Sewer Master Plan

September 2016

Prepared by:

Bowen Collins & Associates, Inc.
CONSULTING ENGINEERS

Prepared for:

OUR HOME BENEATH THE BIG RED MOUNTAIN
IVINS
UTAH

SEWER MASTER PLAN

September 2016

Date of Adoption: September 15, 2016

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OUR HOME BENEATH THE BIG RED MOUNTAIN
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EXECUTIVE SUMMARY

INTRODUCTION

In January of 2016, Ivins City (City) contracted the services of Bowen, Collins & Associates, Inc. (BC&A) to complete a Sewer System Master Plan. The purpose of this study is to provide the City with an updated plan to maintain a viable and efficient sewer system capable of meeting future demands of its service area and satisfying customer expectations.

SERVICE AREA

The TCSSD water system service area is shown in Figure ES-1.

PROJECTED CONNECTIONS AND GROWTH

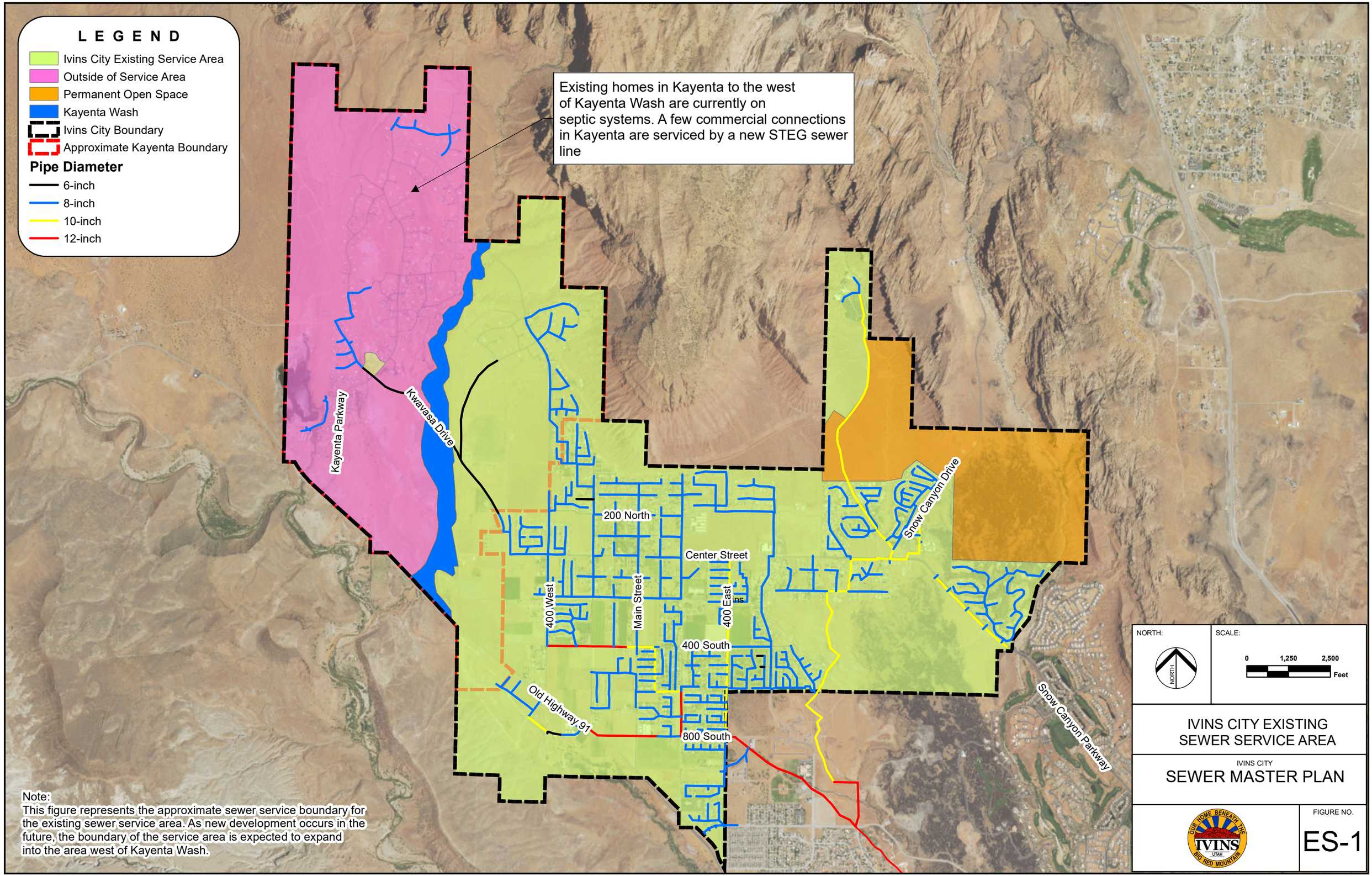
Sewer system growth projections were developed using the City's current land use plan as well as the 2013 culinary water master plan produced by Ivins City. The results of the growth projections are summarized in Table ES-1.

WASTEWATER PRODUCTION PROJECTIONS

Wastewater production for the City was determined based on indoor water use and an estimated quantity of flow attributed to infiltration. Inflow was not evaluated quantitatively, but the evaluation criteria of the sewer system includes the reservation of capacity in sewer collection lines to account for potential inflow during storm events. Historic water use data and meter flows records from the City indicate that non-consumptive indoor water use is 168 gallons per day per ERU and infiltration is 20 gallons per day per ERU, for a total combined daily sewer flow of 188 gpd per ERU. Table ES-1 summarizes the sewer production projections for Ivins City.

Table ES-1
Summary of Projected Demands

Year	Residential ERUs	Non-Residential ERUs	Estimated Average Daily Residential/Non-Residential Wastewater Flow (gal)	Estimated Daily Groundwater Infiltration (gal)	Total Daily Wastewater Flow (gal)
2016	2,962	230	536,256	63,840	600,096
2020	3,886	355	712,488	84,820	797,308
2026	4,654	543	873,096	103,940	977,036
2030	5,166	669	980,280	116,700	1,096,980
2036	6,138	857	1,175,160	139,900	1,315,060
2040	6,786	982	1,305,024	155,360	1,460,384
2046	8,307	1,170	1,592,136	189,540	1,781,676



IVINS CITY EXISTING SEWER SERVICE AREA

IVINS CITY

SEWER MASTER PLAN

FIGURE NO.

ES-1

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EVALUATION OF SEWER COLLECTION SYSTEM

The existing and future Ivins City sewer systems were evaluated using a hydraulic computer model. There were no observed deficiencies in the existing collection system. Recommendations for future sewer system improvements were determined based on hydraulic model results. Figure ES-2 displays the location and projected timing for the recommended improvement projects. The following is a description of the recommended sewer system improvement projects through buildout:

S-1A. Lower Tuachan Wash Sewer Transmission Line Repair (Short Term Improvements) Construction Date: 2017

Over 95% of sewer flow from Ivins City flows through two trunk lines through northern Santa Clara to the intersection of Pioneer Parkway & Red Mountain Drive (Lava Flow Wash trunk line and Upper Tuachan Wash trunk line). From this point, wastewater flows into the Lower Tuachan Wash Trunk line, a 12-inch and 15-inch which runs along Tuachan Wash between Pioneer Parkway and Snow Canyon High School. The line runs past Snow Canyon High School, through a St. George City flow meter, and into the St. George City sewer collection system. Ivins City personnel have reported that this line is susceptible to inflow during flood events and is in need of maintenance-related improvements.

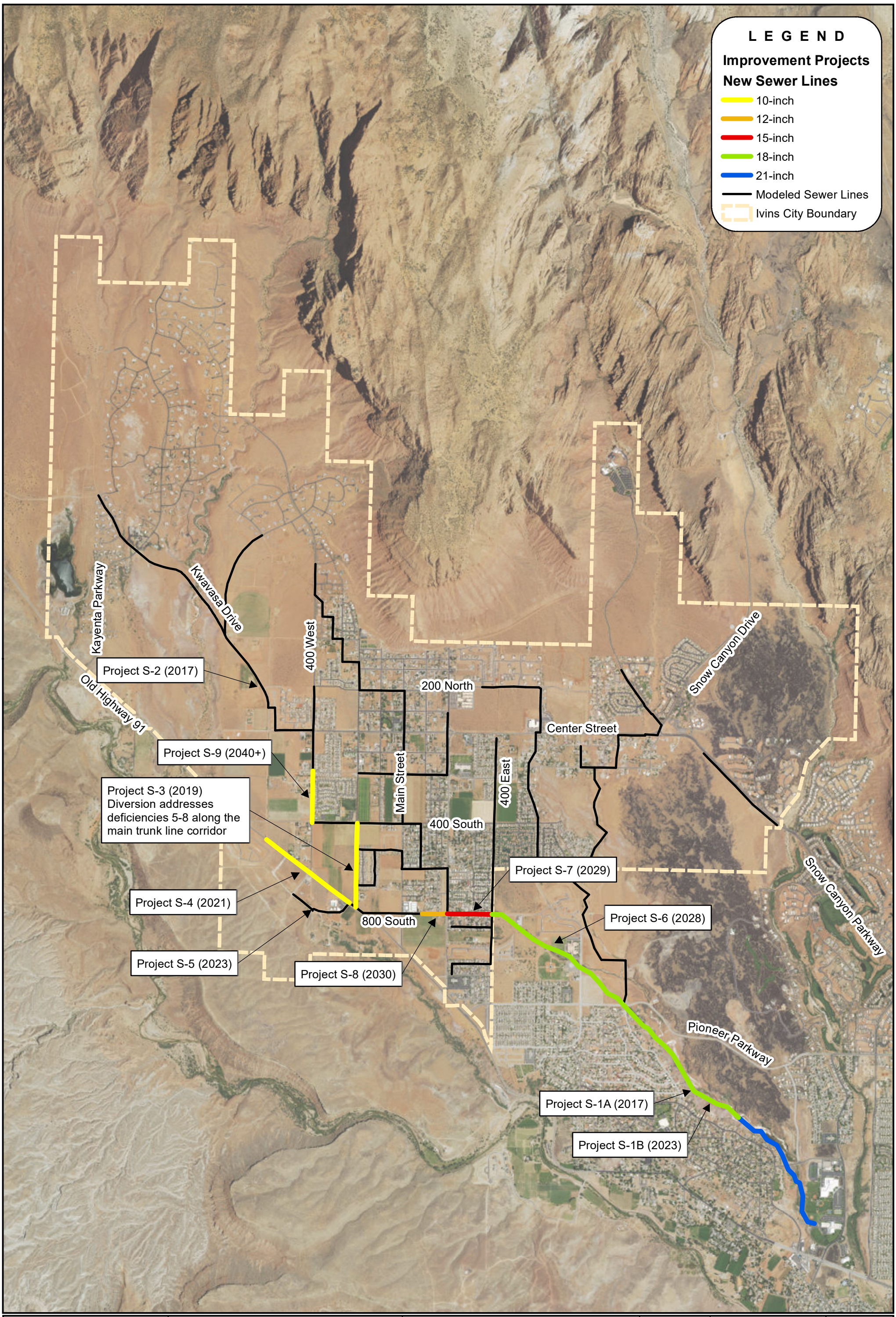
This reach of sewer line is anticipated to reach its peak flow capacity within the next 5-10 years and will require a project to increase its overall capacity. However, it is recommended that short term improvements be made to the pipe to improve its overall functionality and reduce the risk of sewer flooding in the wash. The following short term improvements are recommended for the Lower Tuacahn Wash line:

- Construct an access road along the wash for maintenance crews.
- Raise/repair manholes that have been damaged from flooding or that are susceptible to inflow.
- Camera the line and repair any damaged sections of pipe which may be susceptible to inflow or infiltration/leaking.

S-1B. Lower Tuachan Wash Replacement Project (Long-Term Improvement) Construction Date: 2023

Model results have indicated that the Lower Tuacahn Wash sewer trunk line is approaching its peak flow capacity. This line is vital for the operation of the system, and a surcharging event would result in significant financial and environmental consequences. This deficiency could be addressed in two ways:

- The existing 9,100 feet of trunk line along the Tuachan Wash between Pioneer Parkway and Snow Canyon H.S. (3,740 feet of 12-inch pipe which transitions to 5,360 feet of 15-inch pipe) could be replaced with a new 18-inch and 21-inch pipe. The upsized line will provide the necessary capacity to convey wastewater flows through buildout.
- Rather than replacing the existing pipe, a new parallel 15-inch line (9,100 feet) could be installed to accommodate future flows.



IVINS CITY

2016 SEWER MASTER PLAN

RECOMMENDED SYSTEM IMPROVEMENTS THROUGH BUILDOUT

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. ES-2

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This reach of sewer line is utilized by both Ivins City and the Santa Clara City. Chapter 6 of this report provides a cost share analysis of project S-1A and S-1B.

S-2. STEP/STEG Transmission Line Improvements
Construction Date: 2017

Developers have recently installed two STEP/STEG transmission lines to serve existing and future development in Kayenta. Unlike conventional sewer systems, STEP/STEG lines typically do not utilize manholes, resulting in limited aeration to the wastewater as it flows through the system. Without oxygen present, wastewater begins to undergo anaerobic digestion in the collection pipes, the byproduct of which is hydrogen sulfide. Hydrogen sulfide is a corrosive gas that is well-known for causing structural damage to concrete pipes and manholes in sewer collection systems.

The STEP/STEG sewer line from Kayenta ties into the conventional system at 600 West & 200 North. City personnel have reported that, in the short time the STEP/STEG lines have been in operation, significant damage has occurred to the first two manholes in the system (the manholes closest to the outfall from the STEP/STEG line). This damage has been caused by the sudden release of built-up hydrogen sulfide gas in the STEP/STEG line as it enters the first concrete manhole. Damage will continue to occur to these manholes if this issue is not addressed, which will result in frequent repairs or replacement.

There are methods available which can be used to address problems associated with hydrogen sulfide in STEP/STEG systems, including the installation of valves and aerators or by protecting the manhole in order to limit hydrogen sulfide damage. The cost associated with these improvements should be paid for by the developer(s) who installed the line. It is recommended that hydrogen sulfide mitigation techniques be considered in the design and construction of any new STEP/STEG lines which the City approves in the future.

S-3. 200 West Sewer Diversion Project
Construction Date: 2019

Estimated flows at buildout are anticipated to cause a string of pipe deficiencies down the primary corridor of the collection system. One option to address these deficiencies is to replace the undersized lines with larger pipes. However, an alternative approach is to investigate locations to divert sewer flows away from these potentially deficient sections of pipe. Two points of diversion were evaluated for the system: 400 South & 400 West and 400 South & 200 West.

After evaluating both options, it is recommended that a new 10-inch sewer line be installed along 200 W from 400 South to Highway 91 (approximately 2,500 feet).

S-4. Highway 91 Sewer Line Expansion Project
Construction Date: 2021

As growth continues in Ivins City, sewer collection infrastructure will need to be expanded. It is recommended that the City extend 3,100 feet of new 10" sewer collection line along Highway 91 from the intersection of Fitness Way & Highway 91 up to 600 West. This improvement project will provide two major benefits for the City. First, it will extend sewer service to future users along the Highway 91 corridor. Second, the project will reduce the amount of flow routed into existing areas of the system which have a risk of becoming deficient as the City continues to grow.

S-5. Lift Station VFD Project
Construction Date: 2027

In order to limit surges of wastewater flow in the collection system, it is recommended that the Ivins City lift station be equipped with a variable frequency drive (VFD). The VFD will allow the pump to operate at variable speeds and will help attenuate peak flows through the downstream piping.

S-6. 800 South & 400 East to Pioneer Parkway Pipe Replacement
Construction Date: 2028

The 12" sewer line which runs from 800 South & 400 East in Ivins through Santa Clara to the intersection of Pioneer Parkway & Red Mountain Drive (Lava Flow trunk line) serves as a major trunk line to convey wastewater from Ivins City to the St. George City sewer collection system. At buildout, this section of sewer line will not have adequate capacity and will become a bottleneck in the system. Replacing this 4,850 foot long reach of 12-inch pipe with a new 18-inch line will provide adequate flow capacity for estimated buildout flows. Like projects S-1A and S-1B, this project will benefit both Ivins City and Santa Clara City. A cost share analysis can be found in Chapter 6 of this report.

S-7. 800 South from 200 East to 400 East Pipe Replacement
Construction Date: 2029

1,330 feet of the 12-inch line in 800 South which runs from 200 East to 400 East serves as a major interceptor for the Ivins City system. Model simulations have indicated that this pipe will be undersized under predicted buildout flows. Replacing this 12-inch pipe with a new 15-inch pipe will provide the necessary capacity for the City through buildout.

S-8. 800 South from 90 East to 200 East Pipe Replacement
Construction Data: 2030

The existing lift station at 400 West/Earl Drive currently pumps wastewater through a 6-inch force main to an 8-inch gravity line which runs toward Highway 91 along Fitness Way to the south of the Movara Fitness Resort. When the pipe reaches Highway 91, the 8-inch line transitions to a 12-inch line. The 12-inch line runs southeast on Highway 91 and then turns east onto 800 South. At approximately 90 East & 800 South, the pipe transitions back to an 8-inch pipe and continues to

the intersection of 200 East and 800 South. While this pipe is currently not creating any capacity issues for the system, it is not large enough for predicted buildout flows. To properly convey estimated buildout flows, this line should be replaced with approximately 750 feet of new 12-inch sewer pipe.

S-9. 400 West from 200 South to 400 South Pipe Replacement
Construction Date: 2040+

The reach of 8-inch sewer pipe which runs along 400 West between 200 South and 400 South does not have sufficient capacity in the buildout model. Replacing this 8-inch pipe with a new 10-inch pipe (approximately 1,530 feet) would provide adequate capacity for projected flows at buildout.

The cost for the recommended sewer system improvement projects are summarized in Table ES-2. The table shows the estimated total 2016 cost for each project along with the percentage of the total cost which will be paid for by Ivins City.

Table ES-2
Sewer System Improvements

Project Identifier	Project Year	Description	Unit	Quantity	Unit Cost	Estimated 2016 Construction Cost	% Paid by Ivins City	Total 2016 Cost to Ivins City
S-1A	2017	Tuacahn Wash Sewer Transmission Line Repairs (Short Term Improvements)	LS	1	$100,000	$100,000	83%	$83,000
S-1B	2023	Tuachan Wash Sewer Transmission Line Replacement (Long Term Improvements)	LF	9,100	$160	$1,456,000	81%	$1,179,360
S-2	2017	Kayenta STEP/STEG Transmission Line Improvements	LS	1	$40,000	$40,000	0%	$0
S-3	2019	200 West 10-inch Sewer Diversion Project	LF	2,500	$155	$387,500	100%	$387,500
S-4	2021	Highway 91 10-inch Sewer Line Expansion Project	LF	3,100	$165	$511,500	100%	$511,500
S-5	2027	Lift Station VFD Upgrade Project	LS	1	$5,000	$5,000	100%	$5,000
S-6	2028	800 South/400 East to Pioneer Parkway 18-inch Pipe Replacement Project	LF	4,850	$170	$824,500	87%	$717,315
S-7	2029	800 South from 200 East to 400 East 15-inch Pipe Replacement Project	LF	1,330	$190	$252,700	100%	$252,700
S-8	2030	800 South from 90 East to 200 East 12-inch Pipe Replacement Project	LF	750	$180	$135,000	100%	$135,000
S-9	2040	400 West from 200 South to 400 South 10-inch Pipe Replacement Project	LF	1,530	$165	$252,450	100%	$252,450
		TOTAL				**$3,964,650**		**$3,523,825**

CHAPTER 1
INTRODUCTION

INTRODUCTION

Ivins City (City) has retained Bowen Collins & Associates (BC&A) to prepare a master plan for the wastewater collection system. The purpose of this sewer master plan report is to evaluate the existing sewer collection system, project future wastewater production as a result of growth, and identify improvements that will resolve existing and projected future deficiencies in the wastewater collection system throughout the City's service area.

The master plan is a working document. The recommended improvements identified in this report are based on the assumption that development will occur in a certain manner. If future growth or development patterns change significantly from those assumed and documented in this report, recommendations may need to be revised. The status of development and an update to the master plan should be reviewed and carried out every five years.

SCOPE OF SERVICES

The general scope of this project involved a thorough analysis of Ivins City's sewer collection system and its ability to meet present and future wastewater collection needs. As part of the Sewer Master Plan, BC&A completed the following tasks:

- **Task 1:** Collected and reviewed data needed to develop the master plan.
- **Task 2:** Developed population projections and estimated future wastewater production for the City.
- **Task 3:** Developed a hydraulic computer model of the Ivins City sewer collection system using the InfoSWMM software to evaluate existing and projected future system deficiencies. This included calibrating the model using available flow data.
- **Task 4:** Identified existing and future operating deficiencies.
- **Task 5:** Evaluated alternative improvements for resolving deficiencies identified in Tasks 4. This included evaluating alternatives such as diversions.
- **Task 6:** Identified a set of recommended system improvements and developed a capital facilities plan incorporating all required improvements identified for the collection system.
- **Task 7:** Documented results in this master plan report.

AUTHORIZATION

Ivins City contracted the services of BC&A to prepare this Sewer System Capital Facilities Plan in January of 2016.

PROJECT STAFF

The project work was performed by the BC&A team members listed below. Team members' roles on the project are also list. The project was completed in BC&A's St. George, Utah office. Questions may be addressed to Todd Olsen, Project Manager at (435) 656-3299

Keith Larson	Principal-In-Charge
Todd Olsen	Project Manager
Aaron Anderson	Project Engineer
Mike Hilbert	Word Processing

IVINS CITY STAFF

Ivins City staff worked closely with BC&A personnel in collecting data associated with this master plan. The following City personnel were influential in the completion of this master plan:

Dale Coulam	City Manager
Chuck Gillette	Public Works Director/City Engineer
Tom Jorgensen	Assistant Public Works Director of Administration
Shiloh Pentz	Assistant Public Works Director of Operations
Wally Ritchie	Director of Finance

IVINS CITY COUNCIL

The following elected officials participated in the review and approval of this master plan:

Chris Hart	Mayor
Ron Densley	Councilperson
Dennis Mehr	Councilperson
Cheyne McDonald	Councilperson
Jenny Johnson	Councilperson
Steven Roberts	Councilperson

CHAPTER 2
EXISTING SYSTEM FEATURES

INTRODUCTION

As part of this Master Plan, BC&A has assembled an inventory of existing infrastructure within the Ivins City sewer collection system. The purpose of this chapter is to present a summary of the City's existing sewer collection system that can be used as a reference for City personnel or future studies.

SERVICE AREA

Ivins City is located approximately 8 miles northwest of the City of St. George to the south of Snow Canyon State Park. Figure 2-1 displays the municipal boundary for Ivins City as well as the current sewer service area. As shown in Figure 2-1, Ivins City provides conventional sewer service for most of its residents, but does not currently provide service for the majority of the area known as Kayenta. Kayenta is a low density, master planned housing development on the west side of Ivins. The majority of homes within Kayenta currently use individual septic systems to treat wastewater. However, there are a few areas in Kayenta that are connected to the sewer collection system using a septic tank effluent gravity (STEG) or septic tank effluent pump (STEP) system. Unlike a conventional septic system which discharges septic tank effluent into a leech field, the STEG/STEP system discharges septic tank effluent into the sewer collection system.

The majority of wastewater collected in Ivins is conveyed in two sewer trunk lines that run through Santa Clara City and into the St. George sewer collection system (a very small portion of flow from an area in the south of Ivins flows directly into the Santa Clara sewer collection system near 400 E and Pioneer Parkway) . Wastewater from Ivins is treated at the St. George Regional Water Reclamation Facility located at the south end of St. George City. The regional plant treats wastewater from Ivins, St. George, Santa Clara, and Washington City. The plant currently treats approximately 9.5 million gallons per day (MGD) and has a capacity of 17 MGD.

TOPOGRAPHY

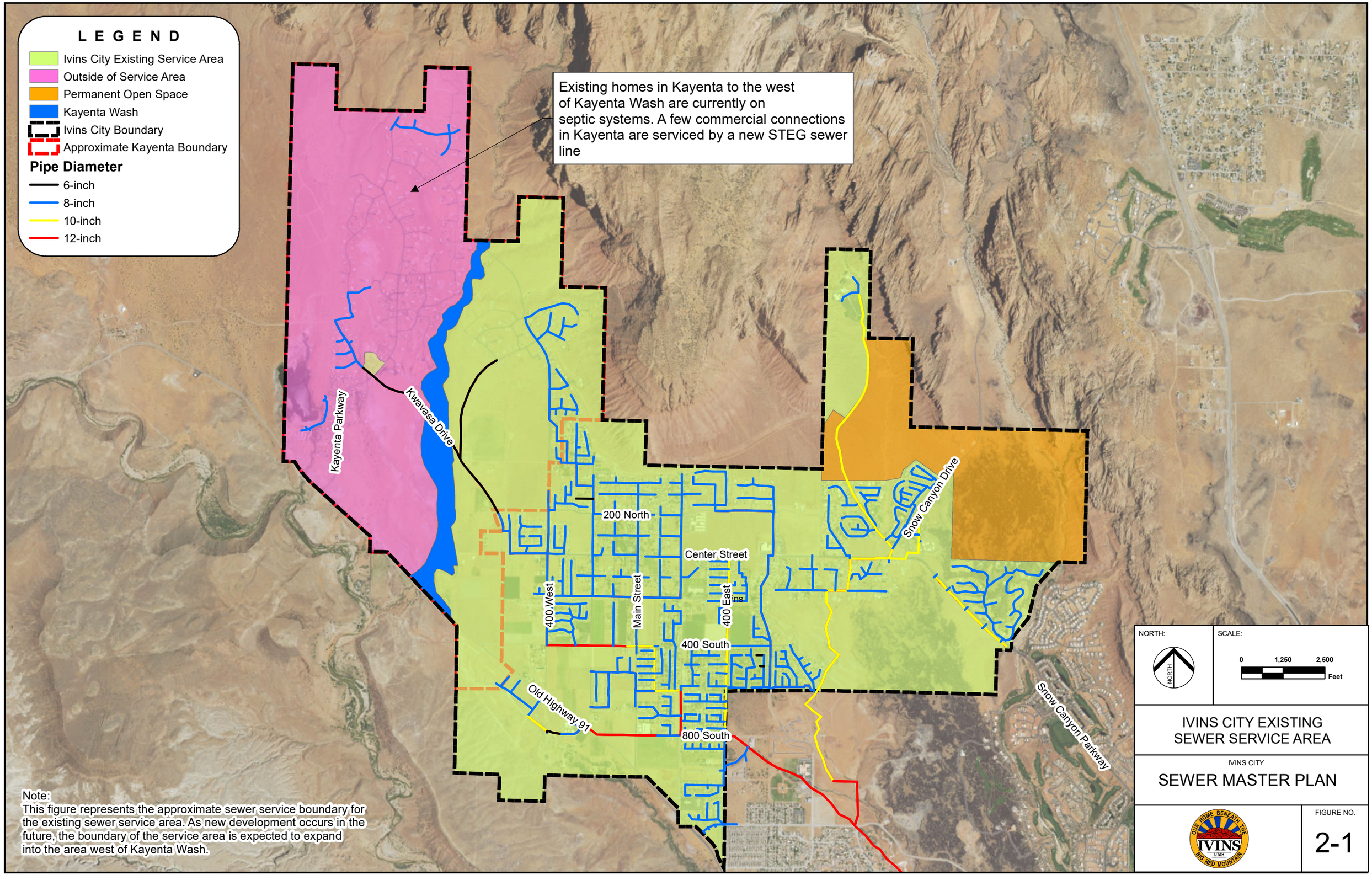
Ivins City is located at the base of a large red rock mountain range. The City generally slopes from north to south toward the Santa Clara River. Most of the City collection system flows by gravity with the exception of one small area to the southwest which utilizes a lift station.

COLLECTION SYSTEM

The components of the Ivins City sewer collection system are summarized in the following sections.

Sewer Collection Pipes

There are over 274,000 feet (52 miles) of sewer collection pipe and more than 1,000 manholes in the Ivins City sewer system that are cataloged in the City's GIS database. Table 2-1 contains a summary of the sewer pipes that currently make up the Ivins City sewer collection system. As can be seen in the table, over 80 percent of the pipe in the system is 8 inches in diameter or smaller.



Note:
This figure represents the approximate sewer service boundary for the existing sewer service area. As new development occurs in the future, the boundary of the service area is expected to expand into the area west of Kayenta Wash.

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 2-1 - Existing Sewer Service Area.mxd aanderson 9/19/2016

This represents the vast network of small collector pipes in neighborhoods throughout the City. The majority of collection pipes are made of PVC.

Table 2-1
Sewer Collection System Sizes and Lengths

Diameter	Length (ft)	Length (mi)	Percentage
6	10,789	2.0	4%
8*	219,137	41.5	79%
10	32,695	6.2	12%
12**	14,241	2.7	5%
Total	**276,862**	**52.4**	**100.0%**

*Pipes without size information were assumed to be 8 inch
**Includes pipes north of Pioneer Parkway in Santa Clara which are currently maintained by Ivins City, but does not include the piping south of Pioneer Parkway that runs along Tuacahn Wash

Sewer Lift Stations

There is only one sewer lift station in the Ivins City sewer collection system. The station is located at the intersection of Earl Dr. and 400 W. Currently, this lift station collects a very small amount of flow from a few connections. However, it is anticipated that the lift station will see more use in the near future as development occurs in this area. Table 2-2 provides a summary of the lift station characteristics.

Table 2-2
Sewer Lift Station Summary

Name	Address	Design Capacity (gpm)	Wet Well Volume (cf)	Power Per Pump (HP)	No. Pumps
Earl Dr. Lift Station	400 W Earl Dr.	250	900	5	2

CHAPTER 3
FUTURE GROWTH AND WASTEWATER FLOW PROJECTIONS

INTRODUCTION

In order to accurately evaluate the existing sewer collection facilities as well as required improvements to accommodate future growth, one must first have an understanding of the flows through both the existing and future sewer collection system. This chapter summarizes the work that was performed to estimate the wastewater production for the existing and future sewer collection system for Ivins City.

METHODOLOGY

There are several methods that can be used to estimate future wastewater production. The methodology used in this study is as follows:

1. Define the service area.
2. Estimate daily sewer flows per Equivalent Residential Unit (ERU) using recent culinary water usage data and available metered wastewater flows. This includes estimation of infiltration and inflow.
3. Project the growth of the number of sewer service connections for the study area through build-out based on the historical growth trends, the Ivins City General Plan, and the 2013 Culinary Water Master Plan prepared by Ivins City.
4. Convert projections of ERU growth to future wastewater production based on historic production rates.
5. Consider the effect of State Water Conservation Goals on future demands.

Each step of this process is summarized in the sections that follow.

SERVICE AREA

The current Ivins City sewer collection system service area was previously shown in Figure 2-1 of Chapter 2. The service area encompasses the majority of homes within the main section of the City, but only extends to a small number of commercial connections on the west side of Kayenta Wash. It is anticipated that all new development in Ivins will be connected to the sewer collection system (including new development in Kayenta), and it is the intention of the City to eventually provide sewer collection services to all residents within the City's municipal boundary.

EXISTING SEWER SERVICE AREA POPULATION

As previously mentioned, a large portion of Kayenta is currently on septic systems and does not contribute flow to the sewer collection system. For the purposes of hydraulic modeling, only connections that are contributing flow to the sewer collection system are of importance.

Ivins maintains an up-to-date GIS database which tracks the development status of existing lots within the City. This data was used in conjunction with GIS shapefiles of the existing sewer system to identify the number of existing connections to the City's sewer collection system as shown in Figure 3-1. Table 3-1 contains a summary of the number and type of existing connections to the wastewater collection system.

Table 3-1
Ivins City Existing Sewer Service Connections

Connection Type	Number of Connections
Single Family Residence	2,898*
Multi-Family Housing	64
Commercial/Industrial/Institutional	39
TOTAL	**3,001**

*Of these connections, there are approximately 39 connections in Ivins that do not flow through the main trunk lines to the line in Kayenta Wash. These 39 connections tie into the piping in the northwest corner of Santa Clara.

The most recent U.S. Census from 2010 established the average number of persons per household in Ivins to be 2.78. Based on the number of single family and multi-family units shown in Table 3-1, the current estimated residential sewer service area population in Ivins is 8,234 people.

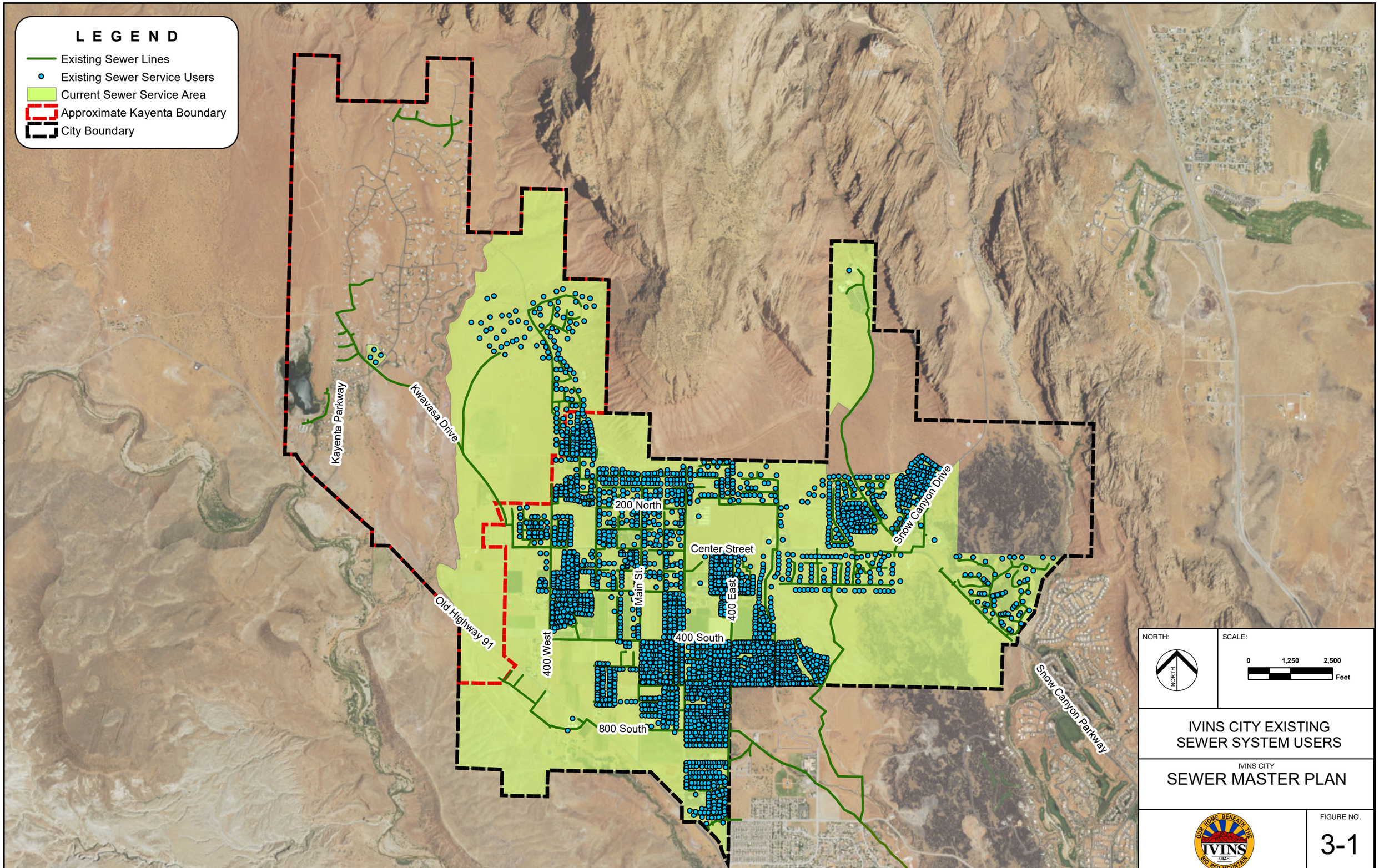
Estimating Daily Wastewater Flows

Utah Administrative Code R317-3 titled, "Design Requirements for Wastewater Collection, Treatment and Disposal Systems" provides guidelines for estimating per capita wastewater production for the purpose of sizing sewer collection and treatment systems. The code states that, *"New sewer systems shall be designed on the basis of an annual average daily rate of flow of 100 gallons per capita per day unless there are data to indicate otherwise. The per capita rate of flow includes an allowance for infiltration/inflow*". The most recent sewer master plan for Ivins City completed in 2006 used this method for estimating sewer flows.

As part of this update, BC&A has re-evaluated per capita flow rates for Ivins using the available water use data for the City. There are three components of wastewater flow that need be accounted for in planning and design: domestic flow, infiltration, and inflow. The following sections outline how each of these components is quantified and accounted for in the wastewater production estimates.

Domestic Wastewater Flow

Domestic wastewater is categorized as the flow that intentionally enters the collection system after being used in a home, business, etc. Ideally, domestic wastewater should make up the majority of flow in the sewer collection system. Wastewater flow from individual homes is not metered, but it can be estimated by reviewing metered culinary water use during winter months. During winter months, there is typically little to no water being used outdoors for irrigation, so the majority of water used during these months is used indoors for showers, toilets, dishwashers, washing



S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 3-1 - Existing Sewer Service Area.mxd aanderson 9/19/2016

machines, and other appliances, all of which contribute to sewer flows. Billing data for the Ivins City culinary water system for the past three years (2013 – 2015) was evaluated to determine an estimate of the average indoor water usage per connection. From previous planning experience, the quantity of indoor water use which ends up in the sewer collection system is typically between 90% - 95% and is categorized as "non-consumptive" use. The remaining portion of water is assumed to be "consumptive" and does not immediately flow into the sewer system. Table 3-2 provides a summary of the meter data from Ivins and presents an estimate of the average daily wastewater flow from an average residential connection.

Table 3-2
Summary of Metered Winter Culinary Water Usage from 2013 - 2015

Year	January			February			December		
	# of Residential Connections	Total Metered Flow (1,000 gal)	Average Flow per Connection	# of Residential Connections	Total Metered Flow (1,000 gal)	Average Flow per Connection	# of Residential Connections	Total metered flow (1,000 gal)	Total metered flow
2013	2,539	13,319	169	2,556	14,620	204	2,638	14,847	182
2014	2,544	13,969	177	2,661	14,149	190	2,725	17,084	202
2015	2,728	12,974	153	2,731	16,413	215	2,819	15,717	180
		Average January	**167**		**Average February**	**203**		**Average December**	**188**
								Average from Each Month Combined	186
								Non-Consumptive Water Use (90% of Indoor Use)	**168**

It should be emphasized that the data provided in Table 3-2 is the metered winter water usage for *residential* service connections. The purpose of this distinction is to determine an estimated flow for one Equivalent Residential Unit, or ERU. Using the ERU as a unit of measurement in planning allows for the standardization of different types of connections, i.e. converting commercial or institutional connections into an equivalent residential unit. This method simplifies the planning process and provides a means of converting a non-residential population into an equivalent residential population. For planning purposes, existing and future wastewater production will be presented in terms of ERUs.

As shown in Table 3-2, the estimated average daily non-consumptive water use per residential connection is estimated to be 168 gallons per day, which equates to a domestic wastewater flow of approximately 60.5 gallons per capita per day.

Infiltration

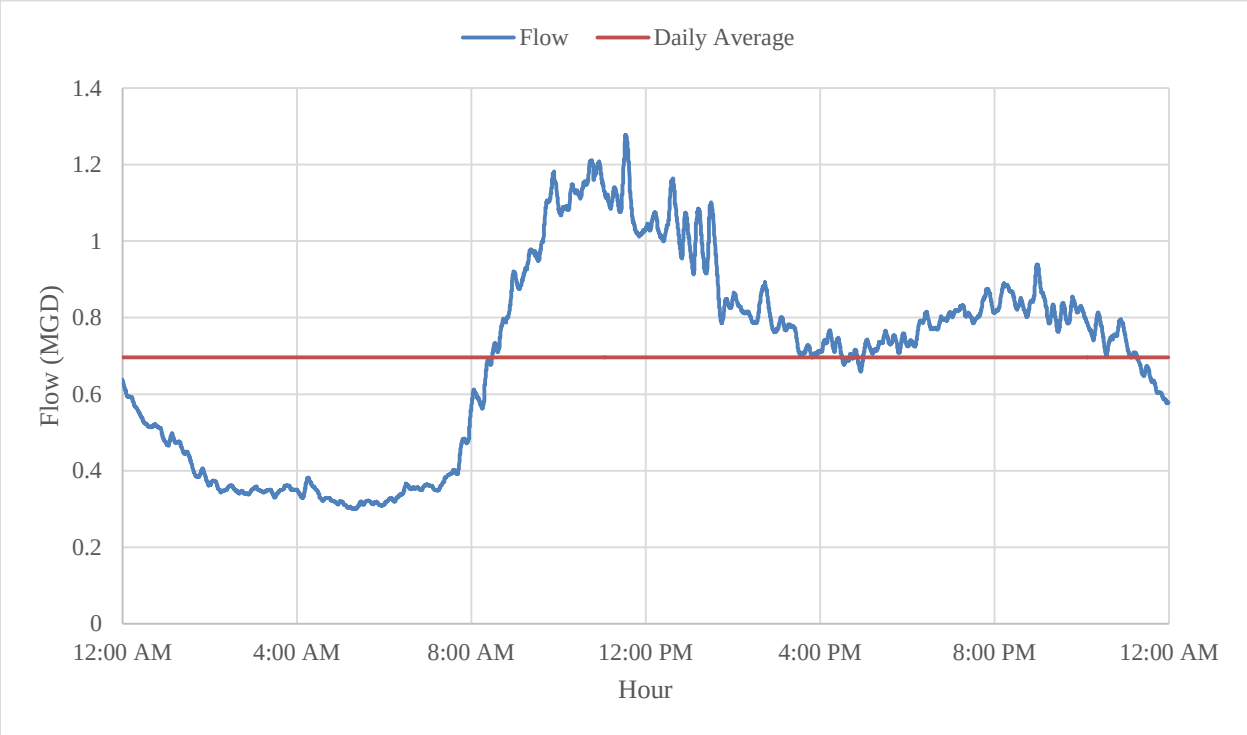
Beyond domestic wastewater production, the second component of wastewater flow that must be considered is infiltration. Infiltration is defined as water that enters into the sewer system which is not directly or indirectly related to either domestic wastewater or to a specific storm event. This flow can enter the collection system as a result of open pipe joints, cracks in pipes, pipes poorly

connected at manholes, leaky lateral connections, pipe damage from roots, etc. Infiltration is generally a function of the groundwater level, which typically fluctuates depending on climate and season. While infiltration rates will change seasonally, they generally remain constant during a single 24-hour period. Temporary increases in the amount of water that enters the system after a storm because of an increase in ground water is considered inflow, which is discussed in a later section.

Factors that can affect infiltration include pipe age, material, and the number and condition of lateral connections. Age can contribute to infiltration in two ways. First, older pipes are more likely to be in poor condition. Cracks, separated joints, and other defects can contribute significantly to increased infiltration. Second, older pipes do not have the benefit of improvements in construction techniques that have occurred over time. Gasketed pipe joints, rubber boots at manholes and laterals, and other improvements have contributed greatly to reducing system infiltration.

Due to the many factors that influence infiltration rates, it can be a difficult aspect of sewer flow to accurately quantify. Temporary flow monitoring at various locations in the system can help identify areas of excessive groundwater infiltration. For this master plan, data from the St. George City flow meter located near Snow Canyon High School was used to help estimate infiltration rates in the system. This meter measures the majority of flow leaving Ivins City as well as a portion of flow from Santa Clara City. Figure 3-2 displays the recorded flow from February 15, 2016 which represents the highest flow though the meter over the past year of available data. Since infiltration rates do not follow the same diurnal pattern as domestic flows, the average flow over the course of the day (696,000 gpd) will be used to estimate infiltration. Since there was no known inflow event on this day (no water entering the system from a storm), this flow measurement is the summation of domestic flow from Ivins and Santa Clara and any infiltration added to the collection system.

Figure 3-2
Metered Sewer Flow at Snow Canyon H.S. from February 15, 2016



The portion of flow contributed by Santa Clara City was estimated using Santa Clara's GIS data, the 2013 Santa Clara Sewer IFFP, and the most current available aerial imagery of the area. It is estimated that 383 ERUs from Santa Clara currently contribute to flows through the Snow Canyon H.S. meter. Table 3-3 provides a breakdown of the estimated domestic sewer flows passing through the Snow Canyon H.S. meter and a corresponding estimate of the amount of infiltration entering the system.

Table 3-3
Estimated Tabulation of Snow Canyon H.S. Metered Sewer Flows

User Type	Number of Connections Contributing to Metered Flow	Number of ERUs Contributing to Metered Flow	Domestic Flow per ERU (gpd)	Total Domestic Flow
Ivins Single Family	2,785	2,785	168	467,880
Ivins Multi-Family Housing	64	64	168	10,752
Ivins Non-Residential	39	230	168	38,640
Santa Clara*	383	383	286	109,538
Total Estimated Domestic Flow	3,271	3,462	--	626,810
			Total Metered Flow (gpd)	696,000
			Estimated Infiltration (gpd), [Total Flow – Domestic]	69,190
			Estimated Infiltration per ERU (gpd)	**20.0**

*The 2013 Sewer IFFP for Santa Clara uses an average flow per capita of 80 gpd and an average household size of 3.58 people. Accounts for both residential and non-residential connections from Santa Clara.

As shown in Table 3-3, the estimated infiltration rate per ERU is 20 gpd. The American Society of Civil Engineers (ASCE) has developed a recommended infiltration allowance for new sewer systems of 400 gallons per inch diameter of pipe per mile of pipe. From previous planning experience, this equates to approximately 40 – 45 gpd per ERU for average development densities. Ivins City personnel have reported that high groundwater is not a known issue in their system, so it is reasonable to expect that infiltration rates would be lower than the average sewer collection system. Combining domestic wastewater flow with infiltration, the total estimated dry weather sewer flow per ERU is **188 gpd.**

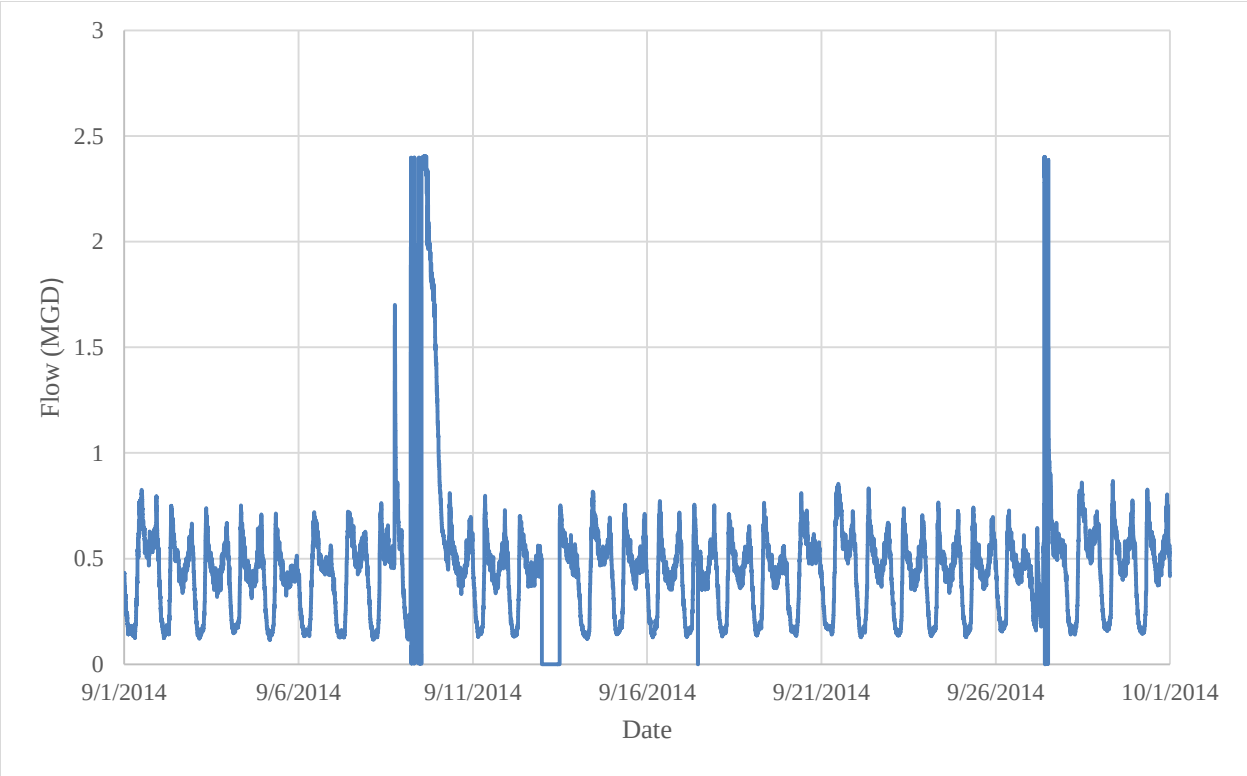
Inflow

The third and final component of wastewater flow that should be considered for wastewater master planning is inflow. Inflow is defined as any water that enters the sewer system which is directly or indirectly related to a storm event. It can come directly from storm water runoff through improper connections to the storm water system, missing or leaky manhole covers, roof drains connected to the system, etc. Storm events can also cause the ground water level to raise temporarily, which can cause an increase in flow in the sewer system through the same mechanisms that result in groundwater infiltration during dry weather (cracked pipes, leaky laterals, etc.). Any temporary increase in sewer flow due to raising levels of ground water as a result of rain is considered inflow.

Figure 3-3 shows the measured sewer flows through the Snow Canyon H.S. meter for the month of September, 2014. There was an intense storm event which occurred on September 9 which

resulted in 3.11 inches of rain over an 8 hour period. A similar storm occurred later that same month.

Figure 3-3
Inflow Events from September, 2014 at Snow Canyon H.S. Meter



As shown in Figure 3-3, these rainfall events created an immense spike in flow through the meter. The peak flows measured well over 3 times the typical dry weather peak daily flow. It should be noted that a section of the sewer trunk line just upstream of the meter runs through Tuacahn Wash. This reach of pipe is known to be susceptible to inflow and is particularly vulnerable if the dam near the bottom of the wash begins to pond. It is anticipated that this section of pipe will be addressed in the near future to help limit the potential for inflow. This will be discussed in further detail in Chapter 6 of this report.

From this data, it is clear that the City's system does have the potential for inflow. However, it is not possible to accurately estimate the magnitude and distribution of inflow events for individual pipes without a significant amount of flow monitoring and rain gauge data. As a result, inflow has not been included directly in projected flows, but it will be accounted for in the evaluation of collection system capacity by reserving a specified portion of pipe capacity for inflow events. The collection system evaluation criteria are discussed in detail in Chapter 4.

PROJECTING SERVICE AREA GROWTH

Having developed estimates for wastewater production rates for the existing system, it is now possible to project the increase in sewer flow as a function of projected growth in the City. Detailed population projections for Ivins City were evaluated as part of the "Ivins City Culinary Water

Master Plan and Impact Fee Facilities Plan" adopted in November of 2013. To maintain consistency in the City's planning documents, projected growth of the sewer service area is based on the information provided in the Culinary Water Master Plan. Growth projections are outlined in the following sections.

Historical Growth Trends

Ivins City has witnessed noteworthy growth over the last 30 years. What was once a small, rural community in the 1980's has quickly grown into a significant suburban development. Table 3-4 shown below provides a summary of historical growth as provided by the U.S. Census Bureau.

Table 3-4
Historical Growth Data

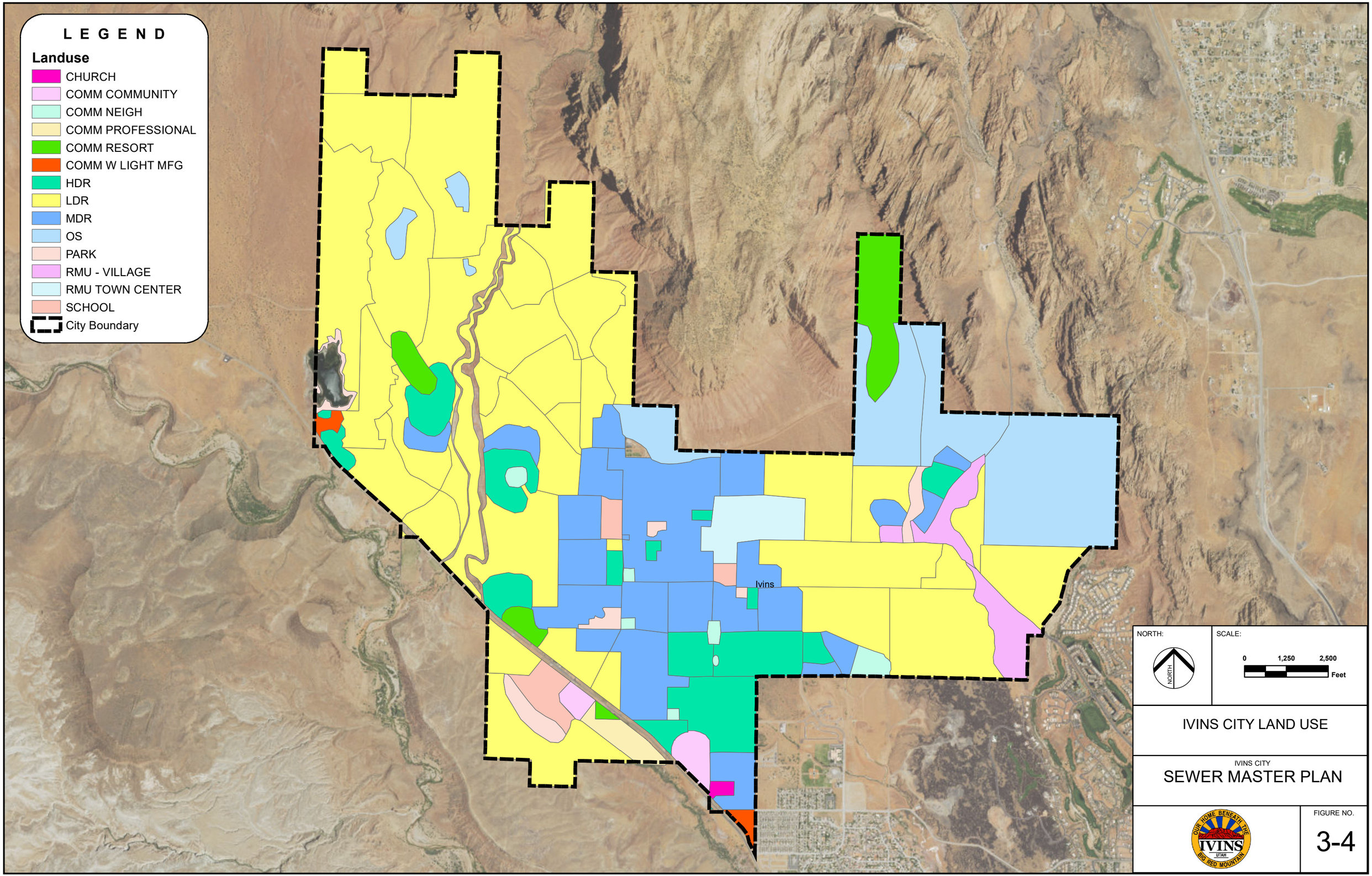
Year	State of Utah	% Growth	Washington County	% Growth	Ivins City	% Growth
1950	688,862		9,836		95	
1960	890,627	29.3%	10,271	4.4%	77	-18.9%
1970	1,059,273	18.9%	13,669	33.1%	137	77.9%
1980	1,461,037	37.9%	26,065	90.7%	600	338.0%
1990	1,722,850	17.9%	48,560	86.3%	1,630	171.7%
2000	2,246,553	30.4%	90,354	86.1%	4,450	173.0%
2010	2,763,885	23.0%	138,115	52.9%	6,753	51.8%

*Data from U.S. Census Bureau

As shown in Table 3-4, aggressive growth began in Ivins starting in the 1980's and has continued to the present day. It is important to note that the average household size has seen a significant reduction in recent years. The 2000 Census reported an average household size for Ivins City of 3.1 persons per household, while the 2010 Census reports an average household size of 2.78 persons per household. This is likely a function of a larger number of retirees moving to Ivins. Ivins City is also home to a number of vacation/second homes that are only inhabited for a portion of the year. However, for planning purposes, all existing and future sewer system connections will be assumed as active.

Existing Development and Land Use

Figure 3-4 displays the general land use map adopted by Ivins City in 2011. Table 3-5 provides a summary of the different land use types within the City.



IVINS CITY LAND USE

IVINS CITY
SEWER MASTER PLAN

FIGURE NO.
3-4

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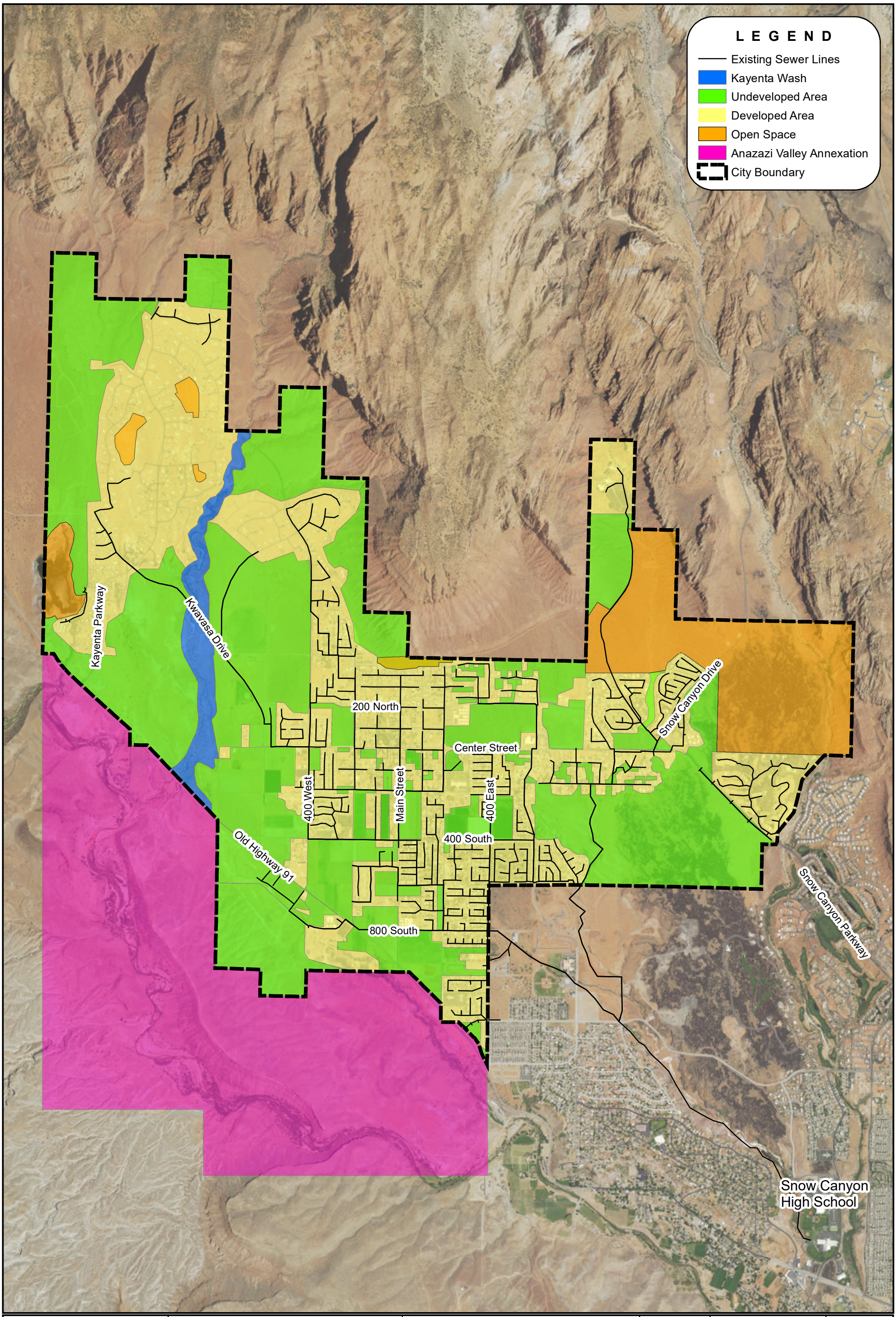
Table 3-5
Summary of Land Use Types

Land Type	Total Acres	Percentage of Total Area
Low Density Residential	3,071	49.9%
Medium Density Residential	902	14.6%
High Density Residential	583	9.5%
Commercial - Community	49	0.8%
Commercial - Neighborhood	44	0.7%
Commercial – Professional & Research	38	0.6%
Commercial - Resort	178	2.9%
Commercial – Light Manufacturing	21	0.3%
Other Non-Residential Area	7	0.1%
Open Space	892	14.5%
Parks	79	1.3%
Residential Mixed Use - Village	126	2.0%
Residential Mixed Use – Town Center	101	1.6%
Schools	71	1.2%
TOTAL ACREAGE	**6,162**	

As shown on Figure 3-4 and Table 3-5, Ivins is a mostly residential city with a limited commercial or industrial influence, and a large portion of the City has been designated as permanent open space. With the aid of recent aerial imagery and GIS planning data provided by the City, Figure 3-5 displays the following information:

- Developed areas within the City
- Undeveloped areas within the City
- Areas to remain undeveloped (open space)
- Potential areas of annexation for additional development

Based on Figure 3-5, Table 3-6 provides a summary of the status of development in Ivins City. As shown in the table, there are over 2,900 acres of land in Ivins that are yet to be developed, not including the potential additional area from Anazazi Valley or other areas that may be annexed by the City in the future.



IVINS CITY
SEWER MASTER PLAN

EXISTING DEVELOPED & UNDEVELOPED AREAS

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. 3-5

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 3-5 - Existing Development Areas.mxd aanderson 9/19/2016

Table 3-6
Summary of Current Land Development

Land Condition	Acres	Percentage of Total*
Developed Area	2,350	38.1%
Undeveloped Area	2,920	47.4%
Open Space	892	14.5%
TOTAL	**6,162***	100%

*Does not include area in Anazazi Valley which may annexed by Ivins City.

As shown in Figure 3-5 and Table 3-6, almost half of the City of Ivins is yet to be developed, with a large area of future growth concentrated in the western region of the City.

Projected Future Development

As mentioned previously, growth projections for the sewer service area in Ivins are based on the projections developed for the 2013 Culinary Water Master Plan. The current sewer service area does not include all of the existing homes in Ivins; this is reflected in the projections. However, it is assumed that all new growth in the City will be connected to the sewer collection system. Projected service area growth is shown in Table 3-7 below.

Table 3-7
Projected Sewer Service Area Growth

Year	Total Ivins Housing Units[1]	Residential Growth Rate[2]	Number of Housing Units in Sewer Service Area[3]	Number of Non-Residential ERUs	% Increase of Non-Residential ERUs[4]
2010	2,880		2,526	120	
2016	3,266		2,962	230	92%
2020	4,240	49%	3,886	355	54%
2026	5,008		4,654	543	53%
2030	5,520	30%	5,166	669	23%
2036	6,492		6,138	857	28%
2040	7,140	29%	6,786	982	15%
2046	8,307		8,307	1,170	19%

[1]Housing Units at buildout (2046) includes 500 residences from the Anazazi Valley Annexation
[2]Growth rates shown are taken from the 2013 Culinary Water Master Plan. The rates shown are for the time periods from 2010-2020, 2020 – 2030, and 2030-2040, respectively. The intermediate values (2026, 2036, 2046) were estimated for hydraulic modeling purposes.
[3]Housing Units in Sewer Service Area are those homes which are currently connected to the sewer collection system. According to Ivins City GIS, there are 354 homes that are assumed to be on septic tanks. It is assumed that all future connections will be connected to the sewer collection system. At buildout (2046) it has been assumed that these 354 homes will be connected to the sewer collection system.
[4]Non-residential growth was developed using the estimated number of non-residential ERUs at buildout as determined in the 2013 Culinary Water Master Plan. Geometric growth has been assumed.

PROJECTING FUTURE GROWTH IN WASTEWATER FLOW

As shown in Table 3-7, the City is estimated to reach buildout by the year 2046 with a total of 8,307 housing units and 1,170 commercial ERUs. Based on these projected growth rates, Table 3-8 shows the estimated total wastewater production for Ivins City through buildout.

Table 3-8
Projected Sewer Service Area Growth

Year	Residential ERUs	Non-Residential ERUs	Estimated Average Daily Residential/Non-Residential Wastewater Flow (gal)	Estimated Daily Groundwater Infiltration (gal)	Total Daily Wastewater Flow (gal)
2016	2,962	230	536,256	63,840	600,096
2020	3,886	355	712,488	84,820	797,308
2026	4,654	543	873,096	103,940	977,036
2030	5,166	669	980,280	116,700	1,096,980
2036	6,138	857	1,175,160	139,900	1,315,060
2040	6,786	982	1,305,024	155,360	1,460,384
2046	8,307	1,170	1,592,136	189,540	1,781,676

STATE OF UTAH WATER CONSERVATION GOAL

The State of Utah set a water conservation goal in the year 2000 to reduce per capita water usage by 25% by the year 2025, measured from usage in the year 2000. Because water conservation is expected to be achieved primarily through the reduction of outdoor water use, no further reduction in sewer flows due to conservation was assumed for the planning window of this study. It is recommended that the City continue to track city-wide water usage and adjust projections accordingly in future master plans to account for any changes in per capita water use patterns.

CHAPTER 4
HYDRAULIC MODELING

INTRODUCTION

The Ivins City sewer collection system has been evaluated with the aid of a hydraulic computer model and the flow projections outlined in Chapter 3. An extended period simulation (EPS) hydraulic model was developed using Innovyze's InfoSWMM software. This chapter presents a summary of the methodology used to develop and run the hydraulic model.

GEOMETRIC MODEL DATA

There are two major types of data required to develop a hydraulic model of a sewer system: geometric data and flow data. Geometric data consists of information on the location and size of system facilities including pipes, manholes, and lift stations. It also includes the physical characteristics of the facilities including pipe roughness, invert elevations at manholes, pump settings in lift stations, and a description of any diversions present. This information has been collected from GIS system inventory data and direct field observation provided by Ivins City personnel. The following sections describe how geometric data was assembled for use in the hydraulic model.

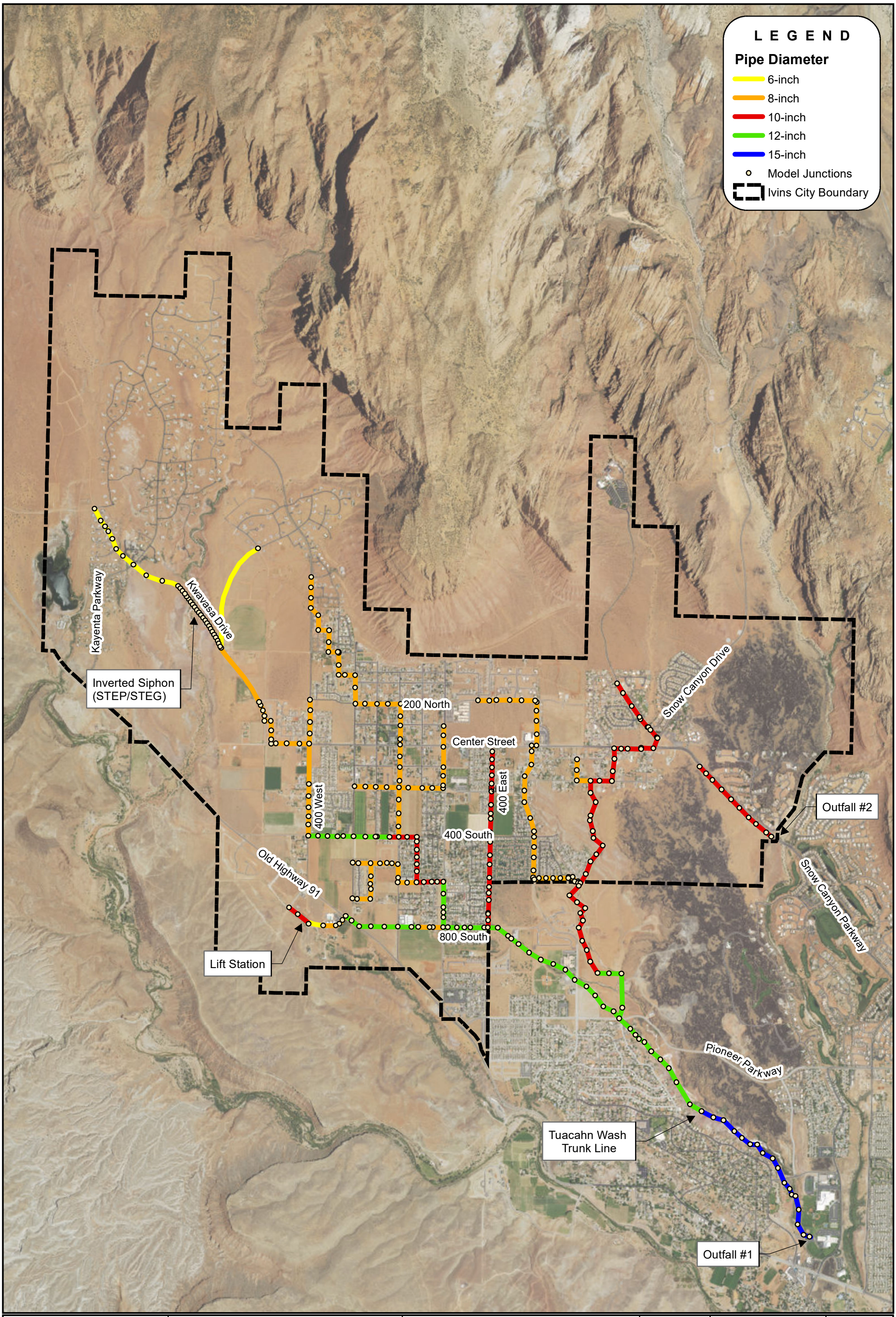
Pipeline and Manhole Locations

Ivins City has put considerable effort into assembling an up-to-date GIS inventory of its existing sewer facilities. This database includes information on the location and size of manholes and pipelines in the collection system. Based on direction from City personnel, pipeline and manhole data was taken directly from the GIS database for use in the model. In some areas where manholes did not have reliable invert information, invert elevations were resurveyed by the City.

Modeled Pipelines

It was not deemed necessary to model all of the sewer pipes in the Ivins City sewer system. As smaller pipes are added to the model, the more refined the analysis becomes, which requires additional time, effort, and expense. The set of sewer collection pipes to be modeled was selected by Ivins City personnel and represents the main interceptor trunk lines for the City. For smaller collector pipes, State minimum slope requirements result in capacities that exceed the potential wastewater production for typical residential densities in Ivins City. As a result, modeling pipes that are serving small areas will not add any additional meaningful results to the analysis.

It should be noted that some additional pipes were added to the modeling set for future flow scenarios in order to evaluate the local response of some of the smaller collection pipes which will likely receive additional sewer flows from growth. Figure 4-1 displays the set of pipes which were included in the existing system hydraulic model (keeping in mind that a few additional pipes were added in future model scenarios). Note that there are several junctions located consecutively in the sewer line along Kwavasa Drive as it crosses Kayenta Wash. While model nodes typically represent manholes, these nodes do not; this section of the sewer line is an inverted siphon and these additional junctions were added to model these unique conditions.



IVINS CITY
2016 SEWER MASTER PLAN

HYDRAULIC SEWER MODEL

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. 4-1

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 4-1 - Modeled Pipes.mxd aanderson 9/19/2016

Pipe Flow Coefficients

Pipe flow coefficients used throughout the hydraulic model were assigned to have a Manning's coefficient of 0.012. While the majority of the Ivins City system is comprised of PVC which has a lower published Manning's coefficient, a conservative value of 0.012 was chosen for modeling. In reality, most collection pipes can develop thin layers of bacteria and solids (a slime layer) that result in a relatively uniform flow coefficient despite varying materials. An energy loss coefficient (K) of 0.3 was applied to each reach of pipe to account for potential dynamic entry and exit energy losses through manholes.

Sediment and Debris

Because of the transportable nature of grease and debris in a sewer collection system, it is not possible to identify the exact location and quantity of grease or debris accumulation for any specific point in time. Similarly, the build-up and erosion rates of sediment in sanitary sewer systems are not always well understood. As a result, the detailed modeling of sediment or grease was not included in the hydraulic model. Instead, the design and evaluation criteria for the Ivins City collection system is based on "clean" pipes.

It should be noted that the hydraulic modeling software used to simulate the operation of the Ivins City wastewater collection system does have the ability to set sediment depth in pipes. Therefore, if the City does collect detailed sediment data for a given section of pipe, the sediment may be added to the model and its effects evaluated. However, it should be emphasized that any sediment levels defined today may change with future flow conditions.

Lift Stations

Ivins City has one lift station in its collection system. Model parameters for the lift station were input based on drawings and the pump curve on record. This information is located in Appendix A.

FLOW DATA

Once all required geometric data was collected and a virtual model of the system was developed, flow data was input to model the system hydraulics. Three types of flow information were required for hydraulic modeling: total magnitude of flow, timing of flow, and distribution of flow across the City service area. Each of these flow characteristics is discussed below.

Total Flow

Flow projections for the Ivins City service area are presented in detail in Chapter 3. Total flow for modeling scenarios from Ivins is summarized in Table 4-1.

Table 4-1
Hydraulic Modeling Scenario Total Daily Flow Volumes (gal/day)

Scenario	2016	2026	2046
Domestic Flow/Infiltration	600,096	977,036	1,781,676

*Does not include additional flow which was added in the hydraulic model to the 2 trunk lines which pass through Santa Clara to account for flow contributed by Santa Clara City (for existing and future conditions) .

Timing of Flow

It should be noted that the volumes shown in Table 4-1 represent total flow over a 24-hour period. Since sanitary sewer flows vary throughout the day with fluctuations in indoor water use, of much greater importance for the purposes of modeling collection system capacity is the calculation of peak flows that occur over the course of a day. Each component of wastewater (domestic, infiltration, inflow) has a unique pattern over the course of a day, as outlined in the following sections.

Domestic Wastewater – The pattern of fluctuating domestic water use is often referred to as a diurnal pattern. Diurnal flow patterns vary depending on the type of user. For example, residential connections will typically produce peak flows between 8:00 am – 10:00 am as people get ready for work and eat breakfast, with another peak occurring in the evening as people make dinner and prepare for bed. Commercial connections may exhibit completely different diurnal wastewater patterns that are unique to their specific water use.

Utah Administrative Code R317-3 – "Design Requirements for Wastewater Collections, Treatment and Disposal Systems" requires that sewer systems apply a 2.5 peaking factor to trunklines. However, if reliable flow data suggests otherwise, customized peaking factors for a system can be developed and used for planning. From experience, the UAC requirement of 2.5 is generally conservative, and actual measured collections system flows tend to possess a lower peaking factor.

To estimate the wastewater peaking factor for the Ivins City collection system, flow data from the Snow Canyon H.S. meter from March 2015 – February 2016 has been evaluated. Flow through the meter is recorded every ten seconds, providing a good indication of the pattern of flow as it leaves the Ivins system and enters the St. George collection system. Table 4-2 provides a summary

of average daily and peak daily flows from the highest wastewater production days within each respective month of data.

Table 4-2
Summary of Historical Metered Flow at Snow Canyon H.S. Meter (MGD)

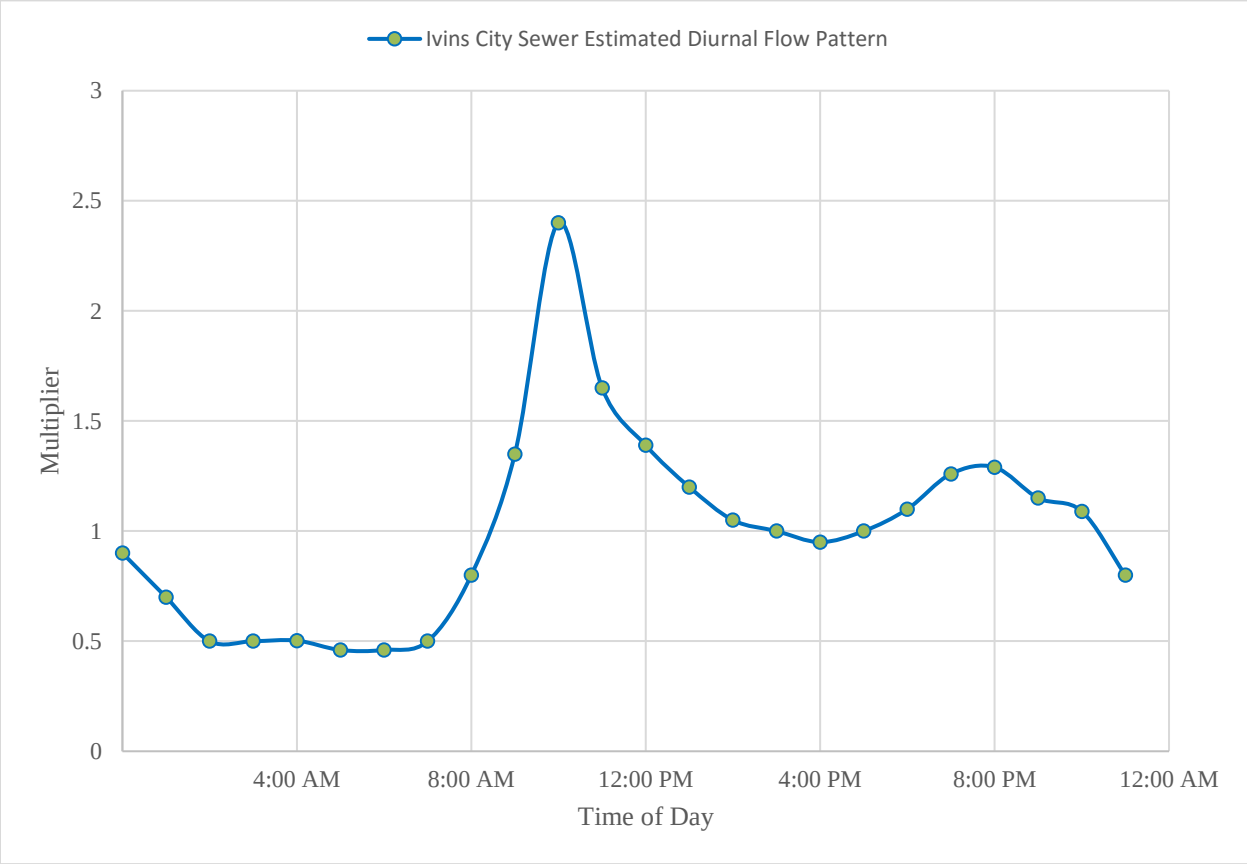
Month*	Average	Peak	Peaking Factor
March 2015	0.649	1.089	1.678
April 2015	0.664	1.094	1.646
May 2015	0.639	1.079	1.689
June 2015	0.607	0.944	1.556
July 2015	0.563	0.897	1.593
November 2015	0.665	1.196	1.800
December 2015	0.610	1.059	1.736
January 2016	0.633	1.137	1.795
February 2016	0.696	1.276	1.833

*Data from August, September, & October 2015 was missing data and was deemed unreliable.

As shown in Table 4-2, the highest recorded average flow and peak flow occurred in February 2016, where peak flows were 1.833 times higher than average flows. For planning purposes, it is recommended that a conservative peaking factor of 2.05 (approximately 10% higher than the highest observed peaking factor of 1.833) be used. It is important to note that the Snow Canyon H.S. meter is at the bottom of the Ivins City sewer collection system, hence the peak flows shown in Table 4-2 have been attenuated, meaning that local peaking factors higher up in the system will be greater. In order to produce a peak flow at the Snow Canyon H.S. meter (hydraulic model outfall) of 2.05 times the average daily flow, a peaking factor of 2.4 has been assigned to domestic flows in the "existing conditions" model, and this same peaking factor has been applied to the subsequent model scenarios (10-year growth & buildout).

With the determined system-wide peaking factor of 2.4, Figure 4-2 displays the estimated diurnal flow pattern for the Ivins City sewer collection system. The flow pattern was developed using Snow Canyon H.S. meter data shown in Figure 3-2 of Chapter 3 (adjusting the diurnal peak to 2.4 and reducing the multiplier at other time steps).

Figure 4-2
Estimated Diurnal Wastewater Flow Pattern



Infiltration – As discussed in Chapter 3, infiltration may vary on a seasonal basis but does not generally vary on a daily basis. It has been assumed that infiltration remains constant throughout the day in the collection system model (multiplier value of 1.0 at each time step interval).

Inflow – For this study, inflow has not been modeled directly because of the wide variability in storm events and inflow response possible in the City. For planning purposes, 25% of full pipe capacity has been reserved for inflow events, meaning that in order for a pipe to be of adequate size it must convey dry weather flow (domestic & infiltration) using no more than 75% of its full pipe capacity.

Based on the diurnal pattern discussed above, peak flows at the system outfalls are summarized in Table 4-3.

Table 4-3
Hydraulic Modeling Peak Outfall Flows (mgd)

Scenario	2016	2026	2046
Dry Weather Flow	1.47	2.60	5.19

*Includes additional flow which was added in the hydraulic model to account for flow contributed by Santa Clara City (for existing and future conditions) .

Distribution Of Flow

With flow magnitude and timing estimated, the final step in developing flow data for the model is distributing it spatially across the City:

Domestic Wastewater

Existing residential domestic sewer flows included in the hydraulic model were distributed throughout the system by delineating small collection areas based on contours and existing sewer collection pipes as shown in Figure 4-3. Using the GIS data provided by the City, each current sewer service connection was routed to its corresponding manhole in the model. Homes that are not currently within proximity of the collection system were assumed to be on septic systems and were not included in the existing conditions model. The average domestic flow per ERU of 168 gpd was assigned to each connection within the basin and the summation of flow was directed to the appropriate model node (manhole). A similar approach was used for the distribution of flow in future model scenarios. For the 10-year growth model, “hotspots”, or areas with high potential for growth in the near future, were identified by Ivins City personnel. The general land use plan and GIS were used to estimate the amount of growth that would occur in these hotspots over the next 10 years, as well as growth that will likely occur as infill in areas that are currently partially developed. Upon determining where growth will most likely occur, the flow from new development was then assigned to the appropriate sewer manhole in the model. This same method was employed at buildout, filling in any remaining region within the service area that is yet to be developed.

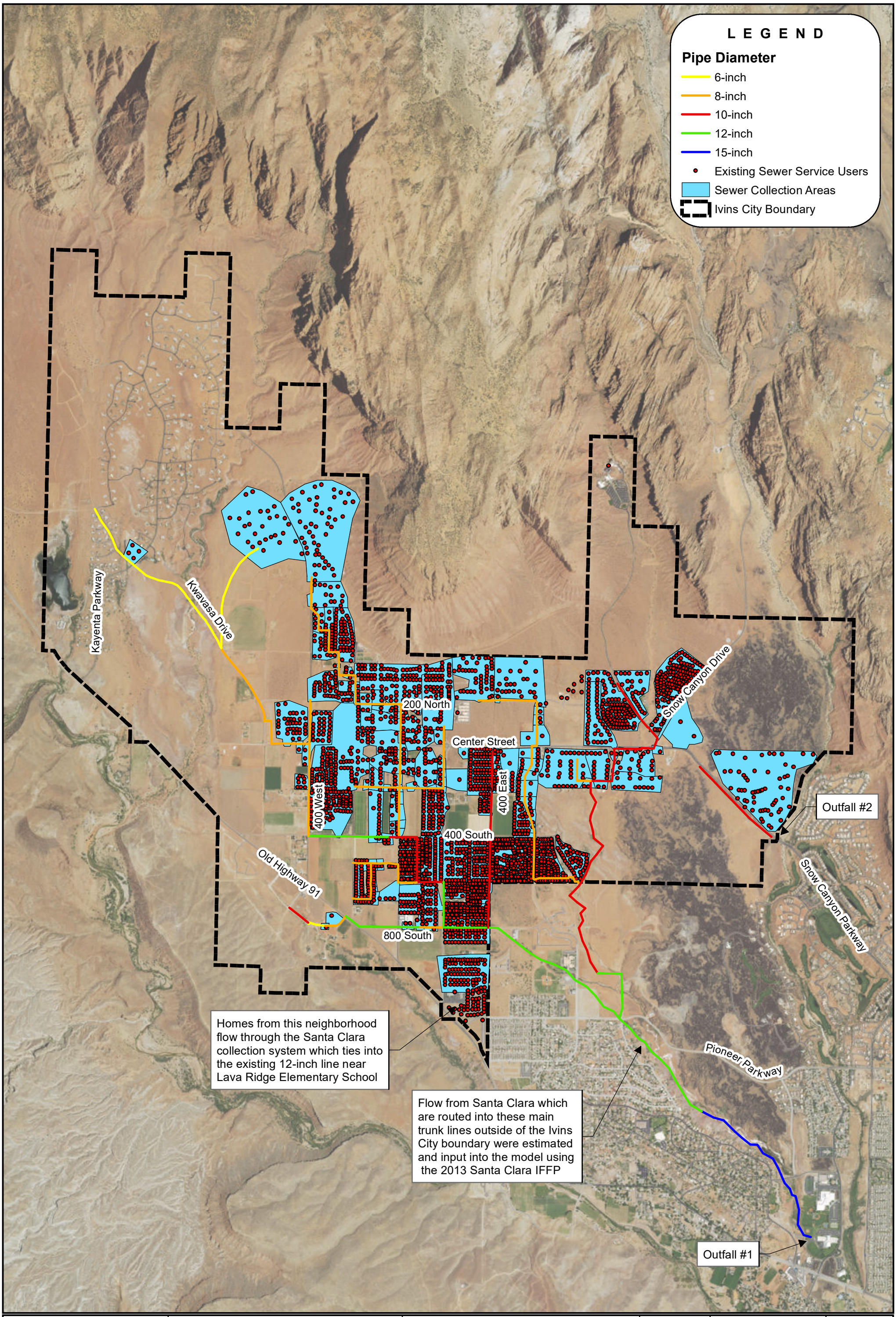
Non-residential flow was distributed throughout the model based on the addresses contained in the culinary water billing data provided by Ivins City. As discussed in Chapter 3, billed flows for non-residential connections were converted to ERUs and assigned to the corresponding model manhole based on location.

Infiltration

Existing infiltration was assigned to model manholes proportionally to the number of contributing ERUs, i.e. the total flow assigned per ERU was 188 gpd (infiltration was estimated to be 20 gpd per ERU, see Chapter 3).

MODEL CALIBRATION

As discussed previously, peaking factors within the model were calibrated to match the metered flows at the Snow Canyon H.S. In addition, Ivins City staff carried out field observations on a



IVINS CITY
2016 SEWER MASTER PLAN

HYDRAULIC SEWER MODEL

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. 4-3

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 4-3 - Flow Collection Basins (11 x 17).mxd aanderson 9/19/2016

number of manholes and reported the approximate depth of flow during the late morning when peak flows are occurring (between 10:30 – 11:00 am). These reported depths were checked against the model results and were found to be reasonably close.

It should be understood that the hydraulic model developed for this study relies on the available geometric and flow monitoring data provided by Ivins City. As additional pipelines are surveyed or new flow measurement data is collected, the hydraulic model should be updated and recalibrated to reflect future conditions.

CHAPTER 5
SYSTEM EVALUATION

Having developed and calibrated a hydraulic sewer model, it is possible to simulate sewer system operating conditions for both present and future conditions. The purpose of this chapter is to evaluate the hydraulic performance of the collection system and identify potential hydraulic deficiencies under existing future operating conditions.

EVALUATION CRITERIA

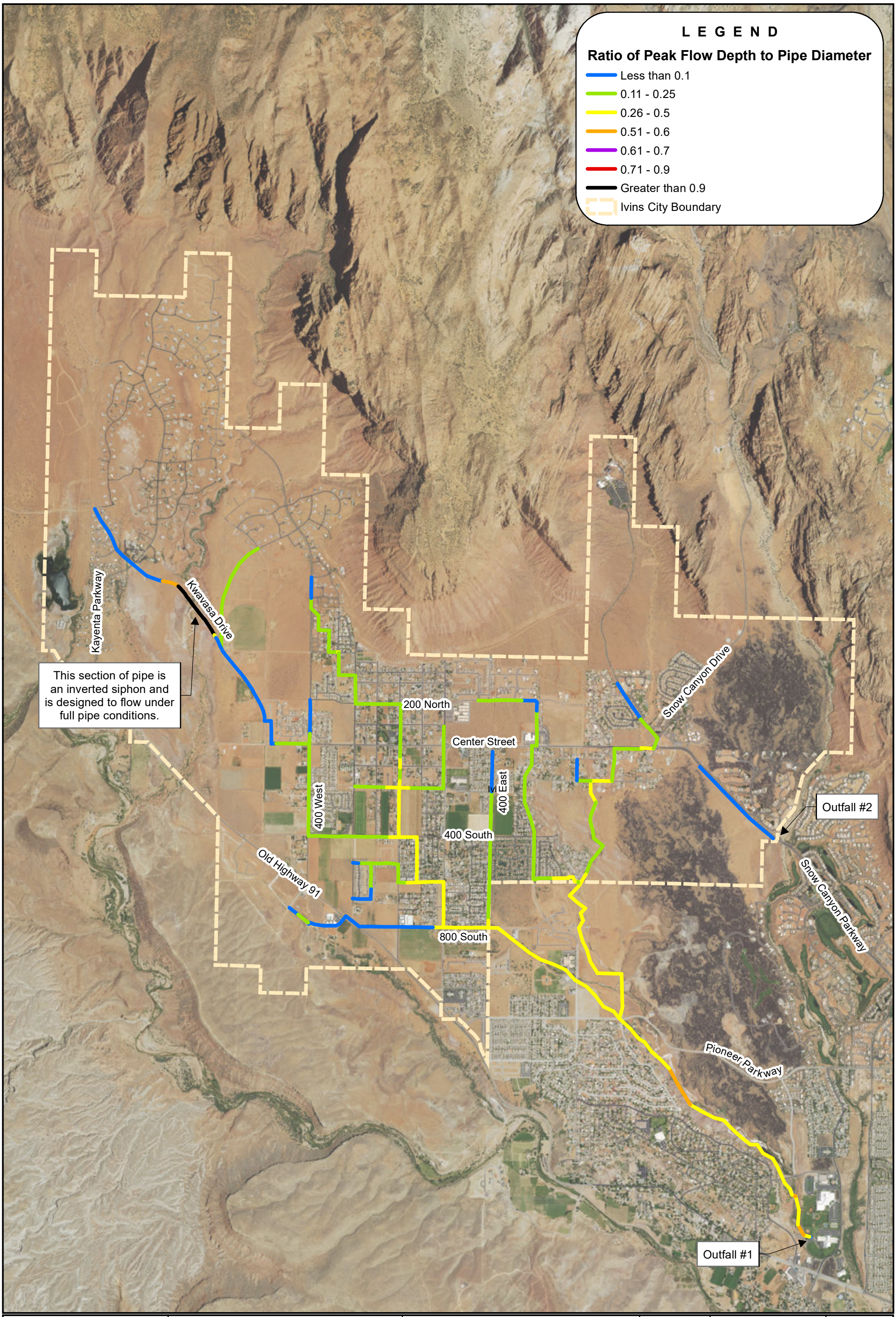
In defining what constitutes a hydraulic deficiency, it is important to consider the assumptions made in estimating sewer flows in the model. As described in Chapters 3 and 4, the sewer flow included in the model is composed of two parts: domestic sewer flow and infiltration. These inputs are based on available historic data. Because these estimates are based on average values and a limited data set, actual flows will fluctuate and may be less or greater than the model estimates. For example, infiltration during extremely wet years could be more than estimated in the model (e.g. 1984 was a statewide historically wet year that led to high infiltration and flooding in many areas). The criteria established for identifying deficiencies should be sufficiently conservative to account for occasional flows higher than those estimated in the model. The following criteria have been established to identify capacity deficiencies in the system:

- **Pipeline Capacity –** The most important deficiency to eliminate in the sewer system is inadequate collection pipe capacity. For this master plan, it was decided to define a capacity deficiency as any point where the dry weather peak hour flow in a pipe is greater than 75 percent of the pipe's full flow capacity, which occurs when flow exceeds a depth of approximately 70 percent of the pipe's diameter. The remaining 25 percent of pipe hydraulic capacity is reserved for inflow, unaccounted for fluctuations in domestic flow and infiltration, and potential sediment deposited in pipes.

- **Lift Station Capacity –** A lift station capacity deficiency is defined as anytime dry weather peak hour flows exceed 85 percent of the lift station's primary pumping capacity. Note that all lift stations are required to have at least one backup pump in case of mechanical failure or significant inflow from wet weather events.

EXISTING SYSTEM ANALYSIS

Figure 5-1 displays the hydraulic capacity of the sewer system under existing peak hour flow conditions. Pipes in the figure are color coded to show the ratio of maximum simulated flow depth in the pipe to the pipe's diameter. As shown in Figure 5-1, there are no simulated deficiencies in the existing Ivins sewer collection system. The lift station is also operating within its design limits. Note that detailed model outputs for each model simulation can be found in Appendix C.



IVINS CITY
2016 SEWER MASTER PLAN

EXISTING CONDITIONS HYDRAULIC MODEL RESULTS

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. 5-1

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 5-1 - Existing System Conditions (11 x 17).mxd aanderson 9/19/2016

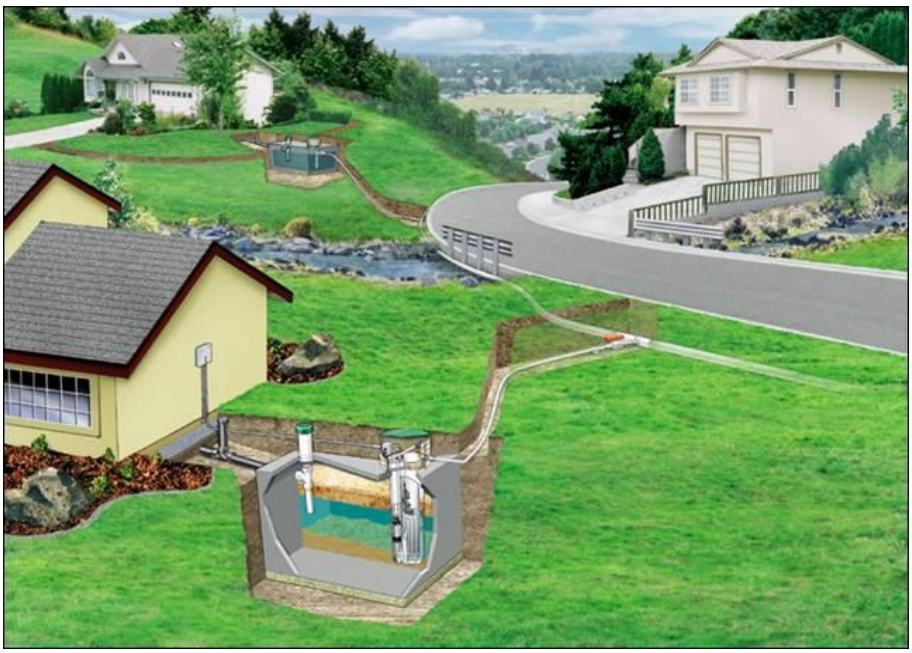
ALTERNATIVE ANALYSIS FOR KAYENTA DEVELOPMENT

Before proceeding with the evaluation of the sewer collection system under future conditions, the City requested that BC&A evaluate alternatives for providing sewer service to the Kayenta development. As previously stated, the majority of Kayenta is currently on individual septic systems. However, to prevent the over-densification of septic tanks, the City has begun to prohibit their installation. As an alternative, the City has recently permitted the installation of Septic Tank Effluent Gravity (STEG) and Septic Tank Effluent Pump (STEP) systems which discharge septic tank effluent into a sewer collection line rather than a traditional leech field.

BC&A has been tasked with researching and evaluating these systems and providing Ivins with recommendations pertaining to Kayenta and the use of STEP/STEG systems. There are 3 potential alternatives for providing sewer service to Kayenta:

1. Construct a conventional gravity sewer collection system
2. Construct a STEP/STEG sewer collection system
3. Use a combination of conventional sewer & STEP/STEG systems

What is STEP/STEG



STEP/STEG Sewer Collection System, Courtesy of Orenco Systems

Conventional gravity sewer collection systems are designed to receive wastewater flows directly from a home, business, etc. and convey the flow (which contains both liquids and solids) by gravity to a treatment facility. Conventional sewers are designed, for the most part, to flow under “open channel” conditions (non-pressurized flow). Effluent sewer (STEP/STEG) is similar to conventional sewer, but differs in the fact that it collects wastewater after it has passed through an on-site septic tank. Since solid waste remains in the septic tank, only liquid is discharged to the sewer collection system. Septic tank effluent systems do not require manholes and can flow under pressure, allowing for smaller diameter pipes than a conventional system. For homes on the high

end of the collection system, STEG is an available option. However, any home which sits at a pad elevation below the Hydraulic Grade Line (HGL) of the collection system during peak hour flow will likely need to utilize a STEP (pumped) system.

Comparing Traditional Sewer with STEP/STEG

While there are similarities between conventional sewer systems and STEP/STEG systems, there are significant differences. Each system has its pros and cons, a few of which are shown in Table 5-1.

Table 5-1
Pros and Cons of Conventional Sewer & Septic Tank Effluent Sewer

Conventional Sewer System		Septic Tank Effluent System	
Pros	***Cons***	***Pros***	***Cons***
Time-tested Reliability	Can be expensive	Less expensive capital cost	Long-term costs are somewhat uncertain
Familiar construction techniques	Requires minimum grades to operate	Smaller diameter pipe than conventional	Difficult to monitor pipe conditions
Easy Access to Collection System	Lift stations may be required	Less restriction with pipe grades	Septic tank maintenance
Easy to locate	Susceptible to Infiltration & Inflow	No infiltration or inflow	Isolation Valves, Air Valves
Flows can be visually inspected	Often require deep, difficult burial	Lower strength wastewater	Capital cost savings to developer, long term costs to Ivins City
		Can be buried shallow	

While there may be additional pros and cons to each type of system, items contained in Table 5-1 are deemed to be the more pertinent factors for comparison. Conventional gravity sewer systems have been in use for a long time and have been accepted as the industry standard for wastewater collection systems. While STEP/STEG has been around for over 30 years, they are much less common and long-term operation is not as well understood.

As with most facilities, overall costs are often the key factor when comparing multiple alternatives. To compare the two systems, a hypothetical life cycle cost evaluation was performed for providing sewer service to the existing area of Kayenta north of the intersection of Kwavasa Drive and Kayenta Parkway. This area contains approximately 263 existing homes and would require approximately 40,000 feet of sewer collection pipe to connect Kayenta to the Ivins City sewer collection system at 600 West & 200 North (where the existing STEG line ties into the gravity system).

BC&A maintains a construction cost estimate spreadsheet for different types of utilities that is frequently updated with recent project costs and the latest ENR Construction Index. Table 5-2 shows the estimated cost to install each type of sewer collection system in the sample area of

Kayenta. As shown in Table 5-2, STEP/STEG systems are expected to be significantly cheaper to install than a conventional sewer system.

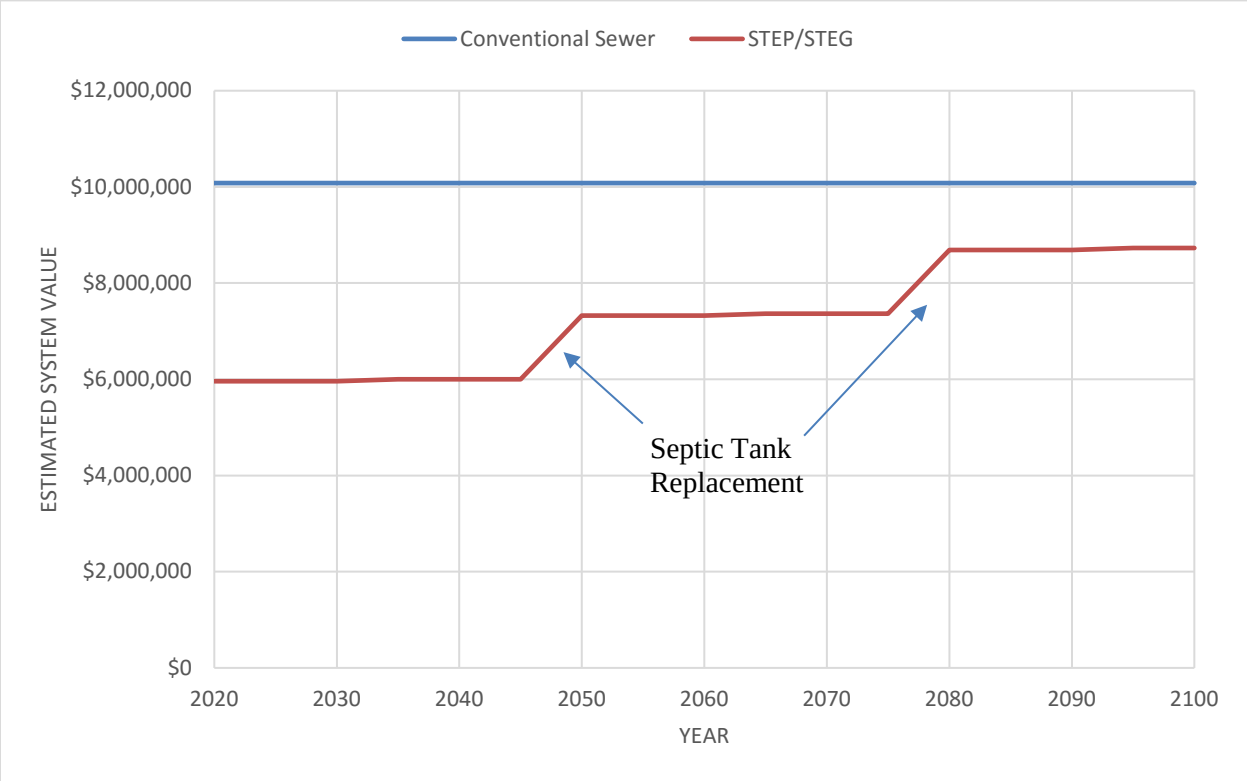
Table 5-2
Estimated Cost to Install Sewer Collection System in an Area of Kayenta

System Type	Unit Price	Length	Total Estimated Installation Price
Conventional Sewer System - 8" Sewer Pipe, Manholes, Asphalt Repair, Complete	$252	40,000	$10,080,000
Comparable STEP/STEG Sewer Collection System	$149	40,000	$5,960,000
Estimated Difference in Installation Costs			**$4,120,000**

Even though up-front costs may be less, STEP/STEG may not necessarily translate to a more cost-effective project over the life of the system. Service life for sewer collection pipes will vary with each individual systems, but an 80 year service life is typical for planning purposes. If a conventional gravity sewer is well maintained, it should be able to operate over the 80 year period without being replaced. In reality, some sections of the system will last 100 years while others may require replacement after 60 years, but for the purpose of comparing alternatives, it has been assumed that the conventional system will last 80 years. The STEP/STEG system, however, incorporates components that will need to be replaced more than once over the 80 year lifetime of the system. Like the conventional sewer system, the collection pipes are expected to last 80 years, but other components, such as septic tanks and effluent pumps, will need to be replaced periodically. The service life of these components is highly dependent on how they are maintained, but it has been assumed that the service life of effluent pumps and septic tanks is 15 years and 30 years, respectively. Each type of system has a unique O&M schedule, but it has been assumed that the overall O&M costs for each system are approximately the same.

Figure 5-2 shows the estimated present worth of the system in question over an 80 year period. Pump replacement was assumed to be $300 per pump, and septic tank replacement was assumed to be $5,000 per tank. A 3% inflation rate and 5% discount rate have been applied to all expenditures in future years. Based on this evaluation, it is anticipated that the gap in cost between a STEP/STEG system and a conventional system is likely to narrow, but that the cost of the STEP/STEG will still be less over an 80 year life cycle.

Figure 5-2
Conventional Sewer vs. STEP/STEG System



Step/Steg Recommendations

There are positive and negative aspects of installing a STEP/STEG sewer collection system. Based on an 80 year life cycle cost for a sample area of Kayenta, it is estimated that the STEP/STEG system would cost less than a conventional sewer system. This cost difference would scale proportionally to the actual size of the system installed. However, there are certain concerns and potential complications associated with installing a STEP/STEG system:

- System Functionality – In theory, a STEP/STEG system should work in a similar fashion to a conventional sewer system. However, whenever additional parts, especially mechanical and electrical parts, are introduced to the collection process, there are ultimately more areas where the system has potential to fail.
- Future Cost Allocation – While the overall cost of a STEP/STEG system is likely to be less than a conventional sewer system, it is important to consider who will bear these costs. In the end, the STEP/STEG system seems to benefit developers more than the City. While the developer is able to install the STEP/STEG system for cheaper than a conventional system, future costs are placed on the owner and potentially onto the City. Although agreements with homeowners may require them to maintain and pay for any replacements up to the sewer main, there is always the potential that the City will be dragged into paying for replacement of system components that would not be necessary had a conventional system been installed.

- System Monitoring – A plus side to a conventional system is that it is broken into short segments between manholes that can be isolated. This facilitates the observation of flow conditions in the system, and makes it easier to pinpoint clogs, breaks, etc. The nature of a STEP/STEG system makes system observation more difficult. If there is a clog or a break, it may not be apparent right away, and when the issue is identified, it may not be simple to locate and repair.

Considering these issues, it is recommended that Ivins City limit the construction of STEP/STEG where possible. It is understood that two STEP/STEG trunk lines have recently been installed that connect areas of Kayenta to the Ivins City sewer collection system (one on Kwavasa Drvie and one on Paiute Drive). Ultimately, the City will need to make a decision on how they would like to address these areas that have already began to implement a STEP/STEG system. However, for areas that have not already began to implement this type of system, it is recommended that the City push for the installation of conventional sewer over STEP/STEG.

10 YEAR GROWTH SYSTEM ANALYSIS

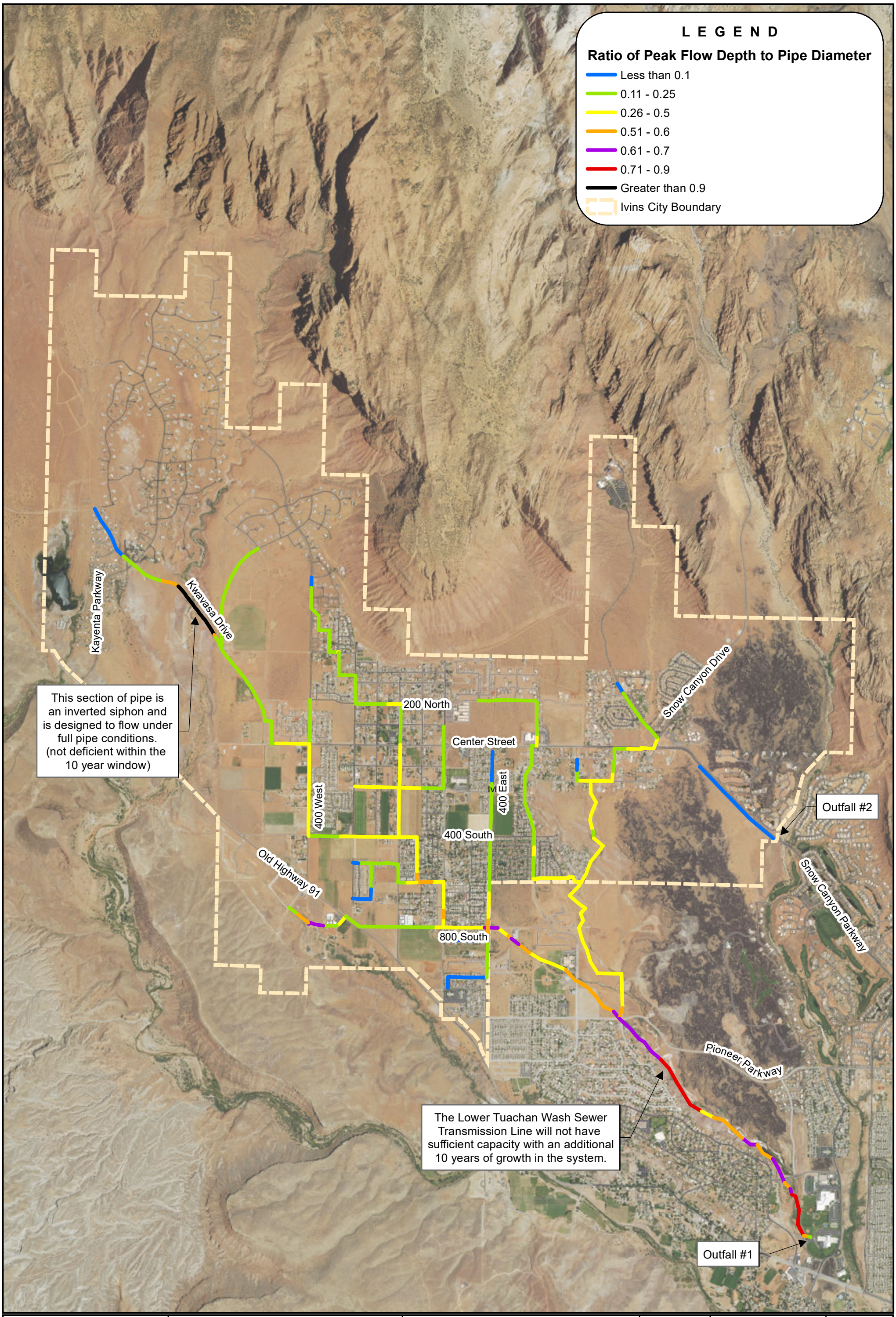
The next model scenario of interest is the condition of the system after 10 years of projected future growth. This scenario is useful in the development of a Capital Facilities Plan and Impact Fee Facilities Plan (IFFP). The 10 year growth model was developed through coordination with Ivins City personnel. Areas that are quickly growing ("hotspots") and areas that are anticipated to see infill growth within the next 10 years were identified, and future wastewater production was allocated to these areas in the model.

The results of the 10 year model simulation are shown in Figure 5-3. As shown in the figure, a significant portion of the Lower Tuacahn Wash trunk line (the portion of the line between Pioneer Parkway and Snow Canyon H.S.) is shown as deficient within the 10 year window. This trunk line is crucial for the operation of the system as it collects almost all of the wastewater flow from the City. The remaining pipes in the system are anticipated to operate below their capacity limits. It should be noted, however, that the upper portion of the Lava Flow Wash trunk line (the line which runs from 800 South & 400 East in Ivins through Santa Clara to Pioneer Parkway) is beginning to approach peak flow capacity in the estimated 10 year growth window. This considered, it is recommended that the City begin to monitor peak flows through this reach of pipe within the next 5-7 years. No lift station deficiencies were identified in the 10 year model.

BUILDOUT SYSTEM ANALYSIS

Figure 5-4 shows system performance as calculated by the hydraulic model for sewer flows at projected full buildout conditions without any improvements to existing components of the system. The following assumptions were made in the development of the buildout model:

- Population densities are based on zoning and land use information provided by the City. Existing housing densities were also used to help estimate future housing densities, particularly in infill areas of the City.
- As discussed in Chapter 2, it has been assumed that all homes in Kayenta will be connected to sewer service at buildout. The results shown in Figure 5-4 assume that all existing homes in Kayenta and all new development south of the intersection of Kayenta Parkway and



IVINS UTAH	IVINS CITY 2016 SEWER MASTER PLAN	10 YEAR GROWTH HYDRAULIC MODEL RESULTS	NORTH:	SCALE: 0 1,250 2,500 Feet	FIGURE NO. 5-3

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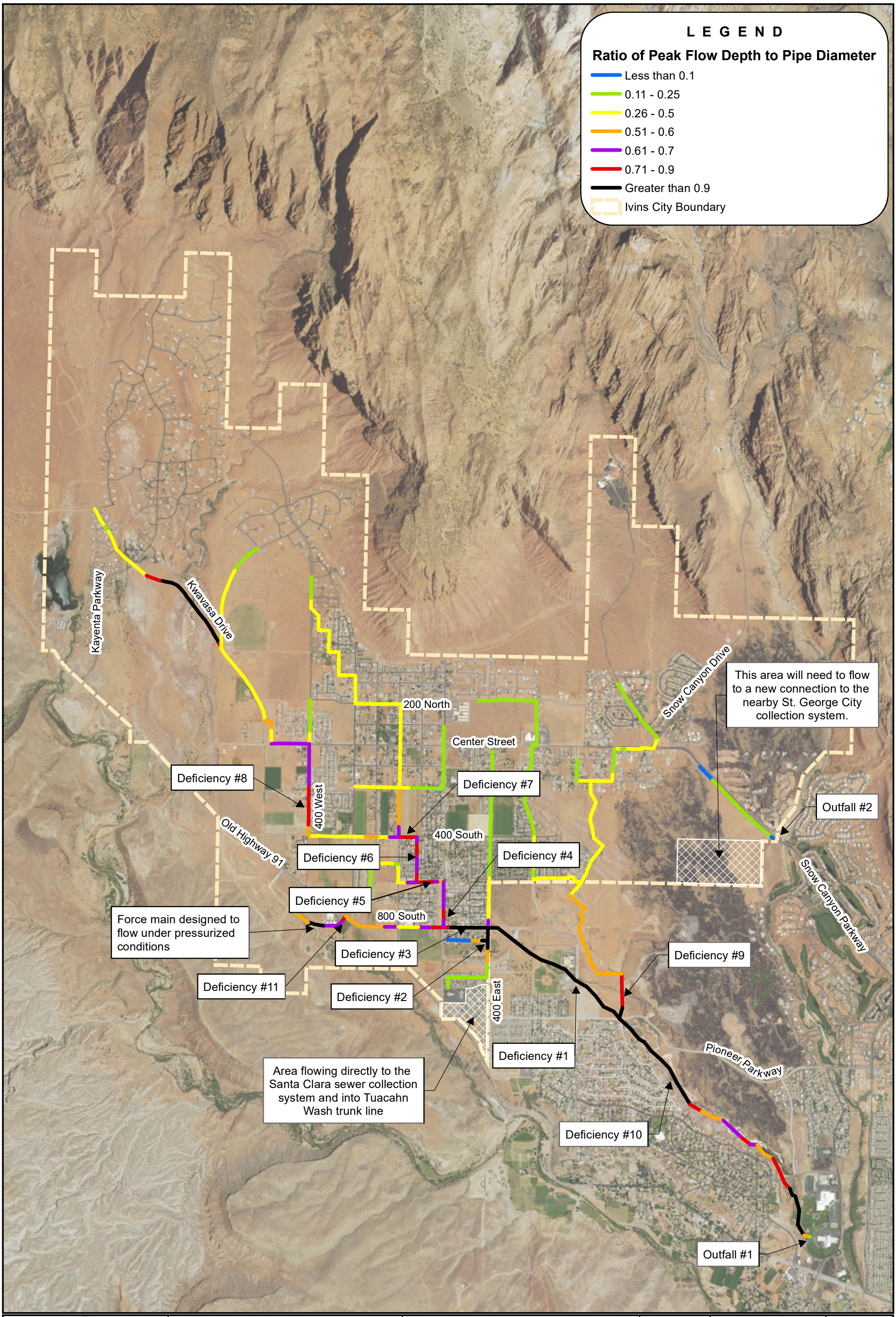


IVINS CITY
2016 SEWER MASTER PLAN

BUILDOUT POPULATION HYDRAULIC MODEL RESULTS

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. 5-4

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 5-4 - Buildout model results (11x17).mxd aanderson 9/19/2016

Kwavasa Drive will end up flowing down Highway 91 to 800 South (via new system and project level improvements). All existing homes and new development to the north of this intersection has been assigned to the existing 6 inch STEP/STEG line that flows under Kayenta Wash.

- 500 ERUs from the Anasazi Valley annexation have been added to the model at buildout.
- It was assumed that the area of Ivins that currently flows directly into the Santa Clara system will continue to do so at buildout (see Figure 5-4). It has also been assumed that approximately 50 acres of currently undeveloped land on the southeast side of Ivins near Entrada Golf Course will require a new connection to the St. George system. Unless a lift station is installed, this area will not flow by gravity to existing Ivins City collection pipes.

Flows in the buildout model were assigned to model junctions using the same methods employed to develop the existing conditions and 10 year growth model. Flows were routed to the most probable manhole based on the location of existing sewer collection pipes and land contours. As shown in Figure 5-4, although the majority of the system under buildout conditions has ample capacity, some significant deficiencies have been observed in the model results. Note that the deficiencies identified in the following sections correspond to the assumptions presented previously. The reallocation or diversion of sewer flows has the potential to reduce deficiencies in the system, and these options/recommendations are discussed in Chapter 6 of this report.

Buildout Collection System Evaluation

Table 5-3 provides a description of simulated system deficiencies at buildout for the Ivins City sewer collection system. Identified deficiencies are those system components which exceed the design capacity as defined in the system evaluation criteria presented at the beginning of this chapter. It is important to remember that all deficiencies identified below do not necessarily translate to a required improvement project. It is possible that a single improvement project may address more than one deficiency (i.e. one undersized pipe may cause several upstream pipes to back up and surcharge; upsizing the downstream pipe may address all “deficient” sections of pipe). Figure 5-4 provides a visual reference for the deficiencies identified in Table 5-3.

Table 5-3
Simulated Collection System Deficiencies at Buildout

ID	Location	Description
Deficiency #1	Lava Flow Wash Trunk Line (800 South & 400 East to Pioneer Parkway)	The entire section of the existing 12" pipe from the intersection of 800 South & 400 East to Pioneer Parkway does not have adequate capacity at buildout. This undersized pipe will cause flow to back up in the system, causing upstream manholes to surcharge and even potentially flood.
Deficiency #2	800 South & 400 East to 855 South	A section of 8" pipe running south from the intersection 800 South & 400 East past 855 South is deficient at buildout. This section of pipe is likely to receive significant additional flow as growth occurs in this area, but it is probable that this section of deficient pipe is also influenced by bottlenecking caused by Deficiency #1
Deficiency #3	800 South from 140 East to 400 East	The entire length of 12" pipe along 800 south from 140 East to 400 East does not have capacity for projected buildout flows. The section of pipe from 140 East to 200 East may be backing up from undersized downstream pipes.
Deficiency #4	200 E from 710 South to 755 South	A portion of the 12" line running down 200 East between 710 South & 755 South does not have adequate capacity at buildout. Adjacent pipes upstream and downstream of this reach of pipe, while not shown as flowing above 70% of peak flow depth, are very close to flowing above peak capacity.
Deficiency #5	600 South from 150 East to 75 East	A portion of the existing 10" line in 600 South between 150 East & 75 East is undersized for projected buildout flows.
Deficiency #6	75 East from 600 South to 400 South	Sections of the existing 10" line in 75 East from 600 South to 400 south are undersized at buildout.
Deficiency #7	400 South from Main St. to 75 E	The existing 10" line in 400 South from 75 East to Main St. does not have adequate capacity for estimated buildout flows.
Deficiency #8	400 West from 200 South to 350 South	This section of 8" pipe is relatively flat and does not have capacity to convey buildout flows.
Deficiency #9	Upper Tuacahn Wash Trunk Line (north of Pioneer Parkway)	A section of the 10" portion of the Upper Tuacahn Wash trunk line north of Pioneer Parkway is shown as deficient at buildout. This deficiency is likely caused by a bottleneck created by the 12" section of the Lower Tuacahn Wash line south of Pioneer Parkway.
Deficiency #10	Lower Tuacahn Wash Trunk Line (Pioneer Parkway to Snow Canyon H.S.)	The Tuacahn Wash trunk line from Pioneer Parkway to Snow Canyon High School does not have adequate capacity to convey projected sewer flows at buildout. The reach of pipe also suffers from condition related issues that make it especially susceptible to inflow and infiltration.
Deficiency #11	Fitness Way & Highway 91	A short section of 8" sewer line near the intersection of Fitness Way and Highway 91 is shown as deficient in the buildout model.

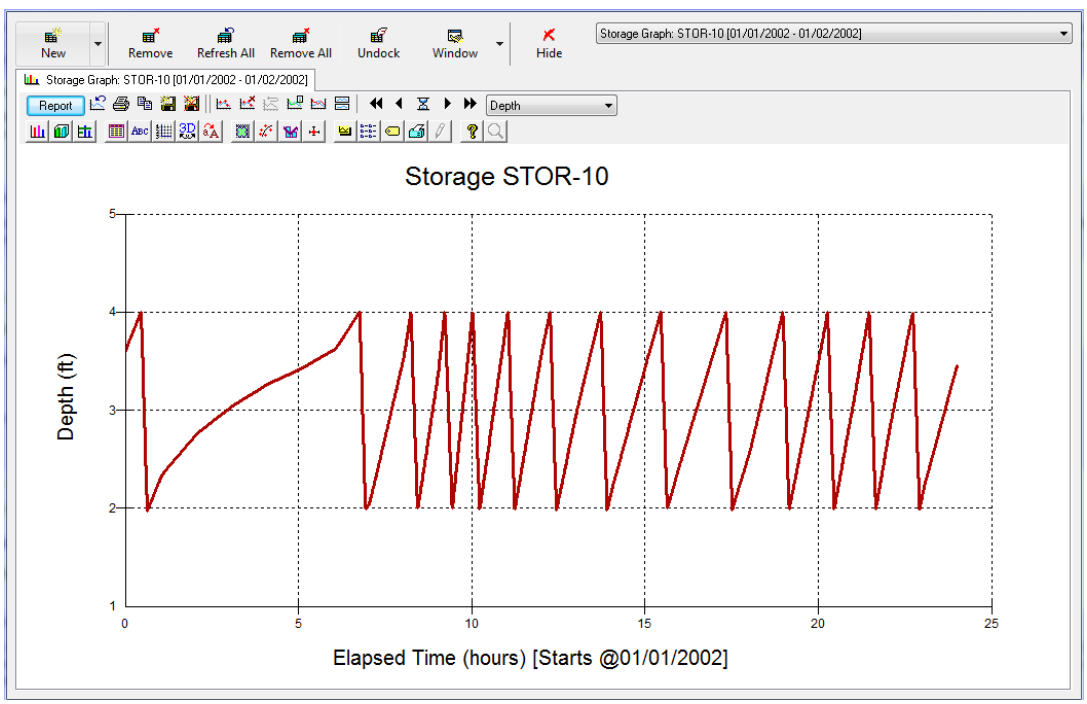
Buildout Lift Station Evaluation

Ivins City currently operates one lift station located on Earl Dr. and 400 West. The lift station currently conveys a very small amount of flow from an existing commercial connection, but as growth occurs in the future to the west/southwest of the lift station, flows will increase significantly. Figure 5-5 below displays the model output for the water depth in the wet well for the lift station at estimated buildout flow. The lift station operates under the settings shown in Table 5-3. As shown in Figure 5-5, the wet well does not exceed 4 feet of depth during the 24 hour simulation. Buildout flow through the lift station is estimated to be about 90 gpm, meaning that the existing pump has adequate capacity. It should be noted that future conditions may send more or less flow to the lift station than what has been assumed in this study. For this reason, the lift station should be evaluated regularly to ensure that it is meeting the City's needs.

Table 5-4
Ivins City Lift Station Operation Parameters

Wet Well Depth (ft)	Lift Station Status
2	Lead Pump Shutoff
4	Lead Pump Start Up
4.5	Lag Pump Start Up
5	High Water Mark

Figure 5-5
Ivins City Lift Station Wet Well Conditions at Buildout



CHAPTER 6
SEWER SYSTEM IMPROVEMENTS

The hydraulic model results have identified potential deficiencies in the sewer system under future growth conditions. This chapter covers system improvements intended to resolve deficiencies as the City approaches buildout. Priority of each project is chosen based on the predicted order of necessity.

RECOMMENDED SEWER SYSTEM IMPROVEMENT PROJECTS

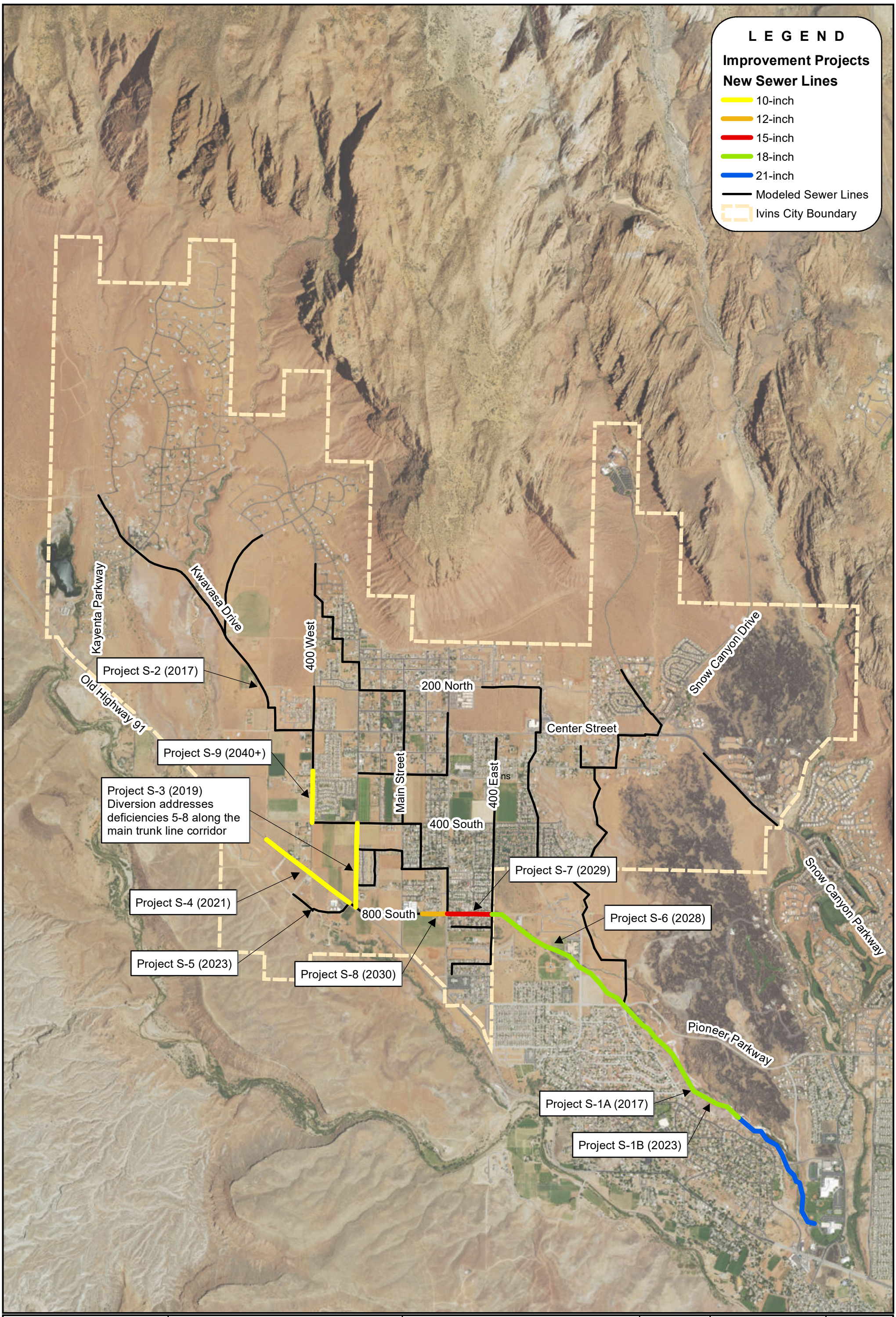
A number of system improvements have been identified to resolve hydraulic deficiencies related to projected future sewer flows as well as extend sewer service to new areas of the City. As discussed in Chapter 5, there were no deficiencies simulated in the existing system, but deficiencies have been identified within the 10-year growth window as well as at buildout. All recommended improvement projects are discussed below and are shown in Figure 6-1. Note that the improvement projects discussed in this chapter assume that all existing homes in Kayenta will be connected to sewer service by 2046 (buildout). All existing homes in Kayenta north of the intersection of Kayenta Parkway and Kwavasa Drive have been assumed to flow to the existing STEP/STEG sewer siphon along Kwavasa Drive. It was assumed that all other flows from Kayenta west of Kayenta Wash and south of the intersection of Kayenta Parkway and Kwavasa Drive will flow to 800 South (via new system and project level improvements). The estimated year of construction assigned to each project is approximate and is subject to change based on the actual locations of development in the future.

S-1A. Lower Tuachan Wash Sewer Transmission Line Repair (Short Term Improvements) Construction Date: 2017

Over 95% of sewer flow from Ivins City flows through two trunk lines through northern Santa Clara to the intersection of Pioneer Parkway & Red Mountain Drive (Lava Flow Wash trunk line and Upper Tuachan Wash trunk line). From this point, wastewater flows into the Lower Tuachan Wash Trunk line, a 12-inch and 15-inch which runs along Tuachan Wash between Pioneer Parkway and Snow Canyon High School. The line runs past Snow Canyon High School, through a St. George City flow meter, and into the St. George City sewer collection system. Ivins City personnel have reported that this line is susceptible to inflow during flood events and is in need of maintenance-related improvements.

As identified in Chapter 5, this reach of line is anticipated to reach its peak flow capacity within the next 5-10 years and will require a project to increase its overall capacity. However, it is recommended that short term improvements be made to the pipe to improve its overall functionality and reduce the risk of sewer flooding in the wash. The following short term improvements are recommended for the Lower Tuacahn Wash line:

- Construct an access road along the wash for maintenance crews.
- Raise/repair manholes that have been damaged from flooding or that are susceptible to inflow.
- Camera the line and repair any damaged sections of pipe which may be susceptible to inflow or infiltration/leaking.



IVINS CITY

2016 SEWER MASTER PLAN

RECOMMENDED SYSTEM IMPROVEMENTS THROUGH BUILDOUT

NORTH:

SCALE: 0 1,250 2,500 Feet

FIGURE NO. 6-1

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure 6-1 - Recommended Improvement Projects (11 x 17).mxd aanderson 9/19/2016

S-1B. Lower Tuachan Wash Replacement Project (Long-Term Improvement)
Construction Date: 2023

Model results have indicated that the Lower Tuacahn Wash sewer trunk line is approaching its peak flow capacity. This line is vital for the operation of the system, and a surcharging event would result in significant financial and environmental consequences. This deficiency could be addressed in two ways:

- The existing 9,100 feet of trunk line along the Tuachan Wash between Pioneer Parkway and Snow Canyon H.S. (3,740 feet of 12-inch pipe which transitions to 5,360 feet of 15-inch pipe) could be replaced with a new 18-inch and 21-inch pipe. The upsized line will provide the necessary capacity to convey wastewater flows through buildout.
- Rather than replacing the existing pipe, a new parallel 15-inch line (9,100 feet) could be installed to accommodate future flows.

As part of this replacement project, the City may decide to investigate the possibility of a new sewer line alignment. The current alignment is problematic in that it runs directly down an active drainage wash, making the pipe susceptible to excessive inflow and infiltration. The options for realignment are limited, but it may be worth evaluating different alternatives during the design phase that would improve the overall functionality of the pipe, such as locating the pipe further away from the main drainage channel. If no other reasonable options are available for realignment, fusible HDPE could be installed in this reach of pipe in order to limit the risk of I&I entering the pipe at joints.

Since the Lower Tuachan Wash line serves both Ivins City and Santa Clara, the cost of carrying out the recommended improvements should be shared between each City on the basis of proportional flow. Based on the calculations and assumptions from this study as well as the 2013 Santa Clara Impact Fee Facilities Plan prepared by Sunrise Engineering, the percentage of flow attributed to Ivins and Santa Clara in the Lower Tuachan Wash line from Pioneer Parkway to Snow Canyon High School is summarized in Table 6-1.

Table 6-1
Tuacahn Wash Sewer Line Usage Distribution

Condition	% Flow from Ivins	% Flow from Santa Clara
Existing	83%	17%
10-Year Growth	80%	20%
Buildout	81%	19%

*Flow distribution estimate is based on flow of 168 gpd per ERU from Ivins and 286 gpd per ERU from Santa Clara

As shown in the table, while there is some anticipated fluctuation in the proportional usage of the Tuacahn Wash sewer line over time, at buildout it is expected that 81% of the flow in the line will come from Ivins and 19% will come from Santa Clara. Based on the information in Table 6-1, Ivins City should plan to pay for 83% of project S-1A (short-term improvements) and 81% of project S-1B (long-term improvements).

Ivins City and Santa Clara City have been in contact with the City of St. George to discuss the possibility of turning this reach of pipe over the St. George to be managed as a regional sewer line. St. George is willing to consider this option, but will require that the improvements associated with project S-1 (A&B) be completed prior to taking ownership. It should be reiterated that discussions between Ivins City and St. George City regarding the Lower Tuacahn Wash trunk line are in the preliminary stages and no formal agreements have been completed at this point.

S-2. STEP/STEG Transmission Line Improvements
Construction Date: 2017

Developers have recently installed two STEP/STEG transmission lines to serve existing and future development in Kayenta. Unlike conventional sewer systems, STEP/STEG lines typically do not utilize manholes, resulting in limited aeration to the wastewater as it flows through the system. Without oxygen present, wastewater begins to undergo anaerobic digestion in the collection pipes, the byproduct of which is hydrogen sulfide. Hydrogen sulfide is a corrosive gas that is well-known for causing structural damage to concrete pipes and manholes in sewer collection systems.

The STEP/STEG sewer line from Kayenta ties into the conventional system at 600 West & 200 North. City personnel have reported that, in the short time the STEP/STEG lines have been in operation, significant damage has occurred to the first two manholes in the system (the manholes closest to the outfall from the STEP/STEG line). This damage has been caused by the sudden release of built-up hydrogen sulfide gas in the STEP/STEG line as it enters the first concrete manhole. Damage will continue to occur to these manholes if this issue is not addressed, which will result in frequent repairs or replacement.

There are methods available which can be used to address problems associated with hydrogen sulfide in STEP/STEG systems, including the installation of valves and aerators or by protecting the manhole in order to limit hydrogen sulfide damage. The cost associated with these improvements should be paid for by the developer(s) who installed the line. It is recommended that hydrogen sulfide mitigation techniques be considered in the design and construction of any new STEP/STEG lines which the City approves in the future.

S-3. 200 West Sewer Diversion Project
Construction Date: 2019

As shown in Figure 5-3 of Chapter 5, estimated flows at buildout will cause a string of pipe deficiencies down the primary corridor of the collection system. One option to address these deficiencies is to replace the undersized lines with larger pipes. However, an alternative approach is to investigate locations to divert sewer flows away from these potentially deficient sections of pipe. Two points of diversion were evaluated for the system: 400 South & 400 West and 400 South & 200 West.

After evaluating both options, it is recommended that a new 10-inch sewer line be installed along 200 W from 400 South to Highway 91 (approximately 2,500 feet). This improvement project serves a number of purposes:

- The diversion will eliminate the need to replace a significant portion of existing sewer pipe which would otherwise be deficient at buildout (see deficiencies 4-7 in Table 5-3).
- Ivins City personnel have reported multiple sewer backups in the system near 400 South & 100 West which have occurred during storm events. This diversion pipe will help prevent future surcharging and sewer backups from occurring in this area.
- The project extends sewer service to the area south of 400 South between 400 West & 200 West.

S-4. Highway 91 Sewer Line Expansion Project
Construction Date: 2021

As growth continues in Ivins City, sewer collection infrastructure will need to be expanded. It is recommended that the City extend 3,100 feet of new 10" sewer collection line along Highway 91 from the intersection of Fitness Way & Highway 91 up to 600 West. This improvement project will provide two major benefits for the City. First, it will extend sewer service to future users along the Highway 91 corridor. Second, the project will reduce the amount of flow routed into existing areas of the system which have a risk of becoming deficient as the City continues to grow.

S-5. Lift Station VFD Project
Construction Date: 2027

In order to limit surges of wastewater flow in the collection system, it is recommended that the Ivins lift station be equipped with a variable frequency drive (VFD). The VFD will allow the pump to operate at variable speeds and will help attenuate peak flows through the section of pipe downstream of the lift station. This improvement will eliminate deficiency #11 from Table 5-3.

S-6. 800 South & 400 East to Pioneer Parkway Pipe Replacement
Construction Date: 2028

The 12" sewer line which runs from 800 South & 400 East in Ivins through Santa Clara to the intersection of Pioneer Parkway & Red Mountain Drive (Lava Flow trunk line) serves as a major trunk line to convey wastewater from Ivins City to the St. George City sewer collection system. At buildout, this section of sewer line will not have adequate capacity and will become a bottleneck in the system, causing wastewater to back up into collection pipes on 400 East.

Replacing this 4,850 foot long reach of pipe with a new 18-inch line will provide adequate flow capacity for estimated buildout flows. Since this pipe serves both Ivins and Santa Clara, the cost to upsize this line should be shared between the two entities. Estimates from this master plan would assign 87% of the project cost to Ivins and the remaining 13% to Santa Clara.

S-7. 800 South from 200 East to 400 East Pipe Replacement
Construction Date: 2029

1,330 feet of the 12-inch line in 800 South which runs from 200 East to 400 East serves as a major interceptor for the Ivins City system. Model simulations have indicated that this pipe will be

undersized under predicted buildout flows. Replacing this 12-inch pipe with a new 15-inch pipe will provide the necessary capacity for the City through buildout.

S-8. 800 South from 90 East to 200 East Pipe Replacement
Construction Data: 2030

The existing lift station at 400 West/Earl Drive currently pumps wastewater through a 6-inch force main to an 8-inch gravity line which runs toward Highway 91 along Fitness Way to the south of the Movara Fitness Resort. When the pipe reaches Highway 91, the 8-inch line transitions to a 12-inch line. The 12-inch line runs southeast on Highway 91 and then turns east onto 800 South. At approximately 90 East & 800 South, the pipe transitions back to an 8-inch pipe and continues to the intersection of 200 East and 800 South. While this pipe is currently not creating any capacity issues for the system, it is not large enough for predicted buildout flows. To properly convey estimated buildout flows, this line should be replaced with approximately 750 feet of new 12-inch sewer pipe.

S-9. 400 West from 200 South to 400 South Pipe Replacement
Construction Date: 2040+

The reach of 8-inch sewer pipe which runs along 400 West between 200 South and 400 South does not have sufficient capacity in the buildout model. Replacing this 8-inch pipe with a new 10-inch pipe (approximately 1,530 feet) would provide adequate capacity for projected flows at buildout.

The projects identified in this chapter are summarized in Table 6-2. The table shows the estimated total 2016 cost for each project along with the percentage of the total cost which will be paid for by Ivins City.

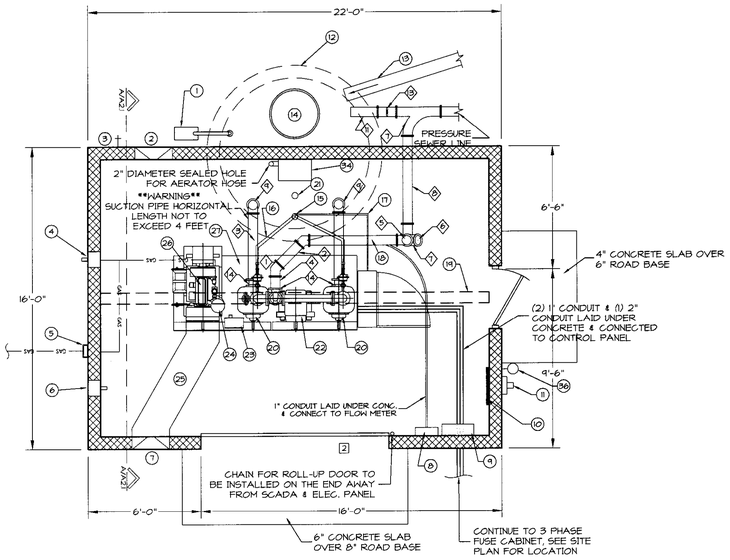
Table 6-2
Ivins City Capital Improvement Projects through Buildout

Project Identifier	Project Year	Description	Unit	Quantity	Unit Cost*	Estimated 2016 Construction Cost	% Paid by Ivins City	Total 2016 Cost to Ivins City
S-1A	2017	Tuacahn Wash Sewer Transmission Line Repairs (Short Term Improvements)	LS	1	$100,000	$100,000	83%	$83,000
S-1B	2023	Tuachan Wash Sewer Transmission Line Replacement (Long Term Improvements)	LF	9,100	$160	$1,456,000	81%	$1,179,360
S-2	2017	Kayenta STEP/STEG Transmission Line Improvements	LS	1	$40,000	$40,000	0%	$0
S-3	2019	200 West 10-inch Sewer Diversion Project	LF	2,500	$155	$387,500	100%	$387,500
S-4	2021	Highway 91 10-inch Sewer Line Expansion Project	LF	3,100	$165	$511,500	100%	$511,500
S-5	2027	Lift Station VFD Upgrade Project	LS	1	$5,000	$5,000	100%	$5,000
S-6	2028	800 South/400 East to Pioneer Parkway 18-inch Pipe Replacement Project	LF	4,850	$170	$824,500	87%	$717,315
S-7	2029	800 South from 200 East to 400 East 15-inch Pipe Replacement Project	LF	1,330	$190	$252,700	100%	$252,700
S-8	2030	800 South from 90 East to 200 East 12-inch Pipe Replacement Project	LF	750	$180	$135,000	100%	$135,000
S-9	2040	400 West from 200 South to 400 South 10-inch Pipe Replacement Project	LF	1,530	$165	$252,450	100%	$252,450
		TOTAL				**$3,964,650**		**$3,523,825**

*Includes markup for estimated engineering fees and administration. A detailed summary of the unit price estimates for pipe replacement projects are found in Appendix B.

APPENDIX A

LIFT STATION RECORD DRAWINGS & PUMP CURVE



LIFT STATION FLOOR PLAN

SCALE: 1/4"=1'-0" TOTAL AREA: 352 SQ. FT.

LEGEND

①	DOOR TAG, SEE SHEET A2.2
—— GAS ——	GAS LINE, INSTALLED UNDER BUILDING PAD

PUMP PLUMBING LEGEND

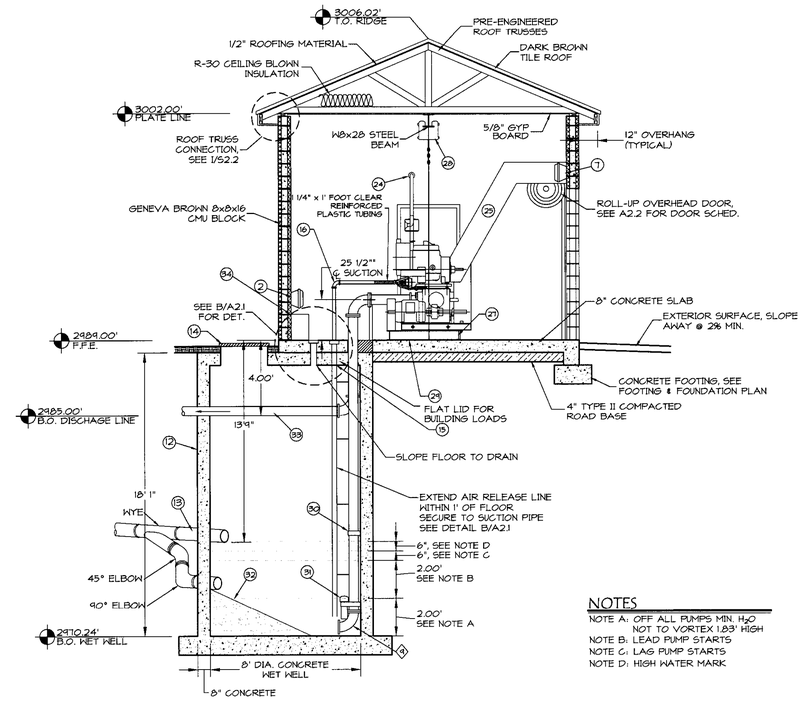
- ◇1 6" 45° ELBOW
- ◇2 (6") 0'-7" FLG. x FLG. SPOOL
- ◇3 (6") 2'-5" FLG. x FLG. SPOOL **MAX HORIZONTAL LENGTH IS 4'**
- ◇4 (6") 7" FLG. x FLG. SPOOL
- ◇5 6" 90° ELBOW
- ◇6 6" BLIND FLANGE W/2" FULL PORT VALVE BALL
- ◇7 6"x6"x6" D.I. "WYE"
- ◇8 (6") 5'0" FLG. SPOOL
- ◇9 8"x6" REDUCER
- ◇10 (6") 2'-0" FLG. SPOOL
- ◇11 6" GATE ECCENTRIC PLUG VALVE MARKED SEWER
- ◇12 6" X 4" REDUCER

NOTE:
ALL LENGTHS ARE APPROXIMATE & MUST BE FIELD VERIFIED BY CONTRACTOR.

EQUIPMENT LEGEND

1. WET WELL CLEANING SYSTEM, SEE DETAIL A/A2.1
2. VANDAL RESISTANT 2'x2' RUSKIN LOUVER & DAMPER OR APPROVED EQUAL NEAR BOTTOM OF WALL
3. FROST FREE HOSE BIBB
4. GAS HEATER & BLOWER, AS APPROVED BY ENGINEER
5. GAS INLET
6. EXHAUST FAN COOK MODEL NO. APD24P8DA OR EQUIV. AS APPROVED BY ENGINEER LOCATE NEAR TOP OF WALL
7. VANDAL RESISTANT 2'x2' RUSKIN LOUVER & DAMPER OR APPROVED EQUAL
8. FLOW METER BOX
9. SCADA PANEL, BOX ONLY FOR FUTURE SYSTEM, RUN POWER TO BOX
10. SURFACE MOUNTED ELECTRICAL PANEL
11. ELECTRIC METER
12. 8' DIAMETER PRECAST CONCRETE WET WELL W/HS-20 TRAFFIC RATED TOP AND LID
13. 8" SEWER INVERT
14. 30" MANHOLE FRAME & COVER
15. 4" SUCTION & SERVICE LINE WITH AIRTIGHT SEAL SEE DETAIL B/A2.1
16. 1 ½" PVC AIR RELEASE LINE
17. AIR BUBBLER EMBEDDED ¾" CONDUIT FROM OUTSIDE CENTRAL PANEL TO 4" SERVICE LINE
18. FLOW METER 6" ULTRA MAG WITH REQ'D. ATTACHMENTS
19. W8x28 STEEL BEAM (OVERHEAD)
20. GORMAN-RUPP MOTOR & PUMP, SEE A2.3 FOR EQUIPMENT SPECS. *
21. 4" FLOOR DRAIN WITH REMOVABLE AIR TIGHT SEAL
22. (2) MOTOR *
23. DC CONTROL PANEL *
24. EXHAUST SYSTEM, SEE DETAIL C/A2.1
25. 24 GUAGE DUCT FROM RADIATOR FAN ON NEW MOTOR TO LOUVER AND DAMPER (6'-6" MIN. OVERHEAD DISTANCE)
26. ENGINE *
27. PUMP & MOTOR BASE ASSEMBLY *
28. HARRINGTON 2 TON NTH NAVY TROLLY HOIST OR EQUIV.
29. VIBRATION DAMPENER, VIMCO CRMP PAD
30. 6" SUCTION LINE PVC SCHED. 80 FASTEN TO WALL W/STAINLESS STEEL STRAPS & BOLTS
31. BOTTOM OF AIR BELL STRAPPED TO INFLUENT PIPE WITH STAINLESS STEEL STRAPS 6" FROM FLOOR
32. CONCRETE FILLETS 30" MIN. WITH STEEL TROWEL FINISH
33. 6" PRESSURIZED DISCHARGE LINE
34. AERATOR-STOCK #68830 FROM USA BLUEBOOK
35. MUFFLER *
36. ALARM LIGHT *

* OWNER SUPPLIED MATERIAL WHICH REQUIRES CONTRACTOR INSTALLTION

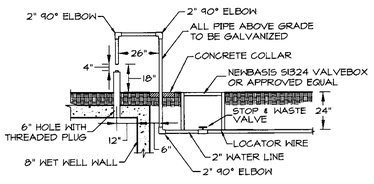


BUILDING SECTION 'A'

SCALE: NTS

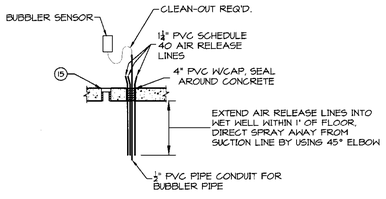
NOTES

NOTE A: OFF ALL PUMPS MIN. H_2O NOT TO VORTEX 1.83' HIGH
NOTE B: LEAD PUMP STARTS
NOTE C: LAG PUMP STARTS
NOTE D: HIGH WATER MARK



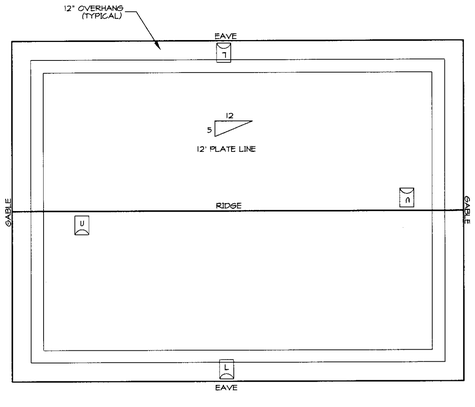
DETAIL A

SCALE: 1/4"=1'-0"



DETAIL B

SCALE: 1/4"=1'-0"



ROOF PLAN

SCALE: 1/4"=1'-0"

LEGEND

- INTEGRATED FLAT TILE UPPER ROOF VENT, CALCS. ARE FOR 1.0 sq. ft. NET VENT AREA, SEE CALCS. AND NOTES
- INTEGRATED FLAT TILE LOWER ROOF VENT, CALCS. ARE FOR 1.0 sq. ft. NET VENT AREA, SEE CALCS. AND NOTES

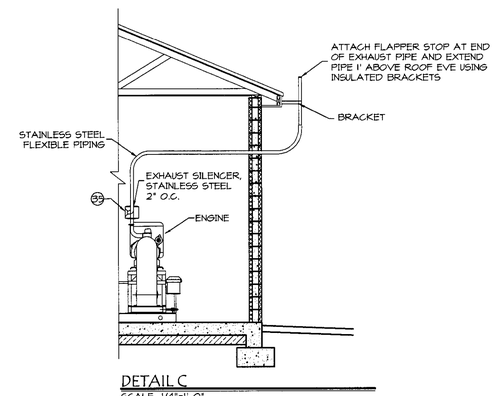
ATTIC VENTILATION CALCULATIONS

REQUIREMENTS:
ATTIC AREA = 432 sq. ft.
REQUIRED VENTILATION = 3 sq. ft. (1/150 OF TOTAL AREA)
REQUIRED UPPER VENTILATION = 1.5 sq. ft. (1/2 TOTAL REQ'D.)
REQUIRED LOWER VENTILATION = 1.5 sq. ft. (1/2 TOTAL REQ'D.)

PROVIDED VENTILATION:
UPPER VENTILATION:
USE FLAT TILE INTEGRATED ROOF VENT = 1.0 sq. ft.
VENTS PROVIDED = 2
LOWER VENTILATION:
USE FLAT TILE INTEGRATED ROOF VENT = 1.0 sq. ft.
VENTS PROVIDED = 2

NOTES

1. GENERAL CONTRACTOR SHALL VERIFY THAT VENTS USED ARE EQUIVALENT TO, OR EXCEED 1.0 sq. ft. NET FREE OPENING. THE TOTAL NET VENTILLATION OPENING AREA SHALL BE MAINTAINED.
2. EAVE AND RIDGE VENTING MAY BE UTILIZED IN PLACE OF VENTS IF TOTAL NET VENTILATION AREA IS MAINTAINED.



DETAIL C

SCALE: 1/4"=1'-0"

DATE:	June 1, 2007
JOB NO.:	4504-07-004
DRAWN BY:	C.J.R.
DESIGNED BY:	C.J.R.
SCALE:	AS NOTED
DWG:	

REVISIONS	DATE
CITY REVIEW	7/25/07
ENGINEER REVIEW	8/7/07
Engineer Review	11/27/07

ROSENBERG ASSOCIATES
CONSULTING ENGINEERS AND LAND SURVEYORS
352 East Riverside Drive, Suite A-2 St. George, Utah 84790
Phone (435) 673-8586 Fax (435) 673-8397

FLOOR, ROOF & BUILDING SECTION FOR IVINS SEWER LIFT STATION

WEST OF HIGHWAY 91
IVINS, UTAH

PROFESSIONAL ENGINEER
11-27-07

SHEET
A2.1
17 OF 21 SHEETS

PERFORMANCE CURVE

REPRIMING LIFTS							
RPM	650	750	850	950	1050	1150	1250 - 1950
FEET	5	8	16	19	22	24	25
METERS	1.5	2.4	4.9	5.8	6.7	7.3	7.6

Figure NPSH required prior to using above table. DO NOT use as available Suction Lifts.

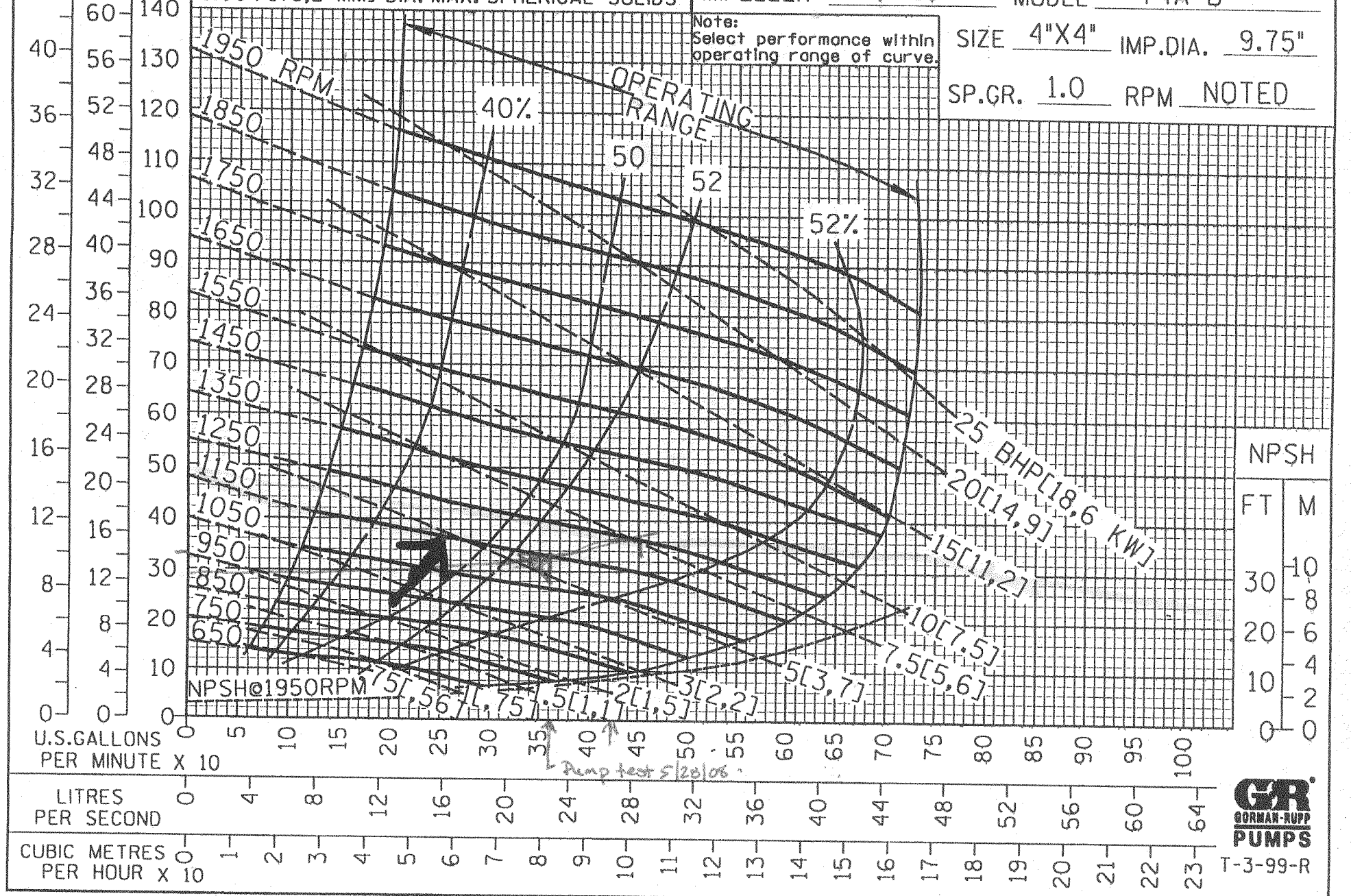
3.00"/[76,2 MM] DIA. MAX. SPHERICAL SOLIDS

VOLUTE 10525B CURVE T4A-B-4

IMPELLER 10528 MODEL T4A-B

SIZE 4"X4" IMP.DIA. 9.75"

SP.GR. 1.0 RPM NOTED



GORMAN-RUPP PUMPS

T-3-99-R

FILE NO. T4ab.s04

APPENDIX B

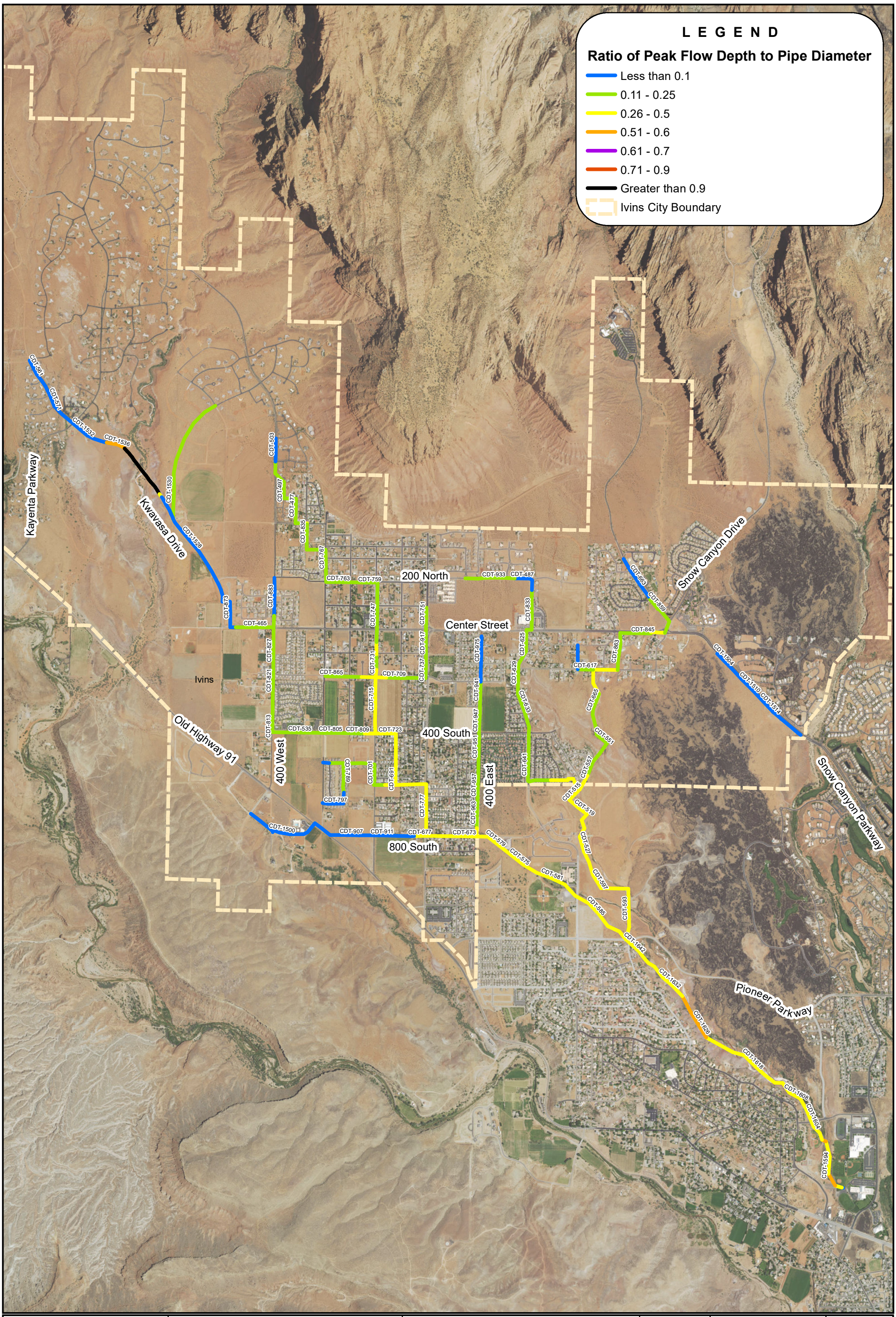
COST ESTIMATE DETAILED UNIT PRICE

Summary of Pipe Replacement Unit Costs

Project Identifier	Project Year	Description	Unit	Quantity	Pipe & Trenching $/ft	Manholes $/ft	Road Cut & Repair $/ft	Dewatering/ Rock Excavation $/ft	Utility Conflicts/ Laterals $/ft	Traffic Control $/ft	Access Difficulty $/ft	Sewer Diversion/Connection $/ft	Engineering & Admin	Total Unit Cost (calculated)	Unit Cost Use	Estimated 2016 Construction Cost	% Paid by Ivins City	Total 2016 Cost to Ivins City
S-1B	2023	Tuachan Wash Sewer Transmission Line Replacement (Long Term Improvements)	LF	9,100	$60	$20	$15	$10	$5	$2	$20	$5	15%	$158	$160	$1,456,000	81%	$1,179,360
S-3	2019	200 West 10-inch Sewer Diversion Project	LF	2,500	$40	$20	$54	$10	$7	$4		$0	15%	$155	$155	$387,500	100%	$387,500
S-4	2021	Highway 91 10-inch Sewer Line Expansion Project	LF	3,100	$40	$20	$54	$10	$10	$10		$0	15%	$166	$165	$511,500	100%	$511,500
S-6	2028	800 South/400 East to Pioneer Parkway 18-inch Pipe Replacement Project	LF	4,850	$60	$20	$20	$10	$5	$3	$20	$10	15%	$170	$170	$824,500	87%	$717,315
S-7	2029	800 South from 200 East to 400 East 15-inch Pipe Replacement Project	LF	1,330	$50	$20	$54	$10	$10	$10		$10	15%	$189	$190	$252,700	100%	$252,700
S-8	2030	800 South from 90 East to 200 East 12-inch Pipe Replacement Project	LF	750	$45	$20	$54	$10	$10	$5		$10	15%	$177	$180	$135,000	100%	$135,000
S-9	2040	400 West from 200 South to 400 South 10-inch Pipe Replacement Project	LF	1,530	$40	$20	$54	$10	$10	$5		$5	15%	$166	$165	$252,450	100%	$252,450
		TOTAL														**$3,819,650**		**$3,435,825**

APPENDIX C

DETAILED HYDRAULIC MODEL OUTPUT



OUR HOME BENEATH THE BIG RED MOUNTAIN — IVINS UTAH	IVINS CITY 2016 SEWER MASTER PLAN	EXISTING CONDITIONS HYDRAULIC MODEL RESULTS	NORTH: NORTH	SCALE: 0 1,100 2,200 Feet	FIGURE NO. A-1

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure A1 - Existing Conditions Model Output.mxd aanderson 9/19/2016

Print Report

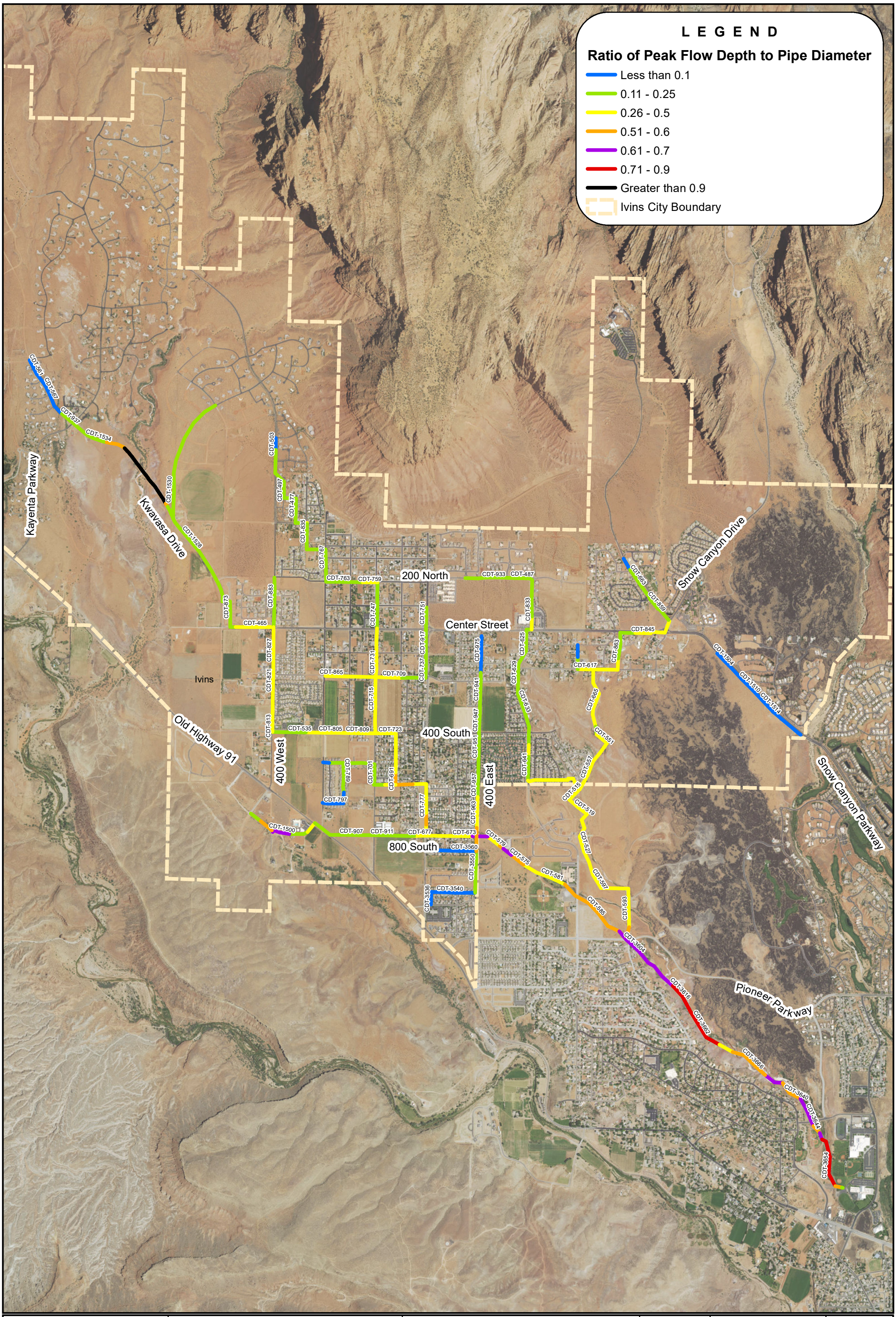
	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
1	CDT-1500	0.500	2.091	6.564	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.014	2.091	0.000	0.107	0.010	0.010	0.010	0.010	0.010	0
2	CDT-1502	0.833	3.926	2.736	0.0002150	Free Surface	0 - 11:00:00 hrs	0.009	0.009	0.000	0.109	3.926	0.000	0.519	0.010	0.010	0.010	0.010	0.010	0
3	CDT-1504	0.833	5.417	5.208	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	5.417	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
4	CDT-1506	0.833	5.294	4.974	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	5.294	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
5	CDT-1508	0.833	3.640	2.352	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	3.640	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
6	CDT-1510	0.833	3.347	1.988	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	3.347	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
7	CDT-1512	0.833	2.858	1.450	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	2.858	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
8	CDT-1514	0.833	3.229	1.850	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	3.229	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
9	CDT-1516	0.833	3.115	1.723	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	3.115	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
10	CDT-1518	0.833	4.305	3.289	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.033	4.305	0.000	0.294	0.010	0.010	0.010	0.010	0.010	0
11	CDT-1520	0.833	5.104	4.624	0.0391520	Free Surface	0 - 10:30:00 hrs	3.093	3.093	0.008	0.058	5.065	0.011	0.388	0.010	0.010	0.010	0.010	0.010	0
12	CDT-1522	2.000	53.133	4.700	0.0391520	Free Surface	0 - 10:29:00 hrs	2.457	2.457	0.001	0.021	53.094	0.011	0.572	0.010	0.010	0.010	0.010	0.010	0
13	CDT-1524	1.000	3.958	1.052	0.9558110	Free Surface	0 - 11:02:00 hrs	4.093	4.093	0.241	0.338	3.003	0.286	0.946	0.010	0.010	0.010	0.010	0.010	0
14	CDT-1526	1.000	4.046	1.099	0.9593760	Free Surface	0 - 11:02:00 hrs	4.222	4.222	0.237	0.331	3.087	0.288	0.941	0.010	0.010	0.010	0.010	0.010	0
15	CDT-1528	0.667	1.360	1.079	0.0242520	Free Surface	0 - 11:00:59 hrs	1.578	1.579	0.018	0.089	1.336	0.007	0.379	0.010	0.010	0.010	0.010	0.010	0
16	CDT-1530	0.500	1.020	2.815	0.0251800	Free Surface	0 - 11:00:00 hrs	1.950	2.093	0.025	0.117	0.995	0.007	0.321	0.010	0.010	0.010	0.010	0.010	0
17	CDT-1532	0.500	0.768	1.598	0.0147820	Free Surface	0 - 11:00:00 hrs	1.543	1.553	0.019	0.096	0.754	0.004	0.294	0.010	0.010	0.010	0.010	0.010	0
18	CDT-1534	0.500	0.837	1.896	0.0147880	Free Surface	0 - 10:33:59 hrs	1.738	1.752	0.018	0.088	0.822	0.004	0.283	0.010	0.010	0.010	0.010	0.010	0
19	CDT-1536	0.500	1.088	3.202	0.0147810	Free Surface	0 - 11:00:00 hrs	0.136	0.136	0.014	0.541	1.073	0.004	0.499	0.010	0.010	23.998	0.010	0.010	0
20	CDT-1538	0.500	1.432	5.550	0.0145320	Backwater	0 - 00:02:00 hrs	0.074	0.074	0.010	1.000	1.418	0.004	0.196	23.998	23.998	24.000	0.010	0.010	0
21	CDT-1540	0.500	1.053	2.998	0.0122670	Backwater	0 - 00:00:00 hrs	0.062	0.062	0.012	1.000	1.040	0.003	0.196	24.000	24.000	24.000	0.010	0.010	0
22	CDT-1542	0.500	1.049	2.979	0.0128170	Backwater	0 - 00:00:00 hrs	0.065	0.065	0.012	1.000	1.036	0.003	0.196	24.000	24.000	24.000	0.010	0.010	0
23	CDT-1544	0.500	0.566	0.868	0.0109060	Backwater	0 - 11:37:59 hrs	0.056	0.056	0.019	1.000	0.555	0.003	0.196	24.000	24.000	24.000	0.010	0.010	0
24	CDT-1546	0.500	0.220	0.131	0.0108320	Backwater	0 - 11:37:59 hrs	0.055	0.055	0.049	1.000	0.209	0.002	0.196	24.000	24.000	24.000	0.010	0.010	0
25	CDT-1548	0.500	0.607	0.999	0.0107380	Backwater	0 - 11:37:59 hrs	0.055	0.055	0.018	1.000	0.597	0.002	0.196	24.000	24.000	24.000	0.010	0.010	0
26	CDT-1550	0.500	0.609	1.003	0.0106100	Backwater	0 - 11:38:59 hrs	0.054	0.054	0.017	1.000	0.598	0.002	0.196	24.000	24.000	24.000	0.010	0.010	0
27	CDT-1552	0.500	1.050	2.983	0.0104520	Backwater	0 - 11:38:59 hrs	0.053	0.053	0.010	1.000	1.039	0.002	0.196	24.000	24.000	24.000	0.010	0.010	0
28	CDT-1554	0.500	1.138	3.505	0.0118690	Backwater	0 - 00:00:00 hrs	0.060	0.060	0.010	1.000	1.126	0.002	0.196	24.000	24.000	24.000	0.010	0.010	0
29	CDT-1556	0.500	1.366	5.047	0.0122210	Backwater	0 - 00:00:00 hrs	0.062	0.062	0.009	1.000	1.353	0.001	0.196	24.000	24.000	24.000	0.010	0.010	0
30	CDT-1558	0.500	1.213	3.982	0.0123600	Backwater	0 - 00:00:00 hrs	0.063	0.063	0.010	1.000	1.201	0.001	0.196	24.000	24.000	24.000	0.010	0.010	0
31	CDT-1560	0.500	1.423	5.479	0.0121800	Backwater	0 - 00:00:00 hrs	0.062	0.062	0.009	1.000	1.411	0.001	0.196	24.000	24.000	24.000	0.010	0.010	0
32	CDT-1562	0.500	1.287	4.481	0.0117000	Backwater	0 - 00:00:00 hrs	0.116	0.116	0.009	1.000	1.275	0.001	0.196	20.118	20.118	24.000	0.010	0.010	0
33	CDT-1564	0.500	1.398	5.293	0.0091280	Backwater	0 - 11:38:59 hrs	0.087	0.087	0.007	1.000	1.389	0.001	0.500	11.186	11.186	12.389	0.010	0.010	0
34	CDT-1566	0.500	1.259	4.291	0.0062120	Backwater	0 - 19:32:59 hrs	0.060	0.060	0.005	1.000	1.253	0.000	0.500	2.954	2.954	4.494	0.010	0.010	0
35	CDT-1568	0.500	0.979	2.594	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.500	0.979	0.000	0.500	0.010	0.010	0.010	0.010	0.010	0
36	CDT-1570	0.500	0.299	0.242	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	0.299	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
37	CDT-1572	0.500	0.308	0.257	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	0.308	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
38	CDT-1574	0.500	0.271	0.198	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	0.271	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
39	CDT-1576	0.500	0.791	1.693	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.063	0.791	0.000	0.243	0.010	0.010	0.010	0.010	0.010	0
40	CDT-1578	0.500	1.534	6.367	0.0149750	Backwater	0 - 00:02:00 hrs	0.076	0.076	0.010	1.000	1.519	0.004	0.196	24.000	24.000	24.000	0.010	0.010	0
41	CDT-1580	0.500	1.063	3.059	0.0145760	Backwater	0 - 00:02:00 hrs	0.074	0.074	0.014	1.000	1.049	0.003	0.196	24.000	24.000	24.000	0.010	0.010	0
42	CDT-1582	0.500	1.390	5.229	0.0135500	Backwater	0 - 00:02:00 hrs	0.069	0.069	0.010	1.000	1.377	0.003	0.196	24.000	24.000	24.000	0.010	0.010	0
43	CDT-1584	1.000	5.958	2.383	1.3099820	Free Surface	0 - 11:00:00 hrs	4.633	4.635	0.220	0.389	4.648	0.393	0.975	0.010	0.010	0.010	0.010	0.010	0
44	CDT-1586	1.000	3.279	0.722	1.3096960	Free Surface	0 - 11:00:59 hrs	4.132	4.133	0.399	0.424	1.969	0.393	0.988	0.010	0.010	0.010	0.010	0.010	0
45	CDT-1588	1.250	127.540	332.147	2.2357990	Free Surface	0 - 11:25:00 hrs	38.884	38.884	0.018	0.093	125.304	0.686	0.724	0.010	0.010	0.010	0.010	0.010	0
46	CDT-1590	1.250	4.499	0.413	2.2357990	Free Surface	0 - 11:25:00 hrs	5.266	5.266	0.497	0.378	2.263	0.686	1.212	0.010	0.010	0.010	0.010	0.010	0
47	CDT-1592	1.250	4.612	0.434	2.2369560	Free Surface	0 - 11:22:59 hrs	3.057	3.058	0.485	0.576	2.375	0.686	1.250	0.010	0.010	0.010	0.010	0.010	0
48	CDT-1594	1.250	4.515	0.416	2.2382970	Free Surface	0 - 11:22:00 hrs	3.663	3.664	0.496	0.498	2.277	0.686	1.250	0.010	0.010	0.010	0.010	0.010	0
49	CDT-1596	1.250	4.652	0.442	2.2390820	Free Surface	0 - 11:19:59 hrs	3.666	3.666	0.481	0.498	2.413	0.686	1.250	0.010	0.010	0.010	0.010	0.010	0
50	CDT-1598	1.250	4.363	0.389	2.2389830	Free Surface	0 - 11:18:59 hrs	3.538	3.538	0.513	0.512	2.124	0.686	1.250	0.010	0.010	0.010	0.010	0.010	0
51	CDT-1600	1.250	7.311	1.091	2.2391330	Free Surface	0 - 11:18:59 hrs	4.101	4.101	0.306	0.457	5.072	0.686	1.245	0.010	0.010	0.010	0.010	0.010	0
52	CDT-1602	1.250	6.790	0.941	2.2392970	Free Surface	0 - 11:18:00 hrs	4.989	4.989	0.330	0.394	4.551	0.686	1.221	0.010	0.010	0.010	0.010	0.010	0
53	CDT-1604	1.250	4.889	0.488	2.2396970	Free Surface	0 - 11:17:00 hrs	4.156	4.156	0.458	0.452	2.650	0.686	1.244	0.010	0.010	0.010	0.010	0.010	0
54	CDT-1606	1.250	6.588	0.886	2.2406840	Free Surface	0 - 11:15:00 hrs	4.192	4.194	0.340	0.449	4.347	0.686	1.243	0.010	0.010	0.010	0.010	0.010	0
55	CDT-1608	1.250	8.193	1.371	2.2411970	Free Surface	0 - 11:15:00 hrs	5.243	5.244	0.274	0.380	5.952	0.686	1.213	0.010	0.010	0.010	0.010	0.010	0
56	CDT-1610	1.250	6.870	0.964	2.2415400	Free Surface	0 - 11:14:00 hrs	5.174	5.174	0.326	0.383	4.628	0.686	1.215	0.010	0.010	0.010	0.010	0.010	0
57	CDT-1612	1.250	5.475	0.612	2.2416160	Free Surface	0 - 11:12:59 hrs	4.336	4.336	0.409	0.438	3.233	0.686	1.240	0.010	0.010	0.010	0.010	0.010	0
58	CDT-1614	1.250	5.377	0.590	2.2419310	Free Surface	0 - 11:11:59 hrs	4.069	4.069	0.417	0.460	3.135	0.686	1.246	0.010	0.010	0.010	0.010	0.010	0
59	CDT-1616	1.250	7.320	1.094	2.2422170	Free Surface	0 - 11:11:00 hrs	4.631	4.632	0.306	0.417	5.078	0.686	1.232	0.010	0.010	0.010	0.010	0.010	0
60	CDT-1618	1.250	6.930	0.981	2.2428150	Free Surface	0 - 11:10:00 hrs	5.080	5.080	0.324	0.389	4.687	0.686	1.218	0.010	0.010	0.010	0.010	0.010	0
61	CDT-1620	1.250	9.593	1.879	2.2429840	Free Surface	0 - 11:08:59 hrs	5.564	5.565	0.234	0.364	7.350	0.686	1.202	0.010	0.010	0.010	0.010	0.010	0
62	CDT-1622	1.250	8.126	1.348	2.2432840	Free Surface	0 - 11:07:59 hrs	5.852	5.852	0.276	0.350	5.883	0.686	1.192	0.010	0.010	0.010	0.010	0.010	0
63	CDT-1624	1.000	4.548	1.389	2.2434210	Free Surface	0 - 11:07:00 hrs	5.896	5.896	0.493	0.488	2.305	0.686	1.000	0.010	0.010	0.010	0.010	0.010	0
64	CDT-1626	1.000	4.369	1.281	2.2446920	Free Surface	0 - 11:04:59 hrs	5.567	5.569	0.514	0.511	2.124	0.686	1.000	0.010	0.010	0.010	0.010	0.010	0
65	CDT-1628	1.000	4.089	1.123	2.2470820	Free Surface	0 - 11:03:00 hrs	5.383	5.384	0.550	0.525	1.842	0.686	1.000	0.010	0.010	0.010	0.010	0.010	0
66	CDT-1630	1.000	5.166	1.792	2.2491610	Free Surface	0 - 11:02:00 hrs	5.722	5.724	0.435	0.500	2.917	0.686	1.000	0.010	0.010	0.010	0.010	0.010	0
67	CDT-1632	1.000	5.197	1.813	2.2515180	Free Surface	0 - 11:00:59 hrs	6.329	6.329	0.433	0.463	2.945	0.686	0.997	0.010	0.010	0.010	0.010	0.010	0
68	CDT-1634	1.000	4.873	1.594	2.2536520	Free Surface	0 - 11:00:59 hrs	6.110	6.110	0.463	0.476	2.619	0.686	0.999	0.010	0.010	0.010	0.010	0.010	0
69	CDT-1636	1.000	5.181	1.802	2.2556360	Free Surface	0 - 11:00:00 hrs	6.137	6.137	0.435	0.475	2.926	0.686	0.999	0.010	0.010	0.010	0.010	0.010	0
70	CDT-1638	1.000	6.756	3.064	2.2567690	Free Surface	0 - 11:00:00 hrs	6.985	6.986	0.334	0.430	4.500	0.686	0.990	0.010	0.010	0.010	0.010	0.010	0
71	CDT-1640	1.000	5.727	2.202	2.2585960	Free Surface	0 - 11:00:00 hrs	7.045	7.045	0.394	0.428	3.469	0.686	0.989	0.010	0.010	0.010	0.010	0.010	0
72	CDT-1642	1.000	5.051	1.713	2.1732620	Free Surface	0 - 11:03:00 hrs	6.175	6.176	0.430	0.459	2.878	0.657	0.997	0.010	0.010	0.010	0.010	0.010	0
73	CDT-465	0.667	1.061	0.657	0.0457850	Free Surface	0 - 11:00:00 hrs	1.499	1.499	0.043	0.143	1.015	0.014	0.466	0.010	0.010	0.010	0.010	0.010	0
74	CDT-467	0.667	1.029	0.618	0.0458220	Free Surface	0 - 11:00:00 hrs	1.287	1.308	0.045	0.159	0.983	0.014	0.487	0.010	0.010	0.010	0.010	0.010	0
75	CDT-469	0.667	1.110	0.719	0.0688290	Free Surface	0 - 11:00:00 hrs	1.866	1.878	0.062	0.163	1.042	0.020	0.492	0.010	0.010	0.010	0.010	0.010	0
76	CDT-471	0.667	0.751	0.329	0.1012580	Free Surface	0 - 11:00:00 hrs	1.167	1.167	0.135	0.297	0.649	0.029	0.609	0.010	0.010	0.010	0.010	0.010	0
77	CDT-473	0.667	2.020	2.382	0.1012580	Free Surface	0 - 11:00:00 hrs	1.151	1.151	0.050	0.300	1.919	0.029	0.611	0.010	0.010	0.010	0.010	0.010	0
78	CDT-475	0.667	2.268	3.002	0.0589020	Free Surface	0 - 11:00:00 hrs	1.945	1.949	0.026	0.142	2.209	0.017	0.465	0.010	0.010	0.010	0.010	0.010	0
79	CDT-477	0.667	1.706	1.699	0.0542690	Free Surface	0 - 11:00:00 hrs	2.344	2.344	0.032	0.118	1.652	0.016	0.430	0.010	0.010	0.010	0.010	0.010	0
80	CDT-479	0.667	2.304	3.097	0.1130560	Free Surface	0 - 11:00:00 hrs	2.860	2.949	0.049	0.170	2.191	0.032	0.501	0.010	0.010	0.010	0.010	0.010	0
81	CDT-481	0.667	2.266	2.997	0.0483200	Free Surface	0 - 10:41:00 hrs	2.540	2.541	0.021	0.103	2.218	0.014	0.405	0.010	0.010	0.010	0.010	0.010	0
82	CDT-483	0.667	2.495	3.633	0.0476590	Free Surface	0 - 10:38:59 hrs	2.684	2.684	0.019	0.098	2.448	0.014	0.397	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
83	CDT-485	0.667	2.018	2.376	0.0317750	Free Surface	0 - 10:37:00 hrs	1.984	2.059	0.016	0.092	1.986	0.009	0.384	0.010	0.010	0.010	0.010	0.010	0
84	CDT-487	0.667	1.319	1.015	0.0317760	Free Surface	0 - 10:34:59 hrs	1.762	1.762	0.024	0.099	1.287	0.009	0.399	0.010	0.010	0.010	0.010	0.010	0
85	CDT-489	0.667	1.021	0.608	0.0521390	Free Surface	0 - 10:55:00 hrs	1.783	1.783	0.051	0.138	0.969	0.015	0.460	0.010	0.010	0.010	0.010	0.010	0
86	CDT-491	0.667	2.056	2.467	0.0558400	Free Surface	0 - 10:56:00 hrs	2.365	2.365	0.027	0.120	2.001	0.016	0.433	0.010	0.010	0.010	0.010	0.010	0
87	CDT-493	0.833	2.314	0.950	0.3468850	Free Surface	0 - 11:00:00 hrs	2.817	2.817	0.150	0.277	1.967	0.098	0.746	0.010	0.010	0.010	0.010	0.010	0
88	CDT-495	0.667	1.012	0.597	0.0483120	Free Surface	0 - 11:00:00 hrs	1.634	1.634	0.048	0.140	0.963	0.014	0.462	0.010	0.010	0.010	0.010	0.010	0
89	CDT-497	0.667	2.446	3.492	0.0456650	Free Surface	0 - 10:37:00 hrs	1.822	1.863	0.019	0.124	2.401	0.013	0.440	0.010	0.010	0.010	0.010	0.010	0
90	CDT-499	0.667	1.761	1.809	0.0423550	Free Surface	0 - 10:48:00 hrs	1.597	1.681	0.024	0.129	1.719	0.012	0.447	0.010	0.010	0.010	0.010	0.010	0
91	CDT-501	0.667	0.992	0.574	0.0423550	Free Surface	0 - 10:32:00 hrs	1.714	1.715	0.043	0.123	0.949	0.012	0.438	0.010	0.010	0.010	0.010	0.010	0
92	CDT-503	0.667	2.429	3.443	0.0332560	Free Surface	0 - 10:03:59 hrs	2.643	2.695	0.014	0.078	2.396	0.010	0.358	0.010	0.010	0.010	0.010	0.010	0
93	CDT-505	0.667	3.091	5.574	0.0330950	Free Surface	0 - 10:10:00 hrs	2.131	2.199	0.011	0.090	3.058	0.010	0.380	0.010	0.010	0.010	0.010	0.010	0
94	CDT-507	0.667	1.231	0.884	0.2269300	Free Surface	0 - 11:00:00 hrs	2.989	3.008	0.184	0.270	1.004	0.066	0.591	0.010	0.010	0.010	0.010	0.010	0
95	CDT-509	0.667	1.967	2.257	0.2274210	Free Surface	0 - 11:00:00 hrs	3.534	3.534	0.116	0.240	1.739	0.066	0.569	0.010	0.010	0.010	0.010	0.010	0
96	CDT-511	0.667	1.760	1.807	0.2585590	Free Surface	0 - 11:00:00 hrs	2.750	2.860	0.147	0.314	1.501	0.075	0.619	0.010	0.010	0.010	0.010	0.010	0
97	CDT-513	0.833	3.172	1.786	0.6051610	Free Surface	0 - 11:00:00 hrs	4.212	4.212	0.191	0.309	2.567	0.173	0.770	0.010	0.010	0.010	0.010	0.010	0
98	CDT-515	0.833	2.702	1.296	0.6097160	Free Surface	0 - 11:00:00 hrs	3.924	3.924	0.226	0.328	2.093	0.174	0.782	0.010	0.010	0.010	0.010	0.010	0
99	CDT-517	0.833	2.613	1.212	0.6141210	Free Surface	0 - 11:00:00 hrs	3.897	3.897	0.235	0.331	1.999	0.175	0.784	0.010	0.010	0.010	0.010	0.010	0
100	CDT-519	0.833	2.635	1.233	0.6185430	Free Surface	0 - 11:00:00 hrs	3.874	3.874	0.235	0.334	2.017	0.177	0.786	0.010	0.010	0.010	0.010	0.010	0
101	CDT-521	0.833	2.578	1.179	0.6229650	Free Surface	0 - 11:00:00 hrs	3.875	3.875	0.242	0.336	1.955	0.178	0.787	0.010	0.010	0.010	0.010	0.010	0
102	CDT-523	0.833	2.674	1.269	0.6274410	Free Surface	0 - 11:00:00 hrs	3.992	3.992	0.235	0.330	2.047	0.180	0.784	0.010	0.010	0.010	0.010	0.010	0
103	CDT-525	0.833	2.726	1.319	0.6318550	Free Surface	0 - 11:00:00 hrs	3.972	3.972	0.232	0.333	2.094	0.181	0.785	0.010	0.010	0.010	0.010	0.010	0
104	CDT-527	0.833	2.587	1.188	0.6359750	Free Surface	0 - 11:00:00 hrs	3.896	3.896	0.246	0.340	1.951	0.182	0.789	0.010	0.010	0.010	0.010	0.010	0
105	CDT-529	0.833	2.591	1.192	0.6399270	Free Surface	0 - 11:00:00 hrs	3.904	3.904	0.247	0.341	1.951	0.184	0.790	0.010	0.010	0.010	0.010	0.010	0
106	CDT-531	1.000	2.770	0.515	0.1755150	Free Surface	0 - 11:00:00 hrs	1.984	1.984	0.063	0.170	2.594	0.053	0.750	0.010	0.010	0.010	0.010	0.010	0
107	CDT-533	1.000	3.010	0.608	0.1758080	Free Surface	0 - 11:00:00 hrs	2.021	2.021	0.058	0.168	2.834	0.053	0.747	0.010	0.010	0.010	0.010	0.010	0
108	CDT-535	1.000	3.015	0.610	0.1055980	Free Surface	0 - 11:08:59 hrs	1.558	1.558	0.035	0.145	2.910	0.032	0.705	0.010	0.010	0.010	0.010	0.010	0
109	CDT-537	1.000	2.803	0.527	0.1057180	Free Surface	0 - 11:07:00 hrs	1.740	1.740	0.038	0.131	2.697	0.032	0.674	0.010	0.010	0.010	0.010	0.010	0
110	CDT-539	0.667	0.965	0.543	0.0785960	Free Surface	0 - 10:56:59 hrs	1.616	1.645	0.081	0.197	0.886	0.023	0.530	0.010	0.010	0.010	0.010	0.010	0
111	CDT-541	0.667	1.160	0.785	0.1090650	Free Surface	0 - 11:00:00 hrs	1.822	1.823	0.094	0.228	1.051	0.031	0.559	0.010	0.010	0.010	0.010	0.010	0
112	CDT-543	0.667	0.977	0.557	0.1123740	Free Surface	0 - 11:00:00 hrs	2.262	2.262	0.115	0.200	0.864	0.032	0.533	0.010	0.010	0.010	0.010	0.010	0
113	CDT-545	0.667	2.041	2.430	0.1090650	Free Surface	0 - 11:00:00 hrs	2.511	2.511	0.053	0.182	1.932	0.031	0.514	0.010	0.010	0.010	0.010	0.010	0
114	CDT-547	0.833	2.331	0.964	0.3468810	Free Surface	0 - 11:00:59 hrs	3.632	3.632	0.149	0.231	1.984	0.098	0.702	0.010	0.010	0.010	0.010	0.010	0
115	CDT-549	0.833	4.992	4.424	0.3468800	Free Surface	0 - 11:00:59 hrs	4.593	4.593	0.069	0.196	4.646	0.098	0.662	0.010	0.010	0.010	0.010	0.010	0
116	CDT-551	0.833	3.474	2.142	0.3468790	Free Surface	0 - 11:00:59 hrs	4.049	4.049	0.100	0.214	3.127	0.098	0.684	0.010	0.010	0.010	0.010	0.010	0
117	CDT-553	0.833	3.436	2.095	0.3468760	Free Surface	0 - 11:02:00 hrs	3.992	3.992	0.101	0.216	3.089	0.098	0.686	0.010	0.010	0.010	0.010	0.010	0
118	CDT-555	0.833	3.325	1.962	0.3468740	Free Surface	0 - 11:03:00 hrs	3.848	3.848	0.104	0.222	2.978	0.098	0.693	0.010	0.010	0.010	0.010	0.010	0
119	CDT-557	0.833	3.192	1.809	0.3468720	Free Surface	0 - 11:03:00 hrs	3.932	3.932	0.109	0.219	2.845	0.098	0.689	0.010	0.010	0.010	0.010	0.010	0
120	CDT-559	0.833	3.539	2.223	0.3468680	Free Surface	0 - 11:03:59 hrs	3.224	3.273	0.098	0.254	3.192	0.098	0.725	0.010	0.010	0.010	0.010	0.010	0
121	CDT-561	0.500	0.636	1.095	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	0.636	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
122	CDT-563	0.500	1.359	5.000	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.359	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
123	CDT-565	0.500	1.118	3.382	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.118	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
124	CDT-567	0.500	1.235	4.130	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.235	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
125	CDT-569	0.500	0.816	1.804	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.044	0.816	0.000	0.204	0.010	0.010	0.010	0.010	0.010	0
126	CDT-571	0.500	1.234	4.120	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.234	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
127	CDT-573	1.000	5.055	1.716	1.3198470	Free Surface	0 - 11:03:00 hrs	5.528	5.528	0.261	0.343	3.736	0.397	0.950	0.010	0.010	0.010	0.010	0.010	0
128	CDT-575	1.000	4.310	1.247	1.3146930	Free Surface	0 - 11:02:00 hrs	4.940	4.940	0.305	0.372	2.995	0.395	0.966	0.010	0.010	0.010	0.010	0.010	0
129	CDT-579	1.000	4.536	1.381	1.3045510	Free Surface	0 - 11:00:00 hrs	5.299	5.299	0.288	0.351	3.231	0.391	0.954	0.010	0.010	0.010	0.010	0.010	0
130	CDT-581	1.000	5.598	2.104	1.3246220	Free Surface	0 - 11:03:59 hrs	5.303	5.304	0.237	0.355	4.274	0.399	0.957	0.010	0.010	0.010	0.010	0.010	0
131	CDT-583	1.000	4.347	1.268	1.3260800	Free Surface	0 - 11:04:59 hrs	4.620	4.620	0.305	0.397	3.021	0.400	0.978	0.010	0.010	0.010	0.010	0.010	0
132	CDT-585	1.000	4.355	1.273	1.5373300	Free Surface	0 - 11:00:00 hrs	5.153	5.153	0.353	0.405	2.817	0.465	0.982	0.010	0.010	0.010	0.010	0.010	0
133	CDT-587	1.000	4.684	1.473	1.5340790	Free Surface	0 - 11:00:00 hrs	5.202	5.202	0.328	0.402	3.150	0.466	0.980	0.010	0.010	0.010	0.010	0.010	0
134	CDT-589	1.000	4.483	1.349	1.5318810	Free Surface	0 - 11:00:59 hrs	5.183	5.183	0.342	0.402	2.951	0.466	0.981	0.010	0.010	0.010	0.010	0.010	0
135	CDT-591	1.000	4.644	1.448	1.5306070	Free Surface	0 - 11:00:59 hrs	4.756	4.758	0.330	0.429	3.114	0.466	0.990	0.010	0.010	0.010	0.010	0.010	0
136	CDT-593	1.000	3.422	0.786	0.6423720	Free Surface	0 - 11:07:00 hrs	3.338	3.339	0.188	0.294	2.780	0.185	0.911	0.010	0.010	0.010	0.010	0.010	0
137	CDT-595	0.833	2.689	1.284	0.6438720	Free Surface	0 - 11:00:00 hrs	4.178	4.178	0.239	0.326	2.046	0.185	0.781	0.010	0.010	0.010	0.010	0.010	0
138	CDT-597	0.833	3.076	1.680	0.6434880	Free Surface	0 - 11:00:59 hrs	3.879	3.880	0.209	0.344	2.433	0.185	0.791	0.010	0.010	0.010	0.010	0.010	0
139	CDT-599	1.000	3.007	0.607	0.6431010	Free Surface	0 - 11:03:00 hrs	2.885	2.886	0.214	0.327	2.364	0.185	0.938	0.010	0.010	0.010	0.010	0.010	0
140	CDT-601	1.000	2.748	0.507	0.6428950	Free Surface	0 - 11:03:59 hrs	3.009	3.010	0.234	0.317	2.105	0.185	0.930	0.010	0.010	0.010	0.010	0.010	0
141	CDT-603	1.000	3.422	0.786	0.6415520	Free Surface	0 - 11:08:59 hrs	2.372	2.373	0.187	0.377	2.781	0.185	0.969	0.010	0.010	0.010	0.010	0.010	0
142	CDT-605	1.000	3.631	0.885	0.1058330	Free Surface	0 - 11:04:59 hrs	1.852	1.853	0.029	0.126	3.525	0.032	0.662	0.010	0.010	0.010	0.010	0.010	0
143	CDT-607	0.667	2.202	2.829	0.0948290	Free Surface	0 - 11:00:00 hrs	2.909	2.909	0.043	0.149	2.107	0.027	0.475	0.010	0.010	0.010	0.010	0.010	0
144	CDT-609	0.833	1.921	0.655	0.3243860	Free Surface	0 - 11:00:00 hrs	2.731	2.731	0.169	0.270	1.597	0.092	0.740	0.010	0.010	0.010	0.010	0.010	0
145	CDT-611	0.833	1.935	0.664	0.3131360	Free Surface	0 - 11:00:00 hrs	2.522	2.523	0.162	0.279	1.622	0.088	0.747	0.010	0.010	0.010	0.010	0.010	0
146	CDT-613	0.833	2.665	1.261	0.3032090	Free Surface	0 - 11:00:00 hrs	2.844	2.845	0.114	0.250	2.362	0.086	0.721	0.010	0.010	0.010	0.010	0.010	0
147	CDT-615	0.833	2.443	1.060	0.3468860	Free Surface	0 - 11:00:00 hrs	3.110	3.110	0.142	0.258	2.096	0.098	0.729	0.010	0.010	0.010	0.010	0.010	0
148	CDT-617	0.667	1.876	2.053	0.0211790	Free Surface	0 - 11:00:00 hrs	0.437	0.532	0.011	0.196	1.855	0.006	0.530	0.010	0.010	0.010	0.010	0.010	0
149	CDT-619	0.667	2.413	3.396	0.0079420	Free Surface	0 - 10:59:00 hrs	0.970	0.971	0.003	0.058	2.405	0.002	0.312	0.010	0.010	0.010	0.010	0.010	0
150	CDT-621	0.667	2.341	3.198	0.0059570	Free Surface	0 - 10:41:59 hrs	1.299	1.355	0.003	0.039	2.335	0.002	0.260	0.010	0.010	0.010	0.010	0.010	0
151	CDT-623	0.833	3.924	2.733	0.0321140	Free Surface	0 - 10:26:59 hrs	1.714	1.837	0.008	0.075	3.892	0.009	0.439	0.010	0.010	0.010	0.010	0.010	0
152	CDT-625	0.667	1.801	1.893	0.0584870	Free Surface	0 - 10:57:59 hrs	2.474	2.474	0.032	0.120	1.743	0.017	0.433	0.010	0.010	0.010	0.010	0.010	0
153	CDT-627	0.667	2.317	3.134	0.0624570	Free Surface	0 - 11:00:00 hrs	2.903	2.903	0.027	0.112	2.255	0.018	0.420	0.010	0.010	0.010	0.010	0.010	0
154	CDT-629	0.667	2.519	3.704	0.0651030	Free Surface	0 - 11:00:00 hrs	2.841	2.842	0.026	0.117	2.454	0.019	0.428	0.010	0.010	0.010	0.010	0.010	0
155	CDT-631	0.667	2.146	2.686	0.0697330	Free Surface	0 - 11:00:00 hrs	2.742	2.743	0.033	0.126	2.076	0.020	0.442	0.010	0.010	0.010	0.010	0.010	0
156	CDT-633	0.667	2.071	2.502	0.0723700	Free Surface	0 - 11:00:00 hrs	2.750	2.750	0.035	0.129	1.998	0.021	0.446	0.010	0.010	0.010	0.010	0.010	0
157	CDT-635	0.667	1.965	2.252	0.1047330	Free Surface	0 - 11:00:00 hrs	2.665	2.665	0.053	0.170	1.860	0.030	0.500	0.010	0.010	0.010	0.010	0.010	0
158	CDT-637	0.667	2.128	2.641	0.0763170	Free Surface	0 - 11:00:00 hrs	2.693	2.721	0.036	0.135	2.051	0.022	0.456	0.010	0.010	0.010	0.010	0.010	0
159	CDT-639	0.667	1.492	1.299	0.1066650	Free Surface	0 - 11:00:00 hrs	2.515	2.515	0.071	0.179	1.385	0.031	0.511	0.010	0.010	0.010	0.010	0.010	0
160	CDT-641	0.667	1.672	1.631	0.1092270	Free Surface	0 - 11:00:00 hrs	2.778	2.778	0.065	0.170	1.563	0.031	0.500	0.010	0.010	0.010	0.010	0.010	0
161	CDT-643	0.667	1.982	2.292	0.1117780	Free Surface	0 - 11:00:00 hrs	3.173	3.173	0.056	0.157	1.870	0.032	0.485	0.010	0.010	0.010	0.010	0.010	0
162	CDT-645	0.667	1.956	2.232	0.1547310	Free Surface	0 - 11:00:00 hrs	2.968	2.968	0.079	0.207	1.801	0.044	0.540	0.010	0.010	0.010	0.010	0.010	0
163	CDT-647	0.667	1.464	1.250	0.1546810	Free Surface	0 - 11:00:00 hrs	2.780	2.780	0.106	0.216	1.309	0.044	0.549	0.010	0.010	0.010	0.010	0.010	0
164	CDT-649	0.667	1.744	1.776	0.1678290	Free Surface	0 - 11:00:00 hrs	2.971	2.972	0.096	0.219	1.577	0.048	0.551	0.010	0.010	0.010	0.010	0.010	0

Print Report

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
165	CDT-651	0.667	1.557	1.414	0.1769660	Free Surface	0 - 11:00:00 hrs	2.934	2.934	0.114	0.229	1.380	0.051	0.560	0.010	0.010	0.010	0.010	0.010	0
166	CDT-653	0.667	1.625	1.540	0.1887240	Free Surface	0 - 11:00:00 hrs	2.548	2.554	0.116	0.265	1.436	0.054	0.588	0.010	0.010	0.010	0.010	0.010	0
167	CDT-655	0.667	1.279	0.955	0.2255530	Free Surface	0 - 11:00:00 hrs	3.049	3.049	0.176	0.265	1.054	0.065	0.588	0.010	0.010	0.010	0.010	0.010	0
168	CDT-657	0.667	2.345	3.209	0.2586170	Free Surface	0 - 11:00:00 hrs	3.977	3.977	0.110	0.242	2.087	0.075	0.571	0.010	0.010	0.010	0.010	0.010	0
169	CDT-659	0.833	5.344	5.069	0.0466730	Free Surface	0 - 11:00:00 hrs	1.144	1.224	0.009	0.128	5.297	0.013	0.557	0.010	0.010	0.010	0.010	0.010	0
170	CDT-661	0.833	2.836	1.427	0.0466730	Free Surface	0 - 11:00:00 hrs	2.268	2.268	0.016	0.080	2.789	0.013	0.453	0.010	0.010	0.010	0.010	0.010	0
171	CDT-663	0.833	3.028	1.627	0.0466730	Free Surface	0 - 10:57:59 hrs	1.892	1.975	0.015	0.091	2.981	0.013	0.478	0.010	0.010	0.010	0.010	0.010	0
172	CDT-665	0.833	2.359	0.988	0.3468830	Free Surface	0 - 11:00:00 hrs	3.968	3.968	0.147	0.217	2.012	0.098	0.687	0.010	0.010	0.010	0.010	0.010	0
173	CDT-667	0.833	7.952	11.225	0.3468830	Free Surface	0 - 11:00:00 hrs	4.077	4.077	0.044	0.213	7.605	0.098	0.682	0.010	0.010	0.010	0.010	0.010	0
174	CDT-671	1.000	4.181	1.173	0.9542900	Free Surface	0 - 11:00:59 hrs	4.201	4.201	0.228	0.331	3.226	0.285	0.941	0.010	0.010	0.010	0.010	0.010	0
175	CDT-673	1.000	4.233	1.203	0.9613350	Free Surface	0 - 11:03:00 hrs	4.154	4.155	0.227	0.336	3.272	0.289	0.944	0.010	0.010	0.010	0.010	0.010	0
176	CDT-675	1.000	3.719	0.929	0.9637880	Free Surface	0 - 11:03:00 hrs	3.046	3.058	0.259	0.426	2.755	0.290	0.989	0.010	0.010	0.010	0.010	0.010	0
177	CDT-677	0.667	2.159	2.719	0.0253390	Free Surface	0 - 11:00:00 hrs	0.319	0.322	0.012	0.279	2.133	0.007	0.598	0.010	0.010	0.010	0.010	0.010	0
178	CDT-679	0.667	2.076	2.515	0.0161250	Free Surface	0 - 11:00:00 hrs	1.525	1.563	0.008	0.069	2.060	0.004	0.338	0.010	0.010	0.010	0.010	0.010	0
179	CDT-681	0.667	2.621	4.007	0.0161560	Free Surface	0 - 11:00:00 hrs	1.922	1.922	0.006	0.059	2.604	0.004	0.315	0.010	0.010	0.010	0.010	0.010	0
180	CDT-683	0.833	5.152	4.712	0.8237180	Free Surface	0 - 11:00:00 hrs	5.130	5.130	0.160	0.335	4.329	0.244	0.787	0.010	0.010	0.010	0.010	0.010	0
181	CDT-685	0.833	2.808	1.400	0.7607800	Free Surface	0 - 11:00:00 hrs	4.841	4.853	0.271	0.330	2.047	0.225	0.784	0.010	0.010	0.010	0.010	0.010	0
182	CDT-687	0.833	2.825	1.416	0.7458530	Free Surface	0 - 11:00:00 hrs	4.059	4.059	0.264	0.370	2.079	0.221	0.805	0.010	0.010	0.010	0.010	0.010	0
183	CDT-689	0.833	2.322	0.957	0.7443530	Free Surface	0 - 11:00:00 hrs	3.945	3.945	0.321	0.378	1.577	0.220	0.808	0.010	0.010	0.010	0.010	0.010	0
184	CDT-691	0.833	2.702	1.296	0.6875730	Free Surface	0 - 11:00:00 hrs	3.688	3.688	0.254	0.374	2.014	0.203	0.806	0.010	0.010	0.010	0.010	0.010	0
185	CDT-693	0.833	2.590	1.191	0.6769080	Free Surface	0 - 11:00:00 hrs	3.996	3.996	0.261	0.349	1.913	0.200	0.794	0.010	0.010	0.010	0.010	0.010	0
186	CDT-695	0.833	2.558	1.161	0.6281890	Free Surface	0 - 11:00:00 hrs	3.721	3.723	0.246	0.348	1.930	0.185	0.794	0.010	0.010	0.010	0.010	0.010	0
187	CDT-697	0.833	2.430	1.048	0.6377540	Free Surface	0 - 11:00:00 hrs	3.834	3.834	0.262	0.344	1.792	0.188	0.792	0.010	0.010	0.010	0.010	0.010	0
188	CDT-699	0.833	2.760	1.352	0.6494200	Free Surface	0 - 11:00:00 hrs	3.941	3.946	0.235	0.342	2.111	0.192	0.790	0.010	0.010	0.010	0.010	0.010	0
189	CDT-701	0.667	0.966	0.545	0.0449080	Free Surface	0 - 11:00:00 hrs	1.458	1.458	0.046	0.144	0.921	0.013	0.467	0.010	0.010	0.010	0.010	0.010	0
190	CDT-703	0.667	1.154	0.777	0.0474590	Free Surface	0 - 11:00:00 hrs	1.537	1.547	0.041	0.144	1.107	0.014	0.468	0.010	0.010	0.010	0.010	0.010	0
191	CDT-705	0.667	1.099	0.704	0.0448590	Free Surface	0 - 11:00:00 hrs	1.537	1.541	0.041	0.138	1.054	0.013	0.460	0.010	0.010	0.010	0.010	0.010	0
192	CDT-707	0.667	1.143	0.762	0.0549340	Free Surface	0 - 11:00:00 hrs	0.553	0.559	0.048	0.327	1.088	0.016	0.626	0.010	0.010	0.010	0.010	0.010	0
193	CDT-709	0.667	0.984	0.565	0.1010640	Free Surface	0 - 10:34:59 hrs	1.857	1.861	0.103	0.213	0.883	0.029	0.546	0.010	0.010	0.010	0.010	0.010	0
194	CDT-711	0.667	1.079	0.679	0.1017170	Free Surface	0 - 10:41:59 hrs	1.236	1.263	0.094	0.289	0.977	0.029	0.604	0.010	0.010	0.010	0.010	0.010	0
195	CDT-713	0.667	1.475	1.270	0.4322330	Free Surface	0 - 11:00:00 hrs	3.604	3.604	0.293	0.376	1.043	0.124	0.646	0.010	0.010	0.010	0.010	0.010	0
196	CDT-715	0.667	1.415	1.168	0.4356490	Free Surface	0 - 11:00:00 hrs	3.520	3.520	0.308	0.385	0.979	0.125	0.649	0.010	0.010	0.010	0.010	0.010	0
197	CDT-717	0.667	1.512	1.335	0.4383170	Free Surface	0 - 11:00:00 hrs	4.121	4.121	0.290	0.344	1.074	0.126	0.633	0.010	0.010	0.010	0.010	0.010	0
198	CDT-719	0.667	2.258	2.974	0.4405140	Free Surface	0 - 11:00:00 hrs	3.913	3.913	0.195	0.359	1.817	0.127	0.639	0.010	0.010	0.010	0.010	0.010	0
199	CDT-721	0.833	2.571	1.173	0.6195970	Free Surface	0 - 11:00:00 hrs	3.750	3.750	0.241	0.343	1.951	0.182	0.791	0.010	0.010	0.010	0.010	0.010	0
200	CDT-723	0.833	2.395	1.018	0.6195640	Free Surface	0 - 11:02:00 hrs	3.697	3.697	0.259	0.346	1.776	0.182	0.793	0.010	0.010	0.010	0.010	0.010	0
201	CDT-725	0.833	2.536	1.142	0.6194690	Free Surface	0 - 11:03:00 hrs	3.797	3.797	0.244	0.339	1.917	0.182	0.789	0.010	0.010	0.010	0.010	0.010	0
202	CDT-727	0.667	1.028	0.616	0.0845110	Free Surface	0 - 10:27:59 hrs	1.731	1.752	0.082	0.198	0.943	0.024	0.531	0.010	0.010	0.010	0.010	0.010	0
203	CDT-729	0.667	0.975	0.555	0.0864940	Free Surface	0 - 11:00:00 hrs	1.622	1.633	0.089	0.210	0.889	0.024	0.543	0.010	0.010	0.010	0.010	0.010	0
204	CDT-731	0.667	1.359	1.078	0.2426660	Free Surface	0 - 11:00:00 hrs	3.675	3.675	0.179	0.244	1.116	0.070	0.573	0.010	0.010	0.010	0.010	0.010	0
205	CDT-733	0.667	3.874	8.758	0.2445130	Free Surface	0 - 11:00:00 hrs	3.206	3.206	0.063	0.271	3.630	0.070	0.592	0.010	0.010	0.010	0.010	0.010	0
206	CDT-735	0.667	2.344	3.205	0.0774140	Free Surface	0 - 10:18:00 hrs	2.459	2.484	0.033	0.146	2.266	0.022	0.470	0.010	0.010	0.010	0.010	0.010	0
207	CDT-737	0.667	1.351	1.064	0.0818740	Free Surface	0 - 10:22:00 hrs	2.040	2.042	0.061	0.172	1.269	0.023	0.503	0.010	0.010	0.010	0.010	0.010	0
208	CDT-739	0.667	1.209	0.853	0.0831930	Free Surface	0 - 10:25:00 hrs	1.860	1.864	0.069	0.186	1.126	0.023	0.518	0.010	0.010	0.010	0.010	0.010	0
209	CDT-741	0.667	0.965	0.543	0.0853670	Free Surface	0 - 10:18:00 hrs	1.701	1.723	0.088	0.202	0.880	0.024	0.535	0.010	0.010	0.010	0.010	0.010	0
210	CDT-743	0.667	0.961	0.538	0.0858990	Free Surface	0 - 10:26:00 hrs	1.094	1.133	0.089	0.286	0.875	0.025	0.603	0.010	0.010	0.010	0.010	0.010	0
211	CDT-745	0.667	2.489	3.615	0.2273180	Free Surface	0 - 11:00:00 hrs	3.131	3.132	0.091	0.261	2.262	0.065	0.586	0.010	0.010	0.010	0.010	0.010	0
212	CDT-747	0.667	1.542	1.387	0.2067330	Free Surface	0 - 11:00:00 hrs	3.634	3.634	0.134	0.220	1.335	0.059	0.552	0.010	0.010	0.010	0.010	0.010	0
213	CDT-749	0.667	3.229	6.083	0.2093210	Free Surface	0 - 11:00:00 hrs	3.745	3.750	0.065	0.217	3.019	0.060	0.550	0.010	0.010	0.010	0.010	0.010	0
214	CDT-751	0.667	2.574	3.867	0.0649310	Free Surface	0 - 10:03:00 hrs	3.149	3.242	0.025	0.110	2.509	0.018	0.417	0.010	0.010	0.010	0.010	0.010	0
215	CDT-753	0.667	1.693	1.672	0.1870170	Free Surface	0 - 11:00:00 hrs	3.740	3.740	0.110	0.201	1.506	0.054	0.534	0.010	0.010	0.010	0.010	0.010	0
216	CDT-755	0.667	3.394	6.722	0.1896270	Free Surface	0 - 11:00:00 hrs	3.467	3.469	0.056	0.214	3.205	0.054	0.546	0.010	0.010	0.010	0.010	0.010	0
217	CDT-757	0.667	1.182	0.815	0.1242500	Free Surface	0 - 11:00:00 hrs	2.145	2.145	0.105	0.223	1.058	0.036	0.555	0.010	0.010	0.010	0.010	0.010	0
218	CDT-759	0.667	1.122	0.735	0.1261880	Free Surface	0 - 11:00:00 hrs	2.031	2.093	0.112	0.234	0.996	0.036	0.564	0.010	0.010	0.010	0.010	0.010	0
219	CDT-761	0.667	1.641	1.570	0.2241310	Free Surface	0 - 11:00:00 hrs	3.627	3.627	0.137	0.233	1.416	0.064	0.563	0.010	0.010	0.010	0.010	0.010	0
220	CDT-763	0.667	1.102	0.708	0.1203100	Free Surface	0 - 11:00:00 hrs	2.091	2.091	0.109	0.222	0.982	0.035	0.554	0.010	0.010	0.010	0.010	0.010	0
221	CDT-765	0.667	2.149	2.695	0.1189900	Free Surface	0 - 11:00:00 hrs	2.537	2.540	0.055	0.192	2.030	0.034	0.525	0.010	0.010	0.010	0.010	0.010	0
222	CDT-767	0.667	2.303	3.095	0.1143590	Free Surface	0 - 11:00:00 hrs	3.300	3.300	0.050	0.156	2.189	0.033	0.483	0.010	0.010	0.010	0.010	0.010	0
223	CDT-769	1.000	4.343	1.266	0.9494850	Free Surface	0 - 11:00:59 hrs	4.325	4.325	0.219	0.323	3.393	0.283	0.935	0.010	0.010	0.010	0.010	0.010	0
224	CDT-771	1.000	3.380	0.767	0.9260450	Free Surface	0 - 11:00:00 hrs	3.838	3.838	0.274	0.346	2.454	0.276	0.951	0.010	0.010	0.010	0.010	0.010	0
225	CDT-773	1.000	2.606	0.456	0.9274390	Free Surface	0 - 11:00:00 hrs	3.161	3.161	0.356	0.400	1.679	0.276	0.980	0.010	0.010	0.010	0.010	0.010	0
226	CDT-775	1.000	3.363	0.759	0.9061340	Free Surface	0 - 11:00:00 hrs	3.174	3.174	0.269	0.392	2.456	0.269	0.976	0.010	0.010	0.010	0.010	0.010	0
227	CDT-777	1.000	3.062	0.629	0.8682730	Free Surface	0 - 11:00:00 hrs	3.386	3.389	0.284	0.362	2.194	0.258	0.961	0.010	0.010	0.010	0.010	0.010	0
228	CDT-779	1.000	3.627	0.883	0.8716760	Free Surface	0 - 11:00:00 hrs	3.536	3.536	0.240	0.351	2.755	0.258	0.955	0.010	0.010	0.010	0.010	0.010	0
229	CDT-781	0.667	1.293	0.975	0.0449400	Free Surface	0 - 11:00:00 hrs	1.543	1.543	0.035	0.138	1.248	0.013	0.460	0.010	0.010	0.010	0.010	0.010	0
230	CDT-783	0.667	0.769	0.345	0.0429680	Free Surface	0 - 11:00:00 hrs	1.315	1.316	0.056	0.149	0.726	0.012	0.475	0.010	0.010	0.010	0.010	0.010	0
231	CDT-785	0.667	1.426	1.186	0.0429830	Free Surface	0 - 11:00:00 hrs	1.371	1.371	0.030	0.145	1.383	0.012	0.469	0.010	0.010	0.010	0.010	0.010	0
232	CDT-787	0.667	0.729	0.310	0.0416710	Free Surface	0 - 11:00:00 hrs	1.290	1.290	0.057	0.148	0.687	0.012	0.473	0.010	0.010	0.010	0.010	0.010	0
233	CDT-789	0.667	0.989	0.571	0.0205150	Free Surface	0 - 11:00:00 hrs	0.702	0.703	0.021	0.138	0.969	0.006	0.460	0.010	0.010	0.010	0.010	0.010	0
234	CDT-791	0.667	0.448	0.117	0.0152220	Free Surface	0 - 10:56:00 hrs	0.614	0.614	0.034	0.124	0.433	0.004	0.438	0.010	0.010	0.010	0.010	0.010	0
235	CDT-793	0.667	1.676	1.640	0.0125730	Free Surface	0 - 11:00:00 hrs	0.647	0.654	0.008	0.105	1.664	0.004	0.408	0.010	0.010	0.010	0.010	0.010	0
236	CDT-795	0.667	0.873	0.444	0.0099260	Free Surface	0 - 11:00:00 hrs	0.912	0.912	0.011	0.070	0.863	0.003	0.340	0.010	0.010	0.010	0.010	0.010	0
237	CDT-797	0.667	1.000	0.584	0.0033100	Free Surface	0 - 11:00:00 hrs	0.382	0.383	0.003	0.061	0.997	0.001	0.318	0.010	0.010	0.010	0.010	0.010	0
238	CDT-799	0.667	1.220	0.869	0.0165440	Free Surface	0 - 10:59:00 hrs	0.624	0.704	0.014	0.129	1.204	0.005	0.447	0.010	0.010	0.010	0.010	0.010	0
239	CDT-801	0.667	1.099	0.705	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.041	1.099	0.000	0.263	0.010	0.010	0.010	0.010	0.010	0
240	CDT-803	0.667	1.075	0.674	0.0000000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.021	1.075	0.000	0.191	0.010	0.010	0.010	0.010	0.010	0
241	CDT-805	1.000	2.861	0.549	0.1751800	Free Surface	0 - 11:00:00 hrs	2.000	2.000	0.061	0.169	2.686	0.053	0.748	0.010	0.010	0.010	0.010	0.010	0
242	CDT-807	1.000	2.795	0.524	0.1748370	Free Surface	0 - 11:00:59 hrs	1.958	1.958	0.063	0.171	2.620	0.053	0.752	0.010	0.010	0.010	0.010	0.010	0
243	CDT-809	1.000	2.719	0.496	0.1755520	Free Surface	0 - 11:02:00 hrs	1.935	1.935	0.065	0.173	2.543	0.054	0.756	0.010	0.010	0.010	0.010	0.010	0
244	CDT-811	0.833	1.872	0.622	0.1774630	Free Surface	0 - 11:00:00 hrs	1.484	1.484	0.095	0.271	1.695	0.054	0.741	0.010	0.010	0.010	0.010	0.010	0
245	CDT-813	0.667	2.309	3.112	0.1059430	Free Surface	0 - 11:03:59 hrs	2.917	2.918	0.046	0.161	2.203	0.032	0.490	0.010	0.010	0.010	0.010	0.010	0
246	CDT-815	0.667	0.869	0.440	0.1060000	Free Surface	0 - 11:03:00 hrs	2.103	2.103	0.122	0.202	0.763	0.032	0.535	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
247	CDT-817	0.667	1.291	0.973	0.1062030	Free Surface	0 - 11:00:59 hrs	1.795	1.796	0.082	0.226	1.185	0.032	0.557	0.010	0.010	0.010	0.010	0.010	0
248	CDT-819	0.667	0.849	0.420	0.1064850	Free Surface	0 - 11:00:00 hrs	1.849	1.849	0.125	0.222	0.742	0.032	0.554	0.010	0.010	0.010	0.010	0.010	0
249	CDT-821	0.667	1.425	1.184	0.1018840	Free Surface	0 - 11:00:00 hrs	1.843	1.843	0.072	0.215	1.323	0.031	0.548	0.010	0.010	0.010	0.010	0.010	0
250	CDT-823	0.667	1.943	2.204	0.0311040	Free Surface	0 - 10:23:59 hrs	2.420	2.420	0.016	0.079	1.912	0.009	0.360	0.010	0.010	0.010	0.010	0.010	0
251	CDT-825	0.667	3.751	8.212	0.0311040	Free Surface	0 - 10:26:59 hrs	1.374	1.436	0.008	0.119	3.720	0.009	0.432	0.010	0.010	0.010	0.010	0.010	0
252	CDT-827	0.667	1.475	1.270	0.0969320	Free Surface	0 - 11:00:00 hrs	2.317	2.317	0.066	0.177	1.378	0.029	0.509	0.010	0.010	0.010	0.010	0.010	0
253	CDT-829	0.667	1.657	1.603	0.2273630	Free Surface	0 - 11:00:00 hrs	3.023	3.023	0.137	0.268	1.430	0.066	0.590	0.010	0.010	0.010	0.010	0.010	0
254	CDT-831	0.667	1.257	0.923	0.0496370	Free Surface	0 - 10:51:00 hrs	1.515	1.517	0.039	0.150	1.208	0.014	0.475	0.010	0.010	0.010	0.010	0.010	0
255	CDT-833	0.667	2.137	2.665	0.0496410	Free Surface	0 - 10:44:00 hrs	2.082	2.089	0.023	0.120	2.088	0.014	0.434	0.010	0.010	0.010	0.010	0.010	0
256	CDT-835	0.667	2.357	3.241	0.1084030	Free Surface	0 - 11:00:00 hrs	3.251	3.251	0.046	0.151	2.249	0.031	0.478	0.010	0.010	0.010	0.010	0.010	0
257	CDT-837	1.000	2.852	0.546	1.3070350	Free Surface	0 - 11:00:00 hrs	3.875	3.875	0.458	0.445	1.545	0.390	0.994	0.010	0.010	0.010	0.010	0.010	0
258	CDT-839	0.833	2.523	1.130	0.2648260	Free Surface	0 - 11:00:00 hrs	2.982	2.999	0.105	0.220	2.258	0.075	0.690	0.010	0.010	0.010	0.010	0.010	0
259	CDT-841	0.833	3.394	2.044	0.2641640	Free Surface	0 - 11:00:00 hrs	3.300	3.300	0.078	0.204	3.130	0.074	0.672	0.010	0.010	0.010	0.010	0.010	0
260	CDT-843	0.833	1.014	0.182	0.2635020	Free Surface	0 - 11:00:00 hrs	1.815	1.815	0.260	0.312	0.750	0.074	0.772	0.010	0.010	0.010	0.010	0.010	0
261	CDT-845	0.833	1.840	0.601	0.2641640	Free Surface	0 - 11:00:00 hrs	2.770	2.770	0.144	0.231	1.576	0.074	0.702	0.010	0.010	0.010	0.010	0.010	0
262	CDT-847	0.833	1.803	0.577	0.2635020	Free Surface	0 - 11:00:00 hrs	1.877	1.878	0.146	0.304	1.539	0.074	0.767	0.010	0.010	0.010	0.010	0.010	0
263	CDT-849	0.833	3.912	2.717	0.1287380	Free Surface	0 - 11:00:00 hrs	2.205	2.268	0.033	0.164	3.784	0.036	0.617	0.010	0.010	0.010	0.010	0.010	0
264	CDT-851	0.833	2.309	0.946	0.2108030	Free Surface	0 - 11:00:00 hrs	2.207	2.207	0.091	0.231	2.098	0.060	0.702	0.010	0.010	0.010	0.010	0.010	0
265	CDT-853	0.833	3.562	2.252	0.1135160	Free Surface	0 - 11:00:00 hrs	2.565	2.565	0.032	0.135	3.448	0.032	0.570	0.010	0.010	0.010	0.010	0.010	0
266	CDT-855	0.833	2.473	1.086	0.1135160	Free Surface	0 - 11:00:00 hrs	2.339	2.344	0.046	0.144	2.360	0.032	0.585	0.010	0.010	0.010	0.010	0.010	0
267	CDT-857	0.833	3.199	1.817	0.1287380	Free Surface	0 - 11:00:00 hrs	3.011	3.011	0.040	0.132	3.071	0.036	0.564	0.010	0.010	0.010	0.010	0.010	0
268	CDT-859	0.833	1.662	0.491	0.1135160	Free Surface	0 - 11:00:00 hrs	2.083	2.083	0.068	0.156	1.549	0.032	0.605	0.010	0.010	0.010	0.010	0.010	0
269	CDT-861	0.833	2.947	1.541	0.2919600	Free Surface	0 - 11:00:00 hrs	3.659	3.659	0.099	0.204	2.655	0.082	0.671	0.010	0.010	0.010	0.010	0.010	0
270	CDT-863	0.833	3.791	2.551	0.2932820	Free Surface	0 - 11:00:00 hrs	3.572	3.573	0.077	0.208	3.498	0.083	0.676	0.010	0.010	0.010	0.010	0.010	0
271	CDT-865	0.667	0.998	0.581	0.0785130	Free Surface	0 - 10:06:00 hrs	1.707	1.757	0.079	0.191	0.919	0.022	0.524	0.010	0.010	0.010	0.010	0.010	0
272	CDT-867	0.667	1.277	0.952	0.2272410	Free Surface	0 - 11:00:00 hrs	2.573	2.576	0.178	0.301	1.050	0.066	0.611	0.010	0.010	0.010	0.010	0.010	0
273	CDT-873	0.667	1.393	1.132	0.0238520	Free Surface	0 - 11:14:00 hrs	1.456	1.457	0.017	0.093	1.369	0.007	0.387	0.010	0.010	0.010	0.010	0.010	0
274	CDT-875	0.667	1.352	1.067	0.0238200	Free Surface	0 - 11:15:59 hrs	1.598	1.598	0.018	0.087	1.328	0.007	0.376	0.010	0.010	0.010	0.010	0.010	0
275	CDT-877	0.667	1.860	2.019	0.0238050	Free Surface	0 - 11:18:00 hrs	1.637	1.637	0.013	0.086	1.836	0.007	0.373	0.010	0.010	0.010	0.010	0.010	0
276	CDT-879	0.667	1.346	1.057	0.0237940	Free Surface	0 - 11:18:59 hrs	1.323	1.324	0.018	0.099	1.322	0.007	0.399	0.010	0.010	0.010	0.010	0.010	0
277	CDT-881	0.667	0.998	0.581	0.0237520	Free Surface	0 - 11:22:00 hrs	0.994	0.995	0.024	0.121	0.975	0.007	0.435	0.010	0.010	0.010	0.010	0.010	0
278	CDT-883	0.667	2.207	2.843	0.0311060	Free Surface	0 - 10:14:00 hrs	2.049	2.129	0.014	0.088	2.176	0.009	0.378	0.010	0.010	0.010	0.010	0.010	0
279	CDT-885	0.667	2.091	2.551	0.0313390	Free Surface	0 - 10:04:59 hrs	2.239	2.302	0.015	0.084	2.060	0.009	0.370	0.010	0.010	0.010	0.010	0.010	0
280	CDT-887	0.833	3.378	2.026	0.0002200	Free Surface	0 - 10:32:00 hrs	0.000	0.000	0.000	0.005	3.378	0.000	0.073	0.010	0.010	0.010	0.010	0.010	0
281	CDT-893	0.667	0.993	0.575	0.0006640	Free Surface	0 - 11:00:00 hrs	0.419	0.420	0.001	0.019	0.992	0.000	0.183	0.010	0.010	0.010	0.010	0.010	0
282	CDT-895	0.667	1.223	0.872	0.0006600	Free Surface	0 - 11:00:00 hrs	0.425	0.426	0.001	0.019	1.222	0.000	0.181	0.010	0.010	0.010	0.010	0.010	0
283	CDT-897	0.667	0.942	0.518	0.0006540	Free Surface	0 - 11:03:00 hrs	0.105	0.108	0.001	0.054	0.942	0.000	0.299	0.010	0.010	0.010	0.010	0.010	0
284	CDT-899	0.667	0.974	0.554	0.0143630	Free Surface	0 - 11:00:00 hrs	1.077	1.088	0.015	0.081	0.960	0.004	0.364	0.010	0.010	0.010	0.010	0.010	0
285	CDT-901	1.000	2.981	0.596	0.0143590	Free Surface	0 - 11:00:00 hrs	0.981	0.994	0.005	0.049	2.966	0.004	0.431	0.010	0.010	0.010	0.010	0.010	0
286	CDT-903	1.000	3.094	0.643	0.0143510	Free Surface	0 - 11:00:00 hrs	0.991	1.004	0.005	0.049	3.080	0.004	0.430	0.010	0.010	0.010	0.010	0.010	0
287	CDT-905	1.000	3.034	0.618	0.0143390	Free Surface	0 - 11:00:59 hrs	0.977	0.987	0.005	0.050	3.019	0.004	0.432	0.010	0.010	0.010	0.010	0.010	0
288	CDT-907	1.000	2.969	0.592	0.0143230	Free Surface	0 - 11:02:00 hrs	0.964	0.975	0.005	0.050	2.955	0.004	0.433	0.010	0.010	0.010	0.010	0.010	0
289	CDT-909	1.000	2.923	0.573	0.0143060	Free Surface	0 - 11:03:59 hrs	0.886	0.898	0.005	0.053	2.909	0.004	0.446	0.010	0.010	0.010	0.010	0.010	0
290	CDT-911	1.000	2.783	0.520	0.0142670	Free Surface	0 - 11:07:00 hrs	1.161	1.161	0.005	0.044	2.768	0.004	0.409	0.010	0.010	0.010	0.010	0.010	0
291	CDT-913	1.000	7.764	4.046	0.0148670	Free Surface	0 - 11:00:00 hrs	1.724	1.733	0.002	0.035	7.749	0.004	0.366	0.010	0.010	0.010	0.010	0.010	0
292	CDT-915	0.667	2.462	3.538	0.0643810	Free Surface	0 - 10:32:00 hrs	2.703	2.812	0.026	0.120	2.398	0.018	0.434	0.010	0.010	0.010	0.010	0.010	0
293	CDT-917	0.667	2.158	2.717	0.0761660	Free Surface	0 - 10:12:59 hrs	2.955	2.984	0.035	0.127	2.082	0.021	0.443	0.010	0.010	0.010	0.010	0.010	0
294	CDT-919	0.667	1.674	1.636	0.0239170	Free Surface	0 - 11:07:00 hrs	1.713	1.713	0.014	0.084	1.650	0.007	0.369	0.010	0.010	0.010	0.010	0.010	0
295	CDT-921	0.667	1.719	1.723	0.0239120	Free Surface	0 - 11:07:59 hrs	1.789	1.789	0.014	0.081	1.695	0.007	0.364	0.010	0.010	0.010	0.010	0.010	0
296	CDT-923	0.667	1.928	2.168	0.0239030	Free Surface	0 - 11:08:59 hrs	1.941	1.942	0.012	0.077	1.904	0.007	0.354	0.010	0.010	0.010	0.010	0.010	0
297	CDT-925	0.667	2.132	2.653	0.0238930	Free Surface	0 - 11:10:00 hrs	1.711	1.712	0.011	0.084	2.109	0.007	0.369	0.010	0.010	0.010	0.010	0.010	0
298	CDT-927	0.667	1.350	1.064	0.0238840	Free Surface	0 - 11:11:59 hrs	1.486	1.486	0.018	0.092	1.327	0.007	0.384	0.010	0.010	0.010	0.010	0.010	0
299	CDT-929	0.667	1.593	1.480	0.0311040	Free Surface	0 - 10:30:59 hrs	1.632	1.738	0.020	0.103	1.562	0.009	0.406	0.010	0.010	0.010	0.010	0.010	0
300	CDT-931	0.667	1.228	0.879	0.0311790	Free Surface	0 - 10:14:00 hrs	1.489	1.511	0.025	0.110	1.196	0.009	0.417	0.010	0.010	0.010	0.010	0.010	0
301	CDT-933	0.667	1.228	0.879	0.0317690	Free Surface	0 - 10:22:59 hrs	1.443	1.483	0.026	0.114	1.196	0.009	0.423	0.010	0.010	0.010	0.010	0.010	0
302	CDT-935	0.667	1.117	0.728	0.0317960	Free Surface	0 - 10:26:59 hrs	1.438	1.447	0.028	0.114	1.085	0.009	0.424	0.010	0.010	0.010	0.010	0.010	0
303	CDT-937	0.500	0.529	0.758	0.0084820	Free Surface	0 - 11:00:00 hrs	0.931	0.931	0.016	0.092	0.521	0.002	0.289	0.010	0.010	0.010	0.010	0.010	0
304	CDT-941	0.833	3.906	2.708	0.0827230	Free Surface	0 - 10:52:00 hrs	2.740	2.747	0.021	0.104	3.823	0.024	0.509	0.010	0.010	0.010	0.010	0.010	0
305	CDT-943	0.833	3.390	2.040	0.0827230	Free Surface	0 - 10:52:00 hrs	2.467	2.479	0.024	0.112	3.307	0.024	0.525	0.010	0.010	0.010	0.010	0.010	0
306	CDT-945	0.833	3.396	2.047	0.0966200	Free Surface	0 - 10:59:00 hrs	2.722	2.722	0.028	0.116	3.300	0.028	0.534	0.010	0.010	0.010	0.010	0.010	0
307	CDT-947	0.833	3.413	2.068	0.0966200	Free Surface	0 - 10:56:00 hrs	2.800	2.800	0.028	0.114	3.317	0.028	0.529	0.010	0.010	0.010	0.010	0.010	0
308	CDT-949	0.833	3.672	2.394	0.0966200	Free Surface	0 - 10:56:00 hrs	2.871	2.873	0.026	0.112	3.576	0.028	0.525	0.010	0.010	0.010	0.010	0.010	0
309	CDT-951	0.833	3.696	2.425	0.0992680	Free Surface	0 - 10:57:59 hrs	2.777	2.789	0.027	0.117	3.597	0.028	0.535	0.010	0.010	0.010	0.010	0.010	0
310	CDT-953	0.833	3.542	2.226	0.1105170	Free Surface	0 - 10:59:00 hrs	2.869	2.869	0.031	0.123	3.431	0.032	0.547	0.010	0.010	0.010	0.010	0.010	0
311	CDT-955	0.833	3.534	2.216	0.1177970	Free Surface	0 - 11:00:00 hrs	2.444	2.445	0.033	0.144	3.416	0.034	0.584	0.010	0.010	0.010	0.010	0.010	0
312	CDT-957	0.833	2.422	1.041	0.1363290	Free Surface	0 - 11:00:00 hrs	2.422	2.422	0.056	0.160	2.285	0.039	0.611	0.010	0.010	0.010	0.010	0.010	0
313	CDT-959	0.833	2.535	1.141	0.1363290	Free Surface	0 - 11:00:00 hrs	1.921	2.004	0.054	0.188	2.399	0.039	0.651	0.010	0.010	0.010	0.010	0.010	0
314	CDT-961	0.833	2.420	1.039	0.2541290	Free Surface	0 - 11:00:00 hrs	2.821	2.821	0.105	0.222	2.166	0.073	0.693	0.010	0.010	0.010	0.010	0.010	0
315	CDT-963	0.833	2.430	1.048	0.2653790	Free Surface	0 - 11:00:00 hrs	2.953	2.953	0.109	0.222	2.164	0.076	0.692	0.010	0.010	0.010	0.010	0.010	0
316	CDT-965	0.833	2.761	1.353	0.2878800	Free Surface	0 - 11:00:00 hrs	2.992	2.992	0.104	0.232	2.473	0.083	0.704	0.010	0.010	0.010	0.010	0.010	0
317	CDT-967	0.833	2.293	0.933	0.2878800	Free Surface	0 - 11:00:00 hrs	3.006	3.006	0.126	0.232	2.005	0.083	0.703	0.010	0.010	0.010	0.010	0.010	0
318	CDT-969	0.833	2.877	1.469	0.2958220	Free Surface	0 - 11:00:00 hrs	1.397	1.538	0.103	0.412	2.581	0.085	0.820	0.010	0.010	0.010	0.010	0.010	0
319	CDT-973	0.833	4.427	3.479	0.0119120	Free Surface	0 - 10:29:00 hrs	1.285	1.330	0.003	0.047	4.415	0.003	0.349	0.010	0.010	0.010	0.010	0.010	0
320	CDT-975	0.833	4.037	2.893	0.0238230	Free Surface	0 - 10:40:00 hrs	1.724	1.739	0.006	0.061	4.014	0.007	0.400	0.010	0.010	0.010	0.010	0.010	0
321	CDT-977	0.833	3.651	2.366	0.0337510	Free Surface	0 - 10:45:59 hrs	1.886	1.887	0.009	0.073	3.617	0.010	0.432	0.010	0.010	0.010	0.010	0.010	0
322	CDT-979	0.833	3.911	2.715	0.0483100	Free Surface	0 - 10:48:59 hrs	2.012	2.017	0.012	0.089	3.863	0.014	0.474	0.010	0.010	0.010	0.010	0.010	0
323	CDT-981	0.833	2.787	1.379	0.0582370	Free Surface	0 - 10:52:00 hrs	2.039	2.040	0.021	0.100	2.729	0.017	0.501	0.010	0.010	0.010	0.010	0.010	0



IVINS CITY 2016 SEWER MASTER PLAN	10 YEAR GROWTH CONDITIONS HYDRAULIC MODEL RESULTS	NORTH: NORTH	SCALE: 0 1,100 2,200 Feet	FIGURE NO. A-2

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure A2 - 10 Year Conditions Model Output.mxd aanderson 9/19/2016

Print Report

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
1	CDT-1500	0.500	1.486	3.488	0.120	Free Surface	0 - 10:12:59 hrs	0.867	0.872	0.081	0.664	1.366	0.032	0.196	0.010	0.010	24.000	0.010	0.010	0
2	CDT-1502	0.833	3.926	2.736	0.120	Free Surface	0 - 10:15:00 hrs	0.382	0.382	0.031	0.560	3.806	0.032	0.327	0.010	0.010	24.000	0.010	0.010	0
3	CDT-1504	0.833	5.417	5.208	0.018	Free Surface	0 - 10:03:59 hrs	2.283	2.353	0.003	0.042	5.399	0.005	0.332	0.010	0.010	0.010	0.010	0.010	0
4	CDT-1506	0.833	5.294	4.974	0.017	Free Surface	0 - 10:37:00 hrs	1.929	2.041	0.003	0.046	5.276	0.005	0.346	0.010	0.010	0.010	0.010	0.010	0
5	CDT-1508	0.833	3.640	2.352	0.017	Free Surface	0 - 10:57:59 hrs	1.656	1.711	0.005	0.051	3.622	0.005	0.363	0.010	0.010	0.010	0.010	0.010	0
6	CDT-1510	0.833	3.347	1.988	0.017	Free Surface	0 - 11:00:00 hrs	1.509	1.537	0.005	0.054	3.329	0.005	0.375	0.010	0.010	0.010	0.010	0.010	0
7	CDT-1512	0.833	2.858	1.450	0.017	Free Surface	0 - 10:34:59 hrs	1.492	1.499	0.006	0.054	2.841	0.005	0.377	0.010	0.010	0.010	0.010	0.010	0
8	CDT-1514	0.833	3.229	1.850	0.017	Free Surface	0 - 10:45:00 hrs	1.311	1.353	0.005	0.060	3.211	0.005	0.395	0.010	0.010	0.010	0.010	0.010	0
9	CDT-1516	0.833	3.115	1.723	0.026	Free Surface	0 - 10:47:00 hrs	1.893	1.894	0.008	0.061	3.089	0.007	0.400	0.010	0.010	0.010	0.010	0.010	0
10	CDT-1518	0.833	4.305	3.289	0.026	Free Surface	0 - 10:51:00 hrs	1.367	1.471	0.006	0.076	4.279	0.007	0.442	0.010	0.010	0.010	0.010	0.010	0
11	CDT-1520	0.833	5.104	4.624	0.091	Free Surface	0 - 10:52:00 hrs	3.995	3.995	0.018	0.086	5.013	0.026	0.466	0.010	0.010	0.010	0.010	0.010	0
12	CDT-1522	2.000	53.133	4.700	0.091	Free Surface	0 - 10:52:59 hrs	3.154	3.154	0.002	0.031	53.042	0.026	0.689	0.010	0.010	0.010	0.010	0.010	0
13	CDT-1524	1.000	3.958	1.052	1.743	Free Surface	0 - 11:00:00 hrs	4.782	4.782	0.440	0.472	2.215	0.520	0.998	0.010	0.010	0.010	0.010	0.010	0
14	CDT-1526	1.000	4.046	1.099	1.747	Free Surface	0 - 11:00:59 hrs	4.943	4.943	0.432	0.461	2.299	0.521	0.997	0.010	0.010	0.010	0.010	0.010	0
15	CDT-1528	0.667	1.360	1.079	0.119	Free Surface	0 - 11:00:00 hrs	2.442	2.444	0.088	0.198	1.240	0.032	0.531	0.010	0.010	0.010	0.010	0.010	0
16	CDT-1530	0.500	1.020	2.815	0.098	Free Surface	0 - 11:00:00 hrs	2.724	2.987	0.096	0.239	0.921	0.026	0.427	0.010	0.010	0.010	0.010	0.010	0
17	CDT-1532	0.500	0.769	1.599	0.022	Free Surface	0 - 11:00:00 hrs	1.740	1.752	0.029	0.116	0.747	0.006	0.320	0.010	0.010	0.010	0.010	0.010	0
18	CDT-1534	0.500	0.836	1.889	0.022	Free Surface	0 - 10:32:00 hrs	1.961	1.973	0.026	0.107	0.813	0.006	0.308	0.010	0.010	0.010	0.010	0.010	0
19	CDT-1536	0.500	1.089	3.210	0.022	Free Surface	0 - 11:00:00 hrs	0.200	0.200	0.020	0.549	1.067	0.006	0.196	0.010	0.010	24.000	0.010	0.010	0
20	CDT-1538	0.500	1.430	5.536	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.015	1.000	1.408	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
21	CDT-1540	0.500	1.531	6.345	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.014	1.000	1.509	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
22	CDT-1542	0.500	1.060	3.044	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.021	1.000	1.038	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
23	CDT-1544	0.500	1.392	5.242	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.016	1.000	1.370	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
24	CDT-1546	0.500	1.049	2.980	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.021	1.000	1.027	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
25	CDT-1548	0.500	1.057	3.023	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.021	1.000	1.035	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
26	CDT-1550	0.500	0.566	0.866	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.039	1.000	0.544	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
27	CDT-1552	0.500	0.220	0.130	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.101	1.000	0.197	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
28	CDT-1554	0.500	0.609	1.003	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.036	1.000	0.587	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
29	CDT-1556	0.500	0.606	0.995	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.036	1.000	0.584	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
30	CDT-1558	0.500	1.054	3.006	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.021	1.000	1.032	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
31	CDT-1560	0.500	1.132	3.471	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.020	1.000	1.110	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
32	CDT-1562	0.500	1.365	5.042	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.016	1.000	1.343	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
33	CDT-1564	0.500	1.220	4.028	0.022	Backwater	0 - 11:00:00 hrs	0.112	0.112	0.018	1.000	1.198	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
34	CDT-1566	0.500	1.420	5.454	0.022	Backwater	0 - 11:00:59 hrs	0.112	0.112	0.016	1.000	1.398	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
35	CDT-1568	0.500	1.286	4.473	0.022	Backwater	0 - 11:00:59 hrs	0.112	0.112	0.017	1.000	1.264	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
36	CDT-1570	0.500	1.398	5.287	0.022	Backwater	0 - 11:00:59 hrs	0.112	0.112	0.016	1.000	1.376	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
37	CDT-1572	0.500	1.263	4.317	0.022	Backwater	0 - 11:00:59 hrs	0.112	0.112	0.017	1.000	1.241	0.006	0.196	24.000	24.000	24.000	0.010	0.010	0
38	CDT-1574	0.500	0.976	2.576	0.022	Free Surface	0 - 11:00:59 hrs	0.182	0.182	0.023	0.593	0.953	0.006	0.196	0.010	0.010	24.000	0.010	0.010	0
39	CDT-1576	0.500	0.299	0.243	0.022	Free Surface	0 - 11:00:59 hrs	0.892	0.892	0.074	0.184	0.277	0.006	0.387	0.010	0.010	0.010	0.010	0.010	0
40	CDT-1578	0.500	0.309	0.258	0.022	Free Surface	0 - 11:00:59 hrs	0.765	0.766	0.072	0.204	0.287	0.006	0.403	0.010	0.010	0.010	0.010	0.010	0
41	CDT-1580	0.500	0.270	0.198	0.022	Free Surface	0 - 11:02:00 hrs	0.985	0.985	0.082	0.171	0.248	0.006	0.377	0.010	0.010	0.010	0.010	0.010	0
42	CDT-1582	0.500	0.789	1.684	0.022	Free Surface	0 - 11:02:00 hrs	0.841	0.859	0.028	0.192	0.767	0.006	0.394	0.010	0.010	0.010	0.010	0.010	0
43	CDT-3536	0.667	1.334	1.038	0.012	Free Surface	0 - 10:10:00 hrs	1.239	1.276	0.009	0.066	1.322	0.003	0.329	0.010	0.010	0.010	0.010	0.010	0
44	CDT-3538	0.667	1.488	1.292	0.012	Free Surface	0 - 10:23:59 hrs	1.011	1.068	0.008	0.075	1.476	0.003	0.349	0.010	0.010	0.010	0.010	0.010	0
45	CDT-3540	0.667	0.845	0.417	0.012	Free Surface	0 - 10:30:59 hrs	0.885	0.892	0.014	0.082	0.833	0.003	0.366	0.010	0.010	0.010	0.010	0.010	0
46	CDT-3542	0.667	0.935	0.510	0.012	Free Surface	0 - 10:41:59 hrs	0.884	0.887	0.013	0.082	0.923	0.003	0.365	0.010	0.010	0.010	0.010	0.010	0
47	CDT-3544	0.667	0.865	0.436	0.012	Free Surface	0 - 10:45:00 hrs	0.902	0.903	0.014	0.081	0.853	0.003	0.363	0.010	0.010	0.010	0.010	0.010	0
48	CDT-3546	0.667	0.982	0.562	0.012	Free Surface	0 - 10:51:00 hrs	0.512	0.579	0.012	0.119	0.970	0.003	0.431	0.010	0.010	0.010	0.010	0.010	0
49	CDT-3548	0.667	0.954	0.531	0.052	Free Surface	0 - 10:52:59 hrs	1.469	1.469	0.055	0.159	0.901	0.014	0.487	0.010	0.010	0.010	0.010	0.010	0
50	CDT-3550	0.667	0.979	0.560	0.052	Free Surface	0 - 10:56:00 hrs	1.492	1.492	0.053	0.157	0.927	0.014	0.485	0.010	0.010	0.010	0.010	0.010	0
51	CDT-3552	0.667	0.986	0.567	0.052	Free Surface	0 - 11:00:00 hrs	1.384	1.386	0.053	0.165	0.933	0.014	0.495	0.010	0.010	0.010	0.010	0.010	0
52	CDT-3554	0.667	1.796	1.882	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.796	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
53	CDT-3556	0.667	1.396	1.138	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.396	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
54	CDT-3558	0.667	1.363	1.084	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.363	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
55	CDT-3560	0.667	1.215	0.861	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.215	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
56	CDT-3562	0.667	1.036	0.626	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.087	1.036	0.000	0.375	0.010	0.010	0.010	0.010	0.010	0
57	CDT-3564	0.667	0.793	0.367	0.052	Free Surface	0 - 11:00:00 hrs	0.245	0.245	0.066	0.587	0.741	0.014	0.667	0.010	0.010	0.804	0.010	0.010	0
58	CDT-3596	1.000	5.958	2.383	2.357	Free Surface	0 - 11:00:00 hrs	5.309	5.309	0.396	0.551	3.600	0.702	1.000	0.010	0.010	0.010	0.010	0.010	0
59	CDT-3598	1.000	3.279	0.722	2.359	Free Surface	0 - 11:00:00 hrs	4.734	4.735	0.720	0.607	0.920	0.704	1.000	0.010	0.010	0.010	0.010	0.010	0
60	CDT-3600	1.000	3.066	0.631	0.433	Free Surface	0 - 11:00:00 hrs	1.632	1.633	0.141	0.371	2.633	0.129	0.966	0.010	0.010	0.010	0.010	0.010	0
61	CDT-3602	1.000	1.546	0.160	0.449	Free Surface	0 - 11:00:00 hrs	1.614	1.614	0.290	0.384	1.097	0.134	0.973	0.010	0.010	0.010	0.010	0.010	0
62	CDT-3604	1.000	5.040	1.705	3.885	Free Surface	0 - 11:02:00 hrs	7.073	7.073	0.771	0.660	1.155	1.156	1.000	0.010	0.010	0.010	0.010	0.010	0
63	CDT-3606	1.000	5.796	2.255	3.983	Free Surface	0 - 11:00:00 hrs	8.057	8.057	0.687	0.602	1.813	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
64	CDT-3608	1.000	6.687	3.001	3.981	Free Surface	0 - 11:00:00 hrs	7.999	7.999	0.595	0.606	2.706	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
65	CDT-3610	1.000	5.208	1.821	3.980	Free Surface	0 - 11:00:00 hrs	6.963	6.963	0.764	0.683	1.228	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
66	CDT-3612	1.000	4.868	1.591	3.977	Free Surface	0 - 11:00:59 hrs	6.908	6.908	0.817	0.688	0.891	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
67	CDT-3614	1.000	5.195	1.812	3.975	Free Surface	0 - 11:00:59 hrs	7.189	7.189	0.765	0.663	1.220	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
68	CDT-3616	1.000	5.121	1.761	3.973	Free Surface	0 - 11:02:00 hrs	6.354	6.362	0.776	0.743	1.149	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
69	CDT-3618	1.000	4.107	1.132	3.968	Free Surface	0 - 11:03:00 hrs	5.991	5.994	0.966	0.786	0.139	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
70	CDT-3624	1.000	4.547	1.388	3.963	Free Surface	0 - 11:07:00 hrs	6.686	6.686	0.871	0.706	0.585	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
71	CDT-3626	1.250	8.112	1.344	3.962	Free Surface	0 - 11:07:59 hrs	6.777	6.777	0.488	0.482	4.149	1.187	1.249	0.010	0.010	0.010	0.010	0.010	0
72	CDT-3628	1.250	9.637	1.896	3.962	Free Surface	0 - 11:07:59 hrs	6.424	6.425	0.411	0.502	5.675	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
73	CDT-3634	1.250	5.392	0.594	3.960	Free Surface	0 - 11:11:00 hrs	4.631	4.632	0.734	0.657	1.432	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
74	CDT-3636	1.250	5.454	0.607	3.960	Free Surface	0 - 11:11:59 hrs	4.921	4.922	0.726	0.624	1.494	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
75	CDT-3638	1.250	6.841	0.955	3.960	Free Surface	0 - 11:11:59 hrs	5.945	5.945	0.579	0.534	2.881	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
76	CDT-3640	1.250	8.212	1.377	3.959	Free Surface	0 - 11:12:59 hrs	6.086	6.087	0.482	0.524	4.253	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
77	CDT-3642	1.250	6.607	0.891	3.958	Free Surface	0 - 11:14:00 hrs	4.802	4.808	0.599	0.637	2.649	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
78	CDT-3644	1.250	4.928	0.496	3.956	Free Surface	0 - 11:15:00 hrs	4.701	4.701	0.803	0.648	0.972	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
79	CDT-3646	1.250	6.687	0.913	3.955	Free Surface	0 - 11:15:59 hrs	5.708	5.708	0.591	0.551	2.732	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
80	CDT-3648	1.250	7.376	1.111	3.955	Free Surface	0 - 11:17:00 hrs	4.617	4.619	0.536	0.658	3.421	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
81	CDT-3650	1.250	4.345	0.385	3.954	Free Surface	0 - 11:17:00 hrs	3.974	3.974	0.910	0.756	0.391	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
82	CDT-3652	1.250	4.636	0.439	3.954	Free Surface	0 - 11:18:00 hrs	4.120	4.121	0.853	0.730	0.682	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0

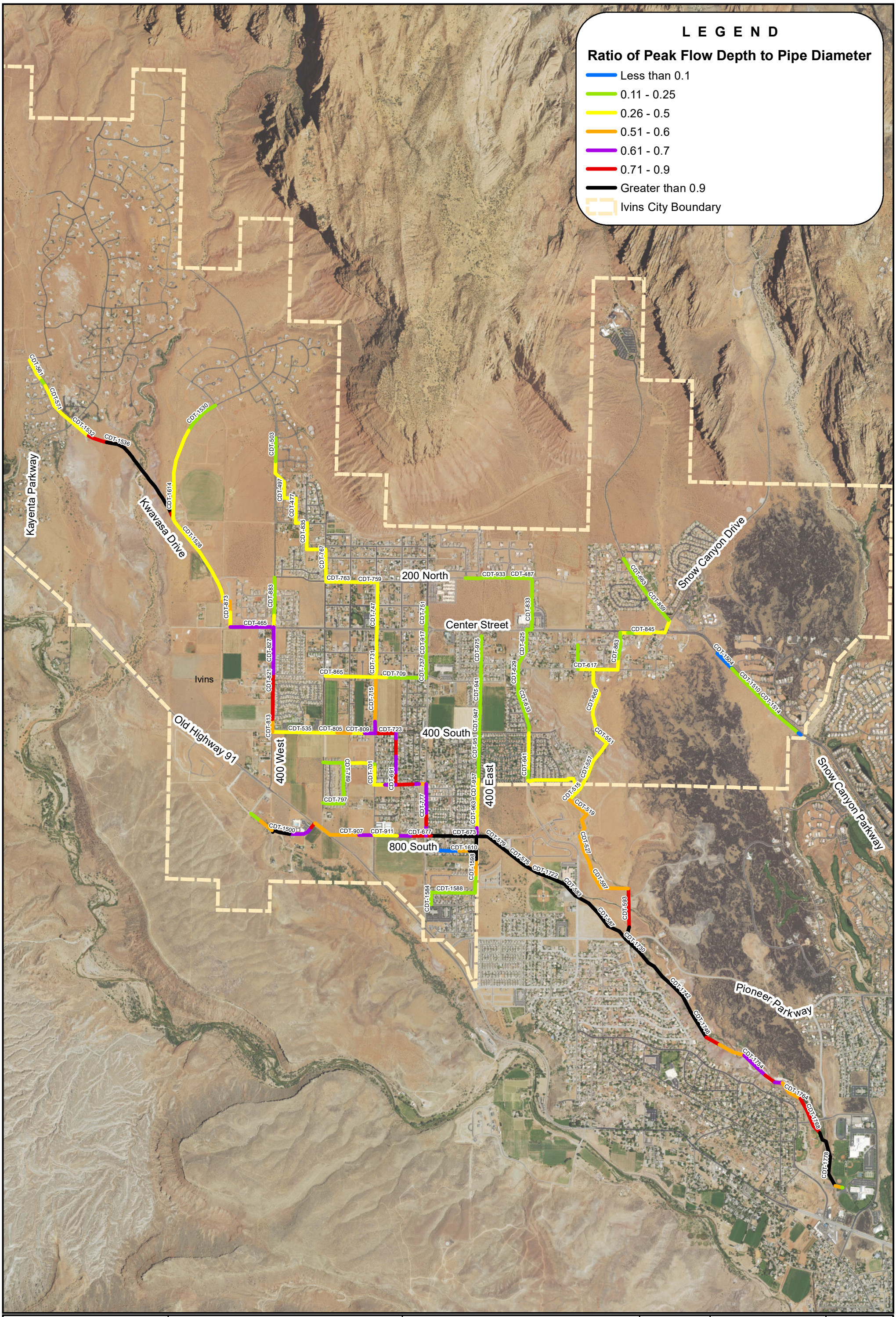
	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
83	CDT-3654	1.250	4.523	0.418	3.953	Free Surface	0 - 11:19:59 hrs	4.117	4.118	0.874	0.730	0.571	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
84	CDT-3656	1.250	4.577	0.428	3.950	Free Surface	0 - 11:21:00 hrs	3.523	3.523	0.863	0.859	0.626	1.187	1.250	0.010	0.010	0.282	0.010	0.010	0
85	CDT-3658	1.250	4.515	0.416	3.950	Free Surface	0 - 11:22:00 hrs	5.599	5.681	0.875	0.559	0.564	1.187	1.250	0.010	0.282	0.010	0.010	0.010	0
86	CDT-3660	1.250	148.276	448.930	3.950	Free Surface	0 - 11:22:00 hrs	50.283	50.283	0.027	0.115	144.326	1.187	0.797	0.010	0.010	0.010	0.010	0.010	0
87	CDT-3662	1.000	4.375	1.285	3.966	Free Surface	0 - 11:04:59 hrs	6.217	6.221	0.906	0.757	0.409	1.187	1.000	0.010	0.010	0.010	0.010	0.010	0
88	CDT-3664	1.250	7.356	1.105	3.961	Free Surface	0 - 11:10:00 hrs	5.325	5.326	0.538	0.584	3.395	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
89	CDT-3666	1.250	6.899	0.972	3.962	Free Surface	0 - 11:08:59 hrs	5.860	5.861	0.574	0.540	2.938	1.187	1.250	0.010	0.010	0.010	0.010	0.010	0
90	CDT-465	0.667	1.061	0.657	0.168	Free Surface	0 - 11:00:00 hrs	2.190	2.190	0.158	0.271	0.893	0.047	0.593	0.010	0.010	0.010	0.010	0.010	0
91	CDT-467	0.667	1.029	0.618	0.167	Free Surface	0 - 11:00:00 hrs	2.159	2.160	0.163	0.274	0.862	0.047	0.594	0.010	0.010	0.010	0.010	0.010	0
92	CDT-469	0.667	1.110	0.719	0.084	Free Surface	0 - 11:00:00 hrs	2.006	2.017	0.076	0.177	1.026	0.025	0.509	0.010	0.010	0.010	0.010	0.010	0
93	CDT-471	0.667	0.751	0.329	0.117	Free Surface	0 - 11:00:00 hrs	1.244	1.244	0.156	0.314	0.634	0.035	0.619	0.010	0.010	0.010	0.010	0.010	0
94	CDT-473	0.667	2.020	2.382	0.117	Free Surface	0 - 11:00:00 hrs	1.224	1.224	0.058	0.318	1.903	0.035	0.621	0.010	0.010	0.010	0.010	0.010	0
95	CDT-475	0.667	2.268	3.002	0.074	Free Surface	0 - 11:00:00 hrs	2.092	2.095	0.033	0.158	2.194	0.022	0.486	0.010	0.010	0.010	0.010	0.010	0
96	CDT-477	0.667	1.706	1.699	0.069	Free Surface	0 - 11:00:00 hrs	2.529	2.529	0.041	0.132	1.637	0.020	0.451	0.010	0.010	0.010	0.010	0.010	0
97	CDT-479	0.667	2.304	3.097	0.235	Free Surface	0 - 11:00:00 hrs	3.754	3.815	0.102	0.235	2.069	0.067	0.565	0.010	0.010	0.010	0.010	0.010	0
98	CDT-481	0.667	2.266	2.997	0.142	Free Surface	0 - 10:32:00 hrs	3.532	3.533	0.063	0.173	2.124	0.040	0.504	0.010	0.010	0.010	0.010	0.010	0
99	CDT-483	0.667	2.495	3.633	0.142	Free Surface	0 - 10:30:59 hrs	3.730	3.730	0.057	0.166	2.354	0.040	0.495	0.010	0.010	0.010	0.010	0.010	0
100	CDT-485	0.667	2.018	2.376	0.056	Free Surface	0 - 10:30:00 hrs	1.920	2.081	0.028	0.138	1.962	0.016	0.460	0.010	0.010	0.010	0.010	0.010	0
101	CDT-487	0.667	1.319	1.015	0.056	Free Surface	0 - 10:27:59 hrs	2.083	2.083	0.042	0.130	1.263	0.016	0.448	0.010	0.010	0.010	0.010	0.010	0
102	CDT-489	0.667	1.021	0.608	0.158	Free Surface	0 - 10:41:00 hrs	2.474	2.474	0.155	0.239	0.862	0.044	0.569	0.010	0.010	0.010	0.010	0.010	0
103	CDT-491	0.667	2.056	2.467	0.162	Free Surface	0 - 10:41:59 hrs	3.183	3.184	0.079	0.203	1.894	0.045	0.536	0.010	0.010	0.010	0.010	0.010	0
104	CDT-493	0.833	2.314	0.950	0.507	Free Surface	0 - 11:00:00 hrs	3.128	3.128	0.219	0.338	1.807	0.145	0.788	0.010	0.010	0.010	0.010	0.010	0
105	CDT-495	0.667	1.012	0.597	0.063	Free Surface	0 - 11:00:00 hrs	1.776	1.776	0.062	0.158	0.948	0.019	0.487	0.010	0.010	0.010	0.010	0.010	0
106	CDT-497	0.667	2.446	3.492	0.060	Free Surface	0 - 10:33:59 hrs	1.990	2.035	0.025	0.142	2.386	0.018	0.466	0.010	0.010	0.010	0.010	0.010	0
107	CDT-499	0.667	1.761	1.809	0.057	Free Surface	0 - 10:49:59 hrs	1.742	1.834	0.032	0.150	1.704	0.017	0.475	0.010	0.010	0.010	0.010	0.010	0
108	CDT-501	0.667	0.992	0.574	0.057	Free Surface	0 - 10:29:00 hrs	1.880	1.880	0.058	0.142	0.935	0.017	0.465	0.010	0.010	0.010	0.010	0.010	0
109	CDT-503	0.667	2.429	3.443	0.048	Free Surface	0 - 10:03:59 hrs	2.941	3.005	0.020	0.093	2.381	0.014	0.387	0.010	0.010	0.010	0.010	0.010	0
110	CDT-505	0.667	3.091	5.574	0.048	Free Surface	0 - 10:08:59 hrs	2.448	2.536	0.015	0.105	3.043	0.014	0.408	0.010	0.010	0.010	0.010	0.010	0
111	CDT-507	0.667	1.231	0.884	0.351	Free Surface	0 - 11:00:00 hrs	3.382	3.394	0.286	0.338	0.879	0.102	0.631	0.010	0.010	0.010	0.010	0.010	0
112	CDT-509	0.667	1.967	2.257	0.351	Free Surface	0 - 11:00:00 hrs	4.001	4.001	0.179	0.299	1.615	0.102	0.611	0.010	0.010	0.010	0.010	0.010	0
113	CDT-511	0.667	1.760	1.807	0.384	Free Surface	0 - 11:00:00 hrs	3.086	3.086	0.218	0.386	1.376	0.112	0.649	0.010	0.010	0.010	0.010	0.010	0
114	CDT-513	0.833	3.172	1.786	0.898	Free Surface	0 - 11:00:00 hrs	4.669	4.671	0.283	0.383	2.275	0.259	0.810	0.010	0.010	0.010	0.010	0.010	0
115	CDT-515	0.833	2.702	1.296	0.919	Free Surface	0 - 11:00:00 hrs	4.368	4.368	0.340	0.410	1.783	0.265	0.819	0.010	0.010	0.010	0.010	0.010	0
116	CDT-517	0.833	2.613	1.212	0.941	Free Surface	0 - 11:00:00 hrs	4.357	4.357	0.360	0.418	1.672	0.271	0.822	0.010	0.010	0.010	0.010	0.010	0
117	CDT-519	0.833	2.635	1.233	0.963	Free Surface	0 - 11:00:00 hrs	4.345	4.345	0.365	0.426	1.672	0.277	0.824	0.010	0.010	0.010	0.010	0.010	0
118	CDT-521	0.833	2.578	1.179	0.984	Free Surface	0 - 11:00:00 hrs	4.363	4.363	0.382	0.432	1.593	0.283	0.825	0.010	0.010	0.010	0.010	0.010	0
119	CDT-523	0.833	2.674	1.269	1.006	Free Surface	0 - 11:00:00 hrs	4.516	4.516	0.376	0.428	1.668	0.289	0.824	0.010	0.010	0.010	0.010	0.010	0
120	CDT-525	0.833	2.726	1.319	1.028	Free Surface	0 - 11:00:00 hrs	4.513	4.513	0.377	0.435	1.698	0.295	0.826	0.010	0.010	0.010	0.010	0.010	0
121	CDT-527	0.833	2.587	1.188	1.049	Free Surface	0 - 11:00:00 hrs	4.441	4.441	0.406	0.448	1.538	0.301	0.829	0.010	0.010	0.010	0.010	0.010	0
122	CDT-529	0.833	2.591	1.192	1.071	Free Surface	0 - 11:00:00 hrs	4.462	4.462	0.413	0.453	1.520	0.307	0.829	0.010	0.010	0.010	0.010	0.010	0
123	CDT-531	1.000	2.770	0.515	0.421	Free Surface	0 - 11:00:00 hrs	2.530	2.530	0.152	0.264	2.349	0.125	0.882	0.010	0.010	0.010	0.010	0.010	0
124	CDT-533	1.000	3.010	0.608	0.422	Free Surface	0 - 11:00:00 hrs	2.617	2.617	0.140	0.259	2.588	0.125	0.876	0.010	0.010	0.010	0.010	0.010	0
125	CDT-535	1.000	3.015	0.610	0.351	Free Surface	0 - 11:00:00 hrs	2.422	2.428	0.116	0.242	2.664	0.103	0.856	0.010	0.010	0.010	0.010	0.010	0
126	CDT-537	1.000	2.803	0.527	0.352	Free Surface	0 - 11:00:00 hrs	2.482	2.482	0.126	0.237	2.451	0.103	0.850	0.010	0.010	0.010	0.010	0.010	0
127	CDT-539	0.667	0.965	0.543	0.145	Free Surface	0 - 10:07:59 hrs	1.964	1.985	0.150	0.265	0.820	0.041	0.588	0.010	0.010	0.010	0.010	0.010	0
128	CDT-541	0.667	1.160	0.785	0.125	Free Surface	0 - 11:00:00 hrs	1.896	1.897	0.108	0.244	1.035	0.037	0.572	0.010	0.010	0.010	0.010	0.010	0
129	CDT-543	0.667	0.977	0.557	0.128	Free Surface	0 - 11:00:00 hrs	2.347	2.347	0.131	0.214	0.849	0.038	0.546	0.010	0.010	0.010	0.010	0.010	0
130	CDT-545	0.667	2.041	2.430	0.125	Free Surface	0 - 11:00:00 hrs	2.612	2.612	0.061	0.195	1.916	0.037	0.528	0.010	0.010	0.010	0.010	0.010	0
131	CDT-547	0.833	2.331	0.964	0.507	Free Surface	0 - 11:00:00 hrs	4.031	4.031	0.217	0.281	1.824	0.145	0.749	0.010	0.010	0.010	0.010	0.010	0
132	CDT-549	0.833	4.992	4.424	0.507	Free Surface	0 - 11:00:00 hrs	5.127	5.127	0.102	0.237	4.486	0.145	0.709	0.010	0.010	0.010	0.010	0.010	0
133	CDT-551	0.833	3.474	2.142	0.507	Free Surface	0 - 11:00:00 hrs	4.517	4.517	0.146	0.259	2.967	0.145	0.730	0.010	0.010	0.010	0.010	0.010	0
134	CDT-553	0.833	3.436	2.095	0.507	Free Surface	0 - 11:00:59 hrs	4.455	4.455	0.148	0.262	2.929	0.145	0.733	0.010	0.010	0.010	0.010	0.010	0
135	CDT-555	0.833	3.325	1.962	0.507	Free Surface	0 - 11:00:59 hrs	4.289	4.289	0.152	0.269	2.818	0.145	0.739	0.010	0.010	0.010	0.010	0.010	0
136	CDT-557	0.833	3.192	1.809	0.507	Free Surface	0 - 11:02:00 hrs	4.383	4.383	0.159	0.265	2.685	0.145	0.735	0.010	0.010	0.010	0.010	0.010	0
137	CDT-559	0.833	3.539	2.223	0.507	Free Surface	0 - 11:02:00 hrs	3.547	3.588	0.143	0.310	3.032	0.145	0.770	0.010	0.010	0.010	0.010	0.010	0
138	CDT-561	0.500	0.636	1.095	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	0.636	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
139	CDT-563	0.500	1.359	5.000	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.359	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
140	CDT-565	0.500	1.118	3.382	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.118	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
141	CDT-567	0.500	1.235	4.130	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.235	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
142	CDT-569	0.500	0.816	1.804	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.044	0.816	0.000	0.203	0.010	0.010	0.010	0.010	0.010	0
143	CDT-571	0.500	1.234	4.120	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.000	1.234	0.000	0.000	0.010	0.010	0.010	0.010	0.010	0
144	CDT-573	1.000	5.055	1.716	2.417	Free Surface	0 - 11:00:00 hrs	6.467	6.467	0.478	0.481	2.639	0.722	0.999	0.010	0.010	0.010	0.010	0.010	0
145	CDT-575	1.000	4.310	1.247	2.388	Free Surface	0 - 11:00:00 hrs	5.735	5.735	0.554	0.524	1.922	0.713	1.000	0.010	0.010	0.010	0.010	0.010	0
146	CDT-579	1.000	4.536	1.381	2.327	Free Surface	0 - 11:00:00 hrs	6.133	6.133	0.513	0.487	2.209	0.693	0.999	0.010	0.010	0.010	0.010	0.010	0
147	CDT-581	1.000	5.598	2.104	2.444	Free Surface	0 - 11:00:00 hrs	6.237	6.237	0.436	0.499	3.155	0.731	1.000	0.010	0.010	0.010	0.010	0.010	0
148	CDT-583	1.000	4.347	1.268	2.443	Free Surface	0 - 11:00:00 hrs	5.445	5.465	0.562	0.558	1.904	0.732	1.000	0.010	0.010	0.010	0.010	0.010	0
149	CDT-585	1.000	4.355	1.273	2.701	Free Surface	0 - 11:00:00 hrs	5.932	5.932	0.620	0.563	1.654	0.807	1.000	0.010	0.010	0.010	0.010	0.010	0
150	CDT-587	1.000	4.684	1.473	2.700	Free Surface	0 - 11:00:00 hrs	5.988	5.988	0.577	0.558	1.983	0.809	1.000	0.010	0.010	0.010	0.010	0.010	0
151	CDT-589	1.000	4.483	1.349	2.698	Free Surface	0 - 11:00:00 hrs	5.967	5.967	0.602	0.560	1.785	0.810	1.000	0.010	0.010	0.010	0.010	0.010	0
152	CDT-591	1.000	4.644	1.448	2.697	Free Surface	0 - 11:00:59 hrs	5.380	5.382	0.581	0.610	1.947	0.810	1.000	0.010	0.010	0.010	0.010	0.010	0
153	CDT-593	1.000	3.422	0.786	1.174	Free Surface	0 - 11:00:00 hrs	3.945	3.945	0.343	0.404	2.248	0.337	0.981	0.010	0.010	0.010	0.010	0.010	0
154	CDT-595	0.833	2.689	1.284	1.092	Free Surface	0 - 11:00:00 hrs	4.798	4.798	0.406	0.435	1.597	0.313	0.826	0.010	0.010	0.010	0.010	0.010	0
155	CDT-597	0.833	3.076	1.680	1.107	Free Surface	0 - 11:00:00 hrs	4.507	4.507	0.360	0.461	1.970	0.317	0.831	0.010	0.010	0.010	0.010	0.010	0
156	CDT-599	1.000	3.007	0.607	1.120	Free Surface	0 - 11:00:00 hrs	3.345	3.345	0.373	0.442	1.887	0.322	0.993	0.010	0.010	0.010	0.010	0.010	0
157	CDT-601	1.000	2.748	0.507	1.134	Free Surface	0 - 11:00:00 hrs	3.473	3.473	0.413	0.434	1.614	0.326	0.991	0.010	0.010	0.010	0.010	0.010	0
158	CDT-603	1.000	3.422	0.786	1.171	Free Surface	0 - 11:00:59 hrs	2.722	2.723	0.342	0.538	2.251	0.338	1.000	0.010	0.010	0.010	0.010	0.010	0
159	CDT-605	1.000	3.631	0.885	0.354	Free Surface	0 - 11:00:00 hrs	2.645	2.645	0.097	0.227	3.277	0.103	0.837	0.010	0.010	0.010	0.010	0.010	0
160	CDT-607	0.667	2.202	2.829	0.216	Free Surface	0 - 10:53:59 hrs	3.785	3.785	0.098	0.220	1.986	0.061	0.552	0.010	0.010	0.010	0.010	0.010	0
161	CDT-609	0.833	1.921	0.655	0.437	Free Surface	0 - 11:00:00 hrs	2.911	2.911	0.227	0.319	1.485	0.125	0.777	0.010	0.010	0.010	0.010	0.010	0
162	CDT-611	0.833	1.935	0.664	0.425	Free Surface	0 - 11:00:00 hrs	2.773	2.773	0.220	0.324	1.510	0.122	0.780	0.010	0.010	0.010	0.010	0.010	0
163	CDT-613	0.833	2.665	1.261	0.389	Free Surface	0 - 11:00:00 hrs	2.985	2.986	0.146	0.288	2.277	0.112	0.755	0.010	0.010	0.010	0.010	0.010	0
164	CDT-615	0.833	2.443	1.060	0.505	Free Surface	0 - 11:00:00 hrs	3.454	3.454	0.207	0.313	1.939	0.144	0.773	0.010	0.010	0.010	0.010	0.010	0

Print Report

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
165	CDT-617	0.667	1.876	2.053	0.060	Free Surface	0 - 10:56:00 hrs	0.864	1.027	0.032	0.254	1.815	0.017	0.580	0.010	0.010	0.010	0.010	0.010	0
166	CDT-619	0.667	2.413	3.396	0.035	Free Surface	0 - 10:45:59 hrs	1.837	1.874	0.015	0.104	2.377	0.010	0.406	0.010	0.010	0.010	0.010	0.010	0
167	CDT-621	0.667	2.341	3.198	0.034	Free Surface	0 - 10:04:59 hrs	2.415	2.481	0.014	0.084	2.308	0.009	0.369	0.010	0.010	0.010	0.010	0.010	0
168	CDT-623	0.833	3.924	2.733	0.060	Free Surface	0 - 10:21:00 hrs	2.207	2.385	0.015	0.098	3.864	0.016	0.494	0.010	0.010	0.010	0.010	0.010	0
169	CDT-625	0.667	1.801	1.893	0.176	Free Surface	0 - 10:42:59 hrs	3.461	3.461	0.098	0.204	1.625	0.049	0.537	0.010	0.010	0.010	0.010	0.010	0
170	CDT-627	0.667	2.317	3.134	0.180	Free Surface	0 - 10:45:00 hrs	3.998	3.998	0.078	0.187	2.137	0.050	0.520	0.010	0.010	0.010	0.010	0.010	0
171	CDT-629	0.667	2.519	3.704	0.185	Free Surface	0 - 10:47:00 hrs	3.943	3.943	0.074	0.192	2.334	0.052	0.525	0.010	0.010	0.010	0.010	0.010	0
172	CDT-631	0.667	2.146	2.686	0.190	Free Surface	0 - 10:48:00 hrs	3.721	3.721	0.089	0.204	1.955	0.053	0.537	0.010	0.010	0.010	0.010	0.010	0
173	CDT-633	0.667	2.071	2.502	0.193	Free Surface	0 - 10:49:59 hrs	3.717	3.717	0.093	0.206	1.878	0.054	0.539	0.010	0.010	0.010	0.010	0.010	0
174	CDT-635	0.667	1.965	2.252	0.226	Free Surface	0 - 10:55:00 hrs	3.343	3.343	0.115	0.248	1.739	0.064	0.576	0.010	0.010	0.010	0.010	0.010	0
175	CDT-637	0.667	2.128	2.641	0.197	Free Surface	0 - 10:52:00 hrs	3.733	3.751	0.093	0.208	1.931	0.055	0.541	0.010	0.010	0.010	0.010	0.010	0
176	CDT-639	0.667	1.492	1.299	0.228	Free Surface	0 - 10:56:00 hrs	3.140	3.140	0.153	0.261	1.264	0.065	0.586	0.010	0.010	0.010	0.010	0.010	0
177	CDT-641	0.667	1.672	1.631	0.230	Free Surface	0 - 10:57:59 hrs	3.459	3.459	0.138	0.246	1.442	0.065	0.574	0.010	0.010	0.010	0.010	0.010	0
178	CDT-643	0.667	1.982	2.292	0.233	Free Surface	0 - 10:59:00 hrs	3.937	3.937	0.118	0.226	1.749	0.066	0.558	0.010	0.010	0.010	0.010	0.010	0
179	CDT-645	0.667	1.956	2.232	0.277	Free Surface	0 - 11:00:00 hrs	3.491	3.491	0.142	0.278	1.679	0.079	0.597	0.010	0.010	0.010	0.010	0.010	0
180	CDT-647	0.667	1.464	1.250	0.277	Free Surface	0 - 11:00:00 hrs	3.308	3.308	0.189	0.289	1.187	0.079	0.604	0.010	0.010	0.010	0.010	0.010	0
181	CDT-649	0.667	1.744	1.776	0.290	Free Surface	0 - 11:00:00 hrs	3.494	3.495	0.166	0.288	1.454	0.083	0.603	0.010	0.010	0.010	0.010	0.010	0
182	CDT-651	0.667	1.557	1.414	0.300	Free Surface	0 - 11:00:00 hrs	3.433	3.433	0.193	0.298	1.257	0.086	0.610	0.010	0.010	0.010	0.010	0.010	0
183	CDT-653	0.667	1.625	1.540	0.312	Free Surface	0 - 11:00:00 hrs	3.005	3.009	0.192	0.338	1.313	0.090	0.631	0.010	0.010	0.010	0.010	0.010	0
184	CDT-655	0.667	1.279	0.955	0.349	Free Surface	0 - 11:00:00 hrs	3.442	3.442	0.273	0.333	0.930	0.101	0.628	0.010	0.010	0.010	0.010	0.010	0
185	CDT-657	0.667	2.345	3.209	0.384	Free Surface	0 - 11:00:00 hrs	4.450	4.450	0.164	0.295	1.961	0.112	0.608	0.010	0.010	0.010	0.010	0.010	0
186	CDT-659	0.833	5.344	5.069	0.075	Free Surface	0 - 11:00:00 hrs	1.491	1.565	0.014	0.148	5.269	0.021	0.592	0.010	0.010	0.010	0.010	0.010	0
187	CDT-661	0.833	2.836	1.427	0.075	Free Surface	0 - 10:59:00 hrs	2.608	2.608	0.027	0.101	2.761	0.021	0.502	0.010	0.010	0.010	0.010	0.010	0
188	CDT-663	0.833	3.028	1.627	0.075	Free Surface	0 - 10:55:00 hrs	2.187	2.279	0.025	0.114	2.952	0.021	0.529	0.010	0.010	0.010	0.010	0.010	0
189	CDT-665	0.833	2.359	0.988	0.507	Free Surface	0 - 11:00:00 hrs	4.395	4.395	0.215	0.264	1.852	0.145	0.735	0.010	0.010	0.010	0.010	0.010	0
190	CDT-667	0.833	7.952	11.225	0.507	Free Surface	0 - 11:00:00 hrs	4.519	4.519	0.064	0.259	7.445	0.145	0.730	0.010	0.010	0.010	0.010	0.010	0
191	CDT-671	1.000	4.181	1.173	1.742	Free Surface	0 - 11:00:00 hrs	4.935	4.936	0.417	0.460	2.439	0.519	0.997	0.010	0.010	0.010	0.010	0.010	0
192	CDT-673	1.000	4.233	1.203	1.749	Free Surface	0 - 11:02:00 hrs	4.884	4.884	0.413	0.465	2.484	0.522	0.997	0.010	0.010	0.010	0.010	0.010	0
193	CDT-675	1.000	3.719	0.929	1.752	Free Surface	0 - 11:02:00 hrs	3.547	3.562	0.471	0.604	1.967	0.523	1.000	0.010	0.010	0.010	0.010	0.010	0
194	CDT-677	0.667	2.159	2.719	0.225	Free Surface	0 - 11:00:00 hrs	1.498	1.572	0.104	0.445	1.934	0.061	0.663	0.010	0.010	0.010	0.010	0.010	0
195	CDT-679	0.667	2.076	2.515	0.216	Free Surface	0 - 11:00:00 hrs	3.816	3.816	0.104	0.219	1.860	0.058	0.551	0.010	0.010	0.010	0.010	0.010	0
196	CDT-681	0.667	2.621	4.007	0.208	Free Surface	0 - 11:00:00 hrs	4.038	4.039	0.079	0.205	2.412	0.056	0.538	0.010	0.010	0.010	0.010	0.010	0
197	CDT-683	0.833	5.152	4.712	1.376	Free Surface	0 - 11:00:00 hrs	5.954	5.964	0.267	0.440	3.776	0.411	0.827	0.010	0.010	0.010	0.010	0.010	0
198	CDT-685	0.833	2.808	1.400	1.312	Free Surface	0 - 11:00:59 hrs	5.563	5.563	0.467	0.448	1.496	0.392	0.829	0.010	0.010	0.010	0.010	0.010	0
199	CDT-687	0.833	2.825	1.416	1.307	Free Surface	0 - 11:00:59 hrs	4.665	4.667	0.463	0.511	1.518	0.389	0.833	0.010	0.010	0.010	0.010	0.010	0
200	CDT-689	0.833	2.322	0.957	1.307	Free Surface	0 - 11:00:00 hrs	4.546	4.546	0.563	0.521	1.014	0.389	0.833	0.010	0.010	0.010	0.010	0.010	0
201	CDT-691	0.833	2.702	1.296	1.187	Free Surface	0 - 11:00:00 hrs	4.200	4.200	0.439	0.514	1.515	0.354	0.833	0.010	0.010	0.010	0.010	0.010	0
202	CDT-693	0.833	2.590	1.191	1.177	Free Surface	0 - 11:00:00 hrs	4.629	4.629	0.454	0.473	1.413	0.351	0.832	0.010	0.010	0.010	0.010	0.010	0
203	CDT-695	0.833	2.558	1.161	1.129	Free Surface	0 - 11:00:00 hrs	4.346	4.346	0.441	0.482	1.429	0.335	0.833	0.010	0.010	0.010	0.010	0.010	0
204	CDT-697	0.833	2.430	1.048	1.138	Free Surface	0 - 11:00:00 hrs	4.471	4.471	0.468	0.474	1.291	0.338	0.832	0.010	0.010	0.010	0.010	0.010	0
205	CDT-699	0.833	2.760	1.352	1.150	Free Surface	0 - 11:00:00 hrs	4.609	4.613	0.417	0.466	1.610	0.342	0.831	0.010	0.010	0.010	0.010	0.010	0
206	CDT-701	0.667	0.966	0.545	0.082	Free Surface	0 - 11:00:00 hrs	1.684	1.685	0.085	0.197	0.884	0.023	0.530	0.010	0.010	0.010	0.010	0.010	0
207	CDT-703	0.667	1.154	0.777	0.118	Free Surface	0 - 11:00:00 hrs	2.120	2.120	0.103	0.217	1.036	0.033	0.550	0.010	0.010	0.010	0.010	0.010	0
208	CDT-705	0.667	1.099	0.704	0.093	Free Surface	0 - 11:00:00 hrs	1.782	1.793	0.084	0.207	1.006	0.026	0.540	0.010	0.010	0.010	0.010	0.010	0
209	CDT-707	0.667	1.143	0.762	0.118	Free Surface	0 - 11:00:00 hrs	0.752	0.796	0.104	0.462	1.025	0.033	0.665	0.010	0.010	0.010	0.010	0.010	0
210	CDT-709	0.667	0.984	0.565	0.143	Free Surface	0 - 10:37:00 hrs	2.030	2.032	0.146	0.256	0.841	0.041	0.582	0.010	0.010	0.010	0.010	0.010	0
211	CDT-711	0.667	1.079	0.679	0.151	Free Surface	0 - 10:45:00 hrs	1.407	1.441	0.140	0.349	0.928	0.043	0.635	0.010	0.010	0.010	0.010	0.010	0
212	CDT-713	0.667	1.475	1.270	0.602	Free Surface	0 - 11:00:00 hrs	3.923	3.924	0.408	0.453	0.873	0.175	0.664	0.010	0.010	0.010	0.010	0.010	0
213	CDT-715	0.667	1.415	1.168	0.614	Free Surface	0 - 11:00:00 hrs	3.837	3.837	0.434	0.467	0.801	0.178	0.665	0.010	0.010	0.010	0.010	0.010	0
214	CDT-717	0.667	1.512	1.335	0.624	Free Surface	0 - 11:00:00 hrs	4.510	4.510	0.413	0.418	0.888	0.182	0.658	0.010	0.010	0.010	0.010	0.010	0
215	CDT-719	0.667	2.258	2.974	0.634	Free Surface	0 - 11:00:00 hrs	3.958	3.963	0.281	0.468	1.623	0.184	0.665	0.010	0.010	0.010	0.010	0.010	0
216	CDT-721	0.833	2.571	1.173	1.107	Free Surface	0 - 11:00:00 hrs	4.371	4.371	0.431	0.472	1.464	0.327	0.832	0.010	0.010	0.010	0.010	0.010	0
217	CDT-723	0.833	2.395	1.018	1.113	Free Surface	0 - 11:00:00 hrs	4.294	4.294	0.465	0.481	1.283	0.329	0.833	0.010	0.010	0.010	0.010	0.010	0
218	CDT-725	0.833	2.536	1.142	1.119	Free Surface	0 - 11:00:00 hrs	4.437	4.437	0.441	0.470	1.417	0.331	0.832	0.010	0.010	0.010	0.010	0.010	0
219	CDT-727	0.667	1.028	0.616	0.113	Free Surface	0 - 10:57:59 hrs	1.888	1.907	0.110	0.228	0.915	0.032	0.559	0.010	0.010	0.010	0.010	0.010	0
220	CDT-729	0.667	0.975	0.555	0.115	Free Surface	0 - 11:00:00 hrs	1.727	1.748	0.118	0.246	0.860	0.033	0.574	0.010	0.010	0.010	0.010	0.010	0
221	CDT-731	0.667	1.359	1.078	0.287	Free Surface	0 - 11:00:00 hrs	3.847	3.847	0.211	0.266	1.072	0.085	0.589	0.010	0.010	0.010	0.010	0.010	0
222	CDT-733	0.667	3.874	8.758	0.289	Free Surface	0 - 11:00:00 hrs	3.069	3.069	0.075	0.315	3.585	0.085	0.619	0.010	0.010	0.010	0.010	0.010	0
223	CDT-735	0.667	2.344	3.205	0.106	Free Surface	0 - 10:56:59 hrs	2.713	2.730	0.045	0.169	2.238	0.030	0.499	0.010	0.010	0.010	0.010	0.010	0
224	CDT-737	0.667	1.351	1.064	0.110	Free Surface	0 - 10:52:59 hrs	2.233	2.233	0.082	0.199	1.240	0.032	0.533	0.010	0.010	0.010	0.010	0.010	0
225	CDT-739	0.667	1.209	0.853	0.112	Free Surface	0 - 10:56:59 hrs	2.032	2.033	0.092	0.215	1.097	0.032	0.547	0.010	0.010	0.010	0.010	0.010	0
226	CDT-741	0.667	0.965	0.543	0.153	Free Surface	0 - 10:21:00 hrs	1.975	2.010	0.158	0.273	0.812	0.044	0.594	0.010	0.010	0.010	0.010	0.010	0
227	CDT-743	0.667	0.961	0.538	0.162	Free Surface	0 - 10:57:59 hrs	1.422	1.544	0.168	0.361	0.799	0.046	0.640	0.010	0.010	0.010	0.010	0.010	0
228	CDT-745	0.667	2.489	3.615	0.267	Free Surface	0 - 11:00:00 hrs	3.265	3.269	0.107	0.285	2.222	0.079	0.602	0.010	0.010	0.010	0.010	0.010	0
229	CDT-747	0.667	1.542	1.387	0.254	Free Surface	0 - 11:00:00 hrs	3.852	3.852	0.165	0.244	1.287	0.075	0.573	0.010	0.010	0.010	0.010	0.010	0
230	CDT-749	0.667	3.229	6.083	0.257	Free Surface	0 - 11:00:00 hrs	4.038	4.039	0.080	0.238	2.972	0.076	0.568	0.010	0.010	0.010	0.010	0.010	0
231	CDT-751	0.667	2.574	3.867	0.065	Free Surface	0 - 10:03:00 hrs	3.146	3.237	0.025	0.110	2.509	0.019	0.417	0.010	0.010	0.010	0.010	0.010	0
232	CDT-753	0.667	1.693	1.672	0.234	Free Surface	0 - 11:00:00 hrs	3.985	3.985	0.138	0.225	1.459	0.069	0.556	0.010	0.010	0.010	0.010	0.010	0
233	CDT-755	0.667	3.394	6.722	0.237	Free Surface	0 - 11:00:00 hrs	3.716	3.718	0.070	0.238	3.157	0.070	0.568	0.010	0.010	0.010	0.010	0.010	0
234	CDT-757	0.667	1.182	0.815	0.140	Free Surface	0 - 11:00:00 hrs	2.223	2.223	0.119	0.236	1.042	0.042	0.566	0.010	0.010	0.010	0.010	0.010	0
235	CDT-759	0.667	1.122	0.735	0.142	Free Surface	0 - 11:00:00 hrs	2.019	2.101	0.127	0.256	0.980	0.042	0.581	0.010	0.010	0.010	0.010	0.010	0
236	CDT-761	0.667	1.641	1.570	0.264	Free Surface	0 - 11:00:00 hrs	3.801	3.801	0.161	0.253	1.376	0.078	0.580	0.010	0.010	0.010	0.010	0.010	0
237	CDT-763	0.667	1.102	0.708	0.136	Free Surface	0 - 11:00:00 hrs	2.169	2.170	0.124	0.236	0.966	0.041	0.566	0.010	0.010	0.010	0.010	0.010	0
238	CDT-765	0.667	2.149	2.695	0.135	Free Surface	0 - 11:00:00 hrs	2.632	2.639	0.063	0.204	2.014	0.040	0.537	0.010	0.010	0.010	0.010	0.010	0
239	CDT-767	0.667	2.303	3.095	0.130	Free Surface	0 - 11:00:00 hrs	3.434	3.434	0.057	0.166	2.173	0.039	0.495	0.010	0.010	0.010	0.010	0.010	0
240	CDT-769	1.000	4.343	1.266	1.736	Free Surface	0 - 11:00:00 hrs	5.073	5.073	0.400	0.450	2.606	0.517	0.995	0.010	0.010	0.010	0.010	0.010	0
241	CDT-771	1.000	3.380	0.767	1.501	Free Surface	0 - 11:00:00 hrs	4.216	4.217	0.444	0.463	1.879	0.452	0.997	0.010	0.010	0.010	0.010	0.010	0
242	CDT-773	1.000	2.606	0.456	1.503	Free Surface	0 - 11:00:00 hrs	3.589	3.589	0.577	0.526	1.103	0.452	1.000	0.010	0.010	0.010	0.010	0.010	0
243	CDT-775	1.000	3.363	0.759	1.481	Free Surface	0 - 11:00:00 hrs	3.594	3.595	0.441	0.519	1.881	0.445	1.000	0.010	0.010	0.010	0.010	0.010	0
244	CDT-777	1.000	3.062	0.629	1.443	Free Surface	0 - 11:00:00 hrs	3.888	3.889	0.471	0.479	1.619	0.433	0.999	0.010	0.010	0.010	0.010	0.010	0
245	CDT-779	1.000	3.627	0.883	1.447	Free Surface	0 - 11:00:00 hrs	4.036	4.036	0.399	0.466	2.180	0.433	0.998	0.010	0.010	0.010	0.010	0.010	0
246	CDT-781	0.667	1.293	0.975	0.082	Free Surface	0 - 11:00:00 hrs	1.858	1.858	0.063	0.184	1.211	0.023	0.516	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
247	CDT-783	0.667	0.769	0.345	0.071	Free Surface	0 - 11:00:00 hrs	1.491	1.495	0.092	0.194	0.699	0.020	0.527	0.010	0.010	0.010	0.010	0.010	0
248	CDT-785	0.667	1.426	1.186	0.071	Free Surface	0 - 11:00:00 hrs	1.603	1.603	0.050	0.184	1.355	0.020	0.517	0.010	0.010	0.010	0.010	0.010	0
249	CDT-787	0.667	0.729	0.310	0.060	Free Surface	0 - 11:00:00 hrs	1.403	1.403	0.083	0.181	0.668	0.018	0.513	0.010	0.010	0.010	0.010	0.010	0
250	CDT-789	0.667	0.989	0.571	0.021	Free Surface	0 - 11:00:00 hrs	0.602	0.602	0.021	0.155	0.968	0.006	0.483	0.010	0.010	0.010	0.010	0.010	0
251	CDT-791	0.667	0.448	0.117	0.015	Free Surface	0 - 10:57:59 hrs	0.617	0.617	0.034	0.124	0.433	0.005	0.440	0.010	0.010	0.010	0.010	0.010	0
252	CDT-793	0.667	1.676	1.640	0.013	Free Surface	0 - 11:00:00 hrs	0.650	0.657	0.008	0.105	1.664	0.004	0.409	0.010	0.010	0.010	0.010	0.010	0
253	CDT-795	0.667	0.873	0.444	0.010	Free Surface	0 - 11:00:00 hrs	0.916	0.916	0.012	0.071	0.862	0.003	0.341	0.010	0.010	0.010	0.010	0.010	0
254	CDT-797	0.667	1.000	0.584	0.003	Free Surface	0 - 11:00:00 hrs	0.384	0.385	0.003	0.061	0.997	0.001	0.319	0.010	0.010	0.010	0.010	0.010	0
255	CDT-799	0.667	1.220	0.869	0.026	Free Surface	0 - 10:59:00 hrs	0.746	0.822	0.021	0.155	1.194	0.007	0.483	0.010	0.010	0.010	0.010	0.010	0
256	CDT-801	0.667	1.099	0.705	0.009	Free Surface	0 - 10:41:59 hrs	0.660	0.683	0.008	0.082	1.090	0.002	0.366	0.010	0.010	0.010	0.010	0.010	0
257	CDT-803	0.667	1.075	0.674	0.000	Free Surface	0 - 00:00:00 hrs	0.000	0.000	0.000	0.021	1.075	0.000	0.191	0.010	0.010	0.010	0.010	0.010	0
258	CDT-805	1.000	2.861	0.549	0.427	Free Surface	0 - 11:00:00 hrs	2.647	2.647	0.149	0.259	2.434	0.127	0.876	0.010	0.010	0.010	0.010	0.010	0
259	CDT-809	1.000	2.719	0.496	0.462	Free Surface	0 - 11:00:00 hrs	2.555	2.555	0.170	0.281	2.256	0.139	0.899	0.010	0.010	0.010	0.010	0.010	0
260	CDT-811	0.833	1.872	0.622	0.463	Free Surface	0 - 11:00:00 hrs	2.283	2.284	0.247	0.399	1.409	0.139	0.816	0.010	0.010	0.010	0.010	0.010	0
261	CDT-813	0.667	2.309	3.112	0.290	Free Surface	0 - 11:02:00 hrs	3.732	3.736	0.126	0.278	2.019	0.085	0.597	0.010	0.010	0.010	0.010	0.010	0
262	CDT-815	0.667	0.869	0.440	0.290	Free Surface	0 - 11:00:59 hrs	2.774	2.775	0.334	0.340	0.578	0.085	0.632	0.010	0.010	0.010	0.010	0.010	0
263	CDT-817	0.667	1.291	0.973	0.292	Free Surface	0 - 11:00:00 hrs	2.381	2.381	0.226	0.382	1.000	0.085	0.648	0.010	0.010	0.010	0.010	0.010	0
264	CDT-819	0.667	0.849	0.420	0.283	Free Surface	0 - 11:00:00 hrs	2.412	2.414	0.334	0.370	0.566	0.082	0.644	0.010	0.010	0.010	0.010	0.010	0
265	CDT-821	0.667	1.425	1.184	0.280	Free Surface	0 - 11:00:00 hrs	2.485	2.485	0.196	0.359	1.145	0.081	0.639	0.010	0.010	0.010	0.010	0.010	0
266	CDT-823	0.667	1.943	2.204	0.055	Free Surface	0 - 10:22:59 hrs	2.861	2.861	0.028	0.104	1.888	0.016	0.406	0.010	0.010	0.010	0.010	0.010	0
267	CDT-825	0.667	3.751	8.212	0.055	Free Surface	0 - 10:26:00 hrs	1.446	1.533	0.015	0.179	3.696	0.016	0.511	0.010	0.010	0.010	0.010	0.010	0
268	CDT-827	0.667	1.475	1.270	0.242	Free Surface	0 - 11:00:00 hrs	2.918	2.923	0.164	0.287	1.234	0.070	0.603	0.010	0.010	0.010	0.010	0.010	0
269	CDT-829	0.667	1.657	1.603	0.351	Free Surface	0 - 11:00:00 hrs	3.418	3.418	0.212	0.336	1.306	0.102	0.629	0.010	0.010	0.010	0.010	0.010	0
270	CDT-831	0.667	1.257	0.923	0.144	Free Surface	0 - 10:37:59 hrs	2.011	2.020	0.114	0.258	1.114	0.040	0.583	0.010	0.010	0.010	0.010	0.010	0
271	CDT-833	0.667	2.137	2.665	0.144	Free Surface	0 - 10:33:59 hrs	2.852	2.857	0.067	0.202	1.994	0.040	0.535	0.010	0.010	0.010	0.010	0.010	0
272	CDT-835	0.667	2.357	3.241	0.124	Free Surface	0 - 11:00:00 hrs	3.388	3.388	0.053	0.162	2.233	0.037	0.491	0.010	0.010	0.010	0.010	0.010	0
273	CDT-837	1.000	2.852	0.546	2.277	Free Surface	0 - 11:00:00 hrs	4.357	4.357	0.798	0.631	0.576	0.678	1.000	0.010	0.010	0.010	0.010	0.010	0
274	CDT-839	0.833	2.523	1.130	0.340	Free Surface	0 - 11:00:00 hrs	3.218	3.232	0.135	0.248	2.183	0.097	0.720	0.010	0.010	0.010	0.010	0.010	0
275	CDT-841	0.833	3.394	2.044	0.339	Free Surface	0 - 11:00:00 hrs	3.541	3.541	0.100	0.232	3.055	0.097	0.703	0.010	0.010	0.010	0.010	0.010	0
276	CDT-843	0.833	1.014	0.182	0.338	Free Surface	0 - 11:00:00 hrs	1.957	1.957	0.334	0.354	0.675	0.097	0.797	0.010	0.010	0.010	0.010	0.010	0
277	CDT-845	0.833	1.840	0.601	0.339	Free Surface	0 - 11:00:00 hrs	2.972	2.972	0.184	0.262	1.501	0.097	0.733	0.010	0.010	0.010	0.010	0.010	0
278	CDT-847	0.833	1.803	0.577	0.338	Free Surface	0 - 11:00:00 hrs	2.025	2.025	0.188	0.345	1.464	0.097	0.792	0.010	0.010	0.010	0.010	0.010	0
279	CDT-849	0.833	3.912	2.717	0.159	Free Surface	0 - 11:00:00 hrs	2.391	2.453	0.041	0.179	3.754	0.046	0.640	0.010	0.010	0.010	0.010	0.010	0
280	CDT-851	0.833	2.309	0.946	0.249	Free Surface	0 - 11:00:00 hrs	2.234	2.234	0.108	0.258	2.060	0.073	0.729	0.010	0.010	0.010	0.010	0.010	0
281	CDT-853	0.833	3.562	2.252	0.143	Free Surface	0 - 11:00:00 hrs	2.738	2.738	0.040	0.152	3.419	0.041	0.598	0.010	0.010	0.010	0.010	0.010	0
282	CDT-855	0.833	2.473	1.086	0.143	Free Surface	0 - 11:00:00 hrs	2.519	2.522	0.058	0.161	2.330	0.041	0.612	0.010	0.010	0.010	0.010	0.010	0
283	CDT-857	0.833	3.199	1.817	0.159	Free Surface	0 - 11:00:00 hrs	3.205	3.205	0.050	0.146	3.041	0.046	0.589	0.010	0.010	0.010	0.010	0.010	0
284	CDT-859	0.833	1.662	0.491	0.143	Free Surface	0 - 11:00:00 hrs	2.229	2.229	0.086	0.175	1.519	0.041	0.633	0.010	0.010	0.010	0.010	0.010	0
285	CDT-861	0.833	2.947	1.541	0.367	Free Surface	0 - 11:00:00 hrs	3.909	3.909	0.125	0.229	2.579	0.106	0.700	0.010	0.010	0.010	0.010	0.010	0
286	CDT-863	0.833	3.791	2.551	0.369	Free Surface	0 - 11:00:00 hrs	3.788	3.792	0.097	0.234	3.422	0.106	0.706	0.010	0.010	0.010	0.010	0.010	0
287	CDT-865	0.667	0.998	0.581	0.144	Free Surface	0 - 10:04:59 hrs	2.028	2.090	0.144	0.259	0.854	0.041	0.584	0.010	0.010	0.010	0.010	0.010	0
288	CDT-867	0.667	1.277	0.952	0.351	Free Surface	0 - 11:00:00 hrs	2.879	2.880	0.275	0.381	0.926	0.102	0.647	0.010	0.010	0.010	0.010	0.010	0
289	CDT-873	0.667	1.393	1.132	0.135	Free Surface	0 - 11:02:00 hrs	2.437	2.437	0.097	0.216	1.257	0.037	0.549	0.010	0.010	0.010	0.010	0.010	0
290	CDT-875	0.667	1.352	1.067	0.135	Free Surface	0 - 11:03:00 hrs	2.681	2.681	0.100	0.202	1.217	0.037	0.535	0.010	0.010	0.010	0.010	0.010	0
291	CDT-877	0.667	1.860	2.019	0.135	Free Surface	0 - 11:03:59 hrs	2.709	2.709	0.073	0.201	1.725	0.037	0.534	0.010	0.010	0.010	0.010	0.010	0
292	CDT-879	0.667	1.346	1.057	0.143	Free Surface	0 - 11:00:00 hrs	2.252	2.252	0.106	0.238	1.203	0.039	0.568	0.010	0.010	0.010	0.010	0.010	0
293	CDT-881	0.667	0.998	0.581	0.143	Free Surface	0 - 11:00:00 hrs	1.960	1.978	0.143	0.262	0.855	0.039	0.586	0.010	0.010	0.010	0.010	0.010	0
294	CDT-883	0.667	2.207	2.843	0.055	Free Surface	0 - 10:40:00 hrs	2.436	2.522	0.025	0.116	2.152	0.016	0.427	0.010	0.010	0.010	0.010	0.010	0
295	CDT-885	0.667	2.091	2.551	0.046	Free Surface	0 - 10:19:59 hrs	2.320	2.438	0.022	0.105	2.045	0.013	0.409	0.010	0.010	0.010	0.010	0.010	0
296	CDT-887	0.833	3.378	2.026	0.115	Free Surface	0 - 10:03:59 hrs	3.006	3.084	0.034	0.124	3.263	0.031	0.548	0.010	0.010	0.010	0.010	0.010	0
297	CDT-893	0.667	0.993	0.575	0.128	Free Surface	0 - 10:26:59 hrs	2.011	2.011	0.129	0.238	0.865	0.034	0.567	0.010	0.010	0.010	0.010	0.010	0
298	CDT-895	0.667	1.223	0.872	0.142	Free Surface	0 - 10:30:00 hrs	2.124	2.124	0.116	0.246	1.081	0.038	0.574	0.010	0.010	0.010	0.010	0.010	0
299	CDT-897	0.667	0.942	0.518	0.142	Free Surface	0 - 10:32:00 hrs	1.846	1.853	0.150	0.272	0.801	0.038	0.593	0.010	0.010	0.010	0.010	0.010	0
300	CDT-899	0.667	0.974	0.554	0.157	Free Surface	0 - 10:30:59 hrs	2.191	2.191	0.161	0.258	0.817	0.042	0.584	0.010	0.010	0.010	0.010	0.010	0
301	CDT-901	1.000	2.981	0.596	0.157	Free Surface	0 - 10:37:59 hrs	2.020	2.020	0.053	0.155	2.824	0.042	0.724	0.010	0.010	0.010	0.010	0.010	0
302	CDT-903	1.000	3.094	0.643	0.157	Free Surface	0 - 10:29:00 hrs	2.045	2.050	0.051	0.154	2.938	0.042	0.721	0.010	0.010	0.010	0.010	0.010	0
303	CDT-905	1.000	3.034	0.618	0.157	Free Surface	0 - 10:37:59 hrs	1.984	1.997	0.052	0.157	2.877	0.042	0.727	0.010	0.010	0.010	0.010	0.010	0
304	CDT-907	1.000	2.969	0.592	0.164	Free Surface	0 - 11:00:00 hrs	1.987	2.004	0.055	0.162	2.805	0.044	0.737	0.010	0.010	0.010	0.010	0.010	0
305	CDT-909	1.000	2.923	0.573	0.172	Free Surface	0 - 11:00:00 hrs	1.798	1.807	0.059	0.179	2.751	0.046	0.767	0.010	0.010	0.010	0.010	0.010	0
306	CDT-911	1.000	2.783	0.520	0.191	Free Surface	0 - 11:00:00 hrs	2.526	2.526	0.069	0.152	2.592	0.051	0.718	0.010	0.010	0.010	0.010	0.010	0
307	CDT-913	1.000	7.764	4.046	0.199	Free Surface	0 - 11:00:00 hrs	3.791	3.791	0.026	0.119	7.564	0.054	0.646	0.010	0.010	0.010	0.010	0.010	0
308	CDT-915	0.667	2.462	3.538	0.065	Free Surface	0 - 10:42:59 hrs	2.540	2.631	0.026	0.126	2.398	0.019	0.442	0.010	0.010	0.010	0.010	0.010	0
309	CDT-917	0.667	2.158	2.717	0.091	Free Surface	0 - 10:51:00 hrs	2.985	3.010	0.042	0.142	2.067	0.026	0.466	0.010	0.010	0.010	0.010	0.010	0
310	CDT-919	0.667	1.674	1.636	0.136	Free Surface	0 - 11:00:00 hrs	2.869	2.869	0.081	0.193	1.539	0.037	0.526	0.010	0.010	0.010	0.010	0.010	0
311	CDT-921	0.667	1.719	1.723	0.136	Free Surface	0 - 11:00:00 hrs	2.992	2.992	0.079	0.188	1.583	0.037	0.520	0.010	0.010	0.010	0.010	0.010	0
312	CDT-923	0.667	1.928	2.168	0.136	Free Surface	0 - 11:00:00 hrs	3.260	3.260	0.070	0.177	1.792	0.037	0.508	0.010	0.010	0.010	0.010	0.010	0
313	CDT-925	0.667	2.132	2.653	0.136	Free Surface	0 - 11:00:59 hrs	2.866	2.866	0.064	0.193	1.997	0.037	0.526	0.010	0.010	0.010	0.010	0.010	0
314	CDT-927	0.667	1.350	1.064	0.136	Free Surface	0 - 11:00:59 hrs	2.490	2.490	0.100	0.213	1.215	0.037	0.546	0.010	0.010	0.010	0.010	0.010	0
315	CDT-929	0.667	1.593	1.480	0.055	Free Surface	0 - 10:26:59 hrs	1.937	2.064	0.035	0.136	1.538	0.016	0.457	0.010	0.010	0.010	0.010	0.010	0
316	CDT-931	0.667	1.228	0.879	0.055	Free Surface	0 - 10:11:00 hrs	1.774	1.801	0.045	0.145	1.172	0.016	0.469	0.010	0.010	0.010	0.010	0.010	0
317	CDT-933	0.667	1.228	0.879	0.056	Free Surface	0 - 10:18:00 hrs	1.709	1.758	0.045	0.149	1.172	0.016	0.475	0.010	0.010	0.010	0.010	0.010	0
318	CDT-935	0.667	1.117	0.728	0.056	Free Surface	0 - 10:22:00 hrs	1.703	1.715	0.050	0.150	1.061	0.016	0.476	0.010	0.010	0.010	0.010	0.010	0
319	CDT-937	0.500	0.530	0.760	0.008	Free Surface	0 - 11:00:00 hrs	0.786	0.787	0.016	0.102	0.522	0.002	0.302	0.010	0.010	0.010	0.010	0.010	0
320	CDT-941	0.833	3.906	2.708	0.097	Free Surface	0 - 10:27:59 hrs	2.771	2.775	0.025	0.115	3.809	0.029	0.531	0.010	0.010	0.010	0.010	0.010	0
321	CDT-943	0.833	3.390	2.040	0.107	Free Surface	0 - 10:48:00 hrs	2.622	2.630	0.032	0.128	3.283	0.032	0.556	0.010	0.010	0.010	0.010	0.010	0
322	CDT-945	0.833	3.396	2.047	0.131	Free Surface	0 - 10:51:00 hrs	2.819	2.820	0.039	0.140	3.265	0.038	0.579	0.010	0.010	0.010	0.010	0.010	0
323	CDT-947	0.833	3.413	2.068	0.158	Free Surface	0 - 10:51:00 hrs	3.089	3.090	0.046	0.150	3.255	0.046	0.594	0.010	0.010	0.010	0.010	0.010	0
324	CDT-949	0.833	3.672	2.394	0.185	Free Surface	0 - 10:37:59 hrs	3.500	3.501	0.050	0.153	3.487	0.053	0.599	0.010	0.010	0.010	0.010	0.010	0
325	CDT-951	0.833	3.696	2.425	0.188	Free Surface	0 - 10:53:59 hrs	3.420	3.422	0.051	0.157	3.509	0.054	0.606	0.010	0.010	0.010	0.010	0.010	0
326	CDT-953	0.833	3.542	2.226	0.199	Free Surface	0 - 10:53:59 hrs	3.456	3.456	0.056	0.162	3.343	0.057	0.615	0.010	0.010	0.010	0.010	0.010	0
327	CDT-955	0.833	3.534	2.216	0.206	Free Surface	0 - 10:57:59 hrs	2.950	2.952	0.058	0.186	3.327	0.059	0.648	0.010	0.010	0.010	0.010	0.010	0
328	CDT-957	0.833	2.422	1.041	0.225	Free Surface	0 - 10:59:00 hrs	2.806	2.806	0.093	0.205	2.196	0.065	0.672	0.010	0.010	0.010	0.010	0.010	0

		ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
329		CDT-959	0.833	2.535	1.141	0.225	Free Surface	0 - 10:56:59 hrs	2.402	2.479	0.089	0.228	2.310	0.065	0.699	0.010	0.010	0.010	0.010	0.010	0
330		CDT-961	0.833	2.420	1.039	0.345	Free Surface	0 - 10:59:00 hrs	3.087	3.087	0.143	0.258	2.075	0.101	0.730	0.010	0.010	0.010	0.010	0.010	0
331		CDT-963	0.833	2.430	1.048	0.356	Free Surface	0 - 11:00:00 hrs	3.231	3.231	0.147	0.256	2.073	0.105	0.727	0.010	0.010	0.010	0.010	0.010	0
332		CDT-965	0.833	2.761	1.353	0.379	Free Surface	0 - 10:59:00 hrs	3.232	3.232	0.137	0.267	2.382	0.111	0.738	0.010	0.010	0.010	0.010	0.010	0
333		CDT-967	0.833	2.293	0.933	0.379	Free Surface	0 - 11:00:00 hrs	3.254	3.254	0.165	0.266	1.914	0.111	0.736	0.010	0.010	0.010	0.010	0.010	0
334		CDT-969	0.833	2.877	1.469	0.387	Free Surface	0 - 10:59:00 hrs	1.233	1.424	0.135	0.560	2.490	0.114	0.833	0.010	0.010	0.010	0.010	0.010	0
335		CDT-973	0.833	4.427	3.479	0.025	Free Surface	0 - 10:21:00 hrs	1.842	1.918	0.006	0.061	4.402	0.007	0.398	0.010	0.010	0.010	0.010	0.010	0
336		CDT-975	0.833	4.037	2.893	0.037	Free Surface	0 - 10:33:59 hrs	2.042	2.070	0.009	0.074	4.000	0.011	0.434	0.010	0.010	0.010	0.010	0.010	0
337		CDT-977	0.833	3.651	2.366	0.047	Free Surface	0 - 10:44:00 hrs	2.158	2.161	0.013	0.084	3.604	0.014	0.461	0.010	0.010	0.010	0.010	0.010	0
338		CDT-979	0.833	3.911	2.715	0.062	Free Surface	0 - 10:48:00 hrs	2.199	2.203	0.016	0.099	3.849	0.018	0.499	0.010	0.010	0.010	0.010	0.010	0
339		CDT-981	0.833	2.787	1.379	0.072	Free Surface	0 - 10:22:00 hrs	2.204	2.205	0.026	0.110	2.715	0.021	0.521	0.010	0.010	0.010	0.010	0.010	0



IVINS CITY

2016 SEWER MASTER PLAN

UNIMPROVED BUILDOUT CONDITIONS HYDRAULIC MODEL RESULTS

NORTH:

SCALE: 0 1,100 2,200 Feet

FIGURE NO. A-3

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure A3 - Unimproved Buildout Conditions Model Output.mxd aanderson 9/19/2016

Print Report

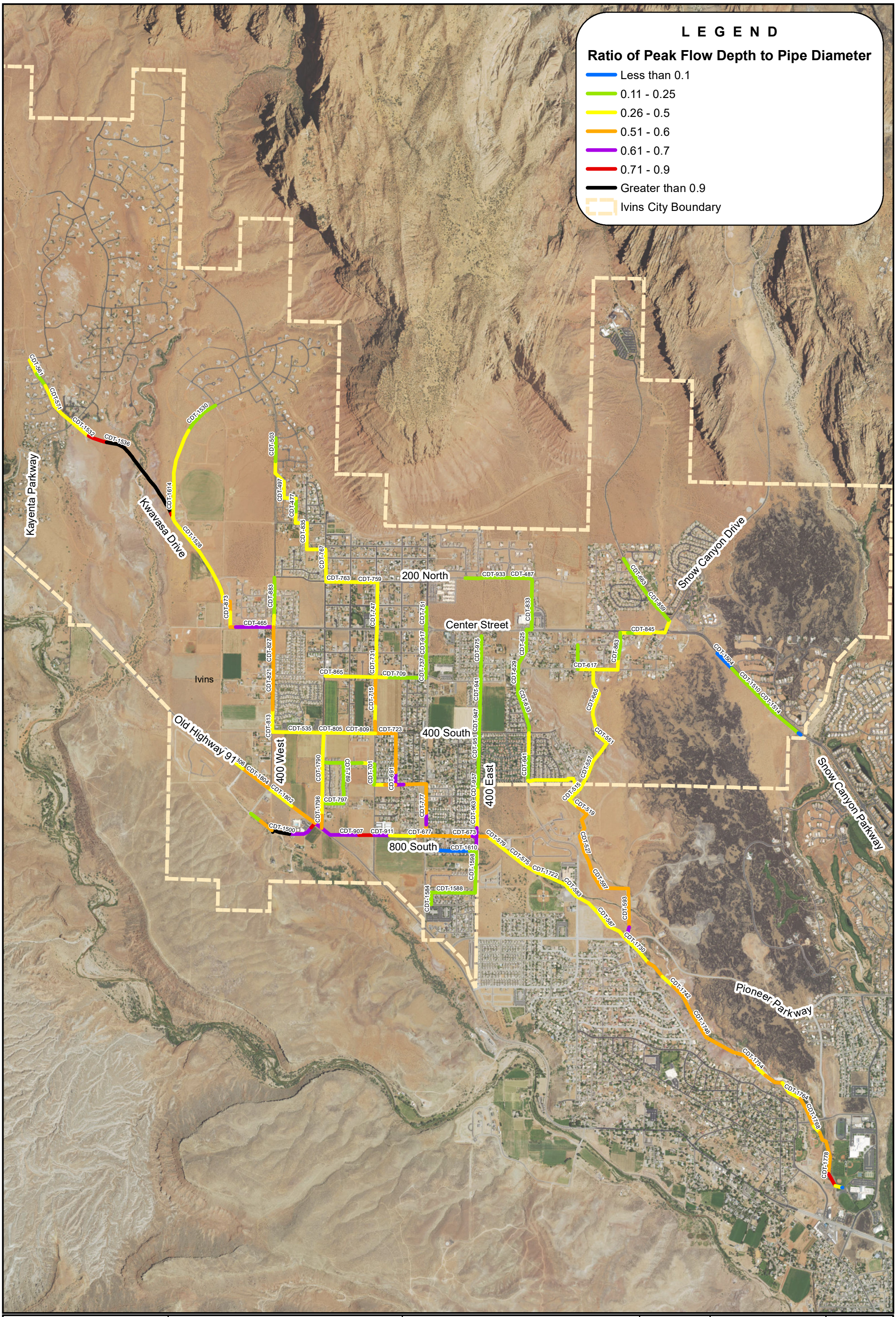
	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
1	CDT-1500	0.500	2.091	6.564	0.781	Free Surface	0 - 10:18:59 hrs	4.195	5.149	0.373	0.957	1.310	0.051	0.196	0.010	0.010	24.000	0.010	0.010	0
2	CDT-1502	0.833	3.926	2.736	0.193	Free Surface	0 - 10:11:00 hrs	0.594	0.594	0.049	0.575	3.733	0.052	0.327	0.010	0.010	24.000	0.010	0.010	0
3	CDT-1504	0.833	5.417	5.208	0.027	Free Surface	0 - 10:18:59 hrs	1.616	1.634	0.005	0.069	5.390	0.007	0.422	0.010	0.010	0.010	0.010	0.010	0
4	CDT-1506	0.833	5.294	4.974	0.084	Free Surface	0 - 10:30:00 hrs	3.128	3.287	0.016	0.096	5.209	0.023	0.491	0.010	0.010	0.010	0.010	0.010	0
5	CDT-1508	0.833	3.640	2.352	0.084	Free Surface	0 - 10:37:00 hrs	2.678	2.766	0.023	0.107	3.555	0.023	0.515	0.010	0.010	0.010	0.010	0.010	0
6	CDT-1510	0.833	3.347	1.988	0.084	Free Surface	0 - 10:56:59 hrs	2.433	2.481	0.025	0.114	3.262	0.023	0.530	0.010	0.010	0.010	0.010	0.010	0
7	CDT-1512	0.833	2.858	1.450	0.084	Free Surface	0 - 10:21:00 hrs	2.406	2.417	0.030	0.115	2.774	0.023	0.532	0.010	0.010	0.010	0.010	0.010	0
8	CDT-1514	0.833	3.229	1.850	0.084	Free Surface	0 - 10:26:00 hrs	2.451	2.457	0.026	0.114	3.144	0.023	0.529	0.010	0.010	0.010	0.010	0.010	0
9	CDT-1516	0.833	3.115	1.723	0.084	Free Surface	0 - 10:27:59 hrs	2.653	2.658	0.027	0.108	3.031	0.023	0.516	0.010	0.010	0.010	0.010	0.010	0
10	CDT-1518	0.833	4.305	3.289	0.088	Free Surface	0 - 10:30:59 hrs	1.982	2.182	0.021	0.136	4.216	0.024	0.571	0.010	0.010	0.010	0.010	0.010	0
11	CDT-1520	0.833	5.104	4.624	0.295	Free Surface	0 - 10:32:00 hrs	5.685	5.685	0.058	0.151	4.809	0.082	0.596	0.010	0.010	0.010	0.010	0.010	0
12	CDT-1522	2.000	53.133	4.700	0.295	Free Surface	0 - 10:33:00 hrs	4.487	4.487	0.006	0.054	52.838	0.082	0.897	0.010	0.010	0.010	0.010	0.010	0
13	CDT-1524	1.000	3.958	1.052	4.018	Backwater	0 - 10:37:00 hrs	5.462	5.656	1.015	1.000	-0.060	1.123	1.000	0.334	0.334	0.734	0.012	0.010	0
14	CDT-1526	1.000	4.046	1.099	3.850	Backwater	0 - 10:36:00 hrs	5.217	5.731	0.951	1.000	0.196	1.125	1.000	0.734	0.734	0.921	0.010	0.010	0
15	CDT-1528	0.667	1.360	1.079	0.451	Free Surface	0 - 11:00:59 hrs	3.157	3.228	0.331	0.433	0.909	0.122	0.661	0.010	0.010	0.010	0.010	0.010	0
16	CDT-1530	0.500	1.191	3.837	0.082	Free Surface	0 - 10:07:59 hrs	3.461	3.527	0.069	0.188	1.109	0.022	0.390	0.010	0.010	0.010	0.010	0.010	0
17	CDT-1532	0.500	0.768	1.598	0.371	Free Surface	0 - 10:34:59 hrs	3.954	3.972	0.482	0.484	0.398	0.100	0.500	0.010	0.010	0.010	0.010	0.010	0
18	CDT-1534	0.500	0.837	1.896	0.370	Free Surface	0 - 10:26:59 hrs	2.402	3.962	0.443	0.736	0.467	0.100	0.500	0.010	0.010	1.915	0.010	0.010	0
19	CDT-1536	0.500	1.088	3.202	0.370	Backwater	0 - 10:27:59 hrs	1.887	1.887	0.341	1.000	0.717	0.100	0.196	1.915	1.915	24.000	0.010	0.010	0
20	CDT-1538	0.500	1.432	5.550	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.259	1.000	1.062	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
21	CDT-1540	0.500	1.053	2.998	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.352	1.000	0.682	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
22	CDT-1542	0.500	1.049	2.979	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.353	1.000	0.679	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
23	CDT-1544	0.500	0.566	0.868	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.654	1.000	0.196	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
24	CDT-1546	0.500	0.220	0.131	0.370	Exceeds Capacity	0 - 11:00:00 hrs	1.886	1.886	1.686	1.000	-0.151	0.100	0.196	24.000	24.000	24.000	3.061	3.197	0
25	CDT-1548	0.500	0.607	0.999	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.610	1.000	0.237	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
26	CDT-1550	0.500	0.609	1.003	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.608	1.000	0.238	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
27	CDT-1552	0.500	1.050	2.983	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.353	1.000	0.680	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
28	CDT-1554	0.500	1.138	3.505	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.325	1.000	0.768	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
29	CDT-1556	0.500	1.366	5.047	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.271	1.000	0.995	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
30	CDT-1558	0.500	1.213	3.982	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.305	1.000	0.843	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
31	CDT-1560	0.500	1.423	5.479	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.260	1.000	1.052	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
32	CDT-1562	0.500	1.287	4.481	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.288	1.000	0.916	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
33	CDT-1564	0.500	1.398	5.293	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.265	1.000	1.028	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
34	CDT-1566	0.500	1.259	4.291	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.294	1.000	0.889	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
35	CDT-1568	0.500	0.979	2.594	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.378	1.000	0.609	0.100	0.196	0.812	0.812	24.000	0.010	0.010	0
36	CDT-1570	0.500	0.299	0.242	0.370	Exceeds Capacity	0 - 11:00:59 hrs	1.886	1.886	1.237	1.000	-0.071	0.100	0.500	0.784	0.812	0.784	0.891	0.784	0
37	CDT-1572	0.500	0.308	0.257	0.370	Exceeds Capacity	0 - 11:00:59 hrs	1.886	1.886	1.201	1.000	-0.062	0.100	0.500	0.764	0.784	0.764	0.866	0.764	0
38	CDT-1574	0.500	0.271	0.198	0.370	Free Surface	0 - 11:00:59 hrs	2.376	2.376	1.369	0.749	-0.100	0.100	0.500	0.010	0.764	0.010	0.990	0.010	0
39	CDT-1576	0.500	0.791	1.693	0.370	Free Surface	0 - 11:00:59 hrs	3.726	3.887	0.468	0.505	0.421	0.100	0.500	0.010	0.010	0.010	0.010	0.010	0
40	CDT-1578	0.500	1.534	6.367	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.241	1.000	1.163	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
41	CDT-1580	0.500	1.063	3.059	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.348	1.000	0.693	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
42	CDT-1582	0.500	1.390	5.229	0.370	Backwater	0 - 11:00:00 hrs	1.886	1.886	0.266	1.000	1.020	0.100	0.196	24.000	24.000	24.000	0.010	0.010	0
43	CDT-1584	0.667	1.380	1.111	0.049	Free Surface	0 - 10:06:00 hrs	1.929	1.981	0.036	0.126	1.331	0.013	0.443	0.010	0.010	0.010	0.010	0.010	0
44	CDT-1586	0.667	1.504	1.321	0.049	Free Surface	0 - 10:15:00 hrs	1.559	1.653	0.032	0.145	1.456	0.013	0.469	0.010	0.010	0.010	0.010	0.010	0
45	CDT-1588	0.667	0.843	0.415	0.049	Free Surface	0 - 10:19:59 hrs	1.344	1.355	0.058	0.161	0.795	0.013	0.490	0.010	0.010	0.010	0.010	0.010	0
46	CDT-1590	0.667	0.922	0.496	0.049	Free Surface	0 - 10:27:59 hrs	1.356	1.358	0.053	0.160	0.874	0.013	0.488	0.010	0.010	0.010	0.010	0.010	0
47	CDT-1592	0.667	0.877	0.449	0.049	Free Surface	0 - 10:30:59 hrs	1.385	1.386	0.056	0.157	0.828	0.013	0.485	0.010	0.010	0.010	0.010	0.010	0
48	CDT-1594	0.667	0.982	0.562	0.049	Free Surface	0 - 10:33:59 hrs	1.164	1.229	0.050	0.177	0.933	0.013	0.509	0.010	0.010	0.010	0.010	0.010	0
49	CDT-1596	0.667	0.958	0.535	0.086	Free Surface	0 - 10:37:00 hrs	1.705	1.706	0.089	0.201	0.872	0.023	0.535	0.010	0.010	0.010	0.010	0.010	0
50	CDT-1598	0.667	0.984	0.565	0.086	Free Surface	0 - 10:40:00 hrs	0.927	1.723	0.087	0.600	0.899	0.023	0.667	0.010	0.010	0.257	0.010	0.010	0
51	CDT-1600	0.667	0.969	0.548	0.190	Backwater	0 - 11:19:59 hrs	0.623	1.521	0.196	1.000	0.779	0.023	0.667	0.257	0.257	1.162	0.010	0.010	0
52	CDT-1602	0.667	0.796	0.370	0.300	Backwater	0 - 11:19:59 hrs	0.859	0.859	0.377	1.000	0.497	0.025	0.667	1.162	1.162	11.984	0.010	0.010	0
53	CDT-1604	0.667	1.821	1.936	0.007	Free Surface	0 - 10:45:59 hrs	1.127	1.222	0.004	0.048	1.814	0.002	0.283	0.010	0.010	0.010	0.010	0.010	0
54	CDT-1606	0.667	1.384	1.117	0.007	Free Surface	0 - 10:17:00 hrs	1.028	1.045	0.005	0.051	1.377	0.002	0.292	0.010	0.010	0.010	0.010	0.010	0
55	CDT-1608	0.667	1.361	1.080	0.007	Free Surface	0 - 10:36:00 hrs	0.980	1.007	0.005	0.052	1.354	0.002	0.296	0.010	0.010	0.010	0.010	0.010	0
56	CDT-1610	0.667	1.226	0.877	0.007	Free Surface	0 - 11:00:00 hrs	0.037	0.899	0.006	0.527	1.219	0.002	0.667	0.010	0.010	0.352	0.010	0.010	0
57	CDT-1612	0.667	1.003	0.587	0.139	Backwater	0 - 10:34:59 hrs	0.575	0.581	0.139	1.000	0.864	0.002	0.667	0.352	0.352	1.162	0.010	0.010	1
58	CDT-1614	0.500	0.942	2.399	0.081	Free Surface	0 - 11:00:00 hrs	1.258	1.521	0.086	0.363	0.860	0.022	0.481	0.010	0.010	0.010	0.010	0.010	0
59	CDT-1666	1.000	5.958	2.383	4.408	Backwater	0 - 10:59:00 hrs	5.612	5.878	0.740	1.000	1.550	1.386	1.000	0.899	0.899	2.134	0.010	0.010	0
60	CDT-1668	1.000	3.279	0.722	4.416	Exceeds Capacity	0 - 10:59:00 hrs	5.622	5.622	1.347	1.000	-1.137	1.390	1.000	0.924	2.134	0.924	2.166	0.924	0
61	CDT-1670	1.000	3.066	0.631	1.143	Free Surface	0 - 11:00:59 hrs	2.405	2.405	0.373	0.583	1.923	0.328	1.000	0.010	0.010	0.010	0.010	0.010	0
62	CDT-1672	1.000	1.546	0.160	1.156	Free Surface	0 - 11:02:00 hrs	2.353	2.353	0.748	0.599	0.390	0.334	1.000	0.010	0.010	0.010	0.010	0.010	0
63	CDT-1722	1.000	5.593	2.100	4.511	Backwater	0 - 10:45:00 hrs	6.404	7.838	0.807	1.000	1.082	1.441	1.000	0.934	0.934	1.137	0.010	0.010	0
64	CDT-1724	1.000	5.604	2.108	4.482	Backwater	0 - 10:41:00 hrs	6.289	6.942	0.800	1.000	1.122	1.442	1.000	1.137	1.137	1.338	0.010	0.010	0
65	CDT-1726	1.000	4.049	1.101	4.816	Exceeds Capacity	0 - 10:41:00 hrs	6.154	6.285	1.189	1.000	-0.767	1.534	1.000	1.396	1.528	1.439	1.625	1.389	0
66	CDT-1728	1.000	4.663	1.460	4.751	Exceeds Capacity	0 - 10:59:00 hrs	6.049	6.683	1.019	1.000	-0.088	1.538	1.000	1.439	1.439	1.538	0.909	1.063	0
67	CDT-1730	1.000	5.037	1.703	5.656	Exceeds Capacity	0 - 11:00:00 hrs	7.202	7.497	1.123	1.000	-0.619	2.061	1.000	2.178	2.205	2.287	2.235	2.099	0
68	CDT-1732	1.000	5.806	2.263	5.762	Backwater	0 - 11:00:00 hrs	7.336	8.574	0.992	1.000	0.044	2.094	1.000	2.287	2.287	2.494	0.010	0.010	0
69	CDT-1734	1.000	6.680	2.996	5.762	Backwater	0 - 11:00:00 hrs	7.336	8.344	0.863	1.000	0.918	2.094	1.000	2.494	2.494	2.635	0.010	0.010	0
70	CDT-1736	1.000	5.193	1.810	5.385	Exceeds Capacity	0 - 11:00:59 hrs	6.857	7.217	1.037	1.000	-0.193	2.082	1.000	2.635	2.635	2.709	1.684	1.665	0
71	CDT-1738	1.000	4.889	1.605	5.252	Exceeds Capacity	0 - 10:26:00 hrs	6.982	7.200	1.074	1.000	-0.363	2.072	1.000	2.709	2.709	2.774	2.575	2.485	0
72	CDT-1740	1.000	5.185	1.804	5.143	Backwater	0 - 10:33:00 hrs	6.549	7.434	0.992	1.000	0.041	2.071	1.000	2.774	2.774	2.885	0.010	0.010	0
73	CDT-1742	1.000	5.134	1.769	5.143	Exceeds Capacity	0 - 10:33:00 hrs	6.549	6.549	1.002	1.000	-0.010	2.071	1.000	2.885	2.885	3.469	1.976	1.976	0
74	CDT-1744	1.000	4.101	1.129	4.845	Exceeds Capacity	0 - 10:22:59 hrs	6.198	6.206	1.181	1.000	-0.744	2.045	1.000	2.999	3.469	2.999	4.384	2.999	0
75	CDT-1746	1.000	4.372	1.283	4.729	Exceeds Capacity	0 - 10:25:00 hrs	6.037	6.347	1.082	1.000	-0.358	2.045	1.000	2.978	2.999	3.096	3.286	2.962	0
76	CDT-1748	1.000	4.542	1.385	4.728	Free Surface	0 - 10:29:00 hrs	6.617	6.846	1.041	0.854	-0.186	2.045	1.000	0.010	3.096	0.010	2.961	0.010	0
77	CDT-1750	1.250	8.142	1.354	4.729	Free Surface	0 - 10:30:00 hrs	7.155	7.159	0.581	0.530	3.413	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
78	CDT-1752	1.250	9.660	1.905	4.728	Free Surface	0 - 10:30:59 hrs	6.726	6.747	0.489	0.557	4.931	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
79	CDT-1754	1.250	6.853	0.959	4.729	Free Surface	0 - 10:33:00 hrs	6.141	6.145	0.690	0.601	2.124	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
80	CDT-1756	1.250	7.394	1.116	4.728	Free Surface	0 - 10:33:59 hrs	5.559	5.575	0.639	0.654	2.666	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
81	CDT-1758	1.250	5.381	0.591	4.728	Free Surface	0 - 10:37:00 hrs	4.914	4.917	0.879	0.732	0.654	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
82	CDT-1760	1.250	5.527	0.624	4.728	Free Surface	0 - 10:40:00 hrs	5.281	5.281	0.855	0.685	0.799	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
83	CDT-1762	1.250	6.878	0.966	4.728	Free Surface	0 - 10:38:59 hrs	6.271	6.271	0.687	0.590	2.150	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
84	CDT-1764	1.250	8.130	1.350	4.728	Free Surface	0 - 10:41:00 hrs	6.321	6.326	0.581	0.586	3.403	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
85	CDT-1766	1.250	6.619	0.895	4.728	Free Surface	0 - 10:44:00 hrs	4.867	4.931	0.714	0.739	1.891	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
86	CDT-1768	1.250	4.896	0.489	4.728	Free Surface	0 - 12:10:00 hrs	4.894	4.905	0.966	0.737	0.168	2.045	1.250	0.010	0.010	0.010	0.010	0.010	0
87	CDT-1770	1.250	6.760	0.933	4.796	Free Surface	0 - 10:41:00 hrs	5.989	6.041	0.709	0.808	1.964	2.045	1.250	0.010	0.010	2.203	0.010	0.010	0
88	CDT-1772	1.250	7.198	1.058	4.742	Backwater	0 - 12:34:59 hrs	3.864	4.990	0.659	1.000	2.456	2.045	1.250	2.203	2.203	3.073	0.010	0.010	8
89	CDT-1774	1.250	4.533	0.420	4.743	Exceeds Capacity	0 - 12:37:59 hrs	3.865	4.272	1.047	1.000	-0.211	2.045	1.250	3.073	3.073	3.116	3.039	2.894	9
90	CDT-1776	1.250	4.615	0.435	4.738	Exceeds Capacity	0 - 12:59:00 hrs	3.861	4.285	1.027	1.000	-0.123	2.045	1.250	3.116	3.116	3.283	2.772	2.757	9
91	CDT-1778	1.250	4.551	0.423	4.737	Exceeds Capacity	0 - 12:59:00 hrs	3.860	4.215	1.041	1.000	-0.186	2.045	1.250	3.283	3.283	3.817	2.902	2.891	10
92	CDT-1780	1.250	4.560	0.425	4.758	Exceeds Capacity	0 - 13:00:00 hrs	3.877	3.877	1.043	1.000	-0.198	2.045	1.250	3.817	3.817	6.785	2.887	2.853	17
93	CDT-1782	1.250	4.520	0.417	4.790	Free Surface	0 - 13:06:00 hrs	6.916	6.920	1.060	0.551	-0.270	2.046	1.250	0.010	6.781	0.010	2.917	0.010	75
94	CDT-1784	1.250	223.720	1,021.997	5.601	Free Surface	0 - 12:57:59 hrs	87.914	87.914	0.025	0.101	218.120	2.049	0.756	0.010	0.010	0.010	0.010	0.010	79
95	CDT-465	0.667	1.061	0.657	0.829	Free Surface	0 - 11:00:00 hrs	3.230	3.230	0.782	0.690	0.232	0.226	0.667	0.010	0.010	0.010	0.010	0.010	0
96	CDT-467	0.667	1.029	0.618	0.829	Free Surface	0 - 11:00:00 hrs	3.447	3.447	0.805	0.651	0.200	0.226	0.667	0.010	0.010	0.010	0.010	0.010	0
97	CDT-469	0.667	1.110	0.719	0.276	Free Surface	0 - 11:00:00 hrs	2.933	2.945	0.248	0.314	0.835	0.078	0.619	0.010	0.010	0.010	0.010	0.010	0
98	CDT-471	0.667	0.751	0.329	0.321	Free Surface	0 - 11:00:00 hrs	1.900	1.900	0.428	0.488	0.429	0.093	0.666	0.010	0.010	0.010	0.010	0.010	0
99	CDT-473	0.667	2.020	2.382	0.321	Free Surface	0 - 11:00:00 hrs	1.867	1.867	0.159	0.495	1.699	0.093	0.667	0.010	0.010	0.010	0.010	0.010	0
100	CDT-475	0.667	2.268	3.002	0.265	Free Surface	0 - 10:56:00 hrs	3.078	3.097	0.117	0.295	2.003	0.075	0.608	0.010	0.010	0.010	0.010	0.010	0
101	CDT-477	0.667	1.706	1.699	0.260	Free Surface	0 - 10:56:00 hrs	3.767	3.767	0.152	0.252	1.447	0.073	0.578	0.010	0.010	0.010	0.010	0.010	0
102	CDT-479	0.667	2.304	3.097	0.258	Free Surface	0 - 11:00:00 hrs	3.862	3.921	0.112	0.246	2.046	0.076	0.574	0.010	0.010	0.010	0.010	0.010	0
103	CDT-481	0.667	2.266	2.997	0.136	Free Surface	0 - 10:32:00 hrs	3.481	3.482	0.060	0.169	2.131	0.040	0.499	0.010	0.010	0.010	0.010	0.010	0
104	CDT-483	0.667	2.495	3.633	0.135	Free Surface	0 - 10:30:59 hrs	3.678	3.678	0.054	0.162	2.360	0.039	0.491	0.010	0.010	0.010	0.010	0.010	0
105	CDT-485	0.667	2.018	2.376	0.057	Free Surface	0 - 10:30:00 hrs	1.979	2.132	0.028	0.137	1.961	0.017	0.458	0.010	0.010	0.010	0.010	0.010	0
106	CDT-487	0.667	1.319	1.015	0.057	Free Surface	0 - 10:27:59 hrs	2.093	2.093	0.043	0.131	1.262	0.017	0.450	0.010	0.010	0.010	0.010	0.010	0
107	CDT-489	0.667	1.021	0.608	0.140	Free Surface	0 - 10:41:59 hrs	2.386	2.386	0.137	0.224	0.881	0.041	0.556	0.010	0.010	0.010	0.010	0.010	0
108	CDT-491	0.667	2.056	2.467	0.143	Free Surface	0 - 10:41:59 hrs	3.064	3.073	0.070	0.192	1.913	0.042	0.524	0.010	0.010	0.010	0.010	0.010	0
109	CDT-493	0.833	2.314	0.950	0.596	Free Surface	0 - 11:00:00 hrs	3.226	3.230	0.258	0.372	1.718	0.177	0.805	0.010	0.010	0.010	0.010	0.010	0
110	CDT-495	0.667	1.012	0.597	0.253	Free Surface	0 - 10:56:59 hrs	2.675	2.675	0.250	0.316	0.759	0.071	0.620	0.010	0.010	0.010	0.010	0.010	0
111	CDT-497	0.667	2.446	3.492	0.250	Free Surface	0 - 10:25:00 hrs	3.013	3.102	0.102	0.287	2.196	0.070	0.603	0.010	0.010	0.010	0.010	0.010	0
112	CDT-499	0.667	1.761	1.809	0.179	Free Surface	0 - 10:36:00 hrs	2.088	2.160	0.102	0.294	1.582	0.051	0.607	0.010	0.010	0.010	0.010	0.010	0
113	CDT-501	0.667	0.992	0.574	0.246	Free Surface	0 - 10:22:00 hrs	2.869	2.869	0.248	0.295	0.745	0.069	0.608	0.010	0.010	0.010	0.010	0.010	0
114	CDT-503	0.667	2.429	3.443	0.160	Free Surface	0 - 10:02:00 hrs	4.219	4.310	0.066	0.166	2.269	0.045	0.496	0.010	0.010	0.010	0.010	0.010	0
115	CDT-505	0.667	3.091	5.574	0.159	Free Surface	0 - 10:06:00 hrs	3.602	3.750	0.051	0.185	2.932	0.045	0.517	0.010	0.010	0.010	0.010	0.010	0
116	CDT-507	0.667	1.231	0.884	0.386	Free Surface	0 - 11:00:00 hrs	3.462	3.474	0.313	0.356	0.845	0.118	0.638	0.010	0.010	0.010	0.010	0.010	0
117	CDT-509	0.667	1.967	2.257	0.386	Free Surface	0 - 11:00:00 hrs	4.107	4.107	0.196	0.314	1.581	0.118	0.619	0.010	0.010	0.010	0.010	0.010	0
118	CDT-511	0.667	1.760	1.807	0.421	Free Surface	0 - 11:00:00 hrs	2.851	2.851	0.239	0.439	1.339	0.129	0.662	0.010	0.010	0.010	0.010	0.010	0
119	CDT-513	0.833	3.172	1.786	1.253	Free Surface	0 - 11:00:00 hrs	5.083	5.084	0.395	0.462	1.920	0.369	0.831	0.010	0.010	0.010	0.010	0.010	0
120	CDT-515	0.833	2.702	1.296	1.294	Free Surface	0 - 11:00:00 hrs	4.757	4.757	0.479	0.499	1.408	0.381	0.833	0.010	0.010	0.010	0.010	0.010	0
121	CDT-517	0.833	2.613	1.212	1.336	Free Surface	0 - 11:00:00 hrs	4.753	4.753	0.511	0.512	1.277	0.392	0.833	0.010	0.010	0.010	0.010	0.010	0
122	CDT-519	0.833	2.635	1.233	1.377	Free Surface	0 - 11:00:00 hrs	4.744	4.744	0.523	0.525	1.258	0.404	0.833	0.010	0.010	0.010	0.010	0.010	0
123	CDT-521	0.833	2.578	1.179	1.419	Free Surface	0 - 11:00:00 hrs	4.766	4.766	0.550	0.536	1.159	0.416	0.833	0.010	0.010	0.010	0.010	0.010	0
124	CDT-523	0.833	2.674	1.269	1.460	Free Surface	0 - 11:00:00 hrs	4.948	4.948	0.546	0.532	1.214	0.427	0.833	0.010	0.010	0.010	0.010	0.010	0
125	CDT-525	0.833	2.726	1.319	1.502	Free Surface	0 - 11:00:00 hrs	4.951	4.951	0.551	0.544	1.224	0.439	0.833	0.010	0.010	0.010	0.010	0.010	0
126	CDT-527	0.833	2.587	1.188	1.543	Free Surface	0 - 11:00:00 hrs	4.874	4.874	0.596	0.563	1.044	0.450	0.833	0.010	0.010	0.010	0.010	0.010	0
127	CDT-529	0.833	2.591	1.192	1.585	Free Surface	0 - 11:00:00 hrs	4.896	4.896	0.611	0.574	1.007	0.462	0.833	0.010	0.010	0.010	0.010	0.010	0
128	CDT-531	1.000	2.770	0.515	1.132	Free Surface	0 - 11:00:00 hrs	3.322	3.322	0.409	0.448	1.638	0.323	0.994	0.010	0.010	0.010	0.010	0.010	0
129	CDT-533	1.000	3.010	0.608	1.135	Free Surface	0 - 11:00:00 hrs	3.418	3.418	0.377	0.439	1.875	0.323	0.993	0.010	0.010	0.010	0.010	0.010	0
130	CDT-535	1.000	3.015	0.610	1.058	Free Surface	0 - 11:00:59 hrs	3.409	3.410	0.351	0.418	1.958	0.297	0.987	0.010	0.010	0.010	0.010	0.010	0
131	CDT-537	1.000	2.803	0.527	1.061	Free Surface	0 - 11:00:00 hrs	3.364	3.364	0.378	0.422	1.742	0.297	0.988	0.010	0.010	0.010	0.010	0.010	0
132	CDT-539	0.667	0.965	0.543	0.158	Free Surface	0 - 10:44:00 hrs	1.998	2.033	0.163	0.277	0.807	0.047	0.597	0.010	0.010	0.010	0.010	0.010	0
133	CDT-541	0.667	1.160	0.785	0.340	Free Surface	0 - 11:00:00 hrs	2.519	2.522	0.293	0.410	0.820	0.098	0.656	0.010	0.010	0.010	0.010	0.010	0
134	CDT-543	0.667	0.977	0.557	0.343	Free Surface	0 - 11:00:00 hrs	3.062	3.064	0.352	0.358	0.633	0.099	0.639	0.010	0.010	0.010	0.010	0.010	0
135	CDT-545	0.667	2.041	2.430	0.340	Free Surface	0 - 10:59:00 hrs	3.477	3.479	0.166	0.323	1.701	0.098	0.624	0.010	0.010	0.010	0.010	0.010	0
136	CDT-547	0.833	2.331	0.964	0.663	Free Surface	0 - 11:00:00 hrs	4.304	4.304	0.285	0.326	1.667	0.195	0.781	0.010	0.010	0.010	0.010	0.010	0
137	CDT-549	0.833	4.992	4.424	0.686	Free Surface	0 - 11:00:00 hrs	5.532	5.532	0.137	0.278	4.307	0.201	0.747	0.010	0.010	0.010	0.010	0.010	0
138	CDT-551	0.833	3.474	2.142	0.708	Free Surface	0 - 11:00:00 hrs	4.918	4.918	0.204	0.310	2.766	0.207	0.771	0.010	0.010	0.010	0.010	0.010	0
139	CDT-553	0.833	3.436	2.095	0.731	Free Surface	0 - 11:00:00 hrs	4.939	4.939	0.213	0.316	2.705	0.213	0.775	0.010	0.010	0.010	0.010	0.010	0
140	CDT-555	0.833	3.325	1.962	0.731	Free Surface	0 - 11:00:00 hrs	4.797	4.797	0.220	0.323	2.594	0.213	0.779	0.010	0.010	0.010	0.010	0.010	0
141	CDT-557	0.833	3.192	1.809	0.731	Free Surface	0 - 11:00:00 hrs	4.734	4.755	0.229	0.326	2.462	0.213	0.781	0.010	0.010	0.010	0.010	0.010	0
142	CDT-559	0.833	3.539	2.223	0.807	Free Surface	0 - 11:00:00 hrs	4.233	4.241	0.228	0.381	2.732	0.234	0.809	0.010	0.010	0.010	0.010	0.010	0
143	CDT-561	0.500	0.636	1.095	0.193	Free Surface	0 - 10:06:00 hrs	3.370	3.384	0.304	0.334	0.443	0.052	0.471	0.010	0.010	0.010	0.010	0.010	0
144	CDT-563	0.500	1.359	5.000	0.193	Free Surface	0 - 10:07:00 hrs	4.883	4.888	0.142	0.256	1.166	0.052	0.436	0.010	0.010	0.010	0.010	0.010	0
145	CDT-565	0.667	2.408	3.382	0.193	Free Surface	0 - 10:07:59 hrs	3.992	3.993	0.080	0.197	2.214	0.052	0.530	0.010	0.010	0.010	0.010	0.010	0
146	CDT-567	0.500	1.235	4.130	0.194	Free Surface	0 - 10:07:59 hrs	4.573	4.603	0.157	0.268	1.042	0.052	0.443	0.010	0.010	0.010	0.010	0.010	0
147	CDT-569	0.500	0.816	1.804	0.193	Free Surface	0 - 10:51:00 hrs	2.651	2.724	0.237	0.398	0.623	0.052	0.490	0.010	0.010	0.010	0.010	0.010	0
148	CDT-571	0.500	1.234	4.120	0.193	Free Surface	0 - 10:10:00 hrs	3.919	4.019	0.157	0.299	1.040	0.052	0.458	0.010	0.010	0.010	0.010	0.010	0
149	CDT-573	1.000	5.055	1.716	4.545	Backwater	0 - 10:45:59 hrs	7.138	7.341	0.899	1.000	0.510	1.424	1.000	0.708	0.708	0.933	0.010	0.010	0
150	CDT-575	1.000	4.310	1.247	4.490	Exceeds Capacity	0 - 11:00:00 hrs	5.762	6.339	1.042	1.000	-0.180	1.407	1.000	0.672	0.924	0.708	1.083	0.672	0
151	CDT-579	1.000	4.536	1.381	4.372	Backwater	0 - 10:47:00 hrs	6.059	6.794	0.964	1.000	0.164	1.369	1.000	0.463	0.463	0.899	0.010	0.010	0
152	CDT-583	1.000	4.347	1.268	4.484	Exceeds Capacity	0 - 10:41:00 hrs	5.710	5.799	1.032	1.000	-0.137	1.444	1.000	1.338	1.338	1.528	0.971	1.110	0
153	CDT-587	1.000	4.684	1.473	4.763	Exceeds Capacity	0 - 10:59:00 hrs	6.064	6.579	1.017	1.000	-0.079	1.541	1.000	1.538	1.538	1.672	0.450	1.039	0
154	CDT-589	1.000	4.483	1.349	4.764	Exceeds Capacity	0 - 10:59:00 hrs	6.066	6.436	1.063	1.000	-0.281	1.542	1.000	1.672	1.672	2.022	1.121	1.163	0
155	CDT-591	1.000	4.644	1.448	4.235	Backwater	0 - 11:57:59 hrs	5.392	6.016	0.912	1.000	0.409	1.521	1.000	2.022	2.022	2.205	0.010	0.010	0
156	CDT-593	1.000	3.422	0.786	1.818	Free Surface	0 - 11:00:00 hrs	2.842	4.279	0.531	0.759	1.604	0.528	1.000	0.010	0.010	1.698	0.010	0.010	0
157	CDT-595	0.833	2.689	1.284	1.626	Free Surface	0 - 11:00:00 hrs	5.281	5.281	0.605	0.551	1.063	0.474	0.833	0.010	0.010	0.010	0.010	0.010	0
158	CDT-597	0.833	3.076	1.680	1.656	Free Surface	0 - 11:00:00 hrs	5.022	5.022	0.538	0.583	1.420	0.482	0.833	0.010	0.010	0.010	0.010	0.010	0
159	CDT-599	1.000	3.007	0.607	1.686	Free Surface	0 - 11:00:00 hrs	3.693	3.693	0.561	0.564	1.322	0.491	1.000	0.010	0.010	0.010	0.010	0.010	0
160	CDT-601	1.000	2.748	0.507	1.715	Free Surface	0 - 11:00:00 hrs	3.827	3.828	0.624	0.555	1.033	0.499	1.000	0.010	0.010	0.010	0.010	0.010	0
161	CDT-603	1.000	3.422	0.786	1.825	Backwater	0 - 11:00:00 hrs	2.323	2.713	0.533	1.000	1.597	0.529	1.000	1.698	1.698	2.205	0.010	0.010	0
162	CDT-605	1.000	3.631	0.885	1.062	Free Surface	0 - 11:00:00 hrs	3.585	3.585	0.293	0.403	2.569	0.297	0.981	0.010	0.010	0.010	0.010	0.010	0
163	CDT-607	0.667	2.202	2.829	0.238	Free Surface	0 - 10:55:00 hrs	3.893	3.893	0.108	0.231	1.964	0.069	0.562	0.010	0.010	0.010	0.010	0.010	0
164	CDT-609	0.833	1.921	0.655	0.490	Free Surface	0 - 11:00:00 hrs	2.963	2.963	0.255	0.343	1.432	0.147	0.791	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
165	CDT-611	0.833	1.935	0.664	0.477	Free Surface	0 - 11:00:00 hrs	2.877	2.877	0.247	0.344	1.458	0.143	0.791	0.010	0.010	0.010	0.010	0.010	0
166	CDT-613	0.833	2.665	1.261	0.442	Free Surface	0 - 11:00:00 hrs	3.112	3.112	0.166	0.307	2.223	0.133	0.769	0.010	0.010	0.010	0.010	0.010	0
167	CDT-615	0.833	2.443	1.060	0.596	Free Surface	0 - 11:00:00 hrs	3.626	3.626	0.244	0.341	1.847	0.177	0.790	0.010	0.010	0.010	0.010	0.010	0
168	CDT-617	0.667	1.876	2.053	0.096	Free Surface	0 - 10:44:00 hrs	1.157	1.357	0.051	0.287	1.780	0.027	0.603	0.010	0.010	0.010	0.010	0.010	0
169	CDT-619	0.667	2.413	3.396	0.071	Free Surface	0 - 10:10:00 hrs	2.491	2.558	0.029	0.135	2.342	0.019	0.456	0.010	0.010	0.010	0.010	0.010	0
170	CDT-621	0.667	2.341	3.198	0.069	Free Surface	0 - 10:03:59 hrs	3.018	3.098	0.029	0.117	2.272	0.019	0.429	0.010	0.010	0.010	0.010	0.010	0
171	CDT-623	0.833	3.924	2.733	0.102	Free Surface	0 - 10:17:00 hrs	2.653	2.881	0.026	0.123	3.823	0.027	0.547	0.010	0.010	0.010	0.010	0.010	0
172	CDT-625	0.667	1.801	1.893	0.157	Free Surface	0 - 10:44:00 hrs	3.341	3.341	0.087	0.192	1.644	0.045	0.525	0.010	0.010	0.010	0.010	0.010	0
173	CDT-627	0.667	2.317	3.134	0.161	Free Surface	0 - 10:45:00 hrs	3.866	3.866	0.070	0.177	2.156	0.047	0.509	0.010	0.010	0.010	0.010	0.010	0
174	CDT-629	0.667	2.519	3.704	0.166	Free Surface	0 - 10:47:00 hrs	3.814	3.814	0.066	0.183	2.353	0.048	0.515	0.010	0.010	0.010	0.010	0.010	0
175	CDT-631	0.667	2.146	2.686	0.172	Free Surface	0 - 10:48:59 hrs	3.607	3.607	0.080	0.194	1.974	0.050	0.527	0.010	0.010	0.010	0.010	0.010	0
176	CDT-633	0.667	2.071	2.502	0.174	Free Surface	0 - 10:51:00 hrs	3.606	3.606	0.084	0.196	1.896	0.051	0.529	0.010	0.010	0.010	0.010	0.010	0
177	CDT-635	0.667	1.965	2.252	0.249	Free Surface	0 - 10:56:00 hrs	3.437	3.437	0.127	0.261	1.716	0.073	0.585	0.010	0.010	0.010	0.010	0.010	0
178	CDT-637	0.667	2.128	2.641	0.179	Free Surface	0 - 10:53:59 hrs	3.379	3.456	0.084	0.209	1.949	0.052	0.542	0.010	0.010	0.010	0.010	0.010	0
179	CDT-639	0.667	1.492	1.299	0.251	Free Surface	0 - 10:56:59 hrs	3.228	3.228	0.168	0.274	1.241	0.074	0.595	0.010	0.010	0.010	0.010	0.010	0
180	CDT-641	0.667	1.672	1.631	0.254	Free Surface	0 - 10:59:00 hrs	3.554	3.554	0.152	0.258	1.418	0.075	0.583	0.010	0.010	0.010	0.010	0.010	0
181	CDT-643	0.667	1.982	2.292	0.257	Free Surface	0 - 11:00:00 hrs	4.049	4.049	0.130	0.237	1.725	0.076	0.567	0.010	0.010	0.010	0.010	0.010	0
182	CDT-645	0.667	1.956	2.232	0.304	Free Surface	0 - 11:00:00 hrs	3.583	3.583	0.156	0.292	1.651	0.091	0.606	0.010	0.010	0.010	0.010	0.010	0
183	CDT-647	0.667	1.464	1.250	0.304	Free Surface	0 - 11:00:00 hrs	3.397	3.397	0.208	0.304	1.159	0.091	0.613	0.010	0.010	0.010	0.010	0.010	0
184	CDT-649	0.667	1.744	1.776	0.319	Free Surface	0 - 11:00:00 hrs	3.589	3.589	0.183	0.302	1.425	0.096	0.612	0.010	0.010	0.010	0.010	0.010	0
185	CDT-651	0.667	1.557	1.414	0.329	Free Surface	0 - 11:00:00 hrs	3.525	3.525	0.212	0.313	1.228	0.099	0.618	0.010	0.010	0.010	0.010	0.010	0
186	CDT-653	0.667	1.625	1.540	0.343	Free Surface	0 - 11:00:00 hrs	3.082	3.086	0.211	0.355	1.282	0.104	0.638	0.010	0.010	0.010	0.010	0.010	0
187	CDT-655	0.667	1.279	0.955	0.384	Free Surface	0 - 11:00:00 hrs	3.528	3.528	0.300	0.349	0.896	0.117	0.636	0.010	0.010	0.010	0.010	0.010	0
188	CDT-657	0.667	2.345	3.209	0.421	Free Surface	0 - 11:00:00 hrs	4.568	4.568	0.179	0.310	1.924	0.129	0.616	0.010	0.010	0.010	0.010	0.010	0
189	CDT-659	0.833	5.344	5.069	0.118	Free Surface	0 - 10:57:59 hrs	1.838	1.898	0.022	0.175	5.226	0.033	0.633	0.010	0.010	0.010	0.010	0.010	0
190	CDT-661	0.833	2.836	1.427	0.118	Free Surface	0 - 10:57:59 hrs	2.980	2.980	0.042	0.125	2.718	0.033	0.551	0.010	0.010	0.010	0.010	0.010	0
191	CDT-663	0.833	3.028	1.627	0.118	Free Surface	0 - 10:47:00 hrs	2.504	2.608	0.039	0.141	2.910	0.033	0.581	0.010	0.010	0.010	0.010	0.010	0
192	CDT-665	0.833	2.359	0.988	0.619	Free Surface	0 - 11:00:00 hrs	4.604	4.604	0.262	0.295	1.740	0.183	0.760	0.010	0.010	0.010	0.010	0.010	0
193	CDT-667	0.833	7.952	11.225	0.641	Free Surface	0 - 11:00:00 hrs	4.734	4.734	0.081	0.296	7.311	0.189	0.761	0.010	0.010	0.010	0.010	0.010	0
194	CDT-671	1.000	4.181	1.173	3.944	Free Surface	0 - 10:37:59 hrs	5.744	5.818	0.943	0.952	0.237	1.122	1.000	0.010	0.010	0.334	0.010	0.010	0
195	CDT-673	1.000	4.233	1.203	3.747	Backwater	0 - 10:41:00 hrs	4.770	5.434	0.885	1.000	0.486	1.126	1.000	0.921	0.921	1.939	0.010	0.010	0
196	CDT-675	1.000	3.719	0.929	3.751	Exceeds Capacity	0 - 10:41:00 hrs	4.776	4.776	1.009	1.000	-0.032	1.128	1.000	1.939	1.939	2.828	0.092	0.658	0
197	CDT-677	0.667	2.159	2.719	1.793	Free Surface	0 - 10:34:59 hrs	5.683	5.683	0.831	0.848	0.366	0.343	0.667	0.010	0.010	1.107	0.010	0.010	0
198	CDT-679	0.667	2.076	2.515	1.784	Free Surface	0 - 10:34:59 hrs	6.524	6.525	0.860	0.731	0.292	0.340	0.667	0.010	0.010	0.010	0.010	0.010	0
199	CDT-681	0.667	2.621	4.007	1.778	Free Surface	0 - 10:33:59 hrs	6.975	6.990	0.679	0.686	0.842	0.338	0.667	0.010	0.010	0.010	0.010	0.010	0
200	CDT-683	0.833	5.152	4.712	2.374	Free Surface	0 - 11:08:59 hrs	6.983	6.983	0.461	0.598	2.778	0.725	0.833	0.010	0.010	0.010	0.010	0.010	0
201	CDT-685	0.833	2.808	1.400	2.317	Free Surface	0 - 11:08:59 hrs	6.111	6.111	0.825	0.656	0.491	0.700	0.833	0.010	0.010	0.010	0.010	0.010	0
202	CDT-687	0.833	2.825	1.416	2.305	Free Surface	0 - 11:08:59 hrs	5.177	5.183	0.816	0.761	0.519	0.695	0.833	0.010	0.010	0.010	0.010	0.010	0
203	CDT-689	0.833	2.322	0.957	2.303	Free Surface	0 - 11:07:59 hrs	4.934	4.977	0.992	0.798	0.018	0.694	0.833	0.010	0.010	0.010	0.010	0.010	0
204	CDT-691	0.833	2.702	1.296	2.129	Free Surface	0 - 11:07:00 hrs	4.609	4.634	0.788	0.790	0.573	0.639	0.833	0.010	0.010	0.010	0.010	0.010	0
205	CDT-693	0.833	2.590	1.191	2.119	Free Surface	0 - 11:06:00 hrs	5.271	5.271	0.818	0.691	0.471	0.634	0.833	0.010	0.010	0.010	0.010	0.010	0
206	CDT-695	0.833	2.558	1.161	2.078	Free Surface	0 - 11:03:59 hrs	4.946	4.947	0.812	0.719	0.480	0.616	0.833	0.010	0.010	0.010	0.010	0.010	0
207	CDT-697	0.833	2.430	1.048	2.086	Free Surface	0 - 11:04:59 hrs	5.088	5.088	0.859	0.703	0.344	0.620	0.833	0.010	0.010	0.010	0.010	0.010	0
208	CDT-699	0.833	2.760	1.352	2.096	Free Surface	0 - 11:06:00 hrs	5.285	5.286	0.759	0.683	0.664	0.624	0.833	0.010	0.010	0.010	0.010	0.010	0
209	CDT-701	0.667	0.966	0.545	0.147	Free Surface	0 - 11:00:00 hrs	2.065	2.065	0.152	0.257	0.819	0.042	0.583	0.010	0.010	0.010	0.010	0.010	0
210	CDT-703	0.667	1.154	0.777	0.183	Free Surface	0 - 11:00:00 hrs	2.373	2.373	0.159	0.273	0.971	0.052	0.594	0.010	0.010	0.010	0.010	0.010	0
211	CDT-705	0.667	1.099	0.704	0.147	Free Surface	0 - 11:00:00 hrs	2.063	2.093	0.134	0.258	0.952	0.042	0.583	0.010	0.010	0.010	0.010	0.010	0
212	CDT-707	0.667	1.143	0.762	0.191	Free Surface	0 - 11:00:00 hrs	0.810	0.849	0.167	0.638	0.953	0.054	0.667	0.010	0.010	0.748	0.010	0.010	0
213	CDT-709	0.667	0.984	0.565	0.136	Free Surface	0 - 10:37:59 hrs	2.000	2.002	0.138	0.249	0.848	0.041	0.577	0.010	0.010	0.010	0.010	0.010	0
214	CDT-711	0.667	1.079	0.679	0.143	Free Surface	0 - 10:47:00 hrs	1.112	1.195	0.133	0.397	0.936	0.043	0.652	0.010	0.010	0.010	0.010	0.010	0
215	CDT-713	0.667	1.475	1.270	0.857	Free Surface	0 - 11:00:00 hrs	4.288	4.290	0.581	0.557	0.618	0.255	0.667	0.010	0.010	0.010	0.010	0.010	0
216	CDT-715	0.667	1.415	1.168	0.869	Free Surface	0 - 11:00:00 hrs	4.175	4.175	0.614	0.576	0.546	0.258	0.667	0.010	0.010	0.010	0.010	0.010	0
217	CDT-717	0.667	1.512	1.335	0.881	Free Surface	0 - 11:00:00 hrs	4.907	4.907	0.582	0.511	0.632	0.262	0.667	0.010	0.010	0.010	0.010	0.010	0
218	CDT-719	0.667	2.258	2.974	0.891	Free Surface	0 - 11:00:00 hrs	3.773	3.891	0.395	0.641	1.366	0.265	0.667	0.010	0.010	0.010	0.010	0.010	0
219	CDT-721	0.833	2.571	1.173	2.058	Free Surface	0 - 11:02:00 hrs	5.018	5.020	0.801	0.704	0.513	0.607	0.833	0.010	0.010	0.010	0.010	0.010	0
220	CDT-723	0.833	2.395	1.018	2.063	Free Surface	0 - 11:03:00 hrs	4.885	4.885	0.861	0.723	0.332	0.610	0.833	0.010	0.010	0.010	0.010	0.010	0
221	CDT-725	0.833	2.536	1.142	2.069	Free Surface	0 - 11:03:59 hrs	5.074	5.074	0.816	0.700	0.468	0.612	0.833	0.010	0.010	0.010	0.010	0.010	0
222	CDT-727	0.667	1.028	0.616	0.105	Free Surface	0 - 10:59:00 hrs	1.848	1.865	0.103	0.220	0.922	0.032	0.553	0.010	0.010	0.010	0.010	0.010	0
223	CDT-729	0.667	0.975	0.555	0.108	Free Surface	0 - 11:00:00 hrs	1.685	1.704	0.110	0.239	0.867	0.033	0.568	0.010	0.010	0.010	0.010	0.010	0
224	CDT-731	0.667	1.359	1.078	0.536	Free Surface	0 - 11:00:00 hrs	4.517	4.517	0.394	0.373	0.823	0.158	0.645	0.010	0.010	0.010	0.010	0.010	0
225	CDT-733	0.667	3.874	8.758	0.538	Free Surface	0 - 11:00:00 hrs	4.135	4.135	0.139	0.399	3.336	0.159	0.653	0.010	0.010	0.010	0.010	0.010	0
226	CDT-735	0.667	2.344	3.205	0.098	Free Surface	0 - 10:53:59 hrs	2.644	2.660	0.042	0.163	2.246	0.030	0.492	0.010	0.010	0.010	0.010	0.010	0
227	CDT-737	0.667	1.351	1.064	0.102	Free Surface	0 - 10:59:00 hrs	2.181	2.181	0.076	0.192	1.248	0.031	0.525	0.010	0.010	0.010	0.010	0.010	0
228	CDT-739	0.667	1.209	0.853	0.104	Free Surface	0 - 10:56:59 hrs	1.987	1.989	0.086	0.207	1.105	0.032	0.540	0.010	0.010	0.010	0.010	0.010	0
229	CDT-741	0.667	0.965	0.543	0.166	Free Surface	0 - 10:11:59 hrs	2.047	2.064	0.172	0.285	0.799	0.050	0.602	0.010	0.010	0.010	0.010	0.010	0
230	CDT-743	0.667	0.961	0.538	0.175	Free Surface	0 - 10:59:00 hrs	1.263	1.423	0.182	0.418	0.786	0.052	0.658	0.010	0.010	0.010	0.010	0.010	0
231	CDT-745	0.667	2.489	3.615	0.517	Free Surface	0 - 10:57:59 hrs	3.944	3.946	0.208	0.402	1.972	0.153	0.654	0.010	0.010	0.010	0.010	0.010	0
232	CDT-747	0.667	1.542	1.387	0.495	Free Surface	0 - 10:55:00 hrs	4.618	4.618	0.321	0.346	1.046	0.146	0.634	0.010	0.010	0.010	0.010	0.010	0
233	CDT-749	0.667	3.229	6.083	0.498	Free Surface	0 - 10:56:00 hrs	4.834	4.837	0.154	0.336	2.730	0.147	0.630	0.010	0.010	0.010	0.010	0.010	0
234	CDT-751	0.667	2.574	3.867	0.069	Free Surface	0 - 10:03:00 hrs	3.208	3.290	0.027	0.114	2.505	0.021	0.423	0.010	0.010	0.010	0.010	0.010	0
235	CDT-753	0.667	1.693	1.672	0.473	Free Surface	0 - 10:52:00 hrs	4.840	4.840	0.280	0.324	1.220	0.139	0.624	0.010	0.010	0.010	0.010	0.010	0
236	CDT-755	0.667	3.394	6.722	0.476	Free Surface	0 - 10:52:59 hrs	4.553	4.554	0.140	0.340	2.918	0.140	0.632	0.010	0.010	0.010	0.010	0.010	0
237	CDT-757	0.667	1.182	0.815	0.367	Free Surface	0 - 10:48:00 hrs	2.914	2.915	0.310	0.389	0.816	0.106	0.650	0.010	0.010	0.010	0.010	0.010	0
238	CDT-759	0.667	1.122	0.735	0.369	Free Surface	0 - 10:49:59 hrs	2.872	2.915	0.329	0.395	0.754	0.107	0.652	0.010	0.010	0.010	0.010	0.010	0
239	CDT-761	0.667	1.641	1.570	0.514	Free Surface	0 - 10:56:59 hrs	4.571	4.571	0.313	0.358	1.127	0.151	0.639	0.010	0.010	0.010	0.010	0.010	0
240	CDT-763	0.667	1.102	0.708	0.362	Free Surface	0 - 10:41:59 hrs	2.869	2.872	0.329	0.390	0.740	0.105	0.650	0.010	0.010	0.010	0.010	0.010	0
241	CDT-765	0.667	2.149	2.695	0.361	Free Surface	0 - 11:00:00 hrs	3.476	3.504	0.168	0.338	1.788	0.104	0.631	0.010	0.010	0.010	0.010	0.010	0
242	CDT-767	0.667	2.303	3.095	0.356	Free Surface	0 - 11:00:00 hrs	4.641	4.642	0.154	0.271	1.948	0.103	0.593	0.010	0.010	0.010	0.010	0.010	0
243	CDT-769	1.000	4.343	1.266	3.926	Free Surface	0 - 10:37:00 hrs	5.991	5.998	0.904	0.810	0.417	1.120	1.000	0.010	0.010	0.010	0.010	0.010	0
244	CDT-771	1.000	3.380	0.767	2.491	Free Surface	0 - 11:14:00 hrs	4.543	4.553	0.737	0.690	0.889	0.777	1.000	0.010	0.010	0.010	0.010	0.010	0
245	CDT-773	1.000	2.606	0.456	2.493	Free Surface	0 - 11:12:59 hrs	3.977	3.984	0.957	0.745	0.113	0.777	1.000	0.010	0.010	0.010	0.010	0.010	0
246	CDT-775	1.000	3.363	0.759	2.474	Free Surface	0 - 11:11:59 hrs	3.957	3.957	0.736	0.742	0.888	0.768	1.000	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
247	CDT-777	1.000	3.062	0.629	2.427	Free Surface	0 - 11:11:00 hrs	4.379	4.379	0.793	0.665	0.635	0.748	1.000	0.010	0.010	0.010	0.010	0.010	0
248	CDT-779	1.000	3.627	0.883	2.427	Free Surface	0 - 11:10:00 hrs	4.533	4.545	0.669	0.645	1.200	0.748	1.000	0.010	0.010	0.010	0.010	0.010	0
249	CDT-781	0.667	1.293	0.975	0.147	Free Surface	0 - 11:00:00 hrs	2.180	2.180	0.114	0.248	1.146	0.042	0.575	0.010	0.010	0.010	0.010	0.010	0
250	CDT-783	0.667	0.769	0.345	0.136	Free Surface	0 - 11:00:00 hrs	1.833	1.837	0.176	0.265	0.634	0.039	0.588	0.010	0.010	0.010	0.010	0.010	0
251	CDT-785	0.667	1.426	1.186	0.136	Free Surface	0 - 11:00:00 hrs	1.932	1.932	0.095	0.255	1.290	0.039	0.581	0.010	0.010	0.010	0.010	0.010	0
252	CDT-787	0.667	0.729	0.310	0.125	Free Surface	0 - 11:00:00 hrs	1.774	1.774	0.172	0.256	0.604	0.036	0.582	0.010	0.010	0.010	0.010	0.010	0
253	CDT-789	0.667	0.989	0.571	0.053	Free Surface	0 - 10:38:59 hrs	0.874	0.882	0.054	0.230	0.936	0.016	0.561	0.010	0.010	0.010	0.010	0.010	0
254	CDT-791	0.667	0.448	0.117	0.047	Free Surface	0 - 10:32:00 hrs	0.886	0.886	0.105	0.210	0.401	0.014	0.543	0.010	0.010	0.010	0.010	0.010	0
255	CDT-793	0.667	1.676	1.640	0.044	Free Surface	0 - 11:00:00 hrs	0.979	0.996	0.026	0.187	1.632	0.013	0.520	0.010	0.010	0.010	0.010	0.010	0
256	CDT-795	0.667	0.873	0.444	0.041	Free Surface	0 - 11:00:00 hrs	1.480	1.480	0.047	0.134	0.831	0.012	0.454	0.010	0.010	0.010	0.010	0.010	0
257	CDT-797	0.667	1.000	0.584	0.034	Free Surface	0 - 10:59:00 hrs	1.130	1.173	0.034	0.141	0.966	0.009	0.464	0.010	0.010	0.010	0.010	0.010	0
258	CDT-799	0.667	1.220	0.869	0.058	Free Surface	0 - 10:48:59 hrs	0.978	1.111	0.047	0.226	1.162	0.017	0.557	0.010	0.010	0.010	0.010	0.010	0
259	CDT-801	0.667	1.099	0.705	0.039	Free Surface	0 - 10:37:00 hrs	1.345	1.432	0.036	0.139	1.060	0.011	0.461	0.010	0.010	0.010	0.010	0.010	0
260	CDT-803	0.667	1.075	0.674	0.030	Free Surface	0 - 10:03:59 hrs	1.344	1.369	0.028	0.121	1.044	0.008	0.434	0.010	0.010	0.010	0.010	0.010	0
261	CDT-805	1.000	2.861	0.549	1.136	Free Surface	0 - 11:00:59 hrs	3.471	3.471	0.397	0.434	1.725	0.325	0.991	0.010	0.010	0.010	0.010	0.010	0
262	CDT-809	1.000	2.719	0.496	1.157	Free Surface	0 - 11:03:00 hrs	3.224	3.225	0.425	0.466	1.562	0.334	0.998	0.010	0.010	0.010	0.010	0.010	0
263	CDT-811	0.833	1.872	0.622	1.168	Free Surface	0 - 11:03:59 hrs	3.261	3.287	0.624	0.624	0.704	0.339	0.833	0.010	0.010	0.010	0.010	0.010	0
264	CDT-813	0.667	2.309	3.112	1.032	Free Surface	0 - 11:00:00 hrs	5.735	5.736	0.447	0.512	1.277	0.288	0.667	0.010	0.010	0.010	0.010	0.010	0
265	CDT-815	0.667	0.869	0.440	1.006	Free Surface	0 - 11:00:00 hrs	3.664	3.667	1.158	0.734	-0.138	0.281	0.667	0.010	0.952	0.010	0.674	0.010	0
266	CDT-817	0.667	1.291	0.973	1.006	Free Surface	0 - 11:00:00 hrs	3.237	3.237	0.779	0.834	0.285	0.281	0.667	0.010	0.010	0.952	0.010	0.010	0
267	CDT-819	0.667	0.849	0.420	1.003	Free Surface	0 - 11:00:00 hrs	3.224	3.224	1.181	0.834	-0.154	0.279	0.667	0.010	0.699	0.010	0.813	0.010	0
268	CDT-821	0.667	1.425	1.184	0.997	Free Surface	0 - 11:00:00 hrs	3.298	3.298	0.700	0.808	0.428	0.277	0.667	0.010	0.010	0.699	0.010	0.010	0
269	CDT-823	0.667	1.943	2.204	0.110	Free Surface	0 - 10:12:59 hrs	3.517	3.521	0.057	0.145	1.833	0.032	0.470	0.010	0.010	0.010	0.010	0.010	0
270	CDT-825	0.667	3.751	8.212	0.110	Free Surface	0 - 10:15:59 hrs	1.214	1.313	0.029	0.353	3.641	0.032	0.637	0.010	0.010	0.010	0.010	0.010	0
271	CDT-827	0.667	1.475	1.270	0.959	Free Surface	0 - 11:00:00 hrs	4.369	4.372	0.650	0.602	0.516	0.265	0.667	0.010	0.010	0.010	0.010	0.010	0
272	CDT-829	0.667	1.657	1.603	0.386	Free Surface	0 - 11:00:00 hrs	3.507	3.507	0.233	0.353	1.272	0.118	0.637	0.010	0.010	0.010	0.010	0.010	0
273	CDT-831	0.667	1.257	0.923	0.137	Free Surface	0 - 10:38:59 hrs	2.051	2.052	0.109	0.246	1.120	0.040	0.574	0.010	0.010	0.010	0.010	0.010	0
274	CDT-833	0.667	2.137	2.665	0.137	Free Surface	0 - 10:33:59 hrs	2.814	2.818	0.064	0.197	2.000	0.040	0.530	0.010	0.010	0.010	0.010	0.010	0
275	CDT-835	0.667	2.357	3.241	0.339	Free Surface	0 - 10:57:59 hrs	4.548	4.548	0.144	0.266	2.018	0.098	0.589	0.010	0.010	0.010	0.010	0.010	0
276	CDT-837	1.000	2.852	0.546	4.406	Exceeds Capacity	0 - 10:51:00 hrs	5.640	5.721	1.545	1.000	-1.554	1.332	1.000	0.463	2.828	0.463	3.083	0.463	0
277	CDT-839	0.833	2.523	1.130	0.391	Free Surface	0 - 11:00:00 hrs	3.350	3.362	0.155	0.266	2.133	0.116	0.737	0.010	0.010	0.010	0.010	0.010	0
278	CDT-841	0.833	3.394	2.044	0.390	Free Surface	0 - 11:00:00 hrs	3.684	3.684	0.115	0.249	3.004	0.116	0.720	0.010	0.010	0.010	0.010	0.010	0
279	CDT-843	0.833	1.014	0.182	0.389	Free Surface	0 - 11:00:00 hrs	2.040	2.040	0.384	0.381	0.625	0.116	0.809	0.010	0.010	0.010	0.010	0.010	0
280	CDT-845	0.833	1.840	0.601	0.390	Free Surface	0 - 11:00:00 hrs	3.090	3.090	0.212	0.282	1.451	0.116	0.750	0.010	0.010	0.010	0.010	0.010	0
281	CDT-847	0.833	1.803	0.577	0.389	Free Surface	0 - 10:59:00 hrs	2.110	2.112	0.216	0.371	1.414	0.116	0.805	0.010	0.010	0.010	0.010	0.010	0
282	CDT-849	0.833	3.912	2.717	0.209	Free Surface	0 - 10:57:59 hrs	2.665	2.726	0.053	0.201	3.704	0.062	0.668	0.010	0.010	0.010	0.010	0.010	0
283	CDT-851	0.833	2.309	0.946	0.306	Free Surface	0 - 10:59:00 hrs	2.437	2.439	0.132	0.281	2.003	0.093	0.749	0.010	0.010	0.010	0.010	0.010	0
284	CDT-853	0.833	3.562	2.252	0.192	Free Surface	0 - 10:56:59 hrs	2.978	2.978	0.054	0.176	3.370	0.057	0.634	0.010	0.010	0.010	0.010	0.010	0
285	CDT-855	0.833	2.473	1.086	0.192	Free Surface	0 - 10:57:59 hrs	2.752	2.755	0.078	0.186	2.281	0.057	0.648	0.010	0.010	0.010	0.010	0.010	0
286	CDT-857	0.833	3.199	1.817	0.209	Free Surface	0 - 10:57:59 hrs	3.475	3.475	0.065	0.167	2.991	0.062	0.622	0.010	0.010	0.010	0.010	0.010	0
287	CDT-859	0.833	1.662	0.491	0.192	Free Surface	0 - 10:59:00 hrs	2.427	2.427	0.115	0.203	1.471	0.057	0.670	0.010	0.010	0.010	0.010	0.010	0
288	CDT-861	0.833	2.947	1.541	0.421	Free Surface	0 - 11:00:00 hrs	4.063	4.063	0.143	0.245	2.526	0.126	0.716	0.010	0.010	0.010	0.010	0.010	0
289	CDT-863	0.833	3.791	2.551	0.422	Free Surface	0 - 11:00:00 hrs	3.948	3.951	0.111	0.250	3.369	0.127	0.722	0.010	0.010	0.010	0.010	0.010	0
290	CDT-865	0.667	0.998	0.581	0.154	Free Surface	0 - 10:04:59 hrs	2.056	2.116	0.154	0.269	0.844	0.046	0.591	0.010	0.010	0.010	0.010	0.010	0
291	CDT-867	0.667	1.277	0.952	0.386	Free Surface	0 - 11:00:00 hrs	2.949	2.949	0.302	0.401	0.892	0.118	0.653	0.010	0.010	0.010	0.010	0.010	0
292	CDT-873	0.667	1.393	1.132	0.728	Free Surface	0 - 11:00:59 hrs	3.842	3.842	0.523	0.534	0.664	0.197	0.667	0.010	0.010	0.010	0.010	0.010	0
293	CDT-875	0.667	1.352	1.067	0.728	Free Surface	0 - 11:00:59 hrs	4.233	4.233	0.539	0.494	0.624	0.197	0.667	0.010	0.010	0.010	0.010	0.010	0
294	CDT-877	0.667	1.860	2.019	0.728	Free Surface	0 - 11:00:59 hrs	4.274	4.275	0.391	0.495	1.132	0.197	0.667	0.010	0.010	0.010	0.010	0.010	0
295	CDT-879	0.667	1.346	1.057	0.803	Free Surface	0 - 11:00:00 hrs	3.504	3.504	0.596	0.624	0.543	0.217	0.667	0.010	0.010	0.010	0.010	0.010	0
296	CDT-881	0.667	0.998	0.581	0.802	Free Surface	0 - 11:00:00 hrs	3.181	3.181	0.804	0.679	0.196	0.217	0.667	0.010	0.010	0.010	0.010	0.010	0
297	CDT-883	0.667	2.207	2.843	0.110	Free Surface	0 - 10:08:59 hrs	2.995	3.114	0.050	0.162	2.097	0.032	0.492	0.010	0.010	0.010	0.010	0.010	0
298	CDT-885	0.667	2.091	2.551	0.111	Free Surface	0 - 10:03:00 hrs	3.272	3.357	0.053	0.155	1.980	0.032	0.482	0.010	0.010	0.010	0.010	0.010	0
299	CDT-887	0.833	3.378	2.026	0.195	Free Surface	0 - 10:03:00 hrs	3.561	3.653	0.058	0.158	3.184	0.052	0.608	0.010	0.010	0.010	0.010	0.010	0
300	CDT-893	0.667	0.993	0.575	0.761	Free Surface	0 - 10:22:00 hrs	3.301	3.454	0.767	0.628	0.232	0.052	0.667	0.010	0.010	0.010	0.010	0.010	0
301	CDT-895	0.667	1.223	0.872	0.764	Free Surface	0 - 10:23:59 hrs	3.248	3.394	0.625	0.639	0.458	0.053	0.667	0.010	0.010	0.010	0.010	0.010	0
302	CDT-897	0.667	0.942	0.518	0.765	Free Surface	0 - 10:25:00 hrs	2.986	3.159	0.811	0.690	0.178	0.053	0.667	0.010	0.010	0.010	0.010	0.010	0
303	CDT-899	0.667	0.974	0.554	0.775	Free Surface	0 - 10:26:00 hrs	2.736	3.186	0.795	0.756	0.199	0.057	0.667	0.010	0.010	0.010	0.010	0.010	0
304	CDT-901	1.000	2.981	0.596	1.725	Free Surface	0 - 10:26:00 hrs	3.912	3.921	0.579	0.548	1.255	0.313	1.000	0.010	0.010	0.010	0.010	0.010	0
305	CDT-903	1.000	3.094	0.643	1.726	Free Surface	0 - 10:26:59 hrs	3.938	3.967	0.558	0.546	1.369	0.313	1.000	0.010	0.010	0.010	0.010	0.010	0
306	CDT-905	1.000	3.034	0.618	1.775	Free Surface	0 - 10:27:59 hrs	3.936	3.978	0.585	0.559	1.258	0.326	1.000	0.010	0.010	0.010	0.010	0.010	0
307	CDT-907	1.000	2.969	0.592	1.783	Free Surface	0 - 10:30:00 hrs	3.921	3.958	0.600	0.563	1.187	0.328	1.000	0.010	0.010	0.010	0.010	0.010	0
308	CDT-909	1.000	2.923	0.573	1.777	Free Surface	0 - 10:32:00 hrs	3.547	3.612	0.608	0.611	1.145	0.330	1.000	0.010	0.010	0.010	0.010	0.010	0
309	CDT-911	1.000	2.783	0.520	1.762	Free Surface	0 - 10:33:00 hrs	4.567	4.567	0.633	0.493	1.021	0.332	1.000	0.010	0.010	0.010	0.010	0.010	0
310	CDT-913	1.000	7.764	4.046	1.772	Free Surface	0 - 10:33:59 hrs	6.864	6.876	0.228	0.364	5.992	0.335	0.962	0.010	0.010	0.010	0.010	0.010	0
311	CDT-915	0.667	2.462	3.538	0.069	Free Surface	0 - 10:34:59 hrs	2.742	2.853	0.028	0.125	2.393	0.021	0.440	0.010	0.010	0.010	0.010	0.010	0
312	CDT-917	0.667	2.158	2.717	0.084	Free Surface	0 - 10:53:59 hrs	2.913	2.934	0.039	0.137	2.074	0.026	0.458	0.010	0.010	0.010	0.010	0.010	0
313	CDT-919	0.667	1.674	1.636	0.729	Free Surface	0 - 11:00:00 hrs	4.547	4.547	0.435	0.468	0.946	0.197	0.665	0.010	0.010	0.010	0.010	0.010	0
314	CDT-921	0.667	1.719	1.723	0.729	Free Surface	0 - 11:00:00 hrs	4.751	4.751	0.424	0.452	0.990	0.197	0.664	0.010	0.010	0.010	0.010	0.010	0
315	CDT-923	0.667	1.928	2.168	0.729	Free Surface	0 - 11:00:00 hrs	5.218	5.218	0.378	0.421	1.199	0.197	0.658	0.010	0.010	0.010	0.010	0.010	0
316	CDT-925	0.667	2.132	2.653	0.729	Free Surface	0 - 11:00:00 hrs	4.546	4.546	0.342	0.468	1.404	0.197	0.665	0.010	0.010	0.010	0.010	0.010	0
317	CDT-927	0.667	1.350	1.064	0.728	Free Surface	0 - 11:00:00 hrs	3.941	3.941	0.539	0.523	0.622	0.197	0.667	0.010	0.010	0.010	0.010	0.010	0
318	CDT-929	0.667	1.593	1.480	0.056	Free Surface	0 - 10:26:59 hrs	1.946	2.066	0.035	0.137	1.537	0.017	0.458	0.010	0.010	0.010	0.010	0.010	0
319	CDT-931	0.667	1.228	0.879	0.056	Free Surface	0 - 10:11:00 hrs	1.780	1.807	0.046	0.146	1.171	0.017	0.470	0.010	0.010	0.010	0.010	0.010	0
320	CDT-933	0.667	1.228	0.879	0.057	Free Surface	0 - 10:18:00 hrs	1.717	1.763	0.046	0.151	1.171	0.017	0.476	0.010	0.010	0.010	0.010	0.010	0
321	CDT-935	0.667	1.117	0.728	0.057	Free Surface	0 - 10:22:00 hrs	1.710	1.722	0.051	0.151	1.060	0.017	0.477	0.010	0.010	0.010	0.010	0.010	0
322	CDT-937	0.500	0.529	0.758	0.234	Free Surface	0 - 10:51:00 hrs	2.506	2.551	0.442	0.481	0.295	0.063	0.500	0.010	0.010	0.010	0.010	0.010	0
323	CDT-941	0.833	3.906	2.708	0.221	Free Surface	0 - 10:12:59 hrs	3.619	3.645	0.057	0.169	3.685	0.065	0.624	0.010	0.010	0.010	0.010	0.010	0
324	CDT-943	0.833	3.390	2.040	0.231	Free Surface	0 - 10:18:00 hrs	3.424	3.431	0.068	0.182	3.159	0.067	0.642	0.010	0.010	0.010	0.010	0.010	0
325	CDT-945	0.833	3.396	2.047	0.257	Free Surface	0 - 10:19:59 hrs	3.545	3.546	0.076	0.191	3.139	0.075	0.654	0.010	0.010	0.010	0.010	0.010	0
326	CDT-947	0.833	3.413	2.068	0.284	Free Surface	0 - 10:22:59 hrs	3.759	3.760	0.083	0.196	3.129	0.082	0.662	0.010	0.010	0.010	0.010	0.010	0
327	CDT-949	0.833	3.672	2.394	0.311	Free Surface	0 - 10:21:00 hrs	4.089	4.091	0.085	0.197	3.361	0.090	0.663	0.010	0.010	0.010	0.010	0.010	0
328	CDT-951	0.833	3.696	2.425	0.314	Free Surface	0 - 10:23:59 hrs	4.013	4.014	0.085	0.201	3.382	0.091	0.668	0.010	0.010	0.010	0.010	0.010	0

		ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
329	☐	CDT-953	0.833	3.542	2.226	0.327	Free Surface	0 - 10:22:59 hrs	4.015	4.017	0.092	0.207	3.215	0.095	0.675	0.010	0.010	0.010	0.010	0.010	0
330	☐	CDT-955	0.833	3.534	2.216	0.335	Free Surface	0 - 10:26:00 hrs	3.431	3.435	0.095	0.235	3.199	0.097	0.706	0.010	0.010	0.010	0.010	0.010	0
331	☐	CDT-957	0.833	2.422	1.041	0.355	Free Surface	0 - 10:27:59 hrs	3.200	3.200	0.147	0.257	2.066	0.104	0.728	0.010	0.010	0.010	0.010	0.010	0
332	☐	CDT-959	0.833	2.535	1.141	0.355	Free Surface	0 - 10:29:00 hrs	2.862	2.929	0.140	0.279	2.180	0.104	0.747	0.010	0.010	0.010	0.010	0.010	0
333	☐	CDT-961	0.833	2.420	1.039	0.486	Free Surface	0 - 10:30:00 hrs	3.402	3.404	0.201	0.308	1.934	0.146	0.769	0.010	0.010	0.010	0.010	0.010	0
334	☐	CDT-963	0.833	2.430	1.048	0.499	Free Surface	0 - 10:57:59 hrs	3.556	3.565	0.205	0.304	1.931	0.150	0.767	0.010	0.010	0.010	0.010	0.010	0
335	☐	CDT-965	0.833	2.761	1.353	0.523	Free Surface	0 - 11:00:00 hrs	3.615	3.615	0.189	0.316	2.238	0.159	0.775	0.010	0.010	0.010	0.010	0.010	0
336	☐	CDT-967	0.833	2.293	0.933	0.536	Free Surface	0 - 10:56:59 hrs	3.433	3.561	0.234	0.346	1.757	0.159	0.792	0.010	0.010	0.010	0.010	0.010	0
337	☐	CDT-969	0.833	2.877	1.469	0.568	Free Surface	0 - 10:52:00 hrs	1.512	1.512	0.198	0.690	2.309	0.161	0.833	0.010	0.010	4.162	0.010	0.010	0
338	☐	CDT-973	0.833	4.427	3.479	0.143	Free Surface	0 - 10:10:00 hrs	3.473	3.698	0.032	0.129	4.285	0.039	0.557	0.010	0.010	0.010	0.010	0.010	0
339	☐	CDT-975	0.833	4.037	2.893	0.156	Free Surface	0 - 10:22:00 hrs	3.364	3.439	0.039	0.140	3.882	0.043	0.578	0.010	0.010	0.010	0.010	0.010	0
340	☐	CDT-977	0.833	3.651	2.366	0.167	Free Surface	0 - 10:07:00 hrs	3.369	3.387	0.046	0.146	3.484	0.047	0.589	0.010	0.010	0.010	0.010	0.010	0
341	☐	CDT-979	0.833	3.911	2.715	0.183	Free Surface	0 - 10:10:00 hrs	3.093	3.137	0.047	0.165	3.728	0.052	0.619	0.010	0.010	0.010	0.010	0.010	0
342	☐	CDT-981	0.833	2.787	1.379	0.194	Free Surface	0 - 10:11:00 hrs	3.089	3.097	0.070	0.173	2.593	0.056	0.629	0.010	0.010	0.010	0.010	0.010	0



IVINS CITY

2016 SEWER MASTER PLAN

IMPROVED BUILDOUT CONDITIONS HYDRAULIC MODEL RESULTS

NORTH:

SCALE: 0 1,100 2,200 Feet

FIGURE NO. A-4

S:\Ivins\235-16-01 Sewer, Irr, and Rate Study\4.0 GIS\4.4 Figures\Figure A4 - Improved Buildout Conditions Model Output.mxd aanderson 9/19/2016

Print Report

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
1	CDT-1500	0.500	2.091	6.564	0.783	Free Surface	0 - 10:25:00 hrs	4.205	5.147	0.375	0.959	1.308	0.068	0.196	0.010	0.010	24.000	0.010	0.010	0
2	CDT-1502	0.833	3.926	2.736	0.255	Free Surface	0 - 10:08:59 hrs	0.768	0.768	0.065	0.586	3.671	0.069	0.327	0.010	0.010	24.000	0.010	0.010	0
3	CDT-1504	0.833	5.417	5.208	0.025	Free Surface	0 - 10:18:59 hrs	1.587	1.606	0.005	0.067	5.392	0.007	0.416	0.010	0.010	0.010	0.010	0.010	0
4	CDT-1506	0.833	5.294	4.974	0.079	Free Surface	0 - 10:23:59 hrs	3.067	3.228	0.015	0.094	5.214	0.021	0.485	0.010	0.010	0.010	0.010	0.010	0
5	CDT-1508	0.833	3.640	2.352	0.079	Free Surface	0 - 10:48:59 hrs	2.631	2.716	0.022	0.104	3.560	0.021	0.509	0.010	0.010	0.010	0.010	0.010	0
6	CDT-1510	0.833	3.347	1.988	0.079	Free Surface	0 - 10:59:00 hrs	2.389	2.437	0.024	0.111	3.267	0.021	0.523	0.010	0.010	0.010	0.010	0.010	0
7	CDT-1512	0.833	2.858	1.450	0.079	Free Surface	0 - 10:21:00 hrs	2.362	2.374	0.028	0.112	2.779	0.021	0.525	0.010	0.010	0.010	0.010	0.010	0
8	CDT-1514	0.833	3.229	1.850	0.079	Free Surface	0 - 10:26:00 hrs	2.406	2.415	0.025	0.111	3.149	0.021	0.522	0.010	0.010	0.010	0.010	0.010	0
9	CDT-1516	0.833	3.115	1.723	0.079	Free Surface	0 - 10:27:59 hrs	2.607	2.613	0.026	0.105	3.036	0.021	0.510	0.010	0.010	0.010	0.010	0.010	0
10	CDT-1518	0.833	4.305	3.289	0.083	Free Surface	0 - 10:32:00 hrs	1.946	2.147	0.019	0.132	4.222	0.022	0.564	0.010	0.010	0.010	0.010	0.010	0
11	CDT-1520	0.833	5.104	4.624	0.277	Free Surface	0 - 10:33:00 hrs	5.590	5.590	0.054	0.146	4.827	0.077	0.589	0.010	0.010	0.010	0.010	0.010	0
12	CDT-1522	2.000	53.133	4.700	0.277	Free Surface	0 - 10:33:00 hrs	4.402	4.402	0.005	0.052	52.855	0.077	0.884	0.010	0.010	0.010	0.010	0.010	0
13	CDT-1524	1.250	7.177	1.052	4.145	Free Surface	0 - 10:47:00 hrs	5.858	5.858	0.578	0.560	3.032	1.148	1.250	0.010	0.010	0.010	0.010	0.010	0
14	CDT-1526	1.250	7.337	1.099	4.151	Free Surface	0 - 10:47:00 hrs	6.073	6.073	0.566	0.545	3.186	1.149	1.250	0.010	0.010	0.010	0.010	0.010	0
15	CDT-1528	0.667	1.360	1.079	0.424	Free Surface	0 - 11:00:59 hrs	3.116	3.177	0.312	0.419	0.936	0.114	0.658	0.010	0.010	0.010	0.010	0.010	0
16	CDT-1530	0.500	1.191	3.837	0.077	Free Surface	0 - 10:07:59 hrs	3.399	3.466	0.065	0.182	1.114	0.021	0.386	0.010	0.010	0.010	0.010	0.010	0
17	CDT-1532	0.500	0.768	1.598	0.349	Free Surface	0 - 10:21:00 hrs	3.901	3.911	0.454	0.465	0.420	0.094	0.499	0.010	0.010	0.010	0.010	0.010	0
18	CDT-1534	0.500	0.837	1.896	0.349	Free Surface	0 - 10:26:59 hrs	2.288	4.007	0.417	0.725	0.488	0.094	0.500	0.010	0.010	1.795	0.010	0.010	0
19	CDT-1536	0.500	1.088	3.202	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.321	1.000	0.739	0.094	0.196	1.795	1.795	24.000	0.010	0.010	0
20	CDT-1538	0.500	1.432	5.550	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.244	1.000	1.083	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
21	CDT-1540	0.500	1.053	2.998	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.331	1.000	0.704	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
22	CDT-1542	0.500	1.049	2.979	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.332	1.000	0.700	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
23	CDT-1544	0.500	0.566	0.868	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.616	1.000	0.217	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
24	CDT-1546	0.500	0.220	0.131	0.349	Exceeds Capacity	0 - 11:00:00 hrs	1.776	1.776	1.588	1.000	-0.129	0.094	0.196	24.000	24.000	24.000	2.627	2.855	0
25	CDT-1548	0.500	0.607	0.999	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.574	1.000	0.259	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
26	CDT-1550	0.500	0.609	1.003	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.573	1.000	0.260	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
27	CDT-1552	0.500	1.050	2.983	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.332	1.000	0.701	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
28	CDT-1554	0.500	1.138	3.505	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.306	1.000	0.789	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
29	CDT-1556	0.500	1.366	5.047	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.255	1.000	1.017	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
30	CDT-1558	0.500	1.213	3.982	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.288	1.000	0.864	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
31	CDT-1560	0.500	1.423	5.479	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.245	1.000	1.074	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
32	CDT-1562	0.500	1.287	4.481	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.271	1.000	0.938	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
33	CDT-1564	0.500	1.398	5.293	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.249	1.000	1.050	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
34	CDT-1566	0.500	1.259	4.291	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.277	1.000	0.910	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
35	CDT-1568	0.500	0.979	2.594	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.356	1.000	0.630	0.094	0.196	0.706	0.706	24.000	0.010	0.010	0
36	CDT-1570	0.500	0.299	0.242	0.349	Exceeds Capacity	0 - 11:00:00 hrs	1.776	1.799	1.165	1.000	-0.049	0.094	0.500	0.675	0.706	0.675	0.807	0.675	0
37	CDT-1572	0.500	0.308	0.257	0.349	Exceeds Capacity	0 - 11:00:59 hrs	1.776	1.776	1.131	1.000	-0.040	0.094	0.500	0.646	0.675	0.646	0.775	0.646	0
38	CDT-1574	0.500	0.271	0.198	0.349	Free Surface	0 - 11:00:59 hrs	2.263	2.263	1.289	0.737	-0.078	0.094	0.500	0.010	0.646	0.010	0.896	0.010	0
39	CDT-1576	0.500	0.791	1.693	0.349	Free Surface	0 - 11:00:59 hrs	3.663	3.784	0.441	0.488	0.442	0.094	0.500	0.010	0.010	0.010	0.010	0.010	0
40	CDT-1578	0.500	1.534	6.367	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.227	1.000	1.185	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
41	CDT-1580	0.500	1.063	3.059	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.328	1.000	0.714	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
42	CDT-1582	0.500	1.390	5.229	0.349	Backwater	0 - 11:00:00 hrs	1.776	1.776	0.251	1.000	1.041	0.094	0.196	24.000	24.000	24.000	0.010	0.010	0
43	CDT-1584	0.667	1.380	1.111	0.046	Free Surface	0 - 10:06:00 hrs	1.896	1.945	0.033	0.123	1.334	0.012	0.438	0.010	0.010	0.010	0.010	0.010	0
44	CDT-1586	0.667	1.504	1.321	0.046	Free Surface	0 - 10:15:59 hrs	1.532	1.624	0.030	0.141	1.459	0.012	0.464	0.010	0.010	0.010	0.010	0.010	0
45	CDT-1588	0.667	0.843	0.415	0.046	Free Surface	0 - 10:21:00 hrs	1.320	1.331	0.055	0.156	0.797	0.012	0.484	0.010	0.010	0.010	0.010	0.010	0
46	CDT-1590	0.667	0.922	0.496	0.046	Free Surface	0 - 10:27:59 hrs	1.331	1.333	0.050	0.155	0.876	0.012	0.482	0.010	0.010	0.010	0.010	0.010	0
47	CDT-1592	0.667	0.877	0.449	0.046	Free Surface	0 - 10:30:59 hrs	1.359	1.361	0.052	0.153	0.831	0.012	0.479	0.010	0.010	0.010	0.010	0.010	0
48	CDT-1594	0.667	0.982	0.562	0.046	Free Surface	0 - 10:34:59 hrs	1.143	1.207	0.047	0.172	0.936	0.012	0.503	0.010	0.010	0.010	0.010	0.010	0
49	CDT-1596	0.667	0.958	0.535	0.081	Free Surface	0 - 10:37:00 hrs	1.675	1.675	0.084	0.195	0.877	0.022	0.528	0.010	0.010	0.010	0.010	0.010	0
50	CDT-1598	0.667	0.984	0.565	0.081	Free Surface	0 - 10:38:59 hrs	1.691	1.692	0.082	0.194	0.904	0.022	0.527	0.010	0.010	0.010	0.010	0.010	0
51	CDT-1600	0.667	0.969	0.548	0.081	Free Surface	0 - 10:44:00 hrs	1.521	1.531	0.083	0.209	0.889	0.022	0.542	0.010	0.010	0.010	0.010	0.010	0
52	CDT-1602	0.667	0.796	0.370	0.087	Free Surface	0 - 10:56:00 hrs	0.389	0.389	0.109	0.612	0.709	0.023	0.667	0.010	0.010	2.583	0.010	0.010	0
53	CDT-1604	0.667	1.821	1.936	0.007	Free Surface	0 - 10:33:59 hrs	1.106	1.201	0.004	0.046	1.815	0.002	0.279	0.010	0.010	0.010	0.010	0.010	0
54	CDT-1606	0.667	1.384	1.117	0.007	Free Surface	0 - 10:18:00 hrs	1.009	1.027	0.005	0.050	1.377	0.002	0.288	0.010	0.010	0.010	0.010	0.010	0
55	CDT-1608	0.667	1.361	1.080	0.007	Free Surface	0 - 10:36:00 hrs	0.962	0.989	0.005	0.051	1.354	0.002	0.292	0.010	0.010	0.010	0.010	0.010	0
56	CDT-1610	0.667	1.226	0.877	0.007	Free Surface	0 - 11:00:00 hrs	0.865	0.882	0.005	0.055	1.220	0.002	0.303	0.010	0.010	0.010	0.010	0.010	0
57	CDT-1612	0.667	1.003	0.587	0.007	Free Surface	0 - 11:00:00 hrs	0.219	0.224	0.007	0.140	0.996	0.002	0.463	0.010	0.010	0.010	0.010	0.010	0
58	CDT-1614	0.500	0.942	2.399	0.076	Free Surface	0 - 11:00:00 hrs	1.237	1.477	0.081	0.352	0.865	0.021	0.477	0.010	0.010	0.010	0.010	0.010	0
59	CDT-1666	1.500	17.565	2.383	4.988	Free Surface	0 - 10:49:59 hrs	6.394	6.395	0.284	0.454	12.577	1.398	1.493	0.010	0.010	0.010	0.010	0.010	0
60	CDT-1668	1.500	9.668	0.722	4.993	Free Surface	0 - 10:51:00 hrs	5.673	5.673	0.516	0.498	4.675	1.402	1.500	0.010	0.010	0.010	0.010	0.010	0
61	CDT-1670	1.000	3.066	0.631	0.556	Free Surface	0 - 11:03:00 hrs	1.809	1.810	0.181	0.414	2.510	0.163	0.985	0.010	0.010	0.010	0.010	0.010	0
62	CDT-1672	1.000	1.546	0.160	0.568	Free Surface	0 - 11:04:59 hrs	1.786	1.786	0.368	0.425	0.978	0.169	0.989	0.010	0.010	0.010	0.010	0.010	0
63	CDT-1722	1.500	16.489	2.100	5.173	Free Surface	0 - 10:52:59 hrs	8.184	8.184	0.314	0.387	11.316	1.452	1.461	0.010	0.010	0.010	0.010	0.010	0
64	CDT-1724	1.500	16.523	2.108	5.175	Free Surface	0 - 10:52:59 hrs	7.503	7.506	0.313	0.413	11.347	1.454	1.477	0.010	0.010	0.010	0.010	0.010	0
65	CDT-1726	1.500	11.938	1.101	5.492	Free Surface	0 - 10:55:00 hrs	6.708	6.708	0.460	0.471	6.447	1.545	1.497	0.010	0.010	0.010	0.010	0.010	0
66	CDT-1728	1.500	13.748	1.460	5.502	Free Surface	0 - 10:55:00 hrs	7.270	7.271	0.400	0.444	8.246	1.549	1.490	0.010	0.010	0.010	0.010	0.010	0
67	CDT-1730	1.500	14.852	1.703	7.285	Free Surface	0 - 10:57:59 hrs	8.476	8.476	0.491	0.489	7.566	2.072	1.499	0.010	0.010	0.010	0.010	0.010	0
68	CDT-1732	1.500	17.118	2.263	7.401	Free Surface	0 - 10:59:00 hrs	9.554	9.554	0.432	0.452	9.717	2.105	1.493	0.010	0.010	0.010	0.010	0.010	0
69	CDT-1734	1.500	19.696	2.996	7.400	Free Surface	0 - 10:59:00 hrs	9.393	9.393	0.376	0.457	12.296	2.105	1.494	0.010	0.010	0.010	0.010	0.010	0
70	CDT-1736	1.500	15.310	1.810	7.400	Free Surface	0 - 10:59:00 hrs	8.316	8.316	0.483	0.503	7.910	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
71	CDT-1738	1.500	14.415	1.605	7.400	Free Surface	0 - 11:00:00 hrs	8.313	8.313	0.513	0.503	7.015	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
72	CDT-1740	1.500	15.286	1.804	7.398	Free Surface	0 - 11:00:00 hrs	8.549	8.550	0.484	0.492	7.888	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
73	CDT-1742	1.500	15.136	1.769	7.396	Free Surface	0 - 11:00:59 hrs	7.732	7.733	0.489	0.532	7.741	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
74	CDT-1744	1.500	12.092	1.129	7.394	Free Surface	0 - 11:00:59 hrs	7.275	7.276	0.611	0.559	4.698	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
75	CDT-1746	1.500	12.889	1.283	7.388	Free Surface	0 - 11:02:00 hrs	7.619	7.621	0.573	0.538	5.501	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
76	CDT-1748	1.500	13.391	1.385	7.379	Free Surface	0 - 11:03:00 hrs	7.542	7.544	0.551	0.542	6.012	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
77	CDT-1750	1.500	13.240	1.354	7.377	Free Surface	0 - 11:03:59 hrs	7.980	7.980	0.557	0.518	5.864	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
78	CDT-1752	1.500	15.708	1.905	7.374	Free Surface	0 - 11:03:59 hrs	7.368	7.372	0.469	0.552	8.333	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
79	CDT-1754	1.500	11.144	0.959	7.370	Free Surface	0 - 11:04:59 hrs	7.082	7.082	0.661	0.570	3.774	2.105	1.500	0.010	0.010	0.010	0.010	0.010	0
80	CDT-1756	1.750	18.138	1.116	7.367	Free Surface	0 - 11:06:00 hrs	6.307	6.309	0.406	0.489	10.771	2.105	1.749	0.010	0.010	0.010	0.010	0.010	0
81	CDT-1758	1.750	13.200	0.591	7.363	Free Surface	0 - 11:07:00 hrs	5.570	5.571	0.558	0.539	5.837	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
82	CDT-1760	1.750	13.557	0.624	7.361	Free Surface	0 - 11:07:00 hrs	5.940	5.940	0.543	0.512	6.195	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0

Print Report

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
83	CDT-1762	1.750	16.870	0.966	7.361	Free Surface	0 - 11:07:59 hrs	7.011	7.011	0.436	0.450	9.509	2.105	1.741	0.010	0.010	0.010	0.010	0.010	0
84	CDT-1764	1.750	19.942	1.350	7.359	Free Surface	0 - 11:07:59 hrs	7.089	7.090	0.369	0.446	12.583	2.105	1.740	0.010	0.010	0.010	0.010	0.010	0
85	CDT-1766	1.750	16.236	0.895	7.356	Free Surface	0 - 11:08:59 hrs	5.658	5.663	0.453	0.532	8.880	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
86	CDT-1768	1.750	12.008	0.489	7.349	Free Surface	0 - 11:10:00 hrs	5.640	5.640	0.612	0.533	4.659	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
87	CDT-1770	1.750	16.582	0.933	7.347	Free Surface	0 - 11:11:00 hrs	6.767	6.767	0.443	0.462	9.235	2.105	1.745	0.010	0.010	0.010	0.010	0.010	0
88	CDT-1772	1.750	17.655	1.058	7.346	Free Surface	0 - 11:11:00 hrs	5.779	5.779	0.416	0.522	10.309	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
89	CDT-1774	1.750	11.118	0.420	7.346	Free Surface	0 - 11:11:00 hrs	4.969	4.970	0.661	0.591	3.772	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
90	CDT-1776	1.750	11.319	0.435	7.342	Free Surface	0 - 11:11:59 hrs	4.981	4.983	0.649	0.589	3.977	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
91	CDT-1778	1.750	11.163	0.423	7.338	Free Surface	0 - 11:12:59 hrs	4.959	4.961	0.657	0.591	3.826	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
92	CDT-1780	1.750	11.185	0.425	7.329	Free Surface	0 - 11:14:00 hrs	4.019	4.024	0.655	0.709	3.856	2.105	1.750	0.010	0.010	0.010	0.010	0.010	0
93	CDT-1782	1.750	11.087	0.417	7.367	Free Surface	0 - 11:12:59 hrs	6.930	6.974	0.664	0.454	3.720	2.104	1.742	0.010	0.010	0.010	0.010	0.010	46
94	CDT-1784	1.750	548.758	1,021.997	9.275	Free Surface	0 - 11:12:59 hrs	100.915	100.915	0.017	0.085	539.482	2.105	0.953	0.010	0.010	0.010	0.010	0.010	48
95	CDT-1786	0.833	1.771	0.557	0.493	Free Surface	0 - 11:00:59 hrs	2.657	2.660	0.278	0.373	1.278	0.146	0.806	0.010	0.010	0.010	0.010	0.010	0
96	CDT-1788	0.833	1.562	0.433	0.491	Free Surface	0 - 11:06:00 hrs	2.550	2.550	0.315	0.384	1.071	0.146	0.810	0.010	0.010	0.010	0.010	0.010	0
97	CDT-1790	0.833	1.677	0.499	0.517	Free Surface	0 - 11:08:59 hrs	2.695	2.702	0.308	0.382	1.161	0.156	0.810	0.010	0.010	0.010	0.010	0.010	0
98	CDT-1792	0.833	1.659	0.488	0.517	Free Surface	0 - 11:11:00 hrs	2.691	2.692	0.311	0.383	1.142	0.156	0.810	0.010	0.010	0.010	0.010	0.010	0
99	CDT-1794	0.833	1.671	0.496	0.516	Free Surface	0 - 11:11:59 hrs	2.659	2.659	0.309	0.386	1.155	0.156	0.811	0.010	0.010	0.010	0.010	0.010	0
100	CDT-1796	0.833	1.665	0.492	0.536	Free Surface	0 - 11:14:00 hrs	2.723	2.723	0.322	0.390	1.129	0.163	0.813	0.010	0.010	0.010	0.010	0.010	0
101	CDT-1798	0.833	1.671	0.495	0.536	Free Surface	0 - 11:15:00 hrs	1.744	2.044	0.321	0.571	1.135	0.163	0.833	0.010	0.010	0.010	0.010	0.010	0
102	CDT-1800	0.833	2.505	1.114	0.985	Free Surface	0 - 10:27:59 hrs	3.651	3.918	0.393	0.561	1.520	0.265	0.833	0.010	0.010	0.010	0.010	0.010	0
103	CDT-1802	0.833	2.355	0.985	0.986	Free Surface	0 - 10:21:00 hrs	4.200	4.225	0.418	0.445	1.370	0.265	0.828	0.010	0.010	0.010	0.010	0.010	0
104	CDT-1804	0.833	1.746	0.541	0.985	Free Surface	0 - 10:48:00 hrs	3.553	3.576	0.564	0.507	0.761	0.265	0.833	0.010	0.010	0.010	0.010	0.010	0
105	CDT-1806	0.833	2.535	1.140	0.985	Free Surface	0 - 10:27:59 hrs	3.655	4.095	0.389	0.495	1.550	0.265	0.833	0.010	0.010	0.010	0.010	0.010	0
106	CDT-465	0.667	1.061	0.657	0.779	Free Surface	0 - 11:00:00 hrs	3.207	3.207	0.734	0.656	0.282	0.213	0.667	0.010	0.010	0.010	0.010	0.010	0
107	CDT-467	0.667	1.029	0.618	0.778	Free Surface	0 - 11:00:00 hrs	3.383	3.383	0.756	0.626	0.251	0.213	0.667	0.010	0.010	0.010	0.010	0.010	0
108	CDT-469	0.667	1.110	0.719	0.260	Free Surface	0 - 10:59:00 hrs	2.885	2.897	0.234	0.305	0.851	0.074	0.614	0.010	0.010	0.010	0.010	0.010	0
109	CDT-471	0.667	0.751	0.329	0.303	Free Surface	0 - 10:59:00 hrs	1.853	1.853	0.403	0.475	0.448	0.087	0.666	0.010	0.010	0.010	0.010	0.010	0
110	CDT-473	0.667	2.020	2.382	0.303	Free Surface	0 - 10:57:59 hrs	1.821	1.821	0.150	0.481	1.718	0.087	0.666	0.010	0.010	0.010	0.010	0.010	0
111	CDT-475	0.667	2.268	3.002	0.249	Free Surface	0 - 10:56:00 hrs	3.027	3.046	0.110	0.286	2.019	0.071	0.602	0.010	0.010	0.010	0.010	0.010	0
112	CDT-477	0.667	1.706	1.699	0.244	Free Surface	0 - 10:59:00 hrs	3.703	3.703	0.143	0.244	1.462	0.069	0.573	0.010	0.010	0.010	0.010	0.010	0
113	CDT-479	0.667	2.304	3.097	0.243	Free Surface	0 - 11:00:00 hrs	3.797	3.854	0.106	0.239	2.061	0.072	0.569	0.010	0.010	0.010	0.010	0.010	0
114	CDT-481	0.667	2.266	2.997	0.128	Free Surface	0 - 10:33:00 hrs	3.420	3.421	0.056	0.164	2.138	0.037	0.493	0.010	0.010	0.010	0.010	0.010	0
115	CDT-483	0.667	2.495	3.633	0.127	Free Surface	0 - 10:30:59 hrs	3.612	3.612	0.051	0.157	2.368	0.037	0.485	0.010	0.010	0.010	0.010	0.010	0
116	CDT-485	0.667	2.018	2.376	0.053	Free Surface	0 - 10:30:59 hrs	1.943	2.094	0.026	0.133	1.964	0.016	0.452	0.010	0.010	0.010	0.010	0.010	0
117	CDT-487	0.667	1.319	1.015	0.053	Free Surface	0 - 10:29:00 hrs	2.055	2.056	0.040	0.128	1.266	0.016	0.444	0.010	0.010	0.010	0.010	0.010	0
118	CDT-489	0.667	1.021	0.608	0.131	Free Surface	0 - 10:41:59 hrs	2.347	2.347	0.129	0.217	0.889	0.038	0.550	0.010	0.010	0.010	0.010	0.010	0
119	CDT-491	0.667	2.056	2.467	0.135	Free Surface	0 - 10:42:59 hrs	3.011	3.021	0.066	0.186	1.921	0.039	0.519	0.010	0.010	0.010	0.010	0.010	0
120	CDT-493	0.833	2.314	0.950	0.561	Free Surface	0 - 11:00:00 hrs	3.175	3.178	0.243	0.360	1.753	0.166	0.800	0.010	0.010	0.010	0.010	0.010	0
121	CDT-495	0.667	1.012	0.597	0.238	Free Surface	0 - 10:59:00 hrs	2.631	2.631	0.235	0.306	0.773	0.067	0.614	0.010	0.010	0.010	0.010	0.010	0
122	CDT-497	0.667	2.446	3.492	0.235	Free Surface	0 - 10:25:00 hrs	2.964	3.050	0.096	0.278	2.211	0.066	0.598	0.010	0.010	0.010	0.010	0.010	0
123	CDT-499	0.667	1.761	1.809	0.169	Free Surface	0 - 10:33:00 hrs	2.055	2.124	0.096	0.285	1.592	0.048	0.602	0.010	0.010	0.010	0.010	0.010	0
124	CDT-501	0.667	0.992	0.574	0.232	Free Surface	0 - 10:22:00 hrs	2.823	2.823	0.234	0.285	0.760	0.065	0.602	0.010	0.010	0.010	0.010	0.010	0
125	CDT-503	0.667	2.429	3.443	0.151	Free Surface	0 - 10:02:00 hrs	4.151	4.237	0.062	0.161	2.278	0.042	0.490	0.010	0.010	0.010	0.010	0.010	0
126	CDT-505	0.667	3.091	5.574	0.150	Free Surface	0 - 10:06:00 hrs	3.541	3.684	0.048	0.179	2.941	0.042	0.511	0.010	0.010	0.010	0.010	0.010	0
127	CDT-507	0.667	1.231	0.884	0.363	Free Surface	0 - 11:00:00 hrs	3.410	3.422	0.295	0.344	0.867	0.111	0.633	0.010	0.010	0.010	0.010	0.010	0
128	CDT-509	0.667	1.967	2.257	0.363	Free Surface	0 - 11:00:00 hrs	4.037	4.037	0.185	0.305	1.604	0.111	0.613	0.010	0.010	0.010	0.010	0.010	0
129	CDT-511	0.667	1.760	1.807	0.396	Free Surface	0 - 11:00:00 hrs	2.802	2.802	0.225	0.425	1.364	0.121	0.659	0.010	0.010	0.010	0.010	0.010	0
130	CDT-513	0.833	3.172	1.786	1.179	Free Surface	0 - 11:00:00 hrs	5.001	5.003	0.372	0.447	1.993	0.348	0.828	0.010	0.010	0.010	0.010	0.010	0
131	CDT-515	0.833	2.702	1.296	1.221	Free Surface	0 - 11:00:00 hrs	4.687	4.687	0.452	0.482	1.481	0.359	0.833	0.010	0.010	0.010	0.010	0.010	0
132	CDT-517	0.833	2.613	1.212	1.262	Free Surface	0 - 11:00:00 hrs	4.686	4.686	0.483	0.495	1.350	0.371	0.833	0.010	0.010	0.010	0.010	0.010	0
133	CDT-519	0.833	2.635	1.233	1.304	Free Surface	0 - 11:00:00 hrs	4.679	4.680	0.495	0.509	1.331	0.382	0.833	0.010	0.010	0.010	0.010	0.010	0
134	CDT-521	0.833	2.578	1.179	1.345	Free Surface	0 - 11:00:00 hrs	4.705	4.705	0.522	0.519	1.232	0.394	0.833	0.010	0.010	0.010	0.010	0.010	0
135	CDT-523	0.833	2.674	1.269	1.387	Free Surface	0 - 11:00:00 hrs	4.885	4.885	0.519	0.516	1.287	0.406	0.833	0.010	0.010	0.010	0.010	0.010	0
136	CDT-525	0.833	2.726	1.319	1.428	Free Surface	0 - 11:00:00 hrs	4.890	4.891	0.524	0.528	1.297	0.417	0.833	0.010	0.010	0.010	0.010	0.010	0
137	CDT-527	0.833	2.587	1.188	1.470	Free Surface	0 - 11:00:00 hrs	4.819	4.819	0.568	0.547	1.118	0.429	0.833	0.010	0.010	0.010	0.010	0.010	0
138	CDT-529	0.833	2.591	1.192	1.511	Free Surface	0 - 11:00:00 hrs	4.842	4.842	0.583	0.557	1.080	0.440	0.833	0.010	0.010	0.010	0.010	0.010	0
139	CDT-531	1.000	2.770	0.515	1.038	Free Surface	0 - 11:00:00 hrs	3.776	3.776	0.375	0.381	1.732	0.304	0.971	0.010	0.010	0.010	0.010	0.010	0
140	CDT-533	1.000	3.010	0.608	1.043	Free Surface	0 - 11:00:00 hrs	3.191	3.191	0.346	0.434	1.967	0.304	0.991	0.010	0.010	0.010	0.010	0.010	0
141	CDT-535	1.000	3.015	0.610	0.979	Free Surface	0 - 11:02:00 hrs	3.352	3.352	0.325	0.399	2.037	0.279	0.979	0.010	0.010	0.010	0.010	0.010	0
142	CDT-537	1.000	2.803	0.527	0.981	Free Surface	0 - 11:00:00 hrs	3.295	3.296	0.350	0.404	1.822	0.279	0.981	0.010	0.010	0.010	0.010	0.010	0
143	CDT-539	0.667	0.965	0.543	0.148	Free Surface	0 - 10:41:00 hrs	1.963	1.999	0.154	0.269	0.816	0.044	0.591	0.010	0.010	0.010	0.010	0.010	0
144	CDT-541	0.667	1.160	0.785	0.320	Free Surface	0 - 10:59:00 hrs	2.480	2.483	0.276	0.397	0.840	0.092	0.652	0.010	0.010	0.010	0.010	0.010	0
145	CDT-543	0.667	0.977	0.557	0.323	Free Surface	0 - 11:00:00 hrs	3.015	3.016	0.331	0.346	0.653	0.093	0.634	0.010	0.010	0.010	0.010	0.010	0
146	CDT-545	0.667	2.041	2.430	0.320	Free Surface	0 - 10:59:00 hrs	3.419	3.421	0.157	0.313	1.721	0.092	0.618	0.010	0.010	0.010	0.010	0.010	0
147	CDT-547	0.833	2.331	0.964	0.625	Free Surface	0 - 11:00:00 hrs	4.236	4.236	0.268	0.315	1.706	0.183	0.774	0.010	0.010	0.010	0.010	0.010	0
148	CDT-549	0.833	4.992	4.424	0.646	Free Surface	0 - 11:00:00 hrs	5.436	5.436	0.129	0.270	4.347	0.189	0.740	0.010	0.010	0.010	0.010	0.010	0
149	CDT-551	0.833	3.474	2.142	0.667	Free Surface	0 - 11:00:00 hrs	4.837	4.837	0.192	0.300	2.807	0.195	0.764	0.010	0.010	0.010	0.010	0.010	0
150	CDT-553	0.833	3.436	2.095	0.688	Free Surface	0 - 11:00:00 hrs	4.857	4.857	0.200	0.306	2.748	0.200	0.768	0.010	0.010	0.010	0.010	0.010	0
151	CDT-555	0.833	3.325	1.962	0.688	Free Surface	0 - 11:00:00 hrs	4.717	4.717	0.207	0.313	2.637	0.200	0.773	0.010	0.010	0.010	0.010	0.010	0
152	CDT-557	0.833	3.192	1.809	0.688	Free Surface	0 - 11:00:00 hrs	4.655	4.675	0.216	0.316	2.504	0.200	0.775	0.010	0.010	0.010	0.010	0.010	0
153	CDT-559	0.833	3.539	2.223	0.760	Free Surface	0 - 11:00:00 hrs	4.166	4.173	0.215	0.368	2.779	0.220	0.804	0.010	0.010	0.010	0.010	0.010	0
154	CDT-561	0.500	0.636	1.095	0.182	Free Surface	0 - 10:06:00 hrs	3.317	3.331	0.286	0.323	0.454	0.049	0.468	0.010	0.010	0.010	0.010	0.010	0
155	CDT-563	0.500	1.359	5.000	0.182	Free Surface	0 - 10:07:00 hrs	4.798	4.803	0.134	0.248	1.177	0.049	0.432	0.010	0.010	0.010	0.010	0.010	0
156	CDT-565	0.667	2.408	3.382	0.182	Free Surface	0 - 10:07:59 hrs	3.922	3.925	0.076	0.191	2.226	0.049	0.524	0.010	0.010	0.010	0.010	0.010	0
157	CDT-567	0.500	1.235	4.130	0.182	Free Surface	0 - 10:07:59 hrs	4.496	4.526	0.148	0.260	1.053	0.049	0.439	0.010	0.010	0.010	0.010	0.010	0
158	CDT-569	0.500	0.816	1.804	0.182	Free Surface	0 - 10:36:00 hrs	2.609	2.681	0.223	0.385	0.634	0.049	0.487	0.010	0.010	0.010	0.010	0.010	0
159	CDT-571	0.500	1.234	4.120	0.182	Free Surface	0 - 10:10:00 hrs	3.853	3.952	0.148	0.290	1.052	0.049	0.454	0.010	0.010	0.010	0.010	0.010	0
160	CDT-573	1.500	14.905	1.716	5.113	Free Surface	0 - 10:52:00 hrs	7.686	7.686	0.343	0.402	9.793	1.435	1.471	0.010	0.010	0.010	0.010	0.010	0
161	CDT-575	1.500	12.708	1.247	5.053	Free Surface	0 - 10:51:00 hrs	6.873	6.873	0.398	0.434	7.655	1.419	1.487	0.010	0.010	0.010	0.010	0.010	0
162	CDT-579	1.500	13.373	1.381	4.928	Free Surface	0 - 10:49:59 hrs	7.327	7.327	0.369	0.406	8.445	1.381	1.473	0.010	0.010	0.010	0.010	0.010	0
163	CDT-583	1.500	12.816	1.268	5.176	Free Surface	0 - 10:53:59 hrs	6.374	6.376	0.404	0.468	7.640	1.456	1.497	0.010	0.010	0.010	0.010	0.010	0
164	CDT-587	1.500	13.809	1.473	5.511	Free Surface	0 - 10:56:00 hrs	7.124	7.125	0.399	0.451	8.298	1.552	1.493	0.010	0.010	0.010	0.010	0.010	0

Print Report

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
165	CDT-589	1.500	13.217	1.349	5.511	Free Surface	0 - 10:56:59 hrs	7.102	7.103	0.417	0.452	7.706	1.553	1.493	0.010	0.010	0.010	0.010	0.010	0
166	CDT-591	1.500	13.693	1.448	5.510	Free Surface	0 - 10:56:59 hrs	6.737	6.738	0.402	0.471	8.183	1.554	1.497	0.010	0.010	0.010	0.010	0.010	0
167	CDT-593	1.000	3.422	0.786	1.744	Free Surface	0 - 11:00:00 hrs	4.367	4.367	0.510	0.507	1.678	0.507	1.000	0.010	0.010	0.010	0.010	0.010	0
168	CDT-595	0.833	2.689	1.284	1.552	Free Surface	0 - 11:00:00 hrs	5.224	5.224	0.577	0.535	1.137	0.452	0.833	0.010	0.010	0.010	0.010	0.010	0
169	CDT-597	0.833	3.076	1.680	1.582	Free Surface	0 - 11:00:00 hrs	4.958	4.959	0.514	0.567	1.494	0.461	0.833	0.010	0.010	0.010	0.010	0.010	0
170	CDT-599	1.000	3.007	0.607	1.612	Free Surface	0 - 11:00:00 hrs	3.657	3.657	0.536	0.548	1.395	0.469	1.000	0.010	0.010	0.010	0.010	0.010	0
171	CDT-601	1.000	2.748	0.507	1.641	Free Surface	0 - 11:00:00 hrs	3.780	3.780	0.597	0.542	1.107	0.478	1.000	0.010	0.010	0.010	0.010	0.010	0
172	CDT-603	1.000	3.422	0.786	1.742	Free Surface	0 - 11:00:00 hrs	3.362	3.432	0.509	0.628	1.680	0.507	1.000	0.010	0.010	0.010	0.010	0.010	0
173	CDT-605	1.000	3.631	0.885	0.984	Free Surface	0 - 11:00:00 hrs	3.518	3.518	0.271	0.386	2.647	0.279	0.973	0.010	0.010	0.010	0.010	0.010	0
174	CDT-607	0.667	2.202	2.829	0.224	Free Surface	0 - 10:56:00 hrs	3.826	3.826	0.102	0.224	1.978	0.065	0.556	0.010	0.010	0.010	0.010	0.010	0
175	CDT-609	0.833	1.921	0.655	0.461	Free Surface	0 - 11:00:00 hrs	2.914	2.914	0.240	0.332	1.460	0.138	0.785	0.010	0.010	0.010	0.010	0.010	0
176	CDT-611	0.833	1.935	0.664	0.449	Free Surface	0 - 11:00:00 hrs	2.829	2.829	0.232	0.333	1.485	0.134	0.785	0.010	0.010	0.010	0.010	0.010	0
177	CDT-613	0.833	2.665	1.261	0.416	Free Surface	0 - 11:00:00 hrs	3.060	3.060	0.156	0.297	2.249	0.125	0.762	0.010	0.010	0.010	0.010	0.010	0
178	CDT-615	0.833	2.443	1.060	0.561	Free Surface	0 - 11:00:00 hrs	3.565	3.565	0.230	0.331	1.882	0.166	0.784	0.010	0.010	0.010	0.010	0.010	0
179	CDT-617	0.667	1.876	2.053	0.090	Free Surface	0 - 10:48:00 hrs	1.137	1.334	0.048	0.278	1.785	0.026	0.598	0.010	0.010	0.010	0.010	0.010	0
180	CDT-619	0.667	2.413	3.396	0.066	Free Surface	0 - 10:10:00 hrs	2.446	2.515	0.028	0.132	2.346	0.018	0.450	0.010	0.010	0.010	0.010	0.010	0
181	CDT-621	0.667	2.341	3.198	0.065	Free Surface	0 - 10:03:59 hrs	2.966	3.045	0.028	0.114	2.276	0.018	0.423	0.010	0.010	0.010	0.010	0.010	0
182	CDT-623	0.833	3.924	2.733	0.096	Free Surface	0 - 10:48:00 hrs	2.607	2.829	0.024	0.119	3.828	0.026	0.540	0.010	0.010	0.010	0.010	0.010	0
183	CDT-625	0.667	1.801	1.893	0.148	Free Surface	0 - 10:45:00 hrs	3.283	3.283	0.082	0.187	1.653	0.043	0.519	0.010	0.010	0.010	0.010	0.010	0
184	CDT-627	0.667	2.317	3.134	0.152	Free Surface	0 - 10:45:59 hrs	3.797	3.797	0.066	0.172	2.165	0.044	0.503	0.010	0.010	0.010	0.010	0.010	0
185	CDT-629	0.667	2.519	3.704	0.157	Free Surface	0 - 10:48:00 hrs	3.747	3.747	0.062	0.177	2.363	0.046	0.509	0.010	0.010	0.010	0.010	0.010	0
186	CDT-631	0.667	2.146	2.686	0.162	Free Surface	0 - 10:49:59 hrs	3.544	3.544	0.075	0.188	1.984	0.047	0.521	0.010	0.010	0.010	0.010	0.010	0
187	CDT-633	0.667	2.071	2.502	0.164	Free Surface	0 - 10:52:00 hrs	3.542	3.542	0.079	0.191	1.906	0.048	0.523	0.010	0.010	0.010	0.010	0.010	0
188	CDT-635	0.667	1.965	2.252	0.234	Free Surface	0 - 10:56:59 hrs	3.379	3.379	0.119	0.253	1.730	0.069	0.579	0.010	0.010	0.010	0.010	0.010	0
189	CDT-637	0.667	2.128	2.641	0.168	Free Surface	0 - 10:53:59 hrs	3.322	3.397	0.079	0.203	1.959	0.049	0.536	0.010	0.010	0.010	0.010	0.010	0
190	CDT-639	0.667	1.492	1.299	0.236	Free Surface	0 - 10:57:59 hrs	3.173	3.173	0.158	0.266	1.256	0.069	0.589	0.010	0.010	0.010	0.010	0.010	0
191	CDT-641	0.667	1.672	1.631	0.239	Free Surface	0 - 11:00:00 hrs	3.494	3.494	0.143	0.250	1.433	0.070	0.577	0.010	0.010	0.010	0.010	0.010	0
192	CDT-643	0.667	1.982	2.292	0.242	Free Surface	0 - 11:00:00 hrs	3.978	3.978	0.122	0.230	1.740	0.071	0.561	0.010	0.010	0.010	0.010	0.010	0
193	CDT-645	0.667	1.956	2.232	0.287	Free Surface	0 - 11:00:00 hrs	3.524	3.524	0.147	0.283	1.669	0.086	0.601	0.010	0.010	0.010	0.010	0.010	0
194	CDT-647	0.667	1.464	1.250	0.287	Free Surface	0 - 11:00:00 hrs	3.340	3.340	0.196	0.294	1.177	0.086	0.608	0.010	0.010	0.010	0.010	0.010	0
195	CDT-649	0.667	1.744	1.776	0.300	Free Surface	0 - 11:00:00 hrs	3.528	3.528	0.172	0.293	1.444	0.090	0.607	0.010	0.010	0.010	0.010	0.010	0
196	CDT-651	0.667	1.557	1.414	0.310	Free Surface	0 - 11:00:00 hrs	3.466	3.466	0.199	0.303	1.247	0.093	0.613	0.010	0.010	0.010	0.010	0.010	0
197	CDT-653	0.667	1.625	1.540	0.322	Free Surface	0 - 11:00:00 hrs	3.033	3.037	0.198	0.344	1.302	0.097	0.633	0.010	0.010	0.010	0.010	0.010	0
198	CDT-655	0.667	1.279	0.955	0.361	Free Surface	0 - 11:00:00 hrs	3.472	3.472	0.282	0.338	0.918	0.110	0.631	0.010	0.010	0.010	0.010	0.010	0
199	CDT-657	0.667	2.345	3.209	0.396	Free Surface	0 - 11:00:00 hrs	4.491	4.491	0.169	0.300	1.949	0.121	0.611	0.010	0.010	0.010	0.010	0.010	0
200	CDT-659	0.833	5.344	5.069	0.111	Free Surface	0 - 10:56:00 hrs	1.805	1.866	0.021	0.170	5.233	0.031	0.626	0.010	0.010	0.010	0.010	0.010	0
201	CDT-661	0.833	2.836	1.427	0.111	Free Surface	0 - 10:56:00 hrs	2.928	2.928	0.039	0.122	2.725	0.031	0.545	0.010	0.010	0.010	0.010	0.010	0
202	CDT-663	0.833	3.028	1.627	0.111	Free Surface	0 - 10:47:00 hrs	2.459	2.562	0.037	0.137	2.917	0.031	0.573	0.010	0.010	0.010	0.010	0.010	0
203	CDT-665	0.833	2.359	0.988	0.582	Free Surface	0 - 11:00:00 hrs	4.533	4.533	0.247	0.285	1.776	0.172	0.753	0.010	0.010	0.010	0.010	0.010	0
204	CDT-667	0.833	7.952	11.225	0.604	Free Surface	0 - 11:00:00 hrs	4.661	4.661	0.076	0.287	7.349	0.178	0.754	0.010	0.010	0.010	0.010	0.010	0
205	CDT-671	1.250	7.580	1.173	4.144	Free Surface	0 - 10:45:59 hrs	6.094	6.094	0.547	0.543	3.436	1.147	1.250	0.010	0.010	0.010	0.010	0.010	0
206	CDT-673	1.250	7.675	1.203	4.152	Free Surface	0 - 10:48:00 hrs	6.061	6.063	0.541	0.546	3.523	1.151	1.250	0.010	0.010	0.010	0.010	0.010	0
207	CDT-675	1.250	6.743	0.929	4.153	Free Surface	0 - 10:48:00 hrs	5.067	5.069	0.616	0.634	2.590	1.152	1.250	0.010	0.010	0.010	0.010	0.010	0
208	CDT-677	1.000	6.365	2.719	2.375	Free Surface	0 - 10:44:00 hrs	5.431	5.436	0.373	0.545	3.990	0.559	1.000	0.010	0.010	0.010	0.010	0.010	0
209	CDT-679	1.000	6.120	2.515	2.366	Free Surface	0 - 10:44:00 hrs	7.110	7.110	0.387	0.440	3.754	0.555	0.993	0.010	0.010	0.010	0.010	0.010	0
210	CDT-681	1.000	7.726	4.007	2.359	Free Surface	0 - 10:42:59 hrs	7.578	7.579	0.305	0.418	5.367	0.553	0.986	0.010	0.010	0.010	0.010	0.010	0
211	CDT-683	0.833	5.152	4.712	1.766	Free Surface	0 - 11:00:00 hrs	6.414	6.416	0.343	0.504	3.386	0.537	0.833	0.010	0.010	0.010	0.010	0.010	0
212	CDT-685	0.833	2.808	1.400	1.694	Free Surface	0 - 11:00:00 hrs	5.857	5.863	0.603	0.524	1.114	0.514	0.833	0.010	0.010	0.010	0.010	0.010	0
213	CDT-687	0.833	2.825	1.416	1.681	Free Surface	0 - 11:00:59 hrs	4.921	4.922	0.595	0.600	1.144	0.509	0.833	0.010	0.010	0.010	0.010	0.010	0
214	CDT-689	0.833	2.322	0.957	1.680	Free Surface	0 - 11:00:00 hrs	4.799	4.799	0.724	0.612	0.642	0.508	0.833	0.010	0.010	0.010	0.010	0.010	0
215	CDT-691	0.833	2.702	1.296	1.499	Free Surface	0 - 11:00:00 hrs	4.383	4.387	0.555	0.601	1.203	0.456	0.833	0.010	0.010	0.010	0.010	0.010	0
216	CDT-693	0.833	2.590	1.191	1.489	Free Surface	0 - 11:00:00 hrs	4.901	4.901	0.575	0.545	1.101	0.452	0.833	0.010	0.010	0.010	0.010	0.010	0
217	CDT-695	0.833	2.558	1.161	1.442	Free Surface	0 - 11:00:00 hrs	4.607	4.607	0.564	0.558	1.116	0.434	0.833	0.010	0.010	0.010	0.010	0.010	0
218	CDT-697	0.833	2.430	1.048	1.450	Free Surface	0 - 11:00:00 hrs	4.738	4.738	0.597	0.548	0.979	0.438	0.833	0.010	0.010	0.010	0.010	0.010	0
219	CDT-699	0.833	2.760	1.352	1.461	Free Surface	0 - 11:00:00 hrs	4.893	4.898	0.530	0.537	1.299	0.442	0.833	0.010	0.010	0.010	0.010	0.010	0
220	CDT-701	0.667	0.966	0.545	0.138	Free Surface	0 - 11:00:00 hrs	2.029	2.029	0.143	0.250	0.828	0.040	0.577	0.010	0.010	0.010	0.010	0.010	0
221	CDT-703	0.667	1.154	0.777	0.172	Free Surface	0 - 11:00:00 hrs	2.332	2.332	0.149	0.264	0.982	0.049	0.588	0.010	0.010	0.010	0.010	0.010	0
222	CDT-705	0.667	1.099	0.704	0.138	Free Surface	0 - 11:00:00 hrs	2.027	2.057	0.126	0.250	0.960	0.040	0.577	0.010	0.010	0.010	0.010	0.010	0
223	CDT-707	0.667	1.143	0.762	0.179	Free Surface	0 - 11:00:00 hrs	0.908	0.975	0.157	0.552	0.964	0.051	0.667	0.010	0.010	0.010	0.010	0.010	0
224	CDT-709	0.667	0.984	0.565	0.128	Free Surface	0 - 10:37:59 hrs	1.966	1.969	0.130	0.242	0.856	0.039	0.571	0.010	0.010	0.010	0.010	0.010	0
225	CDT-711	0.667	1.079	0.679	0.135	Free Surface	0 - 10:47:00 hrs	1.097	1.177	0.125	0.383	0.944	0.041	0.648	0.010	0.010	0.010	0.010	0.010	0
226	CDT-713	0.667	1.475	1.270	0.807	Free Surface	0 - 11:00:00 hrs	4.227	4.229	0.547	0.537	0.668	0.240	0.667	0.010	0.010	0.010	0.010	0.010	0
227	CDT-715	0.667	1.415	1.168	0.818	Free Surface	0 - 11:00:00 hrs	4.117	4.118	0.578	0.554	0.597	0.243	0.667	0.010	0.010	0.010	0.010	0.010	0
228	CDT-717	0.667	1.512	1.335	0.829	Free Surface	0 - 11:00:00 hrs	4.841	4.841	0.548	0.493	0.683	0.246	0.666	0.010	0.010	0.010	0.010	0.010	0
229	CDT-719	0.667	2.258	2.974	0.839	Free Surface	0 - 11:00:00 hrs	4.334	4.367	0.372	0.543	1.418	0.249	0.667	0.010	0.010	0.010	0.010	0.010	0
230	CDT-721	0.833	2.571	1.173	1.422	Free Surface	0 - 11:00:00 hrs	4.651	4.651	0.553	0.548	1.149	0.426	0.833	0.010	0.010	0.010	0.010	0.010	0
231	CDT-723	0.833	2.395	1.018	1.427	Free Surface	0 - 11:00:00 hrs	4.554	4.554	0.596	0.559	0.968	0.428	0.833	0.010	0.010	0.010	0.010	0.010	0
232	CDT-725	0.833	2.536	1.142	1.432	Free Surface	0 - 11:00:59 hrs	4.710	4.710	0.564	0.545	1.105	0.430	0.833	0.010	0.010	0.010	0.010	0.010	0
233	CDT-727	0.667	1.028	0.616	0.099	Free Surface	0 - 10:59:00 hrs	1.815	1.833	0.097	0.214	0.928	0.030	0.546	0.010	0.010	0.010	0.010	0.010	0
234	CDT-729	0.667	0.975	0.555	0.101	Free Surface	0 - 11:00:00 hrs	1.655	1.674	0.104	0.232	0.874	0.031	0.562	0.010	0.010	0.010	0.010	0.010	0
235	CDT-731	0.667	1.359	1.078	0.505	Free Surface	0 - 11:00:00 hrs	4.451	4.451	0.371	0.361	0.854	0.149	0.640	0.010	0.010	0.010	0.010	0.010	0
236	CDT-733	0.667	3.874	8.758	0.507	Free Surface	0 - 11:00:00 hrs	4.077	4.078	0.131	0.386	3.367	0.150	0.649	0.010	0.010	0.010	0.010	0.010	0
237	CDT-735	0.667	2.344	3.205	0.092	Free Surface	0 - 10:56:59 hrs	2.598	2.613	0.039	0.158	2.251	0.028	0.486	0.010	0.010	0.010	0.010	0.010	0
238	CDT-737	0.667	1.351	1.064	0.097	Free Surface	0 - 10:57:59 hrs	2.143	2.143	0.071	0.187	1.254	0.029	0.519	0.010	0.010	0.010	0.010	0.010	0
239	CDT-739	0.667	1.209	0.853	0.098	Free Surface	0 - 10:57:59 hrs	1.954	1.956	0.081	0.201	1.111	0.030	0.534	0.010	0.010	0.010	0.010	0.010	0
240	CDT-741	0.667	0.965	0.543	0.157	Free Surface	0 - 10:11:59 hrs	2.012	2.029	0.162	0.276	0.808	0.047	0.596	0.010	0.010	0.010	0.010	0.010	0
241	CDT-743	0.667	0.961	0.538	0.164	Free Surface	0 - 10:57:59 hrs	1.245	1.401	0.171	0.404	0.796	0.049	0.654	0.010	0.010	0.010	0.010	0.010	0
242	CDT-745	0.667	2.489	3.615	0.487	Free Surface	0 - 10:57:59 hrs	3.885	3.887	0.196	0.388	2.002	0.144	0.650	0.010	0.010	0.010	0.010	0.010	0
243	CDT-747	0.667	1.542	1.387	0.466	Free Surface	0 - 10:56:00 hrs	4.546	4.546	0.303	0.335	1.075	0.137	0.629	0.010	0.010	0.010	0.010	0.010	0
244	CDT-749	0.667	3.229	6.083	0.469	Free Surface	0 - 10:56:00 hrs	4.757	4.760	0.145	0.326	2.760	0.138	0.625	0.010	0.010	0.010	0.010	0.010	0
245	CDT-751	0.667	2.574	3.867	0.065	Free Surface	0 - 10:03:00 hrs	3.154	3.235	0.025	0.111	2.509	0.020	0.417	0.010	0.010	0.010	0.010	0.010	0
246	CDT-753	0.667	1.693	1.672	0.446	Free Surface	0 - 10:52:59 hrs	4.763	4.763	0.263	0.313	1.247	0.131	0.618	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
247	CDT-755	0.667	3.394	6.722	0.449	Free Surface	0 - 10:53:59 hrs	4.482	4.483	0.132	0.329	2.946	0.132	0.626	0.010	0.010	0.010	0.010	0.010	0
248	CDT-757	0.667	1.182	0.815	0.345	Free Surface	0 - 10:48:00 hrs	2.867	2.867	0.292	0.377	0.837	0.100	0.646	0.010	0.010	0.010	0.010	0.010	0
249	CDT-759	0.667	1.122	0.735	0.347	Free Surface	0 - 10:51:00 hrs	2.827	2.869	0.309	0.382	0.775	0.101	0.648	0.010	0.010	0.010	0.010	0.010	0
250	CDT-761	0.667	1.641	1.570	0.484	Free Surface	0 - 10:56:59 hrs	4.498	4.498	0.295	0.347	1.157	0.143	0.634	0.010	0.010	0.010	0.010	0.010	0
251	CDT-763	0.667	1.102	0.708	0.341	Free Surface	0 - 10:41:59 hrs	2.822	2.826	0.309	0.378	0.761	0.099	0.646	0.010	0.010	0.010	0.010	0.010	0
252	CDT-765	0.667	2.149	2.695	0.340	Free Surface	0 - 11:00:00 hrs	3.420	3.446	0.158	0.327	1.809	0.098	0.625	0.010	0.010	0.010	0.010	0.010	0
253	CDT-767	0.667	2.303	3.095	0.335	Free Surface	0 - 11:00:00 hrs	4.562	4.563	0.145	0.263	1.969	0.097	0.587	0.010	0.010	0.010	0.010	0.010	0
254	CDT-769	1.250	7.874	1.266	4.137	Free Surface	0 - 10:45:59 hrs	6.231	6.231	0.525	0.532	3.737	1.144	1.250	0.010	0.010	0.010	0.010	0.010	0
255	CDT-771	1.000	3.380	0.767	1.908	Free Surface	0 - 11:00:00 hrs	4.049	4.049	0.564	0.592	1.472	0.586	1.000	0.010	0.010	0.010	0.010	0.010	0
256	CDT-773	1.000	2.606	0.456	1.910	Free Surface	0 - 11:00:00 hrs	3.821	3.821	0.733	0.608	0.697	0.586	1.000	0.010	0.010	0.010	0.010	0.010	0
257	CDT-775	1.000	3.363	0.759	1.888	Free Surface	0 - 11:00:00 hrs	3.784	3.784	0.562	0.607	1.474	0.578	1.000	0.010	0.010	0.010	0.010	0.010	0
258	CDT-777	1.000	3.062	0.629	1.829	Free Surface	0 - 11:00:00 hrs	4.110	4.113	0.597	0.552	1.233	0.559	1.000	0.010	0.010	0.010	0.010	0.010	0
259	CDT-779	1.000	3.627	0.883	1.834	Free Surface	0 - 11:00:00 hrs	4.277	4.277	0.506	0.536	1.793	0.559	1.000	0.010	0.010	0.010	0.010	0.010	0
260	CDT-781	0.667	1.293	0.975	0.138	Free Surface	0 - 11:00:00 hrs	2.143	2.143	0.107	0.240	1.155	0.040	0.570	0.010	0.010	0.010	0.010	0.010	0
261	CDT-783	0.667	0.769	0.345	0.128	Free Surface	0 - 11:00:00 hrs	1.802	1.805	0.166	0.257	0.642	0.037	0.582	0.010	0.010	0.010	0.010	0.010	0
262	CDT-785	0.667	1.426	1.186	0.128	Free Surface	0 - 11:00:00 hrs	1.898	1.898	0.089	0.247	1.298	0.037	0.575	0.010	0.010	0.010	0.010	0.010	0
263	CDT-787	0.667	0.729	0.310	0.118	Free Surface	0 - 11:00:00 hrs	1.743	1.743	0.161	0.248	0.611	0.034	0.576	0.010	0.010	0.010	0.010	0.010	0
264	CDT-789	0.667	0.989	0.571	0.050	Free Surface	0 - 10:38:59 hrs	0.859	0.866	0.050	0.223	0.939	0.015	0.555	0.010	0.010	0.010	0.010	0.010	0
265	CDT-791	0.667	0.448	0.117	0.044	Free Surface	0 - 10:33:00 hrs	0.870	0.870	0.099	0.204	0.404	0.013	0.537	0.010	0.010	0.010	0.010	0.010	0
266	CDT-793	0.667	1.676	1.640	0.042	Free Surface	0 - 11:00:00 hrs	0.961	0.977	0.025	0.182	1.635	0.012	0.514	0.010	0.010	0.010	0.010	0.010	0
267	CDT-795	0.667	0.873	0.444	0.039	Free Surface	0 - 11:00:00 hrs	1.453	1.453	0.045	0.130	0.834	0.011	0.448	0.010	0.010	0.010	0.010	0.010	0
268	CDT-797	0.667	1.000	0.584	0.032	Free Surface	0 - 10:59:00 hrs	1.109	1.151	0.032	0.137	0.968	0.009	0.459	0.010	0.010	0.010	0.010	0.010	0
269	CDT-799	0.667	1.220	0.869	0.054	Free Surface	0 - 10:51:00 hrs	0.962	1.090	0.045	0.219	1.166	0.016	0.551	0.010	0.010	0.010	0.010	0.010	0
270	CDT-801	0.667	1.099	0.705	0.037	Free Surface	0 - 10:22:00 hrs	1.319	1.406	0.034	0.135	1.062	0.010	0.455	0.010	0.010	0.010	0.010	0.010	0
271	CDT-803	0.667	1.075	0.674	0.029	Free Surface	0 - 10:03:59 hrs	1.321	1.346	0.027	0.117	1.046	0.008	0.429	0.010	0.010	0.010	0.010	0.010	0
272	CDT-805	1.000	2.861	0.549	0.549	Free Surface	0 - 11:00:59 hrs	2.842	2.842	0.192	0.294	2.312	0.160	0.911	0.010	0.010	0.010	0.010	0.010	0
273	CDT-809	1.000	2.719	0.496	0.569	Free Surface	0 - 11:06:00 hrs	2.689	2.689	0.209	0.315	2.149	0.169	0.929	0.010	0.010	0.010	0.010	0.010	0
274	CDT-811	0.833	1.872	0.622	0.580	Free Surface	0 - 11:07:59 hrs	2.411	2.470	0.310	0.456	1.292	0.174	0.830	0.010	0.010	0.010	0.010	0.010	0
275	CDT-813	0.833	4.187	3.112	0.958	Free Surface	0 - 11:00:00 hrs	5.109	5.120	0.229	0.376	3.229	0.271	0.807	0.010	0.010	0.010	0.010	0.010	0
276	CDT-815	0.833	1.575	0.440	0.941	Free Surface	0 - 11:03:00 hrs	3.680	3.680	0.597	0.475	0.635	0.265	0.832	0.010	0.010	0.010	0.010	0.010	0
277	CDT-817	0.833	2.341	0.973	0.941	Free Surface	0 - 11:00:59 hrs	3.183	3.188	0.402	0.533	1.400	0.265	0.833	0.010	0.010	0.010	0.010	0.010	0
278	CDT-819	0.833	1.539	0.420	0.936	Free Surface	0 - 11:00:00 hrs	3.267	3.267	0.608	0.520	0.603	0.263	0.833	0.010	0.010	0.010	0.010	0.010	0
279	CDT-821	0.833	2.583	1.184	0.935	Free Surface	0 - 11:00:00 hrs	3.367	3.367	0.362	0.507	1.648	0.261	0.833	0.010	0.010	0.010	0.010	0.010	0
280	CDT-823	0.667	1.943	2.204	0.104	Free Surface	0 - 10:14:00 hrs	3.459	3.462	0.053	0.141	1.839	0.030	0.464	0.010	0.010	0.010	0.010	0.010	0
281	CDT-825	0.667	3.751	8.212	0.104	Free Surface	0 - 10:15:59 hrs	1.173	1.274	0.028	0.346	3.648	0.030	0.634	0.010	0.010	0.010	0.010	0.010	0
282	CDT-827	0.667	1.475	1.270	0.900	Free Surface	0 - 11:00:00 hrs	4.591	4.593	0.610	0.548	0.576	0.250	0.667	0.010	0.010	0.010	0.010	0.010	0
283	CDT-829	0.667	1.657	1.603	0.363	Free Surface	0 - 11:00:00 hrs	3.450	3.450	0.219	0.341	1.294	0.111	0.632	0.010	0.010	0.010	0.010	0.010	0
284	CDT-831	0.667	1.257	0.923	0.129	Free Surface	0 - 10:38:59 hrs	2.017	2.018	0.103	0.239	1.128	0.038	0.569	0.010	0.010	0.010	0.010	0.010	0
285	CDT-833	0.667	2.137	2.665	0.129	Free Surface	0 - 10:34:59 hrs	2.764	2.768	0.060	0.192	2.008	0.038	0.524	0.010	0.010	0.010	0.010	0.010	0
286	CDT-835	0.667	2.357	3.241	0.319	Free Surface	0 - 10:59:00 hrs	4.471	4.471	0.135	0.258	2.038	0.092	0.583	0.010	0.010	0.010	0.010	0.010	0
287	CDT-837	1.500	8.409	0.546	4.793	Free Surface	0 - 10:48:59 hrs	5.227	5.228	0.570	0.515	3.616	1.344	1.500	0.010	0.010	0.010	0.010	0.010	0
288	CDT-839	0.833	2.523	1.130	0.368	Free Surface	0 - 11:00:00 hrs	3.294	3.306	0.146	0.258	2.155	0.109	0.729	0.010	0.010	0.010	0.010	0.010	0
289	CDT-841	0.833	3.394	2.044	0.367	Free Surface	0 - 11:00:00 hrs	3.623	3.623	0.108	0.241	3.027	0.109	0.713	0.010	0.010	0.010	0.010	0.010	0
290	CDT-843	0.833	1.014	0.182	0.366	Free Surface	0 - 11:00:00 hrs	2.003	2.003	0.361	0.369	0.647	0.109	0.804	0.010	0.010	0.010	0.010	0.010	0
291	CDT-845	0.833	1.840	0.601	0.367	Free Surface	0 - 11:00:00 hrs	3.038	3.038	0.199	0.273	1.473	0.109	0.742	0.010	0.010	0.010	0.010	0.010	0
292	CDT-847	0.833	1.803	0.577	0.366	Free Surface	0 - 11:00:00 hrs	2.073	2.074	0.203	0.360	1.437	0.109	0.800	0.010	0.010	0.010	0.010	0.010	0
293	CDT-849	0.833	3.912	2.717	0.197	Free Surface	0 - 10:59:00 hrs	2.618	2.678	0.050	0.195	3.716	0.059	0.661	0.010	0.010	0.010	0.010	0.010	0
294	CDT-851	0.833	2.309	0.946	0.288	Free Surface	0 - 10:59:00 hrs	2.395	2.396	0.125	0.272	2.021	0.088	0.741	0.010	0.010	0.010	0.010	0.010	0
295	CDT-853	0.833	3.562	2.252	0.181	Free Surface	0 - 10:56:59 hrs	2.925	2.925	0.051	0.170	3.381	0.053	0.626	0.010	0.010	0.010	0.010	0.010	0
296	CDT-855	0.833	2.473	1.086	0.181	Free Surface	0 - 10:57:59 hrs	2.706	2.709	0.073	0.180	2.293	0.053	0.640	0.010	0.010	0.010	0.010	0.010	0
297	CDT-857	0.833	3.199	1.817	0.197	Free Surface	0 - 10:59:00 hrs	3.416	3.416	0.061	0.162	3.003	0.059	0.614	0.010	0.010	0.010	0.010	0.010	0
298	CDT-859	0.833	1.662	0.491	0.181	Free Surface	0 - 10:59:00 hrs	2.385	2.385	0.109	0.197	1.482	0.053	0.662	0.010	0.010	0.010	0.010	0.010	0
299	CDT-861	0.833	2.947	1.541	0.396	Free Surface	0 - 11:00:00 hrs	3.994	3.994	0.134	0.237	2.551	0.119	0.709	0.010	0.010	0.010	0.010	0.010	0
300	CDT-863	0.833	3.791	2.551	0.397	Free Surface	0 - 11:00:00 hrs	3.881	3.884	0.105	0.243	3.393	0.119	0.715	0.010	0.010	0.010	0.010	0.010	0
301	CDT-865	0.667	0.998	0.581	0.145	Free Surface	0 - 10:04:59 hrs	2.023	2.081	0.145	0.261	0.853	0.043	0.585	0.010	0.010	0.010	0.010	0.010	0
302	CDT-867	0.667	1.277	0.952	0.363	Free Surface	0 - 11:00:00 hrs	2.904	2.904	0.284	0.388	0.914	0.111	0.650	0.010	0.010	0.010	0.010	0.010	0
303	CDT-873	0.667	1.393	1.132	0.685	Free Surface	0 - 11:00:59 hrs	3.787	3.787	0.492	0.514	0.708	0.185	0.667	0.010	0.010	0.010	0.010	0.010	0
304	CDT-875	0.667	1.352	1.067	0.685	Free Surface	0 - 11:00:59 hrs	4.172	4.172	0.507	0.477	0.667	0.185	0.666	0.010	0.010	0.010	0.010	0.010	0
305	CDT-877	0.667	1.860	2.019	0.685	Free Surface	0 - 11:00:59 hrs	4.211	4.211	0.368	0.478	1.175	0.185	0.666	0.010	0.010	0.010	0.010	0.010	0
306	CDT-879	0.667	1.346	1.057	0.755	Free Surface	0 - 11:00:00 hrs	3.464	3.464	0.561	0.598	0.591	0.204	0.667	0.010	0.010	0.010	0.010	0.010	0
307	CDT-881	0.667	0.998	0.581	0.754	Free Surface	0 - 11:00:00 hrs	3.145	3.145	0.755	0.649	0.244	0.204	0.667	0.010	0.010	0.010	0.010	0.010	0
308	CDT-883	0.667	2.207	2.843	0.104	Free Surface	0 - 10:08:59 hrs	2.942	3.059	0.047	0.158	2.103	0.030	0.486	0.010	0.010	0.010	0.010	0.010	0
309	CDT-885	0.667	2.091	2.551	0.105	Free Surface	0 - 10:03:00 hrs	3.218	3.301	0.050	0.150	1.986	0.030	0.476	0.010	0.010	0.010	0.010	0.010	0
310	CDT-887	0.833	3.378	2.026	0.257	Free Surface	0 - 10:03:00 hrs	3.867	3.963	0.076	0.181	3.121	0.069	0.642	0.010	0.010	0.010	0.010	0.010	0
311	CDT-893	0.667	0.993	0.575	0.764	Free Surface	0 - 10:29:00 hrs	3.302	3.458	0.770	0.630	0.229	0.069	0.667	0.010	0.010	0.010	0.010	0.010	0
312	CDT-895	0.667	1.223	0.872	0.767	Free Surface	0 - 10:30:59 hrs	3.250	3.395	0.628	0.641	0.455	0.071	0.667	0.010	0.010	0.010	0.010	0.010	0
313	CDT-897	0.667	0.942	0.518	0.768	Free Surface	0 - 10:30:59 hrs	2.988	3.158	0.815	0.693	0.174	0.071	0.667	0.010	0.010	0.010	0.010	0.010	0
314	CDT-899	0.667	0.974	0.554	0.778	Free Surface	0 - 10:33:00 hrs	2.724	3.386	0.798	0.765	0.197	0.074	0.667	0.010	0.010	0.010	0.010	0.010	0
315	CDT-901	1.000	2.981	0.596	1.855	Free Surface	0 - 10:36:00 hrs	3.697	3.733	0.622	0.611	1.125	0.367	1.000	0.010	0.010	0.010	0.010	0.010	0
316	CDT-903	1.000	3.094	0.643	2.309	Free Surface	0 - 10:37:59 hrs	4.202	4.203	0.746	0.660	0.785	0.530	1.000	0.010	0.010	0.010	0.010	0.010	0
317	CDT-905	1.000	3.034	0.618	2.353	Free Surface	0 - 10:38:59 hrs	4.173	4.182	0.776	0.675	0.681	0.542	1.000	0.010	0.010	0.010	0.010	0.010	0
318	CDT-907	1.000	2.969	0.592	2.359	Free Surface	0 - 10:40:00 hrs	4.146	4.161	0.794	0.680	0.611	0.544	1.000	0.010	0.010	0.010	0.010	0.010	0
319	CDT-909	1.000	2.923	0.573	2.356	Free Surface	0 - 10:41:00 hrs	3.741	3.790	0.806	0.749	0.567	0.546	1.000	0.010	0.010	0.010	0.010	0.010	0
320	CDT-911	1.000	2.783	0.520	2.341	Free Surface	0 - 10:41:59 hrs	4.737	4.737	0.841	0.602	0.442	0.548	1.000	0.010	0.010	0.010	0.010	0.010	0
321	CDT-913	1.000	7.764	4.046	2.352	Free Surface	0 - 10:42:59 hrs	8.553	8.554	0.303	0.381	5.412	0.551	0.971	0.010	0.010	0.010	0.010	0.010	0
322	CDT-915	0.667	2.462	3.538	0.065	Free Surface	0 - 10:32:00 hrs	2.696	2.801	0.026	0.121	2.397	0.020	0.435	0.010	0.010	0.010	0.010	0.010	0
323	CDT-917	0.667	2.158	2.717	0.079	Free Surface	0 - 10:56:59 hrs	2.860	2.882	0.037	0.133	2.079	0.025	0.452	0.010	0.010	0.010	0.010	0.010	0
324	CDT-919	0.667	1.674	1.636	0.686	Free Surface	0 - 11:00:00 hrs	4.479	4.479	0.410	0.452	0.989	0.185	0.663	0.010	0.010	0.010	0.010	0.010	0
325	CDT-921	0.667	1.719	1.723	0.686	Free Surface	0 - 11:00:00 hrs	4.679	4.679	0.399	0.437	1.033	0.185	0.661	0.010	0.010	0.010	0.010	0.010	0
326	CDT-923	0.667	1.928	2.168	0.685	Free Surface	0 - 11:00:00 hrs	5.137	5.137	0.356	0.407	1.242	0.185	0.655	0.010	0.010	0.010	0.010	0.010	0
327	CDT-925	0.667	2.132	2.653	0.685	Free Surface	0 - 11:00:00 hrs	4.478	4.478	0.321	0.452	1.447	0.185	0.663	0.010	0.010	0.010	0.010	0.010	0
328	CDT-927	0.667	1.350	1.064	0.685	Free Surface	0 - 11:00:00 hrs	3.883	3.883	0.507	0.504	0.665	0.185	0.667	0.010	0.010	0.010	0.010	0.010	0

	ID	Full Depth (ft)	Full Flow (cfs)	Percent Slope (%)	Maximum Flow (cfs)	Maximum Flow Class	Max.Flow Day-Time (day-time)	Velocity at Maximum Flow (ft/s)	Maximum Velocity (ft/s)	Max.Flow/Full Flow	Max.Depth/Full Depth	Reserve Capacity (cfs)	Total Flow Volume (MG)	Maximum Top Width (ft)	Both End Surcharge Time (hrs)	Upstream Surcharge Time (hrs)	Downstream Surcharge Time (hrs)	Above Full-Flow Time (hrs)	Capacity Limited Time (hrs)	Instability Index
329	CDT-929	0.667	1.593	1.480	0.053	Free Surface	0 - 10:27:59 hrs	1.909	2.029	0.033	0.133	1.540	0.016	0.453	0.010	0.010	0.010	0.010	0.010	0
330	CDT-931	0.667	1.228	0.879	0.053	Free Surface	0 - 10:11:59 hrs	1.749	1.773	0.043	0.142	1.175	0.016	0.465	0.010	0.010	0.010	0.010	0.010	0
331	CDT-933	0.667	1.228	0.879	0.053	Free Surface	0 - 10:18:00 hrs	1.686	1.731	0.043	0.146	1.174	0.016	0.471	0.010	0.010	0.010	0.010	0.010	0
332	CDT-935	0.667	1.117	0.728	0.053	Free Surface	0 - 10:22:59 hrs	1.680	1.692	0.048	0.147	1.063	0.016	0.471	0.010	0.010	0.010	0.010	0.010	0
333	CDT-937	0.500	0.529	0.758	0.220	Free Surface	0 - 10:52:59 hrs	2.463	2.509	0.416	0.465	0.309	0.059	0.499	0.010	0.010	0.010	0.010	0.010	0
334	CDT-941	0.833	3.906	2.708	0.208	Free Surface	0 - 10:14:00 hrs	3.556	3.584	0.053	0.164	3.698	0.061	0.617	0.010	0.010	0.010	0.010	0.010	0
335	CDT-943	0.833	3.390	2.040	0.218	Free Surface	0 - 10:18:00 hrs	3.363	3.368	0.064	0.176	3.172	0.063	0.635	0.010	0.010	0.010	0.010	0.010	0
336	CDT-945	0.833	3.396	2.047	0.242	Free Surface	0 - 10:19:59 hrs	3.483	3.484	0.071	0.185	3.154	0.071	0.647	0.010	0.010	0.010	0.010	0.010	0
337	CDT-947	0.833	3.413	2.068	0.268	Free Surface	0 - 10:22:59 hrs	3.693	3.693	0.078	0.191	3.146	0.078	0.654	0.010	0.010	0.010	0.010	0.010	0
338	CDT-949	0.833	3.672	2.394	0.293	Free Surface	0 - 10:21:00 hrs	4.016	4.019	0.080	0.192	3.379	0.085	0.655	0.010	0.010	0.010	0.010	0.010	0
339	CDT-951	0.833	3.696	2.425	0.296	Free Surface	0 - 10:23:59 hrs	3.941	3.942	0.080	0.195	3.400	0.085	0.661	0.010	0.010	0.010	0.010	0.010	0
340	CDT-953	0.833	3.542	2.226	0.308	Free Surface	0 - 10:23:59 hrs	3.946	3.948	0.087	0.201	3.234	0.089	0.667	0.010	0.010	0.010	0.010	0.010	0
341	CDT-955	0.833	3.534	2.216	0.315	Free Surface	0 - 10:26:00 hrs	3.372	3.375	0.089	0.228	3.218	0.092	0.699	0.010	0.010	0.010	0.010	0.010	0
342	CDT-957	0.833	2.422	1.041	0.335	Free Surface	0 - 10:27:59 hrs	3.145	3.146	0.138	0.249	2.087	0.098	0.721	0.010	0.010	0.010	0.010	0.010	0
343	CDT-959	0.833	2.535	1.141	0.335	Free Surface	0 - 10:30:00 hrs	2.813	2.879	0.132	0.270	2.201	0.098	0.740	0.010	0.010	0.010	0.010	0.010	0
344	CDT-961	0.833	2.420	1.039	0.457	Free Surface	0 - 10:30:00 hrs	3.346	3.346	0.189	0.298	1.963	0.138	0.763	0.010	0.010	0.010	0.010	0.010	0
345	CDT-963	0.833	2.430	1.048	0.469	Free Surface	0 - 10:32:00 hrs	3.505	3.505	0.193	0.294	1.961	0.142	0.759	0.010	0.010	0.010	0.010	0.010	0
346	CDT-965	0.833	2.761	1.353	0.492	Free Surface	0 - 10:33:00 hrs	3.474	3.474	0.178	0.306	2.269	0.149	0.768	0.010	0.010	0.010	0.010	0.010	0
347	CDT-967	0.833	2.293	0.933	0.492	Free Surface	0 - 10:33:00 hrs	3.502	3.502	0.215	0.305	1.800	0.149	0.767	0.010	0.010	0.010	0.010	0.010	0
348	CDT-969	0.833	2.877	1.469	0.501	Free Surface	0 - 10:34:59 hrs	1.470	1.569	0.174	0.641	2.376	0.152	0.833	0.010	0.010	0.259	0.010	0.010	0
349	CDT-973	0.833	4.427	3.479	0.134	Free Surface	0 - 10:11:00 hrs	3.412	3.631	0.030	0.125	4.293	0.037	0.551	0.010	0.010	0.010	0.010	0.010	0
350	CDT-975	0.833	4.037	2.893	0.147	Free Surface	0 - 10:22:00 hrs	3.300	3.378	0.036	0.136	3.891	0.041	0.571	0.010	0.010	0.010	0.010	0.010	0
351	CDT-977	0.833	3.651	2.366	0.157	Free Surface	0 - 10:07:00 hrs	3.310	3.328	0.043	0.142	3.494	0.044	0.582	0.010	0.010	0.010	0.010	0.010	0
352	CDT-979	0.833	3.911	2.715	0.172	Free Surface	0 - 10:10:00 hrs	3.040	3.077	0.044	0.161	3.739	0.049	0.612	0.010	0.010	0.010	0.010	0.010	0
353	CDT-981	0.833	2.787	1.379	0.183	Free Surface	0 - 10:11:00 hrs	3.035	3.043	0.066	0.167	2.604	0.053	0.622	0.010	0.010	0.010	0.010	0.010	0

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