



2218 Railroad Avenue
 Redding, California 96001
 voice 530.243.7234
 fax 530.243.7494

3860 Morrow Lane, Suite F
 Chico, California 95928
 voice 530.894.8966
 fax 530.894.5143

Analytical Report

Report To: CITY OF SHASTA LAKE
 POST OFFICE BOX 777
 SHASTA LAKE, CA 96019

Attention: Shelby Millingar

Project: Water Quality- Pace

Lab No: 23A0651
Reported: 02/01/23
Phone: 530-275-7469

Included in this report are laboratory results for work order 23A0651, received on 01/17/23. All analyses were performed in strict adherence to our established Quality Manual. Any qualifications or abnormalities are listed in the Notes and Definitions and/or the Case Narrative section of this report. The project Chain of Custody and laboratory sample receipt record are included as attachments to this report.

Sample Results

Description: 11A **Sampled:** 01/17/23 14:15
Matrix / Type: Storm Water (Grab) **Lab ID:** 23A0651-01 **Received:** 01/17/23 16:02

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
pH (see note 2)	pH Units	7.48				SM 4500-H+ B	01/17/23	01/17/23	B3A1157 / RRS
Chloride	mg/l	4.38		0.19	0.50	EPA 300.0	01/17/23	01/17/23	B3A1155 / RRS
Nitrate as N	mg/l	1.93		0.02	0.10	EPA 300.0	01/17/23 22:03	01/17/23 16:00	B3A1155 / RRS
Nitrate+Nitrite as N	mg/l	1.98		0.0400	0.200	Calc - EPA 300.0	01/17/23 22:03	01/17/23 16:00	[CALC] / RRS
Nitrite as N	mg/l	0.05	J	0.02	0.10	EPA 300.0	01/17/23 22:03	01/17/23 16:00	B3A1155 / RRS
Conductivity @ 25°C	umhos/cm	261		2	10	SM 2510B	01/20/23	01/20/23	B3A1239 / CLD
Total Dissolved Solids	mg/l	175		3	8	SM 2540C	01/20/23	01/20/23	B3A1240 / LSJ
Ammonia as N	mg/l	0.021	J	0.017	0.050	EPA 350.1	01/24/23	01/24/23	B3A1280 / RRS
Dissolved Oxygen (see note 2)	mg/l	8.9		0.2	0.6	SM4500-O G	01/17/23 16:57	01/17/23 16:57	B3A1166 / LSJ

Microbiology - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Total Coliforms	MPN/100 ml	>1600			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY
Fecal Coliforms	MPN/100 ml	220			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY



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Analytical Report

Description: 8C

Sampled: 01/17/23 14:30

Matrix / Type: Storm Water (Grab)

Lab ID: 23A0651-02

Received: 01/17/23 16:02

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
pH (see note 2)	pH Units	7.38				SM 4500-H+ B	01/17/23	01/17/23	B3A1157 / RRS
Chloride	mg/l	2.47		0.19	0.50	EPA 300.0	01/17/23	01/17/23	B3A1155 / RRS
Nitrate as N	mg/l	1.16		0.02	0.10	EPA 300.0	01/17/23 22:20	01/17/23 16:00	B3A1155 / RRS
Nitrate+Nitrite as N	mg/l	1.21		0.0400	0.200	Calc - EPA 300.0	01/17/23 22:20	01/17/23 16:00	[CALC] / RRS
Nitrite as N	mg/l	0.05	J	0.02	0.10	EPA 300.0	01/17/23 22:20	01/17/23 16:00	B3A1155 / RRS
Conductivity @ 25°C	umhos/cm	163		2	10	SM 2510B	01/20/23	01/20/23	B3A1239 / CLD
Total Dissolved Solids	mg/l	112		3	8	SM 2540C	01/24/23	01/24/23	B3A1286 / LSJ
Ammonia as N	mg/l	ND		0.017	0.050	EPA 350.1	01/24/23	01/24/23	B3A1280 / RRS
Dissolved Oxygen (see note 2)	mg/l	9.2		0.2	0.6	SM4500-O G	01/17/23 16:57	01/17/23 16:57	B3A1166 / LSJ

Microbiology - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Total Coliforms	MPN/100 ml	>1600			1.8	SM 9221B/E	01/19/23 15:50	01/17/23 17:00	B3A1264 / CPY
Fecal Coliforms	MPN/100 ml	920			1.8	SM 9221B/E	01/19/23 15:50	01/17/23 17:00	B3A1264 / CPY



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Analytical Report

Description: 23

Sampled: 01/17/23 14:40

Matrix / Type: Storm Water (Grab)

Lab ID: 23A0651-03

Received: 01/17/23 16:02

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
pH (see note 2)	pH Units	7.45				SM 4500-H+ B	01/17/23	01/17/23	B3A1157 / RRS
Chloride	mg/l	4.45		0.19	0.50	EPA 300.0	01/17/23	01/17/23	B3A1155 / RRS
Nitrate as N	mg/l	2.06		0.02	0.10	EPA 300.0	01/17/23 22:37	01/17/23 16:00	B3A1155 / RRS
Nitrate+Nitrite as N	mg/l	2.11		0.0400	0.200	Calc - EPA 300.0	01/17/23 22:37	01/17/23 16:00	[CALC] / RRS
Nitrite as N	mg/l	0.05	J	0.02	0.10	EPA 300.0	01/17/23 22:37	01/17/23 16:00	B3A1155 / RRS
Conductivity @ 25°C	umhos/cm	199		2	10	SM 2510B	01/20/23	01/20/23	B3A1239 / CLD
Total Dissolved Solids	mg/l	131		3	8	SM 2540C	01/24/23	01/24/23	B3A1286 / LSJ
Ammonia as N	mg/l	0.028	J	0.017	0.050	EPA 350.1	01/24/23	01/24/23	B3A1280 / RRS
Dissolved Oxygen (see note 2)	mg/l	9.5		0.2	0.6	SM4500-O G	01/17/23 16:57	01/17/23 16:57	B3A1166 / LSJ

Microbiology - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Total Coliforms	MPN/100 ml	>1600			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY
Fecal Coliforms	MPN/100 ml	110			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY



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Analytical Report

Description: 8B

Sampled: 01/17/23 14:50

Matrix / Type: Storm Water (Grab)

Lab ID: 23A0651-04

Received: 01/17/23 16:02

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
pH (see note 2)	pH Units	7.34				SM 4500-H+ B	01/17/23	01/17/23	B3A1157 / RRS
Chloride	mg/l	4.90		0.19	0.50	EPA 300.0	01/17/23	01/17/23	B3A1155 / RRS
Nitrate as N	mg/l	2.48		0.02	0.10	EPA 300.0	01/17/23 22:54	01/17/23 16:00	B3A1155 / RRS
Nitrate+Nitrite as N	mg/l	2.53		0.0400	0.200	Calc - EPA 300.0	01/17/23 22:54	01/17/23 16:00	[CALC] / RRS
Nitrite as N	mg/l	0.05	J	0.02	0.10	EPA 300.0	01/17/23 22:54	01/17/23 16:00	B3A1155 / RRS
Conductivity @ 25°C	umhos/cm	181		2	10	SM 2510B	01/20/23	01/20/23	B3A1239 / CLD
Total Dissolved Solids	mg/l	124		3	8	SM 2540C	01/24/23	01/24/23	B3A1286 / LSJ
Ammonia as N	mg/l	ND		0.017	0.050	EPA 350.1	01/24/23	01/24/23	B3A1280 / RRS
Dissolved Oxygen (see note 2)	mg/l	8.9		0.2	0.6	SM4500-O G	01/17/23 16:57	01/17/23 16:57	B3A1166 / LSJ

Microbiology - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Total Coliforms	MPN/100 ml	540			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY
Fecal Coliforms	MPN/100 ml	79			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY



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Analytical Report

Description: 24 **Sampled:** 01/17/23 15:00
Matrix / Type: Storm Water (Grab) **Lab ID:** 23A0651-05 **Received:** 01/17/23 16:02

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
pH (see note 2)	pH Units	7.32				SM 4500-H+ B	01/17/23	01/17/23	B3A1157 / RRS
Chloride	mg/l	5.70		0.19	0.50	EPA 300.0	01/17/23	01/17/23	B3A1155 / RRS
Nitrate as N	mg/l	2.80		0.02	0.10	EPA 300.0	01/17/23 23:45	01/17/23 16:00	B3A1155 / RRS
Nitrate+Nitrite as N	mg/l	2.85		0.0400	0.200	Calc - EPA 300.0	01/17/23 23:45	01/17/23 16:00	[CALC] / RRS
Nitrite as N	mg/l	0.05	J	0.02	0.10	EPA 300.0	01/17/23 23:45	01/17/23 16:00	B3A1155 / RRS
Conductivity @ 25°C	umhos/cm	173		2	10	SM 2510B	01/20/23	01/20/23	B3A1239 / CLD
Total Dissolved Solids	mg/l	118		3	8	SM 2540C	01/24/23	01/24/23	B3A1286 / LSJ
Ammonia as N	mg/l	ND		0.017	0.050	EPA 350.1	01/24/23	01/24/23	B3A1280 / RRS
Dissolved Oxygen (see note 2)	mg/l	9.3		0.2	0.6	SM4500-O G	01/17/23 16:57	01/17/23 16:57	B3A1166 / LSJ

Microbiology - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Total Coliforms	MPN/100 ml	1600			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY
Fecal Coliforms	MPN/100 ml	22			1.8	SM 9221B/E	01/20/23 16:10	01/17/23 17:00	B3A1264 / CPY

Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
General Chemistry - Redding Location Batch B3A1155 - General Prep - GC										
Blank										
Chloride	ND	0.50	mg/l							
Nitrate as N	ND	0.10	mg/l							
Nitrite as N	ND	0.10	mg/l							
LCS										
Chloride	5.28	0.50	mg/l	5.00		106	90-110			
Nitrate as N	0.98	0.10	mg/l	1.00		98.2	90-110			
Nitrite as N	1.01	0.10	mg/l	1.00		101	90-110			
Duplicate Source: 23A0577-01										
Chloride	43.3	2.50	mg/l		43.4			0.298	20	
Nitrate as N	2.38	0.50	mg/l		2.39			0.168	20	
Nitrite as N	0.49	0.50	mg/l		0.49			0.00	20	J
Matrix Spike Source: 23A0577-01										
Chloride	65.8	0.50	mg/l	25.0	43.4	89.8	80-120			
Nitrate as N	7.39	0.51	mg/l	5.00	2.39	100	80-120			
Nitrite as N	5.65	0.51	mg/l	5.00	0.49	103	80-120			

General Chemistry - Redding Location Batch B3A1157 - General Prep - GC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
LCS										
pH (see note 2)	6.98		pH Units	7.00		99.7	98-102			



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Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
General Chemistry - Redding Location Batch B3A1157 - General Prep - GC										
Duplicate pH (see note 2)	Source: 23A0596-01 7.90		pH Units		7.88			0.253	2	
Duplicate pH (see note 2)	Source: 23A0651-01 7.55		pH Units		7.48			0.931	2	
General Chemistry - Redding Location Batch B3A1239 - General Prep - GC										
Blank Conductivity @ 25°C	ND	10	umhos/cm							
LCS Conductivity @ 25°C	107		umhos/cm	100		107	90-110			
Duplicate Conductivity @ 25°C	Source: 23A0530-01 13	10	umhos/cm		13			0.00	20	
Duplicate Conductivity @ 25°C	Source: 23A0643-02 112	10	umhos/cm		112			0.00	20	
General Chemistry - Redding Location Batch B3A1240 - General Prep - GC										
Blank Total Dissolved Solids	5	8	mg/l							J
LCS Total Dissolved Solids	210	8	mg/l	200		105	80-120			
Duplicate Total Dissolved Solids	Source: 23A0651-01 171	8	mg/l		175			2.31	10	
General Chemistry - Redding Location Batch B3A1280 - General Prep - GC										
Blank Ammonia as N	ND	0.050	mg/l							
LCS Ammonia as N	0.507	0.050	mg/l	0.500		101	90-110			
Duplicate Ammonia as N	Source: 23A0195-01 0.062	0.050	mg/l		0.062			1.29	20	
Duplicate Ammonia as N	Source: 23A0651-02 ND	0.050	mg/l		ND				20	
Matrix Spike Ammonia as N	Source: 23A0195-01 0.570	0.050	mg/l	0.500	0.062	102	90-110			
Matrix Spike Ammonia as N	Source: 23A0651-02 0.500	0.050	mg/l	0.500	ND	99.9	90-110			
General Chemistry - Redding Location Batch B3A1286 - General Prep - GC										
Blank Total Dissolved Solids	4	8	mg/l							J
LCS Total Dissolved Solids	203	8	mg/l	200		102	80-120			



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Analytical Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
General Chemistry - Redding Location Batch B3A1286 - General Prep - GC										
Duplicate	Source: 23A0651-02									
Total Dissolved Solids	113	8	mg/l		112			0.889	10	
Duplicate	Source: 23A0695-01									
Total Dissolved Solids	294	8	mg/l		296			0.678	10	

Notes and Definitions

- J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). The J flag is equivalent to the DNQ Estimated Concentration flag.
- ND Analyte NOT DETECTED at or above the detection limit
- RPD Relative Percent Difference
- MDL Method Detection Limit
- RL Reporting Limit
- * or # The laboratory does not hold CA-ELAP accreditation for this analyte or method. Accreditation may not be available from CA-ELAP for this analyte or method.
- ** The laboratory holds accreditation for this analyte or method with WA-ECY Lab ID: Lab ID C783. Accreditation is not offered for this method by CA-ELAP
- Note 2 According to 40 CFR Part 136 Table II, the following tests should be analyzed in the field within 15 minutes of sampling: pH, chlorine, dissolved oxygen, and sulfite.

Accreditations Held:

Redding Location: CA-ELAP - Cert # 1677
 Chico Location: CA-ELAP - Cert # 2718

Approved By

I certify that these results meet the requirements of the applicable accreditation standard, and were performed in compliance with the stated analytical methods unless otherwise noted in the qualifications or Case Narrative section of this report.

Approved By: 
 Josh Kirpatrick, Quality Manager
 Pace Analytical Services LLC - Redding CA

The data included in this report relate only to the specific items as received, recorded on the Chain of Custody, and analyzed at the laboratory. All data is expressed on a wet-weight basis unless otherwise noted. Interpretation and use of the information included in this report is the sole responsibility of the client. This report may not be reproduced except in full, and may not be modified in any way without prior written approval from Pace Analytical. Use of this report in whole or part for public advertising or any other commercial purpose requires prior written authorization.

BASIC LABORATORY, INC. - CHAIN OF CUSTODY (STANDARD)
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CITY OF SHASTA LAKE
 4477 Main St.
 City of Shasta Lake, Calif. 96019

PROJECT NAME: Water Quality/PACE
 PROJECT / PO #

REPORT TO: Email Mail Hardcopy
 NAME / ATTENTION: Shelby Millingar
 PHONE 530-275-7469

INVOICE TO: Will Bond
 City of Shasta Lake

EMAIL: Smilingar@cityofshastalake.org

SPECIAL INSTRUCTIONS / PO#

QC Reported? (check one)
 None STD Other

Do you require Electronic Data Deliverables (EDD)?
 Yes No What Type? EMAIL

ID # (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE TYPE*	Regulatory <input checked="" type="checkbox"/> Regulatory <input checked="" type="checkbox"/> Non-Regulatory	DESCRIPTION	REGULATORY ID / SOURCE CODE (if Applicable)	ANALYSES REQUESTED									
							Temperature	pH	Conductivity	D.O.	TDS	Chloride	Total/Fecal Coliform	Ammonia	Nitrate + Nitrite	
1	1-17-23	2:15 AM	SW	<input checked="" type="checkbox"/>	11A		4	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	1-17-23	2:30 AM	SW	<input checked="" type="checkbox"/>	8C		4	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	1-17-23	2:40 AM	SW	<input checked="" type="checkbox"/>	23		4	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	1-17-23	2:50 AM	SW	<input checked="" type="checkbox"/>	8B		4	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	1-17-23	3:00 AM	SW	<input checked="" type="checkbox"/>	24		4	✓	✓	✓	✓	✓	✓	✓	✓	✓

SAMPLED BY: (please print) MARK JUAREZ
 RELINQUISHED DATE / TIME: 1-17-23 4:00 PM

SAMPLING / ANALYSIS COMMENTS: 1 MPN-15 - Per client at the Counter - 83 01/17/23

I authorize Basic Laboratory to perform the indicated tests. By signing I agree to Basic Laboratory's TERMS and CONDITIONS. (www.basiclab.com/terms)

NAME: MARK JUAREZ SIGNATURE: [Signature] DATE: 1-17-23

RECEIVED BY: [Signature] DATE/TIME: [Blank]

RECEIVED BY: [Signature] DATE/TIME: [Blank]

RECEIVED BY/LAB: [Signature] DATE/TIME: 01/17/23 @ 1602

LOGGED BY LAB: [Signature]

For Official Lab Comments Only

*SAMPLE TYPE CODES
 DW = Drinking Water
 DWS = Drinking Water Source
 WW = Wastewater
 GW = Groundwater
 STW = Stormwater
 SW = Surface Water
 RW = Rain Water
 SLG = Sludge
 SO = Soil
 SDW = Solid Waste
 OL = Oil
 OT = Other (Specify)



SAMPLE RECEIPT CHECKLIST

WO NUMBER 23A0651

Samples Received Via:		
Fed-Ex <input type="checkbox"/>	Client Walk-In <input checked="" type="checkbox"/>	Courier <input type="checkbox"/>
UPS <input type="checkbox"/>	Pace Field Service <input type="checkbox"/>	Other <input type="checkbox"/>

Samples Received By: RU Date: 1/17/23 Time: 1602
 Are samples for regulatory compliance? Yes No

THERMAL PRESERVATION

Were samples received in a cooler? Yes No If no, take temperature of representative sample container and record below.
 If no, do they require thermal preservation? Yes No If no, why not? Non-regulatory Not Required by Method
 Samples received on ice? Yes No Ice type? Wet Ice Packs Other _____
 Samples received the same day collected? Yes No

Therm. ID (Circle one): Therm-36(IR) Therm-37(IR) Therm-59(IR) Therm-41(Stick) Therm-C01(IR) Therm-C02(IR) Other: _____

Cooler #1 Init. Temp °C 12.3 Correction °C +0.2 Corrected Temp °C 12.5

Cooler #2 Init. Temp °C _____ Correction °C _____ Corrected Temp °C _____

Cooler #3 Init. Temp °C _____ Correction °C _____ Corrected Temp °C _____

No Cooler - Representative Sample Temperature: Init. Temp °C _____ Correction °C _____ Corrected Temp °C _____

Do samples received meet thermal preservation requirements? Yes No N/A

Thermal Preservation Notes/Discrepancies/Nonconformances:

SAMPLE CONDITION AND PROCESSING

Do all sample IDs on labels match the COC? Yes No

Custody seals present? Yes No N/A

Samples in proper containers? Yes No

Sample containers damaged? Yes No

Sufficient sample volume for indicated tests? Yes No

Samples received with sufficient holding time? Yes No

Are VOA vials free of headspace? Yes No N/A

CHEMICAL PRESERVATION

Were the sample containers received with labels that indicate that appropriate preservatives were present for the indicated tests? Yes No N/A

Were samples received properly dechlorinated? Yes No N/A For Dechlorination checks done by analysts, were dechlor. agent labels present? Yes No

Preservation checked by Sample Receiving? Initials RU Date & Time 1/17/23 1637 Test Strip (ID 2J12028)

Dechlorination checked by Sample Receiving? Initials _____ Date & Time _____ Test Strip (ID _____)

	Yes	No	NA	
H2SO4 preserved samples confirmed to pH <2 (i.e., E350.1, SM5220, SM5310)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HNO3 preserved samples confirmed to pH <2 (i.e., E200.7, E200.8, 6010)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Added upon sample receipt? Yes <input type="checkbox"/> No <input type="checkbox"/>
NaOH preserved samples confirmed to pH >10 (cyanide) or >9 (sulfide)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hexavalent Chromium (DW) preserved samples confirmed to pH >8 & Chlorine <0.1 mg/l?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hexavalent Chromium (W) preserved samples confirmed to pH 9.3 - 9.7?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In Lab By: _____ Meter ID: _____

Were any additional preservatives added after receipt? Yes No Initial pH: _____ Final pH _____

If yes, is addition of preservatives allowed by the method? Yes No

List preservatives added at receipt:

Type: _____ Volume Added: _____ ID: _____ Type: _____ Volume Added: _____ ID: _____

Type: _____ Volume Added: _____ ID: _____ Type: _____ Volume Added: _____ ID: _____

COMMENTS, DISCREPANCEIS, ANOMALIES, NONCONFORMANCES

Subtask 3-2: Water Quality Sampling: The 1997 study, completed by PACE, involved sampling and testing several constituents at 22 locations along multiple drainages through the Summit City area. Samples were taken by Central Valley High School students under supervision of City Staff. Test results were highly variable along the creeks, but there seemed to be a correlation between high fecal coliform and known failing septic systems east of Lake Boulevard between Rose Avenue and Oak Street. In addition, high fecal coliform results were found in the unnamed drainage east of Churn Creek at Ranchera Road. Refer to Figure 1 in "Project Understanding."

Even though the 1997 surface water testing suggested high fecal coliform tests within the densely populated area east of Lake Boulevard, it is difficult to determine the extent of septic failures within this region. Further sampling will not quantify the number of failures nor exact locations. However, updated sampling and testing would substantiate prior results and reveal if problems still exist. As such, it is recommended additional sampling/testing be concentrated in areas where high fecal coliform was revealed during the 1997 study. It is proposed that five (5) locations be monitored after substantial rainfall events when runoff is present in drainage areas. Refer to Figure 1. Up to four sample days are anticipated. The following constituents will be analyzed:

- Temperature
- pH
- Conductivity
- Dissolved Oxygen (DO)
- Total Dissolved Solids (TDS)
- Chloride
- Total/Fecal Coliform
- Ammonia
- Nitrate + Nitrite

The results of this effort will reveal if septic failures are present within the densely developed area but will not quantify the failures. The established project budget will not support individual septic system dye tests, which is another approach for quantifying obvious failures but is not "fool-proof" either.

Subtask 3-3: Microbial Source Tracking: In addition to the water quality sampling described in Task 3-2, additional samples will be taken from each location during the sampling events. These samples will be sent to a molecular biology laboratory where the fecal coliform will be analyzed to determine if it is from a human source or not. These results, in addition to the results from Task 3-2, will provide evidence if septic failures are present; however, it too will not quantify the number of failures.

Subtask 3-4: Service Area Evaluation: Using mapping provided by the City, we will evaluate and determine the most effective means of serving existing parcels within the study area. Lands with greater than 30% ground slope will be deemed "undevelopable." Focus will be directed toward serving existing developed parcels. Infrastructure will be extended to large undeveloped parcels, but specific alignments and collection system layout on these parcels will not be determined due to the speculative nature of future development. Figures showing potential collection system infrastructure will be prepared.

Maps will delineate parcel sizes (≤ 0.25 AC, ≤ 0.5 AC, ≤ 1.0 AC, >1.0 AC) and any known failing septic systems based on Shasta County records.