

NPDES Permit #IDS027561

Permit Appendix B - Annual Report Form

This Annual Report is due no later than January 30 of each year, beginning in Calendar Year 2023, and reflects the relevant reporting period, starting October 1, 2021. See Permit Part 6.4.2



Annual Reports and any attachments must be sent to IDEQ by U.S. Postal Mail to the following address:

Regional Administrator
Idaho Department of Environmental
Quality Attn: Water Quality Program
Boise Regional Office
1445 N. Orchard St.
Boise, ID 83706

Complete Sections 1 through IV. Do not leave any questions blank.

MS4 Permittee Name/Organization:

Ada County Drainage District No. 3

Permit Number: IDS027561

Reporting Period:

- Year 1 Reporting Period:** Oct. 1, 2021 – Sept. 30, 2022 – **Annual Report due date:** January 30, 2023
- Year 2 Reporting Period:** Oct. 1, 2022 – Sept. 30, 2023 – **Annual Report due date:** January 30, 2024
- Year 3 Reporting Period:** Oct. 1, 2023 – Sept. 30, 2024 – **Annual Report due date:** January 30, 2025
- Year 4 Reporting Period:** Oct. 1, 2024 – Sept. 30, 2025 – **Annual Report due date:** January 30, 2026
- Year 5 Reporting Period:** Oct. 1, 2025 – Sept. 30, 2026 – **Annual Report due date:** September 30, 2026
- Other

Certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature:

A handwritten signature in blue ink, appearing to read "Steve Sweet", is written over a horizontal line.

Printed Name:

Steve Sweet

Title:

Ada County Drainage District No. 3 Chairman

Date:

JANUARY 26, 2023

Section I. General Information

MS4 Facility Site Name:

MS4 Facility Organization Formal Name:

MS4 Facility Contact Name:

Title:

MS4 Contact Telephone:

MS4 Contact Email Address:

MS4 Facility Contact Type (all that apply): Owner Operator Main Contact

MS4 Facility Site Address:

MS4 Facility Site City, State, Zip Code:

MS4 Facility Site Mailing Address: *if different from above*

Is the MS4 Facility Site Located On Tribal Land? Yes No

MS4 Facility Jurisdiction Type (check all that apply):

- | | |
|--------------------------|------------------|
| Federal | County |
| State | City or Town |
| College or University | Highway District |
| State Highway Department | Tribal |
| Municipal: | Other _____ |

List All Receiving Water(s) For the MS4 Discharges:

Section II. Permittee Responsibility:

Please answer all questions. If the answer is "No," or "Not Applicable" and no other direction is provided, use the Comments field at the end of this section to explain the reason and the expected date(s) that the requirement will be met, and/or to explain why the requirement does not apply.

- 1. This Permittee organization shares implementation responsibility for Permit compliance with one or more Permittees.**

Yes No Not Applicable

Is the agreement between the Permittees described/cited in the Stormwater Management Program (SWMP) Document?

Yes No Not Applicable

- 2. This Permittee organization shares implementation responsibility for Permit compliance with one or more outside (non-Permittee) entities.**

Is the agreement with these other entity(ies) described/cited in the SWMP Document?

Yes No Not Applicable

- 3. This Permittee organization maintains relevant ordinances or other regulatory mechanisms to control pollutant discharges into and from the MS4 to meet the requirements of the permit.**

Yes No Not Applicable

(If "No," use the Comment field to specify on overall progress to adopt adequate ordinances or utilizing available regulatory mechanisms.)

- 4. This Permittee organization's SWMP Document is posted on a publicly accessible website.**

Yes

Identify the URL for the webpage where the SWMP Document can be accessed:

http://_____

No

Not Applicable

- 5. The Permittee organization provided a summary of total costs associated with SWMP implementation over the reporting period.**

Yes;

No

Not Applicable

6. **This Permittee organization regularly tracks certain activities to set priorities and assess compliance with the Permit requirements.**

Yes

No

Not Applicable

7. **During the reporting period, responsibility for SMWP implementation has changed due to a Transfer of Ownership or Operational Authority over a geographic portion of the MS4.**

This Permittee's SWMP Document has been updated to reflect these changes in responsibility for any new or transferred areas served by the MS4.

Yes

If yes, use the Comments field to provide a brief statement summarizing the change in ownership or operational authority.

No

Not Applicable

Section II Comments:

Section III. Status of SWMP Control Measures

Please answer all questions for each SWMP control measure and associated component activity. In the Comments field, cite any relevant information and/or statistics that helps illustrate the Permittee's implementation of the required action/activity.

If the answer is "No," use the Comments field to explain the reason, and outline the expected dates that the requirement will be met.

If the requirement does not apply to the Permittee's organization, mark "NA" and explain why it does not apply in the Comments field.

Public Education, Outreach and Involvement Program (Permit Part 3.1)

- 8. This Permittee organization conducts an education, outreach, and public involvement program based on stormwater issues of significance in the Permittee's jurisdiction.**

Yes, this organization conducts the education, outreach, and involvement activities required by the Permit

Yes, this organization works through contract with other entities to conduct the education, outreach, and involvement activities required by the Permit

No

Not Applicable

- 9. Target Audience: During the reporting period, this Permittee organization focused its education, outreach, and public involvement messages to the following audience(s):**

General Public (including homeowners, homeowner's associations, landscapers, and property managers)

Business/Industrial/Commercial/Institutions (including home based and mobile businesses)

Construction/Development (e.g., Engineers, Contractors, Developers, Landscape Architects, Site Design Professionals)

Elected Officials, Land Use Policy and Planning Staff

Other (describe in Comments section below)

- 10. Topics: During the reporting period, this Permittee organization focused its education, outreach, and public involvement messages on the following topics (select all that apply):**

General impacts of stormwater flows into surface water, and appropriate actions to prevent adverse impacts;

Impacts from impervious surfaces, techniques to avoid adverse impacts;

Yard care techniques protective of water quality, such as composting;

Proper use, application & storage of pesticides, herbicides, and fertilizers;

Litter & trash control and recycling programs;
BMPs for power washing, carpet cleaning, auto repair & maintenance;
Low Impact Development/green infrastructure techniques, including site design, pervious paving, retention of mature trees/vegetation, landscaping and vegetative buffers;
Maintenance of landscape features providing water quality benefits;
Stormwater treatment and volume control practices;
Technical standards for stormwater site plans; including appropriate selection, installation, and use of required construction site control measures
Source control BMPs and environmental stewardship;
Impacts of illicit discharges and how to report them;
Actions and opportunities for pet waste control/disposal,
Water wise landscaping, water conservation, water efficiency
BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, vehicle wash soaps and other hazardous materials;

11. During the reporting period, this Permittee organization began and/or continued distribution of the selected messages/activities to the intended target audience.

Yes

Please summarize the message/activity conducted during the reporting period in the Comments section below.

No

*Note: Permit Part 3.1.3 requires Permittees to conduct at least eight (8) educational messages or activities no later than **September 30, 2026**.*

Not Applicable

12. During this reporting period, this Permittee organization assessed, or participated in efforts to assess, the understanding and adoption of intended behaviors by the target audience.

Yes; In the Comments section below, please summarize efforts to assess the selected education, outreach and public involvement activities conducted during the reporting period. If information is available, describe how this information is used to improve the education/outreach efforts.

No

Not Applicable

13. During this reporting period, this Permittee organization offered (or worked with others to offer) training/education regarding construction site runoff control measures to site operators working in the Permittee's jurisdiction.

Yes

No

*Note: Permit Part 3.1.7.1 requires Permittees to offer outreach/training on construction site control measures at least once per year during the permit term, no later than **September 30, 2026**.*

Not Applicable

14. During this reporting period, this Permittee organization offered (or worked with others to offer) training/education regarding permanent stormwater controls to audiences working in the Permittee's jurisdiction.

Yes

No

*Note: Permit Part 3.1.7.2 requires Permittees to offer outreach/training on permanent stormwater controls at least once per year during the permit term, no later than **September 30, 2026**.*

Not Applicable

15. This Permittee organization maintains and promotes a publicly-accessible website that provides current SWMP-related information cited in Permit Part 3.1.8. This website was recently updated prior to submitting this Report.

Yes

URL for the Permittee's webpage:

http://_____

No

Not Applicable

Comments on Public Education, Outreach, and Involvement Program:

Use this Comments field to explain or discuss unique implementation schedules, summarize nature of the education, outreach, and public involvement activities conducted during the reporting period

Illicit Discharge Detection and Elimination Program (Permit Part 3.2)

- 16. To the extent allowable pursuant to authority granted under Idaho law, this Permittee organization conducts and enforces a program to detect and eliminate illicit discharges into the MS4.**

Yes

No

*Note: Permit Part 3.2 requires Permittees to revise and update their existing programs as necessary to comply with Permit Parts 3.2.2 through 3.2.9 no later than **April 3, 2026**.*

Not Applicable

- 17. This Permittee organization maintains a current MS4 Map and Outfall Inventory as described in Permit Part 3.2.2.**

Yes

No

*Note: Permit Part 3.2 requires Permittees to update their Map(s) and Inventory no later than **April 3, 2026**.*

Not Applicable

- 18. To the extent allowable pursuant to authority granted under Idaho law, this Permittee organization prohibits non-storm water discharges into the MS4 (except those identified in Permit Part 2.4) through an ordinance or other regulatory mechanism.**

Yes – if yes, please provide citation/web address to the ordinance/regulatory mechanism:

No

*Note: Permit Part 3.2 requires Permittees to revise and update their existing programs as necessary no later than **April 3, 2026**.*

Not Applicable

- 19. This Permittee organization maintains a dedicated telephone number, email address, and/or other means for the public to report illicit discharges,**

Yes – if yes, please provide phone number/web address:

No

*Note: Permit Part 3.2 requires Permittees to revise and update their existing programs as necessary no later than **April 3, 2026**.*

Not Applicable

20. This Permittee organization responds and investigates illicit discharge complaints or reports within two working days.

Yes

No

*Note: Permit Part 3.2 requires Permittees to revise and update their existing programs as necessary no later than **April 3, 2026**.*

Not Applicable

21. Number of Public Complaints/Reports Received During this Reporting Period:

22. Number of Illicit Discharge Complaints/Reports Investigated through field visits, sampling or other follow-up action_____

23. Number of Illicit Discharge Complaints/Reports Resolved_____

24. This Permittee organization conducts a dry weather analytical and field screening monitoring program to identify non-stormwater flows from MS4 outfalls.

Yes

No

Not Applicable

25. During the reporting period, this Permittee organization used its written protocols to prioritize and identify MS4 outfalls for dry weather discharge investigation.

Yes

No

Not Applicable

26. Total Number of MS4 Outfalls in the Permittee's jurisdiction of the Permit Area:

27. During the reporting period, this Permittee organization completed visual dry weather screening on at least 20% of MS4 outfalls.

Yes

No – Total # outfalls < 7, so only one outfall screened this reporting period

Not Applicable

28. Of the 20% of MS4 outfalls screened during the reporting period:

How many outfalls were discharging during dry weather? _____

How many of these identified dry weather discharges were sampled or otherwise investigated to determine the discharge source? _____

How many of the identified dry weather discharges resulted in the Permittee action to address and eliminate the discharge source? _____

29. During this reporting period, how many of the Permittee's MS4 outfalls have been identified as having dry weather flows caused by irrigation return flow or ground water seepage?

Number of outfalls identified this reporting period _____

Total number of MS4 outfalls identified to date, as having dry weather flows from irrigation or groundwater seepage _____

*Note: Permit Part 3.2.6 requires Permittees to provide a complete list of MS4 outfalls locations identified as having dry weather flows caused by irrigation return flow or ground water seepage as part of the Permit Renewal Application no later than **April 3, 2026**.*

30. This Permittee organization maintains written spill response procedures and coordinates appropriate spill prevention, containment and response activities with other organizations in the Permit Area to ensure maximum water quality protection at all times.

Yes

No

Not Applicable

31. This Permittee organization coordinates with appropriate local entities to educate employees and the public of the proper management and disposal or recycling of used oil, vehicle fluids, toxic materials, and other household hazardous wastes.

Yes

No

Not Applicable

32. This Permittee organization's staff responsible for investigating, identifying and eliminating illicit discharges, spills, and illicit connections into the MS4 are trained to conduct such activities

Yes

No

Not Applicable

Comments on Illicit Discharge Detection and Elimination Program:

Use this Comments field to explain any unique implementation schedules, highlight investigation results or follow-up actions, discuss subsequent enforcement actions, etc. that were conducted during the relevant reporting period.

Construction Site Runoff Control Program (Permit Part 3.3)

- 33. This Permittee organization uses an ordinance or other regulatory mechanism to require erosion, sediment, and waste material management controls at construction project site activity that results in land disturbance of one (1) or more acres and discharges to the MS4.**

Yes

No

*Note: Permit Part 3.3 requires Permittees to update their construction site runoff control requirements no later than **April 3, 2026**.*

Not Applicable

- 34. This Permittee organization requires construction site operators to submit construction site plans for Permittee review.**

Yes

No

*Note: Permit Part 3.3 requires Permittees to update their construction site runoff control requirements no later than **April 3, 2026**.*

Not Applicable

- 35. This Permittee organization inspects construction sites to ensure compliance with applicable requirements for erosion, sediment and waste material management controls.**

Yes

No

*Note: Permit Part 3.3 requires Permittees to update their construction site runoff control requirements no later than **April 3, 2026**.*

Not Applicable

- 36. This Permittee organization inspects construction sites using an inspection prioritization system.**

Yes

No

*Note: Permit Part 3.3 requires Permittees to update their construction site runoff control requirements no later than **April 3, 2026**.*

Not Applicable

37. This Permittee organization implements a written escalating enforcement response policy or plan (ERP) for construction site runoff control.

Yes

No

*Note: Permit Part 3.3 requires Permittees to update their construction site runoff control requirements no later than **April 3, 2026**.*

Not Applicable

38. This Permittee organization ensures that all persons responsible for preconstruction site plan review, site inspections, and enforcement of construction site runoff control requirements are appropriately trained to conduct such activities – specifically, this organization provides orientation and training for new staff working on construction runoff control issues within the first six (6) months of employment.

Yes

No

*Note: Permit Part 3.3 requires Permittees to update their construction site runoff control requirements no later than **April 3, 2026**.*

Not Applicable

Comments on Construction Site Runoff Control:

Use this Comments field to explain unique implementation schedules, summarize the number of site inspections, follow-up actions, and/or any subsequent enforcement actions, etc that were conducted during the relevant reporting period.

Post Construction Stormwater Management in New Development & Redevelopment
(Permit Part 3.4)

39. Through ordinance or other regulatory mechanism, this Permittee organization requires the installation and long-term maintenance of permanent stormwater controls at new development and redevelopment project sites that result from land disturbance of 5,000 square feet or more, excluding individual one- or two-family dwelling development or redevelopment and the infill or redevelopment of public pedestrian infrastructure projects. Required controls are sufficient to retain onsite the runoff volume produced from the first 0.6 inches of rainfall from a 24-hour event preceded by 48 hours of no measurable precipitation, and/or require runoff treatment providing equal or greater level of water quality benefit as this onsite retention standard.

Yes

Please cite to the ordinance containing the permanent stormwater control requirements:

No

*Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

40. This Permittee organization requires permanent storm water controls through written specifications.

Yes

Please cite to the document containing the permanent stormwater control requirements:

No

*Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

41. This Permittee organization requires preconstruction site plan review and approval for permanent storm water controls at new development and redevelopment sites.

Yes

No

*Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

41.b This Permittee organization cooperates in the implementation of the Green Infrastructure Strategy to employ innovative approaches to control stormwater quality and quantity in the Lower Boise River watershed.

Use this field below to describe any relevant Permittee actions during the reporting period, as applicable. .

42. **This Permittee organization has identified high priority locations in the jurisdiction where the Permittee regularly inspects the installation, and long-term operation, of permanent stormwater controls.**

Yes

No

*Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

43. **This Permittee organization has an enforcement strategy to ensure and maintain the functional integrity of permanent stormwater controls within this jurisdiction.**

Yes

No

*Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

44. **This Permittee organization uses a database inventory to track and manage the operational condition of permanent stormwater controls within this jurisdiction.**

Yes

No

*Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

45. **This Permittee organization requires enforceable and transferable O&M Agreements, where parties other than this Permittee organization are responsible for operation and maintenance of permanent storm water controls?**

Yes

*No - Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

46. **This Permittee organization ensures that all persons responsible for reviewing site plans for permanent stormwater controls and/or for inspecting the installation and operation of permanent controls are trained to conduct such activities**

Yes

*No - Note: Permit Part 3.4 requires Permittees to update their permanent stormwater control requirements no later than **April 3, 2026**.*

Not Applicable

Comments on Post Construction Stormwater Management in New Development and Redevelopment

Use this Comments field as necessary to explain any unique implementation schedules, summarize inspections, actions, etc. that were conducted during the relevant reporting period.

Stormwater Infrastructure and Street Management (Permit Part 3.5)

- 47. This Permittee organization inspects all MS4 catch basins and inlets in the jurisdiction at least once every two years and takes appropriate maintenance or cleaning action based on those inspections.**

Yes

No – Permittee uses an alternate inspection & maintenance schedule as outlined in the SWMP Document.

No

*Note: Permit Part 3.5 requires Permittees to update their pollution prevention and good housekeeping as needed to properly operate and maintain their MS4s no later than **April 3, 2026**.*

Not Applicable

Total Number of catch basins and inlets inspected this reporting period _____

- 48. This Permittee organization operates and maintains Streets, Roads, Highways and/or Parking Lots in its jurisdiction in a manner that protects water quality and reduces the discharge of pollutants through the MS4.**

Yes

No

*Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than **April 3, 2026***

Not Applicable

- 49. This Permittee organization operates all street/road maintenance material storage locations in a manner that prevents pollutants in stormwater runoff from discharging to the MS4 or into any receiving waterbody. A description of each Material Storage Location is included in the SWMP Document, as required by Permit Part 3.5.4**

Yes

No

Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than .

Not Applicable

- 50. This Permittee organization sweeps all streets, roads, highways, and parking lots according to a sweeping management plan and the sweeping schedule outlined in Permit Part 3.5.5.**

Yes

No

*Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than **April 3, 2026***

Not Applicable

- 51. This Permittee organization has reviewed its operation and maintenance activities for the types of activities listed below and confirms that all such activities are conducted in a manner that protects water quality and reduces the discharge of pollutants through the MS4.** Municipal Activities to be addressed include: *grounds/park and open space maintenance operations; fleet maintenance and vehicle washing operations; building maintenance; snow disposal site operation and maintenance; solid waste transfer activities; municipal golf course maintenance; materials storage; hazardous materials storage; used oil recycling; and spill control and prevention measures for municipal refueling facilities.*

Yes

No

*Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than **April 3, 2026***

Not Applicable

- 52. This Permittee organization ensures appropriate practices to reduce the discharge of pollutants to the MS4 associated with the application, storage and disposal of pesticides, herbicides and fertilizers. All employees or contractors applying pesticides, etc. are instructed to follow all label requirements, including those regarding application methods, rates, number of applications allowed, and disposal of the pesticide/herbicide/fertilizer and rinsate.**

Yes

No

*Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than **April 3, 2026**.*

Not Applicable

53. **This Permittee organization uses site specific Storm Water Pollution Prevention Plans for all Permittee-owned material storage facilities, heavy equipment storage areas, and maintenance yards located in the Permit Area.**

Yes

No

*Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than **April 3, 2026**.*

Not Applicable

54. **This Permittee organization ensures that all persons responsible for municipal operations and maintenance activities are trained to conduct such activities**

Yes

No

*Note: Permit Part 3.5 requires Permittees to update their requirements pollution prevention/good housekeeping for MS4 Operations no later than **April 3, 2026**.*

Not Applicable

Comments on Stormwater Infrastructure and Street Management

Use this Comments field as necessary to explain any unique implementation schedules, summarize inspections, actions, etc. that were conducted during the relevant reporting period

Industrial and Commercial Stormwater Discharge Management (Permit Part 3.6)

55. This Permittee organization maintains an inventory of industrial & commercial facilities within the Permit Area, and inspects such facilities on a prioritized basis as required by Permit Part 3.6.

Use this comment box to summarize Permittee activities related to Permit Part 3.6.

Section V. Response To Excursions Above Idaho Water Quality Standards

- 56. During this or any prior reporting period, did the Permittee submit written notification to EPA and IDEQ regarding MS4 discharge that are causing or contributing to an excursion above the WQS as directed by Permit Part 5.1?**

Yes – if yes, proceed to Q.56

No

Not Applicable

- 57. During this or any prior reporting period, did the Permittee submit an Adaptive Management Report to EPA and IDEQ, as directed by Permit Part 5.2?**

Yes – if yes, proceed to Q.57

No

Not Applicable

- 58. Provide a summary of the Permittee's efforts to date that address the MS4 discharges contributing to the original water quality excursion, including the results of any monitoring, assessment, or evaluation efforts conducted during the reporting period.**

59. List any attachments submitted as part of this Annual Report:

Note: Part 6.2.1 requires an updated *Stormwater Outfall Monitoring Plan* to be submitted as part of the Year 1 Annual Report, due January 30, 2023.

Attachment A
SWMP Implementation Costs

1:38 PM

12/14/22

Accrual Basis

DRAINAGE DISTRICT NO. 3

General Ledger

As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
100 - Cash in bank - Wells Fargo							33,434.50
Check	10/04/2021	3358	Verizon Wireless	Inv. #9888976234		52.34	33,382.16
Liability Check	10/06/2021	3359	Idaho State Tax Commission	000193978		60.00	33,322.16
Deposit	10/07/2021			Deposit	142.59		33,464.75
Check	10/08/2021	3360	Idaho Power			66.48	33,398.27
Check	10/08/2021	3361	Elam & Burke			2,399.63	30,998.64
Deposit	10/20/2021		Chrysalis Architecture & Planning PC	Deposit	4,000.00		34,998.64
Check	10/22/2021	3362	Charles R. Gains	Board mtgs - October		300.00	34,698.64
Check	10/22/2021	3363	Steve Sweet	Board mtgs - October		300.00	34,398.64
Check	10/22/2021	3364	William S. Drake	Board mtgs - October		300.00	34,098.64
Check	10/22/2021	3365	Boise City Public Works Dept.			821.06	33,277.58
Check	10/22/2021	3366	Quadrant Consulting, Inc	Inv# 11762		388.50	32,889.08
Check	10/22/2021	3367	Dean E Callen			452.00	32,437.08
Check	10/22/2021	3368	Travis Jeffries, P.A.	Inv. 325074		795.00	31,642.08
Liability Check	10/29/2021	EFTPS	United States Treasury	82-0392173		528.90	31,113.18
Paycheck	10/31/2021	3369	Dean E Callen			987.85	30,125.33
Check	10/31/2021			Service charge		3.50	30,121.83
Check	10/31/2021	3370	Elam & Burke			13,563.00	16,558.83
Deposit	10/31/2021			Interest	0.28		16,559.11
Deposit	11/02/2021			Deposit	85.53		16,644.64
Check	11/10/2021	3371	ACHD	4th Qtr (Jul. - Sep. 2021)		2,295.64	14,349.00
Check	11/10/2021	3372	Elam & Burke			3,368.73	10,980.27
Check	11/10/2021	3373	Idaho Power			69.13	10,911.14
Check	11/10/2021	3374	Quadrant Consulting, Inc			2,719.50	8,191.64
Check	11/10/2021	3375	Verizon Wireless	Inv. #9891171051		51.84	8,139.80
Check	11/23/2021	3376	Quadrant Consulting, Inc			1,526.25	6,613.55
Check	11/23/2021	3377	Charles R. Gains	Board mtg - Nov		100.00	6,513.55
Check	11/23/2021	3378	Steve Sweet	Board mtg - Nov		100.00	6,413.55
Check	11/23/2021	3379	William S. Drake	Board mtg - Nov		100.00	6,313.55
Paycheck	11/30/2021	3380	Dean E Callen			987.85	5,325.70
Check	11/30/2021			Service Charge		3.50	5,322.20
Deposit	11/30/2021			Interest	0.12		5,322.32
Deposit	12/09/2021			Deposit	19.23		5,341.55
Check	12/10/2021	3381	Dean E Callen			100.24	5,241.31
Check	12/10/2021	3382	Idaho Power			72.18	5,169.13
Check	12/10/2021	3383	Verizon Wireless	Inv. #9893384571		51.84	5,117.29
Check	12/22/2021	3384	Elam & Burke			4,917.19	200.10
Paycheck	12/31/2021	3385	Dean E Callen			987.85	-787.75
Check	12/31/2021			Service Charge		3.50	-791.25
Deposit	12/31/2021			Interest	0.04		-791.21
Check	01/05/2022			Overdraft fee		35.00	-826.21
Check	01/10/2022	3386	Idaho Power			77.13	-903.34
Check	01/10/2022	3387	Quadrant Consulting, Inc			1,193.25	-2,096.59
Check	01/10/2022	3388	Verizon Wireless	Inv. #9895622805		51.84	-2,148.43
Check	01/10/2022	3389	Elam & Burke			5,837.57	-7,986.00
Deposit	01/12/2022	ET	LGIP State of Idaho	Transfer	9,000.00		1,014.00
Check	01/14/2022			Overdraft fee		35.00	979.00
Deposit	01/19/2022			Deposit	65,920.96		66,899.96
Paycheck	01/31/2022	3390	Dean E Callen			993.85	65,906.11

DRAINAGE DISTRICT NO. 3

General Ledger

As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
Liability Check	01/31/2022	ET	Idaho State Tax Commission	000193978		60.00	65,846.11
Liability Check	01/31/2022	EFTPS	United States Treasury	82-0392173		528.90	65,317.21
Check	01/31/2022			Service Charge		3.50	65,313.71
Deposit	01/31/2022			Interest	0.14		65,313.85
Check	02/07/2022	3391	Idaho Power			74.80	65,239.05
Check	02/07/2022	3392	Verizon Wireless	Inv. #9897861896		56.35	65,182.70
Check	02/07/2022	3393	Quadrant Consulting, Inc			555.00	64,627.70
Check	02/07/2022	3394	Boise City Public Works Dept.			701.58	63,926.12
Check	02/07/2022	3395	Travis Jeffries, P.A.	Inv. 325257		4,074.32	59,851.80
Check	02/07/2022	3396	ACHD	1st Qtr (Oct. - Dec. 2021)		2,651.52	57,200.28
Check	02/07/2022	3397	Elam & Burke			5,239.20	51,961.08
Deposit	02/08/2022			Deposit	1,362.97		53,324.05
Check	02/23/2022	3398	State Insurance Fund	STMT# 25901480		665.00	52,659.05
Paycheck	02/28/2022	3399	Dean E Callen			993.85	51,665.20
Check	02/28/2022			Service Charge		3.50	51,661.70
Deposit	02/28/2022			Interest	0.46		51,662.16
Check	03/07/2022	3400	Verizon Wireless	Inv. #9900111100		51.35	51,610.81
Check	03/07/2022	3401	Idaho Power			73.75	51,537.06
Check	03/09/2022	3402	Elam & Burke	VOID:	0.00		51,537.06
Deposit	03/10/2022			Deposit	591.49		52,128.55
Check	03/14/2022	3403	Quadrant Consulting, Inc			4,560.75	47,567.80
Check	03/23/2022	3404	Dean E Callen			87.05	47,480.75
Check	03/23/2022	3405	Elam & Burke			8,054.62	39,426.13
Check	03/23/2022	3406	Charles R. Gains	Board mtg - March		100.00	39,326.13
Check	03/23/2022	3407	Steve Sweet	Board mtg - March		100.00	39,226.13
Check	03/23/2022	3408	William S. Drake	Board mtg - March		100.00	39,126.13
Check	03/23/2022	3409	Payne West Insurance	Inv# 327074		325.00	38,801.13
Paycheck	03/31/2022	3410	Dean E Callen			993.85	37,807.28
Check	03/31/2022	3411	Verizon Wireless	Inv. #9902406607		51.35	37,755.93
Check	03/31/2022	3412	Steve Sweet	Board mtg - Feb		100.00	37,655.93
Check	03/31/2022	3413	William S. Drake	Board mtg - Feb		100.00	37,555.93
Check	03/31/2022			Service Charge		3.50	37,552.43
Deposit	03/31/2022			Interest	0.41		37,552.84
Deposit	04/06/2022			Deposit	466.51		38,019.35
Check	04/07/2022	3414	Idaho Power			71.86	37,947.49
Check	04/07/2022	3415	Travis Jeffries, P.A.	Inv. 325741		795.00	37,152.49
Check	04/25/2022	3416	Dean E Callen			330.28	36,822.21
Check	04/25/2022	3417	Boise City Public Works Dept.			286.22	36,535.99
Check	04/25/2022	3418	Elam & Burke			2,879.90	33,656.09
Check	04/25/2022	3419	Quadrant Consulting, Inc	Inv. #12019		965.25	32,690.84
Liability Check	04/29/2022	EFTPS	United States Treasury	82-0392173		510.90	32,179.94
Liability Check	04/29/2022	ET	Idaho State Tax Commission	000193978		60.00	32,119.94
Paycheck	04/30/2022	3420	Dean E Callen			993.85	31,126.09
Check	04/30/2022			Service Charge		3.50	31,122.59
Deposit	04/30/2022			Interest	0.31		31,122.90
Deposit	05/03/2022			Deposit	480.12		31,603.02
Check	05/06/2022	3421	Idaho Power			64.62	31,538.40
Check	05/06/2022	3422	Verizon Wireless	Inv. #9904731262		51.15	31,487.25
Check	05/06/2022	3423	Quadrant Consulting, Inc			1,790.21	29,697.04

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Accrual Basis

DRAINAGE DISTRICT NO. 3

General Ledger

As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
Deposit	05/13/2022		Idaho Power Company	Deposit	1,500.00		31,197.04
Check	05/23/2022	3424	Elam & Burke			4,476.31	26,720.73
Check	05/23/2022	3425	Charles R. Gains	Board mtg - May		100.00	26,620.73
Check	05/23/2022	3426	William S. Drake	Board mtg - May		100.00	26,520.73
Check	05/23/2022	3427	Steve Sweet	Board mtg - May		100.00	26,420.73
Check	05/23/2022	3428	ACHD	2nd Qtr (Jan. - Mar. 2022)		1,259.48	25,161.25
Paycheck	05/31/2022	3429	Dean E Callen			993.85	24,167.40
Check	05/31/2022			Service Charge		3.50	24,163.90
Deposit	05/31/2022			Interest	0.25		24,164.15
Check	06/03/2022	3430	Dean E Callen			197.33	23,966.82
Check	06/03/2022	3431	Idaho Power			65.66	23,901.16
Check	06/03/2022	3432	Quadrant Consulting, Inc			1,355.25	22,545.91
Check	06/03/2022	3433	Verizon Wireless	Inv. #9907075142		51.15	22,494.76
Deposit	06/08/2022			Deposit	3,814.04		26,308.80
Check	06/17/2022	3434	Elam & Burke			8,161.35	18,147.45
Paycheck	06/30/2022	3435	Dean E Callen			993.85	17,153.60
Check	06/30/2022	3436	South Boise Water Company	Inv. #4		100.00	17,053.60
Check	06/30/2022			Service Charge		3.50	17,050.10
Deposit	06/30/2022			Interest	0.19		17,050.29
Check	07/07/2022	3437	Verizon Wireless	Inv. #9909393132		51.15	16,999.14
Deposit	07/08/2022		Boise Views LLC	Deposit	10,485.00		27,484.14
Check	07/11/2022	3438	Quadrant Consulting, Inc			166.50	27,317.64
Check	07/11/2022	3439	Idaho Power			72.84	27,244.80
Check	07/11/2022	3440	Travis Jeffries, P.A.	Inv. 326309		2,161.00	25,083.80
Check	07/25/2022	3441	Boise City Public Works Dept.			394.45	24,689.35
Check	07/25/2022	3442	Elam & Burke			2,024.25	22,665.10
Check	07/25/2022	3443	Quadrant Consulting, Inc			138.75	22,526.35
Deposit	07/25/2022			Deposit	32,897.95		55,424.30
Liability Check	07/29/2022	ET	Idaho State Tax Commission	000193978		60.00	55,364.30
Liability Check	07/29/2022	EFTPS	United States Treasury	82-0392173		510.90	54,853.40
Paycheck	07/31/2022	3444	Dean E Callen			993.85	53,859.55
Check	07/31/2022			Service Charge		3.50	53,856.05
Deposit	07/31/2022			Interest	0.25		53,856.30
Deposit	08/03/2022			Deposit	429.10		54,285.40
Check	08/09/2022	3445	Steve Sweet	Board mtg - July		100.00	54,185.40
Check	08/09/2022	3446	William S. Drake	Board mtg - July		100.00	54,085.40
Check	08/09/2022	3447	Charles R. Gains	Board mtg - July		100.00	53,985.40
Check	08/09/2022	3448	Elam & Burke			8,729.90	45,255.50
Check	08/09/2022	3449	Verizon Wireless	Inv. #9911713720		52.41	45,203.09
Check	08/09/2022	3450	Idaho Power			65.59	45,137.50
Check	08/25/2022	3451	ACHD	3rd Qtr (Apr. - June 2022)		1,686.69	43,450.81
Check	08/25/2022	3452	Charles R. Gains	Board mtg - August		100.00	43,350.81
Check	08/25/2022	3453	Steve Sweet	Board mtg - August		100.00	43,250.81
Paycheck	08/31/2022	3454	Dean E Callen			993.85	42,256.96
Check	08/31/2022			Service Charge		3.50	42,253.46
Deposit	08/31/2022			Interest	0.42		42,253.88
Check	09/06/2022	3458	Dean E Callen			119.08	42,134.80
Check	09/06/2022	3459	Elam & Burke			6,993.84	35,140.96
Deposit	09/07/2022			Deposit	170.07		35,311.03

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
Check	09/08/2022	3455	Quadrant Consulting, Inc			900.00	34,411.03
Check	09/08/2022	3456	Idaho Power			82.50	34,328.53
Check	09/08/2022	3457	Verizon Wireless	Inv. #9914044942		52.41	34,276.12
Deposit	09/21/2022		CA Student Living Operating Company LLC	Deposit	2,650.00		36,926.12
Deposit	09/29/2022		Verve Boise LLC	Deposit	29,581.79		66,507.91
Paycheck	09/30/2022	3460	Dean E Callen			993.85	65,514.06
Check	09/30/2022	3461	Quadrant Consulting, Inc			954.00	64,560.06
Check	09/30/2022	3462	Elam & Burke			27,053.80	37,506.26
Check	09/30/2022			Service Charge		3.50	37,502.76
Deposit	09/30/2022			Interest	0.34		37,503.10
Total 100 · Cash in bank - Wells Fargo					163,600.56	159,531.96	37,503.10
120 · Local Gvt Investment Pool							27,326.72
General Journal	10/31/2021	TJ 2022-07		09-21 Interest	2.71		27,329.43
General Journal	11/30/2021	TJ 2022-08		10-21 Interest	2.62		27,332.05
General Journal	12/31/2021	TJ 2022-09		11-21 Interest	2.61		27,334.66
Deposit	01/12/2022	ET	LGIP State of Idaho	Transfer		9,000.00	18,334.66
General Journal	01/31/2022	TJ 2022-10		12-21 Interest	2.76		18,337.42
General Journal	02/28/2022	TJ 2022-11		01-22 Interest	2.61		18,340.03
General Journal	03/31/2022	TJ 2022-12		02-22 Interest	2.78		18,342.81
General Journal	04/30/2022	TJ 2022-18		03-22 Interest	3.52		18,346.33
General Journal	05/31/2022	TJ 2022-17		04-22 Interest	6.14		18,352.47
General Journal	06/30/2022	TJ 2022-18		05-22 Interest	9.84		18,362.31
General Journal	07/31/2022	TJ 2022-22		06-22 Interest	13.47		18,375.78
General Journal	08/31/2022	TJ 2022-23		07-22 Interest	20.52		18,396.30
General Journal	09/29/2022	TJ 2022-24		08-22 Interest	29.28		18,425.58
Total 120 · Local Gvt Investment Pool					98.86	9,000.00	18,425.58
11000 · Accounts Receivable							0.00
Total 11000 · Accounts Receivable							0.00
12000 · Undeposited Funds							0.00
Total 12000 · Undeposited Funds							0.00
121 · Accrued interest receivable							2.71
General Journal	05/31/2022	TJ 2022-14		Reverse LGIP accrued intere...		4.79	-2.08
General Journal	05/31/2022	TJ 2022-15		Accrue interest received 06-2...	9.84		7.76
General Journal	06/30/2022	TJ 2022-21		Reverse 06-22 LGIP accrued ...		9.84	-2.08
General Journal	09/30/2022	TJ 093022-2		Reverse LGIP Accrued intere...	4.79		2.71
General Journal	09/30/2022	TJ 093022-3		Reverse accrued LGIP intere...		2.71	0.00
General Journal	09/30/2022	TJ 093022-5		Accrue interest received 10-2...	31.78		31.78
Total 121 · Accrued interest receivable					46.41	17.34	31.78

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Accrual Basis

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
150 · Taxes receivable							2,614.82
Deposit	10/07/2021			Deposit		123.43	2,491.39
Deposit	11/02/2021			Deposit		74.24	2,417.15
Deposit	12/09/2021			Deposit		16.85	2,400.30
Deposit	01/19/2022			Deposit		65,885.14	-63,484.84
Deposit	02/08/2022			Deposit		1,350.89	-64,835.73
Deposit	03/10/2022			Deposit		569.66	-65,405.39
Deposit	04/06/2022			Deposit		456.32	-65,861.71
Deposit	05/03/2022			Deposit		476.22	-66,337.93
Deposit	06/08/2022			Deposit		3,790.72	-70,128.65
Deposit	07/25/2022			Deposit		32,869.53	-102,998.18
Deposit	08/03/2022			Deposit		394.36	-103,392.54
Deposit	09/07/2022			Deposit		155.99	-103,548.53
General Journal	09/30/2022	TJ 093022-8		Adjust to balance per Ada Co...	106,591.90		3,043.37
Total 150 · Taxes receivable					106,591.90	106,163.35	3,043.37
160 · Prepaid insurance							512.97
General Journal	05/31/2022	TJ 2022-16		Adjust prepaid insurance to a...		380.89	132.08
General Journal	09/30/2022	TJ 093022-7		Adjust prepaid insurance to a...	465.22		597.30
Total 160 · Prepaid insurance					465.22	380.89	597.30
200 · Drainage System							148,305.87
Total 200 · Drainage System							148,305.87
300 · Accounts payable							-20,833.65
General Journal	05/31/2022	TJ 2022-13		Reverse AP as of 03.31.21	8,926.28		-11,907.37
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22		9,830.74	-21,738.11
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22	9,830.74		-11,907.37
General Journal	09/30/2022	TJ 093022-1		Reverse 05-31-22 AP		8,926.28	-20,833.65
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21	20,833.65		0.00
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22		2,970.61	-2,970.61
Total 300 · Accounts payable					39,590.67	21,727.63	-2,970.61
301 · Federal tax withheld							0.00
Total 301 · Federal tax withheld							0.00
302 · State tax withheld							0.00
Total 302 · State tax withheld							0.00

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
310 · Payroll taxes payable							-588.90
Liability Check	10/06/2021	3359	Idaho State Tax Commission	000193978	60.00		-528.90
Liability Check	10/29/2021	EFTPS	United States Treasury	82-0392173	528.90		0.00
Paycheck	10/31/2021	3369	Dean E Callen		0.00		0.00
Paycheck	10/31/2021	3369	Dean E Callen			196.30	-196.30
Paycheck	11/30/2021	3380	Dean E Callen		0.00		-196.30
Paycheck	11/30/2021	3380	Dean E Callen			196.30	-392.60
Paycheck	12/31/2021	3385	Dean E Callen		0.00		-392.60
Paycheck	12/31/2021	3385	Dean E Callen			196.30	-588.90
Paycheck	01/31/2022	3390	Dean E Callen		0.00		-588.90
Paycheck	01/31/2022	3390	Dean E Callen			190.30	-779.20
Liability Check	01/31/2022	ET	Idaho State Tax Commission	000193978	60.00		-719.20
Liability Check	01/31/2022	EFTPS	United States Treasury	82-0392173	528.90		-190.30
Paycheck	02/28/2022	3399	Dean E Callen		0.00		-190.30
Paycheck	02/28/2022	3399	Dean E Callen			190.30	-380.60
Paycheck	03/31/2022	3410	Dean E Callen		0.00		-380.60
Paycheck	03/31/2022	3410	Dean E Callen			190.30	-570.90
Liability Check	04/29/2022	EFTPS	United States Treasury	82-0392173	510.90		-60.00
Liability Check	04/29/2022	ET	Idaho State Tax Commission	000193978	60.00		0.00
Paycheck	04/30/2022	3420	Dean E Callen		0.00		0.00
Paycheck	04/30/2022	3420	Dean E Callen			190.30	-190.30
Paycheck	05/31/2022	3429	Dean E Callen		0.00		-190.30
Paycheck	05/31/2022	3429	Dean E Callen			190.30	-380.60
Paycheck	06/30/2022	3435	Dean E Callen		0.00		-380.60
Paycheck	06/30/2022	3435	Dean E Callen			190.30	-570.90
Liability Check	07/29/2022	ET	Idaho State Tax Commission	000193978	60.00		-510.90
Liability Check	07/29/2022	EFTPS	United States Treasury	82-0392173	510.90		0.00
Paycheck	07/31/2022	3444	Dean E Callen		0.00		0.00
Paycheck	07/31/2022	3444	Dean E Callen			190.30	-190.30
Paycheck	08/31/2022	3454	Dean E Callen		0.00		-190.30
Paycheck	08/31/2022	3454	Dean E Callen			190.30	-380.60
Paycheck	09/30/2022	3460	Dean E Callen		0.00		-380.60
Paycheck	09/30/2022	3460	Dean E Callen			190.30	-570.90
Total 310 · Payroll taxes payable					2,319.60	2,301.60	-570.90
30000 · Opening Balance Equity							0.00
Total 30000 · Opening Balance Equity							0.00
400 · Invested in Capital Assets							-148,305.87
Total 400 · Invested in Capital Assets							-148,305.87
401 · Unrestricted Net Assets							-42,469.17
General Journal	05/31/2022	TJ 2022-13		Reverse AP as of 03.31.21		8,926.28	-51,395.45
General Journal	05/31/2022	TJ 2022-14		Reverse LGIP accrued intere...	4.79		-51,390.66
General Journal	09/30/2022	TJ 093022-1		Reverse 05-31-22 AP	8,926.28		-42,464.38
General Journal	09/30/2022	TJ 093022-2		Reverse LGIP Accrued intere...		4.79	-42,469.17
Total 401 · Unrestricted Net Assets					8,931.07	8,931.07	-42,469.17

DRAINAGE DISTRICT NO. 3

General Ledger

As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
501 · Assessment revenue							0.00
General Journal	09/30/2022	TJ 093022-8		Adjust to balance per Ada Co...		106,405.00	-106,405.00
Total 501 · Assessment revenue					0.00	106,405.00	-106,405.00
502 · Other Income							0.00
Total 502 · Other Income							0.00
504 · Application fees							0.00
Deposit	09/21/2022		CA Student Living Operating Company LLC	Deposit		150.00	-150.00
Total 504 · Application fees					0.00	150.00	-150.00
506 · Interest on delinquent taxes							0.00
Deposit	10/07/2021			Deposit		19.16	-19.16
Deposit	11/02/2021			Deposit		11.29	-30.45
Deposit	12/09/2021			Deposit		2.38	-32.83
Deposit	01/19/2022			Deposit		35.82	-68.65
Deposit	02/08/2022			Deposit		12.08	-80.73
Deposit	03/10/2022			Deposit		21.83	-102.56
Deposit	04/06/2022			Deposit		10.19	-112.75
Deposit	05/03/2022			Deposit		3.90	-116.65
Deposit	06/08/2022			Deposit		23.32	-139.97
Deposit	07/25/2022			Deposit		28.42	-168.39
Deposit	08/03/2022			Deposit		34.74	-203.13
Deposit	09/07/2022			Deposit		14.08	-217.21
General Journal	09/30/2022	TJ 093022-8		Adjust to balance per Ada Co...		186.90	-404.11
Total 506 · Interest on delinquent taxes					0.00	404.11	-404.11
507 · Interest income							0.00
General Journal	10/31/2021	TJ 2022-07		09-21 LGIP		2.71	-2.71
Deposit	10/31/2021			Interest		0.28	-2.99
General Journal	11/30/2021	TJ 2022-08		10-21 LGIP		2.62	-5.61
Deposit	11/30/2021			Interest		0.12	-5.73
Deposit	12/31/2021			Interest		0.04	-5.77
General Journal	12/31/2021	TJ 2022-09		11-21 LGIP		2.61	-8.38
General Journal	01/31/2022	TJ 2022-10		12-21 LGIP		2.76	-11.14
Deposit	01/31/2022			Interest		0.14	-11.28
General Journal	02/28/2022	TJ 2022-11		01-22 LGIP		2.61	-13.89
Deposit	02/28/2022			Interest		0.46	-14.35
General Journal	03/31/2022	TJ 2022-12		02-22 LGIP		2.78	-17.13
Deposit	03/31/2022			Interest		0.41	-17.54
General Journal	04/30/2022	TJ 2022-18		03-22 LGIP		3.52	-21.06
Deposit	04/30/2022			Interest		0.31	-21.37
General Journal	05/31/2022	TJ 2022-17		04-22 LGIP		6.14	-27.51
Deposit	05/31/2022			Interest		0.25	-27.76
General Journal	05/31/2022	TJ 2022-15		Accrue interest received 06-2...		9.84	-37.60
General Journal	06/30/2022	TJ 2022-18		05-22 LGIP		9.84	-47.44
Deposit	06/30/2022			Interest		0.19	-47.63

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Accrual Basis

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
General Journal	06/30/2022	TJ 2022-21		Reverse 06-22 LGIP accrued ...	9.84		-37.79
General Journal	07/31/2022	TJ 2022-22		06-22 LGIP		13.47	-51.26
Deposit	07/31/2022			Interest		0.25	-51.51
Deposit	08/31/2022			Interest		0.42	-51.93
General Journal	08/31/2022	TJ 2022-23		07-22 LGIP		20.52	-72.45
General Journal	09/29/2022	TJ 2022-24		08-22 LGIP		29.28	-101.73
Deposit	09/30/2022			Interest		0.34	-102.07
General Journal	09/30/2022	TJ 093022-3		Reverse accrued LGIP intere...	2.71		-99.36
General Journal	09/30/2022	TJ 093022-5		Accrue interest received 10-2...		31.78	-131.14
Total 507 · Interest income					12.55	143.69	-131.14
605 · Accounting							0.00
Check	10/22/2021	3368	Travis Jeffries, P.A.	3rd Qtr 2021	795.00		795.00
Check	02/07/2022	3395	Travis Jeffries, P.A.	4th Qtr 2021, F/S 03-31-21 C...	4,074.32		4,869.32
Check	04/07/2022	3415	Travis Jeffries, P.A.	1st Qtr 2022	795.00		5,664.32
Check	07/11/2022	3440	Travis Jeffries, P.A.	2nd Qtr 2022	2,161.00		7,825.32
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		795.00	7,030.32
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	795.00		7,825.32
Total 605 · Accounting					8,620.32	795.00	7,825.32
610 · Wages							0.00
Paycheck	10/31/2021	3369	Dean E Callen		1,100.00		1,100.00
Paycheck	11/30/2021	3380	Dean E Callen		1,100.00		2,200.00
Paycheck	12/31/2021	3385	Dean E Callen		1,100.00		3,300.00
Paycheck	01/31/2022	3390	Dean E Callen		1,100.00		4,400.00
Paycheck	02/28/2022	3399	Dean E Callen		1,100.00		5,500.00
Paycheck	03/31/2022	3410	Dean E Callen		1,100.00		6,600.00
Paycheck	04/30/2022	3420	Dean E Callen		1,100.00		7,700.00
Paycheck	05/31/2022	3429	Dean E Callen		1,100.00		8,800.00
Paycheck	06/30/2022	3435	Dean E Callen		1,100.00		9,900.00
Paycheck	07/31/2022	3444	Dean E Callen		1,100.00		11,000.00
Paycheck	08/31/2022	3454	Dean E Callen		1,100.00		12,100.00
Paycheck	09/30/2022	3460	Dean E Callen		1,100.00		13,200.00
Total 610 · Wages					13,200.00	0.00	13,200.00

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
615 - Engineering							0.00
615-01 - General							0.00
Check	10/22/2021	3366	Quadrant Consulting, Inc	Inv# 11762	388.50		388.50
Check	01/10/2022	3387	Quadrant Consulting, Inc	Inv. #11873	305.25		693.75
Check	02/07/2022	3393	Quadrant Consulting, Inc	Inv. #11917	555.00		1,248.75
Check	03/14/2022	3403	Quadrant Consulting, Inc	Inv. #11952	749.25		1,998.00
Check	05/06/2022	3423	Quadrant Consulting, Inc	-MULTIPLE-	1,790.21		3,788.21
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	711.75		4,499.96
Check	06/03/2022	3432	Quadrant Consulting, Inc	Inv. #12081	711.75		5,211.71
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		711.75	4,499.96
Check	07/11/2022	3438	Quadrant Consulting, Inc	Inv. #12131	111.00		4,610.96
Check	09/30/2022	3461	Quadrant Consulting, Inc	Inv. #12232	624.00		5,234.96
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		388.50	4,846.46
Total 615-01 - General					5,946.71	1,100.25	4,846.46
615-05 - 702 E Boise Ave Chipotle							0.00
Total 615-05 - 702 E Boise Ave Chipotle							0.00
615-06 - Boise Ave SHP							0.00
Check	11/10/2021	3374	Quadrant Consulting, Inc	Inv. #11791	1,887.00		1,887.00
Check	11/23/2021	3376	Quadrant Consulting, Inc	Inv. #11829	1,526.25		3,413.25
Check	03/14/2022	3403	Quadrant Consulting, Inc	-MULTIPLE-	2,479.50		5,892.75
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	83.25		5,976.00
Check	06/03/2022	3432	Quadrant Consulting, Inc	-MULTIPLE-	277.50		6,253.50
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		83.25	6,170.25
Check	07/11/2022	3438	Quadrant Consulting, Inc	Inv. #12132	55.50		6,225.75
Check	09/08/2022	3455	Quadrant Consulting, Inc	-MULTIPLE-	360.00		6,585.75
Deposit	09/29/2022		Verve Boise LLC	Reimbursement		6,981.79	-396.04
Total 615-06 - Boise Ave SHP					6,669.00	7,065.04	-396.04
615-07 - 112 E Boise Ave							0.00
Check	11/10/2021	3374	Quadrant Consulting, Inc	Inv. #11792	832.50		832.50
Check	01/10/2022	3387	Quadrant Consulting, Inc	Inv. #11874	888.00		1,720.50
Check	03/14/2022	3403	Quadrant Consulting, Inc	Inv.#11955	1,332.00		3,052.50
Check	04/25/2022	3419	Quadrant Consulting, Inc	Inv. #12019	965.25		4,017.75
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	366.00		4,383.75
Check	06/03/2022	3432	Quadrant Consulting, Inc	Inv. #12083	366.00		4,749.75
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		366.00	4,383.75
Deposit	07/08/2022		Boise Views LLC	Reimbursement from Boise V...		4,383.75	0.00
Check	07/25/2022	3443	Quadrant Consulting, Inc	Inv. #12160	138.75		138.75
Check	09/30/2022	3461	Quadrant Consulting, Inc	Inv. #12233	330.00		468.75
Total 615-07 - 112 E Boise Ave					5,218.50	4,749.75	468.75

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Accrual Basis

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
615-08 · 1289 S Protest Rd							0.00
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	194.25		194.25
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		194.25	0.00
Total 615-08 · 1289 S Protest Rd					194.25	194.25	0.00
615-09 · 2476 W Boise Ave							0.00
Check	09/08/2022	3455	Quadrant Consulting, Inc	Inv. #12190	540.00		540.00
Total 615-09 · 2476 W Boise Ave					540.00	0.00	540.00
615-10 · 1385 Capitol Ave							0.00
Total 615-10 · 1385 Capitol Ave							0.00
615 · Engineering - Other							0.00
Total 615 · Engineering - Other							0.00
Total 615 · Engineering					18,568.46	13,109.29	5,459.17
625 · Bank charges							0.00
Check	10/31/2021			Service charge	3.50		3.50
Check	11/30/2021			Service Charge	3.50		7.00
Check	12/31/2021			Service Charge	3.50		10.50
Check	01/05/2022			Overdraft fee	35.00		45.50
Check	01/14/2022			Overdraft fee	35.00		80.50
Check	01/31/2022			Service Charge	3.50		84.00
Check	02/28/2022			Service Charge	3.50		87.50
Check	03/31/2022			Service Charge	3.50		91.00
Check	04/30/2022			Service Charge	3.50		94.50
Check	05/31/2022			Service Charge	3.50		98.00
Check	06/30/2022			Service Charge	3.50		101.50
Check	07/31/2022			Service Charge	3.50		105.00
Check	08/31/2022			Service Charge	3.50		108.50
Check	09/30/2022			Service Charge	3.50		112.00
Total 625 · Bank charges					112.00	0.00	112.00
627 · Charitable contribution							0.00
Total 627 · Charitable contribution							0.00

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Accrual Basis

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
630 · Commissioners fees							0.00
Check	10/22/2021	3362	Charles R. Gains	Board mtgs - October	300.00		300.00
Check	10/22/2021	3363	Steve Sweet	Board mtgs - October	300.00		600.00
Check	10/22/2021	3364	William S. Drake	Board mtgs - October	300.00		900.00
Check	11/23/2021	3377	Charles R. Gains	Board mtg - Nov	100.00		1,000.00
Check	11/23/2021	3378	Steve Sweet	Board mtg - Nov	100.00		1,100.00
Check	11/23/2021	3379	William S. Drake	Board mtg - Nov	100.00		1,200.00
Check	03/23/2022	3406	Charles R. Gains	Board mtg - March	100.00		1,300.00
Check	03/23/2022	3407	Steve Sweet	Board mtg - March	100.00		1,400.00
Check	03/23/2022	3408	William S. Drake	Board mtg - March	100.00		1,500.00
Check	03/31/2022	3412	Steve Sweet	Board mtg - Feb	100.00		1,600.00
Check	03/31/2022	3413	William S. Drake	Board mtg - Feb	100.00		1,700.00
Check	05/23/2022	3425	Charles R. Gains	Board mtg - May	100.00		1,800.00
Check	05/23/2022	3426	William S. Drake	Board mtg - May	100.00		1,900.00
Check	05/23/2022	3427	Steve Sweet	Board mtg - May	100.00		2,000.00
Check	08/09/2022	3445	Steve Sweet	Board mtg - July	100.00		2,100.00
Check	08/09/2022	3446	William S. Drake	Board mtg - July	100.00		2,200.00
Check	08/09/2022	3447	Charles R. Gains	Board mtg - July	100.00		2,300.00
Check	08/25/2022	3452	Charles R. Gains	Board mtg - August	100.00		2,400.00
Check	08/25/2022	3453	Steve Sweet	Board mtg - August	100.00		2,500.00
Total 630 · Commissioners fees					2,500.00	0.00	2,500.00
635 · Truck operation							0.00
Check	10/22/2021	3367	Dean E Callen	Mileage through 9/30/21	112.00		112.00
Check	12/10/2021	3381	Dean E Callen	Mileage through 11/22/21	100.24		212.24
Check	03/23/2022	3404	Dean E Callen	Mileage through 1/31/22	87.05		299.29
Check	04/25/2022	3416	Dean E Callen	Mileage through 3/31/22	119.34		418.63
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	165.56		584.19
Check	06/03/2022	3430	Dean E Callen	Mileage through 5/28/22	165.56		749.75
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		165.56	584.19
Check	09/06/2022	3458	Dean E Callen	Mileage through 7/27/22	119.08		703.27
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		112.00	591.27
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	149.38		740.65
Total 635 · Truck operation					1,018.21	277.56	740.65

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
640 - Legal							0.00
640-01 - General							0.00
Check	10/08/2021	3361	Elam & Burke	Inv. #192811	642.83		642.83
Check	11/10/2021	3372	Elam & Burke	Inv. #193202	1,965.38		2,608.21
Check	12/22/2021	3384	Elam & Burke	Inv. #193627	2,377.99		4,986.20
Check	01/10/2022	3389	Elam & Burke	Inv. #194028	661.77		5,647.97
Check	02/07/2022	3397	Elam & Burke	Inv. #194445	2,362.50		8,010.47
Check	03/09/2022	3402	Elam & Burke	Inv. #11952	0.00		8,010.47
Check	03/23/2022	3405	Elam & Burke	Inv. #194949	3,934.80		11,945.27
Check	04/25/2022	3418	Elam & Burke	Inv. #195389	959.00		12,904.27
Deposit	05/13/2022		Idaho Power Company	Deposit		1,500.00	11,404.27
Check	05/23/2022	3424	Elam & Burke	Inv. #195821	1,656.21		13,060.48
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	3,469.55		16,530.03
Check	06/17/2022	3434	Elam & Burke	Inv. #196259	3,469.55		19,999.58
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		3,469.55	16,530.03
Check	07/25/2022	3442	Elam & Burke	Inv. #196853	1,360.80		17,890.83
Check	08/09/2022	3448	Elam & Burke	Inv. #197450	6,115.60		24,006.43
Check	09/06/2022	3459	Elam & Burke	Inv. #198054	3,913.49		27,919.92
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		642.83	27,277.09
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	401.30		27,678.39
Total 640-01 - General					33,290.77	5,612.38	27,678.39
640-02 - NPDES							0.00
Check	10/08/2021	3361	Elam & Burke	Inv. #192812	690.30		690.30
Check	11/10/2021	3372	Elam & Burke	Inv. #193203	1,059.00		1,749.30
Check	12/22/2021	3384	Elam & Burke	Inv. #193628	2,220.35		3,969.65
Check	01/10/2022	3389	Elam & Burke	Inv. #194029	4,875.80		8,845.45
Check	02/07/2022	3397	Elam & Burke	Inv. #194446	2,404.20		11,249.65
Check	03/23/2022	3405	Elam & Burke	Inv. #194950	145.60		11,395.25
Check	04/25/2022	3418	Elam & Burke	Inv. #195390	45.00		11,440.25
Check	05/23/2022	3424	Elam & Burke	Inv. #195822	1,779.45		13,219.70
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	4,691.80		17,911.50
Check	06/17/2022	3434	Elam & Burke	Inv. #196260	4,691.80		22,603.30
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		4,691.80	17,911.50
Check	07/25/2022	3442	Elam & Burke	Inv. #196854	293.45		18,204.95
Check	08/09/2022	3448	Elam & Burke	Inv. #197451	2,591.80		20,796.75
Check	09/06/2022	3459	Elam & Burke	Inv. #198055	1,424.35		22,221.10
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		690.30	21,530.80
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	595.00		22,125.80
Total 640-02 - NPDES					27,507.90	5,382.10	22,125.80
640-03 - Legislation							0.00
Check	12/22/2021	3384	Elam & Burke	Inv. #193629	67.50		67.50
Check	01/10/2022	3389	Elam & Burke	Inv. #194030	180.00		247.50
Check	03/23/2022	3405	Elam & Burke	Inv. #194951	114.22		361.72
Total 640-03 - Legislation					361.72	0.00	361.72

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Accrual Basis

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
640-04 · City of Boise							0.00
Total 640-04 · City of Boise							0.00
640-05 · 702 E Boise Ave Chipotle							0.00
Total 640-05 · 702 E Boise Ave Chipotle							0.00
640-06 · Boise Ave SHP							0.00
Check	10/31/2021	3370	Elam & Burke	Inv. #191705	13,563.00		13,563.00
Check	03/09/2022	3402	Elam & Burke	Inv. #11953	0.00		13,563.00
Check	09/06/2022	3459	Elam & Burke	Inv. #198051	466.00		14,029.00
Deposit	09/29/2022		Verve Boise LLC	Reimbursement		22,600.00	-8,571.00
Check	09/30/2022	3462	Elam & Burke	Inv. #197448	27,053.80		18,482.80
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		13,563.00	4,919.80
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	83.00		5,002.80
Total 640-06 · Boise Ave SHP					41,165.80	36,163.00	5,002.80
640-07 · 112 E Boise Ave							0.00
Check	10/08/2021	3361	Elam & Burke	Inv. #192810	1,066.50		1,066.50
Deposit	10/20/2021		Chrysalis Architecture & Planning PC	Reimbursement from Chrysalis		4,000.00	-2,933.50
Check	11/10/2021	3372	Elam & Burke	Inv. #193201	344.35		-2,589.15
Check	12/22/2021	3384	Elam & Burke	Inv. #193626	251.35		-2,337.80
Check	01/10/2022	3389	Elam & Burke	Inv. #194027	120.00		-2,217.80
Check	02/07/2022	3397	Elam & Burke	Inv. #194444	472.50		-1,745.30
Check	03/09/2022	3402	Elam & Burke	Inv. #11955	0.00		-1,745.30
Check	03/23/2022	3405	Elam & Burke	Inv. #194948	3,860.00		2,114.70
Check	04/25/2022	3418	Elam & Burke	Inv. #195388	1,875.90		3,990.60
Check	05/23/2022	3424	Elam & Burke	Inv. #195820	1,040.65		5,031.25
Deposit	07/08/2022		Boise Views LLC	Reimbursement from Boise V...		6,101.25	-1,070.00
Check	07/25/2022	3442	Elam & Burke	Inv. #196852	370.00		-700.00
Check	08/09/2022	3448	Elam & Burke	Inv. #197449	22.50		-677.50
Check	09/06/2022	3459	Elam & Burke	Inv. #198052	935.00		257.50
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		1,066.50	-809.00
Total 640-07 · 112 E Boise Ave					10,358.75	11,167.75	-809.00
640-08 · 1289 S Protest Rd							0.00
Check	03/09/2022	3402	Elam & Burke	Inv. #11954	0.00		0.00
Total 640-08 · 1289 S Protest Rd					0.00	0.00	0.00
640-09 · 2476 W Boise Ave							0.00
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	177.50		177.50
Total 640-09 · 2476 W Boise Ave					177.50	0.00	177.50

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Accrual Basis

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
640-10 · 1385 Capitol Ave							0.00
Check	09/06/2022	3459	Elam & Burke	Inv. #198053	255.00		255.00
Deposit	09/21/2022		CA Student Living Operating Company LLC	Deposit		2,500.00	-2,245.00
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	237.50		-2,007.50
Total 640-10 · 1385 Capitol Ave					492.50	2,500.00	-2,007.50
640 · Legal - Other							0.00
Total 640 · Legal - Other							0.00
Total 640 · Legal					113,354.94	60,825.23	52,529.71
641 · Consulting							0.00
Total 641 · Consulting							0.00
645 · Insurance							0.00
Paycheck	10/31/2021	3369	Dean E Callen		0.00		0.00
Paycheck	11/30/2021	3380	Dean E Callen		0.00		0.00
Paycheck	12/31/2021	3385	Dean E Callen		0.00		0.00
Paycheck	01/31/2022	3390	Dean E Callen		0.00		0.00
Paycheck	02/28/2022	3399	Dean E Callen		0.00		0.00
Check	03/23/2022	3409	Payne West Insurance	Bond for Charles Gains	325.00		325.00
Paycheck	03/31/2022	3410	Dean E Callen		0.00		325.00
Paycheck	04/30/2022	3420	Dean E Callen		0.00		325.00
Paycheck	05/31/2022	3429	Dean E Callen		0.00		325.00
General Journal	05/31/2022	TJ 2022-16		Adjust prepaid insurance to a...	386.21		711.21
Paycheck	06/30/2022	3435	Dean E Callen		0.00		711.21
Paycheck	07/31/2022	3444	Dean E Callen		0.00		711.21
Paycheck	08/31/2022	3454	Dean E Callen		0.00		711.21
Paycheck	09/30/2022	3460	Dean E Callen		0.00		711.21
General Journal	09/30/2022	TJ 093022-7		Adjust prepaid insurance to a...		460.29	250.92
Total 645 · Insurance					711.21	460.29	250.92
650 · Payroll taxes							0.00
Paycheck	10/31/2021	3369	Dean E Callen		84.15		84.15
Paycheck	11/30/2021	3380	Dean E Callen		84.15		168.30
Paycheck	12/31/2021	3385	Dean E Callen		84.15		252.45
Paycheck	01/31/2022	3390	Dean E Callen		84.15		336.60
Paycheck	02/28/2022	3399	Dean E Callen		84.15		420.75
Paycheck	03/31/2022	3410	Dean E Callen		84.15		504.90
Paycheck	04/30/2022	3420	Dean E Callen		84.15		589.05
Paycheck	05/31/2022	3429	Dean E Callen		84.15		673.20
Paycheck	06/30/2022	3435	Dean E Callen		84.15		757.35
Paycheck	07/31/2022	3444	Dean E Callen		84.15		841.50
Paycheck	08/31/2022	3454	Dean E Callen		84.15		925.65
Paycheck	09/30/2022	3460	Dean E Callen		84.15		1,009.80
Total 650 · Payroll taxes					1,009.80	0.00	1,009.80

DRAINAGE DISTRICT NO. 3
General Ledger
As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
651 · Worker's compensation							0.00
Check	02/23/2022	3398	State Insurance Fund	Policy # 232830	665.00		665.00
General Journal	05/31/2022	TJ 2022-16		Adjust prepaid insurance to a...		5.32	659.68
General Journal	09/30/2022	TJ 093022-7		Adjust prepaid insurance to a...		4.93	654.75
Total 651 · Worker's compensation					665.00	10.25	654.75
655 · Utilities							0.00
Check	10/08/2021	3360	Idaho Power	-MULTIPLE-	66.48		66.48
Check	11/10/2021	3373	Idaho Power	-MULTIPLE-	69.13		135.61
Check	12/10/2021	3382	Idaho Power	-MULTIPLE-	72.18		207.79
Check	01/10/2022	3386	Idaho Power	-MULTIPLE-	77.13		284.92
Check	02/07/2022	3391	Idaho Power	-MULTIPLE-	74.80		359.72
Check	03/07/2022	3401	Idaho Power	-MULTIPLE-	73.75		433.47
Check	04/07/2022	3414	Idaho Power	-MULTIPLE-	71.86		505.33
Check	05/06/2022	3421	Idaho Power	-MULTIPLE-	64.62		569.95
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	65.66		635.61
Check	06/03/2022	3431	Idaho Power	-MULTIPLE-	65.66		701.27
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		65.66	635.61
Check	07/11/2022	3439	Idaho Power	-MULTIPLE-	72.84		708.45
Check	08/09/2022	3450	Idaho Power	-MULTIPLE-	65.59		774.04
Check	09/08/2022	3456	Idaho Power	-MULTIPLE-	82.50		856.54
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		66.48	790.06
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	75.95		866.01
Total 655 · Utilities					998.15	132.14	866.01
658 · Monitoring fees							0.00
Check	10/22/2021	3365	Boise City Public Works Dept.	#IO265 NPDES Q4 FY21	821.06		821.06
Check	11/10/2021	3371	ACHD	NPDES 4th Qtr Inv. #16852	2,295.64		3,116.70
Check	02/07/2022	3394	Boise City Public Works Dept.	#IO281 NPDES Q1 FY22	701.58		3,818.28
Check	02/07/2022	3396	ACHD	NPDES 1st Qtr Inv. #17050	2,651.52		6,469.80
Check	04/25/2022	3417	Boise City Public Works Dept.	#IO291 NPDES Q2 FY22	286.22		6,756.02
Check	05/23/2022	3428	ACHD	NPDES 2nd Qtr Inv. #17183	1,259.48		8,015.50
Check	07/25/2022	3441	Boise City Public Works Dept.	#IO297 NPDES Q3 FY22	394.45		8,409.95
Check	08/25/2022	3451	ACHD	NPDES 3rd Qtr Inv. #17281	1,686.69		10,096.64
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		3,116.70	6,979.94
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	403.65		7,383.59
Total 658 · Monitoring fees					10,500.29	3,116.70	7,383.59

1:38 PM

12/14/22

Accrual Basis

DRAINAGE DISTRICT NO. 3

General Ledger

As of September 30, 2022

Type	Date	Num	Name	Memo	Debit	Credit	Balance
660 · Repairs and maintenance							0.00
Check	10/22/2021	3367	Dean E Callen	Reimb-Master Plumbing-Culv...	340.00		340.00
Check	04/25/2022	3416	Dean E Callen	Chain saw	210.94		550.94
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	31.77		582.71
Check	06/03/2022	3430	Dean E Callen	weed control	31.77		614.48
Check	06/30/2022	3436	South Boise Water Company	Inv. #4	100.00		714.48
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		31.77	682.71
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		340.00	342.71
Total 660 · Repairs and maintenance					714.48	371.77	342.71
661 · Telephone							0.00
Check	10/04/2021	3358	Verizon Wireless	Acct# 871658829-00001	52.34		52.34
Check	11/10/2021	3375	Verizon Wireless	Acct# 871658829-00001	51.84		104.18
Check	12/10/2021	3383	Verizon Wireless	Acct# 871658829-00001	51.84		156.02
Check	01/10/2022	3388	Verizon Wireless	Acct# 871658829-00001	51.84		207.86
Check	02/07/2022	3392	Verizon Wireless	Acct# 871658829-00001	56.35		264.21
Check	03/07/2022	3400	Verizon Wireless	Acct# 871658829-00001	51.35		315.56
Check	03/31/2022	3411	Verizon Wireless	Acct# 871658829-00001	51.35		366.91
Check	05/06/2022	3422	Verizon Wireless	Acct# 871658829-00001	51.15		418.06
General Journal	05/31/2022	TJ 2022-19		Record AP as of 05.31.22	51.15		469.21
Check	06/03/2022	3433	Verizon Wireless	Acct# 871658829-00001	51.15		520.36
General Journal	06/30/2022	TJ 2022-20		Reverse AP as of 05.31.22		51.15	469.21
Check	07/07/2022	3437	Verizon Wireless	Acct# 871658829-00001	51.15		520.36
Check	08/09/2022	3449	Verizon Wireless	Acct# 871658829-00001	52.41		572.77
Check	09/08/2022	3457	Verizon Wireless	Acct# 871658829-00001	52.41		625.18
General Journal	09/30/2022	TJ 093022-4		Reverse A/P as of 09-30-21		52.34	572.84
General Journal	09/30/2022	TJ 093022-6		Accrue A/P as of 09-30-22	52.33		625.17
Total 661 · Telephone					728.66	103.49	625.17
665 · Miscellaneous							0.00
Total 665 · Miscellaneous							0.00
670 · Contract labor							0.00
Total 670 · Contract labor							0.00
No acct							0.00
Total no acct							0.00
TOTAL					494,358.36	494,358.36	0.00

Attachment B
The 2022 Public Education, Outreach, and Involvement Program

1. Overview

The City of Boise, Ada County Highway District, Garden City, Ada County Drainage District #3, Idaho Transportation Department District #3, and Boise State University formed Partners for Clean Water (Partners) to develop a cooperative approach to educating the public on stormwater and water quality issues and ensure compliance with the Permit. The City of Boise is the lead agency for this control measure of the Permit with support from the other Partners. The overarching goal of the program is to educate the public on stormwater issues to change specific behaviors that contribute to nutrient, bacteria, temperature, and sediment pollution to the MS4 and local receiving waters.

The City's Stormwater Public Education and Outreach Program is guided by a step-by-step process when developing educational opportunities.

1. Define goals and desired outcomes
2. Identify and analyze target audiences
3. Create messaging for selected audiences
4. Distribute message through chosen methods of outreach
5. Assess the results in order to direct future efforts

The Partners conduct multiple outreach activities and messaging campaigns each year, designed to reach the various target audiences identified in the Permit and focus on stormwater issues of significance in the Permit area. The co-permittees collaborate each year on which topics and relevant messages the program will focus their efforts on. These activities and messages are further developed and built upon based on feedback and public participation.

For the first half of 2022, a winter spike in Covid-19 cases prevented in-person gatherings and events. The Partners focused our fall and winter messaging to media buys that reached a broad audience across the Treasure Valley. Once Covid-19 cases leveled and the community was able to safely gather, we began events and in-person activities in the spring.

Target audiences in Permit Year 1 included the general public, businesses, homeowners, pet owners, landscapers, property managers, engineers, contractors, developers, plan review staff, and students. Specific details that meet Permit Part 3.1 requirements can be found below.

2. Ongoing Efforts (throughout Permit term):

Annual Media Campaign

The Partners continue to participate in an annual media campaign which utilize messaging opportunities with radio advertisements and public service announcements, billboards, and online ads. The media campaign reaches

all target audiences with general messages on water quality with a continued focus on pet waste and yard waste in 2022.

Manuals and Reference Materials

Manuals, fact sheets and other education and outreach reference materials are available on the Partners for Clean Water [website](#). These materials are targeted, based on content, to all our targeted audiences. Examples of these documents include 'Stormwater Facility Maintenance Best Management Practices', 'Stormwater Pollution Prevention: Commercial Landscaping', 'Operation and Maintenance of Stormwater Systems', 'Drainage Plan Checklist' and 'Stormwater Management Resource Guide', among others.

Website

The website (partnersforcleanwater.org) reaches all target audiences with specific messaging based on audience. Please see Section 7 below for more details.

Boise WaterShed Environmental Education Center

The Boise WaterShed Environmental Education Center opened in May, 2008, and is designed to promote water stewardship by teaching people of all ages how to protect and conserve our precious resource for future generations.

The staff at the Boise WaterShed incorporates stormwater pollution prevention and stormwater management information into the programs, water renewal facility tours, and lessons offered to visitors. Education of personal impacts to water quality via stormwater, wastewater and pollution prevention tips are integrated throughout most exhibits, lessons, tours, and the center's library resources.

Partners staff participate in events at the WaterShed, including WaterShed Weekends, Earth Day events, and summer programs.

The facility also provides an outdoor River Campus which presents a new dimension to water education with exterior exhibits that show the big picture of the Treasure Valley's water resources. Presented to simulate the workings of the Lower Boise Watershed, the interactive, walk-able, park-like setting takes visitors on a journey from Lucky Peak Reservoir and Dam, through Boise's urban streets, and the Water Renewal Facility. From here they watch cleaned water returned to the Boise River and see it flow downstream to the agricultural zone that sustains our food industry. Ultimately, visitors realize that what we do upstream not only affects downstream users, but also ultimately the overall health of the Snake River.

Social Media

The Partners are active on social media through a Partners Instagram page, as well as each permittee's social media pages. The City of Boise regularly posts messaging on Twitter, Facebook, and Instagram regarding stormwater, water quality, household hazardous waste collection, leaf litter pick up information, etc. to help distribute these messages to the community through a variety of avenues.

3. 2022 Outreach Events and Activities:

Stormwater Education Videos

In November 2022, two stormwater educational videos were filmed and put on the Partners website. They focused on general stormwater education and green stormwater infrastructure. Our target audience for these videos were the general public, homeowners, HOA's, developers, and landscapers. These videos can be found on the main page of the Partners website.

Pet Waste/Leaf Litter Media Campaign

Since in-person events and activities were limited during the first half of Permit Year 1, the Partners led a significant media campaign in the fall of 2021 to reach people virtually. These messages were broadcast on billboards, Pandora ads, radio ads, and social media posts. These messages were meant to target not only our Permit area, but the entirety of the Treasure Valley.

One of the messages highlighted was the importance of picking up pet waste, since many people acquired dogs during Covid-19 and there was an increase in trail/Greenbelt usage. This message was broadcast on the radio, pandora, social media, and a billboard.



Figure 1. 2022 Pet Waste Billboard and Pandora graphic

Another message that was broadcast was the importance of raking leaves in your yard and neighborhood. Not only do leaves have the potential to clog storm drains, but they can deliver excess nutrients to the river. This message was broadcast on the radio, pandora, social media, and a billboard.



Figure 2. 2022 Yard Waste Billboard and Pandora graphic

Data from the Pandora advertising showed a total of 84,044 accounts were reached in the region.

Around 600 radio ads were aired on radio stations including KIZN 92.3, KKGL 96.9, KQXR 100.3, KSAS 103.5, KOOL 101.5, KSRV 96.1, KDBI 106.7, KPDA 100.7, Boise State Public Radio, and Radio Boise. Radio ads were broadcast in English and Spanish.

Bus Wrap

Partners coordinated with Valley Regional Transit to create a stormwater educational bus wrap to display on a regional bus from September 13, 2021 to December 5, 2021. This was a general stormwater message of 'Down the drain today, in the River tomorrow'. This is a slogan that is meant to help people understand that stormwater does not get treated before entering a waterway or groundwater.

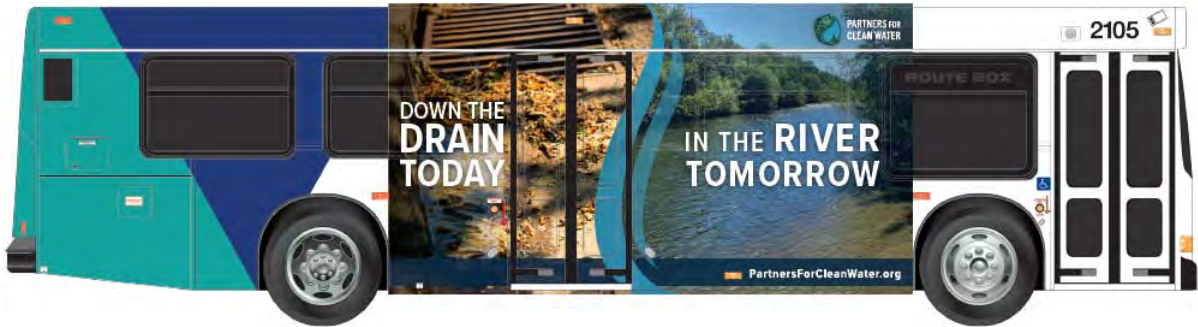


Figure 3. 2022 Bus Wrap

Idaho IceWorld

The Idaho IceWorld is an indoor ice skating/hockey rink located in Boise. The facility has banner space (dasher boards) along the inside of the rinks for sponsors and other messaging. A stormwater banner was produced and is located at the rink to promote the Partners' message and website.



Figure 4. 2022 Idaho IceWorld banner

Pool Draining Brochure

Due to multiple calls for information on how to drain pools properly, a handout was created to place at local pool/spa stores in Boise and Garden City explaining the guidelines for draining a pool or spa. This will reduce the potential for chlorine and unnecessary background flow getting to the Boise River.

Draining Swimming Pools and Spas



Water from swimming pools and hot tubs may contain high levels of chlorine and other chemicals. Keeping these pollutants out of our storm drain system protects our local waterways and the Boise River.



TO DRAIN YOUR POOL OR SPA, please follow these guidelines:

OPTION 1: USE FOR IRRIGATION



1. Stop adding chemicals
2. Ensure chlorine levels have dissipated and pH is neutral (let water sit for at least a week)
3. Drain all water to landscape or vegetated areas on your property

OPTION 2: SEWER LINE DISCHARGE



Contact Boise City Public Works Pretreatment Program to discharge water to the sewer system.
208-608-7569

1. Shut off the pool's filtration system and turn off the automatic water fill valve.
2. Find your home's sewer clean-out port to access the sewer line.
3. Run a drainage hose from the sewer clean-out port to the pool and connect it to a submersible pump.
4. Drain the pool. Monitor flow to ensure water does not back up into your home

IF OPTION 1 OR 2 ARE NOT FEASIBLE:



1. Let water neutralize (see Option 1)
2. Drain as much water as possible to landscape or vegetation
3. Contact ACHD to discharge any additional water to a storm drain, 208-387-6250
4. Ensure flow path to the storm drain is swept and free of debris

Saltwater Pools

Saltwater should never enter a storm drain. Always use the sewer system method to drain saltwater pools.

For more information visit
partnersforcleanwater.org
or call 208-608-7565

Figure 5. Pool draining brochure

2022 Events

Several events were held during Permit Year 1 for stormwater education and outreach purposes.

1. WaterShed Earth Day: The WaterShed held an Earth Day celebration that attracted over 500 people. The topics covered included general stormwater education, yard maintenance, promotion of Partners for Clean Water organization and resources to website.



Figure 6. WaterShed Earth Day Celebration

2. BSU Environmental Studies Course Outreach: This event was coordinated by Boise Parks and Recreation with a BSU class. Partners staff spoke about stormwater pollution reduction, the effects of nitrogen and phosphorus on water quality, and the major water quality issues in the region. A green stormwater infrastructure tour was given around the Harrison Hollow trailhead. After the lesson, students picked up pet waste and conducted some trail maintenance to prevent trail erosion.
3. DEQ Water Education Fair: Partners participated in DEQ's Water Education Fair on 6/28/2022. The event was mostly focused on general stormwater information. Interest was gauged in storm drain marking events, as well as an email sign up list for more information in the future. Partners owns an 'Enviro-scape', a model city that demonstrates the concept of stormwater and stormwater pollution.



Figure 7. Partners table at DEQ Water Education Fair

4. Storm Drain Marking: Several storm drain marking events were conducted in 2022 with local schools. These events are scheduled based on interest and calls from local teachers that are interested in marking storm drains around their respective schools with markers that read 'DUMP NO WASTE. DRAINS TO RIVER' or 'DUMP NO WASTE. DRAINS TO GROUNDWATER'. This reminds the public that they should not be dumping anything in their local storm drains. Partners staff introduce the activity to the students with a stormwater presentation.

There have been large storm drain marking campaigns in the past. It has been about a decade since the last large campaign to mark storm drains, and now we are seeing these previous markers falling off and needing to be replaced. More attention will be given to storm drain marking events in the coming years, especially in the downtown area and areas closer to the river that are connected to the MS4.



Figure 8. Storm Drain Marking event with local students

4. Assessment

The Partners are in the beginning stages of assessing the public's understanding of our public outreach messages and the adoption of behaviors that reduce stormwater pollution by our target audiences.

Assessment that is currently being conducted includes surveys at events that measure general stormwater knowledge to evaluate which topics are being conveyed already, and which topics need additional messaging and awareness. These surveys also resolve which media avenues are most useful to the respondents to guide our outreach in the future.

Data from website usage, radio ads, and billboard viewership is also used to assess which programs and messages are reaching the most people. The Partners website is updated based on which pages are most viewed and clicked on, in order to make popular topics more accessible (Attachment 1).

The results of these continual assessments constantly shape the future of our public outreach and education programming. Focus will be given to programs that are successful in changing the public's behaviors and practices to reduce stormwater pollution. Other assessment strategies that the Partners are considering for the future include pilot programs, neighborhood focus groups, water quality trends, training assessments, and social media quizzes/polls.

5. Tracking

A tracking spreadsheet is used by the City of Boise to track and maintain all records of our stormwater education and outreach activities, events, and trainings. This spreadsheet is shared with other permittees during regularly scheduled permittee meetings and is open to feedback and discussion. The tracking spreadsheet is used to compile each annual report.

6. Education on SWMP Control Measures

Construction Site Runoff Control Training

To provide the regional construction community with erosion and sediment control and stormwater pollution prevention education, the city and our Partners have developed the Erosion and Sediment Control (ESC) Responsible Person (RP) training and certification program. The class promotes awareness of the impact of polluted construction site runoff and soil erosion on the MS4 and the Boise River. The class curriculum covers local and state stormwater regulations, principles of ESC Best Management Practices (BMPs), installation and maintenance of common erosion and sediment controls, fugitive dust control, stormwater pollution prevention practices, dewatering, how to conduct the required construction site inspections and updating the ESC plan or SWPPP for the site.

The instructors for the City Responsible Person classes must be qualified and approved by the city. Instructors are required to submit a resume to the city detailing their educational history and experience in erosion control. They must also be able to demonstrate knowledge of the principles of erosion; sediment transport; erosion and sediment control technology, implementation, and maintenance; and local and federal ordinances regulating erosion and sediment control.

Courses are offered through third party entities: Engineering with a Mission LLC, Eagle One LLC, Jones Erosion Control, the College of Western Idaho, and Syman Company throughout the year in various locations in the Treasure Valley as well as online offerings. Boise State University's Construction Management Program also presents the class material to their students, who may receive certification if desired. Additionally, the Nampa school district has a vocational construction site program that utilizes the ESC training presentation. The ESC Inspectors also present the RP course quarterly to train local agency personnel involved in construction projects so that they may implement BMPs on public projects and notify ESC Inspectors if they see runoff pollution and other violations at construction sites. As part of the training participants receive education materials including an illustrated ESC Field Guide to Best Management Practices specific to Idaho.

Construction site operators and contractors must renew their RP certification every 3 years by attending the training and passing an examination. The class is updated regularly to present new ideas and methods in ESC and SWPPP. The Planning and Development permitting system maintains a database of certified RPs. The database is utilized by the City of Boise, ACHD, Garden City, the City of Nampa, and City of Caldwell to verify that construction sites have an individual with ESC training onsite. The RP name and contact information is required to be listed prior to permit issuance, and the RP must have operational control to make corrective actions and knowledge to implement BMPs and work with ESC Inspectors to keep sites in compliance.

In 2022, 938 Responsible Person licenses were issued or renewed.

City staff provide ongoing awareness, education and outreach through the website, annual events, and also can provide site specific training as needed to interested parties and industry groups.

Permanent Stormwater Controls Training

The Partners worked with Practical Stormwater Solutions, LLC to develop and conduct a permanent stormwater controls training in September 2022. The goal of this training was to provide guidance to local audiences on the operation and maintenance activities performed on various stormwater facilities. The training emphasized the importance of maintaining stormwater facilities to prevent stormwater pollution. It covered local ordinances, O&M requirements, and context for property O&M agreements.

7. Publicly Accessible Website

The City of Boise, on behalf of the Partners for Clean Water, maintains a website (partnersforcleanwater.org) that educates the public on stormwater issues for multiple audiences. The website is a key source for stormwater information in Boise and the Treasure Valley.

The website contains relevant contacts for each permittee, as well as each permittee's annual reports, SWMPs, and other relevant compliance and regulation materials. The Intergovernmental Agreement (IGA) that outlines permittee responsibilities is posted, as well as the IPDES permit and the MS4 map. Regularly scheduled permittee meeting agendas and meeting notes are also posted.

The website has topics for varying target audiences, such as homeowners, pet owners, engineers, surveyors, developers, mobile businesses, landscapers, and property maintenance companies. Manuals, checklists, fact sheets and guidance documents are organized into the target audience's respective pages. Individual permittee sites are also linked for more information. Information regarding training, events, and other topics pertinent to educating the community on how to reduce stormwater pollution is easily accessible.

The website continues to be an important way to educate our target audiences and provide a central location for public education and permit compliance information. The Partners continuously develop new outreach materials to post on the website and hand out at events. QR codes that link to the Partners website will be used more frequently on outreach materials.

Attachment 1

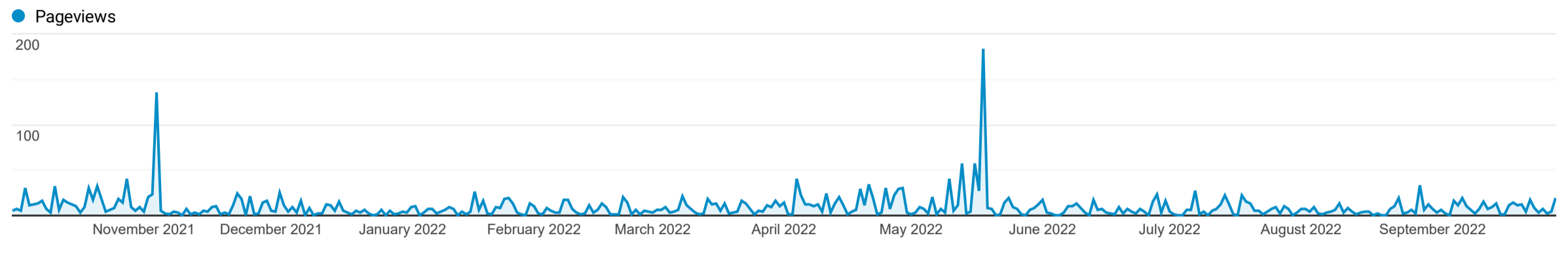
Partners website data

Overview

Oct 1, 2021 - Sep 30, 2022

All Users
100.00% Pageviews

Overview



Pageviews 3,376	Unique Pageviews 2,790	Avg. Time on Page 00:01:32	Bounce Rate 73.52%	% Exit 53.47%
----------------------------------	---	---	-------------------------------------	--------------------------------

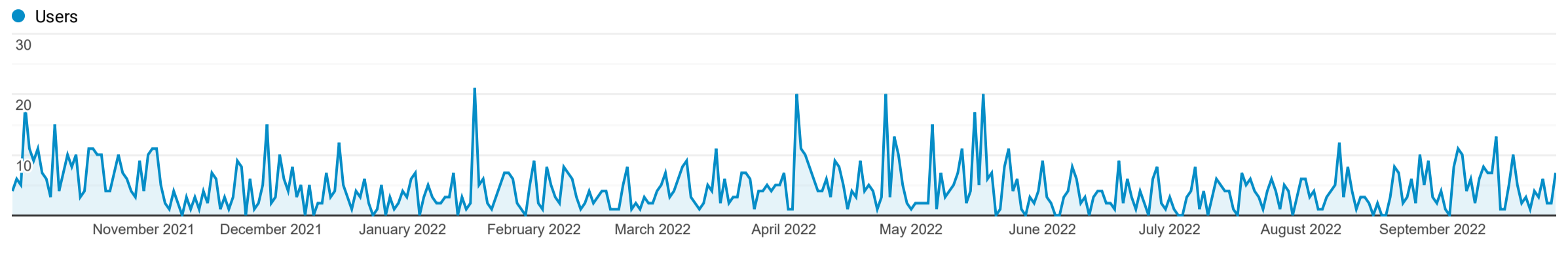
Page	Pageviews	% Pageviews
1. /	1,328	39.34%
2. /aboutpartners/city-of-boise/	175	5.18%
3. /residents/general-information/	159	4.71%
4. /aboutpartners/achd/	153	4.53%
5. /residents/pest-control/gophers/	124	3.67%
6. /businesses/general-information/	117	3.47%
7. /report-an-issue/	117	3.47%
8. /aboutpartners/annual-report/	111	3.29%
9. /residents/landscaping-gardening-and-home-maintenance/	106	3.14%
10. /aboutpartners/drainage-district-3/	86	2.55%

Audience Overview

Oct 1, 2021 - Sep 30, 2022

All Users
100.00% Users

Overview



Users 1,358	New Users 1,346	Sessions 1,805	Number of Sessions per User 1.33
Pageviews 3,376	Pages / Session 1.87	Avg. Session Duration 00:01:20	Bounce Rate 73.52%



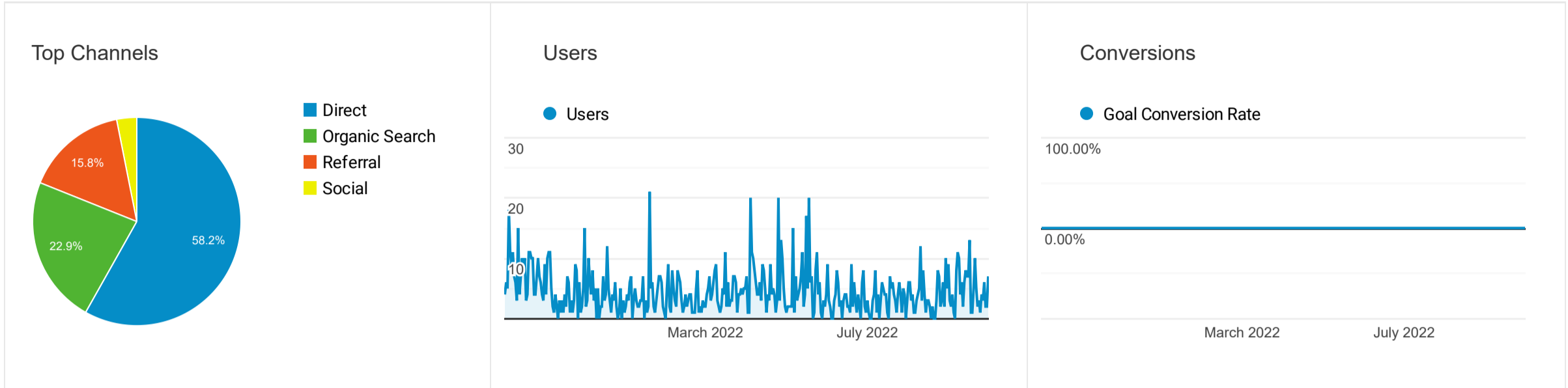
Language	Users	% Users
1. en-us	1,036	76.29%
2. zh-cn	255	18.78%
3. en-us.utf-8	24	1.77%
4. en	14	1.03%
5. en-ca	6	0.44%
6. c	4	0.29%
7. en-gb	4	0.29%
8. it-it	3	0.22%
9. it	2	0.15%
10. nl	2	0.15%

Acquisition Overview

Oct 1, 2021 - Sep 30, 2022

All Users
100.00% Users

Primary Dimension: **Top Channels** Conversion: **All Goals** [Edit Channel Grouping](#)



	Acquisition			Behavior		
	Users ↓	New Users ↓	Sessions ↓	Bounce Rate ↓	Pages / Session ↓	Avg. Session Duration ↓
	1,358	1,346	1,805	73.52%	1.87	00:01:20
1 Direct	802	<div style="width: 60%;"></div>		84.92%	<div style="width: 80%;"></div>	
2 Organic Search	316	<div style="width: 23%;"></div>		58.69%	<div style="width: 45%;"></div>	
3 Referral	218	<div style="width: 16%;"></div>		63.16%	<div style="width: 60%;"></div>	
4 Social	43	<div style="width: 3%;"></div>		95.35%	<div style="width: 95%;"></div>	

Conversions

Set up a goal.
To see outcome metrics, define one or more goals.

[GET STARTED](#)

To see all 4 Channels click [here](#).

Attachment C
Stormwater Outfall Monitoring Summary WY 2022

Stormwater Outfall Monitoring Summary WY 2022

Ada County Highway District

12/22/2022

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1. Introduction

Ada County Highway District, Boise State University, City of Boise, City of Garden City, Drainage District #3, and the Idaho Transportation Department District #3 (Permittees) were issued a third-cycle National Pollutant Discharge Elimination System Phase I Permit #IDS027561 (Permit) on October 1, 2021. The Permit authorizes the Permittees to discharge from municipal separate storm sewer system (MS4) outfalls to the Boise River and its tributaries. According to Permit Part 6.2.1, *Wet Weather Stormwater Outfall Monitoring*, Permittees are required to monitor wet weather stormwater discharges according to the [NPDES Phase I Stormwater Outfall Monitoring Plan](#) (SWOMP) (ACHD, 2022). The following summary covers wet weather outfall monitoring activities during water year (WY) 2022 (October 1, 2021 – September 30, 2022). WY 2022 represents the first year of monitoring under the new Permit cycle.

The SWOMP was developed in line with the Quality Assurance Project Plan for NPDES Stormwater Permit Monitoring (QAPP) (ACHD, 2022) and describes the overall approach to stormwater outfall monitoring. Details about specific site characteristics, equipment, data collection and sample handling procedures, analytical methods, and quality assurance/quality control (QA/QC) methodology are found in the SWOMP.

In WY 2022, data collection for the Stormwater Outfall Monitoring Program included precipitation, flow, and water quality samples. Four outfall sites within the Permit area (Lucky, Whitewater, Main, and Americana) were monitored for flow and water quality. The water quality samples were collected from wet weather discharges and included grab samples with corresponding field parameters and composite samples, which were collected throughout the duration of a storm. Additionally, four rain gauge sites (East, Front, Cynthia Mann, and Whitewater) were maintained to provide localized precipitation data. Each rain gauge site represents one of the monitored subwatersheds and are used to verify that storm criteria were met.

2. Monitoring Sites, Equipment, and Sample Type

The Stormwater Outfall Monitoring Program consists of four monitored subwatersheds: Lucky, Whitewater, Main, and Americana. Monitoring stations for each subwatershed are located near the outfalls with dedicated equipment installed at each location. Table 2-1 depicts the equipment types and referenced rain gauge site for each subwatershed. A vicinity map illustrating the location of each subwatershed, monitoring station, and rain gauge site is found in Figure 1.

	Lucky	Whitewater	Main	Americana
Sampler Type	Hach AS950	ISCO 6712	Hach AS950	ISCO 6712
Flowmeter Type	Hach AV9000	ISCO Signature	Hach AV9000	ISCO Signature
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front and East
Rain Gauge Equipment Types	Global Water tipping bucket/ HOBO event logger	Hach tipping bucket/ ISCO Signature	Global Water tipping bucket/ HOBO event logger	Global Water tipping bucket/ HOBO event logger

2.1 Sample Types

The sample types collected during WY 2022 include grab samples and composite samples. Grab samples represent a discrete measurement from the overall storm discharge while composite samples represent the entire discharge.

Grab samples were manually collected from the discharge stream using a swing sampler. The grab samples were submitted to the Boise City Water Quality Laboratory (WQL) and analyzed for *E.coli*. At the time that the grab samples were collected, field parameters (temperature, pH, dissolved oxygen (DO), and conductivity) were measured using In-Situ smarTroll or In-Situ aquaTroll handheld instruments.

Composite samples were collected using automatic samplers, which worked in conjunction with flowmeters. After a predetermined volume of flow was discharged, the flowmeters triggered the samplers to collect a subsample. Each subsample was deposited into a 15-liter carboy, resulting in a flow-proportional composite sample. The composite samples were submitted to WQL, where they were split for analysis. The following constituents were analyzed: biological oxygen demand, 5-day (BOD₅); chemical oxygen demand (COD); hardness as calcium carbonate (CaCO₃); turbidity; total suspended solids (TSS); total dissolved solids (TDS); total phosphorus (TP); orthophosphate, as P (ortho-P); ammonia; nitrate + nitrite (NO_x); total Kjeldahl nitrogen (TKN); total arsenic (As); dissolved and total cadmium (Cd); dissolved and total copper (Cu); dissolved and total lead (Pb); dissolved and total mercury (Hg); and dissolved zinc (Zn).

3. Stormwater Outfall Monitoring Results

Wet weather stormwater samples were collected according to the procedures listed in the SWOMP. A goal of the Stormwater Outfall Monitoring Program is to collect three accepted (unqualified) grab and composite samples from each monitoring station. In WY 2022, samples were collected from seven storms to meet this goal. A summary of the storm dates and sample types collected are shown in Table 3-1. Storm setup and sampling information are included in Table 1. Storm Event Reports were created after each stormwater sampling event to monitor the status of the Stormwater Outfall Monitoring Program and discuss the hydrological and analytical data from the grab and composite samples. These Storm Event Reports include details about the storm and weather monitoring, hydrographs, sample collection times, and water quality results. Individual Storm Event Reports for the seven sampling events during WY 2022 are included in Appendix A.

	Lucky	Whitewater	Main	Americana
October 22, 2021	G	G	G, FD, FB, C	G, C
November 9, 2021	C	C		
March 15, 2022	G, C	G, C	G, FD, FB, C	G, C
April 4, 2022		G, FD, FB		G
May 27, 2022	G ^{1,2}		G ¹ , FD, FB, C	C
June 5, 2022	C	C ³	CB	C ³
June 12, 2022	G, FD, FB	C, CS	G	

Sample types: G-grab, C-composite

QC sample types: FD-field duplicate, FB-field blank; CD-composite duplicate; CB-composite blank

¹Qualified due to exceeded hold time

²Qualified due to insufficient precipitation

³Rejected due to lack of representativeness

3.1 Wet Weather Analytical Results

Field parameter results are presented in Table 2 and analytical results are presented in Table 3. The following assessment provides minimum and maximum measured values for WY 2022. Qualified data are included in the range of measured/reported values and included in the data analysis. Rejected data are not included in the analysis or data discussion below; however, they are presented in the tables. All measurements were recorded in accordance with QAPP and SWOMP procedures.

Dissolved Oxygen and Oxygen Demand

- DO ranged from 5.86 to 10.57 milligrams per liter (mg/L).
- Biological oxygen demand, 5-day (BOD₅) concentrations ranged from 15.2 to 84.7 mg/L.
- Chemical oxygen demand concentrations ranged from 73.0 to 303 mg/L.

pH, Temperature, Conductivity, and Hardness

- pH values ranged from 5.87 to 7.43 standard units.
- Temperature ranged from 9.30 to 21.8 degrees Celsius.
- Conductivity ranged from 44.8 to 738 micro-Siemens per centimeter.
- Hardness ranged from 14.9 to 146 mg/L as CaCO₃.

Bacteria

- *E.coli* ranged from 24.3 to 8,600 most probable number per 100 milliliters (MPN/100mL).

Sediment

- Turbidity ranged from 14.4 to 175 nephelometric turbidity units (NTU).
- TSS ranged from 27.3 to 315 mg/L.
- TDS ranged from 48.8 to 394 mg/L.

Nitrogen

- Ammonia ranged from 0.149 to 1.33 mg/L as N.
- Nitrate + nitrite ranged from 0.0872 to 0.989 mg/L as N.
- TKN ranged from 1.07 to 7.04 mg/L.

Phosphorus

- TP ranged from 0.40 to 1.14 mg/L
- Orthophosphate ranged from 0.143 to 0.803 mg/L as P.

Metals

- Total arsenic ranged from 0.91 micrograms per liter (µg/L) to 5.9 µg/L.
- Dissolved cadmium ranged from below the method detection limit (MDL) of <0.0250 to 0.034 µg/L.
- Total cadmium ranged from 0.040 to 0.25 µg/L.
- Dissolved copper ranged from 2.3 to 14.0 µg/L.

- Dissolved lead ranged from 0.092 to 0.94 µg/L.
- Total lead ranged from 0.84 to 17 µg/L.
- Total mercury ranged from below the MDL of <0.0100 to 0.0410 µg/L.
- Dissolved zinc ranged from 20.7 to 59.0 µg/L.

3.2 Monitored Event Pollutant Loading Results

Pollutant loading estimates in pounds were calculated for the following constituents of concern: TSS, TP, ammonia, nitrate + nitrite, and TKN. Reported concentrations were combined with runoff volumes measured during the storm event at each monitoring station. Formulas used, including conversion factors, are described in the SWOMP. Table 4 presents the estimated pollutant loading of the constituents for each monitored storm. The pollutant loading contributions for each site are shown graphically in Figure 6. Table 5 is a summary of event loading estimates in pounds per acre for comparison between monitored drainage areas. A summary of the ranges of loading pounds per acre (lbs/ac) as calculated for the storm events monitored during WY 2022 is presented below.

- TSS loading estimates ranged from 0.252 to 2.51 lbs/ac.
- TP loading estimates ranged from 0.00122 to 0.0138 lbs/ac.
- Ammonia loading estimates ranged from 0.00181 to 0.0138 lbs/ac.
- Nitrate + nitrite loading estimates ranged from 0.00101 to 0.0146 lbs/ac.
- TKN loading estimates ranged from 0.00679 to 0.0613 lbs/ac.

3.3 Precipitation Results

Precipitation data from the Front, East, Cynthia Mann, and Whitewater rain gauges were used to validate all targeted storms during WY 2022. Each monitoring station is associated with a rain gauge. Precipitation data recorded for each of the targeted storms can be found in Table 1. Monthly totals for WY 2022 are shown in Figure 7. A severed cable at the Front rain gauge caused a data gap from October 22, 2021 – October 29, 2021, resulting in a low monthly total compared to the other three rain gauge sites.

4. Quality Assurance/Quality Control

Quality assurance (QA) and quality control (QC) measures for the Stormwater Outfall Monitoring Program are presented in detail in the QAPP and SWOMP. No deviations from the QAPP and SWOMP occurred during WY 2022. QA and QC measures conducted during the WY are discussed below.

4.1 Data Quality Discussion

A data validation review process was used to evaluate the analytical and field parameter results. These checklists were used to compare monitoring methods and all monitoring data collected against performance criteria established to meet the data quality objectives described in the QAPP. Field parameter results and analytical results that were qualified are identified in Table 3 and Table 4, respectively. Further information regarding qualified samples is included in the Storm Event Reports located in Appendix A.

The following program criteria are used to identify storm events and representative composite samples.

- Storm criteria are met when the precipitation amount is greater than 0.10 inch and the storm was preceded by a minimum 72 hours of dry weather from the previous measurable storm event (rainfall greater than 0.10 inch).
- Composite samples are considered representative of stormwater runoff when aliquots represent greater than 75 percent of total runoff volume from the storm or greater than 6 hours of the storm, including the first hour of runoff.

For WY 2022, the grab sample collected from the Lucky monitoring station on May 27, 2022 was qualified due to an exceeded holding time (>8 hours) and insufficient rainfall. From the same storm event, the grab sample collected from the Main monitoring station was also qualified due to an exceeded holding time. The composite samples collected on June 5, 2022 from the Whitewater and Americana monitoring stations were rejected due to lack of representativeness.

4.2 QC Sample Results

QC sampling during WY 2022 consisted of a combination of field QC samples, laboratory QC samples, and equipment QC samples. Field QC sampling intervals followed a predetermined schedule, included in the SWOMP. Equipment QC samples were collected during fall maintenance. Sample results for all QC samples are included in Table 6.

4.2.1 Field QC Samples

Field QC samples include field duplicates, field blanks, and composite blanks.

Field duplicates are field grab samples that were taken alongside a parent grab sample to compare the accuracy of the data. For *E.coli*, the allowable logarithmic relative percent difference (RPD) between the duplicate sample and the parent sample is 40 percent. All field duplicate samples collected during WY 2022 met the RPD standard.

Analytical results from field blanks and composite blanks are expected to be less than the MDL. If a water quality parameter is detected in a field or composite blank, all analytical results associated with the blank that exhibit a concentration of less than five times the concentration detected in the blank, are qualified. All field blank samples collected had a result less than the MDL. TKN and dissolved copper were detected in the composite blank collected on May 27, 2022. No TKN or dissolved copper results during the WY were less than five times the concentration detected in the composite blank.

4.2.2 Laboratory QC Samples

Laboratory QC samples are composite duplicate samples that are split at WQL. This type of sample serves as a check on the laboratory's ability to representatively split a composite sample and is a test of analytical precision. The allowable RPD for all parameters is 20 percent. All parameters from the composite duplicate sample collected during WY 2022 met the RPD standard.

4.2.3 Equipment QC Samples

Equipment QC samples include an equipment blank and a rinsate blank, both serving as a check on equipment decontamination procedures.

The equipment blank is collected before sampling for the WY begins, when new equipment is installed. For WY 2022, the equipment blank was collected on September 15, 2021 at the Main monitoring station. TKN, TP, dissolved copper, and dissolved zinc were detected in the sample. Dissolved copper

results that were collected throughout the WY that are less than five times the value detected in the blank have been qualified and are considered estimates. All other results were greater than five times the detected value in the blank and are unqualified.

The rinsate blank is collected after sampling for the WY has been completed. The rinsate blank for WY 2022 was collected on August 29, 2022 at the Americana subwatershed monitoring station. Dissolved copper was detected in the sample, however, no dissolved copper results during the WY were less than five times the concentration detected in the rinsate blank.

Figures

Figure 1. Vicinity Map

Figure 2. WY 2022 *E.coli* Results

Figure 3. WY 2022 TSS, TDS, and Turbidity Results







Figure 4. WY 2022 Ammonia, Nitrate + Nitrite, and TKN Results

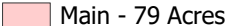
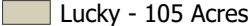


Figure 5. WY 2022 Total Phosphorus and Orthophosphate Results

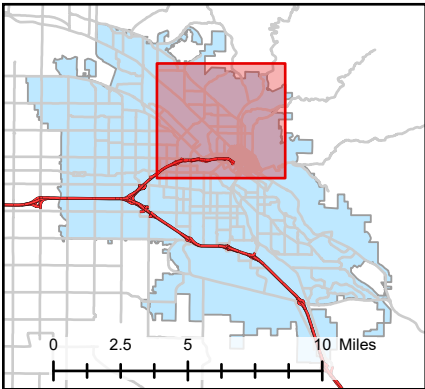
Figure 6. WY 2022 Pollutant Loadings

Figure 7. WY 2022 Monthly Precipitation

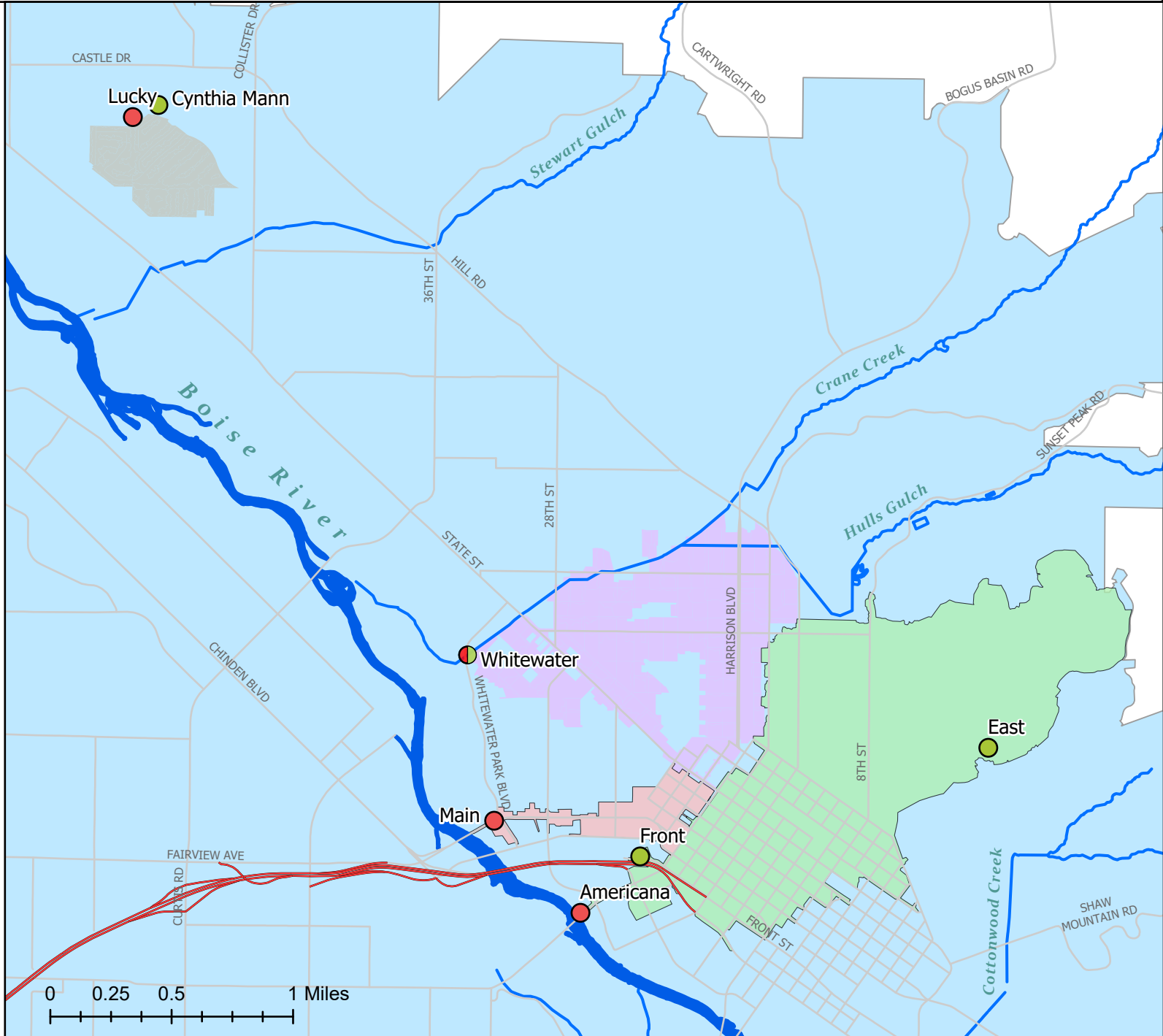
**Figure 1: Vicinity Map
Phase I NPDES Outfall Sampling Stations**

-  Monitoring Station
-  Rain Gauge
-  Monitoring Station and Rain Gauge
-  Interstate
-  Arterials
-  Phase I Permit Area

- Subwatershed**
-  Main - 79 Acres
 -  Lucky - 105 Acres
 -  Americana - 875 Acres
 -  Whitewater - 498 Acres



12/19/19



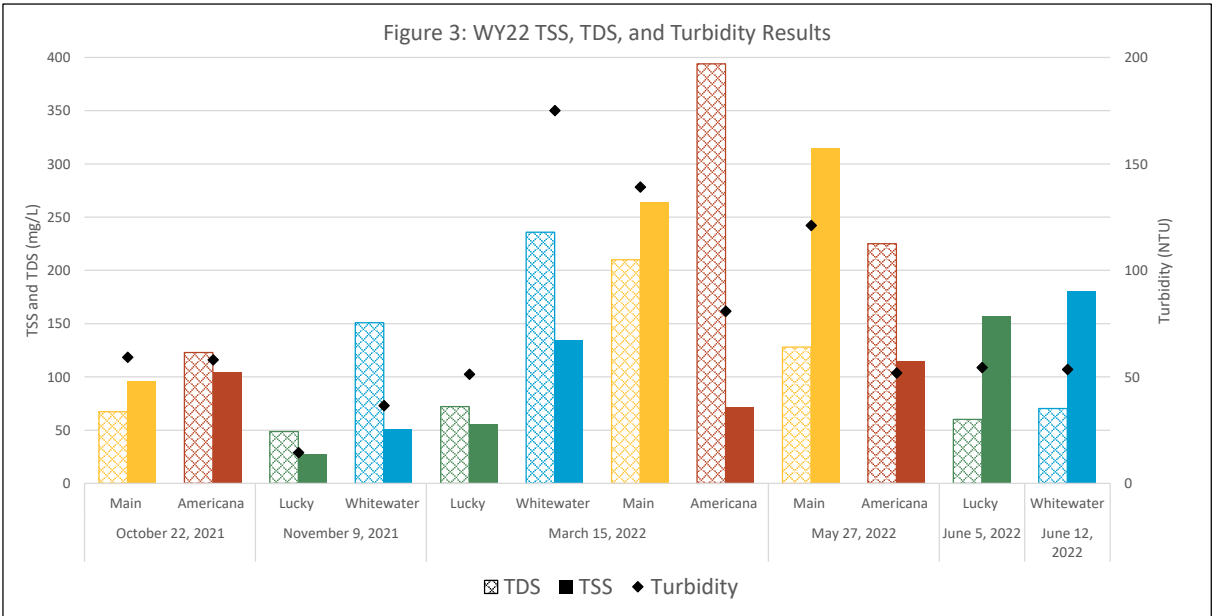
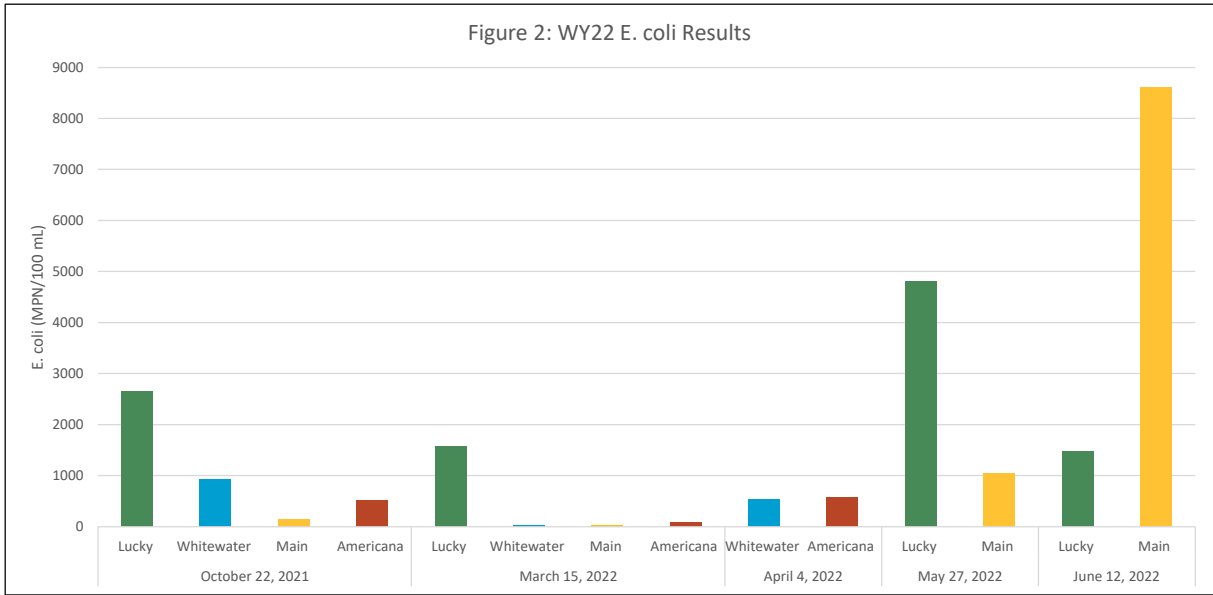


Figure 4: WY22 Nitrate + Nitrite, Ammonia, and TKN Results

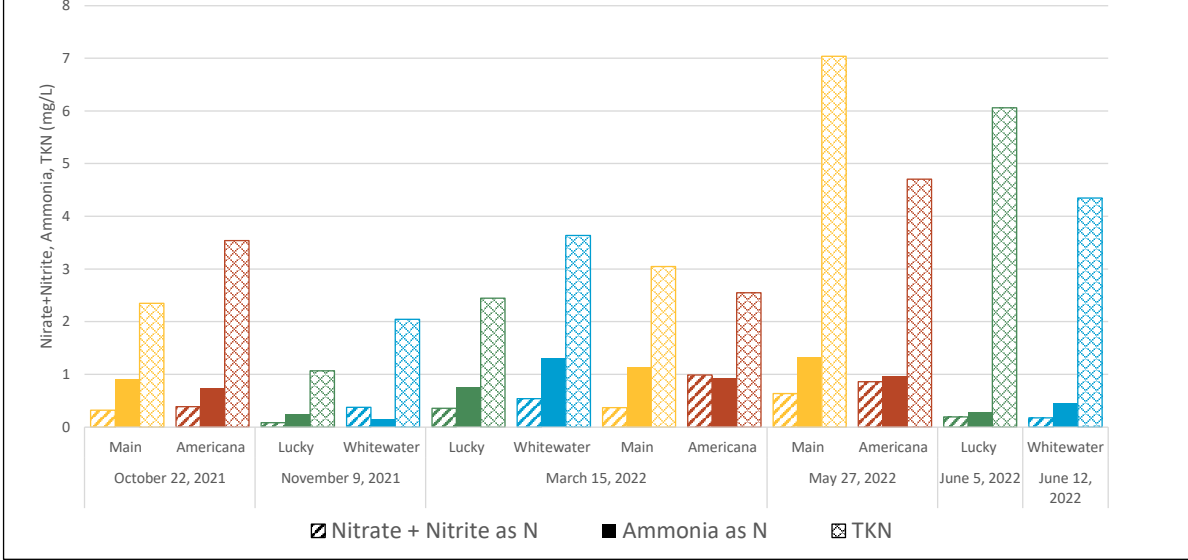


Figure 5: WY22 Total Phosphorus and Orthophosphate

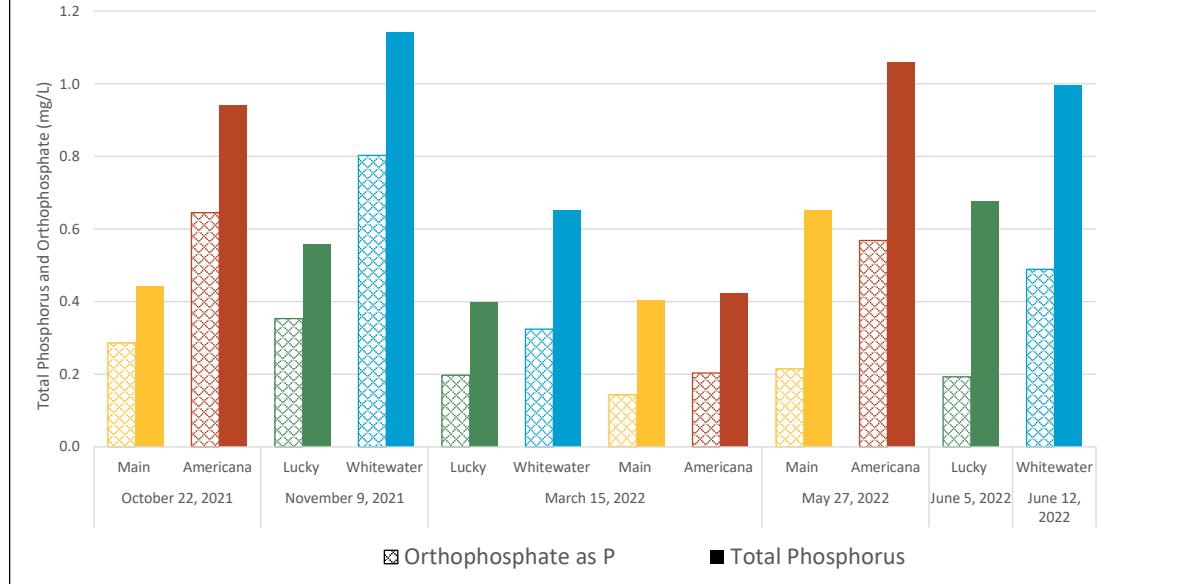


Figure 6: WY22 Pollutant Loadings

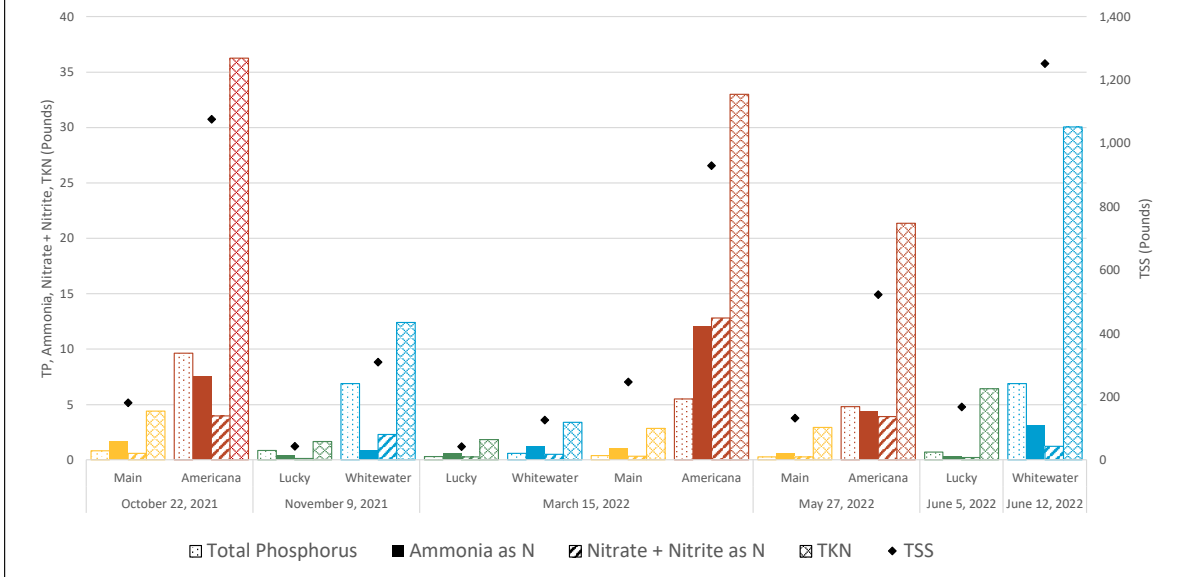
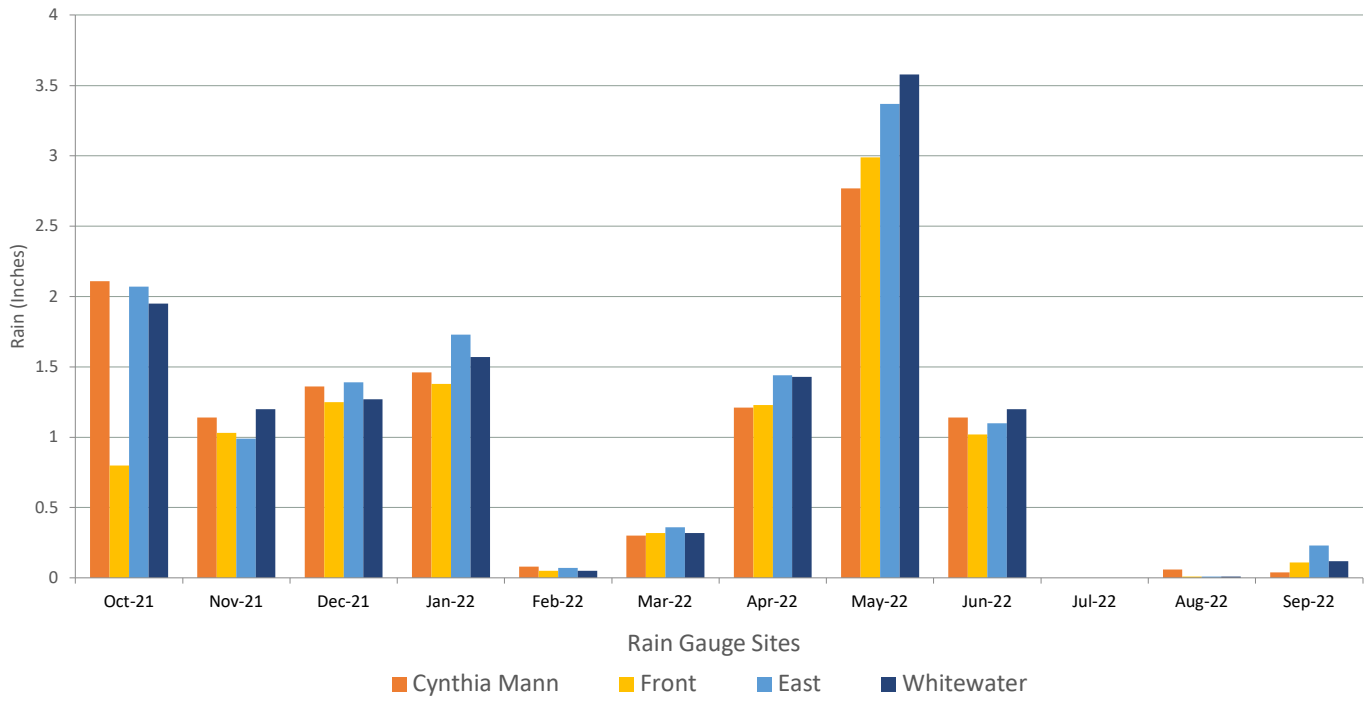


Figure 7: WY22 Monthly Precipitation



Tables

Table 1. Monitored Storms and Samples Collected

Table 2. Field Parameter Summary

Table 3. Analytical Results Summary

Table 4. Event Loading for Monitored Drainages in Pounds

Table 5. Event Loading in Pounds per Acre

Table 6. QC Sample Summary

Table 1. Monitored Storms and Samples Collected					
Event Date	Sampling Information	Lucky	Whitewater	Main	Americana
October 22, 2021	Grab samples collected and submitted?	Yes	Yes	Yes	Yes
	Composite samples collected and submitted?	No	No	Yes	Yes
	Trigger volume	2,895 gal	800 ft ³	3,411 gal	2,960 ft ³
	Sampler enable condition (in)	level > 3.40	level > 3.75	level > 2.00	level > 3.85
	Percent of storm flow sampled	-	-	79%	84%
	Composite sample duration (hrs.)	-	-	4.0	5.5
	Storm precipitation (in)	0.42	0.43	0.37	0.37/0.39
November 9, 2021	Grab samples collected and submitted?	NO	NO	NO	NO
	Composite samples collected and submitted?	YES	YES	NO	NO
	Trigger volume	2,895 gal	800 ft ³	-	-
	Sampler enable condition (in)	level > 2.3	level > 2.3	-	-
	Percent of storm flow sampled	90%	70%	-	-
	Composite sample duration (hrs.)	7.5	8.0	-	-
	Storm precipitation (in)	0.45	0.41	0.38	0.38/0.44
March 15, 2022	Grab samples collected and submitted?	YES	YES	YES	YES
	Composite samples collected and submitted?	YES	YES	YES	YES
	Trigger volume	5,004 gal	1,600 ft ³	5,894 gal	5,112 ft ³
	Sampler enable condition (in)	level > 1.5	level > 0.5	level > 3.5	level > 6.5
	Percent of storm flow sampled	98%	95%	98%	61%
	Composite sample duration (hrs.)	9.0	8.0	9.0	6.5
	Storm precipitation (in)	0.30	0.32	0.30	0.30/0.36
April 4, 2022	Grab samples collected and submitted?	NO	YES	NO	YES
	Composite samples collected and submitted?	NO	NO	NO	NO
	Trigger volume	-	-	-	-
	Sampler enable condition (in)	-	-	-	-
	Percent of storm flow sampled	-	-	-	-
	Composite sample duration (hrs.)	-	-	-	-
	Storm precipitation (in)	0.26	0.25	0.21	0.21/0.28
May 27, 2022	Grab samples collected and submitted?	YES	NO	YES	NO
	Composite samples collected and submitted?	NO	NO	YES	YES
	Trigger volume	2,895 gal	800 ft ³	3,411 gal	2,960 ft ³
	Sampler enable condition (in)	level > 2.3	level > 1.5	level > 2.8	level > 6.2
	Percent of storm flow sampled	-	-	94%	99%
	Composite sample duration (hrs.)	-	-	6.5	11.0
	Storm precipitation (in)	0.10	0.15	0.15	0.15/0.14
June 5, 2022	Grab samples collected and submitted?	NO	NO	NO	NO
	Composite samples collected and submitted?	YES	YES	NO	YES
	Trigger volume	2,895 gal	800 ft ³	-	2,960 ft ³
	Sampler enable condition (in)	level > 3.1	level > 2.0	-	level > 11.25
	Percent of storm flow sampled	62%	17%	-	35%
	Composite sample duration (hrs.)	7.5	1.0	-	4.0
	Storm precipitation (in)	0.22	0.17	0.20	0.20/0.16
June 12, 2022	Grab samples collected and submitted?	YES	NO	YES	NO
	Composite samples collected and submitted?	NO	YES	NO	NO
	Trigger volume	-	1,600 ft ³	-	-
	Sampler enable condition (in)	-	level > 2.0	-	-
	Percent of storm flow sampled	-	91%	-	-
	Composite sample duration (hrs.)	-	6.0	-	-
	Storm precipitation (in)	0.69	0.68	0.62	0.62/0.68

Notes:

-- = no data

Table 2. Field Parameter Results					
Event Date	Monitoring Station	Field Parameters			
		Dissolved Oxygen	Temperature	pH	Conductivity
		mg/L	C	S.U.	uS/cm
October 22, 2021	Lucky	8.54	16.41	6.94	82.1
	Whitewater	8.93	14.36	7.19	163.2
	Main	9.10	14.35	6.28	88.8
	Americana	9.22	13.83	6.63	87.5
March 15, 2022	Lucky	9.04	12.21	5.87	83.3
	Whitewater	8.68	9.70	6.10	671.8
	Main	10.57	9.30	6.11	511.8
	Americana	10.55	10.17	6.32	737.6
April 4, 2022	Lucky	-	-	-	-
	Whitewater	9.19	10.59	7.43	205.4
	Main	-	-	-	-
	Americana	10.05	11.55	7.25	349.1
May 27, 2022	Lucky	5.86 ^{2j}	20.53 ^{2j}	7.42 ^{2j}	189.1 ^{2j}
	Whitewater	-	-	-	-
	Main	6.02	21.82	6.92	156.7
	Americana	-	-	-	-
June 12, 2022	Lucky	7.58	18.38	6.09	49.6
	Whitewater	-	-	-	-
	Main	7.92	19.4	6.45	44.8
	Americana	-	-	-	-

Notes:

-- = no data

^{2j} Data qualified due to insufficient precipitation.

Table 3. Analytical Results

Event Date	Monitoring Station	Sample ID	Analytical Parameters																			
			E. coli	BOD ₅	COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			MPN/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
October 22, 2021	Lucky	211022-03-WG	2650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Whitewater	211022-11-WG	921	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Main	211022-12-WG/WC	137.6	35.0	142	20.5	59.1	95.8	67.2	0.442	0.286	0.907	0.322	2.35	1.6	<0.0250	0.13	7.5 ¹	0.48	10	0.0219	51.3
	Americana	211022-14-WG/WC	517.2	80.3	212	38.2	57.9	105	123	0.940	0.645	0.740	0.389	3.54	2.6	<0.0250	0.14	8.4	0.28	7.1	0.0191	49.6
November 9, 2021	Lucky	21109-03-WC	-	18.3	73.0	14.9	14.4	27.3	48.8	0.558	0.353	0.248	0.0872	1.07	0.91	<0.0250	0.040	2.3 ¹	0.16	0.84	0.0115	31.0
	Whitewater	211109-11-WC	-	41.1	159	52.3	36.4	51.0	151	1.14	0.803	0.149	0.380	2.05	2.3	<0.0250	0.060	5.0 ¹	0.94	4.2	<0.0100	20.7
	Main	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Americana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March 15, 2022	Lucky	220315-03-WG/WC	1580	15.2	121	20.7	51.1	55.8	72.0	0.4	0.197	0.750	0.359	2.45	2.0	<0.0250	0.076	5.0 ¹	0.11	2.2	0.0107	32.3
	Whitewater	220315-11-WG/WC	30.1	27.2	197	84.3	175	135	236	0.7	0.324	1.30	0.541	3.64	3.4	<0.0250	0.13	8.6	0.25	8.9	0.0192	41.8
	Main	220315-12-WG/WC	24.3	18.9	215	81	139	264	210	0.404	0.143	1.14	0.372	3.05	3.2	0.034	0.20	6.7 ¹	0.092	12.5	0.0285	53.7
	Americana	220315-14-WG/WC	88.2	19.8	118	146	80.8	71.8	394	0.424	0.203	0.935	0.989	2.55	4.9	0.033	0.13	4.6 ¹	0.18	6.8	0.0155	43.9
April 4, 2022	Lucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Whitewater	220404-11-WG	547.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Main	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Americana	220404-14-WG	579.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 27, 2022	Lucky	220527-03-WG	4810 ^{1,2}	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Whitewater	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Main	220527-12-WG/WC	1046 ¹	49.9	303	45.2	121	315	128	0.650	0.215	1.33	0.636	7.04	3.7	0.031	0.25	13.7	0.29	17.0	0.0410	59.0
	Americana	220527-14-WC	-	84.7	224	96.4	51.8	115	225	1.060	0.568	0.970	0.863	4.71	5.9	<0.0250	0.13	14.0	0.28	5.5	0.0196	47.9
June 5, 2022	Lucky	220605-03-WC	-	18.7	130	21.3	54.3	157	60.0	0.676	0.193	0.277	0.196	6.06	1.8	<0.0250	0.11	6.5 ¹	0.11	3.8	0.0153	31.8
	Whitewater	220605-11-WC	-	20.3 ^{1R}	172 ^{1R}	57.1 ^{1R}	108 ^{1R}	451 ^{1R}	85.2 ^{1R}	1.7 ^{1R}	0.0541 ^{1R}	<0.0350 ^{1R}	0.181 ^{1R}	4.14 ^{1R}	6.1 ^{1R}	<0.0250 ^{1R}	0.90 ^{1R}	2.9 ^{1,1R}	0.12 ^{1R}	201 ^{1R}	0.0315 ^{1R}	13.4 ^{1R}
	Main	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Americana	220605-14-WC	-	9.19 ^{1R}	138 ^{1R}	50.4 ^{1R}	27.6 ^{1R}	70.6 ^{1R}	112 ^{1R}	0.218 ^{1R}	0.0128 ^{1R}	0.211 ^{1R}	0.266 ^{1R}	1.72 ^{1R}	3.0 ^{1R}	<0.0250 ^{1R}	0.069 ^{1R}	2.7 ^{1,1R}	0.054 ^{1R}	4.5 ^{1R}	<0.0100 ^{1R}	12.4 ^{1R}
June 12, 2022	Lucky	220612-03-WG	1480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Whitewater	220612-11-WC	-	53.0	195	23.7	53.5	181	70.2	0.997	0.489	0.458	0.176	4.35	2.6	<0.0250	0.11	5.5 ¹	0.27	8.8	0.0194	24.2
	Main	220612-12-WG	8600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Americana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

- = no data

¹ Data considered an estimate since the results are less than five times the dissolved copper in the equipment blank.^{1J} Sample qualified due to exceeded hold time.^{2J} Data qualified due to insufficient precipitation.^{1R} Data rejected due to lack of representativeness.

WG = Wet grab sample.

WC = Wet composite sample.

Table 4. Event Loading for Monitored Drainages in Pounds

Event Date	Monitoring Station	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
October 22, 2021	Lucky	-	-	-	-	-
	Whitewater	-	-	-	-	-
	Main	180	0.829	1.70	0.604	4.41
	Americana	1,075	9.62	7.58	3.98	36.2
November 9, 2021	Lucky	42.2	0.863	0.384	0.135	1.655
	Whitewater	308	6.89	0.900	2.30	12.4
	Main	-	-	-	-	-
	Americana	-	-	-	-	-
March 15, 2022	Lucky	41.8	0.298	0.562	0.269	1.84
	Whitewater	125	0.605	1.21	0.503	3.38
	Main	245	0.375	1.06	0.346	2.83
	Americana	929	5.49	12.1	12.8	33.0
May 27, 2022	Lucky	-	-	-	-	-
	Whitewater	-	-	-	-	-
	Main	131	0.271	0.553	0.265	2.93
	Americana	521	4.80	4.40	3.91	21.3
June 5, 2022	Lucky	167	0.718	0.294	0.208	6.43
	Whitewater	794 ^{1R}	2.99 ^{1R}	0.00 ^{1R,U}	0.319 ^{1R}	7.29 ^{1R}
	Main	-	-	-	-	-
	Americana	888 ^{1R}	2.74 ^{1R}	2.65 ^{1R}	3.35 ^{1R}	21.6 ^{1R}
June 12, 2022	Lucky	-	-	-	-	-
	Whitewater	1,250	6.89	3.16	1.22	30.1
	Main	-	-	-	-	-
	Americana	-	-	-	-	-

Notes:

-- = no data

^{1R} Data rejected due to lack of representativeness.

^U Concentrations are at or below the method detection limit (MDL). A value of half the MDL was used in calculations.

Table 5. Event Loading in Pounds/Acre

Event Date	Monitoring Station	TSS	Total Phosphorus	Ammonia as N	Nitrate + Nitrite as N	TKN
October 22, 2021	Lucky	-	-	-	-	-
	Whitewater	-	-	-	-	-
	Main	1.37	0.00633	0.0130	0.00461	0.0336
	Americana	1.23	0.0110	0.00866	0.00455	0.0414
November 9, 2021	Lucky	0.402	0.00822	0.00365	0.00128	0.0158
	Whitewater	0.619	0.0138	0.00181	0.00461	0.0249
	Main	-	-	-	-	-
	Americana	-	-	-	-	-
March 15, 2022	Lucky	0.398	0.00284	0.00535	0.00256	0.0175
	Whitewater	0.252	0.00122	0.00243	0.00101	0.0068
	Main	1.87	0.00287	0.00809	0.00264	0.0216
	Americana	1.06	0.00627	0.0138	0.0146	0.0377
May 27, 2022	Lucky	-	-	-	-	-
	Whitewater	-	-	-	-	-
	Main	1.000	0.00207	0.00422	0.00202	0.0224
	Americana	0.596	0.00549	0.00503	0.00447	0.0244
June 5, 2022	Lucky	1.59	0.00684	0.00280	0.00198	0.0613
	Whitewater	1.59 ^{1R}	0.00600 ^{1R}	0.0000 ^{1R,U}	0.000641 ^{1R}	0.0146 ^{1R}
	Main	-	-	-	-	-
	Americana	1.01 ^{1R}	0.00313 ^{1R}	0.00303 ^{1R}	0.00383 ^{1R}	0.0247 ^{1R}
June 12, 2022	Lucky	-	-	-	-	-
	Whitewater	2.51	0.0138	0.00635	0.00244	0.0603
	Main	-	-	-	-	-
	Americana	-	-	-	-	-

Notes:

-- = no data

^{1R} Data rejected due to lack of representativeness.

^U Concentrations are at or below the method detection limit (MDL). A value of half the MDL was used in calculations.

Table 6. QC Sample Results

Event Date	Parent Sample	Sample ID	QC Sample Type	Analytical Parameters																			
				E. coli	BOD ₅	COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Orthophosphate as P	Ammonia as N	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
				mpn/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
October 22, 2021	Main grab	211022-12-001	Field blank	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Main grab	211022-12-101	Field duplicate	141	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Calculated parent/duplicate RPD			0.4%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
March 15, 2022	Main grab	220315-12-001	Field blank	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Main grab	220315-12-101	Field duplicate	15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Calculated parent/duplicate RPD			10%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
May 27, 2022	Main grab	211022-12-001	Field blank	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Main grab	211022-12-101	Field duplicate	727	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Calculated parent/duplicate RPD			4%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
June 5, 2022	Main composite	220605-12-002	Composite blank	-	<2.00	<13.0	<0.115	<0.3	<0.900	<25.0	<6.00E-3	<2.00E-3	<0.0350	<0.0250	0.147	<0.0400	<0.0250	<0.0250	0.180	<0.0500	<0.0500	<0.0100	<0.780
June 12, 2022	Lucky grab	220612-03-001	Field blank	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Lucky grab	220612-03-101	Field duplicate	1120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Calculated parent/duplicate RPD			3%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
June 12, 2022	Whitewater composite	220612-11-103	Composite split	-	52.5	187	23.7	53.9	170	79.8	0.994	0.475	0.433	0.177	4.1	2.5	<0.0250	0.11	5.4	0.29	8.2	0.0188	24
	Calculated parent/duplicate RPD			-	0.9%	4%	0.0%	0.7%	6%	13%	0.3%	3%	6%	0.6%	7%	4%	0.0%	0.0%	2%	7%	7%	3%	0.8%
August 29, 2022	-	220829-206-004	Rinsate blank	-	<2.00	<13.0	<0.115	<0.3	<0.900	<25.0	<6.00E-3	<2.00E-3	<0.0350	<0.0250	<0.100	<0.0400	<0.0250	<0.0250	0.19	<0.0500	<0.0500	<0.0100	<0.780
September 15, 2021	-	210915-12-003	Equipment blank	-	<2.00	<13.0	<0.115	<0.3	<0.900	<25.0	0.00491	<2.00E-3	<0.0350	<0.0250	0.135	<0.0400	<0.0250	<0.0250	1.6	<0.0500	<0.0500	<0.0100	2.4
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%

- = No data

Cells highlighted in gray are flagged for discussion.

Appendix A – Storm Event Reports



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for October 22, 2021

Date: January 5, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the October 22, 2021 storm event.

Section 2: Project Status

Table 1-1 is a summary of the sample types collected to date for water year 2022 Phase I Stormwater Outfall Monitoring.

Table 1-1. WY 2022 Samples Collected					
Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
Collected:	1G	1G	1G, 1C	1G, 1C	1G, 1C

Notes:

C = composite sample.

G = grab sample.

Section 3: Storm Event Summary

The October, 2021 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A detailed summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form from October 21, 2021, is included in Attachment A for reference.

Thursday, October 21, 2021

- The morning of Thursday, October 21, the National Weather Service issued a forecast for widespread rain in the Boise area Friday afternoon. Rainshadowing was not expected. The chance of precipitation was 80 percent, with as much as 0.25 inch of precipitation forecasted.
- Setup was accomplished Thursday afternoon. An expected precipitation depth of 0.11 inch was used to set trigger volumes at monitoring stations.

Friday, October 22, 2021

- Light showers started around 1500 Friday afternoon and continued for approximately an hour. Around 1600, precipitation greatly intensified through the area.
- Precipitation totals ranged between 0.37 and 0.43 inch at local rain gauges.

Flow measurements and precipitation data are included in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Main, Americana, and AS_6 monitoring stations were set up the afternoon of Thursday, October 21, to collect flow proportional composite samples during the storm. Site-specific velocity cutoff values were calculated and programmed into the flowmeters. Setup and sampling information is included in Table 1.

Grab Samples

Two, two-member teams mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on the afternoon of October 22, 2021. Grab samples were collected at Lucky, Whitewater, Main, Americana, and AS_6. All grab samples were submitted to the West Boise Water Quality Lab (WQL) at 1918 on October 22. Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment C.

Composite Samples

Composite samples were collected at Main, Americana, and AS_6 monitoring stations. Volumes of composite samples submitted were sufficient for all parameters. All composite samples were submitted to the WQL on October 22 at 2250. Analytical results are included in Table 2. Pollutant loading estimates for the event are included in Table 3. There were no qualifiers. The Whitewater and Lucky composite samples were discarded and not submitted to the WQL due to equipment issues; more information can be found in Section 5.

Section 4: Quality Assurance/Quality Control

A summary of quality control (QC) samples collected during the October 22, 2021, storm event is presented below in Table 3-1. A field blank and a field duplicate were collected from the Main monitoring station. Analytical results for these samples are included in Table 4.

Sample ID	Sample Type	Parent Sample	Conclusions
201010-12-001	Field blank	Main grab	No <i>E. coli</i> detection was reported in the field blank.
201010-12-101	Field duplicate	Main grab	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. All acceptance and performance criteria for analytical and non-analytical data were met for this storm event.

Section 5: Notes and Recommendations

Notes from the October 22, 2021 sampling event and recommendations for future sampling events can be found below.

Whitewater

During the storm event, the Whitewater composite sampler started to pull air during sampling, indicated by a “no more liquid” error message. The team suspected the sampler tubing was clogged with debris. The sampler was purged during the sampling event, but the clog was not removed. The composite sample was discarded and not submitted to the WQL. During shutdown, the debris was successfully removed from the tubing.

Lucky

Lucky monitoring station lost power between 1713 – 1811. Since the monitoring station lost power during the peak of the storm event, the composite sample was discarded and not submitted to the WQL.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	Yes	Yes	Yes	Yes	Yes
Composite samples collected and submitted?	No	No	Yes	Yes	Yes
Trigger volume	2895 gal	800 ft ³	3411 gal	2960 ft ³	221 ft ³
Velocity cutoff (fps)	-	-	-	-	0.02
Sampler enable condition (in)	level > 3.40	level > 3.75	level > 2.00	level > 3.85	-
Runoff start time	16:00	16:15	16:00	15:54	17:18
Grab sample collection time	17:24	17:33	16:46	17:04	17:24
Composite sample stop time	-	--	20:44	21:58	21:12
Runoff stop time	22:00	0:00	21:58	11:59	23:00
Volume of discharge sampled (ft ³)	-	-	23,822	138,265	11,422
Total runoff volume (ft ³)	-	-	30,053	164,039	12,867
Percent of storm flow sampled (%)	-	-	79%	84%	89%
Composite sample duration (hrs)	-	-	4.0	5.5	3.5
Storm Precipitation (in)	0.42	0.43	0.37	0.37/0.39	0.37/0.39
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	-	-	45	48	54
Number of composite bottles filled	-	-	2	2	3
Composite sample volume (Approx., ml)	-	-	26,500	32,500	32,250

Notes:

- = no data.

Table 2. Field and Analytical Data Summary - Wet Samples

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters					E. coli mpn/100 mL	Sample ID Composite	Analytical Parameters																	
			Dissolved Oxygen	pH	Conductivity	Temperature	BOD ₅			COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate, as P	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mg/L			mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	10/22/2021	211022-03-WG	8.54	6.94	82.07	16.41	2650.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Whitewater	10/22/2021	211022-11-WG	8.93	7.19	163.21	14.36	920.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Main	10/22/2021	211022-12-WG	9.10	6.28	88.8	14.35	137.6	211022-12-WC	35.0	142	20.5	59.1	95.8	67.2	0.442	0.286	0.907	0.322	2.35	1.6	<0.0250	0.13	7.5	0.48	10	0.0219	51.3
Americana	10/22/2021	211022-14-WG	9.22	6.63	87.5	13.83	517.2	211022-14-WC	80.3	212	38.2	57.9	105	123	0.940	0.645	0.740	0.389	3.54	2.6	<0.0250	0.14	8.4	0.28	7.1	0.0191	49.6
AS_6	10/22/2021	211022-206-WG	8.48	6.45	208.9	13.58	235.9	211022-206-WC	214	487	47.1	126	186	278	2.51	1.94	0.805	0.276	6.91	4.2	0.048	0.16	15.0	2.3	11.8	0.0339	111

Notes:
- = no data.

Table 3. Event Pollutant Loading Estimates in Pounds

Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite (N)	TKN
Lucky	10/22/2021	-	-	-	-	-
Whitewater	10/22/2021	-	-	-	-	-
Main	10/22/2021	180	0.829	1.70	0.604	4.41
Americana	10/22/2021	1075	9.62	7.58	3.98	36.24
AS_6	10/22/2021	149	2.02	0.646	0.222	5.55

Notes:

- = no data.

Table 4. QC Sample Summary				
Date	Parent Sample	Sample ID	Type	E. coli
				mpn/100 mL
10/22/2021	Main Grab	211022-12-001	Field Blank	< 1.0
10/22/2021	Main Grab	211022-12-101	Field Duplicate	141.4
Calculated parent/duplicate RPD				0.37%
Allowable RPD				40%

Notes:

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 21 Oct 2021

Time: 9:13 AM

Initials: TL

Sampling Event Determination

Is there a targeted sampling event expected during the next 36 hours?

(Or, if it is Friday, is a targeted event expected before 5:00 PM on Monday?)

Yes Maybe No

If YES or MAYBE, then call BC. Include discussion of reasons for "Maybe" below.

- Date and Time of Expected Event
- Expected Amount of Precipitation
- Percent Chance of Precipitation

10/22 12:00 pm - midnight

80% 0.15"

Targeted Stations & Samples

Americana

- Grab
- Composite

Main

- Grab
- Composite

Lucky

- Grab
- Composite

AS-6

- Grab
- Composite

Whitewater

- Grab
- Composite

Phase II

State

- Grab
- Composite

Type of Forecasted Precipitation

- Light Rain
- Rain
- Scattered Showers
- Thunder Showers
- Snow Melt
- Rain on Snow
- Other (Describe below)

Reasons for Not Targeting a Forecasted Storm or Targeting Selected Stations/Samples

- Equipment Concerns (Describe below)
- Holiday
- Other (Describe below)

- Waiting on Antecedent Dry Period.

Expires: _____

Comments

Past 72 hr precip: 0.00"

I spoke with Josh at NWS. He said there is a little disagreement in the models on when the precip will begin, but his best guess is around 2pm. The bulk of the precip is looking to come in between 7pm and 9pm, and all precip ending around midnight. It will be a widespread rain with no chance of thunderstorms. There is a very little chance of rain shadowing, but he doesn't expect it to be much of an issue because it is a westerly system. Totals are around 0.15".

NWS Forecast for: Boise ID

Issued by: National Weather Service Boise, ID

Last Update: 2:21 am MDT Oct 21, 2021

Today: Mostly sunny, with a high near 75. Southeast wind 3 to 7 mph.

Tonight: Partly cloudy, with a low around 51. Southeast wind 5 to 7 mph becoming calm after midnight.

Friday: Rain after 1pm. High near 69. Calm wind becoming southeast 5 to 8 mph in the morning. Chance of precipitation is 80%.

Friday Night: Rain, mainly before 1am. Low around 44. West wind 5 to 9 mph becoming calm after midnight. Chance of precipitation is 80%. New precipitation amounts between a tenth and quarter of an inch possible.

Saturday: A 30 percent chance of rain after 1pm. Cloudy, with a high near 58. Calm wind.

Saturday Night: A 40 percent chance of rain. Mostly cloudy, with a low around 45.

Sunday: Rain, mainly after 7am. High near 58. Chance of precipitation is 80%. New precipitation amounts between a tenth and quarter of an inch possible.

Sunday Night: Rain. Low around 48. Chance of precipitation is 90%.

Monday: Rain. High near 56. Chance of precipitation is 90%.

Monday Night: Rain likely, mainly before 7pm. Mostly cloudy, with a low around 41. Chance of precipitation is 70%.

Tuesday: Rain likely. Mostly cloudy, with a high near 53. Chance of precipitation is 60%.

Tuesday Night: Rain likely. Mostly cloudy, with a low around 43. Chance of precipitation is 60%.

Wednesday: A 40 percent chance of rain. Mostly cloudy, with a high near 55.

Comments

Area Forecast Discussion
National Weather Service Boise ID
248 AM MDT Thu Oct 21 2021

.SHORT TERM...Today through Saturday night...Sprinkles in western Idaho will end before morning as a weak warm front exits northeast. An upper ridge will amplify rapidly over our area today bringing mostly sunny and warmer weather with high temps in the 60s in the mountains and eastern Oregon, to the mid 70s in the lower southwest Idaho valleys. The ridge will shift east tonight as a Pacific trough with a lot of moisture comes inland. Rain will begin in Harney and Baker Counties toward morning. **The full surge of moisture along a cold front will spread across eastern Oregon Friday and into western Idaho Friday afternoon.** South-central Idaho will stay dry and warm through Friday. **The cold front and main rain will shift eastward across Idaho north of the Snake Basin Friday evening.** Rain will decrease in Valley and northern Elmore Counties overnight and generally end elsewhere. But another Pacific trough will already be spreading more rain into Harney County before dawn Saturday, and the rest of eastern Oregon Saturday morning, and then western Idaho Saturday afternoon. Again, south-central Idaho will largely miss out on this rain. Light rain will continue in other areas through Saturday night, but will increase yet again in Harney County toward Sunday morning as another strong Pacific storm comes inland. High temperatures will cool to normal Friday, but lows will stay above normal. The snow level will be above 8000 feet through Friday, then lower to 6000-6500 feet Friday night through Saturday night. Winds today will be light to moderate southeasterly in Idaho but southwesterly 20 to 30 mph in Oregon this afternoon. The same is expected Friday, except a little stronger in Idaho. Light to moderate southeast to southwest winds in all areas Saturday and Saturday night.

.LONG TERM...Sunday through Thursday...**A very active, wet pattern will continue Sunday and into next week. A strong atmospheric river event will arrive on Sunday as a large trough approaches the Pacific Northwest. This trough will ingest significant subtropical moisture that will spread into the forecast area Sunday and Monday.** Snow levels will remain high with this flow, keeping accumulations generally above 7000 feet MSL. Liquid precipitation totals have the potential to reach over an inch for the mountains and around **a half inch for the lower elevations during this time-frame.** Therefore, high elevation snowfall rates and accumulations could be considerable. The colder air associated with the trough will move over the region on Tuesday as west-northwest flow develops aloft, and snow levels will briefly lower to around 5500 ft MSL before gradually rising again. Temperatures will also lower to around 10 degrees below normal by Tuesday. Thereafter, the west-northwest flow aloft will bring a chance for additional precipitation Wednesday. A break in the active pattern is possible on Thursday as a weak ridge builds over the area, though forecast confidence remains low.

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.4605	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.7624	1357
#12 Main	79	0.437	13785	811	0.246	7759.9962	456
#14 Americana	875	0.446	155827	9166	0.144	50311.8	2960
Theoretical	80	0.200	6389		0.000		
	0	0	0	0		0	0
	0	0	0	0		0	0

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

RC = measured runoff / total runoff

Storm Event QA/QC Checklist

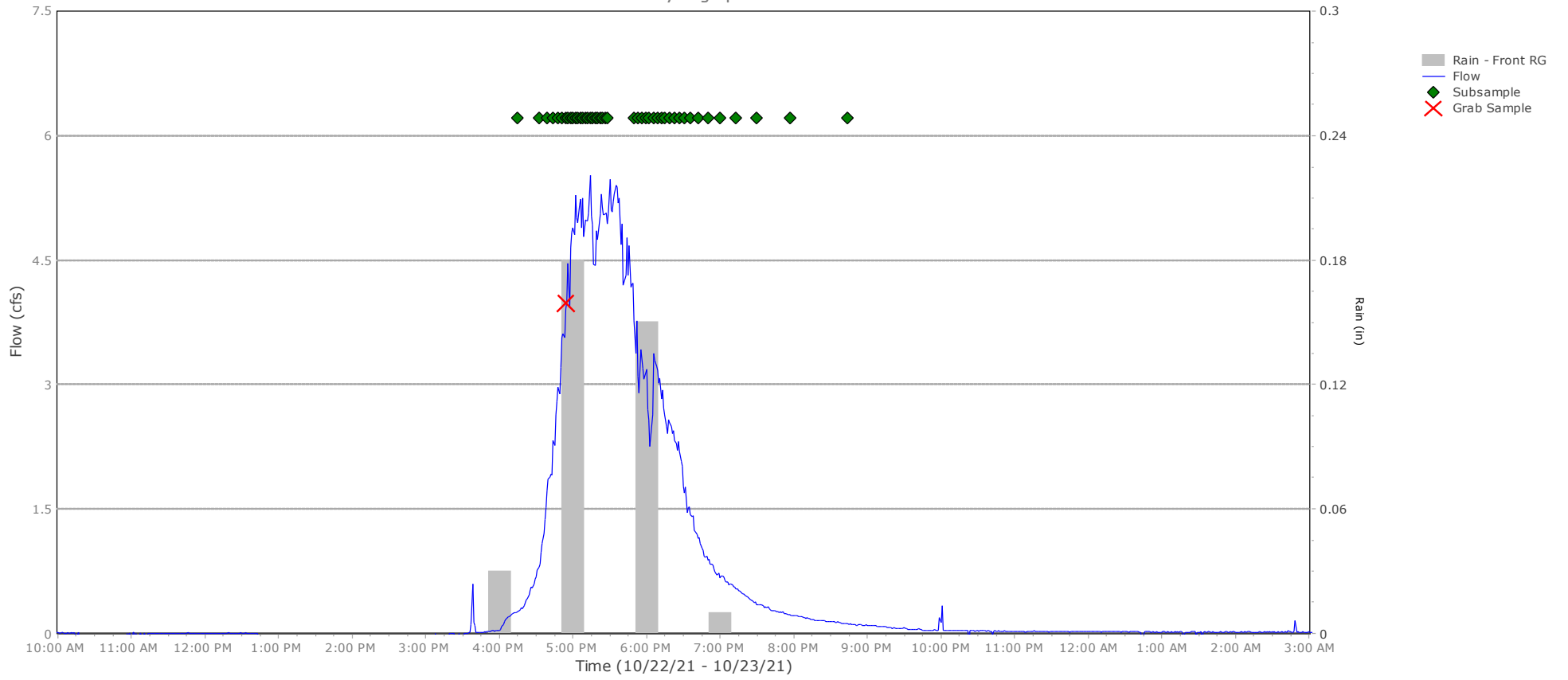
STORM DATE: <u>10.22.21</u>				Circle one: <u>Phase I</u>		Phase II			
A. Event and Data Completeness				Yes	No	N/A	Notes		
1. Field data sheets filled out completely and clearly	<input checked="" type="checkbox"/>								
2. Field parameters reviewed, and any problems/issues addressed	<input checked="" type="checkbox"/>								
3. All samples collected as specified	<input checked="" type="checkbox"/>								
4. All samples delivered to lab promptly (review chain of custody rpts)	<input checked="" type="checkbox"/>								
5. Inconsistencies/clarifications discussed with sampling team member	<input checked="" type="checkbox"/>								
6. All analytical reports from lab received	<input checked="" type="checkbox"/>								
B. Validation and Verification Methods				Yes	No	N/A	Notes		
1. Outliers and unexpected values discussed with lab			<input checked="" type="checkbox"/>						
2. Appropriate analytical methods used	<input checked="" type="checkbox"/>								
3. All lab QA samples were within method acceptance criteria	<input checked="" type="checkbox"/>								
4. All samples reviewed and data qualifiers assigned if needed	<input checked="" type="checkbox"/>								
5. Data quality objective achieved	<input checked="" type="checkbox"/>								
C. Specific Storm and Sample QA/QC Criteria				Storm/Sample Value	Program Criteria	Met	Qualify	Reject	Notes
1. Precipitation (inches)	<u>0.37 - 0.43</u>			> 0.10 in.	<input checked="" type="checkbox"/>				
2. Antecedent dry period (hours)	<u>325</u>			< 0.11 in. in 72 hrs	<input checked="" type="checkbox"/>				
3. Days since last sampling event	<u>134</u>			>= 30 days	<input checked="" type="checkbox"/>				
4. Sampled amount as % of total run-off	<u>79 - 92</u>			>= 75%	<input checked="" type="checkbox"/>				
5. Ecoli sample holding time	<u>~4 hrs</u>			<= 8 hrs: no qualifier > 8 and <= 16 hrs.: qualify > 16 hrs.: reject	<input checked="" type="checkbox"/>				
6. Filtering of samples for dissolved parameter analysis	<u>< 24 hrs</u>			<= 24 hrs: no qualifier > 24 hrs.: reject	<input checked="" type="checkbox"/>				
D. Notes:									
<ul style="list-style-type: none"> • Lucky had a power failure - no comp. collected. • Whitewater had a clogged sampler line - no comp. collected. 									

Reviewed by Tamara Lytle Date 11.29.21

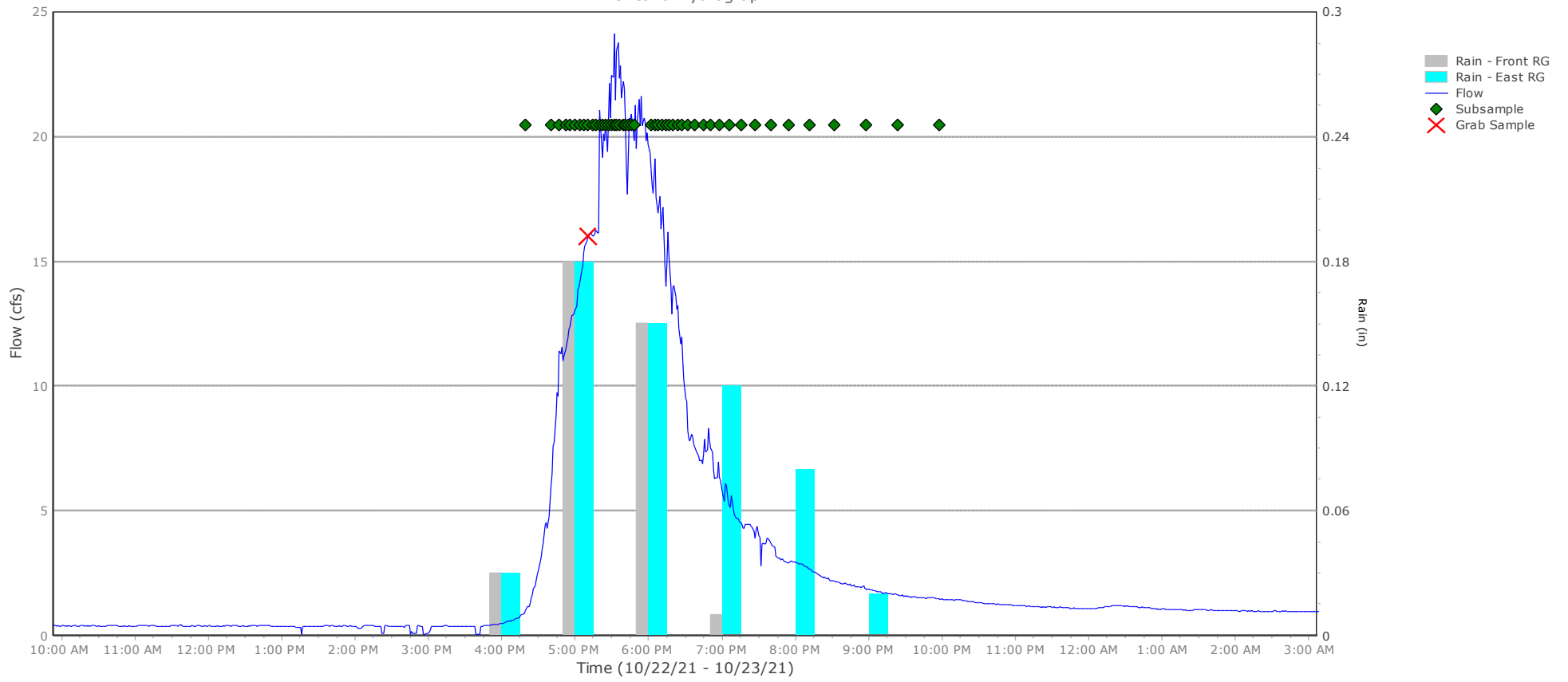
Approved by Monica J. Lowe Date 12-3-21

Attachment B: Storm Event Hydrographs

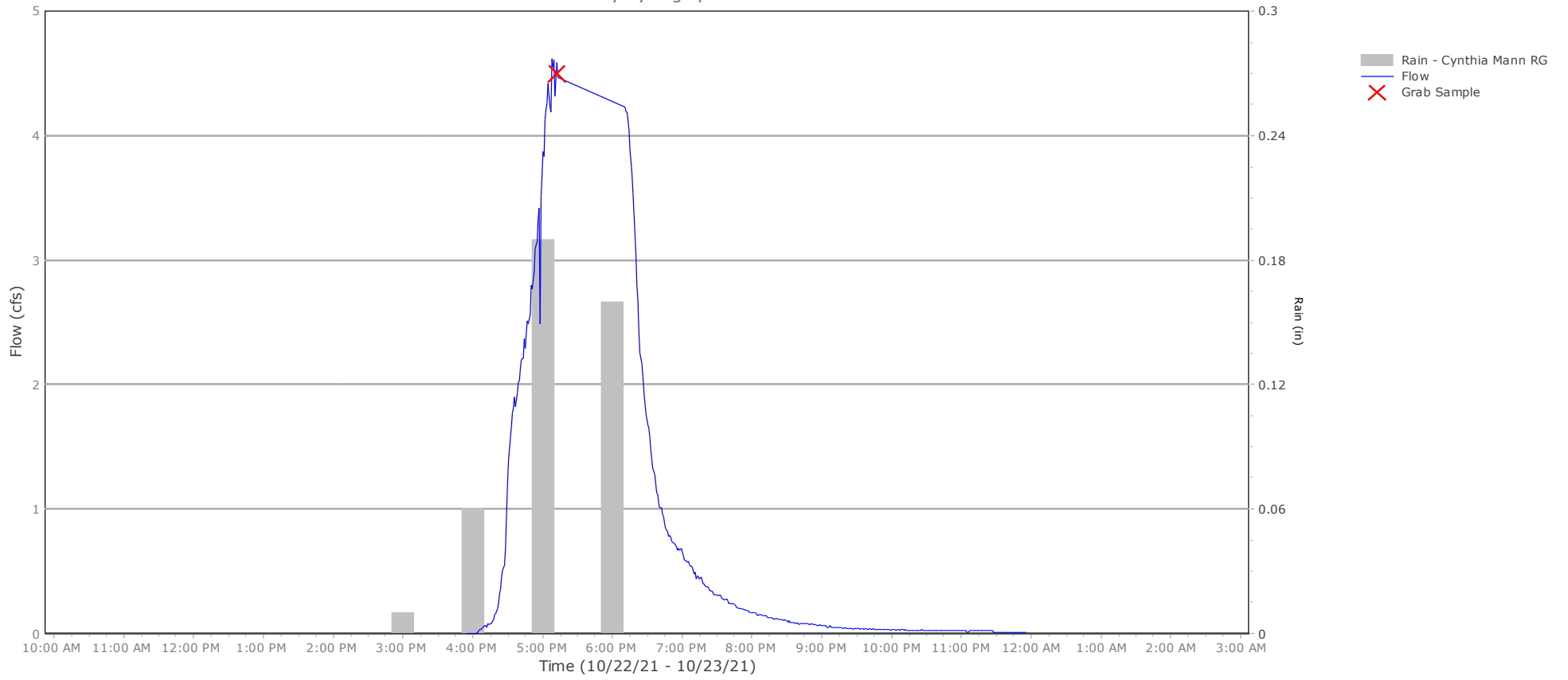
Main Hydrograph



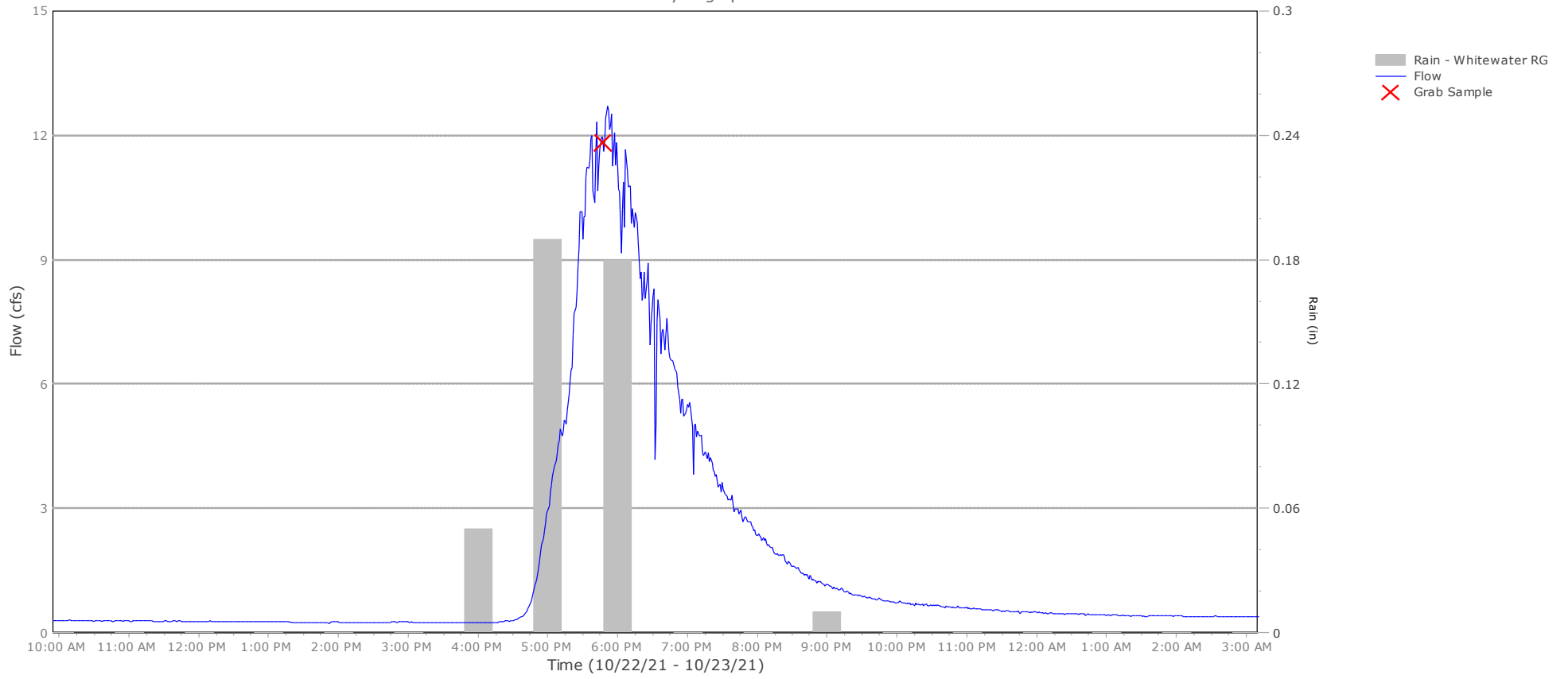
Americana Hydrograph



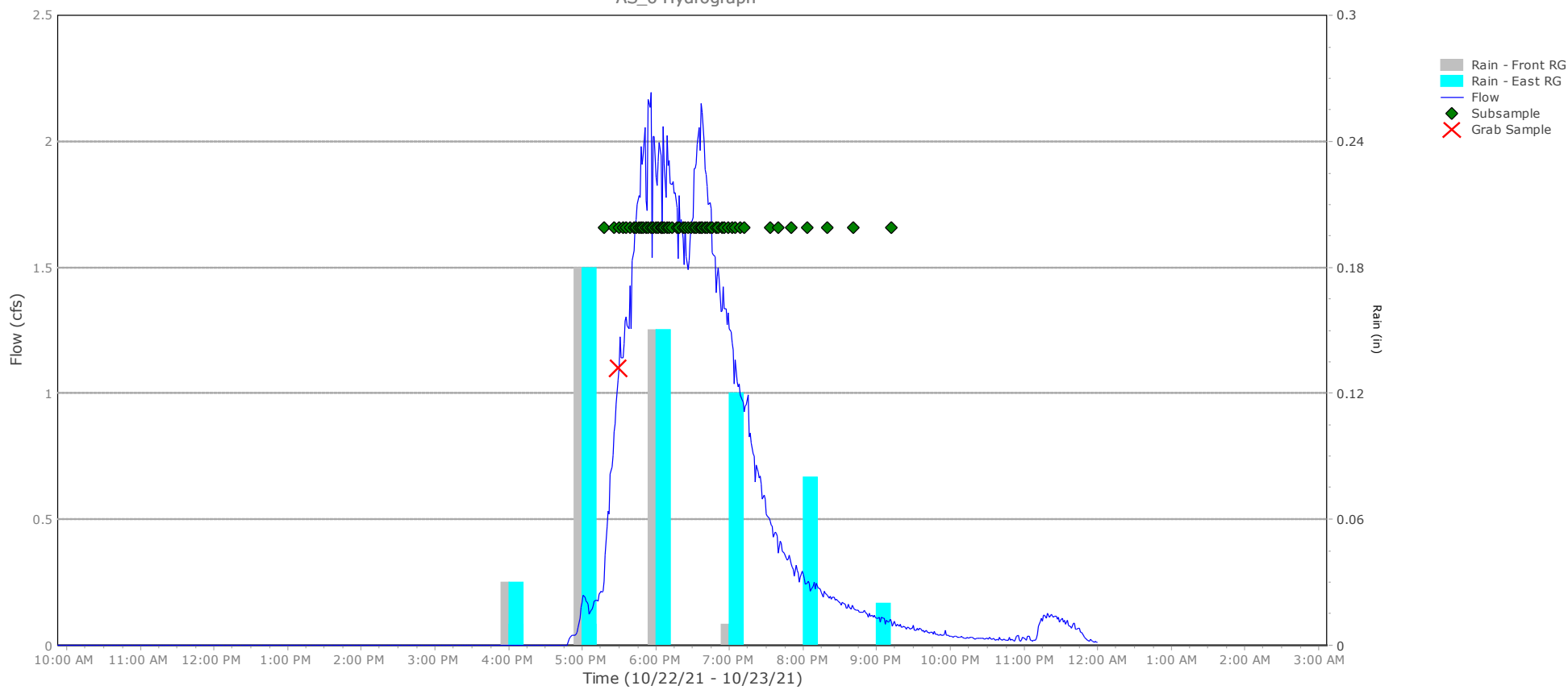
Lucky Hydrograph



Whitewater Hydrograph



AS_6 Hydrograph



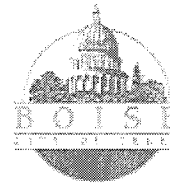
Attachment C: Storm Event Analytical Reports



Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00180-01	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-12-WG					
AC00180-02	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-12-101					
AC00180-03	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-12-001					
AC00180-04	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-14-WG					
AC00180-05	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-206-WG					
AC00180-06	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-03-WG					
AC00180-07	ACST1B	ACHD Stormwater Phase 1 Bacteria Grab	Water		10/22/2021	10/22/2021
	Comments: 211022-11-WG					

Report Date: 11/02/2021 10:53



Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Analysis Report

Location: ACST1B Location Description: ACHD Stormwater Phase 1 Bacteria Grab
Date/Time Collected: 10/22/2021 16:46
Lab Number: AC00180-01 Sample Collector: S.K
Sample Type: Grab Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B214027	137.6 MPN/100 mL		1.0	1.0	IDEXX - Colilert	10/22/21 20:01	10/23/21 20:15	KMR	
Wet Chemistry										
Chlorine Screen	B214040	Absent				SM 4500-CL G-2000 mod	10/22/21	10/22/21 19:32	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

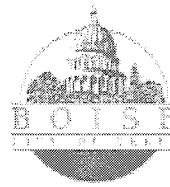


Analysis Report

Location:	ACST1B	Location Description:	ACHD Stormwater Phase 1 Bacteria Grab
Date/Time Collected:	10/22/2021 12:00		
Lab Number:	AC00180-02	Sample Collector:	S.K
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B214027	141.4 MPN/100 mL		1.0	1.0	IDEXX - Colilert	10/22/21 20:01	10/23/21 20:15	KMR	H
Wet Chemistry										
Chlorine Screen	B214040	Absent				SM 4500-CL G-2000 mod	10/22/21	10/22/21 19:32	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

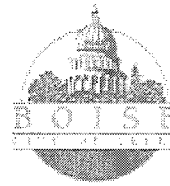


Analysis Report

Location:	ACST1B	Location Description:	ACHD Stormwater Phase 1 Bacteria Grab
Date/Time Collected:	10/22/2021 17:04		
Lab Number:	AC00180-04	Sample Collector:	S.K
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Microbiology										
E. Coli	B214027	517.2	MPN/100 mL	1.0	1.0	IDEXX - Colilert	10/22/21 20:01	10/23/21 20:15	KMR	
Wet Chemistry										
Chlorine Screen	B214040	Absent				SM 4500-CL G-2000 mod	10/22/21	10/22/21 19:32	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Analysis Report

Location:	ACST1B	Location Description:	ACHD Stormwater Phase 1 Bacteria Grab
Date/Time Collected:	10/22/2021 17:24		
Lab Number:	AC00180-05	Sample Collector:	S.K
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B214027	235.9 MPN/100 mL		1.0	1.0	IDEXX - Colilert	10/22/21 20:01	10/23/21 20:15	KMR	
Wet Chemistry										
Chlorine Screen	B214040	Absent				SM 4500-CL G-2000 mod	10/22/21	10/22/21 19:32	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

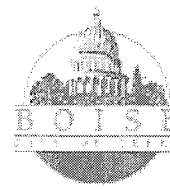


Analysis Report

Location:	ACST1B	Location Description:	ACHD Stormwater Phase 1 Bacteria Grab
Date/Time Collected:	10/22/2021 17:24		
Lab Number:	AC00180-06	Sample Collector:	S.K
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Microbiology										
E. Coli	B214027	2650.0 MPN/100 mL		100.0	1.0	IDEXX - Colilert	10/22/21 20:01	10/23/21 20:15	KMR	D
Wet Chemistry										
Chlorine Screen	B214040	Absent				SM 4500-CL G-2000 mod	10/22/21	10/22/21 19:32	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

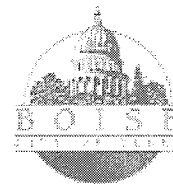


Analysis Report

Location:	ACST1B	Location Description:	ACHD Stormwater Phase 1 Bacteria Grab
Date/Time Collected:	10/22/2021 17:33		
Lab Number:	AC00180-07	Sample Collector:	S.K
Sample Type:	Grab	Sample Matrix:	Water

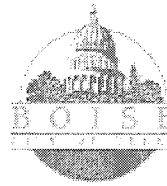
Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B214027	920.8MPN/100 mL		1.0	1.0	IDEXX - Colilert	10/22/21 20:01	10/23/21 20:15	KMR	
Wet Chemistry										
Chlorine Screen	B214040	Absent				SM 4500-CL G-2000 mod	10/22/21	10/22/21 19:32	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B214027									
Blank (B214027-BLK1)									
E. Coli	Absent						10/23/2021	LRF	
LCS (B214027-BS1)									
E. Coli				Present			10/23/2021	LRF	
Duplicate (B214027-DUP1) Source ID: WB01406-06									
E. Coli					Pass	128	10/23/2021	LRF	



Notes and Definitions


Item	Definition
D	Data reported from a dilution
H	Hold time Exceeded.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846



Janet Finegan-Kelly
Water Quality Laboratory Manager



Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Monica Lowe
 3775 Adams Street
 Garden City, Idaho 83714-6418
 Tel: (208) 387-6255
 Fax (208) 387-6391
 Purchase Order:
 Project:
 Sampler(s):

63058181
 Stormwater-P1
 ALD + TL
 ZL + SMK

(Tammy Lightle
 Andrea Duran
 Zaly Lapa
 Shannon Krona)

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix Type			BOD ₅ - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colifert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO ₃ +NO ₂ - EPA 353.2	NH ₃ - SM 4500 NH ₃ -D	Total Containers
							Water	Grab	Composite																
AC00180-01	10/22/21	10/22/21	1646		211022-12-47G	ALD TLL	X	X	X										X						
-02	↓	↓	1200		211022-12-101	↓	X	X	X										X						
-03			1200		211022-12-001		X	X	X										X						
-04			1704		211022-14-47G		X	X	X										X						
-05	↓	↓	1724		211022-206-47G	↓	X	X	X										X						
-06	10/22	10/22	1724		211022-03-101G	ZL	X	X	X										X						
-07	↓	↓	1733		211022-11-101G	ZL	X	X	X										X						

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
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Shannon Krona
 10/22/21
 7:18 PM

Jack
 10/22-21
 10:22-21

AC00180

AC 00180

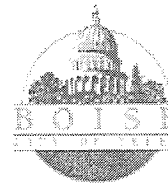
Report Date: 11/16/2021 14:19



Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00181-01	ACST1C	211022-12-WC	Water		10/22/2021	10/23/2021
AC00181-02	ACST1C	211022-14-WC	Water		10/22/2021	10/23/2021
AC00181-03	ACST1C	211022-206-WC	Water		10/22/2021	10/23/2021



Analysis Report

Location: ACST1C Location Description: 211022-12-WC
 Date/Time Collected: 10/22/2021 16:15 - 10/22/2021 20:44
 Lab Number: AC00181-01 Sample Collector: T.L.
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Wet Chemistry										
Ammonia, as N	B214210	0.907	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	11/05/21	11/5/21 11:14	GKH	
BOD5	B214046	35.0	mg/L	2.00	2.00	SM 5210 B-2011	10/23/21	10/28/21 12:21	CJP	
COD	B214043	142	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	10/23/21	10/23/21 10:31	BAK	
Nitrate-Nitrite, as N	B214078	0.322	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	10/26/21	10/26/21 11:46	JAL	
TKN	B214157	2.35	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	11/02/21	11/3/21 10:11	ALN	
Total Dissolved Solids	B214065	67.2	mg/L	25.0	25.0	SM 2540 C-2011	10/25/21	10/27/21 9:17	CJP	
Total Suspended Solids	B214039	95.8	mg/L	0.900	0.900	SM 2540 D-2011	10/23/21	10/23/21 12:28	LRF	
Turbidity	B214044	59.1	NTU	0.6	0.3	EPA 180.1, Rev. 2.0 (1993)	10/23/21	10/23/21 11:00	JAL	D

Dissolved Wet Chemistry

Orthophosphate, as P	B214041	0.286	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	10/23/21	10/23/21 9:59	JAL	
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Total Metals

Mercury	B214063	0.0219	ug/L	0.0100	0.0100	EPA 245.2	10/26/21	10/27/21 8:41	SAS	
Arsenic	B214117	1.6	ug/L	0.040	0.040	EPA 200.8	10/29/21	10/30/21 14:30	DMW	
Cadmium	B214117	0.13	ug/L	0.025	0.025	EPA 200.8	10/29/21	10/30/21 14:30	DMW	
Calcium	B214111	5.80	mg/L	0.0460	0.0460	EPA 200.7	10/28/21	10/29/21 15:49	AMO	
Lead	B214117	10	ug/L	0.050	0.050	EPA 200.8	10/29/21	10/30/21 14:30	DMW	
Magnesium	B214111	1470	ug/L	50.0	50.0	EPA 200.7	10/28/21	10/29/21 15:49	AMO	
Phosphorus as P	B214111	0.442	mg/L	6.00E-3	6.00E-3	EPA 200.7	10/28/21	10/29/21 15:49	AMO	
Hardness	B214111	20.5	mg/L	0.115	0.115	EPA 200.7	10/28/21	10/29/21 15:49	AMO	

Dissolved Metals

Cadmium	B214222	<0.0250	ug/L	0.025	0.025	EPA 200.8	11/06/21	11/6/21 16:14	DMW	U
Copper	B214222	7.5	ug/L	0.15	0.15	EPA 200.8	11/06/21	11/6/21 16:14	DMW	
Lead	B214222	0.48	ug/L	0.050	0.050	EPA 200.8	11/06/21	11/6/21 16:14	DMW	
Zinc	B214222	51.3	ug/L	0.78	0.78	EPA 200.8	11/06/21	11/6/21 16:14	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Analysis Report

Location: ACST1C Location Description: 211022-14-WC
 Date/Time Collected: 10/22/2021 16:19 - 10/22/2021 21:58
 Lab Number: AC00181-02 Sample Collector: T.L.
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time		Analyst Initials	Qual
				MDL *	MDL						
Wet Chemistry											
Ammonia, as N	B214210	0.740	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	11/05/21	11/5/21	11:27	GKH	
BOD5	B214046	80.3	mg/L	2.00	2.00	SM 5210 B-2011	10/23/21	10/28/21	12:05	CJP	
COD	B214043	212	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	10/23/21	10/23/21	10:31	BAK	
Nitrate-Nitrite, as N	B214078	0.389	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	10/26/21	10/26/21	11:51	JAL	
TKN	B214157	3.54	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	11/02/21	11/3/21	10:16	ALN	
Total Dissolved Solids	B214065	123	mg/L	25.0	25.0	SM 2540 C-2011	10/25/21	10/27/21	9:18	CJP	
Total Suspended Solids	B214039	105	mg/L	0.900	0.900	SM 2540 D-2011	10/23/21	10/23/21	12:29	LRF	
Turbidity	B214044	57.9	NTU	0.6	0.3	EPA 180.1, Rev. 2.0 (1993)	10/23/21	10/23/21	11:03	JAL	D
Dissolved Wet Chemistry											
Orthophosphate, as P	B214041	0.645	mg/L	4.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	10/23/21	10/23/21	10:10	JAL	D
Total Metals											
Mercury	B214063	0.0191	ug/L	0.0100	0.0100	EPA 245.2	10/26/21	10/27/21	8:27	SAS	
Arsenic	B214117	2.6	ug/L	0.040	0.040	EPA 200.8	10/29/21	10/30/21	14:32	DMW	
Cadmium	B214117	0.14	ug/L	0.025	0.025	EPA 200.8	10/29/21	10/30/21	14:32	DMW	
Calcium	B214111	11.0	mg/L	0.0460	0.0460	EPA 200.7	10/28/21	10/29/21	15:44	AMO	
Lead	B214117	7.1	ug/L	0.050	0.050	EPA 200.8	10/29/21	10/30/21	14:32	DMW	
Magnesium	B214111	2600	ug/L	50.0	50.0	EPA 200.7	10/28/21	10/29/21	15:44	AMO	
Phosphorus as P	B214111	0.940	mg/L	6.00E-3	6.00E-3	EPA 200.7	10/28/21	10/29/21	15:44	AMO	
Hardness	B214111	38.2	mg/L	0.115	0.115	EPA 200.7	10/28/21	10/29/21	15:44	AMO	
Dissolved Metals											
Cadmium	B214222	<0.0250	ug/L	0.025	0.025	EPA 200.8	11/06/21	11/6/21	16:16	DMW	U
Copper	B214222	8.4	ug/L	0.15	0.15	EPA 200.8	11/06/21	11/6/21	16:16	DMW	
Lead	B214222	0.28	ug/L	0.050	0.050	EPA 200.8	11/06/21	11/6/21	16:16	DMW	
Zinc	B214222	49.6	ug/L	0.78	0.78	EPA 200.8	11/06/21	11/6/21	16:16	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

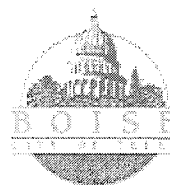


Analysis Report

Location: ACST1C Location Description: 211022-206-WC
 Date/Time Collected: 10/22/2021 17:18 - 10/22/2021 21:12
 Lab Number: AC00181-03 Sample Collector: T.L
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Wet Chemistry										
Ammonia, as N	B214210	0.805	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	11/05/21	11/5/21 11:22	GKH	
BOD5	B214046	214	mg/L	2.00	2.00	SM 5210 B-2011	10/23/21	10/28/21 11:59	CJP	
COD	B214043	487	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	10/23/21	10/23/21 11:25	BAK	
Nitrate-Nitrite, as N	B214078	0.276	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	10/26/21	10/26/21 11:52	JAL	
TKN	B214157	6.91	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	11/02/21	11/3/21 10:18	ALN	
Total Dissolved Solids	B214065	278	mg/L	25.0	25.0	SM 2540 C-2011	10/25/21	10/27/21 9:18	CJP	
Total Suspended Solids	B214039	186	mg/L	0.900	0.900	SM 2540 D-2011	10/23/21	10/23/21 12:42	LRF	
Turbidity	B214044	126	NTU	1.5	0.3	EPA 180.1, Rev. 2.0 (1993)	10/23/21	10/23/21 11:04	JAL	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B214041	1.94	mg/L	0.0100	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	10/23/21	10/23/21 10:11	JAL	D
Total Metals										
Mercury	B214063	0.0339	ug/L	0.0100	0.0100	EPA 245.2	10/26/21	10/27/21 8:44	SAS	
Arsenic	B214117	4.2	ug/L	0.040	0.040	EPA 200.8	10/29/21	10/30/21 14:35	DMW	
Cadmium	B214117	0.16	ug/L	0.025	0.025	EPA 200.8	10/29/21	10/30/21 14:35	DMW	
Calcium	B214111	12.3	mg/L	0.0460	0.0460	EPA 200.7	10/28/21	10/29/21 15:38	AMO	
Lead	B214117	11.8	ug/L	0.050	0.050	EPA 200.8	10/29/21	10/30/21 14:35	DMW	
Magnesium	B214111	3990	ug/L	50.0	50.0	EPA 200.7	10/28/21	10/29/21 15:38	AMO	
Phosphorus as P	B214111	2.51	mg/L	6.00E-3	6.00E-3	EPA 200.7	10/28/21	10/29/21 15:38	AMO	
Hardness	B214111	47.1	mg/L	0.115	0.115	EPA 200.7	10/28/21	10/29/21 15:38	AMO	
Dissolved Metals										
Cadmium	B214222	0.048	ug/L	0.025	0.025	EPA 200.8	11/06/21	11/6/21 16:19	DMW	
Copper	B214222	15.0	ug/L	0.15	0.15	EPA 200.8	11/06/21	11/6/21 16:19	DMW	
Lead	B214222	2.3	ug/L	0.050	0.050	EPA 200.8	11/06/21	11/6/21 16:19	DMW	
Zinc	B214222	111	ug/L	0.78	0.78	EPA 200.8	11/06/21	11/6/21 16:19	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

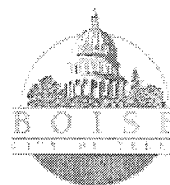
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B214039									
Blank (B214039-BLK1)									
Total Suspended Solids	<0.9	mg/L					10/23/2021	LRF	U
LCS (B214039-BS1)									
Total Suspended Solids			97.5	90-110			10/23/2021	LRF	
Duplicate (B214039-DUP1) Source ID: BB01593-01									
Total Suspended Solids					5.65	20	10/23/2021	LRF	
Batch: B214043									
Blank (B214043-BLK1)									
COD	<7	mg/L					10/23/2021	BAK	U
LCS (B214043-BS1)									
COD			97.3	90-110			10/23/2021	BAK	
Duplicate (B214043-DUP1) Source ID: AC00181-02									
COD					1.41	10	10/23/2021	BAK	
Batch: B214044									
Blank (B214044-BLK1)									
Turbidity	<0.3	NTU					10/23/2021	JAL	U
LCS (B214044-BS1)									
Turbidity			101	90-110			10/23/2021	JAL	
Duplicate (B214044-DUP1) Source ID: AC00181-01									
Turbidity					0.226	25	10/23/2021	JAL	D
Batch: B214046									
Blank (B214046-BLK1)									
BOD5	<2	mg/L					10/28/2021	CJP	U
LCS (B214046-BS1)									
BOD5			102	84.6-115.4			10/28/2021	CJP	
LCS (B214046-BS2)									
BOD5			103	84.6-115.4			10/28/2021	CJP	
Duplicate (B214046-DUP1) Source ID: BB01594-01									
BOD5					3.86	30	10/28/2021	CJP	D



Quality Control Report

(Continued)

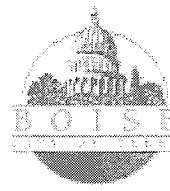
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B214065									
Blank (B214065-BLK1)									
Total Dissolved Solids	<25	mg/L					10/27/2021	CJP	U
LCS (B214065-BS1)									
Total Dissolved Solids			98.5	90-110			10/27/2021	CJP	
Duplicate (B214065-DUP1) Source ID: EN00022-02									
Total Dissolved Solids					0.562	10	10/27/2021	CJP	
Batch: B214078									
Blank (B214078-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					10/26/2021	JAL	U
Blank (B214078-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					10/26/2021	JAL	U
Blank (B214078-BLK3)									
Nitrate-Nitrite, as N	<0.025	mg/L					10/26/2021	JAL	U
LCS (B214078-BS1)									
Nitrate-Nitrite, as N			99.3	90-110			10/26/2021	JAL	
LCS (B214078-BS2)									
Nitrate-Nitrite, as N			98.8	90-110			10/26/2021	JAL	
LCS (B214078-BS3)									
Nitrate-Nitrite, as N			102	90-110			10/26/2021	JAL	
Duplicate (B214078-DUP1) Source ID: AC00181-01									
Nitrate-Nitrite, as N					0.896	10	10/26/2021	JAL	
Duplicate (B214078-DUP2) Source ID: BB01577-01									
Nitrate-Nitrite, as N					NR	10	10/26/2021	JAL	U
Duplicate (B214078-DUP3) Source ID: NP00033-01									
Nitrate-Nitrite, as N					0.0544	10	10/26/2021	JAL	
Duplicate (B214078-DUP4) Source ID: WB01406-07									
Nitrate-Nitrite, as N					30.0	10	10/26/2021	JAL	QC-02
Duplicate (B214078-DUP5) Source ID: WB01428-01RE1									
Nitrate-Nitrite, as N					2.19	10	10/26/2021	JAL	D
Matrix Spike (B214078-MS1) Source ID: AC00181-01									
Nitrate-Nitrite, as N			99.0	90-110			10/26/2021	JAL	
Matrix Spike (B214078-MS2) Source ID: BB01577-01									
Nitrate-Nitrite, as N			101	90-110			10/26/2021	JAL	
Matrix Spike (B214078-MS3) Source ID: NP00033-01									
Nitrate-Nitrite, as N			98.7	90-110			10/26/2021	JAL	
Matrix Spike (B214078-MS4) Source ID: WB01406-07									
Nitrate-Nitrite, as N			98.4	90-110			10/26/2021	JAL	
Matrix Spike (B214078-MS5) Source ID: WB01428-01RE1									
Nitrate-Nitrite, as N			102	90-110			10/26/2021	JAL	D



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B214078 (Continued)									
Matrix Spike (B214078-MS6) Nitrate-Nitrite, as N	Source ID: WB01425-02		99.4	90-110			10/26/2021	JAL	
Matrix Spike (B214078-MS7) Nitrate-Nitrite, as N	Source ID: WB01425-03		103	90-110			10/26/2021	JAL	
Matrix Spike Dup (B214078-MSD1) Nitrate-Nitrite, as N	Source ID: AC00181-01		99.2	90-110	0.134	10	10/26/2021	JAL	
Matrix Spike Dup (B214078-MSD2) Nitrate-Nitrite, as N	Source ID: BB01577-01		100	90-110	0.352	10	10/26/2021	JAL	
Matrix Spike Dup (B214078-MSD3) Nitrate-Nitrite, as N	Source ID: NP00033-01		95.1	90-110	1.14	10	10/26/2021	JAL	
Matrix Spike Dup (B214078-MSD4) Nitrate-Nitrite, as N	Source ID: WB01406-07		100	90-110	1.63	10	10/26/2021	JAL	
Matrix Spike Dup (B214078-MSD5) Nitrate-Nitrite, as N	Source ID: WB01428-01RE1		102	90-110	0.0184	10	10/26/2021	JAL	D
Batch: B214157									
Blank (B214157-BLK1) TKN	<0.1	mg/L					11/03/2021	ALN	U
Blank (B214157-BLK2) TKN	<0.1	mg/L					11/03/2021	ALN	U
LCS (B214157-BS1) TKN			96.2	80-120			11/03/2021	ALN	
LCS (B214157-BS2) TKN			97.1	80-120			11/03/2021	ALN	
Duplicate (B214157-DUP1) TKN	Source ID: AC00181-01				5.23	20	11/03/2021	ALN	
Duplicate (B214157-DUP2) TKN	Source ID: LS00886-02				4.95	20	11/03/2021	ALN	D
Duplicate (B214157-DUP3) TKN	Source ID: WB01406-07				1.02	20	11/03/2021	ALN	D
Matrix Spike (B214157-MS1) TKN	Source ID: AC00181-01		98.4	80-120			11/03/2021	ALN	
Matrix Spike (B214157-MS2) TKN	Source ID: LS00886-02		97.3	80-120			11/03/2021	ALN	D
Matrix Spike (B214157-MS3) TKN	Source ID: WB01406-07		99.4	80-120			11/03/2021	ALN	D
Matrix Spike Dup (B214157-MSD1) TKN	Source ID: AC00181-01		96.6	80-120	1.26	20	11/03/2021	ALN	
Matrix Spike Dup (B214157-MSD2) TKN	Source ID: LS00886-02		88.0	80-120	3.36	20	11/03/2021	ALN	D



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
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Wet Chemistry (Continued)

Batch: B214157 (Continued)

Matrix Spike Dup (B214157-MSD3) TKN	Source ID: WB01406-07		101	80-120	0.428	20	11/03/2021	ALN	D
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Batch: B214210

Blank (B214210-BLK1) Ammonia, as N		<0.035 mg/L					11/05/2021	GKH	U
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LCS (B214210-BS1) Ammonia, as N			101	90-110			11/05/2021	GKH	
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Duplicate (B214210-DUP1) Ammonia, as N	Source ID: BB01588-01				3.37	10	11/05/2021	GKH	
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Duplicate (B214210-DUP2) Ammonia, as N	Source ID: LS00888-02				2.32	10	11/05/2021	GKH	
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Matrix Spike (B214210-MS1) Ammonia, as N	Source ID: BB01588-01		95.8	80-120			11/05/2021	GKH	
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Matrix Spike (B214210-MS2) Ammonia, as N	Source ID: LS00888-02		107	80-120			11/05/2021	GKH	
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Matrix Spike Dup (B214210-MSD1) Ammonia, as N	Source ID: BB01588-01		99.9	80-120	2.93	10	11/05/2021	GKH	
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Matrix Spike Dup (B214210-MSD2) Ammonia, as N	Source ID: LS00888-02		106	80-120	0.727	10	11/05/2021	GKH	
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Dissolved Wet Chemistry

Batch: B214041

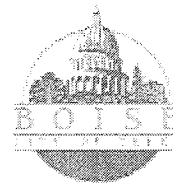
Blank (B214041-BLK1) Orthophosphate, as P		<0.002 mg/L					10/23/2021	JAL	U
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LCS (B214041-BS1) Orthophosphate, as P			97.0	90-110			10/23/2021	JAL	
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Duplicate (B214041-DUP1) Orthophosphate, as P	Source ID: AC00181-01				0.639	10	10/23/2021	JAL	
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Matrix Spike (B214041-MS1) Orthophosphate, as P	Source ID: AC00181-01		109	90-110			10/23/2021	JAL	
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Matrix Spike Dup (B214041-MSD1) Orthophosphate, as P	Source ID: AC00181-01		105	90-110	0.906	10	10/23/2021	JAL	
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Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B214063									
Blank (B214063-BLK1)									
Mercury	<0.01	ug/L					10/27/2021	SAS	U
Blank (B214063-BLK2)									
Mercury	<0.01	ug/L					10/27/2021	SAS	U
Blank (B214063-BLK3)									
Mercury	<0.01	ug/L					10/27/2021	SAS	U
LCS (B214063-BS1)									
Mercury			102	85-115			10/27/2021	SAS	
Duplicate (B214063-DUP1) Source ID: AC00181-02									
Mercury					2.07	20	10/27/2021	SAS	
Duplicate (B214063-DUP2) Source ID: EP00119-02									
Mercury					NR	20	10/27/2021	SAS	U
Matrix Spike (B214063-MS1) Source ID: AC00181-02									
Mercury			98.3	70-130			10/27/2021	SAS	
Matrix Spike (B214063-MS2) Source ID: EP00119-02									
Mercury			99.6	70-130			10/27/2021	SAS	
Matrix Spike Dup (B214063-MSD1) Source ID: AC00181-02									
Mercury			103	70-130	3.93	20	10/27/2021	SAS	
Matrix Spike Dup (B214063-MSD2) Source ID: EP00119-02									
Mercury			96.6	70-130	3.08	20	10/27/2021	SAS	
Batch: B214111									
Blank (B214111-BLK1)									
Calcium	<0.046	mg/L					10/29/2021	AMO	U
Magnesium	<50	ug/L					10/29/2021	AMO	U
Phosphorus as P	<0.006	mg/L					10/29/2021	AMO	U
LCS (B214111-BS1)									
Calcium			100	85-115			10/29/2021	AMO	
Magnesium			101	85-115			10/29/2021	AMO	
Phosphorus as P			103	85-115			10/29/2021	AMO	
Duplicate (B214111-DUP1) Source ID: AC00181-01									
Calcium					0.363	20	10/29/2021	AMO	
Magnesium					5.60	20	10/29/2021	AMO	
Phosphorus as P					5.15	20	10/29/2021	AMO	
Duplicate (B214111-DUP2) Source ID: ME00137-02									
Calcium					0.181	20	10/29/2021	AMO	
Magnesium					4.93	20	10/29/2021	AMO	
Phosphorus as P					2.14	20	10/29/2021	AMO	
Matrix Spike (B214111-MS1) Source ID: AC00181-01									
Calcium			101	70-130			10/29/2021	AMO	
Magnesium			98.9	70-130			10/29/2021	AMO	
Phosphorus as P			106	70-130			10/29/2021	AMO	



Quality Control Report
 (Continued)

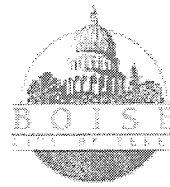
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B214111 (Continued)									
Matrix Spike (B214111-MS2) Source ID: ME00137-02									
Calcium			97.6	70-130			10/29/2021	AMW	
Magnesium			102	70-130			10/29/2021	AMW	
Phosphorus as P			107	70-130			10/29/2021	AMW	
Matrix Spike Dup (B214111-MSD1) Source ID: AC00181-01									
Calcium			106	70-130	2.94	20	10/29/2021	AMW	
Magnesium			105	70-130	5.44	20	10/29/2021	AMW	
Phosphorus as P			104	70-130	1.44	20	10/29/2021	AMW	
Matrix Spike Dup (B214111-MSD2) Source ID: ME00137-02									
Calcium			98.3	70-130	0.163	20	10/29/2021	AMW	
Magnesium			97.3	70-130	2.52	20	10/29/2021	AMW	
Phosphorus as P			107	70-130	0.294	20	10/29/2021	AMW	
Batch: B214117									
Blank (B214117-BLK1)									
Arsenic	<0.040	ug/L					10/30/2021	DMW	U
Cadmium	<0.025	ug/L					10/30/2021	DMW	U
Lead	<0.050	ug/L					10/30/2021	DMW	U
LCS (B214117-BS1)									
Arsenic			99.7	85-115			10/30/2021	DMW	
Cadmium			102	85-115			10/30/2021	DMW	
Lead			102	85-115			10/30/2021	DMW	
Duplicate (B214117-DUP1) Source ID: WB01414-10									
Arsenic					2.09	20	10/30/2021	DMW	
Cadmium					NR	20	10/30/2021	DMW	U
Lead					2.55	20	10/30/2021	DMW	
Matrix Spike (B214117-MS1) Source ID: WB01414-10									
Arsenic			102	70-130			10/30/2021	DMW	
Cadmium			101	70-130			10/30/2021	DMW	
Lead			99.7	70-130			10/30/2021	DMW	
Matrix Spike Dup (B214117-MSD1) Source ID: WB01414-10									
Arsenic			98.8	70-130	2.68	20	10/30/2021	DMW	
Cadmium			99.0	70-130	2.41	20	10/30/2021	DMW	
Lead			98.1	70-130	1.57	20	10/30/2021	DMW	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B214222									
Blank (B214222-BLK1)									
Cadmium	<0.025	ug/L					11/06/2021	DMW	U
Copper	<0.15	ug/L					11/06/2021	DMW	U
Lead	<0.050	ug/L					11/06/2021	DMW	U
Zinc	<0.78	ug/L					11/06/2021	DMW	U
LCS (B214222-BS1)									
Cadmium			98.2	85-115			11/06/2021	DMW	
Copper			99.3	85-115			11/06/2021	DMW	
Lead			99.8	85-115			11/06/2021	DMW	
Zinc			100	85-115			11/06/2021	DMW	
Duplicate (B214222-DUP1) Source ID: ES00148-05									
Cadmium					NR	10	11/06/2021	DMW	U
Copper					3.97	10	11/06/2021	DMW	
Lead					0.456	10	11/06/2021	DMW	
Zinc					NR	10	11/06/2021	DMW	U
Matrix Spike (B214222-MS1) Source ID: ES00148-05									
Cadmium			96.2	70-130			11/06/2021	DMW	
Copper			93.7	70-130			11/06/2021	DMW	
Lead			96.7	70-130			11/06/2021	DMW	
Zinc			96.0	70-130			11/06/2021	DMW	
Matrix Spike Dup (B214222-MSD1) Source ID: ES00148-05									
Cadmium			97.2	70-130	0.968	10	11/06/2021	DMW	
Copper			94.6	70-130	0.926	10	11/06/2021	DMW	
Lead			96.6	70-130	0.0790	10	11/06/2021	DMW	
Zinc			98.3	70-130	2.35	10	11/06/2021	DMW	



Notes and Definitions

Item	Definition
D	Data reported from a dilution
QC-02	The RPD is greater than the method acceptance criteria. At least one of the values used to calculate the RPD, is less than or equal to the PQL.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for November 9, 2021

Date: January 5, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the November 9, 2021 storm event.

Section 2: Project Status

Table 1-1 is a summary of the sample types collected to date for WY 2022 Phase I Stormwater Outfall Monitoring.

Table 1-1. WY 2022 Samples Collected					
Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
November 9, 2021	C	C	-	-	-
Collected:	1G, 1C	1G, 1C	1G, 1C	1G, 1C	1G, 1C

Notes:

C = composite sample.

G = grab sample.

Section 3: Storm Event Summary

The November 9, 2021 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form from November 8, 2021, is included in Attachment A for reference.

Monday, November 8, 2021

- The morning of Monday, November 8, 2021, the National Weather Service issued a forecast for widespread rain in the Boise area early Tuesday morning and extending into the afternoon. A slight chance of rainshadowing was expected. The chance of precipitation was 100 percent, with as much as 0.25 inch of precipitation forecasted.
- Setup was accomplished Monday afternoon. An expected precipitation depth of 0.19 inch was initially used to set trigger volumes at monitoring stations.



Tuesday, November 9, 2021

- Light showers started around 0530 Tuesday afternoon and continued for a few hours. Light showers did not produce runoff by 0700, therefore, the trigger volumes were reduced from 0.19 to 0.11 inch. Around 0930, precipitation greatly intensified through the area.
- Precipitation totals ranged between 0.38 and 0.45 inch at local rain gauges.

Flow measurements and precipitation data are included in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky and Whitewater monitoring stations were set up the afternoon of Monday, November 8, 2021, to collect flow proportional composite samples during the storm. Site-specific velocity cutoff values were calculated and programmed into the flowmeters. Setup and sampling information is included in Table 1.

Composite Samples

Composite samples were collected at Lucky and Whitewater monitoring stations. Volumes of composite samples submitted were sufficient for all parameters. All composite samples were submitted to the WQL on November 9 at 1758. Analytical results are included in Table 2. Pollutant loading estimates for the event are included in Table 3.

Section 4: Quality Assurance/Quality Control

No quality control samples collected during the November 9, 2021 storm event.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. All acceptance and performance criteria for analytical and non-analytical data were met for this storm event.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	NO	NO	NO	NO	NO
Composite samples collected and submitted?	YES	YES	NO	NO	NO
Trigger volume	2895 gal	800 ft ³	-	-	-
Velocity cutoff (fps)	-	-	-	-	-
Sampler enable condition (in)	level > 2.3	level > 2.3	-	-	-
Runoff start time	6:25	6:29	-	-	-
Grab sample collection time	-	-	-	-	-
Composite sample stop time	17:24	17:00	-	-	-
Runoff stop time	20:18	21:30	-	-	-
Volume of discharge sampled (ft ³)	22,382	67,626	-	-	-
Total runoff volume (ft ³)	24,780	96,818	-	-	-
Percent of storm flow sampled (%)	90%	70%	-	-	-
Composite sample duration (hrs)	7.5	8.0	-	-	-
Storm Precipitation (in)	0.45	0.41	0.38	0.38/0.44	0.38/0.44
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	54	88	-	-	-
Number of composite bottles filled	3	4	-	-	-
Composite sample volume (Approx.; ml)	28,500	51,500	-	-	-

Notes:

Table 2. Field and Analytical Data Summary - Wet Samples

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters					E. coli mpn/100 mL	Sample ID Composite	Analytical Parameters																	
			Dissolved Oxygen	pH	Conductivity	Temperature	BOD ₅			COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate, as P	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mg/L			mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	11/9/2021	-	-	-	-	-	-	211109-03-WC	18.3	73	14.9	14.4	27.3	48.8	0.558	0.353	0.248	0.0872	1.07	0.91	<0.0250	0.040	2.3	0.16	0.84	0.0115	31.0
Whitewater	11/9/2021	-	-	-	-	-	-	211109-11-WC	41.1	159	52.3	36.4	51.0	151	1.14	0.803	0.149	0.380	2.05	2.3	<0.0250	0.060	5.0	0.94	4.2	<0.0100	20.7

Notes:
- = no data.

Table 3. Event Pollutant Loading Estimates in Pounds

Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite (N)	TKN
Lucky	11/9/2021	42.2	0.863	0.384	0.135	1.65
Whitewater	11/9/2021	308	6.89	0.900	2.30	12.4

Notes:

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 8 Nov 2021

Time: 7:52 AM

Initials: TL

Sampling Event Determination

Is there a targeted sampling event expected during the next 36 hours?

(Or, if it is Friday, is a targeted event expected before 5:00 PM on Monday?)

Yes Maybe No

If YES or MAYBE, then call BC. Include discussion of reasons for "Maybe" below.

- Date and Time of Expected Event
- Expected Amount of Precipitation
- Percent Chance of Precipitation

11/8 11PM

80% - 100%

0.15" - 0.30"

Targeted Stations & Samples

Americana

- Grab
- Composite

Main

- Grab
- Composite

Lucky

- Grab
- Composite

AS-6

- Grab
- Composite

Whitewater

- Grab
- Composite

Phase II

State

- Grab
- Composite

Type of Forecasted Precipitation

- Light Rain
- Rain
- Scattered Showers
- Thunder Showers
- Snow Melt
- Rain on Snow
- Other (Describe below)

Reasons for Not Targeting a Forecasted Storm or Targeting Selected Stations/Samples

- Equipment Concerns (Describe below)
- Holiday
- Other (Describe below)

- Waiting on Antecedent Dry Period.

Expires: _____

Comments

Past 72 hr precip: 0.02"

I spoke with Bill from NWS and he said that the models are in good agreement of both timing and totals. They are predicting between 0.25" and 0.30" of rain. The onset of the storm looks like 3-4am, with the bulk of the precip between 7am and noon tomorrow. After noon, precip tapers off with a slight chance of afternoon showers. It will be a fast moving system with little chance of thunderstorms.

NWS Forecast for: Boise ID
 Issued by: National Weather Service Boise, ID
 Last Update: 2:22 am MST Nov 8, 2021

Today: Sunny, with a high near 53. Calm wind becoming southeast around 5 mph in the afternoon.

Tonight: Rain after 11pm. Steady temperature around 46. Southeast wind 7 to 9 mph. Chance of precipitation is 80%.

Tuesday: Rain, mainly before 11am. High near 53. South southeast wind 5 to 10 mph becoming light and variable in the afternoon. Chance of precipitation is 100%. New precipitation amounts between a tenth and quarter of an inch possible.

Tuesday Night: A 20 percent chance of rain before 11pm. Mostly cloudy, with a low around 35. Calm wind.

Wednesday: A slight chance of rain and snow before 11am. Mostly cloudy, with a high near 50. Light northwest wind. Chance of precipitation is 20%.

Wednesday Night: A 40 percent chance of rain, mainly after 11pm. Mostly cloudy, with a low around 35.

Veterans Day: A 20 percent chance of rain before 11am. Partly sunny, with a high near 51.

Thursday Night: Partly cloudy, with a low around 37.

Friday: Partly sunny, with a high near 55.

Friday Night: Mostly cloudy, with a low around 40.

Saturday: Partly sunny, with a high near 55.

Saturday Night: Mostly cloudy, with a low around 39.

Sunday: Partly sunny, with a high near 56.

Comments

Area Forecast Discussion
National Weather Service Boise ID
245 AM MST Mon Nov 8 2021

.SHORT TERM...Today through Wednesday night...Clear, cold weather this morning will become sunny and cool this afternoon as a Pacific short-wave upper ridge moves across our CWA. **Behind the ridge is a strong upper trough that has raced across the Pacific since Saturday.** As the trough approaches, southeast winds in our CWA will increase, especially in the Snake Basin. **Clouds will increase tonight leading to rain** and snow in eastern Oregon, and **into western Idaho before sunrise Tuesday.** Snow levels will initially be at valley floors in eastern Oregon and in Idaho north of the Snake Basin, but will rise rapidly to near 4000 feet north and 6000 feet by sunrise, then 5500 feet north to 7000 feet south Tuesday afternoon. Earlier models earlier showed shadowing of precipitation in the Snake Basin due to the Owyhee Mountains but **latest hi-res models have increased PoPs and decreased the shadowing signal. So now all of southwestern Idaho should be wet by sunrise Tuesday. Precipitation will be moderate or even briefly heavy for a couple hours Tuesday morning, but should taper to showers later Tuesday.** Total QPF and snowfall from late tonight through Tuesday evening has been lowered slightly from previous forecast, now **around .15 to .30 inch QPF in the southern valleys** and about .30 to .60 inch in the mountains. Total snowfall in the mountains will range between 2 and 6 inches. McCall should get two inches. Pre-frontal southeast winds will increase to 20 to 30 mph in the Snake Basin late tonight and Tuesday morning, with southwest winds at similar speeds in eastern Oregon. After Tuesday's storm moves through, scattered showers mainly of rain will continue into Wednesday and Wednesday night, but gradually shifting northward as an upper ridge builds over the western states. The ridge will keep temperatures slightly above normal.

.LONG TERM...Thursday through Monday...A warm-frontal passage on Thursday will continue the chances for precipitation. Snow levels around 3000-4000 feet MSL Thursday morning will increase to 5500 feet MSL Thursday evening. Precipitation will mainly fall in Baker County/OR. through Adams, Washington, and Valley Counties in ID. As the ridge builds in Friday morning, snow levels will steadily rise from 6000-7000 feet MSL to 8000-9000 feet MSL for the weekend. The storm track will remain just to the north of the forecast area which will keep a threat for precipitation around the Central Mountains, while middle and high clouds filter into southeast Oregon and southwest Idaho into Saturday. The ridge will amplify northward on Sunday keeping the area dry and allowing temperatures to be above normal into Monday.

Storm Event QA/QC Checklist

STORM DATE: 2/11/09 Circle one: Phase I Phase II

A. Event and Data Completeness	Yes	No	N/A	Notes
1. Field data sheets filled out completely and clearly	X			
2. Field parameters reviewed, and any problems/issues addressed			X	
3. All samples collected as specified	X			
4. All samples delivered to lab promptly (review chain of custody rpts)	X			
5. Inconsistencies/clarifications discussed with sampling team member			X	
6. All analytical reports from lab received	X			

B. Validation and Verification Methods	Yes	No	N/A	Notes
1. Outliers and unexpected values discussed with lab			X	
2. Appropriate analytical methods used	X			
3. All lab QA samples were within method acceptance criteria	X			
4. All samples reviewed and data qualifiers assigned if needed	X			
5. Data quality objective achieved	X			

C. Specific Storm and Sample QA/QC Criteria	Storm/Sample Value	Program Criteria	Met	Qualify	Reject	Notes
1. Precipitation (inches)	0.41 - 0.45	> 0.10 in.	X			
2. Antecedent dry period (hours)	198	< 0.11 in. in 72 hrs	X			
3. Days since last sampling event	152	>= 30 days	X			since last comp.
4. Sampled amount as % of total run-off	70-90	>= 75%	X			
5. Ecoli sample holding time	N/A	<= 8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	N/A	_____		
6. Filtering of samples for dissolved parameter analysis	< 24 hrs	<= 24 hrs: no qualifier > 24 hrs.: reject	X			

D. Notes:

• Whitewater composite represents 70% of total flow over a duration of 8 hours, so the sample is accepted.

Reviewed by Tamara Light Date 12.07.21 Approved by Monica Lowe Date 12/10/21

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.4605	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.7624	1357
#12 Main	79	0.437	13785	811	0.246	7759.9962	456
#14 Americana	875	0.446	155827	9166	0.144	50311.8	2960
Theoretical	80	0.200	6389		0.000		
	0	0	0	0		0	0
	0	0	0	0		0	0

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

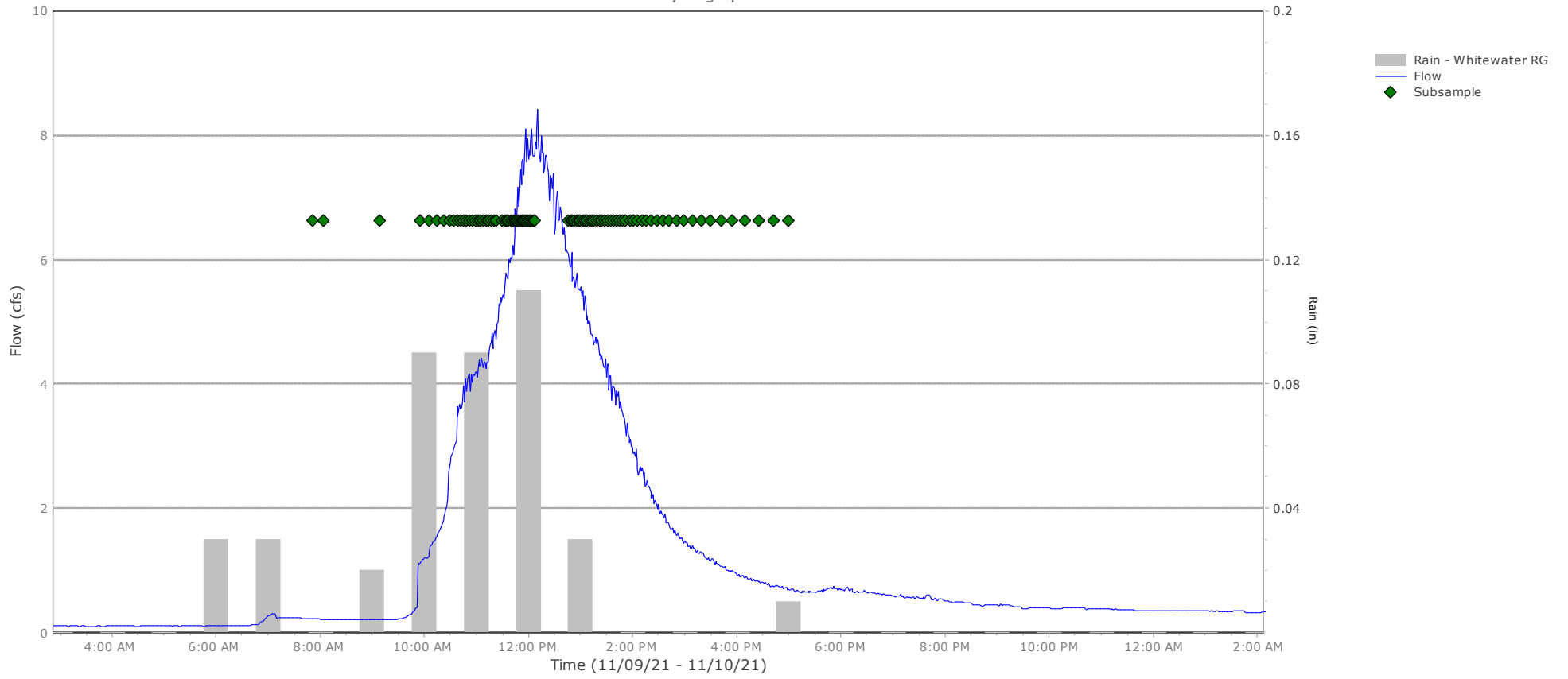
total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

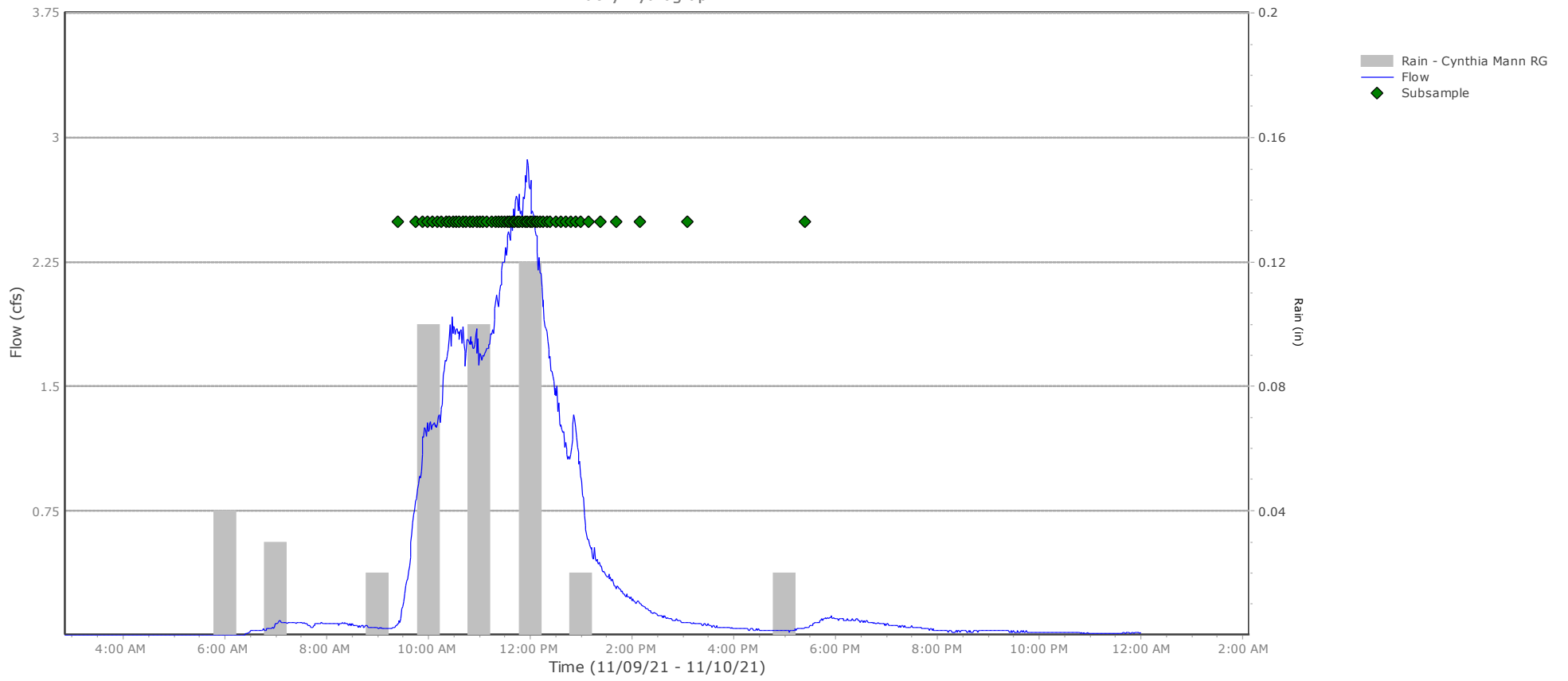
RC = measured runoff / total runoff

Attachment B: Storm Event Hydrographs

Whitewater Hydrograph

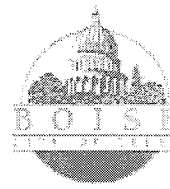


Lucky Hydrograph



Attachment C: Storm Event Analytical Reports

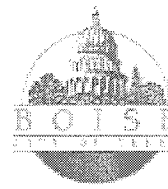
Report Date: 12/02/2021 15:43



Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00183-01	ACST1C	211109-03-WC	Water		11/09/2021	11/09/2021
AC00183-02	ACST1C	211109-11-WC	Water		11/09/2021	11/09/2021



Analysis Report

Location: ACST1C Location Description: 211109-03-WC
 Date/Time Collected: 11/09/2021 09:24 - 11/09/2021 17:24
 Lab Number: AC00183-01 Sample Collector: S.K
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Wet Chemistry										
Ammonia, as N	B214509	0.248	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	11/27/21	11/27/21 11:08	BAK	
BOD5	B214276	18.3	mg/L	2.00	2.00	SM 5210 B-2011	11/10/21	11/15/21 10:32	MER	Cust-01
COD	B214278	73.0	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/10/21	11/10/21 10:22	ASE	
Nitrate-Nitrite, as N	B214393	0.0872	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/18/21	11/18/21 12:58	BAK	
TKN	B214456	1.07	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	11/23/21	11/24/21 11:20	ALN	
Total Dissolved Solids	B214283	48.8	mg/L	25.0	25.0	SM 2540 C-2011	11/10/21	11/13/21 8:10	CJP	
Total Suspended Solids	B214273	27.3	mg/L	0.900	0.900	SM 2540 D-2011	11/10/21	11/10/21 10:28	SMC	
Turbidity	B214284	14.4	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/10/21	11/10/21 13:08	CJP	
Dissolved Wet Chemistry										
Orthophosphate, as P	B214279	0.353	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/10/21	11/10/21 14:57	BAK	M-06
Total Metals										
Mercury	B214331	0.0115	ug/L	0.0100	0.0100	EPA 245.2	11/16/21	11/17/21 8:40	SAS	
Arsenic	B214350	0.91	ug/L	0.040	0.040	EPA 200.8	11/17/21	11/18/21 13:28	DMW	
Cadmium	B214350	0.040	ug/L	0.025	0.025	EPA 200.8	11/17/21	11/18/21 13:28	DMW	
Calcium	B214325	4.52	mg/L	0.0460	0.0460	EPA 200.7	11/16/21	11/18/21 12:46	AMO	
Lead	B214350	0.84	ug/L	0.050	0.050	EPA 200.8	11/17/21	11/18/21 13:28	DMW	
Magnesium	B214325	870	ug/L	50.0	50.0	EPA 200.7	11/16/21	11/18/21 12:46	AMO	
Phosphorus as P	B214325	0.558	mg/L	6.00E-3	6.00E-3	EPA 200.7	11/16/21	11/18/21 12:46	AMO	
Hardness	B214325	14.9	mg/L	0.115	0.115	EPA 200.7	11/16/21	11/18/21 12:46	AMO	
Dissolved Metals										
Cadmium	B214352	<0.0250	ug/L	0.025	0.025	EPA 200.8	11/17/21	11/17/21 14:31	DMW	U
Copper	B214352	2.3	ug/L	0.15	0.15	EPA 200.8	11/17/21	11/17/21 14:31	DMW	
Lead	B214352	0.16	ug/L	0.050	0.050	EPA 200.8	11/17/21	11/17/21 14:31	DMW	
Zinc	B214352	31.0	ug/L	0.78	0.78	EPA 200.8	11/17/21	11/17/21 14:31	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



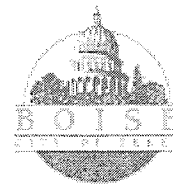
Analysis Report

Location: ACST1C
 Date/Time Collected: 11/09/2021 07:51 - 11/09/2021 17:00
 Lab Number: AC00183-02
 Sample Type: Composite

Location Description: 211109-11-WC
 Sample Collector: S.K
 Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual	
				MDL *	MDL						
Wet Chemistry											
Ammonia, as N	B214509	0.149	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	11/27/21	11/27/21	10:57	BAK	
BOD5	B214276	41.1	mg/L	2.00	2.00	SM 5210 B-2011	11/10/21	11/15/21	10:28	MER	Cust-01
COD	B214278	159	mg/L	7.00	7.00	HH 8000, Standard Method 5220 D	11/10/21	11/10/21	10:22	ASE	
Nitrate-Nitrite, as N	B214393	0.380	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	11/18/21	11/18/21	12:59	BAK	
TKN	B214456	2.05	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	11/23/21	11/24/21	11:25	ALN	
Total Dissolved Solids	B214283	151	mg/L	25.0	25.0	SM 2540 C-2011	11/10/21	11/12/21	10:07	CJP	
Total Suspended Solids	B214273	51.0	mg/L	0.900	0.900	SM 2540 D-2011	11/10/21	11/10/21	11:20	SMC	
Turbidity	B214284	36.4	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	11/10/21	11/10/21	13:15	CJP	
Dissolved Wet Chemistry											
Orthophosphate, as P	B214279	0.803	mg/L	4.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	11/10/21	11/10/21	15:00	BAK	D
Total Metals											
Mercury	B214331	<0.0100	ug/L	0.0100	0.0100	EPA 245.2	11/16/21	11/17/21	8:54	SAS	U
Arsenic	B214350	2.3	ug/L	0.040	0.040	EPA 200.8	11/17/21	11/18/21	13:31	DMW	
Cadmium	B214350	0.060	ug/L	0.025	0.025	EPA 200.8	11/17/21	11/18/21	13:31	DMW	
Calcium	B214325	15.4	mg/L	0.0460	0.0460	EPA 200.7	11/16/21	11/18/21	12:52	AMO	
Lead	B214350	4.2	ug/L	0.050	0.050	EPA 200.8	11/17/21	11/18/21	13:31	DMW	
Magnesium	B214325	3370	ug/L	50.0	50.0	EPA 200.7	11/16/21	11/18/21	12:52	AMO	
Phosphorus as P	B214325	1.14	mg/L	6.00E-3	6.00E-3	EPA 200.7	11/16/21	11/18/21	12:52	AMO	
Hardness	B214325	52.3	mg/L	0.115	0.115	EPA 200.7	11/16/21	11/18/21	12:52	AMO	
Dissolved Metals											
Cadmium	B214352	<0.0250	ug/L	0.025	0.025	EPA 200.8	11/17/21	11/17/21	14:40	DMW	U
Copper	B214352	5.0	ug/L	0.15	0.15	EPA 200.8	11/17/21	11/17/21	14:40	DMW	
Lead	B214352	0.94	ug/L	0.050	0.050	EPA 200.8	11/17/21	11/17/21	14:40	DMW	
Zinc	B214352	20.7	ug/L	0.78	0.78	EPA 200.8	11/17/21	11/17/21	14:40	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B214273									
Blank (B214273-BLK1)									
Total Suspended Solids	<0.9	mg/L					11/10/2021	SMC	U
LCS (B214273-BS1)									
Total Suspended Solids			103	90-110			11/10/2021	SMC	
Duplicate (B214273-DUP1) Source ID: LS00909-02									
Total Suspended Solids					7.43	20	11/10/2021	SMC	
Duplicate (B214273-DUP2) Source ID: BB01659-01									
Total Suspended Solids					10.4	20	11/10/2021	SMC	
Batch: B214276									
Blank (B214276-BLK1)									
BOD5	<2	mg/L					11/15/2021	MER	Cust-01, Seed-01, U
LCS (B214276-BS1)									
BOD5			101	84.6-115.4			11/15/2021	MER	Cust-01
LCS (B214276-BS2)									
BOD5			110	84.6-115.4			11/15/2021	MER	Cust-01
Duplicate (B214276-DUP1) Source ID: BB01668-05									
BOD5					3.46	30	11/15/2021	MER	Cust-01, D
Batch: B214278									
Blank (B214278-BLK1)									
COD	<7	mg/L					11/10/2021	ASE	U
LCS (B214278-BS1)									
COD			98.7	90-110			11/10/2021	ASE	
Duplicate (B214278-DUP1) Source ID: AC00183-01									
COD					2.70	10	11/10/2021	ASE	
Batch: B214283									
Blank (B214283-BLK1)									
Total Dissolved Solids	<25	mg/L					11/12/2021	CJP	U
LCS (B214283-BS1)									
Total Dissolved Solids			97.5	90-110			11/12/2021	CJP	
Duplicate (B214283-DUP1) Source ID: AC00183-02									
Total Dissolved Solids					0.165	10	11/12/2021	CJP	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B214284									
Blank (B214284-BLK1)									
Turbidity	<0.3	NTU					11/10/2021	CJP	U
LCS (B214284-BS1)									
Turbidity			102	90-110			11/10/2021	CJP	
Duplicate (B214284-DUP1) Source ID: AC00183-01									
Turbidity					2.06	25	11/10/2021	CJP	
Batch: B214393									
Blank (B214393-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					11/18/2021	BAK	U
LCS (B214393-BS1)									
Nitrate-Nitrite, as N			97.4	90-110			11/18/2021	BAK	
Duplicate (B214393-DUP1) Source ID: BB01676-01									
Nitrate-Nitrite, as N					1.83	10	11/18/2021	BAK	
Duplicate (B214393-DUP2) Source ID: WR00002-02									
Nitrate-Nitrite, as N					0.0853	10	11/18/2021	BAK	
Matrix Spike (B214393-MS1) Source ID: BB01676-01									
Nitrate-Nitrite, as N			98.3	90-110			11/18/2021	BAK	
Matrix Spike (B214393-MS2) Source ID: WR00002-02									
Nitrate-Nitrite, as N			97.8	90-110			11/18/2021	BAK	
Matrix Spike (B214393-MS3) Source ID: WR00002-01									
Nitrate-Nitrite, as N			90.6	90-110			11/18/2021	BAK	
Matrix Spike (B214393-MS4) Source ID: WR00003-01									
Nitrate-Nitrite, as N			96.5	90-110			11/18/2021	BAK	
Matrix Spike (B214393-MS5) Source ID: WR00004-02									
Nitrate-Nitrite, as N			95.2	90-110			11/18/2021	BAK	
Matrix Spike (B214393-MS6) Source ID: WR00004-03									
Nitrate-Nitrite, as N			94.9	90-110			11/18/2021	BAK	
Matrix Spike (B214393-MS8) Source ID: WR00004-01RE1									
Nitrate-Nitrite, as N			101	90-110			11/18/2021	BAK	D
Matrix Spike Dup (B214393-MSD1) Source ID: BB01676-01									
Nitrate-Nitrite, as N			99.4	90-110	0.477	10	11/18/2021	BAK	
Matrix Spike Dup (B214393-MSD2) Source ID: WR00002-02									
Nitrate-Nitrite, as N			96.1	90-110	0.642	10	11/18/2021	BAK	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B214456									
Blank (B214456-BLK1)									
TKN	<0.1	mg/L					11/24/2021	ALN	U
Blank (B214456-BLK2)									
TKN	<0.1	mg/L					11/24/2021	ALN	U
LCS (B214456-BS1)									
TKN			94.0	80-120			11/24/2021	ALN	
LCS (B214456-BS2)									
TKN			96.0	80-120			11/24/2021	ALN	
Duplicate (B214456-DUP1) Source ID: AC00183-01									
TKN					14.5	20	11/24/2021	ALN	
Duplicate (B214456-DUP2) Source ID: BB01636-01									
TKN					1.16	20	11/24/2021	ALN	D
Duplicate (B214456-DUP3) Source ID: LS00904-02									
TKN					2.13	20	11/24/2021	ALN	D
Matrix Spike (B214456-MS1) Source ID: AC00183-01									
TKN			107	80-120			11/24/2021	ALN	
Matrix Spike (B214456-MS2) Source ID: BB01636-01									
TKN			99.8	80-120			11/24/2021	ALN	D
Matrix Spike (B214456-MS3) Source ID: LS00904-02									
TKN			103	80-120			11/24/2021	ALN	D
Matrix Spike (B214456-MS5) Source ID: BB01664-02RE2									
TKN			105	80-120			11/24/2021	ALN	D
Matrix Spike Dup (B214456-MSD1) Source ID: AC00183-01									
TKN			120	80-120	7.91	20	11/24/2021	ALN	
Matrix Spike Dup (B214456-MSD2) Source ID: BB01636-01									
TKN			116	80-120	8.28	20	11/24/2021	ALN	D
Matrix Spike Dup (B214456-MSD3) Source ID: LS00904-02									
TKN			95.5	80-120	3.01	20	11/24/2021	ALN	D



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B214509									
Blank (B214509-BLK1)									
Ammonia, as N	<0.035	mg/L					11/27/2021	BAK	U
LCS (B214509-BS1)									
Ammonia, as N			103	90-110			11/27/2021	BAK	
Duplicate (B214509-DUP1) Source ID: BB01686-01									
Ammonia, as N					1.23	10	11/27/2021	BAK	D
Duplicate (B214509-DUP2) Source ID: WB01450-05									
Ammonia, as N					1.10	10	11/27/2021	BAK	
Matrix Spike (B214509-MS1) Source ID: BB01686-01									
Ammonia, as N			108	80-120			11/27/2021	BAK	D
Matrix Spike (B214509-MS2) Source ID: WB01450-05									
Ammonia, as N			116	80-120			11/27/2021	BAK	
Matrix Spike Dup (B214509-MSD1) Source ID: BB01686-01									
Ammonia, as N			106	80-120	1.77	10	11/27/2021	BAK	D
Matrix Spike Dup (B214509-MSD2) Source ID: WB01450-05									
Ammonia, as N			114	80-120	0.729	10	11/27/2021	BAK	
Dissolved Wet Chemistry									
Batch: B214279									
Blank (B214279-BLK1)									
Orthophosphate, as P	<0.002	mg/L					11/10/2021	BAK	U
LCS (B214279-BS1)									
Orthophosphate, as P			98.4	90-110			11/10/2021	BAK	
Duplicate (B214279-DUP1) Source ID: BB01686-01									
Orthophosphate, as P					0.356	10	11/10/2021	BAK	D
Duplicate (B214279-DUP2) Source ID: LS00909-02									
Orthophosphate, as P					1.15	10	11/10/2021	BAK	D
Matrix Spike (B214279-MS1) Source ID: BB01686-01									
Orthophosphate, as P			101	90-110			11/10/2021	BAK	D
Matrix Spike (B214279-MS2) Source ID: LS00909-02									
Orthophosphate, as P			103	90-110			11/10/2021	BAK	D
Matrix Spike Dup (B214279-MSD1) Source ID: BB01686-01									
Orthophosphate, as P			103	90-110	0.979	10	11/10/2021	BAK	D
Matrix Spike Dup (B214279-MSD2) Source ID: LS00909-02									
Orthophosphate, as P			102	90-110	0.392	10	11/10/2021	BAK	D



Quality Control Report

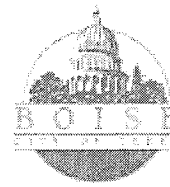
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B214325									
Blank (B214325-BLK1)									
Calcium	<0.046	mg/L					11/18/2021	AMO	U
Magnesium	<50	ug/L					11/18/2021	AMO	U
Phosphorus as P	<0.006	mg/L					11/18/2021	AMO	U
LCS (B214325-BS1)									
Calcium			101	85-115			11/18/2021	AMO	
Magnesium			101	85-115			11/18/2021	AMO	
Phosphorus as P			113	85-115			11/18/2021	AMO	
Duplicate (B214325-DUP1) Source ID: ME00144-03									
Calcium					2.32	20	11/18/2021	AMO	
Magnesium					3.08	20	11/18/2021	AMO	
Phosphorus as P					0.821	20	11/18/2021	AMO	
Duplicate (B214325-DUP2) Source ID: AC00183-02									
Calcium					15.2	20	11/18/2021	AMO	
Magnesium					15.4	20	11/18/2021	AMO	
Phosphorus as P					6.24	20	11/18/2021	AMO	
Matrix Spike (B214325-MS1) Source ID: ME00144-03									
Calcium			89.6	70-130			11/18/2021	AMO	
Magnesium			105	70-130			11/18/2021	AMO	
Phosphorus as P			105	70-130			11/18/2021	AMO	
Matrix Spike (B214325-MS2) Source ID: AC00183-02									
Calcium			123	70-130			11/18/2021	AMO	
Magnesium			118	70-130			11/18/2021	AMO	
Phosphorus as P			123	70-130			11/18/2021	AMO	
Matrix Spike Dup (B214325-MSD1) Source ID: ME00144-03									
Calcium			79.8	70-130	3.28	20	11/18/2021	AMO	
Magnesium			101	70-130	2.42	20	11/18/2021	AMO	
Phosphorus as P			115	70-130	8.49	20	11/18/2021	AMO	
Matrix Spike Dup (B214325-MSD2) Source ID: AC00183-02									
Calcium			111	70-130	6.55	20	11/18/2021	AMO	
Magnesium			110	70-130	6.34	20	11/18/2021	AMO	
Phosphorus as P			117	70-130	3.45	20	11/18/2021	AMO	



Quality Control Report
 (Continued)

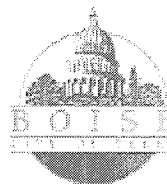
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B214331									
Blank (B214331-BLK1)									
Mercury	<0.01	ug/L					11/17/2021	SAS	U
Blank (B214331-BLK2)									
Mercury	<0.01	ug/L					11/17/2021	SAS	U
Blank (B214331-BLK3)									
Mercury	<0.01	ug/L					11/17/2021	SAS	U
LCS (B214331-BS1)									
Mercury			98.1	85-115			11/17/2021	SAS	
Duplicate (B214331-DUP1) Source ID: AC00183-01									
Mercury					NR	20	11/17/2021	SAS	U
Matrix Spike (B214331-MS1) Source ID: AC00183-01									
Mercury			94.9	70-130			11/17/2021	SAS	
Matrix Spike Dup (B214331-MSD1) Source ID: AC00183-01									
Mercury			85.5	70-130	9.26	20	11/17/2021	SAS	
Batch: B214350									
Blank (B214350-BLK1)									
Arsenic	<0.040	ug/L					11/18/2021	DMW	U
Cadmium	<0.025	ug/L					11/18/2021	DMW	U
Lead	<0.050	ug/L					11/18/2021	DMW	U
LCS (B214350-BS1)									
Arsenic			97.7	85-115			11/18/2021	DMW	
Cadmium			100	85-115			11/18/2021	DMW	
Lead			102	85-115			11/18/2021	DMW	
Duplicate (B214350-DUP1) Source ID: WB01450-10									
Arsenic					0.206	20	11/18/2021	DMW	
Cadmium					NR	20	11/18/2021	DMW	U
Lead					1.10	20	11/18/2021	DMW	
Matrix Spike (B214350-MS1) Source ID: WB01450-10									
Arsenic			99.7	70-130			11/18/2021	DMW	
Cadmium			98.7	70-130			11/18/2021	DMW	
Lead			98.1	70-130			11/18/2021	DMW	
Matrix Spike Dup (B214350-MSD1) Source ID: WB01450-10									
Arsenic			96.9	70-130	2.16	20	11/18/2021	DMW	
Cadmium			96.4	70-130	2.33	20	11/18/2021	DMW	
Lead			97.8	70-130	0.346	20	11/18/2021	DMW	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B214352									
Blank (B214352-BLK1)									
Cadmium	<0.025	ug/L					11/17/2021	DMW	U
Copper	<0.15	ug/L					11/17/2021	DMW	U
Lead	<0.050	ug/L					11/17/2021	DMW	U
Zinc	<0.78	ug/L					11/17/2021	DMW	U
LCS (B214352-BS1)									
Cadmium			101	85-115			11/17/2021	DMW	
Copper			106	85-115			11/17/2021	DMW	
Lead			103	85-115			11/17/2021	DMW	
Zinc			102	85-115			11/17/2021	DMW	
Duplicate (B214352-DUP1) Source ID: AC00183-01									
Cadmium					NR	10	11/17/2021	DMW	U
Copper					1.64	10	11/17/2021	DMW	
Lead					2.11	10	11/17/2021	DMW	
Zinc					2.27	10	11/17/2021	DMW	
Matrix Spike (B214352-MS1) Source ID: AC00183-01									
Cadmium			99.7	70-130			11/17/2021	DMW	
Copper			97.7	70-130			11/17/2021	DMW	
Lead			99.2	70-130			11/17/2021	DMW	
Zinc			94.9	70-130			11/17/2021	DMW	
Matrix Spike Dup (B214352-MSD1) Source ID: AC00183-01									
Cadmium			99.8	70-130	0.0828	10	11/17/2021	DMW	
Copper			99.1	70-130	1.15	10	11/17/2021	DMW	
Lead			99.8	70-130	0.666	10	11/17/2021	DMW	
Zinc			96.6	70-130	0.828	10	11/17/2021	DMW	



Notes and Definitions

Item	Definition
Cust-01	Blank recovery was above acceptable limits. The batch was accepted because DUP and LCS were within method acceptance criteria.
D	Data reported from a dilution
M-06	The reported result has been confirmed by reanalysis.
Seed-01	The seed depletion is greater than that recommended by the method. The LCS is acceptable showing the seed supports the method.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846


Janet Finegan-Kelly
Water Quality Laboratory Manager


Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Monica Lowe
 3775 Adams Street
 Garden City, Idaho 83714-6418
 Tel. (208) 387-6255
 Fax (208) 387-6391
 Purchase Order:

63058181
 Stormwater-PI
 Project: Tammy Lightle
Spanna Krohn
 Sampler(s):

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials		Matrix	Type	BOD ₅ - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO ₃ +NO ₂ - EPA 353.2	NH ₃ - SM 4500 NH ₃ - D	Total Containers		
ACDNR3																											
-01	11/9/21	11/9/21	09:29	17:29	211109-03-WC	AK	AK	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4	
-02	11/9/21	11/9/21	07:51	17:00	211109-11-WC	AK	AK	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4	

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
<i>Shannon King</i>	11/9/21 17:58	<i>Amel Deason</i> 11-9-21 17:58	<i>AK</i>



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for March 15, 2022

Date: May 24, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the March 15, 2022 storm event.

Section 2: Project Status

Table 1-1 is a summary of the sample types collected to date for WY 2022 Phase I Stormwater Outfall Monitoring.

Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
November 9, 2021	C	C	-	-	-
March 15, 2022	G, C	G, C	G, C	G, C	G, C
Collected:	2G, 2C	2G, 2C	2G, 2C	2G, 2C	2G, 2C

Notes:

C = composite sample.

G = grab sample.

After the March 15, 2022 storm event, ACHD still needs to collect one grab sample and one composite sample from each Phase I monitoring site.

Section 3: Storm Event Summary

The March 15, 2022 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A detailed summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form that describes the forecast and summarizes the decision-making process from March 14, 2022 is included in Attachment A for reference.

Monday, March 14, 2022

- The afternoon of Monday, March 14, 2022, the National Weather Service issued a forecast for widespread rain in the Boise area. A slight chance of rainshadowing was expected. The chance of precipitation was 100% percent, with a total of 0.30 inch of precipitation forecasted.
- Setup was accomplished on Monday, March 14, 2022. An expected precipitation depth of 0.19 inch was used to set trigger volumes at monitoring stations.

Tuesday, March 15, 2022

- Rain started around 0830 and continued until 1100. A weaker second wave of precipitation started around 1200 and continued until 1500. A stronger third wave of rain of rain started around 1630 and continued until 1800.
- Precipitation totals ranged between 0.30 and 0.36 inch at local rain gauges.

Flow measurements and precipitation data are summarized in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Main, Americana, and AS_6 monitoring stations were set up the afternoon of Monday, March 14, 2022, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programed into the Lucky, Whitewater, Main, and Americana flowmeters. A site-specific velocity cutoff value was programmed into the AS_6 flowmeter. Setup and sampling information is included in Table 1. The field forms completed during setup/shut down and sampling can be found in Appendix D.

Grab Samples

Two, two-member teams mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on the morning on March 15, 2022. Grab samples were submitted to the West Boise Water Quality Lab (WQL) at 1054 on March 15, 2022. Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment C.

Composite Samples

Composite samples were collected at Lucky, Whitewater, Main, Americana, and AS_6 monitoring stations. Volumes of composite samples submitted were sufficient for all parameters. All composite samples were submitted to the WQL on March 15, 2022 at 2127. Analytical results are attached in Table 2. Pollutant loading estimates for the event are detailed in Table 3.

Section 4: Quality Assurance/Quality Control

A summary of quality control (QC) samples collected during the March 15, 2022, storm event is presented below in Table 3-1. A field blank and a field duplicate were collected from the Main monitoring station. Analytical results for these samples are included in Table 4.

Sample ID	Sample Type	Parent Sample	Conclusions
220315-12-001	Field Blank	Main Grab	No E. coli detection was reported in the field blank.
220315-12-101	Field Duplicate	Main Grab	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. Acceptance and performance criteria for analytical and non-analytical data were met for this storm event.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	YES	YES	YES	YES
Composite samples collected and submitted?	YES	YES	YES	YES	YES
Trigger volume	5004 gal	1600 ft ³	5894 gal	5112 ft ³	382 ft ³
Velocity cutoff (fps)	--	--	--	--	0.02
Sampler enable condition (in)	level > 1.5	level > 0.5	level > 3.5	level > 6.5	--
Runoff start time	8:49	10:21	8:49	8:13	9:20
Grab sample collection time	9:54	10:31	9:35	9:52	10:09
Composite sample stop time	18:00	18:21	18:03	14:37	17:23
Runoff stop time	20:57	20:42	19:56	20:13	20:11
Volume of discharge sampled (ft ³)	11,779	27,239	14,587	125,596	9,341
Total runoff volume (ft ³)	12,005	28,655	14,893	207,280	10,416
Percent of storm flow sampled (%)	98%	95%	98%	61%	90%
Composite sample duration (hrs)	9	8	9	6.5	8
Storm Precipitation (in)	0.30	0.32	0.30	0.30/0.36	0.30/0.36
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	17	17	18	24	24
Number of composite bottles filled	1	1	1	1	1
Composite sample volume (Approx.; ml)	9,500	10,250	11,000	14,000	14,000

Table 2. Field and Analytical Data Summary - Wet Samples

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters						Sample ID Composite	Analytical Parameters																	
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli	BOD ₅		COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate, as P	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C	mpn/100 mL	mg/L		mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	3/15/2022	220315-03-WG	9.04	5.87	83.3	12.21	1580.0	220315-03-WC	15.2	121	20.7	51.1	55.8	72.0	0.398	0.197	0.750	0.359	2.45	2.0	<0.0250	0.076	5.0	0.11	2.2	0.0107	32.3
Whitewater	3/15/2022	220315-11-WG	8.68	6.1	671.8	9.70	30.1	220315-11-WC	27.2	197	84.3	175	135	236	0.651	0.324	1.30	0.541	3.64	3.4	<0.0250	0.13	8.6	0.25	8.9	0.0192	41.8
Main	3/15/2022	220315-12-WG	10.57	6.11	511.8	9.30	24.3	220315-12-WC	18.9	215	80.9	139	264	210	0.404	0.143	1.14	0.372	3.05	3.2	0.034	0.20	6.7	0.092	12.5	0.0285	53.7
Americana	3/15/2022	220315-14-WG	10.55	6.32	737.6	10.17	88.2	220315-14-WC	19.8	118	146	80.8	71.8	394	0.424	0.203	0.935	0.989	2.55	4.9	0.033	0.13	4.6	0.18	6.8	0.0155	43.9
AS_6	3/15/2022	220315-206-WG	9.63	6.48	756.2	8.58	613.1	220315-206-WC	35.3	292	69.3	248	297	252	1.05	0.474	1.06	0.413	5.26	5.3	0.030	0.17	7.6	0.49	17.1	0.0389	38.4

Table 3. Event Pollutant Loading Estimates in Pounds

Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite (N)	TKN
Lucky	3/15/2022	41.8	0.298	0.562	0.269	1.84
Whitewater	3/15/2022	125	0.605	1.21	0.503	3.38
Main	3/15/2022	245	0.375	1.06	0.346	2.83
Americana	3/15/2022	929	5.49	12.1	12.8	33.0
AS_6	3/15/2022	193	0.683	0.689	0.268	3.42

Table 4. QC Sample Summary

Date	Parent Sample	Sample ID	Type	E. coli
				mpn/100 mL
3/15/2022	220315-12-WG	220315-12-001	Field Blank	<1.0
3/15/2022	220315-12-WG	220315-12-101	Field Duplicate	15.8
Calculated parent/duplicate RPD				10%
Allowable RPD				40%

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 14 Mar 2022 Time: 7:48 AM Initials: TL

Sampling Event Determination
 Is there a targeted sampling event expected during the next 36 hours?
 (Or, if it is Friday, is a targeted event expected before 5:00 PM on Monday?)
 Yes Maybe No
If YES or MAYBE, then call BC. Include discussion of reasons for "Maybe" below.

Date and Time of Expected Event 3/15 6am - 6pm
 Expected Amount of Precipitation
 Percent Chance of Precipitation 100%, 0.30"

Targeted Stations & Samples

Americana	Main	Lucky	AS-6	Whitewater
<input checked="" type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab
<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite

Phase II

State

Grab
 Composite

Type of Forecasted Precipitation

Light Rain Thunder Showers Other (Describe below)
 Rain Snow Melt
 Scattered Showers Rain on Snow

Reasons for Not Targeting a Forecasted Storm or Targeting Selected Stations/Samples

Equipment Concerns (Describe below) Holiday Other (Describe below)

Waiting on Antecedent Dry Period. Expires: _____

Comments

Past 72 hr precip: 0.00"
I talked with Anna at NWS. The Storm will begin tomorrow morning between 6am-8am. Slight chance of rainshadowing at the beginning but will be quickly overcome because there is plenty of moisture in the atmosphere. The models are in good agreement on totals being around 0.30", with 0.15-0.20 from 6am - noon.
 NWS Forecast for: Boise ID
 Issued by: National Weather Service Boise, ID
 Last Update: 3:11 am MDT Mar 14, 2022

Today: Partly sunny, with a high near 57. Light east southeast wind becoming southeast 5 to 10 mph in the afternoon. Tonight: A 30 percent chance of rain after midnight. Mostly cloudy, with a low around 44. East southeast wind 11 to 14 mph.
Tuesday: Rain. High near 54. Southeast wind 7 to 9 mph. Chance of precipitation is 100%. New precipitation amounts between a quarter and half of an inch possible.
Tuesday Night: Rain likely before midnight. Mostly cloudy, with a low around 34. Southwest wind around 5 mph becoming light and variable. Chance of precipitation is 60%.
 Wednesday: Partly sunny, with a high near 53. Light north northwest wind becoming northwest 5 to 10 mph in the afternoon.
 Wednesday Night: Mostly clear, with a low around 31.
 Thursday: Mostly sunny, with a high near 57.
 Thursday Night: Mostly cloudy, with a low around 37.
 Friday: Partly sunny, with a high near 62.
 Friday Night: Mostly cloudy, with a low around 41.
 Saturday: A 30 percent chance of rain. Mostly cloudy, with a high near 64.
Saturday Night: Rain likely. Cloudy, with a low around 38. Chance of precipitation is 60%.
 Sunday: A 40 percent chance of rain. Mostly cloudy, with a high near 53.

Area Forecast Discussion
 National Weather Service Boise ID
 302 AM MDT Mon Mar 14 2022

.SHORT TERM...Today through Wednesday night...Drier, warmer conditions expected across the forecast area today under a ridge. Expect some gusty wind across the area, especially eastern Oregon beginning this afternoon. The next approaching trough will begin to impact the region Monday evening, with a few showers noted across eastern Oregon and into the West Central Mountains of Idaho. **The stronger moisture push will make its arrival Tuesday morning, with more widespread moisture across the area.** Snow levels will be around 6000-7000 ft, resulting in some mountain snow and rain otherwise. **Shower activity will continue into Wednesday morning with activity weakening generally from west to east Wednesday.** Snowfall of 4 to 8 inches anticipated over the higher terrain, with **rain amounts up to around 0.30" for the lower elevations.** Gusty to breezy winds will accompany this system, with winds weakening as the system departs on Wednesday. Drier, though cooler conditions than expected Wednesday.

.LONG TERM...Thursday through Monday...A weak ridge will move over the region on Thursday, bringing dry conditions and normal temperatures for the region. Zonal flow will continue through Friday and a shortwave trough to the north will bring areas of precipitation to higher elevations in Baker County and Harney County in Oregon and the Owyhee and West Central Mountains in Idaho. The relatively zonal flow will ensure temperatures remain slightly above normal through the rest of the week. Models still depict a deep upper level trough moving through the region this weekend. Uncertainty still remains on the timing of arrival and accumulation of precipitation for the region, but widespread precipitation is expected on Sunday. Snow levels will drop from 5000-6000 feet MSL to 3000-4000 feet MSL on Sunday. Breezy northwest winds will strengthen through Sunday afternoon after frontal passage. Precipitation will move out of the region on Monday, with some lingering snow showers on Monday in the West Central Mountains.

Storm Event QA/QC Checklist

STORM DATE: <u>220315</u>				Circle one: Phase I	Phase II	
A. Event and Data Completeness	Yes	No	N/A	Notes		
1. Field data sheets filled out completely and clearly	X					
2. Field parameters reviewed, and any problems/issues addressed	X					
3. All samples collected as specified	X					
4. All samples delivered to lab promptly (review chain of custody rpts)	X					
5. Inconsistencies/clarifications discussed with sampling team member			X			
6. All analytical reports from lab received	X					
B. Validation and Verification Methods	Yes	No	N/A	Notes		
1. Outliers and unexpected values discussed with lab			X			
2. Appropriate analytical methods used	X					
3. All lab QA samples were within method acceptance criteria	X					
4. All samples reviewed and data qualifiers assigned if needed	X					
5. Data quality objective achieved	X					
C. Specific Storm and Sample QA/QC Criteria	Storm/Sample Value	Program Criteria	Met	Qualify	Reject	Notes
1. Precipitation (inches)	0.30-0.36	> 0.10 in.	X			
2. Antecedent dry period (hours)	1,272	< 0.11 in. in 72 hrs	X			
3. Days since last sampling event	126	>= 30 days	X			
4. Sampled amount as % of total run-off	61% - 98%	>= 75%	X			
5. Ecoli sample holding time	3 hrs	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X			
6. Filtering of samples for dissolved parameter analysis	≤ 17 hrs	<= 24 hrs: no qualifier > 24 hrs.: reject	X			
D. Notes:						
<p style="color: blue;">Americana composite represents 61% of the total storm over 6.5 hrs so the sample is not accepted. All of the other sites represented 90% - 98% of the total storm.</p>						

Reviewed by Tamara Lightle Date 04.20.22

Approved by Monica Love Date 4/27/22

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.46	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.76	1357
#12 Main	79	0.437	13785	811	0.246	7760.00	456
#14 Americana	875	0.446	155827	9166	0.144	50311.80	2960
#206 AS_6	204	0.257	20935	1231	0.046	3747.03	221
#18 State	34	0.419	5688	335	0.144	1954.97	122
Theoretical	80	0.200	6389		0.000		

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

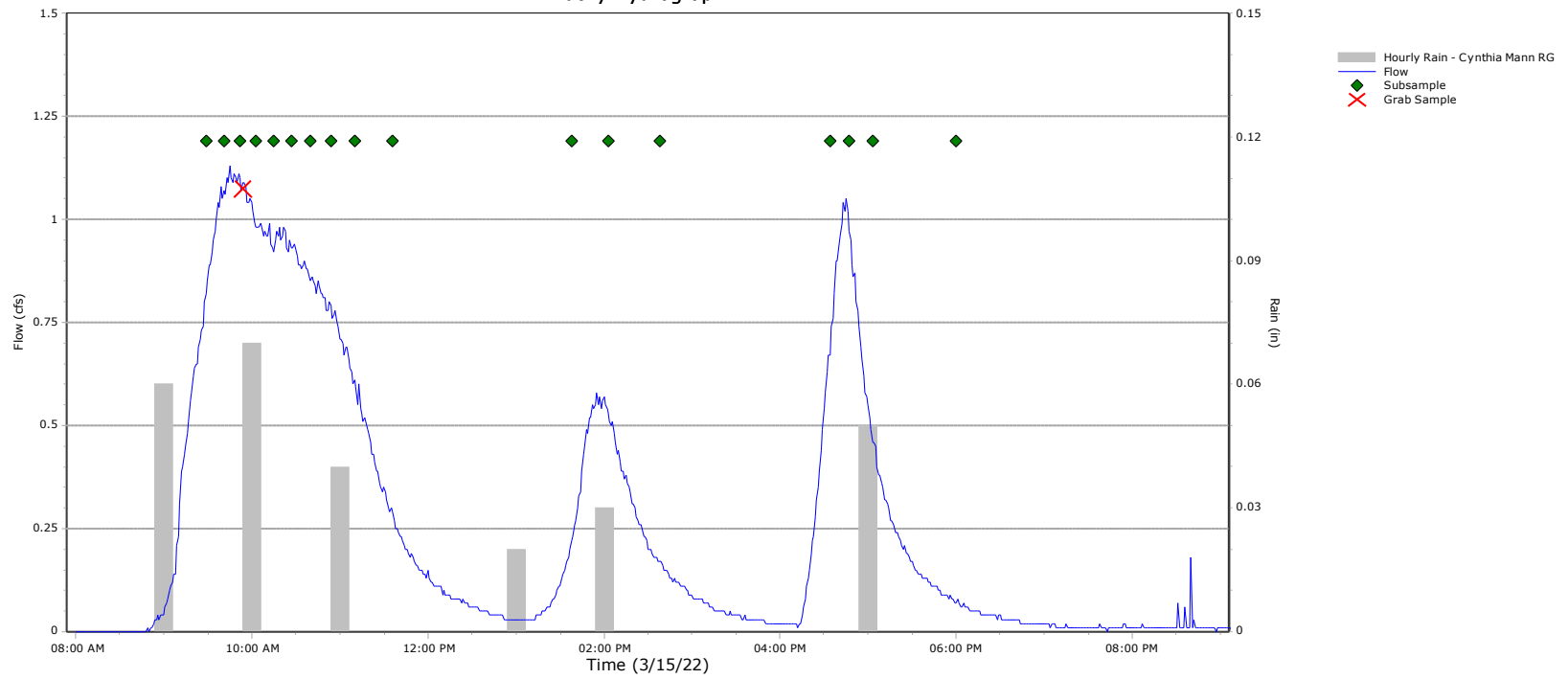
total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

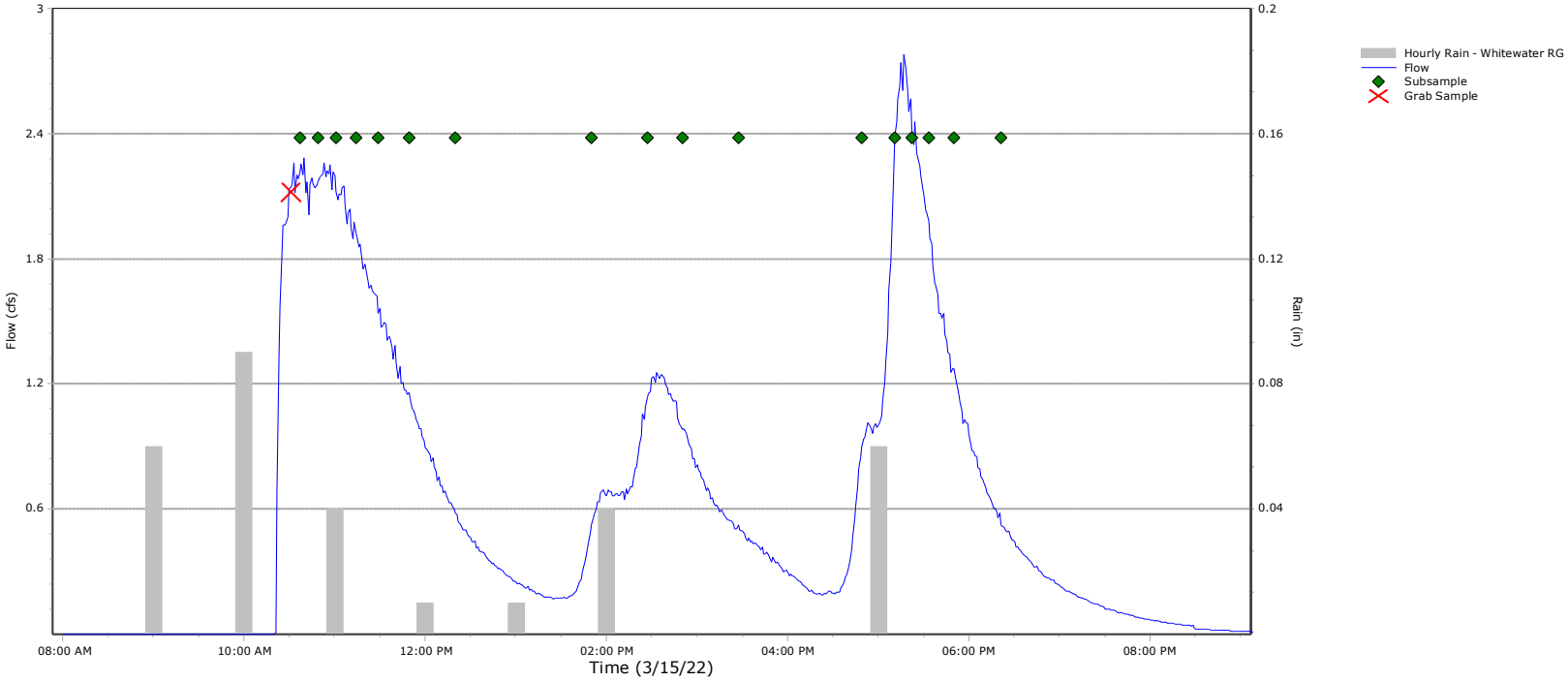
RC = measured runoff / total runoff

Attachment B: Storm Event Hydrographs

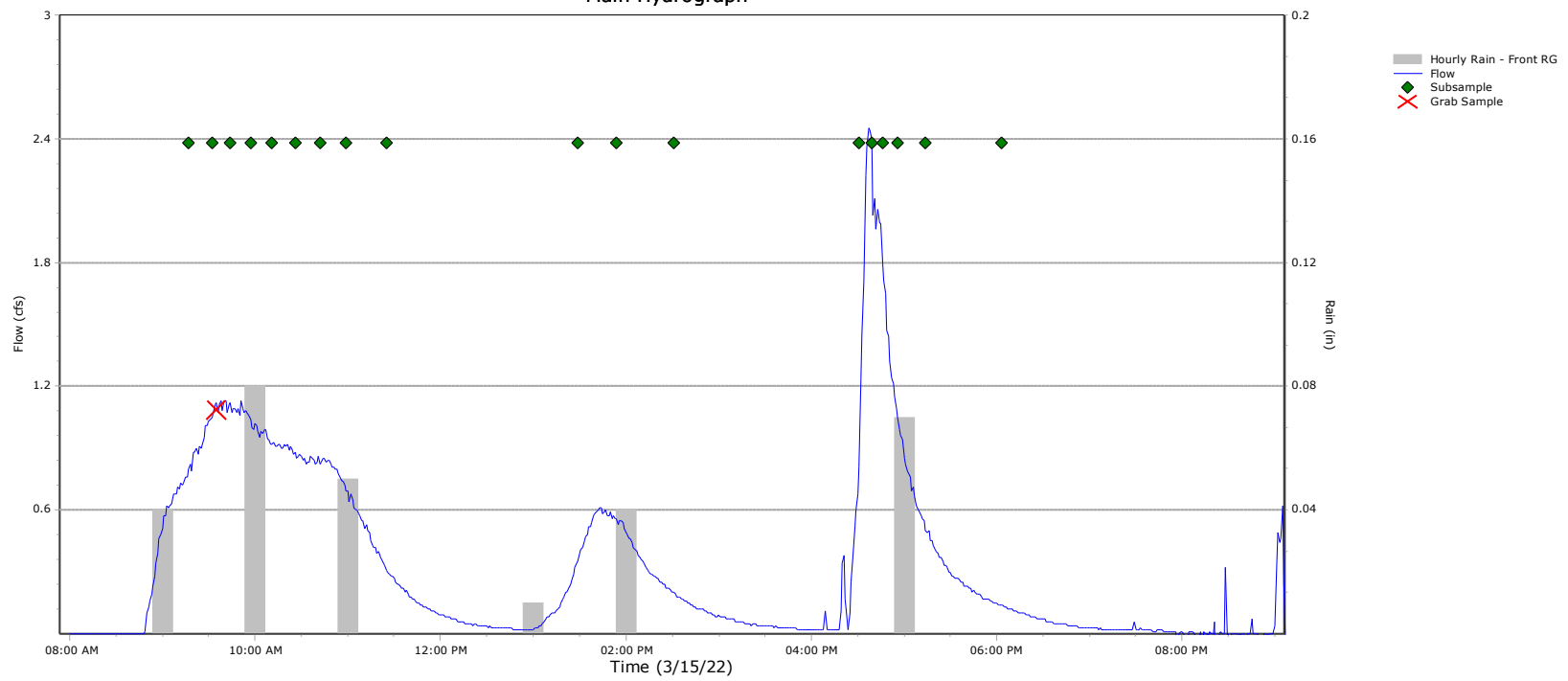
Lucky Hydrograph



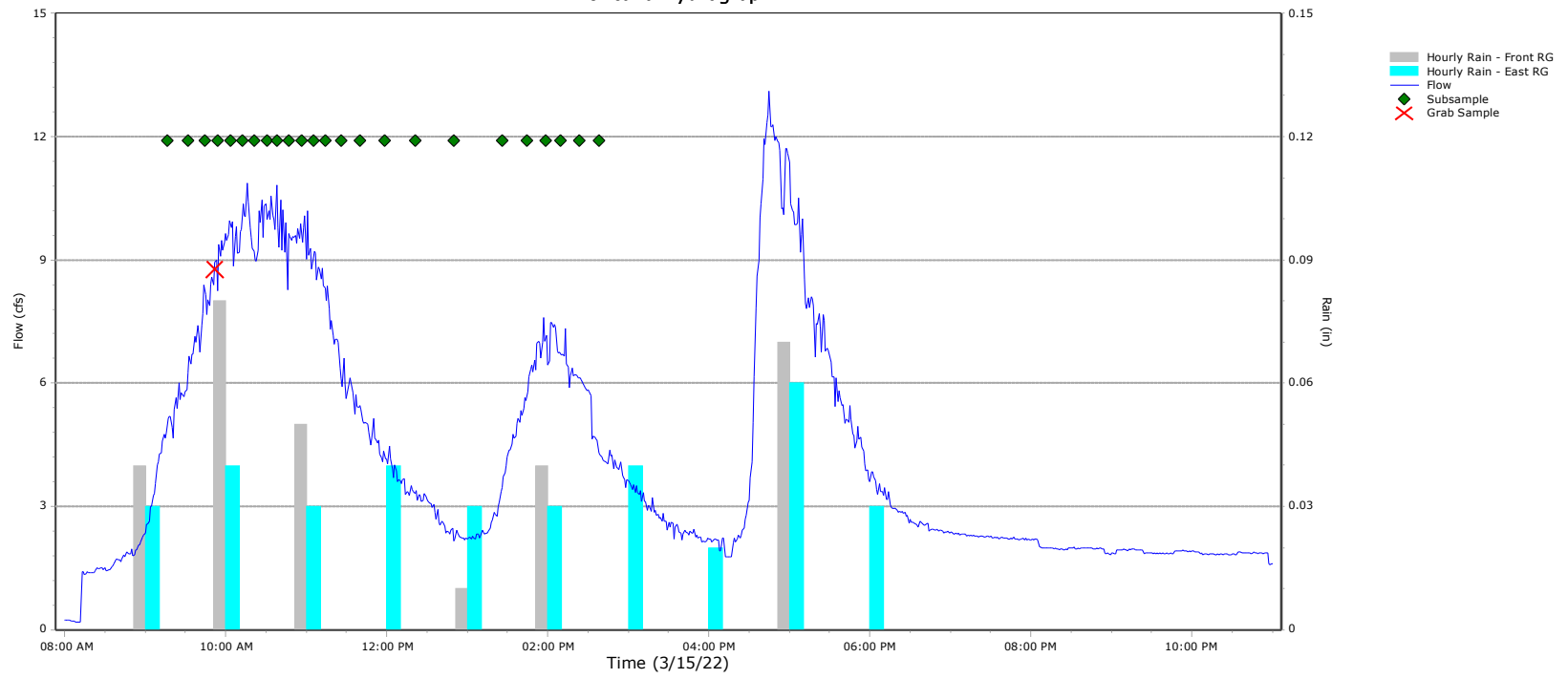
Whitewater Hydrograph



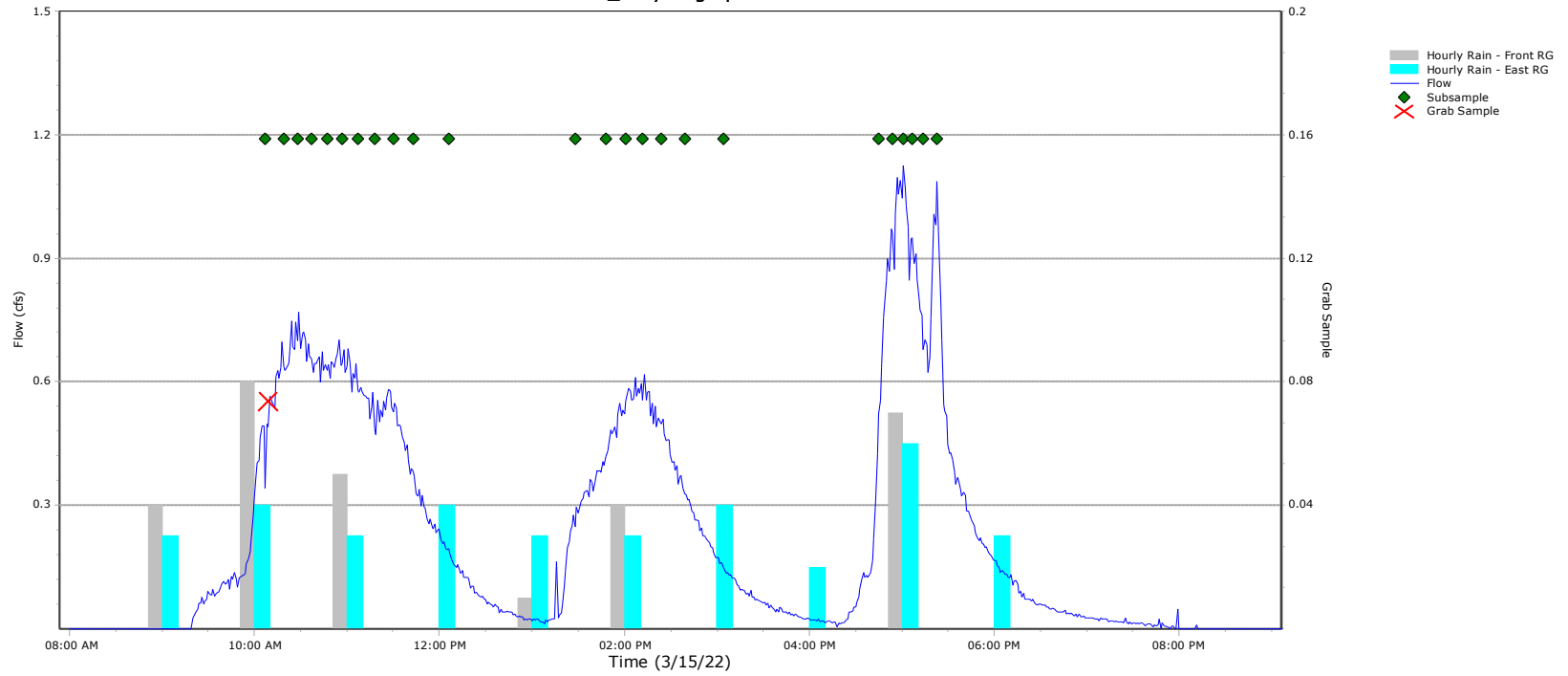
Main Hydrograph



Americana Hydrograph



AS_6 Hydrograph

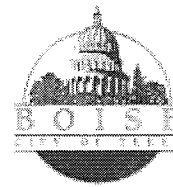


Attachment C: Storm Event Analytical Reports



Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00195-01	ACST1B	220315-03-WG	Water		03/15/2022	03/15/2022
AC00195-02	ACST1B	220315-11-WG	Water		03/15/2022	03/15/2022
AC00195-03	ACST1B	220315-12-WG	Water		03/15/2022	03/15/2022
AC00195-04	ACST1B	220315-12-101	Water		03/15/2022	03/15/2022
AC00195-05	ACST1B	220315-12-001	Water		03/15/2022	03/15/2022
AC00195-06	ACST1B	220315-14-WG	Water		03/15/2022	03/15/2022
AC00195-07	ACST1B	220315-206-WG	Water		03/15/2022	03/15/2022



Analysis Report

Location:	ACST1B	Location Description:	220315-03-WG
Date/Time Collected:	03/15/2022 09:54		
Lab Number:	AC00195-01	Sample Collector:	S.K
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B220950	1580.0 MPN/100 mL		100.0	1.0	IDEXX - Colilert	03/15/22 12:41	3/16/22 12:52	LRF	D
Wet Chemistry										
Chlorine Screen	B220986	Absent				SM 4500-CL G-2000 mod	03/16/22	3/16/22 11:34	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

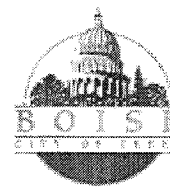


Analysis Report

Location:	ACST1B	Location Description:	220315-12-WG
Date/Time Collected:	03/15/2022 09:35		
Lab Number:	AC00195-03	Sample Collector:	T.L
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B220950	24.3 MPN/100 mL		1.0	1.0	IDEXX - Colilert	03/15/22 12:41	3/16/22 12:52	LRF	
Wet Chemistry										
Chlorine Screen	B220986	Absent				SM 4500-CL G-2000 mod	03/16/22	3/16/22 11:34	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

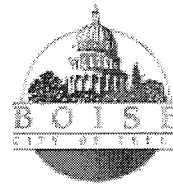


Analysis Report

Location:	ACST1B	Location Description:	220315-12-101
Date/Time Collected:	03/15/2022 12:00		
Lab Number:	AC00195-04	Sample Collector:	T.L
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B220950	15.8MPN/100 mL		1.0	1.0	IDEXX - Colilert	03/15/22 12:41	3/16/22 12:52	LRF	
Wet Chemistry										
Chlorine Screen	B220986	Absent				SM 4500-CL G-2000 mod	03/16/22	3/16/22 11:34	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

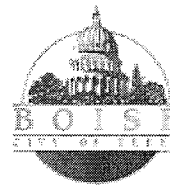


Analysis Report

Location:	ACST1B	Location Description:	220315-12-001
Date/Time Collected:	03/15/2022 12:00		
Lab Number:	AC00195-05	Sample Collector:	T.L
Sample Type:	Grab	Sample Matrix:	Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B220950	<1.0 MPN/100 mL		1.0	1.0	IDEXX - Colilert	03/15/22 12:41	3/16/22 12:52	LRF	U
Wet Chemistry										
Chlorine Screen	B220986	Absent				SM 4500-CL G-2000 mod	03/16/22	3/16/22 11:37	LRF	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B220950									
Blank (B220950-BLK1)									
E. Coli	Absent						03/16/2022	LRF	
LCS (B220950-BS1)									
E. Coli				Present			03/16/2022	LRF	
Duplicate (B220950-DUP1) Source ID: WB01719-06									
E. Coli					Pass	128	03/16/2022	LRF	
Duplicate (B220950-DUP2) Source ID: AC00194-01									
E. Coli					Pass	128	03/16/2022	LRF	



Notes and Definitions

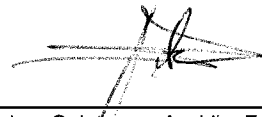
Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846



Janet Finegan-Kelly
Water Quality Laboratory Manager



Stephen Quintero or Azubike Emenari
QA/QC Coordinator



Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00197-01	ACST1C	220315-03-WC	Water		03/15/2022	03/16/2022
AC00197-02	ACST1C	220315-11-WC	Water		03/15/2022	03/16/2022
AC00197-03	ACST1C	220315-12-WC	Water		03/15/2022	03/16/2022
AC00197-04	ACST1C	220315-14-WC	Water		03/15/2022	03/16/2022
AC00197-05	ACST1C	220315-206-WC	Water		03/15/2022	03/16/2022

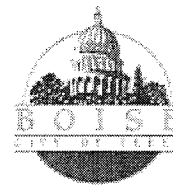


Analysis Report

Location: ACST1C Location Description: 220315-03-WC
 Date/Time Collected: 03/15/2022 09:29 - 03/15/2022 18:00
 Lab Number: AC00197-01 Sample Collector: T.L.
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time		Analyst Initials	Qual
				MDL *	MDL						
Wet Chemistry											
Ammonia, as N	B221097	0.750	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	03/24/22	3/24/22	11:25	ALN	
BOD5	B220980	15.2	mg/L	2.00	2.00	SM 5210 B-2011	03/16/22	3/21/22	10:09	ASE	
COD	B220979	121	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	03/16/22	3/16/22	13:08	MER	
Nitrate-Nitrite, as N	B220985	0.359	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	03/16/22	3/16/22	15:09	JAL	
TKN	B221170	2.45	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/29/22	3/30/22	10:02	ALN	
Total Dissolved Solids	B221011	72.0	mg/L	25.0	25.0	SM 2540 C-2011	03/17/22	3/19/22	8:51	LRF	
Total Suspended Solids	B221000	55.8	mg/L	0.900	0.900	SM 2540 D-2011	03/17/22	3/17/22	9:32	CJP	
Turbidity	B220976	51.1	NTU	0.6	0.3	EPA 180.1, Rev. 2.0 (1993)	03/16/22	3/16/22	11:16	LRF	D
Dissolved Wet Chemistry											
Orthophosphate, as P	B220981	0.197	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/16/22	3/16/22	11:32	JAL	
Total Metals											
Mercury	B221180	0.0107	ug/L	0.0100	0.0100	EPA 245.2	03/30/22	3/31/22	8:36	SAS	
Arsenic	B221038	2.0	ug/L	0.040	0.040	EPA 200.8	03/20/22	3/23/22	14:53	DMW	
Cadmium	B221038	0.076	ug/L	0.025	0.025	EPA 200.8	03/20/22	3/23/22	14:53	DMW	
Calcium	B221019	5.15	mg/L	0.0460	0.0460	EPA 200.7	03/18/22	3/24/22	12:19	AMO	
Lead	B221038	2.2	ug/L	0.050	0.050	EPA 200.8	03/20/22	3/23/22	14:53	DMW	
Magnesium	B221019	1900	ug/L	50.0	50.0	EPA 200.7	03/18/22	3/24/22	12:19	AMO	
Phosphorus as P	B221019	0.398	mg/L	6.00E-3	6.00E-3	EPA 200.7	03/18/22	3/24/22	12:19	AMO	
Hardness	B221019	20.7	mg/L	0.115	0.115	EPA 200.7	03/18/22	3/24/22	12:19	AMO	
Dissolved Metals											
Cadmium	B221012	<0.0250	ug/L	0.025	0.025	EPA 200.8	03/18/22	3/18/22	14:42	DMW	U
Copper	B221012	5.0	ug/L	0.15	0.15	EPA 200.8	03/18/22	3/18/22	14:42	DMW	
Lead	B221012	0.11	ug/L	0.050	0.050	EPA 200.8	03/18/22	3/18/22	14:42	DMW	
Zinc	B221012	32.3	ug/L	0.78	0.78	EPA 200.8	03/18/22	3/18/22	14:42	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

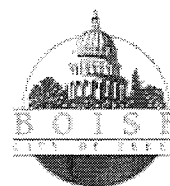


Analysis Report

Location: ACST1C Location Description: 220315-11-WC
 Date/Time Collected: 03/15/2022 10:37 - 03/15/2022 18:21
 Lab Number: AC00197-02 Sample Collector: T.L.
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Wet Chemistry										
Ammonia, as N	B221097	1.30	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	03/24/22	3/24/22 11:40	ALN	
BOD5	B220980	27.2	mg/L	2.00	2.00	SM 5210 B-2011	03/16/22	3/21/22 10:03	ASE	
COD	B220979	197	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	03/16/22	3/16/22 13:08	MER	
Nitrate-Nitrite, as N	B220985	0.541	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	03/16/22	3/16/22 15:10	JAL	
TKN	B221170	3.64	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/29/22	3/30/22 10:03	ALN	
Total Dissolved Solids	B221011	236	mg/L	25.0	25.0	SM 2540 C-2011	03/17/22	3/19/22 8:52	LRF	
Total Suspended Solids	B220971	135	mg/L	0.900	0.900	SM 2540 D-2011	03/16/22	3/16/22 12:39	CJP	
Turbidity	B220976	175	NTU	3.0	0.3	EPA 180.1, Rev. 2.0 (1993)	03/16/22	3/16/22 10:58	LRF	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B220981	0.324	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/16/22	3/16/22 11:33	JAL	
Total Metals										
Mercury	B221180	0.0192	ug/L	0.0100	0.0100	EPA 245.2	03/30/22	3/31/22 8:40	SAS	
Arsenic	B221038	3.4	ug/L	0.040	0.040	EPA 200.8	03/20/22	3/23/22 14:55	DMW	
Cadmium	B221038	0.13	ug/L	0.025	0.025	EPA 200.8	03/20/22	3/23/22 14:55	DMW	
Calcium	B221019	14.3	mg/L	0.0460	0.0460	EPA 200.7	03/18/22	3/24/22 12:24	AMO	
Lead	B221038	8.9	ug/L	0.050	0.050	EPA 200.8	03/20/22	3/23/22 14:55	DMW	
Magnesium	B221019	11800	ug/L	50.0	50.0	EPA 200.7	03/18/22	3/24/22 12:24	AMO	
Phosphorus as P	B221019	0.651	mg/L	6.00E-3	6.00E-3	EPA 200.7	03/18/22	3/24/22 12:24	AMO	
Hardness	B221019	84.3	mg/L	0.115	0.115	EPA 200.7	03/18/22	3/24/22 12:24	AMO	
Dissolved Metals										
Cadmium	B221012	<0.0250	ug/L	0.025	0.025	EPA 200.8	03/18/22	3/18/22 14:44	DMW	U
Copper	B221012	8.6	ug/L	0.15	0.15	EPA 200.8	03/18/22	3/18/22 14:44	DMW	
Lead	B221012	0.25	ug/L	0.050	0.050	EPA 200.8	03/18/22	3/18/22 14:44	DMW	
Zinc	B221012	41.8	ug/L	0.78	0.78	EPA 200.8	03/18/22	3/18/22 14:44	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Analysis Report

Location: ACST1C Location Description: 220315-12-WC
 Date/Time Collected: 03/15/2022 09:17 - 03/15/2022 18:03
 Lab Number: AC00197-03 Sample Collector: T.L.
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time		Analyst Initials	Qual
				MDL *	MDL						
Wet Chemistry											
Ammonia, as N	B221097	1.14	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	03/24/22	3/24/22	11:32	ALN	
BOD5	B220980	18.9	mg/L	2.00	2.00	SM 5210 B-2011	03/16/22	3/21/22	9:58	ASE	
COD	B220979	215	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	03/16/22	3/16/22	13:08	MER	
Nitrate-Nitrite, as N	B220985	0.372	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	03/16/22	3/16/22	15:11	JAL	
TKN	B221170	3.05	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/29/22	3/30/22	10:05	ALN	
Total Dissolved Solids	B221011	210	mg/L	25.0	25.0	SM 2540 C-2011	03/17/22	3/19/22	8:53	LRF	
Total Suspended Solids	B220971	264	mg/L	0.900	0.900	SM 2540 D-2011	03/16/22	3/16/22	12:37	CJP	
Turbidity	B220976	139	NTU	3.0	0.3	EPA 180.1, Rev. 2.0 (1993)	03/16/22	3/16/22	11:08	LRF	D

Dissolved Wet Chemistry

Orthophosphate, as P	B220981	0.143	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/16/22	3/16/22	11:34	JAL	
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Total Metals

Mercury	B221180	0.0285	ug/L	0.0100	0.0100	EPA 245.2	03/30/22	3/31/22	8:00	SAS	
Arsenic	B221038	3.2	ug/L	0.040	0.040	EPA 200.8	03/20/22	3/23/22	14:57	DMW	
Cadmium	B221038	0.20	ug/L	0.025	0.025	EPA 200.8	03/20/22	3/23/22	14:57	DMW	
Calcium	B221019	17.1	mg/L	0.0460	0.0460	EPA 200.7	03/18/22	3/24/22	12:29	AMO	
Lead	B221038	12.5	ug/L	0.050	0.050	EPA 200.8	03/20/22	3/23/22	14:57	DMW	
Magnesium	B221019	9310	ug/L	50.0	50.0	EPA 200.7	03/18/22	3/24/22	12:29	AMO	
Phosphorus as P	B221019	0.404	mg/L	6.00E-3	6.00E-3	EPA 200.7	03/18/22	3/24/22	12:29	AMO	
Hardness	B221019	80.9	mg/L	0.115	0.115	EPA 200.7	03/18/22	3/24/22	12:29	AMO	

Dissolved Metals

Cadmium	B221012	0.034	ug/L	0.025	0.025	EPA 200.8	03/18/22	3/18/22	14:47	DMW	
Copper	B221012	6.7	ug/L	0.15	0.15	EPA 200.8	03/18/22	3/18/22	14:47	DMW	
Lead	B221012	0.092	ug/L	0.050	0.050	EPA 200.8	03/18/22	3/18/22	14:47	DMW	
Zinc	B221012	53.7	ug/L	0.78	0.78	EPA 200.8	03/18/22	3/18/22	14:47	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Analysis Report

Location: ACST1C Location Description: 220315-206-WC
 Date/Time Collected: 03/15/2022 10:07 - 03/15/2022 17:23
 Lab Number: AC00197-05 Sample Collector: T.L.
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Wet Chemistry										
Ammonia, as N	B221097	1.06	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	03/24/22	3/24/22 11:15	ALN	
BOD5	B220980	35.3	mg/L	2.00	2.00	SM 5210 B-2011	03/16/22	3/21/22 9:42	ASE	
COD	B220989	292	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	03/17/22	3/17/22 10:03	MER	
Nitrate-Nitrite, as N	B220985	0.413	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	03/16/22	3/16/22 15:13	JAL	
TKN	B221170	5.26	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	03/29/22	3/30/22 10:07	ALN	
Total Dissolved Solids	B221011	252	mg/L	25.0	25.0	SM 2540 C-2011	03/17/22	3/19/22 8:54	LRF	
Total Suspended Solids	B220971	297	mg/L	0.900	0.900	SM 2540 D-2011	03/16/22	3/16/22 11:10	CJP	
Turbidity	B220976	248	NTU	3.0	0.3	EPA 180.1, Rev. 2.0 (1993)	03/16/22	3/16/22 10:36	LRF	D

Dissolved Wet Chemistry										
Orthophosphate, as P	B220981	0.474	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	03/16/22	3/16/22 11:40	JAL	

Total Metals										
Mercury	B221180	0.0389	ug/L	0.0100	0.0100	EPA 245.2	03/30/22	3/31/22 8:50	SAS	
Arsenic	B221038	5.3	ug/L	0.040	0.040	EPA 200.8	03/20/22	3/23/22 15:02	DMW	
Cadmium	B221038	0.17	ug/L	0.025	0.025	EPA 200.8	03/20/22	3/23/22 15:02	DMW	
Calcium	B221019	10.5	mg/L	0.0460	0.0460	EPA 200.7	03/18/22	3/24/22 12:35	AMO	
Lead	B221038	17.1	ug/L	0.050	0.050	EPA 200.8	03/20/22	3/23/22 15:02	DMW	
Magnesium	B221019	10500	ug/L	50.0	50.0	EPA 200.7	03/18/22	3/24/22 12:35	AMO	
Phosphorus as P	B221019	1.05	mg/L	6.00E-3	6.00E-3	EPA 200.7	03/18/22	3/24/22 12:35	AMO	
Hardness	B221019	69.3	mg/L	0.115	0.115	EPA 200.7	03/18/22	3/24/22 12:35	AMO	

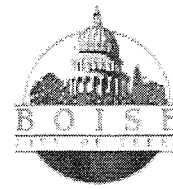
Dissolved Metals										
Cadmium	B221012	0.030	ug/L	0.025	0.025	EPA 200.8	03/18/22	3/18/22 14:52	DMW	
Copper	B221012	7.6	ug/L	0.15	0.15	EPA 200.8	03/18/22	3/18/22 14:52	DMW	
Lead	B221012	0.49	ug/L	0.050	0.050	EPA 200.8	03/18/22	3/18/22 14:52	DMW	
Zinc	B221012	38.4	ug/L	0.78	0.78	EPA 200.8	03/18/22	3/18/22 14:52	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

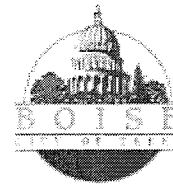
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B220971									
Blank (B220971-BLK1)									
Total Suspended Solids	<0.9	mg/L					03/16/2022	CJP	U
LCS (B220971-BS1)									
Total Suspended Solids			98.7	90-110			03/16/2022	CJP	
Duplicate (B220971-DUP1) Source ID: LS01074-02									
Total Suspended Solids					2.59	20	03/16/2022	CJP	
Duplicate (B220971-DUP2) Source ID: WB01721-07									
Total Suspended Solids					0.243	20	03/16/2022	CJP	
Batch: B220976									
Blank (B220976-BLK1)									
Turbidity	<0.3	NTU					03/16/2022	LRF	U
LCS (B220976-BS1)									
Turbidity			100	90-110			03/16/2022	LRF	
Duplicate (B220976-DUP1) Source ID: AC00196-01									
Turbidity					5.38	25	03/16/2022	LRF	D
Batch: B220979									
Blank (B220979-BLK1)									
COD	<13	mg/L					03/16/2022	MER	U
LCS (B220979-BS1)									
COD			99.0	90-110			03/16/2022	MER	
Batch: B220980									
Blank (B220980-BLK1)									
BOD5	<2	mg/L					03/21/2022	ASE	U
LCS (B220980-BS1)									
BOD5			113	84.6-115.4			03/21/2022	ASE	
LCS (B220980-BS2)									
BOD5			106	84.6-115.4			03/21/2022	ASE	
Duplicate (B220980-DUP1) Source ID: BB01951-01									
BOD5					5.34	30	03/21/2022	ASE	D
Duplicate (B220980-DUP2) Source ID: LS01074-02									
BOD5					8.33	30	03/21/2022	ASE	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B220985									
Blank (B220985-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					03/16/2022	JAL	U
Blank (B220985-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					03/16/2022	JAL	U
LCS (B220985-BS1)									
Nitrate-Nitrite, as N			98.2	90-110			03/16/2022	JAL	
LCS (B220985-BS2)									
Nitrate-Nitrite, as N			98.6	90-110			03/16/2022	JAL	
Duplicate (B220985-DUP1) Source ID: AC00196-01									
Nitrate-Nitrite, as N					0.103	10	03/16/2022	JAL	
Duplicate (B220985-DUP2) Source ID: BB01903-01									
Nitrate-Nitrite, as N					0.306	10	03/16/2022	JAL	
Duplicate (B220985-DUP3) Source ID: BB01943-01									
Nitrate-Nitrite, as N					0.208	10	03/16/2022	JAL	
Duplicate (B220985-DUP4) Source ID: LS01071-02									
Nitrate-Nitrite, as N					NR	10	03/16/2022	JAL	
Matrix Spike (B220985-MS1) Source ID: AC00196-01									
Nitrate-Nitrite, as N			94.7	90-110			03/16/2022	JAL	
Matrix Spike (B220985-MS2) Source ID: BB01903-01									
Nitrate-Nitrite, as N			95.8	90-110			03/16/2022	JAL	
Matrix Spike (B220985-MS3) Source ID: BB01943-01									
Nitrate-Nitrite, as N			96.6	90-110			03/16/2022	JAL	
Matrix Spike (B220985-MS4) Source ID: LS01071-02									
Nitrate-Nitrite, as N			99.0	90-110			03/16/2022	JAL	
Matrix Spike Dup (B220985-MSD1) Source ID: AC00196-01									
Nitrate-Nitrite, as N			95.6	90-110	0.613	10	03/16/2022	JAL	
Matrix Spike Dup (B220985-MSD2) Source ID: BB01903-01									
Nitrate-Nitrite, as N			96.0	90-110	0.179	10	03/16/2022	JAL	
Matrix Spike Dup (B220985-MSD3) Source ID: BB01943-01									
Nitrate-Nitrite, as N			96.4	90-110	0.0907	10	03/16/2022	JAL	
Matrix Spike Dup (B220985-MSD4) Source ID: LS01071-02									
Nitrate-Nitrite, as N			98.3	90-110	0.749	10	03/16/2022	JAL	



Quality Control Report
 (Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B220989									
Blank (B220989-BLK1)									
COD	<13	mg/L					03/17/2022	MER	U
LCS (B220989-BS1)									
COD			98.3	90-110			03/17/2022	MER	
Duplicate (B220989-DUP1) Source ID: AC00197-05RE1									
COD					0.687	10	03/17/2022	MER	
Batch: B221000									
Blank (B221000-BLK1)									
Total Suspended Solids	<0.9	mg/L					03/17/2022	CJP	U
LCS (B221000-BS1)									
Total Suspended Solids			106	90-110			03/17/2022	CJP	
Duplicate (B221000-DUP1) Source ID: BB01953-02									
Total Suspended Solids					0.417	20	03/17/2022	CJP	
Batch: B221011									
Blank (B221011-BLK1)									
Total Dissolved Solids	<25	mg/L					03/19/2022	LRF	U
LCS (B221011-BS1)									
Total Dissolved Solids			94.8	90-110			03/19/2022	LRF	
Duplicate (B221011-DUP1) Source ID: AC00196-01									
Total Dissolved Solids					0.356	10	03/19/2022	LRF	
Batch: B221097									
Blank (B221097-BLK1)									
Ammonia, as N	<0.035	mg/L					03/24/2022	ALN	U
Blank (B221097-BLK2)									
Ammonia, as N	<0.035	mg/L					03/24/2022	ALN	U
LCS (B221097-BS1)									
Ammonia, as N			100	90-110			03/24/2022	ALN	
LCS (B221097-BS2)									
Ammonia, as N			105	90-110			03/24/2022	ALN	
Duplicate (B221097-DUP1) Source ID: BB01943-01									
Ammonia, as N					0.713	10	03/24/2022	ALN	
Duplicate (B221097-DUP2) Source ID: EP00127-02									
Ammonia, as N					0.178	10	03/24/2022	ALN	D
Duplicate (B221097-DUP3) Source ID: BB01952-01									
Ammonia, as N					1.43	10	03/24/2022	ALN	
Matrix Spike (B221097-MS1) Source ID: BB01943-01									
Ammonia, as N			103	80-120			03/24/2022	ALN	
Matrix Spike (B221097-MS2) Source ID: EP00127-02									
Ammonia, as N			109	80-120			03/24/2022	ALN	D



Quality Control Report

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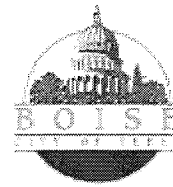
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B221097 (Continued)									
Matrix Spike (B221097-MS3)	Source ID: BB01952-01								
Ammonia, as N			109	80-120			03/24/2022	ALN	
Matrix Spike Dup (B221097-MSD1)	Source ID: BB01943-01								
Ammonia, as N			105	80-120	1.53	10	03/24/2022	ALN	
Matrix Spike Dup (B221097-MSD2)	Source ID: EP00127-02								
Ammonia, as N			109	80-120	0.169	10	03/24/2022	ALN	D
Matrix Spike Dup (B221097-MSD3)	Source ID: BB01952-01								
Ammonia, as N			114	80-120	3.91	10	03/24/2022	ALN	
Batch: B221170									
Blank (B221170-BLK1)	TKN		<0.1	mg/L			03/30/2022	ALN	U
Blank (B221170-BLK2)	TKN		<0.1	mg/L			03/30/2022	ALN	U
LCS (B221170-BS1)	TKN		104	80-120			03/30/2022	ALN	
LCS (B221170-BS2)	TKN		103	80-120			03/30/2022	ALN	
Duplicate (B221170-DUP1)	Source ID: AC00196-01								
TKN					0.502	20	03/30/2022	ALN	
Duplicate (B221170-DUP2)	Source ID: BB01954-01								
TKN					13.8	20	03/30/2022	ALN	D
Duplicate (B221170-DUP3)	Source ID: NP00039-01								
TKN					0.848	20	03/30/2022	ALN	
Matrix Spike (B221170-MS1)	Source ID: AC00196-01								
TKN			101	80-120			03/30/2022	ALN	
Matrix Spike (B221170-MS2)	Source ID: BB01954-01								
TKN			113	80-120			03/30/2022	ALN	D
Matrix Spike (B221170-MS3)	Source ID: NP00039-01								
TKN			103	80-120			03/30/2022	ALN	
Matrix Spike Dup (B221170-MSD1)	Source ID: AC00196-01								
TKN			103	80-120	0.792	20	03/30/2022	ALN	
Matrix Spike Dup (B221170-MSD2)	Source ID: BB01954-01								
TKN			110	80-120	0.842	20	03/30/2022	ALN	D
Matrix Spike Dup (B221170-MSD3)	Source ID: NP00039-01								
TKN			93.6	80-120	2.23	20	03/30/2022	ALN	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Wet Chemistry									
Batch: B220981									
Blank (B220981-BLK1)									
Orthophosphate, as P	<0.002	mg/L					03/16/2022	JAL	U
LCS (B220981-BS1)									
Orthophosphate, as P			96.2	90-110			03/16/2022	JAL	
Duplicate (B220981-DUP1) Source ID: AC00197-04									
Orthophosphate, as P					0.477	10	03/16/2022	JAL	
Duplicate (B220981-DUP2) Source ID: WB01721-05									
Orthophosphate, as P					0.285	10	03/16/2022	JAL	D
Matrix Spike (B220981-MS1) Source ID: AC00197-04									
Orthophosphate, as P			104	90-110			03/16/2022	JAL	
Matrix Spike (B220981-MS2) Source ID: WB01721-05									
Orthophosphate, as P			102	90-110			03/16/2022	JAL	D
Matrix Spike Dup (B220981-MSD1) Source ID: AC00197-04									
Orthophosphate, as P			100	90-110	1.10	10	03/16/2022	JAL	
Matrix Spike Dup (B220981-MSD2) Source ID: WB01721-05									
Orthophosphate, as P			102	90-110	0.231	10	03/16/2022	JAL	D



Quality Control Report

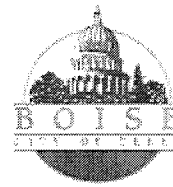
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B221019									
Blank (B221019-BLK1)									
Calcium	<0.046	mg/L					03/24/2022	AMO	U
Magnesium	<50	ug/L					03/24/2022	AMO	U
Phosphorus as P	<0.006	mg/L					03/24/2022	AMO	U
LCS (B221019-BS1)									
Calcium			100	85-115			03/24/2022	AMO	
Magnesium			102	85-115			03/24/2022	AMO	
Phosphorus as P			108	85-115			03/24/2022	AMO	
Duplicate (B221019-DUP1) Source ID: AC00197-04									
Calcium					2.72	20	03/24/2022	AMO	
Magnesium					3.19	20	03/24/2022	AMO	
Phosphorus as P					1.09	20	03/24/2022	AMO	
Duplicate (B221019-DUP2) Source ID: ME00166-06									
Calcium					1.19	20	03/24/2022	AMO	
Magnesium					0.635	20	03/24/2022	AMO	
Phosphorus as P					1.71	20	03/24/2022	AMO	
Matrix Spike (B221019-MS1) Source ID: AC00197-04									
Calcium			96.0	70-130			03/24/2022	AMO	
Magnesium			98.6	70-130			03/24/2022	AMO	
Phosphorus as P			106	70-130			03/24/2022	AMO	
Matrix Spike (B221019-MS2) Source ID: ME00166-06									
Calcium			95.1	70-130			03/24/2022	AMO	
Magnesium			100	70-130			03/24/2022	AMO	
Phosphorus as P			113	70-130			03/24/2022	AMO	
Matrix Spike Dup (B221019-MSD1) Source ID: AC00197-04									
Calcium			93.8	70-130	1.21	20	03/24/2022	AMO	
Magnesium			96.8	70-130	1.25	20	03/24/2022	AMO	
Phosphorus as P			109	70-130	2.19	20	03/24/2022	AMO	
Matrix Spike Dup (B221019-MSD2) Source ID: ME00166-06									
Calcium			95.7	70-130	0.269	20	03/24/2022	AMO	
Magnesium			100	70-130	0.175	20	03/24/2022	AMO	
Phosphorus as P			112	70-130	1.39	20	03/24/2022	AMO	



Quality Control Report
 (Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B221038									
Blank (B221038-BLK1)									
Arsenic	<0.040	ug/L					03/23/2022	DMW	U
Cadmium	<0.025	ug/L					03/23/2022	DMW	U
Lead	<0.050	ug/L					03/23/2022	DMW	U
LCS (B221038-BS1)									
Arsenic			103	85-115			03/23/2022	DMW	
Cadmium			103	85-115			03/23/2022	DMW	
Lead			105	85-115			03/23/2022	DMW	
Duplicate (B221038-DUP1) Source ID: AC00196-01									
Arsenic					2.59	20	03/23/2022	DMW	
Cadmium					4.43	20	03/23/2022	DMW	
Lead					1.43	20	03/23/2022	DMW	
Matrix Spike (B221038-MS1) Source ID: AC00196-01									
Arsenic			104	70-130			03/23/2022	DMW	
Cadmium			102	70-130			03/23/2022	DMW	
Lead			96.8	70-130			03/23/2022	DMW	
Matrix Spike Dup (B221038-MSD1) Source ID: AC00196-01									
Arsenic			102	70-130	1.38	20	03/23/2022	DMW	
Cadmium			103	70-130	0.784	20	03/23/2022	DMW	
Lead			95.7	70-130	0.737	20	03/23/2022	DMW	
Batch: B221180									
Blank (B221180-BLK1)									
Mercury	<0.01	ug/L					03/31/2022	SAS	U
LCS (B221180-BS1)									
Mercury			104	85-115			03/31/2022	SAS	
Duplicate (B221180-DUP1) Source ID: WR00020-03									
Mercury					NR	20	03/31/2022	SAS	U
Duplicate (B221180-DUP2) Source ID: AC00197-03									
Mercury					29.0	20	03/31/2022	SAS	QC-02
Matrix Spike (B221180-MS1) Source ID: WR00020-03									
Mercury			95.3	70-130			03/31/2022	SAS	
Matrix Spike (B221180-MS2) Source ID: AC00197-03									
Mercury			94.4	70-130			03/31/2022	SAS	
Matrix Spike Dup (B221180-MSD1) Source ID: WR00020-03									
Mercury			92.9	70-130	2.32	20	03/31/2022	SAS	
Matrix Spike Dup (B221180-MSD2) Source ID: AC00197-03									
Mercury			99.3	70-130	3.88	20	03/31/2022	SAS	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B221012									
Blank (B221012-BLK1)									
Cadmium	<0.025	ug/L					03/18/2022	DMW	U
Copper	<0.15	ug/L					03/18/2022	DMW	U
Lead	<0.050	ug/L					03/18/2022	DMW	U
Zinc	<0.78	ug/L					03/18/2022	DMW	U
LCS (B221012-BS1)									
Cadmium			100	85-115			03/18/2022	DMW	
Copper			101	85-115			03/18/2022	DMW	
Lead			100	85-115			03/18/2022	DMW	
Zinc			98.9	85-115			03/18/2022	DMW	
Duplicate (B221012-DUP1) Source ID: AC00196-01									
Cadmium					NR	10	03/18/2022	DMW	U
Copper					0.0170	10	03/18/2022	DMW	
Lead					0.103	10	03/18/2022	DMW	
Zinc					0.0124	10	03/18/2022	DMW	
Matrix Spike (B221012-MS1) Source ID: AC00196-01									
Cadmium			97.6	70-130			03/18/2022	DMW	
Copper			97.3	70-130			03/18/2022	DMW	
Lead			95.3	70-130			03/18/2022	DMW	
Zinc			103	70-130			03/18/2022	DMW	
Matrix Spike Dup (B221012-MSD1) Source ID: AC00196-01									
Cadmium			96.4	70-130	1.28	10	03/18/2022	DMW	
Copper			96.1	70-130	0.905	10	03/18/2022	DMW	
Lead			94.3	70-130	1.02	10	03/18/2022	DMW	
Zinc			104	70-130	0.457	10	03/18/2022	DMW	



Notes and Definitions

Item	Definition
D	Data reported from a dilution
QC-02	The RPD is greater than the method acceptance criteria. At least one of the values used to calculate the RPD, is less than or equal to the PQL.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Attachment D: Field Forms



D

Set Up/ Shut Down Form – HACH

STATION: Lucky

SET UP

Personnel: TLL, SMK

Date/Time: 14:08
 On-Site: 3/14/22 @ 2:08pm

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
14 13	-0.01	0.00	0.00	13.0
Downloaded to:				
Velocity Cutoff: <u>> 1.5 in deadband = 1.1</u>				
Trigger Volume: 5004 <u>5004 gal</u>				

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

SHUT DOWN

Personnel: TL

Date/Time:
 On-Site: 03.18.22 / 1021

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1023	0.08	0	0		12.4
Downloaded to: <u>USB 03</u>					

<p>If flow monitoring is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Halt program on flowmeter <input checked="" type="checkbox"/> Download flowmeter data <input checked="" type="checkbox"/> Remove flowmeter battery 	<p>If continuing to monitor flow:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input type="checkbox"/> Reset logging interval to 15 minutes <input type="checkbox"/> Change velocity cutoff to 0.02 fps <input type="checkbox"/> Start program <input type="checkbox"/> Verify running
--	--

Comments:

Grab Sample Data Form

STATION: Lucky

Personnel: SMK ZL Date/Time On-Site: 3/15/22 9:44

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
10:02	6.68	446.31	1.22	13.0		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	220315-03-WG	3/15/22	9:54	<input checked="" type="checkbox"/>
Field Duplicate <i>E.Coli</i>	-101			<input type="checkbox"/>
Field Blank <i>E.Coli</i>	-001			<input type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MPO8	9:59	12.21	9.04	5.87	83.3

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

Set Up/ Shut Down Form – ISCO

STATION: Whitewater

SET UP

Personnel: SMK, TLL

Date/Time
On-Site: 3/14/22 13:47

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1049	-0.00	0.00	0.00	N/A
13:50	0.00	0	0	N/A
Downloaded to:				
Enable Condition:		level > 0.5" , hysteresis = 0.4"		
Flow Pulse Interval:		1600 cf		

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace flowmeter battery, install sampler battery <input checked="" type="checkbox"/> Perform decon. cycle <input checked="" type="checkbox"/> Install 15L sample bottle, with ice <input checked="" type="checkbox"/> Leave bottle lid at site, in a clean re-sealable plastic bag <input checked="" type="checkbox"/> Set Sampler program parameters <input checked="" type="checkbox"/> Check date/time on Sampler <input checked="" type="checkbox"/> Verify all cable and tubing connections <input checked="" type="checkbox"/> Verify Sampler Program is running 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or Remote; Date/time <u>3/14 1049</u> <input checked="" type="checkbox"/> Retrieve data and review recent flow history <input checked="" type="checkbox"/> Change Wireless Power Control to Storm Event <input checked="" type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate <input checked="" type="checkbox"/> Enable Sampler: On Trigger, and set Sampler Enable equation <input type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
---	---

Comments: Changed flowmeter time for time change

SHUT DOWN

Personnel: TZ

Date/Time
On-Site: 03.18.22 / 1011

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1011	-0.01	0	0	N/A
Downloaded to: —				

<p>On-Site</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input checked="" type="checkbox"/> Remove battery from sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or Remote; Date/time <u>3/18 1113</u> <input checked="" type="checkbox"/> Retrieve data <input checked="" type="checkbox"/> Change Wireless Power Control to Dry Weather <input checked="" type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate <input checked="" type="checkbox"/> Enable Sampler: Never
---	---

Comments:

Composite Sample Collection

STATION: White Water
 Personnel: TLL, SMK

Bottle 1 of 1
 Date/Time On-Site: 20:03 3/15/22

<input checked="" type="checkbox"/> Halt Sampler program	
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	220315 - 11 -WC
Approx Sample Volume (mL):	10,250
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	3/15 10:37	Success	13	17:11	↓
2	10:49	↓	14	17:22	
3	11:01		15	17:33	
4	11:14		16	17:50	
5	11:29		17	18:21	
6	11:49		18		
7	12:20		19		
8	13:50		20		
9	14:27		21		
10	14:50		22		
11	15:27		23		
12	16:49		24		

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form

STATION: Whitewater

Personnel: SMK ZL Date/Time On-Site: 3/15/22 10:26

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
10:26	5.03	1.73	1.88		10:20 3/15	0.18

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	230315-11 -WG	3/15/22	10:31	<input checked="" type="checkbox"/>
Field Duplicate <i>E.Coli</i>	-101			<input type="checkbox"/>
Field Blank <i>E.Coli</i>	-001			<input type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP08	10:34	9.90	8.68	8.40	671.0

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

Set Up/ Shut Down Form – HACH

STATION: Main

SET UP

Personnel: TIL SMK

Date/Time

On-Site: 3/14/22 12:45

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1247	1.37	0	0	12.9
Downloaded to:				
		Velocity Cutoff: <u>level > 3.5" hysteresis = 1.45"</u>		
		Trigger Volume: <u>5894 gal</u>		

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

changed time

SHUT DOWN

Personnel: TL

Date/Time

On-Site: 03.18.22 / 0928

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
0929	1.19	0	0		12.0
		Downloaded to: <u>USB 05</u>			

If flow monitoring is complete:

- Halt program on flowmeter
- Download flowmeter data
- Remove flowmeter battery

If continuing to monitor flow:

- Replace flowmeter battery
- Reset logging interval to 15 minutes
- Change velocity cutoff to 0.02 fps
- Start program
- Verify running

Comments:

Composite Sample Collection

STATION: Main
 Personnel: TLL, SMK

Bottle 1 of 1
 Date/Time On-Site: 3/15/22 19:29

<input checked="" type="checkbox"/> Halt Sampler program	
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	<u>720315 - 12</u> -WC
Approx Sample Volume (mL):	<u>11,000 mL</u>
Clarity (ex. Clear, Cloudy, Silty):	<u>Cloudy</u>
Color (ex. Clear, Gray, Tan, Brown, Black):	<u>Gray</u>
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	3/15 09:17	Success	13	3/15 16:31	↓
2	09:32		14	16:39	
3	09:44		15	16:46	
4	09:57		16	16:56	
5	10:11		17	17:14	
6	10:26		18	18:03	
7	10:42		19		
8	10:59		20		
9	11:25		21		
10	13:29		22		
11	18:54		23		
12	19:31		24		

Comments:

If sampling is complete:

- Power off sampler
- Verify flowmeter is running
- Add ice to sample transport cooler
- Complete COC form; arrange transport to lab

If continuing sampling (sample bottle change-out):

- Keep flowmeter running
- Install new 15L bottle, add ice
- Restart program from beginning

Date/Time Restarted: _____

- Verify running

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form

STATION: Main

Personnel: TLL & HRJ Date/Time On-Site: 3/15/22, 9:31 am

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
0941	5.98	508 gpm	1.62	12.7		

Grab Information					
	Sample ID	Date	Time	Labeled?	
Site <i>E.Coli</i>	220315-12 -WG	3/15/22	0935	<input checked="" type="checkbox"/>	
Field Duplicate <i>E.Coli</i>	220315-12 -101	3/15/22	0936	<input checked="" type="checkbox"/>	
Field Blank <i>E.Coli</i>	220315-12 -001	3/15/22	0940	<input checked="" type="checkbox"/>	

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	0943	9.3	10.57	6.11	511.8

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	2

Comments:

Set Up/ Shut Down Form – ISCO

STATION: Americana

SET UP

Personnel: TLL, SMK

Date/Time
On-Site: 3/14/22 13:07

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1043	5.44	0.24	0.306	11.59
13:09	5.57	0.38	0.473	12.28
Downloaded to:				
Enable Condition: <u>level > 6.5" hysteresis = 1.0"</u>				
Flow Pulse Interval: <u>5112 cf</u>				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace flowmeter battery, install sampler battery <input checked="" type="checkbox"/> Perform decon. cycle <input checked="" type="checkbox"/> Install 15L sample bottle, with ice <input checked="" type="checkbox"/> Leave bottle lid at site, in a clean re-sealable plastic bag <input checked="" type="checkbox"/> Set Sampler program parameters <input checked="" type="checkbox"/> Check date/time on Sampler <input checked="" type="checkbox"/> Verify all cable and tubing connections <input checked="" type="checkbox"/> Verify Sampler Program is running 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or <u>Remote</u>, Date/time <u>3/14 1036</u> <input checked="" type="checkbox"/> Retrieve data and review recent flow history <input checked="" type="checkbox"/> Change Wireless Power Control to Storm Event <input checked="" type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate <input checked="" type="checkbox"/> Enable Sampler: On Trigger, and set Sampler Enable equation <input checked="" type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
---	---

Comments: * Updated clock for daylight savings

SHUT DOWN

Personnel: TLL

Date/Time
On-Site: 03.18.22 / 0944

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
Downloaded to:				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace flowmeter battery <input checked="" type="checkbox"/> Remove battery from sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or <u>Remote</u>, Date/time <u>3/18 1117</u> <input checked="" type="checkbox"/> Retrieve data <input checked="" type="checkbox"/> Change Wireless Power Control to Dry Weather <input checked="" type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate <input checked="" type="checkbox"/> Enable Sampler: Never
--	--

Comments:

Composite Sample Collection

STATION: Americana
 Personnel: TLL SMK

Bottle 1 of 1
 Date/Time On-Site: 19 38 3/15/22

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220315 - 14	-WC
Approx Sample Volume (mL):	14,000 mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	3/15 09:15	Success	13	3/15 11:13	↓
2	09:31	↓	14	11:25	
3	09:43		15	11:39	
4	09:53		16	11:57	
5	10:02		17	12:20	
6	10:11		18	12:49	
7	10:20		19	13:25	
8	10:30		20	13:43	
9	10:37		21	13:57	
10	10:46		22	14:09	
11	10:55		23	14:22	
12	11:04		24	14:37	

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form

STATION: Americana

Personnel: TL & HRJ **Date/Time On-Site:** 3/15/22, 9:48

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
0949	12.22	7.89	3.119	12.06		

Grab Information					
	Sample ID	Date	Time	Labeled?	
Site <i>E.Coli</i>	220315-14 -WG	3/15/22	0952	<input checked="" type="checkbox"/>	
Field Duplicate <i>E.Coli</i>	-101			<input type="checkbox"/>	
Field Blank <i>E.Coli</i>	-001			<input type="checkbox"/>	

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	0955	10.17	10.55	6.32	737.0

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	3

Comments:

Set Up/ Shut Down Form – HACH

STATION: AS-6

SET UP

Personnel: TLL, SMK

Date/Time

On-Site: 3/14/22 13:25

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
13:28	0	0	0	12.6
Downloaded to:				
Velocity Cutoff:				
Trigger Volume: 382 cF				

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

Changed time

SHUT DOWN

Personnel: TL

Date/Time

On-Site: 03-18-22 / 0953

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
0954	0	0	0	10415	12.1
Downloaded to: R7					

If flow monitoring is complete:

- Halt program on flowmeter
- Download flowmeter data
- Remove flowmeter battery

If continuing to monitor flow:

- Replace flowmeter battery
- Reset logging interval to 15 minutes
- Change velocity cutoff to 0.02 fps
- Start program
- Verify running

Comments:

Composite Sample Collection

STATION: AS-6
 Personnel: TLL, SMK

Bottle 1 of 1
 Date/Time On-Site: 19:50 3/15/22

<input checked="" type="checkbox"/> Halt Sampler program	
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	220315-206 -WC
Approx Sample Volume (mL):	14.000
Clarity (ex. Clear, Cloudy, Silty):	Cloudy
Color (ex. Clear, Gray, Tan, Brown, Black):	Dark brown
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	3/15 10:07	Success	13	3/15 13:48	
2	10:19	↓	14	14:01	↓
3	10:28		15	14:12	
4	10:37		16	14:24	
5	10:47		17	14:39	
6	10:57		18	15:04	
7	11:07		19	16:45	
8	11:18		20	16:54	
9	11:30		21	17:01	
10	11:43		22	17:07	
11	12:06		23	17:14	
12	13:28		24	17:23	

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle, add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form

STATION: AS-10

Personnel: TLL & HRJ Date/Time On-Site: 3/15/22 1005

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1005	4.003	0.45	1.41	12.3		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	220315-206-WG	3/15/22	1009	<input checked="" type="checkbox"/>
Field Duplicate <i>E.Coli</i>	-101			<input type="checkbox"/>
Field Blank <i>E.Coli</i>	-001			<input type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP07	1011	8.58	9.03	6.48	756.2

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	1

Comments:



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for April 4, 2022

Date: June 2, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the April 4, 2022 storm event.

Section 2: Project Status

Table 1-1 is a summary of the sample types collected to date for WY 2022 Phase I Stormwater Outfall Monitoring.

Table 1-1. WY 2022 Samples Collected					
Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
November 9, 2021	C	C	-	-	-
March 15, 2022	G, C	G, C	G, C	G, C	G, C
April 4, 2022	-	G	-	G	-
Collected:	2G, 2C	3G, 2C	2G, 2C	3G, 2C	2G, 2C

Notes:

C = composite sample.

G = grab sample.

After the April 4, 2022 storm event, ACHD still needs to collect one grab sample from Lucky, Main, and AS_6 monitoring sites and one composite sample from all Phase I monitoring sites.

Section 3: Storm Event Summary

The April 4, 2022 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A detailed summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form that describes the forecast and summarizes the decision-making process from April 4, 2022 is included in Attachment A for reference.

Monday, April 4, 2022

- The National Weather Service issued a forecast for widespread rain in the Boise area early in the morning of April 4, 2022. No chance of rainshadowing was expected. The chance of precipitation was 90% percent, with a precipitation total of 0.11 inch forecasted.
- A light rain started around 0730 and continued for two hours. Heavy rain began at 0930 and continued until 1400.
- Precipitation totals ranged between 0.21 and 0.28 inch at local rain gauges.

Flow measurements and precipitation data are included in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Since only grab samples were taken during the storm event, no setup was necessary. Sampling information is included in Table 1. The field forms completed during sampling can be found in Attachment D.

Grab Samples

One, two-member team mobilized to collect stormwater runoff grab samples during the morning of April 4, 2022. Grab samples were submitted to the West Boise Water Quality Lab (WQL) at 1205 on April 4th. Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are included in Attachment C.

Section 4: Quality Assurance/Quality Control

A summary of quality control (QC) samples collected during the April 4, 2022 storm event is presented below in Table 3-1. A field blank and a field duplicate were collected from the Whitewater monitoring station. Analytical results for these samples are included in Table 3.

Sample ID	Sample Type	Parent Sample	Conclusions
220404-11-001	Field Blank	Whitewater Grab	No E. coli detection was reported in the field blank.
220404-11-101	Field Duplicate	Whitewater Grab	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. Acceptance and performance criteria for analytical and non-analytical data were met for this storm event.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	NO	YES	NO	YES	NO
Composite samples collected and submitted?	NO	NO	NO	NO	NO
Trigger volume	-	-	-	-	-
Velocity cutoff (fps)	-	-	-	-	-
Sampler enable condition (in)	-	-	-	-	-
Runoff start time	-	09:30	-	08:45	-
Grab sample collection time	-	11:28	-	11:13	-
Composite sample stop time	-	-	-	-	-
Runoff stop time	-	21:15	-	20:30	-
Volume of discharge sampled (ft ³)	-	-	-	-	-
Total runoff volume (ft ³)	-	16,820	-	149,320	-
Percent of storm flow sampled (%)	-	-	-	-	-
Composite sample duration (hrs)	-	-	-	-	-
Storm Precipitation (in)	0.26	0.25	0.21	0.21/0.28	0.21/0.28
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	-	-	-	-	-
Number of composite bottles filled	-	-	-	-	-
Composite sample volume (Approx.; ml)	-	-	-	-	-

Notes:

- = no data.

Table 2. Field and Analytical Data Summary - Wet Samples

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				Analytical Parameters
			Dissolved Oxygen	pH	Conductivity	Temperature	E. coli
			mg/L	S.U.	uS/cm	C	mpn/100 mL
Whitewater	4/4/2022	220404-11-WG	9.19	7.43	205.44	10.59	547.5
Americana	4/4/2022	220404-14-WG	10.05	7.25	349.14	11.55	579.4

Table 3. QC Sample Summary

Date	Parent Sample	Sample ID	Type	E. coli
				mpn/100 mL
4/4/2022	220404-11-WG	220404-11-001	Field Blank	<1.0
4/4/2022	220404-11-WG	220404-11-101	Field Duplicate	686.7
Calculated parent/duplicate RPD				2%
Allowable RPD				40%

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 4 Apr 2022

Time: 7:47 AM

Initials: TL

Sampling Event Determination

Is there a targeted sampling event expected during the next 36 hours?
(Or, if it is Friday, is a targeted event expected before 5:00 PM on Monday?)

Yes Maybe No

If YES or MAYBE, then call BC. Include discussion of reasons for "Maybe" below.

Date and Time of Expected Event 4/4/22 7am - 12pm

Expected Amount of Precipitation 90%, 0.11"

Percent Chance of Precipitation

Targeted Stations & Samples

Americana	Main	Lucky	AS-6	Whitewater
<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab
<input type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input type="checkbox"/> Composite

Phase II

State

Grab

Composite

Type of Forecasted Precipitation

Light Rain Thunder Showers Other (Describe below)

Rain Snow Melt

Scattered Showers Rain on Snow

Reasons for Not Targeting a Forecasted Storm or Targeting Selected Stations/Samples

Equipment Concerns (Describe below) Holiday Other (Describe below)

Waiting on Antecedent Dry Period. Expires: _____

Comments

Past 72 hr precip: 0.00"

NWS Forecast for: Boise ID
Issued by: National Weather Service Boise, ID
Last Update: 3:27 am MDT Apr 4, 2022

Wind Advisory

Today: Showers, mainly before noon. High near 60. Light east wind becoming east southeast 5 to 10 mph in the morning. Chance of precipitation is 90%. New precipitation amounts between a tenth and quarter of an inch possible.

Tonight: A slight chance of rain showers before midnight, then a slight chance of rain and snow showers. Mostly cloudy, with a low around 33. Breezy, with a northwest wind 17 to 22 mph decreasing to 11 to 16 mph after midnight. Winds could gust as high as 36 mph. Chance of precipitation is 20%.

Tuesday: Partly sunny, with a high near 49. Breezy, with a west northwest wind 9 to 14 mph increasing to 15 to 20 mph in the afternoon.

Tuesday Night: Mostly clear, with a low around 26. Northwest wind 11 to 16 mph becoming light north northwest after midnight. Winds could gust as high as 25 mph.

Wednesday: Sunny, with a high near 56. Calm wind becoming west northwest around 6 mph in the afternoon.

Wednesday Night: Mostly clear, with a low around 31.

Thursday: Sunny, with a high near 71.

Thursday Night: Mostly clear, with a low around 42.

Friday: Mostly sunny, with a high near 79.

Friday Night: Partly cloudy, with a low around 43.

Saturday: Mostly sunny, with a high near 64.

Saturday Night: Partly cloudy, with a low around 34.

Sunday: Mostly sunny, with a high near 51.

Area Forecast Discussion
National Weather Service Boise ID
415 AM MDT Mon Apr 4 2022

.SHORT TERM...Today through Wednesday night...Winds and precipitation are advancing eastward this morning as a strong Pacific storm moves onshore. On the large scale, little change in the forecast as the axis of a strong upper jet settles over the region today, acting as a conduit to transport deep Pacific moisture into the interior NW. Mountains are still on track to see a widespread 0.4-0.8 inches of liquid with higher mountain peaks approaching an inch. This will stay a wet snow above 5500-6000 feet, so snow totals could approach a foot at higher elevations. Mountain valleys will see snow this morning, mixing with or changing to rain during the afternoon. The current Winter Weather Advisory remains in place, mostly for combination of gusty winds and snow at higher elevations this afternoon and evening. The wet snow and gusty winds (up to 55 mph off valley floors) could lead to tree damage and possible power outages as well.

At lower elevations the best chance of rain is through this morning, though many sites will remain dry as this is mostly an orographic precipitation event. Winds remain on track to be strongest across southeast Oregon, with Harney county and higher terrain of Malheur and Baker county taking the brunt of the wind gusts. Winds ramp up mid-morning and continue into early evening. Expect to see blowing dust with some reduction in visibility, especially downstream of dry lake beds like Harney Lake and the Alvord Desert. In southwest Idaho winds will increase across higher terrain by mid-morning while lagging some in the Snake Plain. A frontal passage and late-day mixing will increase the winds in the Treasure and western Magic valleys in the late afternoon and evening. Winds will remain gusty across s-central Idaho Monday night while showers linger in the mountains.

Storm Event QA/QC Checklist

STORM DATE: <u>220404</u>				Circle one: Phase I Phase II			
A. Event and Data Completeness				Yes	No	N/A	Notes
1. Field data sheets filled out completely and clearly	X						
2. Field parameters reviewed, and any problems/issues addressed	X						
3. All samples collected as specified	X						
4. All samples delivered to lab promptly (review chain of custody rpts)	X						
5. Inconsistencies/clarifications discussed with sampling team member			X				
6. All analytical reports from lab received	X						
B. Validation and Verification Methods				Yes	No	N/A	Notes
1. Outliers and unexpected values discussed with lab			X				
2. Appropriate analytical methods used	X						
3. All lab QA samples were within method acceptance criteria	X						
4. All samples reviewed and data qualifiers assigned if needed	X						
5. Data quality objective achieved	X						
C. Specific Storm and Sample QA/QC Criteria		Storm/Sample Value	Program Criteria	Met	Qualify	Reject	Notes
1. Precipitation (inches)	<u>0.24</u>	> 0.10 in.	X				
2. Antecedent dry period (hours)	<u>480</u>	< 0.11 in. in 72 hrs	X				
3. Days since last sampling event	<u>20 days</u>	>= 30 days	X				
4. Sampled amount as % of total run-off	<u>N/A</u>	>= 75%	_____				<u>no comps for this event</u>
5. Ecoli sample holding time	<u>2 hrs</u>	<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X				
6. Filtering of samples for dissolved parameter analysis	<u>N/A</u>	<= 24 hrs: no qualifier > 24 hrs.: reject	_____				
D. Notes:							

Reviewed by Taman ymn Date 05.03.22

Approved by Monica L. Lowe Date 5/17/22

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.46	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.76	1357
#12 Main	79	0.437	13785	811	0.246	7760.00	456
#14 Americana	875	0.446	155827	9166	0.144	50311.80	2960
#206 AS_6	204	0.257	20935	1231	0.046	3747.03	221
#18 State	34	0.419	5688	335	0.144	1954.97	122
Theoretical	80	0.200	6389		0.000		

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

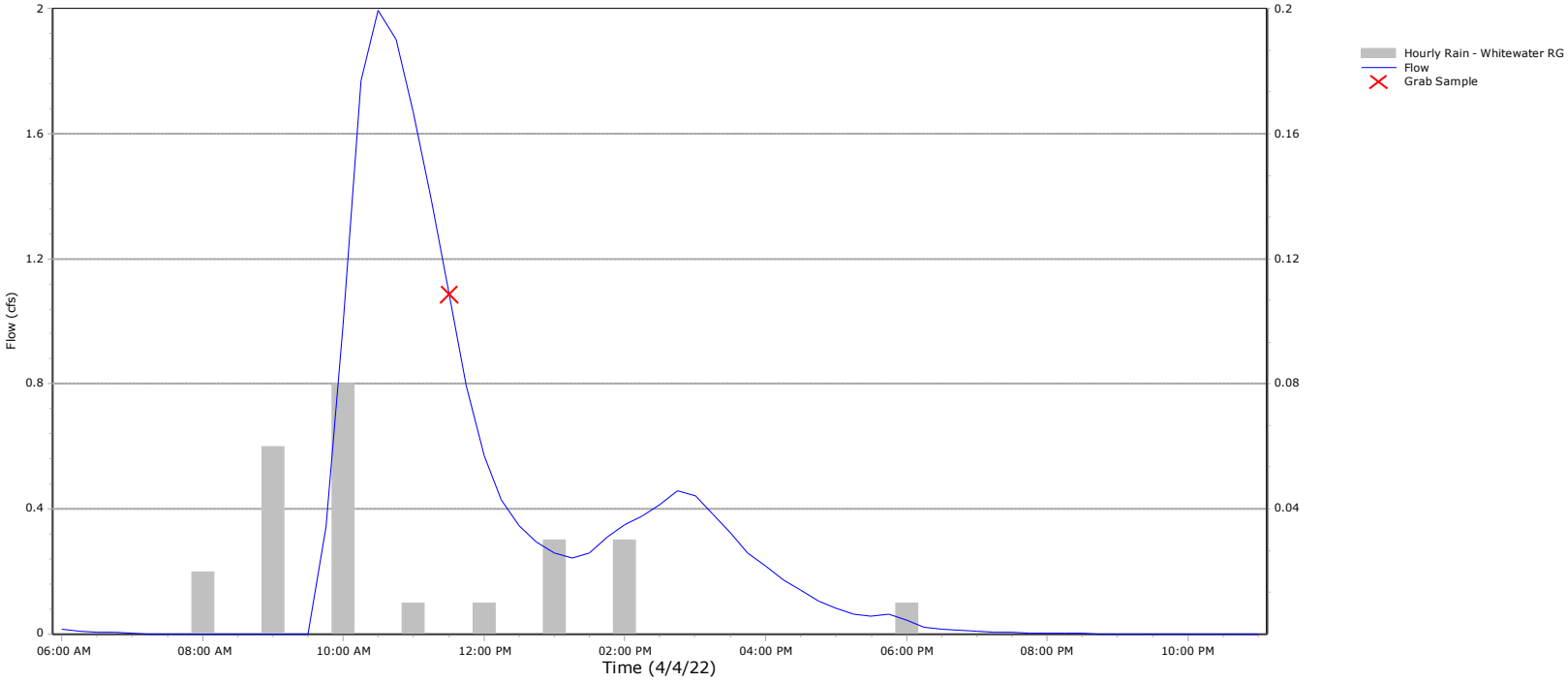
total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

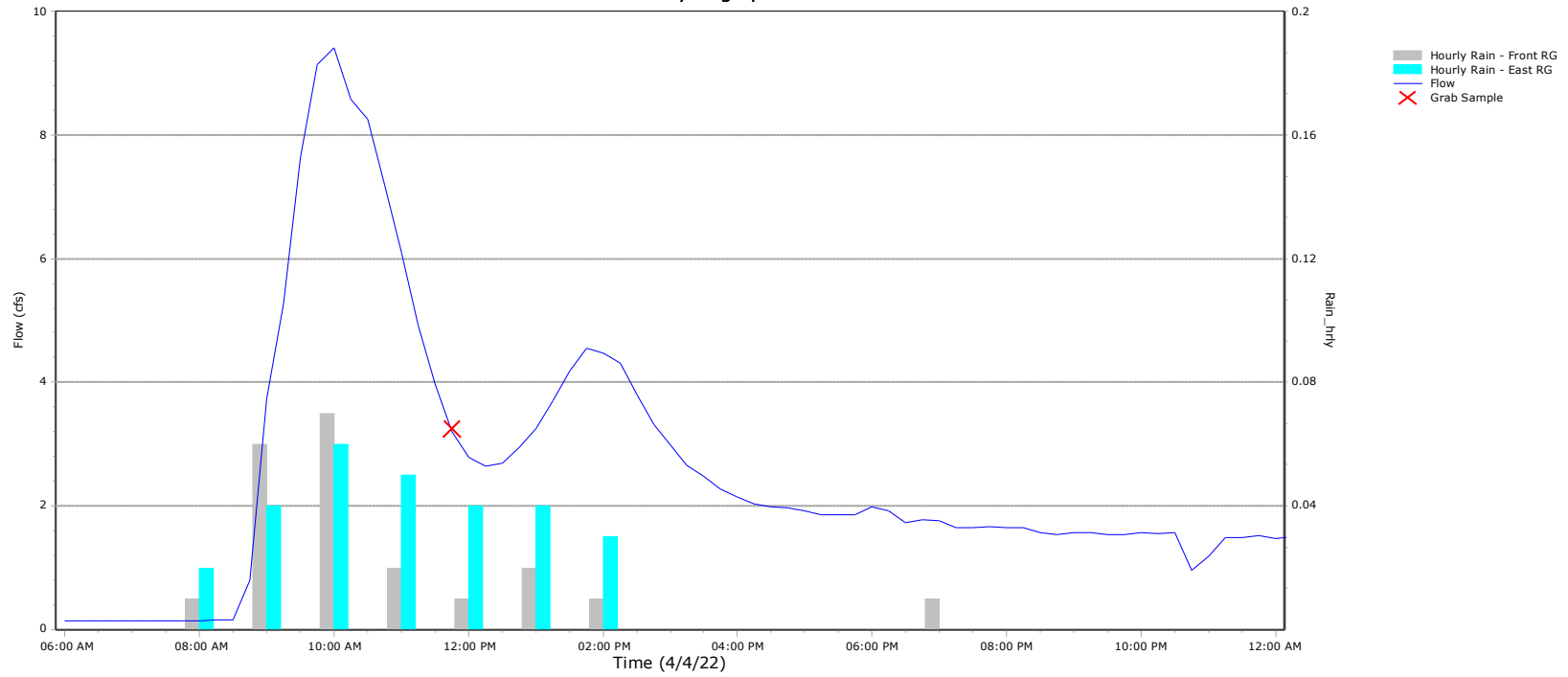
RC = measured runoff / total runoff

Attachment B: Storm Event Hydrographs

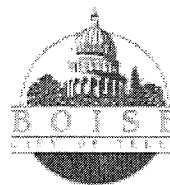
Whitewater Hydrograph



Americana Hydrograph

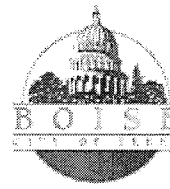


Attachment C: Storm Event Analytical Reports



Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00199-01	ACST1B	220404-11-WG	Water		04/04/2022	04/04/2022
AC00199-02	ACST1B	220404-11-101	Water		04/04/2022	04/04/2022
AC00199-03	ACST1B	220404-11-001	Water		04/04/2022	04/04/2022
AC00199-04	ACST1B	220404-14-WG	Water		04/04/2022	04/04/2022



Analysis Report

Location: ACST1B Location Description: 220404-11-101
 Date/Time Collected: 04/04/2022 12:00
 Lab Number: AC00199-02 Sample Collector: T.L
 Sample Type: Grab Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Microbiology										
E. Coli	B221245	686.7 MPN/100 mL		1.0	1.0	IDEXX - Colilert	04/04/22 13:15	4/5/22 13:51	ALG	
Wet Chemistry										
Chlorine Screen	B221255	Absent				SM 4500-CL G-2000 mod	04/04/22	4/4/22 12:43	CJP	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

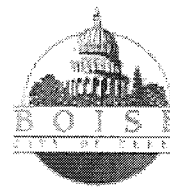


Analysis Report

Location: ACST1B Location Description: 220404-11-001
 Date/Time Collected: 04/04/2022 12:00
 Lab Number: AC00199-03 Sample Collector: T.L
 Sample Type: Grab Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B221245	<1.0MPN/100 mL		1.0	1.0	IDEXX - Colilert	04/04/22 13:15	4/5/22 13:51	ALG	U
Wet Chemistry										
Chlorine Screen	B221255	Absent				SM 4500-CL G-2000 mod	04/04/22	4/4/22 12:43	CJP	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Analysis Report

Location: ACST1B Location Description: 220404-14-WG
 Date/Time Collected: 04/04/2022 11:33
 Lab Number: AC00199-04 Sample Collector: T.L
 Sample Type: Grab Sample Matrix: Water

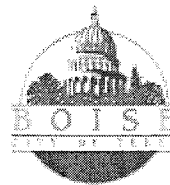
Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B221245	579.4 MPN/100 mL		1.0	1.0	IDEXX - Colilert	04/04/22 13:15	4/5/22 13:51	ALG	
Wet Chemistry										
Chlorine Screen	B221255	Absent				SM 4500-CL G-2000 mod	04/04/22	4/4/22 12:43	CJP	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B221245									
Blank (B221245-BLK1)									
E. Coli	Absent						04/05/2022	ALG	
LCS (B221245-BS1)									
E. Coli				Present			04/05/2022	ALG	
Duplicate (B221245-DUP1) Source ID: LS01096-10									
E. Coli					Pass	128	04/05/2022	ALG	
Duplicate (B221245-DUP2) Source ID: PK00079-01									
E. Coli					ND	128	04/05/2022	ALG	U



Notes and Definitions

Item	Definition
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Attachment D: Field Forms

Grab Sample Data Form

STATION: White water

Personnel: Tammie L. Nelson J. **Date/Time On-Site:** 4-4-2022

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
11:35	3.69	2.08 2.08	1.41	NA		0.17

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E. Coli</i>	220404-11-WG	04-04-2022	1128	<input checked="" type="checkbox"/>
Field Duplicate <i>E. Coli</i>	220404-11-101	04-04-2022	1129	<input checked="" type="checkbox"/>
Field Blank <i>E. Coli</i>	220404-11-001	04-04-2022	1133	<input checked="" type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
H1909	1133 1134	10.59	9.19	7.43	205.44

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

Grab Sample Data Form

STATION: Americana

Personnel: Tammy L. & Melissa S. Date/Time On-Site: 04-04-2022 1108

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
11:10	9.77	4.79	2.626	11.7		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	220404-14 -WG	04-04-2022	11:13	<input checked="" type="checkbox"/>
Field Duplicate <i>E.Coli</i>	-101			<input type="checkbox"/>
Field Blank <i>E.Coli</i>	-001			<input type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MPO9	11:16	11.55	10.05	7.25	349.14

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for May 27, 2022

Date: August 1, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the May 27, 2022 storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2022 Phase I Stormwater Outfall Monitoring.

Table 2-1. WY 2022 Samples Collected					
Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
November 9, 2021	C	C	-	-	-
March 15, 2022	G, C	G, C	G, C	G, C	G, C
April 4, 2022	-	G	-	G	-
May 27, 2022	G ¹	-	G ¹ , C	C	G ¹ , C ²
Collected:	2G, 2C	3G, 2C	2G, 3C	3G, 3C	2G, 2C

Notes:

C = composite sample.

G = grab sample.

¹ E. Coli sample qualified due to exceeded hold time

² No data on dissolved parameters or NO_x due to low composite sample volume

After the May 27, 2022 storm event, ACHD still needs to collect one grab sample from Lucky, Main, and AS_6 and one composite sample from Lucky, Whitewater, and AS_6.

Section 3: Storm Event Summary

The May 27, 2022 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A detailed summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form that describes the forecast and summarizes the decision-making process from May 27, 2022 is included in Attachment A for reference.

Friday, May 27, 2022

- The morning of Friday, May 27, 2022, the National Weather Service issued a forecast for convective thunderstorms in the Boise area Friday night. No chance of rainshadowing was expected. The chance of precipitation was 70 percent, with precipitation amounts between a tenth and a quarter of an inch forecasted.
- Setup was accomplished Friday morning. An expected precipitation depth of 0.11 inch was used to set trigger volumes at monitoring stations.
- Rain started later Friday evening around 6:30 pm and continued until 7:30 pm. Another wave of rain started around 11:00 pm and continued until 12:30 am.
- Precipitation totals ranged between 0.10 in and 0.15 inch at local rain gauges.

Flow measurements and precipitation data are included in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

All Phase I monitoring stations were set up the morning on May 27, 2022, to collect flow-proportional composite samples during the storm. Sampler enable conditions were programmed into the Lucky, Whitewater, Main, and Americana flowmeters. A site-specific velocity cutoff value was programmed into the AS_6 flowmeter. Setup and sampling information is included in Table 1. The field forms completed during setup/shut down and sampling can be found in Attachment D.

Grab Samples

Two, two-member teams mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on the evening of May 27, 2022. Grab samples were submitted to the West Boise Water Quality Lab (WQL) at 2054 on May 27. Results for grab samples, including field parameter and analytical data, are detailed in Table 2. Laboratory analytical reports are included in Attachment C.

Composite Samples

Composite samples were collected at all monitoring stations. The Lucky monitoring station received marginal rainfall during the storm event (0.10 inch) which led to insufficient volume in the composite sample. The Lucky composite sample was not submitted to the lab. At the Whitewater monitoring station, the majority of the subsamples had “no liquid detect” error messages due to a clog in the sampler line. The team purged the line in an attempt to unclog the sampler tubing. The team then restarted the program, but the sampler continued to have “no liquid detect” error messages. The Whitewater composite sample was not submitted to the lab. The AS_6, Americana, and Main composite samples were submitted to the WQL on May 28 at 0956. Dissolved metals, ortho-phosphate, or NO_x concentrations were not analyzed in the AS_6 sample due to low volume. The composite volume of the Americana and Main composite samples were sufficient for all parameters. Analytical results are included in Table 2. Pollutant loading estimates for the event are included in Table 3.

Section 4: Quality Assurance/Quality Control

A summary of quality control (QC) samples collected during the May 27, 2022 storm event is presented below in Table 4-1. A field blank and a field duplicate were collected from the Main monitoring station. Analytical results for these samples are included in Table 4.

Sample ID	Sample Type	Parent Sample	Conclusions
220527-12-001	Field Blank	Main Grab	No E. coli detection was reported in the field blank.
220527-12-101	Field Duplicate	Main Grab	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. Grab samples collected during this event were qualified due to the exceeded hold time. The field parameters collect at Lucky are also qualified due to the low storm precipitation measured at the Cynthia Mann rain gauge which is the closest rain gauge to the monitoring site.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	NO	YES	NO	YES
Composite samples collected and submitted?	NO	NO	YES	YES	YES
Trigger volume	2,895 gal	800 ft ³	3,411 gal	2,960 ft ³	221 ft ³
Velocity cutoff (fps)	--	--	--	--	0.02
Sampler enable condition (in)	level > 2.3	level > 1.5	level > 2.8	level > 6.2	--
Runoff start time	5/27/22 18:34	--	5/27/22 18:13	5/27/22 18:17	5/27/22 18:31
Grab sample collection time	5/27/22 19:57	--	5/27/22 19:24	--	5/27/22 19:50
Composite sample stop time	--	--	5/28/22 0:42	5/28/22 5:15	5/28/22 2:14
Runoff stop time	5/28/22 3:35	--	5/28/22 2:32	5/28/22 5:31	5/28/22 3:39
Volume of discharge sampled (ft ³)	--	--	6,664	71,747	1,557
Total runoff volume (ft ³)	2,523	--	7,075	72,613	1,824
Percent of storm flow sampled (%)	--	--	94%	99%	85%
Composite sample duration (hrs)	--	--	6.5	11.0	8.0
Storm Precipitation (in)	0.10	0.15	0.15	0.15/0.14	0.15/0.14
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	--	--	15	24	7
Number of composite bottles filled	--	--	1	1	1
Composite sample volume (Approx.; ml)	--	--	8,750	14,000	5,000

Notes:

-- = no data

Table 3. Event Pollutant Loading Estimates in Pounds

Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite (N)	TKN
Main	5/27/2022	131	0.3	0.55	0.26	2.9
Americana	5/27/2022	521	4.8	4.4	3.91	21.3
AS_6	5/27/2022	7.5	0.38	0.23	-- ¹	1.04

Notes:

- = no data

¹No data for dissolved parameters or NO_x due to low composite sample volume

Table 4. QC Sample Summary

Date	Parent Sample	Sample ID	Type	E. coli
5/27/2022	Main Grab	211022-12-001	Field Blank	<1.0
5/27/2022	Main Grab	211022-12-101	Field Duplicate	727
Calculated parent/duplicate RPD				4%
Allowable RPD				40%

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 5/27/2022	Time: 7:49 AM	Initials: TL
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	0.00"
Date and time of expected event	5/27 midnight – 5/28 noon, 5/28 6pm – 12am
Expected amount of precipitation	0.10" Friday, 0.18" saturday
Percent chance of precipitation	70% - 90%
Percent chance of >0.10" over 12 hours	24% - 60%

NWS Update
 I spoke with Josh from NWS this morning. He said that tonight's system is convective (scattered thunderstorms) and the probability of getting over 0.10" is 30% but really depends on if the thunderstorms cross over Boise. Saturday afternoon through evening is a better chance because the low is centered right on Boise and will produce more widespread rain. Totals during that time are 0.20" – 0.30".

Targeted Station & Samples					
Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab
<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input type="checkbox"/> Composite

Type of Forecasted Precipitation		
<input type="checkbox"/> Light Rain	<input checked="" type="checkbox"/> Rain	<input type="checkbox"/> Rain on Snow
<input checked="" type="checkbox"/> Scattered Showers	<input checked="" type="checkbox"/> Thunder Showers	<input type="checkbox"/> Snowmelt
<input type="checkbox"/> Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations
<input type="checkbox"/> Holiday
<input type="checkbox"/> Waiting on Antecedent Dry Period – Expires:
<input type="checkbox"/> Equipment Concerns:
<input type="checkbox"/> Other:

Text Forecast
 NWS Forecast for: Boise ID
 Issued by: National Weather Service Boise, ID
 Last Update: 3:04 am MDT May 27, 2022

Today: Scattered showers and thunderstorms after noon. Some of the storms could produce gusty winds. Increasing clouds, with a high near 75. Northwest wind 5 to 7 mph becoming southwest in the afternoon. Chance of precipitation is 30%.

Tonight: A chance of showers and thunderstorms, then showers likely after midnight. Some of the storms could produce gusty winds. Cloudy, with a low around 50. North wind 5 to 8 mph, with gusts as high as 20 mph. Chance of precipitation is 70%. New precipitation amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Saturday: Showers likely, with thunderstorms also possible after noon. Mostly cloudy, with a high near 64. West northwest wind 3 to 7 mph. Chance of precipitation is 60%.

Saturday Night: Showers and possibly a thunderstorm. Low around 44. West wind 6 to 10 mph. Chance of precipitation is 90%. New rainfall amounts between a quarter and half of an inch possible.

Sunday: Showers. High near 54. West wind 11 to 14 mph. Chance of precipitation is 80%. New precipitation amounts between a tenth and quarter of an inch possible.

Sunday Night: Showers likely, mainly after midnight. Mostly cloudy, with a low around 42. Chance of precipitation is 60%. New precipitation amounts between a tenth and quarter of an inch possible.

Memorial Day: A chance of showers, with thunderstorms also possible after noon. Mostly cloudy, with a high near 63. Chance of precipitation is 50%.

Monday Night: Mostly cloudy, with a low around 46.

Tuesday: Partly sunny, with a high near 71.

Tuesday Night: Mostly clear, with a low around 49.

Wednesday: Mostly sunny, with a high near 78.

Wednesday Night: Partly cloudy, with a low around 54.

Thursday: Mostly sunny, with a high near 85.

Forecast Discussion

Area Forecast Discussion

National Weather Service Boise ID

346 AM MDT Fri May 27 2022

.SHORT TERM...Today through Sunday night...**Unsettled weather will persist through the period** as a broad upper trough takes up position over the Pacific NW. the combination of daytime instability and embedded shortwave energy will bring periods of precipitation to the region through Saturday. **Afternoon showers and thunderstorms will produce brief heavy rain and gusty winds up to 45 mph this afternoon.** Stronger winds aloft will increase the gust potential Saturday afternoon, especially across SE Oregon. **Saturday night into Sunday will see widespread precipitation develop as a closed low moves into the interior NW.** The cold air aloft will lower snow levels from 7500-8500 feet on Saturday to 4500-5500 feet Sunday night. This will allow for accumulations of 1 to 4 inches above 6500 feet Sunday into Sunday night. Minor accumulations are possible down to 5500 Sunday night. **Total liquid amounts over the weekend will range from 0.25-0.50 inches in the valleys** to 0.50-1.00 in the mountains. After near normal highs today, temperatures will bottom out at 15 to 20 degrees below normal on Sunday.

.LONG TERM...Monday through Friday...A large and complex upper level trough over the Western U.S. will slowly move eastward on Memorial Day. **Scattered rain showers and high elevation mountain show showers will linger over the area on Memorial Day** with temperatures running 10 to 15 degrees below normal. Drier conditions and a warming trend will begin on Tuesday as a more zonal flow with some weak upper level ridging develops over the area. Temperatures will warm to near normal by Wednesday and a few degrees above normal by Thursday and Friday.

Hourly Forecast

Storm Event QA Checklist

STORM DATE: <u>220404</u>				Circle one: Phase I	Phase II		
A. Event and Data Completeness	Yes	No	N/A	Notes			
1. Field data sheets filled out completely and clearly	X						
2. Field parameters reviewed, and any problems/issues addressed	X						
3. All samples collected as specified	X						
4. All samples delivered to lab promptly (review chain of custody rpts)	X						
5. Inconsistencies/clarifications discussed with sampling team member			X				
6. All analytical reports from lab received	X						
B. Validation and Verification Methods	Yes	No	N/A	Notes			
1. Outliers and unexpected values discussed with lab			X				
2. Appropriate analytical methods used	X						
3. All lab QA samples were within method acceptance criteria	X						
4. All samples reviewed and data qualifiers assigned if needed	X						
5. Data quality objective achieved	X						
C. Specific Storm and Sample QA/QC Criteria	Storm/Sample Value		Program Criteria	Met	Qualify	Reject	Notes
1. Precipitation (inches)	0.24		> 0.10 in.	X			
2. Antecedent dry period (hours)	480		< 0.11 in. in 72 hrs	X			
3. Days since last sampling event	20 days		>= 30 days	X			
4. Sampled amount as % of total run-off	N/A		>= 75%	 	 	 	no comps for this event
5. Ecoli sample holding time	2 hrs		<=8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X			
6. Filtering of samples for dissolved parameter analysis	N/A		<= 24 hrs: no qualifier > 24 hrs.: reject	 	 	 	
D. Notes:							

Reviewed by Tanner Green Date 05.03.22

Approved by Monica L. Lowe Date 5/17/22

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.46	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.76	1357
#12 Main	79	0.437	13785	811	0.246	7760.00	456
#14 Americana	875	0.446	155827	9166	0.144	50311.80	2960
#206 AS_6	204	0.257	20935	1231	0.046	3747.03	221
#18 State	34	0.419	5688	335	0.144	1954.97	122
Theoretical	80	0.200	6389		0.000		

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

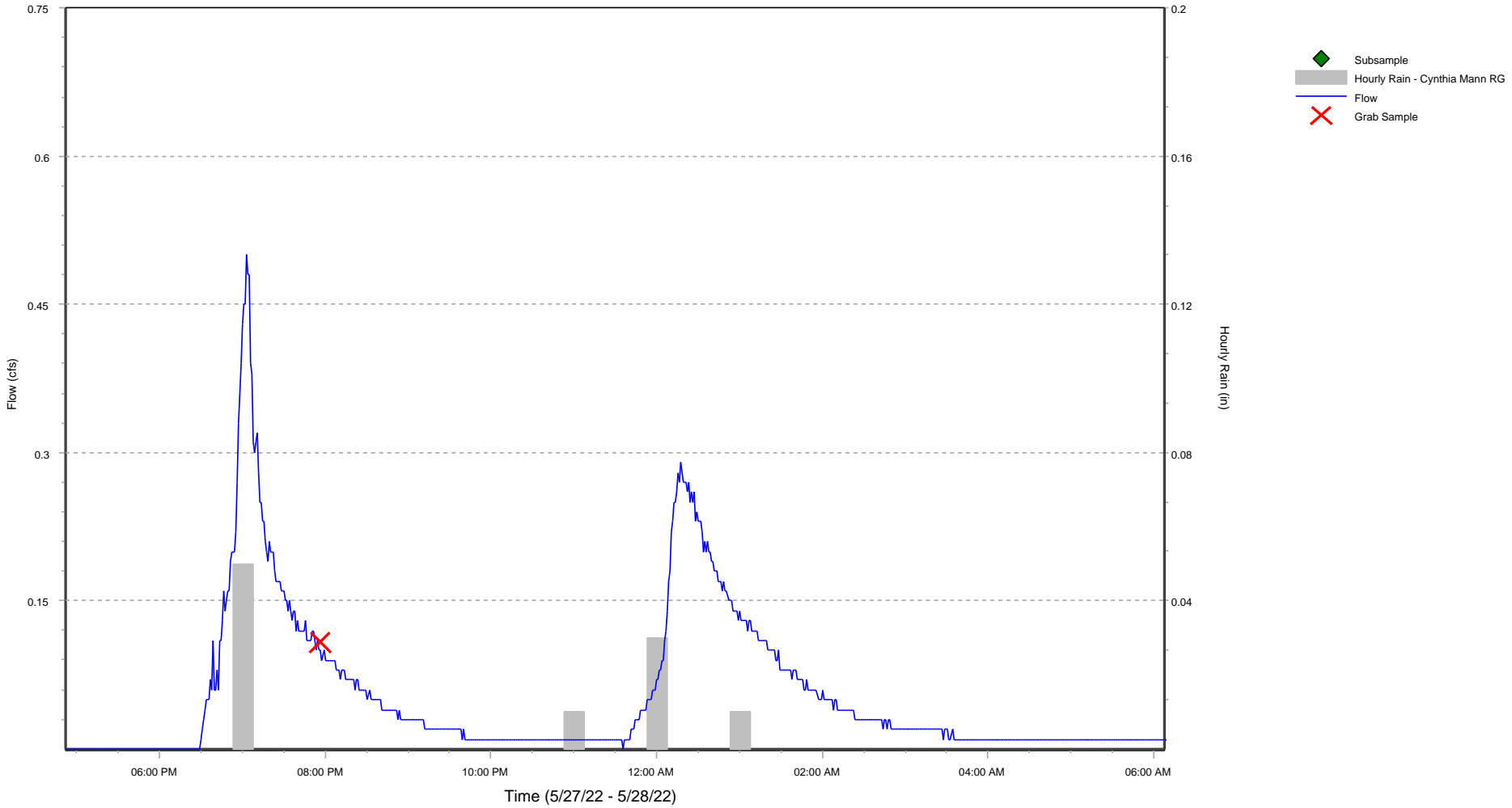
total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

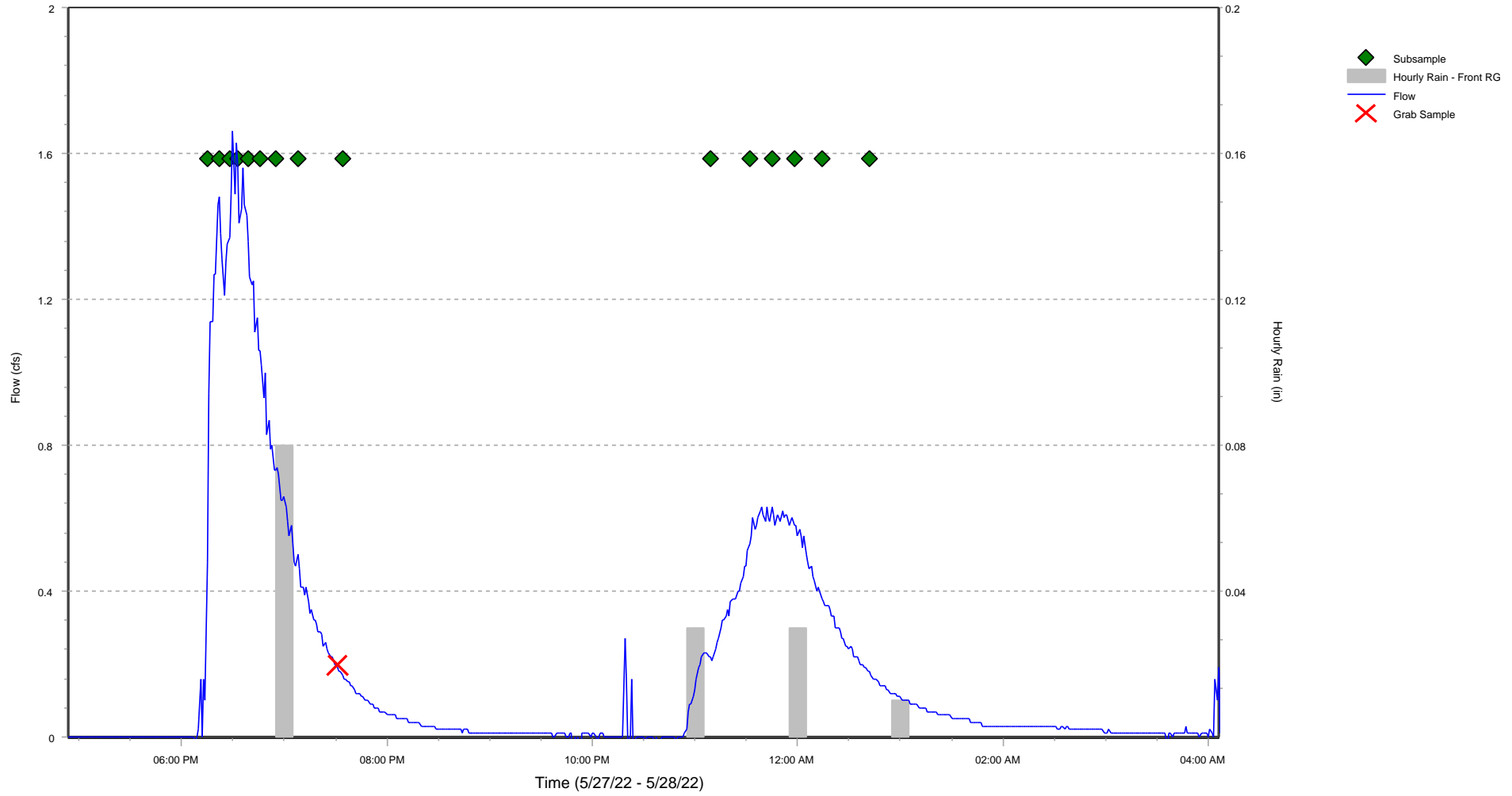
RC = measured runoff / total runoff

Attachment B: Storm Event Hydrographs

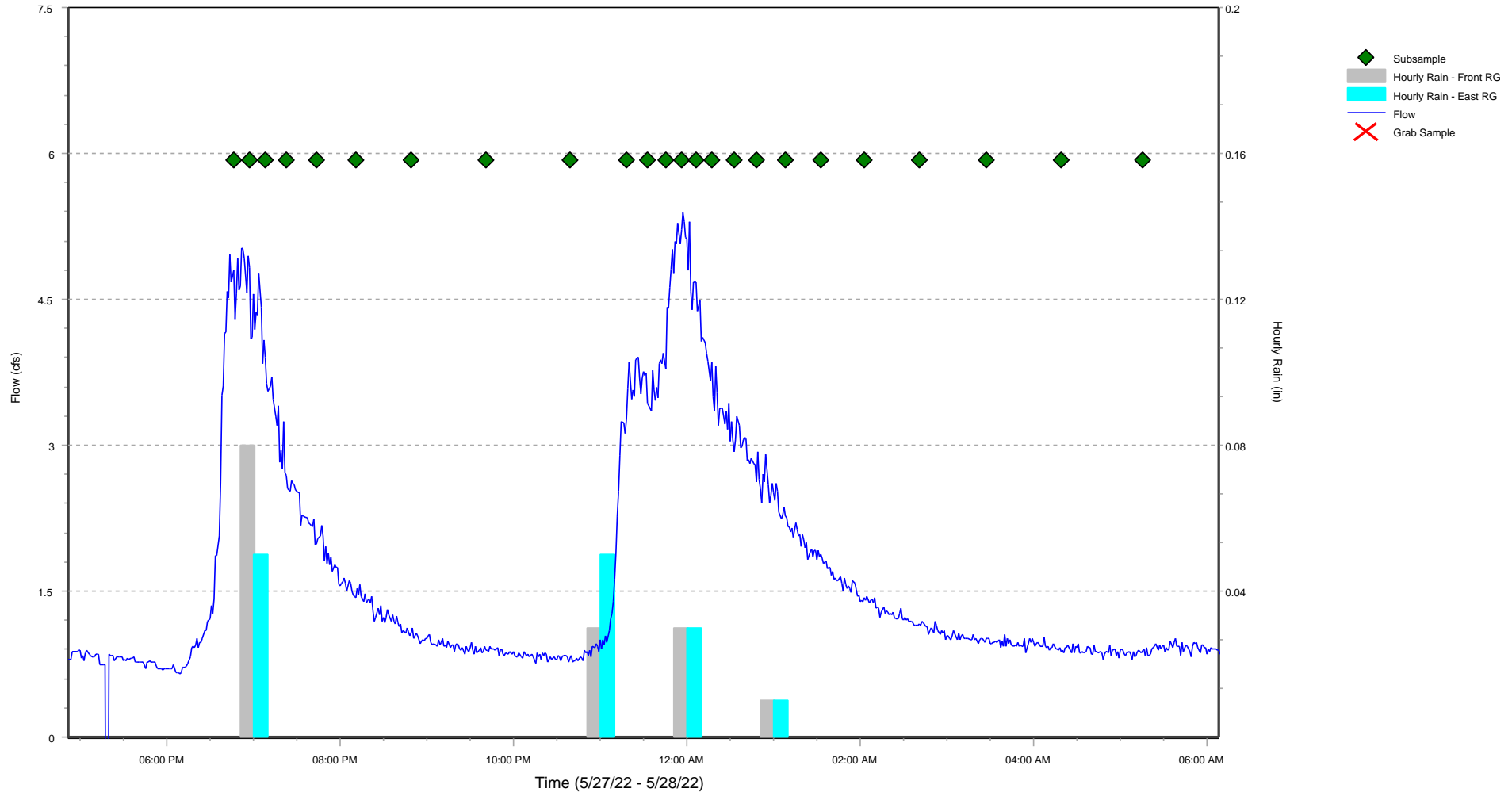
Lucky Hydrograph



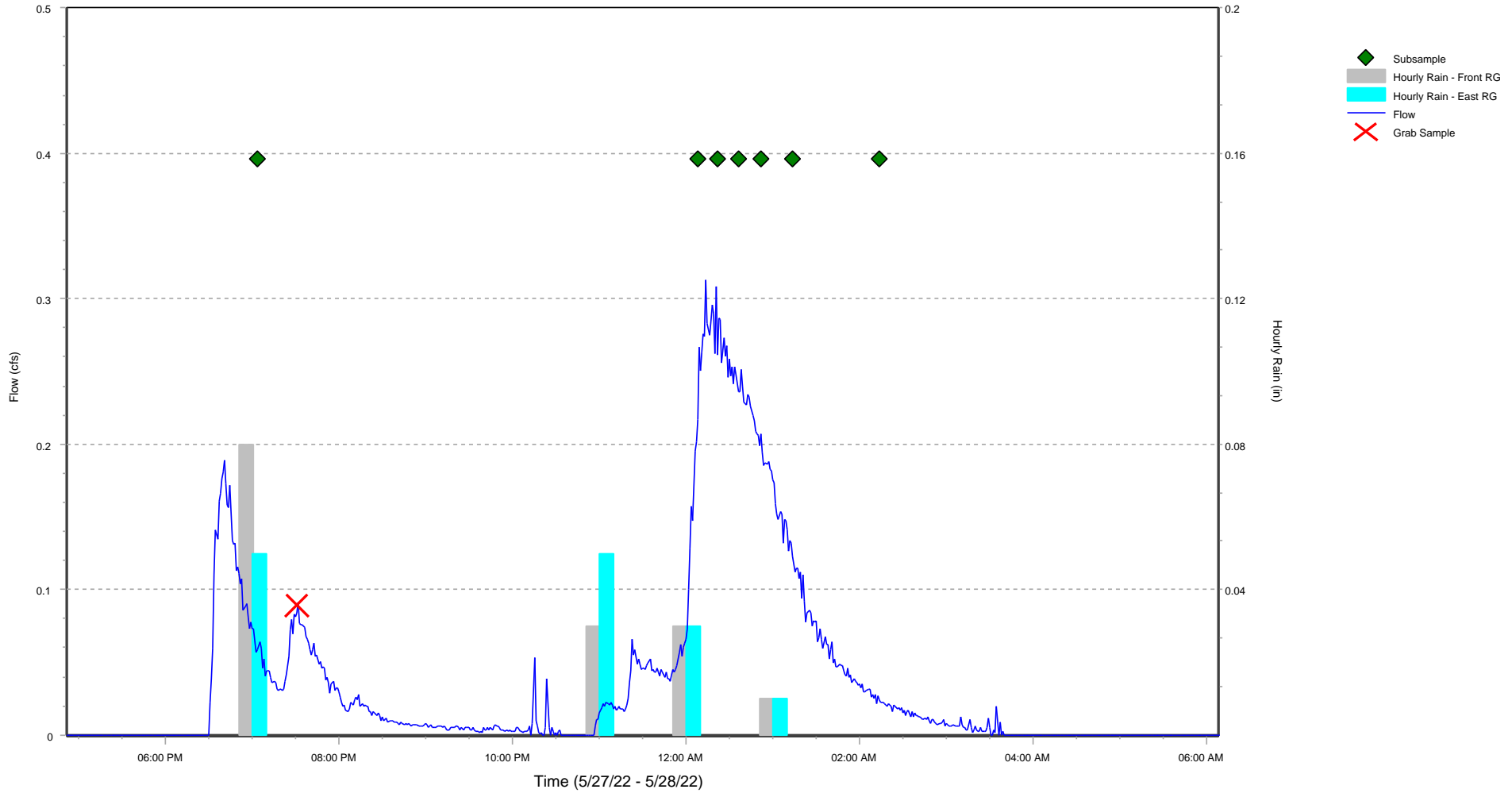
Main Hydrograph



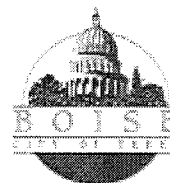
Americana Hydrograph



AS_6 Hydrograph

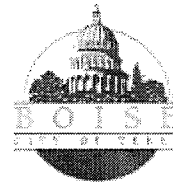


Attachment C: Storm Event Analytical Reports



Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00211-01	ACST1B	220527-03-WG	Water		05/27/2022	05/28/2022
AC00211-02	ACST1B	220527-12-WG	Water		05/27/2022	05/28/2022
AC00211-03	ACST1B	220527-12-101	Water		05/27/2022	05/28/2022
AC00211-04	ACST1B	220527-12-001	Water		05/27/2022	05/28/2022
AC00211-05	ACST1B	220527-206-WG	Water		05/27/2022	05/28/2022



Analysis Report

Location:	ACST1B	Location Description:	220527-12-101
Date/Time Collected:	05/27/2022 12:00	Sample Collector:	T.L
Lab Number:	AC00211-03	Sample Matrix:	Water
Sample Type:	Grab		

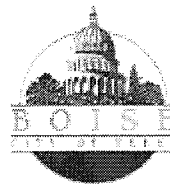
Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Microbiology										
E. Coli	B222058	727.0 MPN/100 mL		1.0	1.0	IDEXX - Colilert	05/28/22 08:30	5/29/22 8:48	ASE	H
Wet Chemistry										
Chlorine Screen	B222059	Absent				SM 4500-CL G-2000 mod	05/28/22	5/28/22 8:36	JAL	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B222058									
Blank (B222058-BLK1)									
E. Coli	Absent						05/29/2022	ASE	
LCS (B222058-BS1)									
E. Coli				Present			05/29/2022	ASE	
Duplicate (B222058-DUP2) Source ID: AC00211-01RE1									
E. Coli					Pass	128	05/29/2022	ASE	



Notes and Definitions


Item	Definition
D	Data reported from a dilution
H	Hold time Exceeded.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846



Janet Finegan-Kelly
Water Quality Laboratory Manager



Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Athn: Monica Lowe
 3775 Adams Street
 Garden City, Idaho 83714-6418
 Tel. (208) 387-6255
 Fax (208) 387-6391

Project:
 Stormwater-PI
 Purchaser Order: 63058181

63058181
 Stormwater-PI
 Transfer Station
 2140 W. 10th
 South Boise

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix		Type	Comments/Special Instructions:
							Water	Grab		
AD0211-01	5/22/22		1957		320527-05-VIG	TZ	X	X		
-62			1924		320527-12-VIG		X	X		
-63			1200		320527-12-101		X	X		
-64			1200		220527-12-001		X	X		
-05			1950		220527-200-VIG		X	X		

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
<i>Monica Lowe</i>	05-27-22 / 2004	<i>John Erickson</i>	
<i>John Erickson</i>	5/17/22 2125	<i>John Erickson</i>	ADD 0211



Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00212-01	ACST1C	220527-12-WC	Water		05/28/2022	05/28/2022
Comments:						
	220527-12-WC					
AC00212-02	ACST1C	220527-14-WC	Water		05/28/2022	05/28/2022
Comments:						
	220527-14-WC					
AC00212-03	ACST1C	220527-206-WC	Water		05/28/2022	05/28/2022
Comments:						
	Low sample volume, no dissolved parameters were split					



Analysis Report

Location: ACST1C
 Date/Time Collected: 05/27/2022 18:15 - 05/28/2022 00:42
 Lab Number: AC00212-01
 Sample Type: Composite

Location Description: 220527-12-WC
 Sample Collector: T.L
 Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Wet Chemistry										
Ammonia, as N	B222094	1.33	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	06/01/22	6/1/22 10:28	ALN	
BOD5	B222063	49.9	mg/L	2.00	2.00	SM 5210 B-2011	05/28/22	6/2/22 9:47	CJP	
COD	B222062	303	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	05/28/22	5/28/22 13:14	MER	
Nitrate-Nitrite, as N	B222313	0.636	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	06/16/22	6/16/22 13:36	ALN	
TKN	B222143	7.04	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	06/06/22	6/7/22 8:58	ALN	
Total Dissolved Solids	B222092	128	mg/L	25.0	25.0	SM 2540 C-2011	06/01/22	6/3/22 8:14	MER	
Total Suspended Solids	B222064	315	mg/L	0.900	0.900	SM 2540 D-2011	05/28/22	5/28/22 12:43	MER	
Turbidity	B222066	121	NTU	1.5	0.3	EPA 180.1, Rev. 2.0 (1993)	05/28/22	5/28/22 12:33	JAL	D

Dissolved Wet Chemistry										
Orthophosphate, as P	B222065	0.215	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	05/28/22	5/28/22 11:53	JAL	

Total Metals										
Mercury	B222108	0.0410	ug/L	0.0100	0.0100	EPA 245.2	06/02/22	6/3/22 9:57	AMO	
Arsenic	B222138	3.7	ug/L	0.040	0.040	EPA 200.8	06/05/22	6/11/22 15:08	DMW	
Cadmium	B222138	0.25	ug/L	0.025	0.025	EPA 200.8	06/05/22	6/11/22 15:08	DMW	
Calcium	B222072	12.0	mg/L	0.0460	0.0460	EPA 200.7	05/30/22	6/7/22 19:46	EDM	
Lead	B222138	17.0	ug/L	0.050	0.050	EPA 200.8	06/05/22	6/11/22 15:08	DMW	
Magnesium	B222072	3710	ug/L	50.0	50.0	EPA 200.7	05/30/22	6/7/22 19:46	EDM	
Phosphorus as P	B222072	0.652	mg/L	6.00E-3	6.00E-3	EPA 200.7	05/30/22	6/7/22 19:46	EDM	
Hardness	B222072	45.2	mg/L	0.115	0.115	EPA 200.7	05/30/22	6/7/22 19:46	EDM	

Dissolved Metals										
Cadmium	B222142	0.031	ug/L	0.025	0.025	EPA 200.8	06/09/22	6/9/22 13:38	DMW	
Copper	B222142	13.7	ug/L	0.15	0.15	EPA 200.8	06/09/22	6/9/22 13:38	DMW	
Lead	B222142	0.29	ug/L	0.050	0.050	EPA 200.8	06/09/22	6/9/22 13:38	DMW	
Zinc	B222142	59.0	ug/L	0.78	0.78	EPA 200.8	06/09/22	6/9/22 13:38	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

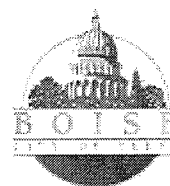


Analysis Report

Location: ACST1C Location Description: 220527-14-WC
 Date/Time Collected: 05/27/2022 18:46 - 05/28/2022 05:15
 Lab Number: AC00212-02 Sample Collector: T.L
 Sample Type: Composite Sample Matrix: Water

Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Wet Chemistry										
Ammonia, as N	B222094	0.972	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	06/01/22	6/1/22 10:53	ALN	
BOD5	B222063	84.7	mg/L	2.00	2.00	SM 5210 B-2011	05/28/22	6/2/22 9:39	CJP	Chlor-01
COD	B222062	224	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	05/28/22	5/28/22 13:15	MER	
Nitrate-Nitrite, as N	B222313	0.863	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	06/16/22	6/16/22 13:41	ALN	
TKN	B222143	4.71	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	06/06/22	6/7/22 8:59	ALN	
Total Dissolved Solids	B222092	225	mg/L	25.0	25.0	SM 2540 C-2011	06/01/22	6/3/22 8:15	MER	
Total Suspended Solids	B222064	115	mg/L	0.900	0.900	SM 2540 D-2011	05/28/22	5/28/22 13:12	MER	
Turbidity	B222066	51.8	NTU	1.5	0.3	EPA 180.1, Rev. 2.0 (1993)	05/28/22	5/28/22 12:41	JAL	D
Dissolved Wet Chemistry										
Orthophosphate, as P	B222065	0.568	mg/L	4.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	05/28/22	5/28/22 12:02	JAL	D
Total Metals										
Mercury	B222108	0.0196	ug/L	0.0100	0.0100	EPA 245.2	06/02/22	6/3/22 10:11	AMO	
Arsenic	B222138	5.9	ug/L	0.040	0.040	EPA 200.8	06/05/22	6/11/22 15:10	DMW	
Cadmium	B222138	0.13	ug/L	0.025	0.025	EPA 200.8	06/05/22	6/11/22 15:10	DMW	
Calcium	B222072	28.8	mg/L	0.0460	0.0460	EPA 200.7	05/30/22	6/7/22 19:51	EDM	
Lead	B222138	5.5	ug/L	0.050	0.050	EPA 200.8	06/05/22	6/11/22 15:10	DMW	
Magnesium	B222072	5950	ug/L	50.0	50.0	EPA 200.7	05/30/22	6/7/22 19:51	EDM	
Phosphorus as P	B222072	1.06	mg/L	6.00E-3	6.00E-3	EPA 200.7	05/30/22	6/7/22 19:51	EDM	
Hardness	B222072	96.4	mg/L	0.115	0.115	EPA 200.7	05/30/22	6/7/22 19:51	EDM	
Dissolved Metals										
Cadmium	B222142	<0.0250	ug/L	0.025	0.025	EPA 200.8	06/09/22	6/9/22 13:48	DMW	U
Copper	B222142	14.0	ug/L	0.15	0.15	EPA 200.8	06/09/22	6/9/22 13:48	DMW	
Lead	B222142	0.28	ug/L	0.050	0.050	EPA 200.8	06/09/22	6/9/22 13:48	DMW	
Zinc	B222142	47.9	ug/L	0.78	0.78	EPA 200.8	06/09/22	6/9/22 13:48	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.

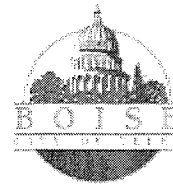


Analysis Report

Location: ACST1C Location Description: 220527-206-WC
 Date/Time Collected: 05/27/2022 19:04 - 05/28/2022 02:14
 Lab Number: AC00212-03 Sample Collector: T.L
 Sample Type: Composite Sample Matrix: Water

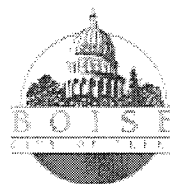
Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Wet Chemistry										
Ammonia, as N	B222094	2.38	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	06/01/22	6/1/22 10:40	ALN	
BOD5	B222063	314	mg/L	2.00	2.00	SM 5210 B-2011	05/28/22	6/2/22 9:34	CJP	
COD	B222062	634	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	05/28/22	5/28/22 13:17	MER	
TKN	B222143	10.7	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	06/06/22	6/7/22 9:01	ALN	
Total Dissolved Solids	B222092	385	mg/L	25.0	25.0	SM 2540 C-2011	06/01/22	6/3/22 8:16	MER	
Total Suspended Solids	B222064	77.3	mg/L	0.900	0.900	SM 2540 D-2011	05/28/22	5/28/22 13:13	MER	
Turbidity	B222066	62.5	NTU	1.5	0.3	EPA 180.1, Rev. 2.0 (1993)	05/28/22	5/28/22 12:38	JAL	D
Total Metals										
Mercury	B222108	0.0260	ug/L	0.0100	0.0100	EPA 245.2	06/02/22	6/3/22 10:14	AMO	
Arsenic	B222138	4.5	ug/L	0.040	0.040	EPA 200.8	06/05/22	6/11/22 15:13	DMW	
Cadmium	B222138	0.12	ug/L	0.025	0.025	EPA 200.8	06/05/22	6/11/22 15:13	DMW	
Calcium	B222072	18.0	mg/L	0.0460	0.0460	EPA 200.7	05/30/22	6/7/22 19:56	EDM	
Lead	B222138	5.1	ug/L	0.050	0.050	EPA 200.8	06/05/22	6/11/22 15:13	DMW	
Magnesium	B222072	5290	ug/L	50.0	50.0	EPA 200.7	05/30/22	6/7/22 19:56	EDM	
Phosphorus as P	B222072	3.93	mg/L	6.00E-3	6.00E-3	EPA 200.7	05/30/22	6/7/22 19:56	EDM	
Hardness	B222072	66.9	mg/L	0.115	0.115	EPA 200.7	05/30/22	6/7/22 19:56	EDM	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B222062									
Blank (B222062-BLK1)									
COD	<13	mg/L					05/28/2022	MER	U
LCS (B222062-BS1)									
COD			96.3	90-110			05/28/2022	MER	
Duplicate (B222062-DUP1) Source ID: AC00212-01									
COD					0.662	10	05/28/2022	MER	
Batch: B222063									
Blank (B222063-BLK1)									
BOD5	<2	mg/L					06/02/2022	CJP	U
LCS (B222063-BS2)									
BOD5			105	84.6-115.4			06/02/2022	CJP	
Duplicate (B222063-DUP1) Source ID: AC00212-01									
BOD5					10.3	30	06/02/2022	CJP	
Batch: B222064									
Blank (B222064-BLK1)									
Total Suspended Solids	<0.9	mg/L					05/28/2022	MER	U
LCS (B222064-BS1)									
Total Suspended Solids			98.7	90-110			05/28/2022	MER	
Duplicate (B222064-DUP1) Source ID: AC00212-01									
Total Suspended Solids					2.52	20	05/28/2022	MER	
Batch: B222066									
Blank (B222066-BLK1)									
Turbidity	<0.3	NTU					05/28/2022	JAL	U
LCS (B222066-BS1)									
Turbidity			99.7	90-110			05/28/2022	JAL	
Duplicate (B222066-DUP1) Source ID: AC00212-01									
Turbidity					1.92	25	05/28/2022	JAL	D



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222092									
Blank (B222092-BLK1)									
Total Dissolved Solids	<25	mg/L					06/03/2022	MER	U
LCS (B222092-BS1)									
Total Dissolved Solids			100	90-110			06/03/2022	MER	
Duplicate (B222092-DUP1) Source ID: AC00212-02									
Total Dissolved Solids					NR	10	06/03/2022	MER	
Batch: B222094									
Blank (B222094-BLK1)									
Ammonia, as N	<0.035	mg/L					06/01/2022	ALN	U
LCS (B222094-BS1)									
Ammonia, as N			97.9	90-110			06/01/2022	ALN	
Duplicate (B222094-DUP1) Source ID: WB01875-07									
Ammonia, as N					1.24	10	06/01/2022	ALN	
Duplicate (B222094-DUP2) Source ID: WB01959-01									
Ammonia, as N					1.25	10	06/01/2022	ALN	
Matrix Spike (B222094-MS1) Source ID: WB01875-07									
Ammonia, as N			104	80-120			06/01/2022	ALN	
Matrix Spike (B222094-MS2) Source ID: WB01959-01									
Ammonia, as N			100	80-120			06/01/2022	ALN	
Matrix Spike Dup (B222094-MSD1) Source ID: WB01875-07									
Ammonia, as N			105	80-120	0.492	10	06/01/2022	ALN	
Matrix Spike Dup (B222094-MSD2) Source ID: WB01959-01									
Ammonia, as N			97.6	80-120	1.82	10	06/01/2022	ALN	
Batch: B222143									
Blank (B222143-BLK1)									
TKN	<0.1	mg/L					06/07/2022	ALN	U
Blank (B222143-BLK2)									
TKN	<0.1	mg/L					06/07/2022	ALN	U
LCS (B222143-BS1)									
TKN			105	80-120			06/07/2022	ALN	
LCS (B222143-BS2)									
TKN			97.4	80-120			06/07/2022	ALN	
Duplicate (B222143-DUP1) Source ID: AC00212-03									
TKN					3.97	20	06/07/2022	ALN	
Duplicate (B222143-DUP2) Source ID: BB02122-02									
TKN					4.63	20	06/07/2022	ALN	D
Duplicate (B222143-DUP3) Source ID: WB01890-07									
TKN					2.74	20	06/07/2022	ALN	D
Matrix Spike (B222143-MS1) Source ID: AC00212-03									
TKN			109	80-120			06/07/2022	ALN	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222143 (Continued)									
Matrix Spike (B222143-MS2)	Source ID: BB02122-02								
TKN			95.5	80-120			06/07/2022	ALN	D
Matrix Spike (B222143-MS3)	Source ID: WB01890-07								
TKN			87.3	80-120			06/07/2022	ALN	D
Matrix Spike Dup (B222143-MSD1)	Source ID: AC00212-03								
TKN			107	80-120	0.611	20	06/07/2022	ALN	
Matrix Spike Dup (B222143-MSD2)	Source ID: BB02122-02								
TKN			110	80-120	4.96	20	06/07/2022	ALN	D
Matrix Spike Dup (B222143-MSD3)	Source ID: WB01890-07								
TKN			96.0	80-120	3.58	20	06/07/2022	ALN	D
Batch: B222313									
Blank (B222313-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
Blank (B222313-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
Blank (B222313-BLK3)									
Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
LCS (B222313-BS1)									
Nitrate-Nitrite, as N			96.0	90-110			06/16/2022	ALN	
LCS (B222313-BS2)									
Nitrate-Nitrite, as N			95.7	90-110			06/16/2022	ALN	
LCS (B222313-BS3)									
Nitrate-Nitrite, as N			95.2	90-110			06/16/2022	ALN	
Duplicate (B222313-DUP1)	Source ID: AC00212-01								
Nitrate-Nitrite, as N					0.194	10	06/16/2022	ALN	
Duplicate (B222313-DUP2)	Source ID: BB02120-01								
Nitrate-Nitrite, as N					0.276	10	06/16/2022	ALN	
Duplicate (B222313-DUP3)	Source ID: BB02130-01								
Nitrate-Nitrite, as N					0.773	10	06/16/2022	ALN	
Duplicate (B222313-DUP4)	Source ID: BB02136-04								
Nitrate-Nitrite, as N					0.212	10	06/16/2022	ALN	
Duplicate (B222313-DUP5)	Source ID: LS01194-02								
Nitrate-Nitrite, as N					NR	10	06/16/2022	ALN	U
Duplicate (B222313-DUP6)	Source ID: WB01908-07								
Nitrate-Nitrite, as N					NR	10	06/16/2022	ALN	U
Matrix Spike (B222313-MS1)	Source ID: AC00212-01								
Nitrate-Nitrite, as N			96.0	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS2)	Source ID: BB02120-01								
Nitrate-Nitrite, as N			91.9	90-110			06/16/2022	ALN	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
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Wet Chemistry (Continued)

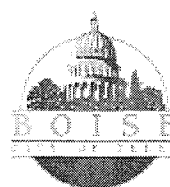
Batch: B222313 (Continued)

Matrix Spike (B222313-MS3) Nitrate-Nitrite, as N	Source ID: BB02130-01		96.5	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS4) Nitrate-Nitrite, as N	Source ID: BB02136-04		94.2	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS5) Nitrate-Nitrite, as N	Source ID: LS01194-02		94.7	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS6) Nitrate-Nitrite, as N	Source ID: WB01908-07		95.1	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS7) Nitrate-Nitrite, as N	Source ID: WQ00115-08		95.4	90-110			06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD1) Nitrate-Nitrite, as N	Source ID: AC00212-01		95.5	90-110	0.373	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD2) Nitrate-Nitrite, as N	Source ID: BB02120-01		92.2	90-110	0.0919	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD3) Nitrate-Nitrite, as N	Source ID: BB02130-01		95.9	90-110	0.537	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD4) Nitrate-Nitrite, as N	Source ID: BB02136-04		93.6	90-110	0.200	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD5) Nitrate-Nitrite, as N	Source ID: LS01194-02		95.4	90-110	0.700	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD6) Nitrate-Nitrite, as N	Source ID: WB01908-07		95.1	90-110	0.0336	10	06/16/2022	ALN	

Dissolved Wet Chemistry

Batch: B222065

Blank (B222065-BLK1) Orthophosphate, as P		<0.002 mg/L					05/28/2022	JAL	U
LCS (B222065-BS1) Orthophosphate, as P			99.2	90-110			05/28/2022	JAL	
Duplicate (B222065-DUP1) Orthophosphate, as P	Source ID: AC00212-01				0.761	10	05/28/2022	JAL	
Matrix Spike (B222065-MS1) Orthophosphate, as P	Source ID: AC00212-01		107	90-110			05/28/2022	JAL	
Matrix Spike Dup (B222065-MSD1) Orthophosphate, as P	Source ID: AC00212-01		106	90-110	0.456	10	05/28/2022	JAL	



Quality Control Report

(Continued)

Analyte Name	Method	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B222072									
Blank (B222072-BLK1)									
Calcium	<0.046	mg/L					06/07/2022	EDM	U
Magnesium	<50	ug/L					06/07/2022	EDM	U
Phosphorus as P	<0.006	mg/L					06/07/2022	EDM	U
LCS (B222072-BS1)									
Calcium			101	85-115			06/07/2022	EDM	
Magnesium			104	85-115			06/07/2022	EDM	
Phosphorus as P			112	85-115			06/07/2022	EDM	
Duplicate (B222072-DUP1) Source ID: AC00212-03									
Calcium					0.247	20	06/07/2022	EDM	
Magnesium					0.190	20	06/07/2022	EDM	
Phosphorus as P					0.557	20	06/07/2022	EDM	
Matrix Spike (B222072-MS1) Source ID: AC00212-03									
Calcium			99.2	70-130			06/07/2022	EDM	
Magnesium			101	70-130			06/07/2022	EDM	
Phosphorus as P			98.6	70-130			06/07/2022	EDM	
Matrix Spike Dup (B222072-MSD1) Source ID: AC00212-03									
Calcium			97.6	70-130	0.652	20	06/07/2022	EDM	
Magnesium			101	70-130	0.462	20	06/07/2022	EDM	
Phosphorus as P			116	70-130	3.48	20	06/07/2022	EDM	
Batch: B222108									
Blank (B222108-BLK1)									
Mercury	<0.01	ug/L					06/03/2022	AMO	U
LCS (B222108-BS1)									
Mercury			103	85-115			06/03/2022	AMO	
Duplicate (B222108-DUP1) Source ID: WR00029-01									
Mercury					NR	20	06/03/2022	AMO	U
Duplicate (B222108-DUP2) Source ID: AC00212-01									
Mercury					16.1	20	06/03/2022	AMO	
Matrix Spike (B222108-MS1) Source ID: WR00029-01									
Mercury			108	70-130			06/03/2022	AMO	
Matrix Spike (B222108-MS2) Source ID: AC00212-01									
Mercury			97.2	70-130			06/03/2022	AMO	
Matrix Spike Dup (B222108-MSD1) Source ID: WR00029-01									
Mercury			101	70-130	7.43	20	06/03/2022	AMO	
Matrix Spike Dup (B222108-MSD2) Source ID: AC00212-01									
Mercury			97.3	70-130	0.0578	20	06/03/2022	AMO	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B222138									
Blank (B222138-BLK1)									
Arsenic	<0.040	ug/L					06/11/2022	DMW	U
Cadmium	<0.025	ug/L					06/11/2022	DMW	U
Lead	<0.050	ug/L					06/11/2022	DMW	U
LCS (B222138-BS1)									
Arsenic			101	85-115			06/11/2022	DMW	
Cadmium			102	85-115			06/11/2022	DMW	
Lead			104	85-115			06/11/2022	DMW	
Duplicate (B222138-DUP1) Source ID: WB01890-10									
Arsenic					0.813	20	06/11/2022	DMW	
Cadmium					NR	20	06/11/2022	DMW	U
Lead					1.07	20	06/11/2022	DMW	
Matrix Spike (B222138-MS1) Source ID: WB01890-10									
Arsenic			100	70-130			06/11/2022	DMW	
Cadmium			99.4	70-130			06/11/2022	DMW	
Lead			98.9	70-130			06/11/2022	DMW	
Matrix Spike Dup (B222138-MSD1) Source ID: WB01890-10									
Arsenic			103	70-130	2.29	20	06/11/2022	DMW	
Cadmium			100	70-130	1.02	20	06/11/2022	DMW	
Lead			99.6	70-130	0.687	20	06/11/2022	DMW	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B222142									
Blank (B222142-BLK1)									
Cadmium	<0.025	ug/L					06/09/2022	DMW	U
Copper	<0.15	ug/L					06/09/2022	DMW	U
Lead	<0.050	ug/L					06/09/2022	DMW	U
Zinc	<0.78	ug/L					06/09/2022	DMW	U
LCS (B222142-BS1)									
Cadmium			105	85-115			06/09/2022	DMW	
Copper			105	85-115			06/09/2022	DMW	
Lead			106	85-115			06/09/2022	DMW	
Zinc			107	85-115			06/09/2022	DMW	
Duplicate (B222142-DUP1) Source ID: AC00212-01									
Cadmium					6.50	10	06/09/2022	DMW	
Copper					0.713	10	06/09/2022	DMW	
Lead					0.0662	10	06/09/2022	DMW	
Zinc					0.121	10	06/09/2022	DMW	
Matrix Spike (B222142-MS1) Source ID: AC00212-01									
Cadmium			104	70-130			06/09/2022	DMW	
Copper			99.9	70-130			06/09/2022	DMW	
Lead			102	70-130			06/09/2022	DMW	
Zinc			104	70-130			06/09/2022	DMW	
Matrix Spike Dup (B222142-MSD1) Source ID: AC00212-01									
Cadmium			100	70-130	4.12	10	06/09/2022	DMW	
Copper			97.8	70-130	0.880	10	06/09/2022	DMW	
Lead			98.6	70-130	3.69	10	06/09/2022	DMW	
Zinc			100	70-130	1.25	10	06/09/2022	DMW	



Notes and Definitions


Item	Definition
Chlor-01	The sample exhibited a false positive for the chlorine screen.
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846



Janet Finegan-Kelly
Water Quality Laboratory Manager



Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Ada County Highway District

Attn: Monica Lowe
 3775 Adams Street
 Garden City, Idaho 83714-6418
 Tel. (208) 387-6255
 Fax (208) 387-6391
 Purchase Order: 63058181

Stormwater-PI
 Tammy Lightle

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix		Type																
							Water	Grab	Composite	BOD ₅ - SM 5210 B	COD - Hach 8000	TSS - SM 2540 D	TDS - SM 2540 C	TKN - EPA 351.2	TP - EPA 200.7	Orthophosphate - EPA 365.1	Total As, Cd, Pb - EPA 200.8	Diss. Cd Cu, Pb, Zn - EPA 200.8	Total Hg - EPA 245.2	E. Coli - IDEXX Colilert	Turbidity - EPA 180.1	Hardness - EPA 200.7	NO ₃ +NO ₂ - EPA 353.2	NH ₃ - SM 4500 NH ₃ - D	Total Containers
AC00212-01	5/27/22	5/28/22	1815	0042	220527-12-WC	TL	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1
-02	5/27/22	5/28/22	1846	0515	220527-14-WC	TL	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1
-03	5/27/22	5/28/22	1904	0214	220527-206-WC	TL	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:
<i>Tammy Lightle</i>	220528 / 0956	<i>Jack</i>	Sample 220527-206-WC has low volume. IF unable to run all tests, drop diss. metals (Cd, Cu, Pb, Zn). IF still unable, drop ortho-P.
			AC00212

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: <u>ACC0212-02</u> Location: <u>ACST1C</u> Sample Date: <u>5-28-22</u> Sample ID: _____	Split Date: <u>5-28-22</u> Start Split: <u>1017</u> Start Filter: <u>1017</u> Comp Time: _____ Analyst: <u>AMODVY DMW</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: <u>CC00074-102</u> Comp Jug: _____ SS Tubing: <u>CC00027-81</u> SS Helper: <u>↓ (55A2)</u> Stir Bar: <u>CC00027-57</u> Connector: <u>CC00027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TTKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	
Lims#: <u>ACC0212-01</u> Location: <u>ACST1C</u> Sample Date: <u>5-28-22</u> Sample ID: <u>12-WC</u>	Split Date: <u>5-28-22</u> Start Split: <u>1030</u> Start Filter: <u>1030</u> Comp Time: _____ Analyst: <u>AMODVY DMW</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input checked="" type="checkbox"/> Other: <u>10.0µm</u>	Coll Jug: <u>CC00074-58</u> Comp Jug: _____ SS Tubing: <u>CC00027-59</u> SS Helper: <u>↓ (55A5)</u> Stir Bar: <u>CC00027-45</u> Connector: <u>CC00027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TTKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	No Diss Parameters Split; Inefficient Sample
Lims#: <u>ACC0212-03</u> Location: <u>ACST1C</u> Sample Date: <u>5-28-22</u> Sample ID: <u>206-WC</u>	Split Date: <u>5-28-22</u> Start Split: <u>1051</u> Start Filter: <u>1051</u> Comp Time: _____ Analyst: <u>AMW DTE DMW</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input checked="" type="checkbox"/> Other: <u>None</u>	Coll Jug: <u>CC00074-59</u> Comp Jug: _____ SS Tubing: <u>CC00027-81</u> SS Helper: <u>↓ (55A6)</u> Stir Bar: <u>CC00027-45</u> Connector: <u>CC00027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TTKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	Only (3) composite samples for this event
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: <u>CC00027-13</u> SS Helper: <u>↓ (55A7)</u> Stir Bar: <u>CC00027-45</u> Connector: <u>CC00027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TTKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: <u>CC00027-31</u> SS Helper: <u>↓ (5517)</u> Stir Bar: <u>CC00027-12</u> Connector: <u>CC00027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TTKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P <input checked="" type="checkbox"/> Turb	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	

Attachment D: Field Forms

Grab Sample Data Form

STATION: Lucky

Personnel: J. Ekhoff, Z. Lapa Date/Time On-Site: 19:43 5-27-22

Flow Meter Current Status						
Time	Level (in)	Flow (cfs) gpm	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
19:57	3.15	42.75	0.35	12.08	5/27/22 11:08	

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E. Coli</i>	220527-03-WG	5/27/22	19:57	<input checked="" type="checkbox"/>
Field Duplicate <i>E. Coli</i>	-101			<input type="checkbox"/>
Field Blank <i>E. Coli</i>	-001			<input type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP09	19:57	20.53	5.86	7.42	189.07

Sampler Current Status	
First Subsample Date/Time	5/27/22 11:08
Last Subsample Date/Time	5/27/22 19:39
# of Subsamples taken	4

Comments:

Set Up/ Shut Down Form – HACH

STATION: Lucky

SET UP

Personnel: TLL MMJ

Date/Time

On-Site: 220527 1021

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1021	1.8	0	0	12.9
Downloaded to:				
		Velocity Cutoff: <u>2.3 level greater than 2.3</u>		
		Trigger Volume: <u>2875 gal</u>		

Deadband 1 in

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

SHUT DOWN

Personnel: TLL

Date/Time

On-Site: 220531 / 1052

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1055	1.90	0 ^{9pm} 103.717	0		12.3
		Downloaded to: <u>USB - green one</u>			

<p>If flow monitoring is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Halt program on flowmeter <input checked="" type="checkbox"/> Download flowmeter data <input checked="" type="checkbox"/> Remove flowmeter battery 	<p>If continuing to monitor flow:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input type="checkbox"/> Reset logging interval to 15 minutes <input type="checkbox"/> Change velocity cutoff to 0.02 fps <input type="checkbox"/> Start program <input type="checkbox"/> Verify running
--	--

Comments:

Composite Sample Collection

STATION: Lucky
 Personnel: RL

Bottle 1 of 0
 Date/Time On-Site: 220528 / 0913

<input checked="" type="checkbox"/> Halt Sampler program	
<input type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	<u>~3500 mL ~ 5000 mL</u>
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	5/27 1108	Success	13		
2	↓ 1841	↓	14		
3	↓ 1907		15		
4	↓ 1939		16		
5	↓ 2125		17		
6	5/28 0024		18		
7	↓ 0058		19		
8	↓ 0218		20		
9			21		
10			22		
11			23		
12			24		

Comments:

The 1st subsample was ~~not~~ storm flow, and due to small amount of subsamples it makes up for 12.5% of the composite. The sample will be rejected anyway, so it was dumped - nothing submitted to lab.

<p>If sampling is complete:</p> <input type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab	<p>If continuing sampling (sample bottle change-out):</p> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle, add ice <input type="checkbox"/> Restart program from beginning Date/Time Restarted: _____ <input type="checkbox"/> Verify running
---	---

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

15CO

Set Up/ Shut Down Form – Phase II

STATION: Whitewater

UP

Personnel: TLL MMJ

Date/Time On-Site: 220527 1055

Date	Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
220527	1055	-0.04	0	0	0	NA
Downloaded to:						
Trigger Condition:		level > 1.5" hysteresis = 1"				
Flow Pulse Interval:		800 cf				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace battery if v<11.9 <input checked="" type="checkbox"/> Perform Decon. Cycle <input checked="" type="checkbox"/> Place 15L sample bottle in cooler, with ice <input checked="" type="checkbox"/> Remove jar lid and put in clean re-sealable plastic bag <input checked="" type="checkbox"/> Set Sampler program parameters (refer Table 103) <input checked="" type="checkbox"/> Verify all cable and tubing connections <input checked="" type="checkbox"/> Verify Sampler Program is running <input checked="" type="checkbox"/> Verify latches are secure 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or Remote, Date/time <u>220527 / 0816</u> <input checked="" type="checkbox"/> Retrieve data and review recent flow history <input checked="" type="checkbox"/> Change Wireless Power Control to Storm Event <input checked="" type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, and Flow <input checked="" type="checkbox"/> Enable Sampler: On Trigger, and set velocity equation <input type="checkbox"/> Set Latch <input checked="" type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
---	---

Comments:

Date/Time Off-Site: 220527 1107

SHUT DOWN

Personnel: TLL

Date/Time On-Site: 220531 / 1024

Date	Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
5/31	1024	-0.02	0	0		
Downloaded to: —						

<p>On-Site</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace battery if v<11.9 <input checked="" type="checkbox"/> Remove battery from Sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or Remote; Date/time <u>220531 / 1537</u> <input checked="" type="checkbox"/> Retrieve data <input checked="" type="checkbox"/> Change Wireless Power Control to Dry Weather <input checked="" type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, and Flow <input checked="" type="checkbox"/> Enable Sampler: Never
--	--

Comments:

Date/Time Off-Site: _____

Composite Sample Collection

STATION: Whitewater
 Personnel: TLL

Bottle 0 of 0
 Date/Time On-Site: 220528 / 0855

<input type="checkbox"/> Halt Sampler program	
<input type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	5/27 2055	No liquid detected	13		
2	5/28 0000	↓	14		
3	0034		15		
4	0054		16		
5	0120		17		
6	0205		18		
7			19		
8		20			
9		21			
10		22			
11		23			
12		24			

Comments:

This is the 2nd bottle - but neither worked. Nothing to submit to lab.

*For the 1st bottle, the team on-site noticed that the majority of the 17 attempted samples had "no liquid detected" errors. They tried purging and then successfully grabbed liquid. The sample program was restarted to see if the clog was gone.

<p>If Sampling is Complete:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Power off Samplers <input type="checkbox"/> Disable Flow Meter pacing <input type="checkbox"/> Resume Flow Meter program <input type="checkbox"/> Verify Flow Meter is running <input type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab <input type="checkbox"/> Current Velocity Cutoff (fps): _____ 	<p>If Continuing Sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep Flow Meter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning; Date/Time Restarted: _____ <input type="checkbox"/> Verify running
---	---

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form

STATION: Main

Personnel: TLL MMS Date/Time On-Site: 220527 1920

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1932	3.35	79.26 ^{gpm}	0.59	13.0		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	220527-12 -WG	220527	1924	<input checked="" type="checkbox"/>
Field Duplicate <i>E.Coli</i>	220527-12 -101	220527	1926	<input checked="" type="checkbox"/>
Field Blank <i>E.Coli</i>	220527-12 -001	220527	1929	<input checked="" type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP08	1931	21.82	6.02	6.92	156.7

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	9

Comments:

Set Up/ Shut Down Form – HACH

STATION: Main

SET UP

Personnel: TLL MMJ

Date/Time

On-Site: 220527 057

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
<u>220527(057)</u>	<u>1.34</u>	<u>0</u>	<u>0</u>	<u>12.9</u>
Downloaded to:				
Velocity Cutoff: <u>level greater than 2.8 Deadband 1.45</u>				
Trigger Volume: <u>3410 gal</u>				

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

SHUT DOWN

Personnel: TLL

Date/Time

On-Site: 220531 / 0900

Time	Level (in)	Flow (cfs) <small>gpm</small>	Velocity (fps)	Total (cf)	Battery (V)
<u>0902</u>	<u>1.96</u>	<u>6.20</u>	<u>0.10</u>		<u>12.3</u>
Downloaded to: <u>USB - green one</u>					

If flow monitoring is complete:

- Halt program on flowmeter
- Download flowmeter data
- Remove flowmeter battery

If continuing to monitor flow:

- Replace flowmeter battery
- Reset logging interval to 15 minutes
- Change velocity cutoff to 0.02 fps
- Start program
- Verify running

Comments:

Composite Sample Collection

STATION: Main
 Personnel: RL

Bottle 1 of 1

Date/Time On-Site: 220528 / 0838

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220527-12	-WC
Approx Sample Volume (mL):	8750 mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	5/27 0928	Rinse Error	13	5/27 2345	Success
2	1815	Success	14	2358	
3	1822		15	5/28 0014	
4	1828		16	0042	
5	1833		17	↓ 0329	Rinse Error
6	1839		18		
7	1846		19		
8	1855		20		
9	1908		21		
10	1934		22		
11	2309		23		
12	2332		24		

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle, add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
---	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

15CO

Set Up/ Shut Down Form – Phase II

STATION: Americana

UP

Personnel: TLL MNTS

Date/Time On-Site: 220527 919

Date	Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
220527	919	4.69	0.83	1.322	NA	11.98
Downloaded to:						
Trigger Condition:		level > 6.2" hysteresis 1.5"				
Flow Pulse Interval:		2960 cf				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace battery if v<11.9 <input checked="" type="checkbox"/> Perform Decon. Cycle <input checked="" type="checkbox"/> Place 15L sample bottle in cooler, with ice <input checked="" type="checkbox"/> Remove jar lid and put in clean re-sealable plastic bag <input checked="" type="checkbox"/> Set Sampler program parameters (refer Table 103) <input checked="" type="checkbox"/> Verify all cable and tubing connections <input checked="" type="checkbox"/> Verify Sampler Program is running <input checked="" type="checkbox"/> Verify latches are secure 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or Remote; Date/time <u>220527 / 825</u> <input checked="" type="checkbox"/> Retrieve data and review recent flow history <input checked="" type="checkbox"/> Change Wireless Power Control to Storm Event <input checked="" type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, and Flow <input checked="" type="checkbox"/> Enable Sampler: On Trigger, and set velocity equation <input checked="" type="checkbox"/> Set Latch <input checked="" type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
---	---

Comments:

Date/Time Off-Site: 220527 932

SHUT DOWN

Personnel: TLL

Date/Time On-Site: 220531 / 0912

Date	Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
5/31	0912	5.67	0.84	1.003		11.53
Downloaded to:						

<p>On-Site</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace battery if v<11.9 <input checked="" type="checkbox"/> Remove battery from Sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or <u>Remote</u> Date/time <u>220531 / 1540</u> <input checked="" type="checkbox"/> Retrieve data <input checked="" type="checkbox"/> Change Wireless Power Control to Dry Weather <input checked="" type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, and Flow <input checked="" type="checkbox"/> Enable Sampler: Never
--	--

Comments:

Forgot to bring a new batt - will do later.

Date/Time Off-Site: _____

Composite Sample Collection

STATION: Americana
 Personnel: TLL

Bottle 1 of 1
 Date/Time On-Site: 220528 / 0802

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220527 -14	-WC
Approx Sample Volume (mL):	14000 mL	
Clarity (ex. Clear, Cloudy, Silty):	5. Cloudy - pollen	
Color (ex. Clear, Gray, Tan, Brown, Black):	light brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information							
Trigger #	Date/Time		Sampler Message/ Subsample Result	Trigger #	Date/Time		Sampler Message/ Subsample Result
1	5/27	1846	Success	13	5/27	2356	Success
2		1857		14	5/28	0006	
3		1908		15		0017	
4		1922		16		0032	
5		1943		17		0048	
6		2011		18		0108	
7		2049		19		0132	
8		2141		20		0202	
9		2239		21		0241	
10		2318		22		0327	
11		2332		23		0419	
12		2345		24		0515	

Comments:

<p>If Sampling is Complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off Samplers <input type="checkbox"/> Disable Flow Meter pacing <input type="checkbox"/> Resume Flow Meter program <input type="checkbox"/> Verify Flow Meter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab <input type="checkbox"/> Current Velocity Cutoff (fps): _____ 	<p>If Continuing Sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep Flow Meter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning; Date/Time Restarted: _____ <input type="checkbox"/> Verify running
--	---

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form – Phase I , Phase II

STATION: AS 6

Personnel: LLMMS Date/Time On-Site: 220527 1940

Flow Meter Current Status						
Level (in)	Flow (cfs)	Total Flow (cf)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
1.541	0.03	394	0.38	12.6		

Grab Information				
	Site ID	Date	Time	Labeled?
Site <i>E. Coli</i>	220527-206 -WG	220527	1950	<input checked="" type="checkbox"/>
Field Duplicate <i>E. Coli</i>	-101	220527		<input type="checkbox"/>
Field Blank <i>E. Coli</i>	-001	220527		<input type="checkbox"/>

Field Parameters						
Meter number	Date	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	Cond (uS/cm)
MR08	220527	1955	18.8	4.04	6.31	356.6

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	1

Comments: 220527-206-WG very dark ~~the~~ brown.

Date/Time Off-Site: _____

Set Up/ Shut Down Form – HACH

STATION: 156

SET UP

Personnel: TLL MMJ

Date/Time
On-Site: 220527 941

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
950	0	0	0	17.06
Downloaded to:				
			Velocity Cutoff: <u>0.02</u>	
			Trigger Volume: <u>271 cf</u>	

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

SHUT DOWN

Personnel: TLL

Date/Time
On-Site: 220531 / 0922

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
0922	0.506	0	0	35568	12.3
Downloaded to: <u>R12</u>					

If flow monitoring is complete:

- Halt program on flowmeter
- Download flowmeter data
- Remove flowmeter battery

If continuing to monitor flow:

- Replace flowmeter battery
- Reset logging interval to 15 minutes
- Change velocity cutoff to 0.02 fps
- Start program
- Verify running

Comments:

Composite Sample Collection

STATION: AS-6
 Personnel: TZL

Bottle 1 of 1
 Date/Time On-Site: 220528 / 0820

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220527-206	-WC
Approx Sample Volume (mL):	5000 mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	5/27 1904	Success	13		
2	1 2046	Rinse Error	14		
3	5/28 0008	Success	15		
4	↓ 0022	↓	16		
5	0036		17		
6	0052		18		
7	0114		19		
8	↓ 0214	↓	20		
9			21		
10			22		
11			23		
12			24		

Comments:
low volume

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle, add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for June 5, 2022

Date: August 18, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the June 5, 2022 storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2022 Phase I Stormwater Outfall Monitoring.

Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
November 9, 2021	C	C	-	-	-
March 15, 2022	G, C	G, C	G, C	G, C	G, C
April 4, 2022	-	G	-	G	-
May 27, 2022	G ¹	-	G ¹ , C	C	G ¹ , C ²
June 5, 2022	C	C ³	-	C ³	C
Collected:	2G, 3C	3G, 2C	2G, 3C	3G, 3C	2G, 3C

Notes:

C = composite sample.

G = grab sample.

¹ E. coli sample qualified due to exceeded hold time

² No data on dissolved parameters or NO_x due to low composite sample volume

³ Composite samples rejected due to lack of representativeness

After the June 5, 2022 storm event, ACHD still needs to collect one grab sample from Lucky, Main, and AS_6 and one composite sample from Whitewater.

Section 3: Storm Event Summary

The June 5, 2022 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A detailed summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form that describes the forecast and summarizes the decision-making process from June 3, 2022 is included in Attachment A for reference.

Friday, June 3, 2022

- The morning of June 3, 2022 the National Weather Service issued a forecast for rain showers and convective thunderstorms in the Boise area on Sunday, June 5, 2022. Rainshadowing was not expected. The chance of precipitation was 90 percent, with 0.12 in of precipitation forecasted.
- Setup was accomplished the afternoon of Friday, June 3. An expected precipitation depth of 0.19 inch was initially used to set trigger volumes at monitoring stations. Due to a change in the forecast, the precipitation depth was changed to 0.11 inch the evening of Saturday, June 4.

Sunday, June 5, 2022

- Light rain started around 1600 and continued for a half an hour. Another wave of light rain started around 1800 and continued for a half an hour. Heavy rain from convective thunderstorms started around 2300 and continued for an hour.
- Precipitation totals ranged between 0.16 and 0.22 inch at local rain gauges.

Flow measurements and precipitation data are included in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

Lucky, Whitewater, Americana, and AS_6 monitoring stations were set up the afternoon of June 3, 2022 to collect flow proportional composite samples during the storm. Sampler enable conditions were programed into the Lucky, Whitewater, and Americana flowmeters. A site-specific velocity cutoff value was programmed into the AS_6 flowmeter. Setup and sampling information is included in Table 1. The field forms completed during setup/shut down and sampling can be found in Attachment D.

Composite Samples

Composite samples were collected at the Lucky, Whitewater, Americana, and AS_6 monitoring stations. The Americana composite sampler was disabled from 20:22 - 23:40 since only background flow was present, not stormwater flow, during that time frame. All composite samples were submitted to the WQL on June 6, 2022 at 1204. Analytical results are included in Table 2. Pollutant loading estimates for the event are included in Table 3.

Section 4: Quality Assurance/Quality Control

A summary of quality control (QC) samples collected during the June 5, 2022 storm event is presented below in Table 4-1. A composite blank was collected from the Main monitoring station. Analytical results for these samples are included in Table 4.

Sample ID	Sample Type	Conclusions
220605-12-002	Composite Blank	TKN and dissolved copper were detected in the sample

TKN and dissolved copper were detected in the Main composite blank. According to the Quality Assurance Project Plan (QAPP), when an analytical parameter is detected in a blank, all analytical results associated with the blank exhibiting a concentration of less than five times the concentration of the blank will be qualified. All concentrations above five times the blank value will be considered valid because any blank contamination is well below the sample concentration. TKN and dissolved copper detected in the Lucky, Whitewater, Americana, and AS_6 composite samples were greater than five times of the concentration detected in the blank, therefore, the Lucky, Whitewater, Americana, and AS_6 composite samples will be accepted.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. Acceptance and performance criteria for analytical and non-analytical data were met for the Lucky and AS_6 composite samples. Acceptance and performance criteria for analytical and non-analytical data were not met for the Whitewater and Americana composite samples since the composite samples did not represent greater than 75% of the storm and the composite sampling duration was less than six hours.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Americana ¹	AS_6
Grab samples collected and submitted?	NO	NO	NO	NO
Composite samples collected and submitted?	YES	YES	YES	YES
Trigger volume	2895 gal	800 ft ³	2960 ft ³	221 ft ³
Velocity cutoff (fps)	--	--	--	0.02
Sampler enable condition (in)	level > 3.1	level > 2.0	level > 11.25	--
Runoff start time	6/5/22 16:17	6/5/22 23:08	6/5/22 17:38	6/5/22 17:55
Grab sample collection time	--	--	--	--
Composite sample stop time	6/5/22 23:58	6/6/22 0:25	6/5/22 23:40	6/6/22 0:38
Runoff stop time	6/6/22 2:53	6/6/22 4:41	6/6/22 2:03	6/6/22 3:02
Volume of discharge sampled (ft ³)	10,589	4,857	70,671	5,370
Total runoff volume (ft ³)	17,012	28,199	201,600	6,806
Percent of storm flow sampled (%)	62%	17%	35%	79%
Composite sample duration (hrs)	7.5	1.0	4.0	6.5
Storm Precipitation (in)	0.22	0.17	0.20/0.16	0.20/0.16
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front/East	Front/East
Sampler messages (counts): Success	24	5	24	24
Number of composite bottles filled	1	1	1	1
Composite sample volume (Approx.; ml)	12,500	7,250	14,750	15,500

Notes:

¹ The sampler at Americana was disabled from 20:22 - 23:40

Table 2. Field and Analytical Data Summary - Wet Samples

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters					E. coli mpn/100 mL	Sample ID Composite	Analytical Parameters																	
			Dissolved Oxygen	pH	Conductivity	Temperature	BOD ₅			COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate, as P	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C																					
Lucky	6/5/2022	--	--	--	--	--	--	220605-03-WC	18.7	130	21.3	54.3	157	60.0	0.676	0.193	0.277	0.196	6.06	1.8	<0.0250	0.11	6.5	0.11	3.8	0.0153	31.8
Whitewater	6/5/2022	--	--	--	--	--	--	220605-11-WC	20.3 ¹⁸	172 ¹⁸	57.1 ¹⁸	108 ¹⁸	451 ¹⁸	85.2 ¹⁸	1.7 ¹⁸	0.0541 ¹⁸	<0.0350 ¹⁸	0.181 ¹⁸	4.14 ¹⁸	6.1 ¹⁸	<0.0250 ¹⁸	0.9 ¹⁸	2.9 ¹⁸	0.12 ¹⁸	201 ¹⁸	0.0315 ¹⁸	13.4 ¹⁸
Americana	6/5/2022	--	--	--	--	--	--	220605-14-WC	9.19 ¹⁸	138 ¹⁸	50.4 ¹⁸	27.6 ¹⁸	70.6 ¹⁸	112 ¹⁸	0.218 ¹⁸	0.0128 ¹⁸	0.211 ¹⁸	0.266 ¹⁸	1.72 ¹⁸	3.0 ¹⁸	<0.0250 ¹⁸	0.069 ¹⁸	2.7 ¹⁸	0.054 ¹⁸	4.5 ¹⁸	<0.0100 ¹⁸	12.4 ¹⁸
AS_6	6/5/2022	--	--	--	--	--	--	220605-206-WC	73.3	321	38.4	110	421	114	1.31	0.294	<0.0350	<0.250	10.4	3.9	<0.0250	0.22	6.2	0.55	18.6	0.0321	36.6

Notes:

-- = no data.

¹⁸ Data rejected due to lack of representativeness

Table 3. Event Pollutant Loading Estimates in Pounds

Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite (N)	TKN
Lucky	6/5/2022	167	0.718	0.294	0.208	6.43
Whitewater	6/5/2022	794 ^{1R}	2.99 ^{1R}	0.00 ^{1R, U}	0.319 ^{1R}	7.29 ^{1R}
Americana	6/5/2022	888	2.74	2.65	3.3	21.6
AS_6	6/5/2022	179 ^{1R}	0.556 ^{1R}	0.00743 ^{1R, U}	0.0531 ^{1R, U}	4.42 ^{1R}

Notes:

- = no data.

^{1R} Data rejected due to lack of representativeness

^U Concentrations are at or below the method detection limit (MDL). A value of half the MDL was used in calculations.

Table 4. QC Sample Summary

Date	Sample ID	Type	BOD ₅	COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
6/5/2022	220605-12-002	Composite Blank	<2.00	<13.0	<0.115	<0.3	<0.900	<25.0	<6.00E-3	<2.00E-3	<0.0350	<0.0250	0.147	<0.0400	<0.0250	<0.0250	0.18	<0.0500	<0.0500	<0.0100	<0.780

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 6/3/2022	Time: 7:53 AM	Initials: TL
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	0.00"
Date and time of expected event	6/5 6am – 11pm
Expected amount of precipitation	0.12" from 12pm – 6pm
Percent chance of precipitation	90%
Percent chance of >0.10" over 12 hours	46%

NWS Update

I spoke with Bill at NWS this morning. He said that there is some rain coming in Saturday, but totals are looking lower – around 0.05". The better storm is coming Sunday. For Sunday's storm, the models are in good agreement in getting >0.10". There is not much of a chance of rainshadowing.

<u>Targeted Station & Samples</u>					
Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab
<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input type="checkbox"/> Composite

Type of Forecasted Precipitation

<input type="checkbox"/> Light Rain	<input checked="" type="checkbox"/> Rain	<input type="checkbox"/> Rain on Snow
<input type="checkbox"/> Scattered Showers	<input checked="" type="checkbox"/> Thunder Showers	<input type="checkbox"/> Snowmelt
<input type="checkbox"/> Other:		

Reasons for Not Targeting a Forecasted Storm and/or Stations

Holiday

Waiting on Antecedent Dry Period – Expires:

Equipment Concerns:

Other:

Text Forecast

NWS Forecast for: Boise ID
 Issued by: National Weather Service Boise, ID
 Last Update: 6:47 am MDT Jun 3, 2022

Today: A 20 percent chance of showers and thunderstorms after noon. Some of the storms could produce gusty winds. Partly sunny, with a high near 82. Calm wind becoming west 5 to 7 mph in the afternoon.

Tonight: A 20 percent chance of showers after midnight. Mostly cloudy, with a low around 58. North northwest wind around 5 mph becoming calm in the evening.

Saturday: Showers likely. Cloudy, with a high near 70. North northwest wind 5 to 7 mph. Chance of precipitation is 70%.

Saturday Night: A 30 percent chance of showers, mainly after midnight. Mostly cloudy, with a low around 55. East wind 3 to 8 mph.

Sunday: Showers and possibly a thunderstorm. High near 71. Calm wind becoming south southeast around 5 mph in the morning. Chance of precipitation is 90%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Sunday Night: Showers likely and possibly a thunderstorm before midnight, then a slight chance of showers. Mostly cloudy, with a low around 51. Chance of precipitation is 60%.

Monday: A 20 percent chance of showers. Mostly sunny, with a high near 73.

Monday Night: Mostly clear, with a low around 49.

Tuesday: Sunny, with a high near 76.

Tuesday Night: Partly cloudy, with a low around 54.

Wednesday: Mostly cloudy, with a high near 81.

Wednesday Night: Mostly cloudy, with a low around 55.

Thursday: Partly sunny, with a high near 82.

Forecast Discussion

Area Forecast Discussion

National Weather Service Boise ID

300 AM MDT Fri Jun 3 2022

.SHORT TERM...Today through Sunday night...Showers continue to move through the region this morning. Models indicate moisture will linger with a returning opportunity for thunderstorms this afternoon and evening. Though conditions look most favorable for storms across eastern Oregon and the central Idaho mountains, indications remain in place for a few storms to move through valley locations as well. Gusty winds and brief heavy rain could accompany any storm activity. **The next disturbance will send a more potent push of moisture across the forecast area on Saturday, though instability is lacking keeping the thunderstorm threat minimal.** Precipitable water amounts across the region however do indicate periods of heavy rain with the incoming showers. After a brief break overnight, **another system will bring additional showers and thunderstorms across the forecast area on Sunday afternoon and evening. Similar threats of gusty wind and heavy rain remain.** The thunderstorm threat will weaken through the evening, with showers lingering across Baker County through the central Idaho mountains into Sunday night. Temperatures remain around 5 degrees above normal today. The onset of a cooling trend on Saturday will bring values a few degrees below normal for Saturday and Sunday.

.LONG TERM...Monday through Friday...Unsettled conditions with near normal temperatures are expected early in the week as a trough of low pressure moves through the region. The best chance for additional precipitation looks to be Monday, with a focus on higher terrain. There is general agreement among the operational and ensemble models that a high pressure ridge will begin to build into the Intermountain West later in the week. While the models agree on this trend, there are significant variations in the strength of the ridge. So, while **a drying and warming trend can be expected Wednesday into next weekend**, the extent of the warming is still uncertain.

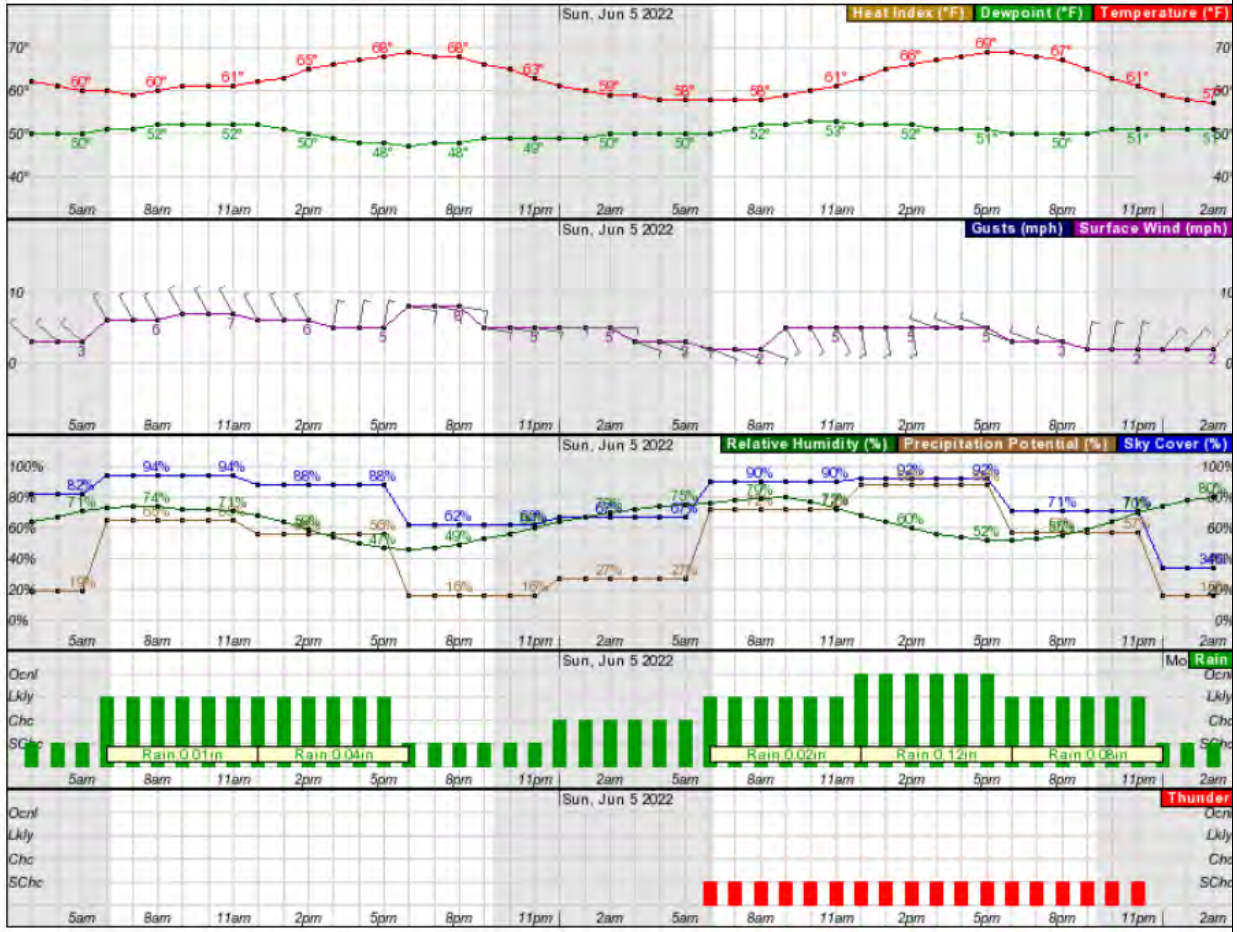
Hourly Forecast

48-Hour Period Starting: 3am Sat, Jun 4 2022

Submit

Back 2 Days

Forward 2 Days



Storm Event QA/QC Checklist – Phase I

STORM DATE 220605

A. Event and Data Completeness	Yes	No	N/A	Notes					
1. Field data sheets filled out completely and clearly	X								
2. Field parameters reviewed, and any problems/issues addressed			X	none collected					
3. All samples collected as specified	X								
4. All samples delivered to lab promptly (review chain of custody rpts)	X								
5. Inconsistencies/clarifications discussed with sampling team member	X								
6. All analytical reports from lab received	X								
B. Validation and Verification Methods	Yes	No	N/A	Notes					
1. Outliers and unexpected values discussed with lab			X						
2. Appropriate analytical methods used	X								
3. All lab QA samples were within method acceptance criteria	X								
4. All samples reviewed and data qualifiers assigned if needed	X								
5. Data quality objective achieved	X								
C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0.10	0.08	—	0.08	0.08	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.22	0.17	0.20	0.20/0.16 0.18	0.20/0.16 0.18	> 0.10"	X		
3. Sampled amount (% of total run-off)	62	17	—	35	79	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject	Lucky AS-6		WW Amer
4. Composite sample duration (hours)	7.5	1.0	—	4.0	6.5	<= 8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject			
4. Ecoli sample holding time (hours)	N/A	—————							
5. Filtering of samples for dissolved parameter analysis (hours)	12	12	—	13	12	<= 24 hrs: no qualifier > 24 hrs.: reject	X		
D. Notes									
WW intake tubing clogged during the event. After the event, on 6.9.22, the intake tubing was moved to a new location to avoid future sediment clogging.									

Reviewed by Tamara Lightle Date 07.18.22

Approved by Monica Lowe Date 7/25/22

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.46	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.76	1357
#12 Main	79	0.437	13785	811	0.246	7760.00	456
#14 Americana	875	0.446	155827	9166	0.144	50311.80	2960
#206 AS_6	204	0.257	20935	1231	0.046	3747.03	221
#18 State	34	0.419	5688	335	0.144	1954.97	122
Theoretical	80	0.200	6389		0.000		

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

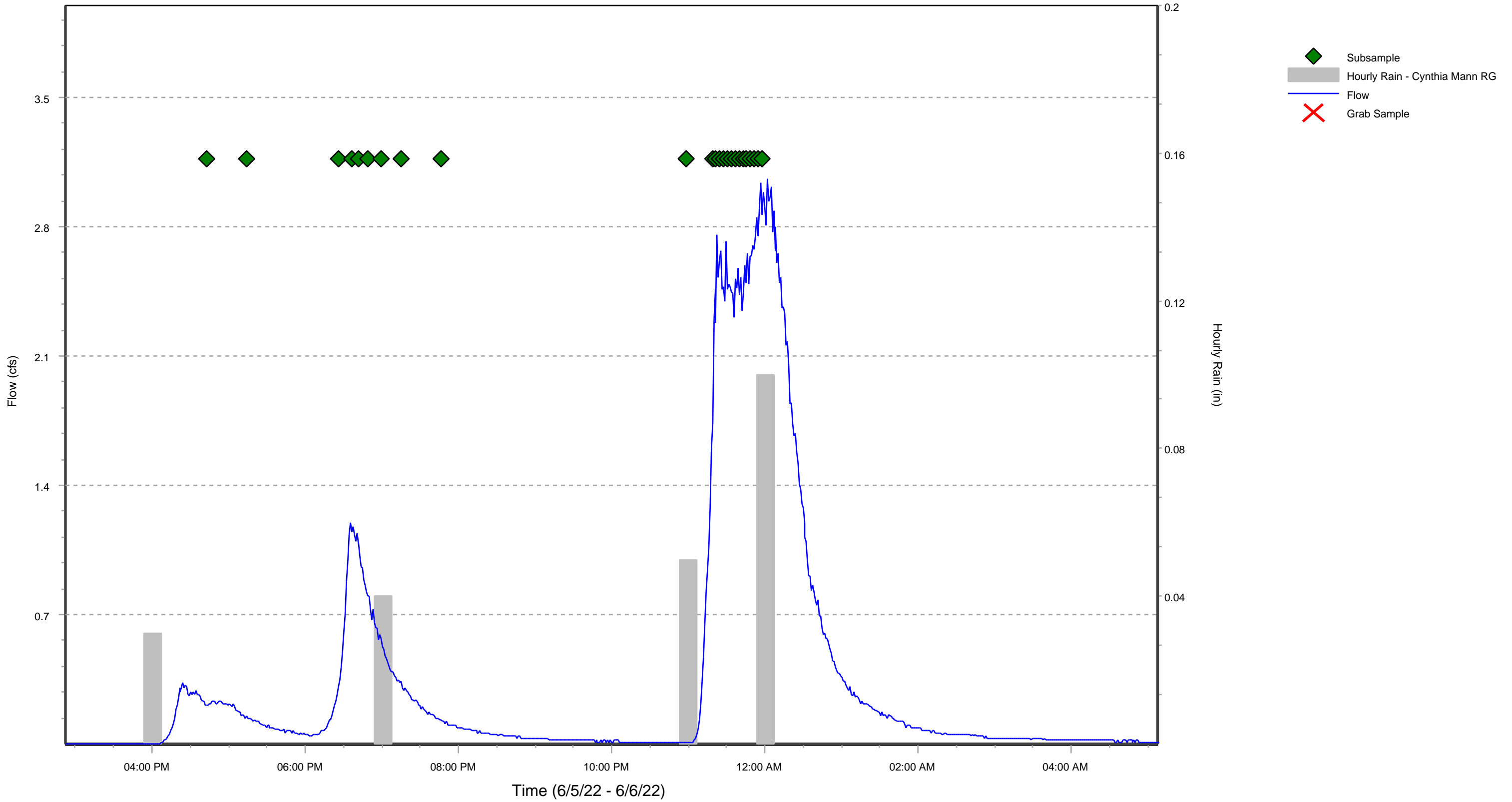
total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

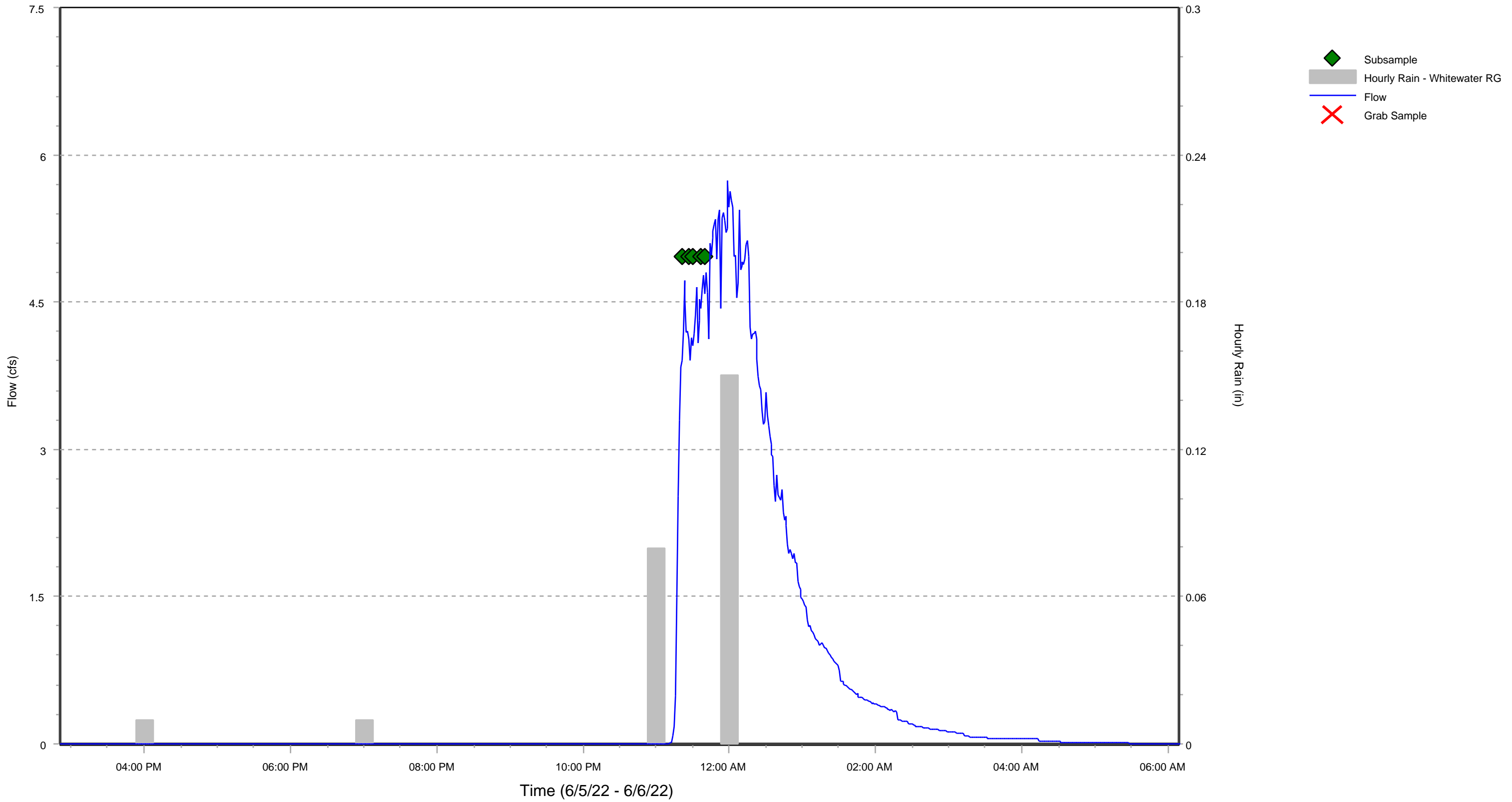
RC = measured runoff / total runoff

Attachment B: Storm Event Hydrographs

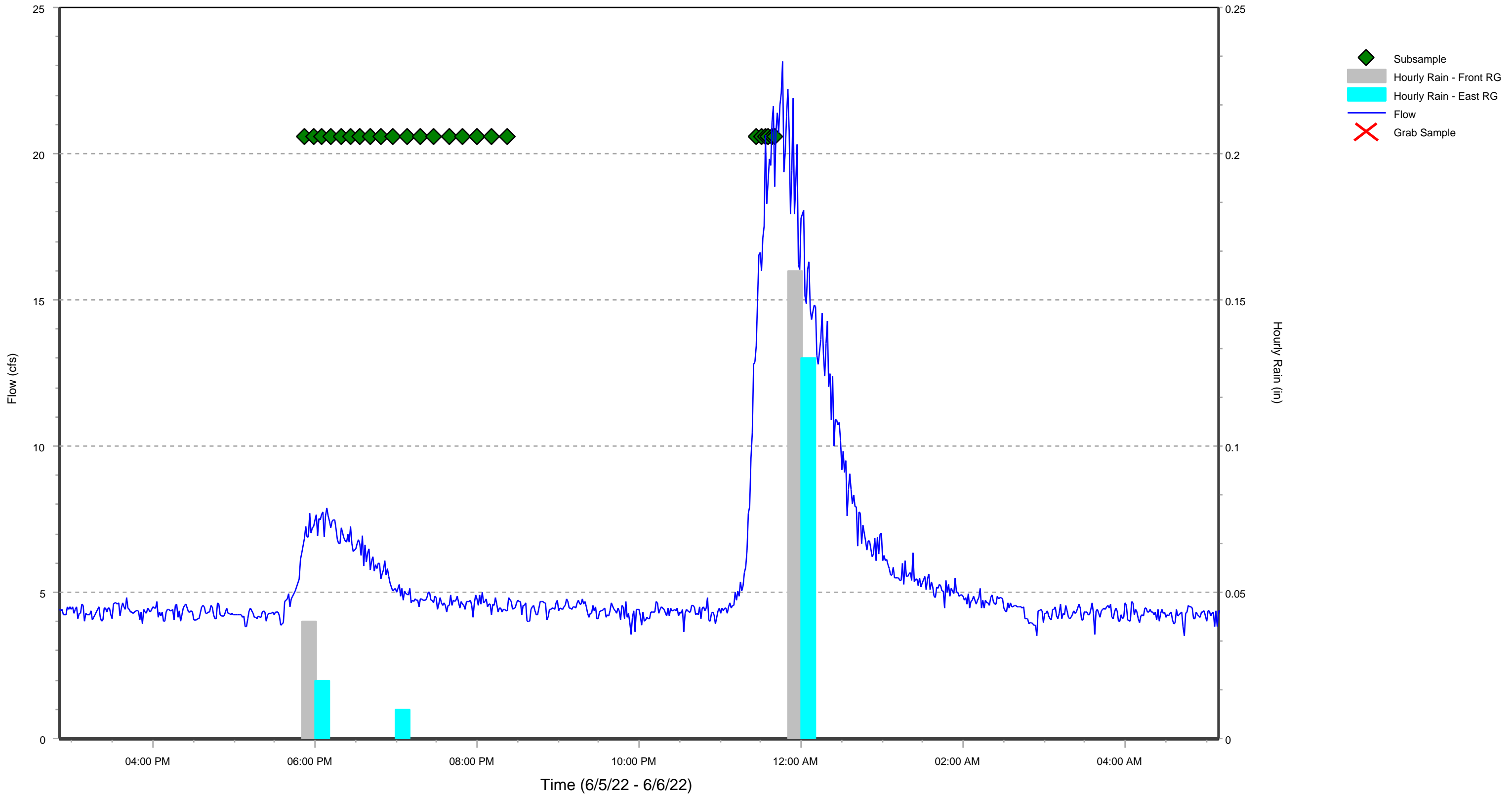
Lucky Hydrograph



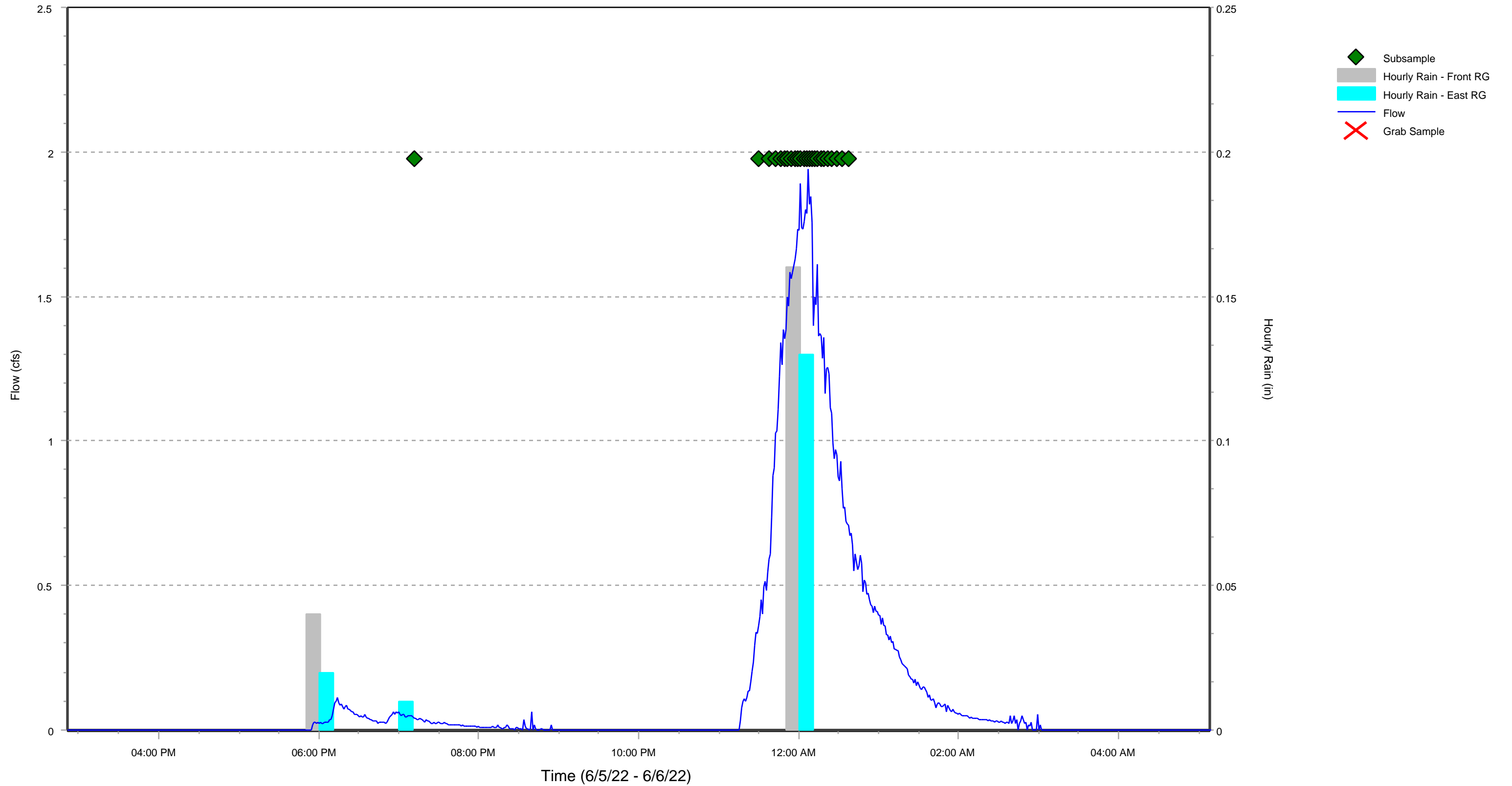
Whitewater Hydrograph



Americana Hydrograph



AS_6 Hydrograph



Attachment C: Storm Event Analytical Reports

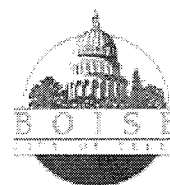
Report Date: 07/12/2022 14:43



Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00214-01	ACST1C	220605-12-002	Water		06/05/2022	06/06/2022
AC00214-02	ACST1C	220605-14-WC	Water		06/05/2022	06/06/2022
AC00214-03	ACST1C	220605-206-WC	Water		06/06/2022	06/06/2022
AC00214-04	ACST1C	220605-11-WC	Water		06/06/2022	06/06/2022
AC00214-05	ACST1C	220605-03-WC	Water		06/05/2022	06/06/2022



Analysis Report

Location: ACST1C Location Description: 220605-12-002
 Date/Time Collected: 06/05/2022 12:00
 Lab Number: AC00214-01 Sample Collector: MMJ
 Sample Type: Composite Sample Matrix: Water

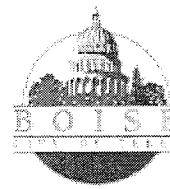
Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
				MDL *	MDL					
Wet Chemistry										
Ammonia, as N	B222182	<0.0350	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	06/08/22	6/8/22 12:01	GKH	U
BOD5	B222166	<2.00	mg/L	2.00	2.00	SM 5210 B-2011	06/07/22	6/12/22 12:43	BAK	Prep-02 U
COD	B222161	<13.0	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	06/06/22	6/6/22 15:37	KMR	U
Nitrate-Nitrite, as N	B222313	<0.0250	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	06/16/22	6/16/22 13:42	ALN	U
TKN	B222201	0.147	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	06/09/22	6/10/22 9:45	ALN	
Total Dissolved Solids	B222169	<25.0	mg/L	25.0	25.0	SM 2540 C-2011	06/07/22	6/9/22 9:44	CJP	U
Total Suspended Solids	B222168	<0.900	mg/L	0.900	0.900	SM 2540 D-2011	06/07/22	6/7/22 10:03	HAL	U
Turbidity	B222158	<0.3	NTU	0.3	0.3	EPA 180.1, Rev. 2.0 (1993)	06/06/22	6/6/22 13:28	CJP	U
Dissolved Wet Chemistry										
Orthophosphate, as P	B222175	<2.00E-3	mg/L	2.00E-3	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	06/07/22	6/7/22 12:42	BAK	H U
Total Metals										
Mercury	B222171	<0.0100	ug/L	0.0100	0.0100	EPA 245.2	06/07/22	6/8/22 9:05	SAS	U
Arsenic	B222234	<0.0400	ug/L	0.040	0.040	EPA 200.8	06/16/22	6/17/22 13:27	DMW	U
Cadmium	B222234	<0.0250	ug/L	0.025	0.025	EPA 200.8	06/16/22	6/17/22 13:27	DMW	U
Calcium	B222178	<0.0460	mg/L	0.0460	0.0460	EPA 200.7	06/07/22	6/30/22 18:52	EDM	U
Lead	B222234	<0.0500	ug/L	0.050	0.050	EPA 200.8	06/16/22	6/17/22 13:27	DMW	U
Magnesium	B222178	<50.0	ug/L	50.0	50.0	EPA 200.7	06/07/22	6/30/22 18:52	EDM	U
Phosphorus as P	B222178	<6.00E-3	mg/L	6.00E-3	6.00E-3	EPA 200.7	06/07/22	6/30/22 18:52	EDM	U
Hardness	B222178	<0.115	mg/L	0.115	0.115	EPA 200.7	06/07/22	6/30/22 18:52	EDM	U
Dissolved Metals										
Cadmium	B222142	<0.0250	ug/L	0.025	0.025	EPA 200.8	06/09/22	6/9/22 13:51	DMW	U
Copper	B222142	0.18	ug/L	0.15	0.15	EPA 200.8	06/09/22	6/9/22 13:51	DMW	
Lead	B222142	<0.0500	ug/L	0.050	0.050	EPA 200.8	06/09/22	6/9/22 13:51	DMW	U
Zinc	B222142	<0.780	ug/L	0.78	0.78	EPA 200.8	06/09/22	6/9/22 13:51	DMW	U

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B222158									
Blank (B222158-BLK1)									
Turbidity	<0.3	NTU					06/06/2022	CJP	U
LCS (B222158-BS1)									
Turbidity			100	90-110			06/06/2022	CJP	
Duplicate (B222158-DUP1) Source ID: AC00214-02									
Turbidity					2.98	25	06/06/2022	CJP	
Batch: B222161									
Blank (B222161-BLK1)									
COD	<13	mg/L					06/06/2022	KMR	U
LCS (B222161-BS1)									
COD			97.3	90-110			06/06/2022	KMR	
Duplicate (B222161-DUP1) Source ID: AC00214-05									
COD					5.97	10	06/06/2022	KMR	
Batch: B222166									
Blank (B222166-BLK1)									
BOD5	<2	mg/L					06/12/2022	BAK	U
LCS (B222166-BS1)									
BOD5			90.0	84.6-115.4			06/12/2022	BAK	
LCS (B222166-BS2)									
BOD5			101	84.6-115.4			06/12/2022	BAK	
Duplicate (B222166-DUP1) Source ID: BB02124-01									
BOD5					2.58	30	06/12/2022	BAK	
Batch: B222168									
Blank (B222168-BLK1)									
Total Suspended Solids	<0.9	mg/L					06/07/2022	HAL	U
LCS (B222168-BS1)									
Total Suspended Solids			99.5	90-110			06/07/2022	HAL	
Duplicate (B222168-DUP1) Source ID: BB02123-01									
Total Suspended Solids					8.12	20	06/07/2022	HAL	



Quality Control Report
 (Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222169									
Blank (B222169-BLK1)									
Total Dissolved Solids	<25	mg/L					06/09/2022	CJP	U
LCS (B222169-BS1)									
Total Dissolved Solids			106	90-110			06/09/2022	CJP	
Duplicate (B222169-DUP1) Source ID: AC00214-05									
Total Dissolved Solids					0.830	10	06/09/2022	CJP	
Batch: B222182									
Blank (B222182-BLK1)									
Ammonia, as N	<0.035	mg/L					06/08/2022	GKH	U
Blank (B222182-BLK2)									
Ammonia, as N	<0.035	mg/L					06/08/2022	GKH	U
LCS (B222182-BS1)									
Ammonia, as N			102	90-110			06/08/2022	GKH	
LCS (B222182-BS2)									
Ammonia, as N			105	90-110			06/08/2022	GKH	
Duplicate (B222182-DUP1) Source ID: WB01963-01									
Ammonia, as N					3.36	10	06/08/2022	GKH	
Duplicate (B222182-DUP2) Source ID: WB01895-07									
Ammonia, as N					2.35	10	06/08/2022	GKH	
Duplicate (B222182-DUP3) Source ID: WB01898-05									
Ammonia, as N					5.88	10	06/08/2022	GKH	
Matrix Spike (B222182-MS1) Source ID: WB01963-01									
Ammonia, as N			98.6	80-120			06/08/2022	GKH	
Matrix Spike (B222182-MS2) Source ID: WB01895-07									
Ammonia, as N			99.3	80-120			06/08/2022	GKH	
Matrix Spike (B222182-MS3) Source ID: WB01898-05									
Ammonia, as N			105	80-120			06/08/2022	GKH	
Matrix Spike Dup (B222182-MSD1) Source ID: WB01963-01									
Ammonia, as N			101	80-120	1.89	10	06/08/2022	GKH	
Matrix Spike Dup (B222182-MSD2) Source ID: WB01895-07									
Ammonia, as N			99.0	80-120	0.240	10	06/08/2022	GKH	
Matrix Spike Dup (B222182-MSD3) Source ID: WB01898-05									
Ammonia, as N			95.0	80-120	6.53	10	06/08/2022	GKH	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222201									
Blank (B222201-BLK1)									
TKN	<0.1	mg/L					06/10/2022	ALN	U
Blank (B222201-BLK2)									
TKN	<0.1	mg/L					06/10/2022	ALN	U
LCS (B222201-BS1)									
TKN			85.4	80-120			06/10/2022	ALN	
LCS (B222201-BS2)									
TKN			106	80-120			06/10/2022	ALN	
Duplicate (B222201-DUP1) Source ID: BB02122-01									
TKN					9.03	20	06/10/2022	ALN	D
Duplicate (B222201-DUP2) Source ID: BB02124-01									
TKN					4.39	20	06/10/2022	ALN	D
Duplicate (B222201-DUP3) Source ID: BB02126-04									
TKN					1.08	20	06/10/2022	ALN	D
Matrix Spike (B222201-MS1) Source ID: BB02122-01									
TKN			94.7	80-120			06/10/2022	ALN	D
Matrix Spike (B222201-MS2) Source ID: BB02124-01									
TKN			92.2	80-120			06/10/2022	ALN	D
Matrix Spike (B222201-MS3) Source ID: BB02126-04									
TKN			119	80-120			06/10/2022	ALN	D
Matrix Spike (B222201-MS4) Source ID: WQ00115-01									
TKN			93.2	80-120			06/10/2022	ALN	D
Matrix Spike Dup (B222201-MSD1) Source ID: BB02122-01									
TKN			104	80-120	5.86	20	06/10/2022	ALN	D
Matrix Spike Dup (B222201-MSD2) Source ID: BB02124-01									
TKN			100	80-120	3.82	20	06/10/2022	ALN	D
Matrix Spike Dup (B222201-MSD3) Source ID: BB02126-04									
TKN			105	80-120	6.70	20	06/10/2022	ALN	D



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222313									
Blank (B222313-BLK1) Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
Blank (B222313-BLK2) Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
Blank (B222313-BLK3) Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
LCS (B222313-BS1) Nitrate-Nitrite, as N			96.0	90-110			06/16/2022	ALN	
LCS (B222313-BS2) Nitrate-Nitrite, as N			95.7	90-110			06/16/2022	ALN	
LCS (B222313-BS3) Nitrate-Nitrite, as N			95.2	90-110			06/16/2022	ALN	
Duplicate (B222313-DUP1) Nitrate-Nitrite, as N	Source ID: AC00212-01				0.194	10	06/16/2022	ALN	
Duplicate (B222313-DUP2) Nitrate-Nitrite, as N	Source ID: BB02120-01				0.276	10	06/16/2022	ALN	
Duplicate (B222313-DUP3) Nitrate-Nitrite, as N	Source ID: BB02130-01				0.773	10	06/16/2022	ALN	
Duplicate (B222313-DUP4) Nitrate-Nitrite, as N	Source ID: BB02136-04				0.212	10	06/16/2022	ALN	
Duplicate (B222313-DUP5) Nitrate-Nitrite, as N	Source ID: LS01194-02				NR	10	06/16/2022	ALN	U
Duplicate (B222313-DUP6) Nitrate-Nitrite, as N	Source ID: WB01908-07				NR	10	06/16/2022	ALN	U
Matrix Spike (B222313-MS1) Nitrate-Nitrite, as N	Source ID: AC00212-01		96.0	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS2) Nitrate-Nitrite, as N	Source ID: BB02120-01		91.9	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS3) Nitrate-Nitrite, as N	Source ID: BB02130-01		96.5	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS4) Nitrate-Nitrite, as N	Source ID: BB02136-04		94.2	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS5) Nitrate-Nitrite, as N	Source ID: LS01194-02		94.7	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS6) Nitrate-Nitrite, as N	Source ID: WB01908-07		95.1	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS7) Nitrate-Nitrite, as N	Source ID: WQ00115-08		95.4	90-110			06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD1) Nitrate-Nitrite, as N	Source ID: AC00212-01		95.5	90-110	0.373	10	06/16/2022	ALN	



Quality Control Report

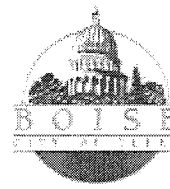
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222313 (Continued)									
Matrix Spike Dup (B222313-MSD2) Nitrate-Nitrite, as N	Source ID: BB02120-01		92.2	90-110	0.0919	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD3) Nitrate-Nitrite, as N	Source ID: BB02130-01		95.9	90-110	0.537	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD4) Nitrate-Nitrite, as N	Source ID: BB02136-04		93.6	90-110	0.200	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD5) Nitrate-Nitrite, as N	Source ID: LS01194-02		95.4	90-110	0.700	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD6) Nitrate-Nitrite, as N	Source ID: WB01908-07		95.1	90-110	0.0336	10	06/16/2022	ALN	

Dissolved Wet Chemistry

Batch: B222175

Blank (B222175-BLK1) Orthophosphate, as P		<0.002 mg/L					06/07/2022	BAK	U
LCS (B222175-BS1) Orthophosphate, as P			97.6	90-110			06/07/2022	BAK	
Duplicate (B222175-DUP1) Orthophosphate, as P	Source ID: BB02124-01				1.81	10	06/07/2022	BAK	D
Duplicate (B222175-DUP2) Orthophosphate, as P	Source ID: WB01898-07				0.395	10	06/07/2022	BAK	D
Matrix Spike (B222175-MS1) Orthophosphate, as P	Source ID: BB02124-01		99.0	90-110			06/07/2022	BAK	D
Matrix Spike (B222175-MS2) Orthophosphate, as P	Source ID: WB01898-07		104	90-110			06/07/2022	BAK	D
Matrix Spike Dup (B222175-MSD1) Orthophosphate, as P	Source ID: BB02124-01		100	90-110	0.512	10	06/07/2022	BAK	D
Matrix Spike Dup (B222175-MSD2) Orthophosphate, as P	Source ID: WB01898-07		102	90-110	1.20	10	06/07/2022	BAK	D



Quality Control Report

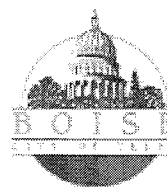
(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B222171									
Blank (B222171-BLK1)									
Mercury	<0.01	ug/L					06/08/2022	SAS	U
LCS (B222171-BS1)									
Mercury			101	85-115			06/08/2022	SAS	
Duplicate (B222171-DUP1) Source ID: AC00214-03									
Mercury					12.1	20	06/08/2022	SAS	
Matrix Spike (B222171-MS1) Source ID: AC00214-03									
Mercury			100	70-130			06/08/2022	SAS	
Matrix Spike Dup (B222171-MSD1) Source ID: AC00214-03									
Mercury			99.1	70-130	1.09	20	06/08/2022	SAS	
Batch: B222178									
Blank (B222178-BLK1)									
Calcium	<0.046	mg/L					06/30/2022	EDM	U
Magnesium	<50	ug/L					06/30/2022	EDM	U
Phosphorus as P	<0.006	mg/L					06/30/2022	EDM	U
LCS (B222178-BS1)									
Calcium			92.6	85-115			06/30/2022	EDM	
Magnesium			93.7	85-115			06/30/2022	EDM	
Phosphorus as P			107	85-115			06/30/2022	EDM	
Duplicate (B222178-DUP1) Source ID: AC00214-05									
Calcium					1.66	20	06/30/2022	EDM	
Magnesium					0.603	20	06/30/2022	EDM	
Phosphorus as P					2.24	20	06/30/2022	EDM	
Matrix Spike (B222178-MS1) Source ID: AC00214-05									
Calcium			91.1	70-130			06/30/2022	EDM	
Magnesium			94.7	70-130			06/30/2022	EDM	
Phosphorus as P			103	70-130			06/30/2022	EDM	
Matrix Spike Dup (B222178-MSD1) Source ID: AC00214-05									
Calcium			92.9	70-130	1.28	20	06/30/2022	EDM	
Magnesium			95.4	70-130	0.646	20	06/30/2022	EDM	
Phosphorus as P			111	70-130	3.30	20	06/30/2022	EDM	



Quality Control Report
 (Continued)

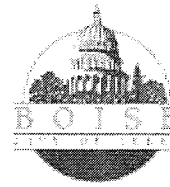
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B222234									
Blank (B222234-BLK1)									
Arsenic	<0.040	ug/L					06/17/2022	DMW	U
Cadmium	<0.025	ug/L					06/17/2022	DMW	U
Lead	<0.050	ug/L					06/17/2022	DMW	U
LCS (B222234-BS1)									
Arsenic			98.5	85-115			06/17/2022	DMW	
Cadmium			101	85-115			06/17/2022	DMW	
Lead			102	85-115			06/17/2022	DMW	
Duplicate (B222234-DUP1) Source ID: ST00013-01									
Arsenic					1.46	20	06/17/2022	DMW	
Cadmium					NR	20	06/17/2022	DMW	U
Lead					4.91	20	06/17/2022	DMW	
Matrix Spike (B222234-MS1) Source ID: ST00013-01									
Arsenic			98.7	70-130			06/17/2022	DMW	
Cadmium			100	70-130			06/17/2022	DMW	
Lead			97.8	70-130			06/17/2022	DMW	
Matrix Spike Dup (B222234-MSD1) Source ID: ST00013-01									
Arsenic			98.7	70-130	0.0403	20	06/17/2022	DMW	
Cadmium			98.3	70-130	1.87	20	06/17/2022	DMW	
Lead			97.7	70-130	0.102	20	06/17/2022	DMW	
Batch: B222344									
Blank (B222344-BLK1)									
Lead	<0.050	ug/L					06/30/2022	DMW	U
LCS (B222344-BS1)									
Lead			103	85-115			06/30/2022	DMW	
Duplicate (B222344-DUP1) Source ID: WR00032-04									
Lead					NR	20	06/30/2022	DMW	U
Matrix Spike (B222344-MS1) Source ID: WR00032-04									
Lead			99.4	70-130			06/30/2022	DMW	
Matrix Spike Dup (B222344-MSD1) Source ID: WR00032-04									
Lead			101	70-130	1.49	20	06/30/2022	DMW	



Quality Control Report

(Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B222142									
Blank (B222142-BLK1)									
Cadmium	<0.025	ug/L					06/09/2022	DMW	U
Copper	<0.15	ug/L					06/09/2022	DMW	U
Lead	<0.050	ug/L					06/09/2022	DMW	U
Zinc	<0.78	ug/L					06/09/2022	DMW	U
LCS (B222142-BS1)									
Cadmium			105	85-115			06/09/2022	DMW	
Copper			105	85-115			06/09/2022	DMW	
Lead			106	85-115			06/09/2022	DMW	
Zinc			107	85-115			06/09/2022	DMW	
Duplicate (B222142-DUP1) Source ID: AC00212-01									
Cadmium					6.50	10	06/09/2022	DMW	
Copper					0.713	10	06/09/2022	DMW	
Lead					0.0662	10	06/09/2022	DMW	
Zinc					0.121	10	06/09/2022	DMW	
Matrix Spike (B222142-MS1) Source ID: AC00212-01									
Cadmium			104	70-130			06/09/2022	DMW	
Copper			99.9	70-130			06/09/2022	DMW	
Lead			102	70-130			06/09/2022	DMW	
Zinc			104	70-130			06/09/2022	DMW	
Matrix Spike Dup (B222142-MSD1) Source ID: AC00212-01									
Cadmium			100	70-130	4.12	10	06/09/2022	DMW	
Copper			97.8	70-130	0.880	10	06/09/2022	DMW	
Lead			98.6	70-130	3.69	10	06/09/2022	DMW	
Zinc			100	70-130	1.25	10	06/09/2022	DMW	



Notes and Definitions

Item	Definition
D	Data reported from a dilution
H	Hold time Exceeded.
M-06	The reported result has been confirmed by reanalysis.
Prep-02	Sample pH was adjusted to be within method pH range.
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846

Janet Finegan-Kelly
Water Quality Laboratory Manager

Stephen Quintero or Azubike Emenari
QA/QC Coordinator

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: <u>AC00214-01</u> Location: <u>ACST12</u> Sample Date: <u>6-5-22</u> Sample ID: _____	Split Date: <u>6-6-22</u> Start Split: <u>1210</u> Start Filter: <u>1210</u> Comp Time: <u>—</u> Analyst: <u>Amo/Dkt</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: <u>CC0026-71</u> Comp Jug: _____ SS Tubing: <u>CC0036-06</u> SS Helper: <u>(SSA2)</u> ↓ Stir Bar: <u>CC0025-10</u> Connector: <u>CC0027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input type="checkbox"/> TKN <input type="checkbox"/> NH ₃ <input type="checkbox"/> NO _x (F) <input type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____	<u>Blank (Blank)</u>
Lims#: <u>AC00214-02</u> Location: <u>ACST12</u> Sample Date: <u>6-5-22</u> Sample ID: <u>-14</u>	Split Date: <u>6-6-22</u> Start Split: <u>1300</u> Start Filter: <u>1300</u> Comp Time: <u>—</u> Analyst: <u>Amo/Dkt</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: <u>CC0027-56</u> Comp Jug: _____ SS Tubing: <u>CC0030-06</u> SS Helper: <u>(SSA6)</u> ↓ Stir Bar: <u>CC0014-57</u> Connector: <u>CC0027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input type="checkbox"/> TKN <input type="checkbox"/> NH ₃ <input type="checkbox"/> NO _x (F) <input type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____	<u>2x Blank water</u>
Lims#: <u>AC00214-03</u> Location: <u>ACST12</u> Sample Date: <u>6-6-22</u> Sample ID: <u>-266</u>	Split Date: <u>6-6-22</u> Start Split: <u>1314</u> Start Filter: <u>1314</u> Comp Time: <u>—</u> Analyst: <u>Amo/Dkt</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input checked="" type="checkbox"/> Other: <u>10.0µm</u> <input checked="" type="checkbox"/> Other: <u>0.45µm max capacity</u>	Coll Jug: <u>CC0027-56</u> Comp Jug: _____ SS Tubing: <u>CC0029-AF</u> SS Helper: <u>(SSA4)</u> ↓ Stir Bar: <u>CC0030-04</u> Connector: <u>CC0027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input type="checkbox"/> TKN <input type="checkbox"/> NH ₃ <input type="checkbox"/> NO _x (F) <input type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____	<u>used (4) Voss</u> <u>Very blurry</u>
Lims#: <u>AC00214-04</u> Location: <u>ACST12</u> Sample Date: <u>6-6-22</u> Sample ID: <u>-11</u>	Split Date: <u>6-6-22</u> Start Split: <u>1238</u> Start Filter: <u>1238</u> Comp Time: <u>—</u> Analyst: <u>Amo/Dkt</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input checked="" type="checkbox"/> Other: <u>10.0µm</u>	Coll Jug: <u>CC0026-51</u> Comp Jug: _____ SS Tubing: <u>CC0030-06</u> SS Helper: <u>(SSA5)</u> ↓ Stir Bar: <u>CC0014-57</u> Connector: <u>CC0027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input type="checkbox"/> TKN <input type="checkbox"/> NH ₃ <input type="checkbox"/> NO _x (F) <input type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____	<u>used (3) Voss</u> <u>blurry</u>
Lims#: <u>AC00214-05</u> Location: <u>ACST12</u> Sample Date: <u>6-5-22</u> Sample ID: <u>-03</u>	Split Date: <u>6-6-22</u> Start Split: <u>1223</u> Start Filter: <u>1223</u> Comp Time: <u>—</u> Analyst: <u>Amo/Dkt</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input checked="" type="checkbox"/> Other: <u>10.0µm</u>	Coll Jug: <u>CC0026-71</u> Comp Jug: _____ SS Tubing: <u>CC0022-81</u> SS Helper: <u>CC0027-97</u> Stir Bar: <u>112112C</u> Connector: <u>CC0027-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD <input type="checkbox"/> TKN <input type="checkbox"/> NH ₃ <input type="checkbox"/> NO _x (F) <input type="checkbox"/> ortho-P (F) <input type="checkbox"/> Turb <input type="checkbox"/> _____	<u>used (3) Voss</u> <u>blurry</u>

CC0030-D3

(including (1) max capacity)

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: <u>AC00</u> Location: <u>ACST-1C</u> Sample Date: _____ Sample ID: _____	 Split Date: <u>6-6-22</u> Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: <u>Arno/DET</u> 	 Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____ 	 Coll Jug: _____ Comp Jug: _____ SS Tubing: <u>660029-AF</u> SS Helper: <u>(SSA) ↓</u> Stir Bar: <u>660030-04</u> Connector: <u>66027-58</u> 	 Teflon Total <input checked="" type="checkbox"/> TKN Teflon Diss (F) <input checked="" type="checkbox"/> NH₃ Hg CVAA <input checked="" type="checkbox"/> NO_x (F) BOD <input checked="" type="checkbox"/> ortho-P (F) TSS <input checked="" type="checkbox"/> Turb TDS <input type="checkbox"/> COD <input type="checkbox"/> 	 didn't need (NO DUP) REC'D
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	Teflon Total <input checked="" type="checkbox"/> TKN Teflon Diss (F) <input checked="" type="checkbox"/> NH ₃ Hg CVAA <input checked="" type="checkbox"/> NO _x (F) BOD <input checked="" type="checkbox"/> ortho-P (F) TSS <input checked="" type="checkbox"/> Turb TDS <input type="checkbox"/> COD <input type="checkbox"/>	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	Teflon Total <input checked="" type="checkbox"/> TKN Teflon Diss (F) <input checked="" type="checkbox"/> NH ₃ Hg CVAA <input checked="" type="checkbox"/> NO _x (F) BOD <input checked="" type="checkbox"/> ortho-P (F) TSS <input checked="" type="checkbox"/> Turb TDS <input type="checkbox"/> COD <input type="checkbox"/>	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	Teflon Total <input checked="" type="checkbox"/> TKN Teflon Diss (F) <input checked="" type="checkbox"/> NH ₃ Hg CVAA <input checked="" type="checkbox"/> NO _x (F) BOD <input checked="" type="checkbox"/> ortho-P (F) TSS <input checked="" type="checkbox"/> Turb TDS <input type="checkbox"/> COD <input type="checkbox"/>	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	Teflon Total <input checked="" type="checkbox"/> TKN Teflon Diss (F) <input checked="" type="checkbox"/> NH ₃ Hg CVAA <input checked="" type="checkbox"/> NO _x (F) BOD <input checked="" type="checkbox"/> ortho-P (F) TSS <input checked="" type="checkbox"/> Turb TDS <input type="checkbox"/> COD <input type="checkbox"/>	

Attachment D: Field Forms

Set Up/ Shut Down Form – HACH

STATION: Lucky

SET UP

Personnel: SMK, TLL

Date/Time

On-Site: 6/3 13:56

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
1403	1.62	0	0	12.9
Downloaded to: <u>—</u>				
<i>Sample Error</i> Velocity Cutoff: <u>level > 3.1" , deadband 1.5"</u>				
Trigger Volume: <u>2950 gal</u>				

2895

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program 6/3 18:50
- Verify running

Comments:

SHUT DOWN

Personnel: TLL

Date/Time

On-Site: 6/7 10:18

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1020	1.09	0	0		12.4
Downloaded to: <u>Green USB</u>					

<p>If flow monitoring is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Halt program on flowmeter <input checked="" type="checkbox"/> Download flowmeter data <input checked="" type="checkbox"/> Remove flowmeter battery 	<p>If continuing to monitor flow:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input type="checkbox"/> Reset logging interval to 15 minutes <input type="checkbox"/> Change velocity cutoff to 0.02 fps <input type="checkbox"/> Start program <input type="checkbox"/> Verify running
--	--

Comments:

Composite Sample Collection

STATION: LUCKY
 Personnel: SMK MMS

Bottle 1 of 1

Date/Time On-Site: 06/06 9:34

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220605-03	-WC
Approx Sample Volume (mL):	12500	
Clarity (ex. Clear, Cloudy, Silty):	cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information

Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	220605 1642	N/A	13	2315	N/A
2	1714		14	2318	
3	1826		15	2331	
4	1836		16	2334	
5	1842		17	2337	
6	1849		18	2340	
7	1859		19	2343	
8	1915		20	2346	
9	1946		21	2349	
10	2258		22	2352	
11	2317		23	2355	
12	2322		24	2358	

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <p><i>N/A</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle, add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Set Up/ Shut Down Form – ISCO

LOCATION: Whitewater

SET UP

Personnel: SML, TLL

Date/Time

On-Site: 6/3/22 13:28

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
13:28	0.26	0.00	0.08	—
Downloaded to: —				
Enable Condition: level > 2", hysteresis 1.5"				
Flow Pulse Interval: 1500 cf 800				

On-Site

- Replace flowmeter battery, install sampler battery
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Set Sampler program parameters
- Check date/time on Sampler
- Verify all cable and tubing connections
- Verify Sampler Program is running 6/4 17:40

Flowlink (Refer to Flowlink Instructions, if needed)

- Direct or Remote; Date/time 6/3 1143
- Retrieve data and review recent flow history
- Change Wireless Power Control to Storm Event
- Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate
- Enable Sampler: On Trigger, and set Sampler Enable equation
- Set Sampler Pacing to Flow Paced, and set trigger volume

Comments:

SHUT DOWN

Personnel: TLL

Date/Time

On-Site: 6/7 0958

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
0917	-0.26	0	0	—
Downloaded to: —				

On-Site

- Replace flowmeter battery
- Remove battery from sampler

Flowlink (Refer to Flowlink Instructions, if needed)

- Direct or Remote; Date/time 6/7 0915
- Retrieve data
- Change Wireless Power Control to Dry Weather
- Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate
- Enable Sampler: Never

Comments:

Composite Sample Collection

STATION: WhiteWater
 Personnel: SHK MMJ

Bottle 1 of 1

Date/Time On-Site: 220606 1010

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220605 - 11	-WC
Approx Sample Volume (mL):	7250 mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	gray	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	06/05 2320		13	2355	" "
2	2323	"no liquid detected"	14	2357	" "
3	2326		15	0000	" "
4	2329		16	0002	" "
5	2333	"no more liquid"	17	0005	" "
6	2336		18	0007	" "
7	2339		19	0010	" "
8	2341	"no more liquid"	20	0013	" "
9	2344	" "	21	0015	" "
10	2347	" "	22	0018	" "
11	2350	"no liquid detected"	23	0022	" "
12	2352	" "	24	0025	" "

Comments:

<p>If sampling is complete:</p> <p><input checked="" type="checkbox"/> Power off sampler</p> <p><input checked="" type="checkbox"/> Verify flowmeter is running</p> <p><input checked="" type="checkbox"/> Add ice to sample transport cooler</p> <p><input type="checkbox"/> Complete COC form; arrange transport to lab</p>	<p>If continuing sampling (sample bottle change-out):</p> <p><input type="checkbox"/> Keep flowmeter running</p> <p><input type="checkbox"/> Install new 15L bottle; add ice</p> <p><input type="checkbox"/> Restart program from beginning</p> <p>Date/Time Restarted: _____</p> <p><input type="checkbox"/> Verify running</p>
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Composite Sample Collection

STATION: MAIN
 Personnel: SMK, MMS

Bottle 1 of 1
 Date/Time On-Site: 11/06/06 1023

<input type="checkbox"/> Halt Sampler program	
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	<u>220605-12-002</u> 103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	<u>220605 NA</u>	<u>NA</u>	13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

This ~~was~~^{is} a blank sample.

<p>If sampling is complete:</p> <p><input checked="" type="checkbox"/> Power off sampler</p> <p><input type="checkbox"/> Verify Flowmeter is running</p> <p><input type="checkbox"/> Add ice to sample transport cooler</p> <p><input type="checkbox"/> Complete COC form; arrange transport to lab</p>	<p>If continuing sampling (sample bottle change-out):</p> <p><input type="checkbox"/> Keep flowmeter running</p> <p><input type="checkbox"/> Install new 15L bottle; add ice</p> <p><input type="checkbox"/> Restart program from beginning</p> <p>Date/Time Restarted: _____</p> <p><input type="checkbox"/> Verify running</p>
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

15CO

Set Up/ Shut Down Form – Phase II

STATION: Americana

UP

Personnel: TZL, SMK

Date/Time On-Site: 6-3-22 / 1500

Date	Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
6/3	1500	9.95	0.83	0.434		12.47
Downloaded to:						
Trigger Condition:		level > 11.25", hysteresis 1.5"				
Flow Pulse Interval:		4000 cf 2960				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace battery if v<11.9 <input checked="" type="checkbox"/> Perform Decon. Cycle <input checked="" type="checkbox"/> Place 15L sample bottle in cooler, with ice <input checked="" type="checkbox"/> Remove jar lid and put in clean re-sealable plastic bag <input checked="" type="checkbox"/> Set Sampler program parameters (refer Table 103) <input checked="" type="checkbox"/> Verify all cable and tubing connections <input checked="" type="checkbox"/> Verify Sampler Program is running 614 1709 <input checked="" type="checkbox"/> Verify latches are secure 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or Remote; Date/time <u>6/3 1130</u> <input checked="" type="checkbox"/> Retrieve data and review recent flow history <input checked="" type="checkbox"/> Change Wireless Power Control to Storm Event <input checked="" type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, and Flow <input checked="" type="checkbox"/> Enable Sampler: On Trigger, and set velocity equation <input type="checkbox"/> Set Latch <input checked="" type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
--	--

Comments:

Date/Time Off-Site: _____

SHUT DOWN

Personnel: TZL

Date/Time On-Site: 6/7 1206

Date	Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
6/7	0919	10.17	0.92	0.526		11.85
Downloaded to:						

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace battery if v<11.9 <input checked="" type="checkbox"/> Remove battery from Sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or <u>Remote</u>; Date/time <u>6/7 0919</u> <input checked="" type="checkbox"/> Retrieve data <input checked="" type="checkbox"/> Change Wireless Power Control to Dry Weather <input checked="" type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, and Flow <input checked="" type="checkbox"/> Enable Sampler: Never
---	--

Comments:

Date/Time Off-Site: _____

Composite Sample Collection

STATION: Americana
 Personnel: NM DMR

Bottle 1 of 1
 Date/Time On-Site: 220606 1041

<input checked="" type="checkbox"/> Halt Sampler program	
<input type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	<u>220605-14-WE</u>
Approx Sample Volume (mL):	<u>14750 mL</u>
Clarity (ex. Clear, Cloudy, Silty):	<u>Cloudy</u>
Color (ex. Clear, Gray, Tan, Brown, Black):	<u>Tan</u>
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	<u>220506 1752</u>		13	<u>1928</u>	
2	<u>1759</u>		14	<u>1939</u>	
3	<u>1805</u>		15	<u>1949</u>	
4	<u>1812</u>		16	<u>2000</u>	
5	<u>1819</u>		17	<u>2011</u>	
6	<u>1826</u>		18	<u>2022</u>	<u>Program disabled</u>
7	<u>1833</u>		19	<u>2326</u>	<u>Program enabled</u>
8	<u>1841</u>		20	<u>2330</u>	
9	<u>1849</u>		21	<u>2333</u>	
10	<u>1858</u>		22	<u>2335</u>	
11	<u>1908</u>		23	<u>2338</u>	
12	<u>1918</u>		24	<u>2340</u>	

Comments: subsamples 18 and 19 were successful.

<p>If Sampling is Complete:</p> <input checked="" type="checkbox"/> Power off Samplers <input type="checkbox"/> Disable Flow Meter pacing <input type="checkbox"/> Resume Flow Meter program <input checked="" type="checkbox"/> Verify Flow Meter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab <input type="checkbox"/> Current Velocity Cutoff (fps): _____	<p>If Continuing Sampling (sample bottle change-out):</p> <input type="checkbox"/> Keep Flow Meter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning; Date/Time Restarted: _____ <input type="checkbox"/> Verify running
--	---

Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Set Up/ Shut Down Form – HACH

STATION: AS-6

SET UP

Personnel: TZL, SMK

Date/Time

On-Site: 06-03-22 / 1431

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
14:34	0.0	0.0	0.0	12.6
Downloaded to:				
		Velocity Cutoff: <u>0.02</u>		
		Trigger Volume: <u>302 cf</u>		

221

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Flowmeter restarted w/ new trigger volume
 Sampler started 617 1726

Comments:

SHUT DOWN

Personnel: TZL

Date/Time

On-Site: 617 1130

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
1034	0	0	0	6778	12.5
Downloaded to:					
					<u>R6</u>

<p>If flow monitoring is complete:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Halt program on flowmeter <input checked="" type="checkbox"/> Download flowmeter data <input checked="" type="checkbox"/> Remove flowmeter battery 	<p>If continuing to monitor flow:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input type="checkbox"/> Reset logging interval to 15 minutes <input type="checkbox"/> Change velocity cutoff to 0.02 fps <input type="checkbox"/> Start program <input type="checkbox"/> Verify running
---	--

Comments:

Composite Sample Collection

STATION: ASG
 Personnel: SMK MMJ

Bottle 1 of 1

Date/Time On-Site: 220606 1105

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220605-206	-WC
Approx Sample Volume (mL):	15500mL	
Clarity (ex. Clear, Cloudy, Silty):	Cloudy	
Color (ex. Clear, Gray, Tan, Brown, Black):	Dark Brown	
QA/QC Sample ID:	-103	(Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	220605 1912	NA	13	0006	
2	2330		14	0008	
3	2338		15	0010	
4	2343		16	0012	
5	2347		17	0014	
6	2350		18	0017	
7	2352		19	0019	
8	2355		20	0022	
9	2357		21	0025	
10	2359		22	0029	
11	220606 0001		23	0033	
12	0004		24	0038	

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle, add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
---	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL



Technical Memorandum

1290 W. Myrtle St. Suite 340
Boise, ID 83702

Phone: 208-389-7700

Prepared for: Ada County Highway District

Project Title: NPDES Phase I Stormwater Support WY 2022

Project No.: 157527

Technical Memorandum

Subject: ACHD Phase I Storm Event Report for June 12, 2022

Date: August 16, 2022

To: Tammy Lightle

Cc: Monica Lowe

From: Shannon Kronz, Project Engineer

Prepared by: Shannon Kronz, Project Engineer

Reviewed by: Erin Cox, Project Manager

Limitations:

This document was prepared solely for ACHD in accordance with professional standards at the time the services were performed and in accordance with the contract between ACHD and Brown and Caldwell dated October 4, 2021. This document is governed by the specific scope of work authorized by ACHD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ACHD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1: Introduction

The EPA Region 10 reissued a Municipal Separate Storm Sewer System Phase I National Pollutant Discharge Elimination System Permit (NPDES Permit), effective October 1, 2021, to Ada County Highway District (ACHD), Boise City, Ada County Drainage District No. 3, Idaho Transportation Department District 3, Boise State University, and Garden City. Under the NPDES Permit, the Permittees are required to continue to conduct wet weather stormwater outfall monitoring and subwatershed monitoring. Four outfall monitoring sites (Lucky, Whitewater, Main, and Americana) and one subwatershed monitoring site (AS_6) have been established. The AS_6 site represents a subwatershed located within the Americana watershed. At each site, a minimum of three composite and three grab samples will be collected during Water Year (WY) 2022. The following storm event report summarizes the stormwater sampling results from the June 12, 2022 storm event.

Section 2: Project Status

Table 2-1 is a summary of the sample types collected to date for WY 2022 Phase I Stormwater Outfall Monitoring.

Table 2-1. WY 2022 Samples Collected					
Date	Lucky	Whitewater	Main	Americana	AS_6
October 22, 2021	G	G	G, C	G, C	G, C
November 9, 2021	C	C	-	-	-
March 15, 2022	G, C	G, C	G, C	G, C	G, C
April 4, 2022	-	G	-	G	-
May 27, 2022	G ¹	-	G ¹ , C	C	G ¹ , C ²
June 5, 2022	C	C ³	-	C ³	C
June 12, 2022	G	C	G	-	G
Collected:	3G, 3C	3G, 3C	3G, 3C	3G, 3C	3G, 3C

Notes:

C = composite sample.

G = grab sample.

¹ E. coli sample qualified due to exceeded hold time

² No data on dissolved parameters or NO_x due to low composite sample volume

³ Composite samples rejected due lack of representativeness

After the June 12, 2022 storm event, ACHD completed the stormwater monitoring requirements for Phase I monitoring sites for WY 2022.

Section 3: Storm Event Summary

The June 12, 2022 storm event and the subsequent preparation and sampling efforts are detailed in the following sections.

3.1 Storm Detail

A detailed summary of the forecast on which monitoring decisions were based is included below. The sampling event communication form that describes the forecast and summarizes the decision-making process from June 12, 2022 is included in Attachment A for reference.

Friday, June 10, 2022

- On the morning of June 10, 2022 the National Weather Service issued a forecast for convective thunderstorms in the Boise area on Sunday, June 12, 2022. Rainshadowing was not expected. The chance of precipitation was 90 percent, with 0.39 inches of precipitation forecasted.
- Setup was accomplished on June 10, 2022. An expected precipitation depth of 0.19 inch was used to set trigger volumes at monitoring stations.

Sunday, June 12, 2022

- Rain started around 0800 and continued for two hours. A second wave of rain started around 1100 and continued for an hour. A third, heavy wave of rain started around 1400 and continued for an hour.
- Precipitation totals ranged between 0.62 and 0.69 inch at local rain gauges.

Flow measurements and precipitation data are included in Table 1 along with a sampling summary. Hydrographs showing flow, rain, and sample collection data are included in Attachment B.

3.2 Sampling Summary

The Whitewater monitoring station was set up the morning of June 10, 2022 to collect flow proportional composite samples during the storm. A sample enable condition was programed into the Whitewater flowmeter. Setup and sampling information is included in Table 1. The field forms completed during setup/shut down and sampling can be found in Attachment D.

Grab Samples

One, two-member team mobilized to collect stormwater runoff grab samples and verify operation of the automatic sampling equipment on the morning of June 12, 2022. Grab samples were submitted to the West Boise Water Quality Lab (WQL) at 1101 on June 12. Results for grab samples, including field parameter and analytical data, are included in Table 2. Laboratory analytical reports are located in Attachment C.

Composite Samples

A composite sample was collected at the Whitewater monitoring station. The volume of the composite sample submitted was sufficient for all parameters. The composite sample was submitted to the WQL on June 12 at 1602. Analytical results are included in Table 2. Pollutant loading estimates for the event are included in Table 3.

Section 4: Quality Assurance/Quality Control

A summary of quality control (QC) samples collected during the June 12, 2022 storm event is presented below in Table 4-1. A field blank and a field duplicate were collected from the Lucky monitoring station. The

Whitewater composite sample was divided into a composite split at the WQL. Analytical results for these samples are included in Table 4.

Table 4-1. QC Samples			
Sample ID	Sample Type	Parent Sample	Conclusions
220612-03-001	Field Blank	Lucky Grab	No E. coli detection was reported in the field blank.
220612-03-101	Field Duplicate	Lucky Grab	Relative percent difference was within the acceptable range.
220612-11-103	Composite Split	Whitewater Composite	Relative percent difference was within the acceptable range.

Data quality objectives for this storm were evaluated and tracked using the data validation review checklist included in Attachment A. Acceptance and performance criteria for analytical and non-analytical data were met for this storm event.

Data Tables

Table 1. Sampling and Flow Summary

	Lucky	Whitewater	Main	Americana	AS_6
Grab samples collected and submitted?	YES	NO	YES	NO	YES
Composite samples collected and submitted?	NO	YES	NO	NO	NO
Trigger volume (ft ³)	--	1,600	--	--	--
Velocity cutoff (fps)	--	--	--	--	--
Sampler enable condition (in)	--	level > 2.0"	--	--	--
Runoff start time	8:37	9:01	8:36	--	8:50
Grab sample collection time	9:51	--	9:24	--	10:22
Composite sample stop time	--	15:27	--	--	--
Runoff stop time	17:08	17:50	17:47	--	17:46
Volume of discharge sampled (ft ³)	--	100,411	--	--	--
Total runoff volume (ft ³)	50,626	110,696	62,831	--	34,941
Percent of storm flow sampled (%)	--	91%	--	--	--
Composite sample duration (hrs)	--	6.0	--	--	--
Storm Precipitation (in)	0.69	0.68	0.62	0.62/0.68	0.62/0.68
Referenced Rain Gauge	Cynthia Mann	Whitewater	Front	Front/East	Front/East
Sampler messages (counts): Success	--	63	--	--	--
Number of composite bottles filled	--	3	--	--	--
Composite sample volume (Approx.; ml)	--	38,250	--	--	--

Notes:

-- = no data.

Table 2. Field and Analytical Data Summary - Wet Samples

Monitoring Station	Sample Date	Sample ID Grab	Field Parameters				E. coli mpn/100 mL	Sample ID Composite	Analytical Parameters																		
			Dissolved Oxygen	pH	Conductivity	Temperature			BOD ₅	COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate, as P	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C			mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Lucky	6/12/2022	220612-03-WG	7.58	6.09	49.6	18.38	1480.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Whitewater	--	--	--	--	--	--	--	220612-11-WC	53.0	195	23.7	53.5	181	70.2	0.997	0.489	0.458	0.176	4.35	2.6	<0.0250	0.11	5.5	0.27	8.8	0.0194	24.2
Main	6/12/2022	220612-12-WG	7.92	6.45	44.8	19.4	8600.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
AS_6	6/12/2022	220612-206-WG	6.64	6.42	87.2	18.21	5120.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		

Notes:

-- = no data.

Table 3. Event Pollutant Loading Estimates in Pounds

Monitoring Station	Event Date	TSS	Total Phosphorus	Ammonia	Nitrate + Nitrite (N)	TKN
Whitewater	6/12/2022	1250	6.89	3.16	1.22	30.1

Table 4. QC Sample Summary

Date	Parent Sample	Sample ID	Type	E. coli	BOD ₅	COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate	Ammonia	Nitrate + Nitrite (N)	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved	
				mpn/100 mL	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
6/12/2022	Lucky Grab	220612-03-001	Field Blank	<1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/12/2022	Lucky Grab	220612-03-101	Field Duplicate	1119.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Calculated parent/duplicate RPD				3%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
6/12/2022	Whitewater Composite	220612-11-103	Composite Split	--	52.5	187	24	53.9	170	79.8	0.994	0.475	0.433	0.177	4.06	2.5	<0.0250	0.11	5.4	0.29	8.2	0.0188	24.0	
Calculated parent/duplicate RPD				--	0.9%	4.2%	0%	0.7%	6.3%	12.8%	0.3%	2.9%	5.6%	0.6%	6.9%	3.9%	0%	0%	1.8%	7.1%	7.1%	3.1%	0.8%	
Allowable RPD				40%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%

Notes:
 -- = no data.

Attachment A: Supplemental Documents

Sampling Event Communication Form

Data Validation Checklist

Runoff Calculation Worksheet

SAMPLING EVENT COMMUNICATION FORM

Date: 6/10/2022	Time: 7:42 AM	Initials: TL
Is there a targeted sampling event during the next 36 hours? (Or, if it is Friday, is a targeted event expected before 5:00 PM Monday?)		Yes

Past 72 hr Precip	0.01"
Date and time of expected event	6/12 6am – midnight
Expected amount of precipitation	0.39"
Percent chance of precipitation	90%
Percent chance of >0.10" over 12 hours	54%

NWS Update
 I spoke with Steven at NWS this morning. The models are all showing totals greater than 0.10" on Sunday, but the timing of that differs between models. The official forecast is 0.09" from 6am-noon, 0.16" from noon-6pm, and 0.14" from 6pm-midnight. There is a 20% chance of t-storms starting Saturday afternoon, and if we happen to get that then we will likely get >0.10" during the t-storm. The instability associated with this system should negate any chance of rainshadowing.

<u>Targeted Station & Samples</u>					
Lucky	Whitewater	Main	Americana	AS_6	State (Phase II)
<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Grab
<input type="checkbox"/> Composite	<input checked="" type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input type="checkbox"/> Composite	<input type="checkbox"/> Composite

<u>Type of Forecasted Precipitation</u>		
<input type="checkbox"/> Light Rain	<input checked="" type="checkbox"/> Rain	<input type="checkbox"/> Rain on Snow
<input type="checkbox"/> Scattered Showers	<input checked="" type="checkbox"/> Thunder Showers	<input type="checkbox"/> Snowmelt
<input type="checkbox"/> Other:		

<u>Reasons for Not Targeting a Forecasted Storm and/or Stations</u>
<input type="checkbox"/> Holiday
<input type="checkbox"/> Waiting on Antecedent Dry Period – Expires:
<input type="checkbox"/> Equipment Concerns:
<input type="checkbox"/> Other:

Text Forecast
 NWS Forecast for: Boise ID
 Issued by: National Weather Service Boise, ID
 Last Update: 3:45 am MDT Jun 10, 2022

Today: Mostly sunny and hot, with a high near 90. Light and variable wind.
 Tonight: Partly cloudy, with a low around 65. Calm wind becoming northwest around 6 mph.
 Saturday: A 20 percent chance of showers and thunderstorms after noon. Some of the storms could produce small hail and gusty winds. Partly sunny, with a high near 83. Calm wind becoming northwest 5 to 9 mph in the afternoon.
 Saturday Night: A slight chance of showers and thunderstorms. Some of the storms could produce small hail and gusty winds. Mostly cloudy, with a low around 59. North northwest wind 5 to 8 mph becoming calm after midnight. Chance of precipitation is 20%.

Sunday: Showers likely, then showers and possibly a thunderstorm after noon. Some of the storms could produce small hail, gusty winds, and heavy rain. High near 77. Calm wind becoming southeast 5 to 8 mph in

the afternoon. Chance of precipitation is 90%. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Sunday Night: Showers likely and possibly a thunderstorm before midnight, then a chance of showers. Some of the storms could produce small hail, gusty winds, and heavy rain. Mostly cloudy, with a low around 48. Chance of precipitation is 70%. New precipitation amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Monday: Mostly sunny, with a high near 64.

Monday Night: Mostly clear, with a low around 44.

Tuesday: Sunny, with a high near 68.

Tuesday Night: Mostly clear, with a low around 46.

Wednesday: Sunny, with a high near 80.

Wednesday Night: Mostly clear, with a low around 55.

Thursday: Sunny and hot, with a high near 90.

Forecast Discussion

Area Forecast Discussion

National Weather Service Boise ID

359 AM MDT Fri Jun 10 2022

.SHORT TERM...Today through Sunday night...Southwest flow aloft will continue through the weekend. Pacific moisture streaming into the Northwest will shift far enough south today for scattered showers and isolated afternoon thunderstorms across the north (Baker County to the West Central Mountains). Otherwise, expect mostly clear skies and warmer temperatures. Highs will be in the upper 80s to lower 90s across the lower valleys. **The moist plume will shift a little further south on Saturday for a better chance for showers and thunderstorms**, with widespread showers expected across the far north. **Instability will become more favorable for thunderstorms capable of producing gusty winds and small hail.** Temperatures will be several degrees cooler. **An upper disturbance will move through the region Sunday through Sunday night. The disturbance will enhance the rainfall rates with the convection. Locally heavy rainfall is possible - especially in the northern mountainous areas** (Baker County and central Idaho). **In addition to the heavy rainfall, gusty winds and small hail may once again accompany the stronger thunderstorms.** Temperatures will be even cooler with highs within a few degrees of normal.

.LONG TERM...Monday through Friday...Slightly cooler and windy across the region on Monday as (the drier half of) a large trough continues to make its way through the area, exiting by Wednesday morning. **Some persistent moisture will be available across the Boise and West Central Mountains making them the focal point for any shower activity through late afternoon Tuesday. There is a slight chance for afternoon thunderstorms on Monday.** Shower coverage is expected to gradually lessen. Gusty winds will be a factor throughout the forecast period, initially associated with the exiting low, tapering off on Wednesday. They are expected to pick back up again Thursday afternoon with the approach of the next strong low pressure system. Look for fair to partly cloudy skies throughout most of the region through most of the period

Storm Event QA/QC Checklist – Phase I

STORM DATE 220612

A. Event and Data Completeness	Yes	No	N/A	Notes					
1. Field data sheets filled out completely and clearly	X								
2. Field parameters reviewed, and any problems/issues addressed	X								
3. All samples collected as specified	X								
4. All samples delivered to lab promptly (review chain of custody rpts)	X								
5. Inconsistencies/clarifications discussed with sampling team member			X						
6. All analytical reports from lab received	X								
B. Validation and Verification Methods	Yes	No	N/A	Notes					
1. Outliers and unexpected values discussed with lab			X						
2. Appropriate analytical methods used	X								
3. All lab QA samples were within method acceptance criteria	X								
4. All samples reviewed and data qualifiers assigned if needed	X								
5. Data quality objective achieved	X								
C. Specific Storm and Sample QA/QC Criteria	Lucky	Whitewater	Main	Americana	AS_6	Program Criteria	Met	Qualify	Reject
1. Antecedent dry period (inches in previous 72-hours)	0	0	0	0	0	< 0.11" in 72 hrs	X		
2. Precipitation (inches)	0.69	0.68	0.62	0.62 0.62/0.68	0.65 0.62/0.68	> 0.10"	X		
3. Sampled amount (% of total run-off)	—	91	—	—	—	>= 75% or >= 6 hrs: no qualifier >= 50% and <75%: qualify < 50%: reject	X		
4. Composite sample duration (hours)	—	6.0	—	—	—		<= 8 hrs: no qualifier >8 and <=16 hrs.: qualify >16 hrs.: reject	X	
4. Ecoli sample holding time (hours)	3	—	3	—	2	<= 24 hrs: no qualifier > 24 hrs.: reject	X		
5. Filtering of samples for dissolved parameter analysis (hours)	—	1	—	—	—	<= 24 hrs: no qualifier > 24 hrs.: reject	X		
D. Notes									

Reviewed by Tamara Lightle Date 07.19.22

Approved by Monica Lowe Date 7/25/22

Storm Runoff Estimates and Trigger Volumes

ACHD Storm Water Monitoring Water Year 2022

Simple Method

Expected Precipitation Depth = 0.11 in
 Square Feet per Acre = 43560 ft²/ac
 Inches per Foot = 12 in/ft
 Aliquots per Sample = 17

Step 1. Enter runoff coefficients in yellow cells.

Step 2. Enter expected precipitation depth in inches in blue cell.

Step 3. Read trigger volumes (**bold**) in green cells.

Site	Area (ac)	Using RC Based on Land Use			Using Manually-entered RC		
		RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)	RC	Expected Vol. (ft ³)	Trigger Vol. (ft ³)
#3 Lucky	105	0.401	16813	989	0.157	6582.46	387
#11 Whitewater	498	0.437	86898	5112	0.116	23066.76	1357
#12 Main	79	0.437	13785	811	0.246	7760.00	456
#14 Americana	875	0.446	155827	9166	0.144	50311.80	2960
#206 AS_6	204	0.257	20935	1231	0.046	3747.03	221
#18 State	34	0.419	5688	335	0.144	1954.97	122
Theoretical	80	0.200	6389		0.000		

NOTES: 1. Land usage data, watershed area, and % imp are from ACHD 2013 GIS analysis.

Runoff Coefficient = Runoff Volume (ft³) ÷ [Storm Depth (ft) x Area (ft²)]

all values taken from historically corrected runoff coefficients

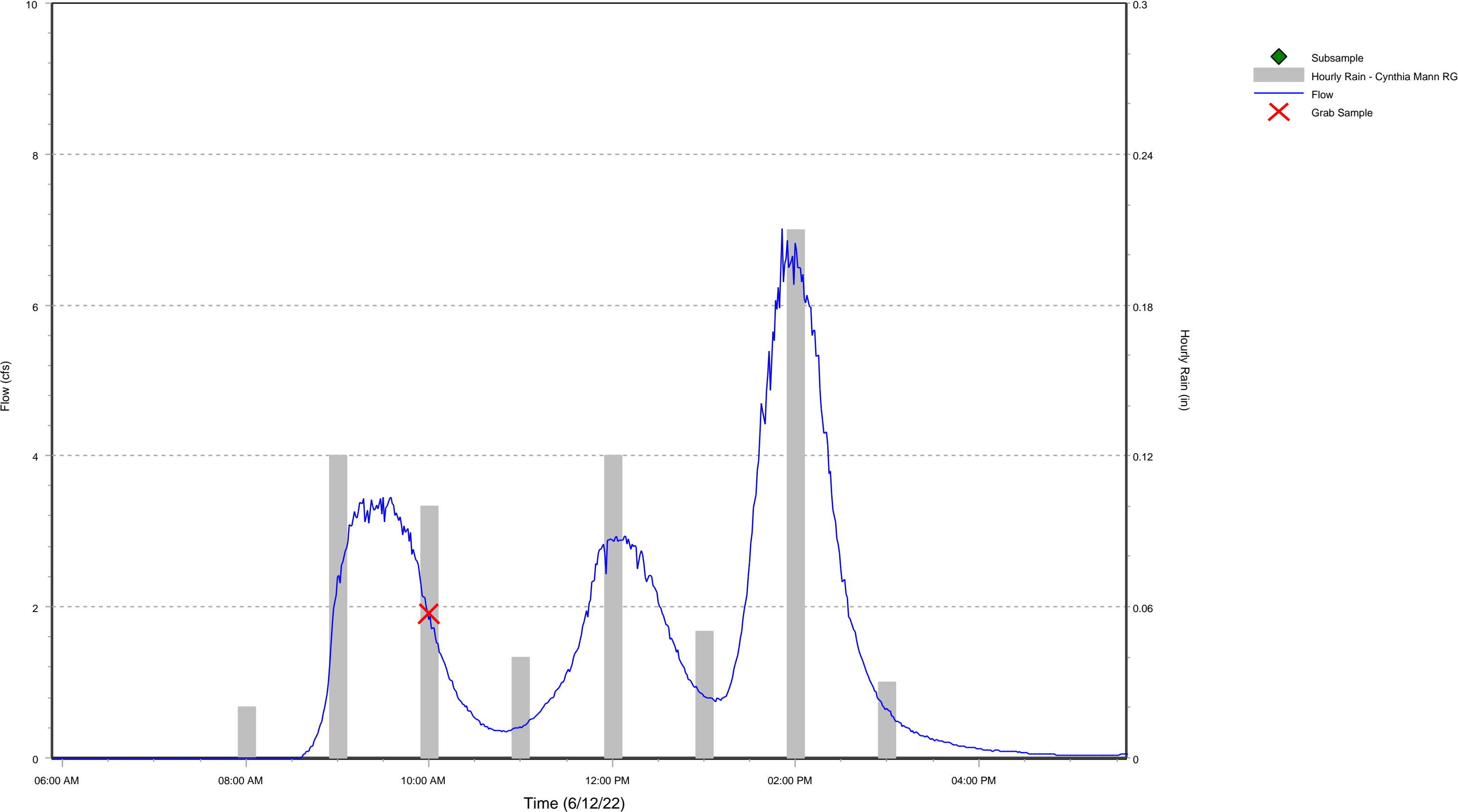
total acreage*total precip = total runoff (unit conversion factor from acre inches to cubic feet 3630)

Measured runoff

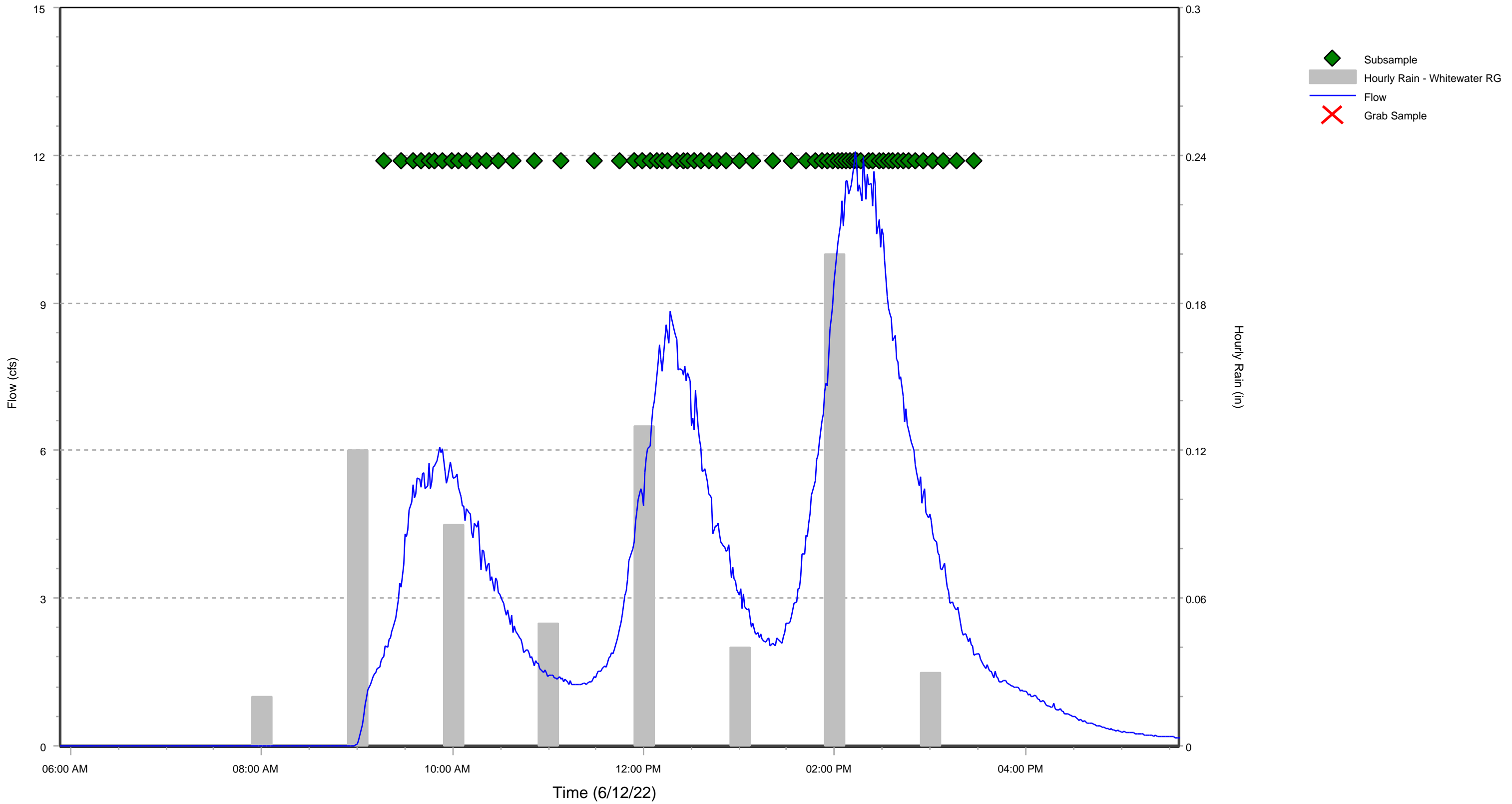
RC = measured runoff / total runoff

Attachment B: Storm Event Hydrographs

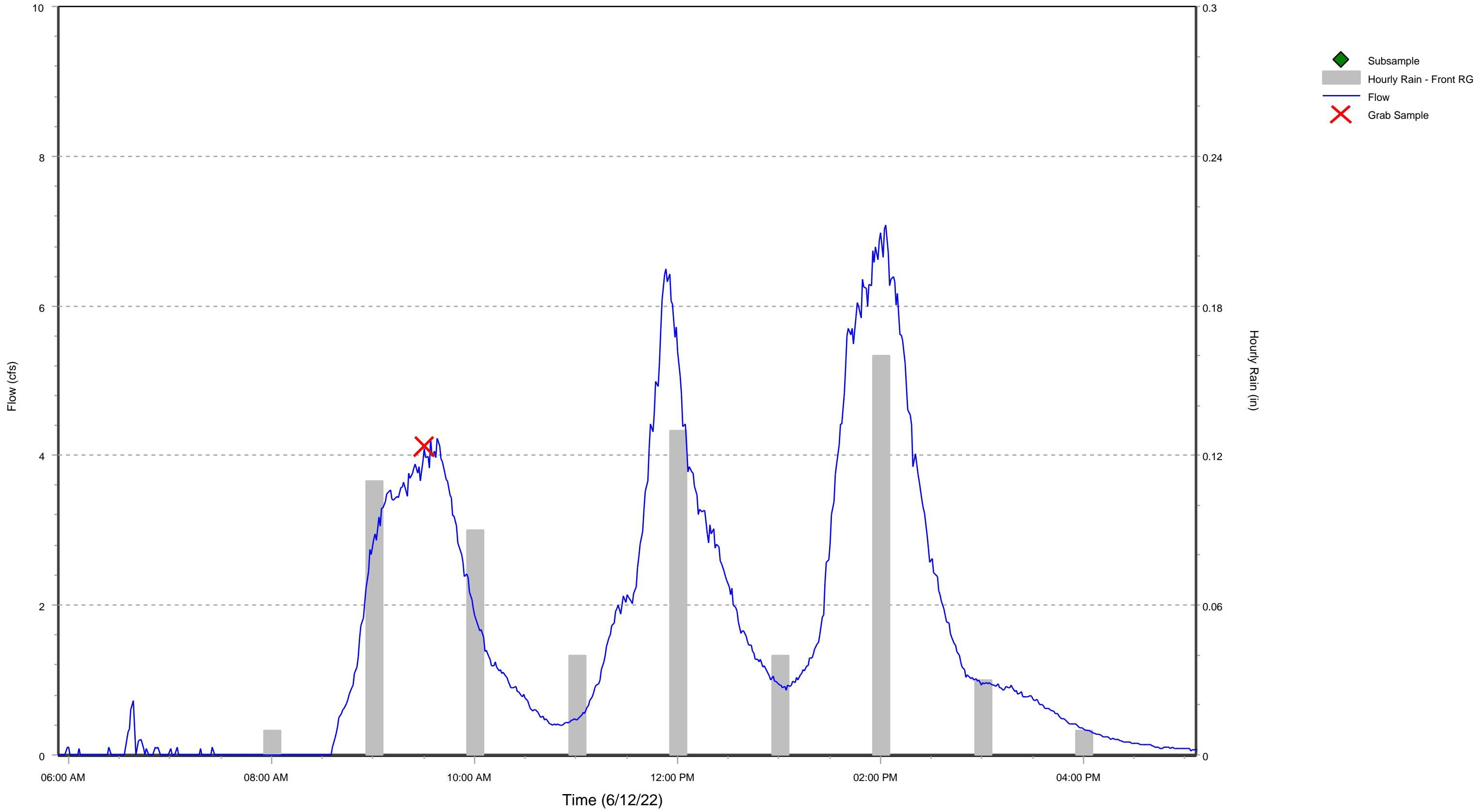
Lucky Hydrograph



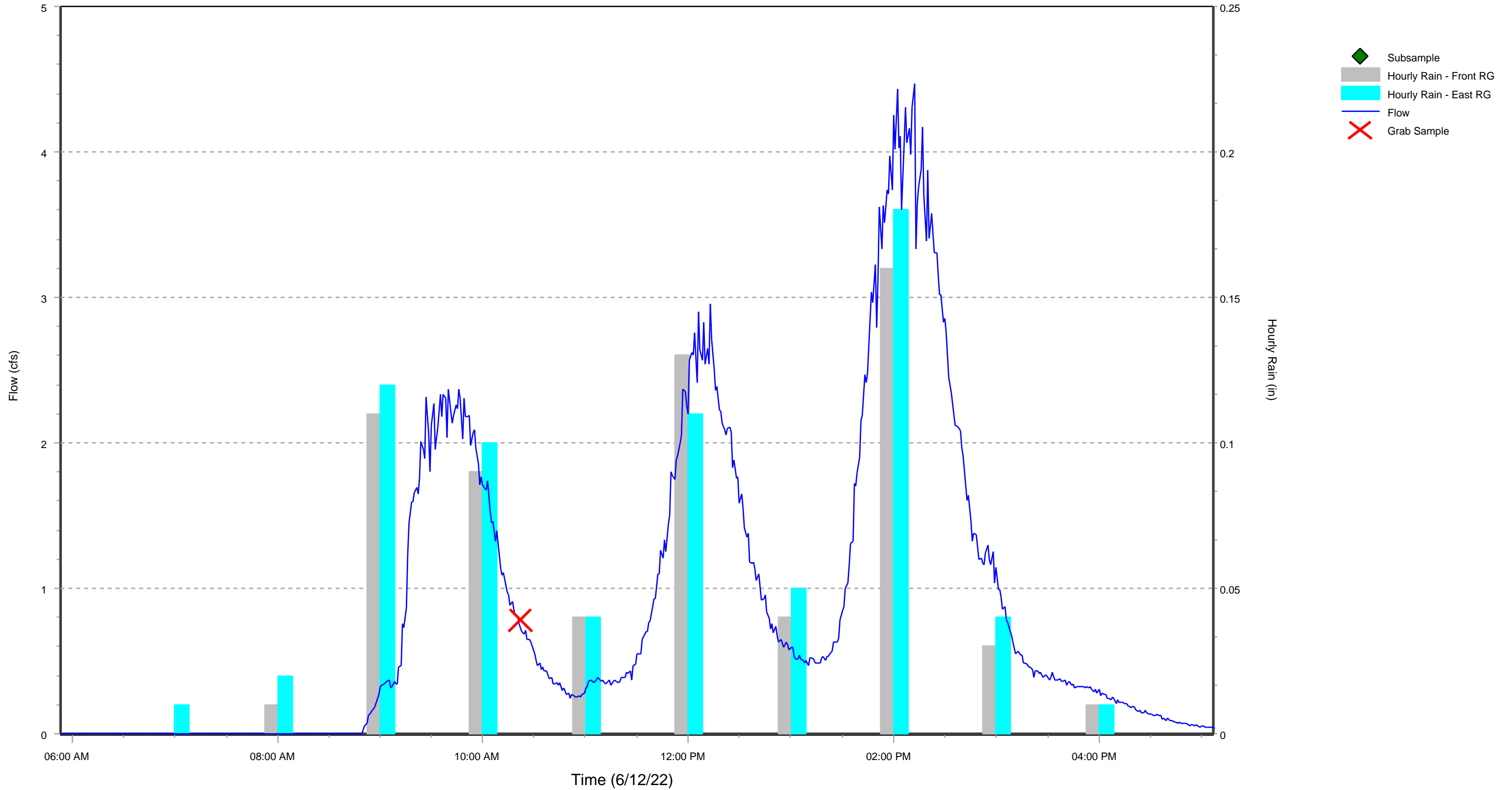
Whitewater Hydrograph



Main Hydrograph

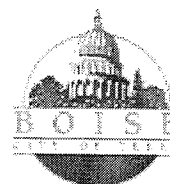


AS_6 Hydrograph



Attachment C: Storm Event Analytical Reports

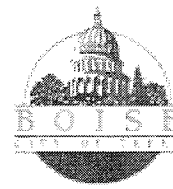
Report Date: 06/28/2022 14:21



Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00216-01	ACST1B	220612-03-WG	Water		06/12/2022	06/12/2022
AC00216-02	ACST1B	220612-03-101	Water		06/12/2022	06/12/2022
AC00216-03	ACST1B	220612-03-001	Water		06/12/2022	06/12/2022
AC00216-04	ACST1B	220612-12-WG	Water		06/12/2022	06/12/2022
AC00216-05	ACST1B	220612-206-WG	Water		06/12/2022	06/12/2022



Analysis Report

Location:	ACST1B	Location Description:	220612-206-WG
Date/Time Collected:	06/12/2022 10:22		
Lab Number:	AC00216-05	Sample Collector:	J.E
Sample Type:	Grab	Sample Matrix:	Water

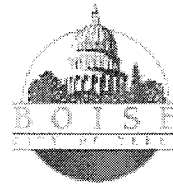
Analyte Name	Batch	Result	Units	Adjusted Method MDL *	Method MDL	Analysis Method Reference	Prepared Time	Analysis Time	Analyst Initials	Qual
Microbiology										
E. Coli	B222238	5120.0 MPN/100 mL		100.0	1.0	IDEXX - Colilert	06/12/22 12:42	6/13/22 13:26	ASE	D
Wet Chemistry										
Chlorine Screen	B222241	Absent				SM 4500-CL G-2000 mod	06/12/22	6/12/22 11:51	ASE	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Microbiology									
Batch: B222238									
Blank (B222238-BLK1)									
E. Coli	Absent						06/13/2022	ASE	
LCS (B222238-BS1)									
E. Coli				Present			06/13/2022	ASE	
Duplicate (B222238-DUP1) Source ID: AC00216-02									
E. Coli					Pass	128	06/13/2022	ASE	



Notes and Definitions


Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846



Janet Finegan-Kelly
Water Quality Laboratory Manager



Stephen Quintero or Azubike Emenari
QA/QC Coordinator

Report Date: 07/05/2022 12:48



Boise City Public Works
Water Quality Laboratory
11818 Joplin Road
Boise, Idaho 83714-1076
Telephone (208) 608-7240
Fax (208) 608-7319

Samples in this Report

Lab ID	Sample	Sample Description	Matrix	Qualifiers	Date Sampled	Date Received
AC00217-01	ACST1C	220612-11-WC	Water		06/12/2022	06/12/2022
AC00217-02	ACST1C	220612-11-103	Water		06/12/2022	06/12/2022



Analysis Report

Location: ACST1C
 Date/Time Collected: 06/12/2022 12:00
 Lab Number: AC00217-02
 Sample Type: Composite

Location Description: 220612-11-103
 Sample Collector: T.L
 Sample Matrix: Water

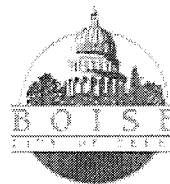
Analyte Name	Batch	Result	Units	Adjusted Method		Analysis Method Reference	Prepared Time	Analysis Time		Analyst Initials	Qual
				MDL *	MDL						
Wet Chemistry											
Ammonia, as N	B222354	0.433	mg/L	0.0350	0.0350	SM 4500-NH3 D-2011	06/21/22	6/21/22	10:58	CJP	
BOD5	B222248	52.2	mg/L	2.00	2.00	SM 5210 B-2011	06/13/22	6/18/22	9:25	MER	
COD	B222246	187	mg/L	13.0	13.0	HH 8000, Standard Method 5220 D	06/13/22	6/13/22	10:15	ALN	
Nitrate-Nitrite, as N	B222313	0.177	mg/L	0.0250	0.0250	EPA 353.2, Rev. 2.0 (1993)	06/16/22	6/16/22	13:49	ALN	
TKN	B222385	4.06	mg/L	0.100	0.100	EPA 351.2, 10-107-06-2-M (Equivalent)	06/22/22	6/23/22	10:42	JAL	
Total Dissolved Solids	B222255	79.8	mg/L	25.0	25.0	SM 2540 C-2011	06/13/22	6/17/22	12:57	LRF	
Total Suspended Solids	B222251	170	mg/L	0.900	0.900	SM 2540 D-2011	06/13/22	6/13/22	11:46	HAL	
Turbidity	B222258	53.9	NTU	0.6	0.3	EPA 180.1, Rev. 2.0 (1993)	06/13/22	6/13/22	12:54	CJP	D
Dissolved Wet Chemistry											
Orthophosphate, as P	B222247	0.475	mg/L	0.0160	2.00E-3	EPA 365.1, Rev. 2.0 (1993)	06/13/22	6/13/22	14:52	SMC	D
Total Metals											
Mercury	B222272	0.0188	ug/L	0.0100	0.0100	EPA 245.2	06/14/22	6/15/22	8:18	SAS	
Arsenic	B222342	2.5	ug/L	0.040	0.040	EPA 200.8	06/18/22	6/19/22	15:09	DMW	
Cadmium	B222342	0.11	ug/L	0.025	0.025	EPA 200.8	06/18/22	6/19/22	15:09	DMW	
Calcium	B222269	6.70	mg/L	0.0460	0.0460	EPA 200.7	06/14/22	6/28/22	15:47	EDM	
Lead	B222342	8.2	ug/L	0.050	0.050	EPA 200.8	06/18/22	6/19/22	15:09	DMW	
Magnesium	B222269	1680	ug/L	50.0	50.0	EPA 200.7	06/14/22	6/28/22	15:47	EDM	
Phosphorus as P	B222269	0.994	mg/L	6.00E-3	6.00E-3	EPA 200.7	06/14/22	6/28/22	15:47	EDM	
Hardness	B222269	23.7	mg/L	0.115	0.115	EPA 200.7	06/14/22	6/28/22	15:47	EDM	
Dissolved Metals											
Cadmium	B222299	<0.0250	ug/L	0.025	0.025	EPA 200.8	06/16/22	6/16/22	13:23	DMW	U
Copper	B222299	5.4	ug/L	0.15	0.15	EPA 200.8	06/16/22	6/16/22	13:23	DMW	
Lead	B222299	0.29	ug/L	0.050	0.050	EPA 200.8	06/16/22	6/16/22	13:23	DMW	
Zinc	B222299	24.0	ug/L	0.78	0.78	EPA 200.8	06/16/22	6/16/22	13:23	DMW	

* The reported adjusted "MDL" is sample-specific. The analysis MDL as defined by 40 CFR pt 136 App.B. was corrected for dilution, dry weight, or method-defined ML.



Quality Control Report

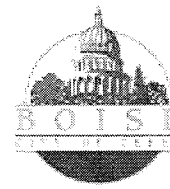
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry									
Batch: B222246									
Blank (B222246-BLK1)									
COD	<13	mg/L					06/13/2022	ALN	U
LCS (B222246-BS1)									
COD			99.0	90-110			06/13/2022	ALN	
Duplicate (B222246-DUP1) Source ID: AC00217-01									
COD					6.93	10	06/13/2022	ALN	
Batch: B222248									
Blank (B222248-BLK1)									
BOD5	<2	mg/L					06/18/2022	MER	U
LCS (B222248-BS1)									
BOD5			93.3	84.6-115.4			06/18/2022	MER	
LCS (B222248-BS2)									
BOD5			110	84.6-115.4			06/18/2022	MER	
Duplicate (B222248-DUP1) Source ID: WB01912-07									
BOD5					3.47	30	06/18/2022	MER	
Batch: B222251									
Blank (B222251-BLK1)									
Total Suspended Solids	<0.9	mg/L					06/13/2022	HAL	U
LCS (B222251-BS1)									
Total Suspended Solids			96.0	90-110			06/13/2022	HAL	
Duplicate (B222251-DUP1) Source ID: BB02142-02									
Total Suspended Solids					0.479	20	06/13/2022	HAL	
Batch: B222255									
Blank (B222255-BLK1)									
Total Dissolved Solids	<25	mg/L					06/17/2022	LRF	U
LCS (B222255-BS1)									
Total Dissolved Solids			101	90-110			06/17/2022	LRF	
Duplicate (B222255-DUP1) Source ID: WR00033-01									
Total Dissolved Solids					0.226	10	06/17/2022	LRF	



Quality Control Report

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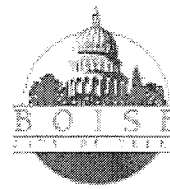
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222258									
Blank (B222258-BLK1)									
Turbidity	<0.3	NTU					06/13/2022	CJP	U
LCS (B222258-BS1)									
Turbidity			104	90-110			06/13/2022	CJP	
Duplicate (B222258-DUP1) Source ID: AC00217-01									
Turbidity					17.5	25	06/13/2022	CJP	D
Batch: B222313									
Blank (B222313-BLK1)									
Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
Blank (B222313-BLK2)									
Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
Blank (B222313-BLK3)									
Nitrate-Nitrite, as N	<0.025	mg/L					06/16/2022	ALN	U
LCS (B222313-BS1)									
Nitrate-Nitrite, as N			96.0	90-110			06/16/2022	ALN	
LCS (B222313-BS2)									
Nitrate-Nitrite, as N			95.7	90-110			06/16/2022	ALN	
LCS (B222313-BS3)									
Nitrate-Nitrite, as N			95.2	90-110			06/16/2022	ALN	
Duplicate (B222313-DUP1) Source ID: AC00212-01									
Nitrate-Nitrite, as N					0.194	10	06/16/2022	ALN	
Duplicate (B222313-DUP2) Source ID: BB02120-01									
Nitrate-Nitrite, as N					0.276	10	06/16/2022	ALN	
Duplicate (B222313-DUP3) Source ID: BB02130-01									
Nitrate-Nitrite, as N					0.773	10	06/16/2022	ALN	
Duplicate (B222313-DUP4) Source ID: BB02136-04									
Nitrate-Nitrite, as N					0.212	10	06/16/2022	ALN	
Duplicate (B222313-DUP5) Source ID: LS01194-02									
Nitrate-Nitrite, as N					NR	10	06/16/2022	ALN	U
Duplicate (B222313-DUP6) Source ID: WB01908-07									
Nitrate-Nitrite, as N					NR	10	06/16/2022	ALN	U
Matrix Spike (B222313-MS1) Source ID: AC00212-01									
Nitrate-Nitrite, as N			96.0	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS2) Source ID: BB02120-01									
Nitrate-Nitrite, as N			91.9	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS3) Source ID: BB02130-01									
Nitrate-Nitrite, as N			96.5	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS4) Source ID: BB02136-04									
Nitrate-Nitrite, as N			94.2	90-110			06/16/2022	ALN	



Quality Control Report

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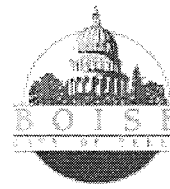
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222313 (Continued)									
Matrix Spike (B222313-MS5) Nitrate-Nitrite, as N	Source ID: LS01194-02		94.7	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS6) Nitrate-Nitrite, as N	Source ID: WB01908-07		95.1	90-110			06/16/2022	ALN	
Matrix Spike (B222313-MS7) Nitrate-Nitrite, as N	Source ID: WQ00115-08		95.4	90-110			06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD1) Nitrate-Nitrite, as N	Source ID: AC00212-01		95.5	90-110	0.373	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD2) Nitrate-Nitrite, as N	Source ID: BB02120-01		92.2	90-110	0.0919	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD3) Nitrate-Nitrite, as N	Source ID: BB02130-01		95.9	90-110	0.537	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD4) Nitrate-Nitrite, as N	Source ID: BB02136-04		93.6	90-110	0.200	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD5) Nitrate-Nitrite, as N	Source ID: LS01194-02		95.4	90-110	0.700	10	06/16/2022	ALN	
Matrix Spike Dup (B222313-MSD6) Nitrate-Nitrite, as N	Source ID: WB01908-07		95.1	90-110	0.0336	10	06/16/2022	ALN	
Batch: B222354									
Blank (B222354-BLK1) Ammonia, as N	<0.035	mg/L					06/21/2022	CJP	U
Blank (B222354-BLK2) Ammonia, as N	<0.035	mg/L					06/21/2022	CJP	U
LCS (B222354-BS1) Ammonia, as N			107	90-110			06/21/2022	CJP	
LCS (B222354-BS2) Ammonia, as N			96.7	90-110			06/21/2022	CJP	
Duplicate (B222354-DUP1) Ammonia, as N	Source ID: BB02133-01				1.10	10	06/21/2022	CJP	
Duplicate (B222354-DUP2) Ammonia, as N	Source ID: LS01197-02				6.25	10	06/21/2022	CJP	
Duplicate (B222354-DUP3) Ammonia, as N	Source ID: BB02145-04				1.50	10	06/21/2022	CJP	
Matrix Spike (B222354-MS1) Ammonia, as N	Source ID: BB02133-01		100	80-120			06/21/2022	CJP	
Matrix Spike (B222354-MS2) Ammonia, as N	Source ID: LS01197-02		91.7	80-120			06/21/2022	CJP	
Matrix Spike (B222354-MS3) Ammonia, as N	Source ID: BB02145-04		99.2	80-120			06/21/2022	CJP	



Quality Control Report

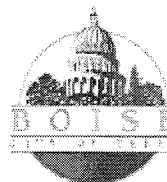
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Wet Chemistry (Continued)									
Batch: B222354 (Continued)									
Matrix Spike Dup (B222354-MSD1) Ammonia, as N	Source ID: BB02133-01		102	80-120	0.833	10	06/21/2022	CJP	
Matrix Spike Dup (B222354-MSD2) Ammonia, as N	Source ID: LS01197-02		90.8	80-120	0.692	10	06/21/2022	CJP	
Matrix Spike Dup (B222354-MSD3) Ammonia, as N	Source ID: BB02145-04		98.6	80-120	0.495	10	06/21/2022	CJP	
Batch: B222385									
Blank (B222385-BLK1) TKN		<0.1 mg/L					06/23/2022	JAL	U
Blank (B222385-BLK2) TKN		<0.1 mg/L					06/23/2022	JAL	U
LCS (B222385-BS1) TKN			101	80-120			06/23/2022	JAL	
LCS (B222385-BS2) TKN			100	80-120			06/23/2022	JAL	
Duplicate (B222385-DUP1) TKN	Source ID: AC00217-01				14.0	20	06/23/2022	JAL	
Duplicate (B222385-DUP2) TKN	Source ID: NP00043-01				2.89	20	06/23/2022	JAL	
Duplicate (B222385-DUP3) TKN	Source ID: WR00032-01				0.873	20	06/23/2022	JAL	
Matrix Spike (B222385-MS1) TKN	Source ID: AC00217-01		103	80-120			06/23/2022	JAL	
Matrix Spike (B222385-MS2) TKN	Source ID: NP00043-01		103	80-120			06/23/2022	JAL	
Matrix Spike (B222385-MS3) TKN	Source ID: WR00032-01		101	80-120			06/23/2022	JAL	
Matrix Spike Dup (B222385-MSD1) TKN	Source ID: AC00217-01		109	80-120	2.82	20	06/23/2022	JAL	
Matrix Spike Dup (B222385-MSD2) TKN	Source ID: NP00043-01		104	80-120	0.642	20	06/23/2022	JAL	
Matrix Spike Dup (B222385-MSD3) TKN	Source ID: WR00032-01		102	80-120	0.910	20	06/23/2022	JAL	



Quality Control Report
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Wet Chemistry									
Batch: B222247									
Blank (B222247-BLK1)									
Orthophosphate, as P	<0.002	mg/L					06/13/2022	SMC	U
LCS (B222247-BS1)									
Orthophosphate, as P			95.6	90-110			06/13/2022	SMC	
Duplicate (B222247-DUP2) Source ID: BB02142-01									
Orthophosphate, as P					1.47	10	06/13/2022	SMC	D
Duplicate (B222247-DUP5) Source ID: AC00217-02RE3									
Orthophosphate, as P					0.738	10	06/13/2022	SMC	D
Matrix Spike (B222247-MS2) Source ID: BB02142-01									
Orthophosphate, as P			99.2	90-110			06/13/2022	SMC	D
Matrix Spike (B222247-MS5) Source ID: AC00217-02RE3									
Orthophosphate, as P			109	90-110			06/13/2022	SMC	D
Matrix Spike Dup (B222247-MSD2) Source ID: BB02142-01									
Orthophosphate, as P			101	90-110	0.572	10	06/13/2022	SMC	D
Matrix Spike Dup (B222247-MSD5) Source ID: AC00217-02RE3									
Orthophosphate, as P			110	90-110	0.738	10	06/13/2022	SMC	D



Quality Control Report

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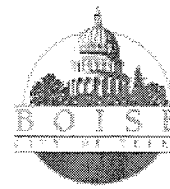
Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals									
Batch: B222269									
Blank (B222269-BLK1)									
Calcium	<0.046	mg/L					06/28/2022	EDM	U
Magnesium	<50	ug/L					06/28/2022	EDM	U
Phosphorus as P	<0.006	mg/L					06/28/2022	EDM	U
LCS (B222269-BS1)									
Calcium			95.2	85-115			06/28/2022	EDM	
Magnesium			96.0	85-115			06/28/2022	EDM	
Phosphorus as P			108	85-115			06/28/2022	EDM	
Duplicate (B222269-DUP1) Source ID: AC00217-01									
Calcium					1.22	20	06/28/2022	EDM	
Magnesium					1.84	20	06/28/2022	EDM	
Phosphorus as P					2.00	20	06/28/2022	EDM	
Matrix Spike (B222269-MS1) Source ID: AC00217-01									
Calcium			96.7	70-130			06/28/2022	EDM	
Magnesium			97.5	70-130			06/28/2022	EDM	
Phosphorus as P			120	70-130			06/28/2022	EDM	
Matrix Spike Dup (B222269-MSD1) Source ID: AC00217-01									
Calcium			95.1	70-130	1.07	20	06/28/2022	EDM	
Magnesium			96.4	70-130	1.05	20	06/28/2022	EDM	
Phosphorus as P			105	70-130	4.71	20	06/28/2022	EDM	
Batch: B222272									
Blank (B222272-BLK1)									
Mercury	<0.01	ug/L					06/15/2022	SAS	U
LCS (B222272-BS1)									
Mercury			109	85-115			06/15/2022	SAS	
Duplicate (B222272-DUP1) Source ID: AC00217-02									
Mercury					4.17	20	06/15/2022	SAS	
Duplicate (B222272-DUP2) Source ID: EP00137-02									
Mercury					NR	20	06/15/2022	SAS	U
Matrix Spike (B222272-MS1) Source ID: AC00217-02									
Mercury			104	70-130			06/15/2022	SAS	
Matrix Spike (B222272-MS2) Source ID: EP00137-02									
Mercury			98.5	70-130			06/15/2022	SAS	
Matrix Spike Dup (B222272-MSD1) Source ID: AC00217-02									
Mercury			90.6	70-130	11.5	20	06/15/2022	SAS	
Matrix Spike Dup (B222272-MSD2) Source ID: EP00137-02									
Mercury			106	70-130	7.65	20	06/15/2022	SAS	



Quality Control Report

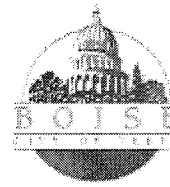
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Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Total Metals (Continued)									
Batch: B222342									
Blank (B222342-BLK1)									
Arsenic	<0.040	ug/L					06/19/2022	DMW	U
Cadmium	<0.025	ug/L					06/19/2022	DMW	U
Lead	<0.050	ug/L					06/19/2022	DMW	U
LCS (B222342-BS1)									
Arsenic			100	85-115			06/19/2022	DMW	
Cadmium			102	85-115			06/19/2022	DMW	
Lead			104	85-115			06/19/2022	DMW	
Duplicate (B222342-DUP1) Source ID: ME00188-02									
Arsenic					2.99	20	06/19/2022	DMW	
Cadmium					NR	20	06/19/2022	DMW	U
Lead					5.24	20	06/19/2022	DMW	
Matrix Spike (B222342-MS1) Source ID: ME00188-02									
Arsenic			101	70-130			06/19/2022	DMW	
Cadmium			98.6	70-130			06/19/2022	DMW	
Lead			98.5	70-130			06/19/2022	DMW	
Matrix Spike Dup (B222342-MSD1) Source ID: ME00188-02									
Arsenic			99.6	70-130	1.37	20	06/19/2022	DMW	
Cadmium			100	70-130	1.71	20	06/19/2022	DMW	
Lead			98.0	70-130	0.495	20	06/19/2022	DMW	



Quality Control Report
 (Continued)

Analyte Name	Method Blank	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Date Analyzed	Analyst Initials	Qualifier
Dissolved Metals									
Batch: B222299									
Blank (B222299-BLK1)									
Cadmium	<0.025	ug/L					06/16/2022	DMW	U
Copper	<0.15	ug/L					06/16/2022	DMW	U
Lead	<0.050	ug/L					06/16/2022	DMW	U
Zinc	<0.78	ug/L					06/16/2022	DMW	U
LCS (B222299-BS1)									
Cadmium			103	85-115			06/16/2022	DMW	
Copper			103	85-115			06/16/2022	DMW	
Lead			104	85-115			06/16/2022	DMW	
Zinc			110	85-115			06/16/2022	DMW	
Duplicate (B222299-DUP1) Source ID: ES00186-03									
Cadmium					NR	10	06/16/2022	DMW	U
Copper					0.0315	10	06/16/2022	DMW	
Lead					NR	10	06/16/2022	DMW	U
Zinc					2.64	10	06/16/2022	DMW	
Matrix Spike (B222299-MS1) Source ID: ES00186-03									
Cadmium			97.5	70-130			06/16/2022	DMW	
Copper			95.8	70-130			06/16/2022	DMW	
Lead			96.8	70-130			06/16/2022	DMW	
Zinc			99.6	70-130			06/16/2022	DMW	
Matrix Spike Dup (B222299-MSD1) Source ID: ES00186-03									
Cadmium			94.7	70-130	2.95	10	06/16/2022	DMW	
Copper			94.1	70-130	1.65	10	06/16/2022	DMW	
Lead			95.0	70-130	1.88	10	06/16/2022	DMW	
Zinc			96.2	70-130	3.23	10	06/16/2022	DMW	



Notes and Definitions


Item	Definition
D	Data reported from a dilution
U	Analyte included in the analysis, but not detected

Method Reference Acronyms

Colilert	Colilert, IDEXX Laboratories, Inc.
EPA	Manual of Methods for Chemical Analysis of Water and Wastes, USEPA
GS	USGS Techniques of Water-Resources Investigations
HH	Hach Spectrophotometer Procedures Manual
SM	Standard Methods for the Examination of Water and Wastewater
SW	Test methods for Evaluating Solid Waste, SW-846



Janet Finegan-Kelly
Water Quality Laboratory Manager



Stephen Quintero or Azubike Emenari
QA/QC Coordinator

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments	
Lims#: <u>AC00217-01</u> Location: <u>220612-11-4C</u> Sample Date: <u>6-12-22</u> Sample ID: <u>ACST1C</u>	Split Date: <u>6-12-22</u> Start Split: <u>1615</u> Start Filter: <u>1615</u> Comp Time: <u>1610</u> Analyst: <u>DW</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input checked="" type="checkbox"/> Other: <u>10</u>	Coll Jug: _____ Comp Jug: <u>22-71</u> SS Tubing: <u>30-25</u> SS Helper: _____ Stir Bar: <u>23-59</u> Connector: <u>27-58</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD	<input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	14 COLL JUGS (3) 14 26-71 26-71 22-84
Lims#: <u>AC00217-02</u> Location: <u>220612-11-103</u> Sample Date: <u>6-12-22</u> Sample ID: <u>DNP</u>	Split Date: <u>6-12-22</u> Start Split: <u>1645</u> Start Filter: <u>1645</u> Comp Time: <u>1616</u> Analyst: <u>DW</u>	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: <u>21-71</u> SS Tubing: <u>30-25</u> SS Helper: _____ Stir Bar: <u>23-58</u> Connector: <u>30-28</u>	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD	<input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD	<input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/> TDS <input checked="" type="checkbox"/> COD	<input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb	

ACHD SAMPLE FILTRATION, SPLITTING, AND COMPOSITING FOR METALS

Sample	Split/Filter Info	Filter Used	Bottle/Lid Lots	Bottles Split	Comments
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input checked="" type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P <input checked="" type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	
Lims#: _____ Location: _____ Sample Date: _____ Sample ID: _____	Split Date: _____ Start Split: _____ Start Filter: _____ Comp Time: _____ Analyst: _____	Filter: <input checked="" type="checkbox"/> Voss <input checked="" type="checkbox"/> 0.45µm <input type="checkbox"/> 1.0µm <input checked="" type="checkbox"/> 5.0µm <input type="checkbox"/> Other: _____	Coll Jug: _____ Comp Jug: _____ SS Tubing: _____ SS Helper: _____ Stir Bar: _____ Connector: _____	<input checked="" type="checkbox"/> Teflon Total <input checked="" type="checkbox"/> Teflon Diss (F) <input checked="" type="checkbox"/> Hg CVAA <input checked="" type="checkbox"/> BOD <input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> COD <input checked="" type="checkbox"/> TKN <input checked="" type="checkbox"/> NH ₃ <input checked="" type="checkbox"/> NO _x (F) <input checked="" type="checkbox"/> ortho-P (F) <input checked="" type="checkbox"/> Turb <input type="checkbox"/> _____ <input type="checkbox"/> _____	

Attachment D: Field Forms



Grab Sample Data Form

STATION: Lucky

Personnel: JLL, JJE Date/Time On-Site: 6.12.22 / 0946

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
0950	10.30	12.44	1.86	12.6		

Grab Information					
	Sample ID	Date	Time	Labeled?	
Site <i>E.Coli</i>	220612-03 -WG	6/12/22	0957	<input type="checkbox"/>	
Field Duplicate <i>E.Coli</i>	220612-03 -101	↓	0952	<input checked="" type="checkbox"/>	
Field Blank <i>E.Coli</i>	220612-03 -001	↓	0954	<input type="checkbox"/>	

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP08	1000	18.38	7.58	6.09	49.6

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

Set Up/ Shut Down Form – ISCO

STATION: Whitewater

SET UP

Personnel: TL, JRB

Date/Time

On-Site: 06.10.22 0925

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
0931	0.09	0.00	0.03	NA
Downloaded to:				
Enable Condition: <u>level > 2.00" hysteresis = 1.5</u>				
Flow Pulse Interval: <u>1600 cf</u>				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace flowmeter battery, install sampler battery <input checked="" type="checkbox"/> Perform decon. cycle <input checked="" type="checkbox"/> Install 15L sample bottle, with ice <input checked="" type="checkbox"/> Leave bottle lid at site, in a clean re-sealable plastic bag <input checked="" type="checkbox"/> Set Sampler program parameters <input checked="" type="checkbox"/> Check date/time on Sampler <input checked="" type="checkbox"/> Verify all cable and tubing connections <input checked="" type="checkbox"/> Verify Sampler Program is running 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or <u>Remote</u>; Date/time <u>6/10 0901</u> <input checked="" type="checkbox"/> Retrieve data and review recent flow history <input checked="" type="checkbox"/> Change Wireless Power Control to Storm Event <input checked="" type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate <input checked="" type="checkbox"/> Enable Sampler: On Trigger, and set Sampler Enable equation <input checked="" type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
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Comments:

SHUT DOWN

Personnel: TL

Date/Time

On-Site: 06.13.22 / 1020

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
Downloaded to: <u> </u>				

<p>On-Site</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Replace flowmeter battery <input checked="" type="checkbox"/> Remove battery from sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Direct or <u>Remote</u>; Date/time <u>6/13 1138</u> <input checked="" type="checkbox"/> Retrieve data <input checked="" type="checkbox"/> Change Wireless Power Control to Dry Weather <input checked="" type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate <input checked="" type="checkbox"/> Enable Sampler: Never
---	--

Comments:

Composite Sample Collection

STATION: White water
 Personnel: TLL/SS E

Bottle 1 of 3
 Date/Time On-Site: 6-12-00 1039

<input checked="" type="checkbox"/> Halt Sampler program
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle
Sample ID: <u>220612-11</u> -WC
Approx Sample Volume (mL): <u>14750 mL</u>
Clarity (ex. Clear, Cloudy, Silty): <u>Clear</u>
Color (ex. Clear, Gray, Tan, Brown, Black): <u>Tan</u>
QA/QC Sample ID: <u>220612-11</u> -103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	<u>6/12/00 0915</u>	<u>Success</u>	13	<u>6/12/00 1078</u>	<u>Success</u>
2	<u>0927</u>		14	<u>" 1057</u>	<u>"</u>
3	<u>0934</u>		15	<u>1050</u>	
4	<u>0939</u>		16	<u>1107</u>	
5	<u>0944</u>		17	<u>1128</u>	
6	<u>0948</u>		18	<u>1144</u>	
7	<u>0953</u>		19	<u>1153</u>	
8	<u>0958</u>		20	<u>1158</u>	
9	<u>1003</u>		21	<u>1203</u>	
10	<u>1008</u>		22	<u>1207</u>	
11	<u>1014</u>		23	<u>1211</u>	
12	<u>1020</u>		24	<u>1214</u>	

Comments:

<p>If sampling is complete:</p> <p><input type="checkbox"/> Power off sampler</p> <p><input type="checkbox"/> Verify flowmeter is running</p> <p><input type="checkbox"/> Add ice to sample transport cooler</p> <p><input type="checkbox"/> Complete COC form; arrange transport to lab</p>	<p>If continuing sampling (sample bottle change-out):</p> <p><input checked="" type="checkbox"/> Keep flowmeter running</p> <p><input checked="" type="checkbox"/> Install new 15L bottle; add ice</p> <p><input checked="" type="checkbox"/> Restart program from beginning</p> <p>Date/Time Restarted: <u>6/12 1219</u></p> <p><input checked="" type="checkbox"/> Verify running</p>
---	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Composite Sample Collection

STATION: Whitewater
 Personnel: TLL, JTB

Bottle 2 of 3
 Date/Time On-Site: 6/12/22 1417

<input checked="" type="checkbox"/> Halt Sampler program	
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	220612-11 -WC
Approx Sample Volume (mL):	14750 mL
Clarity (ex. Clear, Cloudy, Silty):	Clear
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan
QA/QC Sample ID:	220612-11 -103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	6/12 1220	Success	13	6/12 1341	Success
2	1224	↓	14	1347	↓
3	1227		15	1351	
4	1231		16	1355	
5	1235		17	1358	
6	1240		18	1401	
7	1245		19	1404	
8	1251		20	1406	
9	1259		21	1409	
10	1308		22	1411	
11	1319		23	1413	
12	1332		24	1416	

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Power off sampler <input type="checkbox"/> Verify flowmeter is running <input type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Keep flowmeter running <input checked="" type="checkbox"/> Install new 15L bottle; add ice <input checked="" type="checkbox"/> Restart program from beginning Date/Time Restarted: <u>6/12</u> <u>1420</u> <input checked="" type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Composite Sample Collection

STATION: Whitewater
 Personnel: TL, JJE

Bottle 3 of 3
 Date/Time On-Site: 6/12 1527

<input checked="" type="checkbox"/> Halt Sampler program		
<input checked="" type="checkbox"/> Put lid on sample bottle; label sample bottle		
Sample ID:	220612-11	-WC
Approx Sample Volume (mL):	8750 mL	
Clarity (ex. Clear, Cloudy, Silty):	Clear	
Color (ex. Clear, Gray, Tan, Brown, Black):	Tan	
QA/QC Sample ID:	220612-11	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1	6/12 1420	Success	13	6/12 1507	Success
2	↓ 1422	↓	14	↓ 1516	↓
3	↓ 1427	↓	15	↓ 1527	↓
4	↓ 1430	↓	16		
5	↓ 1433	↓	17		
6	↓ 1436	↓	18		
7	↓ 1439	↓	19		
8	↓ 1442	↓	20		
9	↓ 1446	↓	21		
10	↓ 1450	↓	22		
11	↓ 1455	↓	23		
12	↓ 1501	↓	24		

Comments:

we accidentally bumped the power button on the sampler after 2 subsamples were collected. The program was immediately restarted.

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Power off sampler <input checked="" type="checkbox"/> Verify Flowmeter is running <input checked="" type="checkbox"/> Add ice to sample transport cooler <input checked="" type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Grab Sample Data Form

STATION: Main

Personnel: TLL / SJE Date/Time On-Site: 6-12-22 0922

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)
0931	10.56	9.04 gpm	2.75	12.7		

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	220612-12-WG	6/12	0924	<input checked="" type="checkbox"/>
Field Duplicate <i>E.Coli</i>	220612-12-101	6/12	0925	<input checked="" type="checkbox"/>
Field Blank <i>E.Coli</i>	220612-12-001	6/12	0926	<input checked="" type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)
MP08	0932	19.91	7.92	6.45	44.8

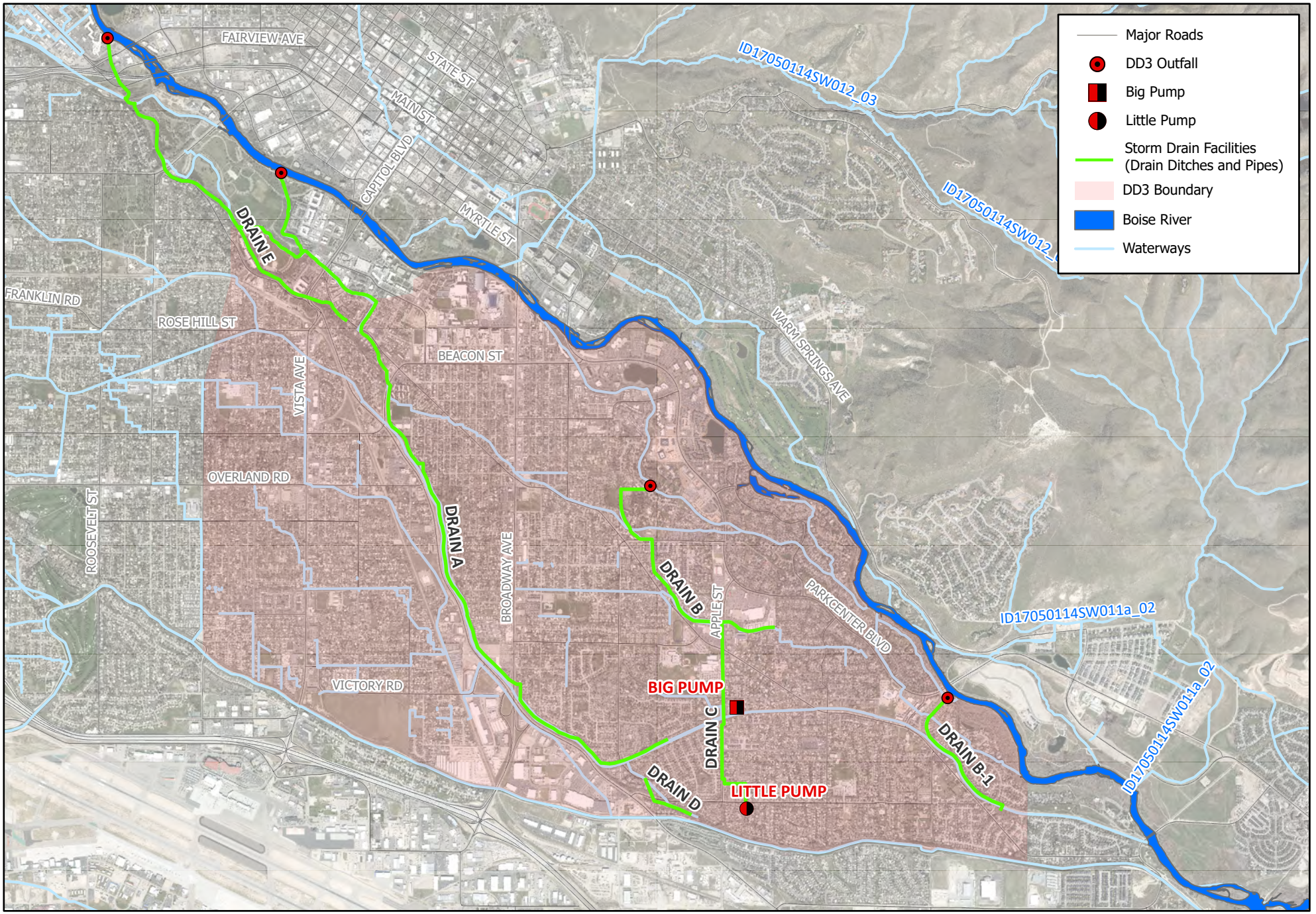
Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

This was the alternative QC site. 220612-12-101 and 220612-12-001 were not needed, and were not submitted to the lab.

Attachment D
MS4 Map and Outfall Inventory

Drainage District 3 Inventory Map



- Major Roads
- DD3 Outfall
- Big Pump
- Little Pump
- Storm Drain Facilities (Drain Ditches and Pipes)
- DD3 Boundary
- Boise River
- Waterways

DISTRICT MAPS

ADA COUNTY DRAINAGE DISTRICT #3

PO BOX 1539
BOISE, IDAHO 83701

BOARD MEMBERS

JOHN "PAT" TATE, CHAIRMAN

JOE ICENHOWER, SECRETARY TREASURER

STEVE NIELSEN, BOARD MEMBER

RYAN ARMBRUSTER, DISTRICT COUNSEL

DEAN CALLEN, DISTRICT SUPERINTENDENT

MAY 2010

CALL BEFORE YOU DIG!

DIAGLINE: 342-1585

OTHER CONTACT NUMBERS

ACHD DRAINAGE = 387-6320

BOISE CITY PUBLIC WORKS = 384-3900

GARDEN CITY PUBLIC WORKS = 375-3194

NAMPA & MERIDIAN IRRIGATION DIST. = 466-7861

BOISE PROJECT BOARD OF CONTROL = 344-1141

SOUTH BOISE MUTUAL IRRIGATION CO. = 344-3062

DRAINAGE DISTRICT #2 = 342-4591

DRAINAGE DISTRICT #4 = 342-4591

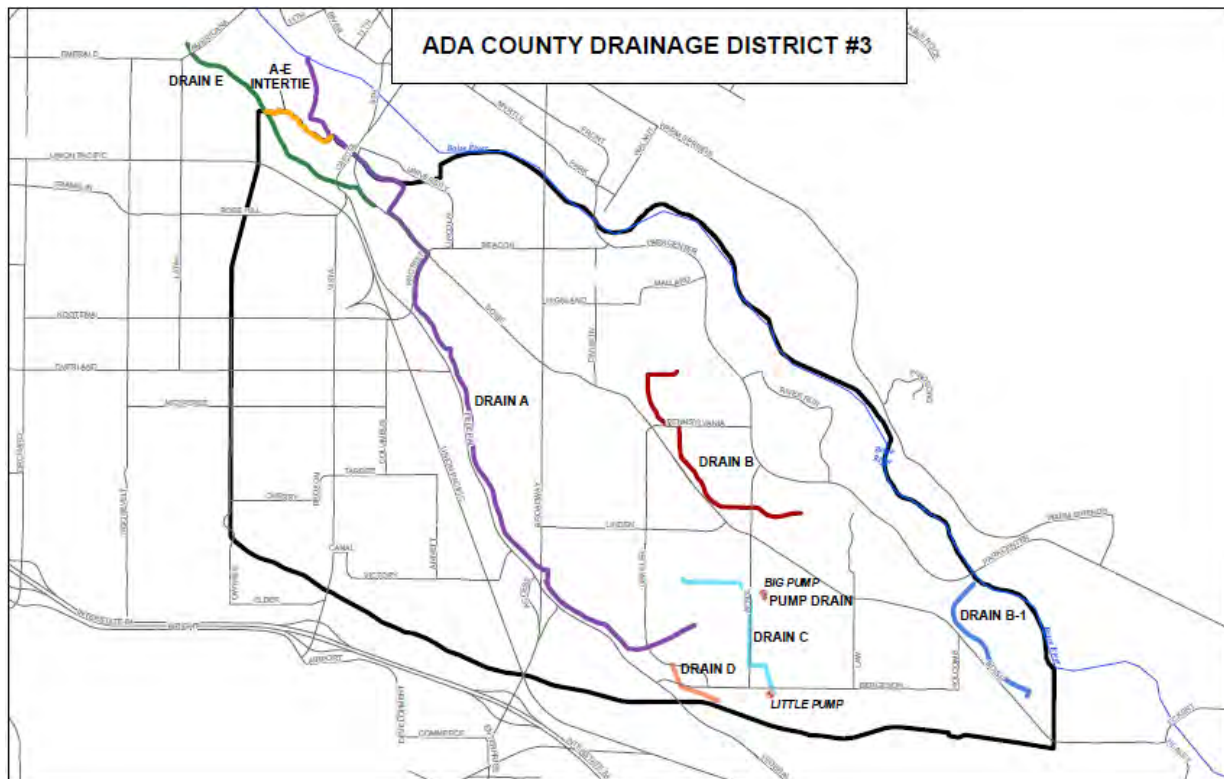
SOUTH BOISE WATER CO. = 761-6450

PROJECT COORDINATED FOR
ADA COUNTY DRAINAGE
DISTRICT #3 BY



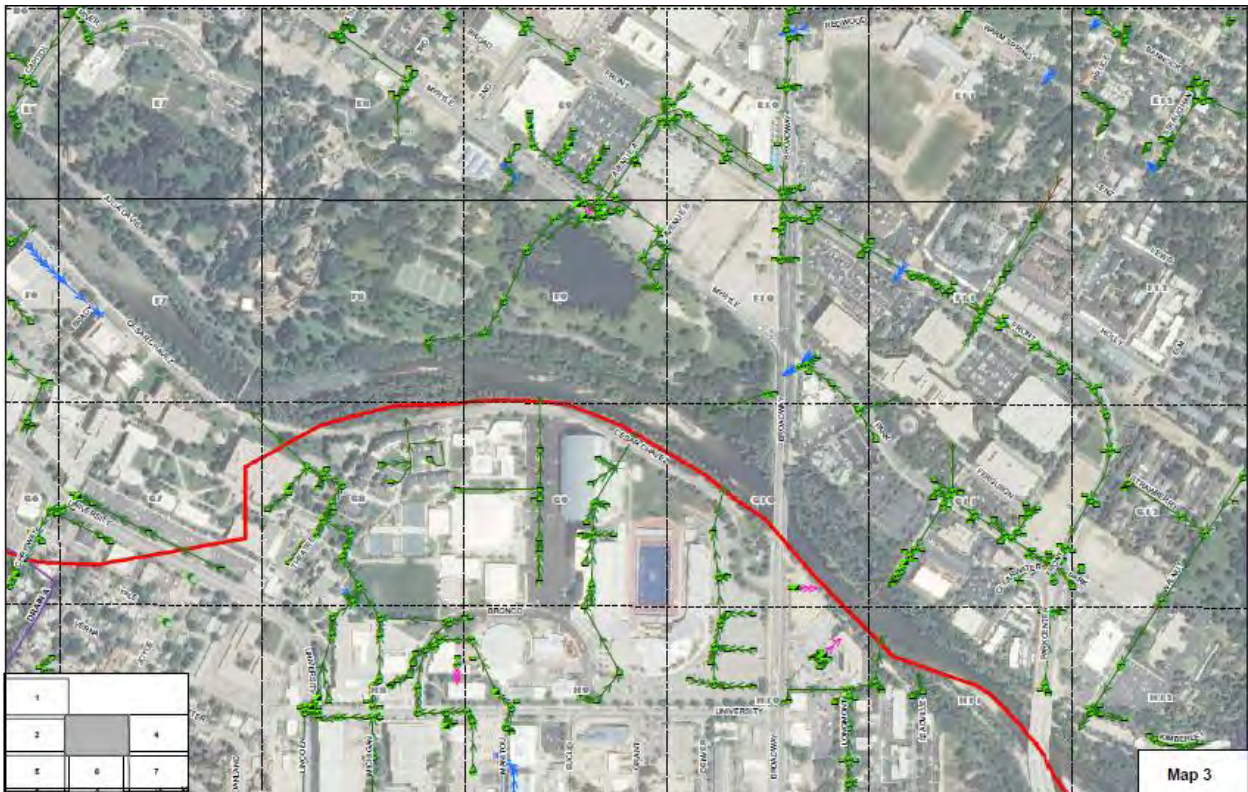
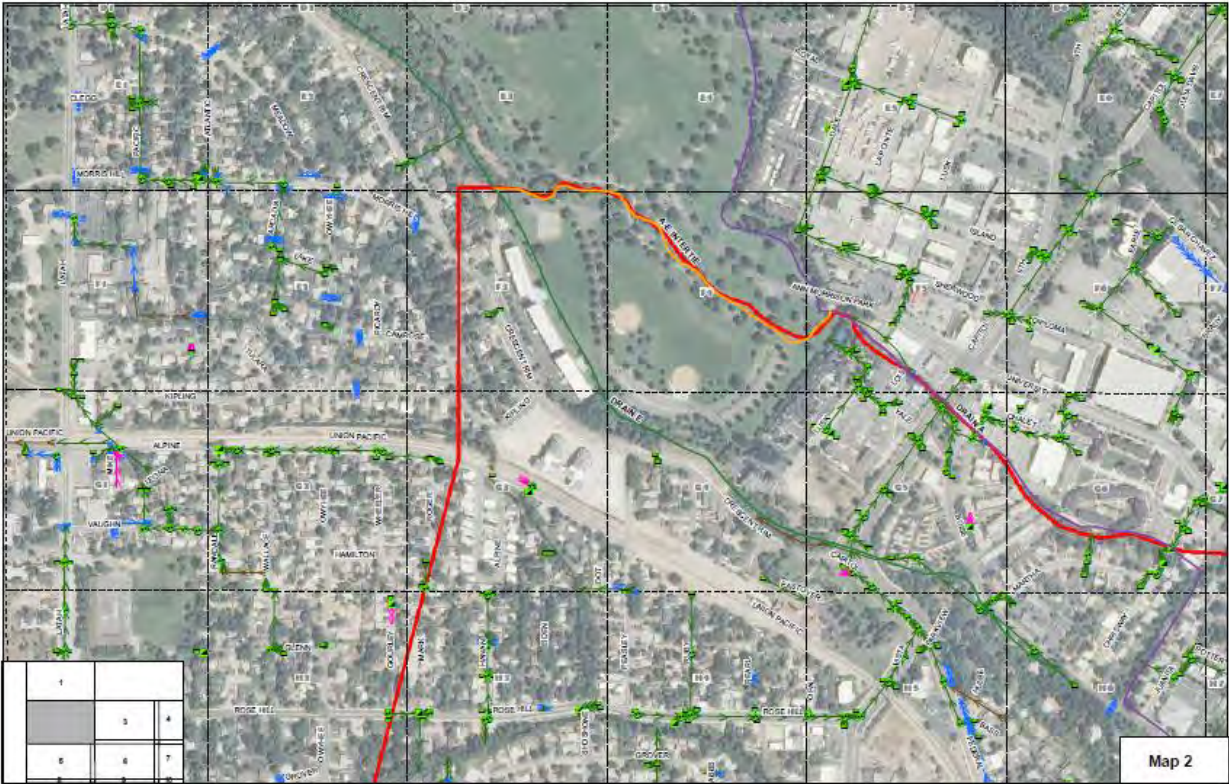
MAPBOOK DEVELOPED BY
MILLENNIUM SCIENCE & ENGINEERING
GIS & NATURAL RESOURCES DEPT.

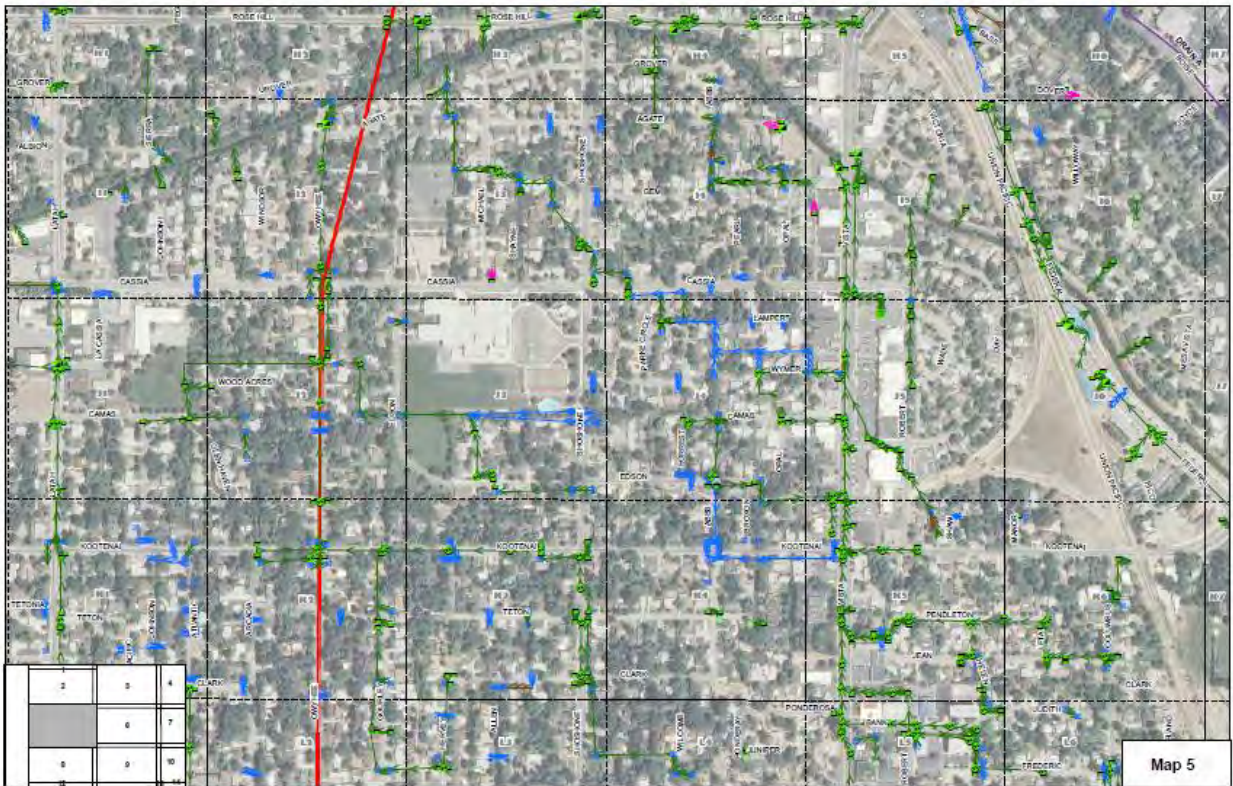
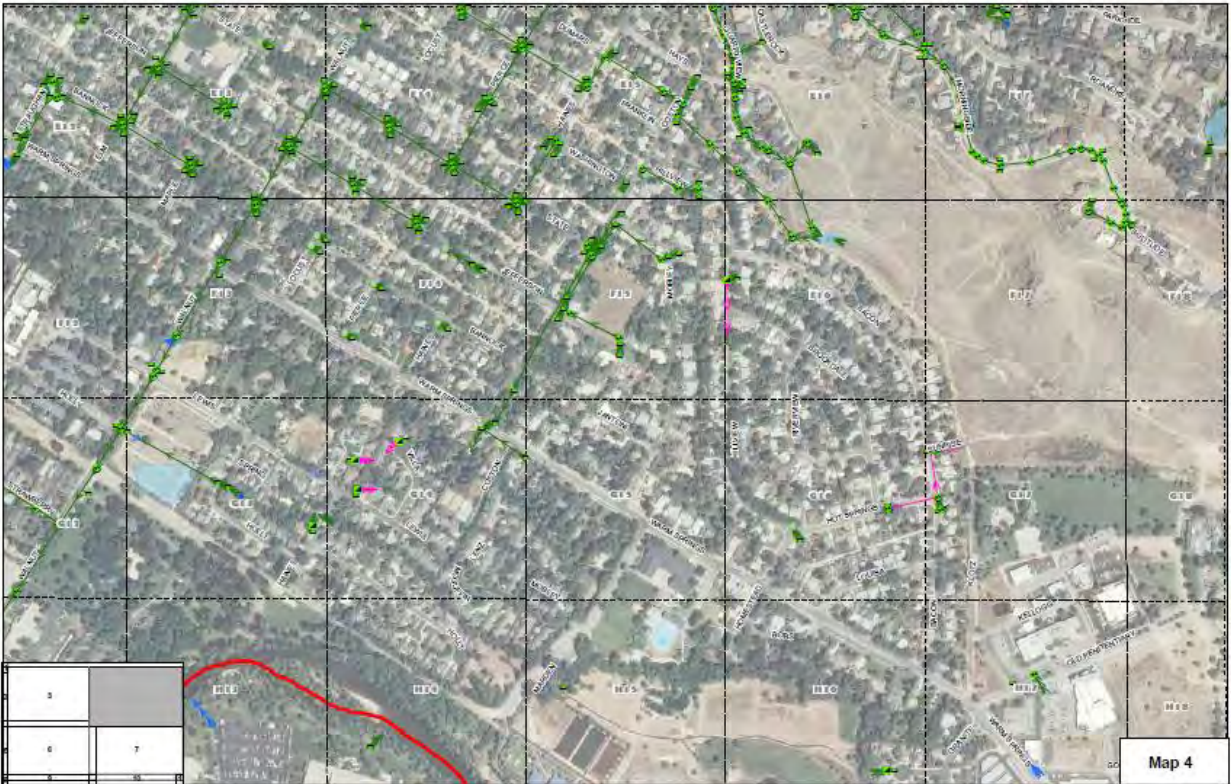
MSE Millennium Science & Engineering

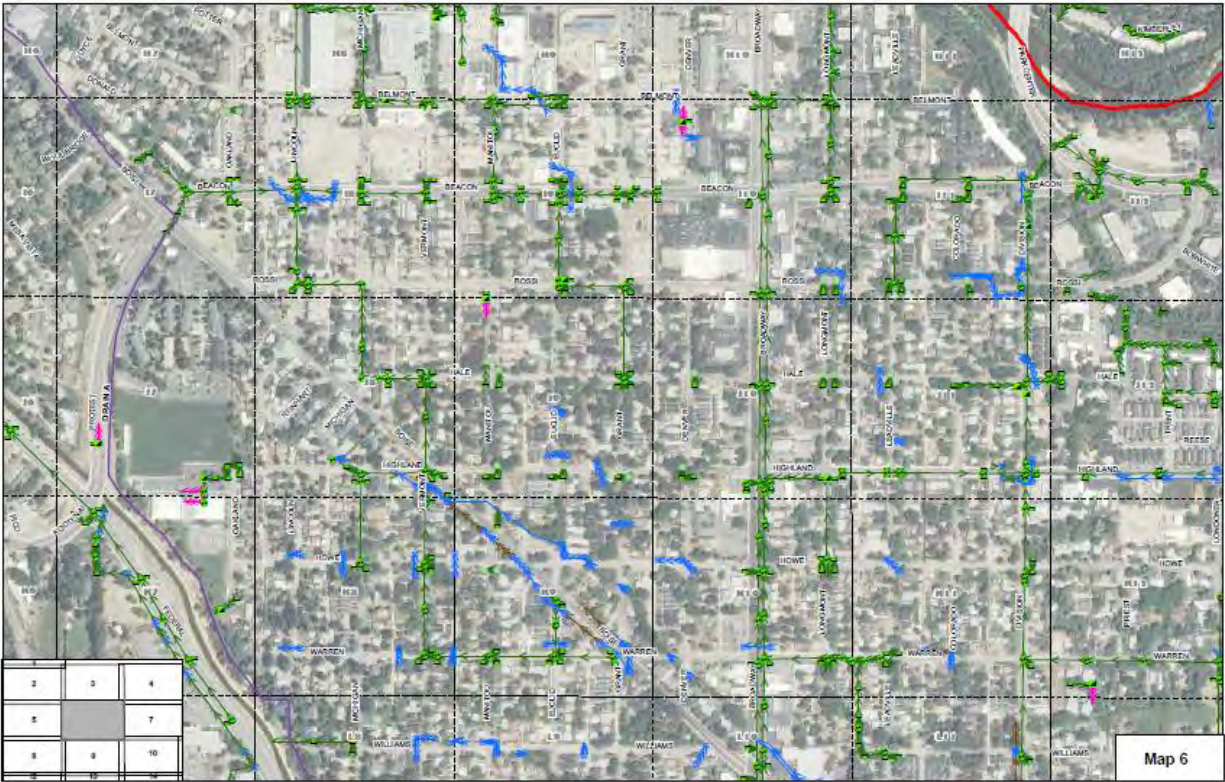


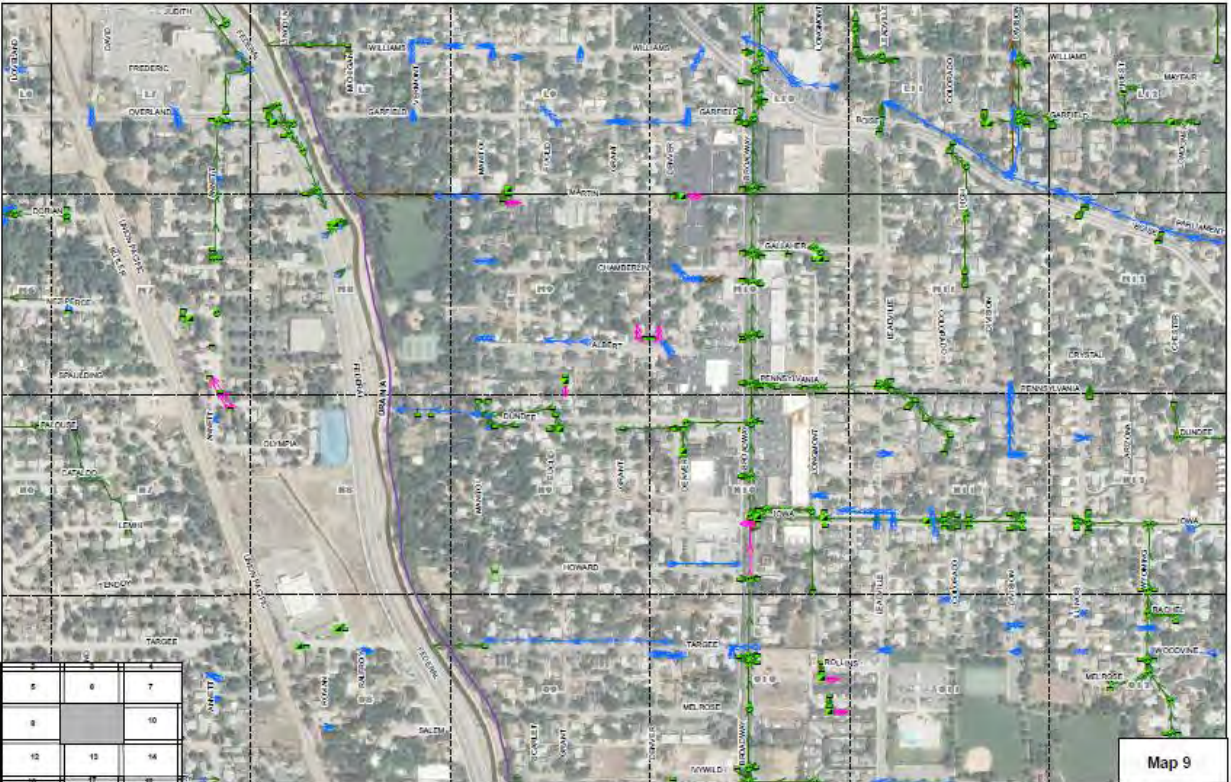
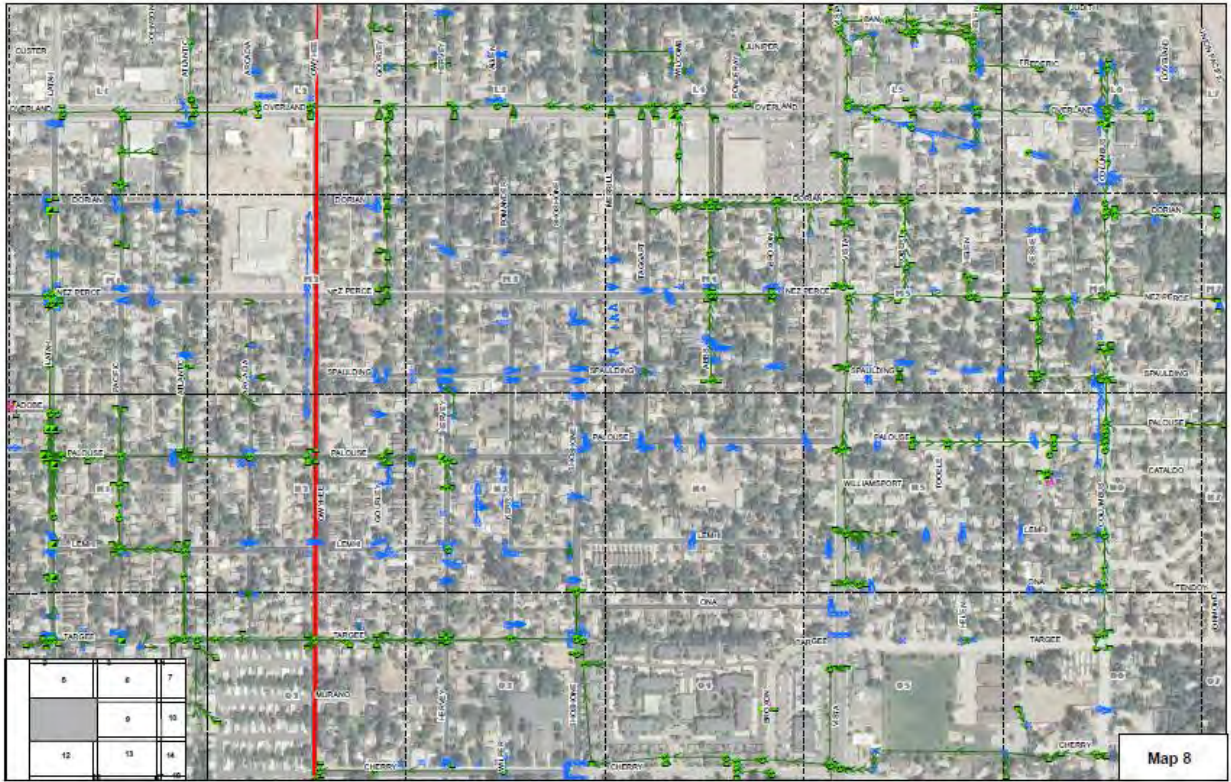
Drainage District No. 3 SWMP

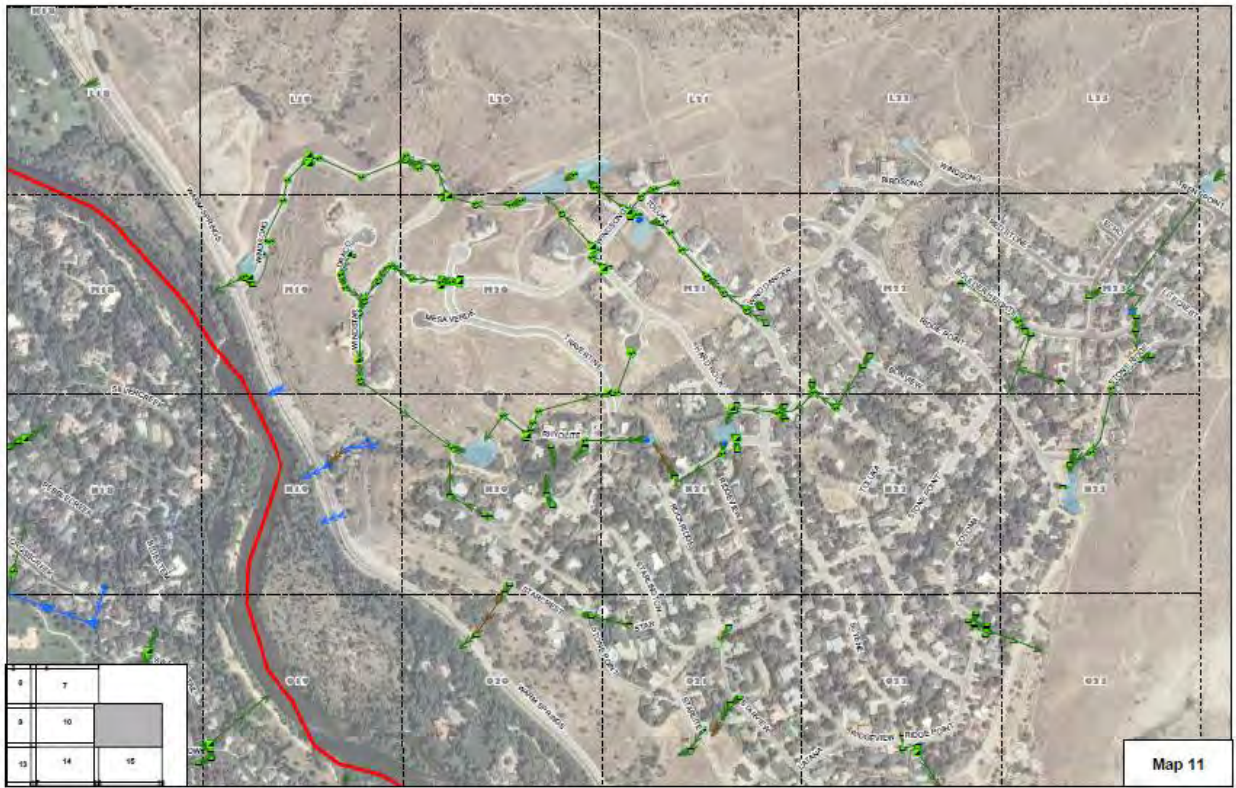
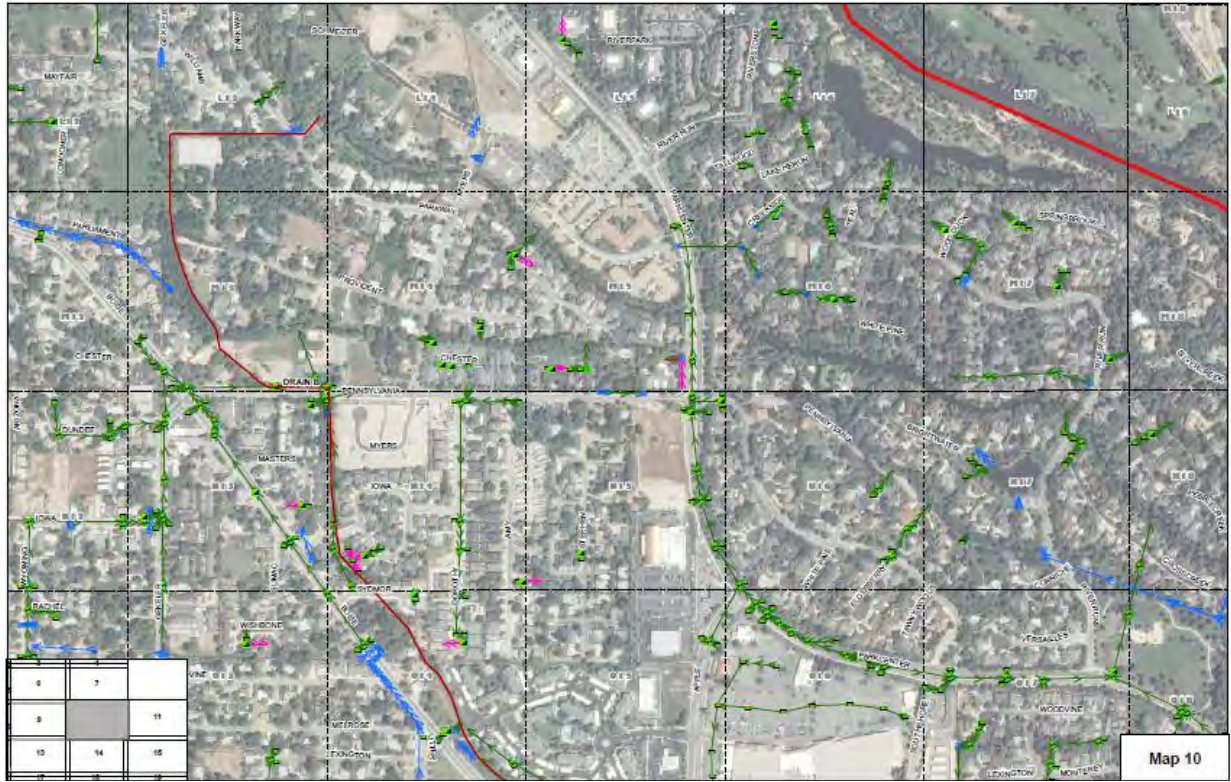


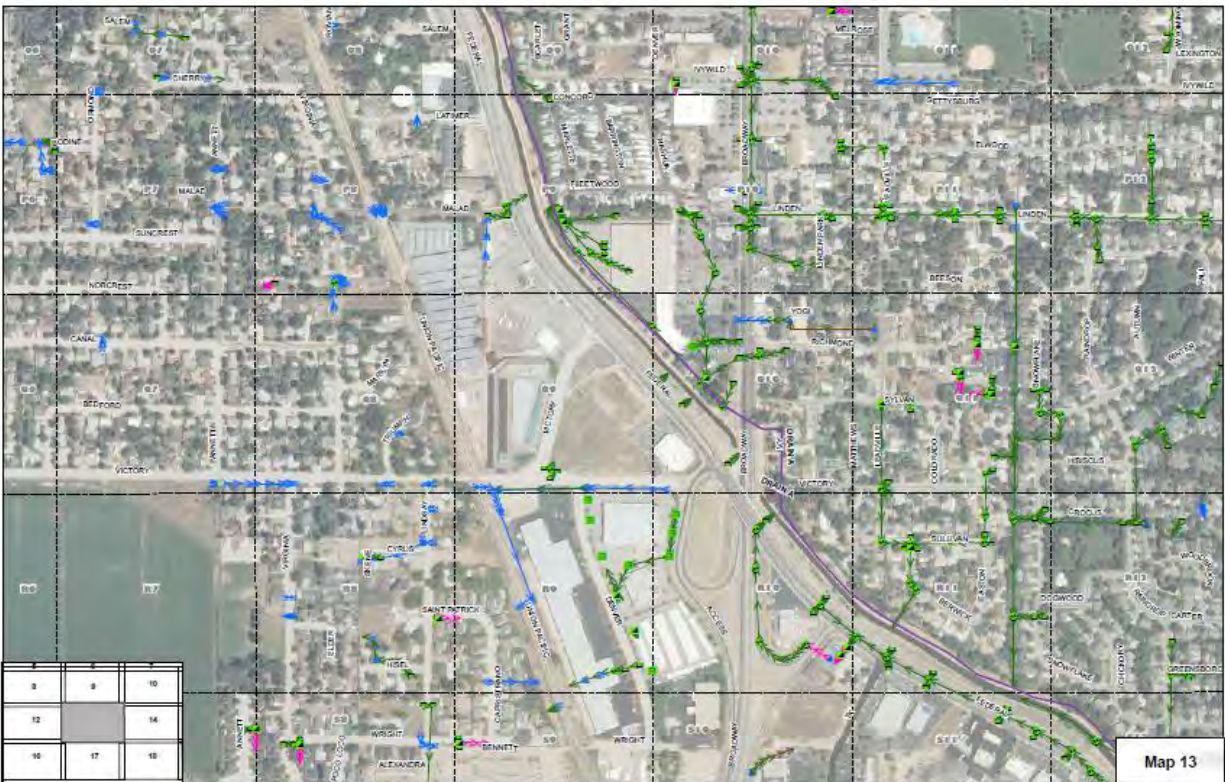


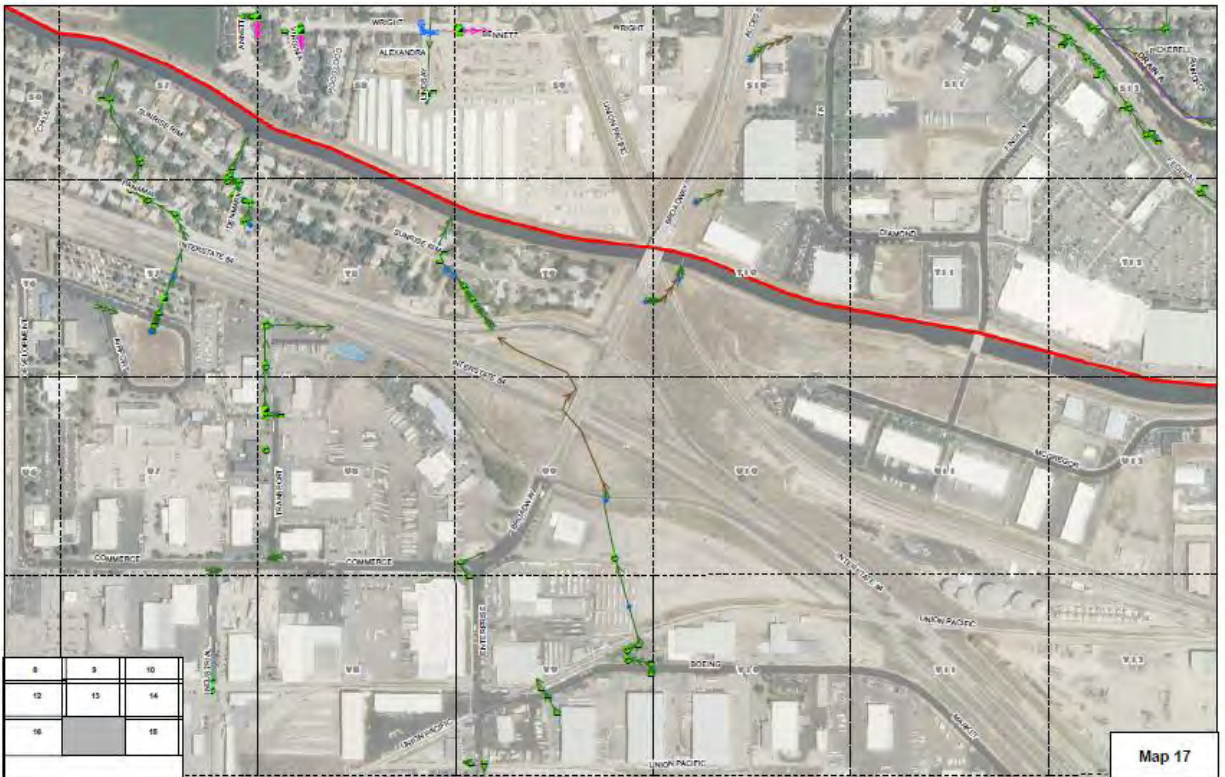


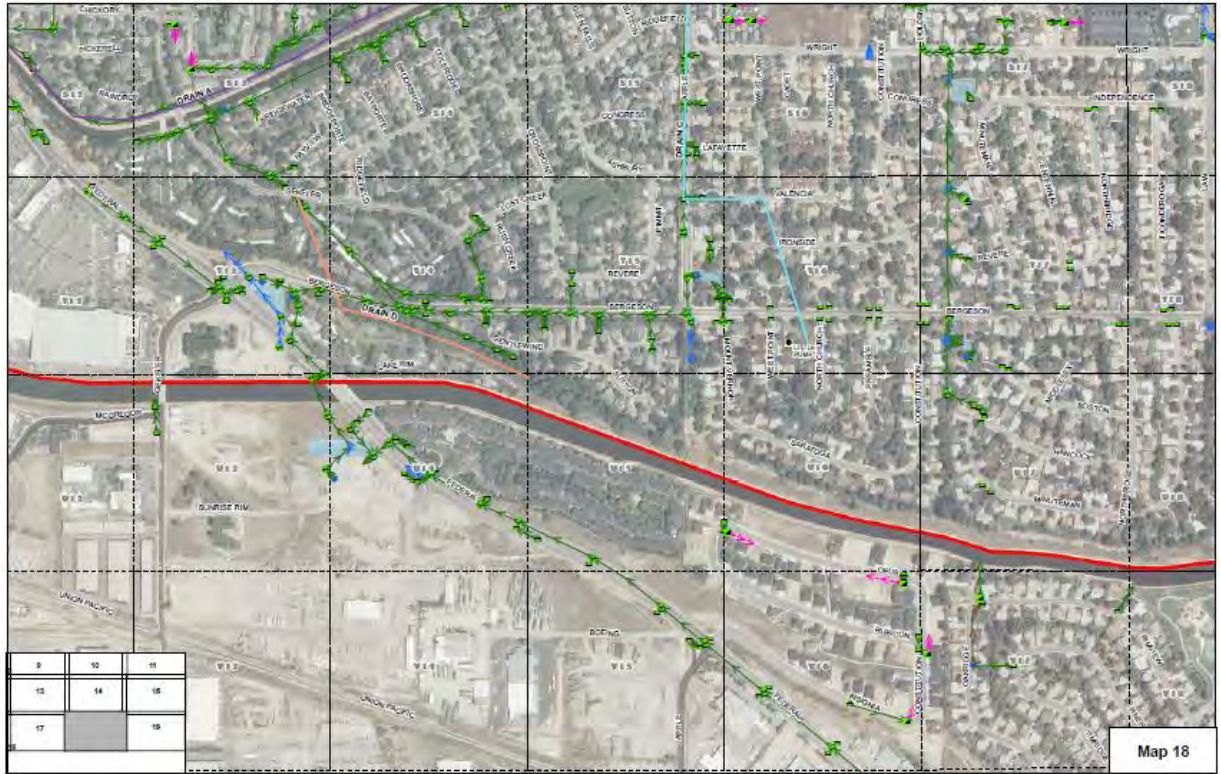




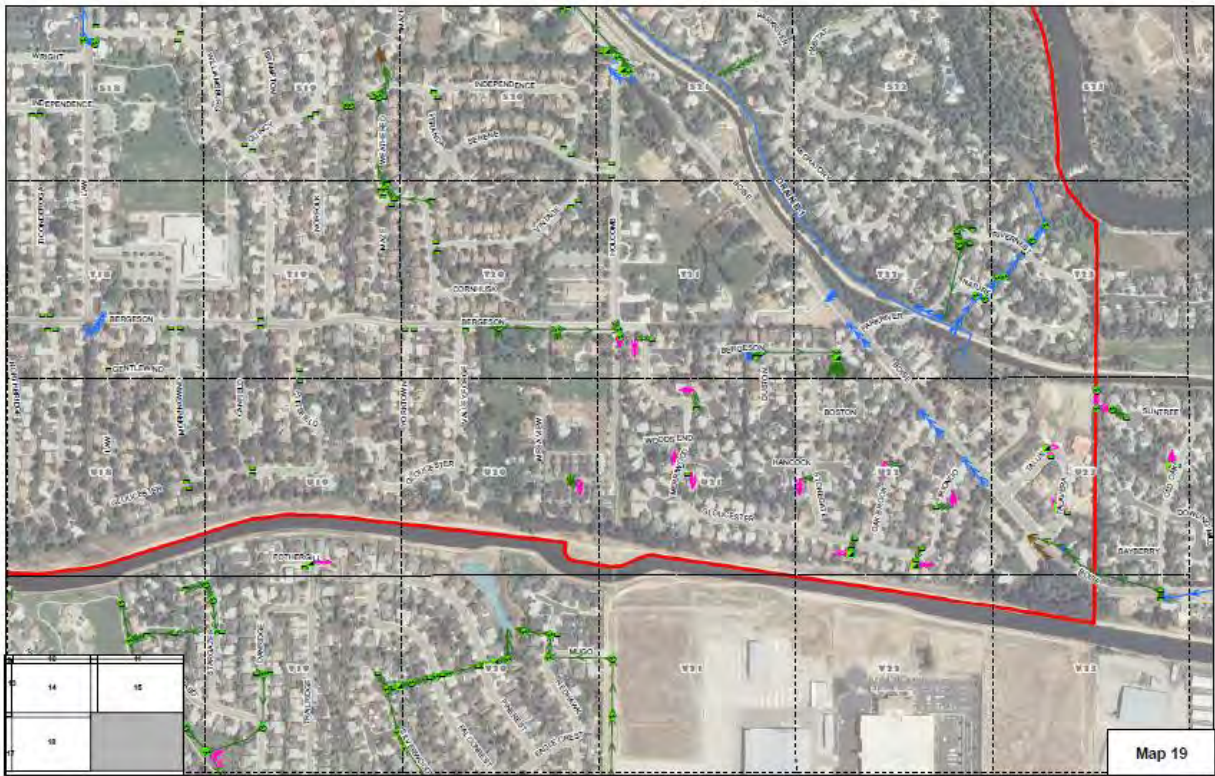








Map 18



Map 19

Attachment E
2022 DD3 Dry Weather Testing

Outfall Inspection Summary

Outfall Name: DD3 B-1

Receiving Waters: Boise River via Loggers Creek	Pipe Type: CMP Pipe Size: 46	Lat: 45.5896965 Long: -116.1810022
Date: 06/21/2022 Personnel: JA, PG	Comments: F	
Structural Condition	Good	
Sedimentation	None	
Staining	Flow line	
Odor	None	
Vegetation	Typical, non-inhibiting	
Floatables (Not Trash)	None	
Trash Observed	None	Trash Rank
		Trash Source
Flow	Yes	Amount Substantial
		Flow Rate(cfs) 0.4997

Results:

Temp (C)	DO (mg/L)	pH (S.U.)	Cond (uS/cm)	Chlorine	Copper	Phenols	Turbidity (NTU)
14.69	84.7	6.48	107.64	0	0	0	1.86

E.Coli (MPN)	TSS (mg/L)	ORP (mg/L)	Total P (mg/L)	Detergents (mg/L)
119.1	2.00	0.0112	0.0166	0.01

Illicit Discharge?	Unlikely
Compliance Status?	Not in Compliance due to presence of Detergents



4869-3176-8113, v. 3

Attachment F
CSDC Enforcement Response Policy

Attachment F: Construction Site Discharge Control Enforcement Response Policy

CONSTRUCTION SITE DISCHARGE CONTROL ENFORCEMENT RESPONSE POLICY



ADA COUNTY HIGHWAY DISTRICT
3775 ADAMS STREET
GARDEN CITY IDAHO 83714
PHONE: 208-387-6264
FAX: 208-387-6391

(REVISED MAY 2022)

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ACRONYMS

ACHD	Ada County Highway District
BMP	Best Management Practice
CGP	Construction General Permit
CSDC	Construction Site Discharge Control
ERP	Enforcement Response Policy
ESC	Erosion Sediment Control
IDDE	Illicit Discharge Detection Elimination
IDEQ	Idaho Department of Environmental Quality
IPDES	Idaho Pollutant Discharge Elimination System Discharge Permit
NOV	Notice of Violation
NPDES	National Pollution Discharge Elimination System
ROW	Right of Way
RP	Responsible Person
SWO	Stop Work Order
SWPPP	Stormwater Pollution Prevention Plan
SWQS	Stormwater Quality Specialist

1. INTRODUCTION

This Construction Site Discharge Control (CSDC) Enforcement Response Policy (ERP) provides guidance to Ada County Highway District (ACHD) staff who respond to non-compliance issues with relation to the CSDC Program and related ACHD Policies. The following document outlines the CSDC Program, ACHD's legal authority, staff roles and duties, factors influencing enforcement actions, and type of enforcement actions and processes. The approach described in this document is based on a tiered system of enforcement.

1.1 PURPOSE

ACHD implements and enforces the CSDC Program throughout Ada County to fulfill National Pollutant Discharge Elimination System Permit (NPDES Permit) requirements. ACHD is regulated through a NPDES Phase I Permit (IDS027561) that covers the Boise and Garden City area and a Phase II NPDES Permit (IDS0281185) that covers the cities of Eagle, Meridian, and urbanized Ada County. To comply with the NPDES Permits, ACHD must develop, implement, and maintain a written escalating ERP or plan appropriate to its organization's CSDC Program (NPDES Permit 3.3.6). The ERP must:

- Address enforcement of construction site runoff controls for all construction projects in ACHD's jurisdictions, to the extent allowable under Idaho state law (NPDES Permit 3.3.6.1).
- Describe ACHD's potential response to violations with appropriate educational or enforcement responses (NPDES Permit 3.3.6.2).
- Address repeat violations through progressively stricter responses, as needed, to achieve compliance (NPDES Permit 3.3.6.2).
- Describe how ACHD will use its available techniques to ensure compliance, such as: verbal warnings; written notices; escalated enforcement measures such as stop work orders, monetary penalties; and/or other escalating measures to the extent allowable under Idaho state law (NPDES Permit 3.3.6.2).

1.2 CONSTRUCTION SITE DISCHARGE CONTROL PROGRAM OVERVIEW

ACHD implements the CSDC Program through ACHD Policy (Policy) 6000, Permits and Inspection, and Policy 8300, Construction Site Discharge Control Program. Any person who desires to perform any work on a highway or public right-of-way (ROW) or encroaches on a highway or public ROW shall first apply for and obtain a Temporary Highway Use Permit or "permit" through ACHD (Policy 6007.1.1). Additionally, any person desiring to develop and construct a new subdivision which will have infrastructure dedicated to ACHD shall, prior to commencing work, be required to enter into a Subdivision Inspection Agreement and a Subdivision Improvement Agreement (Policy 6007.19.1). The contractor performing the work shall be required to obtain a permit pursuant to Policy (Policy 6007.19.2). All permit applicants must provide an approved Erosion and Sediment Control (ESC) Plan for the proposed work before a permit can be obtained by the applicant (Policy 8303.1). An ESC Plan means a plan, either a Small Project ESC Plan or a Site Specific ESC Plan, containing provisions, at a minimum, addressing material containment, pollutant spill prevention and setting forth best management practices (BMPs) to be utilized during construction activity or land disturbing activity. Site Specific ESC Plans must be reviewed by ACHD for completeness before the plan is approved. All permit applicants must also designate a Responsible Person (RP) who serves as the point of contact for all ESC issues. A RP means any person with operational control over

site activities and day-to-day operational control of the approved ESC Plan requirements and permit conditions at the site of any construction activity or land disturbing activity who has received certification from the City of Boise.

The permittee must comply with the standards outlined in Policy 8300. Additionally, the permittee must comply with the approved ESC Plan and all conditions of the permit. The following actions constitute a non-compliance issue:

- Failure to meet any requirement of Policy or approved ESC Plan.
- Allowing or causing a condition that threatens to injure public health, the environment, or public or private property.
- Failure to correct ineffective erosion, sediment, and pollutant control measures after being notified via a Notice of Violation to do so.

Typical construction site violations are related to the following situations:

- Poor project phasing and sequencing.
- Inappropriate concrete washout discharges.
- Unstabilized construction entrances and parking areas.
- Failure to stabilize bare areas.
- Lack of slope protection (mulch/straw, vegetation, silt fencing, etc.).
- Unauthorized activities near intermittent and perennial streams and wetlands.
- Sediment trackout onto paved ROW.
- Poorly planned trenching operations.
- Lack of inlet and outlet protection.
- Non-functional sediment basins and traps.
- Airborne dust.
- Inappropriate housekeeping practices.
- Inadequate documentation and recordkeeping.

2. LEGAL AUTHORITY

ACHD is the governing agency responsible for construction and maintenance of all local roads, including the storm drain system, in Ada County, Idaho. ACHD's legal authority is based upon the laws of the State of Idaho. Specific authority is found in Title 40, Idaho Code, Chapters 13 and 14 <https://legislature.idaho.gov/statutesrules/idstat/title40/>. Because of the limited purpose of ACHD, as defined by the State Code, such legal authorities and provisions are interpreted as intended for facilities and operation and maintenance within the jurisdictional right-of-way of ACHD. ACHD does not provide police or enforcement power and must rely on the powers of municipal government. Specific legal authority granted to ACHD through state code includes the following:

- **Powers and Duties of Highway Commissioners, Idaho Code 40-1406** ACHD Commissioners are empowered to pass ordinances, rules, and regulations as necessary for carrying into effect or discharging all powers and duties conferred to a Countywide highway district by state code.
<https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/>

- **Drainage Authority, Idaho Code 40-1451(1)(d)**
ACHD has authority over drainage where it is necessary for motorist safety or necessary for right-of-way maintenance. This code provision limits the extent and nature of authority in which ACHD is empowered.
<https://legislature.idaho.gov/statutesrules/idstat/title40/t40ch14/>
- **Subdivision Plat Review, Acceptance and Approval, Idaho Code 40-1415(6)**
Subdivision plats are required to be submitted to ACHD for acceptance and approval for highway design, drainage provisions, and traffic conditions.
<https://legislature.idaho.gov/statutesrules/idstat/Title40/T40CH14/SECT40-1415/>
- **Common Law Authority**
ACHD has certain common law authority to control discharges of stormwater into any storm drains which are located within the public right-of-way by means of ACHD's control and owner's interest in the public right-of-way.
- **Authority as a Municipal Corporation**
ACHD may have certain inherent authority as a municipal corporation by virtue of its ordinance authority to regulate discharges of stormwater into ACHD's stormwater system.

3. DISCOVERY OF NON-COMPLIANCE

ACHD staff conduct regular inspections of all permitted construction activities. Subdivision, Bridge, Project, and Zone Inspectors perform a variety of construction related inspections. These staff members, who spend the most time observing these sites, may identify and follow up on CSDC violations observed at their inspection sites. These inspectors shall discuss the observations with the site operator and specify compliance requirements. They may also issue an Informal Notice (see *Section 5.1*) and document the observed conditions. Documentation is necessary in the event that a higher level of enforcement becomes necessary. Typically, if further CSDC enforcement or guidance is needed, the inspectors will request assistance from a Stormwater Quality Specialist (SWQS).

As a part of the CSDC Program, a SWQS or an ACHD Erosion Control Contractor performs regular site inspections to ensure construction site operators are following CSDC Program and Policy requirements. The inspection frequency is based upon project prioritization ratings calculated during the initial ESC Plan review process. All sites over 1 acre are inspected at least once every 6 months over the permit period.

ACHD staff may also receive CSDC complaints from external sources. Outside agencies and departments who observe or are notified of an issue on an ACHD permitted project may contact ACHD administrative staff or the SWQS directly to report an issue. ACHD staff may receive public complaints in person, over the phone, or through reporting tools such as TellUs or the Stormwater Pollution Hotline. All reports should be investigated. If the complaint is in regard to an ACHD Capital Project, depending on the severity, the Project Inspector, the Capital Projects Construction Coordinator, or the Capital Projects Construction Supervisor will be contacted depending on who is lead of the respective project. If a complaint is found to not involve an ACHD permitted construction activity, the complaint is handled through ACHD's Illicit Discharge Detection and Elimination Program or referred to the appropriate entity. For resolution, the initial reporter should be informed once the reported issue has been addressed.

4. FACTORS INFLUENCING ENFORCEMENT ACTIONS

The approach to making a violation determination involves using the language in Policy and/or permit conditions as a guide to determine whether the information collected demonstrates that a violation has occurred. CSDC compliance determinations must be based solely on the factual information collected and professional judgment.

A determination of the appropriate enforcement action is based on the nature and severity of the CSDC violation and other relevant factors. These factors, relating to the impact of the violation and to the responsible party are summarized in Section 4.1 and Section 4.2, respectively. The relevant factors must be considered when a violation has occurred to promote consistent and timely use of enforcement remedies. A summary of CSDC risk categories, compliance areas, and indicators is provided in *Table 1*.

4.1 FACTORS RELATING TO IMPACT OF VIOLATION

- Magnitude of the violation.
- Imminent endangerment to human health/welfare or to the environment.
- Duration of the violation.
- Effect of the violation on the receiving water.
- Whether circumstances beyond the control of the responsible party exist, such as unpredictable accidents or unexpected acts of nature.
- Causes a violation of the NPDES permit.
- Has a toxic effect on the aquatic life uses of the receiving water body?

4.2 FACTORS RELATING TO RESPONSIBLE PARTY

- Compliance history of the responsible party.
- Economic benefit realized by the responsible party while operating in non-compliance with the requirements.
- Chronic violations by responsible party.
- Good faith of the responsible party.
- Honest intention to remedy non-compliance coupled with actions that support intention.

Table 1: Summary of CSDC Risk Categories, Compliance Areas, and Indicators

Risk Category	Compliance Area	Lower Risk Indicators	Higher Risk Indicators
Site Conditions	Environmentally Sensitive Sites	<ul style="list-style-type: none"> • Site slopes <10% • Waterways not immediately adjacent to or within site 	<ul style="list-style-type: none"> • Site slopes >10% • Waterways within 50' of site • Project on Brownfield Site • Project discharges to 303d impaired waterway
Site Operator	Compliance History	<ul style="list-style-type: none"> • Operator is usually in compliance with rules • Operator responds to notes within time frame • Operator is cooperative and not argumentative 	<ul style="list-style-type: none"> • Operator has multiple violations • Operator frequently misses compliance deadlines • Operator is uncooperative, argumentative

Risk Category	Compliance Area	Lower Risk Indicators	Higher Risk Indicators
Administrative Requirements	Permit Coverage	<ul style="list-style-type: none"> Operator has obtained Permit coverage through ACHD and has an approved ESC Plan 	<ul style="list-style-type: none"> Operator has not obtained Permit coverage through ACHD and does not have an approved ESC Plan
BMP Installation	Plan BMP Installation	<ul style="list-style-type: none"> All BMPs listed on the approved ESC Plan are in place. BMPs are installed correctly 	<ul style="list-style-type: none"> All BMPs listed on the approved ESC Plan are not in place. BMPs are not installed correctly
	Plan BMP Adequacy	<ul style="list-style-type: none"> BMPs are functioning properly BMPs are adequately controlling stormwater Erosion and sedimentation issues are minimal Additional BMPs are not required 	<ul style="list-style-type: none"> BMPs are functioning poorly BMPs are not controlling stormwater Excessive erosion Additional BMPs are needed to manage the site
BMP Maintenance	BMP Maintenance	<ul style="list-style-type: none"> BMPs are maintained Sediment buildup at BMPs is not excessive Erosion prevention BMPs fully functional 	<ul style="list-style-type: none"> BMPs require substantial maintenance Excessive sediment at BMPs noted Poor erosion prevention
Housekeeping	Materials Management	<ul style="list-style-type: none"> Materials that may leach pollutants are covered Materials stored away from drainage system 	<ul style="list-style-type: none"> Materials leaching pollutant are not covered Materials stored near storm drain inlets
	Waste Management	<ul style="list-style-type: none"> Solid waste collected and stored properly Concrete, other washwater managed properly 	<ul style="list-style-type: none"> Poorly managed solid waste, litter present Washwater on ground or discharged illegally
	Spill Prevention	<ul style="list-style-type: none"> Spill prevention practices and material present 	<ul style="list-style-type: none"> Fuel, oil, or other spills observed
Offsite Discharges	Sediment in Waterway	<ul style="list-style-type: none"> No sediment discharges through dewatering or above ground flows to waterways 	<ul style="list-style-type: none"> Sediment discharges to waterways observed
	Sediment on Ground	<ul style="list-style-type: none"> No sediment discharges to offsite areas 	<ul style="list-style-type: none"> Mud/sediment track-out observed on paved roads
	Airborne Dust	<ul style="list-style-type: none"> No observable dust leaving the site 	<ul style="list-style-type: none"> Airborne dust leaving the site
Project Completion	Site Closeout	<ul style="list-style-type: none"> All bare areas stabilized Vegetation is at least 70% density All temporary BMPs removed 	<ul style="list-style-type: none"> Bare areas observed on site Vegetation is less than 70% density Temporary BMPs still present

5. TYPE OF ENFORCEMENT ACTIONS

In the event of non-compliance, ACHD shall proceed with enforcement action (Policy 8310) described in detail in this section. Enforcement actions are intended to be commensurate with the violation. Minor violations are typically handled through Informal Notices. Major violations are addressed, in order of increasing severity, by issuance of a Notice of Violation, Administrative Fines, Stop Work Order and/or Administrative Cost Recovery. ACHD's enforcement actions are provided in order of escalation in the CSDC ERP flow chart located in *Appendix A*. If the severity of the situation warrants it, ACHD may escalate the enforcement as quickly as needed.

5.1 INFORMAL NOTICE

ACHD shall issue an Informal Notice to the project RP for minor violations. An Informal Notice may be issued verbally or non-verbally (e.g., during sampling and/or inspection visits, over a telephone call, in an informal meeting, or through email). Informal Notices should: 1) identify noncompliant conditions to construction site personnel, 2) provide information on the action(s) needed to bring the situation into compliance, and 3) specify a deadline (1-3 days) for completing compliance activities.

5.2 NOTICE OF VIOLATION

More serious violations, including disregard of an Informal Notice or failing to make corrective actions within the specified compliance period, are subject to a written Notice of Violation (NOV). NOVs are formal written notices to the RP found violating ACHD policy or permit requirements. An NOV is required prior to the issuance of an Administrative Fine.

NOVs include the name and address of the RP, the observed violation, the date and time of the violation, the location, compliance action(s) required, deadline for required compliance (1-2 days), and the signature of a SWQS or inspector. The standard compliance deadlines for BMP violations are listed in *Table 2*. The NOV, example provided in *Appendix B*, is presented to the RP, through hand delivery, mail, email, or other means. A NOV Fact Sheet (*Appendix C*) should be provided to all first-time offenders.

NOVs are entered into TRAKiT, a workflow management tool, with documentation of site conditions, photographs, plans, maps, and/or other items as appropriate. The procedure to enter this information into TRAKiT is provided in *Appendix D*. Inspection staff can see if an NOV has been attached to the TRAKiT project file. However, all ACHD staff involved in the day-to-day oversight of the project should be notified of any enforcement action above an informal notice. An inspector may hold off on other non-CSDC inspections of the site until the violation has been resolved.

Table 2: BMP Compliance Deadlines per Violation Type

BMP Issue	Violation	Compliance Deadline
Drop Inlet Protection	BMP Not Present	24 Hours
	BMP Inadequate	24 Hours
	BMP Not Maintained	End of business
Spill Containment	BMP Not Present	48 Hours
	BMP Inadequate	24 Hours
	BMP Not Maintained	48 Hours
Dust Abatement	BMP Not Present	End of business
	BMP Inadequate	End of business
	BMP Not Maintained	End of business
Construction Entrance	BMP Not Present	48 Hours
	BMP Inadequate	48 Hours
	BMP Not Maintained	48 Hours
Slope Stabilization	BMP Not Present	72 Hours
	BMP Inadequate	48 Hours
	BMP Not Maintained	End of business
Erosion Control	BMP Not Present	48 Hours
	BMP Inadequate	48 Hours
	BMP Not Maintained	End of business

BMP Issue	Violation	Compliance Deadline
Sediment Control	BMP Not Present	24 Hours
	BMP Inadequate	24 Hours
	BMP Not Maintained	End of business

5.3 ADMINISTRATIVE FINES

If the RP does not correct all CSDC violations by the deadline provided on an issued NOV, ACHD may issue an administrative fine to the permit holder. Administrative fines provide funds for compliance investigations and subsequent contract management that may be necessary to correct deficient work. The issuance of administrative fines is limited to violation types listed in the most current ACHD Approved Fee Schedule. Violation types applicable to the CSDC Program are listed in *Table 3*. This fee, in total, may be recovered by ACHD by making claim against the Permittee's Surety Bond posted in accordance with the provisions of Policy 6007.7.

Table 3: CSDC Violations and Associated Fees

Violation	Associated Fee
Working without a permit (Policy 6007.4.3)	\$500.00
Unacceptable debris or material on the Construction Site Within the ROW (Policy 6007.12.5)	\$250.00 per instance not to exceed two instances per day
Failure to cover and properly secure all loads of gravel, sand, dirt, landscape bark or other loose material (Policy 6007.12.6)	\$250.00 per instance not to exceed two instances per day
Failure to stop work (Policy 6007.18.3)	\$2,000.00 Per day

Note: Associated Fees listed refer to the maximum allowed amount. Reduced amounts shall be determined at the discretion of the Deputy Director.

5.4 STOP WORK ORDER

A Stop Work Order (SWO) may be issued for a violation deemed significant enough to warrant immediate action, failure to correct a problem, or repeated violations. A SWO written on a NOV is effective immediately. A SWO should be presented and documented in the same manner as an NOV. Revoking the Temporary Use Permit is equivalent to a SWO (Policy 8311). ACHD may issue a temporary or permanent injunction in an emergency situation (Policy 6007.21.4).

5.5 ADMINISTRATIVE COST RECOVERY

ACHD can initiate corrective action and assess the actual and administrative costs against the permit holder (Policy 6007.25). The violator may be required to pay all costs of investigation, administrative overhead, out-of-pocket expenses, the cost of administrative hearings, the costs of suit, and reasonable attorney's fees. If the RP makes no reasonable effort to correct the violation, or if the situation is an emergency, the ACHD may initiate the corrective action and assess the actual and administrative costs against the permit holder. Additionally, with coordination of ACHD Permit staff, the permit holder's bond can be sought or revoked to pay for cleanup costs and to prevent the contractor from starting new jobs within ACHD ROW.

6. JOINT AND/OR OUTSIDE ENFORCEMENT AUTHORITY

The municipal governments of Boise and Garden City do have specific stormwater ordinances related to illicit discharge and construction site discharge control to address enforcement authority requirements within their jurisdictions. Additionally, ACHD (and the other Phase I NPDES Permittees) have Interagency Agreements for the Enforcement of Stormwater Management in Boise City and Garden City included in *Appendix E* of this ERP.

- **City of Boise**
Ordinance (Chapter 9-14-2– Erosion Control Regulations and Requirements
https://codelibrary.amlegal.com/codes/boiseid/latest/boise_id/0-0-0-11668
- **Garden City**
Ordinance (Chapter 15, 4-15-2) – Erosion Control Regulations and Requirements
<https://www.codepublishing.com/ID/GardenCity/html/GardenCity04/GardenCity0415.html#4-15>

The municipal governments of Meridian, Eagle, and Ada County do not have specific stormwater ordinances related to illicit discharge and construction site discharge control. However, these entities do have the following general nuisance related ordinances that can be used to assist ACHD in addressing stormwater related issues.

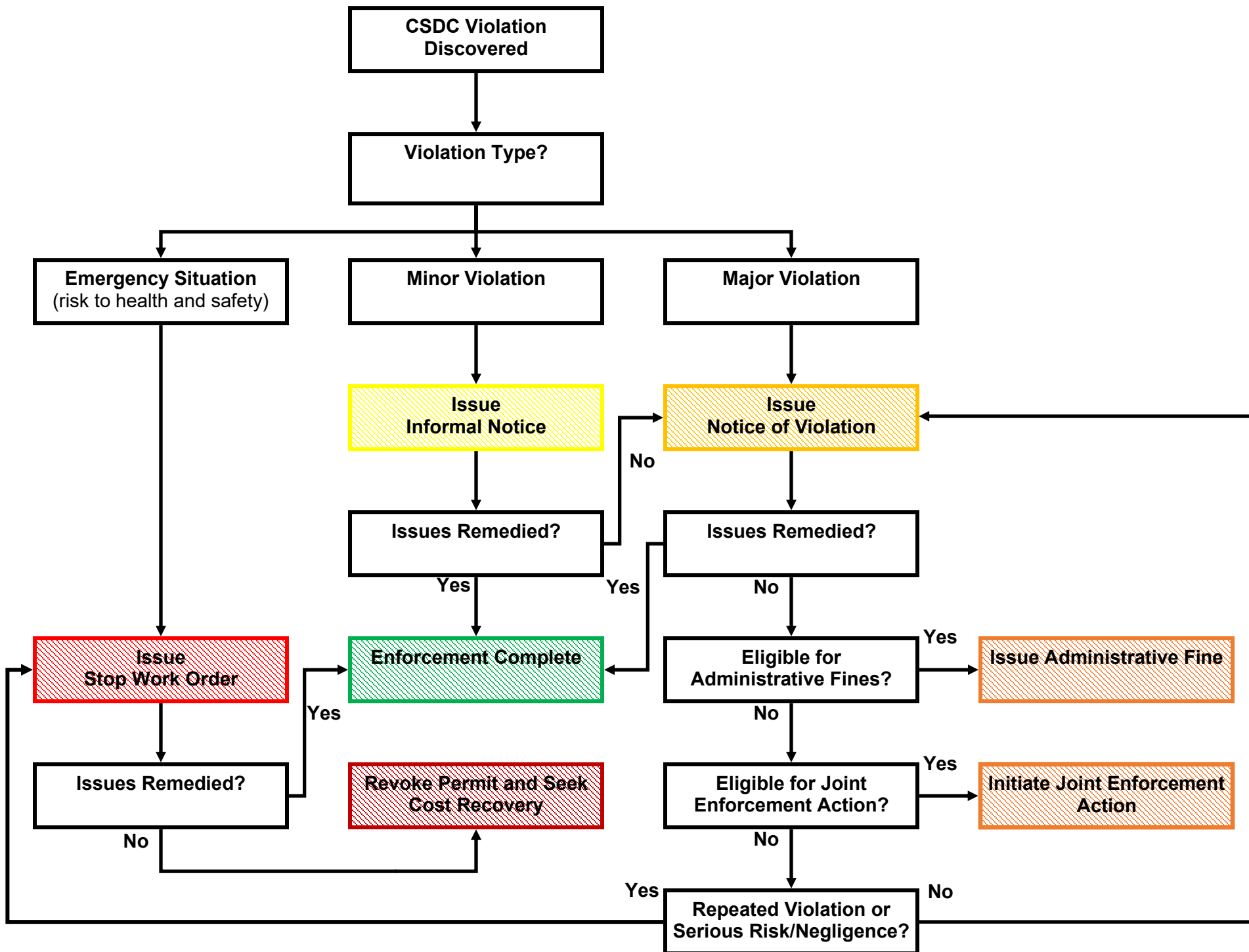
- **City of Eagle**
Ordinance No. 4-1-4 – General Nuisance; Procedures and Penalties
https://codelibrary.amlegal.com/codes/eagleid/latest/eagle_id/0-0-0-1193
- **City of Meridian**
Ordinance (Chapter 2, 4-2-1) - Public Health and Safety, Nuisances
https://library.municode.com/id/meridian/codes/code_of_ordinances?nodeId=TIT4PUHESA_CH2NU
- **Ada County**
Ordinance No. 5-2-4-2B – Deposit of Waste or Lighted Material on Public Ways
https://codelibrary.amlegal.com/codes/adacountyid/latest/adacounty_id/0-0-0-1423

7. CONSTRUCTION GENERAL PERMIT VIOLATION REFERRAL

For construction projects which are subject to the Idaho Pollutant Discharge Elimination System Discharge Permit (IPDES) Construction General Permit (CGP) and do not respond to educational efforts and joint enforcement actions, ACHD may provide to Idaho Department of Environmental Quality (IDEQ) information regarding the construction project. This applies to projects where operators cannot demonstrate that they have appropriate IPDES permit coverage and/or site operators are deemed by ACHD as not complying with CGP requirements. Information may be submitted to an IDEQ CGP Compliance Officer and include, at a minimum, the following information:

- Construction project location and description.
- Name and contact information of project owner/ operator.
- Estimated construction project disturbance size.
- An account of information provided by the Permittee to the project owner/ operator regarding NPDES filing requirements.

APPENDIX A – CSDC ERP FLOW CHART



APPENDIX B – NOTICE OF VIOLATION



NOTICE OF VIOLATION 1955

DATE & TIME _____

PERMIT NUMBER _____

PERMITTEE _____

RESPONSIBLE PERSON _____ **PHONE** _____

ACHD INSPECTOR (PRINT) _____ **PHONE** _____

MARK ALL AREAS WHERE BMPS ARE NOT PRESENT, INADEQUATE, OR NOT MAINTAINED. PROVIDE SPECIFIC DETAILS IN THE COMMENT SECTION AS NEEDED. GIVE A COPY OF THIS DOCUMENT TO THE RESPONSIBLE PERSON LISTED ON THE ACHD PERMIT.

	BMP not present	BMP Inadequate	BMP not maintained
STORM DRAIN INLET			
SPILL PREVENTION/ CONTAINMENT			
DUST ABATEMENT			
CONSTRUCTION ENTRANCE			
SLOPE STABILIZATION			
EROSION CONTROL			
SEDIMENT CONTROL			

COMMENTS:

SIGNATURE OF ACHD INSPECTOR _____

COMPLIANCE DEADLINE _____

RE-INSPECTION

DATE & TIME _____ **COMPLIANCE** Y N

SIGNATURE OF ACHD INSPECTOR _____

SECTION 8310 OF ACHD POLICY MANUAL - ENFORCEMENT/STOP WORK ORDER INDEPENDENT
 In the event the provisions set forth under the Approved Site Plan have not been met, the Responsible Person will be given a written notice of the violation and a time period in which to correct the deficiencies causing the violation. If the corrections have not been made within the designated time period or additional violations occur, District may issue a stop work order. ACHD may issue a stop work order solely for failure to comply with the Approved Site Plan, regardless of any other violation that may or may not have occurred under the Temporary Highway Use Permit.

APPENDIX C – NOTICE OF VIOLATION FACT SHEET

APPENDIX D – NOV PROCEDURE GUIDENCE

**APPENDIX E – INTERAGENCY AGREEMENTS FOR THE
ENFORCEMENT OF STORMWATER MANAGEMENT**

Attachment F.1
Construction Site Runoff Control

Construction Site Stormwater Runoff Control Program

The City of Boise has established a Construction Site Erosion and Sediment Control (ESC) program and implements the program in accordance with the approved city ordinance for construction site runoff and erosion and sediment. The program regulates applicable public and private construction activities to reduce discharge of pollutants. The program is primarily implemented by the city's Department of Planning and Development Services Building Division with two full time staff who are supported by other city staff when necessary.

The following sections describe the ESC program pertaining to Permit Year 1. More detailed information regarding the program can be found in the Stormwater Management Program Plan (SWMP).

Ordinance or Regulatory Mechanism

The City of Boise's construction site runoff control program is established in accordance with the requirements of [Boise City Code 9-14 \(Construction Site Erosion Control Ordinance\)](#). The ordinance identifies general requirements and prohibitions on construction site runoff, permitting and fee authorities, plan review and approval process, erosion and sediment control best management practices and standards, training and certification program details, administration, inspection, and enforcement. The ordinance is consistent with the IPDES Construction General Permit and the requirements of the Boise area MS4 permit.

Preconstruction Site Plan Review and Approval

All non-emergency construction activities occurring on City of Boise parcel(s) that involve significant earth disturbance or potential exposure of pollutants to stormwater runoff must obtain an ESC permit concurrently with other applicable building and development permits prior to construction. There are two types of ESC permits, General Permits and Site-Specific Permits. Details about permit types and requirements is provided in Table 1.

TABLE 1. ESC PERMIT TYPES AND REQUIREMENTS

ESC Permit Type	Type of construction, location, and disturbance	Requirements & Site Priority Ranking
General Permit	Projects less than 1 acre area of disturbance including: New residential home or dwelling unit not located in hillside or environmentally sensitive areas; Residential additions > 500 sq ft; Commercial additions/tenant improvements with limited exterior excavation/earth disturbance	Reduce pollutants in stormwater discharges; Operator must list onsite certified ESC Responsible Person prior to issuance

		Site priority: Low with escalation as needed based on site compliance
Site-Specific Permit	New Residential homes located in Hillside or Environmentally Sensitive location; New residential and commercial subdivision site development greater than 1-acre disturbance; All new commercial building and multifamily apartment complex Commercial additions and tenant improvements with significant excavation/earth disturbance	Reduce pollutants in stormwater discharges; Operator must list onsite certified ESC Responsible Person prior to issuance Submit site specific ESC plan/SWPPP for review during preconstruction application process Site priority: Medium - High

In FY2022, 1,229 total ESC permits were issued. The permits consisted of 746 ESC general permits and 483 site-specific permits that required preconstruction site plan review.

Construction Site Inspection and Enforcement

In FY2022 a total of 14,062 construction site inspections were conducted with 88.2% pass rate (no corrective actions required). This is the highest number of inspections ever completed annually, the increase can be attributed to the high number of active permits issued during 2020-22 and are in progress during FY2022 as well as the effectiveness of the inspection prioritization scheduling capabilities of the software implemented in August 2020 and improved in 2021-2022. Table 2 provides FY2022 statistics on inspection types completed categorized by the inspection result.

There were 175 targeted enforcement inspections completed to ensure sites are brought back into compliance after being notified there is a corrective action required or violation occurring. FY2022 included \$2,126.25 in fines spread amongst 24 different ESC permits for violations such as uncontained concrete washout, observed polluted stormwater discharges due to negligence, and special investigation fees for project's issued a Notice of Violation. Two sites were issued written NOVs in order to obtain compliance and corrective actions. Table 3 summarizes enforcement fines issued from 2018 to 2022.

The written escalating enforcement response policy (ERP) can be found in the SWMP.



TABLE 2: EROSION AND SEDIMENT CONTROL INSPECTIONS– FY2022

Inspection Type	Pass/ Completed	Corrections Required	Significant Violation	Not Ready/Partial	Total	Pass Rate
General Inspections	11,359	1,320	175	8	12,862	88.31%
Site Preparation	287	39	4	7	337	85.16%
Site Final	670	0	0	12	682	98.24%
Complaint Inspection	14	27	6	0	47	29.79%
BMP Violation	17	15	19	0	51	33.33%
Tracking Control	9	12	6	0	27	33.33%
Conference	50	0	0	0	50	100.00%
Random	0	2	1	0	3	0.00%
Temp. Occupancy Permit extension	3	0	0	0	3	100.00%
All Inspections	12,409	1,415	211	27	14,062	88.24%

TABLE 3: ENFORCEMENT FINES 2018-2022

Fiscal Year	Number of sites fined/cited	Total Fine Amount
2018	12	\$1,172.50
2019	41	\$3,371.31
2020	37	\$2,517.50
2022	24	\$2,126.25

Construction Runoff Control Training for Staff

The Erosion and Sediment Control Program Coordinator and Inspector are primarily responsible for all preconstruction site plan review, site inspections, and enforcement. To be qualified for these duties, the ESC division personnel are required to complete municipal, state, and national training and certifications in stormwater management and be active in obtaining continued education annually. Both positions must complete and pass the City of Boise ESC Responsible Person training, [Certified Inspector of Sediment and Erosion Control](#) (CISEC) training and exam, and maintain their annual license as a [Certified](#)



[Professional in Erosion and Sediment Control](#) (CPESC which requires passing an initial exam and completing PDH requirements. To obtain continuing education and be up to date in the ESC/SWPPP regulation and industry, the inspectors are professional members of the International Erosion Control Association (IECA and able to participate in special topic and comprehensive online courses and attend the annual and regional conferences when possible. Additionally ESC Inspectors are required to read and review the Idaho CGP as well as complete the training and exam for the EPA's [NPDES Construction Inspection Training Course](#).

To support the ESC Division's mission to reduce the discharge of pollutants in stormwater runoff from construction sites, the ESC division conducts a Responsible Person training class quarterly for all city employees who are involved in construction activities or stormwater management. By completing the class every 3 years, staff is able to utilize ESC knowledge in relation to their duties as well as being able to identify construction site stormwater runoff violations so they may notify the ESC division for enforcement. Staff that receive the training include all members of the Building Division team, including inspectors (structural, plumbing, mechanical, electrical, and fire), plan reviewers and permit technicians, Public Works construction site managers, Public Works engineering and environmental division staff, and Parks and Recreation staff associated with construction projects also complete the Responsible Person training.

In addition to completing certification courses, the staff may receive one-on-one training in the field with a certified ESC inspector.

Attachment G
Erosion and Sediment Control Plan Reviews and Site Inspection Map

Attachment G: Erosion and Sediment Control Reviews, Inspections, and Map

**Table 1. ESC Inspections Performed & Notice of Violations Issued
October 1, 2021 – September 30, 2022**

ACTIVITY	TOTAL
ESC Inspections ¹	66
Capital Project SWPPP ² Inspections	100
Notice of Violations Issued	1

¹ESC Inspections Performed by ACHD Environmental staff and contracted inspection staff.

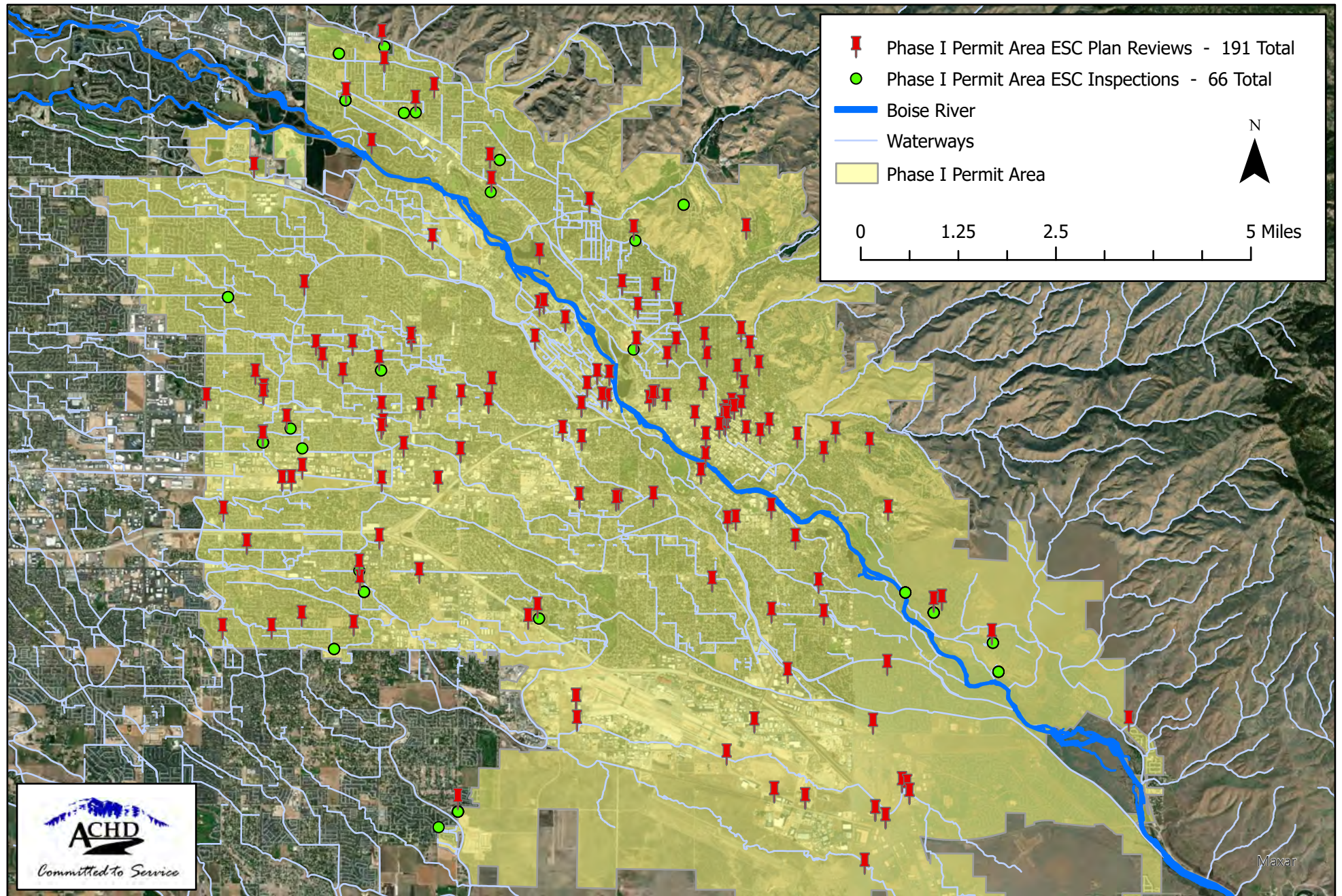
²Stormwater Pollution Prevention Plan

**Table 2. ESC Plan Review, Inspection, and Notice of Violation Summary by Month
October 1, 2021 – September 30, 2022**

MONTH	SITE SPECIFIC PLANS REVIEWED	SITE SPECIFIC PLANS WITH DEFICIENCIES	ESC INSPECTIONS COMPLETED	NOTICE OF VIOLATIONS ISSUED
October	15	2	8	0
November	22	10	4	0
December	11	1	2	0
January	16	3	2	0
February	28	6	3	0
March	14	4	14	0
April	16	4	2	1
May	12	2	4	0
June	14	2	7	0
July	12	3	3	0
August	17	7	11	0
September	14	2	6	0
Total	191	46	66	1

Erosion and Sediment Control (ESC) Plan Review and Site Inspections

October 1, 2021 - September 30, 2022



Attachment H
ACHD Vegetated Basins, Bioretention Swales, and GIS Program Activities

Attachment H: ACHD Vegetated Basins, Bioretention Swales, and GSI Program Activities

Table 1. Phase I ACHD-Owned Vegetated Basins and Bioretention Swales 2016 – 2022

STORMWATER FACILITY ID	FACILITY TYPE	NEAREST INTERSECTION	AREA (SQFT)	YEAR BUILT	STRUCTURAL RETROFIT DATE	VEGETATION RETROFIT DATE	NEW GSI VEGETATION INSTALLATION DATE	CITY
Basin 63	Detention-Dry	W. Albion St & S Garden St	10,924	1997	-	2019	-	Boise
Basin 65	Detention-Wet	W. Ustick Rd & N. Curtis Rd	143,161	1997	-	TBD	-	Boise
Basin 294	Detention-Dry	N. Alworth St. & N. Sayer Ave	87,579	1999	-	TBD	-	Boise
Basin 322	Detention-Dry	W Airway Ct & S Cole Rd	37,764	2003	-	2018	-	Boise
Basin 327	Retention-Wet	E. Boise Ave & S. Betsy Ross Way	15,199	1976	2022	2022	-	Boise
Basin 331	Detention-Dry	N Steelhead Way & W Emerald St	21,432	2007	-	2018	-	Boise
Basin 332	Detention-Dry	W Irving St & N Maple Grove Rd	23,462	2007	-	2018	-	Boise
Basin 333	Detention-Wet	N. Maple Grove & Hyatt Wetlands Park	20,856	2006	-	TBD	-	Boise
Basin 334	Retention-Dry	W Ustick Rd & N Chatterton Wy	38,883	2006	-	2019	-	Boise
Basin 371	Retention	W. Victory Rd & S. Fry St.	157,482	2004	-	TBD	-	Boise
Basin 628	Retention-Dry	N Five Mile Rd & W Milclay St	19,531	2012	-	2016	-	Boise
Basin 674	Retention-Dry	858 N. Whitewater Park Boulevard	18,764	2013	-	2018	-	Boise
Basin 677	Detention-Dry	N Pierce Park Ln & W Hammermill Dr	14,680	2013	-	2017	-	Boise
Basin 685	Detention-Dry	W Emerald St. Dr & N Five Mile Rd	17,508	2014	-	2017	-	Boise
Basin 694/695	Retention-Dry	W Hill Rd & Catalpa	8,013	2013	-	2018	-	Boise
Basin 696	Retention-Dry	W Hill Rd & N 36th St	5,757	2016	-	2017	-	Boise
Basin 697	Retention-Dry	E Gowen Rd & S Eisenman Rd	5,144	2016	-	2018	-	Boise
Basin 882	Retention-Dry	E Gowen Rd & S Eisenman Rd	3,586	2016	-	2018	-	Boise
Basin 883	Retention-Dry	E Gowen Rd & S Eisenman Rd	3,440	2016	-	2018	-	Boise
Basin 1321	Detention-Wet	N VMP & W. Glendale Rd	31,652	2019	-	2019	-	Boise
Basin 1324	Detention-Dry	N Cloverdale & W Bowmont St	11,992	2019	2022	2019	-	Boise
Basin 1338	Retention-Dry	W. Glendale St. & N Stilson Rd	4,399	2019	-	2018	-	Boise
Basin 1339	Retention-Dry	W Alameda St & N. VMP	14,951	2019	-	2018	-	Boise
Basin 1370	Retention-Dry	N Arthur St & W State St	2,115	2019	-	2018	-	Boise
Basin 1372	Retention-Dry	S Cole Rd & W Lake Hazel Rd	45,619	2019	-	2020	-	Boise
Basin 1373	Retention-Dry	W Franklin Rd & Cole Rd	32,400	2019	-	2020	-	Boise
Basin 1374	Retention-Dry	N. Cloverdale Rd & W. Edna St.	18,370	2019	-	2019	-	Boise
Basin 1440	Retention-Dry	N Collister Dr & Collister Access	2,786	2019	-	2019	-	Boise
Basin 1441	Retention-Dry	N Collister Dr & Collister Access	3,207	2019	-	2019	-	Boise
Collister Swales	Bioretention Swales	N Collister Dr & W State St	4,746	2019	-	2019	-	Boise

Table 2. Phase I ACHD - Basin Improvement Projects 2021 - 2022

FACILITY NAME AND LOCATION	IMPROVEMENT	DESCRIPTION
Basin 63 (S. Garden St & W. Albion St)	Plant Installation (2-gal)	Increase basin's resiliency, plant diversity, vegetation stability, and aesthetics. (Shrubs and Forbs)
	Damage Prevention	Split rail fence - prevent unauthorized maintenance, discourage pedestrian traffic, and dog waste issues.
	Exterior Area	Expanded vegetation maintenance activities to include exterior areas to improve aesthetics, weed control, and desirable plant establishment in and around the basin.
Basin 322 (S. Cole Rd & W. Airway Court)	Damage Prevention	Landscape boulders along the access road to protect the upper slopes from vehicle damage.
Basin 1324 (N Cloverdale & W Bowmont St)	Structural Retrofit	Replace forebay with deposition pool and added microtopography.
Basin 327 (E. Boise Ave & S. Betsy Ross Way)	Structural Retrofit	Repair inlets. Remove channelization between inlets and outlet. Install microtopography and irrigation.
	Vegetation Retrofit	Seeding and 2-gal plants.

Table 3. GSI Projects Designed or Constructed 2021 - 2022

PROJECT NAME	GSI TYPE	GSI COUNT	DESIGNED	CONSTRUCTED	AREA TREATED (ACRES)
Whittier School	Stormwater Tree Cells	2	2018	2021	0.17
St. Luke's	Stormwater Tree Cell	1	2018	2021	0.14
6th St Condo	Stormwater Tree Cells	2	2018	2021	0.11
Whitewater Station	Stormwater Tree Cell	1	2019	2021	0.06
2019 Streetscapes	Stormwater Tree Cell	1	2019	2021	0.01
Cartee Apts.	Stormwater Tree Cells	3	2019	2022	0.21
11th & Idaho Building	Stormwater Tree Cells	2	2019	2022	0.33
Front St. Bldg	Stormwater Tree Cell	1	2020	2022	0.21
6th & Grove Bldg.	Stormwater Tree Cell	1	2020	2022	0.19
CDG Bldg	Stormwater Tree Cell	2	2020	2022	0.11
11th St Bikeway & Streetscape	Stormwater Tree Cells	13	2022	In Progress	1.79
Lusk St. Apts.	Stormwater Tree Cell	1	2022	In Progress	0.12
11th St Bikeway & Streetscape	Permeable Pavers	6	2021	In Progress	0.48

Table 4. Phase I ACHD GSI Program Updates 2021 - 2022

GSI PROGRAM AREA	GSI PROGRAM ACTIVITY	DESCRIPTION
Planning and Design	Basin Retrofit and Vegetation Plan	Update in progress to match current goals, objectives, and procedural practices.
	Basin Retrofit Priority List	Developing a prioritization system and facility evaluation criteria for facilities constructed prior to 2019.
	Integrated Vegetation Management Guide	Updated to include desirable and non-desirable species found within vegetated GSIs. A total of 295 species were added. (87 Non-desirable species and 208 desirable species.)
	GSI Designs	Evaluating basin and bioretention swale designs and making design adjustments per project to improve stormwater management. Future work will include design specification updates to policy 82000.
	Build and Grow Partnerships	Includes Endangered Species Coalition, Ada County Soil and Water Conservation District, and local native nurseries.
Construction	Plant Establishment Plans	Site specific maintenance plans are developed by ACHD for newly constructed or retrofitted GSIs. The guides contractors and sub-contractors on proper vegetation maintenance during the 1-year warranty period.
	Plant Establishment Plan Site Evaluations	Evaluations are used to determine if of the contractors and sub-contractors successfully fulfill the Plant Establishment Contract.
	Plant Establishment Standardized Survival Rate	Developed standardized approach to determine the acceptable survival rate for installed plants at the end of the warranty period outlined in Plant Establishment Plan.
	Capital Project GSI Electronic Maintenance Activity Report	Developed activity report to track all maintenance activities completed by contractors and sub-contractors. Maintenance data will be viewable in real time. - Pilot in FY2023.
Facility Maintenance	Stormwater Vegetation Management Contract	Expanded maintenance tasks and altered maintenance timing to improve plant health, aesthetics, and functional capability of GSIs.
	Maintenance Prioritization List	Helps the contractor prioritize efforts if labor, weather, etc. limits the number of visits that can be completed within a month.
	Site Specific Maintenance Plans	Guides site planning and maintenance efforts at each vegetated GSI. - Pilot Project
	Maintenance Site Plan Maps	For used by maintenance contractor - Include more details for on specific maintenance activities in each vegetated GSI.
	Electronic Maintenance Activity Report	Continued use of electronic maintenance activity report. Used to track all maintenance activities completed by stormwater contractors. Maintenance data is viewable in real time.
	Seasonal Photos of Facilities	Visually track the effects of management techniques over time and helps to determine overall success and site completion status.
	Exterior Area - Vegetation Management	Expanded planting and vegetation maintenance activities to include exterior areas. To improve aesthetics, weed control, and desirable plant establishment on the entire parcel.

GSI PROGRAM AREA	GSI PROGRAM ACTIVITY	DESCRIPTION
Inventory	Stormwater Tree Cell Inventory	Located and mapped all stormwater tree cells.
	Stormwater Tree Cells Maintenance Plan	Developing maintenance methods and frequency for maintaining stormwater tree cells.
	Permeable Paving Inventory	Locating and mapping all ACHD maintained permeable paving structures.
Implementation	Use of Site Plans and Planting Plans	Documentation for all site alterations and planting location of all containerized plants.
	Plant Records for Each Facility	Document all species planted and/or seeded within each vegetated GSI.
	Plant Identification	Identified plants within vegetated GSIs and determined desirability status (desirable/non-desirable).
	Species Selection - Upland Area	Evaluated species success rates in upland areas for seeded and installed 2-gal plants to improve vegetation establishment in future vegetated GSIs.
	Planting Techniques	Installing watering wells around 2-gal plants to improve survival rates, retain water around roots, and prevent erosion. - Pilot Project
	Use of Watering Truck	Hand-watered installed gallon sized plants in non-irrigated facilities once a week from May - September. - Pilot Project
	Compost - Turning Materials	Tested equipment, ability to achieve desired product, and evaluated the labor needs to turn large quantities of compostable material monthly. - Feasibility Test
	Downed Woody Debris and Landscape Boulders	Provides habitat for beneficial species that contribute to the function of the stormwater facility. Improves aesthetics and naturalized appearance of vegetated GSIs.

Attachment I
Industrial and Commercial Discharge Facility Inspection Reports

Appendix J: Industrial and Commercial Discharge Facility Inspection Reports

Industrial and Commercial Facility Inspection Summary and Follow-up
Action

Inspection Reports Conducted in City of Boise

Inspection Reports Conducted in Garden City

Industrial and Commercial Facility Inspection Summary and Follow-up Action
ACHD Phase I Permit Area, Idaho
October 1, 2021 – September 30, 2022

#	FACILITY	ADDRESS	MS4 CONNECTION (YES/NO)	RECEIVING WATER	SIC CODE	INSPECTION DATE	FOLLOW-UP ACTIONS
1	Harold's Autobody	119 E Boise Ave, Boise, ID 83706			7532	8/4/2022	
2	Cole's Marine Center	2728 Canal, Boise, ID 83705	Yes		3511	8/17/2022	Provide secondary containment for outside storage of chemicals.
3	Clothesline Cleaners	2753 W State St., Boise, ID 83702	No		3316	8/16/2022	
4	Bronco Motors Express Lube	2600 W Main, Boise, ID 83702			2657	8/30/2022	
5	Gem State Auto	6628 W State, Boise, ID 83714	Yes		2657	8/4/2022	Provide secondary containment for outside storage of chemicals and oil. Provide proper waste disposal. Provide proper engine storage.
6	Norco Acetylene Plant	850 W Gowen Rd., Boise, ID 83705	No		2813	8/4/2022	Provide secondary containment for oil and other hazardous liquids stored outside. Provide spill kits near the diesel fueling station, cement vault on southwest corner of building, and near pumping activity location.
7	Idaho Power Field Shop	49 S 30th St., Boise, ID 83702	Yes	Whitewater	3498	8/5/2022	
8	Revolution Vodka	495 S 15th, Boise, ID 83702	No		2082	8/25/2022	
9	Woodland Empire Ale Craft	1114 W Front, Boise, ID 83702	Yes		2082	8/17/2022	
10	Lasasco Inc	11100 Executive Dr., Boise, ID 83713	No		3443	8/17/2022	
11	Boise Centre	850 W Front St., Boise, ID 83702	Yes	9 th Street	6512	8/30/2022	
12	Trus Joist Weyerhaeuser	2910 E Amity Rd., Boise, ID 83716	No		2439	8/30/2022	
13	Builders FirstSource	4100 S Eagleson Rd., Boise, ID 83705	Yes		2439	8/30/2022	Provide secondary containment for all outside liquid storage.

#	FACILITY	ADDRESS	MS4 CONNECTION (YES/NO)	RECEIVING WATER	SIC CODE	INSPECTION DATE	FOLLOW-UP ACTIONS
14	Line X of Boise	4855 S Apple St., Boise, ID 83716	No		5013	8/25/2022	
15	Moffitt & Bratton	1864 W Airport Way, Boise, ID 83705	Yes		7538	8/25/2022	
16	Arizona Tile	112 W. 34th Street, Garden City, ID 83714	Yes	Davis Drain	3281	8/29/2022	
17	Commercial Glass	113 E. 33rd St., Garden City, ID 83714	Yes		1751	8/16/2022	Retain stormwater drainage related to redeveloped portion of site.
18	Dr Floyd's Garage	112 W. 35th St, Garden City, ID 83714	Yes	Davis Drain	7538	8/29/2022	Remove outside engine storage.
19	Gem State Electric	112 E. 45th St., Garden City, ID 83714	Yes	Thurman Mill Canal	3561	8/1/2022	
20	Maravia Corporation	604 E. 45th St., Garden City, ID 83714	No	Boise River	7999	8/22/2022	
21	North End Organic Nursery	3777 Chinden Blvd., Garden City, ID 83714	No		5261	8/19/2022	
22	Ozzy's Car Company	4195 Chinden Blvd., Garden City, ID 83714	Yes	Boise River	5521	8/26/2022	
23	Restoration Pro	505 E. 46th St., Garden City, ID 83616	Yes	Boise River	1799	7/28/2022	
24	Wrecked Metals	605 E. 46th St., Garden City, ID 83616	Yes	Boise River	3711	7/29/2022	

Attachment J
NPDES Phase I Stormwater Outfall Monitoring Plan

NPDES Phase I Stormwater Outfall Monitoring Plan

Ada County Highway District
Boise, Idaho
8/11/2022

Stormwater Outfall Monitoring Plan

Ada County Highway District Boise, Idaho
8/11/2022

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List of Abbreviations

ACHD	Ada County Highway District
ac	acres
AV	Area Velocity
BC	Brown and Caldwell
BOD5	Biological Oxygen Demand – 5 day
CaCO3	Calcium Carbonate
CFR	Code of Federal Regulations
COC	Chain of Custody
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
DQI	Data Quality Indicator
DQO	Data Quality Objective
EPA	Environmental Protection Agency
ft	feet
GI	Green Infrastructure
GSI	Green Stormwater Infrastructure
HDPE	High Density Polyethylene
IDEQ	Idaho Department of Environmental Quality
IPDES	Idaho Pollutant Discharge Elimination System
in	inches
LDPE	Low Density Polyethylene
L	liter
MDL	Method Detection Limit
mL	Milliliter
MS4	Municipal Separate Storm Sewer System
NH3	Ammonia
NO2	Nitrite
NO3	Nitrate
NPDES	National Pollutant Discharge Elimination System
NWS	National Weather Service
PMEP	Project Monitoring and Evaluation Plan
PRDL	Project Required Detection Limit
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Program Plan
RPD	Relative Percent Difference
SWOMP	Stormwater Outfall Monitoring Plan
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids

WQL Boise City Public Works Water Quality Laboratory

Executive Summary

The Environmental Protection Agency, Region 10 (EPA) issued the third cycle National Pollutant Discharge Elimination System (NPDES) Municipal Storm Separate Sewer System (MS4) Phase I Permit No. [IDS-027561](#) (Permit) effective October 1, 2021, to Ada County Highway District (ACHD), Boise State University, City of Boise, City of Garden City, Drainage District #3, and the Idaho Transportation Department District #3, referred to as the “Permittees.” Starting July 1, 2021, the Idaho Department of Environmental Quality (IDEQ) acquired Permit authority through the Idaho Pollutant Discharge Elimination System (IPDES) Program. The Permit authorizes stormwater discharges from MS4 outfalls to waters of the United States in accordance with the conditions and requirements of the Permit. Under this permit, the Permittees are required to update the existing Stormwater Outfall Monitoring Plan to be consistent with the stormwater monitoring and evaluation program objectives as described in Permit Part 6.2.

This Stormwater Outfall Monitoring Plan (SWOMP) has been developed in line with the Quality Assurance Project Plan for NPDES Stormwater Permit Monitoring (QAPP) (ACHD, 2021). The SWOMP describes the overall approach to stormwater outfall monitoring and provides site and drainage area descriptive details for each monitoring station. The SWOMP also provides guidance for data collection efforts, including descriptions of meteorological and hydrological data collection procedures and use, as well as analytical data collection and sample handling procedures.

Certain Quality Assurance/Quality Control (QA/QC) procedures that have been identified using United States Environmental Protection Agency (EPA) guidance for QAPPs are also included in this plan. The QA/QC procedures are designed to ensure data collected meet specific data quality objectives developed specifically for Permit-required monitoring activities. This plan documents QC sampling procedures, storm event acceptance criteria, and data management details specific to the SWOMP.

Section 1

Introduction

1.1 Basis for Monitoring Plan

The Permit requires that the SWOMP be consistent with the stormwater monitoring and evaluation program objectives as described in Permit Part 6.2 and are the following:

- Broadly estimate reductions in annual pollutant loads of sediment, bacteria, phosphorus and temperature discharged to impaired receiving waters from the MS4s, occurring as a result of the implementation of SWMP activities;
- Characterize the quality of stormwater discharges from the MS4; and
- Identify and prioritize those portions of the MS4 where additional controls can be accomplished to reduce the volume of stormwater discharged and/or reduce pollutants in MS4 discharges to waters of the U.S.

1.2 SWOMP Objectives

The SWOMP is designed to address the minimum permit requirements for wet weather stormwater outfall monitoring as listed in Permit Part 6.2.1. The SWOMP serves as guidance for data acquisition, management, and reporting efforts undertaken by the Permittees.

This document outlines the SWOMP approach and includes specific QAPP elements recommended by the EPA. EPA-recommended QAPP elements are addressed as either program elements or monitoring plan elements.

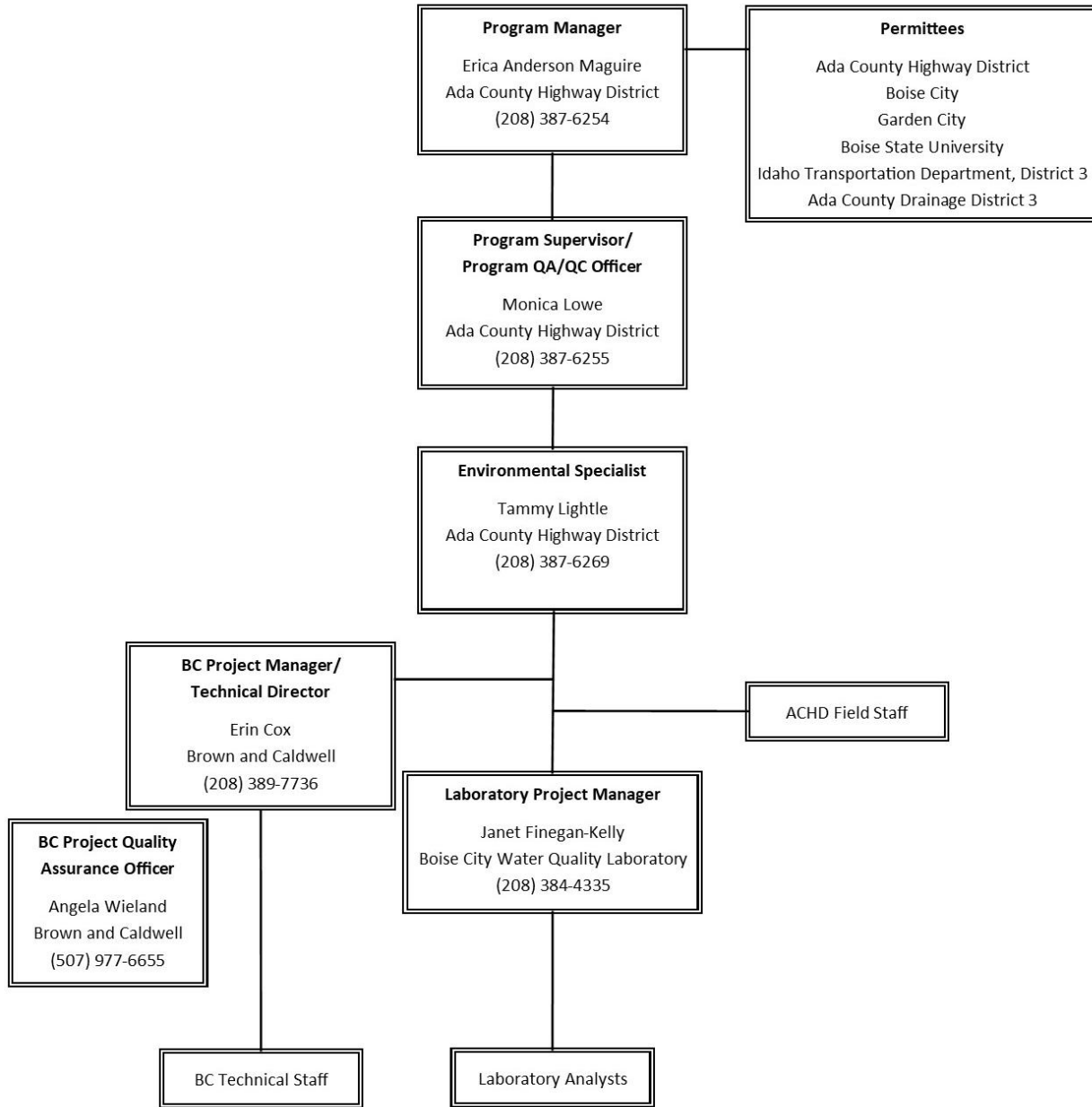
Monitoring plan elements are described in full in this document, while program elements are addressed in the QAPP. Monitoring plan elements are those components that contain details specific to each individual monitoring plan. Program elements consist of the standardized monitoring components that all individual monitoring plans developed under the Permit reference. A list of program and monitoring plan elements is included in Table 1-1.

Table 1-1. QAPP Element Document Reference		
EPA Recommended QAPP Elements	QAPP Element	SWOMP Element; Section
Group A: Project Management		
A1 – Title and Approval Sheet	X	
A2 – Table of Contents	X	
A3 – Distribution List	X	
A4a – Project Organization	X	
A4b – Task Organization		X; 1.3
A5 – Problem Definition/Background	X	
A6 – Project/Task Description		X; 1.2
A7a – Quality Objectives and Criteria for Measurement Data	X	

Table 1-1. QAPP Element Document Reference		
EPA Recommended QAPP Elements	QAPP Element	SWOMP Element; Section
A7b – Method Dependent Criteria for Measurement Data		X; 5.2
A8 – Special Training Needs/Certification	X	
A9 – Documents and Records	X	
Group B: Data Generation and Acquisition		
B1 – Sampling Process and Design		X; 2
B2 – Sampling Methods		X; 3, 4
B3 – Sample Handling and Custody		X; 4.6, 4.7
B4 – Analytical Methods		X; 4.2
B5a – Quality Control	X	
B5b – QA/QC Sampling Schedule		X; 5.1
B6 – Instrument/Equipment Testing, Inspection, and Maintenance		X; 3
B7 – Instrument/Equipment Calibration and Frequency		X; 3
B8 – Inspection/Acceptance of Supplies and Consumables	X	
B9 – Non-direct Measurements	X	
B10 – Data Management	X	
Group C: Assessment and Oversight		
C1 – Assessments and Response Actions	X	
C2 – Reports to Management	X	
Group D: Data Validation and Usability		
D1 – Data Review, Verification, and Validation	X	
D2 – Verification and Validation Methods	X	
D3 – Reconciliation and User Requirements	X	

1.3 Task Organization

ACHD is the lead agency for stormwater outfall monitoring under the Permit, and a consultant team assists with the monitoring program. Key roles and job functions are described in the QAPP. The stormwater outfall monitoring program organization chart is presented in Figure 1-1.



*Staff list subject to change. If changes occur, contact current staff member in corresponding role.

Figure 1-1. Stormwater Outfall Monitoring Organization Chart

Section 2

Sampling Process Design

The sampling process design consists of the collection of data at monitoring stations set up on representative drainages throughout the MS4 to present a picture of the impact of pollutant prevention efforts and the potential for pollutant loading reduction in the permit area. Data to be collected includes a combination of site-specific continuous rainfall data, continuous flow data from background sources, and stormwater discharges and water quality data. Section 2.1 provides an overview of the methods used to obtain this data and more detail is provided in sections 3 and 4. Drainage area characteristics integral to the sampling process design include land use, impervious ground cover percentage, canopy cover, vegetated area, stormwater controls, and stormwater infrastructure.

The process the permittees used for selecting monitoring sites is outlined below in Section 2.2. Detailed site description information is included in Section 2.3.

2.1 Data Collection Overview

Data collection at each monitoring station will be facilitated by a combination of automated sampling and measurement equipment and manual sampling, observation, and characterization activities. Automated sampling equipment includes a flowmeter with an area velocity (AV) sensor installed in the storm drain pipe. The flowmeter will record stormwater discharge, instantaneous and cumulative flow volumes, as well as background flows as applicable. Flow will be monitored continuously at sites that have consistent background flows.

The flowmeter is connected via a data cable to the automatic sampler. The automatic sampler and flowmeter are programmed to collect site specific, flow-weighted composite samples. Throughout a sampling event, the flowmeter triggers the sampler to initiate pumping at a pre-programmed volume interval to collect a representative composite sample of the stormwater discharge.

Each monitoring station is associated with a rain gauge to collect precipitation data to use in conjunction with sampling and flow data for analysis and quality assurance. Additionally, forecasts, weather, and hourly precipitation data for the weather station located at the Boise Airport are available from the [National Weather Service \(NWS\)](#) website.

Water quality data collection will be accomplished through a variety of sampling and analysis methods. Discrete grab samples will be collected for laboratory analysis and analysis of field parameters. Composite samples will be split at the laboratory for analysis. Discharges from three separate storm events will be sampled during each water year.

Monitoring equipment operation and maintenance descriptions are included in Section 3. Specific descriptions of sampling procedures are described in Section 4.

2.2 Site Selection

The Permit requirement for wet weather stormwater outfall monitoring is to continue the monitoring program that was implemented under the 2012 NPDES Phase I Permit. As such, four monitoring stations (Lucky,

Whitewater, Main, Americana) will continue to be the sampling locations for this SWOMP. For more information on how these stations were selected, refer to the *Storm Water Outfall Monitoring Plan* (ACHD, 2014a).

A vicinity map (Figure 1) showing each monitored drainage area within the Phase I Permit area is included in the Figures section at the end of the document. Site maps showing land uses and associated impervious area percentages by land use are also included in the Figures section.

2.3 Site Descriptions

Table 2-1 provides a summary overview of the monitoring station locations and associated subwatersheds. A summary of each monitoring site and a description of the monitoring equipment is included in the sections to follow. Subwatershed area, monitoring station maps, and pictures are included in the Figures section at the end of the document.

Table 2-1. Monitoring Station Information				
	Lucky (Site ID: 3)	Whitewater (Site ID: 11)	Main (Site ID: 12)	Americana (Site ID: 14)
Outfall ID	4n2e19_021	3n2e04_016	3n2e04_010	3n2e09_024
Location	5590 West Lucky Drive (northwest Boise)	East side of Whitewater Park Boulevard (west of downtown Boise)	303 West Main Street (west of downtown Boise)	1661 Shoreline Avenue (downtown Boise)
Station GPS Coordinates	43.6634612, -116.2583125	43.631432, -116.230644	43.621493, -116.228274	43.616150, -116.221257
Subwatershed Area	105 ac.	498 ac.	79 ac.	875 ac.
Percent Impervious Groundcover ^{1,2}	40	43	55	39
Land Uses (percentage) ^{1,3}	Right of Way (22%) Residential Med (78%)	Right of Way (36%) Commercial (4%) Residential Med (50%) Residential High (7%) Public and Schools (3%)	Right of Way (43%) Commercial (37%) Residential Med (14%) Residential High (5%) Public (1%)	Right of Way (30%) Commercial (13%) Residential (Hi/Med/Low) (39%) Parks and Open Space (14%) Public and Schools (4%)
Receiving Water	Eagle Drain	Crane Creek	Boise River	Boise River
Assessment Unit	N/A	ID17050114SW012-02	ID17050114SW011a_06	ID17050114SW011a_06
Distance from Station to Outfall	350 ft	140 ft	500 ft	108 ft
Rain Gauge Location	Cynthia Mann	Whitewater (at monitoring station)	Front	Front and East
Rain Gauge GPS Coordinates	43.664185, -116.256289	43.631432, -116.230644	43.619429, -116.216409	43.619429, -116.216409 43.626046, -116.187601
Rain Gauge Distance from Station	620 ft	0 ft	3,200 ft	1,730 ft and 9,600 ft

Table 2-1. Monitoring Station Information

	Lucky (Site ID: 3)	Whitewater (Site ID: 11)	Main (Site ID: 12)	Americana (Site ID: 14)
Pipe Construction	30 in, circular, corrugated metal pipe	38 in, ellipsoid, corrugated metal pipe	30 in, circular, concrete pipe	48 in, circular, concrete pipe
Power Source	40 Ahr battery	Commercial power	40 Ahr battery	40 Ahr battery
Parking	Park next to sidewalk at 5590 West Lucky Drive	Park in pullout south of enclosure	Park in lot southwest of enclosure	Park in space northwest of enclosure in parking lot
Equipment Location	Below ground in manhole in yard	In enclosure	In enclosure	In enclosure
Sampling Considerations	Swing sampler needed for grabs through manhole	Swing sampler needed for grabs through manhole	Swing sampler needed for grabs through manhole	Swing sampler needed for grabs through manhole
Data Considerations	Consistent standing water in manhole and pipe	Background flow usually present	Surcharges when Boise River stage is high	Background flow present year-round, Surcharges when Boise River stage is high
Watershed BMP Summary	Catch basins, sand and grease traps	Catch basins, sand and grease traps, ditches	Catch basins	Catch basins, sand and grease traps, seepage beds, bioretention planters, permeable pavers, stormwater tree cells

¹Source: ACHD, 2014b.

²Impervious cover includes roads and streets, rooftops, and parking lots.

³Land uses as delineated are defined as follows (ACHD, 2014c):

- Right of Way – Land reserved for transportation purposes managed by the Ada County Highway District. Not part of a recorded parcel by the Ada County Assessors office.
- High Density Residential – 8 residential units/acre or above. Multifamily units such as duplex, condos, apartments.
- Medium Density Residential – 3 - 7 residential units/acre. Typical single family residential on 0.15 to 0.49 acre lots.
- Low Density Residential – Less than 3 residential units/acre. Single family residential on lots 0.50 acres and larger.
- Commercial – Includes commercial retail and office space.
- Industrial – Includes manufacturing, warehousing, distribution other non-retail uses.
- Parks and Open Space – Includes public parks and open/undeveloped spaces.
- Public and Schools – Includes public buildings/facilities and schools including associated grounds.

2.3.1 Lucky

The Lucky monitoring station is located at 5590 West Lucky Drive in northwest Boise (Figure 2). Access to the sampling location is through a manhole located in the front yard near the sidewalk on West Lucky Drive (Figure 3). The manhole is located within a drainage and utility easement and is an access point for the stormwater conveyance system that carries stormwater from the Jordan's Landing Subdivision into Eagle Drain. The Lucky site is influenced by infiltration into the storm drain system from groundwater and the Boise City Canal in the nearby vicinity but does not have consistent background flow. Historically, there are around 2 inches of standing water in the pipe at the AV sensor. Surge conditions have not been a factor at the monitoring station.

The Lucky monitoring station is the only site that was previously monitored under both the 2000 NPDES Phase I Permit and the 2012 NPDES Phase I Permit.

Lucky Flow Measurement and Configuration

The AV sensor and sampler intake tubing are installed just downstream (northwest) of the manhole in the stormwater conveyance pipe. Grab samples are collected at the inlet to the stormwater conveyance pipe on the downstream side of the vault just before the sampler intake tubing. The flowmeter and sampler are installed in the manhole vault and sit on a platform suspended by cables that are secured to the inside collar of the vault.

2.3.2 Whitewater

The Whitewater monitoring station is located on the east side of Whitewater Park Boulevard (Figure 4). The sampling location is accessed through a manhole located in the sidewalk (Figure 5). Background flows are frequently present at the monitoring station and may consist of infiltration from Crane Creek, Boise City Canal, groundwater, and possibly other irrigation sources. The Whitewater subwatershed discharges into Crane Creek which begins in the foothills and flows to the northwest and intersects with the Farmer's Union Canal about 2,100 feet downstream from the monitoring station. During winter a temporary dike, which directs flows into a side channel of the Boise River, is installed at the intersection of the creek and the canal. Throughout irrigation season (typically early April through late September) the dike is removed and water flows to both the Farmers Union Canal and the side channel of the Boise River.

Upstream of the monitoring station, irrigation water from the Boise City Canal can overflow into the storm drain system via headgates that can be opened when irrigation flows are high. The Boise City Canal was developed in 1866 and is managed and operated by the Boise City Canal Company.

Whitewater Flow Measurement and Configuration

The flowmeter and sampler are installed in a locked enclosure that is mounted to a concrete pad. The sampler intake tubing and AV sensor are connected to the equipment in the enclosure via a conduit that extends through the concrete pad to the inside top of the pipe. Grab samples are collected in the manhole.

This station has commercial power, and the flowmeter is continuously measuring level and velocity and calculating flow. To calculate flow from velocity and level measurements in an ellipsoid pipe, the pipe dimensions (length and width) are programmed into the flowmeter. The flowmeter also records measurements from the rain gauge installed adjacent to the enclosure.

2.3.3 Main

The Main monitoring station is located at 303 West Main Street, west of the intersection of Main Street and Whitewater Park Boulevard (Figure 6). The sampling location is accessed through a manhole located in the sidewalk on the south side of Main Street (Figure 7). Background flows have not been recorded at this monitoring station to date, however, the pipe does surcharge during seasonal high river flows.

Main Flow Measurement and Configuration

The sampler intake tubing and AV sensor are installed just upstream (northeast) of the manhole vault. The flowmeter and sampler are installed in an enclosure next to the manhole. Grab samples are collected in the storm drain manhole located in the sidewalk.

2.3.4 Americana

The Americana monitoring station is located at the landscaped area on the west side of Americana Boulevard near the southeast corner of the parking lot for the office building located at 1661 Shoreline Avenue (Figure 8). The monitoring station is located on land owned by Riverwalk Partners, LLC with a dedicated storm drain easement. A license agreement was executed prior to the construction of the monitoring station between ACHD and Riverwalk Partners, LLC. The sampling location is accessed through a manhole located just west of the sidewalk that runs along the west side of Americana Boulevard (Figure 9).

Americana Flow Measurement and Configuration

Background flow is typically present at the Americana monitoring station. Background flow sources include groundwater infiltration, irrigation runoff, overflow from Hulls Gulch, return water from geothermal heating, intermittent discharges from the Boise Ice Company, and other sources to be investigated as monitoring progresses. The flowmeter's AV sensor and sampler intake tubing are installed just upstream (north) of the manhole in the stormwater conveyance pipe. Grab samples are also collected from the manhole.

Section 3

Monitoring Equipment

3.1 Monitoring Equipment Operation and Calibration

3.1.1 Flowmeters

Each monitoring station is equipped with a flowmeter. Depending on site configurations, an ISCO Signature flowmeter or a Hach AV9000 flow module is used. The flowmeters are used to record temperature, level, velocity, and flow. The flowmeter utilizes an AV sensor that is mounted to the invert of the pipe by means of a mounting band. The AV sensor includes both a depth sensor and an acoustic Doppler velocity sensor. The flowmeter calculates flow using the measured depth and velocity along with pre-programmed pipe geometry. During storm events the flowmeters are programmed to send a signal to an automatic sampler after a specified volume of runoff has passed the AV sensor.

3.1.1.1 Calibration and Maintenance

Routine maintenance of flowmeters, including level calibration, will be performed semi-annually according to the procedures listed in Appendix A. More frequent maintenance or calibration will be performed as warranted by equipment performance.

Calibration of the level requires only offsetting the initial depth of water. Typically, no field calibration of the velocity sensor is required. Additional checks on the accuracy of the velocity meter can, however, be conducted using a manual current meter to measure velocity. Depth can be checked by simple measurement and comparison to the recorded value. Readings showing deviations can be corrected using the flowmeter interface while in the field.

3.1.2 Automatic Samplers

Composite sampling is carried out at each of the monitoring stations using either ISCO 6712 samplers or Hach AS950 samplers. Sample aliquots are pumped from the stormwater conveyance to a 15-liter carboy by a peristaltic pump. The discharge tubing of the pump is routed into the sample container which is secured in the insulated base of the sampler with ice to maintain target sample temperature.

For each sampling event, the automatic sampler is programmed to collect samples based upon flow-paced signals received from the flowmeter via a control cable. The sampler collects one sample for each signal from the flowmeter. Sample aliquot volumes are programmed and calibrated to produce a flow-weighted composite sample of the storm event discharge consisting of a targeted 24 subsamples. A record of the sampler's operations (e.g., execution data and sample times) is stored on the hard drive of both the sampler and the flowmeter and may be downloaded to a portable computer at any time.

3.1.2.1 Calibration and Maintenance

Routine maintenance of the automatic samplers, including cleaning and calibration, will be performed semi-annually, or more frequently as warranted by equipment performance, according to the procedures listed in Appendix A.

The sampler is calibrated by comparing the collected sample volume (measured using a graduated cylinder) with the required volume that was programmed into the sampler program. The sampler microprocessor will adjust the pump run time to either increase or decrease the sample volume. This process is repeated until the sampler delivers a volume that is within ± 10 percent of the requested sample volume.

3.1.3 Rain Gauges

ACHD currently maintains four rain gauge sites representative of the monitored drainage areas. The rain gauges are deployed to collect continuous precipitation data throughout the water year. The program utilizes tipping-bucket style rain gauges that measure rainfall depths in 0.01-inch increments. Each tipping-bucket is connected to either Hobo event data loggers or an ISCO Signature flowmeter via a cable. At sites equipped with Hobo data loggers, a primary and a back-up data logger are used to record tip measurements.

A vicinity map (Figure 1) showing the location of each rain gauge is included in the Figures section at the end of the document. Figure 10 includes pictures of the rain gauges, which are located in the following areas:

- **Cynthia Mann Rain Gauge:** Cynthia Mann Elementary School in northwest Boise.
- **East Rain Gauge:** At the intersection of West Eastway Drive and Rainier Lane in a Boise foothills neighborhood.
- **Whitewater Rain Gauge:** At the Whitewater monitoring station on Whitewater Boulevard.
- **Front Rain Gauge:** At an ACHD maintenance storage area at the intersection of South 17th Street and Front Street.

The data collected on the rain gauge data loggers will be downloaded to a portable laptop computer on a bi-monthly basis. Additionally, sampling personnel will download rain gauge data during station shutdown following monitored storm events. The data will be compared to the NWS rainfall data to identify geographic variations, revise estimates of runoff coefficients, and analyze and evaluate the stormwater quality data.

In addition to using rainfall totals as acceptance criteria for storm event qualification, other program data derived from rainfall records include storm event antecedent dry periods, total rainfall distribution during sampling events, and rainfall intensity during monitored storm events.

3.1.3.1 Calibration and Maintenance

The rain gauges and data loggers will be inspected and maintained biannually. Troubleshooting and any non-routine maintenance will be performed as necessary. Calibration is not typically required for the tipping bucket rain gauges. If needed, calibration procedures are outlined in the rain gauge equipment manual. Inspection, maintenance, and downloading procedures are listed in Appendix A.

3.1.4 Handheld Field Parameter Instruments

During grab sample collection, specific parameters will be measured directly in the field using a variety of handheld instruments to collect readings including pH, conductivity, dissolved oxygen, and temperature. Each sampling team will have a dedicated set of instruments and will record measurements as soon after sample collection as feasible. Field parameter instruments will be rinsed with distilled water between measurements. After the sampling event has ended, these instruments will be allowed to air-dry and will be kept indoors between sampling events.

Handheld Field Parameter Instruments include the following:

- In-Situ Multiparameter meter
- Horiba D-21 pH/temperature meter and Horiba D-51 pH/temperature meter
- Oakton 300 pH/DO/temperature meter
- YSI-85 DO/salinity/conductivity/temperature meter

Safety Monitoring Instruments:

- Hazardous vapor monitors including BW GasAlert Max XT II and Sperian PhD6

3.1.4.1 Calibration and Maintenance

Maintenance will be conducted per manufacturers' recommendations and the procedures listed in Appendix A, or more frequently as warranted by equipment performance. Instruments will be inspected and calibrated prior to each monitoring event. All calibration records will be kept in the ACHD Stormwater Lab for reference.

Section 4

Sampling Procedures

4.1 Analytical Sample Collection Frequency

The stormwater monitoring, including the collection of stormwater discharge samples for laboratory analysis, is conducted at a minimum frequency of three wet weather events per year at each of the four sites. Attempts will be made to separate sampling events by a minimum of 30 days to represent seasonal variability.

4.2 Stormwater Parameter Analysis

The analytical methods planned for use in stormwater outfall monitoring are presented in Table 4-1 below. The NPDES Permit requires that sample collection, preservation, and analysis be conducted according to sufficiently sensitive methods/test procedures approved under 40 Code of Federal Regulations (CFR) Part 136, 40 CFR subchapters N or O, or an alternative method that has been approved by EPA. As such, the methods identified below are the selected and preferred options. However, sample, laboratory, or instrument conditions may require the substitution of an alternate Part 136 method. Field parameter measurements provide pH, temperature, conductivity, and dissolved oxygen (DO) data. Additional water quality data is provided by laboratory analyses of both grab and composite samples. Table 4-1 identifies the components to be collected by grab sampling and as flow-weighted composite samples, along with the analytical methods to be used.

Table 4-1. Analytical Methods for Stormwater Constituents in Wet Weather Samples		
Constituent	Analytical Method	Sample Collection Type
Ammonia (NH ₃)	SM 4500-NH3 D	C
5-Day Biological Oxygen Demand (BOD5)	SM 5210 B	C
Chemical Oxygen Demand (COD)	HH 8000	C
Nitrite plus Nitrate (NO ₂ +NO ₃)	EPA 353.2	C
Total Kjeldahl Nitrogen (TKN)	EPA 351.2, 10-107-06-2-M	C
Total Dissolved Solids (TDS)	SM 2540 C	C
Total Suspended Solids (TSS)	SM 2540 D	C
Turbidity	EPA 180.1	C
Dissolved Orthophosphate	EPA 365.1	C
Total Phosphorus	EPA 200.7	C
<i>E. coli</i>	IDEXX Colilert	G
Mercury - Total	EPA 245.2	C
Arsenic - Total	EPA 200.8	C
Cadmium - Total and Dissolved	EPA 200.8	C
Calcium - Total	EPA 200.7	C
Lead - Total and Dissolved	EPA 200.8	C
Magnesium - Total	EPA 200.7	C

Table 4-1. Analytical Methods for Stormwater Constituents in Wet Weather Samples

Constituent	Analytical Method	Sample Collection Type
Hardness (as Calcium Carbonate [CaCO ₃])	EPA 200.7	C
Copper - Dissolved	EPA 200.8	C
Zinc - Dissolved	EPA 200.8	C
Conductivity	EPA 120.1	G,f
DO	In-Situ Method 1002-8-2009	G,f
Temperature	EPA 170.1	G,f*
pH	EPA 150.2	G,f
Flow/Discharge Volume	Non Specific	f

C – Constituent analysis will be conducted using a composite sample.

G – Constituent analysis will be conducted using a grab sample.

f – Analysis will be conducted in the field.

f – Temperature is recorded during field parameter measurement and is recorded continuously by the AV sensor.*

4.3 Weather Forecast and Storm Selection

The Environmental Specialist (or designee) will obtain up-to-date information on a storm's anticipated physical characteristics from the NWS. Information obtained for each forecast will include the probability of precipitation, the expected amount of precipitation, and the expected arrival time of the storm. Weather forecasts and information will ordinarily be obtained via the Internet and supplemented as needed by telephone conversations with the NWS meteorologist on duty. The Environmental Specialist will review weather forecasts daily and compare them with the established storm selection criteria to determine the likelihood of initiating stormwater sampling.

The EPA's definition of a representative storm event (EPA, 1983) states that the storm precipitation total must be greater than 0.10 inch and that the storm be preceded by a minimum of 72 hours from the previously measurable (greater than 0.10 inch) event.

With the Permit requirements and EPA guidance considered, ACHD will use the following criteria to assist in decision making for selecting forecasted storms to target under typical conditions:

- 70 percent or greater probability of precipitation forecasted
- Quantitative precipitation forecast predicted precipitation of greater than 0.10 inch in a 12-hour period
- Event separated by a minimum of 72 hours of dry weather from the previous measurable storm event (rainfall greater than 0.10 inch)
- At least 30-day separation from the previous sampling event

Criteria for snow conditions include the following:

- Forecasted precipitation in the form of snowfall will be evaluated in the context of the greater weather forecast to determine the likelihood of runoff occurring at the outfall.
- Though snowmelt is considered stormwater runoff, sampling events will not be initiated for collection of discharge from snowmelt alone when criteria for a representative storm are not forecasted to be met.

These criteria represent the general approach to storm event targeting used for this program. Ultimately, the Environmental Specialist will use these criteria in conjunction with additional forecast information, sampling program and staffing requirements, and other factors to make the decision to target a particular storm.

The Environmental Specialist will communicate the sampling status to the consultant Field Coordinator daily by means of the Sampling Event Communication Form (included in Appendix B). The Sampling Event Communication Form will also be sent to laboratory project personnel and ACHD field sampling staff.

If storm selection criteria appear to be met, the Environmental Specialist will confer with the consultant Field Coordinator. If both parties agree, the consultant Field Coordinator will initiate storm event preparation by advising the sampling team of the upcoming sampling event. At this time, all necessary sample containers will be prepared and organized by site.

4.4 Monitoring Station Set-up

Prior to a sampling event, the Environmental Specialist or the consultant Field Coordinator will be responsible for readying the flowmeters and automatic samplers at the monitoring stations following the procedures listed on the Setup/Shutdown Form (Appendix B). Whenever possible, setup will be conducted by two trained staff. The Environmental Specialist (or designee) will be responsible for calibrating the handheld field parameter equipment, ensuring that adequate sampling supplies are available, and notifying the laboratory of the possible sampling event

Monitoring station set-up activities include the following:

- flushing the polyethylene sampler intake line and silicone discharge tubing with a dilute hydrochloric acid solution
- checking the condition of sampler harness and platform (if applicable), and sampler humidity indicator
- inspecting electrical and tubing connections for tightness
- installing recharged batteries
- freeing sampler tubing of twists, pinches, or cracks and replacing if needed
- loading bottles and ice into automatic samplers
- programming the samplers and flowmeters
- initiating the sampling program
- recording set-up information on field data sheets

4.4.1 Flowmeter Programming

Sampler Enable Condition

The flowmeter will be programmed to enable the sampler based on the water level in the pipe. The level condition will be programmed after a review of the previous 72 hours of level readings. Once runoff begins and water level increases, the sampler will enable and total flow will be computed toward the trigger volume, described below. Using the sampler enable condition allows for the sampler program to be initiated without the flowmeter triggering sample collection until storm runoff begins.

Runoff Coefficients and Trigger Volumes

To collect a flow-weighted composite sample throughout a storm, estimates will be calculated for the runoff volume expected at each station. The expected runoff volume will be divided by the planned number of sample aliquots, and the resulting value is used as the trigger volume for programming the flowmeter. The trigger volume is the amount of flow that will be measured before the automatic sampler is triggered to collect a subsample. Therefore, the number of samples collected over the course of a storm is a result of the runoff volume expected for the total storm as forecasted at the time of station set-up.

Calculating the total estimated runoff is a function of the weighted rainfall amount expected and the site-specific runoff coefficient. Precipitation amounts are weighted by multiplying the predicted rainfall amount by the probability of precipitation as forecasted by the NWS. The site-specific runoff coefficients are derived from the percentage of impervious ground cover in the subwatershed and empirical values from observed storm data.

Historical data suggests that multiple variables factor into the actual volume of runoff measured at each monitoring station. These variables include the size, duration, and intensity of a storm, along with

irregularities within the drainage area including soil moisture, temperature, snow cover, and irrigation influences. Recorded runoff volumes from each station will be used to continually refine runoff coefficients over the course of the program.

4.5 Sample Collection

4.5.1 Sampling Teams

Sampling team assignments will be decided once the decision is made to target a storm for a sampling event. At least two teams will be formed, each consisting of two persons, a sample team leader and a sample technician. One sample team leader will serve as the site safety officer during sampling events. Each team will be responsible for collecting samples at their assigned stations.

When storm event runoff begins, the consultant Field Coordinator will confer with the Environmental Specialist and mobilize sampling teams. All sampling personnel will meet at the ACHD Stormwater Lab for a briefing on field conditions, QA/QC samples to be targeted, and safety reminders and concerns. Sampling teams will be responsible for the following:

- Collecting field parameter measurements
- Collecting laboratory analytical grab samples
- Verifying operation of the automated sampling equipment
- Collecting sample duplicates and/or preparing field blanks, as required
- Returning grab sampling equipment to ACHD
- Arranging transportation of samples for submittal to Boise City Public Works Water Quality Laboratory (WQL)

4.5.2 Grab Sample Collection

Grab sample collection at each monitoring station will be accomplished by the sample team leader. The sample team leader will fill grab sample bottles for each analysis from a point near the center of the flow at each monitoring station in accordance with the applicable procedures listed in Appendix A. Immediately following sample collection, the sample technician will record the collection date, time, and sample identification on the sample containers and on a Grab Sample Data Form (Appendix B). Additional sampling information recorded on the Grab Sample Data Form includes field parameter measurements and the corresponding meter used, status of the automated sampler, and other comments and observations.

Field parameters including temperature, pH, conductivity, and DO will be measured in the field using handheld instruments to avoid changes that may occur between the time when the sample is collected and the time of the analysis. Measurements from these field tests will be recorded on the Grab Sample Data Form included in Appendix B.

4.5.3 Composite Sample Collection

Collecting flow-weighted samples throughout a storm event is facilitated using automated sampling equipment. Each monitoring station is equipped with an automatic sampler. During station setup, samplers are programmed for a site- and event-specific trigger volume. At each monitoring station, the automatic sampler is linked to the flowmeter via a data cable. When the flowmeter records the trigger volume amount, the integrated peristaltic pump on the automatic sampler engages and draws a sample through the tubing installed in the invert of the storm drain pipe. The sample aliquot is pumped into the composite sample bottle secured in the base of the automatic sampler.

The sampler program will end automatically after the last programmed subsample has been collected (typical target of 24 subsamples). Immediately following collection of the sample container, the sample team

will record the collection date, time, and sample identification on the sample bottle and the Composite Sample Collection Form (Appendix B).

Variability between expected runoff amounts and measured runoff amounts are common. To increase the probability of collecting a representative sample, a conservative approach to programming the sampler is used. The minimum volume required by WQL to run the analyses identified in Table 4.1 is 8 liters. In order to collect a representative composite sample, the sampler is programmed to collect 24 aliquots at 620 mL per aliquot. This approach will provide 13 subsamples to achieve the minimum volume, with a conservative estimate of forecasted rainfall. This will also provide additional capacity to collect up to 11 more aliquots in the event the intensity and duration of the storm is more than expected.

4.6 Sample Handling Procedures

The required types of containers and holding times for the stormwater outfall monitoring component are dependent upon the components to be analyzed. Table 4-2 includes container types and holding times for each parameter group.

Preservation techniques in the field are limited to cooling samples to a target sample temperature of less than 6°C, but above freezing. Five to ten pounds of food-grade ice will be placed in the coolers of the automatic samplers during station setup. Sufficient ice will also be placed in coolers used for grab and composite sample transport to maintain the samples at a maximum temperature of 6°C. Composite samples will be collected for the majority of analytical parameters in stormwater samples. Composite samples will be collected in a 15-liter Nalgene LDPE carboy.

No chemical preservation measures are required in the sample collection process. WQL will add chemical preservatives after the composite samples are split as necessary for analysis, i.e. metals analysis. In the 15-liter carboy, composite samples have a holding time of 48 hours. Analysis of composite samples will include the parameters listed in Table 4-2.

Parameters to be measured in the field include DO, conductivity, pH, and temperature. Parameters will be measured on-site using portable handheld meters immediately following sample collection. Field parameter samples will be collected and measured in a 1-liter (L) glass jar.

Special Handling Considerations

4.6.1 *E. coli*

Due to the variable nature of storm event timing, *E. coli* grab samples are sometimes analyzed outside of sample holding times required by the standard method (eight hours). WQL has committed to providing *E. coli* analysis within the holding time for samples submitted during normal business hours (Monday–Friday), and within 12–16 hours if samples are submitted after hours. *E. coli* samples analyzed within the 8–16 hour timeframe will be qualified as estimated in the context of the program-established data quality objectives discussed in Section 5.2. If analysis is not initiated within 16 hours of collection, results will be rejected.

4.6.2 Dissolved Metals

Current regulations under the EPA Method Rule Update issued on May 18, 2012, require that samples collected for the analysis of dissolved metals including dissolved orthophosphate be filtered within 15 minutes of collection of a grab sample or the last subsample of a composite sample. Dissolved metals are a constituent of the composite sample for the stormwater outfall monitoring program.

WQL has committed to splitting composites and filtering dissolved metals samples at the time of submission to the laboratory when they are submitted during normal business hours, and within 24 hours when samples are submitted after hours. Samples filtered within the 24-hour timeframe will not be qualified as estimates

in the context of the program-established data quality objectives discussed in Section 5.2. If filtration is not accomplished within 24 hours of collection, results will be rejected.

Table 4-2. Sample Handling Requirements		
Constituent	Container	Holding Time
Composite Samples		
Ammonia (NH ₃) 5-Day Biological Oxygen Demand (BOD ₅) Chemical Oxygen Demand (COD) Nitrite plus Nitrate (NO ₂ +NO ₃) Total Kjeldahl Nitrogen (TKN) Total Dissolved Solids (TDS) Total Suspended Solids (TSS) Turbidity Total Phosphorus Mercury -Total Arsenic - Total Cadmium - Total Calcium - Total Lead - Total Magnesium - Total Hardness (as CaCO ₃)	15-liter LDPE carboy	48 hours (in carboy)
Dissolved Orthophosphate Cadmium - Dissolved Copper - Dissolved Lead - Dissolved Zinc - Dissolved		
Grab Samples		
<i>E. coli</i>	500 mL sterilized HDPE	8 hours
Field Parameters		
Dissolved Oxygen	1 L glass	Field analysis; 15 minutes
Temperature		
pH		
Conductivity		

LDPE - Low Density Polyethylene

4.7 Chain-of-Custody Procedures

Standard chain of custody (COC) forms, shown in Appendix B, will be completed prior to submittal of samples to the laboratory. Information recorded on the COC includes the following:

- Sample collection team member names
- Sample identification
- Sample type (grab or composite)
- Analyses requested
- Sample start and end times
- Sample start and end dates

A sample is “in custody” if it is either in actual physical possession of authorized personnel or in a secured area that is restricted to authorized personnel. Such areas include laboratory refrigerators, the ACHD Stormwater Lab, ACHD vehicles, and consultant vehicles. Automatic samplers at monitoring stations are installed in locked enclosures or in manholes. Where samplers are installed in manholes, the sample container base will be locked to secure access to the sample. All transfers of custody will be recorded by signature, date, and time by both the individual relinquishing custody and the one receiving custody. This information is placed in the designated area on the bottom of the COC form.

The transferal of grab samples collected during a storm event between the sampling team leader who collected the sample and the field coordinator or designee who will deliver the samples to the lab must be recorded on the COC form. The field coordinator will record his/her signature with the date and time the samples were received on the associated COC form.

Samples may be stored overnight (in coolers with ice) at the ACHD Stormwater Lab or vehicles while awaiting submittal to the laboratory. The COC forms must be reviewed and signed by at least one of the persons who collected the samples listed on the COC form. The COC forms will be delivered to the laboratory with the samples.

If samples are submitted to the laboratory during business hours, samples are relinquished to laboratory personnel in person for immediate receipt with signature, date, and time. ACHD has after-hour access to the laboratory to accommodate sample submittal. When sample delivery occurs after hours, grab samples are placed in a locked refrigerator and composite samples are stored in coolers or sample bases and packed with ice. The team delivering the samples will notify a laboratory representative that the samples have been dropped off and the time the earliest samples were collected. A signed COC form is left in the locked laboratory for morning receipt by laboratory personnel.

Analytical samples will be named using the date of the event, followed by the station number, followed by WG or WC for “Wet Grab” or “Wet Composite,” respectively. For example, a composite sample collected at Whitewater on October 15, 2021, would be labeled 211015-11-WC.

Sample collection times for QC samples will be recorded as 12:00 on the COC form to maintain duplicates as laboratory blind samples. The actual collection time will be recorded on the field form. The QAPP includes detail on the approach to data validation as it pertains to holding times and laboratory qualifiers for QC samples.

4.8 Monitoring Station Shut Down

Post-sampling activities include downloading data from flowmeters, samplers, and rain gauges according to the applicable procedures listed in Appendix A; removing/replacing batteries where necessary; and reviewing the overall condition of the equipment. Equipment shutdown will be conducted by ACHD personnel and may occur as late as two weeks after sample collection to accommodate hydrologic data collection.

WQL will analyze the samples for the components of concern identified in Table 4-1. Quality assessment activities, to be performed by the Program QA/QC Officer, will include review of field notes and COC documents, as well as validation of data packages received from the laboratory. QA/QC procedures are discussed in further detail in Section 5.

Section 5

Quality Assurance/Quality Control

5.1 QC Sampling Schedule

The QC sampling schedule developed for the SWOMP consists of a combination of field QC samples and laboratory QC samples. Field QC sample types are described in the QAPP. Field QC sampling intervals will follow the schedule detailed in Table 5-1. Laboratory QC sample results are included in each analytical report.

Table 5-1. Field QC Sample Collection

QC Sample Method ¹	Sampling Frequency	Percent of Total Data Represented ⁴
Grab sample duplicate and field blank	1 set per event	20%
Composite sample duplicate ²	1 composite per year	7%
Composite sample field blank	1 composite per year	7%
Composite sample equipment blank ³	1 composite per year	7%
Composite sample rinsate blank ³	1 composite per year	7%

¹Grab QC samples will be analyzed for grab sample constituents. Composite QC samples will be analyzed for composite sample constituents.

²The composite sample duplicate will be collected at the earliest opportunity, and is contingent upon sample volumes.

³Blanks will be collected during monitoring station maintenance events and will be analyzed for composite sampling constituents.

⁴Percentages are calculated based on 5 sites (4 outfall monitoring sites and 1 subwatershed monitoring site)

Random number generation was used to develop a QC sample schedule for each water year. The schedule establishes the targeted QC site for each event, as well as an alternate QC site with the goal of collecting one set of QC samples for each event. Each site is assigned a number and a random number generator equation is run for each event. If the selected site cannot be sampled for any given event, the predetermined alternate site will be used. The full QC schedule is included in Appendix C.

ACHD may choose to conduct additional QA/QC to address data discrepancies, potential sample contamination, or other QA/QC issues. These events will be handled on an as-needed basis, depending on the issue(s) involved.

5.2 Data Quality Objectives (DQO)

The DQO for ACHD stormwater monitoring can be summarized by the following statement:

Monitoring efforts will provide data of sufficient quality and quantity in accordance with permit requirements to characterize the quality of stormwater discharges from the MS4 and evaluate overall effectiveness of stormwater management practices.

5.2.1 Data Quality Indicators (DQIs)

DQIs have been established to set measurable qualitative and quantitative goals for data acceptance that meet the program DQO described above. Each DQI is described below. DQIs are the basis for addressing

field and laboratory analytical instrument performance, as well as sample collection and handling procedures. QA/QC samples provide input for several of the DQIs. QA/QC sample collection procedures are included in Section 2.1 of the QAPP.

DQIs are described fully in Section 1.8.1 of the QAPP. A brief description of each DQI is included in the list below.

- **Project Required Detection Limits (PRDL):** Achieving appropriate reported constituent concentration results at values that allow for comparison to baseline data and water quality standards.
- **Accuracy:** The accuracy of the data is a measure of the extent to which a measured value represents the true value.
- **Precision:** Precision is a measurement of the reproducibility of the analytical data.
- **Bias:** Bias is minimized by using standard data collection and analytical methods and protocols, as well as standard sample preservation, transport, and storage procedures.
- **Representativeness:** Representativeness is a measure of the degree to which data accurately and precisely indicate environmental conditions.
- **Comparability:** The comparability of a data set is the extent to which data accurately and precisely indicate environmental conditions.
- **Completeness:** Completeness is a comparison between the amount of usable data collected versus the total amount of data collected.
- **Sufficiency:** Data set sufficiency is the amount of data required to perform the level or type of analysis necessary for each monitoring element.

Analysis-specific data quality indicators include PRDLs and precision evaluated as relative percent difference (RPD). The target values for these indicators are listed in Table 5-2 below.

Table 5-2. Data Quality Indicator Targets				
Constituent	Analytical Method	PRDL ^{1,2}	Units	Precision ^{3,4} (RPD)
Temperature	EPA 170.1	0.01	°C	NA
pH	EPA 150.2	0.01	S.U.	NA
Dissolved Oxygen	In-Situ Method 1002-8-2009	0.01	mg/L	NA
Conductivity	EPA 120.1	0.1	µS/cm	NA
Ammonia (NH ₃)	SM 4500 NH3 D	0.0350	mg/L	20%
5-Day Biological Oxygen Demand (BOD5)	SM 5210 B	2.00	mg/L	20%
Chemical Oxygen Demand (COD)	HH 8000	7.00	mg/L	20%
Nitrite plus Nitrate (NO ₂ +NO ₃)	EPA 353.2	0.0500	mg/L	20%
Total Kjeldahl Nitrogen (TKN)	EPA 351.2, 10-107-06-2-M	0.100	mg/L	20%
Total Dissolved Solids (TDS)	SM 2540 C	25.0	mg/L	20%
Total Suspended Solids (TSS)	SM 2540 D	0.900	mg/L	20%
Turbidity	EPA 180.1	0.3	NTU	20%
Orthophosphate, as P	EPA 365.1	2.00E-3	mg/L	20%
Total Phosphorus	EPA 200.7	6.00E-3	mg/L	20%
<i>E. coli</i>	IDEXX Colilert	1.0	MPN/100mL	40% ⁵
Mercury - Total	EPA 245.2	0.0100	µg/L	20%
Arsenic - Total	EPA 200.8	0.040	µg/L	20%
Cadmium - Total	EPA 200.8	0.025	µg/L	20%
Calcium - Total	EPA 200.7	0.0460	mg/L	20%
Lead - Total	EPA 200.8	0.050	µg/L	20%
Magnesium - Total	EPA 200.7	39.5	µg/L	20%
Hardness (as CaCO ₃)	EPA 200.7	0.115	mg/L	20%
Cadmium - Dissolved	EPA 200.8	0.025	µg/L	20%
Copper - Dissolved	EPA 200.8	0.15	µg/L	20%
Lead - Dissolved	EPA 200.8	0.050	µg/L	20%
Zinc - Dissolved	EPA 200.8	0.78	µg/L	20%
Flow/Discharge Volume	Non Specific	0.001	cfs	NA
Precipitation	Non Specific	0.01	in	NA

¹Field instrument resolution values are listed in lieu of a PRDL for field parameter measurements.

²PRDL is defined as the effective method detection limit (MDL) as reported by the analytical laboratory.

³Precision calculations based on field duplicate samples.

⁴In cases where one value is reported at the MDL and the other value is less than five times the MDL, the samples will be considered within acceptable precision limits.

⁵*E. coli* is evaluated using the RPD of logarithmic parent and duplicate values. The acceptable RPD between the two values is also higher than other constituents. These changes are in place to accommodate the inherent variability in *E. coli* samples.

Anticipated issues with optimal performance for DQIs include high potential for holding time exceedances with *E. coli* as well as meeting the method-required filtration window for dissolved orthophosphate in composite samples. These issues will be monitored closely from the outset of the stormwater outfall monitoring program to track and understand the impact these deviations may have on DQIs.

5.2.2 Storm Event Acceptance Criteria

Acceptance criteria for a representative storm are derived from Permit requirements for representative sampling as listed in Section 6.2.4 and target volume and duration goals established for this program. Storm data used to evaluate acceptance, including antecedent dry period, precipitation amount, and flow volumes, will be measured based on data records at the site-specific rain gauges and flowmeters.

The acceptance criteria for composite samples are based on the total amount of runoff represented by the composite sample. Ideally, upon completion of the sampler program, a flow-weighted composite sample is collected that represents the entire duration of the storm. However, in some cases, high rainfall amounts result in the automatic sampler program finishing before capturing the entire storm. When this situation occurs, the full composite bottle is removed from the sampler, a second bottle is installed, and the sampler program is restarted. During the bottle change, there can be an unavoidable gap in collection time of the flow-weighted composite sample because of logistical constraints in reaching each monitoring station at the exact time the first sample bottle is full. All sample bottles filled at a particular station will be composited at the WQL. This composite sample is flow-weighted for the portion of the storm event that was sampled.

The percentage of the storm event that is represented by the composite sample can be determined from a review of the storm hydrograph at each location. The sample will be considered valid and unqualified when the composite sample represents at least 75 percent of the total hydrograph with the first hour of runoff included, or the sample represents the first six hours of the discharge. If the composite sample represents between 50 and 75 percent of the measured flow volume associated with the storm, then the sample will be qualified, and data will be considered an estimate based on the DQIs outlined earlier in this section. If the composite sample represents less than 50 percent of the total hydrograph, then it will be rejected. Another storm may be targeted to replace it if possible.

On a limited number of historic occasions, an automatic sampler has triggered before the beginning of storm event runoff. In the event of this occurrence, the extraneous aliquots will be considered not to have compromised the entire composite sample if it represents less than 10 percent of the total composite sample volume (typically one to two subsamples). In the event of this occurrence, the composite sample will be qualified based on the DQIs outlined earlier in this section. If the composite sample is determined to be comprised of 10 percent or more non-stormwater subsamples, the entire composite sample will be rejected.

Section 6

Data Management and Reporting

All data collected as part of the SWOMP will be stored in electronic format for secure storage and timely and accurate retrieval for data interpretation, graphing, and reporting. Data collected as part of the sampling program will include rainfall data, runoff volumes, runoff coefficients, field analytical data, laboratory analytical data, QA/QC results, and some qualitative observations. Specific management and reporting procedures are provided below.

6.1 Data Acquisition Requirements (Non-Direct Measurements)

Weather forecasts and hourly precipitation totals will be typically obtained from the [NWS Boise airport station website](#). Additional forecasts or weather reports may be retrieved from local media, community, or commercial weather services. When obtaining weather forecasts for storm events, the Environmental Specialist will typically call the NWS Boise airport station for additional details if it appears that an approaching storm may meet the sampling criteria. Pertinent details of these conversations will be recorded on the Sampling Event Communication Form (Appendix B).

6.2 Data Management System

Seveno DataSight (DataSight) data management software is used for handling data collected from stormwater monitoring programs. DataSight provides a safe and secure platform for storing, viewing, validating, and analyzing data. Program data will be imported into the database according to established procedures listed in Appendix A. The database will assist with implementation of the QAPP and the individual monitoring plans guiding each monitoring program.

The DataSight database is configured in three tiers or “levels” under which data is stored and related. The database structure and level dependencies for the stormwater outfall monitoring program are illustrated in Figure 6-1 below.

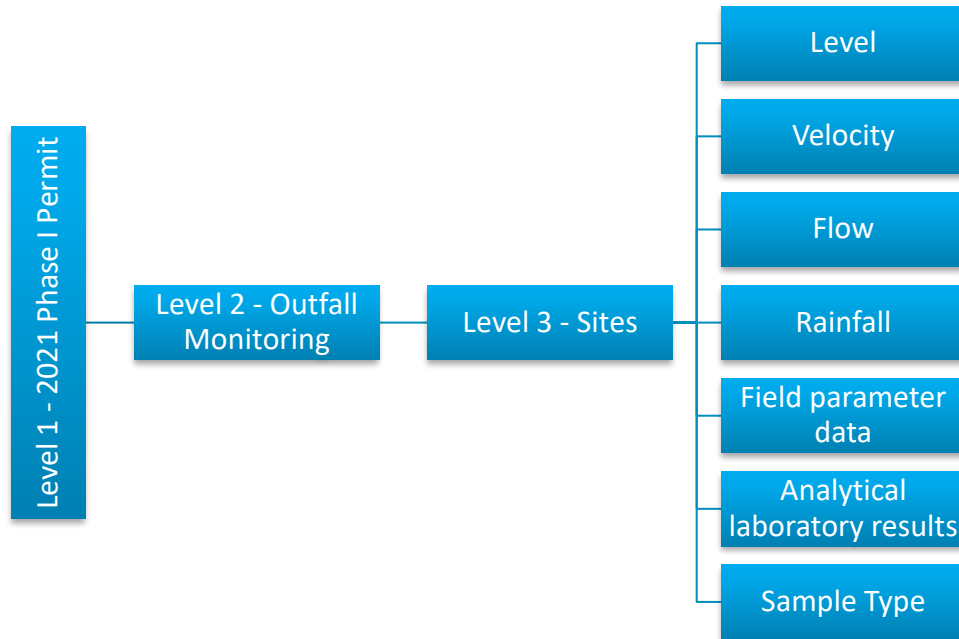


Figure 6-1: Database Levels Setup

6.3 Data Reporting

6.3.1 Storm Event Reporting

Following each sampling event, a storm event report summarizing the results of all sampling conducted will be prepared by the consultant. The report will also provide a specific summary of the storm characteristics and monitoring activities at each of the targeted stations and will include the following level 2 data and control documents:

- Storm Event Information
 - date and time span of the storm
 - antecedent dry period
 - a qualitative description of the forecast and storm
 - composite sample volumes
 - trigger volumes
- Water Quality Data
 - field parameter measurements
 - laboratory analytical data
 - QC sample results
 - storm event pollutant loading estimates from each site (described below)

- Flow Data
 - storm event flow totals
- Rain Data
 - storm event precipitation totals
- Control Documents
 - laboratory analytical report
 - data validation checklist

Additionally, each storm event report will include the following report elements:

- Project status summary table
- Discussion of QA/QC analysis
 - storm acceptance criteria
 - results of the data validation review for the event
- Narrative summary of notes from the current event and recommendations for the next event
- Event hydrograph for each monitoring station

Storm Event Pollutant Loading Estimates

Pollutant loading estimates for each event will be calculated using the following formula when complete runoff volume measurements are available.

$$L = 6.24E^{-5} * F * C$$

Where:

- L = Event Load (pounds)
- F = Event Runoff (cubic feet)
- C = Pollutant Concentration (mg/L)
- 6.24 E⁻⁵ = Unit conversion factor

When runoff volume must be estimated due to incomplete flow measurements, the Simple Method approved by the EPA for simple pollutant loading estimations for urban stormwater will be used. The following is the equation that will be used to estimate the event pollutant loads if measured flow volumes are not available or are incomplete.

Simple Method

$$L = 0.226 * R * C * A$$

Where:

- L = Event Load
- R = Event Runoff (inches)
- C = Pollutant Concentration (mg/L)
- A = Area (acres)
- 0.226 = Unit conversion factor

Runoff Calculation

$$R = P * Pj * Rv$$

Where:

R = Event Runoff (inches)

P = Event Rainfall (inches)

P_j = Fraction of annual rainfall events that produce runoff (0.9)

R_v = Runoff Coefficient

The site-specific runoff coefficient (R_v), as presented in the EPA formula, is equal to the percent of impervious surface in the drainage area represented as a decimal. However, this does not account for impervious areas in areas without curb and gutter, canopy cover and interception, or stormwater controls in the drainage area. Therefore, the runoff coefficient variable in the equation will be refined as understanding of the drainage area is expanded.

6.3.2 Stormwater Outfall Monitoring Annual Reporting

A Stormwater Outfall Monitoring summary will be attached to the MS4 Annual Report Form (NPDES Phase I Permit Appendix B) submitted to IDEQ annually. This summary will include the results from each storm event and any monitoring, assessment, or evaluation efforts conducted during the reporting period (October 1 – September 30).

6.3.3 Stormwater Outfall Monitoring Final Report

As required by Permit Part 6.4.3, a final report summarizing all monitoring data collected during the permit term will be submitted as an attachment to the Permit Renewal Application (April 3, 2026). The report will be based upon the storm event reports and will include a comprehensive evaluation of all the data collected. If data have been qualified as part of the QA/QC process, this will be noted in the appropriate table(s). The data evaluation will include the following:

- A statistical summary for analytical parameters with five or more data points
- A yearly comparison of the median concentrations for each monitoring site
- An estimate of event mean concentrations for each parameter sampled for each storm event
- Event Mean Concentration trend analyses demonstrating pollutant loading over time
- A discussion of data quality including qualified data points and deviations from program plans
- A discussion of pollutant reduction efforts and results
- A discussion and analysis of sampling analytical performance against DQOs including discussion of any planned changes to the current plan based on QA/QC issues, site conditions, or program conditions

6.3.4 Evaluation and Assessment

Evaluation and assessment of the stormwater outfall monitoring data will follow the general guidance identified in the QAPP. For the SWOMP, pollutant loads will be estimated based on measured flow and concentrations throughout the system. Data will be compiled with the objective to obtain sufficient data points for statistical and trend analyses to evaluate the effectiveness of stormwater management efforts at reducing pollutant loads from the MS4.

Section 7

References

Ada County Highway District (ACHD), Storm Water Outfall Monitoring Plan, 2014a.

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———, Guidance on Systematic Planning Using the Data Quality Objective Process, EPA Bulletin # EPA 240-B-06-001, 2006.

———, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, Analysis and Sampling Procedures; Final Rule, Federal Register Vol. 77 No. 97. 40 CFR Parts 136, 260, et al., 2022.

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Figures

Monitoring Area

Lucky

Whitewater

Main

Americana

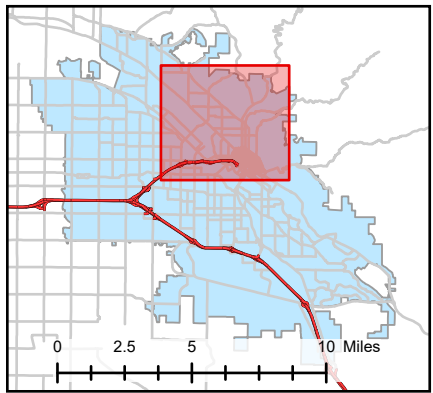
Rain Gauges

Figure 1

Vicinity Map Phase I NPDES Outfall Sampling Stations

- Monitoring Station
- Rain Gauge
- Monitoring Station and Rain Gauge
- Interstate
- Arterials
- Phase I Permit Area

- Subwatershed**
- Main - 79 Acres
 - Lucky - 105 Acres
 - Americana - 875 Acres
 - Whitewater - 498 Acres



12/19/19

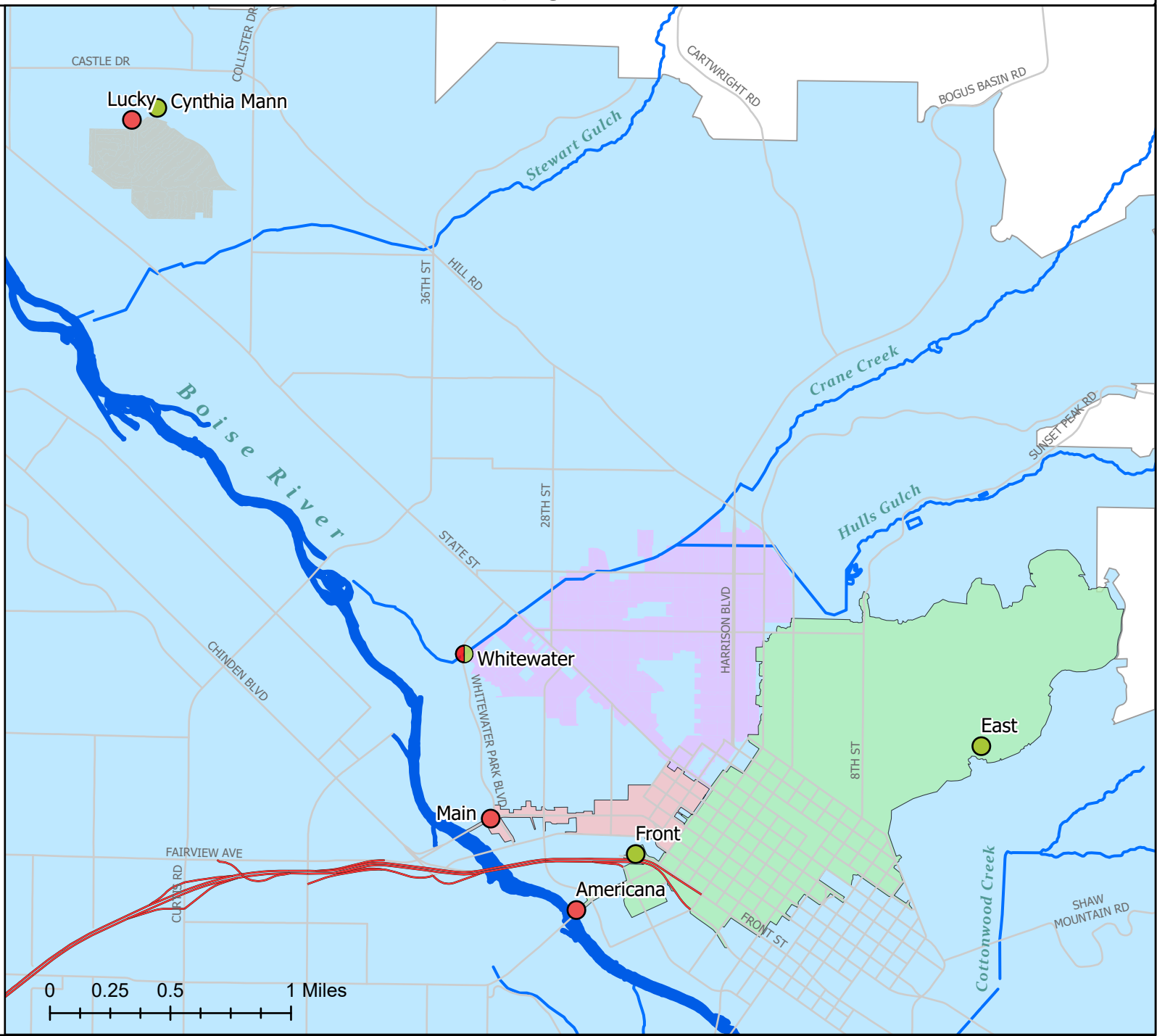
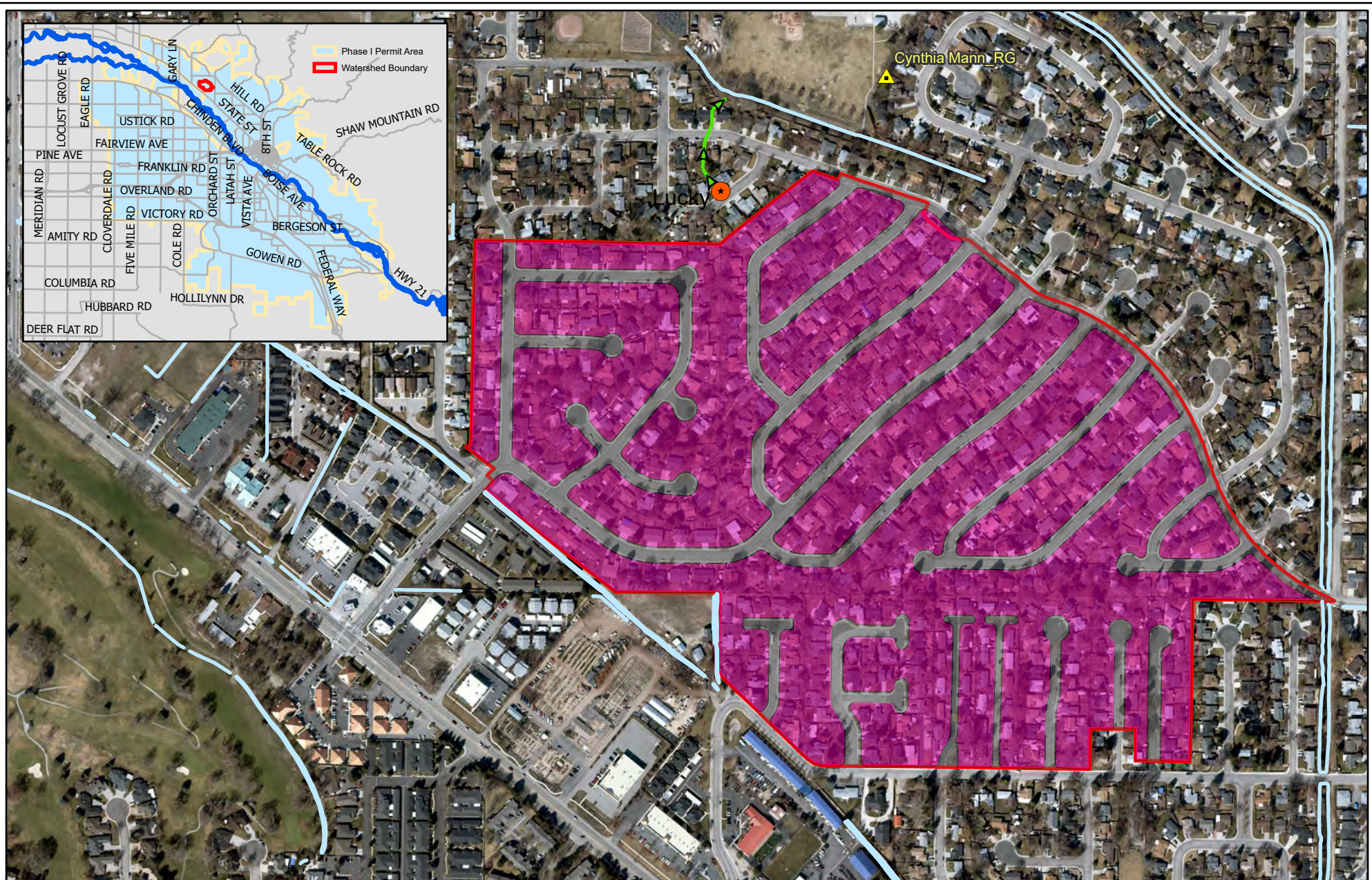


Figure 2

File Location: \\APPWSUS\ACHDFiles\Groups\DV\S\STORMWATER\Maps\Phase I Monitoring\Lucky



Lucky Monitoring Station
 105 Acres
 40% Impervious

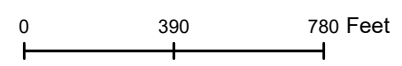
Land Use Percentages (percent impervious in parentheses)

- Right of Way - 22% (83%)
- Residential Medium - 78% (23%)

source: 2013 Urban Tree Canopy Analysis, modified in 2014 based on 2013 aerial photography

- Outfall Sampling Stations
- Rain Gauges
- Canals/Waterways
- Watershed Boundary
- Outfall Conveyance

Date: 7/15/2021



Lucky Monitoring Station



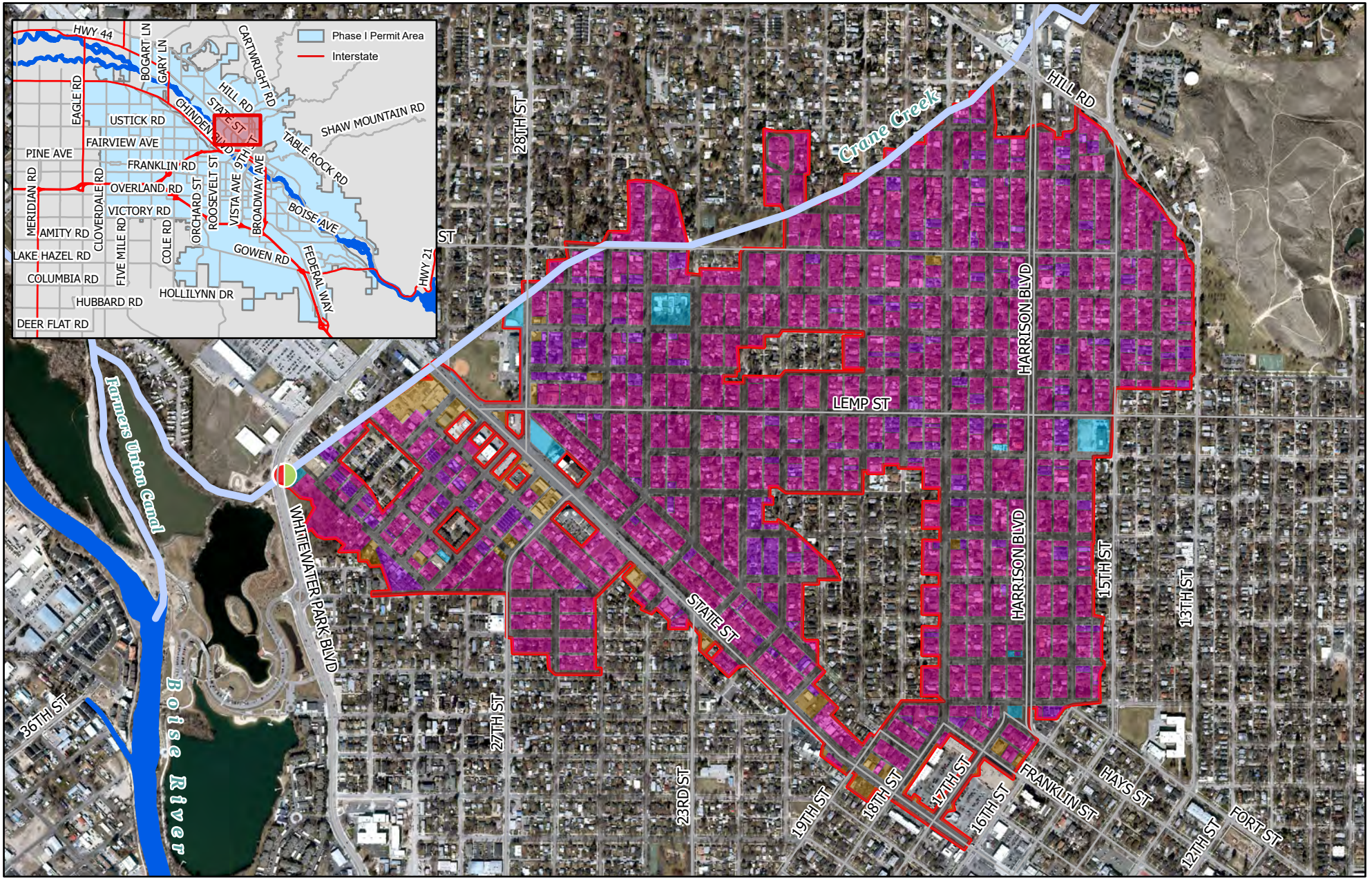
Station setting looking northwest – equipment in manhole



Inside manhole

Figure 4

File Location: \\APP\WISUS\ACHD\Files\Groups\DV\STORMWATER\Maps\Phase I Monitoring\Whitewater



**Whitewater
Monitoring Station
498 Acres
43% Impervious**

Land Use Percentages (percent impervious in parentheses)

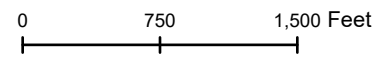
Right of Way - 36% (70%)	Residential High - 7% (31%)
Commercial - 4% (41%)	Public and Schools - 3% (51%)
Residential Medium - 50% (25%)	

- Monitoring Station and Rain Gauge
- Waterways
- Watershed Boundary

Date: 7/7/2021



source: 2013 Urban Tree Canopy Analysis, modified in 2014 based on 2013 aerial photography



Whitewater Monitoring Station



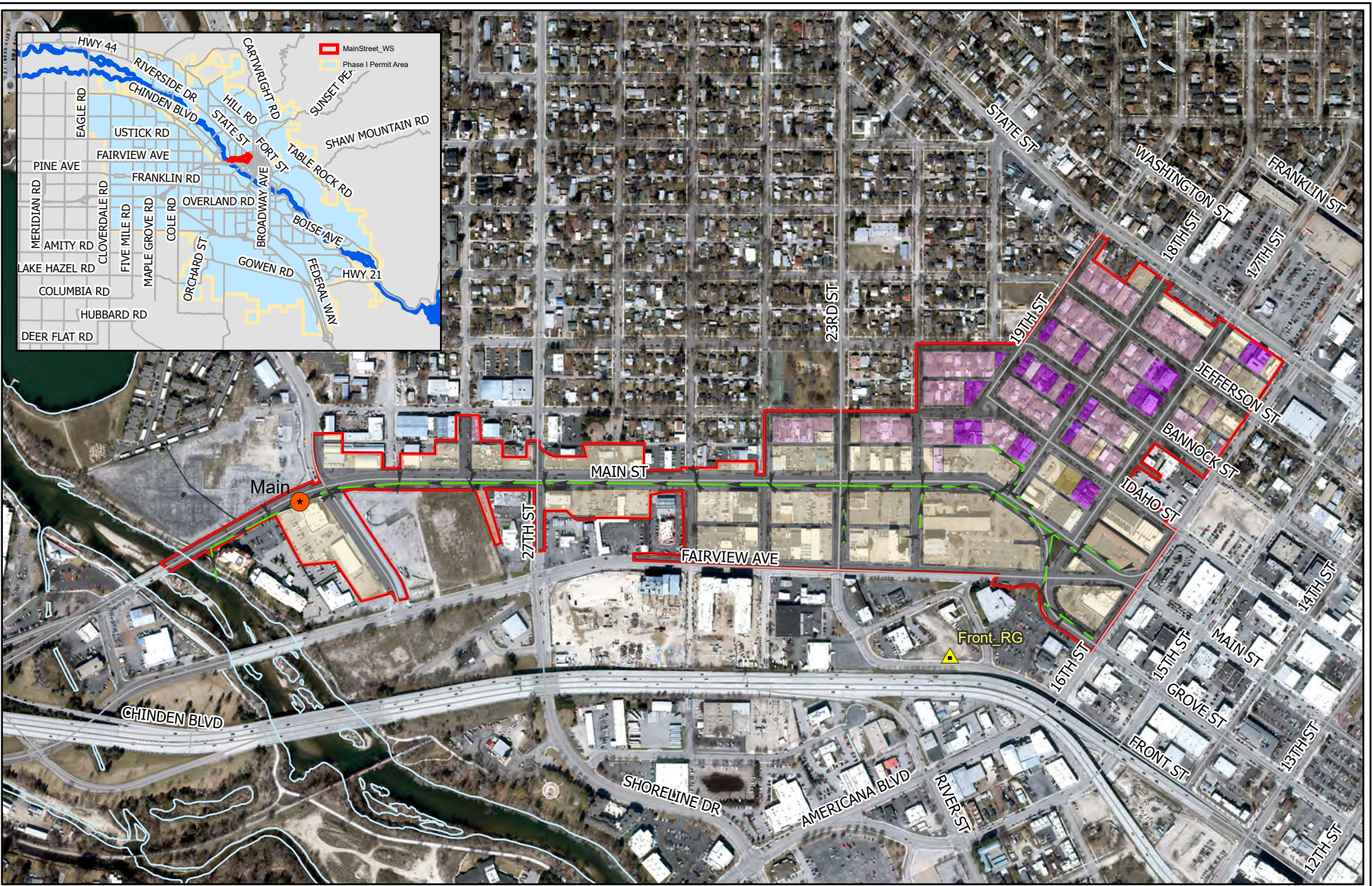
Station setting looking north



Inside cabinet

Figure 6

File Location: \\APPW\SUS\ACHFiles\Groups\DV\STORMWATER\Maps\Phase I Monitoring\Main



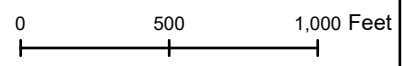
Main Monitoring Station
 79 Acres
 55% Impervious

Land Use Percentages (percent impervious in parentheses)

Right of Way - 43% (66%)	Residential High - 5% (39%)
Commercial - 37% (55%)	Public - 1% (0%)
Residential Medium - 14% (30%)	

- Outfall Sampling Stations
- Rain Gauges
- Canals/Waterways
- Watershed Boundary
- Outfall Conveyance

Date: 7/15/2021



source: 2013 Urban Tree Canopy Analysis, modified in 2014 based on 2013 aerial photography

Main Monitoring Station

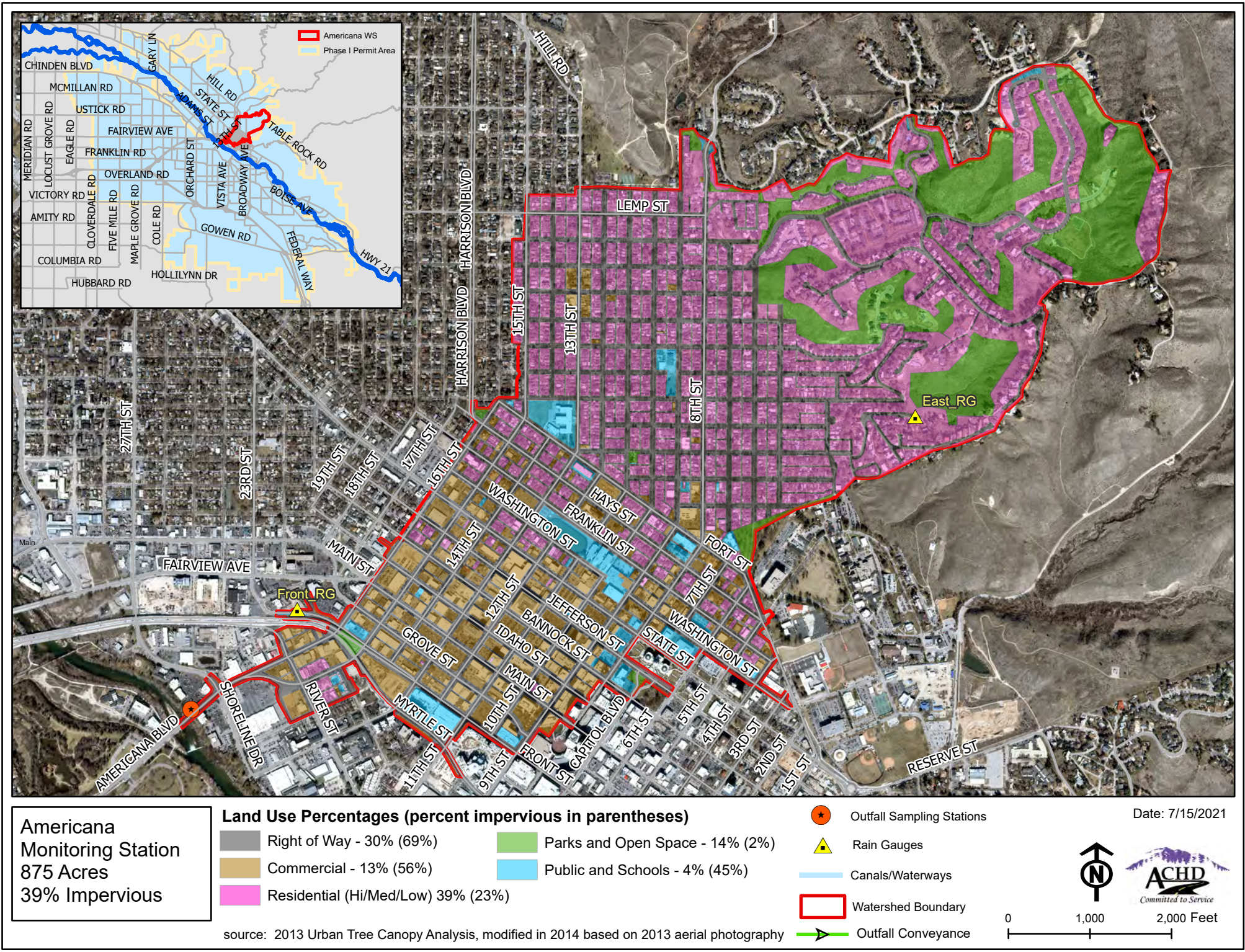


Station setting looking northwest



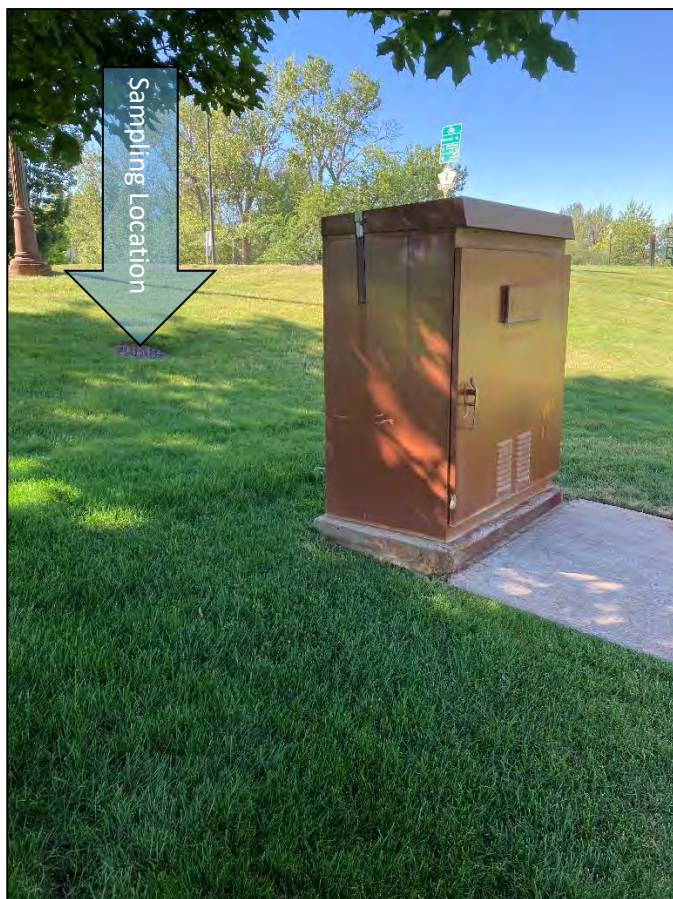
Inside cabinet

Figure 8



File Location:

Americana Monitoring Station



Station setting looking southwest



Inside cabinet

Phase I Rain Gauges

Cynthia Mann Rain Gauge



Front Rain Gauge



East Rain Gauge



Whitewater Rain Gauge



Appendix A: Standard Operating Procedure and Procedure Guidance Documents

The following Standard Operating Procedure (SOP) and Procedure Guidance (PG) documents will be referenced as needed to assist with implementation of the Stormwater Outfall Monitoring Plan. The SOPs and PGs listed below are readily accessible by ACHD and consultant personnel for use in the field or in the office to complete tasks associated with the acquisition and management of data under the ACHD Stormwater Outfall Monitoring Program.

SOP 110: Discrete grab sample collection

SOP 111: Low flow grab sample collection

SOP 112: Large volume grab sample

SOP 312a: YSI Model 85 dissolved oxygen and conductivity meter operation, calibration, and maintenance

SOP 312b: YSI Pro 2030 dissolved oxygen meter operation, calibration, and maintenance

SOP 313: Horiba pH meter operation, calibration, and maintenance

SOP 314: Gas detector operation

SOP 322: In-Situ multiparameter sonde calibration and maintenance

SOP 323: In-Situ multiparameter sonde operation

PG 210: Hach 950 flowmeter download using Insight software

PG 211: HOBO equipment download using HoboWare

PG 212: ISCO equipment data access and download

PG 214: Hach AS950 data download

PG 315: Hach equipment semi-annual maintenance

PG 319: Rain gauge inspection and maintenance

PG 324: ISCO equipment semi-annual maintenance

PG 512: Exporting data from Flowlink Pro

PG 530: Exporting data from HoboWare

PG 531: Importing and exporting from FSData

PG 532: Transferring from Flowlink LE to Flowlink Pro

PG 533: Importing data into DataSight

PG 534: QAQC Procedures in DataSight

PG 537: Exporting data from InSight to CSV file

Appendix B: Communication and Field Forms

Grab Sample Data Form

Composite Sample Collection Form

Set Up/Shut Down Form – ISCO

Set Up/Shut Down Form - HACH

Chain-of-Custody Form

Sampling Event Communication Form

Grab Sample Data Form

STATION: _____

Personnel: _____ **Date/Time On-Site:** _____

Flow Meter Current Status						
Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)	Flow Start (date/time)	Rainfall (in)

Grab Information				
	Sample ID	Date	Time	Labeled?
Site <i>E.Coli</i>	-WG			<input type="checkbox"/>
Field Duplicate <i>E.Coli</i>	-101			<input type="checkbox"/>
Field Blank <i>E.Coli</i>	-001			<input type="checkbox"/>

*Note: time on bottle for QC samples is 1200

Field Parameters					
Meter number	Time	Temp (C)	D.O. (mg/L)	pH (S.U.)	SpCond (uS/cm)

Sampler Current Status	
First Subsample Date/Time	
Last Subsample Date/Time	
# of Subsamples taken	

Comments:

Composite Sample Collection

STATION: _____

Bottle _____ of _____

Personnel: _____

Date/Time On-Site: _____

<input type="checkbox"/> Halt Sampler program	
<input type="checkbox"/> Put lid on sample bottle; label sample bottle	
Sample ID:	-WC
Approx Sample Volume (mL):	
Clarity (ex. Clear, Cloudy, Silty):	
Color (ex. Clear, Gray, Tan, Brown, Black):	
QA/QC Sample ID:	-103 (Time: 1200)

Subsample Information					
Trigger #	Date/Time	Sampler Message/ Subsample Result	Trigger #	Date/Time	Sampler Message/ Subsample Result
1			13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		

Comments:

<p>If sampling is complete:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Power off sampler <input type="checkbox"/> Verify flowmeter is running <input type="checkbox"/> Add ice to sample transport cooler <input type="checkbox"/> Complete COC form; arrange transport to lab 	<p>If continuing sampling (sample bottle change-out):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep flowmeter running <input type="checkbox"/> Install new 15L bottle; add ice <input type="checkbox"/> Restart program from beginning <p>Date/Time Restarted: _____</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify running
--	--

Liquid Height vs. Approximate Sample Volume Conversion Chart									
Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume	Liquid Height	Sample Volume
0.5"	400 mL	3.0"	3500 mL	5.5"	7250 mL	8.0"	11000 mL	10.5"	14750 mL
1.0"	800 mL	3.5"	4250 mL	6.0"	8000 mL	8.5"	11750 mL	11.0"	15500 mL
1.5"	1400 mL	4.0"	5000 mL	6.5"	8750 mL	9.0"	12500 mL	11.5"	16250 mL
2.0"	2000 mL	4.5"	5750 mL	7.0"	9500 mL	9.5"	13250 mL	After 12"	1" = 1500 mL
2.5"	2750 mL	5.0"	6500 mL	7.5"	10250 mL	10.0"	14000 mL	Lab min	8,000 mL

Set Up/ Shut Down Form – ISCO

STATION: _____

SET UP

Personnel: _____

Date/Time

On-Site: _____

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
Downloaded to:				
Enable Condition:				
Flow Pulse Interval:				

<p>On-Site</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery, install sampler battery <input type="checkbox"/> Perform decon. cycle <input type="checkbox"/> Install 15L sample bottle, with ice <input type="checkbox"/> Leave bottle lid at site, in a clean re-sealable plastic bag <input type="checkbox"/> Set Sampler program parameters <input type="checkbox"/> Check date/time on Sampler <input type="checkbox"/> Verify all cable and tubing connections <input type="checkbox"/> Verify Sampler Program is running 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Direct or Remote; Date/time _____ <input type="checkbox"/> Retrieve data and review recent flow history <input type="checkbox"/> Change Wireless Power Control to Storm Event <input type="checkbox"/> Change Data Storage Rates to 1 minute for Level, Velocity, Total Flow, and Flow Rate <input type="checkbox"/> Enable Sampler: On Trigger, and set Sampler Enable equation <input type="checkbox"/> Set Sampler Pacing to Flow Paced, and set trigger volume
---	---

Comments:

SHUT DOWN

Personnel: _____

Date/Time

On-Site: _____

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
Downloaded to:				

<p>On-Site</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input type="checkbox"/> Remove battery from sampler 	<p>Flowlink (Refer to Flowlink Instructions, if needed)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Direct or Remote; Date/time _____ <input type="checkbox"/> Retrieve data <input type="checkbox"/> Change Wireless Power Control to Dry Weather <input type="checkbox"/> Change Data Storage Rates to 15 minutes for Level, Velocity, Total Flow, and Flow Rate <input type="checkbox"/> Enable Sampler: Never
--	---

Comments:

Set Up/ Shut Down Form – HACH

STATION: _____

SET UP

Personnel: _____
Date/Time
On-Site: _____

Time	Level (in)	Flow (cfs)	Velocity (fps)	Battery (V)
Downloaded to:				
Velocity Cutoff:				
Trigger Volume:				

- Download flowmeter, if program is running
- Install batteries on flowmeter and sampler
- Perform decon. cycle
- Install 15L sample bottle, with ice
- Leave bottle lid at site, in a clean re-sealable plastic bag
- Verify all cable and tubing connections
- Check date and time on flowmeter and sampler
- Set flowmeter program and sampler program parameters
- Set logging interval to 1 minute
- Start flowmeter program and sampler program
- Verify running

Comments:

SHUT DOWN

Personnel: _____
Date/Time
On-Site: _____

Time	Level (in)	Flow (cfs)	Velocity (fps)	Total (cf)	Battery (V)
Downloaded to:					
Velocity Cutoff:					
Trigger Volume:					

<p>If flow monitoring is complete:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Halt program on flowmeter <input type="checkbox"/> Download flowmeter data <input type="checkbox"/> Remove flowmeter battery 	<p>If continuing to monitor flow:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Replace flowmeter battery <input type="checkbox"/> Reset logging interval to 15 minutes <input type="checkbox"/> Change velocity cutoff to 0.02 fps <input type="checkbox"/> Start program <input type="checkbox"/> Verify running
---	--

Comments:

Ada County Highway District

Attn: Tammy Lightle
 3775 Adams Street
 Garden City, Idaho 83714-6418
 Tel. (208) 387-6255
 Fax (208) 387-6391
 Purchase Order: _____
 Project: _____
 Sampler(s): _____

63058181
 Stormwater-PI

Lab#	Begin Date	End Date	Begin Time	End Time	Sample Identification	Sampler Initials	Matrix	Type
							Water	Grab Composite
							BOD ₅ - SM 5210 B	
							COD - Hach 8000	
							TSS - SM 2540 D	
							TDS - SM 2540 C	
							TKN - EPA 351.2	
							TP - EPA 200.7	
							Orthophosphate - EPA 365.1	
							Total As, Cd, Pb - EPA 200.8	
							Diss. Cd, Cu, Pb, Zn - EPA 200.8	
							Total Hg - EPA 245.2	
							E. Coli - IDEXX Colilert	
							Turbidity - EPA 180.1	
							Hardness - EPA 200.7	
							NO ₃ +NO ₂ - EPA 353.2	
							NH ₃ - SM 4500 NH ₃ -D	
							Total Containers	

Relinquished by (sign)	Date & Time Transferred	Received by (sign)	Comments/Special Instructions:

Tuesday Night: Partly cloudy, with a low around 47.

Wednesday: Partly sunny, with a high near 69.

Forecast Discussion

Area Forecast Discussion

National Weather Service Boise ID

342 AM MDT Thu May 12 2022

.SHORT TERM...Today through Saturday night...Zonal flow will continue mostly dry and mild conditions to the region through Thursday morning. **Precipitation ahead of a weaker upper level trough will move into** southeast Oregon on Thursday afternoon, and then into the **southwest Idaho on Thursday evening**. Isolated thunderstorms are expected in northwest Baker and Harney Counties in Oregon as this system pushes in on Thursday afternoon. Snow showers are expected above 5500 feet MSL, with snow amounts totaling 1-3 inches for higher elevations. Showers will linger in southwest Idaho through early Friday morning, but areas south of the Owyhee Mountains are expected to stay dry through this event.

Another push of moisture ahead of a weak shortwave trough will move into Baker County, OR, the West Central Mountains, and **Upper Treasure Valley on Friday evening, bringing light rain and snow showers to the northern half of our region**. Snow levels will elevate to 6500-7500 feet MSL overnight on Friday, bringing snow mainly to the high peaks. Thunderstorms are also possible on Saturday afternoon in the northern reaches of our CWA with this second system. A ridge will build into the region on Saturday night, bringing dry and mostly clear conditions overnight. Temperatures will remain 5-10 degrees below normal through Friday night, but ridging from our southwest will warm temperatures to near normal on Saturday.

.LONG TERM...Much warmer Sunday after passage of a warm front Saturday night. Pacific cold front late Sunday and Sunday evening will bring showers and (possibly strong) thunderstorms mainly to northern areas, gusty winds, and cooler temps. Clearing and cooler Monday morning but a second, weaker cold front will bring another chance of showers and thunderstorms to Baker County and the mountains in Idaho later Monday and Monday evening. Partly cloudy, windy, and cool Tuesday under strong westerly flow aloft, with a slight chance of rain and high-mountain snow showers in the Idaho central mountains. Next Pacific cold front Wednesday with showers and thunderstorms (mainly north), gusty winds, and further cooling, then showery in all areas Thursday with snow in the mountains and even cooler temps as the upper trough passes through.

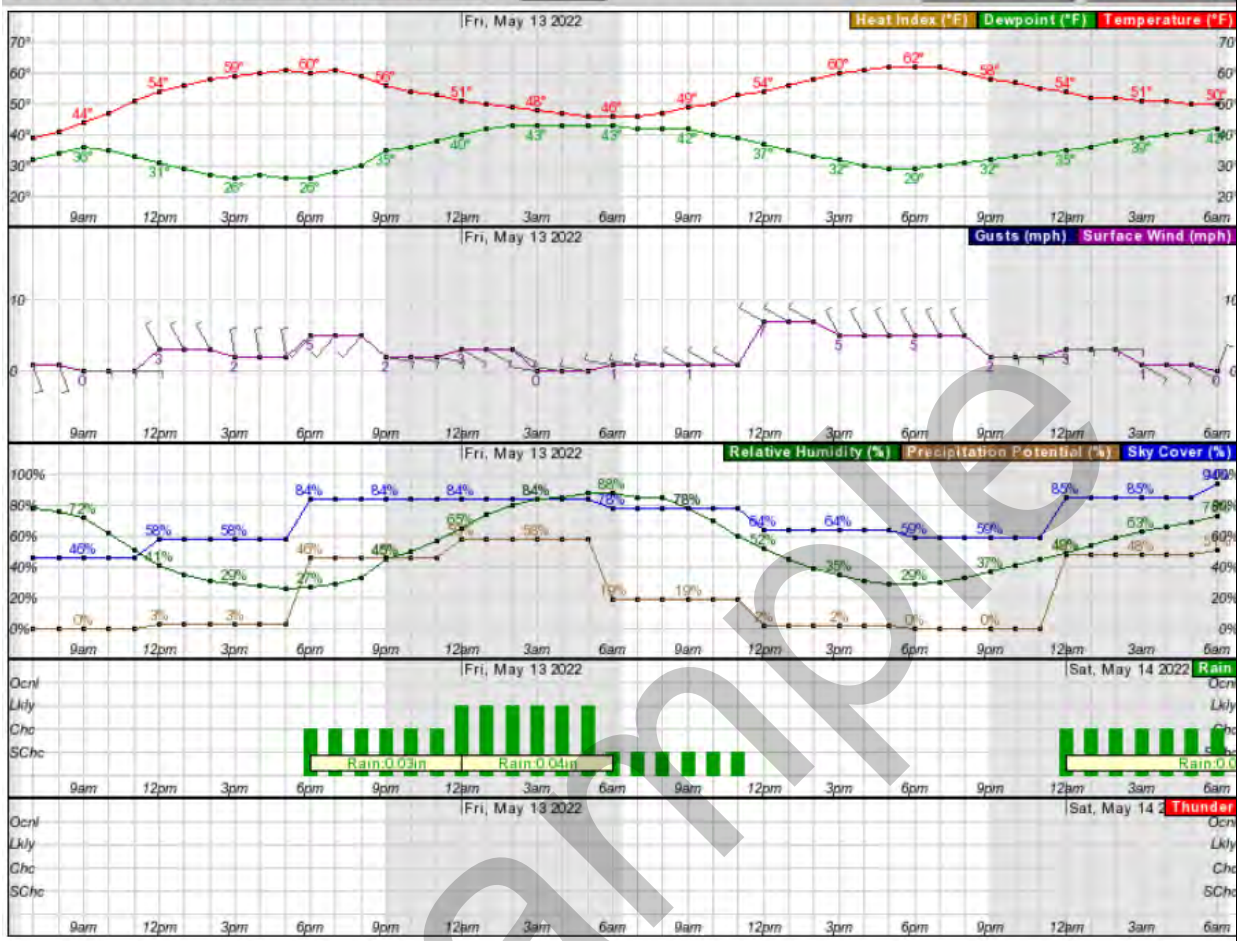
Hourly Forecast

48-Hour Period Starting: 7am Thu, May 12 2022

Submit

Back 2 Days

Forward 2 Days



Appendix C: Full QA/QC Sampling Schedule

Phase I QC Sample^{1,2} Schedule for WY22

Site Name	Assigned #
Lucky	1
Whitewater	2
Main	3
Americana	4
AS_6	5

Wet Grab Sample Schedule						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Plan	Main	Main	Lucky	Main	Lucky	Lucky
Alt 1	AS_6	Americana	AS_6	AS_6	Whitewater	AS_6
Alt 2	Whitewater	Lucky	Whitewater	Whitewater	Main	Americana
Alt 3	Americana	AS_6	Americana	Lucky	Americana	Whitewater

Composite Duplicate Schedule ³	
Plan	AS_6
Alt 1	Americana
Alt 2	Lucky
Alt 3	Whitewater

Composite Field Blank Schedule	
Plan	Main
Alt 1	Whitewater
Alt 2	Lucky
Alt 3	AS_6

Equipment Blank Schedule ⁴	
Collect in Fall 2021, for WY22	
Plan	Main
Alt 1	Whitewater
Alt 2	Lucky
Alt 3	Americana

Rinsate Blank Schedule ⁴	
Collect in Fall 2021, for WY22	
Plan	Main
Alt 1	Whitewater
Alt 2	AS_6
Alt 3	Americana

Notes:

¹ Grab QC samples will be analyzed for grab sample constituents. Composite QC samples will be analyzed for composite sample constituents.

² The first site listed is the planned QC site. The next three sites are the alternate sites and are prioritized in the order listed.

³ The composite sample duplicate will be collected at the earliest opportunity and is contingent upon sample volumes.

⁴ Blanks will be collected during monitoring station maintenance events and will be analyzed for composite sampling constituents.

Phase I QC Sample^{1,2} Schedule for WY23

Site Name	Assigned #
Lucky	1
Whitewater	2
Main	3
Americana	4
AS_6	5

Wet Grab Sample Schedule						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Plan	Lucky	Main	AS_6	Lucky	Lucky	Main
Alt 1	Americana	Lucky	Whitewater	AS_6	Main	AS_6
Alt 2	Whitewater	AS_6	Main	Whitewater	AS_6	Lucky
Alt 3	AS_6	Americana	Lucky	Main	Whitewater	Whitewater

Composite Duplicate Schedule³	
Plan	Whitewater
Alt 1	Main
Alt 2	AS_6
Alt 3	Americana

Composite Field Blank Schedule	
Plan	AS_6
Alt 1	Main
Alt 2	Lucky
Alt 3	Americana

Equipment Blank Schedule⁴	
Collect in Fall 2022, for WY23	
Plan	AS_6
Alt 1	Americana
Alt 2	Main
Alt 3	Lucky

Rinsate Blank Schedule⁴	
Collect in Fall 2022, for WY23	
Plan	AS_6
Alt 1	Lucky
Alt 2	Americana
Alt 3	Main

Notes:

¹ Grab QC samples will be analyzed for grab sample constituents. Composite QC samples will be analyzed for composite sample constituents.

² The first site listed is the planned QC site. The next three sites are the alternate sites and are prioritized in the order listed.

³ The composite sample duplicate will be collected at the earliest opportunity and is contingent upon sample volumes.

⁴ Blanks will be collected during monitoring station maintenance events and will be analyzed for composite sampling constituents.

Phase I QC Sample^{1,2} Schedule for WY24

Site Name	Assigned #
Lucky	1
Whitewater	2
Main	3
Americana	4
AS_6	5

Wet Grab Sample Schedule						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Plan	AS_6	Americana	Lucky	Main	Whitewater	Main
Alt 1	Lucky	AS_6	Main	Whitewater	Main	Americana
Alt 2	Americana	Whitewater	Whitewater	Lucky	AS_6	Lucky
Alt 3	Main	Main	Americana	AS_6	Americana	AS_6

Composite Duplicate Schedule ³	
Plan	Americana
Alt 1	Main
Alt 2	Whitewater
Alt 3	Lucky

Composite Field Blank Schedule	
Plan	Lucky
Alt 1	AS_6
Alt 2	Americana
Alt 3	Main

Equipment Blank Schedule ⁴	
Collect in Fall 2023, for WY24	
Plan	Main
Alt 1	Whitewater
Alt 2	AS_6
Alt 3	Americana

Rinsate Blank Schedule ⁴	
Collect in Fall 2023, for WY24	
Plan	Americana
Alt 1	Whitewater
Alt 2	AS_6
Alt 3	Main

Notes:

¹ Grab QC samples will be analyzed for grab sample constituents. Composite QC samples will be analyzed for composite sample constituents.

² The first site listed is the planned QC site. The next three sites are the alternate sites and are prioritized in the order listed.

³ The composite sample duplicate will be collected at the earliest opportunity and is contingent upon sample volumes.

⁴ Blanks will be collected during monitoring station maintenance events and will be analyzed for composite sampling constituents.

Phase I QC Sample^{1,2} Schedule for WY25

Site Name	Assigned #
Lucky	1
Whitewater	2
Main	3
Americana	4
AS_6	5

Wet Grab Sample Schedule						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Plan	Americana	AS_6	Whitewater	Main	AS_6	AS_6
Alt 1	Main	Main	Main	Lucky	Whitewater	Americana
Alt 2	AS_6	Americana	Lucky	Whitewater	Lucky	Lucky
Alt 3	Whitewater	Whitewater	Americana	Americana	Main	Whitewater

Composite Duplicate Schedule ³	
Plan	Lucky
Alt 1	Whitewater
Alt 2	Americana
Alt 3	AS_6

Composite Field Blank Schedule	
Plan	AS_6
Alt 1	Main
Alt 2	Americana
Alt 3	Lucky

Equipment Blank Schedule ⁴	
Collect in Fall 2024, for WY25	
Plan	AS_6
Alt 1	Lucky
Alt 2	Americana
Alt 3	Whitewater

Rinsate Blank Schedule ⁴	
Collect in Fall 2024, for WY25	
Plan	Americana
Alt 1	Lucky
Alt 2	Main
Alt 3	Whitewater

Notes:

¹ Grab QC samples will be analyzed for grab sample constituents. Composite QC samples will be analyzed for composite sample constituents.

² The first site listed is the planned QC site. The next three sites are the alternate sites and are prioritized in the order listed.

³ The composite sample duplicate will be collected at the earliest opportunity and is contingent upon sample volumes.

⁴ Blanks will be collected during monitoring station maintenance events and will be analyzed for composite sampling constituents.

Phase I QC Sample^{1,2} Schedule for WY26

Site Name	Assigned #
Lucky	1
Whitewater	2
Main	3
Americana	4
AS_6	5

Wet Grab Sample Schedule						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Plan	Whitewater	Main	Lucky	Lucky	Main	AS_6
Alt 1	AS_6	AS_6	Americana	Americana	Lucky	Whitewater
Alt 2	Americana	Lucky	AS_6	Whitewater	Americana	Main
Alt 3	Main	Americana	Main	Main	Whitewater	Lucky

Composite Duplicate Schedule ³	
Plan	AS_6
Alt 1	Whitewater
Alt 2	Lucky
Alt 3	Main

Composite Field Blank Schedule	
Plan	Whitewater
Alt 1	Main
Alt 2	AS_6
Alt 3	Americana

Equipment Blank Schedule ⁴	
Collect in Fall 2025, for WY26	
Plan	AS_6
Alt 1	Lucky
Alt 2	Main
Alt 3	Americana

Rinsate Blank Schedule ⁴	
Collect in Fall 2025, for WY26	
Plan	Lucky
Alt 1	Whitewater
Alt 2	Americana
Alt 3	Main

Notes:

¹ Grab QC samples will be analyzed for grab sample constituents. Composite QC samples will be analyzed for composite sample constituents.

² The first site listed is the planned QC site. The next three sites are the alternate sites and are prioritized in the order listed.

³ The composite sample duplicate will be collected at the earliest opportunity and is contingent upon sample volumes.

⁴ Blanks will be collected during monitoring station maintenance events and will be analyzed for composite sampling constituents.

Attachment K
Ada County Drainage District No. 3 Stormwater Management Plan NPDES Permit #IDS-027561

Ada County Drainage District No. 3
Stormwater Management Plan
NPDES Permit #IDS-027561

OCTOBER 2022

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Appendices

- A. Intergovernmental Agreements between NPDES Permittees
 - 1. Amended and Restated Intergovernmental Agreement for Roles and Responsibilities under the National Pollutant Discharge Elimination System Permit (NPDES Permit No. IDS-027561)
 - 2. Amended and Restated Operating Guidelines
- B. Drainage District No. 3 MS4 Maps
 - 1. Maps 1 – 19
- C. Operation and Maintenance System Plan and BMPs

ACRONYMS

The following acronym list is provided as a comprehensive resource for those reading the Drainage District #3 Stormwater Management Plan.

ACHD	Ada County Highway District
BMP	Best Management Practices
CWA	Clean Water Act
DD3	Ada County Drainage District No. 3
DWOS	Dry Weather Outfall Screening
EPA	Environmental Protection Agency
ERP	Enforcement Response Policy
IDEQ	Idaho Department of Environmental Quality
LID	Low Impact Development
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SWMP	Stormwater Management Plan
SWPP	Stormwater Pollution Prevention Plan

INTRODUCTION

Ada County Drainage District No. 3's (DD3) Stormwater Management Program (SWMP) Document is a comprehensive program plan designed to reduce the discharge of pollutants from DD3's Municipal Separate Storm Sewer System (MS4) to the Maximum Extent Practicable (MEP). The goal of the program is to restore and protect the quality of the Boise River and its tributaries. The SWMP includes control measures, Best Management Practices (BMPs), storm water drainage system design, a current narrative physical description of the DD3's MS4, illustrative maps and graphics, citations to related ordinances, policies, and activities within DD3's jurisdiction, and engineering methods to control and minimize the discharge of pollutants from the MS4 system. DD3 adopted the original SWMP Document in January 2014. Pursuant to the issuance of DD3's October 1, 2021, National Pollutant Discharge Elimination System (NPDES) Permit No. IDS027561, this SWMP was updated and amended in October 2022.

1. APPLICABILITY

DD3 is authorized with other Boise metropolitan area jurisdictions to discharge storm water to the Boise River and its tributaries under the NPDES, in compliance with the Clean Water Act (CWA). In addition to DD3, the NPDES Permit No. IDS-027561 authorizes the following Permittees to discharge from MS4 outfalls: Ada County Highway District (ACHD), the city of Boise City, Garden City, Boise State University, and Idaho Transportation Department District #3 (collectively the Permittees). The latest NPDES permit (Permit) became effective on October 1, 2021, and includes MS4 program requirements to be implemented incrementally.

This program document describes the SWMP as prescribed by the Permit including: the
Drainage District No. 3 SWMP

MS4 facilities and outfalls DD3 owns and operates, the control measures and program activities implemented to reduce the discharge of pollutants to the Boise River, related regulatory controls, and DD3's participation and cooperation with other Permittees to ensure compliance with the conditions of the Permit. DD3's roles and responsibilities under the Permit have been established in an Intergovernmental Agreement between the Permittees (Appendix A).

2. LIMITATIONS AND CONDITIONS

2.1 Compliance with Water Quality Standards

It is presumed that should DD3 and the other Permittees comply with the terms and conditions of this Permit, they are not causing or contributing to an excursion above the applicable Idaho Water Quality Standards.

2.2-2.4 Snow Disposal to Receiving Waters; Stormwater Discharges Associated with Industrial or Construction Activity; Non-Stormwater Discharges

DD3 does not engage in snow plowing or snow removal within its district boundary. ACHD, or private entities, conducts all snow plowing within DD3's boundary. Likewise, DD3 does not control or operate any industrial activity within its boundary. All construction activity within DD3's boundary is under Boise City's jurisdiction and is governed by a drainage agreement with DD3, if applicable. DD3 takes all appropriate measures to prohibit non-stormwater discharge from the MS4, except where such discharges satisfy one of the conditions allowable in Part 2.4

2.5 Permittee Responsibilities

DD3 was established in the early 1920s through the statutory process prescribed in Chapter 29, Title 42, Idaho Code, and by court order. DD3 is governed by three appointed Commissioners, a part-time water supervisor (DD3 Supervisor), third party consulting engineer, and outside legal counsel. DD3 does not own or occupy any physical facilities for its

administrative functions. DD3's function is to operate and maintain six drains serving the Southeast Boise area and portions of what is referred to as the First Bench. When most of Ada County was farmland, DD3 drained irrigated lands and helped remove irrigation runoff water. These six drains now provide drainage for the remaining irrigated lands, including discharge from several irrigation canals and storm water (as well as sprinkler drainage) from the commercial and residential developments throughout southeast Boise. These six drains drain into 4 outfalls as defined by the Permit. The six drains inter tie with several ACHD facilities and Boise City facilities. DD3 also maintains two pumps in the Apple Street / Bergeson Street area.

Except for the DD3 facilities, all other MS4 structures, facilities, and outfalls draining public streets and roadways within the DD3 boundary are owned and operated by ACHD. ACHD is responsible for management, maintenance, and monitoring of the MS4 as it relates to streets and roadways; DD3 is responsible for limiting the discharge of pollutants to the portion of the MS4 within DD3's boundaries and involving its six drains. The SWMP control measures are designed to accomplish this goal to the MEP. As noted in the Introduction, an Intergovernmental Agreement and Operating Guidelines (Appendix A) exists with ACHD and other Permittees to establish the roles and responsibilities of each entity under the Permit.

DD3, through its Supervisor, District Engineer (Quadrant Consulting), and through a contract with MSE (Millennium Science and Engineering), prepared a Book of Maps, which among other things identifies the location of the DD3 drains and discharges of those drains to either ACHD facilities, the Boise River, or irrigation facilities (See Appendix B). For those drains which are owned and operated by DD3, DD3 carries out regular inspections concerning their operation and discharges. Steps taken to evaluate discharges and other activities are described in the DD3 Operation and Maintenance System Plan and BMPs (Appendix C).

DD3 also has authority through the Intergovernmental Agreement to control pollutant discharges into and from its MS4. DD3 has the authority to prohibit discharge of pollutants to the MS4 by illicit connections and discharges to any of its drainage facilities primarily through recourse to civil proceedings and as generally authorized by Idaho Code § 42-2939 and any applicable drainage agreement. The function, powers, and authority are exercised by DD3, through its Board of Commissions, in the manner provided in the drainage district laws of the state. DD3 also has the vested power and authority to control the discharge to the MS4 of spills, dumping, or disposal of materials other than stormwater and irrigation runoff water as set forth above. DD3 has the authority to require compliance with conditions as granted by I.C. § 42-2939 as augmented by the intergovernmental agreement or drainage agreements. DD3 has the authority to carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and non-compliance with Permit conditions, including the prohibition of illicit discharges to the MS4.

DD3 has the power and authority to levy and make assessments upon lands within and benefitted by the drainage system constructed, maintained, and operated by DD3. Annually, DD3 makes an estimate of the costs of maintenance and operation of the drainage system and certifies the amount estimated upon the Ada County auditor. DD3 provides the total costs associated with SWMP implementation over the prior 12-month reporting period in each Annual Report.

BMPs are maintained by DD3 to protect and maintain the beneficial uses of the Boise River and to improve water quality to the extent practicable.

Pursuant to Part 2.5.5 of the Permit, the SWMP is available through DD3's publicly accessible website at: <https://adacountydrainagedistrict3.org/> In addition this SWMP Document will be submitted with the Permit Renewal Application, pursuant to Part 2.5.5 of the Permit.

3. STORMWATER MANAGEMENT PROGRAM CONTROL MEASURES

This section describes the six minimum control measures that must be accomplished by DD3's SWMP Document according to Part 3 of the Permit. The six minimum control measures are:

1. Public Education and Outreach on Stormwater Impacts;
2. Illicit Discharge Detection and Elimination;
3. Construction Site Stormwater Runoff Control;
4. Post-Construction Stormwater Management for New Development and Redevelopment;
5. Stormwater Infrastructure and Street Management; and
6. Industrial and Commercial Stormwater Discharge Management.

For each required control measure for which DD3 is responsible, a description of existing activities that meet Permit requirements is provided as well as a schedule of implementation to be completed.

3.1 Public Education and Outreach on Stormwater Impacts

DD3 works with fellow Permittees to implement the requirements of the Permit regarding education, outreach, and public involvement. The Intergovernmental Agreement designates Boise City as the lead agency responsible for the Public Education Program. To assist with program support, DD3 commits funding for its share of the annual cost of the program administration and public education, which is determined during the annual budget meeting held every January.

Working together under the name Partners for Clean Water, the Permittees have developed a stormwater website to provide the general public and business members of the community with information regarding stormwater management, educational and volunteer opportunities, and to review the actions and activities completed annually by the Permittees to limit the discharge of pollutants discharged to the Boise River and its tributaries. This website can be found at: <http://www.partnersforcleanwater.org/>.

DD3 along with the other Permittees use the information gathered from the Partners for Clean Water programing to assess the understanding of the educational materials and messaging to evaluate adoption of appropriate behaviors by the general public and business members. Utilizing the Partners for Clean Water program allows DD3 and the other Permittees to track and maintain records of their education, outreach, and public involvement.

To complement the Partners for Clean Water education and outreach program, DD3 also maintains its publicly assessable website which provides the SWMP, implementation strategies, points of contact, and educational materials. The website also contains phone numbers and other information to report illicit discharges and other information. DD3’s website also provides information regarding policies and procedures for construction projects located in or around DD3’s facilities. In addition, the website provides applicable, public notice requirements for items which DD3 solicits input from the public. A public review and comment period of DD3’s 2022 Stormwater Management Plan document has been provided. The website can be found at: <http://www.adacountydrainagedistrict3.org/>

3.1.1 Compliance Dates

Permit Requirement	Due Date
Must fully implement all required components described in Parts 3.1.2-3.1.8.	April 3, 2026

3.2 Illicit Discharge Detection and Elimination

An illicit discharge is any discharge that is not composed entirely of stormwater. Illicit discharges are prohibited in DD3’s boundary by virtue of Boise City ordinance, and any illicit discharges or activities with the potential for illicit discharges are addressed accordingly and prohibited. In addition to routine stormwater inspections, illicit discharge surveillance is conducted by the DD3 supervisor while traveling along the drainage canals.

3.2.1 Compliance Dates

Permit Requirement	Due Date
Submit an electronic GIS version of the MS4 map and Outfall inventory to IDEQ.	April 3, 2026
Update existing illicit discharge management program to include the required components described in Parts 3.2.2 through 3.2.9	April 3, 2026

3.2.2 MS4 Map and Outfall Inventory.

DD3 maintains a map of its MS4 facility and all associated outfall locations under its operation and control. In addition, DD3 maintains an outfall and interconnection inventory to accompany the MS4 maps. This inventory identifies each outfall and interconnection discharging from DD3's MS4. The location of the outfall is recorded by latitude and longitude and physical condition. The MS4 map and outfall inventory contains the requirements as specified in Part 3.2.2 of the Permit. This inventory allows, DD3 to track its outfall inspections, dry weather screenings, maintenance, and other activities required by the Permit. An electronic GIS version of the MS4 map, and the outfall inventory is currently being developed by DD3 and will be available on DD3's publicly accessible website when developed.

3.2.3 Ordinance and/or Other Regulatory Mechanism

DD3 has the authority to prohibit non-stormwater discharges to the MS4 through inspection activities for those projects under an approved drainage agreement. DD3 relies upon those certain manuals and standards adopted by either ACHD or Boise City as it relates to regulation and enforcement of non-stormwater discharges into the MS4. Unless a development is covered under a drainage agreement with DD3, DD3 lacks legal authority to enforce certain standards and requirements. Under standard drainage agreements, DD3 incorporates the appropriate Boise City and/or ACHD standards. In addition, DD3 has implemented an

enforcement procedure and action plan, which includes a written policy of enforcement escalation procedures for recalcitrant or repeat offenders as included in its Operation and Maintenance Plan and BMPs.

3.2.4 Illicit Discharge Complaint Report and Response Program.

In cooperation with the other Permittees, DD3 participates in the Stormwater Pollution Prevention Hotline (“Hotline”) program that was established to allow citizens to call in illicit discharges or spills to the MS4 in the greater Boise area. The Hotline number, (208) 395-8888, is provided on stormwater educational handouts, can be reached via an operator or Ada County Dispatch, and is also provided on the websites for Boise, ACHD, Garden City, and the IDEQ. DD3 staff may also receive complaints or reports of illicit discharges. Additionally, during stormwater inspections, the DD3 Supervisor encourages contact with DD3 if any illicit discharges, spills, or other conditions which may represent a pollutant source are observed. DD3 informs ACHD or Boise City of all complaints or reports of illicit discharges. DD3 can be reached directly at (208) 602-1713.

At the end of each year, a report is generated listing all illicit discharge investigations, corrective actions taken, and the location of the incident. Using this data, DD3 may identify priority areas requiring increased surveillance and/or inspections.

3.2.5 Dry Weather Outfall Screening Program.

ACHD has implemented a Dry Weather Outfall Screening (DWOS) Plan. The DWOS Plan provides guidance for field reconnaissance activities, monitoring, and recordkeeping efforts performed by ACHD. The DWOS Plan outlines how chemical and microbiological field screening analysis will be conducted. DD3, through ACHD, conducts visual dry weather screening of at least 20% of their total outfalls per year. Such screening occurs within June 1 and September 30 timeframe. ACHD keeps a detailed record of its dry weather screening

program activities, and the summary of these results are provided in the Annual Report each year.

3.2.6 Follow-Up

Within 30 days of detection, ACHD or DD3 investigate reoccurring illicit discharges identified as a result of complaints or by the dry weather screening investigations and sampling. DD3 and ACHD take necessary action to attempt to eliminate the source of an ongoing illicit discharge within sixty (60) days of its detection.

3.2.7 Prevention and Response to Spills to the MS4

DD3 relies on ACHD and Boise City to provide guidance in appropriately and safely responding to hazardous and non-hazardous spills. Illicit discharge and spill training for inspectors, field staff, and code enforcement officers is to be provided annually through ACHD and Boise City. If the spill is a known non-hazardous or non-toxic substance, DD3 takes steps to prevent the spill from entering the MS4 using absorbent spill tubes and mats, floor dry, and any other appropriate means. The agency responsible for spill cleanup will be notified immediately. If the spill is an unknown material or hazardous material, DD3 will immediately contact 911 and other responsible agencies to report the spill. DD3 will use the USDOT Emergency Response Guidebook to effectively identify hazards to adequately report spill conditions to hazardous spill responders. The Ada County Hazardous Materials/Radiological Incident Contingency Plan is the cooperative agreement that identifies the roles and responsibilities for hazardous spill response in Ada County.

3.2.8 Proper Disposal of Used Oil and Toxic Materials

DD3 coordinates with appropriate local entities to educate its employees and members of the public of the proper management, disposal, or recycling of used oil, vehicle fluids, toxic materials, and other household hazardous wastes.

3.2.9 Illicit Discharge Detection and Elimination Training of Staff.

DD3 ensures that any construction inspectors, maintenance field staff, and operators are sufficiently trained to respond to reports of illicit discharges. Within the first six (6) months of employment, DD3 provides orientation and training for new staff working on illicit discharge detection and elimination issues. At least once a year the DD3 supervisor and DD3 engineer attends relevant and appropriate training through in-person or online courses. DD3 staff attends and participates in stormwater management training events provided by Boise City, IDEQ, and EPA when offered locally and as appropriate.

3.3 Construction Site Stormwater Runoff Control

Construction site runoff is primarily the responsibility of either ACHD or Boise City as all construction occurring on or near DD3’s MS4 is within the jurisdiction of either authority. When a development is planned near or adjacent to DD3’s MS4 drainage facilities, DD3 requires the developer to enter into a drainage agreement with DD3 outlining the requirements for construction as it relates to relocation or disturbance of DD3’s drainage facilities. DD3 utilizes these drainage agreements with developers to reduce discharge of pollutants from public and private construction activity occurring in or around its MS4.

3.3.1 Compliance Dates

Permit Requirement	Due Date
Must ensure that existing construction site runoff control requirements are updated.	April 3, 2026
Maintain and implement a written escalating enforcement response policy (ERP).	April 3, 2026

3.3.2 Ordinance and/or Regulatory Mechanism

Through Boise City and ACHD code requirements, new development and redevelopment in the DD3 boundaries are required to be designed to manage storm water runoff and include

permanent controls to protect water quality and restrict discharges to surface waters of the MS4. In general, the rate of storm water runoff from any proposed land development is not permitted to exceed the runoff rate prior to the development regardless of the storm event evaluated. DD3 through its drainage agreements with developers, requires erosion controls, sediment controls, and waste management controls to be used and maintained at the construction project site. Boise City requires construction site operators to maintain effective controls to reduce pollutants in stormwater discharges to the MS4 from construction sites. DD3 also conducts onsite inspections on development projects in which a drainage agreement has been executed between the developer and DD3. Boise City must require the developer or project site operators to obtain NPDES permit coverage under the current version of the Idaho CGP.

3.3.3 Construction Site Runoff Control Specifications

ACHD and Boise City maintain written specifications that address the proper installation and maintenance of erosion, sediment, and waste material management controls during all phases of construction activity occurring in their jurisdiction. The requirements of these construction site runoff control specifications consist of the requirements in Part 3.3.3.1 through 3.3.3.3.

3.3.4 Preconstruction Site Plan Review

ACHD and Boise City review and approve preconstruction site plans, as applicable within their jurisdiction and the DD3 boundary. These procedures include consideration of the site's potential water quality impacts and must demonstrate compliance with the regulatory mechanisms required by Part 3.1.2 of the Permit. In circumstances where a drainage agreement is required with the developer, DD3 performs preconstruction inspections to ensure that the site plan or Stormwater Pollution Prevention Plan (SWPPP) contains site-specific measures that meet the required specifications.

3.3.5 Construction Site Inspection and Enforcement

ACHD, Boise City, and DD3, when applicable, inspect construction sites in their jurisdiction to ensure compliance with the applicable requirements of Part 3.3.5. ACHD, Boise City and DD3, when applicable, will summarize the nature and number of site inspections, follow-up actions, and any subsequent enforcement actions conducted during the relevant reporting period in its Annual Report. All construction site inspections conducted by the Permittee having jurisdiction, will included all those requirements specified in Part 3.3.5.1 through 3.3.5.6

3.3.6 Enforcement Response Policy for Construction Site Runoff Control

ACHD, Boise City, and DD3, as applicable, within each agency’s jurisdiction, maintains a written escalating enforcement response policy (ERP). This ERP for construction site runoff control will be submitted with the Permit Renewal Application. The applicable ERP contains the response to violations with appropriate educational and enforcement, and the requirements of Part 3.3.6.1 and 3.3.6.2. In the event the DD3 Supervisor observes a problem at a construction site, the DD3 Supervisor will advise and notify either ACHD or Boise City.

3.3.7 Construction Runoff Control Training for Staff

DD3 works together with all Permittees as a member of Partners for Clean Water to provide stormwater management education and training opportunities to regional developers, staff, and appropriate audiences. Boise City is the lead agency for public education and outreach. DD3 helps by providing funding and planning support for program activities. Among the various outreach activities are annual training conferences regarding permanent stormwater controls and LID techniques. In addition to Boise City’s outreach program, DD3 uses the drainage design reviews, onsite inspections, and distributes educational materials to interact with and educate

persons on the proper management of stormwater runoff and maintenance of permanent controls on construction sites.

DD3 staff and counsel attend and participate in stormwater management training events provided by Boise City, IDEQ, and EPA when offered locally. The training curriculum typically covers stormwater design, drainage plan review, and inspection procedures to determine the adequacy of stormwater management practices and treatment controls at new and existing DD3 developments.

3.4 Post-Construction Stormwater Management for New Development and Redevelopment

ACHD and Boise City implement and enforce a program to control stormwater runoff from new development and redevelopment projects within their respective jurisdictions. Any new development and redevelopment within the jurisdiction of DD3 is governed by Boise City Ordinance concerning management of stormwater runoff. DD3 typically participates in the land use review process through providing comment to Boise City.

3.4.1 Compliance Dates

Permit Requirement	Due Date
Must update existing controls to impose the required Stormwater Management Plan control measure components in Parts 3.4.2 through 3.4.7.	April 3, 2026
Submit current ordinance/regulatory mechanisms as part of the Permit Renewal Application.	April 3, 2026

3.4.2 Ordinance and/or Regulatory Mechanism

ACHD, Boise City, and DD3, based on jurisdiction, require the installation and long-term maintenance of permanent stormwater controls at new development and redevelopment project sites. Boise City maintains the Boise City Ordinance and regulatory mechanisms required by local and state law. The required stormwater controls are sufficient enough to retain onsite the

volume produced from a 24-hour, 95th percentile storm event or to attain a pollutant removal level greater than pollutant removal expected from onsite retention of runoff volume produced from a 24-hour, 95th percentile storm event. In addition, these controls are intended to comply with the requirements of Part 3.4.2.1 through 3.4.2.5.

3.4.3 Permanent Stormwater Controls Specifications.

The applicable agency, ACHD, Boise City, or DD3 have specified the permanent stormwater controls for project sites and defined appropriate controls for different types and/or sizes of site development activity. The applicable Permittee maintains, and updates, written specifications to address proper design, installation, and maintenance of required permanent stormwater controls. DD3 adopts those specifications implemented by Boise City and ACHD. These specifications are intended to comply with the criteria of Part 3.4.3.1. through 3.4.3.3.

3.4.4. Permanent Stormwater Controls Plan Review and Approval.

Boise City, and DD3 if applicable, review and approve preconstruction plans for permanent stormwater controls at new development and redevelopment sites from new development and redevelopment projects that result in land disturbance of 5,000 square feet or more, excluding individual one or two-family dwelling development or redevelopment sites and the infill or redevelopment of public pedestrian infrastructure projects. These plan reviews will be conducted by Boise City staff or DD3's consultant engineer to ensure they meet the necessary controls.

3.4.5. Permanent Stormwater Controls Inspection and Enforcement

Boise City and ACHD provide inspection programs that prioritize new development and redevelopment sites for inspections of permanent stormwater management controls. At the end of each Permit year, Boise City and ACHD will review and evaluate information and data received throughout the year concerning development, construction, and implementation

activities to determine compliance with Permit requirements. The information will also assist in the evaluation of the effectiveness of the DD3 programs and allocation of time and resources to assess whether changes to the program should be considered.

3.4.6 Operation and Maintenance of Permanent Stormwater Controls.

DD3 maintains a database of drainage agreements executed with developers, when necessitated by the type and location of the development. The drainage agreement includes the information related to permanent controls installed by the developer onsite as it relates to the DD3's MS4. The drainage agreements specify the developer is responsible for operation and maintenance of the MS4 system for the portion located on the development. Although permanent operation and maintenance responsibilities are the responsibility of the developer, DD3 continues to inspect these locations to ensure there is compliance with operation and maintenance requirements. If a drainage agreement does not exist with the developer due to the fact that DD3's MS4 is not impacted by the development, Boise City shall maintain such a database within DD3's boundaries for applicable projects.

3.4.7 Permanent Stormwater Controls Training for Staff

DD3 staff and counsel attend and participate in stormwater management training events provided by Boise City, IDEQ, and EPA when offered locally. The training curriculum typically covers stormwater design, drainage plan review, and inspection procedures to determine the adequacy of stormwater management practices and treatment controls at new and existing DD3 developments.

3.5 Stormwater Infrastructure and Street Management

The Intergovernmental Agreement identifies ACHD as the lead agency responsible for stormwater infrastructure and street management requirements under the Permit. DD3 manages

its MS4 infrastructure and facilities to reduce the discharge of pollutants. Management includes an inspection of permanent stormwater controls and structures performing any maintenance or cleaning tasks and implementing stormwater pollution prevention BMPS.

3.5.1. Compliance Date

Permit Requirement	Due Date
ACHD stormwater infrastructure and street management program must include required SWMP control measure components.	April 3, 2026

3.5.2 Inspection and Cleaning of Catch Basins and Inlets

Major elements of the stormwater inspection of DD3 facilities include the following:

- ❖ Maintenance and condition of permanent stormwater control structures;
- ❖ Observation of drainage system design and cleanliness of impervious surfaces;
- ❖ Check for pollutant sources;
- ❖ Evaluate outdoor activities and stormwater BMPs that are implemented;
- ❖ Observe outdoor storage practices;
- ❖ Look for any non-stormwater discharges;
- ❖ Assess general compliance with stormwater regulations;
- ❖ Provide education and outreach through discussion and educational handouts; and
- ❖ Refer any enforcement actions to Boise City.

DD3 inspects all DD3's facilities at least once every two years, and during those inspections takes all necessary maintenance and cleaning action based on those inspections to ensure the catch basins and inlets continue to function as designed. Material removed from MS4 facilities are managed and disposed of according to Part 7.13. DD3 maintains an inspection and cleaning log which describes the inspection that occurred, the material that was removed/cleaned and the actions taken. All inspection reports and completed inspection forms are stored with the DD3 Supervisor. Each year, the number of stormwater inspections conducted, and any enforcement actions undertaken to ensure compliance are provided in the Annual Stormwater Report.

3.5.3 -3.5.5 Operation and Maintenance Procedures for Streets, Roads, Highways and Parking Lots; Inventory and Management of Street/Road Maintenance Materials, Street Road, Highway and Parking Lot Sweeping.

ACHD is responsible for operation and maintenance for the streets and roadways within DD3's boundary.

3.5.6-3.5.8 Operation & Maintenance Procedures for Other Municipal Areas and Activities, Requirements for Pesticide, Herbicide, and Fertilizer Applications, and Stormwater Pollution Prevention Plans (SWPPPs) for Permittee Storage Facilities.

DD3 does not have jurisdictional control of any municipal operation and maintenance activities within its boundary; this is the responsibility of Boise City. In addition, DD3 does not use or maintain any pesticides, herbicides, and fertilizers. DD3 does not own or maintain a material storage facility for its operations.

3.5.9 Litter Control

The Partners for Clean water work to implement solutions for litter and trash control. In addition, DD3 removes litter and trash from, in, and around its MS4 facilities whenever it sees such material present and during routine inspections.

3.5.10 Stormwater Pollution Prevention/Good Housekeeping Training for Staff.

DD3 staff and counsel attend and participate in stormwater infrastructure management and operation training events provided by Boise City, IDEQ, and EPA when offered locally. Such training is provided to new staff within six (6) months of employment. DD3 staff attend these training related to operation and maintenance of stormwater infrastructure at least every other year.

3.6 Industrial and Commercial Stormwater Discharge Management

Industrial and commercial operations within DD3's jurisdiction are observed for the

purpose of reducing the discharge of pollutants. Boise City having jurisdiction of the industrial and commercial operations within DD3’s boundaries, provides educational and/or enforcement efforts to reduce the discharge of pollutants from those industrial and commercial locations which highly contribute to the receiving waters.

3.6.1 Compliance Date

Permit Requirement	Due Date
Ensure that industrial and commercial stormwater management programs include required SWMP control measures.	April 3, 2026

3.6.2-3.6.3 Inventory of Industrial and Commercial Facilities/Activities; Inspection of Industrial and Commercial Facilities/Activities.

Boise City having jurisdiction over industrial and commercial facilities/activities within the DD3 boundaries, maintains an inventory of industrial and commercial facility/activity within DD3’s boundary.

4. SPECIAL CONDITIONS

4.1 Temperature Monitoring

ACHD monitors the temperature in certain stormwater discharges from the MS4 facilities to the Boise River. DD3’s outfalls will be monitored in accordance with ACHD methods and procedures for implementing this temperature monitoring requirement.

5. REQUIRED RESPONSE TO EXCURSIONS ABOVE IDAHO WATER QUALITY STANDARDS.

DD3 is presumed to be in compliance with applicable Idaho Water Quality Standards if it is in compliance with the terms and conditions of the Permit. If DD3 or IDEQ determines that the discharge from the MS4 causes or contributes to an excursion above the Idaho Water Quality Standards, then DD3 remains in compliance with the Permit as long as DD3 implements all applicable SWMP control measures required and complies with the procedure of Parts 5.1-5.6.

6. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

The Intergovernmental Agreement designates ACHD as the lead agency responsible for the implementation of the MS4 monitoring program. To assist with program support, DD3 commits funding for its share of the annual cost of the monitoring program, which is determined during the annual budget meeting held every January.

6.1 Compliance Evaluation

Once per year, ACHD evaluates its annual monitoring with the requirements of the Permit to ensure compliance. DD3 coordinates with ACHD to ensure progress toward implementation of SWMP control measures are occurring and that if any instances of improvement are identified in ACHD's monitoring, DD3 can respond accordingly. This yearly self-evaluation is documented through the Annual Report format.

6.2 Stormwater Monitoring and Evaluation Program.

Pursuant to the Intergovernmental Agreement, ACHD is responsible for conducting the wet weather monitoring and evaluation program. Through this wet weather monitoring and evaluation program, DD3 is able to evaluate the overall effectiveness of selected stormwater management practices. ACHD's program is intended to meet the quality assurance (QA) objectives in Part 6.2.6.

6.2.1 Wet Weather Stormwater Outfall Monitoring.

ACHD conducts wet weather stormwater outfall monitoring according to its updated Storm Water Outfall Monitoring Plan dated 2022. This updated Stormwater Outfall Monitoring Plan will be submitted as part of the Year 1 Annual Report required by Part 6.4.2. ACHD provides a report summarizing all data collected for the Permittees during the permit term as required by Part. 6.4.3.

6.2.2 Subwatershed Monitoring

ACHD continues to conduct monitoring in the Americana Subwatershed to better define wet weather and dry weather flow volumes, sources, and pollutant loads according to the Americana Subwatershed Monitoring Plan as updated December 28, 2020. ACHD provides a report summarizing all data collected during the permit term as required by Part 6.2.2.

6.2.3-6.2.5 Effectiveness Evaluation of Structural, Non-Structural, and/or Green Stormwater Infrastructure Controls; Representative Sampling; and Additional Monitoring.

As specified in the Intergovernmental Agreement, ACHD coordinates with Boise City to conduct effectiveness evaluations of at least two different types of structural, non-structural and/or green infrastructure stormwater management controls at new development or redevelopment sites. The results of this effectiveness evaluation, and any recommendations for improved treatment performance is submitted to IDEQ pursuant to Part 6.4.5. In addition, to the extent ACHD conducts quantitative monitoring in the Permittees MS4 discharges above what is specified in the Permit, such additional monitoring is reported as required by Part 6.4.3.

6.2.6-6.2.7 Quality Assurance Requirements; Analytical Methods

ACHD, as the lead for all monitoring by the Permittees, maintains a Quality Assurance Project Plan (QAPP) for any monitoring or quantitative assessment activities conducted. The QAPP content is based off the requirements of Part 6.2.6. Sampling collection, preservation, and analysis is conducted according to procedures approved under 40 CFR Part 136.

6.3-6.5 Recordkeeping; Reporting Requirements; Addresses

DD3 retains records of all data and information in the development and implementation of the SWMP. All records are stored with DD3 for up to five years, or the term of the Permit, whichever is greater. All records are accessible by IDEQ or EPA upon request to DD3; the public may access records by filing a Public Records Request.

Each year, DD3 compiles its Annual Report for the IPDES required reporting periods of October 1 to September 30 of the preceding year (please note the first Permit year is October 1, 2021–September 30, 2022). The Annual Report is submitted to IDEQ via the E-Permitting Online System, using the Annual Report Format, no later than January 30 each year. DD3 makes each Annual Report available to the public through its publicly accessible website.

DD3's Annual Report follows the guidelines established in the Permit Part 6.4.2. The tracking of plan reviews, inspections, enforcement actions, and stormwater infrastructure maintenance provide data and statistics that are included in the report. The Annual Report is used in assessing DD3's compliance with Permit conditions and implementation schedule.

7. COMPLIANCE RESPONSIBILITIES

DD3 understands that it has an obligation to comply with all conditions of the Permit. DD3 acknowledges that any noncompliance constitutes a violation of the CWA and is grounds for civil and criminal penalties. DD3 shall report occurrences of noncompliance by telephone within 24 hours from the time DD3 becomes aware of the any circumstances outlined in Part 7.9. This notification must be followed by a written report within five (5) business days of the time DD3 became aware of the event. All other instances of noncompliance, not required to be reported within 24 hours shall be reported as part of each Annual Report.

When DD3 collects or removes any materials or pollutants from the MS4, they are disposed of and managed in a manner as to prevent such pollutants from entering into the waters of the U.S.

8. GENERAL REQUIREMENTS

DD3 understands that the Permittees must apply for and obtain a new permit prior to the expiration of this Permit and in no event later than April 3, 2026. DD3 understands that it and the other Permittees will be required to submit the contents of Part 8.2.1 in its renewal application.

DD3 is governed by a Board of Commissioners which consists of three (3) individuals who reside within DD3's boundary. For purposes of signatory authority and application and report submittals, the Board of Commissioners has authorized Ryan P. Armbruster and Abigail R. Germaine as Duly Authorized Representatives under Part 8.5.2.

Appendix A

Intergovernmental Agreements between NPDES Permittees

1. Amended and Restated Intergovernmental Agreement for Roles and Responsibilities under the National Pollutant Discharge Elimination System Permit (NPDES Permit No. IDS-0275612)
2. Amended and Restated Operating Guidelines

**AMENDED AND RESTATED INTERGOVERNMENTAL AGREEMENT
FOR ROLES AND RESPONSIBILITIES UNDER THE NATIONAL POLLUTANT
DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES Permit #IDS-027561)**

THIS AMENDED AND RESTATED INTERGOVERNMENTAL AGREEMENT (“Amended and Restated Agreement”) is entered into this 7th day of December, 2022, by and among the Ada County Highway District (“ACHD”), the city of Boise City (“Boise City”), city of Garden City (“Garden City”), Boise State University (“Boise State”), the Idaho Transportation Department, District #3 (“ITD”), and Ada County Drainage District No. 3 (“DD3”), individually a “Permittee” and collectively the “Permittees.”

I. RECITALS

WHEREAS, this Amended and Restated Agreement is made for the purpose of complying with the National Pollutant Discharge Elimination System, the provisions of the Clean Water Act, 33 U.S.C. § 151 et seq, as amended by the Water Quality Act of 1987, Public Law 100-4 (“Clean Water Act”), and the Rules Regulating the Idaho Pollutant Discharge Elimination System Program (IDAPA 58.01.25) (“Rules and Regulations”); and

WHEREAS, the Rules and Regulations are designed to control pollutants associated with stormwater discharges through the use of the National Pollutant Discharge Elimination System (“NPDES”) Municipal Separate Storm Sewer System (MS4) permits which allows the lawful discharge of stormwater into the waters of the United States; and

WHEREAS, the Rules and Regulations are designed to require NPDES permits for discharges from MS4s on a system-wide or jurisdiction wide basis; and

WHEREAS, the Permittees received NPDES Permit #IDS027561, effective February 1, 2013, and administratively extended until October 1, 2021; and

WHEREAS, on July 1, 2021, the Idaho Department of Environmental Quality (“IDEQ”), with delegated authority from the U.S. Environmental Protection Agency (“EPA”), took over primacy for the NPDES MS4 permits in Idaho, and became responsible for the issuing of permits and assuring compliance with all permit requirements; and

WHEREAS, the Permittees received National Pollutant Discharge Elimination System (“NPDES”) Permit IDS027561 (the “Permit”), effective October 1, 2021; and

WHEREAS, the Permit requires that the Permittees must maintain an intergovernmental agreement describing each organization’s respective roles and responsibilities related to this permit; and

WHEREAS, on June 18, 2013, the Permittees entered into an Intergovernmental Agreement for Roles and Responsibilities under the NPDES Municipal Stormwater Permit outlining roles and responsibilities of the Permittees under the Permit; and

WHEREAS, pursuant to the Permit any previously signed intergovernmental agreement may be updated, as necessary, in accordance with the Permit. Any such agreement must be described in the Permittees' Stormwater Management Program ("SWMP") Document and a copy of the agreement between the Permittees must be available to IDEQ upon request; and

WHEREAS, the Permittees have updated the intergovernmental agreement based on the Permit effective October 1, 2021. This Amended and Restated Agreement shall replace and supersede all previous intergovernmental agreements between the Permittees.

NOW, THEREFORE, the foregoing sets forth the agreement by and among the named Permittees.

II. AGREEMENT

1. PURPOSE OF AMENDED AND RESTATED AGREEMENT

The purpose of this Amended and Restated Agreement is to detail the duties, roles, and responsibilities of the Permittees with respect to compliance with the Rules and Regulations and the requirements set forth in Section 2.5.2, Joint Responsibility and Joint Agreements of the Permit. Each Permittee is individually responsible for Permit compliance related to portions of the MS4 owned or operated solely by that Permittee, or where the Permit requires a specific Permittee to take an action. Each Permittee is jointly responsible for Permit compliance as follows:

- a. related to portions of the MS4 where operational or stormwater management control measures implementation authority has been transferred to one Permittee or another in accordance with this Amended and Restated Agreement between the Permittees; and
- b. related to portions of the MS4 where Permittees jointly own or operate a portion of the MS4; and
- c. related to the submission of reports or other documents required by Parts 3, 5, and 6 of the Permit; and
- d. where the Permit requires the Permittees to take an action and a specific Permittee is not named; and
- e. other areas as deemed necessary by the Permittees.

2. GENERAL PROVISIONS

- a. ACHD, Boise City, Garden City, Boise State, ITD and DD3 are Permittees in the Permit as provided in 40 CFR 122.26.
- b. Each Permittee will be responsible for complying with any and all Permit conditions relating to discharges from those parts of the MS4 that it operates and maintains.

c. The Permittees will utilize available monitoring and enforcement mechanisms, in full cooperation with other Permittees, to control the contribution of pollutants from one MS4 to another.

d. Each Permittee to this Amended and Restated Agreement shall assign at least one representative to the Permittee group.

3. STORM WATER MANAGEMENT PROGRAM ROLES AND RESPONSIBILITIES

The roles and responsibilities of each Permittee are as established in the Permit and this Amended and Restated Agreement.

4. APPORTIONMENT OF COSTS

A. Program Administration and Management

The Stormwater Management Program Control Measures shall be administered by ACHD as the lead agency. Program administration and management consists primarily of:

1. Preparing the agenda, minutes, and other documents related to the quarterly meetings and special meetings of the Permittees; and
2. Compiling and coordinating material to and from the Permittees for the filing of the annual report and Permit reapplication, as necessary, with IDEQ; and
3. Coordinating the various activities among the Permittees under the Permit.

The Permittees shall reimburse ACHD or the Permittee providing services described in this subsection 4.A. for their share of the program administration costs in the following amounts:

ACHD:	65.3% of the total program administration costs
Boise City:	15.3% of the total program administration costs
Garden City:	7.7% of the total program administration costs
Boise State:	3.9% of the total program administration costs
ITD:	3.9% of the total program administration costs
DD3:	3.9% of the total program administration costs

Program administration shall also include expenses incurred by any Permittee in the drafting, preparation, and completion of certain agreements or other documents specifically related to the collective Permittees' activities required by the Permit, by way of example, but not by way of limitation, this Amended and Restated Agreement. Such expenses shall be shared as stated in this Subsection 4.A. and processed through ACHD as set forth herein. Such expenses shall not include any activity related to any Permittee's own compliance requirements under the Permit.

B. Stormwater Monitoring and Evaluation Program

Monitoring and evaluation required by the Permit shall be conducted by ACHD or its contractor as the lead agency. The monitoring and evaluation program (“Stormwater Monitoring and Evaluation Program”) consists primarily of:

1. For the first year of the Permit, preparing an updated Stormwater Outfall Monitoring Plan as part of the first annual report required by Part 6.4.2 of the Permit. The requirements, set forth in Part 6.2.1-6.2.7, for the Stormwater Outfall Monitoring Plan are described in the Permit, and include the monitoring protocol, sampling, testing, reporting, and other activity through a consultant arrangement between ACHD and its selected consultant.

2. Implementing the Stormwater Monitoring and Evaluation Program as approved and adopted by the Permittees.

3. Temperature monitoring in stormwater discharges from the MS4 to the Boise River including assessment units.

4. Wet weather stormwater outfall monitoring according to the Storm Water Outfall Monitoring Plan.

5. Instituting the Americana Subwatershed Monitoring Plan and data reporting requirements.

6. Effectiveness Evaluation of Structural, Non-Structural, and/or Green Stormwater Infrastructure Controls pursuant to Part 6.2.3 of the Permit.

The Permittees shall reimburse ACHD for their share of the Stormwater Monitoring and Evaluation Program costs in the following amounts:

ACHD:	65.3% of the total Stormwater Monitoring and Evaluation Program Cost
Boise City:	15.3% of the total Stormwater Monitoring and Evaluation Program Cost
Garden City:	7.7% of the total Stormwater Monitoring and Evaluation Program Cost
Boise State:	3.9% of the total Stormwater Monitoring and Evaluation Program Cost
ITD:	3.9% of the total Stormwater Monitoring and Evaluation Program Cost
DD3:	3.9% of the total Stormwater Monitoring and Evaluation Program Cost

C. Public Education, Outreach, and Involvement Program

Boise City shall be the lead agency for the Public Education, Outreach, and Involvement Program pursuant to this Amended and Restated Agreement. The Public Education, Outreach, and Involvement Program includes the development of an education outreach program as required by the Permit. The Public Education, Outreach, and Involvement Program consists primarily of:

1. Conducting public outreach, education, and public involvement as

described in the NPDES permit; and

2. Assessing the understanding of the relevant messages and adoption of appropriate behaviors by target audiences related to the Public Education, Outreach, and Involvement Program; and

3. Tracking and maintaining records of their education, outreach, and public involvement activities, including a descriptive summary of activities in the annual report; and

4. Once per year, training to local audiences on the requirements for construction operators pertaining to the required construction site controls imposed by the Permittees and training to local audiences on the requirements of permanent stormwater management controls imposed by the Permittees; and

5. Maintaining and updating the Permittees' Partners for Clean Water website found at: <https://www.partnersforcleanwater.org/>.

The Permittees shall reimburse Boise City for their share of the Public Education, Outreach, and Involvement Program costs in the following amounts:

Boise City:	65.3% of the total Program Cost
Garden City:	15.3% of the total Program Cost
ACHD:	7.7% of the total Program Cost
Boise State:	3.9 % of the total Program Cost
ITD:	3.9 % of the total Program Cost
DD3:	3.9 % of the total Program Cost

D. IPDES Stormwater Fee

Boise City is charged IPDES permit fees to support implementation of IPDES program initiatives at the Lander Street Water Renewal Facility and the West Boise Water Renewal Facility. Boise City has estimated the proportionate cost of this IPDES permit fee attributable to stormwater is 1.28% of the total IPDES permit fee. The Permittees have initially agreed to share this cost equally at 17% per Permittee. However, this allocation is subject to change by the Permittees and may be allocated similarly to the other costs discussed in this Section II.4. of the Amended and Restated Agreement. Should the Permittees unanimously agree on a different allocation of these IPDES permit fees, the Permittees shall agree to such amendment in writing.

E. Timely Payments

All amounts due and owing for the costs outlined in this Section II.4. shall be paid within forty-five (45) days of invoice date by each respective Permittee.

F. Annual Review

The allocated percentages of the Permittees' charge shall be reviewed upon an annual

basis and if necessary modified.

G. Operating Guidelines and Annual Budget

The Permittees have previously adopted a set of Operating Guidelines (“Guidelines”) in July 2014. The Operating Guidelines have since been amended to reflect updates in process and procedure. A copy of the Amended and Restated Operating Guidelines are attached hereto as Addendum No. 1. The Guidelines address the process by which the annual budget is prepared, reviewed, and approved by the Permittees. In addition, the Guidelines also address the manner in which the Permittee meetings are conducted, and action is taken by the Permittees. The Guidelines may be amended as set forth therein and will be included in this Amended and Restated Agreement as a new addendum.

5. TERMINATION

Any Permittee under this Amended and Restated Agreement shall have the right to withdraw and terminate its responsibilities under this Amended and Restated Agreement by serving written notice upon all Permittees in the time and manner described herein. Such written notice shall be served upon all Permittees no later than the January meeting described in the Operating Guidelines, which meeting provides for the consideration of the budget for the following Permit Year. The written notice shall describe whether the withdrawal is in total for all activities set forth in this Amended and Restated Agreement or whether the withdrawal is limited to certain activities described in this Amended and Restated Agreement. The Permittee seeking withdrawal shall provide the specific reasons for withdrawal and provide proof that such withdrawal has been formally approved by the Permittee’s governing body. If the withdrawal is not a total withdrawal, the Permittee shall remain responsible for its share of the allocated costs. In addition, the withdrawing Permittee shall provide the results of any activities or programs it acted as the lead agency on, including the preparation of any plans, reports, results, or record keeping, for inclusion in the Permittees’ annual report. Such withdrawal shall be deemed effective the year following the service of the written notice upon the other Permittees.

Notwithstanding the right of a Permittee to withdraw from this Amended and Restated Agreement as described above, any responsibilities set out in the Permit with regard to the withdrawing Permittee shall not be affected by Permittee’s withdrawal from this Amended and Restated Agreement.

Should any Permittee to this Amended and Restated Agreement seek to obtain a ruling from IDEQ that said Permittee is not an operator of an MS4 or that it is not subject to the Permit, such Permittee shall provide written notice to the other Permittees simultaneously with the filing of such request to IDEQ. The Permittee seeking such ruling shall provide the other Permittees with all documents filed with IDEQ and shall also provide the other Permittees of the decision or determination of IDEQ. Should the Permittee seeking withdrawal appeal the decision or determination of IDEQ or an appeal is filed by any other interested entity, the Permittee seeking such ruling shall provide the other Permittees with the documents related to said appeal and the decision or determination of the appellate body. Upon a final decision or determination of IDEQ or appellate body finding the Permittee is not required to participate in the Permit, the Permittee

shall be allowed to withdraw from this Amended and Restated Agreement effective the following year after such final decision or determination of IDEQ or an appellate body. The Permittee seeking such ruling shall be responsible for all costs set forth in this Amended and Restated Agreement prior to final withdrawal. Nothing herein shall prevent any other Permittee from participating in the IDEQ or appellate process concerning the request by the Permittee seeking the determination or decision from IDEQ.

In the event of a withdrawal by a Permittee or a final decision or determination by IDEQ or an appellate body, such Permittee's costs as set forth in this Amended and Restated Agreement shall be reallocated among the other Permittees as may be mutually agreed by those other Permittees.

6. MODIFICATION IN WRITING

This Amended and Restated Agreement may be modified or amended in writing and effective when executed by all Permittees.

7. ATTORNEY FEES

Should any Permittee find it necessary to employ an attorney for representation in any action seeking enforcement of any of the provisions of this Amended and Restated Agreement, or to protect its interest in any matter arising under this Amended and Restated Agreement, or to recover damages for the breach of this Amended and Restated Agreement, or to resolve any disagreement in interpretation of this Amended and Restated Agreement, the unsuccessful Permittee(s), in any final judgment entered therein, agrees to reimburse the prevailing party or parties for all reasonable costs, charges, and expenses, including attorneys' fees expended or incurred by the prevailing party or parties in connection therewith and in connection with any appeal, and the same may be included in such judgment.

8. NOTICES AND CONTACTS

Any and all notices required to be given by any of the Permittees hereto shall be in writing and deemed delivered when either: (i) delivered personally, or (ii) sent by fax to the other parties at the fax telephone number as set forth, or (iii) deposited in the United States Mail, certified, return receipt requested, postage prepaid, addressed to the other Permittees at the address as set forth, or such other fax telephone number or mailing address as may be provided by written notice of such change given to the others in the same manner as above provided.

For the purpose of providing contact information under this Amended and Restated Agreement and to provide notice as required, the following are the contacts and addresses of each representative designated by each Permittee:

Ada County Highway District:
Stormwater Quality Supervisor
Ada County Highway District
318 E. 37th Street
Garden City, ID 83714
Phone: 208-387-6255
Fax: 208-387-6391
Email: mlowe@achdidaho.org

City of Garden City:
Environmental Manager
City of Garden City
207 E. 38th Street
Garden City, ID 83714
Phone: 208-472-2900
Fax: 208-3434026
Email: jpavelek@gardencity.idaho.org

Idaho Transportation Department, District #3:
Environmental Planner, Senior
8150 Chinden Boulevard
Boise, ID 83714
Phone: 208-334-8300
Fax: 208-334-8917
Email: greg.vitley@itd.idaho.gov

City of Boise:
Water Quality Manager
City of Boise
P.O. Box 500
Boise, ID 83701-0500
Phone: 208-608-7178
Fax: 208-433-5650
Email: kharris@cityofboise.org

Boise State University:
Environmental Health Compliance
Boise State University
1910 University Drive
Boise, ID 83725
Phone: 208-426-3906
Email: ehs@boisestate.edu

Ada County Drainage District #3:
Counsel for Drainage District #3
Elam & Burke
P.O. Box 1539
Boise, ID 83701
Phone: 208-343-5454
Fax: 208-384-5844
Email: rpa@elamburke.com

9. ENTIRE AGREEMENT

Except as provided otherwise herein, this instrument and any attachments or addendums hereto constitute the entire agreement among the Permittees concerning the subject matter hereof.

(signatures on following page)

IN WITNESS WHEREOF, the Permittees hereto have caused this Amended and Restated Agreement to be duly executed as of the day and year first above written.

ADA COUNTY HIGHWAY DISTRICT

By: *Mary May*
President, ACHD Commission

[Signature]
Attest: ACHD Director

CITY OF BOISE CITY

By: _____
Lauren McLean, Mayor

Attest: City Clerk

CITY OF GARDEN CITY

By: *John Evans*
John Evans, Mayor

[Signature]
Attest: City Clerk



BOISE STATE UNIVERSITY

By: _____
Vice President, University Affairs

IDAHO TRANSPORTATION DEPARTMENT,
DISTRICT #3

By: *[Signature]*
S. CATER LAKEY, District Administrator

IN WITNESS WHEREOF, the Permittees hereto have caused this Amended and Restated Agreement to be duly executed as of the day and year first above written.

ADA COUNTY HIGHWAY DISTRICT

By: _____

President, ACHD Commission

Attest: ACHD Director



CITY OF BOISE CITY

By: Lauren McLean

Lauren McLean, Mayor 11/29/2022

Lynda Lowry

Attest: City Clerk Lynda Lowry 11/29/2022

CITY OF GARDEN CITY

By: _____

John Evans, Mayor

Attest: City Clerk

BOISE STATE UNIVERSITY

By: _____

Vice President, University Affairs

IDAHO TRANSPORTATION DEPARTMENT,
DISTRICT #3

By: _____
_____, District Administrator

IN WITNESS WHEREOF, the Permittees hereto have caused this Amended and Restated Agreement to be duly executed as of the day and year first above written.

ADA COUNTY HIGHWAY DISTRICT

By: _____

President, ACHD Commission

Attest: ACHD Director

CITY OF BOISE CITY

By: _____

Lauren McLean, Mayor

Attest: City Clerk

CITY OF GARDEN CITY

By: _____

John Evans, Mayor

Attest: City Clerk

BOISE STATE UNIVERSITY

By: Alicia Estey

Alicia Estey
Vice President, University Affairs

IDAHO TRANSPORTATION DEPARTMENT,
DISTRICT #3

By: _____

_____, District Administrator

ADA COUNTY DRAINAGE DISTRICT No. 3

By: 
Steve Sweet, Chair

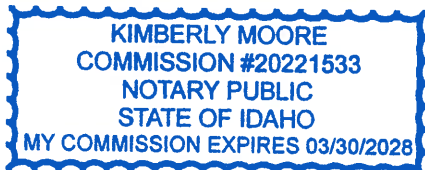
State of Idaho)
)ss
County of Ada)


On this ___ day of _____, 2022, before me, _____, a Notary Public in and for the state of Idaho, personally appeared _____ and _____, known or identified to me to be the President and Director of Ada county Highway District who executed this instrument, and acknowledged to me that Ada County Highway District executed the same.

Notary Public for Idaho
Commission expires: _____

State of Idaho)
)ss
County of Ada)

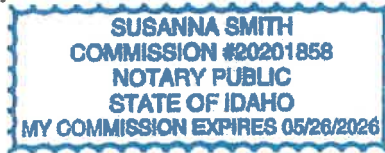
On this 29th day of November, 2022, before me, Kimberly Moore, a Notary Public in and for the state of Idaho, personally appeared Lauren McLean and Lynda Lowry, known or identified to me to be the Mayor and City Clerk of City of Boise who executed this instrument, and acknowledged to me that City of Boise executed the same.




Notary Public for Idaho
Commission expires: 3-30-2028

State of Idaho)
)ss
County of Ada)

On this 22nd day of November, 2022, before me, Susanna Smith, a Notary Public in and for the state of Idaho, personally appeared John G. Evans and Lisa M. Leiby, known or identified to me to be the Mayor and City Clerk of Garden City who executed this instrument, and acknowledged to me that Garden City executed the same.



[Signature]
Notary Public for Idaho
Commission expires: 5-26-2026

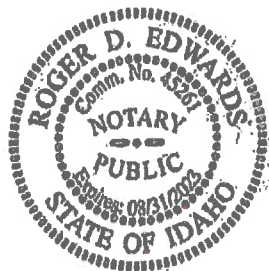
State of Idaho)
)ss
County of Ada)

On this ___ day of _____, 2022, before me, _____, a Notary Public in and for the state of Idaho, personally appeared _____, known or identified to me to be the Vice President, University Affairs, of Boise State University, who executed this instrument, and acknowledged to me that Boise State University executed the same.

Notary Public for Idaho
Commission expires: _____

State of Idaho)
)ss
County of Ada)

On this 17th day of November, 2022, before me, ROGER D. EDWARDS, a Notary Public in and for the state of Idaho, personally appeared J. CALEB LAKEY, known or identified to me to be the DISTRICT 3 ADMINISTRATOR, of Idaho Department of Transportation, who executed this instrument, and acknowledged to me that Idaho Department of Transportation executed the same.



[Signature]
Notary Public for Idaho
Commission expires: 8-31-2023

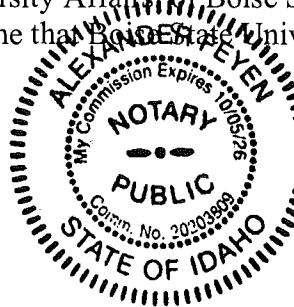
State of Idaho)
)ss
County of Ada)

On this ___ day of _____, 2022, before me, _____, a Notary Public in and for the state of Idaho, personally appeared _____ and _____, known or identified to me to be the Mayor and City Clerk of Garden City who executed this instrument, and acknowledged to me that Garden City executed the same.

Notary Public for Idaho
Commission expires: _____

State of Idaho)
)ss
County of Ada)

On this 10th day of November, 2022, before me, Alexander Feyen, a Notary Public in and for the state of Idaho, personally appeared Alicia Estey, known or identified to me to be the Vice President, University Affairs, of Boise State University, who executed this instrument, and acknowledged to me that Boise State University executed the same.



Notary Public for Idaho
Commission expires: 10/05/2026

State of Idaho)
)ss
County of Ada)

On this ___ day of _____, 2022, before me, _____, a Notary Public in and for the state of Idaho, personally appeared _____, known or identified to me to be the _____, of Idaho Department of Transportation, who executed this instrument, and acknowledged to me that Idaho Department of Transportation executed the same.

Notary Public for Idaho
Commission expires: _____

State of Idaho)
)ss
County of Ada)

On this 10th day of November, 2022, before me Kimbra S. Kline, a Notary Public in and for the state of Idaho, personally appeared Steve Sweet, known or identified to me to be the Chair of Ada County Drainage District # 3, who executed this instrument, and acknowledged to me that Ada County Drainage District #3 executed the same.

4878-3214-6717, v. 5



Kimbra S. Kline
Notary Public for Idaho
Commission expires: 3/31/2023

AMENDED AND RESTATED OPERATING GUIDELINES

THESE AMENDED AND RESTATED OPERATING GUIDELINES ("Amended and Restated Guidelines") are adopted this 30 day of November, 2022, by the CITY OF BOISE CITY, hereinafter called BOISE CITY; ADA COUNTY HIGHWAY DISTRICT, hereinafter called ACHD; ADA COUNTY DRAINAGE DISTRICT NO. 3, hereinafter called DD3; IDAHO TRANSPORTATION DEPARTMENT, DISTRICT 3, hereinafter called ITD; BOISE STATE UNIVERSITY, hereinafter called BSU; and the CITY OF GARDEN CITY, hereinafter called GARDEN CITY; collectively the "Permittees."

WHEREAS, the National Pollutant Discharge Elimination System, the provisions of the Clean Water Act, 33 U.S.C. § 151 et seq, as amended by the Water Quality Act of 1987, Public Law 100-4 ("Clean Water Act"), and the Rules Regulating the Idaho Pollutant Discharge Elimination System Program (IDAPA 58.01.25) ("Rules and Regulations") all govern the regulations for applications and permits for stormwater discharges; and

WHEREAS, these Rules and Regulations are designed to control pollutants associated with stormwater discharges through the use of the National Pollutant Discharge Elimination System ("NPDES"), which allows the lawful discharge of stormwater into the waters of the United States; and

WHEREAS, these Rules and Regulations are designed to require NPDES permits for discharges from Municipal Separate Storm Sewer Systems (MS4s) from a system-wide or jurisdiction-wide basis; and

WHEREAS, the Permittees received a NPDES Permit (Permit #IDS-02756-1) effective February 1, 2013, and administratively extended until October 1, 2021; and

WHEREAS, on July 1, 2021, the Idaho Department of Environmental Quality (IDEQ), with delegated authority from the U.S. Environmental Protection Agency ("EPA"), gained primacy and became responsible for issuing MS4 stormwater permits and assuring compliance with all permit requirements; and

WHEREAS, the Permittees received Idaho Pollutant Discharge Elimination System ("IPDES") Permit IDS027561 (the "Permit"), effective October 1, 2021;

WHEREAS, the Permit requires that the Permittees must maintain an intergovernmental agreement describing each organization's respective roles and responsibilities related to this permit;

WHEREAS, pursuant to the Permit, any previously signed intergovernmental agreement may be updated, as necessary, in accordance with this Permit. Any such agreement must be described in the Permittees' Stormwater Management Program ("SWMP") Document, and a copy of the agreement between the Permittees must be available to IDEQ upon request; and

WHEREAS, the Permittees entered into that certain *Intergovernmental Agreement for Roles and Responsibilities Under the NPDES Permit* ("Agreement"), dated June 26, 2013, which generally outlined the process by which the Permittees shall fund certain activities in compliance with the Permit;

WHEREAS, the Permittees previously entered into those certain Operating Guidelines dated October 17, 2006, which governed the Permittees' activities under a previous intergovernmental agreement dated October 21, 2001, based on the previous NPDES permit originally effective November 29, 2000.

WHEREAS, the Permittees have updated the intergovernmental agreement based on the Permit effective October 1, 2021, and this Amended and Restated Intergovernmental Agreement was executed on ~~December 7~~, 2022; and

WHEREAS, the Permittees, as public agencies, all have varying procedures concerning the setting of those entities' budgets and the time frame for the approval of those budgets;

WHEREAS, the Permittees desire these Amended and Restated Guidelines (including certain budget procedures) to guide the Permittees through the activities in which all share in the cost and/or administration of the program and to coincide with the new amendments and revisions under the Amended and Restated Intergovernmental Agreement;

NOW, THEREFORE, the Permittees agree as follows:

Section 1. These Amended and Restated Guidelines hereby repeal, replace, and supersede any previous guidelines, including those 2006 guidelines as described herein.

Section 2. The Permittees concur with the following process for:

A. The annual budget of costs to be shared by the Permittees pursuant to the Permit and the Amended and Restated Intergovernmental Agreement; and

B. The approval of activities and expenses.

Section 3. Schedule and Process:

Each January of each year of the Permit, the lead Permittee entity for the activities to be shared by all of the Permittees, shall present at a scheduled Permittee meeting, a proposed budget outlining the costs for the upcoming year as well as providing a comparison for similar activities within the previous year.

The Permittees shall consider such budget, provide comment, and the budget shall be approved at the Permittee meeting held in April of each year, upon motion and approval by a majority of the Permittees present.

Section 4. Program Administration and Management:

These Amended and Restated Guidelines identify four (4) categories for which the Permittees have agreed to apportion costs for those activities, including Program Administration and Management. By adoption of these Amended and Restated Guidelines, the Permittees have determined that the Program Administration and Management category should include those activities for which the Permittees are apportioning costs for certain planning and Permit compliance not related to any individual Permittee compliance activity. Such activities include the Permit reapplication process and required Permit document preparation.

Permittees also agree to consider other subcategories for which apportionment of costs would be appropriate under the Permit and to process budget requests and approvals. Any additional subcategories shall require an amendment to these Amended and Restated Guidelines.

Section 5. Budget Revisions:

Throughout the Permit year, revisions to the approved budget to reallocate funds among categories and classifications or to reduce the approved budget may be considered by the Permittees. Such reduction or reallocation shall be reviewed and approved by the Permittees' representatives at a duly noticed Permittee meeting. No overall increase in the budget or additional funds shall be authorized unless approved by the Permittees, upon motion and approval by a majority of the Permittees present, and each Permittee has budget authority for such revisions.

Section 6. Permittee Budget Approval:

Nothing herein shall affect the process or authority of each Permittee to obtain from its governing body the necessary approval for the budget as required by each Permittee's governing laws, regulations, or policy and each Permittee's own activities for which it is responsible under the Permit.

Section 7. Operating Guidelines:

Generally, the Permittee meetings shall be managed in such a manner to achieve the objectives of the Permit and the NPDES program. For those items previously approved by way of the budget, the lead Permittee shall provide summary reports of such expenditures and activities at a regularly scheduled Permittee meeting. For expenditures not specifically approved by way of the budget, the lead Permittee shall obtain Permittee approval at a regularly scheduled Permittee meeting prior to such expenditure.

Permittee meetings will be conducted on an informal basis facilitated by the ACHD representative. The ACHD representative shall also be responsible for providing meeting notice to Permittees, taking and distributing minutes, providing an agenda, and, to the greatest extent possible, forwarding information to the Permittees for consideration at the meeting. Any action to be taken shall be accomplished by motion and vote. To the greatest extent possible, Roberts Rules of Order shall govern the voting process.

Section 8. Effect:

These Amended and Restated Guidelines have been adopted by the Permittees at the Permittee meeting dated November 30, 2022. Nothing herein shall be deemed to infringe upon any Permittee's legal authority concerning the expenditure of public funds.

Section 9. Amendment:

These Amended and Restated Guidelines may be amended in writing, upon at least ten (10) days written notice of such proposed amendment to each Permittee provided, however, said notice may be deemed waived by Permittee's written consent. Any amendment shall be approved by majority vote of the Permittees present at a meeting noticed for such purpose. Updated versions of these Amended and Restated Guidelines shall be included in the Amended and Restated Intergovernmental Agreement as an updated addendum to that document.

ADA COUNTY HIGHWAY DISTRICT

By: Monica Lowe
Its Permittee NPDES Representative

CITY OF BOISE CITY

By: Ann Zund
Its Permittee NPDES Representative

CITY OF GARDEN CITY

By: John G. Evans
Its Permittee NPDES Representative

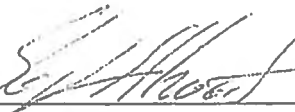
BOISE STATE UNIVERSITY

By: Cris Ruyf
Its Permittee NPDES Representative

IDAHO TRANSPORTATION DEPARTMENT,
DISTRICT #3

By: 
Its Permittee NPDES Representative

ADA COUNTY DRAINAGE DISTRICT No. 3

By: 
Its Permittee NPDES Representative

4867-9330-4380, v. 1

Appendix B

Drainage District No. 3 MS4 Maps

DISTRICT MAPS

ADA COUNTY DRAINAGE DISTRICT #3

PO BOX 1539
BOISE, IDAHO 83701

BOARD MEMBERS

JOHN "PAT" TATE, CHAIRMAN

JOE ICENHOWER, SECRETARY TREASURER

STEVE NIELSEN, BOARD MEMBER

RYAN ARMBRUSTER, DISTRICT COUNSEL

DEAN CALLEN, DISTRICT SUPERINTENDENT

MAY 2010

CALL BEFORE YOU DIG!

DIAGLINE: 342-1585

OTHER CONTACT NUMBERS

ACHD DRAINAGE = 387-6320

BOISE CITY PUBLIC WORKS = 384-3900

GARDEN CITY PUBLIC WORKS = 375-3194

NAMPA & MERIDIAN IRRIGATION DIST. = 466-7861

BOISE PROJECT BOARD OF CONTROL = 344-1141

SOUTH BOISE MUTUAL IRRIGATION CO. = 344-3062

DRAINAGE DISTRICT #2 = 342-4591

DRAINAGE DISTRICT #4 = 342-4591

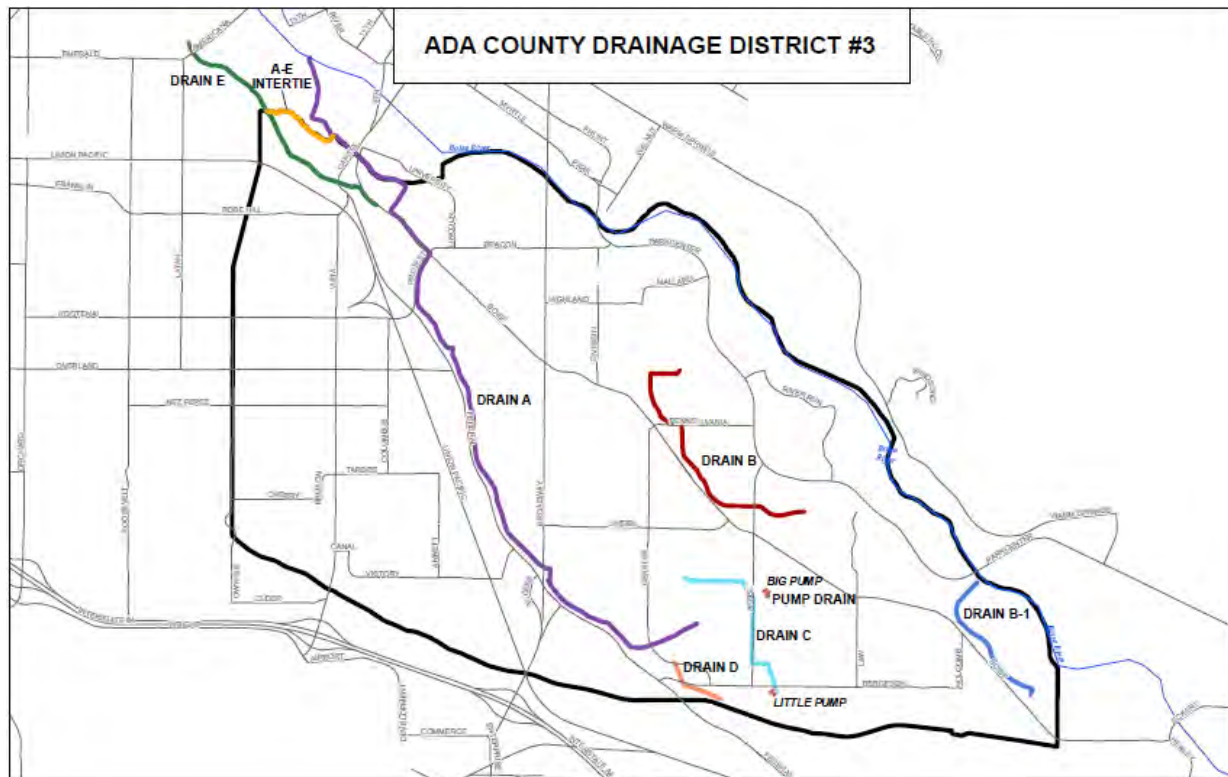
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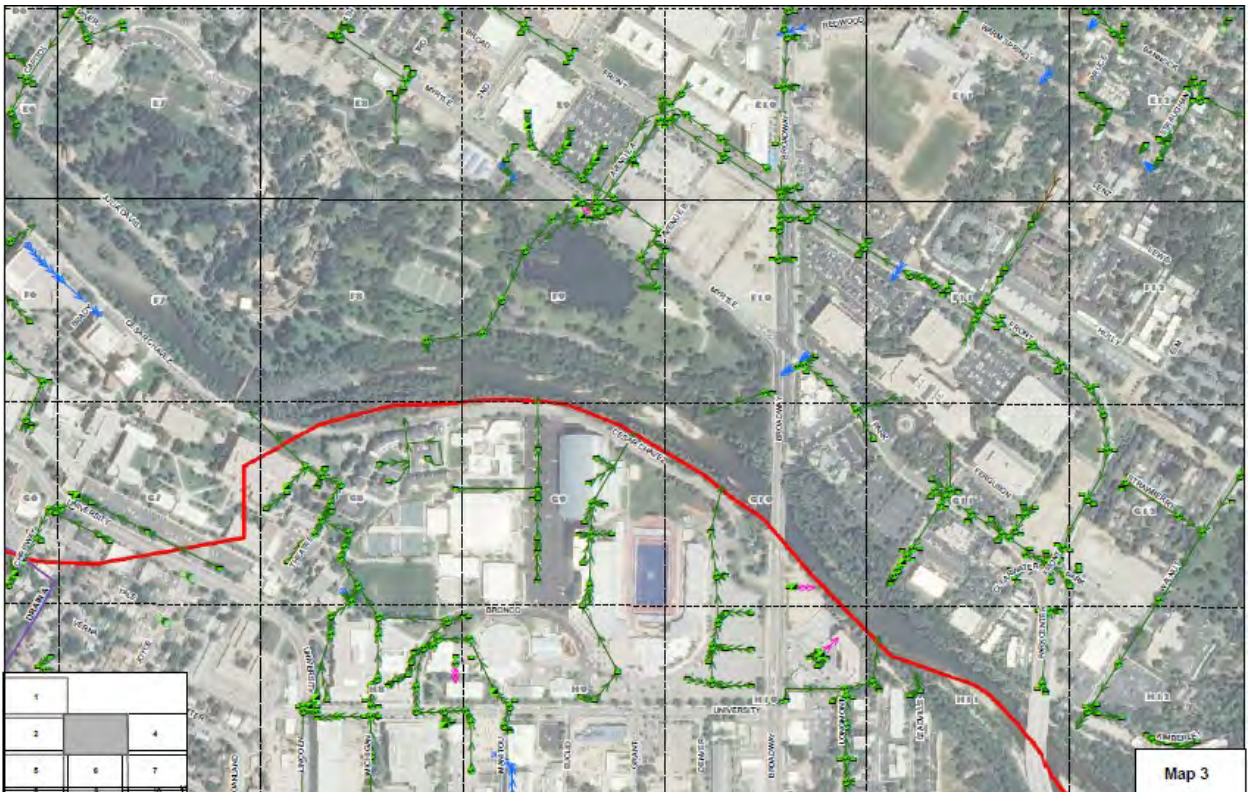
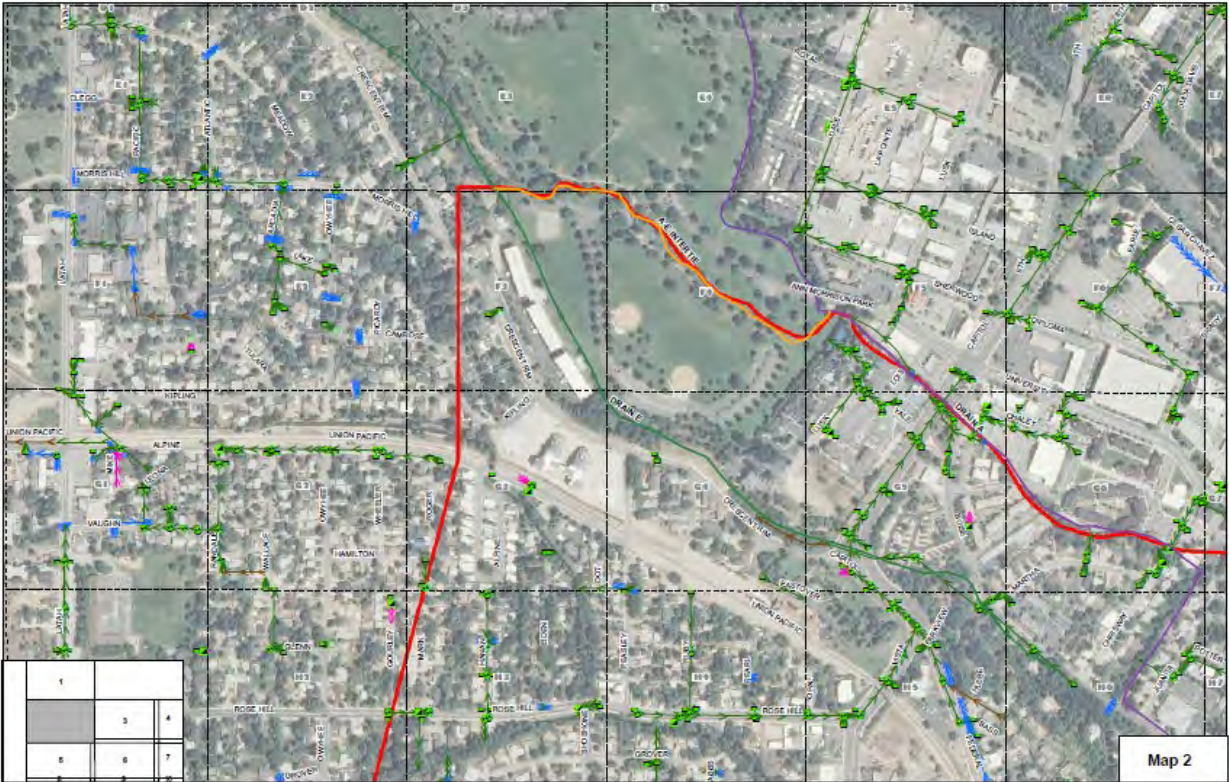
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ADA COUNTY DRAINAGE
DISTRICT #3 BY

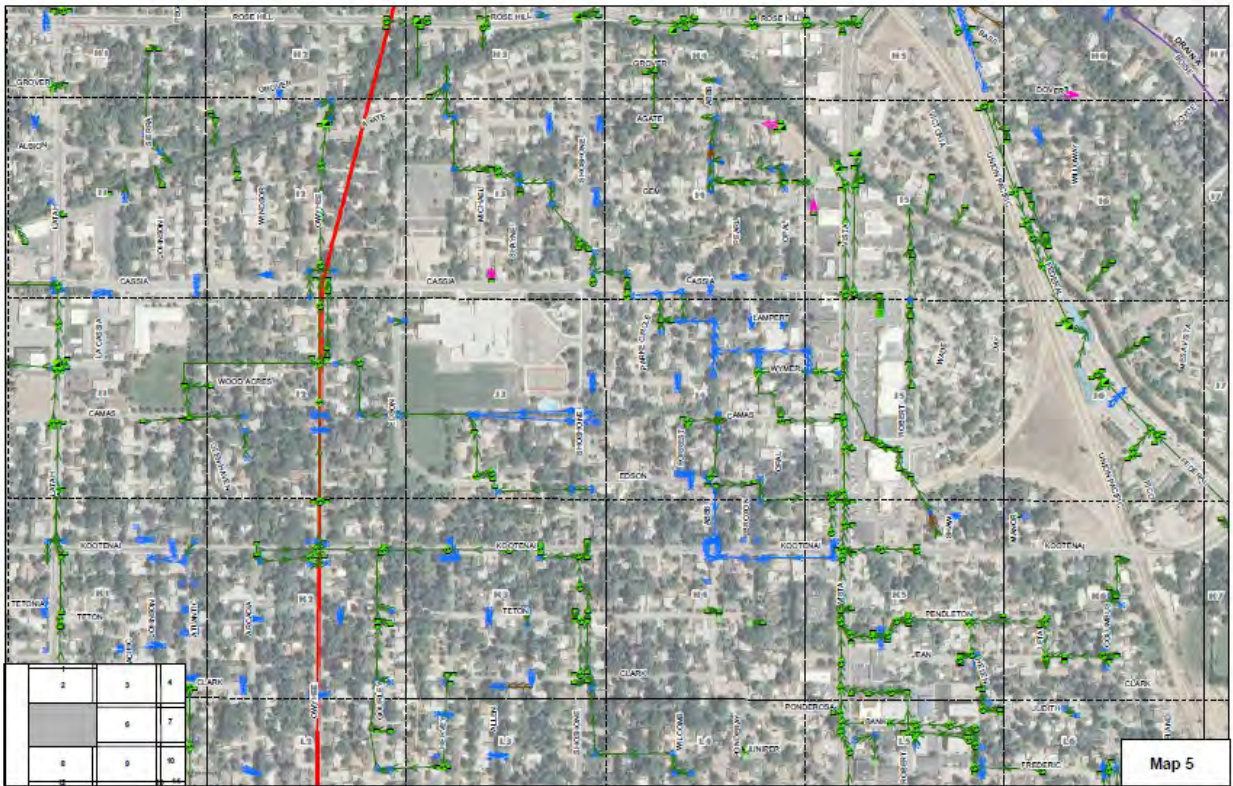
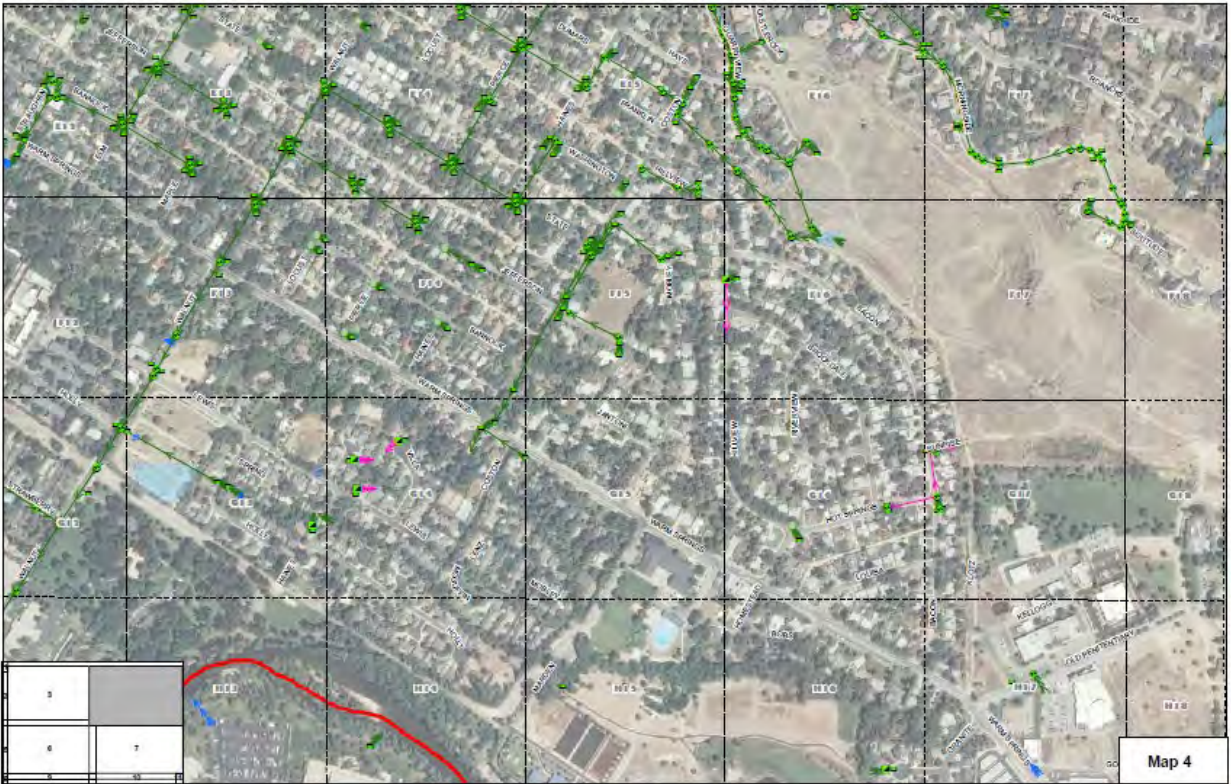


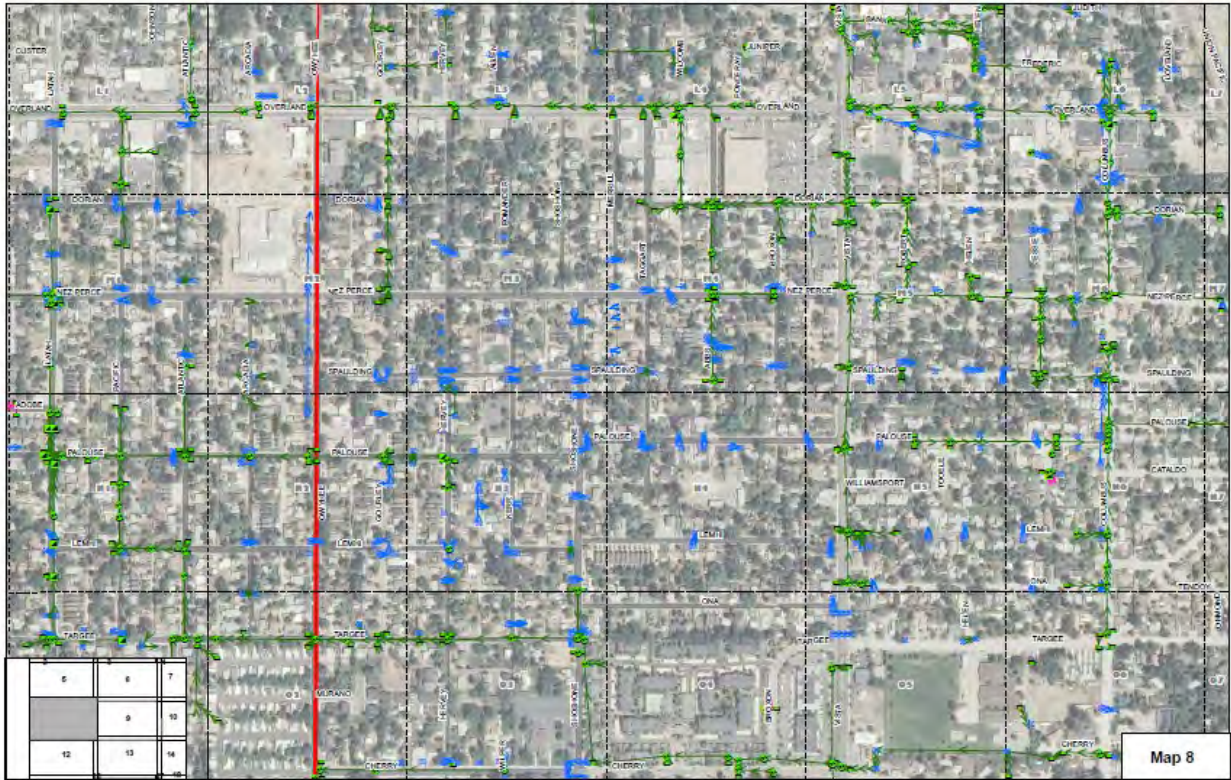
MAPBOOK DEVELOPED BY
MILLENNIUM SCIENCE & ENGINEERING
GIS & NATURAL RESOURCES DEPT.

MSE Millennium Science & Engineering

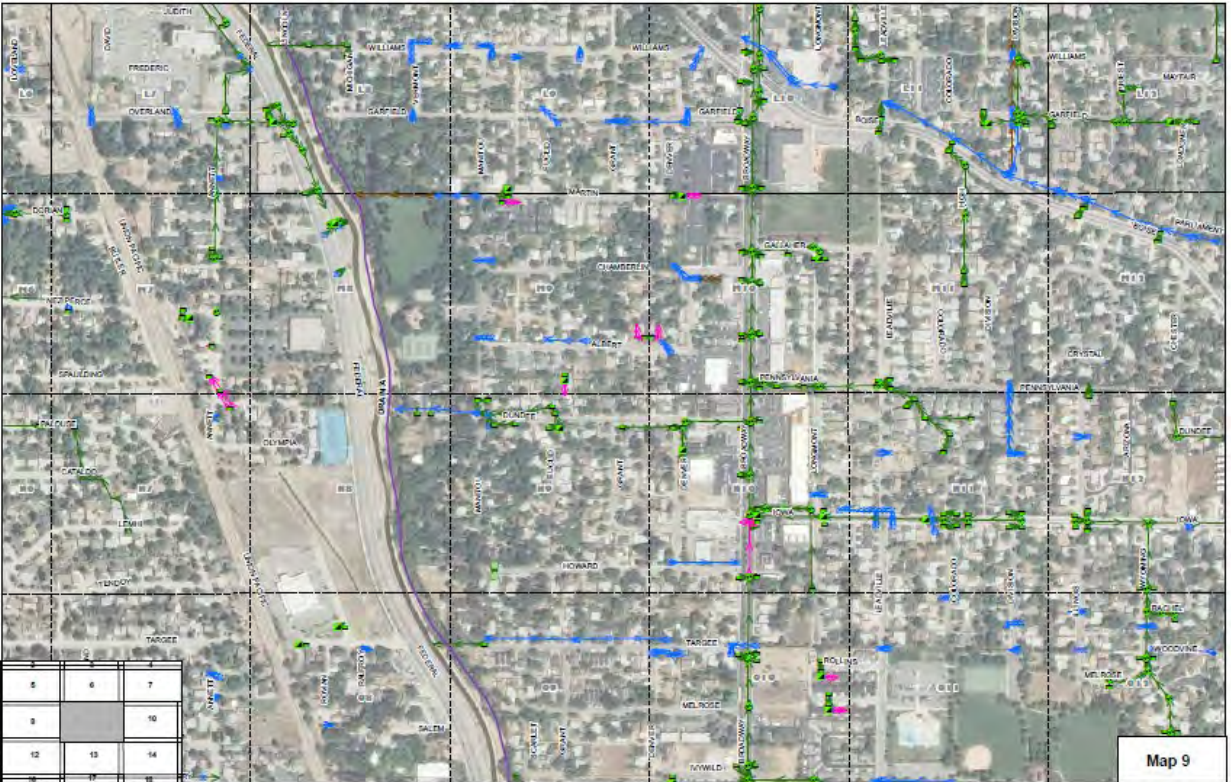




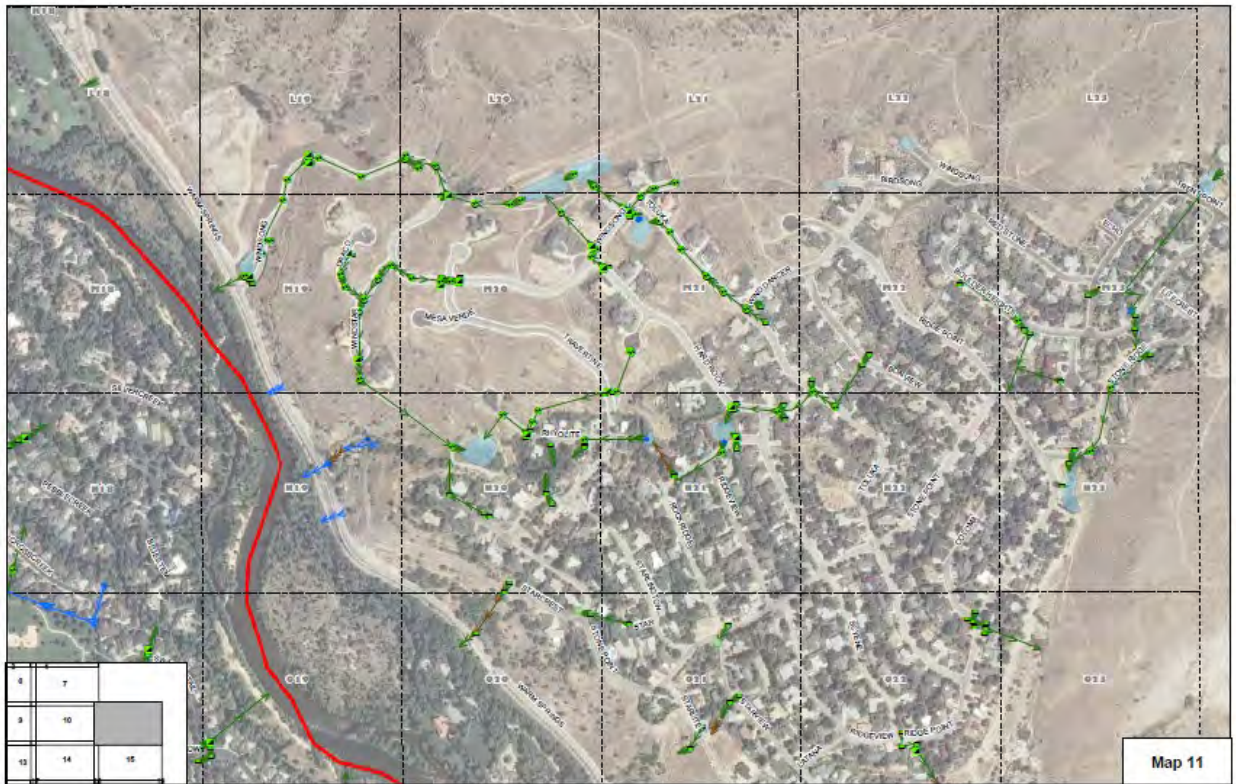
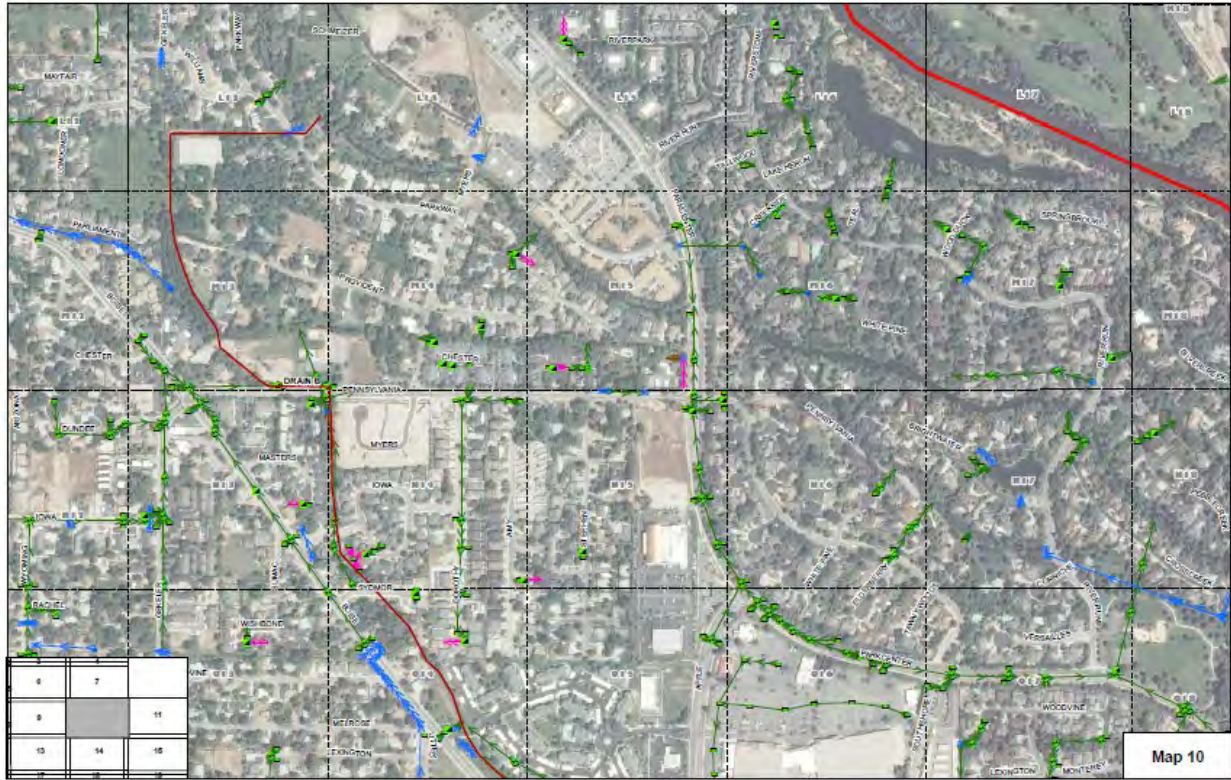




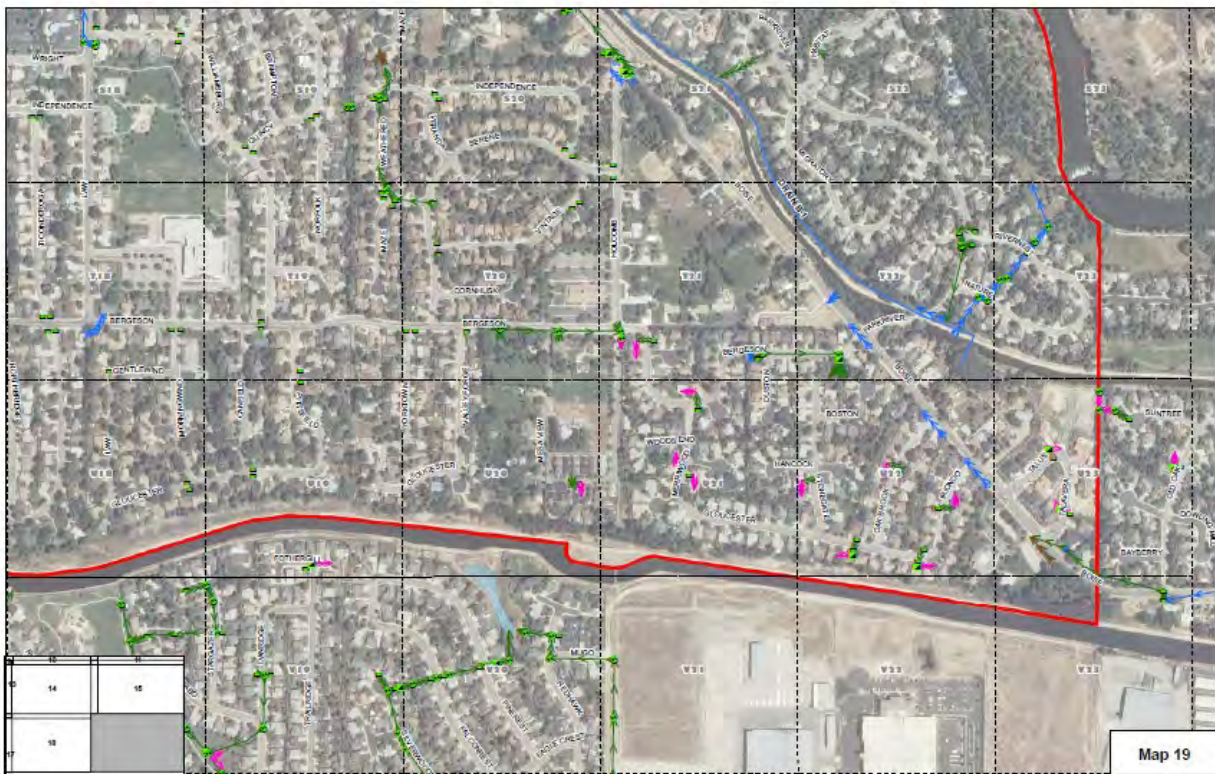
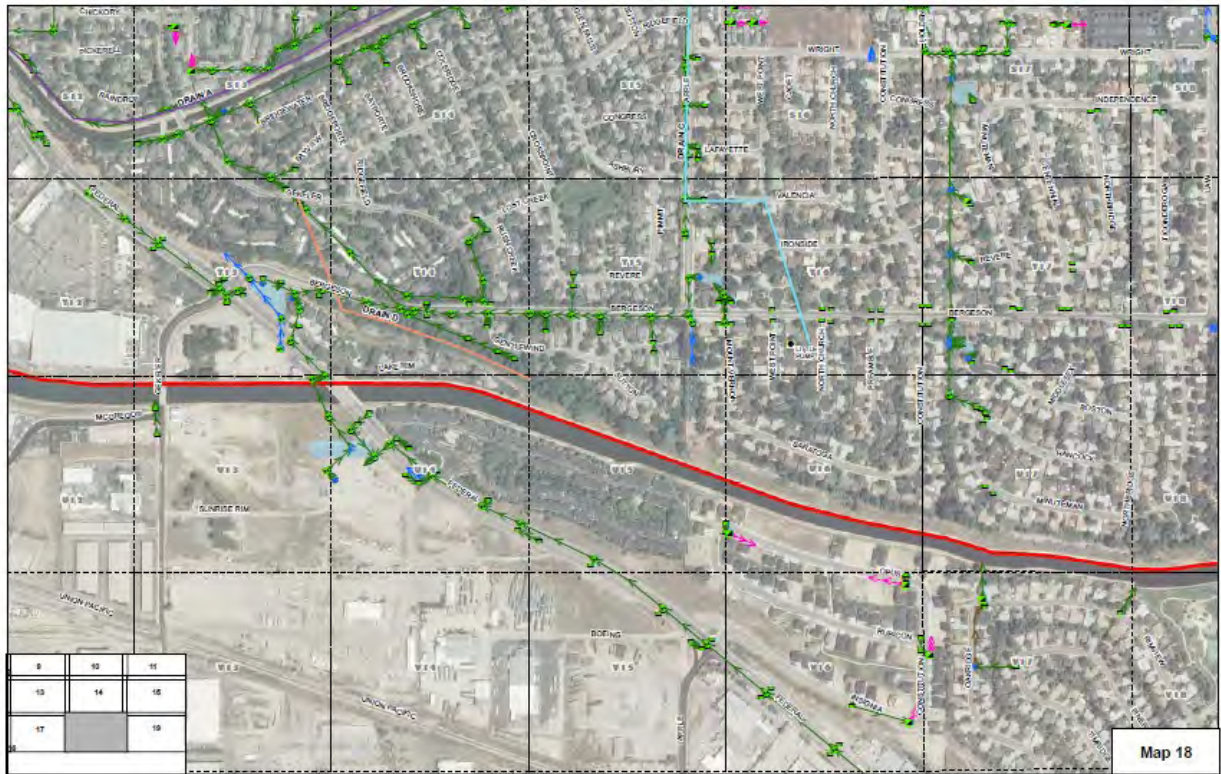
Map 8



Map 9







Appendix C

Operation and Maintenance System Plan and BMPs

OPERATION AND MAINTENANCE SYSTEM PLAN AND BMPs

ADA COUNTY DRAINAGE DISTRICT #3

UPDATED OCTOBER, 2022

PREPARED BY ABIGAIL R. GERMAINE

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INTRODUCTION

The National Pollutant Discharge Elimination System, the provisions of the Clean Water Act, 33 U.S.C. § 151 et seq, as amended by the Water Quality Act of 1987, Public Law 100-4 (“Clean Water Act”), and the Rules Regulating the Idaho Pollutant Discharge Elimination System Program (IDAPA 58.01.25) (“Rules and Regulations”) are designed to control pollutants associated with stormwater discharges through the use of the National Pollutant Discharge Elimination System (“NPDES”) Municipal Separate Storm Sewer System (MS4) permits which allows the lawful discharge of stormwater into the waters of the United States.

On February 1, 2013, to Ada County Highway District (“ACHD”), Boise State University, city of Boise, city of Garden City, Ada County Drainage District No 3 (“DD3”), and the Idaho Transportation Department District #3, referred to as the “Permittees”, received NPDES Permit #IDS027561, which was administratively extended until October 1, 2021.

On July 1, 2021, the Idaho Department of Environmental Quality (“IDEQ”), with delegated authority from the U.S. Environmental Protection Agency (“EPA”), took over primacy for the NPDES MS4 permits in Idaho and became responsible for the issuing of permits and assuring compliance with all permit requirements. Following this delegation, the Permittees received National Pollutant Discharge Elimination System (“NPDES”) Permit IDS027561 (the “Permit”), effective October 1, 2021.

The Permit contains inspection procedures and reporting requirements; operation and maintenance activities and criteria used to determine when maintenance is needed; public education and outreach requirements; complaint and illicit discharge response procedures; and record keeping practices. Each Permittee is required to implement and enforce a Storm Water Management Program (SWMP) including best management practices (BMPs), controls, system design, reporting requirements, engineering methods, and other provisions appropriate to control and minimize the discharge of pollutants from the MS4s.

ROLES AND RESPONSIBILITIES

Responsibility for control of stormwater runoff and discharges to the MS4 stormwater system is shared by a number of entities within Boise City. Each Permittee is individually responsible for permit compliance related only to portions of the MS4 owned or operated solely by that Permittee and where the permit requires specific action. Each Permittee is jointly responsible for activities relating to the MS4 where operational or SWMP implementation authority has been transferred to all the Permittees in accordance with an intergovernmental agreement or agreement between the Permittees; related portions of the MS4 where Permittees jointly own or operate a portion of the MS4; related to the submission of individual reports or other documents required by the Permit; and where the Permit requires the Permittee to take action.

INSPECTION PROCEDURES AND SCHEDULES

Inspections are conducted to evaluate the operational status of the DD3 system and to identify problems and necessary maintenance actions. The District has several outfalls and drains under the purview of the Permit.

PERMITTEE INSPECTION FREQUENCY

In conjunction with ACHD as the lead Permittee, for the reporting period of each year, October 1 – September 30, 2022, wet weather stormwater outfall monitoring is conducted by ACHD in accordance with Part 6.2.1 of the Permit and the Storm Water Outfall Monitoring Plan. The details concerning stormwater sampling events are under the control of ACHD through cooperative actions of all the Permittees. Permittees must conduct visual dry weather screening of at least 20% of their total outfalls per year and screening must be conducted within the June 1 and September 30 timeframe for at least one third of the total outfalls to be screened annually. DD3 having less than seven (7) outfalls is permitted to conduct dry weather screening of one outfall, per year (Part 3.2.5.2). This dry weather screening is conducted by ACHD on DD3's behalf, through separate agreement. DD3 undertakes its own inspection and other activity of its system primarily during the irrigation season, generally from April through October of each year.

Inspection and maintenance forms are used to document potential problems and maintenance recommendations. Each system component is inspected to determine the conditions present.

OPERATION AND MAINTENANCE

Inspection and maintenance are performed primarily during the irrigation season. The type of maintenance is determined by inspection results and the maintenance schedule.

Routine maintenance typically consists of removal of debris and cleaning of discharge points. Litter is picked up as needed to keep open ditches clear of debris. Non-routine maintenance is occasionally required, e.g., beaver obstruction, illegal dumping, accidental spills, massive sediment, and debris inflow. When removing debris, all collected debris will be managed and disposed of in a manner such as to prevent such pollutants from entering the water of the U.S.

If there is an accidental spill, it will be isolated to keep it from reaching other water bodies. Stormwater system flow points, such as gates, valves, orifices, and outlet pipes, are kept closed to isolate the spill. If the spill consists of flammable or hazardous materials, the Boise City Fire Department or 911 is contacted for assistance.

INSPECTION SAFETY

The individual inspecting the stormwater system should always consider safety as the first priority. The inspector should have the proper safety equipment (heavy duty gloves, boots, and first aid kits, for example) before conducting any inspections. Although the safety precautions

listed here are common sense, they should not be disregarded. Neglecting to follow even the simplest safety precaution can potentially cause serious injury. If the stormwater system inspection reveals a safety problem, then site activities may be modified to reduce or eliminate the safety risk.

WASTE DISPOSAL

Most storm water system waste consists of trash, leaves, grass, and sediment. The quality of waste is typically small and non-hazardous because of frequent inspection and maintenance activities. When removing debris, all collected debris will be managed and disposed of in a manner such as to prevent such pollutants from entering the water of the U.S.

COMPLAINT RESPONSE PROCEDURES

Inspections will also be conducted when a complaint is received from the public or referred by another agency.

RECEIPT AND REFERRAL OF COMPLAINT

When a complaint is received, a determination will be made of the severity of the situation. If the complaint involves hazardous substances or large quantities of substances that may pose a threat to life, health, and safety, the Fire Department will be notified (911). ACHD or other drainage entities should also be notified if their systems are impacted by the problem.

If the complaint is outside the District's jurisdiction or involves another Permittees infrastructure or stormwater system, it is referred to the appropriate agency or district.

COMPLAINT INVESTIGATION

The inspector will visit the site of reported complaint and will determine if immediate action is needed to keep pollutants out of the stormwater system or receiving water body. It is the responsibility of the liable party to keep pollutants from entering the stormwater system. However, when the inspector arrives on site, it may be necessary to assist in spill cleanup by using materials to absorb, contain, or divert pollutants to keep them from reaching the storm drain system. The inspector should educate the responsible party on proper cleanup and disposal methods. The inspector will also need to determine whether the system of another jurisdiction has been impacted and notify the appropriate entity, if necessary.

Once all immediate threats to the stormwater system or other water body have been addressed, or if there are no immediate threats, a site investigation will be completed. Information will be gathered, and the situation will be discussed with witnesses or responsible person. If necessary, photographs will be taken with a label containing date, location, time, and initials. All information shall be documented on a records form.

FOLLOW-UP PROCEDURES

The inspector ensures, by either a site drive-by or a follow-up investigation, that cleanup has occurred, and the problem is taken care of.

COMPLAINT REFERRALS

Complaints are referred to the appropriate agency for investigation. If the complaint is forwarded, through mutual agreement, the city can offer support to DD3 to resolve the problem.

ENFORCEMENT REFERRALS

The inspector should have a good understanding of what regulatory requirement was violated and how. An explanation of how a party failed to comply with the regulatory requirements is required in the referral report. Compliance determinations must be based solely on the factual information collected.

A determination of whether an enforcement action is warranted is based on what the determination is based on.

FACTORS RELATING TO IMPACT

An initial site visit and assessment should occur as soon as possible after the complaint is received.

FACTORS RELATING TO RESPONSIBLE PARTY

A referral package should be prepared and should include the inspection report and a list of violations alleged, along with the evidence. The referral package should contain a narrative summary including, and among other things, the following information: 1) the factual evidence in support of the alleged violation(s) and 2) inspector's determination, along with supporting facts, of whether this is a one-time, continuing, or recalcitrant violation.

RECORD KEEPING AND REPORTING

Proper records management is important to preserve information for reporting purposes and to support any enforcement action. The information related to inspection, maintenance, or complaint response activities comprise documentation of the Operation and Maintenance Plan and BMPs' activities and findings. Inspection forms, maintenance forms, and complaint response forms will be retained and filed. All information collected in an investigation of a complaint or violation will also be retained. This may include photographs, laboratory reports, drawings, or other forms of information that document site conditions.

An annual summary is prepared of inspection and maintenance activities for inclusion in the annual report to the IDEQ. The forms are organized by activity and system section and are filled out whenever one of these activities is undertaken.

ANNUAL REPORT

The Permit requires submission of an annual report that contains certain information related to program implementation. The information will be tracked on an ongoing basis and compiled quarterly. The annual report will be prepared consistent with the Permit reporting requirements.

Attachment L
NPDES Phase 1 Temperature Monitoring Approach

NPDES Phase I Temperature Monitoring Approach

Ada County Highway District

12/7/2022

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1. Introduction

The Environmental Protection Agency, Region 10 (EPA) issued the third cycle National Pollutant Discharge Elimination System (NPDES) Municipal Storm Separate Sewer System (MS4) Phase I Permit No. IDS027561 (Permit) effective October 1, 2021, to Ada County Highway District (ACHD), Boise State University (BSU), City of Boise, City of Garden City, Drainage District #3, and Idaho Transportation Department District #3 (ITD), referred to as the “Permittees.” Starting July 1, 2021, the Idaho Department of Environmental Quality (IDEQ) acquired Permit authority through the Idaho Pollutant Discharge Elimination System (IPDES) Program. The Permit authorizes stormwater discharges from MS4 outfalls to waters of the United States in accordance with the conditions and requirements of the Permit. Under this permit, the Permittees are required to monitor temperature in stormwater discharges from the MS4 to the Boise River including assessment units (AU) 17050114SW005_06, 17050114SW005_06a, 17050114SW005_06b, to quantify stormwater impacts to this waterbody (Permit Part 4.1).

The Boise River AUs that are included within the Phase I permit area are 17050114SW011a_06 (Diversion Dam to Veteran’s Memorial Parkway (VMP) bridge) and 17050114SW005_06 (Veteran’s Memorial Parkway bridge to Star Road bridge). The remaining AUs listed in the Permit (17050114SW005_06a and 17050114SW005_06b) are outside of the permit area, and therefore do not have Permittee stormwater contribution.

Temperature monitoring has been incorporated into all NPDES monitoring projects conducted to date, in both dry weather and wet weather stormwater discharges. The majority of sampling under existing monitoring plans is completed at outfalls that discharge to the Boise River between Diversion Dam and VMP bridge (AU 17050114SW011a_06). To meet the additional requirement specific to AU 17050114SW005_06, outfall 4n2e30_012 was equipped with a temperature logger and data collection began under the *Plantation Lane Temperature Monitoring Plan* (Appendix A).

All NPDES monitoring plans were developed in line with the Quality Assurance Project Plan for NPDES Stormwater Permit Monitoring (QAPP) (ACHD, 2021) and contain details specific to the monitored outfall locations, procedures, and equipment. A summary of each monitoring plan with respect to temperature is provided below. Figure 1 shows a map of the location of each outfall, and the associated monitoring plan(s). Table 1 depicts the type and frequency of temperature readings from each monitored outfall.

1.1 Stormwater Outfall Monitoring Plan (SWOMP)

The *Stormwater Outfall Monitoring Plan* provides the methods for stormwater outfall monitoring and includes site and drainage area descriptive details for each monitoring station. Temperature data is collected in multiple ways at outfalls monitored under this plan. During monitored storm events, temperature is collected continuously, and a discrete temperature reading is collected as a grab sample. Additionally, continuous temperature data are collected year-round from stations that are known to have dry weather discharges.

1.2 Dry Weather Outfall Screening Plan (DWOSP)

The *Dry Weather Outfall Screening Plan* explains the process for dry weather outfall screening and provides comprehensive guidance for outfall investigation efforts. Under this plan, discrete temperature data are collected at outfalls that have dry weather discharge. Discrete samples are collected from outfalls with known dry weather flows up to three times per year, assuming flow is present.

1.3 Americana Subwatershed Monitoring Plan

The *Americana Subwatershed Monitoring Plan* describes the procedures for subwatershed monitoring within the Americana Subwatershed to determine sources of non-stormwater flow and areas of elevated pollutant loads. As a part of this plan, continuous temperature data are collected year-round at one outfall.

1.4 Plantation Lane Temperature Monitoring Plan

The *Plantation Lane Temperature Monitoring Plan* was developed to address temperature monitoring specific to the Boise River AU 17050114SW005_06. Under this plan, continuous temperature data are collected year-round at one outfall.

NPDES Phase I Temperature Monitored Outfalls - Boise River

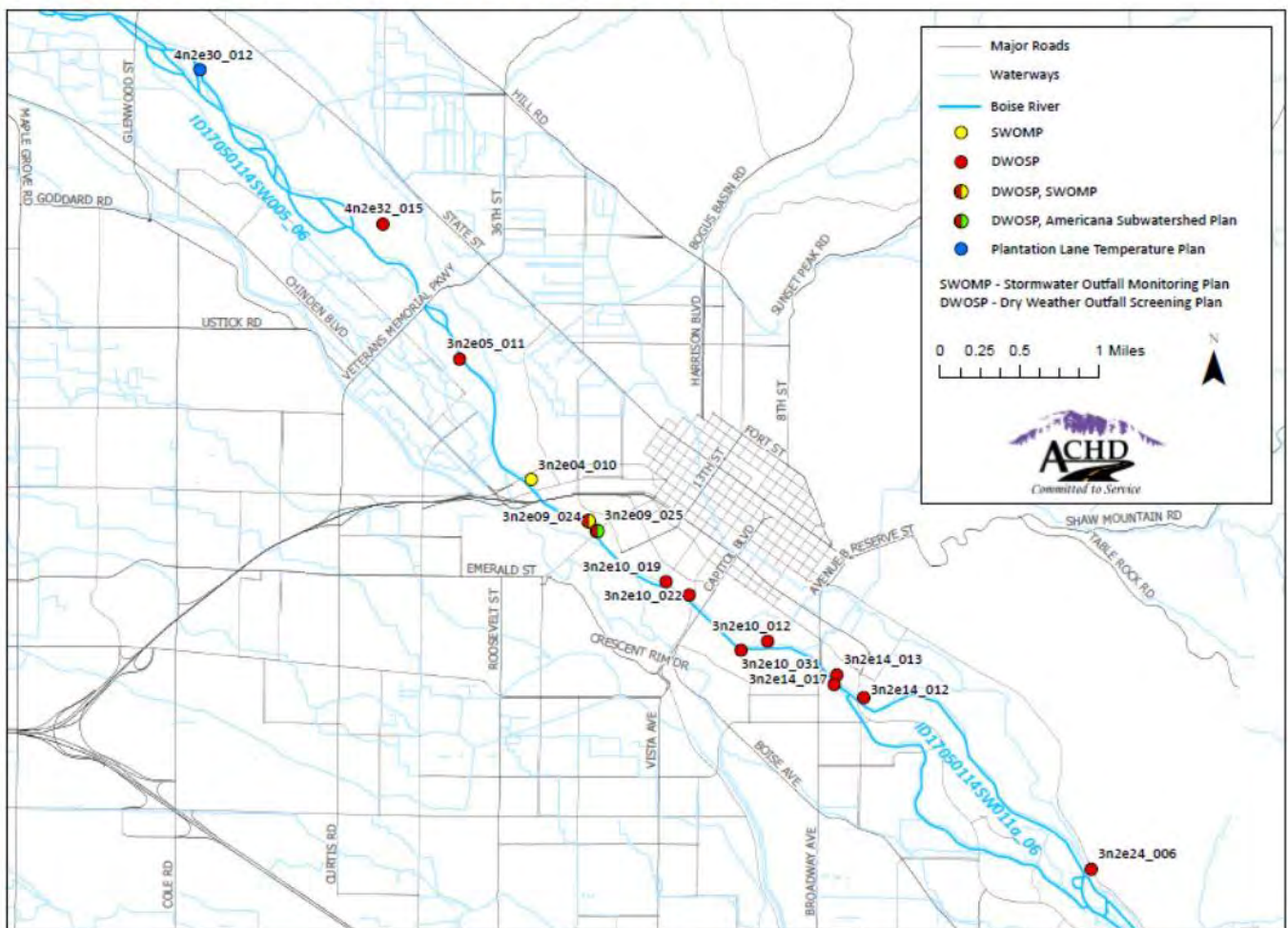


Figure 1 Temperature Monitored Outfalls

Table 1 NPDES Phase I Temperature Monitored Outfalls

Outfall ID (Station Name)	Boise River AU	Monitoring Plan	Equipment	Sample Type, Interval	Frequency
3n2e04_010 (Main)	17050114SW011a_06	SWOMP	Hach Submerged Area Velocity Sensor	Continuous, 15-minute	During monitored events
			In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	During monitored events
3n2e05_011	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e09_024 (Americana)	17050114SW011a_06	SWOMP	ISCO TIENet 350	Continuous, 15-minute	Year-round
		DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	During monitored events
3n2e09_025 (AS_7)	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
		Americana Subwatershed	ISCO 2150 Area Velocity Sensor	Continuous, 5-minute	Year-round
3n2e10_012	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e10_019	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e10_022	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e10_031	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e14_012	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e14_013	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e14_017	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
3n2e24_006	17050114SW011a_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present
4n2e30_012 (Plantation Lane)	17050114SW005_06	Plantation Lane Temperature Plan	HOBO MX2203	Continuous, 15-minute	Year-round
4n2e32_015	17050114SW005_06	DWOSP	In-Situ AquaTroll 400 In-Situ SmarTroll MP	Discrete	3x/year, if discharge is present

2. Methods

The method used to obtain all temperature readings, both discrete and continuous, for NPDES Phase I monitoring is EPA 170.1. Continuous samples are collected from a fixed location by equipment that is installed in the invert of the storm drain pipe. Discrete samples are collected from the discharge stream using a hand-held instrument. Detailed information about each equipment type is found in the relevant monitoring plans.

2.1 Equipment Inspection and Calibration

Visual inspections of the equipment are completed on a regular basis, during routine maintenance events and data downloads. An annual accuracy check will be performed by comparing the field equipment to a precision thermometer certified by the National Institute of Standards and Technology.

3. Data Management

Temperature data will be imported into Seveno DataSight (DataSight), a data management software used for handling data collected from all ACHD stormwater monitoring programs. DataSight provides a safe and secure platform for storing, viewing, validating, and analyzing data.

3.1 Data Validation

Raw data will be subject to review on a routine basis. The inspection of temperature trends will include physical logger range limits, practical environmental range units, and rates of temperature change. In the event of suspected erroneous data, the data will be flagged in DataSight using the appropriate flag discussed in QAPP section 4.2.2.

Appendix A – Plantation Lane Temperature Monitoring Plan

Plantation Lane Temperature Monitoring Plan

Ada County Highway District

Boise, Idaho

11/22/2022

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1. Introduction

1.1 Basis for Monitoring Plan

The Environmental Protection Agency, Region 10 (EPA) issued the third cycle National Pollutant Discharge Elimination System (NPDES) Municipal Storm Separate Sewer System (MS4) Phase I Permit No. IDS027561 (Permit) effective October 1, 2021, to Ada County Highway District (ACHD), Boise State University, City of Boise, City of Garden City, Drainage District #3, and Idaho Transportation Department District #3, referred to as the “Permittees.” Starting July 1, 2021, the Idaho Department of Environmental Quality (IDEQ) acquired Permit authority through the Idaho Pollutant Discharge Elimination System (IPDES) Program. The Permit authorizes stormwater discharges from MS4 outfalls to waters of the United States in accordance with the conditions and requirements of the Permit. Under this permit, the Permittees are required to monitor temperature in stormwater discharges from the MS4 to the Boise River including assessment units (AU) 17050114SW005_06, 17050114SW005_06a, 17050114SW005_06b, to quantify stormwater impacts to this waterbody (Permit part 4.1).

ACHD has identified outfall ‘4n2e30_012’ to address stormwater temperature monitoring into the Boise River AU 17050114SW005_06. The remaining two AUs listed in the Permit (17050114SW005_06a and 17050114SW005_06b) are outside of the Permit area, and therefore do not have Permittee stormwater contribution.

This Plantation Lane Temperature Monitoring Plan (Plan) has been developed in line with the *Quality Assurance Project Plan for NPDES Stormwater Permit Monitoring* (QAPP) (ACHD, 2021a). The Plan describes the overall approach to monitoring temperature in stormwater discharges and provides site and drainage area details for the monitoring station.

Certain Quality Assurance/Quality Control (QA/QC) procedures that have been identified using EPA guidance for QAPPs are also included in this plan. The QA/QC procedures are designed to ensure data collected meet specific data quality objectives developed specifically for Permit-required monitoring activities. The QC procedures and data management details included in this document are specific to this Plan.

1.2 Monitoring Plan Objective

The primary objective, derived from Permit part 4.1, is as follows:

- Quantify the temperature impacts of stormwater discharges from the MS4 to the Boise River AU 17050114SW005_06.

The data collected under this plan will help determine if water temperatures from stormwater discharges comply with temperature criteria for the protection of aquatic life (IDAPA 58.01.02.250.(b),(f)).

1.3 Monitoring Plan Elements

This document outlines the Plan’s approach and includes specific QAPP elements recommended by the EPA. EPA-recommended QAPP elements are addressed as either program elements or monitoring plan elements.

Monitoring plan elements are described in full in this document, while program elements are addressed in the QAPP. Monitoring plan elements are those components that contain details specific to each

individual monitoring plan. Program elements consist of the standardized monitoring components that all individual monitoring plans developed under the Permit reference. A list of program and monitoring plan elements is included in Table 1.

Table 1 QAPP Element Document Reference

EPA Recommended QAPP Elements	QAPP Element	Plan Element; Section
Group A: Project Management		
A1 – Title and Approval Sheet	x	
A2 – Table of Contents	x	x
A3 – Distribution List	x	
A4a – Project Organization	x	
A4b – Task Organization		x; 1.4
A5 – Problem Definition/Background	x	
A6 – Project/Task Description		x; 1
A7a – Quality Objectives and Criteria for Measurement Data	x	
A7b – Method Dependent Criteria for Measurement Data	x	
A8 – Special Training Needs/Certification	x	
A9 – Documents and Records	x	
Group B: Data Generation and Acquisition		
B1 – Sampling Process and Design		x; 2
B2 – Sampling Methods		x; 3
B3 – Sample Handling and Custody		n/a
B4 – Analytical Methods		n/a
B5 – Quality Control	x	x; 4
B6 – Instrument/Equipment Testing, Inspection, Maintenance		x; 3.1
B7 – Instrument/Equipment Calibration and Frequency		x; 3.1
B8 – Inspection/Acceptance of Supplies and Consumables	x	
B9 – Non-direct Measurements	x	
B10 – Data Management	x	x; 3.2
Group C: Assessment and Oversight		
C1 – Assessments and Response Actions	x	
C2 – Reports to Management	x	
Group D: Data Validation and Useability		
D1 – Data Review, Verification, and Validation	x	
D2 – Verification and Validation Methods	x	
D3 – Reconciliation and User Requirements	x	

1.5 Task Organization

ACHD is the lead agency for monitoring under the Permit. Key roles and job functions are described in the QAPP. The organization chart for this Plan is presented in Figure 1.

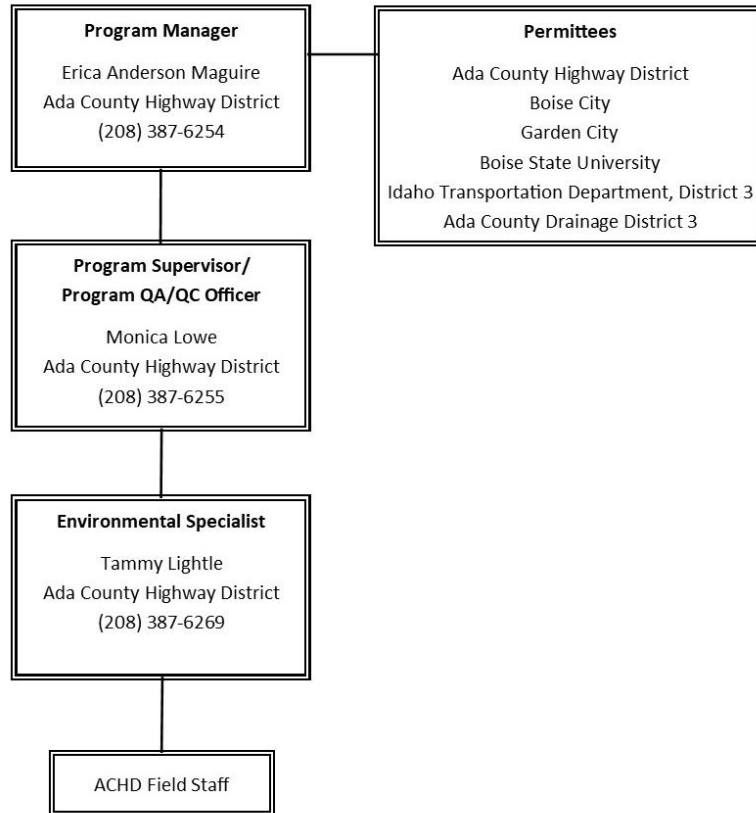


Figure 1 4n2e30_012 Temperature Monitoring Organization Chart

2. Study Area and Monitoring Location

The Boise River AU 17050114SW005_06 spans from Veterans Memorial Parkway bridge to Star Road bridge. Within this AU, ACHD owns and maintains six outfalls, and the remaining Permittees do not own any.

2.1 Site Description

Continuous water temperature monitoring of stormwater discharges will occur at one site within the Boise River assessment unit: outfall 4n2e30_012. The outfall is located at 6553 West Plantation Lane in northwest Boise. Access to the monitoring location is through a manhole located in Plantation Lane. To date, dry weather flows have not been observed from this subwatershed. Monitoring station and associated subwatershed information is provided in Table 2. A map of the monitored subwatershed is provided in Attachment A.

Table 2 Monitoring Station Information

Outfall ID (Station Name)	4n2e30_012 (Plantation)
Location	6553 W. Plantation Ln.
GPS Coordinates	43.657674, -116.270547
Subwatershed Area	22.43 acres
Receiving Water	Boise River
Assessment Unit	17050114SW005_06
Distance from Station to Outfall	331 ft
Pipe Construction	18 in, circular PVC
Equipment Location	In manhole

3. Methods

3.1 Equipment

Temperature monitoring will be accomplished using a HOBO® TidbiT® MX2203 temperature logger. The MX2203 has an internal temperature thermistor and two external screws which allow the logger to detect the presence of water. The logger is installed in a fixed location on a mounting band on the invert of the storm drain pipe.

3.1.1 Inspection and Calibration

The temperature logger will be visually inspected on a regular basis. An annual accuracy check will be performed by comparing the logger reading to a precision thermometer certified by the National Institute of Standards and Technology. A correction factor will be applied to the logger data if there is a discrepancy between the two temperature readings.

3.2 Data Collection and Management

Temperature readings will be collected at 15-minute intervals, logged by the data logger. Additionally, the logger checks for the presence of water every 15 seconds and records an event when the status changes. Data transfer will regularly occur using Bluetooth and a mobile device equipped with the HOBOconnect® application. The data will be imported into Seveno DataSight (DataSight), a data management software used for handling data collected from all ACHD stormwater monitoring programs. DataSight provides a safe and secure platform for storing, viewing, validating, and analyzing data.

4. Quality Assurance/Quality Control

Raw data will be subject to review on a routine basis. The inspection of temperature trends will include physical logger range limits, practical environmental range limits, and rates of temperature change. In the event of suspected erroneous data, the data will be flagged in DataSight using the appropriate flag discussed in QAPP section 4.2.2.

4.1 Data Quality Objective (DQO)

The DQO for ACHD stormwater temperature monitoring can be summarized by the following statement:

Monitoring efforts will provide data of sufficient quality and quantity in accordance with Permit requirements to characterize the impact of stormwater discharges on the water temperature of the Boise River.

4.2 Data Quality Indicators (DQIs)

DQIs have been established to set measurable qualitative and quantitative goals for data acceptance that meet the program DQO described above. Each DQI is summarized below. DQIs are the basis for addressing field and laboratory analytical instrument performance, as well as sample collection and handling procedures.

DQIs are described fully in Section 1.8.1 of the QAPP. A brief description of each DQI is included in the list below.

- **Project Required Detection Limits (resolution):** Achieving appropriate reported constituent concentration results at values that allow for comparison to baseline data and water quality standards.
- **Accuracy:** The accuracy of the data is a measure of the extent to which a measured value represents the true value.
- **Representativeness:** Representativeness is a measure of the extent of the degree to which data accurately and precisely indicate environmental conditions.
- **Comparability:** The comparability of a data set is the extent to which data accurately and precisely indicate environmental conditions.
- **Completeness:** Completeness is a comparison between the amount of usable data collected versus the total amount of data collected.
- **Sufficiency:** Data set sufficiency is the amount of data required to perform the level or type of analysis necessary for each monitoring element.

The target values for these indicators are listed in Table 3 below.

Table 3 Data Quality Indicator Targets

Constituent	Analytical Method	Resolution	Accuracy
Temperature	EPA 170.1	0.01°C	±0.25 °C from -20°C to 0°C ±0.2°C from 0°C to 70°C

5. Annual Reporting

A summary of stormwater temperature data from outfall 4n2e30_012 will be included in the MS4 Annual Report Form (NPDES Phase I Permit Appendix B) submitted to IDEQ annually. This summary will include a graph of the water temperature data collected during the reporting period (October 1 – September 30).

6. References

Ada County Highway District. (2021a). *Quality Assurance Project Plan for NPDES Stormwater Permit Monitoring*.

Ada County Highway District. (2021b). *Stormwater Outfall Monitoring Plan*.

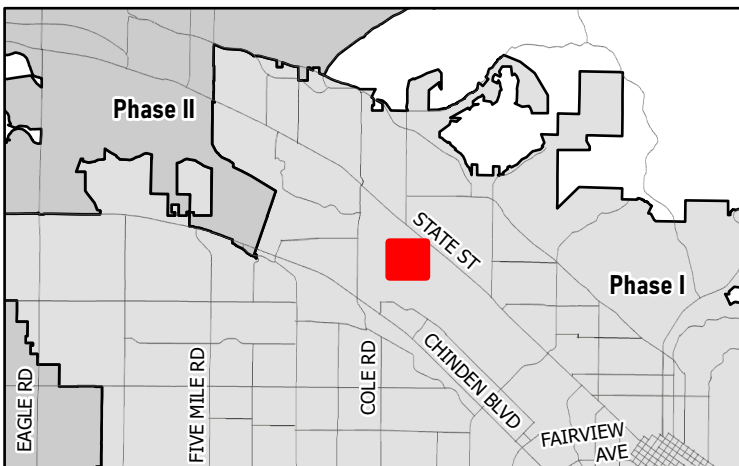
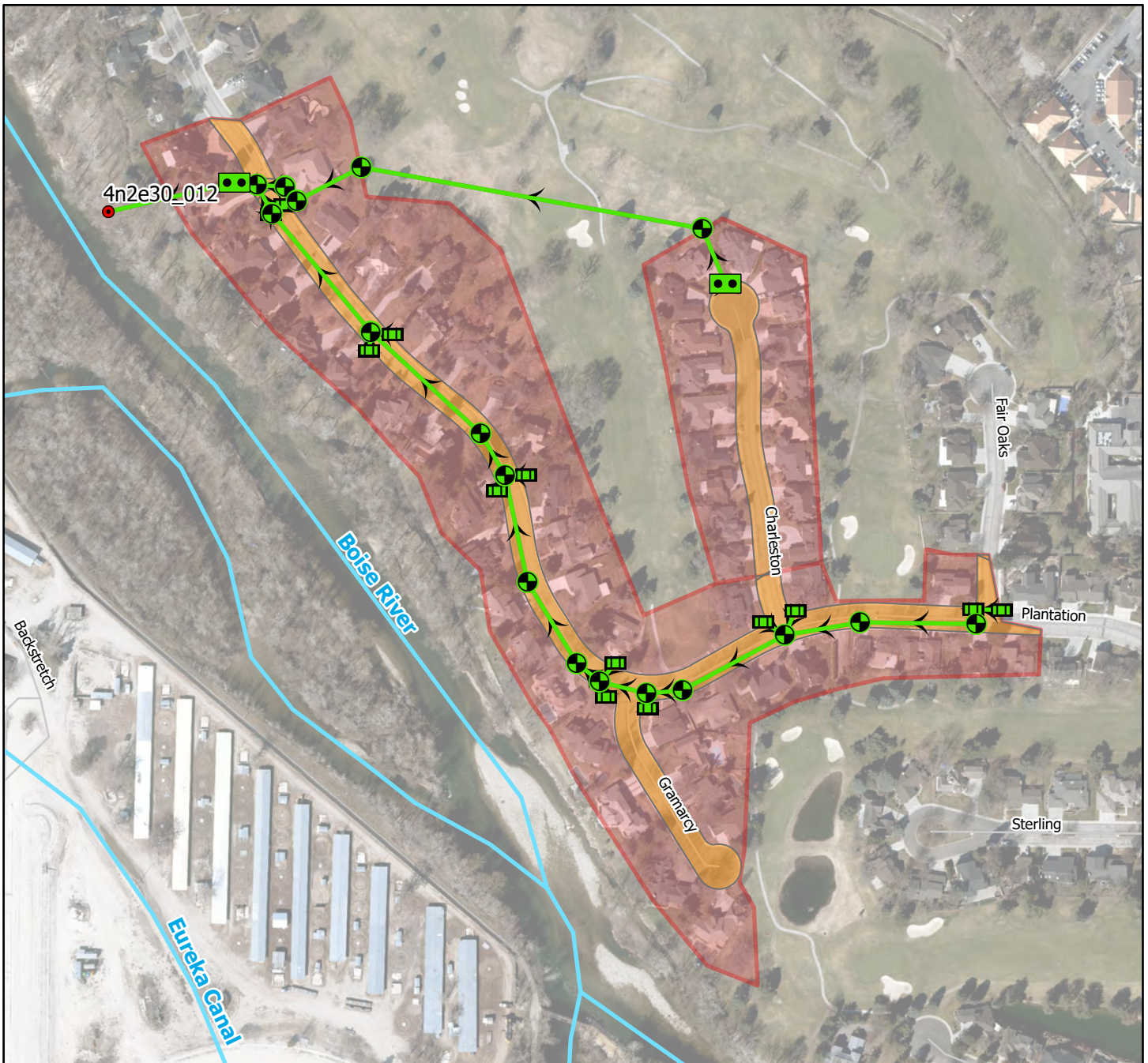
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Idaho Department of Environmental Quality. (2022). *58.01.02 – Rules Regulating the Idaho Pollutant Discharge Elimination System Program*. Retrieved from <https://adminrules.idaho.gov/rules/current/58/580125.pdf>.

Onset Computer Corporation. (2017-2021). *HOBO® TidbiT® MX Temp 400 (MX2203) and Temp 5000 (MX2204) Logger Manual*. Retrieved from <https://www.onsetcomp.com/sites/default/files/resources-documents/21537-M%20MX2203%20and%20MX2204%20Manual.pdf>.

Attachment A - Map

Plantation Lane Monitoring Station (outfall 4n2e30_012)



Outfall	Storm Drain Pipe
Storm Drain Inlet	Waterways
Storm Drain Manhole	Roadway
Sand and Grease Trap	
Right-of-Way Drainage = 3.19 Acres	
Drainage Area = 22.43 Acres	

0 125 250 500 Feet

N

ACHD
 Committed to Service

Attachment M
IDDE Stormwater Pollution Hotline Report

**Table XX. IDDE Reports to the Stormwater Pollution Hotline
Ada County, Idaho
October 1, 2021 – September 31, 2022**

Permittee	Account Number	Number of Calls
Boise City	9017	11
	9023	4
Ada County Highway District	9018	11
Ada County Drainage District 3	9014	5
Idaho Transportation Department Dist. 3	9020	1
	9021	0
All Other Agencies	N/A	0
Total		32

Attachment N
DD3 Manager, Dean Callen, Inspection Logs

DRAINAGE DISTRICT NO. 3

MONTHLY TIME SHEET

NAME: DEAN CALLEN

PAYROLL PERIOD ENDING: Oct 2021

DATE	TIME	DESCRIPTION OF ACTIVITIES	MILES
10-6	2.5 hrs.	Check trash grates and ditch. Talk TALK to Renee Palmer about drain B, Boise Ave and Pennsylvania St. She would like to clean the ditch running thru her little sub division	27
10-13	2	SPECIAL MEETING DD3 @ Elam + Burke about new apartment being built on Boise Ave + Protest Rd	
10-13	1.5	Check ditches and CLEAR TRASH GRATES	25
10-20	1.5	SPECIAL DD3 meeting @ Elam + Burke about Apartments being built on Boise Ave and Protest Rd DRAIN A	
10-20	1	CLEAR TRASH GRATES	25
10-26	1.5	Big RAIN last 2 days lots of leaves and pine needles	25
			102 miles

DRAINAGE DISTRICT NO. 3

MONTHLY TIME SHEET

NAME: DEAN CALLEN

PAYROLL PERIOD ENDING: MAY 2022

DATE	TIME	DESCRIPTION OF ACTIVITIES	MILES
4/5	2	Check trash racks at Drainage ditch B and drain A near protest and Boise Ave. Check drain A at Victory	27
4/14	1.5	Check drain B at Williams Park Drain A check trash rack at Victory	25
4/22	2	Check drain A near protest and grate off Chrisway, Clean grate at William Park drain B	25
4/27	3	Check trash grates drain B Williams Park Drain A near protest + Boise Ave, Martha + Chrisway Tennis Court at BSCU	27
5-4	3	Check Drain A at Manitou Park clean ditch at Drain B Williams Park clear grate, Clear Dr B Leadville + Victory	25
5-12	2	Clear drain drain B grate Williams Park And drain A. near Boise Ave and protest, Martha and Chrisway	25
5-16	1.5	Received general email from Barry Eschen about Drain B Williams Park. Water level high. And the grate was cleaned, it didn't help and Iris was blocking flow.	

DRAINAGE DISTRICT NO. 3

MONTHLY TIME SHEET

NAME: DEAN ALLEN

PAYROLL PERIOD ENDING: JUNE 2022

DATE	TIME	DESCRIPTION OF ACTIVITIES	MILES
6-1	2.5	CHECK AND CLEAR ON DRAIN A 49 RATE DRAIN B WILLIAMS PARK	25
6-6	2	RECEIVED CALL FROM Nampa-Meridian DAVE & ANGIE STEWART 238 E BOISE AVE. BASEMENT ²⁰⁸⁻⁹⁴¹⁻⁹²⁰⁵ WAS FLOODING. WENT TO TALK TO THEM AND DETERMINED THAT IT WASN'T DD 3 DITCH. REFERRED THEM TO ACHD AND SOUTH BOISE WATER	21
6-8	1.5	CLEAR TRASH GRATE DRAIN B (WILLIAMS PARK) DRAIN A (VICTORY ST. OFF BROADWAY)	21
6/17	2.5	START CLEAR RASPBERRY BUSH B-1 ON PARK RIVER ST, CLEAR GRATE @ WILLIAMS PARK DRAIN A. REMOVE ROCK DAM DRAIN A AT CHRISWAY AND BOISE AVE & MARTHA	
6-23	1.5	CHECK TRASH GRATE WILLIAMS PARK (DRAIN B, VICTORY ST & LEADVILLE (DRAIN A) BOISE AVE TRASH GRATE NEAR MARTHA AND OFF CHRISWAY	25
6-28	1.5	CHECK TRASH GRATE DRAIN A BSY TENNIS COURTS. TRASH AT GARFIELD ST. WILLIAM PARK, CHRISWAY TRASH GRATE	25
		JUNE	117 miles
		JULY	83

DRAINAGE DISTRICT NO. 3

MONTHLY TIME SHEET

NAME: DEAN CALLEN

PAYROLL PERIOD ENDING: Aug 2022

DATE	TIME	DESCRIPTION OF ACTIVITIES	MILES
8/5	2.5	CLEAN AND CHECK DRAIN A Leadville, BSM TENNIS COURTS, MARTHA AND CHRISWAY ST.	
		CLEAR GRATE ON DRAIN B WILLIAMS PARK	25
8/11	2	SAME AS ABOVE	25
8/16	2	SAME AS ABOVE	25
8/26	1.5	CLEAR GRATES DRAIN B WILLIAMS PARK. CHECK AND CLEAR GRATES DRAIN A. AT DUNDEE ST AND CARFIELD ST	25

Attachment O
Spill Response and Household Hazardous Wastes Controls

Household Hazardous Waste and other Toxic Materials

The City of Boise coordinates with Ada County to facilitate the collection of Household Hazardous Waste (HHW) to ensure proper disposal. The program consists of a permanent collection facility located at the Ada County Landfill and city-sponsored collection sites. Residents may take Household Hazardous Waste to any mobile collection site or the Household Hazardous Waste Facility. There is no charge to residential customers. Additional service is available to elderly and physically challenged residents who are unable to transport hazardous materials to a collection site.

Materials accepted at all Household Hazardous Waste collection sites include household chemicals, cleaning products, paint, automotive products, lawn and garden chemicals, pool supplies, electronics, empty propane cylinders and mercury-containing items such as fluorescent light tubes, compact-fluorescent bulbs, thermometers, and thermostats. These materials are recycled when possible. Liquids including oil, paint, solvents, and antifreeze are also collected. Medications are accepted from residents through local law enforcement offices and are not accepted through the HHW program.

TABLE 2: BOISE HOUSEHOLD HAZARDOUS WASTE COLLECTION – FY2022

Material	Amount*
Total Materials	383,997 lbs**
Electronics	37,700 lbs
Cathode Ray Tubes	48,356 lbs
Oil	2,677 gallons
Paint	13,374 gallons
Solvent	3,343 gallons
Anti-Freeze	334 gallons
Medications	2,100 lbs

** The HHW program is available to all Ada County residents, and so the total include collection from residents of areas outside of the City of Boise. The remaining data is from Boise-area HHW collection sites only.*

***Total includes some of the amounts identified below*

Products turned into the HHW program that meet certain criteria are made available to the public free of charge in the "Reuse Area" located at the Household Hazardous Waste Facility at the Ada County Landfill. Items available for reuse include paints, stains, pool/spa materials, garden/yard chemicals, and automotive fluids.

In addition to residents, businesses located within Ada County can take advantage of the Conditionally Exempt Small Quantity Generator (CESQG)

Program that provides an affordable disposal option for businesses that generate small quantities of hazardous wastes. City departments that generate small quantities of used oil, fluorescent lightbulbs, and other hazardous materials and qualify as Conditionally Exempt manage those materials through the CESQG Program. The CESQG program is operated out of the Household Hazardous Waste Facility at the Ada County Landfill.

4895-6828-9101, v. 2

Attachment P
Americana Subwatershed Monitoring Summary WY 2022

Americana Subwatershed Monitoring Summary WY 2022

Ada County Highway District

12/21/2022

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1. Introduction

Ada County Highway District, Boise State University, City of Boise, City of Garden City, Drainage District #3, and the Idaho Transportation Department District #3 (Permittees) were issued a National Pollutant Discharge Elimination System Phase I Permit #IDS027561 (Permit) on October 1, 2021. The Permit authorizes the Permittees to discharge from municipal separate storm sewer system (MS4) outfalls to the Boise River and its tributaries. According to Permit Part 6.2.2, *Subwatershed Monitoring*, Permittees are required to conduct monitoring within the Americana subwatershed to better define wet weather and dry weather flow volumes, sources, and pollutant loads.

The Americana subwatershed is one of the largest urban subwatersheds on the lower Boise River and drains a significant portion of downtown Boise and the North End and Foothills residential areas. Stormwater discharge monitoring (flow measurement and analytical sample collection) is currently conducted at the Americana outfall as identified in the [Stormwater Outfall Monitoring Plan](#) (SWOMP) (ACHD, 2022). While data collected at the outfall is important for understanding discharges to the Boise River, the dataset does not provide much information about the pollutant load and dry weather sources further up in the storm drain system. Guided by the [Americana Subwatershed Plan](#) (ACHD, 2020), the Americana subwatershed is divided into subcatchments at major nodes in the system to parse out non-stormwater flow sources and characterize pollutant contributions. The following summary describes Americana subwatershed monitoring activities during water year (WY) 2022 (October 1, 2021 – September 30, 2022).

In WY 2022, data collection throughout the Americana subwatershed included precipitation, water level, flow, and water quality samples. Precipitation data were collected at two representative locations and water level data were collected at five subwatershed locations and at the Americana monitoring station. The water level data were compared to the precipitation data to look for anomalies in the MS4 system, such as instances when the water level in-pipe increases or decreases without a corresponding precipitation event and when the water level increases from isolated subcatchment areas. Additionally, water quality data from wet weather discharges were collected from one subcatchment site (Site 206) to compare with the Americana outfall site (Site 14). The water quality data, along with flow data, were used to calculate pollutant loads and identify pollutants discharging from Site 206 that are disproportionately high compared to Site 14.

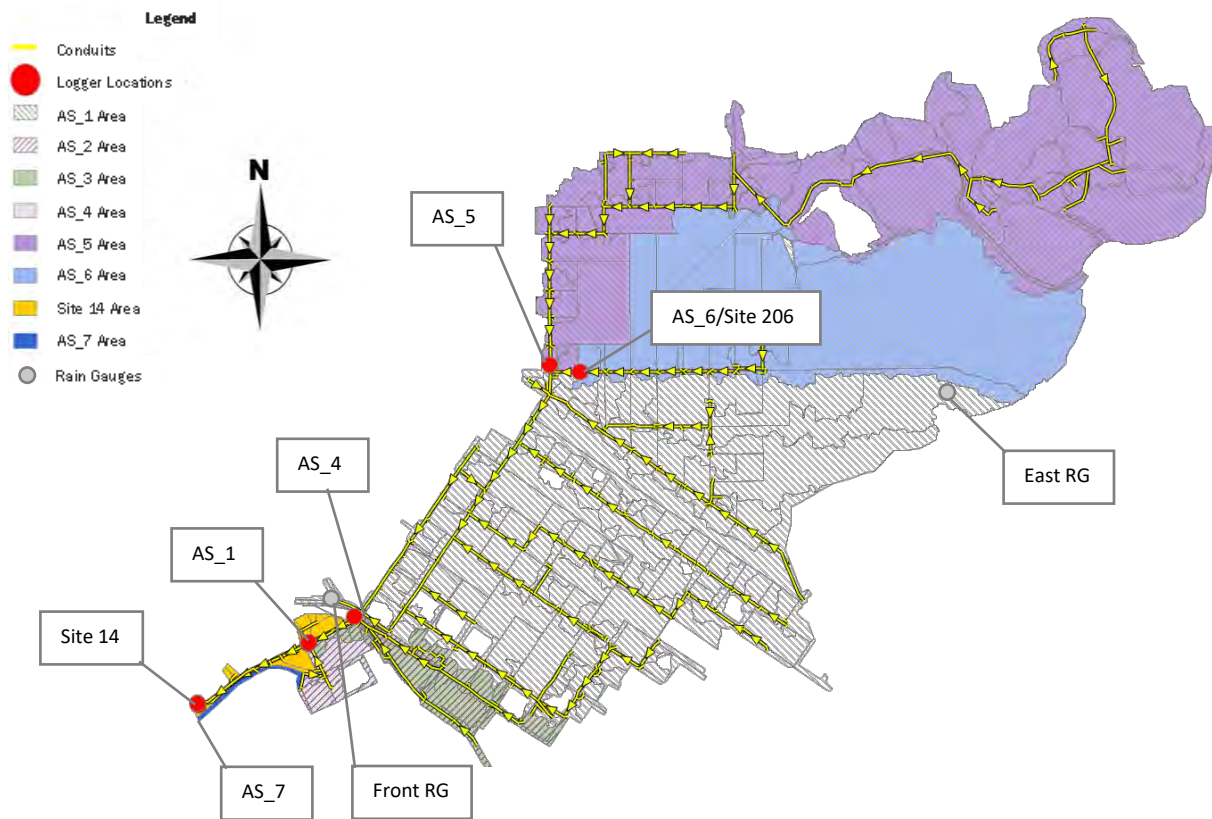


Figure 1 Americana Subwatershed Monitoring Sites for WY 2022

2. Monitoring Sites, Equipment, and Sample Types

Data was collected at the following monitoring sites during WY 2022: AS_1, AS_4, AS_5, AS_6, AS_7, Site 14, Site 206, Front, and East (Figure 1). Details on each of the monitoring sites, including subcatchment areas, pipe characteristics, and equipment deployment dates, are found in Table 1. Figure 2 shows the locations of the monitoring sites in relation to each other using a conceptual layout of the storm drain system.

Site 14 is the Americana outfall monitoring station used in the NPDES Phase I Stormwater Outfall Monitoring program. This monitoring site is equipped with a flowmeter and sampler to collect water level, velocity, flow, and composite samples.

Site 206 is a subcatchment of the Americana subwatershed. Similar to Site 14, it is equipped with a flowmeter and sampler to collect flow and water quality data during targeted storm events.

AS_7 is a secondary outfall to Site 14, with a connection between storm drain pipes further up in the system. This site is equipped with a flowmeter to capture continuous water level, velocity, and flow data.

AS_1, AS_4, AS_5, and AS_6 represent subcatchment areas within the Americana subwatershed. Each site is equipped with a water level logger to collect in-pipe water level data. The loggers continuously record pressure readings at 5-minute intervals. The pressure readings are corrected using local barometric pressure and converted to water level.

Front and East are rain gauge sites and are equipped with tipping bucket rain gauges. The rain gauges collect continuous precipitation data in 0.01-inch increments using event data loggers. The precipitation data are used to determine the date and times of wet weather storm events and dry weather periods.

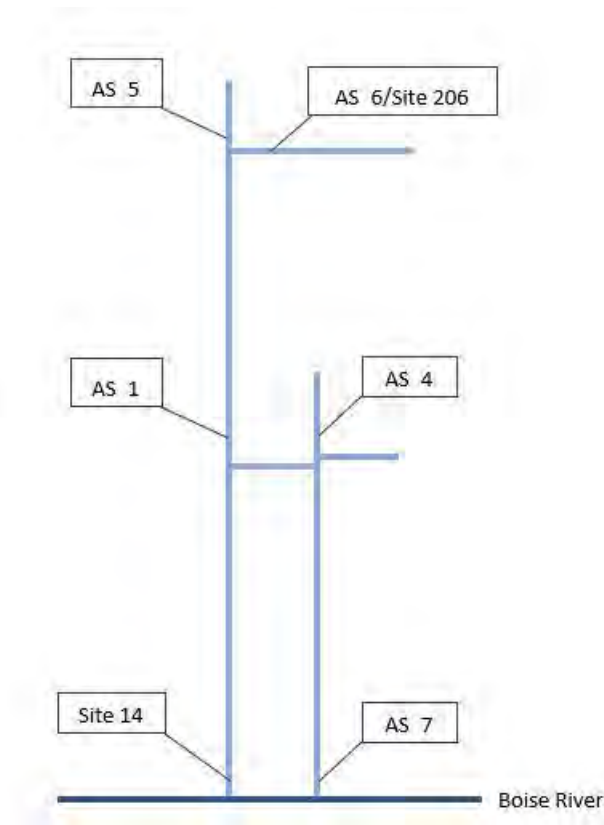


Figure 2 Conceptual Layout of Monitoring Sites

2.1 Water Quality Sample Types

The sample types collected during WY 2022 include grab samples and composite samples. Grab samples represent a discrete measurement from the overall storm discharge while composite samples represent the entire discharge.

Grab samples were manually collected from the discharge stream using a swing sampler. The grab samples were submitted to the Boise City Water Quality Laboratory (WQL) and analyzed for *E.coli*. At the time that the grab samples were collected, field parameters (temperature, pH, dissolved oxygen (DO), and conductivity) were measured using In-Situ smarTroll or In-Situ aquaTroll handheld instruments.

Composite samples were collected using automatic samplers, which worked in conjunction with flowmeters. After a predetermined volume of flow was discharged, the flowmeters triggered the sampler to collect a subsample. Each subsample was deposited into a 15-liter carboy, resulting in a flow-proportional composite sample. The composite samples were submitted to WQL, where they were split for analysis. The following constituents were analyzed: biological oxygen demand, 5-day (BOD₅); chemical oxygen demand (COD); hardness as calcium carbonate (CaCO₃); turbidity; total suspended

solids (TSS); total dissolved solids (TDS); total phosphorus (TP); orthophosphate, as P (ortho-P); ammonia; nitrate + nitrite (NOx); total Kjeldahl nitrogen (TKN); total arsenic (As); dissolved and total cadmium (Cd); dissolved and total copper (Cu); dissolved and total lead (Pb); dissolved and total mercury (Hg); and dissolved zinc (Zn).

3. Americana Subwatershed Monitoring Results

3.1 Water Level Monitoring Results

For WY 2022, water level data from six monitoring sites (AS_1, AS_4, AS_5, AS_6, AS_7, and Site 14) were evaluated for occurrences of increasing or decreasing water level which are not attributed to precipitation. Though the pipe size at each site differs, the change in water level is still evident in the data. When a change in water level is seen at one or more sites, the discharge must originate from the site that is furthest 'up-pipe' in the storm drain system. Figures 3 – 6 show hydrographs for each quarter of WY 2022. Color bands were applied to the hydrographs to indicate time periods where no rain was recorded, but the water level fluctuated at one or more sites. The following conclusions were extracted from visually inspecting the hydrographs:

- Concurrent water level increases and decreases are measured at AS_1, AS_4, AS_7, and Site 14. Using the conceptual pipe layout in Figure 2 as a reference, it becomes apparent that there must be another piped connection between the AS_1 and AS_4 subcatchments.
- Sudden water level increases and decreases were observed, which are likely caused by human-related activities such as turning on a pump or opening a headgate.
- Extended time periods of non-stormwater flow originating from the AS_1 subcatchment (which includes downtown Boise) occurred December 2, 2021 – April 20, 2022 (140 days), May 16 – May 23 (8 days), and June 2, 2022 – June 16, 2022 (15 days).
- In addition to the extended time periods listed in the previous bullet, non-stormwater contributions originating from the AS_1 subcatchment occurred fifteen more times with an average duration of 7 hours.
- Non-stormwater discharge originated from the AS_4 subcatchment on fourteen occasions with an average duration of 9 hours.

3.2 Water Quality Monitoring Results

During WY 2022, water quality samples from wet weather discharges were collected from one subcatchment site (Site 206) to compare with the Americana outfall site (Site 14). Samples were collected from six storm events. A summary of the storm dates and sample types collected are in Table 3-1. Attempts were made to collect samples from both Site 14 and Site 206 during the same storm event. When paired samples were successfully collected from both sites, the water quality results were directly compared to one another. Results from samples that were collected from only one of the two sites were omitted from the subsequent discussion, however the values will be used when calculating statistics for the final report. Comprehensive analytical results from all samples collected are included in Table 2, attached.

Table 3-1. Storm Event Summary		
Storm Event Date	Site 14	Site 206
10/22/21	Grab, Composite	Grab, Composite
03/15/22	Grab, Composite	Grab, Composite
04/04/22	Grab	
05/27/22	Composite	Grab ¹ , Composite ²
06/05/22	Composite ³	Composite
06/12/22		Grab
¹ Grab sample is qualified due to an exceeded holding time ² Composite sample had low volume, so nitrate + nitrite and dissolved parameters were not analyzed ³ Compsite sample is rejected due to representativeness		

3.2.1 Grab Samples

Paired grab samples were collected from Site 14 and Site 206 on October 22, 2021 and March 15, 2022 and were analyzed for *E.coli*, temperature, pH, DO, and conductivity. Notable conclusions from each storm event are provided below.

October 22, 2021

- *E.coli* at Site 14 was two times higher than at Site 206.
- Conductivity at Site 206 was two times higher than at Site 14.

March 15, 2022

- *E.coli* at Site 206 was seven times higher than at Site 14.

3.2.2 Composite Samples

Paired composite samples were collected from Site 14 and Site 206 on October 22, 2021; March 15, 2021; and May 27, 2022. Due to low composite sample volume, the May 27, 2022 composite from Site 206 was not analyzed for NOx or any dissolved parameters.

Event-specific pollutant loads for each analyzed constituent were calculated by multiplying the volume of discharge as measured at the site by the constituent concentration. The pollutant loads, in pounds, are in Table 3.

To evaluate the contribution Site 206 had on the overall pollutant load discharging from the Americana outfall, the percentage of the pollutant load was compared to the percentage of discharge volume. When the percentage of the pollutant load is greater than the percentage of discharge volume, the pollutant load discharging from the subcatchment is disproportionately high. This logic statement is illustrated below.

$$\begin{array}{c}
 \frac{\text{pollutant load (lbs) from subcatchment}}{\text{pollutant load (lbs) from outfall}} > \frac{\text{discharge volume (cf) from subcatchment}}{\text{discharge volume (cf) from outfall}} \\
 \text{IF} \\
 \text{THEN} \\
 \text{pollutant load from subcatchment is disproportionately high}
 \end{array}$$

The percent contribution of pollutant load and the percent contribution of discharge volume was calculated for both Site 206 and Site 14 from each storm event (Figures 7-9). The graphs include a

vertical red line indicating the value for the percent of discharge. Constituent loads that exceed the red line are disproportionately high. Noteworthy outcomes from each paired storm event are presented below.

October 22, 2021

- Load contributions from Site 206 were disproportionately high for all constituents except NO_x.
- The percent of dissolved lead load from Site 206 was 8.2 times higher than the percent of discharge volume.
- The percent of dissolved cadmium load from Site 206 was 3.8 times higher than the percent of discharge volume.
- The percent pollutant load from Site 206 was more than 2 times higher than the percent discharge volume for the following parameters: BOD₅, COD, TP, ortho-P, total Hg.

March 15, 2022

- Load contributions from Site 206 were disproportionately high for all parameters except for the following: hardness as CaCO₃, TDS, NO_x, dissolved Cd, dissolved Zn.
- The percent of TSS load from Site 206 was 4.2 times higher than the percent of discharge volume.
- The percent pollutant load from Site 206 was more than 2 times higher than the percent of discharge volume for the following parameters: COD, TP, ortho-P, total Hg, total Pb, and dissolved Pb.

May 27, 2022

- Dissolved parameters and NO_x were not analyzed from Site 206, therefore were not compared to Site 14.
- Load contributions from Site 206 were disproportionately high for all analyzed parameters except for the following: hardness as CaCO₃, TSS, total As, total Cd, total Pb.
- The percent of BOD₅ load from Site 206 was 3.7 times higher than the percent of discharge volume.
- The percent of TP load from Site 206 was 3.2 times higher than the percent of discharge volume.
- The percent pollutant load from Site 206 was more than 2 times higher than the percent of discharge volume for the following parameters: COD, and ammonia.

Attachment A: Tables

Table 1. Monitoring Site Information

Table 2. Field and Analytical Data Summary

Table 3. Event Pollutant Loading Estimates in Pounds

Table 1. Monitoring Site Information

Location Name	Study ID	Latitude/ Longitude	Manhole ID (SWMM File)	Manhole ID (Americana Manholes Files)	Subcatchment Total Area (acres)	Subcatchment Impervious Area (acres)	Pipe Diameter (in)	Pipe Construction	Manning's Coefficient (n value)	Pipe Slope	Water Level During Installation (in)	Equipment ID	Equipment Deploy Start Date	Equipment Deploy End Date	Installation Notes	
Americana Monitoring Station	Site 14	Americana Monitoring Station	NA	NA	915	291	48	concrete	NA	NA	NA	Hach Flowmeter (FL-23)	2013	9/8/2020		
												Hach Sampler (SA-17)	2013	9/8/2020		
												ISCO Signature Flowmeter (FL-29)	9/8/2020	NA		
												ISCO 6712 Sampler (SA-20)	9/8/2020	NA		
16th & Front St	AS_1	43°37'7.57"N 116°12'52.66"W	J87872	33634	869	255	42	concrete	0.015	0.0001	4.13	HOBO logger (SN:20029104)	8/10/2018	NA	Logger installed downstream of manhole with conduit facing downstream	
											NA	ISCO 2150 Flowmeter (FL-21)	10/25/2019	1/24/2020		
Americana_River_South	AS_2	43°37'4.63"N 116°13'0.20"W	J5567	35568	39	28	42	concrete	0.015	0.0001	1.5	HOBO logger (SN:20029109)	8/10/2018	4/28/2020	Large pipe downstream of manhole (south) that leads to secondary outfall with conduit facing downstream flow	
Americana_River_East	AS_3	43°37'4.63"N 116°13'0.20"W	J5567	35568	10	5	16	concrete	0.015	0.0001	2	HOBO logger (SN:20029106)	8/10/2018	1/6/2021	Small pipe upstream of manhole (east) with conduit facing upstream	
Americana_River St	AS_4	43°37'4.63"N 116°13'0.20"W	J5567	35568	29	23	42	concrete	0.015	0.0001	2	HOBO logger (SN:20029101)	8/10/2018	NA	Large pipe upstream of manhole (north) with conduit perpendicular to flow	
											1.7	ISCO 2150 Flowmeter (FL-21)	7/10/2020	3/5/2021	Water level at installation: 2.7 inches	
15th & Ressegui	AS_5	43°37'36.17"N 116°12'21.10"W	J5577	23810	289	49	30	concrete	0.015	0.0001	1.5	HOBO logger (SN:20029105)	8/10/2018	NA	Logger installed downstream of manhole with conduit facing downstream	
Ressegui & 14th	AS_6/Site 206	43°37'35.73"N 116°12'16.60"W	J16834	13187	206	23	22	corrugated metal	0.024	0.0001	NA	HOBO logger (SN:20029102)	8/17/2018	NA	Installed downstream of vault	
					203	22	22	corrugated metal	0.024	0.0001	NA	Hach Flowmeter (FL-25)	1/23/2020	NA	Installed upstream of vault, has smaller drainage area than HOBO logger	
													Hach Sampler (SA-11)	1/23/2020	10/9/2020	Installed upstream of vault, has smaller drainage area than HOBO logger
													Hach Sampler (SA-13)	10/9/2020	NA	
Southeast Americana Outfall	AS_7	43°36'57.66"N 116°13'17.75"W	NA	NA	40	30	42	concrete	0.015	0.0001	NA	ISCO 2150 Flowmeter (FL-20)	1/11/2019	NA	ISCO flowmeter installed	

Table 2. Field and Analytical Data Summary - Wet Samples

Sample Date	Monitoring Station	Sample ID Grab	Field Parameters					E. coli mpn/100 mL	Sample ID Composite	Analytical Parameters																		
			Dissolved Oxygen	pH	Conductivity	Temperature				BOD ₅	COD	Hardness as CaCO ₃	Turbidity	TSS	TDS	Total Phosphorus	Dissolved Orthophosphate as P	Ammonia	Nitrate + Nitrite as N	TKN	Arsenic, total	Cadmium, dissolved	Cadmium, total	Copper, dissolved	Lead, dissolved	Lead, total	Mercury, total	Zinc, dissolved
			mg/L	S.U.	uS/cm	C				mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
10/22/2021	Site 14	211022-14-WG	9.22	6.63	87.5	13.83	517.2	211022-14-WC	80.3	212	38.2	57.9	105	123	0.940	0.645	0.740	0.389	3.54	2.6	<0.0250	0.14	8.4	0.28	7.1	0.0191	49.6	
	Site 206	211022-206-WG	8.48	6.45	208.9	13.58	235.9	211022-206-WC	214	487	47.1	126	186	278	2.51	1.94	0.805	0.276	6.91	4.2	0.048	0.16	15.0	2.3	11.8	0.0339	111	
3/15/2022	Site 14	220315-14-WG	10.55	6.32	737.6	10.17	88.2	220315-14-WC	19.8	118	146	80.8	71.8	394	0.424	0.203	0.935	0.989	2.55	4.9	0.033	0.13	4.6	0.18	6.8	0.0155	43.9	
	Site 206	220315-206-WG	9.63	6.48	756.2	8.58	613.1	220315-206-WC	35.3	292	69.3	248	297	252	1.05	0.474	1.06	0.413	5.26	5.3	0.030	0.17	7.6	0.49	17.1	0.0389	38.4	
5/27/2022	Site 14	--	--	--	--	--	--	220527-14-WC	84.7	224	96.4	51.8	115	225	1.06	0.568	0.97	0.863	4.71	5.9	<0.025	0.13	14.0	0.28	5.5	0.0196	47.9	
	Site 206	--	--	--	--	--	--	220527-206-WC	314	634	66.9	62.5	77.3	385	3.93	-- ¹	2.38	-- ¹	10.7	4.5	-- ¹	0.12	-- ¹	-- ¹	5.1	0.0260	-- ¹	
6/5/2022	Site 14	--	--	--	--	--	--	220605-14-WC	9.19 ^{1R}	138 ^{1R}	50.4 ^{1R}	27.6 ^{1R}	70.6 ^{1R}	112 ^{1R}	0.218 ^{1R}	0.0128 ^{1R}	0.211 ^{1R}	0.266 ^{1R}	1.72 ^{1R}	3.0 ^{1R}	<0.0250 ^{1R}	0.069 ^{1R}	2.7 ^{1R}	0.054 ^{1R}	4.5 ^{1R}	<0.0100 ^{1R}	12.4 ^{1R}	
	Site 206	--	--	--	--	--	--	220605-206-WC	73.3	321	38.4	110	421	114	1.31	0.294	<0.0350	<0.250	10.4	3.9	<0.0250	0.22	6.2	0.55	18.6	0.0321	36.6	
6/12/2022	Site 206	220612-206-WG	6.64	6.42	87.2	18.21	5120.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Notes:

-- = No data

¹ No data for dissolved parameters or NO_x due to low composite sample volume

^{1R} Data rejected due to lack of representativeness

Table 3. Event Pollutant Loading Estimates in Pounds

Event Date	BOD ₅		COD		Hardness as CaCO ₃		TSS		TDS		Total Phosphorus		Dissolved Orthophosphate as P		Ammonia		Nitrate + Nitrite as N		TKN		Arsenic, total		Cadmium, dissolved		Cadmium, total		Copper, dissolved		Lead, dissolved		Lead, total		Mercury, total		Zinc, dissolved	
	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206	Site 14	Site 206		
10/22/2021	822	172	2170	391	391	37.8	1675	149	1259	223	9.62	2.02	6.60	1.56	7.58	0.646	3.98	0.222	36.2	5.55	0.027	0.0034	0.00013 ¹	0.000039	0.0014	0.00013	0.086	0.012	0.0029	0.0018	0.073	0.0095	0.000196	0.0000272	0.568	0.0891
3/15/2022	256	22.9	1526	190	1889	45.0	929	193	5097	164	5.49	0.683	2.63	0.308	12.1	0.689	12.8	0.268	33.0	3.42	0.063	0.0034	0.00043	0.000020	0.0017	0.00011	0.060	0.0049	0.0023	0.00032	0.088	0.0111	0.000201	0.0000253	0.568	0.0250
5/27/2022	384	35.7	1015	72.2	437	7.62	521	7.51	1020	43.8	4.80	0.38	2.57	— ¹	4.40	0.231	3.91	— ¹	21.3	1.04	0.027	0.00051	0.00039 ²	— ¹	0.00059	0.000014	0.663	— ¹	0.0013	— ¹	0.025	0.00058	0.0000888	0.00000296	0.217	— ¹

Notes:
 — = No data

¹ No data for dissolved parameters or NQ due to low composite sample volume

² Concentrations are at or below the method detection limit (MDL). A value of half the MDL was used in calculations.

Attachment B: Figures

Figure 3. Americana Subwatershed Water Level WY 2022 October – December

Figure 4. Americana Subwatershed Water Level WY 2022 January – March

Figure 5. Americana Subwatershed Water Level WY 2022 April – June

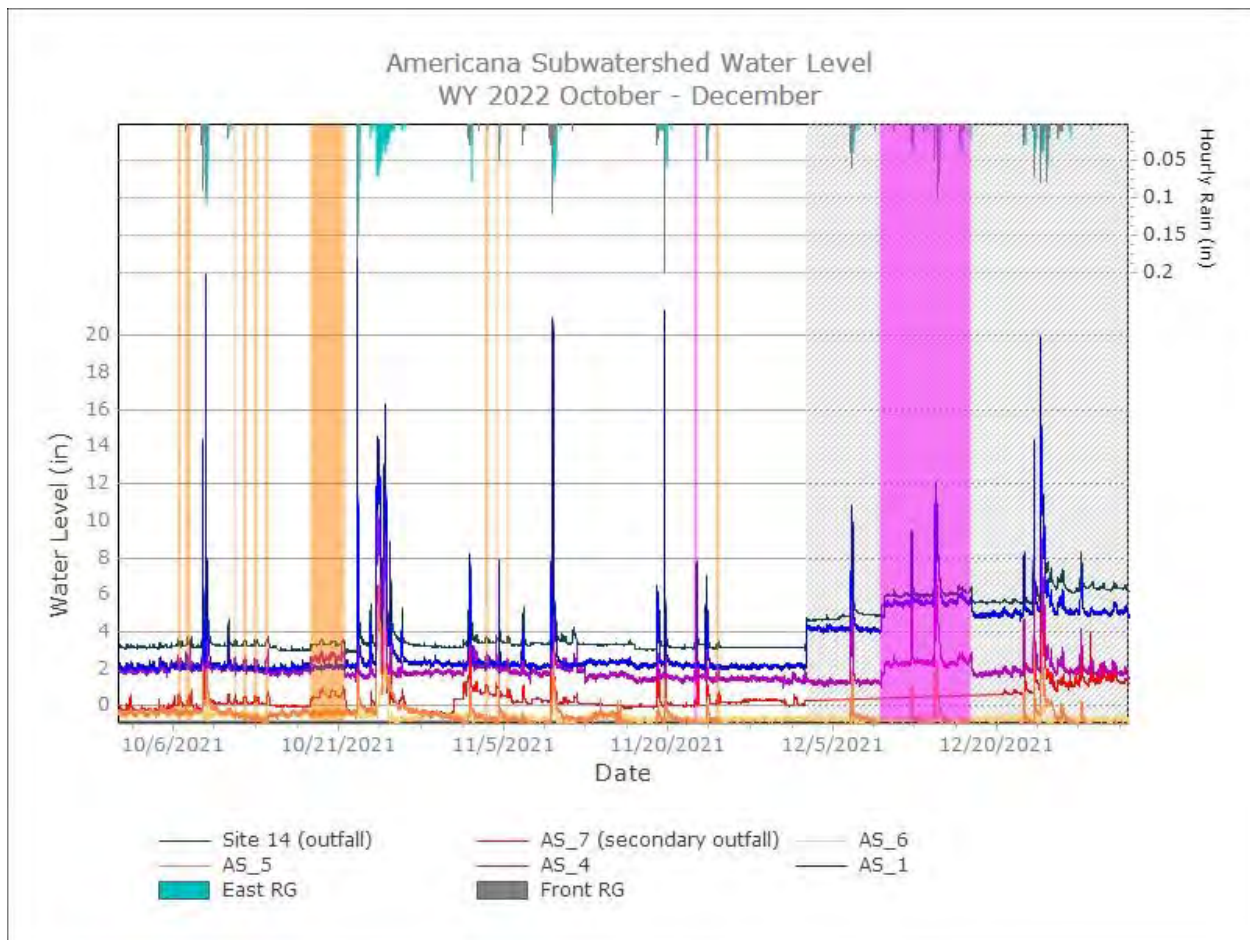
Figure 6. Americana Subwatershed Water Level WY 2022 July – September

Figure 7. Percent Contribution October 22, 2022

Figure 8. Percent Contribution March 15, 2022

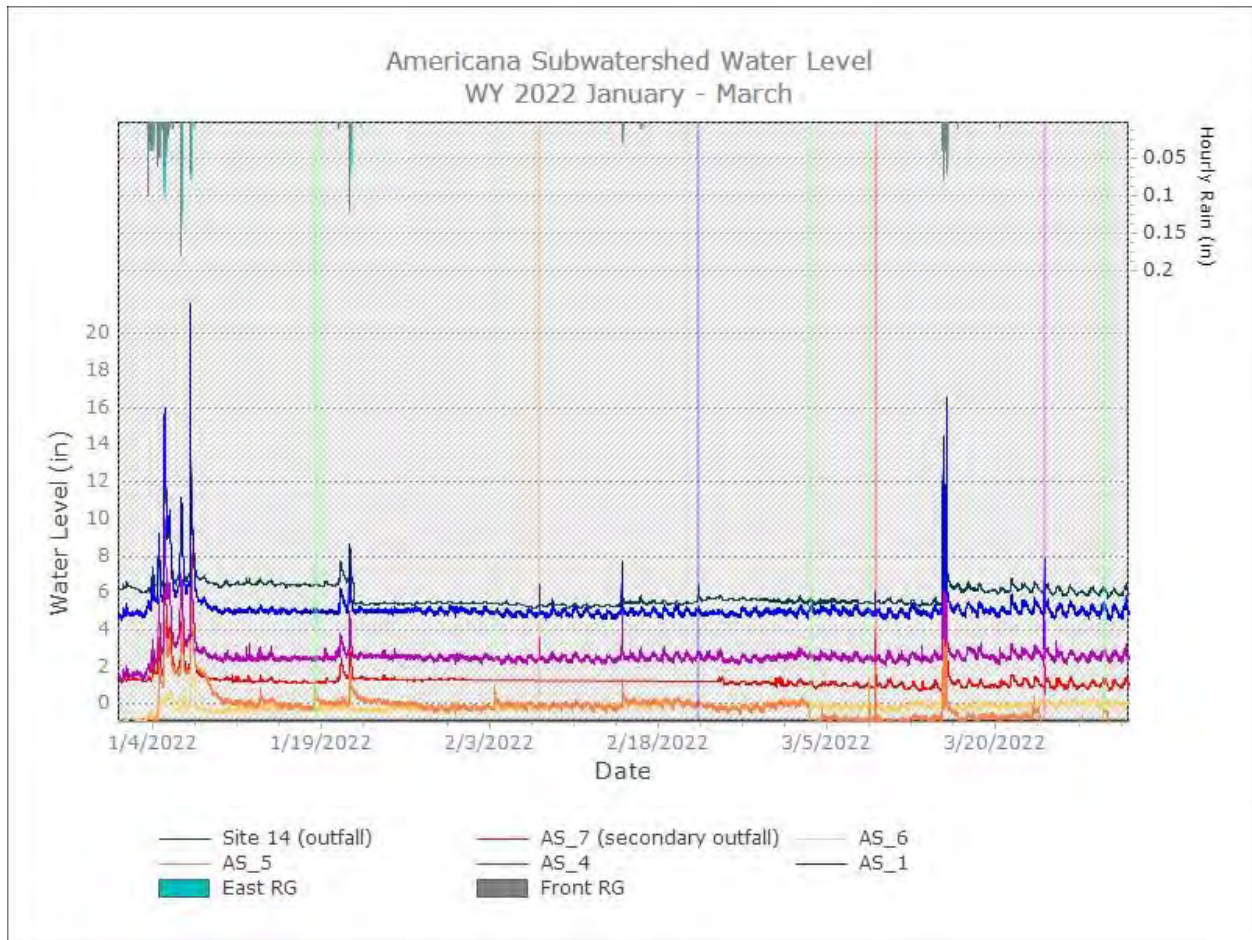
Figure 9. Percent Contribution May 27, 2022

Figure 3.



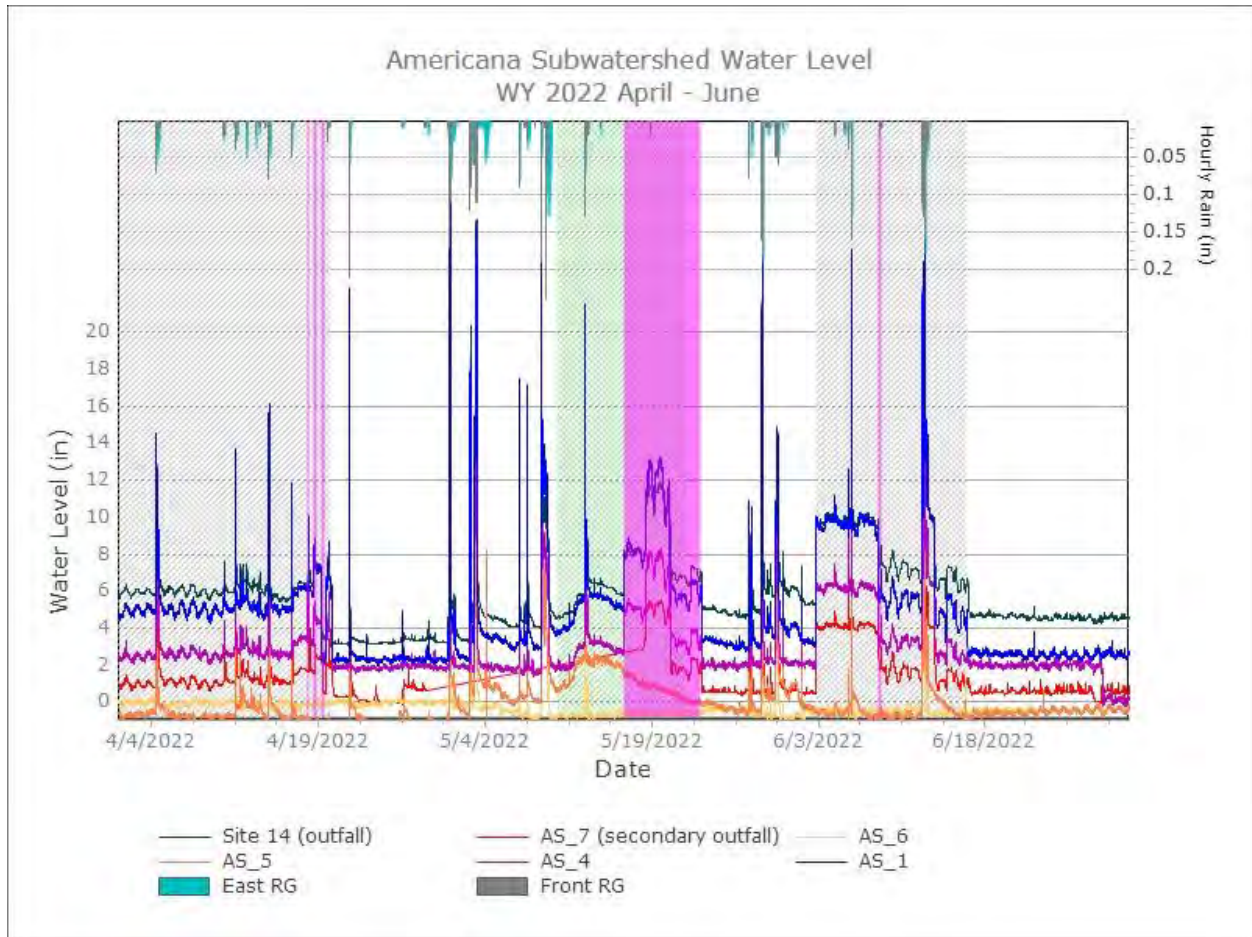
Color Code	Beginning DateTime	Duration (hrs)	Sites Included	Non-stormwater source
Orange	10/04/21 15:00	3	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/06/21 08:00	11	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/07/21 04:00	13	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/11/21 11:00	9	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/12/21 08:30	9	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/13/21 08:00	10	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/14/21 09:00	9	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	10/18/21 11:00	29	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	11/03/21 08:00	10	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	11/04/21 08:00	4.5	AS_4, AS_7, Site 14	AS_4 subcatchment
Orange	11/05/21 08:30	6.5	AS_4, AS_7, Site 14	AS_4 subcatchment
Pink	11/22/21 10:00	9.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
Orange	11/24/21 08:30	9.5	AS_4, AS_7, Site 14	AS_4 subcatchment
Grey	12/02/21 14:00	3328.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
Pink	12/09/21 08:00	200	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment

Figure 4.



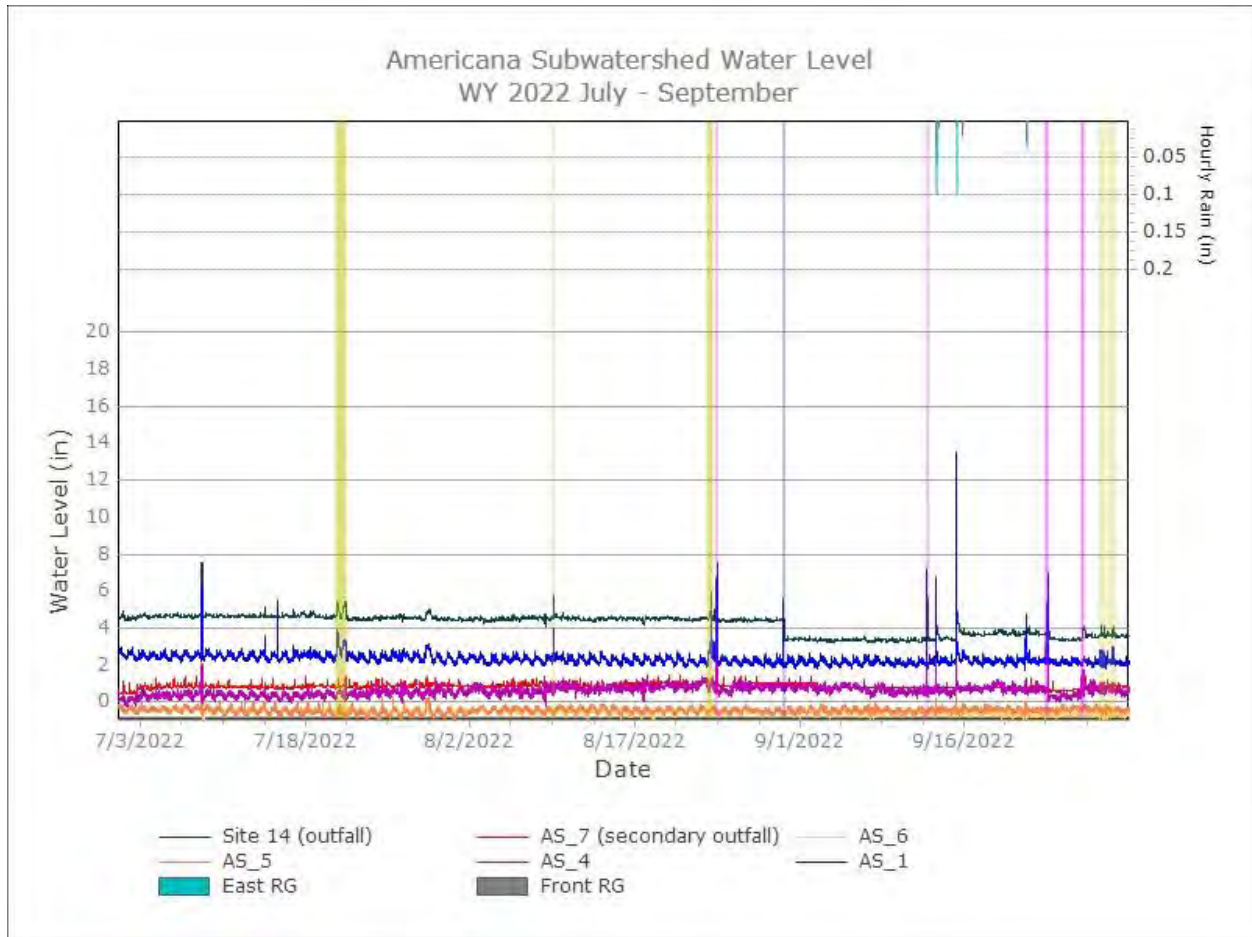
Color Code	Beginning DateTime	Duration (hrs)	Sites Included	Non-stormwater source
▨	12/02/21 14:00	3328.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
■	01/18/22 10:00	12	AS_5	AS_5 subcatchment
■	02/03/22 10:00	5.5	AS_5	AS_5 subcatchment
■	02/07/22 10:45	1	AS_4, AS_7, Site 14	AS_4 subcatchment
■	02/21/22 14:00	2.5	Site 14	Site 14 subcatchment
■	03/03/22 11:00	13	AS_5	AS_5 subcatchment
■	03/08/22 20:00	2	AS_5	AS_5 subcatchment
■	03/09/22 09:00	2	AS_4, AS_7, Site 14	AS_4 subcatchment
■	03/24/22 09:45	3	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
■	03/29/22 16:30	9.5	AS_5	AS_5 subcatchment

Figure 5.



Color Code	Beginning DateTime	Duration (hrs)	Sites Included	Non-stormwater source
▨	12/02/21 14:00	3328.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
■	04/18/22 01:00	5.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
■	04/18/22 14:00	8.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
■	04/19/22 06:00	10.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
▨	05/10/22 10:00	283	AS_5	Hull's Gulch
■	05/16/22 10:45	169	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
▨	06/02/22 18:15	629	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
■	06/08/22 10:15	8	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment

Figure 6.



Color Code	Beginning DateTime	Duration (hrs)	Sites Included	Non-stormwater source
Yellow	07/15/22 09:45	2	AS_1, Site 14	AS_1 subcatchment
Yellow	07/20/22 18:15	26	AS_1, Site 14	AS_1 subcatchment
Yellow	08/09/22 12:45	5	AS_1, Site 14	AS_1 subcatchment
Yellow	08/23/22 14:00	17	AS_1, Site 14	AS_1 subcatchment
Pink	08/24/22 09:30	6.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
Blue	08/30/22 11:00	1	Site 14	Level calibration during maintenance
Pink	09/12/22 13:30	2.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
Pink	09/23/22 09:00	8	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
Pink	09/26/22 14:30	10.5	AS_1, AS_4, AS_7, Site 14	AS_1 subcatchment
Yellow	09/28/22 08:00	3	AS_1, Site 14	AS_1 subcatchment
Yellow	09/28/22 15:00	3.5	AS_1, Site 14	AS_1 subcatchment
Yellow	09/29/22 00:00	2.5	AS_1, Site 14	AS_1 subcatchment
Yellow	09/29/22 08:30	2.5	AS_1, Site 14	AS_1 subcatchment
Yellow	09/29/22 13:30	3	AS_1, Site 14	AS_1 subcatchment

Figure 7: Percent Contribution 10/22/2021

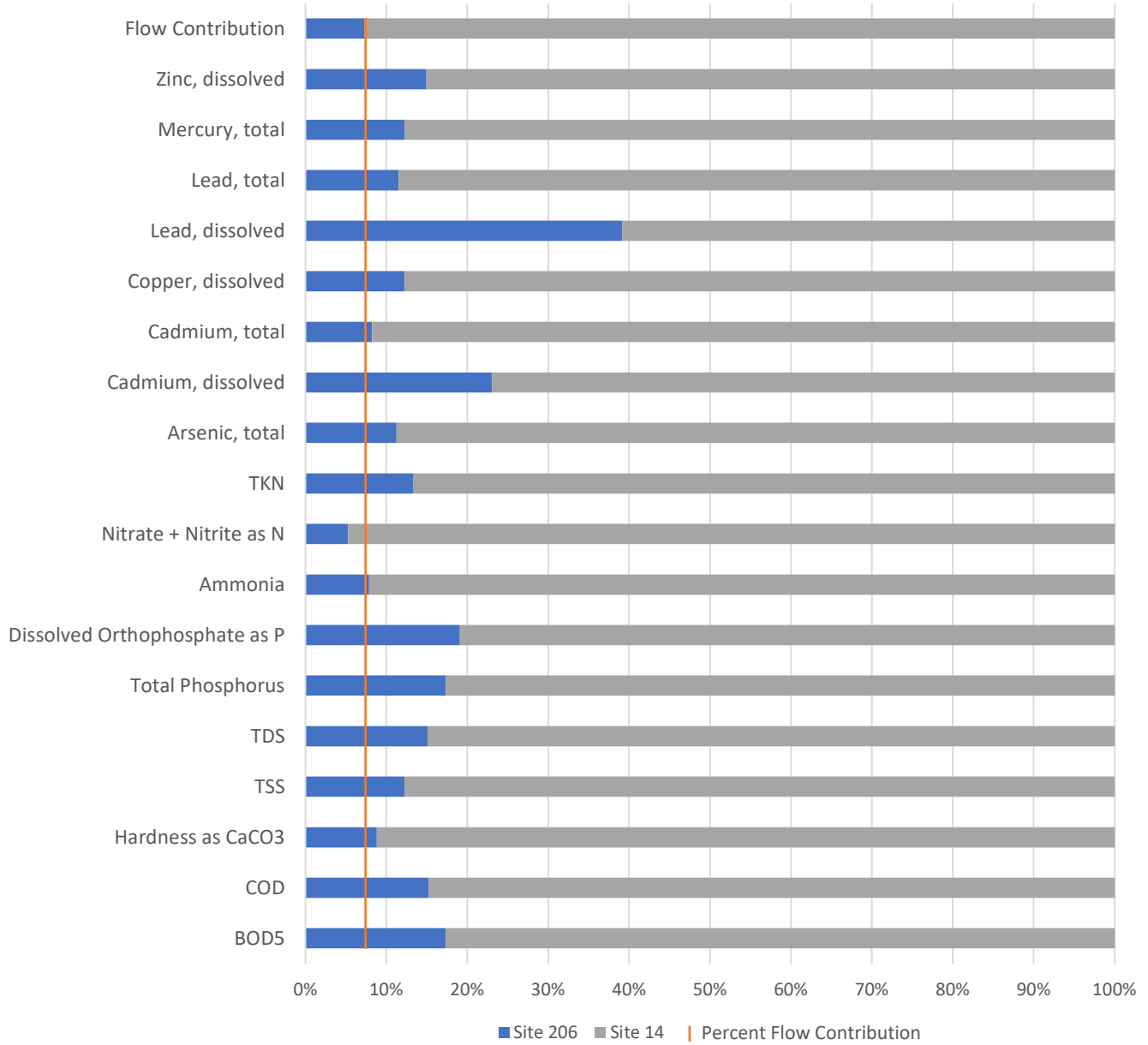


Figure 8: Percent Contribution 3/15/2022

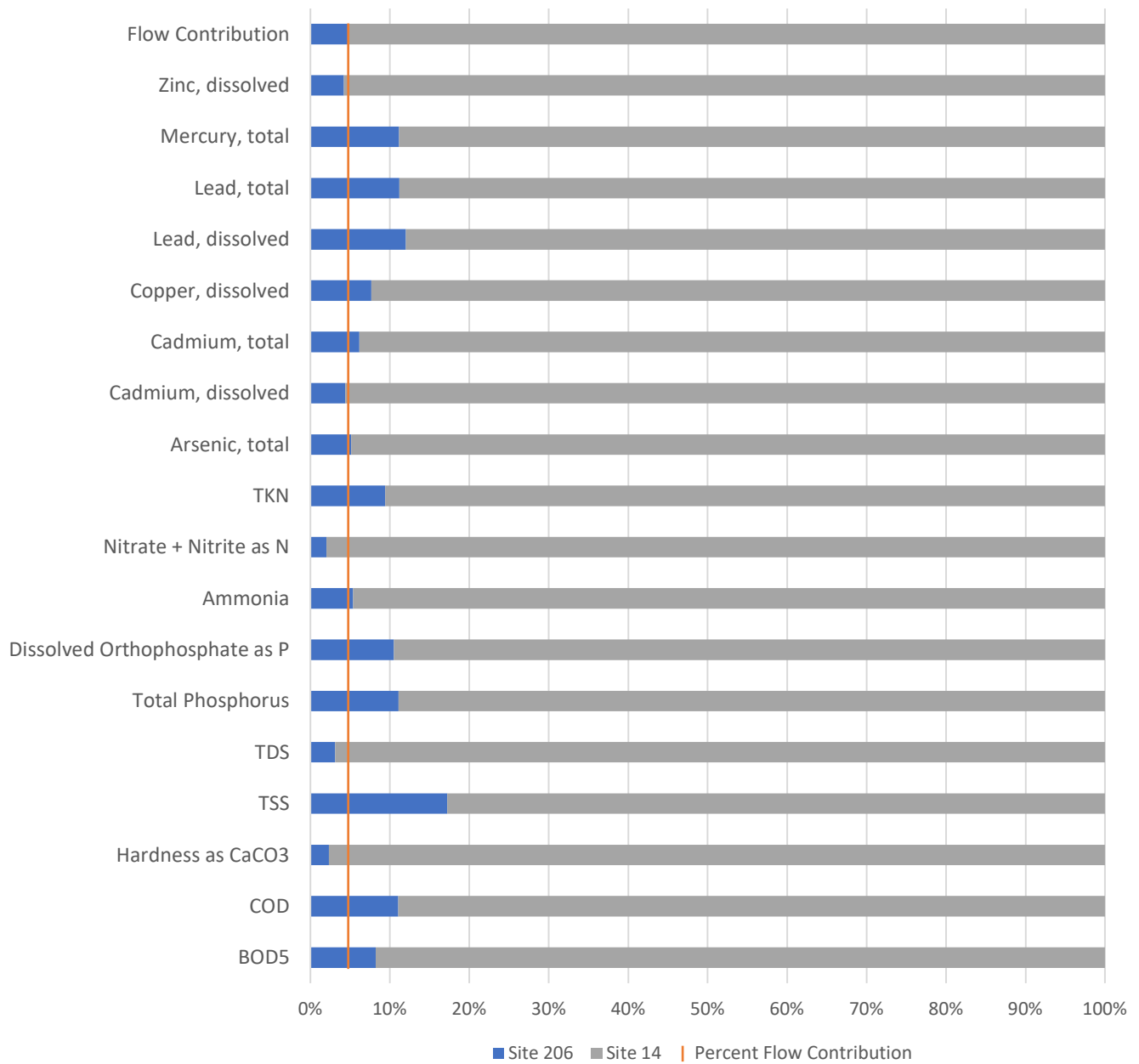
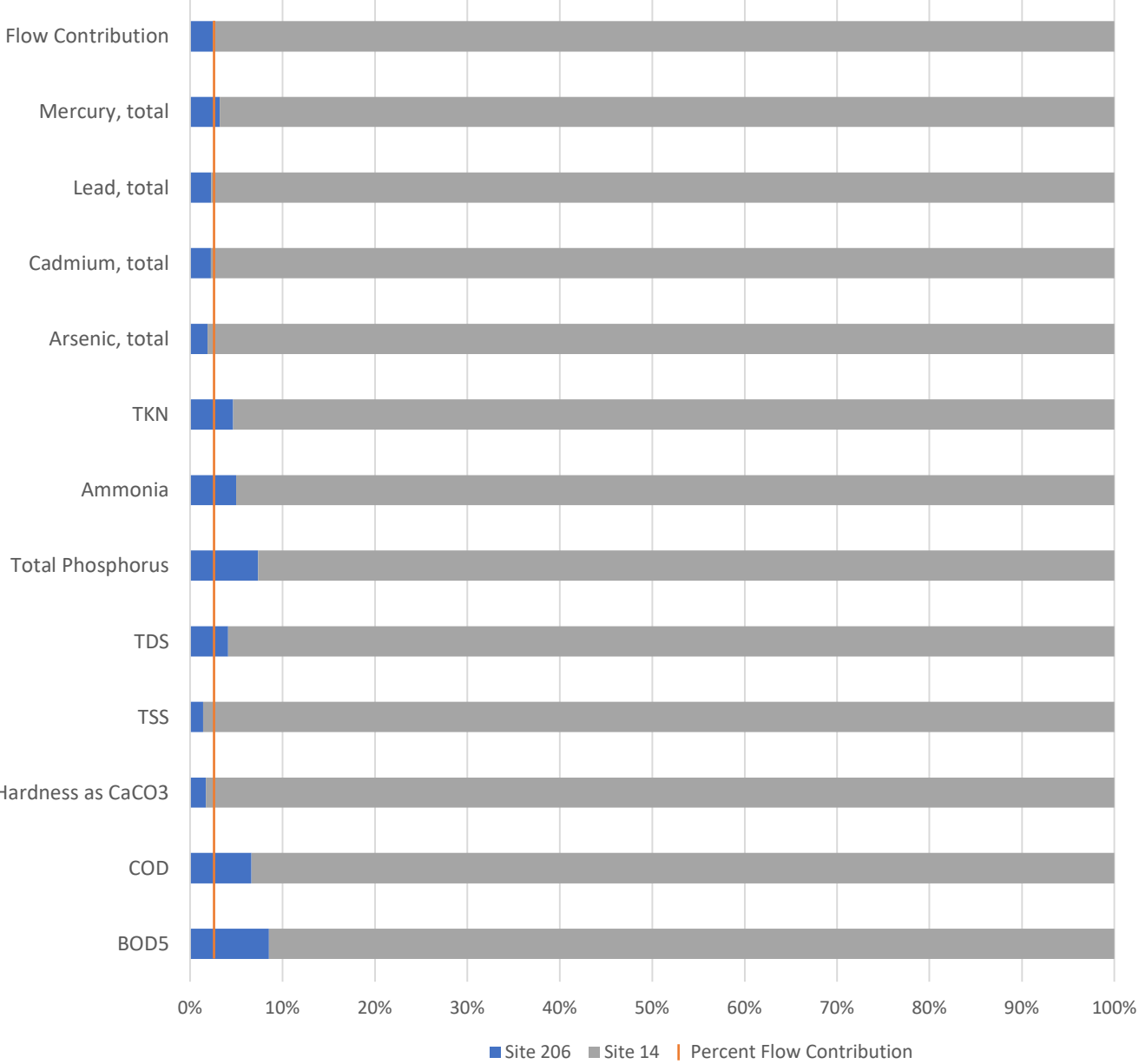


Figure 9: Percent Contribution 5/27/2022



Attachment Q
Temperature Monitoring Summary WY 2022

Temperature Monitoring Summary WY 2022

Ada County Highway District

12/19/2022

Table of Contents

1. Introduction	K-3
2. Monitoring Sites, Equipment, and Sample Type.....	K-3
3. Results.....	K-3
Figures.....	K-6

1. Introduction

Ada County Highway District, Boise State University, City of Boise, City of Garden City, Drainage District #3, and the Idaho Transportation Department District #3 (Permittees) were issued a National Pollutant Discharge Elimination System Phase I Permit #IDS027561 (Permit) on October 1, 2021. The Permit authorizes the Permittees to discharge from municipal separate storm sewer (MS4) outfalls to the Boise River and its tributaries. According to Permit Part 4.1, *Temperature Monitoring*, Permittees must monitor temperature in stormwater discharges from the MS4 to the Boise River including assessment units 17050114SW005_06, 17050114SW005_06a, and 17050114SW005_06b. The Boise River assessment units (AU) within the Permit area are 17050114SW011a_06 and 17050114SW005_06. The remaining two AUs, 17050114SW005_06a and 17050114SW005_06b, are not in the Permit area therefore do not receive any Permittee stormwater contributions. The following summary provides temperature data collected during water year (WY) 2022 (October 1, 2021 – September 20, 2022).

2. Monitoring Sites, Equipment, and Sample Type

Temperature monitoring occurred at outfalls that discharge to both the Boise River and other waterways. Temperature measurements are collected as either discrete or continuous. Discrete measurements represent one instance in time and were measured manually using an In-Situ aquaTroll or smarTroll handheld instrument. Continuous measurements were taken at a specified interval by equipment that is installed at the outfall site. In WY 2022, all continuous temperature readings were taken using an area-velocity sensor. Table 2-1 below shows the number of outfalls where temperature data was collected, along with the receiving water and sample type. Figure 1 is a map of the sampled outfall locations.

Receiving Water	Assessment Unit	# of Temperature Monitored Outfalls	Sample Type
Boise River	17050114SW011a_06	1	Discrete
	17050114SW005_06	6	Discrete
		3	Discrete and Continuous
Other Waterways	n/a	32	Discrete
		2	Discrete and Continuous

3. Results

Discrete temperature results are depicted in Figure 2. These results were derived from both wet weather and dry weather discharges, which are symbolized by a circle or a star, respectively. Temperature measurements for discharges directly into the Boise River are blue, while measurements for discharges into other waterways are red. Table 3-1 contains all discrete measurements by outfall site.

Graphs of continuous temperature results are found in Figures 3-8. The graph from each site displays water temperature and presents the water level and hourly precipitation for reference. Similar to the discrete measurements, the continuous temperature in discharges directly to the Boise River are shown as blue while discharges to other waterways are shown as red.

Table 3-1. Discrete Temperature Results			
Outfall ID (Station Name)	Date	Weather	Temperature (C)
3n1e01_010	08/09/22	Dry Weather	19.36
3n1e15_008	06/23/22	Dry Weather	20.92
3n1e23_013	07/13/22	Dry Weather	19.40
3n2e04_010 (Main)	10/22/21	Wet Weather	14.35
	03/15/22	Wet Weather	9.30
	05/27/22	Wet Weather	21.82
	06/12/22	Wet Weather	19.41
3n2e04_016 (Whitewater)	10/22/21	Wet Weather	14.36
	03/15/22	Wet Weather	9.70
	04/04/22	Wet Weather	10.59
3n2e05_001	07/19/22	Dry Weather	17.13
3n2e05_011	06/23/22	Dry Weather	18.04
3n2e05_027	08/23/22	Dry Weather	18.63
3n2e06_011	06/21/22	Dry Weather	16.00
3n2e06_019	08/09/22	Dry Weather	20.68
3n2e07_009	07/13/22	Dry Weather	17.49
3n2e07_020	08/02/22	Dry Weather	20.06
3n2e09_024 (Americana)	10/22/21	Wet Weather	13.88
	02/10/22	Dry Weather	14.38
	03/15/22	Wet Weather	10.17
	03/31/22	Dry Weather	17.73
	04/04/22	Wet Weather	11.55
	07/05/22	Dry Weather	20.31
3n2e09_025 (AS_7)	02/10/22	Dry Weather	11.13
	03/31/22	Dry Weather	14.10
	07/12/22	Dry Weather	21.78
3n2e10_019	03/31/22	Dry Weather	12.61
3n2e10_022	06/29/22	Dry Weather	21.54
3n2e10_034	05/25/22	Dry Weather	17.23
3n2e10_037	04/21/22	Dry Weather	19.01
	07/20/22	Dry Weather	25.54
3n2e14_012	10/21/21	Dry Weather	14.31
	04/20/22	Dry Weather	11.05
	06/29/22	Dry Weather	15.92
3n2e14_013	04/20/22	Dry Weather	13.85
	06/29/22	Dry Weather	15.42
3n2e14_017	11/30/21	Dry Weather	14.66
	04/21/22	Dry Weather	13.08
	08/01/22	Dry Weather	19.98
3n2e16_021	08/02/22	Dry Weather	24.44

3n2e17_017	07/19/22	Dry Weather	17.09
3n2e17_021	07/19/22	Dry Weather	17.53
3n2e18_013	07/12/22	Dry Weather	18.46
3n2e24_006	04/20/22	Dry Weather	8.00
	08/01/22	Dry Weather	20.56
3n2e24_025	08/03/22	Dry Weather	21.90
4n1e13_006	06/22/22	Dry Weather	13.10
4n1e13_007	10/19/21	Dry Weather	15.12
	06/22/22	Dry Weather	15.74
4n1e13_009	07/26/22	Dry Weather	20.38
4n1e13_010	08/02/22	Dry Weather	18.74
4n1e14_004	09/22/22	Dry Weather	17.67
4n1e14_006	10/21/21	Dry Weather	16.64
	06/22/22	Dry Weather	14.13
4n1e26_007	06/30/22	Dry Weather	19.36
4n1e26_015	02/10/22	Dry Weather	7.97
4n1e34_019	04/20/22	Dry Weather	10.68
4n1e36_006	08/09/22	Dry Weather	19.12
4n1e36_014	08/23/22	Dry Weather	21.46
4n2e19_010	10/19/21	Dry Weather	14.15
	06/30/22	Dry Weather	20.41
4n2e19_021 (Lucky)	10/22/21	Wet Weather	16.41
	03/15/22	Wet Weather	12.21
	05/27/22	Wet Weather	20.53
	06/12/22	Wet Weather	18.38
4n2e31_006	07/20/22	Dry Weather	21.17
	09/27/22	Dry Weather	19.50
4n2e32_015	06/22/22	Dry Weather	15.43
4n2e34_008	04/21/22	Dry Weather	12.53
	08/03/22	Dry Weather	19.00
4n2e34_019	01/18/22	Dry Weather	13.67
	04/21/22	Dry Weather	12.80
	08/03/22	Dry Weather	21.10

Figures

Figure 1. Overview Map

Figure 2. Discrete Temperature Results

Figure 3. Continuous Temperature Results – Main

Figure 4. Continuous Temperature Results – Americana

Figure 5. Continuous Temperature Results – AS_7

Figure 6. Continuous Temperature Results – Whitewater

Figure 7. Continuous Temperature Results – Lucky

Figure 1.

WY2022 Temperature Monitored Outfalls

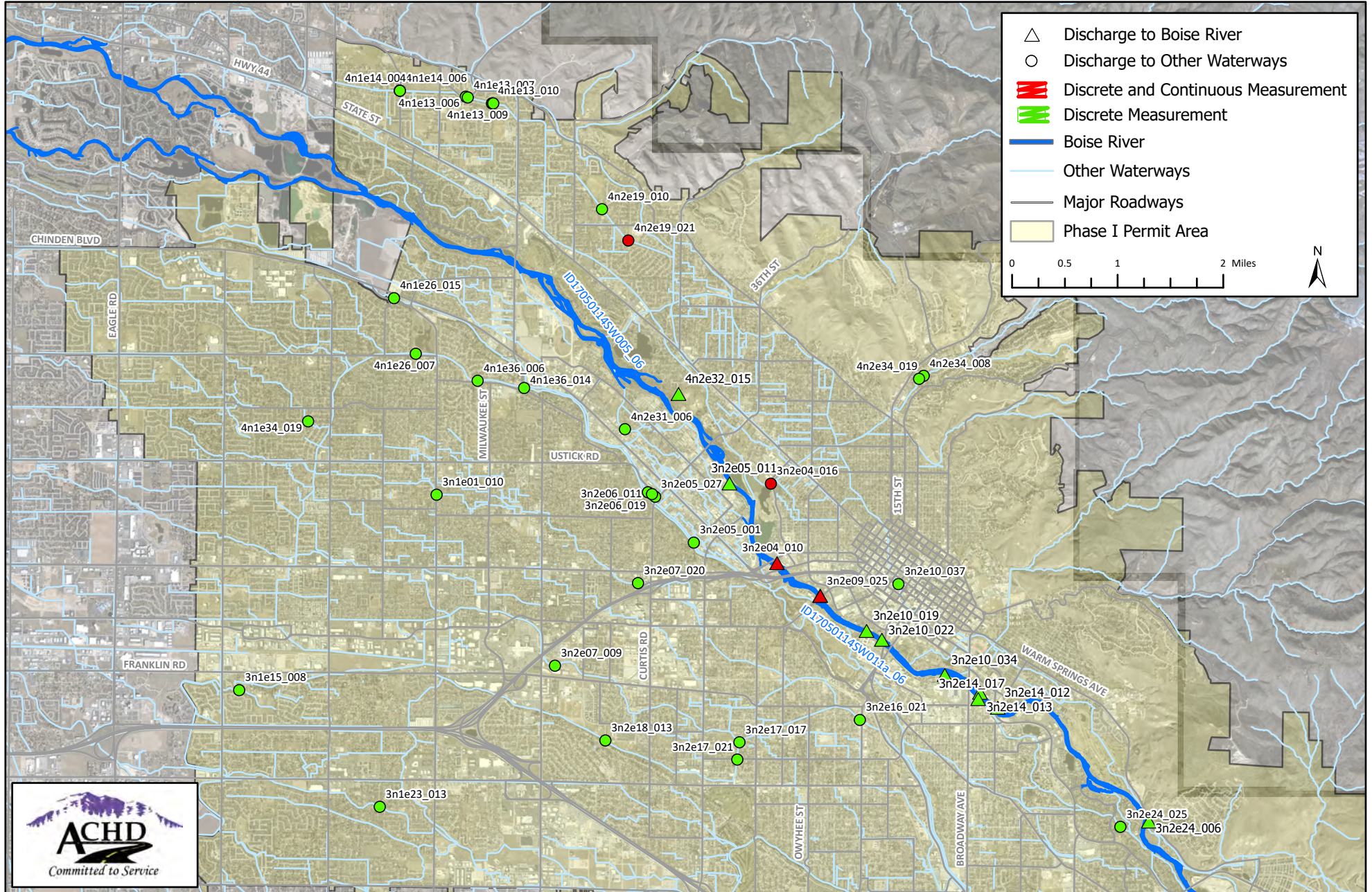


Figure 3.

Main Temperature WY 2022

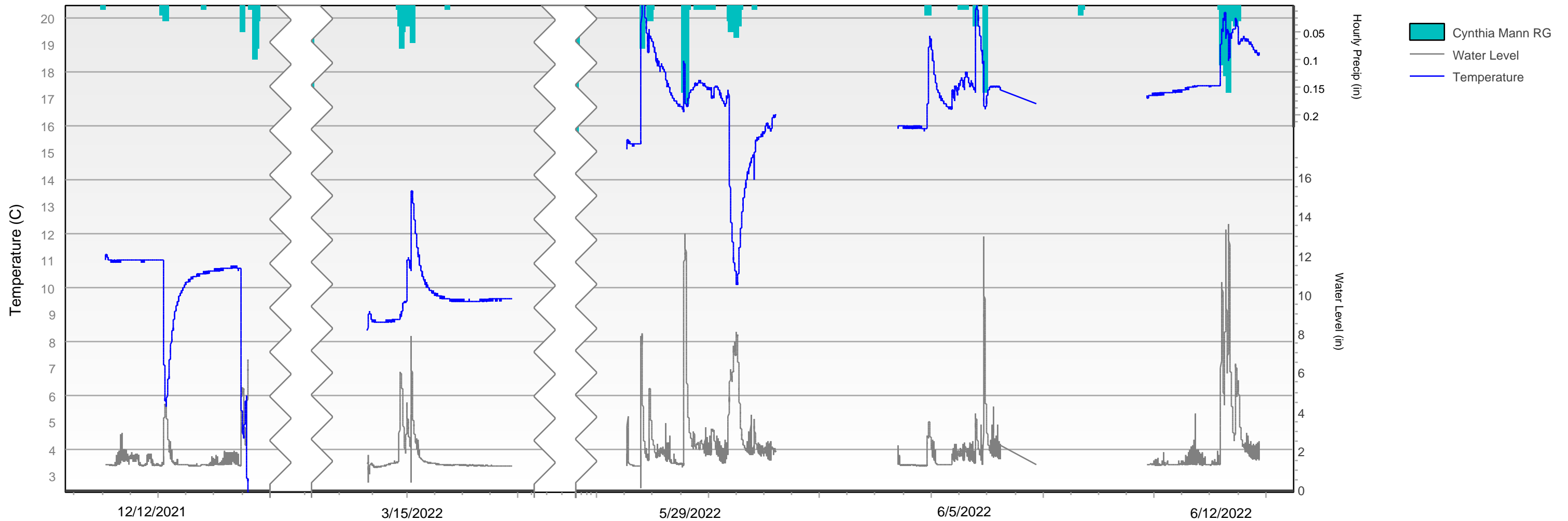


Figure 4.

Americana Temperature WY 2022

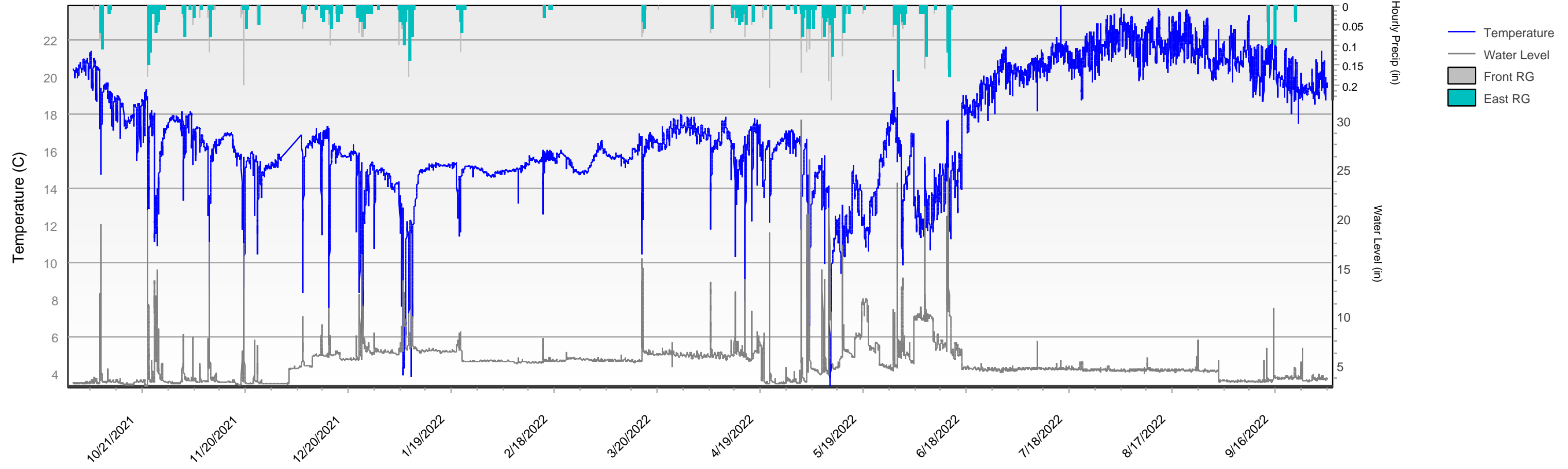


Figure 5.

AS_7 Temperature WY 2022

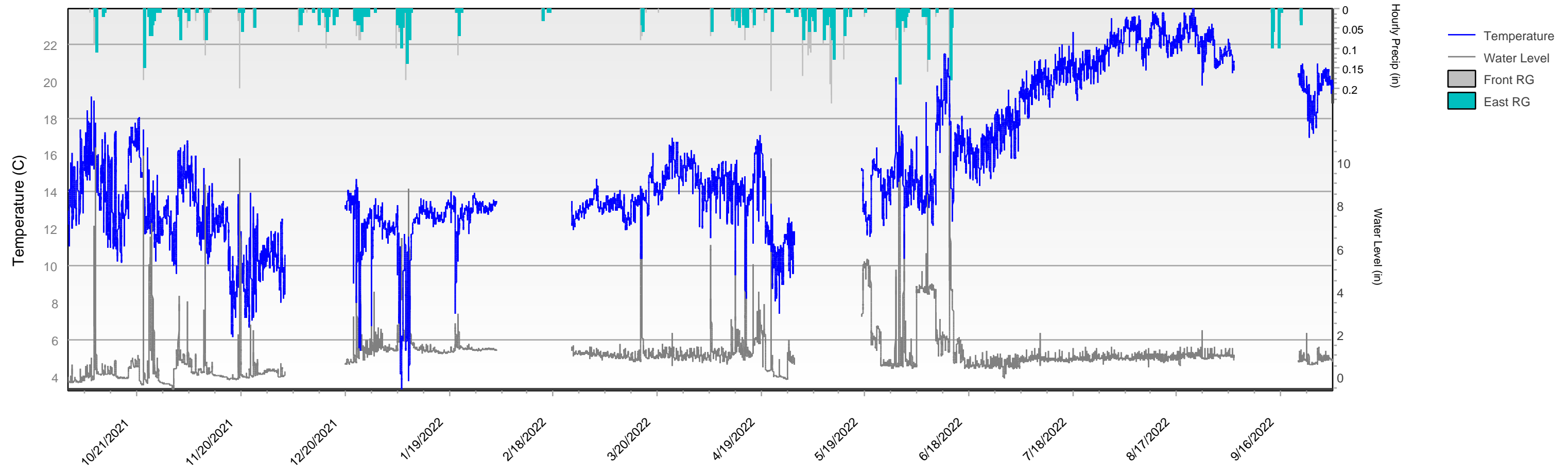


Figure 6.

Whitewater Temperature WY 2022

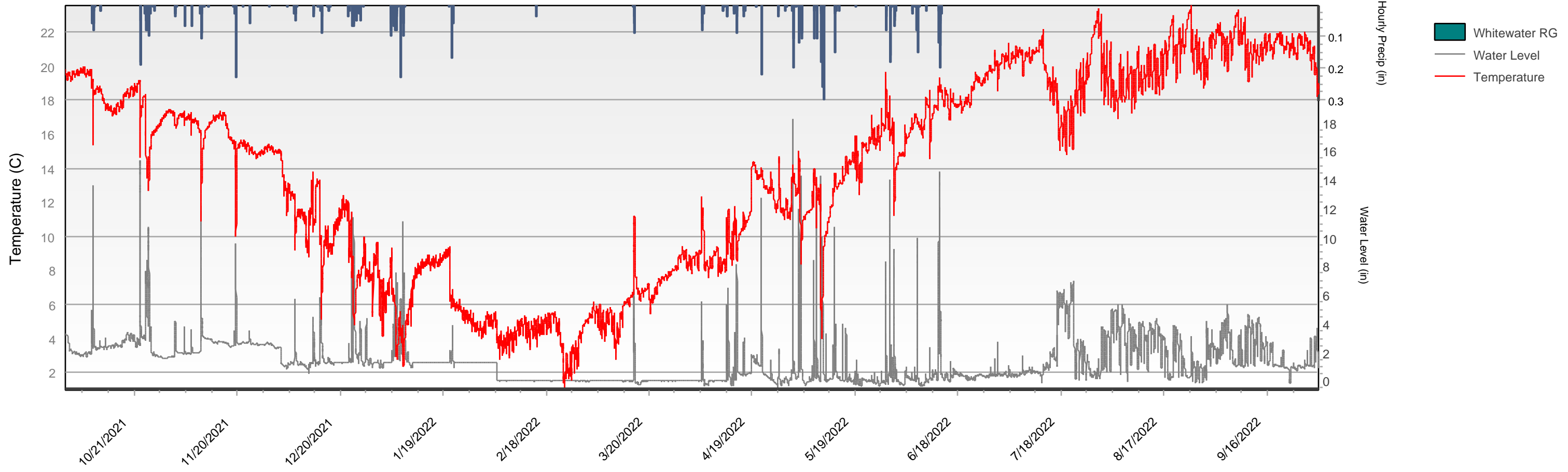


Figure 7.

Lucky Temperature WY 2022

