OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

Sewer System Management Plan

OLYMPIC VALLEY, CALIFORNIA

Revised May 2023

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

Table of Elements

1 Goals

1.1 REQUIREMENT

In accordance with the State Water Resources Control Board Waste Discharge Requirement (WDR) Order No. 2006-003-DWQ, the goal of the Sanitary Sewer Management Plan (SSMP) is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent sanitary sewer overflows (SSOs), as well as mitigate any SSOs that do occur.

1.2 INTRODUCTION

It is recommended that each wastewater collection system agency develop and implement an SSMP that will accomplish the following:

- Maintain or improve the condition of the collection system infrastructure in order to provide reliable service now and into the future.
- Cost-effectively minimize infiltration/inflow (I&I) and provide adequate sewer capacity to accommodate design storm flows.
- Minimize the number and impacts of SSOs that occur.

1.3 SSMP COMPLIANCE

In compliance with WDR 2006-003-DWQ, the Olympic Valley Public Service District (District) adopted a SSMP on July 27, 2010. The District conducted public workshops to set forth the goals of the SSMP through Water and Sewer Committee meetings. The adoption of the SSMP goals were placed on the agenda and approved at the December 17, 2007 meeting of the Board of Directors and subsequently certified on the California Integrated Water Quality System (CIWQS) website. The Committee and the Board of Directors chose to utilize the District's Purpose Statement, Mission Statement, and Core Values as the SSMP Goals because they encompass all the District's operations including services of providing drinking water and fire protection as well as sewer service. A copy of the District's Purpose Statement, Mission Statement, and Core Values is included as Attachment 1.1. The District's Purpose Statement, Mission Statement, and Core Values was most recently updated in August 2020.

Providing high quality, safe and reliable sewer service is essential in fulfilling the District's Mission Statement: "The mission is to provide leadership in maintaining and advocating for needed, high-quality and financially sound community services for the Valley. These include, but are not limited to water, emergency services, and sewer and garbage collection. The District will conduct operations in a cost effective, conservation-minded and professional manner, consistent with the desires of the community while protecting natural resources and the environment."

There are six key areas of concern for developing an effective SSMP for all sewer systems:

- Customer service
- Water quality and environmental protection
- Long term sewer collection and treatment service
- Long term infrastructure investment
- Long term financial stability
- Workforce planning and development

Development and implementation of the SSMP will seek to establish, review, and improve procedures that cover these elements and ultimately reduce SSOs in our pristine alpine environment.

Attachment 1.1

Olympic Valley Public Service District
SSMP Goals

Olympic Valley Public Service District
(Adopted 1/28/2014)

P U R P O S E   S T A T E M E N T

The Olympic Valley Public Service District's purpose is to assume leadership in providing high-quality public services needed by the community.

M I S S I O N   S T A T E M E N T

Olympic Valley Public Service District serves full-time and part-time residents, businesses, employees and visitors in Olympic Valley. The mission is to provide leadership in maintaining and advocating for needed, high-quality and financially sound community services for the Valley. These include, but are not limited to water, emergency services, and sewer and garbage collection. The District will conduct its operations in a cost effective, conservation-minded and professional manner, consistent with the desires of the community, while protecting natural resources and the environment.

Revised 1/28/2014, Reviewed 1/27/2015, 1/26/2016, 1/31/2017, 1/30/2018, 1/29/2019, 1/28/2020, 8/25/2020

Olympic Valley Public Service District

C O R E   V A L U E S

- **Honesty, openness and maintaining the public trust**
- **Fairness and being equitable to all**
- **High standards, competence, and quality services and products**
- **Fiscal responsibility**
- **Responsiveness and communication**
- **Clarity of purpose**
- **Environmental sensitivity**
- **Meticulous compliance with regulations**
- **Compassion and sensitivity**
- **Progressiveness and commitment to ongoing improvement**
- **Proactive planning for the future**

Revised 1/28/2014, Reviewed 1/27/2015, 1/26/2016, 1/31/2017, 1/30/2018, 1/29/2019, 1/28/2020, 8/25/2020

2 Organization

2.1 REQUIREMENT

The SSMP must identify:

- The organizations responsible or authorized representative; and
- Lines of authority of key personnel through an organizational chart or similar document with narrative explanation; and
- The chain of communication for reporting SSOs to the State and Regional Water Quality Control Board, and other agencies if applicable (such as the County Health Officer, County Environmental Health Agency, and/or State Office of Emergency Services (OES)); and
- The names and phone numbers for management, administrative, and maintenance personnel responsible for implementing specific measures in the SSMP program.

2.2 SSMP LEGALLY RESPONSIBLE OFFICIAL

The Operations Manager and the General Manager were appointed as the District's Legally Responsible Officials by the Board of Directors through Resolutions 2007-44 and 2001-46, respectively. A copy of the resolutions are included in the SSMP as Attachment 2.1.

2.2.1 OPERATIONS AND ENGINEERING DEPARTMENT ORGANIZATION

The District's Organization Chart is contained within the Olympic Valley Public Service District Personnel Policies and Procedures Manual, Exhibit I. A copy of the chart is included as Attachment 2.2 in the SSMP. The following is a brief description of each Operations Department and Engineering Department staff position and their responsibilities:

Operations Manager: The Operations Manager, under direction from the General Manager, plans, organizes, and directs the activities of the Operations Department and other services provided by the District. The Operations Manager coordinates field operations and maintenance activities for the sanitary sewer system, and heads emergency responses and reporting.

Operations Specialist III: Supervises, assists, and trains Operations Department maintenance persons in the operations and maintenance of District facilities including: cleaning and repairs to sewer piping and appurtenances; repair, replacement or inspection of manholes, cleanouts, sewer mains, and sewer meters. Assumes responsibility of District water and wastewater operations during off-duty hours and on weekends as the "Weekend Patrol/On Call Duty" person.

Operations Specialist II: Under the supervision of the Operations Manager or Operations Specialist III, operates and assists in the inspection, maintenance, testing, repair and operation of the District sewer system. Performs a variety of manual tasks associated with the repair, replacement or inspection of manholes, cleanouts, sewer mains, and sewer meters. The Operations Specialist II operates the backhoe, loader, dump truck, sewer cleaner, sewer pumps and related equipment. Assumes responsibility of District water and wastewater operations during off-duty hours and on weekends as the "Weekend Patrol/On Call Duty" person.

Operations Specialist I: Under the supervision of the Operations Manager or Operations Specialist III, operates and assists in the inspection, maintenance, testing, repair and operation of the District sewer system. Performs a variety of manual tasks associated with the repair, replacement or inspection of manholes, cleanouts, sewer mains, and sewer meters. The Operations Specialist I operates the backhoe, loader, dump truck, sewer cleaners, sewer pumps and related equipment within ability or as a trainee. Assumes responsibility of District water and wastewater operations during off-duty hours and on weekends as the "Weekend Patrol/On Call Duty" person.

Operations Specialist Trainee: Performs tasks similar to Operations Specialist I in the capacity of a trainee. Works to become certified as a wastewater worker and qualified to assume the duties as Operations Specialist I. May be required to assume responsibility of District water and Wastewater operations during off-duty hours and on weekends as the "Weekend Patrol/On Call Duty" person.

Temporary Seasonal Maintenance Laborer: Performs a variety of manual tasks as directed.

District Engineer: Under the direction of the General Manager, the District Engineer coordinates the development and implementation of the SSMP. The District Engineer advises the General Manager, Operations Manager and Board of Directors on maintenance and capital improvement requirements of the Collection System, prepares planning documents, and Capital Improvement and Capital Replacement plans, prepares and reviews project plans and specifications, plans and directs the work of consultants and contractors.

Junior Engineer: Under the direction of the District Engineer, assists in the development and implementation of the SSMP. The Junior Engineer is also responsible for the implementation of the District's Fats, Oils, and Grease (FOG) program.

2.3 SSO REPORTING CHAIN OF COMMUNICATION

Reports of an SSO may come from a variety of sources including a SCADA High Flow alarm, 911 Dispatch, a customer, a local plumber, Fire Department, or any number of sources. The flow chart in Attachment 2.3 shows the SSO Chain of Communication for initiating response and notification efforts in the event of an SSO. Reporting of SSOs will follow the procedures outlined in Attachment 2.4. All SSO response activities will be performed in accordance with Element 6 of the SSMP. Phone numbers of key personnel and regulatory agencies are maintained and updated on a regular basis in the OVPSD Contact List. A copy of the OVPSD Contact List is included in Attachment 2.5.

The following persons currently hold positions in the Chain of Communication:

Title	Person
General Manager	Mike Geary
Operations Manager	Brandon Burks
District Engineer	Dave Hunt
Fire Chief	Brad Chisholm
Operations Specialist III	Sam Donahue
Operations Specialist II	Nic Massetani

For additional information please refer to the OVPSD Emergency Response Plan (Element 6 of the SSMP), the Tahoe Truckee Area Emergency Contingency Plan, or the Placer County OES Tahoe Truckee Area Emergency Resource List.

Attachment 2.1

Olympic Valley Public Service District
Resolutions for Legally Responsible Official

COPY

RESOLUTION 2007-44

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SQUAW VALLEY PUBLIC SERVICE DISTRICT APPOINTING OPERATIONS MANAGER AS THE LEGALLY RESPONSIBLE OFFICIAL FOR THE SANITARY SEWER MANAGEMENT PLAN

WHEREAS, the California State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems Order No. 2006-0003-DWQ; and

WHEREAS, the new regulations require the appointment of a Legally Responsible Official to file electronic sewer system overflows; and

WHEREAS, the new regulations further require the appointment of an Authorized Data Submitter to enter data into the online sanitary sewer overflow database.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Squaw Valley Public Service District hereby appoints the Operations Manager as the District's Legally Responsible Official to file electronic sewer system overflow reports, and appoints the Operations Specialist III as the Authorized Data Submitter to enter data into the online sanitary sewer overflow database with the California State Water Resources Control Board.

PASSED AND ADOPTED this 27^{th} day of November 2007 at a regular meeting of the Board of Directors of the Squaw Valley Public Service District duly noticed and held by the following vote:

AYES: Directors Cox, Dutton, Moberly and Poulsen

NOES: None

ABSENT: Director Wilcox

ABSTAIN: None

APPROVED:

Dale Cox

Dale Cox, Board President

ATTEST:

James R Smith

James R Smith, Board Secretary

EXHIBIT
P-8

RESOLUTION 2011-46

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SQUAW VALLEY PUBLIC SERVICE DISTRICT APPOINTING THE GENERAL MANAGER AS AN ADDITIONAL LEGALLY RESPONSIBLE OFFICIAL FOR THE SANITARY SEWER MANAGEMENT PLAN

WHEREAS, the California State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems Order No. 2006-0003-DWQ; and

WHEREAS, the regulations require the appointment of a Legally Responsible Official to file electronic sewer system overflow reports.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Squaw Valley Public Service District hereby appoints the General Manager as an additional Legally Responsible Official for the District to file electronic sewer system overflow reports.

PASSED AND ADOPTED this ____ day of ____________ at a special meeting of the Board of Directors of the Squaw Valley Public Service District duly noticed and held by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED:

____
Dale Cox, Board President

ATTEST:

____
James R Smith, Board Secretary

STATE WATER RESOURCES CONTROL BOARD
LEGALLY RESPONSIBLE OFFICIAL REGISTRATION FORM FOR THE SSO DATABASE

A legally responsible official (LRO) is any individual authorized to enter and certify data into the online sanitary sewer overflow (SSO) database on behalf of an agency enrolled under Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WQO No. 2006-0003). A LRO must certify any submitted SSO report. A LRO is defined as either a principal executive officer or ranking elected official for an agency, or a duly authorized representative of that person. To qualify as a duly authorized representative, an individual must receive authorization in writing from another LRO (this completed form satisfies this condition) and have responsibility for the overall operation of the regulated facility or activity. This form enables agencies to register an additional LRO for SSO reporting.

1. LRO Registration Information

I, Michael Geary (print name), certify that I am a legally responsible official for Squaw Valley Public Service District (agency). My signature on this form certifies that, I agree, my California Integrated Water Quality System (CIWQS) user ID and password constitute my electronic signature and any information I indicate I am electronically certifying contains my signature. I understand that I am legally bound, obligated, and responsible by use of my electronic signature as much as by a hand-written signature.

I agree that I will protect my electronic signature from unauthorized use, and that I will contact the State Water Resources Control Board, within 24-hours of discovery, if I suspect that my electronic signature has been lost, stolen, or otherwise compromised. I certify that my electronic signature is for my own use, that I will keep it confidential, and that I will not delegate or share it with any other person.

I have provided the following contact information:

Print Name:	Michael Geary
Mailing Address:	P.O. Box 2026, Olympic Valley, CA 96146
Phone Number:	530-583-4692
FAX Number:	530-583-6228
E-Mail Address:	mgeary@svpsd.org
Agency:	Squaw Valley Public Service District
Agency WDID #:	6SSO11114
Sanitary Sewer System:	Squaw Valley Public Service District
Title/Role:	General Manager

I certify that the above information is complete and correct. By signing this registration form, I agree, on behalf of myself and Squaw Valley Public Service District (agency) to be bound by its terms.

Signed: [signature] Date: 12 / 12 / 11

complete page 2

2. Approved by a Legally Responsible Official for the agency on file with the State Water Board

I, Michael Geary, certify that I am a legally responsible official for
print name

Squaw Valley Public Service District. My signature on this form authorizes a legally
agency

responsible official account to be created within CIWQS for the individual listed above. A legally responsible official account will allow this individual to enter, edit, delete, and certify data associated with SSO reports for the agency.

Regional Water Quality Control Board: Lahontan

Agency WDID #: ______________________

Signature: ______________________ Date: ____ / ____ / ____

Mail completed form to (this form must be mailed because an original signature is required to be on file):

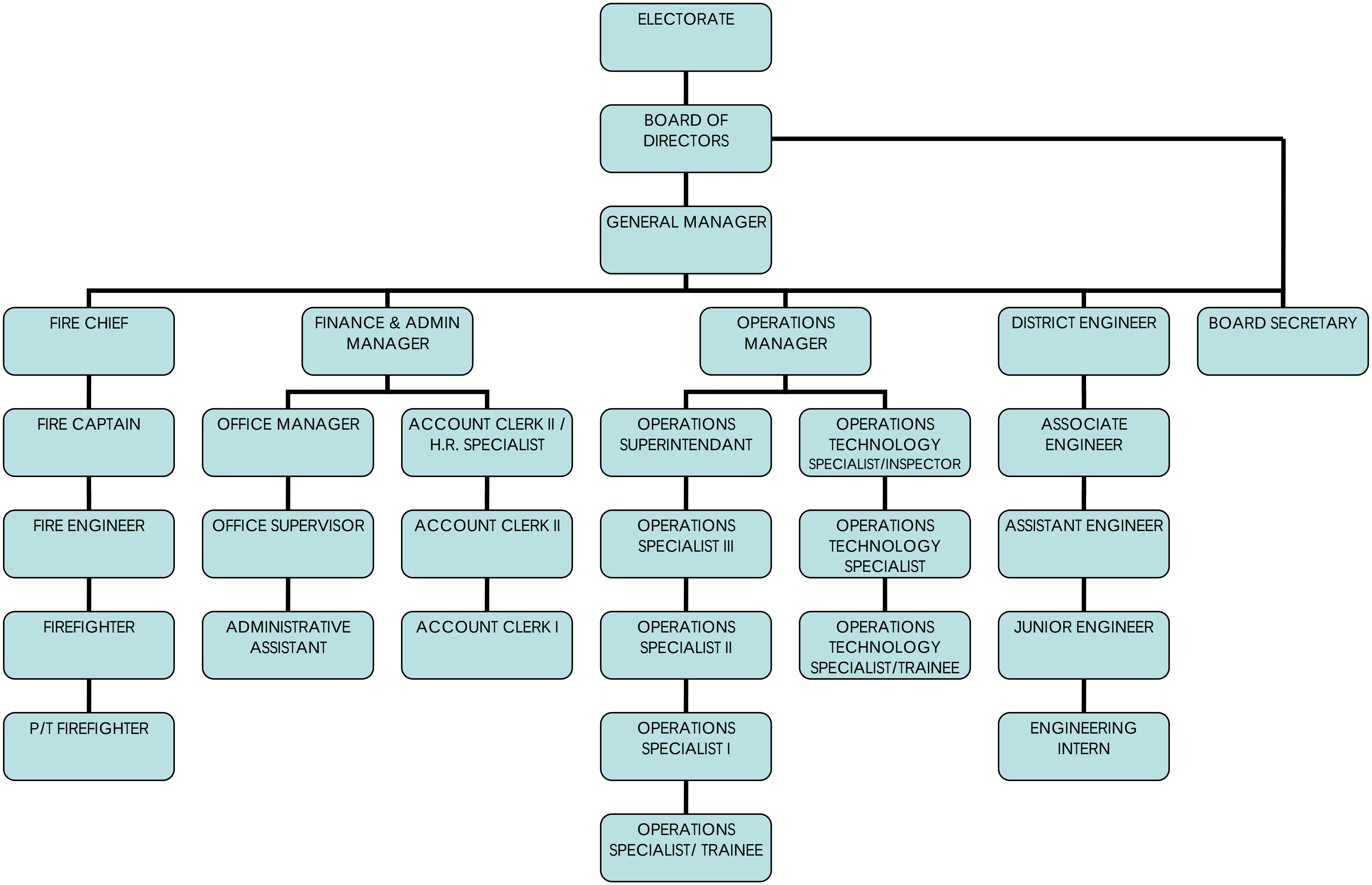
CIWQS Registration
P.O. Box 671
Sacramento, CA 95812

NOTE: Please call the CIWQS Help Center with any questions regarding this form at (866)792-4977.

Attachment 2.2

Olympic Valley Public Service District
District Organizational Chart

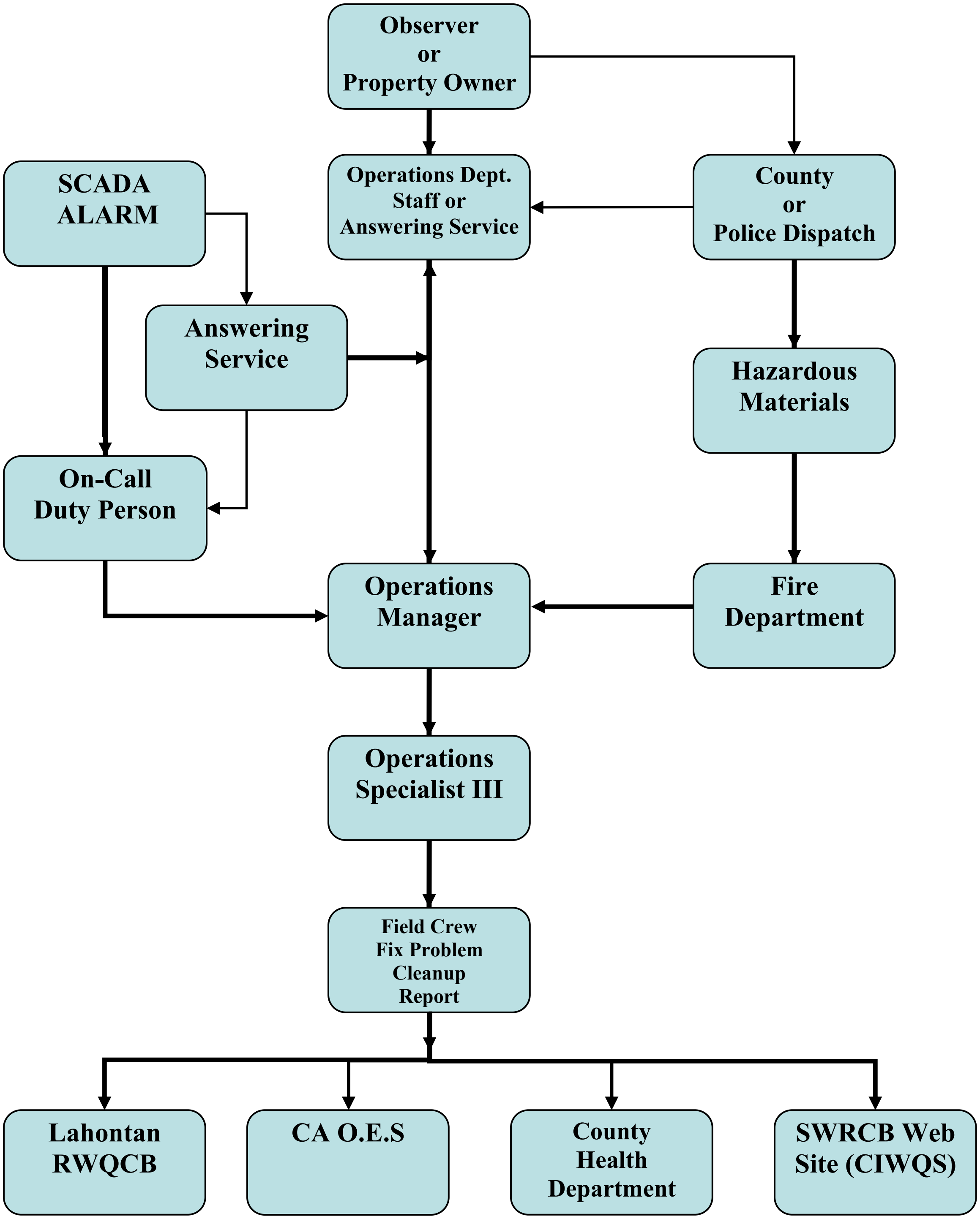
EXHIBIT I
SQUAW VALLEY PUBLIC SERVICE DISTRICT ORGANIZATION CHART
(Approved by Board of Directors October 31, 2017)



Attachment 2.3

Olympic Valley Public Service District
SSO Reporting Chain of Communication

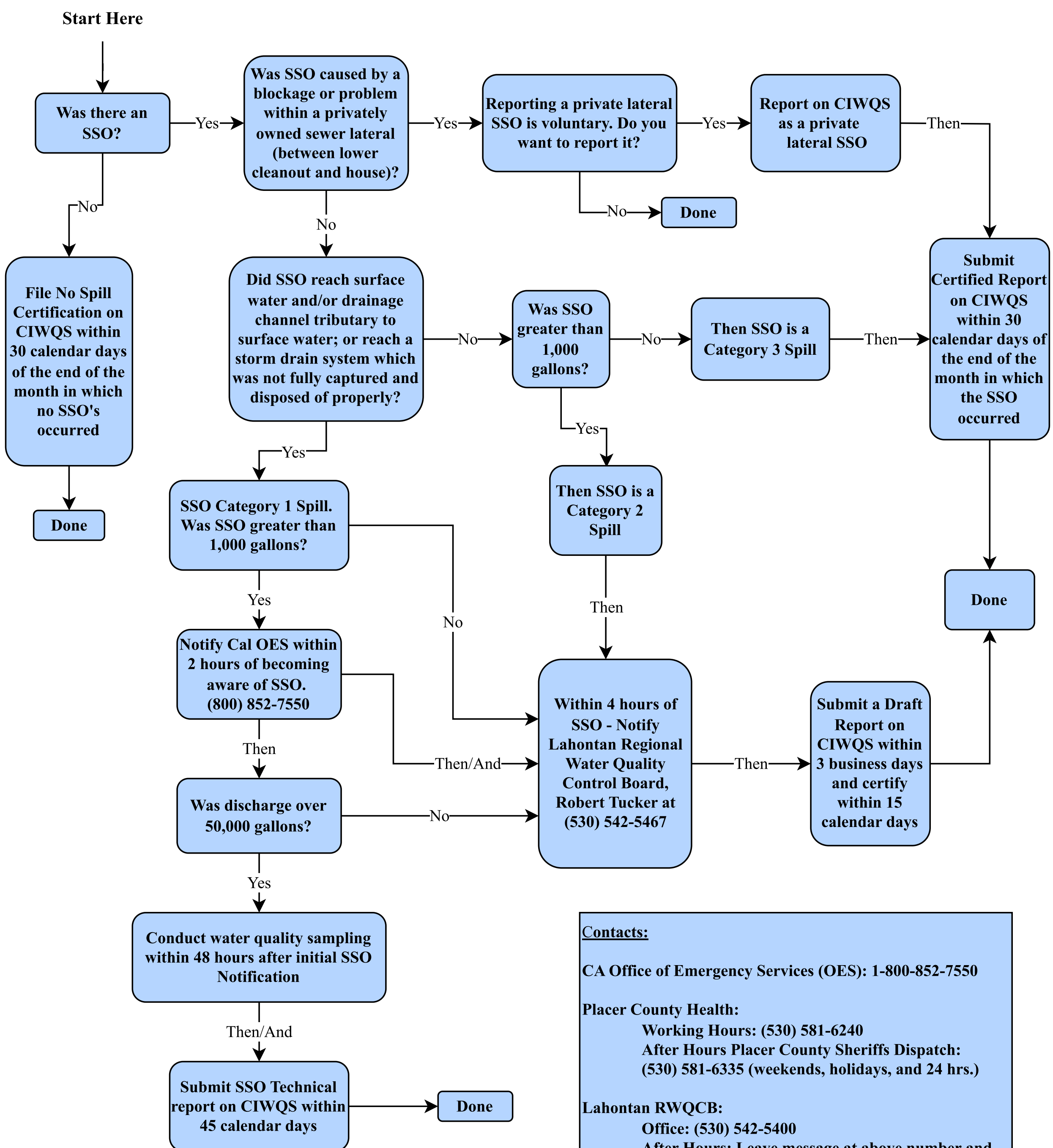
SSO Reporting Chain of Communication



Attachment 2.4

Olympic Valley Public Service District
SSO Reporting Requirement Flow Chart

SSO Reporting Requirement Flow Chart



Contacts:

CA Office of Emergency Services (OES): 1-800-852-7550

Placer County Health:
Working Hours: (530) 581-6240
After Hours Placer County Sheriffs Dispatch:
(530) 581-6335 (weekends, holidays, and 24 hrs.)

Lahontan RWQCB:
Office: (530) 542-5400
After Hours: Leave message at above number and call OES if not done already
Website: www.waterboards.ca.gov/ciwqs

CA Dept. of Fish and Game, Region II:
Working Hours: (916) 358-2900
After Hours Dispatch: (530) 581-0045

Revision Date: May 2023

Attachment 2.5

Olympic Valley Public Service District
District Contacts for Emergency SSO

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

SSO EMERGENCY CONTACT LIST

District Staff

Name & Title	Work Phone	Home Phone	Mobile Number
Mike Geary General Manager	530-583-4692 x 211	[redacted]	[redacted]
Dave Hunt District Engineer	530-583-4692 x 214	[redacted]	[redacted]
Brad Chisholm Fire Chief	530-583-6111 x 221		[redacted]
Brandon Burks Operations Manager	530-583-4692 x 109	[redacted]	[redacted]
Sam Donahue Operations Specialist III	530-583-4692 x 108		[redacted]
Nic Massetani Operations Specialist II	530-583-4692 x 110		[redacted]
Answering Service Fire Dept. Duty Officer	1-866-411-6917		[redacted]

Public Agency Notifications

Agency	Phone Number
Lahontan RWQCB	530-542-5400 (General Number)
Placer County Environmental Health	530-581-6240
Placer County Sherriff's Dispatch	530-886-5375 (weekends, holidays, 24 hrs)
CA. Dept. of Fish and Game, Region II	916-358-2900
California State OES	800-852-7550
SWRCB Web Site	www.waterboards.ca.gov/ciwqs/

3 Legal Authority

3.1 REQUIREMENT

Each Wastewater Collection System Agency must demonstrate through ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

- Prevent illicit discharges into its sanitary sewer system, including I&I from any and all sources including satellite systems or private laterals
- Require proper design and construction of sewers and connections
- Ensure access for maintenance, inspection and repairs to publicly owned portions of laterals
- Limit the discharge of fats, oils, grease (FOG), and other debris that may cause blockages
- Enforce violations of its ordinances

3.2 LEGAL AUTHORITY

The District was organized under the provisions of Division 12 of the California Water Code and Incorporated in the State of California March 30, 1964. A copy of the District's enabling documentation is included in the SSMP as Attachment 3.1. Originally called Squaw Valley County Water District, the name was changed to the Squaw Valley Public Service District on January 1, 1998 in order to more fully portray the varied services the District renders. The name underwent a second change to Olympic Valley Public Service District on August 25, 2020. A copy of Resolution 97-32 and Resolution 2020-17 authorizing the name changes is included in the SSMP as Attachment 3.2. The District is governed by a five-member Board of Director's who are seated in accordance with the California Elections Code.

The District's enabling documentation establishes the authority to build and operate a public sewer system. The District, upon incorporation, established codes and procedures; however, in 1988 the District undertook a re-write of its codes and adopted Ordinance 88-2 establishing the Olympic Valley Public Service District Code, Chapter 2, Sanitary Sewer Service Code. In May 2014, Section 7 (Design Standards) of the Sewer Code was removed from the District's Administrative Code and retitled *Sewer Technical Specifications*. Doing so allowed for more efficient periodic updates without the cumbersome and expensive process necessary to modify an Ordinance. Design, construction, and testing standards are addressed in the Sewer Technical Specifications.

Information on changes or updates unless otherwise noted within the Sanitary Sewer Service Code and Sewer Technical Specifications may be obtained from the District upon request.

3.3 SSMP COMPLIANCE

A review of the District's Sanitary Sewer Service Code found the District generally in compliance with the criteria set forth in the WDR; however, steps were taken in 2008, 2009, 2019, and 2020 to update the Sanitary Sewer Service Code and Sewer Technical Specifications in the areas of easement access, waste discharge requirements, construction and design standards, private sewer lateral testing, and discharges of FOG. The District also issued new Sewer Standard Details in 2019 to better align with the current Sewer Code and construction standards. A copy of the District's Sanitary Sewer Service Code and Sewer Technical Specifications is included in the SSMP as Attachment 3.3 and Attachment 5.1, respectively. The following code sections may be referred to for SSMP compliance:

- Prevent Illicit Discharges: Division XI
- Require Proper Design: Division XII- Sewer Technical Specification
- Ensure Access for Maintenance Division III
- Limit Discharge of FOG Division XI
- Enforce Violations of Ordnances: Division IX

Attachment 3.1

Olympic Valley Public Service District
Enabling Documentation

State of California

Office of the
Secretary of State

I, FRANK M. JORDAN, Secretary of State of the State of California hereby certify:

That on the 30th day of March, 1964, pursuant to Section 30321.5, Water Code, there was filed in this office a certified copy of Resolution No. 64-99 as adopted by the Board of Supervisors of the County of Placer on March 24, 1964, such document entitled:

> RESOLUTION NO. 64-99 DECLARING SQUAW VALLEY COUNTY WATER DISTRICT TO BE DULY FORMED AND STATING BOUNDARIES OF SAID DISTRICT.

Therefore, and under Sections 30322 and 30323, Water Code, I further certify that a County Water District situated In the County of Placer has been duly Incorporated this date, according to the laws of the State of California and is in legal existence under the name:

"SQUAW VALLEY COUNTY WATER DISTRICT".

IN WITNESS WHEREOF, I hereunto set my hand and affix the Great Seal of the State of California this 30th day of March, 1964.

Secretary of State

RESOLUTION NO. 64-99

DECLARING

SQUAW VALLEY COUNTY WATER DISTRICT

TO BE DULY FORMED

AND

STATING BOUNDARIES OF SAID DISTRICT

CCC144

WHEREAS this Board has this day canvassed all the votes cast in the Special Election duly called and held in the County of Placer on March 17, 1964 for the purpose of determining whether or not a County Water District to be named Squaw Valley County Water District should be incorporated under the provisions of Division 12 of the Water Code of the State of California, the County Water District Law, and

WHEREAS this Board has this day determined in said canvass that a majority of the electors residing in the boundaries of the proposed Squaw Valley County Water District cast votes in favor of forming said Squaw Valley County Water District,

NOW THEREFORE

RESOLVED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF PLACER:

That this Board hereby determines that on March 17, 1964, the date of the election referred to in the recitals to this resolution, the territory of Squaw Valley County Water District hereinafter described in this resolution was, and on the date of this resolution is, wholly within the unincorporated territory of the County of Placer, California and that no part of said territory was on the date of said election or is now within the boundaries of a municipal corporation.

That this Board hereby determines from the canvass described in the recitals to this resolution that a majority of the votes cast at the Special Election held March 17, 1964 respecting the formation of a proposed Squaw Valley County Water District was in favor of forming said proposed Squaw Valley County Water District.

That on this day, March 24, 1964, this Board hereby declares that the following described territory lies wholly within the boundaries of the County of Placer, State of California, and that the same is duly and lawfully formed into a County Water District and that the name of said District is

SQUAW VALLEY COUNTY WATER DISTRICT

and that the territory hereinabove referred to is:

That this resolution shall be the Order required by Section 30320 of the Water Code of the State of California (a section of Division 12 of said Water Code, being the County Water District Law) and that the Clerk shall enter this resolution in full upon the minutes of this meeting.

PASSED AND ADOPTED BY THE BOARD OF SUPERVISORS OF THE COUNTY OF PLACER, STATE OF CALIFORNIA, THIS 24th DAY OF MARCH, 1964, by the following vote:

AYES: SUPERVISORS Radovich, Anderson, Paoli, Briner and Lambert

NOES: SUPERVISORS None

ABSENT: SUPERVISORS None

GEORGE A. LAMBERT
Chairman of the Board of Supervisors

ATTEST: MAURINE I. DOBBAS
County Clerk

By ELYNOR O'MALLEY
Deputy

THE FOREGOING INSTRUMENT IS A CORRECT COPY OF THE ORIGINAL ON FILE IN THIS OFFICE
ATTEST: MAR 24 1964
MAURINE I. DOBBAS
County Clerk and ex-officio Clerk of the Board of Supervisors of the County of Placer, State of California.
Elynor O'Malley
DEPUTY CLERK

Attachment 3.2

Olympic Valley Public Service District
Resolutions 97-32 and 2020-17

COPY

RESOLUTION 2020-17

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE SQUAW VALLEY PUBLIC SERVICE DISTRICT
CHANGING THE NAME OF THE DISTRICT TO
OLYMPIC VALLEY PUBLIC SERVICE DISTRICT**

WHEREAS, it is the desire of the Board of Directors of the Squaw Valley Public Service District (District) to change the name of the District to OLYMPIC VALLEY PUBLIC SERVICE DISTRICT; and

WHEREAS, the word "squaw" is offensive and derogatory; and

WHEREAS, the unincorporated community within Placer County which the District serves is named "Olympic Valley;" and

WHEREAS, California Water Code Section 31006 allows the Board to change the name of the District by Resolution;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Squaw Valley Public Service District as follows:

1. The name of the District, effective October 1, 2020, shall henceforth be Olympic Valley Public Service District.
2. The Board Secretary is hereby directed to record a certified copy of the Resolution in the Placer County Recorder's Office and is further directed to send a certified copy of this Resolution to the Secretary of State.
3. Staff are directed to change the District's name with on all signage, collateral, digital assets, and bank accounts and notify the public and affected vendors and parties.

PASSED AND ADOPTED this 25th day of August 2020 at a regular meeting of the Board of Directors of the Squaw Valley Public Service District by the following vote:

AYES: Directors Cox, Hover-Smoot, Hudson, Ilfeld, Mercer
NOES:
ABSENT:
ABSTAIN:

APPROVED:

Dale Cox

Dale Cox, Board President

ATTEST:

Jessica Asher

Jessica Asher, Board Secretary

CERTIFICATE OF RESOLUTION

I, Jessica Asher, Board Secretary of the Squaw Valley Public Service District, located in Olympic Valley, California, do hereby certify that this is a true and correct copy of the original Resolution No. 2020-17.

Witness my hand or seal of the Squaw Valley Public Service District on this 25th day of August, 2020.

Jessica Asher

Jessica Asher, Board Secretary
Squaw Valley Public Service District

RESOLUTION 97-32
A RESOLUTION OF THE BOARD OF DIRECTORS OF THE
SQUAW VALLEY COUNTY WATER DISTRICT
CHANGING THE NAME OF THE DISTRICT TO
SQUAW VALLEY PUBLIC SERVICE DISTRICT

WHEREAS, it is the desire of the Board of Directors of the Squaw Valley County Water District (District) to change the name of the District to **SQUAW VALLEY PUBLIC SERVICE DISTRICT**; and,

WHEREAS, the word "County" creates confusion since some members of the public mistakenly assume the District is connected to Placer County; and,

WHEREAS, our current name implies the District provides only water service, however, the District provides other services as well; and,

WHEREAS, the Telephone Area Code is changing on November 1, and the District has six months in which to make the transition to the new Area Code; and,

WHEREAS, new printed materials will need to be ordered, therefore, it is the most economical time to change the name of the District as well; and,

WHEREAS, California Water Code Section 31006 allows the Board to change the name of the District by Resolution;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the District as follows:

1. The name of the District, effective January 1, 1998, shall henceforth be

SQUAW VALLEY PUBLIC SERVICE DISTRICT

2. The Secretary of the Board is hereby directed to record a certified copy of this Resolution in the Office of the County Recorder of Placer County, and is further directed to send a certified copy of this Resolution to the Secretary of State.

PASSED AND ADOPTED this 30th day of October, 1997, at a Regular Meeting of the Board of Directors duly called and held at the Squaw Valley Fire Department Meeting Room by the following vote:

AYES: Directors Arnold Allen, Dale Cox, William Fiedler, Eric Poulsen, and Stan Tomlinson
NOES: None ABSENT: None ABSTAIN: None

APPROVED:

Dale Cox

Dale Cox, Board President
SQUAW VALLEY COUNTY WATER DISTRICT

ATTEST: Valerie Elder

Valerie Elder, Board Secretary

J

Attachment 3.3

Olympic Valley Public Service District
Sanitary Sewer Service Code

SQUAW VALLEY PUBLIC SERVICE DISTRICT CODE
CHAPTER 2 SANITARY SEWER SERVICE CODE

All Sections of this Code Chapter have been adopted by Ordinance 88-2, unless noted otherwise

Chapter 2 Sanitary Sewer Service Code

DIVISION I ADMINISTRATION

Section 1.01 Title

This Chapter shall be known as the "Sanitary Sewer Service Code," and may be cited as such.

Section 1.02 Scope

The provisions of this Chapter shall apply to the discharge or disposal of all wastes including any material which may cause pollution of underground or surface waters in, upon, or affecting the territory of the Squaw Valley Public Service District, and the design, construction, alteration, use, and maintenance of public sewers, house laterals, industrial connections, liquid waste pretreatment plants, sewage pumping plants, sand and grease interceptors; the issuance of permits and the collection of fees therefore and fees to pay for the cost of checking plans, inspecting construction, and making record plans of the facilities permitted hereunder; and providing penalties for violation of any of the provisions thereof.

Section 1.03 Amendments

This Chapter was adopted by the District on June 30, 1988, by Ordinance 88-2. Any future changes, additions, or deletions to this Chapter will be accomplished by adoption of future Ordinances amending, adding or repealing Sections in this Sanitary Sewer Service Code.

DIVISION II DEFINITIONS

Section 2.01 Scope

The words and phrases appearing in this Chapter shall have the following meanings, unless it shall be apparent from the context that they have a different meaning.

Section 2.02 Accessory Dwelling Unit (ADU)

An attached or detached residential dwelling unit which provides complete independent living facilities for one or more persons. It includes permanent provisions for living, sleeping, eating, cooking, and sanitation on the same parcel as the single-family dwelling.

The total area of floor space of an attached ADU shall not exceed 50 percent of the proposed or existing primary dwelling living area. The total area of floor space for an attached or detached ADU shall not exceed 1,200 square feet.

ADUs are owned by the same owner of the Single Family Dwelling on the parcel.

ADUs can also be referred to as a “mother-in-law unit”, “second unit”, or “granny flat”.

ADU Connection Fees are applied as follows:

Scenario	Connection Fee (Y/N)	Physical Connection
Attached or detached ADU that does not increase the existing space of an existing primary residence and / or ancillary structure	No	No New Connection
Attached or detached ADU that increases the existing space of an existing primary residence and / or ancillary structure	Yes	New Connection Possible
Construction of an attached or detached ADU concurrent with primary residence	Yes	Two Connections Possible
Discovery of an existing attached or detached ADU	No	Inspection and Testing of Connection Possible

ADUs are charged User Fees established for Multi-Family Residential Units. There are no consumption charges.

ADUs are served by a single water meter serving the Single Family Dwelling and ADU.

Section 2.03 Apartment
Consist of five (5) or more independent living spaces in one building. They have common areas and amenities for everyone in the complex to enjoy. There are no private yards for apartment dwellers. Apartments are usually anywhere from 1 to 3 bedrooms with 1 to 2 bathrooms. They also usually have adjoining walls, floors, and ceilings with other tenants.

An apartment complex is owned by a single entity and leased out to individual tenants.

An apartment is different than a condominium in that an apartment is a unit in a larger building with one owner, where a condo is a unit in a larger building and each unit can be individually owned.

A Multi-Family Residential Unit Connection Fee applies.

Apartments are charged User Fees established for Multi-Family Residential Units. There are no consumption charges.

An apartment building is served water by a master-meter.

Section 2.04 Board
"Board" means the Board of Directors of the Squaw Valley Public Service District.

Section 2.05 Building Lateral
The sanitary sewer pipeline extending from outside of the building foundation to the service lateral connection point at the point of service (usually located at the property line or sewer easement line). The cleanouts at the building foundation and service lateral connection point are part of the building lateral.

Section 2.06 Building Sewer
That part of the piping of a drainage system which ends at a point five (5) feet outside the foundation of the building or structure and discharges to the building lateral.

Section 2.07 Collection System
The system by which sewage is collected throughout the service area within the District, including but not limited to, private sanitary sewage facilities, lateral sewers, main line sewers, interceptors, pumping plants and all other appurtenances.

Section 2.08 Commercial
Any use on lands or buildings where the owner is engaged in trade or business including, but not limited to, hotels, motels, restaurants, stores, service stations, schools, churches, professional offices, retail stores, etc. See the definition for “Hotel / Motel Unit” in this section.

Connection Fees are based on meter size.

User Fees consist of a Commercial base rate as well as a flat rate for consumption for any gallons in excess of 75,000 gallons per year.

Commercial units are served by individual meters.

Section 2.09 Condominium
Condominium, or condo, units are individually owned, each owner receiving a recordable deed to

the individual unit purchased, including the right to sell, mortgage, etc. that unit and sharing in joint ownership of any common grounds, passageways, etc. and common property (i.e. elevators, halls, roof, stairs, etc.) under the umbrella of an HOA. Condo owners only own the interior of their unit. They also usually have adjoining walls, floors, and ceilings with other units.

A condominium unit is an individually owned residential parcel or dwelling unit within a Condominium Development.

A condominium is different than an apartment in that a condo is a unit in a building where each unit is individually owned; an apartment is a unit in a larger building with one owner. Townhomes are considered to be the same as condominiums.

A Condominium Unit may have a “Lock-Off Unit”. See the definition for “Lock-Off Unit” in this section.

A Multi-Family Unit Connection Fee applies to each Condo Unit. Condominium buildings are also charged Commercial Connection Fees for the meter installed to serve all other water demands on the property.

Condominiums are charged User Fees established for Multi-Family Residential Units. There are no consumption charges. In addition, Commercial User Fees (base rate and consumption charges) are charged to serve all other water demands on the property.

All Condominium units are served water by a master-meter and the building’s commercial uses are served water by a separate meter(s).

Section 2.10 Condominium – Commercial
"Commercial Condominium" shall have the same meaning as a residential condominium with the additional provision that it is managed in such a manner as determined by the District to be of a commercial nature or it is configured such that treating it as a commercial condominium would be the most equitable means of billing the user.

Section 2.11 Condominium – Residential
"Residential Condominium" shall mean an estate in real property consisting of an undivided common interest in a portion of a parcel of real property together with a separate interest in a living unit of the residential multiple unit.

Section 2.12 Cooking Facilities
A facility used or designated to be used for the cooking or preparation of food and includes any full-size refrigerator, stovetop and oven, kitchen sink, microwave, and / or dishwasher.
“Cooking Facilities” are different from a “Kitchenette” in that “Cooking Facilities” contain a full-size refrigerator, stovetop, oven, kitchen sink, or dishwasher.

Section 2.13 County Health Officer
"County Health Officer" means the County Health Officer of the County of Placer, or his authorized deputy, agent, representative, or inspector.

Section 2.14 Customer
"Customer" shall mean any person described herein who receives sanitary sewer service from or discharges sewage to the District system.

Section 2.15 District
"District" means the Squaw Valley Public Service District.

Section 2.16 District Manager
"District Manager" shall mean the Manager of the District or other person designated by the Board or the Manager to perform the services or make the determinations permitted or required under this Chapter by the District Manager.

Section 2.17 Domestic Sewage
"Domestic Sewage" means the waterborne wastes derived from the ordinary living processes and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

Section 2.18 Duplex
A house that accommodates two separate families or residents at the same time, with two separate entrances from the outside for each. Usually, when looking at a duplex it will look like a large house, but it will have two entrances to the two separate living spaces. They can be side by side, one story, or two stories. Inside it will have all the rooms you would expect in a single-family home including bathrooms, a kitchen, bedrooms, etc. On some occasions there will also be two garage doors. The owner is responsible for interior and exterior upkeep, landscape, etc.

Duplex ownership is generally single ownership for the entire structure, deeded as one parcel.

There are also triplexes and quadplexes that are the same but have three (3) and four (4) living spaces (units), respectively, instead of the two units in the duplex.

A triplex and quadplex are different than an apartment building in that the number of units in the building is less than five.

A duplex is different than a halfplex in that a duplex has one owner for the entire parcel. Each unit of a halfplex can be individually-owned and each unit has its own parcel number.

A Multi-Family Residential Unit Connection Fee applies to each units of the Duplex.

Duplexes are charged User Fees established for Multi-Family Residential Units. There are no consumption charges.

Duplex units are served water by a single water meter, serving both units.

Section 2.19 Effluent
"Effluent" means the liquid flowing out of any treatment plant or facility constructed and operated for the partial or complete treatment of sewage or industrial waste.

Section 2.20 Fixture Units
"Fixture Units" means fixture unit load values for drainage piping and plumbing, and shall be as specified in the Uniform Plumbing Code.

Section 2.21 Frontage
"Frontage" means the length or width in feet applied to a lot based on the benefit received from the abutting sewer line, as determined by the District.

Section 2.22 Halfplex
A halfplex is one-half of an attached residence. There are two halfplexes per building, but each unit can be individually owned and each has its own parcel number. For all practical purposes, a halfplex is like a single family residence that shares a common wall.

Owners own their unit's interiors and exteriors, including roof, lawn, and driveway (sometimes), but not the common areas. The responsibility of landscape maintenance, exterior maintenance and repair, etc. is on the individual owner, generally meeting the requirements of CCRs.

A halfplex is different than a duplex in that each unit is deeded separately and each has its own parcel number; a duplex has one owner for the entire parcel.

A Single Family Dwelling Connection Fee applies to each unit in the halfplex.

Each halfplex unit is charged User Fees established for Single-Family Residential Units. There is no charge for consumption.

Each unit is served by an individual water meter.

Section 2.23 Hotel / Motel Unit (Also includes Bed & Breakfast Establishments)
A mixed-use establishment providing lodging and other guest services, rented out on a day-to-day basis. It is typically a single room with a bathroom facility and sometimes a kitchenette. A hotel room may include two rooms with two bathrooms with or without a single kitchenette. A hotel unit does not contain Cooking Facilities. Hotels include Bed and Breakfast establishments.

A Hotel is an individually owned commercial parcel.

A Hotel is different than a condo in a rental pool in that a hotel unit is owned by the building owner; a condo unit is individually owned and there are many owners in a condo building.

A Hotel room (unit) is the same as a condo unit in a rental pool in that a hotel unit is used for lodging on a short-term basis; a condo unit in a rental pool has similar use.

Commercial Connection Fees apply to Hotels and Motels.

User Fees consist of a Commercial base rate and flat rate for consumption.

Hotels are served water by a master-meter and the hotel's commercial uses may be served water by a separate meter.

Section 2.24 Industrial Waste
"Industrial Waste" means any and all waste substances, liquid or solid, except domestic sewage, and includes among other things radioactive wastes and explosives, noxious or toxic gas when present in the sewage system.

Section 2.25 Inspector
"Inspector" means the authorized inspector, deputy, agent or representative of the District.

Section 2.26 Interceptor
An "Interceptor" is a device designed and installed so as to separate and retain deleterious, hazardous or undesirable matter from wastes. "Interceptor" shall also mean a major sewer line

that collects waterborne wastes from several trunks or pumping stations and conveys it to a sewage treatment plant.

Section 2.27 Kitchenette
A small cooking area usually in hotel type facilities that could include a coffee maker, microwave oven, toaster oven, dorm / half-refrigerator, and / or a bar sink.

A “Kitchenette” is different from “Cooking Facilities in that a “Kitchenette” does not contain a full-size refrigerator, stovetop, oven, kitchen sink, or dishwasher.

Section 2.28 Licensed Contractor
"Licensed Contractor" means a contractor having a valid license issued pursuant to Chapter 9, Division 3, of the Business and Professions Code, State of California, which license includes the activities listed on permit applied for.

Section 2.29 Lock-Off Unit
Condominium units and hotels are often constructed with Lock-Off Units. A condominium with a Lock-Off Unit, sometimes called a lockout unit, is a condominium that can be divided into two or more separate sections by a locking door. The owner of a Lock-Off has several options when it comes to renting out the unit: they can rent the entire unit to one party, stay in one part of the unit and rent out the parts, or rent out all parts to different parties. While the main, or full unit, may have a full kitchen and laundry facilities, the Lock-Off Unit(s) will likely look more like a hotel room - with one room, a bathroom, possibly a kitchenette, and a separate door to enter or exit to the hallway or outdoors.

Lock-off Units are owned by the same owner as the main unit and have the same parcel number as the main unit.

Lock-Off Units are different than an apartment in that it can be joined to another living unit under common ownership by unlocking a door internal to the condo unit.

A Multi-Family Residential Unit Connection Fee applies to each Lock-Off Unit. The main condominium unit is also charged a Multi-Family Residential Unit Connection Fee.

Lock-Off Units are charged User Fees established for Multi- Family Residential Units. In addition, the main, or full, unit is charged User Fees established for Multi- Family Residential Units. There are no consumption charges.

All Lock-Off Units are served water by a master-meter along with other condo units. The condominium’s commercial uses are metered separately.

Section 2.30 Lot
"Lot" means any piece or parcel of land bounded, defined, or shown upon a map or deed recorded or filed in the office of the County Recorder of Placer County, provided, however, that in the event any building or structure covers more area than a lot as defined above, the term "lot" shall include all such pieces or parcels of land upon which said building or structure is wholly or partly located, together with the yards, courts and other unoccupied spaces legally required for the building or structure.

Section 2.31 Main Line Sewer or Force Main Sewer
"Main Line Sewer" or "Force Main Sewer" means any public sewer in a dedicated right of way in

which changes in alignment and grade occur only at manholes, or where angle points or curves between manholes have been approved by the District. Such sewer lines are generally six (6) inches or more in diameter.

Section 2.32 Mixed Use Facilities
Parcels or facilities with both residential and commercial uses.

Connection Fees are charged based on the land use.

User Fees are charged based on the land use. The commercial portion will be charged a commercial base rate and consumption rate. The residential portion will be charged in accordance with its land use. See Schedule A.

Commercial and residential uses shall be separately metered.

Section 2.33 Multiple "Single Family Units"
Multiple "Single Family Units" as used herein means any residential housing facility containing two or more separate living units as defined for "Single Family Dwelling Unit" in this section. Separate, as used herein, means isolated by means of partition, wall, door, floor, ceiling, or other obstruction, which detaches one living unit from another.

Examples of Multi-Family Units include Condominiums, Townhomes, Apartments, Duplex units, Accessory Dwelling Units (ADUs), Lock-Off Units (with or without Cooking Facilities or Kitchenette).

Section 2.34 Ordinance
"Ordinance" means an ordinance of the Squaw Valley Public Service District.

Section 2.35 Owner
"Owner" shall mean any person who by lease, contract of sale, deed, deed with security as trust deed, mortgage, or other evidence of indebtedness, estate or other color of right, or color of title, has fee title or demonstrates, or ostensibly demonstrates the authority to grant, or accept the incidents of ownership to any lot, premises, or parcel of land.

Section 2.36 Permittee
"Permittee" means the person to whom a permit has been issued pursuant to the provisions of this chapter.

Section 2.37 Person
"Person" shall mean any person, firm, company, corporation, partnership, association, any public corporation, political subdivision, city, county, district, the State of California, or the United State of America, or any department or agency thereof.

Section 2.38 Pollution of Underground or Surface Waters
"Pollution of Underground or Surface Waters" means affecting such waters in a manner which, if allowed to continue, would render them unfit for human or animal use or toxic to vegetation to an extent adversely affecting plant growth.

Section 2.39 Point of Service
"Point of Service" shall mean the point of physical connection of private sanitary sewer facilities to the public sewer. For residential customers, this is typically the sanitary sewer easement or property line. The Point of Service defines the interface between the District and private ownership

of sewer facilities.

Section 2.40 Premises
"Premises" shall mean any lot, or any piece or parcel of land comprising two or more lots of record in one ownership, or any building or other structure or any part of any building or structure used or useful for human habitation or gathering or for carrying on a business or occupation or any commercial or industrial activity.

Section 2.41 Private Fixtures
"Private Fixtures" are those which are intended for the use of an individual, or which are limited to the use of the employees of a business, provided that the number of employees in that business at any one time does not exceed the ratio of five employees to each restroom.

Section 2.42 Private Sanitary Sewer Facilities
The system of pipelines, manholes, cleanouts, pump stations, interceptors, building laterals, and/or related appurtenances, not operated or maintained by the District, that carry liquid and waterborne waste from residential, commercial, or industrial facilities to the District's sanitary sewer system.

Section 2.43 Private Sewer
"Private Sewer" means a sewer system serving an independent sewer disposal system not connected with a public sewer and which accommodates one or more buildings or industries.

Section 2.44 Public Fixtures
"Public Fixtures" are those which are intended for the use of the employees of a business when the ratio of employees per restroom exceeds 5 to 1; or those fixtures in a business which are for unrestricted use by clients or customers of the business; or members of the public; or those which are located in places to which the public is invited, or places which are frequented by the public without special permission, or other installations where fixtures are installed so that their use is similarly unrestrictive.

Section 2.45 Public Sewer
"Public Sewer" means a sewer that is controlled by or under the jurisdiction of the District.

Section 2.46 Saddle
A "Wye Saddle" is a short pipe fitting with a shoulder at one end to allow the application of the fitting to a hole tapped in the main line sewer such that the short pipe shall form a 45 degree angle from the main line sewer pipe.

A "Tee Saddle" is a short pipe fitting with a shoulder at one end to allow the application of the fitting to a hole tapped in the main line sewer such that the short pipe shall form a 90 degree angle from the main line sewer pipe.

Section 2.47 Section
"Section" means a section of this chapter unless some other ordinance, chapter or statute is mentioned.

Section 2.48 Seepage Pit
A "Seepage Pit" is a lined excavation in the ground which receives the discharge of a septic tank, so designed as to permit the effluent from the septic tank to seep through its bottom and sides.

Section 2.49 Septic Tank
A "Septic Tank" is a watertight receptacle which receives the discharge from a sewage system designed and constructed so as to retain solids, digest organic matter through a period of detention and allow the liquids to discharge into the soil outside of the tank through a drain field system or one or more seepage pits.

Section 2.50 Service Lateral
"Service Lateral" means the sanitary sewer piping which extends from the District main pipeline to the point of service (usually the property line or sewer easement line cleanout). The point of service cleanout is part of the building lateral.

Section 2.51 Sewage
"Sewage" means any waterborne or liquid wastes including domestic sewage and industrial waste, but does not include or mean storm water, ground water, roof or yard drainage.

Section 2.52 Sewage Pumping Plant
"Sewage Pumping Plant" means any works or device used to raise sewage from a lower to a higher level or to overcome friction in a pipe line.

Section 2.53 Street Property Line
As used in this chapter, "Street Property Line" means a State or County right-of-way line or a road easement line immediately adjacent to the premises.

Section 2.54 Swimming Pool
"Swimming Pool" means all swimming or wading pools containing 2,000 gallons of water or more.

Section 2.55 Tapping
"Tapping" means the forming of a Tee or Wye branch connection to a main line sewer by installing a Tee or Wye Saddle after the sewer is in place.

Section 2.56 Tee or T
"Tee" or "T" means a fitting for a branch on which the spur joins the barrel of the pipe at an angle of approximately 90 degrees.

Section 2.57 User Fees
User Fees are levied and assessed annually against consumers for the purposes of providing funds for the maintenance, operation and capital improvements of the District.

Each lot or premises which is connected to and each owner or customer distributing wastewater into the District's collection system shall pay an annual sewer service charge. These are also known as Service Fees or “Rates & Charges for Sewer Service”.

Section 2.58 Wye or Y
"Wye" or "Y" means a fitting for a branch on which the spur joins the barrel of the pipe at an angle of approximately 45 degrees.

DIVISION III GENERAL PROVISIONS AND REGULATIONS

Section 3.01 Amendments

Whenever a power is granted to any portion of this Chapter, such reference applies to all amendments and additions thereto.

Section 3.02 Delegation of Powers

Whenever a power is granted to or a duty imposed upon the District by provisions of this Chapter, the power may be exercised or the duty performed by an authorized person or agent of the District.

Section 3.03 Validity

In any provisions of this Chapter or the application thereof to any person or circumstance, is held invalid, the remainder of the Chapter, and the application of such provisions to other persons or circumstances shall not be affected thereby.

Section 3.04 Enforcement

This District Manager shall enforce the provisions of this Chapter and for such purpose shall have the powers of a peace officer. Such powers shall not limit or otherwise affect the powers and duties of the Placer County Health Officer.

Section 3.05 Minimum Standards

Facilities shall be designed so as to produce an effect which will not pollute underground or surface waters, create a nuisance, or menace the public peace, health, or safety. The District Manager shall consult with the Health Officers and officials of public agencies, and from time to time, promulgate standards which may vary according to location, topography, physical conditions, and other pertinent factors.

The minimum acceptable standards for design and construction of sewage collection systems within the District shall be the latest version of the Squaw Valley Public Service District's Technical Specifications.

Section 3.06 Penalty for Violation

Every person violating any provision of this Chapter or any conditions or limitation of permit issued pursuant thereto is guilty of a misdemeanor punishable in the manner provided by law.

Section 3.07 Continued Violation

Each day during which any violation described in this Chapter as willful continues shall constitute a separate offense punishable as provided by this Chapter.

Section 3.08 Notice

Unless otherwise provided herein, any notice required to be given by the District Manager under this Chapter shall be in writing and may be mailed by regular first-class mail to the last address known to the District Manager. Where the address is unknown, service may be made as above provided upon the owner of record of the property.

Section 3.09 Time Limits

Any time limit provided for in this Chapter may be extended by mutual written consent of both the District and the permittee or applicant, or other person affected.

Section 3.10 Identification

Inspectors and maintenance men shall identify themselves upon request when entering upon the work of any contractor or property owner for any inspection or work required by this Chapter.

Section 3.11 Maintenance Inspections

The District Manager may inspect, as often as he deems necessary, every main line sewer, sewage pumping plant, sewage connection, interceptor, or similar appurtenances to ascertain whether such facilities are maintained and operated in accordance with the provisions of this Chapter. All persons shall permit and provide the District Manager with access to all such facilities at all reasonable times.

Section 3.12 Access Requirements

No physical object or structure, including but not necessarily limited to permanent or temporary structures, plantings, landscaping, fill, boulders, rockery walls or irrigation systems shall be located on or within a District sewer line easement or placed in such a position as to unreasonably interfere with District's access, maintenance or repair of any facility located within a sewer line easement and as described in Section 3.11. Any such obstruction, upon request of the District's General Manager, or his designee, shall immediately be removed by the property owner at no expense to the District and once removed shall not be replaced on or within the easement.

Upon the District's written notification to the property owner, any and all obstructions which impede or prevent access to the utility easement shall be removed by the owner at no cost to the District. If, after 45-days notice, the Owner has failed or refused to remove the obstruction(s) affecting the utility easement, District shall, at its election, remove the obstructions and bill the Owner to recover District expenses incurred in connection therewith. Owner shall be responsible for payment of all District expenses, including staff time, administrative fees, legal fees, charges from independent contractors and/or as otherwise associated with removal of Owner's encroachments upon or within District's utility easement.

The obligation to pay District expenses shall become due upon presentation of a billing therefor and shall become delinquent if not paid within forty-five (45) days from date of billing presentation. Any delinquent payment shall gather interest at the Annual Percentage Rate of twelve percent (12%) from date of delinquency until paid. If the bill remains unpaid for a period of forty-five (45) days from presentation of the original billing, the District will forward the delinquent charges to Placer County for collection on the Owner's property tax bill.

Section 3.13 Interference with Inspectors

No person shall, during reasonable hours, refuse, resist, or attempt to resist the entrance of the District Manager into any building, plant, yard, field, or other place or portions thereof in the performance of his duty within the power conferred upon him by law or by this Chapter.

Section 3.14 Maintenance of Plants, Interceptors, and Other Facilities

The requirements contained in this Chapter, covering the maintenance of sewage pumping plants, interceptors, or other appurtenances, shall apply to all such facilities now existing or hereafter constructed. All such facilities shall be maintained by owners thereof in a safe and sanitary condition, and all devices or safeguards which are required by this Chapter for the operation of such facilities shall be maintained in good working order.

This section shall not be construed as permitting the removal or non-maintenance of any devices or safeguards on existing facilities unless authorized in writing by the District Manager.

Section 3.15 Operation and Maintenance Responsibilities

A. The owner of the property served and customer served by the District's collection system shall be responsible for the operation and maintenance, repair, and replacement of the private sanitary sewer facilities, and all devices or safeguards required by this Chapter, which are located upon the property owned by the property owner or occupied by the customer.

B. The District shall be responsible for the operation and maintenance, repair, and replacement of that portion of the collection system which is in the state or county right-of-way or District easement, which has been dedicated to the District or which is not located upon the property of the person served by the District's collection system.

C. With the exception of those sanitary sewer facilities which have been dedicated to the District or are located within a state or county right-of-way or District easement, the owner or their contractor or agent shall, at their own risk and expense, install, keep and maintain in good repair all private sanitary sewer facilities (sanitary sewer pipelines, force mains, manholes, building laterals, equipment, pump stations, and related appurtenances) situated on the premises so served. The District shall not be responsible for any losses, damages, claims or demands caused by improper or defective installation, operation, or maintenance of private sanitary sewer facilities by the owner, its contractors, agents or employees, whether inspected and/or approved by the District. All such installations of private sanitary sewer facilities shall conform with all federal, state, county, and local laws, ordinances, rules and regulations.

D. The property owner or customer served by the District’s collection system shall be responsible and solely liable for all costs incurred by the District in connection with the repair or replacement of all damage to the system caused by the property owner, customer, or their respective contractors, agents, or employees, including but not limited to sewage line obstructions, wherever located.

E. All private sanitary sewer facilities found in need of repair as a result of testing procedures conducted as required by this Chapter shall be repaired or replaced to the current standards set forth in the District Code.

Section 3.16 Pool, Rain and Surface Water Drainage

No private pool, receptacle, area, or roof which receives or disposes of rainwater or surface water shall be connected to the collection system. All swimming pools may discharge backwash and drain wastewater to the public sewer as set forth in this section.

If swimming pool draining and backwash is discharged to the main system, prior written approval must be obtained from the District Manager. No person shall discharge any substance in the District's collection system without first applying for a permit from the District. The District Manager reserves the right to prohibit the draining of swimming pools when, in his opinion, such activity would deleteriously affect the operation of the sewage works. Draining operations shall take place only between the hours of 9 p.m. and 7 a.m. or at any other time with prior approval of the District Manager.

Section 3.17 Notice to Stop Work

Whenever any construction is being done contrary to the provisions of any law, standard, or ordinance, the District Manager shall issue a written notice to the responsible party to stop work on that portion of the work on which the violation has occurred. No work shall be done on that portion until corrective measures have been taken and approved by the District Manager.

Section 3.18 Mandatory Sewer Connections

All occupancies requiring sanitation facilities as defined in the Uniform Building Code or as determined by the appropriate state agency shall be connected to the public sewer system. Notwithstanding any provision to the contrary, structures shall be connected to the public sewer system by July 1, 1989, if the public sewer system is available. Availability shall mean a public sewer system which has been constructed and is in use within two hundred (200) feet of the premises.

No person shall cause or permit the disposal of sewage or other liquid waste into any drainage system which is not connected to the public sewer system when such connection is required by this section.

Section 3.19 Location of Service Lateral Inconsistent With District Record Maps

Whenever a service lateral is not located as shown on District record maps, District personnel shall assist to the extent possible to determine the location of the service lateral by use of surface and underground line detectors. However, the District shall bear no expense for equipment, excavation and/or labor expenses incurred by any person in determining the location of District lines, service laterals and other facilities.

Section 3.20 Non-existent Service Laterals Shown on Record Maps

A. Before a stub out, wye or point of service that is shown to exist on District maps is determined to be "nonexistent," the person attempting to locate the service lateral connection point shall contact the District for assistance. The District shall review records of closed circuit television inspections and other available records to ensure that there is, in fact, a stub. The District shall not be liable for any expense, equipment, excavation and/or labor incurred by any person in determining the existence or the "nonexistence" of any stub out, wye, point of service and/or other facility.

B. When the District has previously been provided with record maps and the Manager has made a determination that no service lateral exists as shown on the District record maps, it shall be the property owner's responsibility to install a new service lateral in accordance with this Chapter and the Sewer Technical Specifications. Installation of a service lateral shall be performed by a California licensed contractor approved by the District.

Section 3.21 Sewer Service When Existing Service Lateral is Inadequate.

If there is an existing service lateral connection which is not adequate for the unit(s) to be served or if there is no existing service lateral to which the unit(s) to be served may be connected, then it will be the property owners responsibility to install a new service lateral and abandon the existing service lateral in accordance with this Chapter and the Sewer Technical Specification's. Installation of a service lateral and abandonment of existing service laterals shall be performed by a California licensed contractor approved by the District. The District shall furnish the sewer service subsequent to the applicant's construction of the necessary portions of the collection system; the applicant's payment of all fees to the District; the applicant's compliance with all District rules and regulations; and the applicant's payment in full of all delinquent charges, if any, owed to the District.

DIVISION IV GENERAL POWERS AND DUTIES

Section 4.01 Record of Fees

The District Manager shall keep in proper books a permanent and accurate account of all fees received under this Chapter, giving the names and addresses of the persons on whose accounts the same were paid, the date and amount thereof, and the number of permits granted, if any, which books shall be open to public inspection.

Section 4.02 Estimated Valuations

Whenever the fees required by this Chapter are based on valuations, the District Manager shall determine the estimated valuation in all cases, and for such purposes he shall be guided by approved estimating practices.

Section 4.03 Joint Action with other Public Agencies

The District Manager may contact, confer, and negotiate with officials of any public agency and may recommend to the Board a contract by which the District and one or more public agencies may jointly exercise any powers pertinent to the enforcement of this Chapter and any similar statute, ordinance, rule or regulation of such public agencies, common to all.

Section 4.04 District Manager to Issue Permit

If it appears from the application for any permit required by this Chapter that the work to be performed thereunder is to be done according to the provisions of this Chapter, the District Manager upon receipt of the fees hereinafter required shall issue such permit.

Section 4.05 Certificate of Final Inspection

When it appears to the satisfaction of the District Manager that all work done under the permit has been constructed according to, and meets the requirements of all the applicable provisions of this Chapter, and that all fees have been paid, the District Manager, if requested, shall cause to be issued to the permittee constructing such work a certificate of final inspection. The said certificate shall recite that such work as is covered by the permit has been constructed according to this Chapter and that said work is in an approved condition.

DIVISION V PERMITS

Section 5.01 Permit Request

No person other than the persons specifically excluded by this Chapter, shall commence, do or cause to be done, construct or cause to be constructed, use or cause to be used, alter or cause to be altered, or connect to any public sewer main, mainline sewage system, house lateral, sewage pumping plant, or other similar appurtenance in the District without first obtaining a written permit from the District Manager and paying the appropriate fees as set forth in this Chapter.

Section 5.02 When Written Contract Required

The District may require a written contract, as described in Chapter 4, from any consumer as a condition precedent to sewer service in any residential, commercial, industrial or other type use where there may be unusual quantities of sewage or construction of special facilities are or will be required. Additionally, if upon determination of the District Manager or Board a written contract is appropriate to best serve the District, one may be required.

Section 5.03 When Permit Not Required

The provisions of this Chapter requiring permits shall not apply to contractors constructing public sewage facility improvements and appurtenances under contracts awarded by the District.

Section 5.04 Validity of Permits

A. Transfer and Uses of Permits

1. General Transferability
   a. Upon prior, written approval of the District, a person to whom a permit has been issued and the work permitted has not been completed or approved by the District, may transfer a permit to another person solely for the same lot or premises for which the permit was issued, subject to all terms and conditions under which the permit was issued. The transferee shall meet all requirements of the District relating to the transfer.
   b. Prior to the District's approval of this transfer for the same lot or premises, the District shall inspect the lot or premises for which the permit was issued. The purpose of this inspection shall be for the District to verify that the amount of construction and the number of units, hook-ups, taps, fixture units and facilities has not increased from that authorized by the permit.
2. Unauthorized Use of Permit
   a. The usage of a permit for a lot or premises other than that lot or premises for which the permit was issued shall be considered an unauthorized usage and is prohibited.
   b. The usage of a permit for a lot or premises which has more construction or an increased number of units, hook-ups or taps, than that for which the permit was issued shall be considered an unauthorized usage and is prohibited.
   c. The usage of a permit for a lot or premises which has more fixture units or facilities than that for which the permit was issued shall be considered an unauthorized usage and is prohibited until and unless fees are paid for the additional fixture units/facilities at the rates set forth in Division VI and for any additional plan checking at the rates set forth in Division VI.

d. The usage of a permit for any lot or premises which has a different design as to its distribution system, fixture units, or facilities from that shown on the plans for which the permit was issued, shall be unauthorized unless the permittee first provides the District with a revised set of plans showing the different design and the permittee pays all administrative fees the District incurs in reviewing and inspecting the revised plans, including, but not limited to, pre-plan check fees and inspection fees. This requirement is in addition to other requirements or limitations imposed upon the usage of permits as set forth in this Code.

This section is declarative of current District policy and shall not be construed to authorize the usage of a permit otherwise prohibited by Section 5.04 of this Code.

3. Resolution of Unauthorized Use of Permit. The unauthorized transfer or usage of a permit in a manner prohibited by Section 5.04 may impose a different or greater demand upon the District's collection system. Therefore, a person must:

   a. Apply to the District for a new permit prior to a transfer to or use on lot or premises other than that specified in an existing permit, and/or to authorize more construction or an increase in the number of units, hook-ups, or taps specified in the existing permit. A person applying for a new permit must comply with all of the District's most current rules and regulations concerning permits, including, but not limited to, the payment of the appropriate most current fees and charges.

   b. Where a new permit is not required, pay the fees set forth in Division VI for any fixture units or facilities other than those authorized in the existing permit, including required plan checking fees at the rates set forth in Division VI.

4. When the District determines that an unauthorized transfer or usage of a permit has occurred, the District shall, in addition to all other enforcement devices set forth in this code, have the option of declaring part, or all, of the unauthorized transfer or usage to be void and demand that the unauthorized acts cease until such time as appropriate permits have been applied for and obtained, if available, and/or all appropriate fees and charges have been paid.

B. Coordination Between Permit and District Improvements. Prior to the District's completion of construction of all of the facility improvements, each permit issued is hereby expressly conditioned upon the following:

1. That the applicant assumes the risk of proceeding prior to completion of the District's facilities; and,

2. That every applicant for or person receiving a permit is to be informed in writing, by receipt of this Division, that he or she may not receive sanitary sewer service pursuant to that permit until such time as the District has completed construction of its facilities, despite the fact the applicant for or person has received that permit and proceeded to construct and complete whatever project for which that permit was issued.

C. Will-Serve Commitments and Permits.

1. Assurance of sanitary sewer service issued by the District to any person, developer, and/or corporation, shall be subject to the same conditions stated in Items A. and B. above-ordained.

2. Any assurance of sanitary sewer service issued by the District in any form, in addition to the conditions as ordained heretofore shall also be issued on the provision that the assurance is given on the statement of facts on the date of that issuance, and that such facts may change subsequent to the date of the assurance.

3. Any permit or assurance of sanitary sewer service shall be issued on a first-come, first-served basis, and shall be valid only for two (2) years; any permit or assurance for service not utilized within the two (2) years shall automatically become void and thereafter a new application shall be filed with a new priority in order to obtain any further permit or assurance of service.
4. In order to keep a permit in full force and effect there shall be no abandonment or cessation of work at any time during the two (2) year period. A permit shall automatically become void if an occupancy certificate has not been obtained from Placer County within two (2) years after the initial date of issuance of a permit. No adverse weather or any other condition shall operate to extend the two (2) year period.
5. Annual sanitary sewer charges shall commence, shall be billed by the District, and shall be payable by the permittee or successor no later than twelve months following the issuance of any permit(s) or upon actual connection to the collection system whether through an existing lateral or to a sewer main, whichever occurs first. Payment of any fees, rates or charges of any type shall not validate a permit which has become void by reason of any other provision of this Division.
6. At the expiration of a permit, all such permit holders must reapply and shall become subject to the same conditions which apply to all new permits.
7. A letter of assurance for service availability for a single family residential unimproved lot or subdivision shall, in addition to all other terms and conditions required by District rules, regulations, and ordinances, provide that said letter does not unconditionally guarantee any priority or reservation of capacity but that the developer or subsequent purchaser must acquire a sewer permit prior to construction of any improvements. Said letter shall further provide that such permits will be issued by the District solely upon a first-come, first-served basis and only to the extent there is then remaining available capacity in the physical facilities for conveyance and treatment. The letter shall also indicate that such permits will be issued only upon payment of all then applicable fees and charges and in accordance with and subject to all then applicable District rules, regulations, and ordinances.

D. **Developments - Timing and Conditions for Issuance of Permit.** Notwithstanding any other Section of the District Code, no permit shall be issued for any development for which the County of Placer requires approval of a final subdivision map except upon the following conditions:

   1. The application for issuance of a permit shall be accompanied by a certified copy of documentation from the County of Placer indicating the County's approval of a tentative map for the proposed development; and,
   2. Any permits so issued shall automatically become void upon the expiration or invalidation of the tentative map, unless a valid final map has been approved and recorded in place thereof. This provision shall be in addition to any other Section of the District Code pertaining to the issuance, vesting or invalidation of permits.

Section 5.05 Application for Permit

Any person requiring a Permit shall make written application to the District Manager.

The District Manager shall provide printed application forms for the permits provided for by this Chapter, indicating thereon the information to be furnished by the applicant. The District Manager may require in addition to the information furnished by the printed form, any additional information from the applicant which will enable the District Manager to determine that the proposed work or use complies with the provisions of this Chapter.

Section 5.06 Renewal of Existing Permit

A. A permittee who needs an additional period of time in which to complete the project for which a permit was issued may apply for a renewal of the existing permit and receive a credit of funds already paid subject to the provisions of this Section.

B. To renew an existing permit, the permittee shall follow all District procedures applicable at the time of renewal to a person initially applying for a new permit including, but not limited to, the payment of all fees specified in Division VI.

C. To be valid, the request for renewal shall be submitted in writing by the permittee and received by the District three months or less after the date of the permit's expiration.

D. A permit shall not be eligible for renewal, and no credit of any funds paid shall be granted, if the request for the renewal or credit is not in writing or is received by the District more than three months after the date of the permit's expiration.

E. A person receiving a renewal of an existing permit shall be entitled to a credit towards the cost of renewing the permit of a rate set by the District of the fees actually paid under the issuance of the original permit.

F. A renewed permit shall be eligible for subsequent renewal only pursuant to a case-by-case review by the Board.

G. Notwithstanding any other provision of this Code, to maintain the validity of a renewed permit and keep it in full force and effect, a person holding a renewed permit must complete all work authorized by the permit within three years of the date of issuance of the original permit subject to Board review and approval and comply with all other requirements of this Chapter.

Section 5.07 No Refunds

The District shall grant no refunds on any monies paid pursuant to Division VI, which pertains to securing a permit or paying a connection fee.

Section 5.08 Sewer Mains in Public Ways

Before granting any permit for the construction, installation, repair or removal of any sewer main or appurtenances thereto, which will necessitate any excavation of fill, in, upon, or under any public street, highway or right-of-way under the jurisdiction of another public agency, the District Manager shall require the applicant to obtain the encroachment permit required by the public agency.

Section 5.09 Plan Approval Required

No Permit shall be issued until the District Manager has checked and approved the plans in accordance with other applicable provisions of this Chapter.

Section 5.10 Pumping Plants

Before granting a permit for the construction of any sewage pumping plant, the District Manager shall check and approve the plans or required modification thereof as to their compliance with county, state, and other governmental laws or ordinances and shall require that the facilities be adequate in every respect for the use intended.

Section 5.11 Excessive Discharge of Sewage

Any person proposing to have sewage discharged from any property to a public sewer in quantities or at a rate greater than the capacity for which the public sewer was designed, when such additional quantity will immediately overload the public sewer, shall be denied a permit to connect any facilities to the public sewer which will discharge more than the proportionate share allotted to the property. However, if such additional discharge will not immediately but may in the future overload the public sewer, a conditional permit to connect to the public sewer may be issued after the owner of the property agrees by an agreement satisfactory to the District Manager recorded against the land to construct or to share in the cost of construction of additional public sewer capacity at such future time as the District Manager determines that an overload situation exists or is imminent. The owner of the property shall supply a faithful performance bond guaranteeing compliance with the terms of the agreement, in a penal sum, which, in the opinion of the District Manager, equals the future cost of construction of public sewer facilities to carry such additional discharge.

The faithful performance bond shall be kept in full force and effect until such additional discharge is discontinued or until such additional public sewer facilities are completed, and this obligation shall pass to succeeding owners of the property.

If any owner fails to supply and keep in effect the required faithful performance bond or fails to comply with the terms of the covenant, the conditional permit allowing such additional discharge may be revoked, and the continuing of such additional discharge thereafter will constitute a violation of this Chapter.

The provisions of this Section shall also apply to any property previously connected to a public sewer, the discharge from which is later proposed to be increased or is found to have been increased substantially beyond the proportionate share of public sewer capacity allotted to the property.

Section 5.12 Pre-Plan Check Policy

Prior to the issuance of a permit, the permittee shall submit two (2) sets of plans to the District for pre-plan check. The plans shall be checked for compliance with all District specifications, rules, and regulations. Prior to the District performing the pre-plan check, the applicant shall pay a fee to the District as specified in Division VI of this Code. Such pre-plan check is not an assurance of sanitary sewer service nor a sewer permit for the particular project. The submittal of plans and/or documents for pre-plan check shall not constitute nor be considered an application for a sewer permit.

Section 5.13 Variance

Any consumer may obtain a variance from any provision of this Chapter pursuant to an application and public hearing before the Board of Directors of the District which application and variance is approved by a 4/5's vote of the members of the Board.

DIVISION VI FEES AND CHARGES

Section 6.01 Plan Checking Fees

Any person required by this Chapter to have improvement plans checked by the District shall reimburse the District for the actual total costs to the District of providing such a service. Such costs shall be determined by the District Manager. The District will require a non-refundable deposit as established from time to time by the Board for all commercial, industrial, public, single or multi-family proposed improvements.

Applications for plan checking are available at the District Office and are to be filled out by the Engineer submitting the improvement plans.

Section 6.02 Sewer Construction Permit Fee

Any person making a permanent or temporary improvement to the District's collection system shall reimburse the District for the total costs of field and structure inspection, procuring or preparing record plans, automobile mileage, and all overhead and indirect costs. The applicant shall also be responsible to pay the cost of all labor, equipment, and materials required for the actual improvements. Such costs shall be determined by the District Manager.

Section 6.03 Connection Fees

There is hereby levied and assessed against any premise, or portion thereof, which has been approved for connection to the District collection system, a connection fee as set by the Board from time to time. Connection fees are set forth in Schedule A.

A. Time of Payment. All connection fees shall be paid to the District upon approval of an application and prior to any construction.

B. Connections. Connections of building laterals or of the force main into the District's existing force main shall be charged the applicable connection fee.

C. Sewer Connection Fee. The District shall collect from all applicants for sewer service connections a connection fee which includes an existing system buy-in component, a component for future facilities required to accommodate future growth, and a debt service component. The existing system buy-in includes collection and general plant. The future facilities include collection related assets. The debt service component accounts for the principal owed by the District for existing assets.

1. The connection fee for a 1-inch or less residential meter shall be the basic unit in determining all other connection fees.

2. The connection fee for a residential services connection shall be as follows. This includes single family dwellings, multi-family units, duplex units, halfplexes, condominiums, apartments, ADUs, and lock off units.

i. Collection	$3,750
ii. General Plant	$2,064
iii. Debt Service	($187)
a. TOTAL	$5,627

3. The connection fee for commercial units shall be based on meter size as follows:

1” Meter	= $5,627
1.5” Meter	= $11,254
2” Meter	= $18,006
3” Meter	= $33,762
4” Meter	= $56,270
6” Meter	= $112,540

D. Meter Equivalency Factor. The connection fee for larger meter sizes are determined by multiplying the connection fee for a 1-inch meter by a meter equivalency factor. The connection fee for 2-inch and greater size meters shall be reviewed by the General Manager. Meter equivalencies shall be:

1-inch meter	1.0
1.5-inch meter	2.0
2-inch meter	3.2
3-inch meter	6.0
4-inch meter	10.0
6-inch meter	20.0

E. Connection Fees for Meters Larger Than 1-inch. This charge shall be determined by the General Manager on a case-by-case basis.

The applicant shall provide to the District the projected demand and meter size requested as certified by a qualified Engineer and subject to approval by the District Engineer.

The demand will be evaluated from time to time, at the sole discretion of the District. Said evaluation shall be complete within five years from the date of actual service. If the actual demand within that period differs from the estimated demand that was the basis for the original connection fee by more than 5%, then an additional charge will be assessed.

F. Change of Use. If at any time after payment of a connection charge, there is a change of use on the premises resulting in an increase in meter size, the owner shall, prior to issuance of a permit, pay the difference in connection fee for the meter size, as set forth in Schedule A attached hereto and incorporated herein by reference. In the case where a smaller meter size is determined there shall be no reimbursement of Connection Fees previously paid

G. Connection Fee for Multiple Dwelling Units Service connections for multiple dwelling units including, but not limited to, condominiums, apartments, duplex units, accessory dwelling units (ADUs), and lock-off units shall be assessed the same connection fee as for single family residential units.

Section 6.04 Billing for Sewer Service

The District shall begin billing for service when the District first determines a discharge to the collection system has occurred by the permittee or in accordance with Division V.

Section 6.05 Fee For Processing Sewer Line Easements

For each written contract required by Division V, requiring the processing of sewer line easements, the District shall be reimbursed by the applicant for the total actual costs of processing the required easement(s). In the event it is necessary to rewrite the description, the District again shall be reimbursed by the applicant for the actual total processing cost. A deposit may be required as set forth on Schedule A attached hereto and incorporated herein by reference.

Section 6.06 Application Fee

A. When a person applies for a permit, the applicant shall pay to the District an application fee as established from time to time by the Board (see Schedule A) per application made. The District shall not accept an application until it receives the application fee.

B. Any person who has paid an application fee pursuant to this section, and whose application expires or is canceled, withdrawn, voided, terminated, or abandoned, whether voluntarily or involuntarily, shall not be entitled to a refund of or credit from the application fee.

Section 6.07 Fees for Preparing Or Checking Special Studies

Before proceeding with the preparation of any special study, the District shall collect from the person making the request for the study a fee in the amount of the estimated cost of preparing the study, as determined by the District Manager. If, after the fee is paid, a change in the study is requested which will increase the cost of preparing the study, supplemental fees shall be collected in the amount of the estimated additional cost. Studies prepared by others and submitted for checking by the District shall be subject to the fee requirement stated above.

Section 6.08 Septic Tank, Cesspool and Holding Tank Discharge Prohibited

Disposal of residential, septic tank, cesspool, holding tank, wastes, or other discharges into the District's sewer system is prohibited.

Section 6.09 Collection of Fees Charged

All fees and connection charges shall be due prior to connection to and use of the collection system of the District.

Section 6.10 Rates and Charges for Sewer Service

A. Power of Board. For the purposes of providing funds for the maintenance, operation and capital improvements of the District, the Board may from time to time establish rates, charges, and other fees to be levied and assessed against consumers such as are necessary to carry out the provisions of this Chapter.

B. Definitions. For the purposes of this section only, the specified terms shall have the following definitions:

1. "Domestic users" shall mean all residential users, including single family units, residential condominiums, and other multi-family dwellings.
2. "Commercial users" shall mean all business or other similar users, commercial condominiums, hotels, laundries, laundromats, service stations, public buildings, and unoccupied storage/warehouses, swimming pools (semi-public), spa/hot tubs (semi-public).
3. "Commercial unit" shall mean each office, store, or other separately owned or operated commercial space or structure, including any commercial user which is not otherwise specifically identified.
4. "Industrial user" shall mean:
    a. Any user of a publicly owned treatment works:
        1. identified in the Standard Industrial Classification Manual, 1972, Office of Management and Budget, as amended; and,
        2. which discharges more than 50,000 gallons per day (gpd) of sanitary wastes, or which discharges, after exclusion of domestic wastes or discharges from sanitary conveniences, the weight of biochemical oxygen demand (BOD) or suspended solids (SS) equivalent to that weight found in 50,000 gpd of sanitary waste; or,
    b. any user of a publicly owned treatment works which discharges sewage to the treatment works which contains toxic pollutants or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, to contaminate the sludge of any municipal systems, or to injure or interfere with any sewage treatment process, or which constitutes a hazard to humans or animals, creates a public nuisance, or creates any hazard in or has an adverse effect on the waters receiving any discharge from the treatment works.
5. "Laundry" shall mean a commercial laundering facility.
6. "Laundromat" shall mean a self-service laundry utilized by the public.
7. "Public building" shall mean any public service building, including a police station or fire station, or any other publicly owned building not otherwise specifically identified.

C. Annual Service Charge. Each lot or premises which is connected to and each owner or customer receiving sewer service from the District's collection system shall pay an annual sewer service charge.

1. **Residential Sewer Rate.** There is hereby levied and assessed upon all residential users, a residential sewer rate consisting of a base rate.
    a. **Base Rate Charge.** For Single Family Residents, the base rate charge is equal to the unit value assigned by the District to the premise times the rate for a single-family unit. If additional units exist on the property, they will be charged a 2nd unit base rate as set forth in Schedule A, which is attached hereto and incorporated herein by reference
    b. **Unit Value.** The Manager shall assign to each premise within the District subject to a flat rate charge a unit value based on the classification system established by the District for such purpose. The basis for such a value shall be that a "living Unit" as defined under the definition of "single family unit" is considered to have a unit value

equal to 1.0.

2. **Commercial Sewer Service Rate.** There is hereby levied and assessed upon all commercial users a commercial sewer service rate, which rate is set forth on Schedule A, which is attached hereto and incorporated herein by reference.

3. **Industrial Sewer Service Rate.** There is hereby levied and assessed upon all industrial users an industrial sewer service rate, which is equal to the commercial sewer service rate as set forth on Schedule A, which is attached hereto and incorporated herein by reference.

    a. Additionally, the industrial user may be subject to an annual surcharge depending on the strength of the sewage, as may be determined by the District Manager from time to time. In the event that the average waste discharge characteristic and annual surcharge is disputed, the discharger shall submit a request for an analysis and flow measurement to the District and bear all expenses associated with measurement and sampling.

    b. For each industrial user, the District may require the installation, at the expense of the industrial user, of District-approved recording and sampling devices or sewage meters on the user's premises for use by the District. Such devices or meters shall be available for inspection by District personnel at any reasonable time. The industrial user shall be responsible for the maintenance, repair and replacement of all sampling or recording devices, sewage meters, and related equipment. The industrial user shall be responsible for any damage or expenses involved in the repair or replacement for which the industrial user, its agents, officers or employees is or are responsible.

    c. At its sole option and as an alternative to the industrial user charge, the District may require an industrial user to pretreat the user's sewage flow so that the flow, after exclusion of domestic wastes or discharges from sanitary conveniences, is less than the equivalent weight in BOD and SS found in 50,000 gpd of sanitary waste.

D. Service Charge. When an annual service charge is based on water use, the annual sewer service charge shall be determined as stated above. However, when a water meter fails to register or a meter cannot be reasonably read, the quantity rate component of the annual sewer service charge shall be based on the average quantity of water supplied for comparable service during the preceding year. When there is no record of water supplied for comparable service, the total service charge shall be determined by the District Manager.

E.

1. No sewage shall be collected from any premises or persons except through a service connection in compliance with the District's rules and regulations.

2. No sanitary sewer service or facility shall be furnished to any premises or persons free of charge.

F. Temporary Sewer Services:

The District shall charge any person who seeks a temporary sewer service a basic fee for each service requested. Rates, charges, deposits and rules and regulations thereof may be established from time to time by the Board as set forth in Schedule A. Fees for temporary sewer service shall include a service establishment fee and per trip cost to inspect facilities as set forth in Schedule A , attached hereto and incorporated herein by reference.

Section 6.11 Billing Procedures

A. Direct Bill. Except as otherwise specified herein, the District shall directly bill each individual owner of each lot or premises connected to the District's collection system. The annual sewer charge shall be payable by each owner and each customer. Each owner shall be liable to the District for payment of the annual sewer charge regardless of whether the owner is also the customer and regardless of whether service is provided through an individual service lateral or multi-customer service lateral.

B. Multi-Unit Billing. Where owners of premises in a multi-unit structure served through a multi-customer service lateral are billed individually and belong to a homeowners' or similar association, the association shall provide to the District current and up-dated lists of the owners of each premises. The association shall inform the District in timely fashion of any change in ownership in its members.

C. Composite Billing. Notwithstanding Section A above, the District may elect to send a composite bill to groups of customers served by individual or multi-customer service laterals when each of the following conditions are met:

1. The owners to be billed as a group own lots or premises in a multi-unit living structure;
2. The owners are served through one or more individual or multi-customer service laterals;
3. The owners have formally organized in writing into a homeowners or similar association.
4. The homeowners or similar association, through properly executed covenants, conditions, articles of incorporation or by-laws, has the power to act as the sole agent for the owners concerning sewer service charges in a manner which binds individual owners; and
5. The association enters into a written agreement with the District which provides, among other matters, that:
    a. The association shall be responsible for and guarantee payment of all such charges within the time required by the District's rules and regulations, regardless of whether any single owner has paid the owner's share of such charges to the association;
    b. The District shall bill to and the association shall pay all delinquent penalty and interest charges on the composite bills;

c. The District's bill or other notices to the association shall constitute a bill or other notice to each individual owner or customer, who shall agree that no other notice or bill to individual owners or customers shall be necessary for, or a prerequisite to, the District's exercise of its powers to terminate service, or place liens on each owner's property or exercise other legal remedies necessary to preserve the collection of and collect delinquent bills and charges, and;

d. The bill shall consist of the sum of the total annual sewer charges for each owner or customer represented by the association, which shall be the sum of the service charge for each customer, lot, or premises plus the total quantity rate charge for all service through the individual or multi-customer service lateral. The District shall not be responsible for any disparity among such customers for the amounts of sewage discharged or for the size of premises served. Any adjustment for such disparity in use or in the quantity rate charge shall be the responsibility of the owners or customers served.

D. Written Agreement. All applications for service shall constitute a written agreement to pay for all service rendered pursuant to the application and to be bound by all applicable District rules and regulations. An application shall be signed by the person who shall be responsible for the bills for sewer service provided through that service lateral, regardless of whether the service lateral is a single customer or multi-customer meter.

Section 6.12 Collection of Sewer Use, Service Charges and Rates

All sewer use, service charges and rates may be billed on the same bill and collected together with rates and charges for any other District services. If all or any part of such bill is not paid for any service, the District may discontinue any or all of the services for which the bill is rendered.

A. Time of Payment. All annual sewer service charges are payable in advance on an annual basis. Payment plans may be prearranged and are payable at the office of the District.

B. Issuance of Bills. All bills for sewer service will be rendered by the District as provided in this Chapter. Bills not paid sixty (60) days from billing date, except pursuant to payment plan, are delinquent.

C. Penalty and Administrative Charge. All delinquent bills will be subject to a penalty charge equal to 1% per month on all delinquent sums, plus a $10.00 administrative service charge for each additional billing that is prepared by District. Any check which is returned to District on the basis of insufficient funds or "refer to maker" are subject to an additional $25.00 service charge per check.

D. Notice of Delinquency, Administrative Charge, and Interest. On each bill for sewer service, notice will be given of the date upon which the billing shall become delinquent and of applicable administrative and interest charges as provided in this Chapter.

E. Pay First, Litigate Later. No appeal to the Board of Directors, nor legal or equitable process shall issue in any suit, action or proceeding before the District or in any court against the District or any officer, employee, or director of the District to appeal, prevent or enjoin the collection of any rate or charge, with or without interest, unless the same shall have been paid in full first.

F. Flat Rate Billing. Bills for flat rate sewer service will be rendered and are payable yearly in advance. Less than annual bills for flat rate service will be pro-rated to the end of the billing year in accordance with the applicable District schedule. Should the pro-rated period be less than one month, no pro-ration will be made and no bill shall be less than the monthly fixed charge. Flat rate service may be billed, at the option of the District, at intervals other than yearly.

G. Discontinuance of Service. A consumer's sewer service may be involuntarily discontinued for non-payment of a bill for service rendered at any current or previous location by District, provided said bill was presented to the consumer's last known address and has not been paid within sixty (60) days after the billing date. Discontinuation of service shall be in accordance with Division IX.

H. Joint and Several Liability. Two or more parties who join in one application for service or who jointly own property served by the District shall be jointly and severally liable for payment of bills and shall be billed by means of single periodic bills.

I. Payment Plan. If consumer is not in default to any other sum due District at the time of the rendering of the annual flat rate billing pursuant to the above, and provided further that applicant submits a written request to District within thirty (30) days of the rendering of the bill for a payment plan, District may allow a payment plan for the base rate billing on the following terms:

Payment plan agreement periods will be determined by the District for payment of full service fees due within the fiscal year of billing. One percent (1%) interest per month on the unpaid balance and $10.00 service fee per billing shall be included with the payment plan. Requesting a payment plan constitutes an agreement by the customer to make all payments on or before the set due date. Additional service fees shall be charged for each reminder notice or rebilling. Failure to make payments as scheduled constitutes a delinquency of the account whereby all remaining service fees, penalties and interest become immediately due and payable. Sewer service shall be discontinued for any account over sixty (60) days delinquent.

J. Reduction in Unit Count. District recognizes that a consumer may voluntarily elect to reduce the unit count on a parcel of real property and District will allow such reduction for the next fiscal year provided consumer:

1. Submits to District before April 30 on a form approved by District, a request for reduction, to take effect July 1 of the same year; and,

2. Allows District to inspect the building or buildings which are subject to the reduction within thirty (30) days of the application.

If the unit reduction request is granted there will be no reimbursement of connection charges previously paid.

Any reduction of annual service fees as a result of a reduction in unit count will be applied as a credit to the next annual billing

K. Deferral of Service Fees on Structures that are Destroyed. At the discretion of the General Manager, the owner of a residence or commercial structure destroyed by fire, avalanche, earthquake, or other disaster may be allowed a maximum 12-month courtesy period to rebuild without paying service fees. If approved by the General Manager, and the structure is rebuilt and approved for occupancy before the 12-month period has passed, service fees will immediately become payable. If the structure is not rebuilt within the 12-month period, minimum service fees must be paid in order to maintain a valid permit.

Section 6.13 Deposit

A. Prior to receiving sewer service, an applicant for sewer service may be required to deposit with the District a sum equal to twenty-five percent (25%) of the annual rate for sewer service.

B. A deposit may be required for each lot or premises when any of the following conditions occur:

1. Whenever an owner of property receiving sewer service from the District transfers the property to a new owner, the new property owner shall pay a deposit to the District as identified in Section A. above.
2. Whenever there is a change in the owner receiving sewer service, the new owner shall pay a deposit to the District as identified in Section A above.
3. Any District customer or property owner whose sewer service is disconnected due to non-payment of District charges shall pay a deposit, as specified in Section A above, as a pre-requisite for resumption of sewer service.

C. Notwithstanding sections A, B1, B2, or B3, an existing customer or property owner within the District who has not incurred any penalties or late charges on any sewer account with the District for nine (9) months of the immediately preceding twelve (12) months, shall not be required to deposit with the District an amount as identified in Section A above.

D. The District may use the deposit to pay any District bill, and penalties and interest thereon, which are otherwise unpaid by the customer or property owner. The District may also use the deposit for its costs of collecting the unpaid sewer service bill and penalties. If the District uses part or all of a customer's or property owner's deposit, that customer or property owner shall pay the District a sum adequate to maintain a deposit equal to 25% of the annual rate as a condition of continued sewer service.

E. The amount of deposit not used by the District shall be refunded to the customer or property owner when the customer or property owner voluntarily terminates sewer service with the District.

F. The amount of the deposit not used by the District may be credited to the account of the customer or property owner at such time as the District determines a deposit is no longer required, provided the District has held the deposit for a minimum of twelve (12) months.

DIVISION VIII INSPECTION

Section 8.01 Inspection by District Manager or Designee

All work done under the provision of this chapter shall be subject to inspection by and shall meet the approval of the District Manager or designee, provided, however, that approval by the District Manager shall not relieve the permittee or any other person from complying with any other applicable ordinance.

After the fee required has been paid and the permit issued, the District Manager or designee shall inspect the construction for compliance with the requirements of this chapter.

Section 8.02 Notification When Ready For Inspection

The permittee shall notify the District at least twenty-four hours prior to the time any inspection is to be made.

Section 8.03 Work Shall be Uncovered and Convenient

At the time of the inspection the permittee shall have all work uncovered and convenient, and shall give the District Manager or designee every facility to make a thorough inspection.

Section 8.04 Correction of Defective Work

If the construction does not conform to the provisions of this chapter, or if the permittee fails to prosecute the work with such diligence as to insure its completion within the time specified, the District Manager will notify the permittee in writing to comply. If the permittee fails to comply within five (5) days after the written notice, the permit shall be suspended or revoked in accordance with the procedures set forth hereinafter.

Section 8.05 Materials and Construction to Meet Standard Specifications

All material used in any work done under provisions of this Chapter shall be new, first-class material and shall conform to, and the manner of construction shall meet all the requirements prescribed in Chapter 7. All such work shall be approved by the District Manager or designee before a certificate of final inspection will be issued.

Section 8.06 Facilities Not to be Used Prior to Final Inspection

No sewer or other facility constructed under the provisions of this chapter shall be placed in use until the work has been approved by the District Manager and a certificate of final inspection has been issued. Exceptions to this requirement may be made only when the work is substantially complete and has been inspected, and if the District Manager determines that the best interests of the public will be served by permitting such use prior to completion of the work.

DIVISION IX   ENFORCEMENT

Section 9.01   Authority of District

A. The rates and charges levied pursuant to this Chapter shall be collected by the Board, who shall make and enforce such regulations as may be necessary for safe, economical and efficient management and protection of the District distribution system, and such regulation, collection, rebating and refunding of such charges or rentals.

B. In the event of a violation of any of the laws of the State of California, Placer County, or the ordinances or rules and regulations of the District, the District shall notify the person or persons causing, allowing, or committing such violation, in writing, specifying the violation and upon the failure of such person or persons to cease or prevent further violation within five (5) days after the receipt of such notice, the District shall have authority to disconnect the property served from the District system.

C. Duty of Manager. The General Manager is hereby charged with the duty to enforce all of the provisions of this Division and Chapter.

Section 9.02   Public Nuisance

Continued habitation of any building or continued operation of any industrial or commercial facility in violation of the provisions of this or any other ordinance, rule or regulation of the District is hereby declared to be a public nuisance. The District may cause proceedings to be brought for the abatement of the occupancy of the building or industrial or commercial facility during the period of such violation.

Section 9.03   Public Nuisance, Abatement

During any period of disconnection, habitation of such premises by human beings shall constitute a public nuisance, whereupon the District shall cause proceedings to be brought for the abatement of the occupancy of said premises by human beings during the period of such disconnection. In such event, and as a condition of reconnection, there is to be paid to the District a reasonable attorney's fee and cost of suit arising in said action.

Section 9.04   Discontinuance of Service

Service may be discontinued for any one of the following reasons:

A. Delinquency in the payment of any bill, except that residential service shall not be discontinued for non-payment in any of the following situations:

1. During the pendency of any investigation by the District of a customer dispute or complaint.
2. When a customer has been granted an extension of the period for payment of a bill.
3. On the certification of a licensed physician and surgeon that to do so will be life threatening to the customer and the customer is financially unable to pay for service within the normal payment period and is willing to enter into an amortization agreement with the District and requests permission to amortize, over a period not to exceed twelve (12) months, the unpaid balance of any bill asserted to be beyond the means of the customer to pay within the normal payment period.

B. The unauthorized discharge of sewage in excess of the amount paid for.

C. Failure of the customer to maintain his facilities in a suitable condition to prevent storm water or surface water inflow.

D. Any violation by the customer of any rules and regulations of the District governing sewer service.

E. Any fixture, apparatus, appliance or equipment discharging sewage is found by the Manager to be dangerous or unsafe.

F. The use of sewer service on such premise is found by the Manager to be detrimental or injurious to the collection service furnished by the District to other consumers.

G. The Manager finds that negligent or wasteful use of water exists on any premise which affects the District's water or sewer service.

H. A consumer has ignored to correct any notice of sewer inflow and infiltration given pursuant to this Chapter within five days following mailing of such notice to the last known address of the consumer.

I. A consumer is aiding and abetting another consumer in a violation of this Code or any other law.

In the event of any violation of this Ordinance which results in a public hazard or menace, or in any other appropriate circumstance, the Manager may enter upon the premise with or without notice and do such things and expend such sums as may be necessary for the safety of the public or District sewer collection system.

Section 9.05 Notice Prior to a Discontinuance of Residential Service for Nonpayment

A. At least ten (10) days before any proposed discontinuance of residential service for nonpayment of a delinquent account, the District shall mail a notice, postage pre-paid to the customer to whom the service is billed, of the proposed discontinuance. Such notice shall be given not earlier than nineteen (19) days from the date of mailing the District's bill for such service and the ten (10) day period shall not commence until five (5) days after the mailing of the notice. In addition to the ten (10) day notice provided for in the preceding sentence, the District shall make a reasonable, good faith effort to contact an adult person residing at the premises of the customer by telephone or in person at least forty-eight (48) hours prior to any discontinuance of such service.

B. Every notice of discontinuance of service required by this Section shall include all of the following information:

1. The name and address of the customer whose account is delinquent.
2. The amount of delinquency.
3. The date by which payment or arrangements for payment is required in order to avoid discontinuance.
4. The procedure by which the customer may initiate a complaint or request an investigation concerning service or charges, unless the District's bill for services contains a description of that procedure.
5. The procedure by which the customer may request amortization of the unpaid charges.
6. The procedure for the customer to obtain information on the availability of financial assistance including private, local, state or federal sources, if applicable.
7. The telephone number and name of a representative of the District who can provide additional information or institute arrangements for payment.

Section 9.06 Notice Prior to a Discontinuance Other than a Discontinuance of Residential Service for Nonpayment

At least ten (10) days before discontinuing service, other than the discontinuance of residential service for nonpayment of a delinquent account, which is provided for in Section 9.05, the District shall provide the customer with a written notice which shall specify the reason for the proposed discontinuance and inform the customer of the procedure for and the availability of the opportunity to discuss the reason for the proposed discontinuance with the General Manager or designee, who is empowered to review disputes and rectify errors and settle controversies pertaining to such proposed discontinuance of service. The name and phone number of the General Manager, or designee, shall be included in any such notice of proposed discontinuance given to a customer.

Nothing in this section shall require the District to make service available to actual users unless each actual user agrees to the District's terms and conditions of service and meets the requirements of the District's rules and regulations. If one or more actual users are willing and able to assume responsibility for the entire account to the satisfaction of the District, or if there is a physical means, legally available to the District, of selectively terminating service to those actual users who have not met the requirements of the District's rules and regulations, the District shall make service available to the actual users who have met those requirements.

Section 9.07 Notice of Discontinuance of Residential Service to Customers on Master Service Laterals

Whenever the District furnishes residential service to a master service lateral or furnishes individually metered service to a multi-unit residential structure, or other use where the owner, manager, or employer is listed by the District as the customer of record, the District shall make every good faith effort to inform the actual users of the service, by means of a notice, when the account is in arrears, that service will be discontinued within ten (10) days. Such notice shall also inform the actual users that they have the right to become District customers without being required to pay the amount due under the delinquent account.

Section 9.08 Discontinuance of Service on Weekends, Holidays or After Hours

No sewer service shall be discontinued to any customer or user because of any delinquency in payment on any Saturday, Sunday, legal holiday, or at any time during which the business offices of the District are not open to the public.

Section 9.09 Amortization of Delinquent Bill for Residential Service

Every complaint or request for investigation by a residential customer that is made within five (5) days of receiving the disputed bill, and every request by a residential customer that is made within thirteen (13) days of the mailing of the notice required by this Chapter for an extension of the payment period of a bill asserted to be beyond the means of the customer to pay in full during the normal period for payment shall be reviewed by the General Manager, or designee. The review shall include consideration of whether the customer shall be permitted to amortize the unpaid balance of the account over a reasonable period of time, as determined by the District. Any customer, whose complaint or request for an investigation has resulted in an adverse determination by the General Manager, or designee, may appeal the determination to the Board of Directors.

Section 9.10 Authority to Settle Controversies Relating to Discontinuance and to Permit Amortization of Delinquent Bills

The General Manager, or designee, is hereby authorized to investigate complaints and review disputes pertaining to any matters for which service may be discontinued and to rectify errors and settle controversies pertaining to such matters. The General Manager, or designee, is also authorized upon a proper showing by a residential customer of the customer's inability to pay a delinquent bill during the normal period, to grant permission to amortize the unpaid balance over a reasonable period of time, as determined by the District.

At his or her discretion, the General Manager may bring such controversies to the Board for settlement by the Board prior to the discontinuance of any such service.

Section 9.11 Notice Required Prior to Discontinuance of Service for Failure to Comply with Amortization Agreement

If an amortization agreement is authorized, no discontinuance of service shall be effected for any residential customer complying with such agreement, if the customer also keeps the account current as charges accrue in each subsequent billing period. If a residential customer fails to comply with an amortization agreement, the District shall not continue service without giving notice to the customer at least forty-eight (48) hours prior to continuance of the conditions the customer is required to meet to avoid discontinuance, but the notice does not entitle the customer to further investigation by the District.

Section 9.12 Disconnection/Reconnection

When service has been disconnected as provided in this ordinance the customer shall pay the unpaid account balance in full plus a disconnect/reconnect charge as set forth in Schedule A, attached hereto and incorporated herein by reference, before any disconnected service will be reconnected. Additionally, a deposit may be required per this Chapter.

Section 9.13 Means of Enforcement Only

The District hereby declares that the foregoing procedures are established as a means of enforcement of the terms and conditions of its ordinance, rules and regulations and not as a penalty.

Section 9.14 Lien

Each rate, charge, penalty, or rental levied by or pursuant to this Chapter on property is hereby made a lien upon said property as hereinafter provided.

A. Liens. Delinquent charges, interest and penalties thereon when recorded as provided in the Revenue Bond Law of 1941 (Government Code section 54300, et seq.) shall constitute a lien upon the real property served (except that no such lien shall be created against publicly owned property) and such lien shall continue until and unless all charges and penalties thereon are fully paid or the property is sold therefor.

B. Default. In the event that any customer or owner fails to make such payment as provided above, the customer, owner, and subject property shall be deemed to be in default and in such cases, the District may declare the balance or remaining balances due and payable. In the event the District is required to bring action to collect any sum in default under District Ordinance terms, the customer or property owner shall pay, as an additional penalty, any and all Attorneys fees and/or Court and legal costs incurred by the District to bring such action. The District shall not be limited to any one remedy in the event of default, but may avail itself of any remedy or legal procedure available to it in such event.

C. Delinquency Notice. The District shall include a statement on its bill to each customer or property owner, or shall provide such statement to each property owner by any other means, that any charges remaining delinquent for a period of sixty (60) days may become a lien against the lot or parcel of land against which the charges were imposed.

D. Assessment. All rates, charges, penalties, and interest that remain delinquent as of June 30 of each year may be collected in the same manner as the general taxes for the District for the forthcoming fiscal year provided that the District shall have given prior notice to the customer-property owner of the lots or parcels affected as follows:

1. By May 30 of each year the District staff sill prepare a written report for the Board of Directors containing a description of each parcel of real property receiving a specific service and the amount of delinquent charges, penalties, and interest due against that parcel on June 30. The report of delinquent sewer service charges may be combined with a report for any other delinquent charges.
2. The staff shall publish a notice of the filing of the report and of the time and place of hearing by the Board of Directors on the report. Such publications shall be for not less than once a week for two weeks prior to the date set for hearing. The same notice shall be mailed to the owner of each parcel listed on the report as that owner appears on the last equalized assessment roll.
3. At the time of the hearing stated in the notice, the Board of Directors shall hear and consider all objections or protests to the delinquency report. Thereafter, the Board may adopt, revise, change, reduce or modify any charge, overrule any or all objections, and make its determination upon the propriety of each charge and delinquency described in the report. The Board's determination shall be final. Thereafter, the Board may adopt a resolution approving the delinquency charge report, as modified if appropriate, and record such report with the Placer County Recorder, and request the County Auditor to include the amount of delinquencies on the bills for taxes levied against the respective lots and parcels. The resolution and report will be transmitted to the County Auditor not later than July 1 of each year.

E. Action, Attorneys' Fees, Administrative Fees. The District may bring an action in any court of competent jurisdiction for the collection of delinquent charges and interest thereon against the person or persons who occupied or, who owned the property when the service was rendered or against any person guaranteeing payment of bills, or against all said persons. Cost of suit and reasonable attorneys' fees shall be awarded District, pursuant with section 5053 of the Health and Safety Code of the State of California.

If District commences legal action to recover delinquent charges and interest thereon, District shall recover, as an element of damages in said action a sum as determined by the Manager, which sum represents the administrative expense to the District, not including attorneys' fees, as being directly necessitated by the legal action.

F. Availability Charge Addition To Tax. In case any sewer service availability charge is delinquent, the District may add such charge plus any allowed administrative charge or interest to the tax bill of the premise receiving such service subject to the provisions of section 31032 et seq. of the Water Code.

Section 9.15 Cumulative Remedies

All remedies set forth herein for the collection and enforcement of charges, rates, and penalties are cumulative and may be pursued alternatively or consecutively.

Section 9.16 Appeals

A. By Motion of Board. The Board may, at any time, upon its own motion, exercise its power to overrule any determination made by the Manager under the terms of this Chapter and these regulations.

B. By Other Persons. Any person who shall have a right to appeal as provided in this Chapter or who has other grounds for appeal of any determination of the Manager must appeal such determination or other action in writing within thirty (30) days thereof, and must set forth the determination or other action to which such person objects and the grounds for such objection.

C. Report by Manager. In the event of any such appeal, the Manager shall transmit to the Board a report upon the matter appealed within thirty (30) days thereof.

D. Hearing. The Board shall hear any appeal within a reasonable time after receiving notice thereof.

E. Notice. The Board shall cause notice of any such hearing to be given at least fifteen (15) days prior to the hearing and shall include a statement that the appeal will be heard by the Board, the location, date and time of the hearing to the appealing party by personal delivery or by mailing such notice to his or her last known address.

F. Witnesses. The Board may, at its discretion, subpoena witnesses to attend such hearing.

G. Effect of Determination. If the Board determines that the appealing party must pay any charge or do any other act, such party shall be required to do so forthwith, together with any administrative fee or interest, as provided in this Chapter.

DIVISION X MAINTENANCE AND TESTING OF FACILITIES

Section 10.01 Maintenance and Testing of Private Sanitary Sewer Facilities

The owner or their agent of a property served by the District's sanitary sewer shall be responsible for the operation and maintenance of the private sanitary sewer facilities, including all devices or safeguards required by this section, which are located upon said property. The owner or their agent's operation and maintenance responsibility is from the building to the point of service.

The owner or their agent shall, at their own risk and expense, install, keep and maintain in good repair all private sanitary sewer facilities (sanitary sewer pipelines, building laterals, force mains, manholes, equipment, pump stations, and related appurtenances) situated on the premises so served. The District shall not be responsible for any loss or damage caused by improper or defective installation of private sanitary sewer facilities, whether inspected and/or approved by the District. All such installations of private sanitary sewer facilities shall conform with all federal, state, county, town and local laws, rules, regulations and ordinances.

The owner or their agent served by the District's sanitary sewer system shall be responsible and liable for all costs involved in the repair of all damages caused by the owner, customer, or agents thereof, to the District's sanitary sewer facilities, including but not limited to sewer obstructions, wherever located.

All private sanitary sewer facilities found in need of repair as a result of testing procedures required by this chapter shall be repaired and/or installed to the standards set forth in this Chapter.

Section 10.02 Conditions Requiring Testing of Sanitary Sewer Facilities

It shall be unlawful for any owner of a house, building, or property connected to the District's sanitary sewer system to maintain private sanitary sewer facilities in a condition such that the tests contained herein cannot be successfully accomplished.

All private sanitary sewer facilities, including those serving residential, multiple residential, commercial, and industrial connected to the District's sanitary sewer system shall be tested when any of the following conditions occur:

1. Connecting a new structure to the District’s sewer system.
2. Remodeling of the house, building or property served by the District’s sewer system.
3. The addition of living quarters, such as Accessory Dwelling Units (ADUs).
4. Installation of additional plumbing fixtures in the house or property served and/or installation of an additional building lateral pipeline.
5. Change of use of the house, building, or property serviced from residential to business or commercial, or from non-restaurant commercial to restaurant commercial.
6. Upon repair or replacement of all or part of the building or house service laterals.
7. Prior to the close of escrow upon the sale of a house, building or property served, or by private transfer of a house, building or property served, unless the house, building or property served has been tested within the previous five (5) years. However, if the building lateral is new or has been completely replaced within the prior ten (10) years, is constructed out of allowable pipe material, includes a double-wye cleanout, and was tested and passed when the system was installed, a pressure test will not be required prior to the close of escrow.
8. Where inflow or infiltration is suspected, or if a defect in the building lateral is suspected based upon observation by the District.

9. Upon determination of the General Manager that testing or sanitary sewer replacement is required for the protection of the public health, safety, and welfare.

Section 10.03 Testing Procedures for Existing Sanitary Sewer Facilities

The owner or their agent of a house, building, or property connected to the District's sanitary sewer system shall conduct all private sanitary sewer facility upgrades and testing required at their sole expense and shall notify the District 48 hours prior to testing. Testing shall be witnessed by a District Inspector.

Sanitary Sewer Pipelines: All building laterals and privately owned main pipelines shall be tested by the air method in accordance with the Sewer Technical Specifications.

In the case of building laterals, the test section shall be from the building cleanout to the point of service or property line cleanout. The test section includes all private pipelines which provide sanitary sewer service to the parcel in question. Privately owned main pipelines shall be tested their full length.

If a cleanout has not been installed at the point of service or easement/property line, a two-way cleanout shall be installed prior to testing. If there is no cleanout located outside the building foundation (within five feet of the foundation wall), then a cleanout shall be installed. If the building lateral exits the foundation under an existing deck or concrete patio, the location of the building cleanout near the foundation may be modified on a case-by-case basis as determined by the General Manager. The cleanouts shall be installed and boxed as specified in the Sewer Technical Specifications. The owner or their agent shall be responsible for such installation. A cleanout underneath the house is not acceptable.

The building cleanout can be substituted by installing a two-way cleanout at the property line when the distance from the point where the building sewer exits the foundation to the property line cleanout is less than 10 feet and the building lateral consists of a single pipe segment with no fittings. Such building laterals will be considered too short to test. At the District's discretion, building laterals that are too short to test may be required to be televised to confirm integrity of pipeline.

Residential Pump System Testing: Residential pump systems shall be inspected and tested for compliance with the Sewer Technical Specifications.

Section 10.04 Time Limits for Completion of Testing Procedures

Testing shall be completed in a timely manner as follows:

- Prior to the close of escrow upon the sale of the residence, building, or property, or transfer of ownership or interest in the parcel, the facility, or the business, or
- Within 30 days of standard notification by the District, or
- Immediately if it is determined by the General Manager that testing and repair are necessary to protect public health and the integrity of the sanitary sewer system.

Section 10.05 Cash Security in Lieu of Testing

1. **Weather Conditions, Excavation Restrictions Prohibit Testing:**

Should cleaning, testing, repair or replacement be required on a gravity or pressurized private service lateral at a time when weather conditions, excavation restrictions, or other circumstances prohibit such repairs, the General Manager may defer completion of the requirements until such date as agreed upon between the Owner and the District. If the test is deferred, the Owner shall enter into a contract for performance of said work and shall place a cash deposit in the form of a money order, payable to the District, in an amount equal to one hundred twenty-five percent (125%) of the estimated cost of cleaning, testing, repair or replacement of the private service lateral or sewer pressure system components.

The District shall prepare an estimate of said replacement costs. The Owner shall obtain an estimate from a California State licensed contractor for performing all work necessary so that the private service lateral will pass a sewer pressure test.

The deposit required shall be based upon one hundred twenty-five percent (125%) of the estimated costs from whichever estimate is greater (District's or Contractor's). This amount will be held until the repair or replacement is made, which must be no later than June 15 following the circumstances preventing initial cleaning, testing, repair or replacement.

If the work agreed to is not completed by June 15, the deposit held by the District shall be used by the District to physically disconnect the private service lateral or to perform the work agreed to. The District may use the funds to pay a contractor to physically disconnect the sewer service or to perform the necessary work, at District's discretion. Should such costs exceed the amount deposited, the difference shall be billed to the Owner of record.

Upon completion of the necessary work, whether by Owner, District or contractor, the balance of funds will be released to the Owner within 15 days of the approved inspection of the work.

2. Time of Sale: Weather Conditions or Excavation Restrictions Prohibit Testing:

Owners must plan for and make every effort to complete pressure testing of the building lateral prior to close of escrow. The purpose of the withhold is to ensure the integrity of the building lateral by holding funds for its repair or replacement during periods when the lateral is inaccessible. In the event that sewer cleaning, testing, repair or replacement would be required, at a time when weather conditions or excavation restrictions prohibit such repairs, the District may defer completion of such requirement until June 15th or such earlier date as agreed upon with the property owner. If the test is deferred, the Owner shall enter into a contract for performance of said work and shall place a cash deposit in the form of a money order, payable to the District, in an amount equal to one hundred twenty-five percent (125%) of the estimated cost of cleaning, testing repair or replacement of the private service lateral or sewer pressure system components. The owner must also provide the District with a copy of an executed, binding contract with a California State licensed contractor, authorizing that contractor to perform all work necessary to test and repair or replace the existing building lateral so that it will pass a sewer pressure test. The contract will include the cost to repair or replace existing pressurized systems and abandon any septic systems that may be on the property.

In place of a cash deposit, the owner shall escrow funds in an amount equal to one hundred twenty-five (125%) percent of the District's estimate, if the property is being sold. Funds escrowed will not be released without written notification by the District to the title company holding such funds. If the cleaning and testing is not completed by the time set by the Sewer Code, the funds held in escrow shall be released to the District. Said funds may be used by the District to perform or have a contractor perform physical disconnection, testing, repair or replacement of the building lateral.

Should such costs exceed the amount held in escrow; the difference will be billed to the property owner of record. Such costs may become a lien on the property in accordance with normal service charge billing procedures. If funds held in escrow are released without the consent of the District and testing has not been satisfactorily performed, the District may perform or have a contractor perform physical disconnection, testing, repair or replacement of the sewer service lateral. Such costs may become a lien on the property in accordance with normal service charge billing procedures.

Upon completion of the necessary work, whether by Owner, District or contractor, the balance of deposited funds will be released to the original depositing party within 15 days of the approved inspection of the work.

Section 10.06 Unsatisfactory Test Results

If a building lateral fails a pressure test following two (2) attempts, or if the visual inspection reveals defects, the line shall be repaired or replaced at the owner's expense, within 30 days of the date of the initial pressure test. The owner shall be responsible for notifying the District and secure a permit before corrective work has been started. The owner shall be responsible for notifying the District after the corrective work has been completed to schedule a new test.

When any work has been inspected and the test results are not satisfactory, notice to that effect shall be given instructing the Owner of the premises or the agent of such Owner, on-site and in writing, to repair the sewer or perform other work authorized by the permit in accordance with the ordinances of the District.

Section 10.07 Removal of or Injury to Sewer

An unauthorized person shall not remove or cause to be removed, or injure or cause to be injured, any portion of any public sewer, sewage pumping plant, water pollution plant, or any appurtenances thereto.

Section 10.08 Opening Manhole

An unauthorized person shall not open or enter, or cause to be opened or entered, for any purpose whatsoever, any manhole in any public sewer.

DIVISION XI DISCHARGE OF WASTE TO THE PUBLIC SEWER

Section 11.01 Waste Disposal Permit Required

No person shall discharge, or cause to be discharged, any industrial waste into the District sanitary sewer system without having obtained an Industrial Waste Permit from T-TSA. Such permit is required in addition to any other permits that may be required by the District Code, County Code, State statute or other ordinance, rule or regulation applicable to the industrial discharge. [Added by Ord. 99-05]

A person discharging waste into a public sewer shall obtain a temporary sewer service permit from the District prior to discharge. Persons requesting a temporary sewer service shall pay applicable fees in accordance with Schedule A. [Amended by Ord. 00-01]

The District shall not grant such a permit unless it finds that sufficient capacity exists in the public sewer to allow for such waste.

For the purpose of this section, garbage grinders powered by motors of more than one horsepower and grease interceptors installed in restaurants are considered to be industrial waste facilities.

Section 11.02 Revocation of Permit

The District Manager may recommend that revocation of, and the Board may revoke, any permit, if, after a public hearing, if a public hearing is requested, or otherwise, after due investigation, the Board finds that the Permittee has failed to correct conditions as required by the District, or that fraud or deceit was employed in obtaining the permit, or that any other violation of this Chapter exists.

Section 11.03 Application Form

The District shall provide printed application forms for the permit required by this Section indicating thereon the information to be furnished by the applicant. The District may require in addition to the information furnished by the printed form, any additional information from the applicant which will enable the District to determine that the proposed disposal complies with the provisions of this Chapter.

Section 11.04 Permit

If it appears from the application for any permit required by this article that the proposed disposal complies with the provisions of this Chapter, the District, upon receipt of the fees hereinafter required, shall issue such permit.

Section 11.05 Liquid Waste Disposal

Before granting a Waste Disposal Permit to any applicant, the District shall determine either that the waste is one which will not damage or destroy the public sewer or cause an unwarranted increase in the cost of maintenance of the public sewer or retard or inhibit the treatment of the sewage or is one that can be made acceptable by pre-treatment.

Section 11.06 Pretreatment Plans Required

In the event pretreatment or special facilities are required to make the waste acceptable as provided under the provisions of this Chapter, the applicant for a Waste Disposal Permit may be required to furnish plans showing the method of collections and pretreatment proposed to be used, and a permit shall not be issued until said plans or required modification thereof have been checked and approved by the District.

Section 11.07 Limitations on Use of Sewer

A person shall not place, throw, or deposit, or cause or permit to be placed, thrown, or deposited in any public sewer or main line sewer any dead animal, offal, or garbage, fish, fruit, or vegetable waste, or other solid matters, or materials or obstructions of any kind whatever of such nature as shall clog, obstruct or fill such sewer, or which shall interfere with or prevent the effective use or operation thereof. A person shall not cause or permit to be deposited or discharged into any such sewer any water or sewage or liquid waste of any kind containing chemicals, greases, oils, tars, or other matters in solution or suspension, which may clog, obstruct or fill the same, or which may in any way damage or interfere with or prevent the effective use thereof, or which may necessitate or require frequent repair, cleaning out or flushing of such sewer to render the same operative or which may obstruct or cause an unwarranted increase in the cost of treatment of the sewage. No person shall install, operate, use or maintain upon the premises of any facility any mechanical grinder or waste grinder that is connected directly or indirectly to the sewer system. Storm runoff water shall not be discharged into a sanitary sewer. Any person or entity causing damage to, obstruction to, or spillage from the sanitary sewer shall be fully liable and responsible for all costs and damages, including to person or property and loss of use thereof, as may be suffered or incurred by the District to repair, replace or remediate said damage, obstruction, spillage or conditions resulting from improper use of the sewer collection system. [Amended by Ord. 00-01]

No person shall discharge, cause, or permit to be discharged into the public sewer the following: (Amended by Ord 2009-06)

1. Any gasoline, Benzene, Naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas;
2. Any liquid or vapor having a temperature higher than one hundred forty (140) degrees Fahrenheit.
3. Any water or waste containing fats, wax, grease, or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures below sixty (60) degrees Fahrenheit.
4. Any garbage from a residential unit that has not been properly shredded. Properly shredded is defined to mean ground to a fineness sufficient to pass through a 3/8 inch screen. Garbage is prohibited from a commercial property.
5. Any water or wastes containing 300 milligrams per liter, suspended solids, or excessive dissolved solids.
6. Any water or wastes containing acid or concentrated plating solutions whether neutralized or not.
7. Any water or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement.
8. Any waste water containing cyanides in excess of two milligrams per liter (2 mg/l).
9. Any noxious or malodorous gas or substance capable of creating a public nuisance.
10. Any radioactive wastes or isotopes.
11. Any water or wastes having pH lower than 6.5 or higher than 8.5. Before any person shall discharge acids or alkalis into the public sewer, he shall control the pH to the extent the District finds adequate.
12. Any wastewater with an excessive BOD or chemical oxygen demand.
13. Any waste water which is prohibited (volume or substance) by the Tahoe-Truckee Sanitation Agency, Ordinance 1-88, or as amended, to be discharged to the sewage treatment plant.
14. Any substance prohibited by Proposition 65, California Constitutional Amendment.

15. Any water or wastes which contain substances or possess characteristics which, in the judgment of the General Manager, may have a deleterious effect upon the sewage treatment works or collection system.
16. The use of diluting waters to meet the requirement standards for discharge of waste is prohibited.

Section 11.08 Water

No uncontaminated water shall be discharged into a public sanitary sewer except by written permission from the District.

Section 11.09 Toxic Substances

All toxic chemical substances shall be retained or rendered acceptable to the District's satisfaction before discharge into the public sewer.

Section 11.10 Rights of Permittee

Within the time specified in the notice of violation of suspension, the permittee shall correct and remedy the conditions so specified, to the satisfaction of the District Manager, or file with the Board a denial that all of the conditions so specified exist, request a public hearing, and correct the conditions which the permittee admits to exist, or file with the Board a denial that any of the conditions so specified exist and request a public hearing.

Section 11.11 Application Fee for Waste Permit

The District shall collect an application fee of $20.00 with each application, which fee shall be separate and apart from any fees or deposits collected or imposed under other ordinances or regulations or by reason of any license, agreement or contract between the applicant and other public agency. Such application fee shall not be refunded even though the application be denied.

Section 11.12 Waste Treatment Plants or Facilities Required

Except for the mandatory installation required by Section 11.16, waste treatment plants, facilities or interceptors shall be installed whenever the District shall find as a fact that such facilities are required to safeguard the public health; prevent pollution of streams, or bodies of surface or underground water, prevent pollution of storage reservoirs, either natural or artificial; prevent damage or increased maintenance costs in the sewerage system; prevent damage to public or private property; prevent a public nuisance; or to comply with applicable regulations of any other public agency. (Amended by Ord 2009-06)

Section 11.13 Installation

Interceptors or other waste treatment plants or facilities shall be so installed and constructed that they shall be at all times easily accessible for inspection and maintenance. The District may require an inspection manhole on the owner's property for sampling and measurement of flow.

Section 11.14 Maintenance and Operation of Private Treatment Plants or Facilities

All waste treatment plants or facilities and all appurtenances thereto, now existing or hereafter constructed under jurisdiction of this Chapter shall be maintained by the owner or person having control of the property affected in good operating condition and in a safe and sanitary condition at all times. All devices and safeguards which are required by this Chapter for the operation thereof, and all records of such operation shall be maintained in good order.

Section 11.15 Access to Properties

The District shall be permitted at all reasonable hours to inspect waste treatment plants or facilities and to enter and inspect the place, enclosures, or structure where wastes or effluent are discharged or deposited.

Section 11.16 Waste Pretreatment Removal Devices

Gravity grease interceptors shall be installed in all establishments which handle, prepare, cook , or service foods or where, in the opinion of the General Manager, they are necessary for the handling of wastes that can affect the proper functioning of the sewer system. With the exception that such interceptors shall not be required for dwelling units. All gravity grease interceptors shall be installed and maintained to comply with the Sewer Technical Specifications and the most current version of the California Plumbing Code, be maintained in good working order, and be supported by records of maintenance and proper operation. Maintenance records shall be provided to the District upon request.

Grease interceptors shall be installed on all new establishments and on existing establishments within ninety (90) days of the following events:

1. Change of ownership of either the underlying property or business.
2. Increase in seating capacity (either inside or outside).
3. An issuance of a County building permit for construction, reconstruction, remodel, or related work to be performed on the premise.
4. Any establishment found to be discharging fats, oils, and grease (FOG) into the sewer system in unreasonable quantities as determined by the District.
5. Receipt of written notice from the General Manager indicating the necessity to install a device.

Sand-oil interceptors shall be installed prior to discharge of waste to the sewer system in all establishments where, in the opinion of the General Manager, they are necessary for the handling of liquid wastes containing grease, flammable wastes, sand, oil, solids, or acidic or alkaline substances in quantities that can affect the proper functioning of the sewer system. With the exception that such interceptors shall not be required for dwelling units. All sand-oil interceptors shall be installed and maintained to comply with the Sewer Technical Specifications and the most current version of the California Plumbing Code, be maintained in good working order and be supported by records of maintenance and proper operation. Maintenance records shall be provided to the District upon request. Sand-oil interceptors shall be installed at the following facilities:

1. Recreational vehicle dump stations.
2. Vehicle wash stations.
3. All automotive service bays and automotive repair shops must have floor drains connected to the sewer system. All such floor drains shall have a sand-oil separator installed.
4. All other establishments where, in the opinion of the General Manager, they are necessary for the handling of liquid wastes containing grease, flammable wastes, sand, oil, solids, or acidic or alkaline substances in quantities that will affect the proper functioning of the sewer system.

DIVISION XII CONSTRUCTION OF SEWER LINES

Section 12.01 Definitions

For the purposes of this Division, the specified terms are defined as follows:

A. "Developer" means any person or entity, excluding those persons contracting with the District who installs or causes to be installed one or more structures which will be connected to the District collection system. (Amended by Ord 2009-06)

B. "Force Main" means pipelines that convey wastewater under pressure from a lower to higher elevation, particularly where the elevation of the source is not sufficient for gravity flow and/or the use of gravity conveyance will result in excessive excavation depths and high sewer pipeline construction costs. (Added by Ord 2009-06)

C. "Force Main extension" is any extension of the force main between the existing District force main and the lots which are being improved or which are owned by the developer. A force main extension does not include a force main constructed within the tract of land which is being improved or which is owned by the developer.

Section 12.02 Financial Responsibility for Construction of Sewer Line

A developer who installs and/or causes to be installed any portion of the District collection system is financially responsible for the installation, and all incidents thereof, of that portion of the sewer collection system.

A. Buy Back Agreements. At the District's option, the District may enter into an agreement with the Developer whereby adjacent properties benefited by and connecting to the sanitary sewer facilities installed by the Developer or their agent, will be required to reimburse the Developer or their agent, through the District, for a prorated share of the cost of sanitary sewer facility design and construction. Administration of the reimbursement monies will continue until such prorated shares have been paid, but no longer than a period of ten years after completion of the sanitary sewer facilities. (Added by Ord 2009-06)

Section 12.03 Construction of Collection System

A. When a developer proposes to construct a force main and/or one or more house laterals, the developer may perform such construction, subject to the requirements of the District.

B. When the developer performs the tap between the house lateral constructed by the developer and a main line constructed by the developer, no tapping fee shall be charged. Other connection fees, including hook-up fees, fixture unit fees, and sewerage facility fees, shall be charged as set forth in Division VI.

Section 12.04 Performance, Payment and Maintenance Surety Bond

Developer shall procure and continuously maintain at its sole expense Performance, Payment and Maintenance Surety Bonds issued by a company authorized to do surety business in the State of California upon its standard form, guaranteeing that Developer will perform all of its obligations under this Agreement and will pay for all work and material furnished to the job. Said bond shall be in an amount equal to the value of the cost of construction of the Improvements and shall provide coverage for the Improvements and on account of Developer's obligation to replace or repair any and all defects in material or workmanship in said Improvements for a period of two (2) years following completion and acceptance of said Improvements. (Added by Ord 2009-06)

Section 12.05 Liability

The District and its officers, agents and employees shall not be liable for any injury or death to any person or damage to any property arising from the performance of any work by a developer. The developer shall indemnify, protect, defend and shall hold harmless the District and its officers, agents and employees from any liability imposed by law upon the District or its officers, agents or employees, including all costs, expenses, attorneys' fees, and other fees, and interest incurred in defending the same or in seeking to enforce this provision. The developer shall be solely liable for any defects in the performance of the developer's work or any failure which may arise therefrom.

Section 12.06 Formation of Improvement District

A. When a developer installs or causes to be installed any part of the District collection system, the developer may request in writing that the District form an improvement district, pursuant to the California County Water District law or other law, to include that real property which is served and benefited (or to be served and benefited) by the collection system installed or caused to be installed, by the developer.

B. The District may agree to form an improvement district only after receiving the developer's written request for formation thereof and the developer's written agreement to pay all sums reasonably incurred by the District in the formation and operation of the improvement district.

C. If the District agrees to form an improvement district, the developer shall pay the District an initial fee, to be determined by the District, towards the District's cost of forming the improvement district. The District shall not take any steps towards the formation of the improvement district until it receives this initial fee.

D. The developer may withdraw the request for the formation of an improvement district if no prejudice will result therefrom to the District or its customers.

E. The developer shall be liable for all costs reasonably incurred by the District in the formation and operation of the improvement district whether or not the improvement district is formed.

Section 12.07 Size of New Force Main

The District may require the developer to install a force main larger than that necessary to adequately serve the developer's proposed construction. When the District requires the installation of a larger force main, the District shall either (a) pay the difference in cost, as determined by the District, between the size necessary to serve the developer's construction and the larger main line or (b) perform the installation itself subsequent to the receipt from the developer of a sum sufficient to cover the cost of installation, and other necessary expenses, of the main line required by the developer.

Section 12.08 District's Option to Construct Facilities

Whenever a developer applies for an assurance of sewer service or a sewer permit which involves the extension of the District's force main, the District, at its sole option, may install such facilities subsequent to the developer's advancement to the District of funds sufficient to cover the costs of construction and other necessary expenses as may be reasonably incurred by District for engineering, administration, staff and legal expenses. (Amended by Ord 2009-06)

Upon completion of construction, the District shall refund any funds advanced in excess of the actual cost to be borne by the developer.

Section 12.09 Application for Force Main Extension Agreement

Whenever a developer applies for a sewer permit or an assurance of sewer service which involves a force main extension, the developer may also apply to the District for a Force Main Extension Agreement, which provides for partial reimbursement to the developer of the developer's costs of constructing the force main extension. The District may accept the application and approve a Force Main Extension Agreement.

Section 12.10 Force Main Extension Agreement

Whenever a developer enters into a Force Main Extension Agreement with the District, the Agreement may provide for a refund to the developer as follows:

A. Within the limits specified herein, when the Force Main has been installed at the Developer's sole expense, the Developer shall be entitled to a sum up to twenty-five percent (25%) of the hook-up unit fees and fixture unit fees received by the District for hook-ups into the Force Main Extension paid for by the developer.

B. Any amounts collected by the District for hook-up unit fees and fixture unit fees, subject to Section 12.10 A, shall be refunded to the developer within ninety (90) days following the date of collection; provided that no refund shall be made for collections made after five (5) years from the date of completion of the extension.

C. The total amount to be refunded to the developer shall not exceed 25% of the net amount paid by the developer to the District for the extension, if installed by the District, or 25% of the estimated cost, as determined by the District, for such extension if installed by the developer.

Section 12.11 Dedication Requirements

An Offer of Dedication of all those portions of the collection system to be constructed, excluding private sewer lines, shall be included in any application concerning construction of the collection system.

Upon completion, final inspection and approval of the constructed improvements by the District, the Developer shall present an Offer of Dedication and any and all easements, signed and acknowledged, on the forms and in the content as provided by the District. (Amended by Ord 2009-06)

No portion of the collection system shall be accepted by the District for dedication unless that portion to be accepted has been constructed in conformity with the requirements of the District. When the construction of the collection system has been completed and accepted by the District, it shall become the property of the District.

Notice to Developer: Prevailing Wages may have to be paid to employees and subcontractors on construction of facilities which are later to be dedicated to the District.

Section 12.12 Initiation of Sewer Service

To initiate sewer service, a permittee shall deliver to the District a written request for the initiation of sewer service at least fifteen (15) working days prior to the date sewer service is to be made available.

4 Operation and Maintenance Program

4.1 REQUIREMENT

A collection system needs to be properly operated and maintained. The SSMP requires that the following items (and person or position responsible) of the District's operation and maintenance (O&M) program be addressed:

- Maintain an up-to-date map of the collection system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities.
- Perform routine O&M activities, including regularly scheduled maintenance and cleaning with more frequent maintenance and cleaning in known problem areas. The O&M activities should be listed within a system that tracks work orders and can assess the effectiveness of the program.
- Develop and implement short and long-term rehabilitation and replacement plans.
- Provide training on a regular basis for O&M staff.
- Keep an inventory of general and critical equipment and replacement parts.

The specific requirements of WDR Order No. 2006-003-DWQ with regard to the Operation and Maintenance Program are described below.

4.2 SEWER COLLECTION SYSTEM MAPPING

The District maintains an overall sewer system map using ESRI ArcGIS software. The District uses a GIS consultant and the internal engineering department to maintain the GIS database. Hard copies of the system map are available at both the District office and in all District field vehicles. Digitally, the map is available through the District's asset management software, VueWorks, both on the computer and mobile devices. Additionally, the system map is available through ArcGIS Online and VueWorks WorkForceVue for mobile devices. Maps are updated regularly by engineering staff based on review of as-built construction drawings, feedback from operations staff, and inclusion of new facilities constructed by developers and homeowners.

In addition to the GIS mapping, as-built construction drawings for sewer facilities are maintained in hard copy at the District office and electronically through VueWorks, ArcGIS online, and the District server. A copy of the sewer system map is included as Attachment 4.1.

4.3 PREVENTIVE OPERATION AND MAINTENANCE PROGRAM

As presented in Attachment 4.2, the District has a comprehensive preventive maintenance program which documents routine operation and maintenance activities. This program includes a system that schedules preventative maintenance activities and targets known priority areas which need more frequent maintenance attention. Current priority areas are presented in Attachment 4.3.

4.4 REHABILITATION AND REPLACEMENT PLAN

4.4.1 GRAVITY PIPELINES

The District conducts CCTV inspections of its sewer lines on a routine basis. Previously, the entire collection system is inspected over a 5-year cycle. The first cycle was completed 2013-2017 and the second cycle was completed 2019-2022. After 2022, the District revised the CCTV inspection cycle to include inspecting the entire collection system over an 8-year period.

The District has adopted the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) standards to perform these inspections. All CCTV work completed since 2013 is stored in the District's GIS/Asset Management system providing easy access to inspection records.

4.4.2 SEWER MANHOLES

Regular aboveground manhole inspections are another important component of the District's Plan. These inspections provide invaluable information about the accuracy of the collection system mapping, the presence and degree of infiltration and inflow (I&I) problems, and the physical state-of-repair of the system. In addition, the examination of inlets and outlets of each manhole in the collection system with a spotlight or mirror allows the District to see and record the depth of flow in the line, debris in the manhole, condition of joints, presence of roots, and the structural integrity of each manhole. The District performs inspections on each manhole approximately every 6 months.

The District has adopted the National Association of Sewer Service Companies (NASSCO) Manhole Assessment and Certification Program (MACP) standards to perform these inspections. All manhole inspection work completed since 2019 is stored in the District's GIS/Asset Management system providing easy access to inspection records.

4.4.3 SEWER LATERALS

Beginning in 2013, the District began CCTV inspections of lower sewer laterals (the District owned portion of residential and commercial sewer laterals). Inspections are performed on laterals that have an available property line cleanout. This accounts for about one-third of the residential sewer laterals and a majority of the commercial sewer laterals. The District also requires new and significantly remodeled properties to install sewer cleanouts at the property line if they do not exist. This process allows for the evaluation of the condition of accessible lateral lines and forms a foundation for the sewer lateral maintenance and rehabilitation program.

4.4.4 REHABILITATION AND REPLACEMENT STRATEGY

Currently, minor repair and replacement needs for pipes and manholes are made by the Operations Department or outside contractors. More significant improvements are implemented by the Engineering Department through the District's Capital Replacement Plan (CRP).

4.4.5 CAPITAL PLAN

Future rehabilitation and replacement needs have been accounted for in the District's CRP which was originally completed in 2017 to support the cost of service and rate study. The CRP looks at all the assets in the system and accounts for replacements over a 100-year period. The CRP has approximately $74M worth of capital expenses included for rehabilitation and replacement of existing sewer system assets. Attachment 4.4 provides a summary of the 5-year sewer Capital Improvement Plan (CIP)/CRP and the 100-year CRP.

Additionally, the District completed a comprehensive condition-risk evaluation of the entire sewer collection system and a majority of the sewer manholes in 2019-2020. The District is currently preparing a detailed memorandum highlighting the assessment methods and results, as well as a Basis of Design Memorandum for the upcoming Sewer System Rehabilitation Project. The project will consist of a combination of in-situ rehabilitation and open excavation repair/replacement of approximately 9,000 linear feet of gravity sewer mains, in-situ rehabilitation of 24 sewer manholes and replacement of 9 sewer manholes.

4.5 TRAINING

Training is a key element in developing employees capable of eliminating sanitary sewer overflows, reducing infiltration and inflow, and maintaining collection systems. The SSO-WDR compliance guidelines require the District to provide training on a regular basis for staff in sanitary sewer operations and maintenance and require contractors to be appropriately trained. The training program is structured to prepare employees for advanced certification, maintain certifications by acquiring continuing education units (CEU's), and for attending conferences and seminars to keep employees up to date with industry trends and standards. A copy of the District's operator training program/list is presented in Attachment 4.5. The following are key elements of the District's operator training program:

- **Job Descriptions:** Job descriptions for utility personnel require increasing levels of education, training, and certification.

- **Certification Program:** The District maintains a tiered certification incentive program that allows employees to earn up to a 10% pay increase, which is tied to promotional opportunities. Each time an employee is promoted the certification incentives may be reset and the employee must certify to a higher level to regain the incentive payments. A 5% incentive is available to employees that obtain EMT certification or earn a college degree while employed at the District.
- **Training Requirements:** District training requirements contain six elements including, formal training by qualified instructors, online training by qualified agencies, in-house training with training aids such as training videos and pamphlets, weekly tailgate safety topics, training drills and on the job training.
- **Training Budget:** As part of the annual budget, the District allocates more than $2,000 per year for each employee to be utilized for vocational training, of which 50% is for Sewer Collection System training. The District prepares the annual training budget based upon evaluation of department training needs. Budget categories include purchase of training aids, attendance at conferences and training seminars, certification training, maintenance of contact hours, and individual advancement.
- **Training Records:** Copies of the employee's certifications and certificates of attendance are maintained in the employee's permanent file in the Human Resources office. Training records along with the employees training list are maintained in the Operations Specialist III office, in an Excel database and reported annually in the annual Operations Report. The training list currently covers 135 topics and is divided into categories which include; License, CPR/First Aid, Certifications, Respirator Training/Fit Test, Confined Space, Trench & Shoring Safety, Heavy Equipment Training, Hazardous Materials, Traffic Safety, Electrical Safety, Fire Safety, Personal Safety, Emergency Response, Small Equipment Safety, Computer Literacy, Human Resources, Vocational Training, and Supervisory Training. In order to ensure ongoing compliance, the training list was compared to the OSHA Safety and Health Training and Instruction Requirements and is updated, as needed.
- **Contractor Training:** The General Conditions of the District's standard contract contain provisions requiring contractors retained by the District provide proof of employee training programs.

4.6 CONTINGENCY EQUIPMENT AND REPLACEMENT INVENTORY

The District owns and maintains an inventory of equipment sufficient to perform preventative maintenance and to respond to reasonable emergencies. Included in the vehicles and equipment inventory are pickup trucks assigned to the Utilities Department for maintenance of the sewer system, a 2009 Vac-Con 5 yard hydro-vac truck, a CUES lateral camera, a portable 6-inch pump with sufficient discharge hose for a transmission main line bypass during peak average flows (the interceptor bypass pumping plan is included in the Olympic Valley Disaster Response Plan), a portable generator and night lighting, and an Electric Eel power rodder for clearing lateral blockages and clearing roots. Additionally, the District Utility Department maintains a variety of construction equipment including a backhoe, loader, dump truck, concrete saws, shoring, and compaction equipment when pipe sections must be excavated and replaced. In order to increase capabilities for cleaning sewers located in easements the District purchased an easement cleaning machine and trailer in 2011.

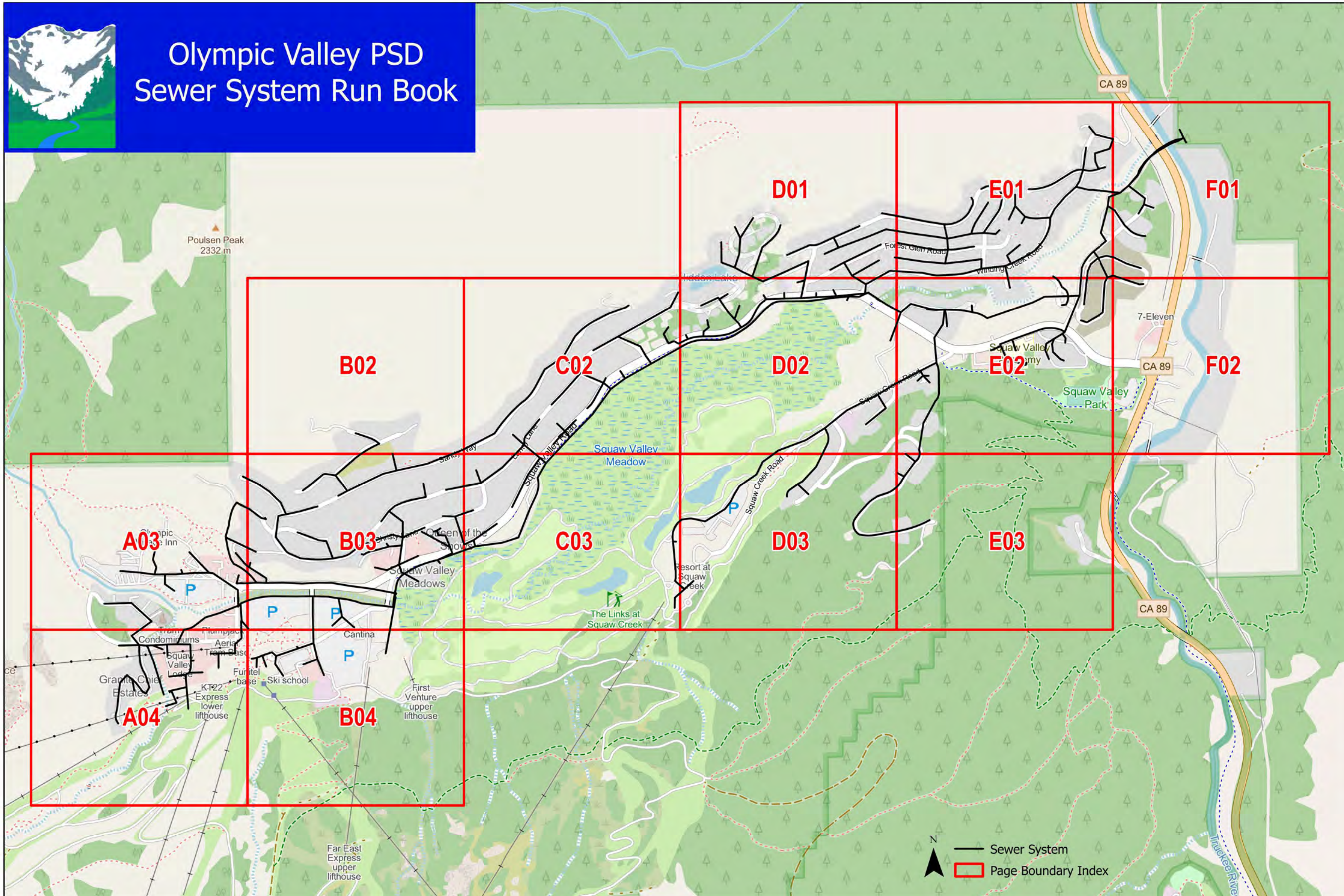
A complete inventory of vehicles and equipment is presented in Attachment 4.6 and is maintained and updated periodically as part of the Tahoe Truckee Area Emergency Contingency Plan, the District's Disaster Response Plan, and the Placer County Tahoe-Truckee Area Emergency Resource List. Copies of the above plans are maintained in the Utility Crew Room adjacent to the SCADA control computer and in the District Library.

The District maintains sufficient parts to affect a minor repair or replacement of all sizes of sewer main in Olympic Valley to include at least one stick of PVC SDR-35 sewer pipe from 4-inch to 12-inch along with pipe plugs and repair couplings. A complete sewer parts inventory is included in Attachment 4.7. The inventory is updated annually as part of the annual budget process and to ensure parts utilized during the construction season are replaced.

Attachment 4.1

Olympic Valley Public Service District
Sewer System Map

Olympic Valley PSD Sewer System Run Book



Olympic Valley PSD Sewer Map Book Street Index

A
APACHE CT ------ A03

B
BRIDGE 1 ------ F02
BRIDGE 2 ------ F01
BRIDGE 2 NORTH ------ F01
BRIDGE 2 SOUTH ------ F01
BRIDGE 3 ------ F01
BROKEN ARROW PL ------ D02

C
CHAMONIX PL ------ A03
CHRISTY HILL RD ------ B03
CHRISTY LN ------ A03,B03,C03
CREEKS END CT ------ E01,E02,F01
CREEKVIEW CT ------ F01

E
ERIC RD ------ C02,C03

F
FOREST GLEN RD ------ D01,E01

G
GRANITE CHIEF RD ------ A04
GRANITE VIEW CT ------ F01

H
HIDDEN LAKE CT ------ C02,D02
HIDDEN LAKE LOOP ------ C02,D01

I
INDIAN TRAIL CT ------ E02
INDIAN TRAIL RD ------ E02

L
LANNY LN ------ B03,C02

M
MARMOT WAY ------ A03,A04
MEADOW CT ------ E02
MEADOWS END CT ------ D02
MOUNTAIN LINKS WAY ------ D02,D03

N
NAVAJO CT ------ B03
NAVAJO DR ------ B03

O
OLYMPIC VALLEY RD ------
A03,A04,B03,C02,C03,D02,E02

P
PAINTED ROCK CT ------ E01
PAIUTE PL ------ B03
PALISADES CIR ------ E01,E02,F02

R
RIDGE CT ------ D02
RIVER RD ------ E03,F01,F02
ROCK GARDEN CT ------ F01
RUSSELL RD ------ C02

S
SANDY WAY ------ B02,B03,C02
SHIRLEY CANYON RD ------ A03,A04
SHOSHONE CT ------ E01
SHOSHONE WAY ------ E01
SIERRA CREST CT ------ E02
SIERRA CREST TR ------
D02,D03,E02,E03
SIERRA RIDGE PL ------ D03
SMILEY CIR ------ E02
SMILEY CT ------ E02
SQUAW CREEK RD ------ D02,D03,E02
SQUAW LOOP ------ B03
SQUAW SUMMIT RD ------ B02,B03
SUMMER PL ------ B02

T
TIGER TAIL RD ------ D01,E01
TRAILS END ------ E01,E02

V
VALLEY VIEW CT ------ E03
VICTOR DR ------ D01,D02
VICTOR PL ------ D01,D02
VILLAGE EAST ------ B03
VILLAGE SOUTH ------ B04

W
WASHOE DR ------ B03
WAYNE RD ------ C02
WINDING CREEK RD ------ D01,D02,E01

Olympic Valley PSD Condominium Index

120°14'37"W 39°12'10"N

120°14'6"W 39°12'10"N

120°14'38"W 39°11'51"N

120°14'7"W 39°11'50"N

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N

1"=200'

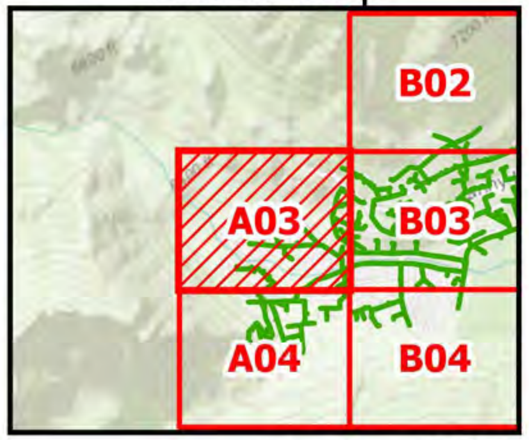
FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

- Sewer Manhole
- Sewer Cleanout
  - District
  - Property
  - House
  - Unverified Property Cleanout Locations
- Sewer Pipe By Size
  - 4"
  - 6"
  - 8"
  - 10"
  - 15"
  - Private Pipe

Index Map



Page: A03

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1"=200'

FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

Sewer Manhole

Sewer Cleanout

District

Property

House

Unverified Property Cleanout Locations

Sewer Service Meter

Unknown

Sewer Pipe By Size

4"

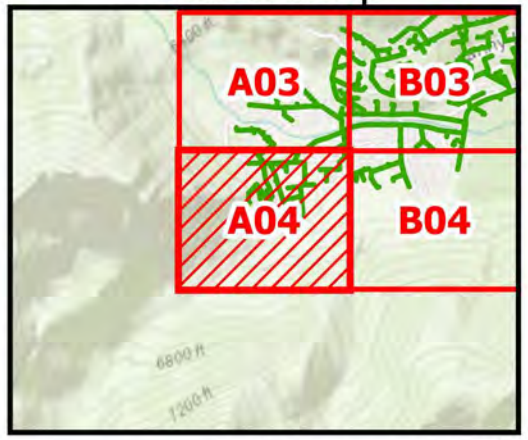
6"

8"

10"

Private Pipe

Index Map



Page: A04

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120°14'7"W 39°12'9"N

120°13'36"W 39°12'9"N

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N

1"=200'

FARR WEST
ENGINEERING

Olympic Valley PSD
Sewer Run Book
April, 2022

Sewer Manhole

Sewer Cleanout

District

Property

House

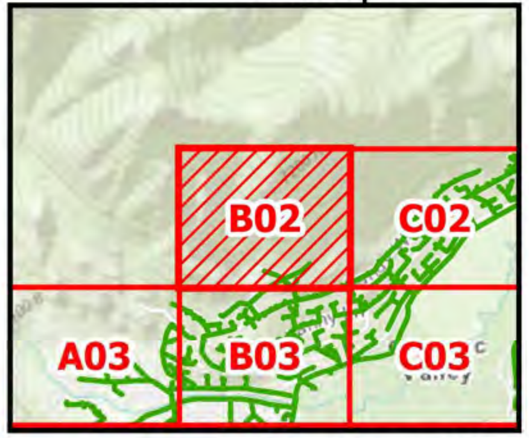
Sewer Pipe By Size

4"

6"

Private Pipe

Index Map



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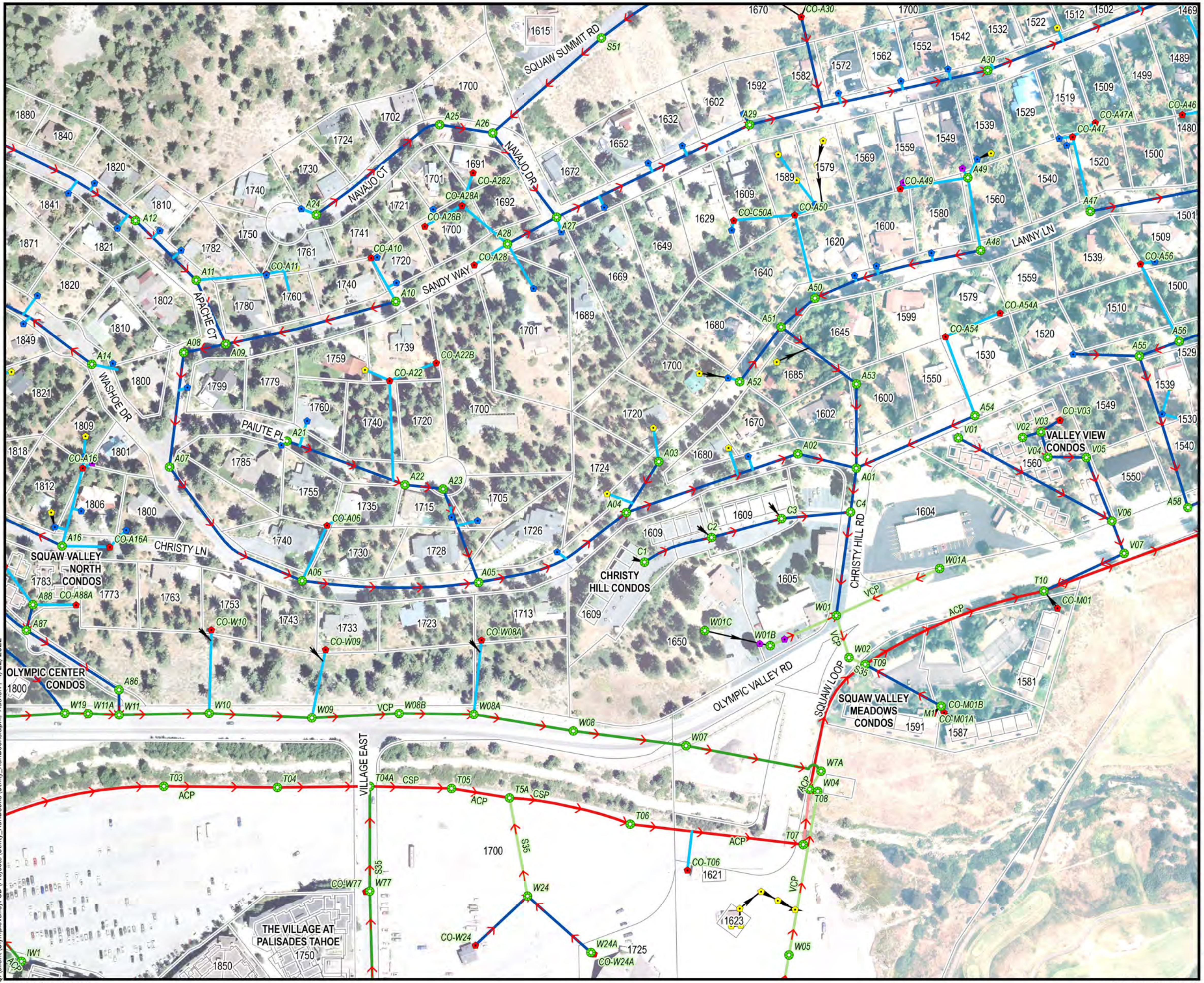

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120°13'36"W 39°11'50"N

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1"=200'

FARR WEST
ENGINEERING

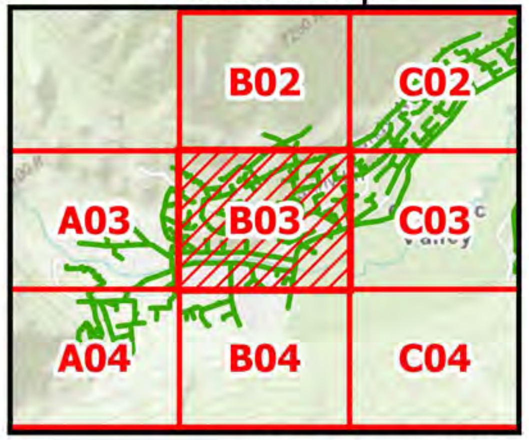
Olympic Valley PSD
Sewer Run Book
April, 2022

Sewer Manhole

Sewer Cleanout
- District
- Property
- House
- Unverified Property Cleanout Locations

Sewer Pipe By Size
- 4"
- 6"
- 8"
- 10"
- 12"
- 15"
- Private Pipe

Index Map



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120°13'37"W 39°11'30"N

N

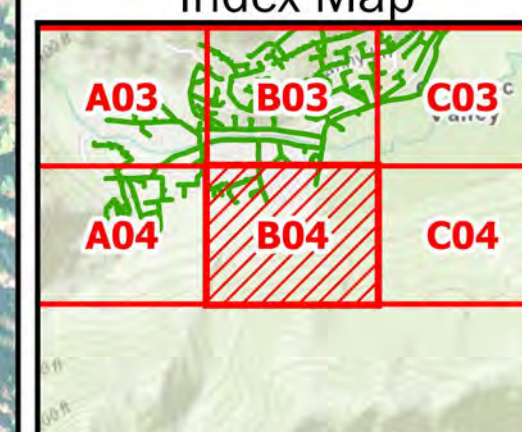
1"=200'

FARR WEST
ENGINEERING

Olympic Valley PSD
Sewer Run Book
April, 2022

Sewer Manhole
Sewer Cleanout
District
Property
Sewer Pipe By Size
4"
6"
8"
10"
Private Pipe

Index Map



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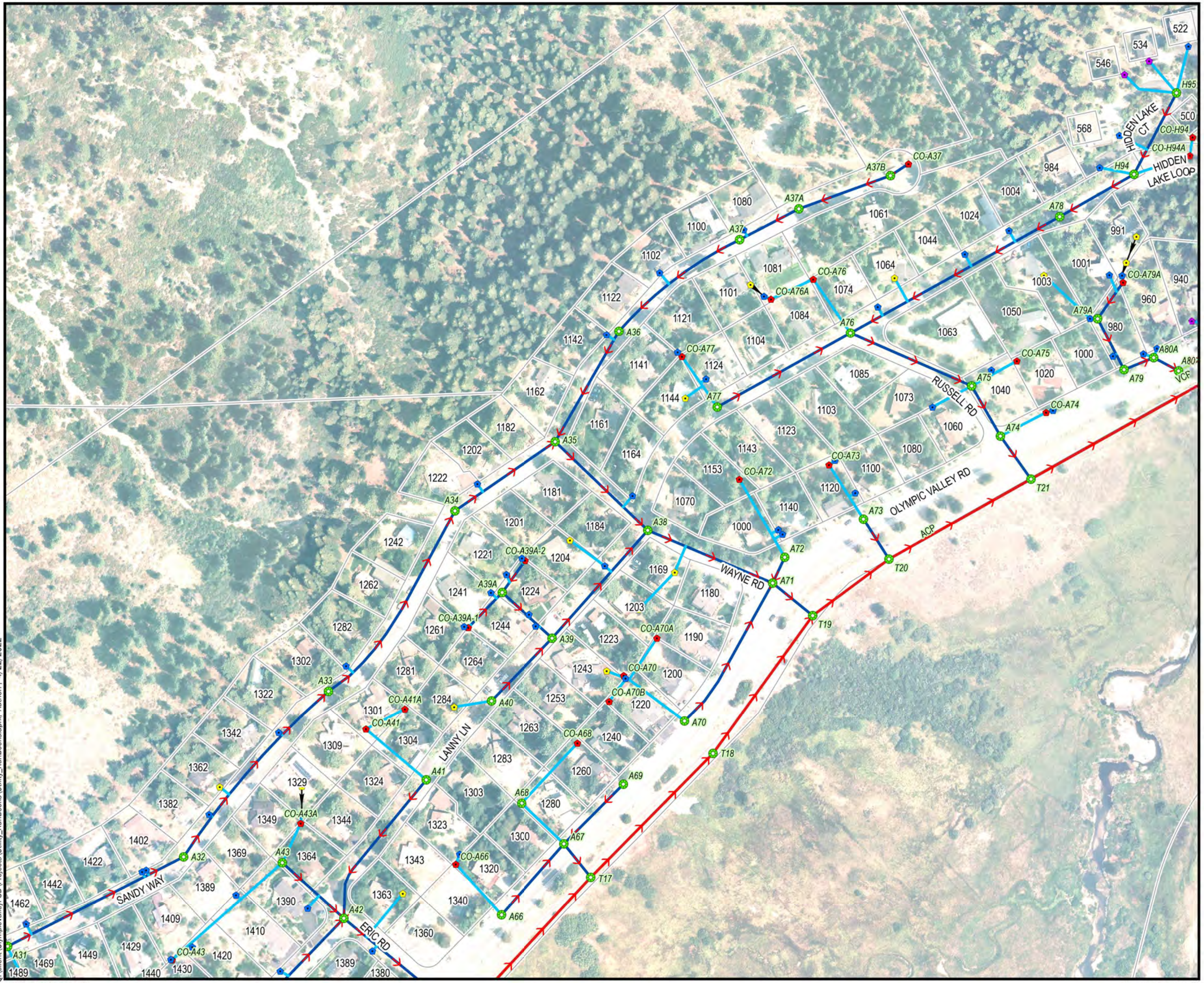

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1"=200'

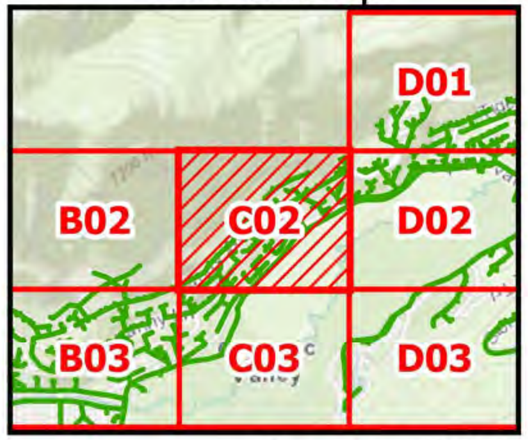
FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

- Sewer Manhole
- Sewer Cleanout
  - District
  - Property
  - House
- Unverified Property Cleanout Locations
- Sewer Pipe By Size
  - 4"
  - 6"
  - 8"
  - 15"
- Private Pipe

Index Map



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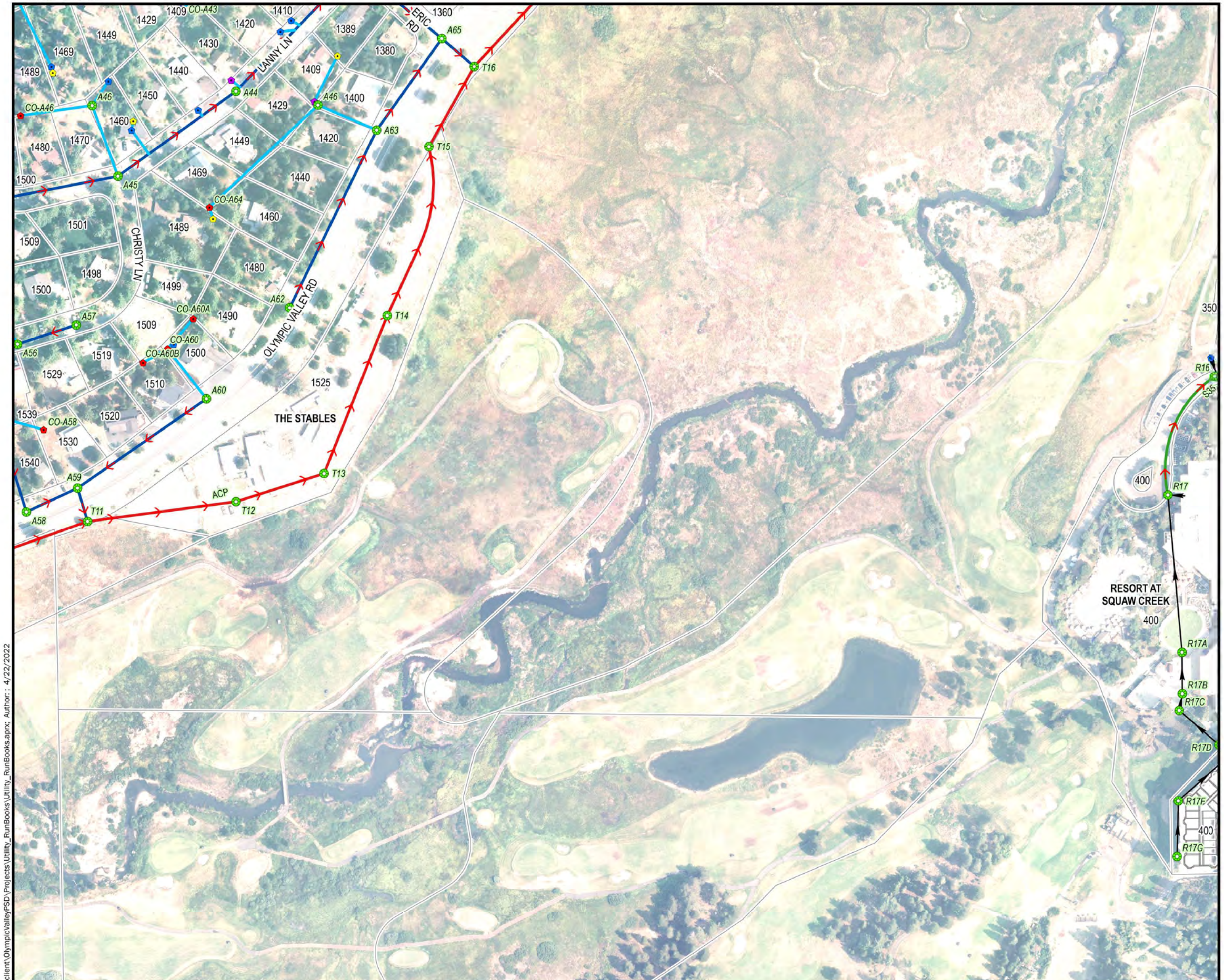

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FARR WEST
ENGINEERING

Olympic Valley PSD
Sewer Run Book
April, 2022

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- Sewer Cleanout
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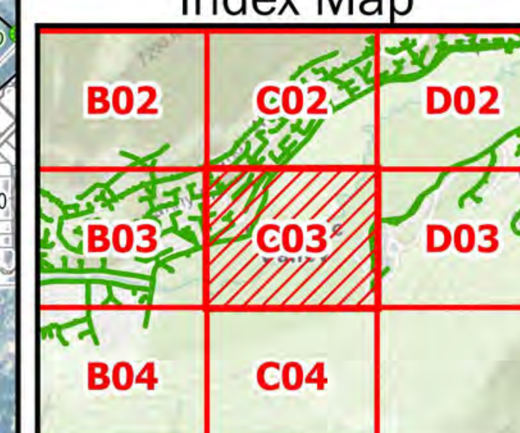
  - Property
  - House
  - Unverified Property Cleanout Locations
- Sewer Pipe By Size
  - 4"
  - 6"
  - 10"
  - 15"
  - Private Pipe

Index Map



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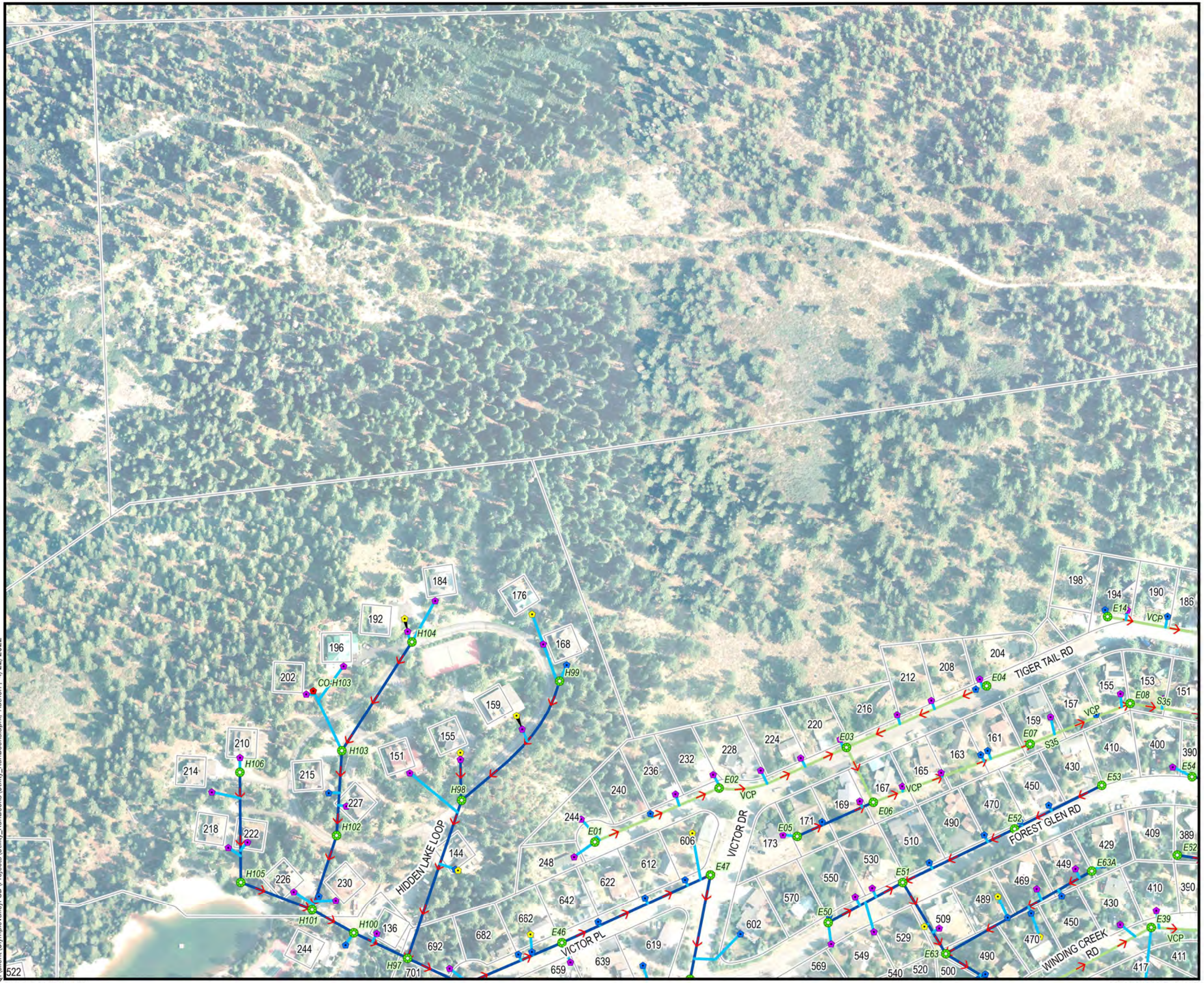

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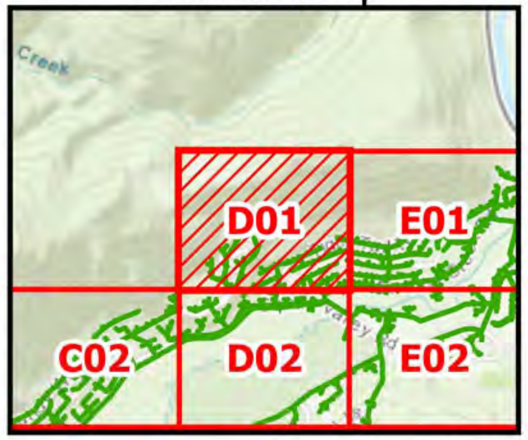
FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

- Sewer Manhole
- Sewer Cleanout
  - District
  - Property
  - House
  - Unverified Property Cleanout Locations
- Sewer Pipe By Size
  - 4"
  - 6"
  - 8"
  - Private Pipe

Index Map



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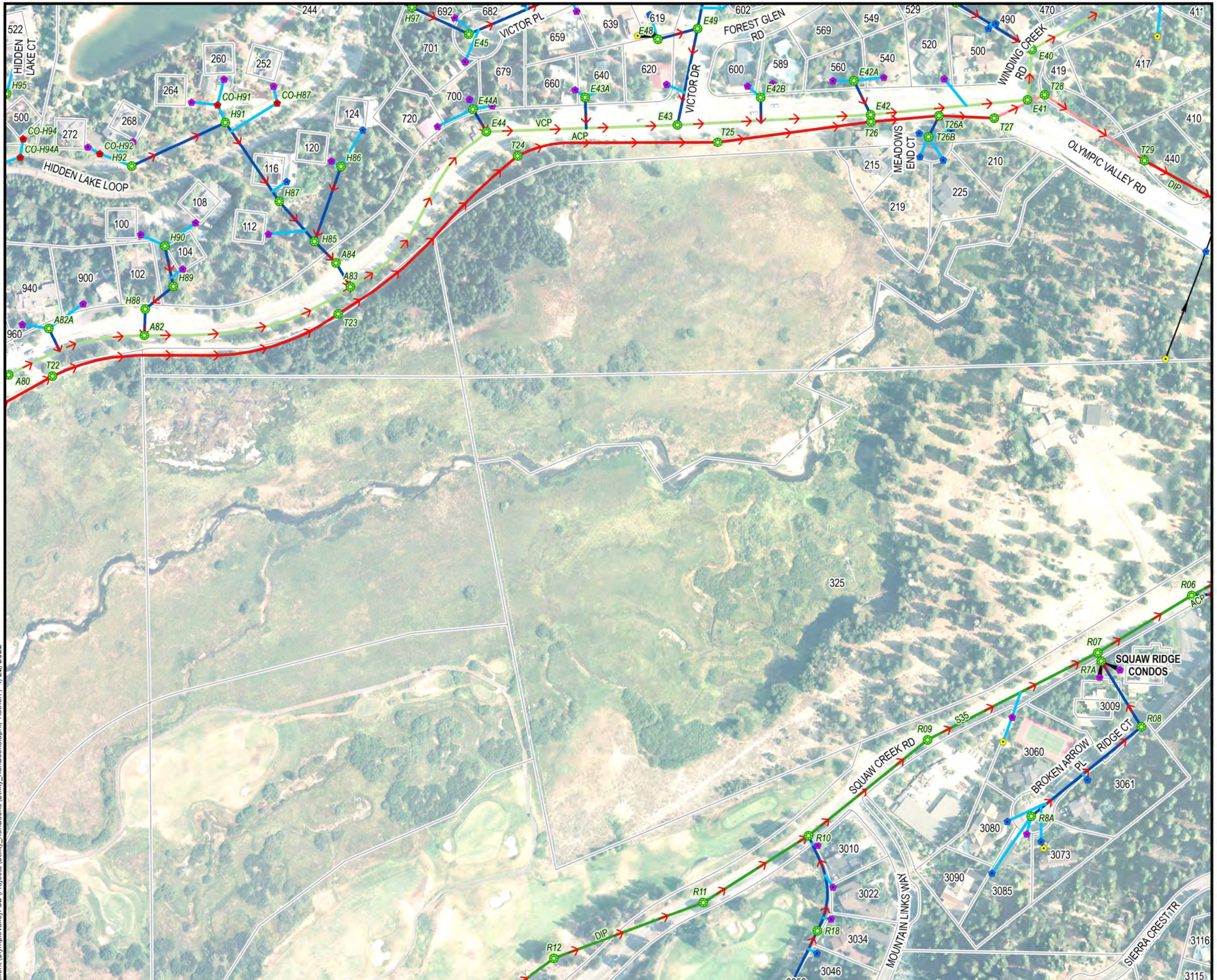

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1"=200'

FARR WEST
ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

Sewer Manhole

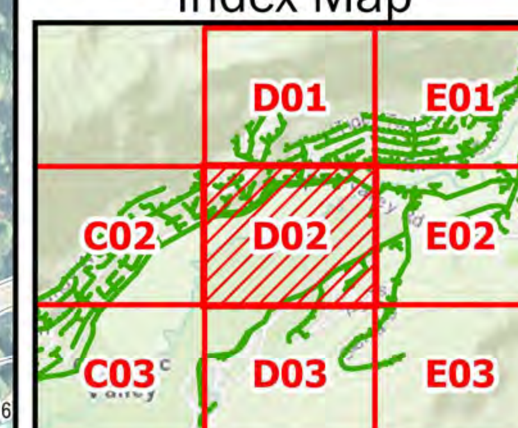
Sewer Cleanout

- District
- Property
- House
- Unverified Property Cleanout Locations

Sewer Pipe By Size

- 4"
- 6"
- 8"
- 10"
- 12"
- 15"
- Private Pipe

Index Map



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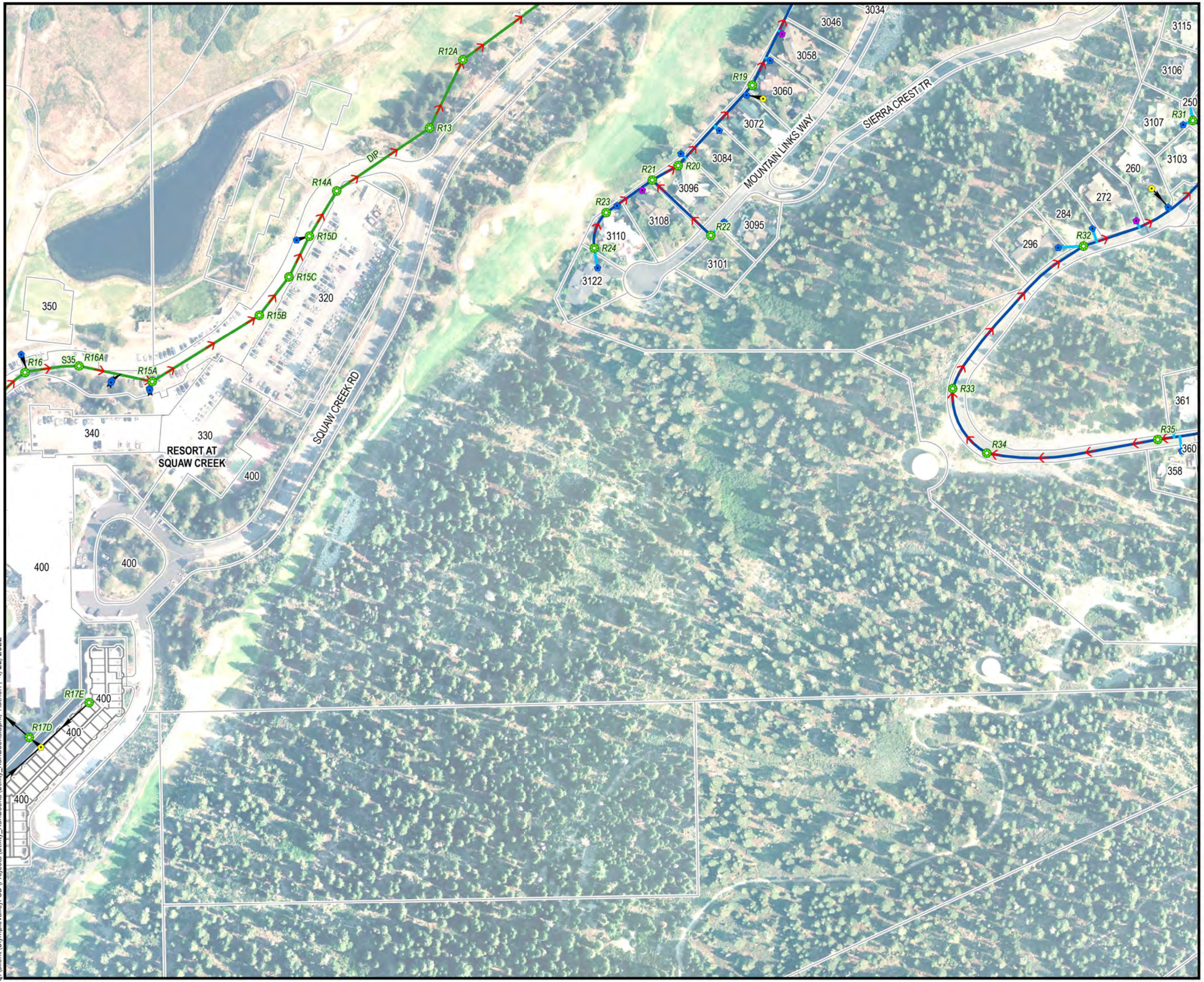

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FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

Sewer Manhole

Sewer Cleanout

Property

House

Unverified Property Cleanout Locations

Sewer Pipe By Size

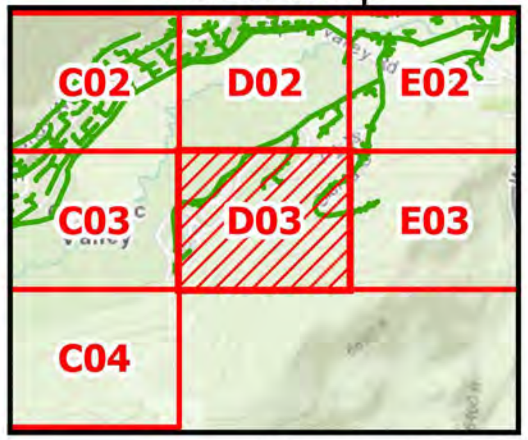
4"

6"

10"

Private Pipe

Index Map



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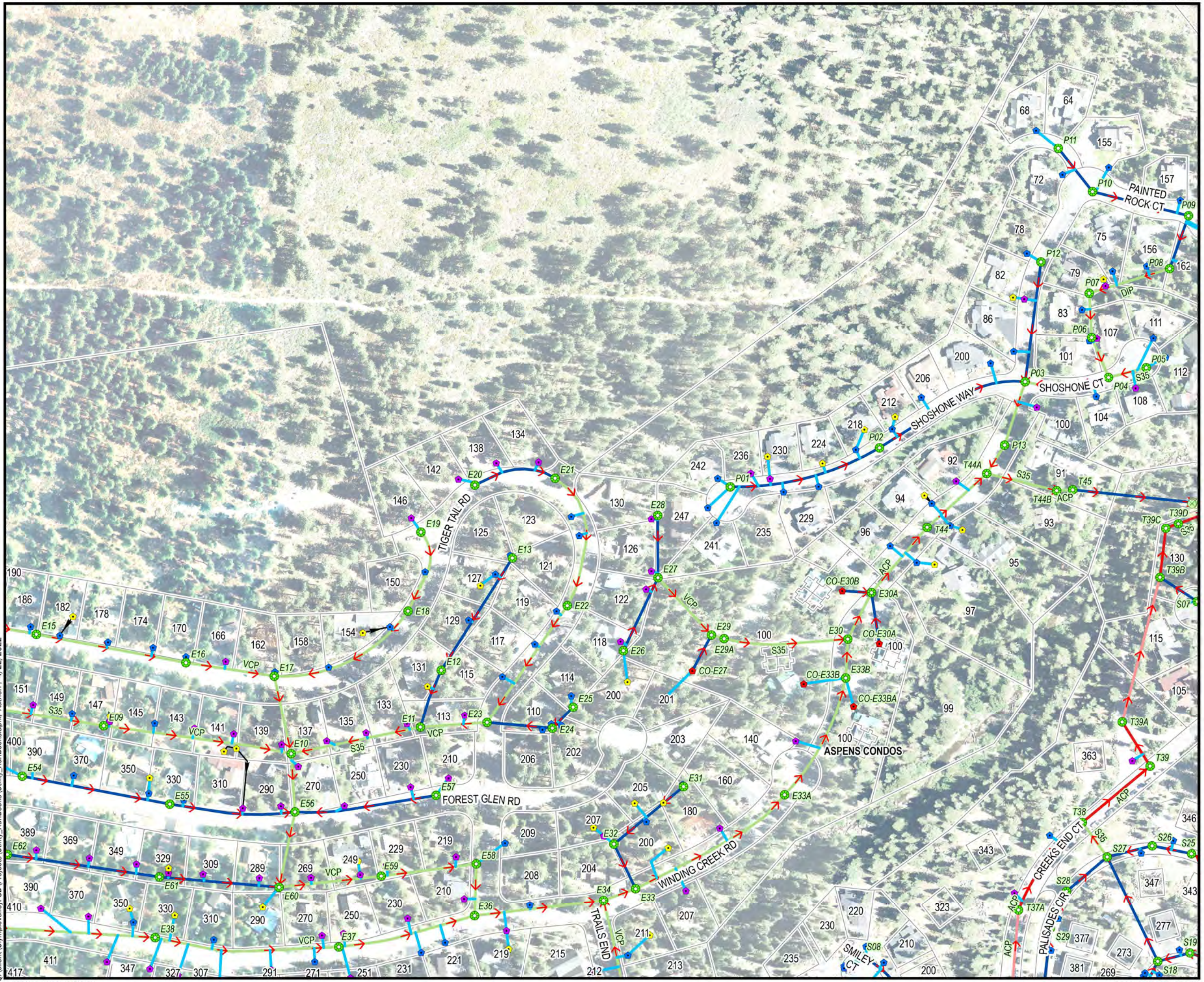

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1"=200'

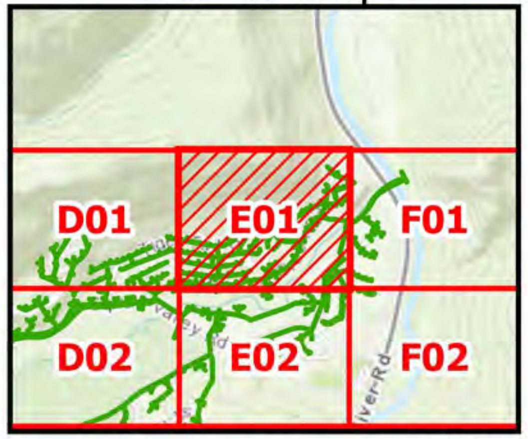
FARR WEST
ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

- Sewer Manhole
- Sewer Cleanout
  - District
  - Property
  - House
  - Unverified Property Cleanout Locations
- Sewer Valve
  - Isolation Valve
- Sewer Service Meter
  - Domestic
- Sewer Pipe By Size
  - 4"
  - 6"
  - 8"
  - 12"
  - 15"
  - Private Pipe

Index Map



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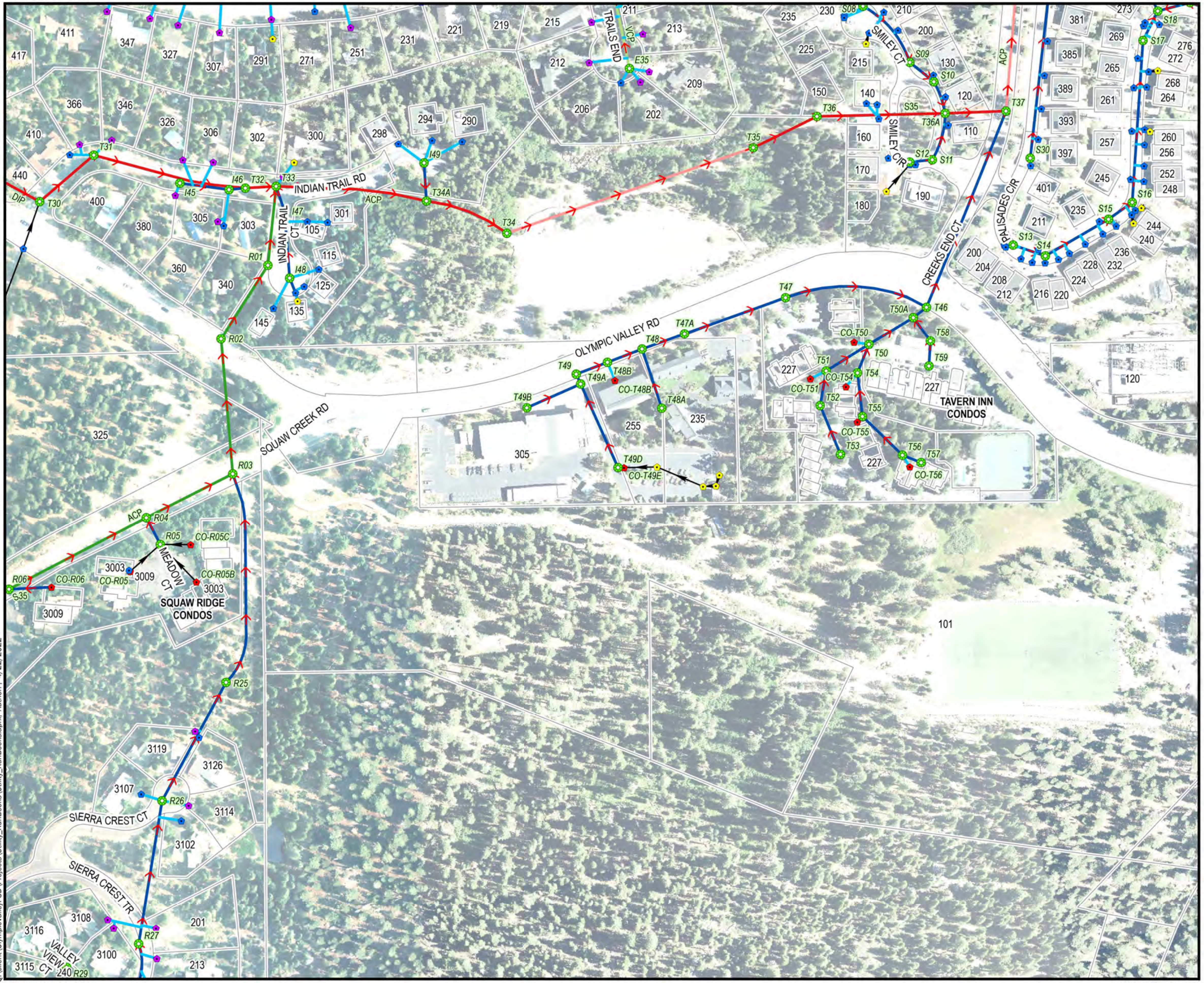

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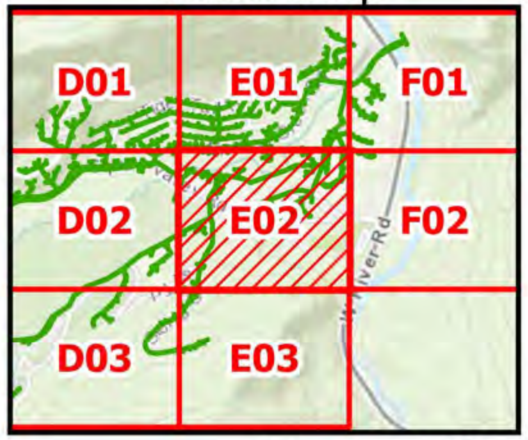
FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

- Sewer Manhole
- Sewer Cleanout
  - District
  - Property
  - House
  - Unverified Property Cleanout Locations
- Sewer Pipe By Size
  - 4"
  - 6"
  - 8"
  - 10"
  - 12"
  - 15"
- Private Pipe

Index Map



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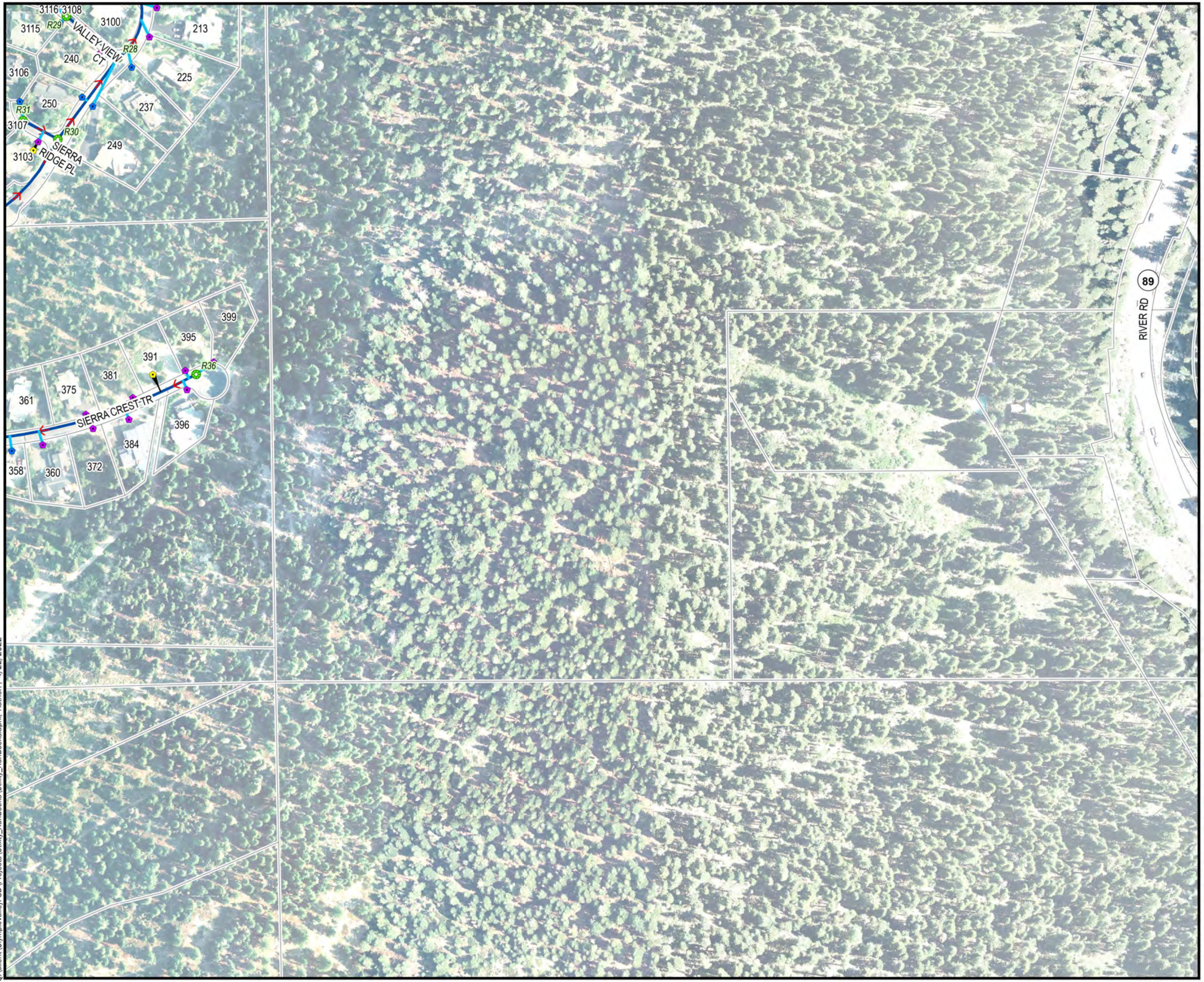

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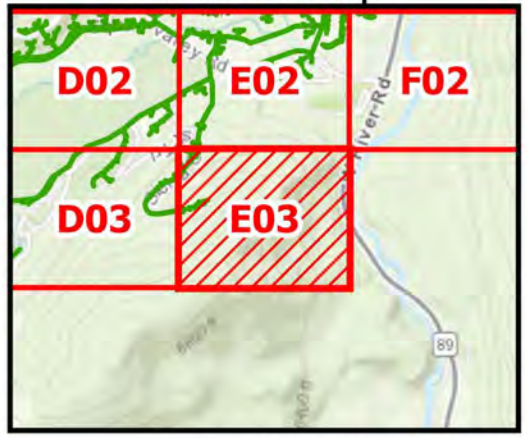
1"=200'

FARR WEST
ENGINEERING

Olympic Valley PSD
Sewer Run Book
April, 2022

Sewer Manhole
Sewer Cleanout
Property
House
Unverified Property Cleanout Locations
Sewer Pipe By Size
4"
6"
Private Pipe

Index Map



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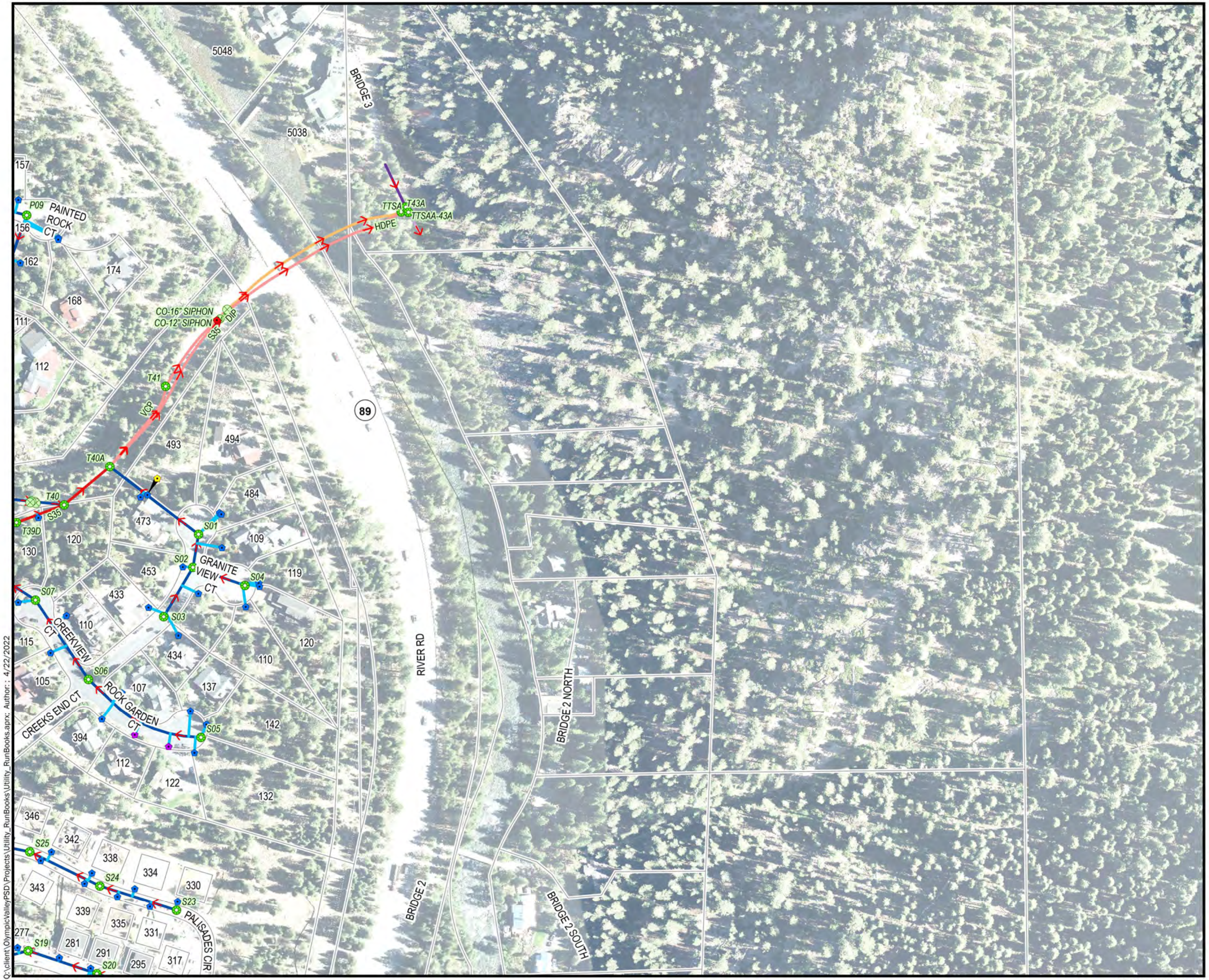

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1"=200'

FARR WEST ENGINEERING

Olympic Valley PSD Sewer Run Book

April, 2022

Sewer Manhole

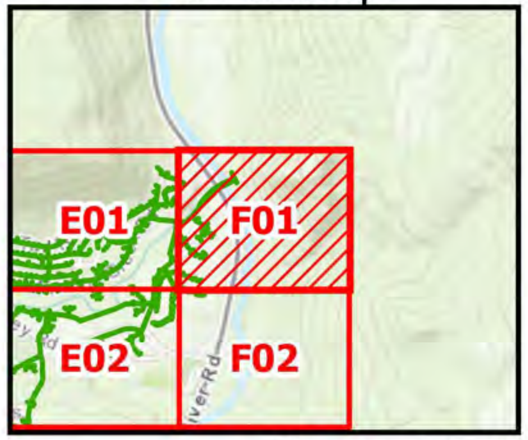
Sewer Cleanout
- District
- Property
- House
- Unverified Property Cleanout Locations

Sewer Valve
- Isolation Valve

Sewer Service Meter
- Domestic
- Master Meter

Sewer Pipe By Size
- 4"
- 6"
- 8"
- 10"
- 12"
- 15"
- 16"
- 18"

Index Map



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120°12'5"W 39°12'8"N

120°11'34"W 39°12'7"N

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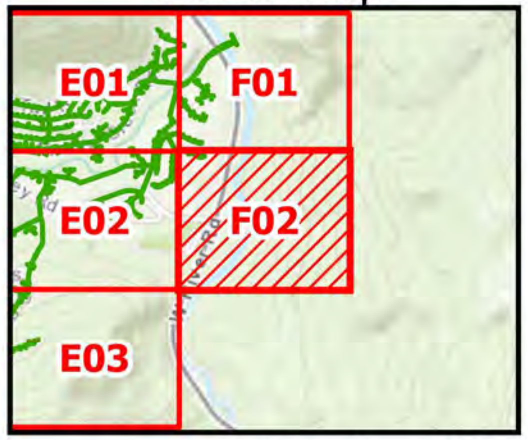
1"=200'

FARR WEST
ENGINEERING

Olympic Valley PSD
Sewer Run Book
April, 2022

Sewer Manhole
Sewer Cleanout
Property
Sewer Pipe By Size
4"
6"

Index Map



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Attachment 4.2

Olympic Valley Public Service District
Preventive Operation and Maintenance Program

Preventive Operation and Maintenance Program

This attachment to the SSMP describes the Olympic Valley Public Service District's (District) routine preventive operation and maintenance activities performed by the District's staff and outside contractors.

1.0 PREVENTATIVE OPERATION AND MAINTENANCE

1.1 General Collection System Summary

The District owns, operates, and maintains the wastewater collection system that serves the Olympic Valley. The sewer collection system consists of approximately 28 miles of gravity pipe ranging from 4 to 16-inches in diameter. There are three inverted siphons in the system; one transports wastewater under Washeshu Creek to the Olympic Valley Interceptor and the other is a dual pipe system that lies under the Truckee River and discharges to the Tahoe-Truckee Sanitation Agency's (T-TSA) interceptor. There are no pumping or treatment facilities within the collection system. A map book of the District's existing wastewater collection system is presented in Attachment 4.1 of Element 4.

1.2 District's Operations Staff

The District has one Operations Manager, and five Operations Specialists assigned to the Utilities Department for operating and maintaining the wastewater collection system. The Operations Specialists work under the direction of the Operations Manager. All Operations Specialists are trained in the operations and maintenance of the District's facilities including cleaning and repairs to sewer piping and appurtenances; repair, replacement or inspection of manholes, cleanouts, and sewer mains, and sewer meters. In addition, Operations Specialists I and III operate backhoes, loaders, dump trucks, sewer cleaners, sewer pumps and related equipment. All Operations Specialists assume responsibility of the District Wastewater Operator during off-duty hours and on weekends as the "Weekend Patrol/On Call Duty" person. The District's maintenance crews schedule is based on current needs.

The District uses a standard work week of Monday through Friday from 8 am to 4 pm. Operations staff works the standard work schedule during half of the year. From the first full pay period in March through the last full pay period in October, the Operations staff works a 9/80 schedule in which they work 9-hr days Monday-Thursday, an 8-hour day one Friday, and have every other Friday off work. The "Weekend Patrol/On Call Duty" person still works their on-call shift on the Friday the other Operations staff has off.

1.3 District's Computer Maintenance Management System (CMMS)

Currently, the District utilizes the VueWorks program for their CMMS. The VueWorks system allows the District to enter detailed information on each asset in their collection system and allows them to generate work orders for maintenance and repair on those assets. Additionally, it allows the District to record asset inspection results. Finally, the

VueWorks system is fully integrated, thus allowing for the standardization of the records the District creates for their collection system.

2.0 CURRENT PREVENTIVE MAINTENANCE (PM) APPROACH

The District uses a PM approach to operating and maintaining the wastewater collection system. Their current PM program consists of:

- ***Closed Circuit (CC) TV:*** The District CCTV's their collection sewer lines on an 8-year cycle. The District began contracting CCTV work in 2013 breaking the system into 4 phases. All lines are rated according to PACP guidelines and entered into the GIS/VueWorks database.

- ***Sewer Cleaning:*** The District makes every effort to clean the sewer mains in the collection system once every two (2) years, and the lower sewer laterals once every four (4) years.

- ***Smoke Testing:*** Smoke testing is an option and will be utilized as needed and determined by the Operations Manager.

- ***Priority Areas:*** It is the District's policy to clean all identified high priority sewer mains twice annually. These are the greasy lines downstream from restaurants, the three (3) siphon pipelines, and other areas as indicated in Attachment 4.3. Lines are added to the high priority list based on ongoing maintenance issues identified by the Operations Manager.

2.1 District's Miscellaneous Maintenance Issues

The District maintains the sewer pipelines, manholes, and three inverted siphons. As discussed above, the District's raw sewage is sent to T-TSA for treatment; therefore, there are no pumping or treatment facilities within the collection system.

The District owns and maintains the service lateral from the resident's property line to the sewer main. The property owner is responsible for any problems in the service connection from the property line to their house. As the District performs sewer rehabilitation projects through residential neighborhoods, it installs cleanouts at the property line for homes that do not currently have them installed. The new cleanouts will help the District maintain their system if blockages occur in the future.
As of May 2020, sewer laterals that run between the property line and the house are required to pass a District performed sewer lateral pressure test before a property can undergo a change of ownership. If the private lateral does not pass the initial pressure test, the property owner is responsible for repairing the damaged lateral so the lateral can be retested until sufficient pressure is obtained. This private lateral pressure testing program was implemented by the District to reduce I&I into the system.

As problem (sags, root intrusion, offsets, and cracks) areas are identified through the District's CCTV program, a project is initiated based on the severity of the problem identified. The District does not have a specific root control program, but it is responsive

when a root problem is identified through the CCTV program. The District owns a hydraulic root cutter for their jet rodder to assist with root problem mitigation.
The District has logged 7 SSOs into the State CIWQS database over the 10-year period from 2010 to 2023.

2.2 District's Current Challenges

Easement Access: The District has several easement lines, or "blind spots", which are difficult to access and maintain. In the summer of 2008, the District launched an aggressive campaign to clear up their easements. The District adopted a new ordinance that allows them to clear an easement and bill the customer. Each resident with a documented easement was contacted via direct mailing before the ordinance was implemented. In mid-September 2008 a second mailing was sent informing each resident of the new ordinance.

System Expansion: The District is looking at significant development on the near horizon and is working with developers to assess impacts to the collection system. Discussed further in Element 7 the District completed computer modeling of the collection system using development and general plan build out estimates.

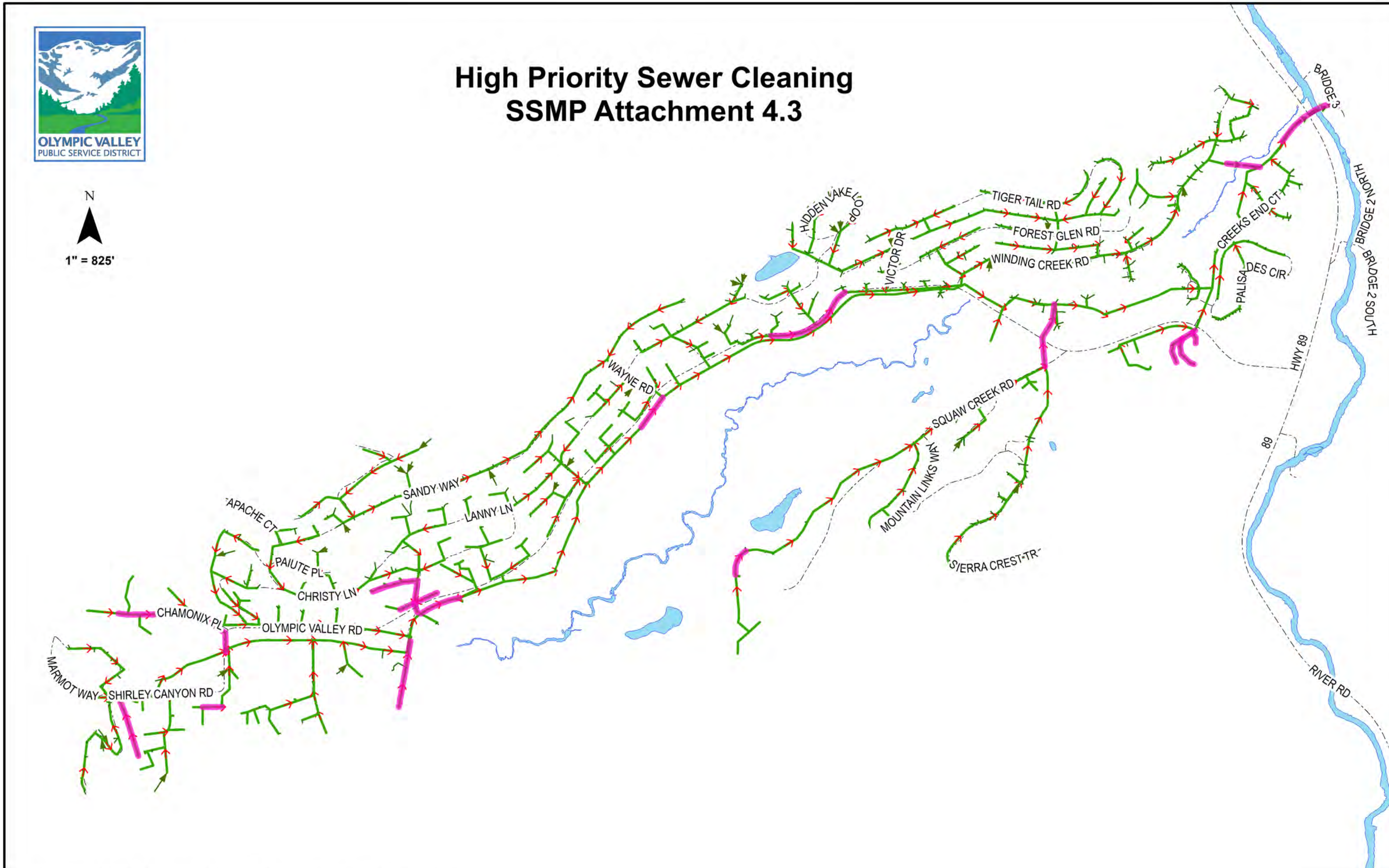
Attachment 4.3

Olympic Valley Public Service District
Preventive Maintenance Areas of High Priority

High Priority Sewer Cleaning

Cleaning Order	Size (inches)	SSMH Start	SSMH End	Length
1	6	W40A	CO-W51	400
2	6	W32	W33A	185
3	10	W48	W49	240
4	10	W47	W48	190
5	10	W47A	W47	175
6	10	W46	W47A	45
7	10	W13	W46	330
8	10	W14	W13	180
9	8	W05	W06	290
10	8	W04	W05	340
11	8	W01	W01A	230
12	8	W02	W01	90
13	10	T10	T09	395
14	10	T19	T18	350
15	10	R02	R03	275
16	10	R01	R02	180
17	10	T33	R01	160
18	6	T40	T45	315
19	10	TTSA	T43	340
20	6	W49A	W49	150
21	6	R17	R16	260
22	8	A82	A83	438
23	8	A83	E44	410

High Priority Sewer Cleaning
SSMP Attachment 4.3



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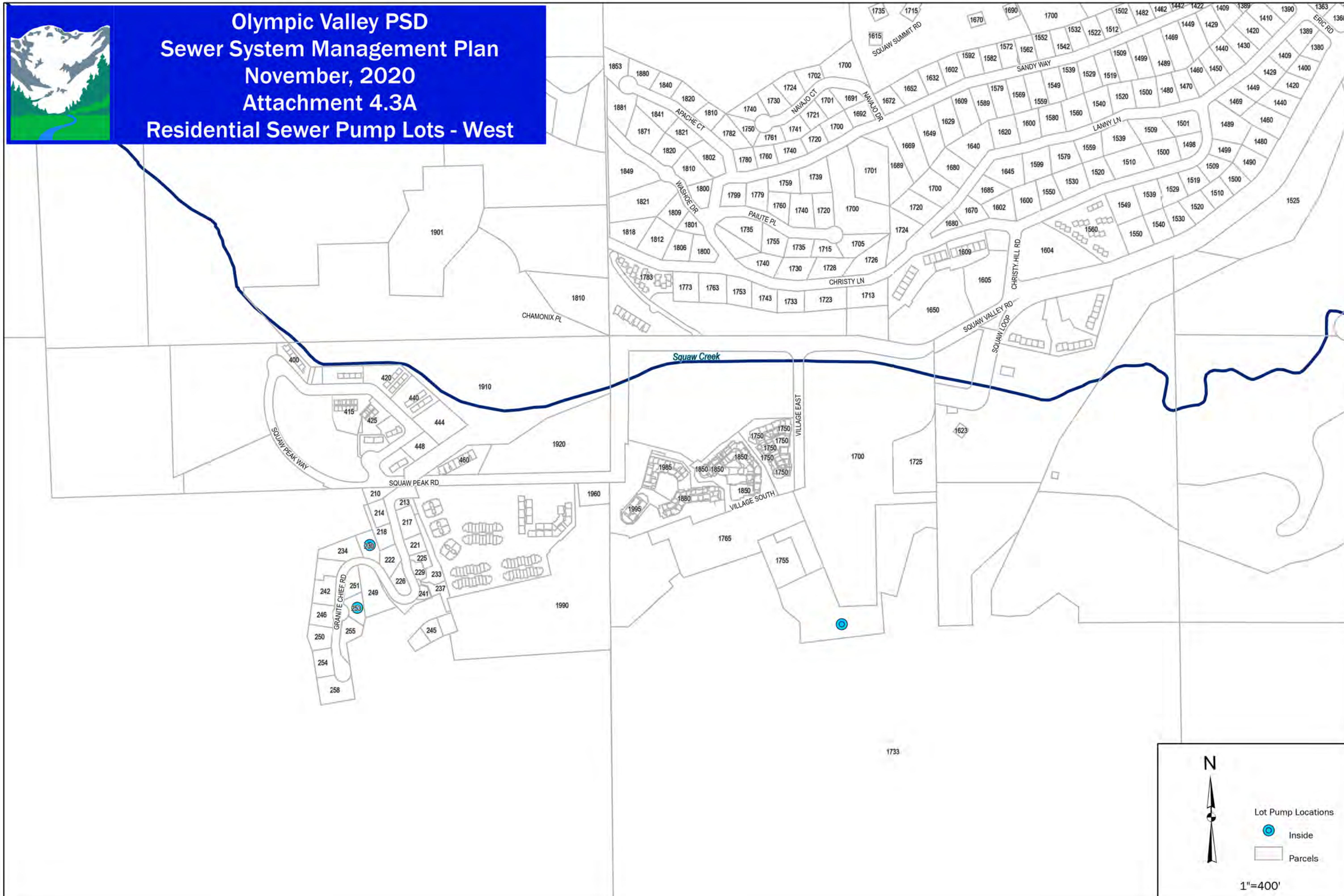
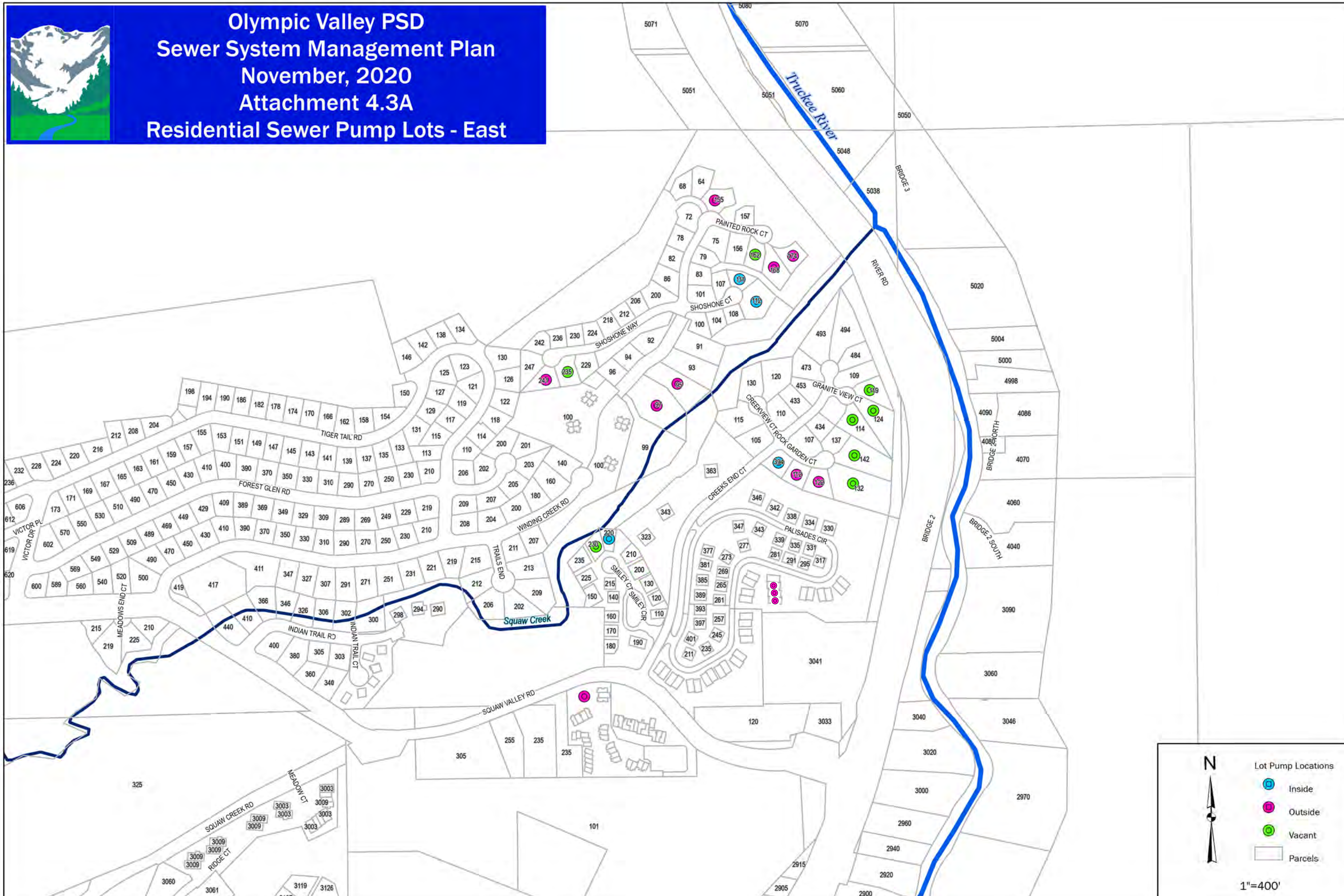
OVPSD Residential Pump Lots

External Pumps				
Owner	**#**	**Address**	**Location**	**Notes**
Hurst	155	Painted Rock	Outside	
Buhler	168	Painted Rock	Outside	
Tamer	174	Painted Rock	Outside	
Shaver	112	Rock Garden Ct	Outside	
Kalange	122	Rock Garden Ct	Outside	
Jordan	241	Shoshone Way	Outside	
Tavern Inn	227	Squaw Valley Road (Pool)	Outside	
Sills	95	Winding Creek	Outside	
Vasicek	97	Winding Creek	Outside	
Chavez	284	Palisades Circle	Outside	
Epps	288	Palisades Circle	Outside	
Daley	292	Palisades Circle	Outside	
Internal Pumps				
Owner	**#**	**Address**	**Location**	**Notes**
Shrewsberry	111	Shoshone Ct	Inside	
Chi	112	Shoshone Ct	Inside	
Jakobsen	394	Creeks End Ct	Inside	
Ski Holdings		National Ski Patrol Locker Room	Inside	1 basement level restrooms in building behind Red Dog Maintenance. Blue "P" on parcel 096-221-046.
Neiderman	253	Granite Chief	Inside	Inside lower level mechanical room
Titi	220	Smiley	Inside	In Garage
Jeat Enterprises	230	Granite Chief	Inside	In garage addition
Vacant Lots				
Owner	**#**	**Address**	**Location**	**Notes**
Vacant	114	Granite View Ct	Vacant	Creekside Estates
Vacant	119	Granite View Ct	Vacant	Creekside Estates
Vacant	124	Granite View Ct	Vacant	Creekside Estates
Vacant	132	Rock Garden Ct	Vacant	Creekside Estates
Vacant	142	Rock Garden Ct	Vacant	Creekside Estates
Vacant	200	Smiley Circle	Vacant	Olympic Estates, may not be installed if sufficient cover is established
Vacant	162	Painted Rock	Vacant	Painted Rock
Vacant	235	Shoshone Way	Vacant	Painted Rock

Olympic Valley PSD
Sewer System Management Plan
November, 2020
Attachment 4.3A
Residential Sewer Pump Lots - West



Olympic Valley PSD
Sewer System Management Plan
November, 2020
Attachment 4.3A
Residential Sewer Pump Lots - East



Attachment 4.4

Olympic Valley Public Service District
Capital Improvement Plan and Capital Replacement Plan

Sewer 5-Year Capital Plan
SSMP Attachment 4.4

Project Title	Funding Source	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
CIP Projects						
Sewer Flow Meter Project	Sewer CIP			$ 15,000	$ 75,000	
Sewer Bypass Trailer	Sewer CIP		$ 35,000			
CIP TOTAL		**$ -**	**$ 35,000**	**$ 15,000**	**$ 75,000**	**$ -**

Project Title	Funding Source	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
CRP Projects						
Sewer System Rehabilitation Project	Sewer FARF	$ 75,000	$ 750,000	$ 750,000		
SCADA Upgrade Project	Sewer FARF	$ 25,000	$ 25,000			
Sewer System CCTV	Sewer FARF	$ -			$ 66,156	$ 52,190
Backyard Easement Sewer Replacement Projects	Sewer FARF		$ 300,000		$ 300,000	
Highway 89 Sewer Flow Meter	Sewer FARF					
T-45A Sewer Flow Meter	Sewer FARF	$ 11,000				
CRP TOTAL		**$ 111,000**	**$ 1,075,000**	**$ 750,000**	**$ 366,156**	**$ 52,190**

100-Year Sewer Capital Replacement Program
SSMP Attachment 4.4

Year	Mains	Laterals	Manholes	Flow Meters	Annual Capital Expense
2024	$ -	$ -	$ -	$ 11,202	$ (11,202)
2025	$ -	$ -	$ -	$ -	$ -
2026	$ -	$ -	$ 1,755,955	$ -	$ (1,755,955)
2027	$ -	$ -	$ -	$ -	$ -
2028	$ -	$ -	$ 2,399,806	$ -	$ (2,399,806)
2029	$ -	$ -	$ 468,255	$ -	$ (468,255)
2030	$ -	$ -	$ 614,584	$ -	$ (614,584)
2031	$ -	$ -	$ 146,330	$ 11,431	$ (157,761)
2032	$ -	$ -	$ 29,266	$ -	$ (29,266)
2033	$ 813,290.14	$ 10,375	$ 292,659	$ -	$ (1,116,324)
2034	$ -	$ -	$ 58,532	$ -	$ (58,532)
2035	$ -	$ -	$ 87,798	$ -	$ (87,798)
2036	$ -	$ -	$ -	$ -	$ -
2037	$ 2,132,913.64	$ 166,000	$ -	$ -	$ (2,298,914)
2038	$ -	$ -	$ 556,053	$ -	$ (556,053)
2039	$ -	$ -	$ -	$ -	$ -
2040	$ 1,650,838	$ 373,500	$ 848,712	$ -	$ (2,873,050)
2041	$ -	$ -	$ -	$ -	$ -
2042	$ 163,023	$ 20,750	$ -	$ -	$ (183,773)
2043	$ 24,279	$ 10,375	$ 409,723	$ 11,431	$ (455,808)
2044	$ -	$ -	$ -	$ -	$ -
2045	$ -	$ -	$ -	$ -	$ -
2046	$ -	$ -	$ -	$ -	$ -
2047	$ -	$ -	$ 87,798	$ -	$ (87,798)
2048	$ 3,449,041	$ 498,000	$ -	$ -	$ (3,947,041)
2049	$ -	$ -	$ -	$ -	$ -
2050	$ -	$ -	$ 234,127	$ 11,202	$ (245,330)
2051	$ 511,066	$ 269,750	$ -	$ -	$ (780,816)
2052	$ -	$ -	$ 468,255	$ -	$ (468,255)
2053	$ 6,375,628	$ 1,566,625	$ -	$ -	$ (7,942,253)
2054	$ 803,680	$ 10,375	$ -	$ -	$ (814,055)
2055	$ 1,152,673	$ 51,875	$ 58,532	$ 11,431	$ (1,274,510)
2056	$ 251,269	$ -	$ -	$ -	$ (251,269)
2057	$ 69,193	$ 31,125	$ -	$ -	$ (100,318)
2058	$ 762,958	$ 41,500	$ -	$ -	$ (804,458)
2059	$ 234,810	$ 20,750	$ 58,532	$ -	$ (314,092)
2060	$ 295,153	$ -	$ -	$ -	$ (295,153)
2061	$ -	$ -	$ -	$ 140,029	$ (140,029)
2062	$ -	$ -	$ -	$ -	$ -
2063	$ 889,513	$ 176,375	$ -	$ 11,202	$ (1,077,090)
2064	$ -	$ -	$ 175,596	$ -	$ (175,596)
2065	$ 1,781,559	$ 249,000	$ -	$ -	$ (2,030,559)
2066	$ 101,603	$ -	$ 2,399,806	$ -	$ (2,501,409)
2067	$ -	$ -	$ 58,532	$ 11,431	$ (69,963)
2068	$ 624,691	$ 321,625	$ -	$ -	$ (946,316)
2069	$ -	$ -	$ -	$ 314,351	$ (314,351)
2070	$ -	$ -	$ -	$ -	$ -
2071	$ -	$ -	$ -	$ -	$ -
2072	$ 88,839	$ 103,750	$ -	$ -	$ (192,589)
2073	$ -	$ 10,375	$ 1,463,296	$ -	$ (1,473,671)
2074	$ -	$ -	$ -	$ -	$ -
2075	$ 362,359	$ 197,125	$ -	$ -	$ (559,484)
2076	$ -	$ -	$ 1,755,955	$ 11,202	$ (1,767,158)
2077	$ 886,202	$ 83,000	$ -	$ -	$ (969,202)
2078	$ -	$ -	$ 2,399,806	$ -	$ (2,399,806)
2079	$ -	$ -	$ 468,255	$ 11,431	$ (479,686)
2080	$ 285,623	$ -	$ 614,584	$ -	$ (900,207)
2081	$ -	$ -	$ 146,330	$ -	$ (146,330)
2082	$ -	$ -	$ 29,266	$ -	$ (29,266)
2083	$ -	$ -	$ 292,659	$ -	$ (292,659)
2084	$ 179,360	$ 10,375	$ 58,532	$ -	$ (248,267)
2085	$ -	$ -	$ 87,798	$ -	$ (87,798)
2086	$ -	$ -	$ -	$ -	$ -

100-Year Sewer Capital Replacement Program
SSMP Attachment 4.4

Year		Mains		Laterals		Manholes		Flow Meters		Annual Capital Expense
2087	$	-	$	-	$	-	$	-	$	-
2088	$	153,603	$	-	$	556,053	$	-	$	(709,655)
2089	$	142,645	$	176,375	$	-	$	11,202	$	(330,223)
2090	$	245,349	$	-	$	848,712	$	-	$	(1,094,061)
2091	$	-	$	-	$	-	$	11,431	$	(11,431)
2092	$	-	$	-	$	-	$	-	$	-
2093	$	144,107	$	-	$	409,723	$	-	$	(553,830)
2094	$	-	$	-	$	-	$	-	$	-
2095	$	-	$	-	$	-	$	-	$	-
2096	$	-	$	-	$	-	$	-	$	-
2097	$	-	$	-	$	87,798	$	-	$	(87,798)
2098	$	-	$	-	$	-	$	-	$	-
2099	$	-	$	-	$	-	$	-	$	-
2100	$	-	$	-	$	234,127	$	-	$	(234,127)
2101	$	-	$	-	$	-	$	-	$	-
2102	$	59,607	$	-	$	468,255	$	11,202	$	(539,064)
2103	$	-	$	-	$	-	$	11,431	$	(11,431)
2104	$	-	$	-	$	-	$	-	$	-
2105	$	-	$	-	$	58,532	$	-	$	(58,532)
2106	$	-	$	-	$	-	$	-	$	-
2107	$	-	$	-	$	-	$	-	$	-
2108	$	813,290	$	10,375	$	-	$	-	$	(823,665)
2109	$	-	$	-	$	58,532	$	-	$	(58,532)
2110	$	-	$	-	$	-	$	-	$	-
2111	$	-	$	-	$	-	$	140,029	$	(140,029)
2112	$	2,132,914	$	166,000	$	-	$	-	$	(2,298,914)
2113	$	-	$	-	$	-	$	-	$	-
2114	$	-	$	-	$	175,596	$	-	$	(175,596)
2115	$	1,650,838	$	373,500	$	-	$	22,633	$	(2,046,972)
2116	$	3,449,041	$	498,000	$	-	$	-	$	(3,947,041)
2117	$	-	$	-	$	-	$	-	$	-
2118	$	-	$	-	$	-	$	-	$	-
2119	$	511,066	$	269,750	$	-	$	2,743,427	$	(3,524,243)
2120	$	-	$	-	$	-	$	-	$	-
2121	$	6,375,628	$	1,566,625	$	-	$	-	$	(7,942,253)
2122	$	803,680	$	10,375	$	-	$	-	$	(814,055)
2123	$	1,152,673	$	51,875	$	-	$	-	$	(1,204,548)
TOTAL	**$**	**41,524,006**	**$**	**7,345,500**	**$**	**21,422,657**	**$**	**3,507,700**	**$**	**(73,799,862)**

Attachment 4.5

Olympic Valley Public Service District
Training Program

OVPSD Utility Department
Employee Training List
SSMP Attachment 4.5

Employee Name ______________________________ **Hire Date** ________________

IN House	Out Sourced	Exp. Date

	Training Frequency	2020	2021	2022	2023	2024	2025	2026	2027	2028
Drivers License										
*Commercial Drivers Lic. Class	Initial									
Physical Exam Expiration Date	2 Years									
CPR/First Aid	Initial									
Expiration Date	2 Years									
Certifications **Grade**										
SWRCB Water Treatment Grade										
SWRCB Distribution System										
Grade CWEA Collection System										
CWEA Mech Tech Grade										
AWWA Water Distribution										
AWWA Backflow Tester										
AWWA Backflow Specialist										
Respirator Training/ SB 198										
Care and use of respirators										
Fit test										
Care and use of SCBA										
Fit test										
SCBA Inspection/Certification										
Confined Space/OSHA Article 108										
*Entry/Attendant/Supervisor	Initial									
Confined Space Rescue/Drills										
*Gas Detector TMX 412										
Gas Cart/Supplied Air Breathing Apparatus										
Fall Protection/Hoisting Devices	Initial									
Harness/Lanyard Inspections	Annual									
Trench and Shoring Safety										
Competent Person Training										
Shoring Class/Training										
Trench Rescue										
Excavaton Safety										
Heavy Equipment Training										
Backhoe Operation Safety										
Loader Operation Safety										
*Jet Rodder										
Air Compressor/Jackhammer Safety										
Forklift/Hoisting & Rigging	Initial									
Hazardous Materials/HazMat										
*Right To Know (SDS)	Initial									
*Chemical Spill 1st Responder	Annual									
*First Aid Kit/Spill Kit/Eyewash Stations										
Advanced HAZWOPER (8 hour)										
Haz-Mat Spill Prevention & Control										
*Chemical Awareness NaOH/CL2										
Asbestos Worker AC Pipe	Initial									
Asbestos Awareness/ Qualified Person	Annual									
Vehicle/Traffic Safety										
Traffic Control/Flagging Traffic	Initial									
Winter Driving										
Tire Inflation/Repair Safety										
Driving Safety										
*Fueling Procedures										
Battery Charger/Jump Starting Vehicles	Initial									
Commercial Vehicle Inspection										
Electrical Safety										
*Lock-out Tag-out	Initial									
Arc Flash										
*Motor Control Centers/Panels										
*Generators/Transfer Switches										

	Training Frequency	2020	2021	2022	2023	2024	2025	2026	2027	2028
Fire Safety										
Fire Extinguishers	Annual									
Fire Prevention Planning										
Combustible and Flammable Liquids										
Building Evacuation & Emergencies										
Personal Safety										
Blood Borne Pathogens	Annual									
Hanta virus										
Lab Safety (test chemicals) (users)	Initial									
Personal Protective Equipment (PPE)	Initial									
Noise exposure/Hearing Conservation	Initial									
Welding & Acetylene Gas Safety (users)	Initial									
Ladder & Scaffold Safety										
Water Tank Climbing										
Lifting Satety/Back Injury Prevention										
Slipps, Trips, and Falls Prevention										
Housekeeping General Workplace										
Workstation Ergonomics										
Industrial Ergonomics										
Safety Awareness										
Medication and Safety										
Compressed Gas/Cylinders										
Materials Handeling										
Machine Guarding										
Indoor/Outdoor Air Quality										
Eye Safety										
Working in Extreme Temperatures										
Air Compressor/Air Tool Safety										
Disaster/Emergency Response										
*SVPSD Emergency Response Plan										
*Tahoe Truckee Area Response Plan										
N.I.M.S./S.E.M.s										
Site and Personal Security										
Emergency Planning										
Incident Investigation/Reporting										
*SSO Response Plan										
Equipment Safety										
Hand & Power Tool Safety										
Electric Rodder										
Wacker/Compactor/Pom-Pom	Initial									
Towable Trash Pump										
Cues/TV Camera										
Dump Truck										
Fork/Loader										
Snow Removal										
*Manhole lifting tool										
Honda Easement Machine										
Smoke Testing Safety and Procedures										
Chain Saw Safety										
Loading Trucks/Liftgate										
Co2 Freeze Kit										
Insects Critters and Dogs Safety										
Computer										
*SCADA System/On Call										
VUEWorks										
Badger Meter/Connect/Trace										
Excel										
Word										
Human Resources Training										
Violence in The Workplace										
Sexual Harrassment/Discrimination										
Stress in the Worklplace										
Code of Safe Practises/IIP Plan	Hire									
Drugs and Alcohol										

	Training Frequency	2020	2021	2022	2023	2024	2025	2026	2027	2028
VOCATIONAL TRAINING										
*Maps/GIS										
Line Locators/USA										
Leak Detection/ Leak Detectors										
Techiques for Taking Water Samples										
Math for Operators/Exam Prep										
*Disinfection of Water Mains										
*Distribution System Service Calls										
*Collection System Service Calls										
*Effective Meter Reading/Leak Detection										
Hydraulics										
Pump Maintenance, Motors & Circuts										
*Flushing/Storm Water Pollution										
Erosion Control										
*Water Main Installation and Repair										
Hydrant Repair/Operation										
*Sewer Main Installation and Repair										
Manhole Installation and Repair										
Grouting Manholes										
*Pipeline Cleaning and Maintenance										
Pretreatment Technology & Inspection										
Sewer Main Rehabilitation										
Water Well Rehabilitation										
*Chemical Feed System										
Clay Valve/Automatic Valves										
CWEA Safety Day										
CWEA State/Northern Regional										
AWWA Conference										
Supervisor Training										
Supervision/Management										
Preparing for an OSHA inspection										
Reasonable Suspicion For Supervisors										
Accident Prevention	Initial									
Accident Investigation	Initial									
* Required for On Call Duty										

Attachment 4.6

Olympic Valley Public Service District
Vehicle and Equipment Inventory

Olympic Valley Public Service District

Vehicle and Equipment Inventory

VEHICLES

1. 4-Wheel Drive Sport Utility (Explorer)
2. 4-Wheel Drive Light Duty (F-150)
3. 4-Wheel Drive 3/4 Ton Utility (Ford)
4. 4-Wheel Drive 1 Ton Flat Bed (Ford)
5. Ford 6/7 yard Dump Truck
6. John Deere backhoe
7. Ques Television Inspection Unit
8. John Deere 444H Loader
9. Sewer Cleaner Vac-Con
10. New Holland Snow Blower
11. P/I
12. Trackless Snow Blower
13. Dodge 2500

EQUIPMENT

1. Air Compressor with hoses
2. Jackhammer/Tamper
3. Husqvarna Cut-off Saw with blade
4. Pipe Thread Tool
5. Wacker Compactor
6. Blower, gas or electric
7. Confined Space Entry
8. Gas Detector/Tripod/Air Pack
9. Pipe Locator Ferret, Metrotech
10. Metal Detector
11. Leak Locator
12. Craftsman Chainsaw
13. Generator Portable
14. Pumps 5 hp or less
15. Pump 10 hp Trash
16. Pump Trailer Mounted 6”
17. Shoring
18. Traffic Control (all necessary components)
19. Radio Detection RD7100, Locator

Attachment 4.7

Olympic Valley Public Service District
Sewer Parts Inventory

Sewer Parts Inventory

Casting

Part Description	Cost	Min	Current Inventory	Total Cost
3.25" x 25"		2	4	
4.5" x 25"		2	8	
Total:	$ -	4	12	$ -

Manhole Lids

Part Description	Cost	Min	Current Inventory	Total Cost
25 3/8"		1	5	
Total:	$ -	1	5	$ -

Temp Lids

Part Description	Cost	Min	Current Inventory	Total Cost
36"		1	3	
Total:	$ -	1	3	$ -

Lid Risers

Part Description	Cost	Min	Current Inventory	Total Cost
1.5"		1	7	
1.75"		1	5	
2"		1	4	
Total:	$ -	3	16	$ -

Grade Ring Concrete

Part Description	Cost	Min	Current Inventory	Total Cost
25" x 3			4	
25" x 2 (Fiberglass)			1	
25" x 6			2	
36" x 6"			0	
Total:	$ -	0	7	$ -

Plastic Grade Rings

Part Description	Cost	Min	Current Inventory	Total Cost
1.25"			26	
1.5"			23	
2"			24	
4"			14	
Shim 1/4"			20	
Angle Shim			5	
Total:	$ -	0	112	$ -

Sewer Parts Inventory

G5 Boxes				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
Box			9	
Total:	$ -	0	9	$ -

Valve Lids				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
Sewer			29	
Water			29	
Total:	$ -	0	58	$ -

Water Box's				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
B24			6	
B16			6	
B36			14	
B36 Steel Rated			5	
Waddles			9	
Total:	$ -	0	40	$ -

Fernco's				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
4" AC/DI to 4" CI/PL		2	7	
4" CI/PL to 4" CI/PL		2	3	
4" Clay to 4" CI/PL		2	2	
6" CI/PL to 6" CI/PL		2	3	
6" AC/DI to 6" CI/PL		2	6	
6" Clay to 6" CI/PL		2	2	
6" CI/PL to 4" CI/PL		2	2	
8" Clay to 8" CI/PL		2	2	
8" AC/DI to 8" CI/PL		2	2	
8" PL/CI to 8" PL/CI		2	4	
10" Clay to 10" CI/PL		2	4	
Total:	$ -	22	37	$ -

Clean Out Caps				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
8"			**1**	
6"			1	
4"			1	
Total:	$ -	0	3	$ -

Sewer Parts Inventory

Gripper Plugs				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
4"		1	5	
6"		1	5	
8"		1	1	
10"			1	
12"			1	
15"			1	
Total:	$ -	3	14	$ -

Inflatable Plugs/Test Plugs				
Part Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
12"			2	
10"			2	
8"			3	
6"			3	
4"			1	
3"			2	
1"			1	
55' of air line			1	
Total:	$ -	0	15	$ -

Flushing/Cleaning Balls				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
12"		1	1	
10"		1	1	
8"		1	1	
6"		1	2	
Total:	$ -	4	5	$ -

Smoke Bombs / DYE Tablets				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
1/2 Box			0	
Red Tablet			2	
Green Tablet			2	
Total:	$ -	0	4	$ -

Traps				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
Sand			5	
Debris			3	
Total:	$ -	0	8	$ -

Sewer Parts Inventory

Cast Iron Elbows				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
4", 45° CI			4	
4", 22° CI			2	
4", 11° CI			2	
Total:	$ -	0	8	$ -
Flow Threws				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
12"			2	
10"			1	
6"			2	
4"			1	
Total:	$ -	0	6	$ -
Kits				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
Link pipe kit		1	1	
Total:	$ -	1	1	$ -
Vac Con Extensions				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
5'			1	
6'			1	
6' x 6" Dig end			2	
6' x 4" Dig End			1	
6' x 8" Dig End			1	
3'			1	
Total:	$ -	0	7	$ -
Vac Con Parts (On truck)				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
8" Inflatable plug			1	
6" Gripper			1	
4" Inflatable			2	
20' of hose extensions			1	
Bike pump			1	
Tool Box 1			1	
Total:	$ -	0	7	$ -

Sewer Parts Inventory

PVC Parts				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
4" Spigit plug		2	5	
4" Push on cap		1	4	
4" Thread cap		1	13	
4" Coupler glue style		1	5	
4", 45° Push slip		2	3	
4", 45° Push on		2	8	
4", 22° Push on		2	6	
4", 90° Push on		1	2	
4" to 4" Push on coupler		2	2	
4" Y's		2	2	
6" x 6" Push on Y's		1	1	
6" x 4" Push on Y's		1	4	
6" x 4" Push on T		1	1	
6" Push on cap		1	3	
6", 45° Push on		2	3	
6", 45° Push slip		2	2	
6", 22° Push on		1	1	
6" Push on coupler		2	1	
6" Glue styler coupler		2	7	
8" Push on coupler		2	2	
8" x 4" Push on Y		1	1	
Total:	$ -	32	76	$ -

Miscellaneous				
Product Description	**Cost**	**Min**	**Current Inventory**	**Total Cost**
Hose real guide - Tiger Tailz			1	
10' leader hose			2	
Total:	$ -	0	3	$ -

5 Design and Performance

5.1 REQUIREMENT

Detailed standards are essential to ensure that new construction, replacement and rehabilitation work performed on the collection system uses the most recent and relevant standards of the industry. An effective program that ensures new sewers are properly designed and installed can minimize system deficiencies that could lead to future sewer system overflows or maintenance problems. The specific requirements of the SSMP are that the District maintain:

- Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and
- Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

5.2 SSMP COMPLIANCE

The Olympic Valley Public Service District Sewer Technical Specifications meet the requirements of items 1 and 2 above. A copy of the technical specifications is included as Attachment 5.1. Updates to technical specifications and details take place routinely to ensure compliance with evolving industry standards. The specifications and standard detail drawings are posted on the District's website *www.ovpsd.org*.

Attachment 5.1

Olympic Valley Public Service District
Sewer Technical Specifications

OLYMPIC VALLEY

PUBLIC SERVICE DISTRICT

SEWER TECHNICAL SPECIFICATIONS

Issue Date: May 2014
Revision Date: November 2020

305 Squaw Valley Road | **P. O. Box 2026** | **Olympic Valley, CA 96146**

www.ovpsd.org | **(530) 583-4692**

OLYMPIC VALLEY PUBLIC SERVICE TECNICAL SPECIFICATIONS-SEWER

SEWER STANDARD DETAILS

SEWER TECHNICAL SPECIFICATIONS

Section 1.01 General Specifications

Except where modified by this document, all materials furnished and work performed shall be done in accordance with the most current edition of the County of Placer General Specifications (herein referred to as General Specifications), or as directed by the District. In the event of conflict, error, ambiguity or discrepancy between the General Specifications and this document, this document shall take precedence.

Section 1.02 Sewer Plans

Before a sewer permit may be issued, plans for the proposed construction shall be submitted to and approved by the District. The plans submitted shall become the exclusive property of the District. After the fees required by the District have been paid, the District shall check the submitted plans for compliance with the requirements of this document and other applicable laws and ordinances of the District.

A. The plans submitted shall be identical to plans for the same project submitted to other governmental entities. The District shall be notified of any changes in the plans. Any changes in the plans must be checked and approved by the District prior to the issuance or modification of the sewer permit and shall be subject to District Code.

B. All structures, facilities, and other appurtenances shown on the plans shall comply with all applicable District standards including, but not limited to, design.

C. The plans submitted shall be adequate for the District to determine the proposed demand to be placed on the District's sewer system. The plans submitted shall be adequate for the District to calculate the applicable fees and charges.

D. Any plans submitted for approval under the provisions of this document shall be prepared by or under the direction of and shall be signed and stamped by a Registered Civil Engineer of the State of California.

E. Soil conditions, particularly in areas known to have high groundwater, rock, or filled ground, shall be prospected and the results shown on the profile.

F. All substructures which will be encountered in the construction or which will be installed as part of the improvement shall be shown and designated on the plan. Large substructures which require special treatment in the design of the sewer shall also be shown in the profile.

G. If a literal compliance with any engineering requirements of this document is impossible or impractical because of peculiar conditions in no way the fault of the person requesting an exception, and the purposes of this document may be accomplished and public safety secured by an alternate construction or procedure, and the District so finds that such alternate complies with sound engineering practice, the District may grant an exception permitting such alternate construction or procedure.

H. For estimating wastewater design flows, unit wastewater generation rates shall be per the table below, or as directed by the District. Wastewater flow estimates for facilities not listed shall be per the latest edition of the Uniform Plumbing Code. A peaking factor of 2.6 shall be applied for planning and design of sewer systems.

Unit Wastewater Generation Rates

Land Use	Recommended Unit Flow Factor (gpd/unit)
Residential	
Single Family	291
Single Family – Multiple Units	475
Multi-Family – Individually Metered	151
Multi-Family – Master Metered	244
Other	
Hotel/Motel	304
Commercial	0.38 gpd/ft^2 of building space

I. All surveying and design drawings shall conform to CA State Plane, Zone II, NAD 83 U.S. Survey FT for vertical datum and NAVD 88 for vertical datum.

Section 1.03 Sewer Service for Large Lots

Where a lot is of sufficient size that the County Zoning Ordinance does not prohibit its division into smaller parcels, each of such possible parcels upon which one or more buildings containing plumbing facilities are or may be located, may be considered as a separate lot. Separate house laterals may be constructed to the main line sewer for each of such possible parcels except where the owner has entered into an agreement with the District, recorded against the property, which provides that the land will be held as a unit and that before any division of land is made, separate sewerage facilities will be provided for each parcel. If the main line sewer does not extend to a point from which such possible parcels can be served in accordance with this document, the main line sewer must be extended in compliance with this document.

Section 1.04 Sewer Easement Requirements

A person who wishes to have constructed a sewer in an easement under the provisions of this document shall present to the District a request for processing, sufficient information to enable the preparation of written legal description with current Assessor's Parcel Numbers, the appropriate fees and plans showing the locations of all structures in the proximity of the sewer.

The location and dimensions of a sanitary sewer easement shall be sufficient to provide present and future sewer service to abutting areas and adequate access for maintenance, as determined by the

District. No easement shall be less than ten (10) feet in width.

Until the required easements have been properly executed and recorded, no plan shall be approved by the District for construction of sewer facilities across private property and no sewer facility shall be accepted for public use nor placed in use by any person.

Section 1.05 Record Maps

Two sets of 100% complete drawings delineating a record of sewers and appurtenances shall be filed with the District prior to and as a condition of approval and acceptance of construction. No certificate of final inspection will be issued until "As-Builts" have been filed with the District.

Section 1.06 Size of Main Line Sewer

The size of main line sewer pipe shall be determined by a Registered Civil Engineer, subject to the approval of the District, but in no case shall it be less than six (6) inches inside diameter unless approved by the District.

Sizes and Grades: Pipes 15" and under in diameter shall be designed to flow at 1/2 depth at maximum flows with n = 0.013. Pipe 18" in diameter and over shall be designed to flow at 3/4 depth at maximum flows with n = 0.013.

A main line sewer shall be designed to provide a minimum velocity of two (2) feet per second for pipes flowing one-half full, except that the District may approve a gradient that will develop a lower velocity if the District finds that a gradient that will develop a velocity of two (2) feet per second is unobtainable.

Section 1.07 Depth of Sewer

The minimum depth for main line sewers shall be five (5) feet.

The depth for residential main line sewers must be sufficient to provide for a house lateral with a minimum depth of at least three (3) feet below the curb grade or street or alley grade at the property line.

Exceptions to the above minimum may be made only as a special condition after review and approval by the District.

Section 1.08 Additional Protection Required

Sewer pipe installed under a conduit or other structure, or at depths greater than twenty (20) feet, or in other locations where the District determines that additional protection is required, shall be reinforced with a concrete cradle, or encased in concrete, or reinforced by other approved means which will protect the pipe to the same extent.

Section 1.09 Water and Sewer Separation

Any new development in which all underground utilities are being constructed for the first time must comply with the following sewer and water line separation standards:

- Sewer mains shall be installed at least ten (10) feet horizontally and one (1) foot vertically below water mains located parallel to each other.

- Sewer mains shall be installed perpendicular to and at least one (1) foot lower than water mains crossing the main with connection joints for both mains centered over the crossing.

- If a sewer service lateral parallels a water main or water service lateral, the sewer service lateral must be in a separate trench and located at least twelve (12) inches lower than the water main or water service lateral and at least four (4) feet away from the water main or water service lateral.

- If a sewer main crosses a water service lateral, the sewer main must be located at least eighteen (18) inches lower than the water service lateral.

- If a sewer service lateral crosses a water main or water service lateral, the sewer service lateral must be located at least twelve (12) inches lower than the water main or water service lateral.

Alternative separation criteria may be approved by the District if the criteria meet the requirements of the California Department of Public Health.

Section 1.10 Inclusion of Other Utilities within Pipe Trench

No other utility shall be allowed in the pipe trench excavated for sewers or sewer appurtenances within the County rights-of-way. Utilities crossing over or under sewers shall be adequately marked and protected against future excavation for necessary repair of sewer lines.

Section 1.11 Materials

A. Polyvinyl Chloride (PVC) Gravity Sewer Pipe

PVC gravity sewer pipe and fittings shall conform to ASTM D 3034 for diameters from 4" to I5", and ASTM F 679 for 18" to 24", with integral-bell and gasket joints. Rubber gaskets shall be factory installed and conform to ASTM F 477. Pipe joints shall conform to ASTM D 3212.

B. PVC Pressure Pipe

PVC Pressure Pipe (PVC C900 & C905): PVC C900 & C905 pipe shall conform to and meet the requirements of AWWA C900 and C905, respectively. Compound material shall meet ASTM D1784, cell class 12454-B. Pipe shall be supplied with an integral bell with gasket meeting the requirements of ASTM F 477. The gasket joint assembly shall meet the requirements of ASTM D 3139.

C. High Density Polyethylene Pipe (HDPE)

HDPE pipe shall be high molecular weight, high density polyethylene pipe. The material shall be listed by the Plastic Pipe Institute (PPI) with a designation of PE 3408 and have a minimum cell classification of 345434C, D, or E (inner wall shall be light in color) as described in ASTM D3350. The pipe material shall meet the requirements for Type III, Class B or C, Category 5, Grade P34 material as described in ASTM D1248. The pipe shall contain no recycled compound except that generated in the manufacturer's own plant from resin of the same specification from the same raw material pipe. Pipe (excluding black colored pipe) stored outside shall not be recycled. Pipe and fittings shall be made in conformance with ASTM F714 and ASTM D3261 as modified for the specified material. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions or other injurious defects. It shall be uniform in density and other physical properties. Any pipe not meeting these criteria shall be rejected.

D. Ductile Iron Pipe (DIP)

Ductile iron pipe shall conform to and meet the requirements of ANSI/AWWA CI51/A21.51. It shall be the thickness class required for supporting the imposed loads. Joints shall conform to ANSIIAWWA C11I1 A21.11. Fittings shall be ductile iron and shall meet the requirements of ANSI/AWWA C110/ A21.11. An exception to this is the 4 to 12 inch pipe size whereby ductile iron compact fittings may be used provided they meet the requirements of ANSI/AWWA C153/A2I.53 and have a working pressure rating of 350 pounds per square inch.

Section 1.12 Manholes

A. General

This work shall consist of the construction of manhole structures at the locations as shown on the plans.

B. Manhole Placement

Manhole structures shall be placed in the main line sewer at all changes of alignment and gradient. The maximum distance between structures shall be not more than four hundred (400) feet. All structures shall be designed according to **the standard drawings of this document.** Where the location of two manholes is determine by intersecting lines, the distance between intervening manholes shall be approximately equal.

Sewers on curved alignment with a radius of less than four hundred (400) feet shall have manholes spaced at a maximum of three hundred (300) feet and adjusted down to fit the individual case. Curved alignments shall not be used unless specifically permitted by the District.

C. Materials

For precast manhole sections, the manhole sections, adjustment rings and tapered sections with tongue and groove joints shall conform to ASTM Designation C478. Manhole cones shall be constructed with an internal flat vertical surface at the upper joint to allow installation of internal manhole chimney seals. Vertical surface shall measure no less than two (2) inches and be continuous along the entire circumference of the top cone opening. Metal forms shall be used in the manufacture of the precast sections so as to obtain smooth surfaces. The concrete shall be well compacted by being centrifugally-spun, vibrated, or mechanically-tamped.

For cast-in-place manhole bases, concrete shall conform to ASTM Specification C478-64T. Portland cement shall be Type II, conforming to the requirements of ASTM Designation C-150.

Frame and cover assemblies shall be traffic weight, South Bay Foundry Model SBF-1900-OS-CPH, or approved equal, marked sanitary sewer, ten (10) degree tapered cover with o-ring. Frames and covers shall be matched and marked in pairs before delivery. Manhole covers shall fit without rocking. Joint sealant shall be "Ram Nek" as manufactured by K. T. Snyder Co., or approved equal.

If used, mortar shall consist of one (1) part Portland cement to two (2) parts clean, well graded sand. All sand shall pass through a one-eighth (1/8) inch screen. Admixtures may not exceed the following percentages of weight of cement: hydrated lime ten (10) percent; diatomaceous earth or other inert materials five (5) percent. Mortar shall be of such consistency as to readily adhere to all surfaces. Mortar shall be used within thirty (30) minutes of mixing.

D. Construction

Manholes shall be watertight structures constructed in accordance with the details of this document.

The ends of barrel sections, cone sections and grade rings shall be of such design and construction that when properly laid they shall have a smooth and uniform surface. To prevent infiltration or exfiltration each joint shall be sealed with a flexible joint sealant compound in accordance with the manufacturer's recommendations.

The inside bottom of manholes shall be shaped to provide channels conforming to the size and shape of the inlets and outlets to the manhole. The exact configuration of transitions from branch size to mainline sizes shall be as directed by the Engineer. All work shall be cured for a period of ten (10) days after being placed and shall be protected from injury.

During the pour of the manhole base, adequate care shall be taken to ensure the proper bond between the sewer pipe and the concrete to prevent leakage at that location.

Concrete surfaces shall be furnished as specified in Section 51 of the State of California Standard Specifications. Finish for surfaces underground and not exposed to view shall be "Ordinary Surface Finish." Finish for surfaces exposed to view and manhole bottoms, shall be Class 1.

Grade rings may be set with Polymer Concrete Shimz or mortar if necessary for adjustment of the final cover elevation. A full bed of mortar shall be used, and all excess mortar shall be trimmed flush. The outside of each mortar joint shall be sealed with an approved bituminous sealing compound. Mortared joints shall not exceed a thickness of one-half (1/2) inch. The total height of grade rings shall not exceed twelve (12) inches. In paved areas or areas of high groundwater, or when mortar is being used to adjust final elevation, an internal rubber chimney seal and/or seal extension shall be installed. The internal rubber seal and seal extensions shall be as manufactured by Cretex Specialty Products, or approved equal. The seals and extensions shall have a minimum thickness of three-sixteenth (3/16) inches and shall be extruded from a high grade rubber compound conforming to the applicable requirements of ASTM C93. The bands used for compressing the seal and extension against the manhole shall be fabricated from 16 gauge stainless steel conforming to ASTM A240 Type 304, any screws, bolts or nuts used on the band shall also be Type 304 stainless steel.

The top of manhole elevations shown on the plans are approximate only. In general, the finished grade of the manhole shall be set one-half (1/2) inch below pavement grade in paved areas, four (4) inches below grade in shoulders or similar unpaved areas, and one (1) inch above grade in other areas. When the manhole is located in the pavement area, it shall not be constructed to final grade until the pavement has been completed.

Section 1.13 Connection to Existing Manhole

Connections to existing manhole walls shall be made by core drilling into the wall of the manhole. Pipe penetration through the manhole wall shall be sealed with a watertight seal by one of the following:

- Equipping the pipe with a flexible pipe-to-manhole connector (Kor-N-Seal®, or equivalent) that provides a watertight seal of the pipe to the manhole. The rubber for the connector shall comply with ASTM C923 and consist of elastomers designed to be resistant to ozone, weather elements, chemicals, including acid, alkalis, animal and vegetable fats, oils, and petroleum products from spills. Stainless steel elements of the connector shall be non-magnetic series 316 stainless steel.

- Alternative mechanical seal requiring prior District approval

- If either of the above pipe to manhole connectors cannot be used due to constraining field conditions, the following application will be allowed on a case-by-case basis: inserting the end of the pipe through the core drilled opening, and either using a manufactured water stop around the pipe centered in the penetration or packing the opening around the pipe with Ram-Nek and primer, then covering with a stiff mix of cement mortar, thoroughly compacted. The mortar shall be composed of one part Type II Portland cement and three parts clean sand. The mortar shall be troweled smooth and flush with the interior surface of the manhole.

Connection of a pipeline to an existing manhole which has a stub-out shall be accomplished with a rigid repair coupling (FERNCO 1056-66RC, or equal). No flexible rubber couplings are allowed.

The use of impact hammers to break into a manhole wall is prohibited.

Section 1.14 Drop Manholes

When in the opinion of the District the flow line grades are such as to require a drop manhole this shall be accomplished as detailed in the standard details. A drop inlet shall not be permitted within five (5) feet of the flow line.

Section 1.15 Service and Building Laterals

It shall be the responsibility of the owner or their agent, or developer, at their expense, to install all building and service lateral pipelines and appurtenances from the District owned sewer main to the connection to the building sewer.

Service laterals and building laterals shall be four (4) inched inside diameter (I.D.) minimum for a single family residence and six (6) inches I.D. minimum for multiple-units, commercial, industrial, and public use services.

Allowable pipe materials include PVC gravity sewer pipe, PVC pressure pipe, or DIP. Where the laterals will have less than four (4) feet of cover in traffic areas, PVC pressure pipe or DIP shall be used.

Laterals shall be constructed with a minimum slope of 2%. The minimum depth for laterals shall be 36 inches minimum below finished grade at the property or sewer easement line. A minimum of 30 inches of cover shall be maintained for the building lateral.
A District inspector shall be present during the installation of all building and service laterals to ensure that the work is being performed in accordance with the Sewer Code and the Sewer Technical Specifications. No backfill shall occur without prior District inspection.

Laterals shall be installed in accordance with the standard details within this document and the most recent version of the California Plumbing Code (CPC).

Section 1.16 Cleanouts

A double cleanout shall be installed in each building lateral at the property line of the premises being provided with sewer service, and a second cleanout installed within 5 feet of where the lateral exits the structure foundation. Cleanouts located under the house are not acceptable; rather the cleanout must be located outside the building foundation. Additional cleanouts shall be installed at intervals not to exceed one hundred (100) feet, and at any other point the owner or their agent may select for the purpose of keeping said sewer pipeline clean and free of obstruction. A cleanout, boxed to grade, shall also be installed at the property line on vacant parcels, and on the upstream side of the fitting at all forty-five (45) degree or greater bends.

All cleanout boxes shall be constructed according to the standard detail provided in this document. Cleanout boxes shall be set to grade and backfilled to prevent accidental displacement or removal. Lids shall have "SEWER" or equivalent imprinted on the lid. Lids with verbiage other than a sewer utility designation (i.e., Water, Gas, etc.) imprinted on the lid are not permitted.

All cleanout risers must be from three (3) to eight (8) inches below finished grade and boxed to finished grade with an appropriate removable watertight plug in the end of the riser. Cleanout risers and appropriate boxes are required on all cleanouts.

Section 1.17 Excavation and Backfill

Excavation and backfill for all sewers shall conform to Section 19-3.01 and Section 71-1.03 of the Placer County General Specifications.

Section 1.18 Trench Bedding and Initial Backfill

Trench bedding and initial backfill shall consist of material placed from the bottom of the trench to one (1) foot above the top of pipe or as required by the District. This material shall have a minimum sand equivalent of twenty-five (25) and shall pass the three-quarter (¾) inch aggregate grading requirements shown below. All exceptions shall be approved by the District.

AGGREGATE GRADING REQUIREMENTS

Percentage Passing For ¾" Maximum Aggregate

Sieve Size	% Passing
1"	100
¾"	90-100
No. 4	35-60
No. 30	10-30
No. 200	2-5

Compactable concrete may also be approved as pipe bedding material. The compactable concrete shall be prepared and placed as specified in Section 19-3.061 of the General Specifications. When determined by the District that the foundation material is wet or rocky, drain rock bedding material shall be placed to a depth of at least six (6) inches below the pipe or one-fourth (1/4) the outside diameter of the pipe barrel, whichever is greater. This material shall be washed rock one hundred (100) percent passing the three-quarter (¾) inch screen, and wrapped in filter fabric as appropriate to prevent migration of fines into rock voids.

In excessively wet areas a special foundation design shall be required by the District.

Section 1.19 Intermediate Backfill

Intermediate backfill shall consist of material placed from one (1) foot above the pipe to subgrade. All intermediate backfill shall be free of debris and organic matter, and shall be free of any rocks over three (3) inches in diameter.

Sewer lines placed with less than one (1) foot of intermediate backfill, shall be encased in concrete or provided with a concrete cover, cement slurry or other method approved by the District.

Section 1.20 Trench Compaction

The required compaction for utility trenches within the roadway shall be a minimum of:

<u>Bedding and Initial Backfill</u>

Ninety-five (95) percent relative compaction, unless otherwise specified by the utility owner.

<u>Intermediate Backfill</u>

Ninety-two (92) percent relative compaction to subgrade, or as shown on the plans or in the project specifications.

The required compaction for utility <u>trenches outside the roadway</u> shall be a minimum of ninety (90) percent from the bottom of the trench to finished grade, or as shown on the plans or in the project specifications.

Compaction shall be obtained by mechanical means in layers not to exceed 8 inches in thickness. Trench jetting will not be allowed within the roadway prism.

Section 1.21 Waste Pretreatment Removal Devices

A. General

Pretreatment facilities must be designed, constructed, and installed at the expense of the Owner.

Pretreatment removal devices shall, at all times, meet the discharge requirements pursuant to Division 11 of the Sewer Code and as required by the Tahoe-Truckee Sanitation Agency.

Detergents, chemicals, and/or other agents which may temporarily dissolve or emulsify fats, oils, and grease (FOG) or petroleum based oils and grease may not be utilized.

The Owner shall maintain devices as required to maintain working operation and compliance with discharge requirements. Maintenance shall include periodic removal and proper disposal of intercepted and accumulated grease and/or other materials as indicated herein. No such collected grease or materials shall be introduced into the sewer system.

The Owner shall post and maintain a current interceptor cleaning and maintenance log on the premises and shall have the log available for District review at all times and when requested by the District.

The District will periodically schedule inspections of premises and interceptors for purposes of ensuring compliance with the District Sewer Code. Owner shall cooperate and make available any/all requests for information as required.

If the District determines that an interceptor is not properly sized/designed, and/or not being properly cleaned or maintained, the District shall have the authority to mandate the installation of a different device, additional equipment or devices, and/or mandate a maintenance program.

B. Pretreatment Removal Device Types

The District requires the use of a gravity interceptor as the FOG removal device for all establishments which handle, prepare, cook, or service foods or where, in the opinion of the General Manager, they are necessary for the handling of wastes that can affect the proper functioning of the sewer system. Other FOG removal devices such as hydromechanical grease interceptors, traps, or other systems shall only be allowed through the District variance process.

For industrial and other establishments, a sand-oil interceptor is required for sand and petroleum based oils and grease removal. Other pretreatment devices shall only be allowed through the District variance process.

Each pretreatment removal device shall be installed and connected to allow for easy access at all times for inspections, cleaning, and removal of intercepted materials and as close as practical to the fixtures they serve. A grease interceptor may not be installed in any part of a building where food is handled. Proper location shall meet all CPC requirements and be approved by the District. Interceptors and appurtenances located in vehicle traffic areas must be capable of withstanding an H-20 axle load.

C. Gravity Grease Interceptors

All grease control systems shall be designed by a California licensed engineer in accordance with the Sewer Code, these Technical Specifications, and the CPC requirements. The proposed plans must be submitted to the District for review and approval, accompanied by the engineer's supporting calculations. Construction shall be performed by a California licensed contractor with the applicable license.

The interceptor shall be sized in accordance with CPC Table 1014.3.6.

Each interceptor shall be plumbed such that only kitchen waste shall flow through the interceptor. The temperature of waste discharged into a grease interceptor shall not exceed 140°F. Toilets, urinals and other similar fixtures shall not drain through the interceptor. Automatic dishwashers may not be discharged to the interceptor. No food waste disposal grinders shall be installed that may discharge into the interceptor. Floor drains located in areas where grease containing materials exist shall be connected to the interceptor.

A sample port shall be installed directly downstream of the interceptor and upstream of the non-kitchen waste flow tie-in point.

All gravity grease interceptors shall be cleaned every 6 months, at a minimum, or more frequently as directed by the District. The District will inspect the cleaning and shall be notified at least seventy two (72) hours in advance of any cleaning. Interceptor pumping shall occur during normal business hours (Monday-Friday 8 AM-5PM) to allow District staff to be present during pumping. Existing interceptors that are undersized may require more frequent pumping. The establishment shall post and maintain a current grease interceptor cleaning and maintenance log on the premises and shall have the log available for review by District personnel at all times. Receipts and bills of lading from the pumper/hauler and/or rendering service companies shall be provided to the District electronically via email no later than five (5) days after pumping and shall be retained by the establishment for a minimum of three (3) years.

D. Alternative Pretreatment Technologies (Hydromechanical Grease Interceptor)

The District may authorize the installation of hydromechanical grease interceptors (HGI) in lieu of a gravity grease interceptor. The establishment shall bear the burden of demonstrating that the installation of a grease interceptor is not feasible due to space constraints, plumbing requirements or other considerations. An engineer's wet stamped letter from the establishment stating the specific reasons that a gravity grease interceptor is not feasible must be submitted with the request for a variance.

All grease control systems shall be designed by a California licensed engineer in accordance with the Sewer Code, these Technical Specifications, and the CPC requirements. The proposed plans must be submitted to the District for review and approval, accompanied by the engineer's supporting calculations. Construction shall be performed by a California licensed contractor with the applicable license.

HGIs shall be sized in accordance with CPC Section 1014.2.

HGIs shall be installed with a flow rate of between 20 gallons per minute and a maximum of 55 gallons per minute. The rate of flow shall not be less than 40% of the total capacity, in gallons, of fixtures discharging into the HGI.

No more than four (4) separate fixtures shall be connected to or discharged into any one HGI. Each fixture discharging into an HGI shall be individually trapped and vented as required by the CPC.

Dishwasher waste may not be plumbed through a HGI unless specifically designed to work in conjunction with a specific dishwasher and is approved by the District. Discharge from the dishwasher may not exceed 140°F or the design limit temperature set by the manufacturer, whichever is less. The District may prohibit the use of certain detergents, chemicals or defoaming agents used for washing or sanitizing.

A sample port shall be installed directly downstream of the interceptor and upstream of the non-kitchen waste flow tie-in point.

All HGIs shall be opened, inspected, cleaned, and maintained a minimum of once per week (every 7 days) or more frequently as recommended by the manufacturer or required by the District. The establishment shall post and maintain a current cleaning and maintenance log on the premises and shall have the log available for review by District personnel at all times. Receipts and bills of lading from the pumper/hauler and/or rendering service companies shall be provided to the District electronically via email no later than five (5) days after pumping and shall be retained by the establishment for a minimum of three (3) years.

E. Sand/Oil Interceptors

All sand-oil interceptor systems shall be designed by a California licensed engineer in accordance with the Sewer Code, these Technical Specifications, and the CPC requirements. Interceptors shall serve a single type of source control. If multiple source conditions are present on a single property, multiple interceptors shall be required. The proposed plans must be submitted to the District for review and approval, accompanied by the engineer's supporting calculations. Construction shall be performed by a California licensed contractor with the applicable license.

The interceptor shall be sized in accordance with Section 1016.3 of the CPC.

Floor drains shall be connected to the interceptor. Multiple floor drains may discharge to a single interceptor, provided that the interceptor is serving the same source control. Floor drains shall not be subjected to surface water inflow. Toilets, urinals and other similar fixtures shall not drain through the interceptor.

A sample port shall be installed directly downstream of the interceptor and upstream of the non-kitchen waste flow tie-in point.

The Owner shall post and maintain a current interceptor cleaning and maintenance log on the premised and shall have the log available for review by District personnel at all times. Receipts and bills of lading from the pumper/hauler company shall be provided to the District electronically via email no later than five (5) days after pumping and shall be retained by the establishment for a minimum of three (3) years The District will inspect the cleaning and shall be notified at least seventy two (72) hours in advance of any cleaning. Interceptor pumping shall occur during normal business hours (Monday-Friday 8 AM-5PM) to allow District staff to be present during pumping

Section 1.22 Building Lateral Testing

All building laterals shall be tested by the air method. The test section shall be from the cleanout at the point of service (typically the property or sewer easement line) to the building cleanout.

A District inspection shall be required for approval of workmanship and materials in compliance with District requirements. Testing will be completed in the presence of a District Inspector. The system must be completely ready for inspection at the appointed time; failure to comply with this will result in an additional inspection service charge for each occurrence. The owner or their agent must be present at the time of inspection and test.

Once the backfill is complete and the cleanout boxes are installed, the new building lateral shall be tested in accordance with the following:

- Air Testing consists of plugging each end of the building lateral and applying a pressure of 4.0 pounds per square inch to the section under the test. The pipeline shall be allowed a maximum loss in pressure of 1/2 pound per square inch in 5 minutes. If the loss exceeds 1/2 pound per square inch, the test may be attempted one additional time. A second loss of pressure constitutes a failure of the pipeline.

Section 1.23 Sewer Line Flushing and Testing

A. General

As a condition of acceptance of the completed sewer system, the contractor shall ball, flush and test the entire gravity sewer system, including laterals, and shall flush and test all force mains, all as specified herein. The authorized representative of the District shall be present during the performance of all such work.

Prior to any balling, flushing or testing, all trenches shall be properly backfilled and compacted to a minimum depth of four (4) feet above the top of the pipes. All adjacent facilities, including water lines and other underground utilities, shall be in place and satisfactorily backfilled. The entire trench area shall be cleaned up and brought to the approved grade.

B. Test for Obstructions

Prior to hydrostatic or air testing, all gravity sewer lines shall be tested for obstructions and cleaned by balling and flushing. This shall be done with a commercial sewer cleaning ball, such as the Wayne sewer cleaning ball manufactured by the Sidu Company, P. O. Box 3537, Long Beach, the "Flexible" sewer ball manufactured by Flexible, Inc. of 3786 Durango Avenue, Los Angeles, or equal. The ball shall be controlled by a calibrated tag line or sewer rods, allowing a slow and controlled movement of the ball through the line. All obstructions, deficiencies or irregularities shall be repaired or removed as necessary.

C. Gravity Sewer Air Tests

Low Pressure Testing: Pressure testing of the completed sewer pipe installation by low pressure air testing shall be as specified herein. The maximum length of sewer line that may be tested at one time shall be limited to the length between adjacent manholes.

The Contractor shall provide all personnel and equipment necessary to conduct the test, including test plugs, air compressor and test gauge. The test gauge shall have minimum divisions of 0.10 psi, and an accuracy of 0.04 psi. Accuracy and calibration of the gauge shall be certified at six month intervals by a reliable testing firm, or if requested by the District. The gauge may be checked by the District at any time.

Test Procedure: Slowly pressurize the test section to an internal pressure 4.0 PSI greater than the average back pressure of any ground water which may submerge the pipe. Check all exposed portions of the section with a soap solution for abnormal leakage. If any such leakage is observed, slowly release the air pressure and make necessary repairs before resuming testing.

At least two minutes shall be allowed for stabilization before proceeding further. Add air as required to maintain pressure. After at least two minutes, disconnect the air supply and observe the time required for the internal air pressure to drop from 3.5 PSI to 3.0 PSI greater than the average back pressure of any ground water which may surround the pipe.

The requirements of these provisions shall be considered as satisfied if the observed time is not less than the greater of the times indicated in the following table:

Pipe (Diameter)	Time (Seconds)
4”	180 or 40 x L[1]
6”	180 or 40 x L
8”	240 or 70 x L
10”	300 or 160 x L
12”	360 or 160 x L
15”	420 or 160 x L
18”	480 or 160 x L

[1]Where L is the length of test section in hundreds of feet.

If the test section fails to meet the requirements of this test, the source or sources of the leakage shall be determined, and any necessary repairs or replacement of materials shall be made. The repaired section shall be retested for compliance with the requirements of this test.

D. Hydrostatic Test

A section of gravity sewer can be prepared for hydrostatic testing by plugging the upper side of the downstream manhole and all openings in the upstream manhole except the downstream opening.

The section thus prepared shall be tested by filling with water to an elevation five feet above the top of the pipe at the up-stream end of the test section or five (5) feet above the existing groundwater elevation, whichever is greater. The water level need not exceed the manhole rim elevation. The water shall be introduced into the test section at least four (4) hours in advance of the actual test period to allow the pipe and joint materials to become saturated. The pipe shall be refilled to the original water level at the start of the actual test period, and the elevation of the water in the upstream manhole carefully measured.

After a period of four (4) hours, the water level elevation shall be again carefully measured and the loss of water during the test period calculated. If this calculation is difficult due to manhole taper, loss can be determined by measuring the amount of water added to restore the water level to its initial elevation.

The leakage in the test section shall not exceed three hundred fifty (350) gallons per mile per day per inch diameter of line tested at the five (5) foot test head. If it is necessary or desirable to increase the test head above five feet, the allowable leakage shall be increased eighty (80) gallons for each foot of such increase in test head.

Test sections showing leakage in excess of that allowed shall be repaired or reconstructed as necessary to reduce the leakage to that specified above and the section retested.

It shall be permitted to test the upstream manhole separately, subtract the manhole leakage from the combined total, and thus determine the line leakage along. Any manholes tested individually shall be tested by the procedure described hereinafter.

E. Test for Pipe Distortion (PVC Pipe only)

Following the placement and compaction of backfill and prior to the placing of permanent surfacing, all PVC gravity sewer main lines shall be cleaned and then mandrelled in the presence of the District Inspector or Representative to determine the existence of any obstructions such as deflections, joint offsets and lateral pipe intrusions.

A rigid mandrel with a circular cross section having a diameter of at least ninety-five (95) percent of the specified average inside diameter of the pipe shall be pulled through the pipe by hand. The mandrel shall have a minimum length of circular section equal to the nominal diameter of the pipe and shall be subject to the approval of the District. Any obstructions encountered by the mandrel shall be properly repaired and rechecked as directed by the District Inspector or Representative at no cost to the District.

Approximately eleven months after acceptance of the work (at least twenty [20] days but not more than fifty [50] days prior to the expiration of the two [2] year maintenance period) all PVC gravity sewer lines shall again be mandrelled in the presence of the District. A rigid mandrel with a circular cross section having a diameter of at least ninety (90) percent of the specified average inside diameter of the pipe shall be pulled through the pipe by hand. The mandrel shall have a minimum length of circular section equal to the nominal diameter of the pipe and shall be subject to the approval of the District Inspector or Representative. Any obstructions encountered by the mandrel shall be properly repaired and rechecked as directed by the District Inspector or Representative at no cost to the District.

F. Television Inspection

Television Tests: Each section of sewer pipeline shall be subject to inspection by use of a closed circuit television (CCTV) camera. Use of the CCTV inspection shall not relieve the contractor of the responsibility for performing the other tests outlined in this section nor shall it be used in lieu thereof.

Pre-inspection Preparation -CCTV inspection will not be scheduled or made until the following operations are complete:

- All sewer pipelines are installed and backfilled to finished grade, or, if pavement will be finished grade, to the final street sub grade, but prior to paving.
- All structures are in place and pipelines are accessible from structures.
- All pipelines have been balled, flushed, and test for deflection.
- All pipelines have been successfully tested.

Arrangements for Inspection – When the contractor determines that the pipeline is ready for inspection, the Contractor shall notify the District and request a date for the CCTV inspection to be completed. The District shall notify the contractor of the scheduled date. If it is determined by the contractor that the job site will not be ready or accessible for the CCTV inspection on the scheduled date, as notified, the contractor shall notify the District of the necessary cancellation at least 48 hours in advance of the scheduled inspection. Rescheduling shall be accomplished in the same manner as for the initial inspection.

The Contractor shall bear the cost of all CCTV inspection made for the purpose of determining acceptance. The District shall charge the Contractor for labor, materials, equipment, and travel time associated with all inspections and CCTV camera assistance.

Grounds for Refusal of Acceptance – All pipelines that have been televised will be evaluated by the District for deficiencies. If no deficiencies are noted, the sewer installation portion of the work will be considered satisfactory.

The following conditions are considered unacceptable for sewer pipelines and will result in refusal of acceptance:

- Standing water greater than one-half (½) inch
- Joint separations greater than recommended by manufacturer
- Cocked joints present in straight runs or on the wrong side of the pipe curve
- Chipped pipe
- Cracked pipe
- Infiltration or exfiltration
- Debris or other foreign matter
- Protrusion or excessive roughness in pipe
- Offset joint
- Out of round or diameter deflected pipe
- Improper alignment or curves not conforming to specified line
- Upset in normal hydraulic regime
- Any conditions that prevents the economical, safe or reasonable use of the sewer
- Pipelines sags in excess of one-half (½) inch standing water

Video - Televised sewer pipelines will be recorded, and the images retained by the District. The Contractor may view video within two (2) working days at the District Offices by making an appointment. All video produced as a result of the work shall be the sole property of the District and shall remain under its care and custody at all times.

Re-inspection – If the sewer pipeline offered for acceptance fails to meet applicable specifications, the District shall have the right to re-inspect after correction of defects and to charge a re-televising fee in accordance with the current District rates or expense. The CCTV testing process shall be repeated as necessary until all defects have been corrected to satisfaction of the District.

Section 1.24 Manhole Leakage Test

All manholes shall be tested for leakage. Manhole testing shall be by either a water test or vacuum test conducted as follows:

A. Water Test

All inlet and outlet pipes shall be plugged, and the manhole filled with water to the top of the reducing cone section. The water should be introduced into the test section at least four hours in advance of the official test period to allow the manhole and joint material to become saturated. The manhole shall then be refilled to the original water level.

At the beginning of the test, the elevation of the water in the upper manhole shall be carefully measured from a point on the manhole rim. After a period of four (4) hours, or less with the approval of the Engineer, the water elevation shall be measured from the same point on the manhole rim and the loss of water during the test period calculated. If this calculation is difficult, enough water shall be measured into the upper manhole to restore the water to the level existing at the beginning of the test, and the amount added taken as the total leakage.

For manholes, the allowable leakage shall not exceed 0.13 gallons per hour per foot of manhole depth.

Manholes showing leakage in excess of that allowed shall be repaired or reconstructed as necessary to reduce the leakage to that specified above and the manhole retested.

B. Vacuum Test

Vacuum test equipment shall be used per the manufacturer's specifications. A vacuum of 10 inch Hg should be drawn on the manhole, and the time for the vacuum to drop to 9 inch Hg shall be measured. The minimum allowable for this drop in vacuum shall be conservatively established at sixty (60) seconds for a forty-eight (48) inch diameter manhole; seventy-five (75) seconds for a sixty (60) inch diameter manhole; and ninety (90) seconds for a seventy-two (72) inch diameter manhole.

Section 1.25 Wastewater Lift Stations

New sewage pumping plants shall be designed by a California Registered Civil Engineer and approved by the District. Consideration shall be given to the safety of the public, District employees and the environment. Minimum standards for construction shall address downstream capacity, wet well capacity, pump cycles, and emergency storage or a backup power supply. Video and audio alarm systems shall be incorporated into the District's telemetry system.

Section 1.26 Residential Pump Systems

For all building sites in which the improvement plans designate a pumped sewer service or for any owner wishing to construct a structure on a portion of a lot or parcel for which gravity service was not provided, the owner shall install a sewage pump as specified herein for the purpose of lifting sewage to the public sewer.

A pumped sewer service shall consist of a gravity sewer, a wastewater holding tank, one (1) or more pumps, a force main, electrical controls, and an alarm system. Two (2) pumps may be required at the District's discretion. The pump and holding tank shall be installed in a location such as to be reasonably accessible for inspection and maintenance. If the holding tank is located outside of the building foundation it shall not be located within five (5) feet of any building used as a dwelling, within ten (10) feet of any property line or within a defined flood plain. Where installed, such installations shall be maintained by the owner at the owner's expense.

A. Installation

Gravity Pipeline – The gravity sewer lateral from the building sewer to the wastewater holding tank shall be tested in accordance with Sewer Line Flushing and Testing and Gravity Sewer Tests as specified in these design standards. Pipe must be grouted or sealed to a watertight condition at the point of holding tank penetration.

Wastewater Holding Tank – The holding tank shall be a solid impervious walled container. All openings in the walls of the tank, including pipe or conduit penetrations, are to be sealed to prevent inflow of surface water, infiltration of groundwater, or exfiltration of contained wastewater. The tank shall have a minimum capacity of one hundred fifty (150) gallons. The tank shall be vented with a one and one-quarter (1 ¼) inch minimum vent line. The tank shall be buried to a depth such that the top cover of the tank is eighteen (18) inches below finished grade. A weatherproof housing, with adequate insulation, shall be installed and extended to six (6) inches above finished grade. It shall be the owner's responsibility to determine groundwater conditions that may cause the tank to float when empty and to provide the appropriate solutions to prevent it. Internal ballast that reduces the tank capacity below one hundred fifty (150) gallons will not be acceptable.

Pumping Equipment – Pumps shall be centrifugal of the non-clog or grinder type. Pumps shall be capable of passing a minimum of a two (2) inch diameter sphere. Pumps and motors shall be sized so as to maintain a minimum of four (4) feet per second flow velocity throughout the entire discharge piping system when a maximum of one (1) pump is pumping under actual installed conditions. A copy of the pump specifications and pump curve shall be required and made available to the District Inspector before testing is allowed.

Electrical – The electrical control cabinet shall be isolated from the holding tank. All wiring, controls, conduits, boxes, et cetera shall meet or exceed National Electrical Code (NEC) requirements for materials, ratings, placement, and installation, et cetera. All equipment located in the holding tank shall be U.L. approved for its specific and proper use. All wiring in the area above the holding tank shall e provided with protection from physical damage by a combination of cable routing and/or conduits. Any wiring which hinders entry or view into the holding tank when opened will not be acceptable. All electrical connections shall be in an approved electrical junction box. All conduits leaving the holding tank, or the enclosed area above or surrounding the holding tank, shall be sealed. A circuit disconnecting means for all circuits must be located within sight of the holding tank unless a lockout device is installed on the disconnecting means for each individual circuit attached to or related to the pump system at the holding tank.

Alarm System – The holding tank and electrical controls shall include an alarming system that produces an audible and visual alarm when the liquid level in the holding tank exceeds a predetermined safe level. The audible and visual devices indicating such an alarm state shall be located within the building or structure served by the sewage system with the intent to notify the occupant of the possibility of a wastewater spillage. The alarm system power shall be supplied through a dedicated circuit, separate from the pump power supply. It is recommended that the alarm system include a battery backup to provide alarm functionality during an electrical power outage. The alarm system shall include a relay switch to activate the water system shut off solenoid valve.

Discharge Piping – The discharge pipeline shall be ductile iron, polyvinyl chloride (PVC), polyethylene, or an approved pressure rated material designed for wastewater. The piping shall be pressure class 150 minimum and rated for the pressure service being installed. The pipeline size shall be two (2) inch diameter minimum and not be of a size smaller than the pump discharge port. The discharge pipeline shall be fitted with an approved pressure rated check valve and a gate valve. The discharge pipeline shall also include a one-quarter (¼) inch pressure test port located between the check portion of the check valve and the gate valve. The gate valve shall be located on the discharge side of the check valve. Both valves and the test port shall be located as close to the pump or holding tank as possible and in such a manner that they are accessible for operation and for maintenance or repairs. It is recommended that valves are installed with unions and boxed to grade.

Discharge pipelines shall have a trench cutoff block located every fifty (50) linear feet of pipe, at changes in pipeline type and/or grade, and at the pump tank. Thrust blocks shall be located at all fittings that change the direction of the pipe. Thrust blocks shall be constructed of concrete with a minimum size of two (2) cubic feet. A cleanout shall be placed in the discharge pipeline at the property line.

B. Inspection and Testing

The gravity portion of the pipeline from the building to the holding tank shall be tested in accordance with the Gravity Sewer Tests as specified in these design standards.

A visual inspection shall be performed to check for the following:

- proper venting of the holding tank
- an acceptable weatherproof, insulated box with an insulated lid directly above the holding tank
- a weather tight seal on the holding tank lid and at all pipe or conduit penetrations.

The discharge pipeline shall be pressure tested with water to a pressure of one hundred fifty (150) percent of the calculated maximum possible working pressure (the Total Dynamic Head, or TDH) for the installed pump. The maximum possible working pressure for the system can be assumed to occur at the pump’s shut off point. The pressure must remain constant for ten (10) minutes. The required test equipment shall be provided by the owner or owner’s agent and be acceptable to the District.

The electrical system and controls shall be inspected and approved by the local governing authority for building electrical inspection. Pumping and alarm tests shall only be performed after the electrical system has been inspected and approved by the proper authority. The District inspector shall require proof of such approval before starting any of the following functional tests. The pump shall be started and stopped so the check valve can be tested for proper operation.

- The pumping system shall be tested for a discharge pipeline velocity of four (4) feet per second. The flow velocity test shall be performed with the discharge pipeline full of water and the pumping system functional under normal operating conditions.

- The pump shall be run to pump down the holding tank to allow a visual inspection of the tank and to check it for leaks.

- The alarm system shall be checked for proper function of audio and visual alarms.

Section 1.27 Backflow Prevention Devices

Private and commercial building laterals are subject to the provisions of the UPC. Drainage piping serving fixtures installed on a floor level that is located below the elevation of the next upstream manhole cover of the sewer serving such drainage piping shall be protected from backflow of wastewater by installing an approved type of backwater valve.

Buildings with laterals which connect to a double service or a joint lateral (a privately owned shared lateral pipeline that receives wastewater flow from two or more parcels) shall also install a backflow prevention device to protect private property.

In the events of a pipeline stoppage in the joint lateral, a backflow prevention device installed on each private building lateral would inhibit wastewater in the joint lateral from backing-up through the private building lateral into the building served.

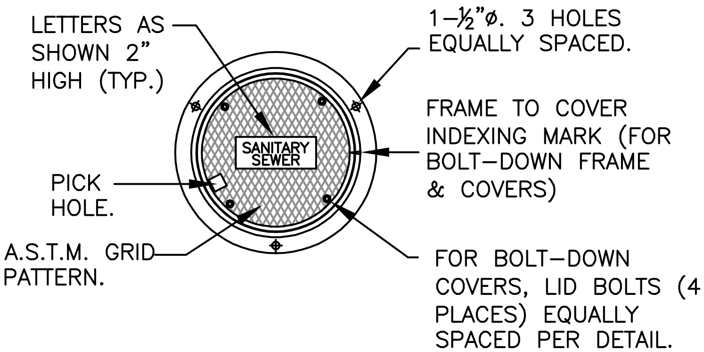
Backflow prevention devices are useful in areas where a joint lateral provides services to parcels of different elevations.

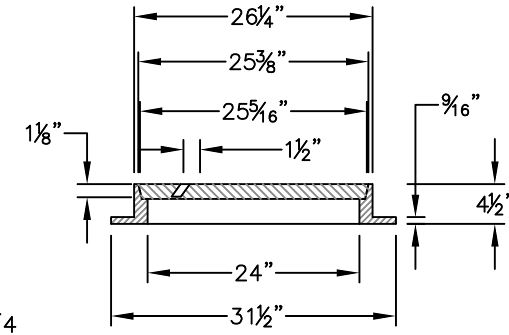
Section 1.28 Clean Up

During the progress of the work, the owner or their agent shall keep the entire job site in a clean and orderly condition. Excess or unsuitable backfill material, broken pipe or other waste material shall be removed from the job site. Spillage resulting from hauling operations along or across existing streets or roads shall be removed immediately by the contractor. All gutters and roadside ditches shall be kept clean and free from obstructions. Any deviation from this practice shall have prior approval from the District.

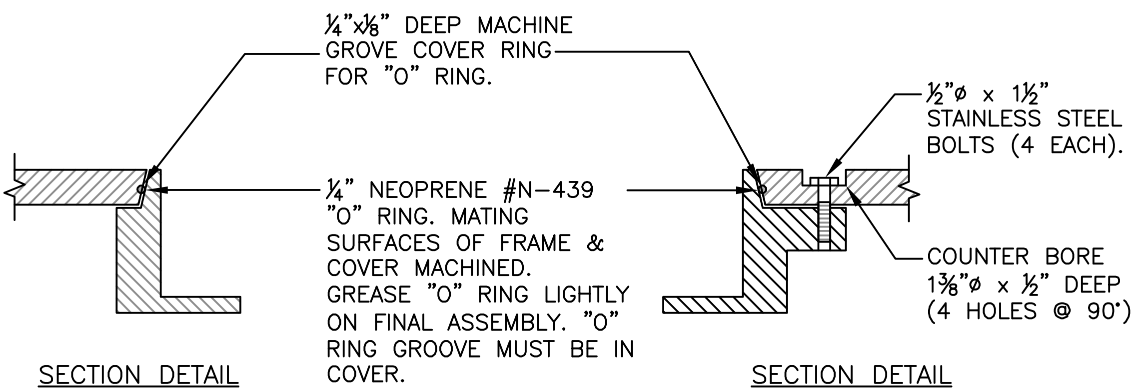
Before final acceptance of the work, the owner or their agent shall carefully clean up the work and premises, remove all temporary structures built for the work, and remove all surplus construction materials and rubbish of all kinds from the grounds which he has occupied and leave them in a neat condition.

RIBLESS HEMISPHERICAL COVER
FOR H-20 HIGHWAY LOADING





SECTION VIEW



SECTION DETAIL
TAPERED FRAME &
COVER

SECTION DETAIL
BOLT-DOWN FRAME
& COVER

DETAIL NOTES:

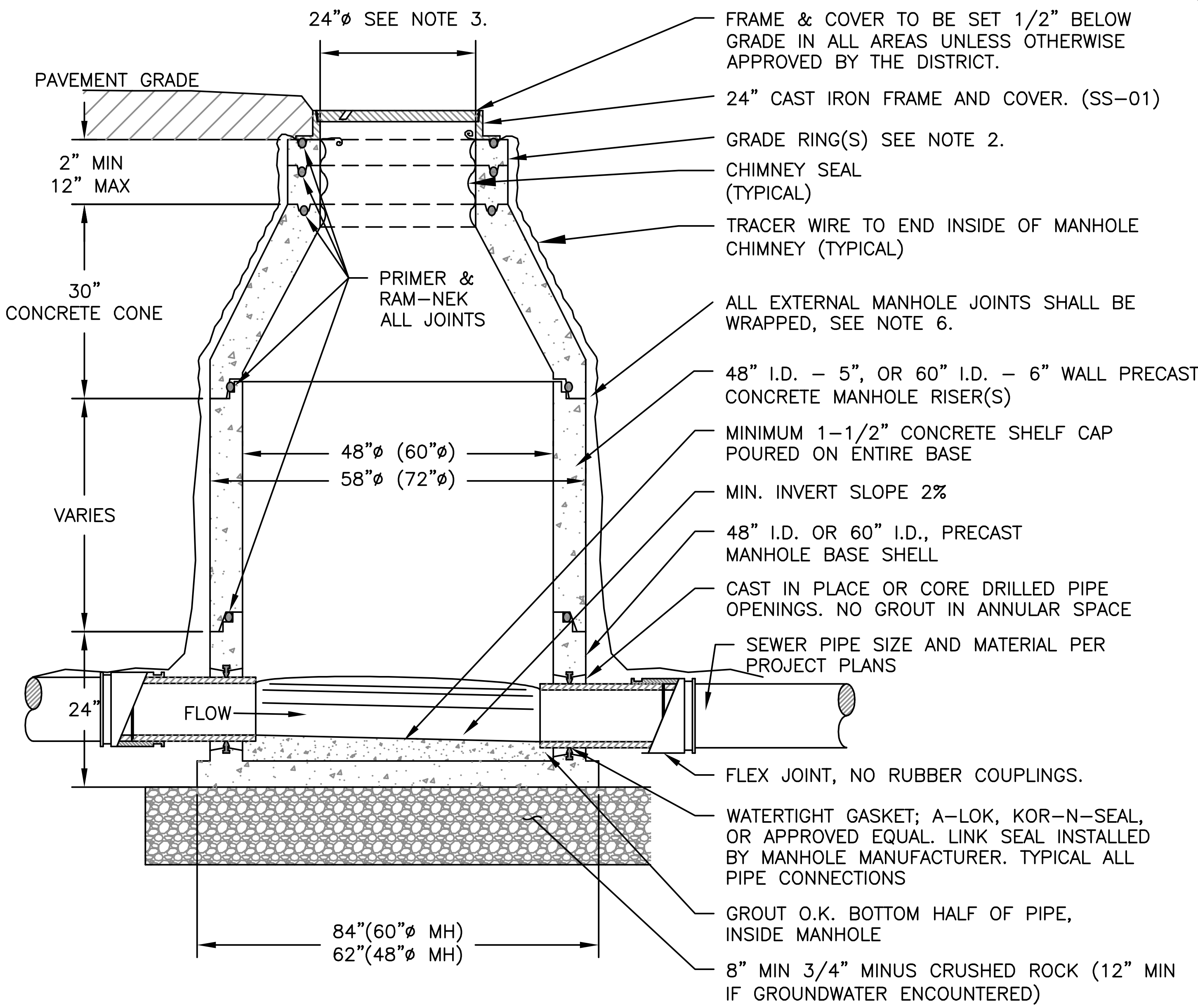
1. FRAME AND COVER FULLY MACHINED ON THREE (3) SURFACES TO ASSURE INTERCHANGEABILITY AND CLOSE, QUIET FIT.
2. SKID RESISTANT COVER DESIGN.
3. CASTINGS DIPPED IN BLACK BITUMINOUS PAINT.
4. FRAME AND COVER ASSEMBLIES SHALL BE TRAFFIC RATED. D&L FOUNDRY MODEL A-1024.

SCALE: N.T.S.

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

MANHOLE FRAME AND COVER

DWG. No.	SEPTEMBER 2020
SS-01	
APPROVED: DH	
DISTRICT ENGINEER	



DETAIL NOTES:

1. MANHOLE BARREL SIZE IS INDICATED ON PLANS.
2. CHIMNEY SEALS REQUIRED ON ALL MANHOLES. 2" MIN. MATING SURFACE REQUIRED AT INSIDE TOP OF CONE.
3. FOR 60"Ø MANHOLES, OPENING SHALL BE 36" WIDE AND SHALL INCLUDE A 36" FRAME WITH 24" ADAPTER.
4. ALL SECTIONS ABOVE BENCH SHALL BE COATED WITH RAVEN 405 AS MANUFACTURED BY RAVEN LINING SYSTEMS, OR EQUAL, UNLESS OTHERWISE APPROVED BY DISTRICT.
5. BACKFILL, COMPACTION & PAVEMENT RESURFACING TO COMPLY WITH PLACER COUNTY OR CALTRANS STANDARDS, AS APPLICABLE.
6. ALL EXTERIOR MANHOLE JOINS SHALL BE WRAPPED WITH RUB'R–NEK, INFI–SHIELD GATOR WRAP, OR APPROVED EQUAL.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

STANDARD SEWER MANHOLE

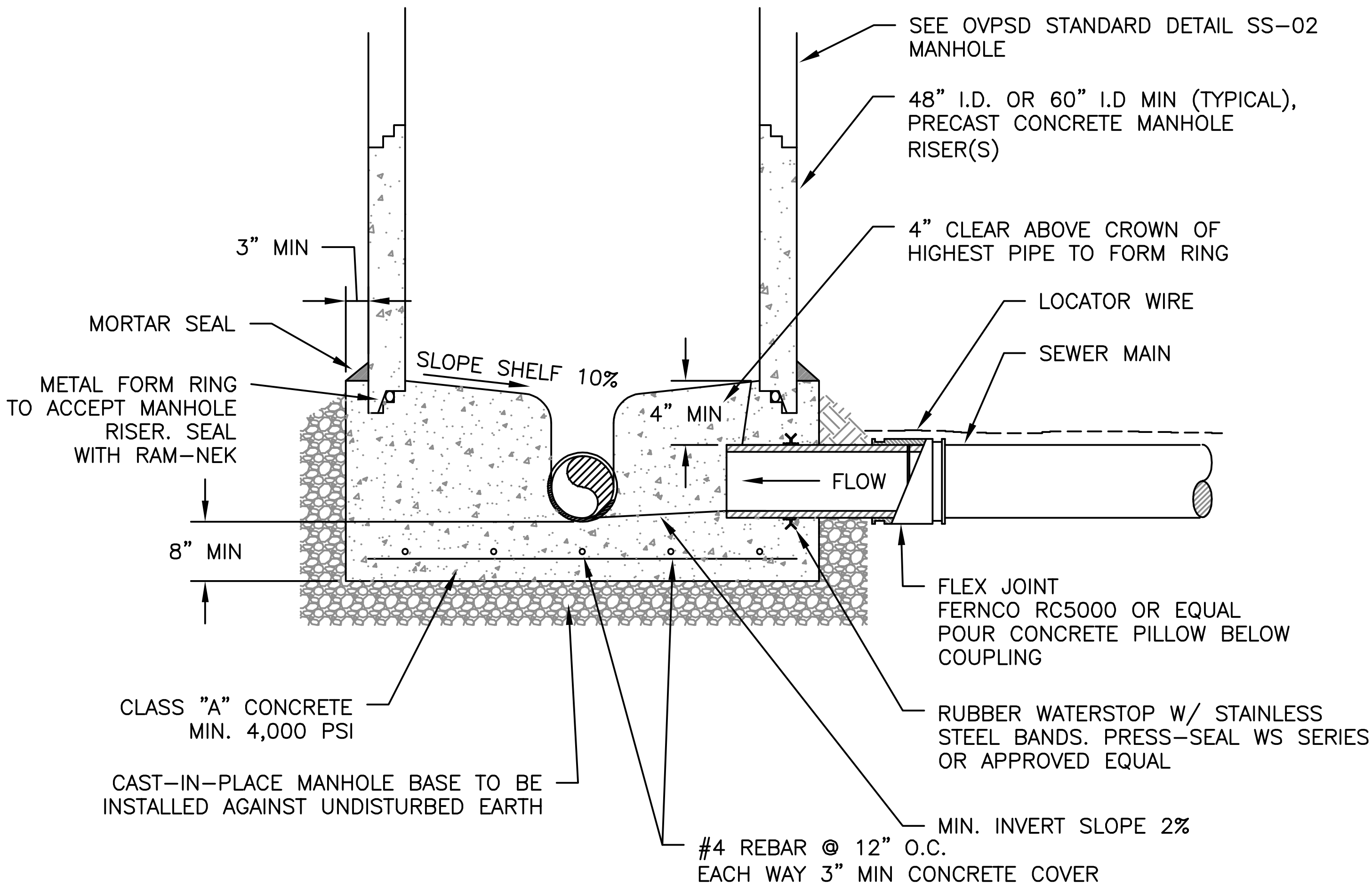
DWG. No. SEPTEMBER 2020

SS-02

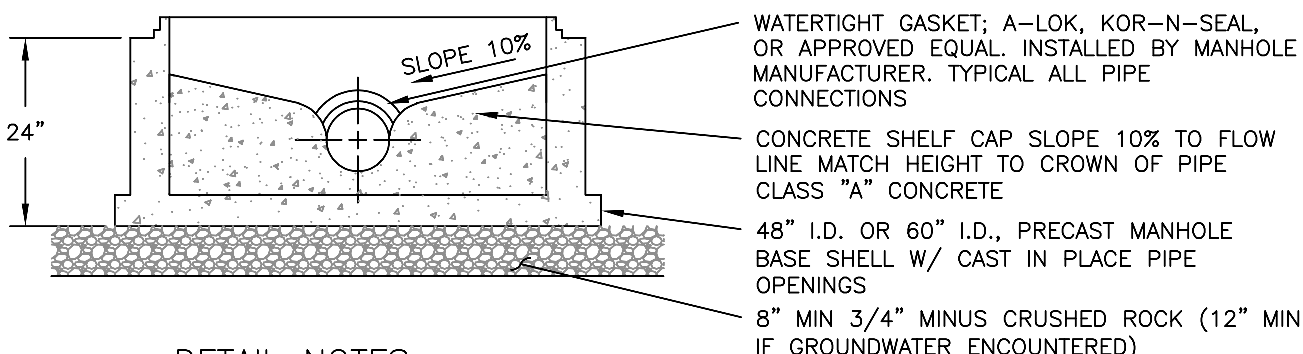
APPROVED: **DH**

DISTRICT ENGINEER

CAST IN PLACE MANHOLE



PRECAST MANHOLE



DETAIL NOTES:

1. REBAR SHALL BE GRADE 40, EPOXY COATED.
2. CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI MIX.
3. BACKFILL, COMPACTION, & PAVEMENT RESURFACING TO COMPLY WITH PLACER COUNTY OR CALTRANS STANDARDS, AS APPLICABLE.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

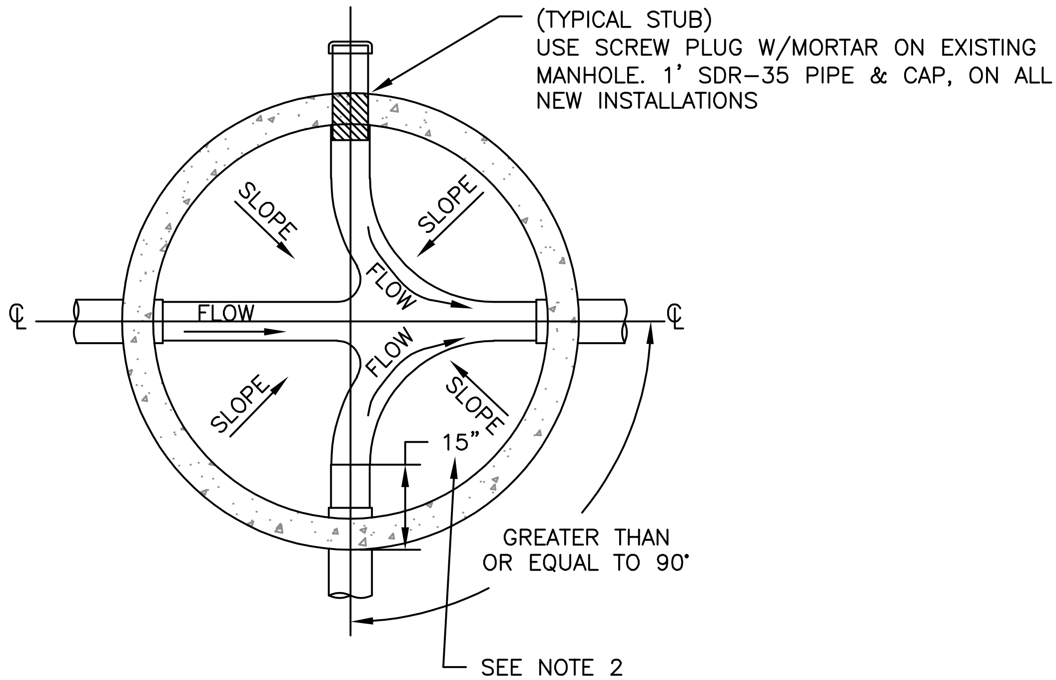
MANHOLE BASE SECTIONS

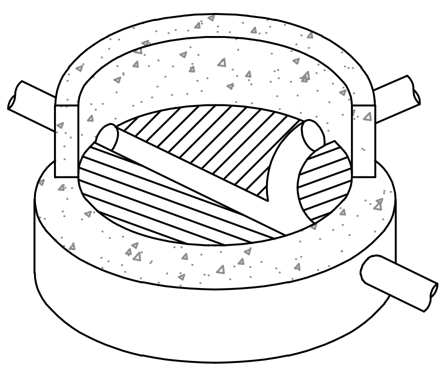
DWG. No. SS-03

SEPTEMBER 2020

APPROVED: DH

DISTRICT ENGINEER





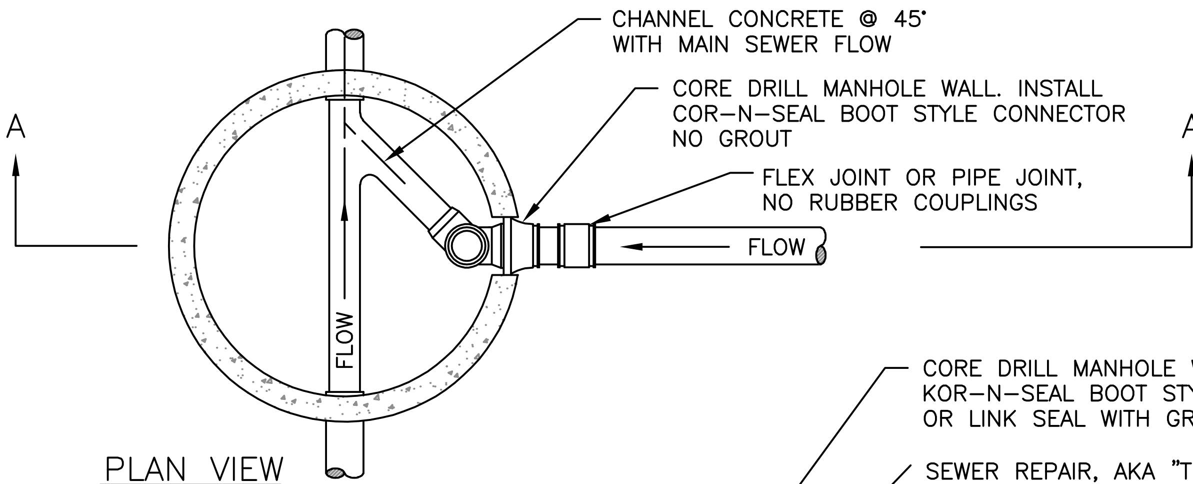
ISOMETRIC VIEW

DETAIL NOTES:

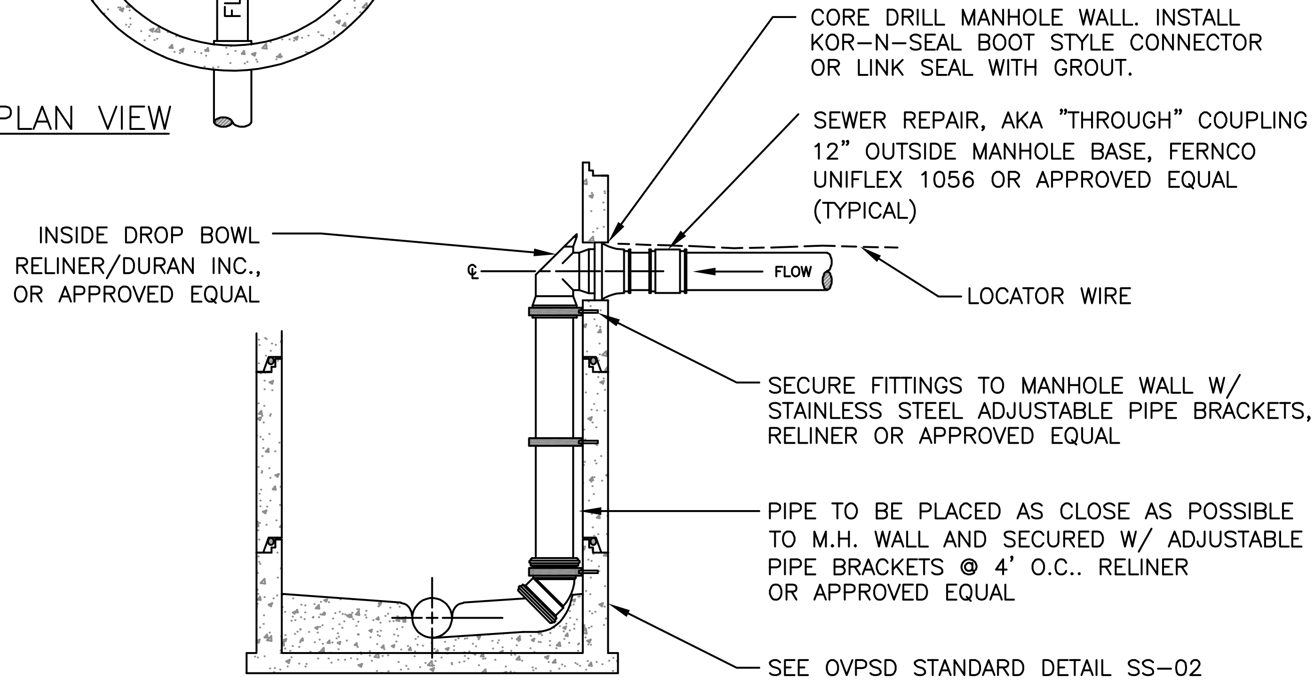
1. AT NO TIME SHALL FLOW OCCUR AT LESS THAN 90°, UNLESS ACCEPTED THROUGH SPECIAL APPROVAL.
2. 15" MINIMUM STRAIGHT CLEARANCE REQUIRED FOR TV CAMERA.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT	**MANHOLE BASE PATTERN**	DWG. No. SEPTEMBER 2020 SS-04 APPROVED: DH DISTRICT ENGINEER



PLAN VIEW



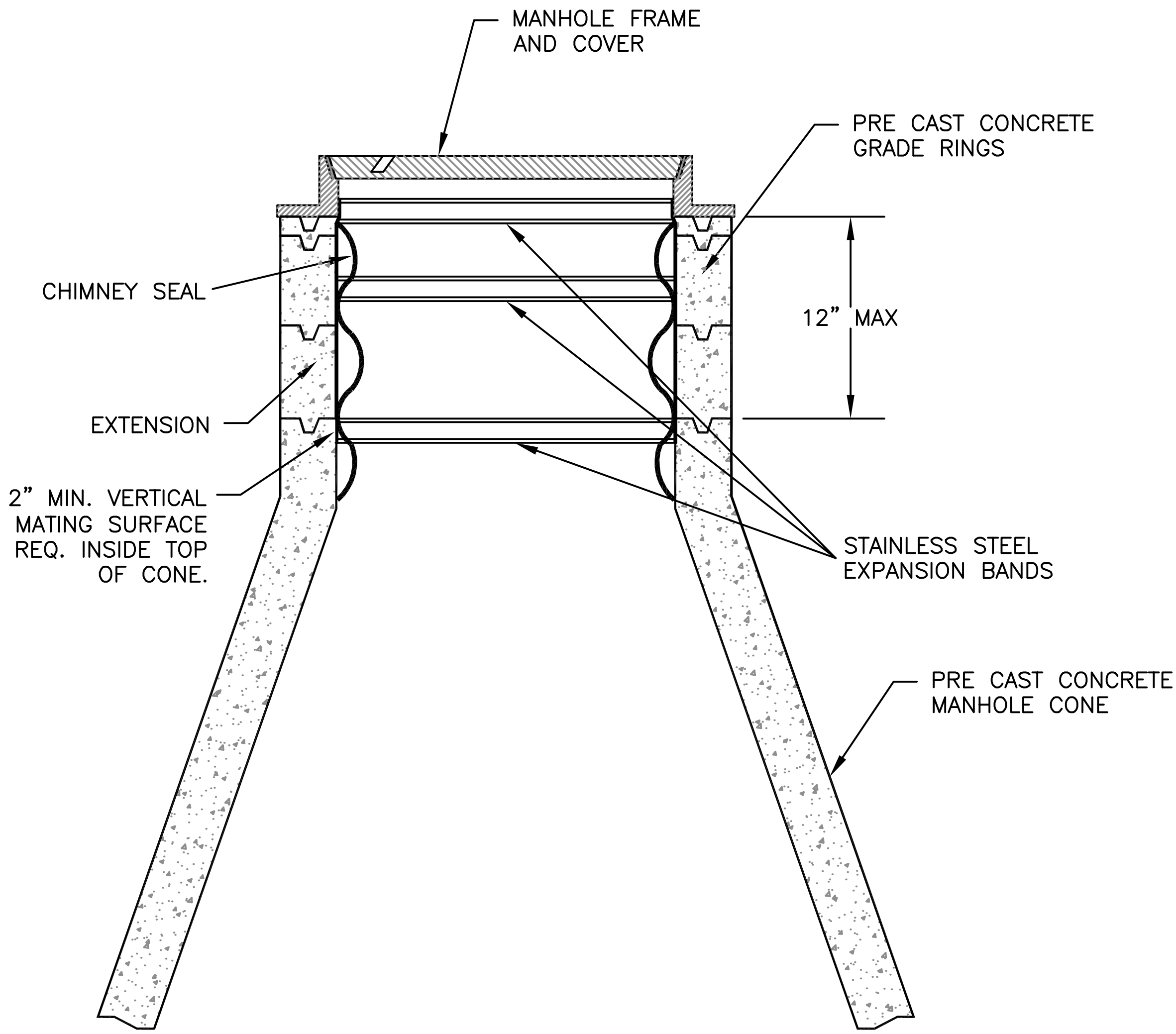
SECTION A – A

DETAIL NOTES:

1. ALL PIPES ENTERING M.H. SHALL ENTER RADIALLY.
2. ALL INSIDE DROP PIPING TO BE P.V.C. SDR–35, CONFORMING TO ASTM D–3034. ALL PIPE TO BE SAME SIZE AS LATERAL OR APPROVED EQUAL.
3. MINIMUM PIPELINE DROP IS 3 VERTICAL FEET.
4. A BEAVER SLIDE MAY BE ALLOWED BY THE DISTRICT WHEN THE MAXIMUM VERTICAL DROP, MEASURED FROM CROWN TO CROWN, IS LESS THAN OR EQUAL TO 24". WHEN INSTALLING A BEAVER SLIDE THAT INTERCEPTS AN EXISTING SEWER AT A RIGHT ANGLE, THE CONNECTING INVERT OF THE BEAVER SLIDE THAT INTERCEPTS AN EXISTING SEWER AT A RIGHT ANGLE, THE CONNECTING INVERT OF THE BEAVER SLIDE IS TO INTERCEPT THE EXISTING SEWER SLIGHTLY ABOVE THE EXISTING SEWER SPRING LINE. WHEN INSTALLING A BEAVER SLIDE WHERE THE FLOW IS STRAIGHT THROUGH THE MANHOLE, THE BEAVER SLIDE IS TO MATCH THE INVERT OF THE EXISTING LINE AND NOT EXTEND MORE THAN HALFWAY THROUGH THE MANHOLE.
5. DROP CONNECTIONS WILL BE REVIEVED BY THE DISTRICT ON A CASE BY CASE BASIS.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT	# INSIDE DROP MANHOLE	DWG. No. SEPTEMBER 2020 SS-05 APPROVED: DH DISTRICT ENGINEER



CHIMNEY HEIGHT	SEAL
2 THROUGH 4-1/2"	CHIMNEY SEAL ONLY
4-1/2" THROUGH 10"	SEAL + 7" EXTENSION
10" THROUGH 12"	SEAL + 10" EXTENSION

DETAIL NOTES:

1. ALL FRAME OFFSETS AND DIAMETER DIFFERENTIALS WILL REDUCE SEAL / EXTENSION SPAN HEIGHT.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

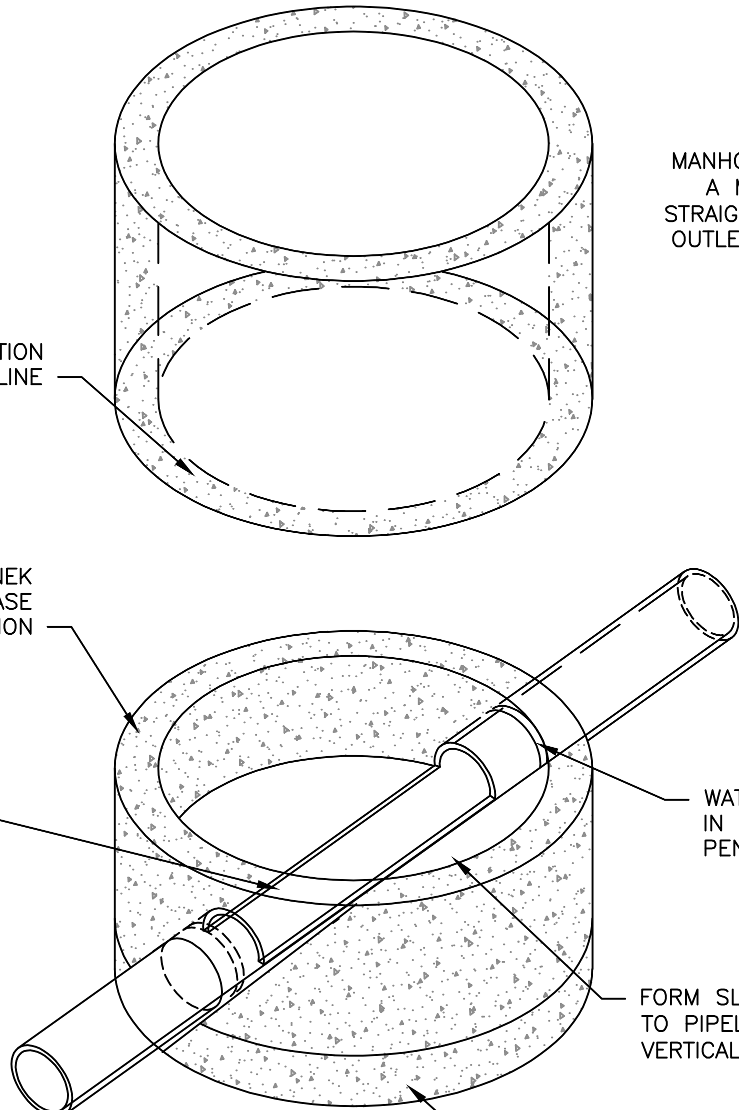
INTERNAL MANHOLE CHIMNEY

DWG. No. SEPTEMBER 2020

SS-06

APPROVED: DH

DISTRICT ENGINEER

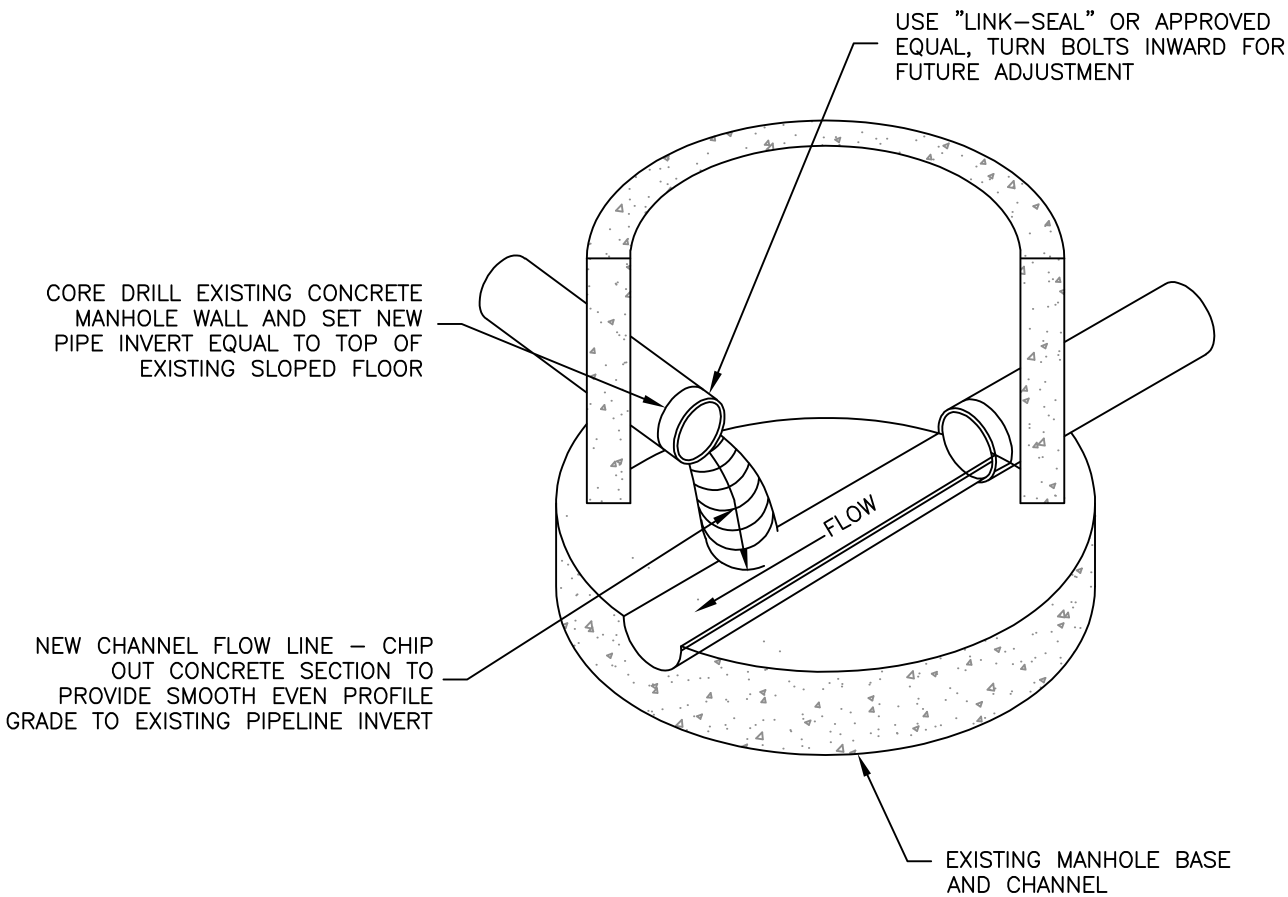


DETAIL NOTES:

1. CAST IN PLACE MANHOLE BASE, BARREL SECTION(S), CONCENTRIC CONE, FRAME & COVER, AND RELATEED APPURTENANCES SHALL MEET THE REQUIREMENTS OF OVPSD STANDARD DETAILS SS–01, SS–02, AND SS–03.
2. CUSTOM MANHOLE BASES MAY BE USED IN THIS APPLICATION. SPECIAL REQUIREMENTS MAY APPLY.

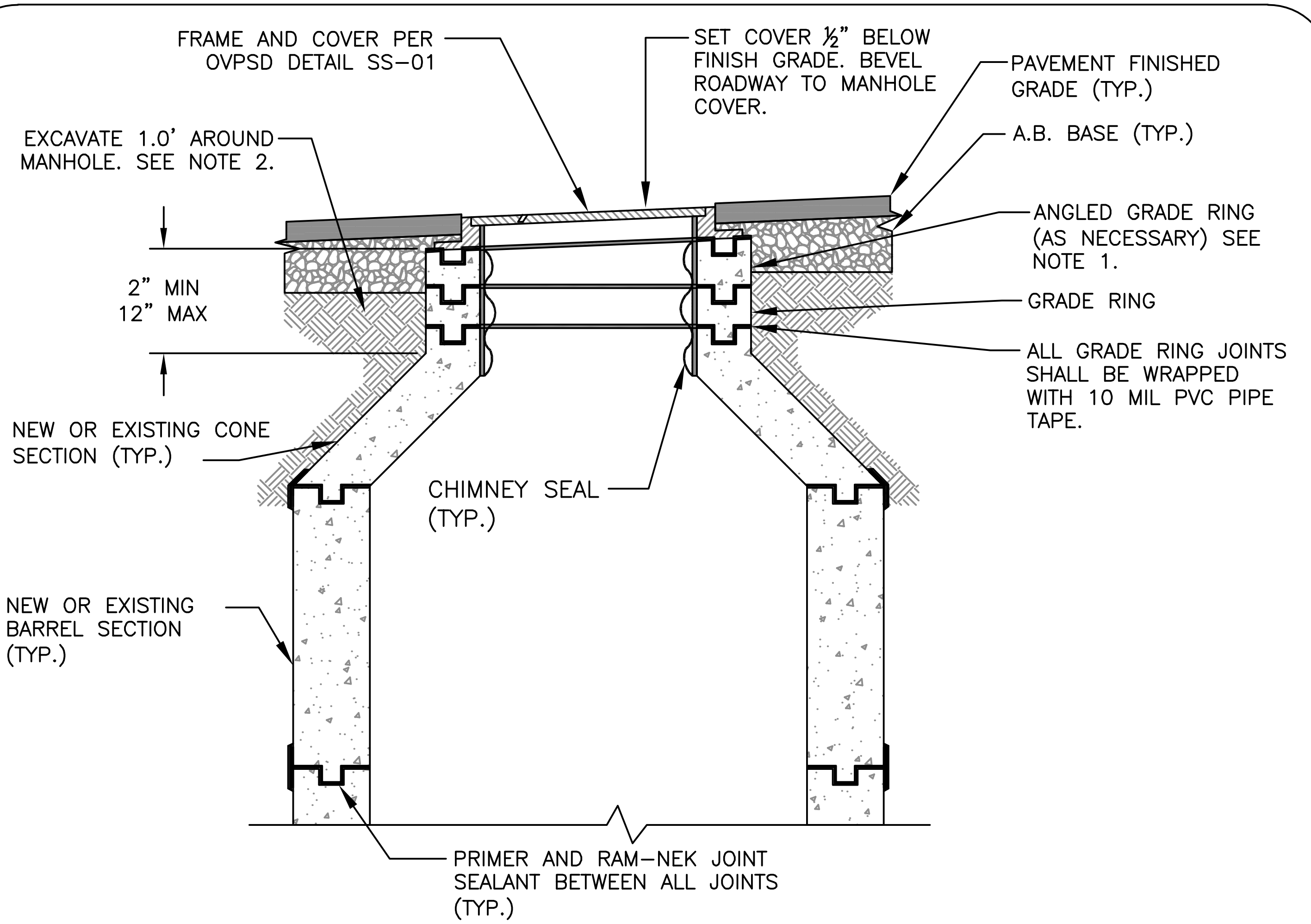
SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT	**MANHOLE CONSTRUCTION OVER EXISTING LINE**	DWG. No. SEPTEMBER 2020 **SS-07** APPROVED: **DH** DISTRICT ENGINEER



SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT	PIPE CONNECTION TO EXISTING MANHOLE	DWG. No. SEPTEMBER 2020 SS-08 APPROVED: DH DISTRICT ENGINEER



DETAIL NOTES:

1. ANGLED GRADE RINGS SHALL BE CRETEX PRO-RING, EJ PRESCOTT HDPE MANHOLE ADJUSTING RING, OR APPROVED EQUAL.
2. BACKFILL, COMPACTION, AND PAVEMENT RESTORATION SHALL COMPLY WITH PLACER COUNTY, AND / OR CALTRANS STANDARDS.

SCALE: N.T.S.

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

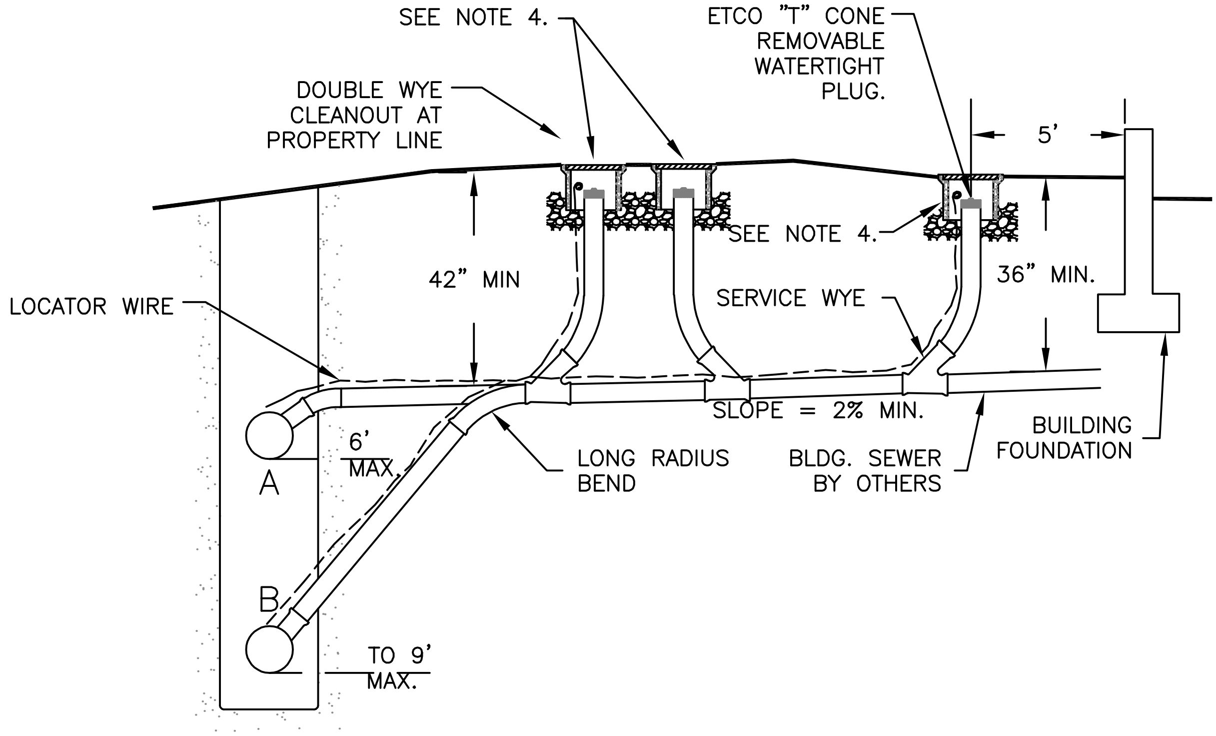
SEWER MANHOLE GRADE ADJUSTMENTS

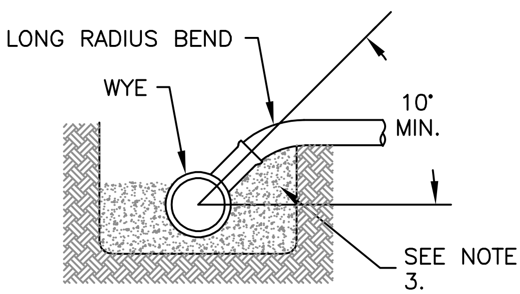
DWG. No. JUNE 2020

SS-09

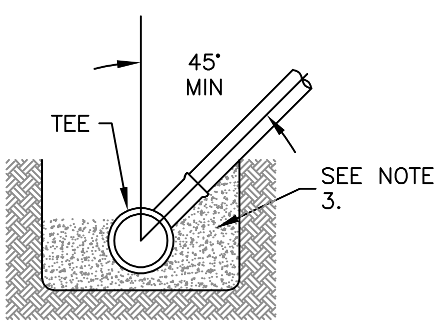
APPROVED: DH

DISTRICT ENGINEER





TYPE A



TYPE B

DETAIL NOTES:

1. ALL PIPE SHALL BE PVC SDR–35 WITH RUBBER GASKETED JOINTS, OR C–900 PVC WHERE APPROVED BY THE ENGINEER.
2. CLEANOUTS REQUIRED 5' FROM BUILDING, EVERY 75', AND AT EVERY BEND GREATER THAN 45°
3. PLACE BEDDING MATERIAL AT 95% COMPACTION 18" UNDER WYE BRANCH, FITTING, AND UNSUPPORTED PIPE PER PLACER COUNTY GENERAL SPECIFICATION SECTION 19–3.06 A(1). WHEN BEDDING MATERIAL IS USED, PLACE MATERIAL TO TOP OF BEND, THE FULL WIDTH OF TRENCH.
4. CHRISTY G–5 BOX WITH CAST IRON LID MARKED "SEWER" OR APPROVED EQUAL

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

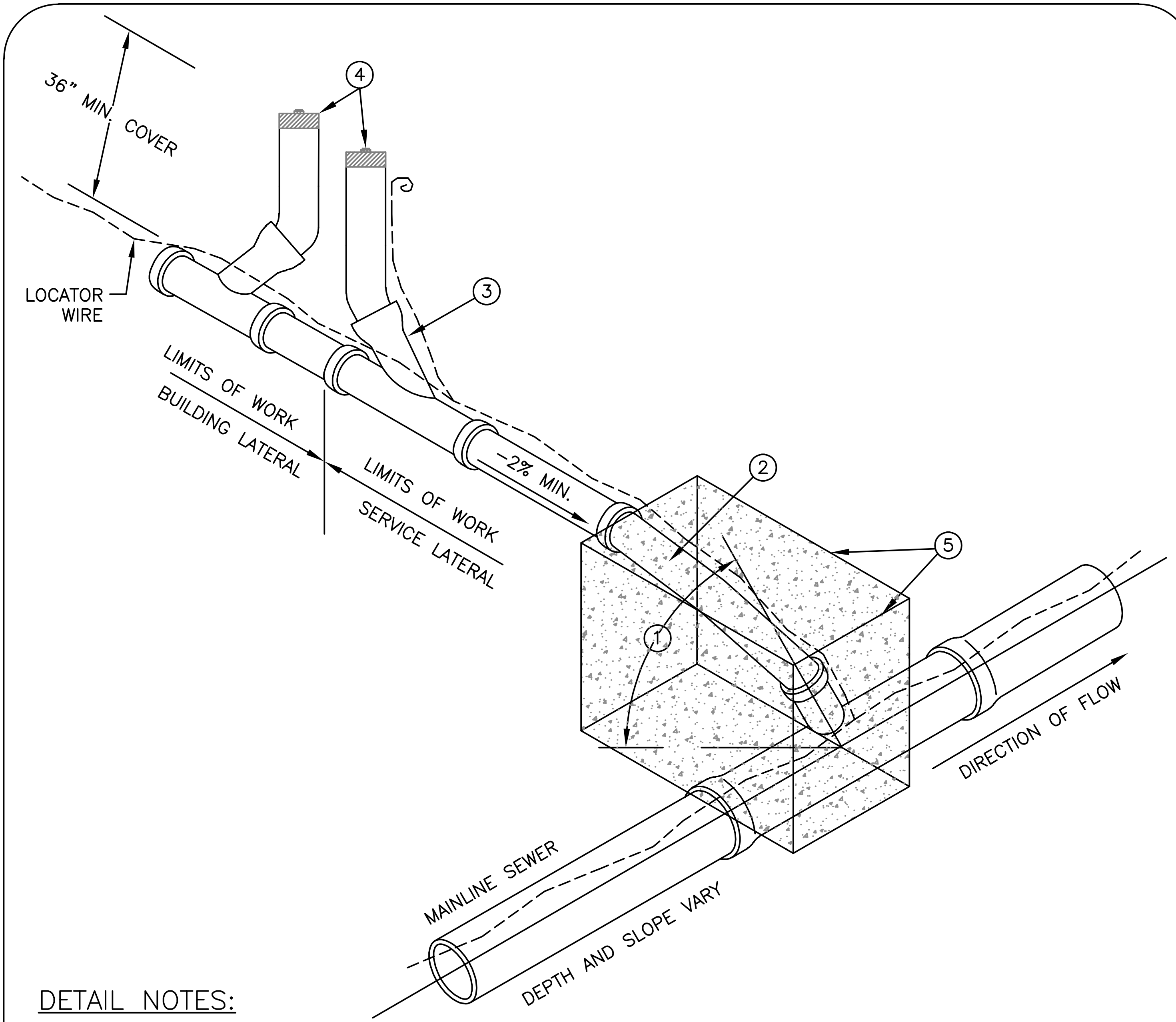
SERVICE LATERAL DETAIL

DWG. No. SEPTEMBER 2020

SS–10

APPROVED: DH

DISTRICT ENGINEER

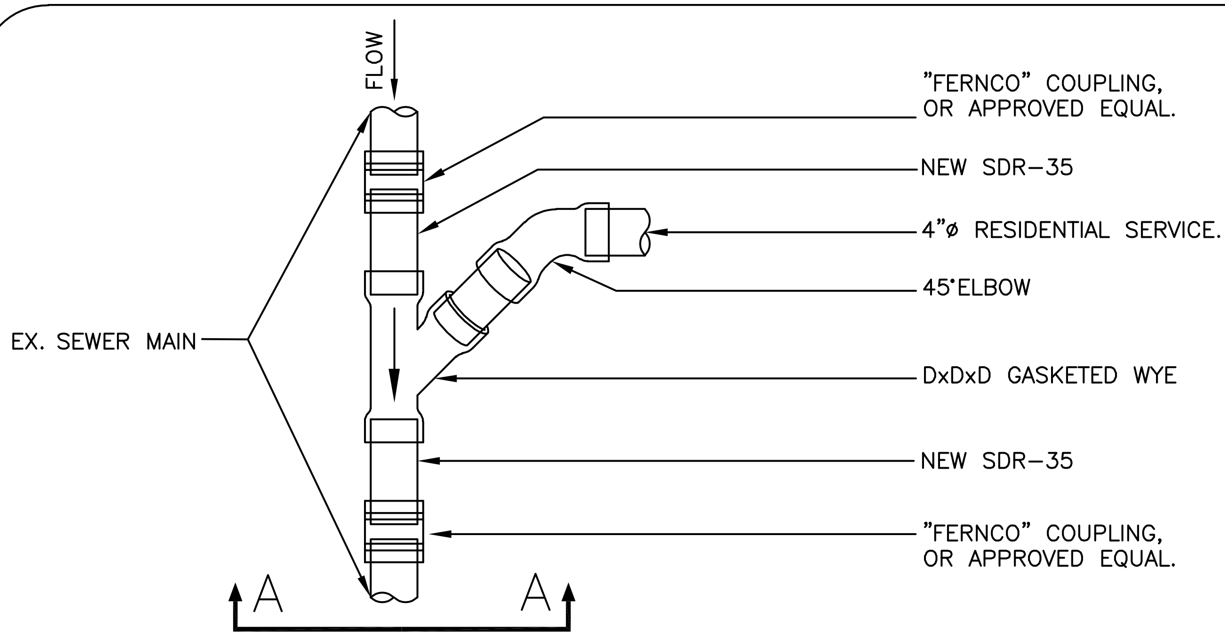


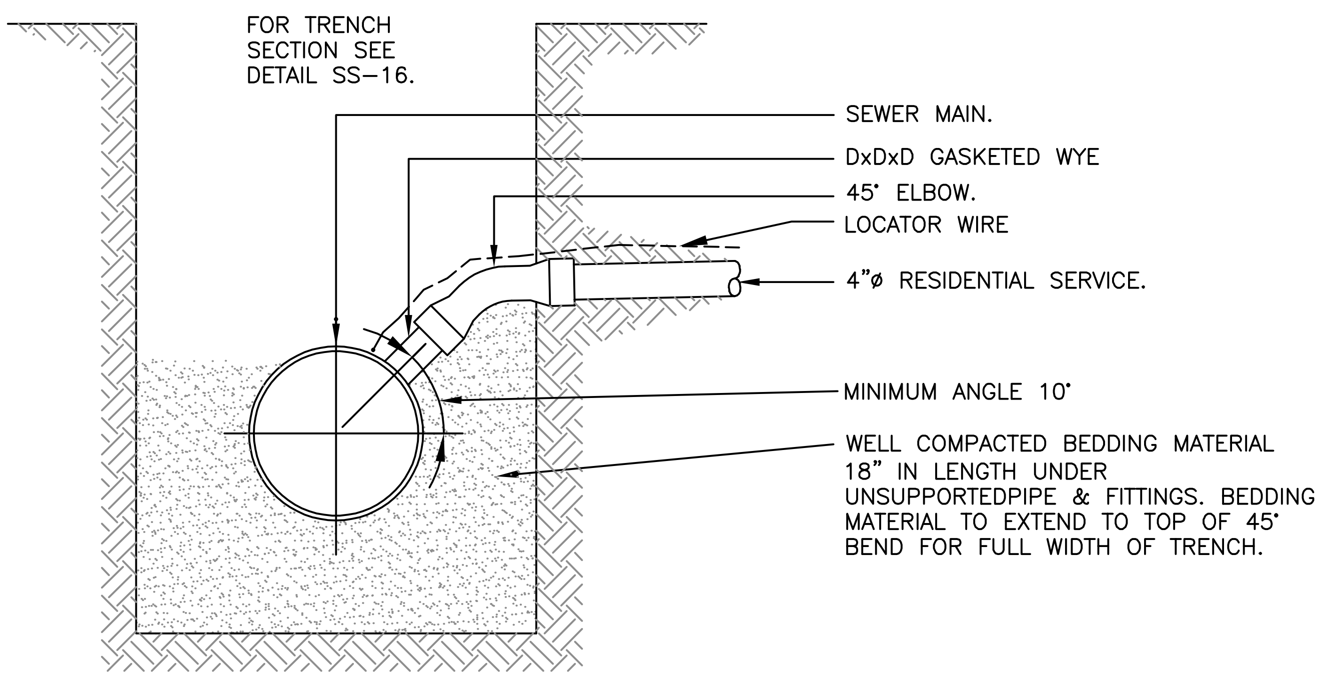
DETAIL NOTES:

1. 10° MIN. FOR WYE LATERAL CONNECTION.
2. LONG RADIUS BEND.
3. SERVICE WYE WITH PIPE EXTENSION TO GRADE.
4. WATERTIGHT T-CONE PLUG. CLEAN OUT BOX NOT SHOWN.
5. PLACE BEDDING MATERIAL AT 95% COMPACTION 18" UNDER WYE BRANCH, FITTING, AND UNSUPPORTED PIPE PER PLACER COUNTY GENERAL SPECIFICATION SECTION 19-3.06 A(1). WHEN BEDDING MATERIAL IS USED, PLACE MATERIAL TO TOP OF BEND, THE FULL WIDTH OF TRENCH.
6. CONTRACTOR REQUIRED TO INSTALL BOTH TWO-WAY CLEANOUT RISERS AS PART OF IMPROVEMENT WORK. PROPERTY OWNERS INSTALLING NEW BUILDING LATERALS ARE REQUIRED TO INSTALL ONE OR BOTH OF THE TWO-WAY CLEANOUT RISERS AT THE PROPERTY LINE TO COME INTO COMPLIANCE WITH DISTRICT CODE.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT	**SERVICE LATERAL DETAIL (ISOMETRIC VIEW)**	DWG. No. SEPTEMBER 2020 **SS-11** APPROVED: **DH** DISTRICT ENGINEER





SECTION A–A

DETAIL NOTES:

1. CONTRACTOR SHALL CONTACT DISTRICT FOR INSPECTION OF INSTALLATION OF WYE PRIOR TO CUTTING INTO EXISTING SEWER MAIN.
2. CONNECTION SHOWN IS FOR HOUSE SERVICE WYE'S ONLY.
3. CONNECTION OF A SEWER MAIN TO ANOTHER SEWER MAIN, SHALL REQUIRE CONSTRUCTION OF A MANHOLE.
4. SEE OVPSD TECHNICAL SPECIFICATIONS FOR APPROVED MATERIALS.

SCALE: N.T.S.

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

SERVICE CONNECTION TO EXISTING MAIN

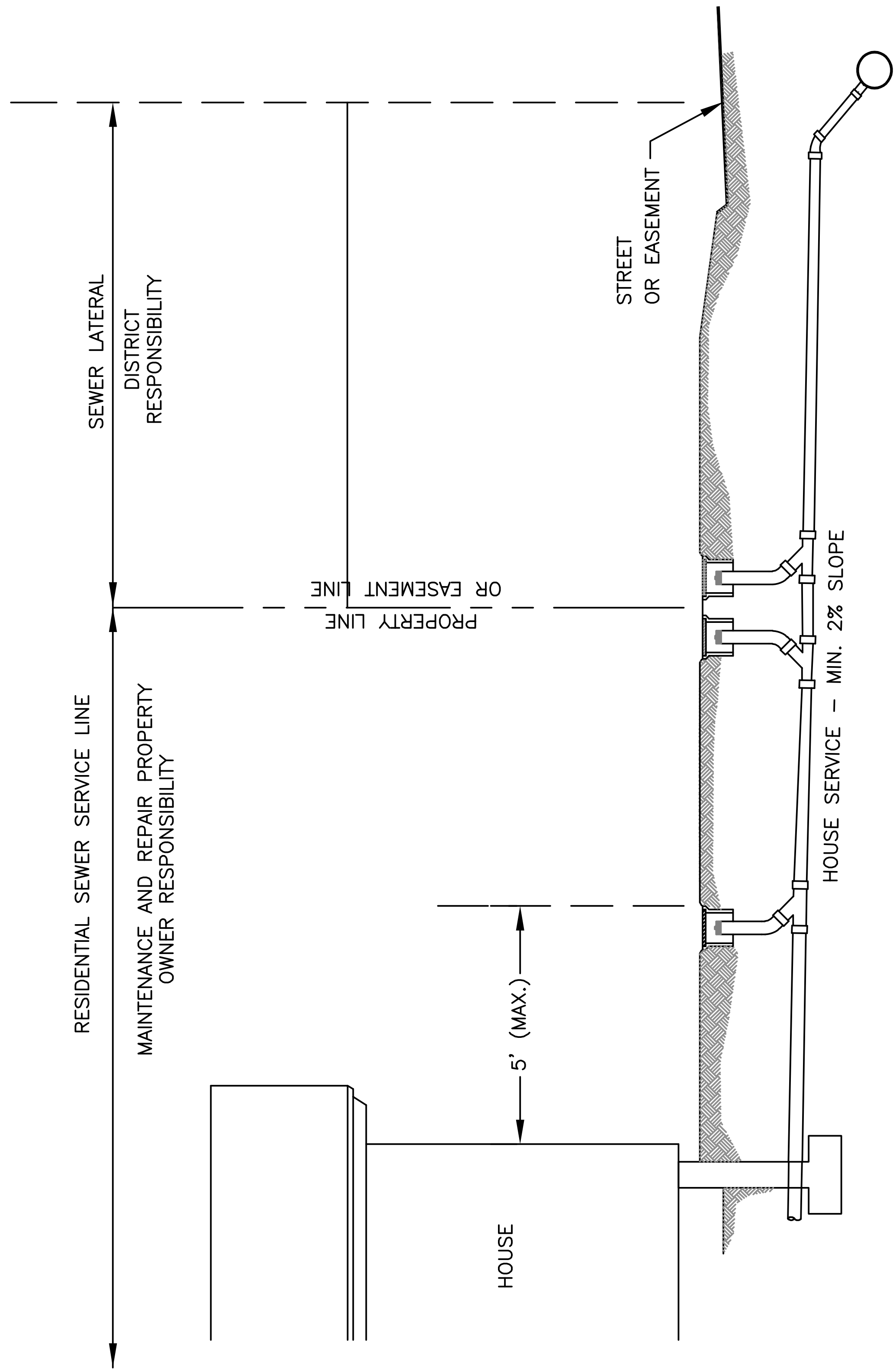
DWG. No. SEPTEMBER 2020

SS-12

APPROVED:

DH

DISTRICT ENGINEER



DETAIL NOTES:

1. DOUBLE CLEANOUTS SHALL BE PLACED WITHIN 5' OF PROPERTY OR EASEMENT LINE.

SCALE: N.T.S.

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

SEWER SERVICE
POINT OF SERVICE

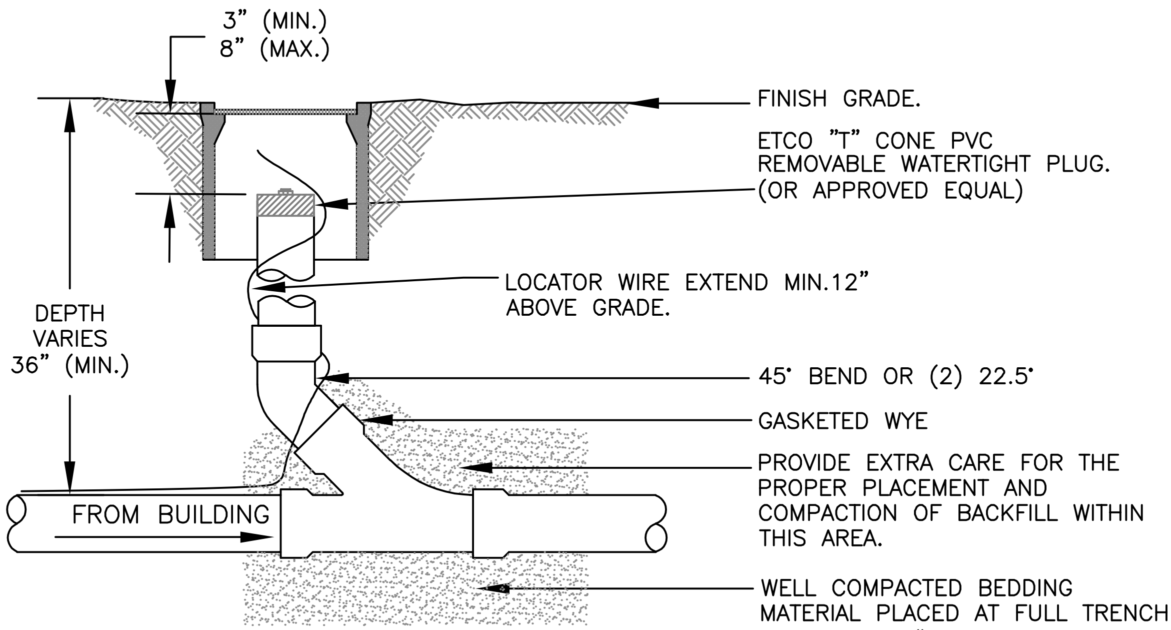
DWG. No. SEPTEMBER 2020

SS-13

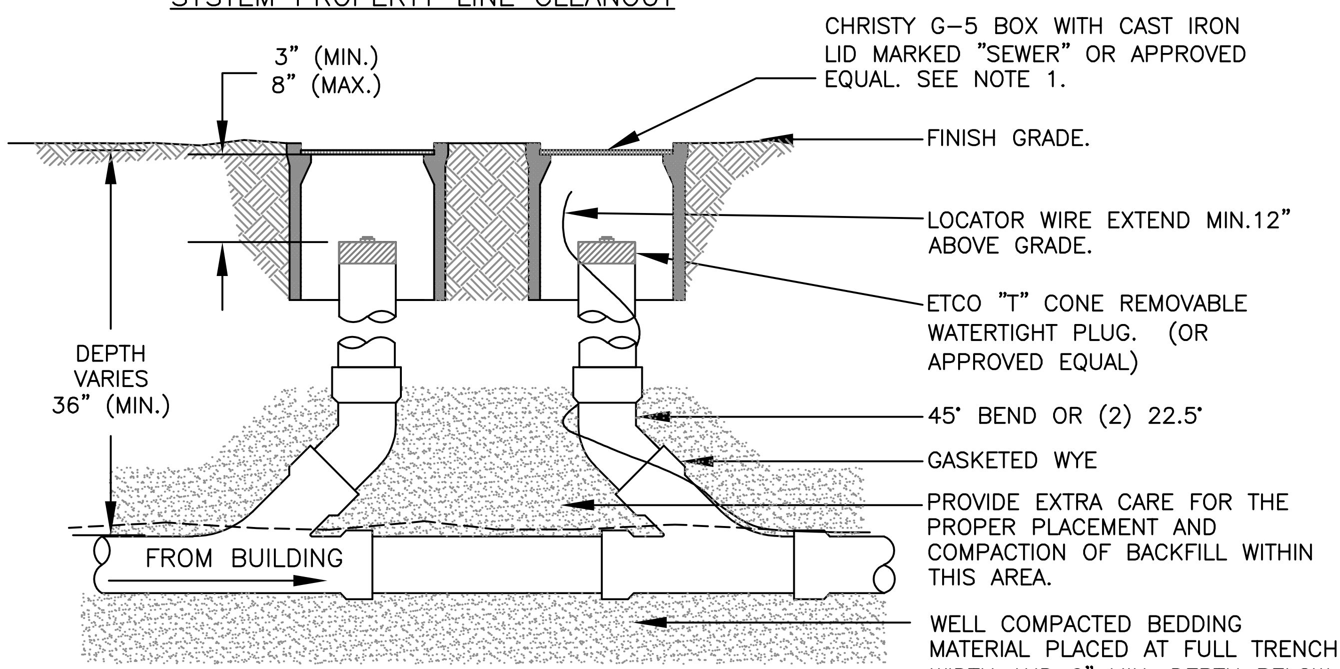
APPROVED:

DH

DISTRICT ENGINEER



FOUNDATION, MID-LINE, AND/OR PRESSURE
SYSTEM PROPERTY LINE CLEANOUT



DOUBLE WYE ASSEMBLY GRAVITY PROPERTY
LINE CLEANOUT

DETAIL NOTES:

1. RECESS BOX 1/2 " BELOW GRADE IN ALL AREAS UNLESS OTHERWISE APPROVED BY THE DISTRICT.

SCALE: N.T.S.

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

LATERAL CLEAN-OUT ASSEMBLY

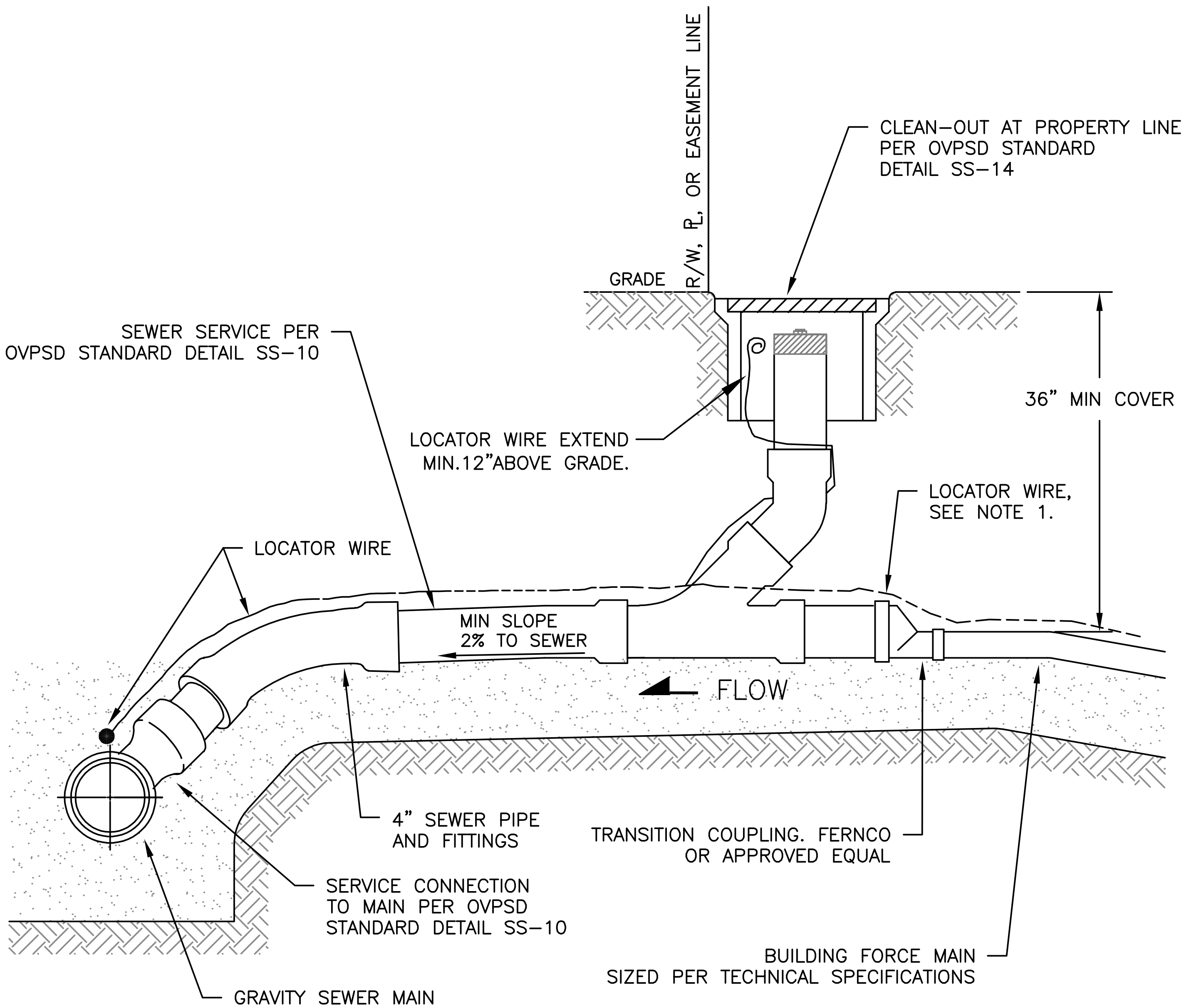
DWG. No. SEPTEMBER 2020

SS-14

APPROVED:

DH

DISTRICT ENGINEER



DETAIL NOTES:

1. FOR PUMPED SEWER SERVICE PROVIDE LOCATOR WIRE FROM PUMP DISCHARGE TO CLEAN–OUT. SEE OVPSD WATER STANDARD DETAIL W–14.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

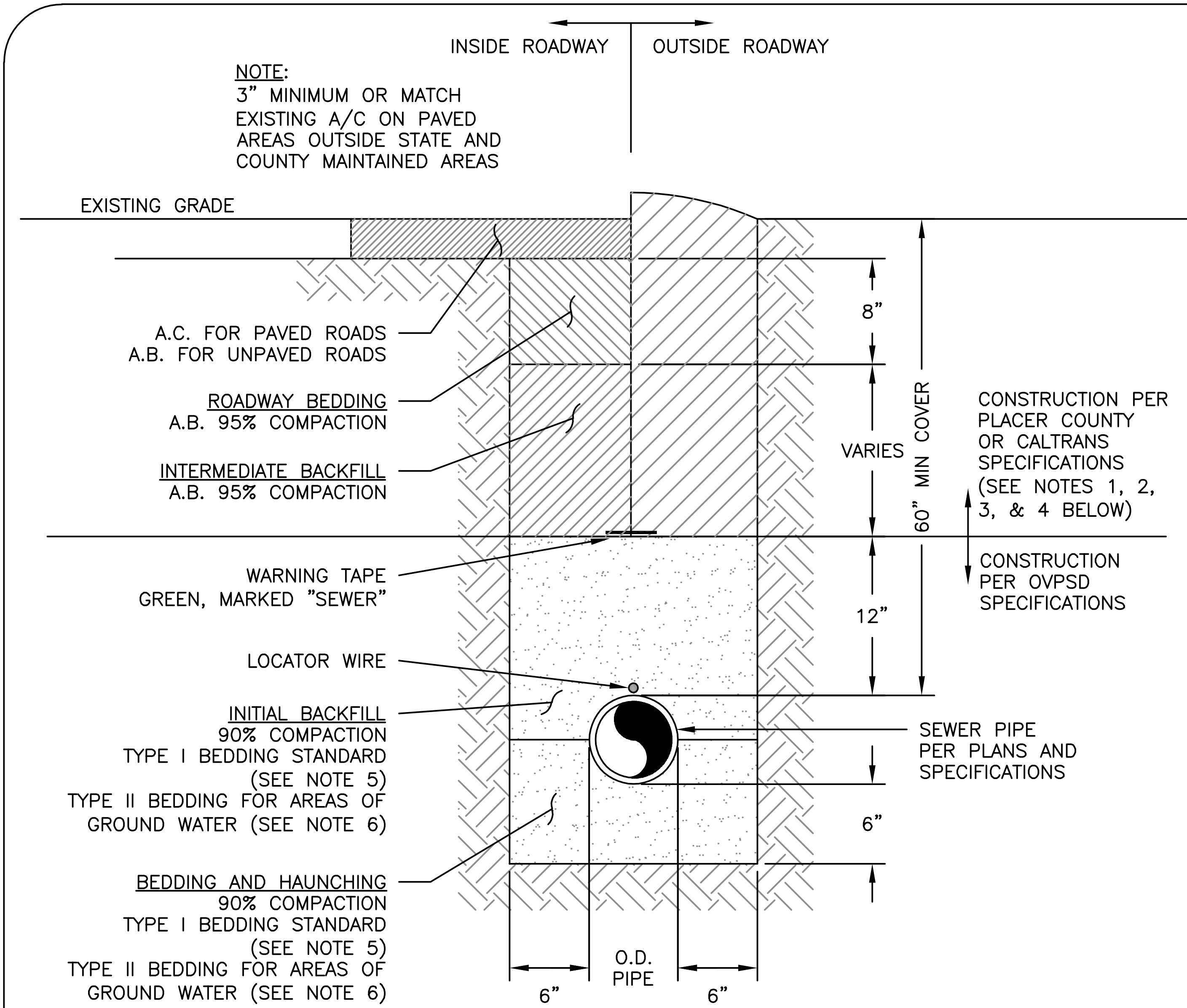
SERVICE CONNECTION PUMPED SEWER SYSTEM

DWG. No. SS-15

SEPTEMBER 2020

APPROVED: DH

DISTRICT ENGINEER



DETAIL NOTES:

1. BACKFILL, COMPACTION, PAVEMENT RESURFACING AND SLURRY SEAL SHALL COMPLY WITH PLACER COUNTY AND/OR CALTRANS STANDARDS, AS APPLICABLE, UNLESS SPECIFICALLY CALLED OUT IN THIS DETAIL.
2. FOR PLACER COUNTY RIGHT OF WAY, CONFORM TO PLACER COUNTY STANDARD DETAIL PLATES AND GENERAL SPECIFICATIONS
3. FOR STATE RIGHT OF WAY (CALTRANS), CONFORM TO CALTRANS STANDARDS. CURRENT PLACER COUNTY SPECIFICATIONS SHALL APPLY OUTSIDE STATE AND COUNTY RIGHT OF WAY UNLESS APPROVED BY DESIGN ENGINEER.
4. TYPE I BEDDING: USE CLEAN SAND PER OVPSD SPECIFICATION 2300 – EARTHWORK
5. FOR AREAS OF GROUND WATER USE TYPE II BEDDING, CRUSHED ROCK BURRITO WRAPPED, PER OVPSD SPECIFICATION 2300 – EARTHWORK.
6. SEE OVPSD STANDARD DETAIL W–15 FOR WATER AND SEWER SEPARATION REQUIREMENTS.
7. ALL DIMENSIONS SHOWN ARE MINIMUMS.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

TYPICAL SEWER TRENCH

DWG. No. SS-16

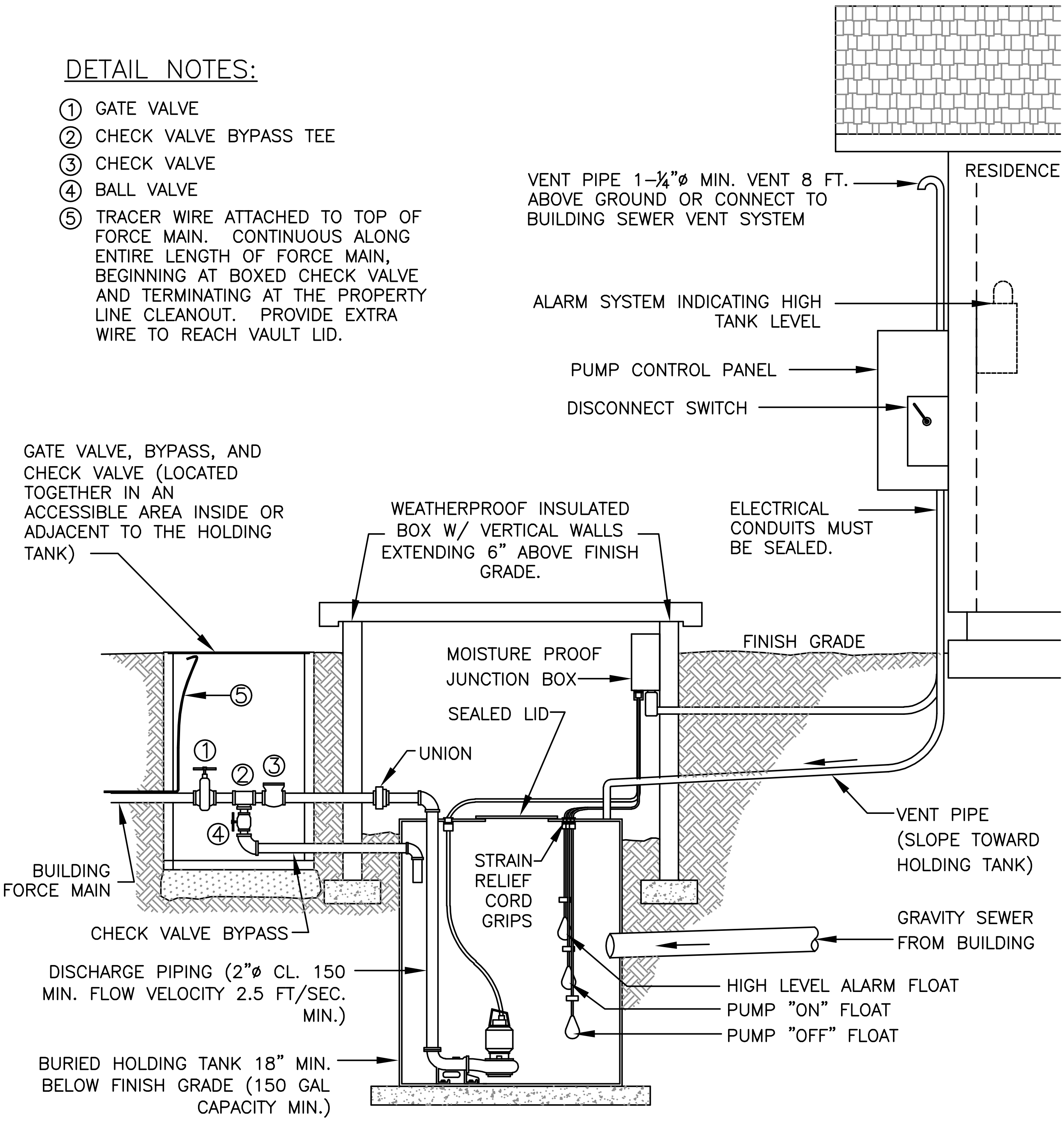
SEPTEMBER 2020

APPROVED: DH

DISTRICT ENGINEER

DETAIL NOTES:

1. GATE VALVE
2. CHECK VALVE BYPASS TEE
3. CHECK VALVE
4. BALL VALVE
5. TRACER WIRE ATTACHED TO TOP OF FORCE MAIN. CONTINUOUS ALONG ENTIRE LENGTH OF FORCE MAIN, BEGINNING AT BOXED CHECK VALVE AND TERMINATING AT THE PROPERTY LINE CLEANOUT. PROVIDE EXTRA WIRE TO REACH VAULT LID.



SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

RESIDENTIAL/SMALL COMMERCIAL PUMP STATION

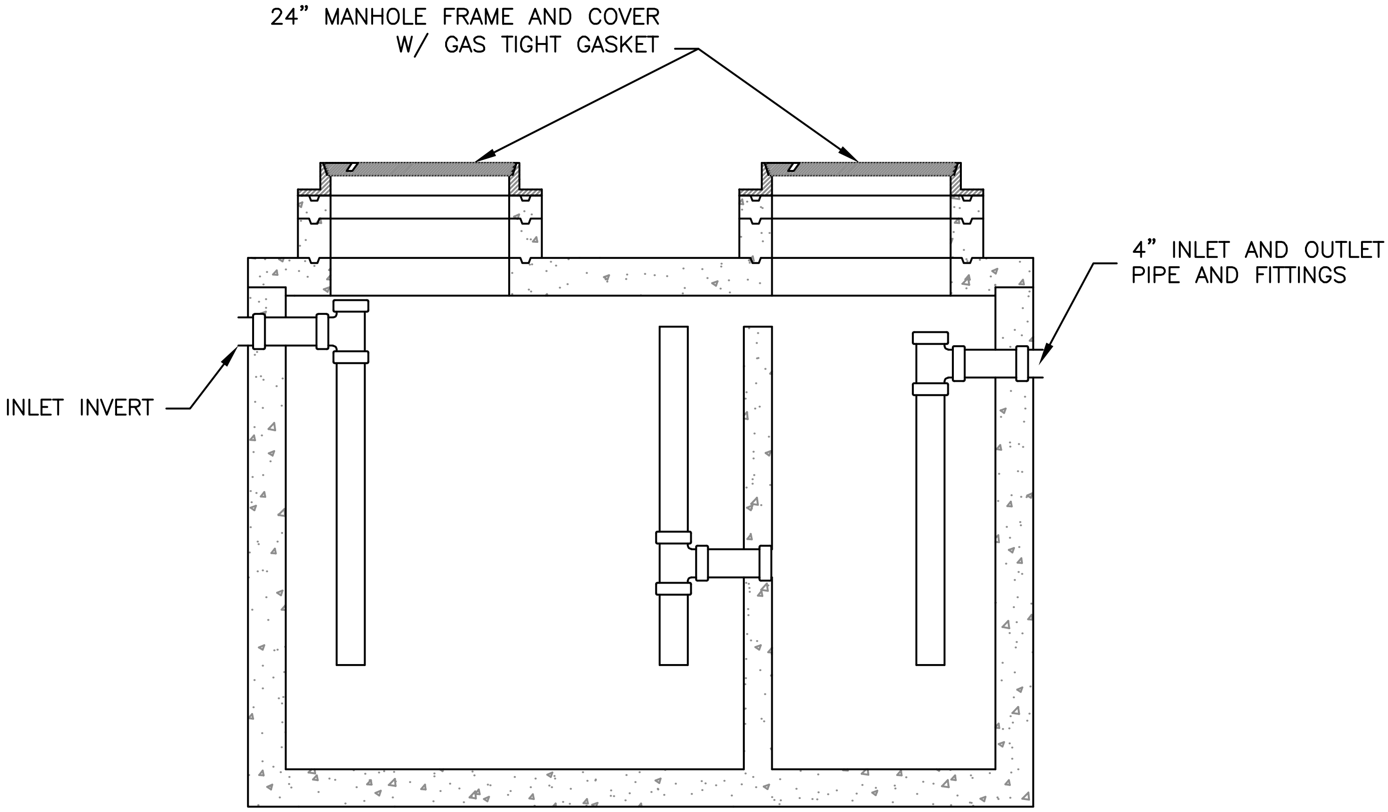
DWG. No. SS-17

SEPTEMBER 2020

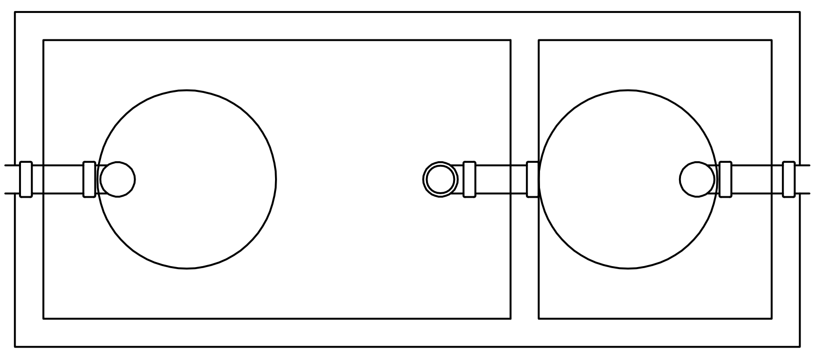
APPROVED: DH

DISTRICT ENGINEER

PROFILE VIEW



PLAN VIEW
(COVERS AND RISERS REMOVED)



DETAIL NOTES:

1). LIQUID CAPACITY: PER CURRENT CPC REGULATIONS; 750 GALLONS MINIMUM.
2). VAULT DESIGN LOAD: H – 20 TRAFFIC LOADING
3). MINIMUM 3" VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET.
4). APPLY RAM-NEK PRIMER AND SEALANT TO BOTH SURFACES AT ALL JOINTS.

SCALE: N.T.S.

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

GREASE INTERCEPTOR

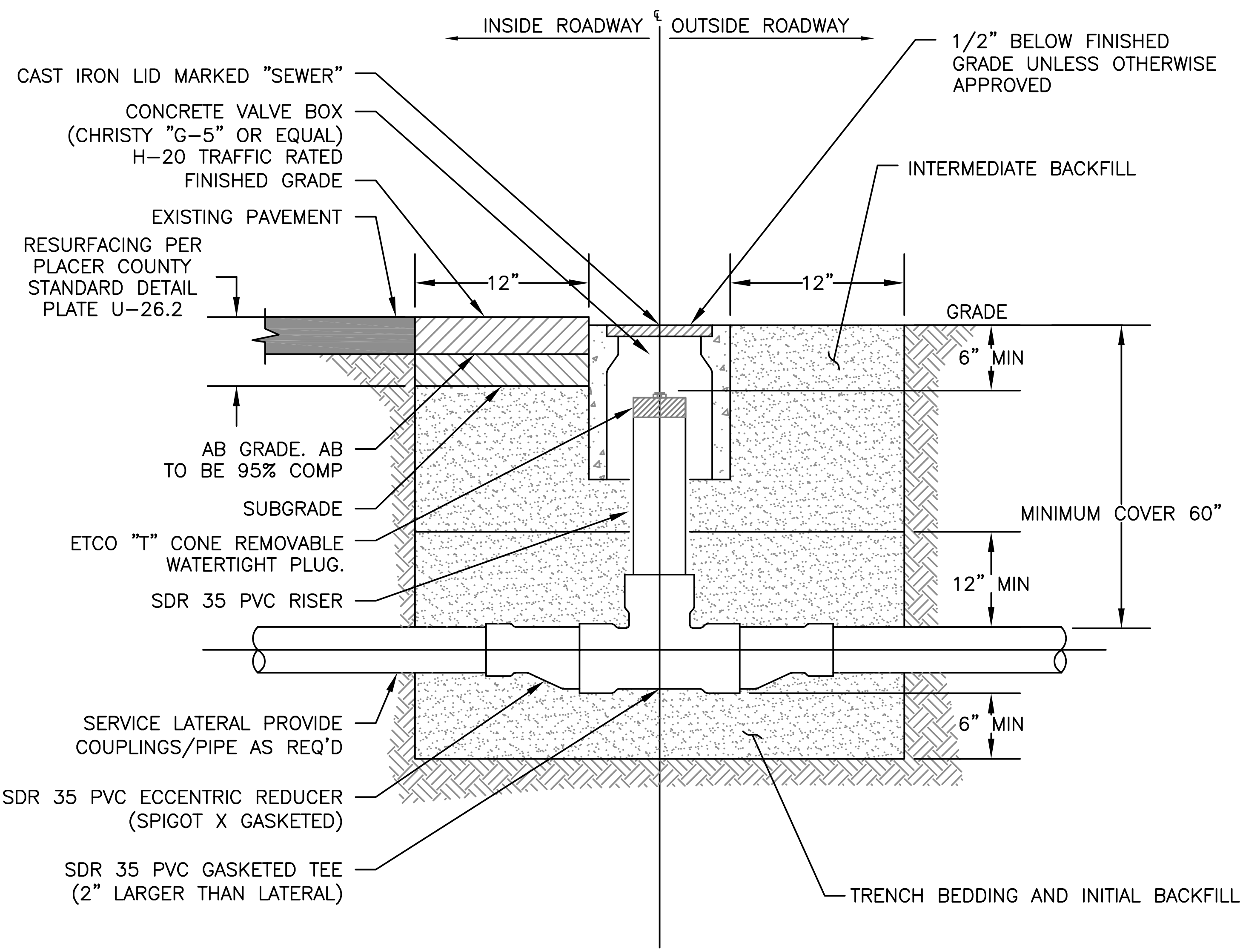
DWG. No. SEPTEMBER 2020

SS-18

APPROVED:

DH

DISTRICT ENGINEER



SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

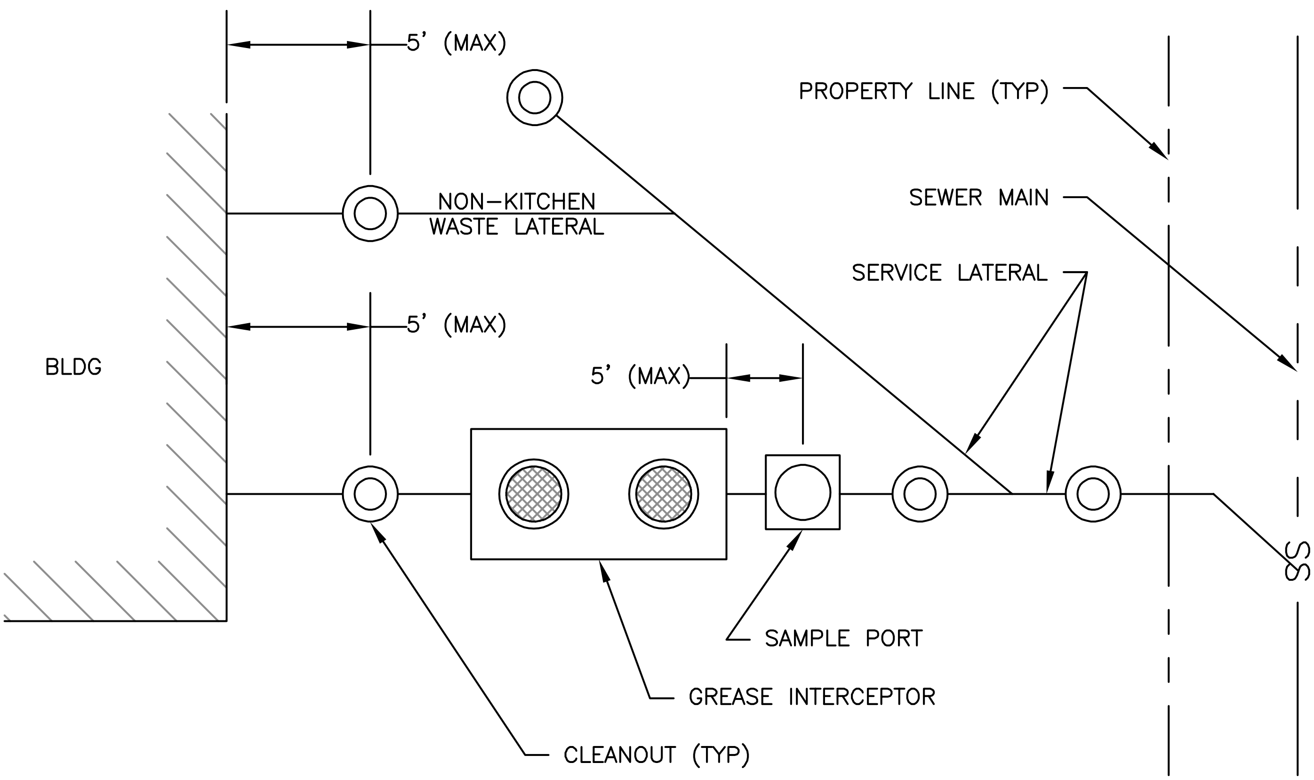
SAMPLE PORT FOR SERVICE LATERAL

DWG. No. SEPTEMBER 2020

SS-19

APPROVED: DH

DISTRICT ENGINEER

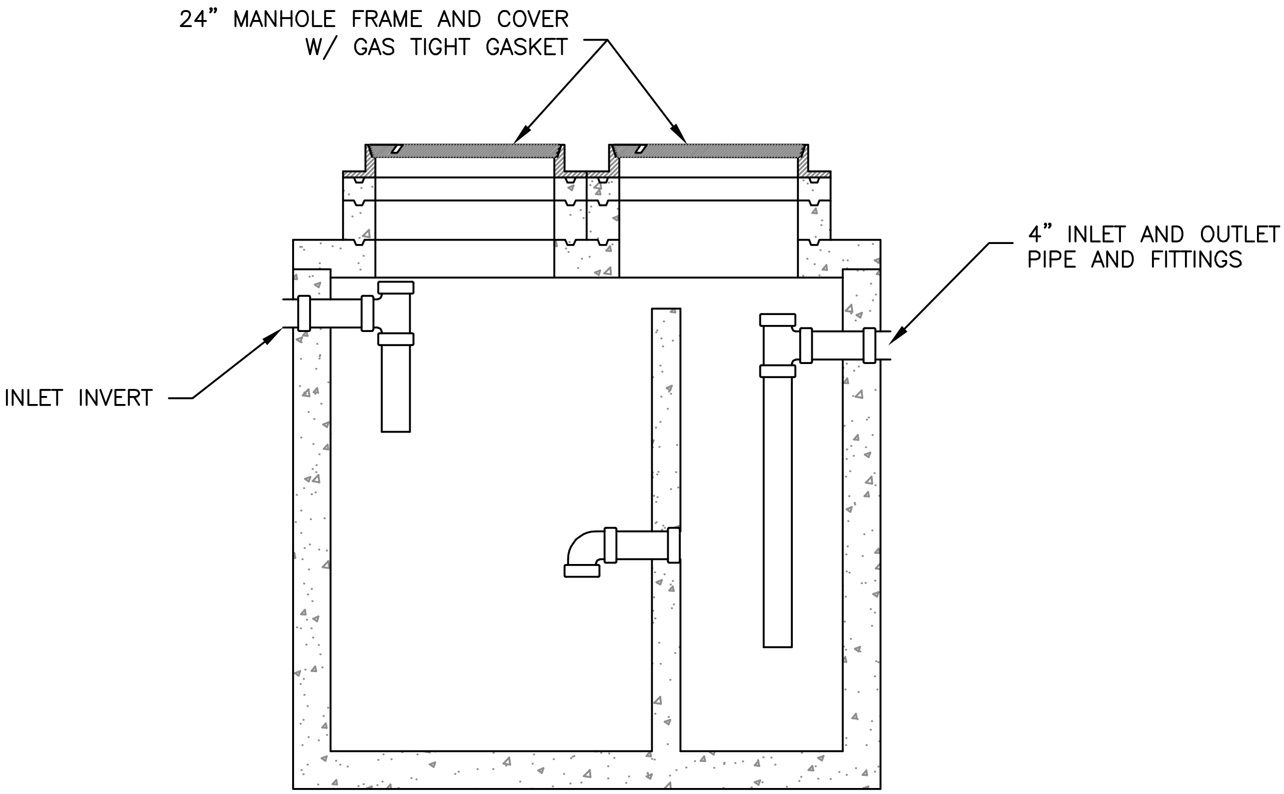


WITH GREASE INTERCEPTOR
OR SAND/OIL INTERCEPTOR

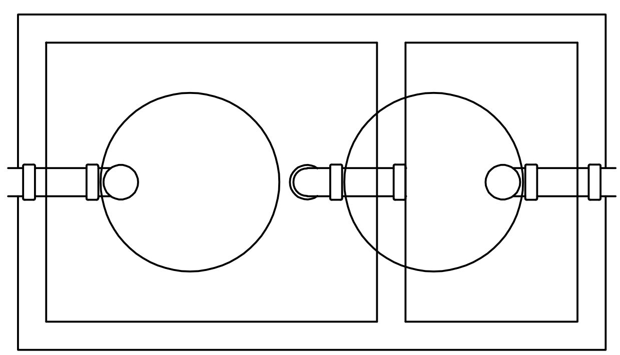
SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT	**SAMPLE PORT LOCATION**	DWG. No. SEPTEMBER 2020 **SS-20** APPROVED: **DH** DISTRICT ENGINEER

PROFILE VIEW



PLAN VIEW
(COVERS AND RISERS REMOVED)



DETAIL NOTES:

1). LIQUID CAPACITY: PER CURRENT UPC REGULATIONS; 500 GALLONS MINIMUM.
2). VAULT DESIGN LOAD: H – 20 TRAFFIC LOADING
3). MINIMUM 3" VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET.
4). APPLY RAMNEK PRIMER AND SEALANT TO BOTH SURFACES AT ALL JOINTS.

SCALE: N.T.S.

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

SAND/OIL INTERCEPTOR

DWG. No. SEPTEMBER 2020

SS-21

APPROVED:

DH

DISTRICT ENGINEER

6 Overflow Emergency Response Plan

6.1 REQUIREMENT

Each Wastewater Collection System Agency shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum the plan must include:

- A program to ensure an appropriate response to all overflows
- Procedures to ensure prompt notification of all primary responders, regulatory agencies, and responsible officials
- Procedures to ensure District staff and contractors follow the Emergency Response Plan and are properly trained
- Procedures to address emergency operations, such as traffic control and crowd control
- A program to ensure that all reasonable steps are taken to contain and prevent the discharge of wastewater to the waters of the United States.

6.2 SANITARY SEWER OVERFLOW DEFINITION

For the purpose of reporting, a Sanitary Sewer Overflow (SSO) is identified as the discharge of any amount of untreated sewage from a collection system. Any discharge of wastewater from a sanitary sewer system to the waters of the United States is prohibited under the Clean Water Act.

6.3 SSMP COMPLIANCE

The District has maintained a Sanitary Sewer Overflow Emergency Contingency Plan as a part of the District Disaster Response Plan for over 20 years. The existing plan will be updated and modified to meet the above SSMP requirements and the General Waste Discharge Requirement (WDR), Order No. 2006-0003 and amendments (see Appendices A and B). The District's "On-Call" policy identifies minimum response times for District personnel after work hours.

It is the objective of this plan to minimize the volume of sewer overflows that enter the waters of the United States or adversely impact the environment in any way. This plan will ensure that SSOs are properly identified, responded to, and reported to the appropriate regulatory agency. The response plan will outline response procedures for both private and public sewers.

6.4 SEWER SYSTEM OVERFLOW EMERGENCY RESPONSE PLAN

The key to emergency preparedness is a prompt and efficient response plan. There are several instances where the District's sewer system may be stressed, damaged, or compromised in a manner that could result in an SSO. SSOs can occur at many different locations within the wastewater collection system. These locations include, but are not limited to; manholes, pipelines, clean-outs, and siphons. Any release of sewage to the environment, whether accidental or intentional, requires a response by District personnel. District staff utilize Attachment 6.1 SSO Reporting Chain of Communication for notifying supervisors and others as directed.

All Public SSOs are reportable to Placer County Department of Environmental Health (County) and to the Lahontan Region, Regional Water Quality Control Board (Lahontan). Any SSO that enters or has the potential to enter a stream or waterway will be reported to the California State Office of Emergency Services (OES). Please see Attachment 6.2 SSO Emergency Contact List for notification numbers.

This document is intended to catalogue potential SSOs as public or private and identify the response mechanisms needed in each instance.

6.4.1 PUBLIC SSO

In the event of a sewer overflow the following actions are to be taken **immediately**. An SSO in the District collection system may occur for a variety of reasons including root intrusion, pipe failure, grease blockage, or vandalism. Notification of a Public SSO may come from a concerned citizen, the fire or police departments, or from a high flow alarm on the SCADA system. Personnel responding to a Public SSO should consider the following.

6.4.1.1 Operational Priorities

1. Additional personnel will be needed to ensure a safe work area. Attempt to mobilize help as soon as possible and notify a supervisor. This should be considered prior to responding to the SSO site.
2. At the site, assess the severity of the problem and evaluate whether damage to the pipe has occurred and/or whether an SSO is evident and causing a public health or safety situation.
3. Evaluate what actions are necessary to protect District facilities, conduct safe operations, and if any additional personnel and/or equipment are needed.
4. Evaluate actions required to protect water quality (surface and ground) and the environment. Evaluate the need to conduct traffic control and formulate a traffic control plan.
5. Assess the amount of sewage flowing, if possible, by mechanical means or by use of the information in Attachment 6.3 Methods of Estimating Spill Volume.
6. Notify appropriate regulatory agencies.
7. Documentation: fill out Attachment 6.4 SSO Response Field Checklist and Documentation.

6.4.1.2 Immediate Mitigation and Containment Measures

1. Consider the need for mutual aid. See Attachment 6.5 Contact Information for Outside Agencies Backup info sheet. For large events, consult the Tahoe Truckee Area Emergency Contingency Plan.
2. Take actions necessary to prevent all overflows from entering Squaw Creek or any other waterways.
3. Consider notification of upstream users to curtail or limit flow to the SSO.
4. Consider emergency bypass measures if the SSO cannot be rectified in a reasonable time frame.
5. If feasible, build impound structures (i.e. a sandbag dyke) to contain raw sewage.
6. Take any step necessary to limit public health and safety hazards without endangering any District or mutual aid personnel.
7. Consider public access (vehicle or pedestrian) and isolate the affected area if necessary.
8. Consider parking a vehicle tire on a manhole or cleanout to slow the SSO discharge rate.

6.4.1.3 Repair Operation Techniques

1. Organize and assign work responsibilities.
2. Conduct sewer cleaning operations with the high-pressure Vac-Con rodder. Consider vacuum clean up of discharged sewage, if feasible. Consider Mutual Aid by mobilizing additional vacuum trucks, if necessary.
3. If excavation is necessary:
   a. Call for line locations by activating an Underground Service Alert (USA). Call local utilities direct if after business hours.
   b. Formulate a shoring plan if necessary and mobilize sufficient shoring and materials to the work site.
   c. Assess parts on hand and procure additional parts, if necessary.
4. Build an emergency bypass system. Refer to the Tahoe Truckee Area Emergency Contingency Plan and mobilize back-up pumps.
5. Consider the need for tank trucks to haul wastewater as a back up to a bypass system.
6. Direct press to District offices, if necessary.
7. Conduct clean up in accordance with above policies or as directed by the Placer County Department of Public Health.
8. Diluted bleach will only be used for cleaning up when directed by Placer County Department of Public Health. Diluted bleach will not be used in any way near Squaw Creek or other surface water that can reach Squaw Creek. Use 2% dilution or lower chlorine mixes when directed.

6.4.2 PRIVATE PROPERTY SSO

The most common SSO response is generally related to problems located on private property. These are typically due to deteriorated or damaged service laterals. However, grease stoppages at restaurants are also a common occurrence. A Private Property SSO is one that occurs within the residence plumbing or in the lateral between the residence and the property line. Homeowners often call the District prior to engaging the services of a plumber in the hopes that we will handle the problem. The District does not perform services on private property. However, a reported SSO requires a response by District personnel at all times. The following should be considered when responding to a private property SSO.

1. Assess the size of the problem, the amount of the release, and the threat to neighboring property and the environment.
2. Check upstream and downstream manholes to verify the blockage is not a Public SSO.
3. Notify appropriate authorities if the problem is not being corrected. Notify the affected property owner or a responsible representative such as a caretaker or maintenance staff.
4. Consider isolating the affected area with cones, barricades, or caution tape.
5. Personnel may be requested to recommend corrective action. This is a personal judgment call and relates to the operator's level of knowledge. Attempt to limit assistance to offering ways of identifying the cause such as video inspection, excavation, or power rodding the line. District personnel are not advised to recommend any specific plumber or contractor but should advise the use of licensed contractors.
6. Locate lines only when requested through USA. The District is not required to locate lines on private property. There are contractors that can perform line location services. A District customer may refer to their telephone service yellow pages or google web search for these services.
7. Document the SSO and follow up if necessary. Inform management personnel in order to initiate compliance directives in accordance with the District Sewer Code if the SSO remains unattended after 24 hours.

Ensure that methods implemented to correct the SSO do not create additional problems in the collection system. Plumbers could potentially push a root ball into the public collection system and cause a Public SSO. Dirt, rocks, and construction debris originating from a private lateral can also pose a problem. Notify the District inspector who will perform follow-up inspections during work hours.

6.5 SSO MONITORING AND REPORTING

The State Water Resources Board Order No. 2006-0003-DWQ, as revised by Board Order No. 2008-002-EXEC and WQ 2013-0058 EXEC, identifies requirements for monitoring and reporting SSO. SSO reporting deadlines vary according to the location and severity of the SSO. This section identifies the minimal reporting requirements and provides guidance to the Data Submitter and/or the Legal Responsible Official (LRO) in meeting those requirements. See Attachment 6.67 for the SSO Reporting Requirement Flow Chart.

6.5.1 CATEGORY 1 SSO

A Category 1 SSO is identified as any discharge of raw sewage that:

- Discharges to a drainage channel and/or surface water; or
- Discharges to a storm drain and was not fully captured and returned to the sanitary sewer.

6.5.1.1 Category 1 SSO Reporting Requirements

- Notify Cal OES within two (2) hours of becoming aware of spill reaching waterway.
- Notify Lahontan RWQCB within four (4) hours.
- The Data Submitter must file a draft report with the WQCB through the CIWQS database within three (3) days.
- A final report must be certified by the LRO within 15 days.
- Submit technical report within 45 days if the SSO exceeds 50,000 gallons.
- An SSO water quality monitoring plan is required for spills larger than 50,000 gallons that have reached surface waters within 48 hours or when directed to by Lahontan RWQCB. Utilize Attachment 6.7 SSO Water Quality Monitoring Plan and Worksheet.

6.5.2 CATEGORY 2 SSO

A Category 2 SSO is identified as any discharge of raw sewage greater than 1,000 gallons.

6.5.2.1 Category 2 SSO Reporting Requirements

- Notify Lahontan RWQCB within four (4) hours.
- The Data Submitter must file a draft report with the WQCB through the CIWQS database within three (3) days.
- A final report must be certified by the LRO within 15 days.
- Verbal notification as soon as practical to the Placer County Health Department (District requirement).

6.5.3 CATEGORY 3 SSO

A Category 3 SSO is identified as any other discharge of raw sewage to the environment.

6.5.3.1 Category 3 SSO Reporting Requirements

- Verbal notification as soon as practical to the Lahontan Regional Water Quality Control Board.
- Reporting to the Regional WQCB through the CIWQS database within 30 days.
- Verbal notification as soon as practical to the Placer County Health Department (District requirement).

6.5.4 PRIVATE LATERAL SSO

- The District may notify the Placer County Health Department as soon as practical.
- Consider notification of CIWQS if the volume of sewage exceeds 1,000 gallons or if any sewage reaches a waterway.

6.5.5 SSO REPORTING

The following should be recorded by the first responder and/or job supervisor for reporting purposes utilizing the Attachment 6.4 SSO Response Field Checklist and Documentation.

- Time the SSO was discovered or when the initial call was taken.
- Specific location of the SSO.
- Whether or not the SSO entered a surface water or drainage way.
- Estimated volume (written calculation), volume recovered, volume entered waterway. Use Attachment 6.3, Methods of Estimating Spill Volume.
- Time contacts were made to regulatory agencies and the person contacted.
- CA Office of Emergency Services (OES) control number.
- Sample procedures and sample identification, if required.
- Weather conditions at time of SSO.
- Corrective actions taken.
- Photographs of the SSO site, repair and remediation, if applicable.

6.5.6 SSO INVESTIGATION

The following process will be taken to evaluate the cause of the SSO and the steps initiated to prevent a reoccurrence. The procedures for investigating an SSO are:

- Review incident/overflow report.
- Interview responders/repair crew.
- Review past maintenance records and/or CCTV records.
- Conduct CCTV inspection, if necessary.
- Mark the location of the SSO/repair on District map update form. See Attachment 6.8 Edits to Mapping and GIS Form.
- Evaluate all information and determine a course of action to avoid a future SSO.
- Conduct post SSO meeting with operations and engineering to review issues during response, issues that caused the SSO, and to brainstorm ideas of how to prevent further SSO.
- Complete Attachment 6.4 SSO Response Field Checklist and Documentation.

6.6 FLOOD OR EXTRANEOUS I&I RELATED SSO

Heavy rainfall on deep snowpack resulted in a flood related SSO on January 1, 1997 (see Tahoe Truckee Area Emergency Contingency Plan). Other major Pacific storm events have resulted in near overflows or extraneous flows that impact the T-TSA Sewage

Treatment Plant. The 1997 flood created flows in the Olympic Valley Interceptor that exceeded design capacity. The SSO occurred at the metering station at Highway 89, however, the Highway 89 Flow Metering Station Upgrade Project completed in 1998 decreased the SSO potential at this location by eliminating manholes and armoring the upstream piping. The 1994 Sewer Master Plan identified several mains subject to surcharge; however, the updated sewer model (ECO:LOGIC 2007) showed no areas of potential surcharge. In 2019, the Truckee River siphon was replaced with dual lines for redundancy and increased flows. High level float alarms are on both sides of the Truckee River and upstream of the Squaw Creek Siphon to alarm during a backup condition.

As Olympic Valley grows, additional sewer flows may reduce the capacity of the Olympic Valley Interceptor to convey I&I. In order to prevent or reduce flood related SSOs, the District should continue to identify and correct areas of insufficient capacity.

6.6.1 IMPENDING PACIFIC STORM RESPONSE PROCEDURES

The District will generally receive advance warning from the Fire Department, NOAA, or Placer County OES of impending or potential Pacific storms approaching. The following procedures are to be considered in preparing for a storm related SSO:

1. On-call and supervisory personnel should closely monitor winter storms that can cause localized or regional flooding.
2. Mobilize sand and sandbags for public and private use. Sandbags are stored at 1810 Squaw Valley Road. Additional sand and sandbags may be obtained at no cost from Placer County Department of Public Works. Inform Fire Department personnel of available resources.
3. Check food supplies, fuel supplies, and sleeping quarters. Inform employees of potential overtime work; employees should consider preparing their home for several days' absence.
4. Conduct advance training exercises and review emergency response procedures.
5. Personnel should monitor sewer flows by remote SCADA and contact T-TSA for updates on sewage plant inflow.
6. Personnel should be mobilized to Olympic Valley early in the storm and begin systematically checking the collection system for inflow. See Attachment 6.9 for key manholes and sewer lines that may surcharge under peak flow conditions.
7. A supervisor is needed to formulate a plan and direct operations. Personnel responding to Olympic Valley need to be outfitted with proper safety gear. Special attention is needed to keep personnel warm, dry, fed and hydrated. Persons working in heavy gear under stressful conditions may be prone to exhaustion or subject to hypothermia when working outdoors in inclement weather.
8. Monitor the embankment of Squaw Creek for potential damage from manhole T40 to manhole T41. These areas have been identified as having a potential for failure and were armored with rock.
9. Monitor creek crossings for scouring or pipe damage.
10. Check distribution lines downstream of flooded areas.

11. Check and monitor sewer lines previously damaged by flooding; refer to the OVPSD Emergency Response Plan.

6.6.2 FLOOD RELATED SSO RESPONSE PROCEDURES

Personnel safety is of the utmost importance. It is preferable to allow the SSO to occur rather than risk the safety of District and mutual aid responders. Should a flood related SSO occur, the following procedures are to be considered:

1. Evaluate the need to conduct bypass operations. Consider pumping around the flooded area or trucking wastewater.
2. Evaluate and eliminate sources of inflow, if possible. A major contribution in 1997 was flooding on the south fork of Squaw Creek. Homes and lodging were already evacuated leaving little or no contribution of sewage in the affected area. Personnel sandbagged a downstream manhole allowing storm water to exit the system. This relieved downstream flows sufficient to cease the SSO at Highway 89.
3. Consider the need to divert flowing water or to contact the Placer County Road Department to correct flooded drainage problems.
4. Consider the need to activate the Placer County Office of Emergency Services (OES).
5. Notify appropriate regulatory agencies.
6. Document activities and prepare follow-up reports.

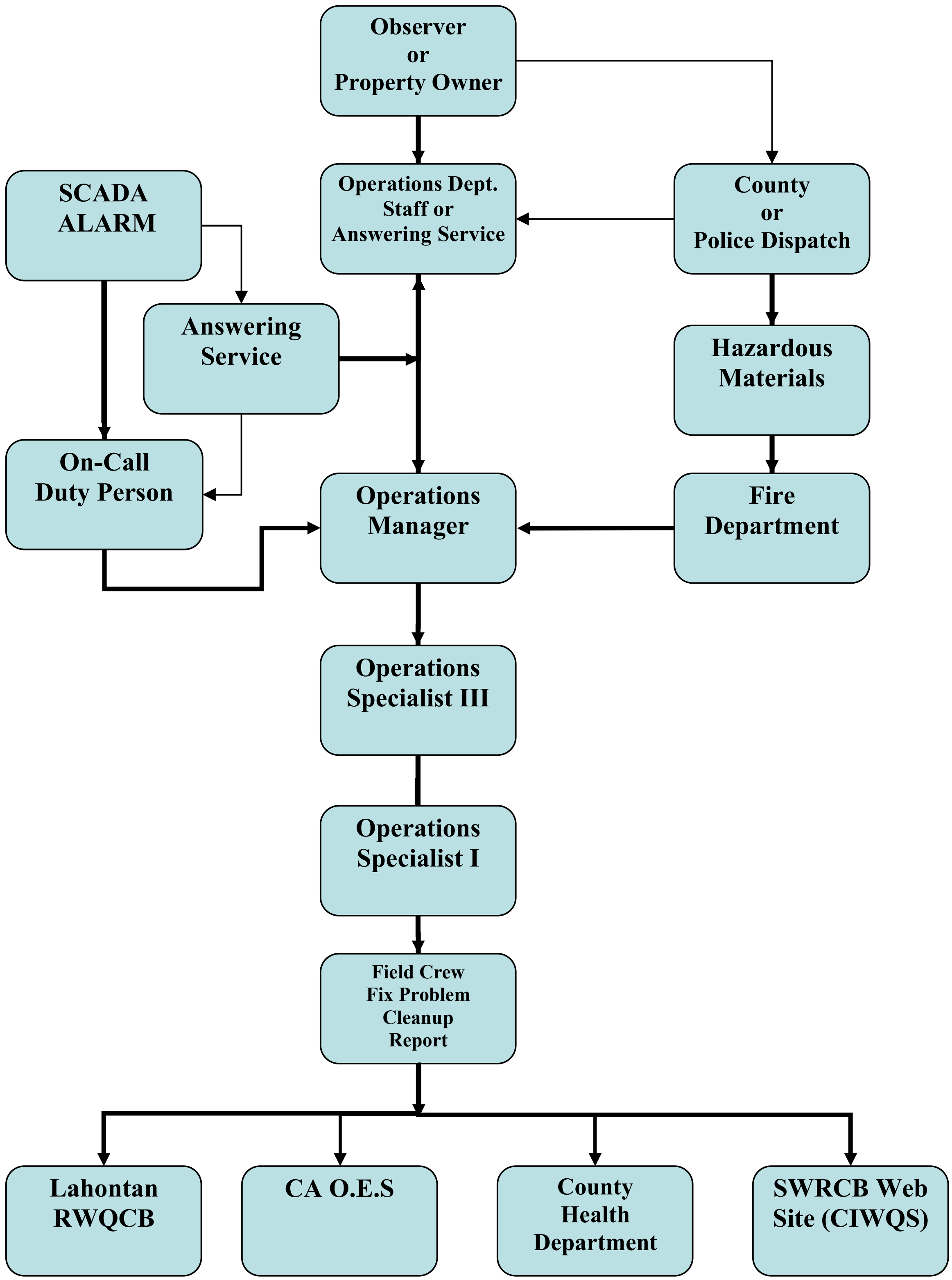
6.7 TRAINING

The preceding guidelines are not all inclusive. Each situation is unique and requires personal judgment and skilled response personnel. It is recommended the District conduct annual training to review and update of emergency procedures and field exercises. Ongoing documentation of response procedures and updated cataloging of potential problem areas will help to reduce or eliminate the potential for SSOs in Olympic Valley. Contractors working on the sewer system shall be given a copy of this SSO Emergency Response Plan.

Attachment 6.1

Olympic Valley Public Service District
SSO Reporting Chain of Communication

SSO Reporting Chain of Communication



Attachment 6.2

Olympic Valley Public Service District
OVPSD SSO Emergency Contact List

OLYMPIC VALLEY PUBLIC SERVICE DISTRICT

SSO EMERGENCY CONTACT LIST

District Staff

Name & Title	Work Phone	Home Phone	Mobile Number
Mike Geary General Manager	530-583-4692 x 211	[redacted]	[redacted]
Dave Hunt District Engineer	530-583-4692 x 214	[redacted]	[redacted]
Brad Chisholm Fire Chief	530-583-6111 x 221		[redacted]
Brandon Burks Operations Manager	530-583-4692 x 109	[redacted]	[redacted]
Sam Donahue Operations Specialist III	530-583-4692 x 108		[redacted]
Nic Massetani Operations Specialist II	530-583-4692 x 110		[redacted]
Answering Service Fire Dept. Duty Officer	1-866-411-6917		[redacted]

Public Agency Notifications

Agency	Phone Number
Lahontan RWQCB	530-542-5400 (General Number)
Placer County Environmental Health	530-581-6240
Placer County Sherriff's Dispatch	530-886-5375 (weekends, holidays, 24 hrs)
CA. Dept. of Fish and Game, Region II	916-358-2900
California State OES	800-852-7550
SWRCB Web Site	www.waterboards.ca.gov/ciwqs/

Attachment 6.3

Olympic Valley Public Service District
Methods for Estimating Spill Volume

Methods for Estimating Spill Volume

A variety of approaches exist for estimating the volume of a sanitary sewer spill. This appendix documents the three methods that are most often employed. The person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available.

Method 1: Eyeball Estimate

The volume of small spills can be estimated using an "eyeball estimate". To use this method imagine the amount of water that would spill from a bucket or a barrel. A bucket contains five gallons and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for contained spills up to approximately 200 gallons.

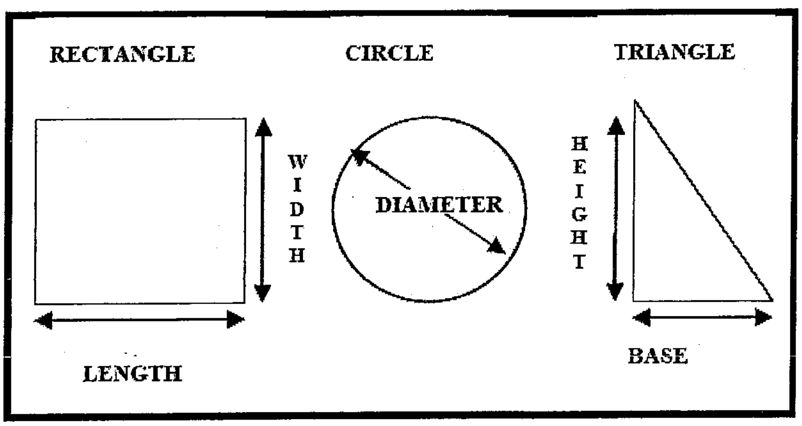
Method 2: Measured Volume

The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and the depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills and the depth is used to calculate the volume.

Step 1 Sketch the shape of the contained sewage (see Figure A).
Step 2 Measure or pace off the dimensions.
Step 3 Measure the depth at several locations and select an average.
Step 4 Convert the dimensions, including depth, to feet.
Step 5 Calculate the area in square feet using the following formulas:
  Rectangle: Area = length (feet) x width (feet)
  Circle: Area = diameter (feet) x diameter (feet) x 0.785
  Triangle: Area = base (feet) x height (feet) x 0.5

Step 6 Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.
Step 7 Multiply the volume in cubic feet by 7.5 to convert it to gallons.

Figure A: Common Shapes and Dimensions used for Estimating Spill Size



Method 3: Duration and Flow Rate

Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flow rate. The methods of estimating duration and flow rate are:

Duration

The duration is the elapsed time from the time the spill started to the time that the flow was restored.

Start time: The start time is sometimes difficult to establish. Here are a few approaches:

- Local residents can be used to establish start time. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes observations like odors or sounds (e.g. water running in a normally dry creek bed) can be used to estimate the start time.
- Conditions at the spill site change over time. Initially there will be limited deposits of toilet paper and other sewage solids. After a few days to a week, the sewage solids form a light-colored residue. From a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increase over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case, the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 each day). Spills that occur due to peak flows (in excess of capacity) will occur only during, and for a short period after, heavy rainfall.

End time: The end time is usually much easier to establish. On-site field crews observe the "blow down" that occurs when the blockage has been removed.

Flow Rate

The flow rate is the average flow that left the sewer system during the time of the spill. Two common ways to estimate the flow rate are described below:

1. San Diego Manhole Flow Rate Chart: This chart, on page C-4, shows sewage flowing from manhole covers at a variety of flow rates. The observations of the field crew can be used to select the appropriate flow rate from the chart. If possible, photographs are useful in documenting the basis for the flow rate estimate.

2. Counting Connections: Once the location of the spill is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or eight to ten gallons per hour per connection.

For example:

22 upstream connections x 9 gallons per hour per connection
= 198 gallons per hour ÷ 60 minutes per hour
= 3.3 gallons per minute

Spill Volume

Once duration and flow rate have been estimated, the volume of the spill is the product of the duration (in hours or days) and the flow rate (in gallons per hour or gallons per day).

For example:

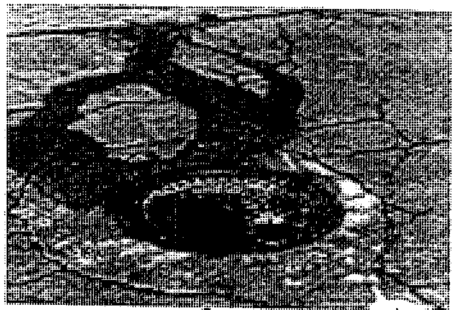
Spill Start Time = 11:00
Spill End Time = 14:00
Spill Duration = 3 hours
3.3 gallons per minute x 3 hours x 60 minutes per hour = 594 gallons

City of San Diego
Metropolitan Wastewater Department

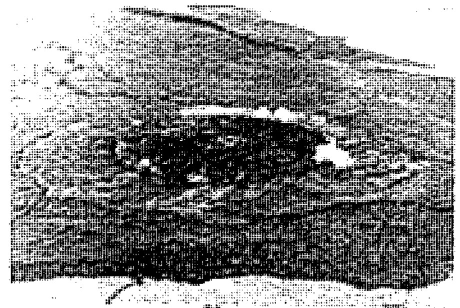
Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

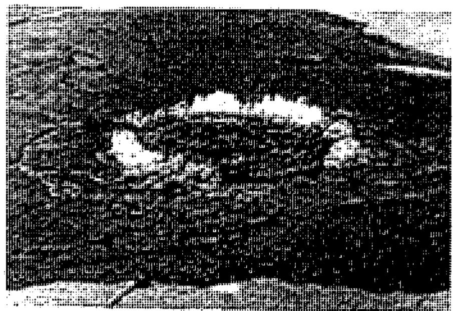
All estimates are calculated in gallons per minute (gpm)

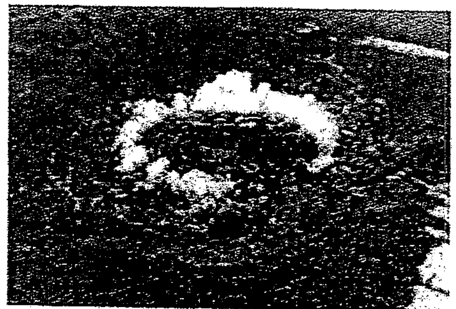
Wastewater Collection Division
(619) 654-4160

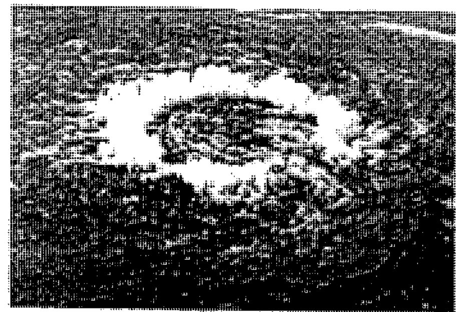

5 gpm

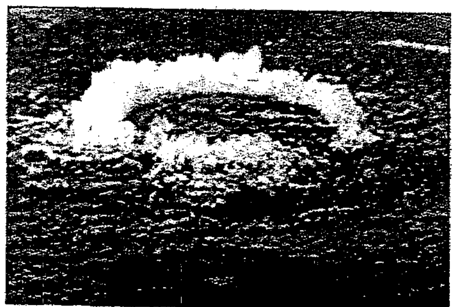

25 gpm

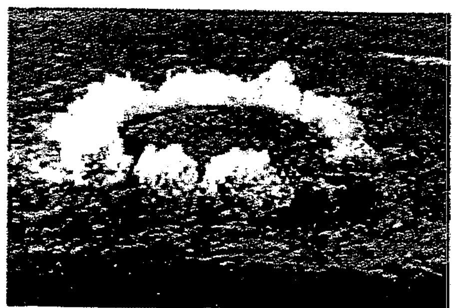

50 gpm


100 gpm


150 gpm


200 gpm


225 gpm


250 gpm


275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

rev. 4/99

Attachment 6.4

Olympic Valley Public Service District
SSO Response – Field Checklist and Documentation

SSO Response - Field Checklist & Documentation

Initial Reporting & Response

Reporting Party (Callers Name & Phone #):____________________

Call Received (Date/Time):____________________ Received by (District Personnel):____________________

District On-Site Arrival (Date/Time):____________________ Responding District Employee(s):____________________

Spill Discovery, Time Notes, Information & Response

(Best Available Information based on Site interviews, District Investigations, Etc. - note: document all attempts)

SSO Discovery (by OVPSD) (If Different than Arrival Time) (Date/Time):____________________

Estimated Time SSO Began (Make Contact with Residents and Businesses to Accurately Estimate The Start Time)

(Date/Time/Contacts/comments):____________________

Is Sewer Currently Spilling: (YES / NO)

Spill Address/Location:____________________

Spill Appearance Point: Building P/L C/O MH Gravity Sewer Force main Lift Station

Other and/or Comments:____________________

Final Spill Destination: Beach Building Hillside adjacent to hwy Street/curb/gutter

Surface water Unpaved surface Other paved surface

Other and/or Comments:____________________

Cause of SSO Identified at (Date/Time):____________________

Failed at: Mainline Lower lateral Upper lateral Force main Lift station

Other and/or Comments:____________________

Spill Cause: Roots Grease Debris Vandalism Capacity Design Mechanical failure

Other and/or Comments:____________________

Manager/Supervisor Notified (Required for all SSOs) (Date/Time):____________________

Cause of SSO Eliminated at (Date/Time):____________________

SSO End Time (Date/Time):____________________

Description of Response Measures Taken and SSO Comments:____________________

____

____

Containment, Clean up & Response:

Volume of Spill Recovered (Do Not Count Wash Down Water):____________________

Containment and/or Clean Up Began (Date/Time):____________________

Clean up & Response Ended/Completed (Date/Time):____________________

Description of Containment & Clean up Measures Taken and Comments (as applicable):____________________

____

____

Spill & Flow Rate (If Active Spill):

- **REFERENCE PICTURES, TABLES, AND CHARTS:**

  *SEE APPENDIX FOR FLOW ESTIMATION PICTURES & TABLES

  Flow Rate (gal / min) = ______________________________

- **CALCULATION:**

  1 - Cross Sectional Area of Flow (avg. depth x avg. width) = (sq. ft.) = ______________________________

  2 - Speed of Flow (use improvised float and measure time of travel) = (ft./sec.) = ______________________________

  CALCULATION = **1** x **2** x 7.48 x 60 = (gal./min.) = ______________________________

Spill Volume (If Not Active Spill):

(USE MOST APPLICABLE METHOD -OR- ALL AS APPLICABLE)

- **EYEBALL ESTIMATE** (Imagine a Known Volume Amount Tipped Over)

  (1 Gallon Jug - 5 Gallon Bucket - 32 Gallon Trash Can - 55 Gallon Drum)

  VOLUME = (Known amount) x (how many) = (gal) = ______________________________

- **MEASURED VOLUME ESTIMATE** (Field Measurements)

  [Draw Sketch of Spill Area Below]

  1 - Area (Divide Wetted Areas Up and Add Together *if Necessary*) = (sq. ft.) = ______________________________

  2 - Apply % Wet or % Soil Moisture Content *if Necessary*) = (%) = ______________________________

  3 - Average Depth = (inches) = ______________________________

  CALCULATION = **1** x **2 x 3** x 7.48 ÷ 12 = (gal) = ______________________________

Sketch and/or Diagrams of SSO Area(s):

SSO Personnel:

Responding Party (OVPSD): ______________________________

Manager/Supervisor (OVPSD): ______________________________

Additional Support (OVPSD): ______________________________

Other: ______________________________

____

____

Spill Category

#1 - Was Spill Greater than 1,000 gallons [YES / NO]

#2 - Was there a discharge to a drainage channel and/or surface water? [YES / NO]

#3 - Was there a discharge to stormdrain that was NOT FULLY captured? [YES / NO]

If **YES** to any of the above, **Category 1 Spill**

Sampling (If Required by OES, Co. Health, OVPSD Sup, or Other as applicable)

(Complete: "SSO SAMPLING COLLECTION & PROCEDURES" Worksheet)

Category 1

Information:

Determined to Be **Category 1** (Date/Time):________ Discovered Entered Waterway (Date/Time):__________________

Total Spill Volume:____

Spill Volume Entered Waterway (if applicable):____

Reporting & Notifications (with Time frames):

***SEE EMERGENCY RESPONSE PLAN

Post-SSO Briefings, Findings & Review - Manager/Supervisor

SSO Spill Location Name:______________________________

Estimated SSO Start Date:______________ SSO Event ID (CIWQS): ____________________
Residents and Local Businesses Contacted to Estimate Start Date: ____________________

Spill Appearance Point: Building Cleanout Manhole Force main Gravity Sewer Pump station
(circle applicable) Other:______________________________

Final Spill Destination: Beach Building Hillside adjacent to highway Street/curb & gutter
(circle applicable) Surface water Unpaved surface Other paved surface
Other:______________________________

Estimated Spill Volume and Estimation Method (reported in CIWQS):____________________

Estimated Spill Volume Recovered:______________________________

Cause of Spill:

Failed at: Mainline Lower lateral Upper lateral Force main Lift station
(circle applicable) Other:______________________________

Spill Cause: Roots Grease Debris Vandalism Capacity Design Mechanical failure
(circle applicable) Other:______________________________

Final Cause Determination:

____

____

Follow-up or Corrective Action Taken:

____

____

Briefings & Discussions with District Personnel

Operations Crew Meeting Date:______________________________
Staff Member Leading Discussion:______________________________
Summary/Conclusion from Meeting: ______________________________
____

Management Team Meeting Date:______________________________
Staff Member Leading Discussion:______________________________
Summary/Conclusion from Meeting:______________________________
____

Sanitary Sewer Management Plan (SSMP) Monitoring & Review

Affected and/or Applicable SSMP Section(s) and/or Element(s): ____________________
____

Is SSMP effective in addressing, preventing and/or minimizing this type of SSO (YES / NO)

Does SSMP require review/modification(s) to eliminate/reduce this type of SSO from occurring again (YES / NO)
If YES, which section(s) and/or element(s): ______________________________
____

Schedule and/or Date for SSMP review/modification: ____________________

* Attach additional sheets/pages or write on back if additional explanation and/or information is necessary

Attachment 6.5

Olympic Valley Public Service District
Contact List for Outside Agencies for Backup

Outside Agencies for Backup

Agency/Vendor	Equipment	Business Hour Phone	After Hours
North Tahoe PUD	PUD Vactors Bypass Equipment Staff	530-546-4212	530-546-4212
Truckee Sanitary District	PUD Vactors Bypass Equipment Staff	530-587-3804	530-587-3804
Tahoe City PUD	PUD Vactors Bypass Equipment Staff	530-583-3796	530-546-1215
Alpine Septic	Tank Trucks	530-577-7867	530-416-8831
Waters Septic Service	Tank Trucks	775-825-1595	888-909-7867

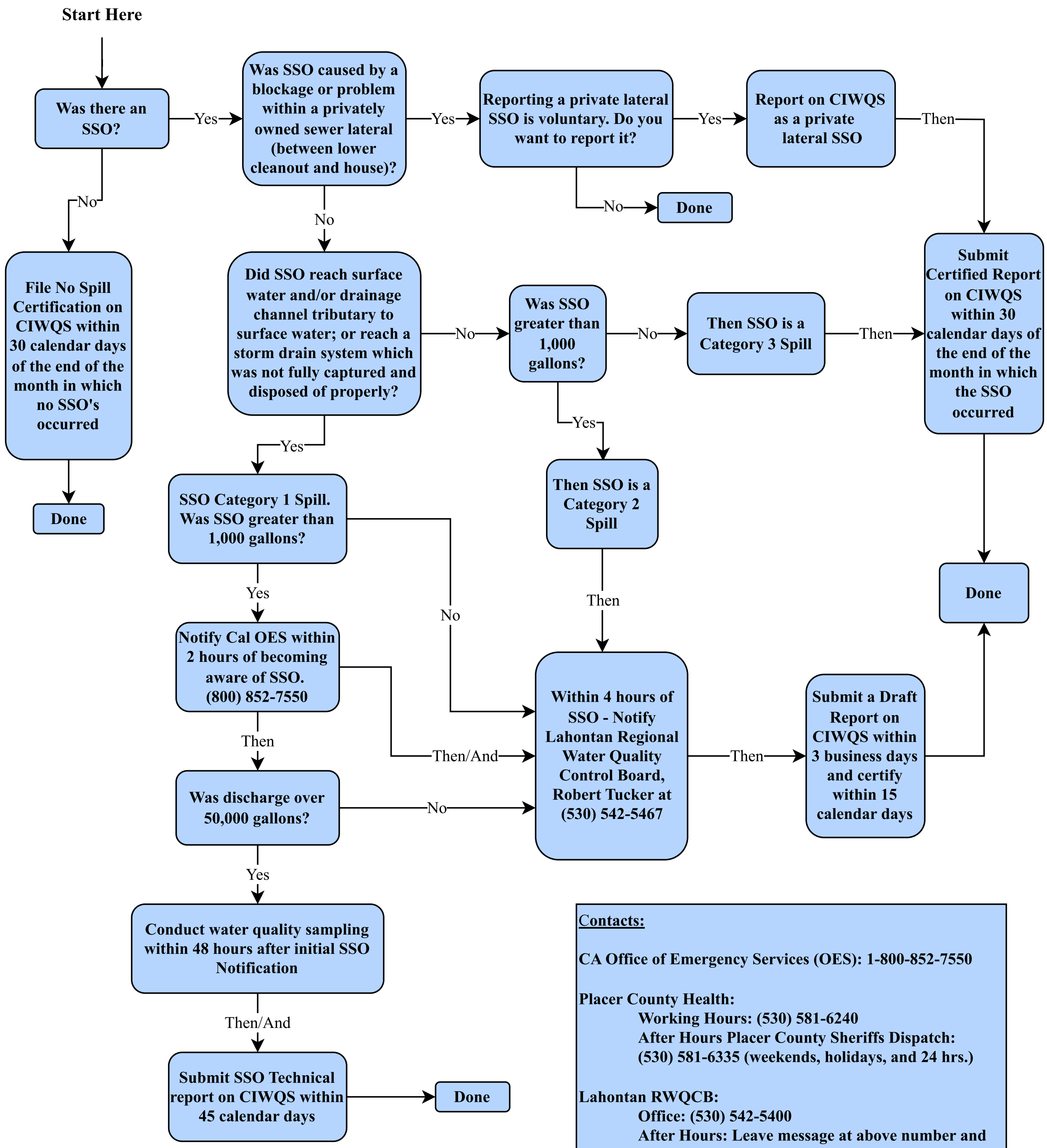
Sewage Cleanup Contractors

Contractor	Service Type	Business Hour Phone	After Hours
CALNEVA HYDRO STEAM	Not always available	530-546-3756	n/a
Belfor Property Restoration	24-hr emergency service	800-856-3333	800-856-3333

Attachment 6.6

Olympic Valley Public Service District
SSO Reporting Requirement Flow Chart

SSO Reporting Requirement Flow Chart



Contacts:

CA Office of Emergency Services (OES): 1-800-852-7550

Placer County Health:
Working Hours: (530) 581-6240
After Hours Placer County Sheriffs Dispatch:
(530) 581-6335 (weekends, holidays, and 24 hrs.)

Lahontan RWQCB:
Office: (530) 542-5400
After Hours: Leave message at above number and call OES if not done already
Website: www.waterboards.ca.gov/ciwqs

CA Dept. of Fish and Game, Region II:
Working Hours: (916) 358-2900
After Hours Dispatch: (530) 581-0045

ATTACHMENT A

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM
FOR
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR
SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems" (SSS WDRs). This MRP shall be effective from September 9, 2013 until it is rescinded. The Executive Director may make revisions to this MRP at any time. These revisions may include a reduction or increase in the monitoring and reporting requirements. All site specific records and data developed pursuant to the SSS WDRs and this MRP shall be complete, accurate, and justified by evidence maintained by the enrollee. Failure to comply with this MRP may subject an enrollee to civil liabilities of up to $5,000 a day per violation pursuant to Water Code section 13350; up to $1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. The State Water Resources Control Board (State Water Board) reserves the right to take any further enforcement action authorized by law.

A. SUMMARY OF MRP REQUIREMENTS

Table 1 – Spill Categories and Definitions

CATEGORIES	DEFINITIONS [see Section A on page 5 of Order 2006-0003-DWQ, for Sanitary Sewer Overflow (SSO) definition]
CATEGORY 1	Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that: • Reach surface water and/or reach a drainage channel tributary to a surface water; or • Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
CATEGORY 2	Discharges of untreated or partially treated wastewater of **1,000 gallons or greater** resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
CATEGORY 3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.
PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems **within a privately owned sewer lateral** connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION (see section B of MRP)	• Within two hours of becoming aware of any Category 1 SSO **greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water**, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at: **(800) 852-7550**
REPORTING (see section C of MRP)	• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date. • Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters. • "No Spill" Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred. • Collection System Questionnaire: Update and certify every 12 months.	Enter data into the CIWQS Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).
WATER QUALITY MONITORING (see section D of MRP)	• Conduct water quality sampling **within 48 hours** after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.
RECORD KEEPING (see section E of MRP)	• SSO event records. • Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. • Collection system telemetry records if relied upon to document and/or estimate SSO Volume.	Self-maintained records shall be available during inspections or upon request.

Attachment 6.7

Olympic Valley Public Service District
SSO Water Quality Monitoring Plan

SSO Water Quality Monitoring Plan

(per SWQCB WDR MRP Order 2013-0058-EXEC)

** Required for Sewer Spills in which **50,000 gallons or more** are spilled <u>into Surface Waters</u>. **

** Implement Plan a **minimum of 48 hours** after becoming aware of SSO **

** All instruments and devices used shall be properly maintained and calibrated (with supporting documentation) **

<u>Protocols, Procedures, Analysis, and Lab Information:</u>

- **Safety first:** Personal Protective Equipment as Required
- **Gather Equipment:** Sterile Sample Containers/Bottles, Labels, etc.
  - (Use same as for potable water quality sampling - 1 Qt. Jugs)
- **Take Samples at Locations as Required:** <u>3 samples per time taken</u>:
  (In all cases account for spill travel time and scenarios where monitoring may not be possible due to safety, access restrictions, or other)
  1. Background Sample (non-tainted upstream or outside plume limits)
  2. Entrance Area/Zone
  3. Downstream (as applicable to capture dilution – 100' to 300' downstream or near outer limits of plume)
- **Sample Collection:** Avoid skewing of conditions
  - Collect 6" +/- below surface
  - Avoid Scum layer
  - Take near middle of creek (if applicable)
  - Etc.
- **Sample Handling:**
  - Secure and Label ID Each Sample
  - Cooler and Transport to Lab ASAP
  - Chain of custody form if applicable
- **Sample Forms & Sample ID**
  - Fill out the attached OVPSD "SSO Response – Sample Collection, Procedures & Information" Form for each sample taken
  - Check off applicable constituents to test for (Ammonia always required)
  - Maintain Form for each sample
  - Lab will have their in-house forms, <u>maintain both</u> with each sample
  - (Provide OVPSD form to Lab to remain with samples – or - responsible OVPSD individual shall maintain per sample ID)
- **Sampling Constituents (For Lab):**
  (Lab shall be accredited or certified)
  - Ammonia (always required)
  - Other as Directed by Regional Board or other regulatory agency (see OVPSD form)
- **Sample Location Mapping:** Accurately map all locations
  - VUEWorks
  - Google Earth
  - USGS Topo
  - Other as applicable and/or available (i.e. use best available)
  - (Measure or pace off distances if required)

**** Above all else, use common sense in order to provide accurate documentation capturing the event and conditions as varying with time lapse. Samples, Locations and Timeframes will all be assessed for accuracy and value of sampling performed.**

SSO Response - Sampling Collection, Procedures & Information - Field Crew or Duty Supervisor

Samples required if SSO to Surface Water greater than 50,000 gallons
or if required by other regulatory agency with jurisdiction

Sampling Instructions (For Affected Waterbody):

- **Equipment as Required:** Personal Protective Equipment & Sterile Sample Containers/Bottles
- **Sub-Surface Grab Sample Requirements:** Obtain Accurate Representation of Area and Contamination
  3 samples (min) each time taken: 1) Background Sample (100' +/- Upstream)
  2) Entry Point Area
  3) Downstream (100' - 300' +/-)
- **Collect Samples to Represent True Condition of Areas**
  Collect at 6" below the surface
  Avoid debris or scum layer from surface
  Obtain from Middle of Creek or other as applicable

- **Protect and Handle Samples as Required to Represent True Condition of Areas**
  Secure and Label as necessary
  Cooler and Transport to Lab as necessary (6 hrs. max. elapse time)
  Chain of custody forms if applicable

SSO & Sample Information

SSO Spill Location Name:______________________________

Location Sample Taken:______________________________

Sample ID:______________________________

Date & Time Sample Taken:______________________________

Individual(s) & Organization who performed the Sampling:______________________________

____

Sample & Water Quality Analysis

Parameter	Date/Time of Analysis	Technique (ASTM or Other)	Results	Individual Performing Analysis
□ Ammonia (required)				
□ Total & Fecal Coliform				
□ Enterococcus				
□ E Coli				
□ BOD				
□ pH				
□ Other:________				

Agency Results Reported to:

□ County Health
□ Regional Water Quality Control Board
□ Other (as applicable):______________________________

Sketch and/or Diagrams of Sampling Area(s) & Location(s)

Attachment 6.8

Olympic Valley Public Service District
Mapping and GIS Edits Field Form

Edits to Mapping and GIS Form
Olympic Valley PSD

For District Field Personnel	
Name:	**Date:**
System: ☐Water ☐Sewer ☐Other: ________________________________	
Location *(address, x-streets, etc.)*:	
Asset Name in Map Books:	
Asset Description:	
Type of Map Edit(s): ☐ Inaccurate Location ☐ Inaccurate Asset Name ☐ Inaccurate Asset Type ☐ Add New Asset to Map ☐ Other: ______________________	
Description of Map Correction:	
GPS Location Obtained by Field Personnel? ☐ No ☐ Yes – Asset Name: _________	
Type(s) of Supporting Documentation: ☐ None ☐ Map Redlines ☐ Photo(s) ☐ Sketch below ☐ As-Builts ☐ Other: __________________________________	
Map Correction Field Sketch *(if feasible, please include swing ties, landmarks, north arrow, distances, street names, and any other useful information):*	
Supporting Documentation Sent to Engineering? ☐ Yes – Date Sent: _______________ ☐ No, documentation attached ☐ No, not necessary	
For District Engineering Staff	
New Asset Name:	
Are other asset names and/or locations impacted by this proposed map change? ☐ No ☐ Yes:	

Additional Notes:

--- For Internal Use Only ---

Edits to Mapping and GIS Form
Olympic Valley PSD

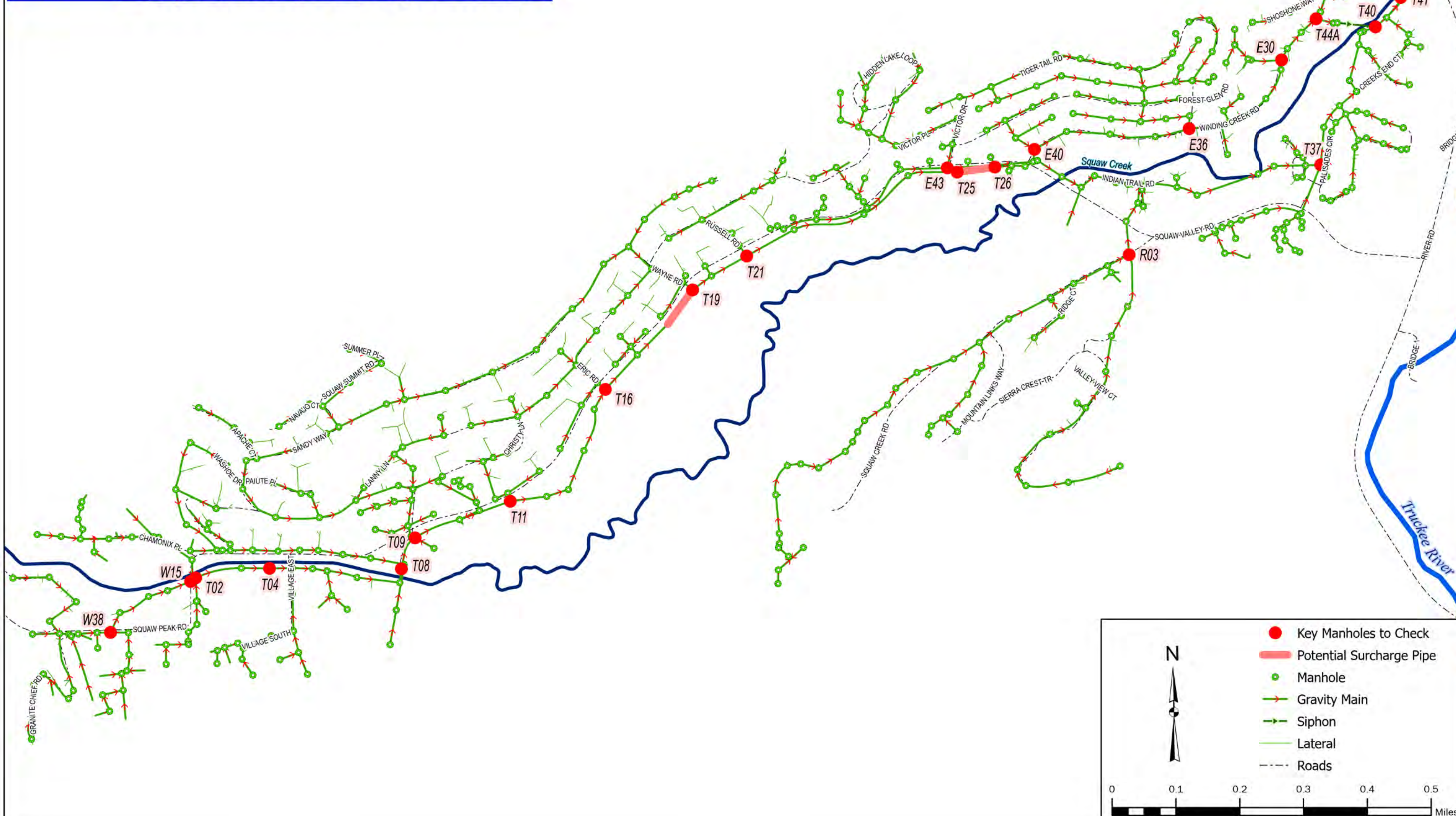
Mapping QA/QC Form Name:	
Reviewer Name:	**Date:**
GPS Location Obtained by Engineer? ☐ No ☐ Yes – Name:	
Did you update the GPS Tracking Spreadsheet? ☐ Yes ☐ No	
Did you attach supporting documentation? ☐ Yes ☐ N/A	
Date Sent off to Farr West:	
QA/QC Completed? ☐ Field Personnel Info ☐ Farr West – Date: _____________	

Additional Notes:

Attachment 6.9

Olympic Valley Public Service District
Map of Key Manholes/Surcharge Potential

Olympic Valley PSD
Sewer System Management Plan
November, 2020
Attachment 6. 9
Key Manholes/Surcharge Potential



7 Fats, Oils and Grease (FOG) Control Program

7.1 REQUIREMENT

Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification as to why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program. This plan shall include the following, as appropriate:

- An implementation plan and schedule for a public outreach program that promotes proper disposal of FOG.
- A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area.
- The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG.
- Requirements to install grease removal devices, design standards for removal devices, maintenance requirements, record keeping and reporting requirements.
- Authority to inspect grease producing facilities, enforcement authority, and sufficient staff to inspect and enforce the FOG ordinance.
- An identification of sanitary sewer sections subject to FOG blockages and establishment of a cleaning and maintenance schedule for each section.
- Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified above.

7.2 SSMP COMPLIANCE

The District implemented the basics of a FOG Control Program in the late 1980's by adopting Olympic Valley Public Service District Code, Chapter 2 Sanitary Sewer Service Code, Division XI, Sections 11.16 and 11.17 requiring the installation of grease interceptors at restaurants meeting certain criteria. The Sanitary Service Code and technical specifications were updated as part of the 2010 SSMP process, then again as part of the 2020 SSMP Audit. The 2020 Code revisions removed the out of date Section 11.17 from the Sewer Code and revised Section 11.16 to include updated installation and maintenance requirements for waste pretreatment removal devices, including grease interceptors, hydromechanical grease interceptors (grease traps), and sand-oil interceptors. Code Section 11.07 sets limits for discharge of FOG into the collection system. The Sewer Technical Specifications were also updated as part of the 2020 SSMP Audit. Section 1.21 of the Sewer Technical Specifications include maintenance and inspection requirements, as well as, updated design requirements for grease interceptors, hydromechanical grease interceptors (grease traps), and sand-oil interceptors. The updated Sewer Technical Specifications meet the California Plumbing Code and include

Standard Details SS-18, SS-19, SS-20 and SS-21 for grease interceptors and sand-oil interceptors.

Since the 1988 ordinance the District has documented FOG discharge problems and issued mandates to restaurant owners requiring installation of grease interceptors, on an on-going basis. Grease interceptors are also required for all new construction, change of ownership, and remodels as defined in Section 11.16 of the Sewer Code. The District maintains an aggressive cleaning program and several of the high maintenance pipe segments listed in Attachment 4.3 overlap with potential FOG discharge pipe segments.

There are currently 27 restaurants or cafeterias and one school that flow into 13 pipe segments within the District collection system. The restaurant pipe segments and type of known grease removal device are listed in Attachment 7.1. The District will continue to implement a routine inspection program that includes inspection of grease interceptors and maintenance logs, as well as providing educational materials on proper grease trap maintenance and grease waste disposal.

As a result of the ongoing efforts to control FOG in Olympic Valley, there have been few, if any, SSOs within the District owned portion of the collection system. The District will continue to work with restaurant owners to control FOG and will continue to educate District customers by publishing biannual newsletter articles.

7.3 FOG CONTROL PROGRAM

The District's FOG Control Program meets SSMP guidelines as follows:

1. The District has and will continue to educate restaurant owners and our customers through periodic newsletter articles and educational material placed on the website.

2. Currently, grease haulers dispose of grease pumped from interceptors at area rendering companies. There does not appear to be a need for additional grease disposal facilities to collect grease from the District service area at this time. FOG and waste debris collected by District personnel is transported by vacuum truck to the Tahoe-Truckee Sanitation Agency in Truckee, California.

3. The District’s legal authority, design standards, and requirements to install grease removal devices are outlined in the Sanitary Sewer Service Code (Attachment 3.3) and Sewer Technical Specifications (Attachment 5.1).

4. The District has enforcement authority as outlined in the Sanitary Sewer Service Code Division IX (Attachment 3.3). District staff is trained in the installation and inspection of grease removal devices.

5. A list of grease producing establishments, their GOG device, and the impacted District owned pipe segments is included in the SSMP as Attachment 7.1

Currently, the District is working to update the GIS database to include locations of grease interceptors.

6. All FOG dischargers

7. Development and implementation of source control measures at each establishment is ongoing with respect to the magnitude of FOG discharged and threat of a public SSO.

Attachment 7.1

Olympic Valley Public Service District
FOG Dischargers

Olympic Valley Public Service District
Fat, Oil, and Grease (FOG) Program
Monitoring Log

Last Updated: 5/12/2023

Discharger	Impacted Pipe Segment	Approximate Location	FOG Device	Capacity (gal)	Maintenance Schedule
Palisades Tahoe					
High Camp	SC01>>W59	Downhill from building on southeast side	Interceptor	1000	Pumped 1/year when snow melts
Gold Coast	SC01>>W59	Under Deck on east side	Interceptor	1000	Pumped 1/year when snow melts
Olympic Valley Lodge (OVL or OVEC) - Conference Center	CO-W47A>>W47A	North side of building near shipping and receiving area	Interceptor	1200	Pumped 1/year
Palisades Kids	CO-W25R>>W25R	Inside building in kids area closet	Grease Trap		Pumped 2x/year
Le Chamois & Loft Bar	W33A>>W32	Inside building behind bar on south side, near soda machine	Grease Trap		Pumped monthly
Olympic House	W34>>W33A	Inside building in authorized personnel only hallway	Grease Trap - shared		Pumped monthly
Wildflour Baking Company	W33A>>W32	Inside building in authorized personnel only hallway	Grease Trap - shared		Pumped monthly
Far East Building (Opera House)	W24A>>W24	Outside building on north side in parking lot	Interceptor	1000	Out of service - approx. 2019; final pumping on 12/5/22 with Far East Bldg. Remodel
Village at Squaw Valley					
22 Bistro	W27R>>W28R	In front of Rocker patio, near CO-W27R	Interceptor	1000	Pumped 3x/yr.; lines Hydro-jetted 2x/yr
Rocker@Squaw	W27R>>W28R	Behind Rocker near cul-de-sac of Village South Rd	Interceptor	1000	Pumped 3x/yr; lines Hydro-jetted 2x/yr
Fireside Pizza	W77>>T04A	Near Auld Dubliner's patio	Interceptor	1000	Pumped 3x/yr; lines Hydro-jetted 2x/yr
Auld Dubliner	W77>>T04A	In north parking lot below Alice's Market	Interceptor	1000	Pumped 3x/yr; lines Hydro-jetted 2x/yr
Tremigo	W77>>T04A	Near firepit	Interceptor	1000	Pumped 3x/yr; lines Hydro-jetted 2x/yr
Patagonia	W73>>W74	East of Patagonia, not in use b/c business is retail but business was originally designed for restaurant use	Interceptor	1000	n/a - not in use
Everline Resort					
2500 gal interceptor	R17>>R16	Resort loading dock off to the side closer to the fence	Interceptor	2500	Quarterly
1000 gal interceptor	R17>>R16	Resort loading dock	Interceptor	1000	Quarterly
Montagna (Fitness Center)	R17>>R16	Outside of fitness center sign	Interceptor	1000	Semi-annual because restaurant is only open in winter
PlumpJack					
PlumpJack Café	W31>>W30 (approx.)	Left side of entrance of Plumpjack in bushes	Interceptor	1000	Quarterly

8 System Evaluation and Capacity Assurance Plan

8.1 REQUIREMENT

The Enrollee shall prepare and implement a Capital Improvement Plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather events. At a minimum, the plan must include:

1. **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to peak flows associated with overflow events.

2. **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (1) above to establish appropriate design criteria.

3. **Capacity Enhancement Measures:** The steps needed to establish a short and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I&I reduction, increases and redundancies in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

4. **Schedule:** The enrollee shall develop a schedule of completion dates for all portions of the CIP developed in (1) to (3) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in the Waste Discharge Requirement, Section D.14 (see Appendix A).

8.2 SSMP COMPLIANCE HISTORY

The District recently completed a comprehensive sewer capacity evaluation, VSVSP Sewer Capacity Analysis, in November 2014 (Attachment 8.1). The study was undertaken to evaluate the hydraulic capacity of the District's wastewater collection system to serve as the basis for understanding the project impacts associated with the proposed Village at Squaw Valley Specific Plan (VSVSP) project as well as projected cumulative development impact on the collection system. The evaluation was performed using the District's hydraulic model and evaluated the existing system, the existing system plus the VSVSP development, and the existing system plus VSVSP development plus projected cumulative development based on the 1983 Squaw Valley General Plan and Land Use Ordinance (Placer County).

8.2.1 CAPACITY EVALUATION AND DESIGN CRITERIA

As part of the VSVSP Sewer Capacity Analysis, the District's hydraulic model was updated to allow for modeling the effects of proposed and future development in the Olympic Valley. The modeling was performed using SewerGEMS and the District's GIS database for sewer assets. Sewer flows were developed based on the December 31, 2005 flood event, which produced the highest flows the collection system has ever seen. The peak sewer flow at the Highway 89 flowmeter was 2.007 million gallons per day (MGD), which included nearly 100% occupancy in the Valley as well as a large rain on snow storm event. Average dry weather flows (ADWF) were based on flow data for December 23, 24, and 29, which were dry weather days with similar occupancy. These conditions accurately reflect the peak capacity of a major rain on snow storm event during peak occupancy times and formed the baseline modeling scenario for the evaluation.

Section 1.06 of the Sewer Technical Specifications (Attachment 5.1) provided the design criteria for sizing of a mainline sewer:

- Pipes 15-inches diameter and under designed to flow at ½ depth at Peak Hour ADWF.
- Pipes 18-inches diameter and larger designed to flow a ¾ depth at Peak Hour ADWF.
- At Peak Wet Weather Flow, no surcharging is allowed in assessing sewer system capacity.

The evaluation showed that under existing flow conditions, the system met all hydraulic design criteria. This is further affirmed in the fact that the District has never had an SSO related to pipe size even during peak wet weather flows. With the addition of the VSVSP flows and cumulative development flows, the modeling did show areas of limiting capacity. Under buildout conditions this would include replacement and upsizing of approximately 6,500 linear feet of pipe.

8.2.2 CAPACITY ENHANCEMENT MEASURES AND SCHEDULE

The District's existing collection system has ample capacity to serve existing wastewater flows with room for some new development. With the addition of large developments and cumulative buildout projections, capacity in the system will need to be increased in the form of larger pipe. With the need for upsizing pipe based on future development, it is the District's policy that development will fully fund and construct the necessary improvements to maintain sewer system capacity. Therefore, the District does not plan for these capital improvements in the CIP or CRP plans. The schedule of such improvements is based on the schedule of development.

In 2007, Auerbach Engineering was commissioned to do a study on providing sewer service to the Squaw Valley Entrance Corridor, an area that is currently not sewered to the District system. A copy of the Squaw Valley Entrance Sewer Alternatives Project Technical Memorandum, July 2007, and a subsequent memorandum, the Squaw Valley Entrance Sewer Alternatives Project Cost per Dwelling Unit Breakdown Analysis, October 2007, are included in the SSMP as Attachment 8.2. There is no set schedule for this project. It is important to note that this project is not capacity related.

Although the District has not identified any collection system hydraulic capacity limitations under existing flow conditions, the District will continue to perform capital replacement projects as part of the Capital Replacement Plan (CRP). This includes rehabilitation and/or replacement of existing assets in the system due to age and condition. These projects are funded from the District's Sewer Fixed Asset Replacement Fund which is funded through rates. The District's rehabilitation and replacement plan is discussed in Element 4 of the SSMP.

The District recently completed a comprehensive condition-risk evaluation of the entire sewer collection system and a majority of the sewer manholes in 2019-2020. The District is currently preparing a detailed memorandum highlighting the assessment methods and results, as well as a Basis of Design Memorandum for Sewer System Rehabilitation Project that should take place starting in 2024. The project will consist of a combination of in-situ rehabilitation and open excavation repair/replacement of approximately 9,000 linear feet of gravity sewer mains, in-situ rehabilitation of 24 sewer manholes and, replacement of 9 sewer manholes.

Attachment 8.1

Olympic Valley Public Service District
SVPSD Sewer Capacity Study, Nov. 2014

FINAL

FARR WEST
ENGINEERING

TECHNICAL MEMORANDUM

Project:	SQUAW VALLEY PUBLIC SERVICE DISTRICT VSVSP SEWER CAPACITY ANALYSIS
Prepared For:	Mike Geary, P.E. General Manager Squaw Valley Public Service District
Prepared By:	David Hunt, P.E., Farr West Engineering
Date:	November 17, 2014

REGISTERED PROFESSIONAL ENGINEER DAVID T. HUNT C71254 EXP. 12-31-2015 CIVIL STATE OF CALIFORNIA 11/17/14

1.0 PURPOSE

This memorandum presents an evaluation of hydraulic capacity of the Squaw Valley Public Service District's (District) wastewater collection system and will serve as the basis for understanding the Village at Squaw Valley Specific Plan (VSVSP) project impacts as well as projected cumulative development impacts on the collection system. The evaluation was performed using the District's hydraulic model and includes the following scenarios:

1. Existing sewer collection system
2. Existing sewer collection system + VSVSP at Buildout
3. Existing sewer collection system + VSVSP at Buildout + Projected Cumulative Development

The evaluation will define the short and long term sewer collection system capital improvements necessary to satisfy the capacity requirements defined in the District sewer code.

2.0 BACKGROUND

2.1 1994 Sewer Model

The original hydraulic model of the District's sewer collection system was completed as part of the 1994 Sewer Master Plan (West Yost & Associates). The model was constructed using the software HYDRA and based on base map data developed by 7-H Technical Services Group. Wastewater generation rates were calculated to be 282 gallons per day (gpd)/equivalent dwelling unit (EDU) with a per capita average flow of 76 gpd/capita. With only one flow monitoring station for the entire collection system area, infiltration and inflow (I/I) was spread equally across the collection system. The model used a future projected average dry weather flow (ADWF) of 0.69 million gallons per day (MGD), along with a peak I/I rate of 1.15 MGD. The model also used a peaking factor of 1.7 for Peak Hour:ADWF.

The results indicated the siphons that cross Squaw Creek and the Truckee River as being the areas of deficiency, as well as the need to install multiple sewer flow meters throughout the system.

2.2 2007 Sewer Model

The sewer model was rebuilt in 2007 using InfoWorks and the then current geographic information system (GIS) infrastructure and flow meter data (SVPSD Sewer Capacity Study – DRAFT, ECO:LOGIC, December 2007). This effort also included a field survey of select manholes where elevation data was either missing or inconsistent. Unit wastewater generation rates were developed based on a comprehensive analysis of water meter and land use data. The unit wastewater generation rates were developed for a peak occupancy period, which included weekend and holiday occupancy for the month of February (assumed to be peak occupancy skier month as well as the President's Day holiday). These wastewater generation rates are referenced in the District's Sanitary Sewer Service Code and are shown in Table 1.

Table 1 – Unit Wastewater Generation Rates

Land Use	Unit Flow Factor (gpd/unit)
Residential	
Single Family	291
Single Family - Multiple Units	475
Multi-Family - Individually Metered	151
Multi-Family - Master Metered	244
Other	
Hotel/Motel	304
Commercial	0.38 gpd/ft^2

The model was calibrated to a peak wet weather flow (PWWF) of 1.25 MGD, which coincided with a small storm event in March 2004. The ADWF was indicated to be 0.48 MGD based on the dry weather days preceding the March 2004 storm event. The resultant peaking factor was 2.6 (PWWF:ADWF) based on this data. The modeling scenarios for the 2007 capacity analysis included the existing flows shown above, as well as the addition of estimated wastewater flows from the Resort at Squaw Creek Phase 2, which included an ADWF estimate of 0.054 MGD and a PWWF of 0.14 MGD. The estimated ADWF was calculated based on the projected development density and land use and the unit wastewater generation rates.

The 2007 capacity study showed no hydraulic limitations in the existing system. It should be noted that the model was run based on ADWF with an estimated infiltration/inflow based on the March 2004 storm peak flow rate. Generally, peak hour flows with storm events are used to conservatively assess the capacity of a sewer collection system.

2.3 2012 Sewer Model Update

The sewer model was most recently updated in 2012 in support of the VSVSP project. The purpose of this update was to create a sewer model using the District's current GIS information. In 2007, the District established a GIS for their wastewater system. It utilized known District wastewater infrastructure information including survey data for manholes and cleanout locations, unique manhole IDs, pipe material, rim elevations, invert elevations and installation dates. This information continues to be updated and improved upon as more infrastructure information becomes available through potholing, construction and additional survey data. Additional survey information was provided by Andregg Geomatics on the Squaw Valley Road sewer interceptor (T series manholes) and incorporated into the GIS.

Farr West utilized Bentley SewerGEMS Model Builder to create the updated wastewater hydraulic model from the existing GIS database. Initially the GIS data was reviewed thoroughly for accuracy and then it was migrated into the Farr West GIS data schema. Elevation data from both the original GIS database along with data from a previously created sewer model table were joined to the GIS via a unique identifier found in both the GIS and the elevation data table. The GIS database was used to generate the pipes configuration, sizes and material within SewerGEMS.

The sewer loads were distributed using the same sub-basins and load distribution used in the 2007 hydraulic model (SVPSD Sewer Capacity Study – DRAFT, ECO LOGIC December 2007). Flow data from 2008-2012 was evaluated for the TTSA flow meter at Highway 89 and data from the new flow monitoring site at T45A was analyzed mid-October 2011 through December 2012 to ensure loading rates from the 2007 Capacity Study were still accurate.

The 2012 modeling effort provided an initial understanding of the potential VSVSP project impacts on the District's sewer collection system. But, the VSVSP project has gone through numerous changes in development density since that time. So, this 2014 model update will be used to assess the current projected demands associated with the VSVSP project as well as other potential Valley development.

3.0 SEWER CAPACITY ANALYSIS

3.1 2014 Sewer Model Update

As part of the VSVSP sewer capacity analysis, the model was further updated to allow for modeling the effects of proposed and future development within the Valley.

As previously mentioned, the 2007 and 2012 sewer models analyzed collection system capacity based on average dry and peak wet weather conditions associated with flows from and around a March 2004 storm event. This data represented sewer flow in a low occupancy time period. Being a resort area with a high transient population, peak occupancy in the Valley is generally seen in peak ski season months, as well as the summertime vacation season. Peak sewer flows typically occur in the winter months when the occupancy is high and storm events are frequent (specifically rain on snow events). For the purpose of assessing sewer collection system capacity, peak hour flow events with a component of I/I (in the form of a storm event) are assessed.

This model update included revising the model flows to include a major rain on snow event that occurred in the region December 31, 2005 – January 1, 2006. This storm represented nearly a 25-year 24-hour storm event and produced historical peak flows in the District's system. Rainfall data for this event is shown in Table 2

.

Table 2 – Temperature and Precipitation Data December 2005

Date	Day	Low Temp (°F)	High Temp (°F)	Precip (in)	Rain/Snow
12/22/2005	Thursday	37	46	0.07	Rain
12/23/2005	Friday	28	57	0.00	-
12/24/2005	Saturday	24	57	0.01	-
12/25/2005	Sunday	32	48	0.12	Rain
12/26/2005	Monday	30	35	0.18	Snow
12/27/2005	Tuesday	28	42	0.28	Snow & Rain
12/28/2005	Wednesday	24	51	0.02	Rain
12/29/2005	Thursday	15	35	0.00	-
12/30/2005	Friday	28	42	1.15	Rain
12/31/2005	Saturday	26	41	1.04	Rain
1/1/2006	Sunday	28	41	0.51	Snow
1/2/2006	Monday	24	32	0.05	Snow
1/3/2006	Tuesday	19	35	0.00	-
1/4/2006	Wednesday	23	39	0.00	-

Data from Weather Underground - Truckee-Tahoe, CA

The peak sewer collection system flow at the Highway 89 flowmeter occurred on December 31, 2005 with a recorded flow of 2.007 MGD at 11:00 AM. To develop peak dry weather flows associated with this storm event, data for dry days preceding the storm event were used. The ADWF was based on flow data for December 23, 24, and 29. Table 3 provides the hourly flow data for these dates.

The base model was then updated with the following flow scenarios:

- ADWF = 0.632 MGD
- Peak Hour DWF = 0.828 MGD
- PWWF = 2.007 MGD

From this data, peaking factors were also developed:

- Peak Hour DWF:ADWF = 1.31
- PWWF:ADWF = 3.18

These conditions accurately reflect the peak capacity of a major rain on snow storm event in the Valley during peak occupancy times, and were thus used as the baseline modeling scenario for this analysis.

Table 3 – Diurnal Sewer Flow Data (at Highway 89 Flow Meter)

Time	12/23/2005	12/24/2005	12/29/2005	Overall Average (MGD)	Dec. 31 Peak (MGD)
1:00	0.5458	0.3600	0.5200	0.4753	1.1802
2:00	0.5487	0.3400	0.4800	0.4562	1.1874
3:00	0.4501	0.3200	0.4600	0.4100	1.0359
4:00	0.4186	0.2800	0.4500	0.3829	1.0244
5:00	0.3986	0.2700	0.4400	0.3695	1.0030
6:00	0.4286	0.2900	0.4700	0.3962	1.0159
7:00	0.5515	0.3700	0.6800	0.5338	1.1144
8:00	0.7172	0.6900	1.0000	0.8024	1.2272
9:00	0.7643	0.7043	0.9300	0.7995	1.7772
10:00	0.7601	0.7258	0.9130	0.7997	1.8672
11:00	0.8430	0.7145	0.8489	0.8021	2.0072
12:00	0.6974	0.6974	0.7489	0.7145	1.4844
13:00	0.6102	0.6117	0.7949	0.6723	1.03
14:00	0.6417	0.7375	0.8376	0.7389	0.9
15:00	0.6516	0.6617	0.8746	0.7293	1.03
16:00	0.6759	0.7031	0.9618	0.7803	1.1243
17:00	0.7016	0.7201	1.0630	0.8282	1.1659
18:00	0.7101	0.6729	0.9886	0.7905	1.2044
19:00	0.6229	0.5900	0.8500	0.6876	1.1857
20:00	0.5900	0.5700	0.7800	0.6467	1.0457
21:00	0.5700	0.5900	0.7500	0.6367	0.9643
22:00	0.5800	0.5500	0.7000	0.6100	0.9343
23:00	0.5500	0.5200	0.6100	0.5600	0.8928
0:00	0.5758	0.4500	0.5800	0.5353	0.89
			Average	0.6316	1.1789
			Minimum	0.3695	0.8900
			Maximum	0.8282	2.0073

3.2 Scenarios

Three model scenarios were developed to assess the sewer collection system capacity impacts associated with the proposed VSVSP project as well as a projection of General Plan buildout:

1. Existing sewer collection system
2. Existing sewer collection system + VSVSP at Buildout
3. Existing sewer collection system + VSVSP at Buildout + Projected Cumulative Development

The sewer flows associated with each scenario are summarized in Table 4. The diurnal flow patterns and graphs for each scenario are provided in Appendix A.

Table 4 – Collection System Sewer Flows

	Q_{ADWF}	$Q_{Peak\ Hour\ DWF}$	Q_{PWWF}
Existing Model Conditions (1)	0.632	0.828	2.007
VSVSP Loads (2)	0.427	0.559	1.241
General Plan Buildout Loads (3)	0.333	0.436	1.057
Model Scenarios			
Existing System	0.632	0.828	2.007
Existing System + VSVSP	1.059	1.387	3.248
Existing System + VSVSP + GP Buildout	1.392	1.824	4.305

(1) ADWF and Peak Hour DWF from 12/23, 24 and 29, 2005 flow data
Peak hour wet flow occurred on Dec. 31, 2005 at 11 AM
(2) VSVSP loads from MacKay & Somps Technical Memorandum No. 2 June 12, 2014
(3) Based on parcel based analysis provided by District, including SFR, MF, Commercial

3.2.1 VSVSP Project Sewer Flows

VSVSP consultants provided a detailed analysis of sewer flows associated with the proposed project. The original sewer flow analysis for the project was submitted in December 2012, and based on comments from the District on wastewater generation rates and changes to the project size and layout, sewer flows have been adjusted to incorporate these modifications. The wastewater generation rate used for multi-family development is 82 gpd/capita, which equates to approximately 285 gpd/unit. For commercial development, a wastewater generation rate of 0.38 gpd/square foot is used.

The ADWF for the VSVSP was taken from Sewer Master Plan The Village at Squaw Valley Specific Plan (MacKay & Somps, October 16, 2014). Only ADWF data was used from the Sewer Master Plan. Peaking factors developed by Farr West as presented in Section 3.1 were used to develop VSVSP Peak Hour ADWF and PWWF flows.

VSVSP sewer flows also include a backwash rate for the pool filters at the Mountain Adventure Camp (MAC). Sewer generation for the MAC was provided by Aquatic Development Group, Inc. (ADG), and includes a total daily backwash volume of approximately 12,000 gpd. Based on a telephone meeting with KSL and ADG, it was depicted that the system design would include a backwash water equalization tank equal to the total daily flow. Flow would be bled into the sewer system at a rate of no greater than 20 gpm, which would empty the tank over a 10 hour period.

Projected VSVSP sewer flows were added to manhole SSMH T-8 in the sewer model.

3.2.2 Cumulative Projection Sewer Flows

The District performed a comprehensive analysis of vacant and/or underbuilt residential and commercial properties in the Valley. Sewer flow projections were developed on a cumulative projection of growth in the Valley based on the 1983 Squaw Valley General Plan & Land Use Ordinance (Placer County) as well as discussions with land owners on approved and planned projects. For those parcels with existing commercial buildings that are assumed to be demolished and redeveloped, the future projection subtracts the existing building area and replaces it with the proposed/anticipated new commercial floor area. The result is a net increase or decrease in floor area and thus takes into account the existing sewer flow contribution. Table 5 presents the land use and parcel data for these properties, as well as a summary of the number of bedrooms and commercial square footage associated with the cumulative projection. Also included in the cumulative projection are vacant SFR lots within the District and Squaw Valley Mutual Water Company (SVMWC) water service boundaries. There are currently 66 vacant SFR lots within the Districts water service boundary and 15 vacant SFR lots within the SVMWC water service boundary. Finally, Table 5 also presents the estimated ADWF wastewater flows for the projected development. Figure 1 provides the location of the identified parcels.

The District's analysis identified SFR, multi-family, and commercial development potential for approved projects, foreseeable projects, and forecasted development. Ultimately, estimated wastewater generation is based on number of lodging units (bedrooms) and commercial square footage and the wastewater generation rate factors presented previously in Table 1. For SFR development, a wastewater generation rate of 291 gpd/unit was used to estimate sewer flows. For multi-family residential, including condominiums, hotels, etc, wastewater generation was estimated based on number of bedrooms and an occupancy of 2 people per bedroom. The wastewater generation rate used for multi-family development is 82 gpd/capita, which equates to approximately 285 gpd/unit. For commercial development, a wastewater generation rate of 0.38 gpd/square foot is used. The wastewater generation factors represent an ADWF at 100% occupancy. Peak Hour ADWF and PWWF were calculated using the peaking factors presented in Section 3.1.

Projected cumulative buildout sewer flows were added to the manhole nearest the identified developable parcel in the model.

FINAL

Table 5 – Cumulative Development Projection and Wastewater Flows

APN	Customer Type (Residential or Commercial)	Street Address (Address # & Street Name)	Owner	Common Name	Zoning Abbreviation	Conversion Factor (# Units to Bedrooms)	Parcel Size (acres)	# Residence / Lodging Units	Residence / Lodging Type (SFR, Duplex, Condo)	Development Status (vacant, tear down, partial, developed)	GP BO (bedrooms)	GP BO (commercial square footage)	Wastewater Generation, GPD MFR	Commercial	SFR
			Future Multi-Family Residential (MFR) & Commercial Development												
096-290-027	Commercial	235 Squaw Valley Road	Squaw Valley Academy Inc.	Squaw Valley Academy	EC	2	1.245	--	Condo	developed	4	11,000	648	4,180	
096-230-036	Commercial	3039, 3041 River Road	Squaw Valley Gateway Properties LP	7-11, Tahoe Dave's Skis & Boards	EC	2	4.9	--	Condo	partial	147	15,490	23,814	5,886	
096-290-056	Commercial	285, 100, 1, 101 Squaw Valley Road	Placer County	Squaw Valley Park, soccer field, bike trail behind 305 SVR	FR	2	25.8	--	N/A	partial	0	14,500	-	5,510	
096-290-011	Commercial	Squaw Valley Road	Henrickson, Oliver & Carolyn	Empty Lot - north side of Squaw Valley Road at intersection of Squaw Creek Rd.	EC	2	0.551	--	N/A	vacant	0	12,001	-	4,560	
096-540-004	Commercial	1810 Squaw Valley Road	Squaw Valley Public Service District	SVPSD old facility - 1810	VC	2	1.5	--	Condo	tear down	75	25,000	12,150	9,500	
096-290-050	Residential	325 Squaw Valley Road	Eric J. Poulsen Trustee et al	Mrs. Poulsen Compound, wetlands, Squaw Creek	HDR-20	2	11.30	--	??	partial	166	10,000	26,811	3,800	
096-230-062	Commercial	Squaw Valley Road	Eric J. Poulsen Trustee et al	Parcel east of Meadows End Court, on Squaw Valley Rd., Squaw Creek.	HDR-20	2	3.43	--	??	vacant	51	5,000	8,335	1,900	
096-101-009	Commercial	1590, 1600, 1604 Squaw Valley Road	Poulsen Commercial Properties LP	Post Office, Unofficial Building	VC	2	1.7	--	??	tear down	85	1,264	13,770	480	
096-103-031	Commercial	1650 Squaw Valley Road	Poulsen Commercial Properties LP	Homestead Project, Graham's Restaurant, Christy Hill Lodge B&B	VC	1	0.736	0	Condo	tear down	-7	-2,500	(1,134)	(950)	
096-103-034	Commercial	1605 Christy Hill Road	Poulsen Commercial Properties LP	Homestead Project, 7-Plex	VC	2	0.093	6	Condo	tear down	-2	-940	(324)	(357)	
096-103-035	Commercial	1602 Squaw Valley Road	Poulsen Commercial Properties LP	Homestead Project, Old Bear Pen	VC	2	0.568	8	Condo	tear down	12	-5,220	1,944	(1,984)	
096-103-032	Commercial	Squaw Valley Road	Poulsen Commercial Properties LP	Homestead Project, Empty lot between Grahams and 72-hour parking.	VC	2	1.4	28	Condo	vacant	56	7,280	9,072	2,766	
096-103-033	Commercial	1601 Christy Lane	Poulsen Commercial Properties LP	Homestead Project, Empty lot north of 7-plex, parking lots including behind Old Bear Pen	VC / HDR-25	3	0.589	18	Condo	vacant	54	7,020	8,748	2,668	
096-540-013	Commercial	Washoe Drive	Julie S. Carville Trustee et al	Empty Lot, PSD water tank with easement	VC	2	1.15	--	??	vacant	29	3,738	4,658	1,420	
096-540-013	Commercial	Washoe Drive	Julie S. Carville Trustee et al	Empty Lot, PSD water tank with easement	LDR=4	2	3.171	--	??	partial	6	824	1,027	313	
096-020-023	Commercial	995, 1920 Squaw Valley Road	CNCML	PlumpJacks	VC	1	3.194	34	Condo	tear down	122	7,799	19,764	2,964	
096-230-052	Commercial	Creeks End Court	Sena at Squaw LLC	Sena	HDR-20	3.5	16.5	--	N/A	vacant	0	27,000	-	10,260	
096-230-055	Commercial	Creeks End Court	Sena at Squaw LLC	Sena / SV Prep	HDR-20	2	3.4	--	N/A	vacant	0	56,000	-	21,280	
										MFR/Commercial:	**798**	**195,256**	**129,283**	**74,197**	
			Resort at Squaw Creek Phase II												
096-060-070	Commercial	350 Squaw Creek Road	Squaw Creek Associates	Golf Course. Proposed RSC Ph. II; Phase A; 4-units Townhomes	HDR-20 / FR	2	0.139	4	Condo	vacant	8	0	1,296		
096-290-068	Commercial	310 Squaw Creek Road	Squaw Creek Associates	Golf Course. Proposed RSC Ph. II; Phase A; 14-units Townhomes	FR	2	0.428	14	Condo	vacant	28	0	4,536		
096-290-069	Commercial	300 Squaw Creek Road	Squaw Creek Associates	Golf Course. Proposed RSC Ph. II; Phase A; 6-units Townhomes	FR	2	0.205	6	Condo	vacant	12	0	1,944		
096-290-070	Commercial	320 Squaw Creek Road	Squaw Creek Associates	RSC Ph. I Parking Lot. Proposed RSC Ph. II; Phase B; Parking Garages and Employee Housing	HDR-20	2	1.732	9	Condo	vacant	18	0	2,916		
096-290-071	Commercial	330 Squaw Creek Road	Squaw Creek Associates	RSC Ph. I Parking Lot & Tennis Courts. Proposed RSC Ph. II; Phase B; Midrise Condo Tower	HDR-20	2	0.984	230	Condo	vacant	460	0	74,520		
										RSC Phase 2	**526**	**-**	**85,212**		
										SUBTOTAL: MF/COMM	**1,324**	**195,256**	**214,495**	**74,197**	
			SFR		--										
PSD	Residential	Public Service District	Public Service District	Public Service District	--	3	--	66	SFR	vacant	198	0			19,206
MWC	Residential	Mutual Water Company	Mutual Water Company	Mutual Water Company	FR	3	--	15	SFR	vacant	45	0			4,365
096-060-049	Commercial	1525 Squaw Valley Road	Maria T. Pavel Trustee	Stables	HDR-25	4	3.9	4	SFR	developed	12	0			1,164
096-340-008	Commercial	448 Squaw Peak Road	William Hurwick J Trust et al	Warmouth property. Foundations next to Potato Chip Church	HDR-20	2	0.269	4	SFR	vacant	8	0			1,164
096-230-056	Commercial	Creeks End Court	Poulsen Investment Corp.	Olympic Estates	HDR-20	4	4.2	16	SFR	vacant	64	0			4,656
096-230-052	Commercial	Creeks End Court	Sena at Squaw LLC	Sena		3.5	16.5	47	SFR	vacant	165	0			13,677
										SFR	**492**	**0**			**44,232**
										TOTAL:	**1,816**	**195,256**	**214,495**	**74,197**	**44,232**

3.3 Capacity Evaluation Criteria

Section 7.05 of the District's Sanitary Sewer Service Code provides the design criteria for sizing of a mainline sewer. The code requirements are:

- Pipes 15 inches in diameter and under designed to flow at ½ depth at maximum flows
- Pipes 18 inches in diameter and over designed to flow at ¾ depth at maximum flows

Maximum flows are defined as the peak hour flow during non-storm events (Peak Hour ADWF). In assessing this capacity a d/D ratio is used. The d/D ratio is the peak measured depth of flow divided by the pipe diameter. So, for pipes 15 inches and under, the d/D cannot exceed 0.5, or 50%, at peak hourly flows.

At PWWF, no surcharging is allowed in assessing sewer system capacity. In this case, the PWWF in any pipe segment cannot exceed the calculated full pipe capacity.

3.4 Model Results

Model simulations of the collection system were run for both Peak Hour ADWF and PWWF for the scenarios identified in Section 3.2. All of the pipe segments affected by the additional sewer flows are along the main interceptor (T-series manholes). Model results for each scenario are provided in Appendix B.

3.4.1 Scenario 1 - Existing System

At the existing level of development, at maximum occupancy, the model was run with a Peak Hour ADWF of 0.828 MGD, and a PWWF of 2.007 MGD. The existing system met the capacity criteria for both ADWF and PWWF with one exception. The existing manhole T18 has sagged, creating a very flat pipe between manholes T18 and T19. To remedy this deficiency does not require an increase in pipe size. Restoring the original invert elevations at manhole T18 will provide the necessary capacity under existing flow conditions.

3.4.2 Scenario 2 - Existing System + VSVSP at Buildout

With the addition of sewer flows from the VSVSP, including the 20 gpm contributed by the MAC, there are capacity deficiencies observed under both ADWF and PWWF conditions. Table 6 shows the pipe segments with a d/D ratio greater than 0.5 under Peak Hour ADWF conditions of 1.387 MGD. There are a total of 5 pipe segments that are affected by the additional flows, including the TTSA siphon line under Highway 89 and the Truckee River (T43 to TTSA). The total effected pipe length is approximately 1,255 linear feet. Under PWWF conditions of 3.248 MGD, there are 11 pipe segments where modeled sewer flows exceed the pipe full capacity as indicated in Table 7. This amounts to approximately 3,235 linear feet of pipe. Figures 2 and 3 show the locations of the pipe segments.

The necessary pipe size updated to remedy the deficiencies are noted in the tables.

3.4.3 Scenario 3 - Existing System + VSVSP at Buildout + Cumulative Development

With the addition of sewer flows from the VSVSP and projected cumulative development, there are capacity deficiencies observed under both ADWF and PWWF conditions. Table 8 shows the pipe segments with a d/D ratio greater than 0.5 under Peak Hour ADWF conditions of 1.824 MGD. There are 13 pipe segments that are affected by the additional flows, including the TTSA siphon line under Highway 89 (T43 to TTSA). The total effected pipe length is approximately 3,455 linear feet. Under PWWF conditions of 4.305 MGD, there are 24 pipe segments where modeled sewer flows exceed the pipe full capacity as shown in Table 9. This amounts to approximately 6,760 linear feet of pipe. Figures 4 and 5 show the locations of the pipe segments.

The necessary pipe size updated to remedy the deficiencies are noted in the tables.

Table 6 – Existing + VSVSP Peak Hour ADWF Capacity Deficiencies

Start Manhole	End Manhole	Pipe Size (in.)	Full Pipe Capacity (MGD)	Peak Hour ADWF (MGD)	d/D, %	Required Pipe Size
T18	T19	15	0.263	0.9570	(N/A)	18
T43	TTSA	10	2.342	1.3874	56	12
T34A	T34	15	2.2859	1.2297	53	18
T32	T33	15	2.0455	1.0335	51	18
T20	T21	15	2.0233	1.0194	50	18

Table 7 – Existing + VSVSP PWWF Capacity Deficiencies

Start Manhole	End Manhole	Pipe Size (in.)	Full Pipe Capacity (MGD)	PWWF (MGD)	% Capacity	Required Pipe Size
T18	T19	15	0.263	2.2054	839	18
T43	TTSA	10	2.3422	3.248	141	12
T34A	T34	15	2.2859	2.8664	127	18
T32	T33	15	2.0455	2.391	117	18
T20	T21	15	2.0233	2.3567	117	18
T31	T32	15	2.1186	2.3905	113	18
T15	T16	15	1.9247	2.1524	112	18
T36	T37	15	2.639	2.8664	109	18
T23	T24	15	2.2201	2.3875	108	18
T25	T26	15	2.296	2.3875	104	18
T30	T31	15	2.381	2.3905	100	18

Table 8 – Existing + VSVSP + Cumulative Projections Peak Hour ADWF Capacity Deficiencies

Start Manhole	End Manhole	Pipe Size (in.)	Full Pipe Capacity (MGD)	Peak Hour ADWF (MGD)	d/D, %	Required Pipe Size
T18	T19	15	0.263	1.0742	(N/A)	18
T43	TTSA	10	2.3422	1.8228	67	12
T34A	T34	15	2.2859	1.5227	60	18
T32	T33	15	2.0455	1.2087	55	18
T36	T37	15	2.639	1.5227	55	18
T31	T32	15	2.1186	1.2085	54	18
T20	T21	15	2.0233	1.1386	54	18
T15	T16	15	1.9247	1.0524	53	18
T23	T24	15	2.2201	1.1525	51	18
T37A	T38	12	3.1262	1.5941	51	18
T35	T36	15	2.9916	1.5227	51	18
T30	T31	15	2.381	1.2085	50	18
T25	T26	15	2.296	1.1525	50	18

Table 9 – Existing + VSVSP + Cumulative Projections PWWF Capacity Deficiencies

Start Manhole	End Manhole	Pipe Size (in.)	Full Pipe Capacity (MGD)	PWWF (MGD)	% Capacity	Required Pipe Size
T18	T19	15	0.263	2.4896	947	18
T43	TTSA	10	2.3422	4.3037	187	15
T34A	T34	15	2.2859	3.5765	158	18
T32	T33	15	2.0455	2.8157	138	18
T36	T37	15	2.639	3.5765	136	18
T31	T32	15	2.1186	2.8152	133	18
T20	T21	15	2.0233	2.6458	131	18
T15	T16	15	1.9247	2.4366	127	18
T23	T24	15	2.2201	2.6795	121	18
T37A	T38	12	3.1262	3.7496	120	18
T35	T36	15	2.9916	3.5765	120	18
T30	T31	15	2.381	2.8152	118	18
T25	T26	15	2.296	2.6795	117	18
T26A	T27	15	2.4409	2.6795	110	18
T13	T14	15	2.2971	2.4319	106	18
T26	T26A	15	2.5456	2.4313	105	18
T11	T12	15	2.3163	2.6795	105	18
T10	T11	15	2.3246	2.4074	104	18
GV148	T23	15	2.6029	4.3037	105	18
T41	T43	12	4.151	2.6795	103	18
T22	GV148	15	2.6151	2.6795	103	18
T12	T13	15	2.4139	2.4313	101	18
T21	T22	15	2.7024	2.3986	100	18

4.0 SUMMARY

This sewer system capacity analysis was performed to assess sewer system capacity at both peak dry weather flow conditions (peak hour flow at maximum occupancy) and peak wet weather flow caused by a storm event. Peak flow conditions caused by the storm event were coincided with peak hour wastewater flows. The data used to establish these existing wastewater flows was based on an extreme rain on snow event on December 31, 2005 and the dry weather days preceding the storm. These parameters simulate an extreme storm occurring during a holiday period and peak occupancy times for ski season. Thus, the modeling effort produced a conservative, yet realistic, estimate of wastewater flow.

Modeling simulations were performed for three scenarios: existing system, existing system + VSVSP, and existing system + VSVSP + cumulative development. Under existing conditions only one deficiency was noted. This being the sagging manhole T18. If the invert elevations in this manhole were restored to previous conditions, then this pipe segment would meet flow capacity criteria.

With the addition of VSVSP and cumulative development, hydraulic deficiencies were seen in both Peak Hour ADWF and PWWF conditions. The specific pipe sections were all located along the District's main interceptor (T-series manholes) and the siphon line underneath Highway 89 and the Truckee River to the TTSA interceptor. Table 10 and Table 11 summarizes the linear feet of under-capacity sewer pipe for each scenario as well as the recommended increased pipe size.

Table 10 – Linear Feet of Under Capacity Pipe under Peak Hour ADWF Conditions

	Peak Hour DWF		
Scenario	**10" to 12" (TTSA Siphon)**	**15" to 18"**	**Total**
1: Existing System	No pipe upsizing required		0
2: Existing System + VSVSP at Buildout	315	940	1,255
3: Existing System + VSVSP at Buildout + Cumulative Development	315	2,920	3,235

Table 11 – Linear Feet of Under Capacity Pipe under PWWF Conditions

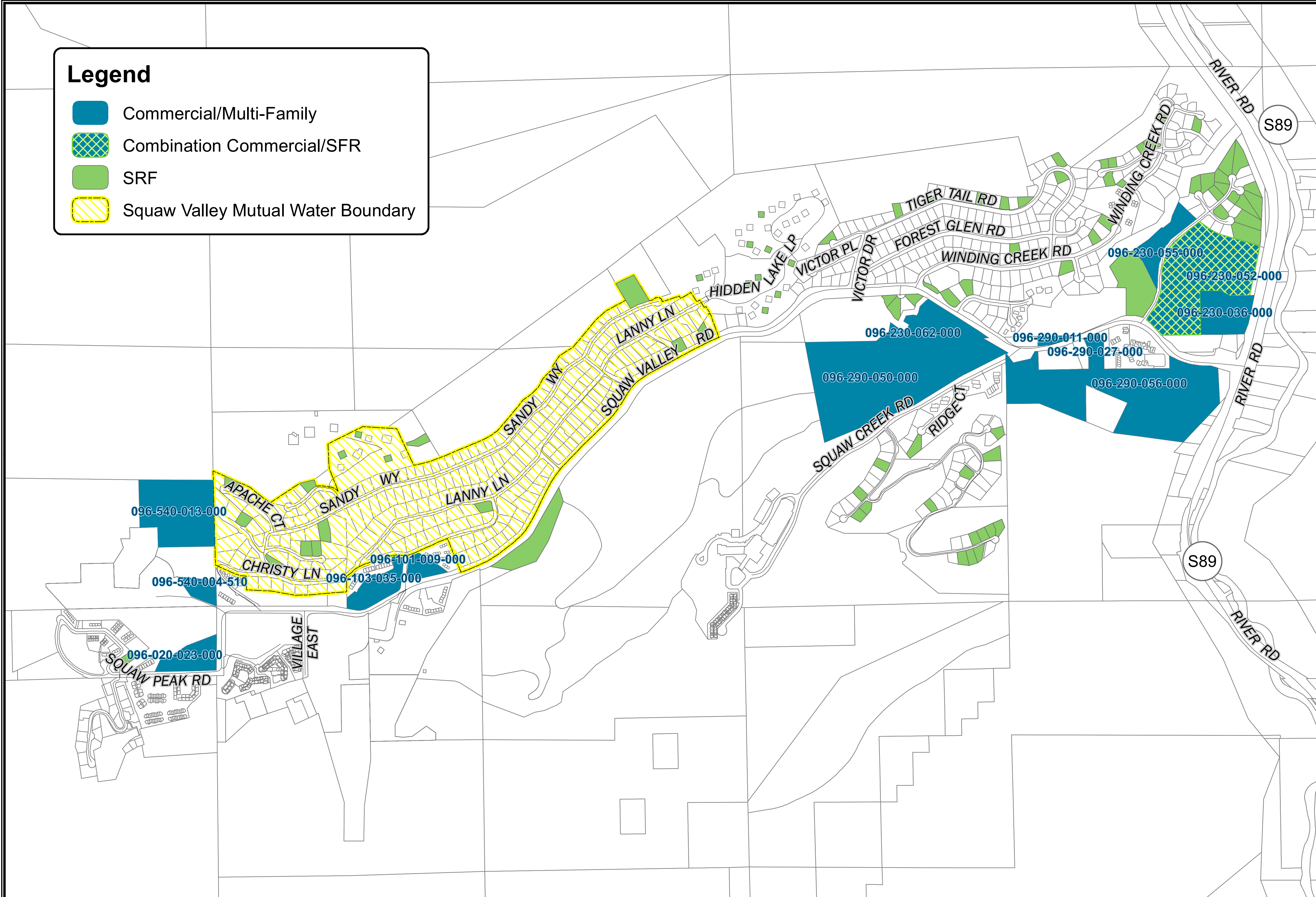
	PWWF			
Scenario	**10" to 12" (TTSA Siphon)**	**10" to 15" (TTSA Siphon)**	**15" to 18"**	**Total**
1: Existing System	No pipe upsizing required			0
2: Existing System + VSVSP at Buildout	315		3,140	3,455
3: Existing System + VSVSP at Buildout + Cumulative Development		315	6,445	6,760

5.0 RECOMMENDATIONS

Sewer flows for the VSVSP project were provided by MacKay & Somps, most recently in their October 2014 Sewer Master Study. The estimated flows are based on specific land use sewer generation rates developed by Farr West and the District. But, sewer generation for swimming pools at both the MAC and the various developments are based on other criteria, including splash losses and specific filter backwash estimates. Of specific importance to sewer system capacity are the draining of pools/spas and the filter backwash system at the MAC. Filter backwash requirements at the MAC were estimated by the ADG to be 12,000 gpd. The system will be designed with a 12,000 gallon equalization tank and metered into the collection system at 20 gpm (pursuant to a telephone meeting with ADG and KSL). Flow rates in excess of 20 gpm can have a substantial impact to the capacity of the collection system.

It is recommended that the District include specific language in the development agreement with KSL that specifically limits the amount of discharge to the system from the MAC at 20 gpm. As the rapid draining of pools can also have a large impact on the collection system, it is also recommended that the development agreement include language requiring KSL to notify the District and receive advance approval before draining pools to the system. This will greatly reduce the risk of sanitary sewer overflows during peak flow events.

Figures



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SVPSD - VSVSP Sewer Capacity Analysis
General Plan Buildout Estimates
Figure 1

The data contained herein does not represent survey delineation and should not be construed as a replacement for the authoritative source. No liability is assumed by Farr West Engineering as to the sufficiency or accuracy of the data.

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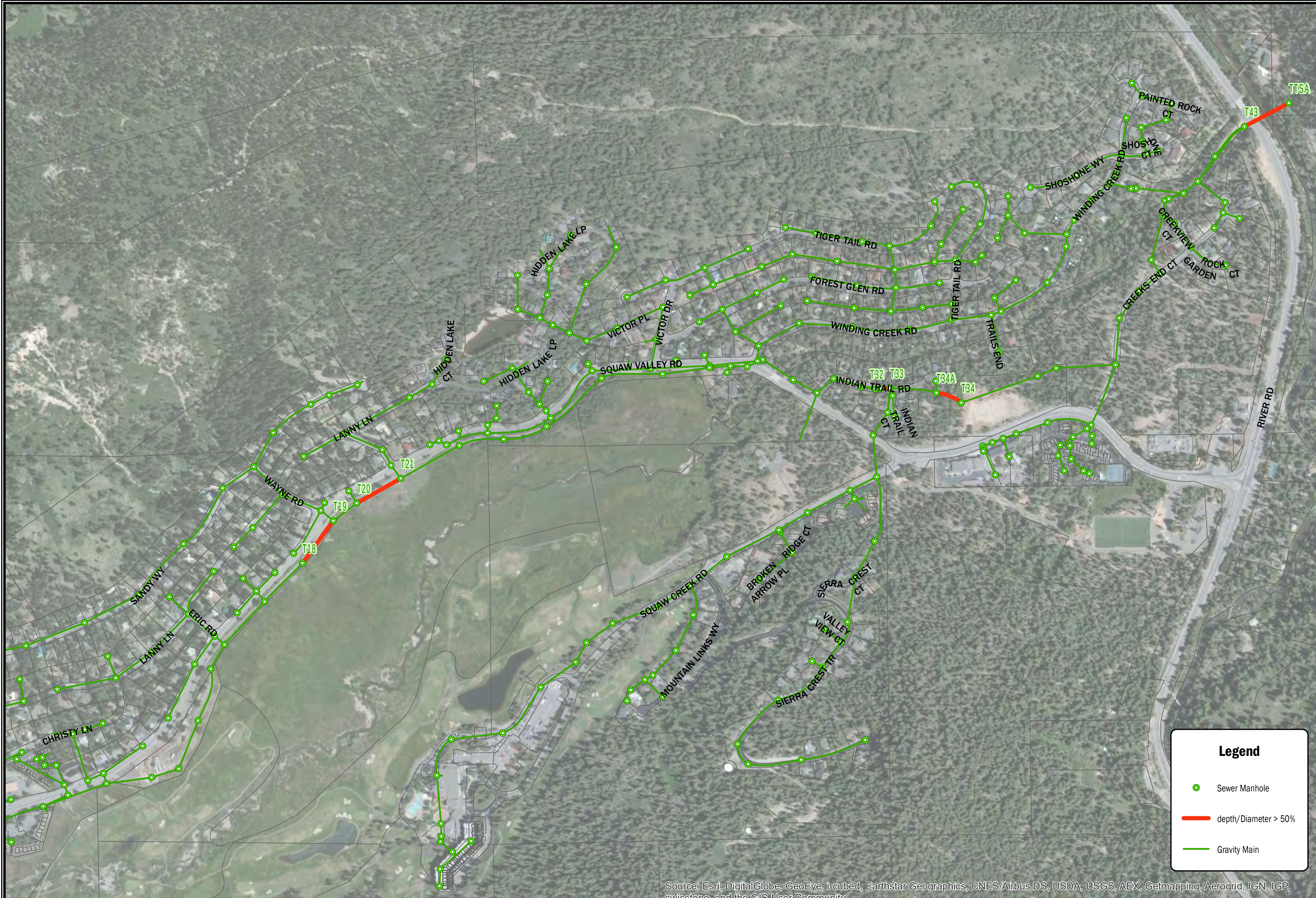

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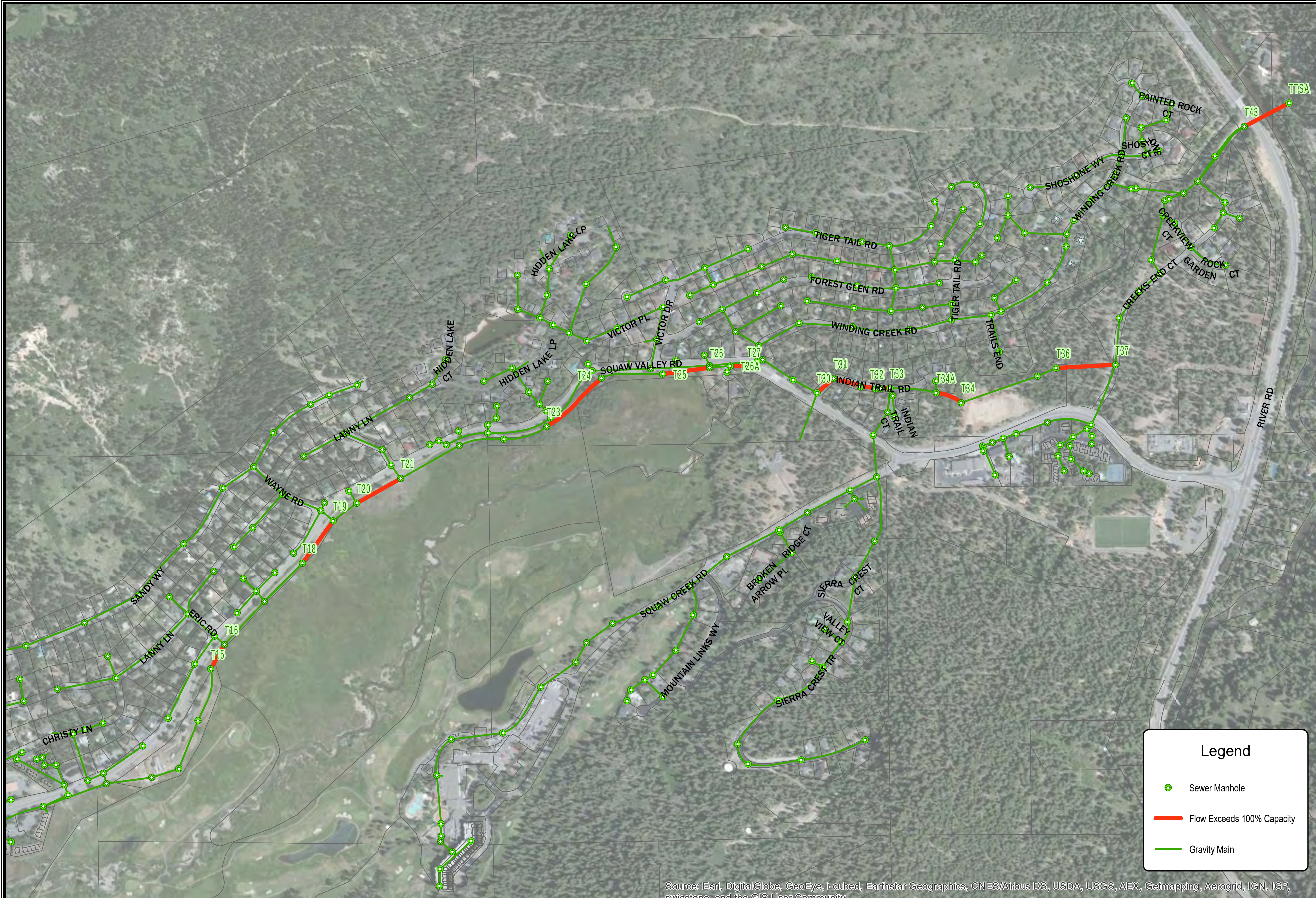
SVPSD - VSVSP Sewer Capacity Analysis

Existing + VSVSP - ADWF (Peak Hour)

Figure 2



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SVPSD - VSVSP Sewer Capacity Analysis

Existing + VSVSP - PWWF

Figure 3

N

1 " = 600 '

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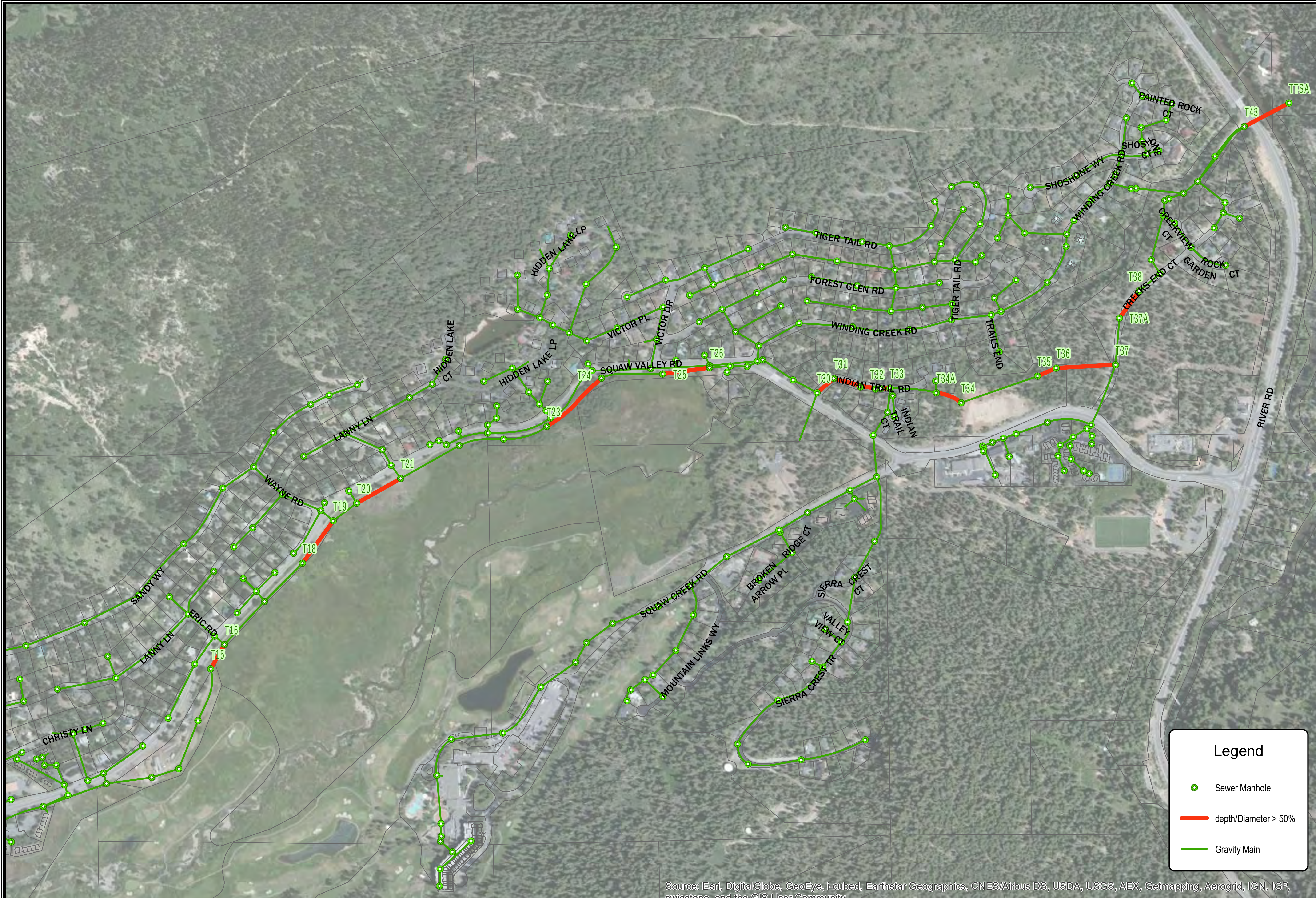

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SVPSD - VSVSP Sewer Capacity Analysis

Existing + VSVSP + GP Buildout - ADWF (Peak Hour)

Figure 4

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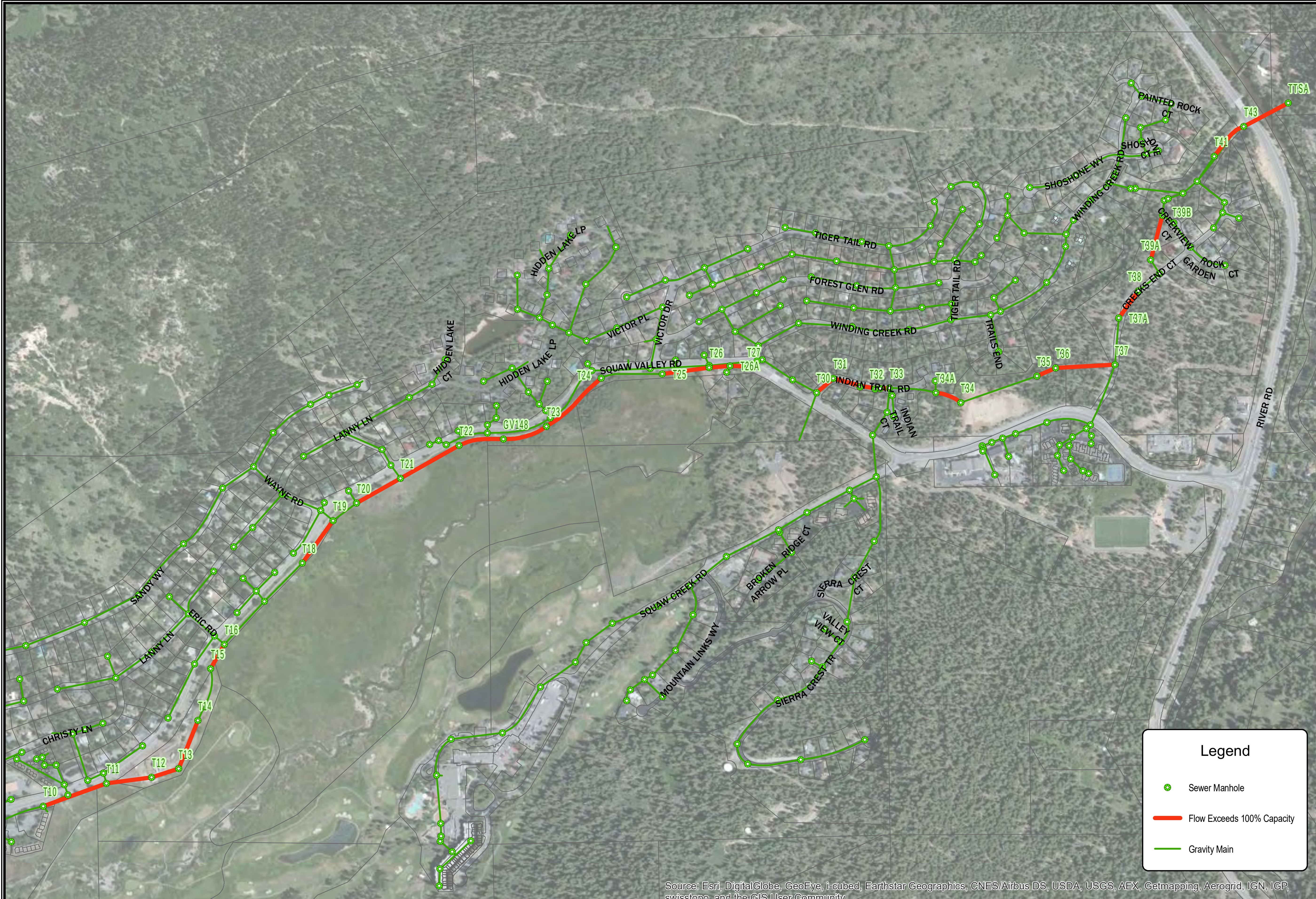

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SVPSD - VSVSP Sewer Capacity Analysis

Existing + VSVSP + GP Buildout - PWWF

Figure 5

N

1 " = 600 '

The data contained herein does not represent survey delineation and should not be construed as a replacement for the authoritative source. No liability is assumed by Farr West Engineering as to the sufficiency or accuracy of the data.

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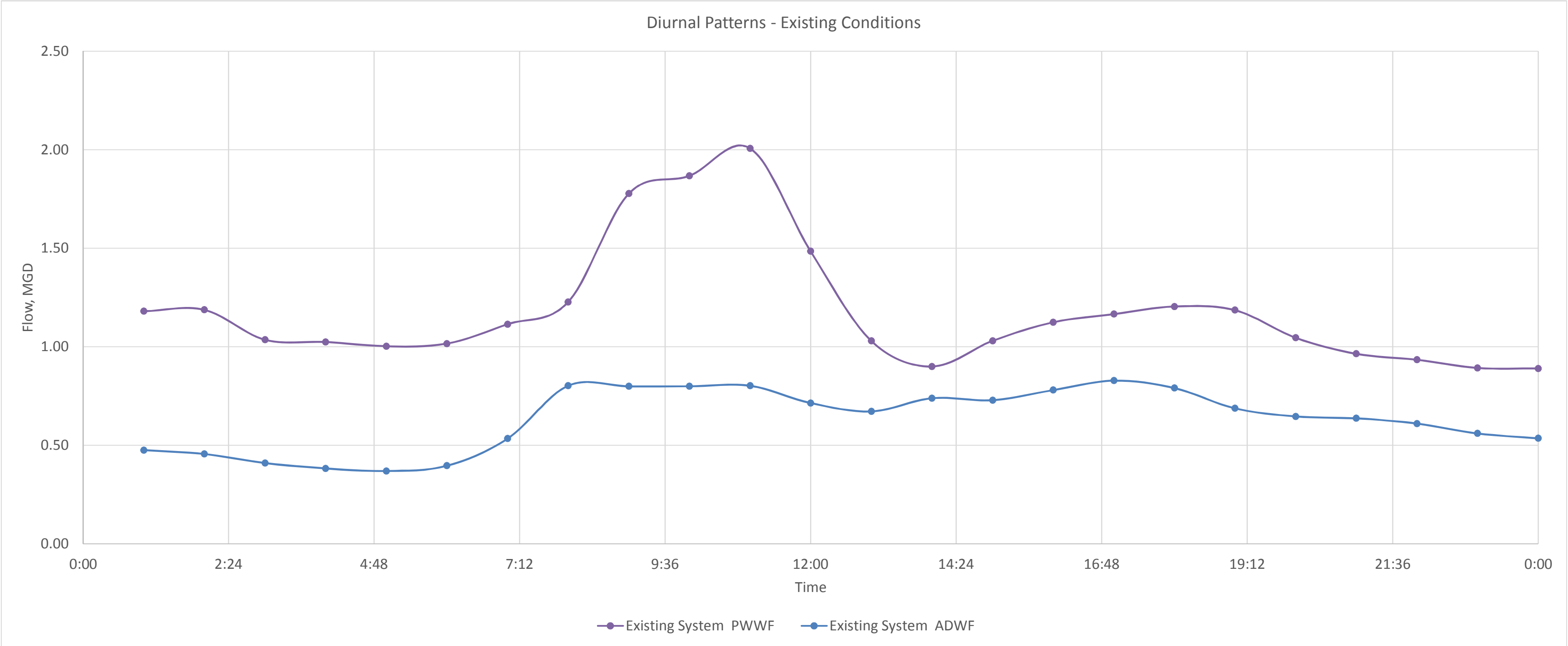
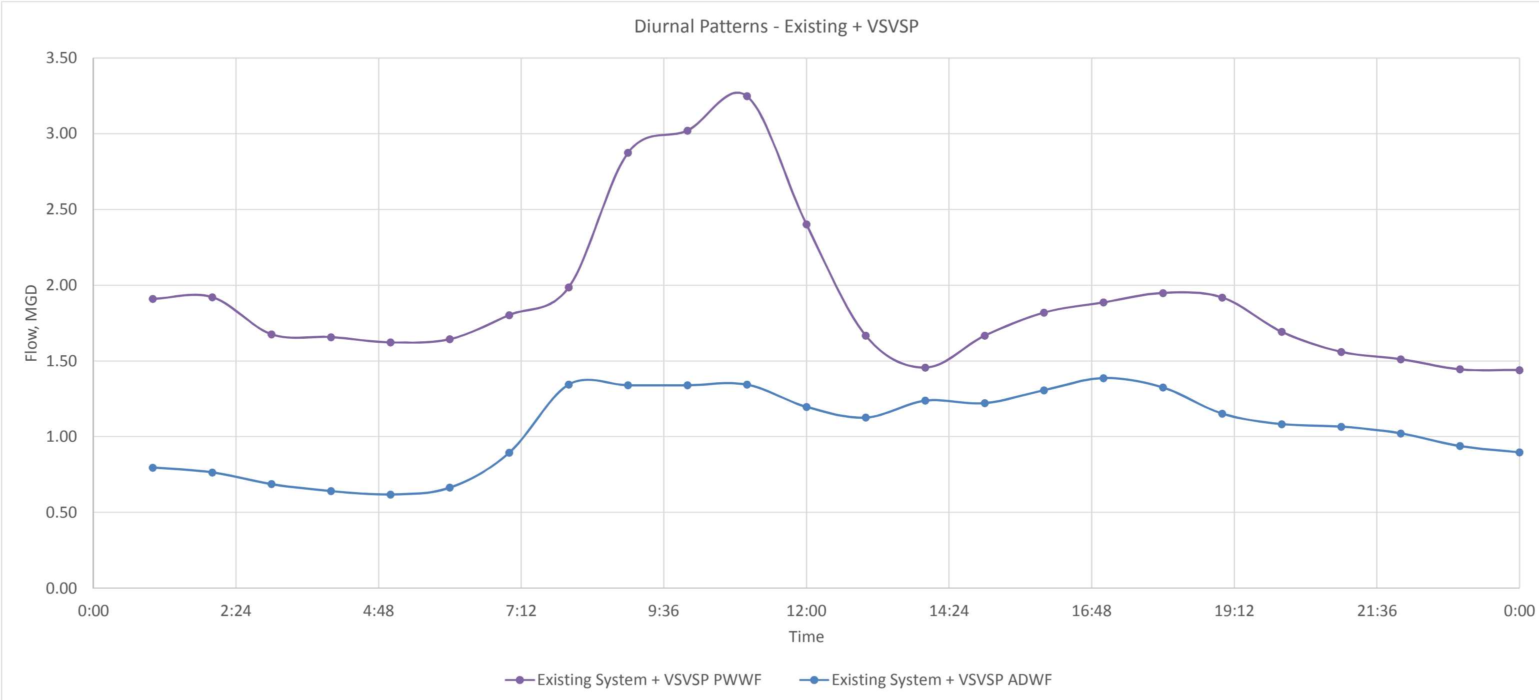
Appendix A

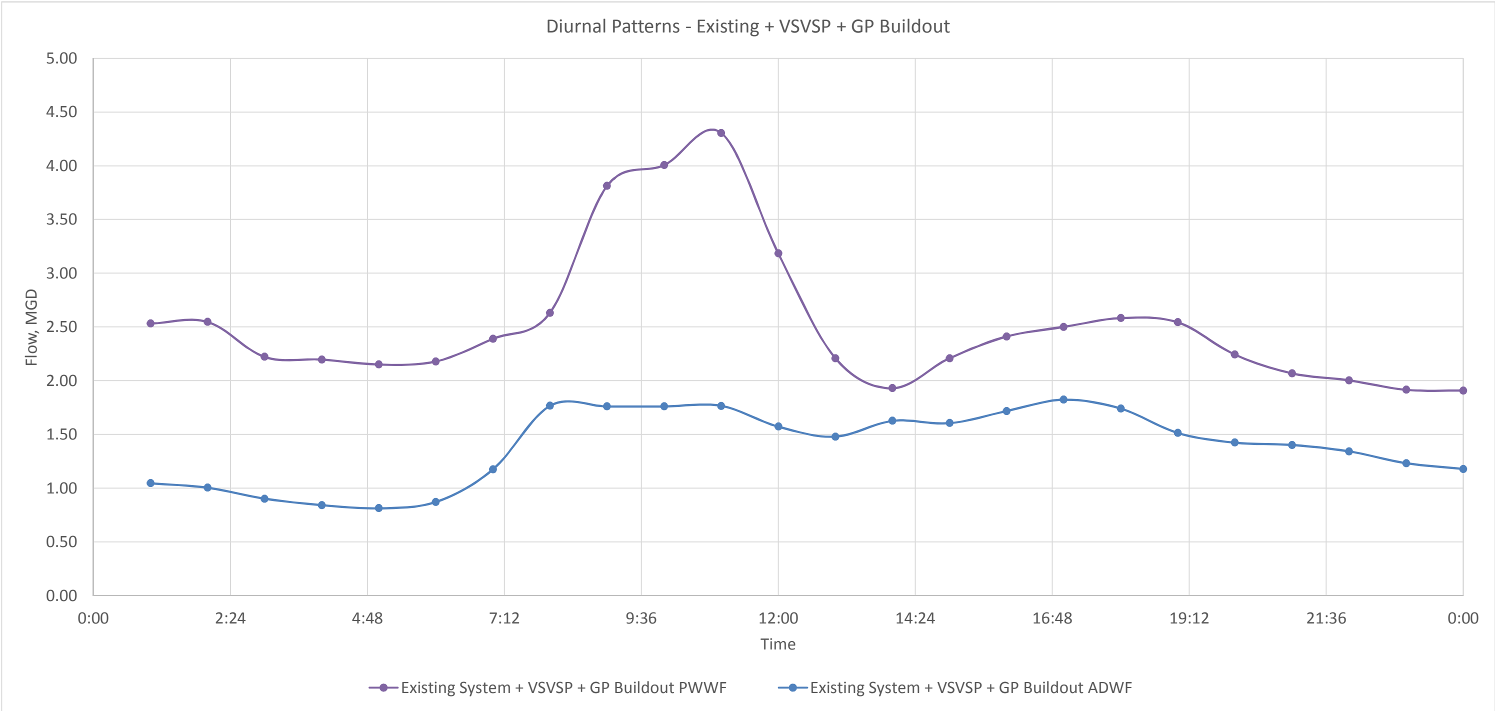
Scenario Diurnal Flows



Existing System		
Time	ADWF, MGD	PWWF, MGD
1:00:00 AM	0.4751	1.1801
2:00:00 AM	0.4561	1.1873
3:00:00 AM	0.4099	1.0358
4:00:00 AM	0.3828	1.0243
5:00:00 AM	0.3694	1.0029
6:00:00 AM	0.3961	1.0158
7:00:00 AM	0.5337	1.1143
8:00:00 AM	0.8022	1.2271
9:00:00 AM	0.7993	1.7770
10:00:00 AM	0.7994	1.8670
11:00:00 AM	0.8019	2.0070
12:00:00 PM	0.7143	1.4843
1:00:00 PM	0.6721	1.0299
2:00:00 PM	0.7387	0.8999
3:00:00 PM	0.7291	1.0299
4:00:00 PM	0.7800	1.1242
5:00:00 PM	0.8280	1.1658
6:00:00 PM	0.7903	1.2042
7:00:00 PM	0.6874	1.1856
8:00:00 PM	0.6465	1.0456
9:00:00 PM	0.6365	0.9642
10:00:00 PM	0.6098	0.9342
11:00:00 PM	0.5598	0.8928
12:00:00 AM	0.5351	0.8899



Existing System + VSVSP		
Time	ADWF, MGD	PWWF, MGD
1:00:00 AM	0.7962	1.9098
2:00:00 AM	0.7643	1.9214
3:00:00 AM	0.6869	1.6762
4:00:00 AM	0.6414	1.6577
5:00:00 AM	0.6190	1.6230
6:00:00 AM	0.6637	1.6439
7:00:00 AM	0.8943	1.8034
8:00:00 AM	1.3441	1.9859
9:00:00 AM	1.3394	2.8758
10:00:00 AM	1.3395	3.0215
11:00:00 AM	1.3437	3.2480
12:00:00 PM	1.1969	2.4021
1:00:00 PM	1.1261	1.6667
2:00:00 PM	1.2378	1.4563
3:00:00 PM	1.2217	1.6667
4:00:00 PM	1.3071	1.8193
5:00:00 PM	1.3874	1.8866
6:00:00 PM	1.3243	1.9489
7:00:00 PM	1.1519	1.9187
8:00:00 PM	1.0833	1.6922
9:00:00 PM	1.0665	1.5604
10:00:00 PM	1.0218	1.5118
11:00:00 PM	0.9381	1.4448
12:00:00 AM	0.8967	1.4401



Existing System + VSVSP + GP Buildout		
Time	ADWF, MGD	PWWF, MGD
1:00:00 AM	1.0465	2.5315
2:00:00 AM	1.0046	2.5470
3:00:00 AM	0.9028	2.2220
4:00:00 AM	0.8431	2.1974
5:00:00 AM	0.8137	2.1515
6:00:00 AM	0.8724	2.1791
7:00:00 AM	1.1755	2.3905
8:00:00 AM	1.7668	2.6324
9:00:00 AM	1.7605	3.8122
10:00:00 AM	1.7608	4.0052
11:00:00 AM	1.7662	4.3055
12:00:00 PM	1.5733	3.1841
1:00:00 PM	1.4803	2.2093
2:00:00 PM	1.6271	1.9304
3:00:00 PM	1.6059	2.2093
4:00:00 PM	1.7181	2.4116
5:00:00 PM	1.8237	2.5008
6:00:00 PM	1.7407	2.5834
7:00:00 PM	1.5141	2.5434
8:00:00 PM	1.4239	2.2431
9:00:00 PM	1.4019	2.0684
10:00:00 PM	1.3432	2.0041
11:00:00 PM	1.2331	1.9152
12:00:00 AM	1.1786	1.9090

Appendix B

Model Results

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T18	6172.23	T19	6172.22	15	352.3	0.000	0.011	0.5	0.398	0.263	(N/A)
T43	6074.26	TTSA	6068.27	10	315.7	0.019	0.011	6	0.8284	2.304	41.4
T34A	6147.66	T34	6147.26	15	190.9	0.002	0.011	2.48	0.6707	2.2579	37.3
T36	6135.02	T37	6133.91	15	388.1	0.003	0.011	2.78	0.6707	2.639	34.4
R07	6177.61	R06	6177.33	10	223	0.001	0.009	1.7	0.1783	0.7248	33.8
T32	6152.41	T33	6152.3	15	64.4	0.002	0.011	2.1	0.4745	2.0455	32.8
T20	6171.56	T21	6171	15	333.1	0.002	0.011	2.06	0.4604	2.0233	32.5
T35	6135.54	T36	6135.04	15	136.3	0.004	0.011	3.04	0.6707	2.9916	32.2
T31	6153.03	T32	6152.44	15	319.8	0.002	0.011	2.15	0.4743	2.1186	32.2
T37A	6127.12	T38	6124.19	12	222.5	0.013	0.011	4.93	0.6835	3.1262	31.8
T23	6167.87	T24	6166.89	15	484.5	0.002	0.011	2.23	0.4731	2.2201	31.3
T25	6164.79	T26	6164.11	15	313.9	0.002	0.011	2.28	0.4731	2.296	30.8
T41	6084.93	T43	6074.46	12	286	0.037	0.014	6.31	0.8284	4.0909	30.5
T30	6153.45	T31	6153.11	15	146.3	0.002	0.011	2.34	0.4743	2.381	30.3
T15	6175.28	T16	6175	15	184.4	0.002	0.011	1.88	0.3762	1.9247	30
T26A	6163.71	T27	6163.36	15	143.1	0.002	0.011	2.38	0.4731	2.4409	29.8
T04A	6191.75	T05	6191.63	15	167.6	0.001	0.011	1.28	0.2537	1.3186	29.7
T26	6164.09	T26A	6163.72	15	138.9	0.003	0.011	2.45	0.4731	2.5456	29.2
GV148	6168.77	T23	6167.91	15	308.6	0.003	0.011	2.49	0.4731	2.6029	28.9
T22	6169.61	GV148	6168.77	15	298.6	0.003	0.011	2.5	0.4731	2.6151	28.8
T38	6124.14	T39	6123.05	15	180.9	0.006	0.011	3.65	0.6835	3.8288	28.6
T37	6133.82	T37A	6127.41	12	311.6	0.021	0.011	5.78	0.6835	3.9005	28.3
T21	6170.97	T22	6169.62	15	450.1	0.003	0.011	2.56	0.4731	2.7024	28.3
R10	6179.81	R09	6179.04	10	310.2	0.002	0.009	2.16	0.1755	1.0194	28.1
T39A	6118.72	T39B	6115.51	15	305.7	0.01	0.014	3.75	0.6835	3.9705	28.1
R12A	6181.92	R12	6181.39	10	216.9	0.002	0.009	2.14	0.1706	1.0108	27.8
R11	6180.44	R10	6179.81	10	252.7	0.002	0.009	2.15	0.1706	1.0206	27.7
W46	6201.41	W13	6201.1	10	333.6	0.001	0.024	0.49	0.0389	0.2337	27.6
T29	6154.13	T30	6153.52	15	181.2	0.003	0.011	2.67	0.4731	2.8643	27.5
T34	6147.18	T35	6135.64	12	516.5	0.022	0.011	5.92	0.6707	4.0656	27.5
R13	6182.3	R12A	6181.92	10	147.7	0.003	0.009	2.17	0.1706	1.0364	27.5
T13	6177.18	T14	6176.43	15	345.9	0.002	0.011	2.14	0.3762	2.2971	27.4
T11	6178.37	T12	6177.7	15	304.2	0.002	0.011	2.15	0.3759	2.3163	27.2
T19	6172.21	T20	6171.57	15	189	0.003	0.011	2.65	0.4604	2.8711	27.1
T10	6179.38	T11	6178.39	15	446.5	0.002	0.011	2.14	0.366	2.3246	26.8

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T45	6114.8	T40	6102.8	6	294.9	0.041	0.011	4.95	0.1353	0.8644	26.8
T12	6177.65	T13	6177.2	15	187.8	0.002	0.011	2.21	0.3759	2.4139	26.7
R16	6186.3	R15	6185.3	10	344.7	0.003	0.009	2.27	0.1706	1.1012	26.6
R12	6181.39	R11	6180.44	10	323.8	0.003	0.009	2.28	0.1706	1.1075	26.5
T09	6180.37	T10	6179.41	15	398.7	0.002	0.011	2.19	0.3624	2.4201	26.1
T14	6176.36	T15	6175.37	15	362.3	0.003	0.011	2.32	0.3762	2.5802	25.8
R09	6179.04	R07	6177.61	10	388.1	0.004	0.009	2.49	0.1755	1.2417	25.4
T16	6174.97	T17	6173.71	15	393.5	0.003	0.011	2.49	0.3925	2.7937	25.3
W37	6203.23	W36	6202.56	10	276.8	0.002	0.014	1.29	0.0891	0.6467	25.1
T5A	6191.07	T06	6190.69	15	254.9	0.001	0.011	1.68	0.2576	1.9046	24.8
T24	6166.88	T25	6164.8	15	410.9	0.005	0.011	3.09	0.4731	3.51	24.8
R14	6183.41	R13	6182.3	10	285.9	0.004	0.009	2.52	0.1706	1.2742	24.7
W36A	6201.95	W15	6201.3	10	204.4	0.003	0.014	1.46	0.0983	0.7422	24.6
E34	6142	E33	6141.04	8	70.1	0.014	0.014	2.59	0.1099	0.8493	24.3
T17	6173.7	T18	6172.31	15	354.6	0.004	0.011	2.68	0.398	3.0873	24.2
W13	6201.1	W14	6200.8	10	182.7	0.002	0.024	0.61	0.0398	0.3105	24.2
T08	6181.1	T09	6180.38	15	290.2	0.002	0.011	2.13	0.3136	2.4584	24.1
E30A	6121.96	T44	6120.73	8	175.9	0.007	0.009	2.86	0.1201	0.943	24.1
T44	6120.73	T44A	6119.54	8	165.1	0.007	0.009	2.91	0.1201	0.958	23.9
W36	6202.56	W36A	6201.95	10	165.8	0.004	0.014	1.54	0.0983	0.7971	23.7
R15	6185.3	R14	6183.41	10	403.2	0.005	0.009	2.69	0.1706	1.4007	23.6
R03	6174.1	R02	6172.4	10	277.7	0.006	0.009	3.06	0.1936	1.5994	23.5
W38	6203.8	W37	6203.23	10	180.8	0.003	0.014	1.41	0.0871	0.7379	23.2
E33	6141.04	E33A	6134.26	8	364.4	0.019	0.014	2.93	0.1153	0.9897	23.1
T28	6160.21	T29	6154.44	12	242.7	0.024	0.011	5.47	0.4731	4.1932	22.7
R06	6177.33	R04	6175.4	10	317.7	0.006	0.009	2.99	0.1783	1.5934	22.6
T40A	6095.26	T41	6084.93	12	205.9	0.05	0.009	9.68	0.8284	7.4479	22.5
T33	6152.27	T34A	6147.67	15	308.3	0.015	0.011	5.01	0.6681	6.0297	22.5
R04	6175.4	R03	6174.1	10	198.7	0.007	0.009	3.08	0.1804	1.6531	22.3
W47	6202.9	W47A	6202.49	10	177.6	0.002	0.024	0.68	0.0389	0.3681	21.9
E33B	6126	E30	6124	8	79.8	0.025	0.014	3.26	0.1162	1.1466	21.5
T27	6163.26	T28	6160.23	12	91.8	0.033	0.011	6.14	0.4731	4.9385	20.9
E30	6124	E30A	6121.96	8	106.7	0.019	0.011	3.55	0.1201	1.2744	20.7
T40	6102.8	T40A	6096.15	15	131.1	0.051	0.014	6.91	0.8188	8.7344	20.7
W39	6204.6	W38A	6204.49	10	157.8	0.001	0.014	0.62	0.0322	0.3469	20.6
E33A	6134.26	E33B	6126	8	274.3	0.03	0.014	3.48	0.1153	1.2591	20.4
W38A	6204.49	W38	6203.8	10	111.2	0.006	0.014	1.77	0.0851	1.0367	19.4

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
R17	6187.4	R16	6186.3	12	268.6	0.004	0.009	2.51	0.1706	2.1268	19.2
W49	6207.3	W48	6205.54	8	236.5	0.007	0.024	0.97	0.029	0.3645	19
T44A	6119.54	T44B	6115.91	8	147.5	0.025	0.009	4.64	0.1353	1.7727	18.7
T05	6191.63	T5A	6191.07	15	120.5	0.005	0.011	2.49	0.2539	3.3565	18.6
E36	6152.75	E34	6142	8	266.8	0.04	0.014	3.75	0.1054	1.4551	18.2
T39	6122.96	T39A	6118.76	15	107.2	0.039	0.011	7.1	0.6835	9.7752	17.9
T44B	6115.91	T45	6114.8	8	33	0.034	0.009	5.18	0.1353	2.0689	17.3
W76	6200.78	W75	6199.86	6	166.5	0.006	0.009	1.72	0.0247	0.3899	17.1
E38	6158.84	E37	6157.08	8	379.4	0.005	0.014	1.22	0.031	0.4942	17
E56	6164.6	E60	6163.7	8	158.1	0.006	0.014	1.33	0.0326	0.5473	16.6
E40	6162.53	E39	6160.9	8	305.6	0.005	0.014	1.26	0.0296	0.5293	16.1
T07	6185.71	T08	6181.1	12	115.5	0.04	0.011	5.77	0.3021	5.4484	16
E39	6160.9	E38	6158.84	8	357.5	0.006	0.014	1.3	0.0296	0.5501	15.8
R02	6172.4	R01	6166.5	10	175.4	0.034	0.009	5.6	0.1936	3.7555	15.4
E59	6159.16	E58	6157.66	8	196.4	0.008	0.014	1.48	0.0326	0.6344	15.4
T04	6192.53	T04A	6191.75	15	189.5	0.004	0.011	2.05	0.1522	3.1613	14.9
T39B	6115.45	T39C	6109.7	15	102	0.056	0.009	9.28	0.6835	14.3178	14.9
T39C	6109.65	T40	6102.95	15	116.1	0.058	0.009	9.36	0.6835	14.4927	14.8
T06	6190.69	T07	6185.71	15	357.3	0.014	0.011	3.69	0.2576	5.8274	14.3
T02	6195.75	T03	6193.82	15	389.9	0.005	0.011	2.19	0.1522	3.4709	14.3
T03	6193.82	T04	6192.53	15	233	0.006	0.011	2.28	0.1522	3.6712	13.9
W74	6198.13	W77	6196.45	10	305.1	0.006	0.009	2.11	0.0615	1.518	13.7
W77	6196.45	T04A	6191.75	10	215	0.022	0.011	3.43	0.1001	2.4743	13.7
R01	6166.5	T33	6152.27	10	159.2	0.089	0.011	6.86	0.1936	5.0063	13.4
E43	6166.59	E42	6164.73	8	392.4	0.005	0.014	1.07	0.0191	0.4995	13.4
E37	6157.08	E36	6152.75	8	286.5	0.015	0.014	1.89	0.0332	0.8923	13.2
E42	6164.73	E41	6163.44	8	250.9	0.005	0.014	1.1	0.0191	0.5199	13.1
E41	6163.44	E40	6162.53	8	158.7	0.006	0.014	1.14	0.0191	0.5486	12.8
W48	6205.54	W47	6202.9	10	191.4	0.014	0.024	1.19	0.031	0.9017	12.7
W15	6201.3	W14	6200.8	10	16.7	0.029	0.011	3.79	0.0983	2.87	12.7
E08	6191.52	E09	6190.98	8	298.3	0.002	0.009	0.99	0.0164	0.4802	12.6
T46	6137.22	T37	6133.82	6	429.3	0.008	0.011	1.39	0.0128	0.3815	12.5
W75	6199.86	W74	6198.13	8	182.2	0.01	0.009	2.24	0.0361	1.0998	12.4
W47A	6202.49	W46	6201.41	10	42.8	0.025	0.024	1.58	0.0389	1.2156	12.2
E60	6163.7	E59	6159.16	8	210.7	0.022	0.014	2.13	0.0326	1.0637	12
W01	6196.4	W02	6191.76	8	89.7	0.052	0.014	3.23	0.0478	1.6466	11.7
W40A	6204.8	W39	6204.6	10	74.6	0.003	0.014	0.82	0.0174	0.679	11

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
W14	6200.8	T02	6195.75	10	41.8	0.12	0.011	6.87	0.1381	5.8028	10.6
W49B	6212.68	W49A	6209.67	4	197.8	0.015	0.024	0.59	0.0018	0.0821	10.2
E58	6157.66	E36	6152.75	8	106.6	0.046	0.014	2.77	0.0326	1.5535	10
W49A	6209.67	W49	6207.3	6	160.1	0.015	0.024	0.75	0.0049	0.2391	9.9
E09	6190.98	E10	6170.98	8	388.7	0.051	0.014	2.88	0.0326	1.6443	9.8
E10	6170.98	E56	6164.6	8	119.6	0.053	0.014	2.91	0.0326	1.6721	9.7
W73	6200.6	W74	6198.13	8	175.4	0.014	0.009	2.33	0.0254	1.3402	9.5
W42	6206.69	W40	6205.97	8	136	0.005	0.014	0.88	0.0089	0.5277	9
P03	6130.66	P13	6130.04	8	136.7	0.005	0.009	1.22	0.0114	0.7589	8.5
W43	6208.07	W42	6206.69	8	269	0.005	0.014	0.84	0.0078	0.5194	8.5
W08B	6195.85	W08A	6195.5	10	153.2	0.002	0.014	0.65	0.0093	0.6289	8.5
P04	6131.43	P03	6130.66	8	174.1	0.004	0.009	1.17	0.01	0.7504	8.1
W08A	6195.5	W08	6194.9	10	207.5	0.003	0.014	0.7	0.0093	0.7079	8.1
W11	6197.9	W10	6197.3	10	184.7	0.003	0.014	0.73	0.0093	0.7488	7.8
P07	6132.36	P06	6131.89	8	91.2	0.005	0.009	1.22	0.01	0.8107	7.8
P06	6131.89	P04	6131.43	8	88.9	0.005	0.009	1.22	0.01	0.811	7.8
P08	6133.31	P07	6132.36	8	172.5	0.006	0.009	1.25	0.01	0.8384	7.7
W09	6196.5	W08B	6195.85	10	179.3	0.004	0.014	0.76	0.0093	0.7923	7.6
W10	6197.3	W09	6196.5	10	210.8	0.004	0.014	0.77	0.0093	0.8096	7.5
A83	6170.48	E44	6168.57	8	426.6	0.004	0.014	0.71	0.0055	0.485	7.5
E44	6168.57	E43	6166.59	8	388.4	0.005	0.014	0.75	0.0055	0.518	7.3
W08	6194.9	W07	6193.75	10	233.1	0.005	0.014	0.85	0.0093	0.9237	7.1
W07	6193.75	W7A	6192.35	10	281.7	0.005	0.014	0.85	0.0093	0.9264	7
W40	6205.97	W40A	6204.8	10	65.4	0.018	0.014	1.61	0.0174	1.7641	7
W44	6209.56	W43	6208.07	8	300.4	0.005	0.014	0.71	0.0048	0.5111	6.9
W11A	6198.1	W11	6197.9	10	63.6	0.003	0.014	0.63	0.0062	0.735	6.5
W02	6191.76	T09	6180.37	8	36	0.316	0.009	8.24	0.0478	6.3452	6.2
W28R	6209.61	W70	6208.91	8	114.2	0.006	0.014	0.72	0.004	0.5683	6
W01B	6200.24	W01	6196.4	8	143.9	0.027	0.014	1.51	0.0083	1.1842	6
W19	6198.4	W11A	6198.1	10	47.7	0.006	0.014	0.81	0.0062	1.0395	5.5
A82	6172.54	A83	6170.48	8	438	0.005	0.014	0.57	0.0024	0.4973	5
E29	6148	E30	6124	4	279.8	0.086	0.009	2.34	0.0025	0.5201	5
W70	6208.91	W71	6208.46	8	61.8	0.007	0.009	1.04	0.004	0.9611	4.7
W05	6186.3	W04	6183.8	8	341	0.007	0.014	0.65	0.0022	0.6209	4.3
W06	6188.5	W05	6186.3	8	290.3	0.008	0.014	0.66	0.0022	0.6316	4.3
T01	6197.2	T02	6195.75	15	192.2	0.008	0.011	1.23	0.0141	4.2877	4.2
W12	6199.05	W19	6198.4	10	219.9	0.003	0.014	0.45	0.0021	0.7147	4

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
P13	6130.04	T44A	6119.54	8	68.8	0.152	0.009	4.3	0.0128	4.4006	4
W62	6204.25	W38	6203.8	8	147.8	0.003	0.009	0.6	0.0017	0.622	3.8
W7A	6192.35	T08	6181.1	8	42.9	0.262	0.014	3.46	0.0093	3.7093	3.7
W24R	6194.82	T5A	6191.07	12	203.9	0.018	0.024	0.67	0.0037	1.691	3.5
W71	6208.46	W73	6200.6	8	262.8	0.03	0.009	1.73	0.004	1.9502	3.3
E49	6176.69	E43	6166.59	8	199.5	0.051	0.014	1.45	0.0033	1.6338	3.3
W45	6215	W44	6209.56	8	310.8	0.017	0.014	0.74	0.0013	0.9591	2.8
W61A	6206.51	W62	6204.25	8	181.9	0.012	0.009	0.94	0.0015	1.2571	2.6
W61	6208.51	W61A	6206.51	8	137.3	0.015	0.009	1	0.0015	1.363	2.5
P12	6154.64	P03	6130.66	6	248	0.097	0.009	1.99	0.0014	1.6288	2.2
W04	6183.8	T08	6181.1	8	18.3	0.15	0.014	1.79	0.0022	2.8087	2.2
E27	6162.4	E29	6148	8	160.6	0.089	0.009	2.12	0.0025	3.3737	2.1
E35	6142.9	E34	6142	8	248.4	0.004	0.014	0.28	0.0003	0.4369	2
E07	6192.8	E08	6191.52	8	221.4	0.006	0.014	0.28	0.0002	0.5519	1.5
E32	6154.49	E33	6141.04	6	101.9	0.132	0.014	0.98	0.0003	1.2228	1.3
W17	6197.6	T01	6197.2	8	5.5	0.08	0.011	0	0	2.6106	(N/A)
R7A	6178.02	R07	6177.61	10	18.4	0.023	0.009	0	0	3.0869	(N/A)
W32	6204.9	W31A	6203.82	6	27.5	0.039	0.011	0	0	0.8417	(N/A)
I46	6161.17	T32	6152.41	6	35.3	0.25	0.011	0	0	2.1441	(N/A)
T50A	6138.02	T46	6137.22	6	37.4	0.022	0.011	0	0	0.6302	(N/A)
T57	6141.7	T56	6140.81	6	41.2	0.022	0.011	0	0	0.6314	(N/A)
W60	6208.83	W61	6208.51	6	47.5	0.007	0.009	0	0	0.4277	(N/A)
W50B	6211.27	W50A	6209.59	8	47.6	0.035	0.024	0	0	0.7914	(N/A)
A86	6207.06	W11	6197.9	6	51.4	0.18	0.009	0	0	2.2199	(N/A)
T59	6139.47	T58	6138.95	6	51.5	0.01	0.011	0	0	0.4286	(N/A)
H88	6179.4	A82	6172.54	6	51.5	0.135	0.014	0	0	1.235	(N/A)
I47	6161.28	T33	6152.27	6	48.7	0.184	0.011	0	0	1.8377	(N/A)
A88	6255.14	A87	6238.06	6	54	0.316	0.009	0	0	2.9459	(N/A)
A84	6171.79	A83	6170.48	6	56.5	0.023	0.014	0	0	0.5105	(N/A)
A80A	6176	A80	6173.9	6	57.9	0.036	0.014	0	0	0.6407	(N/A)
A72	6194.12	A71	6189.96	6	59.7	0.069	0.011	0	0	1.1285	(N/A)
T58	6138.95	T50A	6138.02	6	59.4	0.016	0.011	0	0	0.5381	(N/A)
E25	6185.67	E24	6183.36	6	60.8	0.038	0.014	0	0	0.6553	(N/A)
R21	6237	R20	6235.68	6	60.9	0.022	0.009	0	0	0.7705	(N/A)
H85	6221.25	A84	6171.79	6	61.5	0.811	0.014	0	0	3.0321	(N/A)
T54	6139.31	T50	6138.76	6	63.3	0.009	0.011	0	0	0.4004	(N/A)
A79	6179	A80A	6176	6	64.2	0.047	0.014	0	0	0.729	(N/A)

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
W27R	6211.38	W28R	6209.61	6	65.2	0.027	0.014	0	0	0.5557	(N/A)
A59	6187.89	T11	6178.37	6	70.8	0.134	0.011	0	0	1.5693	(N/A)
T52	6147.58	T51	6147.03	6	72.1	0.008	0.011	0	0	0.3746	(N/A)
H89	6195	H88	6179.4	6	73.3	0.214	0.014	0	0	1.5566	(N/A)
W31A	6203.82	W31	6203.49	6	74.8	0.004	0.011	0	0	0.2843	(N/A)
E42A	6172.38	E42	6164.73	6	76.7	0.099	0.014	0	0	1.0614	(N/A)
R24	6240.89	R23	6239.48	6	79.9	0.018	0.009	0	0	0.6954	(N/A)
I49	6151.1	T34A	6147.66	6	78.1	0.044	0.011	0	0	0.9	(N/A)
R31	6402.16	R30	6397.4	6	81.1	0.059	0.009	0	0	1.2698	(N/A)
W53	6284.2	W52	6267.5	6	87.7	0.19	0.009	0	0	2.2818	(N/A)
H90	6241	H89	6195	6	82	0.561	0.014	0	0	2.5221	(N/A)
W50R	6207.99	W49	6207.3	8	83	0.008	0.024	0	0	0.3867	(N/A)
A65	6188.5	T16	6174.97	6	95.2	0.142	0.011	0	0	1.6174	(N/A)
A56	6227.51	A55	6225.9	6	87.7	0.018	0.011	0	0	0.5797	(N/A)
A67	6187.47	T17	6173.7	6	90.3	0.153	0.011	0	0	1.6763	(N/A)
T55	6139.91	T54	6139.31	6	89.6	0.007	0.011	0	0	0.3499	(N/A)
W72	6212.72	W71	6208.46	6	90.7	0.047	0.009	0	0	1.1333	(N/A)
W50	6208.76	W50R	6207.99	8	91.6	0.008	0.024	0	0	0.3867	(N/A)
T48	6149.75	T47A	6148.6	6	92.5	0.012	0.011	0	0	0.4792	(N/A)
W31	6203.49	W30	6202.96	6	95.5	0.006	0.011	0	0	0.3201	(N/A)
A73	6189.48	T20	6171.56	6	97.4	0.185	0.014	0	0	1.4473	(N/A)
H101	6301.43	H100	6274.02	6	97.9	0.28	0.009	0	0	2.7702	(N/A)
W50A	6209.59	W50	6208.76	8	99.5	0.008	0.024	0	0	0.3867	(N/A)
I45	6162.25	I46	6161.17	6	101.6	0.011	0.011	0	0	0.441	(N/A)
T51	6147.03	T50	6138.76	6	103.3	0.08	0.011	0	0	1.2144	(N/A)
A71	6189.96	T19	6172.21	6	111.5	0.158	0.011	0	0	1.7061	(N/A)
T50	6138.76	T50A	6138.02	6	106.2	0.007	0.011	0	0	0.3581	(N/A)
W26	6216.5	W27R	6211.38	6	107.4	0.048	0.014	0	0	0.7366	(N/A)
H87	6258.4	H85	6221.25	6	108.1	0.344	0.009	0	0	3.0721	(N/A)
A74	6184.2	T21	6170.97	6	114.7	0.115	0.014	0	0	1.1421	(N/A)
T53	6148.29	T52	6147.58	6	108.2	0.007	0.011	0	0	0.3475	(N/A)
A25	6442.5	A26	6431.2	6	110.2	0.103	0.011	0	0	1.3736	(N/A)
W55	6346	W54	6325	6	122.6	0.171	0.009	0	0	2.1643	(N/A)
T56	6140.81	T55	6139.91	6	114.3	0.008	0.011	0	0	0.3808	(N/A)
A58	6189.07	A59	6187.89	6	114.8	0.01	0.011	0	0	0.4341	(N/A)
A28	6399.9	A27	6390.02	6	114.8	0.086	0.011	0	0	1.2562	(N/A)
R23	6239.48	R21	6237	6	115.7	0.021	0.009	0	0	0.7659	(N/A)

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
A75	6196.26	A74	6184.2	6	118.5	0.101	0.014	0	0	1.072	(N/A)
A68	6205.95	A67	6187.47	4	120.2	0.154	0.011	0	0	0.5704	(N/A)
H100	6274.02	H97	6253.93	6	122	0.165	0.014	0	0	1.3664	(N/A)
E12	6205	E11	6181.95	6	124.6	0.184	0.014	0	0	1.446	(N/A)
E03	6201.08	E06	6193.66	8	125.1	0.059	0.014	0	0	1.7668	(N/A)
A57	6230.5	A56	6227.51	6	125.6	0.024	0.011	0	0	0.6602	(N/A)
W38B	6206	W38A	6204.49	6	126.9	0.012	0.009	0	0	0.5712	(N/A)
H97	6253.93	E45	6200.14	6	127.5	0.42	0.014	0	0	2.1829	(N/A)
T48A	6150.78	T48	6149.75	6	127.8	0.008	0.011	0	0	0.3844	(N/A)
E28	6168.1	E27	6162.4	6	127.8	0.045	0.014	0	0	0.7106	(N/A)
E24	6183.36	E23	6182.44	6	134.9	0.007	0.014	0	0	0.278	(N/A)
R29	6382.72	R28	6377	6	135.9	0.042	0.009	0	0	1.0742	(N/A)
A37A	6289.49	A37	6276.25	6	137	0.097	0.011	0	0	1.3323	(N/A)
E23	6182.44	E11	6181.95	8	137	0.004	0.014	0	0	0.4337	(N/A)
I48	6165.85	I47	6161.28	6	137.2	0.033	0.011	0	0	0.7827	(N/A)
R28	6377	R27	6373.42	6	150.2	0.024	0.009	0	0	0.8092	(N/A)
W57	6222.4	W58	6221.2	6	141.4	0.009	0.009	0	0	0.4832	(N/A)
C3	6211.2	C4	6209.5	6	142.1	0.012	0.009	0	0	0.5731	(N/A)
W59	6216.33	W60	6208.83	8	143.9	0.052	0.009	0	0	2.5745	(N/A)
C1	6220	C2	6215.76	6	147.8	0.029	0.009	0	0	0.8866	(N/A)
C2	6215.76	C3	6211.2	6	148.8	0.031	0.009	0	0	0.9163	(N/A)
R34	6492.02	R33	6479.22	6	158.3	0.081	0.009	0	0	1.4909	(N/A)
A46	6283.8	A45	6240.52	4	153	0.283	0.011	0	0	0.7731	(N/A)
A29	6373.5	WY-A30	6367.64	6	148.4	0.04	0.011	0	0	0.8525	(N/A)
H105	6308.4	H101	6301.43	6	156.7	0.044	0.009	0	0	1.1037	(N/A)
W01C	6202.32	W01B	6200.24	8	158.8	0.013	0.014	0	0	0.8294	(N/A)
W25R	6219.26	W72	6212.72	6	159.7	0.041	0.009	0	0	1.059	(N/A)
H102	6312.81	H101	6301.43	6	160.3	0.071	0.014	0	0	0.898	(N/A)
H86	6233.9	H85	6221.25	6	161.3	0.079	0.009	0	0	1.4683	(N/A)
W34	6209.72	W33A	6207.9	6	161.7	0.011	0.011	0	0	0.4543	(N/A)
E17	6190.77	E10	6170.98	8	163.1	0.121	0.014	0	0	2.5269	(N/A)
R22	6257.85	R21	6237	6	165.1	0.126	0.009	0	0	1.862	(N/A)
E26	6192.8	E27	6162.4	6	165.7	0.183	0.014	0	0	1.441	(N/A)
A43	6238.36	A42	6209.99	6	170.1	0.167	0.011	0	0	1.7507	(N/A)
E51	6174	E63	6170.92	6	171.2	0.018	0.014	0	0	0.4519	(N/A)
A69	6191.4	A67	6187.47	6	172.6	0.023	0.011	0	0	0.6459	(N/A)
W58	6221.2	W59	6216.33	8	173	0.028	0.009	0	0	1.8927	(N/A)

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
E50	6176.54	E51	6174	6	173.6	0.015	0.014	0	0	0.4068	(N/A)
H103	6338.71	H102	6312.81	6	174.2	0.149	0.009	0	0	2.0209	(N/A)
H94	6266.2	A78	6252.82	6	175.4	0.076	0.011	0	0	1.185	(N/A)
M1	6193.3	T09	6180.37	6	177.7	0.073	0.011	0	0	1.1551	(N/A)
A40	6231.01	A39	6228.59	6	179.1	0.014	0.011	0	0	0.4983	(N/A)
E63	6170.92	E40	6162.53	6	181	0.046	0.014	0	0	0.725	(N/A)
E16	6196.92	E17	6190.77	6	183.3	0.034	0.014	0	0	0.6173	(N/A)
E31	6177.11	E32	6154.49	6	185.1	0.122	0.014	0	0	1.1775	(N/A)
W33A	6207.9	W32	6204.9	6	185.7	0.016	0.011	0	0	0.5443	(N/A)
H95	6287	H94	6266.2	6	188.4	0.111	0.011	0	0	1.4255	(N/A)
W30	6202.96	W17	6197.6	8	190.2	0.028	0.011	0	0	1.5502	(N/A)
H91	6261.21	H87	6258.4	6	194	0.014	0.009	0	0	0.6304	(N/A)
A66	6188.9	A67	6187.47	6	194.2	0.007	0.011	0	0	0.3679	(N/A)
R18	6203.31	R10	6179.81	6	204.3	0.115	0.009	0	0	1.7778	(N/A)
A37B	6300.03	A37A	6289.49	6	199.7	0.053	0.011	0	0	0.9838	(N/A)
E53	6183.02	E52	6179.55	6	199.8	0.017	0.014	0	0	0.4435	(N/A)
E14	6222.16	E15	6221.13	8	205.9	0.005	0.014	0	0	0.5128	(N/A)
R30	6397.4	R28	6377	6	207.4	0.099	0.009	0	0	1.6444	(N/A)
H92	6277.37	H91	6261.21	6	209.7	0.077	0.009	0	0	1.453	(N/A)
C4	6209.5	W01	6196.4	6	214.2	0.061	0.014	0	0	0.8331	(N/A)
A26	6431.2	A27	6390.02	6	216.2	0.191	0.011	0	0	1.8713	(N/A)
E47	6187.9	E49	6176.69	6	218.2	0.051	0.014	0	0	0.7636	(N/A)
E45	6200.14	E46	6195.29	6	219.6	0.022	0.014	0	0	0.5	(N/A)
T47A	6148.6	T47	6144.47	6	220	0.019	0.011	0	0	0.5872	(N/A)
R20	6235.68	R19	6221.55	6	224.3	0.063	0.009	0	0	1.3156	(N/A)
H106	6320.37	H105	6308.4	6	225.6	0.053	0.009	0	0	1.2055	(N/A)
A87	6238.06	A86	6207.06	6	225.8	0.137	0.009	0	0	1.94	(N/A)
A42	6209.99	A65	6188.5	6	227.6	0.094	0.011	0	0	1.3157	(N/A)
A63	6189.85	A65	6188.5	6	228.3	0.006	0.011	0	0	0.3298	(N/A)
W41	6242.85	W40	6205.97	6	236.1	0.156	0.014	0	0	1.3311	(N/A)
E61	6167.48	E60	6163.7	6	246.5	0.015	0.014	0	0	0.4166	(N/A)
A34	6270.5	A35	6260	6	249.2	0.042	0.011	0	0	0.8801	(N/A)
E52	6179.55	E51	6174	6	254.3	0.022	0.014	0	0	0.4978	(N/A)
E55	6174.75	E56	6164.6	6	258.7	0.039	0.014	0	0	0.6666	(N/A)
A36	6274.65	A35	6260	6	259.8	0.056	0.011	0	0	1.0173	(N/A)
R19	6221.55	R18	6203.31	6	262.7	0.069	0.009	0	0	1.3794	(N/A)
A35	6260	A38	6221.8	6	253.7	0.15	0.011	0	0	1.662	(N/A)

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
H104	6343.76	H103	6338.71	6	265.4	0.019	0.009	0	0	0.7231	(N/A)
E11	6181.95	E10	6170.98	8	270.8	0.04	0.009	0	0	2.2696	(N/A)
A76	6224.8	A75	6196.26	6	271.3	0.105	0.011	0	0	1.3908	(N/A)
E13	6223.4	E12	6205	6	272.2	0.068	0.014	0	0	0.8758	(N/A)
E02	6202.06	E03	6201.08	8	278.8	0.004	0.014	0	0	0.4298	(N/A)
R26	6315.62	R25	6228.2	6	276	0.317	0.009	0	0	2.9479	(N/A)
E01	6203.03	E02	6202.06	8	277.8	0.003	0.014	0	0	0.4284	(N/A)
A38	6221.8	A71	6189.96	6	284.8	0.112	0.011	0	0	1.4325	(N/A)
A80	6173.9	A82	6172.54	8	288	0.005	0.014	0	0	0.4983	(N/A)
S53	6501.6	S52	6477.5	6	290.8	0.083	0.011	0	0	1.2333	(N/A)
A17	6266.57	A18	6226.07	6	292.4	0.139	0.009	0	0	1.9508	(N/A)
T47	6144.47	T46	6137.22	6	299.6	0.024	0.011	0	0	0.6662	(N/A)
A39	6228.59	A38	6221.8	6	304.6	0.022	0.011	0	0	0.6394	(N/A)
A45	6240.52	A44	6226.5	6	295.5	0.047	0.011	0	0	0.9327	(N/A)
S51	6456.4	A26	6431.2	6	296.1	0.085	0.011	0	0	1.2505	(N/A)
R27	6373.42	R26	6315.62	6	297.5	0.195	0.009	0	0	2.3108	(N/A)
W54	6325	W53	6284.2	6	317.6	0.128	0.009	0	0	1.8762	(N/A)
S52	6477.5	S51	6456.4	6	307.3	0.069	0.011	0	0	1.1235	(N/A)
E54	6181.34	E55	6174.75	6	307.9	0.021	0.014	0	0	0.4925	(N/A)
A37	6276.25	A36	6274.65	6	312.5	0.005	0.011	0	0	0.3064	(N/A)
E15	6221.13	E16	6196.92	8	312.1	0.078	0.014	0	0	2.0201	(N/A)
A77	6235.7	A76	6224.8	6	312.6	0.035	0.011	0	0	0.7998	(N/A)
A24	6452.9	A25	6442.5	6	316.1	0.033	0.011	0	0	0.7775	(N/A)
E04	6212.9	E03	6201.08	8	313.9	0.038	0.014	0	0	1.407	(N/A)
E62	6173.52	E61	6167.48	6	315.2	0.019	0.014	0	0	0.4663	(N/A)
H99	6325	H98	6300.65	6	323.1	0.075	0.009	0	0	1.4382	(N/A)
A60	6197.3	A59	6187.89	6	318.4	0.03	0.011	0	0	0.7372	(N/A)
A14	6342	A15	6339.98	6	321.5	0.006	0.009	0	0	0.4149	(N/A)
A55	6225.9	A58	6189.07	6	325.8	0.113	0.011	0	0	1.4405	(N/A)
A18	6226.07	W19	6198.4	6	330.3	0.084	0.009	0	0	1.5168	(N/A)
A41	6228.1	A42	6209.99	6	342.3	0.053	0.011	0	0	0.9862	(N/A)
E46	6195.29	E47	6187.9	6	334.9	0.022	0.014	0	0	0.5001	(N/A)
A70	6192.16	A71	6189.96	6	336.1	0.007	0.011	0	0	0.3468	(N/A)
H98	6300.65	H97	6253.93	6	342.5	0.136	0.014	0	0	1.2428	(N/A)
E06	6193.66	E07	6192.8	8	343.1	0.003	0.014	0	0	0.3631	(N/A)
E63A	6176.1	E63	6170.92	6	344.2	0.015	0.014	0	0	0.4132	(N/A)
WY-A30	6367.64	A30	6354.41	6	350.8	0.038	0.011	0	0	0.8322	(N/A)

Scenario 1 - Existing Sewer System ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
A44	6226.5	A42	6209.99	6	349.7	0.047	0.011	0	0	0.9308	(N/A)
R35	6527.25	R34	6492.02	6	354.5	0.099	0.009	0	0	1.6501	(N/A)
A16	6296	A17	6266.57	6	362.2	0.081	0.009	0	0	1.4935	(N/A)
R32	6438.52	R30	6397.4	6	383	0.107	0.009	0	0	1.7163	(N/A)
A47	6270.09	A45	6240.52	6	393.7	0.075	0.011	0	0	1.1741	(N/A)
R33	6479.22	R32	6438.52	6	402.5	0.101	0.009	0	0	1.6646	(N/A)
A62	6200.59	A63	6189.85	6	401.4	0.027	0.011	0	0	0.7014	(N/A)
A31	6331.83	A32	6312.94	6	411.8	0.046	0.011	0	0	0.9176	(N/A)
A30	6354.41	A31	6331.83	6	414.9	0.054	0.011	0	0	0.9997	(N/A)
A15	6339.98	A17	6266.57	6	442.9	0.166	0.009	0	0	2.1323	(N/A)
R25	6228.2	R03	6174.1	6	442.4	0.122	0.009	0	0	1.8325	(N/A)
A27	6390.02	A29	6373.5	6	439.4	0.038	0.011	0	0	0.8314	(N/A)
R36	6532.02	R35	6527.25	6	450.7	0.011	0.009	0	0	0.5387	(N/A)
A32	6312.94	A33	6291.81	6	453.9	0.047	0.011	0	0	0.9245	(N/A)
A33	6291.81	A34	6270.5	6	459.4	0.046	0.011	0	0	0.9235	(N/A)
W56	6367.24	W55	6346	6	454.3	0.047	0.009	0	0	1.133	(N/A)
W52	6267.5	W40	6205.97	6	494.1	0.125	0.009	0	0	1.8486	(N/A)
A78	6252.82	A76	6224.8	6	490.9	0.057	0.011	0	0	1.0238	(N/A)

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T18	6172.23	T19	6172.22	15	352.3	0	0.011	1.22	0.9644	0.263	367
T43	6074.26	TTSA	6068.27	10	315.7	0.019	0.011	7.36	2.007	2.304	87
T34A	6147.66	T34	6147.26	15	190.9	0.002	0.011	3.1	1.6254	2.2579	72
T36	6135.02	T37	6133.91	15	388.1	0.003	0.011	3.5	1.6254	2.639	62
R07	6177.61	R06	6177.33	10	223	0.001	0.009	2.15	0.4322	0.7248	60
T32	6152.41	T33	6152.3	15	64.4	0.002	0.011	2.65	1.15	2.0455	56
T20	6171.56	T21	6171	15	333.1	0.002	0.011	2.61	1.1157	2.0233	55
T35	6135.54	T36	6135.04	15	136.3	0.004	0.011	3.85	1.6254	2.9916	54
T31	6153.03	T32	6152.44	15	319.8	0.002	0.011	2.73	1.1495	2.1186	54
T37A	6127.12	T38	6124.19	12	222.5	0.013	0.011	6.25	1.6564	3.1262	53
T23	6167.87	T24	6166.89	15	484.5	0.002	0.011	2.82	1.1465	2.2201	52
T25	6164.79	T26	6164.11	15	313.9	0.002	0.011	2.89	1.1465	2.296	50
T41	6084.93	T43	6074.46	12	286	0.037	0.014	8.02	2.007	4.0909	49
T30	6153.45	T31	6153.11	15	146.3	0.002	0.011	2.98	1.1495	2.381	48
T15	6175.28	T16	6175	15	184.4	0.002	0.011	2.39	0.9114	1.9247	47
T26A	6163.71	T27	6163.36	15	143.1	0.002	0.011	3.03	1.1465	2.4409	47
T04A	6191.75	T05	6191.63	15	167.6	0.001	0.011	1.63	0.6148	1.3186	47
T26	6164.09	T26A	6163.72	15	138.9	0.003	0.011	3.13	1.1465	2.5456	45
GV148	6168.77	T23	6167.91	15	308.6	0.003	0.011	3.18	1.1465	2.6029	44
T22	6169.61	GV148	6168.77	15	298.6	0.003	0.011	3.19	1.1465	2.6151	44
T38	6124.14	T39	6123.05	15	180.9	0.006	0.011	4.65	1.6564	3.8288	43
T37	6133.82	T37A	6127.41	12	311.6	0.021	0.011	7.38	1.6564	3.9005	43
T21	6170.97	T22	6169.62	15	450.1	0.003	0.011	3.27	1.1465	2.7024	42
R10	6179.81	R09	6179.04	10	310.2	0.002	0.009	2.76	0.4254	1.0194	42
T39A	6118.72	T39B	6115.51	15	305.7	0.010	0.014	4.78	1.6564	3.9705	42
R12A	6181.92	R12	6181.39	10	216.9	0.002	0.009	2.73	0.4134	1.0108	41
R11	6180.44	R10	6179.81	10	252.7	0.002	0.009	2.75	0.4134	1.0206	41
W46	6201.41	W13	6201.1	10	333.6	0.001	0.024	0.63	0.0945	0.2337	40
T29	6154.13	T30	6153.52	15	181.2	0.003	0.011	3.41	1.1465	2.8643	40
T34	6147.18	T35	6135.64	12	516.5	0.022	0.011	7.56	1.6254	4.0656	40
R13	6182.3	R12A	6181.92	10	147.7	0.003	0.009	2.78	0.4134	1.0364	40
T13	6177.18	T14	6176.43	15	345.9	0.002	0.011	2.73	0.9114	2.2971	40
T11	6178.37	T12	6177.7	15	304.2	0.002	0.011	2.74	0.9108	2.3163	39
T19	6172.21	T20	6171.57	15	189	0.003	0.011	3.39	1.1157	2.8711	39
T10	6179.38	T11	6178.39	15	446.5	0.002	0.011	2.73	0.8869	2.3246	38
T45	6114.8	T40	6102.8	6	294.9	0.041	0.011	6.34	0.3273	0.8644	38

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T12	6177.65	T13	6177.2	15	187.8	0.002	0.011	2.83	0.9108	2.4139	38
R16	6186.3	R15	6185.3	10	344.7	0.003	0.009	2.9	0.4134	1.1012	38
R12	6181.39	R11	6180.44	10	323.8	0.003	0.009	2.91	0.4134	1.1075	37
T09	6180.37	T10	6179.41	15	398.7	0.002	0.011	2.81	0.8782	2.4201	36
T14	6176.36	T15	6175.37	15	362.3	0.003	0.011	2.97	0.9114	2.5802	35
R09	6179.04	R07	6177.61	10	388.1	0.004	0.009	3.19	0.4254	1.2417	34
T16	6174.97	T17	6173.71	15	393.5	0.003	0.011	3.19	0.951	2.7937	34
W37	6203.23	W36	6202.56	10	276.8	0.002	0.014	1.65	0.2158	0.6467	33
T5A	6191.07	T06	6190.69	15	254.9	0.001	0.011	2.15	0.6242	1.9046	33
T24	6166.88	T25	6164.8	15	410.9	0.005	0.011	3.96	1.1465	3.51	33
R14	6183.41	R13	6182.3	10	285.9	0.004	0.009	3.23	0.4134	1.2742	32
W36A	6201.95	W15	6201.3	10	204.4	0.003	0.014	1.87	0.238	0.7422	32
E34	6142	E33	6141.04	8	70.1	0.014	0.014	3.33	0.2659	0.8493	31
T17	6173.7	T18	6172.31	15	354.6	0.004	0.011	3.44	0.9644	3.0873	31
W13	6201.1	W14	6200.8	10	182.7	0.002	0.024	0.78	0.0968	0.3105	31
T08	6181.1	T09	6180.38	15	290.2	0.002	0.011	2.73	0.7599	2.4584	31
E30A	6121.96	T44	6120.73	8	175.9	0.007	0.009	3.68	0.2904	0.943	31
T44	6120.73	T44A	6119.54	8	165.1	0.007	0.009	3.72	0.2904	0.958	30
W36	6202.56	W36A	6201.95	10	165.8	0.004	0.014	1.97	0.238	0.7971	30
R15	6185.3	R14	6183.41	10	403.2	0.005	0.009	3.46	0.4134	1.4007	30
R03	6174.1	R02	6172.4	10	277.7	0.006	0.009	3.94	0.4692	1.5994	29
W38	6203.8	W37	6203.23	10	180.8	0.003	0.014	1.8	0.211	0.7379	29
E33	6141.04	E33A	6134.26	8	364.4	0.019	0.014	3.76	0.2787	0.9897	28
T28	6160.21	T29	6154.44	12	242.7	0.024	0.011	7.04	1.1465	4.1932	27
R06	6177.33	R04	6175.4	10	317.7	0.006	0.009	3.84	0.4322	1.5934	27
T40A	6095.26	T41	6084.93	12	205.9	0.05	0.009	12.45	2.007	7.4479	27
T33	6152.27	T34A	6147.67	15	308.3	0.015	0.011	6.45	1.6192	6.0297	27
R04	6175.4	R03	6174.1	10	198.7	0.007	0.009	3.96	0.4373	1.6531	27
W47	6202.9	W47A	6202.49	10	177.6	0.002	0.024	0.87	0.0945	0.3681	26
E33B	6126	E30	6124	8	79.8	0.025	0.014	4.21	0.281	1.1466	25
T27	6163.26	T28	6160.23	12	91.8	0.033	0.011	7.92	1.1465	4.9385	23
E30	6124	E30A	6121.96	8	106.7	0.019	0.011	4.58	0.2904	1.2744	23
T40	6102.8	T40A	6096.15	15	131.1	0.051	0.014	8.91	1.9837	8.7344	23
W39	6204.6	W38A	6204.49	10	157.8	0.001	0.014	0.79	0.078	0.3469	23
E33A	6134.26	E33B	6126	8	274.3	0.03	0.014	4.48	0.2787	1.2591	22
W38A	6204.49	W38	6203.8	10	111.2	0.006	0.014	2.29	0.2063	1.0367	20
R17	6187.4	R16	6186.3	12	268.6	0.004	0.009	3.24	0.4134	2.1268	19

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W49	6207.3	W48	6205.54	8	236.5	0.007	0.024	1.25	0.0704	0.3645	19
T44A	6119.54	T44B	6115.91	8	147.5	0.025	0.009	5.99	0.3273	1.7727	19
T05	6191.63	T5A	6191.07	15	120.5	0.005	0.011	3.22	0.6153	3.3565	18
E36	6152.75	E34	6142	8	266.8	0.04	0.014	4.85	0.2552	1.4551	18
T39	6122.96	T39A	6118.76	15	107.2	0.039	0.011	9.17	1.6564	9.7752	17
T44B	6115.91	T45	6114.8	8	33	0.034	0.009	6.7	0.3273	2.0689	16
W76	6200.78	W75	6199.86	6	166.5	0.006	0.009	2.22	0.0598	0.3899	15
E38	6158.84	E37	6157.08	8	379.4	0.005	0.014	1.58	0.075	0.4942	15
E56	6164.6	E60	6163.7	8	158.1	0.006	0.014	1.73	0.0791	0.5473	15
E40	6162.53	E39	6160.9	8	305.6	0.005	0.014	1.64	0.0717	0.5293	14
T07	6185.71	T08	6181.1	12	115.5	0.04	0.011	7.48	0.732	5.4484	13
E39	6160.9	E38	6158.84	8	357.5	0.006	0.014	1.68	0.0717	0.5501	13
R02	6172.4	R01	6166.5	10	175.4	0.034	0.009	7.26	0.4692	3.7555	13
E59	6159.16	E58	6157.66	8	196.4	0.008	0.014	1.92	0.0791	0.6344	13
T04	6192.53	T04A	6191.75	15	189.5	0.004	0.011	2.67	0.3691	3.1613	12
T39B	6115.45	T39C	6109.7	15	102	0.056	0.009	12.04	1.6564	14.3178	12
T39C	6109.65	T40	6102.95	15	116.1	0.058	0.009	12.15	1.6564	14.4927	11
T06	6190.69	T07	6185.71	15	357.3	0.014	0.011	4.79	0.6242	5.8274	11
T02	6195.75	T03	6193.82	15	389.9	0.005	0.011	2.85	0.3691	3.4709	11
T03	6193.82	T04	6192.53	15	233	0.006	0.011	2.97	0.3691	3.6712	10
W74	6198.13	W77	6196.45	10	305.1	0.006	0.009	2.74	0.1488	1.518	10
W77	6196.45	T04A	6191.75	10	215	0.022	0.011	4.46	0.2423	2.4743	10
R01	6166.5	T33	6152.27	10	159.2	0.089	0.011	8.91	0.4692	5.0063	9
E43	6166.59	E42	6164.73	8	392.4	0.005	0.014	1.38	0.0463	0.4995	9
E37	6157.08	E36	6152.75	8	286.5	0.015	0.014	2.45	0.0802	0.8923	9
E42	6164.73	E41	6163.44	8	250.9	0.005	0.014	1.42	0.0463	0.5199	9
E41	6163.44	E40	6162.53	8	158.7	0.006	0.014	1.48	0.0463	0.5486	8
W48	6205.54	W47	6202.9	10	191.4	0.014	0.024	1.55	0.0752	0.9017	8
W15	6201.3	W14	6200.8	10	16.7	0.029	0.011	4.93	0.238	2.87	8
E08	6191.52	E09	6190.98	8	298.3	0.002	0.009	1.29	0.0398	0.4802	8
T46	6137.22	T37	6133.82	6	429.3	0.008	0.011	1.82	0.031	0.3815	8
W75	6199.86	W74	6198.13	8	182.2	0.01	0.009	2.92	0.0873	1.0998	8
W47A	6202.49	W46	6201.41	10	42.8	0.025	0.024	2.05	0.0945	1.2156	8
E60	6163.7	E59	6159.16	8	210.7	0.022	0.014	2.76	0.0791	1.0637	7
W01	6196.4	W02	6191.76	8	89.7	0.052	0.014	4.21	0.1159	1.6466	7
W40A	6204.8	W39	6204.6	10	74.6	0.003	0.014	1.07	0.0422	0.679	6
W14	6200.8	T02	6195.75	10	41.8	0.12	0.011	8.95	0.3348	5.8028	6

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W49B	6212.68	W49A	6209.67	4	197.8	0.015	0.024	0.77	0.0044	0.0821	5
E58	6157.66	E36	6152.75	8	106.6	0.046	0.014	3.61	0.0791	1.5535	5
W49A	6209.67	W49	6207.3	6	160.1	0.015	0.024	0.98	0.012	0.2391	5
E09	6190.98	E10	6170.98	8	388.7	0.051	0.014	3.75	0.0791	1.6443	5
E10	6170.98	E56	6164.6	8	119.6	0.053	0.014	3.8	0.0791	1.6721	5
W73	6200.6	W74	6198.13	8	175.4	0.014	0.009	3.01	0.0615	1.3402	5
W42	6206.69	W40	6205.97	8	136	0.005	0.014	1.14	0.0215	0.5277	4
P03	6130.66	P13	6130.04	8	136.7	0.005	0.009	1.6	0.0277	0.7589	4
W43	6208.07	W42	6206.69	8	269	0.005	0.014	1.09	0.0189	0.5194	4
W08B	6195.85	W08A	6195.5	10	153.2	0.002	0.014	0.84	0.0227	0.6289	4
P04	6131.43	P03	6130.66	8	174.1	0.004	0.009	1.53	0.0243	0.7504	3
W08A	6195.5	W08	6194.9	10	207.5	0.003	0.014	0.92	0.0227	0.7079	3
W11	6197.9	W10	6197.3	10	184.7	0.003	0.014	0.95	0.0227	0.7488	3
P07	6132.36	P06	6131.89	8	91.2	0.005	0.009	1.61	0.0243	0.8107	3
P06	6131.89	P04	6131.43	8	88.9	0.005	0.009	1.61	0.0243	0.811	3
P08	6133.31	P07	6132.36	8	172.5	0.006	0.009	1.64	0.0243	0.8384	3
W09	6196.5	W08B	6195.85	10	179.3	0.004	0.014	0.99	0.0227	0.7923	3
W10	6197.3	W09	6196.5	10	210.8	0.004	0.014	1.01	0.0227	0.8096	3
A83	6170.48	E44	6168.57	8	426.6	0.004	0.014	0.94	0.0134	0.485	3
E44	6168.57	E43	6166.59	8	388.4	0.005	0.014	0.98	0.0134	0.518	3
W08	6194.9	W07	6193.75	10	233.1	0.005	0.014	1.1	0.0227	0.9237	3
W07	6193.75	W7A	6192.35	10	281.7	0.005	0.014	1.11	0.0227	0.9264	3
W40	6205.97	W40A	6204.8	10	65.4	0.018	0.014	2.09	0.0422	1.7641	2
W44	6209.56	W43	6208.07	8	300.4	0.005	0.014	0.93	0.0116	0.5111	2
W11A	6198.1	W11	6197.9	10	63.6	0.003	0.014	0.83	0.0151	0.735	2
W02	6191.76	T09	6180.37	8	36	0.316	0.009	10.84	0.1159	6.3452	2
W01B	6200.24	W01	6196.4	8	143.9	0.027	0.014	1.98	0.0201	1.1842	2
W28R	6209.61	W70	6208.91	8	114.2	0.006	0.014	0.95	0.0096	0.5683	2
W19	6198.4	W11A	6198.1	10	47.7	0.006	0.014	1.06	0.0151	1.0395	2
E29	6148	E30	6124	4	279.8	0.086	0.009	3.14	0.0061	0.5201	1
A82	6172.54	A83	6170.48	8	438	0.005	0.014	0.74	0.0058	0.4973	1
W70	6208.91	W71	6208.46	8	61.8	0.007	0.009	1.36	0.0096	0.9611	1
W05	6186.3	W04	6183.8	8	341	0.007	0.014	0.83	0.0052	0.6209	1
W06	6188.5	W05	6186.3	8	290.3	0.008	0.014	0.84	0.0052	0.6316	1
T01	6197.2	T02	6195.75	15	192.2	0.008	0.011	1.63	0.0343	4.2877	1
W12	6199.05	W19	6198.4	10	219.9	0.003	0.014	0.58	0.0051	0.7147	1
P13	6130.04	T44A	6119.54	8	68.8	0.152	0.009	5.61	0.0311	4.4006	1

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W62	6204.25	W38	6203.8	8	147.8	0.003	0.009	0.78	0.0041	0.622	1
W7A	6192.35	T08	6181.1	8	42.9	0.262	0.014	4.53	0.0227	3.7093	1
W24R	6194.82	T5A	6191.07	12	203.9	0.018	0.024	0.88	0.0089	1.691	1
W71	6208.46	W73	6200.6	8	262.8	0.03	0.009	2.24	0.0096	1.9502	1
E49	6176.69	E43	6166.59	8	199.5	0.051	0.014	1.87	0.008	1.6338	1
W45	6215	W44	6209.56	8	310.8	0.017	0.014	0.96	0.0031	0.9591	0
W61A	6206.51	W62	6204.25	8	181.9	0.012	0.009	1.22	0.0036	1.2571	0
W61	6208.51	W61A	6206.51	8	137.3	0.015	0.009	1.29	0.0036	1.363	0
P12	6154.64	P03	6130.66	6	248	0.097	0.009	2.59	0.0034	1.6288	0
W04	6183.8	T08	6181.1	8	18.3	0.15	0.014	2.35	0.0052	2.8087	0
E27	6162.4	E29	6148	8	160.6	0.089	0.009	2.81	0.0061	3.3737	0
E35	6142.9	E34	6142	8	248.4	0.004	0.014	0.34	0.0006	0.4369	0
E07	6192.8	E08	6191.52	8	221.4	0.006	0.014	0.38	0.0005	0.5519	0
E32	6154.49	E33	6141.04	6	101.9	0.132	0.014	1.25	0.0006	1.2228	0
W17	6197.6	T01	6197.2	8	5.5	0.08	0.011	0	0	2.6106	0
R7A	6178.02	R07	6177.61	10	18.4	0.023	0.009	0	0	3.0869	0
W32	6204.9	W31A	6203.82	6	27.5	0.039	0.011	0	0	0.8417	0
I46	6161.17	T32	6152.41	6	35.3	0.25	0.011	0	0	2.1441	0
T50A	6138.02	T46	6137.22	6	37.4	0.022	0.011	0	0	0.6302	0
T57	6141.7	T56	6140.81	6	41.2	0.022	0.011	0	0	0.6314	0
W60	6208.83	W61	6208.51	6	47.5	0.007	0.009	0	0	0.4277	0
W50B	6211.27	W50A	6209.59	8	47.6	0.035	0.024	0	0	0.7914	0
A86	6207.06	W11	6197.9	6	51.4	0.18	0.009	0	0	2.2199	0
T59	6139.47	T58	6138.95	6	51.5	0.01	0.011	0	0	0.4286	0
H88	6179.4	A82	6172.54	6	51.5	0.135	0.014	0	0	1.235	0
I47	6161.28	T33	6152.27	6	48.7	0.184	0.011	0	0	1.8377	0
A88	6255.14	A87	6238.06	6	54	0.316	0.009	0	0	2.9459	0
A84	6171.79	A83	6170.48	6	56.5	0.023	0.014	0	0	0.5105	0
A80A	6176	A80	6173.9	6	57.9	0.036	0.014	0	0	0.6407	0
A72	6194.12	A71	6189.96	6	59.7	0.069	0.011	0	0	1.1285	0
T58	6138.95	T50A	6138.02	6	59.4	0.016	0.011	0	0	0.5381	0
E25	6185.67	E24	6183.36	6	60.8	0.038	0.014	0	0	0.6553	0
R21	6237	R20	6235.68	6	60.9	0.022	0.009	0	0	0.7705	0
H85	6221.25	A84	6171.79	6	61.5	0.811	0.014	0	0	3.0321	0
T54	6139.31	T50	6138.76	6	63.3	0.009	0.011	0	0	0.4004	0
A79	6179	A80A	6176	6	64.2	0.047	0.014	0	0	0.729	0
W27R	6211.38	W28R	6209.61	6	65.2	0.027	0.014	0	0	0.5557	0

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A59	6187.89	T11	6178.37	6	70.8	0.134	0.011	0	0	1.5693	0
T52	6147.58	T51	6147.03	6	72.1	0.008	0.011	0	0	0.3746	0
H89	6195	H88	6179.4	6	73.3	0.214	0.014	0	0	1.5566	0
W31A	6203.82	W31	6203.49	6	74.8	0.004	0.011	0	0	0.2843	0
E42A	6172.38	E42	6164.73	6	76.7	0.099	0.014	0	0	1.0614	0
R24	6240.89	R23	6239.48	6	79.9	0.018	0.009	0	0	0.6954	0
I49	6151.1	T34A	6147.66	6	78.1	0.044	0.011	0	0	0.9	0
R31	6402.16	R30	6397.4	6	81.1	0.059	0.009	0	0	1.2698	0
W53	6284.2	W52	6267.5	6	87.7	0.19	0.009	0	0	2.2818	0
H90	6241	H89	6195	6	82	0.561	0.014	0	0	2.5221	0
W50R	6207.99	W49	6207.3	8	83	0.008	0.024	0	0	0.3867	0
A65	6188.5	T16	6174.97	6	95.2	0.142	0.011	0	0	1.6174	0
A56	6227.51	A55	6225.9	6	87.7	0.018	0.011	0	0	0.5797	0
A67	6187.47	T17	6173.7	6	90.3	0.153	0.011	0	0	1.6763	0
T55	6139.91	T54	6139.31	6	89.6	0.007	0.011	0	0	0.3499	0
W72	6212.72	W71	6208.46	6	90.7	0.047	0.009	0	0	1.1333	0
W50	6208.76	W50R	6207.99	8	91.6	0.008	0.024	0	0	0.3867	0
T48	6149.75	T47A	6148.6	6	92.5	0.012	0.011	0	0	0.4792	0
W31	6203.49	W30	6202.96	6	95.5	0.006	0.011	0	0	0.3201	0
A73	6189.48	T20	6171.56	6	97.4	0.185	0.014	0	0	1.4473	0
H101	6301.43	H100	6274.02	6	97.9	0.28	0.009	0	0	2.7702	0
W50A	6209.59	W50	6208.76	8	99.5	0.008	0.024	0	0	0.3867	0
I45	6162.25	I46	6161.17	6	101.6	0.011	0.011	0	0	0.441	0
T51	6147.03	T50	6138.76	6	103.3	0.08	0.011	0	0	1.2144	0
A71	6189.96	T19	6172.21	6	111.5	0.158	0.011	0	0	1.7061	0
T50	6138.76	T50A	6138.02	6	106.2	0.007	0.011	0	0	0.3581	0
W26	6216.5	W27R	6211.38	6	107.4	0.048	0.014	0	0	0.7366	0
H87	6258.4	H85	6221.25	6	108.1	0.344	0.009	0	0	3.0721	0
A74	6184.2	T21	6170.97	6	114.7	0.115	0.014	0	0	1.1421	0
T53	6148.29	T52	6147.58	6	108.2	0.007	0.011	0	0	0.3475	0
A25	6442.5	A26	6431.2	6	110.2	0.103	0.011	0	0	1.3736	0
W55	6346	W54	6325	6	122.6	0.171	0.009	0	0	2.1643	0
T56	6140.81	T55	6139.91	6	114.3	0.008	0.011	0	0	0.3808	0
A58	6189.07	A59	6187.89	6	114.8	0.01	0.011	0	0	0.4341	0
A28	6399.9	A27	6390.02	6	114.8	0.086	0.011	0	0	1.2562	0
R23	6239.48	R21	6237	6	115.7	0.021	0.009	0	0	0.7659	0
A75	6196.26	A74	6184.2	6	118.5	0.101	0.014	0	0	1.072	0

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A68	6205.95	A67	6187.47	4	120.2	0.154	0.011	0	0	0.5704	0
H100	6274.02	H97	6253.93	6	122	0.165	0.014	0	0	1.3664	0
E12	6205	E11	6181.95	6	124.6	0.184	0.014	0	0	1.446	0
E03	6201.08	E06	6193.66	8	125.1	0.059	0.014	0	0	1.7668	0
A57	6230.5	A56	6227.51	6	125.6	0.024	0.011	0	0	0.6602	0
W38B	6206	W38A	6204.49	6	126.9	0.012	0.009	0	0	0.5712	0
H97	6253.93	E45	6200.14	6	127.5	0.42	0.014	0	0	2.1829	0
T48A	6150.78	T48	6149.75	6	127.8	0.008	0.011	0	0	0.3844	0
E28	6168.1	E27	6162.4	6	127.8	0.045	0.014	0	0	0.7106	0
E24	6183.36	E23	6182.44	6	134.9	0.007	0.014	0	0	0.278	0
R29	6382.72	R28	6377	6	135.9	0.042	0.009	0	0	1.0742	0
A37A	6289.49	A37	6276.25	6	137	0.097	0.011	0	0	1.3323	0
E23	6182.44	E11	6181.95	8	137	0.004	0.014	0	0	0.4337	0
I48	6165.85	I47	6161.28	6	137.2	0.033	0.011	0	0	0.7827	0
R28	6377	R27	6373.42	6	150.2	0.024	0.009	0	0	0.8092	0
W57	6222.4	W58	6221.2	6	141.4	0.009	0.009	0	0	0.4832	0
C3	6211.2	C4	6209.5	6	142.1	0.012	0.009	0	0	0.5731	0
W59	6216.33	W60	6208.83	8	143.9	0.052	0.009	0	0	2.5745	0
C1	6220	C2	6215.76	6	147.8	0.029	0.009	0	0	0.8866	0
C2	6215.76	C3	6211.2	6	148.8	0.031	0.009	0	0	0.9163	0
R34	6492.02	R33	6479.22	6	158.3	0.081	0.009	0	0	1.4909	0
A46	6283.8	A45	6240.52	4	153	0.283	0.011	0	0	0.7731	0
A29	6373.5	WY-A30	6367.64	6	148.4	0.04	0.011	0	0	0.8525	0
H105	6308.4	H101	6301.43	6	156.7	0.044	0.009	0	0	1.1037	0
W01C	6202.32	W01B	6200.24	8	158.8	0.013	0.014	0	0	0.8294	0
W25R	6219.26	W72	6212.72	6	159.7	0.041	0.009	0	0	1.059	0
H102	6312.81	H101	6301.43	6	160.3	0.071	0.014	0	0	0.898	0
H86	6233.9	H85	6221.25	6	161.3	0.079	0.009	0	0	1.4683	0
W34	6209.72	W33A	6207.9	6	161.7	0.011	0.011	0	0	0.4543	0
E17	6190.77	E10	6170.98	8	163.1	0.121	0.014	0	0	2.5269	0
R22	6257.85	R21	6237	6	165.1	0.126	0.009	0	0	1.862	0
E26	6192.8	E27	6162.4	6	165.7	0.183	0.014	0	0	1.441	0
A43	6238.36	A42	6209.99	6	170.1	0.167	0.011	0	0	1.7507	0
E51	6174	E63	6170.92	6	171.2	0.018	0.014	0	0	0.4519	0
A69	6191.4	A67	6187.47	6	172.6	0.023	0.011	0	0	0.6459	0
W58	6221.2	W59	6216.33	8	173	0.028	0.009	0	0	1.8927	0
E50	6176.54	E51	6174	6	173.6	0.015	0.014	0	0	0.4068	0

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
H103	6338.71	H102	6312.81	6	174.2	0.149	0.009	0	0	2.0209	0
H94	6266.2	A78	6252.82	6	175.4	0.076	0.011	0	0	1.185	0
M1	6193.3	T09	6180.37	6	177.7	0.073	0.011	0	0	1.1551	0
A40	6231.01	A39	6228.59	6	179.1	0.014	0.011	0	0	0.4983	0
E63	6170.92	E40	6162.53	6	181	0.046	0.014	0	0	0.725	0
E16	6196.92	E17	6190.77	6	183.3	0.034	0.014	0	0	0.6173	0
E31	6177.11	E32	6154.49	6	185.1	0.122	0.014	0	0	1.1775	0
W33A	6207.9	W32	6204.9	6	185.7	0.016	0.011	0	0	0.5443	0
H95	6287	H94	6266.2	6	188.4	0.111	0.011	0	0	1.4255	0
W30	6202.96	W17	6197.6	8	190.2	0.028	0.011	0	0	1.5502	0
H91	6261.21	H87	6258.4	6	194	0.014	0.009	0	0	0.6304	0
A66	6188.9	A67	6187.47	6	194.2	0.007	0.011	0	0	0.3679	0
R18	6203.31	R10	6179.81	6	204.3	0.115	0.009	0	0	1.7778	0
A37B	6300.03	A37A	6289.49	6	199.7	0.053	0.011	0	0	0.9838	0
E53	6183.02	E52	6179.55	6	199.8	0.017	0.014	0	0	0.4435	0
E14	6222.16	E15	6221.13	8	205.9	0.005	0.014	0	0	0.5128	0
R30	6397.4	R28	6377	6	207.4	0.099	0.009	0	0	1.6444	0
H92	6277.37	H91	6261.21	6	209.7	0.077	0.009	0	0	1.453	0
C4	6209.5	W01	6196.4	6	214.2	0.061	0.014	0	0	0.8331	0
A26	6431.2	A27	6390.02	6	216.2	0.191	0.011	0	0	1.8713	0
E47	6187.9	E49	6176.69	6	218.2	0.051	0.014	0	0	0.7636	0
E45	6200.14	E46	6195.29	6	219.6	0.022	0.014	0	0	0.5	0
T47A	6148.6	T47	6144.47	6	220	0.019	0.011	0	0	0.5872	0
R20	6235.68	R19	6221.55	6	224.3	0.063	0.009	0	0	1.3156	0
H106	6320.37	H105	6308.4	6	225.6	0.053	0.009	0	0	1.2055	0
A87	6238.06	A86	6207.06	6	225.8	0.137	0.009	0	0	1.94	0
A42	6209.99	A65	6188.5	6	227.6	0.094	0.011	0	0	1.3157	0
A63	6189.85	A65	6188.5	6	228.3	0.006	0.011	0	0	0.3298	0
W41	6242.85	W40	6205.97	6	236.1	0.156	0.014	0	0	1.3311	0
E61	6167.48	E60	6163.7	6	246.5	0.015	0.014	0	0	0.4166	0
A34	6270.5	A35	6260	6	249.2	0.042	0.011	0	0	0.8801	0
E52	6179.55	E51	6174	6	254.3	0.022	0.014	0	0	0.4978	0
E55	6174.75	E56	6164.6	6	258.7	0.039	0.014	0	0	0.6666	0
A36	6274.65	A35	6260	6	259.8	0.056	0.011	0	0	1.0173	0
R19	6221.55	R18	6203.31	6	262.7	0.069	0.009	0	0	1.3794	0
A35	6260	A38	6221.8	6	253.7	0.15	0.011	0	0	1.662	0
H104	6343.76	H103	6338.71	6	265.4	0.019	0.009	0	0	0.7231	0

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
E11	6181.95	E10	6170.98	8	270.8	0.04	0.009	0	0	2.2696	0
A76	6224.8	A75	6196.26	6	271.3	0.105	0.011	0	0	1.3908	0
E13	6223.4	E12	6205	6	272.2	0.068	0.014	0	0	0.8758	0
E02	6202.06	E03	6201.08	8	278.8	0.004	0.014	0	0	0.4298	0
R26	6315.62	R25	6228.2	6	276	0.317	0.009	0	0	2.9479	0
E01	6203.03	E02	6202.06	8	277.8	0.003	0.014	0	0	0.4284	0
A38	6221.8	A71	6189.96	6	284.8	0.112	0.011	0	0	1.4325	0
A80	6173.9	A82	6172.54	8	288	0.005	0.014	0	0	0.4983	0
S53	6501.6	S52	6477.5	6	290.8	0.083	0.011	0	0	1.2333	0
A17	6266.57	A18	6226.07	6	292.4	0.139	0.009	0	0	1.9508	0
T47	6144.47	T46	6137.22	6	299.6	0.024	0.011	0	0	0.6662	0
A39	6228.59	A38	6221.8	6	304.6	0.022	0.011	0	0	0.6394	0
A45	6240.52	A44	6226.5	6	295.5	0.047	0.011	0	0	0.9327	0
S51	6456.4	A26	6431.2	6	296.1	0.085	0.011	0	0	1.2505	0
R27	6373.42	R26	6315.62	6	297.5	0.195	0.009	0	0	2.3108	0
W54	6325	W53	6284.2	6	317.6	0.128	0.009	0	0	1.8762	0
S52	6477.5	S51	6456.4	6	307.3	0.069	0.011	0	0	1.1235	0
E54	6181.34	E55	6174.75	6	307.9	0.021	0.014	0	0	0.4925	0
A37	6276.25	A36	6274.65	6	312.5	0.005	0.011	0	0	0.3064	0
E15	6221.13	E16	6196.92	8	312.1	0.078	0.014	0	0	2.0201	0
A77	6235.7	A76	6224.8	6	312.6	0.035	0.011	0	0	0.7998	0
A24	6452.9	A25	6442.5	6	316.1	0.033	0.011	0	0	0.7775	0
E04	6212.9	E03	6201.08	8	313.9	0.038	0.014	0	0	1.407	0
E62	6173.52	E61	6167.48	6	315.2	0.019	0.014	0	0	0.4663	0
H99	6325	H98	6300.65	6	323.1	0.075	0.009	0	0	1.4382	0
A60	6197.3	A59	6187.89	6	318.4	0.03	0.011	0	0	0.7372	0
A14	6342	A15	6339.98	6	321.5	0.006	0.009	0	0	0.4149	0
A55	6225.9	A58	6189.07	6	325.8	0.113	0.011	0	0	1.4405	0
A18	6226.07	W19	6198.4	6	330.3	0.084	0.009	0	0	1.5168	0
A41	6228.1	A42	6209.99	6	342.3	0.053	0.011	0	0	0.9862	0
E46	6195.29	E47	6187.9	6	334.9	0.022	0.014	0	0	0.5001	0
A70	6192.16	A71	6189.96	6	336.1	0.007	0.011	0	0	0.3468	0
H98	6300.65	H97	6253.93	6	342.5	0.136	0.014	0	0	1.2428	0
E06	6193.66	E07	6192.8	8	343.1	0.003	0.014	0	0	0.3631	0
E63A	6176.1	E63	6170.92	6	344.2	0.015	0.014	0	0	0.4132	0
WY-A30	6367.64	A30	6354.41	6	350.8	0.038	0.011	0	0	0.8322	0
A44	6226.5	A42	6209.99	6	349.7	0.047	0.011	0	0	0.9308	0

Scenario 1 - Existing Sewer System PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
R35	6527.25	R34	6492.02	6	354.5	0.099	0.009	0	0	1.6501	0
A16	6296	A17	6266.57	6	362.2	0.081	0.009	0	0	1.4935	0
R32	6438.52	R30	6397.4	6	383	0.107	0.009	0	0	1.7163	0
A47	6270.09	A45	6240.52	6	393.7	0.075	0.011	0	0	1.1741	0
R33	6479.22	R32	6438.52	6	402.5	0.101	0.009	0	0	1.6646	0
A62	6200.59	A63	6189.85	6	401.4	0.027	0.011	0	0	0.7014	0
A31	6331.83	A32	6312.94	6	411.8	0.046	0.011	0	0	0.9176	0
A30	6354.41	A31	6331.83	6	414.9	0.054	0.011	0	0	0.9997	0
A15	6339.98	A17	6266.57	6	442.9	0.166	0.009	0	0	2.1323	0
R25	6228.2	R03	6174.1	6	442.4	0.122	0.009	0	0	1.8325	0
A27	6390.02	A29	6373.5	6	439.4	0.038	0.011	0	0	0.8314	0
R36	6532.02	R35	6527.25	6	450.7	0.011	0.009	0	0	0.5387	0
A32	6312.94	A33	6291.81	6	453.9	0.047	0.011	0	0	0.9245	0
A33	6291.81	A34	6270.5	6	459.4	0.046	0.011	0	0	0.9235	0
W56	6367.24	W55	6346	6	454.3	0.047	0.009	0	0	1.133	0
W52	6267.5	W40	6205.97	6	494.1	0.125	0.009	0	0	1.8486	0
A78	6252.82	A76	6224.8	6	490.9	0.057	0.011	0	0	1.0238	0

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T18	6172.23	T19	6172.22	15	352.3	0	0.011	1.22	0.9570	0.263	(N/A)
T43	6074.26	TTSA	6068.27	10	315.7	0.019	0.011	6.85	1.3874	2.304	56
T34A	6147.66	T34	6147.26	15	190.9	0.002	0.011	2.91	1.2297	2.2579	53
T32	6152.41	T33	6152.3	15	64.4	0.002	0.011	2.59	1.0335	2.0455	51
T20	6171.56	T21	6171	15	333.1	0.002	0.011	2.56	1.0194	2.0233	50
T31	6153.03	T32	6152.44	15	319.8	0.002	0.011	2.66	1.0333	2.1186	49
T15	6175.28	T16	6175	15	184.4	0.002	0.011	2.42	0.9352	1.9247	49
T36	6135.02	T37	6133.91	15	388.1	0.003	0.011	3.27	1.2297	2.639	48
T23	6167.87	T24	6166.89	15	484.5	0.002	0.011	2.75	1.0321	2.2201	48
T25	6164.79	T26	6164.11	15	313.9	0.002	0.011	2.82	1.0321	2.296	47
T30	6153.45	T31	6153.11	15	146.3	0.002	0.011	2.9	1.0333	2.381	46
T26A	6163.71	T27	6163.36	15	143.1	0.002	0.011	2.95	1.0321	2.4409	46
T35	6135.54	T36	6135.04	15	136.3	0.004	0.011	3.59	1.2297	2.9916	45
T13	6177.18	T14	6176.43	15	345.9	0.002	0.011	2.75	0.9352	2.2971	45
T26	6164.09	T26A	6163.72	15	138.9	0.003	0.011	3.05	1.0321	2.5456	45
T11	6178.37	T12	6177.7	15	304.2	0.002	0.011	2.77	0.9349	2.3163	44
T10	6179.38	T11	6178.39	15	446.5	0.002	0.011	2.77	0.9250	2.3246	44
T37A	6127.12	T38	6124.19	12	222.5	0.013	0.011	5.81	1.2425	3.1262	44
GV148	6168.77	T23	6167.91	15	308.6	0.003	0.011	3.1	1.0321	2.6029	44
T22	6169.61	GV148	6168.77	15	298.6	0.003	0.011	3.11	1.0321	2.6151	44
T12	6177.65	T13	6177.2	15	187.8	0.002	0.011	2.85	0.9349	2.4139	43
T21	6170.97	T22	6169.62	15	450.1	0.003	0.011	3.19	1.0321	2.7024	43
T09	6180.37	T10	6179.41	15	398.7	0.002	0.011	2.85	0.9214	2.4201	43
T14	6176.36	T15	6175.37	15	362.3	0.003	0.011	3	0.9352	2.5802	42
T29	6154.13	T30	6153.52	15	181.2	0.003	0.011	3.33	1.0321	2.8643	42
T08	6181.1	T09	6180.38	15	290.2	0.002	0.011	2.84	1.0194	2.4584	41
T19	6172.21	T20	6171.57	15	189	0.003	0.011	3.32	0.8726	2.8711	41
T16	6174.97	T17	6173.71	15	393.5	0.003	0.011	3.19	0.9515	2.7937	40
T41	6084.93	T43	6074.46	12	286	0.037	0.014	7.29	1.3874	4.0909	40
T38	6124.14	T39	6123.05	15	180.9	0.006	0.011	4.32	1.2425	3.8288	39
T37	6133.82	T37A	6127.41	12	311.6	0.021	0.011	6.83	1.2425	3.9005	39
T39A	6118.72	T39B	6115.51	15	305.7	0.01	0.014	4.43	1.2425	3.9705	39
T17	6173.7	T18	6172.31	15	354.6	0.004	0.011	3.44	0.9570	3.0873	38
T34	6147.18	T35	6135.64	12	516.5	0.022	0.011	7.03	1.2297	4.0656	38

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T24	6166.88	T25	6164.8	15	410.9	0.005	0.011	3.86	1.0321	3.51	37
T28	6160.21	T29	6154.44	12	242.7	0.024	0.011	6.85	1.0321	4.1932	34
R07	6177.61	R06	6177.33	10	223	0.001	0.009	1.7	0.1783	0.7248	34
T27	6163.26	T28	6160.23	12	91.8	0.033	0.011	7.71	1.0321	4.9385	31
T33	6152.27	T34A	6147.67	15	308.3	0.015	0.011	5.98	1.2271	6.0297	31
T04A	6191.75	T05	6191.63	15	167.6	0.001	0.011	1.28	0.2537	1.3186	30
T40A	6095.26	T41	6084.93	12	205.9	0.05	0.009	11.24	1.3874	7.4479	29
R10	6179.81	R09	6179.04	10	310.2	0.002	0.009	2.16	0.1755	1.0194	28
R12A	6181.92	R12	6181.39	10	216.9	0.002	0.009	2.14	0.1706	1.0108	28
R11	6180.44	R10	6179.81	10	252.7	0.002	0.009	2.15	0.1706	1.0206	28
W46	6201.41	W13	6201.1	10	333.6	0.001	0.024	0.49	0.0389	0.2337	28
R13	6182.3	R12A	6181.92	10	147.7	0.003	0.009	2.17	0.1706	1.0364	28
T40	6102.8	T40A	6096.15	15	131.1	0.051	0.014	8.05	1.3778	8.7344	27
T45	6114.8	T40	6102.8	6	294.9	0.041	0.011	4.95	0.1353	0.8644	27
R16	6186.3	R15	6185.3	10	344.7	0.003	0.009	2.27	0.1706	1.1012	27
R12	6181.39	R11	6180.44	10	323.8	0.003	0.009	2.28	0.1706	1.1075	27
R09	6179.04	R07	6177.61	10	388.1	0.004	0.009	2.49	0.1755	1.2417	25
W37	6203.23	W36	6202.56	10	276.8	0.002	0.014	1.29	0.0891	0.6467	25
T5A	6191.07	T06	6190.69	15	254.9	0.001	0.011	1.68	0.2576	1.9046	25
R14	6183.41	R13	6182.3	10	285.9	0.004	0.009	2.52	0.1706	1.2742	25
W36A	6201.95	W15	6201.3	10	204.4	0.003	0.014	1.46	0.0983	0.7422	25
E34	6142	E33	6141.04	8	70.1	0.014	0.014	2.59	0.1099	0.8493	24
W13	6201.1	W14	6200.8	10	182.7	0.002	0.024	0.61	0.0398	0.3105	24
T39	6122.96	T39A	6118.76	15	107.2	0.039	0.011	8.47	0.1201	9.7752	24
E30A	6121.96	T44	6120.73	8	175.9	0.007	0.009	2.86	1.2425	0.943	24
T44	6120.73	T44A	6119.54	8	165.1	0.007	0.009	2.91	0.1201	0.958	24
W36	6202.56	W36A	6201.95	10	165.8	0.004	0.014	1.54	0.0983	0.7971	24
R15	6185.3	R14	6183.41	10	403.2	0.005	0.009	2.69	0.1706	1.4007	24
R03	6174.1	R02	6172.4	10	277.7	0.006	0.009	3.06	0.1936	1.5994	24
W38	6203.8	W37	6203.23	10	180.8	0.003	0.014	1.41	0.0871	0.7379	23
E33	6141.04	E33A	6134.26	8	364.4	0.019	0.014	2.93	0.1153	0.9897	23
R06	6177.33	R04	6175.4	10	317.7	0.006	0.009	2.99	0.1783	1.5934	23
R04	6175.4	R03	6174.1	10	198.7	0.007	0.009	3.08	0.1804	1.6531	22
W47	6202.9	W47A	6202.49	10	177.6	0.002	0.024	0.68	0.0389	0.3681	22
E33B	6126	E30	6124	8	79.8	0.025	0.014	3.26	0.1162	1.1466	22
E30	6124	E30A	6121.96	8	106.7	0.019	0.011	3.55	0.1201	1.2744	21

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
W39	6204.6	W38A	6204.49	10	157.8	0.001	0.014	0.62	0.0322	0.3469	21
E33A	6134.26	E33B	6126	8	274.3	0.03	0.014	3.48	0.1153	1.2591	20
T39B	6115.45	T39C	6109.7	15	102	0.056	0.009	11.09	1.2425	14.3178	20
T39C	6109.65	T40	6102.95	15	116.1	0.058	0.009	11.19	1.2425	14.4927	20
W38A	6204.49	W38	6203.8	10	111.2	0.006	0.014	1.77	0.0851	1.0367	19
R17	6187.4	R16	6186.3	12	268.6	0.004	0.009	2.51	0.1706	2.1268	19
W49	6207.3	W48	6205.54	8	236.5	0.007	0.024	0.97	0.0290	0.3645	19
T44A	6119.54	T44B	6115.91	8	147.5	0.025	0.009	4.64	0.1353	1.7727	19
T05	6191.63	T5A	6191.07	15	120.5	0.005	0.011	2.49	0.2539	3.3565	19
E36	6152.75	E34	6142	8	266.8	0.04	0.014	3.75	0.1054	1.4551	18
T44B	6115.91	T45	6114.8	8	33	0.034	0.009	5.18	0.1353	2.0689	17
W76	6200.78	W75	6199.86	6	166.5	0.006	0.009	1.72	0.0247	0.3899	17
E38	6158.84	E37	6157.08	8	379.4	0.005	0.014	1.22	0.0310	0.4942	17
E56	6164.6	E60	6163.7	8	158.1	0.006	0.014	1.33	0.0326	0.5473	17
E40	6162.53	E39	6160.9	8	305.6	0.005	0.014	1.26	0.0296	0.5293	16
T07	6185.71	T08	6181.1	12	115.5	0.04	0.011	5.77	0.3021	5.4484	16
E39	6160.9	E38	6158.84	8	357.5	0.006	0.014	1.3	0.0296	0.5501	16
R02	6172.4	R01	6166.5	10	175.4	0.034	0.009	5.6	0.1936	3.7555	15
E59	6159.16	E58	6157.66	8	196.4	0.008	0.014	1.48	0.0326	0.6344	15
T04	6192.53	T04A	6191.75	15	189.5	0.004	0.011	2.05	0.1522	3.1613	15
T06	6190.69	T07	6185.71	15	357.3	0.014	0.011	3.69	0.2576	5.8274	14
T02	6195.75	T03	6193.82	15	389.9	0.005	0.011	2.19	0.1522	3.4709	14
T03	6193.82	T04	6192.53	15	233	0.006	0.011	2.28	0.1522	3.6712	14
W74	6198.13	W77	6196.45	10	305.1	0.006	0.009	2.11	0.0615	1.518	14
W77	6196.45	T04A	6191.75	10	215	0.022	0.011	3.43	0.1001	2.4743	14
R01	6166.5	T33	6152.27	10	159.2	0.089	0.011	6.86	0.1936	5.0063	13
E43	6166.59	E42	6164.73	8	392.4	0.005	0.014	1.07	0.0191	0.4995	13
E37	6157.08	E36	6152.75	8	286.5	0.015	0.014	1.89	0.0332	0.8923	13
E42	6164.73	E41	6163.44	8	250.9	0.005	0.014	1.1	0.0191	0.5199	13
E41	6163.44	E40	6162.53	8	158.7	0.006	0.014	1.14	0.0191	0.5486	13
W48	6205.54	W47	6202.9	10	191.4	0.014	0.024	1.19	0.0310	0.9017	13
W15	6201.3	W14	6200.8	10	16.7	0.029	0.011	3.79	0.0983	2.87	13
E08	6191.52	E09	6190.98	8	298.3	0.002	0.009	0.99	0.0164	0.4802	13
T46	6137.22	T37	6133.82	6	429.3	0.008	0.011	1.39	0.0128	0.3815	13
W75	6199.86	W74	6198.13	8	182.2	0.01	0.009	2.24	0.0361	1.0998	12
W47A	6202.49	W46	6201.41	10	42.8	0.025	0.024	1.58	0.0389	1.2156	12

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
E60	6163.7	E59	6159.16	8	210.7	0.022	0.014	2.13	0.0326	1.0637	12
W01	6196.4	W02	6191.76	8	89.7	0.052	0.014	3.23	0.0478	1.6466	12
W40A	6204.8	W39	6204.6	10	74.6	0.003	0.014	0.82	0.0174	0.679	11
W14	6200.8	T02	6195.75	10	41.8	0.12	0.011	6.87	0.1381	5.8028	11
W49B	6212.68	W49A	6209.67	4	197.8	0.015	0.024	0.59	0.0018	0.0821	10
E58	6157.66	E36	6152.75	8	106.6	0.046	0.014	2.77	0.0326	1.5535	10
W49A	6209.67	W49	6207.3	6	160.1	0.015	0.024	0.75	0.0049	0.2391	10
E09	6190.98	E10	6170.98	8	388.7	0.051	0.014	2.88	0.0326	1.6443	10
E10	6170.98	E56	6164.6	8	119.6	0.053	0.014	2.91	0.0326	1.6721	10
W73	6200.6	W74	6198.13	8	175.4	0.014	0.009	2.33	0.0254	1.3402	10
W42	6206.69	W40	6205.97	8	136	0.005	0.014	0.88	0.0089	0.5277	9
P03	6130.66	P13	6130.04	8	136.7	0.005	0.009	1.22	0.0114	0.7589	9
W43	6208.07	W42	6206.69	8	269	0.005	0.014	0.84	0.0078	0.5194	9
W08B	6195.85	W08A	6195.5	10	153.2	0.002	0.014	0.65	0.0093	0.6289	9
P04	6131.43	P03	6130.66	8	174.1	0.004	0.009	1.17	0.0100	0.7504	8
W08A	6195.5	W08	6194.9	10	207.5	0.003	0.014	0.7	0.0093	0.7079	8
W11	6197.9	W10	6197.3	10	184.7	0.003	0.014	0.73	0.0093	0.7488	8
P07	6132.36	P06	6131.89	8	91.2	0.005	0.009	1.22	0.0100	0.8107	8
P06	6131.89	P04	6131.43	8	88.9	0.005	0.009	1.22	0.0100	0.811	8
P08	6133.31	P07	6132.36	8	172.5	0.006	0.009	1.25	0.0100	0.8384	8
W09	6196.5	W08B	6195.85	10	179.3	0.004	0.014	0.76	0.0093	0.7923	8
W10	6197.3	W09	6196.5	10	210.8	0.004	0.014	0.77	0.0093	0.8096	8
A83	6170.48	E44	6168.57	8	426.6	0.004	0.014	0.71	0.0055	0.485	8
E44	6168.57	E43	6166.59	8	388.4	0.005	0.014	0.75	0.0055	0.518	7
W08	6194.9	W07	6193.75	10	233.1	0.005	0.014	0.85	0.0093	0.9237	7
W07	6193.75	W7A	6192.35	10	281.7	0.005	0.014	0.85	0.0093	0.9264	7
W40	6205.97	W40A	6204.8	10	65.4	0.018	0.014	1.61	0.0174	1.7641	7
W44	6209.56	W43	6208.07	8	300.4	0.005	0.014	0.71	0.0048	0.5111	7
W11A	6198.1	W11	6197.9	10	63.6	0.003	0.014	0.63	0.0062	0.735	7
W02	6191.76	T09	6180.37	8	36	0.316	0.009	8.24	0.0478	6.3452	6
W28R	6209.61	W70	6208.91	8	114.2	0.006	0.014	0.72	0.0040	0.5683	6
W01B	6200.24	W01	6196.4	8	143.9	0.027	0.014	1.51	0.0083	1.1842	6
W19	6198.4	W11A	6198.1	10	47.7	0.006	0.014	0.81	0.0062	1.0395	6
A82	6172.54	A83	6170.48	8	438	0.005	0.014	0.57	0.0024	0.4973	5
E29	6148	E30	6124	4	279.8	0.086	0.009	2.34	0.0025	0.5201	5
W70	6208.91	W71	6208.46	8	61.8	0.007	0.009	1.04	0.0040	0.9611	5

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
W05	6186.3	W04	6183.8	8	341	0.007	0.014	0.65	0.0022	0.6209	4
W06	6188.5	W05	6186.3	8	290.3	0.008	0.014	0.66	0.0022	0.6316	4
T01	6197.2	T02	6195.75	15	192.2	0.008	0.011	1.23	0.0141	4.2877	4
W12	6199.05	W19	6198.4	10	219.9	0.003	0.014	0.45	0.0021	0.7147	4
P13	6130.04	T44A	6119.54	8	68.8	0.152	0.009	4.3	0.0128	4.4006	4
W62	6204.25	W38	6203.8	8	147.8	0.003	0.009	0.6	0.0017	0.622	4
W7A	6192.35	T08	6181.1	8	42.9	0.262	0.014	3.46	0.0093	3.7093	4
W24R	6194.82	T5A	6191.07	12	203.9	0.018	0.024	0.67	0.0037	1.691	4
W71	6208.46	W73	6200.6	8	262.8	0.03	0.009	1.73	0.0040	1.9502	3
E49	6176.69	E43	6166.59	8	199.5	0.051	0.014	1.45	0.0033	1.6338	3
W45	6215	W44	6209.56	8	310.8	0.017	0.014	0.74	0.0013	0.9591	3
W61A	6206.51	W62	6204.25	8	181.9	0.012	0.009	0.94	0.0015	1.2571	3
W61	6208.51	W61A	6206.51	8	137.3	0.015	0.009	1	0.0015	1.363	3
P12	6154.64	P03	6130.66	6	248	0.097	0.009	1.99	0.0022	1.6288	2
W04	6183.8	T08	6181.1	8	18.3	0.15	0.014	1.79	0.0014	2.8087	2
E27	6162.4	E29	6148	8	160.6	0.089	0.009	2.12	0.0025	3.3737	2
E35	6142.9	E34	6142	8	248.4	0.004	0.014	0.28	0.0003	0.4369	2
E07	6192.8	E08	6191.52	8	221.4	0.006	0.014	0.28	0.0002	0.5519	2
E32	6154.49	E33	6141.04	6	101.9	0.132	0.014	0.98	0.0003	1.2228	1
W17	6197.6	T01	6197.2	8	5.5	0.08	0.011	0	0.0000	2.6106	(N/A)
R7A	6178.02	R07	6177.61	10	18.4	0.023	0.009	0	0.0000	3.0869	(N/A)
W32	6204.9	W31A	6203.82	6	27.5	0.039	0.011	0	0.0000	0.8417	(N/A)
I46	6161.17	T32	6152.41	6	35.3	0.25	0.011	0	0.0000	2.1441	(N/A)
T50A	6138.02	T46	6137.22	6	37.4	0.022	0.011	0	0.0000	0.6302	(N/A)
T57	6141.7	T56	6140.81	6	41.2	0.022	0.011	0	0.0000	0.6314	(N/A)
W60	6208.83	W61	6208.51	6	47.5	0.007	0.009	0	0.0000	0.4277	(N/A)
W50B	6211.27	W50A	6209.59	8	47.6	0.035	0.024	0	0.0000	0.7914	(N/A)
A86	6207.06	W11	6197.9	6	51.4	0.18	0.009	0	0.0000	2.2199	(N/A)
T59	6139.47	T58	6138.95	6	51.5	0.01	0.011	0	0.0000	0.4286	(N/A)
H88	6179.4	A82	6172.54	6	51.5	0.135	0.014	0	0.0000	1.235	(N/A)
I47	6161.28	T33	6152.27	6	48.7	0.184	0.011	0	0.0000	1.8377	(N/A)
A88	6255.14	A87	6238.06	6	54	0.316	0.009	0	0.0000	2.9459	(N/A)
A84	6171.79	A83	6170.48	6	56.5	0.023	0.014	0	0.0000	0.5105	(N/A)
A80A	6176	A80	6173.9	6	57.9	0.036	0.014	0	0.0000	0.6407	(N/A)
A72	6194.12	A71	6189.96	6	59.7	0.069	0.011	0	0.0000	1.1285	(N/A)
T58	6138.95	T50A	6138.02	6	59.4	0.016	0.011	0	0.0000	0.5381	(N/A)

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
E25	6185.67	E24	6183.36	6	60.8	0.038	0.014	0	0.0000	0.6553	(N/A)
R21	6237	R20	6235.68	6	60.9	0.022	0.009	0	0.0000	0.7705	(N/A)
H85	6221.25	A84	6171.79	6	61.5	0.811	0.014	0	0.0000	3.0321	(N/A)
T54	6139.31	T50	6138.76	6	63.3	0.009	0.011	0	0.0000	0.4004	(N/A)
A79	6179	A80A	6176	6	64.2	0.047	0.014	0	0.0000	0.729	(N/A)
W27R	6211.38	W28R	6209.61	6	65.2	0.027	0.014	0	0.0000	0.5557	(N/A)
A59	6187.89	T11	6178.37	6	70.8	0.134	0.011	0	0.0000	1.5693	(N/A)
T52	6147.58	T51	6147.03	6	72.1	0.008	0.011	0	0.0000	0.3746	(N/A)
H89	6195	H88	6179.4	6	73.3	0.214	0.014	0	0.0000	1.5566	(N/A)
W31A	6203.82	W31	6203.49	6	74.8	0.004	0.011	0	0.0000	0.2843	(N/A)
E42A	6172.38	E42	6164.73	6	76.7	0.099	0.014	0	0.0000	1.0614	(N/A)
R24	6240.89	R23	6239.48	6	79.9	0.018	0.009	0	0.0000	0.6954	(N/A)
I49	6151.1	T34A	6147.66	6	78.1	0.044	0.011	0	0.0000	0.9	(N/A)
R31	6402.16	R30	6397.4	6	81.1	0.059	0.009	0	0.0000	1.2698	(N/A)
W53	6284.2	W52	6267.5	6	87.7	0.19	0.009	0	0.0000	2.2818	(N/A)
H90	6241	H89	6195	6	82	0.561	0.014	0	0.0000	2.5221	(N/A)
W50R	6207.99	W49	6207.3	8	83	0.008	0.024	0	0.0000	0.3867	(N/A)
A65	6188.5	T16	6174.97	6	95.2	0.142	0.011	0	0.0000	1.6174	(N/A)
A56	6227.51	A55	6225.9	6	87.7	0.018	0.011	0	0.0000	0.5797	(N/A)
A67	6187.47	T17	6173.7	6	90.3	0.153	0.011	0	0.0000	1.6763	(N/A)
T55	6139.91	T54	6139.31	6	89.6	0.007	0.011	0	0.0000	0.3499	(N/A)
W72	6212.72	W71	6208.46	6	90.7	0.047	0.009	0	0.0000	1.1333	(N/A)
W50	6208.76	W50R	6207.99	8	91.6	0.008	0.024	0	0.0000	0.3867	(N/A)
T48	6149.75	T47A	6148.6	6	92.5	0.012	0.011	0	0.0000	0.4792	(N/A)
W31	6203.49	W30	6202.96	6	95.5	0.006	0.011	0	0.0000	0.3201	(N/A)
A73	6189.48	T20	6171.56	6	97.4	0.185	0.014	0	0.0000	1.4473	(N/A)
H101	6301.43	H100	6274.02	6	97.9	0.28	0.009	0	0.0000	2.7702	(N/A)
W50A	6209.59	W50	6208.76	8	99.5	0.008	0.024	0	0.0000	0.3867	(N/A)
I45	6162.25	I46	6161.17	6	101.6	0.011	0.011	0	0.0000	0.441	(N/A)
T51	6147.03	T50	6138.76	6	103.3	0.08	0.011	0	0.0000	1.2144	(N/A)
A71	6189.96	T19	6172.21	6	111.5	0.158	0.011	0	0.0000	1.7061	(N/A)
T50	6138.76	T50A	6138.02	6	106.2	0.007	0.011	0	0.0000	0.3581	(N/A)
W26	6216.5	W27R	6211.38	6	107.4	0.048	0.014	0	0.0000	0.7366	(N/A)
H87	6258.4	H85	6221.25	6	108.1	0.344	0.009	0	0.0000	3.0721	(N/A)
A74	6184.2	T21	6170.97	6	114.7	0.115	0.014	0	0.0000	1.1421	(N/A)
T53	6148.29	T52	6147.58	6	108.2	0.007	0.011	0	0.0000	0.3475	(N/A)

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
A25	6442.5	A26	6431.2	6	110.2	0.103	0.011	0	0.0000	1.3736	(N/A)
W55	6346	W54	6325	6	122.6	0.171	0.009	0	0.0000	2.1643	(N/A)
T56	6140.81	T55	6139.91	6	114.3	0.008	0.011	0	0.0000	0.3808	(N/A)
A58	6189.07	A59	6187.89	6	114.8	0.01	0.011	0	0.0000	0.4341	(N/A)
A28	6399.9	A27	6390.02	6	114.8	0.086	0.011	0	0.0000	1.2562	(N/A)
R23	6239.48	R21	6237	6	115.7	0.021	0.009	0	0.0000	0.7659	(N/A)
A75	6196.26	A74	6184.2	6	118.5	0.101	0.014	0	0.0000	1.072	(N/A)
A68	6205.95	A67	6187.47	4	120.2	0.154	0.011	0	0.0000	0.5704	(N/A)
H100	6274.02	H97	6253.93	6	122	0.165	0.014	0	0.0000	1.3664	(N/A)
E12	6205	E11	6181.95	6	124.6	0.184	0.014	0	0.0000	1.446	(N/A)
E03	6201.08	E06	6193.66	8	125.1	0.059	0.014	0	0.0000	1.7668	(N/A)
A57	6230.5	A56	6227.51	6	125.6	0.024	0.011	0	0.0000	0.6602	(N/A)
W38B	6206	W38A	6204.49	6	126.9	0.012	0.009	0	0.0000	0.5712	(N/A)
H97	6253.93	E45	6200.14	6	127.5	0.42	0.014	0	0.0000	2.1829	(N/A)
T48A	6150.78	T48	6149.75	6	127.8	0.008	0.011	0	0.0000	0.3844	(N/A)
E28	6168.1	E27	6162.4	6	127.8	0.045	0.014	0	0.0000	0.7106	(N/A)
E24	6183.36	E23	6182.44	6	134.9	0.007	0.014	0	0.0000	0.278	(N/A)
R29	6382.72	R28	6377	6	135.9	0.042	0.009	0	0.0000	1.0742	(N/A)
A37A	6289.49	A37	6276.25	6	137	0.097	0.011	0	0.0000	1.3323	(N/A)
E23	6182.44	E11	6181.95	8	137	0.004	0.014	0	0.0000	0.4337	(N/A)
I48	6165.85	I47	6161.28	6	137.2	0.033	0.011	0	0.0000	0.7827	(N/A)
R28	6377	R27	6373.42	6	150.2	0.024	0.009	0	0.0000	0.8092	(N/A)
W57	6222.4	W58	6221.2	6	141.4	0.009	0.009	0	0.0000	0.4832	(N/A)
C3	6211.2	C4	6209.5	6	142.1	0.012	0.009	0	0.0000	0.5731	(N/A)
W59	6216.33	W60	6208.83	8	143.9	0.052	0.009	0	0.0000	2.5745	(N/A)
C1	6220	C2	6215.76	6	147.8	0.029	0.009	0	0.0000	0.8866	(N/A)
C2	6215.76	C3	6211.2	6	148.8	0.031	0.009	0	0.0000	0.9163	(N/A)
R34	6492.02	R33	6479.22	6	158.3	0.081	0.009	0	0.0000	1.4909	(N/A)
A46	6283.8	A45	6240.52	4	153	0.283	0.011	0	0.0000	0.7731	(N/A)
A29	6373.5	WY-A30	6367.64	6	148.4	0.04	0.011	0	0.0000	0.8525	(N/A)
H105	6308.4	H101	6301.43	6	156.7	0.044	0.009	0	0.0000	1.1037	(N/A)
W01C	6202.32	W01B	6200.24	8	158.8	0.013	0.014	0	0.0000	0.8294	(N/A)
W25R	6219.26	W72	6212.72	6	159.7	0.041	0.009	0	0.0000	1.059	(N/A)
H102	6312.81	H101	6301.43	6	160.3	0.071	0.014	0	0.0000	0.898	(N/A)
H86	6233.9	H85	6221.25	6	161.3	0.079	0.009	0	0.0000	1.4683	(N/A)
W34	6209.72	W33A	6207.9	6	161.7	0.011	0.011	0	0.0000	0.4543	(N/A)

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
E17	6190.77	E10	6170.98	8	163.1	0.121	0.014	0	0.0000	2.5269	(N/A)
R22	6257.85	R21	6237	6	165.1	0.126	0.009	0	0.0000	1.862	(N/A)
E26	6192.8	E27	6162.4	6	165.7	0.183	0.014	0	0.0000	1.441	(N/A)
A43	6238.36	A42	6209.99	6	170.1	0.167	0.011	0	0.0000	1.7507	(N/A)
E51	6174	E63	6170.92	6	171.2	0.018	0.014	0	0.0000	0.4519	(N/A)
A69	6191.4	A67	6187.47	6	172.6	0.023	0.011	0	0.0000	0.6459	(N/A)
W58	6221.2	W59	6216.33	8	173	0.028	0.009	0	0.0000	1.8927	(N/A)
E50	6176.54	E51	6174	6	173.6	0.015	0.014	0	0.0000	0.4068	(N/A)
H103	6338.71	H102	6312.81	6	174.2	0.149	0.009	0	0.0000	2.0209	(N/A)
H94	6266.2	A78	6252.82	6	175.4	0.076	0.011	0	0.0000	1.185	(N/A)
M1	6193.3	T09	6180.37	6	177.7	0.073	0.011	0	0.0000	1.1551	(N/A)
A40	6231.01	A39	6228.59	6	179.1	0.014	0.011	0	0.0000	0.4983	(N/A)
E63	6170.92	E40	6162.53	6	181	0.046	0.014	0	0.0000	0.725	(N/A)
E16	6196.92	E17	6190.77	6	183.3	0.034	0.014	0	0.0000	0.6173	(N/A)
E31	6177.11	E32	6154.49	6	185.1	0.122	0.014	0	0.0000	1.1775	(N/A)
W33A	6207.9	W32	6204.9	6	185.7	0.016	0.011	0	0.0000	0.5443	(N/A)
H95	6287	H94	6266.2	6	188.4	0.111	0.011	0	0.0000	1.4255	(N/A)
W30	6202.96	W17	6197.6	8	190.2	0.028	0.011	0	0.0000	1.5502	(N/A)
H91	6261.21	H87	6258.4	6	194	0.014	0.009	0	0.0000	0.6304	(N/A)
A66	6188.9	A67	6187.47	6	194.2	0.007	0.011	0	0.0000	0.3679	(N/A)
R18	6203.31	R10	6179.81	6	204.3	0.115	0.009	0	0.0000	1.7778	(N/A)
A37B	6300.03	A37A	6289.49	6	199.7	0.053	0.011	0	0.0000	0.9838	(N/A)
E53	6183.02	E52	6179.55	6	199.8	0.017	0.014	0	0.0000	0.4435	(N/A)
E14	6222.16	E15	6221.13	8	205.9	0.005	0.014	0	0.0000	0.5128	(N/A)
R30	6397.4	R28	6377	6	207.4	0.099	0.009	0	0.0000	1.6444	(N/A)
H92	6277.37	H91	6261.21	6	209.7	0.077	0.009	0	0.0000	1.453	(N/A)
C4	6209.5	W01	6196.4	6	214.2	0.061	0.014	0	0.0000	0.8331	(N/A)
A26	6431.2	A27	6390.02	6	216.2	0.191	0.011	0	0.0000	1.8713	(N/A)
E47	6187.9	E49	6176.69	6	218.2	0.051	0.014	0	0.0000	0.7636	(N/A)
E45	6200.14	E46	6195.29	6	219.6	0.022	0.014	0	0.0000	0.5	(N/A)
T47A	6148.6	T47	6144.47	6	220	0.019	0.011	0	0.0000	0.5872	(N/A)
R20	6235.68	R19	6221.55	6	224.3	0.063	0.009	0	0.0000	1.3156	(N/A)
H106	6320.37	H105	6308.4	6	225.6	0.053	0.009	0	0.0000	1.2055	(N/A)
A87	6238.06	A86	6207.06	6	225.8	0.137	0.009	0	0.0000	1.94	(N/A)
A42	6209.99	A65	6188.5	6	227.6	0.094	0.011	0	0.0000	1.3157	(N/A)
A63	6189.85	A65	6188.5	6	228.3	0.006	0.011	0	0.0000	0.3298	(N/A)

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
W41	6242.85	W40	6205.97	6	236.1	0.156	0.014	0	0.0000	1.3311	(N/A)
E61	6167.48	E60	6163.7	6	246.5	0.015	0.014	0	0.0000	0.4166	(N/A)
A34	6270.5	A35	6260	6	249.2	0.042	0.011	0	0.0000	0.8801	(N/A)
E52	6179.55	E51	6174	6	254.3	0.022	0.014	0	0.0000	0.4978	(N/A)
E55	6174.75	E56	6164.6	6	258.7	0.039	0.014	0	0.0000	0.6666	(N/A)
A36	6274.65	A35	6260	6	259.8	0.056	0.011	0	0.0000	1.0173	(N/A)
R19	6221.55	R18	6203.31	6	262.7	0.069	0.009	0	0.0000	1.3794	(N/A)
A35	6260	A38	6221.8	6	253.7	0.15	0.011	0	0.0000	1.662	(N/A)
H104	6343.76	H103	6338.71	6	265.4	0.019	0.009	0	0.0000	0.7231	(N/A)
E11	6181.95	E10	6170.98	8	270.8	0.04	0.009	0	0.0000	2.2696	(N/A)
A76	6224.8	A75	6196.26	6	271.3	0.105	0.011	0	0.0000	1.3908	(N/A)
E13	6223.4	E12	6205	6	272.2	0.068	0.014	0	0.0000	0.8758	(N/A)
E02	6202.06	E03	6201.08	8	278.8	0.004	0.014	0	0.0000	0.4298	(N/A)
R26	6315.62	R25	6228.2	6	276	0.317	0.009	0	0.0000	2.9479	(N/A)
E01	6203.03	E02	6202.06	8	277.8	0.003	0.014	0	0.0000	0.4284	(N/A)
A38	6221.8	A71	6189.96	6	284.8	0.112	0.011	0	0.0000	1.4325	(N/A)
A80	6173.9	A82	6172.54	8	288	0.005	0.014	0	0.0000	0.4983	(N/A)
S53	6501.6	S52	6477.5	6	290.8	0.083	0.011	0	0.0000	1.2333	(N/A)
A17	6266.57	A18	6226.07	6	292.4	0.139	0.009	0	0.0000	1.9508	(N/A)
T47	6144.47	T46	6137.22	6	299.6	0.024	0.011	0	0.0000	0.6662	(N/A)
A39	6228.59	A38	6221.8	6	304.6	0.022	0.011	0	0.0000	0.6394	(N/A)
A45	6240.52	A44	6226.5	6	295.5	0.047	0.011	0	0.0000	0.9327	(N/A)
S51	6456.4	A26	6431.2	6	296.1	0.085	0.011	0	0.0000	1.2505	(N/A)
R27	6373.42	R26	6315.62	6	297.5	0.195	0.009	0	0.0000	2.3108	(N/A)
W54	6325	W53	6284.2	6	317.6	0.128	0.009	0	0.0000	1.8762	(N/A)
S52	6477.5	S51	6456.4	6	307.3	0.069	0.011	0	0.0000	1.1235	(N/A)
E54	6181.34	E55	6174.75	6	307.9	0.021	0.014	0	0.0000	0.4925	(N/A)
A37	6276.25	A36	6274.65	6	312.5	0.005	0.011	0	0.0000	0.3064	(N/A)
E15	6221.13	E16	6196.92	8	312.1	0.078	0.014	0	0.0000	2.0201	(N/A)
A77	6235.7	A76	6224.8	6	312.6	0.035	0.011	0	0.0000	0.7998	(N/A)
A24	6452.9	A25	6442.5	6	316.1	0.033	0.011	0	0.0000	0.7775	(N/A)
E04	6212.9	E03	6201.08	8	313.9	0.038	0.014	0	0.0000	1.407	(N/A)
E62	6173.52	E61	6167.48	6	315.2	0.019	0.014	0	0.0000	0.4663	(N/A)
H99	6325	H98	6300.65	6	323.1	0.075	0.009	0	0.0000	1.4382	(N/A)
A60	6197.3	A59	6187.89	6	318.4	0.03	0.011	0	0.0000	0.7372	(N/A)
A14	6342	A15	6339.98	6	321.5	0.006	0.009	0	0.0000	0.4149	(N/A)

Scenario 2 - Existing Sewer System + VSVSP ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
A55	6225.9	A58	6189.07	6	325.8	0.113	0.011	0	0.0000	1.4405	(N/A)
A18	6226.07	W19	6198.4	6	330.3	0.084	0.009	0	0.0000	1.5168	(N/A)
A41	6228.1	A42	6209.99	6	342.3	0.053	0.011	0	0.0000	0.9862	(N/A)
E46	6195.29	E47	6187.9	6	334.9	0.022	0.014	0	0.0000	0.5001	(N/A)
A70	6192.16	A71	6189.96	6	336.1	0.007	0.011	0	0.0000	0.3468	(N/A)
H98	6300.65	H97	6253.93	6	342.5	0.136	0.014	0	0.0000	1.2428	(N/A)
E06	6193.66	E07	6192.8	8	343.1	0.003	0.014	0	0.0000	0.3631	(N/A)
E63A	6176.1	E63	6170.92	6	344.2	0.015	0.014	0	0.0000	0.4132	(N/A)
WY-A30	6367.64	A30	6354.41	6	350.8	0.038	0.011	0	0.0000	0.8322	(N/A)
A44	6226.5	A42	6209.99	6	349.7	0.047	0.011	0	0.0000	0.9308	(N/A)
R35	6527.25	R34	6492.02	6	354.5	0.099	0.009	0	0.0000	1.6501	(N/A)
A16	6296	A17	6266.57	6	362.2	0.081	0.009	0	0.0000	1.4935	(N/A)
R32	6438.52	R30	6397.4	6	383	0.107	0.009	0	0.0000	1.7163	(N/A)
A47	6270.09	A45	6240.52	6	393.7	0.075	0.011	0	0.0000	1.1741	(N/A)
R33	6479.22	R32	6438.52	6	402.5	0.101	0.009	0	0.0000	1.6646	(N/A)
A62	6200.59	A63	6189.85	6	401.4	0.027	0.011	0	0.0000	0.7014	(N/A)
A31	6331.83	A32	6312.94	6	411.8	0.046	0.011	0	0.0000	0.9176	(N/A)
A30	6354.41	A31	6331.83	6	414.9	0.054	0.011	0	0.0000	0.9997	(N/A)
A15	6339.98	A17	6266.57	6	442.9	0.166	0.009	0	0.0000	2.1323	(N/A)
R25	6228.2	R03	6174.1	6	442.4	0.122	0.009	0	0.0000	1.8325	(N/A)
A27	6390.02	A29	6373.5	6	439.4	0.038	0.011	0	0.0000	0.8314	(N/A)
R36	6532.02	R35	6527.25	6	450.7	0.011	0.009	0	0.0000	0.5387	(N/A)
A32	6312.94	A33	6291.81	6	453.9	0.047	0.011	0	0.0000	0.9245	(N/A)
A33	6291.81	A34	6270.5	6	459.4	0.046	0.011	0	0.0000	0.9235	(N/A)
W56	6367.24	W55	6346	6	454.3	0.047	0.009	0	0.0000	1.133	(N/A)
W52	6267.5	W40	6205.97	6	494.1	0.125	0.009	0	0.0000	1.8486	(N/A)
A78	6252.82	A76	6224.8	6	490.9	0.057	0.011	0	0.0000	1.0238	(N/A)

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T18	6172.23	T19	6172.22	15	352.3	0	0.011	2.9	2.2054	0.263	839
T43	6074.26	TTSA	6068.27	10	315.7	0.019	0.011	9.47	3.248	2.304	141
T34A	6147.66	T34	6147.26	15	190.9	0.002	0.011	3.73	2.8664	2.2579	127
T32	6152.41	T33	6152.3	15	64.4	0.002	0.011	3.13	2.391	2.0455	117
T20	6171.56	T21	6171	15	333.1	0.002	0.011	3.09	2.3567	2.0233	117
T31	6153.03	T32	6152.44	15	319.8	0.002	0.011	3.13	2.3905	2.1186	113
T15	6175.28	T16	6175	15	184.4	0.002	0.011	2.83	2.1524	1.9247	112
T36	6135.02	T37	6133.91	15	388.1	0.003	0.011	3.73	2.8664	2.639	109
T23	6167.87	T24	6166.89	15	484.5	0.002	0.011	3.12	2.3875	2.2201	108
T25	6164.79	T26	6164.11	15	313.9	0.002	0.011	3.12	2.3875	2.296	104
T30	6153.45	T31	6153.11	15	146.3	0.002	0.011	3.41	2.3905	2.381	100
T26A	6163.71	T27	6163.36	15	143.1	0.002	0.011	3.51	2.3875	2.4409	98
T35	6135.54	T36	6135.04	15	136.3	0.004	0.011	4.3	2.8664	2.9916	96
T13	6177.18	T14	6176.43	15	345.9	0.002	0.011	3.3	2.1524	2.2971	94
T26	6164.09	T26A	6163.72	15	138.9	0.003	0.011	3.66	2.3875	2.5456	94
T11	6178.37	T12	6177.7	15	304.2	0.002	0.011	3.33	2.1518	2.3163	93
T37A	6127.12	T38	6124.19	12	222.5	0.013	0.011	7.01	2.1279	3.1262	92
T10	6179.38	T11	6178.39	15	446.5	0.002	0.011	3.34	2.8974	2.3246	93
GV148	6168.77	T23	6167.91	15	308.6	0.003	0.011	3.74	2.3875	2.6029	92
T22	6169.61	GV148	6168.77	15	298.6	0.003	0.011	3.75	2.3875	2.6151	91
T12	6177.65	T13	6177.2	15	187.8	0.002	0.011	3.46	2.1518	2.4139	89
T21	6170.97	T22	6169.62	15	450.1	0.003	0.011	3.87	2.3875	2.7024	88
T09	6180.37	T10	6179.41	15	398.7	0.002	0.011	3.46	2.1192	2.4201	88
T14	6176.36	T15	6175.37	15	362.3	0.003	0.011	3.66	2.1524	2.5802	83
T29	6154.13	T30	6153.52	15	181.2	0.003	0.011	4.06	2.3875	2.8643	83
T19	6172.21	T20	6171.57	15	189	0.003	0.011	4.07	2.3567	2.8711	82
T08	6181.1	T09	6180.38	15	290.2	0.002	0.011	3.48	2.0009	2.4584	81
T16	6174.97	T17	6173.71	15	393.5	0.003	0.011	3.93	2.192	2.7937	79
T41	6084.93	T43	6074.46	12	286	0.037	0.014	6.58	3.248	4.0909	79
T38	6124.14	T39	6123.05	15	180.9	0.006	0.011	5.34	2.8974	3.8288	76
T37	6133.82	T37A	6127.41	12	311.6	0.021	0.011	8.47	2.8974	3.9005	74
T39A	6118.72	T39B	6115.51	15	305.7	0.01	0.014	5.5	2.8974	3.9705	73
T17	6173.7	T18	6172.31	15	354.6	0.004	0.011	4.26	2.2054	3.0873	71
T34	6147.18	T35	6135.64	12	516.5	0.022	0.011	8.73	2.8664	4.0656	71

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T24	6166.88	T25	6164.8	15	410.9	0.005	0.011	4.8	2.3875	3.51	68
R07	6177.61	R06	6177.33	10	223	0.001	0.009	2.15	2.3875	0.7248	57
T28	6160.21	T29	6154.44	12	242.7	0.024	0.011	8.6	0.4322	4.1932	60
T27	6163.26	T28	6160.23	12	91.8	0.033	0.011	9.74	2.3875	4.9385	48
T33	6152.27	T34A	6147.67	15	308.3	0.015	0.011	7.56	2.8602	6.0297	47
T04A	6191.75	T05	6191.63	15	167.6	0.001	0.011	1.63	0.6148	1.3186	47
T40A	6095.26	T41	6084.93	12	205.9	0.05	0.009	14.26	3.248	7.4479	44
R10	6179.81	R09	6179.04	10	310.2	0.002	0.009	2.76	0.4254	1.0194	42
R12A	6181.92	R12	6181.39	10	216.9	0.002	0.009	2.73	0.4134	1.0108	41
R11	6180.44	R10	6179.81	10	252.7	0.002	0.009	2.75	0.4134	1.0206	41
W46	6201.41	W13	6201.1	10	333.6	0.001	0.024	0.63	0.0945	0.2337	40
R13	6182.3	R12A	6181.92	10	147.7	0.003	0.009	2.78	0.4134	1.0364	40
T40	6102.8	T40A	6096.15	15	131.1	0.051	0.014	10.26	3.2247	8.7344	37
T45	6114.8	T40	6102.8	6	294.9	0.041	0.011	6.34	0.3273	0.8644	38
R16	6186.3	R15	6185.3	10	344.7	0.003	0.009	2.9	0.4134	1.1012	38
R12	6181.39	R11	6180.44	10	323.8	0.003	0.009	2.91	0.4134	1.1075	37
R09	6179.04	R07	6177.61	10	388.1	0.004	0.009	3.19	0.4254	1.2417	34
W37	6203.23	W36	6202.56	10	276.8	0.002	0.014	1.65	0.2158	0.6467	33
T5A	6191.07	T06	6190.69	15	254.9	0.001	0.011	2.15	0.6242	1.9046	33
R14	6183.41	R13	6182.3	10	285.9	0.004	0.009	3.23	0.4134	1.2742	32
W36A	6201.95	W15	6201.3	10	204.4	0.003	0.014	1.87	0.238	0.7422	32
E34	6142	E33	6141.04	8	70.1	0.014	0.014	3.33	0.2659	0.8493	31
W13	6201.1	W14	6200.8	10	182.7	0.002	0.024	0.78	0.0968	0.3105	31
E30A	6121.96	T44	6120.73	8	175.9	0.007	0.009	3.68	0.2904	0.943	31
T39	6122.96	T39A	6118.76	15	107.2	0.039	0.011	10.83	2.8974	9.7752	30
T44	6120.73	T44A	6119.54	8	165.1	0.007	0.009	3.72	0.2904	0.958	30
W36	6202.56	W36A	6201.95	10	165.8	0.004	0.014	1.97	0.238	0.7971	30
R15	6185.3	R14	6183.41	10	403.2	0.005	0.009	3.46	0.4134	1.4007	30
R03	6174.1	R02	6172.4	10	277.7	0.006	0.009	3.94	0.4692	1.5994	29
W38	6203.8	W37	6203.23	10	180.8	0.003	0.014	1.8	0.211	0.7379	29
E33	6141.04	E33A	6134.26	8	364.4	0.019	0.014	3.76	0.2787	0.9897	28
R06	6177.33	R04	6175.4	10	317.7	0.006	0.009	3.84	0.4322	1.5934	27
R04	6175.4	R03	6174.1	10	198.7	0.007	0.009	3.96	0.4373	1.6531	27
W47	6202.9	W47A	6202.49	10	177.6	0.002	0.024	0.87	0.0945	0.3681	26
E33B	6126	E30	6124	8	79.8	0.025	0.014	4.21	0.281	1.1466	25
E30	6124	E30A	6121.96	8	106.7	0.019	0.011	4.58	0.2904	1.2744	23

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W39	6204.6	W38A	6204.49	10	157.8	0.001	0.014	0.79	0.078	0.3469	23
E33A	6134.26	E33B	6126	8	274.3	0.03	0.014	4.48	0.2787	1.2591	22
T39B	6115.45	T39C	6109.7	15	102	0.056	0.009	14.27	2.8974	14.3178	20
T39C	6109.65	T40	6102.95	15	116.1	0.058	0.009	14.39	2.8974	14.4927	20
W38A	6204.49	W38	6203.8	10	111.2	0.006	0.014	2.29	0.2063	1.0367	20
R17	6187.4	R16	6186.3	12	268.6	0.004	0.009	3.24	0.4134	2.1268	19
W49	6207.3	W48	6205.54	8	236.5	0.007	0.024	1.25	0.0704	0.3645	19
T44A	6119.54	T44B	6115.91	8	147.5	0.025	0.009	5.99	0.3273	1.7727	19
T05	6191.63	T5A	6191.07	15	120.5	0.005	0.011	3.22	0.6153	3.3565	18
E36	6152.75	E34	6142	8	266.8	0.04	0.014	4.85	0.2552	1.4551	18
T44B	6115.91	T45	6114.8	8	33	0.034	0.009	6.7	0.3273	2.0689	16
W76	6200.78	W75	6199.86	6	166.5	0.006	0.009	2.22	0.0598	0.3899	15
E38	6158.84	E37	6157.08	8	379.4	0.005	0.014	1.58	0.075	0.4942	15
E56	6164.6	E60	6163.7	8	158.1	0.006	0.014	1.73	0.0791	0.5473	15
E40	6162.53	E39	6160.9	8	305.6	0.005	0.014	1.64	0.0717	0.5293	14
T07	6185.71	T08	6181.1	12	115.5	0.04	0.011	7.48	0.732	5.4484	13
E39	6160.9	E38	6158.84	8	357.5	0.006	0.014	1.68	0.0717	0.5501	13
R02	6172.4	R01	6166.5	10	175.4	0.034	0.009	7.26	0.4692	3.7555	13
E59	6159.16	E58	6157.66	8	196.4	0.008	0.014	1.92	0.0791	0.6344	13
T04	6192.53	T04A	6191.75	15	189.5	0.004	0.011	2.67	0.3691	3.1613	12
T06	6190.69	T07	6185.71	15	357.3	0.014	0.011	4.79	0.6242	5.8274	11
T02	6195.75	T03	6193.82	15	389.9	0.005	0.011	2.85	0.3691	3.4709	11
T03	6193.82	T04	6192.53	15	233	0.006	0.011	2.97	0.3691	3.6712	10
W74	6198.13	W77	6196.45	10	305.1	0.006	0.009	2.74	0.1488	1.518	10
W77	6196.45	T04A	6191.75	10	215	0.022	0.011	4.46	0.2423	2.4743	10
R01	6166.5	T33	6152.27	10	159.2	0.089	0.011	8.91	0.4692	5.0063	9
E43	6166.59	E42	6164.73	8	392.4	0.005	0.014	1.38	0.0463	0.4995	9
E37	6157.08	E36	6152.75	8	286.5	0.015	0.014	2.45	0.0802	0.8923	9
E42	6164.73	E41	6163.44	8	250.9	0.005	0.014	1.42	0.0463	0.5199	9
E41	6163.44	E40	6162.53	8	158.7	0.006	0.014	1.48	0.0463	0.5486	8
W48	6205.54	W47	6202.9	10	191.4	0.014	0.024	1.55	0.0752	0.9017	8
W15	6201.3	W14	6200.8	10	16.7	0.029	0.011	4.93	0.238	2.87	8
E08	6191.52	E09	6190.98	8	298.3	0.002	0.009	1.29	0.0398	0.4802	8
T46	6137.22	T37	6133.82	6	429.3	0.008	0.011	1.82	0.031	0.3815	8
W75	6199.86	W74	6198.13	8	182.2	0.01	0.009	2.92	0.0873	1.0998	8
W47A	6202.49	W46	6201.41	10	42.8	0.025	0.024	2.05	0.0945	1.2156	8

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
E60	6163.7	E59	6159.16	8	210.7	0.022	0.014	2.76	0.0791	1.0637	7
W01	6196.4	W02	6191.76	8	89.7	0.052	0.014	4.21	0.1159	1.6466	7
W40A	6204.8	W39	6204.6	10	74.6	0.003	0.014	1.07	0.0422	0.679	6
W14	6200.8	T02	6195.75	10	41.8	0.12	0.011	8.95	0.3348	5.8028	6
W49B	6212.68	W49A	6209.67	4	197.8	0.015	0.024	0.77	0.0044	0.0821	5
E58	6157.66	E36	6152.75	8	106.6	0.046	0.014	3.61	0.0791	1.5535	5
W49A	6209.67	W49	6207.3	6	160.1	0.015	0.024	0.98	0.012	0.2391	5
E09	6190.98	E10	6170.98	8	388.7	0.051	0.014	3.75	0.0791	1.6443	5
E10	6170.98	E56	6164.6	8	119.6	0.053	0.014	3.8	0.0791	1.6721	5
W73	6200.6	W74	6198.13	8	175.4	0.014	0.009	3.01	0.0615	1.3402	5
W42	6206.69	W40	6205.97	8	136	0.005	0.014	1.14	0.0215	0.5277	4
P03	6130.66	P13	6130.04	8	136.7	0.005	0.009	1.6	0.0277	0.7589	4
W43	6208.07	W42	6206.69	8	269	0.005	0.014	1.09	0.0189	0.5194	4
W08B	6195.85	W08A	6195.5	10	153.2	0.002	0.014	0.84	0.0227	0.6289	4
P04	6131.43	P03	6130.66	8	174.1	0.004	0.009	1.53	0.0243	0.7504	3
W08A	6195.5	W08	6194.9	10	207.5	0.003	0.014	0.92	0.0227	0.7079	3
W11	6197.9	W10	6197.3	10	184.7	0.003	0.014	0.95	0.0227	0.7488	3
P07	6132.36	P06	6131.89	8	91.2	0.005	0.009	1.61	0.0243	0.8107	3
P06	6131.89	P04	6131.43	8	88.9	0.005	0.009	1.61	0.0243	0.811	3
P08	6133.31	P07	6132.36	8	172.5	0.006	0.009	1.64	0.0243	0.8384	3
W09	6196.5	W08B	6195.85	10	179.3	0.004	0.014	0.99	0.0227	0.7923	3
W10	6197.3	W09	6196.5	10	210.8	0.004	0.014	1.01	0.0227	0.8096	3
A83	6170.48	E44	6168.57	8	426.6	0.004	0.014	0.94	0.0134	0.485	3
E44	6168.57	E43	6166.59	8	388.4	0.005	0.014	0.98	0.0134	0.518	3
W08	6194.9	W07	6193.75	10	233.1	0.005	0.014	1.1	0.0227	0.9237	3
W07	6193.75	W7A	6192.35	10	281.7	0.005	0.014	1.11	0.0227	0.9264	3
W40	6205.97	W40A	6204.8	10	65.4	0.018	0.014	2.09	0.0422	1.7641	2
W44	6209.56	W43	6208.07	8	300.4	0.005	0.014	0.93	0.0116	0.5111	2
W11A	6198.1	W11	6197.9	10	63.6	0.003	0.014	0.83	0.0151	0.735	2
W02	6191.76	T09	6180.37	8	36	0.316	0.009	10.84	0.1159	6.3452	2
W01B	6200.24	W01	6196.4	8	143.9	0.027	0.014	1.98	0.0096	1.1842	2
W28R	6209.61	W70	6208.91	8	114.2	0.006	0.014	0.95	0.0201	0.5683	2
W19	6198.4	W11A	6198.1	10	47.7	0.006	0.014	1.06	0.0151	1.0395	2
E29	6148	E30	6124	4	279.8	0.086	0.009	3.14	0.0058	0.5201	1
A82	6172.54	A83	6170.48	8	438	0.005	0.014	0.74	0.0061	0.4973	1
W70	6208.91	W71	6208.46	8	61.8	0.007	0.009	1.36	0.0096	0.9611	1

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W05	6186.3	W04	6183.8	8	341	0.007	0.014	0.83	0.0052	0.6209	1
W06	6188.5	W05	6186.3	8	290.3	0.008	0.014	0.84	0.0052	0.6316	1
T01	6197.2	T02	6195.75	15	192.2	0.008	0.011	1.63	0.0343	4.2877	1
W12	6199.05	W19	6198.4	10	219.9	0.003	0.014	0.58	0.0051	0.7147	1
P13	6130.04	T44A	6119.54	8	68.8	0.152	0.009	5.61	0.0311	4.4006	1
W62	6204.25	W38	6203.8	8	147.8	0.003	0.009	0.78	0.0041	0.622	1
W7A	6192.35	T08	6181.1	8	42.9	0.262	0.014	4.53	0.0227	3.7093	1
W24R	6194.82	T5A	6191.07	12	203.9	0.018	0.024	0.88	0.0089	1.691	1
W71	6208.46	W73	6200.6	8	262.8	0.03	0.009	2.24	0.0096	1.9502	1
E49	6176.69	E43	6166.59	8	199.5	0.051	0.014	1.87	0.008	1.6338	1
W45	6215	W44	6209.56	8	310.8	0.017	0.014	0.96	0.0031	0.9591	0
W61A	6206.51	W62	6204.25	8	181.9	0.012	0.009	1.22	0.0036	1.2571	0
W61	6208.51	W61A	6206.51	8	137.3	0.015	0.009	1.29	0.0036	1.363	0
P12	6154.64	P03	6130.66	6	248	0.097	0.009	2.59	0.0052	1.6288	0
W04	6183.8	T08	6181.1	8	18.3	0.15	0.014	2.35	0.0034	2.8087	0
E27	6162.4	E29	6148	8	160.6	0.089	0.009	2.81	0.0061	3.3737	0
E35	6142.9	E34	6142	8	248.4	0.004	0.014	0.34	0.0006	0.4369	0
E07	6192.8	E08	6191.52	8	221.4	0.006	0.014	0.38	0.0005	0.5519	0
E32	6154.49	E33	6141.04	6	101.9	0.132	0.014	1.25	0.0006	1.2228	0
W17	6197.6	T01	6197.2	8	5.5	0.08	0.011	0	0	2.6106	0
R7A	6178.02	R07	6177.61	10	18.4	0.023	0.009	0	0	3.0869	0
W32	6204.9	W31A	6203.82	6	27.5	0.039	0.011	0	0	0.8417	0
I46	6161.17	T32	6152.41	6	35.3	0.25	0.011	0	0	2.1441	0
T50A	6138.02	T46	6137.22	6	37.4	0.022	0.011	0	0	0.6302	0
T57	6141.7	T56	6140.81	6	41.2	0.022	0.011	0	0	0.6314	0
W60	6208.83	W61	6208.51	6	47.5	0.007	0.009	0	0	0.4277	0
W50B	6211.27	W50A	6209.59	8	47.6	0.035	0.024	0	0	0.7914	0
A86	6207.06	W11	6197.9	6	51.4	0.18	0.009	0	0	2.2199	0
T59	6139.47	T58	6138.95	6	51.5	0.01	0.011	0	0	0.4286	0
H88	6179.4	A82	6172.54	6	51.5	0.135	0.014	0	0	1.235	0
I47	6161.28	T33	6152.27	6	48.7	0.184	0.011	0	0	1.8377	0
A88	6255.14	A87	6238.06	6	54	0.316	0.009	0	0	2.9459	0
A84	6171.79	A83	6170.48	6	56.5	0.023	0.014	0	0	0.5105	0
A80A	6176	A80	6173.9	6	57.9	0.036	0.014	0	0	0.6407	0
A72	6194.12	A71	6189.96	6	59.7	0.069	0.011	0	0	1.1285	0
T58	6138.95	T50A	6138.02	6	59.4	0.016	0.011	0	0	0.5381	0

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
E25	6185.67	E24	6183.36	6	60.8	0.038	0.014	0	0	0.6553	0
R21	6237	R20	6235.68	6	60.9	0.022	0.009	0	0	0.7705	0
H85	6221.25	A84	6171.79	6	61.5	0.811	0.014	0	0	3.0321	0
T54	6139.31	T50	6138.76	6	63.3	0.009	0.011	0	0	0.4004	0
A79	6179	A80A	6176	6	64.2	0.047	0.014	0	0	0.729	0
W27R	6211.38	W28R	6209.61	6	65.2	0.027	0.014	0	0	0.5557	0
A59	6187.89	T11	6178.37	6	70.8	0.134	0.011	0	0	1.5693	0
T52	6147.58	T51	6147.03	6	72.1	0.008	0.011	0	0	0.3746	0
H89	6195	H88	6179.4	6	73.3	0.214	0.014	0	0	1.5566	0
W31A	6203.82	W31	6203.49	6	74.8	0.004	0.011	0	0	0.2843	0
E42A	6172.38	E42	6164.73	6	76.7	0.099	0.014	0	0	1.0614	0
R24	6240.89	R23	6239.48	6	79.9	0.018	0.009	0	0	0.6954	0
I49	6151.1	T34A	6147.66	6	78.1	0.044	0.011	0	0	0.9	0
R31	6402.16	R30	6397.4	6	81.1	0.059	0.009	0	0	1.2698	0
W53	6284.2	W52	6267.5	6	87.7	0.19	0.009	0	0	2.2818	0
H90	6241	H89	6195	6	82	0.561	0.014	0	0	2.5221	0
W50R	6207.99	W49	6207.3	8	83	0.008	0.024	0	0	0.3867	0
A65	6188.5	T16	6174.97	6	95.2	0.142	0.011	0	0	1.6174	0
A56	6227.51	A55	6225.9	6	87.7	0.018	0.011	0	0	0.5797	0
A67	6187.47	T17	6173.7	6	90.3	0.153	0.011	0	0	1.6763	0
T55	6139.91	T54	6139.31	6	89.6	0.007	0.011	0	0	0.3499	0
W72	6212.72	W71	6208.46	6	90.7	0.047	0.009	0	0	1.1333	0
W50	6208.76	W50R	6207.99	8	91.6	0.008	0.024	0	0	0.3867	0
T48	6149.75	T47A	6148.6	6	92.5	0.012	0.011	0	0	0.4792	0
W31	6203.49	W30	6202.96	6	95.5	0.006	0.011	0	0	0.3201	0
A73	6189.48	T20	6171.56	6	97.4	0.185	0.014	0	0	1.4473	0
H101	6301.43	H100	6274.02	6	97.9	0.28	0.009	0	0	2.7702	0
W50A	6209.59	W50	6208.76	8	99.5	0.008	0.024	0	0	0.3867	0
I45	6162.25	I46	6161.17	6	101.6	0.011	0.011	0	0	0.441	0
T51	6147.03	T50	6138.76	6	103.3	0.08	0.011	0	0	1.2144	0
A71	6189.96	T19	6172.21	6	111.5	0.158	0.011	0	0	1.7061	0
T50	6138.76	T50A	6138.02	6	106.2	0.007	0.011	0	0	0.3581	0
W26	6216.5	W27R	6211.38	6	107.4	0.048	0.014	0	0	0.7366	0
H87	6258.4	H85	6221.25	6	108.1	0.344	0.009	0	0	3.0721	0
A74	6184.2	T21	6170.97	6	114.7	0.115	0.014	0	0	1.1421	0
T53	6148.29	T52	6147.58	6	108.2	0.007	0.011	0	0	0.3475	0

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A25	6442.5	A26	6431.2	6	110.2	0.103	0.011	0	0	1.3736	0
W55	6346	W54	6325	6	122.6	0.171	0.009	0	0	2.1643	0
T56	6140.81	T55	6139.91	6	114.3	0.008	0.011	0	0	0.3808	0
A58	6189.07	A59	6187.89	6	114.8	0.01	0.011	0	0	0.4341	0
A28	6399.9	A27	6390.02	6	114.8	0.086	0.011	0	0	1.2562	0
R23	6239.48	R21	6237	6	115.7	0.021	0.009	0	0	0.7659	0
A75	6196.26	A74	6184.2	6	118.5	0.101	0.014	0	0	1.072	0
A68	6205.95	A67	6187.47	4	120.2	0.154	0.011	0	0	0.5704	0
H100	6274.02	H97	6253.93	6	122	0.165	0.014	0	0	1.3664	0
E12	6205	E11	6181.95	6	124.6	0.184	0.014	0	0	1.446	0
E03	6201.08	E06	6193.66	8	125.1	0.059	0.014	0	0	1.7668	0
A57	6230.5	A56	6227.51	6	125.6	0.024	0.011	0	0	0.6602	0
W38B	6206	W38A	6204.49	6	126.9	0.012	0.009	0	0	0.5712	0
H97	6253.93	E45	6200.14	6	127.5	0.42	0.014	0	0	2.1829	0
T48A	6150.78	T48	6149.75	6	127.8	0.008	0.011	0	0	0.3844	0
E28	6168.1	E27	6162.4	6	127.8	0.045	0.014	0	0	0.7106	0
E24	6183.36	E23	6182.44	6	134.9	0.007	0.014	0	0	0.278	0
R29	6382.72	R28	6377	6	135.9	0.042	0.009	0	0	1.0742	0
A37A	6289.49	A37	6276.25	6	137	0.097	0.011	0	0	1.3323	0
E23	6182.44	E11	6181.95	8	137	0.004	0.014	0	0	0.4337	0
I48	6165.85	I47	6161.28	6	137.2	0.033	0.011	0	0	0.7827	0
R28	6377	R27	6373.42	6	150.2	0.024	0.009	0	0	0.8092	0
W57	6222.4	W58	6221.2	6	141.4	0.009	0.009	0	0	0.4832	0
C3	6211.2	C4	6209.5	6	142.1	0.012	0.009	0	0	0.5731	0
W59	6216.33	W60	6208.83	8	143.9	0.052	0.009	0	0	2.5745	0
C1	6220	C2	6215.76	6	147.8	0.029	0.009	0	0	0.8866	0
C2	6215.76	C3	6211.2	6	148.8	0.031	0.009	0	0	0.9163	0
R34	6492.02	R33	6479.22	6	158.3	0.081	0.009	0	0	1.4909	0
A46	6283.8	A45	6240.52	4	153	0.283	0.011	0	0	0.7731	0
A29	6373.5	WY-A30	6367.64	6	148.4	0.04	0.011	0	0	0.8525	0
H105	6308.4	H101	6301.43	6	156.7	0.044	0.009	0	0	1.1037	0
W01C	6202.32	W01B	6200.24	8	158.8	0.013	0.014	0	0	0.8294	0
W25R	6219.26	W72	6212.72	6	159.7	0.041	0.009	0	0	1.059	0
H102	6312.81	H101	6301.43	6	160.3	0.071	0.014	0	0	0.898	0
H86	6233.9	H85	6221.25	6	161.3	0.079	0.009	0	0	1.4683	0
W34	6209.72	W33A	6207.9	6	161.7	0.011	0.011	0	0	0.4543	0

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
E17	6190.77	E10	6170.98	8	163.1	0.121	0.014	0	0	2.5269	0
R22	6257.85	R21	6237	6	165.1	0.126	0.009	0	0	1.862	0
E26	6192.8	E27	6162.4	6	165.7	0.183	0.014	0	0	1.441	0
A43	6238.36	A42	6209.99	6	170.1	0.167	0.011	0	0	1.7507	0
E51	6174	E63	6170.92	6	171.2	0.018	0.014	0	0	0.4519	0
A69	6191.4	A67	6187.47	6	172.6	0.023	0.011	0	0	0.6459	0
W58	6221.2	W59	6216.33	8	173	0.028	0.009	0	0	1.8927	0
E50	6176.54	E51	6174	6	173.6	0.015	0.014	0	0	0.4068	0
H103	6338.71	H102	6312.81	6	174.2	0.149	0.009	0	0	2.0209	0
H94	6266.2	A78	6252.82	6	175.4	0.076	0.011	0	0	1.185	0
M1	6193.3	T09	6180.37	6	177.7	0.073	0.011	0	0	1.1551	0
A40	6231.01	A39	6228.59	6	179.1	0.014	0.011	0	0	0.4983	0
E63	6170.92	E40	6162.53	6	181	0.046	0.014	0	0	0.725	0
E16	6196.92	E17	6190.77	6	183.3	0.034	0.014	0	0	0.6173	0
E31	6177.11	E32	6154.49	6	185.1	0.122	0.014	0	0	1.1775	0
W33A	6207.9	W32	6204.9	6	185.7	0.016	0.011	0	0	0.5443	0
H95	6287	H94	6266.2	6	188.4	0.111	0.011	0	0	1.4255	0
W30	6202.96	W17	6197.6	8	190.2	0.028	0.011	0	0	1.5502	0
H91	6261.21	H87	6258.4	6	194	0.014	0.009	0	0	0.6304	0
A66	6188.9	A67	6187.47	6	194.2	0.007	0.011	0	0	0.3679	0
R18	6203.31	R10	6179.81	6	204.3	0.115	0.009	0	0	1.7778	0
A37B	6300.03	A37A	6289.49	6	199.7	0.053	0.011	0	0	0.9838	0
E53	6183.02	E52	6179.55	6	199.8	0.017	0.014	0	0	0.4435	0
E14	6222.16	E15	6221.13	8	205.9	0.005	0.014	0	0	0.5128	0
R30	6397.4	R28	6377	6	207.4	0.099	0.009	0	0	1.6444	0
H92	6277.37	H91	6261.21	6	209.7	0.077	0.009	0	0	1.453	0
C4	6209.5	W01	6196.4	6	214.2	0.061	0.014	0	0	0.8331	0
A26	6431.2	A27	6390.02	6	216.2	0.191	0.011	0	0	1.8713	0
E47	6187.9	E49	6176.69	6	218.2	0.051	0.014	0	0	0.7636	0
E45	6200.14	E46	6195.29	6	219.6	0.022	0.014	0	0	0.5	0
T47A	6148.6	T47	6144.47	6	220	0.019	0.011	0	0	0.5872	0
R20	6235.68	R19	6221.55	6	224.3	0.063	0.009	0	0	1.3156	0
H106	6320.37	H105	6308.4	6	225.6	0.053	0.009	0	0	1.2055	0
A87	6238.06	A86	6207.06	6	225.8	0.137	0.009	0	0	1.94	0
A42	6209.99	A65	6188.5	6	227.6	0.094	0.011	0	0	1.3157	0
A63	6189.85	A65	6188.5	6	228.3	0.006	0.011	0	0	0.3298	0

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W41	6242.85	W40	6205.97	6	236.1	0.156	0.014	0	0	1.3311	0
E61	6167.48	E60	6163.7	6	246.5	0.015	0.014	0	0	0.4166	0
A34	6270.5	A35	6260	6	249.2	0.042	0.011	0	0	0.8801	0
E52	6179.55	E51	6174	6	254.3	0.022	0.014	0	0	0.4978	0
E55	6174.75	E56	6164.6	6	258.7	0.039	0.014	0	0	0.6666	0
A36	6274.65	A35	6260	6	259.8	0.056	0.011	0	0	1.0173	0
R19	6221.55	R18	6203.31	6	262.7	0.069	0.009	0	0	1.3794	0
A35	6260	A38	6221.8	6	253.7	0.15	0.011	0	0	1.662	0
H104	6343.76	H103	6338.71	6	265.4	0.019	0.009	0	0	0.7231	0
E11	6181.95	E10	6170.98	8	270.8	0.04	0.009	0	0	2.2696	0
A76	6224.8	A75	6196.26	6	271.3	0.105	0.011	0	0	1.3908	0
E13	6223.4	E12	6205	6	272.2	0.068	0.014	0	0	0.8758	0
E02	6202.06	E03	6201.08	8	278.8	0.004	0.014	0	0	0.4298	0
R26	6315.62	R25	6228.2	6	276	0.317	0.009	0	0	2.9479	0
E01	6203.03	E02	6202.06	8	277.8	0.003	0.014	0	0	0.4284	0
A38	6221.8	A71	6189.96	6	284.8	0.112	0.011	0	0	1.4325	0
A80	6173.9	A82	6172.54	8	288	0.005	0.014	0	0	0.4983	0
S53	6501.6	S52	6477.5	6	290.8	0.083	0.011	0	0	1.2333	0
A17	6266.57	A18	6226.07	6	292.4	0.139	0.009	0	0	1.9508	0
T47	6144.47	T46	6137.22	6	299.6	0.024	0.011	0	0	0.6662	0
A39	6228.59	A38	6221.8	6	304.6	0.022	0.011	0	0	0.6394	0
A45	6240.52	A44	6226.5	6	295.5	0.047	0.011	0	0	0.9327	0
S51	6456.4	A26	6431.2	6	296.1	0.085	0.011	0	0	1.2505	0
R27	6373.42	R26	6315.62	6	297.5	0.195	0.009	0	0	2.3108	0
W54	6325	W53	6284.2	6	317.6	0.128	0.009	0	0	1.8762	0
S52	6477.5	S51	6456.4	6	307.3	0.069	0.011	0	0	1.1235	0
E54	6181.34	E55	6174.75	6	307.9	0.021	0.014	0	0	0.4925	0
A37	6276.25	A36	6274.65	6	312.5	0.005	0.011	0	0	0.3064	0
E15	6221.13	E16	6196.92	8	312.1	0.078	0.014	0	0	2.0201	0
A77	6235.7	A76	6224.8	6	312.6	0.035	0.011	0	0	0.7998	0
A24	6452.9	A25	6442.5	6	316.1	0.033	0.011	0	0	0.7775	0
E04	6212.9	E03	6201.08	8	313.9	0.038	0.014	0	0	1.407	0
E62	6173.52	E61	6167.48	6	315.2	0.019	0.014	0	0	0.4663	0
H99	6325	H98	6300.65	6	323.1	0.075	0.009	0	0	1.4382	0
A60	6197.3	A59	6187.89	6	318.4	0.03	0.011	0	0	0.7372	0
A14	6342	A15	6339.98	6	321.5	0.006	0.009	0	0	0.4149	0

Scenario 2 - Existing Sewer System + VSVSP PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A55	6225.9	A58	6189.07	6	325.8	0.113	0.011	0	0	1.4405	0
A18	6226.07	W19	6198.4	6	330.3	0.084	0.009	0	0	1.5168	0
A41	6228.1	A42	6209.99	6	342.3	0.053	0.011	0	0	0.9862	0
E46	6195.29	E47	6187.9	6	334.9	0.022	0.014	0	0	0.5001	0
A70	6192.16	A71	6189.96	6	336.1	0.007	0.011	0	0	0.3468	0
H98	6300.65	H97	6253.93	6	342.5	0.136	0.014	0	0	1.2428	0
E06	6193.66	E07	6192.8	8	343.1	0.003	0.014	0	0	0.3631	0
E63A	6176.1	E63	6170.92	6	344.2	0.015	0.014	0	0	0.4132	0
WY-A30	6367.64	A30	6354.41	6	350.8	0.038	0.011	0	0	0.8322	0
A44	6226.5	A42	6209.99	6	349.7	0.047	0.011	0	0	0.9308	0
R35	6527.25	R34	6492.02	6	354.5	0.099	0.009	0	0	1.6501	0
A16	6296	A17	6266.57	6	362.2	0.081	0.009	0	0	1.4935	0
R32	6438.52	R30	6397.4	6	383	0.107	0.009	0	0	1.7163	0
A47	6270.09	A45	6240.52	6	393.7	0.075	0.011	0	0	1.1741	0
R33	6479.22	R32	6438.52	6	402.5	0.101	0.009	0	0	1.6646	0
A62	6200.59	A63	6189.85	6	401.4	0.027	0.011	0	0	0.7014	0
A31	6331.83	A32	6312.94	6	411.8	0.046	0.011	0	0	0.9176	0
A30	6354.41	A31	6331.83	6	414.9	0.054	0.011	0	0	0.9997	0
A15	6339.98	A17	6266.57	6	442.9	0.166	0.009	0	0	2.1323	0
R25	6228.2	R03	6174.1	6	442.4	0.122	0.009	0	0	1.8325	0
A27	6390.02	A29	6373.5	6	439.4	0.038	0.011	0	0	0.8314	0
R36	6532.02	R35	6527.25	6	450.7	0.011	0.009	0	0	0.5387	0
A32	6312.94	A33	6291.81	6	453.9	0.047	0.011	0	0	0.9245	0
A33	6291.81	A34	6270.5	6	459.4	0.046	0.011	0	0	0.9235	0
W56	6367.24	W55	6346	6	454.3	0.047	0.009	0	0	1.133	0
W52	6267.5	W40	6205.97	6	494.1	0.125	0.009	0	0	1.8486	0
A78	6252.82	A76	6224.8	6	490.9	0.057	0.011	0	0	1.0238	0

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T18	6172.23	T19	6172.22	15	352.3	0	0.011	1.36	1.0742	0.263	(N/A)
T43	6074.26	TTSA	6068.27	10	315.7	0.019	0.011	7.26	1.8228	2.304	67
T34A	6147.66	T34	6147.26	15	190.9	0.002	0.011	3.06	1.5227	2.2579	60
T32	6152.41	T33	6152.3	15	64.4	0.002	0.011	2.69	1.2087	2.0455	55
T36	6135.02	T37	6133.91	15	388.1	0.003	0.011	3.45	1.5227	2.639	55
T31	6153.03	T32	6152.44	15	319.8	0.002	0.011	2.76	1.2085	2.1186	54
T20	6171.56	T21	6171	15	333.1	0.002	0.011	2.63	1.1386	2.0233	54
T15	6175.28	T16	6175	15	184.4	0.002	0.011	2.49	1.0524	1.9247	53
T23	6167.87	T24	6166.89	15	484.5	0.002	0.011	2.83	1.1525	2.2201	51
T37A	6127.12	T38	6124.19	12	222.5	0.013	0.011	6.2	1.5941	3.1262	51
T35	6135.54	T36	6135.04	15	136.3	0.004	0.011	3.79	1.5227	2.9916	51
T30	6153.45	T31	6153.11	15	146.3	0.002	0.011	3.02	1.2085	2.381	50
T25	6164.79	T26	6164.11	15	313.9	0.002	0.011	2.9	1.1525	2.296	50
T26A	6163.71	T27	6163.36	15	143.1	0.002	0.011	3.04	1.1525	2.4409	48
T13	6177.18	T14	6176.43	15	345.9	0.002	0.011	2.84	1.0505	2.2971	48
T11	6178.37	T12	6177.7	15	304.2	0.002	0.011	2.85	1.0502	2.3163	47
T26	6164.09	T26A	6163.72	15	138.9	0.003	0.011	3.14	1.1525	2.5456	47
T10	6179.38	T11	6178.39	15	446.5	0.002	0.011	2.86	1.0403	2.3246	47
T41	6084.93	T43	6074.46	12	286	0.037	0.014	7.83	1.8228	4.0909	47
GV148	6168.77	T23	6167.91	15	308.6	0.003	0.011	3.19	1.1525	2.6029	47
T22	6169.61	GV148	6168.77	15	298.6	0.003	0.011	3.2	1.1525	2.6151	47
T12	6177.65	T13	6177.2	15	187.8	0.002	0.011	2.94	1.0502	2.4139	46
T09	6180.37	T10	6179.41	15	398.7	0.002	0.011	2.94	1.0367	2.4201	46
T21	6170.97	T22	6169.62	15	450.1	0.003	0.011	3.28	1.1525	2.7024	46
T39A	6118.72	T39B	6115.51	15	305.7	0.01	0.014	4.79	1.6596	3.9705	45
T38	6124.14	T39	6123.05	15	180.9	0.006	0.011	4.61	1.5941	3.8288	45
T37	6133.82	T37A	6127.41	12	311.6	0.021	0.011	7.3	1.5941	3.9005	45
T14	6176.36	T15	6175.37	15	362.3	0.003	0.011	3.09	1.0505	2.5802	44
T29	6154.13	T30	6153.52	15	181.2	0.003	0.011	3.42	0.2924	2.8643	44
R07	6177.61	R06	6177.33	10	223	0.001	0.009	1.95	1.1537	0.7248	44
T19	6172.21	T20	6171.57	15	189	0.003	0.011	3.42	1.1386	2.8711	44
T16	6174.97	T17	6173.71	15	393.5	0.003	0.011	3.3	1.0687	2.7937	43
T08	6181.1	T09	6180.38	15	290.2	0.002	0.011	2.89	0.9326	2.4584	43
T34	6147.18	T35	6135.64	12	516.5	0.022	0.011	7.44	1.5227	4.0656	42

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T17	6173.7	T18	6172.31	15	354.6	0.004	0.011	3.55	1.0742	3.0873	41
T24	6166.88	T25	6164.8	15	410.9	0.005	0.011	3.97	1.1525	3.51	39
W46	6201.41	W13	6201.1	10	333.6	0.001	0.024	0.57	0.0674	0.2337	37
R10	6179.81	R09	6179.04	10	310.2	0.002	0.009	2.49	0.2892	1.0194	37
R12A	6181.92	R12	6181.39	10	216.9	0.002	0.009	2.46	0.2826	1.0108	36
T28	6160.21	T29	6154.44	12	242.7	0.024	0.011	7.06	0.2826	4.1932	36
R11	6180.44	R10	6179.81	10	252.7	0.002	0.009	2.47	1.1537	1.0206	36
R13	6182.3	R12A	6181.92	10	147.7	0.003	0.009	2.5	0.2826	1.0364	36
R16	6186.3	R15	6185.3	10	344.7	0.003	0.009	2.61	0.2826	1.1012	35
R12	6181.39	R11	6180.44	10	323.8	0.003	0.009	2.63	0.2826	1.1075	35
T33	6152.27	T34A	6147.67	15	308.3	0.015	0.011	6.34	1.5201	6.0297	34
T40A	6095.26	T41	6084.93	12	205.9	0.05	0.009	12.13	1.8228	7.4479	34
T04A	6191.75	T05	6191.63	15	167.6	0.001	0.011	1.36	0.3137	1.3186	33
T27	6163.26	T28	6160.23	12	91.8	0.033	0.011	7.95	1.1537	4.9385	33
R09	6179.04	R07	6177.61	10	388.1	0.004	0.009	2.87	0.2892	1.2417	33
R14	6183.41	R13	6182.3	10	285.9	0.004	0.009	2.9	0.2826	1.2742	32
W13	6201.1	W14	6200.8	10	182.7	0.002	0.024	0.71	0.0683	0.3105	32
T40	6102.8	T40A	6096.15	15	131.1	0.051	0.014	8.7	1.8132	8.7344	31
R15	6185.3	R14	6183.41	10	403.2	0.005	0.009	3.11	0.2826	1.4007	31
R03	6174.1	R02	6172.4	10	277.7	0.006	0.009	3.52	0.3114	1.5994	30
T46	6137.22	T37	6133.82	6	429.3	0.008	0.011	2.3	0.0714	0.3815	29
R06	6177.33	R04	6175.4	10	317.7	0.006	0.009	3.44	0.2924	1.5934	29
R04	6175.4	R03	6174.1	10	198.7	0.007	0.009	3.55	0.2945	1.6531	29
T45	6114.8	T40	6102.8	6	294.9	0.041	0.011	5.09	0.1482	0.8644	28
T39	6122.96	T39A	6118.76	15	107.2	0.039	0.011	9.2	1.6596	9.7752	28
T5A	6191.07	T06	6190.69	15	254.9	0.001	0.011	1.78	0.3176	1.9046	28
W37	6203.23	W36	6202.56	10	276.8	0.002	0.014	1.29	0.0908	0.6467	25
E34	6142	E33	6141.04	8	70.1	0.014	0.014	2.63	0.1152	0.8493	25
W36A	6201.95	W15	6201.3	10	204.4	0.003	0.014	1.47	0.1	0.7422	25
E30A	6121.96	T44	6120.73	8	175.9	0.007	0.009	2.9	0.1254	0.943	25
R17	6187.4	R16	6186.3	12	268.6	0.004	0.009	2.91	0.2826	2.1268	25
T44	6120.73	T44A	6119.54	8	165.1	0.007	0.009	2.93	0.1254	0.958	24
W36	6202.56	W36A	6201.95	10	165.8	0.004	0.014	1.54	0.1	0.7971	24
E33	6141.04	E33A	6134.26	8	364.4	0.019	0.014	2.97	0.1206	0.9897	24
W38	6203.8	W37	6203.23	10	180.8	0.003	0.014	1.41	0.0888	0.7379	24
T39B	6115.45	T39C	6109.7	15	102	0.056	0.009	12.07	1.6596	14.3178	23

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T39C	6109.65	T40	6102.95	15	116.1	0.058	0.009	12.17	1.6596	14.4927	23
E33B	6126	E30	6124	8	79.8	0.025	0.014	3.31	0.1215	1.1466	22
W47	6202.9	W47A	6202.49	10	177.6	0.002	0.024	0.68	0.039	0.3681	22
E30	6124	E30A	6121.96	8	106.7	0.019	0.011	3.59	0.1254	1.2744	21
W39	6204.6	W38A	6204.49	10	157.8	0.001	0.014	0.62	0.0338	0.3469	21
E33A	6134.26	E33B	6126	8	274.3	0.03	0.014	3.52	0.1206	1.2591	21
T05	6191.63	T5A	6191.07	15	120.5	0.005	0.011	2.65	0.3139	3.3565	21
W38A	6204.49	W38	6203.8	10	111.2	0.006	0.014	1.79	0.0868	1.0367	20
T44A	6119.54	T44B	6115.91	8	147.5	0.025	0.009	4.77	0.1482	1.7727	20
R02	6172.4	R01	6166.5	10	175.4	0.034	0.009	6.45	0.3114	3.7555	20
W49	6207.3	W48	6205.54	8	236.5	0.007	0.024	0.97	0.029	0.3645	19
E36	6152.75	E34	6142	8	266.8	0.04	0.014	3.81	0.1107	1.4551	19
T44B	6115.91	T45	6114.8	8	33	0.034	0.009	5.32	0.1482	2.0689	18
E38	6158.84	E37	6157.08	8	379.4	0.005	0.014	1.26	0.0347	0.4942	18
T04	6192.53	T04A	6191.75	15	189.5	0.004	0.011	2.27	0.2122	3.1613	18
T07	6185.71	T08	6181.1	12	115.5	0.04	0.011	6.09	0.3621	5.4484	18
W76	6200.78	W75	6199.86	6	166.5	0.006	0.009	1.72	0.0247	0.3899	17
E40	6162.53	E39	6160.9	8	305.6	0.005	0.014	1.31	0.0333	0.5293	17
W01	6196.4	W02	6191.76	8	89.7	0.052	0.014	4.07	0.1031	1.6466	17
E56	6164.6	E60	6163.7	8	158.1	0.006	0.014	1.35	0.0342	0.5473	17
R01	6166.5	T33	6152.27	10	159.2	0.089	0.011	7.9	0.3114	5.0063	17
T02	6195.75	T03	6193.82	15	389.9	0.005	0.011	2.42	0.2122	3.4709	17
E39	6160.9	E38	6158.84	8	357.5	0.006	0.014	1.35	0.0333	0.5501	17
T03	6193.82	T04	6192.53	15	233	0.006	0.011	2.52	0.2122	3.6712	16
T06	6190.69	T07	6185.71	15	357.3	0.014	0.011	3.93	0.3176	5.8274	16
E59	6159.16	E58	6157.66	8	196.4	0.008	0.014	1.5	0.0342	0.6344	16
E43	6166.59	E42	6164.73	8	392.4	0.005	0.014	1.12	0.0228	0.4995	15
E42	6164.73	E41	6163.44	8	250.9	0.005	0.014	1.16	0.0228	0.5199	14
E41	6163.44	E40	6162.53	8	158.7	0.006	0.014	1.2	0.0228	0.5486	14
E37	6157.08	E36	6152.75	8	286.5	0.015	0.014	1.94	0.0369	0.8923	14
W74	6198.13	W77	6196.45	10	305.1	0.006	0.009	2.11	0.0615	1.518	14
W77	6196.45	T04A	6191.75	10	215	0.022	0.011	3.43	0.1001	2.4743	14
E08	6191.52	E09	6190.98	8	298.3	0.002	0.009	1.02	0.018	0.4802	13
W15	6201.3	W14	6200.8	10	16.7	0.029	0.011	3.81	0.1	2.87	13
W48	6205.54	W47	6202.9	10	191.4	0.014	0.024	1.19	0.031	0.9017	13
W75	6199.86	W74	6198.13	8	182.2	0.01	0.009	2.24	0.0361	1.0998	12

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
E60	6163.7	E59	6159.16	8	210.7	0.022	0.014	2.16	0.0342	1.0637	12
W47A	6202.49	W46	6201.41	10	42.8	0.025	0.024	1.58	0.039	1.2156	12
W14	6200.8	T02	6195.75	10	41.8	0.12	0.011	7.28	0.1683	5.8028	12
W40A	6204.8	W39	6204.6	10	74.6	0.003	0.014	0.84	0.019	0.679	12
E58	6157.66	E36	6152.75	8	106.6	0.046	0.014	2.81	0.0342	1.5535	10
W49B	6212.68	W49A	6209.67	4	197.8	0.015	0.024	0.59	0.0018	0.0821	10
E09	6190.98	E10	6170.98	8	388.7	0.051	0.014	2.92	0.0342	1.6443	10
W49A	6209.67	W49	6207.3	6	160.1	0.015	0.024	0.75	0.0049	0.2391	10
E10	6170.98	E56	6164.6	8	119.6	0.053	0.014	2.95	0.0342	1.6721	10
W73	6200.6	W74	6198.13	8	175.4	0.014	0.009	2.33	0.0254	1.3402	10
W42	6206.69	W40	6205.97	8	136	0.005	0.014	0.88	0.0089	0.5277	9
W02	6191.76	T09	6180.37	8	36	0.316	0.009	10.47	0.1031	6.3452	9
P03	6130.66	P13	6130.04	8	136.7	0.005	0.009	1.22	0.0114	0.7589	9
W43	6208.07	W42	6206.69	8	269	0.005	0.014	0.84	0.0078	0.5194	9
W08B	6195.85	W08A	6195.5	10	153.2	0.002	0.014	0.65	0.0093	0.6289	9
P04	6131.43	P03	6130.66	8	174.1	0.004	0.009	1.17	0.01	0.7504	8
W08A	6195.5	W08	6194.9	10	207.5	0.003	0.014	0.7	0.0093	0.7079	8
W11	6197.9	W10	6197.3	10	184.7	0.003	0.014	0.73	0.0093	0.7488	8
P07	6132.36	P06	6131.89	8	91.2	0.005	0.009	1.22	0.01	0.8107	8
P06	6131.89	P04	6131.43	8	88.9	0.005	0.009	1.22	0.01	0.811	8
P08	6133.31	P07	6132.36	8	172.5	0.006	0.009	1.25	0.01	0.8384	8
W09	6196.5	W08B	6195.85	10	179.3	0.004	0.014	0.76	0.0093	0.7923	8
W10	6197.3	W09	6196.5	10	210.8	0.004	0.014	0.77	0.0093	0.8096	8
W17	6197.6	T01	6197.2	8	5.5	0.08	0.011	3.85	0.0298	2.6106	8
A83	6170.48	E44	6168.57	8	426.6	0.004	0.014	0.71	0.0055	0.485	8
W40	6205.97	W40A	6204.8	10	65.4	0.018	0.014	1.63	0.019	1.7641	7
E44	6168.57	E43	6166.59	8	388.4	0.005	0.014	0.75	0.0055	0.518	7
T01	6197.2	T02	6195.75	15	192.2	0.008	0.011	1.75	0.0439	4.2877	7
W08	6194.9	W07	6193.75	10	233.1	0.005	0.014	0.85	0.0093	0.9237	7
W07	6193.75	W7A	6192.35	10	281.7	0.005	0.014	0.85	0.0093	0.9264	7
W44	6209.56	W43	6208.07	8	300.4	0.005	0.014	0.71	0.0048	0.5111	7
W11A	6198.1	W11	6197.9	10	63.6	0.003	0.014	0.63	0.0062	0.735	7
W28R	6209.61	W70	6208.91	8	114.2	0.006	0.014	0.72	0.004	0.5683	6
W01B	6200.24	W01	6196.4	8	143.9	0.027	0.014	1.51	0.0083	1.1842	6
W19	6198.4	W11A	6198.1	10	47.7	0.006	0.014	0.81	0.0062	1.0395	6
A82	6172.54	A83	6170.48	8	438	0.005	0.014	0.57	0.0024	0.4973	5

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
E29	6148	E30	6124	4	279.8	0.086	0.009	2.34	0.0025	0.5201	5
E06	6193.66	E07	6192.8	8	343.1	0.003	0.014	0.41	0.0016	0.3631	5
W70	6208.91	W71	6208.46	8	61.8	0.007	0.009	1.04	0.004	0.9611	5
W05	6186.3	W04	6183.8	8	341	0.007	0.014	0.65	0.0022	0.6209	4
W06	6188.5	W05	6186.3	8	290.3	0.008	0.014	0.66	0.0022	0.6316	4
E07	6192.8	E08	6191.52	8	221.4	0.006	0.014	0.57	0.0018	0.5519	4
W12	6199.05	W19	6198.4	10	219.9	0.003	0.014	0.45	0.0021	0.7147	4
P13	6130.04	T44A	6119.54	8	68.8	0.152	0.009	4.3	0.0128	4.4006	4
W62	6204.25	W38	6203.8	8	147.8	0.003	0.009	0.6	0.0017	0.622	4
W7A	6192.35	T08	6181.1	8	42.9	0.262	0.014	3.46	0.0093	3.7093	4
W24R	6194.82	T5A	6191.07	12	203.9	0.018	0.024	0.67	0.0037	1.691	4
W71	6208.46	W73	6200.6	8	262.8	0.03	0.009	1.73	0.004	1.9502	3
E49	6176.69	E43	6166.59	8	199.5	0.051	0.014	1.45	0.0033	1.6338	3
W45	6215	W44	6209.56	8	310.8	0.017	0.014	0.74	0.0013	0.9591	3
W61A	6206.51	W62	6204.25	8	181.9	0.012	0.009	0.94	0.0015	1.2571	3
W61	6208.51	W61A	6206.51	8	137.3	0.015	0.009	1	0.0015	1.363	3
P12	6154.64	P03	6130.66	6	248	0.097	0.009	1.99	0.0022	1.6288	2
W04	6183.8	T08	6181.1	8	18.3	0.15	0.014	1.79	0.0014	2.8087	2
E27	6162.4	E29	6148	8	160.6	0.089	0.009	2.12	0.0025	3.3737	2
E35	6142.9	E34	6142	8	248.4	0.004	0.014	0.28	0.0003	0.4369	2
E32	6154.49	E33	6141.04	6	101.9	0.132	0.014	0.98	0.0003	1.2228	1
R7A	6178.02	R07	6177.61	10	18.4	0.023	0.009	0	0	3.0869	(N/A)
W32	6204.9	W31A	6203.82	6	27.5	0.039	0.011	0	0	0.8417	(N/A)
I46	6161.17	T32	6152.41	6	35.3	0.25	0.011	0	0	2.1441	(N/A)
T50A	6138.02	T46	6137.22	6	37.4	0.022	0.011	0	0	0.6302	(N/A)
T57	6141.7	T56	6140.81	6	41.2	0.022	0.011	0	0	0.6314	(N/A)
W60	6208.83	W61	6208.51	6	47.5	0.007	0.009	0	0	0.4277	(N/A)
W50B	6211.27	W50A	6209.59	8	47.6	0.035	0.024	0	0	0.7914	(N/A)
A86	6207.06	W11	6197.9	6	51.4	0.18	0.009	0	0	2.2199	(N/A)
T59	6139.47	T58	6138.95	6	51.5	0.01	0.011	0	0	0.4286	(N/A)
H88	6179.4	A82	6172.54	6	51.5	0.135	0.014	0	0	1.235	(N/A)
I47	6161.28	T33	6152.27	6	48.7	0.184	0.011	0	0	1.8377	(N/A)
A88	6255.14	A87	6238.06	6	54	0.316	0.009	0	0	2.9459	(N/A)
A84	6171.79	A83	6170.48	6	56.5	0.023	0.014	0	0	0.5105	(N/A)
A80A	6176	A80	6173.9	6	57.9	0.036	0.014	0	0	0.6407	(N/A)
A72	6194.12	A71	6189.96	6	59.7	0.069	0.011	0	0	1.1285	(N/A)

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T58	6138.95	T50A	6138.02	6	59.4	0.016	0.011	0	0	0.5381	(N/A)
E25	6185.67	E24	6183.36	6	60.8	0.038	0.014	0	0	0.6553	(N/A)
R21	6237	R20	6235.68	6	60.9	0.022	0.009	0	0	0.7705	(N/A)
H85	6221.25	A84	6171.79	6	61.5	0.811	0.014	0	0	3.0321	(N/A)
T54	6139.31	T50	6138.76	6	63.3	0.009	0.011	0	0	0.4004	(N/A)
A79	6179	A80A	6176	6	64.2	0.047	0.014	0	0	0.729	(N/A)
W27R	6211.38	W28R	6209.61	6	65.2	0.027	0.014	0	0	0.5557	(N/A)
A59	6187.89	T11	6178.37	6	70.8	0.134	0.011	0	0	1.5693	(N/A)
T52	6147.58	T51	6147.03	6	72.1	0.008	0.011	0	0	0.3746	(N/A)
H89	6195	H88	6179.4	6	73.3	0.214	0.014	0	0	1.5566	(N/A)
W31A	6203.82	W31	6203.49	6	74.8	0.004	0.011	0	0	0.2843	(N/A)
E42A	6172.38	E42	6164.73	6	76.7	0.099	0.014	0	0	1.0614	(N/A)
R24	6240.89	R23	6239.48	6	79.9	0.018	0.009	0	0	0.6954	(N/A)
I49	6151.1	T34A	6147.66	6	78.1	0.044	0.011	0	0	0.9	(N/A)
R31	6402.16	R30	6397.4	6	81.1	0.059	0.009	0	0	1.2698	(N/A)
W53	6284.2	W52	6267.5	6	87.7	0.19	0.009	0	0	2.2818	(N/A)
H90	6241	H89	6195	6	82	0.561	0.014	0	0	2.5221	(N/A)
W50R	6207.99	W49	6207.3	8	83	0.008	0.024	0	0	0.3867	(N/A)
A65	6188.5	T16	6174.97	6	95.2	0.142	0.011	0	0	1.6174	(N/A)
A56	6227.51	A55	6225.9	6	87.7	0.018	0.011	0	0	0.5797	(N/A)
A67	6187.47	T17	6173.7	6	90.3	0.153	0.011	0	0	1.6763	(N/A)
T55	6139.91	T54	6139.31	6	89.6	0.007	0.011	0	0	0.3499	(N/A)
W72	6212.72	W71	6208.46	6	90.7	0.047	0.009	0	0	1.1333	(N/A)
W50	6208.76	W50R	6207.99	8	91.6	0.008	0.024	0	0	0.3867	(N/A)
T48	6149.75	T47A	6148.6	6	92.5	0.012	0.011	0	0	0.4792	(N/A)
W31	6203.49	W30	6202.96	6	95.5	0.006	0.011	0	0	0.3201	(N/A)
A73	6189.48	T20	6171.56	6	97.4	0.185	0.014	0	0	1.4473	(N/A)
H101	6301.43	H100	6274.02	6	97.9	0.28	0.009	0	0	2.7702	(N/A)
W50A	6209.59	W50	6208.76	8	99.5	0.008	0.024	0	0	0.3867	(N/A)
I45	6162.25	I46	6161.17	6	101.6	0.011	0.011	0	0	0.441	(N/A)
T51	6147.03	T50	6138.76	6	103.3	0.08	0.011	0	0	1.2144	(N/A)
A71	6189.96	T19	6172.21	6	111.5	0.158	0.011	0	0	1.7061	(N/A)
T50	6138.76	T50A	6138.02	6	106.2	0.007	0.011	0	0	0.3581	(N/A)
W26	6216.5	W27R	6211.38	6	107.4	0.048	0.014	0	0	0.7366	(N/A)
H87	6258.4	H85	6221.25	6	108.1	0.344	0.009	0	0	3.0721	(N/A)
A74	6184.2	T21	6170.97	6	114.7	0.115	0.014	0	0	1.1421	(N/A)

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
T53	6148.29	T52	6147.58	6	108.2	0.007	0.011	0	0	0.3475	(N/A)
A25	6442.5	A26	6431.2	6	110.2	0.103	0.011	0	0	1.3736	(N/A)
W55	6346	W54	6325	6	122.6	0.171	0.009	0	0	2.1643	(N/A)
T56	6140.81	T55	6139.91	6	114.3	0.008	0.011	0	0	0.3808	(N/A)
A58	6189.07	A59	6187.89	6	114.8	0.01	0.011	0	0	0.4341	(N/A)
A28	6399.9	A27	6390.02	6	114.8	0.086	0.011	0	0	1.2562	(N/A)
R23	6239.48	R21	6237	6	115.7	0.021	0.009	0	0	0.7659	(N/A)
A75	6196.26	A74	6184.2	6	118.5	0.101	0.014	0	0	1.072	(N/A)
A68	6205.95	A67	6187.47	4	120.2	0.154	0.011	0	0	0.5704	(N/A)
H100	6274.02	H97	6253.93	6	122	0.165	0.014	0	0	1.3664	(N/A)
E12	6205	E11	6181.95	6	124.6	0.184	0.014	0	0	1.446	(N/A)
E03	6201.08	E06	6193.66	8	125.1	0.059	0.014	0	0	1.7668	(N/A)
A57	6230.5	A56	6227.51	6	125.6	0.024	0.011	0	0	0.6602	(N/A)
W38B	6206	W38A	6204.49	6	126.9	0.012	0.009	0	0	0.5712	(N/A)
H97	6253.93	E45	6200.14	6	127.5	0.42	0.014	0	0	2.1829	(N/A)
T48A	6150.78	T48	6149.75	6	127.8	0.008	0.011	0	0	0.3844	(N/A)
E28	6168.1	E27	6162.4	6	127.8	0.045	0.014	0	0	0.7106	(N/A)
E24	6183.36	E23	6182.44	6	134.9	0.007	0.014	0	0	0.278	(N/A)
R29	6382.72	R28	6377	6	135.9	0.042	0.009	0	0	1.0742	(N/A)
A37A	6289.49	A37	6276.25	6	137	0.097	0.011	0	0	1.3323	(N/A)
E23	6182.44	E11	6181.95	8	137	0.004	0.014	0	0	0.4337	(N/A)
I48	6165.85	I47	6161.28	6	137.2	0.033	0.011	0	0	0.7827	(N/A)
R28	6377	R27	6373.42	6	150.2	0.024	0.009	0	0	0.8092	(N/A)
W57	6222.4	W58	6221.2	6	141.4	0.009	0.009	0	0	0.4832	(N/A)
C3	6211.2	C4	6209.5	6	142.1	0.012	0.009	0	0	0.5731	(N/A)
W59	6216.33	W60	6208.83	8	143.9	0.052	0.009	0	0	2.5745	(N/A)
C1	6220	C2	6215.76	6	147.8	0.029	0.009	0	0	0.8866	(N/A)
C2	6215.76	C3	6211.2	6	148.8	0.031	0.009	0	0	0.9163	(N/A)
R34	6492.02	R33	6479.22	6	158.3	0.081	0.009	0	0	1.4909	(N/A)
A46	6283.8	A45	6240.52	4	153	0.283	0.011	0	0	0.7731	(N/A)
A29	6373.5	WY-A30	6367.64	6	148.4	0.04	0.011	0	0	0.8525	(N/A)
H105	6308.4	H101	6301.43	6	156.7	0.044	0.009	0	0	1.1037	(N/A)
W01C	6202.32	W01B	6200.24	8	158.8	0.013	0.014	0	0	0.8294	(N/A)
W25R	6219.26	W72	6212.72	6	159.7	0.041	0.009	0	0	1.059	(N/A)
H102	6312.81	H101	6301.43	6	160.3	0.071	0.014	0	0	0.898	(N/A)
H86	6233.9	H85	6221.25	6	161.3	0.079	0.009	0	0	1.4683	(N/A)

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
W34	6209.72	W33A	6207.9	6	161.7	0.011	0.011	0	0	0.4543	(N/A)
E17	6190.77	E10	6170.98	8	163.1	0.121	0.014	0	0	2.5269	(N/A)
R22	6257.85	R21	6237	6	165.1	0.126	0.009	0	0	1.862	(N/A)
E26	6192.8	E27	6162.4	6	165.7	0.183	0.014	0	0	1.441	(N/A)
A43	6238.36	A42	6209.99	6	170.1	0.167	0.011	0	0	1.7507	(N/A)
E51	6174	E63	6170.92	6	171.2	0.018	0.014	0	0	0.4519	(N/A)
A69	6191.4	A67	6187.47	6	172.6	0.023	0.011	0	0	0.6459	(N/A)
W58	6221.2	W59	6216.33	8	173	0.028	0.009	0	0	1.8927	(N/A)
E50	6176.54	E51	6174	6	173.6	0.015	0.014	0	0	0.4068	(N/A)
H103	6338.71	H102	6312.81	6	174.2	0.149	0.009	0	0	2.0209	(N/A)
H94	6266.2	A78	6252.82	6	175.4	0.076	0.011	0	0	1.185	(N/A)
M1	6193.3	T09	6180.37	6	177.7	0.073	0.011	0	0	1.1551	(N/A)
A40	6231.01	A39	6228.59	6	179.1	0.014	0.011	0	0	0.4983	(N/A)
E63	6170.92	E40	6162.53	6	181	0.046	0.014	0	0	0.725	(N/A)
E16	6196.92	E17	6190.77	6	183.3	0.034	0.014	0	0	0.6173	(N/A)
E31	6177.11	E32	6154.49	6	185.1	0.122	0.014	0	0	1.1775	(N/A)
W33A	6207.9	W32	6204.9	6	185.7	0.016	0.011	0	0	0.5443	(N/A)
H95	6287	H94	6266.2	6	188.4	0.111	0.011	0	0	1.4255	(N/A)
W30	6202.96	W17	6197.6	8	190.2	0.028	0.011	0	0	1.5502	(N/A)
H91	6261.21	H87	6258.4	6	194	0.014	0.009	0	0	0.6304	(N/A)
A66	6188.9	A67	6187.47	6	194.2	0.007	0.011	0	0	0.3679	(N/A)
R18	6203.31	R10	6179.81	6	204.3	0.115	0.009	0	0	1.7778	(N/A)
A37B	6300.03	A37A	6289.49	6	199.7	0.053	0.011	0	0	0.9838	(N/A)
E53	6183.02	E52	6179.55	6	199.8	0.017	0.014	0	0	0.4435	(N/A)
E14	6222.16	E15	6221.13	8	205.9	0.005	0.014	0	0	0.5128	(N/A)
R30	6397.4	R28	6377	6	207.4	0.099	0.009	0	0	1.6444	(N/A)
H92	6277.37	H91	6261.21	6	209.7	0.077	0.009	0	0	1.453	(N/A)
C4	6209.5	W01	6196.4	6	214.2	0.061	0.014	0	0	0.8331	(N/A)
A26	6431.2	A27	6390.02	6	216.2	0.191	0.011	0	0	1.8713	(N/A)
E47	6187.9	E49	6176.69	6	218.2	0.051	0.014	0	0	0.7636	(N/A)
E45	6200.14	E46	6195.29	6	219.6	0.022	0.014	0	0	0.5	(N/A)
T47A	6148.6	T47	6144.47	6	220	0.019	0.011	0	0	0.5872	(N/A)
R20	6235.68	R19	6221.55	6	224.3	0.063	0.009	0	0	1.3156	(N/A)
H106	6320.37	H105	6308.4	6	225.6	0.053	0.009	0	0	1.2055	(N/A)
A87	6238.06	A86	6207.06	6	225.8	0.137	0.009	0	0	1.94	(N/A)
A42	6209.99	A65	6188.5	6	227.6	0.094	0.011	0	0	1.3157	(N/A)

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
A63	6189.85	A65	6188.5	6	228.3	0.006	0.011	0	0	0.3298	(N/A)
W41	6242.85	W40	6205.97	6	236.1	0.156	0.014	0	0	1.3311	(N/A)
E61	6167.48	E60	6163.7	6	246.5	0.015	0.014	0	0	0.4166	(N/A)
A34	6270.5	A35	6260	6	249.2	0.042	0.011	0	0	0.8801	(N/A)
E52	6179.55	E51	6174	6	254.3	0.022	0.014	0	0	0.4978	(N/A)
E55	6174.75	E56	6164.6	6	258.7	0.039	0.014	0	0	0.6666	(N/A)
A36	6274.65	A35	6260	6	259.8	0.056	0.011	0	0	1.0173	(N/A)
R19	6221.55	R18	6203.31	6	262.7	0.069	0.009	0	0	1.3794	(N/A)
A35	6260	A38	6221.8	6	253.7	0.15	0.011	0	0	1.662	(N/A)
H104	6343.76	H103	6338.71	6	265.4	0.019	0.009	0	0	0.7231	(N/A)
E11	6181.95	E10	6170.98	8	270.8	0.04	0.009	0	0	2.2696	(N/A)
A76	6224.8	A75	6196.26	6	271.3	0.105	0.011	0	0	1.3908	(N/A)
E13	6223.4	E12	6205	6	272.2	0.068	0.014	0	0	0.8758	(N/A)
E02	6202.06	E03	6201.08	8	278.8	0.004	0.014	0	0	0.4298	(N/A)
R26	6315.62	R25	6228.2	6	276	0.317	0.009	0	0	2.9479	(N/A)
E01	6203.03	E02	6202.06	8	277.8	0.003	0.014	0	0	0.4284	(N/A)
A38	6221.8	A71	6189.96	6	284.8	0.112	0.011	0	0	1.4325	(N/A)
A80	6173.9	A82	6172.54	8	288	0.005	0.014	0	0	0.4983	(N/A)
S53	6501.6	S52	6477.5	6	290.8	0.083	0.011	0	0	1.2333	(N/A)
A17	6266.57	A18	6226.07	6	292.4	0.139	0.009	0	0	1.9508	(N/A)
T47	6144.47	T46	6137.22	6	299.6	0.024	0.011	0	0	0.6662	(N/A)
A39	6228.59	A38	6221.8	6	304.6	0.022	0.011	0	0	0.6394	(N/A)
A45	6240.52	A44	6226.5	6	295.5	0.047	0.011	0	0	0.9327	(N/A)
S51	6456.4	A26	6431.2	6	296.1	0.085	0.011	0	0	1.2505	(N/A)
R27	6373.42	R26	6315.62	6	297.5	0.195	0.009	0	0	2.3108	(N/A)
W54	6325	W53	6284.2	6	317.6	0.128	0.009	0	0	1.8762	(N/A)
S52	6477.5	S51	6456.4	6	307.3	0.069	0.011	0	0	1.1235	(N/A)
E54	6181.34	E55	6174.75	6	307.9	0.021	0.014	0	0	0.4925	(N/A)
A37	6276.25	A36	6274.65	6	312.5	0.005	0.011	0	0	0.3064	(N/A)
E15	6221.13	E16	6196.92	8	312.1	0.078	0.014	0	0	2.0201	(N/A)
A77	6235.7	A76	6224.8	6	312.6	0.035	0.011	0	0	0.7998	(N/A)
A24	6452.9	A25	6442.5	6	316.1	0.033	0.011	0	0	0.7775	(N/A)
E04	6212.9	E03	6201.08	8	313.9	0.038	0.014	0	0	1.407	(N/A)
E62	6173.52	E61	6167.48	6	315.2	0.019	0.014	0	0	0.4663	(N/A)
H99	6325	H98	6300.65	6	323.1	0.075	0.009	0	0	1.4382	(N/A)
A60	6197.3	A59	6187.89	6	318.4	0.03	0.011	0	0	0.7372	(N/A)

Scenario 3 - Existing Sewer System + VSVSP+ GP Buildout ADWF (Peak Hour)

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Depth (Normal) / Rise (%)
A14	6342	A15	6339.98	6	321.5	0.006	0.009	0	0	0.4149	(N/A)
A55	6225.9	A58	6189.07	6	325.8	0.113	0.011	0	0	1.4405	(N/A)
A18	6226.07	W19	6198.4	6	330.3	0.084	0.009	0	0	1.5168	(N/A)
A41	6228.1	A42	6209.99	6	342.3	0.053	0.011	0	0	0.9862	(N/A)
E46	6195.29	E47	6187.9	6	334.9	0.022	0.014	0	0	0.5001	(N/A)
A70	6192.16	A71	6189.96	6	336.1	0.007	0.011	0	0	0.3468	(N/A)
H98	6300.65	H97	6253.93	6	342.5	0.136	0.014	0	0	1.2428	(N/A)
E63A	6176.1	E63	6170.92	6	344.2	0.015	0.014	0	0	0.4132	(N/A)
WY-A30	6367.64	A30	6354.41	6	350.8	0.038	0.011	0	0	0.8322	(N/A)
A44	6226.5	A42	6209.99	6	349.7	0.047	0.011	0	0	0.9308	(N/A)
R35	6527.25	R34	6492.02	6	354.5	0.099	0.009	0	0	1.6501	(N/A)
A16	6296	A17	6266.57	6	362.2	0.081	0.009	0	0	1.4935	(N/A)
R32	6438.52	R30	6397.4	6	383	0.107	0.009	0	0	1.7163	(N/A)
A47	6270.09	A45	6240.52	6	393.7	0.075	0.011	0	0	1.1741	(N/A)
R33	6479.22	R32	6438.52	6	402.5	0.101	0.009	0	0	1.6646	(N/A)
A62	6200.59	A63	6189.85	6	401.4	0.027	0.011	0	0	0.7014	(N/A)
A31	6331.83	A32	6312.94	6	411.8	0.046	0.011	0	0	0.9176	(N/A)
A30	6354.41	A31	6331.83	6	414.9	0.054	0.011	0	0	0.9997	(N/A)
A15	6339.98	A17	6266.57	6	442.9	0.166	0.009	0	0	2.1323	(N/A)
R25	6228.2	R03	6174.1	6	442.4	0.122	0.009	0	0	1.8325	(N/A)
A27	6390.02	A29	6373.5	6	439.4	0.038	0.011	0	0	0.8314	(N/A)
R36	6532.02	R35	6527.25	6	450.7	0.011	0.009	0	0	0.5387	(N/A)
A32	6312.94	A33	6291.81	6	453.9	0.047	0.011	0	0	0.9245	(N/A)
A33	6291.81	A34	6270.5	6	459.4	0.046	0.011	0	0	0.9235	(N/A)
W56	6367.24	W55	6346	6	454.3	0.047	0.009	0	0	1.133	(N/A)
W52	6267.5	W40	6205.97	6	494.1	0.125	0.009	0	0	1.8486	(N/A)
A78	6252.82	A76	6224.8	6	490.9	0.057	0.011	0	0	1.0238	(N/A)

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T18	6172.23	T19	6172.22	15	352.3	0	0.011	3.25	2.4896	0.263	947
T43	6074.26	TTSA	6068.27	10	315.7	0.019	0.011	12.47	4.3037	2.304	187
T34A	6147.66	T34	6147.26	15	190.9	0.002	0.011	4.63	3.5765	2.2579	158
T32	6152.41	T33	6152.3	15	64.4	0.002	0.011	3.67	2.8157	2.0455	138
T36	6135.02	T37	6133.91	15	388.1	0.003	0.011	4.63	3.5765	2.639	136
T31	6153.03	T32	6152.44	15	319.8	0.002	0.011	3.67	2.8152	2.1186	133
T20	6171.56	T21	6171	15	333.1	0.002	0.011	3.45	2.6458	2.0233	131
T15	6175.28	T16	6175	15	184.4	0.002	0.011	3.19	2.4366	1.9247	127
T23	6167.87	T24	6166.89	15	484.5	0.002	0.011	3.49	2.6795	2.2201	121
T37A	6127.12	T38	6124.19	12	222.5	0.013	0.011	7.57	3.7496	3.1262	120
T35	6135.54	T36	6135.04	15	136.3	0.004	0.011	4.63	3.5765	2.9916	120
T30	6153.45	T31	6153.11	15	146.3	0.002	0.011	3.67	2.8152	2.381	118
T25	6164.79	T26	6164.11	15	313.9	0.002	0.011	3.49	2.6795	2.296	117
T26A	6163.71	T27	6163.36	15	143.1	0.002	0.011	3.49	2.6795	2.4409	110
T13	6177.18	T14	6176.43	15	345.9	0.002	0.011	3.18	2.4319	2.2971	106
T11	6178.37	T12	6177.7	15	304.2	0.002	0.011	3.18	2.4313	2.3163	105
T26	6164.09	T26A	6163.72	15	138.9	0.003	0.011	3.49	2.6795	2.5456	105
T10	6179.38	T11	6178.39	15	446.5	0.002	0.011	3.15	2.4074	2.3246	104
T41	6084.93	T43	6074.46	12	286	0.037	0.014	8.66	4.3037	4.0909	105
GV148	6168.77	T23	6167.91	15	308.6	0.003	0.011	3.49	2.6795	2.6029	103
T22	6169.61	GV148	6168.77	15	298.6	0.003	0.011	3.49	2.6795	2.6151	103
T12	6177.65	T13	6177.2	15	187.8	0.002	0.011	3.18	2.4313	2.4139	101
T09	6180.37	T10	6179.41	15	398.7	0.002	0.011	3.14	2.3986	2.4201	100
T21	6170.97	T22	6169.62	15	450.1	0.003	0.011	3.49	2.6795	2.7024	100
T39A	6118.72	T39B	6115.51	15	305.7	0.01	0.014	5.71	3.9083	3.9705	98
T38	6124.14	T39	6123.05	15	180.9	0.006	0.011	5.5	3.7496	3.8288	98
T37	6133.82	T37A	6127.41	12	311.6	0.021	0.011	7.57	3.7496	3.9005	96
T14	6176.36	T15	6175.37	15	362.3	0.003	0.011	3.18	2.4319	2.5802	94
R07	6177.61	R06	6177.33	10	223	0.001	0.009	2.34	0.7085	0.7248	98
T29	6154.13	T30	6153.52	15	181.2	0.003	0.011	3.5	2.6824	2.8643	94
T19	6172.21	T20	6171.57	15	189	0.003	0.011	3.45	2.6458	2.8711	92
T16	6174.97	T17	6173.71	15	393.5	0.003	0.011	3.24	2.4762	2.7937	89
T08	6181.1	T09	6180.38	15	290.2	0.002	0.011	2.82	2.1464	2.4584	87
T34	6147.18	T35	6135.64	12	516.5	0.022	0.011	9.07	3.5765	4.0656	88

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T17	6173.7	T18	6172.31	15	354.6	0.004	0.011	3.25	2.4896	3.0873	81
T24	6166.88	T25	6164.8	15	410.9	0.005	0.011	4.91	2.6795	3.51	76
W46	6201.41	W13	6201.1	10	333.6	0.001	0.024	0.72	0.1634	0.2337	70
R10	6179.81	R09	6179.04	10	310.2	0.002	0.009	3.12	0.7009	1.0194	69
R12A	6181.92	R12	6181.39	10	216.9	0.002	0.009	3.08	0.685	1.0108	68
R11	6180.44	R10	6179.81	10	252.7	0.002	0.009	3.1	0.685	1.0206	67
T28	6160.21	T29	6154.44	12	242.7	0.024	0.011	8.83	2.6824	4.1932	64
R13	6182.3	R12A	6181.92	10	147.7	0.003	0.009	3.14	0.685	1.0364	66
R16	6186.3	R15	6185.3	10	344.7	0.003	0.009	3.29	0.685	1.1012	62
R12	6181.39	R11	6180.44	10	323.8	0.003	0.009	3.31	0.685	1.1075	62
T33	6152.27	T34A	6147.67	15	308.3	0.015	0.011	7.97	3.5703	6.0297	59
T40A	6095.26	T41	6084.93	12	205.9	0.05	0.009	15.28	4.3037	7.4479	58
T04A	6191.75	T05	6191.63	15	167.6	0.001	0.011	1.72	0.7602	1.3186	58
R09	6179.04	R07	6177.61	10	388.1	0.004	0.009	3.63	2.6824	1.2417	54
T27	6163.26	T28	6160.23	12	91.8	0.033	0.011	10.01	0.7009	4.9385	56
R14	6183.41	R13	6182.3	10	285.9	0.004	0.009	3.68	0.685	1.2742	54
W13	6201.1	W14	6200.8	10	182.7	0.002	0.024	0.9	0.1657	0.3105	53
T40	6102.8	T40A	6096.15	15	131.1	0.051	0.014	11.02	4.2804	8.7344	49
R15	6185.3	R14	6183.41	10	403.2	0.005	0.009	3.95	0.685	1.4007	49
R03	6174.1	R02	6172.4	10	277.7	0.006	0.009	4.47	0.7546	1.5994	47
T46	6137.22	T37	6133.82	6	429.3	0.008	0.011	2.93	0.1731	0.3815	45
R06	6177.33	R04	6175.4	10	317.7	0.006	0.009	4.39	0.7085	1.5934	45
R04	6175.4	R03	6174.1	10	198.7	0.007	0.009	4.52	0.7136	1.6531	43
T45	6114.8	T40	6102.8	6	294.9	0.041	0.011	6.5	0.3591	0.8644	42
T39	6122.96	T39A	6118.76	15	107.2	0.039	0.011	11.7	3.9083	9.7752	40
T5A	6191.07	T06	6190.69	15	254.9	0.001	0.011	2.27	0.7696	1.9046	40
W37	6203.23	W36	6202.56	10	276.8	0.002	0.014	1.66	0.2197	0.6467	34
E34	6142	E33	6141.04	8	70.1	0.014	0.014	3.37	0.2792	0.8493	33
W36A	6201.95	W15	6201.3	10	204.4	0.003	0.014	1.88	0.2419	0.7422	33
E30A	6121.96	T44	6120.73	8	175.9	0.007	0.009	3.73	0.3038	0.943	32
R17	6187.4	R16	6186.3	12	268.6	0.004	0.009	3.73	0.685	2.1268	32
T44	6120.73	T44A	6119.54	8	165.1	0.007	0.009	3.77	0.3038	0.958	32
W36	6202.56	W36A	6201.95	10	165.8	0.004	0.014	1.98	0.2419	0.7971	30
E33	6141.04	E33A	6134.26	8	364.4	0.019	0.014	3.82	0.2921	0.9897	30
W38	6203.8	W37	6203.23	10	180.8	0.003	0.014	1.82	0.2149	0.7379	29

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
T39B	6115.45	T39C	6109.7	15	102	0.056	0.009	15.47	3.9083	14.3178	27
T39C	6109.65	T40	6102.95	15	116.1	0.058	0.009	15.61	3.9083	14.4927	27
E33B	6126	E30	6124	8	79.8	0.025	0.014	4.25	0.2944	1.1466	26
W47	6202.9	W47A	6202.49	10	177.6	0.002	0.024	0.87	0.0945	0.3681	26
E30	6124	E30A	6121.96	8	106.7	0.019	0.011	4.64	0.3038	1.2744	24
W39	6204.6	W38A	6204.49	10	157.8	0.001	0.014	0.81	0.0818	0.3469	24
E33A	6134.26	E33B	6126	8	274.3	0.03	0.014	4.55	0.2921	1.2591	23
T05	6191.63	T5A	6191.07	15	120.5	0.005	0.011	3.42	0.7607	3.3565	23
W38A	6204.49	W38	6203.8	10	111.2	0.006	0.014	2.31	0.2102	1.0367	20
T44A	6119.54	T44B	6115.91	8	147.5	0.025	0.009	6.16	0.3591	1.7727	20
R02	6172.4	R01	6166.5	10	175.4	0.034	0.009	8.33	0.7546	3.7555	20
W49	6207.3	W48	6205.54	8	236.5	0.007	0.024	1.25	0.0704	0.3645	19
E36	6152.75	E34	6142	8	266.8	0.04	0.014	4.91	0.2684	1.4551	18
T44B	6115.91	T45	6114.8	8	33	0.034	0.009	6.87	0.3591	2.0689	17
E38	6158.84	E37	6157.08	8	379.4	0.005	0.014	1.64	0.0843	0.4942	17
T04	6192.53	T04A	6191.75	15	189.5	0.004	0.011	2.93	0.5142	3.1613	16
T07	6185.71	T08	6181.1	12	115.5	0.04	0.011	7.88	0.8775	5.4484	16
W76	6200.78	W75	6199.86	6	166.5	0.006	0.009	2.22	0.0598	0.3899	15
E40	6162.53	E39	6160.9	8	305.6	0.005	0.014	1.7	0.081	0.5293	15
W01	6196.4	W02	6191.76	8	89.7	0.052	0.014	5.27	0.2498	1.6466	15
E56	6164.6	E60	6163.7	8	158.1	0.006	0.014	1.75	0.0829	0.5473	15
R01	6166.5	T33	6152.27	10	159.2	0.089	0.011	10.23	0.7546	5.0063	15
T02	6195.75	T03	6193.82	15	389.9	0.005	0.011	3.14	0.5142	3.4709	15
E39	6160.9	E38	6158.84	8	357.5	0.006	0.014	1.74	0.081	0.5501	15
T03	6193.82	T04	6192.53	15	233	0.006	0.011	3.26	0.5142	3.6712	14
T06	6190.69	T07	6185.71	15	357.3	0.014	0.011	5.09	0.7696	5.8274	13
E59	6159.16	E58	6157.66	8	196.4	0.008	0.014	1.94	0.0829	0.6344	13
E43	6166.59	E42	6164.73	8	392.4	0.005	0.014	1.46	0.0555	0.4995	11
E42	6164.73	E41	6163.44	8	250.9	0.005	0.014	1.5	0.0555	0.5199	11
E41	6163.44	E40	6162.53	8	158.7	0.006	0.014	1.56	0.0555	0.5486	10
E37	6157.08	E36	6152.75	8	286.5	0.015	0.014	2.53	0.0895	0.8923	10
W74	6198.13	W77	6196.45	10	305.1	0.006	0.009	2.74	0.149	1.518	10
W77	6196.45	T04A	6191.75	10	215	0.022	0.011	4.46	0.2426	2.4743	10
E08	6191.52	E09	6190.98	8	298.3	0.002	0.009	1.32	0.0436	0.4802	9
W15	6201.3	W14	6200.8	10	16.7	0.029	0.011	4.95	0.2419	2.87	8

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W48	6205.54	W47	6202.9	10	191.4	0.014	0.024	1.55	0.0752	0.9017	8
W75	6199.86	W74	6198.13	8	182.2	0.01	0.009	2.92	0.0874	1.0998	8
E60	6163.7	E59	6159.16	8	210.7	0.022	0.014	2.8	0.0829	1.0637	8
W47A	6202.49	W46	6201.41	10	42.8	0.025	0.024	2.05	0.0945	1.2156	8
W14	6200.8	T02	6195.75	10	41.8	0.12	0.011	9.49	0.4076	5.8028	7
W40A	6204.8	W39	6204.6	10	74.6	0.003	0.014	1.1	0.046	0.679	7
W49B	6212.68	W49A	6209.67	4	197.8	0.015	0.024	0.77	0.0829	0.0821	5
E58	6157.66	E36	6152.75	8	106.6	0.046	0.014	3.66	0.0044	1.5535	5
E09	6190.98	E10	6170.98	8	388.7	0.051	0.014	3.81	0.0829	1.6443	5
W49A	6209.67	W49	6207.3	6	160.1	0.015	0.024	0.98	0.012	0.2391	5
E10	6170.98	E56	6164.6	8	119.6	0.053	0.014	3.85	0.0829	1.6721	5
W73	6200.6	W74	6198.13	8	175.4	0.014	0.009	3.02	0.0616	1.3402	5
W42	6206.69	W40	6205.97	8	136	0.005	0.014	1.15	0.0216	0.5277	4
W02	6191.76	T09	6180.37	8	36	0.316	0.009	13.65	0.2498	6.3452	4
W43	6208.07	W42	6206.69	8	269	0.005	0.014	1.09	0.0277	0.5194	4
P03	6130.66	P13	6130.04	8	136.7	0.005	0.009	1.6	0.019	0.7589	4
W08B	6195.85	W08A	6195.5	10	153.2	0.002	0.014	0.84	0.0227	0.6289	4
P04	6131.43	P03	6130.66	8	174.1	0.004	0.009	1.53	0.0243	0.7504	3
W08A	6195.5	W08	6194.9	10	207.5	0.003	0.014	0.92	0.0227	0.7079	3
W11	6197.9	W10	6197.3	10	184.7	0.003	0.014	0.95	0.0227	0.7488	3
P07	6132.36	P06	6131.89	8	91.2	0.005	0.009	1.61	0.0243	0.8107	3
P06	6131.89	P04	6131.43	8	88.9	0.005	0.009	1.61	0.0243	0.811	3
P08	6133.31	P07	6132.36	8	172.5	0.006	0.009	1.64	0.0243	0.8384	3
W09	6196.5	W08B	6195.85	10	179.3	0.004	0.014	0.99	0.0227	0.7923	3
W10	6197.3	W09	6196.5	10	210.8	0.004	0.014	1.01	0.0227	0.8096	3
W17	6197.6	T01	6197.2	8	5.5	0.08	0.011	5.05	0.0723	2.6106	3
A83	6170.48	E44	6168.57	8	426.6	0.004	0.014	0.94	0.0134	0.485	3
W40	6205.97	W40A	6204.8	10	65.4	0.018	0.014	2.15	0.046	1.7641	3
E44	6168.57	E43	6166.59	8	388.4	0.005	0.014	0.98	0.0134	0.518	3
T01	6197.2	T02	6195.75	15	192.2	0.008	0.011	2.28	0.1066	4.2877	3
W08	6194.9	W07	6193.75	10	233.1	0.005	0.014	1.1	0.0227	0.9237	3
W07	6193.75	W7A	6192.35	10	281.7	0.005	0.014	1.11	0.0227	0.9264	3
W44	6209.56	W43	6208.07	8	300.4	0.005	0.014	0.93	0.0116	0.5111	2
W11A	6198.1	W11	6197.9	10	63.6	0.003	0.014	0.83	0.0151	0.735	2
W01B	6200.24	W01	6196.4	8	143.9	0.027	0.014	1.98	0.0096	1.1842	2

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
W28R	6209.61	W70	6208.91	8	114.2	0.006	0.014	0.95	0.0201	0.5683	2
W19	6198.4	W11A	6198.1	10	47.7	0.006	0.014	1.06	0.0151	1.0395	2
E29	6148	E30	6124	4	279.8	0.086	0.009	3.14	0.0058	0.5201	1
A82	6172.54	A83	6170.48	8	438	0.005	0.014	0.74	0.0061	0.4973	1
E06	6193.66	E07	6192.8	8	343.1	0.003	0.014	0.52	0.0038	0.3631	1
W70	6208.91	W71	6208.46	8	61.8	0.007	0.009	1.36	0.0096	0.9611	1
W05	6186.3	W04	6183.8	8	341	0.007	0.014	0.83	0.0052	0.6209	1
W06	6188.5	W05	6186.3	8	290.3	0.008	0.014	0.84	0.0052	0.6316	1
E07	6192.8	E08	6191.52	8	221.4	0.006	0.014	0.72	0.0043	0.5519	1
W12	6199.05	W19	6198.4	10	219.9	0.003	0.014	0.58	0.0051	0.7147	1
P13	6130.04	T44A	6119.54	8	68.8	0.152	0.009	5.61	0.0311	4.4006	1
W62	6204.25	W38	6203.8	8	147.8	0.003	0.009	0.78	0.0041	0.622	1
W7A	6192.35	T08	6181.1	8	42.9	0.262	0.014	4.53	0.0227	3.7093	1
W24R	6194.82	T5A	6191.07	12	203.9	0.018	0.024	0.88	0.0089	1.691	1
E49	6176.69	E43	6166.59	8	199.5	0.051	0.014	1.88	0.0096	1.6338	1
W71	6208.46	W73	6200.6	8	262.8	0.03	0.009	2.24	0.0081	1.9502	1
W45	6215	W44	6209.56	8	310.8	0.017	0.014	0.96	0.0031	0.9591	0
W61A	6206.51	W62	6204.25	8	181.9	0.012	0.009	1.22	0.0036	1.2571	0
W61	6208.51	W61A	6206.51	8	137.3	0.015	0.009	1.29	0.0036	1.363	0
P12	6154.64	P03	6130.66	6	248	0.097	0.009	2.59	0.0052	1.6288	0
W04	6183.8	T08	6181.1	8	18.3	0.15	0.014	2.35	0.0034	2.8087	0
E27	6162.4	E29	6148	8	160.6	0.089	0.009	2.81	0.0061	3.3737	0
E35	6142.9	E34	6142	8	248.4	0.004	0.014	0.34	0.0006	0.4369	0
E32	6154.49	E33	6141.04	6	101.9	0.132	0.014	1.25	0.0006	1.2228	0
R7A	6178.02	R07	6177.61	10	18.4	0.023	0.009	0	0	3.0869	0
W32	6204.9	W31A	6203.82	6	27.5	0.039	0.011	0	0	0.8417	0
I46	6161.17	T32	6152.41	6	35.3	0.25	0.011	0	0	2.1441	0
T50A	6138.02	T46	6137.22	6	37.4	0.022	0.011	0	0	0.6302	0
T57	6141.7	T56	6140.81	6	41.2	0.022	0.011	0	0	0.6314	0
W60	6208.83	W61	6208.51	6	47.5	0.007	0.009	0	0	0.4277	0
W50B	6211.27	W50A	6209.59	8	47.6	0.035	0.024	0	0	0.7914	0
A86	6207.06	W11	6197.9	6	51.4	0.18	0.009	0	0	2.2199	0
T59	6139.47	T58	6138.95	6	51.5	0.01	0.011	0	0	0.4286	0
H88	6179.4	A82	6172.54	6	51.5	0.135	0.014	0	0	1.235	0
I47	6161.28	T33	6152.27	6	48.7	0.184	0.011	0	0	1.8377	0

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A88	6255.14	A87	6238.06	6	54	0.316	0.009	0	0	2.9459	0
A84	6171.79	A83	6170.48	6	56.5	0.023	0.014	0	0	0.5105	0
A80A	6176	A80	6173.9	6	57.9	0.036	0.014	0	0	0.6407	0
A72	6194.12	A71	6189.96	6	59.7	0.069	0.011	0	0	1.1285	0
T58	6138.95	T50A	6138.02	6	59.4	0.016	0.011	0	0	0.5381	0
E25	6185.67	E24	6183.36	6	60.8	0.038	0.014	0	0	0.6553	0
R21	6237	R20	6235.68	6	60.9	0.022	0.009	0	0	0.7705	0
H85	6221.25	A84	6171.79	6	61.5	0.811	0.014	0	0	3.0321	0
T54	6139.31	T50	6138.76	6	63.3	0.009	0.011	0	0	0.4004	0
A79	6179	A80A	6176	6	64.2	0.047	0.014	0	0	0.729	0
W27R	6211.38	W28R	6209.61	6	65.2	0.027	0.014	0	0	0.5557	0
A59	6187.89	T11	6178.37	6	70.8	0.134	0.011	0	0	1.5693	0
T52	6147.58	T51	6147.03	6	72.1	0.008	0.011	0	0	0.3746	0
H89	6195	H88	6179.4	6	73.3	0.214	0.014	0	0	1.5566	0
W31A	6203.82	W31	6203.49	6	74.8	0.004	0.011	0	0	0.2843	0
E42A	6172.38	E42	6164.73	6	76.7	0.099	0.014	0	0	1.0614	0
R24	6240.89	R23	6239.48	6	79.9	0.018	0.009	0	0	0.6954	0
I49	6151.1	T34A	6147.66	6	78.1	0.044	0.011	0	0	0.9	0
R31	6402.16	R30	6397.4	6	81.1	0.059	0.009	0	0	1.2698	0
W53	6284.2	W52	6267.5	6	87.7	0.19	0.009	0	0	2.2818	0
H90	6241	H89	6195	6	82	0.561	0.014	0	0	2.5221	0
W50R	6207.99	W49	6207.3	8	83	0.008	0.024	0	0	0.3867	0
A65	6188.5	T16	6174.97	6	95.2	0.142	0.011	0	0	1.6174	0
A56	6227.51	A55	6225.9	6	87.7	0.018	0.011	0	0	0.5797	0
A67	6187.47	T17	6173.7	6	90.3	0.153	0.011	0	0	1.6763	0
T55	6139.91	T54	6139.31	6	89.6	0.007	0.011	0	0	0.3499	0
W72	6212.72	W71	6208.46	6	90.7	0.047	0.009	0	0	1.1333	0
W50	6208.76	W50R	6207.99	8	91.6	0.008	0.024	0	0	0.3867	0
T48	6149.75	T47A	6148.6	6	92.5	0.012	0.011	0	0	0.4792	0
W31	6203.49	W30	6202.96	6	95.5	0.006	0.011	0	0	0.3201	0
A73	6189.48	T20	6171.56	6	97.4	0.185	0.014	0	0	1.4473	0
H101	6301.43	H100	6274.02	6	97.9	0.28	0.009	0	0	2.7702	0
W50A	6209.59	W50	6208.76	8	99.5	0.008	0.024	0	0	0.3867	0
I45	6162.25	I46	6161.17	6	101.6	0.011	0.011	0	0	0.441	0
T51	6147.03	T50	6138.76	6	103.3	0.08	0.011	0	0	1.2144	0

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A71	6189.96	T19	6172.21	6	111.5	0.158	0.011	0	0	1.7061	0
T50	6138.76	T50A	6138.02	6	106.2	0.007	0.011	0	0	0.3581	0
W26	6216.5	W27R	6211.38	6	107.4	0.048	0.014	0	0	0.7366	0
H87	6258.4	H85	6221.25	6	108.1	0.344	0.009	0	0	3.0721	0
A74	6184.2	T21	6170.97	6	114.7	0.115	0.014	0	0	1.1421	0
T53	6148.29	T52	6147.58	6	108.2	0.007	0.011	0	0	0.3475	0
A25	6442.5	A26	6431.2	6	110.2	0.103	0.011	0	0	1.3736	0
W55	6346	W54	6325	6	122.6	0.171	0.009	0	0	2.1643	0
T56	6140.81	T55	6139.91	6	114.3	0.008	0.011	0	0	0.3808	0
A58	6189.07	A59	6187.89	6	114.8	0.01	0.011	0	0	0.4341	0
A28	6399.9	A27	6390.02	6	114.8	0.086	0.011	0	0	1.2562	0
R23	6239.48	R21	6237	6	115.7	0.021	0.009	0	0	0.7659	0
A75	6196.26	A74	6184.2	6	118.5	0.101	0.014	0	0	1.072	0
A68	6205.95	A67	6187.47	4	120.2	0.154	0.011	0	0	0.5704	0
H100	6274.02	H97	6253.93	6	122	0.165	0.014	0	0	1.3664	0
E12	6205	E11	6181.95	6	124.6	0.184	0.014	0	0	1.446	0
E03	6201.08	E06	6193.66	8	125.1	0.059	0.014	0	0	1.7668	0
A57	6230.5	A56	6227.51	6	125.6	0.024	0.011	0	0	0.6602	0
W38B	6206	W38A	6204.49	6	126.9	0.012	0.009	0	0	0.5712	0
H97	6253.93	E45	6200.14	6	127.5	0.42	0.014	0	0	2.1829	0
T48A	6150.78	T48	6149.75	6	127.8	0.008	0.011	0	0	0.3844	0
E28	6168.1	E27	6162.4	6	127.8	0.045	0.014	0	0	0.7106	0
E24	6183.36	E23	6182.44	6	134.9	0.007	0.014	0	0	0.278	0
R29	6382.72	R28	6377	6	135.9	0.042	0.009	0	0	1.0742	0
A37A	6289.49	A37	6276.25	6	137	0.097	0.011	0	0	1.3323	0
E23	6182.44	E11	6181.95	8	137	0.004	0.014	0	0	0.4337	0
I48	6165.85	I47	6161.28	6	137.2	0.033	0.011	0	0	0.7827	0
R28	6377	R27	6373.42	6	150.2	0.024	0.009	0	0	0.8092	0
W57	6222.4	W58	6221.2	6	141.4	0.009	0.009	0	0	0.4832	0
C3	6211.2	C4	6209.5	6	142.1	0.012	0.009	0	0	0.5731	0
W59	6216.33	W60	6208.83	8	143.9	0.052	0.009	0	0	2.5745	0
C1	6220	C2	6215.76	6	147.8	0.029	0.009	0	0	0.8866	0
C2	6215.76	C3	6211.2	6	148.8	0.031	0.009	0	0	0.9163	0
R34	6492.02	R33	6479.22	6	158.3	0.081	0.009	0	0	1.4909	0
A46	6283.8	A45	6240.52	4	153	0.283	0.011	0	0	0.7731	0

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A29	6373.5	WY-A30	6367.64	6	148.4	0.04	0.011	0	0	0.8525	0
H105	6308.4	H101	6301.43	6	156.7	0.044	0.009	0	0	1.1037	0
W01C	6202.32	W01B	6200.24	8	158.8	0.013	0.014	0	0	0.8294	0
W25R	6219.26	W72	6212.72	6	159.7	0.041	0.009	0	0	1.059	0
H102	6312.81	H101	6301.43	6	160.3	0.071	0.014	0	0	0.898	0
H86	6233.9	H85	6221.25	6	161.3	0.079	0.009	0	0	1.4683	0
W34	6209.72	W33A	6207.9	6	161.7	0.011	0.011	0	0	0.4543	0
E17	6190.77	E10	6170.98	8	163.1	0.121	0.014	0	0	2.5269	0
R22	6257.85	R21	6237	6	165.1	0.126	0.009	0	0	1.862	0
E26	6192.8	E27	6162.4	6	165.7	0.183	0.014	0	0	1.441	0
A43	6238.36	A42	6209.99	6	170.1	0.167	0.011	0	0	1.7507	0
E51	6174	E63	6170.92	6	171.2	0.018	0.014	0	0	0.4519	0
A69	6191.4	A67	6187.47	6	172.6	0.023	0.011	0	0	0.6459	0
W58	6221.2	W59	6216.33	8	173	0.028	0.009	0	0	1.8927	0
E50	6176.54	E51	6174	6	173.6	0.015	0.014	0	0	0.4068	0
H103	6338.71	H102	6312.81	6	174.2	0.149	0.009	0	0	2.0209	0
H94	6266.2	A78	6252.82	6	175.4	0.076	0.011	0	0	1.185	0
M1	6193.3	T09	6180.37	6	177.7	0.073	0.011	0	0	1.1551	0
A40	6231.01	A39	6228.59	6	179.1	0.014	0.011	0	0	0.4983	0
E63	6170.92	E40	6162.53	6	181	0.046	0.014	0	0	0.725	0
E16	6196.92	E17	6190.77	6	183.3	0.034	0.014	0	0	0.6173	0
E31	6177.11	E32	6154.49	6	185.1	0.122	0.014	0	0	1.1775	0
W33A	6207.9	W32	6204.9	6	185.7	0.016	0.011	0	0	0.5443	0
H95	6287	H94	6266.2	6	188.4	0.111	0.011	0	0	1.4255	0
W30	6202.96	W17	6197.6	8	190.2	0.028	0.011	0	0	1.5502	0
H91	6261.21	H87	6258.4	6	194	0.014	0.009	0	0	0.6304	0
A66	6188.9	A67	6187.47	6	194.2	0.007	0.011	0	0	0.3679	0
R18	6203.31	R10	6179.81	6	204.3	0.115	0.009	0	0	1.7778	0
A37B	6300.03	A37A	6289.49	6	199.7	0.053	0.011	0	0	0.9838	0
E53	6183.02	E52	6179.55	6	199.8	0.017	0.014	0	0	0.4435	0
E14	6222.16	E15	6221.13	8	205.9	0.005	0.014	0	0	0.5128	0
R30	6397.4	R28	6377	6	207.4	0.099	0.009	0	0	1.6444	0
H92	6277.37	H91	6261.21	6	209.7	0.077	0.009	0	0	1.453	0
C4	6209.5	W01	6196.4	6	214.2	0.061	0.014	0	0	0.8331	0
A26	6431.2	A27	6390.02	6	216.2	0.191	0.011	0	0	1.8713	0

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
E47	6187.9	E49	6176.69	6	218.2	0.051	0.014	0	0	0.7636	0
E45	6200.14	E46	6195.29	6	219.6	0.022	0.014	0	0	0.5	0
T47A	6148.6	T47	6144.47	6	220	0.019	0.011	0	0	0.5872	0
R20	6235.68	R19	6221.55	6	224.3	0.063	0.009	0	0	1.3156	0
H106	6320.37	H105	6308.4	6	225.6	0.053	0.009	0	0	1.2055	0
A87	6238.06	A86	6207.06	6	225.8	0.137	0.009	0	0	1.94	0
A42	6209.99	A65	6188.5	6	227.6	0.094	0.011	0	0	1.3157	0
A63	6189.85	A65	6188.5	6	228.3	0.006	0.011	0	0	0.3298	0
W41	6242.85	W40	6205.97	6	236.1	0.156	0.014	0	0	1.3311	0
E61	6167.48	E60	6163.7	6	246.5	0.015	0.014	0	0	0.4166	0
A34	6270.5	A35	6260	6	249.2	0.042	0.011	0	0	0.8801	0
E52	6179.55	E51	6174	6	254.3	0.022	0.014	0	0	0.4978	0
E55	6174.75	E56	6164.6	6	258.7	0.039	0.014	0	0	0.6666	0
A36	6274.65	A35	6260	6	259.8	0.056	0.011	0	0	1.0173	0
R19	6221.55	R18	6203.31	6	262.7	0.069	0.009	0	0	1.3794	0
A35	6260	A38	6221.8	6	253.7	0.15	0.011	0	0	1.662	0
H104	6343.76	H103	6338.71	6	265.4	0.019	0.009	0	0	0.7231	0
E11	6181.95	E10	6170.98	8	270.8	0.04	0.009	0	0	2.2696	0
A76	6224.8	A75	6196.26	6	271.3	0.105	0.011	0	0	1.3908	0
E13	6223.4	E12	6205	6	272.2	0.068	0.014	0	0	0.8758	0
E02	6202.06	E03	6201.08	8	278.8	0.004	0.014	0	0	0.4298	0
R26	6315.62	R25	6228.2	6	276	0.317	0.009	0	0	2.9479	0
E01	6203.03	E02	6202.06	8	277.8	0.003	0.014	0	0	0.4284	0
A38	6221.8	A71	6189.96	6	284.8	0.112	0.011	0	0	1.4325	0
A80	6173.9	A82	6172.54	8	288	0.005	0.014	0	0	0.4983	0
S53	6501.6	S52	6477.5	6	290.8	0.083	0.011	0	0	1.2333	0
A17	6266.57	A18	6226.07	6	292.4	0.139	0.009	0	0	1.9508	0
T47	6144.47	T46	6137.22	6	299.6	0.024	0.011	0	0	0.6662	0
A39	6228.59	A38	6221.8	6	304.6	0.022	0.011	0	0	0.6394	0
A45	6240.52	A44	6226.5	6	295.5	0.047	0.011	0	0	0.9327	0
S51	6456.4	A26	6431.2	6	296.1	0.085	0.011	0	0	1.2505	0
R27	6373.42	R26	6315.62	6	297.5	0.195	0.009	0	0	2.3108	0
W54	6325	W53	6284.2	6	317.6	0.128	0.009	0	0	1.8762	0
S52	6477.5	S51	6456.4	6	307.3	0.069	0.011	0	0	1.1235	0
E54	6181.34	E55	6174.75	6	307.9	0.021	0.014	0	0	0.4925	0

Scenario 3 - Existing Sewer System + VSVSP + GP Buildout PWWF

Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Diameter (in)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Manning's n	Velocity (ft/s)	Flow (Maximum) (MGD)	Capacity (Full Flow) (MGD)	Flow / Capacity (Design) (%)
A37	6276.25	A36	6274.65	6	312.5	0.005	0.011	0	0	0.3064	0
E15	6221.13	E16	6196.92	8	312.1	0.078	0.014	0	0	2.0201	0
A77	6235.7	A76	6224.8	6	312.6	0.035	0.011	0	0	0.7998	0
A24	6452.9	A25	6442.5	6	316.1	0.033	0.011	0	0	0.7775	0
E04	6212.9	E03	6201.08	8	313.9	0.038	0.014	0	0	1.407	0
E62	6173.52	E61	6167.48	6	315.2	0.019	0.014	0	0	0.4663	0
H99	6325	H98	6300.65	6	323.1	0.075	0.009	0	0	1.4382	0
A60	6197.3	A59	6187.89	6	318.4	0.03	0.011	0	0	0.7372	0
A14	6342	A15	6339.98	6	321.5	0.006	0.009	0	0	0.4149	0
A55	6225.9	A58	6189.07	6	325.8	0.113	0.011	0	0	1.4405	0
A18	6226.07	W19	6198.4	6	330.3	0.084	0.009	0	0	1.5168	0
A41	6228.1	A42	6209.99	6	342.3	0.053	0.011	0	0	0.9862	0
E46	6195.29	E47	6187.9	6	334.9	0.022	0.014	0	0	0.5001	0
A70	6192.16	A71	6189.96	6	336.1	0.007	0.011	0	0	0.3468	0
H98	6300.65	H97	6253.93	6	342.5	0.136	0.014	0	0	1.2428	0
E63A	6176.1	E63	6170.92	6	344.2	0.015	0.014	0	0	0.4132	0
WY-A30	6367.64	A30	6354.41	6	350.8	0.038	0.011	0	0	0.8322	0
A44	6226.5	A42	6209.99	6	349.7	0.047	0.011	0	0	0.9308	0
R35	6527.25	R34	6492.02	6	354.5	0.099	0.009	0	0	1.6501	0
A16	6296	A17	6266.57	6	362.2	0.081	0.009	0	0	1.4935	0
R32	6438.52	R30	6397.4	6	383	0.107	0.009	0	0	1.7163	0
A47	6270.09	A45	6240.52	6	393.7	0.075	0.011	0	0	1.1741	0
R33	6479.22	R32	6438.52	6	402.5	0.101	0.009	0	0	1.6646	0
A62	6200.59	A63	6189.85	6	401.4	0.027	0.011	0	0	0.7014	0
A31	6331.83	A32	6312.94	6	411.8	0.046	0.011	0	0	0.9176	0
A30	6354.41	A31	6331.83	6	414.9	0.054	0.011	0	0	0.9997	0
A15	6339.98	A17	6266.57	6	442.9	0.166	0.009	0	0	2.1323	0
R25	6228.2	R03	6174.1	6	442.4	0.122	0.009	0	0	1.8325	0
A27	6390.02	A29	6373.5	6	439.4	0.038	0.011	0	0	0.8314	0
R36	6532.02	R35	6527.25	6	450.7	0.011	0.009	0	0	0.5387	0
A32	6312.94	A33	6291.81	6	453.9	0.047	0.011	0	0	0.9245	0
A33	6291.81	A34	6270.5	6	459.4	0.046	0.011	0	0	0.9235	0
W56	6367.24	W55	6346	6	454.3	0.047	0.009	0	0	1.133	0
W52	6267.5	W40	6205.97	6	494.1	0.125	0.009	0	0	1.8486	0
A78	6252.82	A76	6224.8	6	490.9	0.057	0.011	0	0	1.0238	0

Attachment 8.2

Olympic Valley Public Service District
Squaw Valley Entrance Sewer Alternatives Project:
Technical Memorandum, July 2007 and
Cost per Dwelling Unit Breakdown Analysis, Oct. 2007

Squaw Valley
Public Services District

Squaw Valley Entrance
Sewer Alternatives Project

TECHNICAL
MEMORANDUM
FINAL
JULY 2007

WALTER R. AUERBACH
9/30/07
CIVIL
STATE OF CAL

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Squaw Valley Public Services District
Squaw Valley Entrance
Sewer Alternatives Project
Technical Memorandum

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

TECHNICAL MEMORANDUM

1.0 Introduction

This Technical Memorandum evaluates alternatives for sanitary sewer facilities that may provide service to the existing and proposed land uses at the entrance to Squaw Valley (Olympic Valley, CA.)

1.1 Purpose

This Technical Memorandum is intended to provide the Squaw Valley Public Services District (SVPSD) with sufficient information to facilitate a decision and move forward, if desired, with the design of sanitary sewer improvements for the Squaw Valley Entrance Area (Study Area). Wastewater generated from existing structures within the Study Area is currently being treated with a variety of septic systems. This Technical Memorandum outlines several alternatives for sanitary sewer improvements that will allow these septic systems to be decommissioned by constructing new sewer pipelines to collect wastewater from the existing services. The new sewer pipelines will route wastewater to existing interceptor facilities that were designed to handle wastewater generated by the Study Area. Each alternative also considers the future development of the Study Area and the wastewater flows that will consequently be generated. In addition, a recommendation for the best apparent alternative based on economical and long term maintenance issues is provided.

1.2 Study Area Description

The Study Area is located at the intersection of Highway 89 and Squaw Valley Road and is presented on Figure 1.1. The limits of the Study Area for the Squaw Valley Entrance Sewer Alternatives (SVESA) are as follows: The Squaw Valley Park located on the southwest corner of the intersection, the 7-11 convenience store, Dave's Ski Shop, the High Density Residential Zoning (HDR) located on the northwest corner of the intersection, and seven single family residences located to the east of the intersection. SVPSD currently provides water and sewer services to the portion of the Study Area west of Highway 89, while the Tahoe City Public Utility District (TCPUD) provides those services to the east side of Highway 89.

1.3 Background Review

The following is a list of background information that has been reviewed and utilized during the development of this Technical Memorandum:

1) Squaw Valley General Plan & Land Use Ordinance (Dated 1983);
2) Sewer System Master Plan, Prepared for Squaw Valley County Water District (Dated December 1994);
3) Municipal Service Review Area 3 Services, Prepared for Placer County (Dated August 2004);

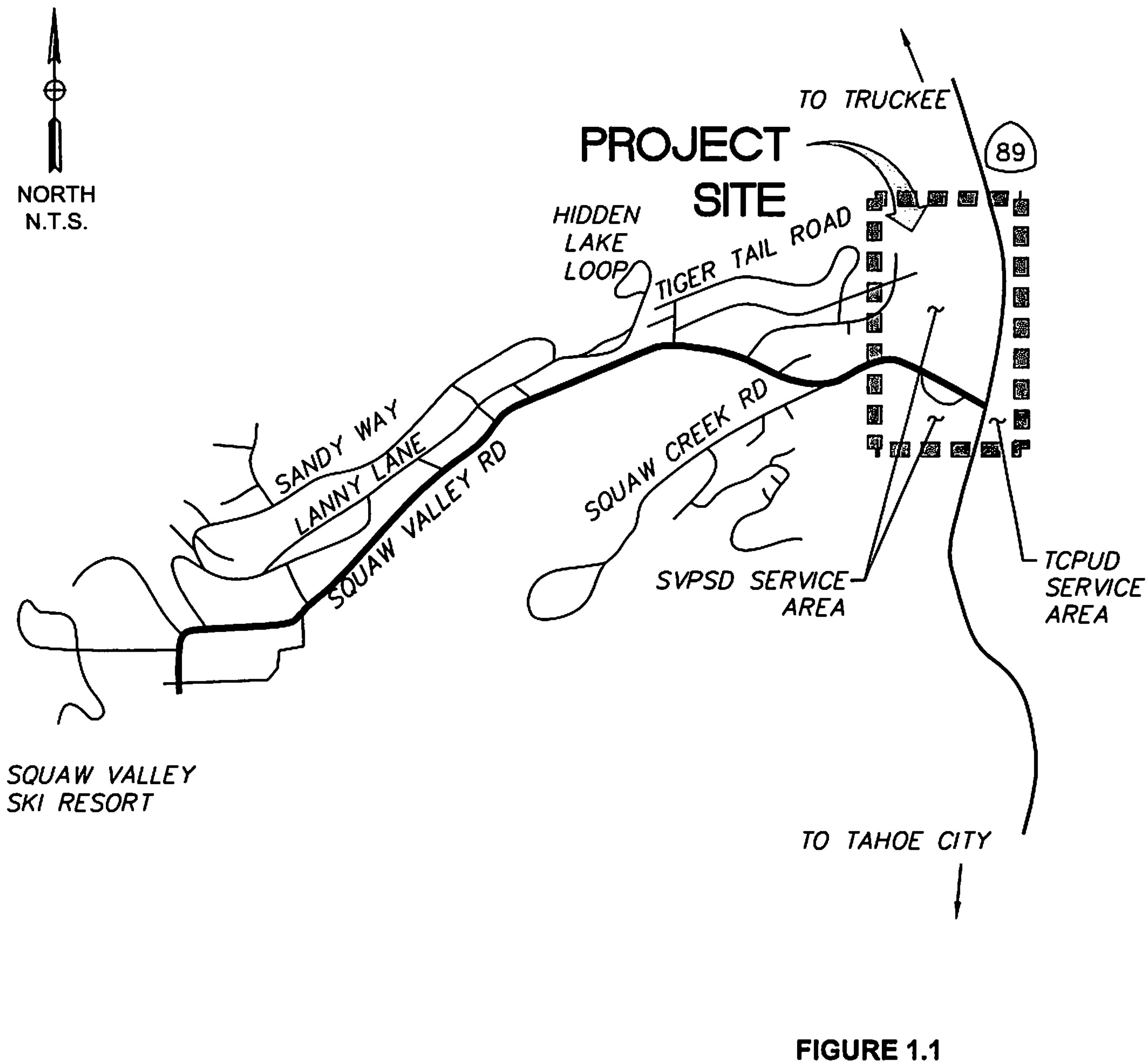

FIGURE 1.1
VICINITY MAP
SVESA PROJECT
SQUAW VALLEY PSD

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4) Placer County Zoning Ordinance (Dated August 1995);
5) Placer County Land Development Manual (Dated October 1996);
6) Tahoe Truckee Sanitation Agency Contract Drawings for Truckee River Interceptor (Dated April 1975);
7) Tahoe Truckee Sanitation Agency Contract Drawings for Squaw Valley Interceptor – Schedule I and Alpine Springs Interceptor – Schedule II (Dated April 1976);
8) Squaw Valley Public Service District Contract Drawing for Sewer Flow Meter Replacement Project (Dated April 2001);
9) The Estates At Squaw Creek Improvement Plans (Dated January 2000);

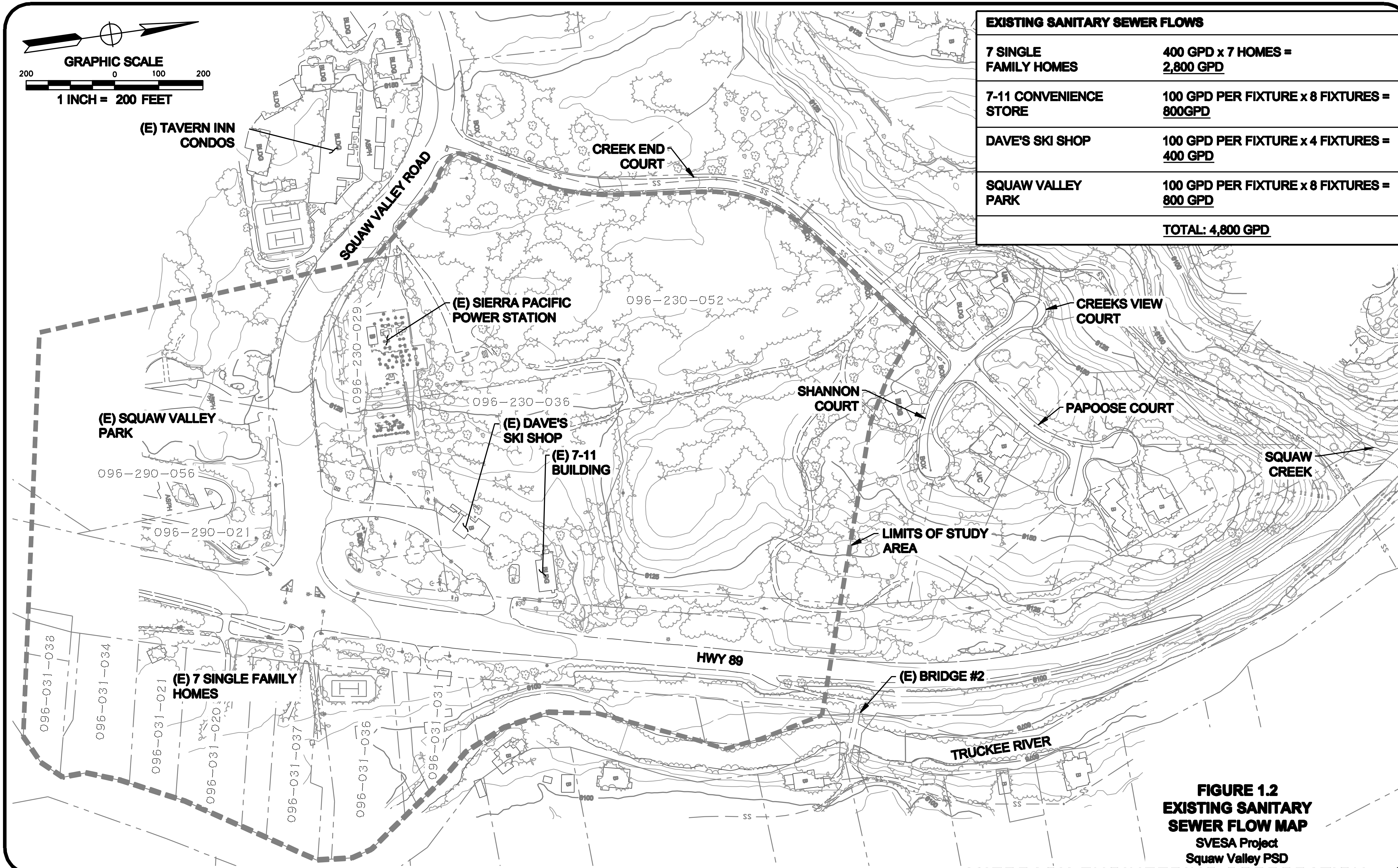
The majority of wastewater generated from Squaw Valley currently flows through the SVPSD's existing collection system into the Squaw Valley Interceptor (SVI). The SVI routes wastewater under the Truckee River and into the Truckee River Interceptor (TRI). The TRI is located adjacent to the Truckee River and routes wastewater in a northerly direction to the Tahoe-Truckee Sanitation Agency (TTSA) Water Reclamation Plant where it is treated and disposed of. It is assumed that both the SVI and the TRI were designed to accomodate the additional flows generated from the Study Area.

2.0 Flow Projections

This section provides analysis of both existing and future flow demands in the Study Area. The SVPSD has not adopted design guidelines for estimating future flows in undeveloped areas. Consequently, a variety of other resources were evaluated to assist with estimation of these future flow demands. This includes the analysis of wastewater flows from previous projects constructed in the SVPSD service area, as well as Placer County's requirements relative to specific land uses.

2.1 Existing Average Daily Flow Projections

Existing average daily flows (ADF) generated from the 7-11 convenience store, Dave's Ski Shop, Squaw Valley Park, and the seven single family residences located on the East side of Highway 89 are presented on Figure 1.2. The Placer County Land Development Manual (PCLDM) was used to develop existing flows demands in gallons per day (gpd) as presented in Table 1.1. The total existing ADF is estimated at 4,800 gpd.



EXISTING SANITARY SEWER FLOWS	
7 SINGLE FAMILY HOMES	400 GPD x 7 HOMES = 2,800 GPD
7-11 CONVENIENCE STORE	100 GPD PER FIXTURE x 8 FIXTURES = 800GPD
DAVE'S SKI SHOP	100 GPD PER FIXTURE x 4 FIXTURES = 400 GPD
SQUAW VALLEY PARK	100 GPD PER FIXTURE x 8 FIXTURES = 800 GPD
	TOTAL: 4,800 GPD

FIGURE 1.2
EXISTING SANITARY SEWER FLOW MAP
SVESA Project
Squaw Valley PSD

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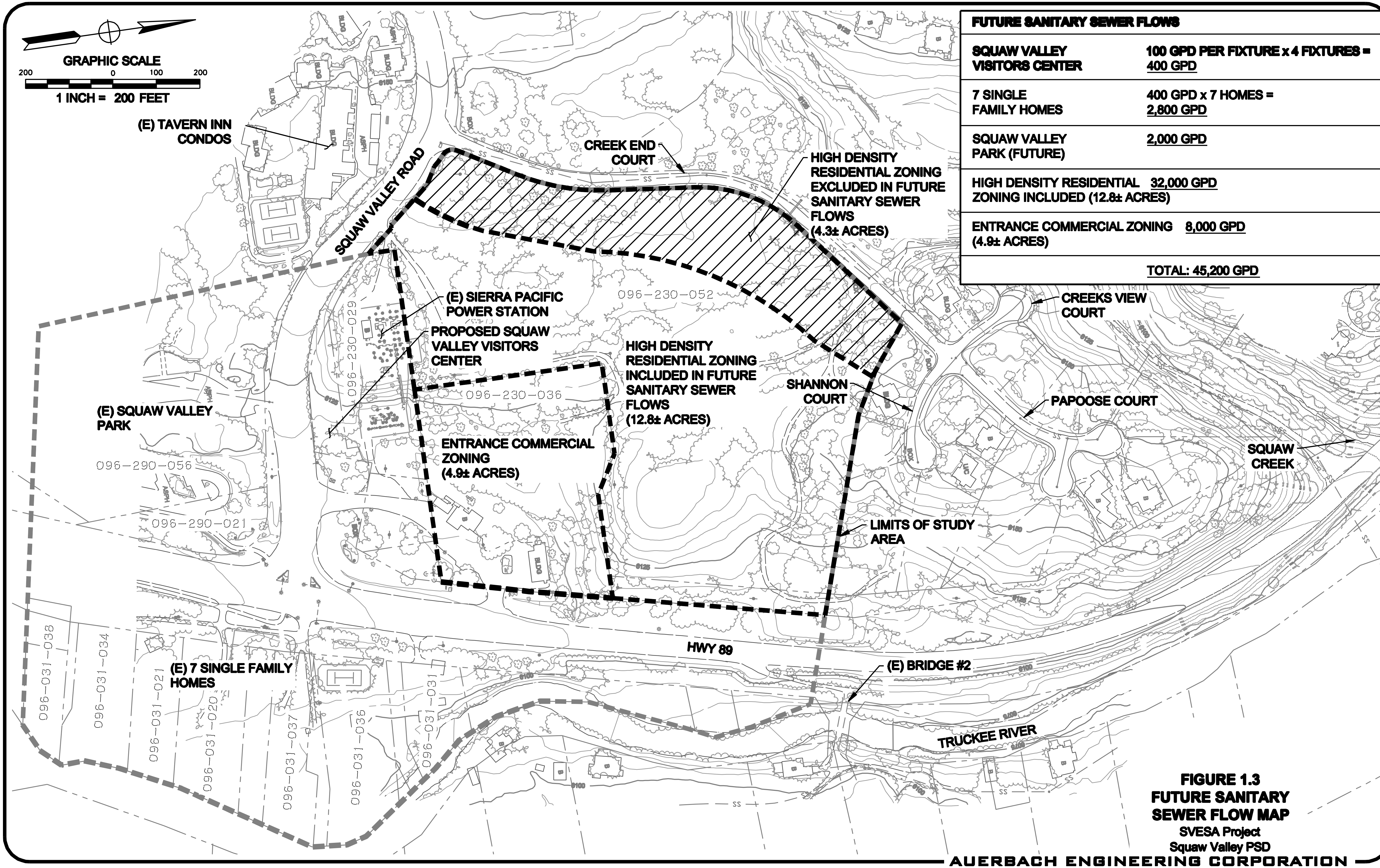
Table 1.1 Existing ADF Estimates SVESA Project Squaw Valley PSD			
Description	**Quantity**	**Unit of Flow**	**Total flow (gpd)**
7-11 Convenience Store	8.0 fixtures	100 gpd/fixture	800
Dave's Ski Shop	4.0 fixtures	100 gpd/fixture	400
Squaw Valley Park	8.0 fixtures	100 gpd/fixture	800
Single Family Homes	7.0 homes	400 gpd/home	2,800
		Total Existing ADF:	**4,800**
Notes: 1) gpd = gallons per day			

2.2 Future Average Daily Flow Projections

Future ADF generated from the proposed Squaw Valley Visitors Center, the vacant area zoned HDR, and the existing 7-11 convenience store and Dave's Ski Shop zoned Entrance Commercial (EC) were developed. In addition, some future flows were assumed for the Squaw Valley Park, in the likelihood that future improvements are constructed in that area. The Western portion of the vacant area zoned HDR was not included in the future flow demands since wastewater generated from that area can gravity flow directly into the SVI as shown in Figure 1.3. Future flows from the existing 7-11 convenience store and Dave's Ski Shop zoned EC were developed from Figure 1.4. Placer County has recommended that 80% of build out be assumed when calculating future flows. The PCLDM, as well as the consideration of previously constructed projects in the SVPSD service area, were used to develop future flows as presented in Table 1.2.

Table 1.2 Future ADF Estimates SVESA Project Squaw Valley PSD				
Description	**Quantity**	**Unit per Area**	**Unit of Flow**	**Total flow (gpd)**
Single Family Homes	7.0 homes	NA	400 gpd/home	2,800
Squaw Valley Visitors Center	4.0 fixtures	NA	100 gpd/fixture	400
Squaw Vaelly Park (future)	10.0 fixtures	NA	100 gpd/fixture	2,000
Future Zoning @ 80% Build-out:				
(EC)	4.9 acres	(ref. Figure 1.4)		8,000
(HDR) Scen. No.1, Using PCLDM	12.8 acres	25.0 units/acre	100 gpd/room	25,600
(HDR) Scen. No.2, Using PCLDM	12.8 acres	12.0 units/acre	300 gpd/room	36,900
(HDR) Scen. No.3, Using PCLDM & Previous Projects	12.8 acres	12.0 units/acre	282 gpd/room	34,700
			Assumed Average:	32,000
			Total Future ADF:	**45,200**
Notes: 1) gpd = gallons per day				



FUTURE SANITARY SEWER FLOWS	
SQUAW VALLEY VISITORS CENTER	100 GPD PER FIXTURE x 4 FIXTURES = 400 GPD
7 SINGLE FAMILY HOMES	400 GPD x 7 HOMES = 2,800 GPD
SQUAW VALLEY PARK (FUTURE)	2,000 GPD
HIGH DENSITY RESIDENTIAL ZONING INCLUDED (12.8± ACRES)	32,000 GPD
ENTRANCE COMMERCIAL ZONING (4.9± ACRES)	8,000 GPD
	TOTAL: 45,200 GPD

FIGURE 1.3
FUTURE SANITARY SEWER FLOW MAP
SVESA Project
Squaw Valley PSD

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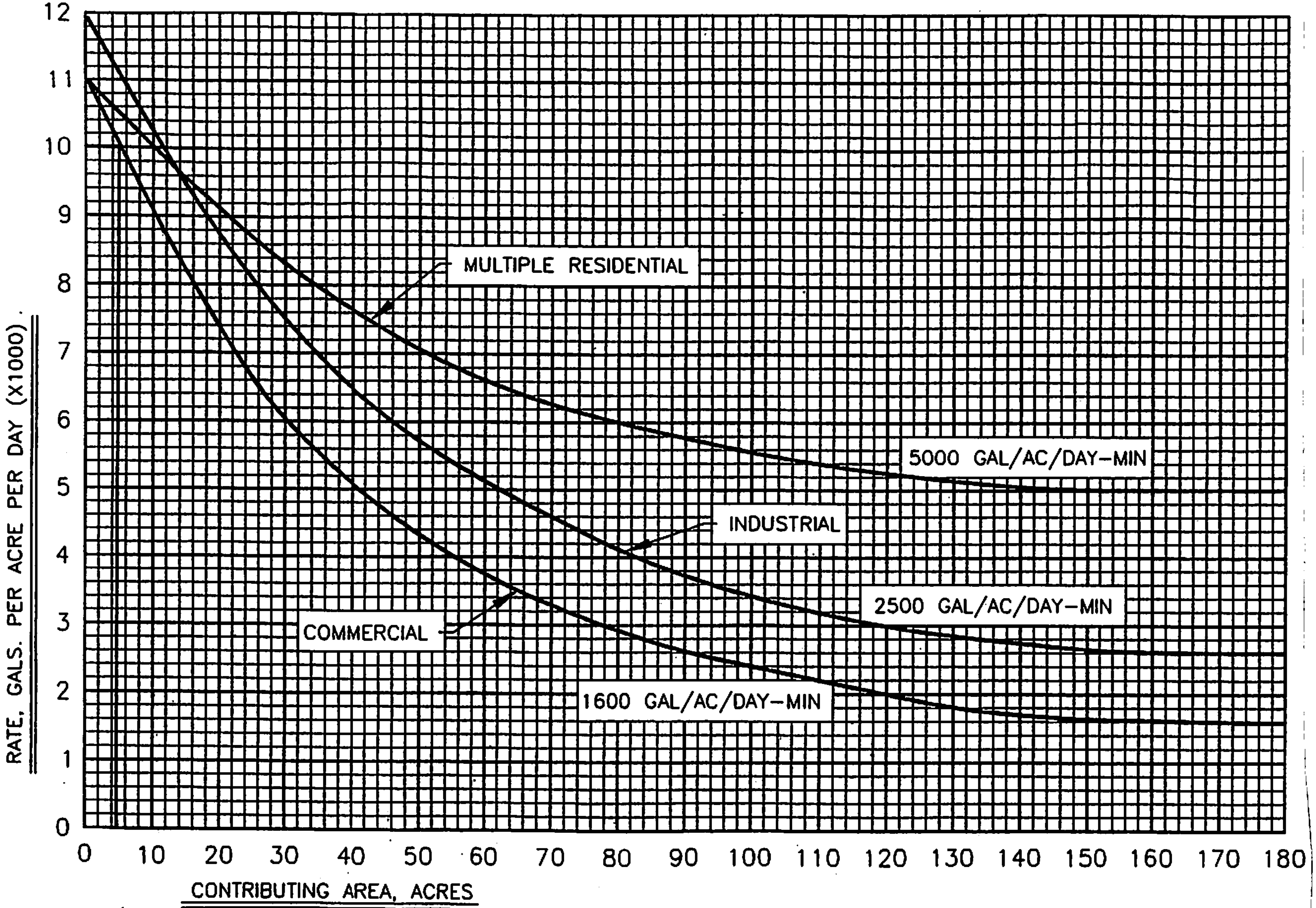


ESTIMATED AVERAGE DAILY FLOW CURVES PROVIDED BY PLACER COUNTY LAND DEVELOPMENT MANUAL

FIGURE 1.4
ADF CURVES
SVESA Project
Squaw Valley PSD

Having analyzed three different scenarios, a reasonable assumption of 32,000 gpd for the eastern portion of vacant area zoned HDR has been developed. The total future wastewater ADF for the Study Area, minus the previously discussed western area, is estimated to be 45,200 gpd.

2.3 Peak Flow Projections

The peak flows were developed by using a peaking factor of 3.8. The peaking factor curve is presented in Figure 1.5. The peak flow for the Study Area, minus the western area, has been estimated to be 172,000 gpd.

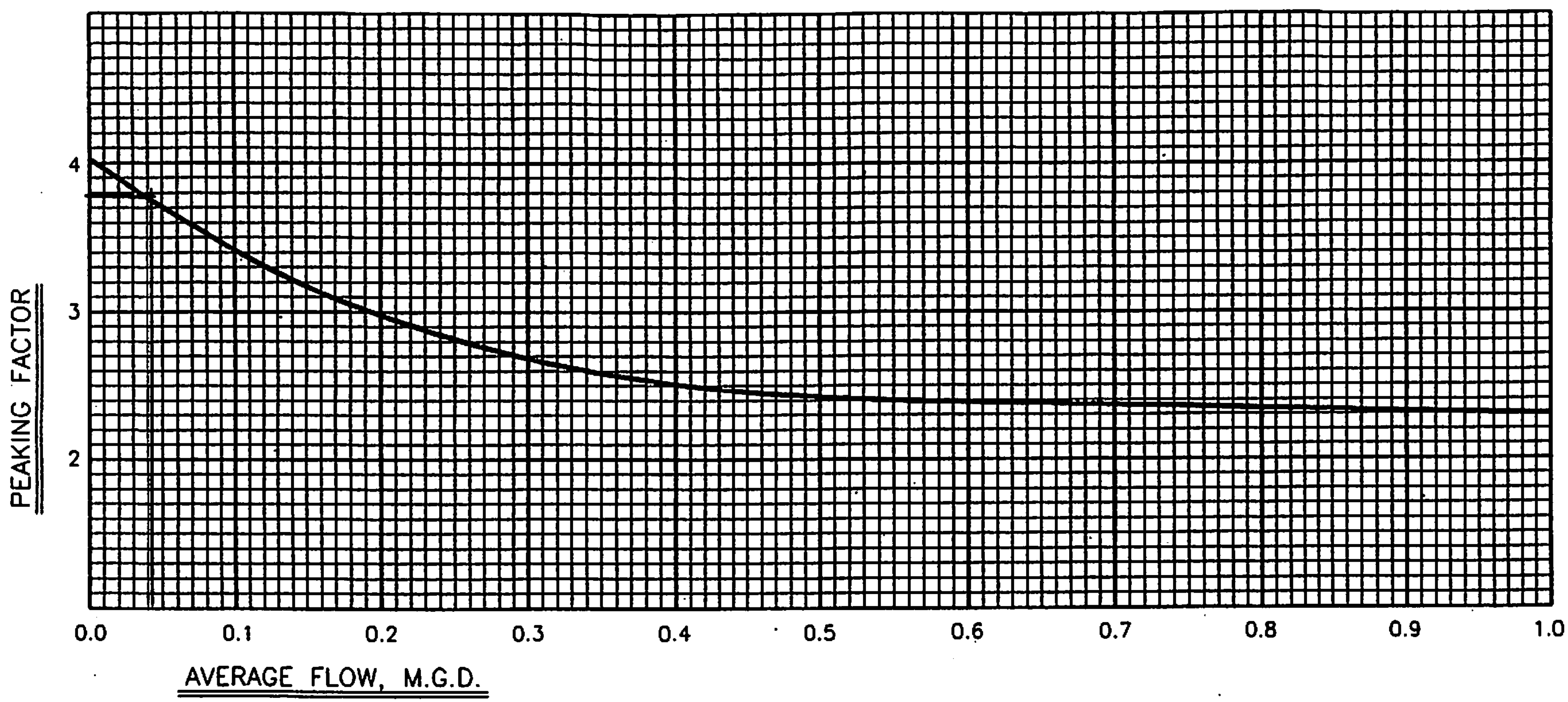
3.0 Alternatives

This section provides analysis of three alternatives for sewer improvements to serve the Study Area. For each alternative, a schematic plan and profile drawing, with an associated budgetary cost estimate has been developed. Project characteristics common to all the alternatives are as follows:

- The abandonment and removal of the existing septic systems will be the responsibility of individual property owners.
- The owners of the properties on the west side of Highway 89 will be responsible for connecting to the new sewer lines constructed by the SVPSD.
- The owners of the properties on the east side of Highway 89 will be responsible for pumping wastewater and connecting to the new sewer lines constructed by the SVPSD.
- A jurisdictional change will be necessary for the SVPSD to serve the seven single family residences located on the east side of Highway 89. As previously noted, the SVPSD's jurisdiction currently encompasses the west side of Highway 89, while the TCPUD's jurisdiction currently encompasses the east side of Highway 89. It is assumed that the TCPUD will allow the SVPSD to incorporate the seven single family residences located on the east side of Highway 89 into their jurisdiction, as there is currently no sewer facilities owned by the TCPUD to service those residences. As with any jurisdictional change, the Local Agency Formation Commission (LAFCo) will need to be involved. LAFCo will require a sphere of influence amendment and an application for annexation, which will need to be presented before a LAFCo public hearing for approval.

3.1 Alternative No. 1

Alternative No. 1 consists of collecting all the wastewater generated from existing and future developments within the Study Area and routing them through a system of proposed gravity sewer pipelines to a proposed pump station. The proposed pump station is anticipated to be located near the intersection of Highway 89 and Squaw Valley Road behind the existing Squaw Valley U.S.A. entrance sign. The wastewater will then be pumped through a proposed force main adjacent to Squaw Valley Road in a westerly direction discharging to the SVI located near the intersection of Squaw Valley Road and Creeks End Court. The



PEAKING FACTORS

PEAKING FACTOR CURVE
PROVIDED BY PLACER COUNTY
LAND DEVELOPMENT MANUAL

FIGURE 1.5
PEAKING FACTORS
SVESA Project
Squaw Valley PSD

wastewater will then gravity flow through the SVI, and into the TRI. Alternative No. 1 is presented in layout and profile on Figures 1.6 & 1.7, respectively.

Proposed Gravity Pipelines

The proposed gravity sewer pipelines will consist of 8-inch diameter PVC pipe material. Minimum pipe slopes of one percent (1%) have been used to maintain a minimum velocity of 2 feet per second (fps) during peak flow conditions. Additionally, the critical sewer pipelines are estimated to be flowing at approximately twenty-six percent (26%) full during peak flow conditions. Wastewater from the northwest portion of the Study Area will be routed to a proposed sewer pipeline (Line "A") on the west side of Highway 89. Line "A" will route wastewater in a southerly direction to a proposed sewer pipeline (Line "D"), and to the proposed pump station located on the northwest corner of Highway 89 and Squaw Valley Road. To construct Line "A", an encroachment permit will be required from the California Department of Transportation (Caltrans). Wastewater from the seven single family residences located on the east side of Highway 89 will be individually pumped from the homes to a proposed sewer pipeline (Line "B") located on the east side of Highway 89. Line "B" will route wastewater in a northerly direction, across Highway 89 near the intersection of Squaw Valley Road to a proposed sewer pipeline (Line "D"), and then on to the proposed pump station. To construct Line "B", an encroachment permit will be required from Caltrans. Wastewater generated from the Squaw Valley Park will be routed across Squaw Valley Road into a proposed sewer pipeline (Line "C") located on the north side of Squaw Valley Road. Line "C" will route wastewater in an easterly direction to the proposed pump station and can be constructed in the same trench as the proposed force main. To construct Line "C", an encroachment permit will be required from Placer County. Finally, wastewater from the proposed Squaw Valley Visitors Center will also be routed to Line "C". The gravity lines described above are shown on Figures 1.6 and 1.7 as previously presented.

Proposed Pump Station

The proposed pump station facilities will consist of a single below grade wet well facility configuration with submersible pumps. This type of design layout is typical for pump stations of this size and results in a simple and easy-to-operate and maintain facility. The controls for this type of facility will be located in an at-grade building which provides all weather access and operation flexibility.

The wet well facility is anticipated to be eight feet (8') in diameter and will be approximately twenty-five feet (25') deep, designed to accommodate traffic rated loading. The submersible pumps will be installed on slide rails for ease of removal for maintenance operations. Figure 1.8 presents the layout of the wet well facility with the submersible pumps. The bottom of the wet well will be contoured to direct the wastewater to the pump suctions for ease of

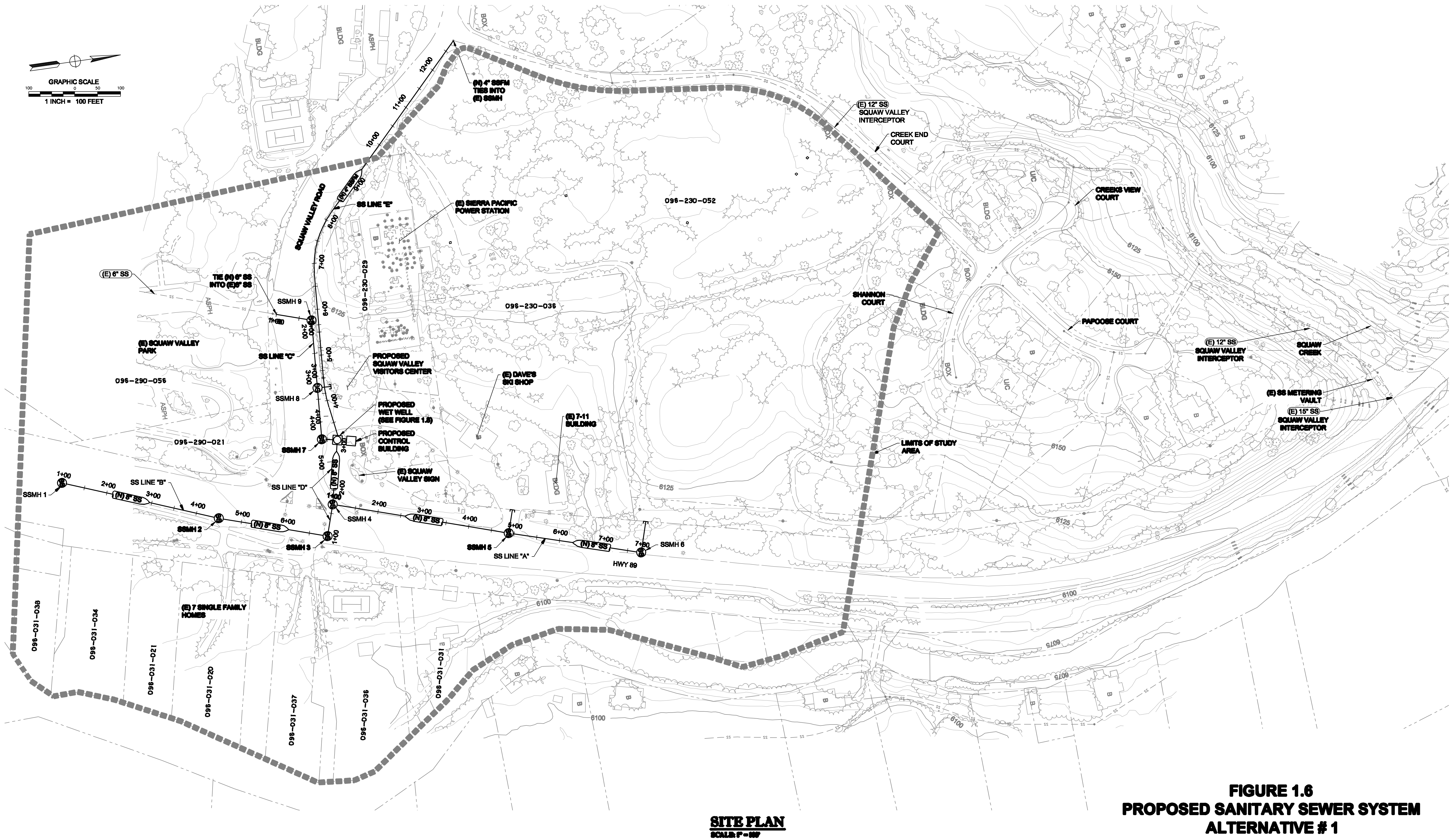
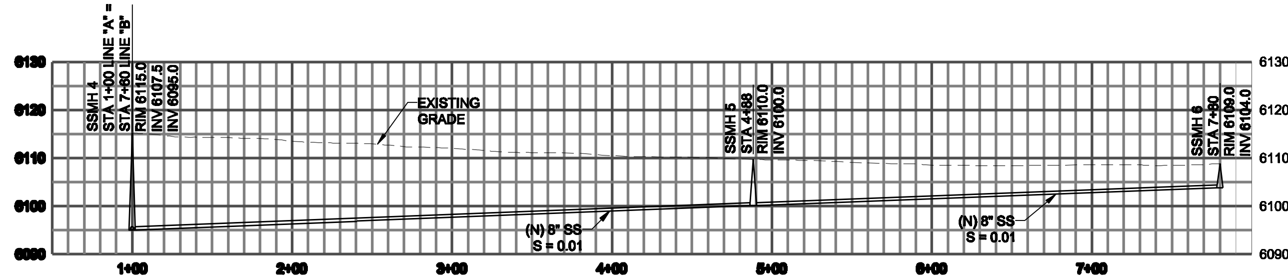
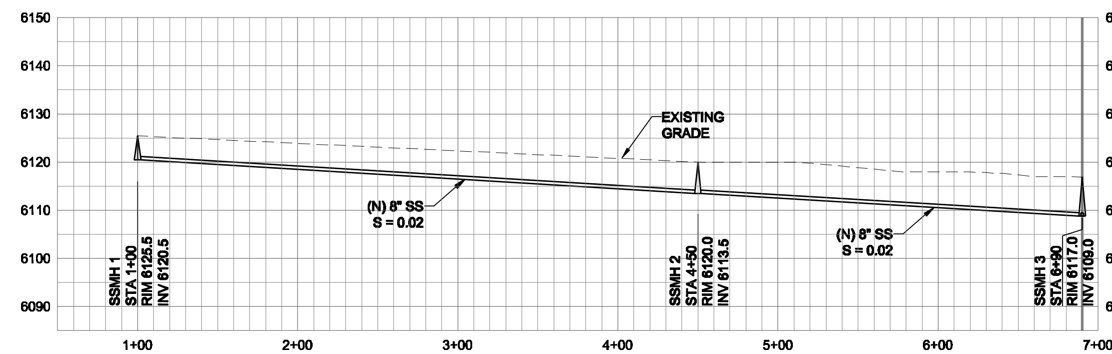


FIGURE 1.6
PROPOSED SANITARY SEWER SYSTEM
ALTERNATIVE # 1
SVESA Project
Squaw Valley PSD

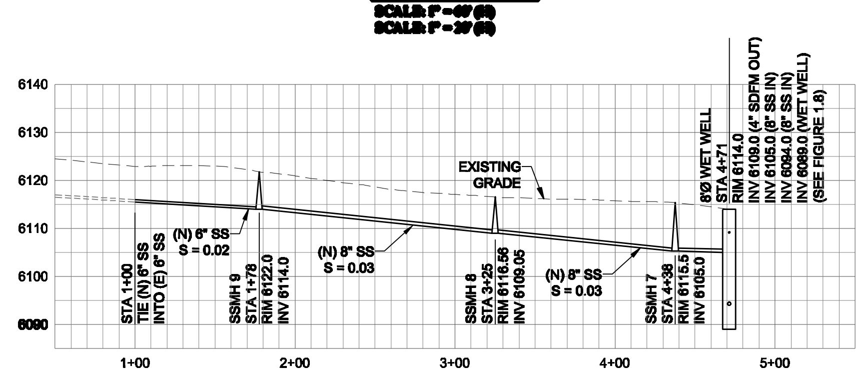
AUERBACH ENGINEERING CORPORATION



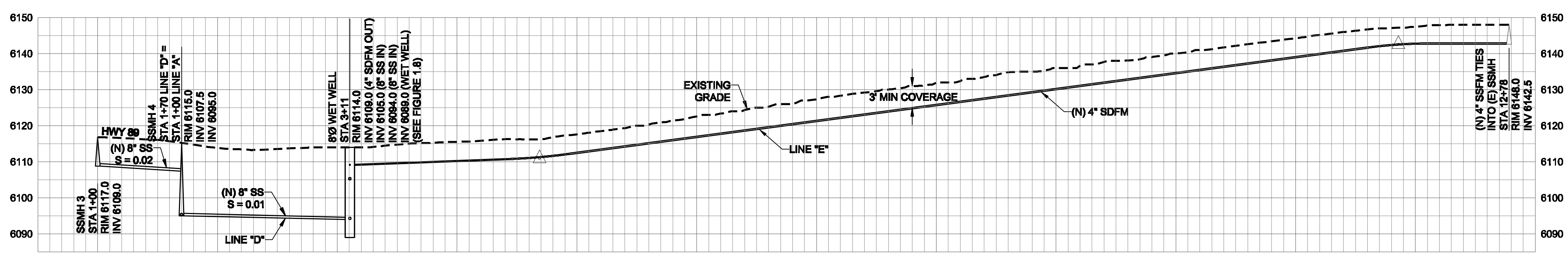
SS LINE "A"
SCALE: 1" = 60' (H)
SCALE: 1" = 20' (V)



SS LINE "B"
SCALE: 1" = 60' (H)
SCALE: 1" = 20' (V)



SS LINE "C"
SCALE: 1" = 60' (H)
SCALE: 1" = 20' (V)



SS LINE "D&E"
SCALE: 1" = 60' (H)
SCALE: 1" = 20' (V)

FIGURE 1.7
PROPOSED SANITARY SEWER SYSTEM
ALTERNATIVE # 1
SVESA Project
Squaw Valley PSD

AUERBACH ENGINEERING CORPORATION

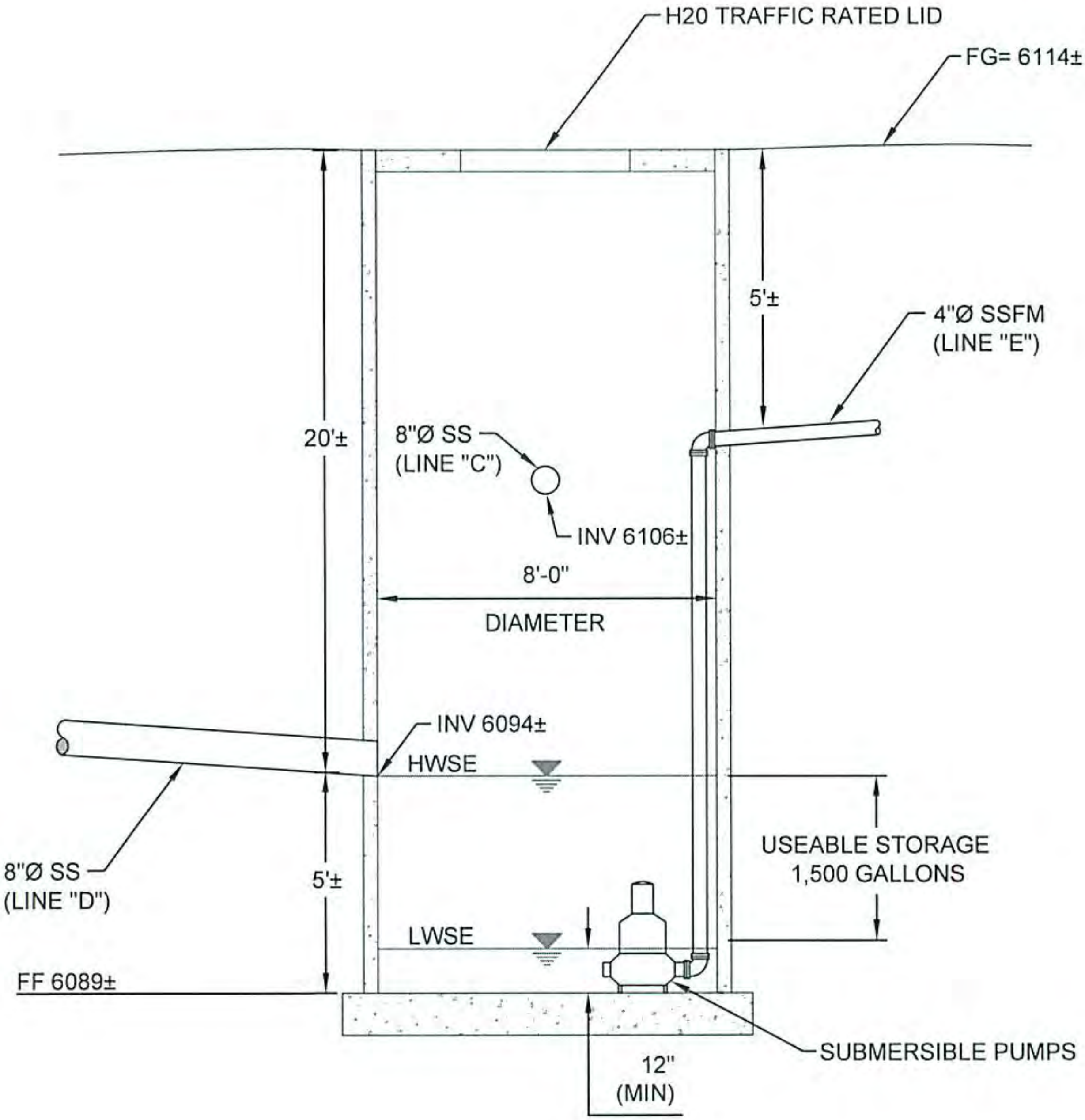


Figure 1.8
WET WELL
SVESA Project
Squaw Valley PSD

cleaning. The wet well design will have a usable storage volume of approximately 1,500 gallons. Line "C" and Line "D" will connect the gravity collection system to the pump station facilities. Line "D" will enter the east side of the wet well from SSMH No. 4 and will be approximately twenty feet (20'+/-) below grade. Line "C" will enter the south side of the wet well from SSMH No. 7 and will be approximately eight feet (9'+/-) below grade. Access to the wet well will be through a manhole cover at grade. As previously noted, the estimated ADF for this area is 45,200 gpd, or 31.4 gallons per minute (gpm). This provides an average fill time of 48 minutes for the wet well usable volume of 1,500 gallons. In addition to the average fill time, the wet well facility has been sized to store an additional emergency volume of 4,500 gallons, which provides an additional 2.4 hours of emergency response time.

The submersible pumps will be located at the bottom of the wet well and will connect to a four-inch (4") force main as described in the previous section. Two pumps will be supplied and provide for alternating of the pumps to reduce wear and tear. Additionally, the second pump will be on standby, lead/lag mode, incase the first pump is not capable of meeting the peak hour flows. Both pumps will be capable of handling a minimum of three-inch (3") solids. Standard pumps utilized for installations of this nature are common and are anticipated to be off the shelf items. Two alternative pumps are recommended that will provide the SVPSD with outstanding service. The first selection is the ITT Flygt submersible pump. Figure 1.9 presents the standard pump curve for the selected ITT Flygt pump. This pump is anticipated to be a 105 gpm pump with a total dynamic head (TDH) of 65 feet. It will include a 6.5 horsepower (hp) motor and operate with approximately thirty-two percent (32%) efficiency. Figure 1.10 presents the system curve for one and two pumps in operation and the 4-inch force main. The velocities will be approximately 2.7 fps and 3.8 fps respectively. These velocities are assuming that the pumps are running at full constant speed. A draw down time of 14.3 minutes is expected with one pump in operation. The second selection is the Gorman-Rupp submersible pump. Figure 1.11 presents the standard pump curve for the selected Gorman-Rupp pump. This pump is anticipated to be a 160 gpm pump with a TDH of 75 feet. This pump will require a 14.0 Hp motor and will run at an efficiency of approximately twenty-five percent (25%). Figure 1.12 presents the system curve for the one and two pumps in operation and the 4-inch force main. The velocities will be approximately 4.1 fps and 5.8 fps, respectively. These velocities are assuming that the pumps are running at full constant speed. A draw down time of 9.4 minutes is expected with one pump in operation. Vendor specification sheets for both of the recommended pumps are provided in the Appendix.

The control building will consist of the pump control facilities as well as emergency standby power, telemetry system and other pertinent components. The building can be constructed of a concrete slab on grade with masonry block walls and a wood truss roof system. The

FLYGT	PERFORMANCE CURVE	PRODUCT NP3102.090	TYPE SH
DATE 2007-05-22	PROJECT	CURVE NO 63-257-00-5206	ISSUE 4

	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.93	0.91	0.87
EFFICIENCY	80.5 %	80.5 %	78.0 %
MOTOR DATA	---	---	---

RATED POWER	6.5	hp
STARTING CURRENT ...	69	A
RATED CURRENT ...	8.1	A
RATED SPEED	3475	rpm
TOT.MOM.OF INERTIA ...	0.011	kgm2
NO. OF BLADES	2	

COMMENTS

INLET/OUTLET: -/ 80 mm

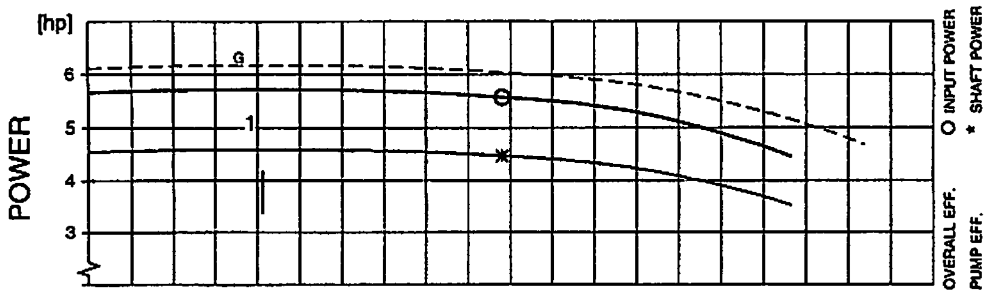
IMP. THROUGHLET: ---

IMPELLER DIAMETER: 125 mm

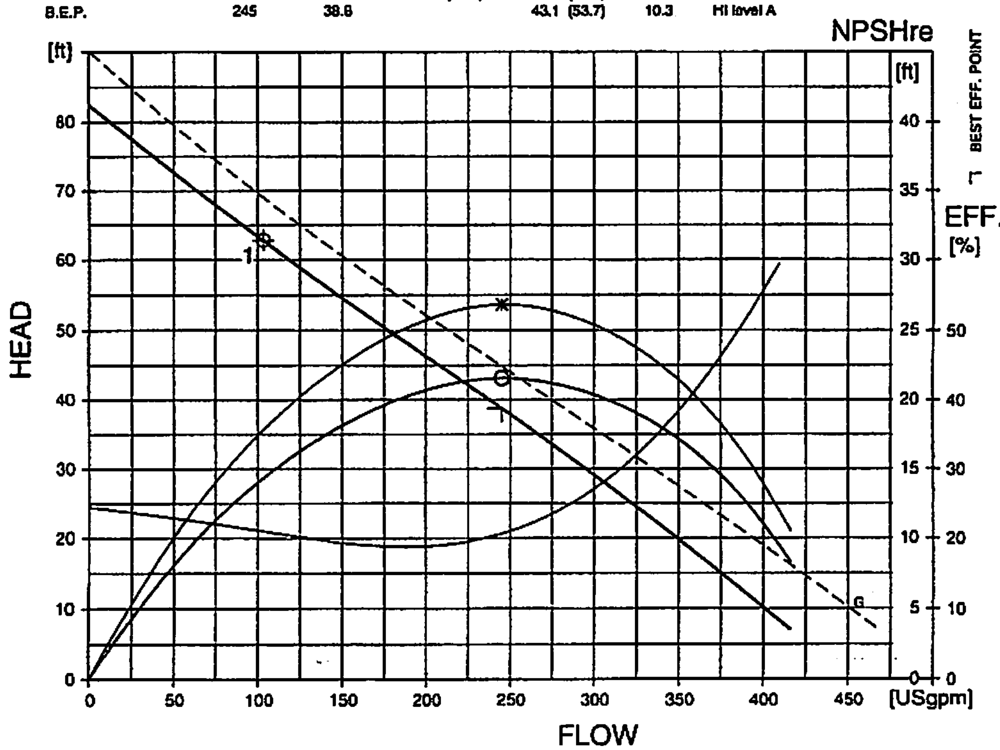
MOTOR #	STATOR	REV
18-10-2AL	38D	12

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	460 V	2

GEARTYPE	RATIO



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]	GUARANTEE
1	103	62.8	5.71 (4.61)	29.6 (36.8)	10.5	
B.E.P.	245	38.8		43.1 (53.7)	10.3	HI level A



FLYPS3.1.5.8 (20060531)

NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

GUARANTEE BETWEEN LIMITS (G) ACC. TO

HI level A

FIGURE 1.9
PUMP CURVE
ITT-FLYGT
SVESA Project
Squaw Valley PSD

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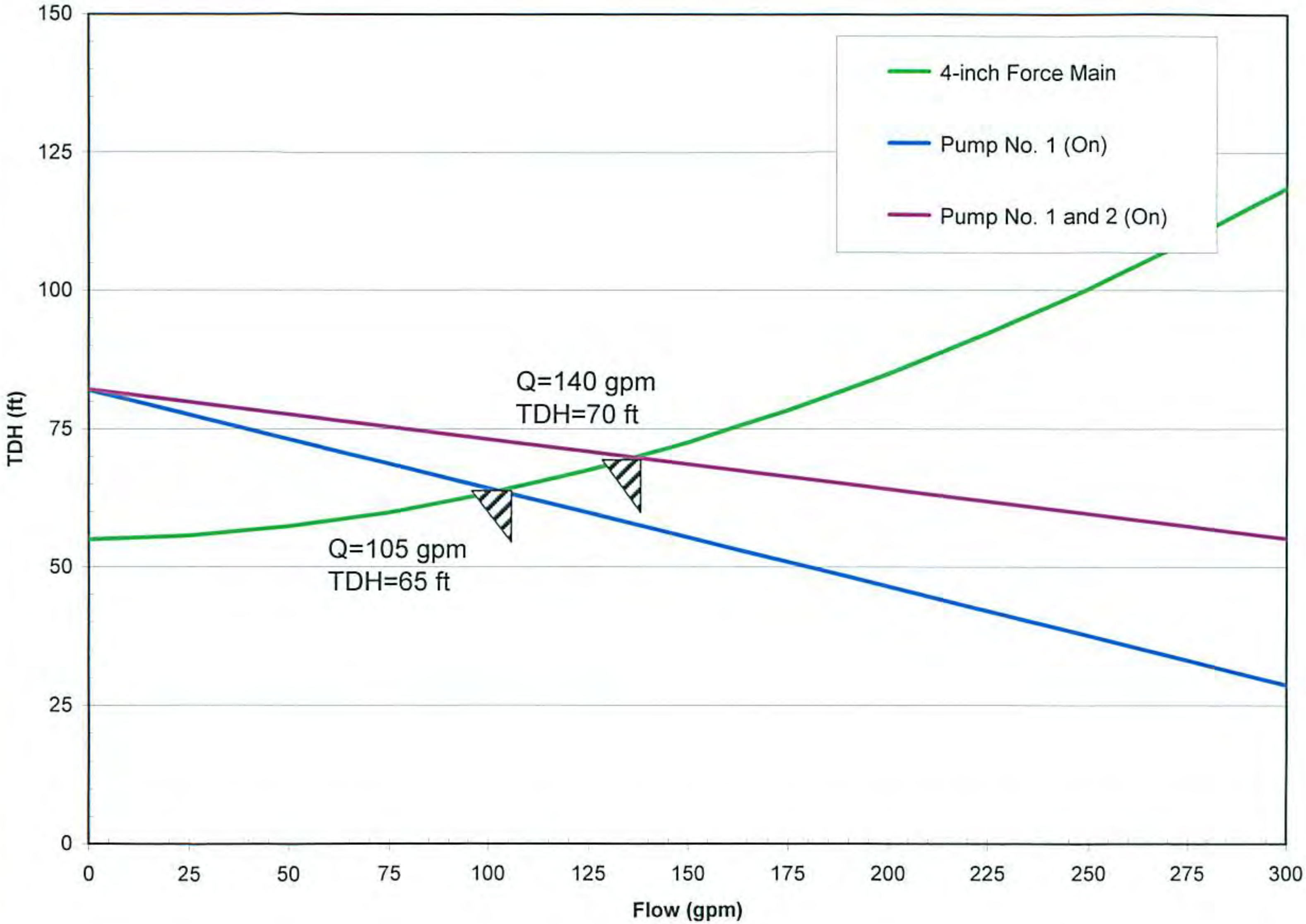
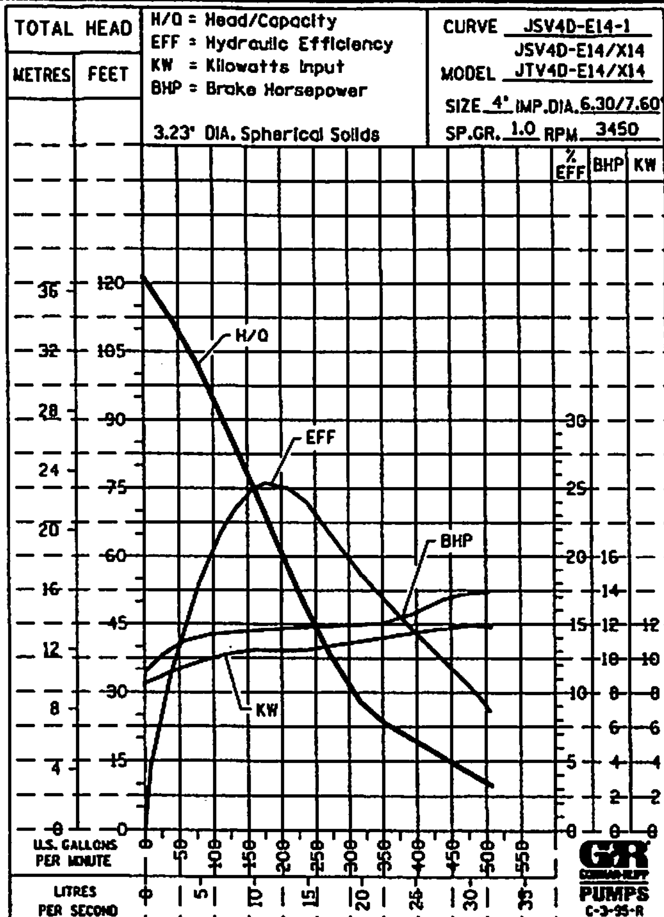
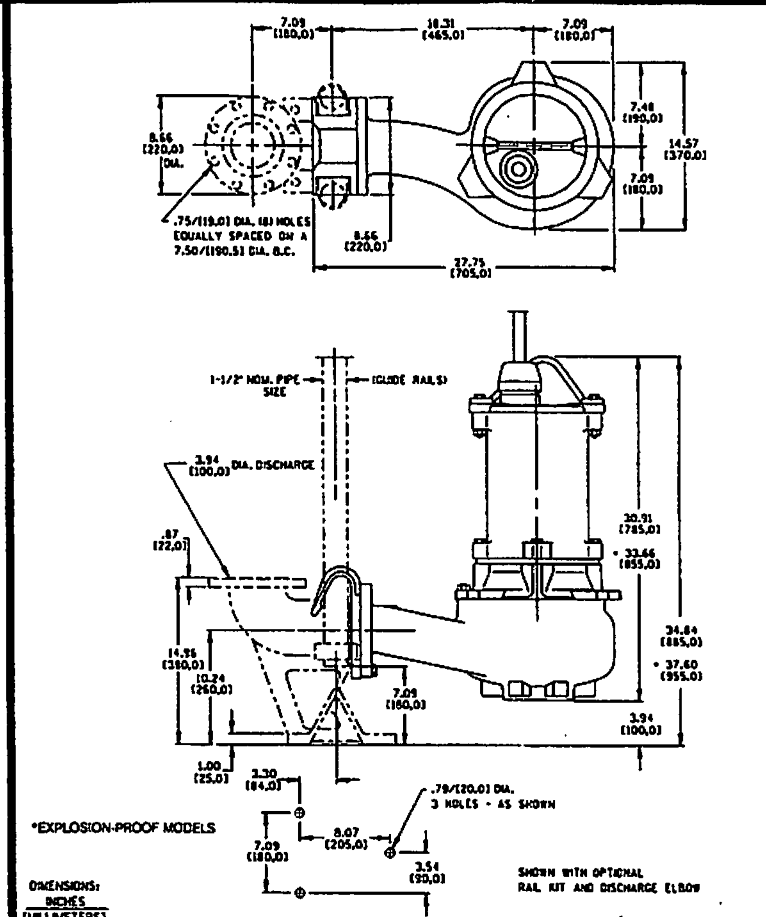


FIGURE 1.10
SYSTEM CURVE
ITT-FLYGT
SVESA Project
Squaw Valley PSD

AUERBACH ENGINEERING CORPORATION

Specification Data	OVERALL DIMENSIONS and APPROXIMATE WEIGHTS	NET WT: (pump only) 353 LBS. [160 KG.] (pump w/std. cable) 369 LBS. [167 KG.] SHIPPING WT: 241 LBS. [109 KG.] CRATE SIZE: 10.6 CU. FT. [0,30 CU. M.]
SECTION 138, PAGE 200		





GORMAN-RUPP PUMPS

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO

GORMAN- RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA

Specifications Subject to Change Without Notice

Printed in U.S.A.

FIGURE 1.11
PUMP CURVE
GORMAN-RUPP

SVESA Project
Squaw Valley PSD

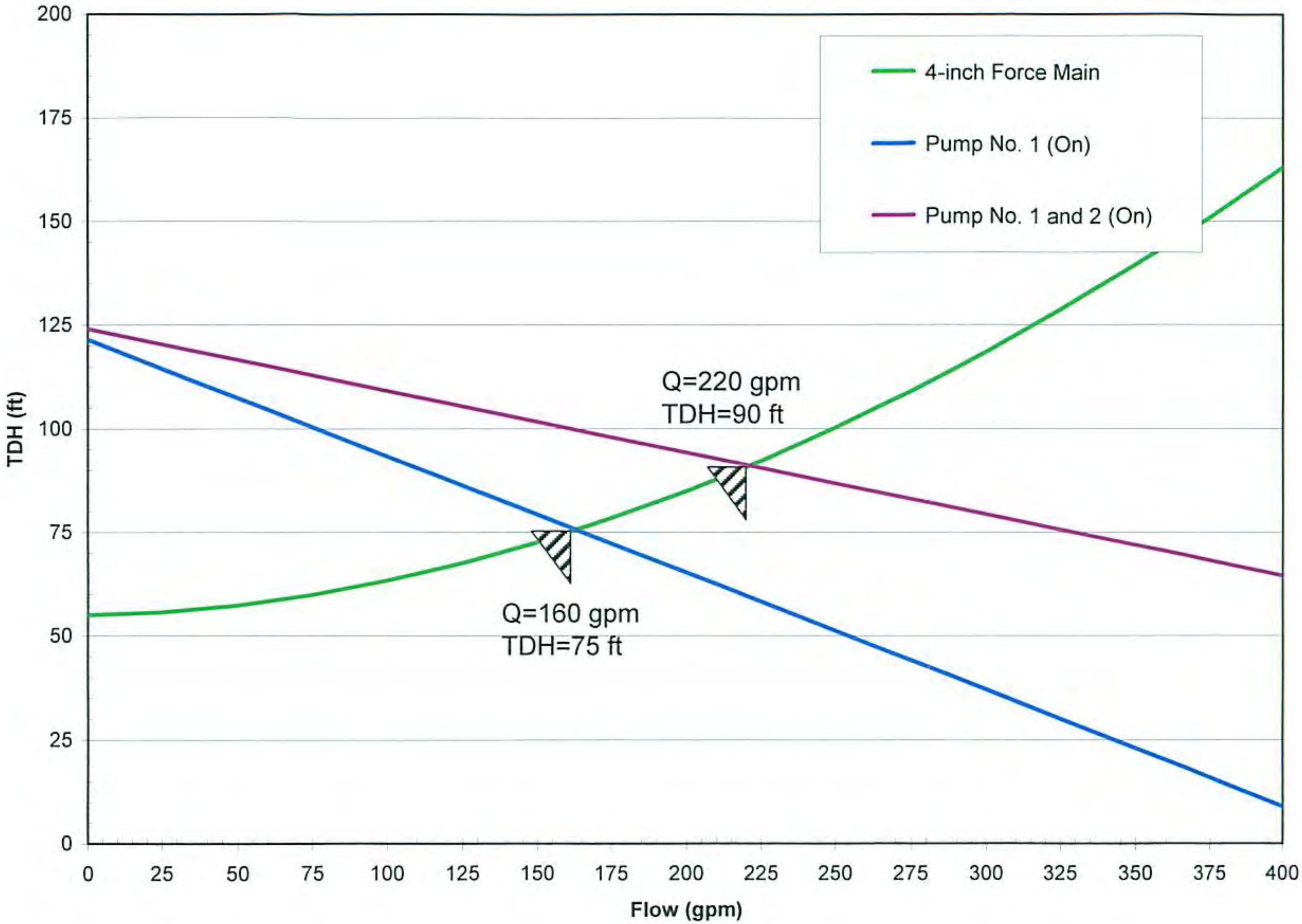


FIGURE 1.12
SYSTEM CURVE
GORMAN-RUPP
SVESA Project
Squaw Valley PSD

outside of the pump station can be architecturally enhanced to accommodate local aesthetic requirements.

Proposed Force Main

The proposed force main (Line "E") will route wastewater from the pump station facility in a westerly direction adjacent to Squaw Valley Road, to an existing manhole that is part of the SVI, located near the intersection of Squaw Valley Road and Creek End Court. Wastewater will be pumped from a grade of approximately 6,089 feet to 6,144 feet creating a static head of approximately 55-feet. The force main routing is presented on Figure 1.6. The force main is anticipated to consist of a 4-inch diameter high density polyethylene pipe material. The force main will be equipped with a dual by-pass port assembly that will allow for continued pumping to holding facilities, such as a tanker, if the force main or wet well were to require emergency services. If both pumps are inoperable, a temporary pump could be dropped into the wet well facility. To construct the force main, an encroachment permit will be required from Placer County.

Operation and Maintenance

The pump station results in a completely automatic operation that will require regular maintenance. Most pump manufacturers recommend weekly inspections of the entire facility. The major maintenance would include the replacement of the pumps at the end of their useful life. Typical life expectancies for the types of submersible pumps mentioned above are 15-20 years. The pumps themselves generally range from $5,000 to $10,000 not including installation.

Phasing

The proposed improvements associated with Alternative No. 1 could be completed in three different construction phases in order to minimize the initial costs. Phase One would consist of constructing Lines "A", "D", & "E", and the proposed pump station and would collect the majority wastewater currently generated from the Study Area. Phase's Two and Three would consist of constructing Lines "B" & "C", and could be completed in any order the SVPSD determines more desirable.

Preliminary Costs

Table 1.3 presents the estimated total project costs for the proposed improvements associated with Alternative No. 1. The cost estimate includes a twenty-five percent (25%) construction contingency for unknown factors that may be encountered during the final design stages, a twenty-five percent (25%) engineering/administrative contingency for design, SVPSD administrative and legal services, and a five percent (5%) permitting contingency for addressing regulatory agency requirements. The estimated total project cost is $2,372,500.

Table 1.3 Total Project Cost Estimate (Alternative No.1)
SVESA Project
Squaw Valley PSD

Item No.	Description	Quantity	Unit	Unit Cost	Total Cost
General					
1	Mobilization/Demobilization (5%)	1	LS	$ 91,250	$ 91,250
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Sewer Facilities					
4	Dewatering	1	LS	$ 50,000	$ 50,000
5	8" SS (PVC)	1900	LF	$ 175	$ 332,500
6	Sanitary Sewer Manholes	9	EA	$ 5,000	$ 45,000
7	4" Force Main	1100	LF	$ 125	$ 137,500
8	Submersible Pumps	1	LS	$ 20,000	$ 20,000
9	Pump Station Wet Well	1	LS	$ 40,000	$ 40,000
10	Pump Station Mechanical Connections	1	LS	$ 20,000	$ 20,000
11	Electrical (15%)	1	LS	$ 273,750	$ 273,750
12	Instrumentation (20%)	1	LS	$ 365,000	$ 365,000
13	Power Service	1	LS	$ 10,000	$ 10,000
14	Stand-by Generator Set	1	LS	$ 25,000	$ 25,000
	Sub-Total				$ 1,460,000
	Construction Contingency (25%)				$ 365,000
	Total Construction Cost				$ 1,825,000
	E/A/L Contingency (25%)				$ 456,250
	Permitting Contingency (5%)				$ 91,250
	Total Project Cost				**$ 2,372,500**

Notes:
1) LS = Lump Sum
2) LF = Lineal Feet
3) EA = Each
4) E/A/L = Engineering, Administrative, and Legal costs

3.2 Alternative No. 2

Alternative No. 2 consists of collecting all the wastewater generated from existing and future developments within the Study Area and routing them through a system of gravity sewer pipelines to the existing sanitary sewer metering vault located along the SVI on the west side of Highway 89. From the metering vault, wastewater will flow through the SVI, and into the TRI adjacent to the Truckee River. Alternative No. 2 is presented in layout and profile on Figures 1.13 & 1.14, respectively.

Proposed Gravity Pipelines

The proposed gravity sewer pipelines will consist mainly of 8-inch diameter PVC pipe. Minimum pipe slopes of one percent (1%) have been used to maintain a minimum velocity of 2 fps during peak flow conditions. The critical sewer pipelines are estimated to be flowing at approximately twenty-six percent (26%) full during these conditions. Wastewater from the northwest portion of the Study Area will be routed to a proposed sewer pipeline (Line "A") on the west side of Highway 89. Line "A" will route wastewater in a northerly direction to the existing sanitary sewer metering vault located along the SVI on the west side of Highway 89. The sewer metering vault is under pressure, but was designed to allow for a future sewer tie in. The northern portion of Line "A" will have a hydraulic grade line (HGL) to match the existing HGL at the metering vault on the SVI. It is recommended that prior to final design, a detailed hydraulic analysis be completed to confirm proper operation to this approach. To match the existing HGL elevation, the HGL elevation of the proposed SSMH No. 6 will need to match the HGL elevation of the first existing SSMH located to the west of the metering vault along the SVI. To construct Line "A", an encroachment permit will be required from Caltrans. Wastewater from the seven single family residences located on the east side of Highway 89 will be individually pumped from the homes to the southern portion of Line "A" located on the east side of Highway 89. This portion of Line "A" will route wastewater in a northerly direction, across Highway 89 near the intersection of Squaw Valley Road where it will tie into the northern part of Line"A". To construct this portion of Line "A", an encroachment permit will be required from Caltrans. Wastewater from the Squaw Valley Park will be routed across Squaw Valley Road into a proposed sewer pipeline (Line "B") located on the north side of Squaw Valley Road. Line "B" will route wastewater in an easterly direction and tie into Line "A". To construct Line "B", an encroachment permit will be required from Placer County. Finally, wastewater from the proposed Squaw Valley Visitors Center will also be routed to Line "B". The gravity lines described above are shown on figures 1.13 and 1.14 as previously presented. It is anticipated that the northern part of Line "A" will encounter a significant amount rock removal during construction activities.

Phasing

The proposed improvements associated with Alternative No. 2 could be completed in three different construction phases in order to minimize the initial costs. Phase One would consist

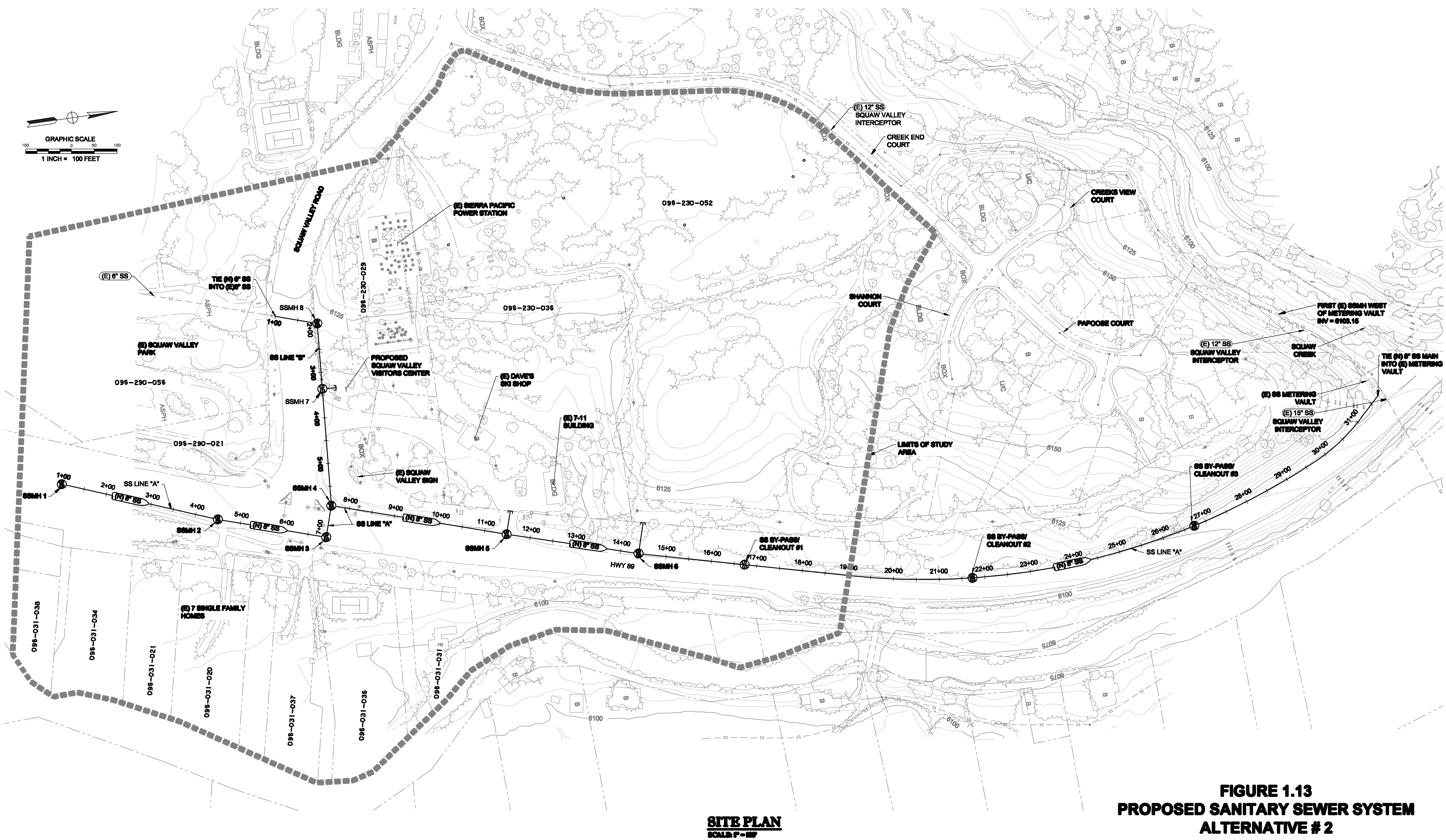


FIGURE 1.13
PROPOSED SANITARY SEWER SYSTEM
ALTERNATIVE # 2
SVESA Project
Squaw Valley PSD

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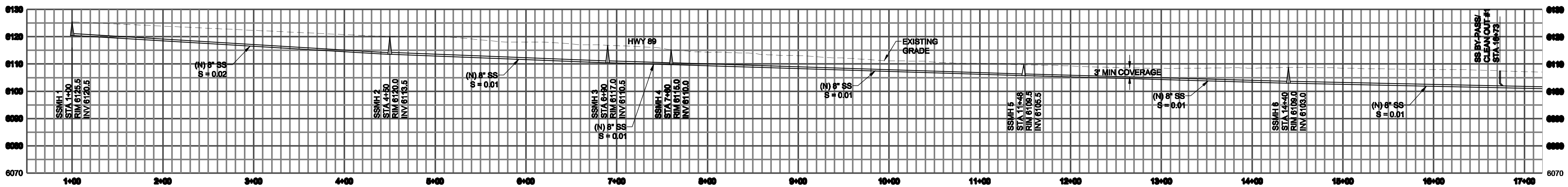
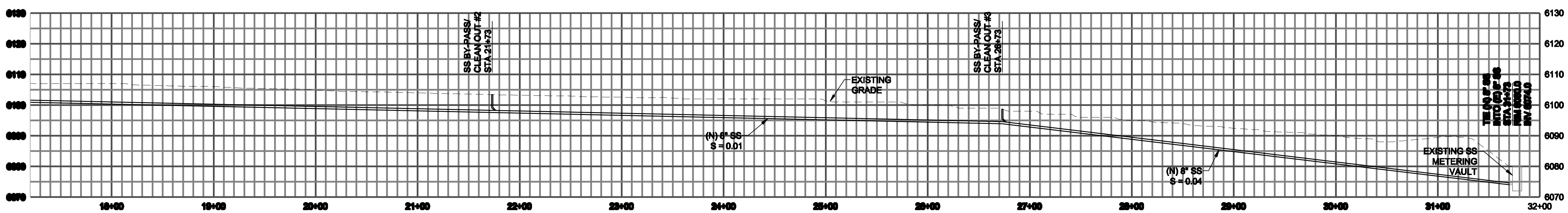


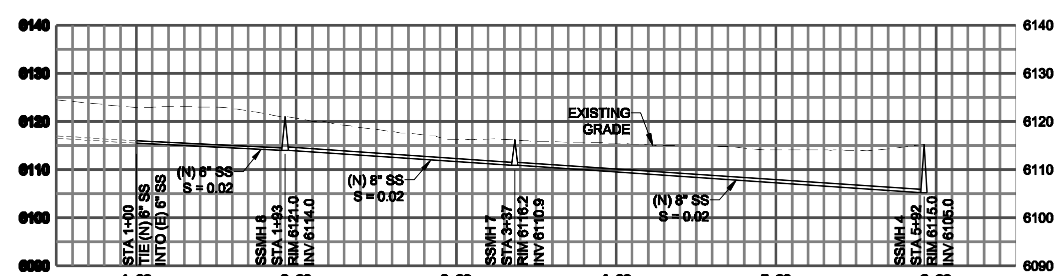
SS LINE "A"

SCALE: 1" = 60' (H)
SCALE: 1" = 20' (H)



SS LINE "A"

SCALE: 1" = 60' (H)
SCALE: 1" = 20' (H)



SS LINE "B"

SCALE: 1" = 60' (H)
SCALE: 1" = 20' (H)

FIGURE 1.14
PROPOSED SANITARY SEWER SYSTEM
ALTERNATIVE # 2
SVESA Project
Squaw Valley PSD

AUERBACH ENGINEERING CORPORATION

of constructing the northern portion of Line "A" from Squaw Valley Road north, and would collect the majority wastewater currently generated from the Study Area. Phase's Two and Three would consist of constructing Line "B" and the southern portion of Line "A", and could be completed in any order the SVPSD determines more desirable.

Preliminary Costs

Table 1.4 presents the estimated total project costs for the proposed improvements associated with Alternative No. 2. The cost estimate includes a twenty-five percent (25%) construction contingency for unknown factors that may be encountered during the final design stages, a twenty-five percent (25%) engineering/administrative contingency for design, SVPSD administrative and legal services, and a five percent (5%) permitting contingency for addressing regulatory agency requirements. The estimated total project cost is $1,664,000.

3.3 Alternative No. 3

Alternative No. 3 will consist of collecting all the wastewater generated from existing and future developments within the Study Area and routing them through a system of gravity sewer pipelines to the existing Bridge No. 2 crossing the Truckee River. Bridge No. 2 will need to be replaced and raised to a grade high enough for wastewater to gravity flow to the existing TRI. Alternative No. 3 is presented in layout and profile on Figures 1.15 & 1.16, respectively.

Proposed Gravity Pipelines

The proposed gravity sewer pipelines will consist of 8-inch diameter PVC pipe. Minimum pipe slopes of one percent (1%) have been used to maintain a minimum velocity of 2 fps during peak flow conditions. The critical sewer pipelines are estimated to be flowing at approximately twenty-six percent (26%) full during these conditions. Wastewater from the northwest portion of the Study Area will be routed to a proposed sewer pipeline (Line "A") on the west side of Highway 89. Line "A" will route wastewater in a northerly direction to SSMH No.7 adjacent to the driveway leading to Bridge No. 2. The sewer pipeline will cross Highway 89 and follow the existing driveway leading to Bridge No. 2, cross the bridge (which will need to be replaced and raised), and tie into an existing manhole adjacent to the TRI. Based on a field survey conducted on July 3, 2007, Bridge No. 2 has been determined to be too low for wastewater to be routed across it and gravity flow to the existing TRI. To construct Line "A", excluding the bridge crossing, an encroachment permit will be required from Caltrans. Wastewater from the seven single family residences located on the east side of Highway 89 will be individually pumped from the homes to the southern portion of Line "A" located on the east side of Highway 89. The southern portion of Line "A" will route wastewater in a northerly direction, across Highway 89 near the intersection of Squaw Valley

Table 1.4 Total Project Cost Estimate (Alternative No.2)
SVESA Project
Squaw Valley PSD

Item No.	Description	Quantity	Unit	Unit Cost	Total Cost
General					
1	Mobilization/Demobilization (5%)	1	LS	$ 64,000	$ 64,000
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Sewer Facilities					
4	Dewatering	1	LS	$ 50,000	$ 50,000
5	8" SS (PVC)	3650	LF	$ 175	$ 638,750
6	Rock Excavation	950	CY	$ 175	$ 166,250
7	SS Bypass/Cleanout	3	EA	$ 5,000	$ 15,000
8	Sanitary Sewer Manholes	8	EA	$ 5,000	$ 40,000
	Sub-Total				$ 1,024,000
	Construction Contingency (25%)				$ 256,000
	Total Construction Cost				$ 1,280,000
	E/A/L Contingency (25%)				$ 320,000
	Permitting Contingency (5%)				$ 64,000
	Total Project Cost				**$ 1,664,000**

Notes:
1) LS = Lump Sum
2) LF = Lineal Feet
3) EA = Each
4) E/A/L = Engineering, Administrative, and Legal costs

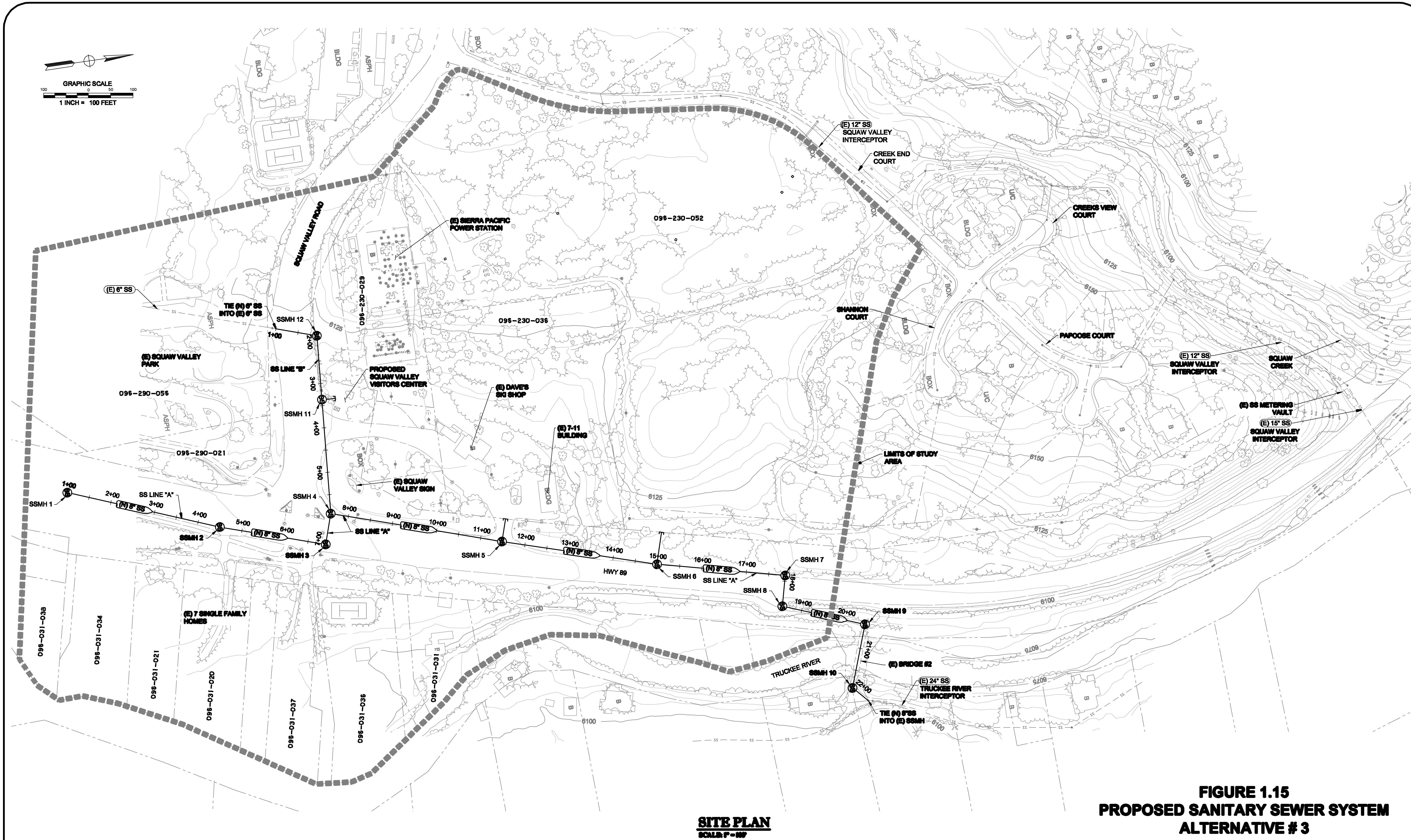
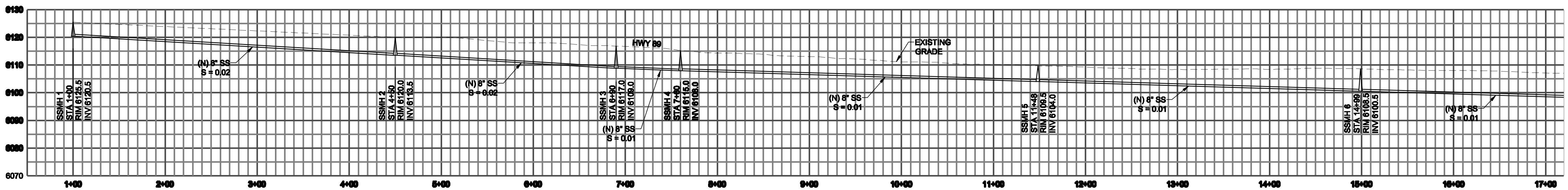


FIGURE 1.15
PROPOSED SANITARY SEWER SYSTEM
ALTERNATIVE # 3

SVESA Project

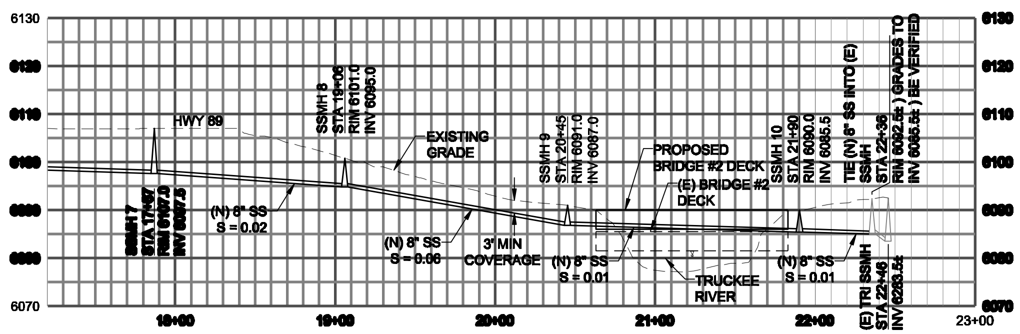
Squaw Valley PSD

AUERBACH ENGINEERING CORPORATION



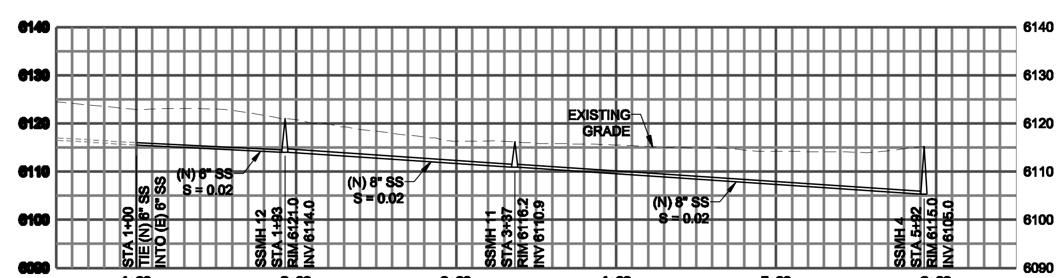
SS LINE "A"

SCALE: 1" = 60' (H)
SCALE: 1" = 20' (H)



SS LINE "A"

SCALE: 1" = 60' (H)
SCALE: 1" = 20' (H)



SS LINE "B"

SCALE: 1" = 60' (H)
SCALE: 1" = 20' (H)

FIGURE 1.16
PROPOSED SANITARY SEWER SYSTEM
ALTERNATIVE # 3
SVESA Project
Squaw Valley PSD

AUERBACH ENGINEERING CORPORATION

Road where it will tie into the northern part of Line "A". To construct this portion of Line "A", an encroachment permit will be required from Caltrans. Wastewater from the Squaw Valley Park will be routed across Squaw Valley Road into a proposed sewer pipeline (Line "B") located on the north side of Squaw Valley Road. Line "B" will route wastewater in an easterly direction and tie into Line "A". An encroachment permit will be required from Placer County to construct Line "B". Finally, wastewater from the proposed Squaw Valley Visitors Center will also be routed to Line "B". The gravity lines described above are shown on figures 1.15 and 1.16 as previously presented.

Proposed Bridge Crossing
Bridge No. 2 will need to be replaced and raised to a grade approximately 4-feet higher than the existing bridge grade. To construct the sewer pipeline over the bridge, a permanent utility access easement will be required from the homeowners association of the community located on the East side of the Truckee River. In addition, permits from the U.S. Army Corps of Engineers, California Department of Fish and Game, and Placer County will likely be required.

Phasing
The proposed improvements associated with Alternative No. 3 could be completed in three different construction phases in order to minimize the initial costs. Phase One would consist of constructing the northern portion of Line "A" from Squaw Valley Road north, and would collect the majority wastewater currently generated from the Study Area. Phase's Two and Three would consist of constructing Line "B" and the southern portion of Line "A", and could be completed in any order the SVPSD determines more desirable.

Preliminary Costs
Table 1.5 presents the estimated total project costs for the proposed improvements associated with Alternative No. 3. The cost estimate includes a twenty-five percent (25%) construction contingency for unknown factors that may be encountered during the final design stages, a twenty-five percent (25%) engineering/administrative contingency for design, SVPSD administrative and legal services, and a five percent (5%) permitting contingency for addressing regulatory agency requirements. The estimated total project cost is $3,018,158.

3.4 Comparison of Alternatives
In order to compare the alternatives to each other and develop the best apparent alternative for recommendation to SVPSD, the alternatives were ranked on the following criteria:

- Construction Constraints
- Environmental Constraints
- Operations and Maintenance
- Construction Costs

Table 1.5 **Total Project Cost Estimate (Alternative No.3)**
SVESA Project
Squaw Valley PSD

Item No.	Description	Quantity	Unit	Unit Cost	Total Cost
General					
1	Mobilization/Demobilization (5%)	1	LS	$ 116,080	$ 116,080
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Sewer Facilities					
4	Dewatering	1	LS	$ 50,000	$ 50,000
5	8" SS (PVC)	2750	LF	$ 175	$ 481,250
6	Sanitary Sewer Manholes	12	EA	$ 5,000	$ 60,000
7	Mechanical Connection To Bridge #2	1	LS	$ 100,000	$ 100,000
8	Brdige No. 2	1	LS	$ 1,000,000	$ 1,000,000
	Sub-Total				$ 1,857,330
	Construction Contingency (25%)				$ 464,330
	Total Construction Cost				$ 2,321,660
	E/A/L Contingency (25%)				$ 580,415
	Permitting Contingency (5%)				$ 116,083
	Total Project Cost				**$ 3,018,158**

Notes:
1) LS = Lump Sum
2) LF = Lineal Feet
3) EA = Each
4) E/A/L = Engineering, Administrative, and Legal costs

Table 1.5 Total Project Cost Estimate (Alternative No.3)
SVESA Project
Squaw Valley PSD

Item No.	Description	Quantity	Unit	Unit Cost	Total Cost
General					
1	Mobilization/Demobilization (5%)	1	LS	$ 116,080	$ 116,080
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Sewer Facilities					
4	Dewatering	1	LS	$ 50,000	$ 50,000
5	8" SS (PVC)	2750	LF	$ 175	$ 481,250
6	Sanitary Sewer Manholes	12	EA	$ 5,000	$ 60,000
7	Mechanical Connection To Bridge #2	1	LS	$ 100,000	$ 100,000
8	Brdige No. 2	1	LS	$ 1,000,000	$ 1,000,000
	Sub-Total				$ 1,857,330
	Construction Contingency (25%)				$ 464,330
	Total Construction Cost				$ 2,321,660
	E/A/L Contingency (25%)				$ 580,415
	Permitting Contingency (5%)				$ 116,083
	Total Project Cost				**$ 3,018,158**

Notes:
1) LS = Lump Sum
2) LF = Lineal Feet
3) EA = Each
4) E/A/L = Engineering, Administrative, and Legal costs

Alternative No. 1

Alternative No. 1 consists of approximately 1,900 lineal feet of gravity sanitary sewer collection systems, a pump station and 1,100 lineal feet of 4-inch force main to convey the wastewater flows to the existing SVPSD system.

Construction Constraints

Construction of Alternative No. 1 will consist of standard construction methods for the gravity sewer pipelines and manholes. The pipelines and manholes near the proposed pump station wet well will be approximately twenty (20) feet deep and may require rock excavation. The wet well facility will be approximately twenty-five (25) feet deep and may encounter similar rock excavation requirements due to its depth. Additionally, as the facilities are deeper, groundwater may be encountered and require dewatering operations for safe excavation and installation of pipelines. With an exception to Line "D", and the southern portion of Line "A", the remaining sewer pipelines will be constructed at a depth of approximately 5-feet. The majority of the sewer pipelines will be constructed in the shoulders of both Highway 89 and Squaw Valley road, with an exception to the crossings. Where the sewer pipelines cross the roads, a bore and jack operation may be required by the roadway owner (Placer County or Caltrans).

Environmental Constraints

As with all of the alternatives, the environmental constraints for the project will include adhering to the California Environmental Quality Act (CEQA) requirements. This alternative will most likely fall under a mitigated negative declaration due to the facilities being located within existing roadways. Items such as blasting of rock for excavating and the pump station control building exterior may require mitigation.

Operations and Maintenance

As previously discussed, the operations and maintenance associated with Alternative No. 1 are considerably more than what the SVPSD staff currently handles due to the SVPSD not having any pump stations within its existing collection system. Weekly inspections of the pump station will be required, and failure of any part of the facility at any point in time will require immediate attention. This will require the dedication of approximately one half of a staff member for operation of the pump station. Emergency costs for addressing any system failures are to be expected as well. In addition, the SVPSD may want to consider purchasing a vactor truck for ease of maintaining the pump station wet well. However, it should be noted that most utility districts have a vactor truck in service for day to day operations and maintenance procedures for both pump stations as well as gravity collection systems.

Construction Costs

Total project costs for Alternative No. 1 are estimated at $2,372,500 and include all contingencies as previously discussed.

Alternative No. 2

Alternative No. 2 consists of approximately 3,650 lineal feet of gravity sanitary sewer collection systems to convey the wastewater flows to the existing SVPSD system.

Construction Constraints

Construction of Alternative No. 2 will consist of standard construction methods for the gravity sewer pipelines and manholes. The northern portion of Line "A" will be constructed in the narrow shoulder of Highway 89, adjacent to a significant cut slope. Having noted that significant rock was encountered in the sewer metering area per conversations with SVPSD staff, it is assumed that significant rock excavation will be required while constructing the northern portion of Line "A". Additionally, the northern portion of Line "A" is deeper, meaning that groundwater may be encountered and require dewatering operations for safe excavation and installation of pipelines. With an exception to the northern portion of Line "A", the remaining sewer pipelines will be constructed at a depth of approximately 5-feet. The majority of the sewer pipelines will be constructed in the shoulders of both Highway 89 and Squaw Valley Road, with an exception to the crossings. Where the sewer pipelines cross the roads, a bore and jack operation may be required by the roadway owner.

Environmental Constraints

As with all of the alternatives, the environmental constraints for the project will include adhering to the California Environmental Quality Act (CEQA) requirements. This alternative will most likely fall under a mitigated negative declaration due to the facilities being located within existing roadways. Items such as blasting of rock for excavating and cutting through native vegetation will require mitigation.

Operations and Maintenance

The operations and maintenance associated with Alternative No. 2 will be minimal because the whole system will function under gravity. However, because the northern portion of Line "A" starting at SSMH No. 6 will be under pressure, the system will need to be shut down and cleaned on a bi-annual basis. The proposed cleanouts provide for routine cleaning to occur.

Construction Costs

Total project costs for Alternative No. 2 are estimated at $1,664,000 and include all contingencies as previously discussed.

Alternative No. 3

Alternative No. 3 consists of approximately 2,750 lineal feet of gravity sanitary sewer collection systems to convey the wastewater flows to the existing SVPSD system.

Construction Constraints

Construction of Alternative No. 3 will consist of standard construction methods for the gravity sewer pipelines and manholes. As previously noted, the new bridge will need to be raised to a grade approximately 4-feet above the existing bridge grade to allow for sufficient coverage of the new sewer pipeline. The sewer pipeline crossing the new bridge will need to be properly insulated as it will be exposed to the elements. The sewer pipeline on the east side of the bridge will be constructed under existing asphalt, meaning that a strip of the asphalt located in that area will need to be cut, removed, and replaced. The majority of the remaining sewer pipelines associated with Alternative No. 3 will be constructed in the shoulders of both Highway 89 and Squaw Valley road, with an exception to the crossings. Where the sewer pipelines cross the roads, a bore and jack operation may be required dependent upon regulatory agency requirements. All of the sewer pipelines will be constructed at a depth of approximately 5-feet.

Environmental Constraints

As with all of the alternatives, the environmental constraints for the project will include adhering to the California Environmental Quality Act (CEQA) requirements. This alternative will most likely fall under a mitigated negative declaration due to the facilities being located within existing roadways. The construction of the new bridge will require mitigation to meet standards set by the regulatory agencies.

Operations and Maintenance

The operations and maintenance associated with Alternative No. 3 will be minimal because the system will function under gravity.

Construction Costs

Total project costs for Alternative No. 3 are estimated at $3,018,158 and include all contingencies as previously discussed.

4.0 Recommendations and Conclusions

As previously noted, each alternative has been ranked and assigned a value according to its construction constraints, environmental constraints, operations and maintenance, and estimated costs. The ranking is on a scale of one to three as presented in Table 1.6. The higher the score, the more favorably an issue is ranked.

Table 1.6 Alternative Rating SVESA Project Squaw Valley PSD					
Description	**CC**	**EC**	**O&M**	**Const. Costs**	**Total Score**
Alternative No.1	2	3	1	2	8
Alternative No.2	3	2	2	3	10
Alternative No.3	1	1	3	1	6

Notes:
1) CC = Construction Constraints
2) EC = Environmental Constraints
3) O&M = Operations and Maintenance

This method places equal weight to all three constraints/issues. Alternative No. 2 has the highest score and is selected as the recommended alternative.

The SVPSD has requested a phased project cost estimate for the recommended alternative, which is presented on Table 1.7. This cost estimate assumes that all engineering design and permitting will be completed during the first phase. Three phase total project costs for Alternative No. 2 are estimated at $1,837,342 and include all contingencies as previously discussed.

4.1 Preliminary Project Schedule

Table 1.8 presents a preliminary schedule for the recommended alternative. The schedule has been separated into four tasks that encompass project design and permitting. The schedule is schematic and could be affected by a variety of circumstances.

Table 1.7	Phased Project Cost Estimate (Alternative No.2) SVESA Project Squaw Valley PSD				
Item No.	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Phase 1 General					
1	Mobilization/Demobilization (5%)	1	LS	$ 48,920	$ 48,920
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Phase 1 Sewer Facilities					
4	Dewatering	1	LS	$ 50,000	$ 50,000
5	8" SS (PVC)	2500	LF	$ 175	$ 437,500
6	Rock Excavation	950	CY	$ 175	$ 166,250
7	SS Bypass/Cleanout	3	EA	$ 5,000	$ 15,000
8	Sanitary Sewer Manholes	3	EA	$ 5,000	$ 15,000
	Sub-Total				$ 782,670
	Construction Contingency (25%)				$ 195,670
	Total Construction Cost				$ 978,340
	E/A/L Contingency (25%)				$ 353,335
	Permitting Contingency (5%)				$ 70,667
	Phase 1 Project Cost				**$ 1,402,342**
Phase 2 General					
1	Mobilization/Demobilization (5%)	1	LS	$ 11,920	$ 11,920
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Phase 2 Sewer Facilities					
4	8" SS (PVC)	650	LF	$ 175	$ 113,750
5	Sanitary Sewer Manholes	3	EA	$ 5,000	$ 15,000
	Sub-Total Construction Cost				$ 190,670
	Construction Contingency (25%)				$ 47,670
	Phase 2 Project Cost				**$ 238,340**

Table 1.7 (cont.) **Phased Project Cost Estimate (Alternative No.2)**
SVESA Project
Squaw Valley PSD

Item No.	Description	Quantity	Unit	Unit Cost	Total Cost
Phase 3 General					
1	Mobilization/Demobilization (5%)	1	LS	$ 9,830	$ 9,830
2	Traffic Control	1	LS	$ 25,000	$ 25,000
3	Temporary Erosion Control Measures	1	LS	$ 25,000	$ 25,000
Phase 3 Sewer Facilities					
4	8" SS (PVC)	500	LF	$ 175	$ 87,500
5	Sanitary Sewer Manholes	2	EA	$ 5,000	$ 10,000
	Sub-Total Construction Cost				$ 157,330
	Construction Contingency (25%)				$ 39,330
	Phase 3 Project Cost				**$ 196,660**
	Total Project Cost				**$ 1,837,342**

Notes:
1) LS = Lump Sum
2) LF = Lineal Feet
3) EA = Each
4) E/A/L = Engineering, Administrative, and Legal costs

SVESA PROJECT
SQUAW VALLEY PSD
TABLE 1.8 - PRELIMNARY PROJECT SCHEDULE

		August				September				October					November				December					January				February			
	Week Ending	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25
TASK	DESCRIPTION																														
	NTP	X																													
1.0	30% PRELIMINARY REVIEW																														
	Design Package and Submittal																														
	Client Review																														
2.0	90% REVIEW																														
	Design Package and Submittal																														
	Client Review																														
3.0	100% Final Submittal																														
	Design Package																														
	Final Submittal																			X											
4.0	Permitting																														

Appendix

CED

GORMAN-RUPP PUMPS

Certified in Canada

Submersible Pump

Electric Motor Driven

Model JSV4D60–E14

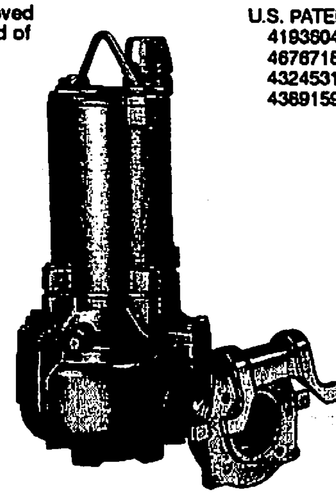
Size 4"

FM APPROVED

X PROOF MOTORS FOR CLASS 1, DIV. 1, GROUPS C&D LOCATIONS
(See Note for Ordering FM)

Note: When Ordering FM Approved Model, Specify "X" Instead of "E" Following Hyphen in Model Number.

U.S. PATENT
4193604
4676718
4324531
4389159



PUMP SPECIFICATIONS

Casing: Gray Iron No. 30.
Impeller: Winglet Vane Vortex, Ductile Iron No. 80-55-06.
Handles 3.23" (82 mm) Diameter Spherical Solids.
Seal Housing: Gray Iron No. 30.
Lower Bearing Bracket: Gray Iron No. 30.
Motor Housing: Gray Iron No. 30.
Motor Shaft: Stainless Steel No. 329.
Upper Bearing: Single Ball Type, Grease Lubricated.
Lower Bearing: Double Ball Type, Grease Lubricated.
O-Rings: Nitrile Rubber.
Hardware-External Wetted: Stainless Steel No. 304.
External Surface Protection: Black Epoxy Paint.
Standard Equipment: Slide Rail Guide Shoe w/Neoprene Seal, Hoisting Bail.
Optional Equipment: 90° Baseplate Elbow, Pump Control Panel, Slide Rail Installation Kit.

MOTOR/CABLE SPECIFICATIONS

Motor: 14.0 H.P., 60 Hertz, 3450 R.P.M., Three Phase, *230, 460 or 575 Volts, 36.0/18.0/14.4 Full Load Amps, NEMA Code J, 1.15 Service Factor, Air Filled Enclosure, Squirrel Cage, Induction Start, G-R Frame No. 4, Class F Insulation Rated 311°F (155°C), 104°F (40°C) Ambient Plus, 239°F (115°C) Temperature Rise. Max. Submergence Depth 65 Feet (20 Meters).
Std. Features: Moisture Sensor Switch, Thermal Protection Switches, Across-the-Line Motor Wiring Connection.

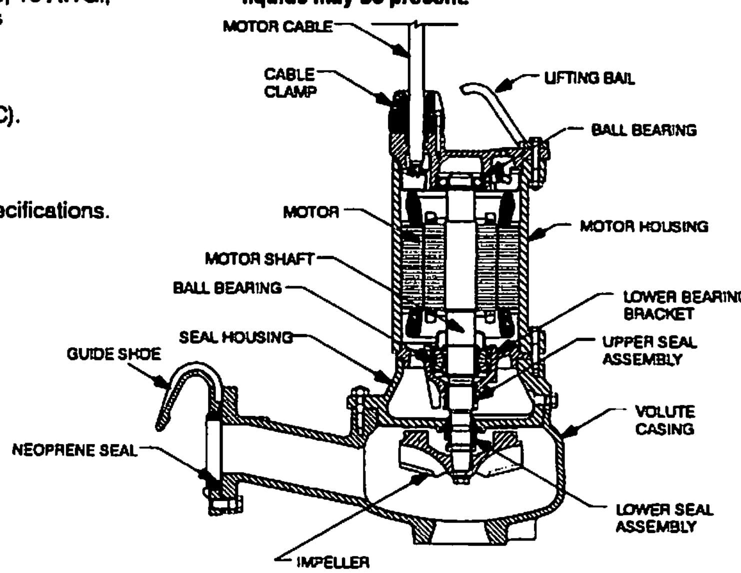
347

†**Power/Control Cable:** Neoprene Jacket, Single Cable, 10 AWG., 7 Wire Conductors for Power, 14 AWG, 2 Conductors Used for Moisture and Thermal Protection.
** 26 Feet (8 Meters) Provided Standard.

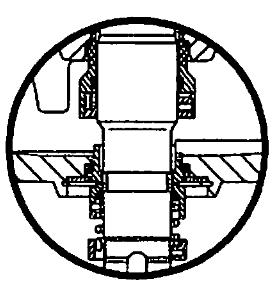
Maximum Temperature of Liquid Pumped: 104°F (40°C).
* Specify Voltage Required at Time of Order. (Dual Voltage for 230/460 Three Phase Motors).
** For Different Lengths, Specify at Time of Order.
†See Accessories Section for CSA-Approved Cable Specifications. Specify CSA When Ordering.

WARNING!

Use only X-proof model for application in Class I, Division I, Groups C and D X-proof environments, or where trace amounts of volatile, flammable liquids may be present.



The pump and guide shoe adapter are designed for slide rail installation using an optional baseplate elbow. All items are available from Gorman-Rupp as separate parts or as a complete lift station package.

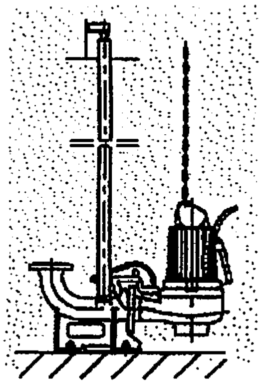


SEAL SPECIFICATIONS

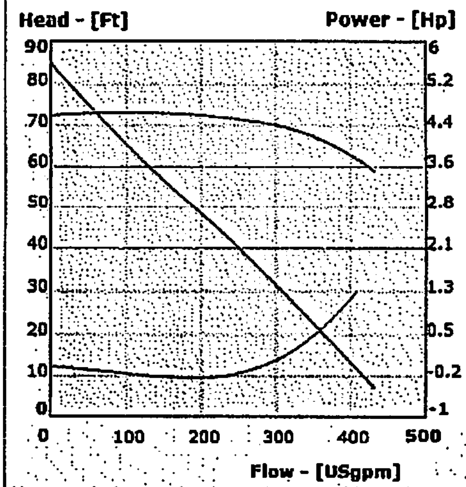
Tandem Mechanical Seals. Oil-Lubricated. Cage and Springs are Stainless Steel. Fluorocarbon Elastomers (DuPont Viton® or Equivalent).
Upper Seal: Rotating Face is Hardened Stainless Steel, Stationary Face is Carbon.
Lower Seal: Rotating and Stationary Faces are Silicon Carbide.

PRODUCT: NP 3102 SH

Product picture



Curves ⊕ **Enlarge**



Pump Data

Curve id: 63-257-00-5206 Impeller: 257 Poles: 2 - pole Motor: 18-10-2AL Frequency: 60 Hz

Motor Data

Rated output power Hp (kW)	Ø	Nominal voltage (V)	Full load current (A)	Locked rotor current (A)	Locked rotor kVA	Locked rotor code letter kVA/Hp	Poles/rpm
6.5 (4.8)	3	230	16	112	45	H	2/3440
6.5 (4.8)	3	460	8.2	56	45	H	2/3440

Pump motor Hp	Efficiency			Power factor		
	100% load	75% load	50% load	100% load	75% load	50% load
6.5	78.5	80.5	79.5	0.94	0.94	0.91

Cable Data

HP	Cables	Volts	Max. length (Ft)	Cable size/Nominal OD.	Conductors (In one cable)	Type	Part number
6.5	1	460	315	#14/7 0.75"-(19.0mm)	(3) 14 AWG (PWR) (2) 14 AWG (CTRL) (1) 14 AWG (GND) (1) 14 AWG (GC)	STD	942102
6.5	1	230	125	#12/7 0.83"-(21.0mm)	(3) 12 AWG (PWR) (2) 12 AWG (CTRL) (1) 12 AWG (GND) (1) 12 AWG (GC)	STD	942104

Available Discharge Connection Outlet Size	
Outlet Drilled Flange	3"

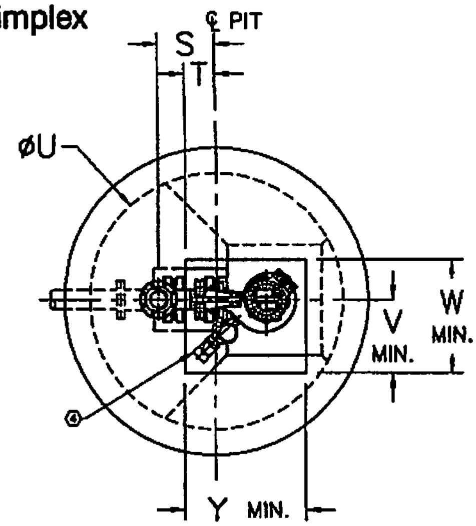
CP/NP-3102

e-Catalog	FLYGT	Lift Station Dimensions	Issued: 5/06	Supersedes: 7/05

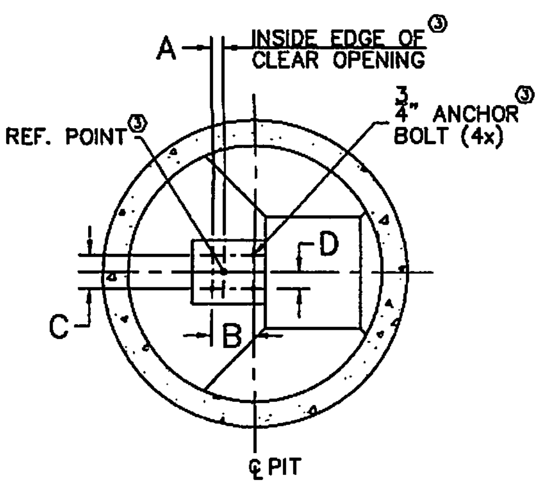
○ NOTES:

1. CONFIGURATION AND DIMS. SHOWN ARE SUGGESTED REQUIREMENTS ONLY. ALL DETAILS, INCLUDING SIZING OF PIT, TYPE, LOCATION AND ARRANGEMENT OF VALVES AND PIPING, ETC. ARE TO BE SPECIFIED BY THE CONSULTING ENGINEER AND ARE SUBJECT TO THEIR APPROVAL.
2. REFERENCE GENERIC DUPLEX LIFT STATION LAYOUT FOR ELEVATION VIEW.
3. LOCATE ANCHOR BOLTS USING INSIDE EDGE OF CLEAR OPENING AND PUMP CENTERLINE AS REFERENCE POINT. BOLT LOCATIONS MUST BE HELD TO MAINTAIN EXACT POSITION OF PUMP TO CLEAR OPENING.
4. ITT FLYGT MIX-FLUSH VALVE.

Simplex

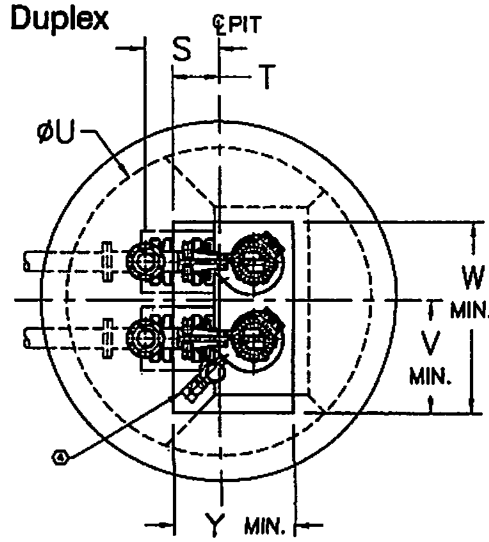


TOP VIEW

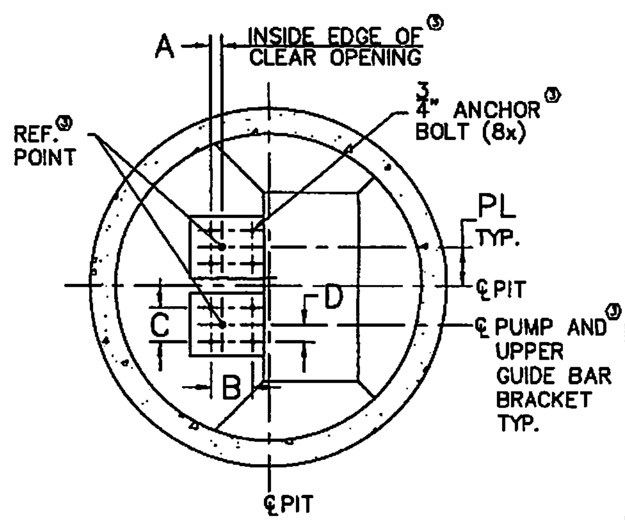


℄ PIT
BASE SECTION

Duplex



TOP VIEW



℄ PIT
BASE SECTION

ALL DIMENSIONS ARE IN INCHES

MODEL	NOM. SIZE	VERSION					SIMPLEX						DUPLEX						
			A	B	C	D	S	T	U	V	W	Y	S	T	U	PL	V	W	Y
CP/NP	3"	HT/SH	2 3/8	9 7/8	8	4	15 3/8	9 1/2	60	17	26 1/2	28 1/2	19 3/8	13 1/4	72	9	26	44 1/2	28 1/2
CP/NP	4"	MT	2 3/4	9 7/8	8	4	13 3/4	7 1/4	60	17	26 1/2	28 1/2	17 1/2	11	72	9	26	44 1/2	28 1/2
CP/NP	4"	LT	2 3/4	9 7/8	8	4	13 3/4	7 1/4	60	16	25 1/2	28 1/2	17 1/2	11	72	9	25	43 1/2	28 1/2
CP/NP	6"	LT	4 1/4	11	10	5	11	3 3/8	60	17 1/2	27	28 1/2	14 3/8	6 3/4	72	9	26 1/2	45	28 1/2
CP	8"	LT	5 1/2	11	10	5	8 7/8	0	60	17 1/2	27	28 1/2	11 3/8	2 1/2	72	9	26 1/2	45	28 1/2

AUERBACH ENGINEERING CORPORATION
CIVIL ENGINEERING • LAND SURVEYING • ENVIRONMENTAL PLANNING
PROGRAM MANAGEMENT AND PLANNING

October 30, 2007
Project No.: 0050.18 PM

Mr. Rick Lierman
Squaw Valley Public Services District
305 Squaw Valley Road
Squaw Valley, CA 96146

Subject: Squaw Valley Entrance Sewer Alternatives Project
Cost per Equivalent Dwelling Unit Breakdown Analysis

Dear Mr. Lierman:

As requested by the Squaw Valley Public Services District (SVPSD) Board of Directors (Board) at the July 31, 2007 Board meeting, Auerbach Engineering Corporation (AEC) has prepared a cost breakdown analysis for estimated dwelling units (EDU) for the above referenced project. This analysis compares two types of cost breakdowns for the recommended alternative (Alternative No. 2) from the original project report. This analysis also briefly describes financing alternatives that may be available to the SVPSD for the project.

Equivalent Dwelling Unit (EDU) Analysis

Estimating the total number of EDU's associated with the original study area can be accomplished in a variety of ways. However, since existing and future wastewater flows have already been developed as part of the original study, these estimated flows were used to develop the EDU's necessary to complete the analysis. In general, one EDU represents one single-family residence. Since an average daily flow (ADF) of 400 gallons per day (gpd) has been established for a single family residence this equates to one EDU. Having previously developed a future total estimated ADF volume of 45,200 gpd for the entire study area, the estimated total number of EDU's has been calculated to be 113. The breakdown for the various areas of concern are three (3) EDU's for the existing Squaw Valley Park, seven (7) EDU's for the existing single family residences, eighty (80) EDU's for the proposed high-density residential area, twenty (20) EDU's for the existing and proposed commercial area, and three (3) EDU's for the proposed visitor's center, respectively. Table 1 presents the total estimated number of EDU's, both existing and proposed, for the study area.

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VOICE (530) 581-1116 • FAX (530) 581-3162 • WWW.AUERBACHENGINEERING.COM

Table 1	**Estimated EDU's**[1] SVESA Project Squaw Valley PSD	
Description		**EDU's**
Squaw Valley Park	Existing	3
Single Family Residential	Existing	7
High Density Residential	Proposed	80
Commercial	Existing/Proposed	20
Visitor Center	Proposed	3
	Total	**113**

Notes:
(1) EDU = Equivalent Dwelling Units.

Cost Breakdown Analysis

As requested by the Board, two cost breakdown analyses were developed. The first option (Option No. 1) provides an overall average cost per EDU for the entire study area for the recommended facilities. The second option (Option No. 2) provides a cost per EDU that is specific to each portion of the facility that is utilized by that particular EDU. For Option No. 2 the recommended alternative facilities can be divided into four (4) distinct phases that are unique to a certain number of EDU's. Phase One is described as the facilities extending from the existing siphon tie-in point upstream within Highway 89 to the proposed Sanitary Sewer Manhole (SSMH) No. 6. Phase Two is from SSMH No. 6 within Highway 89 upstream to the proposed SSMH No. 4. Phase Three is from SSMH No. 4 easterly in Squaw Valley Road to SSMH No.8 and Phase Four is from SSMH No. 4 along Highway 89 south to SSMH No. 1. As discussed previously in the original study, the recommended alternative facilities were estimated at a total project cost of $1,664,000. This includes contingencies for design, permitting, administration and construction. It is assumed in this analysis that the design and permitting of the entire project would be completed under one contract, thereby reducing any additional costs for splitting the project into phases. Table 2 presents the cost breakdown analysis as described above.

Table 2 Cost per EDU(1) Breakdown Analysis
SVESA Project
Squaw Valley PSD

Item No.	Description	Facilities Cost	Contributing EDU's	EDU Cost	Total Cost per EDU(2)
Option No. 1 – Average Overall Cost per EDU					
1	Complete Project	$ 1,664,000	113		$ 14,730
Option No. 2 – Phased Cost per EDU					
1	Design/Permitting	$ 384,000	113	$ 3,400	
2	Phase One (Construction)	$ 756,930	113	$ 6,700	
3	Phase Two (Construction)	$ 186,370	33	$ 5,650	
4	Phase Three (Construction)	$ 137,140	6	$ 22,860	
5	Phase Four (Construction)	$ 199,560	7	$ 28,510	
	Total Project Cost	$ 1,664,000			
	Squaw Valley Park		3		$ 38,610
	Single Family Residential		7		$ 44,260
	High Density Residential		80		$ 10,100
	Commercial		20		$ 15,750
	Visitor Center		3		$ 38,610

Notes:

1) EDU = Estimated Dwelling Unit.
2) Costs rounded to nearest 10 values.

As presented above, the average cost per EDU for Option No. 1 is estimated at $14,730 per EDU. Again, this is assuming an average cost per EDU for the 113 EDU's within the study area.

The estimated cost per EDU for Option No. 2 is unique to each area served by the facilities. As presented in Table 2, the cost per EDU for the Squaw Valley Park is $38,610, the estimated cost per EDU for the existing single family homes on the east side of Highway 89 is $44,260, the estimated cost per EDU for the high density residential units northwest of the existing 7-11 store is $10,100, the estimated cost per EDU for the commercial area west of Highway 89 is $15,750 and finally the cost per EDU for the Visitor's Center is estimated at $38,610.

Both of these options assume that the design and construction of the facilities will be completed together. If the facilities are phased over a number of construction seasons the costs will increase accordingly based on the rate of inflation and bidding climates.

Financing Alternatives

This section reviews alternative avenues for financing the design and construction to place the proposed facilities in operation. The SVPSD is considered a "Special District" and collects tax revenues from Placer County that are placed in the general fund and collects revenue for water and sewer services from rates that are allocated to those particular activities. Financing of the facilities can be accomplished in many different ways. Table 3 presents financing alternatives that the SVPSD may pursue for this project.

Table 3 Financing Alternatives
SVESA Project
Squaw Valley PSD

Description	Remarks
Assessment District	Must be approved by property owners.
State Revolving Funds	Time consuming. Must meet all state requirements prior to funding.
Commercial Loan	Tied to Interest rates.

Below is a brief description of three financing alternatives available to complete this project. Please note that this is not a comprehensive list of financing alternatives but a short list of alternatives that the SVPSD could implement easily and within a short timeframe.

Assessment District. An Assessment District is a special district formed by a local government agency (County, City, Water District, etc.) and includes property that will receive direct benefit from the construction of new public improvements or from the maintenance of existing public improvements. The most common types of public improvements financed include roads, sidewalks, sewer facilities and water facilities.

The local agency that forms the assessment district sells bonds to raise the money to build or acquire the public improvement. The agency then levies a special assessment against each parcel of land within the district, in proportion to its share of benefit from the improvement. The owners of the assessed land repay the bonds over a period of years through annual assessments, which are included on the County's general property tax bill.

State Revolving Funds. The Federal Water Pollution Control Act (Clean Water Act or CWA), as amended in 1987, provides for establishment of a State Revolving Fund (SRF) loan program. The program is funded by federal grants, State funds, and Revenue Bonds. The purpose of the SRF loan program is to implement the CWA and various State laws by providing financial assistance for the construction of facilities or implementation of measures necessary to address water quality problems and to prevent pollution of the waters of the State.

The SRF Loan Program provides low-interest loan funding for construction of publicly-owned wastewater treatment facilities, local sewers, sewer interceptors, water reclamation facilities, and storm water treatment.

Typically, the agency would repay the loan over time utilizing the connection fees and rates to cover the costs.

Commercial Loan. The SVPSD could take out a loan through a standard financial institution and construct the facilities utilizing the loan funds. The loan would be subject to industry interest rates and would be subject to standard loan requirements. The loan would be repaid utilizing the connection fees and rates.

Additionally, the SVPSD may have the ability to pay for the construction of the facilities out of the general funds and then replace those funds with the connection fees and rates. The drawback to this approach is that the SVPSD would be *loaning* the money for the facilities over a period of 20 to 30 years.

Should you have any questions and/or require additional information please contact us at 530.581.1116 at your earliest convenience.

Sincerely,
AUERBACH ENGINEERING CORPORATION

Tim F. Taylor, P.E.
Director of Engineering

Bb:tft

Cc: File

9 Monitoring, Measurement and Program Modifications

9.1 REQUIREMENT

Upon implementation of the SSMP program, the program elements should be monitored for their effectiveness. If the elements are not effective, the program elements should be modified to increase their effectiveness. The Enrollee shall:

- Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities.
- Monitor the implementation and, where appropriate, measure the effectiveness of each SSMP element.
- Assess the success of the preventative maintenance program.
- Update program elements, as appropriate, based upon monitoring or performance evaluations.
- Identify and illustrate SSO trends, including frequency, location, and volume.

9.2 SSMP COMPLIANCE

The District will track the following information to measure the effectiveness of the SSMP program;

1. The District will track the number and frequency of SSOs along with SSO volume and cause of SSO, as outlined in the SSO response plan located in Element 6 of the SSMP. SSOs will be tracked electronically in VueWorks and through CIWQS.

2. The District will monitor Key Performance Indicators (KPI) through District recorded information, VueWorks work orders, and statistics gleaned from SSO files. Table 9.1 lists each SSMP element, the overall purpose of the element, and the specific parameters the District will track to help evaluate the effectiveness of the SSMP.

Table 9.1: Performance Evaluation for each SSMP Element

SSMP Element	Summary of Element Purpose	KPI
1. Goals	Established priorities of District and provide focus for District Staff	• As part of Element 10 – Program Audits, reconsider Goals and evaluate potential changes, as necessary
2. Organization	Document organization of District staff and chain of communication for SSO response	• As part of Element 10 – Program Audits, update Organization Chart as staff changes and reorganizations occur
3. Legal Authority	Ensure the District has sufficient legal authority to properly maintain the system	• Code updates, as necessary
4. Operation and Maintenance Program	Minimize blockages and SSOs by properly maintaining the system and keeping the system in good condition	• Total number and volume of SSOs • Causes of SSOs • Number of repeat SSOs (same location) • CCTV and frequency of cleaning/inspections • Rehabilitation Projects
5. Design & Performance Provisions	Ensure new facilities are properly designed and constructed	• Update Code and Technical Specifications, as necessary
6. Overflow Emergency Response Plan	Provide timely and effective response to SSO emergencies and comply with regulatory reporting requirements	• Track SSO response time • Percent of total overflow volume contained or returned to sewer • Regulator reporting compliance • Review and train annually
7. FOG Control Program	Minimize blockages and overflows due to FOG	• Number of SSOs due to FOG • Number of FOG producing facilities inspected • Percent of FOG producing facilities found to be in compliance
8. System Evaluation & Capacity Assurance Plan	Minimize SSOs due to insufficient capacity in the system	• Number of SSOs due to capacity limitations or wet weather • Updates to District planning documents
9. Monitoring, Measurement, & Program Modifications	Evaluate effectiveness of SSMP, keep SSMP up-to-date, and identify necessary changes	• As part of Element 10 – Program Audits, evaluate tracking of KPI and effectiveness of SSMP
10. SSMP Program Audits	Formally identify SSMP effectiveness, limitations, and necessary changes on a biennial basis	• Date of completion of last audit
11. Communication Program	Communicate with the public and satellite agencies	• Number of written comments received from the public • Percentage of positive comments

3. The District will review, and as appropriate, update the preventive maintenance program based upon parameters outlined in Table 9.1.

4. The District will review the SSMP program elements biennially and update, as appropriate, each element based upon parameters listed in Table 9.1.

5. The District will monitor and track SSO trends including frequency, location, and volume. As a requirement of WDR 2006-0003 the District reports to the State Water Quality Control Board (SWQCB) using the California Integrated Water Quality System (CIWQS). The District is required to complete a monthly report whether an SSO occurs or not. If an SSO occurs, the District reports the volume, location, and cause of the SSO.

6. The District has reported seven (7) SSOs in the CIWQS database between 2007-2023. This includes one caused by a structural failure in a pipe joint, two caused by root intrusion, and four caused by general debris buildup, typically in the form of "flushable" wipes. Overall, the SSO history does not show any specific trend as to SSO location, frequency, and volume of spill. The SSO history does not indicate any issues in the sewer system that require immediate action.

10 SSMP Program Audits

10.1 REQUIREMENT

As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. These audits shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified is subsection D.13 of the WDR, including identification of any deficiencies in the SSMP and the steps to correct them. At a minimum these audits shall be conducted every two years and a report prepared and kept on file.

10.2 SSMP COMPLIANCE

The WDR requirements state that internal SSMP audits be appropriate to the size of the system and the number of SSO discharges. Very few SSO discharges have been observed in the District's sewer system to date. If SSO discharges do not occur in the future, it will be assumed that the implementation of the District's SSMP is effective. If SSO discharges do occur in the future, steps will be taken to identify any deficiencies in the SSMP which need to be corrected.

An audit of the SSMP will be conducted every two (2) years, unless deficiencies warrant more frequent audits. At a minimum, the SSMP will be reviewed to assess whether the following elements are satisfactory:

- The SSMP goals are appropriate.
- The organization description is up to date and appropriate.
- The District's legal authority documents are current and effective.
- The operations and maintenance program includes current system maps, an appropriate frequency and scope for CCTV inspections and cleaning, an appropriate and effective rehabilitation and replacement plan, an appropriate level of staff training, and a sufficient inventory of equipment and replacement parts.
- The design and performance provisions, including design and construction standards and testing procedures, are appropriate and effective.
- The overflow and emergency response plan is current, effective, and meets all regulatory requirements.
- The system evaluation and capacity assurance plan and associated capital improvement/replacement plans are up to date and effective and the schedule for sanitary system improvements is appropriate.
- The monitoring, measurement, and program modifications efforts provide effective feedback on the SSMP program.
- The communication plan with the public is providing an appropriate level of outreach.

The 2023 SSMP Audit Report and SSMP Audit Checklist are provided in Attachment 10.1.

Attachment 10.1

Olympic Valley Public Service District
2020 SSMP Audit Report and SSMP Audit Checklist

OLYMPIC VALLEY
PUBLIC SERVICE DISTRICT

2023 SSMP Audit Report

Introduction:

In May of 2006 the California State Water Resources Control Board adopted Waste Discharge Requirements (WDR) for sewer systems greater than one mile in length; WDR 2006-003. In compliance with WDR 2006-003 the District adopted a Sewer System Management Plan (SSMP) on July 27, 2010. The WDR requires the SSMP be audited every 2 years and be updated every 5 years. The SSMP was last audited in 2015 and completed an update in 2020. The SSMP contains 11 key elements; the audit report will seek to evaluate the sufficiency of each element, summarize the District's efforts over the past 5 years, review benchmarks for performance, and make recommendations for improvements where appropriate.

Element 1: Goals

In 2010 the District elected to adopt our Purpose Statement, Mission Statement, and Core Values as our goals in operating the sewer system. No changes have been made in this audit.

Element 2: Organization

The Sanitary Sewer Overflow (SSO) Reporting Chain of Command and Emergency Contact List were updated and included as Attachments 2.3 and 2.5, respectively, in the SSMP.

Element 3: Legal Authority

The District's legal authority remains sufficient and unchanged.

Element 4: Operations and Maintenance Program

The Sewer System Operations and Maintenance Program is compliant and effective at preventing SSOs and addressed the following key requirements:

A. Maintain an up-to-date map of the collections system

   The text in Element 4 was updated to reflect the addition of in-house GIS capabilities within the engineering department. Sewer system maps were updated and show the current sewer system assets from the GIS database.

B. Preventive Maintenance Program

   Text in Attachment 4.2 was update to reflect the Operations Staff schedule changes to a 9/80 schedule for half of the year. Attachment 4.3 was updated to include the most up-to-date list and mapping of the high priority cleaning areas and residential sewer pump systems.

C. Develop a Rehabilitation and Replacement Plan

The District maintains an Rehabilitation and Replacement Plan. Attachment 4.3 was updated to include up-to-date high priority cleaning areas within the system. Attachment 4.4, Capital Improvement Plan and Capital Replacement Plan was updated with up-to-date projects and costs.

D. Training Program

The District maintains an adequate training program.

E. Contingency Equipment and Replacement Parts Inventory

The District maintains adequate contingency equipment and spare parts for effective operation of the sewer system. Attachment 4.7 was updated to include an accurate count of current sewer parts inventory.

Element 5: Design and Performance Provisions

The Sewer Technical Specifications are compliant and effective.

Element 6: Overflow Emergency Response Plan (OERP)

The District's Sewer System Overflow Emergency Response Plan is compliant and effective in preventing and responding to SSOs. Best practices were implemented for documentation and response to SSOs while still retaining the historical information from past flooding events. Maps, contacts list and reporting requirements were updated with current information.

Element 7: Fats, Oils, and Grease (FOG) Program

The District's FOG program is compliant and effective at preventing SSOs caused by FOG. There have been no SSOs reported due to FOG in the sewer system.

Element 8: System Evaluation and Capacity Assurance Plan

The system evaluation and capacity assurance plan and associated CRP and CIP are up to date and effective and the schedule for sewer system improvements is appropriate.

Element 9: Monitoring, Measurement, and Program Modifications

The monitoring, measurement, and program modifications effort provides effective feedback on the SSMP program. The SSMP update included development of Key Performance Indicators used to track the effectiveness of the SSMP.

Element 10: SSMP Program Audits

The SSMP update includes an SSMP Audit Report and SSMP Audit Checklist. These documents will be kept on file as required in the Statewide WDR.

Element 11: Communication Program

The communications plan with the public is providing an appropriate level of outreach. The District plans to enhance and continually update our website with educational material, and will disseminate information in meetings, quarterly newsletters and e-newsletters, and communication with customers, developers, consulting engineers, and contractors regarding the need and methods to reduce SSOs.

11 Communication

11.1 REQUIREMENT

The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of the SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented. The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

11.2 SSMP COMPLIANCE

The District does not currently have a formal communication plan in place for the communication of SSMP elements, performance, or updates. However, the District makes its SSMP available to the public on the District website (www.ovpsd.org) and invited public comments at the November 17, 2020 Board meeting at which the 2020 SSMP Update was presented. The District will address public comments as appropriate. Comments that require edits to the SSMP will be incorporated in the subsequent 2-year audit in 2022.

The District plans to enhance and continually update our website with educational material, and will disseminate information in meetings, biannual newsletters, and communication with customers, developers, consulting engineers, and contractors regarding the need and methods to reduce SSOs. Plumbers and sewer contractors also have access to all available District plans, specifications, and standard details to ensure that projects are properly constructed and tested to District standards.

Useful educational information regarding the prevention of SSOs can also be found on the following websites:

North Tahoe Public Utility District – www.ntpud.org
Tahoe City Public Utility District – www.tcpud.org
Northstar Community Services District – www.northstarcsd.org
Truckee Sanitary District – www.truckeesan.org

Appendix A

WDR Order No. 2006-0003-DWQ

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. 2006-0003-DWQ

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS

The State Water Resources Control Board, hereinafter referred to as "State Water Board", finds that:

1. All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California are required to comply with the terms of this Order. Such entities are hereinafter referred to as "Enrollees".

2. Sanitary sewer overflows (SSOs) are overflows from sanitary sewer systems of domestic wastewater, as well as industrial and commercial wastewater, depending on the pattern of land uses in the area served by the sanitary sewer system. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen-demanding organic compounds, oil and grease and other pollutants. SSOs may cause a public nuisance, particularly when raw untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters.

3. Sanitary sewer systems experience periodic failures resulting in discharges that may affect waters of the state. There are many factors (including factors related to geology, design, construction methods and materials, age of the system, population growth, and system operation and maintenance), which affect the likelihood of an SSO. A proactive approach that requires Enrollees to ensure a system-wide operation, maintenance, and management plan is in place will reduce the number and frequency of SSOs within the state. This approach will in turn decrease the risk to human health and the environment caused by SSOs.

4. Major causes of SSOs include: grease blockages, root blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, excessive storm or ground water inflow/infiltration, debris blockages, sanitary sewer system age and construction material failures, lack of proper operation and maintenance, insufficient capacity and contractor- caused damages. Many SSOs are preventable with adequate and appropriate facilities, source control measures and operation and maintenance of the sanitary sewer system.

SEWER SYSTEM MANAGEMENT PLANS

5. To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). To be effective, SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, an SSMP must contain a spill response plan that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

6. Many local public agencies in California have already developed SSMPs and implemented measures to reduce SSOs. These entities can build upon their existing efforts to establish a comprehensive SSMP consistent with this Order. Others, however, still require technical assistance and, in some cases, funding to improve sanitary sewer system operation and maintenance in order to reduce SSOs.

7. SSMP certification by technically qualified and experienced persons can provide a useful and cost-effective means for ensuring that SSMPs are developed and implemented appropriately.

8. It is the State Water Board's intent to gather additional information on the causes and sources of SSOs to augment existing information and to determine the full extent of SSOs and consequent public health and/or environmental impacts occurring in the State.

9. Both uniform SSO reporting and a centralized statewide electronic database are needed to collect information to allow the State Water Board and Regional Water Quality Control Boards (Regional Water Boards) to effectively analyze the extent of SSOs statewide and their potential impacts on beneficial uses and public health. The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. 2006-0003-DWQ, are necessary to assure compliance with these waste discharge requirements (WDRs).

10. Information regarding SSOs must be provided to Regional Water Boards and other regulatory agencies in a timely manner and be made available to the public in a complete, concise, and timely fashion.

11. Some Regional Water Boards have issued WDRs or WDRs that serve as National Pollution Discharge Elimination System (NPDES) permits to sanitary sewer system owners/operators within their jurisdictions. This Order establishes minimum requirements to prevent SSOs. Although it is the State Water Board's intent that this Order be the primary regulatory mechanism for sanitary sewer systems statewide, Regional Water Boards may issue more stringent or more prescriptive WDRs for sanitary sewer systems. Upon issuance or reissuance of a Regional Water Board's WDRs for a system subject to this Order, the Regional

Water Board shall coordinate its requirements with stated requirements within this Order, to identify requirements that are more stringent, to remove requirements that are less stringent than this Order, and to provide consistency in reporting.

REGULATORY CONSIDERATIONS

12. California Water Code section 13263 provides that the State Water Board may prescribe general WDRs for a category of discharges if the State Water Board finds or determines that:
    - The discharges are produced by the same or similar operations;
    - The discharges involve the same or similar types of waste;
    - The discharges require the same or similar treatment standards; and
    - The discharges are more appropriately regulated under general discharge requirements than individual discharge requirements.

    This Order establishes requirements for a class of operations, facilities, and discharges that are similar throughout the state.

13. The issuance of general WDRs to the Enrollees will:
    a) Reduce the administrative burden of issuing individual WDRs to each Enrollee;
    b) Provide for a unified statewide approach for the reporting and database tracking of SSOs;
    c) Establish consistent and uniform requirements for SSMP development and implementation;
    d) Provide statewide consistency in reporting; and
    e) Facilitate consistent enforcement for violations.

14. The beneficial uses of surface waters that can be impaired by SSOs include, but are not limited to, aquatic life, drinking water supply, body contact and non-contact recreation, and aesthetics. The beneficial uses of ground water that can be impaired include, but are not limited to, drinking water and agricultural supply. Surface and ground waters throughout the state support these uses to varying degrees.

15. The implementation of requirements set forth in this Order will ensure the reasonable protection of past, present, and probable future beneficial uses of water and the prevention of nuisance. The requirements implement the water quality control plans (Basin Plans) for each region and take into account the environmental characteristics of hydrographic units within the state. Additionally, the State Water Board has considered water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect

    water quality in the area, costs associated with compliance with these requirements, the need for developing housing within California, and the need to develop and use recycled water.

16. The Federal Clean Water Act largely prohibits any discharge of pollutants from a point source to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. Hence, the unpermitted discharge of wastewater from a sanitary sewer system to waters of the United States is illegal under the Clean Water Act. In addition, many Basin Plans adopted by the Regional Water Boards contain discharge prohibitions that apply to the discharge of untreated or partially treated wastewater. Finally, the California Water Code generally prohibits the discharge of waste to land prior to the filing of any required report of waste discharge and the subsequent issuance of either WDRs or a waiver of WDRs.

17. California Water Code section 13263 requires a water board to, after any necessary hearing, prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge. The requirements shall, among other things, take into consideration the need to prevent nuisance.

18. California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:

    a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

    b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

    c. Occurs during, or as a result of, the treatment or disposal of wastes.

19. This Order is consistent with State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) in that the Order imposes conditions to prevent impacts to water quality, does not allow the degradation of water quality, will not unreasonably affect beneficial uses of water, and will not result in water quality less than prescribed in State Water Board or Regional Water Board plans and policies.

20. The action to adopt this General Order is exempt from the California Environmental Quality Act (Public Resources Code §21000 et seq.) because it is an action taken by a regulatory agency to assure the protection of the environment and the regulatory process involves procedures for protection of the environment. (Cal. Code Regs., tit. 14, §15308). In addition, the action to adopt this Order is

exempt from CEQA pursuant to Cal.Code Regs., title 14, §15301 to the extent that it applies to existing sanitary sewer collection systems that constitute "existing facilities" as that term is used in Section 15301, and §15302, to the extent that it results in the repair or replacement of existing systems involving negligible or no expansion of capacity.

21. The Fact Sheet, which is incorporated by reference in the Order, contains supplemental information that was also considered in establishing these requirements.

22. The State Water Board has notified all affected public agencies and all known interested persons of the intent to prescribe general WDRs that require Enrollees to develop SSMPs and to report all SSOs.

23. The State Water Board conducted a public hearing on February 8, 2006, to receive oral and written comments on the draft order. The State Water Board received and considered, at its May 2, 2006, meeting, additional public comments on substantial changes made to the proposed general WDRs following the February 8, 2006, public hearing. The State Water Board has considered all comments pertaining to the proposed general WDRs.

IT IS HEREBY ORDERED, that pursuant to California Water Code section 13263, the Enrollees, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

A. DEFINITIONS

1. **Sanitary sewer overflow (SSO)** - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:

   (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;

   (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and

   (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

2. **Sanitary sewer system** – Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

For purposes of this Order, sanitary sewer systems include only those systems owned by public agencies that are comprised of more than one mile of pipes or sewer lines.

3. **Enrollee** - A federal or state agency, municipality, county, district, and other public entity that owns or operates a sanitary sewer system, as defined in the general WDRs, and that has submitted a complete and approved application for coverage under this Order.

4. **SSO Reporting System** – Online spill reporting system that is hosted, controlled, and maintained by the State Water Board. The web address for this site is http://ciwqs.waterboards.ca.gov. This online database is maintained on a secure site and is controlled by unique usernames and passwords.

5. **Untreated or partially treated wastewater** – Any volume of waste discharged from the sanitary sewer system upstream of a wastewater treatment plant headworks.

6. **Satellite collection system** – The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility to which the sanitary sewer system is tributary.

7. **Nuisance** - California Water Code section 13050, subdivision (m), defines nuisance as anything which meets all of the following requirements:

   a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

   b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

   c. Occurs during, or as a result of, the treatment or disposal of wastes.

B. APPLICATION REQUIREMENTS

1. Deadlines for Application – All public agencies that currently own or operate sanitary sewer systems within the State of California must apply for coverage under the general WDRs within six (6) months of the date of adoption of the general WDRs. Additionally, public agencies that acquire or assume responsibility for operating sanitary sewer systems after the date of adoption of this Order must apply for coverage under the general WDRs at least three (3) months prior to operation of those facilities.

2. Applications under the general WDRs – In order to apply for coverage pursuant to the general WDRs, a legally authorized representative for each agency must submit a complete application package. Within sixty (60) days of adoption of the

general WDRs, State Water Board staff will send specific instructions on how to apply for coverage under the general WDRs to all known public agencies that own sanitary sewer systems. Agencies that do not receive notice may obtain applications and instructions online on the Water Board's website.

3. Coverage under the general WDRs – Permit coverage will be in effect once a complete application package has been submitted and approved by the State Water Board's Division of Water Quality.

C. PROHIBITIONS

1. Any SSO that results in a discharge of untreated or partially treated wastewater to waters of the United States is prohibited.

2. Any SSO that results in a discharge of untreated or partially treated wastewater that creates a nuisance as defined in California Water Code Section 13050(m) is prohibited.

D. PROVISIONS

1. The Enrollee must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for enforcement action.

2. It is the intent of the State Water Board that sanitary sewer systems be regulated in a manner consistent with the general WDRs. Nothing in the general WDRs shall be:

   (i) Interpreted or applied in a manner inconsistent with the Federal Clean Water Act, or supersede a more specific or more stringent state or federal requirement in an existing permit, regulation, or administrative/judicial order or Consent Decree;

   (ii) Interpreted or applied to authorize an SSO that is illegal under either the Clean Water Act, an applicable Basin Plan prohibition or water quality standard, or the California Water Code;

   (iii) Interpreted or applied to prohibit a Regional Water Board from issuing an individual NPDES permit or WDR, superseding this general WDR, for a sanitary sewer system, authorized under the Clean Water Act or California Water Code; or

   (iv) Interpreted or applied to supersede any more specific or more stringent WDRs or enforcement order issued by a Regional Water Board.

3. The Enrollee shall take all feasible steps to eliminate SSOs. In the event that an SSO does occur, the Enrollee shall take all feasible steps to contain and mitigate the impacts of an SSO.

4. In the event of an SSO, the Enrollee shall take all feasible steps to prevent untreated or partially treated wastewater from discharging from storm drains into flood control channels or waters of the United States by blocking the storm drainage system and by removing the wastewater from the storm drains.

5. All SSOs must be reported in accordance with Section G of the general WDRs.

6. In any enforcement action, the State and/or Regional Water Boards will consider the appropriate factors under the duly adopted State Water Board Enforcement Policy. And, consistent with the Enforcement Policy, the State and/or Regional Water Boards must consider the Enrollee's efforts to contain, control, and mitigate SSOs when considering the California Water Code Section 13327 factors. In assessing these factors, the State and/or Regional Water Boards will also consider whether:

   (i) The Enrollee has complied with the requirements of this Order, including requirements for reporting and developing and implementing a SSMP;

   (ii) The Enrollee can identify the cause or likely cause of the discharge event;

   (iii) There were no feasible alternatives to the discharge, such as temporary storage or retention of untreated wastewater, reduction of inflow and infiltration, use of adequate backup equipment, collecting and hauling of untreated wastewater to a treatment facility, or an increase in the capacity of the system as necessary to contain the design storm event identified in the SSMP. It is inappropriate to consider the lack of feasible alternatives, if the Enrollee does not implement a periodic or continuing process to identify and correct problems.

   (iv) The discharge was exceptional, unintentional, temporary, and caused by factors beyond the reasonable control of the Enrollee;

   (v) The discharge could have been prevented by the exercise of reasonable control described in a certified SSMP for:

   - Proper management, operation and maintenance;
   - Adequate treatment facilities, sanitary sewer system facilities, and/or components with an appropriate design capacity, to reasonably prevent SSOs (e.g., adequately enlarging treatment or collection facilities to accommodate growth, infiltration and inflow (I/I), etc.);
   - Preventive maintenance (including cleaning and fats, oils, and grease (FOG) control);
   - Installation of adequate backup equipment; and
   - Inflow and infiltration prevention and control to the extent practicable.

   (vi) The sanitary sewer system design capacity is appropriate to reasonably prevent SSOs.

(vii) The Enrollee took all reasonable steps to stop and mitigate the impact of the discharge as soon as possible.

7. When a sanitary sewer overflow occurs, the Enrollee shall take all feasible steps and necessary remedial actions to 1) control or limit the volume of untreated or partially treated wastewater discharged, 2) terminate the discharge, and 3) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water.

   The Enrollee shall implement all remedial actions to the extent they may be applicable to the discharge and not inconsistent with an emergency response plan, including the following:

   (i) Interception and rerouting of untreated or partially treated wastewater flows around the wastewater line failure;

   (ii) Vacuum truck recovery of sanitary sewer overflows and wash down water;

   (iii) Cleanup of debris at the overflow site;

   (iv) System modifications to prevent another SSO at the same location;

   (v) Adequate sampling to determine the nature and impact of the release; and

   (vi) Adequate public notification to protect the public from exposure to the SSO.

8. The Enrollee shall properly, manage, operate, and maintain all parts of the sanitary sewer system owned or operated by the Enrollee, and shall ensure that the system operators (including employees, contractors, or other agents) are adequately trained and possess adequate knowledge, skills, and abilities.

9. The Enrollee shall allocate adequate resources for the operation, maintenance, and repair of its sanitary sewer system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures. These procedures must be in compliance with applicable laws and regulations and comply with generally acceptable accounting practices.

10. The Enrollee shall provide adequate capacity to convey base flows and peak flows, including flows related to wet weather events. Capacity shall meet or exceed the design criteria as defined in the Enrollee's System Evaluation and Capacity Assurance Plan for all parts of the sanitary sewer system owned or operated by the Enrollee.

11. The Enrollee shall develop and implement a written Sewer System Management Plan (SSMP) and make it available to the State and/or Regional Water Board upon request. A copy of this document must be publicly available at the Enrollee's office and/or available on the Internet. This SSMP must be approved by the Enrollee's governing board at a public meeting.

12. In accordance with the California Business and Professions Code sections 6735, 7835, and 7835.1, all engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. Specific elements of the SSMP that require professional evaluation and judgments shall be prepared by or under the direction of appropriately qualified professionals, and shall bear the professional(s)' signature and stamp.

13. The mandatory elements of the SSMP are specified below. However, if the Enrollee believes that any element of this section is not appropriate or applicable to the Enrollee's sanitary sewer system, the SSMP program does not need to address that element. The Enrollee must justify why that element is not applicable. The SSMP must be approved by the deadlines listed in the SSMP Time Schedule below.

Sewer System Management Plan (SSMP)

(i)**Goal:** The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur.

(ii)**Organization:** The SSMP must identify:

(a) The name of the responsible or authorized representative as described in Section J of this Order.

(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

(iii)**Legal Authority:** Each Enrollee must demonstrate, through sanitary sewer system use ordinances, service agreements, or other legally binding procedures, that it possesses the necessary legal authority to:

(a) Prevent illicit discharges into its sanitary sewer system (examples may include I/I, stormwater, chemical dumping, unauthorized debris and cut roots, etc.);

(b) Require that sewers and connections be properly designed and constructed;

(c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;

(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and

(e) Enforce any violation of its sewer ordinances.

(iv) **Operation and Maintenance Program.** The SSMP must include those elements listed below that are appropriate and applicable to the Enrollee's system:

(a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;

(b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;

(c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;

(d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and

(e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

(v) **Design and Performance Provisions:**

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and

(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

(vi) **Overflow Emergency Response Plan -** Each Enrollee shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;

(b) A program to ensure an appropriate response to all overflows;

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, Regional Water Boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the MRP. All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDRs or NPDES permit requirements. The SSMP should identify the officials who will receive immediate notification;

(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;

(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and

(f) A program to ensure that all reasonable steps are taken to contain and prevent the discharge of untreated and partially treated wastewater to waters of the United States and to minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

(vii) **FOG Control Program:** Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:

(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;

(b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;

(c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;

(d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;

(e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;

(f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and

(g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.

(viii) **System Evaluation and Capacity Assurance Plan:** The Enrollee shall prepare and implement a capital improvement plan (CIP) that will provide hydraulic capacity of key sanitary sewer system elements for dry weather peak flow conditions, as well as the appropriate design storm or wet weather event. At a minimum, the plan must include:

(a) **Evaluation:** Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;

(b) **Design Criteria:** Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria; and

(c) **Capacity Enhancement Measures:** The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding.

(d) **Schedule:** The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the SSMP review and update requirements as described in Section D. 14.

(ix) **Monitoring, Measurement, and Program Modifications:** The Enrollee shall:

(a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;

(b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;

(c) Assess the success of the preventative maintenance program;

(d) Update program elements, as appropriate, based on monitoring or performance evaluations; and

(e) Identify and illustrate SSO trends, including: frequency, location, and volume.

(x) **SSMP Program Audits -** As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in this subsection (D.13), including identification of any deficiencies in the SSMP and steps to correct them.

(xi) **Communication Program –** The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

14. Both the SSMP and the Enrollee's program to implement the SSMP must be certified by the Enrollee to be in compliance with the requirements set forth above and must be presented to the Enrollee's governing board for approval at a public meeting. The Enrollee shall certify that the SSMP, and subparts thereof, are in compliance with the general WDRs within the time frames identified in the time schedule provided in subsection D.15, below.

    In order to complete this certification, the Enrollee's authorized representative must complete the certification portion in the Online SSO Database Questionnaire by checking the appropriate milestone box, printing and signing the automated form, and sending the form to:

    State Water Resources Control Board
    Division of Water Quality
    Attn: SSO Program Manager
    P.O. Box 100 Sacramento, CA 95812

    The SSMP must be updated every five (5) years, and must include any significant program changes. Re-certification by the governing board of the Enrollee is required in accordance with D.14 when significant updates to the SSMP are made. To complete the re-certification process, the Enrollee shall enter the data in the Online SSO Database and mail the form to the State Water Board, as described above.

15. The Enrollee shall comply with these requirements according to the following schedule. This time schedule does not supersede existing requirements or time schedules associated with other permits or regulatory requirements.

Sewer System Management Plan Time Schedule

Task and Associated Section	**Completion Date**			
	Population > 100,000	Population between 100,000 and 10,000	Population between 10,000 and 2,500	Population < 2,500
Application for Permit Coverage ***Section C***	6 months after WDRs Adoption	6 months after WDRs Adoption	6 months after WDRs Adoption	6 months after WDRs Adoption
Reporting Program ***Section G***	6 months after WDRs Adoption[1]	6 months after WDRs Adoption[1]	6 months after WDRs Adoption[1]	6 months after WDRs Adoption[1]
SSMP Development Plan and Schedule ***No specific Section***	9 months after WDRs Adoption[2]	12 months after WDRs Adoption[2]	15 months after WDRs Adoption[2]	18 months after WDRs Adoption[2]
Goals and Organization Structure ***Section D 13 (i) & (ii)***	12 months after WDRs Adoption[2]	12 months after WDRs Adoption[2]	18 months after WDRs Adoption[2]	18 months after WDRs Adoption[2]
Overflow Emergency Response Program ***Section D 13 (vi)***	24 months after WDRs Adoption[2]	30 months after WDRs Adoption[2]	36 months after WDRs Adoption[2]	39 months after WDRs Adoption[2]
Legal Authority ***Section D 13 (iii)***	24 months after WDRs Adoption[2]	30 months after WDRs Adoption[2]	36 months after WDRs Adoption[2]	39 months after WDRs Adoption[2]
Operation and Maintenance Program ***Section D 13 (iv)***	24 months after WDRs Adoption[2]	30 months after WDRs Adoption[2]	36 months after WDRs Adoption[2]	39 months after WDRs Adoption[2]
Grease Control Program ***Section D 13 (vii)***	24 months after WDRs Adoption[2]	30 months after WDRs Adoption[2]	36 months after WDRs Adoption[2]	39 months after WDRs Adoption[2]
Design and Performance ***Section D 13 (v)***	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption
System Evaluation and Capacity Assurance Plan ***Section D 13 (viii)***	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption
Final SSMP, incorporating all of the SSMP requirements ***Section D 13***	36 months after WDRs Adoption	39 months after WDRs Adoption	48 months after WDRs Adoption	51 months after WDRs Adoption

1. In the event that by July 1, 2006 the Executive Director is able to execute a memorandum of agreement (MOA) with the California Water Environment Association (CWEA) or discharger representatives outlining a strategy and time schedule for CWEA or another entity to provide statewide training on the adopted monitoring program, SSO database electronic reporting, and SSMP development, consistent with this Order, then the schedule of Reporting Program Section G shall be replaced with the following schedule:

Reporting Program ***Section G***	
Regional Boards 4, 8, and 9	8 months after WDRs Adoption
Regional Boards 1, 2, and 3	12 months after WDRs Adoption
Regional Boards 5, 6, and 7	16 months after WDRs Adoption

If this MOU is not executed by July 1, 2006, the reporting program time schedule will remain six (6) months for all regions and agency size categories.

2. In the event that the Executive Director executes the MOA identified in note 1 by July 1, 2006, then the deadline for this task shall be extended by six (6) months. The time schedule identified in the MOA must be consistent with the extended time schedule provided by this note. If the MOA is not executed by July 1, 2006, the six (6) month time extension will not be granted.

E. WDRs and SSMP AVAILABILITY

1. A copy of the general WDRs and the certified SSMP shall be maintained at appropriate locations (such as the Enrollee's offices, facilities, and/or Internet homepage) and shall be available to sanitary sewer system operating and maintenance personnel at all times.

F. ENTRY AND INSPECTION

1. The Enrollee shall allow the State or Regional Water Boards or their authorized representative, upon presentation of credentials and other documents as may be required by law, to:

   a. Enter upon the Enrollee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order;

   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

G. GENERAL MONITORING AND REPORTING REQUIREMENTS

1. The Enrollee shall furnish to the State or Regional Water Board, within a reasonable time, any information that the State or Regional Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Enrollee shall also furnish to the Executive Director of the State Water Board or Executive Officer of the applicable Regional Water Board, upon request, copies of records required to be kept by this Order.

2. The Enrollee shall comply with the attached Monitoring and Reporting Program No. 2006-0003 and future revisions thereto, as specified by the Executive Director. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 2006-0003. Unless superseded by a specific enforcement Order for a specific Enrollee, these reporting requirements are intended to replace other mandatory routine written reports associated with SSOs.

3. All Enrollees must obtain SSO Database accounts and receive a “Username” and “Password” by registering through the California Integrated Water Quality System (CIWQS). These accounts will allow controlled and secure entry into the SSO Database. Additionally, within 30days of receiving an account and prior to recording spills into the SSO Database, all Enrollees must complete the “Collection System Questionnaire”, which collects pertinent information regarding a Enrollee’s collection system. The “Collection System Questionnaire” must be updated at least every 12 months.

4. Pursuant to Health and Safety Code section 5411.5, any person who, without regard to intent or negligence, causes or permits any untreated wastewater or other waste to be discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State, as soon as that person has knowledge of the discharge, shall immediately notify the local health officer of the discharge. Discharges of untreated or partially treated wastewater to storm drains and drainage channels, whether man-made or natural or concrete-lined, shall be reported as required above.

   Any SSO greater than 1,000 gallons discharged in or on any waters of the State, or discharged in or deposited where it is, or probably will be, discharged in or on any surface waters of the State shall also be reported to the Office of Emergency Services pursuant to California Water Code section 13271.

H. CHANGE IN OWNERSHIP

1 This Order is not transferable to any person or party, except after notice to the Executive Director. The Enrollee shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new Enrollee containing a specific date for the transfer of this Order's responsibility and coverage between the existing Enrollee and the new Enrollee. This agreement shall include an acknowledgement that the existing Enrollee is liable for violations up to the transfer date and that the new Enrollee is liable from the transfer date forward.

I. INCOMPLETE REPORTS

1. If an Enrollee becomes aware that it failed to submit any relevant facts in any report required under this Order, the Enrollee shall promptly submit such facts or information by formally amending the report in the Online SSO Database.

J. REPORT DECLARATION

1. All applications, reports, or information shall be signed and certified as follows:

   (i) All reports required by this Order and other information required by the State or Regional Water Board shall be signed and certified by a person designated, for a municipality, state, federal or other public agency, as either a principal executive officer or ranking elected official, or by a duly authorized representative of that person, as described in paragraph (ii) of this provision. (For purposes of electronic reporting, an electronic signature and accompanying certification, which is in compliance with the Online SSO database procedures, meet this certification requirement.)

   (ii) An individual is a duly authorized representative only if:

      (a) The authorization is made in writing by a person described in paragraph (i) of this provision; and

      (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

K. CIVIL MONETARY REMEDIES FOR DISCHARGE VIOLATIONS

1. The California Water Code provides various enforcement options, including civil monetary remedies, for violations of this Order.

2. The California Water Code also provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or

falsifying any information provided in the technical or monitoring reports is subject to civil monetary penalties.

L. SEVERABILITY

1. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

2. This order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Enrollee from liability under federal, state or local laws, nor create a vested right for the Enrollee to continue the waste discharge.

CERTIFICATION

The undersigned Clerk to the State Water Board does hereby certify that the foregoing is a full, true, and correct copy of general WDRs duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 2, 2006.

AYE: Tam M. Doduc Gerald D. Secundy

NO: Arthur G. Baggett

ABSENT: None

ABSTAIN: None

Song Her
Clerk to the Board

Appendix B

Revised Monitoring and Reporting Program

WQ 2013-0058-EXEC

STATE OF CALIFORNIA
WATER RESOURCES CONTROL BOARD
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM
FOR
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR
SANITARY SEWER SYSTEMS

The State of California, Water Resources Control Board (hereafter State Water Board) finds:

1. The State Water Board is authorized to prescribe statewide general Waste Discharge Requirements (WDRs) for categories of discharges that involve the same or similar operations and the same or similar types of waste pursuant to Water Code section 13263(i).
2. Water Code section 13193 et seq. requires the Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) to gather Sanitary Sewer Overflow (SSO) information and make this information available to the public, including but not limited to, SSO cause, estimated volume, location, date, time, duration, whether or not the SSO reached or may have reached waters of the state, response and corrective action taken, and an enrollee's contact information for each SSO event. An enrollee is defined as the public entity having legal authority over the operation and maintenance of, or capital improvements to, a sanitary sewer system greater than one mile in length.
3. Water Code section 13271, *et seq.* requires notification to the California Office of Emergency Services (Cal OES), formerly the California Emergency Management Agency, for certain unauthorized discharges, including SSOs.
4. On May 2, 2006, the State Water Board adopted Order 2006-0003-DWQ, "Statewide Waste Discharge Requirements for Sanitary Sewer Systems"[1] (hereafter SSS WDRs) to comply with Water Code section 13193 and to establish the framework for the statewide SSO Reduction Program.
5. Subsection G.2 of the SSS WDRs and the Monitoring and Reporting Program (MRP) provide that the Executive Director may modify the terms of the MRP at any time.
6. On February 20, 2008, the State Water Board Executive Director adopted a revised MRP for the SSS WDRs to rectify early notification deficiencies and ensure that first responders are notified in a timely manner of SSOs discharged into waters of the state.
7. When notified of an SSO that reaches a drainage channel or surface water of the state, Cal OES, pursuant to Water Code section 13271(a)(3), forwards the SSO notification information[2] to local government agencies and first responders including local public health officials and the applicable Regional Water Board. Receipt of notifications for a single SSO event from both the SSO reporter and Cal OES is duplicative. To address this, the SSO notification requirements added by the February 20, 2008 MRP revision are being removed in this MRP revision.

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[1] Available for download at:
http://www.waterboards.ca.gov/board decisions/adopted orders/water quality/2006/wqo/wqo2006 0003.pdf

[2] Cal OES Hazardous Materials Spill Reports available Online at:
http://w3.calema.ca.gov/operational/malhaz.nsf/$defaultview and
http://w3.calema.ca.gov/operational/malhaz.nsf

8. In the February 28, 2008 Memorandum of Agreement between the State Water Board and the California Water and Environment Association (CWEA), the State Water Board committed to re- designing the CIWQS[3] Online SSO Database to allow "event" based SSO reporting versus the original "location" based reporting. Revisions to this MRP and accompanying changes to the CIWQS Online SSO Database will implement this change by allowing for multiple SSO appearance points to be associated with each SSO event caused by a single asset failure.

9. Based on stakeholder input and Water Board staff experience implementing the SSO Reduction Program, SSO categories have been revised in this MRP. In the prior version of the MRP, SSOs have been categorized as Category 1 or Category 2. This MRP implements changes to SSO categories by adding a Category 3 SSO type. This change will improve data management to further assist Water Board staff with evaluation of high threat and low threat SSOs by placing them in unique categories (i.e., Category 1 and Category 3, respectively). This change will also assist enrollees in identifying SSOs that require Cal OES notification.

10. Based on over six years of implementation of the SSS WDRs, the State Water Board concludes that the February 20, 2008 MRP must be updated to better advance the SSO Reduction Program[4] objectives, assess compliance, and enforce the requirements of the SSS WDRs.

IT IS HEREBY ORDERED THAT:

Pursuant to the authority delegated by Water Code section 13267(f), Resolution 2002-0104, and Order 2006-0003-DWQ, the MRP for the SSS WDRs (Order 2006-0003-DWQ) is hereby amended as shown in Attachment A and shall be effective on September 9, 2013.

8/6/13

Date

Thomas Howard
Executive Director

[3] California Integrated Water Quality System (CIWQS) publicly available at http://www.waterboards .ca.gov/ciwqs/publicreports.shtml

[4] Statewide Sanitary Sewer Overflow Reduction Program information is available at: http://www.waterboards.ca.gov/water issues/programs/sso/

ATTACHMENT A

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. WQ 2013-0058-EXEC

AMENDING MONITORING AND REPORTING PROGRAM
FOR
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR
SANITARY SEWER SYSTEMS

This Monitoring and Reporting Program (MRP) establishes monitoring, record keeping, reporting and public notification requirements for Order 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Sanitary Sewer Systems" (SSS WDRs). This MRP shall be effective from September 9, 2013 until it is rescinded. The Executive Director may make revisions to this MRP at any time. These revisions may include a reduction or increase in the monitoring and reporting requirements. All site specific records and data developed pursuant to the SSS WDRs and this MRP shall be complete, accurate, and justified by evidence maintained by the enrollee. Failure to comply with this MRP may subject an enrollee to civil liabilities of up to $5,000 a day per violation pursuant to Water Code section 13350; up to $1,000 a day per violation pursuant to Water Code section 13268; or referral to the Attorney General for judicial civil enforcement. The State Water Resources Control Board (State Water Board) reserves the right to take any further enforcement action authorized by law.

A. SUMMARY OF MRP REQUIREMENTS

Table 1 – Spill Categories and Definitions

CATEGORIES	**DEFINITIONS** [see Section A on page 5 of Order 2006-0003-DWQ, for Sewer Overflow (SSO) definition]
CATEGORY 1	Discharges of untreated or partially treated wastewater of **any volume** resulting from an enrollee's sanitary sewer system failure or flow condition that: • Reach surface water and/or reach a drainage channel tributary to a surface water; or • Reach a Municipal Separate Storm Sewer System (MS4) and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).
CATEGORY 2	Discharges of untreated or partially treated wastewater of **1,000 gallons or greater** resulting from an enrollee's sanitary sewer system failure or flow condition that **do not** reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.
CATEGORY 3	All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

CATEGORIES	**DEFINITIONS** [see Section A on page 5 of Order 2006-0003-DWQ, for Sewer Overflow (SSO) definition]
PRIVATE LATERAL SEWAGE DISCHARGE (PLSD)	Discharges of untreated or partially treated wastewater resulting from blockages or other problems **within a privately owned sewer lateral** connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the California Integrated Water Quality System (CIWQS) Online SSO Database.

Table 2 – Notification, Reporting, Monitoring, and Record Keeping Requirements

ELEMENT	REQUIREMENT	METHOD
NOTIFICATION (see section B of MRP)	• Within two hours of becoming aware of any Category 1 SSO **greater than or equal to 1,000 gallons discharged to surface water or spilled in a location where it probably will be discharged to surface water**, notify the California Office of Emergency Services (Cal OES) and obtain a notification control number.	Call Cal OES at: **(800) 852-7550**
REPORTING (see section C of MRP)	• Category 1 SSO: Submit draft report within three business days of becoming aware of the SSO and certify within 15 calendar days of SSO end date. • Category 2 SSO: Submit draft report within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date. • Category 3 SSO: Submit certified report within 30 calendar days of the end of month in which SSO the occurred. • SSO Technical Report: Submit within 45 calendar days after the end date of any Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters. • "No Spill" Certification: Certify that no SSOs occurred within 30 calendar days of the end of the month or, if reporting quarterly, the quarter in which no SSOs occurred. • Collection System Questionnaire: Update and certify every 12 months.	Enter data into the CIWQS Online SSO Database (http://ciwqs.waterboards.ca.gov/), certified by enrollee's Legally Responsible Official(s).
WATER QUALITY MONITORING (see section D of MRP)	• Conduct water quality sampling **within 48 hours** after initial SSO notification for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.	Water quality results are required to be uploaded into CIWQS for Category 1 SSOs in which 50,000 gallons or greater are spilled to surface waters.

RECORD KEEPING (see section E of MRP)	• SSO event records. • Records documenting Sanitary Sewer Management Plan (SSMP) implementation and changes/updates to the SSMP. • Records to document Water Quality Monitoring for SSOs of 50,000 gallons or greater spilled to surface waters. • Collection system telemetry records if relied upon to document and/or estimate SSO Volume.	Self-maintained records shall be available during inspections or upon request.

B. NOTIFICATION REQUIREMENTS

Although Regional Water Quality Control Boards (Regional Water Boards) and the State Water Board (collectively, the Water Boards) staff do not have duties as first responders, this MRP is an appropriate mechanism to ensure that the agencies that have first responder duties are notified in a timely manner in order to protect public health and beneficial uses.

1. For any Category 1 SSO greater than or equal to 1,000 gallons that results in a discharge to a surface water or spilled in a location where it probably will be discharged to surface water, either directly or by way of a drainage channel or MS4, the enrollee shall, as soon as possible, but not later than two (2) hours after (A) the enrollee has knowledge of the discharge, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, notify the Cal OES and obtain a notification control number.
2. To satisfy notification requirements for each applicable SSO, the enrollee shall provide the information requested by Cal OES before receiving a control number. Spill information requested by Cal OES may include:
   i. Name of person notifying Cal OES and direct return phone number.
   ii. Estimated SSO volume discharged (gallons).
   iii. If ongoing, estimated SSO discharge rate (gallons per minute).
   iv. SSO Incident Description:
      a. Brief narrative.
      b. On-scene point of contact for additional information (name and cell phone number).
      c. Date and time enrollee became aware of the SSO.
      d. Name of sanitary sewer system agency causing the SSO.
      e. SSO cause (if known).
   v. Indication of whether the SSO has been contained.
   vi. Indication of whether surface water is impacted.
   vii. Name of surface water impacted by the SSO, if applicable.
   viii. Indication of whether a drinking water supply is or may be impacted by the SSO.
   ix. Any other known SSO impacts.
   x. SSO incident location (address, city, state, and zip code).
3. Following the initial notification to Cal OES and until such time that an enrollee certifies the SSO report in the CIWQS Online SSO Database, the enrollee shall provide updates to Cal OES regarding substantial changes to the estimated volume of untreated or partially treated sewage discharged and any substantial change(s) to known impact(s).

4. PLSDs: The enrollee is strongly encouraged to notify Cal OES of discharges greater than or equal to 1,000 gallons of untreated or partially treated wastewater that result or may result in a discharge to surface water resulting from failures or flow conditions within a privately owned sewer lateral or from other private sewer asset(s) if the enrollee becomes aware of the PLSD.

C. REPORTING REQUIREMENTS

1. **CIWQS Online SSO Database Account:** All enrollees shall obtain a CIWQS Online SSO Database account and receive a “Username” and “Password” by registering through CIWQS. These accounts allow controlled and secure entry into the CIWQS Online SSO Database.
2. **SSO Mandatory Reporting Information:** For reporting purposes, if one SSO event results in multiple appearance points in a sewer system asset, the enrollee shall complete one SSO report in the CIWQS Online SSO Database which includes the GPS coordinates for the location of the SSO appearance point closest to the failure point, blockage or location of the flow condition that caused the SSO, and provide descriptions of the locations of all other discharge points associated with the SSO event.

3. **SSO Categories**

   i. **Category 1** – Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee’s sanitary sewer system failure or flow condition that:

      a. Reach surface water and/or reach a drainage channel tributary to a surface water; or

      b. Reach a MS4 and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g., infiltration pit, percolation pond).

   ii. **Category 2** – Discharges of untreated or partially treated wastewater greater than or equal to 1,000 gallons resulting from an enrollee’s sanitary sewer system failure or flow condition that does not reach a surface water, a drainage channel, or the MS4 unless the entire SSO volume discharged to the storm drain system is fully recovered and disposed of properly.

   iii. **Category 3 –** All other discharges of untreated or partially treated wastewater resulting from an enrollee’s sanitary sewer system failure or flow condition.

4. **Sanitary Sewer Overflow Reporting to CIWQS - Timeframes**

   i. **Category 1 and Category 2 SSOs** – All SSOs that meet the above criteria for Category 1 or Category 2 SSOs shall be reported to the CIWQS Online SSO Database:

      a. Draft reports for Category 1 and Category 2 SSOs shall be submitted to the CIWQS Online SSO Database within three (3) business days of the enrollee becoming aware of the SSO. Minimum information that shall be reported in a draft Category 1 SSO report shall include all information identified in section 8.i.a. below. Minimum information that shall be reported in a Category 2 SSO draft report shall include all information identified in section 8.i.c below.

b. A final Category 1 or Category 2 SSO report shall be certified through the CIWQS Online SSO Database within 15 calendar days of the end date of the SSO. Minimum information that shall be certified in the final Category 1 SSO report shall include all information identified in section 8.i.b below. Minimum information that shall be certified in a final Category 2 SSO report shall include all information identified in section 8.i.d below.

ii. **Category 3 SSOs** – All SSOs that meet the above criteria for Category 3 SSOs shall be reported to the CIWQS Online SSO Database and certified within 30 calendar days after the end of the calendar month in which the SSO occurs (e.g., all Category 3 SSOs occurring in the month of February shall be entered into the database and certified by March 30). Minimum information that shall be certified in a final Category 3 SSO report shall include all information identified in section 8.i.e below.

iii. **"No Spill" Certification** – If there are no SSOs during the calendar month, the enrollee shall either 1) certify, within 30 calendar days after the end of each calendar month, a "No Spill" certification statement in the CIWQS Online SSO Database certifying that there were no SSOs for the designated month, or 2) certify, quarterly within 30 calendar days after the end of each quarter, "No Spill" certification statements in the CIWQS Online SSO Database certifying that there were no SSOs for each month in the quarter being reported on. For quarterly reporting, the quarters are Q1 - January/ February/ March, Q2 - April/May/June, Q3 - July/August/September, and Q4 - October/November/December.

If there are no SSOs during a calendar month but the enrollee reported a PLSD, the enrollee shall still certify a "No Spill" certification statement for that month.

iv. **Amended SSO Reports** – The enrollee may update or add additional information to a certified SSO report within 120 calendar days after the SSO end date by amending the report or by adding an attachment to the SSO report in the CIWQS Online SSO Database. SSO reports certified in the CIWQS Online SSO Database prior to the adoption date of this MRP may only be amended up to 120 days after the effective date of this MRP. After 120 days, the enrollee may contact the SSO Program Manager to request to amend an SSO report if the enrollee also submits justification for why the additional information was not available prior to the end of the 120 days.

5. **SSO Technical Report**

The enrollee shall submit an SSO Technical Report in the CIWQS Online SSO Database within 45 calendar days of the SSO end date for any SSO in which 50,000 gallons or greater are spilled to surface waters. This report, which does not preclude the Water Boards from requiring more detailed analyses if requested, shall include at a minimum, the following:

i. **Causes and Circumstances of the SSO:**

a. Complete and detailed explanation of how and when the SSO was discovered.

b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).

c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.

d. Detailed description of the cause(s) of the SSO.

e. Copies of original field crew records used to document the SSO.

f. Historical maintenance records for the failure location.

ii. **Enrollee's Response to SSO:**

a. Chronological narrative description of all actions taken by enrollee to terminate the spill.

b. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.

c. Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

iii. **Water Quality Monitoring:**

a. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.

b. Detailed location map illustrating all water quality sampling points.

6. **PLSDs**

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sanitary sewer system assets may be voluntarily reported to the CIWQS Online SSO Database.

i. The enrollee is also encouraged to provide notification to Cal OES per section B above when a PLSD greater than or equal to 1,000 gallons has or may result in a discharge to surface water. For any PLSD greater than or equal to 1,000 gallons regardless of the spill destination, the enrollee is also encouraged to file a spill report as required by Health and Safety Code section 5410 et. seq. and Water Code section 13271, or notify the responsible party that notification and reporting should be completed as specified above and required by State law.

ii. If a PLSD is recorded in the CIWQS Online SSO Database, the enrollee must identify the sewage discharge as occurring and caused by a private sanitary sewer system asset and should identify a responsible party (other than the enrollee), if known. Certification of PLSD reports by enrollees is not required.

7. **CIWQS Online SSO Database Unavailability**

In the event that the CIWQS Online SSO Database is not available, the enrollee must fax or e-mail all required information to the appropriate Regional Water Board office in accordance with the time schedules identified herein. In such event, the enrollee must also enter all required information into the CIWQS Online SSO Database when the database becomes available.

8. **Mandatory Information to be Included in CIWQS Online SSO Reporting**

All enrollees shall obtain a CIWQS Online SSO Database account and receive a "Username" and "Password" by registering through CIWQS which can be reached at CIWQS@waterboards.ca.gov or by calling (866) 792-4977, M-F, 8 A.M. to 5 P.M. These accounts will allow controlled and secure entry into the CIWQS Online SSO Database. Additionally, within thirty (30) days of initial enrollment and prior to recording SSOs into the CIWQS Online SSO Database, all enrollees must complete a Collection System Questionnaire (Questionnaire). The Questionnaire shall be updated at least once every 12 months.

i. **SSO Reports**

At a minimum, the following mandatory information shall be reported prior to finalizing and certifying an SSO report for each category of SSO:

a. **Draft Category 1 SSOs**: At a minimum, the following mandatory information shall be reported for a draft Category 1 SSO report:

1. SSO Contact Information: Name and telephone number of enrollee contact person who can answer specific questions about the SSO being reported.
2. SSO Location Name.
3. Location of the overflow event (SSO) by entering GPS coordinates. If a single overflow event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the SSO appearance point explanation field.
4. Whether or not the SSO reached surface water, a drainage channel, or entered and was discharged from a drainage structure.
5. Whether or not the SSO reached a municipal separate storm drain system.
6. Whether or not the total SSO volume that reached a municipal separate storm drain system was fully recovered.
7. Estimate of the SSO volume, inclusive of all discharge point(s).
8. Estimate of the SSO volume that reached surface water, a drainage channel, or was not recovered from a storm drain.
9. Estimate of the SSO volume recovered (if applicable).
10. Number of SSO appearance point(s).
11. Description and location of SSO appearance point(s). If a single sanitary sewer system failure results in multiple SSO appearance points, each appearance point must be described.
12. SSO start date and time.
13. Date and time the enrollee was notified of, or self-discovered, the SSO.
14. Estimated operator arrival time.
15. For spills greater than or equal to 1,000 gallons, the date and time Cal OES was called.

16. For spills greater than or equal to 1,000 gallons, the Cal OES control number.

b. **Certified Category 1 SSOs:** At a minimum, the following mandatory information shall be reported for a certified Category 1 SSO report, in addition to all fields in section 8.i.a:

1. Description of SSO destination(s).
2. SSO end date and time.
3. SSO causes (mainline blockage, roots, etc.).
4. SSO failure point (main, lateral, etc.).
5. Whether or not the spill was associated with a storm event.
6. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the overflow; and a schedule of major milestones for those steps.
7. Description of spill response activities.
8. Spill response completion date.
9. Whether or not there is an ongoing investigation, the reasons for the investigation and the expected date of completion.
10. Whether or not a beach closure occurred or may have occurred as a result of the SSO.
11. Whether or not health warnings were posted as a result of the SSO.
12. Name of beach(es) closed and/or impacted. If no beach was impacted, NA shall be selected.
13. Name of surface water(s) impacted.
14. If water quality samples were collected, identify parameters the water quality samples were analyzed for. If no samples were taken, NA shall be selected.
15. If water quality samples were taken, identify which regulatory agencies received sample results (if applicable). If no samples were taken, NA shall be selected.
16. Description of methodology(ies) and type of data relied upon for estimations of the SSO volume discharged and recovered.
17. SSO Certification: Upon SSO Certification, the CIWQS Online SSO Database will issue a final SSO identification (ID) number.

c. **Draft Category 2 SSOs:** At a minimum, the following mandatory information shall be reported for a draft Category 2 SSO report:

1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO.

d. **Certified Category 2 SSOs:** At a minimum, the following mandatory information shall be reported for a certified Category 2 SSO report:

1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-9, and 17 in section 8.i.b above for Certified Category 1 SSO.

e. **Certified Category 3 SSOs:** At a minimum, the following mandatory information shall be reported for a certified Category 3 SSO report:

1. Items 1-14 in section 8.i.a above for Draft Category 1 SSO and Items 1-5, and 17 in section 8.i.b above for Certified Category 1 SSO.

ii. **Reporting SSOs to Other Regulatory Agencies**

These reporting requirements do not preclude an enrollee from reporting SSOs to other regulatory agencies pursuant to state law. In addition, these reporting requirements do not replace other Regional Water Board notification and reporting requirements for SSOs.

iii. **Collection System Questionnaire**

The required Questionnaire (see subsection G of the SSS WDRs) provides the Water Boards with site-specific information related to the enrollee's sanitary sewer system. The enrollee shall complete and certify the Questionnaire at least every 12 months to facilitate program implementation, compliance assessment, and enforcement response.

iv. **SSMP Availability**

The enrollee shall provide the publicly available internet web site address to the CIWQS Online SSO Database where a downloadable copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP is posted. If all of the SSMP documentation listed in this subsection is not publicly available on the Internet, the enrollee shall comply with the following procedure:

a. Submit an **electronic** copy of the enrollee's approved SSMP, critical supporting documents referenced in the SSMP, and proof of local governing board approval of the SSMP to the State Water Board, within 30 days of that approval and within 30 days of any subsequent SSMP re-certifications, to the following mailing address:

State Water Resources Control Board
Division of Water Quality
Attn: SSO Program Manager
1001 I Street, 15th Floor, Sacramento, CA 95814

D. WATER QUALITY MONITORING REQUIREMENTS:

To comply with subsection D.7(v) of the SSS WDRs, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSO Water Quality Monitoring Program, shall, at a minimum:

1. Contain protocols for water quality monitoring.
2. Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
3. Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
4. Require monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
5. Within 48 hours of the enrollee becoming aware of the SSO, require water quality sampling for, at a minimum, the following constituents:
   i. Ammonia
   ii. Appropriate Bacterial indicator(s) per the applicable Basin Plan water quality objective or Regional Board direction which may include total and fecal coliform, enterococcus, and e-coli.

E. **<u>RECORD KEEPING REQUIREMENTS:</u>**

The following records shall be maintained by the enrollee for a minimum of five (5) years and shall be made available for review by the Water Boards during an onsite inspection or through an information request:

1. General Records: The enrollee shall maintain records to document compliance with all provisions of the SSS WDRs and this MRP for each sanitary sewer system owned including any required records generated by an enrollee's sanitary sewer system contractor(s).
2. SSO Records: The enrollee shall maintain records for each SSO event, including but not limited to:

   i. Complaint records documenting how the enrollee responded to all notifications of possible or actual SSOs, both during and after business hours, including complaints that do not result in SSOs. Each complaint record shall, at a minimum, include the following information:

      a. Date, time, and method of notification.
      b. Date and time the complainant or informant first noticed the SSO.
      c. Narrative description of the complaint, including any information the caller can provide regarding whether or not the complainant or informant reporting the potential SSO knows if the SSO has reached surface waters, drainage channels or storm drains.
      d. Follow-up return contact information for complainant or informant for each complaint received, if not reported anonymously.
      e. Final resolution of the complaint.

ii. Records documenting steps and/or remedial actions undertaken by enrollee, using all available information, to comply with section D.7 of the SSS WDRs.

iii. Records documenting how all estimate(s) of volume(s) discharged and, if applicable, volume(s) recovered were calculated.

3. Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.
4. Electronic monitoring records relied upon for documenting SSO events and/or estimating the SSO volume discharged, including, but not limited to records from:

i. Supervisory Control and Data Acquisition (SCADA) systems

ii. Alarm system(s)

iii. Flow monitoring device(s) or other instrument(s) used to estimate wastewater levels, flow rates and/or volumes.

F. CERTIFICATION

1. All information required to be reported into the CIWQS Online SSO Database shall be certified by a person designated as described in subsection J of the SSS WDRs. This designated person is also known as a Legally Responsible Official (LRO). An enrollee may have more than one LRO.
2. Any designated person (i.e. an LRO) shall be registered with the State Water Board to certify reports in accordance with the CIWQS protocols for reporting.
3. Data Submitter (DS): Any enrollee employee or contractor may enter draft data into the CIWQS Online SSO Database on behalf of the enrollee if authorized by the LRO and registered with the State Water Board. However, only LROs may certify reports in CIWQS.
4. The enrollee shall maintain continuous coverage by an LRO. Any change of a registered LRO or DS (e.g., retired staff), including deactivation or a change to the LRO's or DS's contact information, shall be submitted by the enrollee to the State Water Board within 30 days of the change by calling (866) 792-4977 or e-mailing help@ciwqs.waterboards.ca.gov.
5. A registered designated person (i.e., an LRO) shall certify all required reports under penalty of perjury laws of the state as stated in the CIWQS Online SSO Database at the time of certification.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of an order amended by the Executive Director of the State Water Resources Control Board.

7/30/13
Date

Jeanine Townsend
Clerk to the Board