

7.1.1 SS-1: Seamans Creek New Springs Collection System

Engineer’s Opinion of Probable Cost: \$1,160,000

This project includes the construction of a new spring collection system. The new collection system would be placed within the same drainage, upstream from the current system. The new spring collection system would consist of buried perforated pipe and connected into a new transmission line (**Section 7.3.1**). The project would also include the construction of a new diversion structure and correcting identified deficiencies in the existing spring system. The diversion structure would be installed at the point where the springs tie together and would consist of a knife gate and overflow structure. The proposed chlorination system would include a flow paced chemical feed pump that ties into the system after the altitude valve, with a mixer in the storage reservoir to ensure adequate contact time for chlorination. Additionally, this project includes the reconstruction of the Lower Springs System, as well as, the demolition of all observation ports, weir boxes, etc. on the Upper Springs System.

Cost of land and easements are broken out separately in LE-1 (**Section 7.5.1**). The cost of replacing the Seaman Creek Springs Transmission Line is included in TD-1 (**Section 7.3.1**).

Alternative Recommendation

Major components of this alternative include the following:

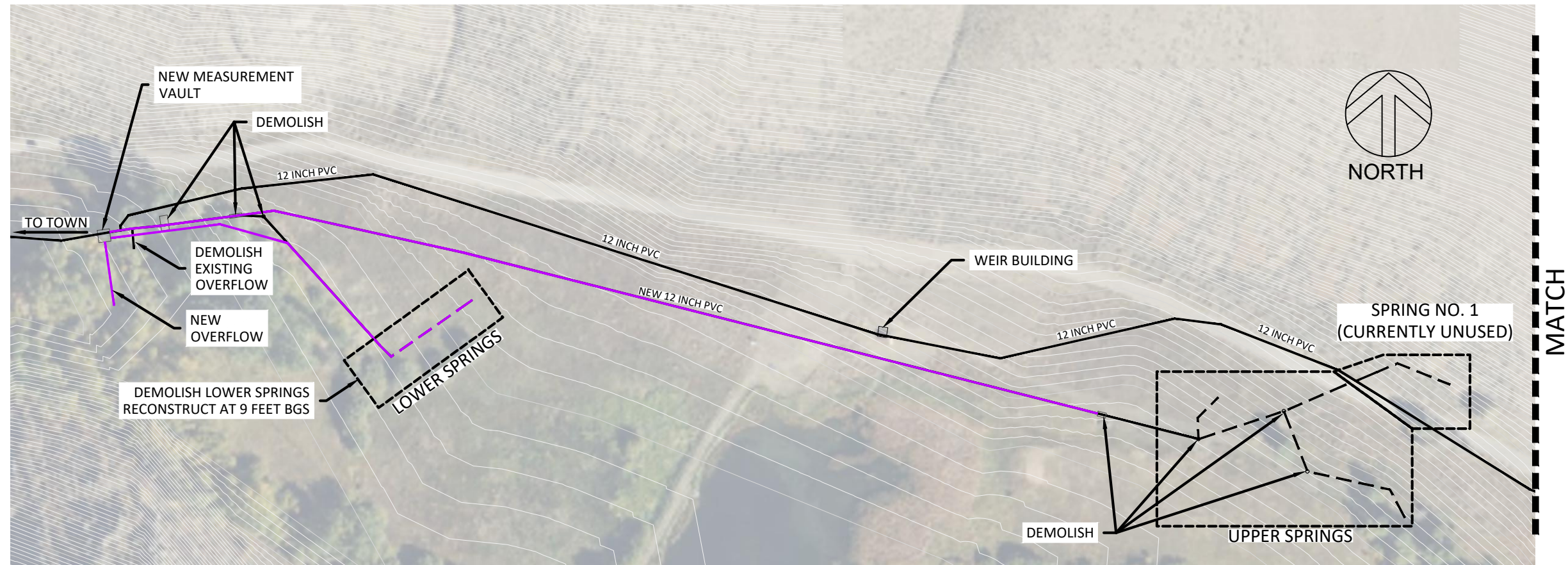
- Construction of spring collection system, approximately 15 feet in depth
- Install 12-inch perforated pipe in an approximate 36-inch bed of drain rock
- Wrap drain rock with nonwoven geotextile.
- Connect groundwater collection to new transmission main.
- Install chlorination and mixing in existing water storage reservoir.
- Maintain dewatering of excavation in portions during construction.
- Reconstruct the Lower Springs at a greater depth
- Replace remaining CMP pipe connecting the Upper Springs System to the rest of the springs.

The location of the new springs collection system is shown in **Figure 7-1**.

A summary of the benefits and constraints associated with this alternative are summarized in **Table 7-2** below.

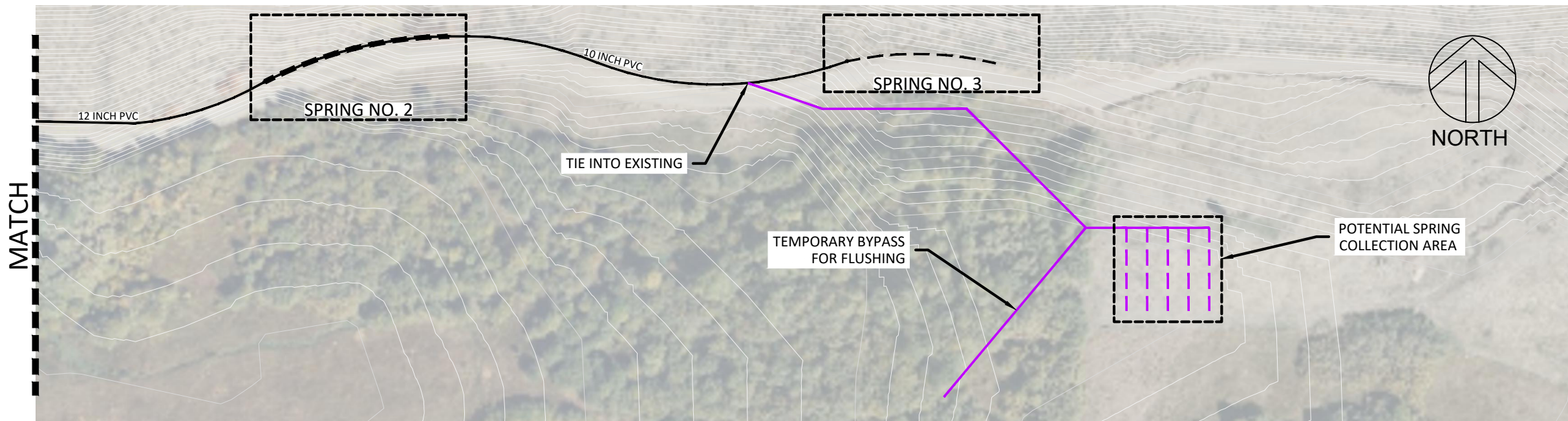
Table 7-2: SS-1 Benefits and Limitations

Benefits	Limitations
<ul style="list-style-type: none"> • Improve Springs Collection System capacity • Reduce possibility of contamination • Increase available water supply • Elimination of aging collection system 	<ul style="list-style-type: none"> • Unknown groundwater and soil conditions • Risk of turbid groundwater due to soil type • Site disruption during construction



1 UPPER & LOWER SPRING COLLECTION IMPROVEMENTS
SCALE: 1" = 150'


- LEGEND**
- PERFORATED PIPE - - - - -
 - EXISTING _____
 - NEW 12-INCH PVC _____



2 NEW SPRINGS COLLECTION AREA
SCALE: 1" = 150'

Path: Q:\Water\Projects\A-D\Bellevue_20170020_DWFP\Deliverables\Facility Plans\Figures\Spring Figures\Spring Figures.dwg File Name: Springs Figures.dwg Plot Date: 10/23/2023 8:47 AM enc.mxd

PROJECT :	282.0020
DATE :	2023/10/17
FIGURE NO. :	FIG 7-1


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**FIGURE 7-1: SEAMANS CREEK SPRING
 COLLECTION SYSTEM IMPROVEMENTS**
WATER FACILITY PLAN
 BELLEVUE, IDAHO

Given the increasing cost of underground infrastructure projects, it is impractical to satisfy all the aforementioned selection criteria and replace the entire transmission and distribution system at once in a single project. Cities should target a phased approach and outline capital improvement projects that collectively and overtime complete a replacement of the entire transmission and distribution system as needed. To aid in the development of these phased capital improvement projects the following alternatives were developed specific to the planning horizon of this Facility Plan. Each alternative targets the following areas of concern typically associated with transmission and distribution systems.

- **Repair of broken or leaking mains:** Pipe segments that are known to be leaking pose the greatest risk to system integrity and should be the highest priority for replacement.
- **Criticalness:** Pipe breaks on distribution mains that pose the greatest impact to downstream customers and facilities.
- **Pipe age and material:** Older pipe should be prioritized for replacement over newer pipe.

Opinion of probable cost details for the TD alternatives described below are detailed in **Appendix I**.

7.3.1 TD-1: Seamans Creek Springs Collection Transmission Reconstruction

Engineer's Opinion of Probable Cost: \$6,080,000

This project includes the costs of constructing a new water transmission main that will be located within Muldoon Canyon Road. The new transmission main would generally be constructed within the Muldoon Canyon Road right of way with the exception of a section along a private road that would require an easement. The cost of this easement is broken out separately in **Section 7.5**. The pipe alignment and resulting easement is necessary due to the vertical topography of Muldoon Canyon Road, as the transmission main is gravity fed, it must maintain a steadily downhill pipe slope and the existing roadway vertical alignment precludes this. The transmission main will be chlorinated to achieve 4-log virus removal, due to site constraints, chlorination will require an additional easement along Muldoon Canyon Road to house a small building to house chlorination infrastructure. Chlorine calculations can be found in **Appendix J**. To achieve the required contact time, the chlorination building should be sited a minimum of 1,600 feet up the canyon from the new transmission main tie in point. This project will also include a booster station and 2-inch distribution line to provide water to the few services near the springs.

Alternative Recommendation

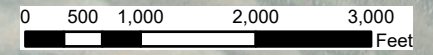
Major components of this alternative include the following:

- Construction of approximately 16,000 feet of 16-inch HDPE transmission main.
- Abandonment of existing transmission main.
- Installation of combination air valves.
- Chlorination.

Table 7-6: TD-1 Benefits and Limitations

Benefits	Limitations
<ul style="list-style-type: none">• Reduce leaks in system.• Transmission main in a known and accessible location• New transmission main is constructed of a resilient material	<ul style="list-style-type: none">• Completion requires additional easements.

A preliminary alignment of the new Seamans Creek Springs transmission main is shown in **Figure 7-2**.



Legend

- Spring Transmission Easement (LE-1)
- Proposed Spring Transmission Main (TD-1)
- ⊙ Water Reservoir
- Spring Collection System
- Elevation Contours
- Proposed Springs Area (SS-1)



Mud Canyon Road

Transmission Easement

Maxar



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SEAMANS SPRING COLLECTION SYSTEM PROPOSED PROJECTS

CITY OF BELLEVUE WATER FACILITY PLAN

PROJECT NO.:
 287.0020

SHEET NO.:
 FIGURE 7-2

SECTION 8

RECOMMENDED CAPITAL IMPROVEMENT PROJECTS

8.1 Background

Typical life expectancies of a public drinking water system’s assets are adjusted based on the characteristics of the system (water quality, environmental conditions, maintenance routines, etc.). In addition to the characteristics of the system, a public drinking water system will also consider how soon the assets will need to be replaced to adequately serve customers (remaining useful life). However, most utilities cannot afford to self-fund system-wide depreciation. Therefore, replacement of major backbone infrastructure is typically funded through long-term financing, (referred to as debt service) as a portion of the customer rate.

Various state and federal agencies have funding available to help finance a portion (and in some cases, most or all) of a community’s capital improvement project. These agencies offer funding assistance to communities that have smaller populations, are situated in rural areas throughout Idaho, and typically, have higher customer rates. Agency-based funding can help maintain affordable and comparable (to surrounding communities) user rates. Historically, the following agencies can provide funding for public drinking water system improvements:

- Idaho Department of Environmental Quality
- Idaho Department of Commerce
- USDA Rural Development
- US Army Corp of Engineers

8.2 Project Alternatives Overview

8.2.1 Alternative 1–IDEQ Compliance

\$9,600,000 Total Capital Cost

Alternative 1-IDEQ Compliance addresses deficiencies identified at the Springs Collection System, including replacing the springs transmission main, and several distribution system projects. The project consists of the following components:

- SS-1: Seamans Creek New Springs Collection System.
- TD-1: Seamans Creek Springs Collection Transmission Reconstruction
- TD-2: Highway 75 Watermain Improvements
- TD-3: Leak Detection Project
- LE-1: Seamans Creek Springs Land Purchase and Easements

Table 8-1: Proposed Project Alternatives

Project ID	Project Description	Project Cost	Alternative 1 IDEQ COMPLIANCE	Alternative 2 CRITICAL INFRASTRUCTURE	ALTERNATIVE 3 ALL PROJECTS
	Construction				
SS-1	SS-1 Seamans Creek New Springs Collection System	\$1,160,000	\$1,160,000	\$1,160,000	\$1,160,000
SS-2	New Groundwater Well and Well Facility	\$1,950,000		\$1,950,000	\$1,950,000
SS-3	Generator at Chantrelle Well Facility	\$240,000		\$240,000	\$240,000
SS-4	Generator at Chestnut Well Facility	\$200,000		\$200,000	\$200,000
TD-1	Seamans Creek Springs System Transmission Main	\$6,080,000	\$6,080,000	\$6,080,000	\$6,080,000
TD-2a	Hwy 75 Watermain Improvement Project - Phase 1	\$800,000	\$800,000	\$800,000	\$800,000
TD-2b	Hwy 75 Watermain Improvement Project - Phase 2	\$1,220,000			\$1,220,000
TD-3	Leak Detection Survey	\$500,000	\$500,000	\$500,000	\$500,000
TD-4	Leak Repair Project	\$830,000		\$830,000	\$830,000
TD-5	Undersized Main Replacement	\$3,055,000		\$3,055,000	\$3,055,000
TD-6	Forbis Lane and Melrose Street	\$1,530,000			\$1,530,000
TD-7	Valves and Hydrants	\$800,000			\$800,000
TD-8	Service Meters and Connections	\$995,000			\$995,000
BP-1	Transmission Main to Strahorn Booster Pumping Station	\$720,000		\$720,000	\$720,000
CC-1	Communications and Control Equipment	\$750,000			\$750,000
LE-1	Land Acquisition	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
AM-1	Lead Line Inventory	\$55,000		\$55,000	\$55,000
AM-2	Asset Management Plan	\$100,000			\$100,000
	Phase Total (Rounded to \$1000)		\$9,540,000	\$16,590,000	\$21,985,000
	Admin/Legal and CWIP				
	Legal Fees--Local Attorney		\$40,000	\$45,000	\$75,000
	AIS, Davis-Bacon Monitoring and Compliance		\$20,000	\$25,000	\$50,000
	Total, Admin/Legal and Interest		\$60,000	\$70,000	\$125,000
	Total Projected Expenditures		\$9,600,000	\$16,660,000	\$22,110,000

PROJECT : City of Bellevue - Water Facility Plan

JOB # : 287.0020

LOCATION : Bellevue, Idaho

ELEMENT : TD-1 16" Transmission Main



LOCATION FACTOR: 1

DATE : 10/19/2023

BY : EM

REVIEWED BY: MGW

SPEC. NO.	DESCRIPTION	QUAN	UNIT	MATERIAL	LABOR	SUB	EQUIP	OTHER	UNIT COST	SUBTOTAL	TOTAL
	16" Transmission Main - DR 11 HDPE	16000	FT	\$ 65.00	\$ 44.00	\$ -	\$ 33.00	\$ -	\$ 142.00	\$ 2,272,000.00	
	2" Water Service - SiDR7 HDPE	12000	FT	\$ 8.00	\$ 7.00	\$ -	\$ 5.00	\$ -	\$ 20.00	\$ 240,000.00	
	Construction Survey	1	LS	\$ -	\$ -	\$25,000.00	\$ -	\$ -	\$ 25,000.00	\$ 25,000.00	
	Traffic Control	1	LS	\$ -	\$ -	\$15,000.00	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00	
	Erosion & Sediment Control	1	LS	\$ -	\$ -	\$15,000.00	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00	
	Dewatering	1	LS	\$ -	\$ -	\$ -	\$ -	\$20,000.00	\$ 20,000.00	\$ 20,000.00	
	Exploratory Excavation	20	HR	\$ -	\$ 350.00	\$ -	\$ 350.00	\$ -	\$ 700.00	\$ 14,000.00	
	Isolation Valves - 16" Butterfly	12	EA	\$ 8,400.00	\$ 1,600.00	\$ -	\$ 1,200.00	\$ -	\$ 11,200.00	\$ 134,400.00	
	Air-Release Valve Stations - 2"	12	EA	\$ 10,400.00	\$ 3,300.00	\$ -	\$ 2,500.00	\$ -	\$ 16,200.00	\$ 194,400.00	
	Connect to Existing Main - Size Varies	2	EA	\$ 11,300.00	\$ 6,600.00	\$ -	\$ 5,000.00	\$ -	\$ 22,900.00	\$ 45,800.00	
	Gravel Surface Restoration - 12' Width	14000	SY	\$ 7.00	\$ 5.00	\$ -	\$ 3.00	\$ -	\$ 15.00	\$ 210,000.00	
	Asphalt Surface Restoration -8' Width	3640	SY	\$ 7.00	\$ 4.00	\$ 54.00	\$ 2.00	\$ -	\$ 67.00	\$ 243,880.00	
	Chlorination	1	LS	\$0.00	\$0.00	\$0.00	\$0.00	\$175,000.00	\$ 175,000.00	\$ 175,000.00	
	Booster Station	1	LS	\$0.00	\$0.00	\$0.00	\$0.00	\$65,000.00	\$ 65,000.00	\$ 65,000.00	
	Subtotal Unit Cost										\$ 3,670,000.00
	Mobilization and Demobilization (7.5%)										\$ 276,000.00
	Contingency (25%)										\$ 918,000.00
	Estimated Construction Subtotal										\$ 4,864,000.00
	Total Engineering										\$ 1,216,000.00
	Basic Services (15%)										\$ 730,000.00
	Construction Observation (5%)										\$ 243,000.00
	Additional Services (5%)										\$ 243,000.00
	Estimated Total Project Cost										\$ 6,080,000.00

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our professional opinion of accurate costs at this time and is subject to change as the project design matures. Mountain Waterworks has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Mountain Waterworks cannot and does not warrant or guarantee that bids or actual construction costs will not vary from the costs presented herein.