
- _____ Use construction plans approved and signed by the District.
- _____ Contractor to maintain a separate set of as-built drawings on site.
- _____ Control layout staked including lot corners (Sewer & Water).
- _____ Schedule other agency Inspectors as necessary.
- _____ Trench safety.
- _____ Trenches to be compacted per County/City/State Specs.
- _____ Soils Lab: _____.
- _____ Provide compaction reports (modified Proctor).
- _____ Schedule inspections.
- _____ All field communication to go through the Inspector.
- _____ Overtime inspection to be requested (4 hours min.) in writing by the previous Wednesday & will be based on availability of Inspectors.
- _____ All D.I. pipe liner to be checked before installed.
- _____ **Contractor to meet “Offsite County Use Permit Conditions and Requirements of Endangered Species Act” and the “County’s Best Management Practice” (BMP) requirements or work will be halted by County.**

SEWER

- _____ Lots to be graded to final grades prior to side sewer installation.
- _____ Inspection required on pipe, bedding, MHs, and existing utilities.

- _____ Provide cut sheets prior to start of pipe laying.
- _____ Air testing and televised record (narrated DVD) required after utilities installed. Re-TV'ing may be required if discrepancies discovered (to confirm correction).
- _____ Deep construction required _____ D.I. (401 Protecto Lined) pipe _____ or C900 PVC _____.
- _____ First MH to be plugged on downstream side.
- _____ 12-foot 2x4s (wired) to be used for side sewers at 6 feet and 8 feet deep unless lot grade dictates otherwise.
- _____ Extend side sewers 13 feet or past utility trench (typical) into each lot.
- _____ Verify if standing side sewers are needed in easements.

WATER

- _____ Pipe shall be delivered to the site with ends wrapped or with pipe plugs and shall remain in place until the pipe is installed in the trench.
- _____ Inspection required on all bends, valves, F.H.s, B.O.s, thrust blocks and existing utilities.
- _____ Subgrade to be complete prior to laying water main or provide cut stakes.
- _____ Provide minimum 3'-6" cover over 8-inch mains (4 feet in easements) and 4'-0" cover over 12-inch mains.
- _____ Use restrained joint pipe and fittings in fills or if trenches are behind bends. Use thrust block or restrained joint table.
- _____ Group water meter boxes. Meter boxes to have coated wire placed between boxes with minimum 1 foot of coiled wire in each box (District will provide the wire). Mid States Plastics meter boxes. H-20 load rated where required.
- _____ All valves and fittings to be ductile iron.
- _____ F.H.s required to have short bodied 4-inch Storz adapters.
- _____ May need a temporary air vent where water feed is higher than the new mains.
- _____ Flush water to be metered. Meters shall be rented from the District. Flush to on-site erosion control ponds where possible. Dechlorination methods must be approved by the District.
- _____ Meters larger than 2 inches to be provided by developer and to be Sensus or Neptune Meter with Sensus radio unit, in Cu. Ft.
- _____ Backflow assemblies are required for all services other than single family residential meters.
- _____ Backflow assembly has been approved by the District.
- _____ Only SLWSD or their representative to operate valves connected to existing mains.
- _____ New system will be isolated from existing using protected connection until final connection is allowed by District.
- _____ Provide fire hydrant depths.

SECTION I
GENERAL CONDITIONS

GENERAL CONDITIONS

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I. GENERAL CONDITIONS:

1. **DEFINITIONS:** To make clear the meaning and intent of the words: District, District's Engineers, Developer, Contractor, and Contract Documents, as used in these standards, the following definitions are given:

District: Silver Lake Water & Sewer District, Snohomish County, Washington, a Water – Sewer District existing under and by virtue of the laws of the State of Washington.

District's Engineers: The District Engineer or the engineering firm and that firm's representatives retained and assigned by the District to act as the Engineer for the work to be performed on the project.

Developer: The person, persons, firm, owner, or corporation entering into agreement with Silver Lake Water & Sewer District for the installation and/or extension of a water or sewage facility. The term also includes the Developer's agents and employees and Contractor.

Contractor: The person, persons, firm, or corporation employed by the Developer to perform the work required by project plans and specifications to construct the water or sewage facility within the District's service area. The term also includes the Contractor's agents and employees.

Developer/ Contractor: Use of either word "Developer" or "Contractor" in this document shall be understood to be interchangeable, one for the other, wherein both are responsible for compliance, and the developer assumes full and final responsibility unless a division of responsibility through the use of a contract, performance bond, insurance, etc., is established.

Contract Documents: These shall consist of the following and in case of conflicting provisions, the text material shall have precedence:

- a) Developer Agreement for Water or Sewer Facility Extensions
- b) Plans
- c) Standard Details
- d) Specifications-Conditions and Standards of the Contract to include system testing
- e) Addenda
- f) Change Orders

I. GENERAL CONDITIONS - Continued

- g) General Conditions
- h) "As Built" Documents

These documents shall form the Contract.

2. **ENGINEER'S STATUS:** The District's Engineer shall serve as an agent of the District and in conjunction with the District, have the authority to accept or reject the work performed by the Developer for facilities within the District's service area.
3. **INSPECTION OF WORK:** The Developer shall give the District timely notice that the work, or any part thereof, which has been constructed within the District's service area, is ready for inspection. In no event shall the work, or any portion thereof, be covered up or placed into operation until the District has completed the inspection.

If any work should be covered up without prior inspection by the District, it shall be uncovered for examination at the Developer's expense.

The District and its representatives shall at all times, have access to the work whenever it is in preparation or progress and the Developer shall provide proper facilities for such access and for such inspection.

The Developer shall perform tests of the work, at the Developer's expense.

If the specifications, laws, ordinances, or any public authority shall require any work to be specially tested or approved, the Developer shall give the District timely notice of its readiness for inspection and, if the inspection is by other authority than the District, the date fixed for such inspection.

All inspections by the District will be made with all reasonable promptness but, in no event, shall the lack of prompt inspections be construed to allow the Developer to cover up the work or any portion of it without inspection.

The District's review of the Contractor's work plan, safety plan, construction sequence, schedule or performance does not and is not intended to include review or approval of the adequacy of the Contractor's safety measures in, on or near the construction site. The District does not purport to be a safety expert, is not engaged in that capacity, and has neither the authority nor the responsibility to enforce construction safety laws, rules, regulations, or procedures, or to order the stoppage of work for claimed violations thereof.

4. **FINAL INSPECTION & ACCEPTANCE:** All materials and completed work shall, before acceptance by the District, be subject to final inspection by the District. The District shall have the right to subject all machinery, equipment and

I. GENERAL CONDITIONS - Continued

work to all tests necessary to assist in determining whether the contract has been faithfully performed.

5. **MATERIALS & FACILITIES:** Unless otherwise stipulated, all materials utilized for water or sewage system construction within the District's service area, shall be new and both workmanship and materials shall be of good quality. The Developer shall furnish evidence as to the kind and quality of materials.

The Developer shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any person not skilled in the work assigned to him.

6. **ROYALTIES & PATENTS:** The Developer shall pay all royalties and license fees. He shall defend all suits and claims for infringement of any patent rights and shall save the District harmless from loss on account thereof.

7. **SURVEYS, PERMITS & REGULATIONS:** The Developer shall furnish and pay for all surveys, licenses, permits, easements, and rights-of-way.

The Developer shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work.

The Developer shall carefully preserve bench marks, reference points and stakes, and in case of destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their absence or disturbance.

8. **PROTECTION OF WORK & PROPERTY:** The Developer shall continuously maintain protection of all his work from damage and shall protect the property of others from injury or loss arising in connection with his work. He shall make good any such damage, injuries, or loss. He shall protect the adjacent property as provided by law and the Contract Documents. He shall provide and maintain all passage ways, guard fences, traffic control, detours, road closures, barricades, signs, flaggers, lights, and other facilities for protection required by public authority or local conditions. The Developer shall bear the risk of loss or damage for all finished or partially finished work until the entire project is completed and accepted by the District.

9. **EXISTING UTILITIES:** The Developer shall investigate and locate all buried utilities or obstructions in the construction area prior to construction of new water or sewage facilities. The Developer shall coordinate with the District, power, telephone, cable television, gas companies, and all other affected utilities for field location of the respective existing facilities.

The Developer shall call for utility locates (1-800-424-5555) two full working

I. GENERAL CONDITIONS - Continued

days prior to construction for aid in locating any existing underground utilities as applicable.

10. **REPLACING IMPROVEMENTS:** Whenever it is necessary in the course of construction to remove or disturb culverts, driveways, roadways, pipelines or other existing improvements, they shall be replaced to a condition equal or superior to that existing before they were so removed or disturbed. If it is necessary to trench through lawns, the sod shall be removed before trenching and replaced with new sod after backfilling.
11. **ACCESS:** Bridging shall be provided across private driveways and roadways, during the period that trenches are open, in such a manner as not to constitute a hazard to the people who use them. All construction operations shall be conducted in such a manner as to interfere as little as possible with the normal procedure of traffic.
12. **DEFECTS & THEIR REMEDIES:** If the work or any part thereof performed by the Developer, shall be deemed by the District as not in conformity with the District's Standards, the Developer shall forthwith rebuild or otherwise remedy such defects prior to being accepted by the District.

The Developer shall be responsible for correcting all defects in workmanship and material appearing within two years after completion and acceptance of his project. The Developer shall start work to remedy such defects within 7 days of notice of discovery thereof by the District and shall complete such work within a reasonable time. In emergencies, where damage may result from delaying or where loss of service may result, such corrections may be made by the District in which case all costs shall be borne by the Developer. In the event the Developer does not accomplish corrections at the time specified, the work shall be otherwise accomplished and the cost of same shall be paid by the Developer.

13. **USE OF COMPLETED PORTIONS:** The District shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding that the time may not have expired for completing the entire work or such portions, which will not interfere with the Developer performing the remaining work. Such taking possession and use shall not be deemed an acceptance of any work not completed and inspected in accordance with the Contract Documents or District Standards.
14. **INSURANCE REQUIREMENTS, SUMMARY OF COVERAGE & INDEMNITY:** The Developer shall carry liability and property damage insurance covering all work during Project construction, including that done by the Developer's Contractor and the Contractor's subcontractors. This insurance shall also protect the District from any contingent liability prior to Project acceptance.

I. GENERAL CONDITIONS - Continued

The Developer shall obtain from an insurance company, with have an A.M. Best rating of “AVII” or better approved by the Insurance Commissioner of the State of Washington pursuant to Title 48 RCW, commercial general liability and automobile liability insurance against claims to the Developer, the District and its elected and appointed officials, officers, employees, agents and volunteers for injury to person or property which may arise from any act or omission by anyone directly or indirectly employed by the Developer from or relating to the performance, supervision, or inspection of the work. The insurance policy(s) shall specifically name and include the District and its elected and appointed officials, officers, employees, agents and volunteers as additional insureds under such policy(s) with regards to damages and defense of claims arising from: (a) activities performed by or on behalf of the Developer; (b) products and completed operations of the Developer, or (c) premises owned, leased or used by the Developer for the work proposed under this Developer Extension Agreement. Proof of the existence of such insurance shall be provided to the District in a form acceptable to the District prior to the Pre-Construction Meeting.

The Developer shall not begin work under the agreement or under any special condition until all required insurance has been obtained and until such insurance has been reviewed and accepted by the District. The Developer shall file with the District either a certified copy of all insurance policies or a certificate of insurance with the endorsements in the form included herein as are necessary to comply with these specifications.

The minimum limits of coverage shall be as follows:

General Aggregate	\$2,000,000
Products - Comp/OPS Aggregate	\$2,000,000
Personal Injury	\$2,000,000
Each Occurrence	\$2,000,000
Automobile Liability	\$2,000,000

Policies shall be kept in force until the project is accepted by the District. The District shall be given at least forty-five (45) days written notice of cancellation, non-renewal, material reduction, or modification of coverage. The District may increase these limits if the scope of the proposed work warrants additional coverage.

Failure of the Developer to fully comply with the requirements regarding insurance will be considered a material breach of contract and shall be cause for immediate termination of the developer extension agreement and any and all District obligations, regarding same.

The coverage provided by the insurance policies shall be primary to any insurance maintained by the District, except with respect to losses attributable to the sole

I. GENERAL CONDITIONS - Continued

negligence of the District. Any insurance that might cover this Agreement which is maintained by the District shall be in excess of the Developer's/Contractor's insurance and shall not contribute with it.

The insurance policy shall protect each insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one insured shall not affect the rights of any insured with respect to any claim, suit or judgment made or brought by or for any other insured or by or for any employee of any other insured.

The general aggregate provisions of the insurance policy shall be amended to show that the general aggregate limit of the policies apply separately to this project.

The insurance policy shall not contain a deductible or self-insured retention in excess of \$10,000 unless approved by the District.

Providing coverage in the stated amounts shall not be construed to relieve the Developer from liability in excess of such limits.

The Developer shall indemnify, defend and hold the District and its elected and appointed officials, officers, employees, agents and volunteers harmless from and against all losses and all claims, demands, payments, suits, actions, recoveries, and judgments of every nature and description brought or recovered against the District by reason of any act or omission of the Developer, the Developer's agents or employees, in connection with the work performed under this contract, or caused or occasioned in whole or in part by reason of the presence of the Developer, the Developer's Contractor or Sub-contractors, or their property, employees or agents, upon or proximity to any property upon which work is being performed under this contract.

For the purpose of applying RCW 4.24.115 to the Developer's project, the Developer and the District agree that the term "damages" applies only to the finding in a judicial proceeding and is exclusive of third party claims for damages preliminary thereto.

The Developer agrees to indemnify, defend and hold harmless the District, and its elected and appointed officials, officers, employees, agents and volunteers from all claims for damages by third parties, including costs and reasonable attorney's fees in the defense of such claims for damages, arising from performance of the work under this contract. Developer waives any right of contribution against the District.

It is agreed and mutually negotiated that in any and all claims against Silver Lake Water & Sewer District or any of its agents or employees by any employee of the Developer, anyone directly or indirectly employed by any of them or anyone for

I. GENERAL CONDITIONS - Continued

whose acts any of them may be liable, the indemnification obligation hereunder constitutes Developer's and its Contractor's and Sub-Contractor's waiver of immunity under Title 51 RCW, solely for the purposes of this indemnity.

District and Developer agree that all third party claims for damage against District for which Developer's insurance carrier does not accept defense of District may be tendered by District to the Developer who shall, if so tendered by District, accept and undertake to defend or settle with the Claimant. District retains the right to approve claims investigation and legal counsel assigned to said claim and all investigation and legal work product regarding said claim shall be performed under a fiduciary relationship to Silver Lake Water & Sewer District. In the event that District agrees or a court finds that the claim arises from the sole negligence of District, this indemnification shall be void and District shall be responsible for all damages payable to the third party claimant. In the event that District and Developer agree or a court finds that the claim arises from or includes negligence of both the Developer and District, the Developer shall be responsible for all damages payable by the Developer to the third party claimant under the court finding, and, in addition thereto, the Developer shall hereunder indemnify District for all damages paid or payable by District under the court finding an amount not to exceed the percentage of total fault attributable to the Developer. For example, where the Developer is 25 percent negligent, the Developer shall not be required to indemnify District for any amount in excess of 25 percent of the claimant's total damages.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Developer's and its contractor's responsibility for payment of damages resulting from operations under this agreement.

15. **RIGHTS OF VARIOUS INTERESTS:** Wherever work being done by the District's employees or agents or by other developers is contiguous to work performed by the Developer, the respective rights of the various interests involved shall be established by those involved to secure the completion of the various portions of the work in general harmony.
16. **SANITATION:** Necessary sanitation conveniences for the use of workmen on the job, secluded from public observation, shall be provided and maintained by the Developer.
17. **CLEAN-UP:** The Developer shall keep the construction site reasonably clear during the progress of the work.

The Developer shall backfill the trenches, clean out ditches that may have been filled during the work, replace damaged surfacing, remove surplus materials and trash, dispose of brush, repair all damages, and otherwise leave the job in a neat, orderly and workmanlike condition.

I. GENERAL CONDITIONS - Continued

18. **CONSTRUCTION CONFORMANCE:** In addition to meeting the standards and conditions of the Silver Lake Water & Sewer District, all construction shall be in conformance with the requirements of the Cities of Everett and Mill Creek, Departments of Health and Ecology, Snohomish County, Washington State Department of Transportation, American Public Works Association, and American Water Works Association.

The Developer shall plan, design, and construct the sewer and/or water extension between the point of connection to the existing utility, to and through the proposed development to provide sewer and/or water service to the Developer's property and to existing adjacent properties that can be served. This extension include mainlines to the far side of the property where future extension may occur. It also includes installing side sewers, water service, and fire hydrants in areas where water and sewer main improvements from the existing utility to the development are needed, as determined by the District, to serve existing properties along the alignment of the extension.

Additional District requirements may be mandated, on a case-by-case basis, due to site specific conditions.

19. **PREDESIGN MEETING:** A predesign meeting shall be held at the District offices prior to preliminary design of the proposed improvements. As a minimum, the Developer and the Developer's Engineer shall attend the meeting. This meeting should be used to clarify District Standards, resolve conflicts and to facilitate expeditious review of plan submittals.
20. **PRECONSTRUCTION MEETING:** A preconstruction meeting shall be held at the District offices prior to any construction work being performed as part of the Developer Extension. As a minimum, the Developer and/or the Developer's Representative responsible for completion of the work, and the Developer's Contractor and Project Foreman shall attend the meeting. The Developer shall coordinate a meeting time which is convenient with the District's schedule and shall be scheduled a minimum of 5 working days prior to construction.
21. **EASEMENTS:** The Developer shall obtain all necessary easements without cost to the District, using the District's standard easement form. Wherever a water or sewer main is to be laid other than in a public right-of-way, a permanent easement of not less than 7-1/2 feet on each side of the centerline of the main shall be provided. In addition, the Developer shall provide a temporary construction easement not less than 25 feet in width adjacent to the permanent easement. The Developer shall supply the District with the supporting data necessary to verify the location of the easement. If legal services are required by the District in connection with the easement, the cost of such services shall be reimbursed by the Developer to the District on demand and before acceptance of the extension.

The District shall be named as a beneficiary, with respect to both water and sewer

I. GENERAL CONDITIONS - Continued

facilities, in all general utility easements created in connection with the project.

Permanent easements shall also be provided for all water meters, fire hydrants, and backflow assemblies required to protect the public potable water system located outside the public right-of-way.

No permanent structures shall be allowed to be constructed within the permanent easement.

Landscaping and plantings shall be restricted to non-root intrusive low growing shrubs, grass, and surface coverings.

Vehicle access, as approved by the District, shall be provided to all manholes and facilities. Access to any fenced easement shall be provided via a duplex gate (12 foot opening width) of matching construction, to be approved by the District.

All offsite easements shall be obtained by the Developer and reviewed by the District prior to approval of the construction Plans. All other easements shall be provided and reviewed by the District prior to acceptance of the work performed under the Contract. When the form of required easements are approved by District, the Developer shall record the easement with the County Auditor and provide a record easement document to the District as a condition of acceptance.

An easement shall be provided to the District for access to all backflow assemblies required to protect the public potable water supply from possible contamination.

22. **POLLUTION AND EROSION CONTROL:** The Contractor shall exercise all necessary precautions throughout the life of the project to prevent pollution, erosion, siltation, and damage to property.

Erosion and sediment control throughout the project including abutting and downstream properties shall be the responsibility of the Developer.

The Developer shall determine the appropriate temporary erosion and sediment control necessary for the construction time of the year and shall furnish and install the necessary controls as the first order of work. Such erosion control shall be fully maintained during the course of construction, modifying the control when necessary.

Temporary erosion and sediment control shall consist of and be installed in accordance with the more stringent conditions of Offsite County Use Permit Conditions, Requirements of Endangered Species Act, City of Mill Creek or Snohomish County Best Management Practice or Department of Ecology's Storm Management for the Puget Sound Basin Technical Manual for water quality.

I. GENERAL CONDITIONS - Continued

The Developer shall bear sole responsibility for damage to completed portions of the project and to property located off the project caused by erosion, siltation, run-off, or other related items during construction of the project. The Developer shall also bear sole responsibility for any pollution of rivers, streams, groundwater, or other waters, which may occur as a result of construction operations.

Upon failure of the Developer to provide immediately such erosion control, the District shall be at liberty, without further notice to the Developer to provide and/or remove the necessary erosion control. The Developer shall reimburse the District for any costs incurred on account thereof.

23. **ENCASEMENT/CARRIER PIPES:** All state highway stream crossings, and other locations determined by the Developer and/or the District shall be encased with steel casing. Steel casing shall be of sufficient diameter, size, and strength to enclose the carrier pipe and to withstand maximum highway loading. Sizing and wall thickness of casing is subject to approval by the District. The carrier pipe shall be ductile iron, Class 52, restrained joint pipes unless otherwise approved by the District. Casing spacers shall be installed at each ten feet of the pipeline. The spacers shall be Uni-Flange Series UFRCS 1300 or approved equal. Sand backfill between the casing and the carrier pipe shall be required. In order to prevent the sand from being washed from the casing, the ends of the casing shall be bricked and cemented after installation, backfill and testing of the pipe are completed.
24. **FINISHING AND CLEANUP:** After all other work on the project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections of a new roadway consistent with the original section, and as hereinafter specified.

On construction where all or portions of the construction is in undeveloped areas, the entire area which has been disturbed by the construction shall be shaped so that upon completion the area will present a uniform appearance, blending into the contour of the adjacent properties and hydroseeded. All other requirements outlined previously shall be met.

Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees, and shrubs. Machine dressing shall be supplemented by handwork to meet requirements outlined herein, to the satisfaction of the District.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade. Where the existing surface is below sidewalk and curb, the area shall be filled and dressed out to the

I. GENERAL CONDITIONS - Continued

walk. Wherever fill material is required in the planting area, the finished grade shall be elevated to allow for final settlement, but nevertheless, the raised surface shall present a uniform appearance.

All rocks in excess of 1 inch diameter shall be removed from the entire construction area and shall be disposed of the same as required for other waste material. In no instance shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, natural, well-sloped surface.

All excavated material at the outer lateral limits of the project shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed and not placed in areas adjacent to the project. Where machine operations have broken down brush and trees beyond the lateral limits of the project, the Developer shall remove and dispose of same and restore said disturbed areas at his own expense.

Drainage facilities such as inlets, catch basins, culverts, and open ditches shall be cleaned of all debris that results from the Developer's operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities, which have been sprayed by the asphalt cement, shall be cleaned to the satisfaction of the District.

Castings for monuments, water valves, vaults and other similar installations, which have been covered with the asphalt material, shall be cleaned to the satisfaction of the District.

25. **RECORD DRAWINGS:** Upon completion of construction and prior to acceptance, the approved construction drawings shall be corrected to reflect "As-Built" conditions, in accordance with the District's General Drafting Standards, and shall be returned to the District. The record drawing submittal when approved shall include an electronic file on disk of the scanned "As-Built" drawings, and the required signatures. For drawings created in electronic form, the submittal shall also include an AutoCAD file (Release 2010, Civil 3D or earlier version) "As-Built" drawing information in accord with the District GIS provisions on disk, and all related "As-Built Survey" files.
26. **GENERAL GUARANTEE AND WARRANTY:** The Developer shall be required, upon completion of the work and prior to acceptance by the District, to furnish the District a construction guarantee covering all material and workmanship for a period of 2 years after the date of final acceptance and shall make all necessary repairs during that period at his own expense, if such repairs are necessitated as the result of furnishing poor materials and/or workmanship. The Developer shall obtain warranties from the contractors, subcontractors, and

I. GENERAL CONDITIONS - Continued

suppliers of material or equipment where such warranties are required, and shall deliver copies to the District upon completion of the work.

The form of this guarantee shall be mutually agreeable to the District and the Developer. The guarantee shall be an amount not less than 15 percent of the cost of the facility constructed as listed on approved bill of sales documentation and shall be for a duration not less than 2 years from the dated of acceptance of the constructed facilities by the District.

A separate warranty to allow for final adjustment of surface features to accommodate final pavement will be allowed. Amount to be based on estimated construction cost to adjust.

In no case shall a bond for construction warranty be less than \$5,000.

27. **CROSS CONNECTION PROTECTION:** Backflow assembly tests, certification and verification of locations, if applicable, shall be completed and reviewed by the District prior to project acceptance.

All on-site wells or auxiliary water system shall be disconnected and decommissioned prior to connecting to the District's water or sewer systems. Confirmation that the on-site wells have been decommissioned in accordance with WAC 173-160-381 shall be provided to the District prior to the District selling a water or sewer connection permit.

SECTION II
WATER SYSTEMS

WATER SYSTEMS

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II. WATER SYSTEMS - GENERAL STANDARDS:

1. **OBJECTIVE:**

Section II is intended to present information and provide an outline of the minimum general standards required by Silver Lake Water & Sewer District for Developer constructed water main extensions and improvements which are to be acquired and operated by the District.

2. **GENERAL:**

Detailed plans shall be submitted for the District's review which provide the locations, size, and type of the proposed water system and points of connection. These plans shall be separate from Sewer Plans and shall conform to the District Drafting Standards.

Project plans shall have a horizontal scale of 1-inch = 50 feet, unless approved by the District. Plans shall show:

- Locations of streets, right-of-ways, existing utilities, and water system facilities.
- Ground surface, dimensions, pipe type and size, water valves, fittings, hydrants and appurtenances.
- All known existing structures, both above and below ground that might interfere with the proposed construction, particularly sewer lines, gas mains, storm drains, overhead and underground power lines, telephone lines, and television cables.
- All utility easements.
- District Approval Block.

Computations and other data used for design of the water system shall be submitted to the District for approval.

The water system facilities shall be constructed in conformance with the current WSDOT Standard Specifications for Road, Bridge, & Municipal Construction and amendments thereto, revised as to form to make reference to Local Governments and as modified by the District's requirements and standards.

Material and installation specifications shall contain appropriate requirements that have been established by the industry in its technical publications, such as ASTM, AWWA, WEF, and APWA standards. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfilling so as not to damage the pipe or its joints.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

Except as otherwise noted herein, all work shall be accomplished as recommended in applicable American Water Works Association (AWWA) Standards, and according to the recommendations of the manufacturer of the material or equipment concerned.

All piping and plumbing installed to provide water for human consumption that is connected to the District's water system shall be lead free.

The location of the water mains, valves, hydrants, and principal fittings including modifications shall be staked by the Developer. No deviation shall be made from the required line or grade. The Developer shall verify and protect all underground and surface utilities encountered during the progress of this work.

All pipelines shall be tested and disinfected to District and AWWA Standards prior to acceptance.

Before acceptance of the water system by the District, all pipes, assemblies, and other appurtenances shall be cleaned of all debris and foreign material. After all other work is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades, and cross sections for a new roadway consistent with the original section.

3. GENERAL REQUIREMENTS:

1. Work shall be performed only by contractors experienced in installing public water mains.
2. Prior to any work being performed, the Developer shall contact the District's Engineer to set forth his proposed work schedule.
3. All materials shall be new and undamaged.
4. Developer shall obtain approval of materials to be used from the District prior to ordering of materials.
5. Water mains shall be delivered to the site with wrapping to cover the ends of the pipe or with pipe plugs. Either method used shall remain in unbroken condition until the pipe is installed.
6. Water mains shall be laid only in dedicated rights-of-way or in easements that have been granted to the District. Water mains may be laid within a plat or property identified in the developer extension agreement, subject to dedication of appropriate rights-of-way and recording of appropriate easements at the time the plat and/or warranty bill of sale is filed with the County Auditor.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

7. Dead end lines are not permitted except where the District is satisfied that it would be impractical to extend the line at a future date. Water mains shall extend to the plat line of developable neighboring property for a convenient future connection, and a 2-inch blow off assembly shall be provided on mains 8-inches and smaller. A fire hydrant shall be installed on larger size mains to accommodate flushing velocities.
8. If a service line to a lot is over 200 feet (not including panhandle), the Developer shall install a 6-inch water main to within 200 feet of the structure being served with a 2-inch blowoff at the end in an easement granted to the District. If multiple lot services are required, the 200-foot distance will include the panhandle distance.
9. All 8-inch and smaller water mains shall have minimum 3'-6" cover from finished grade except 4'-0" cover in easements. All 12-inch and larger water mains shall have a minimum of 4'-0" cover from finished grade. The maximum shall be 7'-0" cover unless approved by the District. Mains shall generally be located parallel to and ten feet northerly or easterly of street centerline.
10. Valves shall be installed at intervals not to exceed 1,000 feet. Valves shall be installed on each leg of all tees and crosses, except fire hydrant tees unless required by the District, and at each end of easements.
11. Valve markers shall be installed and marked with the distance to valve being referenced for all valves in unpaved areas.
12. Fire hydrants are required approximately every 600 feet in residential areas and/or located no more than 350 feet from the back of any proposed lot. Fire hydrants are required every 300 feet in commercial areas, or as required by the Fire Marshal. Distances required herein shall be measured linearly along street or road.
13. Only one fire hydrant shall be installed on any dead-end 8-inch run.
14. Pipes connecting hydrants to mains shall be at least 6 inches in diameter, restrained and not longer than 50 feet.
15. Provide bends in field to suit construction and in accordance with pipe manufacturer's recommendations so as not to exceed allowable deflection at pipe joints.
16. Provide thrust blocking or restrained joints at all fittings and bends in accordance with the District standards and conditions. Restrained joint systems required in areas of fill or if installed in previously disturbed soil and where indicated on District Standard Details.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

17. Provide anchor blocking at all up-thrust vertical bends in accordance with District standards.
18. Water services shall be Type "K" continuous copper tubing from water main to meter (no joints) for 1-inch and 2-inch services. Larger service lines shall be the type and style shown in the Standard Details.
19. Minimum size service lines between the water main and the water meter shall be 1-inch for single family use and 2-inch for commercial and multi-family use. All meters and private service lines shall be the minimum size by the County Plumbing Code in accordance with fixture units, unless otherwise specified.
20. Meter services and meter boxes shall be set to final grade and all adjustments shall be made prior to final pressure testing of the system, except as approved by the District. Developer shall furnish two (2) neoprene gaskets and one (1) dual check valve for each service installed. Service inlet shall be centered at inlet end of box and faced toward outlet end of box parallel with long sides.
21. All water services shall end within road right-of-way or easements.
22. All 3/4" x 5/8" and 1-inch meters will be installed by the District, and the property owner shall pay the current meter installation charge. Meters greater than 1 inch and up to 2 inches in size shall be installed by the District and paid by the developer on a time and material basis. For scheduling installation, Developers may preorder 1-1/2- to 2-inch meters for consideration of lead time on District purchase. The Developer shall furnish all meters larger than 2 inches in size installed by the Developer and locked off by the District until approved for service. District personnel will inspect meter prior to installation to ensure the proper meter and register.
23. All services other than single-family residential and duplex shall be equipped with a Washington State-approved reduced pressure backflow assembly (RPBA) which shall be located immediately behind and on the property side of the water service box, or at an alternate location as approved by the District. Residential single-family fire meters shall require a minimum of a DCVA at the service connection or at an alternate location as approved by the District. All other connections shall be equipped with an RPBA at the service connection. Commercial fire sprinkler systems, if unmetered shall require an RPDA at the service connection or at an alternate location as approved by the District. If chemicals of any kind are connected to, or planned for installation on any of the above services (i.e., aspirators, carbonators), the water service shall be isolated from the District's system by either an AG or RPBA at the service connection or at an alternate location as approved by the District.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

(see Section V). An exception can be requested for townhomes/condominiums if not individually metered to each unit off District mains to have a common meter followed by DCVA at the service connection. The more stringent backflow will be required if the District CCS determines that there is a high hazard potential. Plumbing plans must be submitted to the District at design review to consider an exemption. An exception can be requested for townhomes/condominiums if not individually metered to each unit off District mains, to have a common meter followed by a DCVA at the service connection. The more stringent backflow will be required if the District CCS determines that there is a high hazard potential. Plumbing plans must be submitted to the District at Design Review to be considered an exemption.

24. Dedicated irrigation services shall require a minimum of a DCVA at the service connection. Services connected to water features, decorative ponds, pools, spas and fountains which require make-up water shall be protected from backflow into the public water supply by an approved air-gap to be located at the fill point of the pond or water feature. The air-gap shall be inspected by the District prior to use and shall be subject to annual inspection by a Washington State Backflow Assembly Tester (BAT). In all instances, the water supply used for filling purposes shall also be protected by a DCVA or RPBA installed behind the meter at the District's discretion. All irrigation using chemical feed shall have an RPBA installed immediately behind the meter, no exceptions (see Section V).
25. Developer shall notify the District and obtain approval prior to any water shut-off or turn-on, affecting the water system, a minimum of 48 hours in advance.
26. Cut in connections and wet taps shall not be made on Fridays, the day before a holiday, holidays, or weekends (unless approved by the District). Monday connections may be allowed at District sole discretion.
27. Developer shall use only District approved hot tap vendors to perform work in the District.
28. All tapping sleeves and tapping valves shall be pressure tested prior to making connection to existing mains.
29. Road restoration shall be per Snohomish County, City and/or State design and construction standards. Developer shall become familiar with all County, City, and State conditions of required permits, and shall adhere to all conditions and requirements.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

4. **MATERIALS:**

WATER MAINS & FITTINGS:

Water mains to be installed shall be ductile iron pipe for all sizes, unless specifically noted otherwise. All ductile iron water pipe shall be delivered to the site with wrapping to cover the ends of the pipe or with pipe plugs. Either method used shall remain in unbroken condition until the pipe is installed.

The ductile iron pipe shall conform to AWWA C151 and shall be Class 52. Grade of iron shall be a minimum of 60-42-10. The pipe shall be cement lined to a minimum thickness of 1/16" meeting NSF standards for potable water and the exterior shall be coated with an asphaltic coating.

Each length shall be plainly marked with the manufacturer's identification, year cast, thickness, class of pipe and weight. The pipe shall be furnished with mechanical joint or push-on type joint, except where plans call for flanged ends. Joints shall conform to AWWA C111.

Restrained joint pipe shall be push-on joint pipe with FIELD LOK® or TR FLEX® gaskets as furnished by U.S. Pipe, or approved equal.

All pipe shall be joined by the manufacturer's standard coupling, be all of one manufacturer, and be carefully installed in complete compliance with the manufacturer's recommendations.

Joints shall be "made up" in accordance with the manufacturer's recommendations. Standard joint materials, including rubber ring gaskets, shall be furnished with the pipe. Material shall be suitable for the specified pipe size and pressures.

All fittings shall be short-bodied, ductile iron complying with AWWA C110 or C153 for 350 psi pressure rated mechanical joint fittings and 250 psi pressure rated flanged fittings. All fittings shall be cement mortar lined per the ductile iron pipe specifications and either mechanical joint or flanged.

Fittings in areas requiring restrained joints shall be mechanical joint fittings with a mechanical joint restraint device. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., MEGALUG, Star Pipe Products, or approved equal.

All couplings shall be ductile iron mechanical joint sleeves.

The pipe and fittings shall be inspected for defects before installation. All lumps, blisters and excess coal tar coating shall be removed from the bell and spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire-

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

brushed and wiped clean and dry, and free from oil and grease before the pipe is laid.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. After placing a length of pipe in the trench, the spigot end shall be centered in the bell and pipe forced home and brought to correct line and grade. The pipe shall be secured in place with select backfill tamped under it. Precaution shall be taken to prevent dirt from entering the joint space. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a water-tight plug. If water is in the trench when work resumes, the seal shall remain in place until the trench is pumped completely dry. No pipe shall be laid in water or when trench conditions are unsuitable.

The cutting of pipe for inserting fittings or closure pieces shall be done in a neat and workmanlike manner, without damage to the pipe or cement lining, and so as to leave a smooth end at right angles to the axis of the pipe. When a pipe length is cut, the outer edge of the cut shall be beveled to prevent damage to the gasket during jointing of the pipes.

Pipe shall be laid with bell ends facing in the direction of the laying, unless approved otherwise by the District. Wherever it is necessary to deflect pipe from a straight line, the amount of deflection allowed shall not exceed pipe manufacturer's recommendations.

For connection of mechanical joints, the socket, plain end of each pipe and gasket shall be cleaned of dirt before jointing, and shall be jointed according to manufacturer's directions. Bolts shall be tightened alternately at top, bottom, and sides, so pressure on gasket is even.

For connection of push-on type joints, the jointing shall be done according to manufacturer's recommendations, with special care used in cleaning gasket seat to prevent any dirt or sand from getting between the gasket and pipe. Lubricant to be used on the gasket shall be non-toxic and free from contamination.

Valves, fittings, plugs, and caps shall be set and jointed to pipe in the manner as required. All dead ends on new mains shall be closed with dead end M.J. caps.

Fittings shall be "blocked" with poured-in-place concrete, with a firm minimum bearing against an undisturbed earth wall. Timber blocking will not be permitted. Thrust blocks shall be poured as soon as possible after setting the fittings in place to allow the concrete to "set" before applying the pressure test. The concrete thrust blocks shall be in place before beginning the pressure test. Anchor blocks shall be allowed to set sufficiently to develop the necessary bond strength between the reinforcing rods and the concrete anchor before beginning the pressure test. A visqueen barrier shall be provided to protect glands, bolts and other miscellaneous materials required for this type of connection from the connector.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

Fittings and adjacent pipe lengths that cannot be blocked against an undisturbed earth wall shall be restrained. Concrete blocking is required and shall be installed as if blocked against undisturbed earth.

All of the new piping, valves and blocking shall have been installed, disinfected, and tested up to the point of cutting into existing lines before the crossover is made. The crossover to the existing system shall be in full readiness, including the cut and sized specials. Forty-eight (48) hour notice shall be given the District in advance of the planned "cut-ins." All sleeves shall be ductile iron.

All backfill in roadway sections shall be placed and compacted in accordance with Snohomish County, City and/or State requirements and copies of the compaction results shall be provided to the District. All backfill in easements shall be placed and compacted to a minimum of 90 percent of modified Proctor dry maximum density per ASTM D1557. Copies of compaction results for all water system trenches shall be provided to the District. Recycled concrete is not allowed for use in District trench sections, no exceptions.

VALVES:

All valves 14 inches and larger shall be butterfly valves. All valves 12 inches and smaller shall be resilient seat gate valves.

Resilient-Seated Gate Valves

The gate valves shall be ductile iron body valves, iron disk completely encapsulated with polyurethane rubber and bronze, non-rising stem with "O" ring seals conforming to AWWA C509 or C515. The valves shall open counter-clockwise and be furnished with 2-inch square operating nuts except valves in vaults shall be furnished with handwheels. All surfaces, interior and exterior shall be fusion bonded epoxy coated, acceptable for potable water.

For applications with working pressure above 175 psi, a valve rated as 250 psi or higher shall be used.

Valves shall be Clow, M&H, Kennedy, U.S. Pipe, Mueller, American Flow Control, or approved equal.

Butterfly Valves

Butterfly valves shall be ductile iron body of the tight closing rubber seat type with rubber seat either bonded to the body or mechanically retained in the body with no fasteners or retaining hardware in the flowstream. The valves shall meet the full requirements of AWWA C504, Class 150B except the valves shall be able to withstand 150 psi differential pressure without leakage. The valves may have rubber seats mechanically affixed to the valve vane. Where threaded fasteners are

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

used, the fasteners shall be retained with a locking wire or equivalent provision to prevent loosening. Rubber seats attached to the valve vane shall be equipped with stainless steel seat ring integral with the body, and the body internal surfaces shall be epoxy coated to prevent tuberculations buildup, which might damage the dismounted rubber seat. Use of butterfly valves are a special case and shall only be allowed with District approval.

No metal-to-metal sealing surfaces shall be permitted. The valves shall be bubble-tight at rated pressures with flow in either direction, and shall be satisfactory for applications involving valve operations after long periods of inactivity. Valve discs shall rotate 90 degrees from the full open position to the tight shut position.

Valves shall be Henry Pratt Company "*Groundhog*," Dresser "*450*" or Mueller "*Linesal III*."

Tapping Sleeves & Tapping Valves

The tapping sleeves shall be rated for a working pressure of 250 psi minimum and furnished complete with joint accessories. Tapping sleeves shall be constructed in two sections for ease of installation and shall be assembled around the main without interrupting service.

Mechanical joint style sleeves shall be ductile iron or fabricated steel style sleeves. Ductile iron mechanical joint style sleeves are required for all size-on-size connections. Mechanical joint sleeves shall be cast by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal.

Fabricated steel style sleeves shall be fusion bonded epoxy-coated, acceptable for potable water. Fabricated steel style sleeves will not be allowed for size-on-size connections.

Tapping valves shall be provided with a standard mechanical joint outlet for use with ductile iron pipe and shall have oversized seat rings to permit entry of the tapping machine cutters. In all other respects, the tapping valves shall conform to the resilient seat gate valves herein specified with regards to operation and materials.

The tapping sleeve and valve shall be tested to 100 psi (air) prior to tapping the main.

The installation contractor for the tapping sleeves and valves shall be approved by the District.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

All Valves

The valves shall be set with stems vertical. The axis of the valve box shall be common with the axis projected off the valve stem. The tops of the adjustable valve boxes shall be set to the existing or established grade, whichever is applicable.

All valves with operating nuts located more than 4'-0" below finished grade shall be equipped with extension stems to bring the operating nut to within 18 inches of the finished grade.

At the top of the extension stem, there shall be a 2-inch standard operating nut, complete with a centering flange that closely fits the 5-inch pipe encasement of the extension stem. The valve box shall be set in a telescoping fashion around the 5-inch pipe cut to the correct length to allow future adjustment up or down. Cast iron soil pipe shall be used to extend the top valve box section to grade in deep areas.

Each valve shall be provided with an adjustable two-piece cast iron valve box of 5-inches minimum inside diameter. Valve boxes shall have a top section with an 18-inch minimum length. The valve boxes and covers shall be Olympic Foundry No. 940 or equal. The District may require locking valve covers in traffic areas. Locking covers shall be Olympic Foundry No. 045 DT or equal.

Valves located in easements or outside of paved areas shall have concrete collars with a minimum size of 2'-0" diameter by 4-inches thick.

Valve Markers

Provide a blue Carsonite valve marker post for each valve outside of asphalt.

Markers shall be placed at the edge of the right-of-way opposite the valve and set so as to leave 2'-0" of the post exposed above grade. The distance in feet and inches to the valve shall be clearly stenciled on the side facing the valve in black numerals 2-inches in height.

FIRE HYDRANTS:

All fire hydrants shall be approved by the National Board of Fire Underwriters and conform to AWWA C502, break-away type, in which the valve will remain closed if the barrel is broken. The hydrant barrel shall have a diameter of not less than 7-inches, and the valve diameter shall be not less than 5-1/4-inches. Each hydrant shall be equipped with two 2-1/2-inch hose ports (National Standard Thread), and one 4-1/2-inch pumper connection (National Standard Thread). A permanent anodized short profile style Storz hydrant adapter and anodized Storz blind flange shall be installed on the pumper port. The size of the adapter shall be 4 inches. Each hydrant shall be equipped with a suitable positive acting drain

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

valve and 1-1/4 inch pentagonal operating nut (counter-clockwise opening).

Fire hydrants shall be Mueller Centurion, Clow Medallion, M&H Style 929, Waterous Pacer, or East Jordan Watermaster 5CD250.

The holding spools between the gate valve and fire hydrant shall be made from 6 inch Class 52 ductile iron pipe. The hydrant and gate valve shall be anchored in place using holding spools and mechanical joint restraint device. Holding spools shall be one piece unless the length is in excess of 17 feet or if approved by the District. The joints shall be supplied with a mechanical joint sleeve and mechanical joint restraint device, or with Field Lok gaskets.

The fire hydrants shall be painted with two coats of Sherwin Williams 8084-31084 cat yellow enamel paint. Distance to the hydrant valve shall be clearly stenciled in black numerals 2-inches in height on the fire hydrant below the pumper port. Align the stenciled distance on the hydrant to face the hydrant valve. Top of fire hydrant shall be painted as per service level (See Detail V-W2).

Between the time that the fire hydrant is installed and the completed facility is placed in operation, the fire hydrant shall at all times be wrapped in burlap, or covered in some other suitable manner to clearly indicate that the fire hydrant is not in service.

BLOW-OFFS & AIR RELIEF ASSEMBLIES:

A 2 inch blowoff assembly shall be installed at the terminus of all dead end water mains 8 inch diameter and smaller. Water mains greater than 8 inch diameter shall have a fire hydrant assembly installed at the terminus of dead end mains. Field location to be in paved surface.

A 1 inch or 2 inch air and vacuum release valve (as approved by the District) shall be installed at principal high points in the system.

The installation of these items shall include connection piping, gate valve, valve box, and all accessories.

SERVICE CONNECTIONS

Individual services to each property shall be installed and connected to the new water mains by Developer prior to acceptance.

New meters 2 inches and smaller will be installed by the District at the Developer's expense. New services from existing mains will be installed by the District. The Developer shall be responsible for permitting, traffic control, excavation to expose main, shoring to protect District employees, backfilling trench, and completion of all restoration.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

Upon completion of the installation of the water main (before testing and disinfection) services shall be installed by connecting to the water main and extending the service line to the property line as shown on the Standard Details or approved equal. Service lines for residential property up to 1-inch meter installation shall be Type "K" 1-inch (minimum size) continuous copper service lines meeting the ASTM Specifications B-88-47. Services up to 2-inch meter installation shall be 2-inch-diameter Type "K" copper. Larger service lines shall be of the type and style as designated in the Standard Details and shown on the Plans.

Projects that require meters larger than 2 inch shall be installed per the District Standards and as shown on the Standard Details.

All services other than single-family residential *and duplexes* shall be provided with appropriate Washington State-approved backflow protection located immediately behind and on the property side of the water service box. Irrigation services, including residential irrigation if using chemical injection shall be fitted with an RPBA at the service connection (meter). All water features, including decorative ponds, pools and fountains requiring make-up water shall be protected from backflow into the public water supply by a minimum of an approved air-gap (AG) to be located at the fill point of the pond or water feature. The AG shall be inspected by the District *CCS* prior to filling *and shall be inspected annual by a Washington State Certified Backflow Assembly Tester (BAT), with test results submitted to the District.* In all instances, the water supply used for filling purposes shall be protected by *a minimum of* a double check valve assembly (DCVA) installed behind the meter.

Corporation stops and the single meter shut-off valves shall be Mueller, Ford, or A.Y. McDonald with the type and style noted on the Standard Details or approved equal. Included as a part of the service connection shall be the furnishing and installation of the meter box complete with lid, set flush with the proposed finished grade of the lot in the designated location near the property line, all as shown on the Standard Details. The angle type of shut-off valve and angle type dual check valve shall be set inside the meter box in a proper position for installation of a future meter by the District.

Service lines between the main and the property line shall be placed at a trench depth sufficient to maintain a 3'-0" cover over the top of the service line for its full length, taking into consideration the final finished grade of the proposed street and the final finished grade of any storm ditches.

Upon completion of each service line as indicated herein, the Developer shall flush the service line to remove the debris that may interfere with the future meter installation, and further verify that the service line has full pressure and flow to the meter box.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

METERS GREATER THAN 2 INCH

If extensions require water meters greater than 2 inches, then such entire meter installation, including valves, piping, vaults or meter boxes, drain lines and meters shall be furnished and installed by the Developer conforming to District standards. Activation of meter is subject to conformance with District requirements and payment of connection fees.

PRESSURE REDUCING VALVES

If extensions require main line pressure reducing valves as determined by the District, then such entire installation, including strainers, valves, piping, vaults, and drain lines shall be installed by the Developer conforming to District Standards.

The pressure reducing installation shall be a prefabricated and plumbed vault and shall include two Cla-Val globe type pressure reducing valves, sized for the area to be served downstream of the installation.

5. WATER PIPE TESTING & DISINFECTING:

All pipelines shall be tested and disinfected prior to acceptance of work. A water hydrant meter shall be required and procured from the District for all water utilized for flushing pipelines. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished, installed and operated by the Developer. The Developer shall provide an oil-filled pressure gauge with a range of 0 to 300 psi.

In all instances, the Developer shall utilize a Washington State approved double check valve type backflow prevention device to protect the potable water supply while filling, flushing, and disinfecting the particular water main. The double check valve assembly shall have been tested within the last 90 days by a Washington State certified B.A.T. The Developer shall provide a test certificate to the District.

The pipeline shall be backfilled sufficiently to prevent movement of the pipe under pressure. All thrust blocks shall be in place and time allowed for the concrete to cure before testing. Where permanent blocking is not required, the Developer shall furnish and install temporary blocking.

As soon as pipe is secured against movement under pressure, it may be filled with water. Satisfactory performance of air valves shall be checked while the line is filling. A temporary air vent will be required if the fill point is higher than the line being filled.

The Developer shall preflush all water mains after water has remained in the main

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

for 24 hours and before pressure testing the main.

After the pipe is filled with water and all air expelled, it shall be charged by a pump to a hydrostatic test pressure of 250 psi, measured at the high point on the pipeline and this pressure shall be maintained for a period of not less than 30 minutes to ensure the integrity of the thrust and anchor blocks. All tests shall be made with the hydrant auxiliary gate valves open and pressure against the hydrant valve. Hydrostatic tests shall be performed on every complete section of water main between two valves, and each valve shall withstand the same test pressure as the pipe with no pressure active in the section of pipe beyond the closed valve.

Feed for the pump shall be from a clean container wherein the actual amount of "makeup" water, so that it can be measured periodically during the test period.

A separate 250 psi pressure test will be required after all water services are cut to grade with angle stops or setters installed in the meter boxes.

In addition to the hydrostatic pressure test, a leakage test shall be conducted on the pipeline. The leakage test shall be conducted at 200 psi for a period of not less than 1 hour. The allowable leakage rate per thousand feet of each size pipeline is as follows:

Pipe Size	Allowable Leakage
	Gal. per Hour per 1,000 Ft. @ 200 psi
6"	0.32
8"	0.42
10"	0.53
12"	0.63
16"	0.85

Defective materials or workmanship discovered as a result of the tests, shall be replaced by the Developer at the his expense. Whenever it is necessary to replace defective material or correct the workmanship, the tests shall be re-run at the Developer's expense until a satisfactory test is obtained.

Before pipelines are placed in service, the water mains and appurtenances shall be disinfected in accordance with AWWA C651 and in conformance with the requirements of the State of Washington Department of Health Services.

In the process of chlorinating newly laid water pipe, all valves, fire hydrants and other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.

Chlorine shall be applied in one of the following manners, listed in order of preference, to secure a concentration in the pipe of at least 50 ppm is maintained for a period of 24 hours.

II. WATER SYSTEMS - GENERAL STANDARDS - Continued

- 1) Injection of chlorine-water mixture from chlorinating apparatus through corporation cock at beginning of section after pipe has been filled, and with water exhausting at end of section at a rate controlled to produce the desired chlorine concentration;
- 2) Injection similarly of a hypochlorite solution;
- 3) The use of dry chlorinated lime for achieving disinfection is not allowed.

The Developer shall be responsible for flushing all water mains prior to water samples being acquired under direction and supervision of the District. The water mains shall be flushed at a rate to provide a minimum 2.5 feet per second velocity in the main. Water mains shall be flushed until system achieves ≤ 1 ppm chlorine residual level.

In all disinfection processes, the Developer shall take particular care in flushing and discharging the chlorinated water from the mains to ensure that the flushed and chlorinated water does no physical or environmental damage to property, streams, storm sewers or any waterways. Flushing water must be disposed of in accordance with Washington State Department of Ecology Standards. Flushing water shall require dechlorination to prevent damage to the affected environment, particularly aquatic and fish life of receiving streams. Discharge of chlorinated flush water to the sanitary sewer system is prohibited, except with District approval.

After the pipeline has been flushed and the system residual chlorine concentration has been obtained throughout the section of line, the water in the line shall again be left standing for a period of 24 hours. Following this, a water sample will be collected and tested. The line shall not be placed in service until a satisfactory bacteriological report has been received.

If disinfection of mains by the above methods proves unsatisfactory and the lab report indicates any type of bacteria count, then the Developer shall re-chlorinate using other methods in accordance with AWWA C651, approved by the District.

Only District representatives will be allowed to operate existing and new tie-in valves. The Developer's personnel are expressly forbidden to operate any valve on any section of line, which has been accepted by the District.

SECTION III
SANITARY SEWER SYSTEMS

SANITARY SEWER SYSTEMS

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III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS

1. OBJECTIVE:

Section III is intended to present information and provide an outline of the minimum general standards required by Silver Lake Water & Sewer District for Developer constructed sanitary sewerline facilities and improvements which are to be acquired and operated by the District.

2. GENERAL:

Detailed plans shall be submitted for the District's review, which provide the location, size, type and direction of flow of the proposed sewers and the connection with existing sewers. These plans shall be separate from Water Plans and shall conform to District Drafting Standards.

All sewer system design submittals with drainage basins serving to Alderwood Water and Wastewater District for conveyance to King County facilities requires King County design review and acceptance prior to acceptance by Silver Lake Water & Sewer District.

Project plans should have a horizontal scale of 1-inch = 50 feet and a vertical scale of 1-inch = 5 feet. Plan and profile views for any give section of gravity sewer or force main shall be drawn on the same sheet. Plans and profiles shall show:

- Locations of streets, right-of-ways, existing utilities, and sewers.
- Ground surface, pipe type, class and size, manhole stationing, invert and surface elevation at each manhole, and grade of sewer between adjacent manholes. Elevations shall be based on the NAVD 88 datum, with a conversion factor to the NGVD 29 datum noted on the plans, as further described in the General Drafting Standards. All manholes shall be numbered on the plans and correspondingly numbered on the profile. Where there is any question of the sewer being sufficiently deep to serve any residence, the elevation and location of the basement floor, if basements are served, shall be plotted on the profile of the sewer that is to serve the house in question. The Developer shall state that all sewers are sufficiently deep to serve adjacent basements, except where otherwise noted on the plans.
- All known existing structures, both above and below ground, which might interfere with the proposed construction, particularly water mains, gas mains, storm drains, overhead and underground power lines, telephones lines, and television cables.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

- All utility easements.
- District Approval Block
- Details in scale drawings, which clearly show special sewer joints and cross-sections, and sewer appurtenances such as manholes and related items.

Construction of new sewer systems or extensions of existing systems will be allowed only if the existing receiving system is capable of supporting the added hydraulic load.

Collection and interceptor sewers shall be designed for the ultimate development of the tributary areas.

Sewer systems shall be designed and constructed to achieve total containment of sanitary wastes and maximum exclusion of infiltration and inflow.

Computations and other data used for design of the sewer system shall be submitted to the District for approval.

The sewage facilities shall be constructed in conformance with the current WSDOT Standard Specifications for Road, Bridge, & Municipal Construction, and current amendments thereto, revised as to form to make reference to Local Governments, and as modified by the District's requirements and standards.

Material and installation specifications shall contain appropriate requirements that have been established by the industry in its technical publications, such as ASTM, AWWA, WEF, and APWA standards. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfilling so as not to damage the pipe or its joints, impede cleaning operations and future tapping, nor create excessive side fill pressure or deformation of the pipe, nor seriously impair flow capacity.

All sewers shall be designed to prevent damage from superimposed loads. Proper allowance for loads on the sewer because of the width and depth of trench should be made. When standard-strength sewer pipe is not sufficient, extra-strength pipe shall be used.

After all other work is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections for a new roadway consistent with the original section.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

3. GENERAL REQUIREMENTS:

1. Prior to construction, the sewer plans shall be reviewed and approved by the Department of Ecology with an affidavit stating such on file at the District's office, unless the review and approval is waived by Ecology.
2. Work shall be performed only by contractors experienced in laying public sewer mains.
3. Prior to any work being performed, the Developer shall contact the District's Engineer to set forth his proposed schedule.
4. All materials shall be new and undamaged.
5. Developer shall obtain approval of materials to be used from the District prior to ordering of materials.
6. Sewer mains shall be laid only in dedicated streets or in easements that have been granted to the District. A street is normally not considered until the plat, which created it, has been filed with the County Auditor.
7. All service connections to the District sewer system shall be a gravity connection. If service lines to structures or lots to be served are over 200 feet (not including panhandle), the Developer shall install an 8-inch sewer main within 100 feet of the farthest lot with a manhole at the end in an easement granted to the District. Parallel side sewers shall be separated by a minimum of 5 feet horizontally from each sewer service and 10 feet from parallel water services.
8. The sewer mains shall run parallel to and 5 feet southerly or westerly of street centerline where possible. The sewer main shall maintain a minimum 10 foot horizontal separation from proposed or existing water mains.
9. The minimum slope for 8-inch gravity mains shall be 0.5 percent (except the minimum slope for dead end runs shall be 1.0 percent for 8-inch gravity mains). The minimum slope for 6-inch side sewer laterals shall be 2.0 percent and the maximum shall be 100 percent (45°).
10. The maximum distance between manholes shall be 400 feet unless approved by the District.
11. Manholes shall be a minimum of 8 feet deep unless approved by the District.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

12. Manholes greater than 20 feet deep shall be a minimum of 54 inches inside diameter.
13. Manholes greater than 25 feet deep should not be submitted for review without prior approval of deep design concept by the District. Deep designs will not be approved if alternative service can be provided with shallower gravity service, even if the property developing will have to delay development.
14. Manholes shall be provided with a 0.10 foot drop across the channel.
15. Terminating manholes, where sewer extension may occur, shall be channeled accordingly.
16. Locking lids shall be provided for all manholes and all manhole lids shall have the word "sewer" cast integrally onto its surface.
17. All manholes shall be accessible to maintenance vehicles.
18. Manholes in easements shall be provided with a green fiberglass locator marker post with the footage to the manhole stenciled on with 2 inch letters.
19. All side sewer laterals shall be of the same material as the main line unless approved by the District.
20. Front lot corners and a property line stake shall be staked prior to construction for side sewer tee location.
21. Side sewers are normally extended to the lowest property corner and located a minimum of 10 feet from the side lot line and are extended past dry utilities unless prior approval from District for alternate location.
22. Side sewer connections allowed directly into manholes shall be constructed to match the sewer main crown and the manhole channeled accordingly.
23. All commercial, industrial or school food establishments shall be equipped with an approved grease interceptor located outside the building, as required by the District, prior to discharging to the sewer main. Sizing to be confirmed by a Professional Engineer licensed in the State of Washington.
24. Provide the District a copy of the cut sheets prior to construction.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

- 25. Pipe trenches shall not be backfilled until pipe and bedding installation has been inspected by the District.
- 26. Final air testing shall not be accepted until all underground utilities have been installed, compaction is completed, and the lines have been flushed, cleaned, deflection tested and television inspected.
- 27. Road restoration shall be per Snohomish County, City and/or State design and construction standards. The Developer shall become familiar with all County, City and State conditions of required permits, and shall adhere to all conditions and requirements.
- 28. Manhole rim, sewer location, and invert elevations shall be field verified after construction by the Developer's engineer(s) and the "as constructed" drawings individually stamped by a Professional Engineer licensed in the State of Washington which shall attest to the fact that the information is correct.

4. **MATERIALS:**

SEWER MAINS AND LATERALS

(See sewage lift station Section IV for force mains.)

Sewer mains to be installed shall be of material noted below:

<u>Purpose</u>	<u>Material</u>	<u>Cover</u>	<u>Max. Slope</u>
Gravity Sewer & Laterals	PVC	5'-18'	18%
	Ductile Iron	3' - 5'	--
	Ductile Iron	≥ 18'	--
	PVC AWWA C900		
	Class 200	≥18'	18%
Force Mains	Ductile Iron	≥4'	--

PVC pipe shall be a minimum Class S.D.R. 35 and be manufactured in accordance with ASTM D3034. The pipe and fittings shall be furnished with bells and spigots, which are integral with the pipe wall. Pipe and fittings shall be of the same material. Pipe joints shall use flexible elastomeric gaskets conforming to ASTM D3212. Nominal laying lengths shall be 20 feet and 13 feet. PVC C900 pipe shall conform to AWWA C900 and will be allowed in deep trench construction at the discretion of the District.

The ductile iron pipe shall conform to AWWA C151 and shall be Class 52. Pipe and fittings shall be of the same material. Grade of iron shall be a minimum of 60-42-10. The pipe shall be polyethylene or epoxy lined to a nominal thickness of 40 mils. Minimum lining thickness shall be 30 mils. Products meeting the

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

standard are US Pipe "Polylined," "Protecto 401," and American Pipe "Polyband," or equal. The exterior shall be coated with an asphaltic coating.

Each length shall be plainly marked with the manufacturer's identification, year cast, thickness, class of pipe and weight. The pipe shall be furnished with mechanical joint or push-on type joint, except where plans call for flanged ends. Joints shall conform to AWWA C111.

Restrained joint pipe shall be push-on joint pipe with FIELD LOK® or TR FLEX® gaskets as furnished by U.S. Pipe.

All pipe shall be jointed by the manufacturer's standard coupling, be all of one manufacturer, be carefully installed in complete compliance with the manufacturer's recommendations.

All fittings shall be short-bodied, ductile iron complying with AWWA C110 or C153 for 350 psi pressure rated mechanical joint fittings and 250 psi pressure rated flanged fittings. All fittings shall be polyethylene or epoxy lined per the ductile iron pipe specifications and either mechanical joint or flanged, as indicated on the Plans.

Fittings in areas requiring restrained joints shall be mechanical joint fittings with a mechanical joint restraint device. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., MEGALUG, Star Pipe Products, or approved equal.

All couplings shall be ductile iron mechanical joint sleeves.

The sewer pipe, unless otherwise approved by the District shall be laid upgrade from point of connection on the existing sewer or from a designated starting point. The sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with an approved temporary plug. Wherever movable shoring (steel box) is used in the ditch, pipe shall be restrained by use of a winch mounted in the downstream manhole and a line of sufficient strength threaded through the pipe and set tight before each move. Any indication that joints are not being held shall be sufficient reason for the District to require restraints, whether or not movable shoring is being used.

All gravity pipe shall be laid in straight lines and at uniform rate of grade between manholes. Variance from established line and grade shall not be greater than 1/2-inch, provided that such variation does not result in a level or reverse sloping invert; provided, also, that variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surface and pipe interior surfaces, does not exceed 1/64 of an inch per inch of pipe diameter, or 1/2-inch

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

maximum. Any corrections required in line and grade shall be reviewed with the District and shall be made at the expense of the Developer.

All extensions, additions and revisions to the sewer system, unless otherwise indicated, shall be made with sewer pipe jointed by means of a flexible gasket, which shall be fabricated and installed in accordance with the manufacturer's specifications.

All joints shall be made up in strict compliance with the manufacturer's recommendations and all sewer pipe manufacture and handling shall meet or exceed the ASTM recommended specifications.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position, or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed, cleaned, relubricated if required, and replaced before the rejoining is attempted.

Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Since most flexible gasketed joints tend to creep apart when the end pipe is deflected and straightened, such movement shall be held to a minimum once the joint is home.

Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer. Sufficient restraint shall be applied to the line to assure that joints once home are held so, until fill material under and alongside the pipe has been sufficiently compacted. At the end of the work day, the last pipe laid shall be blocked in an effective way to prevent creep during "down time."

For the joining of dissimilar pipes suitable adapter couplings shall be used which have been approved by the District.

All gravity sewer pipe shall be bedded with pea gravel. The PVC pipe shall be bedded from a depth of 4-inches below the pipe to 12-inches above the pipe and ductile iron gravity sewer pipe shall be bedded from a depth of 4-inches below the pipe to the springline of the pipe. The bedding material shall extend across the full width of the trench and shall be compacted under the haunches of the pipe.

Special concrete bedding shall consist of a pipe cradle constructed of Portland cement concrete containing not less than four sacks of cement per cubic yard. Sand, gravel and water proportions are subject to approval by the District. Maximum aggregate size shall be 1-1/2-inches. Maximum slump shall be 4-inches. The bottom of the trench shall be fully compacted before the placement

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

of pipe cradle. The Developer shall protect pipe against flotation and disturbing the horizontal alignment of the pipe during the pouring of the concrete.

Clay or Bentonite dams shall be installed across the trench and to the full depth of the granular material in all areas of steep slopes, stream crossings and wetland to prevent migration of water along the pipeline.

All backfill in roadway sections shall be placed and compacted in accordance with Snohomish County, City and/or State requirements and copies of the compaction results shall be provided to the District. All backfill in easements shall be placed and compacted to a minimum of 90 percent of the Modified Proctor dry maximum density per ASTM D1557. Copies of compaction results for all sewer system trenches shall be provided to the District. Recycled concrete is not allowed for use in District trench sections, no exceptions.

MANHOLES:

Manholes shall be of the offset type and shall be precast concrete sections with either a cast in place base, or a precast base made from a 3,000 psi structural concrete. Joints between precast wall sections shall be confined O-ring or as otherwise specified.

The minimum diameter for manholes shall be 48 inches to a depth of 20 feet, and 54-inches for depths of 20 feet and greater. The District may require the diameter to be increased beyond the minimum based on future needs.

For connections to existing systems, a concrete coring machine, suitable for this type of work, shall be utilized in making the connection. The existing manhole shall be rechanneled as required. The new pipe connection shall be plugged (water tight) until the new pipe system has been installed and approved. The Developer shall be responsible for any existing defects in the existing manhole unless these defects are witnessed by a representative of the District prior to any work being performed to make the connection. The Contractor shall be required to remove any and all deleterious material in the existing manhole and downstream reaches as a result of this work.

Manholes located in easements or outside of paved areas shall have concrete collars with a minimum size of 48 inches diameter by 12 inches thick and marked with a green carsonite marker.

Manhole Sections

Manhole sections shall be placed and aligned so as to provide vertical sides and vertical alignment of the ladder steps. The completed manhole shall be rigid, true to dimension, and be water tight. Rough, uneven surfaces will not be permitted.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

Manhole Steps and Ladders

Manhole steps shall be polypropylene, Lane International Corp. No. P13938 or equal.

Ladders shall be polypropylene Lane International Corp. or equal, and shall be compatible with steps.

Grade Adjustment

The manhole shall be set to provide not less than 14-inches or more than 26-inches of adjustment between the top of the cone or slab and the top of the manhole frame.

Masonry units (manhole adjusting rings) shall conform to the ASTM C2, Grade MA. The outside and inside of manhole adjusting rings and the joints of precast concrete sections shall be plastered and troweled smooth with 1/2 inch (minimum) of mortar in order to attain a watertight surface. No wood shall be used for adjustment.

Channels

Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well rounded junctions, satisfactory to the District. The channels shall be field poured with concrete, no other fillers are permitted, after the inlet and outlet pipes have been laid and firmly grouted into place at the proper elevation. Allowances shall be made for a 0.1 foot drop in elevation across the manhole in the direction of flow. Channel sides shall be carried up vertically from the invert to three-quarters of the diameter of the various pipes. The concrete shelf shall be warped evenly and sloped 3/8 inch per foot to drain. Rough, uneven surfaces will not be permitted. Channels shall be constructed to allow the installation and use of a mechanical plug or flow meter of the appropriate size.

Drop Manholes

Drop manholes on new construction require District approval and shall be constructed with outside drop(s). Approval will be limited to future extensions from deep sewers. Where extension from deep sewers is concurrent with deep sewer construction, drop manholes will not be allowed. Drop manholes shall, in all respects, be constructed as a standard manhole with the exception of the drop connection. Connection to existing District sewers may be allowed to use inside drop with prior District approval.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

Lift Holes and Steel Loops

All lift holes shall be completely filled with expanding mortar, smoothed both inside and outside, to insure water tightness. All steel loops shall be removed, flush with the manhole wall. The stubs shall be covered with mortar and smoothed. Rough, uneven surfaces will not be permitted.

Frames and Covers

Frames shall be cast iron and covers shall be ductile iron. Castings shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects, which would impair serviceability. Repair of defects by welding, or by the use of "smooth-on" or similar material, will not be permitted. Frames and covers shall be machine finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers. Frames and covers shall be provided with three bolt locking lids. Rings and covers shall be positioned so one of the three locking bolts is located over the manhole steps and shall be adjusted to conform to the final finished surface grade of the street or easement to the satisfaction of the District. Manhole frames and covers shall be as manufactured by East Jordan Iron Works Model 370063, Olympic Foundry Model MH30AD/T, or equal.

Manhole Marker Posts

A fiberglass manhole marker post shall be located adjacent to all manholes located in easement areas. The marker post shall be green in color, 3.75 inches wide (flat), 60 inches long and furnished with a 3-inch by 3-inch high intensity white reflector (250 Candle Power) and a flexible anchor barb. Each post shall include the following decal: "Caution Sewer Manhole. Before digging, Call 1-800-424-5555, Utility Underground Location Center." Manhole markers shall be Carsonite Utility Marker CUM 375.

The marker posts shall be set so as to leave 36 inches of the post exposed above grade.

Distance from the marker to the manhole shall be stenciled on the marker with 2-inch letters.

5. SIDE SEWER LATERAL:

A side sewer lateral is considered to be that portion of a sewer line that will be constructed between a main sewer line and a property line or easement limit line.

All applicable specifications given herein for sewer construction shall be held to apply to side sewer laterals.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

Side sewers shall be for a single connection only and be a minimum 6-inch diameter pipe. Side sewers shall be connected to the tee, provided in the sewer main where such is available, utilizing approved fittings or adapters. The side sewer shall rise at a maximum of 45 degrees and a minimum of 2 percent, from the sewer main.

Where there are no basements, the minimum side sewer depth shall be 6 feet below existing curb line and 5 feet below ground at the property line, except where existing improvements, proposed improvements or topography may dictate additional depth. The elevations of the side sewer connections shall be of sufficient depth to serve all existing and potential future basements.

Each 6 inch side sewer service shall be provided with a 12 foot long 2 x 4 wooden post, which extends from the invert of the end of the 6 inch pipe to above the existing ground. The exposed area of this post shall be painted white and shall have stenciled thereon in 2 inch letters (black paint) "SEWER" and shall also indicate the total length of the 2 x 4. A 12 gauge (minimum) wire shall be wrapped around and stapled the full length of the 2 x 4.

Where no tee or wye is provided or available, connection shall be made by machine-made tap and saddle. Inserta Tee, Fowler Manufacturing Company or approved equal may be utilized on concrete pipe only. Romac Style "CB" Sewer Saddle shall be utilized on PVC pipe.

The maximum bend permissible at any one fitting shall not exceed 45 degrees. The maximum bend of any combination of two adjacent fittings shall not exceed 45 degrees (one-eighth bend) unless straight pipe of not less than 3 feet in length is installed between such adjacent fittings, or unless one of the fittings is a wye branch with a cleanout provided on the straight leg.

Standing side sewers shall be constructed only with pre-approval of the District. Standing side sewers may be required, or allowed, at the sole discretion of the District. When allowed, standing side sewer tees will be constructed of the same material as the main line sewer.

6. TESTING GRAVITY SEWERS FOR ACCEPTANCE:

The Developer shall furnish all facilities and personnel for conducting tests. Methods other than Low Pressure Air Test shall be subject to the approval of the District. Pressure gauge to be oil filled to 0 to 30 psi read range.

Preparation for Testing for Leakage

The Developer shall be required, prior to testing, to clean and flush all gravity sewer lines. The completed gravity sewer, including side sewer stubs, after completion of backfill and cleaning shall be televised. This will be permitted

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

prior to paving. The sewer shall then be tested by the low pressure air test method and/or an infiltration test. Except, however, that in certain conditions an exfiltration test may be required by the District.

The first section of pipe not less than 300 feet in length installed by each crew shall be tested, in order to qualify the crew and/or the material. A successful installation of this first section shall be a prerequisite to further pipe installation by the crew. At the Developer's option, crew and/or material qualification testing may be performed at any time during the construction process after at least 2-feet of backfill has been placed over the pipe.

Low Pressure Air Test

The sewer pipe shall be tested for leaks through the use of air (unless exfiltration test is approved) in the following manner:

Following the pipe cleaning, utility installation, and paving, the pipe installation shall be tested with low pressure air. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches 4.0 pounds per square inch greater than the average back pressure of any ground water that may submerge the pipe. 0.4 pounds per square inch to be added per 1 foot of water table over the pipe to a max. of 6 psi. At least two minutes shall be allowed for temperature stabilization before proceeding further.

The rate of air loss shall then be determined by measuring the time interval required for the internal pressure to decrease from 3.5 to 2.5 pounds per square inch while maintaining the stipulated pressure greater than the pipe section's average adjacent groundwater back pressure.

The pipeline shall be considered acceptable if the total rate of air loss from any section tested in its entirety between manholes, cleanouts or pipe ends does not exceed the following table:

		Length of 6" Pipe (ft)								
		0	50	100	150	200	250	300	350	400
Length of 8" Pipe	100	5:00	5:00	5:00	5:00	5:00	5:38	6:14	6:12	6:08
	150	5:00	5:00	5:00	5:30	6:10	6:30	6:26	6:22	6:18
	200	5:00	5:22	6:00	6:40	6:44	6:38	6:34	6:30	6:26
	250	5:52	6:32	6:48	6:58	6:50	6:44	6:40	6:36	6:32
	300	7:02	7:20	7:10	7:02	6:56	6:50	6:44	6:40	6:36
	350	7:34	7:22	7:14	7:06	7:00	6:54	6:50	6:44	6:42
	400	7:34	7:24	7:16	7:08	7:02	6:58	6:52	6:48	6:44

Test time in minutes and seconds. Minimum test periods is 5 minute duration

Test times will be provided by the Engineer for combinations other than 8-inch mains and 6-inch laterals.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

If the pipe installation fails to meet these requirements, the Developer shall determine at his own expense the source or sources of leakage, and shall repair (if the extent and type of repairs proposed by the Developer appear reasonable to the District) or replace all defective materials or workmanship. The completed pipe installation shall meet the requirements of this low pressure air test or the alternative water exfiltration test before being considered for acceptance.

Plugs used to close the sewer pipe for the air test shall be securely braced to prevent the unintentional release of a plug. Gauges, air piping manifolds and valves shall be located at the top of the ground. No one shall be permitted to enter a manhole where a plugged pipe is under pressure. Air testing apparatus shall be equipped with a pressure release device such as a rupture disk or a pressure relief valve designed to relieve pressure on the pipe under test at 6 psi.

Deflection Test

Deflection tests shall be performed on all ASTM D3034 PVC gravity sewer mains by pulling a mandrel through the pipe. The allowable deflection test limit shall be 5.0 percent of the base inside diameter in accordance with APWA test procedures and the nominal mandrel size shown in the following table.

Nominal Pipe Size (in.)	Base Inside Diameter (in.)	Mandrel Size, Diameter (in.)
6	5.74	5.45
8	7.67	7.28
10	9.56	9.08
12	11.36	10.79

Deflection testing is not required for AWWA C900 PVC or ductile iron pipe. Deflection testing is also not required for pipe diameters 15 inch and greater.

The sewer lines shall be thoroughly cleaned prior to the deflection test.

7. TELEVISED INSPECTION:

After the gravity sewer lines have been cleaned, flushed and manhole channeled, the Developer shall provide a complete televised inspection.

The Developer shall perform a complete televised inspection of the sewer pipe and appurtenances and shall provide to the District, a narrated DVD color audio-visual recording of the inspections together with a written log of the television inspection. The camera shall be a pan and tilt type equipped with adequate light and focusing to allow inspection of sewer main, side sewers and full

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

circumference inspection of main line joints and fittings. The District shall determine if the quality of the televising is acceptable.

Immediately prior to the televised inspection, the Developer shall run water through each sewer line for 5- to 10-minutes to provide water for detection of any adverse grade sections visible by the presence of ponded water. The camera shall be stopped periodically at the ponded areas and the depth of water shall be measured with a ball of known diameter on the pull line. During the inspection, all tees and other fittings shall be logged as to exact location within 1 percent maximum error in measurement, wherein accuracy is checked with various fittings and the terminating manhole.

The District shall be notified 48 hours prior to any television inspection and this work shall be performed on a schedule to allow the District to witness the inspection.

Any defects in material or installation identified by the television inspection shall be repaired as required by the District at the Developer's expense.

Sewer Video Requirements

1. Start videoing from the downstream manhole to upstream manhole.
2. The center of the downstream manhole will start at zero and the uphill manhole footage will be finished at the center of the upstream manhole. Verbalize the side sewer with a station such as 1+64 along with writing on the screen to make it permanent on the video log.
3. Control the lighting power to best visualize the system including side sewers.
4. Stop and video all fittings including the side sewer connections. Visualize any joints that appear to not be normal such as wide gaps require video around the connection point to see if any gasket is showing. Verbalize and document on the video the fittings or any abnormalities.
5. Document ponding verbally as well as typing onto the screen which will then be on the video log. Document the start of the pond to the end of the pond along with depth of the pond.
6. Video train to include 1-inch visible ball with graduated 1/8-inch indicator rings.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

7. Make sure the selected camera is appropriate to the pipe material and diameter to create the best video record. The camera needs to be stabilized. The lack of traction from the camera creating a jumping video is not acceptable.
8. When videoing the inside of a manhole focus on the joints along with the risers for the ring and cover. Turn the camera lights up when looking inside the manhole.
9. When looking up side sewers use the zoom and focus on any apparent defects.
10. The video along with the manhole logs assist with verification of side sewers for our as-builts.
11. Camera tractor speed needs to be kept at a consistent pace and not too fast.
12. When documenting on the video and video log, use stations for the tees from the downstream manhole.
13. When documenting a tee for a side sewer use “tee left” or “tee right” along with the stationing from the downstream manhole.
14. Verbalize on the recording anything documented on the log.

8. ADJUSTMENT OF NEW AND EXISTING UTILITY STRUCTURES TO GRADE:

This work consists of constructing and/or adjusting all new and existing utility structures encountered on the project to finished grade.

Asphalt Concrete Paving

On asphalt concrete paving projects, the manholes shall not be adjusted until the final pavement is completed, at which time the center of each manhole lid shall be relocated from references previously established by the Developer. The pavement shall be cut as further described and base material removed to permit removal of the cover. The manhole shall then be brought to proper grade.

Prior to commencing adjustment, a plywood and visqueen cover as approved by the District shall be placed over the manhole base and channel to protect them from debris.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall not exceed 48 inches or 14 inches from the outside diameter of the ductile iron frame, whichever is smaller. The ductile iron frame shall be brought up to desired grade, which shall conform to surrounding road surface.

Adjustment to desired grade shall be made with the use of concrete adjustment rings or bricks. No cast or ductile iron adjustment rings will be allowed. An approved class of mortar (one part cement to two parts of plaster sand) shall be placed between adjustment rings or bricks and ductile iron frame to completely fill all voids and to provide a watertight seal. No rough or uneven surfaces will be permitted inside or out. Adjustment rings or brick shall be placed and aligned so as to provide vertical sides and vertical alignment of manhole steps and ladder. Adjustments in excess of 26 inches of depth of the 24 inch manhole neck shall require manhole section rings to raise the eccentric cone to within the adjustment ring tolerances.

Check manhole specifications for minimum and maximum manhole adjustment and step requirements. Special care shall be exercised in all operations in order not to damage the manhole, frames and lids or other existing facilities.

The annular spaces of the manhole frames shall be filled with 5/8-inch minus crushed gravel and compacted with hand tamper to within 2-inches of the top of the frame. Asphalt concrete patching shall not be carried out during wet ground conditions or when air temperature is below 50 degrees F. Asphalt concrete mix shall be at required temperature when placed. Before making the asphalt concrete repair, the edges of the existing asphalt concrete pavement and the outer edge of the casting shall be tack coated with hot asphalt cement. The remaining 2 inches shall then be filled with HMA and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density and uniformity of grade. The joint between the patch and the existing pavement shall then be carefully painted with hot asphalt cement or asphalt emulsion and shall be immediately covered with dry paving sand before asphalt cement solidifies. All debris such as asphalt pavement, cement bags, etc., shall be removed and disposed of by Developer.

Prior to acceptance of a project, manholes shall be cleaned of all debris and foreign material. All manhole steps and ladders shall be cleaned free of grout. Any damage occurring to the existing facilities due to the Developer's operations shall be repaired at his own expense.

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

Adjustment of Manholes in Easements

Manholes in easement areas shall be adjusted to ensure drainage away from the manhole frame and cover. Pour a 4'-0" diameter by 12-inch-thick broom finished concrete collar around the manhole frame and cover, and marked with a green carsonite marker.

Adjustment of Monuments

Monuments and monument castings shall be adjusted to grade in the same manner as for manholes.

Adjustment of Valve Box Castings

Adjustment of valve box castings shall be made in the same manner as for manholes.

9. FINAL ACCEPTANCE:

Prior to final inspection, all pipelines shall be flushed and cleaned and all debris removed.

At the District's discretion, gravity sewer lines shall be inspected for line and grade by checking each section between manholes for alignment. A full circle of light shall be seen by looking through the pipe at a light held in the manhole at the opposite end of the section of sewer line being inspected. Any corrections required in line and grade shall be made at the expense of the Developer. Visual confirmation will require confined space entry compliance and will normally be considered where settlement is suspected.

10. PRIVATE SIDE SEWERS:

Private side sewers are the extension of side sewer laterals located outside of the public rights-of-way or easements granted to the Silver Lake Water & Sewer District.

1. All sewer service connections to District facilities shall be gravity service.
2. The sewer pipe in the street right-of-way and District easements shall be 6-inch diameter, and shall have a 2% minimum grade. Construction in street rights-of-way shall be performed by a licensed side sewer contractor and requires a right-of-way use permit.
3. Private side sewer pipe for residential property shall be 4-inches or larger. Side sewer pipe for duplexes, multi-family, industrial, commercial, etc., shall be 6-inches or larger. Pipe material shall be ductile iron or PVC

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

ASTM D3034, and shall be installed at 2 percent minimum grade (1/4 inch fall per foot). Construction on private property may be performed by owner, but requires a permit.

4. Pipe shall be bedded with pea gravel or clean free draining sand.
5. Side sewer shall be inspected by the District prior to backfilling. Side sewer shall be plugged and tested in the presence of the District Inspector by filling with water. Leakage rate shall not exceed 0.31 gal./hr. for 4 inch pipe and 0.47 gal./hr. for 6 inch pipe, per 100 feet of pipe. Existing homes served by septic systems converting to District sewer service are to demonstrate proper abandonment of septic tank to Snohomish County Health Department Standards and WAC 246-272A-0300. The Contractor shall provide a copy of documentation regarding sewage pumping to the District.
6. On private property, minimum cover shall be 18-inches over top of pipe from a point 30-inches out from house and continuing to the connection with the District sewer system.
7. Parallel water and sewer lines shall be 10 feet apart horizontally wherever possible and have a vertical separation of 18-inches if a vertical crossing is necessary.
8. No more than 100 feet is allowed between cleanouts. Cleanouts are required for bends equal to or greater than 90 degrees. Cleanout shall be a plugged tee or plugged wye lateral.
9. All pipe joints shall be rubber gasket type.
10. When required, "grease interceptor" to be outside the building and be of a size and type certified by a professional engineer licensed in the State of Washington and reviewed by the District.
11. Backwater valves are required on all side sewers where potential occurs for flow to back into the private service. These valves shall be installed in a riser pipe, meter box, vault or manhole as necessary to allow access for maintenance.
12. Dwelling units defined by food preparation, bedroom and bathroom areas contained in a structure are primary connections. Secondary connections require preapproval by the District before sewer service can be offered.
 - a. Auxiliary dwelling units constructed on an existing served property within an existing structure may be allowed subject to

III. SANITARY SEWER SYSTEMS - GENERAL STANDARDS - Continued

- payment of connection charges.
 - b. Auxiliary dwelling units constructed on an existing served property in separate structures require separate side sewer connections to District mainline facilities.
 - c. Recreational vehicle dumps are not allowed.
 - d. Small utility sink and toilet facilities in out buildings may be allowed to connect to existing side sewers.
13. Side sewer installs to existing District mainline facilities in right-of-way are subject to special requirements:
- a. Right-of-way permit required. Owner to pay all costs of obtaining the permit and for any costs associated with full compliance with all permit obligations.
 - b. Owner to pay all costs of installation of side sewer.
 - c. The Owner shall enter into a Developer Extension Agreement (DEA) with the District, and will be required to meet the following conditions:
 - i. All District or District incurred inspection fees are to be paid prior to and as a condition of connection.
 - ii. Comply with all District Standards, Conditions, Specifications, and requirements are applicable.
 - iii. Comply with all state, local and federal requirements apply.
 - iv. Preconstruction meeting with owner, owner contractor, and District is to be scheduled with the District prior to initiation of construction.
 - v. No connection to District facilities can be made without District or District Representative on site.

SECTION IV
SEWAGE LIFT STATIONS

SEWAGE LIFT STATIONS

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IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS

1. OBJECTIVE:

Section IV is intended to present information and provide an outline of the minimum general standards to be accomplished in planning a sewage lift station installation within the Silver Lake Water & Sewer District service area.

The Developer shall submit to the District for review and approval, complete sewage lift station plans and design which provide for the lift station, electrical service, SCADA controls, and auxiliary generator/transfer switch together with all accessories for a complete, automatically operating installation.

Design material and drawings shall provide all civil, mechanical and electrical details and align with all applicable codes and regulations, and good engineering practice.

2. DESIGN CALCULATIONS:

The Developer shall perform a study and make the determination to assure that the lift station installation is sized to serve the overall sewage flows generated within the potential service area. The flow study shall include the Developer's plat boundary area as well as adjacent and future service areas. The service areas shall be the areas within that which could be served by the installation of the lift station(s).

The station's design flow capacity shall be based on an average daily per capita flow with related peaking factors and inflow/infiltration allowances.

Documentation of present and future service area flow rates for lift station size and capacity determination shall be provided to the District.

The effects of the minimum flow conditions shall be estimated to be sure that retention of the sewage in the wet well will not create a nuisance and that pumping equipment will not operate too infrequently. The wet well shall be sized to limit pump cycles to a maximum of four cycles per hour per pump, with two pumps alternating at pump design capacity.

Lift station capacity shall meet the maximum rate of flow expected. At least two (2) pumping units shall be provided at each lift station installation. The pump shall have sufficient capacity and capability to efficiently handle the peak design flow with one (1) pump out of service and to ensure a minimum velocity of 3 feet per second velocity in the force main.

The force main shall be sized for a minimum velocity of 3 feet per second and a maximum of 8 feet per second. The minimum diameter of the force main shall be 6 inches.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

The capacity of the receiving sewer shall exceed the flow expected.

Three (3) copies of the Design Report shall be submitted to the District for review. As a minimum, the report shall include.

1. Project description
2. Projected flows
3. Connection point with downstream capacity
4. Wet well sizing
5. Run time calculation and cycle time
6. Pump station head calculation
7. Pump selection
8. Force main size, length and material
9. Electrical load study
10. Generator sizing
11. Odor potential calculations
12. Wet well buoyancy calculations
13. Force main surge calculations

The Design Report shall be approved by the District prior to starting the design of the lift station.

3. LOCATION:

The Developer shall furnish a site layout for the lift station installation.

The lift station shall be located as far as practicable from present or proposed built-up residential areas, and an asphalt concrete access road shall be provided. Sites for sewage lift stations shall be of sufficient size for future expansion or addition, if applicable.

The easement for the lift station site shall be submitted to the District for review prior to construction of the lift station. Lift station sites not located within the plat boundary shall be deeded to the Silver Lake Water & Sewer District.

The Developer shall coordinate electrical power required to the site with the electrical utility.

As a minimum, the site shall provide for the following:

1. Lift station
2. Auxiliary power, including automatic transfer switch
3. Electrical
4. Telemetry

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

5. 1-inch water service with reduced pressure backflow preventor and hose bib installed in an above ground hot box enclosure on concrete. Furnish 50 feet of 3/4-inch heavy-duty rubber hose.
6. Odor control, as applicable for location and capacity.
7. Cuts and fills to provide level site for maintenance.
8. Asphalt concrete pavement for access and maintenance areas.
9. Safety system mount. See Detail V-LS7.
10. Single entry to wet well from recessed entry manhole (rock catcher). See Detail V-LS8.
11. 6 foot high black powder coated frame and posts together with black vinyl chain link fence with vertical vinyl slats in-laid for screening and three strands of barbed wire on top of the fence, enclosing the site with 3-foot-wide access main gate and separate vehicle access gate 12-foot wide minimum opening. Fence to be located in the asphalt, 6 inches from the edge. A gate button will be used for the center gate post.

4. LIFT STATION:

GENERAL

The sewage lift station shall be Smith & Loveless, custom series buried, dry-well-type or wet-well mounted as approved by the District. Construction shall be in compliance with OSHA, UL, ASTM, NEC, WAC, and other applicable codes and regulations. The station shall be designed, constructed and anchored to comply with current IBC standards.

The lift station shall have, as a minimum, two sewage pumps. The pumps shall have sufficient capacity and capability to efficiently handle the peak design flow with one pump and to ensure a minimum velocity of 3 feet per second in the force main. Design calculations and pump curves indicating the same shall be provided with the submittal information.

The rotor (motor) assembly shall be dynamically balanced. Add the impeller to the rotor assembly and dynamically rebalance the assembly, all to NEMA specifications for the operating RPM condition and submit documentation to the District. Pump and motor assembly shall meet the vibration tolerances established by the Hydraulic Institute, and shall be certified by the factory prior to shipment. Field vibration testing will be conducted to confirm conformance with vibration standards after installation. Failure to meet vibration standards in the field can be cause for station rejection.

The sewage lift station supplier shall check the station during installation to determine if the installation is correct. Written confirmation of each visit and recommendations shall be provided to the District.

The sewage lift station supplier shall provide a minimum of 4 hours of training for District personnel at the station site during startup.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

The sewage lift station supplier shall provide four (4) complete copies of maintenance and operation material to the District.

CUSTOM SERIES BURIED STATION (WET WELL/DRY WELL)

The station shall be a Smith & Loveless Custom Series station complying with the latest edition of Smith & Loveless standard specifications and with the District Standards.

The station shall be a minimum of 8-feet in diameter and the pump motor assembly and piping shall be District standard dark green in color.

The above-ground entrance hatch shall be 44-inches minimum inside diameter with a steel cover, lockable to District standards. In all areas, lighting and ventilation shall be provided to meet the requirements for a confined space entry.

The station shall be provided with a minimum of four magnesium anodes. The test box for cathodic protection shall be mounted on the electrical rack. See Detail V-LS3.

Each motor starter shall have its own independent phase loss relay wired directly to the starter's "enable" circuit and to the RTU for alarming.

As a minimum, the station shall include the following:

1. Vertical close-coupled, motor driven, non-clog pumps.
2. Resilient seat gate valves.
3. Internal piping.
4. Central control panel with circuit breakers and intrinsically safe circuits.
5. Motor starters.
6. Shelf mounted air compressor (2) 9L25 bubbler system for automatic pumping level controls.
7. Lighting.
8. Sump pump with dedicated simplex, gray, 20A, non-GFCI receptacle in cast aluminum weatherproof box with full in-service cover.
9. Ventilating blower.
10. Blower timer.
11. Dehumidifier.
12. All internal wiring.
13. Protection against corrosion.
14. Station flooding alarm.
15. Operator in trouble emergency button.
16. Extended warranty – 24 months from startup or 30 months from time of shipment which ever is first.
17. Document certifying the lift station is in compliance with the NEC.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

18. Convenience receptacles, white, duplex, 20A, GFCI, in cast aluminum weatherproof boxes with full in-service covers.
19. Spare parts each pump:
 - Replacement pump shaft seal – one each for each pump
 - Filter element for the seal filters – one each for each pump
 - Volute gaskets – two each for each pump
20. Touch up paint kit.
21. Ductile iron piping between wet well and station.
22. Common reinforced concrete base slab for station and wet well.
23. 316 stainless steel sump pump piping from the sump pump to the wet well with check valve and unions. Piping to go up dry well entry and discharge through the connection opening in the entry tube.
24. Air bubbler line to go up dry well entry, above ground level, back down and discharge through connection openings in entry tube. Air bubbler line shall be 316 stainless steel tubing in the station and 3/4-inch diameter 316 stainless steel pipe from the entry tube to a wet well mounted tee with 3/8-inch stainless steel pipe extended down from the wet well mounted tee to 6 inches above the inlet of the suction pipes.
25. The wet well shall be a minimum of 8 feet in diameter. The wet well shall provide for the volume of the pumps to be fully submerged.
26. The wet well shall be of precast concrete construction with flat slab cover and 4 x 6 (two door) hatch for access. The flat slab concrete cover shall be provided with a 4-inch vent, which is “hooked and screened.”

WET WELL MOUNTED STATION

The station shall be Smith & Loveless wet well mounted vacuum primed station complying with the latest edition of Smith & Loveless standard specifications and with the District Standards.

Each motor starter shall have its own independent phase loss relay wired directly to the starter’s “enable” circuit and to the RTU for alarming.

As a minimum, the station shall include the following:

1. Vertical, close-coupled, motor driven, vacuum-primed, non-clog pumps.
2. Resilient seat gate valves.
3. Internal piping.
4. Central control panel with circuit breakers and intrinsically safe circuits.
5. Motor starters.
6. Shelf mounted air compressor (2) bubbler system automatic pump level controls. Shelf to be mounted at the same level or higher as the top of the station side wall.
7. Heater.
8. Ventilating blower.
9. Priming pumps and appurtenances.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

10. All internal wiring.
11. Discharge pipe welded to the base plate and to be flanged below.
12. Bubbler piping above the base plate, plastic tubing, and below the base plate to be 3/8 inch diameter 304 SS pipe extended down to 6 inches above the inlet of the suction pipes.
13. Lid to be 2 piece design with hydraulic hood assist.
14. Paint station with dark green epoxy.
15. Shelf mounted vacuum pumps located at the same level or higher as the top of the station side wall.
16. Extended warranty – 24 months from startup or 30 months from time of shipment whichever is first.
17. Document certifying the lift station is in compliance with the NEC.
18. Convenience receptacles, white, duplex, 20A, GFCI, in cast aluminum weatherproof boxes with full in-service covers.
19. 3/4-inch conduit connection in electric panel for connection to the telemetry sub panel.
20. Spare parts each pump:
 - Replacement pump shaft seal – one for each pump
 - Volute gaskets – two for each pump
21. Touch up paint kit.
22. AWWA C900 PVC suction pipes.
23. Flexible restrained coupling (Romac Adaptor RFCA) to connect station to suction pipes.
24. The wet well shall be a minimum of 8 feet in diameter.

MOTORS

The pump and motor shafts shall be the maximum diameter available for these units.

Pump motors shall be 3-phase, 60-cycle, 480-voltage inverter rated, TEFC. Motors 40 hp and larger shall be furnished with soft start or variable frequency drives (VFDs). VFDs shall comply with the latest ANSI, IEEE, and NEC codes. VFD load circuits from starter to motor shall be shielded power cables in RGS conduits. All VFDs shall be Siemens 18 Pulse.

The motors shall have 1.15 service factor and be non-overloading for the full range of the curve unless otherwise approved by the District.

5. WET WELL:

GENERAL

The wet well shall be precast concrete manhole sections. Joints between precast wall sections shall be confined O-ring or as otherwise approved. The poured in place slab top shall be designed with the wet well to exceed buoyant forces and

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

shall have a cast in place flush mount safety system sleeve per District Standard Detail.

The wet well shall be provided with polypropylene manhole steps as specified for manholes.

The wet well shall be checked to ensure all joints are watertight to prevent infiltration and exfiltration of the wet well.

The wet well floor, walls and underside of the top shall be coated to comply with the following:

Surface Preparation:

Allow a minimum of 28 days cure time for concrete. Sweep blast to provide a surface profile. Surface shall be clean, dry and free of contaminants.

Exterior Surfaces:

The exterior surface of the wet well shall be coated with 30 mils minimum of coal tar epoxy.

Interior Surfaces:

- **Filler and Surfacer:** Tnemec Series 218 Filler and Surfacer. Applied as needed. After the application of the prime coat, the bugholes and surface voids shall be filled to ensure that the finish coat is monolithic and pinhole free.
- **Finish:** Tnemec Series 435 Perma-Glaze Applied in two coats at 15 mils dry film thickness each. Color light gray.
- **Total System:** 30 mils dry film thickness.

Comply with all conditions of the manufacturer's specifications for preparation and application.

CONTROLS:

The control panel shall include:

1. Main disconnect.
2. Panel mounted running light for each pump.
3. Panel mounted ammeter for each pump to read percentage of load.
4. Panel mounted running time meter for each pump.
5. Panel mounted Cutler Hammer HOA switches for each pump.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

6. Mounting bracket for telemetry sub panel in station (size: 13-1/2" L x 10" W x 6-1/2" Deep).
7. Local/Remote contact for the following alarms:
 - a) Low Level
 - b) High Level
 - c) Power/Phase Failure (single & 3-phase)
 - d) Pump Failure
 - e) High Water (dry well)
 - f) Pump On
 - g) Intrusion
8. Panel mounted wet well gauge. Minimum 2.5-inch dial and read for depth of wet well in inches (Model Marsh Bellofram No. G 22 687).
9. Phase monitor to protect the pump motors from single-phase reversal and low voltage.
10. Discharge check valve limit switches (each).
11. Pump alternator, each cycle.
12. High water float pump control.

ELECTRICAL SERVICE/CONTROLS & TELEMETRY SYSTEM:

General

Codes and regulations exist at the federal, state, and local level dictating minimum acceptable requirements for electrical systems. The following standards shall be used as a basis for design and review.

1. National Electric Code (NEC)
2. Occupational Safety & Health Act (OSHA)
3. State & Local Building Codes
4. National Electrical Code (NEC)
5. National Electrical Manufacturers Association (NEMA)
6. Underwriters' Laboratory (UL)
7. Insulated Power Conductor Engineering Association (IPCEA)
8. American National Standards Institute (ANSI)
9. Institute of Electrical & Electronic Engineers (IEEE)

Electrical Service

The local electric utility will be the primary source of electrical power. The Developer shall ascertain proper coordination between the nominal secondary delivery voltage supplied by Snohomish County PUD No. 1 and the connection to the lift station equipment. The electrical service shall be 480/277V 4-wire, 3-phase, 60 hertz, with a solid neutral terminal at the disconnect or as may otherwise be required by Snohomish County PUD No. 1. This shall be confirmed with the Snohomish County PUD No. 1 and confirmed by the suppliers.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

All installation shall be approved by Snohomish County PUD No. 1 and shall be in conformance with the NEC (current issue) UL, OSHA and County and State electrical codes.

The District shall be furnished with a certificate of final inspection by the inspecting agency.

All wire shall be stranded copper.

All conduit shall be rigid galvanized (RGS). All underground RGS conduits, elbows, and fittings shall be coated with 20 mils (minimum) of PVC coating or a half-lapped wrap of Scotchwrap No. 51. See Detail V-LS4.

All underground conduits shall be covered with a strip of yellow polyethylene tape placed 6-inches below finished grade and directly above the conduit.

All conduit shall have a minimum of 2'-0" of cover.

Instrumentation conduits, elbows and fittings shall be RGS over their entire length.

Heating strips shall be provided for outside electrical enclosures.

A service entrance shall be provided with a pedestal on which shall be mounted, as a minimum, the following equipment:

1. Meter and meter can (as required by the PUD)
2. Meter C.T.S. (as required by the PUD)
3. Main disconnect SUSE-rated circuit breaker in a NEMA 3R, enclosure, with padlock to District standards.
4. Service voltage shall be 480/277 volts, 3 phase, 4-wire, except as required by Snohomish County PUD #1.
5. Single phase services shall be 240/120 volt, 3 wire. Panels shall conform with NEMA 3R.
6. A 120-volt duplex in NEMA 3R enclosure with padlock to District standards on the electrical rack.
7. Ground rod and connector wire in conduit to NEC standards.
8. Mount equipment per Detail V-LS3

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

9. Provide a complete electrical plan set including the following minimum documents:
 - a) Electrical plan view showing equipment and interconnecting conduits
 - b) A cable and conduit schedule
 - c) A one-line diagram
 - d) Motor starter control schematics
 - e) Panelboard schedule
 - f) Main control panel schematics
 - g) PLC I/O tables
 - h) Associated electrical details
10. The District shall be provided with a complete reproducible set of as-constructed plans and details showing final location of all equipment, conduit and wire.

Controls

Control and instrument system plans shall thoroughly and completely depict system design. The plans, in conjunction with the specifications, shall define the type of control system, the type of components in the system, set points and the interface between the instrumentation and control system and the lift station system. To accomplish this, the control and instrument plan(s) shall include, as a minimum, the following:

1. Control and instrumentation system legend and general notes
2. Control, instrumentation and distribution diagram
3. Plans showing location of all control, instrument, and distribution system equipment and components, both electrical and pneumatic
4. All equipment and installation details

The power, control and instrumentation systems shall be designed with both operational reliability and maintainability. Use standard products wherever possible.

Electrical equipment and devices shall be connected using separate power, control, and instrumentation conduits. Electrical gutters or fabricated raceways shall not be used.

All components within the lift station system, including both internally and face-mounted instruments and devices, shall be clearly identified with phenolic nameplates of black background with white letters reverse engraved from the backside (smooth front surface).

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

Intrinsically safe electrical circuits shall be installed in the main control panel in compliance with NEC, not in the motor starters.

All wiring between cabinet, equipment and components shall be labeled and color coded where applicable.

All pump motors shall have an independent lockable circuit breaker located within the lift station and the lift station shall have a lockable main circuit breaker located outside the lift station.

Lead and lag pump functionality shall alternate between pumps on each cycle change.

The pump controls shall be air bubbler type with two compressors alternating on timer control, and shall provide for both pumps to operate at high water conditions. The control elevations shall be indicated on the plans, i.e., on-off, first pump on, second pump on, and high water alarm. The air compressors shall not be located in electrical cabinets or enclosures.

The wet well shall be equipped with a high water redundant float to override the bubbler pump control and start the pumps and send high wet well level alarm.

A complete set of spare fuses shall be provided for all fused equipment.

Telemetry

The District's telemetry system utilizes Zetron 1716 RTUs for SCADA functions related to the wastewater collection systems. The RTUs report to a master unit at the District Headquarters. The master unit communicates with a personal computer running Wonderware *Intouch* software to allow Supervisory Control and Data Acquisition functions to take place.

The RTUs shall be provided in enclosures with auxiliary equipment to facilitate connection of external signals to the RTU, and to monitor voltage, intrusion, and similar status signals. Communication with the Zetron 1700 MTU shall be via leased telephone lines to the District's office.

For each new lift station, the Developer shall provide a Zetron 1716 RTU (with Modbus option, accumulator/pulse counter access and battery backup) along with an enclosure, power supply, relays, surge protection devices for power and telephone lines, and other auxiliary devices as required for proper operation of the system. Typical discrete inputs for a station include:

1. Utility Power Fail
2. Three Phase Power Fail (phase reversal, phase imbalance, phase loss, undervoltage, and overvoltage)

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

3. Generator Run
4. Generator Fail
5. ATS in Standby
6. Intrusion Alarm
7. Wet Well High Level
8. Wet Well Low Level
9. Pump No. 1 Run
10. Pump No. 2 Run
11. Pump No. 1 Fail
12. Pump No. 2 Fail
(Note: Additional pump run and fail signals are required for each pump when the station has more than two pumps.)
13. Station Flood (Buried Station)
14. Ventilation Fail (Buried Station)
15. Operator in Trouble (Buried Station)
16. Flow Meter Totalizer
17. All exterior transfer switches will be NEMA 3 enclosure with keyed switch for access to controls.

Typical discrete outputs include:

1. Start Generator (with an interposing relay driven by the RTU in the telemetry subpanel)

Typical analog inputs include:

1. Pump No. 1 Amperes
2. Pump No. 2 Amperes
3. Wet Well Level
4. Flow Rate

Provisions shall also be made for additional I/O signals by providing terminals from each I/O point on the RTU to terminals within the telemetry panel.

The telemetry panel and all items contained therein shall be provided by Systems Interface, Inc., (425) 481-1225.

The Developer shall also be responsible for correct set-up of the RTU with respect to the existing system configuration. This includes coordinating configuration parameters such as:

1. RTU addressing
2. Master unit configuration
3. RTU configuration,
4. I/O point configuration (enable/disable format)
5. Debounce time
6. NO/NC inputs

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

7. Percent change reporting
8. High/low alarm limits
9. Accumulator sampling rates
10. Momentary/latched outputs
11. Signal adjustments (receive gain, transmit gain).
12. Rebalancing of the District's Verizon dedicated telemetry circuit.

The Developer shall coordinate with the telephone utility and the District for obtaining proper telephone service to the site. The Developer shall be responsible for obtaining, installing, and starting up the RTU for the new lift station. The Developer shall coordinate obtaining, installing and starting up the RTU with the District to ensure that the station is properly configured and functions correctly in conjunction with the existing system.

All major components, including relays, timers, and power supplies shall be identified using phenolic or vilam engraved labels.

Provide a 600 ohm impedance matching transformer for the telephone line, per Zetron's recommendations.

A line (surge) protector unit shall be provided for the telemetry equipment. The unit shall protect the equipment from transient and electrical surges on the telephone line. Protection shall include line fuses and clamps for voltages over 25 volts, gas tubes shall be provided as an integral part of the lighting protection unit.

STANDBY POWER SYSTEM:

General

Standby power generation equipment shall be provided at the lift station site, which will operate the lift station in the event of a commercial power outage.

The standby system shall be designed with capacity and rating to safely start and operate the entire connected lift station load, including all pumps and ancillary loads unless otherwise approved by the District. All applicable codes shall be followed, including NEC and UPC.

The generator set shall be complete in every respect and shall include, but not be limited to the following:

1. Generator, control panel & circuit breaker.
2. Engine, radiator & exhaust system.
3. Fuel tank. (Capacity for 7 days at 25 percent load.)
4. Generator set enclosure providing noise attenuation in compliance with Washington State Administrative Code, Chapter 173-60, and lockable to District Standards.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

5. Automatic transfer switch – single electric motor style.
6. Block heater.
7. Battery & rack.
8. Battery charger.
9. Conduit, wire and piping.

The generator set and transfer switch shall be Cummins/Onan complying with the latest edition of Onan Corporation standard specifications and District Standards or a District approved equal generator set and transfer switch.

The generator set shall be spark-ignited, liquid propane; 60 Hertz, 1,800 rpm, 3-phase, 480/277 volt standby power or diesel if approved by the District. Diesel required for generator sets greater than 150 kW.

The generator set shall include the following:

Engine

1. Single phase, 1500 watt block heater (115 VAC)

Generator Set

1. Mainline circuit breaker
2. 5-year basic power warranty

Accessories

1. Batteries
2. Battery Charger, 2 amp, 12 VDC, 120 Vac Input
3. Vibration Isolators, Pad Type

Control Panel

1. Annunciator relays (12)
2. Run relay package (3)
3. Low coolant level shutdown
4. Anti-condensation space heater, 120 Vac
5. Oil temperature gauge
6. Wattmeter
7. Emergency stop switch

Fuel Systems

1. Diesel unless approved by the District. All piping shall be black iron, except for flexible vibration isolation connections at pipe ends with shut off ball valves.

Alternator

1. Anti-condensation heater, 120 Vac

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

Control Features

1. Run-stop-remote switch
2. Remote starting, 12-volt, 2 wire
3. Coolant temperature gauge
4. Field circuit breaker
5. DC voltmeter
6. Running time meter
7. Lamp test switch
8. Oil pressure gauge
9. Fault reset switch
10. Cycle cranking
11. 12-light engine monitor with individual 1/2 amp relay signals and a common alarm contact for each of the following conditions:
 - Run (Green Light)
 - Pre-Warning For Low Oil Pressure (Yellow Light)
 - Pre-Warning For High Coolant Temp (Yellow Light)
 - Low Oil Pressure Shutdown (Red Light)
 - High Coolant Temperature Shutdown (Red Light)
 - Overcrank Shutdown (Red Light)
 - Overspeed Shutdown (Red Light)
 - Switch Off (Flashing Red Light- Indicates Generator Set Not In Automatic Start Mode)
 - Low Coolant Temperature (Yellow Light)
 - Low Fuel (Yellow Light)
 - Two Customer Selected Faults (Red Light)

AC Meter Package

Order with NFPA 110 monitor to meet code requirements.

1. AC voltmeter (dual range)
2. AC ammeter (dual range)
3. Voltmeter/ammeter phase selector switch with an off position
4. Dual scale frequency meter/tachometer
5. AC Rheostat (panel mounted) for + 5% voltage adjust

The transfer switch shall include the following:

1. Sized for full station and auxiliary equipment load plus 25%.

Pole Configuration

1. Poles - 3 (Solid Neutral)

Frequency

1. 60 Hertz

Application

1. Appl - Utility to Genset

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

System Options

1. Three phase, 3-wire or 4-wire

Enclosure

1. Generator will be installed in a 12-gauge galvanized welded steel, insulated, sound attenuated, NEMA 3R weather-protective, walk-in drop over acoustical enclosure. The enclosure will meet the requirements of ASTM A-653 and the current IBC. The sound pressure level will average not more than 45 dBA at 110 feet in a free-field condition, or 53 dBA at 23 feet, or will meet more stringent sound requirements as specified by the District.

Listing

1. Listing - UL 1008

Programmed Transition

1. Program Transition, 1-60 sec.

Applications Modules

1. Monitor - Phase Sequence/Balance

Suitable guards shall be provided on all electrical parts to minimize the personal shock hazard.

Generator shall be broken-in sufficiently to permit application of full load immediately upon installation.

Generator supplier shall provide all tools for the generator set as recommended and required by the manufacturer.

Generator installation shall be checked by the supplier after installation to determine that the installation is correct. Written confirmation shall be provided to the District. Generator supplier shall perform a full load test for 2 hours after installation is complete. Provide resistive load bank for this test.

Generator supplier shall provide a minimum of 4 hours of training for District personnel at the station site during startup.

Generator manufacturer shall provide 4 copies of the maintenance and operation manual. These manuals shall be complete and shall include all information necessary to allow District personnel to maintain the generator.

Generator mounting pad shall be reinforced concrete to carry the weight of the unit and shall extend a minimum of 3 inches beyond generator housing. All formed edges to be 1/2 round or 3/4 inch chamfer.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

Diesel tanks shall be Convault AST, or approved equal, equipped with external fuel shutoff valve.

6. **FORCE MAIN:**

The force main shall be a minimum 6-inch diameter ductile iron Class 52 polyethylene or epoxy lined or high-density polyethylene (HDPE) if approved by the District and provided with a continual positive slope. There shall be no intermediate high point between the lift station and the force main discharge point, unless properly protected with sewage air and vacuum release assembly. Minimum cover over the force main shall be 4'-0". All pipes (gravity and pressure) entering and leaving the wet pit or dry pit shall have flexible couplings within 18-inches of the structure. Install force main location boxes as required, shown on Detail V-S4.

Discharge of the force main to the gravity sewers shall be made at a manhole with the force main penetration core drilled and the force main aligned to discharge towards the downstream pipe. The invert of the force main shall be 0.1-foot above the invert of the downstream pipe. Channel the manhole as required.

A bypass pump connection equipped with a Cam Lock fitting and cap shall be located near the wet well in a location specified by the District. See Detail V-LS2.

A surge valve shall be installed on the force main to discharge into a manhole or the wet well if high head conditions will occur as determined by the District.

TESTING FORCE MAIN:

Cleaning

All force mains shall be cleaned prior to connection of force main to pumping facilities. Contractor to provide cleaning plan for District review and approval.

Test Specifications

All force mains shall be tested prior to acceptance of work. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished, installed and operated by the Developer. Feed for the pump shall be from a barrel or other container within the actual amount of "makeup" water, so that it can be measured periodically during the test period.

The pipeline shall be backfilled sufficiently to prevent movement of the pipe under pressure. All thrust blocks shall be in place and time allowed for the concrete to cure before testing. Where permanent blocking is not required, the Developer shall furnish and install temporary blocking.

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

The pipeline shall be subjected to a pressure and leakage test of a minimum of 200 pounds per square inch for a period of not less than 1 hour. The test pressure shall be applied at the low end of the section tested.

Prior to calling for the District to witness the pressure test, the Developer shall first perform a satisfactory pressure test. The allowable leakage rate per thousand feet of each size pipeline is as follows:

Pipe Size	Allowable Leakage
	Gal. per Hour per 1,000 Ft. @ 200 psi
6"	0.64
8"	0.85
10"	1.06
12"	1.28

Defective materials or workmanship, discovered as a result of the tests, shall be replaced by the Developer at the Developer's expense. Whenever it is necessary to replace defective material or correct the workmanship, the tests shall be re-run at the Developer's expense until a satisfactory test is obtained.

Preliminary Tests

Developer shall conduct preliminary tests and assure himself that the section to be tested is in an acceptable condition before requesting the District to witness the test.

Thrust Blocks & Anchor Blocks

Fittings shall be "blocked" with poured-in-place concrete, with a firm minimum bearing against an undisturbed earth wall. Timber blocking will not be permitted. Thrust blocks shall be poured as soon as possible after setting the fittings in place to allow the concrete to "set" before applying the pressure test. The concrete thrust blocks shall be in place before beginning the pressure test. Anchor blocks shall be allowed to set sufficiently to develop the necessary bond strength between the reinforcing rods and the concrete anchor before beginning the pressure test. A visqueen barrier shall be provided to protect glands, bolts and other miscellaneous materials required for this type of connection from the concrete. Fittings that must be blocked against an undisturbed earth wall shall be restrained with restrained joint pipe and fittings.

7. LIFT STATION TEST PROGRAM:

The Developer shall perform, as a minimum, the following tests and provide the District written documentation of the date performed and results obtained. Pump

IV. SEWAGE LIFT STATIONS - GENERAL STANDARDS - Continued

tests shall meet or exceed specified capacity. The District shall be informed of the testing schedule 48 hours prior to the test and shall be present during testing.

1. Pump capacity by drawdown test
2. Bubbler/control panel operation
3. Generator load test
4. Automatic transfer reconciled to auxiliary power and back to utility power
5. Telemetry control to terminal strip
6. Telemetry control to SCADA system
7. Pump vibration analysis

Fill water for testing shall be obtained in accordance with District cross-connection practices.

SECTION V

CROSS-CONNECTION CONTROL

CROSS-CONNECTION CONTROL

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V. CROSS CONNECTION CONTROL:

1. DEFINITIONS:

- A. Unless a different meaning plainly is required, the definitions found in WAC 246-290-010 now in effect or as subsequently amended or reenacted are hereby adopted by reference as if set forth in full herein.
- B. CCS is defined as the Cross Connection Control Specialist of the Silver Lake Water & Sewer District or delegated representative.
- C. Owner is defined as any person or entity with interest in the title to the property and/or a customer of the District.
- D. Acronyms for Backflow Assemblies:

AG: Air Gap

AVB: Atmospheric Vacuum Breaker

DCVA: Double Check Valve Assembly

RPBA: Reduced Pressure Backflow Assembly

RPDA: Reduced Pressure Detector Assembly (fire systems)

SVBA: Spill Resistant Vacuum Breaker Assembly

PVBA: Pressure Vacuum Breaker Assembly

- E. Other definitions:

(the) District: The Silver Lake Water & Sewer District

BAT: Backflow Assembly Tester

RCW: Revised Code of Washington

WAC: Washington Administrative Code

WSDOH: Washington State Department of Health

USC/FCCCHR: University of Southern California Foundation for Cross Connection Control and Hydraulic Research

AHJ: Authority Having Jurisdiction

UPC: Uniform Plumbing Code

TI: Tenant Improvement

2. PURPOSE AND SCOPE:

- A. This Section establishes minimum standards for the District to protect the public potable water supply from possible contamination or pollution due to backflow or backsiphonage from an owner's private internal system into the public potable water system.
- B. This Section establishes minimum cross-connection control operating policies and requirements for installation, testing, and maintenance of

V. CROSS CONNECTION CONTROL - Continued

approved backflow assemblies and describes (other) annual inspection requirements for existing and new backflow assemblies.

- C. The purpose of this Section is not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this Section. This Section is applicable to all connections to the Silver Lake Water & Sewer District water system.

3. AUTHORITY:

- A. This Section is authorized by The Federal Safe Drinking Water Act of 1974 (and Amendments of 1996), the statutes of the State of Washington Title 43 RCW and WAC 246-290-490.

4. RESPONSIBILITY:

- A. The District CCS will be responsible for administering the provisions of this Section.
- B. Proper installation of required backflow assemblies shall be a condition of water service from the District's water supply system to any premises upon which the potential for backflow into the District system exists. Water service may be discontinued or refused until corrective action is taken in accordance with this Section.
- C. Upon installation of an approved backflow assembly, the owner shall contact the District requesting inspection of said assembly or assemblies.
- D. Upon approval of the installation by the District, the owner shall have the assembly or assemblies tested by a State of Washington certified BAT and shall submit a copy of the test report to the District in accordance with this Section.
- E. The owner shall be subject to all applicable inspection and permitting fees. All tests and reporting by a certified BAT shall be at owner's expense.

5. FAILURE TO COMPLY – VIOLATIONS – PENALTIES:

- A. Any person, firm, or corporation who willfully violates any provisions or requirements of this Section shall be subject to discontinuance of supply of District water to the service connection to the site where the violation exists and discontinuance of service shall remain in effect until corrective action has been completed in accordance with District standards.

V. CROSS CONNECTION CONTROL - Continued

6. REQUIREMENTS:

GENERAL

- A. Compliance with the provisions of this Section shall be a condition of receiving or to continue receiving the District's water supply. It is unlawful for any person to allow any contaminants or pollutants to backflow from their facility and/or property into the District distribution system.
- B. All domestic connections, except for single-family and duplex connections shall require the installation of an approved RPBA at the service connection or alternate location as approved by the District. The RPBA shall be installed, inspected and tested in accordance with the provisions of this Section. See Item No. 23 in Section II of this manual for requesting exemption to Standard for townhomes/condominiums.
- C. All multi-family (other than duplexes) connections shall require at a minimum, the installation of a RPBA at the service connection or alternate location as approved by the District. The RPBA shall be installed, inspected, and tested in accordance with the provisions of this Section.
- D. All fire service connections shall be a dedicated and metered connection to the water main. All fire service connections, except for single-family residences and duplexes shall require the installation of an RPDA or RPBA at the service connection or alternate location as approved by the District. Fire services for single-family residential or duplexes shall have, at a minimum, a DCVA at the service connection or an alternate location as approved by the District. Commercial fire service connections shall be equipped with either an RPBA or RPDA depending upon service size (see II-4 (23) General Standards). In cases where an appropriately size RPDA is unavailable, an RPBA shall be installed upstream of the fire system components. Fire protection systems which serve both residential and commercial buildings from the same service connection shall require an RPDA or RPBA. All backflow and detector-check assemblies shall be installed, inspected, and tested in accordance with the provisions of this Section.
- E. All irrigation services, other than single family (private) systems shall be a dedicated and metered connection to the water main. A minimum of a DCVA shall be installed at the service connection. Any irrigation system, including single family, that uses chemical injection of any kind shall be isolated from the District's water system by an approved RPBA at the service connection (no exceptions). All backflow installations shall be installed, inspected, and tested in accordance with the provisions of this Section.

V. CROSS CONNECTION CONTROL - Continued

- F. Single Family residences having hard plumbed irrigation systems shall apply one of the following means of backflow protection to protect the District's water supply: DCVA, AVB, PVBA, or SVBA. Protection shall be installed, inspected, and tested in accordance with the provisions of this Section.
- G. The District requires that the public water supply be protected from contamination from cross connections. The owner shall be responsible for water quality beyond the District service meter. This responsibility includes proper installation, annual testing and maintenance of required backflow assemblies as provided in this Section. Fixture isolation assemblies shall be installed in accordance with the UPC and/or AHJ as a condition of service.

TENANT IMPROVEMENTS

- H. All TIs that require any modification of the potable water or sewer internal plumbing shall require upgrade of the water and sewer systems to current District standards at the service connection, or alternate location as approved by the District that shall be installed, inspected, and tested in accordance with the provisions of this Section.

SILVER LAKE WATER AND SEWER DISTRICT

- I. For premises existing prior to the start of this program, the District will perform evaluations and inspections of plans and/or premises and inform the owner by letter of any corrective action deemed necessary, the method of achieving the correction and the time allowed for the correction to be made. A maximum of 60 days will be allowed; however, this time period may be adjusted by the District CCS depending upon all reasonable factors including but not limited to the performance history of the backflow assembly and the degree of hazard involved.
- J. Premises are subject to inspection on or after the expiration date of required action to correct a cross-connection. Water service to premises that fail to comply with the District's request shall receive written notice, via registered mail and regular mail, postage prepaid, that water service to the premise will be terminated within a period not to exceed 30 calendar days. In the event the owner informs the District of extenuating circumstances as to why the correction has not been completed, the District may grant a time extension up to but not exceeding an additional 30 days.
- K. If the District determines at any time that a serious threat to the public health exists; the water service may be terminated immediately, provided,

V. CROSS CONNECTION CONTROL - Continued

however, that notice will be posted on the premises affected at the time said service is terminated and the proper AHJ is notified of the action.

- L. Inspection may be done during the initial installation and during on-site reviews of existing installations.

OWNER

- M. An easement shall be provided to the District for access to all backflow assemblies required to protect the public potable water supply from possible contamination.
- N. When a test identifies a backflow assembly is not properly functioning, the owner shall correct the malfunction and have the assembly inspected and re-tested or replaced until proper backflow protection is restored.
- O. The owner shall be responsible for the elimination or protection, of all cross-connection on their premises.
- P. The owner after notification by the District shall, at their expense, install any and all required backflow assemblies.
- Q. The owner shall, at their expense, be responsible for having all backflow assemblies tested:
 - 1. At the time of installation;
 - 2. Annually after installation or more frequently in cases of repeated failure to meet test criteria;
 - 3. After an assembly is repaired, reinstalled or relocated; or
 - 4. An air gap is re-plumbed or replaced by a District approved assembly. The test shall be performed by a Washington State certified BAT. The results of the tests shall be reported within 30 days to the District CCS on a form provided by or approved by the District.
- R. The owner shall immediately notify the District CCS of any malfunction of the approved backflow assembly that is revealed by periodic testing. The required repair or replacement of said assembly(ies) shall be completed within 30 days.
- S. The owner shall inform the District of any proposed modifications to their plumbing that creates a possible cross-connection and also any existing

V. CROSS CONNECTION CONTROL - Continued

cross-connections of which the owner has actual knowledge but has not been found by the District.

- T. The owner shall install only backflow prevention assemblies from the current list of Washington State approved assemblies (WSDOH Publication # 331-137) as it exists now or as hereinafter changed, modified, amended, reenacted or recodified.
- U. Any owner having a private well or other private water source desiring to connect to the Districts' water supply shall de-commission the well per WAC 173-160-381 as it exists now or as hereinafter changed, modified, amended, reenacted or recodified.
- V. The owner shall provide District personnel access to premises for cross connection inspection at the District's request. Failure to provide access to inspect facilities shall be grounds for termination of water service and/or installation of appropriate backflow assembly behind the meter by District crews at the owners' expense.

7. INSTALLATION AND TESTING - MINIMUM REQUIREMENTS:

- A. Minimum requirements for the testing of all backflow assemblies shall be in accordance with the USC/FCCCHR Manual of Cross-Connection Control, tenth edition, published October 2009, including subsequent revisions, adopted by reference herein.
- B. Backflow assemblies shall be installed in meter boxes, vaults, or "hot boxes" if greater than 2-inch diameter unless otherwise approved by the District. Vaults shall have adequate clearances and depths to allow for inspection and testing. Assemblies that cannot be easily and readily inspected shall be relocated and re-plumbed as directed by the District. The owner shall contact the District for applicable installation requirements and standards.
- C. All bypass lines parallel to a line on which an approved backflow assembly is installed shall have an approved backflow assembly installed that offers the same level of protection as the assembly required by the District on the main line.

8. BACKFLOW ASSEMBLIES:

- A. Classifications of backflow assemblies include but are not limited to: RPBA, RPDA, DCVA, SVBA, or PVBA of make, model, and size included on the current approved backflow assemblies list approved by WSDOH (Publication # 331-137) as it exists now or as hereinafter changed, modified, amended, reenacted or recodified. Washington State

V. CROSS CONNECTION CONTROL - Continued

has adopted the USC/FCCCHR list of approved backflow assemblies. CD copies of the approved assemblies are available at the discretion of WSDOH. Call or check WSDOH website for availability. All major backflow assembly manufacturers display their USC approvals on their respective websites and product literature. Consult manufacturer's data before purchasing any backflow assemblies.

- B. Any existing backflow assembly in use, but not currently listed by the WSDOH can continue to be used providing all the following conditions are met:
 - 1. The assemblies were included on the WSDOH list of approved backflow assemblies at the time of installation;
 - 2. The assemblies have been properly maintained;
 - 3. The assemblies are functioning properly based on inspection by the District and testing by a certified BAT;
 - 4. The degree of protection of the District's water system is commensurate with the degree of hazard as determined by the District CCS and the provisions of this Section.
- C. When an unlisted assembly does not meet the above conditions, is moved, or cannot be repaired using spare parts from the original manufacturer, the assembly shall be replaced by an assembly currently listed as approved by the WSDOH.

9. APPLICABILITY:

- A. The provisions of this Section are applicable to all connections to the District water supply.

10. ADMINISTRATIVE PROCEDURES:

- A. In order to carry out the provisions of the District Cross Connection Control policies, rules and procedures set forth in this Section, the District has an ongoing compliance program based upon but not limited to the following criteria: proper management of system connections; effective customer education; accurate recordkeeping and notification; Development plan review and inspections of new connections; and periodic inspection of existing connections.

V. CROSS CONNECTION CONTROL - Continued

B. Minimum Requirements

1. These District requirements are provided for clarification and any disagreement between the requirements listed below and requirements listed elsewhere in this Section, the more restrictive shall govern.
2. All non-residential domestic water services shall be isolated from the public water system by an approved RPBA at the domestic service connection or at an alternate location acceptable to the District.
3. Fire services shall be isolated from the Public water system by an approved RPBA or RPDA at the service connection or at an alternate location acceptable to the District.
4. Premises having an auxiliary water supply (such as an active well(s)) shall be de-commission per WAC 173-160-381 prior to connecting to the District water system.
5. All Multi-family services (other than duplexes) shall have a RPBA installed at the service connection.
6. Non-residential irrigation services shall be separately metered and shall have an approved DCVA installed at the service connection. Irrigation systems that use chemical injection shall be isolated from the District's water system by an approved RPBA at the service connection.
7. Residential irrigation systems where compressed air is introduced shall have a minimum of an approved DCVA installed at the connection to the irrigation system (AVB systems are not adequate for protection of the public system where compressed air is introduced into the water system).
8. Residential Irrigation systems, which do not fall into the prior category, may have an approved PVBA installed on the system, or properly installed AVB for each zone. AVB installations are subject to periodic inspection by the District CCS.
9. Premises with water features, ponds, pools, or fountains connected in any way to the District's system shall install a District approved AG at the fill point to the water feature, regardless of any upstream backflow protection. AG's will be annually inspected by a Washington State Certified Backflow Assembly Tester (BAT).

V. CROSS CONNECTION CONTROL - Continued

C. Compliance Inspection of Existing Buildings, Structures, and Grounds

1. An ongoing inspection program has been established by the District to locate and address cross connection potential to the District's system with priority given on the basis of risk to public health and is conducted as outlined below. The District CCS may perform additional inspections as needed.
2. The District CCS periodically surveys residential meter routes, looking for irrigation systems, or signs thereof, responds to tips from customers, monitors locate requests, and uses other means with the goal that all connections to the District's water system be in compliance with State and District regulations. The District relies on plan review and premise isolation procedures established in this Section to properly protect the Public potable water system from other hazards posed by commercial, fire, and multi-family connections. Systems without required cross connection protection when identified, shall be brought into compliance by the owner.
3. The District relies on annual test reports to ensure existing irrigation installations are in compliance. The District will endeavor to send notices of the deadline of required annual backflow assembly tests. It is the responsibility of the property owner to submit the annual Backflow Assembly Test Report in a timely manner (within 30 days) with or without notice from the District. Property owners who fail to provide annual test results certifying backflow assembly is in compliance with State and District regulations are identified and tracked until satisfactory compliance is achieved or water service is terminated.
4. The District shall respond to customer taste and odor complaints in a prompt and professional manner, understanding that these complaints may be indicative of possible contamination due to a temporary or continuing cross connection event with the Public water system. Should a cross connection be identified, it will be tracked until satisfactory compliance is achieved or water service is terminated.

D. Residential Education and Awareness

1. The District periodically sends educational pamphlets and/or bill stuffers to all of the water system customers. These include, but are not limited to, the following subjects:
 - a) Home Irrigation Safety;

V. CROSS CONNECTION CONTROL - Continued

- b) Residential Fire Sprinkler Systems;
 - c) Health hazards associated with hose connections (chemical sprayers, radiator flush kits, etc.), utility sinks and other household dangers.
2. The District also endeavors to provide informational handouts and presentations on cross connections at community events, school programs and with information at District Headquarters.
- E. Registering of Certified Backflow Assembly Testers
1. The District maintains a list of Washington certified BATs to provide to customers. Persons or organizations wishing to be added to this list are required to provide the District with copies of the following:
 - a) Proof of current certification by the State of Washington as a BAT for each person authorized to perform tests.
 - b) Proof of current annual calibration for all testing equipment.
 - c) Proof of current liability insurance in an amount not less than one million dollars.
 - d) Any person providing backflow assembly testing service in the District service area must possess a current BAT certification, current test instrument calibration and all other licenses, permits or certifications required by law.
- F. Record keeping and tracking of assemblies
1. The District meets the record keeping requirements of the State to allow effective monitoring and tracking of customer compliance with the annual backflow assembly testing requirements. The general content of the District's records include the following information on each backflow assembly includes but is not limited to:
 - Service address
 - Business name (if applicable)
 - Specific location of each assembly
 - Initial inspection information for each location
 - Initial installation date
 - Water line size

V. CROSS CONNECTION CONTROL - Continued

- Water pressure
- Test results for all check valves
- Assembly information (type of assembly, manufacturer, size, serial #, model, and date of test)
- Complete testing history (initial and final test results for each year with: pass/fail, test type, date, tester's name and certification #)
- Hazard protected (downstream process)
- Repair history
- Test kit information
- Testers contact and certification information

SECTION VI

STANDARD DETAILS

(These details are available electronically for Developer use by contacting the District)

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VI-S17	BACKFLOW VALVE
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VI-LS2BYPASS PUMP CONNECTION
VI-LS3AROOF STRUCTURE FOR ELECTRICAL ENCLOSURE
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VI-LS6VENT DETAIL
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CROSS-CONNECTION CONTROL

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VI-CC2.....ATMOSPHERE VACUUM BREAKER
VI-CC3.....PRESSURE VACUUM BREAKER

GENERAL

WATER

FINISHED GRADE

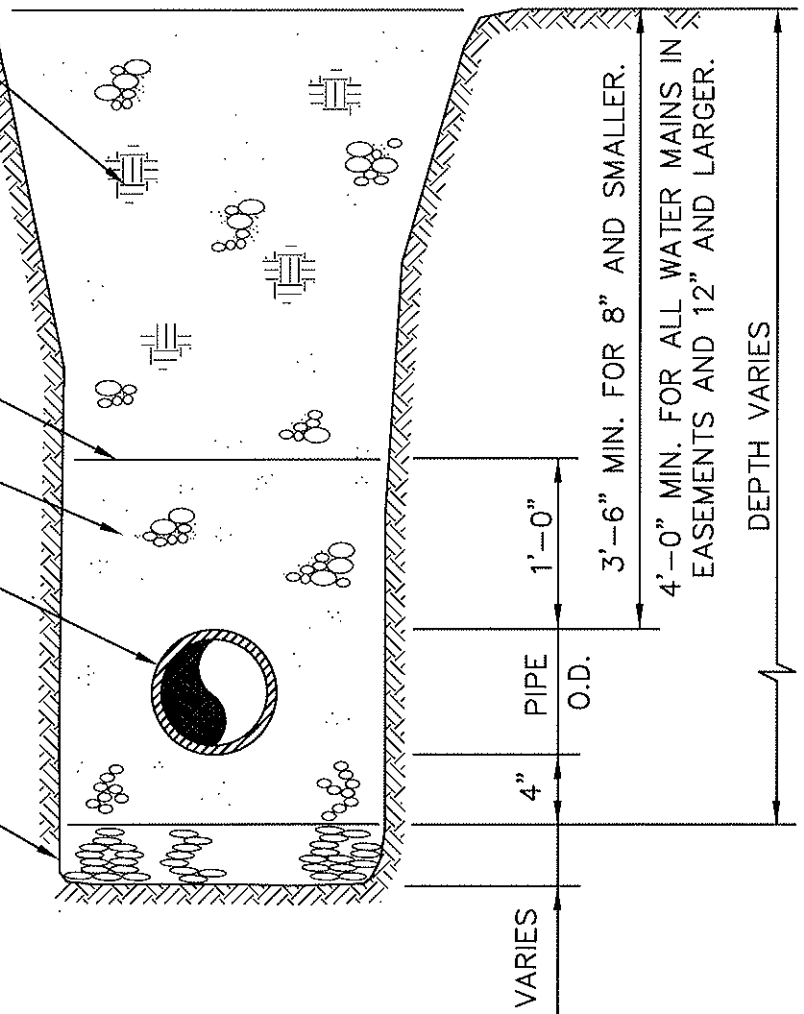
COMPACTED BACKFILL CONSISTING OF EXCAVATED MATERIAL OR GRAVEL BASE, OR CDF TO OBTAIN COMPACTION REQUIREMENTS PER MODIFIED PROCTOR ASTM D 1557 AS REQUIRED BY PERMITS

SPECIAL PRECAUTIONS TO PROTECT PIPE TO THIS LEVEL

COMPACTED SELECT BACKFILL
NATIVE BACKFILL IS UNACCEPTABLE

DUCTILE IRON PIPE CLASS 52

FOUNDATION GRAVEL
AS REQUIRED

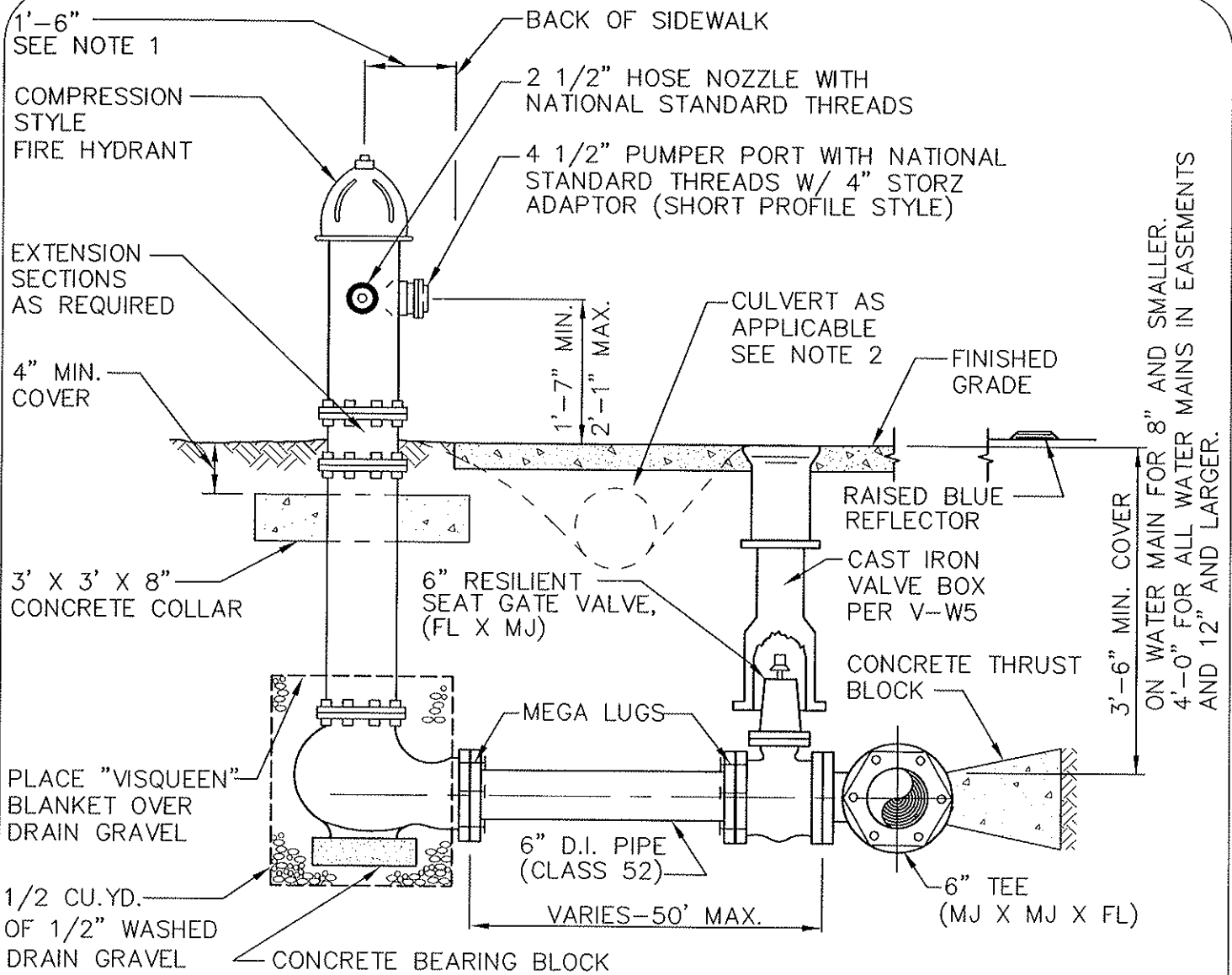


NOTE:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE IN CONFORMANCE WITH SILVER LAKE WATER AND SEWER DISTRICT STANDARDS AND/OR COUNTY, CITY, STATE PERMIT REQUIREMENTS.
2. DEPTH OF COVER IN EXCESS OF 7- FEET REQUIRES DISTRICT APPROVAL.
3. PIPES SHALL BE RESTRAINED IN FILL OR PREVIOUSLY DISTURBED MATERIAL.
4. CLAY OR BENTONITE DAMS SHALL BE INSTALLED ACROSS THE TRENCH AND TO THE FULL DEPTH OF THE GRANULAR MATERIAL IN ALL AREAS OF STEEP SLOPES, STREAM CROSSINGS AND WETLAND TO PREVENT MIGRATION OF WATER ALONG THE PIPELINE.

WATER MAIN TRENCH SECTION

**Silver Lake Water and Sewer District
STANDARD DETAILS**

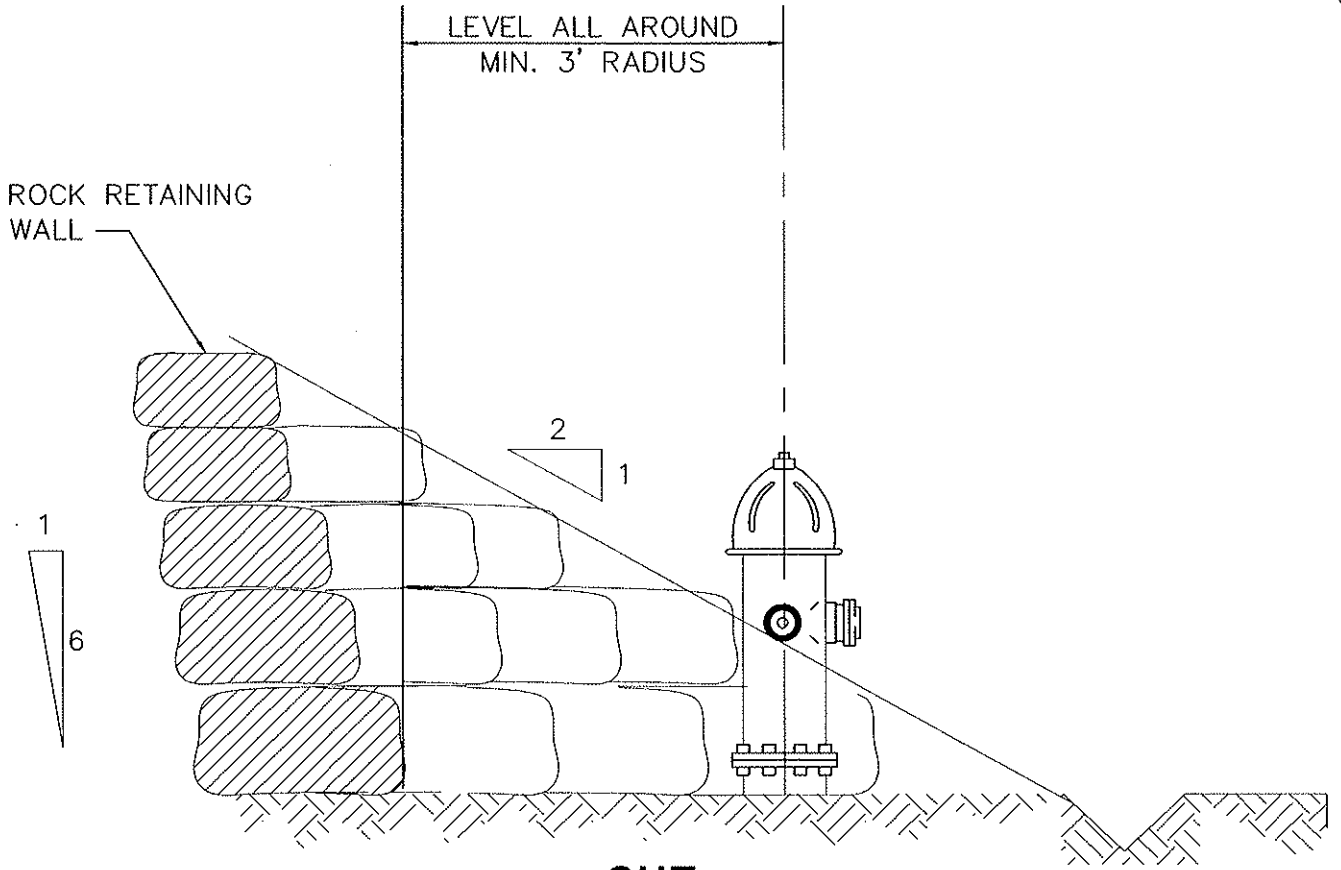


NOTES:

1. OR 3' FROM BACK OF CURB
2. PROVIDE 8' OF CULVERT AND COVER, 12" MIN. DIA. OR EQUAL IN SIZE TO ADJACENT DITCH CROSSINGS. PIPE TO COUNTY, STATE OR CITY STANDARDS AS APPLICABLE.
3. PROVIDE MIN. 3'-0" CLEARANCE AND LEVEL AREA AROUND HYDRANT
4. PAINT FIRE HYDRANT WITH TWO COATS SHERWIN WILLIAMS CAT YELLOW 8084-31084 AND TOP OF HYDRANT COLOR DETERMINED BY SERVICE LEVEL GPM.
 - # 4086 SAFETY BLUE-SERVICE LEVEL 1500 GPM OR GREATER
 - # 4085 SAFETY GREEN-SERVICE LEVEL 1000 TO 1499 GPM
 - # B54R38 SAFETY RED-SERVICE LEVEL 999 GPM OR LESSER
5. STENCIL FOOTAGE TO VALVE ON HYDRANT UNDER PORT FACING GV
6. REMOVE ALL CHAINS FOR FIRE HYDRANT CAPS
7. ACCEPTABLE HYDRANTS: CLOW MEDALLION, M&H STYLE 929, MUELLER CENTURION, WATEROUS PACER, EAST JORDAN WATERMASTER 5CD250
8. INSTALL BLUE FIRE HYDRANT REFLECTOR. OFFSET 1 FOOT FROM ROAD CENTERLINE

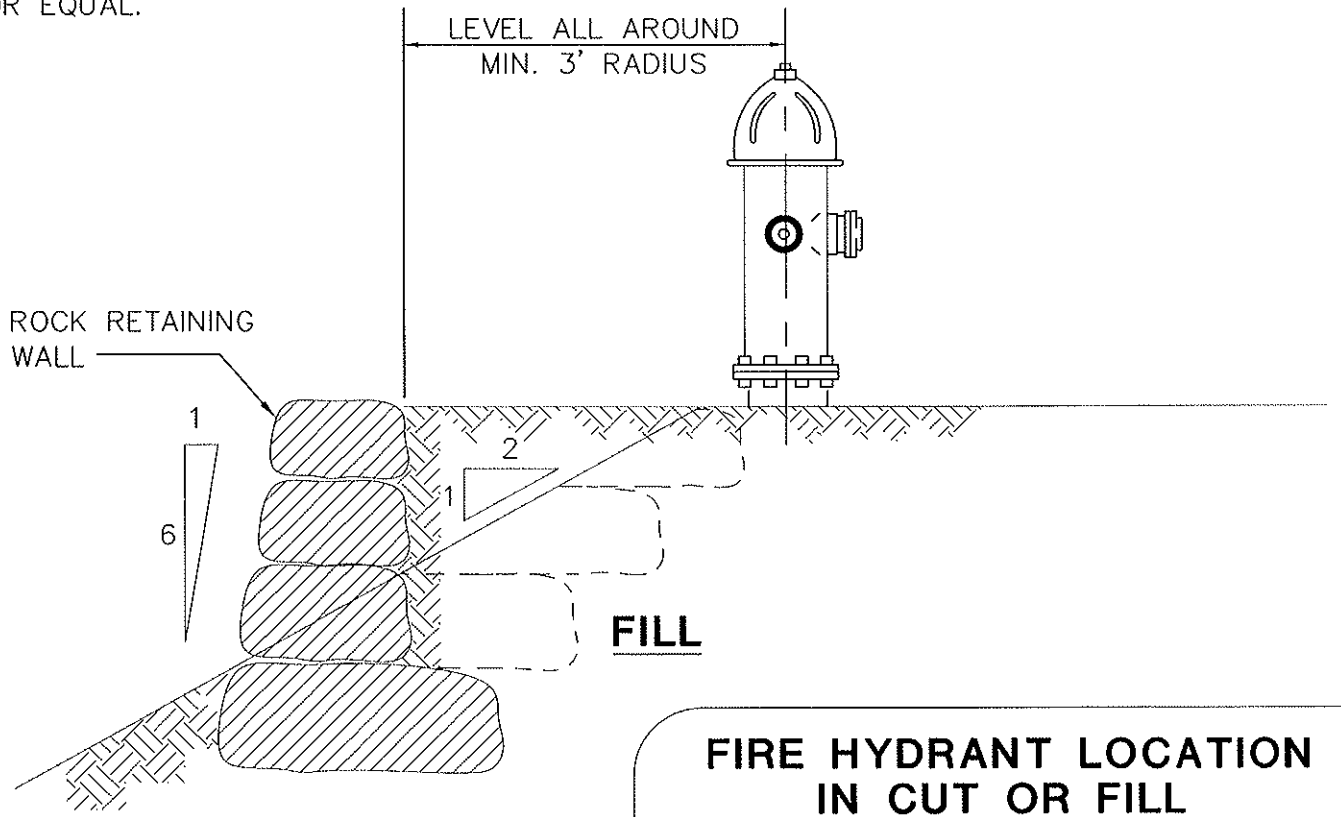
FIRE HYDRANT ASSEMBLY

Silver Lake Water and Sewer District
STANDARD DETAILS



CUT

NOTE: IN CUT BANK FIBERGLASS HILLSIDE BARRIERS CAN BE CONSIDERED. PROGLASS, INC. OR EQUAL.

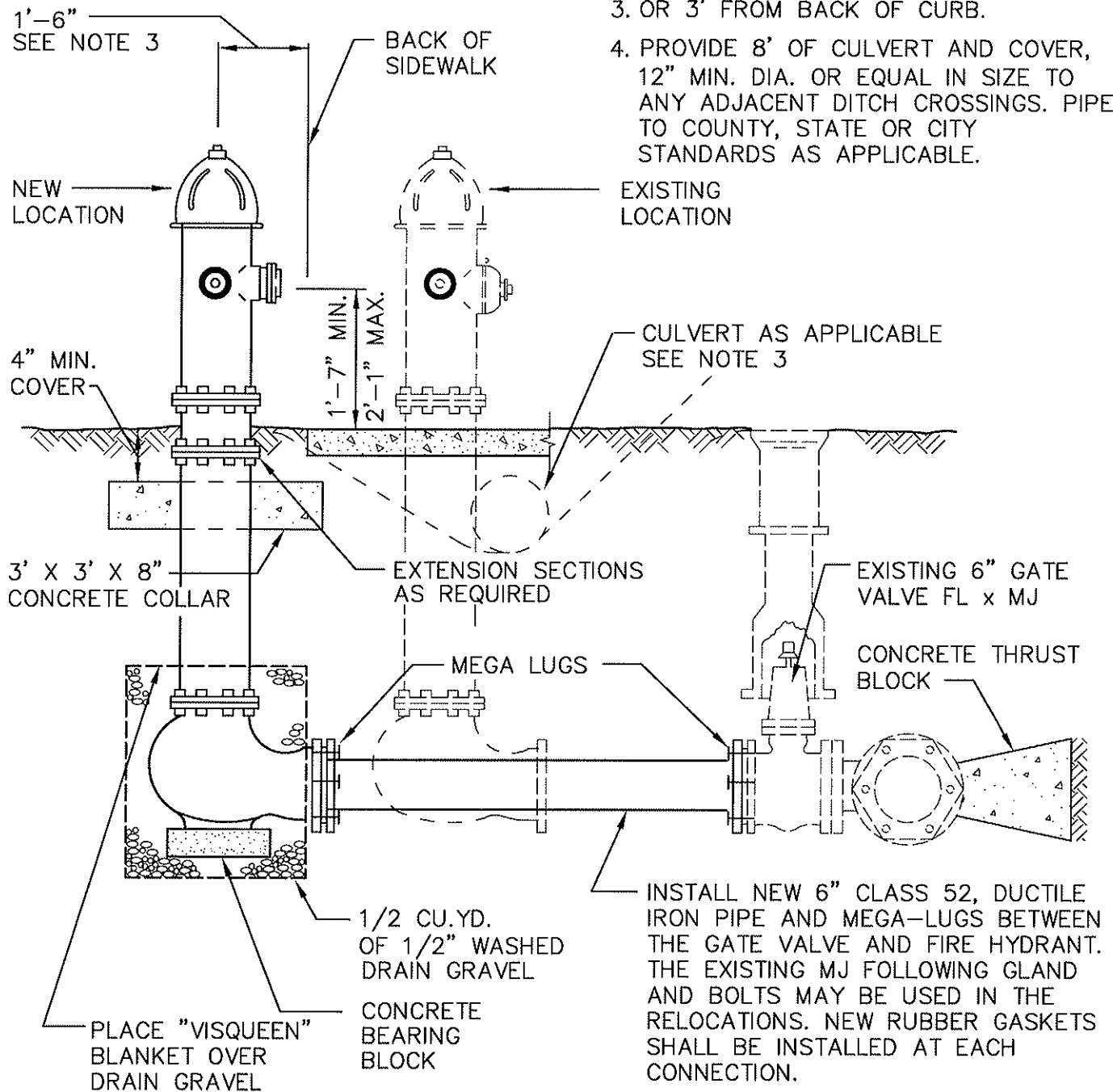


**FIRE HYDRANT LOCATION
IN CUT OR FILL**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

NOTES:

1. DISTRICT PRIOR APPROVAL REQUIRED.
2. FIRE HYDRANT MUST MEET SILVER LAKE WATER AND SEWER DISTRICT REQUIREMENTS. FOR NEW HYDRANTS (SEE V-W2). REPLACE WITH NEW FIRE HYDRANT IF REQUIRED.
3. OR 3' FROM BACK OF CURB.
4. PROVIDE 8' OF CULVERT AND COVER, 12" MIN. DIA. OR EQUAL IN SIZE TO ANY ADJACENT DITCH CROSSINGS. PIPE TO COUNTY, STATE OR CITY STANDARDS AS APPLICABLE.



**RELOCATE
FIRE HYDRANT ASSEMBLY**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

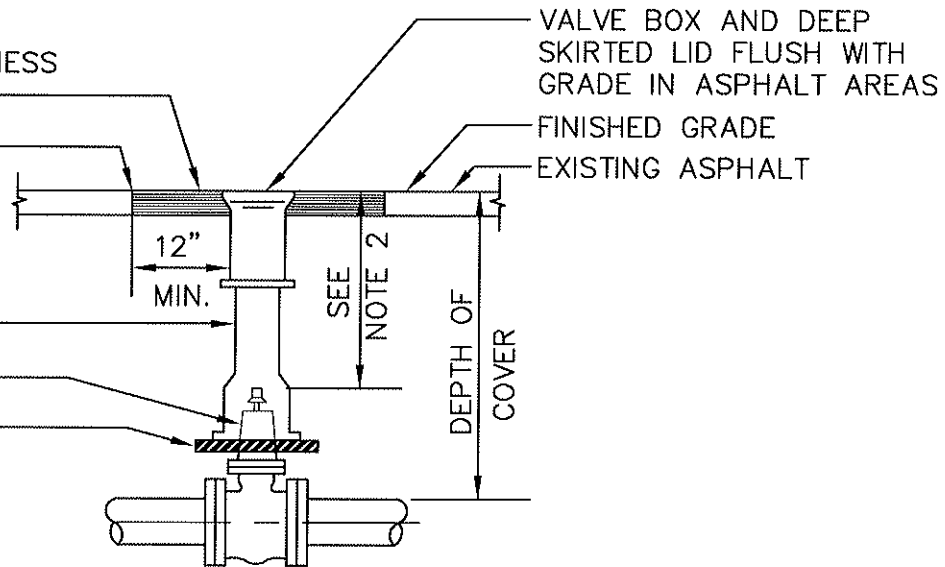
2" COMPACTED THICKNESS
PG 58-22 HMA

JOINT SEALER

VALVE BOX
CENTERED OVER
OPERATING NUT

VALVE

SET VALVE BOX ON
ETHAFOAM - 2"
THICK (TYP.)



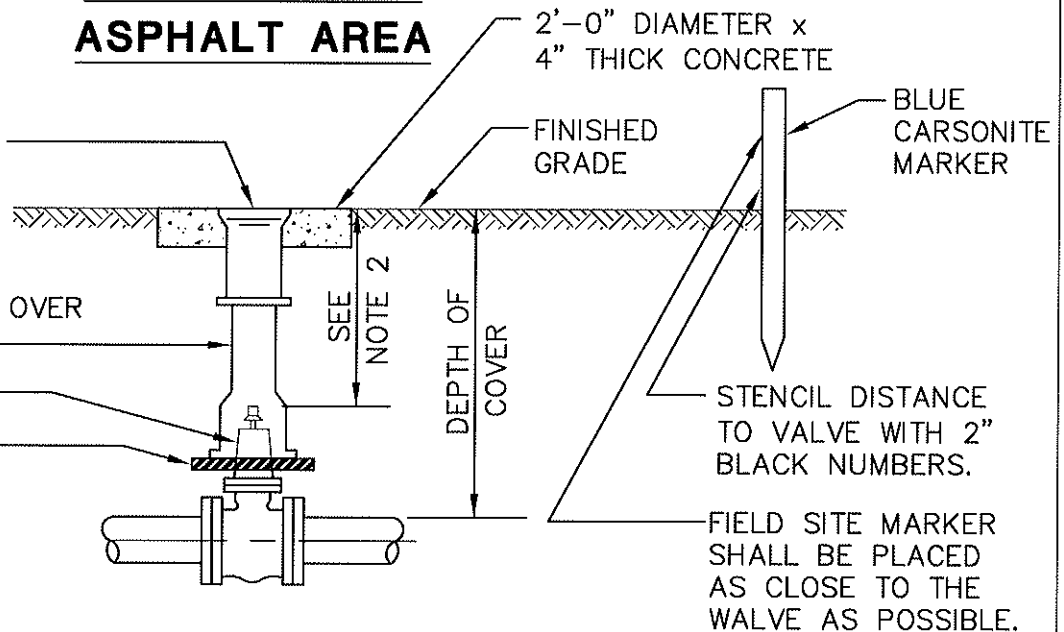
VALVE BOX IN ASPHALT AREA

VALVE BOX AND DEEP
SKIRTED LID FLUSH
WITH GRADE

VALVE BOX CENTERED OVER
OPERATING NUT

VALVE

SET VALVE BOX ON
ETHAFOAM - 2"
THICK (TYP.)



VALVE BOX IN UNIMPROVED AREA (VALVE MARKER REQUIRED)

NOTES:

1. EACH VALVE SHALL BE PROVIDED WITH AN ADJUSTABLE CAST IRON VALVE BOX OF 5 INCHES (5") INSIDE DIAMETER. VALVE BOXES SHALL HAVE A TOP SECTION WITH AN EIGHTEEN INCH (18") MIN. LENGTH. THE VALVE BOX SHALL BE OLYMPIC FOUNDRY No. 940, EAST JORDON, OR EQUAL.
2. 18" MINIMUM, 24" MAXIMUM FOR OPERATOR NUT IF EXTENSION IS REQUIRED.
3. VALVE BOX EARS SHALL BE PLACED IN LINE WITH THE PIPE IT SERVES.
4. DISTRICT MAY REQUIRE LOCKING VALVE BOX IN TRAFFIC AREAS. OLYMPIC FOUNDRY NO. 045DT OR EQUAL.

3/14

VI-W5

VALVE BOX

Silver Lake Water and Sewer District
STANDARD DETAILS

1 1/2" COMPACTED THICKNESS
PG 58-22 HMA.

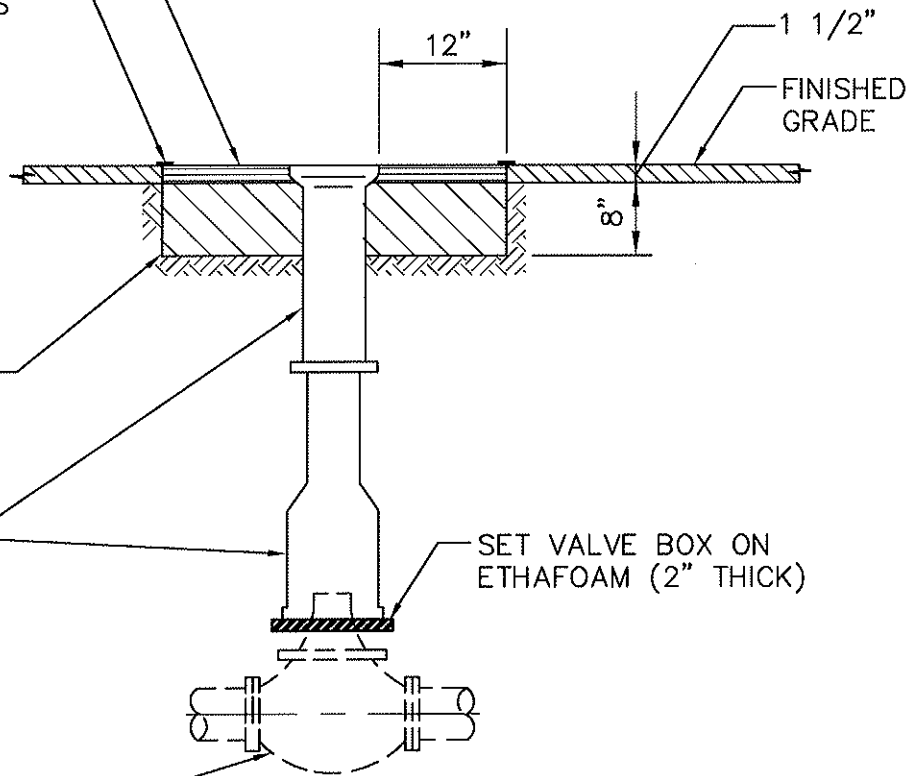
CLEAN AND TACK EDGES WITH
SEALER CSS1 AND SEAL JOINTS
WITH HOT ASPHALT CEMENT
(AR4000W)

THICKENED ASPHALT COLLAR

CAST IRON VALVE BOX
PER V-W5

SET VALVE BOX ON
ETHAFOAM (2" THICK)

EXISTING VALVE

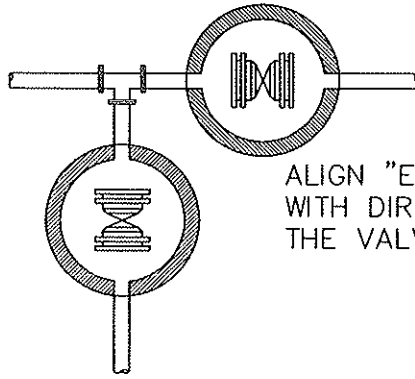


NOTES:

1. ALL EXISTING CONCRETE VALVE BOXES SHALL BE REPLACED WITH CAST IRON BOXES AND ADJUSTED WITH SOIL PIPE TO GRADE AS NEEDED.
2. ALL EXISTING CAST IRON VALVE BOXES SHALL BE ADJUSTED TO GRADE OR NEW CAST IRON BOXES INSTALLED.
3. ALIGNMENT OF THE VALVE BOX SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND CARE SHALL BE TAKEN TO ENSURE THAT THE VALVE IS OPERABLE.
4. VALVE BOX EARS SHALL BE PLACED IN LINE WITH THE PIPE IT SERVES.

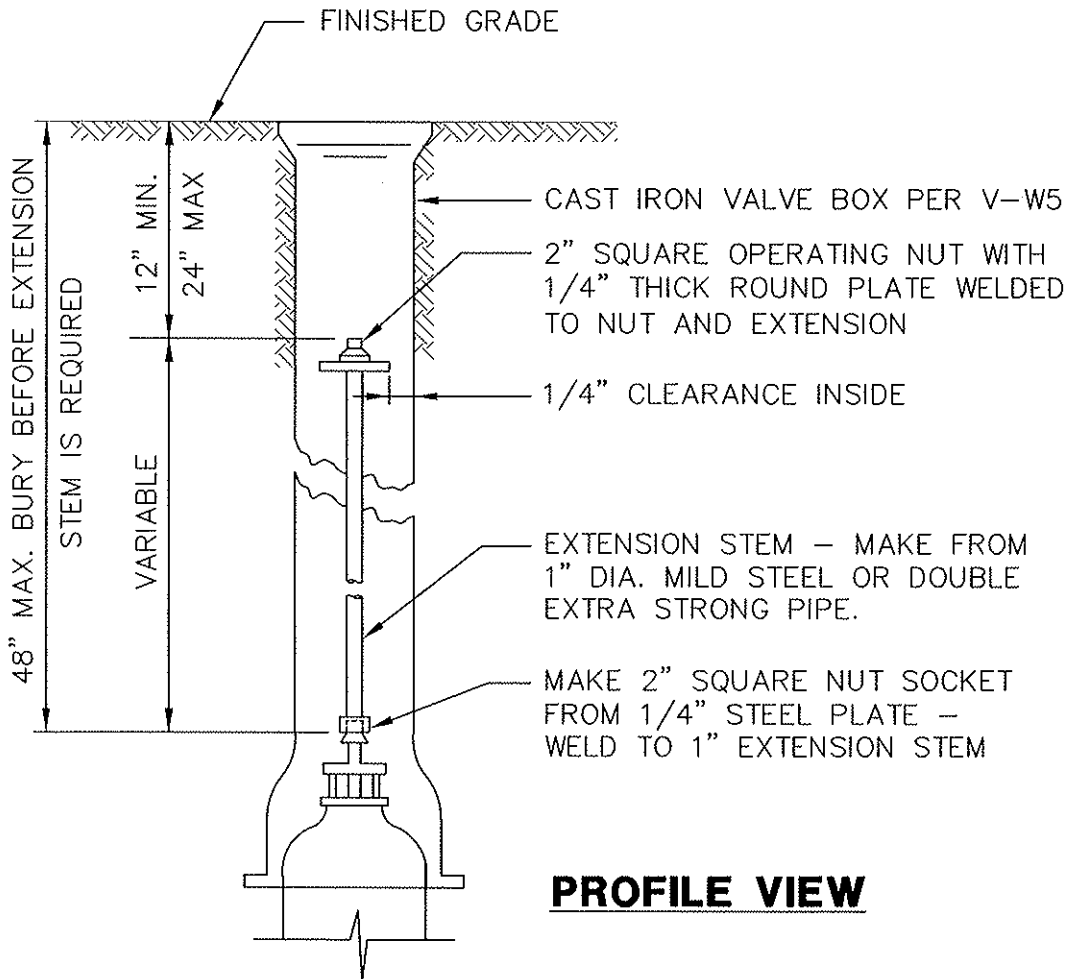
VALVE BOX ADJUSTMENT

Silver Lake Water and Sewer District
STANDARD DETAILS



ALIGN "EARS" ON VALVE BOX TOP WITH DIRECTION OF PIPE BRANCH THE VALVE OPENS AND CLOSES.

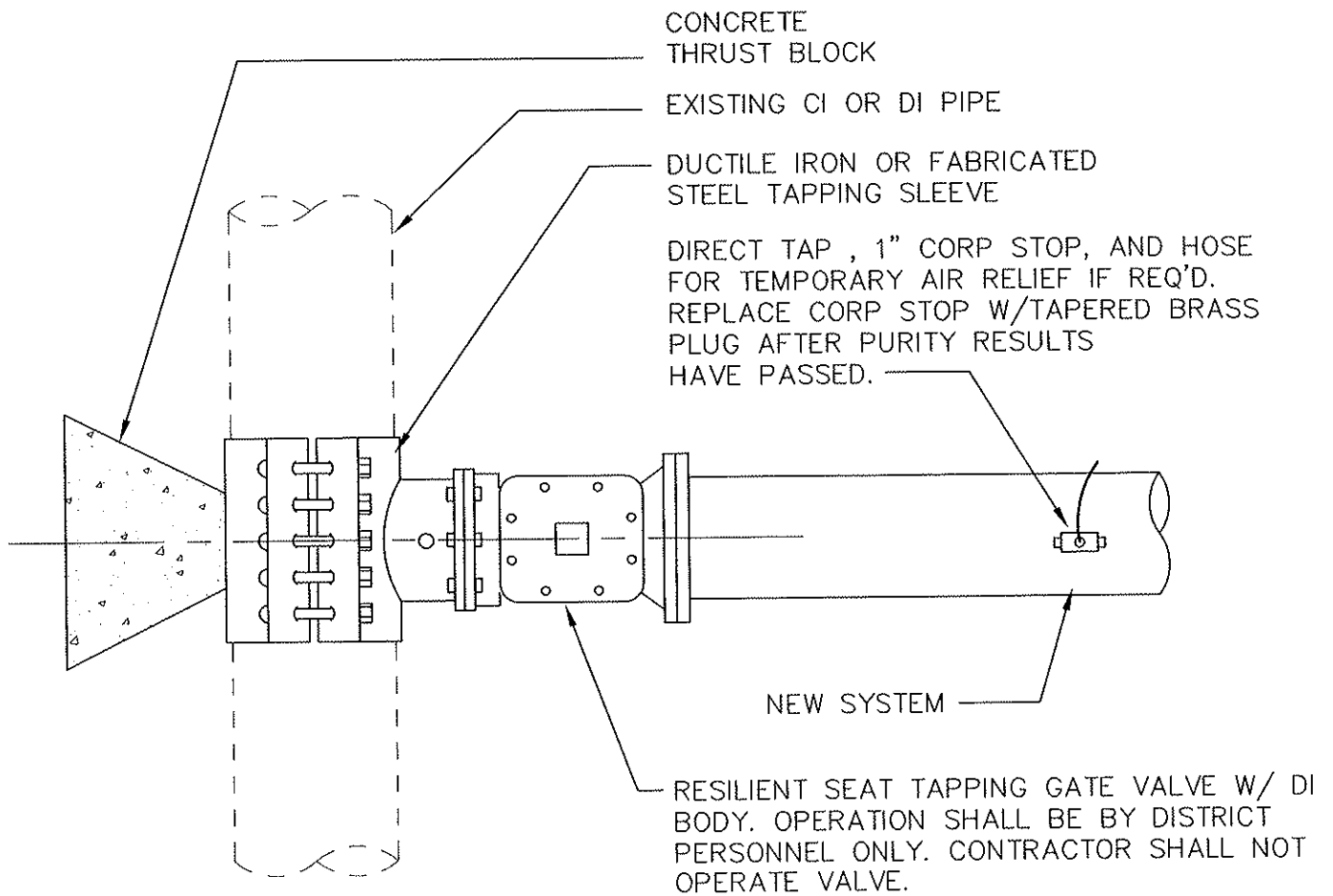
PLAN VIEW



PROFILE VIEW

VALVE EXTENSION STEM

Silver Lake Water and Sewer District
STANDARD DETAILS

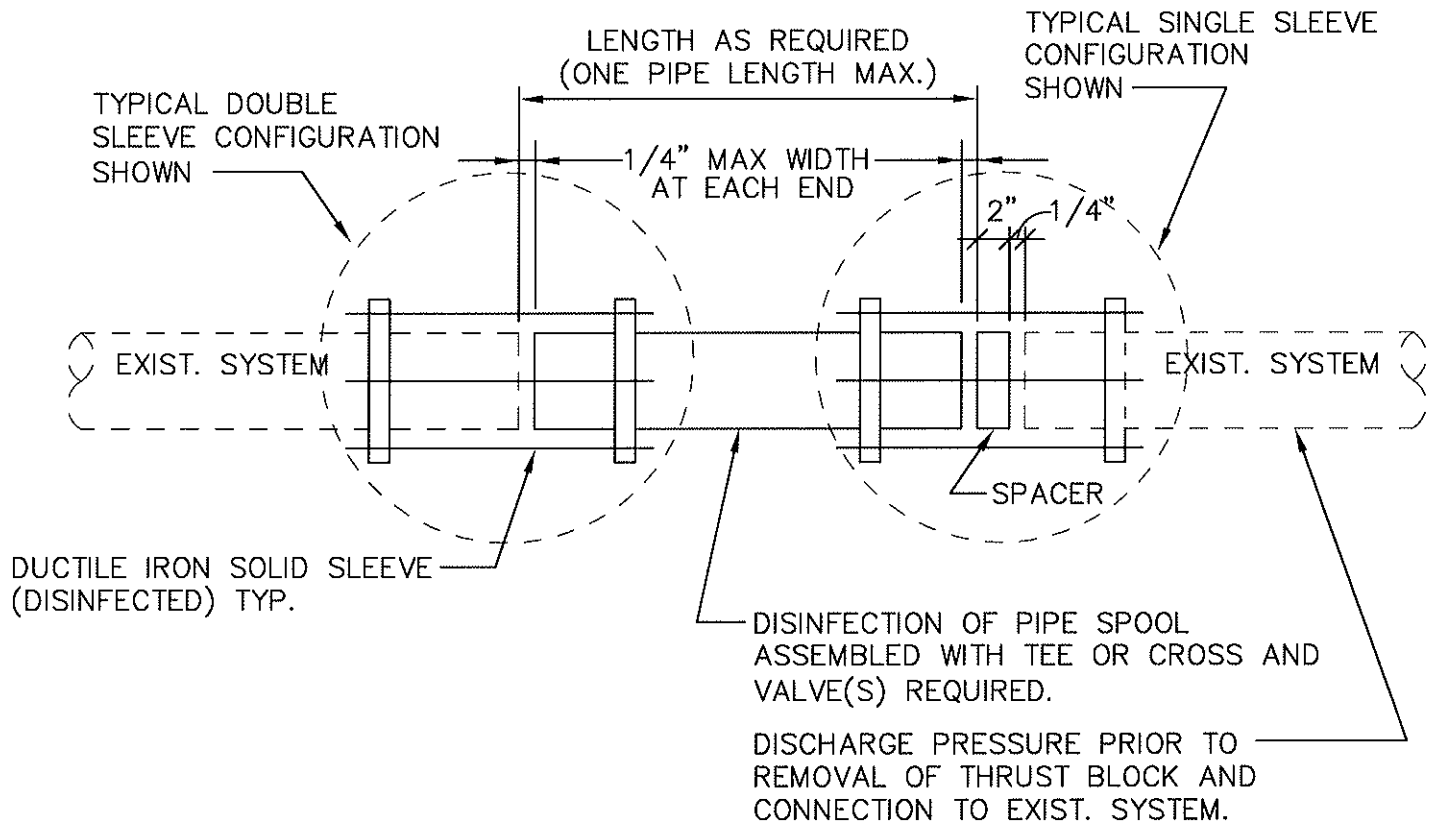


NOTES:

1. TAP TO BE INSTALLED AT DEVELOPERS EXPENSE UNDER DISTRICT OBSERVATION.
2. SIZE-ON-SIZE TAPPING TEES SHALL BE DUCTILE IRON MECHANICAL SLEEVE.
3. STEEL TAPPING TEES SHALL BE AT LEAST 2" SMALLER IN DIAMETER THAN THE EXISTING WATER MAIN AND SHALL BE EPOXY COATED.
4. TAPPING TEES SHALL BE AIR PRESSURE TESTED TO 100 PSI PRIOR TO TAPPING MAIN.
5. CONNECTIONS NOT ALLOWED ON FRIDAYS, HOLIDAYS, DAY BEFORE HOLIDAYS, OR WEEKENDS.

WET TAP CONNECTION

Silver Lake Water and Sewer District
STANDARD DETAILS



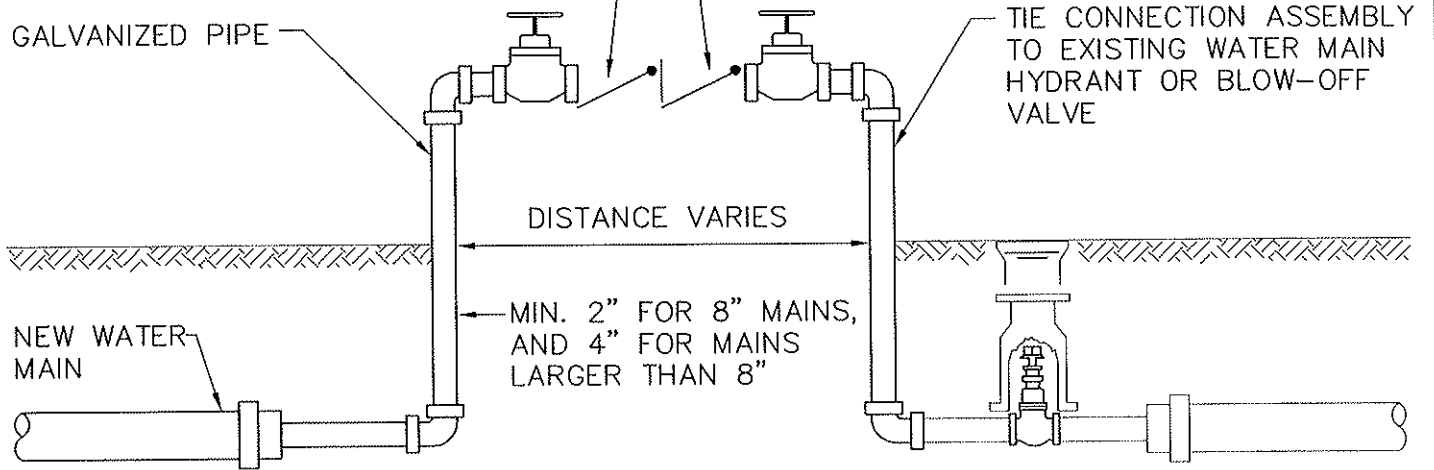
NOTES:

1. IN-LINE VALVE(S) IN EXISTING SYSTEM MAY BE REQUIRED BY THE DISTRICT AT NEW INTERTIE LOCATIONS. VALVE(S) ARE NOT SHOWN ABOVE FOR CLARITY.
2. MAXIMUM SPACES BETWEEN PIPES SHALL BE 1/4-INCH. IF A SINGLE SLEEVE IS USED, THE MAXIMUM SPACER WIDTH IS 2-INCHES.
3. CONNECTIONS NOT ALLOWED ON FRIDAYS, HOLIDAYS, DAY BEFORE HOLIDAYS, OR WEEKENDS.

CUT IN CONNECTION

Silver Lake Water and Sewer District
STANDARD DETAILS

DOUBLE CHECK VALVES (TO MATCH PIPE DIAMETER) APPROVED IN WASHINGTON STATE, AND TESTED WITHIN 90 DAYS WHENEVER INSTALLED OR MOVED. PROVIDE CERTIFICATION TO DISTRICT.

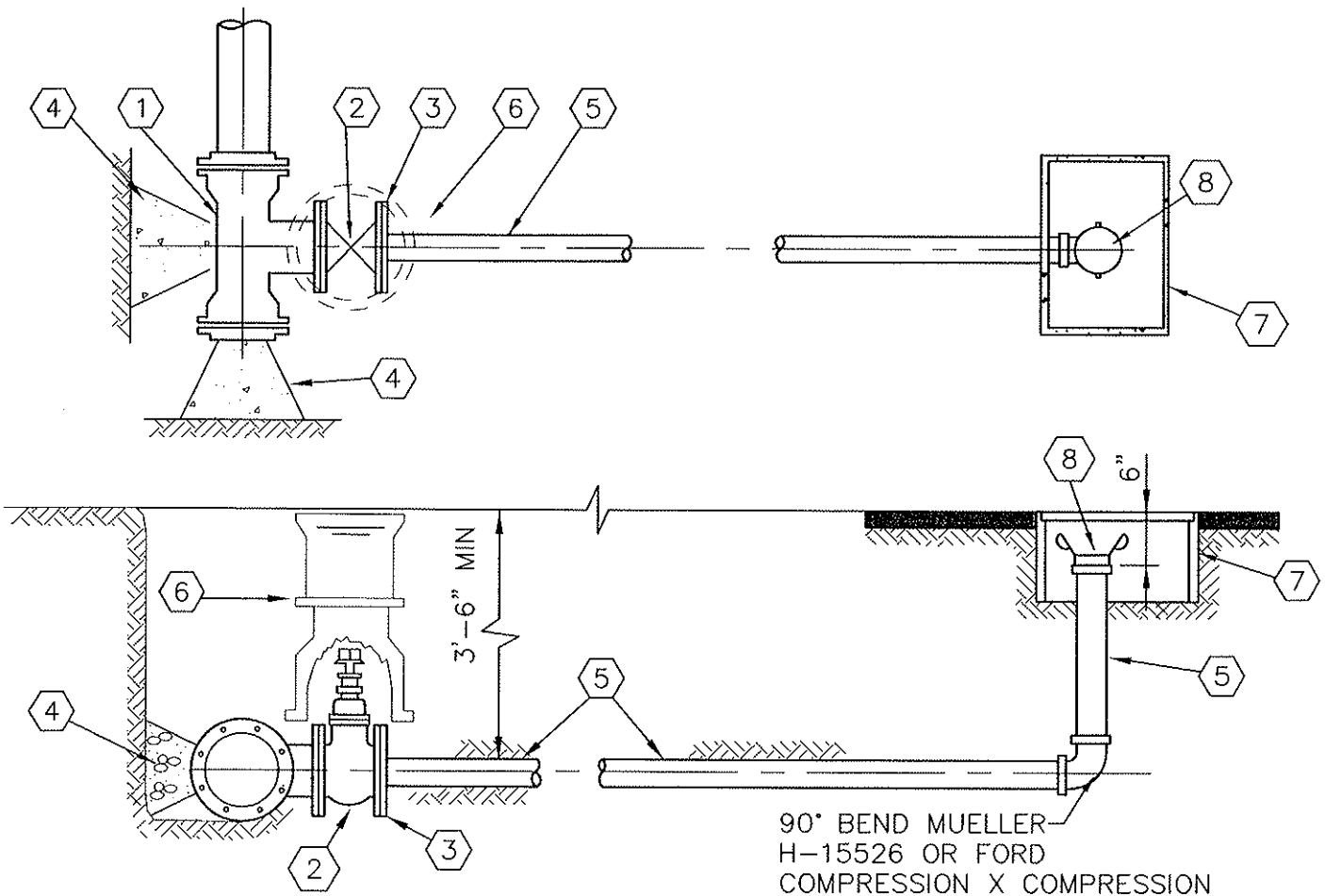


NOTES:

1. PROTECT INSTALLATION FROM DAMAGE AND FREEZING.
2. ALL WATER USED FOR FILLING AND FLUSHING SHALL BE METERED BY DISTRICT. PROVIDE SPACE FOR INSTALLATION OF METER, OR INSTALL ON POINT OF DISCHARGE.
3. ALL NEW MAINS SHALL BE KEPT SEPARATE FROM THE DISTRICT'S EXISTING SYSTEM UNTIL THE NEW MAINS ARE TESTED AND ACCEPTED. FINAL CONNECTION REQUIRES 100% INSPECTION BY THE DISTRICT.

**TESTING CONNECTION
DETAIL**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



90° BEND MUELLER
H-15526 OR FORD
COMPRESSION X COMPRESSION

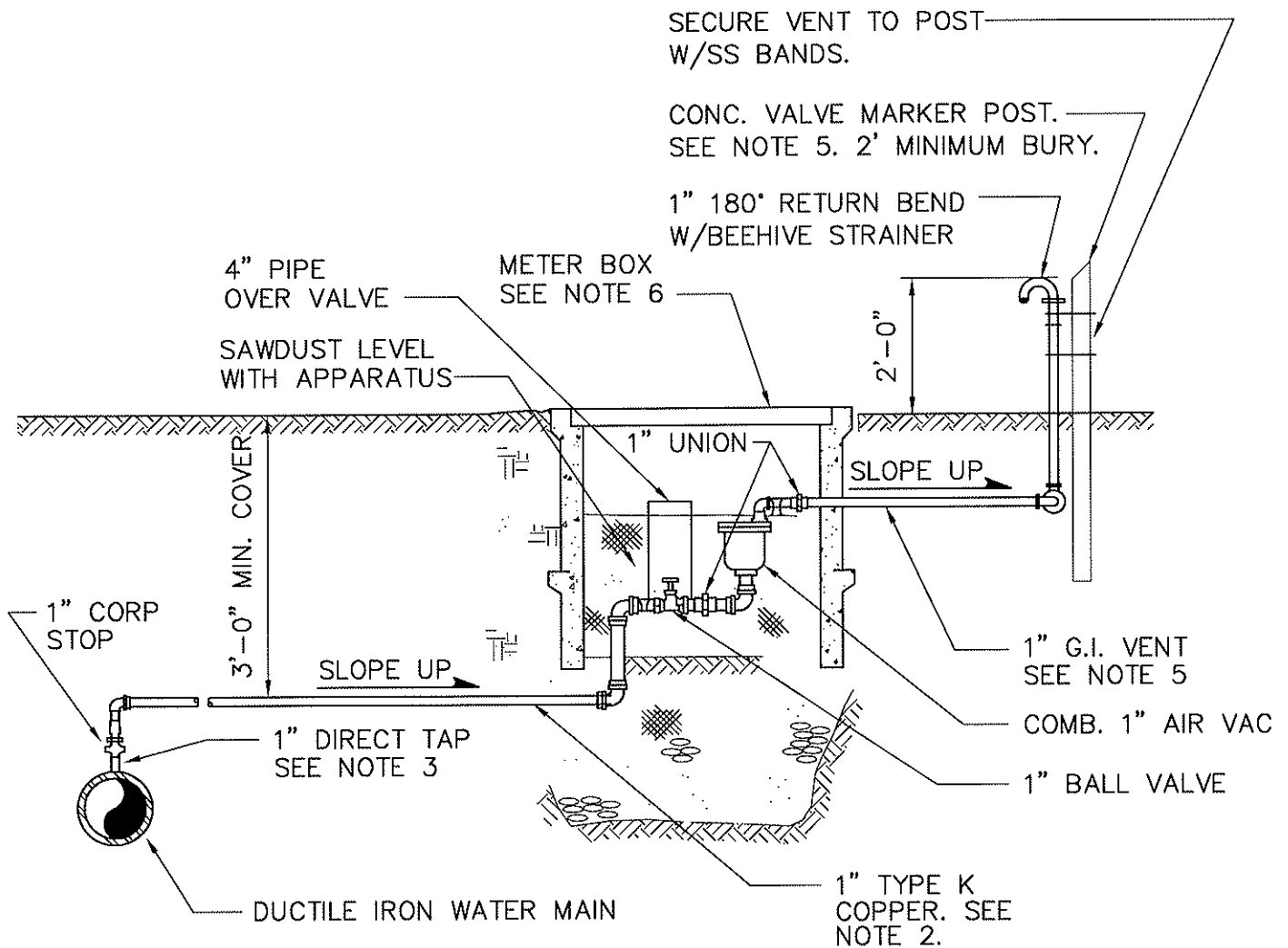
- ① MJ X MJ X 4" FL D.I. TEE.
- ② 4" AWWA RESILIENT SEAT GATE VALVE, FL X FL, WITH OPERATING NUT.
- ③ 4" BLIND FLANGE, TAPPED FOR 2" FOR 6" AND 8" MAINS. MAINS LARGER THAN 8" SHALL END IN A FIRE HYDRANT.
- ④ CONCRETE THRUST BLOCK.
- ⑤ 2" TYPE K COPPER PIPE.
- ⑥ CAST IRON VALVE BOX PER V-W5
- ⑦ METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED. (FIELD LOCATION TO BE IN PAVED SURFACE UNLESS DISTRICT APPROVES ALTERNATE LOCATION.)
- ⑧ ALUMINUM CAM-LOCK AND CAP. DRILL 1/8" HOLE IN CAP. (PLASTIC CAM LOCK FITTING NOT ALLOWED)

NOTES

- 1. INSTALL DIELECTRIC COMPOUNDS FOR SEPARATION AT DISSIMILAR METALS.

BLOW OFF ASSEMBLY

Silver Lake Water and Sewer District
STANDARD DETAILS



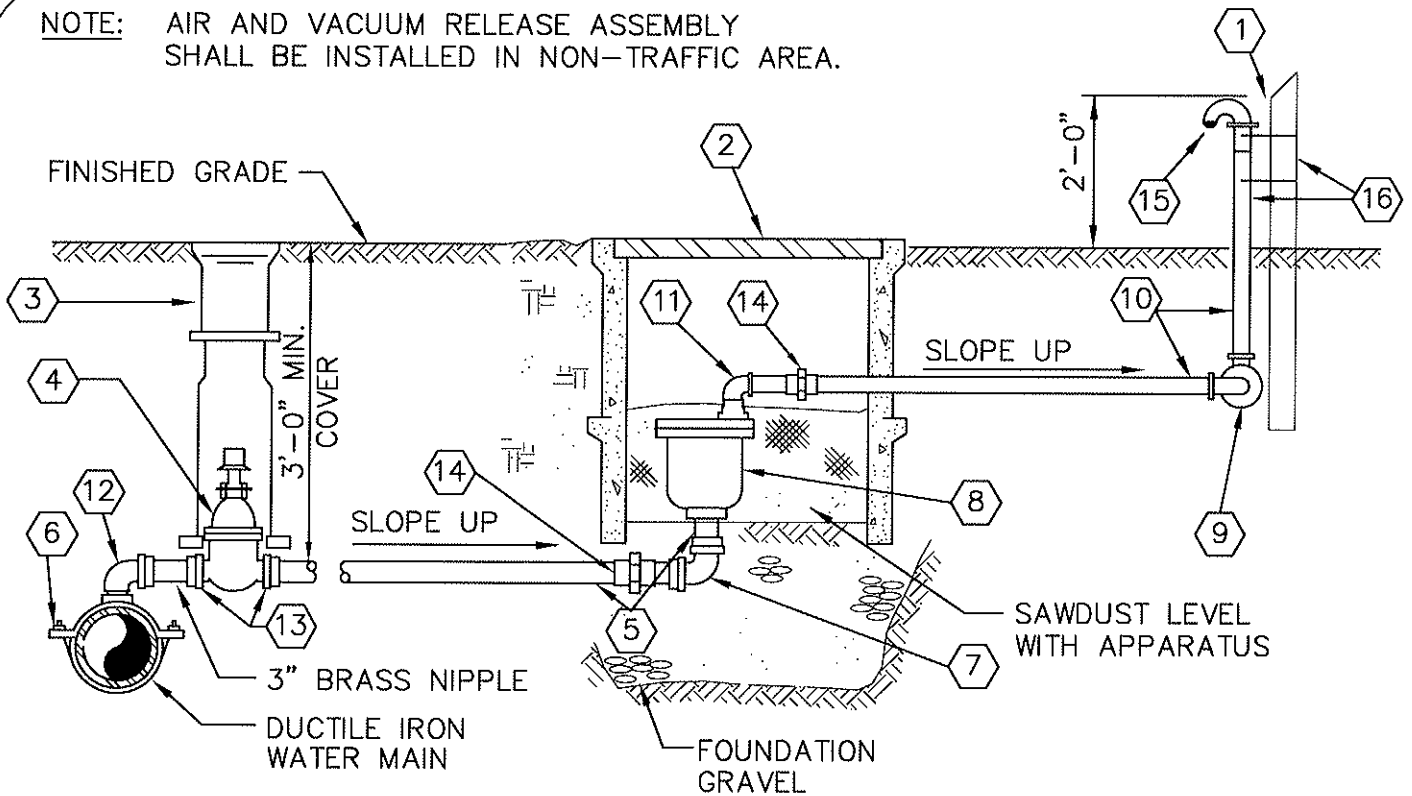
NOTES:

1. USE OF 1" AIR VAC REQUIRES DISTRICT APPROVAL, 2" AIR VAC STANDARD.
2. ALL PIPING AND FITTINGS BETWEEN CORP AND INLET SIDE OF COMBINATION AIR AND VACUUM ASSEMBLY SHALL BE COPPER OR BRASS.
3. TAP WATER MAIN AT HIGH POINT AT LOCATION DESIGNATED BY THE DISTRICT.
4. AIR VAC ASSEMBLY TO BE CONNECTED USING HORIZONTALLY PLACED UNIONS AT EACH END OF AIR VAC ASSEMBLY (MATCH PIPE MATERIAL).
5. PAINT EXPOSED PORTION OF VENT PIPE AND MARKER POST WITH 2 COATS SHERWIN WILLIAMS CAT YELLOW 8084-31084. 2' MINIMUM BURY REQUIRED ON MARKER POST.
6. METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
7. FIELD LOCATION TO BE CONFIRMED WITH DISTRICT.

**1" AIR AND VACUUM
RELEASE ASSEMBLY**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

NOTE: AIR AND VACUUM RELEASE ASSEMBLY SHALL BE INSTALLED IN NON-TRAFFIC AREA.



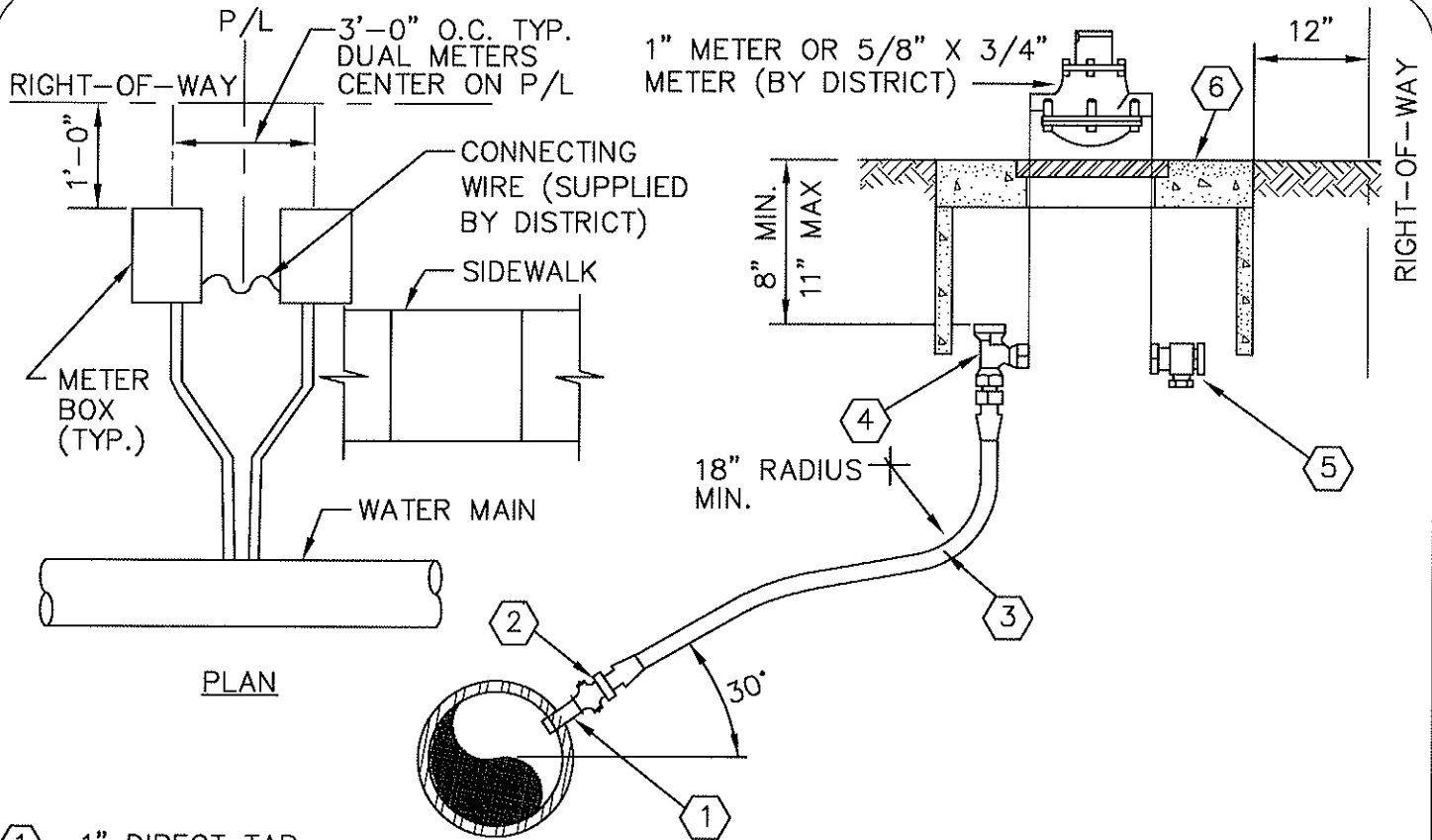
- | | |
|---|---|
| <ul style="list-style-type: none"> ① CONC. VALVE MARKER POST ② METER BOX. BERG VAULT CO. OF WASH NO.2 CONCRETE OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED. ③ CAST IRON VALVE BOX PER V-W5 ④ 2" AWWA RESILIENT SEAT GATE VALVE THD X THD, WITH OPERATING NUT ⑤ 2" TYPE "K" COPPER TUBING ⑥ DOUBLE STRAP SERVICE CLAMP ⑦ 90° BEND MUELLER No. H-15526 COMPRESSION X COMPRESSION ⑧ 2" COMBINATION AIR & VACUUM RELEASE ASSEMBLY; A. APCO MODEL 145C.
B. CRISPIN MODEL UL 20 SERIES.
C. VALMATIC | <ul style="list-style-type: none"> ⑨ 2, 2"X90° ELL, GALV. ⑩ 2" GALV. IRON PIPE (FIELD LOCATE NEXT TO EXISTING PROPERTY LINE). ⑪ 2"X90° ELL, GALV. ⑫ 90° BEND MUELLER No. H-10096 FEMALE X M.I.P. ⑬ STRAIGHT COUPLING, MUELLER No. H-15428 COMPRESSION TO M.I.P. ⑭ UNIONS ⑮ 2" OPEN PATTERN RETURN BEND WITH 2" BEEHIVE STRAINER ⑯ PAINT EXPOSED PORTION OF VENT PIPE AND MARKER POST WITH TWO COATS OF KELLY MOORE 6100-516 YELLOW. SECURE VENT TO POST WITH SS BANDS. 2' MINIMUM BURY REQUIRED ON MARKER POST. |
|---|---|

NOTES:

1. ALL PIPING AND FITTINGS BETWEEN DOUBLE STRAP SADDLE AND INLET SIDE OF COMBINATION AIR AND VACUUM ASSEMBLY SHALL BE COPPER OR BRASS.
2. TAP WATER MAIN AT HIGH POINT AT LOCATION TO BE DETERMINED BY THE DISTRICT.
3. AIR VAC ASSEMBLY TO BE CONNECTED USING HORIZONTALLY PLACED UNIONS AT EACH END OF AIR VAC ASSEMBLY (MATCH PIPE MATERIAL)

2" AIR AND VACUUM RELEASE ASSEMBLY

Silver Lake Water and Sewer District
STANDARD DETAILS



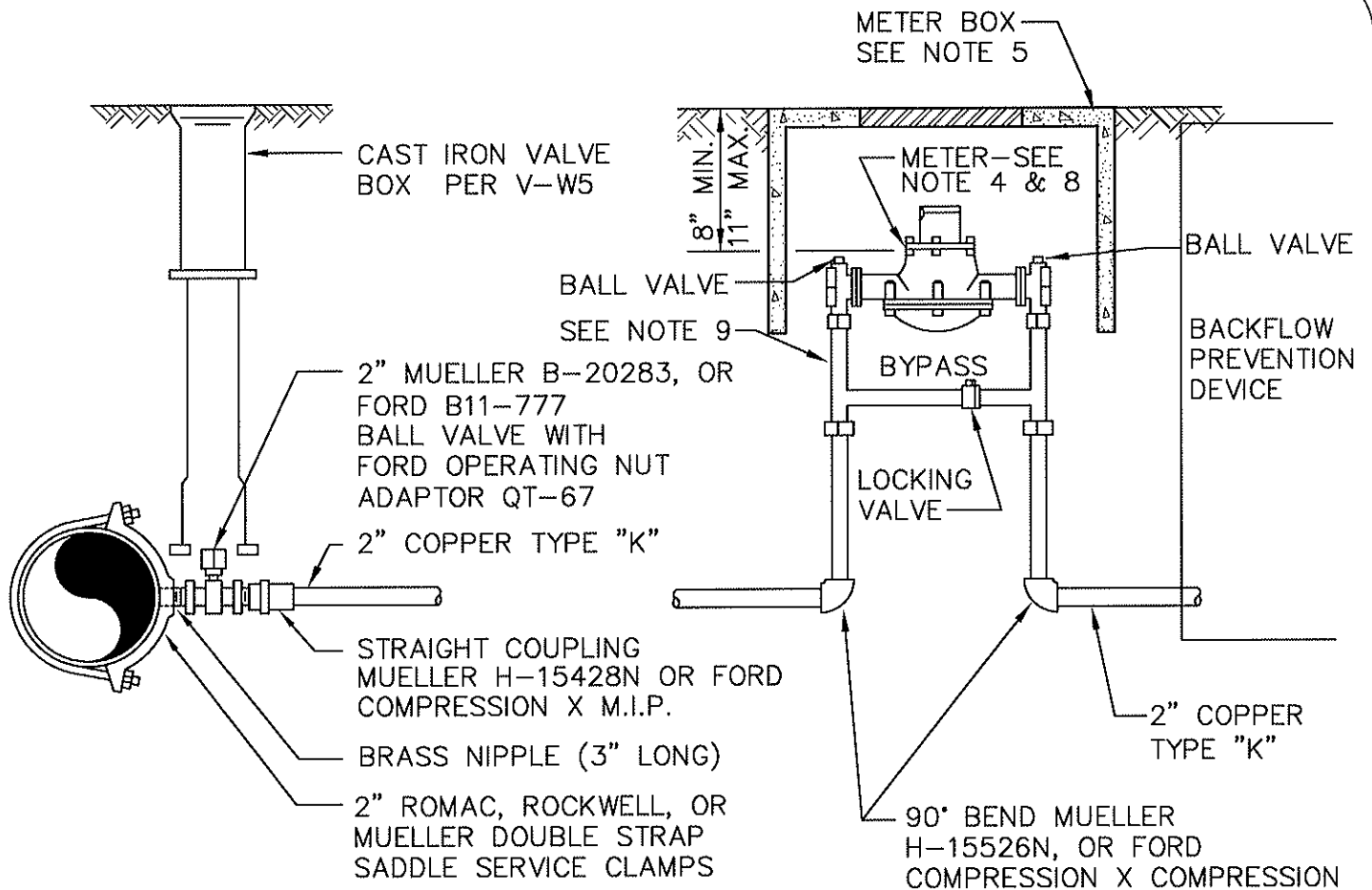
- ① 1" DIRECT TAP
- ② 1" BALL TYPE CORPORATION STOP MUELLER B-25008-N, FORD FB1000-Q4-NL, A.Y. McDONALD 74701BQ
- ③ 1" TYPE K COPPER SERVICE TUBING - LENGTH AS REQUIRED
- ④ 1"x3/4" FOR 5/8"x3/4" METERS, 1" ANGLE METER BALL VALVE, MUELLER B-24258-N, FORD BA43-342-NL W2, A.Y. McDONALD 74642BQ
- ⑤ 1" ANGLE DUAL CHECK VALVE, MUELLER H-14244-N, FORD HHA31-323-NL, A.Y. McDONALD 712-3HE43
- ⑥ MID STATES PLASTICS MSBCF 1324-12 W/1324-RL COMPOSITE BOX MAY BE USED FOR 5/8"x3/4" OR 1"x3/4" METERS. BOX SHALL BE H-20 LOAD RATED WITH 2" MANUFACTURED DRILLED HOLE FOR AMR UNIT.

NOTES:

- 1. NO SPLICES IN 1" COPPER TUBING ALLOWED.
- 2. SERVICE FROM METER BOX TO HOUSE BY PROPERTY OWNER.
- 3. INDIVIDUAL SERVICE REQUIRED FOR EACH STRUCTURE OR LOT.
- 4. METER TO BE INSTALLED BY THE DISTRICT AT OWNER'S EXPENSE.
- 5. ESMT PROVIDED TO SLWSD AROUND METERS LOCATED OUTSIDE R/W.
- 6. ALL SERVICES EXCEPT SINGLE FAMILY RESIDENTIAL TO HAVE STATE APPROVED BACKFLOW PREVENTION DEVICE CONFIRM INSTALLATION WITH DISTRICT. INITIAL AND ANNUAL TESTING REQUIRED AND SUBMITTAL OF TEST RESULTS TO SLWSD FOR CONFIRMATION

1" WATER SERVICE

Silver Lake Water and Sewer District
STANDARD DETAILS

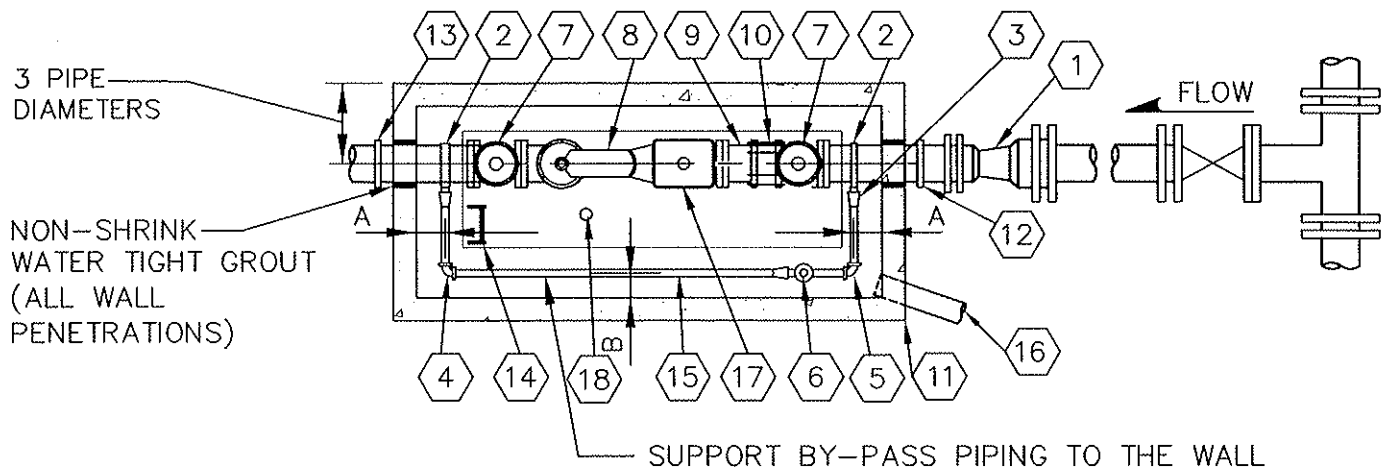


NOTES:

1. NO SPLICES IN 2" COPPER PIPE ALLOWED.
2. SERVICE FROM METER BOX TO STRUCTURE BY PROPERTY OWNER.
3. INDIVIDUAL SERVICES REQUIRED FOR EACH STRUCTURE.
4. 2-INCH METER SETTER (WITH ADAPTERS IF 1 1/2-INCH METER USED).
SETTER - A.Y. McDONALD 730B7-WWFF 775 OR MUELLER B-2427N. DRILL 2" DIAMETER HOLE IN LID FOR AMR DEVICE.
5. BERG VAULT CO. OF WASH NO. 2 CONCRETE METER BOX OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE METER BOX. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
6. ESMT PROVIDED TO SLWSD AROUND METERS LOCATED OUTSIDE R/W.
7. ALL SERVICES SHALL HAVE WASHINGTON STATE APPROVED RPBA FOR BACKFLOW PREVENTION LOCATED IMMEDIATELY BEHIND METER. CONFIRM LOCATION OF ASSEMBLY WITH DISTRICT. INITIAL AND ANNUAL TESTING REQUIRED AND SUBMITTAL OF TEST RESULTS TO SLWSD FOR CONFIRMATION.
8. METER TO BE INSTALLED BY THE DISTRICT AT OWNER'S EXPENSE. BYPASS TO BE LOCKED AND VISIBLE UNTIL ACCEPTED.
9. ALL SETTERS SHALL BE SET AT THE REQUIRED METER SPACING USING ALL THREAD OR OTHER MEANS.

2" WATER SERVICE

Silver Lake Water and Sewer District
STANDARD DETAILS



PLAN

- ① 4"x3" REDUCER, M.J. FOR 3" METER
- ② SINGLE STRAP SERVICE CLAMP, ROMAC 101 WITH IPS TAP, OR EQUAL (1 1/2" OR 2" BYPASS, 4-INCH BYPASS REQUIRES D.I. TEE).
- ③ FITTINGS AS REQUIRED.
- ④ BEND CPLG COPPER TO COPPER MUELLER H-15525.
- ⑤ BEND CPLG, COPPER TO OUTSIDE I.P. THREAD MUELLER H-15530, OR EQUAL.
- ⑥ BALL VALVE WITH PADLOCK WING OR LOCK CAP, FORD B21-444W OR B21-666 WITH LOCK CAP OR B21-777 WITH LOCK CAP. SIZED TO LINE.
- ⑦ RESILIENT SEAT GATE VALVE, FL X FL SIZED TO METER.
- ⑧ USE SENSUS OMNI TURBINEMETER FOR IRRIGATION SERVICES AND SENSUS OMNI COMPOUND METER FOR DOMESTIC SERVICE, METER SHALL HAVE 8-DIGIT RESOLUTION. METER AND RADIO UNIT AS SPECIFIED BY DISTRICT SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
- ⑨ D.I. PIPE SPOOL FL X PE LENGTH TO FIT.
- ⑩ FL CPLG. ADAPT.
- ⑪ PRECAST CONCRETE VAULT, UTILITY VAULT OR EQUAL, SEE DETAIL V-W16B FOR SIZING AND REQUIREMENTS.
- ⑫ MEGA-LUG FOLLOWER INSTALLED ON INFLOW SIDE OF VAULT WITH CONCRETE THRUST BLOCK OR SHACKLE TO THRUST BLOCK TO PREVENT MOVEMENT IF METER IS REMOVED. (BLOCK NOT SHOWN)
- ⑬ DIELECTRIC CPLG. TO BUILDING SERVICE. SIZE AS REQUIRED.
- ⑭ GALV. STEEL OR ALUMINUM LADDER. SECURE TO VAULT LID AND FLOOR. COORDINATE LOCATION FOR ACCESS.
- ⑮ BY-PASS (SIZE BY TABLE BELOW).
- ⑯ 6" PVC TO CATCH BASIN OR DAYLIGHT. WHERE GRAVITY DRAIN IS NOT FEASIBLE, PROVIDE SUMP, ELECTRICAL SERVICE AND PUMP WITH DISCHARGE TO SURFACE DRAIN. PUMP SHALL BE 1/2 HP ZOELLER M-53, WITH CHECK VALVE ON DISCHARGE LINE.
- ⑰ WATER METER STRAINER (FL) SENSUS OR EQUAL.
- ⑱ 2" DIAM. HOLE DRILLED IN LID, STREET SIDE FOR XMTR HOLE.

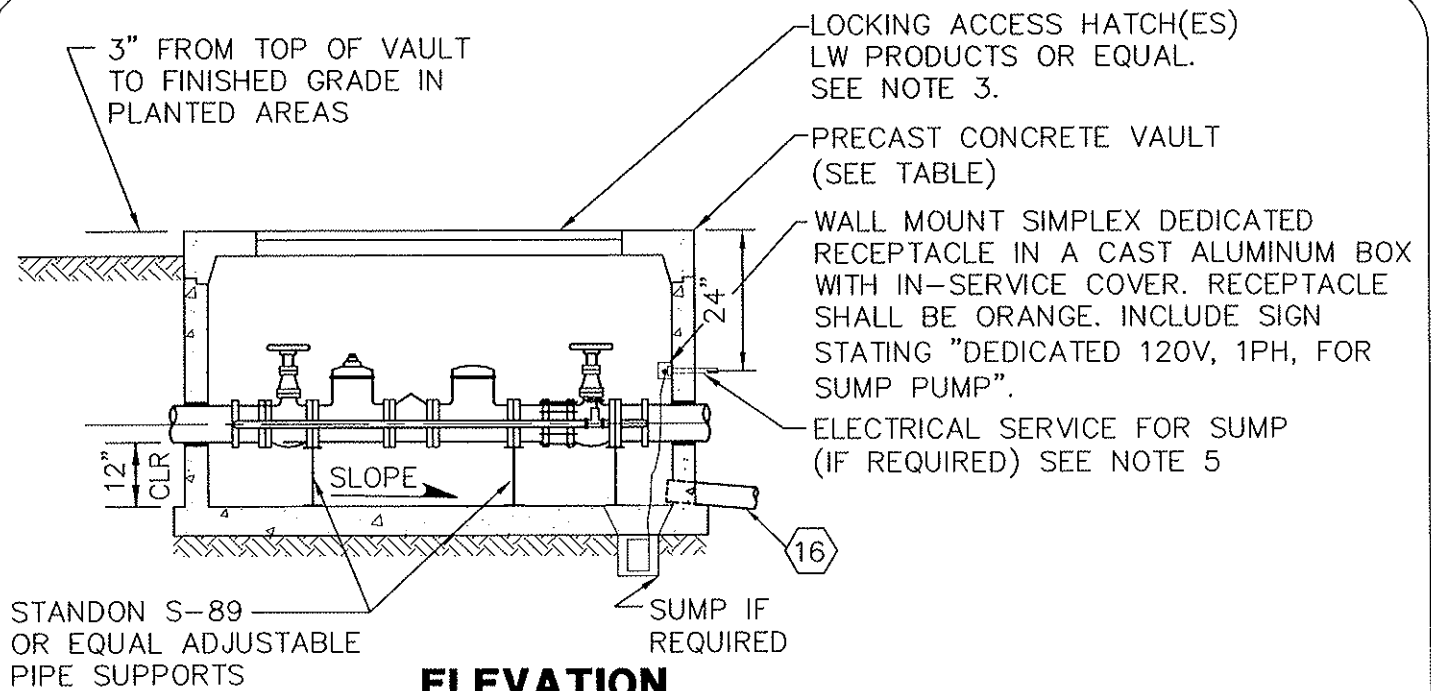
METER SIZE	MAIN-LINE	BYPASS	A	B
3"	4" DI.	1 1/2" COPPER	9"	4"
4"	4" DI.	1 1/2" COPPER	9"	4"
6"	6" DI.	2" COPPER	9"	4"
8"	8" DI.	4" DI.	14"	6"
10"	10" DI.	4" DI.	16"	6"

NOTES:

1. SEE V-W16B FOR ELEVATION AND NOTES.

METER VAULT ASSEMBLY 3" THROUGH 10"

Silver Lake Water and Sewer District
STANDARD DETAILS



ELEVATION

SEE DETAIL V-W16A FOR CALLOUTS

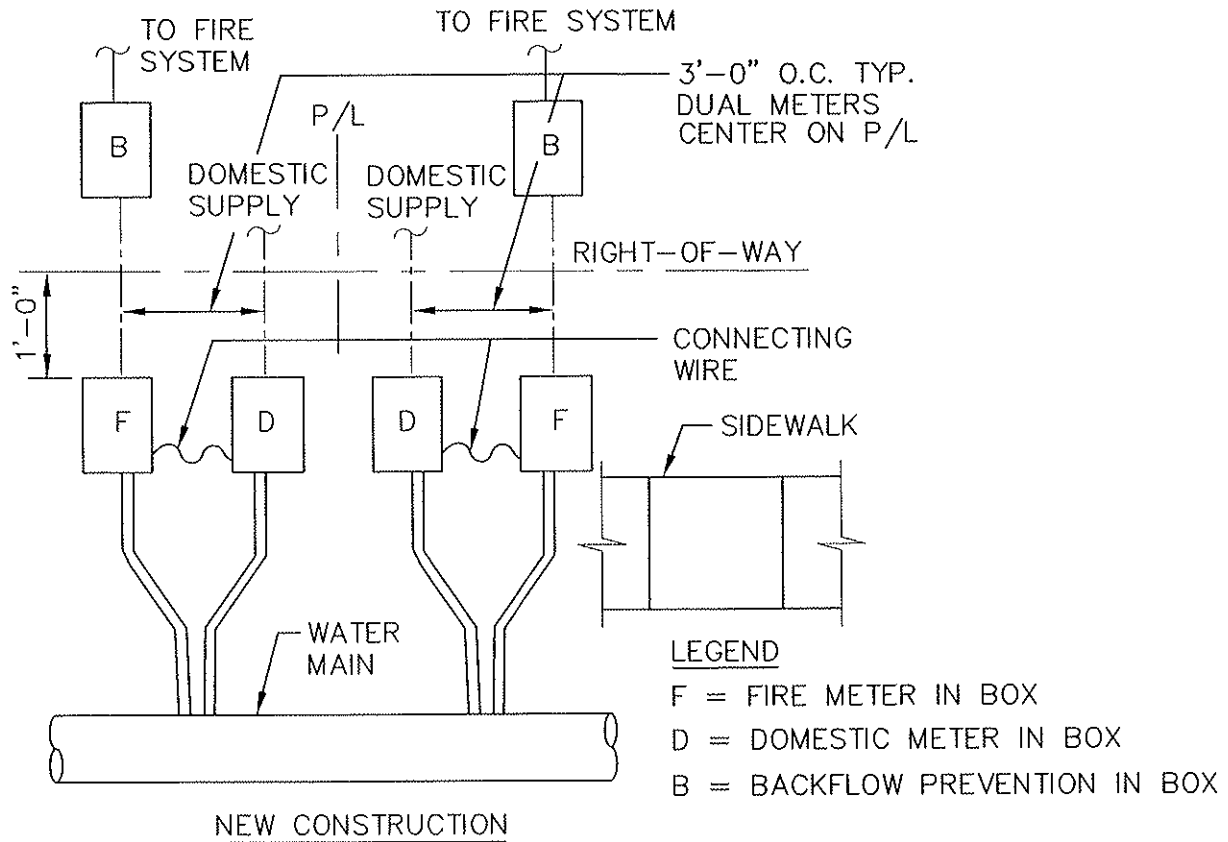
METER SIZE	MAIN-LINE	MINIMUM 1/2 VAULT DIM. L x W x H			UTILITY VAULT CO APPROVED MODEL	MIN. HATCH OPENING
3"	4" DI.	8'-4"	4'-4"	3'-4"	4484-LA	3' x 6'
4"	4" DI.	8'-4"	4'-4"	3'-4"	4484-LA	3' x 6'
6"	6" DI.	10'-6"	5'-0"	6'-2"	5106-LA	3' x 6'
8"	8" DI.	12'-0"	6'-0"	6'-6"	612-LA	3' x 6'
10"	10" DI.	14'-0"	8'-0"	6'-6"	814-LA	3' x 6'

NOTES:

- WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW PREVENTOR REQUIRED. SEE VI-W20. CONFIRM INSTALLATION WITH DISTRICT. INITIAL AND ANNUAL TEST REQUIRED.
- METER SHALL BE INSTALLED SUCH THAT IT CAN BE READ WITHOUT ENTERING VAULT WITH ACCESS HATCH OPEN.
- COORDINATE ORIENTATION OF HATCH(ES) TO PROVIDE CLEAR VERTICAL ACCESS TO METER ASSEMBLY, AND WITH LADDER LOCATION. VERIFY WITH DISTRICT.
- DRAIN DRAIN HATCH(ES) TO VAULT FLOOR WITH PVC PIPE AND FITTINGS.
- 3/4" (MINIMUM) PVC SCH-40 CONDUIT. WIRING SHALL BE COMPLETELY SEALED 120V, UNDER GROUND. CONTRACTOR TO SEAL CONDUIT PENETRATION WITH NON-SHRINK GROUT. (NOT REQUIRED IF GRAVITY VAULT DRAIN PROVIDED).
- ESMT TO BE PROVIDED TO SLWSD AROUND METERS LOCATED OUTSIDE R/W.
- SEE VI-W16A FOR PLAN AND NOTES.
- ALL METERS SHALL BE INSPECTED BY DISTRICT PERSONNEL PRIOR TO INSTALLATION.

**METER VAULT ASSEMBLY
3" THROUGH 10"**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



CONSTRUCTION NOTES:

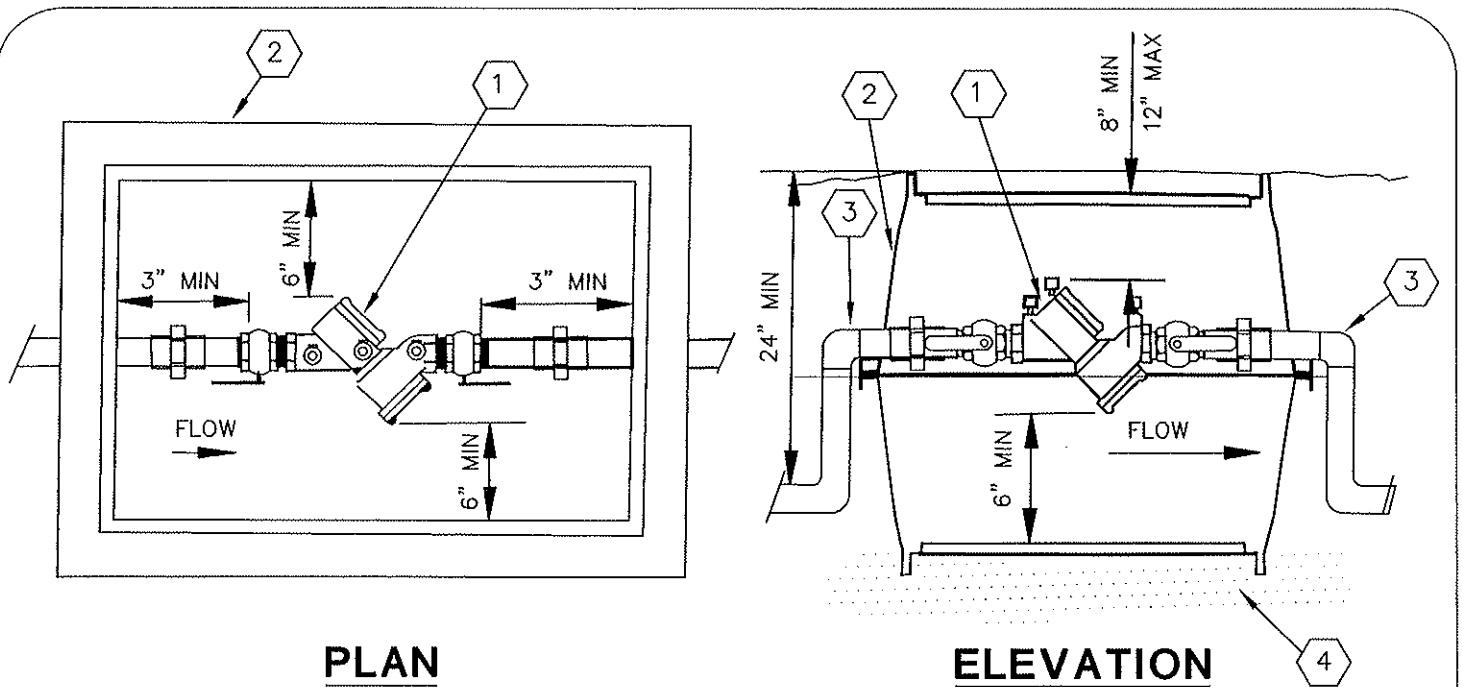
1. ALL TAPS CONFORM TO WATER SERVICE DETAIL FOR PIPE SIZE OF LATERAL.
2. BACKFLOW PREVENTION REQUIRED IMMEDIATELY FOLLOWING METER BOX OR AS PRACTICALLY CLOSE AS POSSIBLE. CONFIRM WITH DISTRICT FOR LOCATION. INITIAL AND ANNUAL CERTIFICATION TESTING REQUIRED. SUBMIT TEST RESULTS TO DISTRICT FOR CONFIRMATION.
3. ALL FIRE METERS SHALL BE INSTALLED IN A METER BOX PER 1" OR 2" WATER SERVICE STANDARD DETAIL AS APPROPRIATE. ANGLE STOP TO BE PAINTED RED IN FIELD (COMMERCIAL SAFETY RED).

PROBABLE USE CONDITIONS:

1. WHERE BUILDING CODE REQUIRES.
2. IN RESIDENTIAL LOCATIONS WHERE:
 - a. ACCESS ROADS EXCEEDS 150 FT AND DOES NOT END IN CUL-DE-SAC 40 FOOT RADIUS MINIMUM.
 - b. ACCESS ROAD IS LESS THAN 20 FEET WIDE.
 - c. WATER SUPPLY ISSUES EXIST.

1" OR 2" DOMESTIC FIRE SERVICE CONNECTION

Silver Lake Water and Sewer District
 STANDARD DETAILS



PLAN

ELEVATION

- ① WASHINGTON STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA)
- ② METER BOX. BERG VAULT CO. OF WASH NO. 2 CONCRETE, OR MID STATES PLASTICS MSBCF 1730-12 COMPOSITE. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
- ③ BENDS MAY BE LOCATED INSIDE OR OUTSIDE OF BOX SO LONG AS SUFFICIENT ROOM IS ALLOWED AT EACH END FOR VALVE OPERATION AND DCVA REPAIR OR MAINTENANCE.
- ④ PROVIDE FREE DRAINING BACKFILL BELOW BOX. (12" WASHED GRAVEL).

NOTES:

1. ALL TEST COCKS SHALL POINT UPWARDS AND HAVE BRASS PLUGS.
2. DCVA SHALL BE CENTERED IN BOX (PLAN).
3. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, DISTRICT AND MANUFACTURER STANDARDS.
4. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL DCVA IS APPROVED BY THE DISTRICT AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
5. DCVA IS CONSIDERED PART OF A PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
6. INSTALL DCVA USING UNIONS ON EACH END OF ASSEMBLY. UNIONS TO BE EXPOSED INSIDE OF BOX.
7. BOTTOM OF BOX TO BE OPEN TO DRAIN.
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND DCVA.

DOUBLE CHECK VALVE ASSEMBLY 2" & SMALLER

Silver Lake Water and Sewer District
STANDARD DETAILS

INSULATED ENCLOSURE
SIZED FOR ASSEMBLY.
ARCHITECTURAL COVERS
WILL BE CONSIDERED BY
DISTRICT.

12" MIN. CLEARANCE
FROM DISCHARGE
TO CONCRETE

BOLT TO PAD
W/ 3/8" S.S. ANCHOR
BOLTS AND WASHERS,
MIN. 4 LOCATIONS

PIPE
SUPPORT

FLOW

PROVIDE HEAT TAPE
AND PIPE INSULATION
AS REQUIRED FOR
FREEZE PROTECTION.
APPLY 2" FIBERGLASS
OVER HEAT TAPE.
PROVIDE ELECTRICAL
FROM SERVED FACILITY.

UNION (TYP. OF 2)
SEE NOTE 5

BALL VALVE

DRAIN TO DAYLIGHT W/
BIRD SCREEN AT SLAB
LEVEL

COPPER PIPE
BETWEEN METER
AND RPBA

FLOW

COPPER PIPE FOR VERTICAL RISER. WHEN
PASSING THROUGH CONCRETE, WRAP PIPE TO
2-INCHES EACH SIDE OF CONCRETE WITH DUCT
TAPE PRIOR TO POURING CONCRETE BASE.

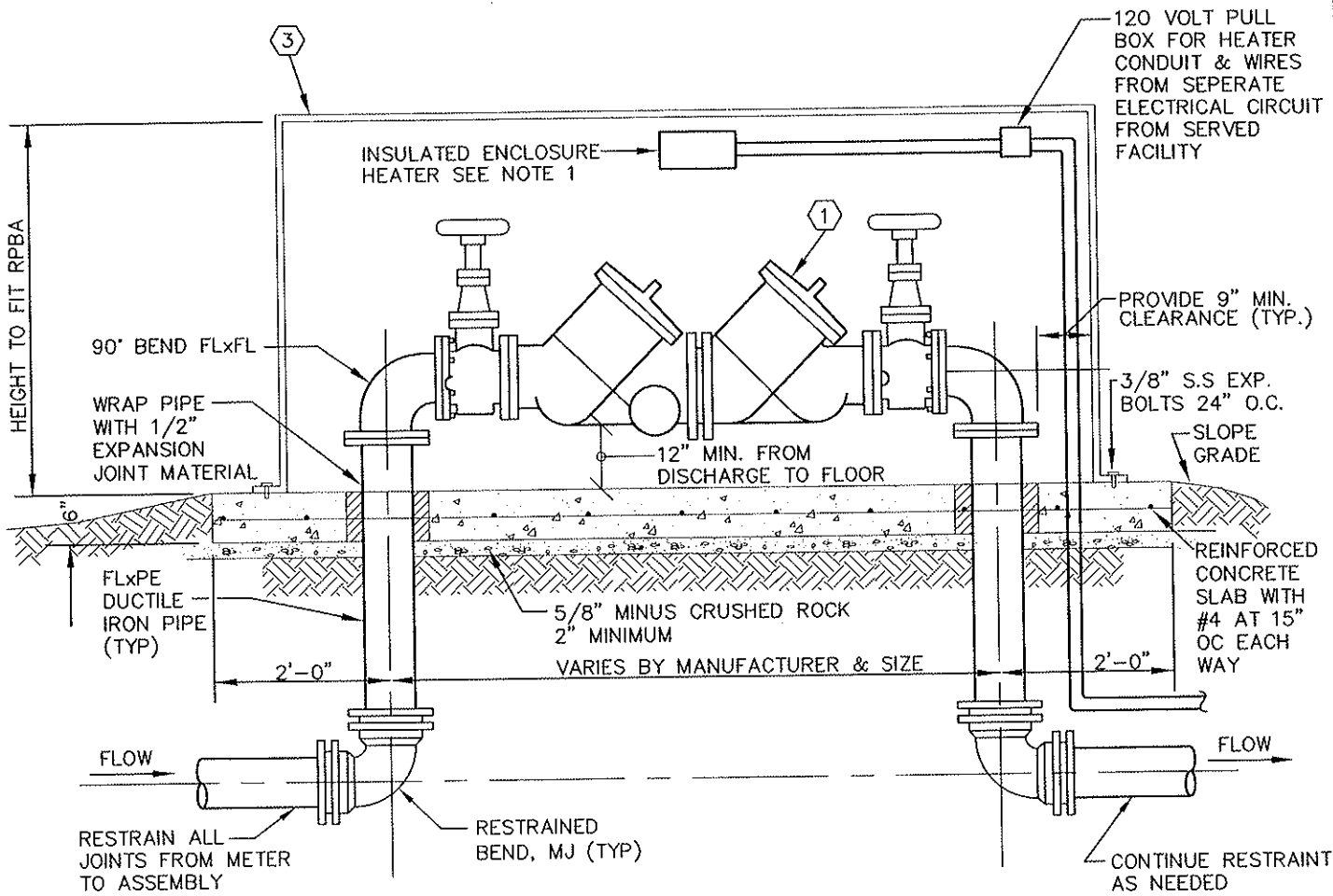
1 WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
WITH TEST COCK PROTECTION AND BRONZE BODY BALL VALVE AT EACH END.

NOTES:

1. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
2. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, DISTRICT AND MANUFACTURER STANDARDS.
3. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE DISTRICT AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
4. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
5. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
6. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.

**REDUCED PRESSURE BACKFLOW
ASSEMBLY-3/4" TO 2"**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



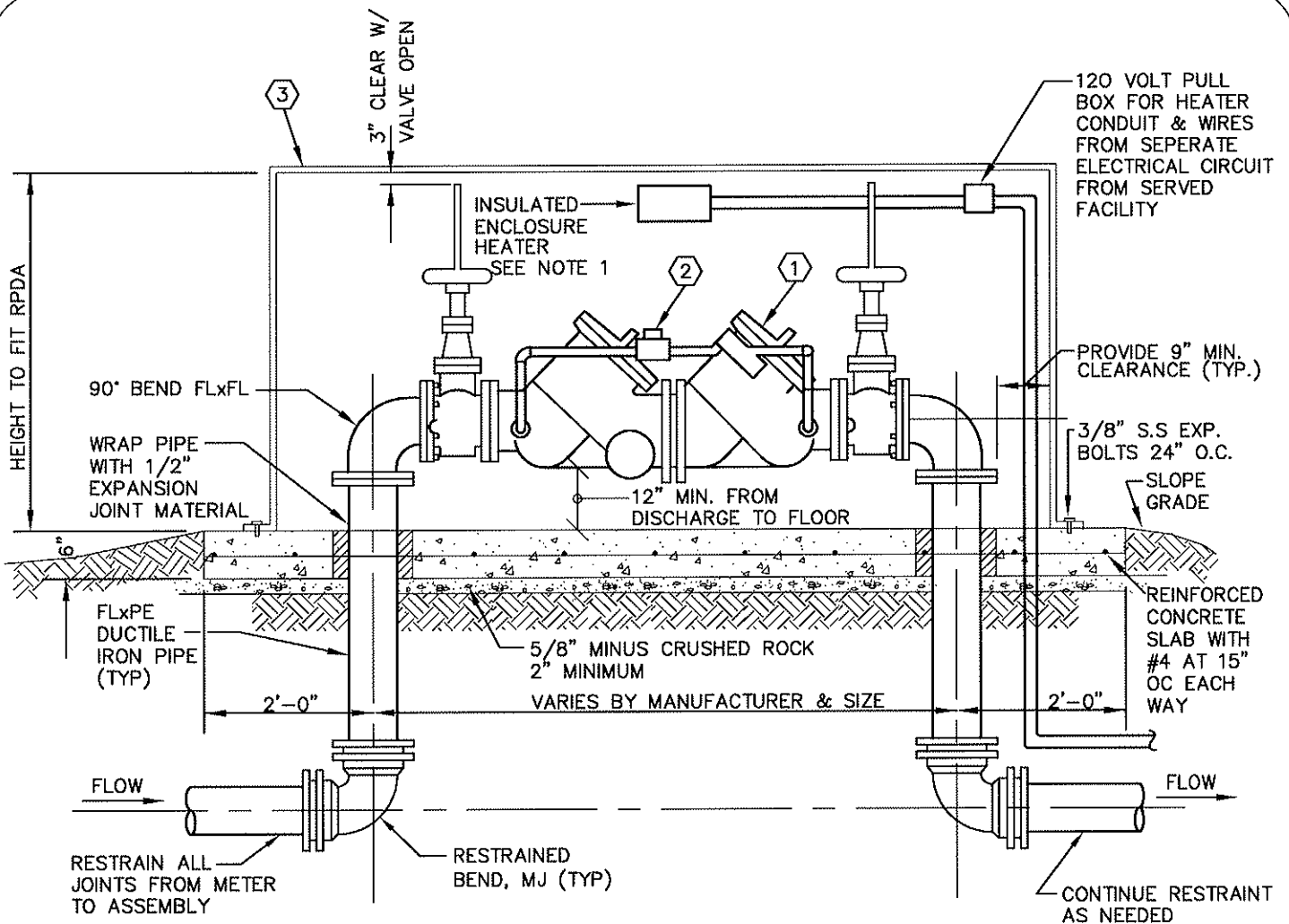
- ① WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH RESILIENT SEAT GATE VALVE EACH END
- ② NOT USED
- ③ ALUMINUM INSULATED ENCLOSURE MODELS 4 THROUGH 10 FOR RESPECTIVE SIZE RPBA SHALL BE MODIFIED TO FIT ABOVE HEIGHT REQUIREMENTS. VALVE STEM SHALL NOT EXTEND OUTSIDE OF BOX.

NOTES:

1. INSULATED ENCLOSURE TO BE LOCATED OUTDOORS AND ACCESSIBLE TO DISTRICT. ALTERNATE LOCATION REQUIRES DISTRICT APPROVAL.
2. HEATERS AND WIRING SHALL BE RATED AT 2,000 WATT FOR 8" AND UNDER; 3,000 WATT FOR 10".
3. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
4. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, DISTRICT AND MANUFACTURER STANDARDS.
5. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE DISTRICT AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
6. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
7. DRAIN TO DAYLIGHT WITH BIRD SCREEN LOCATED AT SLAB LEVEL (SIZED PER MANUFACTURERS RECOMMENDATION).
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.

REDUCED PRESSURE BACKFLOW ASSEMBLY-3" AND LARGER

**Silver Lake Water and Sewer District
STANDARD DETAILS**



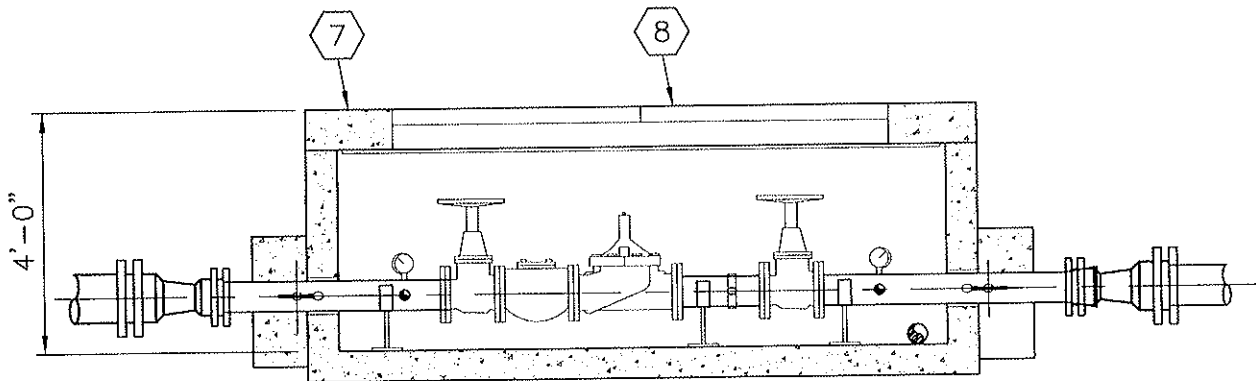
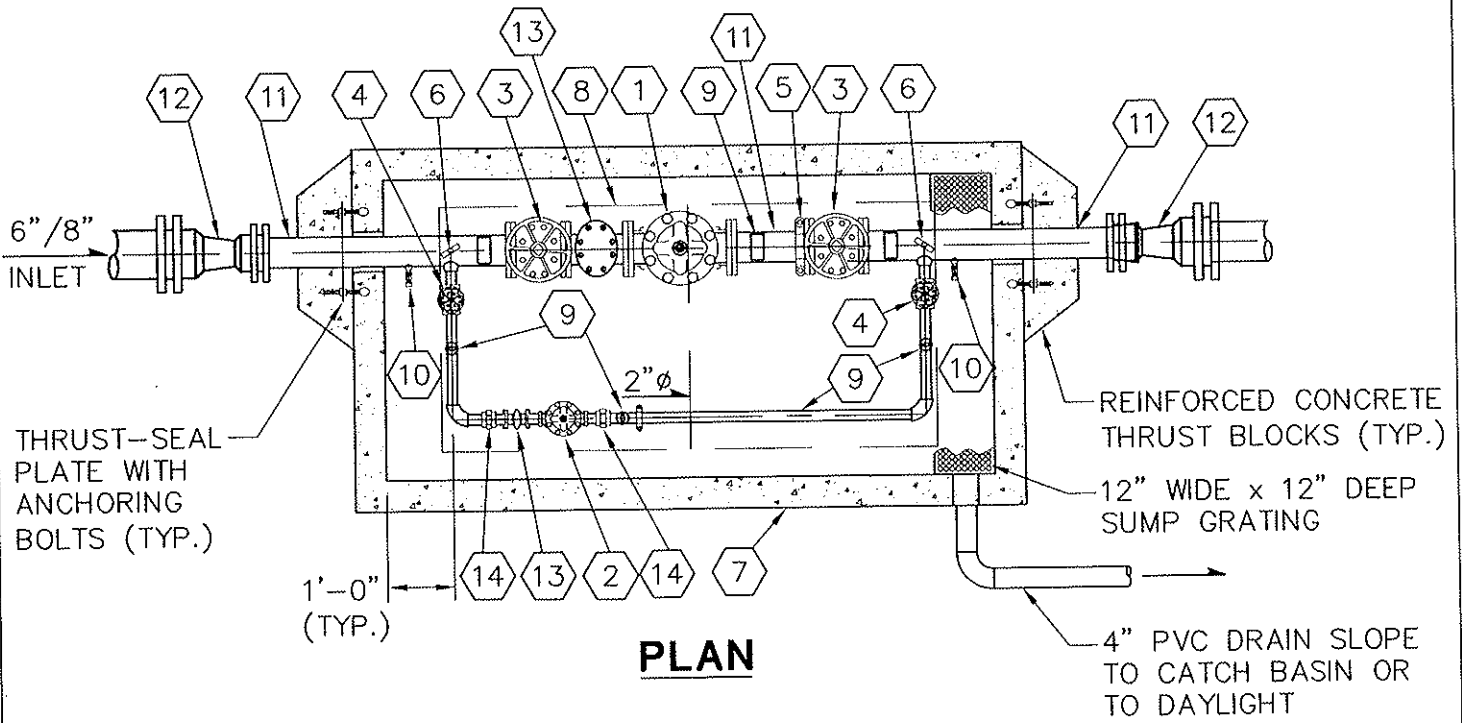
- ① WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH OS&Y RESILIENT SEAT GATE VALVE EACH END AND LOW FLOW METER ASSEMBLY.
- ② LOW FLOW BYPASS REMOTE METER, CONTACT DISTRICT FOR CURRENT SPECIFICATIONS AND WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA).
- ③ ALUMINUM INSULATED ENCLOSURE MODELS 4 THROUGH 10 FOR RESPECTIVE SIZE RPBA SHALL BE MODIFIED TO FIT ABOVE HEIGHT REQUIREMENTS. VALVE STEM SHALL NOT EXTEND OUTSIDE OF BOX.

NOTES:

1. INSULATED ENCLOSURE TO BE LOCATED OUTDOORS AND ACCESSIBLE TO DISTRICT. ALTERNATE LOCATION REQUIRES DISTRICT APPROVAL.
2. HEATERS AND WIRING SHALL BE RATED AT 2,000 WATT FOR 8" AND UNDER: 3,000 WATT FOR 10".
3. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
4. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, DISTRICT AND MANUFACTURER STANDARDS.
5. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE DISTRICT AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
6. RPDA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
7. DRAIN TO DAYLIGHT WITH BIRD SCREEN LOCATED AT SLAB LEVEL (SIZED PER MANUFACTURERS RECOMMENDATION).
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.

**REDUCED PRESSURE DETECTOR
ASSEMBLY-3" AND LARGER**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



NOTE:

ALTERNATE TO FIELD ASSEMBLED PRV AND VAULT IS SYSTEM AS MANUFACTURED BY GC SYSTEMS.

(X) SEE V-W22B FOR CALLOUTS AND NOTES

**PRESSURE REDUCING
VALVE AND VAULT**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

LEGEND - SEE V-W22A FOR PLAN AND SECTION

- ① 6" CLA-VAL 92G-01BCSY PRESSURE REDUCING VALVE WITH X101 POSITION INDICATOR DI BODY, S.S. TRIM, #150 FL.
- ② 2" CLA-VAL 90G-01BC PRESSURE REDUCING VALVE WITH X101 POSITION INDICATOR DI BODY, BRONZE TRIM - THREADED.
- ③ 6" D.I. RW NRS GATE VALVE WITH HANDWHEEL, #150 FL.
- ④ 2" MUELLER A2360--6W41 W55 RW NRS GATE VALVE WITH HANDWHEEL, THD.
- ⑤ UNIFLANGE
- ⑥ 4" 0-300 PSI PRESSURE GAUGE WITH SNUBBER AND GAUGE COCK; TOP OF PIPE.
- ⑦ PRECAST CONCRETE VAULT 10'L x 5'W x 3'-7"H INSIDE, SOLID WALL WITH WHITE INTERIOR & BLACK EXTERIOR SEALANT
- ⑧ 48" X 96" DOUBLE DOOR ALUMINUM HATCH, LW PRODUCTS OR EQUAL. H-20 RATED. DRAIN HATCH TO VAULT FLOOR.
- ⑨ ADJUSTABLE PIPE SUPPORTS
- ⑩ 3/4" HOSE BIB ASSEMBLY
- ⑪ PIPE SPOOL (FLxPE) LENGTH AS REQUIRED.
- ⑫ REDUCER (AS REQUIRED), MJ WITH MEGA-LUGS
- ⑬ WATER METER STRAINER, SENSUS OR EQUAL, FL
- ⑭ UNIONS

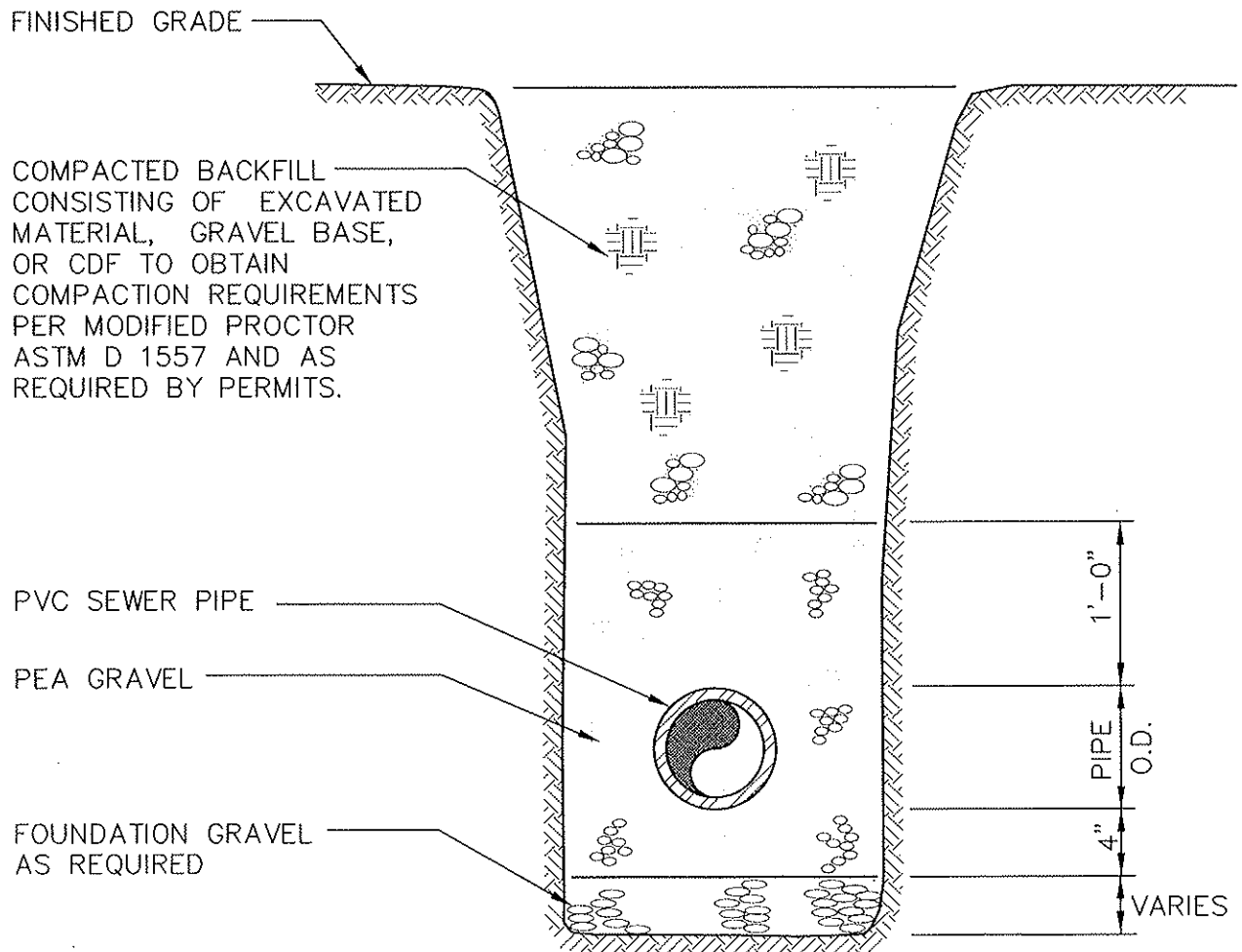
NOTES:

1. 6" x 2" PRV ASSEMBLY SHOWN. SIZES TO BE DETERMINED BY THE DISTRICT BASED ON DOWNSTREAM DEMANDS.
2. ALL 3" AND LARGER PIPE INSIDE WETTED SURFACES TO BE SANDBLASTED, EPOXY LINED AND COATED TO AWWA C210 AND NSF-61 SPECIFICATION. EXTERIOR COATING SHALL BE BLUE ENAMEL.
3. ALL PIPE 2" AND SMALLER TO BE BRASS.

**PRESSURE REDUCING
VALVE AND VAULT**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

SEWER

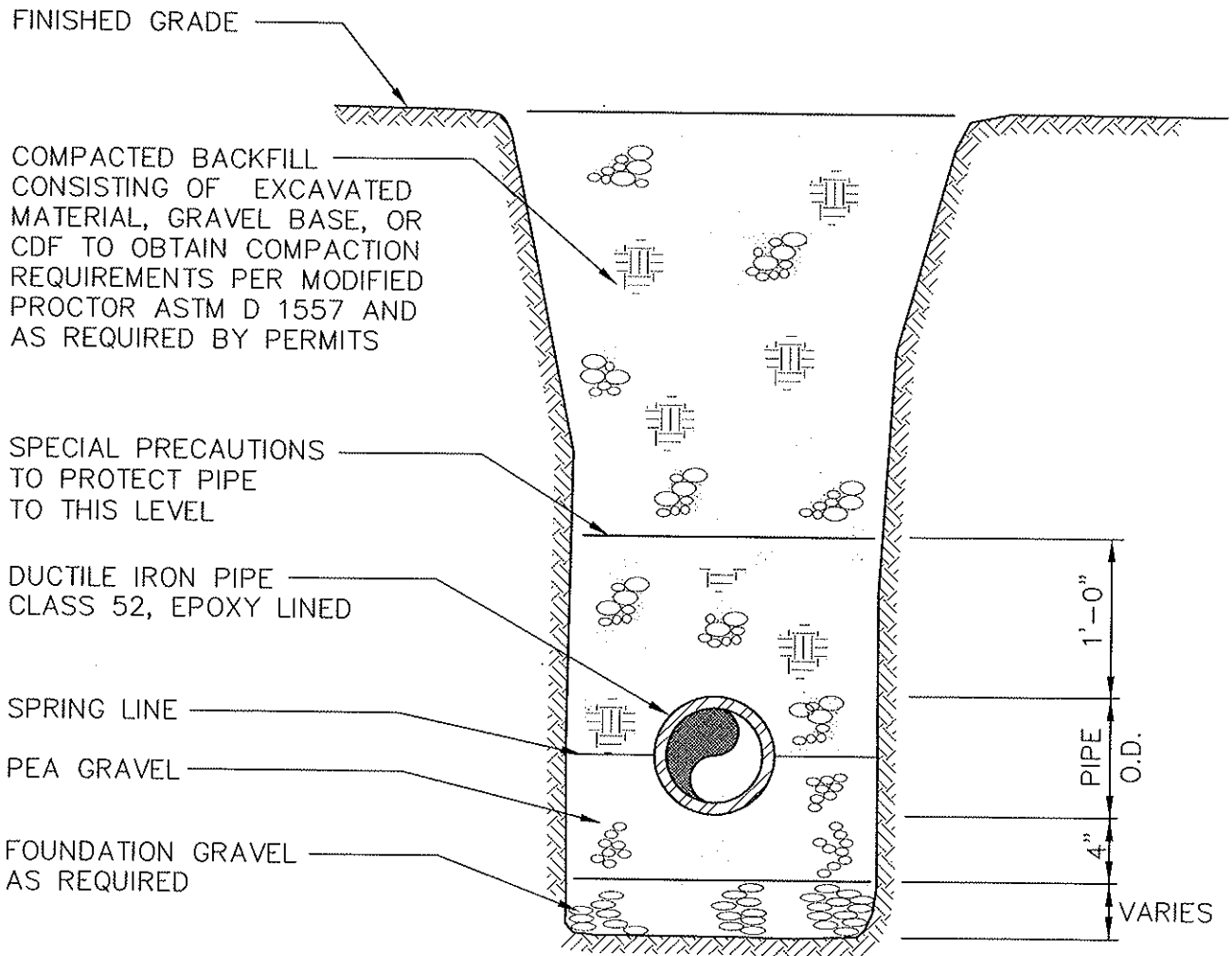


NOTE:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE IN CONFORMANCE WITH SILVER LAKE WATER AND SEWER DISTRICT STANDARDS AND/OR COUNTY, CITY, STATE PERMIT REQUIREMENTS.
2. PIPES SHALL BE RESTRAINED IN FILL OR PREVIOUSLY DISTURBED MATERIAL.
3. CLAY OR BENTONITE DAMS SHALL BE INSTALLED ACROSS THE TRENCH AND TO THE FULL DEPTH OF THE GRANULAR MATERIAL IN ALL AREAS OF STEEP SLOPES, STREAM CROSSINGS AND WETLAND TO PREVENT MIGRATION OF WATER ALONG THE PIPELINE.

**SANITARY SEWER TRENCH
SECTION (PVC/GRAVITY)**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

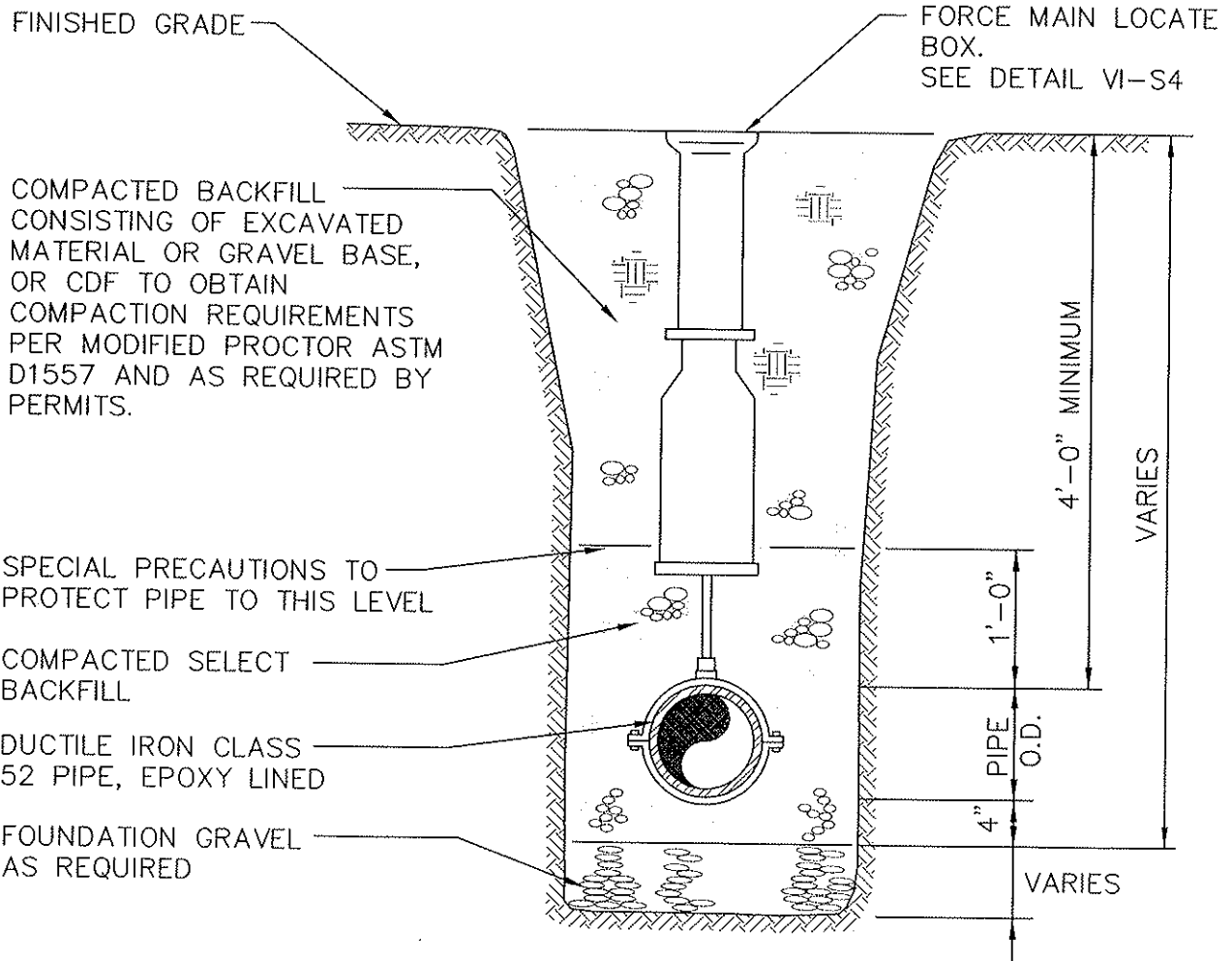


NOTE:

1. BACKFILL MATERIAL AND COMPACTION SHALL BE IN CONFORMANCE WITH SILVER LAKE WATER AND SEWER DISTRICT STANDARDS AND/OR COUNTY, CITY, STATE PERMIT REQUIREMENTS.
2. PIPES SHALL BE RESTRAINED IN FILL OR PREVIOUSLY DISTURBED MATERIAL.
3. CLAY OR BENTONITE DAMS SHALL BE INSTALLED ACROSS THE TRENCH AND TO THE FULL DEPTH OF THE GRANULAR MATERIAL IN ALL AREAS OF STEEP SLOPES, STREAM CROSSINGS AND WETLAND TO PREVENT MIGRATION OF WATER ALONG THE PIPELINE.

**SANITARY SEWER TRENCH
SECTION (D.I./GRAVITY)**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

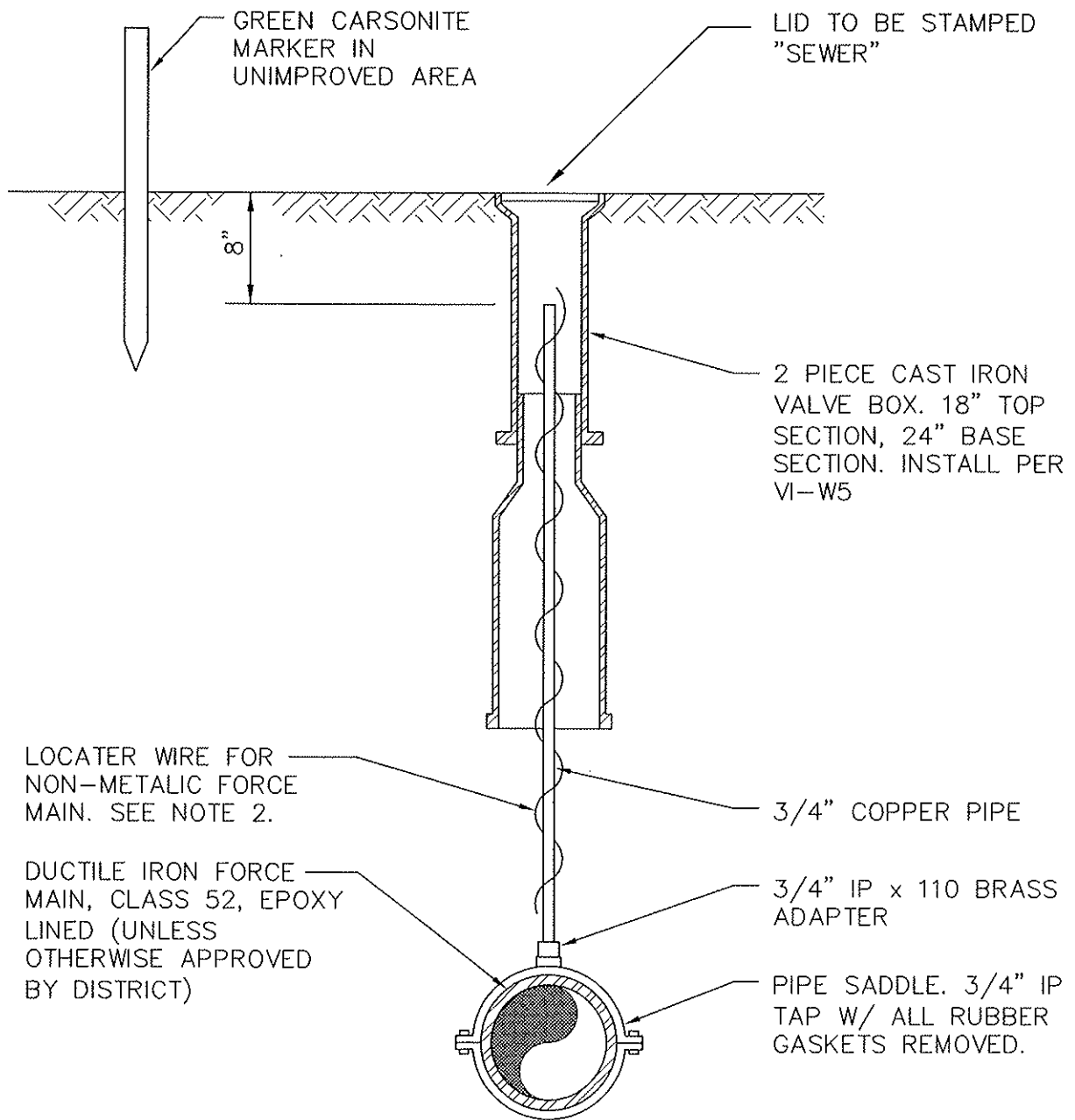


NOTE:

BACKFILL MATERIAL AND COMPACTION SHALL BE IN CONFORMANCE WITH SILVER LAKE WATER AND SEWER DISTRICT STANDARDS AND/OR THE SNOHOMISH COUNTY, CITY AND STATE PERMIT REQUIREMENTS. ONLY DUCTILE IRON PIPE SHALL BE USED UNLESS APPROVED BY THE DISTRICT.

**FORCE MAIN TRENCH
SECTION**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



NOTES:

1. LOCATE AT ENDS OF FORCE MAINS, ALL HORIZONTAL BENDS AND AT 300 FT. MAX SPACING, OR AS REQUIRED BY DISTRICT
2. ON NON-METALIC FORCE MAINS, PROVIDE 12 GAUGE COATED COPPER WIRE BETWEEN LOCATION BOXES. WRAP ALONG FORCE MAIN PIPE AND UP COPPER PIPE AT EACH END.

**FORCE MAIN
LOCATION BOX**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

MANHOLE FRAME & COVER WITH "SEWER" CAST ON COVER IN 3" RAISED LETTERS (NON-SKID PATTERN) EAST JORDAN IRON WORKS NO. 371564 OR OLYMPIC FOUNDRY NO. MH30AD/T. 3 HOLE LOCKING FRAME AND COVER. ONE (1) BOLT HOLE TO BE CENTERED OVER LADDER. SEE V-S6 FOR OPENING LOCATION.

FIRST STEP 14" MIN. 18" MAX.

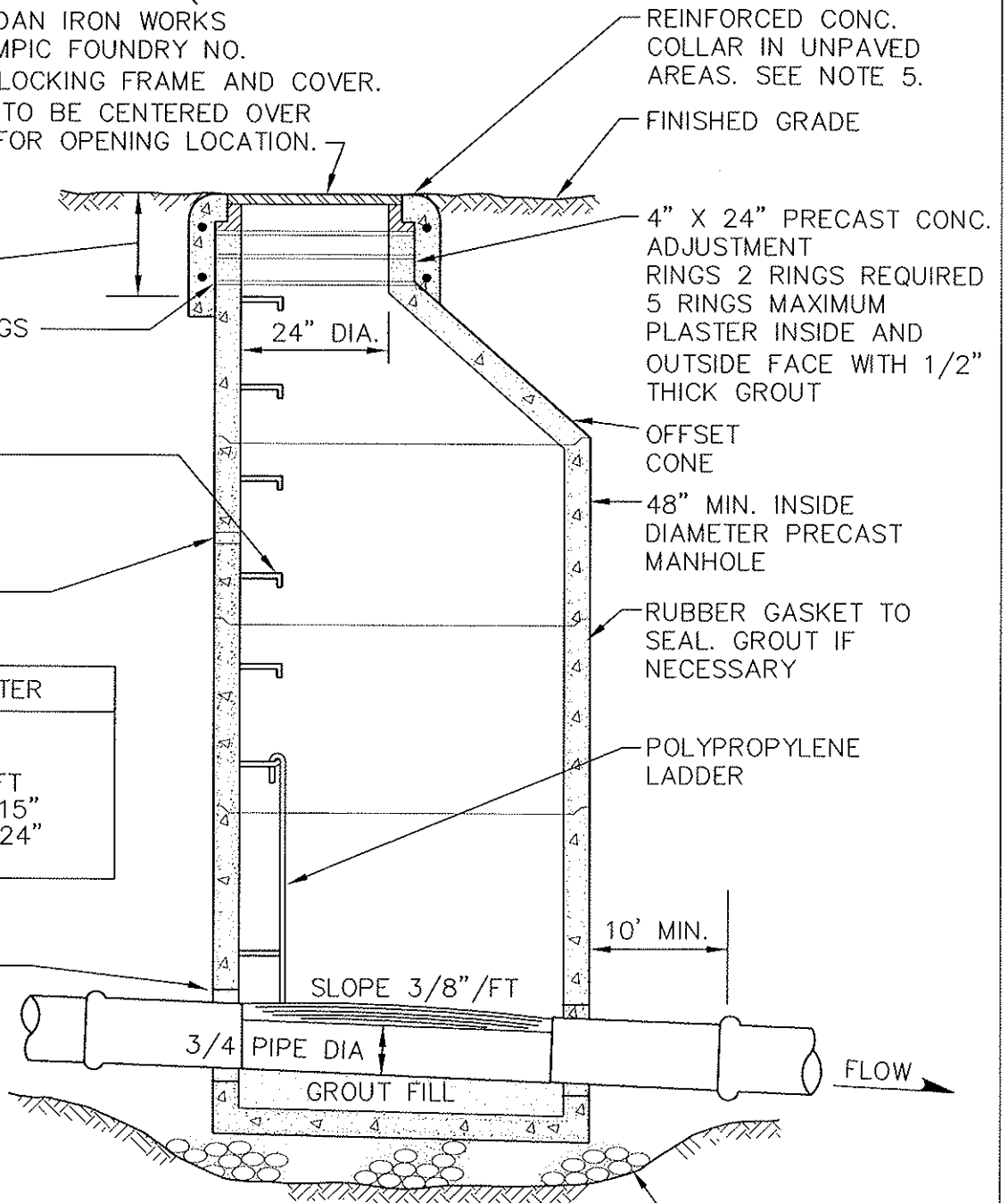
GROUT BETWEEN RINGS

POLYPROPYLENE MANHOLE STEPS AT 12" O.C.

GROUT LIFT HOLES INSIDE AND OUTSIDE

SEE NOTE 1 FOR PIPE CONNECTION

MANHOLE DIAMETER	
48":	STANDARD
54":	DEPTH ≥ 20FT
60":	PIPE DIA. = 15"
72":	PIPE DIA. = 24"

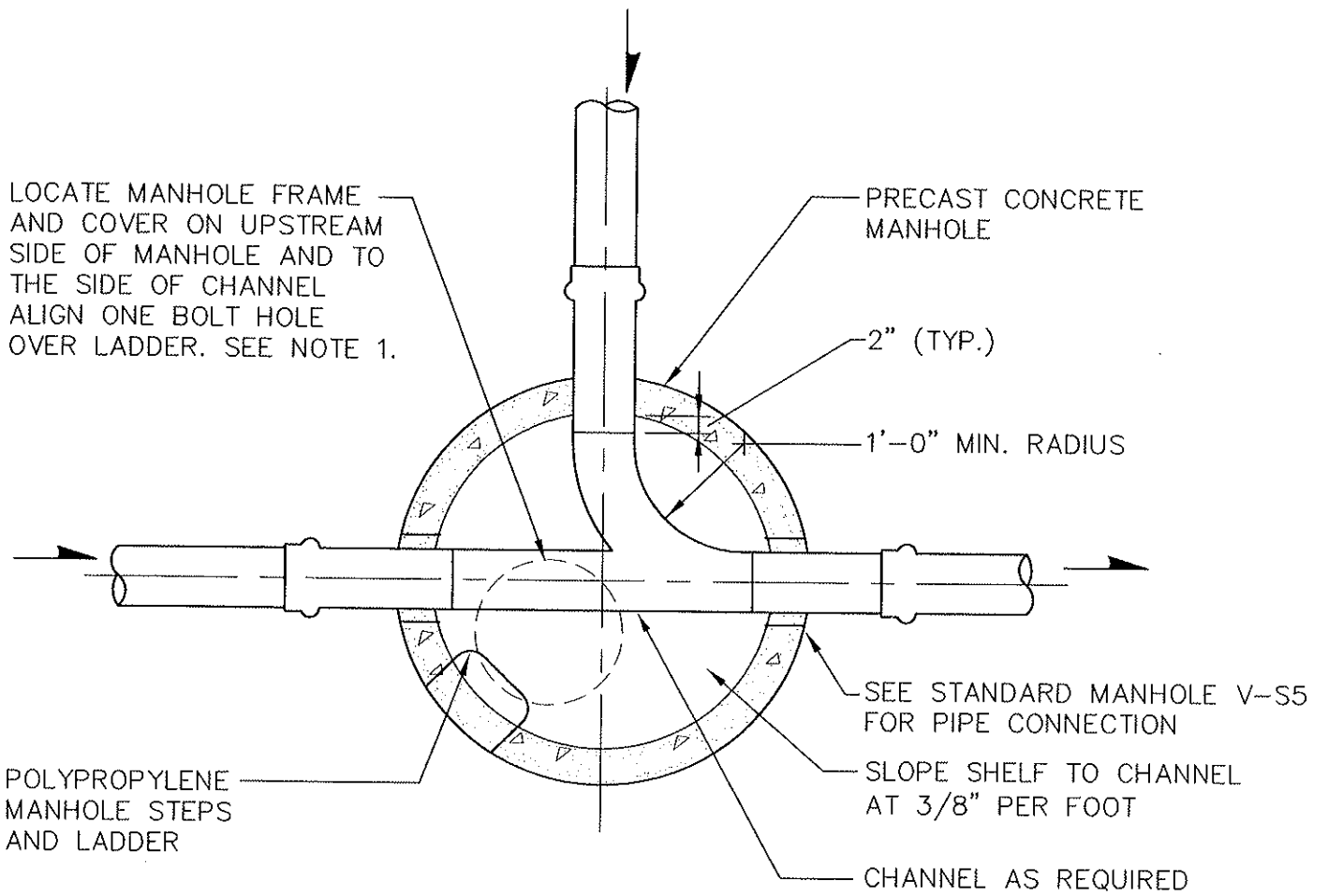


NOTES:

1. PIPE CONNECTIONS TO MANHOLES SHALL BE AS FOLLOWS:
PVC PIPE: CAST OR GROUT A SAND COLLAR INTO WALL.
D.I. OR PVC PIPE: CORE THE MANHOLE AND CONNECT SEWER PIPE WITH A WATER TIGHT FLEXIBLE RUBBER BOOT IN MANHOLE WALL, KOR-N-SEAL BOOT OR EQUAL.
2. DROP OF GRADE THRU MANHOLE SHALL BE 0.10', UNLESS OTHERWISE NOTED.
3. MINIMUM DEPTH OF MANHOLE SHALL BE 8' UNLESS APPROVED BY THE DISTRICT.
4. INSTALL GREEN CARSONITE FIBERGLASS MANHOLE MARKERS IN EASEMENTS.
5. POUR 4'-0" DIAMETER BY 12" THICK CONCRETE COLLAR AROUND ALL MANHOLES IN UNPAVED AREAS.

SANITARY SEWER MANHOLE SECTION

Silver Lake Water and Sewer District
STANDARD DETAILS

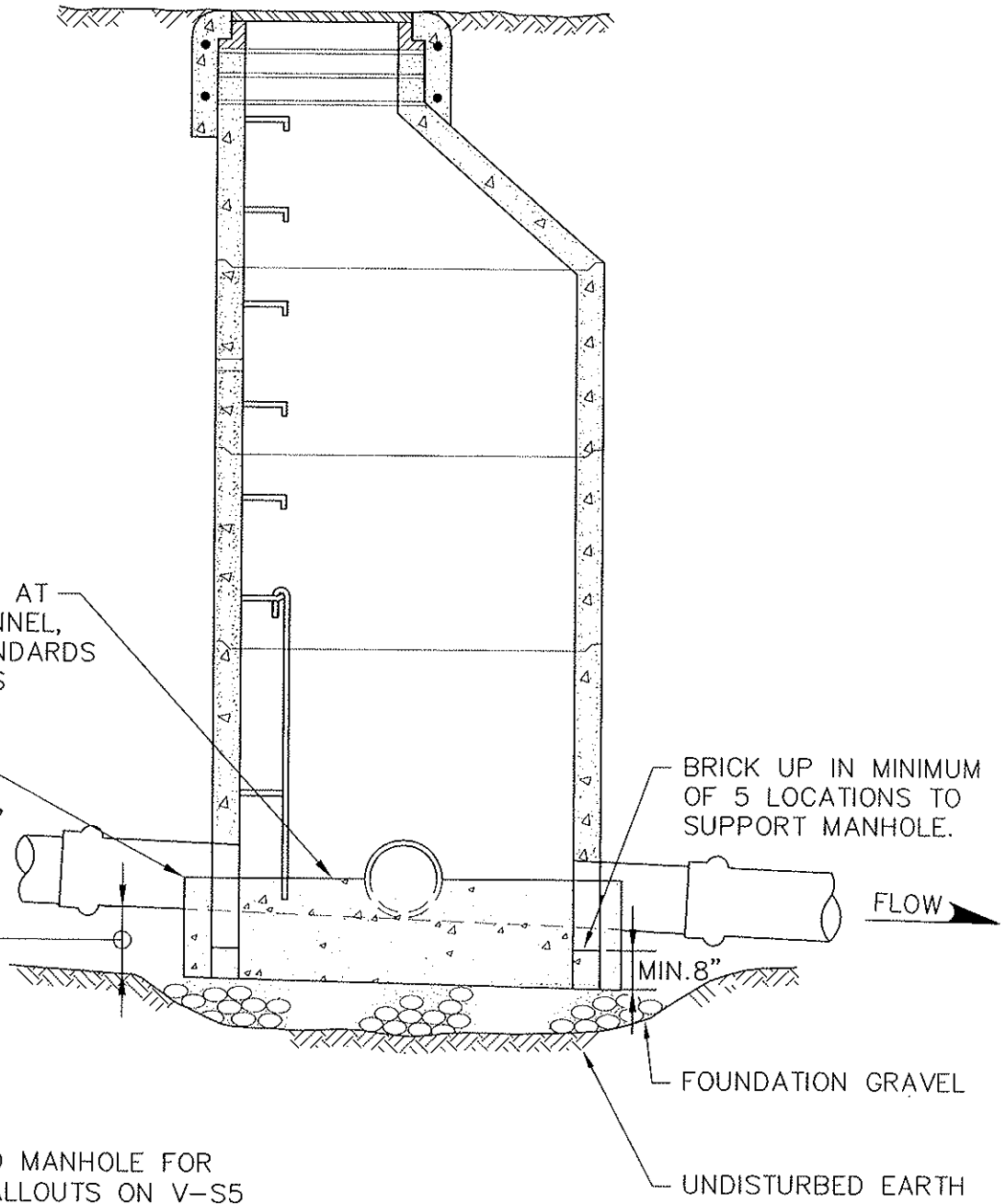


NOTES:

1. CONFIRM FRAME AND COVER LOCATION WITH DISTRICT.

SANITARY SEWER MANHOLE PLAN

Silver Lake Water and Sewer District
STANDARD DETAILS



CUT EXISTING PIPE AT SPRING LINE. CHANNEL, PER DISTRICT STANDARDS AFTER NEW LINE IS ACCEPTED.

CAST IN PLACE CHANNEL & SHELF, 3000# PSI CONCRETE

BRICK UP IN MINIMUM OF 5 LOCATIONS TO SUPPORT MANHOLE.

12" MINIMUM

MIN. 8"

FLOW

FOUNDATION GRAVEL

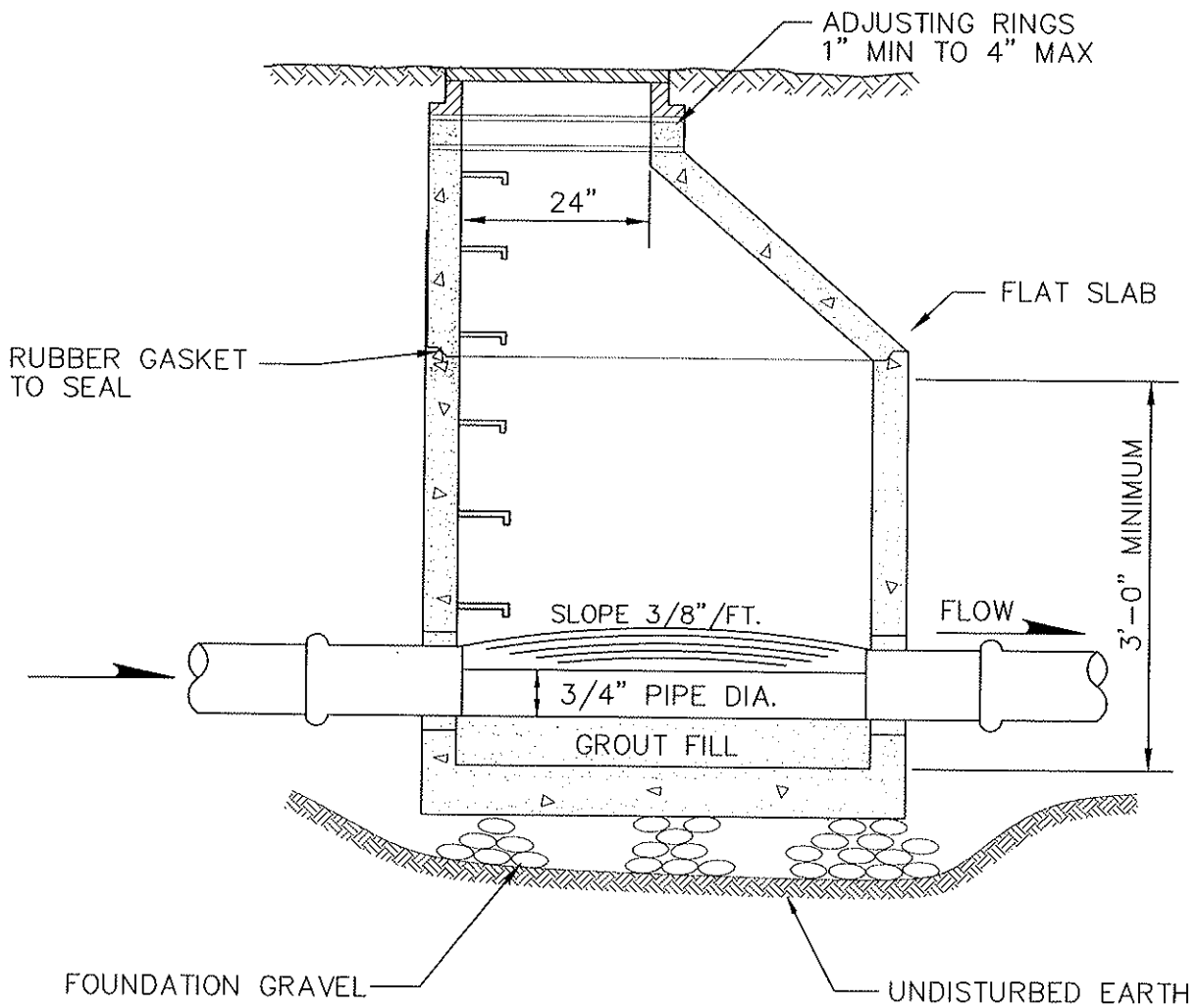
UNDISTURBED EARTH

NOTES:

1. SEE STANDARD MANHOLE FOR ADDITIONAL CALLOUTS ON V-S5

SANITARY SEWER SADDLE MANHOLE

Silver Lake Water and Sewer District
STANDARD DETAILS

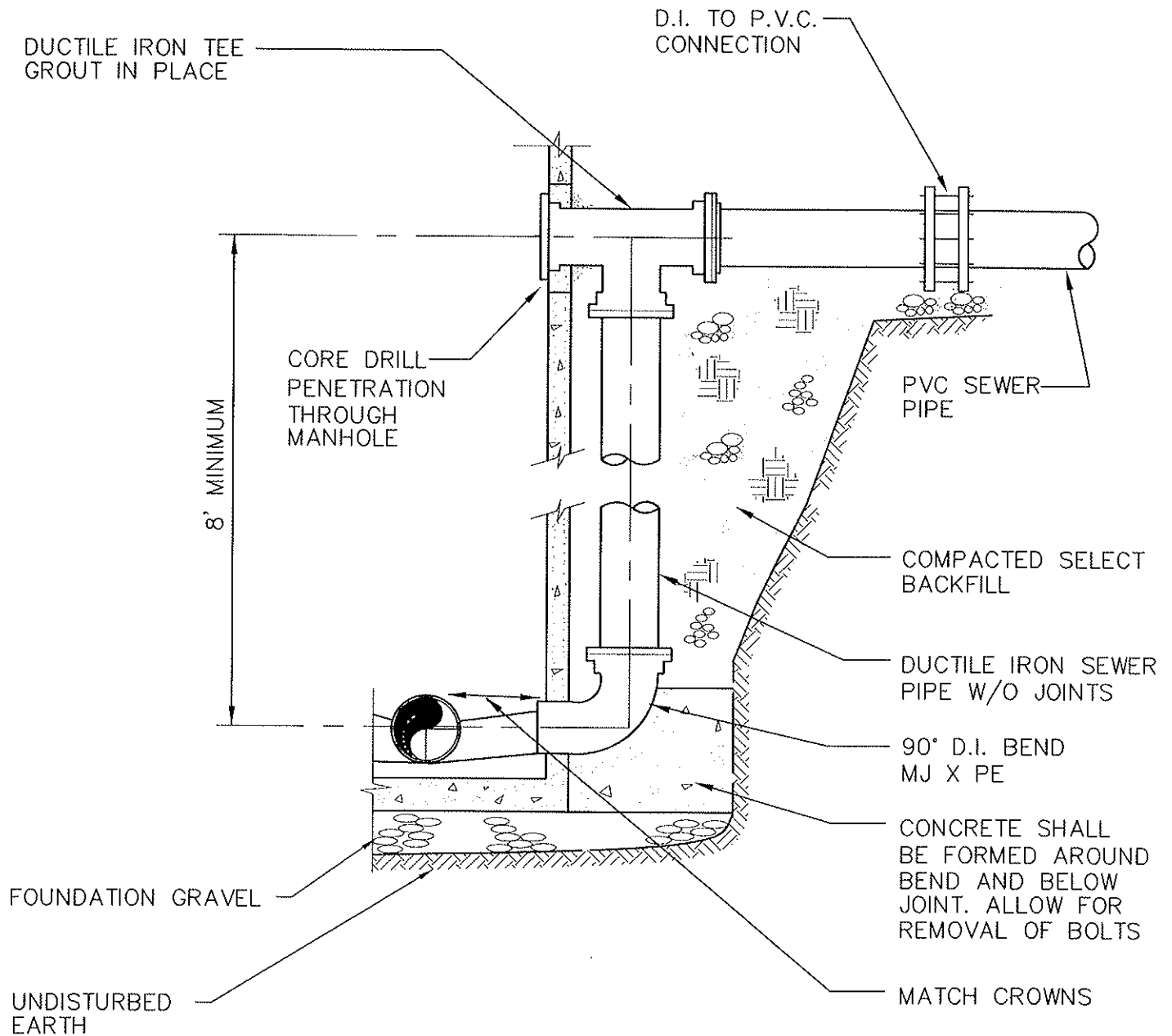


NOTES:

1. SEE STANDARD MANHOLE CALLOUTS ON VI-S5.
2. FRAME AND COVER SHALL MEET REQUIREMENTS FOR 24" MANHOLE.
3. USE OF SHALLOW MANHOLE REQUIRES DISTRICT APPROVAL.

**SANITARY SEWER SHALLOW
MANHOLE**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

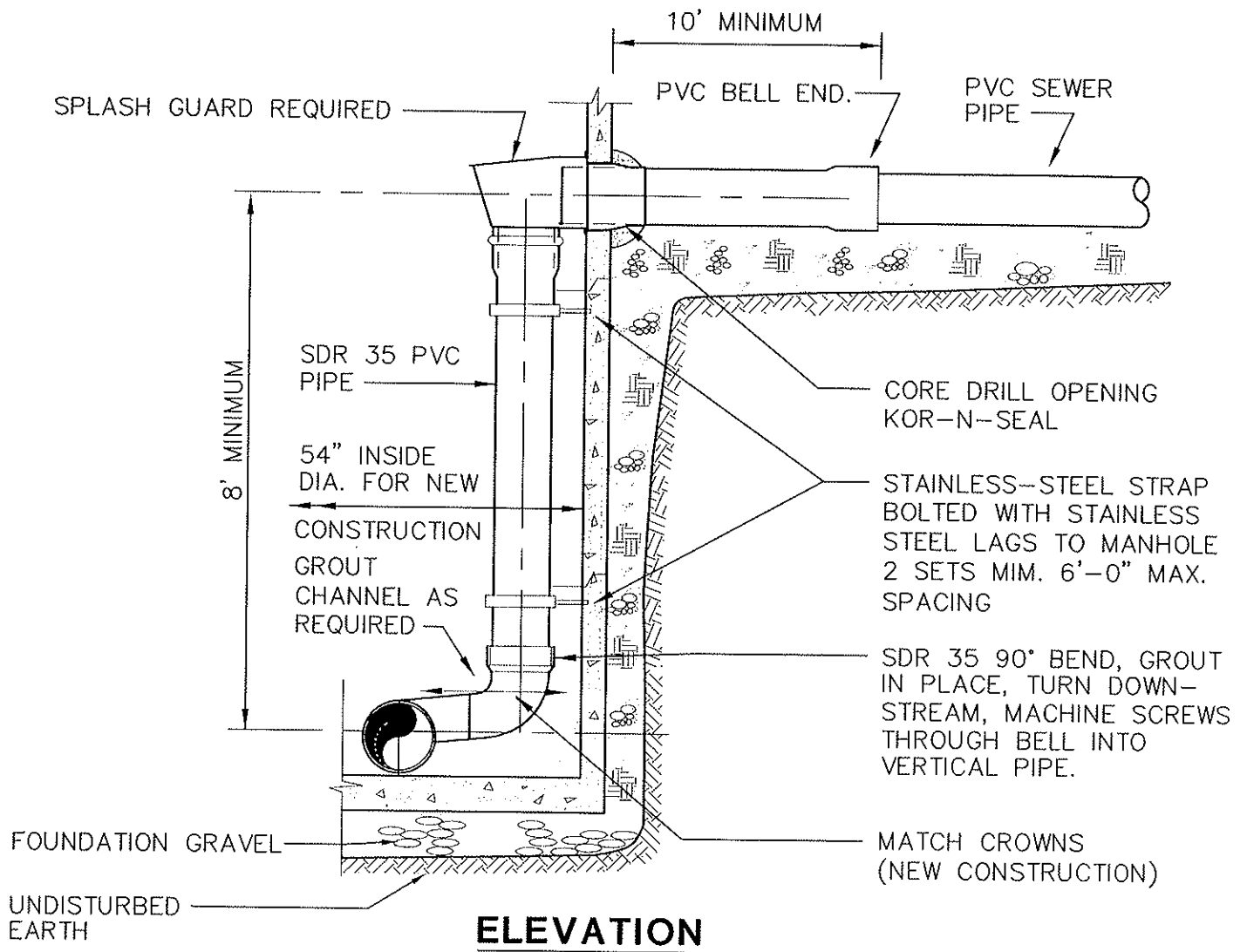


NOTES:

1. USE OF DROP MANHOLE REQUIRES DISTRICT APPROVAL.
2. DROP HEIGHT MUST BE GREATER THAN 8 FEET FOR CONSIDERATION.
3. DROP CONNECTIONS WILL ONLY BE CONSIDERED AT JUNCTIONS WITH AN EXISTING DEEP MAIN FOR LATERAL SEWERS TO BE BUILT IN THE FUTURE.

OUTSIDE DROP MANHOLE
(IF APPROVED BY DISTRICT)

Silver Lake Water and Sewer District
STANDARD DETAILS

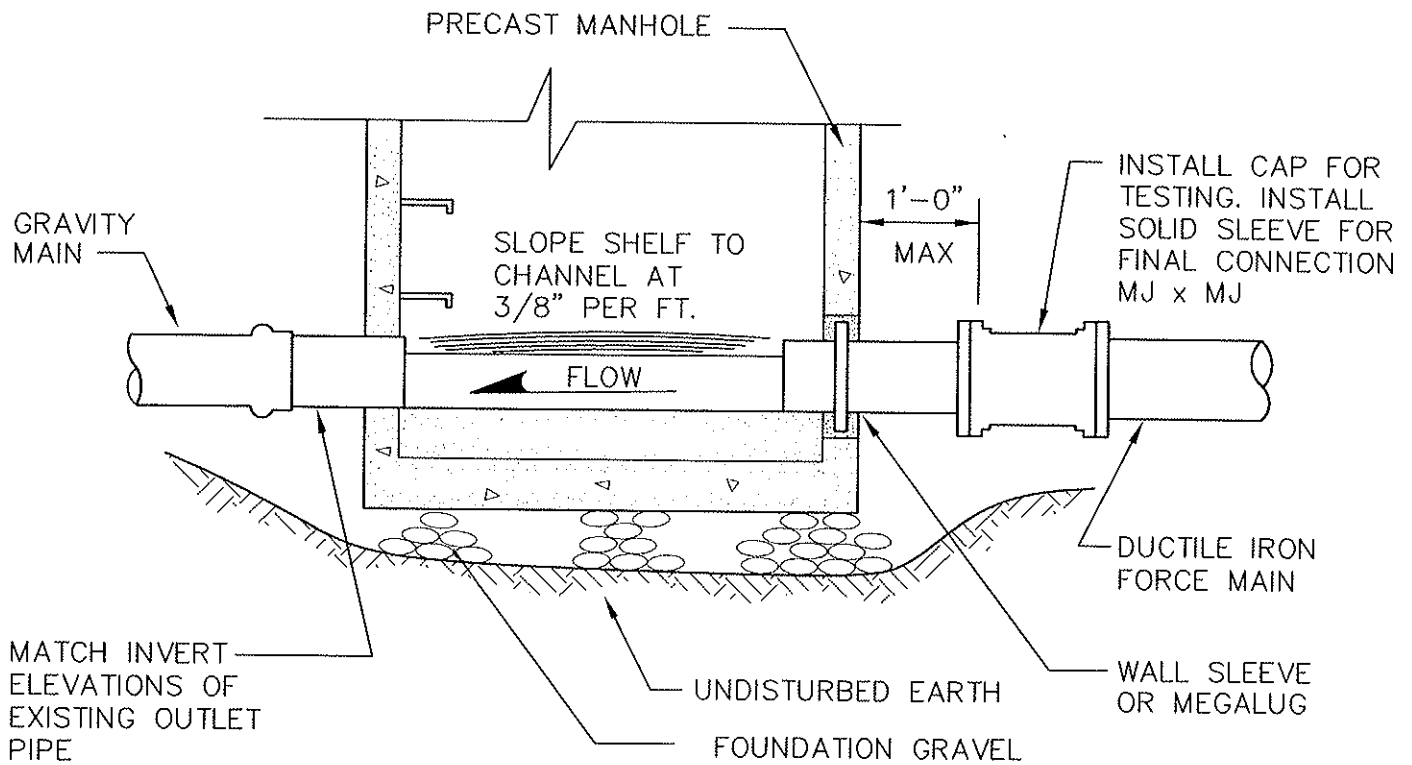


NOTES:

1. USE OF DROP MANHOLE REQUIRES DISTRICT APPROVAL.
2. DROP HEIGHT MUST BE GREATER THAN 8 FEET FOR CONSIDERATION.
3. ALL JOINTS SHALL BE GLUED.
4. BEND SHALL SWEEP INTO FLOW DIRECTION.
5. DURAN INC./ RELINER BRAND - HD SUPPLY/MARYSVILLE (SUPPLIER)

INSIDE DROP MANHOLE
(IF APPROVED BY DISTRICT)

Silver Lake Water and Sewer District
STANDARD DETAILS



NOTES:

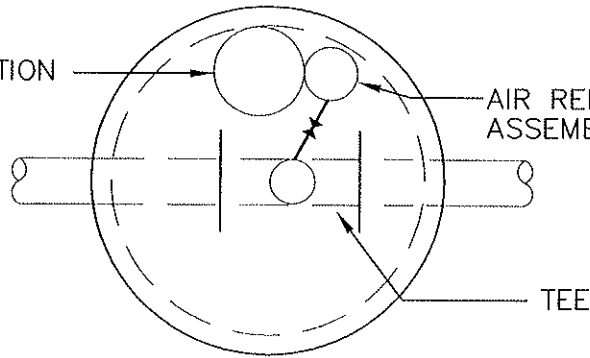
1. PIPE CONNECTIONS TO MANHOLES SHALL BE AS FOLLOWS: PVC PIPE: CAST OR GROUT A SAND COLLAR INTO WALL. D.I. OR PVC PIPE: CORE THE MANHOLE AND CONNECT SEWER PIPE WITH A WATER TIGHT FLEXIBLE RUBBER BOOT IN MANHOLE WALL, KOR-N-SEALBOOT OR EQUAL, EXCEPT FOR FORCE MAIN CONNECTION.
2. DROP OF GRADE THROUGH MANHOLE SHALL BE 0.10', UNLESS OTHERWISE NOTED.
3. ALIGN FORCE MAIN DISCHARGE AXIS WITH OUTLET PIPE.
4. RESTRAIN FORCE MAIN JOINTS AND FITTINGS IN ACCORDANCE WITH V-G3.
5. SEE STANDARD MANHOLE CALLOUTS ON V-S5 AND V-S6.

**FORCE MAIN DISCHARGE
MANHOLE**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

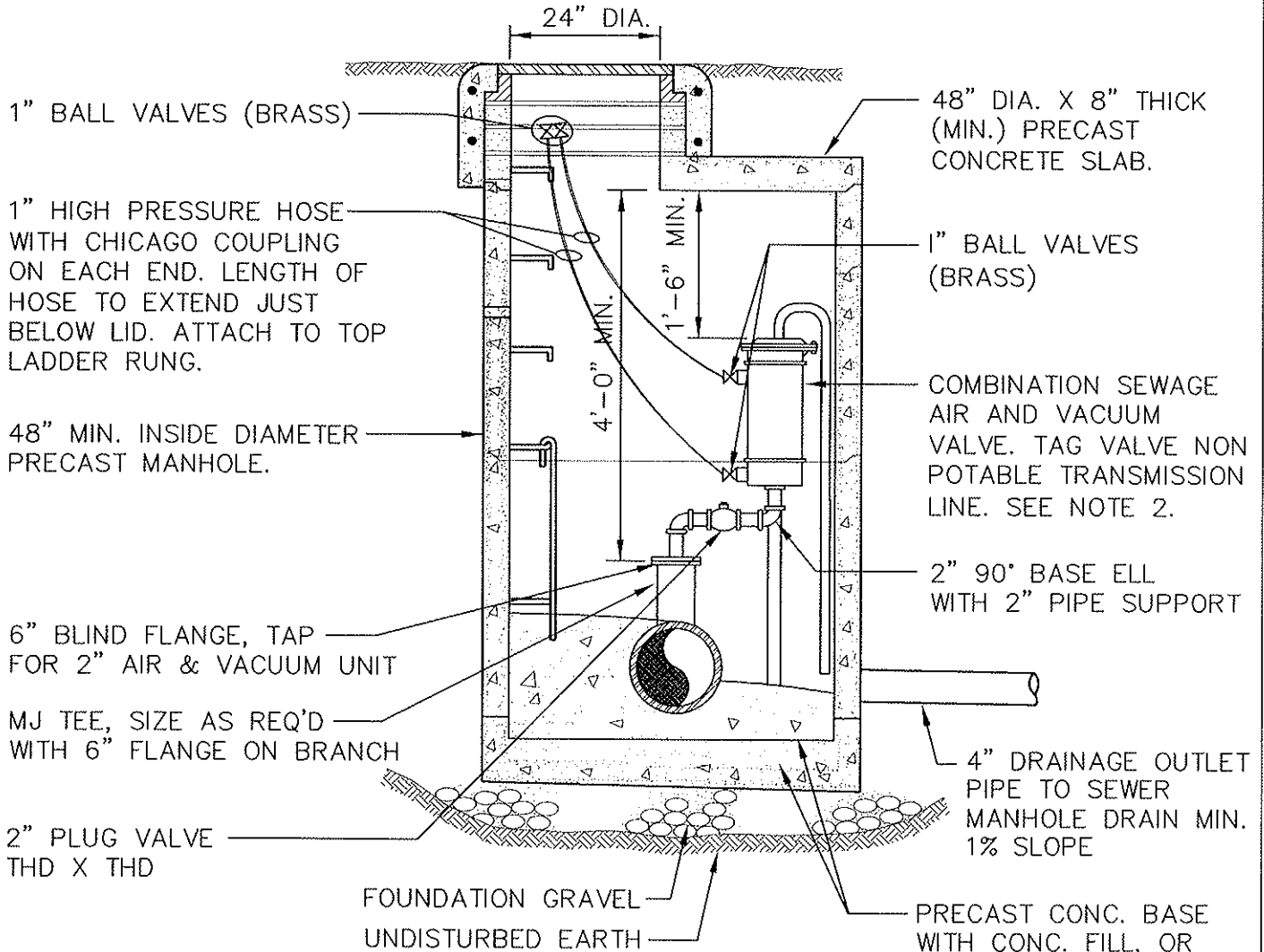
MANHOLE LOCATION

AIR RELIEF ASSEMBLY



TEE

PLAN



1" BALL VALVES (BRASS)

48" DIA. X 8" THICK (MIN.) PRECAST CONCRETE SLAB.

1" HIGH PRESSURE HOSE WITH CHICAGO COUPLING ON EACH END. LENGTH OF HOSE TO EXTEND JUST BELOW LID. ATTACH TO TOP LADDER RUNG.

1" BALL VALVES (BRASS)

48" MIN. INSIDE DIAMETER PRECAST MANHOLE.

COMBINATION SEWAGE AIR AND VACUUM VALVE. TAG VALVE NON POTABLE TRANSMISSION LINE. SEE NOTE 2.

6" BLIND FLANGE, TAP FOR 2" AIR & VACUUM UNIT

2" 90° BASE ELL WITH 2" PIPE SUPPORT

MJ TEE, SIZE AS REQ'D WITH 6" FLANGE ON BRANCH

4" DRAINAGE OUTLET PIPE TO SEWER MANHOLE DRAIN MIN. 1% SLOPE

2" PLUG VALVE THD X THD

FOUNDATION GRAVEL
UNDISTURBED EARTH

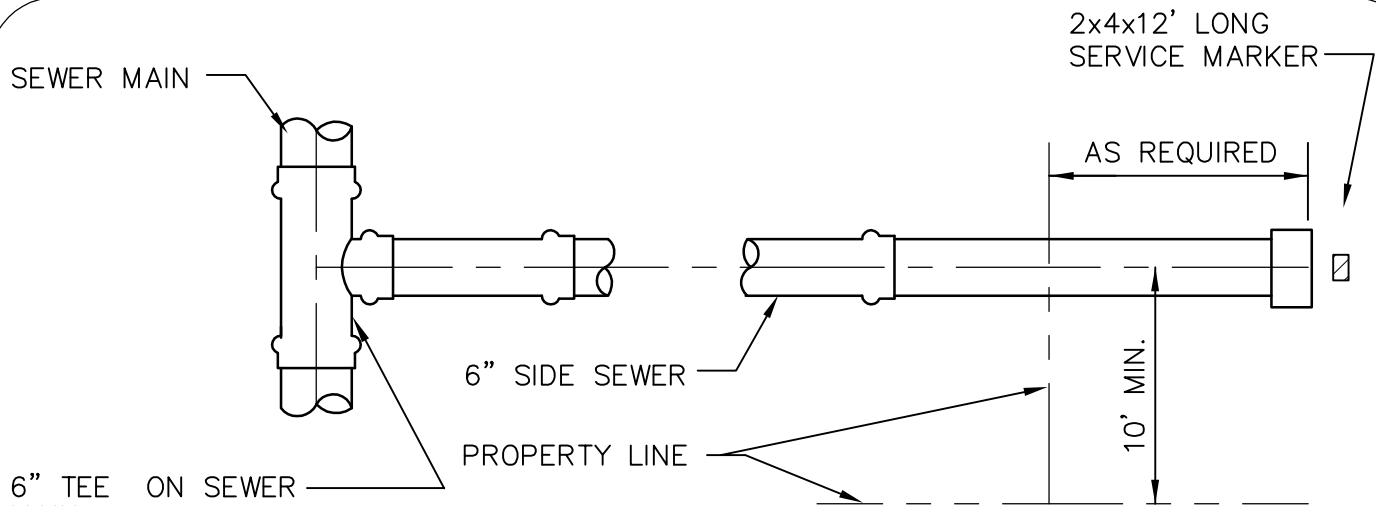
PRECAST CONC. BASE WITH CONC. FILL, OR CAST IN PLACE CONC. BASE

NOTES:

1. SEE STANDARD MANHOLE CALLOUTS ON V-S5 AND V-S6.
2. APCO, CRISPIN, VALMATIC OR DISTRICT APPROVED EQUAL HEAVY-DUTY COMBINATION AIR AND VACUUM VALVE (SHORT BODY) W/STAINLESS STEEL INTERNALS, EPOXY COATING AND FLUSHING ATTACHMENTS. SEATS SHALL BE SUPPLIED FOR THE FOLLOWING WORKING PRESSURES: 20 PSI, 20-150 PSI.
3. 2" PIPING AND FITTINGS SHALL BE BRASS.

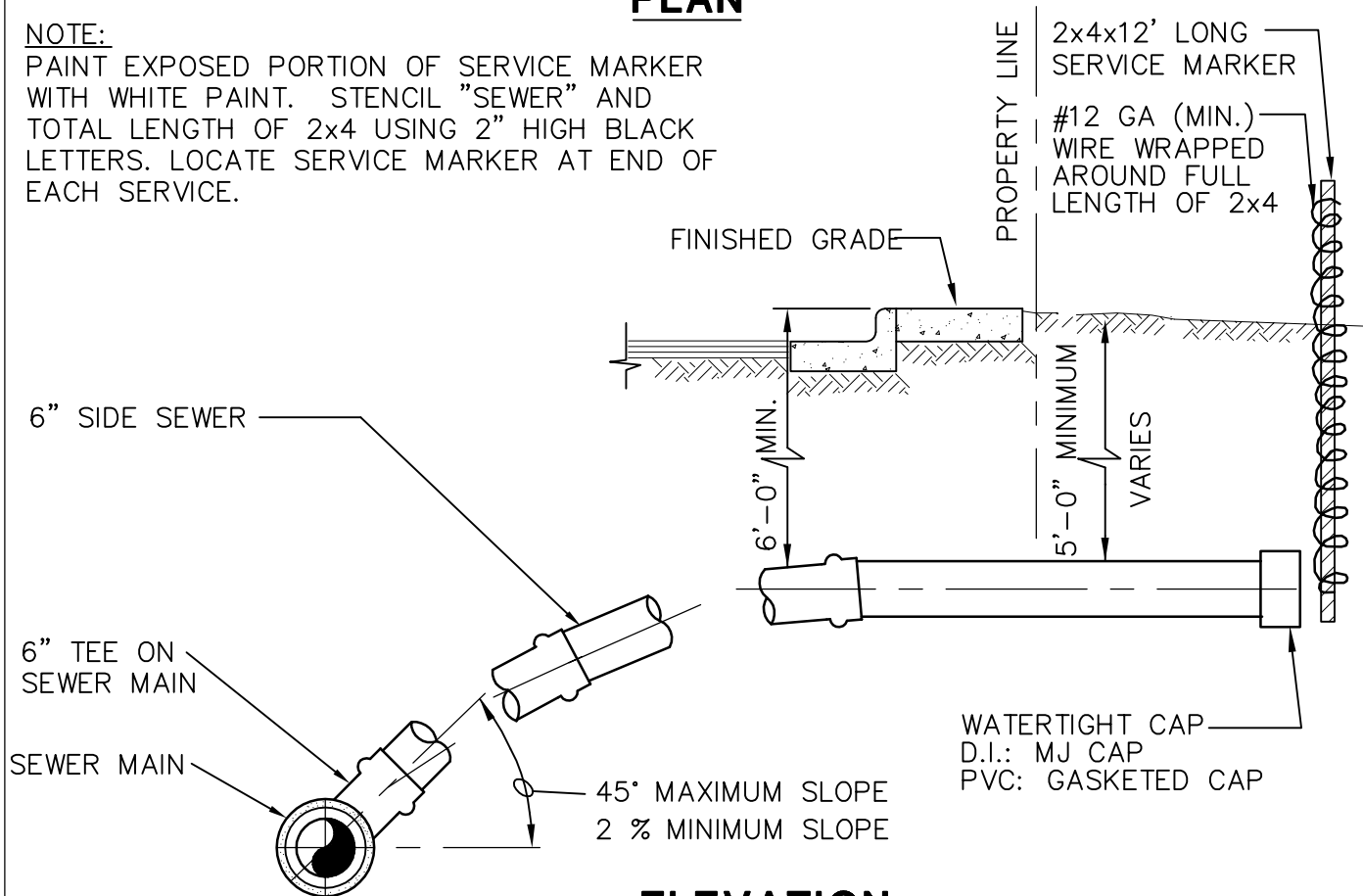
SANITARY SEWER AIR AND VACUUM RELEASE ASSEMBLY

Silver Lake Water and Sewer District
STANDARD DETAILS



PLAN

NOTE:
 PAINT EXPOSED PORTION OF SERVICE MARKER WITH WHITE PAINT. STENCIL "SEWER" AND TOTAL LENGTH OF 2x4 USING 2" HIGH BLACK LETTERS. LOCATE SERVICE MARKER AT END OF EACH SERVICE.



ELEVATION

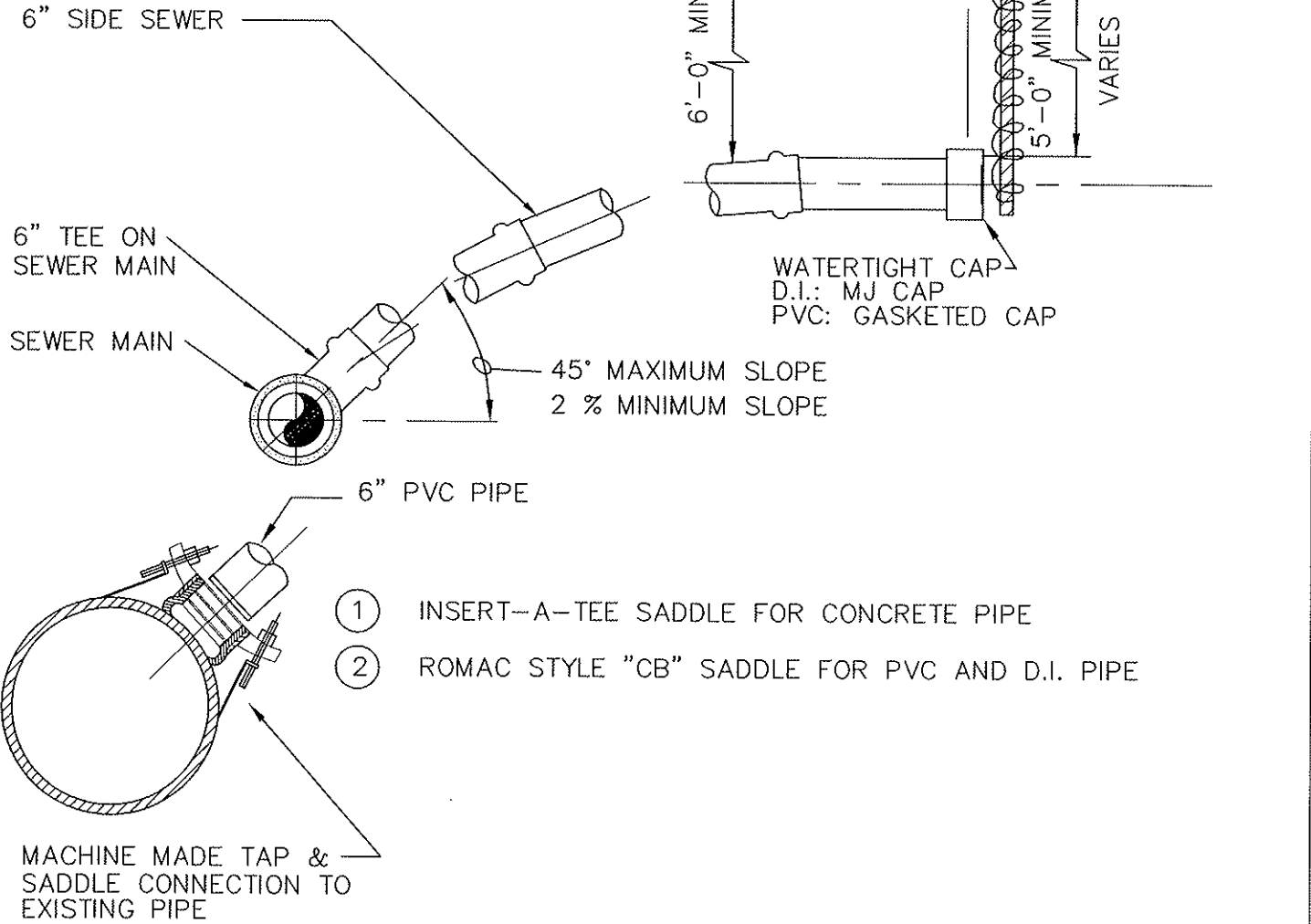
NOTES:

1. MAXIMUM DEFLECTION NOT TO EXCEED PIPE MANUFACTURER RECOMMENDATIONS.
2. SIDE SEWER LATERAL SHALL BE THE SAME MATERIAL AS THE MAIN LINE SEWER AND BEDDED THE SAME
3. SEPARATE LATERAL REQUIRED FOR EACH LOT.

STANDARD SIDE SEWER

Silver Lake Water and Sewer District
 STANDARD DETAILS

NOTE:
 PAINT EXPOSED PORTION OF SERVICE
 MARKER WITH WHITE PAINT. STENCIL "SEWER"
 AND TOTAL LENGTH OF 2x4 USING 2" HIGH
 BLACK LETTERS. LOCATE SERVICE MARKER
 AT END OF EACH SERVICE.

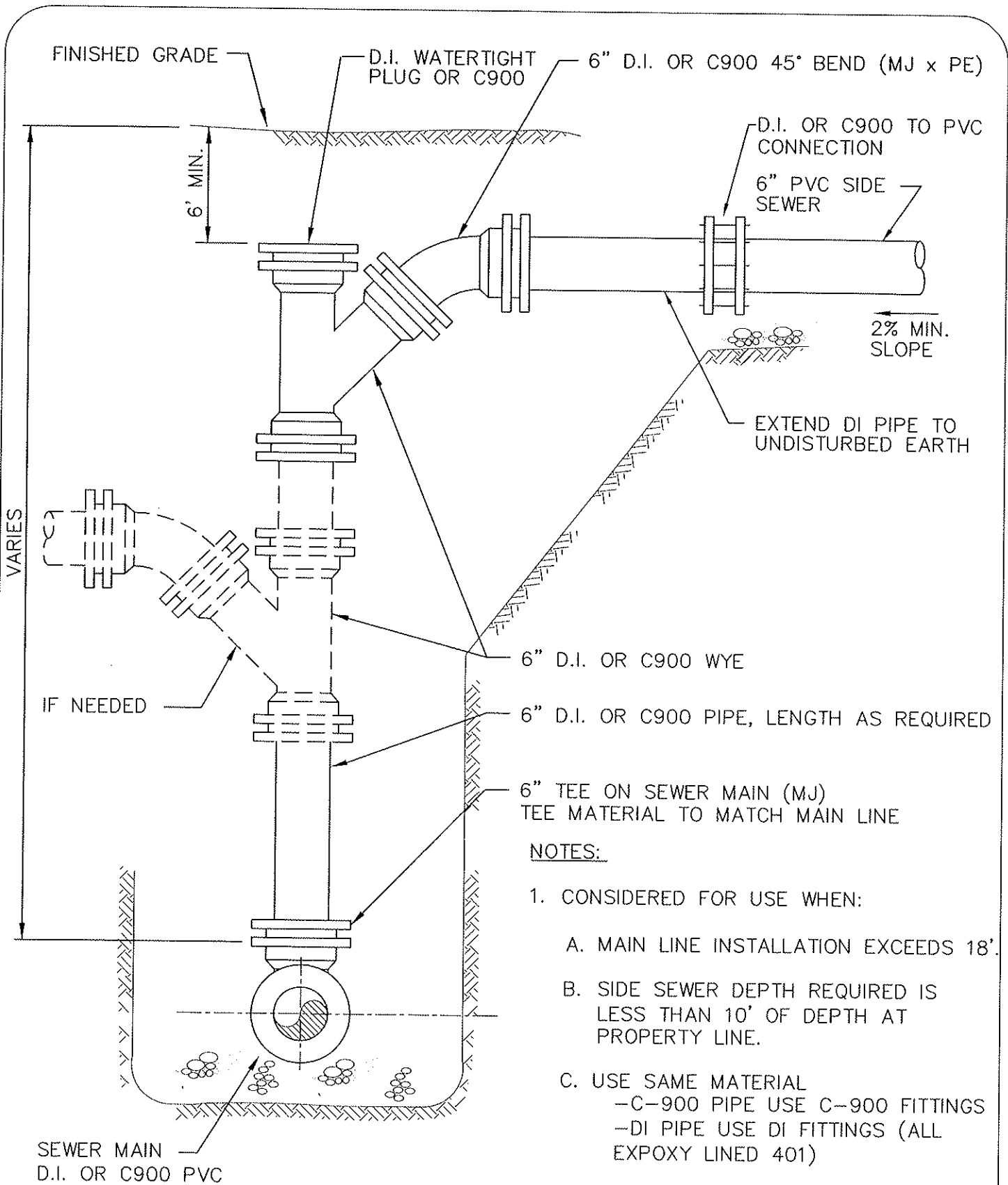


NOTES:

1. SEE STANDARD SIDE SEWER DETAIL V-S12 FOR NEW CONSTRUCTION.
2. DEVELOPER TO PROVIDE ALL MATERIALS, TRAFFIC CONTROL, PERMITS, SHORING AND MISC. WORK AS REQUIRED TO TAP THE MAIN AND INSTALL THE SIDE SEWER.
3. CUT-IN TEES ARE PERMITTED WITH DISTRICT APPROVAL.

**SIDE SEWER DETAIL
 (CONNECTION TO EXISTING MAIN)**

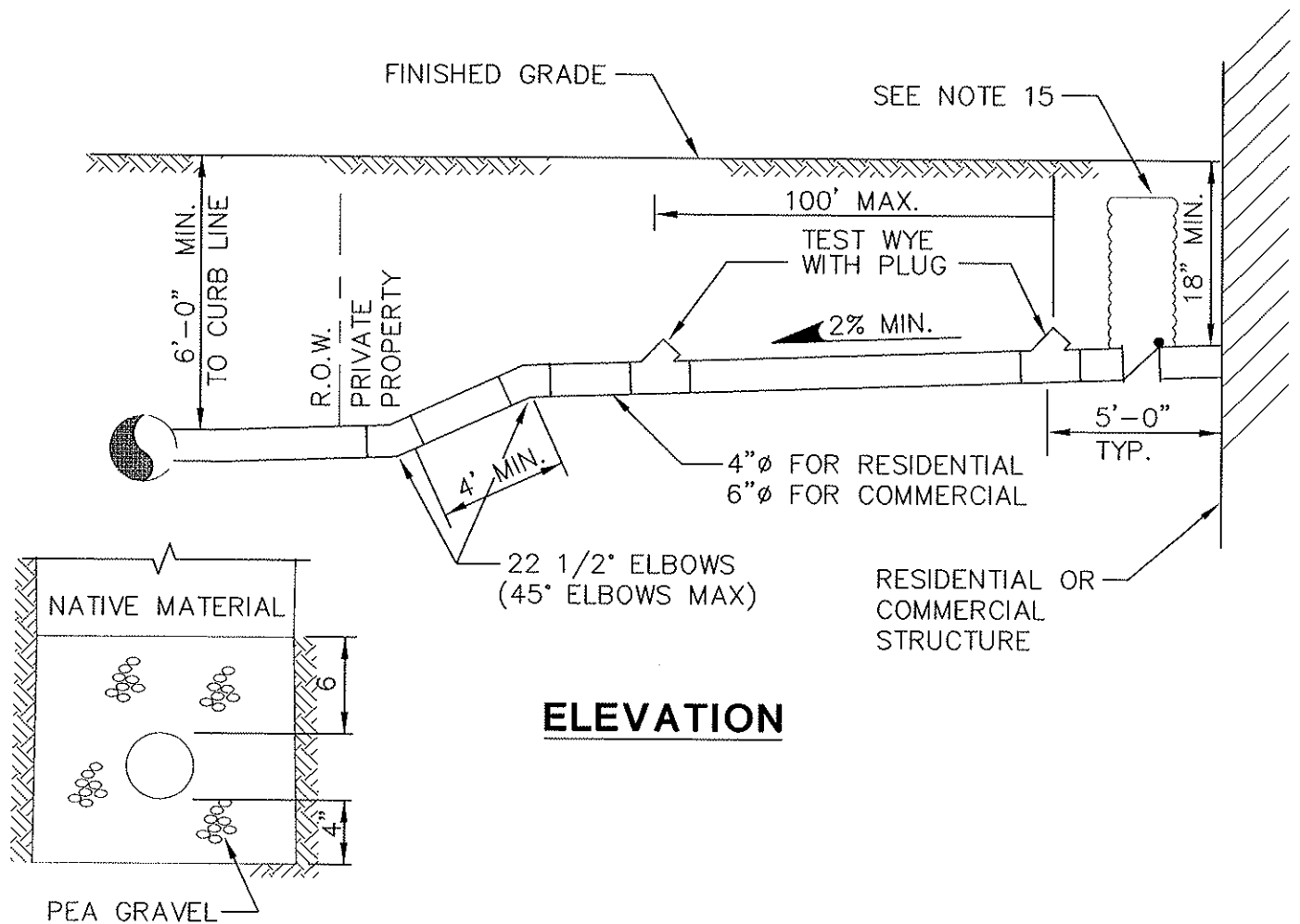
**Silver Lake Water and Sewer District
 STANDARD DETAILS**



STANDING SIDE SEWER

(IF APPROVED BY DISTRICT)

Silver Lake Water and Sewer District
STANDARD DETAILS



ELEVATION

TRENCH SECTION

NOTES:

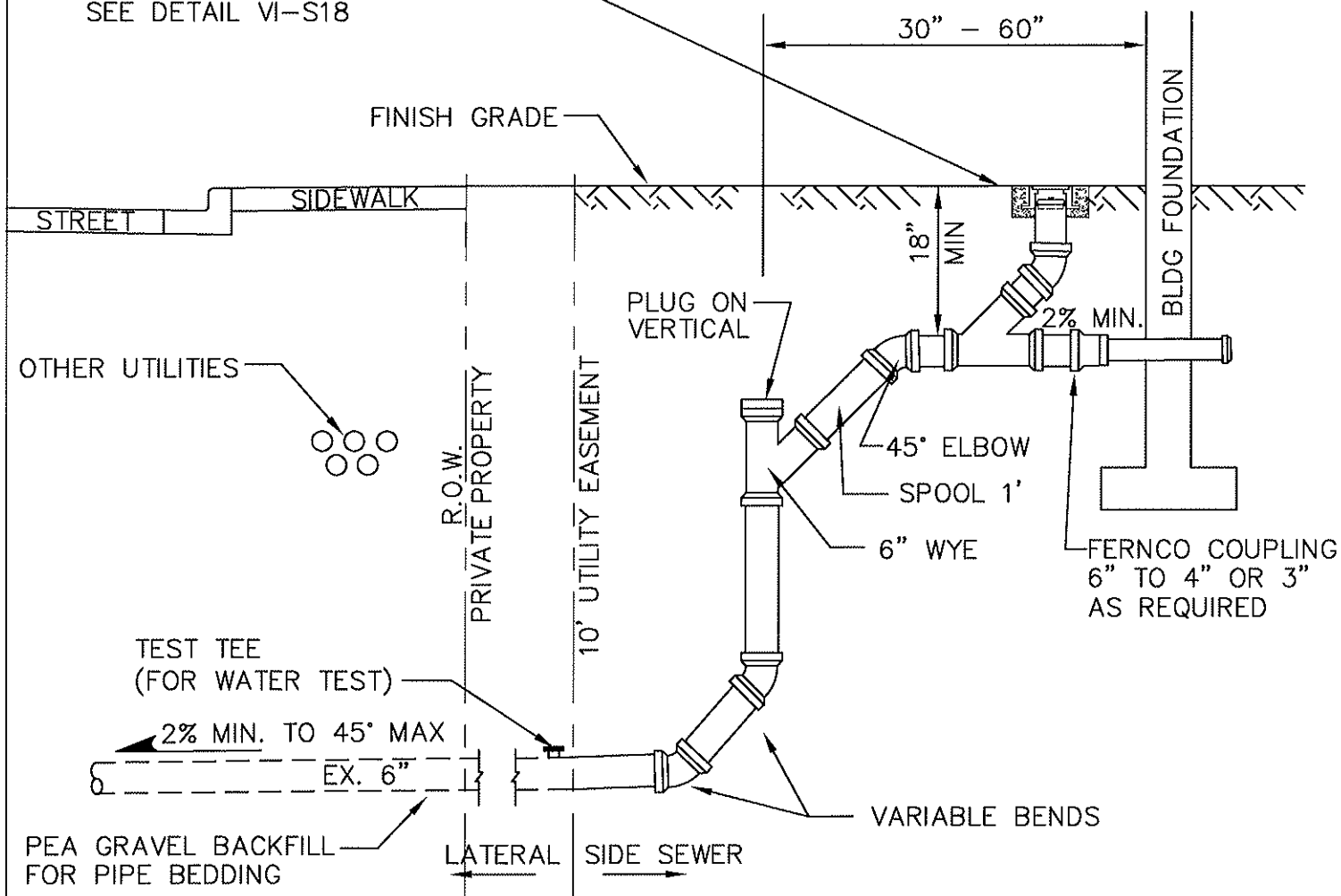
1. ELBOWS SHALL NOT BE GREATER THAN 45°. MINIMUM DISTANCE BETWEEN BENDS SHALL BE 4'.
2. CLEAN OUT IS REQUIRED FOR EACH PIPE LENGTH GREATER THAN 100' AND FOR EACH 90° ACCUMULATED ELBOW/100'
3. BACKFILL FOR PAVED AREA SHALL BE 5/8" MINUS CRUSHED SURFACING TOP COURSE, COMPACTED IN 12" LIFTS
4. ALL PLUMBING OUTLETS SHALL BE CONNECTED TO THE SEWER. NO DOWNSPOUTS OR STORM DRAINAGE MAY BE CONNECTED TO THE SEWER SYSTEM.
5. 18" MINIMUM COVERAGE OVER PRIVATE SIDE SEWER.
6. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH AN ELBOW OR WYE. 90° CHANGE SHALL BE ELBOW AND WYE.
7. 4" SEWER PIPE MINIMUM SIZE ON PRIVATE RESIDENTIAL PROPERTY. 6" SEWER PIPE MIN. SIZE ON COMMERCIAL PROPERTIES. 2% MINIMUM GRADE, 100% MAXIMUM (45').
8. ALL CONSTRUCTION REQUIRES A PERMIT AND PAYMENT OF FEE, COMPLETE LEGAL DESCRIPTION OF PROPERTY AND DIMENSIONS.
9. AS-BUILT DRAWING SHOWING LOCATION OF SIDE SEWER IN RELATION TO THE HOUSE IS REQUIRED AFTER INSTALLATION.
10. SEE V-S13 AND V-S14 FOR SIDE SEWER LATERAL REQUIREMENTS.
11. CONSTRUCTION IN RIGHT-OF-WAY SHALL BE PERFORMED BY A REGISTERED LICENSED CONTRACTOR.
12. RIGHT-OF-WAY RESTORATION SHALL MATCH OR EXCEED THE ORIGINAL CONDITION.
13. PRE-TREATMENT SYSTEMS REQUIRE DESIGN SUBMITTAL STAMPED BY LICENSED ENGINEER.
14. PIPE TO BE BEDDED WITH PEA GRAVEL TO LIMITS SHOWN.
15. INSTALL SURFACE ACCESSIBLE BACKWATER VALVE ON ALL SIDE SEWERS WHERE POTENTIAL OCCURS FOR FLOW TO BACK INTO THE PRIVATE SERVICE. SEE V-S17 FOR DETAILS.

PRIVATE SIDE SEWER INSTALLATION

**Silver Lake Water and Sewer District
STANDARD DETAILS**

CLEANOUT TO BE PLACED IN LANDSCAPE WHEN POSSIBLE.
 IF CLEANOUT IS IN CONCRETE OR ASPHALT SURFACE, BRING TO GRADE AND PROVIDE:

CLEANOUT RING & COVER WITH 2 5/8" STAINLESS STEEL CAP SCREWS
 EAST JORDAN IRON WORKS 366102
 OR OLYMPIC FOUNDRY MH5D/T
 SEE DETAIL VI-S18



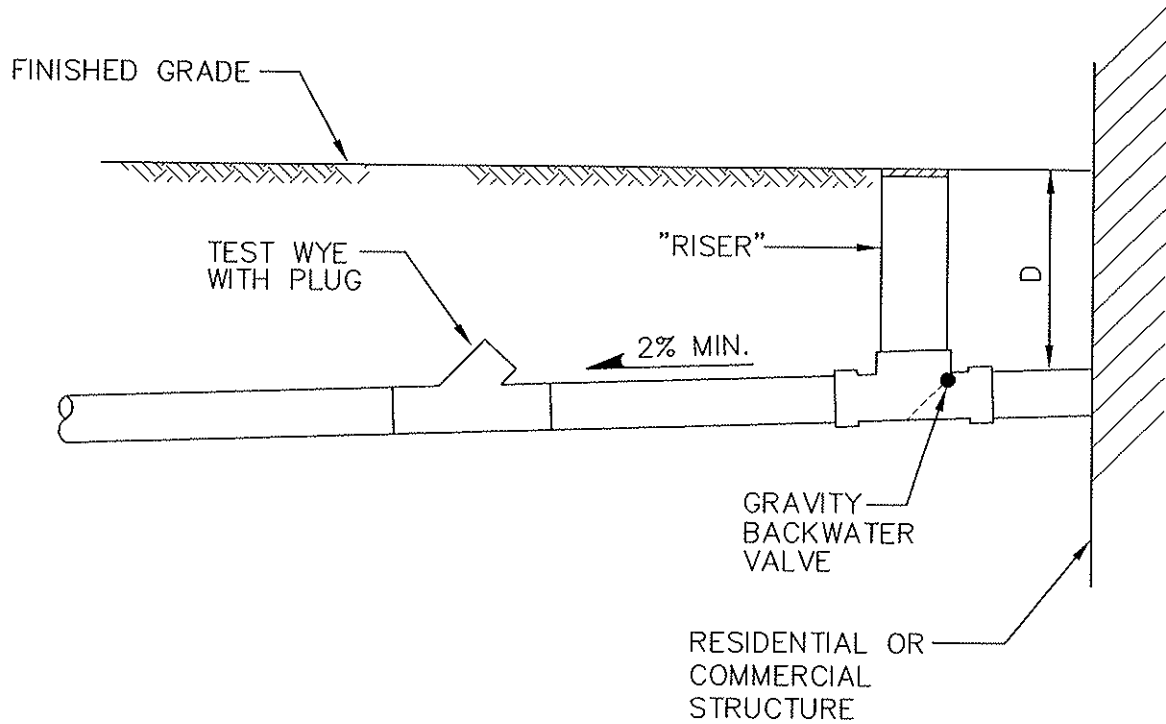
NOTES:

1. THIS METHOD MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE DISTRICT AND ONLY WHEN STANDARD SIDE SEWER INSTALLATION PER DWG VI-S16 IS NOT POSSIBLE BY EITHER:
 - A. CUTTING THE SIDE SEWER STUB BACK, ENABLING THE PIPE TO BE INSTALLED AT 100% (45°; 1:1), OR LESS SLOPE (2% MIN) TO THE BUILDING CONNECTION LOCATED 30" FROM FOUNDATION AT MINIMUM OF 18" DEEP, OR
 - B. ROUTING THE SIDE SEWER PIPE TO EXTEND ALONG THE SIDE OF THE BUILDING TO DECREASE SLOPE.
2. CONTRACTOR OR BUILDER MUST CONTACT THE DISTRICT WHEN THE CLEANOUT AND CONCRETE COLLAR ARE FINISHED. THE SIDE SEWER WILL BE ACCEPTED AFTER THIS INSPECTION.

VERTICAL RISER PRIVATE SIDE SEWER INSTALLATION

Silver Lake Water and Sewer District

STANDARD DETAILS



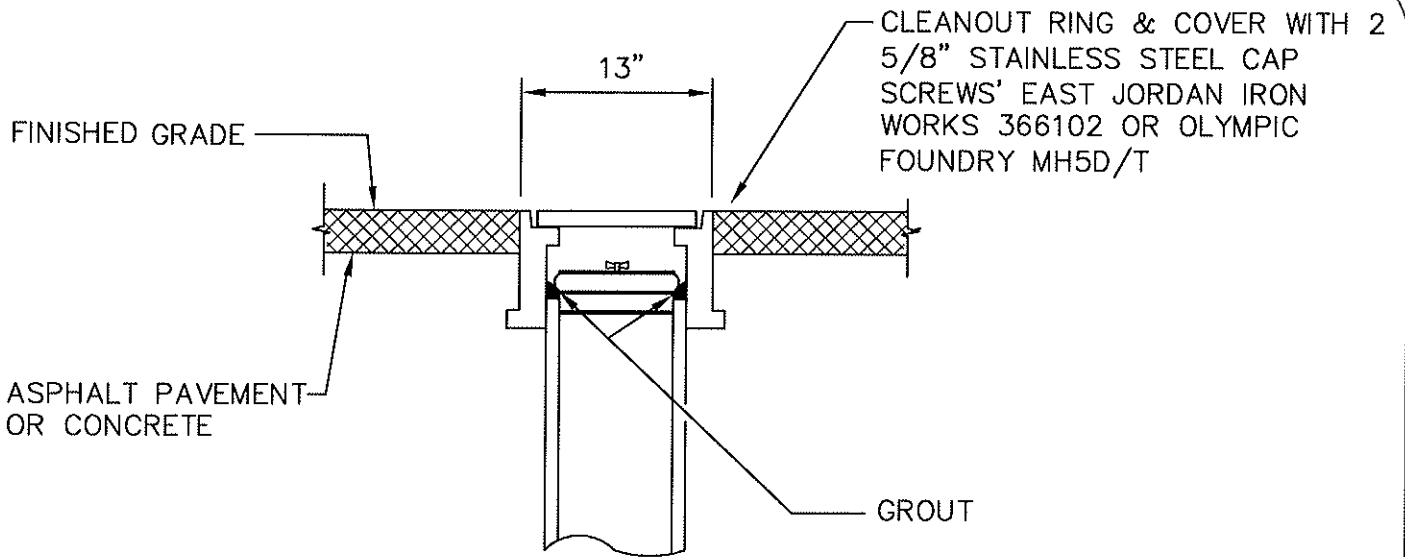
ELEVATION

NOTES:

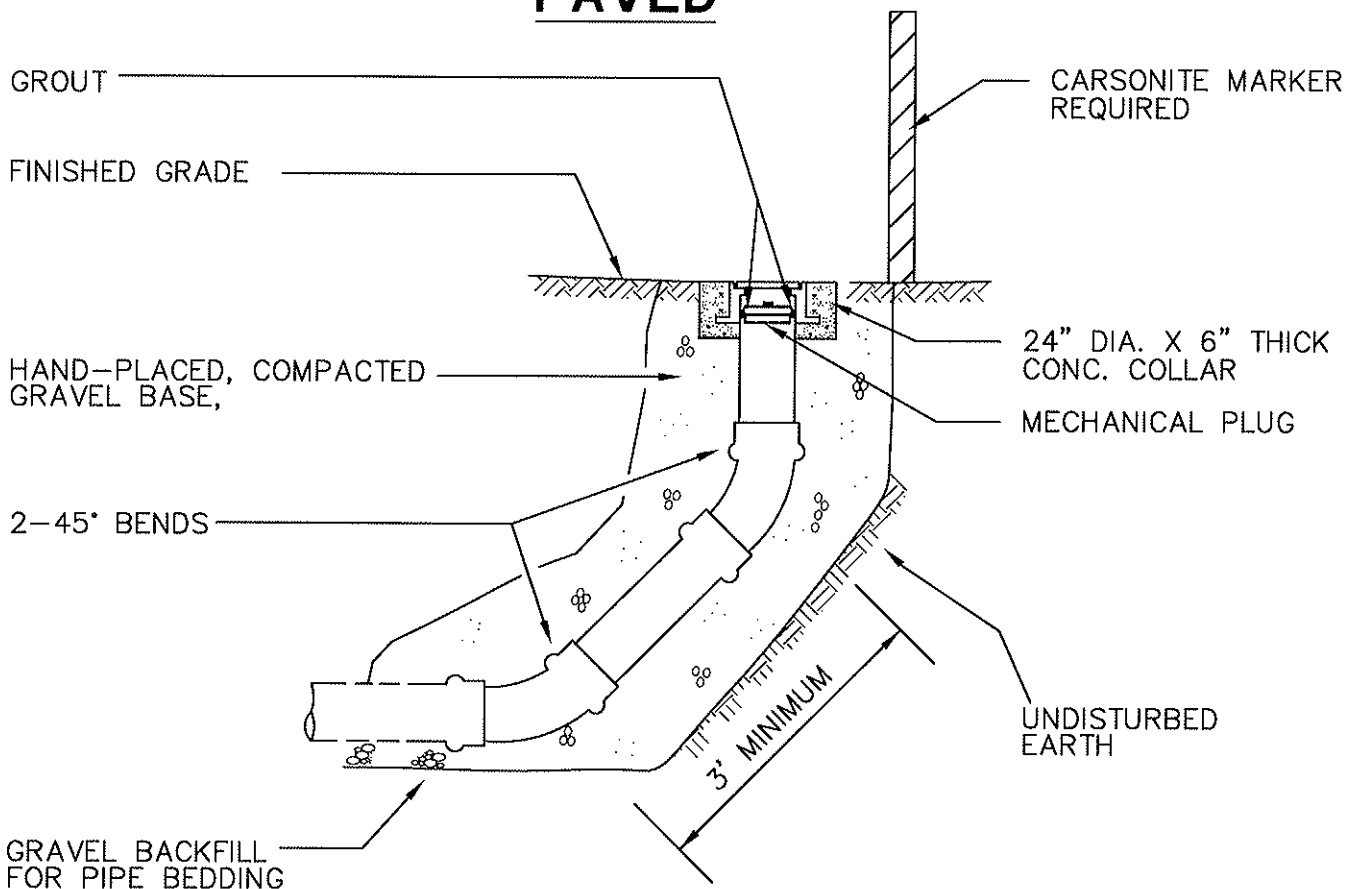
1. LOCATION TO BE APPROVED BY SILVER LAKE WATER AND SEWER DISTRICT, PRIOR TO INSTALLATION.
2. NDS, OR EQUAL, GRAVITY BACKWATER VALVE. AVAILABLE IN 4" AND 6" SIZES IN ABS OR PVC MATERIAL.
3. POINT ARROWS ON TOP IN DIRECTION OF FLOW.
4. INSTALL "RISER" WITH COVER TO GROUND SURFACE FOR EASY ACCESS TO VALVE. ACCESS BY:
 - A. RISER PIPE IF DEPTH LESS THAN 18"
 - B. METER BOX TYPE 2 IF DEPTH LESS THAN 3.5 FEET
 - C. VAULT OR MANHOLE IF DEPTH GREATER THAN 3.5 FEET

PRIVATE BACKWATER VALVE

Silver Lake Water and Sewer District
STANDARD DETAILS



PAVED



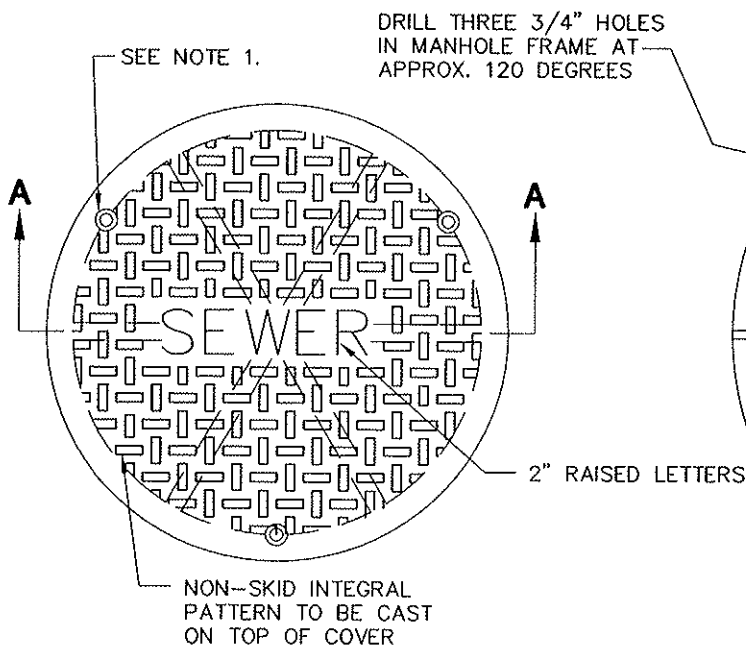
NON-PAVED

NOTE:

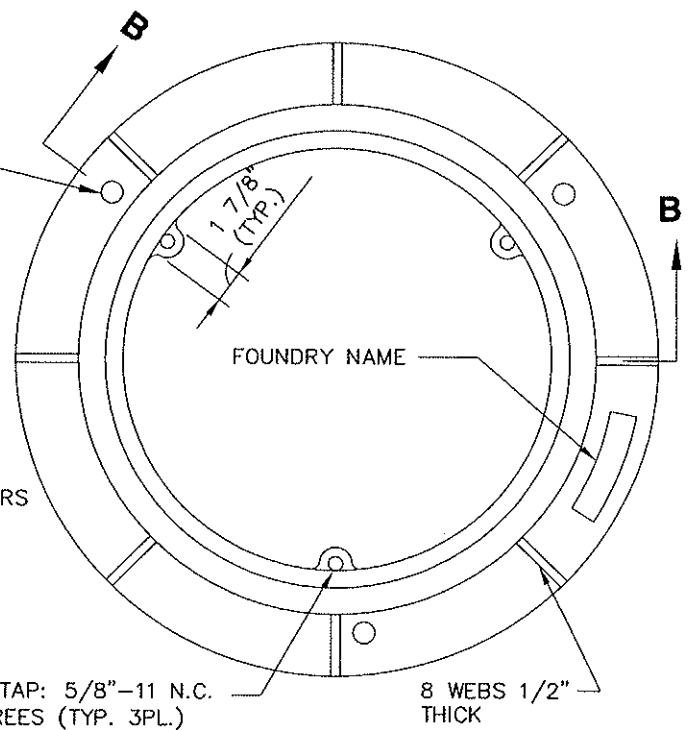
TO BE USED ON CLEANOUT ACCESS AT STRUCTURE

SIDE SEWER CLEANOUT

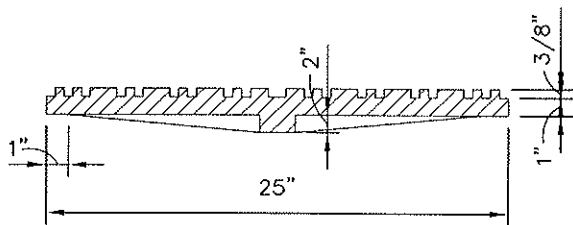
Silver Lake Water and Sewer District
STANDARD DETAILS



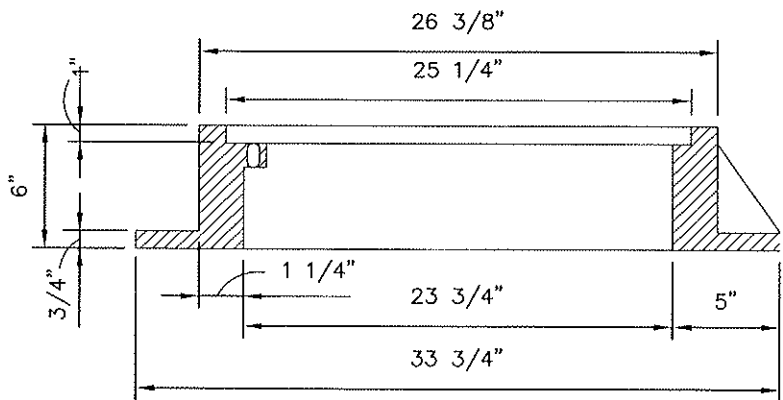
COVER PLAN



RING PLAN



SECTION A-A



SECTION B-B

GENERAL NOTES:

MANHOLE RING AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL 370063, OLYMPIC FOUNDRY MODEL MH30AD/T, OR EQUAL.

COVER NOTES:

1. USE WITH THREE LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 3" LONG. DRILL HOLES SPACED 120°, TO MATCH HOLES IN RING.
2. COVER MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
3. SHALL CONFORM TO SEC. 9-05.15 OF THE STANDARD SPECIFICATIONS, AS MODIFIED HEREIN.
4. APPROXIMATE WEIGHT OF COVER IS 150 LBS.
5. RATING - H30.

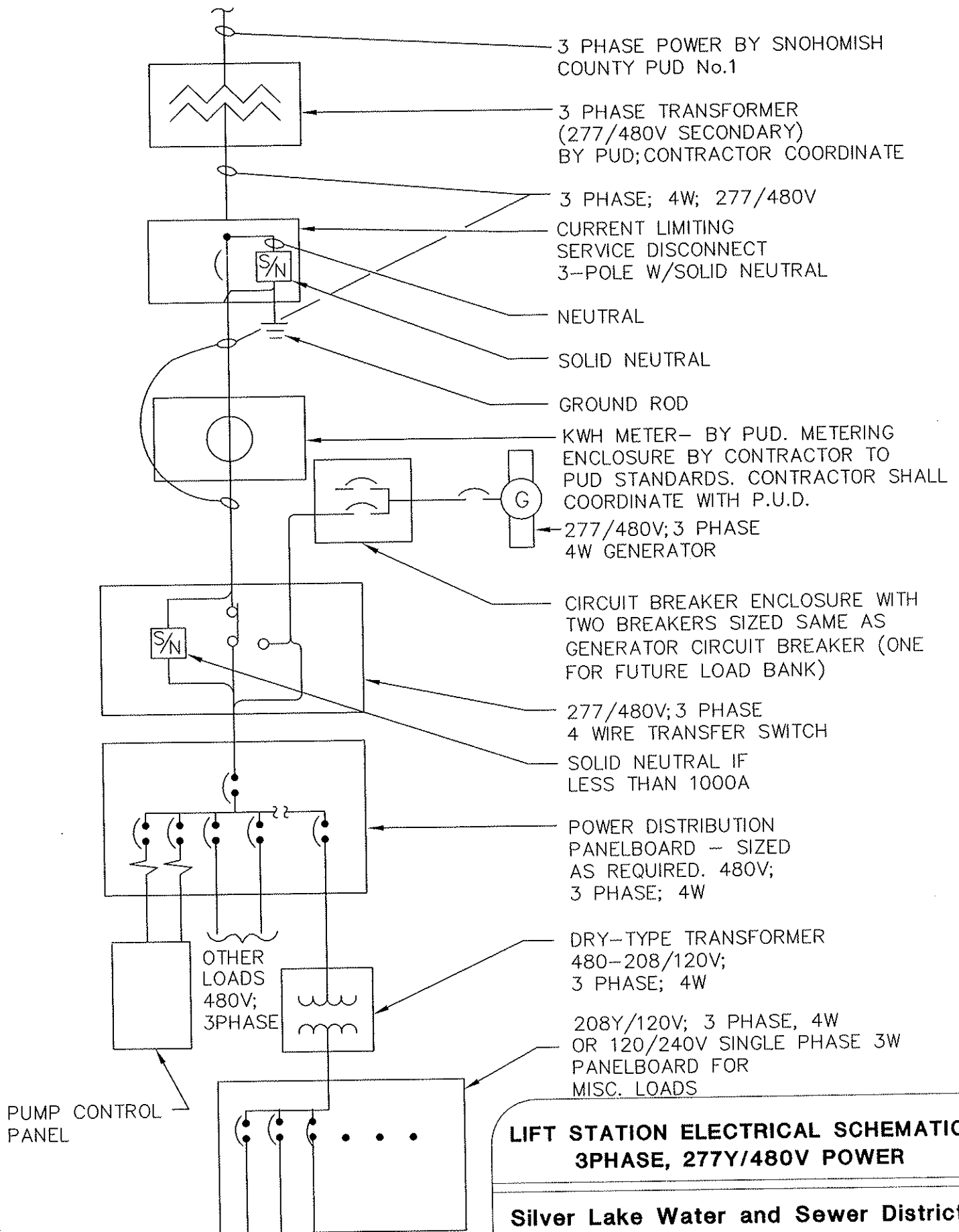
RING NOTES:

1. DRILL AND TAP THREE 5/8"-11 NC HOLES THROUGH RING AT 120°.
2. RING MATERIAL IS GREY IRON, ASTM A- 48 CLASS 30.
3. SHALL CONFORM TO SEC. 9-05.15 OF THE STANDARD SPECIFICATIONS, AS MODIFIED HEREIN.
4. APPROXIMATE WEIGHT OF RING IS 215 LBS.
5. RATING - H30.

STANDARD MANHOLE FRAME AND COVER

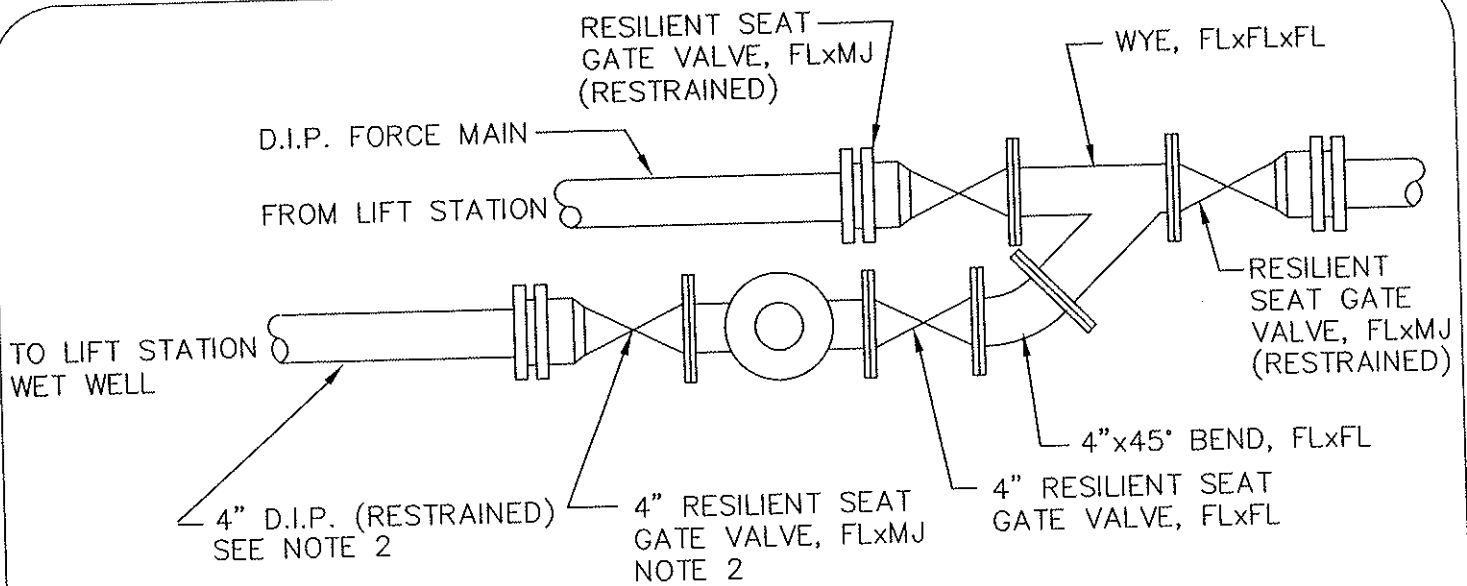
Silver Lake Water and Sewer District
STANDARD DETAILS

LIFT STATIONS

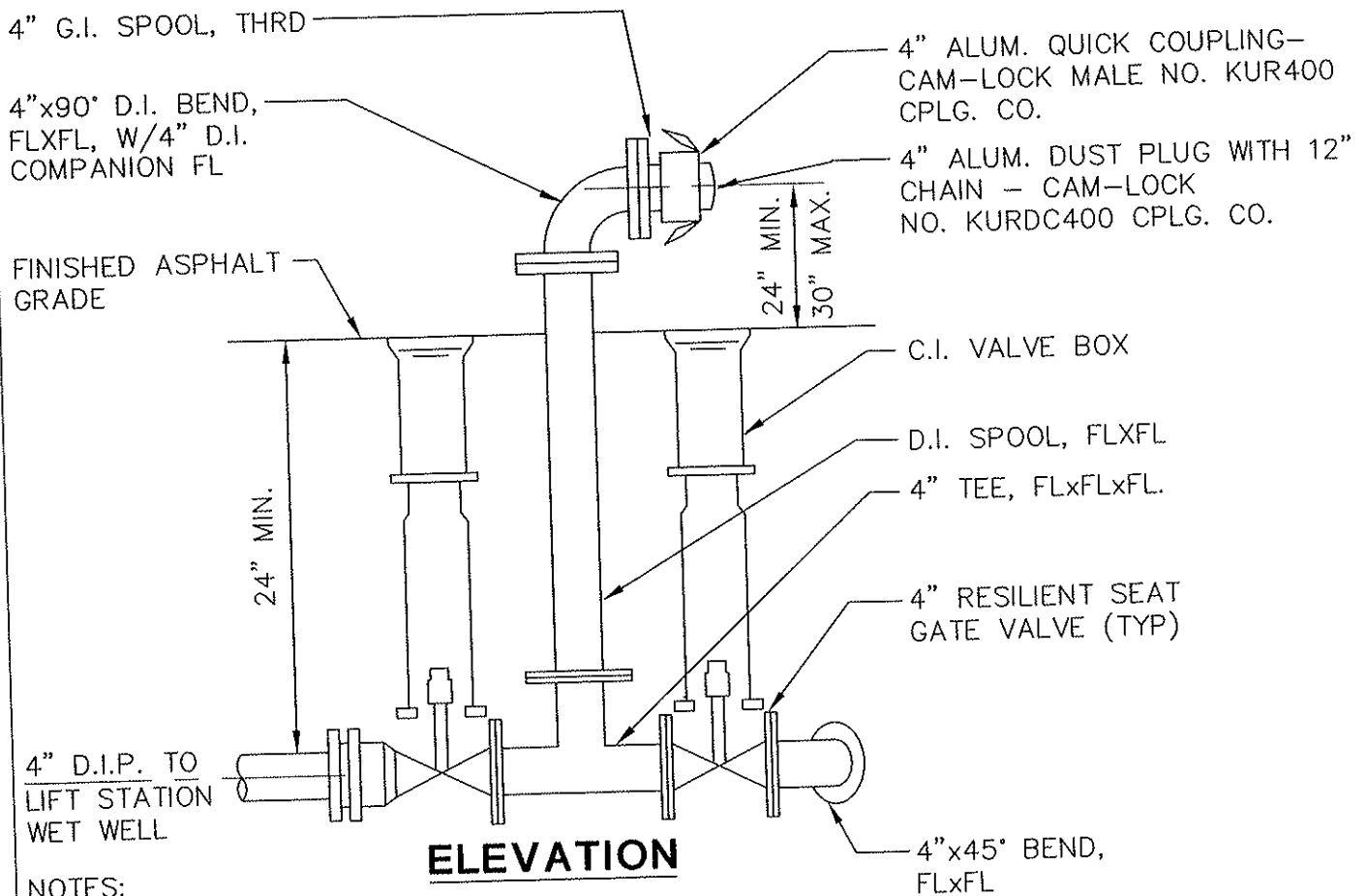


**LIFT STATION ELECTRICAL SCHEMATIC
3PHASE, 277Y/480V POWER**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



PLAN

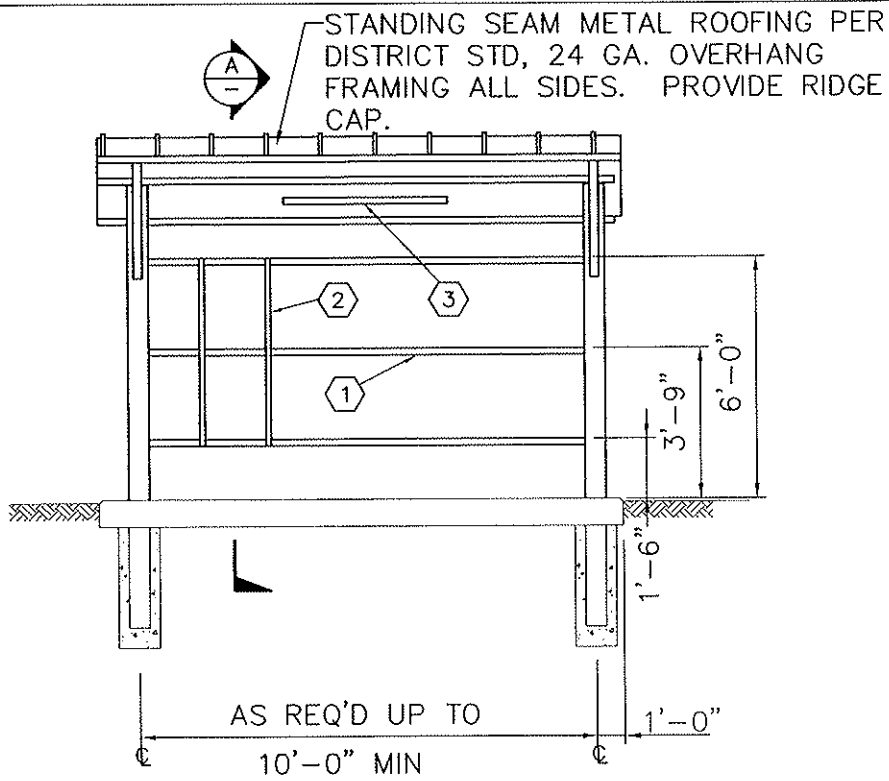


NOTES:

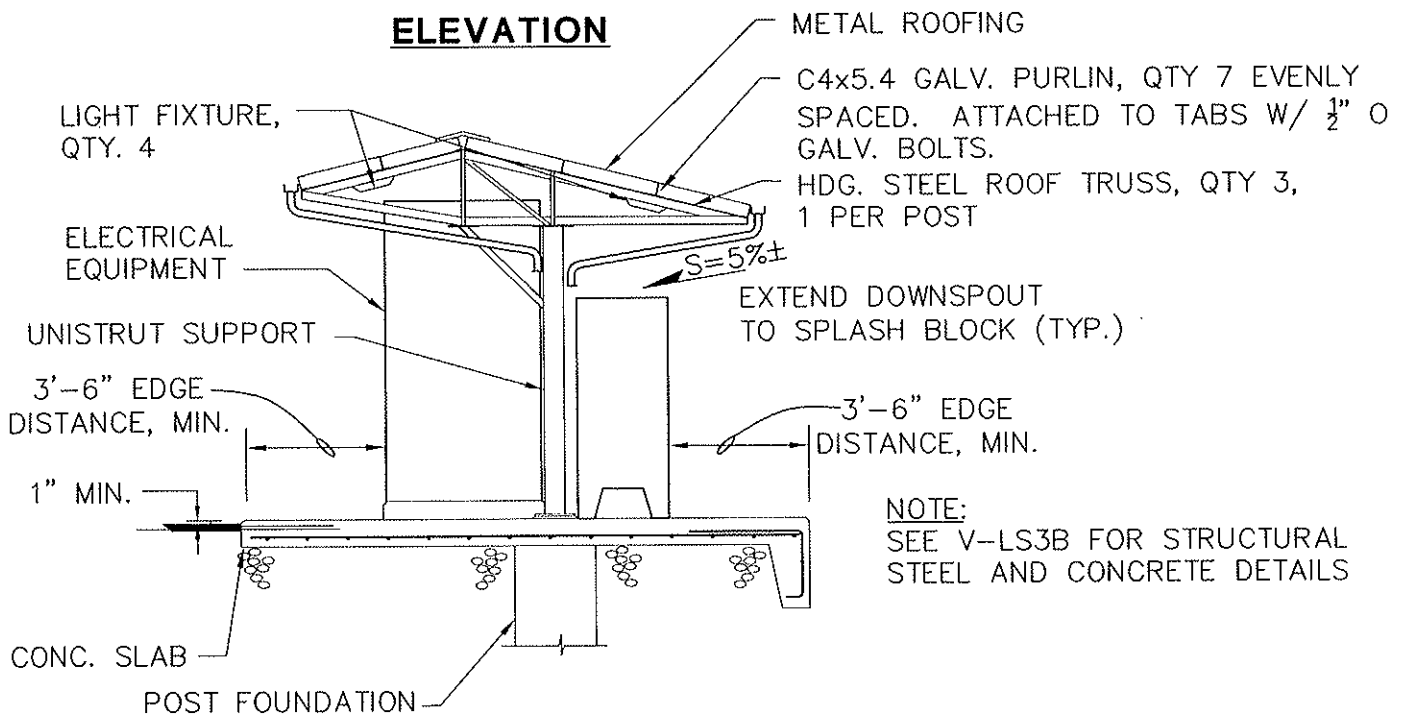
1. LOCATE AND ORIENT PUMP CONNECTION AS DIRECTED BY SLWSD.
2. PIPE AND FITTINGS TO BE ADJUSTED BASED ON DISTANCE TO WET WELL (FLxPE, OR FLxMJ RESTRAINED)
3. 4" SIZE SHOWN, LARGER SIZE MAY BE REQUIRED TO MEET STATION CAPACITIES.

BYPASS PUMP CONNECTION

Silver Lake Water and Sewer District
STANDARD DETAILS



ELEVATION



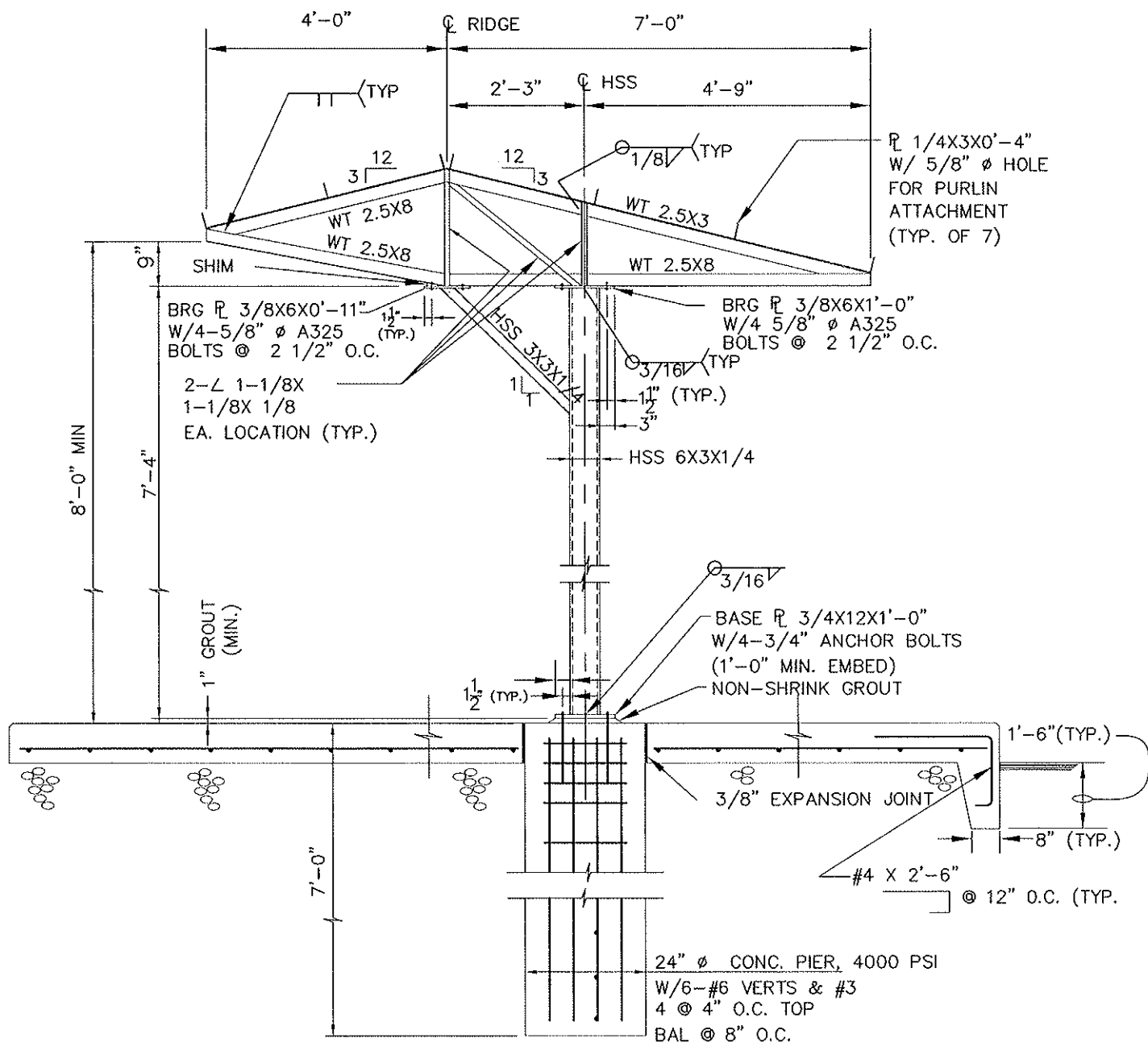
NOTE:
SEE V-LS3B FOR STRUCTURAL STEEL AND CONCRETE DETAILS

SECTION A

- 1 C6x8.2 GALV. CHANNEL RAILS, QTY. 3 (TYP.). ATTACH TO L3x3 CLIP ANGLES W/ 1/2" Ø GALV. BOLTS.
- 2 16 GAUGE GALV. UNISTRUT SUPPORT (TYP.), AS REQUIRED.
- 3 LIGHT FIXTURE, QTY. 2 BETWEEN EA. PAIR OF COLUMNS (1 EA. FRONT & BACK)

ROOF STRUCTURE FOR ELECTRICAL ENCLOSURE

Silver Lake Water and Sewer District
STANDARD DETAILS

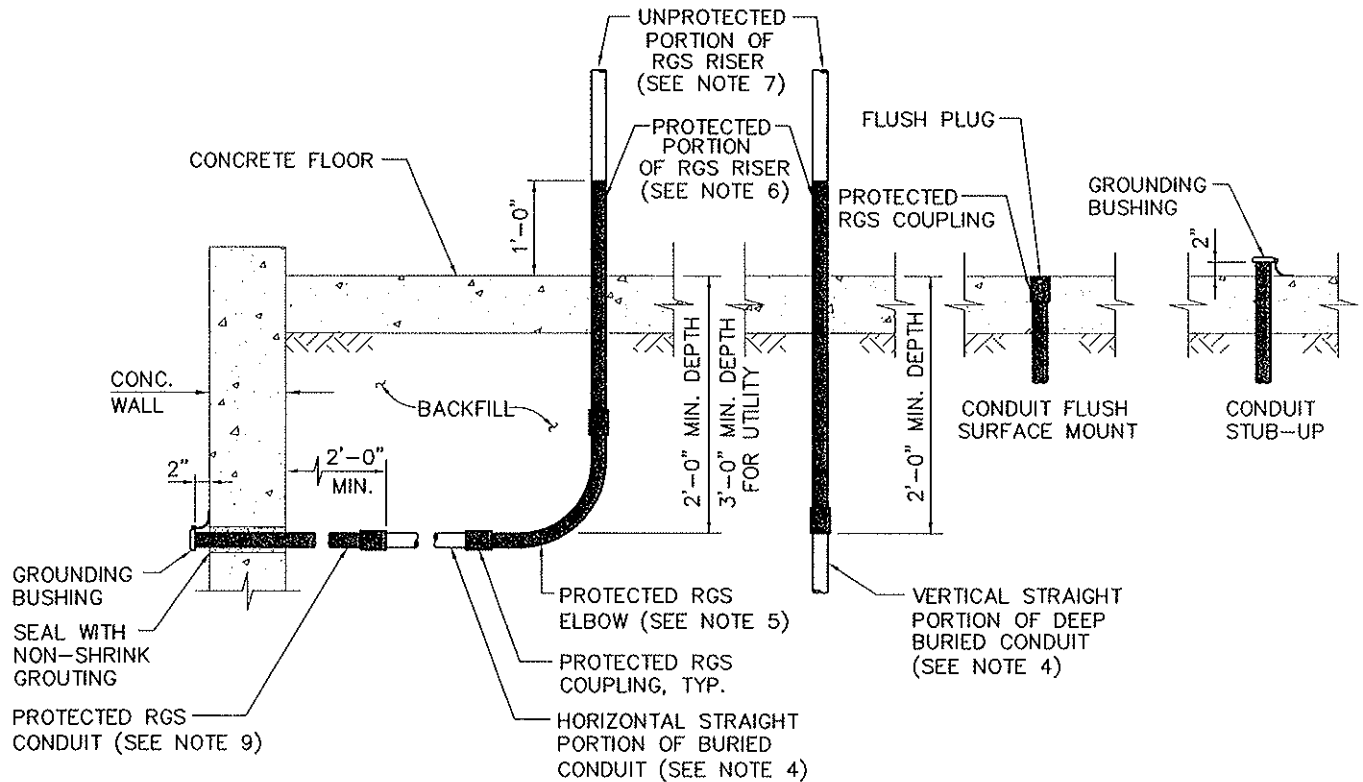


NOTE : HOT DIP GALVANIZE TRUSS AND POST ASSEMBLIES AFTER FABRICATION.

SECTION A

ROOF STRUCTURE FOR ELECTRICAL ENCLOSURE

Silver Lake Water and Sewer District
STANDARD DETAILS

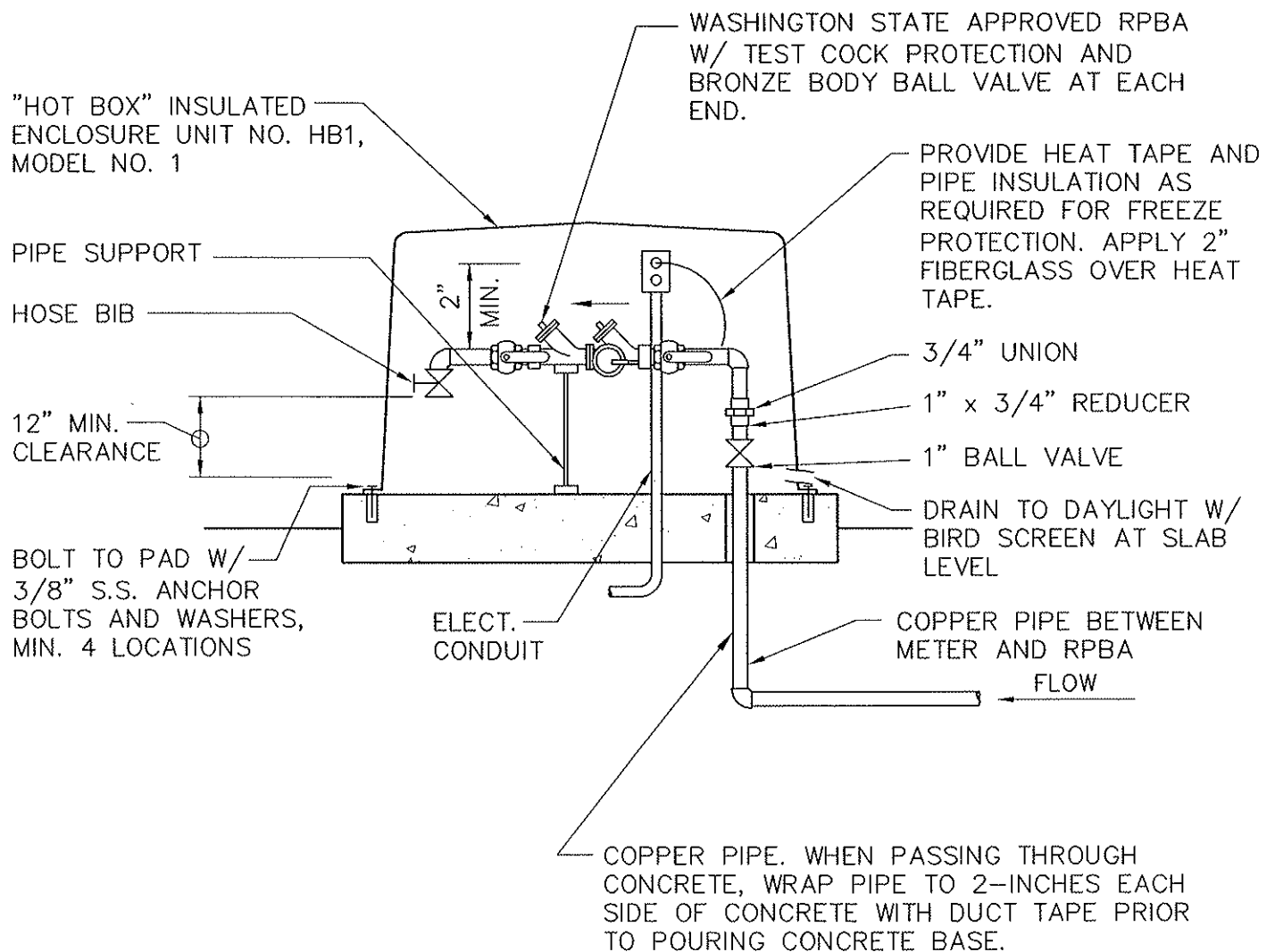


NOTES:

1. IN ALL CASES, CONDUIT INSTALLATIONS SHALL FOLLOW SPECIFICATION SECTION 16130.
2. ALL SHADED COMPONENTS IN THIS DETAIL ARE PROTECTED RGS CONDUITS, FITTINGS, OR COUPLINGS.
3. ALL RGS COUPLINGS, FITTINGS, AND PORTIONS OF RGS CONDUIT UNDERGROUND, IN CONCRETE, AND WITHIN 12-INCHES OF EXISTING GRADE SHALL BE PROTECTED WITH 20 MILS (MINIMUM) OF PVC COATING.
4. BURIED STRAIGHT LENGTHS OF CONDUIT MAY BE RGS OR RNC AS DEFINED BY THE CABLE AND CONDUIT SCHEDULE.
5. ALL ELBOWS OR BENDS SHALL BE RGS, WHETHER UNDERGROUND, IN CONCRETE, OR ABOVE GROUND.
6. ALL RISERS THAT EXIT GRADE SHALL BE RGS.
7. ALL EXPOSED CONDUITS SHALL BE RGS.
8. UNDERGROUND PORTIONS OF DEEP RNC RISERS SHALL CONVERT TO PROTECTED RGS CONDUIT WITH 24-INCHES OF DEPTH TO GRADE.
9. CONDUITS PENETRATING VERTICAL WALLS OF BURIED VAULTS OR BELOW-GROUND STRUCTURES SHALL BE RGS THROUGH THE WALL AND A MINIMUM OF 24-INCHES BEHIND THE WALL UNDERGROUND. IF THE CONDUIT IS TO STUB-OUT INSIDE THE WALL, THE STUB-OUT LENGTH SHALL BE 2-INCHES.
10. ALL UNDERGROUND CONDUIT SHALL BE INSTALLED WATERTIGHT OVER THEIR ENTIRE LENGTH. WHERE THESE CONDUITS TERMINATE INSIDE THEIR ASSOCIATED JUNCTION BOXES, PLUG THE ENDS OF THE CONDUITS TO ELIMINATE THE POSSIBILITY OF WATER ENTERING THE JUNCTION BOXES FROM GROUND WATER. ALL CONDUIT PENETRATIONS SHALL BE MADE WITH NON-SHRINK GROUT.

UNDERGROUND CONDUIT DETAIL

Silver Lake Water and Sewer District
STANDARD DETAILS

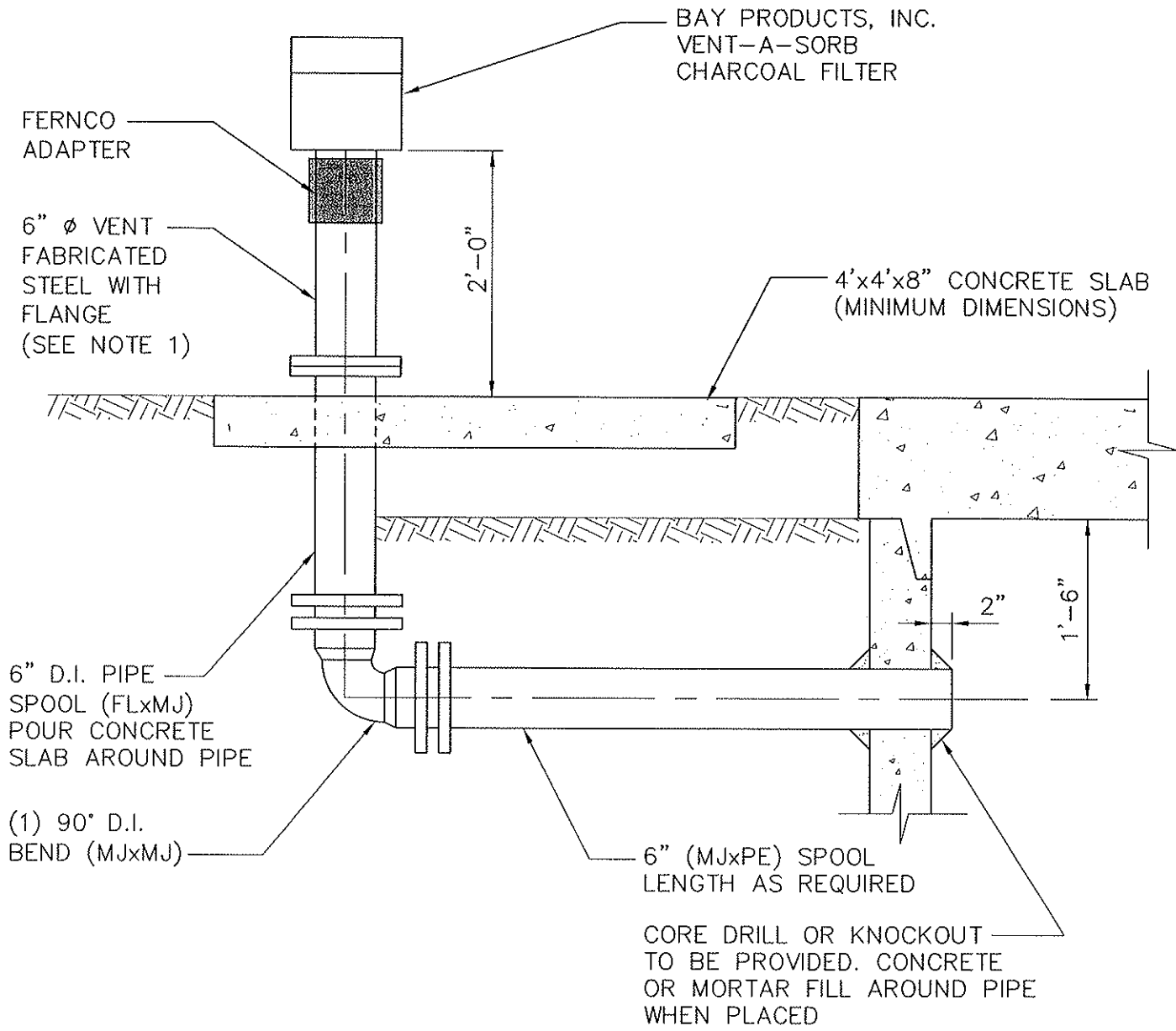


NOTES:

1. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
2. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, DISTRICT AND MANUFACTURER STANDARDS.
3. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE DISTRICT AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
4. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
5. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.
6. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.

3/4" RPBA BACKFLOW ASSEMBLY

Silver Lake Water and Sewer District
STANDARD DETAILS

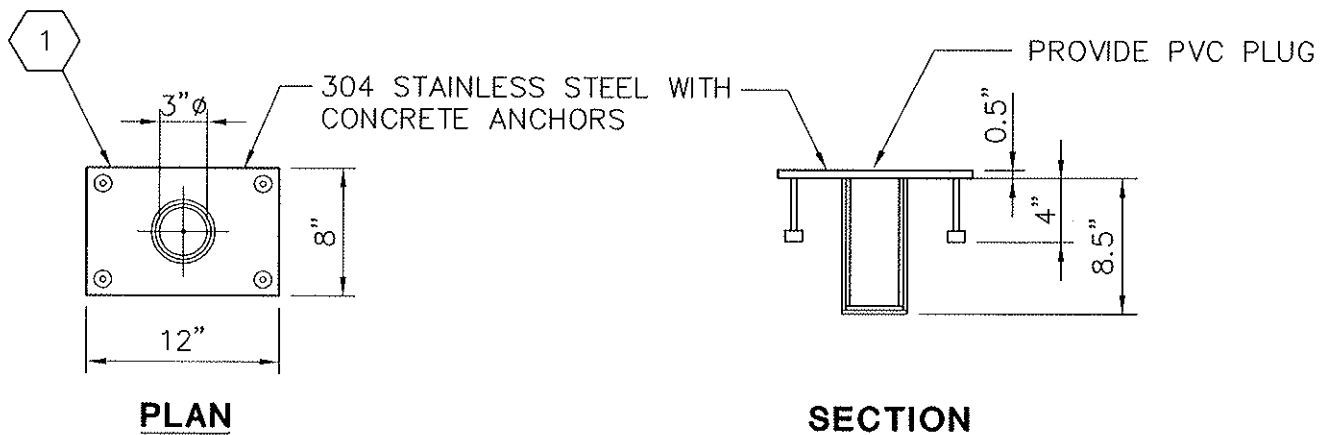
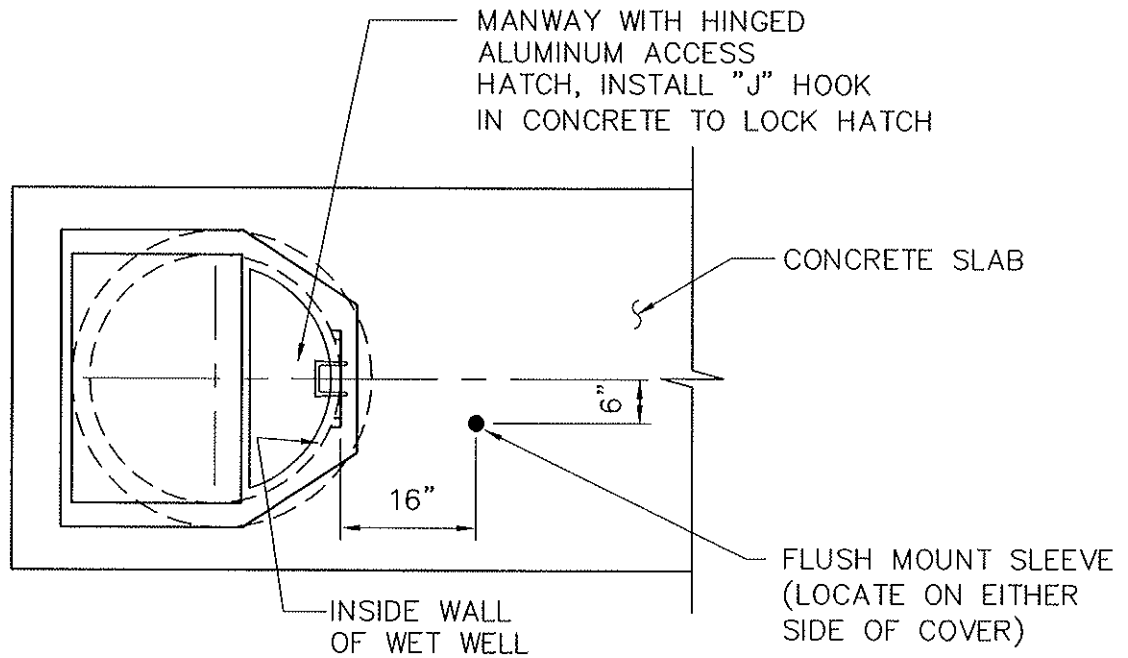


NOTES:

1. HOT DIP GALVANIZE VENT "CANE" AND FLANGE AFTER FABRICATION. AFTER GALVANIZING VENT, PAINT WITH TWO COATS OF KELLY MOORE 6100-855, MACHINE GREEN, OR AS DIRECTED BY THE DISTRICT.

VENT DETAIL

**Silver Lake Water and Sewer District
STANDARD DETAILS**



FLUSH MOUNT SLEEVE

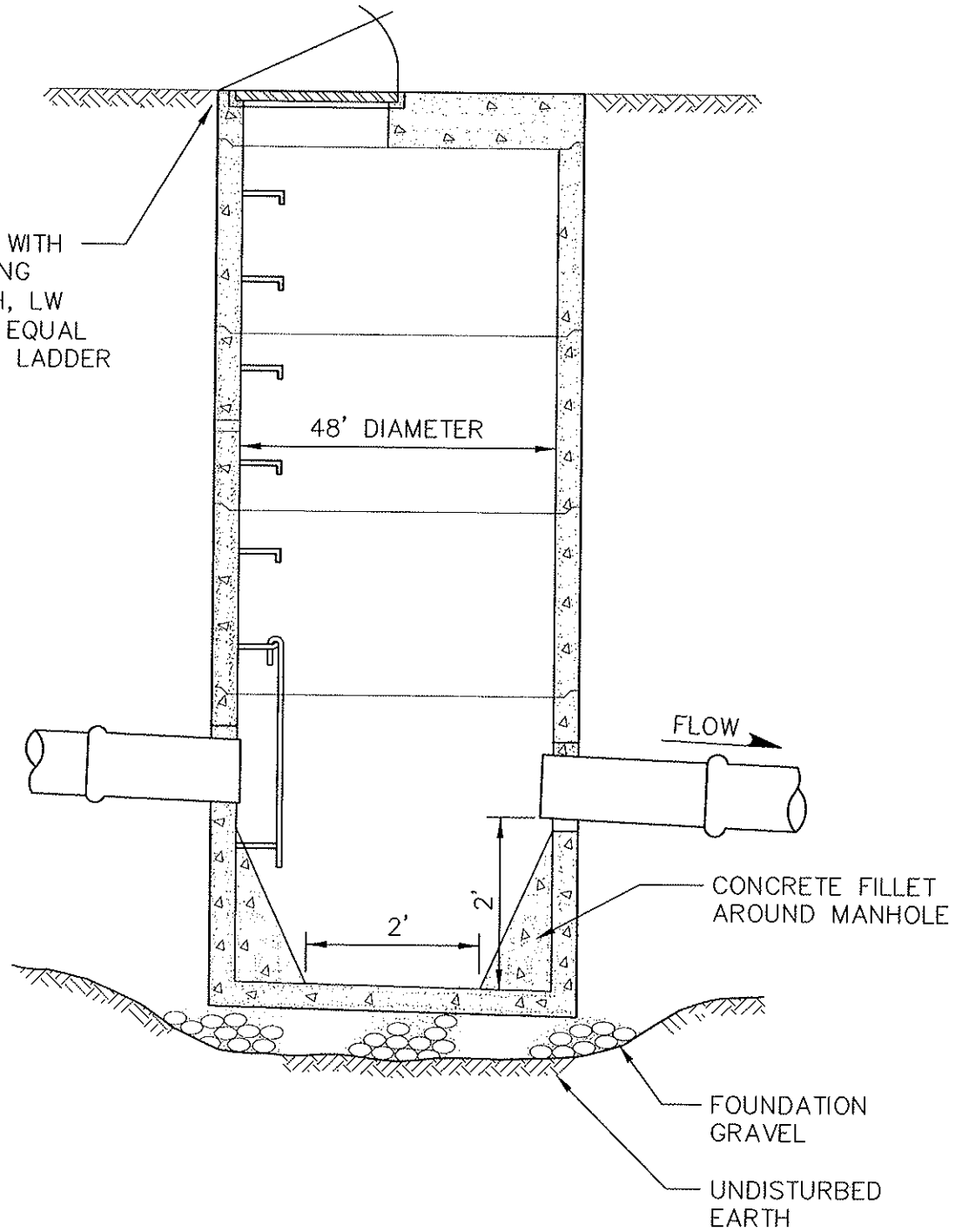
NOT TO SCALE

1 FLUSH MOUNT SLEEVE MODEL 128 BY UNIQUE CONCEPTS LTD.

FLUSH MOUNT SLEEVE

Silver Lake Water and Sewer District
STANDARD DETAILS

8" FLAT SLAB WITH
30"x30" LOCKING
ACCESS HATCH, LW
PRODUCTS OR EQUAL
LOCATED OVER LADDER



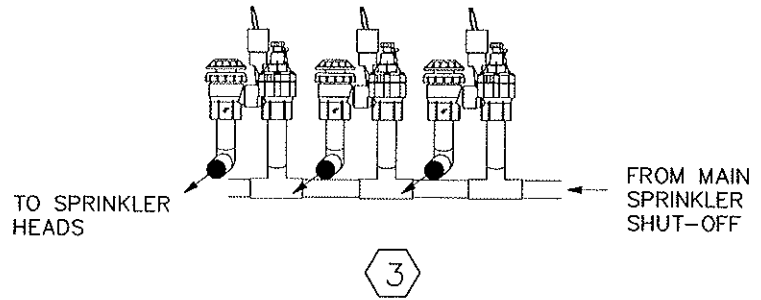
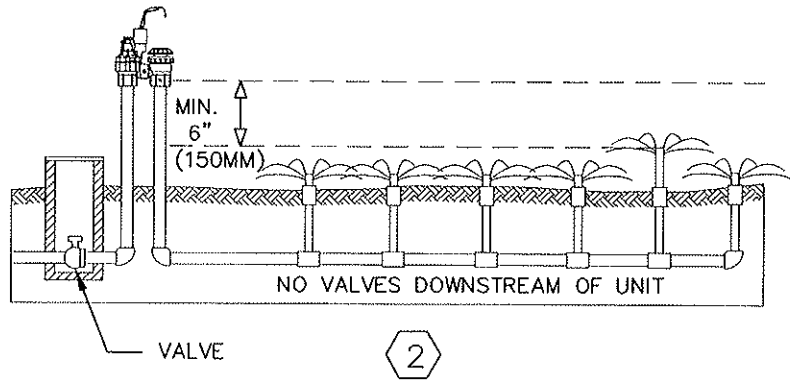
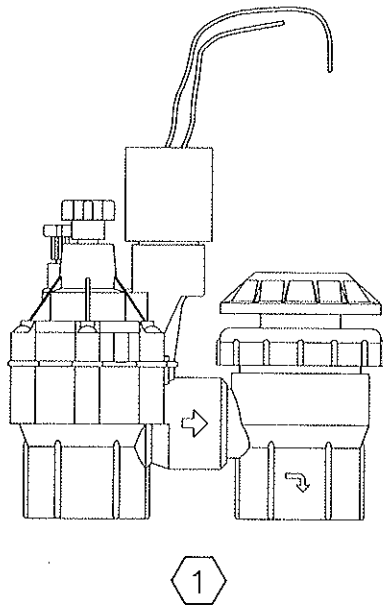
NOTES:

1. SEE STANDARD MANHOLE FOR ADDITIONAL CALLOUTS ON VI-S5.
2. ACCESS HATCH AND MANHOLE STEPS LOCATED AT 45° TO THROUGH FLOW

ROCK CATCH MANHOLE

Silver Lake Water and Sewer District
STANDARD DETAILS

CROSS-CONNECTION CONTROL



① AUTOMATIC ANTI-SIPHON CONTROL VALVE

② SHOWN IN SINGLE ZONE CONFIGURATION

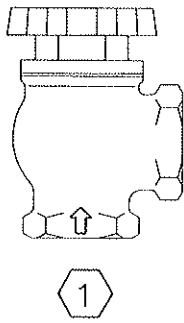
③ SHOWN IN MANIFOLD CONFIGURATION

NOTES:

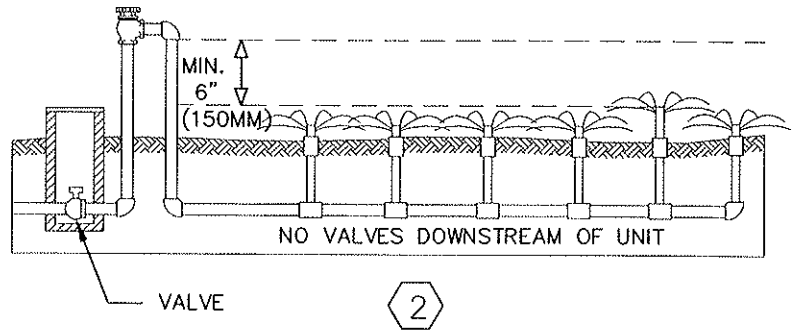
1. SHALL BE INSPECTED BY SLWSD UPON INSTALLATION.
2. NO DOWNSTREAM VALVES ALLOWED.
3. USE 1 AUTOMATIC ANTI-SIPHON CONTROL VALVE PER ZONE.
4. INSTALL AT LEAST 6" (150MM) ABOVE HIGHEST SPRINKLER IN RESPECTIVE ZONE.
5. NEVER INSTALL BELOW GRADE.
6. MUST BE PROTECTED FROM FREEZING.
7. SHALL NOT BE MODIFIED IN ANY WAY.
8. SHALL NOT BE SUBJECT TO BACKPRESSURE.
9. MAY NOT BE INSTALLED ON SYSTEMS UTILIZING COMPRESSED AIR WINTERIZATION FITTING.
10. MAY NOT BE SUBJECT TO MORE THAN 12 HOURS OF CONTINUOUS PRESSURE.

**AUTOMATIC ANTI-SIPHON
CONTROL VALVE**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



①



②

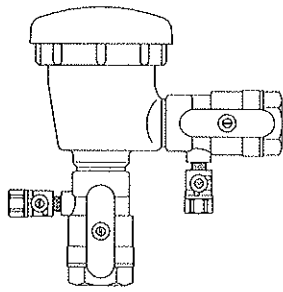
- ① ATMOSPHERIC VACUUM BREAKER
- ② SHOWN IN SINGLE ZONE CONFIGURATION
- ③ CAN BE USED IN MANIFOLD CONFIGURATION (SEE CC-W1)

NOTES:

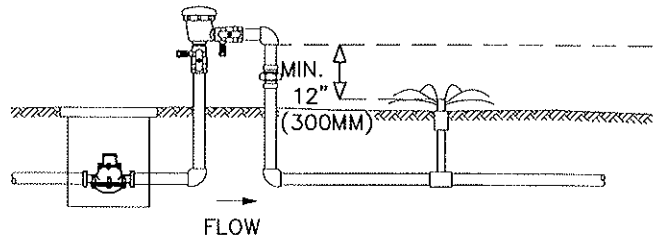
1. SHALL BE INSPECTED BY SLWSD UPON INSTALLATION.
2. NO DOWNSTREAM VALVES ALLOWED.
3. USE 1 ATMOSPHERIC VACUUM BREAKER PER ZONE.
4. INSTALL AT LEAST 6" (150MM) ABOVE HIGHEST SPRINKLER IN RESPECTIVE ZONE.
5. NEVER INSTALL BELOW GRADE.
6. MUST BE PROTECTED FROM FREEZING.
7. SHALL NOT BE MODIFIED IN ANY WAY.
8. SHALL NOT BE SUBJECT TO BACKPRESSURE.
9. MAY NOT BE INSTALLED ON SYSTEMS UTILIZING COMPRESSED AIR WINTERIZATION FITTING.
10. MAY NOT BE SUBJECT TO MORE THAN 12 HOURS OF CONTINUOUS PRESSURE.

**ATMOSPHERIC VACUUM
BREAKER**

**Silver Lake Water and Sewer District
STANDARD DETAILS**



1



2

1 PRESSURE VACUUM BREAKER

2 MAY BE USED WITH DOWNSTREAM VALVES & MULTIPLE ZONES

NOTES:

1. SHALL BE INSPECTED BY SLWSD UPON INSTALLATION.
2. SHALL BE TESTED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER
3. INSTALL AT LEAST 12" (300MM) ABOVE HIGHEST SPRINKLER IN RESPECTIVE ZONE.
4. NEVER INSTALL BELOW GRADE.
5. MUST BE PROTECTED FROM FREEZING.
6. SHALL NOT BE MODIFIED IN ANY WAY.
7. MAY NOT BE INSTALLED ON SYSTEMS UTILIZING COMPRESSED AIR WINTERIZATION FITTING.
8. ASSEMBLY MUST BE FROM THE MOST RECENT EDITION OF "BACKFLOW PREVENTION ASSEMBLIES APPROVED FOR INSTALLATION IN WASHINGTON STATE" (D.O.H. PUB. 331-137) OR APPROVAL BY THE FOUNDATION FOR CROSS-CONNECTION AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

PRESSURE VACUUM BREAKER

Silver Lake Water and Sewer District
STANDARD DETAILS

APPENDIX

TYPE "A" BLOCKING
FOR 11 1/4"-22 1/2"-30" VERTICAL BENDS

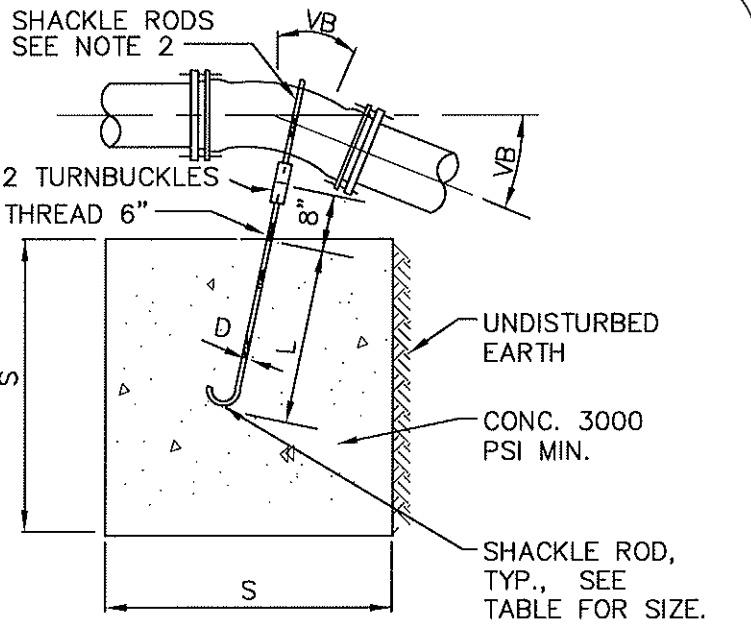
PIPE SIZE NOMINAL DIAMETER— INCHES	TEST PRESSURE PSI	VB VERTICAL BEND DEGREES	No. OF CU. FT. OF CONC. BLOCKING	S SIDE OF CUBE LIN. FT.	D DIAM. OF SHACKLE RODS (2) INCHES	DEPTH OF RODS IN CONCRETE LIN. FT.
4"	300	11 1/4	8	2	5/8"	1.5
		22 1/2	11	2.2		
		30	17	2.6		
6"	300	11 1/4	11	2.2	5/8"	2.0
		22 1/2	25	2.9		
		30	41	3.5		
8"	300	11 1/4	16	2.5	5/8"	2.0
		22 1/2	47	3.6		
		30	70	4.1		
12"	250	11 1/4	32	3.2	5/8"	2.0
		22 1/2	88	4.5		
		30	132	5.1		
16"	225	11 1/4	70	4.1	7/8"	3.0
		22 1/2	184	5.7		
		30	275	6.5		
20"	200	11 1/4	91	4.5	7/8"	3.0
		22 1/2	225	6.1		
		30	330	6.9		
24"	200	11 1/4	128	5.0	1"	3.5
		22 1/2	320	6.8		
		30	480	7.9		

TYPE "B" BLOCKING
FOR — 45° VERTICAL BENDS

		VB		S	D	L
4"	300	45	30	3.1	5/8"	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		232	6.1	3/4"	2.5
16"	225		478	7.8	1 1/8"	4.0
20"	200		560	8.2	1 1/4"	
24"			820	9.4	1 3/8"	4.5

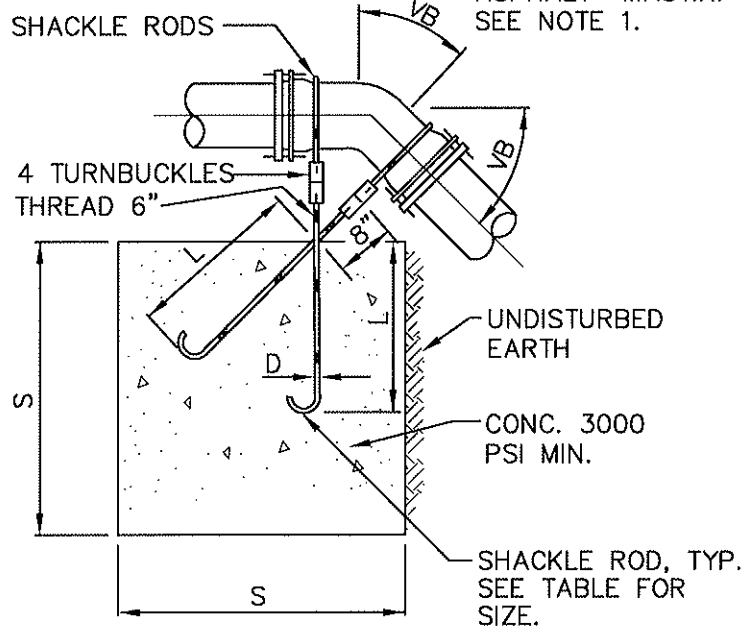
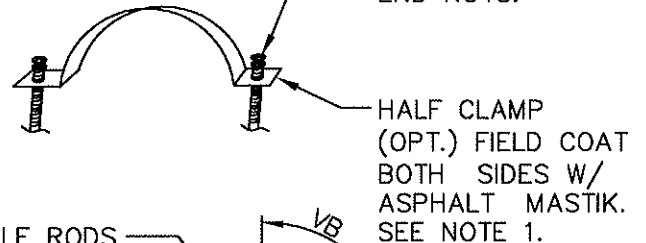
NOTES:

1. HALF CLAMP, WASHERS AND NUTS MAY BE SUBSTITUTED FOR TURNBUCKLE ASSEMBLY. ALL OTHER SPECIFICATIONS THE SAME.
2. SHACKLE ROD: ALL THREADS MUST BE EITHER STAINLESS STEEL 316/SS OR ZINC PLATED. IF ZINC SHACKLE ROD IS CUT, IT MUST BE FIELD COATED WITH PROTECTANT.



TYPE "A" BLOCKING

SHACKLE ROD, TYP., SECURE RODS WITH DOUBLE END NUTS.

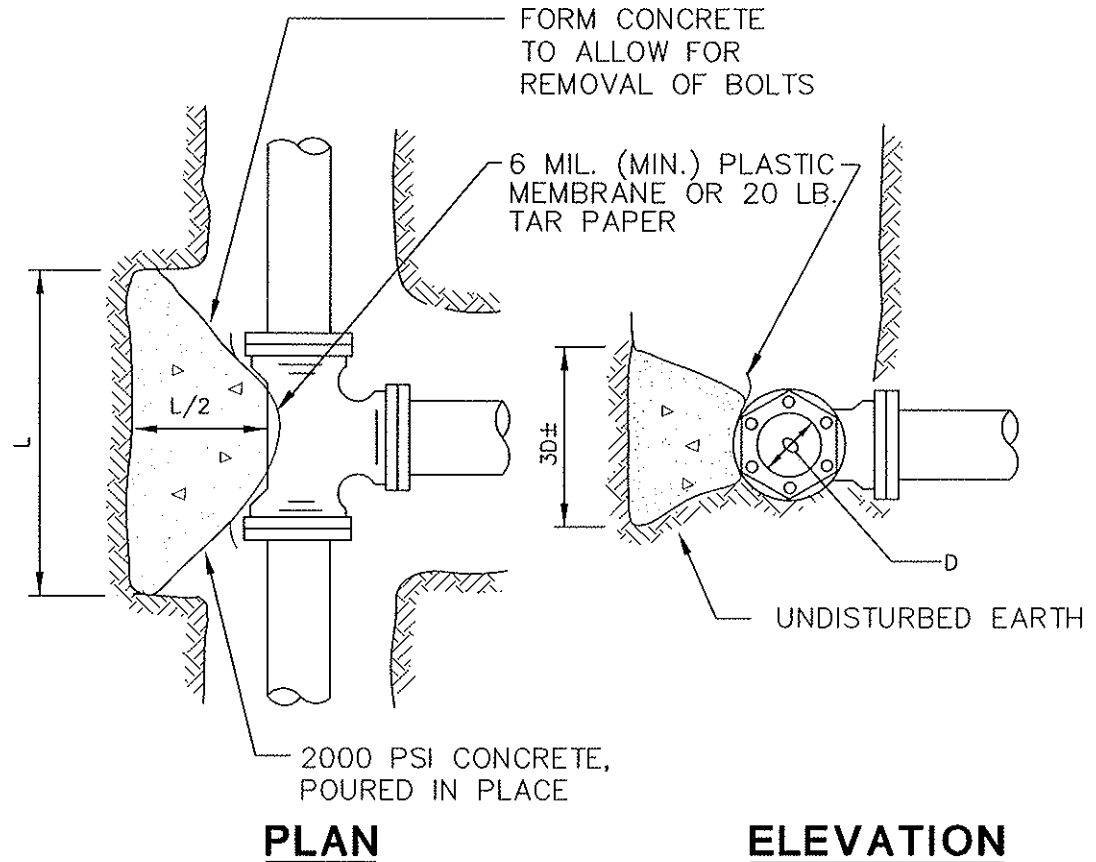


TYPE "B" BLOCKING

VERTICAL ANCHOR BLOCK

MINIMUM BEARING AREA TABLE

FITTING D	TEE	90°	45°	22 1/2°	11 1/4°
6"	4 SQ.FT.	6 SQ.FT.	3 SQ.FT.	2 SQ.FT.	2 SQ.FT.
8"	7 SQ.FT.	10 SQ.FT.	6 SQ.FT.	3 SQ.FT.	2 SQ.FT.
10"	10 SQ.FT.	15 SQ.FT.	9 SQ.FT.	5 SQ.FT.	3 SQ.FT.
12"	14 SQ.FT.	22 SQ.FT.	12 SQ.FT.	6 SQ.FT.	4 SQ.FT.
16"	25 SQ.FT.	38 SQ.FT.	21 SQ.FT.	11 SQ.FT.	7 SQ.FT.
18"	32 SQ.FT.	48 SQ.FT.	27 SQ.FT.	14 SQ.FT.	8 SQ.FT.

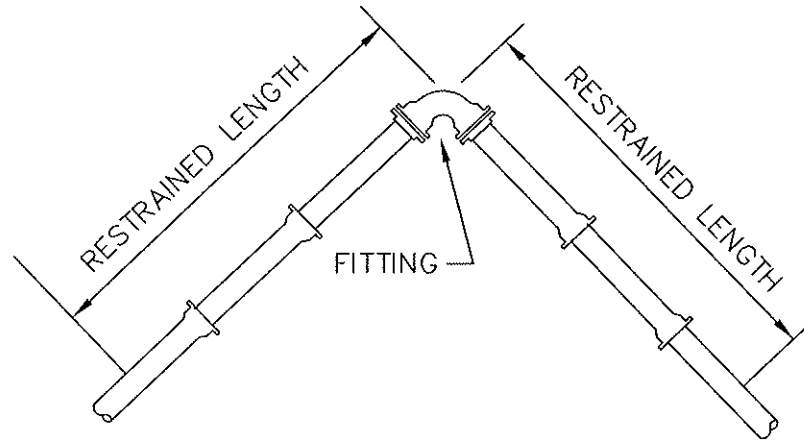


NOTES:

1. BEARING AREA TABLE BASED ON 250 PSI PRESSURE AND 2000 PSF SOIL BEARING. IF PRESSURE IS GREATER OR SOIL BEARING IS LESS, THE THRUST BLOCK SIZE SHALL BE INCREASED.
2. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE SIZE OF ALL THRUST BLOCKS BASED ON EXISTING AND LOCAL CONDITIONS.

THRUST BLOCKS

Silver Lake Water and Sewer District
STANDARD DETAILS



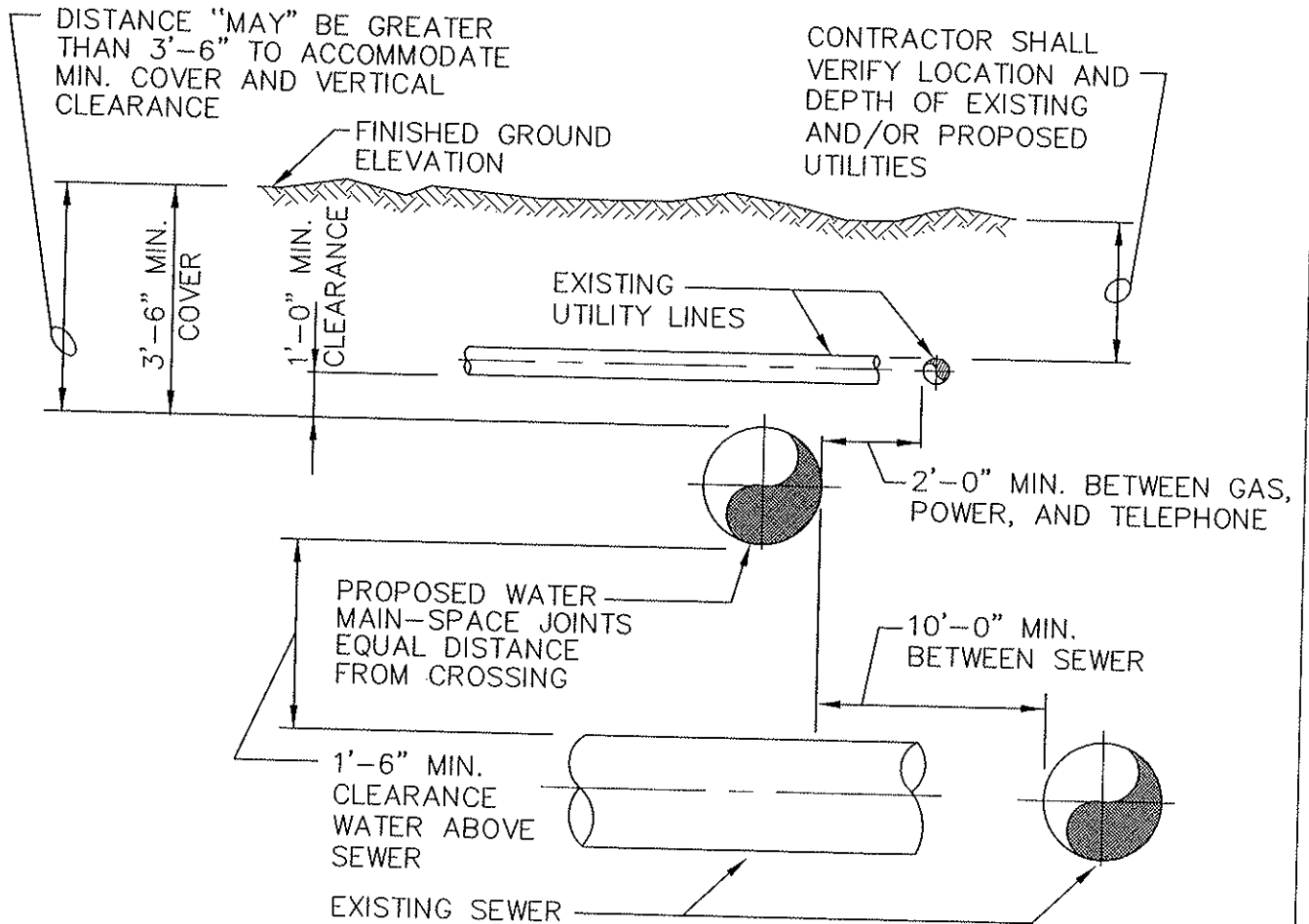
PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE OR DEAD END CAP
	RESTRAINED LENGTH IN FEET				
4"	40	17	8	4	30
6"	55	23	11	6	39
8"	73	31	15	8	53
10"	88	37	18	9	67
12"	103	43	21	10	82
16"	133	55	27	13	110
18"	145	60	29	15	124

NOTES:

1. RESTRAINED LENGTHS SHOWN ARE MINIMUM AND FOR LINEAL FEET REQUIRED ON EACH SIDE OF FITTING INDICATED.
2. FOOTAGES ARE BASED ON 250 PSI PRESSURE AND 42 INCHES COVER. IF PRESSURE IS GREATER OR COVER IS LESS, THE RESTRAINED LENGTH SHALL BE INCREASED.
3. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE RESTRAINED LENGTHS.

**THRUST RESTRAINT FOR
DUCTILE IRON PIPE**

**Silver Lake Water and Sewer District
STANDARD DETAILS**

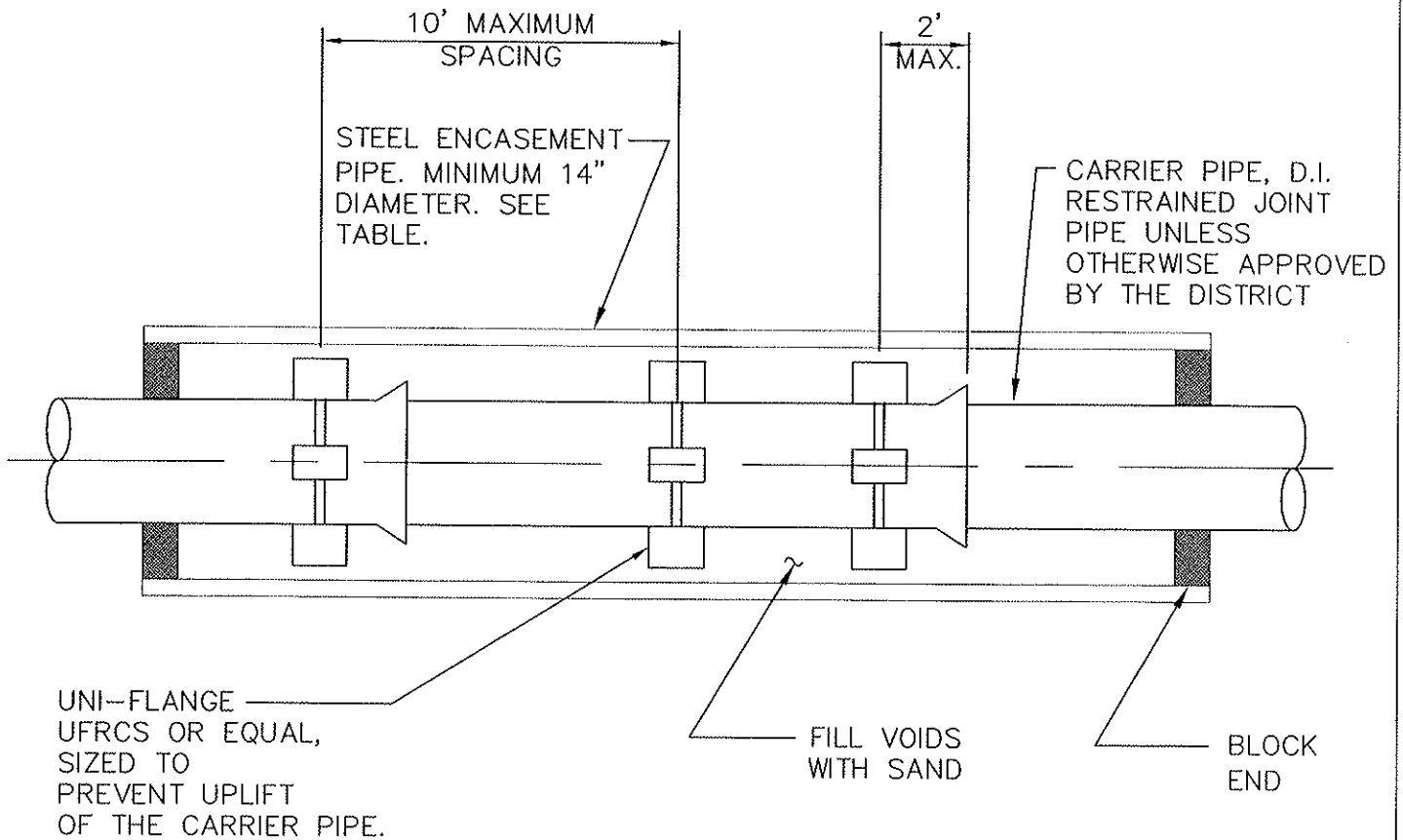


NOTES:

1. REGULATORY AGENCY REQUIREMENTS SHALL SUPERSEDE DISTRICT STANDARDS IF MORE STRINGENT.

TYPICAL UTILITY CROSSING

Silver Lake Water and Sewer District
STANDARD DETAILS



MINIMUM ENCASEMENT DIAMETER	
CARRIER DIA.(IN.)	ENCASEMENT DIA.(IN.)
6	14
8	18
10	21.5
12	23
16	30

NOTES:

1. CONTRACTOR TO VERIFY LINE AND GRADE PRIOR TO FILLING VOIDS WITH SAND.
2. CARRIER PIPE WITHIN THE LENGTH OF THE ENCASEMENT PIPE SHALL HAVE RESTRAINED JOINTS.
3. REGULATORY AGENCY REQUIREMENTS SHALL SUPERSEDE DISTRICT STANDARDS IF MORE STRINGENT.
4. CASING PIPE SHALL BE SCHEDULE 40 STEEL PIPE, WELDED JOINT, AND MINIMUM YIELD STRENGTH (F_y) OF 35 KSI.

ENCASEMENT/CARRIER PIPES

Silver Lake Water and Sewer District
STANDARD DETAILS

DEVELOPER EXTENSION AGREEMENT

**SILVER LAKE WATER DISTRICT
APPLICATION AND AGREEMENT TO CONSTRUCT
EXTENSION TO DISTRICT SYSTEM**

Project: _____

Developer: _____

The undersigned, "Developer" (also referred to as "Owner") herein, hereby makes application to the Commissioners of Silver Lake Water District, "District" herein, for permission to construct and connect a private "Extension" to the District's existing system as herein provided. The term "Extension" shall apply herein whether Developer is extending the District water system or the District sewer system or both systems. If this application is accepted, the undersigned, in consideration of the mutual promises and covenants herein contained, agrees to the terms and conditions of this Developer Extension Agreement as follows:

1. Location of Extension.

Owners and Developers of property acknowledge and agree connection to District utility systems may be contingent on construction and extension of utility systems by other private parties or by the District. District does not warrant infrastructure will be available to this project in a timely manner. Owners and Developers undertaking construction of onsite or off site utility facilities prior to District system being extended to allow connection do so at their own risk.

Developer knows and understands connection of Developer's extension to District water and sewer systems is likely to be subject to payment for reimbursement of fair pro rata share of costs of construction of "system area facilities" constructed by others that benefit Developer's project. Such "reimbursement payments" will be determined in the sole discretion of the District Board of Commissioners. Such "reimbursement payments" are due and payable to the District at the time Developer's extension is accepted by the District. On receipt of said payments, the District will make payments to others who have constructed said "system area facilities."

A. Water

The proposed water system extension shall be installed in streets and other approved rights-of-way and/or easements and shall be for the use and benefit of the property hereinafter described, which property is owned by Developer and/or other owners for whom Developer is acting as agent. Any such owners have joined in this application and are designated on the signature page hereof.

B. Sewer

The proposed sewer system extension shall be installed in streets and other approved rights-of-way and/or easements and shall be for the use and benefit of the property hereinafter described, which property is owned by Developer and/or other owners

for whom Developer is acting as agent. Any such owners have joined this application and are designated on the signature page hereof.

C. Owner's Property

The legal description of the owner's real property upon is attached hereto as Exhibit A. Sewer and water facilities contemplated under this agreement will be constructed on said property or on easements or other property to be approved and accepted by the District. The Developer shall provide to the District a Vicinity Map with Project location along with the legal description.

2. Warranty of Authority.

Developer and any additional owners warrant that they are the owners of the property described in this Agreement. Developer shall upon request of District provide a title report to District establishing that the parties executing this Agreement are the owners of all the real property described herein.

3. Description of Extension.

A. Water

The Extension shall consist of approximately _____ lineal feet of water pipe and appurtenances and shall be installed in accordance with this Agreement and with the Plans, General Conditions and Specifications provided by District at the cost of Developer as hereinafter provided or in accordance with such Plans as Developer's Engineer may prepare in conformity with District General Conditions, Specifications, and Standard Details, and approved by District.

B. Sewer

The Extension shall consist of _____ and _____ lineal feet of sewer pipe and appurtenances and shall be installed in accordance with this Agreement and with the Plans, General Conditions, and Specifications provided by District at the cost of Developer as hereinafter provided or in accordance with such Plans as Developer's Engineer may prepare in conformity with District General Conditions, Specifications, and Standard Details, and approved by District.

4. Preparation of Plans by Developer's Engineer.

Developer shall have the option of retaining its own engineer to prepare the Plans for the extension according to District Specifications or to have the District Engineer prepare the Plans and reimburse District for the cost thereof according to this agreement. If Developer elects to retain its own engineer for preparation of the Plans, then the following requirements apply:

- (a) Developer shall obtain District approval of Developer's Engineer.
- (b) Prior to preparation of the Plans, Developer shall:

- (1) Obtain official preliminary plat approval for Developer's project using a minimum scale of one (1) inch equals fifty (50) feet;
 - (2) File with the District the road and storm sewer plans and profiles for the project; and
 - (3) File with the District a contour map of the project with contour intervals of five (5) feet or less and using a scale of one (1) inch equals fifty (50) feet. All data to be based on USCGS data.
 - (4) Should a Re-Imbursement Agreement be requested, file with the District a plan that shows all the properties and area that can be served by utility extensions to the District's system and the documentation necessary for the District to determine the viability of any reimbursement agreement.
- (c) Upon completion of (b) above, at the election of the District, a pre-design meeting shall be held with District and with Developer and Developer's Engineer in attendance. It is expected that this meeting will occur approximately ten (10) working days after completion of (b) above. It is the obligation of Developer to arrange for the conference and the attendance of concerned parties.
- (d) At the pre-design meeting, the Developer's Engineer shall submit to District a conceptual plan for the utility development of the project.
- (e) Upon preliminary review of the conceptual plan, Developer's Engineer shall prepare and submit to the District a preliminary design and Plan for review and approval by the District. Water and sewer plans shall be on separate sheets. Plans shall include a general vicinity map depicting the project location. The District shall have the right to require changes in the preliminary design and Plan as may be deemed necessary. All designs and plans prepared by Developer's Engineer shall be prepared in accordance with the District's Standard Details for Design.
- (f) Upon approval of the preliminary design and Plan by the District, Developer's Engineer shall prepare a proposed final Plan and submit three (3) copies of the proposed final Plan, together with an electronic file of the Plans on AutoCAD Release 13 or 14, or as updated to be compatible with the District's system, to the District for review. Upon receipt of the proposed final Plan, District shall have the right to require such changes to the proposed final Plan as may be deemed necessary.
- (g) Upon completion of all required changes to the final Plan, the District will consider the final Plan for approval. The District shall have the right to approve, reject, or require changes to the final Plan as may be deemed necessary.
- (h) Upon approval of the final Plan by the District, the District Manager, or designee, will indicate his approval of the Plan on the original Mylar Drawings.

(i) Upon approval of the original Mylar Plan Drawings, the Developer's Engineer shall submit copies of the approved Plan so that the District can procure the Snohomish County right-of-way construction permits for the Plan as may be necessary. The Developer's Engineer shall notify the District of any permits required. The Developer shall be responsible for procuring all other necessary and applicable permits. Should changes to the Plan be required in order to receive said permits and approvals, Developer's Engineer shall make all changes as required.

5. Warranties of Developer -- Water and Sewer

(a) Before the commencement of work, Developer shall agree to District approved plans and specifications and a schedule of work. Developer shall reimburse District for all costs of plan review, inspection, and other work on this project done by District staff or consultants.

(b) All public and private property which is disturbed by the construction of the above described improvements shall be restored to as good a condition as it was prior to the commencement of the construction.

(c) All design and all work shall be in conformance with requirements of the District, the State of Washington Department of Ecology, any and all Endangered Species Act Regulations and regulations or controls or conditions of any other governmental agency charged with the responsibility of permitting, inspecting, accepting or approving design and construction of these improvements.

(d) **INSURANCE REQUIREMENTS, SUMMARY OF COVERAGE & INDEMNITY:** The Developer shall carry liability and property damage insurance covering all work during Project construction, including that done by the Developer's Contractor and the Contractor's subcontractors. This insurance shall also protect the District from any contingent liability prior to Project acceptance.

The Developer shall obtain from an insurance company, with have an A.M. Best rating of "AVII" or better approved by the Insurance Commissioner of the State of Washington pursuant to Title 48 RCW, commercial general liability and automobile liability insurance against claims to the Developer, the District and its elected and appointed officials, officers, employees, agents and volunteers for injury to person or property which may arise from any act or omission by anyone directly or indirectly employed by the Developer from or relating to the performance, supervision, or inspection of the work. The insurance policy(s) shall specifically name and include the District and its elected and appointed officials, officers, employees, agents and volunteers as additional insured's under such policy(s) with regards to damages and defense of claims arising from: (a) activities performed by or on behalf of the Developer; (b) products and completed operations of the Developer, or (c) premises owned, leased or used by the Developer for the work proposed under this Developer Extension Agreement. Proof of the existence of such insurance shall be provided to the District in a form acceptable to the District prior to the Pre-Construction Meeting.

The Developer shall not begin work under the agreement or under any special condition until all required insurance has been obtained and until such insurance has been reviewed

and accepted by the District. The Developer shall file with the District either a certified copy of all insurance policies or a certificate of insurance with the endorsements in the form included herein as are necessary to comply with these specifications.

The minimum limits of coverage shall be as follows:

General Aggregate	\$2,000,000.00
Products-Comp/OPS Aggregate	\$2,000,000.00
Personal Injury	\$2,000,000.00
Each Occurrence	\$2,000,000.00
Automobile	\$2,000,000.00

Policies shall be kept in force until the project is accepted by the District. The District shall be given at least forty-five (45) days written notice of cancellation, non-renewal, material reduction, or modification of coverage. The District may increase these limits if the scope of the proposed work warrants additional coverage.

Failure of the Developer to fully comply with the requirements regarding insurance will be considered a material breach of contract and shall be cause for immediate termination of the developer extension agreement and any and all District obligations, regarding same.

The coverage provided by the insurance policies shall be primary to any insurance maintained by the District, except with respect to losses attributable to the sole negligence of the District. Any insurance that might cover this Agreement which is maintained by the District shall be in excess of the Developer's/Contractor's insurance and shall not contribute with it.

The insurance policy shall protect each insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one insured shall not affect the rights of any insured with respect to any claim, suit or judgment made or brought by or for any other insured or by or for any employee of any other insured.

The general aggregate provisions of the insurance policy shall be amended to show that the general aggregate limit of the policies apply separately to this project.

The insurance policy shall not contain a deductible or self-insured retention in excess of \$10,000 unless approved by the District.

Providing coverage in the stated amounts shall not be construed to relieve the Developer from liability in excess of such limits.

The Developer shall indemnify, defend and hold the District and its elected and appointed officials, officers, employees, agents and volunteers harmless from and against all losses and all claims, demands, payments, suits, actions, recoveries, and judgments of every nature and description brought or recovered against the District by reason of any act or

omission of the Developer, the Developer's agents or employees, in connection with the work performed under this contract, or caused or occasioned in whole or in part by reason of the presence of the Developer, the Developer's Contractor or Sub-contractors, or their property, employees or agents, upon or proximity to any property upon which work is being performed under this contract.

For the purpose of applying RCW 4.24.115 to the Developer's project, the Developer and the District agree that the term "damages" applies only to the finding in a judicial proceeding and is exclusive of third party claims for damages preliminary thereto.

The Developer agrees to indemnify, defend and hold harmless the District, and its elected and appointed officials, officers, employees, agents and volunteers from all claims for damages by third parties, including costs and reasonable attorney's fees in the defense of such claims for damages, arising from performance of the work under this contract. Developer waives any right of contribution against the District.

It is agreed and mutually negotiated that in any and all claims against Silver Lake Water District or any of its agents or employees by any employee of the Developer, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation hereunder constitutes Developer's and its Contractor's and Sub-Contractor's waiver of immunity under Title 51 RCW, solely for the purposes of this indemnity.

District and Developer agree that all third party claims for damage against District for which Developer's insurance carrier does not accept defense of District may be tendered by District to the Developer who shall, if so tendered by District, accept and undertake to defend or settle with the Claimant. District retains the right to approve claims investigation and legal counsel assigned to said claim and all investigation and legal work product regarding said claim shall be performed under a fiduciary relationship to Silver Lake Water District. In the event that District agrees or a court finds that the claim arises from the sole negligence of District, this indemnification shall be void and District shall be responsible for all damages payable to the third party claimant. In the event that District and Developer agree or a court finds that the claim arises from or includes negligence of both the Developer and District, the Developer shall be responsible for all damages payable by the Developer to the third party claimant under the court finding, and, in addition thereto, the Developer shall hereunder indemnify District for all damages paid or payable by District under the court finding an amount not to exceed the percentage of total fault attributable to the Developer. For example, where the Developer is 25 percent negligent, the Developer shall not be required to indemnify District for any amount in excess of 25 percent of the claimant's total damages.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Developer's and its contractor's responsibility for payment of damages resulting from operations under this agreement.

(e) Upon completion of the construction, and after acceptance of the facilities by the District, the Developer shall convey the facilities to the District by means of a bill of sale. The bill of sale to be provided by Developer to District shall contain the following warranties with District as beneficiary:

(1) Developer is the owner of the extension, the same is free and clear of all encumbrances and Developer has good right and authority to transfer title thereto to District and shall defend the title of District against the claims of all third parties claiming to own the same or claiming any interest therein or encumbrance thereon; and

(2) That all bills and taxes relating to the construction and installation of the Extension have been paid in full and that there are no lawsuits pending involving this project. The undersigned further warrants that in the event any lawsuit is filed as a result of, or involving, this project the undersigned shall undertake to defend the lawsuit and shall accept responsibility and pay for all costs of litigation, including the District's costs, and reasonable attorneys fees and shall hold District harmless on any judgment rendered against District in accordance with provisions set forth in more detail in the District General Conditions; and

(3) That all laws and ordinances respecting construction of this project have been complied with, and that the system Extension is in proper working condition, order and repair, and is fit for its intended purpose and that it has been constructed in accordance with the conditions and standards of District; and

(4) For a period of two (2) years from the date of final acceptance of the Extension by District, the Extension and all parts thereof shall remain in proper working condition, order and repair; and Developer shall repair or replace, at the Developer's expense, any work or material which may prove to be defective during the period of the warranty.

(f) Developer shall notify the District of the date work on the construction of the facilities described in this Agreement will commence. In the event of interruption of work for any reason for more than seven (7) consecutive calendar days, Developer shall give the District notice of not less than twenty-four hours before resuming work.

(g) After the work is commenced or recommenced, Developer shall vigorously and consistently continue the work in a first class manner until completion.

(h) Upon completion of construction, Developer shall deliver to the District all Mylar originals of as-built drawings, together with an electronic file of the Plans on AutoCAD Release 13 or 14 or as updated to be compatible with the District's system, and such other engineering records and data as may be required by the District.

In addition, Developer shall obtain warranties and guaranties from its subcontractors and/or suppliers where such warranties or guaranties are specifically required in this Agreement. When corrections of defects occurring within the warranty period are made, Developer shall further warrant corrected work for two (2) years after acceptance of the correct work by District.

6. Correction of Defects Occurring Within Warranty Period.

When defects in the Extension are discovered within the warranty period, Developer shall start work to remedy any such defects within seven (7) calendar days of notice by District and shall complete such work within a reasonable time. In emergencies, where damages may result from delay or where loss of service may result, corrections may be made by District upon discovery, in which case the cost thereof shall be borne by Developer. In the event Developer does not commence and/or accomplish corrections within the time specified, the work may be accomplished by District at its option, and the cost thereof shall be paid by Developer.

Developer shall be responsible for any expenses incurred by District resulting from defects in Developer's work, including actual damages, costs of materials and labor expended by District in making repairs and the cost of engineering, inspection and supervision by District or the District Consultants.

7. Performance Guarantee.

Developer shall furnish to District prior to the pre-construction conference a performance guarantee of a type and in a form as determined by District, in its sole discretion, in an amount equal to the Developer's Engineer's estimated cost of the Extension or contractor bid price. The performance guarantee shall require completion of all work in accordance with the Agreement, the Plans and Specifications and other requirements of District within a period of twelve (12) months from the date of acceptance of the Plans by the District. District in its sole discretion may also require a payment bond of a type and in a form as determined by District requiring the payment by Developer of all persons furnishing labor and materials in connection with the work performed under the Agreement, and shall hold District harmless from any claims therefrom. Any payment bond required by District shall be provided to District prior to the pre-construction conference as a condition of District granting final acceptance of the work referenced herein. No third person or party shall have any rights under any performance guarantee District may require from Developer and such performance guarantee is provided entirely for the benefit of District and Developer and their successors in interest.

8. Maintenance Bond.

Acceptance by District shall not relieve Developer of the obligation to correct defects in labor and/or materials as herein provided and/or the obligations set forth in applicable paragraphs hereof. Prior to acceptance of the Extension by District and the transfer of title to such extension(s) as set forth herein, Developer shall furnish to District a maintenance bond (cash or bond) which shall continue in force from the date of acceptance of said Extension for a period of two (2) years. The bond shall be in a form as prescribed by District and shall require Developer and the bonding company to correct the defects in labor and materials which arise in said system for a period of two (2) years from the date of acceptance of the system and transfer of title. The maintenance bond shall be in an amount equal to fifteen (15) percent of the cost of said Extension, but not

less than five thousand dollars (\$5,000.00). The District shall review the submitted construction costs and determine the amount of the maintenance bond.

9. Limitation of Period of Acceptance.

The Extension shall be completed and accepted within twelve (12) months of the date of acceptance of the Plans by the District.

If the Extension is not completed and accepted within the twelve (12) month period, then this Agreement and all of Developer's rights herein shall terminate and cease. No extension of the time for completion of the Agreement shall be allowed. In the event the Agreement terminates, Developer shall be required to make a new pre-application and new application for extension agreement to District. Any such new agreement entered into between District and Developer pursuant to a new application shall be subject to any new or amended Resolutions, construction policies, standards and specifications which have taken effect since the execution of the terminated agreement. Nothing herein shall be construed to convey any rights or privileges to Developer except as explicitly set forth in this agreement.

If Developer abandons the Extension project during twelve (12) months or shall fail to complete the Extension within that period, Developer may be deemed, at District's sole option and election to have transferred and conveyed to District any portion of the Extension which has been completed.

10. Final Acceptance - Conditions Precedent.

Compliance with all terms and conditions of this Agreement, the Plans, General Conditions, and Specifications prepared hereunder and other District requirements shall be a condition precedent to District's obligation to allow connection to the District's system, to accept the Bill of Sale to the Extension, and to District's agreement to maintain and operate the Extension and to provide service to the real property that is described in this Agreement.

District will not be required to allow any connection to District's system any portion of the real property described in this Agreement if there are any fees or costs unpaid to District under this Agreement or there are other fees arising under other District requirements which are unpaid.

District will not be obligated to provide service to the property described in this Agreement if construction by third parties of facilities to be deeded to District has not been completed and title accepted by District if such third-party facilities are necessary to provide service to the property described in this Agreement.

District will not be obligated to allow service connections to its system until all General Facilities (water) and Connection (sewer) charges in effect on the date of application for service have been paid. Developer understands and specifically agrees that General Facilities and Connection charges required by District to connect to District's system will be determined by District at time of connection. Developer understands and agrees that any and all fees and charges of the District may be adjusted by District prior to the time of connection to District system and Developer waives actual notice of any hearing by Board of Commissioners to consider adjustment of any such fees and charges.

District will accept title to the extension at such time as all work which may, in any way, affect the lines constituting the Extension has been completed, and any damage to said Extension which may exist has been repaired, and District has made final inspection and given its approval to the Extension as having been completed in accordance with the Agreement, the Plans, General Conditions, and Specifications and other requirements of District.

11. Procedure for Acceptance.

Acceptance of title to the Extension will be made by the District. Prior to such acceptance, an executed bill of sale in a form approved by District and containing the warranties required by this Agreement shall be executed by Developer and any additional owners and delivered to District. There will be no conditional acceptance or acceptance for use and operation.

12. Effect of Acceptance.

Acceptance by District shall cause the Extension to be a public system subject to the control, use and operation of District and all regulations, conditions of service, and service charges as District determines to be reasonable and proper, and subject to the laws of the State of Washington.

13. Rates and Charges.

The property described in this Agreement shall be subject to all rates and charges established by District, as now exist or hereinafter amended or adjusted.

14. Subcontracting.

Developer shall be fully responsible for the acts and omissions of subcontractors and persons employed, directly or indirectly, by subcontractors, as well as the acts and commissions of persons directly employed by Developer.

15. No Assignment without District Approval.

Developer's rights and responsibilities arising out of this Agreement shall not be assignable unless District's prior consent is obtained. Written documents as required by District of any District approved assignment shall be filed with District by the Developer herein at the time of any assignment.

16. General Provisions, Standard Details, and Specifications.

The Silver Lake Water District Developer Standards, Sections I, II, III, IV and V, as currently adopted or hereafter amended, are incorporated herein by this reference.

17. Remedies Available to District.

In the event Developer fails to pay any of the extension fees and charges and fines referenced herein when due as determined by District, the charge or fine shall then be delinquent and shall accrue interest at the highest legal rate per annum until paid. In

addition to any other remedies available to District, District shall be entitled to file a lien against the Real Property referenced herein in the event of nonpayment and to foreclose such lien pursuant to RCW 57.08.080-090, as revised or amended.

18. Reimbursement Agreement

The District may, in its sole discretion, agree to a Developer Reimbursement Agreement with Developer for offsite sewer or water improvements.

A Developer seeking reimbursement for costs of constructing sewer or water system offsite of the proposed development by adjacent properties directly benefiting from connecting to the new system shall enter into a Reimbursement Agreement with the District.

The District will not accept the Bill of Sale for the improvements or accept the development as complete until all property owners within the benefited area have been notified of the latecomer's charges as described in the Reimbursement Agreement. The District takes no responsibility to defend legal challenge to a Reimbursement Agreement with Developer. Any challenge to District's authority or process for a Reimbursement Agreement will not be defended by District. District may tender defense of the reimbursement agreement to Developer.

The Developer shall make his request for such agreement at the time of submitting the application for the Developer Extension Agreement by signing the following declaration:

Yes, I request a Reimbursement Agreement _____

No, I do not request a Reimbursement Agreement _____

Developer agrees that Developer's costs for the sewer/water improvements to be constructed by Developer hereunder have been factored into the feasibility of Developer's Project and that Developer's decision to proceed with Developer's Project is not contingent or in any way dependent on receipt of latecomer payments or payments from other property owners or developers that may connect to sewer/water facilities constructed by Developer under this agreement. Further, Developer agrees that the District shall not collect payments on behalf of Developer from other property owners or developers that receive no benefit at the time of connection to the District system from water/sewer facilities constructed hereunder. Developer agrees and acknowledges that District reserves the right to direct water/sewer flows and to contract for the construction of other sewer/water facilities, regardless of whether future flows and future facilities constructed under other contracts affect anticipated receipt of latecomer payments hereunder.

FOR CORPORATION OR PARTNERSHIP

STATE OF WASHINGTON)

: ss.

County of Snohomish)

I certify that I know or have satisfactory evidence that _____ signed this instrument, on oath stated that _____ was authorized to execute the instrument and acknowledged it as the _____ of _____, to be the free and voluntary act of such corporation for the uses and purposes mentioned in this instrument.

Dated this ___ day of _____, 20__

NOTARY PUBLIC for the State of Washington

Printed Name: _____

Residing at: _____

My Commission Expires: _____

THE FOREGOING APPLICATION OF _____ accepted this
_____ day of _____, 20__.

SILVER LAKE WATER DISTRICT

BY _____
President, Board of Commissioners

STATE OF WASHINGTON)

) ss

COUNTY OF SNOHOMISH)

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute said instrument and acknowledged it as the President, Board of Commissioners of SILVER LAKE WATER DISTRICT, a municipal corporation, to be the free and voluntary act of such corporation for the uses and purposes mentioned in the instrument.

Dated: _____

NOTARY PUBLIC in and for the
State of Washington

My Commission Expires: _____

NOTE:

The following insurance forms completed by the Developer's Insurance provider are to be presented to the District prior to scheduling a pre-construction meeting.

FORMS:

- 1) Accord 25 (2001/08) Example**
- 2) Accord 25 (2001/08) Blank**
- 3) CG 20-10-11-85 Additional Insured (2-Pages)**
- 4) CG 20-10-10-01**
- 5) CG 20-37-10-01**

ACORD™ CERTIFICATE OF LIABILITY INSURANCE DATE (MM/DD/YYYY)
08/26/03

PRODUCER Contractors Insurance Services P.O. Box 1000 Anytown, WA License No. 123456	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.												
INSURED ABC Construction Co. 123 Main Street Hometown, WA	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 70%;">INSURERS AFFORDING COVERAGE</th> <th style="width: 30%;">NAIC #</th> </tr> <tr> <td>INSURER A: Travelers Insurance Co.</td> <td></td> </tr> <tr> <td>INSURER B: Hartford</td> <td></td> </tr> <tr> <td>INSURER C: Fireman's Fund</td> <td></td> </tr> <tr> <td>INSURER D: DPIC</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> </table>	INSURERS AFFORDING COVERAGE	NAIC #	INSURER A: Travelers Insurance Co.		INSURER B: Hartford		INSURER C: Fireman's Fund		INSURER D: DPIC		INSURER E:	
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COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Stop Gap \$1,000,000 <input type="checkbox"/> GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC	GL1234	10/01/02	10/01/03	EACH OCCURRENCE	\$ 1,000,000
						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 50,000
						MED EXP (Any one person)	\$ 10,000
						PERSONAL & ADV INJURY	\$ 1,000,000
						GENERAL AGGREGATE	\$ 2,000,000
						PRODUCTS - COMP/OP AGG	\$ 1,000,000
B		AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> <input type="checkbox"/>	AL1234	10/01/02	10/01/03	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
						BODILY INJURY (Per person)	\$
						BODILY INJURY (Per accident)	\$
						PROPERTY DAMAGE (Per accident)	\$
		GARAGE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/>				AUTO ONLY - EA ACCIDENT	\$
						OTHER THAN EA ACC	\$
						AUTO ONLY: AGG	\$
C		EXCESS/UMBRELLA LIABILITY <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$	XS2345	10/01/02	10/01/03	EACH OCCURRENCE	\$ 2,000,000
						AGGREGATE	\$
							\$
							\$
							\$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Washington Labor & Industries # _____				<input type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER	
						E.L. EACH ACCIDENT	\$
						E.L. DISEASE - EA EMPLOYEE	\$
						E.L. DISEASE - POLICY LIMIT	\$
D		OTHER Professional Liability	PL3456	10/01/02	10/01/03	1,000,000 per Claim 1,000,000 Aggregate	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

(Member) District is an Additional Insured on General and Auto Liability Policies with respect to Pumphouse Construction Project for (Member) District at 456 Main Street Site.

CERTIFICATE HOLDER

(Member) District
 456 Main Street
 Hometown, WA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 45 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE

AUTHORIZED REPRESENTATIVE
 Contractor's Agent/Broker

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
	INSURERS AFFORDING COVERAGE	NAIC #
INSURED	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS								
	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$								
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$								
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$								
	EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$								
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				<table border="1"> <tr> <td>WC STATU-TORY LIMITS</td> <td>OTH-ER</td> </tr> <tr> <td>E.L. EACH ACCIDENT</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - EA EMPLOYEE</td> <td>\$</td> </tr> <tr> <td>E.L. DISEASE - POLICY LIMIT</td> <td>\$</td> </tr> </table>	WC STATU-TORY LIMITS	OTH-ER	E.L. EACH ACCIDENT	\$	E.L. DISEASE - EA EMPLOYEE	\$	E.L. DISEASE - POLICY LIMIT	\$
WC STATU-TORY LIMITS	OTH-ER												
E.L. EACH ACCIDENT	\$												
E.L. DISEASE - EA EMPLOYEE	\$												
E.L. DISEASE - POLICY LIMIT	\$												
	OTHER												

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER

CANCELLATION

	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL _____ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.
	AUTHORIZED REPRESENTATIVE

IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

ISO | Commercial General Liability Forms | 11/01/85

POLICY NUMBER: COMMERCIAL GENERAL LIABILITY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED -- OWNERS, LESSEES OR
CONTRACTORS (FORM B)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – OWNERS, LESSEES OR
CONTRACTORS – SCHEDULED PERSON OR
ORGANIZATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

A. Section II – Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

B. With respect to the insurance afforded to these additional insureds, the following exclusion is added:

2. Exclusions

This insurance does not apply to "bodily injury" or "property damage" occurring after:

- (1) All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the site of the covered operations has been completed; or
- (2) That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 37 10 01

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – OWNERS, LESSEES OR
CONTRACTORS – COMPLETED OPERATIONS**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:
Location And Description of Completed Operations:
Additional Premium:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

Section II – Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" at the location designated and described in the schedule of this endorsement performed for that insured and included in the "products-completed operations hazard".

LATECOMERS AGREEMENT

Latecomers Agreement

This agreement entered into this _____ day of _____ 20(____) by and between Silver Lake Water District (“District”), a political subdivision of the State of Washington and _____ (Insert Name of Developer) (Developer).

Recitals

WHEREAS; Developer has completed construction of (Insert name of Plat/Project) in the Silver Lake Water District (hereinafter “Development”) and

WHEREAS; Developer has constructed a (Describe Improvements Generically) for the purpose of serving its Development, (the type and location of said facilities are described in Exhibit A, attached hereto), and

WHEREAS; Developer and the District entered into an Extension Agreement for the aforementioned facilities, and

WHEREAS; the installation of the aforementioned facilities benefits the property as described and set forth in Exhibit B, and

WHEREAS; Developer is entitled to reimbursement from the property owners of the aforementioned properties seeking connection to such facilities, for the cost of such facilities, in excess of Developer’s fair pro rata share thereof, and

WHEREAS; the District acknowledges that the installation of such facilities will be beneficial to the aforementioned properties and improve the District’s (Describe water and/or sewer services to that general area, and

WHEREAS; the District is willing to collect Latecomers charges from the owners of the aforementioned properties for the specific purpose of reimbursing Developer the cost of the installation of the aforementioned facilities in excess of Developer’s fair pro rata share; and

WHEREAS; Developer has indicated certain owners of properties benefited by installation of said facilities have participated in and contributed to construction of said facilities and Developer will waive latecomers’ amount for these properties.

NOW THEREFORE, the parties agree as follows:

I. AUTHORITY

1.1 This agreement is executed pursuant to the provisions of Chapter 57.22 RCW, Contracts for Water System Extension.

- 1.2 The improvements and betterments constructed by Developer are consistent with the comprehensive plan(s) of the Silver Lake Water District and were a prerequisite of further development in the area.

II. PURPOSE OF THIS AGREEMENT

- 2.1 The purpose of this agreement is to provide a means whereby Developer will be reimbursed for a portion of the costs it incurred for the installation of the facilities described on Exhibit "A." (Describe project generically) extension). Such reimbursement shall be by means of a Latecomers reimbursement assessment against the property benefiting by the installation of said facilities, as set forth in Exhibit C.
- 2.2 The parties agree the construction of these facilities provide adequate (Describe, water and/or sewer) to properties listed in Exhibit C so as to meet requirements of state and local government.

III. DESCRIPTION OF WORK

- 3.1 The improvements and facilities as generally described in Exhibit A have been constructed by Developer pursuant to approved plans and consistent with the then existing standards and existing Comprehensive Plan(s) of the District

IV. DUTIES OF DEVELOPER

- 4.1 Developer shall comply with each and every provision of District Resolution 538.

V. DUTIES OF THE DISTRICT

- 5.1 The District shall process this application in accordance with Resolution 538.
- 5.2 The District will use its best effort to collect and distribute the funds pursuant to the process set forth in this agreement. However, the District, its officials, employees, or agents shall not be held liable or responsible for failure to implement any of the collection provisions of this agreement, unless such failure is willful or intentional. The District is acting in the capacity of a collection agent and is not obligated by this agreement to make any payment except those amounts actually collected pursuant to this agreement. This agreement does not constitute a guarantee on the part of the District that any reimbursement will be collected or paid during the term of this agreement. The District takes no responsibility to defend legal challenge to a reimbursement agreement with Developer. Any challenge to District's authority or process for a reimbursement agreement will not be defended by District. District may tender defense of the reimbursement agreement to Developer.

VI. LATECOMERS/REIMBURSEMENT

- 6.1 In order to assure conformance with the terms and conditions of this Agreement, the District agrees that for a period of ten (10) years commencing from the date of adoption of a Reimbursement Resolution, the District will make effort to collect on behalf of Developer a Latecomer's fee in an amount as set forth in Exhibit C from any property benefited, at the time of the adoption of the reimbursement resolution, by the aforementioned facilities at such time the property connects to the District system. The District shall forward said Latecomer's fee to Developer at Developer's address provided herein, or to Developer's agent, as authorized by Developer. As a condition of receiving such reimbursement funds, Developer or Developer's agent shall execute a receipt to the District for such reimbursement amount so paid, upon a receipt form provided by District. Such form shall include the legal description and name of the owner of the connecting property making payment of such amount.
- 6.2 District and Developer understand and acknowledge that the properties within the Latecomers – Reimbursement area set forth on Exhibits "B" and "C" have a right to notice of such reimbursement charge and the amount thereof. Such property owners have a right to request a hearing on such reimbursement charge before the Commissioners of the Silver Lake Water District. If requested the Commissioners shall conduct such hearing. The parties understand and acknowledge that such hearing may result in denial of latecomers' reimbursement charges, changes to the reimbursement area and the reimbursement charges placed on benefiting properties that have not contributed to the original cost of the additional facilities. Should such hearing occur, Exhibits "B" and "C" may be adjusted to reflect the determination of the Commissioners after deliberation of evidence provided at such hearing. Such adjustment shall be set forth on Exhibits "B" and "C" and the parties agree the adjusted Exhibits "B" and "C" shall control operation of this agreement. Should Developer not be present at such hearing, the latecomer's reimbursement request will be denied.
- 6.3 District shall receive an administrative fee in an amount equal to Ten percent (10%) of the reimbursement connection charge. Said fee shall be deducted from the Latecomers fee upon collection and prior to forwarding said fee to Developer.

VII. RECORDATION

- 7.1 This contract and the Reimbursement Resolution shall be recorded in the office of the Snohomish County Auditor, Snohomish County, Washington, immediately upon execution by the District and Developer. Such contract shall constitute a lien and servitude upon the properties described in Exhibits "B" and "C", having not contributed to the original cost of the aforementioned facilities installed by Developer under the provisions hereof, and shall be binding upon the parties and

all successors in interest to those respective parties in accordance with Chapter 57.22 RCW.

Developer shall be responsible for recording this contract and the Reimbursement Resolution. The District's obligation to collect pursuant to the contract shall not arise until the District has been served with proof of recording.

VIII. ENFORCEMENT

- 8.1 This agreement shall be enforceable only by the parties. The agreement is for the benefit of the parties, or their assigns, and not for the benefit of any third party.
- 8.2 Should any legal action be brought by either party for breach of this agreement or to enforce any provision herein, the prevailing party of such action shall be entitled to reasonable attorney's fees, court costs and such other costs as may be fixed by court.

IX. MISCELANEOUS PROVISIONS

- 9.1 Developer shall not assign this contract without written consent of the District. Such consent shall not be unreasonably withheld.
- 9.2 It is understood that the contractual relationship between the District and Developer is such that Developer is an independent contractor and not an agent of the District.
- 9.3 This Agreement shall inure to the benefit of and be binding upon the parties, their heirs, successors and assigns.
- 9.4 If any part or provision of this agreement is held to be invalid, unenforceable, or unconstitutional, the remainder of the agreement is not affected.
- 9.5 Nothing herein releases Developer, or its successors, from the payment of water meter or side sewer installation charges and any and all other connection charges, rates and assessments against the property in existence at the time of connection of such property to the system.
- 9.6 All notices required or provided under this agreement shall be in writing and delivered in person or sent by certified mail, postage prepaid. Notices required to the District shall be addressed as follows:

Silver Lake Water District
Attention: General Manager
2210 132nd ST SE
Mill Creek, WA 98012-5615

Notices to be given to Developer shall be addressed as follows:

(Insert Developer's Address)

9.7 This writing constitutes the full and only agreement between the parties, as to these matters, there being no promises, agreements or understandings, written or oral, except as herein set forth.

9.8 The effective date of this agreement shall be _____, 20().

Developer

by: _____

Silver Lake Water District

by: President

STATE OF WASHINGTON)

:SS
County of _____)

I certify that I know or have satisfactory evidence that _____ signed this instrument, on oath stated that _____ was authorized to execute the instrument and acknowledged to as the _____ of _____, to be the free and voluntary act of such corporation for the uses and purposes mentioned in this instrument.

Dated this _____ day of _____, 20_____.

NOTARY PUBLIC for the State of Washington
Printed Name: _____
Residing at: _____
My Commission Expires: _____

(STATE OF WASHINGTON)

:SS

(County of _____)

I certify that I know or have satisfactory evidence that _____ signed this instrument, and acknowledged it to be free and voluntary act and deed for the uses and purposes therein mentioned.

Dated this _____ day of _____, of 20_____.

NOTARY PUBLIC for the State of Washington

Printed Name: _____

Residing at: _____

My Commission Expires: _____

SAMPLE

SAMPLE EASEMENT DOCUMENTS

RECORDED AT THE REQUEST OF:
SILVER LAKE WATER DISTRICT
2210 132ND ST. SE
MILL CREEK, WA 98012-5615

PERMANENT SEWER EASEMENT

THE UNDERSIGNED GRANTOR _____
for and in consideration of good and valuable consideration in hand paid, the receipt of which is hereby acknowledged, does hereby grant, convey and transfer unto the SILVER LAKE WATER DISTRICT, a Municipal Corporation, its heirs or assigns, a permanent easement, including the perpetual right to enter upon the real estate hereinafter described, at any time that it may deem reasonably necessary to construct, maintain, repair and operate a sanitary sewer line over, across, through and under the lands hereinafter described, together with the right to excavate and refill ditches and trenches for the location of pipelines and mains, and the further right to remove trees, bushes, undergrowth and other obstructions interfering with the location, construction and maintenance of said pipelines and mains.

The easement and right-of-way hereby granted is located in the County of Snohomish, State of Washington, and is more particularly described as follows:

The District agrees to restore to substantially the original condition such improvements as are disturbed during the construction, maintenance or repair of District sewer system improvements within said right of way; provided, the Grantor, its heirs or assigns shall not construct any permanent structure over, upon or within the permanent easement.

IN WITNESS WHEREOF, these presents are hereby signed this _____ day of _____, 20____.

GRANTOR

SILVER LAKE WATER DISTRICT

BY: _____
ITS: _____

BY: _____
ITS: General Manager

STATE OF WASHINGTON)

: ss
County of)

I certify that I know or have satisfactory evidence that _____ signed this instrument, on oath stated that _____ was authorized to execute the instrument and acknowledged to as the _____ of _____, to be the free and voluntary act of such corporation for the uses and purposes mentioned in this instrument.

Dated this _____ day of _____, 20____.

NOTARY PUBLIC for the State of Washington
Printed Name: _____
Residing at: _____
My Commission Expires: _____

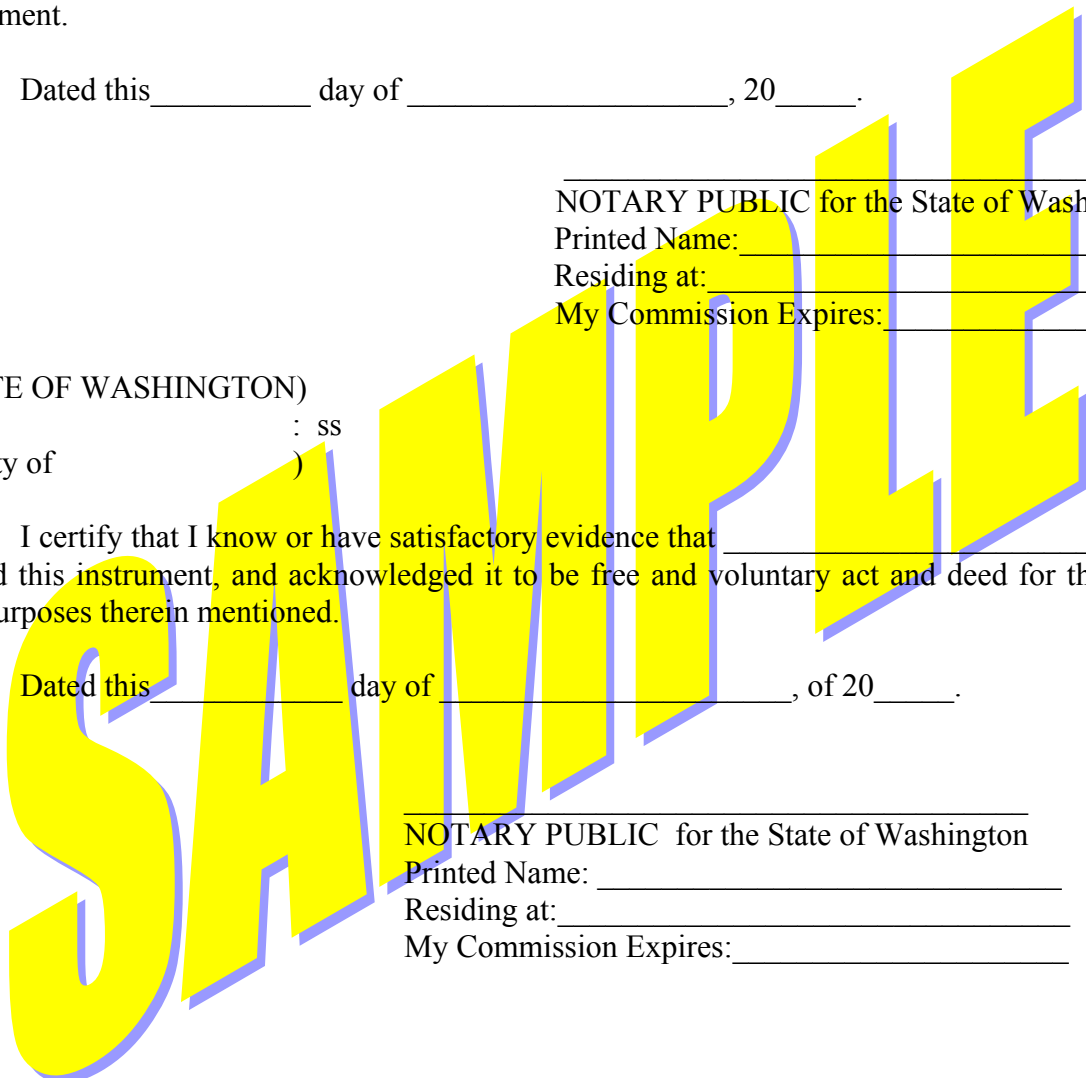
STATE OF WASHINGTON)

: ss
County of)

I certify that I know or have satisfactory evidence that _____ signed this instrument, and acknowledged it to be free and voluntary act and deed for the uses and purposes therein mentioned.

Dated this _____ day of _____, of 20____.

NOTARY PUBLIC for the State of Washington
Printed Name: _____
Residing at: _____
My Commission Expires: _____



RECORDED AT THE REQUEST OF:
SILVER LAKE WATER DISTRICT
2210 132ND ST. SE
MILL CREEK, WA 98012-5615

PERMANENT WATER EASEMENT

THE UNDERSIGNED GRANTOR _____
for and in consideration of good and valuable consideration in hand paid, the receipt of which is hereby acknowledged, does hereby grant, convey and transfer unto the SILVER LAKE WATER DISTRICT, a Municipal Corporation, its heirs or assigns, a permanent easement, including the perpetual right to enter upon the real estate hereinafter described, at any time that it may deem reasonably necessary to construct, maintain, repair and operate a water line over, across, through and under the lands hereinafter described, together with the right to excavate and refill ditches and trenches for the location of pipelines and mains, and the further right to remove trees, bushes, undergrowth and other obstructions interfering with the location, construction and maintenance of said pipelines and mains.

The easement and right-of-way hereby granted is located in the County of Snohomish, State of Washington, and is more particularly described as follows:

The District agrees to restore to substantially the original condition such improvements as are disturbed during the construction, maintenance or repair of District water system improvements within said right of way; provided, the Grantor, its heirs or assigns shall not construct any permanent structure over, upon or within the permanent easement.

IN WITNESS WHEREOF, these presents are hereby signed this _____ day of _____, 20____.

GRANTOR

SILVER LAKE WATER DISTRICT

BY: _____
ITS: _____

General Manager

STATE OF WASHINGTON)

: ss
County of)

I certify that I know or have satisfactory evidence that _____ signed this instrument, on oath stated that _____ was authorized to execute the instrument and acknowledged to as the _____ of _____, to be the free and voluntary act of such corporation for the uses and purposes mentioned in this instrument.

Dated this _____ day of _____, 20_____.

NOTARY PUBLIC for the State of Washington
Printed Name: _____
Residing at: _____
My Commission Expires: _____

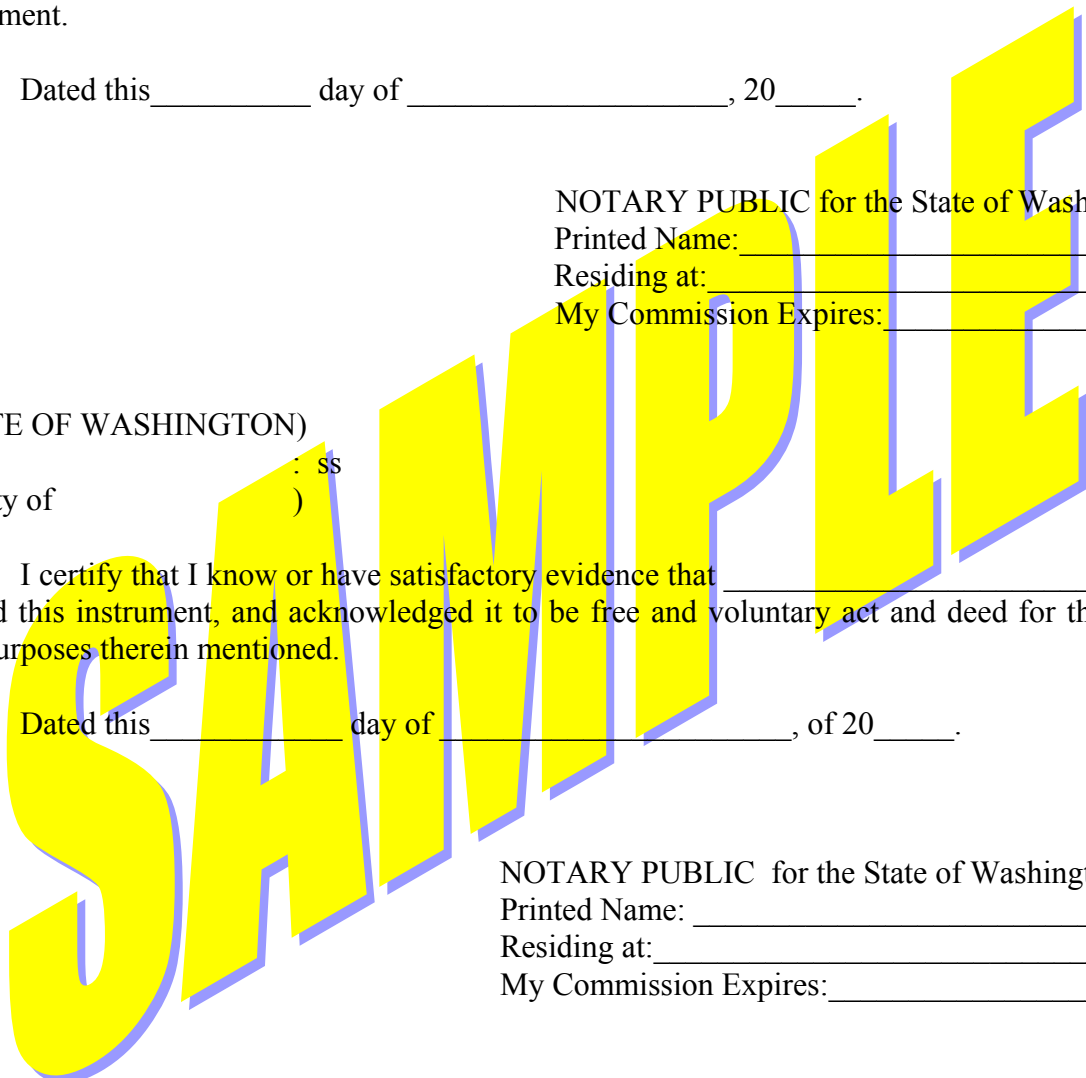
STATE OF WASHINGTON)

: ss
County of)

I certify that I know or have satisfactory evidence that _____ signed this instrument, and acknowledged it to be free and voluntary act and deed for the uses and purposes therein mentioned.

Dated this _____ day of _____, of 20_____.

NOTARY PUBLIC for the State of Washington
Printed Name: _____
Residing at: _____
My Commission Expires: _____



SAMPLES OF BILL OF SALE

SILVER LAKE WATER DISTRICT

BILL OF SALE - SEWER

Project: _____

Developer: _____

THE UNDERSIGNED hereby conveys and transfers to the SILVER LAKE WATER DISTRICT (the "District") the following described personal property:

This conveyance is made in consideration of the District's agreement to provide routine maintenance of said property and to provide sewer services pursuant to the District's resolutions and regulations, which may be amended from time to time.

The undersigned, and its successors and assigns, covenants and agrees to and with the District, its successors and assigns, that the undersigned is the owner of said property and has the right and authority to sell the same, that the property is free of all liens or encumbrances, and that the undersigned will, and does, hereby warrant and agree to defend the title of the District, its successors and assigns, against the claims of all third parties claiming to own the same or claiming any interest therein or encumbrance thereon.

The undersigned warrants that all bills and taxes relating to the construction and installation of the sewer main and appurtenances have been paid in full and that there are no lawsuits pending involving this project. The undersigned further warrants that in the event any lawsuit is filed as a result of, or involving, this project the undersigned will undertake to defend the lawsuit and will accept responsibility for all costs of litigation, including costs on appeal, and will hold the District harmless on any judgment rendered against the District.

The undersigned further warrants that all laws and ordinances respecting construction of this project have been complied with, and that the property is in proper working condition, order and repair and fit for purposes intended; i.e., for use as a sewer collection system adequate for the service intended and has been constructed in accordance with the conditions and standards of the District.

The undersigned covenants and agrees with the District to replace, repair and correct any defect in work or materials in respect to the personal property subject to this Bill of Sale arising during a period of two (2) years from date hereof, without cost to the District. The undersigned shall further warrant the corrected work for two years after acceptance of the corrected work by the District.

DEVELOPER: _____

By: _____

Its: _____

INDIVIDUAL

STATE OF WASHINGTON)
)
County of _____)

ss.

On this _____ day of _____, before me, the undersigned Notary Public, duly commissioned and sworn, personally appeared _____ to me known to be the individual(s) named herein, and who executed the within and foregoing instrument, and acknowledged execution of the said instrument to be the free and voluntary act and deed of said individual(s), for the uses and purposes therein mentioned.

WITNESS my hand and official seal hereto affixed the day and year first above written.

NOTARY PUBLIC in and for
Washington State, residing at _____

My Commission Expires: _____

CORPORATE

STATE OF WASHINGTON)
)
County of _____)

ss.

On this _____ day of _____, 20____, before me, the undersigned Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____

to me known to be the _____
of _____
the corporation named herein, and acknowledged execution of the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned; and on oath stated that he is authorized to execute said instrument and that the seal affixed (if any) is the corporate seal of said corporation.

WITNESS my hand and official seal hereto affixed the day and year first above written.

NOTARY PUBLIC in and for
Washington State, residing at _____

My Commission Expires: _____

**SILVER LAKE WATER DISTRICT
ITEMIZED COST OF
SANITARY SEWER SYSTEM**

Project: _____

Developer: _____

Date _____

DESCRIPTION	QUANTITY	UNIT COST	ITEM TOTAL
8" Dia. PVC Pipe			
8" Dia. Ductile Iron Pipe			
6" Dia. PVC Side Sewer			
6" Dia. Ductile Iron Side Sewer			
Manholes			

SUBTOTAL _____

SALES TAX _____

TOTAL COST _____

Note:

1. Include in each pipe price (Total Cost & Unit Cost) the cost of fittings, pavement repairs, and any other items not otherwise listed above.
2. Blank spaces reserved for major cost items such as force mains, vaults, sewage lift stations, etc. Contact District regarding listing of such items.

SILVER LAKE WATER DISTRICT

BILL OF SALE - WATER

Project: _____

Developer: _____

THE UNDERSIGNED hereby conveys and transfers to the SILVER LAKE WATER DISTRICT (the "District") the following described personal property:

This conveyance is made in consideration of the District's agreement to provide routine maintenance of said property and to provide water services pursuant to the District's resolutions and regulations, which may be amended from time to time.

The undersigned, and its successors and assigns, covenants and agrees to and with the District, its successors and assigns, that the undersigned is the owner of said property and has the right and authority to sell the same, that the property is free of all liens or encumbrances, and that the undersigned will, and does, hereby warrant and agree to defend the title of the District, its successors and assigns, against the claims of all third parties claiming to own the same or claiming any interest therein or encumbrance thereon.

The undersigned warrants that all bills and taxes relating to the construction and installation of the water main and appurtenances have been paid in full and that there are no lawsuits pending involving this project. The undersigned further warrants that in the event any lawsuit is filed as a result of, or involving, this project the undersigned will undertake to defend the lawsuit and will accept responsibility for all costs of litigation, including costs on appeal, and will hold the District harmless on any judgment rendered against the District.

The undersigned further warrants that all laws and ordinances respecting construction of this project have been complied with, and that the property is in proper working condition, order and repair and fit for purposes intended; i.e., for use as a water distribution system including distribution and supply lines adequate for the service intended and has been constructed in accordance with the conditions and standards of the District.

The undersigned covenants and agrees with the District to replace, repair and correct any defect in work or materials in respect to the personal property subject to this Bill of Sale arising during a period of two (2) years from date hereof, without cost to the District. The undersigned shall further warrant the corrected work for two years after acceptance of the corrected work by the District.

DEVELOPER: _____

By: _____

Its: _____

**SILVER LAKE WATER DISTRICT
ITEMIZED COST OF
WATER SYSTEM**

Project: _____

Developer: _____

Date _____

DESCRIPTION	QUANTITY	UNIT COST	ITEM TOTAL
6" Dia. Ductile Iron Pipe			
8" Dia. Ductile Iron Pipe			
12" Dia. Ductile Iron Pipe			
Fire Hydrant Assemblies			
3/4" Water Services			
1" Water Services			
1 1/2" Water Services			
2" Water Services			
Meter Vault & Larger Services			
Air-Vac Assemblies			
Blow-off Assemblies			
Detector Check Assembly			

SUBTOTAL _____

SALES TAX _____

TOTAL COST _____

Note:

1. Include in each pipe price (Total Cost & Unit Cost) the cost of gate valves, fittings, pavement repairs, and any other items not otherwise listed above.
2. Include in each fire hydrant price the main line tee, hydrant valve, valve boxes, shackle rods, thrust blocks, hydrant posts and other related items for a complete hydrant installation.
3. Blank spaces reserved for major cost items such as pressure reducing vaults, pressure relief vaults, pump stations, etc. Contact District regarding listing of such items.

PERFORMANCE, PAYMENT AND GUARANTY BOND

PERFORMANCE, PAYMENT AND GUARANTY BOND

Project: _____

Developer: _____

STATE OF WASHINGTON)
 : ss
COUNTY OF SNOHOMISH)

Bond No. _____

_____, as Principal, and _____, as surety, a corporation duly licensed and authorized to do business in the State of Washington, are held and firmly bound unto the **SILVER LAKE WATER DISTRICT**, hereinafter called "District", in the sum of _____ Dollars (\$ _____), for payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal agreed with District to perform the work as specified or indicated by _____ caused by the contractors operation, and restore such areas to conditions existing prior to construction. Such measures shall include, but not be limited to grading and seeding.

NOW, THEREFORE, if Principal shall perform all of this work; and

If Principal shall pay for all materials, equipment, or other supplies, or for rental of same used in connection with the performance of work to be done, and for all amounts due under applicable State law for any work or labor thereon; and

If Principal shall pay the sales, use and any other applicable taxes of the State of Washington or any political subdivision of said State relating to the work performed, and pay amounts due the State pursuant to Titles 50 and 51 of the Revised Code of Washington; and

If Principal shall indemnify and hold the District harmless from any defects in the workmanship of materials incorporated into the work for a period of two years after the final acceptance of the work;

Then, the obligation of Principal and Surety under this Bond shall be void, but otherwise it shall remain in full force and effect.

This Bond shall inure to the benefit of any person, companies or corporations entitled to file claims under applicable State law.

PERFORMANCE, PAYMENT AND GUARANTY BOND - Continued

If suit (including any dispute resolution process) is brought upon this bond, a reasonable attorney's fee and litigation costs shall be awarded to the prevailing party.

Any alterations in the work to be done or the materials to be furnished, or changes in the time of completion, shall not in any way release Principal or Surety thereunder, nor shall any extensions of time granted release either Principal or Surety, and notice of such alterations or extension is hereby waived by Surety.

IT IS FURTHER AGREED that nothing of any kind or nature that will not discharge the Principal shall operate as a discharge or release of the Surety, regardless of law, rule of equity or usage relating to the liability of sureties to the contrary notwithstanding.

SIGNED AND SEALED, this _____, day of _____, 20____.

(Seal)

(Seal)

Principal

Surety

Address

Address

City, State & Zip

City, State & Zip

Phone No.

Phone No.

Fax No.

Fax No.

Signature of Principal

Signature of Surety Official

Print Name and Title

Print Name and Title

Accepted by the Silver Lake Water District this _____ day of _____, 20____.

General Manager Silver Lake Water District

MAINTENANCE BOND

MAINTENANCE BOND

Project: _____

Developer: _____

STATE OF WASHINGTON)

: ss

Bond No. _____

COUNTY OF SNOHOMISH)

We, _____, as principal, and _____, a corporation organized under the laws of the State of _____, and duly authorized to transact business in the State of Washington, as surety, are held and firmly bound unto the Silver Lake Water District, Snohomish County, Washington, in the amount of \$ _____, for the payment of which sum we bind ourselves, and each of our executors, administrators, successors, and assigns, jointly and severally.

Now, therefore, the conditions of these obligations are such that if the principal shall replace or correct any part or parts of principal's Extension to the District system(s) built by principal or principal's Contractor as required by Developer Extension agreement signed by principal dated the _____ day of _____, 20____, discovered by the Silver Lake Water District to be defective in material or inefficient or otherwise unsatisfactory in operations, through faulty construction, materials or workmanship, or through any fault of design or detail arising with Contractor or manufacturer within two years of the acceptance of the work and transfer of title, then the obligation of Principal and Surety under this Bond shall be void, but otherwise it shall remain in full force and effect.

Such parts shall be replaced with parts constructed in accordance with designs and of material satisfactory to the District.

Upon the failure of the principal to perform the terms of this Bond, the Surety shall either perform the terms of the Bond itself or shall, upon demand by the Manager of the District, release up to the full bonded amount to the Silver Lake Water District. The amount demanded by the Manager or designer will be a good faith estimate of the actual cost of repairs.

We further agree that up to the full bonded amount shall be released to Silver Lake Water District upon written demand by the Manager of the District. The amount demanded by the Manager or designee will be a good faith estimate of the actual cost of the repairs.

We further agree that if it is necessary for the Silver Lake Water District to take any legal action against any signatory to this agreement to assure compliance with its terms, the District shall be entitled to its reasonable costs and attorney's fees.

We further agree that nothing of any kind or nature that will not discharge the principal shall operate as a discharge or release of the Surety, regardless of law, rule of equity or usage relating to the liability of sureties to the contrary notwithstanding.

It shall be the responsibility of both the principal and the surety to inform the Silver Lake Water District, in writing, of any change of mailing address. The District will mail only to the last known address of principal and surety.

SIGNED this _____ day of _____, 20____.

Principal

Surety

Address

Address

City, State & Zip

City, State & Zip

Phone No.

Phone No.

Fax No.

Fax No.

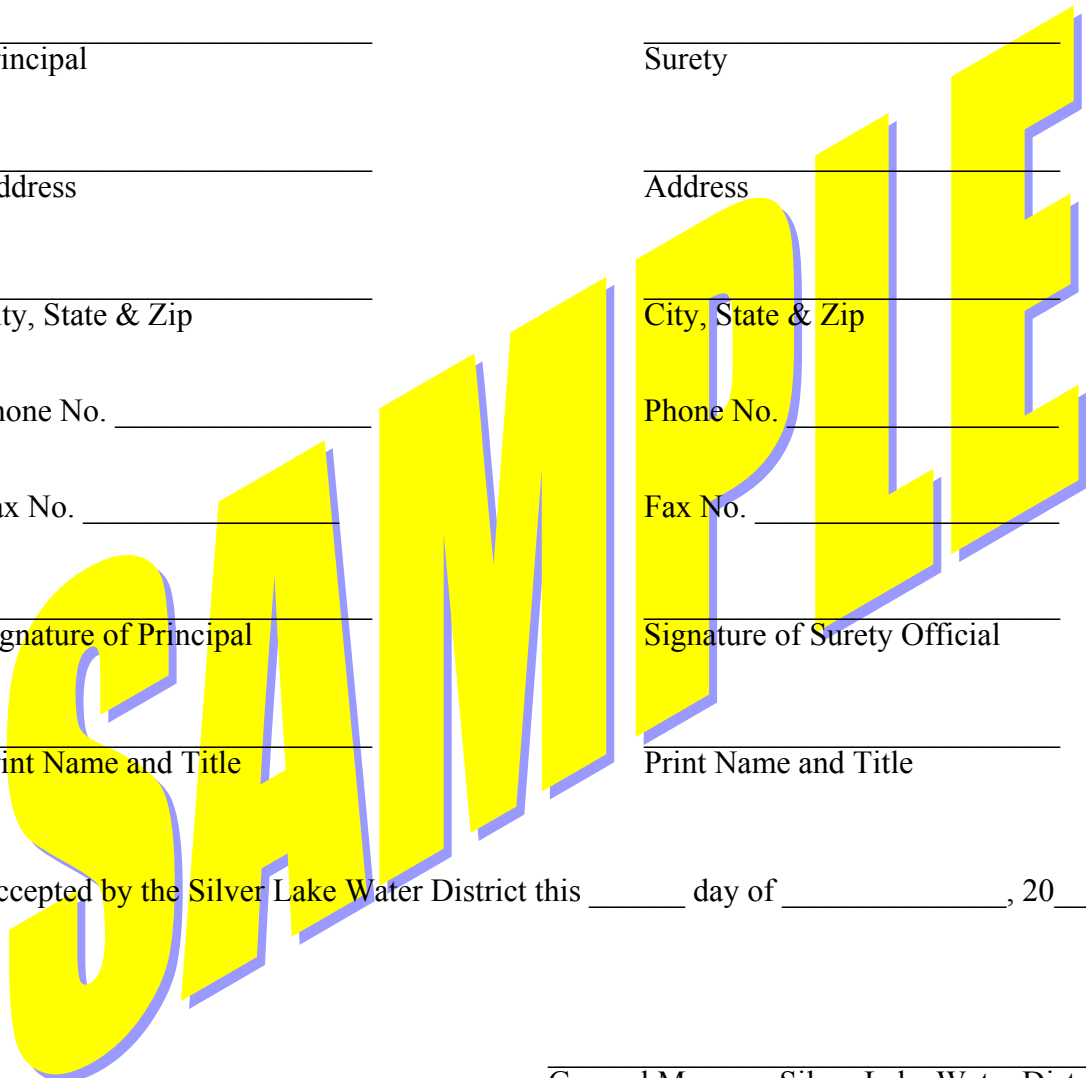
Signature of Principal

Signature of Surety Official

Print Name and Title

Print Name and Title

Accepted by the Silver Lake Water District this _____ day of _____, 20____.



General Manager Silver Lake Water District

**ASSIGNMENT OF FUNDS
IN LIEU OF MAINTENANCE BOND**

Fax No. _____

Fax No. _____

Signature of Principal

Signature of Bank Official

Print Name and Title

Print Name and Title

Accepted by the Silver Lake Water District this _____ day of _____, 20____.

General Manager Silver Lake Water District

SAMPLE

EASEMENT RESTORATION RELEASE

SILVER LAKE WATER DISTRICT

Easement Restoration Release

Easement No. _____
Date _____
Project No. _____

Project _____ Contract No. _____

Owner _____

Contractor _____

Property Owner(s) _____

Property Address/Description _____

Property Owner's Approval

The undersigned owner(s) of the above property do hereby accept the restoration work completed by the Contractor on (our) property. I (We) release the Silver Lake Water District and the Contractor from further restoration work, except as follows:

Signature Date Phone No.

Signature Date Phone No.

APPENDIX E

**INDUSTRIAL WASTE DISCHARGE PERMIT
(SNOHOMISH COUNTY CATHCART LANDFILL)**



PUBLIC WORKS

Issuance Date: 1 May, 2007
Expiration Date: 30 April, 2012

**CITY OF EVERETT
INDUSTRIAL WASTE DISCHARGE PERMIT**

In compliance with the provisions of The Federal Clean Water Act,
The State of Washington Water Pollution Control Law, as amended
(Chapter 90.48 Revised Code of Washington) and
The City of Everett Industrial Pretreatment Ordinance
(No. 2034-95 as amended by Ord. No.2247-97)
An Industrial Waste Discharge Permit is Issued to:

**Cathcart Sanitary Landfill
8915 Cathcart Way
Snohomish, WA 98296**

Permit Number:	7701	
Authorized Rep:	David Schonhard	
Plant Location:	8915 Cathcart Way, Snohomish, WA	
Receiving Water:	Everett Water Pollution Control Facility	
Industry Type:	Sanitary Landfill	SIC No. 4953
Discharge Location:	Silver Lake Water District	
Sample Site:	SEMS Metering Manhole	

Cathcart Sanitary Landfill is authorized to discharge pretreated industrial wastewater (landfill leachate and liquid vactor wastes) to the City of Everett sewer system via a connection to the Silver Lake Water District in compliance with the City's Ordinance, any applicable provisions of Federal or State law or regulation, and in accordance with discharge point(s), effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit is granted in accordance with the permit application form filed on April 5, 2007, in the office of the City of Everett Department of Public Works, and in conformity with plans, specifications, and other data submitted to the City in support of the above data disclosure form.


Tom Thetford, P.E.
Utilities Director

4-30-07
Date

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I. EMERGENCY NOTIFICATION

- A. In the event that a petroleum or other hazardous material spill reaches the sewer system, the Everett Water Pollution Control Facility shall be notified immediately.

Hours: 7:30 AM to 4:00 PM (425) 257-8240
Monday - Friday

After Hours, Weekends and Holidays (425) 257-8821

- B. In the event that a spill of oil or hazardous material reaches the storm sewer or the waters of the State, Everett Surface Water Management and the Department of Ecology shall be notified immediately.

Everett Surface Water Management
Hours: 7:30 AM to 4:00 PM
Monday - Friday (425) 257-8800

After Hours, Weekends and Holidays (425) 257-8821

Washington State Dept. of Ecology
24 hours: (425) 649-7000

II. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

A. Limitations and Monitoring Requirements

After issuance and lasting through midnight 30 April, 2007, the Permittee is authorized to discharge treated industrial wastewater to the City of Everett sanitary sewerage system subject to the following limitations and monitoring requirements. All numerical limits except process flow also apply to any treated leachate that is transported for discharge by tanker. If leachate is tankered more than five (5) days in any calendar month, than a tanker shall be sampled for all appropriate constituents, and an additional tanker sampled for every five (5) days of tankering that month.

Sample location: SLMS Metering Manhole

Parameter	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
	Daily ^a Maximum		Minimum ^c Frequency	Sample Type
NON CONVENTIONALS				
Arsenic (T)	0.50	mg/L ^k	1/Month	Composite ^g
Cadmium (T)	0.24	mg/L	1/Month	Composite
Chromium (T)	5.00	mg/L	1/Month	Composite
Copper(T)	3.00	mg/L	1/Month	Composite
Lead (T)	1.89	mg/L	1/Month	Composite
Mercury (T)	0.10	mg/L	1/Month	Composite
Nickel (T)	2.83	mg/L	1/Month	Composite
Silver (T)	0.49	mg/L	1/Month	Composite
Zinc (T)	4.00	mg/L	1/Month	Composite
Cyanide (T)	0.65	mg/L	1/Month	Composite ^h
Process Flow	250,000 gal/day		Daily	Metered
CONVENTIONALS				
pH	5.0-10.0 ^{e,k}		Daily	Recording pH Meter
BOD ₅	NA ^m		1/Month	Composite ^g
TSS	NA ^m		1/Month	Composite
FOG/Polar	NA ^f		1/Month	Grab ^o
FOG/Nonpolar	200	mg/L ^k	1/Month	Grab ^o
Closed Cup Flashpoint	140	°F ^l	1/Month	Grab ^p

II. EFFLUENT LIMITS AND MONITORING REQUIREMENTS (continued)

B. Sample Site/Dilution

All samples shall be collected at an approved sample site at the point of discharge from the treatment system, prior to mixing with any other dilution stream. The effluent limits apply to industrial wastewater prior to dilution with wastewaters other than those generated by the regulated process. The Permittee shall not use dilution to meet the limitations. See Sections VI.H. and VI.I.

C. Footnotes

- a. The daily maximum is defined as the greatest allowable value for any calendar day.
- b. The monthly average is defined as the arithmetic mean of samples collected during a calendar month.
- c. The City may reduce or increase the frequency of sampling based on compliance history, including analytical results. The Permittee may choose to monitor more frequently than is required by this permit, with the understanding that all sampling and analytical data shall be submitted with the monthly report.
- d. NA means not applicable.
- e. pH is measured in standard units. See Section V.C.
- f. If Total FOG (fats, oils and grease) is greater than 50 mg/L, the Permittee will be surcharged as part of the monthly sewerage bill for the additional costs of treatment. If the discharged FOG interferes with the collection and/or treatment systems, then the City may take enforcement action, as well as surcharge, the Permittee for the cost of treatment.
- g. Composite shall mean a flow-proportioned sample taken during the hours of discharge using an automatic sampler approved by the City or at least four grab samples taken in accordance with City of Everett Sampling Guidelines and composited according to flow. See Section V.D.
- h. Each of four (4) grab samples for cyanide shall be immediately preserved with NaOH to a pH of >12.0 then combined and refrigerated until analyzed. Analysis shall occur within fourteen (14) days of taking the sample.
- i. (Reserved)
- j. (Reserved)
- k. These limits based upon local limitations contained in Everett City Ordinance No. 2034-95 (as amended by Ord. #2034-97).

II. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

C. Footnotes (continued)

- l. Any wastewater with a closed cup flash point of less than 140°F or 60° Celsius using the test methods specified in 40 CFR 261.21 is prohibited from discharge. See Section VII.A.3.
- m. If TSS (Total Suspended Solids) or BOD₅ (5-day Biochemical Oxygen Demand) exceeds 250 mg/L, the Permittee will be surcharged as part of the monthly sewerage bill for the additional costs of treatment. If the discharged TSS or BOD₅ interferes with the collection and/or treatment systems, then the City may take enforcement action, as well as surcharge the Permittee for the cost of treatment and any additional maintenance costs incurred by the City.
- n. (Reserved)
- o. A minimum of four individual grab samples to be taken during the sampling event for FOG. The samples are to be taken and contained in separate containers and not to be composited or split.
- p. A single separate grab sample must be taken and analyzed for Flash Point.

III. SUMMARY OF REPORTS

The Permittee shall submit reports to the City according to the schedule listed below.

A. **Accidental Spill Prevention Plan**

Frequency: Once, update as needed.
Due Date: Submit 90 days following the commencement of discharge or permit issuance whichever is later. Implement within 6 months.
Content: Strategy for spill prevention, including training and emergency response. See Section IV.A.

B. **Notification of New Hazardous Wastes**

Frequency: Whenever new regulations designate wastes or constituents as hazardous.
Due Date: Within 90 days of the effective date of the published regulation.
Content: See Section IV.B. and 40 CFR 403.12(p).

C. **O & M Manual**

Frequency: As needed prior to installation or changes of pretreatment equipment.
Due Date: Approval required prior to completion of construction.
Content: O & M instructions and pretreatment system "as-builts". See Section IV.C. and WAC 173-240.

D. **Self Monitoring Reports**

Frequency: As required.
Due Date: Commencing on date of Permit issuance. To be submitted no later than the last day of each month following self monitoring.
Content: Data required in Section II.A or, if appropriate, a notification that no discharge has occurred. See Section IV.D.

E. **Notification of Violation**

Frequency: As needed.
Due Date: Notify the City within 24 hrs. of discovery and submit a written report within 5 days.
Content: Reason for violation and corrective action taken. See Section IV.E.

F. **Changes To Discharge**

Frequency: As needed.
Due Date: 90 days prior to changes in discharge that result in altered wastewater pollutants.
Content: See Section IV.F.

III. SUMMARY OF REPORTS (continued)

G. Spill/Slug Discharge Reports

Frequency: As needed.
Due Date: Notify City within 24 hrs of discovery and a written report within 5 days.
Content: Characteristics of and reason for spill/slug discharge, and corrective action taken. See Section IV.G.

H. Upset Report

Frequency: As needed
Due Date: Notify the City within 24 hrs of discovery and submit a written report within 5 days.
Content: Characteristics of and reason for noncompliance, and corrective action taken. See Section IV.H.

I. Engineering Report

Frequency: As needed prior to installation or changes of the pretreatment equipment.
Due Date: Approval required prior to installation.
Content: Per WAC 173-240. See Section IV.I.

IV. REPORTING REQUIREMENTS

The Permittee shall monitor their discharge to the sanitary sewer as specified in Section II of this permit. The Permittee shall also submit to the City of Everett, Department of Public Works, all of the reports according to the following schedule and content requirements.

A. **Accidental Spill Prevention Plan**

The Permittee shall continue with implementation of their approved Accidental Spill Prevention Plan to eliminate or minimize the accidental slug discharge of pollutants into the sewer system which could have an effect on the City's wastewater treatment plant, biosolids and biosolids utilization plans, or cause the City to violate it's National Pollutant Discharge Elimination System (NPDES) permit.

B. **Notification of New Hazardous Wastes**

Whenever the EPA publishes new RCRA rules identifying additional hazardous wastes or new characteristics of hazardous wastes, the Permittee must notify the City, EPA RCRA Director and State Hazardous Wastes Director if any of these wastes are discharged to the City's treatment system. The notification must occur within 90 days of the effective date of the published regulation.

C. **Operation and Maintenance Manual**

As needed with installation or changes of pretreatment equipment. The Permittee shall submit an operation and maintenance manual and "as-built" drawings for the pretreatment system, to the City, for approval prior to completion of construction. This does not apply to equipment replaced with operationally identical parts during repair or maintenance activities. See WAC 173-240.

D. **Self Monitoring Reports**

The Permittee shall monitor the parameters specified in Section II.A of this permit. All monitoring results obtained during the month shall be summarized and reported on a form approved by the City, to be submitted no later than the last day of the month following the completed reporting period. The Permittee shall include the daily pH highs and lows and daily flows. The report shall be signed and certified in accordance with the requirements of Section VII.B. and submitted to the following address:

City of Everett
Department of Public Works
Industrial Pretreatment Program
3200 Cedar St.
Everett, WA. 98201
Attn.: Charles Johnstone

In the event that **additional monitoring** (other than that required in Section II.A) is conducted, the Permittee shall report **all** results in the report.

IV. REPORTING REQUIREMENTS (continued)

E. Notification of Violation

If self monitoring data indicates that a discharge limit has been exceeded, the Permittee shall notify the City within 24 hours of becoming aware of the violation. The Permittee shall repeat the sampling and submit the analysis to the City within 30 days after becoming aware of the violation. Formal written notification discussing circumstances and remedies shall be submitted to the City within five (5) days of becoming aware of the violation or as required.

F. Notification of Changed Discharge

The Permittee shall notify the City 90 days prior to the introduction of new wastewater pollutants, changes in manufacturing operations or any substantial change in the volume or character of pollutants in their discharge, including the listed or characteristic hazardous wastes for which the Permittee has submitted initial notification under 40 CFR 403.12(p). The Permittee shall obtain approval from the City prior to any substantial change in their discharge.

G. Spill/Slug Discharge Reports

The Permittee shall notify the City immediately, either in person or by phone (see Section I Emergency Notification), of any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or non-customary batch discharge. Formal written notification discussing circumstances and remedies shall be submitted to the City within five (5) days of the occurrence or as required. If the City determines that it is necessary the Permittee shall develop a Slug Control Plan as described in 40 CFR 403.8(f)(2)(v).

H. Upset Reporting

1. Definition

For the purpose of this section, "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance or careless or improper operation.

2. Effect of an Upset

An upset shall constitute an affirmative defense to action brought for noncompliance with applicable pretreatment standards if the requirements of paragraph 3 are met.

IV. REPORTING REQUIREMENTS (continued)

H. Upset Reporting (continued)

3. Conditions Necessary for a Demonstration of Upset:

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs or other relevant evidence that:

- a. an upset occurred and the permittees can identify the specific cause(s) of the upset;
- b. the facility was, at the time, being operated in a prudent and workman-like manner and in compliance with applicable operation and maintenance procedures; and
- c. the Permittee has submitted the following information to the City within 24 hours of becoming aware of the upset (if this information is provided verbally a written submission must be provided within five days):
 - (1) a description of the discharge and cause of noncompliance;
 - (2) the period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to be corrected; and
 - (3) steps being taken and/or planned to reduce, eliminate and prevent recurrence of the noncompliance.

4. Burden of Proof

In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset shall have the burden of proof.

5. Permittee Responsibility in Case of Upset

The Permittee shall control production or all discharges to the extent necessary to maintain compliance with applicable pretreatment standards upon reduction, loss or failure of its treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost or fails.

I. Engineering Report

Prior to constructing or modifying any wastewater control facilities, detailed plans shall be submitted to the City and the Washington Department of Ecology for approval in accordance with WAC 173-240. Facilities shall be constructed and operated in accordance with the approved plans.

V. SPECIAL CONDITIONS/COMPLIANCE SCHEDULES

A. Effluent Meter

The Permittee shall install and maintain a continuous flow meter, monitoring flow through the discharge/sample site. The Permittee shall maintain a daily log of flowmeter readings and daily flows. In the event of a malfunction of flow monitoring equipment, recording the run time of the discharge pump to estimate flow will be acceptable.

B. Recording pH Meter

The Permittee shall maintain a continuously recording pH meter with an audible alarm system and shall report the high and low pH values for each day the Permittee discharges. Any discharge without a pH record shall be considered a violation of this permit.

The Permittee shall maintain a log that includes a record of calibration for the instrument used with: the date; time; name of the person doing the calibration; and the method used. The chart shall be dated and initialed on working days.

C. Autosampler

The Permittee shall use an autosampler approved by the City to flow proportion composite samples of the treatment discharge to be monitored per Section II.A of this permit. Samples may be flow proportioned by hand if use of an autosampler is impractical. See Sections II.B and VI.I concerning the sample site.

D. Hauling Contingency Plan

The Permittee shall prepare and implement a Leachate Hauling Contingency Plan. This plan shall address leachate disposal in the event of an equipment failure or other occurrence that prevents disposal by other means. This shall include planning for lack of pipeline capacity. All numerical limits except process flow also apply to any treated leachate that is transported for discharge by tanker. If leachate is hauled by tanker more than five (5) days in any calendar month, then a tanker shall be sampled for all appropriate constituents, and an additional tanker sampled for every five (5) days of hauling that month.

E. Slug Control Plan

The Permittee shall immediately notify the City of any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or non-customary batch discharge. If the City determines that it is necessary the Permittee shall develop a Slug Control Plan as described in 40 CFR 403.8(f)(2)(v).

VI. OPERATIONS AND MAINTENANCE

The Permittee shall at all times properly operate and maintain all facilities and systems of collection, treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, adequate operator staffing and training and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall keep and maintain an operation and maintenance log on all facilities and systems of treatment and control.

Water conservation practices shall be used to reduce total effluent volume. Waste prevention practices shall be used to reduce or eliminate contaminant loading to the POTW. In addition, the following practices shall be used:

A. Chemical Storage

Chemicals shall be stored in a manner which will prevent the entry into the municipal sewer system or the waters of the State. All liquid chemicals will be stored in a no outlet area, approved by the City.

1. Oils, waste oils, solvents, chemicals, and waste chemical solution shall be stored in a curbed and covered area with an impervious surface to prevent the contamination of the ground, ground water, storm sewer system or the sanitary sewer system. Empty barrels shall be adequately stoppered and stored in a designated area.
2. Incompatible chemicals shall be segregated.
3. Adequate dikes, sumps, and valves shall be installed to intercept and contain overflows and spills. Wastes from the sumps shall be collected for disposal in a manner that will prevent its entry into waters of the state or, be adequately treated and analyzed before discharge to the POTW.

B. Spill Prevention

1. Process tanks shall be located in an area capable of containing 110 percent of the volume of the largest tank. This area can have no outlet to the sewer system or the waters of the State.
2. All process tanks and chemical storage containers shall be adequately labeled. Emergency phone numbers shall be posted.
3. In the event of a concentrated solution spill, such as a tank failure, the Permittee shall not discharge any spilled solution into the municipal sewer system unless laboratory test results indicate that the substance meets the conditions of this permit. The Permittee shall receive approval from the City prior to the discharge of any untreated spilled solution.

VI. OPERATIONS AND MAINTENANCE (continued)

B. Spill Prevention (continued)

4. The Permittee shall use spill prevention practices to preclude the discharge of liquids, solids, or gasses, which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosions.

C. Required Process Changes

The Permittee shall make the process changes required and/or install whatever pretreatment equipment is necessary to meet the discharge conditions of this permit.

D. Shutoff Devices

The Permittee shall provide a functional shutoff device downstream of the pretreatment system.

E. (Reserved)

F. Proper Disposal of Sludges and Spent Chemicals

1. The Permittee shall comply with the provisions of WAC 173-303 (Dangerous Waste Regulations).
2. If it has not already done so and if applicable, the Permittee shall obtain a Hazardous Waste generator number from the US EPA or the WDOE for proper disposal of wastes.
3. The Permittee shall handle and dispose of all solid waste material in such a manner as to prevent its entry into waters of the State.
4. For all liquid wastes and sludges removed by waste disposal companies, the Permittee shall record and retain for a period of three (3) years:
 - a. chemical name and trade name of the substance;
 - b. volume of each substance;
 - c. date that it was hauled away;
 - d. identity of the waste hauler and, if applicable, an EPA registration number; and
 - e. receipt from the waste hauler.

VI. OPERATIONS AND MAINTENANCE (continued)

G. Flowmeter

The Permittee shall maintain a water or sewer meter which provides accurate information regarding industrial process wastewater discharges to the sewer. The Permittee shall maintain a daily log of flowmeter readings and daily flows.

H. Dilution

Excess water usage shall be minimized to prevent dilution. No Industrial User shall increase the use of potable or process water, or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

I. Sample Site

An approved sampling site shall be maintained downstream of the final pretreatment system and upstream of any mixing with unregulated flows for the monitoring of the industrial discharge. City personnel shall have access to the sample site during normal business hours and in the event of an emergency. All process wastewater shall flow through the sampling point. All process wastewater shall be hard-piped to the sampling point. All wastewater monitoring samples shall be collected from the approved sample site. Sample sites are to remain unobstructed at all times to allow access. All sample sites shall have a suitable, City approved, primary device installed for the purpose of monitoring industrial discharge flow to the Sanitary Sewer.

VII. GENERAL CONDITIONS

A. Compliance

1. All discharges to the City sanitary sewer system shall be in accordance with the requirements and ordinances of the City.
2. All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.
3. The Permittee shall comply with all the general prohibitive discharge standards in Ordinance 2034-95 and is responsible to take whatever steps are necessary to ensure discharge requirements of this permit are met.
4. Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.
5. All applicable requirements of 40 CFR 403 "General Pretreatment Regulations" are incorporated into this permit by reference.
6. Sanitary sewage shall be disposed of in accordance with the requirements of the Snohomish County Health District.

B. Signatory Requirements

All reports and information submitted to the City shall be signed by an executive officer, or his/her designated official, testifying to the accuracy of the results and representativeness of the sample by making the following statement:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

C. Confidential Information

Except for data determined to be confidential under Section 7 of the City's Industrial Pretreatment Ordinance (No. 2034-95), all reports required by this permit shall be available for public inspection at the office of the City of Everett, Department of Public Works.

VII. GENERAL CONDITIONS (continued)

D. **Records Retention**

The Permittee shall retain for a minimum of three years all records of monitoring activities and results, including all reports of recordings from continuous monitoring instrumentation. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the City.

E. **Recording of Results**

For each measurement or sample taken, the Permittee shall record the following information:

1. the date, exact place, person collecting the sample, and time of sampling;
2. the date the analyses were performed;
3. who performed the analyses;
4. the analytical techniques or methods used;
5. the results of all the analyses; and
6. provide certification of representativeness.

F. **Representative Sampling**

Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and the nature of the monitored discharge.

G. **Test Procedures**

All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless approved otherwise in writing by the City, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants, contained in 40 CFR 136. Where 40 CFR 136 does not include a sampling or analytical technique for the pollutant in question, sampling and analyses shall be performed in accordance with any other sampling and analysis procedure approved by the EPA Administrator.

H. **Bypass**

The intentional bypass of wastes from all or any portion of a treatment works to the extent that permit effluent limitations cannot be met is prohibited unless the following four conditions are met:

1. Bypass is:
 - (a) unavoidable to prevent loss of life, personal injury, or severe property damage; or
 - (b) necessary to perform construction or maintenance related activities essential to meet the requirements of the Clean Water Act and authorized by administrative order;

VII. GENERAL CONDITIONS (continued)

H. Bypass (continued)

2. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment down time, or temporary reduction or termination of production;
3. The Permittee submits notice of an anticipated bypass in accordance with Section IV.H. Where the Permittee knows or should have known in advance of the need for a bypass, this prior notification shall be submitted for approval to the City, if possible, at least 10 days before the date of bypass; and
4. This bypass is allowed under conditions determined to be necessary by the City to minimize any adverse effects. The public shall be notified and be given the opportunity to comment on bypass incidents of significant duration, to the extent feasible.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic impact caused by delays in production.

After consideration of the factors above and the adverse effects of the proposed bypass, the City may approve the request.

I. Right of Entry

The Permittee shall allow an authorized representative of the City, upon the presentation of credentials and such other documents as may be required by law and at reasonable hours:

1. To enter the Permittee's premises where a discharge source is located or where any records must be kept under the terms and conditions of the permit;
2. To have access to and copy any records that must be kept under terms and conditions of the permit;
3. To inspect any monitoring equipment or method required in the permit;
4. To inspect any collection, treatment, pollution management, or discharge facilities required under the permit;
5. To sample any discharge of pollutants (sampling sites are to remain unobstructed at all times); and

VII. GENERAL CONDITIONS (continued)

I. Right of Entry (continued)

6. Where a user has security measures in force which require proper identification and clearance before entry into its premises, the user shall make necessary arrangements with its security guards so that, upon presentation of suitable identification, the Director will be permitted to enter without delay for the purposes of performing specific responsibilities. Unreasonable delays in allowing the Director access to the user's premises shall be a violation of this Permit.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Property rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Federal, State, or Local regulations.

L. Falsifying Information or Tampering With Monitoring Equipment

Knowingly making any false statement on any report or other document required by this permit or knowingly rendering any monitoring device or method inaccurate, may result in punishment under the criminal laws of the City, as well as being subject to civil penalties and relief.

M. Enforcement Provision

The City may seek any or all of the remedies or penalties (including civil and judicial action) provided in City ordinances, including recovering costs incurred by the City, in response to the following:

1. Any violation by the Permittee of the provision of the Industrial Wastewater Discharge Permit;
2. Any violation by the Permittee of the provisions of the City Code; or
3. Any violation by the Permittee of any order of the Director with respect to provisions set forth in this Industrial Wastewater Discharge Permit or the City Code.

VII. GENERAL CONDITIONS (continued)

M. Enforcement Provision (continued)

The range or severity of remedial actions taken against the Permittee may include, but not be limited to, notices of violation, compliance schedules, fines of up to \$10,000 per day per violation, show cause hearings and/or cease discharge notices and be determined, in part, by the nature, duration and frequency of the violation (including significant non-compliance status).

N. Duty to Reapply

The City shall notify the Permittee 180 days prior to the expiration of the Permittee's permit. Within 90 days of the notification, the Permittee shall apply for reissuance of the permit on a form provided by the City.

O. New or Supplemental Application for Changes

The City may require the Permittee to submit a new application or supplement to the previous application where facility expansions, production increases, or process modifications will result in:

1. New or substantially increased discharges of pollutants;
2. A substantial increase in flow; or
3. Violation of the terms and conditions of the existing permit.

The Permittee shall notify the City 60 days prior to such changes. Formal written notification shall follow within 30 days. Submission of such an application does not relieve the discharger of the duty to comply with the existing permit until it is modified or reissued.

P. Limitation of Permit Transfer

Permits are issued to a specific User for a specific operation and are not assignable to another User or transferable to any other location without the prior written approval of the City. Sale of a User shall obligate the purchaser to seek prior written approval from the City for continued discharge to the POTW.

VII. GENERAL CONDITIONS (continued)

Q. Emergency Suspension of Service and Revocation of Permit

The City may, without advance notice, order the suspension of the wastewater treatment service and revoke the Industrial Waste Discharge Permit from a Permittee when it appears to the City that an actual or threatened discharge:

1. presents or threatens an imminent or substantial danger to the health or welfare of persons or substantial danger to the environment; or
2. threatens to interfere with the operation of the POTW, or violate any pretreatment limits.

Any Permittee notified of the City's suspension order shall immediately cease all discharges. In the event of failure of the Permittee to comply with a suspension order, the City may immediately take all necessary steps to halt or prevent any further discharge by such Permittee into the POTW. See Ordinance 2034-95 section 9.7.

R. Modification or Revision of the Permit

This permit may be modified, terminated, or revoked during its term for:

1. Failure of the Permittee to disclose fully all relevant facts or the misrepresentation of any relevant facts by the Permittee in the application or during the permit issuance process;
2. A violation of any term or condition of the permit;
3. EPA promulgating a new federal pretreatment standard;
4. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge controlled by the permit;
5. Information indicating that the permitted discharge poses a threat to human health or welfare;
6. A change in ownership or control of the source;
7. A change in City Ordinances or other just cause; or
8. Incorporating special conditions resulting from the issuance of a special order.

VII. GENERAL CONDITIONS (continued)

R. Modification or Revision of the Permit (continued)

Permit transfer fee shall be \$500.00

Permit modification fee shall be \$500.00. Permit modification fees will only be charged in a case where changes in the user's operation require the modification, or when the user requests a modification.

Any permit modification which results in new conditions in the permit will include a reasonable time schedule for compliance, if necessary. Permit modification, revocation and reissuance, or termination may be initiated by the City or requested by any interested person.

S. Analytical Requirements

All analyses performed to establish compliance and used in compliance reporting shall be performed by a laboratory accredited by the Quality Assurance Division of the Washington State Department of Ecology in accordance with WAC 173-50. Laboratories must be accredited for the analyses that they are performing.

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APPENDIX F

MODEL DATA AND TABLE AND RESULTS

Lift Station	Existing Flow				Buildout - no improvements			Buildout - with improvements ¹			SCENARIO 1 - with improvements ¹			SCENARIO 2 - with improvements ¹			SCENARIO 3 - with improvements ¹		
	Modeled Pump Rate (gpm)	Max Incoming Flow (2015)	Remaining LS Capacity (2015)	Remaining LS Capacity % (2015)	Max Incoming Flow (BO)	Remaining LS Capacity (BO)	Remaining LS Capacity % (BO)	Max Incoming Flow (BO)	Remaining LS Capacity (BO)	Remaining LS Capacity % (BO)	Max Incoming Flow (LL1)	Remaining LS Capacity (LL1)	Remaining LS Capacity % (LL1)	Max Incoming Flow (LL3)	Remaining LS Capacity (LL3)	Remaining LS Capacity % (LL3)	Max Incoming Flow (LL4)	Remaining LS Capacity (LL4)	Remaining LS Capacity % (LL4)
164th Street	1,100	256	844	77%	621	479	44%	621	479	44%	621	479	44%	621	479	44%	621	479	44%
180th Street	850	126	724	85%	347	503	59%	347	503	59%	347	503	59%	347	503	59%	347	503	59%
Creek Side	300	102	198	66%	125	175	58%	125	175	58%	125	175	58%	125	175	58%	125	175	58%
Glacier Peak	130	0	130	100%	0	130	100%	0	130	100%	0	130	100%	0	130	100%	0	130	100%
Highlands 1	300	154	146	49%	175	125	42%	175	125	42%	289	11	4%	175	125	42%	175	125	42%
Highlands 2	300	35	265	88%	49	251	84%	49	251	84%	150	150	50%	49	251	84%	49	251	84%
Highlands East	700	80	620	89%	179	521	74%	179	521	74%	179	521	74%	179	521	74%	179	521	74%
Lift Station No. 2	3,190	1603	1587	50%	2130	1060	33%	2701	489	15%	2764	426	13%	2746	444	14%	2701	489	15%
Lift Station No. 3	3,000	2346	654	22%	3086	-86	0%	3109	-109	0%	3131	-131	0%	3213	-213	0%	3109	-109	0%
Lift Station No. 4	900	542	358	40%	814	86	10%	814	86	10%	814	86	10%	814	86	10%	814	86	10%
Lowell-Larimer 1	1,100	421	679	62%	741	359	33%	741	359	33%	741	359	33%	741	359	33%	850	300	27%
Lowell-Larimer 2	665	76	589	89%	420	245	37%	420	245	37%	420	245	37%	420	245	37%	608	57	9%
Pioneer Trails	2,000	2058	242	12%	2720	-420	0%	2092	-92	0%	2095	-95	0%	2095	-95	0%	2092	-92	0%
Sector 7	1,400	400	1000	71%	836	564	40%	836	564	40%	924	476	34%	1024	376	27%	836	564	40%
Silver Firs	755	154	601	80%	351	404	54%	351	404	54%	351	404	54%	351	404	54%	351	404	54%
The Point	300	58	242	81%	110	190	63%	110	190	63%	110	190	63%	110	190	63%	110	190	63%
Thomas Lake	1,200	592	608	51%	1117	83	7%	1117	83	7%	1117	83	7%	1117	83	7%	1117	83	7%
Valmont	480	13	467	97%	31	449	93%	31	449	93%	31	449	93%	31	449	93%	31	449	93%
Waldenwood	1,000	1230	-230	0%	1175	-175	0%	1175	-175	0%	1175	-175	0%	1175	-175	0%	1175	-175	0%
Windsong Terrace	250	83	167	67%	114	136	55%	114	136	55%	114	136	55%	114	136	55%	114	136	55%
Woodland East	300	109	191	64%	114	186	62%	114	186	62%	114	186	62%	114	186	62%	114	186	62%
Woodland North	100	6	94	94%	11	89	89%	11	89	89%	11	89	89%	11	89	89%	11	89	89%

1) Recommended improvements are described in Chapter 6 of the Wastewater Comprehensive Plan.

	LL3 FM Destination	LL4 FM Destination	
Scenario 1	Highlands 2	Sector 7	model: LL_1
Scenario 2	LL4	Sector 7	model: LL_3
Scenario 3	LL2	LL3	model: LL_4

APPENDIX G
DETAILED COST ESTIMATES

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-1
General LS Improvements**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Drawdown test at each lift station	1	LS	\$ 7,000	\$ 7,000
2	Triple-strand barbed wire	1,000	LF	\$ 40	\$ 40,000
3	Personnel Gates	2	EA	\$ 1,000.00	\$ 2,000
4	Transducers	22	EA	\$ 2,000	\$ 44,000
5	Ladder-ups	7	EA	\$ 1,500	\$ 10,500
6	Exhaust tube with elbow for generator	1	LS	\$ 1,000	\$ 1,000
7	Pump grout under undermined wet well slab	1	LS	\$ 4,000	\$ 4,000
8	Refinish and recoat base plate	1	LS	\$ 4,000	\$ 4,000
	Subtotal.....				\$ 112,500
	Tax rate (10.3%).....				<u>11,588</u>
	Subtotal:.....				\$ 124,088
	Contingency (20%).....				<u>\$ 24,913</u>
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 149,000
	Construction Administrative Costs (15%):.....				<u>\$ 22,000</u>
	TOTAL ESTIMATED PROJECT COST:.....				<u><u>\$ 171,000</u></u>

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-2
Waldenwood LS Improvements**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization, Cleanup, and Demobilization	1	LS	\$ 139,000	\$ 139,000
2	Bypass Pumping	2	Month	\$ 25,000	\$ 50,000
3	Excavation Safety Systems (Temp Shoring)	1	LS	\$ 50,000	\$ 50,000
4	Erosion Control	1	LS	\$ 20,000	\$ 20,000
5	Dewatering	1	LS	\$ 5,000	\$ 5,000
6	Lift Station Improvements	1	LS	\$ 560,000	\$ 560,000
7	Valve Vault	1	LS	\$ 56,000	\$ 56,000
8	Flow Meter Vault	1	LS	\$ 50,000	\$ 50,000
9	Crushed Surfacing Base Course	140	TN	\$ 20	\$ 2,800
10	Unsuitable Excavation, Site	20	CY	\$ 60	\$ 1,200
11	Hot Mix Asphalt Paving	80	TN	\$ 180	\$ 14,400
12	Barbed wire on fence	280	LF	\$ 30	\$ 8,400
13	Generator and sound-attenuating enclosure	1	LS	\$ 350,000	\$ 350,000
14	Electrical and Telemetry	1	LS	\$ 200,000	\$ 200,000
15	PUD Electrical Service Fees	1	LS	\$ 25,000	\$ 25,000
	Subtotal.....				\$ 1,531,800
	Tax rate (10.3%).....				157,775
	Subtotal:.....				\$ 1,689,575
	Contingency (20%).....				\$ 337,425
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 2,027,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				\$ 608,000
	TOTAL ESTIMATED PROJECT COST:.....				\$ 2,635,000

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-3
Pioneer Trails LS Improvements**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization, Cleanup, and Demobilization	1	LS	\$ 130,000	\$ 130,000
2	Replace 175 kW generator /w sound attenuating	1	EA	\$ 350,000	\$ 350,000
3	12' Wet Well with submersible pumps	1	LS	\$ 500,000	\$ 500,000
4	Flow meter vault w/ equipment	1	LS	\$ 50,000	\$ 50,000
5	Roof on electrical rack	1	LS	\$ 15,000	\$ 15,000
6	Transfer Switch	1	LS	\$ 100,000	\$ 100,000
7	Rehab existing wetwell and convert to rock catch	1	LS	\$ 150,000	\$ 150,000
8	Demolish and fill/seal dry pit	1	LS	\$ 30,000	\$ 30,000
9	Site piping	1	LS	\$ 100,000	\$ 100,000
	Subtotal.....				\$ 1,425,000
	Tax rate (10.3%).....				<u>146,775</u>
	Subtotal:.....				\$ 1,571,775
	Contingency (20%).....				<u>\$ 314,225</u>
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 1,886,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				<u>\$ 566,000</u>
	TOTAL ESTIMATED PROJECT COST:.....				<u><u>\$ 2,452,000</u></u>

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-4
Thomas Lake LS Improvements**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u> <u>PRICE</u>	<u>AMOUNT</u>
1	Mobe, Demobe and Cleanup (8%)	1 LS	\$ 100,000	\$ 100,000
2	Locate Existing Utilities	1 LS	\$ 2,000	\$ 2,000
3	Bypass Pumping	1 LS	\$ 25,000	\$ 25,000
4	Excavation Safety Sytems (Temp Shoring)	1 LS	\$ 55,000	\$ 55,000
5	Erosion Control	1 LS	\$ 5,000	\$ 5,000
6	Dewatering	LS	\$ 5,000	\$ -
7	Lift Station Improvements	(SEE BELOW)		\$ 390,000
	Demolition	1 LS	\$ 25,000	
	144" Surge MH	1 LS	\$ 115,000	
	84" Rock Catch MH Conversion	1 LS	\$ 55,000	
	Submersible Pumps	3 EA	\$ 25,000	
	Piping	1 LS	\$ 50,000	
	Electrical Rack Canopy	1 LS	\$ 20,000	
	Odor control forced air	1 LS	\$ 20,000	
	Misc Concrete Pads	1 LS	\$ 30,000	
8	Valve Vault	1 LS	\$ 60,000	\$ 60,000
9	Flow Meter Vault	1 LS	\$ 25,000	\$ 25,000
10	Crushed Surfacing Base Course	100 TN	\$ 20	\$ 2,000
11	Gravel Backfill	150 TN	\$ 50	\$ 7,500
12	Unsuitable Excavation, Site	20 CY	\$ 60	\$ 1,200
13	Hot Mix Asphalt Paving	50 TN	\$ 180	\$ 9,000
14	Fences & Gates	140 LF	\$ 50	\$ 7,000
15	Generator and sound-attenuating enclosure	1 LS	\$ 350,000	\$ 350,000
16	Electrical and Telemetry	1 LS	\$ 140,000	\$ 140,000
17	Site Piping	1 LS	\$ 35,000	\$ 35,000
18	PUD Electrical Service Fees	1 LS	\$ 25,000	\$ 25,000

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-5
Lowell Larimer I LS Improvements**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization/Demobilization	1	LS	\$ 23,000	\$ 23,000
2	Meter & Surve Valve Vault	1	EA	\$ 18,000	\$ 18,000
3	Mag Meter and piping	1	EA	\$ 6,000	\$ 6,000
4	Surge Valve and piping	1	EA	\$ 20,000	\$ 20,000
5	Excavation	1	LS	\$ 4,500	\$ 4,500
6	Gate Valves	2	EA	\$ 1,200	\$ 2,400
7	Bypass Pumping	1	Month	\$ 12,000	\$ 12,000
8	Sound-attenuating enclosure	1	EA	\$ 200,000	\$ 200,000
	Subtotal.....				\$ 285,900
	Tax rate (10.3%).....				29,448
	Subtotal:.....				\$ 315,348
	Construction Contingency (20%)				\$ 62,652
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 378,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				\$ 113,000
	TOTAL ESTIMATED PROJECT COST:.....				\$ 491,000

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-6
Lift Station No. 3 Rehabilitation**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization/Demobilization	1	LS	\$ 16,000	\$ 16,000
2	Transfer switch	1	LS	\$ 11,000	\$ 11,000
3	Rehab existing wet well	850	SF	\$ 30	\$ 25,500
4	100 hp Motors	3	EA	\$ 50,000	\$ 150,000
5	Replace isolation valve	1	EA	\$ 1,300	\$ 1,300
	Subtotal.....				\$ 203,800
	Tax rate (10.3%).....				<u>20,991</u>
	Subtotal:.....				\$ 224,791
	Construction Contingency (20%)				<u>\$ 45,209</u>
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 270,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				<u>\$ 81,000</u>
	TOTAL ESTIMATED PROJECT COST:.....				<u><u>\$ 351,000</u></u>

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-7
Woodlands North Rehabilitation**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization/Demobilization	1	LS	\$ 8,000	\$ 8,000
2	Rehab wet well	275	SF	\$ 30	\$ 8,250
3	Replace pumps and motors	2	EA	\$ 40,000	\$ 80,000
4	Replace isolation valves	4	EA	\$ 1,300	\$ 5,200
	Subtotal.....				\$ 101,450
	Tax rate (10.3%).....				<u>10,449</u>
	Subtotal:.....				\$ 111,899
	Construction Contingency (20%)				<u>\$ 22,101</u>
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 134,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				<u>\$ 40,000</u>
	TOTAL ESTIMATED PROJECT COST:.....				<u><u>\$ 174,000</u></u>

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT LS-8
Silver Firs Rehabilitation**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization/Demobilization	1	LS	\$ 40,000	\$ 40,000
2	Rehab wet well	910	SF	\$ 30	\$ 27,300
3	Replace pumps and motors	2	EA	\$ 40,000	\$ 80,000
4	Replace isolation valves	4	EA	\$ 1,300	\$ 5,200
5	Generator with sound-attenuating enclosure	1	LS	\$ 350,000	\$ 350,000
	Subtotal.....				\$ 502,500
	Tax rate (10.3%).....				<u>51,758</u>
	Subtotal:.....				\$ 554,258
	Construction Contingency (20%)				<u>\$ 110,743</u>
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 665,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				<u>\$ 200,000</u>
	TOTAL ESTIMATED PROJECT COST:.....				<u><u>\$ 865,000</u></u>

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
LIFT STATION IMPROVEMENT GV-1
Concrete Main Rehabilitation**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization, Cleanup, and Demobilization	1	LS	\$ 26,000	\$ 26,000
2	Project Temporary Traffic Control	1	LS	\$ 20,000	\$ 20,000
3	CIPP, 8-In. Diam. w/side sewer connections	7,000	LF	\$ 40	\$ 280,000
	Subtotal.....				\$ 326,000
	Tax rate (10.3%).....				<u>33,578</u>
	Subtotal:.....				\$ 359,578
	Construction Contingency (20%)				<u>\$ 71,422</u>
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 431,000
	Engineering, Permitting, Construction, and Administrative Costs (15%):.....				<u>\$ 65,000</u>
	TOTAL ESTIMATED PROJECT COST:.....				<u><u>\$ 496,000</u></u>

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY CONSTRUCTION COST ESTIMATE
GRAVITY IMPROVEMENT GV-3
Sector 7 Gravity Main**

NO. ITEM	QUANTITY		UNIT PRICE	AMOUNT
1 Mobilization/Demobilization	1	LS	\$ 24,000	\$ 24,000
2 Survey	1	LS	\$ 5,000	\$ 5,000
3 Project Temporary Traffic Control	1	LS	\$ 2,000	\$ 2,000
4 Sawcutting Existing Pavement	1,680	LF	\$ 3	\$ 5,040
5 Locate Existing Utilities	1	LS	\$ 5,000	\$ 5,000
6 Crushed Surfacing Top Course	200	TN	\$ 40	\$ 8,000
7 Crushed Surfacing Base Course	200	TN	\$ 25	\$ 5,000
8 HMA Cl. 1/2 IN. PG 64-22	170	TN	\$ 150	\$ 25,500
9 Manhole 48 In. Diam.	2	EA	\$ 6,000	\$ 14,229
10 Connection to Existing Manhole	2	EA	\$ 4,000	\$ 8,000
11 Removal of Unsuitable Material (Trench)	100	CY	\$ 50	\$ 5,000
12 Trench Excavation Safety Systems	1	LS	\$ 10,000	\$ 10,000
13 Bank Run Gravel for Trench Backfill	1,800	TN	\$ 25	\$ 45,000
14 PVC Sanitary Sewer Pipe 12 In. Diam.	830	LF	\$ 80	\$ 66,400
15 Erosion/Water Pollution Control	1	LS	\$ 5,000	\$ 5,000
16 Bypass Pumping	1	LS	\$ 15,000	\$ 15,000
17 General Restoration	1	LS	\$ 10,000	\$ 10,000
			Subtotal	\$ 258,169
			Sales Tax (7.7%)	\$ 19,879
			Subtotal	\$ 278,048
			Construction Contingency (20%)	\$ 55,952
			Total Construction Cost (rounded)	\$ 334,000
			Engineering, Permitting, Administration (30%):	\$ 100,000
Total Project Cost (rounded)				\$ 434,000

**SILVER LAKE WATER & SEWER DISTRICT
PRELIMINARY PROJECT COST ESTIMATE
GRAVITY IMPROVEMENT GV-4
Windsong Terrace Lift Station Abandonment**

<u>NO.</u>	<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1	Mobilization, Cleanup, and Demobilization	1	LS	\$ 35,000	\$ 35,000
2	Locate Existing Utilities	1	LS	\$ 2,000	\$ 2,000
3	Trench Safety Systems	1	LS	\$ 1,500	\$ 1,500
4	Erosion Control	1	LS	\$ 1,500	\$ 1,500
5	Traffic Control	1	LS	\$ 30,000	\$ 30,000
6	8-inch PVC, Including Fittings	925	LF	\$ 150	\$ 138,750
7	48" SS Manhole	4	EA	\$ 6,000	\$ 24,000
8	Connections to Existing System	2	EA	\$ 5,000	\$ 10,000
9	Demolition of Existing Lift Station	1	LS	\$ 25,000	\$ 25,000
10	Bank Run Gravel	4,500	TN	\$ 20	\$ 90,000
11	HMA Trench Patch	220	TN	\$ 120	\$ 26,400
12	HMA Overlay	200	TN	\$ 120	\$ 24,000
13	Asphalt Planing	1,600	YD	\$ 1.50	\$ 2,400
	Subtotal.....				\$ 410,550
	Tax rate (10.3%).....				42,287
	Subtotal:.....				\$ 452,837
	Contingency (20%).....				\$ 90,163
	TOTAL ESTIMATED CONSTRUCTION COST:.....				\$ 543,000
	Engineering, Permitting, Construction, and Administrative Costs (30%):.....				\$ 163,000
	TOTAL ESTIMATED PROJECT COST:.....				\$ 706,000

APPENDIX H

FUNDING SOURCE ALTERNATIVES

Summary of Some Grant and Loan Programs for Drinking Water and Wastewater Projects

Updated 3-1-18

Type of Program	Pages
Planning	2 - 3
Pre-Construction Only	4
Construction and Design/Construction	5 - 8
Emergency	9 - 10

Please contact Cathi Read at cathi.read@commerce.wa.gov if you would like to update your program information or if you would like an electronic version of this document.

PLANNING Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
CDBG Community Development Block Grant – General Purpose Grant Fund – Planning-Only Activities	<ul style="list-style-type: none"> • Comprehensive plans • Non-routine infrastructure plans • Feasibility studies • Community action plans • Low-income housing assessments 	Projects must principally benefit low- to moderate-income people in non-entitlement cities and counties. <ul style="list-style-type: none"> • Cities or towns with fewer than 50,000 people • Counties with fewer than 200,000 people 	Grant <ul style="list-style-type: none"> • Up to \$24,000 for a single jurisdiction. 	Pending HUD CDBG funding, 2018 applications will be due in June 2018. Contact: Jeff Hinckle 360-725-3060 jeff.hinckle@commerce.wa.gov Visit www.commerce.wa.gov/cdbg for information and forms.
SOURCE WATER PROTECTION GRANT PROGRAM	Source water protection studies (watershed, hydrogeologic, feasibility studies). Projects need to identify solutions to source water protection problems, assist in implementation of protection plans, or increase or update data that directly benefits source water protection.	Non-profit Group A water systems. Local governments proposing a regional project. Project must be considered a priority for drinking water source protection by Department of Health Regional Offices.	Grants <ul style="list-style-type: none"> • Funding is dependent upon project needs, but typically does not exceed \$30,000. 	Applications accepted anytime; grants awarded on a funds available basis. Contact: Corina Hayes Source Water Protection Program Manager 360-236-3114 corina.hayes@doh.wa.gov http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWater/SourceWaterProtection.aspx
ECOLOGY: INTEGRATED WATER QUALITY FUNDING PROGRAM State Water Pollution Control Revolving Fund (SRF) Centennial Clean Water Fund	Planning projects associated with publicly-owned wastewater and stormwater facilities. The integrated program also funds planning and implementation of nonpoint source pollution control activities.	Counties, cities, towns, conservation districts, or other political subdivision, municipal or quasi-municipal corporations, and tribes	Loan interest rates (SFY 2019) <ul style="list-style-type: none"> • 6-20 year loans: 2.0% • 1-5 year loans: 1.0% Pre-Construction Set-aside (Distressed Communities) 50% forgivable principal loan and 50% loan	Applications due October 12, 2018. Contact: David Dunn 360-407-6503 david.dunn@ecy.wa.gov https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-grants-and-loans

PLANNING Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
RD PRE-DEVELOPMENT GRANTS (PPD) U.S. Dept. of Agriculture Rural Development – Rural Utilities Service – Water and Waste Disposal Direct Loans and Grants	Water and/or sewer planning; environmental work; and other work to assist in developing an application for infrastructure improvements.	Low-income, small communities and systems serving areas under 10,000 population.	Planning grant to assist in paying costs associated with developing a complete application for RD funding for a proposed project. Maximum \$30,000 grant. Requires minimum 25% match.	Applications accepted year-round, on a fund-available basis. Contact: Janice Roderick 360-704-7739 janice.roderick@wa.usda.gov http://www.rurdev.usda.gov/wa
RD ‘SEARCH’ GRANTS: SPECIAL EVALUATION ASSISTANCE FOR RURAL COMMUNITIES U.S. Dept. of Agriculture Rural Development – Rural Utilities Service – Water and Waste Disposal Direct Loans and Grants	Water and/or sewer planning; environmental work; and other work to assist in developing an application for infrastructure improvements.	Low-income, small communities and systems serving areas under 2,500 population.	Maximum \$30,000 grant. No match required.	Applications accepted year-round, on a fund-available basis. Contact: Janice Roderick 360-704-7739 janice.roderick@wa.usda.gov http://www.rurdev.usda.gov/wa
CERB PLANNING AND FEASIBILITY GRANTS Community Economic Revitalization Board – Project-Specific Planning Program	Project-specific feasibility and pre-development studies that advance community economic development goals for industrial sector business development.	Eligible statewide <ul style="list-style-type: none"> • Counties, cities, towns, port districts, special districts. • Federally recognized tribes • Municipal corporations, quasi-municipal corporations w/ economic development purposes. 	Grant <ul style="list-style-type: none"> • Up to \$50,000 per application. • Requires 25% (of total project cost) matching funds. 	Applications accepted year-round. The Board meets six times a year. Contact: Janea Delk 360-725-3151 janea.delk@commerce.wa.gov
RCAC RURAL COMMUNITY ASSISTANCE CORPORATION Feasibility and Pre-Development Loans	Water, wastewater, stormwater, and solid waste planning; environmental work; and other work to assist in developing an application for infrastructure improvements.	Non-profit organizations, public agencies, tribes, and low-income rural communities with a 50,000 population or less, or 10,000 or less if proposed permanent financing is through USDA Rural Development.	<ul style="list-style-type: none"> • Typically up to \$50,000 for feasibility loan. • Typically up to \$350,000 for pre-development loan. • Typically up to a 1-year term. • 5% interest rate. 	Applications accepted anytime. Contact: Mike Carnes 559-802-3381 mcarnes@rcac.org Applications available online at http://www.rcac.org/lending/environmental-loans/

PRECONSTRUCTION ONLY Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
<p>ECOLOGY: INTEGRATED WATER QUALITY FUNDING PROGRAM State Water Pollution Control Revolving Fund (SRF)</p> <p>Centennial Clean Water Fund</p> <p>Stormwater Financial Assistance Program (SFAP)</p>	<p>Design projects associated with publicly-owned wastewater and stormwater facilities.</p> <p>The integrated program also funds planning and implementation of nonpoint source pollution control activities.</p>	<p>Counties, cities, towns, conservation districts, or other political subdivision, municipal or quasi-municipal corporations, and tribes.</p>	<p>Loan interest rates (SFY 2019)</p> <ul style="list-style-type: none"> • 6-20 year loans: 2.0% • 1-5 year loans: 1.0% <p><u>Pre-Construction Set-aside (Distressed Communities)</u> 50% forgivable principal loan and 50% loan</p>	<p>Applications due October 12, 2018.</p> <p>SERP review and the cost effectiveness analysis must be complete at the time of application.</p> <p>Contact: David Dunn 360-407-6503 david.dunn@ecy.wa.gov</p> <p>https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-grants-and-loans</p>
<p>PWB PRE-CON Public Works Board – Pre-Construction Program</p>	<p>Low-interest loans to fund pre-construction activities that prepare a specific project for construction.</p>	<p>Counties, cities, special purpose districts, and quasi-municipal organizations that meet certain requirements.</p> <p>School districts and port districts are not eligible.</p>	<ul style="list-style-type: none"> • \$13.6 million available. • Maximum loan amount \$1 million per jurisdiction per biennium. • 5-year loan term. • Interest rates vary. • Application cycle opens once every two months until appropriated funds are exhausted. • Pre-construction work must be completed within 2 years. 	<p>Check the Public Works Board website periodically at http://www.pwb.wa.gov to obtain the latest information on program details or to contact Public Works Board staff.</p> <p>Contact: Connie Rivera 360-725-3088 connie.rivera@commerce.wa.gov</p>
<p>RCAC RURAL COMMUNITY ASSISTANCE CORPORATION Feasibility and Pre-Development Loans</p>	<p>Water, wastewater, stormwater, or solid waste planning; environmental work; and other work to assist in developing an application for infrastructure improvements.</p>	<p>Non-profit organizations, public agencies, tribes, and low-income rural communities with a 50,000 population or less, or 10,000 or less if proposed permanent financing is through USDA Rural Development.</p>	<ul style="list-style-type: none"> • Typically up to \$50,000 for feasibility loan. • Typically up to \$350,000 for pre-development loan. • Typically a 1-year term. • 5% interest rate. 	<p>Applications accepted anytime.</p> <p>Contact: Mike Carnes 559-802-3381 mcarnes@rcac.org</p> <p>Applications available online at http://www.rcac.org/lending/environmental-loans/</p>

CONSTRUCTION AND DESIGN/CONSTRUCTION Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
<p>CDBG-GP Community Development Block Grant – General Purpose Grants</p>	<ul style="list-style-type: none"> Final design and construction of wastewater, drinking water, side connections, stormwater, streets, and community facility projects. Infrastructure in support of economic development or affordable housing. Planning activities including comprehensive plans, non-routine infrastructure plans, feasibility studies, community action plans, and low-income housing assessments. 	<p>Projects must principally benefit low- to moderate-income people in non-entitlement cities and counties.</p> <ul style="list-style-type: none"> Cities or towns with fewer than 50,000 people Counties with fewer than 200,000 people 	<p>Maximum grant amounts:</p> <ul style="list-style-type: none"> \$750,000 for construction projects and acquisition projects. \$500,000 for local housing rehabilitation programs. \$250,000 for local microenterprise assistance programs. \$24,000 for planning-only activities. 	<p>Pending HUD CDBG funding, 2018 applications will be due in June 2018.</p> <p>Contact: Sheila Lee-Johnston 360-725-3009 sheila.lee-johnston@commerce.wa.gov</p> <p>Visit www.commerce.wa.gov/cdbg for information and forms.</p>
<p>RD U.S. Dept. of Agriculture Rural Development - Rural Utilities Service - Water and Waste Disposal Direct Loans and Grants</p>	<p>Pre-construction and construction associated with building, repairing, or improving drinking water, solid waste facilities and wastewater facilities.</p>	<ul style="list-style-type: none"> Cities or towns with fewer than 10,000 population. Counties, special purpose districts, non-profit corporations or tribes unable to get funds from other sources at reasonable rates and terms. 	<p>Loans; Grants in some cases</p> <ul style="list-style-type: none"> Interest rates change quarterly; contact staff for latest interest rates. Up to 40-year loan term. No pre-payment penalty. 	<p>Applications accepted year-round on a fund-available basis.</p> <p>Contact: Janice Roderick 360-704-7739 janice.roderick@wa.usda.gov http://www.rurdev.usda.gov/wa</p>

CONSTRUCTION AND DESIGN/CONSTRUCTION Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
<p>DWSRF Drinking Water State Revolving Fund</p> <p>Construction Loan Program</p>	<p>Drinking water system infrastructure projects aimed at increasing public health protection. The program now includes dedicated funding for subsidy.</p> <p>There is a limited amount of principal forgiveness for communities with high affordability index numbers and water system restructuring/ consolidation projects.</p>	<p>Community and not-for-profit non-community water systems, but not federal or state-owned systems; both privately- and publicly-owned systems are eligible.</p>	<p>Loan</p> <ul style="list-style-type: none"> • 1% loan fee (water systems receiving subsidy are not subject to loan fees). • \$3 million per jurisdiction per year. • \$6 million for jointly-owned projects. • 1.0 - 1.5% interest rate. • Loan repayment period: 20 years or life of the project, whichever is less. • No local match required. • \$20 million expected to be available this cycle. 	<p>Applications will be available and accepted October 1 through November 30, 2018.</p> <p>Contact: Janet Cherry 360-236-3153 janet.cherry@doh.wa.gov</p> <p>For information and forms visit: http://www.doh.wa.gov/DWSRF</p>
<p>ECOLOGY: INTEGRATED WATER QUALITY FUNDING PROGRAM</p> <p>State Water Pollution Control Revolving Fund (SRF)</p> <p>Centennial Clean Water Fund</p> <p>Stormwater Financial Assistance Program (SFAP)</p>	<p>Construction projects associated with publicly-owned wastewater and stormwater facilities.</p> <p>The integrated program also funds planning and implementation of nonpoint source pollution control activities.</p>	<p>Counties, cities, towns, conservation districts, or other political subdivision, municipal or quasi-municipal corporations, and tribes.</p> <p><u>Hardship Assistance</u> Jurisdictions listed above with a population of 25,000 or less.</p>	<p>Loan interest rates (SFY 2019)</p> <ul style="list-style-type: none"> • 21-30 year loans: 2.6% • 6-20 year loans: 2.0% • 1-5 year loans: 1.0% <p><u>Hardship assistance</u> for the construction of wastewater treatment facilities may be available in the form of a reduced interest rate, grant subsidy, or loan forgiveness. Hardship assistance is based on impact to residential ratepayers and the community MHI. Hardship funding is only available for the portion of a facility serving existing residential need.</p> <p><u>Stormwater grant</u> maximum award per jurisdiction: \$5 million, with a required 25% match.</p>	<p>Applications due October 12, 2018.</p> <p>SERP review and the cost effectiveness analysis must be complete at the time of application.</p> <p>Contact: David Dunn 360-407-6503 david.dunn@ecy.wa.gov</p> <p>https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-grants-and-loans</p>

CONSTRUCTION AND DESIGN/CONSTRUCTION Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
RCAC RURAL COMMUNITY ASSISTANCE CORPORATION Construction Loans	Water, wastewater, solid waste and stormwater facilities that primarily serve low-income rural communities. Can include pre-development costs.	Non-profit organizations, public agencies, tribes, and low-income rural communities with a 50,000 population or less, or 10,000 populations or less if using USDA Rural Development financing as the takeout.	<ul style="list-style-type: none"> • Typically up to \$3 million with commitment letter for permanent financing • Security in permanent loan letter of conditions • Term matches construction period. • 5% interest rate • 1% loan fee 	Applications accepted anytime. Contact: Mike Carnes 559-802-3381 mcarnes@rcac.org Applications available online at http://www.rcac.org/lending/environmental-loans/
RCAC RURAL COMMUNITY ASSISTANCE CORPORATION Intermediate Term Loan	Water, wastewater, solid waste and stormwater facilities that primarily serve low-income rural communities.	Non-profit organizations, public agencies, tribes, and low-income rural communities with a 50,000 population or less.	<ul style="list-style-type: none"> • For smaller capital needs, normally not to exceed \$100,000. • Typically up to a 20-year term • 5% interest rate • 1% loan fee 	Applications accepted anytime. Contact: Mike Carnes 559-802-3381 mcarnes@rcac.org Applications available online at http://www.rcac.org/lending/environmental-loans/
RURAL WATER REVOLVING LOAN FUND	Short-term costs incurred for replacement equipment, small scale extension of services, or other small capital projects that are not a part of regular operations and maintenance for drinking water and wastewater projects.	Public entities, including municipalities, counties, special purpose districts, Native American Tribes, and corporations not operated for profit, including cooperatives, with up to 10,000 population and rural areas with no population limits.	<ul style="list-style-type: none"> • Loan amounts may not exceed \$100,000 or 75% of the total project cost, whichever is less. Applicants will be given credit for documented project costs prior to receiving the RLF loan. • Interest rates at the lower of the poverty or market interest rate as published by USDA RD RUS, with a minimum of 3% at the time of closing. • Maximum repayment period is 10 years. Additional ranking points for a shorter repayment period. The repayment period cannot exceed the useful life of the facilities or financed item. 	Applications accepted anytime. Contact: Tracey Hunter Evergreen Rural Water of WA 360-462-9287 thunter@erwow.org Download application online: http://nrwa.org/initiatives/revolving-loan-fund/

CONSTRUCTION AND DESIGN/CONSTRUCTION Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
<p>CERB Community Economic Revitalization Board - Construction Program</p>	<p>Public facility projects required by private sector expansion and job creation.</p> <p>Projects must support significant job creation or significant private investment in the state.</p> <ul style="list-style-type: none"> • Bridges, roads and railroad spurs, domestic and industrial water, sanitary and storm sewers. • Electricity, natural gas and telecommunications • General purpose industrial buildings, port facilities. • Acquisition, construction, repair, reconstruction, replacement, rehabilitation 	<ul style="list-style-type: none"> • Counties, cities, towns, port districts, special districts • Federally-recognized tribes • Municipal and quasi-municipal corporations with economic development purposes. 	<p>Loans; grants in unique cases</p> <ul style="list-style-type: none"> • Projects without a committed private partner allowed for in rural areas. • \$2 million maximum per project, per policy. • Interest rates: 1-3% Based on Debt Service Coverage Ratio (DSCR), Distressed County, and length of loan term. • 20-year maximum loan term • Match for committed private partners: 20% (of total project cost). • Match for prospective partners: 50% (of total project cost). • Applicants must demonstrate gap in public project funding and need for CERB assistance. • CERB is authority for funding approvals. 	<p>Applications accepted year-round. The Board meets six times a year.</p> <p>Contact: Janea Delk 360-725-3151 janea.delk@commerce.wa.gov</p>
<p>PWB Public Works Board - Construction Program</p>	<p>New construction, replacement, and repair of existing infrastructure for stormwater, solid waste, recycling, road or bridge projects.</p>	<ul style="list-style-type: none"> • Counties, cities, special purpose districts, and quasi-municipal organizations. • No school districts, port districts, or tribes per statute. 	<ul style="list-style-type: none"> • There is no funding currently available. • The 2017 PWB loan list that was included for funding consideration by the 2017 legislature was approved in 2018. • The Board is updating its funding cycles, programs, and processes authorized by the passage of ESSB 1677. 	<p>Please visit: http://www.pwb.wa.gov</p> <p>Contact: Connie Rivera 360-725-3088 connie.rivera@commerce.wa.gov</p>

EMERGENCY Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
<p>RD – ECWAG U.S. Dept. of Agriculture Rural Development</p> <p>Emergency Community Water Assistance Grants</p>	<p>Domestic water projects needing emergency repairs due to an incident such as: a drought; earthquake; flood; chemical spill; fire; etc. A significant decline in quantity or quality of potable water supply that was caused by an emergency.</p>	<p>Public bodies, tribes and private non-profit corporations serving rural areas with populations under 10,000.</p>	<p>Grant; pending availability of funds</p> <ul style="list-style-type: none"> • \$150,000 limit for incident related emergency repairs to an existing water system. • \$500,000 limit to alleviate a significant decline in potable water supply caused by an emergency. 	<p>Applications accepted year-round on a fund-available basis.</p> <p>Contact: Janice Roderick 360-704-7739 janice.roderick@wa.usda.gov http://www.rurdev.usda.gov/wa</p>
<p>DWSRF Department of Health – Drinking Water State Revolving Fund</p> <p>Emergency Loan Program</p>	<p>Will financially assist eligible communities experiencing the loss of critical drinking water services or facilities due to an emergency.</p>	<ul style="list-style-type: none"> • Publicly or privately owned (not-for-profit) Group A community water systems with a population of fewer than 10,000. • Transient or non-transient non-community public water systems owned by a non-profit organization. Non-profit non-community water systems must submit tax-exempt documentation. • Water system owned by an Indian tribe. The water system must meet all capacity requirements and the proposed project may not receive Safe Drinking Water Act (SDWA) national set-aside funds for Indian tribes. 	<p>6-year loans with the following terms:</p> <ul style="list-style-type: none"> • Interest rate: 1.0–1.5% • Forgiveness: up to 75% • Loan term: 6 years • Time of performance: 2 years from contract execution to project completion date. • Repayment commencing first October after contract execution. 	<p>To be considered for an emergency loan, an applicant must submit a completed emergency application package to the department.</p> <p>Contacts: Department of Health Regional Engineers or Janet Cherry 360-236-3153 Janet.cherry@doh.wa.gov</p> <p>For information and forms visit: http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/WaterSystemAssistance/DrinkingWaterStateRevolvingFundDWSRF</p>

EMERGENCY Programs	Eligible Projects	Eligible Applicants	Funding Available	How To Apply
<p>PWB Public Works Board – Emergency Loan Program: Repair, replace, rehabilitate, or reconstruct eligible systems to current standards for existing users.</p>	<p>A public works project made necessary by a natural disaster, or an immediate and emergent threat to the public health and safety due to unforeseen or unavoidable circumstances.</p> <p>Demonstrate financial need through inadequate local budget resources.</p>	<p>Counties, cities, special purpose districts, and quasi-municipal organizations.</p> <p>No school districts, port districts, or tribes per statute.</p> <p>Water, sanitary sewer, storm water, roads, streets, bridges, solid waste, and recycling facilities.</p>	<ul style="list-style-type: none"> • Approximately \$4.8 million for emergency loan funding. • Maximum loan amount \$1 million per jurisdiction per biennium. • Application cycle is open until appropriated funds are exhausted. 	<p>Check the Public Works Board website periodically at: http://www.pwb.wa.gov to obtain the latest information on program details or to contact Public Works Board staff.</p> <p>Contact: Connie Rivera 360-725-3088 connie.rivera@commerce.wa.gov</p>
<p>RURAL WATER REVOLVING LOAN FUND Disaster area emergency loans</p>	<p>Contact staff for more information on emergency loans.</p>	<p>Public entities, including municipalities, counties, special purpose districts, Native American Tribes, and corporations not operated for profit, including cooperatives, with up to 10,000 population and rural areas with no population limits.</p>	<p>90-day, no interest, disaster area emergency loans with immediate turn-around.</p>	<p>Applications accepted anytime.</p> <p>Contact: Tracey Hunter Evergreen Rural Water of WA 360-462-9287 thunter@erwow.org</p> <p>Download application online: http://nrwa.org/initiatives/revolving-loan-fund/</p>

APPENDIX I

**LOWELL LARIMER ROAD LIFT STATION
ALTERNATIVES**



TECHNICAL MEMORANDUM

TO: CURT BREES, GENERAL MANAGER
RICK GILMORE, P.E., DISTRICT ENGINEER
FROM: MORGAN KNIGHTON
DATE: FEBRUARY 21, 2018
SUBJECT: LOWELL LARIMER AREA EXPANSION,
WASTEWATER COMPREHENSIVE PLAN
SILVER LAKE WATER & SEWER
DISTRICT, SNOHOMISH COUNTY,
WASHINGTON
G&O #16497.00

PURPOSE

The purpose of this memorandum is to determine how to best serve future development along Lowell Larimer Road in the Cross Valley Agreement Area.

BACKGROUND

The Silver Lake Water & Sewer District (District) provides sewer services for the Cross Valley Water District Agreement Area, which lies between the northeast portion of the District boundary and Lowell Larimer Road, within the Snohomish County UGA as shown on Figure 1. This area will be referred to in this memorandum as the Lowell Larimer area. The District currently owns and maintains two lift stations in the northwest portion of this area (Lowell Larimer 1 and Lowell Larimer 2). The locations of these lift stations and the extent of their existing sewer basins is shown on Figure 1.

The southeast portion of the Lowell Larimer area has yet to be served, but the District anticipates significant development and the corresponding need for new and expanded sewer basins. Since the location and timing of new developments within this area is not known, the District intends to develop a plan for siting the new lift station(s) that will allow for a flexible order of development, as well as avoiding high cumulative developer extension fees. This memorandum will evaluate potential locations for lift stations on the basis of cost efficiency and constructability; however, since these lift stations are expected to be developer funded, specific cost estimates will not be prepared.



Technical Memorandum – Lowell Larimer Area Expansion
February 21, 2018

DESIGN STANDARDS

The potential layout of gravity sewer service for the Lowell Larimer area is governed by the following District standards:

- The invert elevation (IE) shall be a minimum of 8 feet below the road surface.
- When crossing a culvert, the IE shall be at least 1.5 feet below the IE or above the crown of the culvert.
- The minimum slope shall be 0.5 percent.

BASIN DELINEATION

In order to determine the suitability of gravity service, a topographical survey of Lowell Larimer Road was conducted along the road surface and adjacent ditches, noting the invert and crown elevations of any culverts passing under the road. The survey began at the existing southeasternmost gravity sewer manhole of the Lowell Larimer 2 sewer basin, about 770 feet west of Marsh Road, and proceeded southeast along Lowell Larimer Road to the point where the road crosses the UGA boundary. In this memorandum, the locations and elevations of culverts are reported as they cross the southeast-bound lane of Lowell Larimer Road, since that is the most likely location of the gravity sewer.

Based on the survey, a center-of-road profile was created for use in laying out the future gravity mains, shown on Figures 2 and 4. Horizontal positions along this profile are measured in feet and referred to stations in the subsequent sections. On Figures 2 and 4, the surface of Lowell Larimer Road is shown in blue, with a green line marking a distance of 8.0 feet below the surface. The top and invert elevations of culverts are shown as individual points, with a third point marking a distance of 1.5 feet below the invert.

Lowell Larimer 2 Lift Station

Since constructing, operating, and maintaining new lift stations is one of the most expensive aspects of providing sewer service, the alternatives considered in the following sections are based on extending the sewer main for Lowell Larimer 2 as far southeast as possible before constructing new lift stations. In order to extend the gravity main past the two culverts located at Stations 0+53 and 4+19, construction will likely require the sewer main to cross above the culvert at Station 4+19, resulting in less than 1.5 feet of clearance



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February 21, 2018

and a depth of less than 8 feet. The route proposed on both Figures 2 and 4 allows the gravity main to be extended to Station 21+34, with the following exceptions to our original design parameters:

Station	Note
0+00 to 9+83	Gravity sewer IE is less than 8 feet below road surface, with a minimum IE of 3.5 feet below grade
0+00 to 0+53	Gravity sewer slope is 0.2%
0+53	Gravity sewer passes 10 inches below the culvert IE

There are two alternatives to this method of expanding the Lowell Larimer 2 basin. The first is to construct a new lift station at approximately Station 5+00, which would allow the gravity main to pass under the culvert at Station 4+19 before stopping at the Culvert at Station 0+53. The second alternative is to construct new culverts at deeper depths to allow the gravity main to pass over them. However, since this alternative may not be possible (depending on the surrounding surface elevations), for the purposes of this memorandum, it has been assumed that in order to avoid the expense of an additional lift station 1,500 feet away from Lowell Larimer 2, the proposed deviations from District standards will be acceptable. Development of plats in this area may be possible by avoiding the culverts and using frontage along Lowell Larimer Road for other purposes, such as storm detention.

Service to the remainder of the basin (approximately Station 20+50 east) is evaluated as Alternatives 1 and 2.

Alternative 1 – One New Lift Station

Description

The limiting factors for the location of a single lift station covering the remainder of the Lowell Larimer area (after the extension of the Lowell Larimer 2 basin) are the low elevations located at Stations 22+00 to 30+00 and at Stations 78+00 to 84+00, as shown on Figure 2. In order to stay at or near the 8-foot minimum depth in these regions, a single lift station could be placed at Station 61+68, with gravity mains extended at the minimum slope in either direction along Lowell Larimer Road. The IEs for the influent pipes to this lift station would be 33.5 feet below the road surface. However, even at this depth, the minimum IE depth for gravity sewers is 6.1 feet, which is slightly above the District's standard of 8.0 feet. The proposed location of the lift station (Lowell Larimer 3) and the extent of its sewer basin are shown on Figure 3.



Technical Memorandum – Lowell Larimer Area Expansion
February 21, 2018

Analysis

The intended benefit of serving the Lowell Larimer area with one additional lift station is to avoid the capital and future operation and maintenance costs associated with a second additional lift station. However, the depth required for the lift station in Alternative 1 would substantially increase the cost compared to a shallower lift station. Additionally, this alternative would require 3,000 feet of sewer main with a depth of greater than 20 feet below grade, which would be very expensive to install. Given the width and road condition and the suspected soil conditions in the river valley, we are not sure the gravity system would be constructible.

Alternative 2 – Two New Lift Stations

Description

In order to take advantage of the flexibility of a two-station system, the lift stations should be positioned so as to minimize the depth of the stations and the gravity mains feeding them. There are two convenient low points for this area near Stations 30+00 and 79+00, as shown on Figure 4. With the goal of placing the lift stations as close to these low points as possible, the limiting factors for these locations are the culverts at Stations 34+15 and 74+67, as well as the road surface elevations from Stations 22+00 to 30+00 and from Stations 78+00 to 84+00. The lift stations were therefore located at Stations 34+15 and 76+97 to avoid conflicts with the nearby culverts while keeping sewer depths near the required minimum. The influent IEs for these two lift stations, respectively, are 13.9 and 11.5 feet below grade. The proposed location of the lift stations (Lowell Larimer 3 and Lowell Larimer 4) and the extent of their sewer basins are shown on Figure 5.

Analysis

The location and depth of the lift stations in Alternative 2 will allow the gravity mains to follow the natural road grade for much of their length, reducing the costs associated with deep mains and wet wells. As shown on Figure 5, the force mains for the lift stations could be routed separately to the existing sewer network, which allows flexibility in construction timing.

Preferred Alternative

Of the two alternatives presented, Alternative 2 is the preferred alternative. This alternative is more constructible, which should lead to lower cost to developers, easier



maintenance access, and greater flexibility in construction sequence. The projected peak flows to the two pump stations are summarized in Table 1.

TABLE 1

Peak Hour Flow Projections

Parameter	Lowell Larimer 3	Lowell Larimer 4
Area	88 acres	77 acres
Connections at Buildout	282	247
Domestic Peak Hour Flow	51 gpm	45 gpm
Peak Hour Infiltration and Inflow	61 gpm	54 gpm
Combined Peak Hour Flow	112 gpm	98 gpm

The following analysis of potential discharge locations and downstream impacts will be performed only for Alternative 2.

FORCE MAIN ANALYSIS

For each of the two lift stations identified in Alternative 2, there are several potential discharge locations. This section addresses the physical and cost considerations associated with each force main route, shown in red with labels A, B, and C on Figure 5. Site-sensitive areas for the Lowell Larimer area are shown on Figure 6.

Since the pumping capacity of each lift station is dependent on the overall system routing, station capacity and head requirements are addressed in Scenarios 1 through 3 of the Potential Discharge Locations section of this memo.

Lowell Larimer 3

Force Main Route A

This route connects Lowell Larimer 3 to the Highlands II Lift Station, ascending 200 feet over a distance of 1,320 feet with an average grade of 15 percent. While portions of land surface on this route pass through areas marked as steep slopes, development will likely mitigate much of this through construction of roads and right-of-way. This route may also require easements, depending on the property divisions established by the developer. The advantages of this route are that it does not depend on the extension of the Lowell Larimer 2 gravity main and that it would not incur the existing latecomer fees associated with both of the existing Lowell Larimer lift stations. The disadvantage



Technical Memorandum – Lowell Larimer Area Expansion
February 21, 2018

compared to Routes B and C is that it would have much higher total dynamic head (TDH) requirements, which impacts the type of lift station constructed.

Force Main Route B

This route connects Lowell Larimer 3 to the Lowell Larimer 2 gravity sewer basin, ascending 8 feet over a distance of 1,250 feet with an average grade of less than 1 percent. This route assumes that the Lowell Larimer 2 basin has been extended as described previously in this memo. The advantage of this route is reduced construction costs and lower TDH compared to Route A.

Force Main Route C

This route connects Lowell Larimer 3 to the Lowell Larimer 4 gravity sewer basin, ascending 12 feet over a distance of 2,000 feet with an average grade of less than 1 percent. This route assumes that the Lowell Larimer 4 basin has already been constructed. The advantage of this route is reduced construction costs and lower TDH compared to Route A.

Lowell Larimer 4

Force Main Route A

This route connects Lowell Larimer 4 to the Lowell Larimer 3 gravity sewer basin, ascending 20 feet over a distance of 2,200 feet with an average grade of less than 1 percent. This route assumes the prior construction of Lowell Larimer 3. The advantage of this route is that it is shorter than Route B.

Force Main Route B

This route connects Lowell Larimer 4 to the Sector 7 gravity sewer basin, ascending 130 feet over a distance of 2,900 feet with an average grade of 5 percent and a maximum grade of approximately 15 percent. This route follows Lowell Larimer Road west to 77th Avenue SE, which avoids the need for easements; other routes may be possible. The advantage of this route is that it is not contingent on the construction of Lowell Larimer 3.

POTENTIAL DISCHARGE LOCATIONS AND DOWNSTREAM IMPACTS

Three scenarios were considered for assessing the impact of potential discharge locations on the downstream sewer network. All scenarios were tested using the dynamic flow



Technical Memorandum – Lowell Larimer Area Expansion
February 21, 2018

model described in Chapter 6 of the Wastewater Comprehensive Plan. The flows used in the analysis are based on infiltration and inflow (I/I) from a peak-hour storm and the domestic sewer flows from populations at buildout.

Design criteria are provided for the Lowell Larimer 3 and 4 Lift Stations in each scenario. Total dynamic head for the force mains is estimated using the Hazen Williams equation with an assumed C value of 140.

Scenario 1

In Scenario 1, Lowell Larimer 3 discharges to Highlands II (Figure 5, Route A) and Lowell Larimer 4 discharges to Sector 7 (Figure 5, Route B). The maximum incoming flows to the affected downstream lift stations are shown in Table 2. Although peak flows to Lift Station 3 briefly exceed the existing lift station pump rate (3,000 gpm), the District has identified a project to increase Lift Station 3 capacity in 2020. A summary of the performance criteria for the two proposed lift stations is provided in Table 3.

TABLE 2

Maximum Incoming Flow of Affected Lift Stations, Scenario 1

Lift Stations	Lift Station Capacity	2015 Flows	Existing Buildout⁽¹⁾ (No Lowell Larimer Flows)	New Flow from Lowell Larimer	Revised Buildout⁽¹⁾
Highlands II	300 gpm	35 gpm	49 gpm	125 gpm	174 gpm
Highlands	300 gpm	154 gpm	175 gpm	114 gpm	289 gpm
Sector 7	1,400 gpm ⁽²⁾	400 gpm	836 gpm	125 gpm	961 gpm
Lift Station 3	3,200 gpm ⁽³⁾	2,346 gpm	3,109 gpm	22 gpm ⁽⁴⁾	3,131 gpm

- (1) Includes capital and operational improvements recommended in Chapters 6 and 8 of the Wastewater Comprehensive Plan.
- (2) While the rated capacity of Sector 7 is 1,800 gpm, the flow was limited to 1,400 gpm in the model in order to avoid surcharging the gravity sewer downstream of the force main outfall.
- (3) The District plans to increase the capacity of Lift Station 3 from 3,000 to 3,200 gpm in 2020.
- (4) Lowell Larimer 3 and 4 flows are accommodated by the existing Highlands II and Sector 7 Lift Stations, so their impact on Lift Station 3 is negligible.



TABLE 3

Design Criteria for Scenario 1

Lowell Larimer 3	
Receiving Station	Highlands II
Required Flow	125 gpm
Force Main Diameter	4 inches
Force Main Length	1,320 feet
Static Head	200 feet
Total Dynamic Head	213 feet
Total Lift Stations to SEI ⁽¹⁾	5
Lowell Larimer 4	
Receiving Station	Sector 7
Required Flow	125 gpm
Force Main Diameter	4 inches
Force Main Length	2,900 feet
Static Head	130 feet
Total Dynamic Head	159 feet
Total Lift Stations to SEI ⁽¹⁾	4

(1) Total count of lift stations in the chain until discharge into the South End Interceptor.

Scenario 2

In Scenario 2, Lowell Larimer 3 discharges to Lowell Larimer 4 (Figure 5, Route C) and Lowell Larimer 4 discharges to Sector 7 (Figure 5, Route B). The maximum incoming flows to the affected downstream lift stations are shown in Table 4. Although peak flows to Lift Station 3 briefly exceed the lift station pump rates (see “Revised Buildout” column), they are attenuated in the wet well and do not surcharge the upstream gravity mains. A summary of the performance criteria for the two proposed lift stations is provided in Table 5.



TABLE 4

Maximum Incoming Flow of Affected Lift Stations, Scenario 2

Lift Stations	Lift Station Capacity	2016 Flows	Existing Buildout⁽¹⁾ (no Lowell Larimer flows)	New Flow from Lowell Larimer	Revised Buildout⁽¹⁾
Lift Station 3	3,200 gpm ⁽²⁾	2,346 gpm	3,109 gpm	104 gpm	3,213 gpm ⁽³⁾
Sector 7	1,400 gpm ⁽⁴⁾	400 gpm	836 gpm	250 gpm	1,086 gpm

- (1) Includes capital and operational improvements recommended in Chapters 6 and 8 of the Wastewater Comprehensive Plan.
- (2) The District plans to increase the capacity of Lift Station 3 from 3,000 to 3,200 gpm in 2020.
- (3) This peak flow occurs very briefly and is accommodated in the wet well volume of the lift station.
- (4) While the rated capacity of Sector 7 is 1,800 gpm, the flow was limited to 1,400 gpm in the model in order to avoid surcharging the gravity sewer downstream of the force main outfall.

TABLE 5

Design Criteria for Scenario 2

Lowell Larimer 3	
Receiving Station	Lowell Larimer 4
Required Flow	125 gpm
Force Main Diameter	4 inches
Force Main Length	2,000 feet
Static Head	12 feet
Total Dynamic Head	32 feet
Total Lift Stations to SEI ⁽¹⁾	5
Lowell Larimer 4	
Receiving Station	Sector 7
Required Flow	250 gpm
Force Main Diameter	6 inches
Force Main Length	2,900 feet
Static Head	130 feet
Total Dynamic Head	145 feet
Total Lift Stations to SEI ⁽¹⁾	4

- (1) Total count of lift stations in the chain until discharge into the South End Interceptor.



Technical Memorandum – Lowell Larimer Area Expansion
February 21, 2018

Scenario 3

In Scenario 3, Lowell Larimer 3 discharges to Lowell Larimer 2 (Figure 5, Route B) and Lowell Larimer 4 discharges to Lowell Larimer 3 (Figure 5, Route A). The maximum incoming flow to the affected downstream lift stations are shown in Table 6. A summary of the performance criteria for the two proposed lift stations is provided in Table 7.

TABLE 6

Maximum Incoming Flow of Affected Lift Stations, Scenario 3

Lift Stations	Lift Station Capacity	2015 Flows	Existing Buildout⁽¹⁾ (no Lowell Larimer flows)	New Flow from Lowell Larimer	Revised Buildout⁽¹⁾
Lowell Larimer 1	1,100 gpm	421 gpm	741 gpm	109 gpm	850 gpm
Lowell Larimer 2	665 gpm	76 gpm	420 gpm	250 gpm	670 gpm
Waldenwood	1,000 gpm	1,230 gpm ⁽²⁾	1,175 gpm ⁽²⁾	0 gpm ⁽³⁾	1,175 gpm ⁽²⁾

- (1) Includes capital and operational improvements recommended in Chapters 6 and 8 of the Wastewater Comprehensive Plan.
- (2) This peak flow occurs very briefly and is accommodated in the wet well volume of the lift station.
- (3) Lowell Larimer 3 and 4 flows are accommodated by the existing Lowell Larimer 1 and 2 Lift Stations, so their impact on Waldenwood is negligible.



TABLE 7

Design Criteria for Scenario 3

Lowell Larimer 3	
Receiving Station	Lowell Larimer 2
Required Flow	250 gpm
Force Main Diameter	6 inches
Force Main Length	1,250 feet
Static Head	8 feet
Total Dynamic Head	14 feet
Total Lift Stations to SEI ⁽¹⁾	4
Lowell Larimer 4	
Receiving Station	Lowell Larimer 3
Required Flow	125 gpm
Force Main Diameter	4 inches
Force Main Length	2,200 feet
Static Head	20 feet
Total Dynamic Head	42 feet
Total Lift Stations to SEI ⁽¹⁾	5

(1) Total count of lift stations in the chain until discharge into the South End Interceptor.

Summary

The design criteria for the three scenarios is summarized in Table 8.



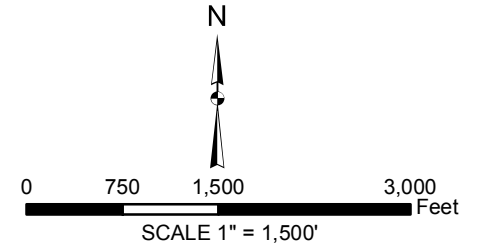
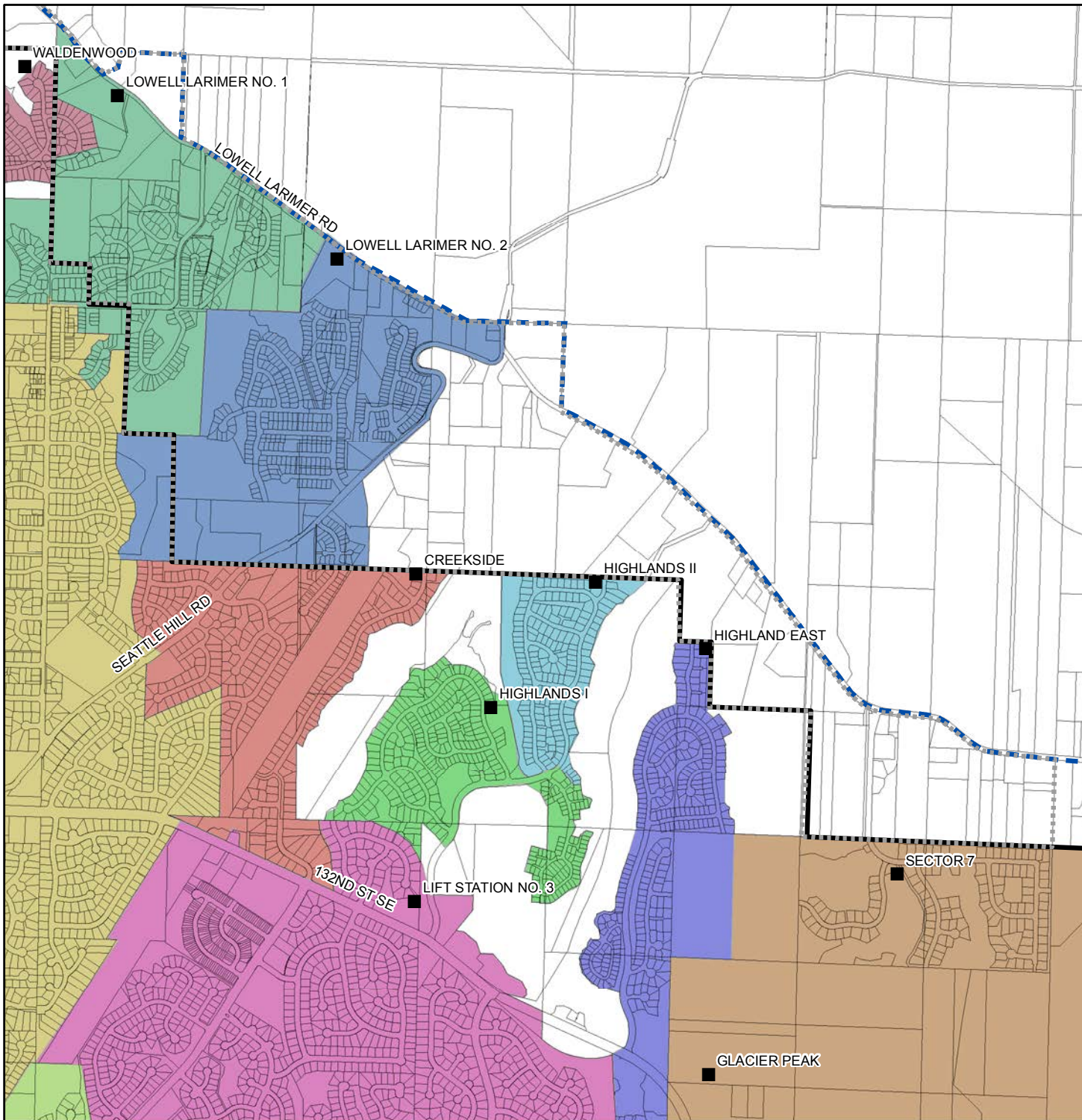
TABLE 8
Design Criteria Summary

Parameter	Scenario 1	Scenario 2	Scenario 3
Lowell Larimer 3			
Receiving Station	Highlands II	Lowell Larimer 4	Lowell Larimer 2
Required Flow	125 gpm	125 gpm	250 gpm
Force Main Diameter	4 inches	4 inches	6 inches
Force Main Length	1,320 feet	2,000 feet	1,250 feet
Static Head	200 feet	12 feet	8 feet
Total Dynamic Head	213 feet	32 feet	14 feet
Total Lift Stations to SEI ⁽¹⁾	5	5	4
Lowell Larimer 4			
Receiving Station	Sector 7	Sector 7	Lowell Larimer 3
Required Flow	125 gpm	250 gpm	125 gpm
Force Main Diameter	4 inches	6 inches	4 inches
Force Main Length	2,900 feet	2,900 feet	2,200 feet
Static Head	130 feet	130 feet	20 feet
Total Dynamic Head	159 feet	145 feet	42 feet
Total Lift Stations to SEI ⁽¹⁾	4	4	5

(1) Total count of lift stations in the chain until discharge into the South End Interceptor.

CONCLUSIONS AND RECOMMENDATIONS

The Lowell Larimer area will be best served by two lift stations located approximately as shown on Figure 5. Five force main routes have been evaluated for connecting these two lift stations to the existing sewer network. Discharges through any of these routes are within the capacity of the downstream sewer network. The District may select from among these routes based on the sequence of development and preference of the developers.



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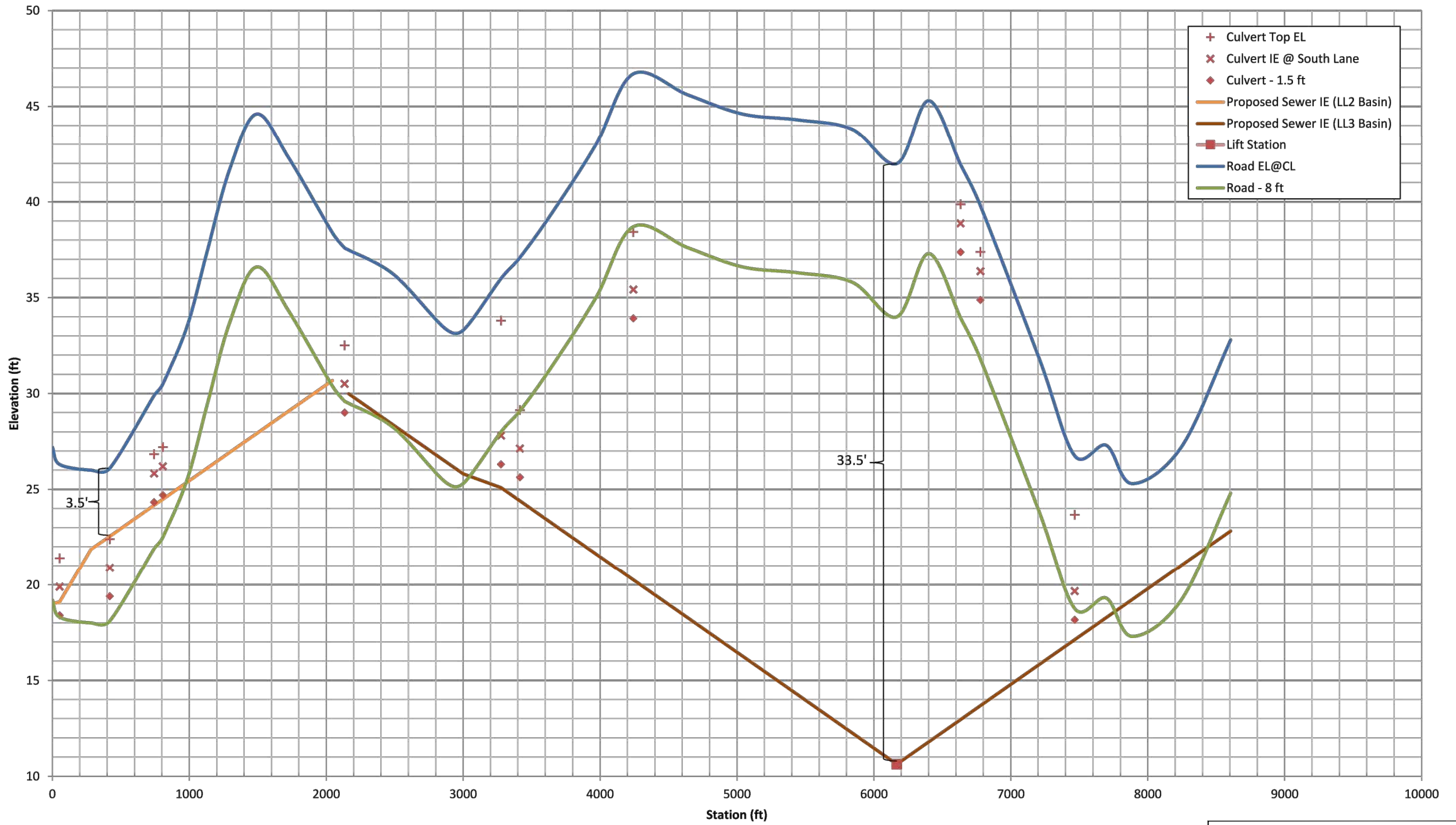
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- - - STUDY AREA
- - - SLWSD BOUNDARY
- - - CROSS VALLEY AGREEMENT AREA
- BASIN NAME**
- CREEKSIDE
- HIGHLANDS
- HIGHLANDS EAST
- HIGHLANDS II
- LIFT STATION NO. 2
- LIFT STATION NO. 3
- LOWELL LARIMER NO. 1
- LOWELL LARIMER NO. 2
- SECTOR 7
- SILVER FIRS
- WALDENWOOD

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 APPENDIX I
 FIGURE 1
 LOWELL LARIMER AREA VICINITY MAP



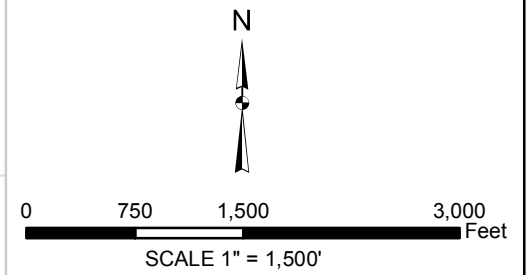
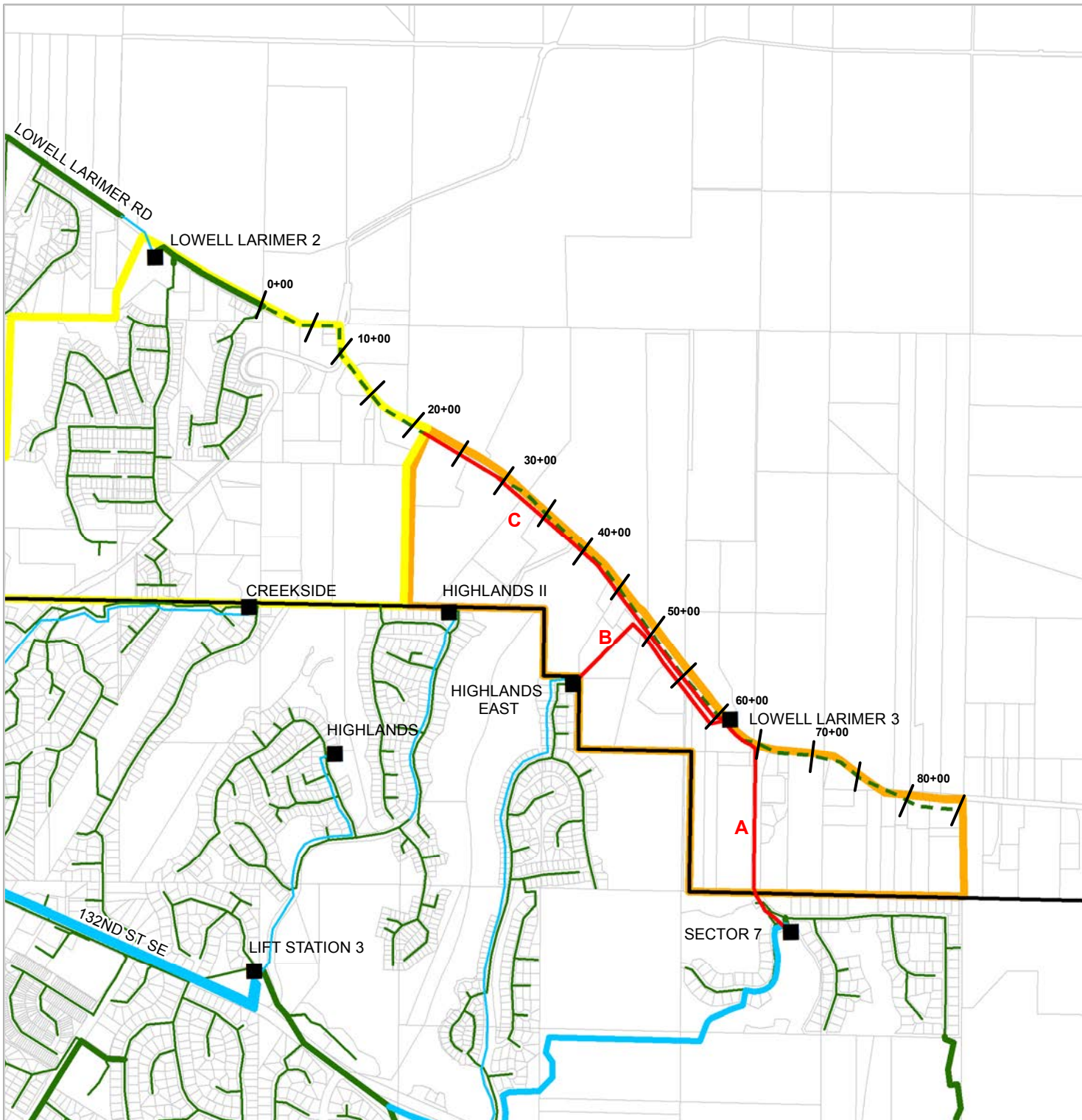
Gray & Osborne, Inc.
 CONSULTING ENGINEERS

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SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN
APPENDIX I
FIGURE 2
LOWELL LARIMER SEWER PROFILE
ALTERNATIVE 1

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LEGEND:

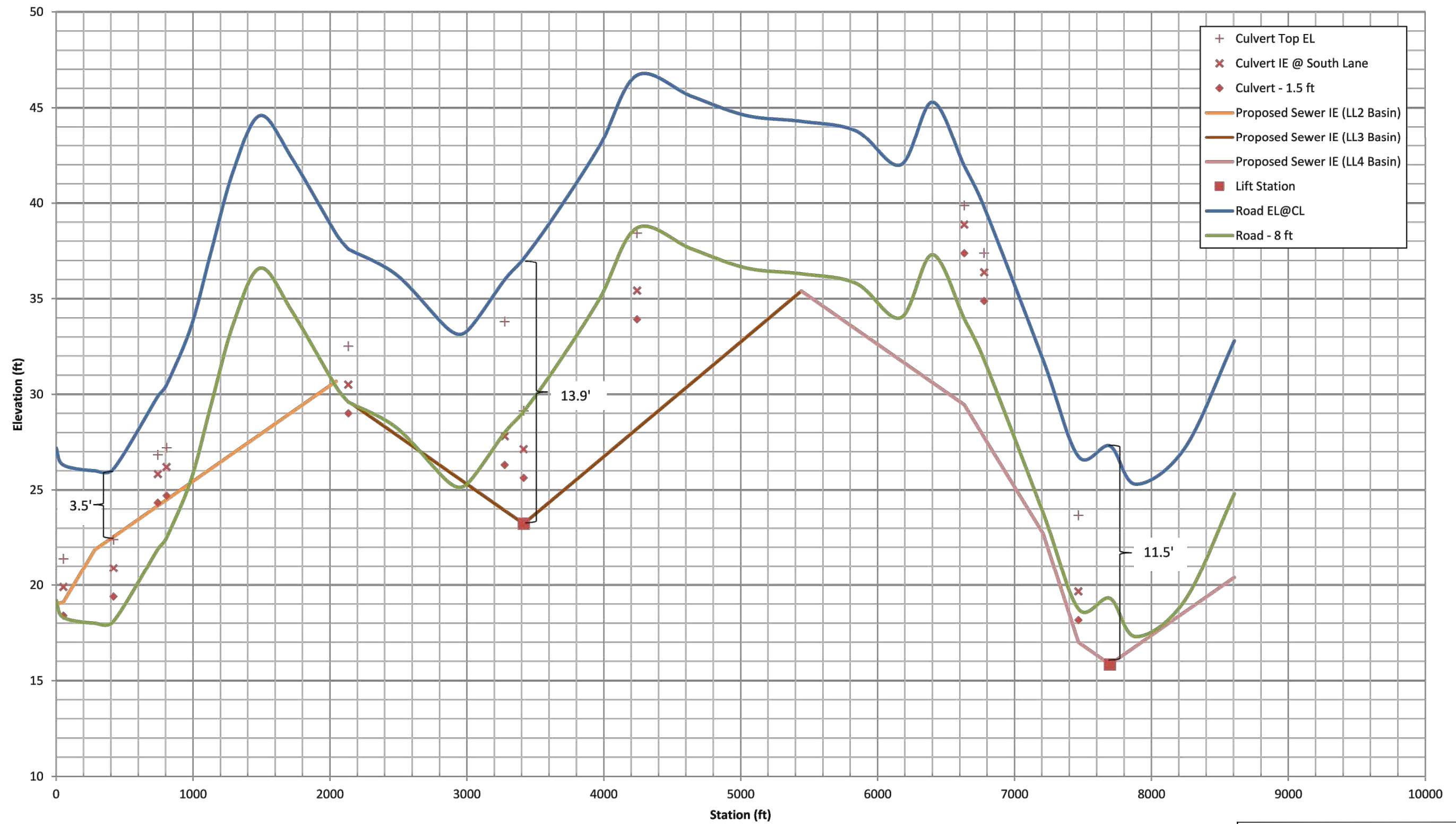
- LIFT STATION
- NEW FORCE MAIN
- ▭ PARCELS
- ▭ DISTRICT BOUNDARY
- EXISTING FORCE MAIN DIAMETER:**
- 8-INCH OR LESS
- 10-INCH OR MORE
- NEW GRAVITY SEWER
- EXISTING GRAVITY SEWER DIAMETER:**
- 8-INCH OR LESS
- 10-INCH OR MORE
- SEWER BASINS:**
- ▭ LOWELL LARIMER 2 BASIN
- ▭ LOWELL LARIMER 3 BASIN

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 APPENDIX I
 FIGURE 3

ALTERNATIVE 1 BASIN MAP

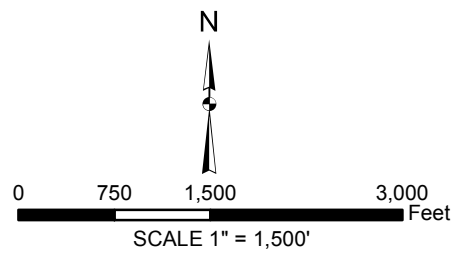
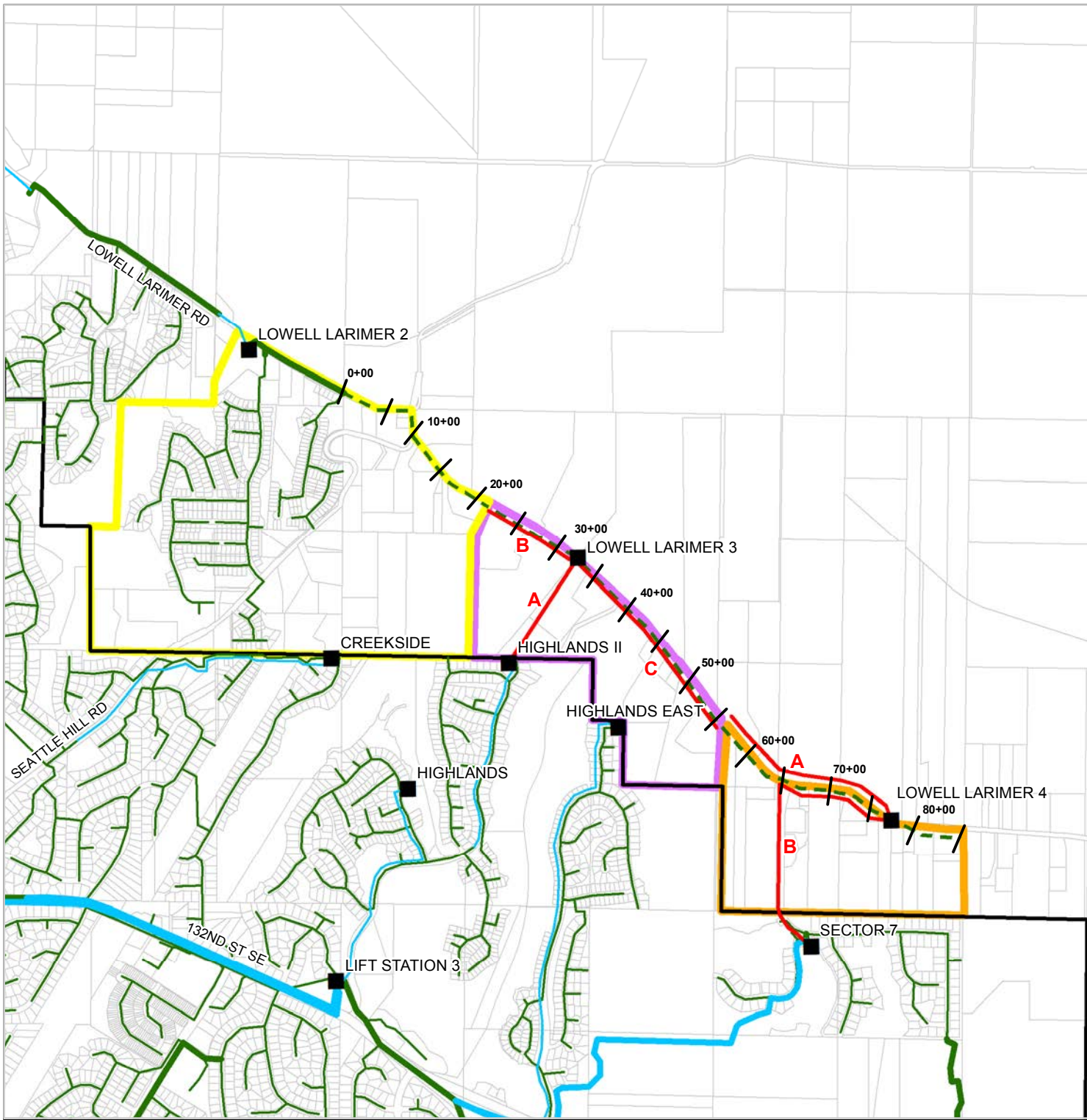


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SILVER LAKE WATER & SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN
APPENDIX I
FIGURE 4
LOWELL LARIMER SEWER PROFILE
ALTERNATIVE 2

Gray & Osborne, Inc.
CONSULTING ENGINEERS



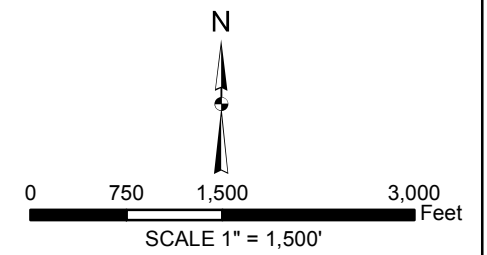
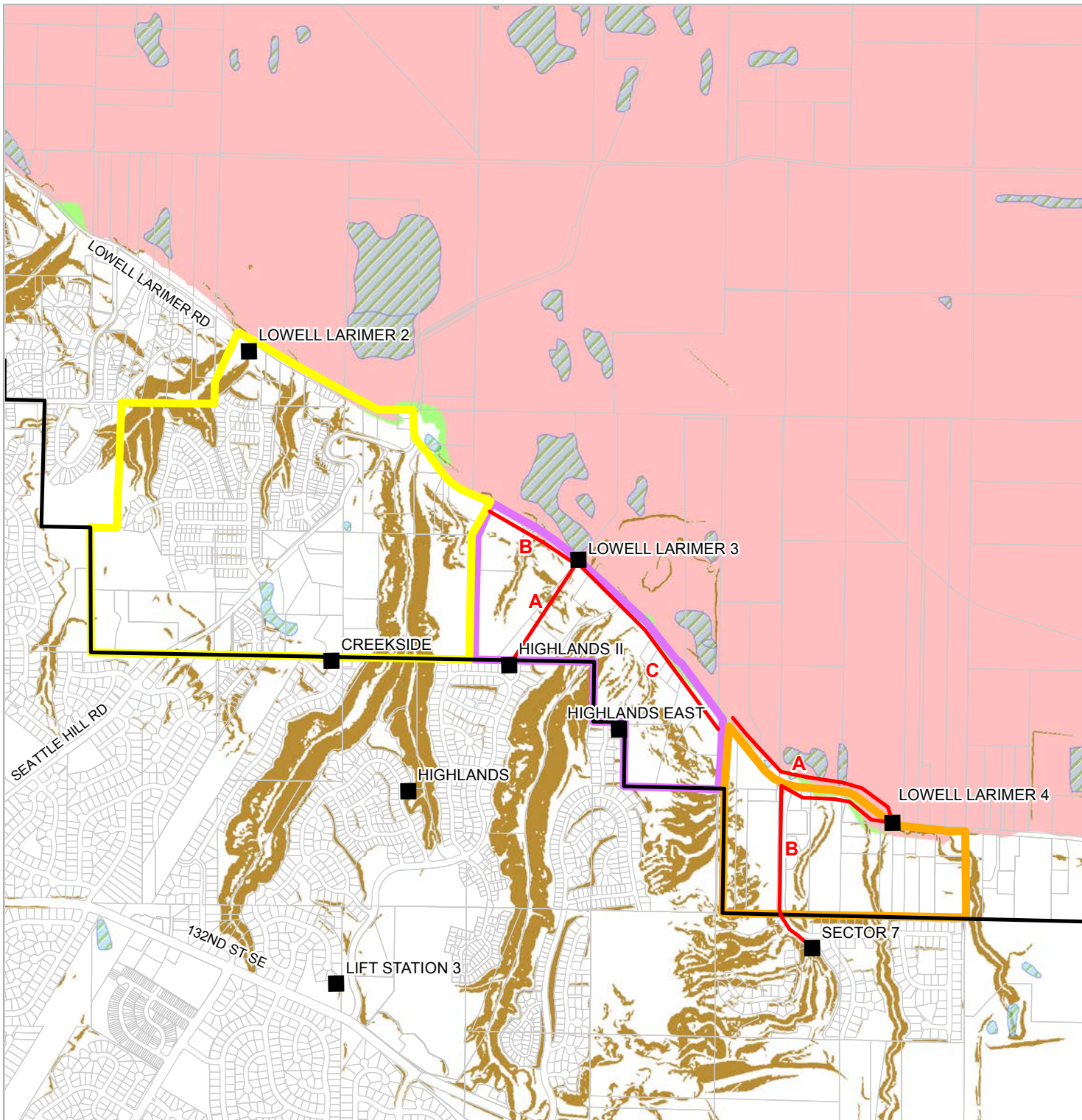
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- LIFT STATION
- - - NEW GRAVITY SEWER
- NEW FORCE MAIN
- ▭ DISTRICT BOUNDARY
- ▭ PARCELS
- EXISTING FORCE MAIN DIAMETER:**
- 8-INCH OR LESS
- 10-INCH OR MORE
- EXISTING GRAVITY SEWER DIAMETER:**
- 8-INCH OR LESS
- 10-INCH OR MORE
- SEWER BASINS:**
- ▭ LOWELL LARIMER 2 BASIN
- ▭ LOWELL LARIMER 3 BASIN
- ▭ LOWELL LARIMER 4 BASIN

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 APPENDIX I
 FIGURE 5

ALTERNATIVE 2 BASIN MAP





LEGEND:

- LIFT STATION
- NEW FORCE MAIN
- ▭ DISTRICT BOUNDARY
- ▭ PARCELS
- SEWER BASINS:**
- ▭ LOWELL LARIMER 2 BASIN
- ▭ LOWELL LARIMER 3 BASIN
- ▭ LOWELL LARIMER 4 BASIN
- SITE SENSITIVE AREAS**
- ▨ WETLANDS
- ▨ STEEP SLOPE
- FEMA ZONE**
- ▭ 100-YEAR FLOOD PLAIN
- ▭ 500-YEAR FLOOD PLAIN

SILVER LAKE WATER & SEWER DISTRICT
 WASTEWATER COMPREHENSIVE PLAN
 APPENDIX I
 FIGURE 6

SITE SENSITIVE AREAS



APPENDIX J

COMMENT AND APPROVAL LETTERS



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

January 7, 2019

Mr. Curt Brees
District's General Manager
Silver Lake Water and Sewer District (SLWSD)
PO Box 13888
Mill Creek, WA 98082

Re: Silver Lake Water and Sewer General Sewer Plan (December 2018)

Dear Mr. Brees:

Pursuant to RCW 90.48.110 and WAC 173-240-010 through 180, the Department of Ecology (Ecology) has reviewed the above-referenced general sewer plan. This letter transmits our approval of the plan. Nothing in this approval shall be construed as satisfying other applicable federal, state or local statutes, ordinances or regulations. A copy of the Plan's cover page with Ecology's approval stamp is included with this approval letter.

Sewage collection facilities within the planning area boundary shall be constructed according to the approved general sewer plan or amendments thereto. Prior to construction, the District is required to submit a written description of the project and written assurance that the extension is in conformance with the general sewer plan. Engineering reports and plans and specifications for planned collection facilities including sewer line extensions and pump stations, need not be submitted for approval, unless:

- a) The proposed sewers or pump stations involve installation of overflows or bypasses; or
- b) The proposed sewers or pump stations discharge to an overloaded treatment, collection, or disposal facility.

If you have any questions concerning this approval, please contact Lazaro Eleuterio at lazaro.eleuterio@ecy.wa.gov or 425-649-7027.

Sincerely,

Rachel McCrea
Water Quality Section Manager
Northwest Regional Office

RM:le

cc: Eric Delfel, P.E; Gray & Osborne, Inc.
Rick Gilmore, District Engineer, SLWSD





**Silver Lake Water
& Sewer District**



SILVER LAKE WATER & SEWER DISTRICT Wastewater Comprehensive Plan

**APPROVED
DEPARTMENT OF ECOLOGY**

SIGNATURE

Wazana Luten

DATE

1.7.2019

E&O #16497
December 2018



Gray & Osborne, Inc.

SILVER LAKE WATER & SEWER DISTRICT

SNOHOMISH COUNTY

WASHINGTON



WASTEWATER COMPREHENSIVE PLAN



G&O #16497
DECEMBER 2018



Gray & Osborne, Inc.
CONSULTING ENGINEERS



May 2, 2018

Curt Brees, General Manager
Silver Lake Water & Sewer District
PO Box 13888
Mill Creek, WA 98082

Subject: Silver Lake Water & Sewer District
March 2018 Wastewater Comprehensive Plan

Dear Mr. Brees:

The Snohomish Health District has reviewed the Silver Lake Water & Sewer District's 2018 Wastewater Comprehensive Plan. The updated plan will enhance the District's ability to meet the present and future demands for municipal sewer service within its service area.

This wastewater system plan has my approval as required by the provisions of Title 57.16.010 RCW.

Sincerely,

Mark Beatty, MD, MPH
Health Officer

MB/bas:jg

cc: Randy Sleight, Snohomish County Planning & Development Services
Gray & Osborne, Inc., 701 Dexter Avenue North, Seattle WA 98109



Snohomish County
Planning and Development Services

Dave Somers
County Executive

Barb Mock, Interim Director
3000 Rockefeller Avenue M/S #604
Everett, WA 98201-4046
(425) 388-3311 FAX (425) 388-3832+

July 16, 2018

Gray & Osborne, Inc.
Attn: Eric Delfel, P.E.
701 Dexter Avenue N., Suite 200
Seattle, WA 98109

Subject: Snohomish County Response to Draft Submittal – Silver Lake Water and Sewer District
Wastewater Comprehensive Plan, March 2018

Dear Mr. Delfel,

On behalf of Snohomish County, we appreciate the opportunity to review the Silver Lake Water and Sewer District's Draft 2018 Wastewater Comprehensive Plan. The plan updates the District's 2011 plan.

The county has reviewed the draft wastewater plan for consistency with the county's comprehensive land use plan and population growth targets. This consistency between plans is a requirement of the Growth Management Act when external agencies are the providers of services necessary to support development. The county must be able to determine that adequate services are provided to support the anticipated population growth and corresponding land uses. With these considerations in mind, the county's comments are attached to this letter.

Once the necessary revisions are complete, please coordinate submitting the final plan with Debbie Eco, Clerk of the Council (phone 425-388-7038) to begin the 90 day process for County Council final acceptance of the plan pursuant to RCW 57.02.040. To facilitate our final review, the County prefers that electronic copies be submitted rather than hard copies.

Thank you for the opportunity to comment on this draft comprehensive wastewater plan.

Sincerely,

Terri Strandberg, Principal Planner
Snohomish County Planning and Development Services

Attachment

cc: Randy Sleight, Chief Engineering Officer, Planning and Development Services
Debbie Eco, Clerk of the Council
Doug McCormick, County Engineer, Public Works
Bruce Straughn, Snohomish Health District

Service Area Boundaries

1. In review of the plan it is apparent that the wastewater service area boundary does not exactly coincide with SLWSD's water service area boundary or with the Cross Valley Water and Wastewater District (CVWD) and Alderwood Water and Wastewater District (AWWD) boundaries, however it appears that these boundary discrepancies are being reflected in separate agreements between adjoining purveyors to accommodate available infrastructure and topographic constraints.
2. Under the Growth Management Act, delivery of sewer service outside of the Urban Growth Area (UGA) is prohibited except under very specific criteria. If actual service (not just the service area boundary) has been extended outside of the UGA, an explanation of the circumstances is necessary.

Land Use Maps

3. As with the water plan reviewed by the county in 2017, the land use map, Figure 2-4, shows the land use plans from the City of Mill Creek outside of the city limits. All unincorporated areas, regardless of the UGA assignment to a specific city, should show the county's land use designations. The city designations have no regulatory authority outside of the city limits. Until the city has annexed its entire UGA, the county plan prevails. This may also affect the analysis used to prepare data for Tables 2-2 and 2-3.

Population Projections

4. The district's methodology for projecting population growth to 2036 using a weighted average of the FAZ level population growth rates from PSRC's 2015 FAZ data to develop a district-specific population growth forecast appears to be reasonable. The results show that the district's population growth assumptions can handle the county's projected population growth for the area (as represented in our MAZ forecasts) for the 2035 growth alternative selected by the County Council for the 2015 update.
5. **Page 2-6:** Footnote 3 to Table 2-2 says "Assumes former Cathcart property will not be developed as presented in *Introducing a New Vision for Green Communities*, Snohomish County, and will be maintained as open for public use."

Previous feedback from DPW has indicated that the County does intend to sell the property for future development consistent with the county-adopted mixed land use and zoning designations. As such, the District should take another look at their characterization of the longer-term holding capacity estimates of potential growth in the district (and perhaps reconsider using the higher holding capacity figure from the District's 2011 Wastewater plan, shown in Table 2-8 on page 2-14, when it assumed the Cathcart property would develop). Also, it appears that a revision to Table 2-2 may be necessary in light of the statement made at the bottom of page E-1: "The former Cathcart Landfill property is within the current District boundary. For the purposes of estimating flows at buildout, this report assumes that the property will be developed as presented in the 2015 *Snohomish County GMA Comprehensive Plan*, with zoning for commercial, industrial, and residential land uses."

6. **Page 2-6:** Footnote 4 should say: "Assumes that zoning for the area outside the Snohomish County Urban Growth Area (UGA) will ultimately be included in the UGA GMA and will be developed at 5 dwelling units/acre until such time that the UGA is extended. If this UGA expansion occurs, these areas would be re-designated to a minimum density of 4 to 6 dwelling units per acre."

If the District wants to analyze the future potential of the study area under a UGA expansion scenario, evaluation of one dwelling unit per 5 acres may seriously underestimate the future demand and resulting wastewater volumes and conveyance system.

7. **Page 2-11:** First sentence under PROJECTED POPULATION refers to a 2006 PSRC small area forecast, however, Table 2-5 below it refers to data from a 2015 PSRC Small Area Forecast.
8. **Page 2-13:** Table 2-7, left column, should say: "Snohomish County (Outside UGA GMA)."

Franchise Agreements

9. Under the Local Permits section (page 3-9), see the following edits, clarifying types of agreements and permits.

LOCAL PERMITS The District has franchise agreements with Snohomish County and the City of Mill Creek to allow construction and maintenance of facilities in their respective right of ways. Under these agreements, a Right-of-Way Use Permit is issued that specifies construction standards such as traffic control, work hours, and safety issues, as well as design and restoration standards. Depending on the type of project, local jurisdictions may require other permits, such as conditional use permits, building permits, and ~~((grading permits))~~ land disturbing activity permits.

Engineering

10. There was little or no hydraulic information in the plan to be able to assess the individual conveyance lines to see whether they are large enough to assume the needed capacity given the underlying land use. In the vicinity of 128th St SW where the Urban Center designation exists it appears that flow swapping is necessary with AWWD to accommodate the planned growth in that area and even so upgrades of the infrastructure may be necessary in location of flatter gradients to minimize surcharge during heavy rainfall events where higher infiltration and inflow is possible.
11. Flow data was available in the plan for the pump stations and the idea of the district continuing to use the Smith and Loveless pump stations is fine as those are well known and used in much of south county.
12. It appears that the service area outside the UGA which is providing sewerage capability to Farm Worker Housing in the flood plain may be counter to the Counties and FEMA flood hazard regulations and land disturbing activity requirements. An analysis is prepared at the end of the report to assess sewerage needs to service these areas. Since these areas are well below the 100 year flood plain elevation currently, this area to the north of Lowell Larimer road and within the flood plain would be at continual risk of flooding, inundation and overtaxing any sewer system. The lowest invert elevations shown would be pumping river flows during or after a flood event into the force main system to Everett from a pump station at the location proposed in one of the scenarios.
13. The most significant policy issue that the plan cites in one location calls for all review and approval of sewer plans to have to receive King County approval prior to any further development in the SLWSD. AWWD does not have this same sort of language in this plan.



December 7, 2018

Ms. Terri Strandberg
Principal Planner
Snohomish County Planning & Development Services
3000 Rockefeller Avenue, Stop 604
Everett, Washington 98201

SUBJECT: RESPONSES TO COMMENTS, WASTEWATER COMPREHENSIVE
PLAN
SILVER LAKE WATER & SEWER DISTRICT,
SNOHOMISH COUNTY, WASHINGTON
G&O #16497.00

Dear Ms. Strandberg:

The following are responses to your comments on the Silver Lake Water & Sewer District Wastewater Comprehensive Plan provided to us in a letter dated July 16, 2018. We have included a copy of this letter for your use. Our responses are numbered to correspond with your numbered comments in your letter.

1. Noted.
2. The District does not intend to provide sewer service outside the UGA. Since this is a long-term planning document, the District has identified areas that could be served if the UGA were to be revised in the future.
3. We have updated Figure 2-4, comparable to the Comprehensive Water System Plan. A copy of the revised figure is enclosed for your review.
4. Noted.
5. Footnote 3 is in error. The land use numbers presented in Table 2-2 assume the land uses shown on Figure 2-4. We have deleted the reference to Footnote 3.
6. We have changed this footnote to say the following: "Currently this area is outside the UGA and cannot be sewered. If UGA expansion occurs, it is assumed that these areas would be re-designated to a minimum density of 4 to 6 dwelling units per acre. For this analysis, an average density of 5 dwelling units per raw acre is assumed."
7. The reference in the text has been changed to the 2015 small area forecast.
8. Corrected as requested.



Ms. Terri Strandberg
December 7, 2018
Page 2

9. Recommended corrections have been made.
10. Deficiencies in the collection system, including lift station and sewer mains, were identified in Chapter 6. The flow-swap area you have identified is controlled by an AWWD lift station which was modeled. It has been determined SLWSD has adequate capacity to serve this area in its existing gravity system.
11. Noted.
12. The report in the back of the Plan is intended to determine how to serve areas south of Lowell-Larimer Road inside the UGA. These areas, and lift stations that serve these areas, will be designed and constructed by developers with oversight and approval from the District. A tight sewer system will be needed to ensure that infiltration and inflow into the sewer system are avoided during flood events. Special design considerations, such as raised wet well surfaces above the 100-year flood level, may be necessary to ensure floodwater does not overtop lift stations and create the conditions you describe. We agree it is a concern, but also understand that the District has a duty to serve this area as it is inside the Snohomish County UGA.
13. This design standard is in reference to pretreatment requirements since King County is the end treatment system for the wastewater. Because AWWD does not treat sewage from SLWSD, the same reference is not made for AWWD.

If these responses are adequate, we will provide you with an updated copy of the Plan, including the incorporated changes.

Please contact me if you have any questions or concerns.

Sincerely,

GRAY & OSBORNE, INC.

Eric Delfel, P.E.

ED/hh
Encl.

cc: Mr. Rick Gilmore, District Engineer, Silver Lake Water & Sewer District
Mr. Randy Sleight, P.E., Chief Engineering Officer, Snohomish County Planning
& Development Services

SNOHOMISH COUNTY COUNCIL
Snohomish County, Washington

AMENDED MOTION NO. 19-051

CONCERNING APPROVAL OF THE SILVER LAKE WATER AND SEWER DISTRICT
WASTEWATER COMPREHENSIVE PLAN, DECEMBER 2018

WHEREAS, the Silver Lake Water and Sewer District prepared and submitted the 2018 Wastewater Comprehensive Plan on January 8, 2019, to the Snohomish County Council; and

WHEREAS, RCW 57.16.010 requires that water and sewer districts adopt a comprehensive plan prior to incurring indebtedness or ordering improvements, and that the comprehensive plan be approved by the county legislative authority before becoming effective; and

WHEREAS, the specific criteria for review of wastewater system comprehensive plans are outlined in RCW 57.02.040 and WAC 173-240-050; and

WHEREAS, the Snohomish Health District, the County Engineer and the Washington State Department of Ecology have reviewed the plan amendment and given approval as required by Title 57 RCW; and

WHEREAS, the District's 2018 Wastewater Comprehensive Plan has been reviewed by Planning and Development Services and comments were submitted to the District; and

WHEREAS, the District responded to the county's comments by revising the draft plan; and

WHEREAS, the District's 2018 Wastewater Comprehensive Plan is now found to be consistent with the County's adopted GMA Comprehensive Plan;

NOW, THEREFORE, ON MOTION:


- A. The County Council finds that the proposed Silver Lake Water and Sewer District 2018 Comprehensive Wastewater Comprehensive Plan is in compliance with the applicable criteria for approval prescribed in RCW 57.02.040, as outlined below.
 - 1) The proposed action is consistent with the county comprehensive plan.
 - 2) There is no separate state-approved basin-wide wastewater system plan for this area.

- 3) There is no separate county general plan for wastewater systems covering the Silver Lake Water and Sewer District's service area.
- 4) The county engineer and Snohomish Health District officer have each given their approval to the plan. Therefore, Planning and Development Services recommends the Silver Lake Water and Sewer District 2018 Comprehensive Wastewater Comprehensive Plan, be approved.

B. Based on the foregoing, the Snohomish County Council approves the Silver Lake Water and Sewer District 2018 Comprehensive Wastewater Comprehensive Plan.

DATED this 13th day of February, 2019.

SNOHOMISH COUNTY COUNCIL
Snohomish County, Washington



Council Chair

ATTEST:



Clerk of the Council

D-9