MIDDLE RIO GRANDE WATERSHED BASED MUNICIPAL SEPARATE STORM SEWER (MS4) PERMIT

DRAFT

2018-2019 ANNUAL REPORT

July 1, 2018 – June 30, 2019

October 17, 2019

RioRancho
City of Vision

Development Services Department
3200 Civic Center Circle NE
Rio Rancho, NM 87144

NPDES GENERAL PERMIT NO. NMR04A000

ANNUAL REPORT REQUIREMENTS

The permittees shall submit an annual report to be submitted by no later than December 1st. See suggested form at http://epa.gov/region6/water/npdes/sw/ms4/index.htm. The report shall cover the previous year from July 1st to June 30rd and include the below separate sections. Additionally, the year one (1) and year four (4) annual report shall include submittal of a complete SWMP revision.

At least forty five (45) days prior to submission of each Annual Report, the permittee must provide public notice of and make available for public review and comment a draft copy of the Annual Report. All public input must be considered in preparation of the final Annual Reports and any changes to the SWMP.

Note: A complete copy of the signed Annual Report should be maintained on site.

1. **SWMP(s) Status of Implementation**: shall include the status of compliance with all schedules established under this permit and the status of actions required in Parts I, III, and VI.

2. **SWMP Revisions**: shall include revisions, if necessary, to the assessments of controls or BMPs reported in the permit application (or NOI for coverage under this permit) under **40 CFR §122.26(d)(2)(v)*** and **§122.34(d)(1)(I)[i]**** are to be included, as well as a cumulative list of all SWMP revisions during the permit term.

3. **Performance Assessment**: shall include:

   a. an assessment of performance in terms of measurable goals, including, but not limited to, a description of the number and nature of enforcement actions and inspections, public education and public involvement efforts;

   b. a summary of the data, including monitoring data, that is accumulated throughout the monitoring year (July 1 to June 30); actual values of representative monitoring results shall be included, if results are above minimum quantification level (MQL); and

   c. identification of water quality improvements or degradation.

4. **Annual Report Responsibilities for Cooperative Programs**: preparation of a system-wide report with cooperative programs may be coordinated among cooperating MS4s and then used as part of individual Annual Reports. The report of a cooperative program element shall indicate which, if any, permittee(s) have failed to provide the required information on the portions of the MS4 for which they are responsible to the cooperation permittees.

   a. joint responsibility for reports covering cooperative programs elements shall be limited to participation in preparation of the overview for the entire system and inclusion of the identity of any permittee who failed to provide input to the annual report.

   b. individual permittees shall be individually responsible for content of the report relating to the portions of the MS4 for which they are responsible and for failure to provide information for the system-wide annual report no later than July 31st of each year.

5. **Public Review and Comment**: a brief summary of any issues raised by the public on the draft Annual Report, along with permittee's responses to the public comments.

6. **Signature on Certification of Annual Reports:** the annual report shall be signed and certified, in accordance with Part IV.H and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been apprised of the content of the Annual Report. Annual report shall be due no later than December 1st of each year. A complete copy of the signed Annual Report should be maintained on site.

***40 CFR §122.26(d)(2)(v)**

(v) *Assessment of controls.* Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water.

****40 CFR §122.34(d)(1)(I)[i]**

(d)(1) In your permit application (either a notice of intent for coverage under a general permit or an individual permit application), you must identify and submit to your NPDES permitting authority the following information:

(i) The best management practices (BMPs) that you or another entity will implement for each of the storm water minimum control measures at paragraphs **(b)(1)** through **(b)(6)** of this section;

(b)(1)

(b) Minimum control measures—(1) Public education and outreach on storm water impacts.

(i) You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

(ii) Guidance: You may use storm water educational materials provided by your State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The public education program should inform individuals and households about the steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes. EPA recommends that the program inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups. EPA recommends that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. In addition, EPA recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. You are encouraged to tailor your outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

(b)(6)

(6) Pollution prevention/good housekeeping for municipal operations.

(i) You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

(ii) Guidance: EPA recommends that, at a minimum, you consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and nonstructural storm water controls to reduce floatables and other pollutants discharged from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance should be an integral component of all storm water management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

MIDDLE RIO GRANDE WATERSHED BASED MUNICIPAL SEPARATE STORM SEWER (MS4) PERMIT

DRAFT ANNUAL REPORT

July 1, 2018 – June 30, 2019

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Section 1	**Municipal Separate Storm Sewer System (MS4) Annual Report**

Annual Report Format

National Pollutant Discharge Elimination System Stormwater Program
MS4 Annual Report Form

Check box if you are submitting an individual Annual Report with cooperative program elements ☒

Check box if you are submitting an individual Annual Report with individual program elements ☐

Check box if this is a new name, address, etc. ☐

1. MS4(s) Information

City of Rio Rancho
Name of MS4

Xavier | Pettes | NPDES Project Manager
Name of Contact Person (First) | (Last) | (Title)

(505) 891-5045 | xpettes@rrnm.gov
Telephone (including area code) | E-mail

3200 Civic Center Circle NE, Suite 130
Mailing Address

Rio Rancho | New Mexico | 87144
City | State | ZIP code

What size population does your MS4(s) serve? 87,521 NPDES number NMR04A007

What is the reporting period for this report? (mm/dd/yyyy) From 07/01/2018 to 06/30/2019

2. Water Quality Priorities

A. Does your MS4(s) discharge to waters listed as impaired on a state 303(d) list? ☒ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4(s). Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL	TMDL assigns WLA to MS4
Rio Grande NM-2105.1_00	E. coli	☒ Yes ☐ No	☒ Yes ☐ No
Rio Grande NM-2105.1_00	PCB in Fish Tissue	☐ Yes ☒ No	☐ Yes ☒ No
Rio Grande NM-2105.1_00	PCB in Water Column	☐ Yes ☒ No	☐ Yes ☒ No
Rio Grande NM-2105.1_00	Gross Alpha	☐ Yes ☒ No	☐ Yes ☒ No

2. B. Continued

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

Pet waste, Construction Waste, Illicit Discharge, Household Hazardous Waste, Septic & Sanitary Sewer System, General S

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☒ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☒ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☒ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

General SWP, Construction Waste, Pet Waste, Household Hazardous Waste, Illicit Discharge and Animal Sources

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

See Attached - Section 6. Middle Rio Grande Stormwater Quality Outcomes Report FY 2018-2019

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? ☒ Yes ☐ No

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

- Erosion and sediment control requirements? ☒ Yes ☐ No
- Other construction waste control requirements? ☒ Yes ☐ No
- Requirement to submit construction plans for review? ☒ Yes ☐ No
- MS4 enforcement authority? ☒ Yes ☐ No

B. Do you have written procedures for:

- Reviewing construction plans? ☒ Yes ☐ No
- Performing inspections? ☒ Yes ☐ No
- Responding to violations? ☒ Yes ☐ No

C. Identify the number of active construction sites $\geq$ 1 acre in operation in your jurisdiction at any time during the reporting period. 90

D. How many of the sites identified in 4.C did you inspect during this reporting period? 90

E. Describe, on average, the frequency with which your program conducts construction site inspections.

Private and public construction project/activities are inspected bi-weekly.

F. Do you prioritize certain construction sites for more frequent inspections? ☒ Yes ☐ No

If Yes, based on what criteria? Activities near or adjacent to watercourse

G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☐ Yes	Notice of violation		No Authority ☒
☐ Yes	Administrative fines		No Authority ☒
☐ Yes	Stop Work Orders		No Authority ☒
☐ Yes	Civil penalties		No Authority ☒
☐ Yes	Criminal actions		No Authority ☒
☐ Yes	Administrative orders		No Authority ☒
☐ Yes	Other	N/A	

H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☒ Yes ☐ No

I. What are the 3 most common types of violations documented during this reporting period?

CGP/Municipal Code violations: 1) Inadequate perimeter control prior to earth disturbing activities; 2) Construction and

J. How often do municipal employees receive training on the construction program? As needed and/or for new

5. Illicit Discharge Elimination

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☒ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☒ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. 7

D. Do you have documented procedures, including frequency, for screening outfalls? ☒ Yes ☐ No

E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

7

F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? 7

G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

Spills near storm drains or outfalls are investigated immediately. Dry Weather Outfall Screening is conducted annually.

H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☒ Yes ☐ No

I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☒ Yes ☐ No

J. During this reporting period, how many illicit discharges/illegal connections have you discovered? 1

K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? 1

L. How often do municipal employees receive training on the illicit discharge program? As needed and/or for n

6. Stormwater Management for Municipal Operations

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces	☒ Yes	☐ No
All municipal construction activities, including those disturbing less than 1 acre	☒ Yes	☐ No
All municipal turf grass/landscape management activities	☒ Yes	☐ No
All municipal vehicle fueling, operation and maintenance activities	☒ Yes	☐ No
All municipal maintenance yards	☒ Yes	☐ No
All municipal waste handling and disposal areas	☒ Yes	☐ No

Other: None

B. Are stormwater inspections conducted at these facilities? ☒ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? Quarterly

D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

Construction Site Stormwater Inspection, Dry Weather Discharges Screening, Locating Illicit Discharges, Spill Response

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☒ Yes ☐ No

F. If Yes, which activities and/or facilities receive most frequent inspections? Activities near or adjacent to watercour

G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? ☒ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☒ Yes ☐ No

I. If so, how frequently and/or under what circumstances? As needed and/or for new hires

7. Long-term (Post-Construction) Stormwater Measures

A. Do you have an ordinance or other regulatory mechanism to require:

Site plan reviews for stormwater/water quality of all new and re-development projects?	☒ Yes	☐ No
Long-term operation and maintenance of stormwater management controls?	☒ Yes	☐ No
Retrofitting to incorporate long-term stormwater management controls?	☒ Yes	☐ No

B. If you have retrofit requirements, what are the circumstances/criteria?

Typically retrofit are conducted in the field

C What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.)?

All construction project/activities cumulatively disturbing one or more acres within the MS4 jurisdiction

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☒ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

Flow volumes	☒ Yes	☐ No
Peak discharge rates	☒ Yes	☐ No
Discharge frequency	☒ Yes	☐ No
Flow duration	☒ Yes	☐ No

F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

http://rrnm.gov/1438/Development-Process-Manual --Volume--

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? [ ]

H. How many of the plans identified in 7.G were approved? [ ]

I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? [ ]

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? [ ]

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections? 90 days

L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? ☒ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? Zero

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☐ Yes ☒ No

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☒ No

P. How often do municipal employees receive training on the post-construction program? As needed

8. Program Resources

A. What was the annual expenditure to implement MS4 permit requirements this reporting period? 100,000.00

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? 100,000.00

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source:	Amount $	OR %
General Fund		100

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? 1.15

E. Do you share program implementation responsibilities with any other entities? ☒ Yes ☐ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
Various	Stormwater Quality Team (SWQT)	Signed Joint Agreement
Various	Technical Advisory Group (TAG)	Signed Joint Agreement
Various	Compliance Monitoring Coop. (CMC)	Signed Joint Agreement

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	Began Tracking (year)	Frequency	Number of Locations
Example: E. coli	2003	Weekly April–September	20
Various (EPA approved analyte list)	2016	Qualifying Event (up to 7)	2
Various (EPA approved analyte list)	2014	Wet Season, annually	8
Please refer to the attached Annual			
Report or AMAFCA web site for			
additional information			

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

Given data collected (7 samples) by Compliance Monitoring Cooperative, trends have not been identified.

10. Additional Information

Please attach any additional information on the performance of your MS4 program, including information required in Parts I.C and III.B. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

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 gathered and evaluated 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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

☐ Yes ☐ No

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility**: by either a principal executive or ranking elected official.

Signature ____________ ____________ ____________

Name of Certifying Official, Title — Date (mm/dd/yyyy)

Section 2	Special Conditions
	2.1 Sediment Pollutant Load Reduction Strategy (BernCo, AMAFCA, COA, SSCAFCA)

Progress Evaluation Report for the Sediment Pollutant Load Reduction Strategy

Prepared for **Bernalillo County *in cooperation with* Albuquerque Metropolitan Arroyo Flood Control Authority, City of Albuquerque, and Southern Sandoval County Flood Control Authority**

June 25, 2019

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

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Section 3	Stormwater Management Program Status of Implementation
	3.1 City of Rio Rancho MS4 Stormwater Management Program

NOI Section	ID	Permit Activity Description	Proposed Plan	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Changes Proposed for SWMP for BMP Activity or Measurable Goal	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	3	**Part I.C - Special Conditions**											
	4	**Compliance with Water Quality Standards – Dissolved Oxygen & Part I.C.1.d and Endangered Species Act (ESA) Requirements - Dissolved Oxygen Strategy - Part I.C.3.a**											
Not Included in NOI	5	According to the requirements in Part I.C.1.d and Part I.C.3.a.(ii), certain permittees shall revise the May 1, 2012 Strategy to continue taking measures to address concerns regarding discharges to the Rio Grande by implementing controls to eliminate conditions that cause or contribute to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. The permittee shall, as part of this revised strategy, complete the following activities [activities are listed in sections below]. Activities listed are a combination of permit activities in Part I.C.1.d - Special Conditions, Compliance with Water Quality Standards, Phase I Dissolved Oxygen Program & Part I.C.3.a - Dissolved Oxygen Strategy in Receiving Waters of the Rio Grande.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	6	Part I.C.1.d.(i) Identify (or continue identifying) structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data;	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	7	Part I.C.1.d.(ii) Continue implementing controls, and updating/revising as necessary, to eliminate structural elements or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the United States;	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	8	Part I.C.1.d.(iii) Continue sampling for DO and temperature in the North Diversion Channel (NDC) Embayment until the data indicate the discharge does not exceed applicable DO water quality standards in waters of the United States. This coincides with the requirements in Part I.C.3.a.(ii).(a), the revised strategy shall include: A. A Monitoring Plan describing all procedures necessary to continue conducting continuous monitoring of DO and temperature in the NDC Embayment and at 1 location in the Rio Grande downstream of the mouth of the NDC within the action area (e.g., Central Bridge). B. A Quality Assurance and Quality Control (QA/QC) Plan describing all standard operating procedures, quality assurance and quality control plans, maintenance and implementation schedules that will assure timely and accurate collection and reporting of water temperature, DO, oxygen saturation, and flow. The QA/QC plan should include all procedures for estimating oxygen data when any oxygen monitoring equipment fail.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									

NOI Section	ID	Permit Activity Description	Proposed Plan	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Changes Proposed for SWMP for BMP Activity or Measurable Goal	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
Not Included in NOI	9	(iv) Submit a revised strategy to FWS for consultation and EPA for approval within a year of the effective date of the permit and progress reports with the subsequent Annual Reports. Progress reports to include: (a) Summary of data. (b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. Including summary of findings of the assessment required in Part I.C.1.d.(i). (c) Conclusions drawn, including support for any determinations. (d) Activities undertaken to eliminate MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. (e) Account of stakeholder involvement. in addition, to meet Part I.C.3.a.(ii).(b) requirements, an annual incidental take report must be submitted as well as all data collected (including provisional oxygen and water temperature data, and associated metadata), transferred, stored, summarized, and evaluated shall be included in the Annual Report.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.					**Not Applicable**					
Not Included in NOI	10	According to the requirements in Part I.C.3.a.(ii), the permittees shall ensure that actions to reduce pollutants or remedial activities selected for the NDC Embayment and its watershed are implemented such that there is a reduction in frequency and magnitude of all low oxygen stormwater discharge events that occur in the Embayment or downstream in the MRG as indicated in Table 1.c. Actions to meet the year 3 measurable goals must be taken within 2 years from the effective date of the permit. Actions to meet the year 5 measurable goals must be taken within 4 years from the effective date of the permit.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.					**Not Applicable**					
Not Included in NOI	11	According to the requirements in Part I.C.3.b, the permittees (COA and AMAFCA) shall provide: A. An Annual Incidental Take Report to EPA and the Service that includes the following information: beginning and end date of any qualifying stormwater events, DO values and water temperature in the NDC Embayment, DO values and water temperature at a downstream monitoring station in the MRG, flow rate in the NDC, mean daily flow rate in the MRG, evaluation of oxygen and temperature data as either anoxic or hypoxic using Table 2 of the BO, and estimate the number of silvery minnows taken based on Appendix A of the BO. Electronic copy of The Annual Incidental Take Report should be provided with the Annual Report required under Part III.B no later than December 1 for the proceeding calendar year.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.					**Not Applicable**					
Not Included in NOI	12	According to the requirements in Part I.C.3.b, the permittees (COA and AMAFCA) shall provide: B. A summary of data and findings with each Annual Report to EPA and the FWS. All data collected (including provisional oxygen and water temperature data, and associated metadata), transferred, stored, summarized, and evaluated shall be included in the Annual Report. If additional data is requested by EPA or the FWS, the COA and AMAFCA shall provide such information within two weeks upon request. The revised strategy required under Part I.C.3.a.(ii),the Annual Incidental Take Reports required under Part I.C.3.a.(ii).(b).A, and Annual Reports required under Part III.B can be submitted to FWS via e-mail nmesfo@fws.gov and Joel lusk@fws.gov, or by mail to the New Mexico Ecological Services field office, 2105 Osuna Road NE, Albuquerque, New Mexico 87113.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.					**Not Applicable**					

NOI Section	ID	Permit Activity Description	Proposed Plan	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Changes Proposed for SWMP for BMP Activity or Measurable Goal	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	13	**Compliance with Water Quality Standards – PCBs - Part I.C.1.e**											
Not Included in NOI	14	According to the requirements in Part I.C.1.e, the permittee shall address concerns regarding PCBs in channel drainage areas specified in Part I.C.1.e.(vi) by developing or continue updating/revising and implementing a strategy to identify and eliminate controllable sources of PCBs that cause or contribute to exceedances of applicable water quality standards in waters of the United States.	This section of the permit is specific to COA, AMAFCA and Bernalillo County. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	15	The progress reports shall include: (i) Summary of data. (ii) Findings regarding controllable sources of PCBs in the channel drainages area specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the US via the discharge of municipal stormwater. (iii) Conclusions drawn, including supporting information for any determinations. (iv) Activities undertaken to eliminate controllable sources of PCBs in the drainage areas specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the US via the discharge of municipal stormwater including proposed activities that extend beyond the 5 year permit term. (v) Account of stakeholder involvement in the process. (vi) Channel Drainage Areas: The PCB strategy required in Part I.C.1.e is only applicable to: COA and AMAFCA Areas: San Jose Drain & North Diversion Channel Bernalillo Co. Areas: Adobe Acres Drain, Alameda Outfall Channel, Paseo del Norte Outfall Channel, & Sanchez Farm Drainage Area.	This section of the permit is specific to COA, AMAFCA and Bernalillo County. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	16	A cooperative strategy to address PCBs in the COA, AMAFCA and Bernalillo County's drainage areas may be developed between Bernalillo County, AMAFCA, and the COA. If a cooperative strategy is developed, the cooperative strategy shall be submitted to EPA within 3 years from the effective date of the permit and submit a progress report with the fourth and with subsequent Annual Reports, Note: COA and AMAFCA must continue implementing the existing PCB strategy until a new Cooperative PCB Strategy is submitted to EPA.	This section of the permit is specific to COA, AMAFCA and Bernalillo County. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									

NOI Section	ID	Permit Activity Description	Proposed Plan	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Changes Proposed for SWMP for BMP Activity or Measurable Goal	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	17	**Compliance with Water Quality Standards – Temperature - Part I.C.1.f**											
Not Included in NOI	18	According to the requirements in Part I.C.1.f, the permittees must continue assessing the potential effect of stormwater discharges in the Rio Grande by collecting and evaluating additional data. If the data indicates there is a potential of stormwater discharges contributing to exceedances of applicable temperature water quality standards in waters of the United States, within thirty (30) days such as findings, the permittees must develop and implement a strategy to eliminate conditions that cause or contribute to these exceedances.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	19	The strategy must include: (i) Identify structural controls, post construction design standards, or pollutants contributing to raised temperatures in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data; (ii) Develop and implement controls to eliminate structural controls, post construction design standards, or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for temperature in waters of the United States; and	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									
Not Included in NOI	20	(iii) Provide a progress report with the first and with subsequent Annual Reports. The progress reports shall include: (a) Summary of data. (b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States. (c) Conclusions drawn, including supporting information for any determinations. (d) Activities undertaken to reduce MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States. (e) Accounting of stakeholder involvement.	This section of the permit is specific to COA and AMAFCA. CORR has no role or responsibility with regard to this section of the permit.	**Not Applicable**									

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	21	**Discharges to Impaired Waters With Approved TMDLs - Part I.C.2.b.(i) and TABLE 1.a - TMDL Bacteria Program- Part I.C.2.b.(iii)**											
Not Included in NOI	22	According to the requirements in Part I.C.2.b.(i), if the permittee discharges to an impaired water body with an approved TMDL (see MS4 Permit, Appendix B), where stormwater has the potential to cause or contribute to the impairment, the permittee shall include in the SWMP controls targeting the pollutant(s) of concern along with any additional or modified controls required in the TMDL and this section. As stated in the Permit, Appendix B, a bacteria TMDL for the Middle Rio Grande was approved by the New Mexico Water Quality Control Commission on April 13,2010, and by EPA on June 30, 2010. The new TMDL modifies: 1) the indicator parameter for bacteria from fecal coliform to E. coli, and 2) the way the WLAs are assigned The SWMP and required annual reports must include information on implementing any focused controls required to reduce the pollutant(s) of concern as described below:	A bacteria TMDL for the Middle Rio Grande was approved by the New Mexico Water Quality Control Commission on April 13, 2010, and by EPA on June 30, 2010. CORR's proposed plans for compliance with the Permit activities are described in the sections below.	CORR's measurable goals for compliance with the Permit activities are described in the sections below.						See specific Permit activity schedules below.			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	23	(a) Targeted Controls: The SWMP submitted with the first annual report must include a detailed description of all targeted controls to be implemented, such as identifying areas of focused effort or implementing additional BMPs that will be implemented to reduce the pollutant(s) of concern in the impaired waters. As required in Part I.C.2.b.(i).(e),the permittee shall include focused BMPs addressing the five areas below: A. Sanitary Sewer Systems (improve sanitary sewers; fix lift stations; identify and implement O&M procedures; improve violation reporting; and prevent overflows); B. On-site Sewage Facilities (address failing systems and inadequate maintenance of On-Site Sewage Facilities); C. Illicit Discharges and Dumping (effort to reduce waste sources of bacteria; for ex., septic systems, grease traps, and grit traps); D. Animal Sources (management programs to identify and target sources such as zoos, pet waste, and horse stables); E. Residential Education (bacteria from residential sites; fats, oils, and grease clogging sanitary sewer lines and resulting overflows; decorative ponds; and pet waste).	CORR's proposed plan for targeted controls for bacteria include: A. Sanitary Sewer Systems - Targeted Controls: CORR will address this area through educational and public outreach through its involvement with the MRGSWQT. B. On-site Sewage Facilities - CORR's Utility Operations Section is responsible for reporting and repairing leaks in the right-of-way, analyze water quality information; maintanance of water, wastewater, and reuse water contracts; and maintains Federal and State Permits associated with utility facilities. C. Illicit Discharges and Dumping - Targeted Controls: CORR has a robust IDDE Program. In the IDDE program, CORR has focused on illegal dumping of solid waste/refuse and removal of solid waste from sub watersheds. In addition, KRRB has an annual contract to address IDDE cleanup. D. Animal Sources - Targeted Controls: CORR will continue its focus on reducing pet waste with its involvement in the MRGSWQT educational outreach "Scoop the Poop" campaign. E. Residential Education - Targeted Controls: CORR will address this area through educational and public outreach through its involvement with the MRGSWQT.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities or planned activities where educational materials are distributed. • CORR will address the Illicit Discharge and Dumping through its IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information. • The Utility Operations Section will continue coordination with the NPDES Project Manager; informing CORR and SSCAFCA of any sewer overflows that impact CORR/SSCAFCA facilities.						Address targeted controls in SWMP. Progress report submitted with each Annual Report (Due Dec. 1).			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and Utility Operation Division
Not Included in NOI	24	(b) Measurable Goals: For each targeted control, the SWMP must include a measurable goal and an implementation schedule describing BMPs to be implemented during each year of the permit term. The value of the measurable goal must be based on one of the options presented in Part (No Suggestions).(i).(c) related to the WLA. Where the impairment is for bacteria, the permittee must, at minimum comply with the activities and schedules described in Table 1.a of Part I.C.2.b.(iii).	CORR's measurable goals for targeted controls for bacteria include: A. Sanitary Sewer Systems and B. On-site Sewage Facilities - Measurable goals - Track illicit Discharges and illegal dumping, identify possible hot spots. C. Illicit Discharges and Dumping - Measurable goals - Refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for measurable goals. D. Animal Sources - Measurable goals - 1. MRGSWQT educational outreach - Through the MRGSWQT, pet waste will be targeted through the "Scoop the Poop" campaign. E. Residential Education - Measurable goal - 1. MRGSWQT educational outreach - CORR will continue to collaborate with the MS4 permittees to improve upon the existing public education and outreach program. Program target pollutants include pet waste and trash/debris. The MRGSWQT continue to expand upon its education programs, media campaigns, printed materials including brochures, public presentations/events, giveaways, display booth/kiosk, signage at select locations, website and Facebook page.	• CORR will address the Illicit Discharge and Dumping through its IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information. This IDDE program includes illicit discharge monitoring by CORR staff and contractors, internal coordination of information provided by the public and tracking and documentation procedures. • CORR will continue to participat in MRGSWQT "Scoop the Poop" public information campaign. • CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities or planned activities related to targeting pet waste sources and residential education targeting bacteria sources.						Address measurable goals of targeted controls in SWMP. Progress report submitted with each Annual Report (Due Dec. 1).			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT

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Not Included in NOI	25	According to the requirements in Part I.C.2.b.(i).(f), the permittee shall monitor or assess progress in achieving measurable goals and determining the effectiveness of BMPs, and shall include documentation of this monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A. The permittee may use the following methods either individually or in conjunction to evaluate progress towards the measurable goal and improvements in water quality as follows: A. Evaluating Program Implementation Measures or B. Assessing Improvements in Water Quality Progress towards achieving the measurable goal shall be reported in the annual report. Annual reports shall report the measurable goal and the year(s) during the permit term that the MS4 conducted additional sampling or other assessment activities.	CORR will assess and evaluate the program and progress in achieving the measurable goals listed above by tracking the number of educational outreach opportunities conducted and tracking the number of people reached through the educational outreach program. In addition, CORR will conduct compliance monitoring to monitor and test for E. coli. This sampling will be done in accordance with Part III.A of the MS4 Permit and will help with a water quality assessment of the overall watershed related to E. coli. The proposed plan for this program is described in the Wet Weather Monitoring Program portion of this SWMP. SEE APPENDIX F.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will track the number of educational outreach opportunities conducted and list the number of people reached through the educational outreach program. • CORR will conduct stormwater monitoring in accordance with Table 10, Wet Weather Monitoring Program, Part III.A.1. The goals and plan for this program are described in the Wet Weather Monitoring Program portion of this SWMP.						Address monitoring and assessment of measurable goals of targeted controls in SWMP. Progress report submitted with each Annual Report (Due Dec. 1).			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT
Not Included in NOI	26	If, by the end of the 3rd year from the effective date of the permit, the permittee observes no progress toward the measurable goal either from program implementation or water quality assessments, the permittee shall identify alternative focused BMPs that address new or increased efforts towards the measurable goal. As appropriate, the MS4 may develop a new approach to identify the most significant sources of the pollutant(s) of concern and shall develop alternative focused BMPs (this may also include information that identifies issues beyond the MS4's control). These revised BMPs must be included in the SWMP and subsequent annual reports. Where the permittee originally used a measurable goal based on an aggregated WLA, the permittee may combine or share efforts with other MS4s discharging to the same impaired stream segment to determine an alternative sub-measurable goal for the pollutant(s) of concern for their respective MS4s, as described in Part I.C.2.b.(i).(c).B above. Permittees must document the proposed schedule for the development and subsequent adoption of alternative measurable goals for the pollutant(s) of concern for their respective MS4s and associated assessment of progress in meeting those individual goals.	CORR will annually assess and evaluate the program and progress in achieving the measurable goals listed above. If, by the end of the 3rd year from the effective date of the MS4 Permit, the City observes no progress toward the measurable goals either from program implementation or water quality assessments, CORR will reevaluate the program and identify alternative focused BMPs that address new or increased efforts towards the measurable goals.	CoRR, in cooperation with the TAG, MRGSQT, and CMC has observed progress towards E. coli controls and measurable goals, as demonstrated by the fact that the impairment for E. coli has been removed from the NMED 303 (d) list for 2 of the 3 assessment segments along the river within the Middle Rio Grande corridor. CoRR will continue to annually assess and evaluate the program and progress in achieving the measurable goals listed above.			• CoRR and the Middle Rio Grande MS4 permittees have made significant progress during this Permit term related to E. coli controls and measurable goals. In addition to 6 of the 7 Permit required samples collected by the CMC from the runoff for qualifying storm events, the MRGSQT has funded an additional year of dry weather E.coli data collection by college students in the BEMP program to better understand the baseline concentration of E. coli before storm events. The MRGSQT also funded a graduate student's master's thesis that studied the variability of E. coli concentrations in a water column compared to the juxtaposed sediment. A Watershed Protection Plan will continue to be an option as funding becomes available and AMAFCA will continue the discussion of the possibility of a High Flow Suspension for Recreational uses of river water. In FY 2018, the COA began a Microbial Source Tracking (MST) study; sample collection is underway for this project.			If required, end of the third year from the effective date of the permit. Dec. 22, 2017			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	27	From Table 1.a, Identify potential significant sources of the pollutant of concern entering your MS4.	In 2014-2015, AMAFCA contracted with a consultant to restudy the bacteria within the Middle Rio Grande, specifically to evaluate the bacteria data over the recent history to report the trend analysis and the impact to the Rio Grande. The report for this study - Middle Rio Grande Rio Grande E. coli Analysis and Research report for AMAFCA by water quality on-call engineer (CDM Smith) - is included in the 2015 Annual Report, Attachment II.A.	• AMAFCA, with its co-permittees from the 2012 MS4 Phase I Permit, have completed several studies related to identifying potential significant sources of the pollutant of concern entering the MRG Watershed MS4 area. The results of these studies will be used to guide the overall program plan and goals.						16 months (cooperative) from effective date of MS4 Permit April 22, 2016	**April 22, 2016**	**16**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and TAG
Not Included in NOI	28	From Table 1.a, Develop (or modify an existing program- for prior permittees under NMS000101) and implement a public education program to reduce the discharge of bacteria in municipal stormwater contributed by (if applicable) by pets, recreational and exhibition livestock, and zoos.	As stated above, CORR will continue its focus on reducing pet waste through continued involvement with the MRGSWQT educational outreach "Scoop the Poop" campaign.	• CORR will contribute and participate in the MRGSWQT. • CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities or planned activities related to targeting pet waste sources and residential education targeting bacteria sources.	Fully Implemented: See Attached Section 4 - MRG SQT Outcomes Reprort FY 2015-16	Fully Implemented See Attached Section 4 - MRG SQT Outcomes Reprort FY 2016-17	Fully Implemented See Attached Section 4 - MRG SQT Outcomes Reprort FY 2017-18			16 months (cooperative) from effective date of MS4 Permit April 22, 2016	**April 22, 2016**	**16**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	29	From Table 1.a, Develop (or modify an existing program- for prior permittees under NMS000101) and implement a program to reduce the discharge of bacteria in municipal stormwater contributed by areas within your MS4 served by on-site wastewater treatment systems.	As stated above, this is not applicable to CORR, however, CORR will address this area through educational and public outreach through its involvement with the MRGSWQT. In addition, through the IDDE Program, CORR will continue coordination with City of Rio Rancho, who will inform CORR of any sewer overflows that impact CORR facilities.	• CORR will continue membership and involvement in the cooperative MRGSWQT which will conduct educational and public outreach as well as facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to screening and notification of illicit discharges.						18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	30	From Table 1.a, Review results to date from the Illicit Discharge Detection and Elimination program (see Part I.D.5.e) and modify as necessary to prioritize the detection and elimination of discharges contributing bacteria to the MS4.	CORR will incorporate this Permit requirement into the IDDE program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information.	• CORR addresses this Permit activity in the IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information.						18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

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Not Included in NOI	31	From Table 1.a, Develop (or modify an existing program- for prior permittees under NMS000101) and implement a program to reduce the discharge of bacteria in municipal stormwater contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e).	This requirement will be addressed in conjunction with CORR's IDDE Program, refer to the SWMP - Table 6: Illicit Discharges and Improper Disposal - for additional information. CORR will review its IDDE Program results annually and identify illicit discharges (specific as well as general types of discharges and/or locations of discharges) that contributed bacteria to the MS4. Strategies will be developed to address these specific or general IDDEs. Development and implementation of strategies will depend on the IDDE program results.	• CORR will review its IDDE Program results annually and identify illicit discharges that contributed bacteria to the MS4. • CORR will develop strategies to address IDDEs found to contribute bacteria. The development and implementation of strategies will depend on the results. These strategies will be reported in subsequent Annual Reports.						16 months (if alone) or 20 months (cooperative) from effective date of MS4 Permit April. 22, 2016 or August 22, 2016	**August 22, 2016**	**20**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	32	Include in the Annual Reports progress on program implementation and reducing the bacteria and updates their measurable goals as necessary. As required in Part I.C.2.b.(i).(d), the annual report must include an analysis of how the selected BMPs have been effective in contributing to achieving the measurable goal and shall include graphic representation of pollutant trends, along with computations of annual percent reductions achieved from the baseline loads and comparisons with the target loads.	CORR will include the MRGSWQT Outcomes Report in each Annual Report which will track the number of educational outreach opportunities conducted, list the number of people reached through the educational outreach program, summarize the activities or planned activities related to targeting pet waste sources as well as residential education targeting bacteria sources. In addition, if strategies are developed to address IDDEs found to contribute bacteria to the MS4, these will be reported in subsequent Annual Reports. CORR will report annually on compliance monitoring to monitor and test for E. coli. This reporting will be done in accordance with Part III.A (Wet Weather Monitoring Program) of the MS4 Permit and will help with a water quality assessment of the overall watershed related to E. coli. Graphical representation of E. coli trends will also be completed and reported annually.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report. • Strategies developed to address IDDEs found to contribute bacteria to the MS4 will be reported in subsequent Annual Reports. • CORR will report annually on compliance monitoring to monitor and test for E. coli. This reporting will be done in accordance with Part III.A (Wet Weather Monitoring Program) of the MS4 Permit. This will include graphical representation of E. coli trends.						Annual Report (due Dec. 1)	**Update as necessary**		Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT

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	33	**Discharges to Impaired Waters Without Approved TMDLs - Part I.C.2.b.(ii)**											
Not Included in NOI	34	According to the requirements in Part I.C.2.b.(ii), if the permittee discharges directly into an impaired water body without an approved TMDL, the permittee shall perform the following activities (described in sections below).	The Rio Grande has the following impairments, without TMDLs: • Rio Grande (Isleta Pueblo to US 550) - DO and PCBs in Fish Tissue; • Rio Grande (Alameda to US 550) - PCBs and Gross Alpha adjusted; • Rio Grande (Isleta Pueblo to Alameda) - water temperature The Tijeras Arroyo, upstream of the Four Hills Bridge, is impaired for nutrient/eutrophication. The Tijeras Arroyo, upstream of the Four Hills Bridge, is all privately owned land. CORR has no operation authority in the Tijeras Arroyo. Therefore, there are no requirements in this SWMP to comply with the activities and schedules related to Impairment for Nutrients in Table 1.b in Part I.C.2.b.(iii). CORR does monitor for nutrients through its Wet Weather Monitoring Program, see Table 10 of the SWMP.	• Impairment for Dissolved Oxygen is addressed in the Endangered Species Act (ESA) section - Part I.C.3. Phase 1 permittee requirement only. • Impairment for PCBs is addressed in Compliance with Water Quality Standards - PCBs - Part I.C.1.e. Phase 1 permittee requirement only. • Impairment for Temperature is addressed in Compliance with Water Quality Standards - Temperature - Part I.C.1.f. Phase 1 permittee requirement only. • Compliance monitoring (Part III.A) includes Gross Alpha testing. Future assessment related to the impairment will be based on results of those samples.									Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division, MCM, and TAG
Not Included in NOI	35	The permittee shall: A. Determine whether the MS4 may be a source of the pollutant(s) of concern by referring to the CWA §303(d) list and then determining if discharges from the MS4 would be likely to contain the pollutant(s) of concern at levels of concern. The evaluation of CWA §303(d) list parameters should be carried out based on an analysis of existing data (e.g., IDDE Program) conducted within the permittees jurisdiction. B. Ensure that the SWMP includes focused BMPs, and corresponding measurable goals, that the permittee will implement, to reduce, the discharge of pollutant(s) of concern that contribute to the impairment of the water body. Only applicable if the permittee determines that the MS4 may discharge the pollutant(s) of concern to an impaired water body without a TMDL. The SWMP submitted with the first annual report must include a detailed description of proposed controls to be implemented along with measurable goals. C. Amend the SWMP to include any BMPs to address the pollutant(s) of concern.	Most of the impaired pollutants of concern are specifically addressed in other sections of the MS4 Program and therefore in other sections of the SWMP. Please refer to: Dissolved Oxygen and Endangered Species Act (ESA) section - Part I.C.3; PCBs are addressed in Compliance with Water Quality Standards - PCBs - Part I.C.1.e; and Temperature is addressed in Compliance with Water Quality Standards - Temperature - Part I.C.1.f. Compliance monitoring (Part III.A) includes Gross Alpha testing. The testing will allow CORR to determine background level relative to stormwater discharges. Future assessment related to this impairment will be based on results of those samples.	• Refer to other SWMP sections for: - Dissolved Oxygen is addressed in the Endangered Species Act (ESA) section - Part I.C.3. - PCBs are addressed in Compliance with Water Quality Standards - PCBs - Part I.C.1.e. - Temperature is addressed in Compliance with Water Quality Standards - Temperature - Part I.C.1.f. • Compliance monitoring (Part III.A) includes Gross Alpha testing. Future assessment and strategies related to these impairments will be based on results of the stormwater samples.									

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	36	**Endangered Species Act (ESA) Requirements - Sediment Pollutant Load Reduction Strategy - Part I.C.3.b**											
Not Included in NOI	37	According to the requirements in Part I.C.3.b, the permittee must develop, implement, and evaluate a sediment pollutant load reduction strategy to assess and reduce pollutant loads associated with sediment (e.g., metals, etc. adsorbed to or traveling with sediment, as opposed to clean sediment) into the receiving waters of the Rio Grande. The strategy must include the following elements (see sections below):	CORR's proposed plan for compliance with the Permit activities are described in the sections below.	CORR's measurable goals for compliance with the Permit activities are described in the sections below.						See specific Permit activity schedules below.			
Not Included in NOI	38	(i) <u>Sediment Assessment</u>: The permittee must identify and investigate areas within its jurisdiction that may be contributing excessive levels (e.g., levels that may contribute to exceedance of applicable Water Quality Standards) of pollutants in sediments to the receiving waters of the Rio Grande as a result of stormwater discharges. The permittee must identify structural elements, natural or man-made topo-graphical and geographical formations, MS4 operations activities, and areas indicated as potential sources of sediments and pollutants in the receiving waters of the Rio Grande. At the time of assessment, the permittee shall record any observed erosion of soil or sediment along ephemeral channels, arroyos, or stream banks, noting the scouring or sedimentation in streams. The assessment should be made using available data from federal, state, or local studies supplemented as necessary with collection of additional data. The permittee must describe, in the first annual report, all standard operating procedures, quality assurance plans to assure that accurate data are collected, summarized, evaluated and reported.	CORR will identify and investigate areas that may be contributing excessive levels of pollutants in sediment to receiving water of the Rio Grande. Structural elements, topographical and geographical formations, MS4 operations, and areas identified, and observed erosion of soil or sediment along arroyos will be recorded.	• CORR's O&M activities, which include sediment removal, will be scheduled, tracked, and evaluated for the Sediment Assessment requirement for this Permit activity. • CORR will document its procedure for sediment removal, scheduling, and tracking related to using this information for the Sediment Assessment.						No Permit required schedule. Progress Report for the entire Sediment Pollutant Load Reductions Strategy to be submitted with the fifth Annual Report. Dec. 1, 2019			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	39	(ii) <u>Estimate Baseline Loading</u>: Based on the results of the sediment pollutants assessment required in Part I.C.3.b.(i) above, the permittee must provide estimates of baseline total sediment loading and relative potential for contamination of those sediments by urban activities for drainage areas, sub-watersheds, Impervious Areas (IAs), and/or Directly Connected Impervious Area (DCIAs) draining directly to a surface waterbody or other feature used to convey waters of the United States. Sediment loads may be provided for targeted areas in the entire Middle Rio Grande Watershed using an individual or cooperative approach. Any data available and/or preliminary numeric modeling results may be used in estimating loads.	The data collected in the Sediment Assessment will be used by CORR for estimating baseline sediment loading to its facilities.	• CORR will utilize the data collected in the Sediment Assessment for estimating baseline sediment loading to its facilities.						No Permit required schedule. Interim reporting on progress required annually. Progress Report for the entire Sediment Pollutant Load Reductions Strategy to be submitted with the fifth Annual Report. Dec. 1, 2019			
Not Included in NOI	40	(iii) <u>Targeted Controls</u>: Include a detailed description of all proposed targeted controls and BMPs that will be implemented to reduce sediment pollutant loads, calculated in Part I.C.3.b.(ii) above, during the next ten (10) years of permit issuance. For each targeted control, the permittee must include interim measurable goals (e.g., interim sediment pollutant load reductions) and an implementation and maintenance schedule, including interim milestones, for each control measure, and as appropriate, the months and years in which the MS4 will undertake the required actions. Any data available and/or preliminary numeric modeling results may be used in establishing the targeted controls, BMPs, and interim measurable goals. The permittee must prioritize pollutant load reduction efforts and target areas (e. g. drainage areas, sub watersheds, IAs, DCIAs) that generate the highest annual average pollutant loads.	Analysis of the Sediment Assessment and Estimated Baseline Loading will be used by CORR to improve their program to target and prioritize sediment removal throughout the watershed. For existing facilities, CORR will begin adding a detailed description and photo for each facility to its tracking spreadsheet or program procedure.	• After analyzing the Sediment Assessment findings, CORR will improve this program and program tracking to meet the Permit activity requirements. • CORR will begin adding a detailed description and photo for each facility (each existing targeted control) to its tracking spreadsheet or program procedure.						No Permit required schedule. Interim reporting on progress required annually. Progress Report for the entire Sediment Pollutant Load Reductions Strategy to be submitted with the fifth Annual Report. Dec. 1, 2019			

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Not Included in NOI	41	(iv) Monitoring and Interim Reporting: The permittee shall monitor or assess progress in achieving interim measurable goals and determining the effectiveness of BMPs, and shall include documentation of this monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A.	CORR will annually assess progress for this program. CORR will monitor the volume of sediment captured by each of its facilities by measuring the volume of sediment removed from each facility. Documentation of this monitoring will be done using the tracking spreadsheet and procedure, which will be summarized in each Annual Report.	• CORR will include in each Annual Report a progress update for this program.						Update as necessary for SWMP and report on progress with each Annual Report.			
Not Included in NOI	42	(v) Progress Evaluation and Reporting: The permittee must assess the overall success of the Sediment Pollutant Load Reduction Strategy and document both direct and indirect measurements of program effectiveness in a Progress Report to be submitted with the fifth Annual Report. Data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of the BMPs and compliance with the ESA requirements specified in Part I.C.3.b. The Progress Report must include: (a) A list of species likely to be within the action area: (b) Type and number of structural BMPs installed; (e) Evaluation of pollutant source reduction effects; (d) Any recommendation based on program evaluation; (e) Description of how the interim sediment load reduction goals established in Part I.C.3.b.(iii) were achieved; and (f) Future planning activities needed to achieve increase of sediment load reduction required in Part I.C.3.d.(iii).	CORR will annually evaluate progress for this program. CORR will monitor the volume of sediment captured by each of its facilities by measuring the volume of sediment removed from each facility. Documentation of this monitoring will be done using the tracking spreadsheet and procedure, which will be summarized in each Annual Report.	• CORR will complete and provide to EPA with the fifth Annual Report, due Dec. 1, 2019, a Progress Report on the Sediment Pollutant Load Reduction Strategy. This Progress report will meet the Permit requirements.						Progress Report to be submitted with the fifth Annual Report Dec. 1, 2019			
Not Included in NOI	43	(vi) Critical Habitat: Verify that the installation of stormwater BMPs will not occur in or adversely affect currently listed endangered or threatened species critical habitat by reviewing the activities and locations of stormwater BMP installation within the location of critical habitat of currently listed endangered or threatened species at the FWS website http://criticalhabitat.fws.gov/crithab/.	CORR considers critical habitat for all of its projects, working closely with the USFWS and USACE, as required, and will continue this practice related to any BMPs installed related to sediment capture and removal.	• CORR will continue its practice of coordination with the USFWS and USACE, as required, related to CORR's facility construction projects.						No Permit required schedule. Ongoing requirement of the MS4 Permit.			

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	44	**Part I.D.5 - Stormwater Management Plan (SWMP) Control Measures**											
	45	**TABLE 2: Construction Site Stormwater Runoff Control - Part I.D.5.a**											
See NOI Sections Below	46	5.a.(i) The permittee shall develop, revise, implement, and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. Permittees previously covered under permit NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit. (Note: Highway Departments and Flood Control Authorities may only apply the construction site stormwater management program to the permittees own construction projects)	CORR's Construction Site Stormwater Runoff Control Program (CSSRCP) addresses stormwater management during construction of CORR projects that result in a land disturbance of greater than or equal to one acre.	• Coordinate CSSRCP requirements (as detailed in Program and in sections below)									Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.1	47	Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)	Continue implementation and enforcement of existing CORR Municipal Code 153.35(F)(2)(d), which states ALL construction projects, both public and private, require an approved erosion control plan prior to start of construction. Erosion control plans address all phases of each project from initial grading through and including final occupancy. CORR will continue to maintain, update, implement, and enforce existing Erosion Control Ordinance to satisfy applicable permit requirements.	CORR will continue to work with the MS4 Technical Advisory Group (TAG) and other agencies to discuss and help develop and/or enhance existing regulatory mechanisms.	Full Implemented: CORR Municipal Code 153.35(F)(2)(d).					N/A	**June 22, 2016**	**18**	Program Lead: Development Services Engineering Division Manager Implementation: Development Services Department
1.2	48	Develop requirements and procedures as required in Part I.D.a(ii).(b) through Part I.D.a(ii).(h). These Permit sections include requirements for CORR to implement and enforce requirements for construction site operators to 1) implement appropriate erosion and sediment control BMPs - Part I.D.a(ii).(b) and 2) control waste at the construction site that may cause adverse impacts to water quality - Part I.D.a(ii).(c). Permit sections also include requirements to develop procedures for site plan review which incorporate consideration of potential water quality impacts - Part I.D.a.(ii).(d); receipt and consideration of information submitted by the public - Part I.D.a.(ii).(e); site inspection (during construction) and enforcement of control measures - Part I.D.a.(ii).(f); to educate and train permittee personnel and developers, construction site operators, contractors and supporting personnel - Part I.D.a.(ii).(g); and for keeping records of and tracking all regulated construction activities within the MS4 - Part I.D.a.(ii).(h).	As part of CORR's Program, CORR Project Managers will continue to review all site plans and the SWPPPs to ensure consistency with federal, state and local sediment and erosion control requirements for CORR projects. CORR staff performs and will continue to perform incremental reviews of all CORR projects during design to assure quality control and design efficiency. CORR will require submittal of required SWPPP inspection reports from a qualified inspector to the project manager. In addition, construction site SWPPPs will continue to be discussed at weekly construction meetings to ensure appropriate inspections and any needed corrective measures are implemented. CORR will maintain records of all CORR-led projects disturbing at least one acre within its rights-of-way. This will include CORR's CSSRCP records, including NOIs, NOI tracking, inspection reports, non-conformance documents, and training documents.	• Review site plans and the SWPPPs for CORR-owned projects disturbing at least one acre in order to consider potential water quality impacts and ensure consistency with federal, state and local sediment and erosion control requirements. Ensure SWPPPs for projects are developed by qualified individuals. • Conduct pre-construction meetings on CORR-owned construction projects disturbing at least one acre prior to beginning earth-disturbing activities in order to discuss the SWPPP, NOI and BMPs. • CORR will post a contact phone number at all required construction sites. • In a cooperative effort with SSCAFCA, the DSD ENG reviews private development that has a direct connection to CORR facilities for projects disturbing at least one acre. Review includes stormwater conveyance, water quality and erosion control. • CORR will maintain records of all CORR-owned construction projects disturbing at least one acre within its rights-of-way.							**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.3	49	Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.a.(iii)	As part of CORR's Program, CORR Project Managers will continue to require field inspections by qualified individuals on CORR construction projects which disturb at least one acre at the Construction General Permit required inspection frequency. At a minimum, CORR staff will inspect each project An inspection form has been developed and will be used for all inspections. Should the contractor fail to operate, maintain and repair the BMPs and control measures, CORR staff have the contractual authority to temporarily suspend work, withhold/stop payment, or terminate the contract should such issues go uncorrected.	• CORR will complete the inspections for 100% of the active construction sites under contract by CORR which disturb at least one acre. • CORR will develop a SWPPP inspection form and will track all MS4 inspections using a tracking spreadsheet. • CORR will maintain copies of the completed MS4 inspection forms. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande.		Fully Implemented -					**December 22, 2016**	**24**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.4	50	Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.a.(iv). Planning documents include, but are not limited to: comprehensive or master plans, subdivision ordinances, general land use plan, zoning code, transportation master plan, specific area plans, such as sector plan, site area plans, corridor plans, or unified development ordinances.		• CORR will continue regular coordination amongst engineering staff and to verify that BMPs are in place to control erosion during construction on CORR-owned projects.						10 months from effective date of MS4 Permit Oct. 22, 2015	**February 22, 2016**	**14**	

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1.5	51	Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.a.(v). The site plan review must include an evaluation of opportunities for use of GI/LID/ Sustainable practices and when the opportunity exists, encourage project proponents to incorporate such practices into the site design to mimic the pre-development hydrology of the previously undeveloped site. For purposes of this permit, pre-development hydrology shall be met according to Part I.D.5.b of this permit (consistent with any limitations on that capture). Include a reporting requirement of the number of plans that had opportunities to implement these practices and how many incorporated these practices.	CORR will preform a Development Manual review to assess opportunities for the use of GI/LID sustainable practices. CORR will continue to encourage use of sustainable practices during the review phase of projects within CORR's right-of-ways. CORR will encourage an evaluation of sustainable GI/LID practice opportunities within the watershed. CORR, the reporting requirement of the number of plans that had opportunities to implement these practices and how many incorporated these practices also does not apply.	• CORR will annually report the number of plans that were reviewed within CORR's right-of-ways that had opportunities to implement GI/LID/Sustainable practices and how many incorporated these practices.	In - Process - Reviewing	In - Process - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on March 16, 2017	Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.35(F)(2)(e) Stormwater Quality Design (SQD).			14 months (cooperative) from effective date of MS4 Permit February 22, 2016	**February 22, 2016**	**14**	N/A
Not Included in NOI	52	Update the SWMP document and annual report as required in Part I.D.5.a.(vi) and in Part I.D.5.a.(vii)	CORR will include in each annual report a summary of the number and frequency of site reviews and inspections activities that are conducted annually and cumulatively during the permit term.	• Annually evaluate and revise the CSSRCP, as necessary, to ensure that CORR's Program meets the MS4 Permit requirements. • Include in each annual report a summary of the number and frequency of site reviews and inspection activities that are conducted annually and cumulatively during the permit term.	Fully Implemented -					Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
1.6	53	Enhance the program to include the elements in Part I.D.5.a.(viii) through part I.D.5.a.(x). These include: (viii) Use of stormwater educational materials; (ix) Develop or update existing construction handbooks; and (x) construction inspections may be carried out in conjunction with other inspections and use a screening prioritization process.	The National Pollutant Discharge Elimination System Manual - Storm Water Management Guidelines for Construction and Industrial Activities is endorsed by the City of Rio Rancho, and its use is encouraged for any development that has the potential to generate stormwater through either construction or industrial activities with exposure to stormwater. CORR will continue to use stormwater educational materials, either developed locally or provided by EPA, NMED environmental, public interest, trade organizations, and/or other MS4s. CORR will work with other MS4s through the TAG to enhance the program to include program elements in Part I.D.5.a.(viii) through Part I.D.5.a.(ix).	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities where educational materials were dispersed and shared with the public. • CORR will continue to attend and participate in the TAG to exchange information with other MS4s regarding potential program enhancements.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

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	54	**TABLE 3: Post-Construction Stormwater Management in New Development and Redevelopment- Part I.D.5.b**											
See NOI Sections Below	55	Part I.D.5.b.(i) The permittee must develop, revise, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. Permittees previously covered under NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit. (Note: Highway Departments and Flood Control Authorities may only apply the post-construction stormwater management program to the permittees own construction projects).	Fully Implemented - CORR, Development Manual, Vol. II Section 5.F., Erosion and Stormwater Pollution Control and Section 8.D.1.C.2 Erosion Protection and Stormwater Pollution Prevention Practices. A) Project owners and the owners contractor shall complete federal USEPA Notice of Intent (NOI) prior to commencement of any construction project disturbing 1 or more acres of land area. B) Stormwater Pollution Prevention Plan (SWPPP) and accompanying federal USEPA administrative procedures shall meet the guidelines and procedures outlined in the current 2012 edition of the NPDES Manual Stormwater Management Guidelines for Construction Activities.	Track and enforce CORR Development Manual and federal USEPA NOI procedures for new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4.						See specific Permit activity schedules below.			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.1	56	Development of strategies as required in Part I.D.5.b.(ii).(a). Strategies which include a combination of structural and/or non-structural best management practices (BMPs) to control pollutants in stormwater runoff.	CORR will compile conceptual design examples of structural BMP's for implementation on development and redevelopment sites to treat 90th and 80th percentile storms respectively. Sources include: NPDES MS4 Manual, EPA BMP Design Guide, and EPA Technical Report #832-R14-007. CORR will continue to include both structural and non-structural BMPs to control pollutants in stormwater runoff from CORR owned facilities.	• CORR will continue to include both structural and non-structural BMPs to control pollutants in stormwater runoff from CORR owned facilities.	In-Process -	In - Process - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on March 16, 2017	Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.35(F)(2)(e). EPA publication number 832-R-14077 is included in the defination of Stormwater Quality Design Storm/Event			10 months from effective date of MS4 Permit Oct. 22, 2015	**February 22, 2016**	**14**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.2	57	Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii)(b)	CORR will review existing Erosion Control/Storm Drainage ordinance and outline need for ordinance modification to address GI/LID requirements. Perform concurrent review of CORRs Development Process Manual to assess need for design modification to address stormwater quality design standards. CORR will continue to work with the MS4 Technical Advisory Group (TAG) and other agencies to discuss and help develop regulatory mechanisms.	• CORR will continue to work with the MS4 Technical Advisory Group (TAG) and other agencies to discuss and help develop regulatory mechanisms.		In - Process - Task Order - MS4 Watershed Based Permit Rio Rancho Ordinance Modification. Notice to Proceed issued to Weston Solutions, Inc. on March 16, 2017	Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.21(B)(2)(f)			24 months (cooperative) from effective date of MS4 Permit Dec. 22, 2016	**December 22, 2017**	**36**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.3	58	Implementation and enforcement, via the ordinance or other regulatory mechanism of site design standards as required in Part I.D.5.b.(ii).(b).	CORR will review existing Erosion Control/Drainage Ordinance, implement and enforce to the maximum extent practicable.	• CORR will develop strategies to administratively or contractually address post-construction peak flow runoff from new development and redevelopment projects within CORR's jurisdiction and/or right of ways to the extent allowable under State, Tribal, or local law.			Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.37 Enforcement			36 months (cooperative) from effective date of MS4 Permit Dec. 22, 2017	**December 22, 2018**	**48**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.4	59	Ensure appropriate implementation of post-construction structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d).	Preform a review of the Development Process Manual to assess needs for pre-construction BMP review, BMP inspection , and post-construction maintenance. For watershed cooperative elements, CORR is a member of the MS4 TAG cooperative group and will exchange information regarding training opportunities for staff as well as technical information in that group context.	• Ensure post-construction program requirements are constantly reviewed as appropriate to incorporate improvements in control techniques.		In-Process -	Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.21 Stormwater Quality Protection			10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	
2.5	60	Develop procedures as required in Part I.D.5.b.(ii). (e) - for educational program for project developers; Part I.D.5.b.(ii). (f) - for site inspections and enforcement for long-term operation, maintenance, and repair of BMPs; Part I.D.5.b.(ii). (g) - for control of discharge related to pesticides, herbicides, and fertilizer; and Part I.D.5.b.(ii). (h) - for review and update of the post-construction program.	I.D.5.b.(ii).(e) - As a cooperative program, CORR contributes to the MRGSWQT, which includes training on GI/LID and sustainability practices. This is achieved by sponsoring conferences featuring GI/LID lectures, such as the Land and Water Summit. Reporting on the MRGSWQT activities will be part of TABLE 8: Public Education and Outreach on Stormwater Impacts - Part I.D.5.g. I.D.5.b.(ii).(f) - CORR is responsible for all long term inspection, operation, maintenance, and repair of its own facilities. CORR will perform inspections, maintenance and repair on a pre and post-monsoon cycle. I.D.5.b.(ii).(g) - CORR will only allow certified staff or professionally licensed contractors to apply herbicides within CORR right-of-way (CORR does not apply pesticides or fertilizers in its operations). This is covered in TABLE 4 - Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations - Part I.D.5.c. I.D.5.b.(ii).(h) - CORR's routine O&M activities address post-construction stormwater management at all CORR facilities. CORR will continue to participate in the cooperative called the Middle Rio Grande Storm Water Quality Team (MRGSQT), along with the City of Albuquerque, NMDOT, AMAFCA, City of Rio Rancho, Sandoval County and Town of Bernalillo and any other entities joining the cooperative.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize, if applicable, the activities where educational materials were dispersed and shared with project developers.	All elements of the Proposed Plan have been implemented					18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

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2.6	61	Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/ activities within the permit area as required in Part I.D.5.b.(iii) related to developed hydrology mimicking pre-development hydrology.	Fully Implemented - CORR requires all construction projects to adhere to the following design standard: CORR Development Manual, Vol. II, Storm Drainage Release Rate - The maximum discharge from developed property in the event of a 100 year 6 hour storm shall be the amount of the historic or pre-developed runoff in all watersheds in the City of Rio Rancho.	• CORR will coordinate internally on studies and projects for MS4 Permit compliance with developed hydrology mimicking pre-development hydrology. CORR will abide by the NM OSE rule and plan/design its facilities to drain within 96 hours per the OSE requirements.	Fully Implemented: CORR requires all construction projects to adhere to the following design standard: CORR Development Manual, Vol. II, Storm Drainage Release Rate - The maximum discharge from developed property in the event of a 100 year 6 hour storm shall be the amount of the historic or pre-developed runoff in all watersheds in the City of Rio Rancho.					10 months from effective date of MS4 Permit Oct. 22, 2015	**December 22, 2015**	**12**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.7	62	As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices.	CORR will assess existing codes, ordinances, planning documents and other applicable regulations for impediments to the use of GI/LID/Sustainable practices. The NM OSE regulates the water delivery to the Rio Grande in order to meet water delivery requirements to Texas; therefore, CORR's objective is to design its facilities to drain within 96 hours per the OSE requirements.	• CORR will assess existing codes, ordinances, planning documents and other applicable regulations for impediments to the use of GI/LID/Sustainable practices that CORR has jurisdiction over						2 years from effective date of MS4 Permit Dec. 22, 2016	**December 22, 2016**	**24**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.8	63	As required in Part I.D.5.b.(iv), develop and submit a report of the assessment findings on GI/LID/Sustainable practices.	CORR will conduct a GI/LID/Sustainavle assessment.	• CORR will develop and submit a report of the assessment findings on GI/LID/Sustainable practices. This will be completed in by March 2017 and submitted to the EPA with the Annual Report, due Dec. 1, 2017.						27 months (cooperative) from effective date of MS4 Permit March 22, 2017	**March 22, 2017**	**27**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.9	64	Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi).	CORR will estimate the IA and DCIA within regulated jurisdiction and/or right of way.	• CORR will estimate the IA and DCIA within regualated jurisdiction and/or right of way. This will be done annually as part of the Annual Report preparation. This will be a cooperative effort with other Middle Rio Grande MS4s.		In-Process -	IA and DCIA boundray map created on July 27, 2017. City Boundary 66,438 acres, Urbanized Area Boundary 23,636 acres, Impervious Surface 5, 224 acres.			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.10	65	Inventory and priority ranking as required in Part I.D.5.b.(vii) for MS4-owned property and infrastructure (including public right-of-way) that may have the potential to be retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges to and from its MS4.	CORR will continue to keep an inventory and develop a priority ranking of CORR owned properties and facilities that may have the potential for retrofitted control measures and stormwater quality facilities and BMPs. CORR will continue to meet with area MS4s to discuss areas requiring drainage and water quality retrofits, project priorities, and multi-agency funding. Internally, using the Project Schedule, water quality projects and water quality retrofit projects will be prioritized. CORR will evaluate the existing BMPs based on their effectiveness and capacity in order to identify where additional BMPs are needed. CORR will continue to invite all MS4s to the series of meetings for project planning on infrastructure retrofitting. CORR is also a member of the MS4 TAG cooperative group. The NM Office of the State Engineer (OSE) regulates the water delivery to the Rio Grande in order to meet water delivery requirements to Texas; therefore, CORR's objective is to design its facilities to drain within 96 hours per the OSE requirements.	• CORR will continue to meet with agencies within its jurisdiction to discuss the areas requiring drainage and water quality retrofitting within the Middle Rio Grande Watershed, project priorities, and multi-agency funding contributions. • CORR will utilize the Project Schedule to prioritize water quality projects and water quality retrofit projects. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande. • CORR will evaluate the existing BMPs within its most urbanized watershed, the Montoyas Arroyo watershed, based on their effectiveness and capacity. These studies will provide the basis for determining where additional BMPs may be required within this watershed.						42 months (cooperative) from effective date of MS4 Permit June 22, 2018	**June 22, 2018**	**42**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
2.11	66	Incorporate watershed protection elements into regular planning or policy documents as required in Part I.D.5.b.(viii). As applicable to each permittee's MS4 jurisdiction, policy and/or planning documents must include the following: (a) A description of master planning and project planning procedures to control the discharge of pollutants to and from the MS4. (b) Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by controlling the unnecessary creation, extension and widening of impervious parking lots, roads and associated development. (c) Identify environmentally and ecologically sensitive areas that provide water quality benefits and serve critical watershed functions within the MS4 and ensure requirements to preserve, protect, create and/or restore these areas are developed and implemented during the plan and design phases of projects in these identified areas.	For CORR projects, watershed protection elements will be incorporated when feasible into drainage management plans, as appropriate, in order to identify watersheds which can be retrofitted with regional water quality facilities. Part I.D.5.b.(viii).(c) - During planning of CORR projects, environmentally and ecologically sensitive areas that provide water quality benefits are considered.	• CORR will participate in meetings for project planning of infrastructure retrofitting either on a watershed wide or regional scale. • For projects led by CORR, watershed protection elements will be incorporated into Drainage Management Plans, as appropriate, in order to identify watersheds which potentially can be retrofitted with regional water quality facilities.						10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division

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2.11	67	Continuation of incorporate watershed protection elements into regular planning or policy documents as required in Part I.D.5.b.(viii). (d) Implement stormwater management practices that minimize water quality impacts to streams, including disconnecting direct discharges to surface waters from impervious surfaces such as parking lots. (e) Implement stormwater management practices that protect and enhance groundwater recharge as allowed under the applicable water rights laws. (f) Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges. (g) Develop and implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils. (h) The program must be specifically tailored to address local community needs (e.g. protection to drinking water sources, reduction of water quality impacts) and must be designed to attempt to maintain pre-development runoff conditions.	Part I.D.5.b.(viii).(e) - The NM OSE regulates the water delivery to the Rio Grande in order to meet water delivery requirements to Texas; therefore, CORR's objective is to design its facilities to drain within 96 hours per the OSE requirements. Part I.D.5.b.(viii).(f) - CORR projects, to the extent feasible, will seek to avoid or prevent hydromodification of streams and other water bodies caused by CORR projects. Part I.D.5.b.(viii).(g) - For CORR projects, CORR strives, to the extent possible, to protect native soils, prevent topsoil stripping, and prevent compaction of soils. This will be incorporated into a written procedure.	• CORR will develop a written procedure that includes applicable watershed protection elements in Part I.D.5.b.(viii).(g) as required in the MS4 Permit and as applicable to CORR. • CORR will continue to contribute and participate in the MRGSWQT, which supports programs tailored to address local community needs and are designed to attempt to maintain pre-development runoff conditions.						10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
Not Included in NOI	68	Update the SWMP document and annual report as required in Part I.D.5.b.(ix) and Part I.D.5.b.(x). The following information must be included in each annual report: (a) Include a summary and analysis of all maintenance, inspections and enforcement, and the number and frequency of inspections performed annually. (b) A cumulative listing of the annual modifications made to the Post-Construction Stormwater Management Program, and (c) According to the schedule presented in Table 3, the permittee must: A. Report the number of MS4-owned properties and infrastructure that have been retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges. B. As required in Part I.D.5.b.(vi), report the tabulated results for IA and DCIA and its estimation methodology.	As required in Part I.D.5.b.(x).(a), CORR tracks all crew activity related to maintenance of all water quality structures. A summary of the information will be included in each annual report. (c)A. As required in Part I.D.5.b.(x).(c).A, CORR will report on properties and infrastructure within CORR jurisdiction that have been retrofitted with control measures designed to control frequency, volume and peak intensity of stormwater discharges. (c)B. CORR will support other MRG permittees with their IA and DCIA reporting requirements in Part I.D.5.b.(x).(c).B.	• CORR will continue to track all maintenance activity related to maintenance of all CORR owned water quality structures. A summary of the information will be included in each annual report. • CORR will include a cumulative list of retrofitted CORR facilities in each annual report. • CORR will continue to provide MRG permittees with information to support their IA and DCIA reporting requirements to EPA.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		
2.12	69	Enhance the program to include the elements in Part I.D.5.b.(xi) and Part I.D.5.a.(xii). These include: (xi) Use of stormwater educational materials; (xii) Develop or update existing construction handbooks; and (x) participate in watershed planning efforts to aid with BMP selection and planning.	CORR will continue to use stormwater educational materials, either developed locally or provided by EPA, NMED environmental, public interest, trade organizations, and/or other MS4s. CORR will work continue to participate in the watershed-planning efforts with other MS4s in order to publish the ICIP annually. CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande.	• CORR will include the MRGSWQT Outcomes Report in each Annual Report which will summarize the activities where educational materials were dispersed and shared with the public. • CORR will continue to contribute and participate in the MRGSWQT, which supports post-construction programs. • CORR will participate in any meetings regarding watershed planning efforts. CORR will continue to produce and publish the CORR ICIP annually. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering and MRGSWQT

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	70	**TABLE 4: Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations - Part I.D.5.c**											
3.1	71	Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i). Elements include: employee training program to incorporate pollution prevention and good housekeeping, including a tracking procedure (Part I.D.5.c.(i).(a)); O&M activities, schedules, and long term inspections procedures for structural and non-structural stormwater controls (Part I.D.5.c.(i).(b)); Controls for reducing or eliminating the discharge of pollutants from City owned facilities (Part I.D.5.c.(i).(c)) Procedures for properly disposing of waste removed from CORR facilities (sediment, floatables, and other debris) (Part I.D.5.c.(i).(d)); and procedures to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices (Part I.D.5.c.(i).(e)).	The City is currently reviewing existing employee training programs targeting pollution prevention and good housekeeping techniques with all City departments. The City will determine whether existing training programs are designed to meet the requirements of Part I.D.5.c.(i). The City will then develop/enhance the training programs targeting requirements of Part I.D.5.c.(i) including a tracking procedure that ensures employee turnover is considered. The City will develop a pollution prevention and good housekeeping annual workshop/training for municipal employees responsible for operations and maintenance of the pertinent City facilities.	• The City will then develop/enhance the training programs targeting requirements of Part I.D.D.c.(i) including a tracking procedure that ensures employee turnover is considered. • The City will develop a pollution prevention and good housekeeping annual workshop/training for municipal employees responsible for operations and maintenance of the pertinent City facilities.	In-Process - Facility Evaluation	In - Process -	In - Process - Consultant Notice to proceed: October 10, 2017 - SWPPP for Streets and Right of Way Facilities May 23, 2018 - SWPPP for Building and Fleet Maintenance February 12, 2019 - SWPPP for Parks, Recreation and Community Services Maintenance Yard	Fully Implemented on August 1, 2018 - SWPPP for Streets and Right of Way Facilities Fully Impemented on September 27, 2018 - SWPPP for Building and Fleet Maintenance Fully Implemented on June 3, 2019 - SWPPP for Parks, Recreation and Community Services Maintenance Yard		18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	
3.2	72	Enhance the program to include the elements in Part I.D.5.c.(ii). These include: (a) Develop or update the existing list of all stormwater quality facilities by drainage basin, including location and description;	The City is completing an inventory of City owned stormwater quality facilites by drainage basin. The City will then udpate the inventory of facilites with GIS locations and provide descriptions for each.			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	73	(b) Develop or modify existing operational manual for de-icing activities addressing alternate materials and methods to control impacts to stormwater quality;	The City is currently reviewing existing operations pertaining to de-icing activities. Once a review of the exising opertations is completed the City will develop or modify the opoerations for de-icing. The City will consider alterante materials and methods to control impacts to stormwater quality.			In-Process -	Reactive Snow Removal Program - The City does not perform snow and ice removal for residential streets.			30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	74	(c) Develop or modify existing program to control pollution in stormwater runoff from equipment and vehicle maintenance yard;	The City is currently reviewing existing programs in place that control strormwater runoff from equiment and vehicle maintenance. Once a review of existing programs is complete the City will develop or modify the programs.	1) Develop SWPPP scope of work. 2) Secure funding. 3) Issue notice to proceed. 4) Implement SWPPP recommendations.		In-Process -	Fully Implemented - See Section 2 - PPGH Municipal Operations, Appendix F			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	75	(d) Develop or modify existing street sweeping program. Assess possible benefits from changing frequency or timing of sweeping activities or utilizing different equipment for sweeping activities;	The City is currently reviewing our existing street sweeping program. Once a review of existing programs is complete the City will develop or modify the program per (Part I.D.5.c.(ii).(d)).			In-Process -	Reactive Street Sweeping Program - Road sweeping consists of sweeping paved roads as conditions permit. The City attemps to sweep all residential roads at least once every two years.			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	76	(e) A description of procedures used by permittees to target roadway areas most likely to contribute pollutants to and from the MS4 (i.e., runoff discharges directly to sensitive receiving water, roadway receives majority of de-icing material, roadway receives excess litter, roadway receives greater loads of oil and grease);	The City will inventory roadways within the City that are most likely to contribute pollutants to and from the City. The City will target the identified roadways and develop procudures to reduce pollutants per (Part I.D.5.c.(ii).(e)).			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	77	(f) Develop or revise existing standard operating procedures for collection of used motor vehicle fluids (at a minimum oil and antifreeze) and toxics (including paint, solvents, fertilizers, pesticides, herbicides...) used in permittee operations;	The City will review exising standard operating procedures for collection of used motor vehicle fluids and toxins used in City operations. Once a review is complete the City with develop or revise standard operating procedures in an effort to reduce pollutants per (Part I.D.5.c.(ii).(f)).	1) Develop SWPPP scope of work. 2) Secure funding. 3) Issue notice to proceed. 4) Implement SWPPP recommendations.		In-Process -	Fully Implemented - See Section 2 - PPGH Municipal Operations, Appendix F			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	78	(g) Standard operating procedure for disposal of accumulated sediments, floatables, and debris;	The City will review exising standard operating procedures for disposal of accumulated sediment, floatables and debris. Once a review is complete the City with develop or revise standard operating procedures in an effort to reduce pollutants per (Part I.D.5.c.(ii).(g)).			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	79	(h) litter source control program, include targeted public awareness campaign;	The City will develop or revise a litter source control program including public awareness and targeting the City residents			In-Process -	Fully Implemented - See Section 4 - MRG SWQ Outcomes Report			30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	80	(i) Develop or review and revise, as necessary, the criteria, procedures and schedule to evaluate existing flood control devices, structures and drainage ways to assess the potential of retrofitting to provide additional pollutant removal from stormwater. Implement routine review to ensure new and/or innovative practices are implemented where applicable.	The City will review existing flood control facilities and develop criteria, procedures and schedule to evaluating per (Part I.D.5.c.(ii).(i)).			In-Process -	In-Progress - See Section 2: Stormwater Outfall RFP			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	

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3.2	81	j) Enhance inspection and maintenance programs by coordinating with maintenance personnel to ensure that a target number of structures per basin are inspected and maintained per quarter;	The City will review existing flood control facilities and the structures associated with each and develop a program to enhance inspection and maintenance of the structures per (Part I.D.5.c.(ii).(j)).			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	82	(k) Enhance the existing program to control the discharge of floatables and trash from the MS4 by implementing source control of floatables in industrial and commercial areas;	The City will review existing program for the control the discharge of floatables and trash from the City. The City will enahnce existing the existing program per (Part I.D.5.c.(ii).(k)).			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit	**June 22, 2017**	**30**	
3.2	83	(l) Include in each annual report, a cumulative summary of retrofit evaluations conducted during the permit term on existing flood control devices, structures and drainage ways to benefit water quality. Update the SWMP to include a schedule (with priorities) for identified retrofit projects;	The City will develop a program to track the retorfit evaluations conducted and include in the annual report as well as update the City SWMP with a schedule per (Part I.D.5.c.(ii).(l)).			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit Oct. 22, 2015 or June 22, 2017	**June 22, 2017**	**30**	
3.2	84	(m) Flood management projects: review and revise, as necessary, technical criteria guidance documents and program for the assessment of water quality impacts and incorporation of water quality controls into future flood control projects. The criteria guidance document must include the following elements: A. Describe how new flood control projects are assessed for water quality impacts. B. Provide citations and descriptions of design standards that ensure water quality controls are incorporated in future flood control projects. C. Include method for permittees to update standards with new and/or innovative practices. D. Describe master planning and project planning procedures and design review procedures.	The City will review and revise technical criteria guidance documents and program per (Part I.D.5.c.(ii).(m)).			In-Process -	Fully Implemented -			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.2	85	(n) Develop procedures to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied, by the permittee's employees or contractors, to public right-of-ways, parks, and other municipal property. The permittee must provide an updated description of the data monitoring system for all permittee departments utilizing pesticides, herbicides and fertilizers.	The City will develop or revise procedures to control the discharge of pollutants per (Part I.D.5.c.(ii).(n)), including providing an updated descripion of the data monitoring system for all City departments.	1) Develop SWPPP scope of work. 2) Secure funding. 3) Issue notice to proceed. 4) Implement SWPPP recommendations.		In-Process -	Fully Implemented - See Section 2 - PPGH Municipal Operations, Appendix F			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	
3.3	86	Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii).	Review and update inventory of municple facilities and operations.		Fully Implemented: Map complete.					18 months (cooperative) from effective date of MS4 Permit	**June 22, 2016**	**18**	
Not Included in NOI	87	Update the SWMP document and annual report as required in I.D.5.c.(iv) and Part I.D.5.c.(v). The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.c.(i) throughout Part I.D.5.c.(iii) and its corresponding measurable goal. The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.								Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		

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	88	**TABLE 5: Industrial and High Risk Runoff - Part I.D.5.d**											
4	89	As described in Part I.D.5.d, the permittees shall: (i) control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by stormwater discharges associated with industrial activity and the quality of stormwater discharged from sites of industrial activity as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi). If no such industrial activities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.	Permit requires this element for Class A permittees only. CORR is a Class B permittee.	**Not Applicable**									

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	90	**TABLE 6: Illicit Discharges and Improper Disposal - Part I.D.5.e**											
See NOI Sections Below	91	As described in Part I.D.5.e.(i), the permittee shall develop, revise, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR 122.26(b)(2)) entering the MS4. Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit. The permittee must (see required items listed below):	CORR has developed a program to detect and eliminate illicit discharges. The program elements, as they relate to the permit requirements, are described in detail below. Fully Implemented - See SWMP Appendix G - IDDE Priority Reconnaissance and Ivestication Map.	• The CORR NPDES Project Manager will continue to review, revise, and implement the Illicit Discharge Detection and Elimination Program requirements. • CORR will update their current written procedure for this program element. • CORR is pursuing developing a cooperative program elements for this program.						See specific Permit activity schedules below.			Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
5.1	92	Mapping as required in Part I.D.5.e.(i).(a). Develop, if not already completed, a storm sewer system map, showing the names and locations of all outfalls as well as the names and locations of all waters of the United States that receive discharge from those outfalls. Identify all discharges points into major drainage channels draining more than twenty (20) percent of the MS4 area;	CORR will update existing GIS based target area map. Identifying illicit discharge locations through layering of zoning, industry codes (NAICS), storm drain conveyance/ponds, and land use. Update discharge points into major drainage channels draining more than twenty (20) percent of the jurisdictional area. SEE APPENDIX E and G.	• CORR will continue to keep this maintenance map up-to-date for CORR facilities and other MS4 permittee facilities, as information is provided. Cooperation with other MS4s will continue related to this map.	Fully Implemented - See SWMP Appendix E and G.					14 months (cooperative) from effective date of MS4 Permit February 22, 2016	**February 22, 2016**	**14**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering, Recorder and GIS Section, and Consultant
5.2	93	Ordinance (or other control method) as required in Part I.D.5 .e.(i)(b).	CORR will review existing ordinances.	• As necessary, draft amendments to existing ordinance prohibiting non-stormwater discharges into the MS4.		In-Process -	Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.30			10 months from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
5.3	94	Develop and implement a IDDE plan as required in Part I.D.5.e.(i).(c). The permittee must include the following elements in the plan: A. Procedures for locating priority areas likely to have illicit discharges including field test for selected pollutant indicators (ammonia, boron, chlorine, color, conductivity, detergents, E. coli, enterococci, total coliform, fluoride, hardness, pH, potassium, conductivity, surfactants), and visually screening outfalls during dry weather; B. Procedures for enforcement, including enforcement escalation procedures for recalcitrant or repeat offenders; C. Procedures for removing the source of the discharge; D. Procedures for program evaluation and assessment; and E. Procedures for coordination with adjacent municipalities and/or state, tribal, or federal regulatory agencies to address situations where investigations indicate the illicit discharge originates outside the MS4 jurisdiction.	CORR will continue to implement its IDDE program. CORR will continue to perform periodic visual inspections of outfalls to CORR-owned properties. CORR is pursuing developing a cooperative program for this Permit element.	• CORR will continue implementing the existing IDDE program. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to the IDDE program. • CORR will begin developing a written procedure for this program element. • CORR is pursuing developing a cooperative program for this program element with permittees located within CORR's jurisdiction.		In-Process -	Fully Implemented: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.30			30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division
5.4	95	Develop an education program as required in Part I.D.5.e.(i).(d). Develop an education program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials. The permittee shall inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.	CORR will continue to participate in the MRGSQT and collaborate with the MS4 permittees to provide educational information regarding storm water quality to the community. This information will promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials. This program informs the public of hazards associated with illicit discharges and improper waste disposal, as well as proper ways to dispose of hazardous wastes.	• CORR will continue its involvement with and financial support of BEMP and RiverXchange through the MRGSWQT. • CORR will work with the MRGSWQT to inform the general public of the hazards associated with illegal discharges and improper disposal of waste. • The MRGSWQT Outcomes Report will be submitted in the Annual Report. • CORR will continue an in-house training program for its administrative, engineering and field employees regarding illegal discharges and improper disposal of waste.	The Middle Rio Grande Stormwater Quality Team has published outreach material "Keep the Rio Grand - Reduce Stormwater Pollution at Home!" CORR					18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NDPES Project Manager Implementation: Development Services Engineering Division and MRGSWQT
5.5	96	Establish a hotline as required in Part I.D.5.e.(i).(e).	Fully Implemented - CORR encourages public involvement and participation by reporting all City Code violations. A) Reporting on the City website or mobile App. Report Rio Rancho is a free, intuitive online and smartphone application that allows residents and businesses of Rio Rancho to identify environmental concerns; and report them to the appropriate city department. B) Contrating City departments directly. Residents may contact departments directly to report environmental issues or request services. In both instances, each depart is responsible to respond to employee and public reports, and track concerns as required by the individual department protocols.	• CORR will continue to respond to the information received from this application integral to the IDDE program.	Fully Implemented: Report Rio Rancho App/Website has a NEW report type "Envirionmental Concern" which tracks Illicit Discharge of Waste, Surface Sewage/Failed Septic Systems and Water Waste.					18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Information Technologies / Public Works Records & GIS

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5.6	97	Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i).(f). Investigate suspected significant/severe illicit discharges within forty-eight (48) hours of detection and all other discharges as soon as practicable; elimination of such discharges as expeditiously as possible; and, requirement of immediate cessation of illicit discharges upon confirmation of responsible parties. Illicit Discharge is defined in 40 CFR 122.26(b)(2)as "Illicit discharge means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities."	CORR will continue its policy of investigation of suspected significant/severe illicit discharges within forty-eight (48) hours of detection/reporting and all other discharges as soon as practicable. CORR plans to continue removing/treating such discharges as expeditiously as possible and requiring immediate cessation of illicit discharges upon confirmation of responsible parties. CORR will continue its procedures for illicit discharge investigation and use of its IDDE Incident Report Form. "Illicit discharge" also covers illegal or improper disposal or dumping of wastes into CORR facilities. For CORR, "illicit discharges" typically fall into two categories: (1) liquid discharge, or (2) solid discharge (dumped trash, debris, dirt/sediment, tires). Liquid discharges are considered urgent in order to quickly determine if they are significant/severe illicit discharges and are investigated within forty-eight (48) hours of detection. Solid discharge are investigated and identified for clean-up during watershed clean-up events.	• CORR will continue its policy of investigation of suspected significant/severe illicit discharges within 48 hours of detection and all other discharges as soon as practicable. • CORR will continue investigation and documentation of all applicable illicit discharge complaints (using IDDE Incident Report Form) received through the Report Rio Rancho website/app, as well as other complaints received directly by CORR staff through e-mail, phone, or observation. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to investigation of illicit discharges. • CORR will develop a written procedure for this program element and develop an electronic field form for gathering applicable information regarding reported IDDE.	Fully Implemented:		Fully Implemented/Revised: On May 23, 2018 admendments to the Chapter 153 Erosion Control; Storm Drainage and Stormwater Quality Ordinance was adopted. See Section 153.32			18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
5.7	98	Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i).(g). Review complaint records for the last permit term and develop a targeted source reduction program for those illicit discharge /improper disposal incidents that have occurred more than twice in two (2) or more years from different locations.	CORR will continue its policy of reviewing complaint records. In addition, complaint records that are determined to be illicit discharges will be added to the CORR GIS database. The location, date, type of illicit discharge, and source (if known) will be documented. To meet the Permit requirements in Table 1.a (Part I.C.2), regarding discharges to impaired waters with a TMDL (E. coli), CORR's review of complaint records will include a focus on illicit discharges contributing bacteria to the MS4. CORR will develop a targeted source reduction program for those illicit discharge/improper disposal incidents that have occurred more than twice in 2 or more years from different locations. CORR has in place a cooperative arrangement with the City of Rio Rancho for notification of illicit discharges.	• CORR will continue its policy of reviewing complaint records. This will include a focus on illicit discharges contributing bacteria to the MS4. • Annually, CORR will reevaluate its targeted source reduction program. Potential future targets will be determined and cooperative efforts for targeted source reduction programs with MRGSWQT members will be considered. • CORR will continue adding illicit discharge complaint records for the permit term to the CORR GIS database to help identify sources and trends. • CORR continue developing a cooperative for this program element.						1 year (cooperative) from effective date of MS4 Permit Dec. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
Not Included in NOI	99	As required in Part I.D.5.e.(ii), the permittee shall address the following categories of non-stormwater discharges or flows (e.g., illicit discharges) only if they are identified as significant contributors of pollutants to the MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(90)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. Note: Discharges or flows from fire fighting activities are excluded from the effective prohibitions against non-stormwater and need only be addressed where they are identified a significant sources of pollutants to water of the United States).	Any such discharge that is identified as a significant contributor of pollutants to the CORR MS4, or is causing or contributing to a water quality standards violation, will be addressed as an illicit discharge pursuant to Part I.D.5.e of the MS4 Permit. The Permit lists authorized non-stormwater discharges in Part I.D.5.e.(ii). Many of these authorized non-stormwater discharges are not applicable to CORR and none of these discharges are expected to be significant contributors of pollutants to the MS4.	• The CORR NPDES Project Manager will review this list annually to check that the categories of authorized non-stormwater discharges are still not considered significant contributors of pollutants to the MS4.						No specific implementation schedule, CORR will review annually.			

City of Rio Rancho Storm Water Management Plan
NPDES Permit No. NMR04A000

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5.8	100	As required in Part I.D.5.e.(iii), the permittee must screen the entire jurisdiction at least once every five (5) years and high priority areas at least once every year. High priority areas include any area where there is ongoing evidence of illicit discharges or dumping, or where there are citizen complaints on more than five (5) separate events within twelve (12) months. The permittee must: (a) Include in its SWMP document a description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected. (b) Comply with the dry weather screening program established in Table 6 and the monitoring requirements specified in Part III.A.2. (c) If applicable, implement the priority ranking system developed in previous permit term.	CORR will continue to make progress with its IDDE activities and program, working toward the permit deadlines described for this permit activity. Much of this effort may be in coordination with MS4 permittees CORR, Sandoval County, Village of Corrales, Town of Bernalillo and NMDOT. Part I.D.5.e.(ii).(a) - IDDE screening methods, quality assurance and controls protocols, schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected will be developed in years 1-3 of the Permit. CORR has implemented a routine inspection and O&M program that includes both formal and informal inspections. These O&M inspections will be part of the IDDE screening program. Part I.D.5.e.(ii).(b) - Development of the screening procedures and protocols will comply with the dry weather screening program monitoring requirements specified in Table 6 and Part III.A.2. Due to the nature of the climate in the Middle Rio Grande, screening will consist primarily of visual inspection of outfalls to arroyo beds. Part I.D.5.e.(ii).(c) - For CORR, the priority ranking is not applicable but, as part of cooperative program, CORR will follow the cooperative priority ranking.	• CORR will develop screening procedures, protocols and plan in years 1-3 for the Permit (Dec. 22, 2014 through Dec. 22, 2017). This may be done as a cooperative program. • CORR will implement the IDDE required screening activities for a minimum of 30% of the MS4 by the end of year 4 for this Permit (Dec. 22, 2018). • CORR will complete the IDDE required screening activities for 70% the of the MS4 system by the end of year 5 for this Permit (Dec. 22, 2019). • CORR will continue membership and involvement in the cooperative MRGSWQT which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to screening for illicit discharges. • CORR is pursuing developing a cooperative for this program element, including implementing the priority ranking system.						Cooperative program - High Priority - screen 1x per year. -Years 1 -3: develop procedures as required in Part I.D.5.e.(i).(c). -Year 4: screen 30% of the MS4 area. -Year 5: screen 70% of the MS4 area.	**See Measurable Goal Schedule**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
5.9	101	Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv).	CORR will continue to regularly collect waste within its rights-of-ways. CORR will work with Sandoval County, SSCAFCA, Town of Bernalillo, and Village of Corrales to expand the Hazardous Household Waste collection program.	• CORR will work with Sandoval County to increase the number of Household Hazardous Waste collection days hosted. • CORR will continue working with Sandoval County and SSCAFCA on watershed clean-up events		Fully Implemented: City of Rio Rancho/Sandoval County Recyling Center opened in 2011	**CITY OF RIO RANCHO/ SANDOVAL COUNTY RECYCLING CENTER CLOSURE:** The City of Rio Rancho and Sandoval County joint recycling center located off Iris Road closed on June 23, 2018. The facility officially opened on 2011 in response to citizen input. However, Rio Rancho residents are now being offered more extensive and convenient trash and recycling pickup services directly at their homes through Waste Management that create operating efficiencies and reduce the need for an alternate recycling facility. For more information about Waste Management's services for the City of Rio Rancho, please visit home.wm.com/rio-rancho.	**NEW! WASTE MANAGEMENT'S AT YOUR DOOR SPECIAL COLLECTION SERVICE.** A three step system to collect electronics, paint, motor oil, pool chemicals, batteries, and other household hazardous waste. Waste Management provides residential services as well: Bulk item collection, Free Glass Drop-off, Yard Waste, and Free Monthly Landfill Access		30 months (cooperative) from effective date of MS4 Permit June 22, 2017	**June 22, 2017**	**30**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering, Parks and Rec, KRRB, and Waste Management Services.
5.10	102	Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v). The Spill Prevention and Response program shall include: (a) Where discharge of material resulting from a spill is necessary to prevent loss of life, personal injury, or severe property damage, the permittee(s) shall take, or ensure the party responsible for the spill takes, all reasonable steps to control or prevent any adverse effects to human health or the environment: and (b) The spill response program may include a combination of spill response actions by the permittee (and/or another public or private entity), and legal requirements for private entities within the permittees municipal jurisdiction.	CORR - All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. The purpose of this annex is to provide a guide to manage a hazardous materials incident. Annex Q defines the responsibilities, duties and procedures to be followed by the Rio Rancho Police Department, Rio Rancho Fire/Rescue Department, other government agencies, and private entities regarding a hazardous materials incident occurring in Rio Rancho. The ultimate goal is to protect the population and environment from the adverse impacts of the hazardous materials incident. The terms "hazardous materials" in Annex Q includes explosive, flammable, combustible, corrosive, oxidizing and toxic materials that, when released in sufficient quantities, put the general public or environment in danger.	• CORR will continue to cooperate with overlapping jurisdictions for spill response. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) and the MRGSWQT which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to spill prevention and response.	Fully Implemented: All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. CORR Fire Prevention Divison conducts annual inspections.	Fully Implemented: All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. CORR Fire Prevention Divison conducts annual inspections.	Fully Implemented: All-Hazard Emergency Operations Plan, Annex Q - Hazardous Materials. CORR Fire Prevention Divison conducts annual inspections.	Fully Implemented: Stormwater Pollution Prevention Plans (SWPPP) are implemented for all major municipal operations (fleet and building maintenance, streets and right-of-way maintenance, and parks, recreation and community services). SWPPP's contain a Spill Response Plan specfic to each facility.		18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
Not Included in NOI	103	Update the SWMP document and annual report as required in Part I.D.5.e.(iii), Part I.D.5.e.(vi), and Part I.D.5.e.(vii). A description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected.	CORR will continue screening the entire jurisdiction at least once every 5 years and high priority areas at least once every year in accordance with the permit requirements. CORR's NPDES Project Manager will review the program requirements listed in Part I.D.5.e, for the above-mentioned program elements, during the Annual Report process. A review of the screening completed and the data collected will be included in the Annual Report. A strategy to implement any new program requirements will be developed as needed.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part I.D.5.e, for the above-mentioned SWMP elements, and develop a strategy, if applicable, to implement any new program requirements. • CORR will include a review of the screening completed and the data collected will be included in the Annual Report.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

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5.11	104	Enhance the program to include requirements in Part I.D.5.e.(ix). The permittee may: (a) Divide the jurisdiction into assessment areas where monitoring at fewer locations still provides sufficient information; (b) Downgrade high priority areas after the area has been screened at least once and there are citizen complaints on no more than 5 separate events within a 12 month period; (c) Rely on a cooperative program with other MS4s for detection and elimination of illicit discharges and illegal dumping; (d) If cooperative program, required detection program frequencies may be based on the combined jurisdictional area rather than individual jurisdictional areas to reduce total number of screening locations; (e) After screening a non-high priority area once, adopt an "in response to complaints only" IDDE for that area (no more than 2 separate events within a 12 month period); (f) Enhance the program to utilize methodologies consistent with those described in "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments."	Part I.D.5.e.(ix). CORR may enhance the program to include requirements in Part I.D.5.e.(ix) as needed	• CORR will document enhancements made with enhancement activities in the SWMP and Annual Report.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
	105	**TABLE 7: Control of Floatables Discharges - Part I.D.5.f**											
6.1	106	As required in Part I.D.5.f.(i), the permittee must develop, update, and implement a program to address and control floatables in discharges into the MS4. The floatables control program shall include source controls and, where necessary, structural controls. Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit. The permittee shall develop or update a schedule to implement as required in Part I.D.5.f.(i).(a).	CORR will continue to implement a program to address and control floatables in discharges into the MS4. CORR will continue to install stormwater quality features to control floatables, such as ported risers, trash racks, and screened inlets in both new construction and retrofits where appropriate. SEE APPENDIX H	• The CORR NPDES Project Manager will continue to review, revise, and implement a program to address and control floatables in discharges into the MS4. CORR will develop a written procedure for this program element. • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related control of floatables discharges. • CORR will continue utilizing the manual trash collection contracts. • CORR will continue cooperative watershed clean-up events with the City of Rio Rancho. • CORR is pursuing developing a cooperative program for this program element.	The majority of City ponds have existing water quality outlet structures that collect floatables.					18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
6.2	107	Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i).(b).	CORR will estimate the annual volume of floatables and trash removed from each control facility as well as to characterize the floatable type. The CORR SROW track the volume of floatables, sediment, trash, and debris removed from CORR facilities on an event basis. This tracking procedure includes the location of removal by facility and watershed.	• CORR will include in each annual report an estimate of the annual volume of floatables and trash removed from each control facility and characterize the floatable type. • CORR will continue to improve SROW staff tracking methods, allowing CORR to better and more easily determine the volume of floatables and sediment removed from each CORR facility.		Fully Implemented: IDDE Program includes a Trash Survey Form. Estimated volume of floatables and trash removal are calculated annually.				10 months from effective date of MS4 Permit Oct. 22, 2015	**June 22, 2017**	**30**	Program Lead: Streets and Right-of -Way Manager Implementation: Public Works Department
Not Included in NOI	108	Update the SWMP document and annual report as required in Part I.D.5.f.(ii) and Part I.D.5.f.(iii).	CORR's NPDES Project Manager will review the program requirements listed in Part I.D.5.f, for the above-mentioned program elements, during the Annual Report process. A strategy to implement any new program requirements or improve the compliance with program requirements will be developed as needed.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part I.D.5.f, for the above-mentioned SWMP elements, and assess the overall success of the program and document the program effectiveness in the Annual Report.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering

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	109	**TABLE 8: Public Education and Outreach on Stormwater Impacts - Part I.D.5.g**											
7.1	110	Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii). This comprehensive stormwater program should educate the community, employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater.	• Through involvement in the MRGSWQT, CORR will continue to collaborate with the MS4 permittees to improve upon the existing public education and outreach program. • The MRGSWQT has a local Public Relations consulting firm under contract to provide public education and outreach on stormwater impacts. Included in their scope is to provide an Outcomes Report to summarize the yearly outreach activities through different media and methods, target audiences and estimate of people reached. • Target pollutants include pet waste and trash/debris. These pollutants were chosen on the basis of studies conducted in the previous permit cycle. • Continue "Scoop the Poop" public outreach campaign at targeted CORR-owned facilities. • Currently, the MRGSWQT funds classroom and field education programs, media campaigns, printed materials including brochures, public presentations/events, giveaways, display booth/kiosk, signage at select locations, website and Facebook page.	• CORR will contribute and participate in the MRGSWQT. • The MRGSWQT Outcomes Report will be submitted in the Annual Report. • CORR will continue to conduct education and outreach presentations to the community specific to CORR facilities and water quality.	MRGQST memebers continue develop, revise, implement, and maintain education and outreach programs.					14 months (cooperative) from effective date of MS4 Permit February 22, 2016	**February 22, 2016**	**14**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering, KRRB, and MRGSWQT
7.2	111	Update the SWMP document and annual report as required in Part I.D.5.g.(iii) and Part I.D.5.g.(iv). (iii) The permittee must include the following information in the SWMP document: (a) A description of a program to promote, publicize, facilitate public reporting of the presence of illicit discharges or water quality associated with discharges from MS4s; (b) A description of the education activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; & (c) A description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.g.(i) and Part I.D.5.g.(ii) and its corresponding measurable goal. (iv) The permittee must assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the Annual Report.	CORR's NPDES Project Manager will review the program requirements listed in Part I.D.5.g, for the above-mentioned program elements, during the Annual Report process. A strategy to implement any new program requirements or improve compliance with the program requirements will be developed as needed.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part I.D.5.g, for the above-mentioned SWMP elements, and assess the overall success of the program and document direct and indirect measurements of the program effectiveness in the Annual Report.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering
7.2	112	Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii). (v) Where necessary to comply with the MS4 Permit, the permittee should develop a program or modify/revise an existing education and outreach program to: (a) Promote, publicize, and facilitate the use of GI/LID/Sustainability practices; and (b) Include an integrated public education program regarding litter reduction, reduction in pesticide/herbicide use, recycling, and disposal (including yard waste, hazardous waste materials, and used motor vehicle fluids), and GI/ LID/ Sustainable practices (as allowed by the NM OSE). (vi) The permittee may collaborate or partner with other MS4 operators to maximize the program and cost effectiveness of the required outreach. (vii) The education and outreach program may use citizen hotlines as a low-cost strategy to engage the public in illicit discharge surveillance. (viii) The permittee may use stormwater educational materials provided by the State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The permittee may also integrate the education and outreach program with existing education and outreach programs in the MRG area.	CORR will continue to include in its (and in the cooperative MRGSWQT) public education and outreach program: GI/LID/sustainability, litter reduction, pesticide/herbicide proper use and reduction, recycling and proper disposal, public hotline for illicit discharge reporting, classroom education on stormwater, sponsorship of professional conferences, participation in regional events, and pet waste disposal education.	• If enhancement activities are implemented, CORR will annually document progress made with these program enhancement activities.						Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members, KRRB,

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	113	**TABLE 9: Public Involvement and Participation - Part I.D.5.h**											
8.1	114	Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii). This plan should provide opportunities for participation in the review, modification and implementation of the SWMP; develop and implement a process by which public comments to the plan are received and reviewed by the person(s) responsible for the SWMP; and make the SWMP available to the public and to the operator of any MS4 or Tribal authority receiving discharges from the MS4.	CORR will continue its Public Involvement and Participation program to encourage public involvement in the review, modification and implementation of the CORR SWMP, as required in Part I.D.5.h.(ii).	• Post the draft SWMP, any SWMP amendments or modifications, and draft Annual Reports to CORRs NPDES Stormwater Program www.rrnm.gov/index.aspx?nid=2184 website with an explanation of the public comment period and instruction on how to submit comments. The posted documents will show redline and strikethrough of text additions and deletions and/or provide explanations for substantial changes. • A 30-day comment period will be allotted for SWMP document public review. • A 45-day comment period will be allotted for Annual Report document public review as required in Part III.B of the MS4 Permit. • Notice to the public will be done using CORRs NPDES Stormwater Program website.	Full Implemented: NOI, SWMP, Annual Report(s) are available to the public and to other operators via City of Rio Rancho Stormwater Webpage: https://rrnm.gov/2184/NPDES-Stormwater-Program					10 months from effective date of MS4 Permit Oct. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
8.1	115	As required in Part I.D.5.h.(iii), the Public Involvement and Participation Plan shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination. The permittee must include the following elements in the plan: (a) A detailed description of the general plan for informing the public of involvement and participation opportunities, including types of activities; target audiences; how interested parties may access the SWMP; and how the public was involved in development of the SWMP; (b) The development and implementation of at least one (1) assessment of public behavioral change following a public education and/or participation event; (c) A process to solicit involvement by environmental groups, environmental justice communities, civic organizations or other neighborhoods /organizations interested in water quality-related issues; and (d) An evaluation of opportunities to utilize volunteers for stormwater pollution prevention activities and awareness throughout the area.	As allowed in this Permit section's "Program Flexibility Elements", CORR, through its involvement with the MRGSWQT, has integrated this section of the Public Involvement and Participation Program with existing education and outreach programs in the Middle Rio Grande area.	• CORR will contribute and participate in the MRGSWQT, which participates in public events and solicit public participation and feedback by way of surveys. • In targeted areas, CORR will continue to it's "Scoop the Poop" public outreach campaign.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2015-Jun. 2016) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2016-Jun. 2017) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2017-Jun. 2018) Annual Report.	Fully Implemented: The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. Performance assessment can be found in the (Jul. 2018-Jun. 2018) Annual Report.		1 year (cooperative) from effective date of MS4 Permit Dec. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering and MRGSWQT
8.2	116	Comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv). Reporting notification requirements also in Part III.D.4.	CORR will provide hard copies of all MS4 compliance reporting documents to the NMED, Pueblos of Sandia and Isleta as required here and in Part III.D.4 of the MS4 Permit. The SWMP and Annual Reports are also available on CORRs NPDES Stormwater Program www.rrnm.gov/index.aspx?nid=2184 website.	• CORR will provide hard copies of relative MS4 compliance reporting documents to the NMED, Pueblos of Sandia and Isleta as required here and in Part III.D.4 of the MS4 Permit. • CORR will continue to post the SWMP and Annual Reports on CORRs NPDES Stormwater Program www.rrnm.gov/index.aspx?nid=2184 website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.	Fully Implemented: CORR has provided NOI hard copy to NMED, Pueblo of Sandia, and Pueblo of Isleta. USEPA R6 via email. CORR NOI is posted on CORRs Stormwater Program website.		10 months from effective date of MS4 Permit Oct. 22, 2015	**February 22, 2016**	**14**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
8.3	117	Include elements as required in Part I.D.5.h.(v). The public participation process must reach out to all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local stormwater management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other preexisting programs, or participating in volunteer monitoring efforts.	As allowed in this Permit section's "Program Flexibility Elements", CORR, through its involvement with the MRGSWQT, has integrated this section of the Public Involvement and Participation Program with existing education and outreach programs in the Middle Rio Grande area. CORR will continue to include water quality information for the public at events, including public meetings. CORR may have Spanish translations of public meeting announcements and data sheets.	• CORR will continue to include (along with the cooperative MRGSWQT) water quality information for the public at events, including public meetings. Where neighborhoods include Spanish-speaking residents, CORR may have Spanish-translations available of public meeting announcements and data sheets. The educational videos on the MRGSWQT website (www.keeptheriogrand.org) all have Spanish subtitles. By attending a variety of events, at widespread locations throughout the area, and by using the leading area newspaper (Albuquerque Journal) to advertise events, The MRGSWQT ensures that a wide-range of economic and ethnic groups are reached.	The Middle Rio Grande Stormwater Quality Team Outcomes Report provides a summary of public education and outreach plan. See (Jul. 2015-Jun. 2016) Annual Report					18 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MRGSWQT

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8.4	118	Update the SWMP document and annual report as required in Part I.D.5.h.(vi), Part I.D.5.h.(vii), and Part I.D.5.h.(viii). The permittee must provide public accessibility of the SWMP and Annual Reports online via the Internet and during normal business hours at the MS4 operator's main office for public inspection and copying consistent with any applicable federal, state, tribal, or local open records requirements. Upon a showing of significant public interest, the MS4 operator is encouraged to hold a public meeting (or include in the agenda of in a regularly scheduled city council meeting, etc.) on the NOI, SWMP, and Annual Reports.	CORR's NPDES Project Manager will review the program requirements listed in Part I.D.5.h, for the above-mentioned program elements, during the Annual Report process. A strategy to implement any new program requirements or improve compliance with the program requirements will be developed as needed. CORR will provide public accessibility of the SWMP and Annual Reports online via the Internet on the following web sites: http://www.rrnm.gov/index.aspx?NID=2184 keeptheriogrand.org	• As part of the Annual Report process each year, the Deputy Development Services Director and Engineering Division Manager will review the program requirements listed in Part I.D.5.h, for the above-mentioned SWMP elements, and assess the overall success of the program and document the program effectiveness in the Annual Report. • CORR will provide public accessibility of the SWMP document and most recent Annual Report online via the Internet (www.rrnm.gov/index.aspx?NID=2184) and during normal business hours at the CORR office. CORR is located at 3200 Civic Center Circle NE, Rio Rancho, NM 87144. The phone number is 505-891-5045.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.	Fully Implemented: CoRR SWMP and Annual Reports are publicly accessible online via internet and during normal business hours at Rio Rancho City Hall.		Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
8.5	119	Enhance the program to include requirements in Part I.D.5.h.(ix).	CORR will continue to include in its (and in the cooperative MRGSWQT) public involvement and participation program: funds toward groups which include public participation, such as Boy or Girl Scouts of America, RiverXchange, and the Bosque Ecosystem Monitoring Program (BEMP).	• CORR will annually document progress made with these program enhancement activities. CORR and the MRGSWQT will continue to review, update, and enhance public involvement and participation programs.	MRGQST has continued its educational partmerships with BEMP and RiverXchange. Total budget spent on both programs = $14,692.50. See (Jul. 2015-Jun. 2016) Annual Report.					Update as necessary for SWMP and annually for Annual Report	**Update as necessary**		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

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	120	**Part III - Monitoring, Assessment and Reporting Requirements**											
	121	**TABLE 10: Wet Weather Monitoring Program - Part III.A.1**											
See NOI Sections Below	122	According to the requirements in Part III.A.1., The permittee must develop, in consultation with NMED and EPA (and affected Tribes if monitoring locations would be located on Tribal lands), and implement a comprehensive monitoring and assessment program. The permittees shall conduct wet weather monitoring to gather information on the response of receiving waters to wet weather discharges from the MS4 during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Wet Weather Monitoring shall be conducted at outfalls, internal sampling stations, and/or in-stream monitoring locations at each water of the US that runs in each entity or entities' jurisdiction(s).	Wet weather screening is synonymous with compliance monitoring. In the MS4 Permit area, stormwater runoff discharges to the Rio Grande at outfall locations via major drainage channels, storm drains and pump stations. Details for this program are provided in the SWMP sections below.	The program details and measurable goals are described below. The monitoring program will be conducted according to the approved Cooperative Monitoring Plan (submitted to EPA on June 20, 2016).						See specific Permit activity schedules below.			Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
IV	123	Part III.A.3.1.b. Option B: Cooperative Monitoring Program Develop a cooperative wet weather monitoring program with other permittees in the Middle Rio Grande Watershed. The program will monitor waters coming into the watershed (upstream) and leaving the watershed (downstream). The program must include sampling for TSS, TDS, COD, BOD5, DO, oil and grease, E. coli, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and Gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Permittees must include additional parameters from monitoring conducted under permits NMS000101, NMR040000 or/and NMR040001 whose mean values are at or above a WQS. The monitoring program must sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 events in the wet season and 2 events in the dry season.	The cooperative monitoring program will sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 in the events wet season and 2 events in the dry season. The wet season is defined in the permit as July 1 through October 31 and the dry season as November 1 through June 30.	• The monitoring program will follow the permit requirements for parameters tested (TSS, TDS, COD, BOD_5, DO, oil and grease, E. coli, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs, Gross alpha, and temperature). In addition, parameters from stormwater monitoring conducted under permits NMS000101, whose mean values are at or above a WQS, will also be tested. • The monitoring program will be conducted according to the approved Cooperative Monitoring Plan (submitted to EPA on June 20, 2016).						Monitoring program will sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 events in the wet season and 2 events in the dry season.			Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
IV	124	As required in Part III.A.1. and Table 10, the permittees shall submit wet weather monitoring preference Option A or Option B to EPA (i.e., individual monitoring program vs. cooperative monitoring program) with NOI submittals.	CORR submitted its NOI in compliance with the permit requirements and schedule. CORR will participate in Option B - cooperative monitoring program.	Operation B - Cooperative Monitoring Program preference was submitted the CORR NOI on June 19, 2015. See SWMP						N/A	**June 22, 2015**	**6**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
Not Included in NOI	125	Submit a detailed description of the monitoring scheme to EPA and NMED for approval. The monitoring scheme should include: a list of pollutants; a description of monitoring sites with an explanation of why those sites were selected; and a detailed map of all proposed monitoring sites. In addition, as required in Part III.A.1.h, the monitoring program must include a contingency plan for collecting additional monitoring data within the MS4 or at additional appropriate instream locations should monitoring results indicate that MS4 discharges may be contributing to instream exceedances of WQS. The purpose of this additional monitoring effort would be to identify sources of elevated pollutant loadings so they could be addressed by the SWMP.	CORR has developed, with its cooperative partners, a proposed monitoring scheme for Compliance Monitoring and has submitted this to EPA for approval (submitted to EPA on December 18, 2015).	• The monitoring program will be conducted according to the approved proposed monitoring scheme for Compliance Monitoring (submitted to EPA on December 18, 2015).	Fully Implemented: Proposed Monitoring Plan submitted on Dec. 18, 2015. See (Jul. 2015-Jun. 2016) Annual Report.					1 year (cooperative) from effective date of MS4 Permit Dec. 22, 2015	**December 22, 2015**	**12**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members
Not Included in NOI	126	Submit certification that all wet weather monitoring sites are operational and begin sampling.	Once CORR, and its cooperative partners, receive approval from NMED and EPA on the proposed monitoring scheme for Compliance Monitoring (submitted to EPA on December 18, 2015), the cooperative will be able to move forward with ensuring the monitoring sites are ready to sample according to the monitoring plan. CORR is in the process of defining a cooperative program for the compliance monitoring. CORR, with its cooperative partners (still to be determined), will submit certification to EPA that all wet weather monitoring sites are operational and will begin sampling, according to the Permit requirements.	• CORR, with its cooperative partners (still to be determined), will submit certification to EPA that all wet weather compliance monitoring sites are operational and will begin sampling, according to the Permit requirements.	In-Process -	Fully Implemented - Wet Weather Monitoring Program is operational and ready for sampling. See (Jul. 2015-Jun. 2016) Annual Report.				14 months (cooperative) from effective date of MS4 Permit June 22, 2016	**June 22, 2016**	**18**	Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division and MCM Members

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Not Included in NOI	127	As required in Part III.A.1.e, update SWMP document and submit annual reports. The results of the Wet Weather Monitoring must be provided in each annual report.	CORR's NPDES Project Manager will review the program requirements listed in Part II.A.1, for the above-mentioned program elements, during the Annual Report process. A strategy to implement any new program requirements or improve compliance with the program requirements will be developed as needed. The Wet Weather Monitoring results obtained from July 1st to June 30th will be submitted in each Annual Report on Discharge Monitoring Report (DMR) forms as required in Part III.D.1. CORR will submit "after action" reports on sample events with the Annual Report.	• As part of the Annual Report process each year, the NPDES Project Manager will review the program requirements listed in Part III.A.1, for the above-mentioned SWMP elements, and assess the overall success of the program and document the program effectiveness in the Annual Report. • The Wet Weather Monitoring results obtained from July 1st to June 30th will be submitted in each Annual Report on Discharge Monitoring Report (DMR) forms as required in Part III.D.1.	EPA Form 3320-1 DMR submitted with (Jul. 2015-Jun. 2016) Annual Report. No sample collected. Sampling plan for the Middle Rio Grande Collaborative Monitoring Group was was not approved by EPA until 06/22/16. No storm events occurred between 06/22/2016 and 06/30/2016.	CMC Wet Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and Reporting FY 2017 Wet Season (July 1 to October 31, 2016) - March 6, 2017 - Memo - 393 pages.	CMC Wet Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and Reporting FY 2018 Wet Season (July 1 , 2017 to October 31, 2017) - Feburary 20, 2018. See 255 page Memorandum in Annual Report.			Update as necessary for SWMP and annually for Annual Report	Annually		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

NOI Section	ID	Permit Activity Description	Proposed Plan	Measurable Goal	Status of Implementation and Performance Assessment Permit Year July 2015 to June 2016 (Permit Year 1)	Status of Implementation and Performance Assessment Permit Year July 2016 to June 2017 (Permit Year 2)	Status of Implementation and Performance Assessment Permit Year July 2017 to June 2018 (Permit Year 3)	Status of Implementation and Performance Assessment Permit Year July 2018 to June 2019 (Permit Year 4)	Changes Proposed for SWMP for BMP Activity or Measurable Goal	Permit Required Implementation Schedule	Cooperative Implementation Schedule	Cooperative Permit Required Implementation Schedule (Months)	Responsible Personnel
	128	**Dry Weather Discharge Screening of MS4 - Part III.A.2**											
Not Included in NOI	129	According to the requirements in Part III.A.2., Each permittee shall identify, investigate, and address areas within its jurisdiction that may be contributing excessive levels of pollutants to the Municipal Separate Storm Sewer System as a result of dry weather discharges (i.e., discharges from separate storm sewers that occur without the direct influence of runoff from storm events, e.g. illicit discharges, allowable non-stormwater, groundwater infiltration, etc.). Due to the arid and semi-arid conditions of the area, the dry weather discharges screening program may be carried out during both wet season (July I through October 31) and dry season (November 1 through June 30). Results of the assessment shall be provided in each annual report.	The program details and measurable goals are described below and In Table 6 - Illicit Discharge and Improper Disposal.	The program details and measurable goals are described below and in Table 6 - Illicit Discharge and Improper Disposal.						See specific Permit activity schedules below.	**Screen the entire jurisdiction at least once (1) every five (5) years and high priority areas at least once (1) a year. ***High priority areas include areas where there are ongoing evidence of ID, or where there are citizen complaints on more that five (5) separate events within twelve (12) months*****		Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division
Not Included in NOI	130	This program may be coordinated with the illicit discharge detection and elimination program required in Part I.D.5.e. The dry weather screening program shall be described in the SWMP and comply with the schedules contained in Part I.D.5.e.(iii). The permittee shall: a) Include sufficient screening points to adequately assess pollutant levels from all areas of the MS4. b) Screen for, at a minimum, BOD_5, sediment or a parameter addressing sediment (e.g., TSS or turbidity), E. coli, Oil and Grease, nutrients, any pollutant that has been identified as cause of impairment of a waterbody receiving discharges from that portion of the MS4, including temperature. c) Specify the sampling and non-sampling techniques to be issued for initial screening and follow-up purposes. d) Perform monitoring only when an antecedent dry period of at least 72 hours after a rain event greater than 0.1 inch in magnitude is satisfied. Monitoring methodology shall consist of collecting a minimum of 4 grab samples spaced at a minimum interval of 15 minutes each.	There are no perennial streams in the Albuquerque area that contribute to the Rio Grande. As such, the dry weather screening program serves a dual purpose as an illicit discharge screening analysis. CORR will continue with the existing Dry Weather Screening program in place while working cooperatively to develop illicit discharge screening procedures and plan, as required in part I.D.5.e.(iii). The existing Dry Weather Screening program includes visual screening of arroyos. Should any discharge be present in a quantity sufficient for analysis, it will be screened for BOD5, sediment (e.g., TSS or turbidity), E. coli, Oil and Grease, and nutrients. Any discharge collected will be a grab sample according to the Permit monitoring methodology.	• Visual screening results will be included in CORR's Annual Report when provided. • CORR will continue with the existing Dry Weather Screening program while working cooperatively to develop illicit discharge screening procedures and plan, as required in part I.D.5.e.(iii). • CORR will continue membership and involvement in the cooperative MS4 Technical Advisory Group (MS4 TAG) which will facilitate cooperation and coordination with other MS4s in the Middle Rio Grande related to screening for illicit discharges.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Feb. 10, 2016. No discharges observed during screening. See IDDE Program Binder or Annual Report.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Jun. 16, 2017. No discharges observed during screening. See IDDE Program Binder or Annual Report.	Dry Weather Visual Screening was conducted at seven (7) direct outfalls (High Priority) on Jun. 16, 2017. No discharges observed during screening. See IDDE Program Binder or Annual Report.			Cooperative Program -as required in part I.D.5.e.(iii) -Years 1 -3: develop procedures as required in Part I.D.5.e.(i).(c). -Year 4: screen 30% of the MS4 area. -Year 5: screen 70% of the MS4 area.			Program Lead: NPDES Project Manager Implementation: Development Services Department Engineering Division

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	131	**Floatables Monitoring - Part III.A.3**											
Not Included in NOI	132	According to the requirements in Part III.A.3., The permittees shall establish locations for monitoring/assessing floatable material in discharges to and/or from their MS4. A cooperative monitoring program may be established in partnership with other MS4s to monitor and assess floatable material in discharges to and/or from a joint jurisdictional area or watershed basis. Floatable material shall be monitored at least twice per year at priority locations and at minimum of one (1) stations (Class B Permittee). The amount of collected material shall be estimated in cubic yards. a) Identify one (1) station to monitor and assess floatable material type.	CORR will continue to monitor floatable material and the amount collected in participation with the MS4 co-permittees. CORR will monitor floatable material in the flood pool of the Tract 17 pond in the City of Rio Rancho. This will be done in conjunction with the requirements in TABLE 7: Control of Floatables Discharges - Part I.D.5.f. CORR monitors and tracks collection of floatables at XX CORR facilities.	• CORR will continue to monitor floatable material and estimate the amount collected at least twice per year at a minimum of 1 station. • All floatable material will be taken to a local landfill for disposal.						Update as necessary for SWMP and annually for Annual Report	**Monitor at least (1) station at least twice per year at priority locations.**		
	133	**Industrial and High Risk Runoff Monitoring - Part III.A.4**											
4	134	The permittees shall monitor stormwater discharges from Type 1 and 2 industrial facilities which discharge to the MS4 provided such facilities are located in their jurisdiction. (Note: if no such facilities are in the permittees jurisdiction, the permittee must certify that this program element does not apply).	Activity removed from CORR's SWMP. This permit item is applicable to Class A permittees only.	**Not Applicable**									

Section 4	Stormwater Management Program Revisions
	4.1 Pollution Prevention/Good Housekeeping for Municipal Operations (SWPPP for Parks, Recreation and Community Services Maintenance Yard) 4.2 UPDATE – Engineering Design Analysis Report for City of Rio Rancho MS4 Outfalls

STORMWATER POLLUTION PREVENTION PLAN FOR PARKS, RECREATION AND COMMUNITY SERVICES MAINTENANCE YARD





JUNE 3, 2019

Prepared for:

RioRancho
City of Vision

Development Department
3200 Civic Center Circle NE
Rio Rancho, NM 87144

Prepared by:

Bohannan Huston
Engineering
Spatial Data
Advanced Technologies

STORMWATER POLLUTION PREVENTION PLAN FOR:

PARKS, RECREATION AND COMMUNITY SERVICES MAINTENANCE YARD

3501 HIGH RESORT BLVD. SE

RIO RANCHO, NM 87144

SWPPP Preparation Date:

JUNE 3, 2019

SWPPP Contact:

CITY OF RIO RANCHO

DEVELOPMENT DEPARTMENT

CHARLES FERNANDEZ

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OVERVIEW OF SWPPP DEVELOPMENT AND AVAILABILITY

The City of Rio Rancho (CORR) Parks, Recreation and Community Services (PRCS) Department owns and operates the PRCS Maintenance Yard. The operations of this facility have the potential to impact stormwater quality. Therefore, the CORR has developed this Stormwater Pollution Prevention Plan (SWPPP) to document good housekeeping and pollution prevention practices utilized at this facility to protect stormwater from potential pollutants.

When it rains, stormwater flows over work areas, outdoor storage areas, and parking areas at this facility. There is the potential for stormwater to wash pollutants from the vehicles, equipment, and materials stored and used at this facility as it flows over these surfaces into nearby surface waters. The stormwater flows to on-site detention ponds and these ponds discharge runoff into the adjacent Montoyas Arroyo, which flows into the Rio Grande. Stormwater receives no treatment before it reaches the Rio Grande. Therefore, this SWPPP and related training is intended to inform the PRCS staff of the following:

- The potential pollutants associated with the activities at the facility,
- The areas where spills and leaks are more likely to occur, and
- Good housekeeping and pollution prevention techniques to minimize potential pollutants in stormwater runoff from this facility.

The good housekeeping and pollution prevention measures in this SWPPP meet the requirements in Part I.D.5.c - Pollution Prevention / Good Housekeeping for Municipal Operations, contained in the Environmental Protection Agency (EPA), Middle Rio Grande Watershed Based Municipal Separate Storm Sewer System (MS4) Permit issued December 22, 2014, NPDES Permit No. NMR04A000. The overall requirements for the MS4 Permit for Pollution Prevention / Good Housekeeping for Municipal Operations, which are intended to be met with this SWPPP, are “The Permittee must develop, revise, and implement an operation and maintenance program that includes a training program and the ultimate goal of preventing or reducing pollutant runoff from municipal operations.” The general format this SWPPP follows is the Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity, though this facility is not classified as an industrial facility and therefore not covered by a MSGP.

This SWPPP is available at the PRCS Maintenance Yard at 3501 High Resort Boulevard Southeast, Rio Rancho, New Mexico 87144 and on the PRCS website at https://rrnm.gov/16/Parks-Recreation-and-Community-Services.

1 FACILITY DESCRIPTION AND CONTACT INFORMATION

1.1 FACILITY INFORMATION

Name of Facility: Parks, Recreation and Community Services (PRCS) Maintenance Yard

Street Address: 3501 High Resort Blvd. SE

City: Rio Rancho State: NM ZIP Code: 87144

County of Similar Subdivision: Sandoval County

Permit Tracking Number: N/A

Latitude: Longitude:

35°15’30.078”N (degrees, minutes, sec.) 106°40’7.567”W (degrees, minutes, sec.)

Is the facility located in Indian Country: No

If yes, name of Reservation, or if not part of a Reservation, indicate “N/A”: N/A

Is this facility considered a Federal Facility: No

Estimated area of industrial activity at site exposed to stormwater: 1.66 acres

Parks, Recreation and Community Services Yard Discharge Information

Does this facility discharge stormwater into an MS4? Yes

If yes, name of MS4 operator: City of Rio Rancho (CORR)

Name(s) of water(s) that receive stormwater from your facility: Montoyas Arroyo, which discharges to the Rio Grande

Are any of your discharges directly into any segment of an “impaired” water? Montoyas Arroyo is not “impaired,” but downstream Rio Grande is “impaired”

If Yes, identify name of the impaired water (and segment, if applicable): Rio Grande-Albuquerque [Alameda Bridge to US 550 (2105_51)]

Identify the pollutant(s) causing the impairment: Gross alpha, adjusted PCB in fish tissue, and PCB in water column

For pollutants identified, which have a completed TMDL? Segment has a TMDL for E. coli; segment is not impaired for E. coli

For pollutants identified (impaired and TMDL), which do you have reason to believe will be present in your discharge? None

Do you discharge into a receiving water designated as a Tier 2 (or Tier 2.5) water? No

Are any of your stormwater discharges subject to effluent guidelines? No

If Yes, which guidelines apply? N/A

1.2 CONTACT INFORMATION/RESPONSIBLE PARTIES

Facility Owner: City of Rio Rancho
Name: City of Rio Rancho Parks, Recreation and Community Services Department
Address: 3200 Civic Center Circle NE
City, State, Zip Code: Rio Rancho, NM 87144
Telephone Number: (505) 891-5015

Facility Operator:
Name: City of Rio Rancho Parks, Recreation and Community Services Department
Address: 3200 Civic Center Circle NE
City, State, Zip Code: Rio Rancho, NM 87144
Telephone Number: (505) 891-5015

SWPPP Primary Contact:
Name: Charles Fernandez,
Parks and Facilities Superintendent
Telephone Numbers: (505) 896-8265 or
(505) 269-8332
Email address: cfernandez@rrnm.gov

SWPPP Secondary Contact:
Name: Kevin Kraft,
Parks and Facilities Supervisor
Telephone Numbers: (505) 891-5015 or
(505) 896-8732 or (505) 220-1201
Email address: kkraft@rrnm.gov

TO REPORT A SPILL PLEASE CALL
24-HOUR EMERGENCY CONTACT

Primary Contact:
Name: Charles Fernandez,
Parks and Facilities Superintendent
Telephone Numbers: (505) 896-8265 or
(505) 269-8332
Secondary Contact:
Name: Kevin Kraft,
Parks and Facilities Supervisor
Telephone Numbers: (505) 891-5015
or(505) 896-8732 or (505) 220-1201

1.3 STORMWATER POLLUTION PREVENTION TEAM (PPT)

The stormwater pollution prevention team (PPT) is comprised of representatives from the CORR's PRCS and Development Services Departments. The responsibility of the PPT is to oversee development of the SWPPP and to implement and maintain control measures, as well as take corrective actions when required, to prevent stormwater pollution from this facility. The PPT should include those people on-site who are most familiar with the facility and its operations and who are responsible for ensuring that necessary controls are in place to eliminate or minimize the impacts of stormwater from the facility. A list of PPT members and contact information is provided in Appendix A. A summary of PPT members' responsibilities is as follows:

- PPT Leaders (Primary and Secondary) - Responsibilities include SWPPP management, facility inspections, stormwater monitoring (if needed), coordinate personnel training, spill response and reporting, evaluation of spill data to identify preventative measures, etc.
- Environmental Compliance Coordinator - Responsibilities include coordination and contracting for SWPPP development, updates, and training as well as EPA annual reporting related to MS4 pollution prevention and good housekeeping aspects related to this facility.
- PPT Members - Responsibilities include implementation of the SWPPP, inspection participation (if applicable), assistance with coordinating personnel training, etc.

Each PPT member is provided an electronic copy of the SWPPP with supporting data, including a copy of the MSGP and applicable sections of the MS4 Permit. It is the responsibility of the PPT member to maintain their copy of the SWPPP, ensure its completeness and availability, and fully implement the procedures and best management practices (BMPs). Appendix A shall be updated periodically to reflect changes in personnel. Applicable NPDES permits are included as Appendix B of this SWPPP for reference.

1.4 ACTIVITIES AT THE FACILITY WITH POTENTIAL TO BE EXPOSED TO STORMWATER

The CORR PRCS Department owns and operates the PRCS Maintenance Yard. The Facilities Division uses this yard to store and maintain equipment as well as store vehicles and materials needed to provide maintenance activities to the CORR parks and recreational facilities. The workforce that uses this yard ensures that all parks, trails, and facilities are inspected, maintained, repaired, and in operable condition for the CORR community.

Routine preventative maintenance for small equipment, including a variety of mowers and compact utility tractors, is performed at the PRCS Maintenance Yard. Vehicle maintenance is not performed at this facility; all vehicle maintenance is performed at the Public Works Fleet Maintenance facility. Maintenance occurs on a concrete lined pad (refer to Figure 1). No large spills have occurred in this area in the last three years; small spills that may occur during maintenance are immediately addressed and properly cleaned up. The maintenance pad is not washed down; this action could flush accumulated oil and grease materials into the adjacent soil and potentially into stormwater runoff. Future plans for yard improvements include consideration to cover the maintenance area to provide protection from rainfall and reduce stormwater runoff from this maintenance pad.

Figure 1: PRCS Maintenance Yard - Maintenance Area (March 2019)

Equipment, vehicles, and trailers are stored at the facility when not in use throughout the community. The equipment, vehicles, and trailers are well maintained and occasionally inspected for leaking fluids. The inspections are done primarily to ensure that the equipment and vehicles are in good working order, but they also serve the purpose of minimizing pollution at this facility from vehicle drips and leaks.

Tires required for equipment maintenance are stored on-site at the facility. The majority of the tires are currently stored within a covered, locked shed. Additional tires that do not fit in this shed will be moved and stored in a covered location. All tires should be stored off the ground (on pallets) and under cover, if possible. This practice will help to minimize exposure of stormwater to potential pollutants.

Materials required for equipment maintenance are stored at the PRCS Maintenance Yard. Motor oil, degreasers, equipment parts, and fuel cans are all stored indoors or under cover at this facility. At this facility, employees supply fuel in small quantities (5 gallons or less) for the mowers and equipment that are used at the adjacent facility to this yard.

Engineering Design Analysis Report
City of Rio Rancho MS4 Outfalls

Prepared for **City of Rio Rancho, New Mexico**

July 2, 2019

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

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Appendix

1. Background and Objectives

Daniel B. Stephens & Associates, Inc. has prepared this design analysis report for the City of Rio Rancho, New Mexico (the City). The City is a permittee of the Middle Rio Grande Watershed Based Municipal Separate Storm Sewer System (MS4) permit issued under the National Pollutant Discharge Elimination System (NPDES) (permit number NMR04A000). This permit authorizes discharges to the Rio Grande (a water of the U.S.) from MS4s under specific requirements outlined in the permit. There are 18 potential permittees to this permit, including municipalities, counties, flood control agencies (Albuquerque Metropolitan Arroyo and Flood Control Authority [AMAFCA], Southern Sandoval County Flood Control Authority [SSCAFCA], Eastern Sandoval County Flood Control Authority [ESCAFCA]), and native nations. The permit provides incentives for collaboration on permit requirements, and Rio Rancho participates in some of those, principally the Collaborative Monitoring Cooperative, under which water quality sampling is performed after qualifying rain events along the river at the entrance and exit of the watershed.

There are eight Rio Rancho MS4 outfalls to the Rio Grande that have been identified as high priority, based on location, and require improvements to remove gross pollutants. The outfalls are referred to as River’s Edge #1 through #8 (RE1 through RE8). RE1 and RE2 were designed as storm drain pipe outfalls with concrete erosion protection structures; RE3 through RE6 are storm drains with outfalls designed with stilling basins. Flow to RE7 and RE8 is conveyed through open earthen channels that each pass through a culvert and stilling basin on the east side of Willow Creek Road. RE7 has a subdivision storm drain outfall that discharges into the stilling basin adjacent to the main channel outfall. RE8 has a subdivision storm drain outfall that drains downstream of the channel outfall.

1.1 Objectives

This design analysis report evaluates options for each outfall to address the control of gross pollutants to provide preliminary construction costs and operation and maintenance (O&M) costs.

The eight outfalls addressed by this report are located east of the Corrales North Subdivision, Units 1, 2, and 3 (Figure 1).

1.2 Relevant MS4 Permit Requirements

The watershed based MS4 permit requires permittees to develop, implement, and enforce a stormwater management program (SWMP) to “reduce the discharge of pollutants from an MS4 to the maximum extent practicable (MEP), to protect water quality. . . .”

Permittees must address the following control measures:

- Construction site stormwater runoff
- Post-construction stormwater management in new development and redevelopment
- Pollution prevention/good housekeeping for municipal/permittee operations
- Industrial and high risk runoff
- Illicit discharges and improper disposal
- Control of floatables discharges
- Public education and outreach on stormwater impacts
- Public involvement and participation

Under Part I, Section D.5.f, Control of Floatables Discharges, the following activities are required for program development and implementation:

- Develop a schedule to implement the program as required in Part I.D.5.f(i)(a): Required 10 months from the effective date of the permit.
- Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f(i)(b).
- Update the SWMP document and annual report as required in Parts I.D.5.f(ii) and I.D.5.f(iii).

Source: Esri et al.

Explanation

◆ Outfall

CITY OF RIO RANCHO
DESIGN ANALYSIS REPORT FOR MS4 OUTFALLS
Outfall Locations

Daniel B. Stephens & Associates, Inc.
6/27/2019 JN DB19.1136

Figure 1

\\ss6abq\DataS\Projects\WR_City_of_Rio_Rancho\DB19.1136_Rio_Rancho_MS4_Engineering\GIS\MXDs\Figures\F01_Outfall_Locations.mxd

The City has implemented a program to conduct trash surveys using a trash survey form. The Street and Right-of-Way department will complete these forms during regular maintenance. At the time of this report, only a small number of forms have been completed. However, the form is designed to record the location, type of trash (plastic, metal, glass, misc.), and type of dumping (i.e., chronic dumping, large items [e.g., furniture], windblown) and to estimate volume.

Part III.A.3 of the permit, Floatable Monitoring, requires that the permittee establish locations for monitoring/assessing floatable material in discharges to and/or from their MS4. Floatable material is to be monitored at least twice a year at priority locations and at a minimum of two stations.

Per page 39 of Part I of the permit, the permittee must:

> c) develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, to the MS4. The permittee must include the following elements in the plan:
>
> A. Procedures for locating priority areas likely to have illicit discharges including field test for selected pollutant indicators (ammonia, boron, chlorine, color, conductivity, detergents, E. coli, enterococci, total coliform, fluoride, hardness, pH, potassium, conductivity, surfactants), and visually screening outfalls during dry weather.

If the City does not have such a plan, DBS&A recommends outfall inspections at least twice a year—once in the wet season (July through November) and once in the dry season (December through June).

1.3 Gross Pollutants Defined

From ASCG (2005), gross pollutants are defined as particles 1¾ inch or larger, composed of litter, vegetative debris, floatable debris, and coarse sediments in stormwater runoff. Although gross pollutants are commonly referred to as “floatables” or “floatable debris,” this can be misleading, as up to 80 percent of stormwater gross pollutants do not float on the surface, but rather are submerged in the water column of the storm flow. “As a result, facilities to remove gross pollutants must address both surface floating and submerged litter and debris” (ASCG, 2005).

ASCG (2005) found the distribution of gross pollutants by volume from surveys of nine sites in the watershed (Figure 2).

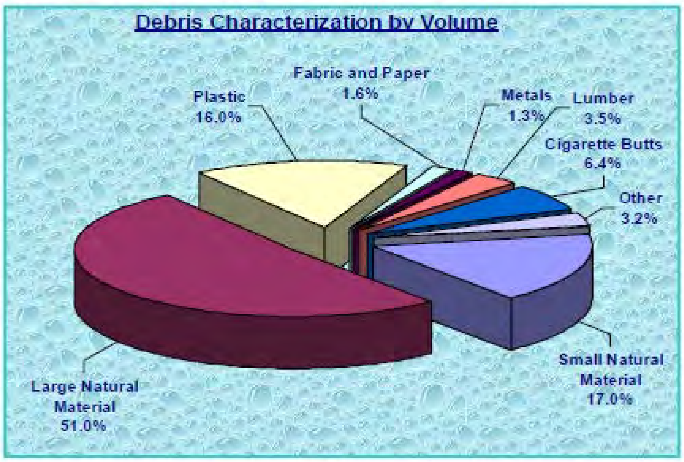


Figure 2. Distribution of Gross Pollutants by Volume (ASCG, 2005)

1.4 Outfall Descriptions and Condition

The physical construction, original design, and condition of the outfalls are described in the following subsections and summarized in Table 1. RE1 is the farthest south of the eight outfalls, which span a river distance of a little over 1 mile. Current conditions of the outfalls were documented during a May 2019 site visit.

1.4.1 River's Edge #1: 24-inch RCP

The RE1 outfall is located off Black River Drive NE, and drains approximately 19.7 acres consisting of primarily single-family residential development. It consists of a pipe with a concrete rundown. RE1 is the outfall from the Parcel "I" storm drain, the inlet to which is located on Black River Drive. The Parcel "I" storm drain consists of approximately 315 linear feet of reinforced concrete pipe (RCP), in four segments between manholes; three of these segments are 24-inch-diameter and one 80-foot segment is 18-inch-

Table 1. Existing Outfall Conditions

Outfall	Description	Stilling Basin?	Construction Access	Structure Integrity	Maintenance Access	Possible to Improve Vehicular Access for Construction and Maintenance?	Capture and Retention of Gross Pollutants
River's Edge #1 (RE1)	Parcel "I" storm drain from Black River Dr to 24-inch reinforced concrete pipe (RCP) outfall straight east.	No	Vehicular access to the storm drain, but not the end of outfall.	Good condition	Personnel access available, but not vehicular access	No, due to steep slope. Could create pedestrian access (stairs).	No capture of floatables or sediment.
River's Edge #2 (RE2)	Parcel "H" storm drain from Wolf Creek Ct to 18-inch RCP outfall straight east.	No	Vehicular access to the storm drain, but not the end of outfall.	Unknown	Personnel access available, but not vehicular access	No, due to steep slope. Could create pedestrian access (stairs).	No capture of floatables or sediment.
River's Edge #3 (RE3)	Red River storm drain crossing Riverside Dr; 60-inch RCP at outfall.	Yes	Vehicular access to the storm drain, but not the end of outfall.	Good condition; holding water, but concrete not visible	Personnel access available, but not vehicular access	Yes, additional access could be graded.	Stilling basin provides some sediment control.
River's Edge #4 (RE4)	Parcel "E" storm drain from Riverside Dr to outfall straight east; 32-inch RCP.	Yes	Vehicular access to the storm drain, but not the end of outfall.	Unknown	Personnel access available, but not vehicular access	Yes, additional access could be graded.	Stilling basin provides some sediment control.
River's Edge #5 (RE5)	Parcel "B" storm drain from west of Willow Creek Rd to east of Willow Creek Rd where it outfalls; 48-inch RCP.	Yes	Vehicular access to the storm drain, but not the end of outfall.	Unknown	Personnel access available, but not vehicular access	Yes, additional access could be graded.	Stilling basin provides some sediment control.
River's Edge #6 (RE6)	Rib Mountain Road storm drain starting at Willow Creek Rd and crossing Manzano Loop twice; 48-inch RCP at outfall.	Yes	Vehicular access to the storm drain, but not the end of outfall.	Poor condition; existing structure damaged and undermined	Personnel access available, but not vehicular access	Yes, additional access could be graded.	Stilling basin provides some sediment control.
River's Edge #7 (RE7)	Channel A starts at NM 528 and ends at Willow Creek Rd with a 66-inch CMP at outfall. Near outfall another 36-inch RCP drains into the same channel.	Yes	Vehicular access available.	Unknown; stilling basin buried	Vehicular access available	Not needed.	Stilling basin provides some sediment control.
River's Edge #8 (RE8)	Channel B starts at NM 528 and ends at Willow Creek Rd with a 66-inch CMP at outfall.	Yes	Vehicular access available.	Good condition	Vehicular access available	Not needed.	Stilling basin provides some sediment control.

diameter. The three manholes are all 4-foot-diameter Type "C." The outfall consists of a 24-inch-diameter RCP outlet with reinforced concrete blanket, cutoff wall, and reinforced step slabs. The stepped slab is 6 feet wide by 18 feet long. The structure is near the river; during periods of high flow, it drains directly into the river.

The concrete erosion protection slab is constructed as shown in the record drawings (Appendix A). Dense vegetation including trees and shrubs grow directly out of the concrete cutoff wall, and will require removal as part of the improvement process. Erosion at the edge of the outfall has caused a channel to form downstream of the structure that is directly connected to the river during periods of high flow.

1.4.2 River's Edge #2: 18-inch Steel

The RE2 outfall is connected to the Parcel "H" storm drain, the inlet to which is located in a cul de sac on Wolf Creek Court. The watershed is approximately 5.5 acres of single residential development. The storm drain design shows a Type Double "C" inlet and approximately 257 feet of RCP with three Type "C" or "E" 4-foot-diameter manholes. The 18-inch RCP outlet includes a sloped reinforced concrete channel that is 4 inches deep by 6 feet wide by 13 feet long.

The site visit identified a section of 18-inch steel pipe projecting out of a steep, compacted earthen slope. The concrete protection and outlet documented in the record drawings are not visible and could not be located. As shown in Appendix A, dense vegetation has grown around the existing pipe outlet; this growth, along with the high water level in the river, impeded a thorough inspection of the site. Clearing and grubbing of the area around the outlet, along with the embankment, is required for a complete inspection of the site.

1.4.3 River's Edge #3: 60-inch RCP

RE3 drains approximately 182.2 acres of land with single-family residential housing. The outfall is connected to the Red River Road storm drain and is located southeast of Riverside Drive. The storm drain consists of1,452 linear feet of RCP varying in size from 24-inch to 60-inch-diameter at the outfall. The storm drain network contains 4 Type "A" inlets and 12 Type Double "C" inlets, along with 2 Type "C" or "E" 4-foot-diameter manholes, 3 Type "C" 6-foot diameter manholes, and 2 Type "C" 8-foot-diameter manholes. The outlet is 60-inch-diameter RCP that was designed with a reinforced concrete stilling basin and a soil erosion protection mat.

The concrete stilling basin and outfall were visible during the site visit (Appendix A). However, ponded water and thick vegetation impeded a complete inspection of the structure. The stilling basin design includes a 10-foot-long by 20-foot-wide reinforced concrete basin that is 1.5 feet deep. The basin transitions to a concrete outfall that is 5 feet long by 20 feet wide. The design also included a 50-foot-long by 20-foot-wide swale protected with erosion control material; however, a dense stand of vegetation has been established in this location and only a small channel is visible. Clearing and grubbing of the site will be required in order to complete a full inspection and assess the condition of the concrete structure.

1.4.4 River's Edge #4: 32-inch RCP

RE4 drains approximately 24.9 acres of land with single-family residential housing. The outfall is connected to Parcel "E" storm drain, which drains sections of Silver Creek Drive and Riverside Drive. The storm drain network contains one Type "A" inlet and one Type Double "C" inlet, and conveys stormwater through approximately 858 linear feet of 18-inch to 32-inch RCP at the outfall. It also contains one 4-foot-diameter manhole. This outfall was designed similarly to that of RE3, with a reinforced concrete blanket, cutoff wall, stilling basin, outfall, and swale with erosion protection.

A 2-foot section of the 30-inch outlet was the only visible part of the headwall and stilling basin structure (Appendix A). The area around the outlet is heavily vegetated with short bunch grasses. The elevation of the pipe invert appears to be lower than that of the surrounding land surface. This observation implies that a significant amount of sediment has been deposited since the outlet was installed with the stilling basin 2.5 feet below the pipe invert. Clearing and grubbing of the site will be required in order to complete a full inspection and assess the condition of the concrete structure.

1.4.5 River's Edge #5: 48-inch RCP

RE5 drains approximately 414 acres of primarily single-family residential development. The outfall is connected to Parcel "B" storm drain, which drains a section of Willow Creek Road. Record drawings indicate that the storm drain was not constructed upstream of Willow Creek Road, although that section was included in the original design. There is a channel for stormwater conveyance upstream of that road, and flow is directed into the storm drain piping at that location, which then outfalls to the river. The channel is lined with concrete at this location.

Per the record drawings, the storm drain piping consists of one 6-inch-diameter Type "E" manhole and two 6-foot-diameter Type "C" manholes, along with approximately 1,300 linear feet of 36-inch RCP and 115 linear feet of 48-inch RCP at the outfall. The storm drain outlet was designed with similar concrete protection and erosion control as the RE3 and RE4 outlets. In this case, the floor of the stilling basin is 1.5 feet below the invert of the outfall, and has dimensions of 15 feet wide by 10 feet long by 1 foot deep. The outfall and swale were designed with a width of 15 feet and side slopes of 2:1 (horizontal:vertical).

The current condition of the outlet was very similar to that of the RE4 outfall. A portion of the concrete headwall was visible but, along with the stilling basin, the remainder was covered with sediment. The stilling basin design elevation is 1.5 feet below the pipe invert, and has been completely filled with sediment since it was installed. The area surrounding the outlet is covered with established shrubs and grasses bordering a small channel. There is no evidence of the 50-foot swale that was constructed downstream of the outlet (Appendix A).

1.4.6 River's Edge #6: 48-inch RCP

RE6 drains approximately 125 acres of single-family residential development. The outfall is connected to the Rib Mountain Road (RMR) storm drain and drains sections of Willow Creek Road and Manzano Loop. The RMR storm drain network consists of seven Type Double "C" inlets and 850 linear feet of 48-inch-diameter RCP. There are three 6-foot-diameter Type "C" manholes. The storm drain outlet was designed with concrete protection and erosion control mat. A soil erosion control mat was installed on a 32-foot by 20-foot swale. Concrete outlet protection design included a stilling basin.

The area around the concrete outlet and stilling basin shows evidence of large-scale erosion. Erosion under the structure near the transition from concrete to the earthen swale resulted in formation of a detention pond that is approximately 28 feet wide and several feet deep, as shown in Appendix A. Due to the erosion, the outfall section of concrete has broken off and is submerged in the pond.

1.4.7 River's Edge #7: 66-inch CMP

RE7 drains approximately 360 acres of primarily single-family residential development, including portions of NM 528 and Willow Creek Road. Beginning at NM 528, the stormwater flows for approximately 2,000 feet through an open earthen trapezoidal channel that is constructed with a series of drop structures that maintain a channel slope of –0.515 percent. Water is concentrated into a 66-inch-diameter corrugated metal pipe (CMP) where it travels under Willow Creek Road.

Similar to outfalls RE3 through RE6, the culvert discharges into a reinforced concrete stilling basin. The floor of the basin is 6 feet below the pipe invert, and is constructed with a 14-foot-wide by 10-foot-long basin that is 1.5 feet deep. A second 36-inch-diameter corrugated plastic pipe drains an area to the north and discharges into the same structure approximately 15 feet to the north. Riprap protection lines the banks of the channel for a short distance downstream of the culvert. After flowing through a section of dense vegetation including a stand of cottonwoods, the water is concentrated into a narrow concrete structure that is approximately 6 feet tall with steep side slopes, 20 feet long with a bottom width of 6 feet. Downstream of this structure, the water flows through a constructed arroyo with drop structures and erosion protection.

Stormwater remains in the arroyo for approximately 690 feet until it reaches a final concrete structure (Appendix A). The concrete weir is 6 feet tall and 12 feet wide, and is flanked by wire-enclosed riprap blankets upstream and downstream of the structures that are currently in poor condition. A considerable portion of the riprap has been undercut by erosion.

1.4.8 River's Edge #8: 66-inch CMP

RE8 drains approximately 691 acres of land consisting primarily of single-family residential development. The RE8 channel drains an area west of NM 528 and Willow Creek Road. Beginning at NM 528, the earthen trapezoidal channel is composed of a series of stabilizer walls and drop structures that maintain a channel slope of –0.047 percent. Water flows in this channel for approximately 1,050 feet until it transitions to concrete as it approaches Willow Creek Road. Water then flows through a 66-inch-diameter CMP where it is discharged into a concrete stilling basin downstream of the bridge.

The stilling basin floor is 6 feet below the pipe invert and was constructed with a 14-foot-wide by 10-foot-long basin that is 1.5 feet deep. The outfall for the structure is 20 feet wide with 2H:1V side slopes. Downstream of the concrete outfall, the channel shows signs of large-scale erosion. Wire-enclosed riprap blankets that used to flank the channel have been undercut by erosion and are no longer protecting the channel banks. There are large piles of concrete debris along with old tires at several locations, which appear to have been placed for erosion protection.

Stormwater continues to flow in this heavily vegetated channel for another 1,000 feet until it reaches the final concrete structure (Appendix A). The channel banks are covered with wire-enclosed riprap for several hundred feet as the channel approaches the structure. Soil and material around the concrete have been thoroughly eroded. A 30-inch-diameter corrugated metal culvert discharges into the arroyo downstream of the concrete structure. Record drawings could not be located for this section of the arroyo.

1.5 Hydrology and Hydraulics to Identify Design Flowrates

A key component to retrofitting effective stormwater pollution infrastructure into existing hydraulic conveyance systems is realizing that the primary purpose of the existing stormwater conveyance system is flood control. To enhance flood control capabilities with pollution prevention capabilities, a retrofit should not limit the capacity or ability of the existing stormwater conveyance system to manage peak flowrates.

As described later in this report, AMAFCA, in collaboration with the City of Albuquerque, prepared a floatable and gross pollutant study, which included surveys of specific sites within the watershed and also reviewed stormwater floatables containment reporting across the nation. The AMAFCA study (ASCG, 2005) provides a method for estimating gross pollutant loads based on the area and land use of the contributing watershed area. Therefore, the volume required for a floatables collection system recommended in this study will be calculated based on the contributing watershed area on a volume/time basis.

In addition, structures must continue to pass the peak flow rates, even with floatables controls in place. The hydrologic/hydraulic portion of this study is intended to identify the largest peak flowrate that will impact design of the eight MS4 outfalls. Some best management practices (BMPs) include a high flow bypass system. BMPs must be designed to:

- Prevent scouring/transport of collected materials
- Ensure that backwater effects do not impact upstream conveyances
- Make sure that the design remains operable during peak flow events

There are existing drainage reports for all of the upstream basins, including the following:

- Individual neighborhood development drainage reports
- Upstream basin management plans
- Watershed management plans

These historical reports were reviewed and 100-year peak flowrates at the MS4 outfalls were recorded. A matrix of 100-year peak flowrates is compiled later in this report that includes different values for peak 100-year flowrates from the sources described in the following subsections.

1.5.1 Willow Creek Watershed Management Plan

SSCAFCA prepared the Willow Creek Watershed Management Plan in February 2013. This report calculates 100-year peak flowrates using HEC-HMS. For the purpose of extracting 100-year peak flowrates from this report, the "DEVEX Q" is used. "DEVEX Q" is defined in the watershed management plan as "full development of the watershed based on available platting and zoning information with existing drainage facilities."

1.5.2 Drainage Study for Corrales North Units 2 and 3

Drainage studies were prepared by Cinfran Engineering in 1989 for the development immediately upstream of and including the eight MS4 outfalls. These reports calculated peak flowrates using the rational method for the 100-year, 6-hour storm.

1.5.3 Red River Watershed Drainage Facility Master Plan

In 2006, Huitt-Zollars prepared a drainage facility master plan to improve drainage conditions in the upstream Red River Watershed. A portion of the recommended improvements from this master plan have been installed. This report calculated 100-year, 24-hour peak flowrates using AHYMO.

1.5.4 City of Rio Rancho MS4 Outfall Basin Analysis

For the purpose of comparison and to have a baseline value with which to compare earlier methods (Rational, AHYMO, etc.), HEC-HMS was used for this report to calculate 100-year peak flowrates for each basin. Due to complex routing and varied conveyances, reporting is based on a per-acre basis for the sake of validating and comparing summary results.

1.5.5 City of Rio Rancho MS4 Existing Outfall Hydraulic Analysis

If existing infrastructure exists within the final reaches or final hydraulic conveyances that can limit developed flowrates, these are identified and calculated with Flowmaster to identify probable maximum flows.

Final identification of design flowrates is discussed in Section 2.1.

2. Design Criteria

Design criteria for this project are taken from the following documents:

- City of Rio Rancho. 2009. *Development Process Manual*, Volume 2, Chapter 2, Flood Control, and Erosion Control. December 2009.

- ASCG. 2005. *AMAFCA/Albuquerque MS4 Floatable & Gross Pollutant Study*. Prepared for AMAFCA and the City of Albuquerque. October 2005.

Each outfall will be designed to pass the flood protection storm event with the design volume gross pollutant load collected/stored (i.e., prior to cleanout).

2.1 Design Flows

The rationale for each outfall design flow is based on an upstream control or capacity limitation. Table 2 summarizes the limitations for design flows for each outfall. Table 3 summarizes the previously calculated peak flow rates and study source for each outfall.

Table 2. Outfall Flow Limitations

Outfall	Design Flow (cfs)	Limitation
RE1	15	Capacity limitation at outfall of existing 24-inch RCP
RE2	15	Capacity limitation at outfall of existing 18-inch steel pipe
RE3	191	Upstream Red River storm drain improvements
RE4	48	Capacity limitation at outfall of existing 30-inch RCP
RE5	116	Capacity limitation at outfall of existing 36-inch RCP
RE6	237	Capacity limitation at outfall of existing 60-inch RCP
RE7	355	Identified upstream control
RE8	294	Identified upstream control

Table 3. Outfall Design Flows

Source	Author	Date	Method	Flowrate (cfs)							
MS4 Outfall	—	—	—	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Basin Area (acres)	—	—	—	*19.7*	*5.5*	*182.15*	*24.9*	*414.0*	*125*	*359.7*	*690.6*
Willow Creek Watershed Management Plan	SSCAFCA	2013	HEC-HMS	—	—	—	—	264	—	867	489
Drainage Study for Corrales North Unit 2/3	CINFRAN	1989	Rational method	29	11	245	52	79	247	297	273
Red River Watershed Drainage Facility Master Plan	HZI	2006	AHYMO	—	—	191	—	—	—	—	—
Corr MS4 Outfall Project Basin Analysis (Cfs/Acre Basis)	ASH	2019	HEC-HMS	13	5	194	26	343	129	264	669
Corr MS4 Outfall Project - Existing Outfall Analysis	HZI	2019	Flowmaster	15	15	319	48	116	237	393	480
Upstream Capacity Limitation	Various	Various	Various	—	—	—	—	91	—	355	294
Recommended Q For Ms4 Design	—	—	—	15	15	191	48	116	237	355	294

cfs = Cubic feet per second

2.2 Average Annual Gross Pollutant Load

Gross pollutant loading was calculated as the product of the area of the contributing watershed and the land use type. There are several existing stormwater ponds and one planned pond that impact the area of this study by capturing gross pollutants upstream in the watershed, thereby reducing the area contributing to the outfalls. Figure 3 shows the locations of the ponds, along with the locations of the outfalls and the full and adjusted watershed boundaries.

ASCG (2005) provides the gross solid load approximations shown in Table 4 based on land use type, which are the results of three studies for different metropolitan areas. They caution that there is variability from one drainage area to another, and that it is highly recommended that load prediction rates be used only until data are collected to determine the trash and debris “footprint” for typical land uses in the specific drainage area. These rates are dependent on many factors that vary based on location, time of year, and population size and behavior.

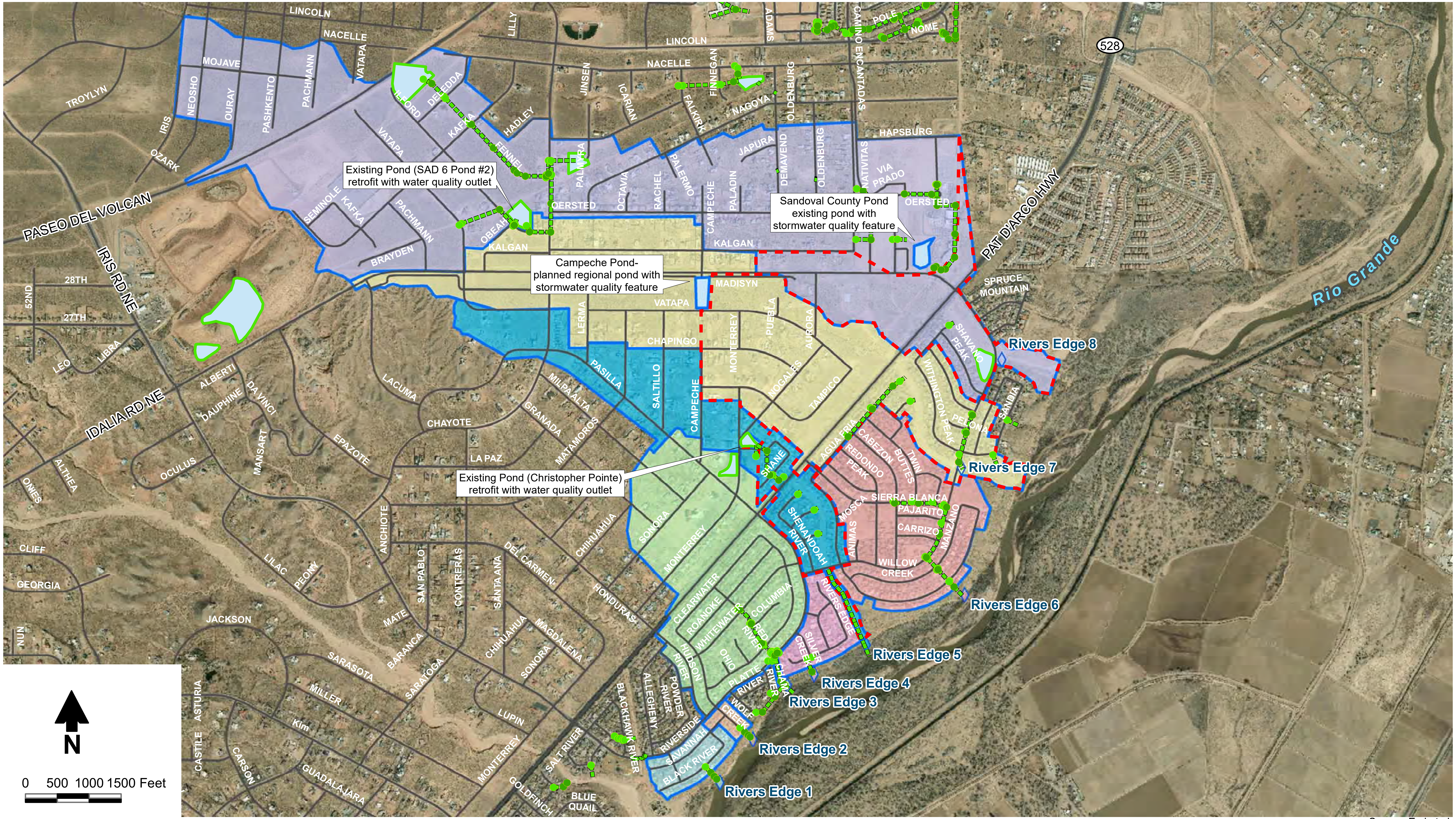
Table 4. Gross Pollutant Solids Loading by Land Use Type

Land Use Type	Gross Solid Volume (ft^3/ac/yr)	Gross Solid Volume (design values) (ft^3/ac/yr)
Commercial	7.5	15.2
Residential	4.0	8.0
Light-Industrial	2.1	4.2

Source: ASCG, 2005
ft^3/ac/yr = Cubic feet per acre per year

2.3 Maintenance Interval

ASCG (2005) recommended that structural BMPs be designed to require maintenance or cleanout not more than once per year. For the most part, in-line BMPs require maintenance after each major storm event. In some cases, space limitations limit the size of structures. The O&M costs developed for this report include consideration of the maintenance interval.



Source: Esri et al.

Explanation

- Outfall
- Pond
- Drainage basin
- Boundary for gross pollutant loading calculation
- Storm drain manholes
- Storm drain inlet
- Storm drain gravity main
- Storm drain ponds

CITY OF RIO RANCHO
DESIGN ANALYSIS REPORT FOR MS4 OUTFALLS
Drainage Banks

Daniel B. Stephens & Associates, Inc.
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Figure 3

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3. Outfall Evaluation

3.1 Deficiencies in Existing Structures

The condition of five of the eight outfall structures is largely unknown because most of the concrete formwork is buried under sediments. It is clear that the concrete at the RE6 outfall has been significantly undermined, and that a section of the formwork has completely fractured from the main section. At RE2, a metal pipe is visible, while the design shows RCP. The City believes that the last piece of pipe and concrete at the outfall were washed away.

Photographs of the existing conditions and record drawings for the original design of all eight outfalls are provided in Appendix A.

3.2 Flow Capacity vs. Calculated Design Flow

The recommended peak design flowrates are shown in Tables 2 and 3. An analysis was completed using Flowmaster software to determine whether each of the existing outfalls can convey the peak discharge; they all had sufficient capacity.

3.3 Estimated Gross Pollutant Volumes and Weights

The predominant land use type in the contributing drainage areas to the outfalls is single-family residential. The gross pollutant loading was calculated for each outfall as shown in Table 5.

Table 5. Gross Pollutant Loads

Outfall	Watershed Area (acres) Total	Watershed Area (acres) Adjusted	Load (cf/yr)	Weight (lb/yr)
RE1	19.7	19.7	157	5,512
RE2	5.5	5.5	44	1,531
RE3	182.2	182.2	1,457	51,002
RE4	24.9	24.9	199	6,969
RE5	142.4	44.5	356	12,448
RE6	125.0	125.0	1,000	35,000
RE7	359.7	197.5	1,580	55,287
RE8	690.6	104.7	838	29,316

cf/yr = Cubic feet per year
lb/yr = Pounds per year

3.4 Proposed Solutions

3.4.1 Return Existing Outfall Structures to Original Design

The existing outfall structures have not been maintained to clear and grub vegetation and remove sediment that has accumulated over time. If exposed, the structures could be evaluated to determine if any further work is required to return them to their original design condition.

The existing structures are designed for erosion protection and in most cases sediment control, but do not provide any floatables control. RE3 through RE8 outfalls are constructed with stilling basins, which will provide sediment control. Based on observation and the characteristics of the contributing drainage basin, sediment control is not needed at RE1, RE2, RE4, or RE6.

Rehabilitation of the existing structures was considered for this report and discussed with City staff; however, it is not considered viable due to the lack of access for construction and maintenance, as well as disturbance to the river channel. At the time of this report, the water level in the river was high, emphasizing the lack of access to outfalls. However, costs for restoration were developed and are included in Appendix B. Note that record drawings were not available for the outfall for RE8, but were available for the upstream erosion control structure along the channel (Appendix A).

3.4.2 In-Line BMPs

In-line BMPs considered for this project include inlet and manhole improvements. Both of these types of BMP will control for floatables, but only the manhole systems will also provide sediment control. Example design drawings of these BMPs are provided in Appendix C. These types of BMPs require maintenance after each major storm event. From ASCG (2005), there are, on average, nine major storm events (>0.1 inch in precipitation) per year that have the capacity to transport gross pollutants into the stormwater system.

Inlet guards are a low-cost, effective method for capturing gross pollutants. They consist of a metal plate that is installed in front of the outlet and acts to block pollutants from directly entering the storm sewer system. Under normal conditions, water flows through a gap beneath the guard and the base of the inlet structure. During periods of high flow, water can enter the inlet through the top of the guard, which has the potential for gross pollutants to pass through. Gross pollutants are captured and stored in the structure (manhole or inlet box) in which the guard is installed. Maintenance is accomplished by removing the inlet grate and removing the pollutants either manually or with a vacuum truck. Figure 4 shows a photograph of an inlet guard that is installed at Southern and NM 528. Routine inspections are required in order to minimize the buildup of pollutants to ensure that they do not pass over the guard.

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Figure 4. Installed Inlet Guard

Manhole guards can be very effective, removing more than 80 percent of gross pollutants and 60 percent of hydrocarbons. They function similarly to the inlet guard, in that they do not allow pollutants to pass directly through the manhole. The guard extends below the invert of the pipe into the manhole sump, which acts to inhibit the passing of pollutants to the outlet. It relies on differences in density between water and the gross pollutants for removal. Maintenance is completed using a vacuum truck, and is recommended after each major storm event. Figure 5 provides a detail of an installation in a manhole.

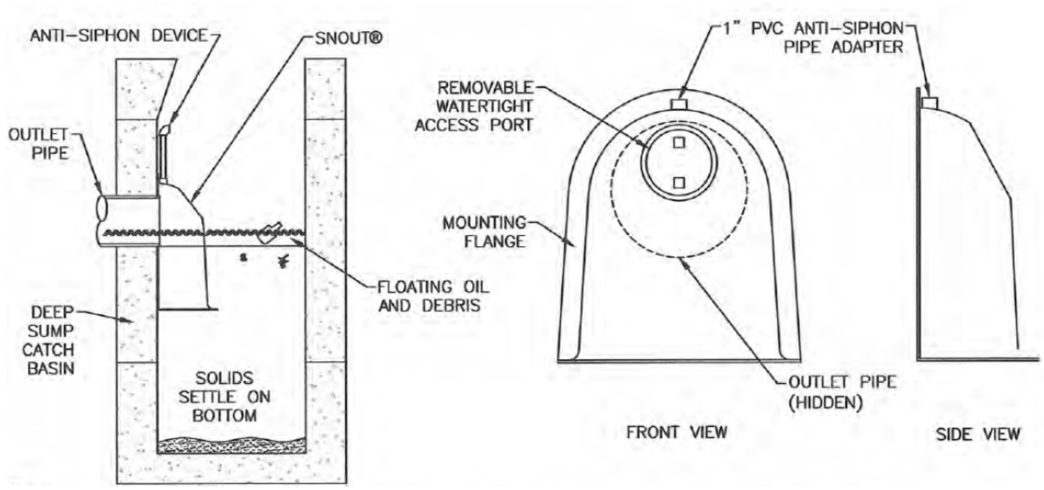

Figure 5. Manhole Guard

The advantage to use of in-line BMPs for this project is that the locations of the inlets and manholes upstream of the outfalls are readily accessible, including via vehicular access, for maintenance. In addition, construction will not require disturbance of the river channel with associated environmental impacts. The disadvantage to the in-line systems is that they require frequent maintenance. Without maintenance, these devices have potential to limit flow, while also allowing gross pollutants to pass.

3.4.3 End of Pipe Devices

From ASCG (2005), end of pipe devices “are typically installed at the pipe outfall and tend to be the easiest to maintain if sited in an easily accessible location. Many of these products and designs require some headloss (e.g. drop structure) to function. Products include netting systems, litter baskets, cages and traps, and booms."

Netting systems have undergone a number of field trials including pilot studies, primarily under rainfall conditions typical of the mid-Atlantic states. These products performed very well for gross pollutant removal and are a relatively low-cost solution under the conditions tested. They can be installed directly on the end of an outfall (Figure 6), or can be installed in-line with the channel (Figure 7). Maintenance involves the removal and emptying of the nets, typically with a boom truck, with periodic replacement depending on several factors. Nets are available in heavy weights that are reported to perform well under high-flow conditions.

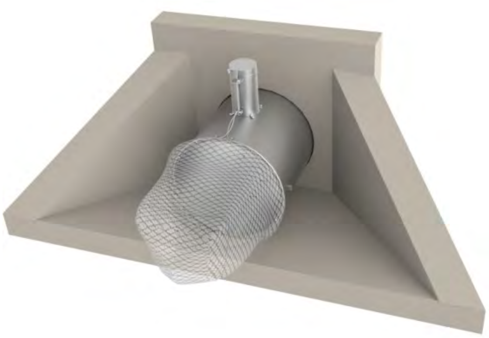

Figure 6. End of Pipe Netting

Figure 7. In-Line Pipe Netting

Litter baskets, cages, traps, and booms allow flows to pass through the system even under high amounts of accumulated debris. Most produce some headloss and are designed to operate under high flows.

Two examples of structural BMPs for gross pollutant removal are shown in Figures 8 and 9. Preliminary cost estimates are based on these concepts. In Figure 9, a photograph of an existing AMAFCA structure, water passes under a concrete baffle wall and then over a sloped screen, allowing accumulation and storage of gross pollutants while allowing water and particulates less than the screen spacing size to pass through. Such a structure requires good access for a crew of workers or a vacuum truck, along with a dump truck for disposal of waste.

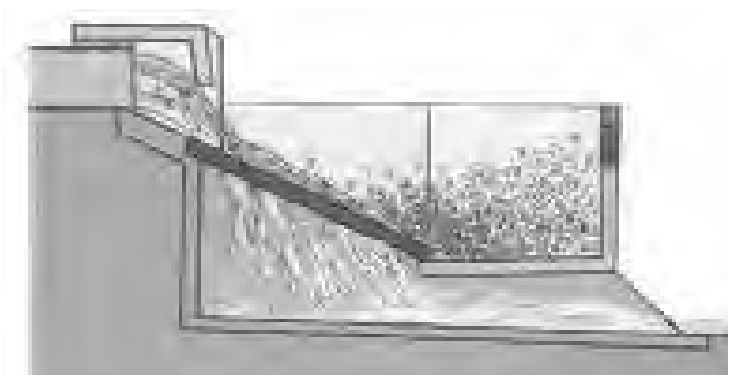

Figure 8. Concrete Gross Pollutant Separator

Figure 9. AMAFCA Structure near North Diversion Channel and Masthead

The structures shown in Figures 8 and 9 can be cleaned out either manually or using equipment. Nets can be maintained using a boom truck without direct vehicular access to the outfall. Netting requires removal and replacement during routine maintenance in order to dispose of captured floatables, as well as replacement when damaged.

3.5 Comparison of Options for Each Outfall

Three options were identified and compared for each outfall (Table 6). These options include inlet improvements, manhole improvements, netting placed at the outlet or as part of a channel feature, and two different concrete structures. A numeric score between 1 and 5 was assigned to each criterion. The criteria were weighted for relative importance to the final selection, as described in the following subsections.

Table 6. Evaluation of Options

Option	Capital Cost	Cost Score [a]	Annual O&M Cost	O&M Score [a]	Ease of Maintenance Access	EOM Score [a]	Maximum Flowrate	Flowrate Score [a]	Litter Removal Efficiency	Litter Score [a]	Aesthetics	Aesthetics Score [a]	Environmental Impacts	Environmental Score [a]	Total Score	Does BMP Provide Sediment Control?	Comments	Recommended
Weight		*15%*		*25%*		*20%*		*15%*		*15%*		*5%*		*5%*	*100%*			
RE1 (Design Flowrate 15 cfs)																		
Screen and capture	$27,600	3	$6,300	4	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Most	1	4.0	No	No sediment control needed	
Inlet improvement	**$5,300**	**5**	**$2,500**	**5**	**Requires removal of grate**	**5**	**No flow reduction**	**5**	**Good**	**4**	**Excellent**	**5**	**Minimal**	**4**	**8.6**	**No**		**X**
Manhole improvement	$14,700	4	$2,500	5	Requires vacuum truck	2	No flow reduction	5	Excellent	5	Excellent	5	Least	5	5.7	Yes		
RE2 (Design Flowrate 15 cfs)																		
Screen and capture	$27,500	3	$4,400	4	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Most	1	4.0	No	No sediment control needed	
Inlet improvement	**$5,300**	**5**	**$2,500**	**5**	**Requires removal of grate**	**5**	**No flow reduction**	**5**	**Good**	**4**	**Excellent**	**5**	**Minimal**	**4**	**8.6**	**No**		**X**
Manhole improvement	$10,700	4	$2,500	5	Requires vacuum truck	2	No flow reduction	5	Excellent	5	Excellent	5	Least	5	5.7	Yes		
RE3 (Design Flowrate 191 cfs)																		
Screen and capture	$54,700	1	$6,300	4	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Most	1	3.7	No	Sediment control needed	
Inlet improvement	$5,300	5	$2,500	5	Requires removal of grate on 15 inlets	1	No flow reduction	5	Excellent	5	Good	3	Minimal	2	4.6	No		
Manhole improvement	**$30,500**	**3**	**$2,500**	**5**	**Requires vacuum truck**	**2**	**No flow reduction**	**5**	**Excellent**	**5**	**Excellent**	**5**	**Least**	**5**	**5.5**	**Yes**		**X**

Bold indicates the recommended option.
[a] Scores for individual criteria range from 1 to 5, with higher scores representing better options.

Table 6. Evaluation of Options

Option	Capital Cost	Cost Score [a]	Annual O&M Cost	O&M Score [a]	Ease of Maintenance Access	EOM Score [a]	Maximum Flowrate	Flowrate Score [a]	Litter Removal Efficiency	Litter Score [a]	Aesthetics	Aesthetics Score [a]	Environmental Impacts	Environmental Score [a]	Total Score	Does BMP Provide Sediment Control?	Comments	Recommended
Weight		*15%*		*25%*		*20%*		*15%*		*15%*		*5%*		*5%*	*100%*			
RE4 (Design Flowrate 48 cfs)																		
Screen and capture	$45,100	1	$6,300	3	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Most	1	3.4	No	No sediment control needed	
Inlet improvement	**$5,300**	**5**	**$2,500**	**5**	**Requires removal of grate**	**5**	**No flow reduction**	**5**	**Excellent**	**5**	**Excellent**	**5**	**Minimal**	**4**	**8.8**	**No**		**X**
Manhole improvement	$9,000	4	$2,500	5	Requires vacuum truck	2	Max 100 cfs	4	Excellent	5	Excellent	5	Least	5	5.5	Yes		
RE5 (Design Flowrate 116 cfs)																		
Screen and capture	$42,400	1	$7,300	3	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Most	1	3.4	No	Sediment control needed	
Netting at outfall pipe	$35,100	3	$4,400	4	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Minimal	4	4.1	No		
Inlet baffle wall and rack at Willow Creek	**$40,400**	**5**	**$2,500**	**5**	**Requires vacuum truck**	**2**	**No flow reduction**	**5**	**Excellent**	**5**	**Excellent**	**5**	**Least**	**5**	**5.8**	**Yes**		**X**
RE6 (Design Flowrate 237 cfs)																		
Screen and capture	$44,800	3	$7,300	4	Requires vehicular access down to structure and a crew	1	No flow reduction	5	Excellent	5	Good	3	Most	1	4.0	No	No sediment control needed	
Inlet improvement	$5,300	5	$2,500	5	Requires vehicular access down to structure and a crew	1	Potential for flow reduction at flows larger than 105 cfs	2	Excellent	5	Good	3	Minimal	4	4.2	No		
Manhole insert	**$40,000**	**3**	**$2,500**	**5**	**Requires vacuum truck**	**2**	**No flow reduction**	**5**	**Excellent**	**5**	**Excellent**	**5**	**Least**	**5**	**5.5**	**Yes**		**X**

Bold indicates the recommended option.
[a] Scores for individual criteria range from 1 to 5, with higher scores representing better options.

Table 6. Evaluation of Options
Page 3 of 3

Option	Capital Cost	Cost Score [a]	Annual O&M Cost	O&M Score [a]	Ease of Maintenance Access	EOM Score [a]	Maximum Flowrate	Flowrate Score [a]	Litter Removal Efficiency	Litter Score [a]	Aesthetics	Aesthetics Score [a]	Environmental Impacts	Environmental Score [a]	Total Score	Does BMP Provide Sediment Control?	Comments	Recommended
Weight		*15%*		*25%*		*20%*		*15%*		*15%*		*5%*		*5%*	*100%*			
RE7 (Design Flowrate 355 cfs)																		
Screen and capture	$27,300	5	$7,300	3	Requires a crew and manual labor	4	No flow reduction	5	Excellent	5	Good	3	Most	1	7.0	No	Sediment control needed	
Netting and structure at spillway overflow	$33,200	4	$6,000	4	Requires a crew and manual labor	4	Potential for gross pollutant reduction at flows larger than 315 cfs	3	Excellent	3	Poor	2	Fair	3	6.6	No		
Concrete structure and baffle	**$53,100**	**3**	**$3,700**	**5**	**Requires a crew and manual labor**	**4**	**No flow reduction**	**5**	**Excellent**	**5**	**Good**	**3**	**Fair**	**3**	**7.3**	**Yes**		**X**
RE8 (Design Flowrate 294 cfs)																		
Screen and capture	$46,400	4	$7,300	3	Requires a crew and manual labor	4	No flow reduction	5	Excellent	5	Good	3	Most	1	6.9	No	Sediment control needed	
Netting and structure at spillway overflow	$45,000	5	$5,200	4	Requires a crew and manual labor	4	Potential for flow reduction at flows larger than 210 cfs	3	Excellent	5	Poor	2	Fair	3	7.0	No		
Concrete structure and baffle	**$81,500**	**3**	**$3,700**	**5**	**Requires a crew and manual labor**	**4**	**No flow reduction**	**5**	**Excellent**	**5**	**Good**	**3**	**Fair**	**3**	**7.3**	**Yes**		**X**

Bold indicates the recommended option.
[a] Scores for individual criteria range from 1 to 5, with higher scores representing better options.

3.5.1 Capital Cost: Weight 15%

Capital costs for the options include costs associated with construction of the proposed improvement. Where necessary, this includes the cost of the initial cleanout of the structures, many of which are buried in sediment, along with construction of a maintenance access road.

3.5.2 Annual O&M Costs: Weight 25%

Annual O&M costs are given based on the recommended maintenance interval, which for all options examined is after every major storm event and per AMAFCA includes 9 major storm events per year. Depending on the outfall, a crew of two people was estimated to complete the routine maintenance in 2 or 3 hours.

3.5.3 Ease of O&M: Weight 20%

Maintenance activities vary widely in the level of effort required for completion. For instance, emptying gross pollutants from a manhole using a vacuum truck is less intensive than direct physical removal of matter from netting or a concrete box.

3.5.4 Maximum Flow Rate: Weight 15%

Netting and in-line controls may reduce the flow capacity of the stormwater conveyance infrastructure, while concrete end of pipe structures will not.

3.5.5 Litter Removal Efficiency: Weight 15%

Expected removal efficiency of gross pollutants is given for each BMP. Sediment removal is not quantified, as there are insufficient data to estimate sediment loading.

3.5.6 Aesthetics: Weight 5%

Manhole and inlet separators will have no visual impact, as they are buried structures. Floatables captured in end of pipe netting and concrete structures will have limited visibility, as the outfalls are located along the river and are observed by small numbers of area residents.

3.5.7 Environmental Impacts: Weight 5%

Environmental impacts of construction in the floodway for the river are more significant than those resulting from the use of BMPs in the subdivision. The footprint of the existing structures is fairly small, with the largest footprint for swales (approximately 20 feet by 50 feet) and the smaller pads (approximately 6 feet by 20 feet).

3.6 Results of Evaluation

Table 6 summarizes the evaluation of options for each outfall. Figure 10 shows the locations selected for improvements associated with each outfall. Due to lack of access for construction and ongoing maintenance, only one recommended location is at the actual outfall. Inlet improvements and manhole separators will provide access from existing roadways. Improvements within the channels are recommended for RE5, RE7, and RE8. Recommendations are detailed in Section 5, including estimated capital and O&M costs.

Source: Esri et al.

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CITY OF RIO RANCHO
DESIGN ANALYSIS REPORT FOR MS4 OUTFALLS
Selected Locations for Improvements

Daniel B. Stephens & Associates, Inc.
6/28/2019 JN DB19.1136

Figure 10

4. Permitting Requirements

4.1 Section 404 General Permits

Section 404 of the Clean Water Act (CWA) prohibits discharges of dredged and fill material into wetlands and other "waters of the United States," except as authorized by a permit issued by the U.S. Army Corps of Engineers (USACE) (jurisdictional agency). In addition, before the USACE can issue a permit, the project applicant must obtain certification under CWA Section 401 from the state water quality agency that the proposed activity meets state water quality standards.

Waters of the United States (U.S.) are defined as traditionally navigable waters (in this case, the Rio Grande and its tributaries)—streams and arroyos that have a bed, a bank, and an ordinary high water mark (OHWM). Adjacent wetlands and other open waters such as ponds that are next to a jurisdictional water are also regulated by the USACE.

The USACE regulations implementing the Section 404 permitting program establish the process for filing permit applications and describe the information that needs to be included in those applications. The regulations allow for standard permits, letters of permission, and general permits. General permits are issued for categories of projects that have similar and, most often, minor impacts. General permits include both regional programmatic permits and nationwide permits (NWPs). NWPs are issued at the national level and can be used in all areas of the country subject to individual state approval and other specific restrictions and requirements. Regional programmatic permits are based on an existing state, local, or other federal agency program.

The proposed alternatives for the City would most likely qualify for an NWP. Based on the recommended alternative, it is DBS&A's opinion that the permits outlined in the following subsections will be required for each outfall.

4.1.1 No Permitting Required

The recommended alternative for measures to be taken at the eight outfalls includes some points of construction that are outside of the jurisdiction of the USACE because the construction would be outside of the OHWM. The locations would therefore be exempt from the USACE regulatory requirements and would require no further action. Work at the following outfalls would likely be exempt from the 404 permitting requirements of the USACE:

- RE1: An inlet or manhole would be installed with a guard near Black River Drive and would be located outside of the OHWM.
- RE2: An inlet or manhole with a guard would be installed near Wolf Creek Court and would be located outside of the OHWM.
- RE3: A manhole with a guard would be installed near the intersection of Riverside Drive and Chama River Court within the storm drain easement and would be located outside of the OHWM.
- RE4: An inlet or manhole with a guard would be installed near the intersection of Riverside Drive and Silver Creek Drive within the storm drain easement and would be located outside of the OHWM.
- RE6: A manhole with a guard would be installed near the intersection of Manzano Loop and would be located outside of the OHWM.

4.1.2 NWP-3, Maintenance

Two of the locations, RE7 and RE8, would likely be covered under NWP-3.

NWP-3 covers the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit. This NWP also authorizes the removal of accumulated sediment and debris within and in the immediate vicinity of the structure or fill and of existing structures (e.g., bridges, culverted road crossings, water intake structures). The removal of sediment is limited to no farther than 200 feet in any direction from the structure, with some exceptions. All dredged or excavated materials must be deposited and retained in an area that has no waters of the U.S.

This NWP also authorizes the removal of previously authorized structures or fills. It authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storm events or other discrete events.

The work proposed at RE7 would be done at Willow Creek Road at the channel crossing south of Withington Peak Road. A concrete structure with floatables control would be placed within the channel and within the OHWM. The work would likely be considered rehabilitation, and removal of previously authorized structures from the original design would be authorized under this permit.

The work proposed at RE8 would be done at the outfall within the OHWM. A concrete structure would be constructed and reconstruction of erosion control would be completed. The work would likely be considered removal and replacement of the previously authorized structure that would be authorized under this permit.

As part of the permit application, the City would submit a pre-construction notification (PCN) to the USACE prior to the activity commencement. The PCN must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. This assumes that a large area (extending 200 feet from structure) of sediment and debris removal will be required.

4.1.3 NWP-18, Minor Discharges

RE5 would likely be covered under NWP-18.

NWP-18 authorizes the minor discharges of dredged or fill material into all waters of the U.S., provided the activity meets all of the following criteria:

- The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the OHWM or the high tide line.
- The discharge will not cause the loss of more than 0.1 acre of waters of the U.S.
- The discharge is not placed for the purpose of stream diversion.

The work at RE5 would be done at Willow Creek Road at the channel crossing west of Agua Fria Drive. A concrete structure such as a baffle wall with trach rack would be placed on the inlet side within the channel, which is within the OHWM. The work would likely be considered placing a minor amount of fill in the channel and would be authorized under this permit.

As part of the permit application, the City would submit a PCN to the district engineer prior to commencing the activity if (1) the discharge or the volume of area excavated exceeds 10 cubic yards below the plane of the OHWM or the high tide line or (2) the discharge is in a special aquatic site, including wetlands.

To qualify for NWP authorization, the prospective permittee must comply with the general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

DBS&A has determined that the conditions in the following subsections will likely be required. As the project design is developed, there may be other general conditions, such as mitigation, that may apply, or it may be determined by the district engineer that some of the general conditions outlined below may not be required.

4.1.3.1 GC 14, Proper Maintenance

Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions added by the district engineer to an NWP authorization. Proper maintenance ensures not only public safety, but will minimize adverse effects to jurisdictional waters and wetlands and will protect water quality.

This condition applies for all eight of the outfalls, assuming they were constructed originally under a USACE permit.

4.1.3.2 GC 18, Endangered Species

No activity is authorized under any NWP that is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the federal Endangered Species Act (ESA), or that will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP that "may affect" a listed species or critical habitat, unless ESA Section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

Due to the proximity of the Rio Grande to the construction, the USACE is likely to also require coordination or even ESA Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) regarding the construction alternatives. Section 7 of the ESA is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any federal threatened or endangered species. As part of the consultation process, a biological assessment/evaluation would likely be required and would be included with the permit application. Biological assessments/evaluations (BAs/BEs) examine the potential for listed species to be impacted by proposed activities (the "Proposed Action"). Any and all downstream impacts are included as part of the analysis.

4.1.3.3 GC 19, Migratory Birds and Bald and Golden Eagles

The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the USFWS to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

DBS&A recommends that as part of a BA/BE, migratory bird species be evaluated and recommended mitigation measures (e.g., construction timing) be developed.

4.1.3.4 GC 20, Historic Properties

In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

The report must include any views obtained from the applicant, the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO), appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

Unless documented within the last 10 years, a cultural resources survey and report would be required for the project to be in compliance with the NHPA.

4.2 Coordination with the USACE

Coordination with the USACE early in the process will serve to confirm the permit requirements and general conditions that will be applicable. There may also be alternative regional general permits that the district engineer may be more inclined to approve. DBS&A met with the USACE regarding this project, and overall recommendations were provided that are incorporated in this section (Luna, 2019). As the design progresses, it is recommended that the City conduct a site visit with the USACE Sandoval County Regulatory Specialist to ensure a smooth and efficient permitting process. Based on conversations with the USACE and based on the recommended design for the eight outfalls, it is DBS&A's determination that for five of the outfalls, work would be conducted outside of the OHWM, therefore not requiring USACE regulatory oversight. Three of the outfall designs would fall within the OHWM, and would therefore require permitting as described in Section 4.1.

5. Recommendations

5.1 Results of Evaluation

Table 7 summarizes the recommended options for each outfall, with preliminary estimated capital and annual O&M costs. Detailed cost estimates are provided in Appendix B. Figure 10 shows the location of the options, along with the location of each outfall.

Table 7. Outfall Recommendations

Outfall	Recommended Option	Capital Cost	Annual O&M Costs
RE1	Inlet improvement	$5,300	$2,500
RE2	Inlet improvement	$5,300	$4,400
RE3	Manhole improvement	$30,500	$6,300
RE4	Inlet improvement	$5,300	$2,500
RE5	Concrete separator in channel upstream of Willow Creek channel crossing and two inlet improvements	$39,900	$4,400
RE6	Manhole improvement	$38,100	$7,300
RE7	Concrete BMP downstream of Willow Creek Road crossing	$53,100	$7,300
RE8	Concrete structure and screen at outfall	$81,500	$7,300
	Total	$261,300	$42,000

Note: Costs include New Mexico gross receipts tax.

5.2 Other Recommended Actions

5.2.1 Regular Maintenance Program

The recommended improvements will require an increased interval for maintenance frequency, as they should be visually inspected after every major storm event to ensure continued performance; based on the results of that visual inspection, cleaning/removal of gross pollutants may or may not be required. To be conservative, maintenance was assumed to be required 9 times per year.

The annual O&M costs provided in this report (Table 8) could also be used to contract for maintenance services in the event that City resources are not available for this effort.

5.2.2 Site Surveys

Each watershed is unique in its generation of gross pollutants and sediment. The City should undertake a program to survey all MS4 outfalls and in-line BMPs after storm events and document the types, volumes, and weights of floatables to gather higher quality information to provide the basis of design for future facilities.

5.3 U.S. Army Corps of Engineers Permitting

Based on an initial meeting between DBS&A and USACE held on June 19, 2019, the City should submit a letter regarding the scope of proposed improvements and the NWP(s) that are believed to apply. The 60 percent design documents showing work to be done within the OHWM should also be submitted, when available, for USACE confirmation. Once the permit type(s) have been confirmed, the permit application(s) should be submitted to the USACE for authorization. The submittal will include a PCN and any other information required by the specific NWP(s) (e.g., NWP-3, as part of the PCN, requires information regarding the original design of the structure). One or more permits may be required.

References

ASCG Incorporated (ASCG). 2005. *AMAFCA/Albuquerque MS4 floatable & gross pollutant study.* Prepared for AMAFCA and the City of Albuquerque. October 2005.

City of Rio Rancho. 2009. *Development process manual*, Volume 2, Chapter 2, Flood Control, and Erosion Control. December 2009.

Luna, F. 2019. Personal communcation between Forrest Luna, U.S. Army Corps of Engineers, Albuquerque District, and Julie Kutz and Jennifer Hill, Daniel B. Stephens & Associates, Inc. June 19, 2019.

U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers wetlands delineation manual.* January 1987.

Appendix A

Photographs and Record Drawings of Outfalls

2019-01-16

Created	2019-01-16 18:40:23 UTC by Omar Ruiz
Updated	2019-01-16 21:06:54 UTC by Omar Ruiz
Location	35.2850410005954, -106.596708899708
Outfall	Rivers Edge 1
Visible Outfall	Yes
Date	2019-01-16
Time	11:40
Photos	

Notes	Outfall has plenty of space for storm water treatment. Heavy vegetation. Water drains into small pond before draining into river. No visible trash.

PARCEL 'E' STORM DRAIN (A)

PARCEL 'H' STORM DRAIN (B)

PARCEL 'I' STORM DRAIN (C)

Rivers Edge 1

NOTES:

1) All pipe shall be Reinforced Concrete Pipe, per ASTM C76, Class III with 'O' Ring Rubber Gasket Joints per ASTM C443. Bevelled End Pipe may be used on curves. In all cases of maximum joint deflection there shall be at least 0.5 inches of interior bell surface beyond the location of the gasket. In the event this is unobtainable, single-miter elbows shall be utilized. (at least two per curve to maintain alignment). Laying Diagrams and shop drawings of precast pipe shall be submitted and approved prior to acceptance at the job site. Any Field Fabrication of RCP Fittings require approval of Engineer.

2) Drop inlet stationing refers to intersection of connector pipe with inside face of outer catch basin wall.

3) Refer to Standard Drawings or Sheets D2 & D3 for catch basin details and manhole details.

4) Stationing is along ℄ of Storm Drain.

AMREP SOUTHWEST INC.

PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.

Rivers Edge 1

2019-01-16

Created	2019-01-16 19:11:23 UTC by Omar Ruiz
Updated	2019-01-16 21:05:20 UTC by Omar Ruiz
Location	35.2869029422585, -106.594983142809
Outfall	Rivers Edge 2
Visible Outfall	No
Date	2019-01-16
Time	12:11
Photos	

Notes	Heavy vegetation at the pipes outfall. Steep hill west of outfall. Light trash. Invert of pipe is above downstream surface elevation. Water ponds in river bank.

NOTES:

1) All pipe shall be Reinforced Concrete Pipe, per ASTM C76, Class III with 'O' Ring Rubber Gasket Joints per ASTM C443. Bevelled End Pipe may be used on curves. In all cases of maximum joint deflection there shall be at least 0.5 inches of interior bell surface beyond the location of the gasket. In the event this is unobtainable, single-miter elbows shall be utilized. (at least two per curve to maintain alignment). Laying Diagrams and shop drawings of precast pipe shall be submitted and approved prior to acceptance at the job site. Any Field Fabrication of RCP Fittings require approval of Engineer.

2) Drop inlet stationing refers to intersection of connector pipe with inside face of outer catch basin wall.

3) Refer to Standard Drawings or Sheets D2 & D3 for catch basin details and manhole details.

4) Stationing is along ℄ of Storm Drain.

Rivers Edge 2

2019-01-16

Created	2019-01-16 19:31:45 UTC by Omar Ruiz
Updated	2019-01-16 19:36:12 UTC by Omar Ruiz
Location	35.2892459734797, -106.593187744294
Outfall	Rivers Edge 3
Visible Outfall	Yes
Date	2019-01-16
Time	12:31
Photos	 

Notes	Plenty of room for storm water treatment. Location was full of trash. Steep hill to the west. Removal of vegetation required.

NOTES:

1) All pipe shall be Reinforced Concrete Pipe, per ASTM C76, Class III with '0' Ring Rubber Gasket Joints per ASTM C443. Bevelled End Pipe may be used on curves. In all cases of maximum joints deflection there shall be at least 0.5 inches of interior bell surface beyond the location of the gasket. In the event this is unobtainable, single-miter elbows shall be utilized. (at least two per curve to maintain alignment). Laying Diagrams and shop drawings of precast pipe shall be submitted and approved prior to acceptance at the job site. Any Field Fabrication of RCP Fittings require approval of Engineer.

2) Drop inlet stationing refers to intersection of connector pipe with inside face of outer catch basin wall.

3) Refer to Standard Drawings [illegible] Sheets [illegible] for catch basin details and manhole details. [illegible] frame and grate shown on this sheet.

4) Stationing is along Centerline of R.O.W. and baseline as shown.

RED RIVER ROAD STORM DRAIN

PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.


BUILD 14'x 50' SWALE SEE TYP. SECT. INSTALL 'ENKAMAT' SOIL EROSION MATTING OR OTHER SUITABLE MAT APPROVED BY CITY ENGINEER
48" RCP
4" THICK 3000 PSI PCC REINFORCED W/ 6x6" #6 WWF
10" THICK CUT OFF WALL
6" THICK CUT OFF WALL 2'-6" DEEP
PARCEL 'B' PIPE OUTLET & STILLING BASIN
SEE SHEET D12
N.T.S.
BUILD 50'x 20' SWALE AND INSTALL 'ENKAMAT' SOIL EROSION CONTROL MAT OR OTHER SUITABLE MAT. (SEE SECTION)
60" R.C.P.
S=0.102%
4" THICK P.C.C. SLOPE PAVING REINFORCED W/ 6"x 6" - 6/6 WWF
RED RIVER PIPE OUTLET & STILLING BASIN ENLARGEMENT
SEE SHEET D13
N.T.S.
VARIES
SOIL EROSION CONTROL MAT 'ENKAMAT' OR EQUIV
TYPICAL SWALE SECTION
FOR PARCEL 'B', RED RIVER ROAD, AND PARCEL 'E' OUTLETS
6" THICK 3000 PSI PCC REINFORCED W/ 6"x 6" #6 WWF
SECTION K
N.T.S.
S=0.652%
Q=122
DENSE VEGETATION
COMPACTED SUBGRADE TO 95% ASTM D-1557
6" THICK 3000 PSI PCC REINFORCED W/ 6"x 6" #6 WWF
SECTION B
N.T.S.
FIELD BEND
HORIZ. #4 REBAR @ 1'-6" O.C.
VERT. #4 REBAR @ 1'-6" O.C.
SECTION G
N.T.S.
SECTION C
N.T.S.
S=1.50%
4" THICK P.C.C. SLOPE PAVING REINFORCED W/ 6"x 6" - 6/6 WWF
6" THICK 3000 PSI PCC REINFORCED W/ 6"x 6" #6 WWF
DENSE VEGETATION
COMPACT SUBGRADE TO 95% ASTM D-1557
SECTION D
N.T.S.
SECTION H
N.T.S.
CONTINUOUS FIELD BEND
#4 VERT REBAR @ 1'-6"
#4 HORZ. REBAR @ 1'-6"
SECTION E
N.T.S.
SECTION I
N.T.S.
SCALES
N.T.S.
FILE NO.
ASRR-87-2330
AMREP SOUTHWEST INC.
DRAINAGE IMPROVEMENTS DETAILS
CORRALES NORTH UNIT 2
SHEET NO.
D4

2019-01-16

Created	2019-01-16 19:39:41 UTC by Omar Ruiz
Updated	2019-01-16 21:04:45 UTC by Omar Ruiz
Location	35.289730054658, -106.591790194257
Outfall	Rivers Edge 4
Visible Outfall	Yes
Date	2019-01-16
Time	12:39
Photos	 

Notes	Plenty of space for storm water treatment. Invert elevation of RCP is below downstream surface. Vegetation is light.

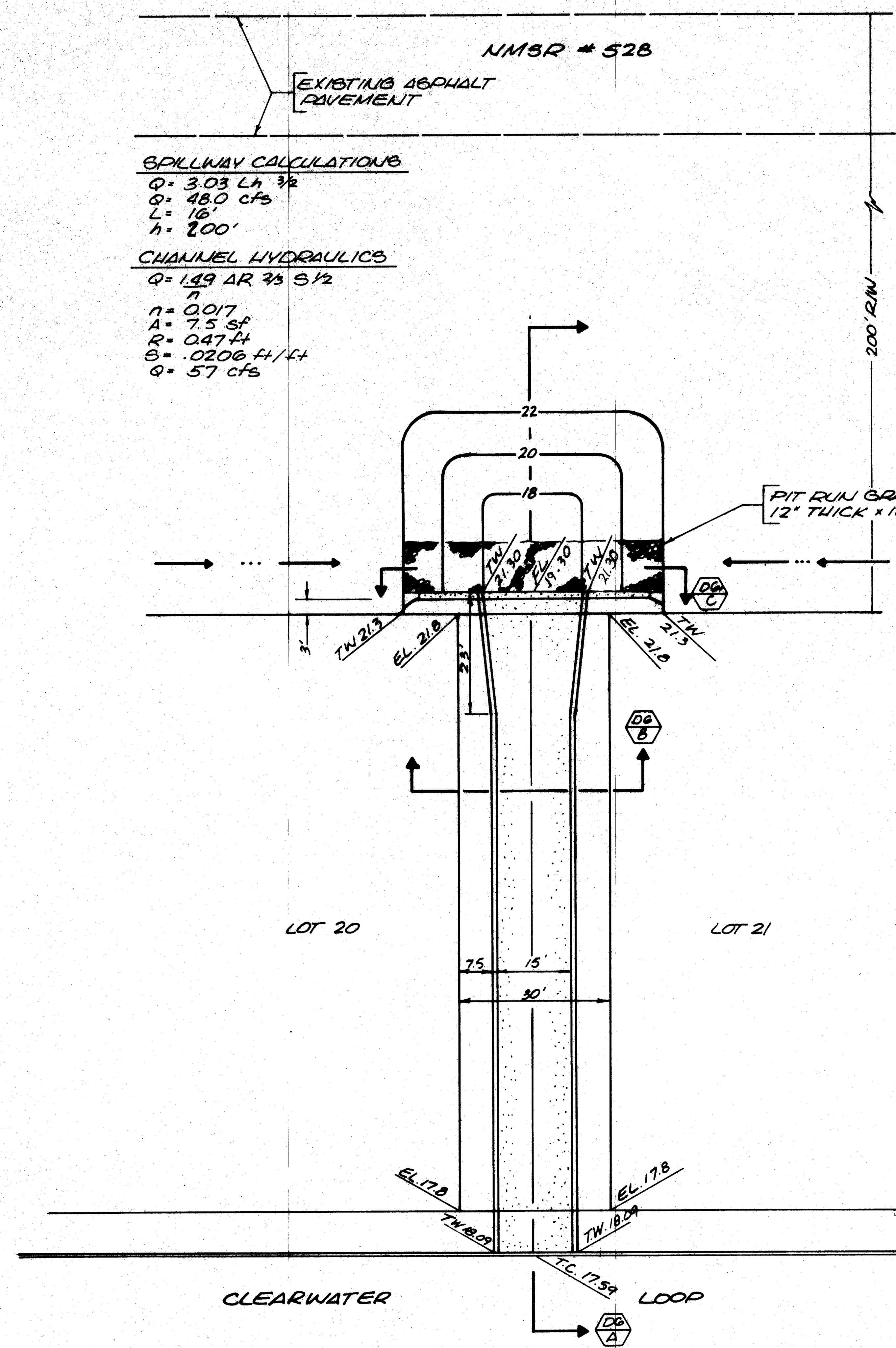
PARCEL 'E' STORM DRAIN (A)
PARCEL 'H' STORM DRAIN (B)
PARCEL 'I' STORM DRAIN (C)
Rivers Edge 4
SILVER CREEK DRIVE
RIVERSIDE DRIVE
WOLF CREEK CT.
BLACK RIVER DRIVE
STA. 8+97.50 SD = STA. 4+14.35 RIVERSIDE DR. CONST. TYPE 'A' CATCH BASIN TC ELEV. 5067.50 GRATE ELEV. 5066.86 INV. ELEV. 5063.35
STA. 12+00.00 CONST. 4' DIA. TYPE 'E' OR TYPE 'C' DROP M.H. INV. (IN) = 5047.50 INV. (OUT) = 5039.50
APPROX. LOCATION 2-1.5' DIA. COTTONWOOD TREES
SEE ENLARGEMENT D5 A
STA. 10+00.00 = INTX. W/ P.L.
PROPOSED RETAINING WALL
DENSE VEGETATION
STILLING BASIN
RIVER BANK
N 22°40'00" W
ACCESS ROAD
STA. 9+91.50 SD = STA. 3+20.35 RIVERSIDE DRIVE CONST. DOUBLE 'C' C.B. TC ELEV. 5067.76 GRATE ELEV. 5065.86 INV. ELEV. 5061.00
STA. 9+91.50 CONST. DOUBLE 'C' C.B. TC 5082.50 GRATE ELEV. 5081.60 INV. ELEV. 5078.29
STA. 10+90.00 CONST. 4' DIA. TYPE 'C' OR TYPE 'E' M.H. INV. ELEV. 74.00
STA. 11+66.00 CONST. 4' DIA. TYPE 'C' OR TYPE 'E' M.H. INV. 5052.50
STA. 12+10.00 CONST. 4' DIA. TYPE 'C' OR TYPE 'E' DROP M.H. INV. 5046.00
APPROX. LOCATION RIVER BANK
SEE ENLARGEMENT D5 F
STA. 10+00.00 = INTX. P.L.
N 48°10'00" W
STA. 12+48.00 ± END OF PIPE INV. ELEV. 5035.7
DAYLIGHT LINE @ ELEV. 59.0±
STA. 9+91.50 SD = STA. 9+39.18 BLACK RIVER DR. CONST. DOUBLE 'C' C.B. TC ELEV. 5074.16 GRATE ELEV. 73.26 INV. ELEV. 69.95
STA. 11+15.00 CONST. 4' DIA. TYPE 'C' OR TYPE 'E' M.H. INV. ELEV. 5064.00
STA. 11+95.00 CONST. 4' DIA. TYPE 'C' OR TYPE 'E' M.H. INV. ELEV. 50.0
STA. 12+54.00 CONST. 4' DIA. TYPE 'C' OR TYPE 'E' DROP M.H. INV. (IN) = 45.50 INV. (OUT) = 37.28
DAYLIGHT LINE @ ELEV. 5057.0
RIVER BANK ELEV. 5035.0±
3:1 SLOPE
SEE ENLARGEMENT D5 I
NOTES:
1) All pipe shall be Reinforced Concrete Pipe, per ASTM C76, Class III with 'O' Ring Rubber Gasket Joints per ASTM C443. Bevelled End Pipe may be used on curves. In all cases of maximum joint deflection there shall be at least 0.5 inches of interior bell surface beyond the location of the gasket. In the event this is unobtainable, single-miter elbows shall be utilized. (at least two per curve to maintain alignment). Laying Diagrams and shop drawings of precast pipe shall be submitted and approved prior to acceptance at the job site. Any Field Fabrication of RCP Fittings require approval of Engineer.
2) Drop inlet stationing refers to intersection of connector pipe with inside face of outer catch basin wall.
3) Refer to Standard Drawings or Sheets D2 & D3 for catch basin details and manhole details.
4) Stationing is along ℄ of Storm Drain.
EXIST. GROUND PROFILE @ ℄ PIPE
PROPOSED GRADE @ ℄ PIPE
PROPOSED SURFACE GRADE @ ℄ PIPE
RIM ELEV. 52.0
RIM ELEV. 84.0
RIM ELEV. 53.0
RIM ELEV. 76.0
RIM ELEV. 58.5
CONSTRUCT SWALE & INSTALL EROSION CONTROL MAT 12' W x 50' L SEE DETAIL D4
5085 5080 5075 5070 5065 5060 5055 5050 5045 5040 5035
10+00 11 12
PLAN
PROFILE
AMREP SOUTHWEST INC.
SCALES
D18
PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.


Rivers Edge 4
BUILD 12'X 50' SWALE INSTALL 'ENKAMAT' SOIL EROSION CONTROL MAT OR OTHER SUITABLE MAT APPROVED BY CITY ENGINEER
4" THICK 3000 PSI PCC, REINFORCED W/6"X6" #6 WWF
10" THICK CUTOFF WALL
30"RCP
EL. 36.0
EL. 37.0
SEE DS A
PARCEL 'E' OUTLET & STILLING BASIN ENLARGEMENT
N.T.S.
A
18"RCP
10" THICK CUTOFF WALL
SEE DS B
PARCEL 'H' STORM DRAIN OUTLET ENLARGEMENT
N.T.S.
F
24"RCP
10" THICK CUTOFF WALL
SEE DS C
PARCEL 'I' STORM DRAIN OUTLET ENLARGEMENT
N.T.S.
I
S=1.390%
#9 REBAR @ 18" O.C.
EL. 38.50
EL. 36.00
EL. 38.00
EL. 37.00
EL. 38.00
EL. 33.50
EL. 34.50
COMPACTED SUBGRADE TO 95% ASTM D-1557
SECTION B
N.T.S.
SLOPE 2.5:1
18"RCP S=2.000%
#4 REBAR @ 18" O.C.
EL. 37.5
EL. 34.5
EXIST. GROUND
4" THICK 3000 PSI PCC, REINFORCED W/6"X6" #6 WWF
EL. 33.5
EL. 32.5
EL. 32.0
EL. 30.0
COMPACTED SUBGRADE TO 95% ASTM D-1557
SECTION G
N.T.S.
EXIST. SLOPE
24"RCP S=2.000%
#9 REBAR @ 18" O.C. HORIZ. & VERT.
EL. 36.3
EL. 35.8
EL. 34.8
EL. 35.7
EL. 34.7
EL. 33.2
EL. 34.1
EL. 33.1
EL. 32.3
EL. 30.7
EL. 30.6
COMPACTED SUBGRADE TO 95% ASTM D-1557
SECTION J
N.T.S.
16'-0"
EL. 36.0
EL. 38.00
EL. 36.00
SECTION C
N.T.S.
HORIZ. #4 REBAR @ 1'-5 3/8" O.C.
VERT. #4 REBAR @ 18" O.C.
SECTION D
N.T.S.
EL. 37.0
EL. 38.0
EL. 35.5
SECTION E
N.T.S.
#9 REBAR @ 18" O.C. VERT. & HORIZ.
4" THICK 3000 PSI PCC REINFORCED W/6"X6" #6 WWF
SECTION H
N.T.S.
4" THICK 3000 PSI PCC, REINFORCED W/6"X6" #6 WWF
#4 REBAR @ 18" O.C. HORIZ. & VERT.
SECTION K
N.T.S.
#4 REBAR @ 18" O.C. VERT. & HORIZ.
4" THICK 3000 PSI PCC, REINFORCED W/6"X6" #6 WWF
SECTION L
N.T.S.
SCALES N.T.S.
FILE NO. ASRR-97-2330
AMREP SOUTHWEST INC.
DRAINAGE IMPROVEMENTS DETAILS
CORRALES NORTH UNIT 2
SHEET NO. D5

2019-01-16

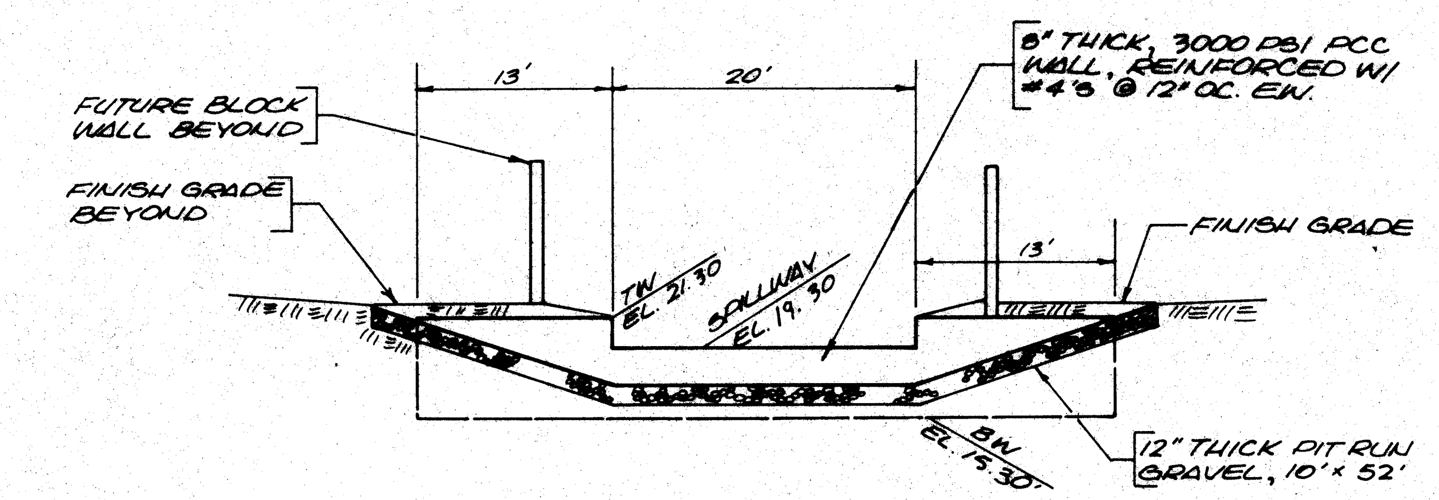
Created	2019-01-16 19:50:29 UTC by Omar Ruiz
Updated	2019-01-16 19:56:23 UTC by Omar Ruiz
Location	35.2909998656331, -106.589052732669
Outfall	Rivers Edge 5
Visible Outfall	Yes
Date	2019-01-16
Time	12:50
Photos	

Notes	Plenty of space for storm water treatment. RCP invert is below downstream surface elevation. Vegetation is light. Steep hill west of RCP. Light trash. Erosion of hill north west from outfall, water drains just downstream of outfall.



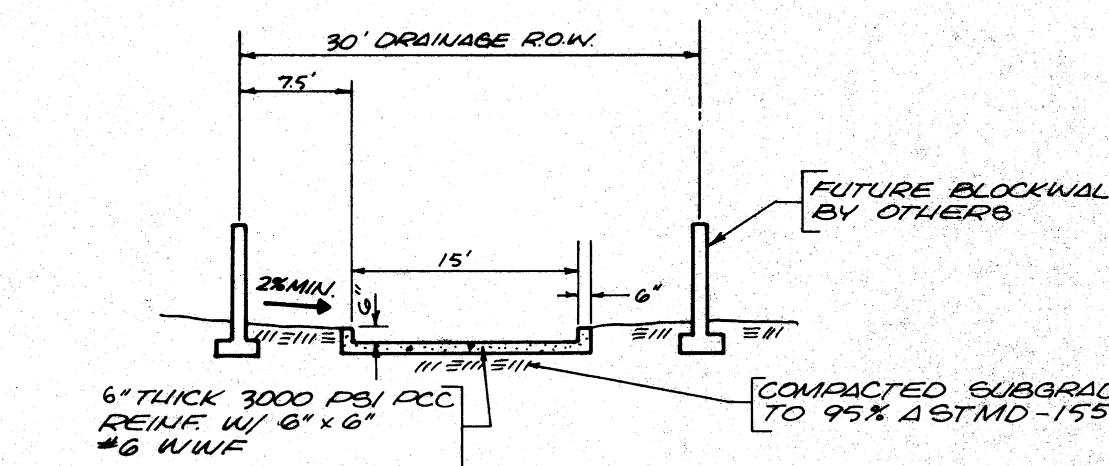
PARCEL 'C' CHANNEL IMPROVEMENTS (E)

SCALE: 1" = 20'



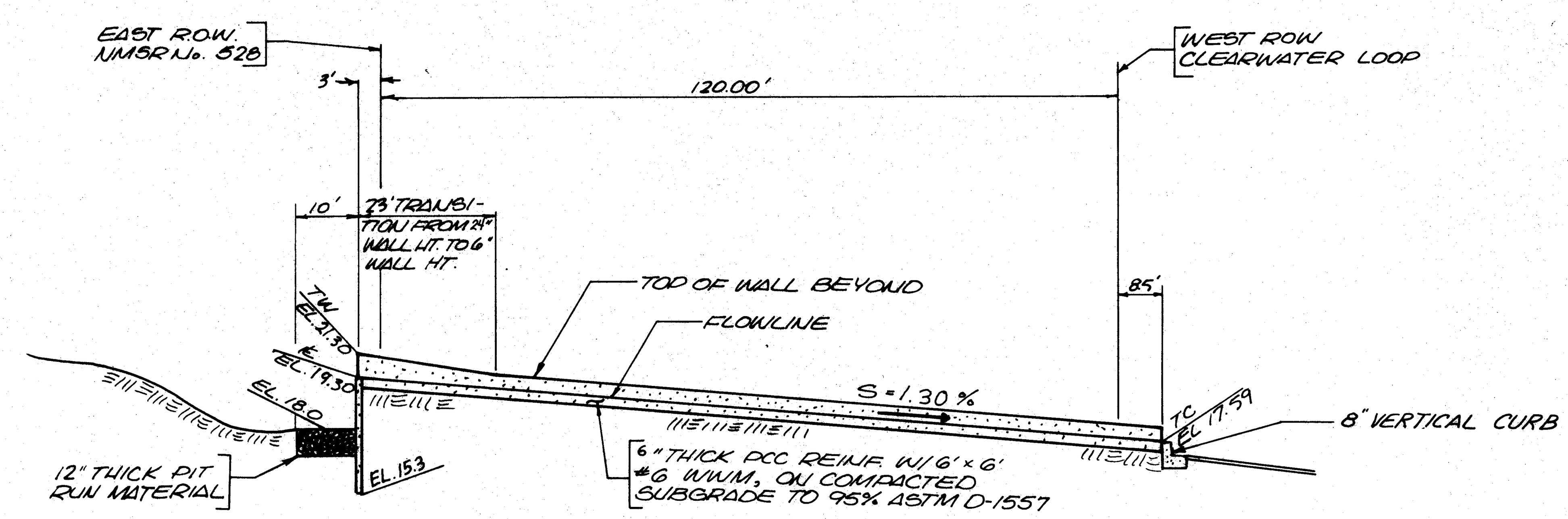
PARCEL 'C' INLET SECTION (C)

SCALE: HORIZ: 1" = 10'
VERT.: 1" = 5'



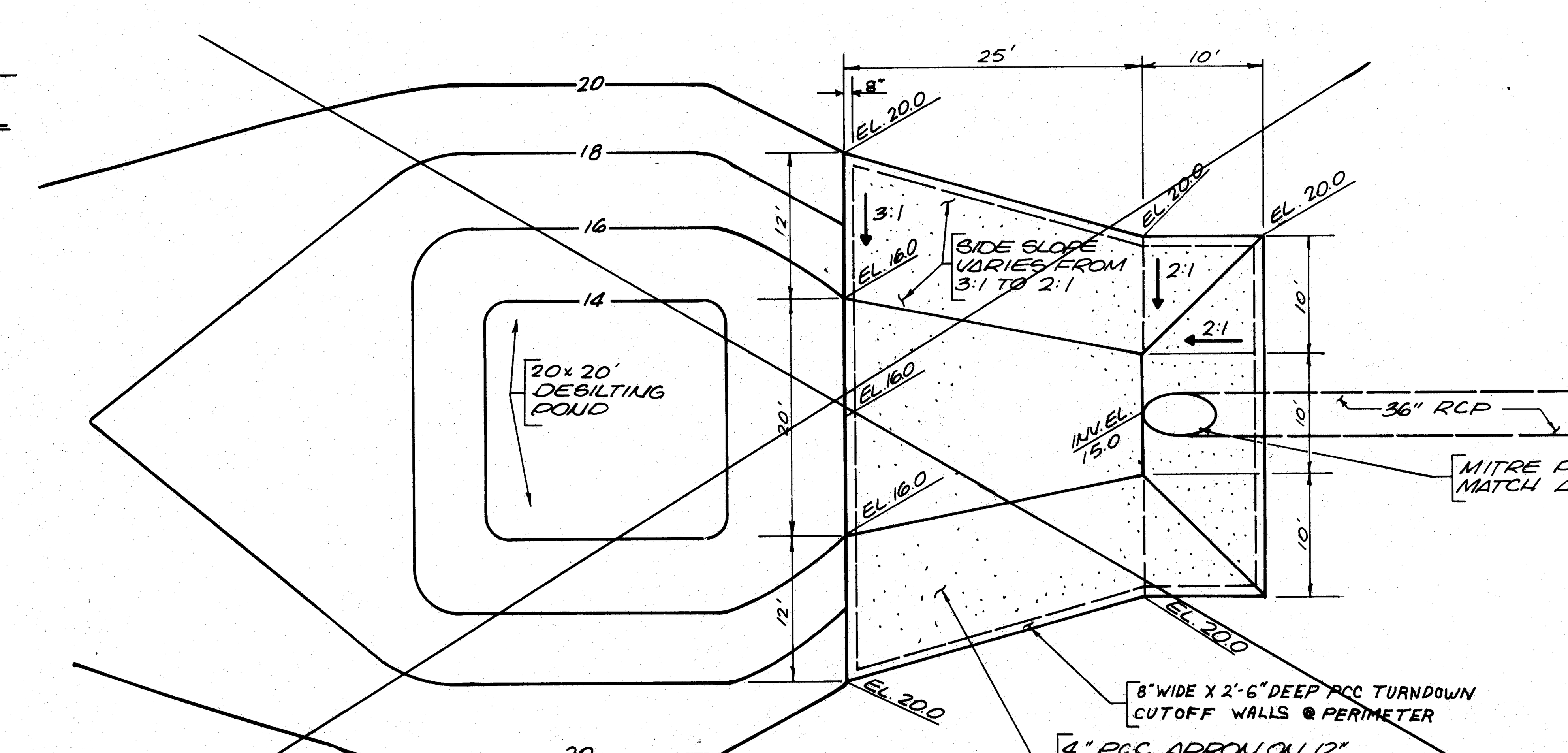
PARCEL 'C' CHANNEL SECTION (B)

SCALE: 1" = 10'



PARCEL 'C' CHANNEL SECTION (A)

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



3 DELETE

~~PARCEL 'A' PIPE ENTRANCE ENLARGEMENT~~ (D)

SCALE: 1" = 10'

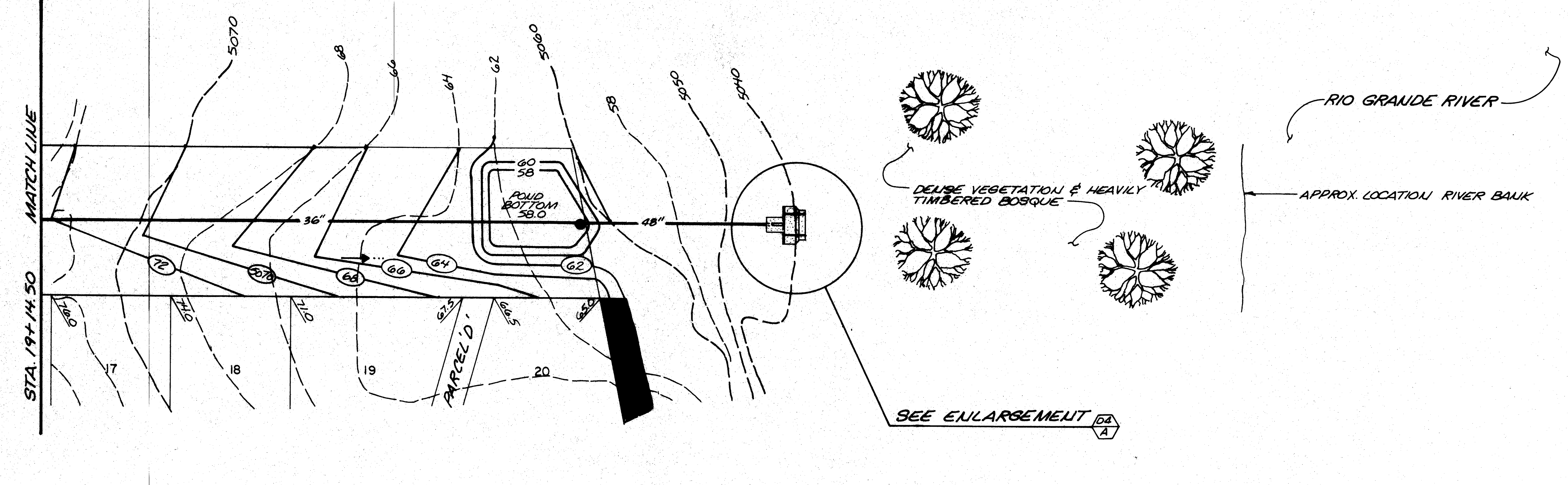
SEE D11/A

SCALES	FILE NO.		SHEET NO.
AS SHOWN	ASRB-87-2330	AMREP SOUTHWEST INC. DRAINAGE IMPROVEMENTS DETAILS CORRALES [illegible] UNIT 2	D6

CHANGE ORDER NO. 3 8/15/89 JPF/JPK


PARCEL 'B' STORM DRAIN (A)
PLAN
PROFILE
SEE ENLARGEMENT
STA. 6+11.71 ~ B.C.
EC STA. 7+65.88
3 DELETE 4" P.C.C. SLOPE PROTECTION & STRUCTURAL CONCRETE
3 STA. 6+11.71 TO 9+66.00 DELETE 36" RCP
36" RCP
N 45°00'00" W
3 DELETE C.B. STA. 9+78.00 CONST. DOUBLE 'C' C.B. W/18" VERT. CONNECTOR PIPE TC ELEV. 04.91 GRATE ELEV. 04.01 INV. ELEV. 01.80
STA. 10+22.00 CONST. DOUBLE 'C' C.B. W/ 18" VERTICAL CONNECTOR TC ELEV. 04.91 GRATE ELEV. 04.01 INV. EL. 01.80
FILL AREA
GRADED ACCESS ROAD 5% MAX. CROSS-SLOPE, 12% MAX. LONGITUDINAL SLOPE
STA. 10+68.95 ~ B.C.
CONST. PIPE GATE PER TYPICAL DETAIL SHT. D3
DESILTING POND
WILLOW CREEK ROAD
DO NOT DISTURB EXIST. VEGETATION EXCEPT WHERE DESIGNATED
STA. 12+81.88 ~ E.C.
CONST. PIPE GATE PER TYPICAL DETAIL SHEET D3
3 DELETE M.H. STA. 10+00.00 PARCEL 'E' STORM DRAIN = STA. 4+13.00 WILLOW CREEK ROAD
STA. 14+50.00 ~ CONSTRUCT 6' DIA. TYPE "C" MANHOLE
S 22°40'00" E
STA. 14+08.05 ~ B.C.
STA. 15+61.46 ~ E.C.
STA. 19+00.00 ~ CONSTRUCT 6' DIA. TYPE 'E' MANHOLE
MATCH LINE
STA. 19+14.50
1 ℄ CURVE DATA
R = 500.00'
Δ = 17°40'00"
L = 154.17'
T = 77.70'
APPROXIMATE JOINT DEFLECTION PER 8' JOINT = 00°55'
APPROXIMATE JOINT DEFLECTION PER 7½' JOINT = 00°52'
2 ℄ CURVE DATA
R = 400.00'
Δ = 30°30'00"
L = 212.93'
T = 109.05'
APPROXIMATE JOINT DEFLECTION PER 8' JOINT = 1°09'
APPROXIMATE JOINT DEFLECTION PER 7½' JOINT = 1°04'
3 ℄ CURVE DATA
R = 400.00'
Δ = 22°50'00"
L = 159.41'
T = 80.78'
APPROXIMATE JOINT DEFLECTION PER 8' JOINT = 1°09'
APPROXIMATE JOINT DEFLECTION PER 7½' JOINT = 1°04'
DELETE (PER C.O. NO. 3)
3 L.F.
345.29 L.F.
1 EA.
1 EA.
1 EA.
136 S.Y.
8 C.Y.
NOTES:
1) All pipe shall be Reinforced Concrete Pipe, per ASTM C76, Class III with 'O' Ring Rubber Gasket Joints per ASTM C443. Bevelled End Pipe may be used on curves. In all cases of maximum joints deflection there shall be at least 0.5 inches of interior bell surface beyond the location of the gasket. In the event this is unobtainable, single-miter elbows shall be utilized. (at least two per curve to maintain alignment). Laying Diagrams and shop drawings of precast pipe shall be submitted and approved prior to acceptance at the job site. Any Field Fabrication of RCP Fittings require approval of Engineer.
2) Drop inlet stationing refers to intersection of connector pipe with inside face of outer catch basin wall.
3) Refer to Standard Drawings or Sheets D2 & D3 for catch basin details and manhole details.
4) Stationing is along Centerline of R.O.W. and baseline as shown.
PIPE ENTRANCE HYDRAULICS
Q100 = 52 cfs
D = 36"
HW/D = 1.30
BEEHIVE INLET RIM ELEV. 91.0
EXIST. GROUND @ ℄ PIPE
PROPOSED GRADE @ ℄ PIPE
BEEHIVE INLET RIM ELEV. 75.0
MANHOLE COVER RIM ELEV. 04.7
APPROX. LOCATION 6" W.L.
3 STA. 9+66.00 - BEGIN PIPE ~ INV. EL. 5096.28
STA. 10+22.00 ~ 36" x 18" TEE
3 STA. 10+68.95 ~ B.C. ~ G.B. INV. EL. 5094.93
CONST. 102.95 L.F. ~ 36" RCP @ S = 1.311%
381.05
CONST. 450.00 L.F. - 36" RCP @ S = 3.433%
STA. 13+00.00 IDENTICAL POINT ELEV. 5087.00
STA. 14+50.00 CONST. 6' DIA. TYPE 'C' M.H. INV. ELEV. 5081.85
CONST. 450.00 L.F. - 36" RCP @ S = 3.744%
STA. 19+00.00 CONST. 6' DIA. TYPE 'E' M.H. INV.
CONST. 14.50 L.F. - 36" RCP @ S = 3.973%
5+00
10+00
15+00
PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.
CHANGE ORDER NO. 3 8/15/89 JPF/JPK

[redacted]



PARCEL 'B' STORM DRAIN (A)

PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.

[redacted]

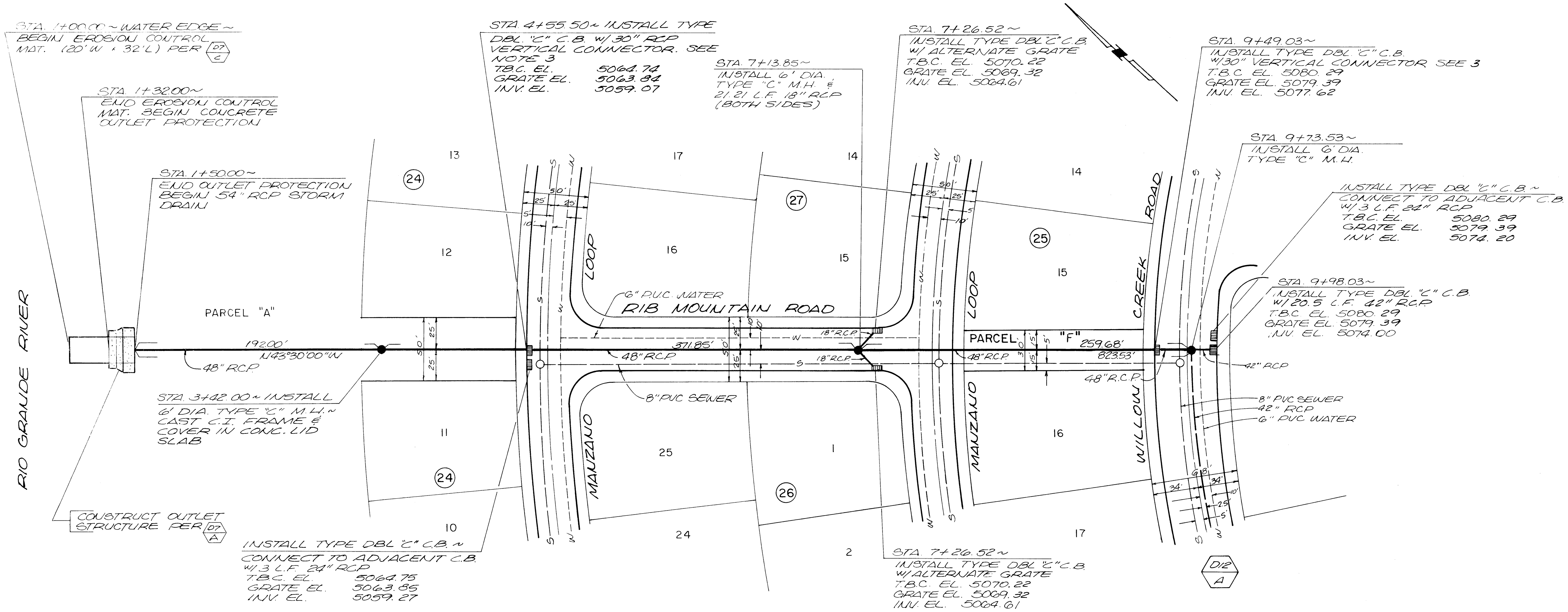
BUILD 14'x50' SWALE SEE TYP. SECT. INSTALL 'ENKAMAT' SOIL EROSION MATTING OR OTHER SUITABLE MAT APPROVED BY CITY ENGINEER
48" RCP
4" THICK 3000 PSI PCC REINFORCED W/ 6x6" - #6 WWF
10" THICK CUT OFF WALL
6" THICK CUTOFF WALL 2'-6" DEEP
8'-0"
2'-0"
5'-0"
PARCEL 'B' PIPE OUTLET & STILLING BASIN
SEE SHEET D12
N.T.S.
A
S=0.652%
Q=122
2:1
EL. 41.40
EL. 41.00
EL. 41.40
EL. 39.90
EL. 38.90
EL. 36.40
COMPACTED SUBGRADE TO 95% ASTM D-1557
6" THICK 3000 PSI PCC REINFORCED W/ 6"x6" #6 WWF
DENSE VEGETATION
SECTION B
N.T.S.
EL. 38.90
SECTION C
N.T.S.
EL. 39.90
EL. 41.40
SECTION D
N.T.S.
CONTINUOUS FIELD BEND
#4 VERT REBAR @ 1'-6"
#4 HORZ. REBAR @ 1'-6"
EL. 41.40
5'-0"
15'-0"
5'-0"
SECTION E
N.T.S.
10'-0"
3'-0"
5'-0"
12"
2:1
4'-0"
60" R.C.P.
11'-0"
S=0.102%
20'-0"
11'-6"
4" THICK P.C.C. SLOPE PAVING REINFORCED W/ 6"x6" - 6/6 WWF
BUILD 50'x20' SWALE AND INSTALL 'ENKAMAT' SOIL EROSION CONTROL MAT OR OTHER SUITABLE MAT. (SEE SECTION J)
RED RIVER PIPE OUTLET & STILLING BASIN ENLARGEMENT
SEE SHEET D13
N.T.S.
F
FIELD BEND
EL. 41.00
HORIZ. #4 REBAR @ 1'-6" O.C.
VERT. #4 REBAR @ 1'-6" O.C.
7'-0"
20'-0"
7'-0"
SECTION G
N.T.S.
S=1.50%
4" THICK P.C.C. SLOPE PAVING REINFORCED W/ 6"x6" - 6/6 WWF
EL. 41.00
EL. 36.00
EL. 39.50
EL. 36.00
EL. 37.50
EL. 37.49
EL. 33.50
6" THICK 3000 PSI PCC REINFORCED W/ 6"x6" #6 WWF
COMPACT SUBGRADE TO 95% ASTM D-1557
DENSE VEGETATION
SECTION H
N.T.S.
20'-0"
7'-0"
EL. 39.50
EL. 36.00
EL. 37.00
SECTION I
N.T.S.
3'-0"
VARIES
3'-0"
SOIL EROSION CONTROL MAT 'ENKAMAT' OR EQUIV
TYPICAL SWALE SECTION
FOR PARCEL 'B', RED RIVER ROAD, AND PARCEL 'E' OUTLETS
J
6" THICK 3000 PSI PCC REINFORCED W/ 6"x6" #6 WWF
EL. 39.50
EL. 37.50
EL. 37.00
SECTION K
N.T.S.
SCALES N.T.S.
FILE NO. ASRR-87-2330
AMREP SOUTHWEST INC.
DRAINAGE IMPROVEMENTS DETAILS
CORRALES NORTH UNIT 2
SHEET NO. D4

2019-01-16

Created	2019-01-16 20:06:48 UTC by Omar Ruiz
Updated	2019-01-16 20:12:05 UTC by Omar Ruiz
Location	35.2931630136211, -106.583896838129
Outfall	Rivers Edge 6
Visible Outfall	Yes
Date	2019-01-16
Time	13:06

Photos

Notes	Outfall is clear if vegetation. Plenty of room for storm water treatment. A retention pond was built or naturally occurred. Light trash. Retention pond has water.



NOTES:

1) ALL PIPE UNLESS OTHERWISE NOTED SHALL BE REINFORCED CONCRETE PIPE, PER ASTM C76, CLASS III WITH 'O' RING RUBBER GASKET JOINTS PER ASTM C443. BEVELLED END PIPE MAY BE USED ON CURVES. IN ALL CASES OF MAXIMUM JOINTS DEFLECTION THERE SHALL BE AT LEAST 0.5 INCHES OF INTERIOR BELL SURFACE BEYOND THE LOCATION OF THE GASKET. IN THE EVENT THIS IS UNOBTAINABLE, SINGLE-MITER ELBOWS SHALL BE UTILIZED. (AT LEAST TWO PER CURVE TO MAINTAIN ALIGNMENT). LAYING DIAGRAMS AND SHOP DRAWINGS OF PRECAST PIPE SHALL BE SUBMITTED AND APPROVED PRIOR TO ACCEPTANCE AT THE JOB SITE. ANY FIELD FABRICATION OF RCP FITTINGS REQUIRE APPROVAL OF ENGINEER.

2) CATCH BASIN STATIONING REFERS TO BACK OF CURB AT CENTER LINE OF CATCH BASIN.

3) AT VERTICAL CONNECTIONS TO CATCH BASINS CONSTRUCT CONCRETE COLLAR PER DETAIL D12/B.

4) AT CATCH BASIN INLET LOCATIONS INDICATING ALTERNATE GRATE. INSTALL THE GRATE DETAILED IN DRAWING 2221 SHEET D2 AT ALL OTHER CATCH BASIN INLETS INSTALL THE ALBUQUERQUE STANDARD GRATE DWG. 2220 SHEET D2.

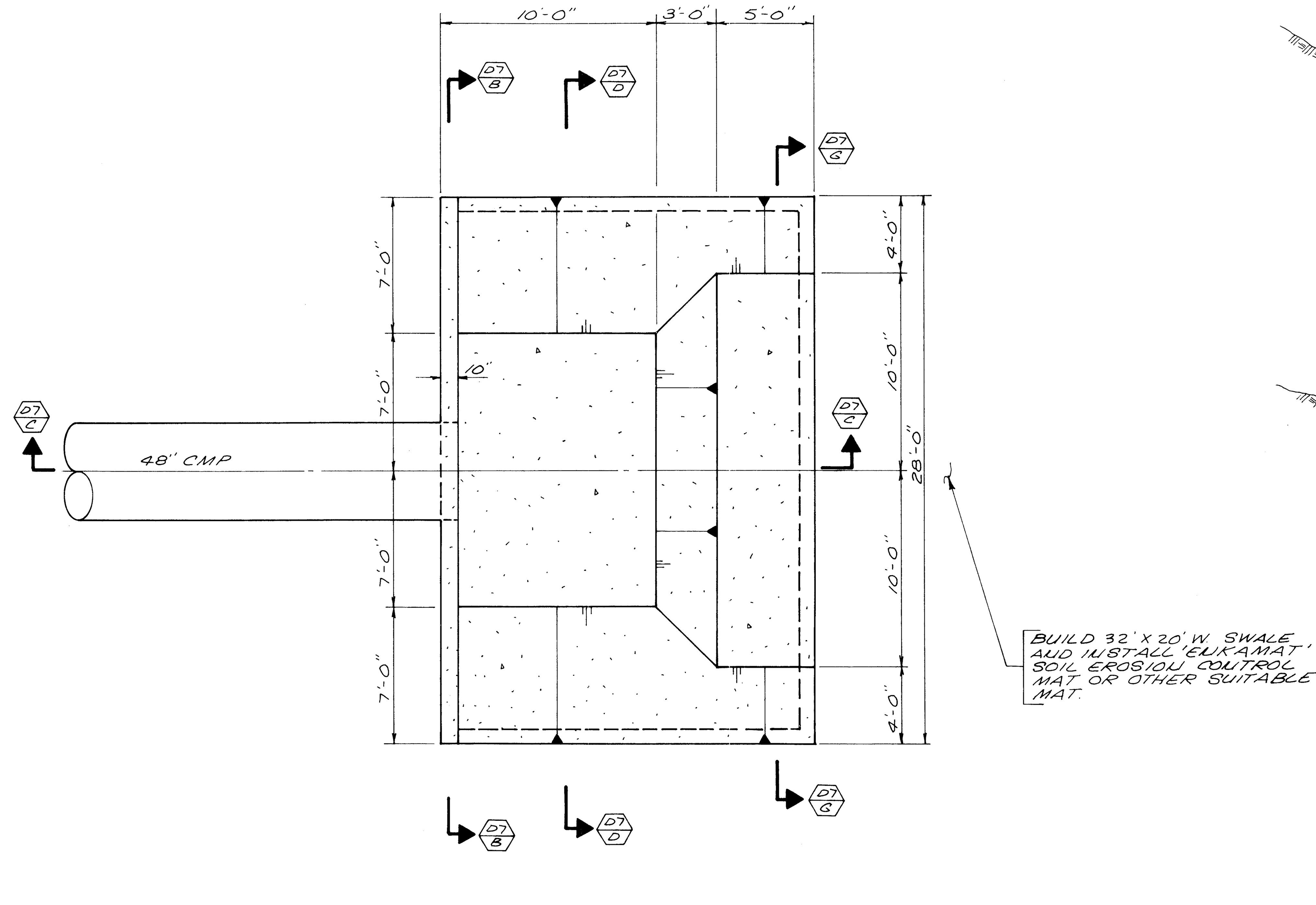
RIB MOUNTAIN ROAD STORM DRAIN (A)

PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.

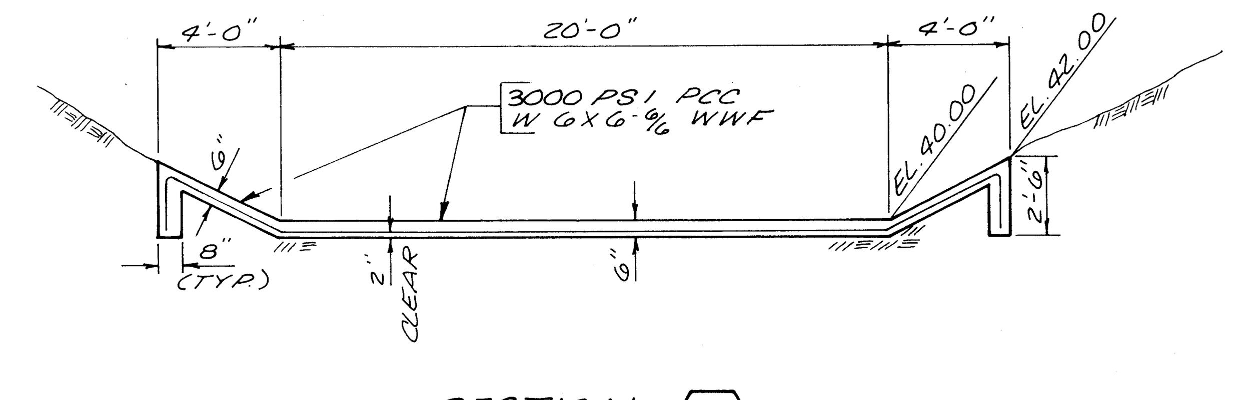
SCALES	FILE NO.		SHEET NO.
HORIZ.: 1" = 50 VERT.: 1" = 5	ASRN-89-2368	AMREP SOUTHWEST INC. DRAINAGE PLANS CORRALES NORTH UNIT 3	D11

PLAN	NOTE BOOK	SURVEYED	BY	DATE
	NO	PLOTTED		
		ALIGNMENT CHECKED		
		RT OF WAY CHECKED		

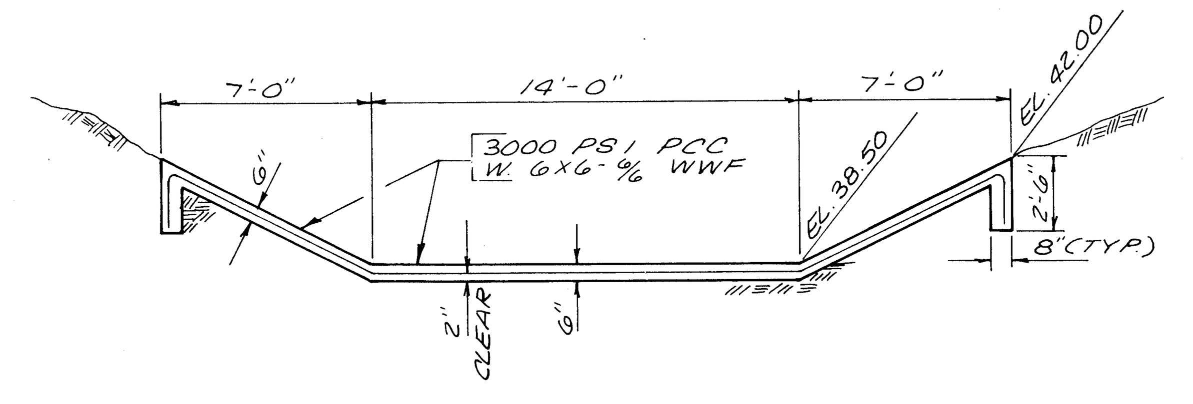
PROFILE	NOTE BOOK	SURVEYED	BY	DATE
	NO	PLOTTED		
		GRADES CHECKED		
		B.M. NOTED		
		STRUCTURE NOTAT'NS CH'KD		



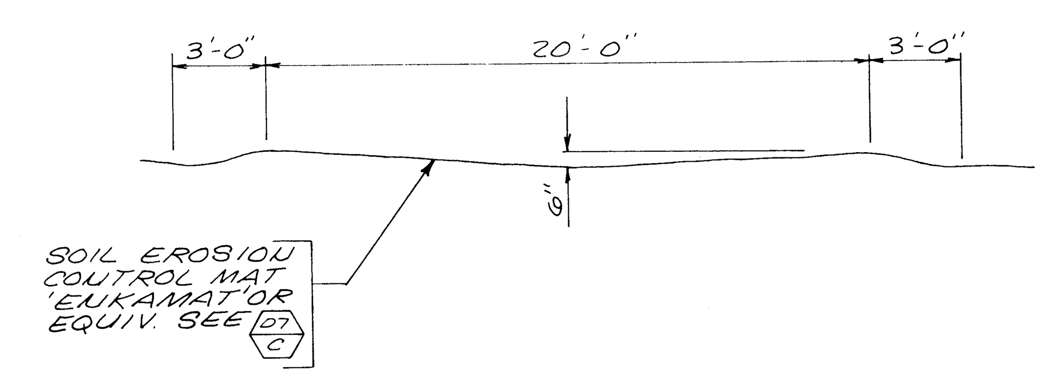
PARCEL "A" DRAIN OUTLET / STILLING BASIN (A)
N.T.S.



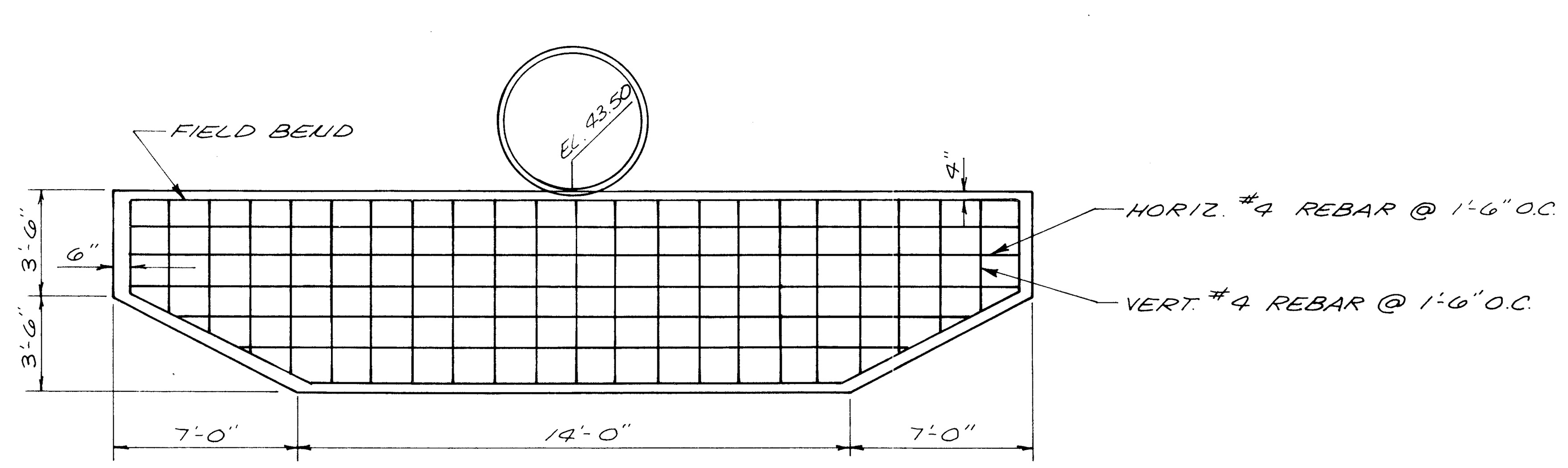
SECTION (G)
N.T.S.



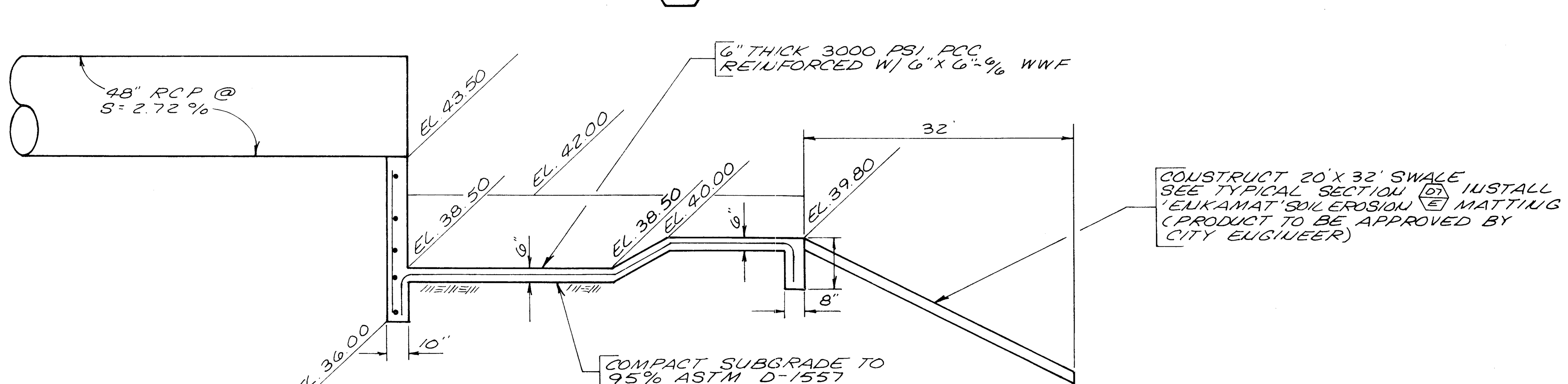
SECTION (D)
N.T.S.



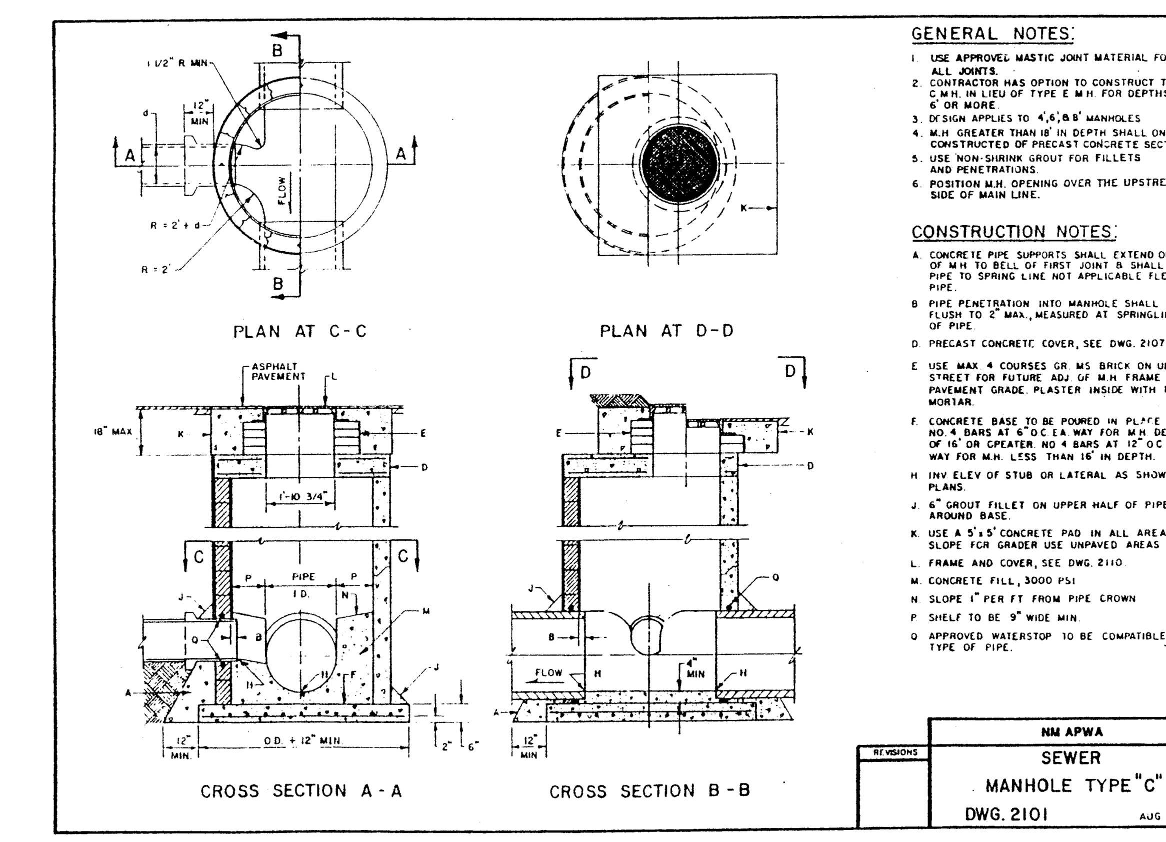
TYPICAL SWALE SECTION (E)
N.T.S.

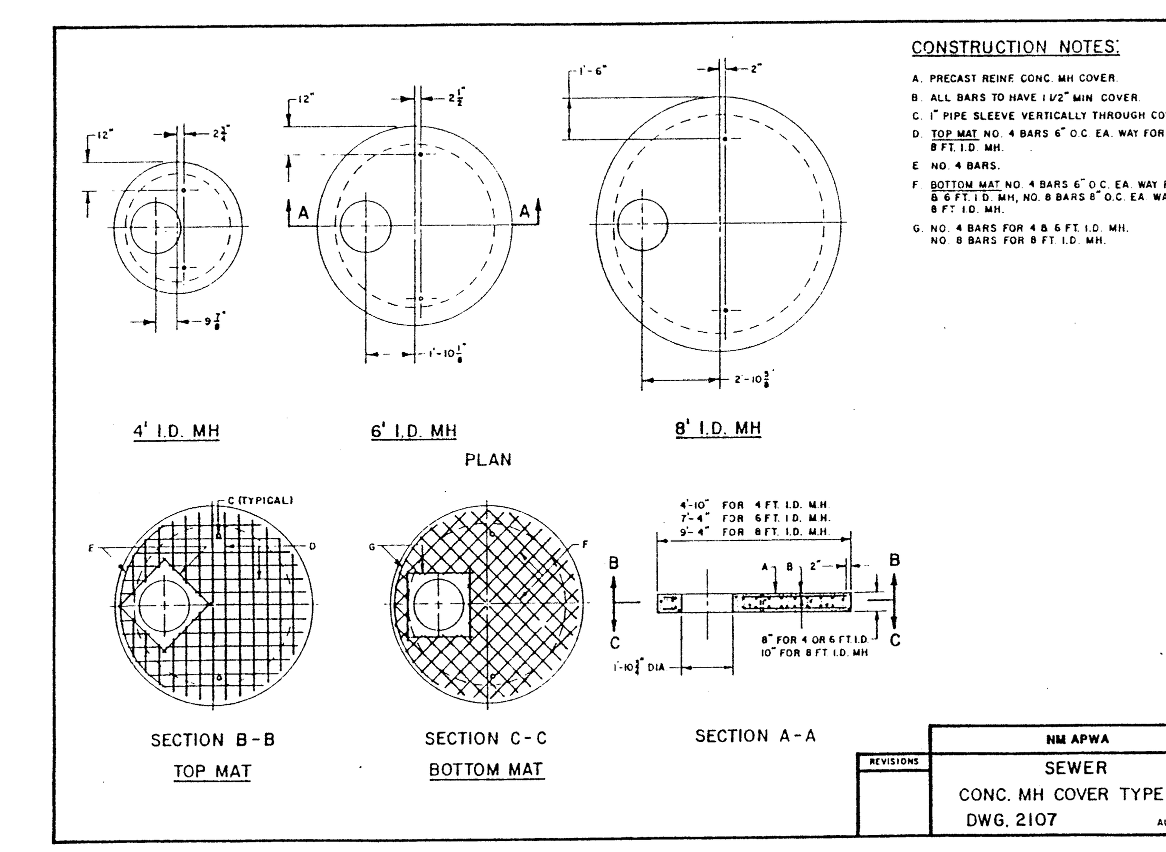


SECTION (B)
N.T.S.

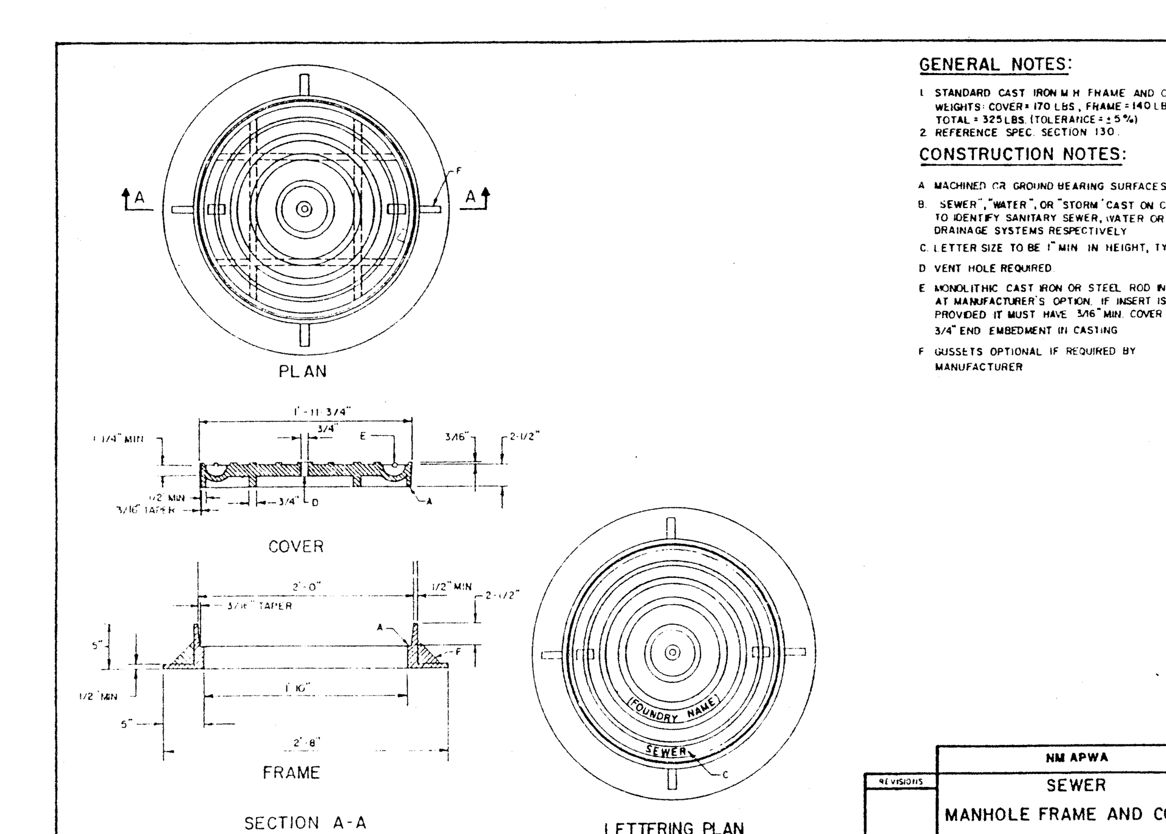


SECTION (C)
N.T.S.





NOTE : In this project, where the manholes are not located in areas paved with asphalt or concrete, only Type 'C' manholes shall be used and the C.I. Frame & Cover shall be precast into the Reinforced Concrete Lid Slab shown in Drawing 2107 with the surface of the C.I. Frame & Cover Flush with the concrete surface.



SCALES	FILE NO.		SHEET NO.
N.T.S.	ASRR-89-2368	AMREP SOUTHWEST INC. DRAINAGE IMPROVEMENT DETAILS CORRALES NORTH UNIT 3	D7

2019-01-16

Created	2019-01-16 20:36:26 UTC by Omar Ruiz
Updated	2019-01-16 20:43:21 UTC by Omar Ruiz
Location	35.298617534024, -106.581789492181
Outfall	Rivers Edge 7
Visible Outfall	Yes
Date	2019-01-16
Time	13:36
Photos	 

Notes	Water dissipator is located west of river. It has light vegetation no visible trash. Water flows down stream where it ponds at river banks before draining into river.

Rivers Edge 7- Inlet

Created	2019-05-03 21:45:49 UTC by Omar Ruiz
Updated	2019-05-13 16:47:31 UTC by Omar Ruiz
Location	35.2988024977, -106.584509628
Status	Completed
Outfall	Rivers Edge 7- Inlet
Visible Outfall	Yes
Date	2019-05-03
Time	15:46
Photos	

Notes	Inlet of culvert that leads to outlet.

Rivers Edge 7- Outfall

Created	2019-05-03 21:51:50 UTC by Omar Ruiz
Updated	2019-05-13 16:48:41 UTC by Omar Ruiz
Location	35.2986552028, -106.584080611
Status	Completed
Outfall	Rivers Edge 7- Outfall
Visible Outfall	Yes
Date	2019-05-03
Time	15:51
Photos	

Notes	Danger: MH cap missing.

SCALES	FILE NO.		SHEET NO.
N.T.S	ASRR-89-2368	AMREP SOUTHWEST INC. DRAINAGE IMPROVEMENT DETAILS CORRALES NORTH UNIT 3	D3

KEYED NOTES:
① CONTRACTOR FOR WATER IMPROVEMENTS TO REMOVE AND RELOCATE EXISTING DRAIN VALVE ASSEMBLY IN THE INDICATED LOCATION. SET TOP OF VALVE BOX AND METER PIT AT EL. 5237.5 ±
② INSTALL TYPE "M" RIP RAP 18" THICK ON PIT RUN GRAVEL FILTER 1' THICK.
RELOCATED DRAIN VALVE ASSEMBLY
STA. 13+32.25 ~ NMSR 528 R/W LINE ~ FACE OF STABILIZER WALL
STA. 13+76.14 ~ OUTLET OF EXISTING CMP PIPE ~ END RIP-RAP CHANNEL
EXIST DRAIN VALVE ASSEMBLY
EXISTING 30" CMP
N48°52'25" W
℄ CHANNEL
EXISTING 16" WATER MAIN
43' TRANSITION
PARCEL "B"
CHANNEL "B" IN NMSR RIGHT-OF-WAY (A)
N.T.S.
KEYED NOTES:
① CONTRACTOR FOR WATER IMPROVEMENTS TO REMOVE AND RELOCATE EXISTING DRAIN VALVE ASSEMBLY IN THE INDICATED LOCATION. SET TOP OF VALVE BOX AND METER PIT AT EL. 5113.5 ±.
② INSTALL TYPE "M" RIP RAP 18" THICK ON PIT RUN GRAVEL FILTER 1' THICK.
STA. 23+79.44 ~ NMSR R/W LINE ~ FACE OF STABILIZER WALL
STA. 24+41.7 ~ OUTLET OF EXISTING CMP PIPE ~ END OF RIP-RAP CHANNEL
EXIST. 30" CMP
N 41°55'31" W
N 34°50'00" W
EXISTING 16" WATER MAIN
61'-3" TRANSITION
PARCEL "C"
CHANNEL "A" IN NMSR 528 RIGHT OF WAY (B)
N.T.S.
RIP-RAP OUTLET PROTECTION (C)
TOP OF WALL
TOP OF RIP-RAP AT FACE OF WALL
#4 Ø @ 12" E.W. (TYP)
12" THICK REINFORCED PCC
BOTTOM OF WALL
CHANNEL STABILIZER WALL (2' DROP) (D)
ELEVATION N.T.S.
INSTALL TYPE "M" RIP-RAP 18" THICK ON PIT RUN GRAVEL FILTER 1' THICK @ LOW SIDE OF ALL STABILIZER WALLS. TOP OF RIP-RAP ELEV PER DETAIL D5/F
CHANNEL STABILIZER WALL
RIP-RAP AT STABILIZER WALLS (E)
PLAN N.T.S.
4" THICK PCC PAVING REINFORCE W 6X6-4/4 WWF
4" THICK PCC PAVING REINF. W 6X6-4/4 WWF
STORM DRAIN PIPE, MITER END TO MATCH VARIABLE SLOPE
CHANNEL STABILIZER WALL W/DRAIN PIPE OUTLET (F)
ELEVATION N.T.S.
INSTALL 4" THICK PCC PAVING REINFORCE W 6X6-4/4 WWF INSTALL 8" W X 2' TALL CUT OFF WALL @ 3 EXPOSED EDGES
INSTALL TYPE "M" RIP-RAP 18" THICK ON PIT-RUN GRAVEL FILTER 1' THICK @ LOW SIDE OF ALL STABILIZER WALLS TOP OF RIP-RAP ELEV PER DETAIL D5/E
RIP-RAP & SLOPE PAVING AT STABILIZER WALLS W/DRAIN PIPE OUTLET (G)
PLAN N.T.S.
INSTALL TYPE "M" RIP-RAP 18" THICK ON 1' THICK PIT-RUN GRAVEL FILTER @ LOWER SIDE OF ALL STABILIZER WALLS TOP OF RIP-RAP ELEV. PER DETAIL D5/I
RIP-RAP AT STABILIZER WALLS (H)
N.T.S.
12" THICK 3000 PSI
CHANNEL STABILIZER WALL (3' DROP) (I)
N.T.S.
STORM DRAIN PIPE MITER END TO MATCH VARIABLE SLOPE
CHANNEL STABILIZER WALL W/DRAIN PIPE OUTLET (J)
ELEVATION N.T.S.
INSTALL 4" THICK PCC PAVING REINFORCE W 6X6-4/4 WWF INSTALL 8" W X 2' TALL CUT OFF WALL AT 3 EXPOSED EDGES
INSTALL TYPE "M" RIP-RAP 18" THICK ON 1' THICK PIT-RUN GRAVEL FILTER AT LOWER SIDE OF ALL STABILIZER WALLS. TOP OF RIP-RAP EL. PER DETAIL D5/J
RIP-RAP & SLOPE PAVING AT STABILIZER WALLS W/DRAIN PIPE OUTLET (K)
PLAN N.T.S.
SCALES N.T.S.
FILE NO. ASRR-89-2368
AMREP SOUTHWEST INC.
DRAINAGE IMPROVEMENT DETAILS
CORRALES NORTH UNIT 3
SHEET NO. D5

CHANNEL "A" (A)

PLAN		
NOTE BOOK NO	SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT OF WAY CHECKED	BY / DATE

PROFILE		
NOTE BOOK NO	SURVEYED / PLOTTED / GRADES CHECKED / B. M. NOTED / STRUCTURE NOTAT'NS CHK'D	BY / DATE

PLATE 1 SINGLE PLAN - PROFILE - DOTTED
CHARLES BRUNING COMPANY
MADE IN U.S.A.

SCALES	FILE NO.		SHEET NO.
HORIZ. - 1" = 50' VERT. - 1" = 5'	ASRR-89-2368	AMREP SOUTHWEST INC DRAINAGE PLANS CORRALES NORTH UNIT 3	D8

PLATE 1 SINGLE PLAN - PROFILE - DOTTED

MADE IN U.S.A.

SCALES HORIZ. 1" = 50' VERT. 1" = 5'

FILE NO. ASSR-59-2368

AMREP SOUTHWEST INC
DRAINAGE PLANS

2019-01-16

Created	2019-01-16 20:51:22 UTC by Omar Ruiz
Updated	2019-01-16 21:04:08 UTC by Omar Ruiz
Location	35.3028119232758, -106.579576255781
Outfall	Rivers Edge 8
Visible Outfall	Yes
Date	2019-01-16
Time	13:51
Photos	 

Notes	Multiple dissipators upstream. Large structure needs work, currently erosion has removed much of the structures surrounding soil. No visible trash. Vegetation is light. Water ponds in river banks.

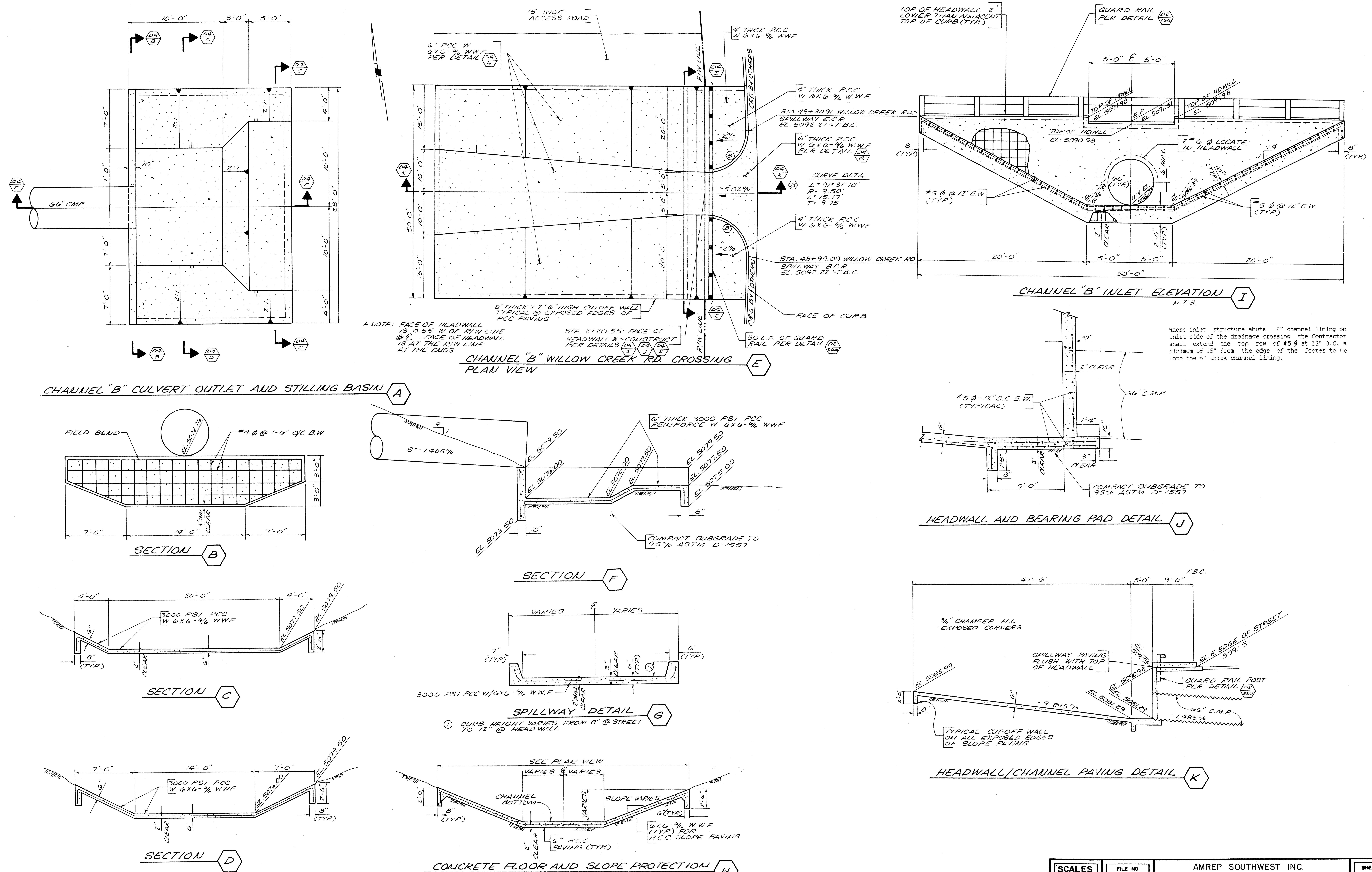
Rivers Edge 8-Inlet

Created	2019-05-03 22:00:36 UTC by Omar Ruiz
Updated	2019-05-13 16:48:19 UTC by Omar Ruiz
Location	35.3033166441, -106.582620127
Status	Completed
Outfall	Rivers Edge 8-Inlet
Visible Outfall	Yes
Date	2019-05-03
Time	16:00
Photos	 
Notes	Channel is vegetated

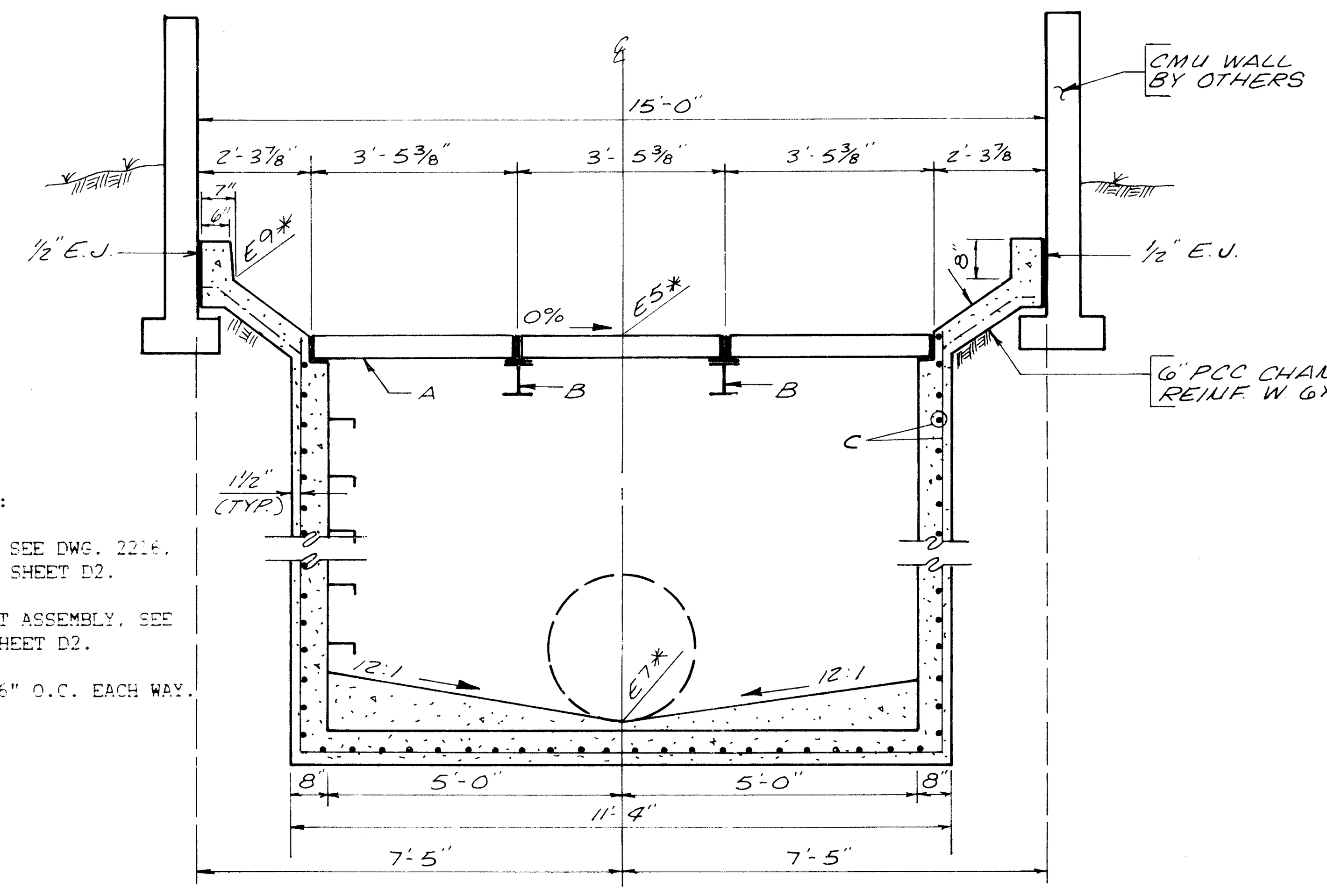
Rivers Edge 8- Outfall

Created	2019-05-03 22:04:00 UTC by Omar Ruiz
Updated	2019-05-13 16:46:04 UTC by Omar Ruiz
Location	35.3033114042, -106.581978053
Status	Completed
Outfall	Rivers Edge 8- Outfall
Visible Outfall	Yes
Date	2019-05-03
Time	16:04
Photos	

Notes	Heavy vegetation



SCALES	FILE NO.		SHEET NO.
N.T.S.	ASRR-89-2368	AMREP SOUTHWEST INC. DRAINAGE IMPROVEMENT DETAILS CORRALES NORTH UNIT 3	D4



CONSTRUCTION NOTES:

A. FRAME & GRATE SEE DWG. 2216, 2220 & 2221 - SHEET D2.

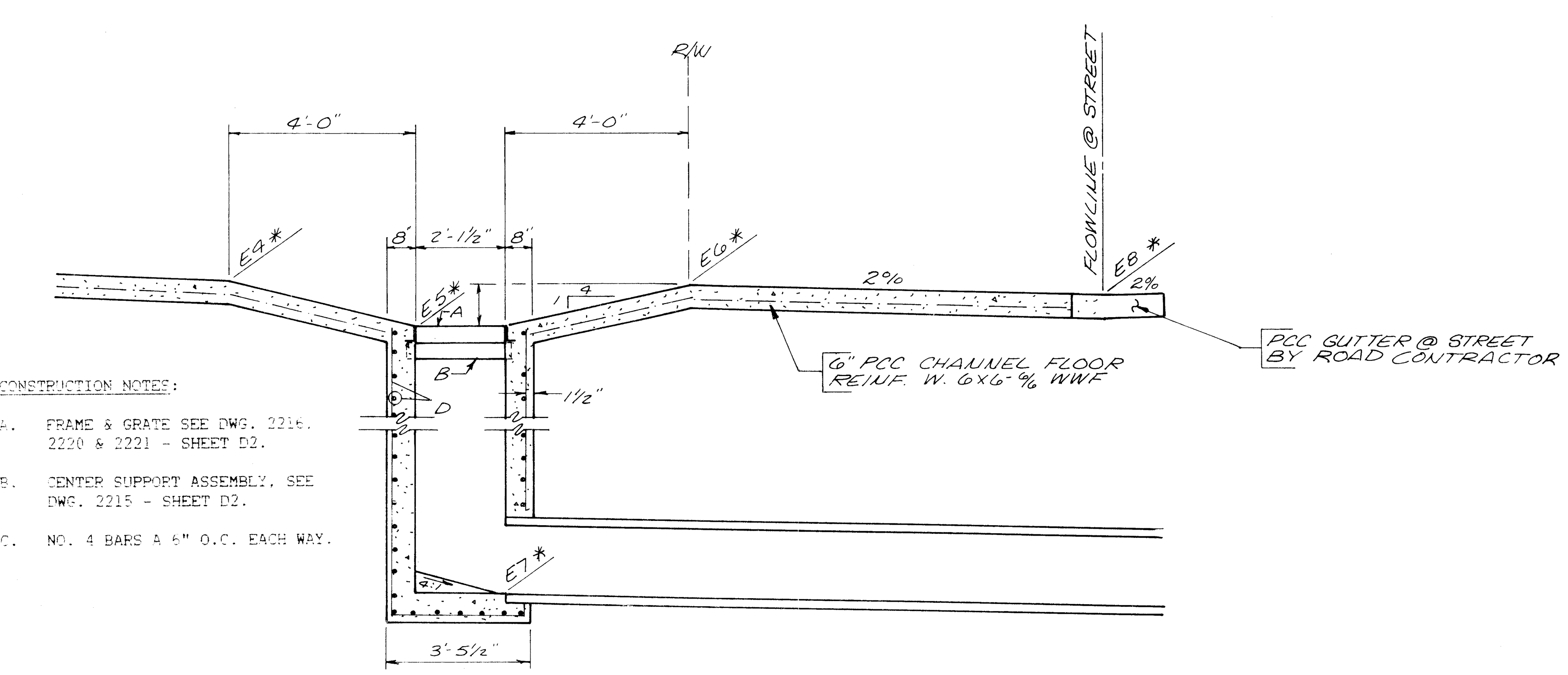
B. CENTER SUPPORT ASSEMBLY, SEE DWG. 2215 - SHEET D2.

C. NO. 4 BARS A 6" O.C. EACH WAY.

CONCRETE RUNDOWN CHANNEL SECTION AT INLET (A)
(TRIPLE TYPE 'D' INLET)
NTS

PCC RUNDOWN CHANNEL AND INLET ELEVATIONS

ELEVATION PT.*	PARCEL "D" CHANNEL EL.	PARCEL "E" CHANNEL EL.
E1*	5145.50	5139.00
E2*	5147.00	5140.50
E3*	5147.67	5141.17
E4*	5142.71	5138.83
E5*	5141.39	5137.70
E6*	5142.39	5138.70
E7*	5134.01	5133.65
E8*	5142.21	5138.52
E9*	5142.52	5138.75
E10*	5142.42	5138.56
E11*	5142.01	5138.49



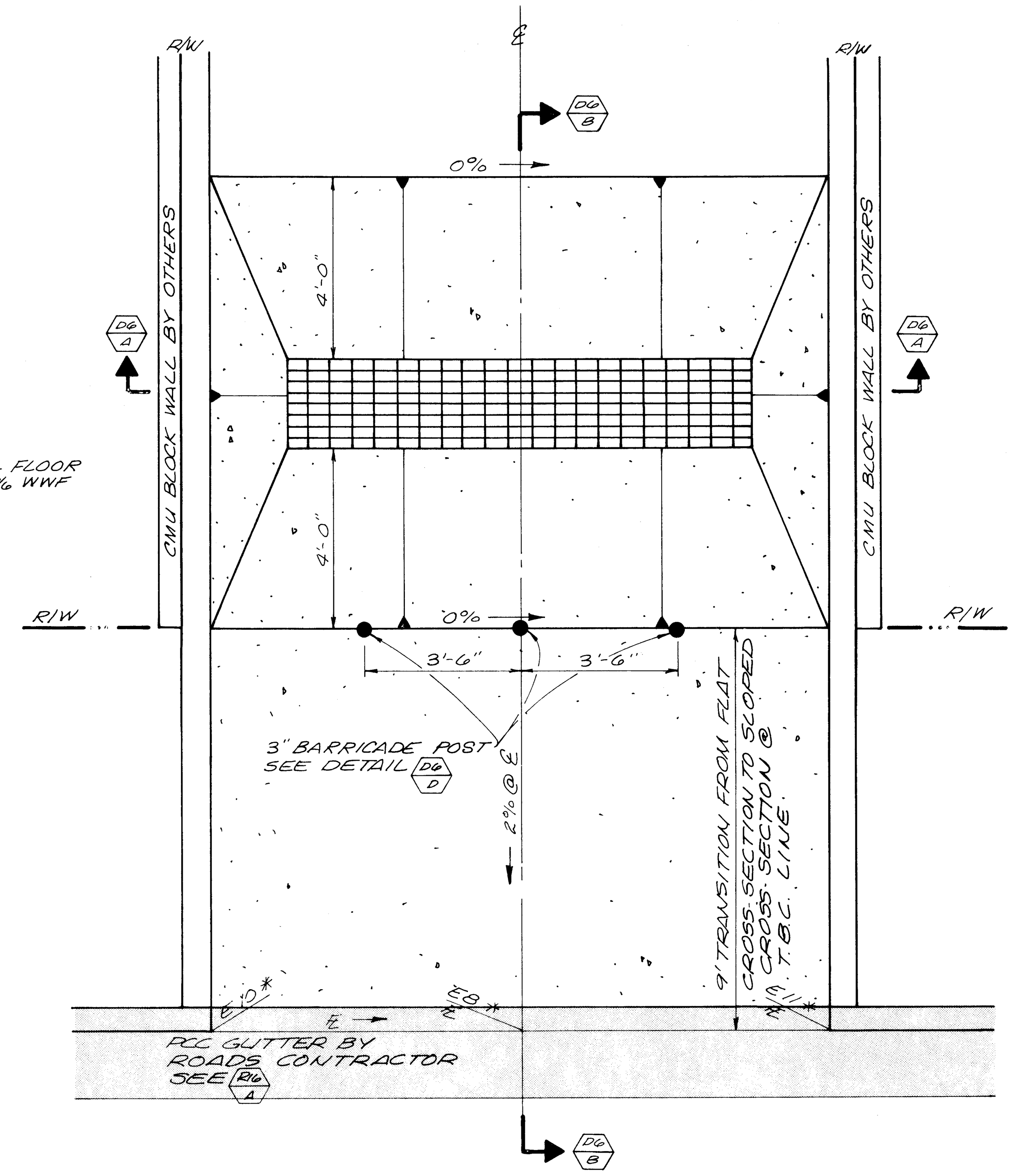
CONSTRUCTION NOTES:

A. FRAME & GRATE SEE DWG. 2216, 2220 & 2221 - SHEET D2.

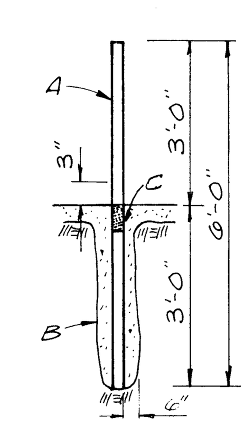
B. CENTER SUPPORT ASSEMBLY, SEE DWG. 2215 - SHEET D2.

C. NO. 4 BARS A 6" O.C. EACH WAY.

CONCRETE RUNDOWN CHANNEL / INLET SECTION (B)
TRIPLE TYPE 'D' INLET
NTS



CONCRETE RUNDOWN CHANNEL ENLARGEMENT (C)
PLAN VIEW
NTS

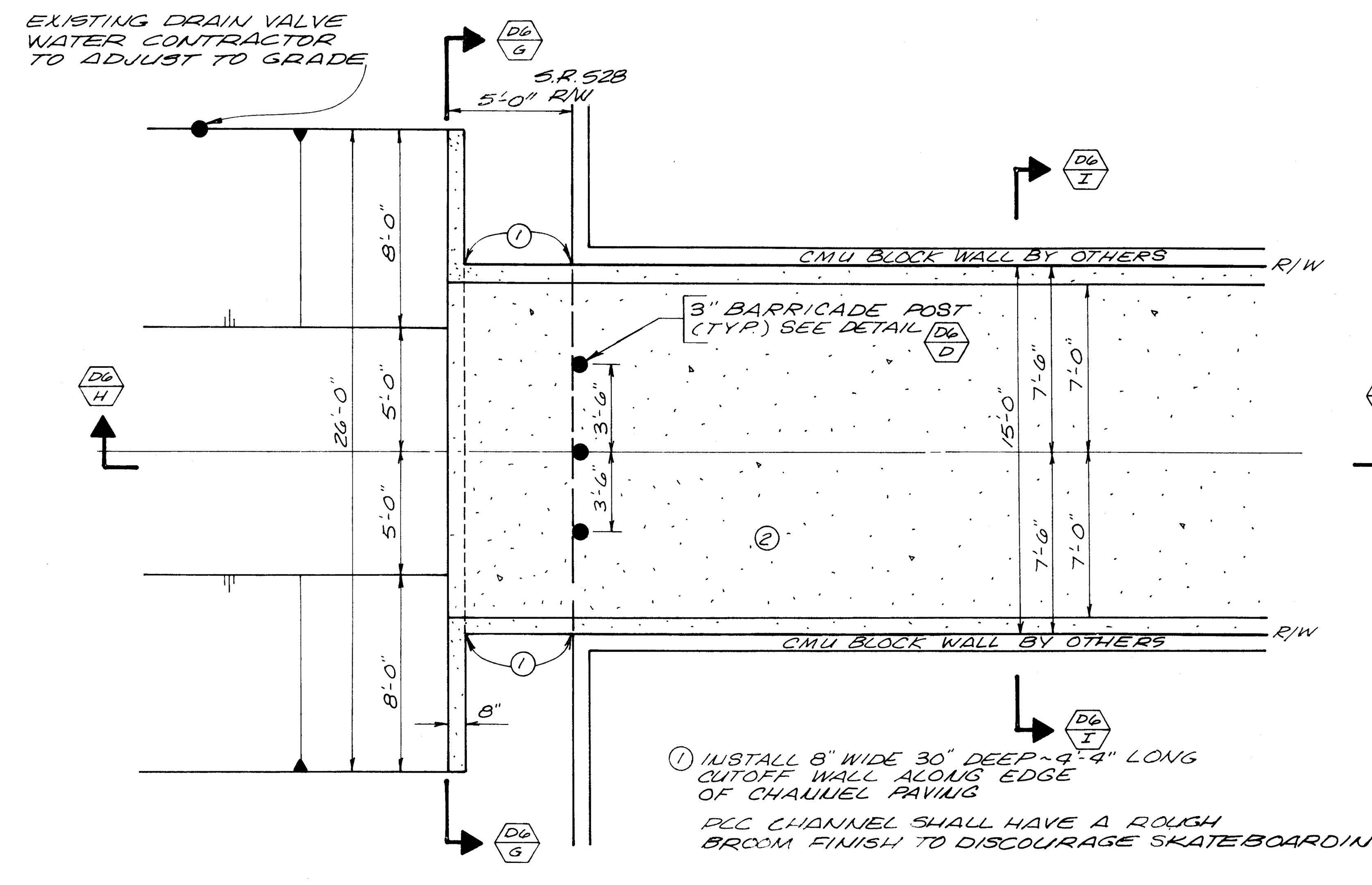


A 3" NOMINAL DIA. SCHEDULE 40 STEEL POST WELD CAP ON TOP PAINT EXPOSED SURFACE BRIGHT YELLOW.

B 3000 PSI CONCRETE

C 3" THREADED COUPLING - TIGHTEN JOINT SECURELY UPON INSTALLATION - WELD STEEL LUGS ON COUPLING TO PREVENT ROTATION OF COUPLING IN CONCRETE.

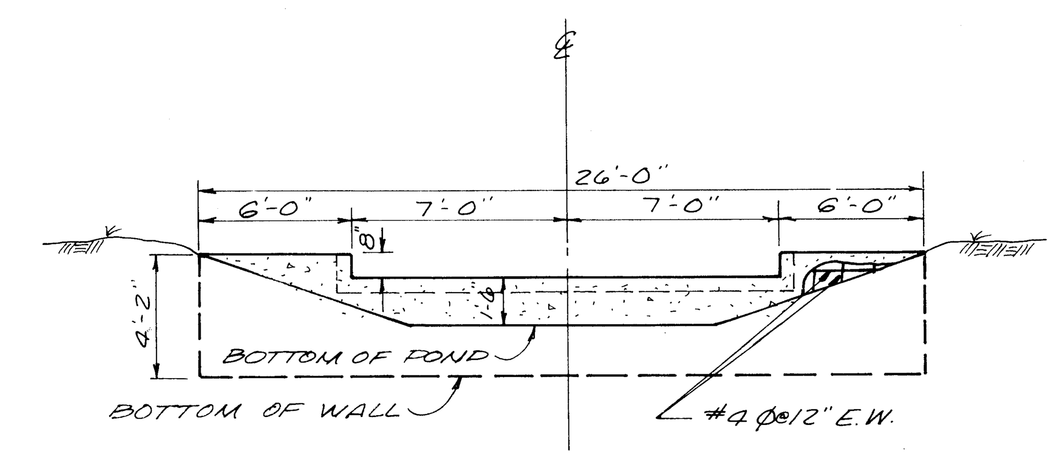
BARRICADE POST DETAIL (D)
NTS



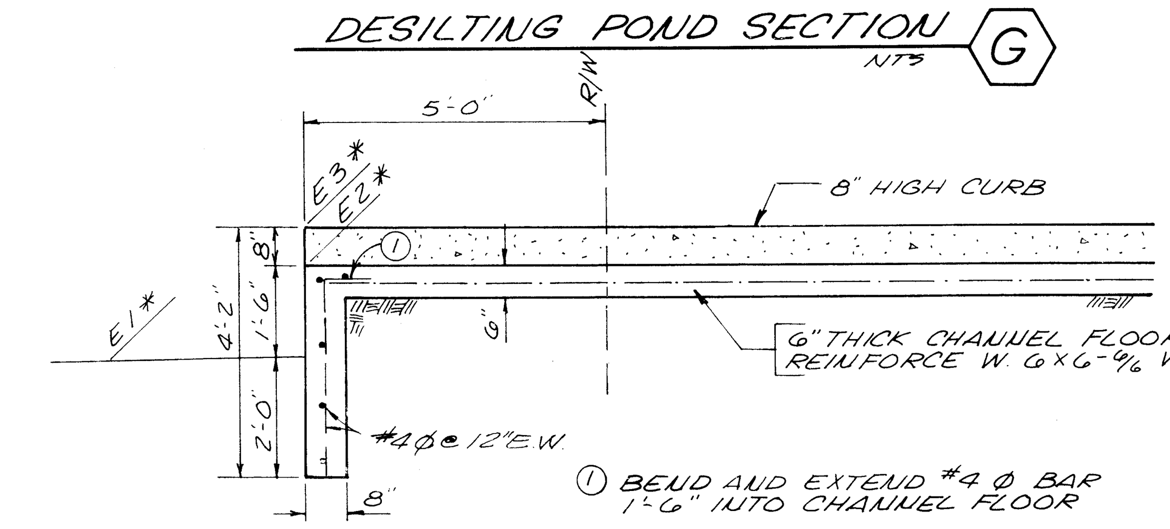
① INSTALL 8" WIDE 30" DEEP-4'-4" LONG CUTOFF WALL ALONG EDGE OF CHANNEL PAVING

PCC CHANNEL SHALL HAVE A ROUGH BROOM FINISH TO DISCOURAGE SKATEBOARDING

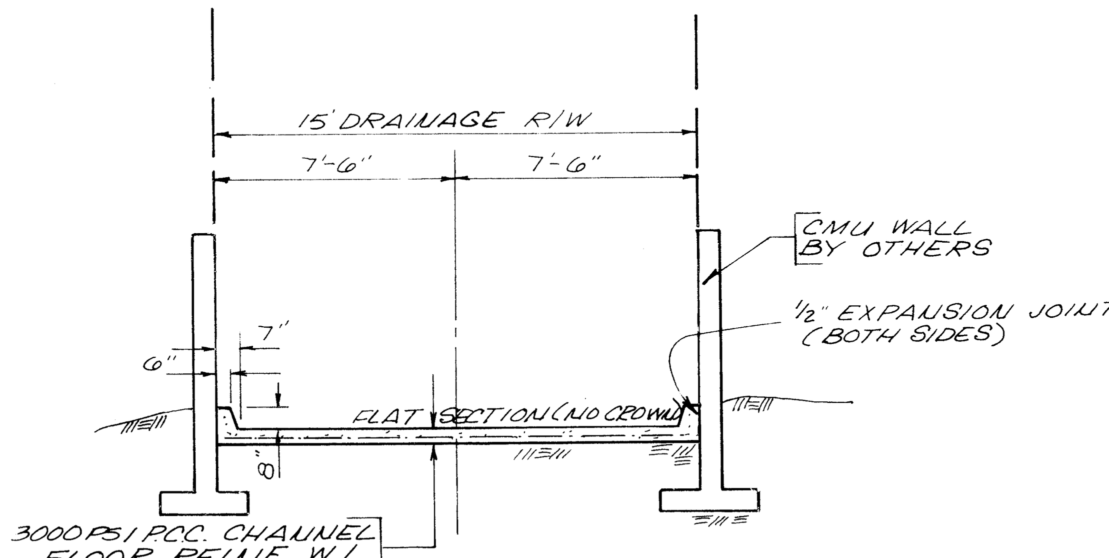
CONCRETE RUNDOWN CHANNEL ENTRANCE (F)
NTS



DESILTING POND SECTION (G)
NTS



CONCRETE RUNDOWN CHANNEL ENTRANCE SECTION (H)
NOTE: COMPACT SUBGRADE BENEATH CONCRETE TO 95% ASTM - D1557
NTS

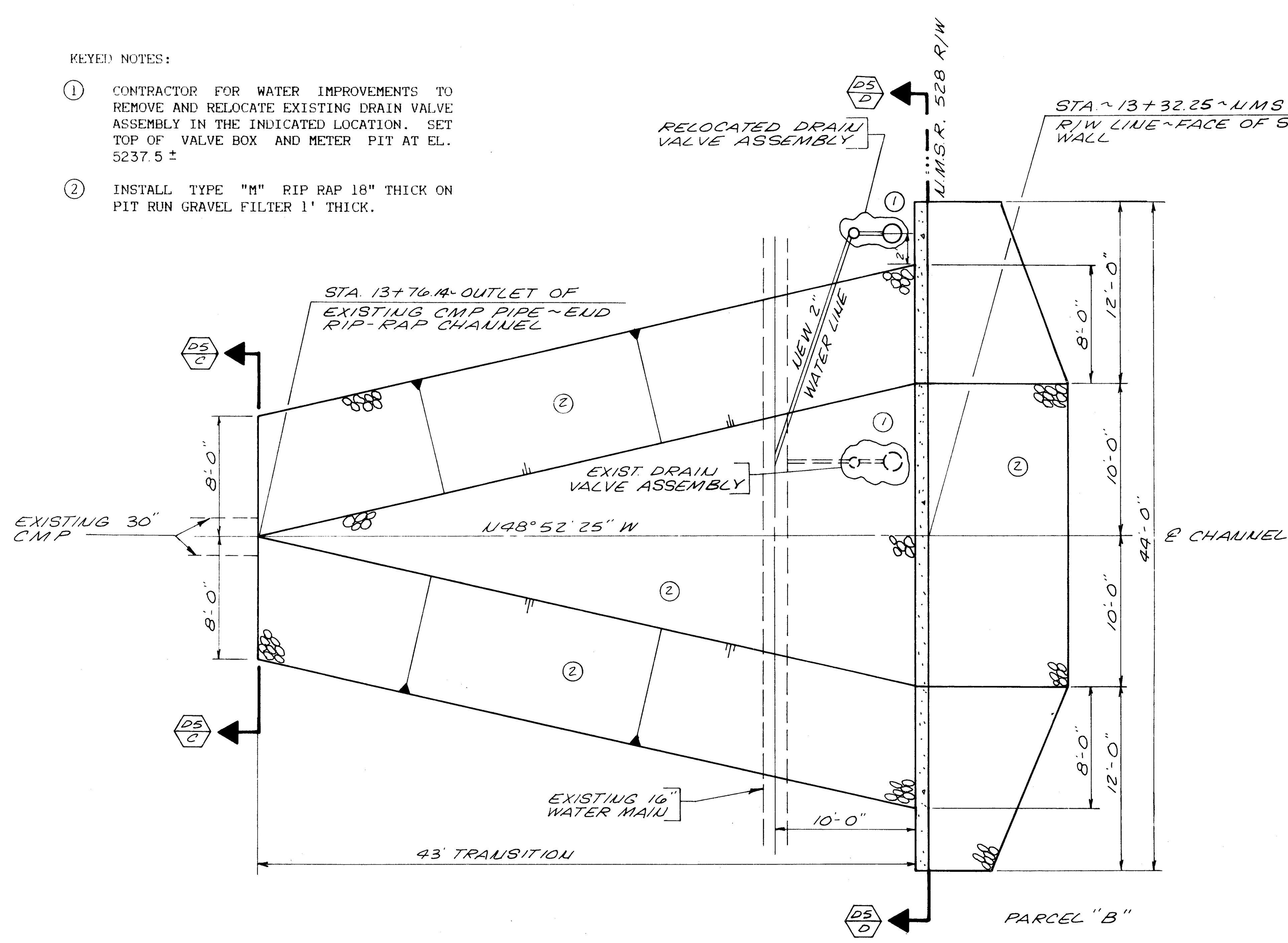


CONCRETE RUNDOWN SECTION (I)
NOTE: COMPACT SUBGRADE BENEATH CONCRETE TO 95% ASTM D-1557
NTS

SCALES HORIZ. - 1" = VERT. - 1" =	FILE NO.	AMREP SOUTHWEST INC. DRAINAGE IMPROVEMENT DETAILS CORRALES NORTH UNIT 3	SHEET NO. D6

KEYED NOTES:

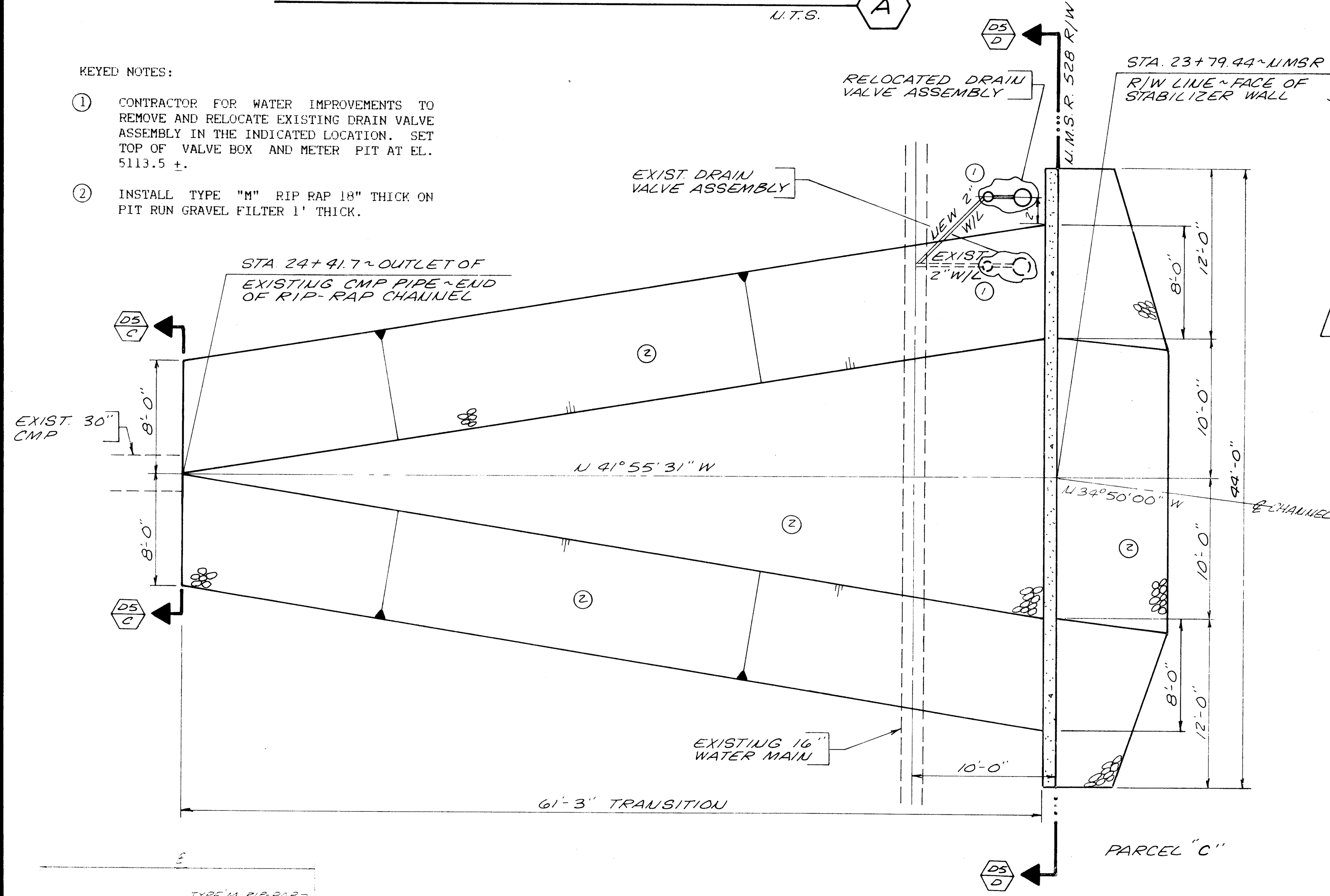
1. CONTRACTOR FOR WATER IMPROVEMENTS TO REMOVE AND RELOCATE EXISTING DRAIN VALVE ASSEMBLY IN THE INDICATED LOCATION. SET TOP OF VALVE BOX AND METER PIT AT EL. 5237.5 ±
2. INSTALL TYPE "M" RIP RAP 18" THICK ON PIT RUN GRAVEL FILTER 1' THICK.



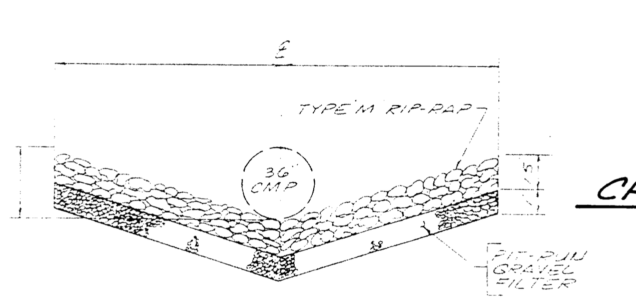
CHANNEL "B" IN NMSR RIGHT-OF-WAY (A)
N.T.S.

KEYED NOTES:

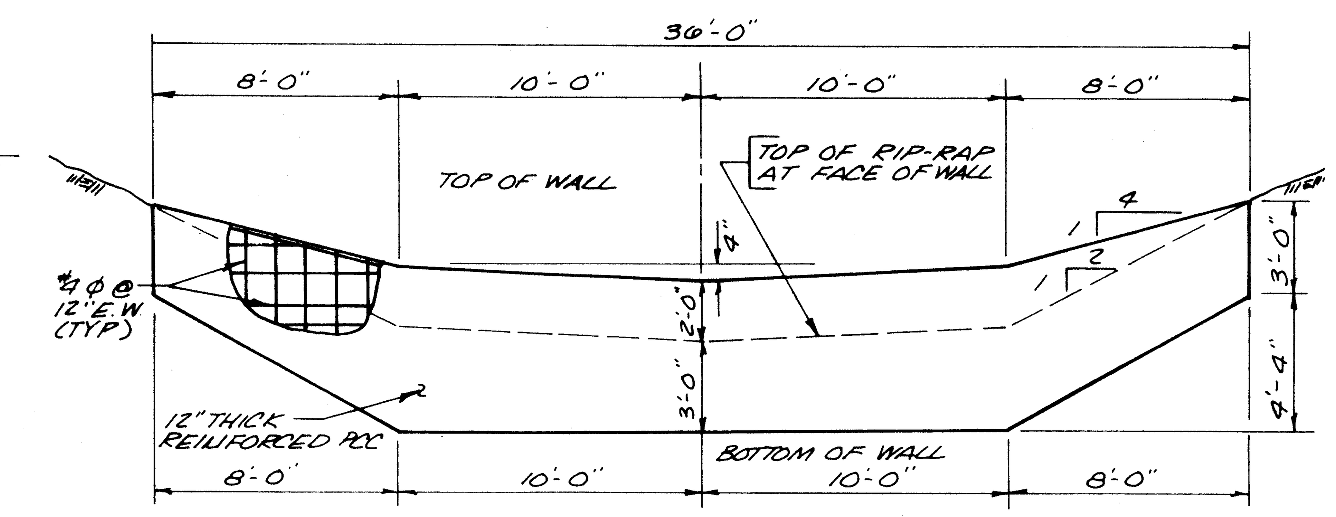
1. CONTRACTOR FOR WATER IMPROVEMENTS TO REMOVE AND RELOCATE EXISTING DRAIN VALVE ASSEMBLY IN THE INDICATED LOCATION. SET TOP OF VALVE BOX AND METER PIT AT EL. 5113.5 ±.
2. INSTALL TYPE "M" RIP RAP 18" THICK ON PIT RUN GRAVEL FILTER 1' THICK.



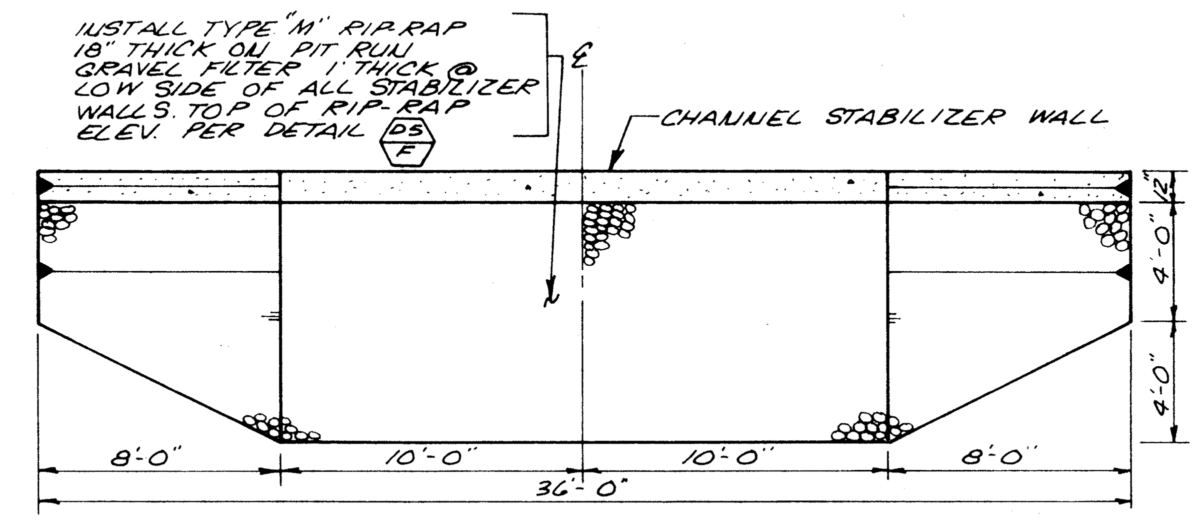
CHANNEL "A" IN NMSR 528 RIGHT OF WAY (B)
N.T.S.



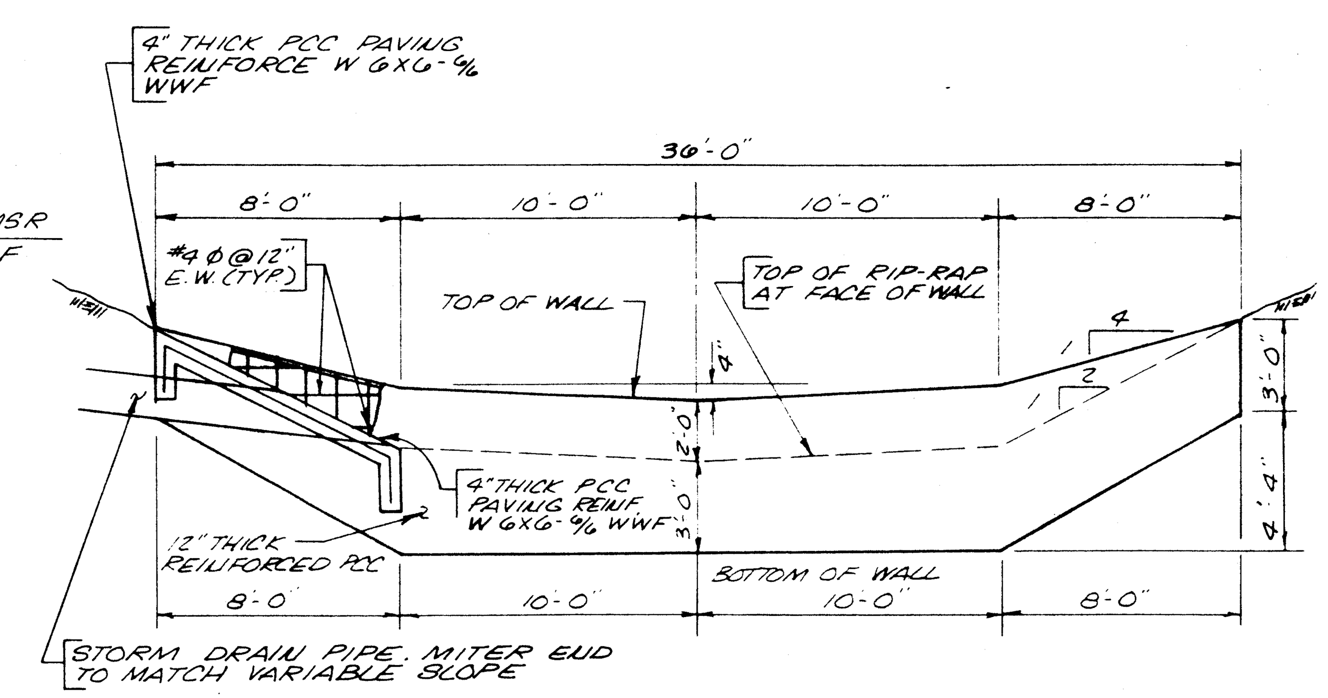
RIP-RAP OUTLET PROTECTION (C)



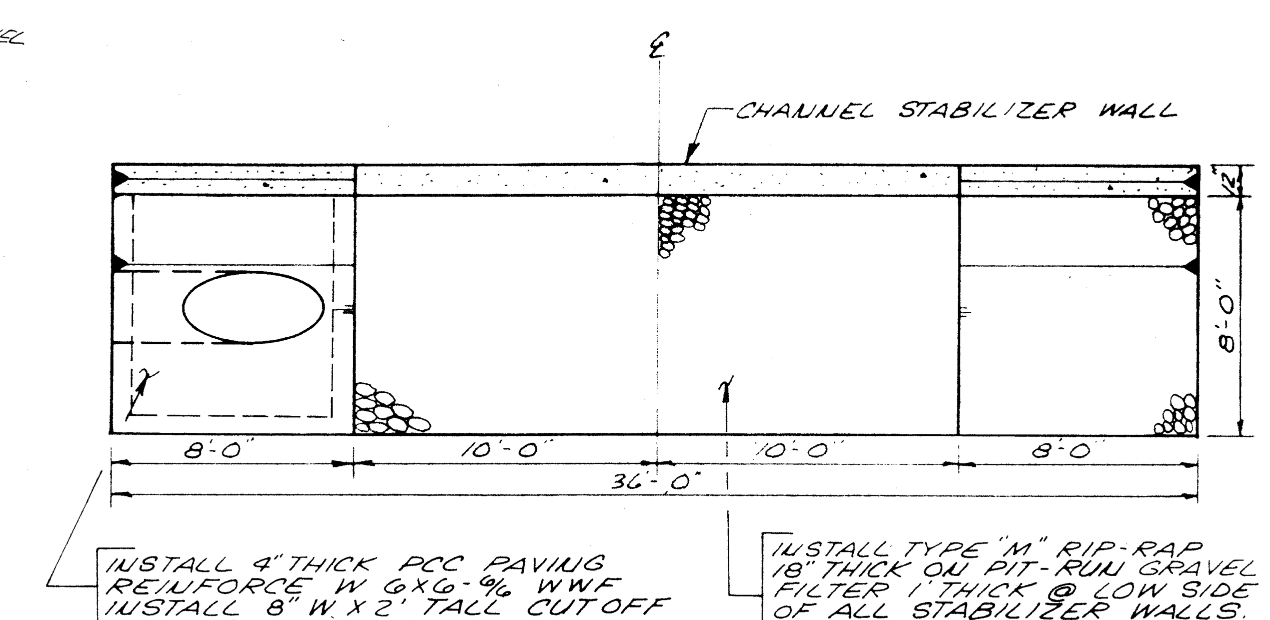
CHANNEL STABILIZER WALL (2' DROP) (D)
ELEVATION N.T.S.



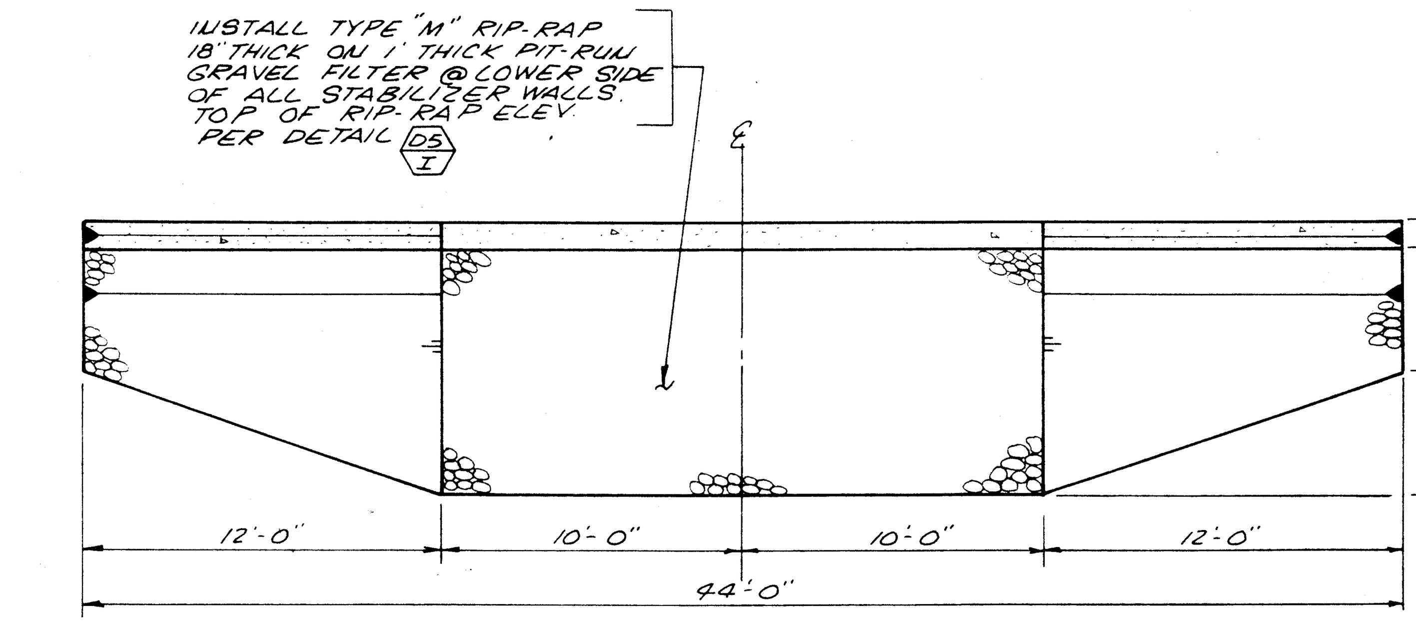
RIP-RAP AT STABILIZER WALLS (E)
PLAN N.T.S.



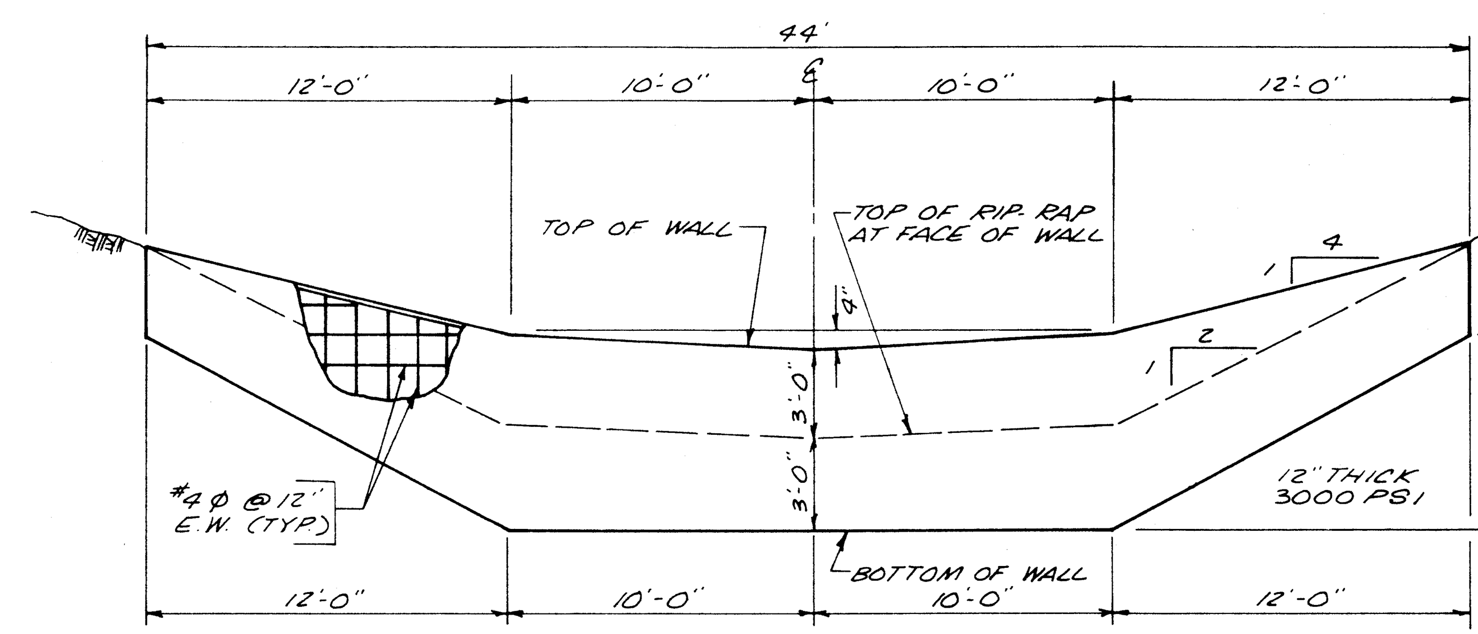
CHANNEL STABILIZER WALL W/DRAIN PIPE OUTLET (F)
ELEVATION N.T.S.



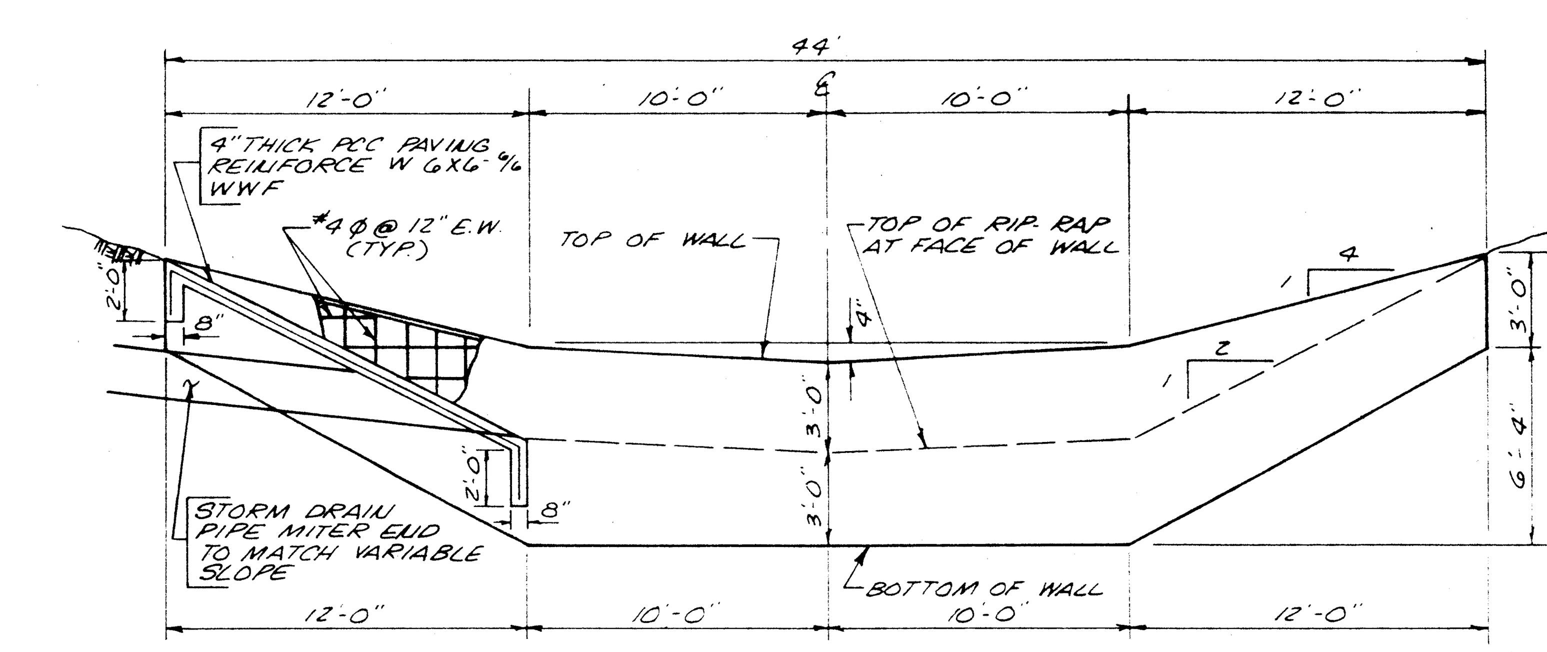
RIP-RAP & SLOPE PAVING AT STABILIZER WALLS W/DRAIN PIPE OUTLET (G)
PLAN N.T.S.



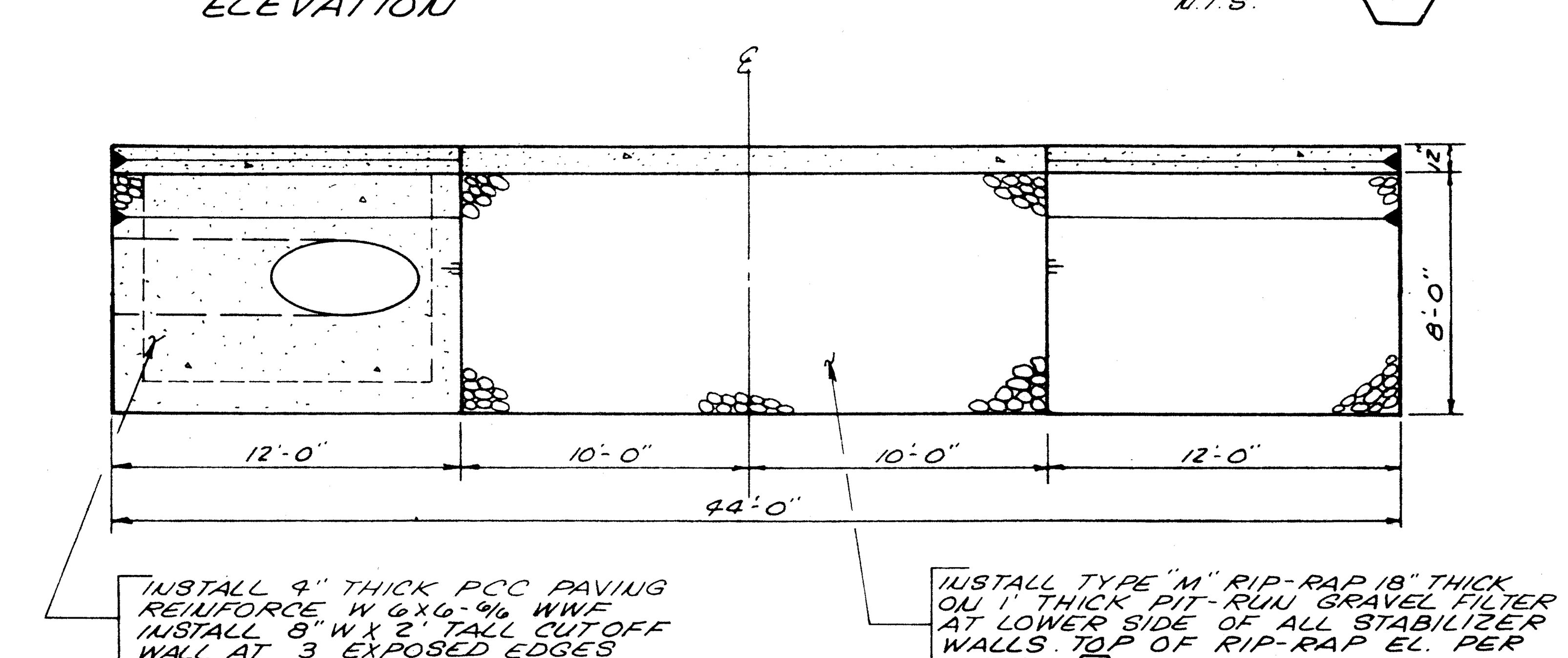
RIP-RAP AT STABILIZER WALLS (H)
N.T.S.



CHANNEL STABILIZER WALL (3' DROP) (I)
N.T.S.



CHANNEL STABILIZER WALL W/DRAIN PIPE OUTLET (J)
ELEVATION N.T.S.



RIP-RAP & SLOPE PAVING AT STABILIZER WALLS W/DRAIN PIPE OUTLET (K)
PLAN N.T.S.

SCALES	FILE NO.		SHEET NO.
N.T.S.	ASRR-89-2368	AMREP SOUTHWEST INC. DRAINAGE IMPROVEMENT DETAILS CORRALES NORTH UNIT 3	D5

SCALES HORZ.- 1"= 50' VERT.- 1"= 5'	FILE NO. ASRR-89-2368	AMREP SOUTHWEST INC. DRAINAGE PLANS CORRALES NORTH UNIT 3	SHEET NO. D10

PLATE 1 SINGLE PLAN - PROFILE - DOTTED

MADE IN U.S.A.

Appendix B

Engineer's Opinion of Probable Cost

Design Analysis Report - Engineer's Opinion of Probable Cost
City of Rio Rancho MS4 Outfalls - Return to design conditions

River's Edge 1

Item	#	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%	$ 1,450	$ 73
2	201.1	SITE CLEARING AND GRUBBING	0.5	Acre	$ 2,900	$ 1,450
					Subtotal	**$ 1,523**
				NMGRT	**7.65%**	**$ 116**
					GRAND TOTAL	**$ 1,639**

Notes: Existing outfall structure is visible and appears to be in good condition.
No vehicular access and not possible to create

River's Edge 2

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%	$ 4,742.00	$ 237
2		SITE CLEARING AND GRUBBING	0.5	Acre	$ 2,100	$ 1,050
3		EXCAVATION OF SEDIMENT	2	CY	$ 124	$ 248
4	510.11	CAST-IN-PLACE CONCRETE OUTFALL	5.6	CY	$ 615.00	$ 3,444
					Subtotal	**$ 4,979**
				NMGRT	**7.65%**	**$ 381**
					GRAND TOTAL	**$ 5,360**

Notes: Existing outfall structure is not visible.

River's Edge 3

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,990
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100	$ 1,575
3		EXCAVATION OF SEDIMENT	74.1	CY	$ 124	$ 9,185
4		EROSION PROTECTION	111	SY	$ 6	$ 622
5	510.11	CAST-IN-PLACE CONCRETE OUTFALL	14.7	CY	$ 615	$ 9,043
6		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
7	301.01	ROAD GRADING	222	SY	$ 4.50	$ 1,000
					Subtotal	**$ 41,784**
				NMGRT	**7.65%**	**$ 3,197**
					GRAND TOTAL	**$ 44,981**

Notes: Existing outfall structure is visible but is full of water.

River's Edge 4

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,764
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100	$ 1,575
3		EXCAVATION OF SEDIMENT	80	CY	$ 124	$ 9,920
4		EROSION PROTECTION	120	SY	$ 6	$ 672
5	510.11	CAST-IN-PLACE CONCRETE OUTFALL	6.1	CY	$ 615	$ 3,748
6		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
7	301.01	ROAD GRADING	222	SY	$ 4.50	$ 1,000
					Subtotal	**$ 37,049**
				NMGRT	**7.65%**	**$ 2,834**
					GRAND TOTAL	**$ 39,883**

Notes: Existing outfall structure is not visible.

River's Edge 5

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,547
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100.00	$ 1,575
3		EXCAVATION OF SEDIMENT	23.15	CY	$ 124.00	$ 2,870
4		EROSION PROTECTION	111	SY	$ 5.60	$ 622
5	510.11	CAST-IN-PLACE CONCRETE OUTFALL	10.0	CY	$ 615	$ 6,163
6		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
7	301.01	ROAD GRADING	300	SY	$ 4.50	$ 1,350
					Subtotal	**$ 32,497**
				NMGRT	**7.65%**	**$ 2,486**
					GRAND TOTAL	**$ 34,983**

Notes: Existing outfall structure is not visible.

River's Edge 6

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,048
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100	$ 1,575
3		DEWATERING	1	Day	$ 1,075	$ 1,075
4		EXCAVATION OF SEDIMENT	23	CY	$ 124	$ 2,852
5		EROSION PROTECTION	75	SY	$ 6	$ 420
6	301.02	SUBGRADE PREP	87	SY	$ 3	$ 261
7		BACKFILL	145	ECY	$ 51	$ 7,404
8	510.11	CAST-IN-PLACE CONCRETE OUTFALL	12	CY	$ 615	$ 7,380
9		EXCAVATION FOR ACCESS ROAD	74	CY	$ 124.00	$ 9,185
10	301.01	ROAD GRADING	222	SY	$ 4.50	$ 1,000
					Subtotal	**$ 22,016**
				NMGRT	**7.65%**	**$ 1,684**
					GRAND TOTAL	**$ 23,700**

Notes: Existing structure has failed and is undermined.

River's Edge 7

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,738
2		SITE CLEARING AND GRUBBING	1	Acre	$ 2,100.00	$ 2,100
3		EXCAVATION OF SEDIMENT	263	CY	$ 124.00	$ 32,653
4	510.11	CAST-IN-PLACE CONCRETE OUTFALL	15.9	CY	$ 615	$ 9,801
					Subtotal	**$ 46,292**
				NMGRT	**7.65%**	**$ 3,541**
					GRAND TOTAL	**$ 49,833**

Notes: Existing outfall structure is not visible.

River's Edge 8

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,993
2		SITE CLEARING AND GRUBBING	1	Acre	$ 2,100.00	$ 2,100
3		EXCAVATION OF SEDIMENT	263	CY	$ 124.00	$ 32,653
4		RIP RAP REMOVAL	167	SY	$ 74.00	
5		BACKFILL	100	ECY	$ 51	$ 5,110
6	510.11	CAST-IN-PLACE CONCRETE OUTFALL	15.9	CY	$ 615	$ 9,801
					Subtotal	**$ 51,658**
				NMGRT	**7.65%**	**$ 3,952**
					GRAND TOTAL	**$ 55,609**

Notes: Existing structure is visible but is full of sediment.

Design Analysis Report - O&M Costs
City of Rio Rancho MS4 Outfalls - Return to design conditions

River's Edge 1

Item	Yearly Costs	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8	Hr	$ 100	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean concrete pad once per year.

River's Edge 2

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8	Hr	$ 100	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean concrete pad once per year.

River's Edge 3

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8	Hr	$ 100.00	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean Stilling Basin once per year.

River's Edge 4

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8	Hr	$ 100.00	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean Stilling Basin once per year.

River's Edge 5

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8.00	Hr	$ 100.00	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean Stilling Basin once per year.

River's Edge 6

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8.00	Hr	$ 100.00	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean Stilling Basin once per year.

River's Edge 7

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8.00	Hr	$ 100.00	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean Stilling Basin once per year.

River's Edge 8

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	8.00	Hr	$ 100.00	$ 800
2	TRUCK RENTAL	1	Day	$ 150	$ 150
3					
4					
				Subtotal	**$ 950**
			NMGRT	**7.65%**	**$ 73**
				GRAND TOTAL	**$ 1,023**

Notes: Clean Stilling Basin once per year.

Design Analysis Report - Engineer's Opinion of Probable Cost
City of Rio Rancho MS4 Outfalls - Option 1

River's Edge 1

Item	#	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%	$ 4,143	$ 207
2		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
3	301.01	ROAD GRADING	333	SY	$ 4.50	$ 1,500
4	201.1	SITE CLEARING AND GRUBBING	0.5	Acre	$ 2,900	$ 1,450
5	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	5.1	CY	$ 615.00	$ 4,143
					Subtotal	**$ 25,670**
				NMGRT	**7.65%**	**$ 1,964**
					GRAND TOTAL	**$ 27,634**

River's Edge 2

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%	$ 3,280.60	$ 1,217
2		SITE CLEARING AND GRUBBING	0.5	Acre	$ 2,100	$ 1,050
3		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
4	301.01	ROAD GRADING	311	SY	$ 4.50	$ 1,400
5		EXCAVATION OF SEDIMENT	2	CY	$ 124	$ 248
6	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	3.7	CY	$ 615.00	$ 3,281
					Subtotal	**$ 25,566**
				NMGRT	**7.65%**	**$ 1,956**
					GRAND TOTAL	**$ 27,522**

River's Edge 3

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 2,421
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100	$ 1,575
3		EXCAVATION OF SEDIMENT	74.1	CY	$ 124	$ 9,185
4		EROSION PROTECTION	111	SY	$ 6	$ 622
5	510.11	CAST-IN-PLACE CONCRETE OUTFALL	13.5	CY	$ 615	$ 8,314
6		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
7	301.01	ROAD GRADING	333	SY	$ 4.50	$ 1,500
8	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	11.9	CY	$ 615	$ 8,846
					Subtotal	**$ 50,832**
				NMGRT	**7.65%**	**$ 3,889**
					GRAND TOTAL	**$ 54,721**

River's Edge 4

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,995
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100	$ 1,575
3		EXCAVATION OF SEDIMENT	80	CY	$ 124	$ 9,920
4		EROSION PROTECTION	120	SY	$ 6	$ 672
5	510.11	CAST-IN-PLACE CONCRETE OUTFALL	6.1	CY	$ 615	$ 3,748
6		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
7	301.01	ROAD GRADING	333	SY	$ 4.50	$ 1,500
8	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	5.1	CY	$ 615	$ 4,121
					Subtotal	**$ 41,901**
				NMGRT	**7.65%**	**$ 3,205**
					GRAND TOTAL	**$ 45,106**

River's Edge 5

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,876
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100.00	$ 1,575
3		EXCAVATION OF SEDIMENT	23.15	CY	$ 124.00	$ 2,870
4		EROSION PROTECTION	111	SY	$ 5.60	$ 622
5	510.11	CAST-IN-PLACE CONCRETE OUTFALL	10.0	CY	$ 615	$ 6,163
6		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
7	301.01	ROAD GRADING	333	SY	$ 4.50	$ 1,500
8	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	8.0	CY	$ 615	$ 6,420
					Subtotal	**$ 39,395**
				NMGRT	**7.65%**	**$ 3,014**
					GRAND TOTAL	**$ 42,409**

River's Edge 6

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,982
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100	$ 1,575
3		DEWATERING	1	Day	$ 1,075	$ 1,075
4		EXCAVATION OF SEDIMENT	23	CY	$ 124	$ 2,852
5		EROSION PROTECTION	75	SY	$ 6	$ 420
6	301.02	SUBGRADE PREP	87	SY	$ 3	$ 261
7		BACKFILL	145	ECY	$ 51	$ 7,404
8	510.11	CAST-IN-PLACE CONCRETE OUTFALL	12	CY	$ 615	$ 7,380
9		EXCAVATION FOR ACCESS ROAD	74	CY	$ 124	$ 9,185
10	301.01	ROAD GRADING	333	SY	$ 5	$ 1,500
11	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	10.6	CY	$ 615	$ 7,992
					Subtotal	**$ 41,627**
				NMGRT	**7.65%**	**$ 3,184**
					GRAND TOTAL	**$ 44,811**

River's Edge 7

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,206
2		SITE CLEARING AND GRUBBING	1	Acre	$ 2,100	$ 2,100
3		EXCAVATION OF SEDIMENT	32	CY	$ 124	$ 3,996
4	510.11	CAST-IN-PLACE CONCRETE OUTFALL	15.9	CY	$ 615	$ 9,801
5	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	10.1	CY	$ 615	$ 8,218
					Subtotal	**$ 25,321**
				NMGRT	**7.65%**	**$ 1,937**
					GRAND TOTAL	**$ 27,258**

River's Edge 8

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 2,051
2		SITE CLEARING AND GRUBBING	1	Acre	$ 2,100	$ 2,100
3		EXCAVATION OF SEDIMENT	32	CY	$ 124	$ 3,996
4		RIP RAP REMOVAL	167	SY	$ 74	$ 12,333
5		BACKFILL	100	ECY	$ 51	$ 5,110
6	510.11	CAST-IN-PLACE CONCRETE OUTFALL	15.9	CY	$ 615	$ 9,801
7	510.11	CAST-IN-PLACE CONCRETE STRUCTURE AND SCREEN	9.2	CY	$ 615	$ 7,680
					Subtotal	**$ 43,071**
				NMGRT	**7.65%**	**$ 3,295**
					GRAND TOTAL	**$ 46,366**

Notes: Existing structure is visible and may not require removal and replacement. However it is full of sediment and shrubs and could not be thoroughly inspected.

Design Analysis Report - O&M Costs
City of Rio Rancho MS4 Outfalls - Option 1

River's Edge 1

Item	Yearly Costs	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	36	HR	$ 100	$ 3,600
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 5,850**
			NMGRT	**7.65%**	**$ 448**
				GRAND TOTAL	**$ 6,298**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 4 hours of labor per visit.

River's Edge 2

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 4,050**
			NMGRT	**7.65%**	**$ 310**
				GRAND TOTAL	**$ 4,360**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 2 hours of labor per visit.

River's Edge 3

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	36	HR	$ 100.00	$ 3,600
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 5,850**
			NMGRT	**7.65%**	**$ 448**
				GRAND TOTAL	**$ 6,298**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 8 hours of labor per visit.

River's Edge 4

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	36	HR	$ 100.00	$ 3,600
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 5,850**
			NMGRT	**7.65%**	**$ 448**
				GRAND TOTAL	**$ 6,298**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 4 hours of labor per visit.

River's Edge 5

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	45	HR	$ 100.00	$ 4,500
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 6,750**
			NMGRT	**7.65%**	**$ 516**
				GRAND TOTAL	**$ 7,266**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 5 hours of labor per visit.

River's Edge 6

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	45	HR	$ 100.00	$ 4,500
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 6,750**
			NMGRT	**7.65%**	**$ 516**
				GRAND TOTAL	**$ 7,266**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 6 hours of labor per visit.

River's Edge 7

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	45	HR	$ 100.00	$ 4,500
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 6,750**
			NMGRT	**7.65%**	**$ 516**
				GRAND TOTAL	**$ 7,266**

Notes: Clean out gross pollutants after each major storm event (9 per year). Assume 8 hours of labor per visit.

River's Edge 8

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	45	HR	$ 100.00	$ 4,500
2	TRUCK RENTAL	9	DAY	$ 250	$ 2,250
				Subtotal	**$ 6,750**
			NMGRT	**7.65%**	**$ 516**
				GRAND TOTAL	**$ 7,266**

Notes: Clean out gross pollutants after each major storm event (9 per year).

Design Analysis Report - Engineer's Opinion of Probable Cost
City of Rio Rancho MS4 Outfalls - Option 2

River's Edge 1

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 235
2		INSTALLATION OF SNOUT	1	LS	$ 500	$ 500
3		METAL PLATE AND ANCHOR BOLTS	1	LS	$ 1,200	$ 1,200
4		REMOVABLE INLET GRATE	1	LS	$ 3,000	$ 3,000
					Subtotal	**$ 4,935**
				NMGRT	**7.65%**	**$ 378**
					GRAND TOTAL	**$ 5,313**

River's Edge 2

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 235
2		INSTALLATION OF SNOUT	1	LS	$ 500	$ 500
3		METAL PLATE AND ANCHOR BOLTS	1	LS	$ 1,200	$ 1,200
4		REMOVABLE INLET GRATE	1	LS	$ 3,000	$ 3,000
					Subtotal	**$ 4,935**
				NMGRT	**7.65%**	**$ 378**
					GRAND TOTAL	**$ 5,313**

River's Edge 3

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 235
2		INSTALLATION OF SNOUT	1	LS	$ 500	$ 500
3		METAL PLATE AND ANCHOR BOLTS	1	LS	$ 1,200	$ 1,200
4		REMOVABLE INLET GRATE	1	LS	$ 3,000	$ 3,000
					Subtotal	**$ 4,935**
				NMGRT	**7.65%**	**$ 378**
					GRAND TOTAL	**$ 5,313**

River's Edge 4

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 235
2		INSTALLATION OF SNOUT	1	LS	$ 500	$ 500
3		METAL PLATE AND ANCHOR BOLTS	1	LS	$ 1,200	$ 1,200
4		REMOVABLE INLET GRATE	1	EA	$ 3,000	$ 3,000
					Subtotal	**$ 4,935**
				NMGRT	**7.65%**	**$ 378**
					GRAND TOTAL	**$ 5,313**

River's Edge 5

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 396
2		SITE CLEARING AND GRUBBING	0.75	Acre	$ 2,100.00	$ 1,575
3		EXCAVATION FOR ACCESS ROAD	148	CY	$ 124.00	$ 18,370
4	301.01	ROAD GRADING	333	SY	$ 4.50	$ 1,500
5		EXCAVATION OF SEDIMENT	23.15	CY	$ 124.00	$ 2,870
6		INSTALLATION OF NETTING	1	LS	$ 1,500	$ 1,500
7		REMOVAL NETTING	1	EA	$ 6,425	$ 6,425
					Subtotal	**$ 32,637**
				NMGRT	**7.65%**	**$ 2,497**
					GRAND TOTAL	**$ 35,133**

River's Edge 6

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 235
2		INSTALLATION OF SNOUT	1	LS	$ 500	$ 500
3		METAL PLATE AND ANCHOR BOLTS	1	LS	$ 1,200	$ 1,200
4		REMOVABLE INLET GRATE	1	EA	$ 3,000	$ 3,000
					Subtotal	**$ 4,935**
				NMGRT	**7.65%**	**$ 378**
					GRAND TOTAL	**$ 5,313**

River's Edge 7

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,468.41
2		SITE CLEARING AND GRUBBING	1	Acre	$ 2,100	$ 2,100
3		EXCAVATION OF SEDIMENT	32	CY	$ 124	$ 3,996
2		INSTALLATION OF NETTING	3	LS	$ 750	$ 2,250
3	510.11	CAST-IN-PLACE CONCRETE STRUCTURE	3	CY	$ 615	$ 1,748
4		REMOVAL NETTING	3	EA	$ 6,425	$ 19,275
					Subtotal	**$ 30,837**
				NMGRT	**7.65%**	**$ 2,359**
					GRAND TOTAL	**$ 33,196**

Notes: includes two outfalls pipes at channel downstream of Willow Creek Drie and subdivision outfall in vicinity
3 nets required for flow capacity

River's Edge 8

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,993
2		SITE CLEARING AND GRUBBING	1	Acre	$ 2,100	$ 2,100
3		EXCAVATION OF SEDIMENT	32	CY	$ 124	$ 3,996
4		RIP RAP REMOVAL	167	SY	$ 74	$ 12,333
5		BACKFILL	100	ECY	$ 51	$ 5,110
2		INSTALLATION OF NETTING	2	LS	$ 750	$ 1,500
3	510.11	CAST-IN-PLACE CONCRETE STRUCTURE	3	CY	$ 615	$ 1,962
4		REMOVAL NETTING	2	EA	$ 6,425	$ 12,850
					Subtotal	**$ 41,844**
				NMGRT	**7.65%**	**$ 3,201**
					GRAND TOTAL	**$ 45,045**

Design Analysis Report - O&M Costs
City of Rio Rancho MS4 Outfalls - Option 2

River's Edge 1

Item	Yearly Costs	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Maintenance completed after each major storm (9/year)

River's Edge 2

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Maintenance completed after each major storm (9/year)

River's Edge 3

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Maintenance completed after each major storm (9/year)

River's Edge 4

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Maintenance completed after each major storm (9/year)

River's Edge 5

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	26	HR	$ 100	$ 2,600
2	TRUCK RENTAL	3	DAY	$ 250	$ 750
2	NETTING REPLACEMENT	1	EA	$ 750	$ 750
				Subtotal	**$ 4,100**
			NMGRT	**7.65%**	**$ 314**
				GRAND TOTAL	**$ 4,414**

Notes: Replace netting when netting is damaged.
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 6

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Maintenance completed after each major storm (9/year)

River's Edge 7

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	26	HR	$ 100	$ 2,600
2	TRUCK RENTAL	3	DAY	$ 250	$ 750
3	NETTING REPLACEMENT	3	EA	$ 750	$ 2,250
				Subtotal	**$ 5,600**
			NMGRT	**7.65%**	**$ 428**
				GRAND TOTAL	**$ 6,028**

Notes: Maintenance after each qualifying storm (9 storms/year average)

River's Edge 8

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	26	HR	$ 100	$ 2,600
2	TRUCK RENTAL	3	DAY	$ 250	$ 750
3	NETTING REPLACEMENT	2	EA	$ 750	$ 1,500
				Subtotal	**$ 4,850**
			NMGRT	**7.65%**	**$ 371**
				GRAND TOTAL	**$ 5,221**

Notes: Maintenance after each qualifying storm (9 storms/year average)

Design Analysis Report - Engineer's Opinion of Probable Cost
City of Rio Rancho MS4 Outfalls - Option 3

River's Edge 1

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 650
2		PRECAST MANHOLE, 4' DIA., TYPE "C" OR "E", 12' DEEP	1	EA	$ 12,000	$ 12,000
3		SNOUT, INCLUDES ALL PARTS AND INSTALLATION	1	LS	$ 1,000	$ 1,000
					Subtotal	**$ 13,650**
				NMGRT	**7.65%**	**$ 1,044**
					GRAND TOTAL	**$ 14,694**

Notes: Includes excavation, installation, connections, and backfill
New manhole to be located outside of pavement in drainage easement

River's Edge 2

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 473
2		REMOVE AND DISPOSE OF EXISTING MANHOLE	1	LS	$ 1,968	$ 1,968
3		PRECAST MANHOLE, 4' DIA., TYPE "C" OR "E", 10' DEEP	1	EA	$ 6,500	$ 6,500
4		SNOUT, INCLUDES ALL PARTS AND INSTALLATION	1	LS	$ 1,000	$ 1,000
					Subtotal	**$ 9,941**
				NMGRT	**7.65%**	**$ 761**
					GRAND TOTAL	**$ 10,702**

Notes: Includes excavation, installation, connections, and backfill
Replace existing manhole in drainage easement

River's Edge 3

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,351
2		PRECAST MANHOLE, 6' DIA., TYPE "C" OR "E", 14' DEEP	1	EA	$ 18,025	$ 18,025
3		SNOUT, INCLUDES ALL PARTS AND INSTALLATION	1	LS	$ 9,000	$ 9,000
					Subtotal	**$ 28,376**
				NMGRT	**7.65%**	**$ 2,171**
					GRAND TOTAL	**$ 30,547**

Notes: Includes excavation, installation, connections, and backfill
New manhole to be located outside of pavement in drainage easement off of Riverside Dr

River's Edge 4

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 400
2		PRECAST MANHOLE, 4' DIA., TYPE "C" OR "E", 10' DEEP	1	EA	$ 6,500	$ 6,500
3		SNOUT, INCLUDES ALL PARTS AND INSTALLATION	1	LS	$ 1,500	$ 1,500
					Subtotal	**$ 8,400**
				NMGRT	**7.65%**	**$ 643**
					GRAND TOTAL	**$ 9,043**

Notes: Includes excavation, installation, connections, and backfill
New manhole to be located outside of pavement in drainage easement, off of Riverside Dr

River's Edge 5

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	5%	%		$ 1,575
2		SITE PREPARATION	1	LS	$ 4,500	$ 4,500
3		STRUCTURAL CONCRETE	30	CY	$ 650	$ 19,500
4		INSTALLATION OF SNOUT	2	LS	$ 1,000	$ 2,000
5		REMOVABLE INLET GRATE	2	EA	$ 5,000	$ 10,000
					Subtotal	**$ 37,575**
				NMGRT	**7.65%**	**$ 2,874**
					GRAND TOTAL	**$ 40,449**

River's Edge 6

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	10%	%		$ 3,374
2		REMOVE AND DISPOSE OF EXISTING MANHOLE	1	LS	$ 3,690	$ 3,690
3		PRECAST MANHOLE, 6' DIA., TYPE "C" OR "E", 18' DEEP	1	EA	$ 21,045	$ 21,045
4		SNOUT, INCLUDES ALL PARTS AND INSTALLATION	1	LS	$ 9,000	$ 9,000
					Subtotal	**$ 37,109**
				NMGRT	**7.65%**	**$ 2,839**
					GRAND TOTAL	**$ 39,947**

Notes: Replace existing manhole in drainage easement off of Manzano Loop

River's Edge 7

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	10%	%		$ 4,483
2		CLEAR AND GRUB	2	AC	$ 1,000	$ 2,000
3		UNCLASSIFIED EXCAVATIION	125	CY	$ 15	$ 1,875
4		STRUCTURAL CONCRETE	40	CY	$ 650	$ 26,000
5		SUBGRADE PREP/OVER EXCAVATION	270	SY	$ 5	$ 1,350
6		RIPRAP	22	CY	$ 225	$ 4,950
7		SWPPP	1	LS	$ 1,500	$ 1,500
8		MULCH SOCKS -CIP	200	LF	$ 2	$ 400
9		FINAL STABILIZATION - RESEEDING	0.5	AC	$ 6,500	$ 3,250
10		TESTING	1	LS	$ 3,500	$ 3,500
					Subtotal	**$ 49,308**
				NMGRT	**7.65%**	**$ 3,772**
					GRAND TOTAL	**$ 53,080**

Notes:

River's Edge 8

Item		Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1		MOBILIZATION/DEMOBILIZATION	10%	%		$ 6,883
2		CLEAR AND GRUB	1	AC	$ 1,000	$ 1,000
3		UNCLASSIFIED EXCAVATIION	125	CY	$ 15	$ 1,875
4		STRUCTURAL CONCRETE	40	CY	$ 650	$ 26,000
5		SUBGRADE PREP/OVER EXCAVATION	270	SY	$ 5	$ 1,350
6		REMOVALS	1	LS	$ 25,000	$ 25,000
7		RIP RAP - CHANNEL EROSION CONTROL	22	CY	$ 225	$ 4,950
8		SWPPP	1	LS	$ 1,500	$ 1,500
9		MULCH SOCKS -CIP	200	LF	$ 2	$ 400
10		FINAL STABILIZATION - RESEEDING	0.5	AC	$ 6,500	$ 3,250
11		TESTING	1	LS	$ 3,500	$ 3,500
					Subtotal	**$ 75,708**
				NMGRT	**7.65%**	**$ 5,792**
					GRAND TOTAL	**$ 81,499**

Notes: Channels will require netting or similar.

Design Analysis Report - O&M Costs
City of Rio Rancho MS4 Outfalls - Option 3

River's Edge 1

Item	Yearly Costs	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Clean manhole once a year or after sump accumulates 2' of material..
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 2

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Clean manhole once a year or after sump accumulates 2' of material..
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 3

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Clean manhole once a year or after sump accumulates 2' of material..
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 4

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Clean manhole once a year or after sump accumulates 2' of material..
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 5

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Clean manhole once a year or after sump accumulates 2' of material..
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 6

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	18	HR	$ 100	$ 1,800
2	TRUCK RENTAL	2	DAY	$ 250	$ 500
				Subtotal	**$ 2,300**
			NMGRT	**7.65%**	**$ 176**
				GRAND TOTAL	**$ 2,476**

Notes: Clean manhole once a year or after sump accumulates 2' of material..
Maintenance after each qualifying storm (9 storms/year average)

River's Edge 7

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	27	HR	$ 100	$ 2,700
2	TRUCK RENTAL	3	DAY	$ 250	$ 750
				Subtotal	**$ 3,450**
			NMGRT	**7.65%**	**$ 264**
				GRAND TOTAL	**$ 3,714**

Notes: Maintenance after each qualifying storm (9 storms/year average)

River's Edge 8

Item	Item Description	Qty	Unit(s)	Unit Cost	Extended Cost
1	LABOR MAINTENANCE CREW	27	HR	$ 100	$ 2,700
2	TRUCK RENTAL	3	DAY	$ 250	$ 750
				Subtotal	**$ 3,450**
			NMGRT	**7.65%**	**$ 264**
				GRAND TOTAL	**$ 3,714**

Notes: Maintenance after each qualifying storm (9 storms/year average)

Option 1
Volume of concrete for structure with screen

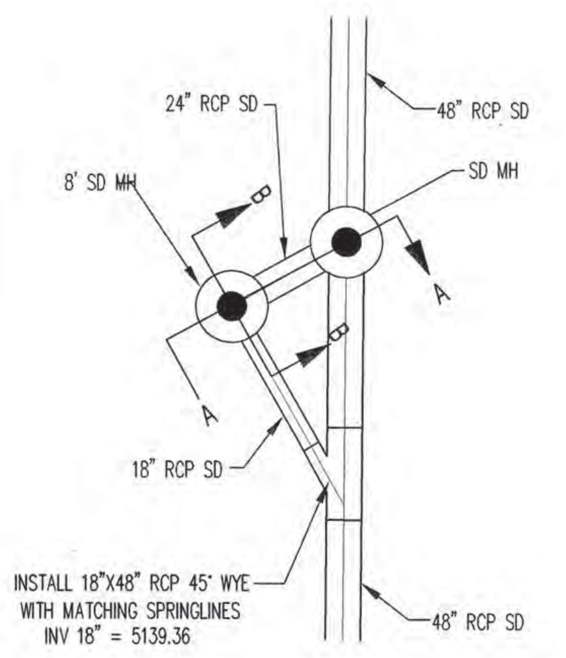
Outfall	DIameter (ft)	Height of invert above ground (ft)	GPL (CF/yr)	GPL (CF/storm)	Length of storage (ft)	Height of storage (ft)	Volume of landing (CY)	Volume of headwall (CY)	Volume of concrete GP storage (CY)	Volume of sides (CY)	Total volume of concrete (CY)	JH Vol (CY)	vol (CY)
RE 1	2	3	157	17	3	3	0.1	0.3	0.67	4.00	5.1	72	2.67
RE 2	1.5	1.5	44	5	3	3	0.1	0.1	0.50	3.00	3.7	72	2.67
RE 3	5	5	1457	162	6	4	0.3	1.4	2.78	7.50	11.9	192	7.11
RE 4	2.67	2.50	199	22	3	3	0.1	0.4	0.89	3.67	5.1	72	2.67
RE 5	4	5	356	40	3	3	0.2	1.1	1.33	5.33	8.0	72	2.67
RE 6	4	5	1000	111	4	5	0.2	1.1	2.00	7.22	10.6	160	5.93
RE 7	5.5	3	1580	176	6	4	0.3	0.9	3.06	5.83	10.1	192	7.11
RE 8	5.5	3.5	838	93	4	4	0.3	1.1	2.44	5.42	9.2	128	4.74

Volume of concrete for structure to attach netting			
Outfall	Width of channel (ft)	Height of wall (ft)	Volume of concrete (CY)
RE5	10	4	1.1
RE 7	28	5	2.8
RE 8	28	5	3.2

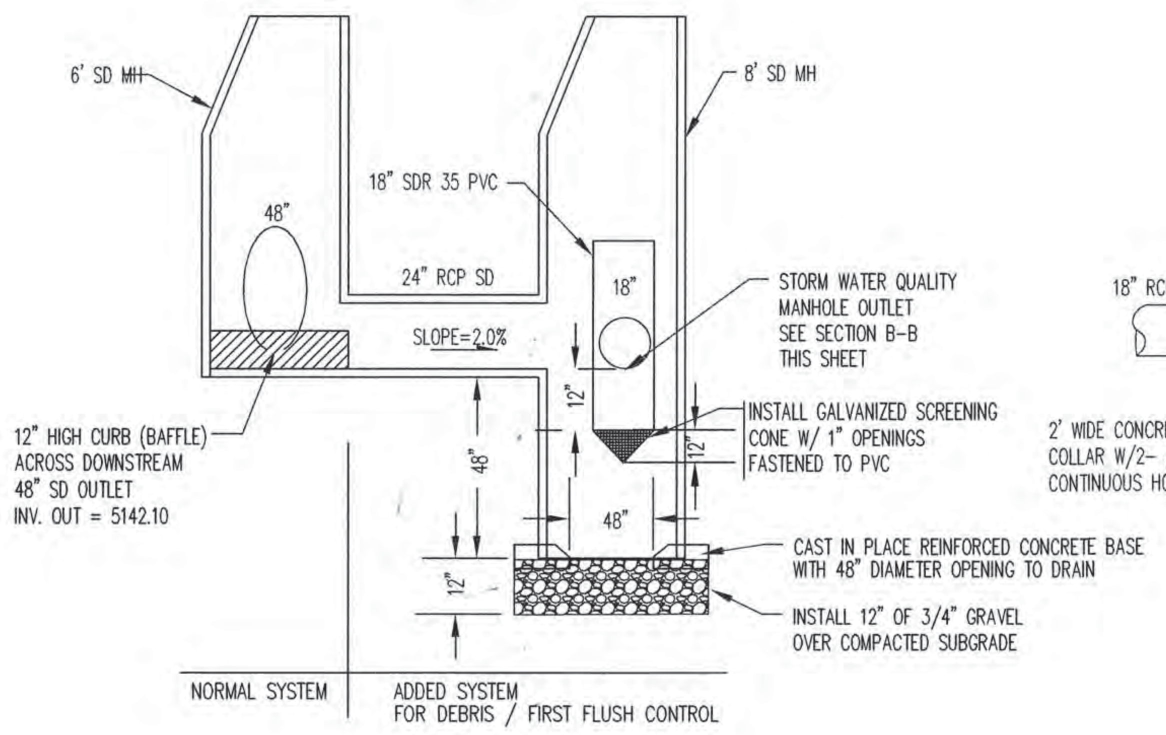
Length of landing	1	ft
Length of screen	8	ft
Thickness of concrete	0.75	ft
CF per CY	27	

Appendix C

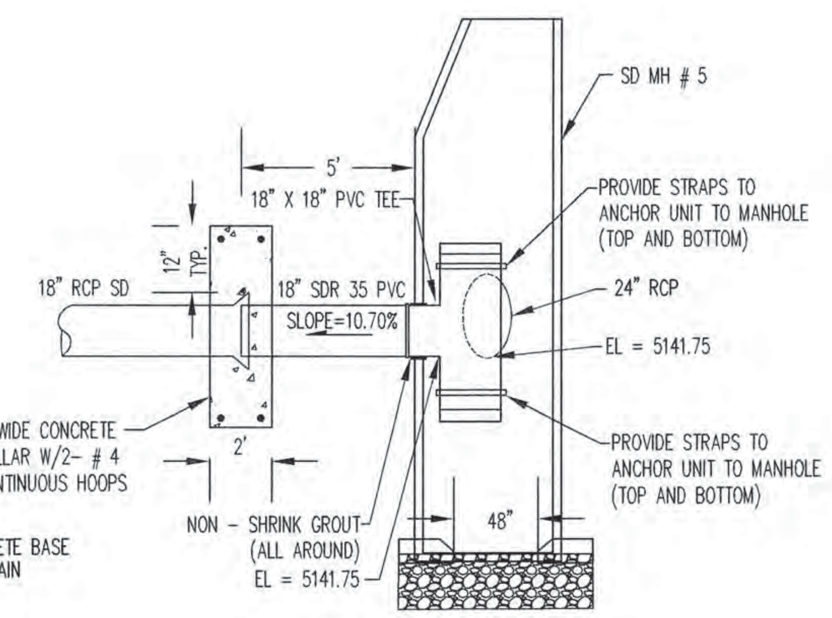
Example Design Drawings



PLAN



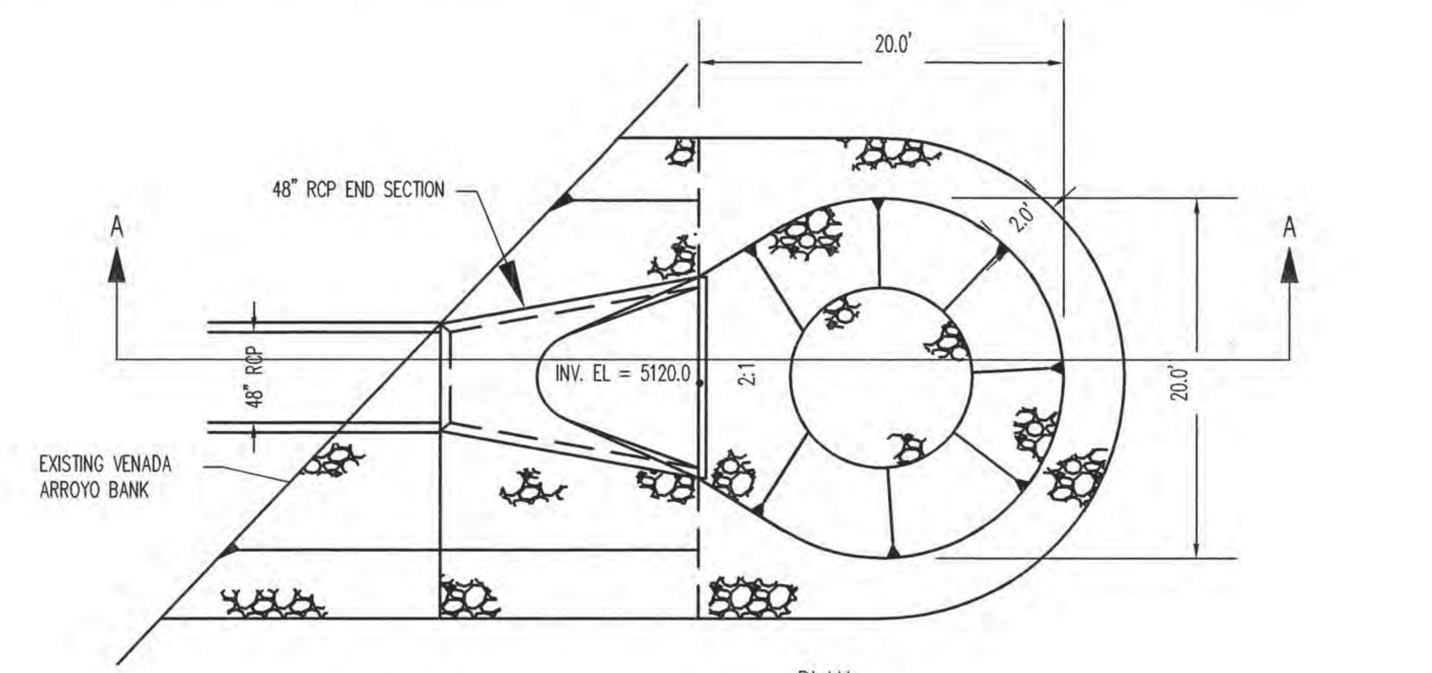
SECTION A-A



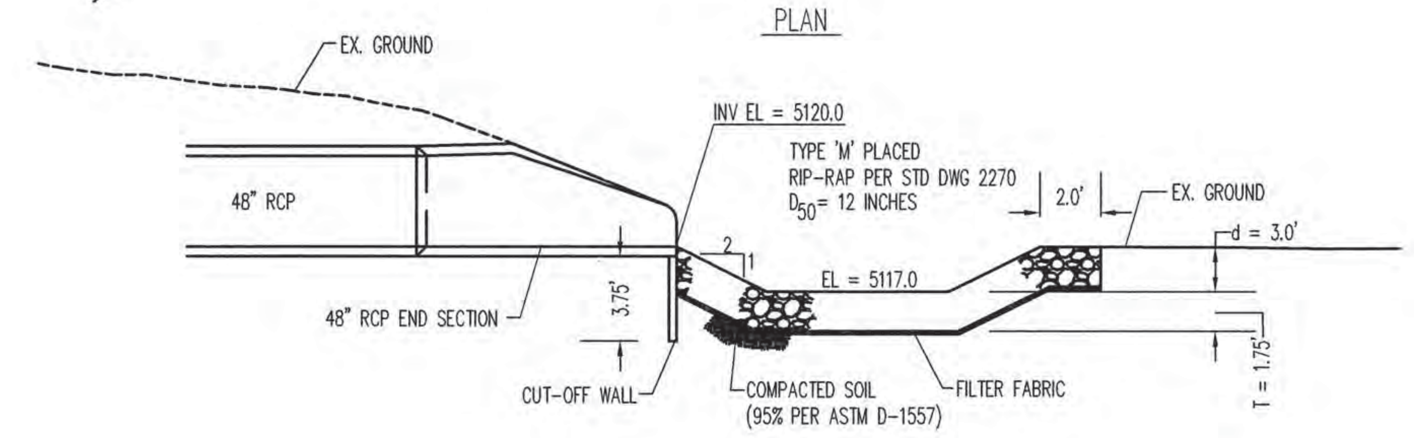
SECTION B-B

MANHOLE SYSTEM
DEBRIS / FIRST FLUSH TREATMENT

NOT TO SCALE



PLAN

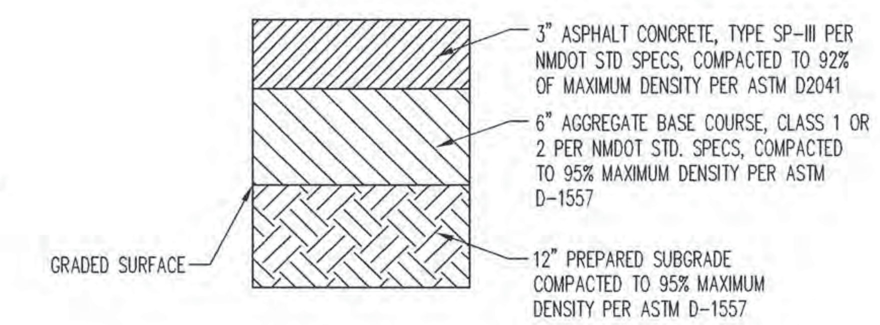


SECTION A-A

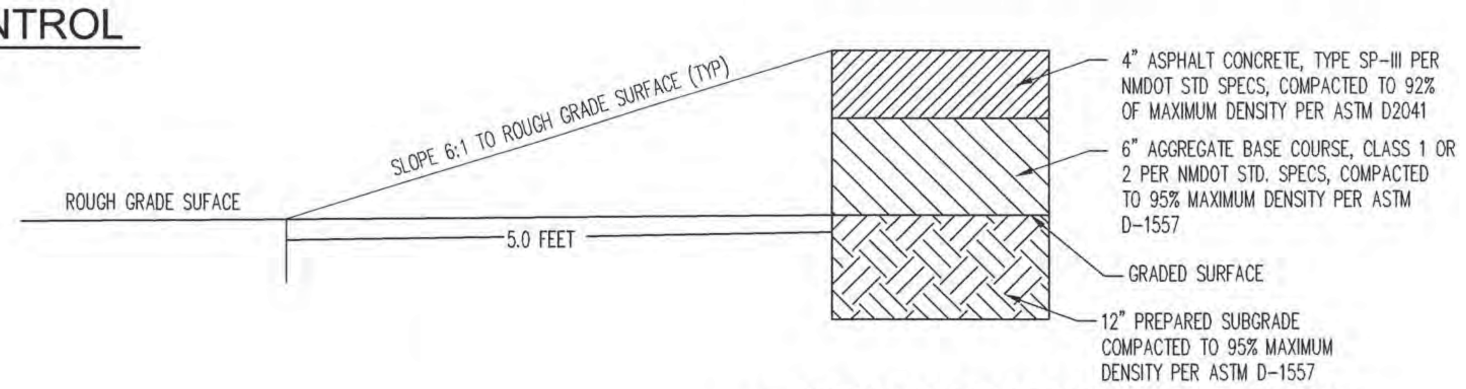
STORM DRAIN OUTFALL
RIP-RAP EROSION CONTROL

NOT TO SCALE

RECORD DRAWINGS



(1) MEDIUM DUTY PAVEMENT SECTION
ONSITE PAVING - PARKING AREAS



(2) HEAVY DUTY PAVEMENT SECTION
ONSITE PAVING - DRIVE AISLE

Montage Plus®

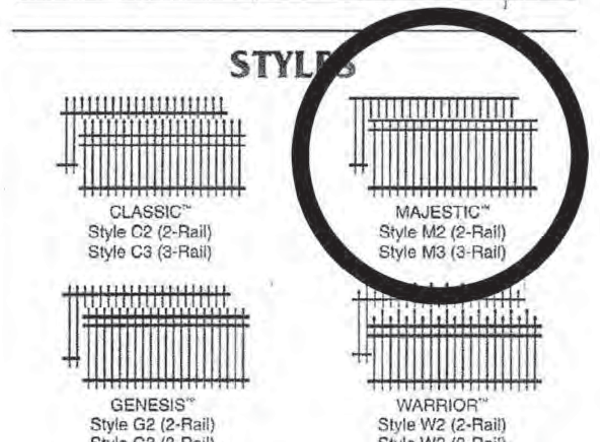
Fusion Welded Steel Construction

Montage Plus® is crafted with an inherent beauty that adds a decorative touch to any landscape. The fusion welded steel construction makes it applicable for all types of commercial installations such as retail businesses, storage facilities, schools, health care facilities and golf courses and recreational parks. The maintenance-free electro-deposition coating (E-Coat) makes Montage Plus® suitable for any climate, hot or cold, wet or dry; Ameristar® uses the same cyclic testing technology used in the automotive industry to ensure that the coating will withstand repeated shifts in temperature and humidity.

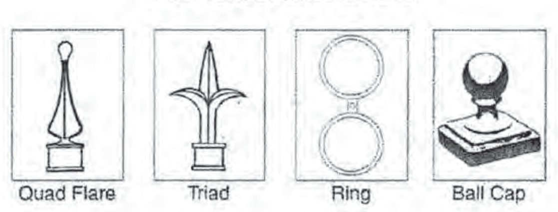
COMPONENT SIZES

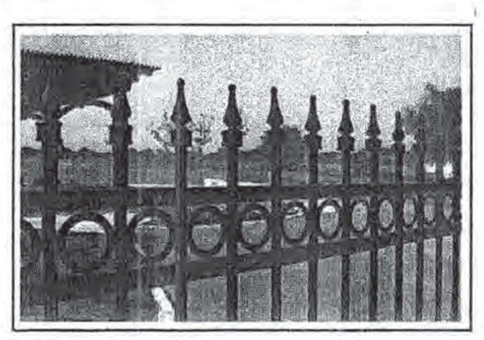
System	Pickets	Rails	Posts
Montage Plus® Commercial	3/4" x 16 GA.	1-7/16" x 0.072 Top 1-1/2" x 0.072" Sides	2-1/2" Square x 16 Ga.

STYLES



ADORNMENTS





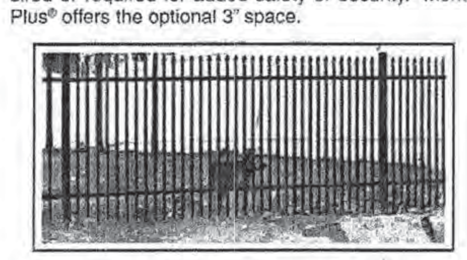
GATES

Gates are fabricated by welding Montage Plus® panel material to 1-3/4" square gate ends.

DESIGN ADVANTAGES

- **All Terrain Fence (ATF)™ Panel Design**
Architectural design and construction technology have progressed to enable new facility construction on rough and uneven terrain that was previously considered unfeasible for permanent structures. Montage Plus® ATF maintains its rigid strength, while adapting to slopes as severe as a 30 inch rise in an 8 foot run.

- **Pool, Pet & Play (PPP)™ Picket Space Option**
In many cases related to child care, public swimming pools, and containment, a narrower space may be desired or required for added safety or security. Montage Plus® offers the optional 3" space.



- **Flush Bottom Rail Option**
For some applications, a flush bottom rail may be necessary to meet local building codes or simply to meet an aesthetic preference.

WARRANTY

The E-Coat combination of galvanized steel, zinc phosphate pre-treatment, and epoxy and acrylic double coating provide the protection necessary to withstand adverse weathering effects and justify the 'best-in-the-business' 20 Year Warranty.

COLORS, AVAILABILITY & MAINTENANCE

Montage Plus® color choices, availability, and maintenance information are the same as for the Aegis II® and Aegis Plus® steel fence systems.

Page 14

32 31 00/AME
Buyline 5862

Montage Plus® offers elegant style at an affordable price. Montage Plus® is the best choice for commercial projects that require perimeter fences.

AMERISTAR®

Montage Plus® Commercial Ornamental Welded

www.ameristarfence.com

CONSTRUCTION SPECIFICATION

SECTION 02825 - ORNAMENTAL WELDED FENCING SYSTEM

Montage Plus® - Commercial Weight
(MEETS "BUY AMERICAN" DOMESTIC PROCUREMENTS)

PART 1 - GENERAL

1.01 WORK INCLUDED
The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system defined herein at (specify project site).

1.02 RELATED WORK
Section ___ ___ - Earthwork
Section ___ ___ - Concrete

1.03 SYSTEM DESCRIPTION
The manufacturer shall supply a total fence system of the Montage Plus® / Montage Plus ATF® Welded Ornamental Steel (specify Classic™, Majestic™, Genesis™, or Warrior™) design. The system shall include all components (i.e., panels, posts, gates and hardware) required.

1.04 QUALITY ASSURANCE
The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES
ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus. ASTM D523 - Test Method for Specular Gloss. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates. ASTM D2794 - Test Method for Resistance of Organic Coatings to The Effects of Rapid Deformation (Impact). ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

1.06 SUBMITTAL
The manufacturer's literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE
Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - MATERIALS

2.01 MANUFACTURER
The fence system shall conform to Montage Plus® / Montage Plus ATF® Welded Ornamental Steel (specify Classic™, Majestic™, Genesis™ or Warrior™, Genesis™ with Quad-Flares, or Genesis™ with Triads) design, (specify extended picket or flush) bottom rail treatment, (specify rigid or all-terrain) weld treatment, (if all terrain, specify standard picket space or 3" picket interspace) (specify 2-Rail, 3-Rail or 3-Rail with Rings) style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma.

2.02 MATERIAL
A. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 50,000 psi (344 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.90 oz/ft² (276 g/m²). Coating Designation G-90.

B. Material for fence pickets shall be 3/4" square x 16 Ga. tubing. The rails shall be steel channel, (specify rigid-Montage Plus® or all terrain - Montage Plus ATF®) profile, 1.5" x 1.4375" x 14 Ga. Picket holes in the rail shall be spaced 4.334" o.c. Posts shall be a minimum of 2-1/2" square x 16 Ga. 12 Ga. posts may be used for heavy applications.

2.03 FABRICATION
A. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.

B. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel.).

C.
The manufactured panels and posts shall be subjected to the AmeriCoat™ inline electrodeposition coating process consisting of a multi-stage pretreatment/wash (with zinc phosphate), followed by a duplex cathodic electrocoat application of an epoxy primer followed by an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be (specify Black, Bronze, White, or Desert Sand). The coated panels and posts shall be capable of meeting the performance
D. requirements for each quality characteristic shown in Table 1.

Gates shall be fabricated using welded ornamental panel material and gate ends having a 1-3/4" square cross-sectional size. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

PART 3 - EXECUTION

3.01 PREPARATION
All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 INSTALLATION
Fence posts shall be set according to the Bracket Table plus or minus 1/2". Fence panels shall be attached to posts with boulevard brackets supplied by the manufacturer. Gate posts shall be spaced according to the gate openings specified in the construction plans. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements.

3.03 CLEANING
The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 - Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirments
Adhesion	D3359 - Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822, D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

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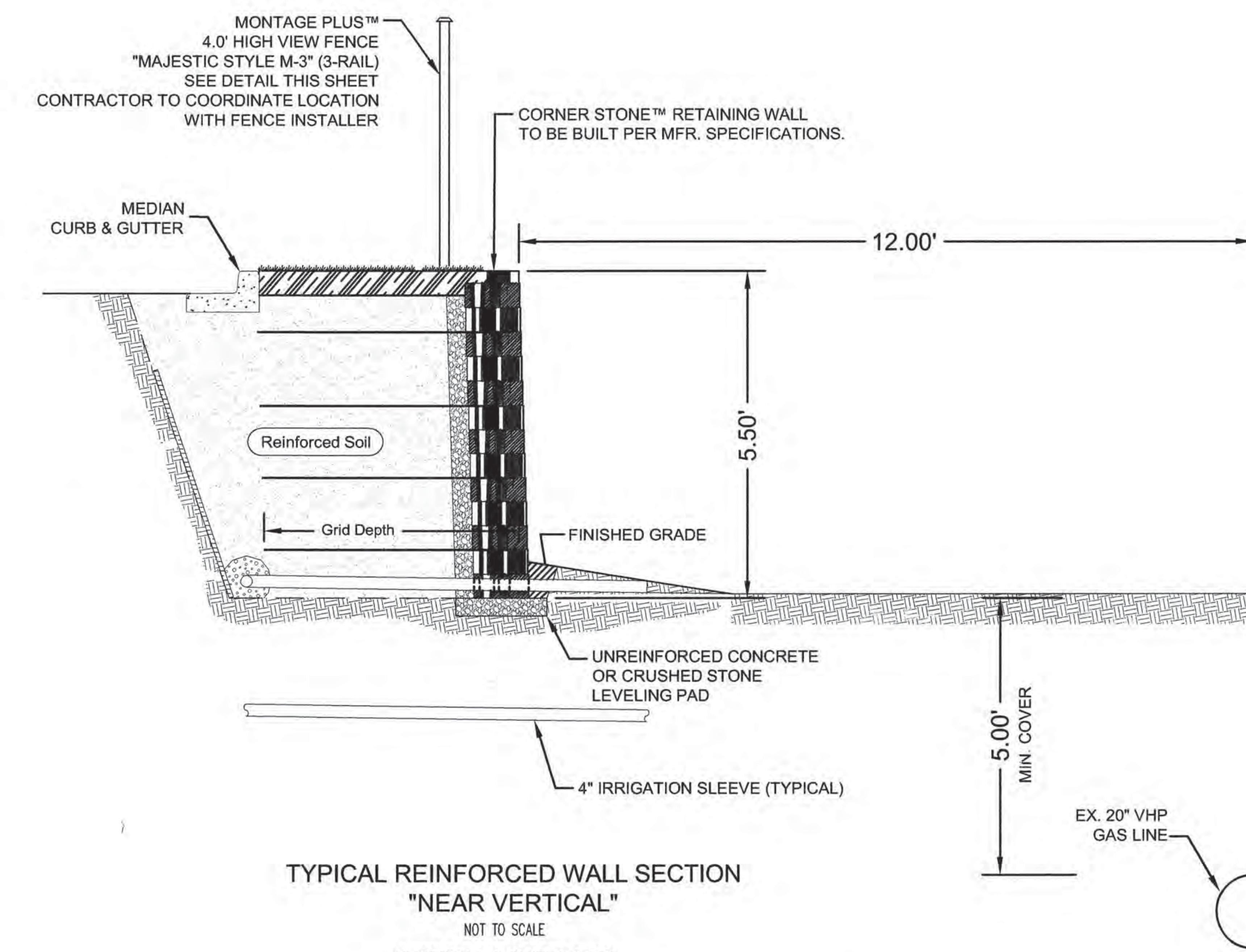

TYPICAL REINFORCED WALL SECTION
"NEAR VERTICAL"
NOT TO SCALE
SECTION A-A (SHEET C203)

REVISIONS	
◇ PRE-BID SET ISSUE DATE	△ POST BID SET ISSUE DATE
DATE	DESCRIPTION

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

PLAZA AT ENCHANTED HILLS
GRADING DETAILS
RIO RANCHO, NEW MEXICO
PROJECT No: 080465 | DRAWN BY: BJG | CHECKED BY: SJS

ORIGINAL ISSUE DATE: 12.23.08
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:

C204

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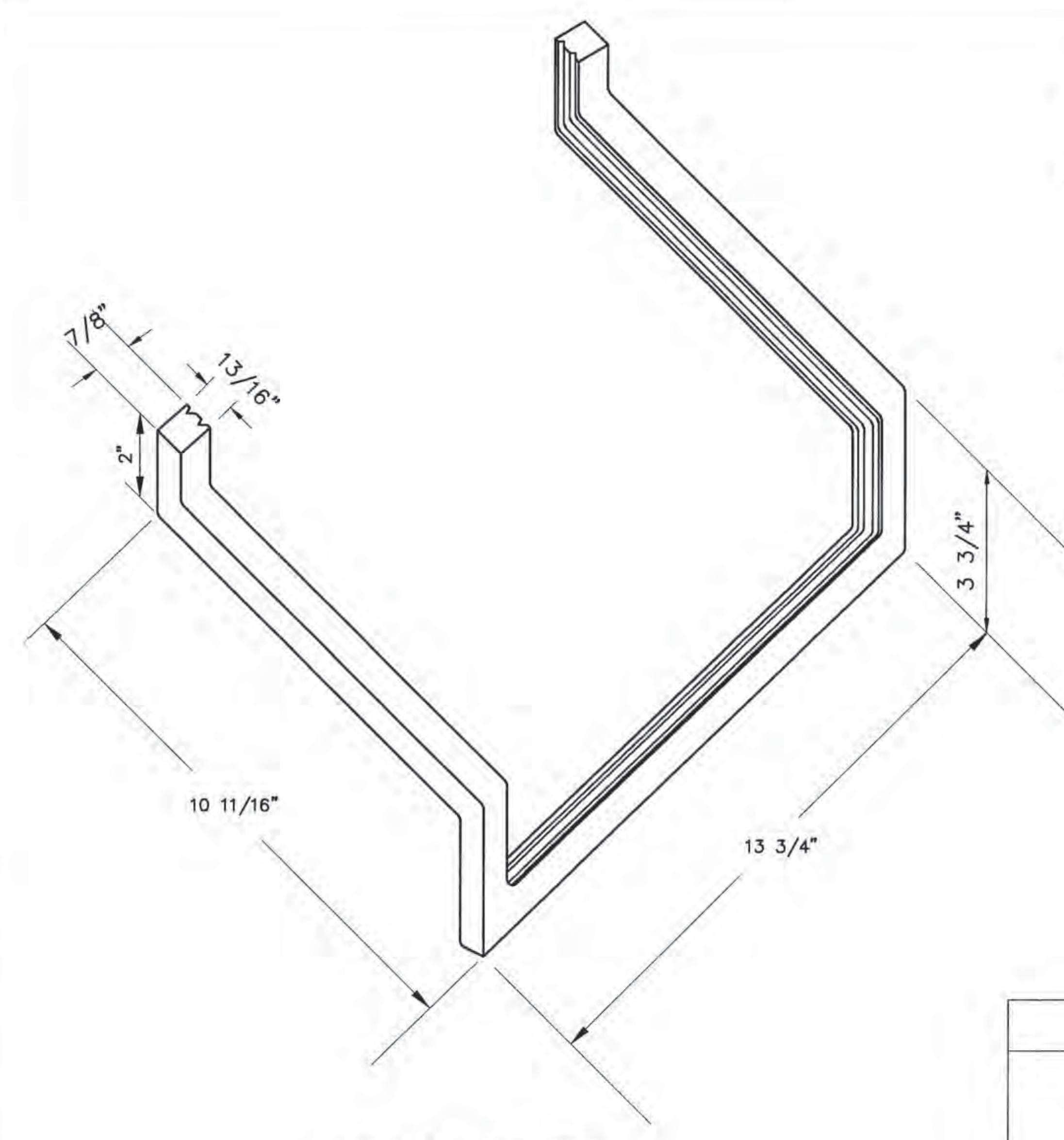
Fri, 22-Jan-2010 - 9:08:am, Plotted by: KMURTAGH



ALUMINUM STEP DETAIL

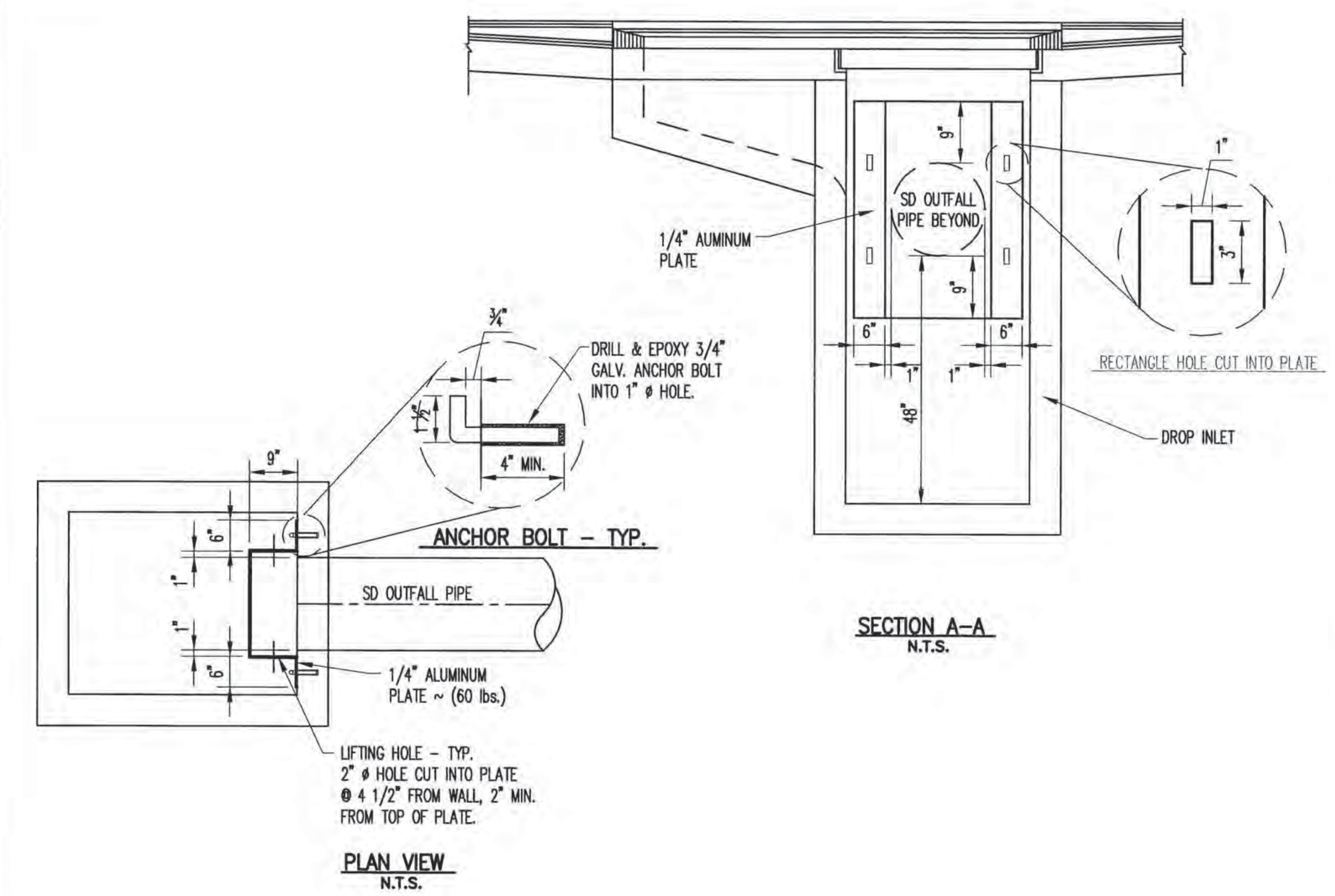
GENERAL NOTES:

1. ALUMINUM STEP, ALCOA NO. 12653A OR APPROVED EQUAL, STEPS TO BE PLACED AS NOTED ON PLANS.
2. STORM INLETS: INLETS GREATER THAN 4' DEEP SHALL HAVE ALUMINUM. STEPS INSTALLED IN UPSTREAM FACE OF INLET WALLS. STEPS SHALL PROTRUDE 7" FROM THE WALL AND BE CENTERED 12" FROM FACE OF CURB. STEPS SHALL BE 12" APART, WITH THE TOP STEP ±18" FROM TOP OF GRATE AND THE BOTTOM STEP NO MORE THAN 16" ABOVE THE CONCRETE FILL IN THE BOTTOM OF THE INLET.
3. DRAINAGE CHANNELS: CHANNELS SHALL HAVE ALUMINUM STEPS FOR ACCESS AND RESCUE INSTALLED PER DETAILS ON DWG. 2261 STEPS SHALL BE INSTALLED ON BOTH SIDES OF THE CHANNEL AND SHALL BE LOCATED IMMEDIATELY BEFORE THE INLET AND AFTER OUTLET TRANSITIONS FOR CROSSING STRUCTURES AND AT 700' MAXIMUM SPACING ALONG CHANNELS.

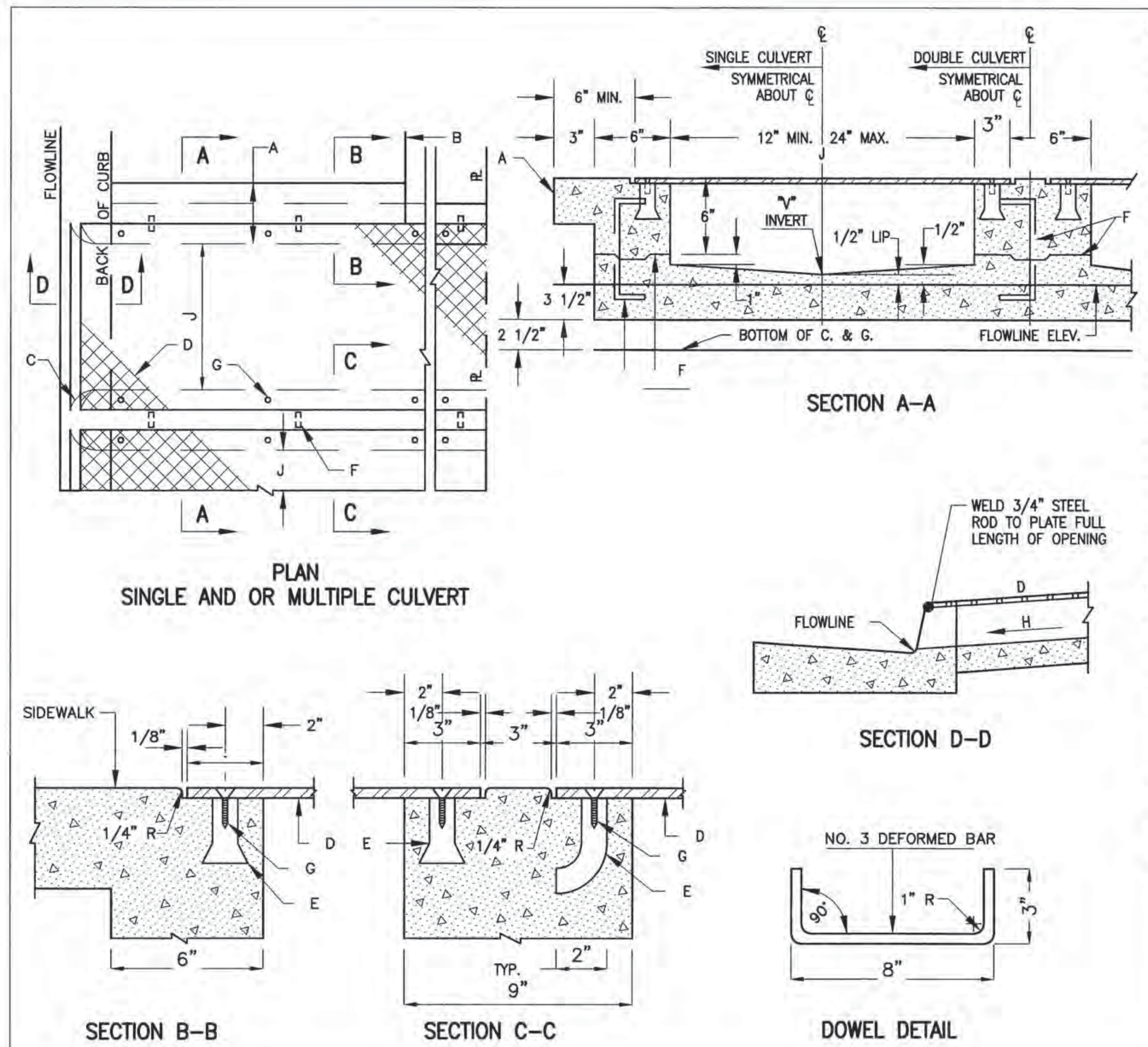
CITY OF ALBUQUERQUE

DRAINAGE
ALUMINUM STEP DETAIL

DWG. 2229 AUG. 1986



MODIFIED SINGLE/DOUBLE TYPE "A" & TYPE "C" INLETS – W/DROP INLET PLATE
N.T.S.



GENERAL NOTES:

1. PLACING OF DRAIN THRU EXIST. SIDEWALK AND CURB & GUTTER REQUIRES THAT ENTIRE SIDEWALK AND C & G STONES BE REMOVED AND REPLACED AS DETAILED HEREIN.
2. BOTTOM SLAB OF CULVERT SHALL BE POURED MONOLITHICALLY WITH NEW GUTTER.
3. THE INVERT SHALL BE TROWELED TO PRODUCE A HARD POLISHED SURFACE OF MAX. DENSITY AND SMOOTHNESS. INVERT SHALL BE V–SHAPED TO WITHIN 3" OF OUTLET, THEN WARPED TO PARALLEL FLOWLINE AT OUTLET, UNLESS OTHERWISE SHOWN.
4. ALL EXPOSED CONC. SURFACE SHALL MATCH GRADE, COLOR, FINISH AND SCORING OF ADJACENT CURB AND SIDEWALK.
5. SIDEWALK REPLACED DURING CONSTRUCTION SHALL BE POURED MONOLITHICALLY WITH CULVERT WALLS.
6. IF ROD ANCHORS ARE USED, DRILL & TAP FOR F.H. MACHINE SCREW. ATTACH ANCHORS TO PLATE AND SECURE PLATE IN PLACE PRIOR TO POURING OF WALLS.
7. LENGTH OF EACH PLATE SHALL BE SUCH THAT THE WEIGHT WILL NOT EXCEED 300 LBS. AND SHALL BE STRESS RELIEVED AFTER FABRICATION. CLEAN SURFACE OF PLATE AND FRAMING MEMBERS AND PAINT W/ ONE SHOP COAT RED OXIDE AND TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
8. THE CITY WILL NOT ASSUME RESPONSIBILITY FOR MAINTENANCE OF ANY SIDEWALK CULVERT INSTALLED BY OR FOR PRIVATE PROPERTY OWNERS.

CONSTRUCTION NOTES:

A. MATCH NEAREST CONTROL JOINT, INSTALL 1/2" EXPANSION JOINT.
B. EDGE OF SIDEWALK OR SETBACK (VARIABLE).
C. 3" RADIUS (TYPICAL).
D. 3/8" CHECKERED STEEL PLATE (PAINT PER NOTE 7, ABOVE).
E. FOR SECURING PLATE USE 1" X 5" S.S. ROD ANCHOR, "RED HEAD MULTI–SET II SRM–38 ANCHOR" OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS AT MAX. 24" O.C., A MINIMUM OF 2 PER SIDE AND ONE WITHIN 6" OF EACH END.
F. CONSTRUCTION JOINT IS OPTIONAL. IF USED, SPACE DOWELS AT 18" O.C. MAX., 1 1/2" MINIMUM FROM FACE OF CONCRETE.
G. 3/8" – 16 X 1 1/4" COUNTERSUNK, F.H., STAINLESS STEEL, MACHINE SCREW.
H. SLOPE 1/4" PER FT. MIN.
J. DRAIN WIDTH PER PLAN (12" MIN., 24" MAX.).

CITY OF ALBUQUERQUE

DRAINAGE
SIDEWALK CULVERT
WITH STEEL PLATE TOP

DWG. 2236 AUG. 1986

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AS–BUILT INFORMATION

MICRO–FILM INFORMATION

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

SCOTT F. PERKINS
NEW MEXICO
10272
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY

REVISIONS

WILSON & COMPANY, ENGINEERS & ARCHITECTS

DESIGNED BY STAFF DATE: DEC. 2001
DRAWN BY STAFF DATE: DEC. 2001
CHECKED BY SFP DATE: DEC. 2001

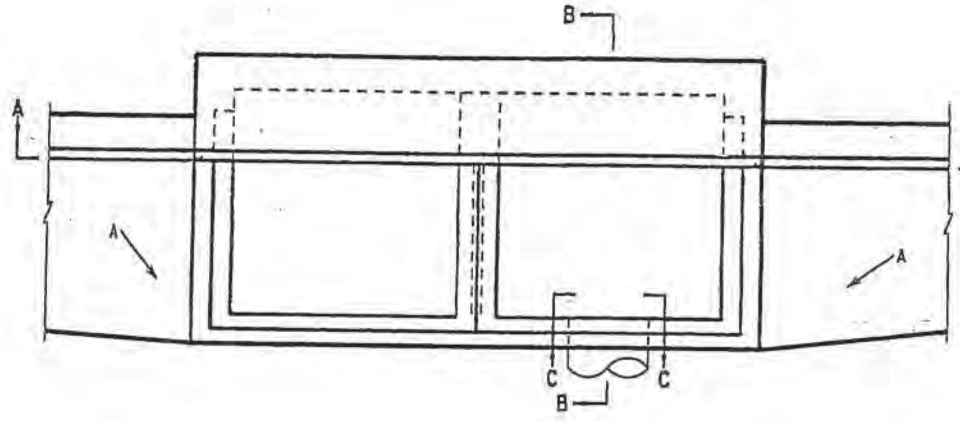
CITY OF RIO RANCHO
PUBLIC WORKS DEPARTMENT

GOLF COURSE RD. IMPROVEMENTS PROJECT
MISCELLANEOUS DETAILS

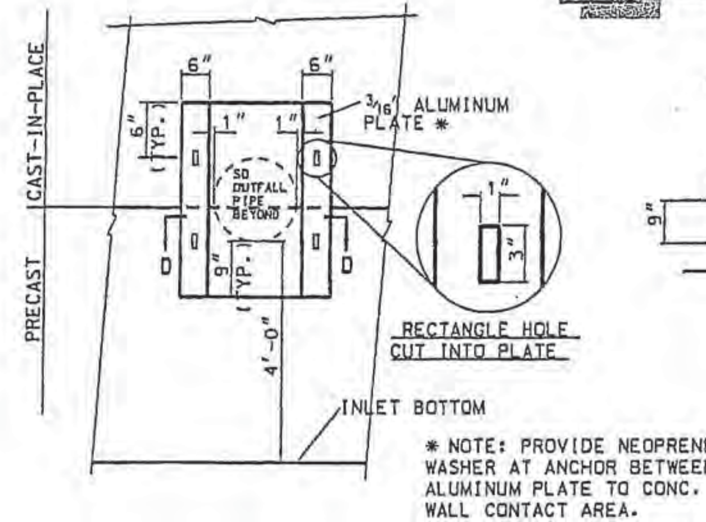
N.M. Project No.
TPU–4079(3), CN 1805

Sheet
2–33

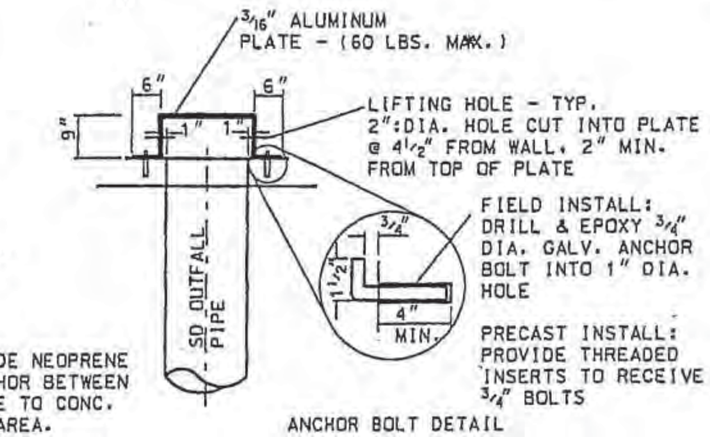
WILSON & COMPANY



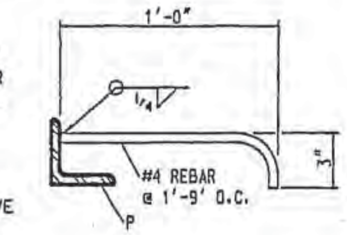
PLAN VIEW



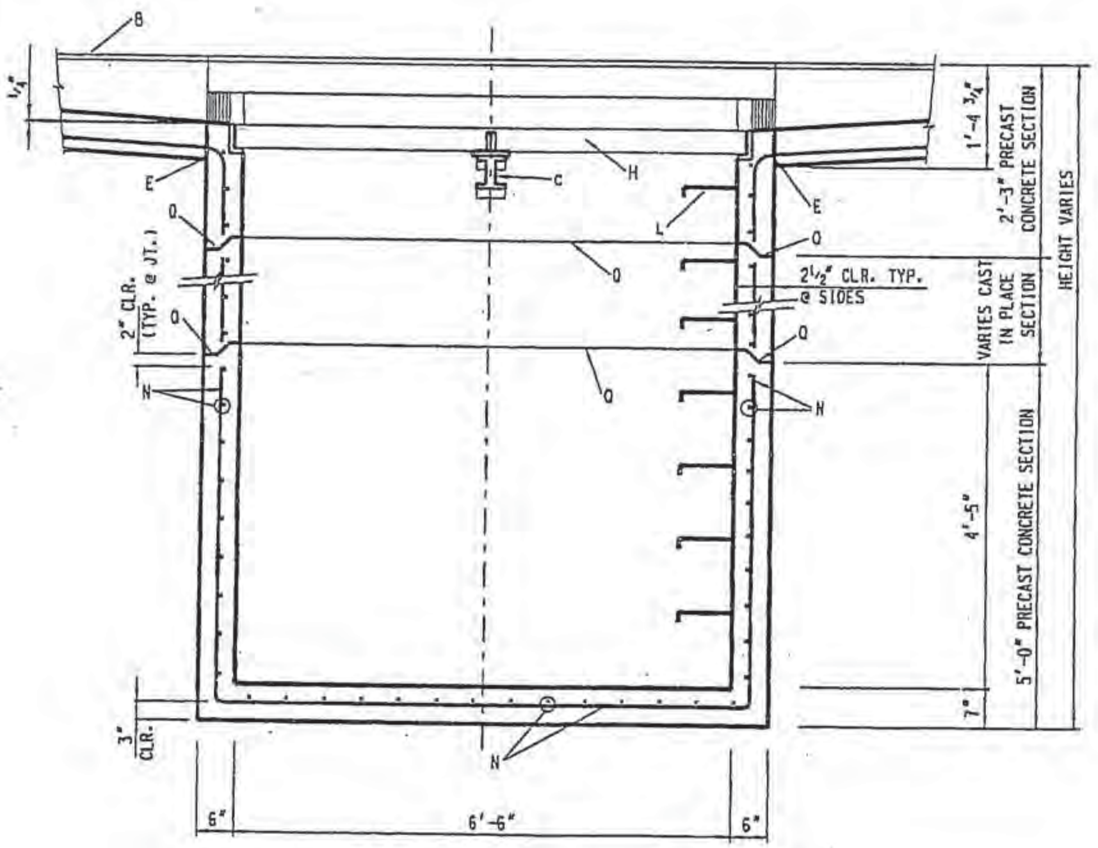
ELEVATION C-C - DROP INLET PLATE



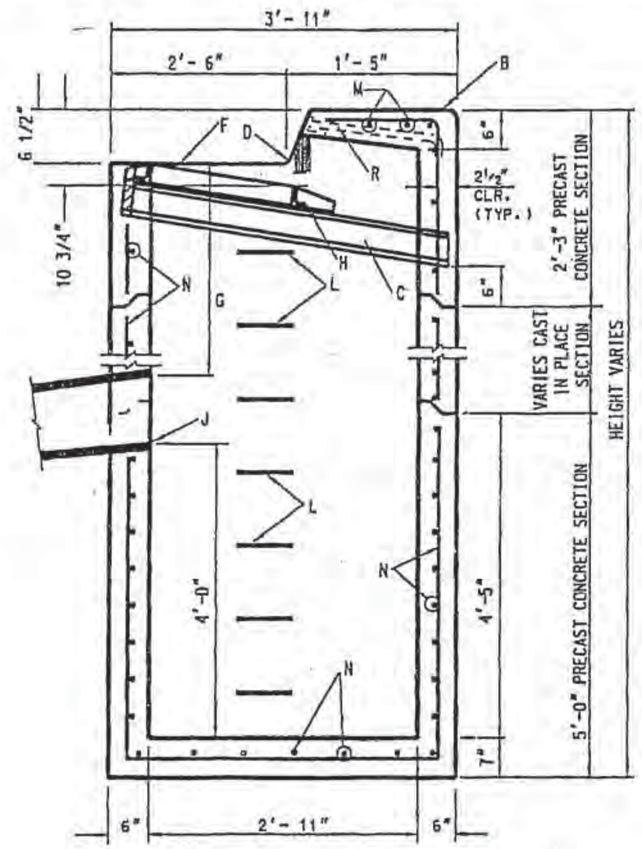
PLAN VIEW D-D - DROP INLET PLATE



ANCHOR DETAIL



SECTION A-A



SECTION B-B

GENERAL NOTES:

1. CONSTRUCTION SPECIFICATIONS: NM528 WIDENING DESIGN AND BUILD PROJECT SPECIFICATIONS FOR CONSTRUCTION.
2. FOR STORM INLET GUTTER TRANSITION, SEE DWG. 2207.
3. OUTLET PIPE, REFER TO CONSTRUCTION PLANS FOR SIZE, LOCATION, AND GEOMETRY.
4. FOR FRAME & GRATING, SEE DWG. 2216, 2220 & 2221.
5. FOR ANCHOR SEE DETAIL.
6. FOR CENTER SUPPORT ASSEMBLY, SEE DWG. 2215.
7. FOR ALUMINUM STEP DETAIL, SEE DWG. 2229.

CONSTRUCTION NOTES:

A. GUTTER TRANSITION.
B. TOP OF CURB.
C. CENTER SUPPORT ASSEMBLY.
D. FLOWLINE.
E. CONSTRUCTION JOINT.
F. NORMAL GUTTER LINE.
G. 1'-10" MIN., UNLESS OTHERWISE DIRECTED.
H. FRAME AND GRATE.
J. INVERT OF OUTLET PIPE.
K. CONCRETE FILL, MINIMUM SLOPES AS SHOWN.
L. FOR STORM INLET DEPTHS GREATER THAN 4' INSTALL STD STEPS, SEE DWG. 2229, UPSTREAM SIDE.
M. EXTEND NO. 4 REBARS 18" INTO CURB ON EACH SIDE OF STORM INLET.
N. NO. 4 BARS AT 6" O.C. (CENTERED)
P. 3 1/2" X 3 1/2" X 1/2" X 7' - 6" FOR DOUBLE GRATE TYPE "C" STORM INLET.
3 1/2" X 3 1/2" X 1/2" X 10' - 6" FOR TRIPLE GRATE TYPE "C" STORM INLET.
Q. PRECAST JOINT
R. ANCHOR.

GARY W. KINCHEN NEW MEXICO 14366 REGISTERED PROFESSIONAL ENGINEER 11/13/02

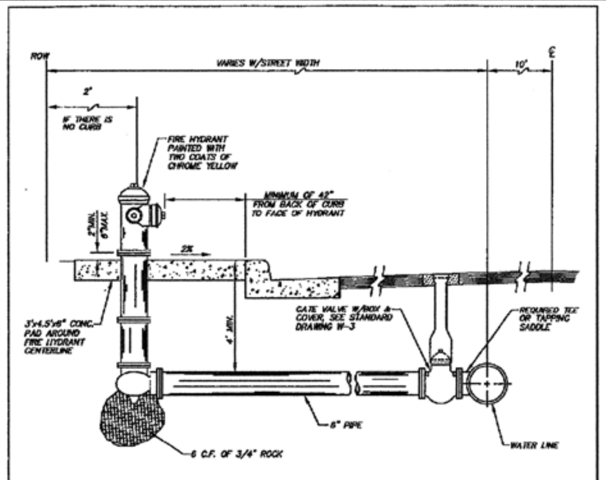
PLAN SUBMITTED 11/13/02

NO.	DESCRIPTION	DATE	BY
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

DRAINAGE
STORM INLET DOUBLE "C" MODIFIED



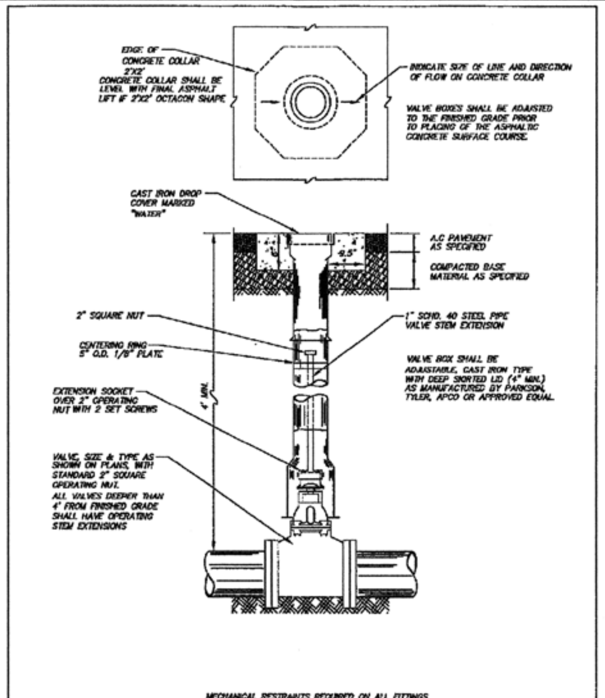
NOTES:

1 GATE VALVE W/BOX & COVER SHALL BE INSTALLED ON NEW AND EXISTING WATER MAINS.
2 FIRE HYDRANTS SHALL HAVE 5 1/4" VALVE OPENING, DRY BARREL, DRY TOP, TRAFFIC MODEL, WITH ONE 4 1/2" PUMPER NOZZLE, TWO 2 1/2" HOSE NOZZLES, NS THREAD, PENTAGON OPERATING NUT (1 1/2" POINT TO FLAT) WITH 1" SIDES, WHICH SHALL OPEN LEFT (COUNTER CLOCKWISE), WITH MECHANICAL JOINT CONNECTION TO 6" SPECIFIED PVC PIPE WITH 4' MIN. COVER.
3 THE FIRE HYDRANT SHALL BE PAINTED WITH TWO COATS OF CHROME YELLOW, AND MEET REQUIREMENTS OF AWWA C502.
4 APPROVED HYDRANTS INCLUDE KENNEDY GUARDIAN MODEL K – 81, AND MUELLER SUPER CENTURION 200.
5 WRAP ALL AREAS WITH 10MIL PLASTIC BEFORE INSTALLATION OF CONCRETE THRUST BLOCKS
6 A FIRE HYDRANT ASSEMBLY MUST BE LOCATED 10 FEET FROM THE END OF ANY DEAD END WATERLINE.
7 ALL FITTINGS, JOINTS FROM FIRE HYDRANT TO VALVE AND MAIN LINE REQUIRE MEGAL LUG MECHANICAL RESTRAINTS.
8 IN UNPAVED RIGHT-OF-WAYS POUR 3'X4'X0.5' CONCRETE COLLAR CENTERED ON FIRE HYDRANT.
9 FIRE HYDRANT COLLARS SHALL BE INSTALLED AT 2" TO 6" ABOVE FINISHED OR EXISTING ROAD GRADE ON ALL UNPAVED ROADS.
10 FIRE PROTECTION FIRE HYDRANT'S ON PRIVATE PROPERTY TO FOLLOW STANDARD DRAWING CITY OF RIO RANCHO W-2.
11 A MECHANICAL RESTRAINT SYSTEM SHALL BE UTILIZED ON FITTINGS AND PIPING FOR THRUST RESTRAINT. CONCRETE THRUST BLOCKING TO BE USED ONLY FOR SPECIAL CONDITIONS (SUCH AS, CAPS WHERE MAIN WILL BE EXTENDED IN THE FUTURE) OR AS SPECIFICALLY APPROVED BY CITY OF RIO RANCHO.

City of Rio Rancho-Department of Public Infrastructure

APPROVED BY: RJB | TITLE: FIRE HYDRANT ASSEMBLY

DATE: 7/01 REV.: 2/06 | STANDARD DRAWING W-3

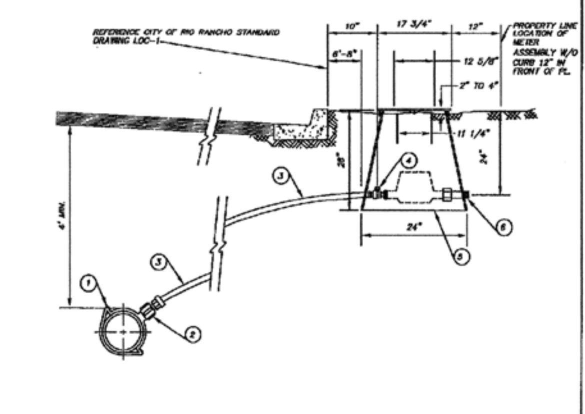


NOTES:
1 ALL FITTINGS SHALL USE MEGA LUGS RESTRAINTS.
2 GATE VALVE AND BOXES IN UNIMPROVED ROADS OR EASEMENTS SHALL HAVE A 2'X2' CONCRETE COLLAR INSTALLED AT ONE FOOT BELOW EXISTING GRADE OR NATURAL GRADE.
3 A MECHANICAL RESTRAINT SYSTEM SHALL BE UTILIZED ON FITTINGS AND PIPING FOR THRUST RESTRAINT. CONCRETE THRUST BLOCKING TO BE USED ONLY FOR SPECIAL CONDITIONS, (SUCH AS, CAPS WHERE MAIN WILL BE EXTENDED IN THE FUTURE) OR AS SPECIFICALLY APPROVED BY CITY OF RIO RANCHO.
4 FOR VALVES IN UNIMPROVED ROADS, THE VALVE BOX AND COVER SHALL BE BURIED 12" BELOW EXISTING GRADE AND SHALL ALSO BE MARKED (FOR LOCATION PURPOSES) BY TWO REBAR.

City of Rio Rancho-Department of Public Infrastructure

APPROVED BY: RJB | TITLE: VALVE BOX ASSEMBLY

DATE: 7/01 REV.: 2/06 | STANDARD DRAWING W-4



KEY NOTES:

1 SERVICE SADDLE – 1" USE FORD S90 4"–12" SINGLE BAND BRASS SADDLE CC THREAD, OVER 12" USE FORD 202BS DOUBLE BAND BRASS SADDLE CC THREAD.
2 CORPORATION STOP – 1" USE FORD FB600-4; 1 1/2" USE FORD B600-6; 2" USE FORD B600-7. (ALL CC THREAD)
3 SERVICE LINE – 1" COPPER SINGLE & DOUBLE SERVICES; 1 1/2" COPPER COMMERCIAL SERVICE AND 2" COPPER COMMERCIAL SERVICE
4 CURB STOP – SINGLE SERVICE – 1" USE FORD BA23-444W; 1 1/2" USE FORD BFA23-666W; & 2" USE FORD BFA23-777W; DOUBLE SERVICE 1" USE FORD UA28-43 'U' BRANCH WITH 3/4" BALL BALVE BA13-332W
5 METER BOX – 34P – 18"x24"x24"D PLASTIC METER BOX W/ 12 5/8" CAST IRON LID AND RING PRODUCT No. 32537010X
6 STRAIGHT SWIVEL TAIL-PIECE – MIN 6" LENGTH. TO BE INSTALLED BY OTHERS.
7 TO BE USED ON ALL DR-9 POLY SERVICE LINES AND COPPER SERVICE LINES REQUIRING FLARED CONNECTIONS.

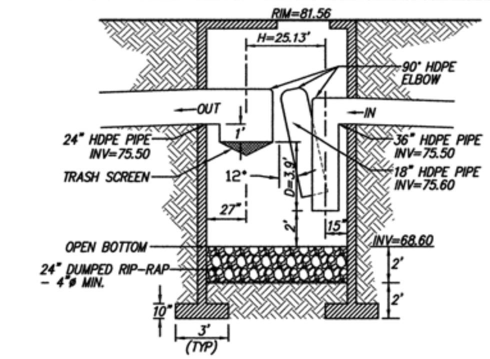
NOTES:

1 WATER SERVICE SHALL BE FLUSHED AFTER INSTALLATION.
2 TRENCH FOR LATERAL SHALL BE A MINIMUM OF 8" WIDE.
3 SNAKE PIPE IN TRENCH TO ALLOW FOR EXPANSION OR CONTRACTION (ALLOW A MINIMUM OF 12" PER 100' LENGTH.
4 PIPE BEDDING PER STANDARD DRAWING W-7.
5 SINGLE SERVICES SHALL BE INSTALLED AT THE SIDE LOT LINES. DOUBLE SERVICES SHALL BE INSTALLED AT THE SIDE LOT LINES AS SHOWN ON THE CONSTRUCTION PLANS.
6 SERVICE CONFIGURATIONS FOR MULTI-FAMILY LOTS SHALL BE APPROVED BY CITY OF RIO RANCHO UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
7 ALL SERVICES SHALL BE MARKED WITH A "W" CUT INTO THE CURB DIRECTLY OVER THE SERVICE.
8 IF SIDEWALKS ARE PLANNED TO ABUT THE CURB CONSULT WITH CITY OF RIO RANCHO UTILITIES DEPARTMENT FOR METER CAN LOCATION.

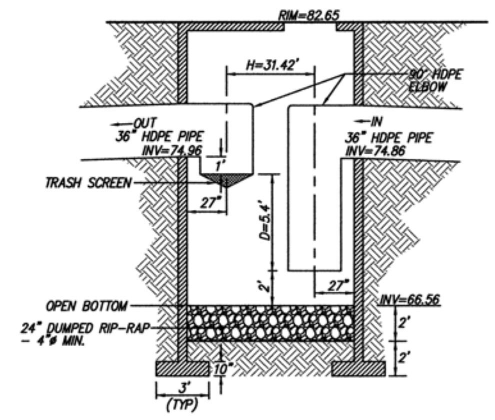
City of Rio Rancho-Department of Public Infrastructure

APPROVED BY: RJB | TITLE: 1" - 2" SERVICE LATERALS (W/CURB) COMPRESSION

DATE: 7/01 REV.: 2/06 | STANDARD DRAWING W-5



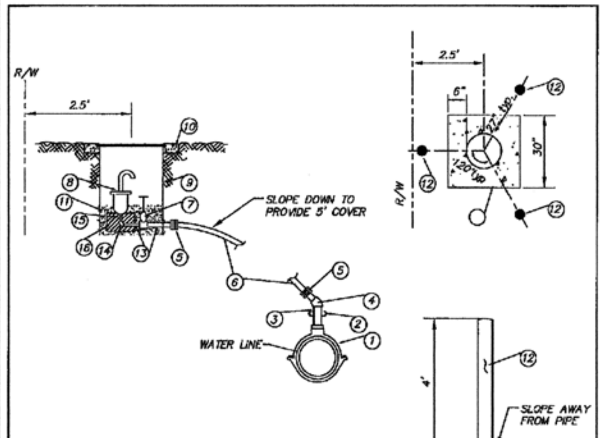
8' DIA. SD MH #15 MODIFIED TO BE A
STORM WATER QUALITY CONTROL STRUCTURE
SCALE: 1"=5'



10' DIA. SD MH #38 MODIFIED TO BE A
STORM WATER QUALITY CONTROL STRUCTURE
SCALE: 1"=5'

NOTE:

ALL INLET PIPES ARE TO BE ANGLED 12° FROM THE VERTICAL



GUARD POST DETAIL

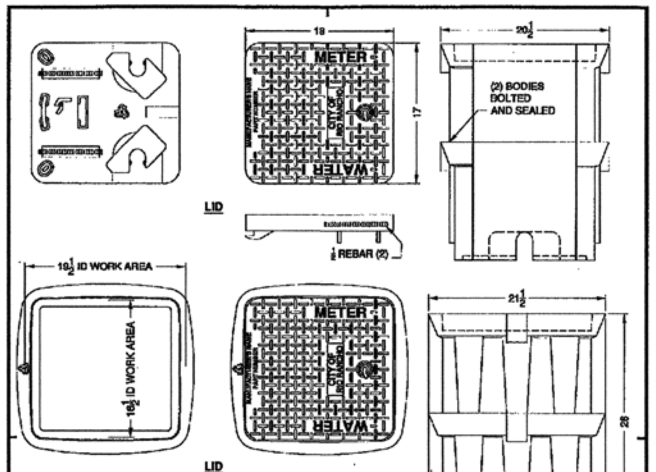
NOTES:

1 2" IPT SERVICE SADDLE, ROMAC # 202S
2 2" BRASS CORP STOP, MIPT X FIPT, FORD BALLCORP TYPE FB1700
3 2" X CLO BRASS NIPPLE
4 2" BRASS 45° BEND, THREADED
5 2" ADAPTER, MIPT X PT(CTS) FORD # C84-77
6 2" COPPER TUBING
7 2" BRONZE GATE VALVE W/HANDWHEEL
8 2" COMBINATION AIR VALVE, VALMATIC 202C
9 13"x24" QUAZITE METER CAN WITH CAST IRON LID
10 30" X 30" X 6" CONCRETE COLLAR AROUND METER CAN
11 6" GRAVEL BED
12 4" STEEL POST (6' LONG) FILLED W/CONCRETE & PAINTED W/2 COATS OF CHROME YELLOW
13 2" X 6" SCHEDULE 80 PVC NIPPLE, TBE
14 2" BRASS 90° BEND, THREADED
15 2" X CLO BRASS NIPPLE
16 CONCRETE BLOCK TO STABILIZE AIR VALVE, 2 REQUIRED
17 WHERE WATER MAINS ARE 10" OR LESS IN DIA. A 1" AIR VAC AND 1" COPPER TUBING MAY BE USED.

City of Rio Rancho-Department of Public Infrastructure

TITLE: 2" PRESSURE VACUUM BREAKER

DATE: 7/01 REV.: 2/06 | STANDARD DRAWING W-14



NOTES:
1) DIM'S ± 1/8 U.N.O.
2) WALL THICKNESS: 3/8 ± 5%
3) SNAP LOCK POCKET WILL RECEIVE AMR/AMI DEVICE ERT.

SPECIFICATIONS:
METER BOX SHALL BE GREY AND CONSTRUCTED OUT OF MODIFIED POLYETHYLENE MATERIAL FOR MAXIMUM DURABILITY AND CORROSION RESISTANCE. THE MATERIAL IS FOR MAXIMUM UV PROTECTION. THE GREY MATERIAL SHALL BE UNIFORM THROUGHOUT THE METER BOX FOR MAXIMUM LONGEVITY AND NOT HAVE A FOAMING AGENT THAT CREATES AIR POCKETS WITHIN THE PLASTIC WALL.

PLASTIC LID
- THE LID SHALL SEAT SECURELY AND EVENLY INSIDE THE METER BOX AND SHALL NOT OVERLAP THE TOP EDGE OF THE METER BOX.
- THE LID SHALL HAVE A DIAMOND PATTERN FOR SKID RESISTANCE.
- THE LID SHALL HAVE AN AMR SLIDE MOUNT MOLDED INTO THE LID ON THE UNDERNEATH SIDE FOR PLACEMENT OF AN AMR TRANSPONDER TO HELP IN THE PROTECTION OF THE RADIO ANTENNA.
- THE LID SHALL BE SOLID THROUGH AND HAVE A 1" DIAMETER FINGER HOLE.

PLASTIC BODY
- THE BODY SHALL HAVE CRUSH RESISTANT RIBBING ALONG THE OUTSIDE OF THE BOX.
- THE BODY SHALL HAVE A FLANGE AROUND THE LID OPENING TO HELP PREVENT SETTLING AND AIDE IN THE ADJUSTMENT TO GRADE. THE BODY SHALL HAVE ONE CUT OUT PIPE SLOT LOCATION ON EACH END OF THE BOX THAT MEASURE - 3"X 4".

City of Rio Rancho-Public Works Department

DATE: 11/22/2010 | TITLE: WATER METER BOX AND LID METER SIZE 1" AND SMALLER

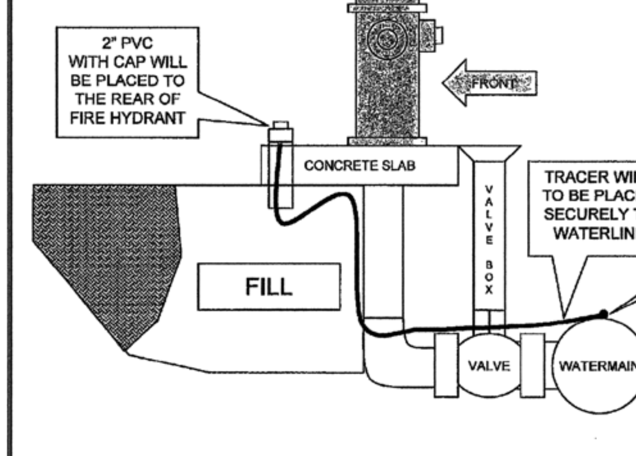
DATE: 11/10 | STANDARD DRAWING W-21

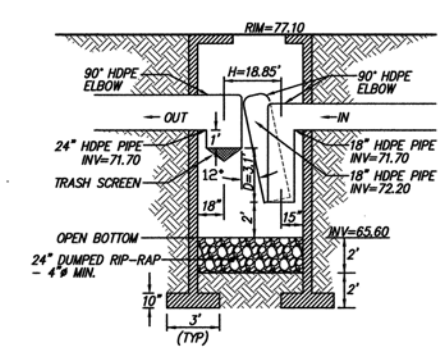
TRACER WIRE INSTALLATION

THE CITY OF RIO RANCHO

1. USING A #12 INSULATED SOLID COPPER WIRE, ANCHOR WIRE TO STATIONARY OBJECT (I.E.) VALVE BOLT.
2. LAY WIRE ALONG PIPE AS CLOSE AS POSSIBLE TO PIPE.
3. AT INTERVALS ANCHOR WIRE TO VALVES, PIPE JOINTS OR SERVICE LATERALS.

- WHEN NECESSARY TO SPLICE WIRE USE ONLY WIRE SPLICE SPECIFIC FOR #12 GAUGE WIRE.
- INSULATE SPLICE WITH RAKIUM TAPE AND REINFORCE WITH COMMOM ELECTRICAL TAPE.





6' DIA. SD MH #18 MODIFIED TO BE A
STORM WATER QUALITY CONTROL STRUCTURE
SCALE: 1"=5'

The Great Seal of the City of Rio Rancho, New Mexico 1981

City of Rio Rancho

NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

OWNER/DEVELOPER
PETROGLYPH REAL ESTATE, LLC

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS
P.O. BOX 90606 ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

PETROGLYPH MEDICAL PLAZA

UTILITY DETAILS

ENGINEER'S SEAL

PROJECT NO.	A09005
DESIGNED BY:	GJK
DRAWN BY:	DER
CHECKED BY:	DMG
DATE:	02/24/11
DPW CHK:	####

SHEET:

F:\A09JOBS\A09005 XRANM, Rio Rancho\PLANS\UTILITIES\A09005_Utility Details.dwg dwayne 5/12/11

Section 5	**Performance Assessment** 5.1 Illicit Discharge Incident Reporting 5.2 City Sourced – Service Requests and Metrics 5.3 Construction General Permit Compliance Inspection List 5.4 MS4 Dry Weather Discharge Screening Reports 5.5 Compliance Monitoring Cooperative (CMC) Dry Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database and Reporting

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
INCIDENT TRACKING	1/14/2019	10:00 AM	XAVIER PETTES
OUTFALL ID N/A	**SUBWATERSHED** MONTOYAS	**LATITUDE** 35.238695° **LONGITUDE** -106.641645°	**OBSERVER INFO. (Reported by Citizens)** MARIAN WRAGE UTILITY OPS. / WATER CONSERVATION
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential) COMMERCIAL	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)** 0.0"	

Conveyance (Check one only)	☐ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:	
Material	☐ Concrete	☐ Earthen ☐ Rip-Rap	☐ RCP	☐ CMP	☒ PVC	☐ HDPE	☐ Steel ☐ Other____
Shape	☒ Circular	☐ Eliptical ☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other____	☐ Single	☐ Double ☐ Triple ☐ Other____
Dimensions	☒ Diameter/Dimensions: 16"		☐ Depth: ____	☐ Bottom Width: ____		☐ Top Width: ____	
Submerged	In Water:	☒ No ☐ Partially	☐ Fully		With Sediment:	☐ No	☐ Partially ☐ Fully
Ownership	☐ SSCAFCA	☐ City ☒ Private	☐ Unknown	☐ Other____			
Discharges to	☒ Pond/Depressional Feature	☐ Natural Conveyance ☒ Storm Drain Channel	☐ Open Space	☐ Other____			
Flow Status	☒ Flowing	☐ Dry ☐ Ponded		**Flow Reaches Receiving Water?**	☐ Yes	☒ No	

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☒ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☐ OTHER ____
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☒ COLORLESS	☐ BROWN	☐ BLACK	☐ OTHER ____
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☒ NONE	☐ SUDS	☐ OTHER ____
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☒ Other
	DESCRIBE ALL SOURCES: AIR CONDITIONING TOWER					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other____
Abnormal Vegetation	☒ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**
QA/QC SAMPLES: ☐ Field Duplicate	☐ Field Blank

FLOW ESTIMATION Flow Yes / No / Ponded Evidence of overland flow near sampling location? Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)
1. Width (ft or in) ________
2. Depth (ft or in) ________
3. Velocity (ft or in / sec) ________

Flow ________

Filling a Bottle
1. Volume (mL or L) ________
2. Time to fill (sec) ________

Flow ________

Flowing Pipe
1. Pipe Diameter (ft or in) ________
2. Depth (ft or in) ________
3. Velocity (ft or in / sec) ________

Flow ________

PHOTOS TAKEN: ☒ YES ☐ NO	**COMMENTS:**

INVESTIGATOR SIGNATURE [signature] NPDES PROJECT MANAGER

EUGENE PETTES

From: EUGENE PETTES
Sent: Monday, January 14, 2019 4:02 PM
To: MARIAN WRAGE
Cc: DAVID SERRANO
Subject: Fairwinds Rio Rancho IDDE
Attachments: Fairwinds IDDE Photos.pdf; IMG_0834.MOV; 621. Acantilado Vista Water Grading and Sewer Layout.pdf

Marian,

The discharge at Fairwinds is water coming from an air conditioning tower. A float valve is open (intentionally open, stuck open, or broken), overflow water is draining to a stormwater *retention* pond prior to discharging to a public drainage easement. According to Roberto, Plant Operator Supervisor, an unrelated service was conducted on the AC tower last week, the service contractor made no mention of a valve malfunction at that time. Roberto assured me he would resolve this issue as soon as possible.

I will revisit later in the week.

Attached are discharge photos/video and site grading and drainage plan.

Contact Information:
Fairwinds Rio Rancho
920 Riverview Dr. SE
Rio Rancho, NM 87124
POC: Roberto Hernandez, Plant Operator Supervisor
Phone Number: (505) 435-7225

Xavier Pettes
NPDES Project Manager
Engineering Division
Development Services Department

City of Rio Rancho
3200 Civic Center Circle NE
Rio Rancho, NM 87144
Direct: (505) 891-5045
Fax: (505) 891-0986
xpettes@rrnm.gov

Our Goal is Quality Customer Service
Your opinion is important to us.
Provide Feedback: DSDFEEDBACK@rrnm.gov

CitySourced Service Requests - July 1, 2018-June 30, 2019

Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
1	2019-06-29T07:16:35	2019-07-22T11:16:33	Illegal Dumping	35.2580447	-106.7221334	816 Rainbow Blvd NE, Rio Rancho, NM 87124	Old fencing directly across from pile of garbage on Sandia Blvd., South East about 50 yards east of the intersection with the seventh Street.	Closed	Koryn Misbach
2	2019-06-27T14:02:38	2019-07-01T14:10:32	Code Enforcement	35.2515251	-106.7251455	380 Vancouver Rd SE, Rio Rancho, NM 87124	Complainant Patricia Herron (505) 892-9633 stated she located a dump site on a trail off Tulip & Arizona and would like contact as she has identifiers of the suspected perpetrators by his check stub.	Closed	Sherrie Rice
3	2019-06-27T08:20:47	2019-06-28T15:28:31	Code Enforcement	35.2568103	-106.6957538	2006 Black Hills Rd NE, Rio Rancho, NM 87124	Anonymous complaint states this house is a rental with new tenants. there is currently a lot of debris in front of the house, i.e. loveseat, mattress, garbage etc. would like action on all violations on this property.	Closed	Amanda Hogge
4	2019-06-26T15:08:25	2019-07-11T08:47:19	Illegal Dumping	35.2347793	-106.6654561	1390 Sara Rd, Rio Rancho, NM 87124	A bag of garbage is laying on the sidewalk and has been laying there for about for five days	Closed	Jason Gallegos
5	2019-06-26T14:59:07	2019-07-01T09:20:27	Code Enforcement	35.2773558	-106.70003	1821 Gallinas Rd, Rio Rancho, NM 87144	Anonymous complainant went through Police dispatch to report the home next to him on the west side of 1821 Gallinas Rd has a lot of garbage in his backyard that's beginning to smell. This neighbor fails to put his trash out for pickup and the trash is piling up.	Closed	Jimmy Chavez
6	2019-06-25T15:05:08	2019-06-25T15:37:28	Code Enforcement	35.2742448	-106.6245022	5504 Vera Cruz Rd NE, Rio Rancho, NM 87144	Rick Davis(505) 269-8959 left a voicemail stating at 5504 Vera Cruz Rd NE, the residents have left a large shelving unit on the side of the road. This item has been there for over a month and would like them to remove it.	Closed	Amanda Hogge
7	2019-06-24T08:06:39	2019-08-26T08:53:11	Code Enforcement	35.2607234	-106.7081918	1420 Tulip Rd SE, Rio Rancho, NM 87124	I live at 1420 Tulip RD SE and across the street to my right is a new house that has been being built since early 2018 (about 18 months ago). I believe the owner is self building as one person is generally there on weekends. The problem is all construction trash is being piled up behind the house but is less than 30 ft from his neighbor's front porch. There is not a construction dumpster, never has been. Not only is this unsightly, we have had invasion of mice this past winter and he has seen some from his porch. Thank you Kay Snead	Closed	Jimmy Chavez
8	2019-06-24T07:52:08	2019-07-10T13:36:34	Illegal Dumping	35.2621231	-106.7224834	34 Nacimiento St NW, Rio Rancho, NM 87124	Large plastic dog crate filled with garbage bags on the side of seventh Street near cut off to the eighth Street	Closed	Koryn Misbach
9	2019-06-22T07:41:26	2019-07-22T11:15:56	Illegal Dumping	35.2695448	-106.6696393	County Trail, Rio Rancho, NM 87124	At the east end of Stapleton Ave just below the dam of the ponding area for the water treatment facikity, we found, during our hike, that someone has dumped a load of debris.	Closed	Koryn Misbach
10	2019-06-20T16:31:30	2019-07-01T09:21:00	Code Enforcement	35.2732748	-106.7185113	901 9th Ave NE, Rio Rancho, NM 87124	Complainant Bob Wiater (847) 207-7560 called in reference to 901 9th Ave NE having large amounts of debris in their yard that needs to be cleaned up.	Closed	Jimmy Chavez
11	2019-06-19T12:28:24	2019-06-28T12:49:03	Illegal Dumping	35.2932971	-106.6570866	Loma Colorado Blvd NE, Rio Rancho, NM 87144	Roofing material - loader required	Closed	Jason Gallegos
12	2019-06-19T12:19:35	2019-06-24T10:52:44	Illegal Dumping	35.2583122	-106.7165458	50 10th Ave SW, Rio Rancho, NM 87124	Couch material - foam and upholstery. Possibly broken down cloth material.	Closed	Koryn Misbach
13	2019-06-19T10:56:42	2019-07-10T13:35:30	Illegal Dumping	35.2627597	-106.7048481	1543 Tulip Rd SE, Rio Rancho, NM 87124	a couch has been dumped in the Arroyo on the north side if Tulip, between Lisbon and 2nd street.	Closed	Koryn Misbach
14	2019-06-17T15:06:51	2019-06-19T09:27:56	Code Enforcement	35.2653941	-106.6963066	405 Minturn Loop, Rio Rancho, NM 87124	Anonymous complaint on 405 Minturn Loop having excessive debris on the side of their home which includes garbage, old beds etc. States this is an eyesore and the property values are going down in the neighbor because of this residence.	Closed	Jimmy Chavez
15	2019-06-14T15:14:16	2019-06-19T09:28:08	Code Enforcement	35.2422761	-106.7406722	828 2nd St SW, Rio Rancho, NM 87124	Anonymous complaint in reference to 828 2nd Street SW of an accumulation of garbage in a trailer and in the rear bed of a truck at this address. Complainant stated they have not been using Waste Management containers for some time and they are storing the trash. This is the second complaint at this address the first complaint was handled on 05/13/19 and they came into compliance. See HTE 19-1681	Closed	Jimmy Chavez

CitySourced Service Requests - July 1, 2018-June 30, 2019

Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
16	2019-06-14T11:26:11	2019-06-27T07:17:11	Illegal Dumping	35.253452	-106.6982641	300 Unser Blvd SE, Rio Rancho, NM 87124	Someone dumped a big screen TV once again in front of our business entrance on 19th st. SE, right behind 276 Unser Blvd. SE on the street behind called 19th (dirt road)	Closed	Jason Gallegos
17	2019-06-13T16:52:39	2019-08-27T15:11:57	Environmental Concerns	35.2359537	-106.6918594	1416 Yucatan Dr SE, Rio Rancho, NM 87124	Pulte homes construction trucks are dumping fluids from their trucks onto the property.	Closed	Xavier Pettes
18	2019-06-13T12:01:22	2019-06-14T10:57:18	Illegal Dumping	35.3386808	-106.6064429	Caldera, Rio Rancho, NM 87144	Resident, Steve Dodge, called to report illegally dumped AC unit.	Closed	Koryn Misbach
19	2019-06-12T15:24:41		Code Enforcement	35.2464975	-106.6983805	1849 Doral Park Rd SE, Rio Rancho, NM 87124	1849 Doral Park abandoned foreclosed home . Trash, weeds, vehicles, motorcycles and junk shewn all over front and back yards. Trash blows out of containers all over street and neighborhood. Neighbors have placed containers down and no pick up probably do to non-payment. This has been on going since November "18. Summer making it worse, rodents, strays etc..	In Process	Sherrie Rice
20	2019-06-12T08:32:11	2019-06-25T08:18:06	Illegal Dumping	35.2538112	-106.698243	300 Unser Blvd SE, Rio Rancho, NM 87124	Landscaping trash has been dumped AGAIN in front of our yard located at 276 Unser Blvd., in the middle of 19th ave. There are branches, leaves, rubbish, etc.	Closed	Jason Gallegos
21	2019-06-12T07:09:38	2019-06-25T08:21:30	Illegal Dumping	35.2581389	-106.7222188	816 Rainbow Blvd NE, Rio Rancho, NM 87124	Tires and old fencing at 7th ST NE and Sandra Blvd	Closed	Jason Gallegos
22	2019-06-11T12:43:27	2019-06-12T08:34:42	Environmental Concerns	35.2554572	-106.6591717	Rio rancho softball fields, 12 Los Balcones Pl NE, Rio Rancho, NM 87124	what are the chemicals used as a weed control? yellow orange chemical	Closed	Charles Fernandez
23	2019-06-11T08:28:39	2019-06-13T11:58:41	Illegal Dumping	35.3278097	-106.7143934	1436 Desert Paintbrush Loop, Rio Rancho, NM 87144	near arroyo behind neighborhood	Closed	Koryn Misbach
24	2019-06-10T13:57:52	2019-07-15T08:42:39	Code Enforcement	35.2872302	-106.5968278	1780 Black River Dr NE, Rio Rancho, NM 87144	Trask, weeds, debris, railroad ties in front and side of residence need to be addressed. Please see email that was sent to both you and Ms. Prado in regards to these violations.	Closed	Amanda Hogge
25	2019-06-10T11:36:51	2019-06-13T11:56:35	Illegal Dumping	35.2681783	-106.6664636	735 Loma Colorado Dr NE, Rio Rancho, NM 87124	About a week ago, during my morning hike, I saw that someone had dumped a mattress at this location. This morning I found a lot more rubbish at the area that was not there yesterday. Apparently some one has found an easy dump area. This is located at the east end of Stapleton ave. up on the hill where the fireworks are launched. The debris is about 50' S. ofthe Launch site.	Closed	Koryn Misbach
26	2019-06-10T08:29:57	2019-06-17T12:59:31	Code Enforcement	35.247017	-106.729292	365 Alda Rd SE, Rio Rancho, NM 87124	Anonymous Complaint via telephone in reference to old carpet, weeds, garbage and trash all around the residence. Home is listed as a foreclosure 18-1266 however the CN Idaho Housing states the owners identified as Robert & Alissa Mathews still own and reside in it and are responsible.	Closed	Amanda Hogge

CitySourced Service Requests - July 1, 2018-June 30, 2019

Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
27	2019-06-07T14:06:51	2019-07-22T09:43:30	Code Enforcement	35.2486728	-106.7332082	648 Vancouver Rd SE, Rio Rancho, NM 87124	Good Afternoon, My name is Eloisa Hernandez I am the property manager for Corder and Comapny. We manage the fourplex on 648 Vancouver Rd SE, Rio Rancho, NM 87124. There is people using the parking lot for a dump site. There are large unwanted couches and miscellaneous items that people are just dumping there. It just keeps getting worse. That stuff needs to be removed its attracting rodents and who knows what else. Can you please help us get this taken care of. CE Response: Good afternoon Ms. Hernandez, As the property manager for Corder & Company the responsibility is the property owner for this location. We have already received one complaint on this issue however my officers are inundated with pending complaints. Once Code Enforcement arrives Corder & Company will be given up to 15 days to address this issue before action is taken. I understand this is frustration because the parties could either be your new or old tenants or the general public, Nevertheless your company is responsible to have these items removed.	Closed	Sherrie Rice
28	2019-06-07T13:44:39	2019-06-07T14:10:17	Code Enforcement	35.2486288	-106.7334491	648 Vancouver Rd SE, Rio Rancho, NM 87124	People are using the parking lot for a dump site. There are large unwanted couches and miscellaneous items that people are just dumping there. It just keeps getting worse. That stuff needs to be removed its attracting rodents and who knows what else.	Duplicate	Jerry Ortiz
29	2019-06-07T12:18:40	2019-06-10T15:15:52	Environmental Concerns	35.3602564	-106.6822658	2853 La Luz Cir NE, Rio Rancho, NM 87144	Abrazo contractors dumping concrete waste at ajacent property, loose nails all over property, trash all over both properties and blowing down the street.	Closed	Xavier Pettes
30	2019-06-07T10:11:50	2019-06-13T11:55:58	Illegal Dumping	35.3389429	-106.60613	Caldera, Rio Rancho, NM 87144	Illegally dumped dishwasher	Closed	Koryn Misbach
31	2019-06-05T15:07:19	2019-06-13T11:57:44	Illegal Dumping	35.2324384	-106.7197653	818 14th St SW, Rio Rancho, NM 87124	It is located between 15th Ave and Hopi, on the east side of Villa Rd. There is a small dirt road to the trash. Large amounts of yard waste with/in plastic bags. Too much for our trash can.	Closed	Koryn Misbach
32	2019-06-05T10:55:38	2019-08-08T16:38:40	Code Enforcement	35.2950406	-106.7164381	2161 High Desert Cir NE, Rio Rancho, NM 87144	Couch stored in front of house.	Closed	David Branch
33	2019-06-05T10:42:17	2019-06-25T08:18:28	Illegal Dumping	35.3162792	-106.6047548	6409 Nacelle Rd NE, Rio Rancho, NM 87144	Cmu wall and footings never removed. Has been left behind house for months.	Closed	Jason Gallegos
34	2019-06-04T16:42:25	2019-08-02T12:19:54	Code Enforcement	35.2464545	-106.7376773	701 Sunflower Dr SW, Rio Rancho, NM 87124	Complainant Linda Richardson (505) 440-8286 states there is trash and debris all over the property.	Closed	Jimmy Chavez
35	2019-06-03T13:28:25	2019-06-11T08:04:12	Illegal Dumping	35.2583673	-106.7166015	50 10th Ave SW, Rio Rancho, NM 87124	mattress and box spring on left side of idalia and 10th street	Closed	Gloria Sosa
36	2019-06-01T12:22:58	2019-06-11T08:03:09	Illegal Dumping	35.2938269	-106.6469693	Kim Rd NE, Rio Rancho, NM 87144	Household trash dump.	Closed	Gloria Sosa
37	2019-05-31T10:29:09	2019-06-25T07:46:15	Code Enforcement	35.2517803	-106.6501081	333 Rio Rancho Blvd SE, Rio Rancho, NM 87124	Complainant Ryan Jarrett is states the Bank of America location next to Target 4201 Crestview Dr SE, Rio Rancho, NM 87124 is abandon and person(s) unknown are dumping their trash in and around the dumpsters. He is concerned because he saw mice there when pulling money from the ATM which is still operational. I made contact with Waste Management 860-290-1250 who was going to try and reach the RP follow up on the bin removal. please follow up on this.	Closed	Jimmy Chavez
38	2019-05-30T22:37:21	2019-05-31T09:13:45	Code Enforcement	35.2496769	-106.7051974	1640 Pegasus Ave SE, Rio Rancho, NM 87124	I have lived at my house for 5 1/2 years so far and the neighbor behind me has not done one thing to clear his backyard up. There's weeds and debris and no back door to his garage. This is a fire hazard to the property and especially to me. I have complained three or four times already and it seems to be going nowhere. Please help! Please keep this private!	Closed	Amanda Hogge

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
39	2019-05-30T18:49:21	2019-05-31T08:54:33	Code Enforcement	35.2334037	-106.6634455	1407 Margie Ct SE, Rio Rancho, NM 87124	The wood fence that backs Sara has fallen down. As a result, you can see in the backyard of this house. It looks like hoarders possibly live there. The backyard is FULL of junk and weeds. I worry someone in the house may have some mental health issues going on also.	Closed	Sherrie Rice
40	2019-05-30T14:14:28	2019-06-04T11:02:20	Code Enforcement	35.2375034	-106.6602403	1201 Bertha Rd SE, Rio Rancho, NM 87124	Anonymous complaint at 1201 Bertha Road SE in reference to a couch in front of the curb and easement for 2 weeks. No other information or call back.	Closed	David Branch
41	2019-05-30T08:29:44	2019-06-05T08:05:09	Code Enforcement	35.2514325	-106.7004525	313 Geraldine Loop SE, Rio Rancho, NM 87124	Anonymous complaint 313 Geraldine Loop SE by Apt. building 313 (4 plex) in reference to garbage, debris, couches etc. next to the building. Complainant states last week the kids lit the debris on fire and the fire dept. was called to extinguish it. No other information.	Closed	Jimmy Chavez
42	2019-05-29T11:52:36	2019-06-04T07:12:47	Illegal Dumping	35.2928439	-106.592156	2125 Butte Way NE, Rio Rancho, NM 87144	Patio umbrella as been on street for a few days. I dragged it near the sidewalk	Closed	Gloria Sosa
43	2019-05-24T13:19:51	2019-08-08T16:33:00	Code Enforcement	35.24051	-106.6507525	1010 Meadowlark Ct SE, Rio Rancho, NM 87124	My complaint is about 1010 Meadowlark CT SE. There are appliances on the side of the building, weeds out of control in front, and now a basketball hoop laying on its side by the mailboxes. Ironically, the so called ' maintenance people' live in that building. Since they have moved in, that building has become an eyesore, and it gets worse and worse as time goes by. Thank you in advance for your help.	Closed	David Branch
44	2019-05-17T13:11:19	2019-05-20T09:23:41	Illegal Dumping	35.2643099	-106.6302418	431 Pat D'Arco Hwy, Rio Rancho, NM 87124	There are two extremely long steel beams that have been sitting off to the side on 528 and Alberta Street, for several months. They were dropped there obviously as trash. I was wondering if the city could please remove them?	Closed	Koryn Misbach
45	2019-05-17T09:56:34	2019-06-03T15:58:58	Code Enforcement	35.257393	-106.6724075	196 Greenock Dr SE, Rio Rancho, NM 87124	5-17-19 Good morning, I live in the Gleneagle Division here in Rio Rancho. There is a home at 196 Greenock, that continuously collects pieces of metal in the driveway. Along with the accumulation there is a BACKHOE, Is it possible to have someone from code enforcement, address this ASAP. It started out with the ironwork, IN the garage, it now is spilling out into the neighbor's yard. It is unacceptable, and an eyesore. It seems the owner, is running a ironwork business from his home.as you can hear the sound of machines,different times of day and evening Is he licensed to do this? Your helping this matter, will be greatly appreciated. Angela H# 505-896-1861	Closed	Amanda Hogge
46	2019-05-16T12:05:24	2019-05-21T09:05:32	Illegal Dumping	35.320675	-106.722557	661 Playful Meadows Dr, Rio Rancho, NM 87144	Tree removed and dragged to the Mesa behind home. Evidence is visible on the street and shows where the tree was taken.	Closed	Koryn Misbach
47	2019-05-16T09:28:44	2019-06-03T11:22:09	Code Enforcement	35.2507924	-106.6996694	300 Geraldine Loop SE, Rio Rancho, NM 87124	There is a growing pile of discarded mattresses, a couch and other various items piling up. It has been there for some time and now appears to be an infested play ground for the kids nearby. Please help!	Closed	Jimmy Chavez
48	2019-05-15T08:01:14	2019-06-03T11:21:30	Code Enforcement	35.2424316	-106.7168988	924 Spur Rd SE, Rio Rancho, NM 87124	large bed parts or other type of structure in front of property for weeks	Closed	Jimmy Chavez
49	2019-05-15T05:29:55	2019-05-29T14:10:12	Code Enforcement	35.2419967	-106.7198243	793 Spur Rd SE, Rio Rancho, NM 87124	junk on curb ,	Closed	Jimmy Chavez
50	2019-05-15T05:22:35	2019-05-29T14:11:27	Code Enforcement	35.2420352	-106.7191102	821 Spur Rd SE, Rio Rancho, NM 87124	water heater ,stove , micro waves and other miscellaneous junk on front of home on curb. It has been there for over 3 weeks, It is becoming a regular issue and a nuisance to the neighborhood	Closed	Jimmy Chavez

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
51	2019-05-13T13:10:12	2019-06-21T15:11:42	Code Enforcement	35.252712	-106.6547594	221 Maple Ct SE, Rio Rancho, NM 87124	Police dispatcher Amanda left a voice mail 05/13/19 stating at 221 Maple Ct SE, The Sergeant requested Code Enforcement to check on the home in reference to garbage, inoperable vehicles and debris. No other information on Requesting Sgt Etc.,	Closed	Sherrie Rice
52	2019-05-12T10:36:37	2019-05-15T10:04:02	Illegal Dumping	35.3427506	-106.615352	5917 Chaco Loop NE, Rio Rancho, NM 87144	Dumping	Closed	Koryn Misbach
53	2019-05-10T11:47:46	2019-05-23T12:01:06	Code Enforcement	35.2837455	-106.6996233	1504 Cherry Rd NE, Rio Rancho, NM 87144	anonymous complaint North Hills Mini Mart has mattresses behind the building along with debris and garbage by where the dumpster used to be placed. There is a large for lease property sign on the front of the establishment on information on who is responsible for this property.	Closed	David Branch
54	2019-05-09T15:41:08	2019-05-17T13:51:29	Code Enforcement	35.2550247	-106.7224173	801 Tulip Rd SE, Rio Rancho, NM 87124	Anonymous complaint in reference to 115 Arizona Sunset Road NE. thrown mattresses, weeds and the smell of accumulated dog feces. He wanted no contact.	Closed	Jimmy Chavez
55	2019-05-08T14:06:25	2019-05-09T16:19:52	Code Enforcement	35.3444171	-106.5953368	6917 Merlot Dr NE, Rio Rancho, NM 87144	6917 Merlot has lots of trash and weeds (	Closed	Amanda Hogge
56	2019-05-07T11:33:39	2019-06-03T11:23:42	Code Enforcement	35.2422761	-106.7406722	828 2nd St SW, Rio Rancho, NM 87124	Anonymous complaint in reference to 828 2nd Street SW of an accumulation of bagged garbage in a trailer and in the rear bed of a truck at this address. Complainant stated they have not been using Waste Management containers for some time and they are storing the trash. In addition at 832 2nd Street SW same issue with trailer piled with trash.	Closed	Jimmy Chavez
57	2019-05-06T14:53:50	2019-05-16T06:51:45	Code Enforcement	35.2544359	-106.7063491	325 Eaton Rd SE, Rio Rancho, NM 87124	2019 6May, at 325 Eaton there is a large trash pick-up container that has been sitting in the driveway full for at least 4 months. As you can see trash is blowing out of it and littering the neighborhood. It is also stacked up against the house in the entryway.	Closed	Jimmy Chavez
58	2019-05-06T14:49:51	2019-05-28T14:38:34	Code Enforcement	35.2549108	-106.7118253	1180 Sugar Rd SE, Rio Rancho, NM 87124	2019 6May, at 1180 Sugar there is trash in front of the garage and house.	Closed	Jimmy Chavez
59	2019-05-03T13:05:05	2019-06-03T11:19:56	Code Enforcement	35.2475604	-106.722684	660 Baltic Way SE, Rio Rancho, NM 87124	Complainant Gut Rogers states his neighbor at 660 Baltic has large weeds by their shared wall and a yard full of debris (see attached picture). He would like this issue investigated. The complainant resides at 345 Vancouver and can be reached at 891-5259 for follow up in RR Utilities.	Closed	Jimmy Chavez
60	2019-05-01T13:55:24		Illegal Dumping	35.2496977	-106.7233264	475 Bermuda Dr SE, Rio Rancho, NM 87124	Juris Odins called to report yard waste dumped along Arkansas and resident wall. Please follow up with resident regarding any questions or concerns. He can be reached at 575-590-1336.	In Process	Jason Gallegos
61	2019-05-01T10:15:19	2019-05-07T08:07:48	Illegal Dumping	35.2544158	-106.6983175	210 19th St SE, Rio Rancho, NM 87124	On 19th Street SE between 2nd St SE and 5th St SE there is a pile of trash laying in the middle of the roadway. Received as a phone call, entered in by PW.	Closed	Gloria Sosa
62	2019-04-29T13:51:02	2019-05-03T08:49:54	Code Enforcement	35.2599189	-106.6473375	205 Moonstone Dr NE, Rio Rancho, NM 87124	Complainant David 505 507-8005 stating on Asbury and Sundt there is a toilet in the yard that has been there a month. In addition at 348 Asbury There is a mattress thrown in the yard. He would like these issues investigated.	Closed	Sherrie Rice
63	2019-04-27T11:28:10	2019-05-28T14:15:12	Code Enforcement	35.24654	-106.7205845	692 Pecos Loop SE, Rio Rancho, NM 87124	sofa in front of home on curb for weeks and cushions thrown around in front of home	Closed	Jimmy Chavez
64	2019-04-27T10:04:11	2019-05-20T15:01:01	Illegal Dumping	35.2571584	-106.7204888	5108 Onies Ct NE, Rio Rancho, NM 87144	Trash, furniture, toys	Closed	Koryn Misbach
65	2019-04-25T10:39:17	2019-04-30T10:39:55	Illegal Dumping	35.3338654	-106.5888672	7097 Albany Hills Dr NE, Rio Rancho, NM 87144	drywall on walkside near to Enchantment Hills Blvd.	Closed	Gloria Sosa
66	2019-04-24T14:39:51	2019-04-30T10:42:10	Illegal Dumping	35.2514895	-106.7463183	113 Hondo Rd SW, Rio Rancho, NM 87124	Large TV dumped on roadway	Closed	Gloria Sosa
67	2019-04-24T13:51:39	2019-04-30T10:40:24	Illegal Dumping	35.2610914	-106.7187607	905 Crown Ct NE, Rio Rancho, NM 87124	Furniture was dumped along 9th ST	Closed	Gloria Sosa
68	2019-04-24T11:05:41	2019-05-15T15:01:11	Code Enforcement	35.2941161	-106.5905658	2300 Manzano Loop NE, Rio Rancho, NM 87144	fence falling down. side back yard structure falling down	Closed	Amanda Hogge

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
69	2019-04-24T08:32:31	2019-05-02T16:03:00	Code Enforcement	35.3317315	-106.5896449	7204 Syr Ct NE, Rio Rancho, NM 87144	Complainant Glenn R. Greene left a letter on April 22, 2019 as followed: This letter is concerning 7204 Syr Ct NE in Enchanted Hills. Osmond Orozzco who recently finished an add on to his house. The debris from this project has been piled up against my fence on the side of my yard at 7200 Syr Court. It is also being stacked against the wall on the other side of the property. This debris is an eyesore and is drawing rodents to our property and neighborhood. This pile of trash has been growing over the last month and none of it has been removed from their property. In addition, the wind is blowing this debris all over the neighborhood. Also the neighbors have built a covered patio so tall that is now blocking our view to the Sandia Mountains and this structure was never permitted by the City of Rio Rancho. Please have someone look into this as soon as possible and please contact us with your findings	Closed	Amanda Hogge
70	2019-04-23T09:10:31	2019-04-25T13:33:38	Illegal Dumping	35.3323575	-106.5808902	4501 Fulcrum Way NE, Rio Rancho, NM 87144	Open area near Home Depot is having a lot of illegal dumping. Can someone please clean it up? It's on 550 & Safelight Blvd.	Closed	Koryn Misbach
71	2019-04-22T11:35:32	2019-04-30T13:30:15	Code Enforcement	35.2428216	-106.7073626	1391 Tahoe Ct SE, Rio Rancho, NM 87124	Unknown Complainant stated via voice mail message in reference to garbage/Garbage cans at this address.	Closed	Jimmy Chavez
72	2019-04-19T11:05:55	2019-04-29T10:41:12	Code Enforcement	35.2725271	-106.640252	840 Amethyst Dr NE, Rio Rancho, NM 87124	owners moved out left some stuff in front chairs etc	Closed	Sherrie Rice
73	2019-04-18T14:02:47	2019-04-19T14:03:23	Code Enforcement	35.242244	-106.688981	842 Lariat Rd SE, Rio Rancho, NM 87124	Dumpster behind baskin robbins - illegal dumping matress and furniture, homeless guy sleeping on it. reported 3 weeks back with no action, called non emergency today, trash behind mall inviting the homeless. way to go Rio Rancho!	Closed	Sherrie Rice
74	2019-04-17T17:50:52	2019-05-02T13:29:13	Code Enforcement	35.254896	-106.7086986	245 Tarpon Ave SE, Rio Rancho, NM 87124	In the last two weeks, someone has emptied the contents of the abandoned house in the backyard into large piles. Trash has blown around the neighborhood, due to high winds last week and a backyard not contained by a fence. I am also concerned about it being a health hazard as well as litter and being unsightly. People have come by to put up a for sale sign and such, but, have not touched the trash.	Closed	Jimmy Chavez
75	2019-04-16T11:11:54	2019-04-22T14:54:30	Illegal Dumping	35.2815483	-106.7185343	770 Loma Pinon Loop, Rio Rancho, NM 87144	Someone has dumped a mattress on the side of Elk Road between 8th and 10th Ave at approximate location cited. Tried calling the city roads department but no answer. Not sure who has responsibility to clean this up since it's not a paved road. Hoping to get it hauled off. Thanks much. If you need to reach me, my cell is (314)766-3812	Closed	Gloria Sosa
76	2019-04-16T11:03:09	2019-04-25T13:33:54	Illegal Dumping	35.3341647	-106.5821453	4501 Safelite Blvd NE, Rio Rancho, NM 87144	dumped outdoor chairs and others	Closed	Koryn Misbach
77	2019-04-16T11:01:02	2019-04-25T13:34:10	Illegal Dumping	35.3345817	-106.5824989	4501 Safelite Blvd NE, Rio Rancho, NM 87144	dumped ice box and grill	Closed	Koryn Misbach
78	2019-04-15T11:13:40	2019-05-02T16:13:52	Code Enforcement	35.2710063	-106.6312833	816 Acapulco Rd NE, Rio Rancho, NM 87144	They no longer have trash pick up and have a cart full of garbage, broken windows and trash hanging from the trees	Closed	Amanda Hogge
79	2019-04-15T09:00:15	2019-04-25T13:34:25	Illegal Dumping	35.3426815	-106.6767962	Bulawayo Rd NE, Rio Rancho, NM 87144	household debris scattered on north side of Bulawayo Road, east side of Unser.	Closed	Koryn Misbach
80	2019-04-14T17:09:31	2019-04-22T14:54:57	Illegal Dumping	35.2950901	-106.6569001	Kaiser Rd NE, Rio Rancho, NM 87144	Suitcase and garbage	Closed	Gloria Sosa
81	2019-04-08T16:20:25	2019-04-25T07:07:05	Illegal Dumping	35.2601884	-106.7225295	5704 Rio Lama Rd NE, Rio Rancho, NM 87144	True white plastic garbage bags on seventh Street and cross the street that goes to 8th St., South of fifth Avenue the bags of salt next to large chunk of been here a long time	Closed	Koryn Misbach
82	2019-04-06T18:42:28	2019-04-15T10:42:40	Illegal Dumping	35.245268	-106.738598	785 Orchid Dr SW, Rio Rancho, NM 87124	TV dumped and being destroyed daily by kids.	Closed	Koryn Misbach
83	2019-04-03T14:57:19	2019-04-18T09:48:42	Code Enforcement	35.2647269	-106.6381796	4908 Turquoise Dr NE, Rio Rancho, NM 87124	The owner will cut tree limbs, weeds etc and pile them in the front yard, when the wind blows they constantly blow into my yard. On going issue. Currently have her tree debris in my yard now.	Closed	Sherrie Rice
84	2019-04-01T18:44:47	2019-04-19T15:26:08	Code Enforcement	35.2707957	-106.6374428	730 Uranium Dr NE, Rio Rancho, NM 87124	Homeowner does not keep property free of trash/recycling	Closed	Sherrie Rice
85	2019-04-01T17:35:57	2019-04-25T13:32:57	Illegal Dumping	35.2637897	-106.7051973	1611 Tulip Rd SE, Rio Rancho, NM 87124	illegal dumping on unmaintained portion of Idalia. this seems to be a common practice.	Closed	Koryn Misbach

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
86	2019-04-01T13:37:05	2019-04-10T08:59:31	Code Enforcement	35.2335463	-106.6921147	1372 Reynosa Loop SE, Rio Rancho, NM 87124	Trash piled on w side of property at 1372 Reynosa Lp	Closed	Jerry Ortiz
87	2019-04-01T13:14:19	2019-04-02T08:15:12	Code Enforcement	35.2546829	-106.7085834	255 Tarpon Ave SE, Rio Rancho, NM 87124	At 255 Tarpon, there is a collection of trash, weeds & broken branches. A boat that is never moved and should be covered along with a brown van with expired plates.	Duplicate	Jimmy Chavez
88	2019-04-01T08:30:40	2019-04-09T13:18:28	Illegal Dumping	35.2721507	-106.7361569	816 Rainbow Blvd NE, Rio Rancho, NM 87124	Large tub of garbage dumped at corner of 7th ST NE and Sandia Blvd. Area is not maintained by the City.	Closed	Koryn Misbach
89	2019-03-28T20:14:28	2019-04-18T13:04:24	Code Enforcement	35.2565944	-106.7067177	150 Eaton Rd SE, Rio Rancho, NM 87124	At 150 Eaton there is a living room chair sitting in the yard on the north side of the house.	Closed	Jimmy Chavez
90	2019-03-28T20:08:36		Code Enforcement	35.2516478	-106.7077772	500 Lisbon Ave SE, Rio Rancho, NM 87124	500 Lisbon has large broken tree limbs littering the front yard as well as the top shingling of a shed hanging half off the shed into the front yard.	In Process	Jimmy Chavez
91	2019-03-28T19:53:28	2019-06-25T07:43:53	Code Enforcement	35.252243	-106.7059572	450 Tarpon Ave SE, Rio Rancho, NM 87124	450 Tarpon has a bunch of trash on the south side of the house.	Closed	Jimmy Chavez
92	2019-03-27T16:24:14	2019-04-18T12:58:45	Code Enforcement	35.2532954	-106.7085143	345 Tarpon Ave SE, Rio Rancho, NM 87124	There has been a kitchen utility like perhaps a white stove or washing machine sitting out in the front of the house for about a week now.	Closed	Jimmy Chavez
93	2019-03-27T15:05:15	2019-04-02T16:04:30	Code Enforcement	35.2710063	-106.6312833	816 Acapulco Rd NE, Rio Rancho, NM 87144	There is a huge pile of trash bags full of garbage judging by the smell. The odor can be picked up in the.street znd blows in tbrough my windows at night. It is obviously rotten gatbage in all those bags and should not be kept on tje side of house. It should be thrown away.	Closed	Amanda Hogge
94	2019-03-27T11:56:51	2019-03-27T15:10:50	Environmental Concerns	35.3381783	-106.5986707	6944 Albany Hills Dr NE, Rio Rancho, NM 87144	Neighbor is doing Mechanic job to his car, on the street and he driveway. I was working whit my dogs and notice in the sidewalk and street is a mix of water and oil. Good thing my dogs advised me about it. I don't know much about Rio Rancho Regulation it is hard to contact the correct city offices to find solution. I called no emergency number, they did not have any idea how to handle the situation, she transfer me to city code but nobody answers. I will appreciate any solution in this case. Thank you.	Closed	Xavier Pettes
95	2019-03-26T15:02:28	2019-03-27T10:39:52	Illegal Dumping	35.3424501	-106.5956989	6944 Angela Dr NE, Rio Rancho, NM 87144	Citizen stated that the parkway area was cleaned by the city of Rio Rancho over a month ago, but that someone cleaned the backyard of an empty house that was up for sale, and that they just threw over the tree limbs and bushes over the fence. She would like to get it picked up.	Closed	Charles Fernandez
96	2019-03-25T14:55:10	2019-06-12T15:32:43	Code Enforcement	35.2522138	-106.6854815	340 Littler Dr SE, Rio Rancho, NM 87124	debris over property, also truck with flat tires	Closed	Sherrie Rice
97	2019-03-21T15:22:17	2019-05-02T13:27:20	Code Enforcement	35.254896	-106.7086986	245 Tarpon Ave SE, Rio Rancho, NM 87124	At 245 Tarpon there has been piles of trash in the back yard visible from the road for several weeks now.	Closed	Jimmy Chavez
98	2019-03-20T08:44:06	2019-05-16T15:49:27	Code Enforcement	35.3502469	-106.6055303	6321 Vaughn Dr NE, Rio Rancho, NM 87144	I have put in many complaints about my neighbors yard condition and though there has been slight improvement, there continues to be concerns for environmental conditions. She moved some of the trash to where a person can't see it from the street, but living next to her, I am able to see all the trash. My child plays outside often and our houses are very close together and I am concerned about the number of rodents her neglect of her environment has caused. She has abandoned the house and left a dumb in her backyard. Pls address this!	Closed	Amanda Hogge
99	2019-03-19T14:28:56	2019-03-19T15:40:09	Environmental Concerns	35.2508302	-106.7411355	417 2nd St SW, Rio Rancho, NM 87124	there are drug addicts living in this vacant bank owned property and as I was picking up my children from the bus stop located at the corner of 2nd and 4th street, the wind would blow and you could smell a terrible overwhelming stench of fecal matter. there is no functioning utilities at said residence and I could imagine how it will be in the summer when it is warm. something needs to be done it's a hazard.	Duplicate	Jerry Ortiz
100	2019-03-19T13:31:38	2019-04-18T12:50:38	Environmental Concerns	35.2459722	-106.7328396	222 Timor Rd SE, Rio Rancho, NM 87124	junk everywhere.	Closed	Jimmy Chavez

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
101	2019-03-19T10:07:35	2019-04-02T11:06:52	Code Enforcement	35.2844138	-106.7037934	1634 Perma Dr NE, Rio Rancho, NM 87144	in the common ground between 1630 & 1634 Perma Dr NE it can't be missed. How can a case be dismissed when it wasn't properly checked out? We have sent pictures & video. I would be happy to physically show someone if they would take the time to ask. This is a repeated problem & needs to be addressed. Thank you	Closed	David Branch
102	2019-03-18T14:49:23	2019-05-03T09:19:17	Environmental Concerns	35.2508163	-106.7411598	417 2nd St SW, Rio Rancho, NM 87124	there has been no water at this address for about a year and a half. The owner's girlfriend continues to squat even though he has been gone for 6 months. If there's no water how does she dispose of her waste? You need water to flush the toilets.	Closed	Jimmy Chavez
103	2019-03-18T13:10:02	2019-03-22T15:33:05	Illegal Dumping	35.2878696	-106.7025161	1684 Hollyberry Ct NE, Rio Rancho, NM 87144	Couch and love seat	Closed	Koryn Misbach
104	2019-03-14T22:17:36	2019-03-19T08:08:41	Code Enforcement	35.2394864	-106.6485419	5 Rancho W Dr SE, Rio Rancho, NM 87124	Can you have the people living in that mobile home depose of their couches correctly? They have been sitting out there for at least three weeks and it's making this mobile home park look dirty and slumming. I am tired of passing by there every morning and seeing that they are still there.	Closed	Jerry Ortiz
105	2019-03-14T15:31:44	2019-03-20T13:43:42	Code Enforcement	35.2544359	-106.7063491	325 Eaton Rd SE, Rio Rancho, NM 87124	This dumpster has been sitting here for at least a couple of months full.	Closed	Jimmy Chavez
106	2019-03-14T11:57:39	2019-03-14T12:02:33	Code Enforcement	35.305386	-106.7054331	2293 Dawson Dr Northeast, Rio Rancho, NM 87144	cp. wants to remain anonymous, trailer full of trash in front and loose stuff. also back yard full of debris.	Closed	David Branch
107	2019-03-14T10:13:44	2019-03-14T15:49:40	Code Enforcement	35.2450662	-106.6432916	4709 La Pacana Ct SE, Rio Rancho, NM 87124	neighbor behind putting up new fence states these people have a lot of metal and batteries etc in back yard.	Closed	Jerry Ortiz
108	2019-03-12T15:17:43		Environmental Concerns	35.2768847	-106.6829657	1854 Goldenflare Loop NE, Rio Rancho, NM 87144	The construction blocked the natural flow of flood water. It is causing people to swirve to avoid the flood waters on an already tight and dangerous road. Please make the construction let water drain. Tis is my second complaint about this issue and I am annoyed it is t being resolved!!	In Process	Gloria Sosa
109	2019-03-10T11:19:31	2019-03-22T15:32:36	Illegal Dumping	35.307739	-106.6368158	Paseo Del Volcan, Rio Rancho, NM 87144	Sofa, loveseat & chair dumped at underpass of Paseo Del Vulcan at the end of Camino Encantada Road.	Closed	Koryn Misbach
110	2019-03-09T20:44:26	2019-03-15T11:22:46	Illegal Dumping	35.3244573	-106.6738866	Mint Rd NE, Albuquerque, NM 87122	Household trash and automotive parts and chemicals. Old vacuum cleaner, misc junk.	Closed	Koryn Misbach
111	2019-03-09T15:09:34	2019-03-12T14:09:55	Code Enforcement	35.2565944	-106.7067177	150 Eaton Rd SE, Rio Rancho, NM 87124	Cinder block is stacked up next to the road on this property.	Closed	Jimmy Chavez
112	2019-03-09T11:44:05	2019-03-16T07:04:30	Illegal Dumping	35.323898	-106.5913946	3965 Mountain Trail Loop, Rio Rancho, NM 87144	Large pick-up bed cover dumped at intersection of Kodiak and Camino Encantada.	Closed	Koryn Misbach
113	2019-03-07T13:15:16	2019-04-02T16:24:49	Code Enforcement	35.2923431	-106.5905446	2123 Rivers Edge Dr NE, Rio Rancho, NM 87144	"finish cleaning up the easement area, starting at the corner of Corrales Rd and Grande Vista, and continuing a few blocks north on Grande Vista, in River's Edge One. I have attached photos to show you parts of what was left after the new wall was erected. There is crushed vegetation, piles of dirt, broken brick, flags and marking sticks, and sand pits. The wall was nicely constructed, but I think a clean up is required. " Can you review the photographs and condition of the right of way abutting the new wall constructed on Grande Vista Road, and see if the contractor adequately policed and cleaned up the site after construction. Or perhaps, the landscaping or maintenance contractor for Extra Space Storage could pick up the construction debris.	Closed	Amanda Hogge
114	2019-03-06T12:18:21	2019-03-19T09:57:31	Code Enforcement	35.3191344	-106.7148833	3648 Clear Creek Rd, Rio Rancho, NM 87144	Anonymous Complainant Lori (602) 619-8188 states she is trying to sell her home and her neighbor at 3648 Clear Creek Road has a vehicle tire on the side of their home causing her concern.	Closed	David Branch
115	2019-03-04T22:40:02	2019-03-20T13:59:31	Code Enforcement	35.2553249	-106.706257	250 Eaton Rd SE, Rio Rancho, NM 87124	At 250 Eaton there are tumble weeds and an upturned table sitting next to the driveway.	Closed	Jimmy Chavez
116	2019-03-04T22:33:59	2019-04-02T11:37:52	Code Enforcement	35.2557224	-106.7063952	230 Eaton Rd SE, Rio Rancho, NM 87124	At 230 Eaton, there is a iron door leaning against the north side of the house along with wood and other trash.	Closed	Jimmy Chavez

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
117	2019-03-01T20:09:31	2019-03-12T13:22:35	Code Enforcement	35.2520089	-106.7084682	525 Lisbon Ave SE, Rio Rancho, NM 87124	On 2019 1March, there are wooden pallets, construction road cones, a downed cyclone fence, a down large yucca and many weeds and other junk on the property some next to garage and house.	Closed	Jimmy Chavez
118	2019-03-01T19:50:11	2019-03-28T06:46:18	Code Enforcement	35.2568785	-106.7088368	160 Tarpon Ave SE, Rio Rancho, NM 87124	On 2019 1March, I appears that two hot water heaters are sitting out in the driveway in front of the garage.	Closed	Jimmy Chavez
119	2019-03-01T11:46:17	2019-03-20T15:59:43	Code Enforcement	35.2704981	-106.6368901	718 Uranium Dr NE, Rio Rancho, NM 87124	Toilet trash on the side of the home.	Closed	Sherrie Rice
120	2019-03-01T11:09:56	2019-03-18T15:44:33	Code Enforcement	35.2422605	-106.6889197	842 Lariat Rd SE, Rio Rancho, NM 87124	Lariat and Buckboard, excessive amount of trash outside dumpster! Including mattresses that have been illegally dumped! I can't believe the individuals who rent their space can not make the request as they smoke on the back side of the building! They leave it up to the residence who live and have to drive by this mess every day embarrassed because it makes the neighborhood look trashy! Clean it up or contact owner of strip mall to do it and take care of this mess! Put a flippin' sign that says surveillance around the big dumpsters so these low lives quick dumping their crap!!!	Closed	Sherrie Rice
121	2019-02-27T09:44:04	2019-03-12T08:50:24	Code Enforcement	35.3347236	-106.591139	7081 Albany Hills Dr NE, Rio Rancho, NM 87144	My name is JoAnn Beuerle and my neighbor's renters just moved out and left this mess. This stuff has been on the curb since Monday, February 25, 2019, and the renters left the state. How long does this trash have to stay on the curb before something can be done. No one on the block has the contact information for the owner. The address is 7092 Albany Hills CT NE in Enchanted Hills.	Closed	Amanda Hogge
122	2019-02-26T17:50:25	2019-03-19T09:29:05	Code Enforcement	35.3579318	-106.6793091	2200 Patchogue Rd NE, Rio Rancho, NM 87144	At the address provided 2200 Pathogue Road, Rio Rancho 87144, the homeowner had had several items dumped at the end of his driveway for no fewer than 3 months. Two metal rusted cabinets, a 25 gallon water heater and one other metal item. I witnessed him putting them out. He initially had dumped them across the street from his driveway, but moved them to the end of his driveway about a month ago. He seems to be adding to the pile, which is unsightly and illegal.	Closed	David Branch
123	2019-02-26T14:45:56	2019-03-11T07:43:29	Illegal Dumping	35.3403592	-106.6198889	Chopin Rd NE, Rio Rancho, NM 87144	Complainant Dave Dent (505) 934-8204 would like contact in reference to illegal dumping in unit 20 at Chopin & McCarthy Road in the City Right Away. Various debris, carpets etc.	Closed	Gloria Sosa
124	2019-02-26T13:44:37	2019-02-27T12:32:52	Illegal Dumping	35.2468414	-106.699428	624 Applewood Park Dr SE, Rio Rancho, NM 87124	Mattress dumped on sidewalk.	Closed	Gloria Sosa
125	2019-02-21T15:02:54	2019-03-18T15:34:56	Code Enforcement	35.2605475	-106.6522954	300 Asbury Rd NE, Rio Rancho, NM 87124	Complainant Michael @ 306-1537 states his neighbor "Nick" at 300 Asbury continues to use his trash bins and surrounding neighbors trash bins for his garbage since his garbage service has been cut off. They have informed nick to stop doing this however he continues without authorization. There is garbage in the front of 300 Asbury that also needs attention.	Closed	Sherrie Rice
126	2019-02-19T15:41:27	2019-03-19T09:42:48	Code Enforcement	35.3051036	-106.6982679	2846 Solano Del Sol Dr NE, Rio Rancho, NM 87144	The Complainant Claudia Valdez (505) 508-7843 states her neighbor at 2846 Solano Del Sol Dr. NE, allows her garbage bins to overflow causing debris from her bins onto the complainants property. The complainant is frustrated that she has to pick up their garbage on a regular basis. Would like this issue investigated.	Closed	David Branch
127	2019-02-19T12:40:31	2019-02-20T10:52:41	Illegal Dumping	35.2581304	-106.7227793	816 Rainbow Blvd NE, Rio Rancho, NM 87124	Citizen stated there was a mattress and heavy card board tubes that were dumped on the dirt road. Area mentioned is not a maintained roadway. Called received and entered at SROW.	Closed	Koryn Misbach
128	2019-02-19T11:58:53	2019-02-19T13:56:14	Code Enforcement	35.245439	-106.6492327	701 San Juan De Rio Dr SE, Rio Rancho, NM 87124	Anonymous complaint concerned about the neighborhood looking trashy with debris along sides of homes in the area. Would like Code Enforcement to follow up in this area and surrounding areas in Corrales Heights. She stated she would be reporting more homes in the neighborhood that need attention.	Closed	Jerry Ortiz

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No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
129	2019-02-19T11:57:12	2019-02-19T13:56:48	Code Enforcement	35.2478719	-106.6491406	600 Rincon De Romos Dr SE, Rio Rancho, NM 87124	Anonymous complaint concerned about the neighborhood looking trashy with debris along sides of homes in the area. Would like Code Enforcement to follow up in this area and surrounding areas in Corrales Heights. She stated she would be reporting more homes in the neighborhood that need attention.	Closed	Jerry Ortiz
130	2019-02-19T11:44:51	2019-02-19T13:57:31	Code Enforcement	35.2460833	-106.6522839	4109 Las Casas Ct SE, Rio Rancho, NM 87124	Anonymous complaint concerned about the neighborhood looking trashy with debris along sides of homes in the area. Would like Code Enforcement to follow up in this area and surrounding areas in Corrales Heights. She stated she would be reporting more homes in the neighborhood that need attention.	Closed	Jerry Ortiz
131	2019-02-19T11:43:51	2019-02-19T13:58:01	Code Enforcement	35.2462103	-106.6526408	4107 Las Casas Ct SE, Rio Rancho, NM 87124	Anonymous complaint concerned about the neighborhood looking trashy with debris along sides of homes in the area. Would like Code Enforcement to follow up in this area and surrounding areas in Corrales Heights. She stated she would be reporting more homes in the neighborhood that need attention.	Closed	Jerry Ortiz
132	2019-02-18T17:22:53	2019-03-12T14:29:27	Code Enforcement	35.2480092	-106.6767943	2922 Broadmoor Blvd, Rio Rancho, NM 87124	Debris/refrigerator left in front of the residence. The complainant stated its an eyesore that's been there a while.	Closed	Sherrie Rice
133	2019-02-18T06:46:18	2019-02-28T16:43:43	Illegal Dumping	35.255418	-106.7228966	612 Inca Rd SE, Rio Rancho, NM 87124	1 mattress dumped along Idalia.	Closed	Gloria Sosa
134	2019-02-18T06:15:28	2019-02-28T16:42:57	Illegal Dumping	35.2579946	-106.7225218	816 Rainbow Blvd NE, Rio Rancho, NM 87124	2 mattresses dumped along Sandia Blvd.	Closed	Gloria Sosa
135	2019-02-11T13:17:33	2019-02-12T15:21:43	Code Enforcement	35.2621822	-106.7185113	217 Landing Trail, Rio Rancho, NM 87124	Complainant states his neighbor put all her trash (bins, boxes, paper) in the street and its not trash day. The wind is blowing all the trash etc. throughout the neighborhood.	Closed	Jimmy Chavez
136	2019-02-07T11:25:10	2019-02-22T14:30:39	Code Enforcement	35.2465771	-106.7337956	675 Bhutan Dr SE, Rio Rancho, NM 87124	Carpet waste on the side of the house. It has been there for weeks. The high winds are now blowing the waste around.	Closed	Jimmy Chavez
137	2019-02-05T16:59:55	2019-02-05T17:38:17	Code Enforcement	35.2837252	-106.6997015	1504 Cherry Rd NE, Rio Rancho, NM 87144	Trash has been building up at the closed Store next to the Fire Station. The trash is starting to spread to other nearby areas. Received as a phone call, entered in by PW.	Duplicate	David Branch
138	2019-02-05T13:17:59	2019-02-11T09:05:37	Illegal Dumping	35.2815587	-106.6570687	Loma Colorado Blvd NE, Rio Rancho, NM 87144	Trash dump on Loma Colorado, past Aloe Cir, at bottom of hill on right side.	Closed	Gloria Sosa
139	2019-02-05T10:47:22	2019-03-14T15:39:05	Code Enforcement	35.2551853	-106.6552661	4113 Saddlewood Trail SE, Rio Rancho, NM 87124	Complainant John Ponce (505) 891-5136 called and reported between his house located at 4117 Saddlewood Trail SE & 4113 Saddlewood Trail SE his neighbor has accumulates a large pile of trash between the homes. He would like this followed up on.	Closed	Sherrie Rice
140	2019-02-04T16:29:44	2019-02-12T11:29:03	Code Enforcement	35.2823723	-106.7193406	1506 White Pine Dr, Rio Rancho, NM 87144	Title 10, Chapter 91.02 Debris. Tenants located in 1506 White Pine Dr. Ne, Rio Rancho, 87144 have refrigerator, furniture and junk on the curb. When we got home from vacation on Jan. 5 we saw all this debris on the curb in front of their yard and half on their neighbors to the left. We saw the neighbor on Monday and he told us that he had taken the junk out too late and that the city picks it up on the first Saturday of month, to give the benefit of the doubt, we waited till the 1st Saturday of February and still the annoying trash is out in the street of our beautiful neighborhood. Would appreciate anything you can do to have them remove this annoying debris. Thank you.	Closed	David Branch
141	2019-01-28T16:41:42	2019-04-11T15:18:48	Environmental Concerns	35.2792308	-106.6815608	2061 Solara Loop NE, Rio Rancho, NM 87144	The builders have a water tank at the end of road that they constantly leave leaking!!	Closed	Xavier Pettes
142	2019-01-28T16:01:41	2019-01-30T15:32:35	Code Enforcement	35.2512384	-106.7027098	1715 5th St SE, Rio Rancho, NM 87124	Anonymous phone Complaint at 1715 5th St SE in reference to garbage and a mattress in front of the garage.	Closed	Jimmy Chavez
143	2019-01-28T12:50:59	2019-04-11T16:39:04	Environmental Concerns	35.319752	-106.721077	752 Sunny Meadows Dr, Rio Rancho, NM 87144	Oil leaking from vehicle on the public street. Also visible on drive way	Closed	Xavier Pettes
144	2019-01-27T15:53:42	2019-03-01T15:33:03	Code Enforcement	35.2606049	-106.6964333	101 Prestige Way NE, Rio Rancho, NM 87124	nothing has been done since my first report. Trash still remains and getting worst.	Closed	Sherrie Rice
145	2019-01-26T20:00:01	2019-01-31T16:23:57	Illegal Dumping	35.2963884	-106.6629967	3731 Kaiser Rd NE, Rio Rancho, NM 87144	Illegal dump on Kaiser Road NE and Buckskin Loop NE. Area is on an un-maintained roadway.	Closed	Zachariah Keintz

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No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
146	2019-01-25T13:33:52	2019-01-25T15:15:39	Code Enforcement	35.2569083	-106.6957855	2006 Black Hills Rd NE, Rio Rancho, NM 87124	There is a toilet and mattress and box springs and other assorted junk in the front yard of this house. I have been trying to report this all week. I also emailed the director about it and have not heard back. They have made a small attempt to take some stuff to the dump but the toilet and boxsprings and mattress remain. Please give them a visit.	Closed	Sherrie Rice
147	2019-01-25T12:56:39	2019-01-29T07:34:28	Code Enforcement	35.2479879	-106.7061533	1658 Domain Loop SE, Rio Rancho, NM 87124	Complainant advised there's a couch in the front yard at 1658 Domain Loop SE, along with an inoperable vehicle. No other info.	Closed	Jimmy Chavez
148	2019-01-24T11:29:36	2019-01-28T16:54:17	Code Enforcement	35.2931134	-106.6183086	2100 Peony Ct NE, Rio Rancho, NM 87144	This past weekend we noticed a large pile of cement block and debris dumped on a vacant lot directly across from our house on 2100 Peony Ct NE, in Rio Rancho. The lot is listed for sale and no plans for development are posted. Would it be fair to ask that this material be removed, as we feel it will promote future dumping. Attached is a picture of the pile of debris. I have since placed security cameras around our property.	Closed	Amanda Hogge
149	2019-01-24T10:34:24	2019-01-25T13:45:47	Illegal Dumping	35.3079164	-106.6358199	Paseo Del Volcan, Rio Rancho, NM 87144	Someone dumped a refrigerator on the north end of Paseo del Volcan, just south of the overpass	Closed	Gloria Sosa
150	2019-01-23T07:54:24	2019-01-28T11:35:49	Illegal Dumping	35.2565972	-106.6982585	1805 2nd St SE, Rio Rancho, NM 87124	Unit 11 Only allowed 4 pictures. Whole area needs attention! Why not use our tax money and place WM dump Cans so jerks quit dumping?	Closed	Gloria Sosa
151	2019-01-22T12:17:49	2019-02-26T09:27:46	Code Enforcement	35.256805	-106.695201	2010 Black Hills Rd NE, Rio Rancho, NM 87124	Hi, I've tried a couple of times to report this on the website but it keeps telling me I have to log in even though I have already logged in. My neighbor at 2006 Black Hills has apparently started a renovation at the house. They are tearing the inside out and leaving in the front yard, including a toilet, cabinetry, and some old mattresses. I hope you will send someone out. While I was out taking pictures for report Rio Rancho, he came outside and seemed unconcerned about the mess. During our conversation the neighbor between us came out and had apparently made a deal with another man at the house to clear out the garbage...as soon as he changes the tire on his truck, yeah. I hope it's true, but in the meantime, please have someone drop by. I am attaching pictures, I'm sure your department is familiar with this place. Thank you and please respond, Alexis Jimenez 2010 Black Hills Rd	Closed	Sherrie Rice
152	2019-01-20T16:20:22	2019-01-29T08:38:38	Illegal Dumping	35.3222161	-106.7206764	741 Playful Meadows Cir NE, Rio Rancho, NM 87144	Pallets, mattress, TV, trash	Closed	Zachariah Keintz
153	2019-01-16T17:13:48	2019-01-23T10:08:14	Illegal Dumping	35.242204	-106.7143062	1073 Spur Rd SE, Rio Rancho, NM 87124	Mattress is on the south side of the street of Spur Rd SE. Right by the arroyo. It's laid up on the cement. Called received and entered by SROW.	Closed	Gloria Sosa
154	2019-01-15T17:07:42	2019-01-16T16:03:43	Code Enforcement	35.2386522	-106.693773	1045 Reynosa Loop SE, Rio Rancho, NM 87124	Anonymous complaint for 1045 Reynosa Loop SE in reference to trash, carpet, cardboard and potting equip on the side of the house.	Closed	Bryan Misbach
155	2019-01-12T23:42:08	2019-02-12T11:35:50	Code Enforcement	35.286001	-106.700775	1820 Blackberry Rd NE, Rio Rancho, NM 87144	Trash is piled up behind the house next to the alley	Closed	David Branch
156	2019-01-11T12:04:11	2019-01-16T09:55:29	Illegal Dumping	35.3244873	-106.6659161	Overview Rd NE, Rio Rancho, NM 87144	Two Large loads of Household goods dumped. Pictures enclosed show Army medals discarded and Army papers including the phone number of the owner. Lots of documentation of the owner and owners children. I have many more pictures. East of water mellon mtn ranch 1/2 mile. I you cant find it call me and I will direct crews to the location.	Closed	Zachariah Keintz

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No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
157	2019-01-09T12:01:00	2019-01-28T17:31:29	Code Enforcement	35.2824782	-106.6976998	1305 Cherry Rd NE, Rio Rancho, NM 87144	On Cherry at the Mini Mart, people are dumping their trash in the trash can but it is never picked up because the Mini Mart is closed. Can the trash bin be removed? or can the trash be picked up even though the store is closed?	Duplicate	David Branch
158	2019-01-08T13:32:21	2019-01-09T12:34:28	Illegal Dumping	35.2577783	-106.7233192	87 7th St SE, Rio Rancho, NM 87124	corner of 7th street and Sanda Blvd. SE. There is some identification in this large pile of garbage which we did not touch. Area noted is not on a maintained roadway.	Duplicate	Zachariah Keintz
159	2019-01-08T12:37:13	2019-01-08T16:33:45	Illegal Dumping	35.3229521	-106.5781935	7845 Enchanted Hills Blvd NE, Rio Rancho, NM 87144	Large Sign in fountain at intersection of Enchanted Hills and Lincoln.	Closed	Gloria Sosa
160	2019-01-07T11:58:15	2019-01-09T12:46:10	Illegal Dumping	35.2579811	-106.722782	816 Rainbow Blvd NE, Rio Rancho, NM 87124	Large pile of trash at intersection of 7th ST NE and Sandia Blvd. This intersection is not maintained.	Closed	Zachariah Keintz
161	2019-01-07T11:45:12	2019-01-31T16:16:12	Illegal Dumping	35.2913363	-106.7095171	1836 Strawberry Dr NE, Rio Rancho, NM 87144	Citizen called stating that two old style Sony TV's were dumped by illegally by someone. They are half way between Meadows & Rainbow on the North side of the road. There are no buildings there so there in no address. Called received and entered by SROW.	Closed	Zachariah Keintz
162	2019-01-06T17:41:40	2019-02-06T17:01:28	Code Enforcement	35.2837361	-106.6996637	1504 Cherry Rd NE, Rio Rancho, NM 87144	The mini mart is starting to look like the city dump trash all over	Closed	David Branch
163	2019-01-02T10:07:31	2019-01-07T08:59:36	Illegal Dumping	35.3481757	-106.6219282	5524 Kennard Rd NE, Rio Rancho, NM 87144	There are 4 mattresses recently dumped on the east side of the dirt road. They are all in the same pile.	Closed	Zachariah Keintz
164	2018-12-18T19:08:23	2019-01-07T10:38:16	Illegal Dumping	35.3133276	-106.5856203	7309 Hapsburg Rd NE, Rio Rancho, NM 87144	TV dumped at intersection of Hapsburg Road & Orested. Also large piece of styrofoam on another corner of this intersection.	Closed	Gloria Sosa
165	2018-12-18T10:36:56	2019-01-30T13:23:39	Illegal Dumping	35.2568075	-106.7004204	222 2nd St SE, Rio Rancho, NM 87124	Illegal dumping of two toilets on 2nd St SE between Eventide Rd and 18th St SE. The toilets are located on the north side of the street. Received as a phone call, entered in by PW.	Closed	Gloria Sosa
166	2018-12-14T18:29:11	2018-12-17T11:19:53	Illegal Dumping	35.296333	-106.6201736	5640 Iris Rd NE, Rio Rancho, NM 87144	Is it illegal to dump fall leaves in the mesa?	Closed	Zachariah Keintz
167	2018-12-13T14:41:01	2019-01-29T09:33:34	Code Enforcement	35.3419891	-106.5946637	6987 Skylar Dr NE, Rio Rancho, NM 87144	Citizen reported old couch sitting in driveway for three weeks at 6987 Skylar Drive.	Closed	Amanda Hogge
168	2018-12-13T10:35:38	2018-12-14T12:05:37	Illegal Dumping	35.3484539	-106.6181848	5413 Roosevelt Loop NE, Rio Rancho, NM 87144	Citizen Claudia Clay (505-850-2706) reports consistent, serious illegal dumping near Chayote and Kennard. Presently there are 15 large bags and miscellaneous debris.	Closed	Zachariah Keintz
169	2018-12-12T12:24:03	2019-01-07T10:51:35	Code Enforcement	35.319263	-106.715828	1028 Saw Mill Rd, Rio Rancho, NM 87144	Stored items and trash all over front and side yard.	Closed	Sherrie Rice
170	2018-12-12T09:11:07	2018-12-13T13:09:12	Code Enforcement	35.2685586	-106.6479892	533 Longwood Loop NE, Rio Rancho, NM 87124	Trash thrown on ground in front yard. This is a recurring problem.	Closed	Bryan Misbach
171	2018-12-11T09:44:39	2019-01-29T07:28:48	Code Enforcement	35.2456804	-106.7187023	758 Hood Rd SE, Rio Rancho, NM 87124	the home has accumulated a substantial amount of junk in front of home furniture, appliances ,signs toilets and random miscellaneous junk. there are multiple vehicles there that can haul that junk away or at least move it to back yard away from public view.	Closed	Jimmy Chavez
172	2018-12-10T17:00:01	2018-12-31T17:14:26	Code Enforcement	35.2586417	-106.7137661	1121 Tulip Rd SE, Rio Rancho, NM 87124	Anonymous complaint for 1121 Tulip Road SE in reference to the property looking like the city dump. Extreme blight both in the front and rear of the mobile home. The occupants of the home burn unknown items in the evening causing a distinct odor.	Closed	David Branch
173	2018-12-10T12:56:51	2018-12-17T10:57:52	Illegal Dumping	35.3481144	-106.6152442	4901 Westfield Ct NE, Rio Rancho, NM 87144	Lots of large black trash bags along Kennard Rd near Chayote Rd. Citizen requested that someone go out every few weeks to check for illegal dumping as well. Received as a phone call, entered in by PW.	Closed	Gloria Sosa
174	2018-12-10T09:10:56	2018-12-11T11:45:17	Illegal Dumping	35.2745639	-106.6968584	2101 Northern Blvd NE, Rio Rancho, NM 87124	Christmas tree laying in the median of Unser Blvd and Northern Blvd due to a vehicle accident. Called in by DPS, entered in by PW.	Closed	Gloria Sosa
175	2018-12-06T13:18:03	2018-12-07T13:57:46	Illegal Dumping	35.2570305	-106.7223307	94 7th St SE, Rio Rancho, NM 87144	Several black plastic bags of garbage, styrofoam packing materials, gallon plastic containers of transmission fluid, oil, etc. (7th St SE is not a maintained roadway).	Closed	Zachariah Keintz
176	2018-12-05T12:25:19	2018-12-07T13:57:34	Illegal Dumping	35.287478	-106.6790635	1313 Northern Blvd NW, Rio Rancho, NM 87124	on linderhuif Ave ne. Roadway is unmaintained.	Closed	Zachariah Keintz
177	2018-12-02T17:19:48	2019-01-30T15:10:56	Code Enforcement	35.2441516	-106.7450954	715 4th St SW, Rio Rancho, NM 87124	Used large screen tv has been on the curb for over a week The home owner has trucks to haul off trash but again puts junk on the curb.	Closed	Jimmy Chavez

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No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
178	2018-11-30T14:07:05	2018-11-30T16:04:12	Code Enforcement	35.233277	-106.6649288	1408 35th Cir SE, Rio Rancho, NM 87124	Anonymous complaint on 35th Circle at the corner, neighbor complaining of debris at this address against the residence.	Closed	Amanda Hogge
179	2018-11-30T09:50:30	2019-01-07T10:45:42	Code Enforcement	35.2855928	-106.712718	1005 Charles Dr NE, Rio Rancho, NM 87144	There is a significant amount of trash stacked next to my house and shared fence. It can be seen from front yard.	Closed	Sherrie Rice
180	2018-11-30T09:25:50	2018-12-06T13:11:46	Code Enforcement	35.3542066	-106.6150803	5724 Sandoval Dr NE, Rio Rancho, NM 87144	Complainant states residents at this address have debris, weeds, garbage, dead trees unlicensed trailers and distinct blight around entire residence.	Closed	Jimmy Chavez
181	2018-11-29T14:39:03	2018-11-30T11:24:20	Illegal Dumping	35.2441516	-106.7450954	715 4th St SW, Rio Rancho, NM 87124	fabric chair and couch by the curb. been there quite some time.	Closed	Zachariah Keintz
182	2018-11-28T15:56:39	2018-11-29T15:58:01	Code Enforcement	35.3512838	-106.6954067	1982 Castle Peak Loop NE, Rio Rancho, NM 87144	Complainant Thomas Malone stated in the area of 1819 & 1983 Castle Peak Loop there are two large commercial dumpsters overflowing with trash. Dumpsters belong to either Raylee or Abrazo Homes.	Closed	Sherrie Rice
183	2018-11-27T17:09:42	2018-12-03T10:15:58	Code Enforcement	35.254896	-106.7086986	245 Tarpon Ave SE, Rio Rancho, NM 87124	At 245 Tarpon there is a shopping cart sitting behind the front wall next to the dirt driveway leading to the back yard on the north side of the house. It is visible from the road. I'm attaching a photo.	Closed	David Branch
184	2018-11-27T16:29:44	2018-12-03T10:09:43	Code Enforcement	35.2556794	-106.7084682	220 Tarpon Ave SE, Rio Rancho, NM 87124	There has been trash in the front yard on the northeast side of this address for weeks now. It looks like a car bumper, broken glass in a frame, and a pile of junk wood next to the house. Attached is a photo.	Closed	David Branch
185	2018-11-26T17:39:36	2019-01-30T13:23:17	Illegal Dumping	35.2650101	-106.6878513	2406 Istle Rd NE, Rio Rancho, NM 87124	Debris in the street , including flat screenTV. On dead end of Ken Ct. Cross street Istle Rd.	Closed	Gloria Sosa
186	2018-11-26T17:07:36	2018-11-29T09:56:15	Illegal Dumping	35.3065312	-106.7257833	429 28th Ave NW, Rio Rancho, NM 87004	Citizen called to report illegal dumping of a tanning booth. He stated that it is half way between Rainbow and Meadows. Southside of the street.	Closed	Zachariah Keintz
187	2018-11-25T19:19:43	2018-11-29T09:57:17	Illegal Dumping	35.282472	-106.6919412	Dinadan Dr NE, Rio Rancho, NM 87124	Take Northern Ave. to Dinadan Dr. NE to Leeds Castle NE, on your right. You will see the dump looking from Dinadan Dr. NE onto Leeds Castle. a short way down Leeds Castle on both sides of the road. This is close to the last dump site 590357 reported in the past. As you can see from the pictures, some of the bags are clear white and they appear to have mail in them.	Closed	Zachariah Keintz
188	2018-11-22T12:21:48	2018-12-19T09:08:50	Code Enforcement	35.2615762	-106.7033996	111 2nd St SE, Rio Rancho, NM 87124	garbage in front yard and washing machine has been there for many weeks. eye soar. broken swimming pool has been there for at least 2 years.	Closed	David Branch
189	2018-11-21T10:34:13	2018-11-21T16:57:01	Code Enforcement	35.2648613	-106.638928	4868 Turquoise Dr NE, Rio Rancho, NM 87124	Anonymous complaint from a resident in the area of 4868 Turquoise Drive of a large garbage container in front yard for a month possibly attracting rodents and blowing garbage into the neighborhood.	Closed	Bryan Misbach
190	2018-11-19T12:15:54	2019-01-30T13:22:47	Illegal Dumping	35.241273	-106.6554612	1276 Rio Rancho Blvd SE, Rio Rancho, NM 87124	Several trash bags are at the corner of Meadowlark Ln and NM 528 near the Golden West Apartments. The bags have been there for over a week. Received as a phone call, entered in by PW.	Closed	Gloria Sosa
191	2018-11-18T11:19:54	2018-11-27T11:10:25	Code Enforcement	35.2685586	-106.6479892	533 Longwood Loop NE, Rio Rancho, NM 87124	Junk white goods on front entranceway since 2 November 2018. Two trash collection periods have passed without the solid waste item being removed.	Closed	Bryan Misbach
192	2018-11-18T11:06:03	2018-11-20T07:27:03	Code Enforcement	35.2685586	-106.6479892	533 Longwood Loop NE, Rio Rancho, NM 87124	Junk truck used as garbage collection pit, since February 2018.	Closed	Bryan Misbach
193	2018-11-15T16:33:31	2018-11-21T08:29:29	Code Enforcement	35.2532263	-106.7078233	370 Tarpon Ave SE, Rio Rancho, NM 87124	Just north of the intersection of Tarpon and Lisbon, on the east side of road in front of the electric utility box is a shopping cart.	Closed	David Branch
194	2018-11-15T09:26:13	2018-12-31T07:21:33	Code Enforcement	35.3545619	-106.6162934	5716 Cibola Dr NE, Rio Rancho, NM 87144	Weeds and overgrown vegetation thought the yard. Gate has fallen down. Trash in the yard.	Closed	Jimmy Chavez
195	2018-11-14T13:09:56	2018-12-07T09:58:21	Code Enforcement	35.2582443	-106.680395	2887 Cripple Creek Dr SE, Rio Rancho, NM 87124	This property has been a blight for several years now. Vegetation and debris are left to blow into street and rot in place on property. May also be a good idea to do a welfare check on occupants as they are elderly and have not been seen lately.	Closed	Bryan Misbach
196	2018-11-13T14:25:52	2018-12-19T09:07:22	Code Enforcement	35.2583252	-106.7015581	211 2nd St SE, Rio Rancho, NM 87124	anonymous complaint that there are overflowing garbage cans and garbage in the front yard at 211 2nd street. It is unknown if the home is abandon,	Closed	David Branch

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
197	2018-11-13T14:23:33	2018-11-14T14:38:25	Illegal Dumping	35.2427602	-106.6994627	901 Unser Blvd SE, Rio Rancho, NM 87124	Anonymous complaint stating in the area of 2nd Street & Unser there are 2 toilets two feet from the curb that have been there for weeks. The complainant stated they are in an area where someone just abandoned them.	Closed	Zachariah Keintz
198	2018-11-09T13:46:57	2018-11-26T11:06:50	Code Enforcement	35.2606688	-106.7053356	69 Lisbon Ave SE, Rio Rancho, NM 87124	There are a ton of trash bags in front of 69 Lisbon Ave, they have been there since Wednesday	Closed	David Branch
199	2018-11-09T12:41:27	2018-11-26T09:44:24	Illegal Dumping	35.2780995	-106.7100783	Spruce Pl NE, Rio Rancho, NM 87144	Take Northern to Olive. Drive down the hill on Olive until the road starts down again making a slight left turn. Their is a road on the right (It is really the third dirt road on the right) Just a short distance in there are one pile of tiles at the dump site access. This is the area called in before but they have dumped again. The must be repairing roofs in the houses in the cluster of houses off Northern and Acorn. This is the third time they have dumped there. Its a shame they can't be caught. Maybe someone can drive around by those houses and see if someone is repairing roofs. The guys cleaning up are working so hard at this type of dupe site. Thank you very much!	Closed	Zachariah Keintz
200	2018-11-06T17:39:30	2018-12-19T09:03:45	Code Enforcement	35.254594	-106.710992	1232 Sugar Rd SE, Rio Rancho, NM 87124	At 1232 Sugar there are dead trees and dead limbs piled up in various parts of the property. Also there are piles of broken cement and lumber laying around the property along with trash such as styrofoam, rebar, fiberglass covers what were once hot houses.	Closed	David Branch
201	2018-11-06T14:51:53	2018-11-06T14:59:22	Illegal Dumping	35.282472	-106.6919412	Dinadan Dr NE, Rio Rancho, NM 87124	Take Northern to Dinadan Dr. DE to Leeds Castle Ave. NE, you will see the dump site looking from Dinadan onto Leeds Castle. This dump site was reported before on Oct 2, 2018 NO# 590357. The big stuff like seed spreader, edging, and other equipment was removed, but the plastic bottles, cans, plates and other stuff was left behind. One picture shows the area on Oct 2, the other how it looks now. Lots of the paper stuff it blowing into the desert.	Duplicate	Zachariah Keintz
202	2018-11-06T09:00:01	2018-11-06T09:08:14	Illegal Dumping	35.3031948	-106.5787889	Willow Creek Trailhead and Open Space, Willow Creek Rd NE, Rio Rancho, NM 87144	Shopping cart with BBQ grill and other items is located off of Willow Creek at the entrance to the Bosque trail. Received as a phone message from Dispatch, entered in by PW.	Duplicate	Zachariah Keintz
203	2018-11-05T13:45:55	2018-11-06T09:08:56	Illegal Dumping	35.3031948	-106.5787889	Willow Creek Trailhead and Open Space, Willow Creek Rd NE, Rio Rancho, NM 87144	Per dispatch, officer reviewed the area and located a cart full of trash (satellite dish, household trash).	Closed	Zachariah Keintz
204	2018-11-01T17:26:44	2018-11-27T11:11:40	Code Enforcement	35.3398546	-106.5912597	7040 Husky Dr NE, Rio Rancho, NM 87144	Big pile of trash left in front of the house. Been there for weeks.	Closed	Jimmy Chavez
205	2018-10-29T09:01:33	2018-11-02T12:07:40	Illegal Dumping	35.3230214	-106.7202473	3896 Tranquil Meadows Dr, Rio Rancho, NM 87144	Pallets and an old TV	Closed	Zachariah Keintz
206	2018-10-25T21:15:51	2018-10-30T12:11:14	Illegal Dumping	35.2832864	-106.6053001	6355 Roadrunner Loop NE, Rio Rancho, NM 87144	At the corner of Sandia Vista and Road Runner, someone leaned a mattress against the cinder block wall!!	Closed	Annie Easton
207	2018-10-23T15:49:04	2019-01-30T13:13:48	Illegal Dumping	35.2482529	-106.6491795	507 Rincon De Romos Dr SE, Rio Rancho, NM 87124	Logs on street on Juan Aldama Ct SE and Rincon De Romos Dr SE. Received and entered by PW	Closed	Gloria Sosa
208	2018-10-19T09:50:46	2018-11-21T08:50:58	Code Enforcement	35.2458557	-106.7292459	337 Timor Rd SE, Rio Rancho, NM 87124	Citizen Margaret Linnell (505-980-4717) called to report excessive backyard trash piling up at approximately 337 Timor Road SE, causing cockroaches in the neighborhood. (Citizen caller's address is 391 Timor). Caller indicated the house is on Timor, third house SE of Aldea Street; thus the approximate address given of home with trash buildup.	Closed	David Branch

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
209	2018-10-16T18:47:34	2018-11-20T14:58:36	Code Enforcement	35.3210939	-106.7181746	812 Waterfall Dr, Rio Rancho, NM 87144	For the last year or so, my next door neighbors at 816 Waterfall Dr. NE have been littering in their own yard (teenage son??) and it keeps making its' way into my yard. Sometimes they overflow their trash bin and it spills out and blows all over their side yard and into my yard and driveway. Sometimes it looks as though the son comes home late and just throws his fast food garbage all on the side of their/my house because he can't be bothered to throw it in a trash bin . The other day there was a McDonald's french fry container with some french fries still in it on my driveway with some ketchup smeared and some chicken nuggets were just thrown on the ground (still there). Also, there are still several white plastic ketchup containers laying on the front side of the house (blown onto my property too). Almost every morning I find drink containers and/or food wrappers on my driveway or laying on the rocks between our houses. I am so tired of picking up their trash that blows into my yard or has been purposely	Closed	Sherrie Rice
210	2018-10-15T16:52:29	2018-11-08T13:13:39	Illegal Dumping	35.2743214	-106.7112837	1496 Northern Blvd NE, Rio Rancho, NM 87144	Take Northern to Olive. Drive down the hill on Olive until the road starts down again making a slight left turn. Their is a road on the right (It is really the third dirt road on the right) Just a short distance in there are two piles of dump site access the road from each other. One has a bag which may contain identification.	Closed	Zachariah Keintz
211	2018-10-13T07:19:48	2018-12-11T07:58:00	Illegal Dumping	35.3352897	-106.6100566	Dune Rd NE, Rio Rancho, NM 87144	Must be a backyard mechanic as this is two months in a row.	Closed	Zachariah Keintz
212	2018-10-10T17:44:44	2018-10-19T09:37:20	Environmental Concerns	35.2424388	-106.7236251	964 Baltic Ave SE, Rio Rancho, NM 87124	There is a manhole at this location that stinks to high heaven after prolonged dry periods... it has done it for years. Thank you for your attention to this matter.	Closed	Tasha Romero
213	2018-10-09T15:02:37	2018-10-19T07:10:45	Illegal Dumping	35.242905	-106.6575909	914 Pinehurst Rd SE, Rio Rancho, NM 87124	Litter and needles left in this area.	Closed	Zachariah Keintz
214	2018-10-07T09:22:00	2018-10-11T14:36:46	Illegal Dumping	35.2865699	-106.7165648	1736 Lee Loop NE, Rio Rancho, NM 87144	There are several large cardboard cartons with unidentified contents dumped in two locations up in the brush along the west side of 10th Street between Pine Road and Rachel Road. They are visible from the road. I could not get up the rough slope to look into the boxes because I was walking my two dogs.	Closed	Zachariah Keintz
215	2018-10-04T12:36:41	2018-10-09T07:48:34	Illegal Dumping	35.2752646	-106.711278	Olive Dr NE, Rio Rancho, NM 87144	Northern Blvd NE to Olive Dr NE, go straight down the hill on Olive passing 2 dirt roads to the right when you reach the next road on the right just before the next hill you will see the dump site which is roof shingles, the second dump site is 100 feet past the first site. The shingles began to show up as they worked on a house and out building over a year ago.down the hill, really don't know if thats there that came from. People make it so hard on the city worker.	Closed	Zachariah Keintz
216	2018-10-04T07:24:19	2018-11-01T08:24:05	Illegal Dumping	35.2193142	-106.7593332	1109 23rd Ave SW, Rio Rancho, NM 87124	Illegal dumping by 1109 23rd Ave SW. Received and entered by PW	Closed	Zachariah Keintz
217	2018-10-01T16:42:43	2018-10-17T12:01:39	Code Enforcement	35.2426479	-106.7406864	820 2nd St SW, Rio Rancho, NM 87124	There is litter in front of the fence at 820 2nd St. SW. Please remove it.	Closed	David Branch
218	2018-10-01T15:30:26	2018-10-05T10:59:55	Illegal Dumping	35.2842465	-106.685695	2709 Chessman Dr NE, Rio Rancho, NM 87124	hedingham Ave ne and Edinburgh St ne	Closed	Annie Easton
219	2018-10-01T12:30:54	2018-10-01T17:30:49	Code Enforcement	35.2424268	-106.7197322	796 Spur Rd SE, Rio Rancho, NM 87124	property owner allows his landscaping gravel and dirt to roll into street on the intersection it causes skidding and accidents this is a continues problem which owner does not do anything about so if the city would come sweep it up again that would be great.	Closed	David Branch
220	2018-10-01T12:22:39	2018-11-01T16:10:01	Code Enforcement	35.2420628	-106.7169635	941 Spur Rd SE, Rio Rancho, NM 87124	Junk in front of yard debris trash and weeds a sore eye to the neighborhood.	Closed	David Branch
221	2018-10-01T07:24:27	2018-10-04T08:00:56	Illegal Dumping	35.3189214	-106.5969889	6800 Franklin Rd NE, Rio Rancho, NM 87144	Illegal dumping on SW side of Sandia Vista Elementary on other side of fence. Jackie Vanclova 771-0956. Received and entered by PW	Closed	Zachariah Keintz
222	2018-09-30T13:15:38	2018-11-01T16:06:45	Code Enforcement	35.2505786	-106.6991166	1896 18th St SE, Rio Rancho, NM 87124	1896 18th St SE has a stack of 3 auto tires on the southwest corner of the house. They have been there for several weeks now.	Closed	David Branch

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Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
223	2018-09-29T09:33:54	2019-01-24T12:56:06	Illegal Dumping	35.30642	-106.622002	2708 Iris Rd NE, Rio Rancho, NM 87144	There are 4 illegal dumps (significant amounts) on the section of 28th street between Iris and Taurus Rd. This is a dirt road but a lot of people use it. The location chosen on the map is a little off because I couldn't choose 28th street for some reason. A no dumping sign on the street entrance might be good because I think people who get turned away from the dump just go to this street and unload.	Closed	Gloria Sosa
224	2018-09-28T09:35:15	2018-11-27T11:20:10	Code Enforcement	35.2832172	-106.6047084	6505 Blue Quail Rd NE, Rio Rancho, NM 87144	excessive weeds in backyard and junk (old rugs) in front driveway.	Closed	Jimmy Chavez
225	2018-09-26T10:21:00	2018-09-27T12:50:51	Illegal Dumping	35.3334377	-106.6231835	3251 Esplanade Cir SE, Rio Rancho, NM 87124	Household Trash	Closed	Zachariah Keintz
226	2018-09-26T10:19:09	2018-09-27T12:49:51	Illegal Dumping	35.3390203	-106.6353622	Tresimene Rd NE, Rio Rancho, NM 87144	Mattress and household trash.	Closed	Zachariah Keintz
227	2018-09-24T08:22:24	2018-10-15T13:42:22	Illegal Dumping	35.3198945	-106.7347419	King Blvd NW, Rio Rancho, NM 87144	Plastic garbage bags on Rainbow and King. Received as phone call. Entered by PW	Closed	Annie Easton
228	2018-09-23T15:58:13	2018-09-26T14:13:20	Illegal Dumping	35.2891241	-106.7260227	18th Ave NE, Rio Rancho, NM 87144	Someone dumped a fairly large old CRT-type TV in the weeds beside the unpaved road, about a half block west of 10th Street. The back is broken open. Also, about a half block to the north in the first unpaved crossroad west of that, someone dumped an old exercise treadmill in the weeds. Be careful driving the unpaved roads -- the last big rainstorm created some erosion gullies that make the road narrow in a few places.	Closed	Zachariah Keintz
229	2018-09-22T19:31:25	2018-09-25T12:18:05	Code Enforcement	35.2538319	-106.6542953	4117 Foxwood Trail SE, Rio Rancho, NM 87124	Chair left near street	Closed	Bryan Misbach
230	2018-09-22T19:29:11	2018-09-25T12:16:45	Code Enforcement	35.2540409	-106.6569659	4001 Foxwood Trail SE, Rio Rancho, NM 87124	Chair outside condos on ridge crest in-between saddle wood and saddle wood south side of street	Closed	Bryan Misbach
231	2018-09-22T15:41:05	2018-10-01T11:22:47	Code Enforcement	35.3516178	-106.6079023	6153 Vaughn Dr NE, Rio Rancho, NM 87144	6157 Vaughn Dr NE Furniture dumped on sidewalk and stretto	Closed	Jimmy Chavez
232	2018-09-18T07:25:16	2018-10-05T10:56:54	Code Enforcement	35.3056434	-106.6981888	1924 Mesa Grande Loop NE, Rio Rancho, NM 87144	There is appliances and trash in the driveway as well as a flat bed trailer with landscaping trash parked between two houses. There are broken down vehicles on the property a white Ford focus, and a two tone black and red Ford F150 Older model, these cars have not moved in over two years. The house has not been maintained outside and is dilapidated.	Closed	Amanda Hogge
233	2018-09-17T14:07:33	2018-10-18T15:39:21	Code Enforcement	35.242244	-106.688981	842 Lariat Rd SE, Rio Rancho, NM 87124	2345 Southern, behind the strip mall, Baskin Robbins- Dumpster, nasty mattresses and various trash outside of dumpster, makes it an eye sore for residence driving off lariat to their homes.	Closed	Bryan Misbach
234	2018-09-11T14:21:51	2019-01-24T12:44:46	Illegal Dumping	35.3063583	-106.6299203	1308 Nicklaus Dr SE, Rio Rancho, NM 87124	There are 4 new dump sites on the dirt road of 28th Ave NE. The trash dumping bandits left 3 sites on 28th with household garbage. There is another site on 28th where another group left a mound of yucca fronds. The yucca fronds are closer to Taurus and 28th. The house hold garbage has paint buckets too. :(Can you please help me clean up the road where I like to walk? Thank you!	Closed	Gloria Sosa
235	2018-09-11T11:11:43	2018-09-17T13:24:10	Illegal Dumping	35.3332808	-106.6253564	3251 Esplanade Cir SE, Rio Rancho, NM 87124	5 buckets of oil. North 35.333263 west 106.625396	Closed	Zachariah Keintz
236	2018-09-10T20:08:29	2018-09-17T13:23:56	Illegal Dumping	35.3355678	-106.6094489	Dune Rd NE, Rio Rancho, NM 87144	two 7 gallon buckets of used, one was a lid on not. North 35.335402 West 106.609433	Closed	Zachariah Keintz
237	2018-09-10T14:09:36	2019-01-29T12:47:35	Illegal Dumping	35.2981137	-106.6569553	Loma Colorado Blvd NE, Rio Rancho, NM 87144	Somebody dumped their trash. Found several pieces of mail including one with a delivery receipt. Persons responsible should be fined and made to clean.	Closed	Gloria Sosa
238	2018-09-09T13:03:23	2018-09-17T13:23:02	Illegal Dumping	35.3536361	-106.6732014	Towanda Rd NE, Rio Rancho, NM 87144	On Towanda south of Mariposa Pkwy and in arroyo further south - car part and landscaping debris	Closed	Zachariah Keintz
239	2018-09-08T09:06:11	2019-01-31T16:10:44	Illegal Dumping	35.2353964	-106.7152501	1321 11th St SE, Rio Rancho, NM 87124	freezer with compressor. Public Works cannot dispose of freezers with compressors.	Closed	Zachariah Keintz

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No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
240	2018-09-06T10:36:37	2018-09-07T09:06:31	Environmental Concerns	35.3202129	-106.7198637	3701 Cam De Los Montoyas, Rio Rancho, NM 87144	2 Syringe needles In a green tumbleweed bush	Closed	Charles Fernandez
241	2018-09-04T18:44:30	2019-01-30T13:03:04	Illegal Dumping	35.2547178	-106.6506915	4221 Ridgeway Ct, Rio Rancho, NM 87124	Weeds and mattress thrown	Closed	Gloria Sosa
242	2018-09-04T10:09:51	2018-09-07T07:02:51	Illegal Dumping	35.2867554	-106.7377755	Wood Rd NW, Rio Rancho, NM 87144	Couple mattresses on side of Rainbow	Closed	Zachariah Keintz
243	2018-09-04T08:55:07	2018-09-13T08:27:32	Illegal Dumping	35.2198986	-106.7147019	1102 22nd Ave SE, Rio Rancho, NM 87124	There has been a bit of illegal dumping this week, including a refrigerator, recliner, and some wood pallets. Wood pallets are on the side of the street on Aspen, but the refrigerator and recliner are in the street.	Closed	Annie Easton
244	2018-08-28T12:31:28	2018-10-05T13:58:07	Code Enforcement	35.2812585	-106.6176408	5810 Carson Rd NE, Rio Rancho, NM 87144	Property has been abandoned for a couple years, yard is full of trash and weeds. Have noticed suspicious activity and called RRPD 8/27/18 to investigate. Doors are unlocked and it's easy access to thieves or transients...	Closed	Jimmy Chavez
245	2018-08-27T11:34:49	2018-08-28T08:22:38	Illegal Dumping	35.3131695	-106.7284922	Meadows Blvd, Rio Rancho, NM 87144	There is a couch that was dumped right behind the barricade on the dead end of Meadows.	Closed	Zachariah Keintz
246	2018-08-22T14:18:12	2018-08-22T16:39:57	Code Enforcement	35.2568785	-106.7088368	160 Tarpon Ave SE, Rio Rancho, NM 87124	On 22August 2018 at 160 Tarpon there are multiple barstools and a tire and a flat covering for something laying in the front yard next to the driveway on the north side of the property.	Closed	David Branch
247	2018-08-21T11:05:22	2018-08-21T11:17:13	Code Enforcement	35.3050511	-106.6973292	1896 Mesa Grande Loop NE, Rio Rancho, NM 87144	Driveway & side of house full of clutter	Closed	Sherrie Rice
248	2018-08-21T11:05:18	2018-09-10T16:30:35	Code Enforcement	35.3050511	-106.6973292	1896 Mesa Grande Loop NE, Rio Rancho, NM 87144	Driveway & side of house full of clutter	Closed	Sherrie Rice
249	2018-08-20T12:06:18	2018-08-21T10:47:21	Illegal Dumping	35.303083	-106.726084	861 Nightglow Ave NE, Rio Rancho, NM 87144	Over the weekend someone dumped 6 large full bags of trash on the southwest corner of Nightglow and Rainbow	Closed	Zachariah Keintz
250	2018-08-20T09:16:27	2018-08-21T08:34:32	Illegal Dumping	35.2777097	-106.7575948	1131 10th St NW, Rio Rancho, NM 87144	There is a backpack and apparently its contents on the west shoulder of 10th Street near the intersection of Rachel Road. It is matted down from being in the rains, so cannot tell if there is any owner-identifying material there.	Closed	Zachariah Keintz
251	2018-08-17T15:59:52	2018-08-21T08:35:44	Illegal Dumping	35.2849705	-106.7201618	Pine Rd NE, Rio Rancho, NM 87144	Couch dumped on shoulder of pine at 8th.	Closed	Zachariah Keintz
252	2018-08-16T17:25:03	2018-09-06T09:42:34	Environmental Concerns	35.2834822	-106.7026637	1590 Perma Dr NE, Rio Rancho, NM 87144	Bucket of used motor oil dumped in front yard.	Closed	Anthony Benavidez
253	2018-08-14T13:44:50	2018-08-31T09:35:24	Illegal Dumping	35.2983352	-106.6651014	Buckskin Ct, Rio Rancho, NM 87144	Pics taken this AM 8/14. Second request for cleanup of illegal dump site in arroyo at the end of Buckskin Loop NE. Trash blocking the road.	Closed	Zachariah Keintz
254	2018-08-09T16:50:16	2018-08-15T09:38:55	Code Enforcement	35.2552101	-106.7088368	235 Tarpon Ave SE, Rio Rancho, NM 87124	There are a lot of scattered papers in the front yard of this property at 235 Tarpon. See attached photo.	Closed	David Branch
255	2018-08-09T16:50:12	2018-08-13T08:18:28	Code Enforcement	35.2552101	-106.7088368	235 Tarpon Ave SE, Rio Rancho, NM 87124	There are a lot of scattered papers in the front yard of this property at 235 Tarpon. See attached photo.	Duplicate	David Branch
256	2018-08-07T11:01:18	2018-08-07T16:10:08	Code Enforcement	35.24239	-106.7154246	1004 Spur Rd SE, Rio Rancho, NM 87124	this property has a vehicles bucket seats laying in front of property and its been there for over a year. its a nuisance to our neighbors. you cant see it very well in this picture but its in front of porch	Duplicate	David Branch
257	2018-08-05T19:36:30	2018-09-10T11:18:19	Code Enforcement	35.2548698	-106.7118312	1180 Sugar Rd SE, Rio Rancho, NM 87124	At 1180 Sugar Road S.E. Rio Rancho there is trash and weeds/dead plants all over the front yard. Wood and cardboard leaning against the front fence on the north and south sides of the house plus maybe some kind of furniture in front by the driveway area.	Closed	David Branch
258	2018-08-05T13:30:21	2018-08-21T12:26:44	Code Enforcement	35.3529603	-106.6162133	5616 Sandoval Dr NE, Rio Rancho, NM 87144	property is having excessive weeds and also a broken basketball hoop lying on property grounds	Closed	Jimmy Chavez
259	2018-08-03T14:20:25	2018-08-03T14:58:54	Code Enforcement	35.2875242	-106.6631419	1746 Lark Dr NE, Rio Rancho, NM 87144	They have had a couch dumped on their sidewalk for along time now.	Closed	Sherrie Rice
260	2018-07-30T10:23:31	2018-08-07T11:12:27	Illegal Dumping	35.299812	-106.6649884	Buckskin Ct, Rio Rancho, NM 87144	Trash dump blocking road. 3 pics attached.	Closed	Annie Easton
261	2018-07-29T12:37:37	2018-08-29T09:30:07	Code Enforcement	35.3446725	-106.6088238	4991 Dream Dancer Dr NE, Rio Rancho, NM 87144	They have a giant pile of trash in the back yard that has been there for months.	Closed	Jimmy Chavez

CitySourced Service Requests - July 1, 2018-June 30, 2019

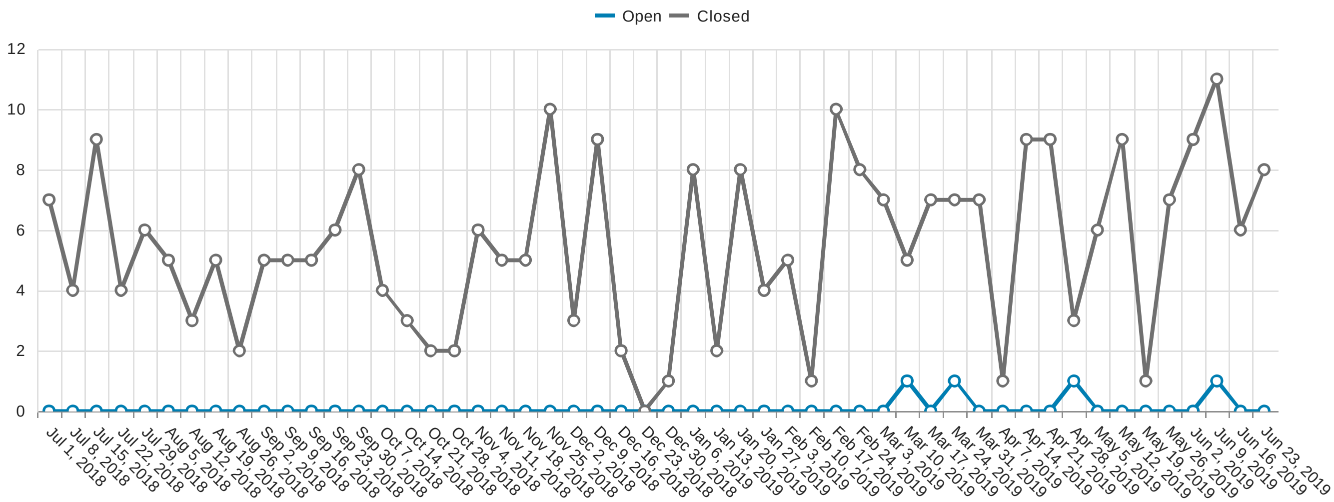
Request Types: Environmental Concerns, Illegal Dumping, and Code Enforcement (Trash on Private Property)

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
262	2018-07-29T09:25:30	2018-08-22T10:12:24	Code Enforcement	35.2457505	-106.718874	758 Hood Rd SE, Rio Rancho, NM 87124	(C) Stored materials. It shall be unlawful to accumulate and store building material, lumber, boxes, cartons or other containers, machinery, scrap metal, junk, raw material, fabricated goods and other items in a manner as to constitute a public nuisance or rodent harborage.	Closed	David Branch
263	2018-07-29T08:37:49	2018-08-22T10:09:37	Code Enforcement	35.2457989	-106.7188223	758 Hood Rd SE, Rio Rancho, NM 87124	excessive trash/junk in front of property this property has huge back yard were this type of hoarding can be placed without causing a public nuisance to the neighbors.(It looks like a junk yard)	Closed	David Branch
264	2018-07-29T08:31:52	2018-11-01T15:36:13	Code Enforcement	35.2423858	-106.7153978	1004 Spur Rd SE, Rio Rancho, NM 87124	Car seats in front of yard ,have been there for over a year.and is a public nuisance.	Closed	David Branch
265	2018-07-29T00:55:57	2018-11-01T15:35:08	Code Enforcement	35.242656	-106.7126605	900 Spur Pl SE, Rio Rancho, NM 87124	Property has trash, dried brush and weeds, and chemical containers. This is creating a fire and safety hazard.	Closed	David Branch
266	2018-07-27T20:28:35	2018-08-02T12:10:51	Environmental Concerns	35.3523824	-106.6133133	6020 Crownpoint Dr, Rio Rancho, NM 87144	Roaches in the city sewer in front of my house. I have my home sprayed routinely and they still come back. Can the city come spray the sewers in our neighborhood to help get rid of them? The sewer is infested with these insects.	Closed	Tasha Romero
267	2018-07-27T16:15:51	2018-08-02T08:59:12	Illegal Dumping	35.2466018	-106.7410027	Idalia Rd SW, Rio Rancho, NM 87124	matress, box spring, tires	Closed	Annie Easton
268	2018-07-22T18:02:19	2018-08-17T12:53:16	Code Enforcement	35.2685586	-106.6479892	533 Longwood Loop NE, Rio Rancho, NM 87124	Back yard used as combination garbage dump and junkyard.	Closed	Bryan Misbach
269	2018-07-21T23:11:25	2018-11-01T15:32:09	Code Enforcement	35.2465355	-106.6983565	1849 Doral Park Rd SE, Rio Rancho, NM 87124	Lots of Trash blowing from the yard and smell of dog feces	Closed	David Branch
270	2018-07-21T21:10:27	2018-11-01T15:30:52	Code Enforcement	35.2465355	-106.6983565	1849 Doral Park Rd SE, Rio Rancho, NM 87124	Lots of Trash blowing from the yard and smell of dog feces	Closed	David Branch
271	2018-07-21T10:10:52	2018-07-24T08:47:43	Illegal Dumping	35.3532599	-106.6737326	Towanda Rd NE, Rio Rancho, NM 87144	Plastic swim pool, trash, yard debris (in the arroyo & trees - located just south of Towanda). This was first reported in early July - Request #545941.	Closed	Zachariah Keintz
272	2018-07-21T07:58:58	2018-07-27T14:09:35	Illegal Dumping	35.2548111	-106.7215417	701 Tulip Rd SE, Rio Rancho, NM 87124	Beige sofa and loveseat. Also a pile of wood on Inca a few hundred yards to the west, just before a road closed sign	Closed	Zachariah Keintz
273	2018-07-19T15:53:48	2018-08-23T09:28:25	Illegal Dumping	35.2631754	-106.7094837	301 Albor Cir NE, Rio Rancho, NM 87124	The person who lives at 304 Albor Cir NE is dumping dirt in the roadway to make illegal speed bumps	Closed	Annie Easton
274	2018-07-19T13:08:26	2018-07-20T14:03:37	Illegal Dumping	35.2960749	-106.5938928	Riverside Dr NE, Rio Rancho, NM 87144	Exercise bike dumped on roadside	Closed	Annie Easton
275	2018-07-16T21:46:22	2018-07-25T09:28:24	Code Enforcement	35.3178123	-106.587527	3501 North Pole Loop NE, Rio Rancho, NM 87144	Resident is storing a refrigerator outside at the front entrance to his property where it can be accessed by anyone.	Closed	Jimmy Chavez
276	2018-07-15T11:11:22	2018-07-17T14:39:06	Illegal Dumping	35.2905518	-106.7168945	10th St, Rio Rancho, NM 87144	An expended rocket-launcher box of illegal fireworks (there is a "Warning" label on the side) and an old mattress are on the shoulder of 10th Street near the intersection with 19th Avenue.	Closed	Zachariah Keintz
277	2018-07-15T10:56:48	2018-11-01T15:29:46	Code Enforcement	35.2563607	-106.7091807	175 Tarpon Ave SE, Rio Rancho, NM 87124	2018 15July, at 175 Tarpon, next to garage/driveway in the front yard, there is an appliance perhaps an old dishwasher dumped in the front yard.	Closed	David Branch
278	2018-07-14T09:15:01	2018-08-24T10:54:13	Code Enforcement	35.3377038	-106.598163	6933 Topeka Hills Dr NE, Rio Rancho, NM 87144	The garage door is open. There is trash all over the front side yard. The garage appears to also be full of trash (no car there for at least a week.) Two loose dogs there, so it looks like someone moved out and left the trash and the dogs. Maybe you can find the owner or something??	Closed	Jimmy Chavez
279	2018-07-13T12:54:58	2018-07-20T14:02:39	Illegal Dumping	35.2616729	-106.672562	3245 Llano Vista Loop NE, Rio Rancho, NM 87124	3237 Llano Vista Loop has dumped a broken table at the curb and it have been there for 2 weeks.	Closed	Annie Easton
280	2018-07-13T08:13:53	2018-07-19T08:24:44	Code Enforcement	35.2420844	-106.6517197	4252 Sabana Loop SE, Rio Rancho, NM 87124	Trash and other debris built up along the fence line between 4252 and 4256 Sabana Loop. Received as a phone call, entered in by PW.	Closed	Amanda Hogge
281	2018-07-09T13:22:24	2018-07-19T16:38:36	Code Enforcement	35.309185	-106.706985	1432 Jemez Loop, Rio Rancho, NM 87144	Trash being stored on side of home	Closed	Amanda Hogge
282	2018-07-07T10:16:23	2018-07-18T11:14:42	Illegal Dumping	35.3241662	-106.6393304	3251 Westphalia Blvd NE, Rio Rancho, NM 87144	Roofing Materials	Closed	Zachariah Keintz
283	2018-07-06T11:00:32	2018-09-19T09:07:31	Code Enforcement	35.2558732	-106.6813985	2628 Maricopa Dr SE, Rio Rancho, NM 87124	My neighbor at 2628 Maricopa Dr., SE has collected at least 8 bags of garbage in her front patio. She told me today that her landlord stopped paying Waste Management's bill. Can the city do something to her out? This is a health concern for her and her neighbors!	Closed	Bryan Misbach

No.	DateCreated	DateClosed	RequestType	Latitude	Longitude	Address	Description	StatusType	AssignedTo
284	2018-07-04T15:18:02	2018-08-02T07:02:23	Illegal Dumping	35.3547343	-106.6692266	Orwell Dr NE, Rio Rancho, NM 87144	Trash and yardwork debris	Closed	Zachariah Keintz
285	2018-07-04T08:44:09	2018-07-11T09:55:44	Illegal Dumping	35.2859707	-106.7115257	17th Ave NE, Rio Rancho, NM 87144	Trash, refrigerator and other junk dumped by the parking lot in the park.	Closed	Zachariah Keintz
286	2018-07-03T12:38:35	2018-07-12T15:17:54	Code Enforcement	35.2533327	-106.6664405	3525 White Horse Dr SE, Rio Rancho, NM 87124	I reported this house to the city last month and he has cleaned up but now he has pitched a bunch of trash over the wall to the golf course side. He did not clean up the pile of debris he put on the golf course side. His response when asked if he was going to clean it up was, , "that it would just blow away, he wasn't worried about it".	Closed	Bryan Misbach
287	2018-07-02T17:07:50	2018-08-10T13:27:58	Code Enforcement	35.3502469	-106.6055303	6321 Vaughn Dr NE, Rio Rancho, NM 87144	Our neighbors have created their own dump in their front yard. It is a large pile of trash on an old trailer. Also, their yard has garbage flowing though out. I have attached pictures for your reference.	Closed	Jimmy Chavez
288	2018-07-01T19:48:34	2018-11-27T07:16:34	Code Enforcement	35.3554163	-106.6163874	5734 Quay Dr NE, Rio Rancho, NM 87144	Their yard is constantly riddled with trash. Current there are several water bottles, and other plastic bottles, lining the North side of their driveway, the North side of their house, and in their front yard. There is trash consistently winding up in our yard from theirs. This includes food, food wrappers, and sauce dipping cups.	Closed	Jimmy Chavez

Service Request Metrics: All Recent Requests

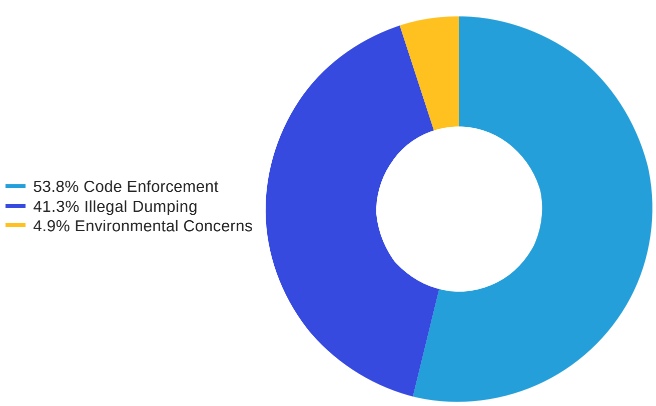
Open/Closed by Day



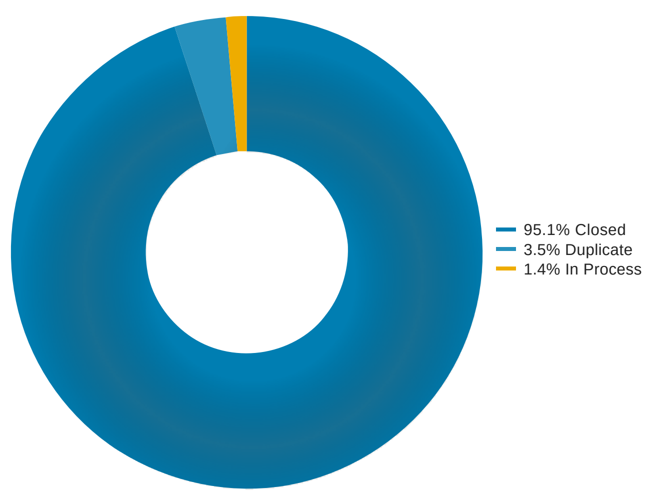
Statistics

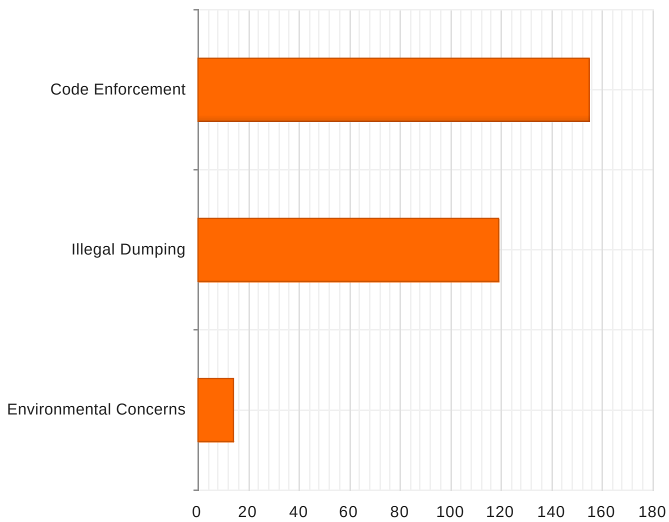
Total Reports Created	288
Total Reports Open	4
Total Reports Closed	284
Average Reports Created per Day	.791
Average Reports Closed per Day	.78
Average Time to Close	20.579 Days
Fastest Closed Request Type	Code Enforcement (.004 Days)
Slowest Closed Request Type	Code Enforcement (152.72 Days)
Most Common Request Type	Code Enforcement
Least Common Request Type	Environmental Concerns

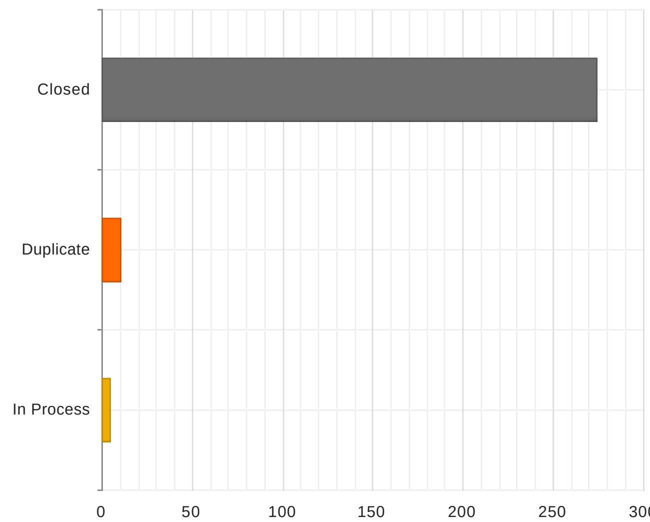
Requests by Type



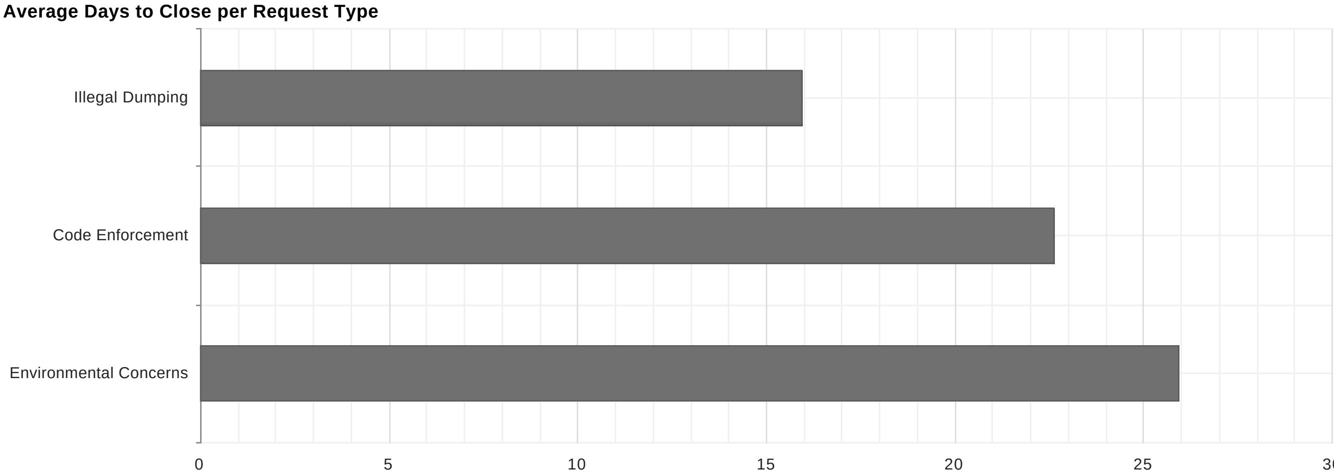
Requests by Status







Average Days to Close per Request Type



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U.S. EPA 2017 Construction General Permit (CGP) - July 1, 2018 - June 30, 2019

Notice of Intent (NOIs), Notice of Termitation (NOTs), and Low Erosivity Waivers (LEWs)

NO.	NPDES ID	PERMIT TYPE	OWNER/OPERATOR	SITE NAME	STATE	CITY	STATUS	SUBMITTED	DATE OF COVERAGE
1	NMR1001FX	General Permit	Franklin's Earthmoving, Inc.	Hawksite Subdivision Tract 27	NM	Rio Rancho	Active	7/10/2018	7/24/2018
2	NMR1001G0	General Permit	AMREP Southwest, Inc.	Hawksite Subdivision Tract 27	NM	Rio Rancho	Active	7/11/2018	7/25/2018
3	NMR1001G4	General Permit	City of Rio Rancho NPDES	WA1492 Replacement of Well 13	NM	Rio Rancho	Terminated	7/12/2018	7/26/2018
4	NMR1001G6	Low Erosivity Waiver	Joiner, Inc.	East Pond Closure Rio Rancho Golf Course	NM	Rio Rancho	Active	7/13/2018	7/13/2018
5	NMR1001G7	Low Erosivity Waiver	Joiner, Inc.	South Pond Closure Rio Rancho Golf Course	NM	Rio Rancho	Active	7/13/2018	7/13/2018
6	NMR1001GB	General Permit	Joiner, Inc.	Rio Rancho Golf Course Pond Closure	NM	Rio Rancho	Active	7/16/2018	7/30/2018
7	NMR1001GP	General Permit	Jemez Vista Residential Development, LLC	Jemez Vista at Mariposa	NM	Rio Rancho	Active	7/19/2018	8/2/2018
8	NMR1000O3	General Permit	HB Construction	Rio Rancho Public Schools Transportation Center	NM	Rio Rancho	Terminated	7/23/2018	8/10/2017
9	NMR1001BJ	General Permit	CBKN Dirtworks, Inc.	Rainbow Pond and Downstream Channel Project	NM	Rio Rancho	Terminated	7/25/2018	5/29/2018
10	NMR1001H4	General Permit	Salls Brothers Construction	Jemez Vista Subdivision	NM	Rio Rancho	Active	7/25/2018	8/8/2018
11	NMR1001H9	General Permit	Hakes Brothers, LLC	Lomas Encantadas 2B and 2C	NM	Rio Rancho	Active	7/26/2018	8/9/2018
12	NMR1001HD	General Permit	LGI Homes-New Mexico, LLC	High Range 4	NM	Rio Rancho	Active	7/26/2018	8/9/2018
13	NMR1001HK	General Permit	Salls Brothers Construction	High Range Unit 4A	NM	Rio Rancho	Active	7/30/2018	8/13/2018
14	NMR1001HV	General Permit	Twilight Homes	Mariposa	NM	Rio Rancho	Active	8/1/2018	8/15/2018
15	NMR1001ID	General Permit	Hutton Exchange Rio Rancho NM, LLC.	O'Reilly Auto Parts Rio Rancho	NM	Rio Rancho	Terminated	8/7/2018	8/21/2018
16	NMR1001ID	General Permit	Hutton Exchange Rio Rancho NM, LLC.	O'Reilly Auto Parts Rio Rancho	NM	Rio Rancho	Terminated	8/7/2018	8/21/2018
17	NMR1001II	General Permit	Fair and Square Builders, LLC.	Enchanted Hills Townhomes	NM	Rio Rancho	Active	8/8/2018	8/22/2018
18	NMR1000ZB	General Permit	DR Horton, Inc	Los Pinos	NM	RIo Rancho	Terminated	8/16/2018	12/22/2017
19	NMR1001J2	General Permit	Sivage Community Development	Desert View Subdivision in Mariposa	NM	Rio Rancho	Terminated	8/18/2018	9/1/2018
20	NMR1001JC	General Permit	Albuquerque Asphalt Inc	Southern BLVD Reconstruction Phase I	NM	Rio Rancho	Active	8/23/2018	9/6/2018
21	NMR1000SX	Low Erosivity Waiver	Franklin's Earthmoving Inc.	Lot 7A La Bona Tierra	NM	Rio Rancho	Discontinued	8/27/2018	9/22/2017
22	NMR1001JK	General Permit	Salls Brothers Construction Inc	Tierra Del Oro	NM	Rio Rancho	Active	8/27/2018	9/10/2018
23	NMR1001JT	General Permit	City of Rio Rancho NPDES	Southern Blvd Reconstruction - Phase I	NM	Rio Rancho	Active	8/30/2018	9/13/2018
24	NMR1001M3	Low Erosivity Waiver	City of Rio Rancho NPDES	Unser Roadway Improvements	NM	Rio Rancho	Active	9/27/2018	9/27/2018
25	NMR1001MR	General Permit	Pulte Homes	Loma Colorado	NM	Rio Rancho	Active	10/4/2018	10/18/2018
26	NMR1001JC	General Permit	Albuquerque Asphalt Inc	Southern BLVD Reconstruction Phase I	NM	Rio Rancho	Active	10/11/2018	9/6/2018
27	NMR1001NV	General Permit	HB Construction	Eduro Healthcare	NM	Rio Rancho	Active	10/16/2018	10/30/2018
28	NMR1000HJ	General Permit	Double M. Properties	Milagro Mesa Subdivision	NM	Rio Rancho	Terminated	10/31/2018	6/7/2017
29	NMR10I023	General Permit	Pate Construction Co., Inc.	Tamaya Drainage	NM	Rio Rancho	Terminated	11/5/2018	11/14/2017
30	NMR1001PL	General Permit	Double M. Properties	Milagro Mesa Subdivision Phase 2	NM	Rio Rancho	Active	11/7/2018	11/21/2018
31	NMR10017J	General Permit	Franklins Earthmoving Inc	Zaragoza Rd Waterline Replacementt	NM	Rio Rancho	Terminated	11/12/2018	4/8/2018
32	NMR1001QE	General Permit	D.R. Horton	Cleveland Heights	NM	Rio Rancho	Active	11/16/2018	11/30/2018
33	NMR100065	General Permit	SLG Holdings Inc	Rock Ridge	NM	Rio Rancho	Terminated	12/7/2018	5/8/2017
34	NMR1001CB	General Permit	SLG Holdings, LLC	Pritchard Residence	NM	Rio Rancho	Terminated	12/7/2018	6/6/2018
35	NMR1001RR	General Permit	Jeff Grady	Lomas Encantada II	NM	Rio Rancho	Active	12/7/2018	12/21/2018
36	NMR1001BM	General Permit	Gandy Dancer, LLC	Discharge Line for Advanced Water Treatment Facility	NM	Rio Rancho	Terminated	1/2/2019	5/30/2018
37	NMR1001TE	General Permit	Franklin's Earthmoving, Inc.	Rockaway Blvd.	NM	Rio Rancho	Terminated	1/4/2019	1/18/2019
38	NMR1001TF	General Permit	Franklin's Earthmoving, Inc.	Abrazo Road Reconstruction and Water Line Replacement	NM	Rio Rancho	Active	1/4/2019	1/18/2019
39	NMR1001TI	Low Erosivity Waiver	Franklin's Earthmoving, Inc.	35 North Subdivision	NM	Rio Rancho	Discontinued	1/4/2019	1/4/2019
40	NMR1001TJ	General Permit	Franklin's Earthmoving, Inc.	35 North Subdivision	NM	Rio Rancho	Active	1/4/2019	1/18/2019
41	NMR1001UB	General Permit	Pulte Homes Inc.	Broadmoor Heights	NM	Rio Rancho	Active	1/11/2019	1/25/2019
42	NMR1001UC	General Permit	AMREP Southwest, Inc.	35 North Subdivision	NM	Rio Rancho	Active	1/14/2019	1/28/2019
43	NMR1001UQ	General Permit	TLC Plumbing & Utility	WA1884 Industrial Park Loop Waterline Replacement	NM	Rio Rancho	Active	1/17/2019	1/31/2019
44	NMR1001UR	General Permit	TLC Plumbing & Utility	Meadowlark Lane Improvements	NM	Rio Rancho	Active	1/17/2019	1/31/2019
45	NMR10002T	General Permit	Rachael Matthew Development	Enchanted Hills Plaza	NM	Rio Rancho	Terminated	1/28/2019	4/5/2017
46	NMR1001VB	General Permit	City of Rio Rancho NPDES	Meadowlark Lane Improvements	NM	Rio Rancho	Active	1/28/2019	2/11/2019
47	NMR1001VC	General Permit	City of Rio Rancho NPDES	WA 1884 Industrial Park Loop Waterline Replacement	NM	Rio Rancho	Active	1/28/2019	2/11/2019
48	NMR1001VD	General Permit	City of Rio Rancho NPDES	Rockaway Blvd. Reconstruction	NM	Rio Rancho	Active	1/28/2019	2/11/2019
49	NMR1001VE	General Permit	City of Rio Rancho NPDES	Abrazo Road Reconstruction and Water Line Replacement	NM	Rio Rancho	Active	1/28/2019	2/11/2019
50	NMR1001W8	General Permit	HB Construction	Natural Grocers	NM	Rio Rancho	Active	2/5/2019	2/19/2019
51	NMR1001X6	General Permit	Salls Brothers Construction	Lomitas Negras Phase 2	NM	Rio Rancho	Active	2/14/2019	2/28/2019
52	NMR1001X9	General Permit	Southern Sandoval County Arroyo Flood Control Authority	Lomitas Negras Phase 2	NM	Rio Rancho	Active	2/15/2019	3/1/2019
53	NMR1001XD	General Permit	HB Construction	Eduro Healthcare	NM	Rio Rancho	Active	2/18/2019	3/4/2019
54	NMR1001XK	Low Erosivity Waiver	Franklin's Earthmoving, Inc.	Perfection Honda Vehicle Storage	NM	Rio Rancho	Discontinued	2/19/2019	2/19/2019
55	NMR10014Q	General Permit	Titan Development	Extra Space Self Storage	NM	Rio Rancho	Terminated	2/25/2019	3/7/2018
56	NMR10014S	General Permit	Titan Corrales SS, LLC.	Extra Space Self Storage	NM	Rio Rancho	Terminated	2/25/2019	3/8/2018

U.S. EPA 2017 Construction General Permit (CGP) - July 1, 2018 - June 30, 2019

Notice of Intent (NOIs), Notice of Termitation (NOTs), and Low Erosivity Waivers (LEWs)

NO.	NPDES ID	PERMIT TYPE	OWNER/OPERATOR	SITE NAME	STATE	CITY	STATUS	SUBMITTED	DATE OF COVERAGE
57	NMR1001BJ	General Permit	CBKN Dirtworks, Inc.	Rainbow Pond and Downstream Channel Project	NM	Rio Rancho	Terminated	2/25/2019	5/29/2018
58	NMR10018Q	General Permit	Compass Engineering & Construction Services, LLC	Lisbon Channel Access Project	NM	Rio Rancho	Terminated	2/27/2019	4/19/2018
59	NMR1000HI	General Permit	D.R. Scott, LLC	Mariposa Tracts	NM	Rio Rancho	Terminated	3/7/2019	6/7/2017
60	NMR1000O8	General Permit	Rio Rancho Public Schools	Rio Rancho Public Schools Transportation Center	NM	Rio Rancho	Terminated	3/8/2019	8/11/2017
61	NMR1001ZF	General Permit	Bradbury Stamm Construction	RRPS Joe Harris Elementary School	NM	Rio Rancho	Active	3/8/2019	3/22/2019
62	NMR10011A	Low Erosivity Waiver	Mechenbier Construction, Inc.	Fish Factory Swim School Building	NM	Rio Rancho	Discontinued	3/20/2019	1/9/2018
63	NMR10020D	General Permit	Hakes Brothers ABQ, LLC	Hawk Site Unit 27	NM	Rio Rancho	Active	3/20/2019	4/3/2019
64	NMR10020L	General Permit	Rio Rancho Public Schools	RRPS Joe Harris Elementary School	NM	Rio Rancho	Active	3/21/2019	4/4/2019
65	NMR10020W	General Permit	Sundance Mechanical & Utility Corporation	Lincoln Avenue Utility Project - Water and Sewer Extension	NM	Rio Rancho	Terminated	3/26/2019	4/9/2019
66	NMR100217	General Permit	City of Rio Rancho NPDES	Lincoln Avenue Utility Project - Water and Sewer Extension	NM	Rio Rancho	Active	3/29/2019	4/12/2019
67	NMR10021C	General Permit	Sierra Hacienda Builders, LLC.	The Boonies	NM	Rio Rancho	Active	4/1/2019	4/15/2019
68	NMR10021F	General Permit	Salls Brothers Construction Inc.	Los Diamantes Deveolpment	NM	Rio Rancho	Terminated	4/2/2019	4/16/2019
69	NMR10021U	Low Erosivity Waiver	Salls Brothers Construction Co. Inc.	Paso Gateway-Offsite Phase 2	NM	Rio Rancho	Discontinued	4/4/2019	4/4/2019
70	NMR10022I	General Permit	SDV Construction	CNM Rio Rancho	NM	Rio Rancho	Active	4/11/2019	4/25/2019
71	NMR10019Q	General Permit	SSCAFCA	Lisbon Channel Access Project	NM	Rio Rancho	Terminated	4/16/2019	5/2/2018
72	NMR1001F1	General Permit	SSCAFCA	Rainbow Pond and Downstream Channel Project	NM	Rio Rancho	Terminated	4/16/2019	7/12/2018
73	NMR100230	General Permit	LD Development	Los Diamantes Development	NM	Rio Rancho	Active	4/17/2019	5/1/2019
74	NMR1000VV	General Permit	Franklin's Earthmoving, Inc.	Lomas Encantadas Subdivision Units 2C and 2B	NM	Rio Rancho	Terminated	4/22/2019	11/13/2017
75	NMR1001BT	General Permit	Franklin's Earthmoving, Inc.	Paseo Gateway Phase 1 - SAS Channel	NM	Rio Rancho	Terminated	4/22/2019	5/30/2018
76	NMR1001EX	General Permit	Layne Christensen	IFB 18-PW-023 REPLACEMENT OF WELL 13	NM	Rio Rancho	Terminated	4/23/2019	7/11/2018
77	NMR100247	General Permit	AMREP Southwest, Inc.	Lomas Encantadas Subdivision Unit 2C, Phase 3	NM	Rio Rancho	Active	4/30/2019	5/14/2019
78	NMR1000MG	General Permit	AMREP Southwest, Inc.	Enchanted Hills Subdivision 11B	NM	Rio Rancho	Terminated	5/6/2019	7/25/2017
79	NMR10024P	General Permit	Guzman Construction Solutions	Milagro Mesa Subdivision Phase 2	NM	Rio Rancho	Active	5/6/2019	5/20/2019
80	NMR1000YQ	General Permit	Bradbury Stamm Construction	Morning Star of Rio Rancho	NM	Rio Rancho	Terminated	5/15/2019	12/15/2017
81	NMR1000HK	General Permit	The Troughs, LLC	Mariposa The Peaks	NM	Rio Rancho	Terminated	5/17/2019	6/7/2017
82	NMR1001G0	General Permit	AMREP Southwest, Inc.	Hawksite Subdivision Tract 27 & Roadrunner Park	NM	Rio Rancho	Active	5/22/2019	7/25/2018
83	NMR10025A	General Permit	BRYCON CORPORATION	RISING STARS	NM	Rio Rancho	Active	5/23/2019	6/6/2019
84	NMR1001FX	General Permit	Franklin's Earthmoving, Inc.	Hawksite Subdivision Tract 27 & Roadrunner Park	NM	Rio Rancho	Active	5/30/2019	7/24/2018
85	NMR100260	General Permit	D.R. Horton	Solcito II	NM	Rio Rancho	Active	5/30/2019	6/13/2019
86	NMR10026N	General Permit	Brycon Corporation	Shining Stars	NM	Rio Rancho	Active	6/4/2019	6/18/2019
87	NMR10027V	General Permit	Altor Construction, Inc.	Cleveland High School Parking Improvements	NM	Rio Rancho	Active	6/17/2019	7/1/2019
88	NMR10028Z	General Permit	AUI Inc	Lift Station 27 Force Main	NM	Rio Rancho	Active	6/28/2019	7/12/2019
89	NMR100290	General Permit	RMCI, Inc.	Unser Channel Repairs	NM	Rio Rancho	Active	6/28/2019	7/12/2019
90	NMR100291	General Permit	Franklin's Earthmoving Inc.	Sundt Road Reconstruction and Waterline Replacement	NM	Rio Rancho	Active	6/28/2019	7/12/2019

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENING	10/13/2019	1:30 pm	XAVIER PETTUS
OUTFALL ID	**SUBWATERSHED**	**LATITUDE** / **LONGITUDE**	**OBSERVER INFO. (Reported by Citizens)**
RIVERS EDGE 1	BARRANCA	35° 17' 54" N / 106° 34' 50" W	ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential)	**WEATHER**	**LAST RAIN (>72 hours or < 72 hours)**	
RESIDENTIAL SUB.	65 °F	0.0"	

- **Conveyance (Check one only):** [x] MS4 Outfall ☐ Other MS4 Structure ☐ Concrete Channel ☐ Earthen Channel ☐ Arroyo/Natural Creek — Comments:
- **Material:** ☐ Concrete ☐ Earthen ☐ Rip-Rap [x] RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other____
- **Shape:** [x] Circular ☐ Elliptical ☐ Box ☐ Trapezoid ☐ Parabolic ☐ Other____ ☐ Single ☐ Double ☐ Triple ☐ Other____
- **Dimensions:** [x] Diameter/Dimensions: 24" ☐ Depth: ____ ☐ Bottom Width: ____ ☐ Top Width: ____
- **Submerged:** In Water: [x] No ☐ Partially ☐ Fully — With Sediment: [x] No ☐ Partially ☐ Fully
- **Ownership:** ☐ SSCAFCA [x] City ☐ Private ☐ Unknown ☐ Other____
- **Discharges to:** ☐ Pond/Depressional Feature ☐ Natural Conveyance ☐ Storm Drain Channel ☐ Open Space [x] Other RIO GRANDE
- **Flow Status:** ☐ Flowing [x] Dry ☐ Ponded — **Flow Reaches Receiving Water?** ☐ Yes ☐ No N/A

WATER QUALITY APPEARANCE

- **ODOR:** ☐ HYDROGEN SULFIDE ☐ MUSTY ☐ SEWAGE ☐ AMMONIA ☐ GASOLINE [x] OTHER N/A ☐ SOAP ☐ CHLORINE ☐ NONE ☐ EARTHY ☐ PESTICIDE
- **COLOR:** ☐ YELLOW ☐ GREEN ☐ BLUE ☐ BROWN ☐ BLACK [x] OTHER N/A ☐ GRAY ☐ WHITE ☐ COLORLESS
- **FLOATING MATERIALS:** ☐ TRASH OR DEBRIS ☐ OILY SHEEN ☐ ORGANIC ☐ SCUM ☐ SUDS [x] OTHER N/A ☐ OBJECTS (DESCRIBE) ☐ FECAL MATTER ☐ BIOFILM ☐ NONE
- **OIL AND GREASE:** [x] NONE ☐ DEPOSIT ☐ EMULSION ☐ SHEEN ☐ HEAVY FLOATING CONCENTRATION
- **TURBIDITY:** ☐ HEAVY CLOUDINESS, OPAQUE ☐ CLOUDY ☐ SOME CLOUDINESS [x] NONE

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE

☐ Pool/Spa Discharge ☐ Illicit Connection ☐ Restaurant Washing (write restaurant name in comments) ☐ Illegal Dumping ☐ Sewage ☐ Groundwater ☐ Irrigation Runoff ☐ Vehicle Washing ☐ Water Line Break ☐ Permitted Discharge ☐ Power Washing ☐ Other

DESCRIBE ALL SOURCES: NONE

OTHER VISUAL OBSERVATIONS

- **Outfall Damage:** ☐ Cracking or Chipping ☐ Corrosion ☐ Peeling Paint [x] None ☐ Other____
- **Deposits/Stains:** ☐ Flow Line ☐ Oily ☐ Paint [x] None ☐ Other____
- **Abnormal Vegetation:** [x] Excessive ☐ Inhibited
- **Pipe benthic growth:** ☐ Brown ☐ Orange ☐ Green [x] None ☐ Other____

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:

Grab samples collected: (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**

QA/QC SAMPLES: ☐ Field Duplicate ☐ Field Blank

FLOW ESTIMATION

Flow Yes / No / Ponded — Evidence of overland flow near sampling location? Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)
1. Width (ft or in) ____
2. Depth (ft or in) ____
3. Velocity (ft or in / sec) ____

Flow ____

Filling a Bottle
1. Volume (mL or L) ____
2. Time to fill (sec) ____

Flow ____

Flowing Pipe
1. Pipe Diameter (ft or in) ____
2. Depth (ft or in) ____
3. Velocity (ft or in / sec) ____

Flow ____

PHOTOS TAKEN: ☐ YES [x] NO

COMMENTS: OUTFALL WAS DRY DURING THIS FIELD VISIT.

INVESTIGATOR SIGNATURE ____, NPDES PROJECT MANAGER

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENING	6/13/2019	1:45 pm	XAVIER PETERS
OUTFALL ID: RIVERS EDGE 1	SUBWATERSHED: BARRANCA	LATITUDE: 35° 17' 27" N LONGITUDE: 106° 35' 20" W	OBSERVER INFO. (Reported by Citizens): ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential): RESIDENTIAL SUB.	WEATHER: 65°F	LAST RAIN (>72 hours or < 72 hours): 0.0"	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:		
Material	☐ Concrete	☐ Earthen ☐ Rip-Rap	☐ RCP	☐ CMP	☐ PVC	☐ HDPE	☒ Steel	☐ Other___
Shape	☒ Circular	☐ Elliptical ☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other___	☐ Single	☐ Double ☐ Triple ☐ Other___	
Dimensions	☒ Diameter/Dimensions: 18"		☐ Depth: ___	☐ Bottom Width: ___		☐ Top Width: ___		
Submerged	In Water:	☒ No	☐ Partially	☐ Fully	With Sediment:	☒ No	☐ Partially ☐ Fully	
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other___			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other___			
Flow Status	☐ Flowing	☒ Dry	☐ Ponded	Flow Reaches Receiving Water?	☐ Yes	☐ No		

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☐ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☒ OTHER N/A
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☐ COLORLESS	☐ BROWN	☐ BLACK	☒ OTHER N/A
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☐ NONE	☐ SUDS	☒ OTHER N/A
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other___
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other___
Abnormal Vegetation	☒ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other___

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
GRAB COLLECTION TIME:		Grab samples collected: (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**	
QA/QC SAMPLES:	☐ Field Duplicate	☐ Field Blank	

FLOW ESTIMATION Flow Yes / No / Ponded (No circled)

Evidence of overland flow near sampling location? Yes / No (No circled)

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	Filling a Bottle	Flowing Pipe
1. Width (ft or in) ___	1. Volume (mL or L) ___	1. Pipe Diameter (ft or in) ___
2. Depth (ft or in) ___	2. Time to fill (sec) ___	2. Depth (ft or in) ___
3. Velocity (ft or in / sec) ___		3. Velocity (ft or in / sec) ___
Flow ___	Flow ___	Flow ___

PHOTOS TAKEN: ☐ YES ☒ NO	COMMENTS: OUTFALL WAS DRY DURING THIS FIELD VISIT.
INVESTIGATOR SIGNATURE: [signature]	NPDES PROJECT MANAGER

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENING	6/13/2019	2:00 pm	XAVIER REYES
OUTFALL ID: RIVERS EDGE 3	SUBWATERSHED: BARRANCA	LATITUDE / LONGITUDE	OBSERVER INFO. (Reported by Citizens): ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential): RESIDENTIAL SUB.	WEATHER: 65°F	LAST RAIN (>72 hours or < 72 hours): 0.0"	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:			
Material	☐ Concrete	☐ Earthen	☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel	☐ Other
Shape	☒ Circular	☐ Elliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other	☐ Single	☐ Double	☐ Triple ☐ Other
Dimensions	☒ Diameter/Dimensions: 60"			☐ Depth:	☐ Bottom Width:		☐ Top Width:		
Submerged	In Water:	☒ No	☐ Partially	☐ Fully		With Sediment:	☒ No	☐ Partially	☐ Fully
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other				
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other				
Flow Status	☐ Flowing	☒ Dry	☐ Ponded		Flow Reaches Receiving Water?	☐ Yes	☐ No		

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☐ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☒ OTHER N/A
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☐ COLORLESS	☐ BROWN	☐ BLACK	☒ OTHER N/A
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☐ NONE	☐ SUDS	☒ OTHER N/A
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	Grab samples collected: (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**
QA/QC SAMPLES:	▫ Field Duplicate ▫ Field Blank

FLOW ESTIMATION Flow Yes / No / Ponded (No circled) — Evidence of overland flow near sampling location? Yes / No (No circled)

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	Filling a Bottle	Flowing Pipe
1. Width (ft or in) ______	1 Volume (mL or L) ______	1. Pipe Diameter (ft or in) ______
2. Depth (ft or in) ______	2 Time to fill (sec) ______	2 Depth (ft or in) ______
3. Velocity (ft or in / sec) ______		3. Velocity (ft or in / sec) ______
Flow ______	Flow ______	Flow ______

PHOTOS TAKEN:	COMMENTS:
☐ YES ☒ NO	OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.

INVESTIGATOR SIGNATURE: [signature] NPDES PROJECT MANAGER

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENING	6/13/2019	2:15 pm	XAVIER PETTES
OUTFALL ID: RIVERS EDGE 4	SUBWATERSHED: BARRANCA	LATITUDE: 35° 17' 21" N LONGITUDE: 106° 35' 35" W	OBSERVER INFO. (Reported by Citizens): ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential): RESIDENTIAL SUB.	WEATHER: 65 °F	LAST RAIN (>72 hours or < 72 hours): 0.0"	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:	
Material	☐ Concrete	☐ Earthen ☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel ☐ Other____
Shape	☒ Circular	☐ Elliptical ☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other____	☐ Single	☐ Double ☐ Triple ☐ Other____
Dimensions	☒ Diameter/Dimensions: 30"		☐ Depth: ____	☐ Bottom Width: ____		☐ Top Width: ____	
Submerged	In Water:	☒ No ☐ Partially	☐ Fully		With Sediment:	☒ No	☐ Partially ☐ Fully
Ownership	☐ SSCAFCA	☒ City ☐ Private	☐ Unknown	☐ Other____			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance ☐ Storm Drain Channel	☒ Open Space	☐ Other____			
Flow Status	☐ Flowing	☒ Dry ☐ Ponded		Flow Reaches Receiving Water?	☐ Yes	☐ No	

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☐ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☒ OTHER N/A
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☐ COLORLESS	☐ BROWN	☐ BLACK	☒ OTHER N/A
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☐ NONE	☐ SUDS	☒ OTHER N/A
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion ☐ Peeling Paint	☒ None	☐ Other____	
Deposits/Stains	☐ Flow Line	☐ Oily ☐ Paint	☒ None	☐ Other____	
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange ☐ Green	☒ None	☐ Other____	

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:

Grab samples collected: (Circle all that apply)
Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants

QA/QC SAMPLES: ☐ Field Duplicate ☐ Field Blank

FLOW ESTIMATION Flow Yes / No / Ponded — **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	Filling a Bottle	Flowing Pipe
1. Width (ft or in) ____	1. Volume (mL or L) ____	1. Pipe Diameter (ft or in) ____
2. Depth (ft or in) ____	2. Time to fill (sec) ____	2. Depth (ft or in) ____
3. Velocity (ft or in / sec) ____		3. Velocity (ft or in / sec) ____
Flow ____	Flow ____	Flow ____

PHOTOS TAKEN: ☐ YES ☒ NO

COMMENTS: OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.

INVESTIGATOR SIGNATURE [signature] NPDES PROJECT MANAGER

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENING	6/13/2019	2:30 pm	XAVIER PETTES
OUTFALL ID RIVERS EDGE 5	**SUBWATERSHED** BARRANCA	**LATITUDE** 35°17'13" N **LONGITUDE** 106°35'42" W	**OBSERVER INFO. (Reported by Citizens)** ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential) RESIDENTIAL SUB.	**WEATHER** 65°F	**LAST RAIN (>72 hours or <72 hours)** 0.0"	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:		
Material	☐ Concrete	☐ Earthen ☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel	☐ Other
Shape	☒ Circular	☐ Elliptical ☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other	☐ Single	☐ Double ☐ Triple	☐ Other
Dimensions	☒ Diameter/Dimensions: 48"		☐ Depth:	☐ Bottom Width:		☐ Top Width:		
Submerged	In Water:	☒ No	☐ Partially ☐ Fully		With Sediment:	☐ No	☐ Partially ☐ Fully	
Ownership	☐ SSCAFCA	☒ City	☐ Private ☐ Unknown	☐ Other				
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel ☒ Open Space	☐ Other				
Flow Status	☐ Flowing	☒ Dry	☐ Ponded	**Flow Reaches Receiving Water?**	☐ Yes	☐ No		

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☐ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☒ OTHER N/A
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☐ COLORLESS	☐ BROWN	☐ BLACK	☒ OTHER N/A
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☐ NONE	☐ SUDS	☒ OTHER N/A
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:

Grab samples collected: (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**

QA/QC SAMPLES: ▫ Field Duplicate ▫ Field Blank

FLOW ESTIMATION **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	**Filling a Bottle**	**Flowing Pipe**
1. Width (ft or in)	1. Volume (mL or L)	1. Pipe Diameter (ft or in)
2. Depth (ft or in)	2. Time to fill (sec)	2. Depth (ft or in)
3. Velocity (ft or in / sec)		3. Velocity (ft or in / sec)
Flow	Flow	Flow

PHOTOS TAKEN: ☐ YES ☒ NO

COMMENTS: OUTFALL SITE WAS DRY DURING THIS FIELD VISIT. NPDES PROJECT MANAGER.

INVESTIGATOR SIGNATURE [signature]

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENING	6/13/2019	2:45 PM	XAVIER PERTES
OUTFALL ID: RIVERS EDGE 6	SUBWATERSHED: BARRANCAS	LATITUDE 35° 17' 06" N / LONGITUDE 106° 35' 48" W	OBSERVER INFO. (Reported by Citizens): ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential): RESIDENTIAL SUB.	WEATHER: 105°F	LAST RAIN (>72 hours or < 72 hours): 0.0	

Conveyance (Check one only)	☒ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☐ Earthen Channel	☐ Arroyo/Natural Creek	Comments:		
Material	☐ Concrete	☐ Earthen ☐ Rip-Rap	☒ RCP	☐ CMP	☐ PVC	☐ HDPE	☐ Steel	☐ Other____
Shape	☒ Circular	☐ Eliptical ☐ Box	☐ Trapezoid	☐ Parabolic	☐ Other____	☐ Single	☐ Double ☐ Triple	☐ Other____
Dimensions	☒ Diameter/Dimensions: 48"		☐ Depth: ____	☐ Bottom Width: ____		☐ Top Width: ____		
Submerged	In Water:	☒ No	☐ Partially	☐ Fully	With Sediment:	☒ No	☐ Partially	☐ Fully
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other____			
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☐ Open Space	☐ Other____			
Flow Status	☐ Flowing	☒ Dry	☐ Ponded		Flow Reaches Receiving Water?	☐ Yes	☐ No	

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☐ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☒ OTHER N/A
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☐ COLORLESS	☐ BROWN	☐ BLACK	☒ OTHER N/A
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☐ NONE	☐ SUDS	☒ OTHER N/A
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☒ Cracking or Chipping	☐ Corrosion ☐ Peeling Paint	☐ None	☐ Other EROSION UNDER STILLING BASIN	
Deposits/Stains	☐ Flow Line	☐ Oily ☐ Paint	☒ None	☐ Other____	
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange ☐ Green	☒ None	☐ Other____	

FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)

GRAB COLLECTION TIME:	Grab samples collected: (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**
QA/QC SAMPLES:	☐ Field Duplicate ☐ Field Blank

FLOW ESTIMATION Flow Yes/No/Ponded (No circled) Evidence of overland flow near sampling location? Yes/No (No circled)

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	Filling a Bottle	Flowing Pipe
1. Width (ft or in) ____	1. Volume (mL or L) ____	1 Pipe Diameter (ft or in) ____
2. Depth (ft or in) ____	2. Time to fill (sec) ____	2. Depth (ft or in) ____
3. Velocity (ft or in / sec) ____		3. Velocity (ft or in / sec) ____
Flow ____	Flow ____	Flow ____

PHOTOS TAKEN: ☐ YES ☒ NO	COMMENTS: OUTFALL HAS STANDING WATER IN PLUNGE POOL
INVESTIGATOR SIGNATURE [signature]	NPDES PROJECT MANAGER

CITY OF RIO RANCHO
IDDE INSPECTION FIELD FORM

PROJECT/SURVEY NAME (i.e., Wet, Dry, Incident Tracking, Outfall Recon Inventory)	DATE	TIME	INVESTIGATOR(S)
DRY WEATHER SCREENINGS	6/13/2019	3:00 pm	X Perez
OUTFALL ID RIVERS EDGE 7	**SUBWATERSHED** BARRANCA	**LATITUDE** 35° 17' 54" N **LONGITUDE** 106° 35' 50" W	**OBSERVER INFO. (Reported by Citizens)** ANNUAL SCREENING
LAND USE IN DRAINAGE AREA (i.e., Commercial, Industrial, Residential) RESIDENTIAL SUB	**WEATHER** 65°F	**LAST RAIN (>72 hours or < 72 hours)** 0.0"	

Conveyance (Check one only)	☐ MS4 Outfall	☐ Other MS4 Structure	☐ Concrete Channel	☒ Earthen Channel	☐ Arroyo/Natural Creek	Comments:	
Material	☐ Concrete	☒ Earthen	☐ Rip-Rap	☐ RCP	☐ CMP	☐ PVC	☐ HDPE ☐ Steel ☐ Other_____
Shape	☐ Circular	☐ Elliptical	☐ Box	☐ Trapezoid	☐ Parabolic	☒ Other INCISED ☐ Single	☐ Double ☐ Triple ☐ Other_____
Dimensions	☐ Diameter/Dimensions: _____		☐ Depth: _____	☐ Bottom Width: _____		☐ Top Width: _____	
Submerged	In Water:	☒ No	☐ Partially	☐ Fully	With Sediment:	☐ No	☐ Partially ☐ Fully
Ownership	☐ SSCAFCA	☒ City	☐ Private	☐ Unknown	☐ Other_____		
Discharges to	☐ Pond/Depressional Feature	☐ Natural Conveyance	☐ Storm Drain Channel	☒ Open Space	☐ Other_____		
Flow Status	☐ Flowing	☒ Dry	☐ Ponded		**Flow Reaches Receiving Water?**	☐ Yes	☐ No

WATER QUALITY APPEARANCE

ODOR	☐ HYDROGEN SULFIDE ☐ SOAP	☐ MUSTY ☐ CHLORINE	☐ SEWAGE ☐ NONE	☐ AMMONIA ☐ EARTHY	☐ GASOLINE ☐ PESTICIDE	☒ OTHER N/A
COLOR	☐ YELLOW ☐ GRAY	☐ GREEN ☐ WHITE	☐ BLUE ☐ COLORLESS	☐ BROWN	☐ BLACK	☒ OTHER N/A
FLOATING MATERIALS	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OILY SHEEN ☐ FECAL MATTER	☐ ORGANIC ☐ BIOFILM	☐ SCUM ☐ NONE	☐ SUDS	☒ OTHER N/A
OIL AND GREASE	☒ NONE	☐ DEPOSIT	☐ EMULSION	☐ SHEEN	☐ HEAVY FLOATING CONCENTRATION	
TURBIDITY	☐ HEAVY CLOUDINESS, OPAQUE		☐ CLOUDY	☐ SOME CLOUDINESS	☒ NONE	

POTENTIAL SOURCES OF FLOW OBSERVED NEAR SITE	☐ Pool/Spa Discharge	☐ Illicit Connection	☐ Restaurant Washing write restaurant name in comments	☐ Illegal Dumping	☐ Sewage	☐ Groundwater
	☐ Irrigation Runoff	☐ Vehicle Washing	☐ Water Line Break	☐ Permitted Discharge	☐ Power Washing	☐ Other
	DESCRIBE ALL SOURCES: NONE					

OTHER VISUAL OBSERVATIONS

Outfall Damage	☐ Cracking or Chipping	☐ Corrosion	☐ Peeling Paint	☒ None	☐ Other_____
Deposits/Stains	☐ Flow Line	☐ Oily	☐ Paint	☒ None	☐ Other_____
Abnormal Vegetation	☐ Excessive	☐ Inhibited			
Pipe benthic growth	☐ Brown	☐ Orange	☐ Green	☒ None	☐ Other_____

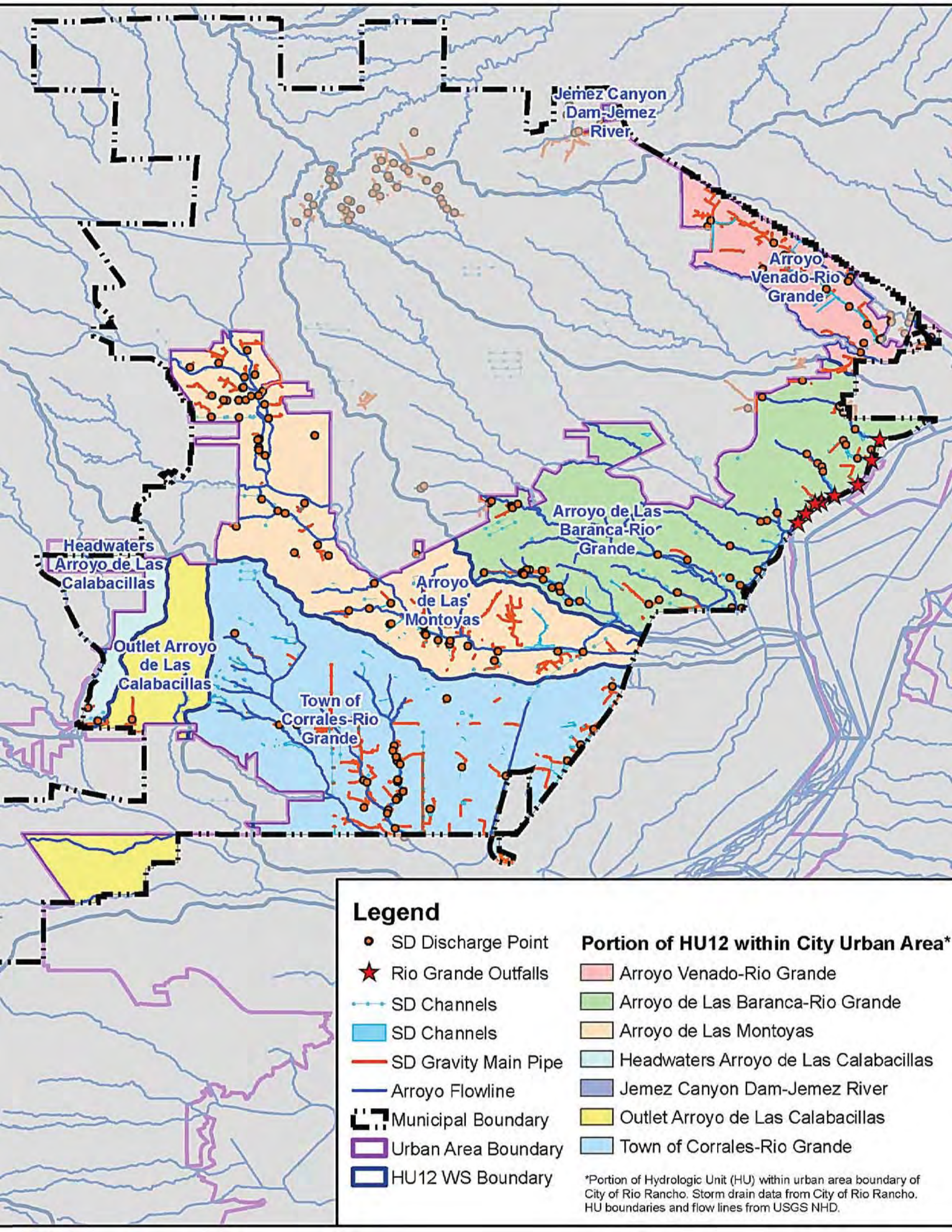
FIELD MEASUREMENTS (Taken in duplicate)	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
	TEMP (degree C)	pH	CONDUCTIVITY (uS/cm)
GRAB COLLECTION TIME:		**Grab samples collected:** (Circle all that apply) **Ammonia, Bacteria, Boron, Chlorine, Color, Detergents, Fluoride, Hardness, Potassium, Surfactants**	
QA/QC SAMPLES:	▫ Field Duplicate	▫ Field Blank	

FLOW ESTIMATION Flow Yes / No / Ponded (No circled) **Evidence of overland flow near sampling location?** Yes / No (No circled)

Marsh-McBirney used for flow measurements? Yes / No

Flowing Creek (Marsh-McBirney or leaf method)	Filling a Bottle	Flowing Pipe
1. Width (ft or in) _____	1. Volume (mL or L) _____	1. Pipe Diameter (ft or in) _____
2. Depth (ft or in) _____	2. Time to fill (sec) _____	2. Depth (ft or in) _____
3. Velocity (ft or in / sec) _____		3. Velocity (ft or in / sec) _____
Flow _____	Flow _____	Flow _____

PHOTOS TAKEN: ☐ YES ☒ NO	**COMMENTS:** OUTFALL SITE WAS DRY DURING THIS FIELD VISIT.
INVESTIGATOR SIGNATURE [signature] NPDES PROJECT MANAGER	


Jemez Canyon Dam-Jemez River
Arroyo Venado-Rio Grande
Arroyo de Las Baranca-Rio Grande
Arroyo de Las Montoyas
Headwaters Arroyo de Las Calabacillas
Outlet Arroyo de Las Calabacillas
Town of Corrales-Rio Grande
Legend
SD Discharge Point
Rio Grande Outfalls
SD Channels
SD Channels
SD Gravity Main Pipe
Arroyo Flowline
Municipal Boundary
Urban Area Boundary
HU12 WS Boundary
Portion of HU12 within City Urban Area*
Arroyo Venado-Rio Grande
Arroyo de Las Baranca-Rio Grande
Arroyo de Las Montoyas
Headwaters Arroyo de Las Calabacillas
Jemez Canyon Dam-Jemez River
Outlet Arroyo de Las Calabacillas
Town of Corrales-Rio Grande
*Portion of Hydrologic Unit (HU) within urban area boundary of City of Rio Rancho. Storm drain data from City of Rio Rancho. HU boundaries and flow lines from USGS NHD.

Bohannan Huston

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MEMORANDUM

DATE: June 27, 2019

TO: Jerry Lovato, PE, AMAFCA
Patrick Chavez, PE, AMAFCA

FROM: Craig Hoover, PE
Sarah Ganley, PE Sjg

SUBJECT: **CMC Dry Season, Wet Weather Stormwater Monitoring Data Verification, Analysis Results Database, and Reporting FY 2019 Dry Season (November 1, 2018 to June 30, 2019) Task 28 Memo**

Notification of In-Stream Water Quality Exceedances

One (1) set of Compliance Monitoring Cooperative (CMC) samples were collected in the FY 2019 dry season (November 1, 2018 to June 30, 2019). For downstream notification purposes, the following parameters for the in-stream samples taken in the Rio Grande for the FY 2019 dry season had results that exceeded applicable water quality standards: E. coli and Polychlorinated Biphenyls (PCBs). Table 1 summarizes the samples with exceedances and the applicable water quality standards (WQS) that were exceeded. Additional details on the sampling results are provided in this memo.

Table 1: Parameters Detected Above Applicable Water Quality Standards
CMC FY 2019 Dry Season, Wet Weather Monitoring

Sampling Date Location	Parameters, Applicable Water Quality Standard (WQS), and Results Exceeding Applicable WQS	
	E. coli	**PCBs**
	WQS: 88 CFU/100 ml Pueblo of Isleta Primary Contact Ceremonial & Recreational	**WQS: 0.00017 ug/L** Pueblo of Isleta Human Health Criteria (based on fish consumption only) **WQS: 0.00064 ug/L** NM Human Health- Organism Only Criteria (HH-OO)
3/11/2019 Rio Grande North Angostura Diversion Dam	No Exceedance	0.000187 ug/L
3/12/2019 Rio Grande South Isleta Diversion Dam	298 CFU/100ml	Not Tested

Sampling Date Location	Parameters, Applicable Water Quality Standard (WQS), and Results Exceeding Applicable WQS	
	E. coli	PCBs
	WQS: 88 CFU/100 ml Pueblo of Isleta Primary Contact Ceremonial & Recreational	**WQS: 0.00017 ug/L** Pueblo of Isleta Human Health Criteria (based on fish consumption only) **WQS: 0.00064 ug/L** NM Human Health- Organism Only Criteria (HH-OO)
3/12/2019 Rio Grande South Isleta Diversion Dam	309 CFU/100ml	Not Tested
3/13/2019 Rio Grande South Isleta Diversion Dam	594 CFU/100ml	0.00261 ug/L
3/13/2019 Rio Grande South Isleta Diversion Dam – Duplicate Sample	479 CFU/100ml	0.00188 ug/L

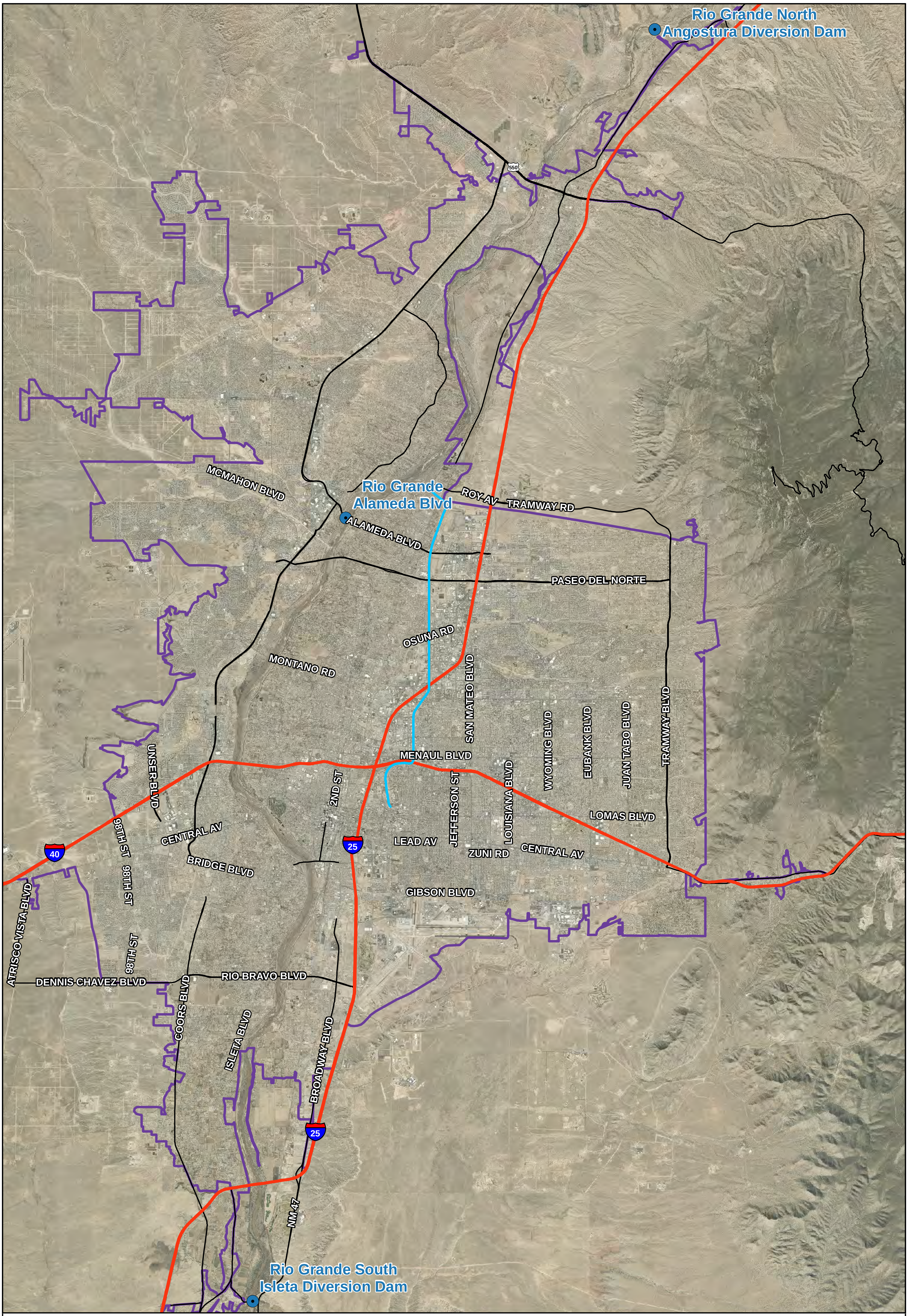
Overview of Stormwater Monitoring Activity

Bohannan Huston, Inc. (BHI) has been tasked to perform water quality services for the CMC Stormwater Data Verification, Database, and Reporting for the Wet Weather Stormwater Quality Monitoring Program for Fiscal Year (FY) 2019 (July 1, 2018 to June 30, 2019). The scope of work for this task includes data verification of the stormwater laboratory results, compiling the laboratory results into a database, and calculating the E. coli loading to compare with the Waste Load Allocation (WLA) for the qualifying storm events. The stormwater compliance monitoring is being conducted separately by Daniel B. Stephens & Associates, Inc. (DBS&A) and is not a part of this on-call task. This task is being conducted to assist the CMC members with their comprehensive monitoring and assessment program for compliance under the 2014 Middle Rio Grande Watershed Based Municipal Separate Storm Sewer System (MS4) Permit, NPDES Permit No. NMR04A000 ("WSB MS4 Permit").

As identified in the CMC Monitoring Plan, the WSB MS4 Permit requires a minimum of seven (7) storm events be sampled at both the Rio Grande North and Rio Grande South locations (refer to Figure 1, page 4, with at least three (3) events in the wet season and two (2) events in the dry season. Four (4) samples were collected in FY 2017 toward the WSB MS4 Permit requirements – three (3) in the wet season and one (1) in the dry season. In addition, two (2) samples were collected during the FY 2018 wet season (July 1, 2017 to October 31, 2017); reporting for these samples is in the February 2, 2018, CMC Wet Season, Wet Weather Stormwater Monitoring memo. No CMC samples were able to be collected in the FY 2018 dry season (November 1, 2017 to June 30, 2018) as reported in the July 3, 2018, CMC Dry Season, Wet Weather Monitoring memo. The final dry season storm event to meet WSB MS4 Permit requirements was sampled by the CMC on March 11-13, 2019, and the results are reported in this memo. All CMC samples obtained to date to meet the WSB MS4 Permit requirements are summarized in Table 2 below:

**Table 2: CMC Sample Summary
Compared to WSB MS4 Requirements**

No. of Storm Events Required to Sample	CMC-WSB MS4 Permit Required Samples per Season	FY (Date) Samples Obtained for CMC
1	#1 Wet Season	FY 2017 (8/10/2016)
2	#2 Wet Season	FY 2017 (9/12/2016)
3	#3 Wet Season	FY 2017 (9/21/2016)
4	#1 Dry Season	FY 2017 (11/21/2016)
5	#2 Dry Season	FY 2019 (3/13/2019)
6	Any Season	FY 2018 (Wet Season - 7/27/2017)
7	Any Season	FY 2018 (Wet Season - 9/27/2017)



Legend

- CMC Monitoring Locations
- North Diversion Channel
- Interstate Highway
- U.S. Highway
- State Highway
- Albuquerque Urbanized Area

N W E S

0 0.5 1 2

Miles

AMAFCA

Bohannan Huston www.bhinc.com 800.877.5332

CMC Monitoring

Figure 1
Monitoring Locations

P:\20180302\WR\Reports\Preliminary & Draft\Figures\MXDs\Figure1-CMCMonitoringLocations.mxd
Author: eburn

Summary of the CMC Sampling Plan

Sampling Parameters:

Samples from both the Rio Grande North and Rio Grande South monitoring locations were analyzed for the parameters defined in the Environmental Protection Agency (EPA) and New Mexico Environment Department (NMED) approved WSB MS4 CMC Monitoring Plan, May 5, 2016. The parameter list for both locations, which is intended to characterize MS4 stormwater discharges into the Rio Grande, is as follows:

Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
Chemical Oxygen Demand (COD)
Biological Oxygen Demand – 5-day (BOD_5)
Dissolved Oxygen (DO)
Oil & grease (N-Hexane Extractable Material)
E. coli
pH
Total Kjeldahl Nitrogen (TKN)
Nitrate plus Nitrite
Dissolved Phosphorus
Ammonia plus Organic Nitrogen (Nitrogen, Ammonia and Nitrogen, Total)
Phosphorous (Total Phosphorous)
Polychlorinated Biphenyls (PCBs - Method 1668A)
Gross Alpha, adjusted
Tetrahydrofuran
Benzo(a)pyrene
Benzo(b)fluoranthene (3, 4 Benzofluoranthene)
Benzo(k)fluoranthene
Chrysene
Indeno(1 ,2,3-cd)pyrene
Dieldrin
Pentachlorophenol
Benzidine
Benzo(a)anthracene
Dibenzofuran
Dibenz(a, h)anthracene
Chromium VI (Hexavalent)
Copper- Dissolved
Lead- Dissolved
Bis(2-ethylhexyl)phthalate (other names: Di(2-ethylhexly)phthalate, DEHP)
Conductivity
Temperature

Hardness (as $CaCO_3$) was added to the parameter list to allow dissolved metal results to be compared to the applicable WQSs. DO, pH, conductivity, and temperature are required by the WSB MS4 Permit to be analyzed in the field during sample collection, which was conducted by DBS&A, within fifteen (15) minutes of sample collection. All E. coli samples were submitted to the laboratory within six (6) hours of collection in order to meet the specified hold time.

Sampling Locations:

The sampling locations are shown in Figure 1, page 4.

Rio Grande North – In-stream sampling within the Rio Grande was performed upstream of the Angostura Diversion Dam at the north end of the watershed. The location is upstream of all inputs from the Urban Area (UA) to the river and provides the background water conditions.

Rio Grande South – In-stream sampling within the Rio Grande was performed at the Isleta Bridge at the south end of the watershed. The location is downstream of all inputs from the UA to the river and provides the downstream water conditions. These locations have been accepted by EPA and NMED to meet the WSB MS4 Permit requirements in Part III.A.

In February 2017, during discussions with NMED regarding potential refinements to E. coli loading calculations, NMED recommended that the CMC also sample E. coli at a mid-point at the Alameda Bridge location, which corresponds to the NMED defined stream segment divide. Four (4) of the seven (7) required CMC samples had already been obtained before this meeting. Since that meeting, the CMC has attempted to collect a mid-point CMC E. coli sample and was successful during one (1) of the three (3) remaining CMC sampled storm events (July 2017). During the FY 2019 dry season, an E. coli only sampling point within the Rio Grande at Alameda Boulevard was not able to be obtained during the storm event.

Sample Collection:

As mentioned previously, sample collection for the CMC is being conducted by DBS&A (through a separate on-call contract) as well as by CMC members. Since BHI was not involved, this task and memo do not address the details of the methodologies regarding sampling, determining if an event was a qualifying storm event, or determining the timing of the hydrograph at the Rio Grande Alameda and Rio Grande South locations.

DBS&A provided BHI with their field notes and field sample data (temperature, DO, specific conductivity, and pH) for the FY 2019 dry season sampling (refer to Attachment 1). AMAFCA provided BHI the completed laboratory analysis reports from Hall Environmental Analysis Laboratory (HEAL) for this monitoring season (refer to Attachment 2).

Quality Assurance Project Plan (QAPP):

AMAFCA provided BHI with the Draft Quality Assurance Project Plan (QAPP) for the CMC dated June 14, 2016. DBS&A followed this QAPP during sample collection. BHI used this QAPP and the included standard operating procedures (SOPs) for the data verification and validation.

Monitoring Activity & Lab Analysis Summary

The list below provides a summary of the CMC comprehensive monitoring program activities completed for the FY 2019 dry season from November 2018 through June 2019. One (1) qualifying storm event was sampled and analyzed during the FY 2019 dry season.

- **February 14, 2019 – Only E. coli for Rio Grande North.** A sample was collected at the Rio Grande North location and sent to the laboratory for an E. coli only test. Based on review of the storm event by the CMC, it was determined this was not a qualifying storm event; therefore, full parameter testing did not occur for the sample collected at the Rio Grande North location.

- **March 11-13, 2019 – Qualifying Storm Event – Full Analysis of Samples.** A sample was collected at the Rio Grande North location beginning at 9:55 a.m. on March 11 and sent to the laboratory for an E. coli only test. This event turned into a two-day storm event with the Rio Grande hydrograph still showing an increase on March 12th. The storm event for March 11th was reported as 0.21-inches at the Albuquerque Sunport and 0.25-inches within the Northeast contributing watershed using Community Collaborative Rain, Hail & Snow Network (CoCoRaHS). The storm event continued through March 12th with a reported total rainfall of 0.32-inches at the Albuquerque Sunport on March 12th. To ensure the storm event was adequately sampled, the CMC obtained a Rio Grande South E. coli sample at 11:15 a.m. on March 12th and a 9:45 a.m. full parameter sample on March 13th; the samples from the North (from March 11th) and South (from March 13th) locations were taken to the HEAL laboratory for full parameter testing. In addition, quality control samples including an equipment blank, trip blank, and full duplicate sample were obtained at the Rio Grande South location on March 13th.

Stormwater Quality Database for CMC

For the March 11-13, 2019 storm event, DBS&A's field notes containing DO, pH, conductivity, and temperature measurements, as well as sampling comments have been received and added to the CMC stormwater quality database (refer to Attachment 1 for field data sheets). Additionally, the HEAL lab reports for the corresponding time period have been received, added to the database, and are provided with this memo (Attachment 2). The laboratory reports attached to this memo have BHI added comments including relevant notes related to the laboratory reports.

The database contains sample locations (Rio Grande North and Rio Grande South), sample date, analyses conducted, methods used, applicable surface water quality standards (WQS), WSB MS4 Permit required Minimum Quantification Levels (MQL), and analysis results. Applicable surface WQS found in New Mexico Administrative Code (NMAC) 20.6.4 as well as the Pueblo of Isleta and Pueblo of Sandia WQS are entered in the Excel database for comparison purposes with testing results. There is an indicator in the database to show if the monitoring results exceed the applicable surface WQS. An exceedance is not a violation of the WSB MS4 Permit, as the Permit does not have numeric discharge limitations. These ">WQ Standard" flags simply and quickly show the CMC members where the results of the lab data exceed the applicable WQS.

Upon receipt of the HEAL lab reports, water quality data was entered into the database. All data entered into the database is initially denoted with a "P" to indicate that it is provisional and has not yet been through the verification and validation process.

Data Verification and Validation:

The HEAL laboratory analysis reports were provided to BHI by AMAFCA. The lab reports also contain the Chain of Custody for the submitted samples. Field data was requested by and provided to BHI by DBS&A. Data verification and validation (V&V) was conducted by BHI on all field notes, lab reports, and Chain of Custody documents in accordance with the CMC Water Quality Standard Operating Procedure (SOP) #2, which is part of the existing CMC QAPP, Draft June 14, 2016. These procedures are based on EPA Guidance for Environmental Data Verification and Validation (U.S. EPA, 2008).

As stated in the QAPP, the V&V process was completed by a different person than the one who entered the data into the database. The V&V process included use of the *Data Verification and Validation Worksheet* (provided in the QAPP). For this task, field data was verified first, confirming that all field notes were complete. BHI handled field parameter questions directly with DBS&A. Chemical data verification began as soon as the lab reports were received, checking that all parameters were tested and looking for any obvious exceedances of WQS. Other steps listed on the *Data Verification and Validation Worksheet* were completed after all data from the laboratory was received and entered into the database. Sample blank results were reviewed to identify potential contamination during field processing or transport. Replica/duplicate samples were evaluated based on relative percent difference (as described in more detail in the QAPP) to determine the variability of the samples.

Direction has been obtained from NMED that E. coli units are and can be reported interchangeably in colony forming units (CFU)/100 milliliters (mL) or as most probable number (MPN) per 100 mL. The laboratory method used by HEAL is an EPA approved method that produces results in MPN/100 mL. The New Mexico and Pueblo WQS for E. coli are currently in units of CFU/100 mL.

For the CMC FY 2019 dry season data, HEAL assigned the results for Biochemical Oxygen Demand (BOD_5) a qualifier of "R", which indicates that the relative percent difference (RPD) between laboratory replicate dilutions done during the testing were greater than 30 percent. This parameter also had a hold time flag for the Rio Grande North sample, since the multi-day storm resulted in this sample being submitted to the laboratory after the 48-hour hold time. The BOD_5 sample results (5-6 mg/L) were within the range of typical CMC BOD_5 results (<2 – 5 mg/L). Research related to the acceptable RPD for BOD_5, specifically related to stormwater applications, found that RPD values greater than 30% are not unusual especially for lower concentrations (5-10 mg/L range). The CMC data for BOD_5 is considered useable with the data flag maintained in the database and reporting documents.

Once the V&V process was completed, the worksheets were signed. Copies of the V&V worksheets are provided with this memo (Attachment 3). In the database, data that was checked during the V&V process was then changed from being denoted with a "P" for provisional to a "V" for verified, and laboratory qualifiers were added, as needed.

CMC FY 2019 Dry Season Assessment and Evaluation of Monitoring Results

The EPA approved WSB MS4 CMC Monitoring Plan, May 5, 2016, has thirty-three (33) parameters to monitor at the Rio Grande North and Rio Grande South monitoring locations. Of these thirty-three (33) parameters, fourteen (14) parameters were not detected in the FY 2019 dry season samples at either the Rio Grande North or South locations. Refer to Table 3 for a list of the parameters that were not detected.

Looking at all seven (7) samples obtained during the WSB MS4 Permit term by the CMC, there were thirteen (13) parameters that were not detected in any of the CMC samples; refer to Table 4 for a list of the parameters that were not detected in any of the CMC samples obtained during this MS4 Permit term. Of these parameters listed in Table 4, two (2) of the parameters not detected by the CMC have been detected by AMAFCA during stormwater quality monitoring within the watershed: Benzo(b)fluoranthene (3, 4 Benzofluoranthene) and Chromium VI (Hexavalent).

During the next MS4 Permit term, the non-detected parameters should be discussed with EPA and NMED for potential removal from the sampling list.

Table 3: Parameters Not Detected
CMC FY 2019 Dry Season Monitoring

Parameters Not Detected by CMC	
Tetrahydrofuran	Dieldrin
Benzo(a)pyrene	Pentachlorophenol
Benzo(b)fluoranthene (3, 4 Benzofluoranthene)	Benzidine
Benzo(k)fluoranthene	Benzo(a)anthracene
Chrysene	Dibenzofuran
Indeno(1,2,3-cd)Pyrene	Dibenzo(a,h)anthracene
Chromium VI (Hexavalent)	Bis[2-ethylhexyl]phthalate [DEHP]

Table 4: Parameters Not Detected in CMC Samples
During MS4 Permit Term

Parameters Not Detected During Entire Permit Term	
Tetrahydrofuran	Dieldren
Benzo(a)pyrene	Pentachlorophenol
Benzo(b)fluoranthene (3, 4 Benzofluoranthene)*	Benzidine
Benzo(k)fluoranthene	Benzo(a)anthracene
Chrysene	Dibenzofuran
Indeno(1,2,3-cd)Pyrene	Dibenzo(a,h)anthracene
Chromium VI (Hexavalent)*	

**Two of the parameters not detected by the CMC have been detected by AMAFCA during stormwater quality monitoring from 2014-2018 within the watershed: Benzo(b)fluoranthene (3, 4 Benzofluoranthene) and Chromium VI (Hexavalent).*

For the FY 2019 dry season, out of the remaining nineteen (19) parameters on the CMC monitoring parameter list, only two (2) parameters (E. coli and PCBs) had exceedances of the applicable surface WQS found in New Mexico Administrative Code (NMAC) 20.6.4 and the Pueblo of Isleta WQS during the FY 2018 wet season. These exceedances are summarized in Table 1, page 1 and discussed below in further detail.

E. coli:

All E. coli results collected during the FY 2019 dry season are summarized in Table 5.

Table 5: E. coli Results
CMC FY 2019 Dry Season Monitoring

Date – Rio Grande Location	E. coli Results (CFU/100 ml)
February 14, 2019 – North	2
March 11, 2019 – North	31.8
March 12, 2019 – South	298
March 12, 2019 – South (Duplicate)	309
March 13, 2019 – South	594
March 13, 2019 – South (Duplicate)	479

At the Rio Grande North location (upstream of the Albuquerque UA, at the Angostura Diversion Dam), all collected samples tested for E. coli were below the primary contact-single sample Pueblo of Isleta and Pueblo of Sandia WQS (88 CFU/100 mL) as well as the primary contact-single sample NMAC WQS (410 CFU/100 ml). At the Rio Grande South location (downstream of the MS4 UA), all collected samples tested for E. coli exceeded the Pueblo of Isleta and Pueblo of Sandia WQS (88 CFU/100 mL) and only the March 13, 2019 samples also exceeded the primary contact-single sample NMAC WQS (410 CFU/100 ml).

As a reminder, NMED has clarified that the units MPN/100 mL and CFU/100 mL are considered to be interchangeable for the purposes of this stormwater quality monitoring reporting. The New Mexico and Pueblo WQS for E. coli are currently in units of CFU/100 mL while the lab reports are typically in units of MPN/100mL. The graph presented in this section uses units of CFU/100 mL to be consistent with the WQSs units. Refer to Figure 2 for a graphical representation of dry season E. coli results at the Rio Grande North and Rio Grande South locations.

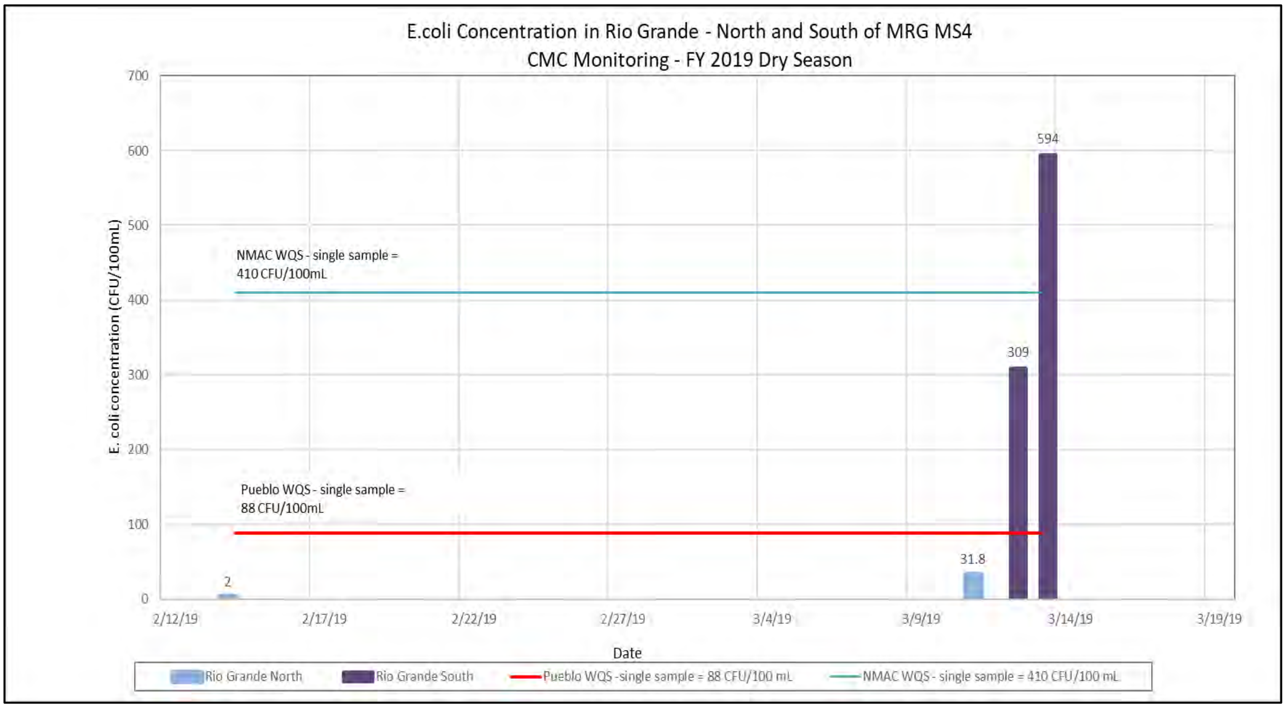


Figure 2: E. coli Results
CMC Monitoring – FY 2019 Dry Season

PCBs:

There are multiple surface water quality standard values listed for PCBs in both the Pueblo of Isleta and the State of New Mexico standards for the various designated uses. The PCBs measured in samples collected from the Rio Grande during the FY 2019 dry season stormwater events were all below the minimum quantification level (MQL) established in U.S. Environmental Protection Agency (USEPA) standards for MS4 NPDES Permit (Appendix F, 0.2 ug/L for PCBs). The PCB results were also below the New Mexico Surface WQSs and Pueblo of Isleta Surface WQSs for designated uses including drinking water, wildlife habitat, acute aquatic life, chronic aquatic life, and New Mexico human health-organism only (fish consumption only). However, the March 11 and March 13, 2019 CMC samples from the Rio Grande were above the Pueblo of Isleta human health criteria (based on fish consumption only) WQS for surface waters. The human health-organism only criterion is based upon human consumption of fish and other aquatic life that bioaccumulate contaminants over time. The FY 2019 dry season PCB results are shown in Figure 3 relative to various WQSs for PCBs.

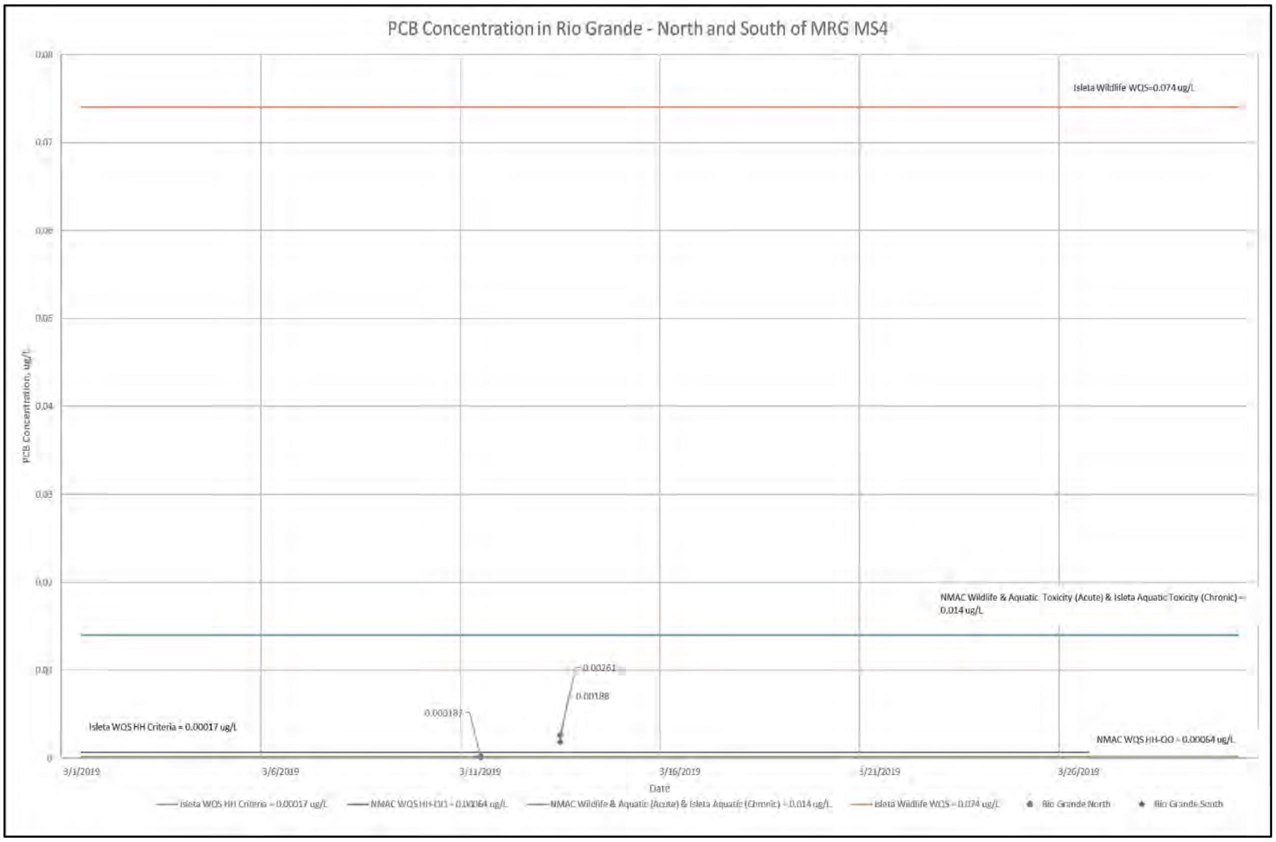


Figure 3: PCB Results
CMC Monitoring – FY 2019 Dry Season

Adjusted Gross Alpha:

There were no exceedances in adjusted gross alpha for the FY 2019 dry season samples. Due to prior exceedances, the CMC will continue to closely evaluate this parameter in future samples. If additional exceedances occur, the CMC will discuss the results further and may consult NMED for further guidance.

Dissolved Oxygen and Temperature:

Two (2) of the water quality parameters are specifically worth mentioning in this memo because they are listed in the WSB MS4 Permit, Part I.C.1 – Special Conditions: dissolved oxygen and temperature. These two (2) parameters did not have any surface water quality exceedances during the FY 2019 dry season sampling.

Dissolved oxygen is a water quality concern in the Rio Grande if it is below 5 mg/L. None of the samples taken from the Rio Grande during the CMC FY 2019 dry season monitoring had dissolved oxygen values below 5 mg/L. This provides the MS4s with specific monitoring data showing that stormwater did not cause or contribute to exceedances of applicable dissolved oxygen water quality standards in the Rio Grande during the FY 2019 dry season. Refer to Figure 4 for dissolved oxygen results and comparison to applicable WQS. For all of the CMC samples taken during this MS4 Permit Term, there have not been any dissolved oxygen readings below the 5 mg/L WQS.

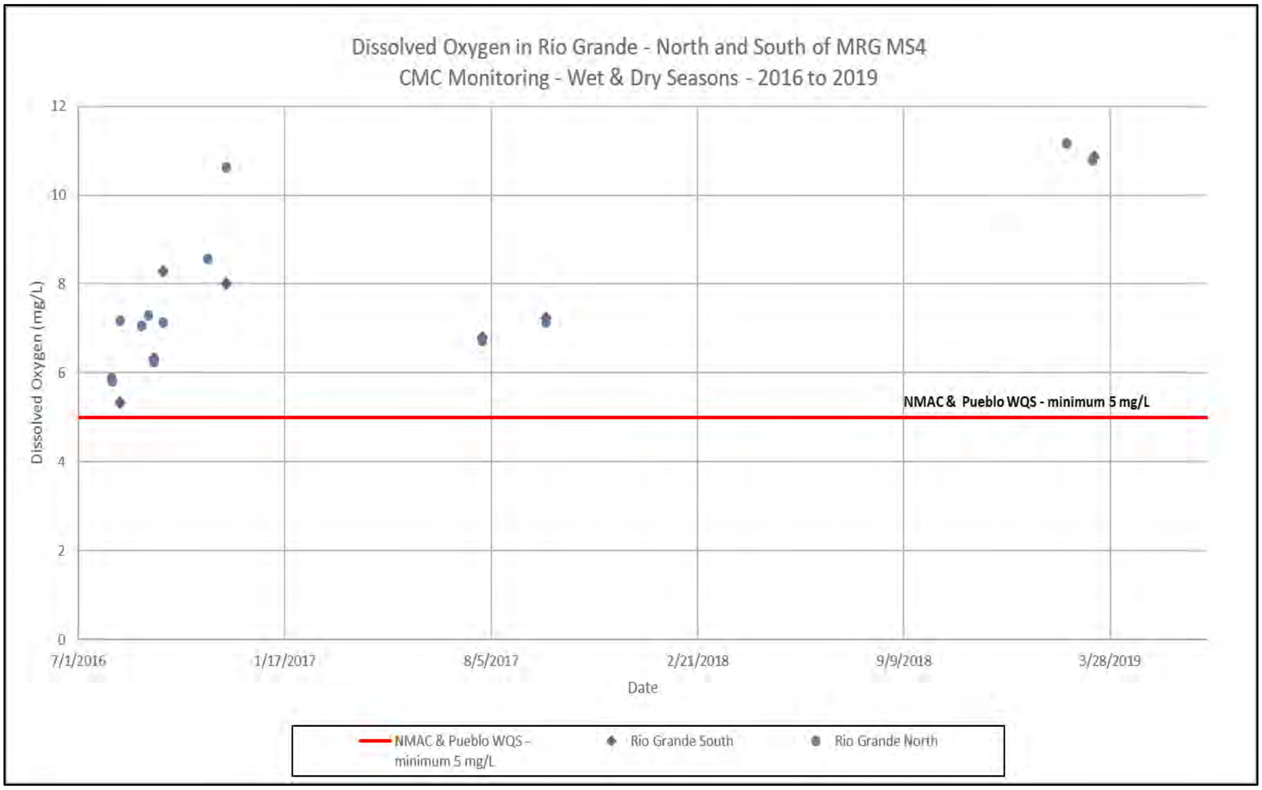


Figure 4: Dissolved Oxygen Results for Rio Grande
CMC Monitoring – FY 2016 through FY 2019 Wet & Dry Season

Temperature is listed in the WSB MS4 Permit as a special condition (currently only applicable to the City of Albuquerque and AMAFCA). Past data submitted to EPA and NMED has demonstrated that stormwater discharges into the Rio Grande are not raising the Rio Grande temperature above the WQS. The data collected during this CMC FY 2019 dry season monitoring supports this conclusion. All the temperature field readings taken in the Rio Grande during the CMC FY 2019 dry season were below 32.2°C (90 °F) - the WQS for the State of New Mexico and for the Isleta and Sandia Pueblos. Refer to Figure 5 for temperature results and comparison to applicable WQS. For all of the CMC samples taken during this MS4 Permit Term, there have not been any temperature readings above the 32.2°C WQS.

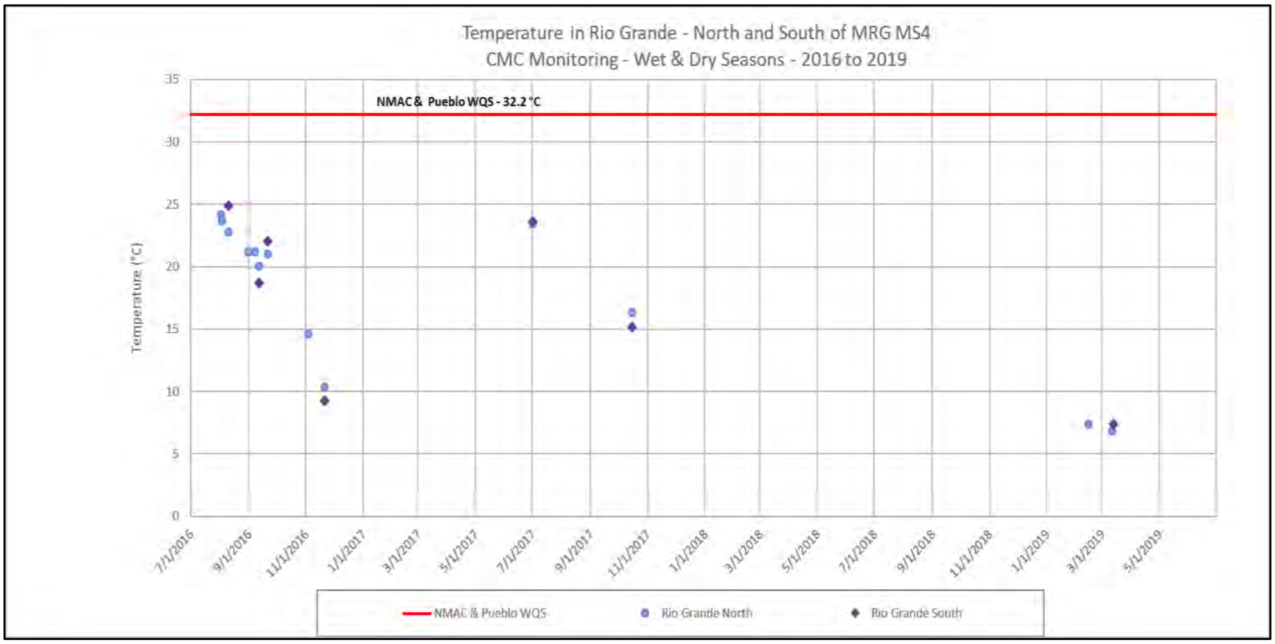


Figure 5: Temperature Monitoring Results in Rio Grande
CMC Monitoring – FY 2016 through FY 2019 Wet & Dry Season

CMC FY 2019 Dry Season E. coli Loading Calculations and Waste Load Allocation (WLA)

Related to assessing the stormwater results, BHI has calculated the E. coli loading and compared it to the aggregate Total Maximum Daily Load (TMDL) Waste Load Allocation (WLA) for the CMC group. A TMDL is the maximum amount of a pollutant (E. coli in this case) that a water body (Rio Grande) can assimilate on a daily basis without violating applicable surface WQS. The total TMDL for a stream segment consists of the multiple WLA for point sources, non-point sources, and natural sources, plus a margin of safety. The CMC MS4 allotted WLA was determined in the US EPA Approved, Total Maximum Daily Load for the Middle Rio Grande Watershed, June 30, 2010, and subsequent communications with NMED. The WLA varies by flow condition in the Rio Grande and by stream segment.

E. coli loading calculations and comparison to the WLA follows the WSB MS4 Permit requirements in "Discharges to Water Quality Impaired Water Bodies with an Approved TMDL," Part I.C.2.b.(i).(c).B, Appendix B-Total Maximum Daily Loads (TMDLs) Tables of the WSB MS4 Permit, and the NMED guidance provided to the CMC. Attached to this memo is the WLA Calculation spreadsheet which steps through the E. coli loading calculations and assumptions comparing the calculated E. coli loading to the CMC aggregate WLA defined by NMED.

There are two (2) stream segments defined in the WSB MS4 Permit (Appendix B): Isleta Pueblo Boundary to Alameda Street Bridge (Stream Segment 2105_50) and Non-Pueblo Alameda Bridge to Angostura Diversion (Stream Segment 2105.1_00). These stream segments differ from NMED's current stream segments defined in "2016-2018 State of New Mexico Clean Water Act Section 303(d)/Section 305(b) Integrated Report," September 23, 2016. NMED currently has four (4) stream segments instead of the two (2) WSB MS4 stream segments; of the four (4) segments, only one (1) segment has an impairment for E. coli (2105_50 Isleta Pueblo Boundary to Tijeras Arroyo). These various stream segment designations are shown in Figure 6, page 16.

The NMED 303(d)/305(b) 2018-2020 Integrated Report tables show the most recent assessment results, and currently there is only one segment of the Rio Grande (Isleta to Tijeras) that was found to be impaired for E. coli. However, the TMDL for the other stream segments do not go away even if they are no longer impaired—the TMDL remains in place as a protective measure. TMDLs remain in effect after impairments are removed as protective measures.

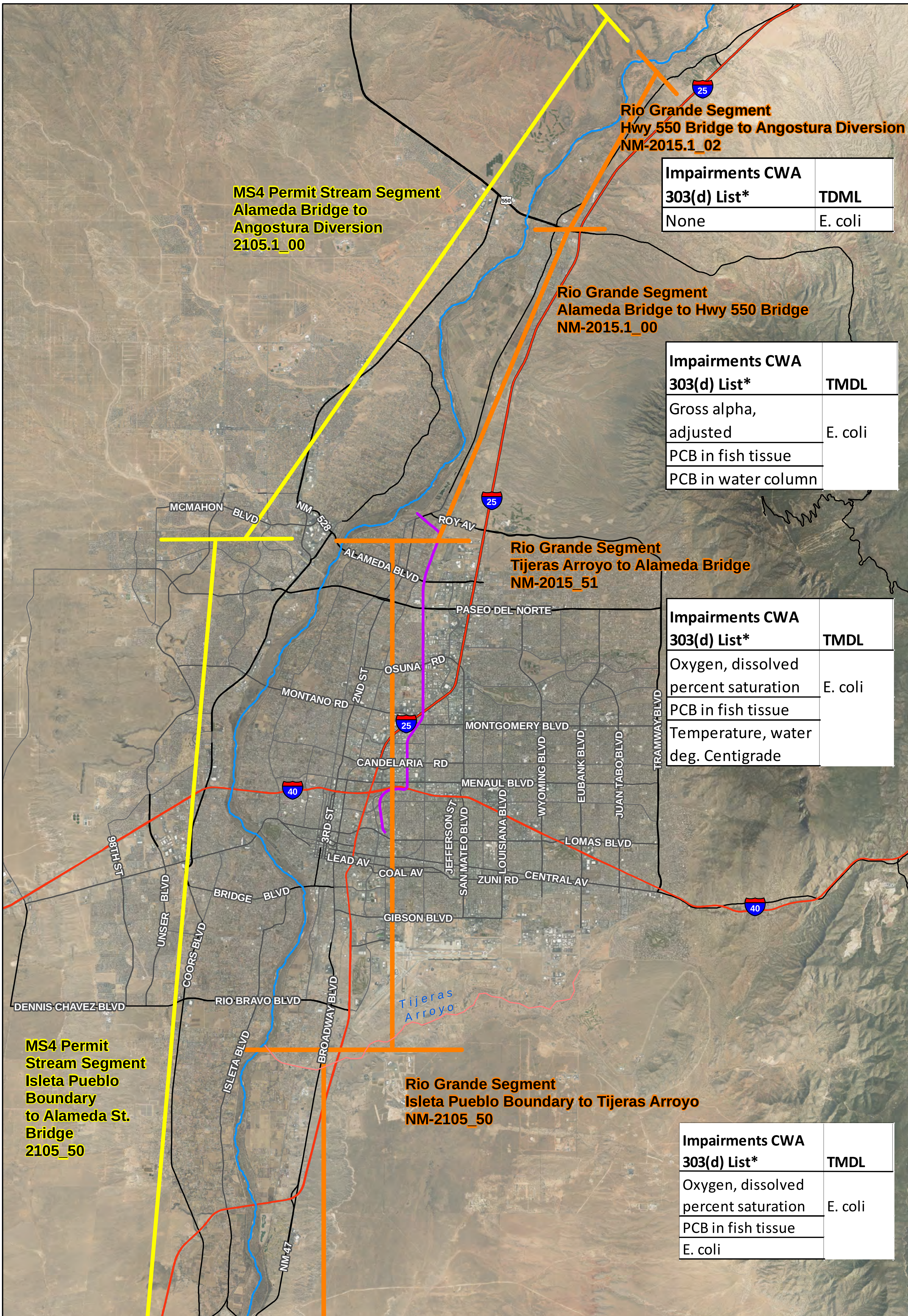
The E. coli daily loading associated with the CMC group and comparison to the NMED WLA was completed for the one (1) qualifying dry season storm event – March 11-13, 2019. Refer to Table 5 for a summary of the WLA comparison results. Attachment 4 summarizes the CMC E. coli loading for all of the seven (7) CMC samples collected during this WSB Permit term. A spreadsheet is attached to this memo that provides the detailed calculations.

Table 5: Summary of CMC E. Coli Loading Compared to WLA for the CMC

Date / Stream Segment	**Daily Mean Flow (cfs)**	**Flow Conditions (cfs)** *range defined by NMED*	**CMC Daily E. coli Loading (CFU/day)**	**NMED WLA for CMC for Stream Segment and Flow Conditions**	**Loading Compared to WLA Potential Exceedance or Acceptable**
March 11-13, 2019 – Rio Grande North E. coli concentration = 32 CFU/100 mL and Rio Grande South E. coli Concentration = 594 CFU/100 mL					
Alameda to Angostura	1,290	Moist	8.49E+11	9.09E+10	WLA Potential Exceedance
Isleta to Alameda	1,350	Moist	2.52E+11	6.29E+10	WLA Potential Exceedance

As Table 5 illustrates, the E. coli loading for the March 11-13, 2019 storm event for both segments of the Rio Grande potentially exceeded the CMC allocated WLA. The WSB MS4 Permit implies that the WLA is a measurable goal for the MS4s related to E. coli. Based on extensive review of the US EPA Approved, Total Maximum Daily Load (TMDL) for the Middle Rio Grande Watershed, June 30, 2010, this seems to be an unattainable goal for MS4s. The 2010 TMDL Report states on page 40, “It is important to remember that the TMDL is a planning tool to be used to achieve water quality standards…Meeting the calculated TMDL may be a difficult objective.” The TMDL/WLA was calculated by NMED to meet the Pueblos’ (Sandia and Isleta) geometric mean maximum of 47 CFU/100 mL which was done to be “protective of downstream waters” and “to provide an implicit margin of safety (MOS).” A single grab sample E. coli result meeting this very low geometric mean WQS will be very difficult for the MS4s to obtain.

The CMC members discussed the difficulty of using the WLA as a measurable goal with NMED on February 1, 2017. NMED explained that exceeding the WLA does not trigger enforcement. However, NMED strongly encouraged the MS4s to document what they are doing once they realize the WLA is potentially exceeded. The February 1, 2017, meeting and the February 16, 2017, CMC discussion with NMED demonstrate CMC members are working toward better understanding the WLA.



Impairments CWA 303(d) List*	TDML
None	E. coli

Impairments CWA 303(d) List*	TMDL
Gross alpha, adjusted	E. coli
PCB in fish tissue	
PCB in water column	

Impairments CWA 303(d) List*	TMDL
Oxygen, dissolved percent saturation	E. coli
PCB in fish tissue	
Temperature, water deg. Centigrade	

Impairments CWA 303(d) List*	TMDL
Oxygen, dissolved percent saturation	E. coli
PCB in fish tissue	
E. coli	

Legend

- MS4 Permit Stream Segments
- State of NM Stream Segments
- North Diversion Channel
- Rio Grande
- Interstate Highway
- U.S. Highway
- State Highway

* Final 2018-2020 State of NM Clean Water Act Section 303(d)/Section 305(b) Integrated Report

AMAFCA

Bohannan Huston www.bhinc.com 800.877.5332

N W E S

0 1 2 4 Miles

Rio Grande Impairments and TMDL Information

Figure 6

P:\20180302\WR\Reports\Final\Figures\MXDs\Figure6-MS4_TMDLStreamSegments.mxd

June 2019

Author: mmeroni

Data Entry for Discharge Monitoring Reports

As required in the WSB MS4 Permit, verified stormwater quality data must be submitted annually to the EPA using electronic Discharge Monitoring Report (DMR) forms. Data from the DMRs are uploaded to a comprehensive nation-wide database that contains discharge data for facilities and other point sources that discharge directly to receiving streams. For this Task, BHI has completed data entry related to the EPA CMC DMRs for the FY 2019 dry season. DMRs with this data are due to the EPA on December 1, 2019, and these forms will be submitted to the EPA by AMAFCA as the delegated data entry member for the CMC.

Conclusions and Planning

To summarize:

- With the FY 2019 dry season samples, all seven (7) required samples in the WSB MS4 Permit Wet Weather Monitoring section have been obtained. The CMC has met the required WSB MS4 Permit minimum of three (3) events during the wet season and two (2) events during the dry season.
- The current 2014 Middle Rio Grande Watershed Based Municipal Separate Storm Sewer System (MS4) Permit, NPDES Permit No. NMR04A000, expires in December 2019. On July 27, 2019 the EPA (Brent Larson/Maria Martinez, EPA Region 6) indicated to the MS4 permittees at a meeting at Bernalillo County Public Works, Albuquerque, NM that this permit will most likely be administratively continued. Administrative continuance of this Permit would mean that since the CMC members have met all requirement in Part III. A.1.b ("The monitoring program must sample the pollutants for a minimum of 7 storm events per location during the permit term which at least 3 events in the wet season and 2 events in the dry season"), no additional monitoring would be required until a new permit is issued. However, the CMC members may choose to continue sampling to support their MS4 program needs, demonstrate program progress, or gather additional data in support of the future permit modifications.
- When a new MS4 permit is being written by the EPA, BHI recommends that the permittees consider using the CMC data to support a reduced parameter list for required stormwater quality monitoring (refer to Table 4).

SG/ab

Attachments:

Attachment 1 – Field Notes and Field Sample Data for FY 2018 Dry Season
Attachment 2 – Hall Environmental Analysis Laboratory Reports with BHI Notes for FY 2019 Dry Season
Attachment 3 – FY 2019 Dry Season Completed Data Verification and Validation Forms
Attachment 4 – Summary of E. coli Loading Calculations for All Seven Required CMC Samples

Spreadsheets Included Separately:

Excel CMC Spreadsheet (updated with water quality criterion details)
Excel Waste Load Allocation Spreadsheet

ATTACHMENT 1

FIELD NOTES AND FIELD SAMPLE DATA FOR FY 2018 DRY SEASON

DBS&A
Daniel B. Stephens & Associates, Inc.

Samplers Chad Johanessen
Elizabeth Bastian

CMC Sampling Data Sheet

Site Identification: **Rio Grande at Angostura Dam**

Sample Date and Time: 2·14·19 13:20
Sample Identification: RioGrandeNorth-20190214

QC Samples: Duplicate / None
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample Time: QC Sample ID:

Collection Point : Dam runway **Collection Equipment :** Plastic Bucket

Total Sample Volume: 6.0 gal Collection Time Start: 1230 End: 1315

Water Quality Meter ID: YSI 556 MPS # 07H102053
Calibration Date: 2/14/19

Field Parameters

Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)	Volume (Gallons)
1230	6.15	6.66	471	15.10	121.4	584.8	1.5
12:45	5.79	7.04	369	13.85	111.7	581.4	~~3.0~~ 1.5
13:00	7.32	7.06	375	12.29	102.7	605.3	1.5
13:15	6.92	7.79	370	11.84	97.6	625.5	1.5
Composite	7.38	7.63	369	11.16	92.7%	631.4	6.0

recalibrate DO meter

Notes: Analysis suite in attached 2016_Paramter list_CMC.pdf

DBS&A
Daniel B. Stephens & Associates, Inc.

Samplers EB / CJ

CMC Sampling Data Sheet

Site Identification: **Rio Grande at Angostura Dam**

Sample Date and Time:	3/11/19 10:45
Sample Identification:	RGNorth-20190311

QC Samples: Duplicate / None
QC samples require a DIFFERENT sample time than the environmental sample.
QC Sample Time:
QC Sample ID:

Collection Point : Agaslastora damn
Collection Equipment : Plastic Bucket

Total Sample Volume: 6.0 Collection Time Start: 9:55 End: 10:40

Water Quality Meter ID: 455-556 SN:07H102053
Calibration Date: 3/11/19

Field Parameters

Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)	Volume (Gallons)
9:55	8.54	6.76	336	9.44	80.8	219.3	1.5
10:10	6.87	6.85	326	11.43	93.9	211.1	1.5
10:25	7.01	6.97	328	11.23	92.5	204.4	1.5
10:40	6.85	6.89	327	11.01 ~~12.~~	214.2	88.5	1.5
Composite 10:48	6.83	6.87	325	10.78	~~81~~ 88.0	216.6	6.0

Notes: Analysis suite in attached 2016_Paramter list_CMC.pdf

MRGCD - Jeremy onsite @ 10:00

DBS&A
Daniel B. Stephens & Associates, Inc.

Samplers EB / CJ

CMC Sampling Data Sheet

Site Identification: **Rio Grande at Isleta Dam**

Sample Date and Time: 3/12/19 11:15	
Sample Identification: RG-South-20190312	

QC Samples: Duplicate / None	
QC samples require a DIFFERENT sample time than the environmental sample.	
QC Sample Time: 11:30	
QC Sample ID: RG-South-DP-20190312	

Collection Point : Bucket from western half of Dam/Bridge
Collection Equipment : Plastic Bucket

Total Sample Volume: 6. Collection Time Start: 10:25 End: 11:10

Water Quality Meter ID: YSI-556 07H100053
Calibration Date: 3/12/19

Field Parameters

Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)	Volume (Gallons)
10:25	10.92	6.87	382	7.33	66.3	152.7	2.5
10:40	10.87	7.16	381	6.80	61.6	177.2	2.5
10:55	10.79	7.35	381	7.30	65.9	172.2	2.5
11:10	11.63	7.68	384	7.40	70.1	153.9	2.5
Composite	12.53	7.73	381	7.72	70.3	152.4	10

Notes: Analysis suite in attached 2016_Paramter list_CMC.pdf

DBS&A
Daniel B. Stephens & Associates, Inc.

Samplers EB/CJ

CMC Sampling Data Sheet

Site Identification: **Rio Grande at Isleta Dam**

Sample Date and Time: 3/13/19 9:45
Sample Identification: RG-South-20190313

QC Samples: Duplicate / None
QC samples require a DIFFERENT sample time than the environmental sample. QC Sample Time: 10:00 QC Sample ID: RG-South-DP-20190313

Collection Point : Isleta Diversion Dam
Collection Equipment : Plastic Bucket

Total Sample Volume: 10 Collection Time Start: 9:00 End: 9:45

Water Quality Meter ID: YSI-556 07H102053
Calibration Date:

Field Parameters

Time	Temp (°C)	pH	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)	Volume (Gallons)
9:00	7.77	6.36	365	11.10	94.1	188.7	2.5
9:15	7.73	6.81	358	10.41	87.3	195.8	2.5
9:30	7.60	6.87	358	9.98	83.5	195.7	2.5
9:45	7.60	6.86	357	10.00	83.5	203.8	2.5
Composite	7.41	6.95	358	10.86	90.4	197.3	10

Notes: Analysis suite in attached 2016_Paramter list_CMC.pdf

YSI SONDE CALIBRATION WORKSHEET Last Revision 01/03/2007

Sonde ID: YSI 556 07H100853 Date/Time: 2/14/19 Technician: EMB

Reason for Calibration: CMC Upper location Sampling

Rio Grande North - At Angostura Dam

Battery Voltage: ________ (6920 & 600 XLM only)

Specific Conductance:

Standard Used (mS): 1413 µS/cm

Initial	Post Cal.	Cell Constant:*	
1247	1416	17.25°C	(Range: 5 +/- 0.5)

pH

		Initial	Post Cal.	mV	
7 Buffer:	(first)	4.40	6.99	11.32°C	(Range: 0 mV +/- 50)
4 Buffer:	(second)	3.91	3.98	12.35°C	(Range: +177 from pH 7)
10 Buffer:	(third)	9.80	10.04	17.43°C	(Range: -177 from pH 7)

Note: Span between pH 7 and pH 4, and pH 7 and pH 10 should be aproximately 165 to 180 mV.

DO % Sat. Membrane Changed? Y/N ________ If yes, run probe at least 15 mins before calibration. Optimally, wait 6 to 8 hrs before calibration / use.

DO Charge — (Range: 50 +/- 25)

mm Hg: 631.6

15.96°C

Calibration Values %

Initial	Post Cal.	DO Gain*	
67.3	83.3		(Range: 1 (0.7 to 1.5))

Turbidity Wiper Changed? Y/N ________ Wiper parks ~180 degrees from optic port? Y/N ________

Standards Values (NTUs)		Initial	Post Cal.
Zero	(Always First)		

Note: Use longer probe guard with black turb probe; shorter guard with grey probe.

Post Calibration DO Sensor Output Test

Turn off handset (650MDS). Wait 1 minute, turn handset on and enter "Run". DO % Sat. must start reading with a high value and descend to the calibration value in 1 to 2 minutes. **If it does not, reject.**

Note: Disregard the first two readings as they may be affected by the warm-up process.

Accept? ________ Reject? ________ See note in comments

Calibration Comments

* Found in: Main Menu --> Sonde Menu --> Advanced --> Calibration Constants

YSI SONDE CALIBRATION WORKSHEET Last Revision 01/03/2007

Sonde ID: YSI-556 SN 07H102053 Date/Time: 3/11/19 09:20 Technician: EB, CJ

Reason for Calibration: CMC Sampling

Battery Voltage: ________ (6920 & 600 XLM only)

Specific Conductance:
Standard Used (mS): 1413

	Calibration Values: Initial	Post Cal.	Cell Constant:*	
	1413	1413		(Range: 5 +/-0.5)

pH

		Calibration Values: Initial	Post Cal.	mV Temp	
7 Buffer:	(first)	7.12	7.03	19.20	(Range: 0 mV +/- 50)
4 Buffer:	(second)	3.36	4.0	18.56	(Range: +177 from pH 7)
10 Buffer:	(third)	10.07	10.05	19.76	(Range: -177 from pH 7)

Note: Span between pH 7 and pH 4, and pH 7 and pH 10 should be aproximately 165 to 180 mV.

DO % Sat. Membrane Changed? Y/N: N — If yes, run probe at least 15 mins before calibration. Optimally, wait 6 to 8 hrs before calibration / use.

DO Charge ________ (Range: 50 +/- 25)

mm Hg	Calibration Values %: Initial	Post Cal.	DO Gain*	
636.2	—	83.7		(Range: 1 (0.7 to 1.5))

@ 18.48°C

Turbidity Wiper Changed? Y/N ________ Wiper parks ~180 degrees from optic port? Y/N ________

Standards Values (NTUs)		Calibration Values: Initial	Post Cal.
Zero	(Always First)		

Note: Use longer probe guard with black turb probe; shorter guard with grey probe.

Post Calibration DO Sensor Output Test

Turn off handset (650MDS). Wait 1 minute, turn handset on and enter "Run". DO % Sat. must start reading with a high value and descend to the calibration value in 1 to 2 minutes. **If it does not, reject.**
Note: Disregard the first two readings as they may be affected by the warm-up process.

Accept? ✓ Reject? ________ See note in comments

Calibration Comments

* Found in: Main Menu --> Sonde Menu --> Advanced --> Calibration Constants

YSI SONDE CALIBRATION WORKSHEET Last Revision 01/03/2007

Sonde ID: YSI-556 07H102053 Date/Time: 3/12/19 Technician: E.Bastien

Reason for Calibration: RG sampling @ Isleta (CMC)

Battery Voltage: ________ (6920 & 600 XLM only)

Specific Conductance:

Standard Used (~~mS~~ µS)	Initial	Post Cal.	Cell Constant:*	
1413	1404	1413		(Range: 5 +/- 0.5)

pH

Calibration Values

		Initial	Post Cal.	mV Temp	
7 Buffer:	(first)	7.46	7.00	18.78°C	(Range: 0 mV +/- 50)
4 Buffer:	(second)	3.99	4.00	19.85	(Range: +177 from pH 7)
10 Buffer:	(third)	9.99	10.01	19.52	(Range: -177 from pH 7)

Note: Span between pH 7 and pH 4, and pH 7 and pH 10 should be aproximately 165 to 180 mV.

DO % Sat. Membrane Changed? Y/N ________ If yes, run probe at least 15 mins before calibration. Optimally, wait 6 to 8 hrs before calibration / use.

DO Charge ________ (Range: 50 +/- 25)

Calibration Values %

mm Hg	Initial	Post Cal.	DO Gain*	
632.8	108.2	83.3% @14.96°C		(Range: 1 (0.7 to 1.5))

Turbidity ~~Wiper Changed? Y/N~~ ________ Wiper parks ~180 degrees from optic port? Y/N ________

Standards Values (NTUs) NA

Standards Values (NTUs)	Initial	Post Cal.
Zero (Always First)		

Note: Use longer probe guard with black turb probe; shorter guard with grey probe.

Post Calibration DO Sensor Output Test

Turn off handset (650MDS). Wait 1 minute, turn handset on and enter "Run". DO % Sat. must start reading with a high value and descend to the calibration value in 1 to 2 minutes. **If it does not, reject.**

Note: Disregard the first two readings as they may be affected by the warm-up process.

Accept? ✓ Reject? ________ See note in comments

Calibration Comments

ORP set to 220mV, reads 220mV @19.71°C

* Found in: Main Menu --> Sonde Menu --> Advanced --> Calibration Constants

YSI SONDE CALIBRATION WORKSHEET (Last Revision 01/03/2007)

Sonde ID: ________ Date/Time: 3/13/19 Technician: EBastien

Reason for Calibration: CMC Isleta Diversion Dam

Battery Voltage: ________ (6920 & 600 XLM only)

Specific Conductance: Calibration Values

Standard Used (mS) 1.413

Initial	Post Cal.	~~Cell Constant:*~~	
1430	1414	14.23°C	(Range: 5 +/- 0.5)

pH Calibration Values

		Initial	Post Cal.	~~mV~~ Temp	
7 Buffer:	(first)	7.01	7.04	15.78	(Range: 0 mV +/- 50)
4 Buffer:	(second)	4.21	4.01	14.23	(Range: +177 from pH 7)
10 Buffer:	(third)	10.21	10.12	16.95	(Range: -177 from pH 7)

Note: Span between pH 7 and pH 4, and pH 7 and pH 10 should be aproximately 165 to 180 mV.

DO % Sat. Membrane Changed? Y/N ________ If yes, run probe at least 15 mins before calibration. Optimally, wait 6 to 8 hrs before calibration / use.

DO Charge ________ (Range: 50 +/- 25)

mm Hg 625.5

Calibration Values %

Initial	Post Cal.	~~DO Gain*~~ temp	
5.62mg/L 56.5%	82.3%	15.67	(Range: 1 (0.7 to 1.5))

Turbidity Wiper Changed? Y/N ________ Wiper parks ~180 degrees from optic port? Y/N ________

Standards Values (NTUs) eb

Calibration Values

Standards		Initial	Post Cal.
Zero	(Always First)		

Note: Use longer probe guard with black turb probe; shorter guard with grey probe.

Post Calibration DO Sensor Output Test

Turn off handset (650MDS). Wait 1 minute, turn handset on and enter "Run". DO % Sat. **must** start reading with a high value and descend to the calibration value in 1 to 2 minutes. **If it does not, reject.**

Note: Disregard the first two readings as they may be affected by the warm-up process.

Accept? yes Reject? ________ See note in comments

Calibration Comments

ORP set to 227, reads 227.4mV @ 14.43°C

* Found in: Main Menu --> Sonde Menu --> Advanced --> Calibration Constants

ATTACHMENT 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY REPORTS WITH BHI NOTES FOR FY 2019 DRY SEASON

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 19, 2019

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX

February 14, 2019 Rio Grande North - E. coli results

RE: CMC

OrderNo.: 1902657

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/14/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA **Client Sample ID:** Rio Grande-North-20190214
Project: CMC **Collection Date:** 2/14/2019 1:20:00 PM
Lab ID: 1902657-001 **Matrix:** SURFACE W **Received Date:** 2/14/2019 2:34:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **plr**
E. Coli	2.0	1.000		MPN/100	1	2/15/2019 5:15:00 PM	43174

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA   Work Order Number: 1902657   RcptNo: 1

Received By: Isaiah Ortiz   2/14/2019 2:34:00 PM   I-Ox

Completed By: Isaiah Ortiz   2/14/2019 2:57:11 PM   I-Ox

Reviewed By: DAD 2/14/19 @ 15:25

LB: YG 2/14/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: YG 2/14/19 ______ (<2 or >12 unless noted)
Adjusted? ______
Checked by: ______

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ______ Date: ______
By Whom: ______ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ______
Client Instructions: ______

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.4	Good	Yes			

Chain-of-Custody Record

Client: CMC / AMAFCA	Turn-Around Time: ☒ Standard ☐ Rush
Mailing Address:	Project Name: CMC
Phone #:	Project #: DB17.1316
email or Fax#: Pchavez@amafca.org	Project Manager: Patrick Chavez
QA/QC Package: ☐ Standard ☐ Level 4 (Full Validation)	Sampler: Chad Johannesen
Accreditation ☐ NELAP ☐ Other	On Ice: ☒ Yes ☐ No
☐ EDD (Type)	Sample Temperature: 6.4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1902657	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	See attachment E.coli	Numeration			Air Bubbles (Y or N)
2/14/19	13:20	SW	RioGrandeNorth-20190214	Various	Various	-001												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/14/19	14:34	Elizabeth Bastian	[illegible] COO	2/14/19	1434
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 11, 2019 Rio Grande North - E. coli results

March 15, 2019

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX

RE: CMC OrderNo.: 1903477

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/11/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1903477**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **3/15/2019**

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903477-001 **Matrix:** AQUEOUS

Client Sample ID: RG-North-20190311
Collection Date: 3/11/2019 10:45:00 AM
Received Date: 3/11/2019 11:37:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **SMS**
E. Coli	31.8	1.000		MPN/100	1	3/12/2019 4:45:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA Work Order Number: 1903477 RcptNo: 1

Received By:	Victoria Zellar	3/11/2019 11:37:00 AM	Victoria Zellar
Completed By:	Victoria Zellar	3/11/2019 12:14:26 PM	Victoria Zellar
Reviewed By:	JO	3/11/19 (V) 1240	

labeled by YG 3/11/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: YG 3/11/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	7.8	Good	Not Present			

Chain-of-Custody Record

Client: AMAFCA

Mailing Address: 2600 Prospect Ave

Phone #:

email or Fax#: pchavez@amafca.org

QA/QC Package: ☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler: Chad Johannesen

On Ice: ☑ Yes ☐ No

Sample Temperature: 7.8°

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1903477	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	E. coli - enumeration				Air Bubbles (Y or N)
3-11-19	1045	AQ	RG-North-20190311	1		-001												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
3-11-19	1137	Chad Johannesen	Victoria Zellar CDC	3/11/19	1137
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 20, 2019

March 12, 2019 Rio Grande South, Rio Grande South Duplicate, and blank sample - E. coli results

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX

RE: CMC   OrderNo.: 1903546

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/12/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA **Lab Order:** 1903546
Project: CMC

Lab ID: 1903546-001 **Collection Date:** 3/12/2019 11:15:00 AM
Client Sample ID: RG-South-20190312 **Matrix:** SURFACE WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **plr**	
E. Coli	298	10.00		MPN/100	10	3/13/2019 6:06:00 PM	43643

Lab ID: 1903546-002 **Collection Date:** 3/12/2019 11:30:00 AM
Client Sample ID: RG-South-DP-20190312 **Matrix:** SURFACE WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **plr**	
E. Coli	309	10.00		MPN/100	10	3/13/2019 6:06:00 PM	43643

Lab ID: 1903546-003 **Collection Date:** 3/12/2019 12:00:00 PM
Client Sample ID: Eq Blank-20190312 **Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 9223B FECAL INDICATOR: E. COLI MPN						Analyst: **plr**	
E. Coli	<1	1.000		MPN/100	1	3/13/2019 6:06:00 PM	43643

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA   Work Order Number: 1903546   RcptNo: 1

Received By: Isaiah Ortiz   3/12/2019 1:20:00 PM   I-Ox

Completed By: Isaiah Ortiz   3/12/2019 1:39:19 PM   I-Ox

Reviewed By: TWM 3-12-19   @ 15.00

LB: YG 3/12/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples were collected the same day and chilled.
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

# of preserved bottles checked for pH: ____
(<2 or >12 unless noted)
Adjusted? ____
Checked by: YG 3/12/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____   Date: ____
By Whom: ____   Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	13.9	Good	Not Present			

Chain-of-Custody Record

Client: CMC / Patrick Chavez

Mailing Address: 2600 Prospect Ave.

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ **Rush**

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler: C. Johannesen

On Ice: ■ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 13.9°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1903546	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	E. coli Numeration					
3/12/19	11:15	SW	RG-South-20190312	1-125mL		-001											X					
3/12/19	11:30	SW	RG-South-DP-20190312	1-125mL		-002											X					
3/12/19	12:00	AQ	EqBlank-20190312	1-125mL		-003											X					

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3/12/19	13:20	[signature]	[signature]	COO	3/12/19	13:20
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 08, 2019

March 11, 2019 Rio Grande North
and
March 13, 2019 Rio Grande South
& South Duplicate results

Patrick Chavez
AMAFCA
2600 Prospect Ave NE
Albuquerque, NM 87107
TEL: (505) 884-2215
FAX

RE: CMC | OrderNo.: 1903661

Dear Patrick Chavez:

Hall Environmental Analysis Laboratory received 9 sample(s) on 3/13/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1903661**
Date Reported: **4/8/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-001 **Matrix:** AQUEOUS

Client Sample ID: RG-North-20190311
Collection Date: 3/11/2019 10:45:00 AM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES							Analyst: **JME**	
Dieldrin	ND	0.048	0.10		µg/L	1	3/19/2019 9:52:41 AM	43723
Surr: Decachlorobiphenyl	37.1	0	29.4-99.8		%Rec	1	3/19/2019 9:52:41 AM	43723
Surr: Tetrachloro-m-xylene	37.7	0	20.7-100		%Rec	1	3/19/2019 9:52:41 AM	43723
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrate+Nitrite as N	ND	0.49	1.0		mg/L	5	3/14/2019 12:32:50 PM	R58394
EPA METHOD 200.7: METALS							Analyst: **bcv**	
Calcium	37	0.062	1.0		mg/L	1	3/20/2019 8:08:51 PM	43738
Magnesium	8.2	0.050	1.0		mg/L	1	3/20/2019 8:08:51 PM	43738
EPA 200.8: DISSOLVED METALS							Analyst: **DBK**	
Copper	0.0055	0.00027	0.0010		mg/L	1	3/22/2019 12:09:25 PM	A58572
Lead	0.00011	0.000055	0.00050	J	mg/L	1	3/22/2019 12:09:25 PM	A58572
SM2340B: HARDNESS							Analyst: **bcv**	
Hardness (As CaCO3)	120	2.5	6.6		mg/L	1	3/20/2019 3:56:00 PM	R58535
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	6.0	2.0	2.0	RH	mg/L	1	3/18/2019 3:09:00 PM	43669
NOTES:								
R - RPD between dilutions >30%.								
EPA METHOD 1664B							Analyst: **plr**	
N-Hexane Extractable Material	ND	3.75	10.1		mg/L	1	3/18/2019 9:01:00 AM	43725
SM 4500 NH3: AMMONIA							Analyst: **OG**	
Nitrogen, Ammonia	ND	0.25	1.0		mg/L	1	3/28/2019 12:00:00 PM	R58721
SM4500-H+B / 9040C: PH	Field pH data used for reporting						Analyst: **JRR**	
pH	8.04			H	pH units	1	3/14/2019 12:00:50 PM	R58386
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.058	0.010	0.010		mg/L	1	3/21/2019 11:29:00 AM	43794
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **CJS**	
Total Dissolved Solids	228	20.0	20.0		mg/L	1	3/20/2019 10:02:00 AM	43747
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	0.70	0.57	1.0	J	mg/L	1	3/29/2019 3:30:00 PM	43956
SM 2540D: TSS							Analyst: **CJS**	
Suspended Solids	44	3.9	4.0		mg/L	1	3/18/2019 1:08:00 PM	43714

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-002 **Matrix:** AQUEOUS

Client Sample ID: Eq Blank-20190312
Collection Date: 3/12/2019 12:00:00 PM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES							Analyst: **JME**	
Dieldrin	ND	0.048	0.10		µg/L	1	3/19/2019 10:05:59 AM	43723
Surr: Decachlorobiphenyl	54.0	0	29.4-99.8		%Rec	1	3/19/2019 10:05:59 AM	43723
Surr: Tetrachloro-m-xylene	61.3	0	20.7-100		%Rec	1	3/19/2019 10:05:59 AM	43723
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrite (As N)	ND	0.070	0.10		mg/L	1	3/14/2019 10:28:43 AM	R58394
Nitrogen, Nitrate (As N)	ND	0.029	0.10		mg/L	1	3/14/2019 10:28:43 AM	R58394
EPA METHOD 200.7: METALS							Analyst: **bcv**	
Calcium	ND	0.062	1.0		mg/L	1	3/20/2019 8:23:15 PM	43738
Magnesium	ND	0.050	1.0		mg/L	1	3/20/2019 8:23:15 PM	43738
EPA 200.8: DISSOLVED METALS							Analyst: **DBK**	
Copper	0.00052	0.00027	0.0010	J	mg/L	1	3/22/2019 12:17:17 PM	A58572
Lead	ND	0.000055	0.00050		mg/L	1	3/22/2019 12:17:17 PM	A58572
SM2340B: HARDNESS							Analyst: **bcv**	
Hardness (As CaCO3)	ND	2.5	6.6		mg/L	1	3/20/2019 3:56:00 PM	R58535
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0		mg/L	1	3/18/2019 3:09:00 PM	43669
EPA METHOD 1664B							Analyst: **plr**	
N-Hexane Extractable Material	ND	3.44	9.23		mg/L	1	3/18/2019 9:01:00 AM	43725
SM 4500 NH3: AMMONIA							Analyst: **OG**	
Nitrogen, Ammonia	ND	0.25	1.0		mg/L	1	3/28/2019 12:00:00 PM	R58721
SM4500-H+B / 9040C: PH Field pH data used for reporting							Analyst: **JRR**	
pH	5.50			H	pH units	1	3/14/2019 12:14:19 PM	R58386
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	ND	0.010	0.010		mg/L	1	3/21/2019 11:31:00 AM	43794
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **CJS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	3/20/2019 10:02:00 AM	43747
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	ND	0.57	1.0		mg/L	1	3/29/2019 3:30:00 PM	43956
SM 2540D: TSS							Analyst: **CJS**	
Suspended Solids	ND	3.9	4.0		mg/L	1	3/18/2019 1:08:00 PM	43714

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA | **Client Sample ID:** RG-South-20190313
Project: CMC | **Collection Date:** 3/13/2019 9:45:00 AM
Lab ID: 1903661-003 | **Matrix:** AQUEOUS | **Received Date:** 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES							Analyst: **JME**	
Dieldrin	ND	0.048	0.10		µg/L	1	3/19/2019 10:19:12 AM	43723
Surr: Decachlorobiphenyl	49.6	0	29.4-99.8		%Rec	1	3/19/2019 10:19:12 AM	43723
Surr: Tetrachloro-m-xylene	55.2	0	20.7-100		%Rec	1	3/19/2019 10:19:12 AM	43723
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrite (As N)	ND	0.35	0.50		mg/L	5	3/14/2019 11:18:22 AM	R58394
Nitrogen, Nitrate (As N)	0.43	0.14	0.50	J	mg/L	5	3/14/2019 11:18:22 AM	R58394
EPA METHOD 200.7: METALS							Analyst: **bcv**	
Calcium	60	0.062	1.0		mg/L	1	3/20/2019 8:37:41 PM	43738
Magnesium	13	0.050	1.0		mg/L	1	3/20/2019 8:37:41 PM	43738
EPA 200.8: DISSOLVED METALS							Analyst: **DBK**	
Copper	0.00074	0.00027	0.0010	J	mg/L	1	3/22/2019 12:27:49 PM	A58572
Lead	0.00040	0.000055	0.00050	J	mg/L	1	3/22/2019 12:27:49 PM	A58572
SM2340B: HARDNESS							Analyst: **bcv**	
Hardness (As CaCO3)	200	2.5	6.6		mg/L	1	3/20/2019 3:56:00 PM	R58535
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	5.0	2.0	2.0	R	mg/L	1	3/18/2019 3:09:00 PM	43669
NOTES: R - RPD between dilutions >30%.								
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **plr**	
E. Coli	594	10.00	10.00		MPN/100	10	3/14/2019 5:05:00 PM	43668
EPA METHOD 1664B							Analyst: **plr**	
N-Hexane Extractable Material	ND	3.70	9.92		mg/L	1	3/18/2019 9:01:00 AM	43725
SM 4500 NH3: AMMONIA							Analyst: **OG**	
Nitrogen, Ammonia	0.28	0.25	1.0	J	mg/L	1	3/28/2019 12:00:00 PM	R58721
SM4500-H+B / 9040C: PH Field pH data used for reporting							Analyst: **JRR**	
pH	8.03			H	pH units	1	3/14/2019 12:18:53 PM	R58386
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.45	0.050	0.050	D	mg/L	1	3/21/2019 11:35:00 AM	43794
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **CJS**	
Total Dissolved Solids	325	100	100	D	mg/L	1	3/20/2019 10:02:00 AM	43747
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	1.1	0.57	1.0		mg/L	1	3/29/2019 3:30:00 PM	43956
SM 2540D: TSS							Analyst: **CJS**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Analytical Report
Lab Order **1903661**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **4/8/2019**

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-003
Matrix: AQUEOUS

Client Sample ID: RG-South-20190313
Collection Date: 3/13/2019 9:45:00 AM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 2540D: TSS							Analyst: **CJS**	
Suspended Solids	460	20	20	D	mg/L	1	3/18/2019 1:08:00 PM	43714

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-004
Matrix: AQUEOUS
Client Sample ID: RG-South-DP-20190313
Collection Date: 3/13/2019 10:00:00 AM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8081: PESTICIDES							Analyst: **JME**	
Dieldrin	ND	0.048	0.10		µg/L	1	3/19/2019 10:32:39 AM	43723
Surr: Decachlorobiphenyl	33.0	0	29.4-99.8		%Rec	1	3/19/2019 10:32:39 AM	43723
Surr: Tetrachloro-m-xylene	29.0	0	20.7-100		%Rec	1	3/19/2019 10:32:39 AM	43723
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrite (As N)	ND	0.35	0.50		mg/L	5	3/14/2019 11:43:11 AM	R58394
Nitrogen, Nitrate (As N)	0.43	0.14	0.50	J	mg/L	5	3/14/2019 11:43:11 AM	R58394
EPA METHOD 200.7: METALS							Analyst: **bcv**	
Calcium	59	0.062	1.0		mg/L	1	3/20/2019 8:43:17 PM	43738
Magnesium	13	0.050	1.0		mg/L	1	3/20/2019 8:43:17 PM	43738
EPA 200.8: DISSOLVED METALS							Analyst: **DBK**	
Copper	0.00096	0.00027	0.0010	J	mg/L	1	3/22/2019 12:30:27 PM	A58572
Lead	0.00030	0.000055	0.00050	J	mg/L	1	3/22/2019 12:30:27 PM	A58572
SM2340B: HARDNESS							Analyst: **bcv**	
Hardness (As CaCO3)	200	2.5	6.6		mg/L	1	3/20/2019 3:56:00 PM	R58535
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	5.6	2.0	2.0	R	mg/L	1	3/18/2019 3:09:00 PM	43669
NOTES: R - RPD between dilutions >30%.								
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **plr**	
E. Coli	479	10.00	10.00		MPN/100	10	3/14/2019 5:05:00 PM	43668
EPA METHOD 1664B							Analyst: **plr**	
N-Hexane Extractable Material	3.69	3.62	9.72	J	mg/L	1	3/18/2019 9:01:00 AM	43725
SM 4500 NH3: AMMONIA							Analyst: **OG**	
Nitrogen, Ammonia	ND	0.25	1.0		mg/L	1	3/28/2019 12:00:00 PM	R58721
SM4500-H+B / 9040C: PH Field pH data used for reporting							Analyst: **JRR**	
pH	8.07			H	pH units	1	3/14/2019 12:23:16 PM	R58386
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.44	0.050	0.050	D	mg/L	1	3/21/2019 11:37:00 AM	43794
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **CJS**	
Total Dissolved Solids	300	100	100	D	mg/L	1	3/20/2019 10:02:00 AM	43747
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	1.5	0.57	1.0		mg/L	1	3/29/2019 3:30:00 PM	43956
SM 2540D: TSS							Analyst: **CJS**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Analytical Report
Lab Order **1903661**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **4/8/2019**

CLIENT: AMAFCA
Client Sample ID: RG-South-DP-20190313
Project: CMC
Collection Date: 3/13/2019 10:00:00 AM
Lab ID: 1903661-004
Matrix: AQUEOUS
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 2540D: TSS								Analyst: **CJS**
Suspended Solids	490	20	20	D	mg/L	1	3/18/2019 1:08:00 PM	43714

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:				
*	Value exceeds Maximum Contaminant Level.		B	Analyte detected in the associated Method Blank
E	Value above quantitation range		H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits		ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit		RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		W	Sample container temperature is out of limit as specified at testcode

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-006 **Matrix:** AQUEOUS

Client Sample ID: RG-North-20190311 Filtered
Collection Date: 3/11/2019 10:45:00 AM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.015	0.010	0.010		mg/L	1	3/21/2019 11:38:00 AM	43794

Dissolved phosphorous - filtered sample

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Analytical Report
Lab Order **1903661**
Date Reported: **4/8/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA | **Client Sample ID:** Eq Blank-20190312 Filtered
Project: CMC | **Collection Date:** 3/12/2019 12:00:00 PM
Lab ID: 1903661-007 | **Matrix:** AQUEOUS | **Received Date:** 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	ND	0.010	0.010		mg/L	1	3/21/2019 11:40:00 AM	43794

Dissolved phosphorous - filtered sample

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-008
Matrix: AQUEOUS

Client Sample ID: RG-South-20190313 Filtered
Collection Date: 3/13/2019 9:45:00 AM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.054	0.010	0.010		mg/L	1	3/21/2019 11:46:00 AM	43794

Dissolved phosphorous - filtered sample

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Hall Environmental Analysis Laboratory, Inc.

CLIENT: AMAFCA
Project: CMC
Lab ID: 1903661-009
Matrix: AQUEOUS

Client Sample ID: RG-South-DP-201903 Filtered
Collection Date: 3/13/2019 10:00:00 AM
Received Date: 3/13/2019 1:40:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 365.1: TOTAL PHOSPHOROUS							Analyst: **CJS**	
Phosphorus, Total (As P)	0.053	0.010	0.010		mg/L	1	3/21/2019 11:47:00 AM	43794

Dissolved phosphorous - filtered sample

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Anatek Labs, Inc.

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-001	**Sampling Date**	3/11/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	10:45 AM		
Client Sample ID	1903661-001A/RG-NORTH-20190311				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Tetrahydrofuran	ND	ug/L	0.5	3/22/2019 5:07:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 190315036-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	97.8	70-130
4-Bromofluorobenzene	EPA 8260C	97.0	70-130
Toluene-d8	EPA 8260C	102.8	70-130

Sample Number	190315036-004	**Sampling Date**	3/12/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	12:00 PM		
Client Sample ID	1903661-002A/EQ BLANK-20190312				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Tetrahydrofuran	ND	ug/L	0.5	3/22/2019 5:36:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 190315036-004

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	98.0	70-130
4-Bromofluorobenzene	EPA 8260C	98.2	70-130
Toluene-d8	EPA 8260C	99.6	70-130

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-007	**Sampling Date**	3/13/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	9:45 AM		
Client Sample ID	1903661-003A/RG-SOUTH-20190313				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Tetrahydrofuran	ND	ug/L	0.5	3/22/2019 6:05:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 190315036-007

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	99.0	70-130
4-Bromofluorobenzene	EPA 8260C	95.4	70-130
Toluene-d8	EPA 8260C	96.8	70-130

Sample Number	190315036-010	**Sampling Date**	3/13/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	10:00 AM		
Client Sample ID	1903661-004A/R6-SOUTH-DP-20190313				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Tetrahydrofuran	ND	ug/L	0.5	3/22/2019 6:34:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 190315036-010

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	100.0	70-130
4-Bromofluorobenzene	EPA 8260C	96.4	70-130
Toluene-d8	EPA 8260C	99.2	70-130

Anatek Labs, Inc.

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-013	**Sampling Date**	3/11/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**			
Client Sample ID	1903661-005A/TRIP BLANK				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Tetrahydrofuran	ND	ug/L	0.5	3/22/2019 4:38:00 PM	SAT	EPA 8260C	

Surrogate Data

Sample Number 190315036-013

Surrogate Standard	Method	Percent Recovery	Control Limits
1,2-Dichlorobenzene-d4	EPA 8260C	97.8	70-130
4-Bromofluorobenzene	EPA 8260C	97.0	70-130
Toluene-d8	EPA 8260C	100.4	70-130

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Tetrahydrofuran	9.43	ug/L	10	94.3	70-130	3/22/2019	3/22/2019

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
190315036-001	Tetrahydrofuran	ND	10.9	ug/L	10	109.0	70-130	3/22/2019	3/22/2019

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Tetrahydrofuran	10.6	ug/L	10	106.0	2.8	0-20	3/22/2019	3/22/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Tetrahydrofuran	ND	ug/L	0.5	3/22/2019	3/22/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments: COD SUB TO SPOA

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-002	**Sampling Date**	3/11/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	10:45 AM	**Extraction Date**	3/18/2019
Client Sample ID	1903661-001B/RG-NORTH-20190311				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzidine	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	3/22/2019 9:56:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 190315036-002

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	90.8	43-120
2-Fluorobiphenyl	EPA 8270D	91.2	55-127
2-Fluorophenol	EPA 8270D	79.4	41-119
Nitrobenzene-d5	EPA 8270D	90.0	55-120
Phenol-d5	EPA 8270D	82.0	52-115
Terphenyl-d14	EPA 8270D	97.2	22-133

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-005	**Sampling Date**	3/12/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	12:00 PM	**Extraction Date**	3/18/2019
Client Sample ID	1903661-002B/EQ BLANK-20190312				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzidine	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	3/22/2019 10:23:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 190315036-005

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	79.6	43-120
2-Fluorobiphenyl	EPA 8270D	93.6	55-127
2-Fluorophenol	EPA 8270D	83.6	41-119
Nitrobenzene-d5	EPA 8270D	93.2	55-120
Phenol-d5	EPA 8270D	85.8	52-115
Terphenyl-d14	EPA 8270D	107.6	22-133

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-008	**Sampling Date**	3/13/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	9:45 AM	**Extraction Date**	3/18/2019
Client Sample ID	1903661-003B/RG-SOUTH-20190313				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzidine	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	3/22/2019 10:50:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 190315036-008

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	88.0	43-120
2-Fluorobiphenyl	EPA 8270D	90.4	55-127
2-Fluorophenol	EPA 8270D	81.8	41-119
Nitrobenzene-d5	EPA 8270D	89.2	55-120
Phenol-d5	EPA 8270D	84.6	52-115
Terphenyl-d14	EPA 8270D	72.8	22-133

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1903661
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-011	**Sampling Date**	3/13/2019	**Date/Time Received**	3/15/201911:00 AM
Matrix	Water	**Sampling Time**	10:00 AM	**Extraction Date**	3/18/2019
Client Sample ID	1903661-004B/R6-SOUTH-DP-20190313				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzidine	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	3/22/2019 11:18:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 190315036-011

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	88.8	43-120
2-Fluorobiphenyl	EPA 8270D	92.0	55-127
2-Fluorophenol	EPA 8270D	80.6	41-119
Nitrobenzene-d5	EPA 8270D	91.6	55-120
Phenol-d5	EPA 8270D	81.6	52-115
Terphenyl-d14	EPA 8270D	50.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pentachlorophenol	4.02	ug/L	5	80.4	22-138	3/18/2019	3/22/2019
bis(2-Ethylhexyl)phthalate	4.84	ug/L	5	96.8	51-149	3/18/2019	3/22/2019
Benzo[a]pyrene	4.05	ug/L	5	81.0	63-120	3/18/2019	3/22/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pentachlorophenol	3.89	ug/L	5	77.8	3.3	0-39	3/18/2019	3/22/2019
bis(2-Ethylhexyl)phthalate	4.80	ug/L	5	96.0	0.8	0-43	3/18/2019	3/22/2019
Benzo[a]pyrene	3.99	ug/L	5	79.8	1.5	0-20	3/18/2019	3/22/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Benzidine	ND	ug/L	0.5	3/18/2019	3/22/2019
Benzo[a]anthracene	ND	ug/L	0.5	3/18/2019	3/22/2019
Benzo[a]pyrene	ND	ug/L	0.5	3/18/2019	3/22/2019
Benzo[b]fluoranthene	ND	ug/L	0.5	3/18/2019	3/22/2019
Benzo[k]fluoranthene	ND	ug/L	0.5	3/18/2019	3/22/2019
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	3/18/2019	3/22/2019
Chrysene	ND	ug/L	0.5	3/18/2019	3/22/2019
Dibenz[a,h]anthracene	ND	ug/L	0.5	3/18/2019	3/22/2019
Dibenzofuran	ND	ug/L	0.5	3/18/2019	3/22/2019
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	3/18/2019	3/22/2019
Pentachlorophenol	ND	ug/L	0.5	3/18/2019	3/22/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments: COD SUB TO SPOA

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 190315036
Project Name: 1903661

Analytical Results Report

Sample Number 190315036-003 **Sampling Date** 3/11/2019 **Date/Time Received** 3/15/2019 11:00 AM
Matrix Water **Sampling Time** 10:45 AM
Client Sample ID 1903661-001I/RG-NORTH-20190311
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
COD	9.75	mg/L	5	3/21/2019 11:30:00 AM	NDE	EPA 410.4	

Sample Number 190315036-006 **Sampling Date** 3/12/2019 **Date/Time Received** 3/15/2019 11:00 AM
Matrix Water **Sampling Time** 12:00 PM
Client Sample ID 1903661-002I/EQ BLANK-20190312
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
COD	<5	mg/L	5	3/21/2019 11:30:00 AM	NDE	EPA 410.4	

Sample Number 190315036-009 **Sampling Date** 3/13/2019 **Date/Time Received** 3/15/2019 11:00 AM
Matrix Water **Sampling Time** 9:45 AM
Client Sample ID 1903661-003I/RG-SOUTH-20190313
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
COD	24.8	mg/L	7.5	3/21/2019 11:30:00 AM	NDE	EPA 410.4	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	190315036-012	**Sampling Date**	3/13/2019	**Date/Time Received**	3/15/2019	11:00 AM
Matrix	Water	**Sampling Time**	10:00 AM			
Client Sample ID	1903661-004I/R6-SOUTH-DP-20190313					
Comments						

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
COD	26.8	mg/L	7.5	3/21/2019 11:30:00 AM	NDE	EPA 410.4	

Authorized Signature

Todd Taruscio, Lab Manager

MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	190315036
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1903661
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
COD	107	mg/L	100	107.0	90-110	3/21/2019	3/21/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
COD	107	mg/L	100	107.0	0.0	0-20	3/21/2019	3/21/2019

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
190313063-005	COD	<5	112	mg/L	100	112.0	80-120	3/21/2019	3/21/2019

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
COD	110	mg/L	100	110.0	1.8	0-20	3/21/2019	3/21/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
COD	<5	mg/L	5	3/21/2019	3/21/2019

Duplicate

Sample Number	Parameter	Sample Result	Duplicate Result	Units	%RPD	AR %RPD	Prep Date	Analysis Date
190320039-002	COD	32.4	34.8	mg/L	7.1	0-20	3/21/2019	3/21/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments: COD SUB TO SPOA

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Wet Chemistry by Method 3500Cr C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		0.000500	1	03/20/2019 16:57	WG1251570

Wet Chemistry by Method 3500Cr C-2011

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/l		mg/l		date / time	
Hexavalent Chromium	ND		0.000500	1	03/20/2019 17:19	WG1251570

Wet Chemistry by Method 3500Cr C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		0.000500	1	03/20/2019 17:27	WG1251570

Wet Chemistry by Method 3500Cr C-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		0.000500	1	03/20/2019 17:34	WG1251570

Method Blank (MB)

(MB) R3393856-1 03/20/19 15:28

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Hexavalent Chromium	U		0.000150	0.000500

Laboratory Control Sample (LCS)

(LCS) R3393856-2 03/20/19 15:36

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
Hexavalent Chromium	0.00200	0.00191	95.6	90.0-110	

L1079077-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1079077-01 03/20/19 19:10 • (MS) R3393856-6 03/20/19 19:18

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/l	mg/l	mg/l	%		%	
Hexavalent Chromium	0.0500	ND	0.0480	96.0	1	90.0-110	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
	The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421

www.capefearanalytical.com

April 03, 2019

Mr. Andy Freeman
Hall Environmental
4901 Hawkins NE
Suite D
Albuquerque, New Mexico 87109

Re: Routine Analysis
Work Order: 14707
SDG: 1903661

Dear Mr. Freeman:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 15, 2019. This original data report has been prepared and reviewed in accordance with CFA's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at 910-795-0421.

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Purchase Order: IDIQ Pricing
Enclosures

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

CFA WO#14707

SUB CONTRATOR: Cape Fear Analytical	COMPANY: Cape Fear Analytical	PHONE: (910) 795-0421	FAX:
ADDRESS: 3306 Kitty Hawk Rd Ste 120		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Wilmington, NC 28405			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1903661-001K	RG-North-20190311	1LAmber	Aqueous	3/11/2019 10:45:00 AM	1	PCB CONGENERS ~~PREP~~ 1668
2	1903661-002K	Eq Blank-20190312	1LAmber	Aqueous	3/12/2019 12:00:00 PM	1	PCB CONGENERS ~~PREP~~ 1668
3	1903661-003K	RG-South-20190313	1LAmber	Aqueous	3/13/2019 9:45:00 AM	1	PCB CONGENERS ~~PREP~~ 1668
4	1903661-004K	R6-South-DP-20190313	1LAmber	Aqueous	3/13/2019 10:00:00 AM	1	PCB CONGENERS ~~PREP~~ 1668

AT 03/14/19

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date: 3/14/2019	Time: 8:13 AM	Received By: Cynde Larkins	Date: 15MAR19	Time: 1010
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☒ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples 3.9 °C Attempt to Cool ? ✓

Comments:

SAMPLE RECEIPT CHECKLIST
Cape Fear Analytical

Client: HALL		Work Order: 14707	
Shipping Company: FedEx		Date/Time Received: 15MAR19 1010	

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

Air Sample Receipt Specifics	Yes	NA	No
Air sample in shipment?			✓

Air Witness: ____________

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken damaged container leaking container other(describe)
2	Custody seal/s present on cooler?	✓			Seal intact? Yes No
3	Chain of Custody documents included with shipment?	✓			
4	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: ice bags blue ice dry ice none other (describe) Temperature Blank present: Yes No 4.4° - 0.5 = 3.9°C
5	Aqueous samples found to have visible solids?	✓			Sample IDs, containers affected: Minimal visible solids (<1%) in 1903661-003K and -004K
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: pH=7 on all If preservative added, Lot#:
7	Samples requiring preservation have no residual chlorine?	✓			Sample IDs, containers affected: If preservative added, Lot#:
8	Samples received within holding time?	✓			Sample IDs, tests affected:
9	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected: R6 or RG on handwritten labels
10	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
11	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: 1-1L WMA glass bottles per sample 4 total
12	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Checklist performed by: Initials: CL Date: 15MAR19 CF-UD-F-7

Subject: RE: 1903661
From: Anne Thorne <anne@hallenvironmental.com>
Date: 3/15/2019, 12:34 PM
To: Cynde Larkins <cynde.larkins@cfanalytical.com>

Yes please change that one as well to RG. See it snagged me as well. Those curly letters drive me nuts!

Have a nice weekend

at

From: Cynde Larkins <cynde.larkins@cfanalytical.com>
Sent: Friday, March 15, 2019 10:13 AM
To: Anne Thorne <anne@hallenvironmental.com>
Subject: Re: 1903661

Aha! So, should I change the one that has "R6" to "RG"?

On 3/15/2019 12:11 PM, Anne Thorne wrote:

Hi Cynde

RG for Rio Grande

Thanks for checking

From: Cynde Larkins <cynde.larkins@cfanalytical.com>
Sent: Friday, March 15, 2019 9:57 AM
To: Anne Thorne <anne@hallenvironmental.com>
Subject: 1903661

Hi Anne!

CFA received the samples today for 1903661 in good condition and within temperature. I was hoping you would verify the sample ID's, though. The handwritten labels look like they are "R6", but your COC and printed labels have 2 ID's as "RG". Please advise.

Thanks,

--
Cynde Larkins
Project Manager
Cape Fear Analytical, LLC
3306 Kitty Hawk Road Suite 120
Wilmington, NC 28405
(910) 795-0421

--
Cynde Larkins
Project Manager
Cape Fear Analytical, LLC
3306 Kitty Hawk Road Suite 120
Wilmington, NC 28405
(910) 795-0421

PCB Congeners Analysis

Case Narrative

PCBC Case Narrative
Hall Environmental Analysis Laboratory (HALL)
SDG 1903661
Work Order 14707

Method/Analysis Information

Product:	**PCB Congeners by EPA Method 1668A in Liquids**
Analytical Method:	EPA Method 1668A
Extraction Method:	SW846 3520C
Analytical Batch Number:	40255
Clean Up Batch Number:	40254
Extraction Batch Number:	40253

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1668A:

Sample ID	**Client ID**
12023489	Method Blank (MB)
12023490	Laboratory Control Sample (LCS)
12023491	Laboratory Control Sample Duplicate (LCSD)
14707001	1903661-001K RG-North-20190311
14707002	1903661-002K Eq BLank-20190312
14707003	1903661-003K RG-South-20190313
14707004	1903661-004K RG-South-DP-20190313

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-003 REV# 7.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (ICV or CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2009 TNI Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Nonconformance (NCR) Documentation
A NCR was not required for this SDG.

Manual Integrations
Manual integrations were required for data files in this SDG. Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP875_1	PCB Analysis	PCB Analysis	SPB-Octyl	30m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Certificate of Analysis Report
for

HALL001 Hall Environmental Analysis Laboratory

Client SDG: 1903661 CFA Work Order: 14707

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- B The target analyte was detected in the associated blank.
- C Congener has coeluters. When Cxxx, refer to congener number xxx for data
- J Value is estimated
- U Analyte was analyzed for, but not detected above the specified detection limit.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature: Heather Patterson **Name: Heather Patterson**

Date: 03 APR 2019 **Title: Group Leader**

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707001	**Date Collected:**	03/11/2019 10:45	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-001K RG-North-20190311			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 18:03	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-6			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	907.1 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	U	ND	pg/L	2.25	110
2051-61-8	2-MoCB	U	ND	pg/L	1.12	110
2051-62-9	3-MoCB	U	ND	pg/L	1.01	110
13029-08-8	4-DiCB	U	ND	pg/L	5.84	110
16605-91-7	5-DiCB	U	ND	pg/L	3.79	110
25569-80-6	6-DiCB	U	ND	pg/L	3.15	110
33284-50-3	7-DiCB	U	ND	pg/L	3.26	110
34883-43-7	8-DiCB	U	ND	pg/L	7.06	110
34883-39-1	9-DiCB	U	ND	pg/L	3.66	110
33146-45-1	10-DiCB	U	ND	pg/L	4.06	110
2050-67-1	11-DiCB	BJ	29.5	pg/L	3.57	110
2974-92-7	12-DiCB	CU	ND	pg/L	3.51	220
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	3.29	110
2050-68-2	15-DiCB	U	ND	pg/L	13.2	110
38444-78-9	16-TrCB	U	ND	pg/L	2.34	110
37680-66-3	17-TrCB	BJ	3.66	pg/L	1.87	110
37680-65-2	18-TrCB	BCJ	5.95	pg/L	1.54	220
38444-73-4	19-TrCB	J	4.30	pg/L	1.98	110
38444-84-7	20-TrCB	BCJ	11.4	pg/L	1.32	220
55702-46-0	21-TrCB	CU	ND	pg/L	4.19	220
38444-85-8	22-TrCB	BJ	4.48	pg/L	1.32	110
55720-44-0	23-TrCB	U	ND	pg/L	1.28	110
55702-45-9	24-TrCB	U	ND	pg/L	1.43	110
55712-37-3	25-TrCB	U	ND	pg/L	1.19	110
38444-81-4	26-TrCB	CJ	1.98	pg/L	1.32	220
38444-76-7	27-TrCB	U	ND	pg/L	1.39	110
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	BJ	6.90	pg/L	1.26	110
38444-77-8	32-TrCB	BJ	3.22	pg/L	1.23	110

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707001**	**Date Collected:**	**03/11/2019 10:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-001K RG-North-20190311**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 18:03**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-6**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**907.1 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	1.43	110
37680-69-6	35-TrCB	U	ND	pg/L	1.39	110
38444-87-0	36-TrCB	U	ND	pg/L	1.23	110
38444-90-5	37-TrCB	BJ	3.33	pg/L	1.81	110
53555-66-1	38-TrCB	U	ND	pg/L	1.28	110
38444-88-1	39-TrCB	U	ND	pg/L	1.17	110
38444-93-8	40-TeCB	BCJ	3.35	pg/L	2.12	220
52663-59-9	41-TeCB	U	ND	pg/L	2.98	110
36559-22-5	42-TeCB	U	ND	pg/L	2.40	110
70362-46-8	43-TeCB	U	ND	pg/L	2.60	110
41464-39-5	44-TeCB	BCJ	7.56	pg/L	2.20	331
70362-45-7	45-TeCB	CU	ND	pg/L	3.92	220
41464-47-5	46-TeCB	U	ND	pg/L	1.72	110
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	U	ND	pg/L	2.32	110
41464-40-8	49-TeCB	BCJ	3.99	pg/L	2.12	220
62796-65-0	50-TeCB	CU	ND	pg/L	1.94	220
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	BJ	10.4	pg/L	2.45	110
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.17	110
74338-24-2	55-TeCB	U	ND	pg/L	1.94	110
41464-43-1	56-TeCB	BJ	4.01	pg/L	2.01	110
70424-67-8	57-TeCB	U	ND	pg/L	1.96	110
41464-49-7	58-TeCB	U	ND	pg/L	1.94	110
74472-33-6	59-TeCB	CU	ND	pg/L	1.81	331
33025-41-1	60-TeCB	U	ND	pg/L	1.90	110
33284-53-6	61-TeCB	BCJ	11.6	pg/L	1.92	441
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	1.85	110
52663-58-8	64-TeCB	J	3.59	pg/L	1.79	110

Comments:

B The target analyte was detected in the associated blank.

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707001	**Date Collected:**	03/11/2019 10:45	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-001K RG-North-20190311			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 18:03	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-6			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	907.1 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	U	ND	pg/L	5.56	110
73575-53-8	67-TeCB	U	ND	pg/L	1.68	110
73575-52-7	68-TeCB	U	ND	pg/L	1.70	110
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	1.90	110
74338-23-1	73-TeCB	U	ND	pg/L	1.81	110
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	U	ND	pg/L	2.45	110
70362-49-1	78-TeCB	U	ND	pg/L	2.01	110
41464-48-6	79-TeCB	U	ND	pg/L	1.68	110
33284-52-5	80-TeCB	U	ND	pg/L	1.72	110
70362-50-4	81-TeCB	U	ND	pg/L	2.20	110
52663-62-4	82-PeCB	U	ND	pg/L	2.25	110
60145-20-2	83-PeCB	U	ND	pg/L	2.32	110
52663-60-2	84-PeCB	U	ND	pg/L	2.23	110
65510-45-4	85-PeCB	CU	ND	pg/L	1.65	331
55312-69-1	86-PeCB	BCJ	5.29	pg/L	1.76	661
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CU	ND	pg/L	2.09	220
73575-57-2	89-PeCB	U	ND	pg/L	2.16	110
68194-07-0	90-PeCB	BCJ	5.60	pg/L	1.76	331
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	2.07	110
73575-56-1	93-PeCB	CU	ND	pg/L	2.07	220
73575-55-0	94-PeCB	U	ND	pg/L	2.12	110
38379-99-6	95-PeCB	J	4.19	pg/L	2.07	110
73575-54-9	96-PeCB	U	ND	pg/L	0.992	110

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707001**	**Date Collected:**	**03/11/2019 10:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-001K RG-North-20190311**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 18:03**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-6**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**907.1 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	2.16	220
38380-01-7	99-PeCB	J	2.23	pg/L	1.72	110
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	1.96	110
56558-16-8	104-PeCB	U	ND	pg/L	1.04	110
32598-14-4	105-PeCB	BJ	3.55	pg/L	1.85	110
70424-69-0	106-PeCB	U	ND	pg/L	1.61	110
70424-68-9	107-PeCB	U	ND	pg/L	1.39	110
70362-41-3	108-PeCB	CU	ND	pg/L	1.57	220
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	BCJ	4.54	pg/L	1.59	220
39635-32-0	111-PeCB	U	ND	pg/L	1.48	110
74472-36-9	112-PeCB	U	ND	pg/L	1.52	110
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	1.83	110
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	BJ	4.52	pg/L	1.74	110
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	1.46	110
56558-18-0	121-PeCB	U	ND	pg/L	1.50	110
76842-07-4	122-PeCB	U	ND	pg/L	1.65	110
65510-44-3	123-PeCB	U	ND	pg/L	1.70	110
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.03	110
39635-33-1	127-PeCB	U	ND	pg/L	1.52	110
38380-07-3	128-HxCB	CU	ND	pg/L	1.54	220

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707001**	**Date Collected:**	**03/11/2019 10:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-001K RG-North-20190311**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 18:03**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-6**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**907.1 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	BCJ	5.62	pg/L	1.72	331
52663-66-8	130-HxCB	U	ND	pg/L	2.01	110
61798-70-7	131-HxCB	U	ND	pg/L	2.23	110
38380-05-1	132-HxCB	U	ND	pg/L	1.92	110
35694-04-3	133-HxCB	U	ND	pg/L	1.90	110
52704-70-8	134-HxCB	U	ND	pg/L	2.45	110
52744-13-5	135-HxCB	BCJ	2.29	pg/L	0.926	220
38411-22-2	136-HxCB	J	0.838	pg/L	0.706	110
35694-06-5	137-HxCB	U	ND	pg/L	1.72	110
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	1.72	220
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	U	ND	pg/L	1.74	110
41411-61-4	142-HxCB	U	ND	pg/L	1.98	110
68194-15-0	143-HxCB	U	ND	pg/L	1.81	110
68194-14-9	144-HxCB	U	ND	pg/L	0.882	110
74472-40-5	145-HxCB	U	ND	pg/L	0.706	110
51908-16-8	146-HxCB	U	ND	pg/L	1.61	110
68194-13-8	147-HxCB	BCJ	3.59	pg/L	1.70	220
74472-41-6	148-HxCB	U	ND	pg/L	0.904	110
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	0.661	110
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	0.706	110
35065-27-1	153-HxCB	BCJ	4.15	pg/L	1.46	220
60145-22-4	154-HxCB	U	ND	pg/L	0.772	110
33979-03-2	155-HxCB	U	ND	pg/L	0.683	110
38380-08-4	156-HxCB	CJ	2.78	pg/L	1.43	220
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	U	ND	pg/L	1.23	110
39635-35-3	159-HxCB	U	ND	pg/L	0.970	110
41411-62-5	160-HxCB	U	ND	pg/L	1.43	110

Comments:
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707001	**Date Collected:**	03/11/2019 10:45	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-001K RG-North-20190311			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 18:03	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-6			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	907.1 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	1.43	110
39635-34-2	162-HxCB	J	1.01	pg/L	0.948	110
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	U	ND	pg/L	1.37	110
74472-46-1	165-HxCB	U	ND	pg/L	1.48	110
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	U	ND	pg/L	1.28	110
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	BJ	1.54	pg/L	1.19	110
35065-30-6	170-HpCB	BJ	1.63	pg/L	1.34	110
52663-71-5	171-HpCB	CU	ND	pg/L	1.32	220
52663-74-8	172-HpCB	U	ND	pg/L	1.34	110
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	J	1.74	pg/L	1.26	110
40186-70-7	175-HpCB	U	ND	pg/L	1.10	110
52663-65-7	176-HpCB	U	ND	pg/L	0.860	110
52663-70-4	177-HpCB	U	ND	pg/L	1.34	110
52663-67-9	178-HpCB	U	ND	pg/L	1.15	110
52663-64-6	179-HpCB	U	ND	pg/L	0.860	110
35065-29-3	180-HpCB	BCJ	4.17	pg/L	1.10	220
74472-47-2	181-HpCB	U	ND	pg/L	1.23	110
60145-23-5	182-HpCB	U	ND	pg/L	1.06	110
52663-69-1	183-HpCB	CU	ND	pg/L	1.85	220
74472-48-3	184-HpCB	U	ND	pg/L	0.794	110
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	0.860	110
52663-68-0	187-HpCB	J	1.87	pg/L	1.01	110
74487-85-7	188-HpCB	U	ND	pg/L	0.882	110
39635-31-9	189-HpCB	U	ND	pg/L	1.10	110
41411-64-7	190-HpCB	U	ND	pg/L	1.15	110
74472-50-7	191-HpCB	U	ND	pg/L	0.992	110
74472-51-8	192-HpCB	U	ND	pg/L	1.06	110

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707001**	**Date Collected:**	**03/11/2019 10:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-001K RG-North-20190311**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 18:03**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-6**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**907.1 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	BJ	2.29	pg/L	0.860	110
52663-78-2	195-OcCB	U	ND	pg/L	0.904	110
42740-50-1	196-OcCB	U	ND	pg/L	0.926	110
33091-17-7	197-OcCB	CU	ND	pg/L	0.639	220
68194-17-2	198-OcCB	BCJ	1.81	pg/L	0.882	220
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	U	ND	pg/L	0.639	110
2136-99-4	202-OcCB	U	ND	pg/L	0.750	110
52663-76-0	203-OcCB	BJ	1.21	pg/L	0.794	110
74472-52-9	204-OcCB	U	ND	pg/L	0.661	110
74472-53-0	205-OcCB	J	0.794	pg/L	0.728	110
40186-72-9	206-NoCB	U	ND	pg/L	1.72	110
52663-79-3	207-NoCB	U	ND	pg/L	1.26	110
52663-77-1	208-NoCB	U	ND	pg/L	1.30	110
2051-24-3	209-DeCB	J	0.948	pg/L	0.706	110
1336-36-3	Total PCB Congeners	J	187	pg/L		110

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		1080	2200	pg/L	49.1	(15%-150%)
13C-3-MoCB		1060	2200	pg/L	48.0	(15%-150%)
13C-4-DiCB		1030	2200	pg/L	46.9	(25%-150%)
13C-15-DiCB		1290	2200	pg/L	58.3	(25%-150%)
13C-19-TrCB		1130	2200	pg/L	51.5	(25%-150%)
13C-37-TrCB		1580	2200	pg/L	71.8	(25%-150%)
13C-54-TeCB		1440	2200	pg/L	65.1	(25%-150%)
13C-77-TeCB		1530	2200	pg/L	69.2	(25%-150%)
13C-81-TeCB		1560	2200	pg/L	70.8	(25%-150%)
13C-104-PeCB		1570	2200	pg/L	71.2	(25%-150%)
13C-105-PeCB		1620	2200	pg/L	73.5	(25%-150%)
13C-114-PeCB		1630	2200	pg/L	73.8	(25%-150%)
13C-118-PeCB		1610	2200	pg/L	73.0	(25%-150%)
13C-123-PeCB		1700	2200	pg/L	77.2	(25%-150%)
13C-126-PeCB		1550	2200	pg/L	70.1	(25%-150%)
13C-155-HxCB		1460	2200	pg/L	66.1	(25%-150%)
13C-156-HxCB	C	3230	4410	pg/L	73.1	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1640	2200	pg/L	74.4	(25%-150%)
13C-169-HxCB		1650	2200	pg/L	74.9	(25%-150%)
13C-188-HpCB		1540	2200	pg/L	69.8	(25%-150%)
13C-189-HpCB		1610	2200	pg/L	73.2	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707001	**Date Collected:**	03/11/2019 10:45	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-001K RG-North-20190311			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 18:03	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-6			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	907.1 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1480	2200	pg/L	67.3	(25%-150%)
13C-205-OcCB		1850	2200	pg/L	83.7	(25%-150%)
13C-206-NoCB		1820	2200	pg/L	82.6	(25%-150%)
13C-208-NoCB		1580	2200	pg/L	71.5	(25%-150%)
13C-209-DeCB		1710	2200	pg/L	77.5	(25%-150%)
13C-28-TrCB		1590	2200	pg/L	71.9	(30%-135%)
13C-111-PeCB		1540	2200	pg/L	70.0	(30%-135%)
13C-178-HpCB		1600	2200	pg/L	72.4	(30%-135%)

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707002**	**Date Collected:**	**03/12/2019 12:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-002K Eq BLank-20190312**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 19:12**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-7**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**925.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	U	ND	pg/L	2.81	108
2051-61-8	2-MoCB	U	ND	pg/L	1.08	108
2051-62-9	3-MoCB	U	ND	pg/L	1.47	108
13029-08-8	4-DiCB	U	ND	pg/L	7.02	108
16605-91-7	5-DiCB	U	ND	pg/L	4.91	108
25569-80-6	6-DiCB	U	ND	pg/L	4.09	108
33284-50-3	7-DiCB	U	ND	pg/L	4.24	108
34883-43-7	8-DiCB	U	ND	pg/L	3.74	108
34883-39-1	9-DiCB	U	ND	pg/L	4.73	108
33146-45-1	10-DiCB	U	ND	pg/L	4.67	108
2050-67-1	11-DiCB	BJ	18.3	pg/L	4.63	108
2974-92-7	12-DiCB	CU	ND	pg/L	4.54	216
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	4.26	108
2050-68-2	15-DiCB	U	ND	pg/L	5.88	108
38444-78-9	16-TrCB	U	ND	pg/L	2.31	108
37680-66-3	17-TrCB	U	ND	pg/L	2.51	108
37680-65-2	18-TrCB	CU	ND	pg/L	3.83	216
38444-73-4	19-TrCB	U	ND	pg/L	2.72	108
38444-84-7	20-TrCB	BCJ	6.42	pg/L	1.79	216
55702-46-0	21-TrCB	CU	ND	pg/L	3.96	216
38444-85-8	22-TrCB	BJ	2.16	pg/L	1.77	108
55720-44-0	23-TrCB	U	ND	pg/L	1.73	108
55702-45-9	24-TrCB	U	ND	pg/L	1.92	108
55712-37-3	25-TrCB	U	ND	pg/L	1.60	108
38444-81-4	26-TrCB	CU	ND	pg/L	2.46	216
38444-76-7	27-TrCB	U	ND	pg/L	1.86	108
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	BJ	4.45	pg/L	1.66	108
38444-77-8	32-TrCB	U	ND	pg/L	1.64	108

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707002**	**Date Collected:**	**03/12/2019 12:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-002K Eq BLank-20190312**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 19:12**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-7**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**925.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	1.90	108
37680-69-6	35-TrCB	U	ND	pg/L	1.73	108
38444-87-0	36-TrCB	U	ND	pg/L	1.53	108
38444-90-5	37-TrCB	BJ	3.29	pg/L	2.23	108
53555-66-1	38-TrCB	U	ND	pg/L	1.60	108
38444-88-1	39-TrCB	U	ND	pg/L	1.47	108
38444-93-8	40-TeCB	CU	ND	pg/L	3.24	216
52663-59-9	41-TeCB	U	ND	pg/L	4.58	108
36559-22-5	42-TeCB	U	ND	pg/L	3.70	108
70362-46-8	43-TeCB	U	ND	pg/L	4.02	108
41464-39-5	44-TeCB	BCJ	8.30	pg/L	3.39	324
70362-45-7	45-TeCB	BCJ	3.76	pg/L	1.99	216
41464-47-5	46-TeCB	U	ND	pg/L	2.01	108
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	U	ND	pg/L	3.57	108
41464-40-8	49-TeCB	BCJ	3.31	pg/L	3.26	216
62796-65-0	50-TeCB	CU	ND	pg/L	1.86	216
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	BJ	9.70	pg/L	3.76	108
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.43	108
74338-24-2	55-TeCB	U	ND	pg/L	1.97	108
41464-43-1	56-TeCB	BJ	3.98	pg/L	2.05	108
70424-67-8	57-TeCB	U	ND	pg/L	2.01	108
41464-49-7	58-TeCB	U	ND	pg/L	1.99	108
74472-33-6	59-TeCB	CU	ND	pg/L	2.77	324
33025-41-1	60-TeCB	U	ND	pg/L	1.92	108
33284-53-6	61-TeCB	BCJ	12.6	pg/L	1.97	432
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	1.90	108
52663-58-8	64-TeCB	U	ND	pg/L	2.77	108

Comments:

B The target analyte was detected in the associated blank.
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707002	**Date Collected:**	03/12/2019 12:00	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-002K Eq BLank-20190312			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 19:12	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-7			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	925.3 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	U	ND	pg/L	5.43	108
73575-53-8	67-TeCB	U	ND	pg/L	1.73	108
73575-52-7	68-TeCB	U	ND	pg/L	1.75	108
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	1.92	108
74338-23-1	73-TeCB	U	ND	pg/L	2.79	108
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	U	ND	pg/L	2.40	108
70362-49-1	78-TeCB	U	ND	pg/L	2.05	108
41464-48-6	79-TeCB	U	ND	pg/L	1.73	108
33284-52-5	80-TeCB	U	ND	pg/L	1.75	108
70362-50-4	81-TeCB	U	ND	pg/L	2.25	108
52663-62-4	82-PeCB	U	ND	pg/L	2.33	108
60145-20-2	83-PeCB	U	ND	pg/L	2.42	108
52663-60-2	84-PeCB	U	ND	pg/L	2.31	108
65510-45-4	85-PeCB	CU	ND	pg/L	1.73	324
55312-69-1	86-PeCB	CU	ND	pg/L	6.42	648
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CU	ND	pg/L	2.16	216
73575-57-2	89-PeCB	U	ND	pg/L	2.23	108
68194-07-0	90-PeCB	BCJ	4.43	pg/L	1.84	324
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	2.16	108
73575-56-1	93-PeCB	CU	ND	pg/L	2.14	216
73575-55-0	94-PeCB	U	ND	pg/L	2.18	108
38379-99-6	95-PeCB	J	4.00	pg/L	2.14	108
73575-54-9	96-PeCB	U	ND	pg/L	1.06	108

Comments:

B The target analyte was detected in the associated blank.
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707002**	**Date Collected:**	**03/12/2019 12:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-002K Eq BLank-20190312**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 19:12**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-7**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**925.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	2.23	216
38380-01-7	99-PeCB	U	ND	pg/L	1.82	108
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	2.03	108
56558-16-8	104-PeCB	U	ND	pg/L	1.17	108
32598-14-4	105-PeCB	BJ	3.76	pg/L	2.03	108
70424-69-0	106-PeCB	U	ND	pg/L	1.77	108
70424-68-9	107-PeCB	U	ND	pg/L	1.51	108
70362-41-3	108-PeCB	CU	ND	pg/L	1.73	216
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	BCJ	4.32	pg/L	1.64	216
39635-32-0	111-PeCB	U	ND	pg/L	1.53	108
74472-36-9	112-PeCB	U	ND	pg/L	1.58	108
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	2.01	108
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	U	ND	pg/L	4.71	108
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	1.51	108
56558-18-0	121-PeCB	U	ND	pg/L	1.56	108
76842-07-4	122-PeCB	U	ND	pg/L	1.82	108
65510-44-3	123-PeCB	U	ND	pg/L	1.84	108
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.23	108
39635-33-1	127-PeCB	U	ND	pg/L	1.69	108
38380-07-3	128-HxCB	CU	ND	pg/L	1.71	216

Comments:

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J **Value is estimated**
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707002**	**Date Collected:**	**03/12/2019 12:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-002K Eq BLank-20190312**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 19:12**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-7**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**925.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	BCJ	4.37	pg/L	1.90	324
52663-66-8	130-HxCB	U	ND	pg/L	2.20	108
61798-70-7	131-HxCB	U	ND	pg/L	2.42	108
38380-05-1	132-HxCB	U	ND	pg/L	2.12	108
35694-04-3	133-HxCB	U	ND	pg/L	2.08	108
52704-70-8	134-HxCB	U	ND	pg/L	2.68	108
52744-13-5	135-HxCB	BCJ	1.82	pg/L	1.19	216
38411-22-2	136-HxCB	U	ND	pg/L	0.908	108
35694-06-5	137-HxCB	U	ND	pg/L	1.88	108
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	1.88	216
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	U	ND	pg/L	1.90	108
41411-61-4	142-HxCB	U	ND	pg/L	2.18	108
68194-15-0	143-HxCB	U	ND	pg/L	1.97	108
68194-14-9	144-HxCB	U	ND	pg/L	1.15	108
74472-40-5	145-HxCB	U	ND	pg/L	0.908	108
51908-16-8	146-HxCB	U	ND	pg/L	1.75	108
68194-13-8	147-HxCB	BCJ	3.52	pg/L	1.86	216
74472-41-6	148-HxCB	U	ND	pg/L	1.17	108
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	0.865	108
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	0.908	108
35065-27-1	153-HxCB	CU	ND	pg/L	3.46	216
60145-22-4	154-HxCB	U	ND	pg/L	0.994	108
33979-03-2	155-HxCB	U	ND	pg/L	0.908	108
38380-08-4	156-HxCB	CJ	2.23	pg/L	1.51	216
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	U	ND	pg/L	1.34	108
39635-35-3	159-HxCB	U	ND	pg/L	1.04	108
41411-62-5	160-HxCB	U	ND	pg/L	1.58	108

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707002**	**Date Collected:**	**03/12/2019 12:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-002K Eq BLank-20190312**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 19:12**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-7**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**925.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	1.56	108
39635-34-2	162-HxCB	U	ND	pg/L	0.994	108
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	U	ND	pg/L	1.49	108
74472-46-1	165-HxCB	U	ND	pg/L	1.62	108
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	U	ND	pg/L	1.08	108
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	U	ND	pg/L	1.23	108
35065-30-6	170-HpCB	U	ND	pg/L	2.12	108
52663-71-5	171-HpCB	CJ	1.49	pg/L	1.36	216
52663-74-8	172-HpCB	U	ND	pg/L	1.38	108
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	U	ND	pg/L	1.45	108
40186-70-7	175-HpCB	U	ND	pg/L	0.951	108
52663-65-7	176-HpCB	U	ND	pg/L	0.757	108
52663-70-4	177-HpCB	U	ND	pg/L	1.38	108
52663-67-9	178-HpCB	U	ND	pg/L	0.994	108
52663-64-6	179-HpCB	U	ND	pg/L	0.735	108
35065-29-3	180-HpCB	BCJ	3.87	pg/L	1.15	216
74472-47-2	181-HpCB	U	ND	pg/L	1.25	108
60145-23-5	182-HpCB	U	ND	pg/L	0.908	108
52663-69-1	183-HpCB	BCJ	1.66	pg/L	1.21	216
74472-48-3	184-HpCB	U	ND	pg/L	0.692	108
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	0.735	108
52663-68-0	187-HpCB	J	1.56	pg/L	0.886	108
74487-85-7	188-HpCB	U	ND	pg/L	0.800	108
39635-31-9	189-HpCB	U	ND	pg/L	0.973	108
41411-64-7	190-HpCB	U	ND	pg/L	1.06	108
74472-50-7	191-HpCB	U	ND	pg/L	1.02	108
74472-51-8	192-HpCB	U	ND	pg/L	1.08	108

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707002**	**Date Collected:**	**03/12/2019 12:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-002K Eq BLank-20190312**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 19:12**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-7**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**925.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	BJ	2.03	pg/L	0.994	108
52663-78-2	195-OcCB	BJ	1.21	pg/L	1.06	108
42740-50-1	196-OcCB	U	ND	pg/L	1.04	108
33091-17-7	197-OcCB	CU	ND	pg/L	0.757	216
68194-17-2	198-OcCB	BCJ	2.16	pg/L	1.06	216
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	U	ND	pg/L	0.778	108
2136-99-4	202-OcCB	U	ND	pg/L	0.886	108
52663-76-0	203-OcCB	BJ	1.36	pg/L	0.951	108
74472-52-9	204-OcCB	U	ND	pg/L	0.778	108
74472-53-0	205-OcCB	U	ND	pg/L	0.843	108
40186-72-9	206-NoCB	U	ND	pg/L	2.27	108
52663-79-3	207-NoCB	U	ND	pg/L	1.30	108
52663-77-1	208-NoCB	U	ND	pg/L	1.32	108
2051-24-3	209-DeCB	U	ND	pg/L	0.821	108
1336-36-3	Total PCB Congeners	J	120	pg/L		108

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		1060	2160	pg/L	49.1	(15%-150%)
13C-3-MoCB		1060	2160	pg/L	49.0	(15%-150%)
13C-4-DiCB		1030	2160	pg/L	47.7	(25%-150%)
13C-15-DiCB		1280	2160	pg/L	59.2	(25%-150%)
13C-19-TrCB		1190	2160	pg/L	54.9	(25%-150%)
13C-37-TrCB		1560	2160	pg/L	72.2	(25%-150%)
13C-54-TeCB		1420	2160	pg/L	65.6	(25%-150%)
13C-77-TeCB		1590	2160	pg/L	73.5	(25%-150%)
13C-81-TeCB		1610	2160	pg/L	74.6	(25%-150%)
13C-104-PeCB		1600	2160	pg/L	73.9	(25%-150%)
13C-105-PeCB		1760	2160	pg/L	81.5	(25%-150%)
13C-114-PeCB		1760	2160	pg/L	81.4	(25%-150%)
13C-118-PeCB		1750	2160	pg/L	80.7	(25%-150%)
13C-123-PeCB		1850	2160	pg/L	85.4	(25%-150%)
13C-126-PeCB		1670	2160	pg/L	77.1	(25%-150%)
13C-155-HxCB		1520	2160	pg/L	70.4	(25%-150%)
13C-156-HxCB	C	3570	4320	pg/L	82.6	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1820	2160	pg/L	84.2	(25%-150%)
13C-169-HxCB		1820	2160	pg/L	84.3	(25%-150%)
13C-188-HpCB		1680	2160	pg/L	77.9	(25%-150%)
13C-189-HpCB		1860	2160	pg/L	85.8	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707002	**Date Collected:**	03/12/2019 12:00	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-002K Eq BLank-20190312			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 19:12	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-7			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	925.3 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1660	2160	pg/L	76.9	(25%-150%)
13C-205-OcCB		2100	2160	pg/L	97.1	(25%-150%)
13C-206-NoCB		2090	2160	pg/L	96.9	(25%-150%)
13C-208-NoCB		1820	2160	pg/L	84.2	(25%-150%)
13C-209-DeCB		1990	2160	pg/L	92.1	(25%-150%)
13C-28-TrCB		1500	2160	pg/L	69.3	(30%-135%)
13C-111-PeCB		1620	2160	pg/L	75.0	(30%-135%)
13C-178-HpCB		1720	2160	pg/L	79.5	(30%-135%)

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707003**	**Date Collected:**	**03/13/2019 09:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-003K RG-South-20190313**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 20:21**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-8**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**921 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	BJ	2.32	pg/L	0.955	109
2051-61-8	2-MoCB	U	ND	pg/L	2.37	109
2051-62-9	3-MoCB	J	2.48	pg/L	1.09	109
13029-08-8	4-DiCB	U	ND	pg/L	4.78	109
16605-91-7	5-DiCB	U	ND	pg/L	12.1	109
25569-80-6	6-DiCB	U	ND	pg/L	10.1	109
33284-50-3	7-DiCB	U	ND	pg/L	10.5	109
34883-43-7	8-DiCB	U	ND	pg/L	9.25	109
34883-39-1	9-DiCB	U	ND	pg/L	11.7	109
33146-45-1	10-DiCB	U	ND	pg/L	3.24	109
2050-67-1	11-DiCB	BJ	67.7	pg/L	11.4	109
2974-92-7	12-DiCB	CU	ND	pg/L	11.2	217
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	10.5	109
2050-68-2	15-DiCB	U	ND	pg/L	14.7	109
38444-78-9	16-TrCB	U	ND	pg/L	4.02	109
37680-66-3	17-TrCB	U	ND	pg/L	4.54	109
37680-65-2	18-TrCB	CU	ND	pg/L	9.97	217
38444-73-4	19-TrCB	U	ND	pg/L	3.13	109
38444-84-7	20-TrCB	BCJ	19.8	pg/L	1.24	217
55702-46-0	21-TrCB	BCJ	8.03	pg/L	1.22	217
38444-85-8	22-TrCB	BJ	7.12	pg/L	1.22	109
55720-44-0	23-TrCB	U	ND	pg/L	1.19	109
55702-45-9	24-TrCB	U	ND	pg/L	1.32	109
55712-37-3	25-TrCB	U	ND	pg/L	1.93	109
38444-81-4	26-TrCB	CJ	3.91	pg/L	1.22	217
38444-76-7	27-TrCB	U	ND	pg/L	1.28	109
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	BJ	13.0	pg/L	1.15	109
38444-77-8	32-TrCB	BJ	3.41	pg/L	1.13	109

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707003**	**Date Collected:**	**03/13/2019 09:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-003K RG-South-20190313**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 20:21**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-8**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**921 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	1.32	109
37680-69-6	35-TrCB	U	ND	pg/L	3.67	109
38444-87-0	36-TrCB	U	ND	pg/L	1.52	109
38444-90-5	37-TrCB	BJ	7.93	pg/L	2.13	109
53555-66-1	38-TrCB	J	2.15	pg/L	1.59	109
38444-88-1	39-TrCB	U	ND	pg/L	1.45	109
38444-93-8	40-TeCB	CU	ND	pg/L	5.75	217
52663-59-9	41-TeCB	U	ND	pg/L	3.89	109
36559-22-5	42-TeCB	J	4.80	pg/L	3.13	109
70362-46-8	43-TeCB	U	ND	pg/L	3.41	109
41464-39-5	44-TeCB	BCJ	18.7	pg/L	2.89	326
70362-45-7	45-TeCB	BCJ	5.21	pg/L	1.54	217
41464-47-5	46-TeCB	U	ND	pg/L	1.56	109
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	J	3.30	pg/L	3.02	109
41464-40-8	49-TeCB	BCJ	8.82	pg/L	2.78	217
62796-65-0	50-TeCB	CJ	3.43	pg/L	1.43	217
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	BJ	22.0	pg/L	3.19	109
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.19	109
74338-24-2	55-TeCB	U	ND	pg/L	1.82	109
41464-43-1	56-TeCB	U	ND	pg/L	7.82	109
70424-67-8	57-TeCB	U	ND	pg/L	1.87	109
41464-49-7	58-TeCB	U	ND	pg/L	1.85	109
74472-33-6	59-TeCB	CU	ND	pg/L	2.35	326
33025-41-1	60-TeCB	J	3.78	pg/L	1.78	109
33284-53-6	61-TeCB	BCJ	27.5	pg/L	1.82	434
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	1.76	109
52663-58-8	64-TeCB	J	7.06	pg/L	2.35	109

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707003**	**Date Collected:**	**03/13/2019 09:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-003K RG-South-20190313**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 20:21**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-8**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**921 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	BJ	12.7	pg/L	1.85	109
73575-53-8	67-TeCB	U	ND	pg/L	1.59	109
73575-52-7	68-TeCB	U	ND	pg/L	1.61	109
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	1.78	109
74338-23-1	73-TeCB	U	ND	pg/L	2.37	109
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	U	ND	pg/L	5.06	109
70362-49-1	78-TeCB	U	ND	pg/L	1.89	109
41464-48-6	79-TeCB	U	ND	pg/L	1.59	109
33284-52-5	80-TeCB	U	ND	pg/L	1.61	109
70362-50-4	81-TeCB	U	ND	pg/L	2.04	109
52663-62-4	82-PeCB	U	ND	pg/L	5.04	109
60145-20-2	83-PeCB	U	ND	pg/L	2.82	109
52663-60-2	84-PeCB	U	ND	pg/L	7.04	109
65510-45-4	85-PeCB	CU	ND	pg/L	5.62	326
55312-69-1	86-PeCB	BCJ	25.8	pg/L	2.15	651
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CJ	4.06	pg/L	2.54	217
73575-57-2	89-PeCB	U	ND	pg/L	2.63	109
68194-07-0	90-PeCB	BCJ	41.8	pg/L	2.15	326
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	7.01	109
73575-56-1	93-PeCB	CU	ND	pg/L	2.52	217
73575-55-0	94-PeCB	U	ND	pg/L	2.56	109
38379-99-6	95-PeCB	J	29.5	pg/L	2.52	109
73575-54-9	96-PeCB	U	ND	pg/L	1.06	109

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707003	**Date Collected:**	03/13/2019 09:45	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-003K RG-South-20190313			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 20:21	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-8			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	921 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	2.63	217
38380-01-7	99-PeCB	U	ND	pg/L	8.56	109
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	2.37	109
56558-16-8	104-PeCB	U	ND	pg/L	1.11	109
32598-14-4	105-PeCB	BJ	13.7	pg/L	2.11	109
70424-69-0	106-PeCB	U	ND	pg/L	1.85	109
70424-68-9	107-PeCB	J	2.56	pg/L	1.61	109
70362-41-3	108-PeCB	CU	ND	pg/L	1.80	217
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	BCJ	45.1	pg/L	1.93	217
39635-32-0	111-PeCB	U	ND	pg/L	1.78	109
74472-36-9	112-PeCB	U	ND	pg/L	1.85	109
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	2.08	109
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	BJ	32.1	pg/L	2.06	109
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	1.76	109
56558-18-0	121-PeCB	U	ND	pg/L	1.82	109
76842-07-4	122-PeCB	U	ND	pg/L	1.91	109
65510-44-3	123-PeCB	U	ND	pg/L	1.98	109
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.35	109
39635-33-1	127-PeCB	U	ND	pg/L	1.76	109
38380-07-3	128-HxCB	BCJ	11.9	pg/L	1.89	217

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707003**	**Date Collected:**	**03/13/2019 09:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-003K RG-South-20190313**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 20:21**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-8**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**921 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	CJ	152	pg/L	2.08	326
52663-66-8	130-HxCB	J	5.91	pg/L	2.43	109
61798-70-7	131-HxCB	U	ND	pg/L	2.69	109
38380-05-1	132-HxCB	J	36.9	pg/L	2.32	109
35694-04-3	133-HxCB	U	ND	pg/L	2.30	109
52704-70-8	134-HxCB	U	ND	pg/L	4.65	109
52744-13-5	135-HxCB	CJ	51.8	pg/L	0.825	217
38411-22-2	136-HxCB	J	14.7	pg/L	0.630	109
35694-06-5	137-HxCB	J	2.50	pg/L	2.08	109
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	2.08	217
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	J	31.9	pg/L	2.11	109
41411-61-4	142-HxCB	U	ND	pg/L	2.41	109
68194-15-0	143-HxCB	U	ND	pg/L	2.17	109
68194-14-9	144-HxCB	J	7.04	pg/L	0.803	109
74472-40-5	145-HxCB	U	ND	pg/L	0.630	109
51908-16-8	146-HxCB	J	19.4	pg/L	1.93	109
68194-13-8	147-HxCB	CJ	109	pg/L	2.06	217
74472-41-6	148-HxCB	U	ND	pg/L	0.825	109
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	0.608	109
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	0.630	109
35065-27-1	153-HxCB	CJ	137	pg/L	1.76	217
60145-22-4	154-HxCB	J	1.13	pg/L	0.695	109
33979-03-2	155-HxCB	U	ND	pg/L	0.934	109
38380-08-4	156-HxCB	CJ	13.9	pg/L	2.04	217
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	J	12.2	pg/L	1.50	109
39635-35-3	159-HxCB	U	ND	pg/L	1.37	109
41411-62-5	160-HxCB	U	ND	pg/L	1.74	109

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707003	**Date Collected:**	03/13/2019 09:45	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-003K RG-South-20190313			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 20:21	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-8			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	921 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	1.72	109
39635-34-2	162-HxCB	U	ND	pg/L	1.30	109
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	J	10.9	pg/L	1.65	109
74472-46-1	165-HxCB	U	ND	pg/L	1.80	109
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	BJ	6.30	pg/L	1.45	109
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	U	ND	pg/L	1.56	109
35065-30-6	170-HpCB	J	73.6	pg/L	1.30	109
52663-71-5	171-HpCB	CJ	20.9	pg/L	1.28	217
52663-74-8	172-HpCB	J	14.2	pg/L	1.28	109
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	J	73.7	pg/L	1.19	109
40186-70-7	175-HpCB	BJ	3.50	pg/L	0.934	109
52663-65-7	176-HpCB	J	8.27	pg/L	0.738	109
52663-70-4	177-HpCB	J	43.2	pg/L	1.28	109
52663-67-9	178-HpCB	J	15.0	pg/L	0.977	109
52663-64-6	179-HpCB	J	26.1	pg/L	0.717	109
35065-29-3	180-HpCB	CJ	168	pg/L	1.06	217
74472-47-2	181-HpCB	U	ND	pg/L	1.17	109
60145-23-5	182-HpCB	U	ND	pg/L	0.912	109
52663-69-1	183-HpCB	CJ	45.8	pg/L	1.13	217
74472-48-3	184-HpCB	U	ND	pg/L	0.717	109
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	0.738	109
52663-68-0	187-HpCB	J	85.8	pg/L	0.869	109
74487-85-7	188-HpCB	U	ND	pg/L	0.890	109
39635-31-9	189-HpCB	BJ	3.67	pg/L	1.22	109
41411-64-7	190-HpCB	J	16.9	pg/L	0.999	109
74472-50-7	191-HpCB	J	3.41	pg/L	0.955	109
74472-51-8	192-HpCB	U	ND	pg/L	0.999	109

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707003**	**Date Collected:**	**03/13/2019 09:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-003K RG-South-20190313**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 20:21**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-8**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**921 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	J	50.3	pg/L	1.13	109
52663-78-2	195-OcCB	J	19.2	pg/L	1.22	109
42740-50-1	196-OcCB	J	26.1	pg/L	1.02	109
33091-17-7	197-OcCB	BCJ	10.9	pg/L	0.760	217
68194-17-2	198-OcCB	CJ	139	pg/L	1.04	217
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	J	9.38	pg/L	0.782	109
2136-99-4	202-OcCB	J	31.7	pg/L	0.890	109
52663-76-0	203-OcCB	J	50.9	pg/L	0.955	109
74472-52-9	204-OcCB	U	ND	pg/L	0.782	109
74472-53-0	205-OcCB	J	2.71	pg/L	0.955	109
40186-72-9	206-NoCB		343	pg/L	1.61	109
52663-79-3	207-NoCB	J	32.5	pg/L	1.17	109
52663-77-1	208-NoCB		177	pg/L	1.19	109
2051-24-3	209-DeCB	J	37.6	pg/L	0.630	109
1336-36-3	Total PCB Congeners	J	2610	pg/L		109

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		975	2170	pg/L	44.9	(15%-150%)
13C-3-MoCB		1020	2170	pg/L	46.8	(15%-150%)
13C-4-DiCB		967	2170	pg/L	44.5	(25%-150%)
13C-15-DiCB		1260	2170	pg/L	57.8	(25%-150%)
13C-19-TrCB		1080	2170	pg/L	49.7	(25%-150%)
13C-37-TrCB		1530	2170	pg/L	70.5	(25%-150%)
13C-54-TeCB		1370	2170	pg/L	62.9	(25%-150%)
13C-77-TeCB		1470	2170	pg/L	67.5	(25%-150%)
13C-81-TeCB		1500	2170	pg/L	69.3	(25%-150%)
13C-104-PeCB		1520	2170	pg/L	69.9	(25%-150%)
13C-105-PeCB		1560	2170	pg/L	71.9	(25%-150%)
13C-114-PeCB		1560	2170	pg/L	71.7	(25%-150%)
13C-118-PeCB		1540	2170	pg/L	70.7	(25%-150%)
13C-123-PeCB		1610	2170	pg/L	74.4	(25%-150%)
13C-126-PeCB		1520	2170	pg/L	70.2	(25%-150%)
13C-155-HxCB		1330	2170	pg/L	61.2	(25%-150%)
13C-156-HxCB	C	3020	4340	pg/L	69.5	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1550	2170	pg/L	71.2	(25%-150%)
13C-169-HxCB		1600	2170	pg/L	73.5	(25%-150%)
13C-188-HpCB		1340	2170	pg/L	61.9	(25%-150%)
13C-189-HpCB		1510	2170	pg/L	69.7	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707003**	**Date Collected:**	**03/13/2019 09:45**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-003K RG-South-20190313**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 20:21**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-8**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**921 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1300	2170	pg/L	60.0	(25%-150%)
13C-205-OcCB		1680	2170	pg/L	77.2	(25%-150%)
13C-206-NoCB		1640	2170	pg/L	75.7	(25%-150%)
13C-208-NoCB		1430	2170	pg/L	66.0	(25%-150%)
13C-209-DeCB		1540	2170	pg/L	71.0	(25%-150%)
13C-28-TrCB		1520	2170	pg/L	70.2	(30%-135%)
13C-111-PeCB		1470	2170	pg/L	67.5	(30%-135%)
13C-178-HpCB		1450	2170	pg/L	66.9	(30%-135%)

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707004**	**Date Collected:**	**03/13/2019 10:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-004K RG-South-DP-201903**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 21:30**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-9**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**933.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	U	ND	pg/L	2.70	107
2051-61-8	2-MoCB	U	ND	pg/L	2.29	107
2051-62-9	3-MoCB	U	ND	pg/L	2.76	107
13029-08-8	4-DiCB	U	ND	pg/L	6.56	107
16605-91-7	5-DiCB	U	ND	pg/L	4.59	107
25569-80-6	6-DiCB	U	ND	pg/L	3.81	107
33284-50-3	7-DiCB	U	ND	pg/L	3.96	107
34883-43-7	8-DiCB	U	ND	pg/L	7.82	107
34883-39-1	9-DiCB	U	ND	pg/L	4.41	107
33146-45-1	10-DiCB	U	ND	pg/L	3.86	107
2050-67-1	11-DiCB	BJ	71.5	pg/L	4.33	107
2974-92-7	12-DiCB	CU	ND	pg/L	4.22	214
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	3.96	107
2050-68-2	15-DiCB	J	14.2	pg/L	5.08	107
38444-78-9	16-TrCB	U	ND	pg/L	3.49	107
37680-66-3	17-TrCB	BJ	5.01	pg/L	1.95	107
37680-65-2	18-TrCB	CU	ND	pg/L	9.62	214
38444-73-4	19-TrCB	J	2.70	pg/L	2.42	107
38444-84-7	20-TrCB	BCJ	19.1	pg/L	1.39	214
55702-46-0	21-TrCB	BCJ	8.98	pg/L	1.37	214
38444-85-8	22-TrCB	BJ	6.81	pg/L	1.37	107
55720-44-0	23-TrCB	U	ND	pg/L	1.35	107
55702-45-9	24-TrCB	U	ND	pg/L	1.50	107
55712-37-3	25-TrCB	J	1.89	pg/L	1.24	107
38444-81-4	26-TrCB	CJ	3.58	pg/L	1.37	214
38444-76-7	27-TrCB	U	ND	pg/L	1.50	107
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	BJ	12.5	pg/L	1.31	107
38444-77-8	32-TrCB	BJ	3.45	pg/L	1.29	107

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707004**	**Date Collected:**	**03/13/2019 10:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-004K RG-South-DP-201903**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 21:30**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-9**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**933.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	1.48	107
37680-69-6	35-TrCB	J	4.03	pg/L	1.89	107
38444-87-0	36-TrCB	U	ND	pg/L	1.67	107
38444-90-5	37-TrCB	BJ	7.91	pg/L	2.23	107
53555-66-1	38-TrCB	U	ND	pg/L	1.76	107
38444-88-1	39-TrCB	U	ND	pg/L	1.61	107
38444-93-8	40-TeCB	CU	ND	pg/L	6.02	214
52663-59-9	41-TeCB	U	ND	pg/L	4.03	107
36559-22-5	42-TeCB	J	3.86	pg/L	3.24	107
70362-46-8	43-TeCB	U	ND	pg/L	3.54	107
41464-39-5	44-TeCB	BCJ	17.2	pg/L	2.98	321
70362-45-7	45-TeCB	CU	ND	pg/L	5.14	214
41464-47-5	46-TeCB	U	ND	pg/L	2.34	107
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	J	3.49	pg/L	3.13	107
41464-40-8	49-TeCB	BCJ	8.98	pg/L	2.87	214
62796-65-0	50-TeCB	CJ	3.17	pg/L	1.56	214
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	BJ	22.4	pg/L	3.30	107
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.29	107
74338-24-2	55-TeCB	U	ND	pg/L	1.76	107
41464-43-1	56-TeCB	BJ	7.31	pg/L	1.82	107
70424-67-8	57-TeCB	U	ND	pg/L	1.80	107
41464-49-7	58-TeCB	U	ND	pg/L	1.78	107
74472-33-6	59-TeCB	CJ	3.47	pg/L	2.44	321
33025-41-1	60-TeCB	J	4.50	pg/L	1.71	107
33284-53-6	61-TeCB	BCJ	26.5	pg/L	1.76	429
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	1.69	107
52663-58-8	64-TeCB	J	7.44	pg/L	2.42	107

Comments:

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707004**	**Date Collected:**	**03/13/2019 10:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-004K RG-South-DP-201903**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 21:30**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-9**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**933.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	BJ	12.8	pg/L	1.78	107
73575-53-8	67-TeCB	U	ND	pg/L	1.52	107
73575-52-7	68-TeCB	U	ND	pg/L	1.54	107
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	1.71	107
74338-23-1	73-TeCB	U	ND	pg/L	2.44	107
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	J	4.41	pg/L	2.06	107
70362-49-1	78-TeCB	U	ND	pg/L	1.82	107
41464-48-6	79-TeCB	U	ND	pg/L	1.52	107
33284-52-5	80-TeCB	U	ND	pg/L	1.56	107
70362-50-4	81-TeCB	U	ND	pg/L	1.97	107
52663-62-4	82-PeCB	J	4.29	pg/L	2.55	107
60145-20-2	83-PeCB	U	ND	pg/L	2.66	107
52663-60-2	84-PeCB	J	6.13	pg/L	2.53	107
65510-45-4	85-PeCB	CJ	6.58	pg/L	1.89	321
55312-69-1	86-PeCB	BCJ	25.2	pg/L	2.01	643
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CJ	4.22	pg/L	2.38	214
73575-57-2	89-PeCB	U	ND	pg/L	2.46	107
68194-07-0	90-PeCB	BCJ	39.3	pg/L	2.01	321
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	6.36	107
73575-56-1	93-PeCB	CU	ND	pg/L	2.36	214
73575-55-0	94-PeCB	U	ND	pg/L	2.42	107
38379-99-6	95-PeCB	J	27.5	pg/L	2.36	107
73575-54-9	96-PeCB	U	ND	pg/L	1.03	107

Comments:

B **The target analyte was detected in the associated blank.**
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707004**	**Date Collected:**	**03/13/2019 10:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-004K RG-South-DP-201903**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 21:30**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-9**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**933.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	2.46	214
38380-01-7	99-PeCB	J	8.55	pg/L	1.97	107
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	2.23	107
56558-16-8	104-PeCB	U	ND	pg/L	1.07	107
32598-14-4	105-PeCB	BJ	14.0	pg/L	2.25	107
70424-69-0	106-PeCB	U	ND	pg/L	1.95	107
70424-68-9	107-PeCB	J	2.08	pg/L	1.67	107
70362-41-3	108-PeCB	CU	ND	pg/L	2.64	214
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	BCJ	42.2	pg/L	1.82	214
39635-32-0	111-PeCB	U	ND	pg/L	1.67	107
74472-36-9	112-PeCB	U	ND	pg/L	1.74	107
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	2.21	107
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	BJ	32.9	pg/L	2.14	107
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	1.65	107
56558-18-0	121-PeCB	U	ND	pg/L	1.71	107
76842-07-4	122-PeCB	U	ND	pg/L	1.99	107
65510-44-3	123-PeCB	U	ND	pg/L	2.06	107
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.40	107
39635-33-1	127-PeCB	U	ND	pg/L	1.84	107
38380-07-3	128-HxCB	BCJ	12.0	pg/L	1.82	214

Comments:

B The target analyte was detected in the associated blank.
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707004	**Date Collected:**	03/13/2019 10:00	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-004K RG-South-DP-201903			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 21:30	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-9			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	933.3 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	CJ	146	pg/L	2.01	321
52663-66-8	130-HxCB	J	6.17	pg/L	2.34	107
61798-70-7	131-HxCB	U	ND	pg/L	2.59	107
38380-05-1	132-HxCB	J	34.8	pg/L	2.25	107
35694-04-3	133-HxCB	U	ND	pg/L	2.23	107
52704-70-8	134-HxCB	J	5.87	pg/L	2.85	107
52744-13-5	135-HxCB	CJ	48.8	pg/L	1.63	214
38411-22-2	136-HxCB	J	13.3	pg/L	1.22	107
35694-06-5	137-HxCB	J	2.44	pg/L	2.01	107
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	1.99	214
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	J	31.7	pg/L	2.04	107
41411-61-4	142-HxCB	U	ND	pg/L	2.31	107
68194-15-0	143-HxCB	U	ND	pg/L	2.10	107
68194-14-9	144-HxCB	J	7.26	pg/L	1.56	107
74472-40-5	145-HxCB	U	ND	pg/L	1.22	107
51908-16-8	146-HxCB	J	17.9	pg/L	1.86	107
68194-13-8	147-HxCB	CJ	106	pg/L	1.97	214
74472-41-6	148-HxCB	U	ND	pg/L	1.59	107
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	1.18	107
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	1.22	107
35065-27-1	153-HxCB	CJ	135	pg/L	1.69	214
60145-22-4	154-HxCB	U	ND	pg/L	1.37	107
33979-03-2	155-HxCB	U	ND	pg/L	1.20	107
38380-08-4	156-HxCB	CJ	13.2	pg/L	1.76	214
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	J	11.1	pg/L	1.44	107
39635-35-3	159-HxCB	U	ND	pg/L	1.20	107
41411-62-5	160-HxCB	U	ND	pg/L	1.67	107

Comments:

B The target analyte was detected in the associated blank.
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J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707004**	**Date Collected:**	**03/13/2019 10:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-004K RG-South-DP-201903**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 21:30**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-9**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**933.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	1.65	107
39635-34-2	162-HxCB	U	ND	pg/L	1.14	107
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	J	10.5	pg/L	1.61	107
74472-46-1	165-HxCB	U	ND	pg/L	1.74	107
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	BJ	5.14	pg/L	1.29	107
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	U	ND	pg/L	1.39	107
35065-30-6	170-HpCB	J	70.8	pg/L	1.67	107
52663-71-5	171-HpCB	CJ	20.6	pg/L	1.65	214
52663-74-8	172-HpCB	J	13.7	pg/L	1.67	107
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	J	71.8	pg/L	1.56	107
40186-70-7	175-HpCB	U	ND	pg/L	3.02	107
52663-65-7	176-HpCB	J	7.37	pg/L	0.900	107
52663-70-4	177-HpCB	J	44.6	pg/L	1.67	107
52663-67-9	178-HpCB	J	14.9	pg/L	1.20	107
52663-64-6	179-HpCB	J	25.2	pg/L	0.879	107
35065-29-3	180-HpCB	CJ	164	pg/L	1.37	214
74472-47-2	181-HpCB	U	ND	pg/L	1.52	107
60145-23-5	182-HpCB	U	ND	pg/L	1.11	107
52663-69-1	183-HpCB	CJ	42.2	pg/L	1.46	214
74472-48-3	184-HpCB	U	ND	pg/L	0.836	107
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	0.900	107
52663-68-0	187-HpCB	J	83.9	pg/L	1.05	107
74487-85-7	188-HpCB	U	ND	pg/L	0.921	107
39635-31-9	189-HpCB	BJ	3.36	pg/L	1.26	107
41411-64-7	190-HpCB	J	15.4	pg/L	1.29	107
74472-50-7	191-HpCB	J	3.00	pg/L	1.22	107
74472-51-8	192-HpCB	U	ND	pg/L	1.31	107

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**14707004**	**Date Collected:**	**03/13/2019 10:00**	**Matrix:**	**WATER**
Client Sample:	**1668A Water**	**Date Received:**	**03/15/2019 10:10**		
Client ID:	**1903661-004K RG-South-DP-201903**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 21:30**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-9**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**933.3 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	J	42.7	pg/L	1.24	107
52663-78-2	195-OcCB	J	16.1	pg/L	1.33	107
42740-50-1	196-OcCB	J	19.9	pg/L	1.52	107
33091-17-7	197-OcCB	BCJ	6.41	pg/L	1.14	214
68194-17-2	198-OcCB	CJ	43.1	pg/L	1.54	214
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	BJ	4.56	pg/L	1.14	107
2136-99-4	202-OcCB	J	7.48	pg/L	1.31	107
52663-76-0	203-OcCB	J	25.0	pg/L	1.41	107
74472-52-9	204-OcCB	U	ND	pg/L	1.16	107
74472-53-0	205-OcCB	J	2.76	pg/L	1.07	107
40186-72-9	206-NoCB	BJ	15.5	pg/L	1.91	107
52663-79-3	207-NoCB	J	2.40	pg/L	1.39	107
52663-77-1	208-NoCB	J	4.46	pg/L	1.46	107
2051-24-3	209-DeCB	J	5.06	pg/L	0.729	107
1336-36-3	Total PCB Congeners	J	1880	pg/L		107

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		994	2140	pg/L	46.4	(15%-150%)
13C-3-MoCB		1050	2140	pg/L	49.0	(15%-150%)
13C-4-DiCB		998	2140	pg/L	46.6	(25%-150%)
13C-15-DiCB		1300	2140	pg/L	60.7	(25%-150%)
13C-19-TrCB		1140	2140	pg/L	53.2	(25%-150%)
13C-37-TrCB		1610	2140	pg/L	75.0	(25%-150%)
13C-54-TeCB		1420	2140	pg/L	66.0	(25%-150%)
13C-77-TeCB		1560	2140	pg/L	73.0	(25%-150%)
13C-81-TeCB		1580	2140	pg/L	73.7	(25%-150%)
13C-104-PeCB		1560	2140	pg/L	72.8	(25%-150%)
13C-105-PeCB		1610	2140	pg/L	75.3	(25%-150%)
13C-114-PeCB		1620	2140	pg/L	75.4	(25%-150%)
13C-118-PeCB		1580	2140	pg/L	73.8	(25%-150%)
13C-123-PeCB		1680	2140	pg/L	78.5	(25%-150%)
13C-126-PeCB		1580	2140	pg/L	74.0	(25%-150%)
13C-155-HxCB		1380	2140	pg/L	64.3	(25%-150%)
13C-156-HxCB	C	3160	4290	pg/L	73.8	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1610	2140	pg/L	75.3	(25%-150%)
13C-169-HxCB		1660	2140	pg/L	77.3	(25%-150%)
13C-188-HpCB		1450	2140	pg/L	67.6	(25%-150%)
13C-189-HpCB		1590	2140	pg/L	74.0	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	1903661	**Client:**	HALL001	**Project:**	HALL00113
Lab Sample ID:	14707004	**Date Collected:**	03/13/2019 10:00	**Matrix:**	WATER
Client Sample:	1668A Water	**Date Received:**	03/15/2019 10:10		
Client ID:	1903661-004K RG-South-DP-201903			**Prep Basis:**	As Received
Batch ID:	40255	**Method:**	EPA Method 1668A		
Run Date:	03/29/2019 21:30	**Analyst:**	MLS	**Instrument:**	HRP875
Data File:	d29mar19a-9			**Dilution:**	1
Prep Batch:	40253	**Prep Method:**	SW846 3520C	**Prep SOP Ref:**	CF-OA-E-001
Prep Date:	28-MAR-19	**Prep Aliquot:**	933.3 mL		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1410	2140	pg/L	65.8	(25%-150%)
13C-205-OcCB		1790	2140	pg/L	83.4	(25%-150%)
13C-206-NoCB		1750	2140	pg/L	81.5	(25%-150%)
13C-208-NoCB		1520	2140	pg/L	71.1	(25%-150%)
13C-209-DeCB		1660	2140	pg/L	77.6	(25%-150%)
13C-28-TrCB		1710	2140	pg/L	80.0	(30%-135%)
13C-111-PeCB		1630	2140	pg/L	76.1	(30%-135%)
13C-178-HpCB		1600	2140	pg/L	74.5	(30%-135%)

Comments:

B The target analyte was detected in the associated blank.
C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

Quality Control Summary

PCB Congeners
Surrogate Recovery Report

SDG Number: 1903661

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12023490	LCS for batch 40253	13C-1-MoCB		50.5	(15%-140%)
		13C-3-MoCB		48.8	(15%-140%)
		13C-4-DiCB		48.7	(30%-140%)
		13C-15-DiCB		59.7	(30%-140%)
		13C-19-TrCB		53.3	(30%-140%)
		13C-37-TrCB		71.4	(30%-140%)
		13C-54-TeCB		67.5	(30%-140%)
		13C-77-TeCB		70.1	(30%-140%)
		13C-81-TeCB		72.9	(30%-140%)
		13C-104-PeCB		74.5	(30%-140%)
		13C-105-PeCB		77.9	(30%-140%)
		13C-114-PeCB		77.6	(30%-140%)
		13C-118-PeCB		76.5	(30%-140%)
		13C-123-PeCB		81.9	(30%-140%)
		13C-126-PeCB		73.0	(30%-140%)
		13C-155-HxCB		67.7	(30%-140%)
		13C-156-HxCB	C	77.9	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		79.3	(30%-140%)
		13C-169-HxCB		79.5	(30%-140%)
		13C-188-HpCB		70.9	(30%-140%)
		13C-189-HpCB		77.7	(30%-140%)
		13C-202-OcCB		70.0	(30%-140%)
		13C-205-OcCB		89.4	(30%-140%)
		13C-206-NoCB		89.4	(30%-140%)
		13C-208-NoCB		77.6	(30%-140%)
		13C-209-DeCB		84.2	(30%-140%)
		13C-28-TrCB		72.1	(40%-125%)
		13C-111-PeCB		70.8	(40%-125%)
		13C-178-HpCB		74.6	(40%-125%)
12023491	LCSD for batch 40253	13C-1-MoCB		57.5	(15%-140%)
		13C-3-MoCB		55.0	(15%-140%)
		13C-4-DiCB		54.6	(30%-140%)
		13C-15-DiCB		64.6	(30%-140%)
		13C-19-TrCB		61.9	(30%-140%)
		13C-37-TrCB		73.9	(30%-140%)
		13C-54-TeCB		70.9	(30%-140%)
		13C-77-TeCB		71.4	(30%-140%)
		13C-81-TeCB		73.1	(30%-140%)
		13C-104-PeCB		78.6	(30%-140%)
		13C-105-PeCB		77.3	(30%-140%)
		13C-114-PeCB		78.2	(30%-140%)
		13C-118-PeCB		77.2	(30%-140%)
		13C-123-PeCB		81.7	(30%-140%)
		13C-126-PeCB		72.0	(30%-140%)
		13C-155-HxCB		70.7	(30%-140%)
		13C-156-HxCB	C	76.2	(30%-140%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		78.7	(30%-140%)
		13C-169-HxCB		76.8	(30%-140%)
		13C-188-HpCB		75.0	(30%-140%)
		13C-189-HpCB		77.8	(30%-140%)

PCB Congeners
Surrogate Recovery Report

SDG Number: 1903661

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12023491	LCSD for batch 40253	13C-202-OcCB		72.4	(30%-140%)
		13C-205-OcCB		88.6	(30%-140%)
		13C-206-NoCB		89.1	(30%-140%)
		13C-208-NoCB		77.7	(30%-140%)
		13C-209-DeCB		84.6	(30%-140%)
		13C-28-TrCB		73.4	(40%-125%)
		13C-111-PeCB		70.8	(40%-125%)
		13C-178-HpCB		73.9	(40%-125%)
12023489	MB for batch 40253	13C-1-MoCB		47.9	(15%-150%)
		13C-3-MoCB		45.1	(15%-150%)
		13C-4-DiCB		46.2	(25%-150%)
		13C-15-DiCB		54.6	(25%-150%)
		13C-19-TrCB		50.7	(25%-150%)
		13C-37-TrCB		64.1	(25%-150%)
		13C-54-TeCB		64.1	(25%-150%)
		13C-77-TeCB		65.0	(25%-150%)
		13C-81-TeCB		67.4	(25%-150%)
		13C-104-PeCB		71.0	(25%-150%)
		13C-105-PeCB		73.1	(25%-150%)
		13C-114-PeCB		73.4	(25%-150%)
		13C-118-PeCB		72.0	(25%-150%)
		13C-123-PeCB		76.4	(25%-150%)
		13C-126-PeCB		67.2	(25%-150%)
		13C-155-HxCB		65.0	(25%-150%)
		13C-156-HxCB	C	72.1	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		73.9	(25%-150%)
		13C-169-HxCB		72.4	(25%-150%)
		13C-188-HpCB		69.5	(25%-150%)
		13C-189-HpCB		73.4	(25%-150%)
		13C-202-OcCB		68.1	(25%-150%)
		13C-205-OcCB		85.1	(25%-150%)
		13C-206-NoCB		85.6	(25%-150%)
		13C-208-NoCB		74.6	(25%-150%)
		13C-209-DeCB		80.9	(25%-150%)
		13C-28-TrCB		70.9	(30%-135%)
		13C-111-PeCB		68.6	(30%-135%)
		13C-178-HpCB		71.8	(30%-135%)
14707001	1903661-001K RG-North-20190311	13C-1-MoCB		49.1	(15%-150%)
		13C-3-MoCB		48.0	(15%-150%)
		13C-4-DiCB		46.9	(25%-150%)
		13C-15-DiCB		58.3	(25%-150%)
		13C-19-TrCB		51.5	(25%-150%)
		13C-37-TrCB		71.8	(25%-150%)
		13C-54-TeCB		65.1	(25%-150%)
		13C-77-TeCB		69.2	(25%-150%)
		13C-81-TeCB		70.8	(25%-150%)
		13C-104-PeCB		71.2	(25%-150%)
		13C-105-PeCB		73.5	(25%-150%)
		13C-114-PeCB		73.8	(25%-150%)
		13C-118-PeCB		73.0	(25%-150%)

PCB Congeners
Surrogate Recovery Report

SDG Number: 1903661

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
14707001	1903661-001K RG-North-20190311	13C-123-PeCB		77.2	(25%-150%)
		13C-126-PeCB		70.1	(25%-150%)
		13C-155-HxCB		66.1	(25%-150%)
		13C-156-HxCB	C	73.1	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		74.4	(25%-150%)
		13C-169-HxCB		74.9	(25%-150%)
		13C-188-HpCB		69.8	(25%-150%)
		13C-189-HpCB		73.2	(25%-150%)
		13C-202-OcCB		67.3	(25%-150%)
		13C-205-OcCB		83.7	(25%-150%)
		13C-206-NoCB		82.6	(25%-150%)
		13C-208-NoCB		71.5	(25%-150%)
		13C-209-DeCB		77.5	(25%-150%)
		13C-28-TrCB		71.9	(30%-135%)
		13C-111-PeCB		70.0	(30%-135%)
		13C-178-HpCB		72.4	(30%-135%)
14707002	1903661-002K Eq BLank-20190312	13C-1-MoCB		49.1	(15%-150%)
		13C-3-MoCB		49.0	(15%-150%)
		13C-4-DiCB		47.7	(25%-150%)
		13C-15-DiCB		59.2	(25%-150%)
		13C-19-TrCB		54.9	(25%-150%)
		13C-37-TrCB		72.2	(25%-150%)
		13C-54-TeCB		65.6	(25%-150%)
		13C-77-TeCB		73.5	(25%-150%)
		13C-81-TeCB		74.6	(25%-150%)
		13C-104-PeCB		73.9	(25%-150%)
		13C-105-PeCB		81.5	(25%-150%)
		13C-114-PeCB		81.4	(25%-150%)
		13C-118-PeCB		80.7	(25%-150%)
		13C-123-PeCB		85.4	(25%-150%)
		13C-126-PeCB		77.1	(25%-150%)
		13C-155-HxCB		70.4	(25%-150%)
		13C-156-HxCB	C	82.6	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		84.2	(25%-150%)
		13C-169-HxCB		84.3	(25%-150%)
		13C-188-HpCB		77.9	(25%-150%)
		13C-189-HpCB		85.8	(25%-150%)
		13C-202-OcCB		76.9	(25%-150%)
		13C-205-OcCB		97.1	(25%-150%)
		13C-206-NoCB		96.9	(25%-150%)
		13C-208-NoCB		84.2	(25%-150%)
		13C-209-DeCB		92.1	(25%-150%)
		13C-28-TrCB		69.3	(30%-135%)
		13C-111-PeCB		75.0	(30%-135%)
		13C-178-HpCB		79.5	(30%-135%)
14707003	1903661-003K RG-South-20190313	13C-1-MoCB		44.9	(15%-150%)
		13C-3-MoCB		46.8	(15%-150%)
		13C-4-DiCB		44.5	(25%-150%)
		13C-15-DiCB		57.8	(25%-150%)

PCB Congeners
Surrogate Recovery Report

SDG Number: 1903661

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
14707003	1903661-003K RG-South-20190313	13C-19-TrCB		49.7	(25%-150%)
		13C-37-TrCB		70.5	(25%-150%)
		13C-54-TeCB		62.9	(25%-150%)
		13C-77-TeCB		67.5	(25%-150%)
		13C-81-TeCB		69.3	(25%-150%)
		13C-104-PeCB		69.9	(25%-150%)
		13C-105-PeCB		71.9	(25%-150%)
		13C-114-PeCB		71.7	(25%-150%)
		13C-118-PeCB		70.7	(25%-150%)
		13C-123-PeCB		74.4	(25%-150%)
		13C-126-PeCB		70.2	(25%-150%)
		13C-155-HxCB		61.2	(25%-150%)
		13C-156-HxCB	C	69.5	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		71.2	(25%-150%)
		13C-169-HxCB		73.5	(25%-150%)
		13C-188-HpCB		61.9	(25%-150%)
		13C-189-HpCB		69.7	(25%-150%)
		13C-202-OcCB		60.0	(25%-150%)
		13C-205-OcCB		77.2	(25%-150%)
		13C-206-NoCB		75.7	(25%-150%)
		13C-208-NoCB		66.0	(25%-150%)
		13C-209-DeCB		71.0	(25%-150%)
		13C-28-TrCB		70.2	(30%-135%)
		13C-111-PeCB		67.5	(30%-135%)
		13C-178-HpCB		66.9	(30%-135%)
14707004	1903661-004K RG-South-DP-20190313	13C-1-MoCB		46.4	(15%-150%)
		13C-3-MoCB		49.0	(15%-150%)
		13C-4-DiCB		46.6	(25%-150%)
		13C-15-DiCB		60.7	(25%-150%)
		13C-19-TrCB		53.2	(25%-150%)
		13C-37-TrCB		75.0	(25%-150%)
		13C-54-TeCB		66.0	(25%-150%)
		13C-77-TeCB		73.0	(25%-150%)
		13C-81-TeCB		73.7	(25%-150%)
		13C-104-PeCB		72.8	(25%-150%)
		13C-105-PeCB		75.3	(25%-150%)
		13C-114-PeCB		75.4	(25%-150%)
		13C-118-PeCB		73.8	(25%-150%)
		13C-123-PeCB		78.5	(25%-150%)
		13C-126-PeCB		74.0	(25%-150%)
		13C-155-HxCB		64.3	(25%-150%)
		13C-156-HxCB	C	73.8	(25%-150%)
		13C-157-HxCB	C156L		
		13C-167-HxCB		75.3	(25%-150%)
		13C-169-HxCB		77.3	(25%-150%)
		13C-188-HpCB		67.6	(25%-150%)
		13C-189-HpCB		74.0	(25%-150%)
		13C-202-OcCB		65.8	(25%-150%)
		13C-205-OcCB		83.4	(25%-150%)
		13C-206-NoCB		81.5	(25%-150%)
		13C-208-NoCB		71.1	(25%-150%)

PCB Congeners
Surrogate Recovery Report

SDG Number: 1903661

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
14707004	1903661-004K RG-South-DP-20190313	13C-209-DeCB		77.6	(25%-150%)
		13C-28-TrCB		80.0	(30%-135%)
		13C-111-PeCB		76.1	(30%-135%)
		13C-178-HpCB		74.5	(30%-135%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

PCB Congeners

Quality Control Summary

Spike Recovery Report

SDG Number: 1903661 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 40253 **Matrix:** WATER

Lab Sample ID: 12023490

Instrument: HRP875 **Analysis Date:** 03/29/2019 14:36 **Dilution:** 1

Analyst: MLS **Prep Batch ID:** 40253

Batch ID: 40255

CAS No.		Parmname	Amount Added pg/L		Spike Conc. pg/L	Recovery %	Acceptance Limits
2051-60-7	LCS	1-MoCB	500		509	102	50-150
2051-62-9	LCS	3-MoCB	500		546	109	50-150
13029-08-8	LCS	4-DiCB	500		482	96.5	50-150
2050-68-2	LCS	15-DiCB	500		550	110	50-150
38444-73-4	LCS	19-TrCB	500		531	106	50-150
38444-90-5	LCS	37-TrCB	500		535	107	50-150
15968-05-5	LCS	54-TeCB	1000		975	97.5	50-150
32598-13-3	LCS	77-TeCB	1000		993	99.3	50-150
70362-50-4	LCS	81-TeCB	1000		975	97.5	50-150
56558-16-8	LCS	104-PeCB	1000		1010	101	50-150
32598-14-4	LCS	105-PeCB	1000		1130	113	50-150
74472-37-0	LCS	114-PeCB	1000		1130	113	50-150
31508-00-6	LCS	118-PeCB	1000		1100	110	50-150
65510-44-3	LCS	123-PeCB	1000		911	91.1	50-150
57465-28-8	LCS	126-PeCB	1000		1160	116	50-150
33979-03-2	LCS	155-HxCB	1000		1050	105	50-150
38380-08-4	LCS	156-HxCB	2000	C	2170	109	50-150
69782-90-7	LCS	157-HxCB		C156			
52663-72-6	LCS	167-HxCB	1000		1090	109	50-150
32774-16-6	LCS	169-HxCB	1000		1080	108	50-150
74487-85-7	LCS	188-HpCB	1000		995	99.5	50-150
39635-31-9	LCS	189-HpCB	1000		1040	104	50-150
2136-99-4	LCS	202-OcCB	1500		1510	100	50-150
74472-53-0	LCS	205-OcCB	1500		1410	93.8	50-150
40186-72-9	LCS	206-NoCB	1500		1380	92.2	50-150
52663-77-1	LCS	208-NoCB	1500		1570	105	50-150
2051-24-3	LCS	209-DeCB	1500		1500	99.8	50-150

PCB Congeners
Quality Control Summary
Spike Recovery Report

SDG Number: **1903661** **Sample Type:** **Laboratory Control Sample Duplicate**
Client ID: **LCSD for batch 40253** **Matrix:** **WATER**
Lab Sample ID: **12023491**
Instrument: **HRP875** **Analysis Date: 03/29/2019 15:45** **Dilution: 1**
Analyst: **MLS** **Prep Batch ID: 40253**
Batch ID: **40255**

CAS No.		Parmname	Amount Added pg/L		Spike Conc. pg/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
2051-60-7	LCSD	1-MoCB	500		507	101	50-150	0.307	0-20
2051-62-9	LCSD	3-MoCB	500		538	108	50-150	1.39	0-20
13029-08-8	LCSD	4-DiCB	500		468	93.5	50-150	3.13	0-20
2050-68-2	LCSD	15-DiCB	500		525	105	50-150	4.78	0-20
38444-73-4	LCSD	19-TrCB	500		484	96.8	50-150	9.30	0-20
38444-90-5	LCSD	37-TrCB	500		525	105	50-150	1.93	0-20
15968-05-5	LCSD	54-TeCB	1000		960	96	50-150	1.65	0-20
32598-13-3	LCSD	77-TeCB	1000		964	96.4	50-150	3.02	0-20
70362-50-4	LCSD	81-TeCB	1000		969	96.9	50-150	0.599	0-20
56558-16-8	LCSD	104-PeCB	1000		978	97.8	50-150	3.44	0-20
32598-14-4	LCSD	105-PeCB	1000		1110	111	50-150	2.33	0-20
74472-37-0	LCSD	114-PeCB	1000		1090	109	50-150	3.36	0-20
31508-00-6	LCSD	118-PeCB	1000		1070	107	50-150	2.46	0-20
65510-44-3	LCSD	123-PeCB	1000		891	89.1	50-150	2.27	0-20
57465-28-8	LCSD	126-PeCB	1000		1140	114	50-150	1.72	0-20
33979-03-2	LCSD	155-HxCB	1000		1000	100	50-150	4.84	0-20
38380-08-4	LCSD	156-HxCB	2000	C	2140	107	50-150	1.56	0-20
69782-90-7	LCSD	157-HxCB		C156					
52663-72-6	LCSD	167-HxCB	1000		1060	106	50-150	2.52	0-20
32774-16-6	LCSD	169-HxCB	1000		1060	106	50-150	1.71	0-20
74487-85-7	LCSD	188-HpCB	1000		968	96.8	50-150	2.70	0-20
39635-31-9	LCSD	189-HpCB	1000		1030	103	50-150	1.72	0-20
2136-99-4	LCSD	202-OcCB	1500		1470	98.2	50-150	2.17	0-20
74472-53-0	LCSD	205-OcCB	1500		1380	92.3	50-150	1.59	0-20
40186-72-9	LCSD	206-NoCB	1500		1350	89.8	50-150	2.66	0-20
52663-77-1	LCSD	208-NoCB	1500		1560	104	50-150	1.17	0-20
2051-24-3	LCSD	209-DeCB	1500		1460	97	50-150	2.88	0-20

Method Blank Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 40253**	**Instrument ID:**	**HRP875**	**Data File:**	**d29mar19a-5**
Lab Sample ID:	**12023489**	**Prep Date:**	**28-MAR-19**	**Analyzed:**	**03/29/19 16:54**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 40253	12023490	d29mar19a-3	03/29/19	1436
02	LCSD for batch 40253	12023491	d29mar19a-4	03/29/19	1545
03	1903661-001K RG-North-20190311	14707001	d29mar19a-6	03/29/19	1803
04	1903661-002K Eq BLank-20190312	14707002	d29mar19a-7	03/29/19	1912
05	1903661-003K RG-South-20190313	14707003	d29mar19a-8	03/29/19	2021
06	1903661-004K RG-South-DP-20190313	14707004	d29mar19a-9	03/29/19	2130

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB	J	2.08	pg/L	0.920	100
2051-61-8	2-MoCB	U	ND	pg/L	0.960	100
2051-62-9	3-MoCB	U	ND	pg/L	1.66	100
13029-08-8	4-DiCB	U	ND	pg/L	7.24	100
16605-91-7	5-DiCB	U	ND	pg/L	4.22	100
25569-80-6	6-DiCB	U	ND	pg/L	3.52	100
33284-50-3	7-DiCB	U	ND	pg/L	3.64	100
34883-43-7	8-DiCB	U	ND	pg/L	3.22	100
34883-39-1	9-DiCB	U	ND	pg/L	4.08	100
33146-45-1	10-DiCB	U	ND	pg/L	4.82	100
2050-67-1	11-DiCB	J	21.6	pg/L	3.98	100
2974-92-7	12-DiCB	CU	ND	pg/L	3.90	200
2974-90-5	13-DiCB	C12				
34883-41-5	14-DiCB	U	ND	pg/L	3.66	100
2050-68-2	15-DiCB	U	ND	pg/L	5.06	100
38444-78-9	16-TrCB	U	ND	pg/L	1.88	100
37680-66-3	17-TrCB	J	2.28	pg/L	2.04	100
37680-65-2	18-TrCB	CJ	3.52	pg/L	1.70	200
38444-73-4	19-TrCB	U	ND	pg/L	2.20	100
38444-84-7	20-TrCB	CJ	6.50	pg/L	1.46	200
55702-46-0	21-TrCB	CJ	3.84	pg/L	1.44	200
38444-85-8	22-TrCB	J	2.56	pg/L	1.44	100
55720-44-0	23-TrCB	U	ND	pg/L	1.40	100
55702-45-9	24-TrCB	U	ND	pg/L	1.58	100
55712-37-3	25-TrCB	U	ND	pg/L	1.30	100
38444-81-4	26-TrCB	CU	ND	pg/L	1.44	200
38444-76-7	27-TrCB	U	ND	pg/L	1.52	100
7012-37-5	28-TrCB	C20				
15862-07-4	29-TrCB	C26				
35693-92-6	30-TrCB	C18				
16606-02-3	31-TrCB	J	5.60	pg/L	1.36	100
38444-77-8	32-TrCB	J	1.36	pg/L	1.34	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
38444-86-9	33-TrCB	C21				
37680-68-5	34-TrCB	U	ND	pg/L	1.56	100
37680-69-6	35-TrCB	U	ND	pg/L	1.62	100
38444-87-0	36-TrCB	U	ND	pg/L	1.44	100
38444-90-5	37-TrCB	J	4.04	pg/L	2.10	100
53555-66-1	38-TrCB	U	ND	pg/L	1.50	100
38444-88-1	39-TrCB	U	ND	pg/L	1.38	100
38444-93-8	40-TeCB	CJ	2.62	pg/L	1.82	200
52663-59-9	41-TeCB	U	ND	pg/L	2.56	100
36559-22-5	42-TeCB	U	ND	pg/L	2.06	100
70362-46-8	43-TeCB	U	ND	pg/L	2.24	100
41464-39-5	44-TeCB	CJ	8.04	pg/L	1.90	300
70362-45-7	45-TeCB	CJ	3.38	pg/L	1.60	200
41464-47-5	46-TeCB	U	ND	pg/L	1.60	100
2437-79-8	47-TeCB	C44				
70362-47-9	48-TeCB	U	ND	pg/L	2.00	100
41464-40-8	49-TeCB	CJ	3.38	pg/L	1.84	200
62796-65-0	50-TeCB	CU	ND	pg/L	1.48	200
68194-04-7	51-TeCB	C45				
35693-99-3	52-TeCB	J	10.0	pg/L	2.10	100
41464-41-9	53-TeCB	C50				
15968-05-5	54-TeCB	U	ND	pg/L	1.08	100
74338-24-2	55-TeCB	U	ND	pg/L	1.94	100
41464-43-1	56-TeCB	J	4.36	pg/L	2.02	100
70424-67-8	57-TeCB	U	ND	pg/L	2.00	100
41464-49-7	58-TeCB	U	ND	pg/L	1.96	100
74472-33-6	59-TeCB	CU	ND	pg/L	1.56	300
33025-41-1	60-TeCB	U	ND	pg/L	3.36	100
33284-53-6	61-TeCB	CJ	12.7	pg/L	1.94	400
54230-22-7	62-TeCB	C59				
74472-34-7	63-TeCB	U	ND	pg/L	1.88	100
52663-58-8	64-TeCB	U	ND	pg/L	2.46	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
33284-54-7	65-TeCB	C44				
32598-10-0	66-TeCB	J	5.02	pg/L	1.98	100
73575-53-8	67-TeCB	U	ND	pg/L	1.70	100
73575-52-7	68-TeCB	U	ND	pg/L	1.72	100
60233-24-1	69-TeCB	C49				
32598-11-1	70-TeCB	C61				
41464-46-4	71-TeCB	C40				
41464-42-0	72-TeCB	U	ND	pg/L	1.90	100
74338-23-1	73-TeCB	U	ND	pg/L	1.56	100
32690-93-0	74-TeCB	C61				
32598-12-2	75-TeCB	C59				
70362-48-0	76-TeCB	C61				
32598-13-3	77-TeCB	U	ND	pg/L	3.88	100
70362-49-1	78-TeCB	U	ND	pg/L	2.02	100
41464-48-6	79-TeCB	U	ND	pg/L	1.70	100
33284-52-5	80-TeCB	U	ND	pg/L	1.72	100
70362-50-4	81-TeCB	U	ND	pg/L	2.28	100
52663-62-4	82-PeCB	U	ND	pg/L	2.28	100
60145-20-2	83-PeCB	U	ND	pg/L	2.36	100
52663-60-2	84-PeCB	U	ND	pg/L	2.24	100
65510-45-4	85-PeCB	CU	ND	pg/L	1.68	300
55312-69-1	86-PeCB	CJ	7.46	pg/L	1.78	600
38380-02-8	87-PeCB	C86				
55215-17-3	88-PeCB	CU	ND	pg/L	2.12	200
73575-57-2	89-PeCB	U	ND	pg/L	2.18	100
68194-07-0	90-PeCB	CJ	5.68	pg/L	1.78	300
68194-05-8	91-PeCB	C88				
52663-61-3	92-PeCB	U	ND	pg/L	2.10	100
73575-56-1	93-PeCB	CU	ND	pg/L	2.08	200
73575-55-0	94-PeCB	U	ND	pg/L	2.14	100
38379-99-6	95-PeCB	U	ND	pg/L	2.92	100
73575-54-9	96-PeCB	U	ND	pg/L	0.920	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
41464-51-1	97-PeCB	C86				
60233-25-2	98-PeCB	CU	ND	pg/L	2.18	200
38380-01-7	99-PeCB	U	ND	pg/L	1.74	100
39485-83-1	100-PeCB	C93				
37680-73-2	101-PeCB	C90				
68194-06-9	102-PeCB	C98				
60145-21-3	103-PeCB	U	ND	pg/L	1.98	100
56558-16-8	104-PeCB	U	ND	pg/L	0.960	100
32598-14-4	105-PeCB	J	4.84	pg/L	2.00	100
70424-69-0	106-PeCB	U	ND	pg/L	1.74	100
70424-68-9	107-PeCB	U	ND	pg/L	1.50	100
70362-41-3	108-PeCB	CJ	2.84	pg/L	1.70	200
74472-35-8	109-PeCB	C86				
38380-03-9	110-PeCB	CJ	6.74	pg/L	1.62	200
39635-32-0	111-PeCB	U	ND	pg/L	1.48	100
74472-36-9	112-PeCB	U	ND	pg/L	1.54	100
68194-10-5	113-PeCB	C90				
74472-37-0	114-PeCB	U	ND	pg/L	1.96	100
74472-38-1	115-PeCB	C110				
18259-05-7	116-PeCB	C85				
68194-11-6	117-PeCB	C85				
31508-00-6	118-PeCB	J	5.30	pg/L	1.90	100
56558-17-9	119-PeCB	C86				
68194-12-7	120-PeCB	U	ND	pg/L	1.46	100
56558-18-0	121-PeCB	U	ND	pg/L	1.52	100
76842-07-4	122-PeCB	U	ND	pg/L	1.80	100
65510-44-3	123-PeCB	U	ND	pg/L	1.88	100
70424-70-3	124-PeCB	C108				
74472-39-2	125-PeCB	C86				
57465-28-8	126-PeCB	U	ND	pg/L	2.34	100
39635-33-1	127-PeCB	U	ND	pg/L	1.66	100
38380-07-3	128-HxCB	CJ	2.20	pg/L	1.70	200

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
55215-18-4	129-HxCB	CJ	4.38	pg/L	1.90	300
52663-66-8	130-HxCB	U	ND	pg/L	2.22	100
61798-70-7	131-HxCB	U	ND	pg/L	2.44	100
38380-05-1	132-HxCB	U	ND	pg/L	2.12	100
35694-04-3	133-HxCB	U	ND	pg/L	2.08	100
52704-70-8	134-HxCB	U	ND	pg/L	2.68	100
52744-13-5	135-HxCB	CJ	2.00	pg/L	1.10	200
38411-22-2	136-HxCB	U	ND	pg/L	0.840	100
35694-06-5	137-HxCB	U	ND	pg/L	1.90	100
35065-28-2	138-HxCB	C129				
56030-56-9	139-HxCB	CU	ND	pg/L	1.88	200
59291-64-4	140-HxCB	C139				
52712-04-6	141-HxCB	U	ND	pg/L	1.92	100
41411-61-4	142-HxCB	U	ND	pg/L	2.18	100
68194-15-0	143-HxCB	U	ND	pg/L	1.98	100
68194-14-9	144-HxCB	U	ND	pg/L	1.08	100
74472-40-5	145-HxCB	U	ND	pg/L	0.840	100
51908-16-8	146-HxCB	U	ND	pg/L	1.76	100
68194-13-8	147-HxCB	CJ	2.66	pg/L	1.86	200
74472-41-6	148-HxCB	U	ND	pg/L	1.08	100
38380-04-0	149-HxCB	C147				
68194-08-1	150-HxCB	U	ND	pg/L	0.800	100
52663-63-5	151-HxCB	C135				
68194-09-2	152-HxCB	U	ND	pg/L	0.840	100
35065-27-1	153-HxCB	CJ	3.10	pg/L	1.60	200
60145-22-4	154-HxCB	U	ND	pg/L	0.940	100
33979-03-2	155-HxCB	U	ND	pg/L	0.800	100
38380-08-4	156-HxCB	CU	ND	pg/L	4.28	200
69782-90-7	157-HxCB	C156				
74472-42-7	158-HxCB	U	ND	pg/L	1.36	100
39635-35-3	159-HxCB	J	1.26	pg/L	0.960	100
41411-62-5	160-HxCB	U	ND	pg/L	1.58	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
74472-43-8	161-HxCB	U	ND	pg/L	1.56	100
39635-34-2	162-HxCB	U	ND	pg/L	1.52	100
74472-44-9	163-HxCB	C129				
74472-45-0	164-HxCB	U	ND	pg/L	1.50	100
74472-46-1	165-HxCB	U	ND	pg/L	1.64	100
41411-63-6	166-HxCB	C128				
52663-72-6	167-HxCB	J	1.86	pg/L	1.04	100
59291-65-5	168-HxCB	C153				
32774-16-6	169-HxCB	J	1.96	pg/L	1.18	100
35065-30-6	170-HpCB	J	1.94	pg/L	1.26	100
52663-71-5	171-HpCB	CU	ND	pg/L	2.14	200
52663-74-8	172-HpCB	U	ND	pg/L	1.24	100
68194-16-1	173-HpCB	C171				
38411-25-5	174-HpCB	U	ND	pg/L	1.28	100
40186-70-7	175-HpCB	J	1.04	pg/L	0.940	100
52663-65-7	176-HpCB	U	ND	pg/L	0.740	100
52663-70-4	177-HpCB	U	ND	pg/L	1.24	100
52663-67-9	178-HpCB	U	ND	pg/L	1.00	100
52663-64-6	179-HpCB	U	ND	pg/L	0.720	100
35065-29-3	180-HpCB	CJ	3.08	pg/L	1.02	200
74472-47-2	181-HpCB	U	ND	pg/L	1.14	100
60145-23-5	182-HpCB	U	ND	pg/L	0.920	100
52663-69-1	183-HpCB	CJ	1.76	pg/L	1.10	200
74472-48-3	184-HpCB	U	ND	pg/L	0.680	100
52712-05-7	185-HpCB	C183				
74472-49-4	186-HpCB	U	ND	pg/L	0.740	100
52663-68-0	187-HpCB	U	ND	pg/L	1.30	100
74487-85-7	188-HpCB	U	ND	pg/L	0.760	100
39635-31-9	189-HpCB	J	1.60	pg/L	1.02	100
41411-64-7	190-HpCB	U	ND	pg/L	1.24	100
74472-50-7	191-HpCB	U	ND	pg/L	0.920	100
74472-51-8	192-HpCB	U	ND	pg/L	0.980	100

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

J Value is estimated

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PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
69782-91-8	193-HpCB	C180				
35694-08-7	194-OcCB	J	2.66	pg/L	0.860	100
52663-78-2	195-OcCB	J	1.36	pg/L	0.920	100
42740-50-1	196-OcCB	J	1.52	pg/L	0.880	100
33091-17-7	197-OcCB	CJ	1.48	pg/L	0.640	200
68194-17-2	198-OcCB	CJ	2.02	pg/L	0.880	200
52663-75-9	199-OcCB	C198				
52663-73-7	200-OcCB	C197				
40186-71-8	201-OcCB	J	0.680	pg/L	0.660	100
2136-99-4	202-OcCB	U	ND	pg/L	0.760	100
52663-76-0	203-OcCB	J	1.72	pg/L	0.800	100
74472-52-9	204-OcCB	U	ND	pg/L	0.700	100
74472-53-0	205-OcCB	U	ND	pg/L	1.32	100
40186-72-9	206-NoCB	J	2.00	pg/L	1.68	100
52663-79-3	207-NoCB	U	ND	pg/L	1.20	100
52663-77-1	208-NoCB	U	ND	pg/L	1.24	100
2051-24-3	209-DeCB	U	ND	pg/L	1.16	100
1336-36-3	Total PCB Congeners	J	178	pg/L		100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		959	2000	pg/L	47.9	(15%-150%)
13C-3-MoCB		901	2000	pg/L	45.1	(15%-150%)
13C-4-DiCB		924	2000	pg/L	46.2	(25%-150%)
13C-15-DiCB		1090	2000	pg/L	54.6	(25%-150%)
13C-19-TrCB		1010	2000	pg/L	50.7	(25%-150%)
13C-37-TrCB		1280	2000	pg/L	64.1	(25%-150%)
13C-54-TeCB		1280	2000	pg/L	64.1	(25%-150%)
13C-77-TeCB		1300	2000	pg/L	65.0	(25%-150%)
13C-81-TeCB		1350	2000	pg/L	67.4	(25%-150%)
13C-104-PeCB		1420	2000	pg/L	71.0	(25%-150%)
13C-105-PeCB		1460	2000	pg/L	73.1	(25%-150%)
13C-114-PeCB		1470	2000	pg/L	73.4	(25%-150%)
13C-118-PeCB		1440	2000	pg/L	72.0	(25%-150%)
13C-123-PeCB		1530	2000	pg/L	76.4	(25%-150%)
13C-126-PeCB		1340	2000	pg/L	67.2	(25%-150%)
13C-155-HxCB		1300	2000	pg/L	65.0	(25%-150%)
13C-156-HxCB	C	2880	4000	pg/L	72.1	(25%-150%)
13C-157-HxCB	C156L					
13C-167-HxCB		1480	2000	pg/L	73.9	(25%-150%)
13C-169-HxCB		1450	2000	pg/L	72.4	(25%-150%)
13C-188-HpCB		1390	2000	pg/L	69.5	(25%-150%)
13C-189-HpCB		1470	2000	pg/L	73.4	(25%-150%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023489**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**MB for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 16:54**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-5**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-202-OcCB		1360	2000	pg/L	68.1	(25%-150%)
13C-205-OcCB		1700	2000	pg/L	85.1	(25%-150%)
13C-206-NoCB		1710	2000	pg/L	85.6	(25%-150%)
13C-208-NoCB		1490	2000	pg/L	74.6	(25%-150%)
13C-209-DeCB		1620	2000	pg/L	80.9	(25%-150%)
13C-28-TrCB		1420	2000	pg/L	70.9	(30%-135%)
13C-111-PeCB		1370	2000	pg/L	68.6	(30%-135%)
13C-178-HpCB		1440	2000	pg/L	71.8	(30%-135%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data
J Value is estimated
U Analyte was analyzed for, but not detected above the specified detection limit.

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023490**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**LCS for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 14:36**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-3**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB		509	pg/L	1.70	100
2051-62-9	3-MoCB		546	pg/L	2.10	100
13029-08-8	4-DiCB		482	pg/L	8.20	100
2050-68-2	15-DiCB		550	pg/L	6.34	100
38444-73-4	19-TrCB		531	pg/L	3.18	100
38444-90-5	37-TrCB		535	pg/L	6.04	100
15968-05-5	54-TeCB		975	pg/L	1.62	100
32598-13-3	77-TeCB		993	pg/L	7.14	100
70362-50-4	81-TeCB		975	pg/L	6.44	100
56558-16-8	104-PeCB		1010	pg/L	1.40	100
32598-14-4	105-PeCB		1130	pg/L	5.16	100
74472-37-0	114-PeCB		1130	pg/L	5.14	100
31508-00-6	118-PeCB		1100	pg/L	4.98	100
65510-44-3	123-PeCB		911	pg/L	4.78	100
57465-28-8	126-PeCB		1160	pg/L	5.94	100
33979-03-2	155-HxCB		1050	pg/L	1.02	100
38380-08-4	156-HxCB	C	2170	pg/L	3.94	200
69782-90-7	157-HxCB	C156				
52663-72-6	167-HxCB		1090	pg/L	2.84	100
32774-16-6	169-HxCB		1080	pg/L	3.22	100
74487-85-7	188-HpCB		995	pg/L	1.22	100
39635-31-9	189-HpCB		1040	pg/L	1.70	100
2136-99-4	202-OcCB		1510	pg/L	1.38	100
74472-53-0	205-OcCB		1410	pg/L	1.36	100
40186-72-9	206-NoCB		1380	pg/L	2.10	100
52663-77-1	208-NoCB		1570	pg/L	1.60	100
2051-24-3	209-DeCB		1500	pg/L	0.880	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		1010	2000	pg/L	50.5	(15%-140%)
13C-3-MoCB		976	2000	pg/L	48.8	(15%-140%)
13C-4-DiCB		973	2000	pg/L	48.7	(30%-140%)
13C-15-DiCB		1190	2000	pg/L	59.7	(30%-140%)
13C-19-TrCB		1070	2000	pg/L	53.3	(30%-140%)
13C-37-TrCB		1430	2000	pg/L	71.4	(30%-140%)
13C-54-TeCB		1350	2000	pg/L	67.5	(30%-140%)
13C-77-TeCB		1400	2000	pg/L	70.1	(30%-140%)
13C-81-TeCB		1460	2000	pg/L	72.9	(30%-140%)
13C-104-PeCB		1490	2000	pg/L	74.5	(30%-140%)
13C-105-PeCB		1560	2000	pg/L	77.9	(30%-140%)
13C-114-PeCB		1550	2000	pg/L	77.6	(30%-140%)
13C-118-PeCB		1530	2000	pg/L	76.5	(30%-140%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023490**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**LCS for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 14:36**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-3**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-123-PeCB		1640	2000	pg/L	81.9	(30%-140%)
13C-126-PeCB		1460	2000	pg/L	73.0	(30%-140%)
13C-155-HxCB		1350	2000	pg/L	67.7	(30%-140%)
13C-156-HxCB	C	3120	4000	pg/L	77.9	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		1590	2000	pg/L	79.3	(30%-140%)
13C-169-HxCB		1590	2000	pg/L	79.5	(30%-140%)
13C-188-HpCB		1420	2000	pg/L	70.9	(30%-140%)
13C-189-HpCB		1550	2000	pg/L	77.7	(30%-140%)
13C-202-OcCB		1400	2000	pg/L	70.0	(30%-140%)
13C-205-OcCB		1790	2000	pg/L	89.4	(30%-140%)
13C-206-NoCB		1790	2000	pg/L	89.4	(30%-140%)
13C-208-NoCB		1550	2000	pg/L	77.6	(30%-140%)
13C-209-DeCB		1680	2000	pg/L	84.2	(30%-140%)
13C-28-TrCB		1440	2000	pg/L	72.1	(40%-125%)
13C-111-PeCB		1420	2000	pg/L	70.8	(40%-125%)
13C-178-HpCB		1490	2000	pg/L	74.6	(40%-125%)

Comments:
C Congener has coeluters. When Cxxx, refer to congener number xxx for data

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023491**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**LCSD for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 15:45**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-4**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
2051-60-7	1-MoCB		507	pg/L	1.88	100
2051-62-9	3-MoCB		538	pg/L	2.28	100
13029-08-8	4-DiCB		468	pg/L	8.12	100
2050-68-2	15-DiCB		525	pg/L	6.34	100
38444-73-4	19-TrCB		484	pg/L	3.42	100
38444-90-5	37-TrCB		525	pg/L	9.44	100
15968-05-5	54-TeCB		960	pg/L	1.60	100
32598-13-3	77-TeCB		964	pg/L	7.10	100
70362-50-4	81-TeCB		969	pg/L	6.74	100
56558-16-8	104-PeCB		978	pg/L	1.28	100
32598-14-4	105-PeCB		1110	pg/L	5.74	100
74472-37-0	114-PeCB		1090	pg/L	5.50	100
31508-00-6	118-PeCB		1070	pg/L	5.30	100
65510-44-3	123-PeCB		891	pg/L	5.14	100
57465-28-8	126-PeCB		1140	pg/L	6.50	100
33979-03-2	155-HxCB		1000	pg/L	1.02	100
38380-08-4	156-HxCB	C	2140	pg/L	5.38	200
69782-90-7	157-HxCB	C156				
52663-72-6	167-HxCB		1060	pg/L	3.86	100
32774-16-6	169-HxCB		1060	pg/L	4.46	100
74487-85-7	188-HpCB		968	pg/L	1.28	100
39635-31-9	189-HpCB		1030	pg/L	1.88	100
2136-99-4	202-OcCB		1470	pg/L	1.70	100
74472-53-0	205-OcCB		1380	pg/L	1.64	100
40186-72-9	206-NoCB		1350	pg/L	2.52	100
52663-77-1	208-NoCB		1560	pg/L	1.92	100
2051-24-3	209-DeCB		1460	pg/L	0.980	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1-MoCB		1150	2000	pg/L	57.5	(15%-140%)
13C-3-MoCB		1100	2000	pg/L	55.0	(15%-140%)
13C-4-DiCB		1090	2000	pg/L	54.6	(30%-140%)
13C-15-DiCB		1290	2000	pg/L	64.6	(30%-140%)
13C-19-TrCB		1240	2000	pg/L	61.9	(30%-140%)
13C-37-TrCB		1480	2000	pg/L	73.9	(30%-140%)
13C-54-TeCB		1420	2000	pg/L	70.9	(30%-140%)
13C-77-TeCB		1430	2000	pg/L	71.4	(30%-140%)
13C-81-TeCB		1460	2000	pg/L	73.1	(30%-140%)
13C-104-PeCB		1570	2000	pg/L	78.6	(30%-140%)
13C-105-PeCB		1550	2000	pg/L	77.3	(30%-140%)
13C-114-PeCB		1560	2000	pg/L	78.2	(30%-140%)
13C-118-PeCB		1540	2000	pg/L	77.2	(30%-140%)

PCB Congeners
Certificate of Analysis
Sample Summary

SDG Number:	**1903661**	**Client:**	**HALL001**	**Project:**	**HALL00113**
Lab Sample ID:	**12023491**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 40253**				
Client ID:	**LCSD for batch 40253**			**Prep Basis:**	**As Received**
Batch ID:	**40255**	**Method:**	**EPA Method 1668A**		
Run Date:	**03/29/2019 15:45**	**Analyst:**	**MLS**	**Instrument:**	**HRP875**
Data File:	**d29mar19a-4**			**Dilution:**	**1**
Prep Batch:	**40253**	**Prep Method:**	**SW846 3520C**	**Prep SOP Ref:**	**CF-OA-E-001**
Prep Date:	**28-MAR-19**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-123-PeCB		1630	2000	pg/L	81.7	(30%-140%)
13C-126-PeCB		1440	2000	pg/L	72.0	(30%-140%)
13C-155-HxCB		1410	2000	pg/L	70.7	(30%-140%)
13C-156-HxCB	C	3050	4000	pg/L	76.2	(30%-140%)
13C-157-HxCB	C156L					
13C-167-HxCB		1570	2000	pg/L	78.7	(30%-140%)
13C-169-HxCB		1540	2000	pg/L	76.8	(30%-140%)
13C-188-HpCB		1500	2000	pg/L	75.0	(30%-140%)
13C-189-HpCB		1560	2000	pg/L	77.8	(30%-140%)
13C-202-OcCB		1450	2000	pg/L	72.4	(30%-140%)
13C-205-OcCB		1770	2000	pg/L	88.6	(30%-140%)
13C-206-NoCB		1780	2000	pg/L	89.1	(30%-140%)
13C-208-NoCB		1550	2000	pg/L	77.7	(30%-140%)
13C-209-DeCB		1690	2000	pg/L	84.6	(30%-140%)
13C-28-TrCB		1470	2000	pg/L	73.4	(40%-125%)
13C-111-PeCB		1420	2000	pg/L	70.8	(40%-125%)
13C-178-HpCB		1480	2000	pg/L	73.9	(40%-125%)

Comments:

C Congener has coeluters. When Cxxx, refer to congener number xxx for data

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1903661
Pace Project No.: 30284534

Sample: 1903661-001 RG-North-20190311 **Lab ID: 30284534001** Collected: 03/11/19 10:45 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**3.91 ± 2.25 (2.52) C:NA T:NA**	pCi/L	03/25/19 10:03	12587-46-1	
Adjusted Gross Alpha	EPA 900.0	**1.94 ± NA (NA) C:NA T:NA**	pCi/L	04/05/19 16:45		
Total Uranium	ASTM D5174-97	**2.91 ± 0.073 (0.262) C:NA T:NA**	ug/L	04/05/19 16:16	7440-61-1	

Sample: 1903661-002 EQ Blank-20190312 **Lab ID: 30284534002** Collected: 03/11/19 12:00 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**-0.021 ± 0.434 (1.23) C:NA T:NA**	pCi/L	03/25/19 10:03	12587-46-1	
Adjusted Gross Alpha	EPA 900.0	**0.000 ± NA (NA) C:NA T:NA**	pCi/L	04/05/19 16:45		
Total Uranium	ASTM D5174-97	**0.167 ± 0.007 (0.262) C:NA T:NA**	ug/L	04/05/19 16:18	7440-61-1	

Sample: 1903661-003 RG-South-20190313 **Lab ID: 30284534003** Collected: 03/11/19 09:45 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**10.2 ± 3.57 (2.89) C:NA T:NA**	pCi/L	03/26/19 08:09	12587-46-1	
Adjusted Gross Alpha	EPA 900.0	**7.86 ± NA (NA) C:NA T:NA**	pCi/L	04/05/19 16:45		
Total Uranium	ASTM D5174-97	**3.46 ± 0.099 (0.262) C:NA T:NA**	ug/L	04/05/19 16:20	7440-61-1	

RG

Sample: 1903661-004 R6-South-DP-201903 **Lab ID: 30284534004** Collected: 03/11/19 10:00 Received: 03/15/19 09:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**14.6 ± 4.70 (2.92) C:NA T:NA**	pCi/L	03/26/19 08:09	12587-46-1	
Adjusted Gross Alpha	EPA 900.0	**12.3 ± NA (NA) C:NA T:NA**	pCi/L	04/05/19 16:45		
Total Uranium	ASTM D5174-97	**3.47 ± 0.099 (0.262) C:NA T:NA**	ug/L	04/05/19 16:22	7440-61-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1903661
Pace Project No.: 30284534

QC Batch: 334653   Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0   Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30284534001, 30284534002, 30284534003, 30284534004

METHOD BLANK: 1628572   Matrix: Water
Associated Lab Samples: 30284534001, 30284534002, 30284534003, 30284534004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.226 ± 0.450 (1.38) C:NA T:NA	pCi/L	03/25/19 09:52	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1903661
Pace Project No.: 30284534

QC Batch: 334682 Analysis Method: ASTM D5174-97
QC Batch Method: ASTM D5174-97 Analysis Description: D5174.97 Total Uranium KPA
Associated Lab Samples: 30284534001, 30284534002, 30284534003, 30284534004

METHOD BLANK: 1628668 Matrix: Water
Associated Lab Samples: 30284534001, 30284534002, 30284534003, 30284534004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Total Uranium	0.085 ± 0.003 (0.262) C:NA T:NA	ug/L	04/03/19 18:36	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(724)850-5600

QUALIFIERS

Project: 1903661
Pace Project No.: 30284534

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43725** SampType: **MBLK** TestCode: **EPA Method 1664B**
Client ID: **PBW** Batch ID: **43725** RunNo: **58435**
Prep Date: **3/18/2019** Analysis Date: **3/18/2019** SeqNo: **1961092** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	ND	10.0								

Sample ID: **LCS-43725** SampType: **LCS** TestCode: **EPA Method 1664B**
Client ID: **LCSW** Batch ID: **43725** RunNo: **58435**
Prep Date: **3/18/2019** Analysis Date: **3/18/2019** SeqNo: **1961093** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Hexane Extractable Material	32.2	10.0	40.00	0	80.5	78	114			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

WO#: **1903661**

Hall Environmental Analysis Laboratory, Inc.

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43738** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW** Batch ID: **43738** RunNo: **58535**
Prep Date: **3/18/2019** Analysis Date: **3/20/2019** SeqNo: **1965261** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								

Sample ID: **LLLCS-43738** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC** Batch ID: **43738** RunNo: **58535**
Prep Date: **3/18/2019** Analysis Date: **3/20/2019** SeqNo: **1965262** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.50	1.0	0.5000	0	101	50	150			J
Magnesium	0.52	1.0	0.5000	0	105	50	150			J

Sample ID: **LCS-43738** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW** Batch ID: **43738** RunNo: **58535**
Prep Date: **3/18/2019** Analysis Date: **3/20/2019** SeqNo: **1965263** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	47	1.0	50.00	0	94.1	85	115			
Magnesium	51	1.0	50.00	0	102	85	115			

Sample ID: **1903661-001GMS** SampType: **MS** TestCode: **EPA Method 200.7: Metals**
Client ID: **RG-North-20190311** Batch ID: **43738** RunNo: **58535**
Prep Date: **3/18/2019** Analysis Date: **3/20/2019** SeqNo: **1965294** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	81	1.0	50.00	36.53	89.7	70	130			
Magnesium	60	1.0	50.00	8.188	103	70	130			

Sample ID: **1903661-001GMSD** SampType: **MSD** TestCode: **EPA Method 200.7: Metals**
Client ID: **RG-North-20190311** Batch ID: **43738** RunNo: **58535**
Prep Date: **3/18/2019** Analysis Date: **3/20/2019** SeqNo: **1965295** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	82	1.0	50.00	36.53	90.1	70	130	0.208	20	
Magnesium	60	1.0	50.00	8.188	103	70	130	0.0733	20	

Sample ID: **MB-43738** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW** Batch ID: **43738** RunNo: **58558**
Prep Date: **3/18/2019** Analysis Date: **3/21/2019** SeqNo: **1966114** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

Client: AMAFCA
Project: CMC

Sample ID: **MB-43738** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW** Batch ID: **43738** RunNo: **58558**
Prep Date: **3/18/2019** Analysis Date: **3/21/2019** SeqNo: **1966114** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								

Sample ID: **LLLCS-43738** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC** Batch ID: **43738** RunNo: **58558**
Prep Date: **3/18/2019** Analysis Date: **3/21/2019** SeqNo: **1966116** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.57	1.0	0.5000	0	113	50	150			J
Magnesium	0.53	1.0	0.5000	0	107	50	150			J

Sample ID: **LCS-43738** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW** Batch ID: **43738** RunNo: **58558**
Prep Date: **3/18/2019** Analysis Date: **3/21/2019** SeqNo: **1966118** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.5	85	115			
Magnesium	49	1.0	50.00	0	97.9	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA

Project: CMC

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW** Batch ID: **A58572** RunNo: **58572**
Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966586** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0010								
Lead	ND	0.00050								

Sample ID: **LLLCS** SampType: **LCSLL** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC** Batch ID: **A58572** RunNo: **58572**
Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966587** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.00097	0.0010	0.001000	0	96.9	50	150			J
Lead	0.00048	0.00050	0.0005000	0	96.0	50	150			J

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A58572** RunNo: **58572**
Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966588** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.023	0.0010	0.02500	0	92.9	85	115			
Lead	0.012	0.00050	0.01250	0	94.3	85	115			

Sample ID: **1903661-001HMS** SampType: **MS** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **RG-North-20190311** Batch ID: **A58572** RunNo: **58572**
Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966604** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.030	0.0010	0.02500	0.005472	96.6	70	130			
Lead	0.012	0.00050	0.01250	0.0001054	94.1	70	130			

Sample ID: **1903661-001HMSD** SampType: **MSD** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **RG-North-20190311** Batch ID: **A58572** RunNo: **58572**
Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966605** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.029	0.0010	0.02500	0.005472	95.0	70	130	1.35	20	
Lead	0.012	0.00050	0.01250	0.0001054	92.8	70	130	1.36	20	

Sample ID: **1903661-002HMS** SampType: **MS** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **Eq Blank-20190312** Batch ID: **A58572** RunNo: **58572**
Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966609** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA

Project: CMC

Sample ID: **1903661-002HMS** SampType: **MS** TestCode: **EPA 200.8: Dissolved Metals**

Client ID: **Eq Blank-20190312** Batch ID: **A58572** RunNo: **58572**

Prep Date: Analysis Date: **3/22/2019** SeqNo: **1966609** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.025	0.0010	0.02500	0.0005160	96.2	70	130			
Lead	0.012	0.00050	0.01250	0	94.1	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R58394** RunNo: **58394**
Prep Date: Analysis Date: **3/14/2019** SeqNo: **1959412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R58394** RunNo: **58394**
Prep Date: Analysis Date: **3/14/2019** SeqNo: **1959413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.7	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.0	90	110			

Sample ID: **1903661-002FMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**
Client ID: **Eq Blank-20190312** Batch ID: **R58394** RunNo: **58394**
Prep Date: Analysis Date: **3/14/2019** SeqNo: **1959415** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.3	82.4	108			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.9	79.1	116			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	70	117			

Sample ID: **1903661-002FMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**
Client ID: **Eq Blank-20190312** Batch ID: **R58394** RunNo: **58394**
Prep Date: Analysis Date: **3/14/2019** SeqNo: **1959416** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	82.4	108	0.751	20	
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.1	79.1	116	1.21	20	
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.0	70	117	1.09	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

WO#: **1903661**

Hall Environmental Analysis Laboratory, Inc.

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43723** SampType: **MBLK** TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **PBW** Batch ID: **43723** RunNo: **58464**
Prep Date: **3/18/2019** Analysis Date: **3/19/2019** SeqNo: **1962217** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	ND	0.10								
Surr: Decachlorobiphenyl	1.7		2.500		68.3	29.4	99.8			
Surr: Tetrachloro-m-xylene	1.5		2.500		61.3	20.7	100			

Sample ID: **LCS-43723** SampType: **LCS** TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSW** Batch ID: **43723** RunNo: **58464**
Prep Date: **3/18/2019** Analysis Date: **3/19/2019** SeqNo: **1962218** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	0.42	0.10	0.5000	0	84.6	42.7	151			
Surr: Decachlorobiphenyl	1.8		2.500		72.5	29.4	99.8			
Surr: Tetrachloro-m-xylene	1.9		2.500		74.1	20.7	100			

Sample ID: **LCSD-43723** SampType: **LCSD** TestCode: **EPA Method 8081: PESTICIDES**
Client ID: **LCSS02** Batch ID: **43723** RunNo: **58464**
Prep Date: **3/18/2019** Analysis Date: **3/19/2019** SeqNo: **1962219** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dieldrin	0.41	0.10	0.5000	0	81.7	42.7	151	3.48	37.9	
Surr: Decachlorobiphenyl	1.8		2.500		72.7	29.4	99.8	0	20	
Surr: Tetrachloro-m-xylene	1.7		2.500		69.6	20.7	100	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

WO#: **1903661**

Hall Environmental Analysis Laboratory, Inc.

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43669** SampType: **MBLK** TestCode: **SM5210B: BOD**
Client ID: **PBW** Batch ID: **43669** RunNo: **58475**
Prep Date: **3/13/2019** Analysis Date: **3/18/2019** SeqNo: **1962474** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.0								

Sample ID: **LCS-43669** SampType: **LCS** TestCode: **SM5210B: BOD**
Client ID: **LCSW** Batch ID: **43669** RunNo: **58475**
Prep Date: **3/13/2019** Analysis Date: **3/18/2019** SeqNo: **1962475** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	100	2.0	198.0	0	52.0	84.6	115.4			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43668**		SampType: **MBLK**			TestCode: **SM 9223B Fecal Indicator: E. coli MPN**						
Client ID: **PBW**		Batch ID: **43668**			RunNo: **58390**						
Prep Date: **3/13/2019**		Analysis Date: **3/14/2019**			SeqNo: **1959325**		Units: **MPN/100mL**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
E. Coli	<1	1.000									

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

WO#: **1903661**

Hall Environmental Analysis Laboratory, Inc.

08-Apr-19

Client: AMAFCA

Project: CMC

Sample ID: **MB** SampType: **MBLK** TestCode: **SM 4500 NH3: Ammonia**

Client ID: **PBW** Batch ID: **R58721** RunNo: **58721**

Prep Date: Analysis Date: **3/28/2019** SeqNo: **1972372** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	ND	1.0								

Sample ID: **LCS** SampType: **LCS** TestCode: **SM 4500 NH3: Ammonia**

Client ID: **LCSW** Batch ID: **R58721** RunNo: **58721**

Prep Date: Analysis Date: **3/28/2019** SeqNo: **1972373** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43794** SampType: **MBLK** TestCode: **EPA Method 365.1: Total Phosphorous**
Client ID: **PBW** Batch ID: **43794** RunNo: **58536**
Prep Date: **3/20/2019** Analysis Date: **3/21/2019** SeqNo: **1965454** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	ND	0.010								

Sample ID: **LCS-43794** SampType: **LCS** TestCode: **EPA Method 365.1: Total Phosphorous**
Client ID: **LCSW** Batch ID: **43794** RunNo: **58536**
Prep Date: **3/20/2019** Analysis Date: **3/21/2019** SeqNo: **1965455** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.24	0.010	0.2500	0	97.8	90	110			

Sample ID: **1903661-002FMSD** SampType: **MSD** TestCode: **EPA Method 365.1: Total Phosphorous**
Client ID: **Eq Blank-20190312** Batch ID: **43794** RunNo: **58536**
Prep Date: **3/20/2019** Analysis Date: **3/21/2019** SeqNo: **1965459** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.24	0.010	0.2500	0	95.0	90	110	1.10	20	

Sample ID: **1903661-002FMS** SampType: **MS** TestCode: **EPA Method 365.1: Total Phosphorous**
Client ID: **Eq Blank-20190312** Batch ID: **43794** RunNo: **58536**
Prep Date: **3/20/2019** Analysis Date: **3/21/2019** SeqNo: **1965484** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.23	0.010	0.2500	0	94.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1903661**

08-Apr-19

Client: AMAFCA

Project: CMC

Sample ID: **MB-43747**		SampType: **MBLK**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID: **PBW**		Batch ID: **43747**			RunNo: **58487**					
Prep Date: **3/18/2019**		Analysis Date: **3/20/2019**			SeqNo: **1963253**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-43747**		SampType: **LCS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID: **LCSW**		Batch ID: **43747**			RunNo: **58487**					
Prep Date: **3/18/2019**		Analysis Date: **3/20/2019**			SeqNo: **1963254**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

WO#: **1903661**

Hall Environmental Analysis Laboratory, Inc.

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43956** SampType: **MBLK** TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW** Batch ID: **43956** RunNo: **58775**
Prep Date: **3/28/2019** Analysis Date: **3/29/2019** SeqNo: **1974972** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-43956** SampType: **LCS** TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW** Batch ID: **43956** RunNo: **58775**
Prep Date: **3/28/2019** Analysis Date: **3/29/2019** SeqNo: **1974973** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	104	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

QC SUMMARY REPORT

WO#: **1903661**

Hall Environmental Analysis Laboratory, Inc.

08-Apr-19

Client: AMAFCA
Project: CMC

Sample ID: **MB-43714** SampType: **MBLK** TestCode: **SM 2540D: TSS**
Client ID: **PBW** Batch ID: **43714** RunNo: **58433**
Prep Date: **3/15/2019** Analysis Date: **3/18/2019** SeqNo: **1960958** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0								

Sample ID: **LCS-43714** SampType: **LCS** TestCode: **SM 2540D: TSS**
Client ID: **LCSW** Batch ID: **43714** RunNo: **58433**
Prep Date: **3/15/2019** Analysis Date: **3/18/2019** SeqNo: **1960959** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	86	4.0	95.10	0	90.4	81.07	115.67			

Sample ID: **1903661-002FDUP** SampType: **DUP** TestCode: **SM 2540D: TSS**
Client ID: **Eq Blank-20190312** Batch ID: **43714** RunNo: **58433**
Prep Date: **3/15/2019** Analysis Date: **3/18/2019** SeqNo: **1961026** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Suspended Solids	ND	4.0						0	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified at testcode

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: AMAFCA   Work Order Number: 1903661   RcptNo: 1

Received By:	Isaiah Ortiz	3/13/2019 1:40:00 PM	I. Ortiz
Completed By:	Anne Thorne	3/13/2019 2:39:19 PM	Anne Thorne
Reviewed By:	ENM	3/14/19	

Labeled by: DAD 3/14/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
(Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
(If no, notify customer for authorization.)

# of preserved bottles checked for pH: 24
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 3/14/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.6	Good	Not Present			
2	5.3	Good	Not Present			
3	3.4	Good	Not Present			
4	0.2	Good	Not Present			

Chain-of-Custody Record

Client: AMAFCA

Mailing Address: 2600 Prospect

Phone #:

email or Fax#: pchavez@AMAFCA.org

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: CMC

Project #:

Project Manager: Patrick Chavez

Sampler: Chad Johannesen-DBSA

On Ice: ■ Yes ☐ No

# of Coolers: 4

Cooler Temp (including CF): 0.6°c, 5.3°c, 5.4°c, 0.2°c

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1903161	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See attached	Ecoli - enumeration				
3-11-19	1045	AQ	RG-North-20190311	NUM	NUM	-006 -001											X					
3-12-19	1200	AQ	EqBlank-20190312	↓	↓	-007 -002											X					
3-13-19	945	AQ	RG-South-20190313	↓	↓	-008 -003											X	X				
3-13-19	1000	AQ	RG-South-DP-20190313	↓	↓	-009 -004											X	X				
—	—	AQ	Trip Blank	HCL		-005											X					

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3/13/19	13:40	Elizabeth Baxter	J-O	COO	3/13/19	1340
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: See Attached Collaborative Monitoring Cooperative Analyses list. PCBs by 1668; Dieldrin by 8081

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Collaborative Monitoring Cooperative - Analyses List
Attach to Chain of Custody

Please refer to attached NPDES Permit No. NMR04A00 Appendix F. Methods and minimum quantification levels (MQL's) will be those approved under 40 CFR 136 and specified in the attached permit

Hardness (Ca + Mg)	NA	Total	200.7	2.4
Lead	7439-92-1	Dissolved	200.8	0.09
Copper	7440-50-8	Dissolved	200.8	1.06
Ammonia + organic nitrogen	7664-41-7	Total	350.1	31.32
Total Kjehldal Nitrogen	17778-88-0	Total	351.2	58.78
Nitrate + Nitrite	14797-55-8	Total	353.2	10.17
Polychlorinated biphenyls (PCBs)	1336-36-3	Total	1668	0.014
Tetrahydrofuran (THF)	109-99-9	Total	8260C	7.9
bis(2-Ethylhexyl)phthalate	117-81-7	Total	8270D	0.2
Dibenzofuran	132-64-9	Total	8270D	0.2
Indeno(1,2,3-cd)pyrene	193-39-5	Total	8270D	0.2
Benzo(b)fluoranthene	205-99-2	Total	8270D	0.1
Benzo(k)fluoranthene	207-08-9	Total	8270D	0.1
Chrysene	218-01-9	Total	8270D	0.2
Benzo(a)pyrene	50-32-8	Total	8270D	0.3
Dibenzo(a,h)anthracene	53-70-3	Total	8270D	0.3
Benzo(a)anthracene	56-55-3	Total	8270D	0.2
Dieldrin	60-57-1	Total	~~8270D~~ 8081	0.1
Pentachlorophenol	87-86-5	Total	8270D	0.2
Benzidine	92-87-5	Total	8270D	0.1
Chemical Oxygen Demand	E1641638²	Total	HACH	5100
Gross alpha (adjusted)	NA	Total	Method 900	0.1 pCi/L
Total Dissolved Solids	E1642222²	Total	SM 2540C	60.4
Total Suspended Solids	NA	Total	SM 2540D	3450
Biological Oxygen Demand	N/A	Total	Standard Methods	930
Oil and Grease		Total	1664A	5000
Ecoli			SM 9223B	
pH			SM 4500	
Phosphorus		Dissolved	365.1	100
Phosphorus		Total	365.1	100
Chromium IV		Total	3500Cr C-2011	100

ATTACHMENT 3

FY 2019 DRY SEASON COMPLETED DATA VERIFICATION AND VALIDATION FORMS

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2019 (March 2019 – Dry Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande North – 3/11/2019
Version of Verification/Validation Procedures: QAPP – SOP #2 (6/14/2016)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
______	______
______	______

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	________
_____	_____	________

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
______	______	______	________
______	______	______	________

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: **0**

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 2: Verify Data Deliverables

A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______
______	______	______	______	______

Total number of occurrences: **0**

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

*Note – Lab report identifies “Dissolved Phosphorous” as “Total Phosphorous” on a filtered sample (identified under “Client Sample ID”).
*Note – Lab report includes pH value – field recorded pH value is used in CMC reporting, not the lab report pH value.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 3: Verify Flow Data
*Note – Not Applicable – no flow data provided with CMC sample collection
A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?
______	______	__________
______	______	__________

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?
______	______	__________	__________
______	______	__________	__________

Total number of occurrences: 0

Not Applicable
☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☒ Yes ☐ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken
Rio Grande South	3/13/2019	Lab report provides Dissolved Phosphorous results as "Total Phosphorous" for "filtered sample".	Notified AMAFCA of this and verified with HEAL. BHI added note to the lab report.

*Note – HEAL Lab report order number – 1903661

Total number of occurrences: 1

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 5: Validate Blanks Results

Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		_________
_____	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.
Many of the reported PCB congener values have a qualifier B and/or J. "B" means target analyte was detected in the associated blank. "J" means value is estimated.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 6: Validate Holding Times Violations

Were any samples submitted that did not meet specified holding times? ☒ Yes ☐ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	3/11/2019	BOD	______	X	H	Yes
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
*Note – Lab reports lists pH with hold time flag. Database uses field data reported pH, so this is hold time violation is not applicable.
*Note – BOD, Information provided by DBS&A: Missed 48 hours holding time. Collected RG North sample 3/11/19 10:45, submitted 3/13/19 13:40, analyzed 3/18/19 15:09. Delay due to second sampling event directed at RG South.

Total number of occurrences: **1**

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☒ Yes ☐ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
______	______	______	3/11/2019	BOD	>30%	R	Yes _________
______	______	______	______	______	______		_________

Total number of occurrences: **1**

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

6/17/2019

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that "V V in STORET" be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or “flags” the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes.
The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as “less than the detection limit.”	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2019 (March 2019 – Dry Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Equipment Blank QA Sample – 3/12/2019
Version of Verification/Validation Procedures: QAPP – SOP #2 (6/14/2016)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
______	______
______	______

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	________
_____	_____	________

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
______	______	______	________
______	______	______	________

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: 0

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 2: Verify Data Deliverables
A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______
______	______	______	______	______

Total number of occurrences: 0

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

*Note – Lab report identifies “Dissolved Phosphorous” as “Total Phosphorous” on a filtered sample (identified under “Client Sample ID”).
*Note – Lab report includes pH value – field recorded pH value is used in CMC reporting, not the lab report pH value.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 3: Verify Flow Data
*Note – Not Applicable – no flow data provided with CMC sample collection
A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?
______	______	_________
______	______	_________

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?
______	______	_________	_________
______	______	_________	_________

Total number of occurrences: 0

Not Applicable
☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☒ Yes ☐ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken
Rio Grande South	3/13/2019	Lab report provides Dissolved Phosphorous results as "Total Phosphorous" for "filtered sample".	Notified AMAFCA of this and verified with HEAL. BHI added note to the lab report.

*Note – HEAL Lab report order number – 1903661

Total number of occurrences: 1

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 5: Validate Blanks Results

Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

This is an Equipment Blank taken at the same time as the Rio Grande-South sample. There were traces of PCBs present; The PCB analysis does typically have some values reported. All of the reported values (congener) have a qualifier B and/or J. "B" means target analyte was detected in the associated blank. "J" means value is estimated. Also, dissolved copper was detected with a J flag – meaning the concentration detected was below the testing quantification level.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 6: Validate Holding Times Violations
Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
*Note – Lab reports lists pH with hold time flag. Database uses field data reported pH, so this is hold time violation is not applicable.

Total number of occurrences: **<u>0</u>**

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☐ Yes ☒ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
______	______	______	______	______	______		_________
______	______	______	______	______	______		_________

Total number of occurrences: **<u>0</u>**

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

6/17/2019

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that "V V in STORET" be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or “flags” the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes. The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as “less than the detection limit.”	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2019 (March 2019 – Dry Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande South – 3/13/2019
Version of Verification/Validation Procedures: QAPP – SOP #2 (6/14/2016)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
______	______
______	______

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	________
_____	_____	________

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
______	______	______	________
______	______	______	________

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: 0

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 2: Verify Data Deliverables
A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______
______	______	______	______	______

Total number of occurrences: 0

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

*Note – Lab report identifies “Dissolved Phosphorous” as “Total Phosphorous” on a filtered sample (identified under “Client Sample ID”).
*Note – Lab report includes pH value – field recorded pH value is used in CMC reporting, not the lab report pH value.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
______	______	______	______	______
______	______	______	______	______

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A. Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?
______	______	_________
______	______	_________

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?
______	______	_________	_________
______	______	_________	_________

Total number of occurrences: 0

Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☒ Yes ☐ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken
Rio Grande South	3/13/2019	Lab report provides Dissolved Phosphorous results as "Total Phosphorous" for "filtered sample".	Notified AMAFCA of this and verified with HEAL. BHI added note to the lab report.

*Note – HEAL Lab report order number – 1903661

Total number of occurrences: 1

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 5: Validate Blanks Results

Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *
_____	______	______	______	______		_________
_____	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 6: Validate Holding Times Violations

Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
*Note – Lab reports lists pH with hold time flag. Database uses field data reported pH, so this is hold time is not applicable.
Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☒ Yes ☐ No
If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID Pairs		Replicate or Duplicate?	Sample Date	Parameter	RPD	Validation Code/Flag Applied	Code/Flag verified in database applied?*
______	______	______	3/13/2019	BOD	>30%	R	Yes _________
______	______	______	______	______	______		_________

Total number of occurrences: 1

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

****

After all of the above steps have been completed, save and print the worksheet, attach all applicable supplemental information and sign below.

I acknowledge that the data verification and validation process has been completed for the data identified above in accordance with the procedures described in the CMC QAPP, SOP #2

6/17/2019

Data Verifier/Validator Signature Date

COMPLETION OF DATA VERIFICATION AND VALIDATION PROCESS

Once the data verification and validation process has been completed for the entire study (note: if the worksheet is for a subset of the data from a study, be sure ALL the data for the entire study is included before final completion of the data verification and validation process), notify the NMSQUID administrator that the process is complete and request that “V V in STORET” be added to the project title.

Once all data have been verified and validated for a study provide copies of ALL *Data Verification and Validation Worksheets* and attachments associated with the study to the Quality Assurance Officer and retain originals in the project binder.

Attachment 1.2 SWQB Validation Codes

When deficiencies are identified through the data verification and validation process, AMAFCA documents or “flags” the deficiencies by assigning validation codes. All data collected from the last compliant QC sample and up to the next compliant QC sample are assigned validation codes.
The validation code alerts the data user that the results are outside QA control limits and may require re-sampling or a separate, qualitative analysis based on professional judgment.

Validation Code	Definition	WQX Equivalent
A1	Sample not collected according to SOP	
B1	Chemical was detected in the field blank at a concentration less than 5% of the sample concentration.	
BN	Blanks NOT collected during sampling run	
BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as “less than the detection limit.”	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

Attachment 1.1 Water Quality Sample Data Verification and Validation Worksheet

Study Name: Compliance Monitoring Cooperative (CMC)
Year: FY 2019 (March 2019 – Dry Season Sample)
Project Coordinator: For Data Review and Reporting – SJG, BHI
V&V Reviewer: SJG
Data covered by this worksheet: Rio Grande South Duplicate – 3/13/2019
Version of Verification/Validation Procedures: QAPP – SOP #2 (6/14/2016)

Step 1: Verify Field Data

A. Are all Field Data forms present and complete? ☒ Yes ☐ No

If yes, proceed; if no, attempt to locate missing forms, then indicate any remaining missing forms and action taken.

Missing Field Data Forms	Action Taken
______	______
______	______

Total number of occurrences: 0

B. Are station name and ID, and sampling date and time on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station and Parameter	Action Taken	Re-verified?
_____	_____	________
_____	_____	________

Total number of occurrences: 0

C. Are field data on forms consistent with database? ☒ Yes ☐ No
If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify.

Station	Sampling Date	Parameter(s) Corrected	Re-verified?
______	______	______	________
______	______	______	________

Total number of occurrences: 0

D. Are RIDs correct and associated with the correct analytical suite, media subdivision (e.g. surface water, municipal waste, etc.) and activity type (e.g. Field observation, Routine sample, QA sample etc.)?
☒ Yes ☐ No

If yes, proceed; if no, indicate errors identified, correct errors in database and re-verify

Station/RID	Sampling Date	RID Corrected	Re-verified?
______	______	______	_________
______	______	______	_________

Total number of occurrences: **0**

☒ **Step 1 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 2: Verify Data Deliverables
A. Have all data in question been delivered? ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing data (samples or blanks) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken. Complete this step upon receipt of all missing data.

RID	Submittal Date	Missing Data/Parameters	Date of Initial Verification	Date Missing Data Were Received
______	______	______	______	______
______	______	______	______	______

Total number of occurrences: **0**

B. Do all of the analytical suites have the correct number and type of analytes. ☒ Yes ☐ No

If yes, proceed; if no, indicate RIDs with missing or incorrect analyte(s) or attach report with applicable RIDs highlighted. Contact data source and indicate action taken.

*Note – Lab report identifies “Dissolved Phosphorous” as “Total Phosphorous” on a filtered sample (identified under “Client Sample ID”).
*Note – Lab report includes pH value – field recorded pH value is used in CMC reporting, not the lab report pH value.

RID	Submittal Date	Missing or Incorrect Parameters	Action Taken	Re-verified?
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

☒ **Step 2 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 3: Verify Flow Data

*Note – Not Applicable – no flow data provided with CMC sample collection

A._Identify incorrect or missing data on the flow calculation spreadsheet and correct errors.

Station	Sampling Date	Flow data missing or incorrect?
_____	_____	________
_____	_____	________

Total number of occurrences: 0

B. Identify incorrect or missing discharge measurements, correct errors in database and re-verify.

Station	Sampling Date	Flow data missing or incorrect?	Re-verified?
_____	_____	________	________
_____	_____	________	________

Total number of occurrences: 0

_Not Applicable

☐ **Step 3 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 4: Verify Analytical Results for Missing Information or Questionable Results

Were any results with missing/questionable information identified? ☒ Yes ☐ No

If no, proceed; if yes, indicate results with missing information or questionable results or attach report. Contact data source and indicate action taken. Complete this step upon receipt of missing information or clarification of questionable results (clarify questionable results only, DO NOT change results without written approval (from lab or QA officer) and associated documentation).

RID	Sample Date	Missing or Questionable Information/Results	Action Taken
Rio Grande South	3/13/2019	Lab report provides Dissolved Phosphorous results as "Total Phosphorous" for "filtered sample".	Notified AMAFCA of this and verified with HEAL. BHI added note to the lab report.

*Note – HEAL Lab report order number – 1903661

Total number of occurrences: 1

☒ **Step 4 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 5: Validate Blanks Results

Were any analytes of concern detected in blank samples? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager, with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes have been added to database correctly.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database? *

*See validation procedures to determine which associated data need to be flagged and include on *Validation Codes Form*.

Some of the reported PCB congener values have a qualifier B and/or J. "B" means target analyte was detected in the associated blank. "J" means value is estimated.

Total number of occurrences: 0

☒ **Step 5 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 6: Validate Holding Times Violations

Were any samples submitted that did not meet specified holding times? ☐ Yes ☒ No

If no, proceed; if yes, list results that need to have validation codes applied in the database save these results as an excel file and forward to QA officer or Program Manager with a request to add appropriate validation codes to database. Complete this step after verifying that validation codes/flags have been added to database.

RID	Sample Date	Parameter	[Blank]	[Sample]	Validation Code/Flag Applied	Code/Flag verified in database to ALL associated data?*
______	______	______	______	______		_________
______	______	______	______	______		_________

*See validation procedures to determine which associated data need to be flagged.
*Note – Lab reports lists pH with hold time flag. Database uses field data reported pH, so this is hold time is not applicable.
Total number of occurrences: 0

☒ **Step 6 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

- -

Step 7: Validate Replicate/Duplicate Results (if applicable)
Were any replicate/duplicate pairs submitted outside of the established control limit of 20%?
☒ Yes ☐ No
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______	______	______	3/13/2019	BOD	>30%	R	Yes _________
______	______	______	______	______	______		_________

Total number of occurrences: 1

☒ **Step 7 Completed** ***Initials:*** SJG ***Date:*** 6/17/2019

****

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6/17/2019

Data Verifier/Validator Signature Date

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BU	Detection in blank. Analyte was not detected in this sample above the method's sample detection limit.	BU
RB1	Chemical was detected in the field blank at a concentration greater than or equal to 5% of the sample concentration. Results for this sample are rejected because they may be the result of contamination; the results may not be reported or used for regulatory compliance purposes.	B
R1	Rejected due to incorrect sample preservation	R
R2	Rejected due to equipment failure in the field	R
R3	Rejected based on best professional judgment	R
D1	Spike recovery not within method acceptance limits	
F1	Sample filter time exceeded	
J1	Estimated: the analyte was positively identified and the associated value is an approximate concentration of the analyte in the sample	J
K1	Holding time violation	H
Ea	Estimated-Incubation temperature between 35.5 and 38.0° Celsius	
Er	Rejected-Incubation temperature < 34.5 or >38.0° Celsius	
PD1	Percent difference between duplicate samples excessive	
S1	Per SLD, uncertainties (sigmas) are expressed as one standard deviation, i.e. one standard error. Small negative or positive values that are less than two standard deviations should be interpreted as “less than the detection limit.”	
S2	Data are suspect but deemed usable based on best professional judgment; documentation of justification is required and should be included in the Data Verification and Validation Packet and reported with results	
Z1	Macroinvertebrate data did not meet QC criteria specified in Section 2.5 of QAPP	
H1	Habitat data did not meet QC criteria specified in Section 2.5 of QAPP	

ATTACHMENT 4

SUMMARY OF E. COLI LOADING CALCULATIONS FOR ALL SEVEN REQUIRED CMC SAMPLES

Compliance Monitoring Cooperative (CMC)
Summary of E. coli Loading Calculation Compared to Waste Load Allocation (WLA)

CMC Sample #	FY	Wet or Dry Season	Storm Event Date	Stream Segment	Stream Name / Related USGS Gage	Total E. coli Loading in River Exceeds TMDL for River?	Estimated CMC E. coli Loading (CFU/day) for Each Segment	Daily Mean Flow (cfs)	Flow Conditions	WLA for CMC Based on Flow Conditions & Stream Segment (CFU/day)	WLA - Potential Exceedance or Acceptable	CMC - Delta - E. coli Loading Minus WLA (CFU/day)
1	FY 2017	Wet Season	8/10/2016	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	Yes	8.32E+11	639	Dry	3.24E+10	WLA Potential Exceedance	8.00E+11
			8/10/2016	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	2.34E+11	703	Mid	4.22E+10	WLA Potential Exceedance	1.92E+11
2	FY 2017	Wet Season	9/12/2016	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	Yes	4.67E+11	435	Dry	3.24E+10	WLA Potential Exceedance	4.35E+11
			9/12/2016	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	1.02E+11	467	Dry	1.57E+10	WLA Potential Exceedance	8.62E+10
3	FY 2017	Wet Season	9/21/2016	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	Yes	1.29E+11	350	Low	1.68E+10	WLA Potential Exceedance	1.13E+11
			9/21/2016	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	1.22E+10	251	Low	3.42E+09	WLA Potential Exceedance	8.74E+09
4	FY 2017	Dry Season	11/21/2016	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	No	--	710	Mid	No Value	WLA Acceptable	--
			11/21/2016	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	1.68E+12	881	Mid	4.22E+10	WLA Potential Exceedance	1.63E+12
5	FY 2018	Wet Season	7/27/2017	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	No	2.50E+10	545	Dry	3.24E+10	WLA Acceptable	--
			7/27/2017	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	8.63E+10	470	Dry	1.57E+10	WLA Potential Exceedance	7.06E+10
6	FY 2018	Wet Season	9/27/2017	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	Yes	7.34E+12	983	Moist	9.09E+10	WLA Potential Exceedance	7.25E+12
			9/27/2017	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	2.18E+12	1,190	Moist	6.29E+10	WLA Potential Exceedance	2.11E+12
7	FY 2019	Dry Season	3/13/2019	2105.1_00	***Alameda to Angostura*** Non-Pueblo Alameda Bridge to Angostura Diversion / 08329928 - Rio Grande near Alameda	Yes	8.49E+11	1,188	Moist	9.09E+10	WLA Potential Exceedance	7.59E+11
			3/13/2019	2105_50	***Isleta to Alameda*** Isleta Pueblo Boundary to Alameda Street Bridge / 0833000 - Rio Grande at Albuquerque, NM (Central)	Yes	2.52E+11	1,202	Moist	6.29E+10	WLA Potential Exceedance	1.89E+11

Section 6	Annual Report Responsibilities for Cooperation Programs
	6.1 Middle Rio Grande Stormwater Quality Team Outcomes Report FY 2018-2019 6.2 Signed Joint Agreements

Mid Rio Grande Stormwater Quality Team

www.keeptheriogrand.org

Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) • City of Albuquerque
Bernalillo County • Town of Bernalillo • Village of Corrales • Ciudad Soil and Water Conservation District
Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA) • Village of Los Ranchos de Albuquerque
NM Department of Transportation (NMDOT) • City of Rio Rancho • Sandoval County
Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)

Outcomes Report

for

Fiscal Year 2018-2019

(July 1, 2018 - June 30, 2019)

presented by

Phyllis Baker and Cristofer Romero

CWA STRATEGIC COMMUNICATIONS

cwa STRATEGIC COMMUNICATIONS

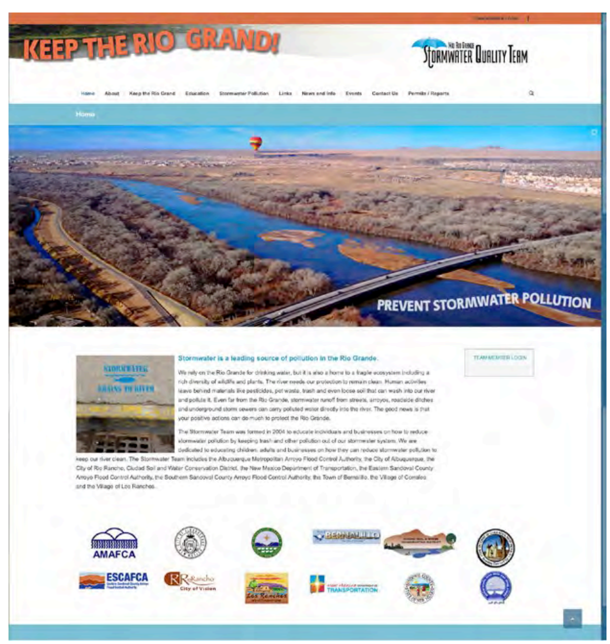
During the period from July 1, 2018 through June 30, 2019, the Mid Rio Grande Stormwater Quality Team (MRGSQT) continued its educational outreach by:

- Partnering with the Bosque Ecosystem Monitoring Program (BEMP) and RiverXchange.
- Continuing to post relevant information to its website and Facebook page;
- Participating in high-profile community events, including the State Fair Parade, the Corrales Harvest Festival, the Rio Rancho Children's Water Festival and New Mexico's Animal Humane Society's Doggie Dash and Dawdle;
- Updating the team's interactive kiosk with robust analytics software to track participant interaction and installing it at Albuquerque's Rudolfo Anaya North Valley Library;
- Participating in a variety of community events throughout the year;
- Updating their matrix designed to address MS4-related topics and planning future programs and activities designed to correspond with permit-mandated topics, including proper hazardous waste disposal, appropriate pet waste disposal, stormwater pollution reduction and awareness of hazardous on-the-job chemicals, and
- Continuing to update and improve the team's website **keeptheriogrand.com.**

Team partners and supporters disseminated information on stormwater quality and pollution prevention through municipal water quality reports to stakeholders. Specialty advertising giveaways relating to stormwater quality awareness were ordered/reordered for use at public events. MRGSQT's annual budget for all these activities, excluding Type 9 items, donated hours by team members and funding for Arroyo Classroom, RiverXchange and B.E.M.P., is $50,000. The contractor, CWA Strategic Communications (CWA), donated $1,965.15 in services during the 12-month period. Following is a review of the activities in which the Team has participated.

WEBSITE (www.keeptheriogrand.org)

The team contracted with CWA to redesign the website; the new site was launched in October 2018. Content and links were updated and new material added. The site is now more user-friendly and offers Team members an easy way to upload, store and share materials.



FACEBOOK PAGE

In conjunction with the SQT website, a Facebook page continues to post information at: (https://www.facebook.com/Keeptheriogrand). The page has 151 "Likes" (a 7% increase from the previous year) and the team occasionally boosts posts during events to obtain more visibility.

Estimated number of individuals reached by this activity: 151

Permit Reference(s): General SWP, Construction, Pet Waste

Audience(s): Children, Adults

EVENTS

Between July 1, 2018, and June 30, 2019, MRGSQT members and their partner agencies reported participating in a total of 77 community outreach/educational events reaching adults and children. ***Details can be found in Exhibit 1 at the end of this report.***

Estimated number of individuals reached by these community outreach/education events (with duplications): 32,901

Permit Reference(s): General SWP, Construction, Pet Waste, Construction, Household Hazardous Waste, Illicit Discharge and Animal Sources

Audience(s): Children, Adults

GENERAL MATERIALS DISTRIBUTION

As appropriate, team members distribute materials at events. Following are inventories of materials on hand:

STORMWATER QUALITY TEAM Inventory			
Item	**Starting Qty as of 7/1/2018**	**Distributed**	**Ending Qty as of 6/30/2019**
"Keep the Rio Grand" Bumper Stickers	750	500	250
"Reduce Stormwater Pollution at Home" Brochure	100	16	84
Dog-Shaped Poop Bag Dispensers	2,586	836	1,750
"Don't Contaminate the River" Oval Stickers	5,260	1,510	3,750
Poop Emoji Squeezies	3,840	2,376	1,464
Morphing Fish Bags	3,417	917	2,500
Silicone Pet Food Can Lids	1,767	456	1,311
New Pet Rack Cards	4,900	506	4,394
FOG Rack Cards	4,900	488	4,412
No Poop Fairy Rack Cards	4,900	473	4,427
Professionals Harmful Chemicals Rack Card	4,900	180	4,720
Reduce Stormwater Pollution at Home Rack Card	4,900	542	4,358
Large Stormwater display - 8 ft			1
Tabletop Stormwater display - 6 ft			1
SQT 6' x 3' banner			3
TOTAL DISTRIBUTION		**8,800**	

Total estimated number of people reached by these activities: 8,800

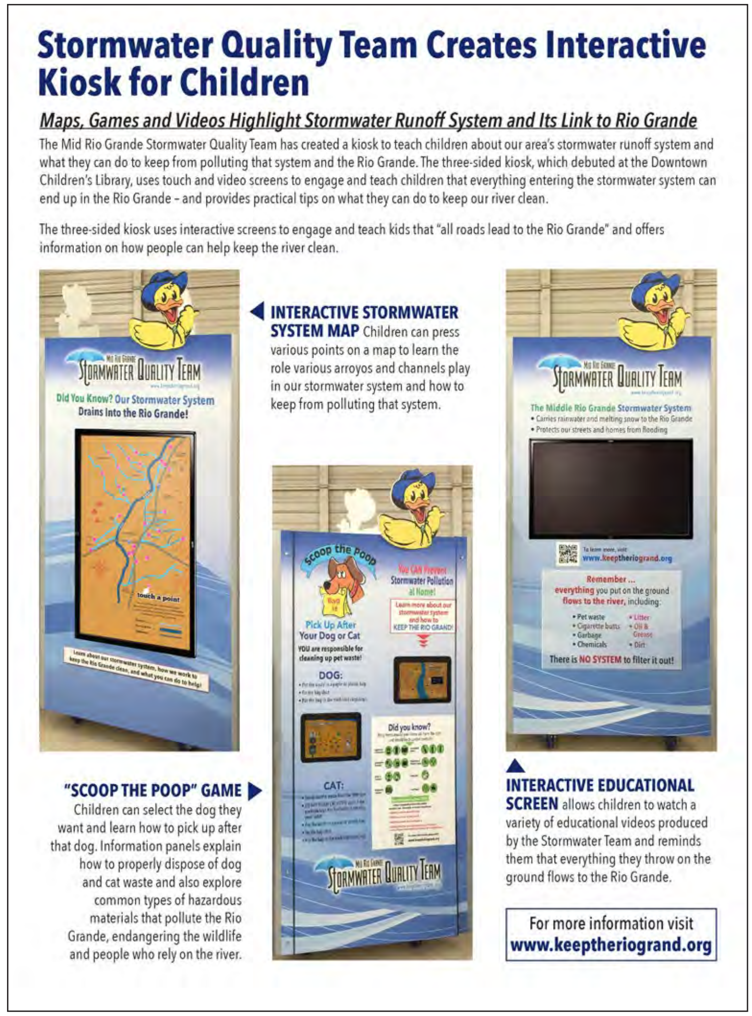
Permit Reference(s): General SWP, Pet Waste, Household Hazardous Waste

Audience(s): Children, Adults

EDUCATIONAL ACTIVITIES

Educational Kiosk at Albuquerque's Rudolfo Anaya North Valley Public Library.

The team's interactive kiosk completed its successful run at Rio Rancho's Loma Colorado Public Library. The kiosk was updated with analytics software to enable the Team to better understand how it was used and which elements were used most frequently – and when. In November 2018 the kiosk was installed in Albuquerque's Rudolfo Anaya North Valley Library, where it continues to educate citizens (primarily children) about stormwater issues. The kiosk features:


Stormwater Quality Team Creates Interactive Kiosk for Children

Maps, Games and Videos Highlight Stormwater Runoff System and Its Link to Rio Grande

The Mid Rio Grande Stormwater Quality Team has created a kiosk to teach children about our area's stormwater runoff system and what they can do to keep from polluting that system and the Rio Grande. The three-sided kiosk, which debuted at the Downtown Children's Library, uses touch and video screens to engage and teach children that everything entering the stormwater system can end up in the Rio Grande - and provides practical tips on what they can do to keep our river clean.

The three-sided kiosk uses interactive screens to engage and teach kids that "all roads lead to the Rio Grande" and offers information on how people can help keep the river clean.

INTERACTIVE STORMWATER SYSTEM MAP Children can press various points on a map to learn the role various arroyos and channels play in our stormwater system and how to keep from polluting that system.

"SCOOP THE POOP" GAME Children can select the dog they want and learn how to pick up after that dog. Information panels explain how to properly dispose of dog and cat waste and also explore common types of hazardous materials that pollute the Rio Grande, endangering the wildlife and people who rely on the river.

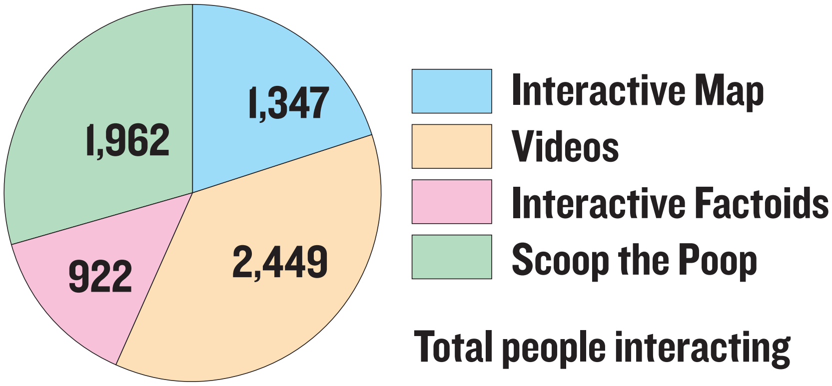
INTERACTIVE EDUCATIONAL SCREEN allows children to watch a variety of educational videos produced by the Stormwater Team and reminds them that everything they throw on the ground flows to the Rio Grande.

For more information visit **www.keeptheriogrand.org**

- An interactive stormwater system map where children can press various points to learn the roles arroyos and channels play in the stormwater system and how to keep from polluting that system. The system stretches from Bernalillo on the north through Rio Rancho and into Albuquerque.
- A "Scoop the Poop" game that lets children choose one of three dogs and learn how to properly pick up after that dog. This is important because pet waste is a major source of *E coli* contamination in the Rio Grande.
- An educational panel on common types of trash, debris and chemicals that pollute the Rio Grande including appliances and electronics; automotive products such as oil, batteries and gasoline; glass and cement; household cleaners, yard waste; and prescription and over-the-counter medicines.
- A touch screen that includes facts about each arroyo and the Rio Grande.
- A touchscreen that lets viewers choose from different videos to watch:
  - Rio the Duck
  - Keep the Rio Grande
  - Scoop the Poop!
  - 100 Billion Gallons
  - Arroyo Safety
  - Respect Your Arroyos

The software platform on the kiosk was upgraded to allow the games to be posted on websites and played online.

Educational Kiosk Statistics



Total people interacting with kiosk: 6,680

48,256 people visited the library during that time and were give the opportunity to read the messages on the kiosk walls. *(The kiosk was undergoing upgrades between July 1 and October 30.)*

6,680 (mostly) children interacted with the kiosk from November 1, 2018 through June 30, 2019.

Total estimated number of people reached by these educational activities: 48,256

Permit Reference(s): General SWP, Pet Waste, Animal Sources, Household Hazardous Waste,

Audience(s): Children, Adults

2018

	November				December			
	Map	Videos	Factoids	Scoop The Poop	Map	Videos	Factoids	Scoop The Poop
People	173	306	120	218	122	223	84	162
Touches	1,720	306	366	533	1587	223	252	409
Number of Video Views								
Rio The Duck	75				60			
Keep the Rio Grande	47				27			
Scoop the Poop!	81				48			
100 Billion Gallons	33				31			
Arroyo Safety	43				36			
Respect Your Arroyos	25				21			

2019

	January				February				March			
	Map	Videos	Factoids	Scoop The Poop	Map	Videos	Factoids	Scoop The Poop	Map	Videos	Factoids	Scoop The Poop
People	167	283	126	235	178	376	130	263	198	327	136	280
Touches	1,743	283	321	598	1928	376	391	675	2331	327	360	730
Number of Video Views												
Rio The Duck	60				100				87			
Keep the Rio Grande	52				60				37			
Scoop the Poop!	80				111				100			
100 Billion Gallons	43				61				43			
Arroyo Safety	28				21				30			

	April				May				June			
	Map	Videos	Factoids	Scoop The Poop	Map	Videos	Factoids	Scoop The Poop	Map	Videos	Factoids	Scoop The Poop
People	132	181	75	211	158	270	100	259	219	483	151	334
Touches	1,536	181	120	378	1,862	270	221	567	3,436	483	356	822
Number of Video Views												
Rio The Duck	36				74				119			
Keep the Rio Grande	16				27				80			
Scoop the Poop!	53				66				148			
100 Billion Gallons	31				37				71			
Arroyo Safety	25				35				33			

STUDENTS AND TEACHERS REACHED THROUGH PARTNER EDUCATIONAL PROGRAMS – ARROYO CLASSROOM, RIVERXCHANGE AND BOSQUE ECOSYSTEM MONITORING PROGRAM (BEMP)

Arroyo Classroom

The Arroyo Classroom program utilizes natural arroyos as outdoor classrooms and brings local animals into the classroom to motivate third-graders to respect the arroyos as important wildlife habitat. In the 2018-2019 school year, the program served 34 classes within the Rio Rancho Public School System, reaching approximately 34 teachers and 790 students.

For more information, see Exhibit 2, Arroyo Classroom's 2018-2019 report to the Mid Rio Grande Stormwater Quality Team.

RiverXchange

RiverXchange is an innovative, long-term outreach program that integrates water resource topics with computer technology, student writing and a hands-on curriculum to meet specific, measurable outcomes.

Since 2007, the program has enabled upper elementary classes from New Mexico to become "high tech pen pals" with classes outside the state to share what they learn about the geography, culture and ecology of their local river and watershed. Including these partner classes, the program has served over 18,000 students. Each student spends about 25 hours engaged with the program over the course of the school year. The curriculum incorporates hands-on activities and multiple classroom presentations by local water resources experts. During the 2018-2019 season, 36 fifth-grade classes, 20 of which were Title I schools, participated in New Mexico. RiverXchange conducted 22 classes (558 students) in Bernalillo County and 14 classes (396 students) in Sandoval County.

For more information, see Exhibit 3, RiverXchange's 2018-2019 report to the Mid Rio Grande Stormwater Quality Team.

B.E.M.P.

The main objective of the *Stormwater Science* outreach education program of the Bosque Ecosystem Monitoring Program (B.E.M.P.) is to teach students that the health of the Rio Grande is directly related to the health of the surrounding watershed. The *Stormwater Science* program includes a 1.5-hour classroom activity, and a 4-to 5-hour study trip to the Rio Grande. During the 2018-2019 school-year 2017 students and 547 teachers participated in *Stormwater Science* activities in their classrooms, in the field or both. The classroom program was delivered to 599 students in 33 classrooms at 13 different schools in Rio Rancho, Albuquerque and Belen.

For more information, see Exhibit 4, BEMP's 2018-2019 report to the Mid Rio Grande Stormwater Quality Team.

Total estimated number of people reached by these educational activities: 9,604

Permit Reference(s): General SWP, Pet Waste, Animal Sources, Household Hazardous Waste, Illicit Discharges

Audience(s): Children, Adults

PUBLIC EDUCATION CAMPAIGNS ON PROPER DISPOSAL OF FATS, OILS & GREASE

In November and December 2018, the City of Rio Rancho ran a public education campaign on how to dispose of cooking grease properly. The campaign was timed to coincide with the holiday cooking season (Thanksgiving through Christmas). The FOG campaign included:

Digital Outdoor Boards – Alternating the red and green images, two boards ran for two weeks (11/12-11/25) and four boards ran one week (11/19-11/25). In December, all six boards ran the week before Christmas (12/17-12/23). A total estimated audience of 184,321 adults (18 years of age and older) with duplication was reached.

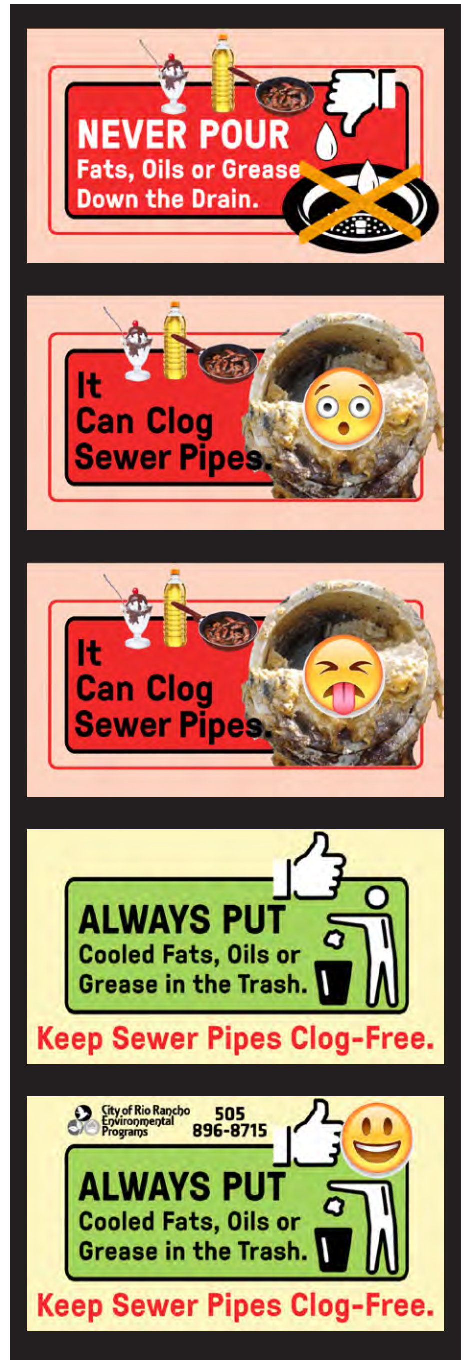
Movie Theaters – One 30-second spot played in Rio Rancho's 14-plex Premiere Theater for two weeks in November (11/16-11/22) and two weeks in December (12/15-12/28), reaching approximately 28,000 people with possible `duplication.

In addition, the City of Rio Rancho published an article in its Fall-Winter 2018 newsletter. *"Fats, Oils and Grease Can Harm Water Pipes"* offered information about the damage fats, oils and grease can do to sewer mains. The newsletter was mailed to 37,000 water utility customers.

Total estimated audience reached (with duplication): 249,321

Permit Reference(s): General SWP, Pet Waste, Animal Sources, Household Hazardous Waste, Illicit Discharges

Audience(s): Children, Adults



Fats, Oils and Grease Can Harm Water Pipes

PIPES CLOGGED WITH DISCARDED FAT can cause raw sewage to back up into your home or overflow into parks, yards and streets. They cause:

- Increased calls for a plumber.
- Unpleasant and expensive cleanups at your expense.
- Potential contact with disease-causing organisms.
- Increased cost for local sewer departments, causing higher sewer bills for all customers.

Avoid clogged pipes – never pour grease down a sink or into a toilet.

- Scrape grease and food scraps into a disposable container, or place in a trash can (after cooling).
- Don't put food scraps in the garbage disposal – this shreds solids into smaller pieces but doesn't prevent grease from going down the drain.
- Use a strainer in the sink to catch food scraps and other solids.

NEVER POUR Fats, Oils or Grease Down the Drain. It Can Clog Sewer Pipes.

ALWAYS PUT Cooled Fats, Oils or Grease in the Trash. Keep Sewer Pipes Clog-Free.

505.896-8715 · rrnm.gov

Get Your **FREE** **"Cease the Grease"** Spatula*

Stop by the Utilities Department Environmental Programs

(City Hall Room 250)

*While supplies last

Rio Rancho Utilities :: Fall-Winter 2018 :: 3

ARROYO SAFETY CAMPAIGN

Mid Rio Grande Stormwater Quality Team member SSCAFCA continued its Arroyo Safety Campaign by producing a one-minute video in collaboration with the Rio Rancho High School Tree Stewards group geared toward high school students. Conceptualized by the students, the spot uses humor to share arroyo safety messages as well as emphasize the importance of keeping trash and debris out of arroyos.

The video was posted on the Stormwater Quality Team's website **www.keeptheriogrand.org,** YouTube, Instagram, Facebook and, of course, SSCAFCA's website. Analytics indicate that the spot garnered 5,152 views on social media, earned 46 Facebook followers and 593 "likes." The spot also ran for two weeks in Rio Rancho's 14-plex Premiere Theater, where it reached 14,000 people. To see the spot visit: **https://www.sscafca.org/know-your-arroyos/**

In addition, the *Rio Rancho Observer* ran an article about the spot, reaching 23,500 people.


NEWS RROBSERVER.COM | SUNDAY, JUNE 16, 2019 5

SSCAFCA report creates humorous flash-flood safety video

SSCAFCA report

With monsoon season approaching, flood-control officials and local students have collaborated to teach people how to stay safe from flash floods in arroyos.

The Southern Sandoval County Arroyo Flood Control Authority recently completed a short arroyo safety video with the help of the Rio Rancho High School Tree Stewards student group and their teachers, Daniel Trujillo and Laura Saulsberry.

To reach their peers with a message that would attract their attention, the group decided to use humor.

"We wanted something that would stand out among all the other visuals we are constantly bombarded with on our phones and mobile devices," said Eric Sommala, president of the tree stewards.

The video shows how the dry, sandy arroyos in the southern part of Sandoval County can flood quickly from distant storms in the west, even when the sun is shining overhead. The flash flood, carrying dangerous debris, is portrayed by about a dozen students dressed in blue suits, each carrying a piece of trash SSCAFCA recovered after a storm.

"We really had a great time making the spot, and it was extremely educational," Sommala said. "Most of us had no idea how powerful a flash flood could be until we saw some footage. It was intense."

SSCAFCA Executive Engineer Chuck Thomas explained, "We received funding from FEMA (Federal Emergency Management Agency) to produce an arroyo safety program because it's important to educate the community about how and when to avoid the dangers of flash flooding in our arroyos.

"We encourage everyone to get out and enjoy nature," he continued. "Our sandy arroyos are perfect for walks, hikes or taking the dogs out. But there are definitely rules to follow and weather to watch out for, especially during the monsoon season, to remain safe."

Floods are the most common natural disaster in the United States, and flash floods can occur with no warning. Knowing what signs to look for and how to react can save lives and help avoid serious injuries:

- Watch the weather report and stay out of arroyos if rain is predicted.
- Keep off the fragile walls and banks of arroyos. They are unstable and can collapse.
- Keep an eye on the western sky — southern Sandoval County has 12 watersheds that channel water from the west all the way to the Rio Grande. This means a storm in the west can cause flash floods in arroyos miles away, where it's not raining.
- Never walk, swim or drive through flood waters. Move to higher ground.
- Just a few inches of moving water can knock people down, and moving water can sweep away vehicles.
- Dispose of trash appropriately and keep debris, including yard waste, plastic bottles, large appliances and dog waste, out of arroyos and off the mess.

The video can be seen on:

- SSCAFCA's website: sscafca.org/know-your-arroyos and
- YouTube at youtube.com/watch?v=wytA1b_MdfA&t=3s

Established in 1990, SSCAFCA is an independent corporate political body entrusted with flood and stormwater management and education. It builds and maintains structures providing flood control, erosion control, watershed and stormwater management in southern Sandoval County.

For more information, visit sscafca.org or call 892-RAIN (7246).

HAVE FUN BE SAFE

Courtesy photo

Rio Rancho High School Tree Stewards gather in this still shot from the short video they made about arroyo safety with the Southern Sandoval County Arroyo Flood Control Authority. The students in blue suits portrayed water carrying debris in a flash flood, and the other four students played bicyclists in the arroyo.

Total estimated audience reached (with duplication): 43,291

Permit Reference(s): General SWP, Pet Waste, Animal Sources, Household Hazardous Waste

Audience(s): All ages, especially high school students

SSCAFCA also created and ran alternating ads in the *Rio Rancho Observer* during monsoon season.

Total estimated audience reached (with duplication): 94,000

Permit Reference(s): General SWP

Audience(s): All ages

SEPTIC SYSTEM EDUCATION, OUTREACH AND ENFORCEMENT PROGRAM

Bernalillo County administers the septic system permitting program in the unincorporated portions of Bernalillo County under the Bernalillo County Wastewater Ordinance, ensuring the proper disposal of septic waste and proper operation and maintenance of septic systems. The wastewater ordinance was passed in 2015.

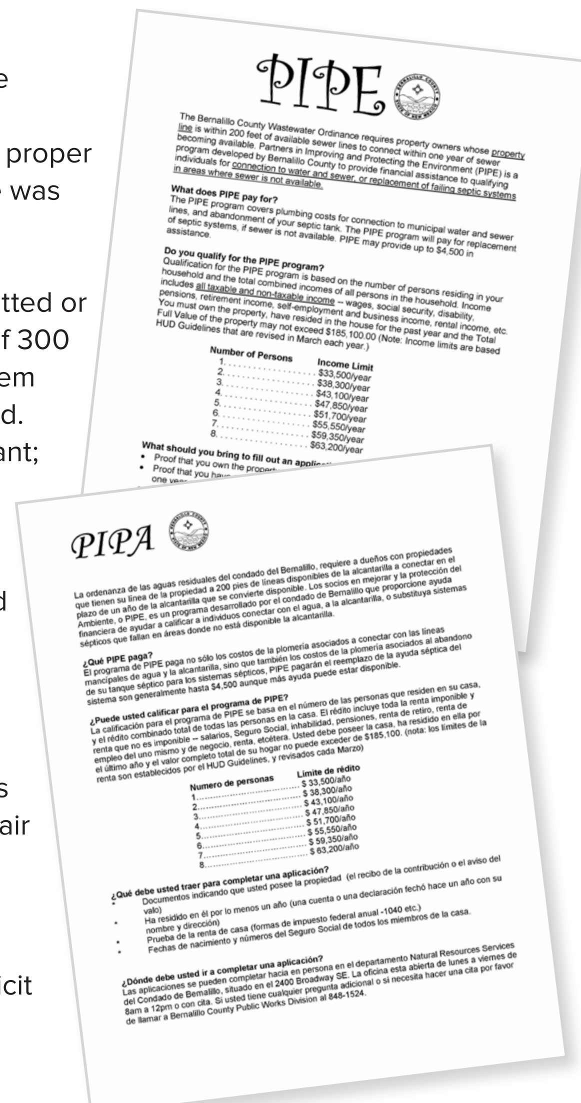
The County began a campaign in 2012 to get unpermitted systems permitted or properly abandoned, with an established goal of contacting a minimum of 300 unpermitted system or aging system owners per year. To date, 1,773 system owners have been contacted, resulting in 813 responses and 727 resolved. Resolution means either no system was present or the property was vacant; resulted in permit or connection to sewer or repair/replacement to get into compliance; or intended/listed for clerk filing or future legal action (in process and determination). In FY19, the County targeted the East Mountain Area, including the Upper Tijeras Arroyo watershed, and closed 233 septic systems.

Beginning in 1993, the PIPE Program has provided assistance to income-qualified residents by providing contractors to connect residences to water and sewer services. Beginning in 1998, the TANK Program provides assistance to income qualified residents with the replacement and/or repair of failing septic systems in areas of the County without sewer availability.

Total estimated audience reached: 1,500

Permit Reference(s): SSS, General SWP, Household Hazardous Waste, Illicit Discharges

Audience(s): Adults


PIPE

The Bernalillo County Wastewater Ordinance requires property owners whose property line is within 200 feet of available sewer lines to connect within one year of sewer becoming available. Partners in Improving and Protecting the Environment (PIPE) is a program developed by Bernalillo County to provide financial assistance to qualifying individuals for connection to water and sewer, or replacement of failing septic systems in areas where sewer is not available.

What does PIPE pay for?
The PIPE program covers plumbing costs for connection to municipal water and sewer lines, and abandonment of your septic tank. The PIPE program will pay for replacement of septic systems, if sewer is not available. PIPE may provide up to $4,500 in assistance.

Do you qualify for the PIPE program?
Qualification for the PIPE program is based on the number of persons residing in your household and the total combined incomes of all persons in the household. Income includes all taxable and non-taxable income -- wages, social security, disability, pensions, retirement income, self-employment and business income, rental income, etc. You must own the property, have resided in the house for the past year and the Total Full Value of the property may not exceed $185,100.00 (Note: Income limits are based HUD Guidelines that are revised in March each year.)

Number of Persons	Income Limit
1.	$33,500/year
2.	$38,300/year
3.	$43,100/year
4.	$47,850/year
5.	$51,700/year
6.	$55,550/year
7.	$59,350/year
8.	$63,200/year

What should you bring to fill out an applic...
- Proof that you own the propert...
- Proof that you hav... one yea...

PIPA

La ordenanza de las aguas residuales del condado del Bernalillo, requiere a dueños con propiedades que tienen su línea de la propiedad a 200 pies de líneas disponibles de la alcantarilla a conectar en el plazo de un año de la alcantarilla que se convierte disponible. Los socios en mejorar y la protección del Ambiente, o PIPE, es un programa desarrollado por el condado de Bernalillo que proporcione ayuda financiera de ayudar a calificar a individuos conectar con el agua, a la alcantarilla, o substituya sistemas sépticos que fallan en áreas donde no está disponible la alcantarilla.

¿Qué PIPE paga?
El programa de PIPE paga no sólo los costos de la plomería asociados a conectar con las líneas mancípales de agua y la alcantarilla, sino que también los costos de la plomería asociados al abandono de su tanque séptico para los sistemas sépticos, PIPE pagarán el reemplazo de la ayuda séptica del sistema son generalmente hasta $4,500 aunque más ayuda puede estar disponible.

¿Puede usted calificar para el programa de PIPE?
La calificación para el programa de PIPE se basa en el número de las personas que residen en su casa, y el rédito combinado total de todas las personas en la casa. El rédito incluye toda la renta imponible y renta que no es imponible -- salarios, Seguro Social, inhabilidad, pensiones, renta de retiro, renta de empleo del uno mismo y de negocio, renta, etcétera. Usted debe poseer la casa, ha residido en ella por el último año y el valor completo total de su hogar no puede exceder de $185,100. (nota: los límites de la renta son establecidos por el HUD Guidelines, y revisados cada Marzo)

Numero de personas	Limite de rédito
1.	$ 33,500/año
2.	$ 38,300/año
3.	$ 43,100/año
4.	$ 47,850/año
5.	$ 51,700/año
6.	$ 55,550/año
7.	$ 59,350/año
8.	$ 63,200/año

¿Qué debe usted traer para completar una aplicación?
- Documentos indicando que usted posee la propiedad (el recibo de la contribución o el aviso del valo)
- Ha residido en él por lo menos un año (una cuenta o una declaración fechó hace un año con su nombre y dirección)
- Prueba de la renta de casa (formas de impuesto federal anual -1040 etc.)
- Fechas de nacimiento y números del Seguro Social de todos los miembros de la casa.

¿Dónde debe usted ir a completar una aplicación?
Las aplicaciones se pueden completar hacia en persona en el departamento Natural Resources Services del Condado de Bernalillo, situado en el 2400 Broadway SE. La oficina esta abierta de lunes a viernes de 8am a 12pm o con cita. Si usted tiene cualquier pregunta adicional o si necesita hacer una cita por favor de llamar a Bernalillo County Public Works Division al 848-1524.

NEW MEXICO STATE FAIR PARADE FLOAT

AMAFCA created a float for the State Fair Parade, which takes place every September in Albuquerque. With signs saying "Keep the Rio Grand" and "There is No Poop Fairy," the team borrowed a concept developed by Greenville County Soil and Water Conservation District in South Carolina. A staff member dressed up as the "Poop Fairy" and tossed Poop Emoji Squeezies to the crowd.

Total estimated audience reached (with duplication): 50,000

Permit Reference(s): General AW, SWP

Audience(s): All ages

CHILDREN'S WATER FESTIVAL

The 2018 Children's Water Festival was held October 22-23 at the Santa Ana Star Center in Rio Rancho. An estimated 1,500 fourth-grade students attended from 64 classrooms and one small group of home-schoolers.

The Festival serves to educate fourth-grade school children about water and its relationship to humans, animals and other natural resources in a fun and interactive atmosphere. Its vision is to introduce students and teachers to new ideas, options, and solutions so they will conserve and protect water for the future; lay the foundation for further learning; and reach as many students and teachers as possible.

Total estimated audience reached: 1,500

Permit Reference(s): General SWP

Audience(s): fourth-graders

For more information, see Exhibit 6, Children's Water Festival Report, 2018-2019

HOUSEHOLD HAZARDOUS WASTE COLLECTION

Total estimated participants: 12,753

Permit Reference(s): HHW

Audience(s): Adults

Diverted from Landfill by City of Albuquerque (includes recycled and destroyed) - Weight in pounds	
FISCAL YEAR 2018-2019	
July	39,373
August	42,054
September	39,728
October	29,818
November	37,332
December	14,723
2018	
January	24,021
February	34,877
March	23,120
April	34,670
May	39,664
June	44,389
TOTAL	**403,769 lbs.**

Diverted from River by AMAFCA	
FISCAL YEAR 2018-2019	
Trash Removed	1,858 cubic yards
Vegetation Removed	150 cubic yards
Sediment Removed	53,948 cubic yards
Homeless Debris Removed	50 cubic yards
Dog Waste Removed	6,142 pounds

DONATIONS/SPONSORSHIPS

Stormwater Team members donated $139,000 to organizations for additional educational and training programs:

MEMBER	AMOUNT DONATED	RECIPIENT	PURPOSE
City of Albuquerque	$43,000	The Nature Conservancy	For Education and Outreach
AMAFCA	$2,000	Land and Water Summit	For Public Involvement and Participation
AMAFCA	$5,000	2018 EPA Region 6 Stormwater Conference	For Public Involvement and Participation
Bernalillo County	$5,000	Land and Water Summit	For Public Involvement and Participation
Bernalillo County	$5,000	2018 EPA Region 6 Stormwater Conference	For Public Involvement and Participation
Bernalillo County	$75,000	BEMP	For Education and Outreach
City of Rio Rancho	$10,000	Children’s Water Festival	For Education and Outreach
City of Rio Rancho	$2,000	Land and Water Summit	For Public Involvement and Participation
Mid Rio Grande Stormwater Quality Team	$5,000	Land and Water Summit	For Public Involvement and Participation
SSCAFCA	$2,000	Land and Water Summit	For Public Involvement and Participation
SSCAFCA	$1,000	Children’s Water Festival	For Education and Outreach

ESTIMATED TOTAL NUMBER OF PEOPLE REACHED THROUGH ALL ADVERTISING, EDUCATIONAL AND PUBLIC OUTREACH ACTIVITIES DURING 2018-2019:

Obviously, some people were reached by more than one activity, but in gross numbers an estimated **579,553** people were reached with a stormwater quality/stormwater pollution prevention message during the 2018-2019 fiscal year.

Exhibit 1
Event Participation 2018-2019

NAME OF PROGRAM/EVENT	EVENT DATE	TYPE OF AUDIENCE	MS4 CATEGORY	TOTAL REACHED	NOTES
2018					
Rocky Mountain Youth Corp w/Rio Rancho for AMAFCA cleanup at North Diversion Channel	7/7/18	Youth, Adults	SWP	25	Rolling River presentation
National Association of Flood & Stormwater Management Agencies (NAFSMA) Annual Meeting in Santa Fe, NM	7/11/18	Adults	SWP	250	AMAFCA, SSCAFCA, and BernCo delivered presentations.
“There is No Poop Fairy” float in State Fair Parade	7/13/18	All Ages	AS, PW, SWP	50,000	Provided education information about Scoop the Poop, There is no Poop Fairy, why it is important to pick up after your pet as well as proper household hazardous waste disposal.
Environmental Fair at Isleta Youth Center	7/14/18	All Ages		400	
EPA Region 6 Stormwater Conference “Stormwater Permitting”	8/19-23/2018	Adults	SWP	350	AMAFCA delivered 5 presentations at the EPA R6 conference, and hosted field trips at two water quality facility and a design charrette at another water quality facility. Bernalillo County delivered 3 presentations including watershed-based plan implementation, outreach and education, and GI/LID impediments. AMAFCA and Bernalillo County also co-chaired planning of conference.
Welcome Day for UNM Students	8/21/18	College Students	SWP	106	Rolling River presentation
Cancer Services of NM Retreat at Marriott Pyramid	9/9/18	Adults	SWP	25	Rolling River presentation
RMYC/BCMN Rolling River training at Valle de Oro National Wildlife Refuge	9/15/18	Adults	SWP	10	Rolling River presentation
Enviroscape demo for NMED DOE Oversight at Los Alamos	9/18/18	Adults	SWP	10	Enviroscape presentation
East Mountain Celebration at Los Vecinos Community Center	9/23/18	Adults	SWP	500-600	Natural Resources Services table in Bernalillo County tent. Provided information to educate County residents on stormwater quality, water conservation methods and incentive programs, and groundwater monitoring program
Corrales Harvest Festival	9/29-30, 2018	All Ages	AS, PW, SWP	10,000	Booth handing out information, SWAG and collecting surveys to determine public knowledge regarding stormwater issues
Environmental Science class presentation at Nex+Gen Academy	10/2/18	Students	SWP	60	Enviroscape presentation
USFS Mexico Interdependence Day at NHCC	10/6/18	Adults	SWP	25	Rolling River presentation
CNM Environmental Science class ES presentation at Sanchez Farm	10/8/18	Students	SWP	25	Enviroscape presentation
RiverXchange watershed presentation at Bandelier Elementary	10/17-18, 2018	Children	SWP	100	RiverXchange presentation to four 4th grade classes
Rio Rancho Children’s Water Festival	10/22/18	Elementary Students and Teachers	SWP	1,500	Students attended from 64 classrooms and one small group of home-schoolers; Bernalillo Elementary School, St. Thomas Aquinas, and all of the elementary schools in Rio Rancho Public Schools. The students attend three 30-minute presentations in a half-day format. Up to 17 classes from three to four schools were on-site at one time. Schools attended a morning or afternoon program.

AS: Animal Sources
CON: Construction
HHW: Household Hazardous Waste
ID: Illicit Discharges
PW: Pet Waste
SSS: Septic & Sanitary Sewer Systems
SWP: General Stormwater Pollution Prevention

NAME OF PROGRAM/EVENT	EVENT DATE	TYPE OF AUDIENCE	MS4 CATEGORY	TOTAL REACHED	NOTES
Children's Water Festival	10/21/18	Children	SWP	125	Rolling River presentation
Children's Water Festival	10/22/18	Children	SWP	125	Rolling River presentation
EPA R6 Manager's Meeting in Dallas, TX	10/25/18	Adults	SWP	50	AMAFCA and BernCo presented at the EPA R6 Manager's Meeting in Dallas, TX;
Animal Humane's Doggie Dash and Dawdle	11/4/18	All Ages	AS, PW, SWP	4,000	Animal Humane's signature event and largest fundraiser
John Baker	12/3/18	All Ages	SWP	31	Planted 27 poles
Colinas del Norte	12/7/18	All Ages	SWP	43	Planted 24 poles
CdN*	12/11/18	All Ages	SWP	53	Planted 45 shrubs
GOK	12/14/18	All Ages	SWP	49	Planted 42 poles
2019					
"GSI/LID in Transportation" at 56th Annual UNM Paving & Transportation Conference	1/7/19	Adults	SWP	645	Presentation in cooperation with Tess Houle, MRWM. GI/LID in transporation/streets, disconnected impervious areas, stormwater quality and quantity, stormwater regulations.
Earth Guardians	1/19/19	Students	SWP	15	Planted 70 poles
Troop 444	1/26/19	Students	SWP	9	Planted 48 poles
Jewish Congregation	1/27/19	All Ages	SWP	56	Planted 42 poles
Bosque school	1/30/19	All Ages	SWP	19	Planted 14 poles
KRQE TV interview on "GSI/LID improvements, stormwater qualiy"	1/30/19	Adults	SWP	4,500	KRQE 7am Morning Show | 2nd Street Corridor Projects Open House
Second Street SW Corridor Improvments Ribbon-Cutting Ceremony	1/30/19	Adults	SWP	75	Public ceremony that discussed the improvements along 2nd Street, including GI/LID improvements, with local community
Bosque School	1/31/19	All Ages	SWP	17	Planted 12 poles
Bosque School PM Session	1/31/19	All Ages	SWP	22	Planted 22 poles
Bosque School	2/1/19	All Ages	SWP	17	Planted 12 poles
Peace Corps	2/2/19	All Ages	SWP	35	Planted 70 poles
Bosque School	2/6/19	All Ages	SWP	19	Planted 9 poles
7 Bar	2/7/19	All Ages	SWP	59	Planted 17 poles
Sunport Commerce Center Public Meeting at Mountain View Community Center	2/7/19	Adults	SWP	50	The proposed design overlay will establish additional criteria in order to achieve quality development of this plan area beyond what is currently required under its existing industrial zone designation. The design overlay process includes but is not restricted to architecture, landscaping, fencing and walls. The public meeting will provide an overview of the design overlay process and the draft document. Included stormwater quality improvements.
Cub Scout Pack	2/9/19	All Ages	SWP	20	Planted 27 poles
Holy Ghost	2/13/19	All Ages	SWP	54	Planted 68 poles
Monte Vista (reschedule)	2/15/19	All Ages	SWP	22	Planted 38 poles
UNM Water Resources Class	2/15/19	College Students	SWP	20	AMAFCA gave presentation.
2019 BEMP Crawford Symposium	2/15/19	All Ages	SWP	500	AMAFCA mentored a student group that presented on water quality data.
Enterprise company	2/23/19	Adults	SWP	6	Planted 36 poles
Landscape for Life Training at Hubble House	2/23/19	Adults	SWP	55	Residential stormwater management- rain gardens, rainwater catchment, residential stormwater quality

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NAME OF PROGRAM/EVENT	EVENT DATE	TYPE OF AUDIENCE	MS4 CATEGORY	TOTAL REACHED	NOTES
New Mexico Land and Water Summit	2/27-3/1/2019	Adults	SWP	137	Provided sponsorship of $5000 - Attendees included professionals, hydrology, landscape architecture, landscaping, engineering. AMAFCA hosted a field trip at a water quality facility and was a member of the planning committee for the 2019 Land and Water Summi
Whittier	3/22/19	All Ages	SWP	9	Planted 10 shrubs
Inez Elementary	3/28/19	All Ages	SWP	77	Planted 68 shrubs
Holy Ghost	4/3/19	All Ages	SWP	39	Planted 55 poles
Cancer Services of NM Retreat at Marriott Pyramid	4/14/19	Adults	SWP	30	Rolling River presentation
Earth Day Event	4/20/19	All Ages	SWP	300	
Annunciation Catholic School Earth Day	4/26/19	Students	SWP	25	Rolling River presentation
Bosque School Earth Day	4/26/19	Students	SWP	60	Enviroscape presentation
Earth Day Celebration, Forest Service	4/26/19	Adults	SWP	200	Spoke with Forest Service employees about water conservation programs in Bernalillo County, donated rain barrel for free drawing.
South Valley Pride Day at Westside Community Center	4/28/19	All ages	SWP	2,000	Provided education about land use impacts to stormwater and the river, human activities and their impacts, things kids can do to reduce SW pollution.
Singing Arrow Public Meeting re: Watershed protection	5/16/19	Adults	SWP	12	Meeting with local community to discuss signage project. Community feedback about signage for watershed protection/stormwater quality'
Abrazos Environmental Justice Community Day at Valle de Oro	5/18/19	Adults	SWP	250	Provided education about land use impacts to stormwater and the river, human activities and their impacts, things kids can do to reduce SW pollution.
Abrazos Justice Day	5/18/19	Adults	SWP		Honoring the rights to a healthy environment in which we live, work, play and go to school.
Paws and Claws Family Festival, Bernco County Animal Care and Resource Center Opening event	5/18/19	All ages	AS, PW, SWP	500	Provided education information about Scoop the Poop, There is No Poop Fairy, why it is important to pick up after your pet as well as proper household hazardous waste disposal.
Business outreach	5/19/19	Adults	SWP	530	Brochures developed with stormwater quality information specific to various sectors of business including automotive, parking lots, contractors' yards, landscaping, mobile carpet cleaners, fueling stations, printers.
Copper Spring Cleanup	Spring 2019	Adults	HHW, SWP	58	Collected 35 lbs. of dog poop, 4 bags of trash, 2 bags mixed recycling, 1 5-gal. bucket of glass, 0.5 bags of aluminum, 450 feet of eroded trails closed and planted with cactus, maintenance on 1/2 mile of trail, about 220 feet of trail rerouted
Indian School Spring Cleanup	Spring 2019	Adults	HHW, SWP	46	Collected 90 lbs. dog poop, 2.5 bags of trash, 1 bag mixed recycling, 2 5-gal. buckets of glass, 0.5 bags of aluminum, 1 pallet, 2 sections of wire mesh fencing, maintenance on 3 trails sections, cactus planted to close off several unofficial trails.
Menaul Spring Cleanup	Spring 2019	Adults	HHW, SWP	27	Collected 33 lbs. dog poop, 1 bag of trash, 1 bag mixed recycling, 1 5-gal. buckets of glass, 2 pieces of rebar, 11 golf balls, 420 feet of trail rerouted, 840 feet of trail maintained, cactus planted to close off one trail section

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NAME OF PROGRAM/EVENT	EVENT DATE	TYPE OF AUDIENCE	MS4 CATEGORY	TOTAL REACHED	NOTES
Piedra Lisa Spring Cleanup	Spring 2019	Adults	HHW, SWP	53	Collected 35 lbs. dog poop, 1 bag of trash, 1 bag mixed recycling, 2.5 gal. of glass, 0.5 bags of aluminum, 1000 feet of trail maintained, cactus planted on 5 sections of social trails, several sections of rock steps built
River Cleanup	Spring 2019	Adults	HHW, SWP	60	Collected 9 bags mixed recycling, 3 5-gal. buckets of glass and 1.5 bags of aluminum. Also filled the dump trailer plus 4 pickup trucks with: 3 shopping carts, 1 bath tub filled with medical supplies, 23 tires, 3 mattresses and a jumble of rusty car parts.
Rt. 66 Spring Cleanup	Spring 2019	Adults	HHW, SWP	40	C+A35:F78sh, 1 tire, several pieces of sheet metal, 8 eroded roads closed
TOTAL REACHED				**73,130**	

AS: Animal Sources
CON: Construction
HHW: Household Hazardous Waste
ID: Illicit Discharges
PW: Pet Waste
SSS: Septic & Sanitary Sewer Systems
SWP: General Stormwater Pollution Prevention

Exhibit 2
Arroyo Classroom 2018-2019

Arroyo Classroom

2018 - 2019 final report

submitted by
Melissa McLamb, CSWCD
June 2019

The Arroyo Classroom program utilizes our natural arroyos as outdoor classrooms and brings local animals into the classroom to motivate 3rd graders to respect the arroyos as important wildlife habitat. Orilla Consulting, LLC developed the program in 2012 and initially implemented the program for 7 classes at Maggie Cordova Elementary in Rio Rancho. In 2013, the program grew to serve 20 classes. On July 1st, 2015, Orilla Consulting, LLC transferred the program to Ciudad Soil and Water Conservation District as part of the larger education and outreach efforts we are involved in throughout Bernalillo and Sandoval Counties. In the 2018-2019 school year, we served 34 classes within Rio Rancho Public Schools, reaching approximately 34 teachers and 790 students.

Participating Schools

SCHOOL	Number of classes	Number of Students
Enchanted Hills Elem.	5	140
Martin Luther King Elem. *	6	158
Sandia Vista Elem.	4	84
Maggie Cordova Elem. *	7	162
Cielo Azul Elem. *	6	124
Puesta del Sol Elem. *	6	120
TOTALS	**34**	**790**

* Title 1 school

Deliverables to date:
All complete

- Watershed Presentations: 34:34
- Arroyo Walk: 34:34
- Bat Presentations: 34:34
- Owl Presentations: 34:34

Task 1: Recruit and select classes.
Complete by September 2018. **Status: completed.**

All classes are returning classes and the program has a waiting list.

Task 2: Review and revise evaluation and curriculum.
Complete by May 2019. **Status: completed.**

The pre and post survey was revised by classroom teachers and AC staff to better suit 3rd graders. We received positive feedback from teachers on new and updated presentations offered to their classrooms this year.

Task 3: Coordinate classroom guest speakers.
Begin September 2018. On-going through May 2019. **Status: completed.**

Guest speakers have been confirmed with up to date Professional Services Agreements. All presentations have been conducted.

Task 4: Collect and analyze teacher feedback.
Complete by May 2019. **Status: completed.**

Staff has developed a feedback form for teachers to issue out to teachers in April.

Task 5: Reporting to sponsors. **Status: completed.**

Midyear report by January 31, 2019. - *submitted Jan 2019*
Final report by June 14, 2019.

Project Summary

The program consists of a four-part series of lessons, based on grade-level science standards and addressing areas of interest to SSCAFCA, such as bats, burrowing owls, ATV use, pet waste, and arroyo safety. Educators Melissa McLamb and Erin Blaz delivered two of the lessons – an introductory lesson about watersheds, and a walking field trip to nearby arroyo habitat. Justin Stevenson of RD Wildlife Management, LLC delivered a lesson using live microbats. Tavo Cruz of Envirological Services, Inc. delivered presentations with a live Burrowing Owl.

The watershed lesson expounds on the water cycle, already integral in 3rd grade curriculum. This year, we developed a hands on lesson where students were able to build a model of a watershed. This lesson introduces the concept of a watershed to students, demonstrates how surface water becomes polluted through a variety of waste, and discusses the importance of keeping our arroyos clean.

The arroyo walk is a highlight for students and teachers, as the majority of participating classes only receive one other field trip during the school year, and students always come away learning something new and interesting about the uniqueness of arroyo habitat. This lesson is about the unique adaptations of arroyo animals and plants, incorporates a walk out to a nearby arroyo (when available) and extensive discussion about arroyo safety *(see lesson plan in Appendix A.)* Melissa first talked to students about the difference between concrete-lined channels and sandy-bottomed arroyos, and emphasized that it is never safe to go into concrete-lined channels, while sandy-bottomed arroyos can be visited when there are no clouds in the sky. Students searched for evidence of animals living in the arroyo banks, learned about how lizards, and other cold-blooded animals, are adapted to the desert environment by moving about to regulate their temperature, and looked for certain adaptations of desert plants to minimize water loss in the desert.

In the lesson about bats, Justin discussed common myths about bats while pointing out how these myths can pose issues for bat populations as he addressed each one. He taught students about species common in their area, including what habitat they prefer, what they eat, the challenges they face, and what to do if one sees an injured bat. He talked about how important bats are in keeping insect populations under control, shared ways to encourage and protect bats and emphasized that kids should not be frightened of them, but also should never touch a bat if they find one. Students were able to view two different species of live microbats.

In the owl presentation, Octavio talked with students about what time of year burrowing owls are in our arroyos, what habitat they need, and what we can do to support and protect them. Tavo emphasized the impact of riding ATVs up the sides of arroyos and encouraged ways to care for burrowing owl habitat. He taught students that burrowing owls are protected by federal law, and that 3rd graders could be ambassadors and protectors for the owls. Each student was able to observe the burrowing owl up close, one at a time. We worked in coordination with Wildlife Rescue to bring in the live burrowing owl for each presentation.

Evaluation

All 34 participating classes, participated in previous years and each teacher expressed interest in returning next year. Teacher feedback from this year also showed that teachers find that each presentation helped increase students understanding of local ecology while educating them about what they can do to protect wildlife habitats and/or water quality. Some teachers have requested extension activities to help them expand on content presented to their class. We plan to integrate additional lesson plans that teachers can easily use next year. We are also working on correlating our presentations to the newly adopted science standards, NM STEM Ready! This correlation will be complete by the start of next school year.

We were unable to confirm with Cielo Azul Elementary to plan for another Arroyo Clean Up event. We hope to work with the City of Rio Rancho next year by promoting their Campus Clean Up Contest and encouraging our participating classes and schools to organize such events.

Highlights from teacher feedback:

“Every year this program adds so much to our classroom and student engagement. The excitement of the owls and bat is amazing for our kiddos. The Arroyo walk is also exciting. I thought the changes to the watershed presentation was a great improvement to capture 3rd graders attention.” - Evans, Sandia Vista Elementary

“They were able to identify how they fit into the habitat surrounding them and how they can help preserve different aspects of it. They were able to apply different ideas taught (water conservation, animal identification, ect.)” - Eisenberg, Martin Luther King, Elementary

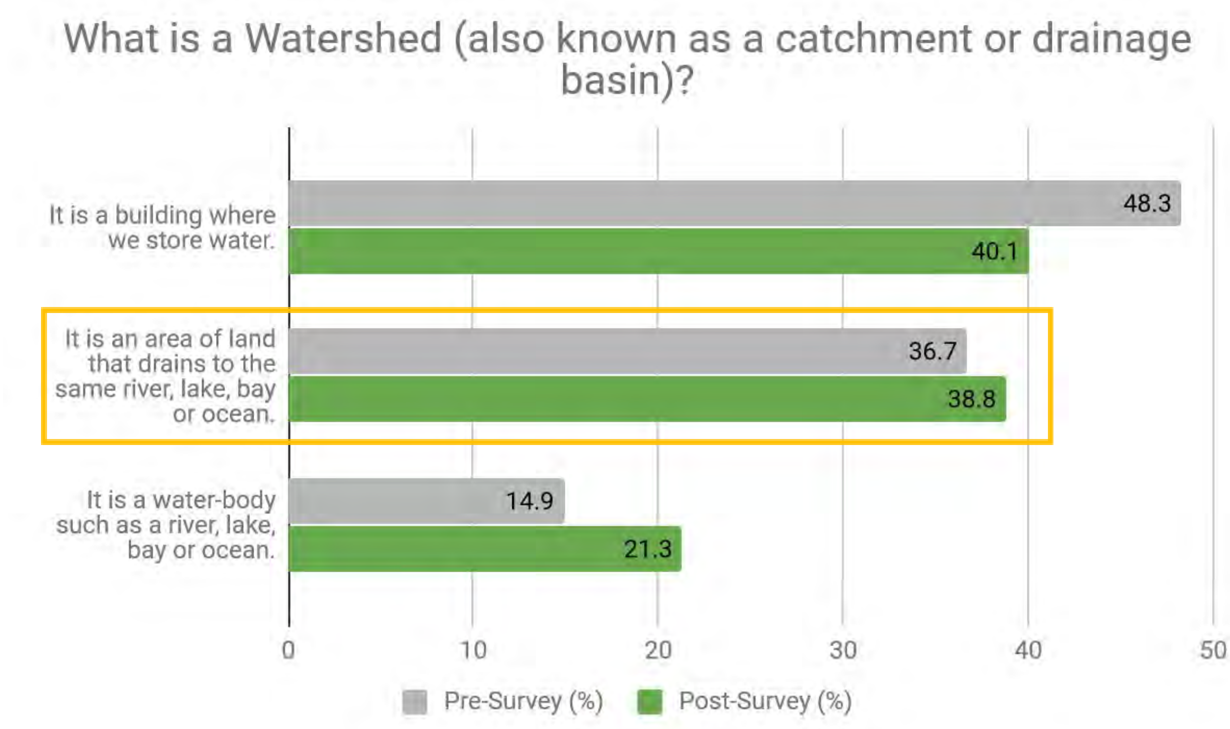
“My kids always love the animals and what they learn about them. I love that the kids get a better understanding of arroyos and how the water shed works.”- Florez, Maggie Cordova Elementary

Survey

We developed the survey this year in collaboration with select 3rd grade teachers to make it as relevant and age-appropriate for students. This is the first year we have had a single pre and post survey to distribute to students.

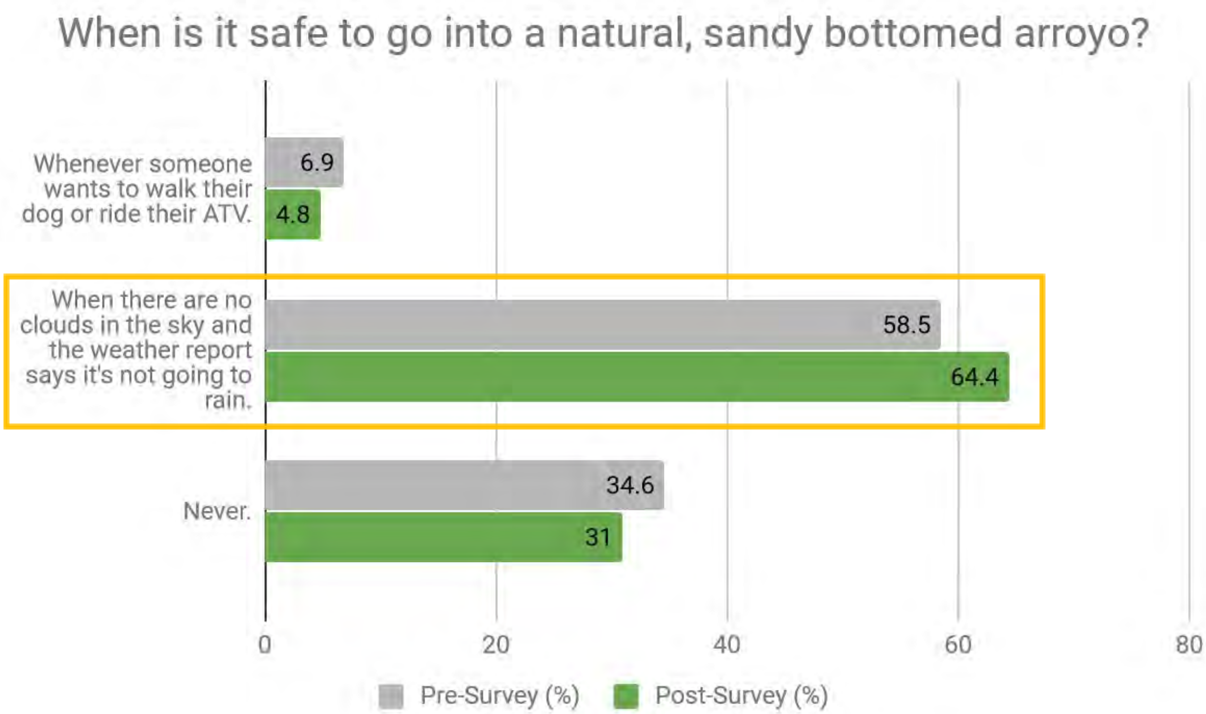
Survey Metrics:

Item 1



This age group of students are often very literal and may find the concept of a "watershed" confusing. We will find ways of making this more age appropriate for 3rd graders. It may require an adjustment to our incorrect answer options. We plan to implement extension activities next year as well, which will offer teachers the opportunity to review and expand on presentation content with students afterwards.

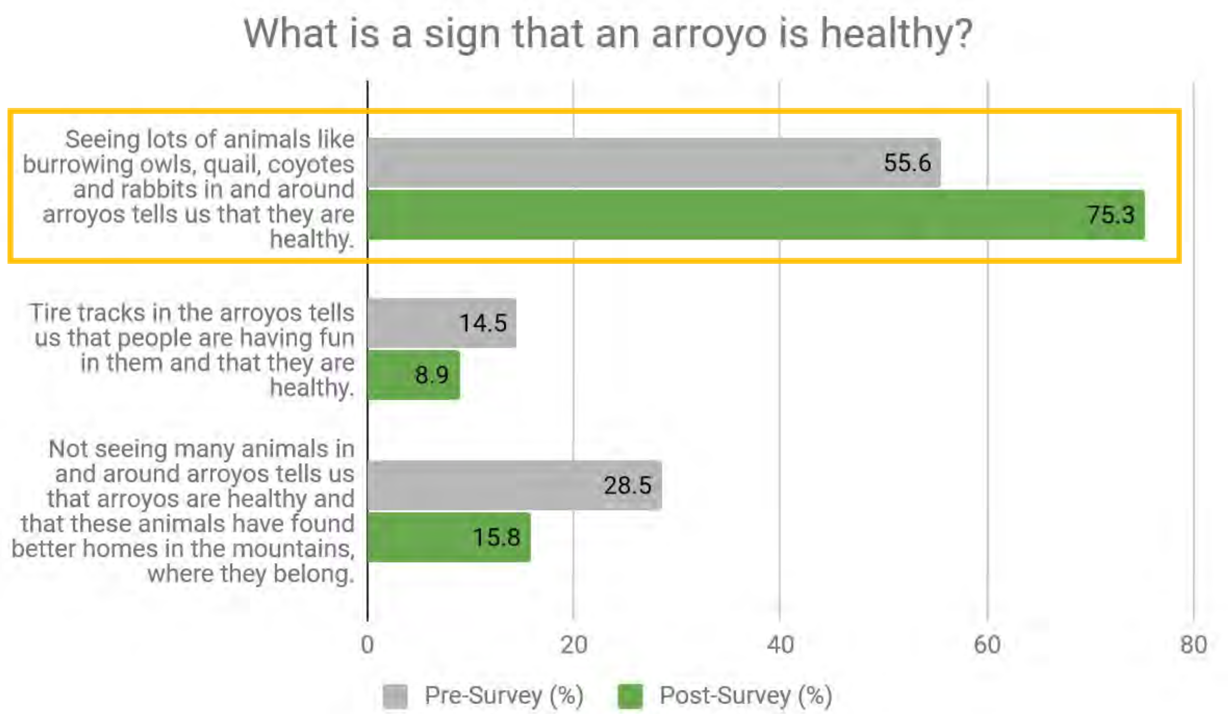
Item 2



When

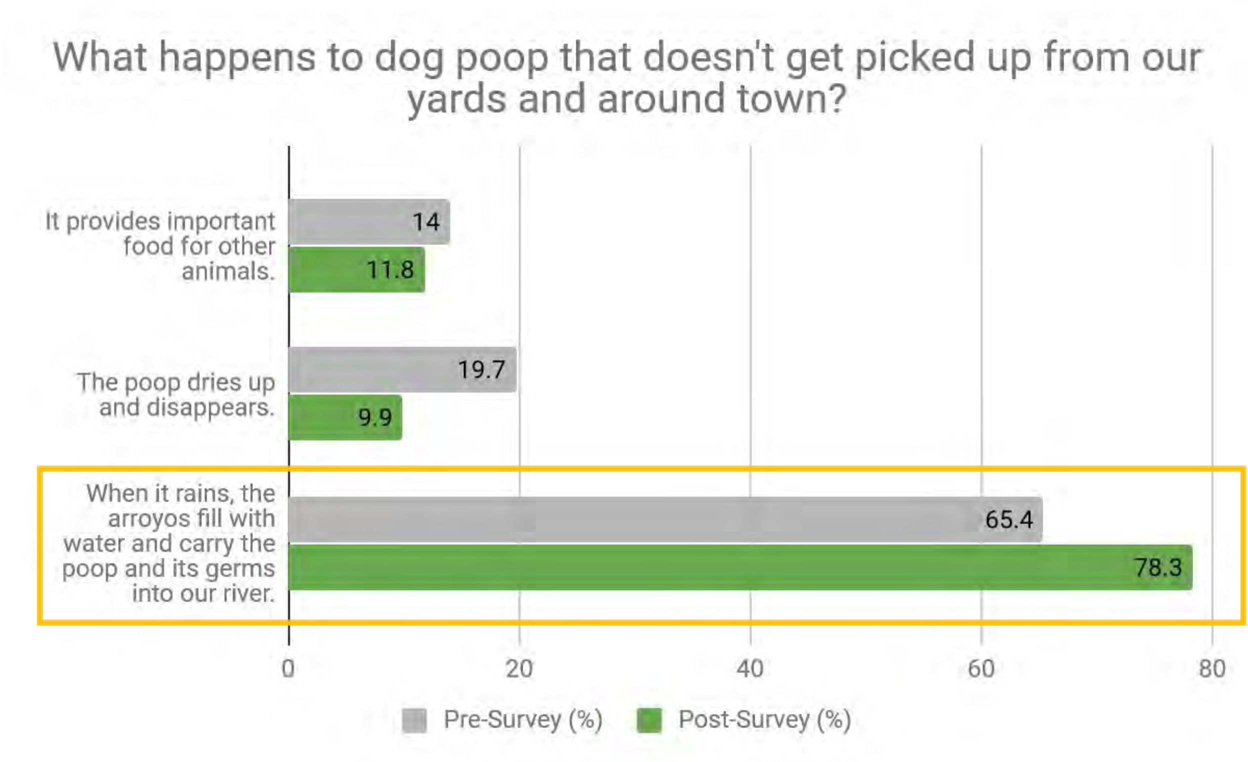
The majority of students seem to understand when it is safe from the beginning of the program, perhaps in contrast to the other answer options. It is interesting to see that 30% of students still consider it is "never" safe to into a natural arroyo. This could be an idea that students are receiving from parents or guardians understanding of arroyo safety.

Item 3



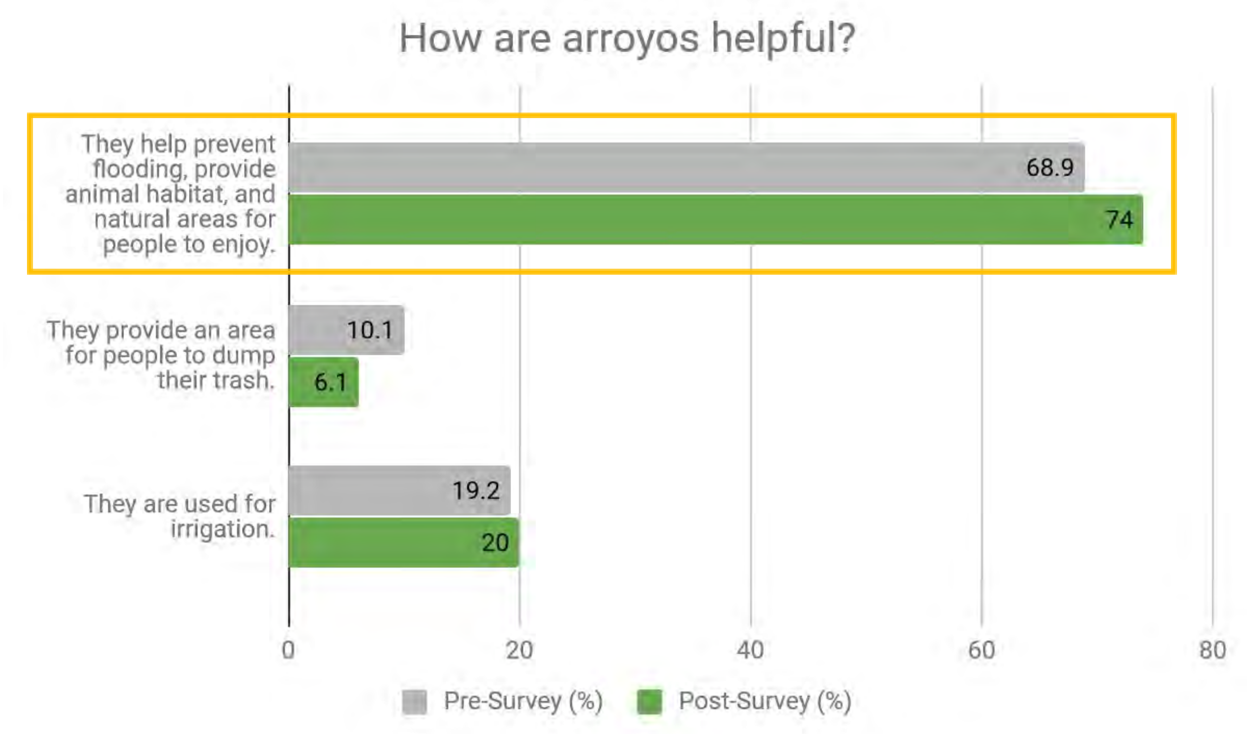
We see a 20% increase in student knowledge of species diversity being an indicator of arroyo health.

Item 4



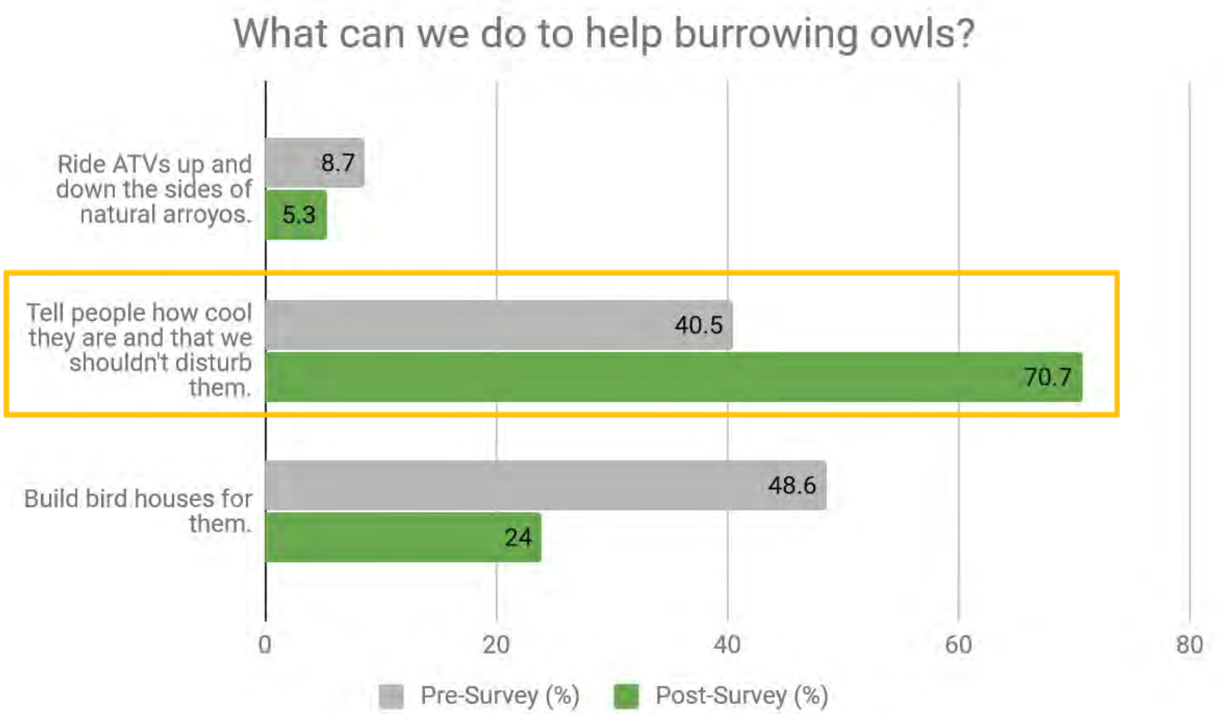
We see a decrease in the incorrect answers from the pre to post survey as well as a 13% increase in students understanding of how dog poop can impact the water quality of the river.

Item 5



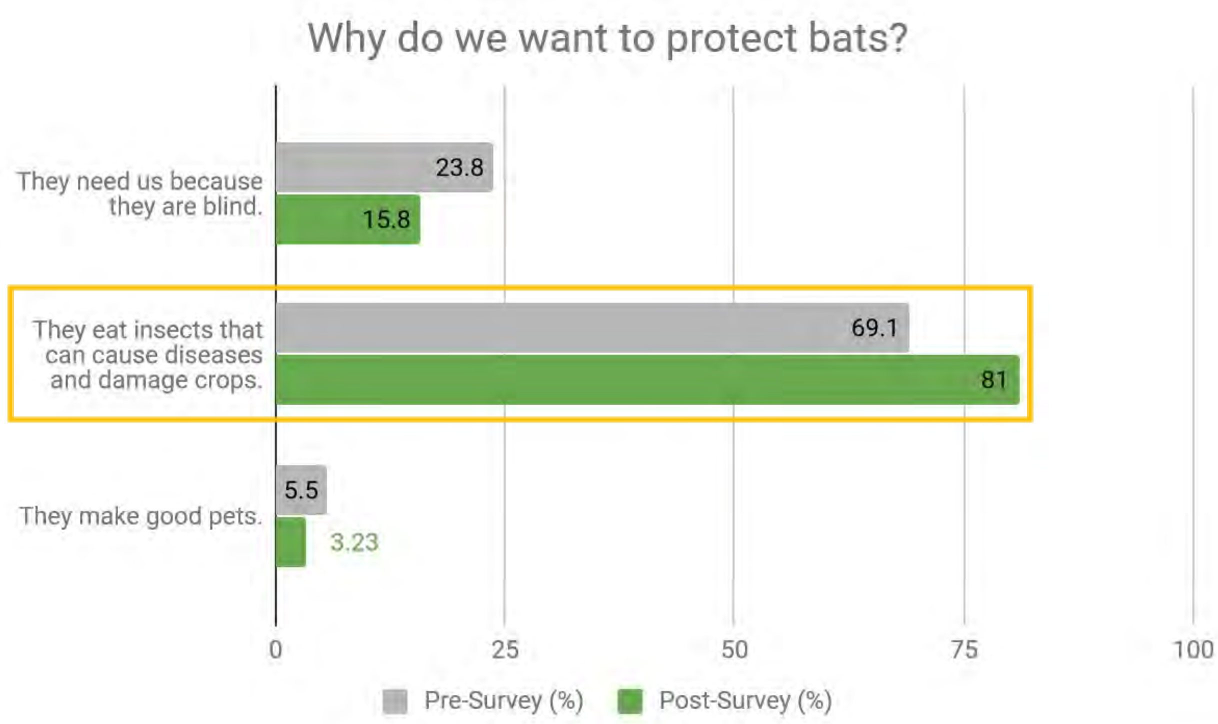
Students either already knew this or is was an easy assumption based on the answers. We will make one of the answers seem more probable next year and replace “They are used for irrigation” with “They help farmers water their crops”.

Item 6



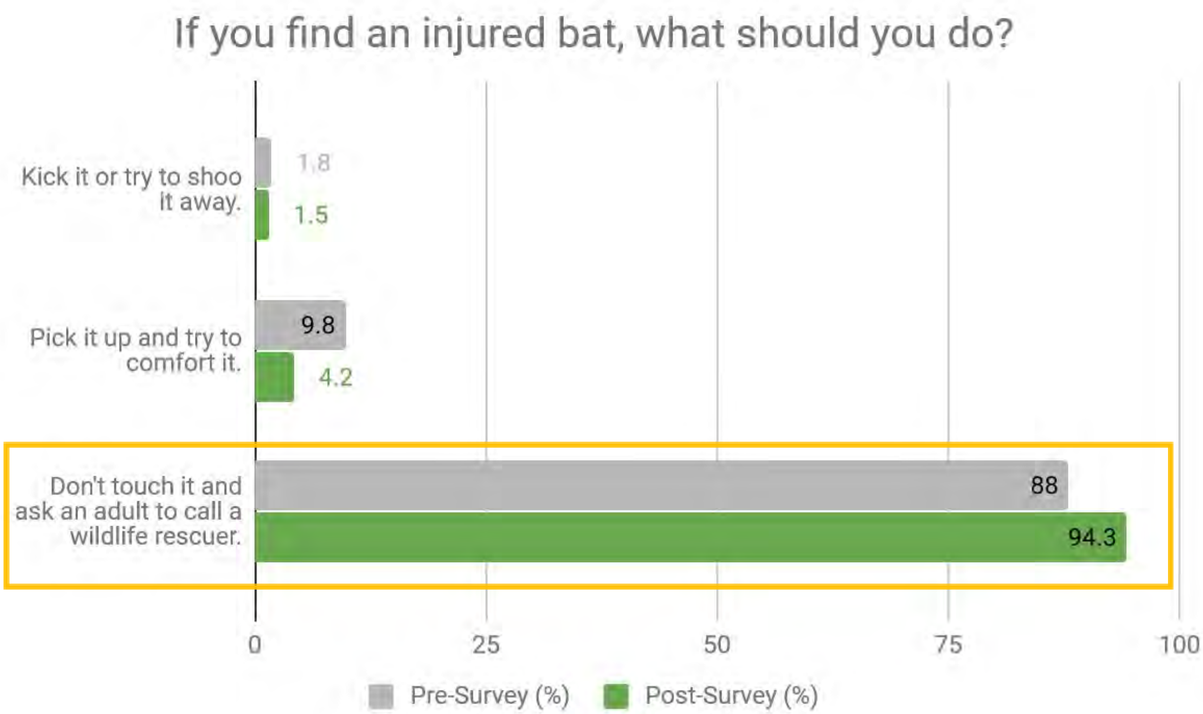
This shows how the live animal presentations introduce students to the importance of not disturbing wildlife and that burrowing owls wouldn't utilize bird houses.

Item 7



It seems that most students either already know this or they can figure it out based on the answer choices. Next year we will make the other choices more probable.

Item 8



Survey Summary

Overall, the survey findings are positive. This was a pilot year with using a single pre and post survey and we will continue to refine our questions with feedback from teachers. It is important that students understand the concept of a watershed. Next year we intend to support our classes with pre and post activities that will help teachers review and explore concepts from the presentations, which will strengthen learning outcomes for students.

Appendix A contains lesson plans; Appendix B contains supplemental materials; Appendix C contains photos.

Appendix A
Lesson Plans

Activity Guide for 3rd Grade – Animal and Plant Adaptations

1. What are we trying to teach the students in this activity?
Arroyos are cool places where animals live, animals and plants are adapted to live in the desert.

2. How can we tie this activity to our teaching goals:

Our Goals	**Where we can relate our goals to this activity**
Animals live in arroyos	Look for evidence of animals.
We should visit arroyos carefully	Talk about when it is safe.
Picking up dog poop keeps germs out of our river	We'll probably see poop, talk about how it can make animals sick.

Supplies:
- Thermometers
- Clipboards
- Poster of leaf adaptations
- Wax paper
- Paper towels
- Tape

3. How can we tie this activity to standards?
- Measure energy (temperature change)
- Posing a question, using numerical data, various methods to display results
- Animals and plants have adaptations that improve chances of survival
- Classifying animals and plants
- Living things cause changes to their environment, some detrimental, some beneficial

5. How should this activity be organized?

I. Pre-activity (10 minutes)
- Do you ever visit/play in arroyos? What do you do?
- What are arroyos for? Managing stormwater to keep our town from flooding when we get a heavy rain. **Show first flush video.**
- Talk about arroyo safety – don't go into arroyos when you see clouds in the sky.
- Because our arroyos are natural, with sandy sides and bottom, they are safer.
- In Albuquerque, the arroyos have concrete sides and water travels so fast, it is really dangerous to ever go in arroyos. Some arroyos come from the canyon where it might be raining but you can't see.
- Our arroyos are home to all kinds of animals and plants, so they are a wonderful place to enjoy nature. What kinds of animals do you think might live in the arroyo?
- Walk out to arroyo

II. Lizard activity (15 min)
- 5min Look for evidence of animals. What kind of evidence? Scat, tracks, holes.

- What kind of animals live in holes (besides snakes)?
- What do you think makes it difficult to live out here? Heat, sunburn, not much water, cold at night. Animals and plants have special **adaptations** (special things about their bodies) that make it easier for them to live in this habitat.
- How do they get water? From plants, from condensation under rocks.
- How could they avoid heat? Stay in burrows or shade during the day, active at night.
- Some animals love the heat, though! Lizards are cold-blooded, which doesn't mean they are actually cold. It means their body temperature is determined by the environment. They need to absorb heat from their surroundings to function.
- Each student take a thermometer. This is a lizard, and it needs to maintain its body temperature at a certain level: fence lizard 35C (95F), whiptail 38.6C (101F). How can it keep from getting too hot? How can it keep from getting too cold? Lizards regulate their body temperature through behavior.
- Plants do kind of the same thing – hold one palm out flat, one sideways. Which feels hotter? Prickly pear cactus pads grow sideways instead of flat to keep themselves cool!

IV. Plant activity (15 min)

- What do plants need in order to survive? Water, sunlight, air, soil
- What makes it difficult for plants in the desert? It's so hot and there's so little rain.
- How do plants get water? **Show evapotranspiration diagram.** It's kind of like when we're hot, we sweat. But if we lose too much water from sweating we get dehydrated.
- How do they keep cool? Remember prickly pear? **Show pictures of hedgehog and prickly pear cacti.** Desert plants can **s**hade themselves! Hedgehog cactus has lots of spines that shade the surface and also blocks the wind.
- The leaves of many desert plants are **adapted** so that they don't lose too much water.
- Show leaf adaptations poster (fuzzy, small, curled, waxy, green stems but no leaves)

If weather is ok:

- Out in arroyo, we'll do an investigation.
- How many of the plants we see will have these adaptations? Hypothesize.
- To be fair, we can't just pick the plants we like. Standing in one spot, collect the first 6 *different* leaves you see.
- Draw each one, and describe what adaptation it has.
- How many of your 6 leaves have one of the adaptations listed?
- Why don't all have it? Some plants avoid the heat by just growing and producing seed really fast before the weather gets hot, and then they just die off and leave their seeds to grow next year!
- Search for seeds.

If windy, inside activity:

- Let's investigate one way they keep water. **Dab water on board, cover one spot with paper towel, one spot with wax paper.** Which do you think will evaporate faster?
- **Show prickly pear picture.** Make model of prickly pear pad: paper towels with wax paper taped around the outside. **Show cut prickly pear pad.**
- Maybe do an experiment: soak wax-covered and non wax-covered leaves in water and time how long they take to dry.

V. Conclusion (10 min)

- Arroyos are for flood control, and we shouldn't play in them when clouds are in the sky.
- But they are cool places where animals and plants live, and we can visit when it's clear weather.
- Animals and plants are adapted to live in the desert climate.
- What we do in arroyos affects the plants, and animals' habitats. Should we ride ATVs up the sides? That's something humans do to change our environment for the worse.
- Picking up dog poop is important because it can make animals sick. Where does the water go when it flows down the arroyo? The Rio Grande! Keeping dog poop out of the river is one way humans can change our environment for the better.
- Walk back to classroom

Leaf Adaptations

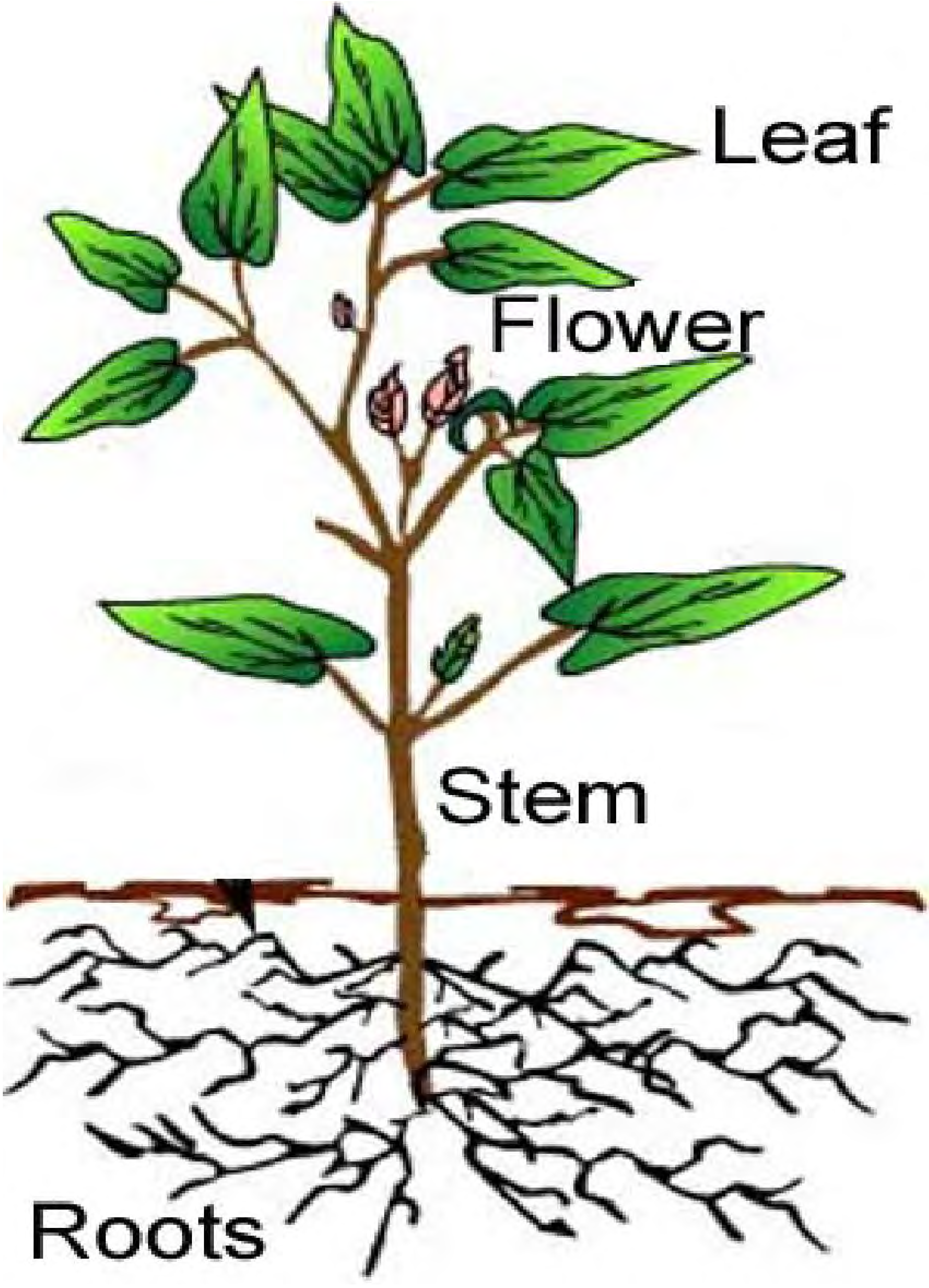
1. **Fuzzy leaves or lots of spines**

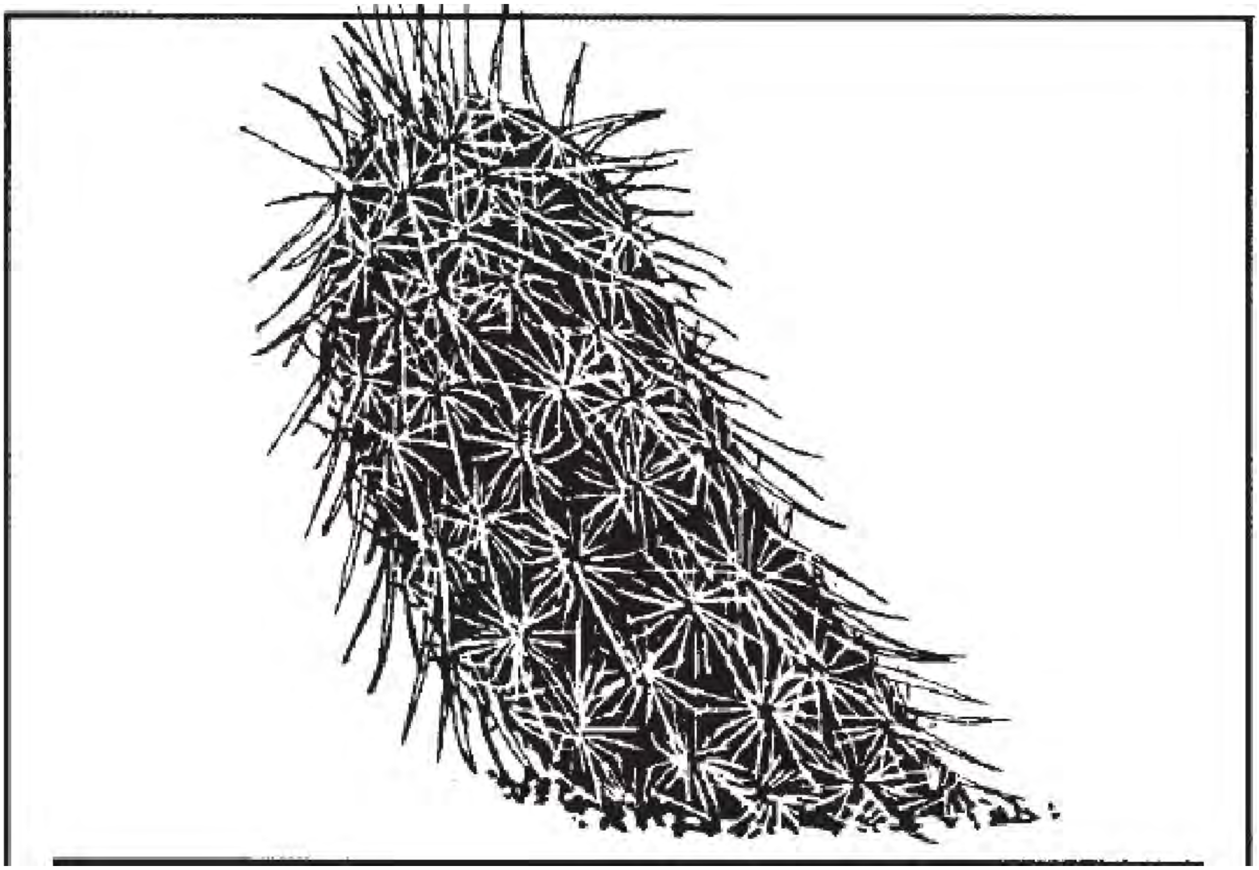
2. **Small leaves**

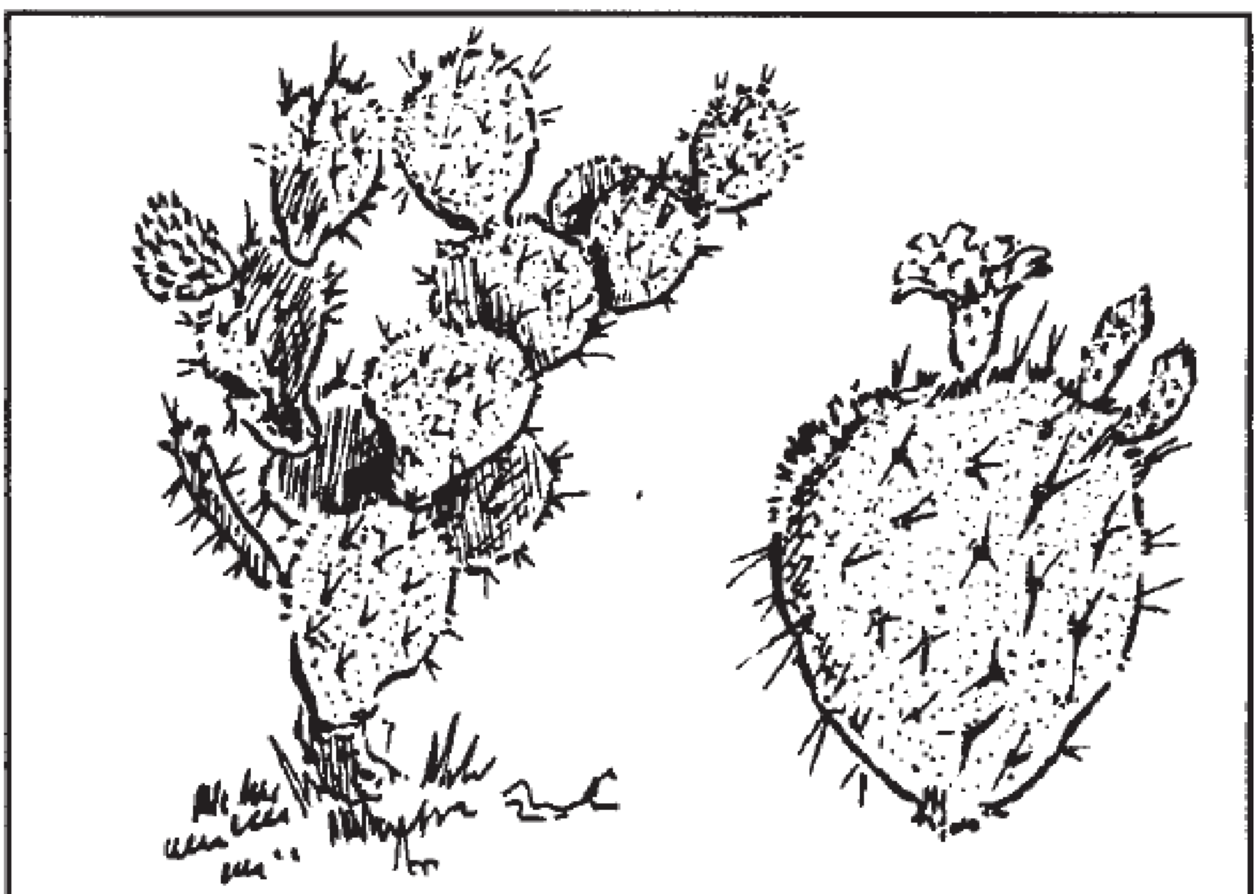
3. **Curled leaves**

4. **Waxy leaves**

5. **Green stems but no leaves!**


Leaf
Flower
Stem
Roots





Build a Watershed Activity Guide for Arroyo Classroom

1. What are we trying to teach the students in this activity?
What is a watershed? How does the water cycle work? What are different forms of pollution and how does it impact our river? Arroyos lead to the river and carries different types of pollution with it.

NM State Science Standards:

3rd Grade
Water cycles through the atmosphere, plants, soil, and bodies of water in various forms.
Describe pollution and identify different types (can be naturally occurring or human made materials). Pollutants can get into our water and harm living things.
Some animals can survive better in certain environments, some will not survive at all.
Describe how roots take up water and soil nutrients, and leaves make food from sunlight.

2. How can we tie this activity to our teaching goals:

Our Goals	Where we can relate our goals to this activity
How does the water cycle work?	Describe the processes of the water cycle: evaporation, condensation, precipitation, collection, run-off and infiltration.
What is a watershed?	A watershed is all the land that drains into a river or other body of water, from mountain forests to riparian zone.
What makes water dirty?	Pollution comes from all over the watershed, and erosion is one form of pollution.
Why are arroyos important?	Arroyos provide important drainage in a storm event and provide unique and critical habitat for wildlife and plants.
How does vegetation help our river?	Forests, wetlands and healthy arroyos help keep the river clean and prevent flash floods. Plants in these areas slow the runoff of water into the river, reducing erosion and flooding. They can also remove nasty chemicals from the water by taking them up through their roots.

3. What is effective in this activity? Being in small groups, students enjoy creating the model and discussing what they are observing.

4. What makes this activity difficult to teach? Students get excited and want to play with materials while you are talking.

Activity Materials

- Blank paper, markers, aluminum pans to capture water
- markers (ex: black for oil, brown for dog poop, red for trash)

- a watershed map (ex: SSCAFCA watershed map, It's All Connected in a Watershed poster)
- NM relief map

<u>Preparation</u>

- Post watershed map
- Draw sketch of the water cycle
- Have materials laid out and desks arranged (papers, trays, sets of markers)
- Optional: write out key for marker colors (keep hidden until time to show students)

I. Intro – 5 minutes

1. Introduce yourself and the Arroyo Classroom program: Respect and Know your Arroyos
2. Cover guidelines/expectations in order to be able to have a good time and learn together
3. Introduce what we will be learning: What is a watershed? Where does it go when it rains? We are going to find out how water moves across land, and through our arroyos, when it rains or snows. And learn about how it carries things with it as it flows.

II. Warm Up – 10-15 minutes

1. How many of you used water before you came to school today? How did you use it?
2. How else do people use water on a daily basis?
3. Where do you think all this water comes from? (Discuss the aquifer and it's connection to precipitation). Point out groundwater shown on the "It's All Connected in a Watershed" poster.
4. Pull out the NM relief map. Discuss the purpose of a map. Walk through so each student can view. Introduce the concept of a "key". Have them help you find ABQ on the map and the Rio Grande. Point out the area of Rio Rancho. Explore the map together.

Ask: (Really engage with students and listen to their ideas)

- Has anyone heard of the term "watershed" before? You can highlight that it is a compound word. Have students share what they think of when they hear this word usually, "a shed full of water." It's kind of like that! Except the shed (or container) is an area of land. *Everyone lives, plays and works on land that draws to a body of water, like a river, lake, bay or ocean.*
- Point out the Rio Grande Watershed through the middle of the NM relief map.
- Where are there mountains and hills? Where do you see rivers and lakes?
- What would happen if we sprayed water on the mountain peaks, what will happen to it? *It will flow downhill.*
- Where does the water come from in nature? *Rain or snow*

III. Activity – 25 minutes

Where does the water go? Let's find out by making our own model/map, similar to the relief map.
Part A: 10 min
While students are still sitting, demonstrate activity → crumpling paper to drawing on the ridges. Identify the ridges. Ridge as high point of range of hills or mountains. Point out that it is where the

paper has a peak pointing up not down. Maybe identify the difference between a peak and a valley using the paper.

1. With your imagination, imagine that this piece of paper is a piece of land.
2. Crumple up the piece of paper and then smooth it back out most of the way. Leave it a bit crumpled, showing small ridges (high points) and valleys (low points).
3. Find the ridgelines (tops of the fold lines). Use the blue marker to color along the ridgelines on your “land”.

Model this for students briefly. Be sure everyone understands the activity. Ask students to crumple their paper and draw their ridgelines. Once they are complete - Hands on their hand so we know they are ready for the next step.

Pair students (groups of 2 or 3), with teachers help. Assign roles 1-2, or 1-3.

Give Roles***: We’re all observers, everyone will have a turn.

Have groups gather around their tray. Drawers can begin drawing their ridgelines. Announce that students have 30 more seconds when it seems that each group has enough ridgelines.

Next, demonstrate a “rain event”. Model for students the distance we want them to aim from as they spray (i.e. the length of your elbow to hand, vertically placed on the tray). And 4 sprays. (idea: Students can be drill sergeants about the three sprays, acknowledge that sometimes the spray bottles act funny but that we are trusting our classmates to count for themselves to do only four full sprays...).

Ask:

- What do you think will happen to your land when it “rains”?
- What will happen to the blue ridge lines? / Where will the “rainwater” travel?

1. Altogether, sprayers squirt your model a few times to create a “rainstorm” over your land.
2. Observe what happens.
3. As your rainfall accumulates, watch the pathways where the excess “rainfall” travels.

With teachers, walk around to ask each pair to explain what the water is doing and show you rivers and streams in their model.

Have teachers help pick up all the spray bottles, and ask everyone to place their hands on their head and have a small group discussion about their observations.

Part B: 15 min

Have pairs switch roles, "disposers" can throw out previous model. Tell students they will keep the same number assigned earlier and tell them what role they will be playing. You could write these on a whiteboard.

What's In the Water?
Experiment with how "pollutants" might travel through their watersheds.

With a new piece of "land", imagine this represents the City of Rio Rancho or the Rio Grande Watershed. Show one of the Watershed posters and point out all the human activity that happens in a watershed (driving cars, making things (manufacturing), farming, walking our dogs, etc.)

Ask:
- What might be on this land that we wouldn't want in our water?
- What is pollution?
    - Have you ever seen it? What does it look like?

As students share, note the types of pollution on a poster or white board and create a key for groups to use. (Roads/Cars - black, Trash - Green, Dog poop-brown (and/or orange if you have more groups than markers)) Depending on the group, you could also identify Factories - Red

Before crumpling, have drawers (with their support drawers) mark their papers with the brown, red and black marker to represent farms, factories, houses, streets, dog poop and trash.
Announce that students have 30 more seconds when it seems that each group has drawn enough. Then ask all students to put their hands on their head.

Then have crumplers -crumple paper and then partially smooth it out.

Altogether, have sprayers spray the piece of paper.

Ask:
- What happened to the pollution when it rained?
- Describe what happened at the highest and lowest point in your watershed.
- How quickly did it spread? Are there any places on the land where it didn't go?

WRAP UP: -5-10min
What do you think this means for our watershed - the Middle Rio Grande?
The water we drink comes from our watershed. Animals and plants also depend on this water. That's why it's important that we try not to pollute either the water or the land. Anything that pollutes the land will eventually wind up in the water.

What might be ways we could reduce pollution in our watershed?

*By picking up trash and picking up dog poop if we have dogs. (*I like to emphasize to this age group that **being responsible is powerful** and they can make a difference by caring and picking up their own trash. I also tell them that last year a whole grade level of 3rd graders at Cielo Azul Elementary helped pick up 1.8 tons of trash!)

Thank the class for their attention and participation. Tell them we look forward to seeing them again and expect that they show the wildlife biologists the same respect they have shown us.

*****Groups of 3: Each person gets to spray 3x. Model this for them.**
For groups of 3, you'll need two blue markers for Part A.

May be helpful to tell students each turn has a Lead Role and a Supporting role (Supporting role noted in parentheses).

Part A Roles:
1 - Drawers (+ spray)
2 - Crumplers (+ drawing / spray)
3 - 1st Spray (+ disposers) -- Spray 3, 2, 1

Part B Roles:
1 - 1st Spray (+ disposers)
2 - Drawers (+ spray) --Spray 2, 1, 3
3 - Crumpler (+ draw)

Groups of 2:

Part A Roles:
1 - Crumpler / Drawer
2 - Sprayer / Disposer

Part B Roles:
1 - Sprayer / Disposer
2 - Crumpler / Drawer

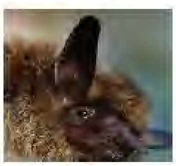
Appendix B
Supplemental Materials

-SSCAFCA Activity Book and Educational Videos:

KNOW YOUR ARROYOS

ENJOY • RESPECT • PROTECT

-SSCAFCA handouts:



Did you know?

SSCAFCA protects our community from flooding and erosion caused by big rain storms, and works to keep stormwater clean. Stormwater flows down arroyos into the Rio Grande.

Bugs like to live in stagnant water that collects in ponds and low places in the arroyos. Insects like mosquitoes can carry diseases that make us sick.

Almost all U.S. bats feed exclusively on bugs, and 1 bat can eat between 600 and 1,000 mosquitoes and other insect pests in just one hour. One bat can eat its own weight in insects in a single night!

SSCAFCA provides bat houses to encourage bats to make their homes near our arroyos, and especially near detention ponds where stormwater runoff is captured and allowed to slowly drain.

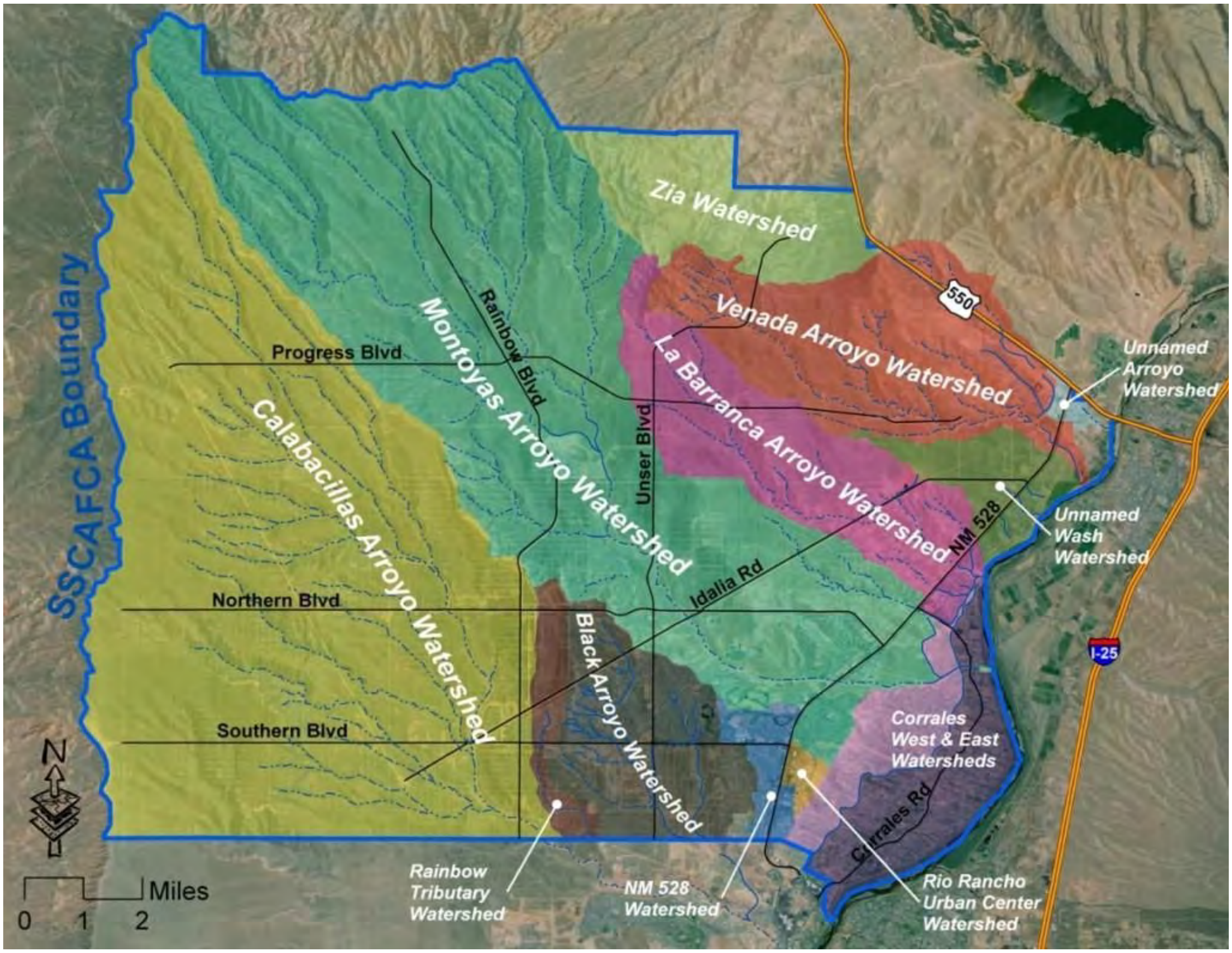
The more we help bats, the more pests they eat, so we don't have to spray pesticide that could wash down to the Rio Grande and pollute it.

Brought to you by:

SSCAFCA

SOUTHERN SANDOVAL COUNTY ARROYO FLOOD CONTROL AUTHORITY

SSCAFCA watershed map:



Appendix C
Program Photos

LEFT - Melissa McLamb discussing desert animal and plant adaptations by Maggie Cordova Arroyo.

RIGHT - Students observing and discussing the watershed model.

LEFT - Students having fun during the arroyo walk on school property. Students gather in between activities to discuss findings such as looking for evidence of wildlife (scat, tracks, burrows, etc.).

Exhibit 3
RiverXchange 2018-2019

Making Meaningful Connections by Integrating Water Resources Topics with Language Arts & Science

2019 Report

Presented by
Ciudad Soil & Water Conservation District

June 2019

CONTENTS

SUMMARY

This year, funding enabled 36 NM classes (954 students and 39 teachers) to participate. The majority of participating classes were from Title I schools. Each NM class was partnered with another NM class and when possible another class outside the state for a total of over 1,338 participants. All program costs and coordination are provided free of charge to NM teachers. Training, technical support, and curriculum materials are provided free of charge to partner teachers. The program required $51,881.62 in cash and generated total match valued at $90,344.90 in the form of in-kind contributions including workshop space, classroom resources, presenters' time in the classroom, field trip docents, donated trees and shrubs, as well as teachers' and students' time.

With the support of two contract hires this year, we were able to focus more on strengthening our program in ways we haven't been able to in the previous three years with unanticipated personnel changes. Our primary accomplishments include: strengthening partnerships with teachers and volunteers who support us with in-class presentations, developing an effective place based lesson on acequias and agriculture, and offering consistent blog support and encouragement in order to increase the efficacy of the technology component. Also, we refined our extension activities this year and are on target to have all RiverXchange presentations correlated with the recently adopted New Mexico science standards, NM STEM Ready! by the end of the summer. Teachers commended us throughout the year on the value of the presentations and curriculum in their class experience.

Strengthening Partnerships

Understanding how RiverXchange meets the needs of participating teachers, students, in-kind donors, as well as how RiverXchange fits into the larger efforts of watershed education in our community, is critical for keeping RiverXchange relevant and impactful. This year, we met with a wide variety of educators and stakeholders in our field. We met with organizations including: Albuquerque Water Utility Authority (ABCWUA), Sandia Labs, Bosque Ecosystem Monitoring Project (BEMP), RiverSource, Sandia Mountain Natural History Center (SMNHC) and Center for Social Sustainable Systems (CESOSS). These meetings, as well as shadowing a few presentations offered by others, gave us and our collaborators an opportunity to establish or reconfirm program expectations, help us evaluate our educational offerings and find ways we can better support common learning objectives in watershed education. Strong partnerships are critical in informing us as we work to strengthen the program, remain relevant, and navigate unexpected changes.

For example, one long term collaborating agency, Bernalillo County Extension, was unable to participate with us this year. In the past, they have offered the agriculture related presentation to all APS schools. Consequently, our staff designed and delivered a similar presentation that engaged students in a regional history of agriculture and irrigation techniques that highlighted acequia culture and the effects of human settlement on the Rio Grande. In our search for resources in the community, we discovered CESSOS, a possible future in-kind partner, who could offer a presentation more culturally relevant and significant for students.

Blog Support

We noticed an increase in blog postings, including postings of class projects this year. We held a contest for excellent and creative blogging with specific criteria and saw more class engagement due to this. Though a few teachers continue to report they face challenges with access to computer labs, many of our classrooms this year are already using technology such as Google Classroom or many have individual tablets for students. With technology being integrated into more classrooms worldwide, the blogging component of RiverXchange continues to be a unique, important offering of our program. The blog offers a protected, educational platform for teachers to guide and review student work, as well as an opportunity for the class to learn about digital citizenship. Using the blog, allows classes to experience the importance of meaningful communication to a broad, digital audience, while practicing creative collaboration and self-responsibility in the submission of work.

Teacher Workshop

Noticing a need for professional development for our teachers with the newly adopted science standards, we took the opportunity to educate teachers about NM STEM Ready! at our teacher workshop and show how the RiverXchange program and curriculum can help their students meet these in their classroom experience. With support from the Environmental Education Association of New Mexico (EEANM) and Seleana Connealy of NM EPSCoR (Established Program to Stimulate Competitive Research), we offered an introduction to the standards, offered practical tools to plan and demonstrate lesson correlation, using RiverXchange activities, and shared resources for learning more throughout the school year.

Teacher Feedback

Every year, we receive invaluable feedback from our teachers. Feedback this year continues to be positive. All participating teachers want to return and a few have asked to add other teachers from their fifth grade team. We are finding that the majority of our teachers choose our program to teach more about water resource issues and to incorporate more science into the classroom. This shows a major shift since the program's conception, at that time teachers were more drawn to the program as a way to incorporate more language arts curriculum. While the program still focuses on reflective and creative writing, we are also responding to current needs by emphasizing how RiverXchange can help teachers include more experiential learning and science in their classroom. Nearly 50% of teachers are also attracted to the program because the blog enables them to connect with other teachers and students in a thematic learning environment. Here are a few highlighted responses from our teachers on the greatest learning outcomes for their class:

> "I was able to add experiential learning in science into my classroom lessons and truly engage the students." - Anonymous

> "Students were able to fully understand where our water comes from, what a watershed is, how humans have impacted the environment and ecosystems. And maybe, more importantly, what we can do to help." - John Turrietta, MLK Elementary

> "Awareness of their role in conserving and protecting water resources."- Dwayne Norris, Bandalier Elementary

> "Working as a team and real life connection to science topics through our local watershed." - Tris Carty, Seven Bar Elementary

"What a wonderful way to have students directly involved in their own watershed while learning hydrosphere concepts. The teamwork and concrete lessons were a great enhancement to our classroom." - Anonymous

"This group in particular, has learned so much from the experience. Many of them have never been to the bosque, or reflected upon the components and how/why they might have come to be there." -Anonymous

"The presentations were engaging and interactive. The demonstrations helped the students to understand more of our environment. I really enjoyed the speakers. The pole planting field trip was amazing! The kids felt very accomplished!"- Randi Sevigny, Seven Bar Elementary

Presentations

Program presentations were completed as follows:

Agriculture: 36/36
Stormwater: 36/36
Wastewater: 36/36

Drinking Water: 36/36
Planting Field Trips: 34/36
Landfill Field Trips: 5

PROGRAM DESCRIPTION

Mission

The mission of RiverXchange is to deepen students' and teachers' understanding and appreciation for their local river ecosystem, motivate participants to protect local water resources by conserving water and keeping their source water clean, and to provide a high quality, high impact outreach opportunity for funders and in-kind contributors.

The Big Water Questions

The optional curriculum frames program outcomes as "guiding questions," known as *Big Water Questions*. A long term goal of RiverXchange is that students understand these questions and can formulate logical, fact-based answers by the time they finish elementary school. We believe that students who can synthesize water facts to understand larger water issues will have the proper critical thinking skills and foundation for further discussion in middle and high school so that they will become informed citizens and voters on water issues.

Understanding a Watershed

- Is every place in the world part of a watershed?
- Where does your community's stormwater go?
- How can surface water become polluted?
- How does the water cycle relate to weather?
- How are groundwater and surface water connected?
- How can groundwater become polluted?
- What actions can all of us take to keep water clean?

Water in Our Society

- In what ways does our society use water?
- Where does your community's drinking water come from?
- Does everyone have the right to use as much water as they want?
- Where does your community's wastewater go?
- What actions can all of us take to conserve water?

River Ecosystem

- How does water affect living things in an ecosystem?
- What role do forests play in a watershed?
- What role do wetlands play in a watershed?
- What are some of the ways scientists can determine the health of a river, lake, bay or ocean?
- What actions can all of us take to improve the health of our ecosystem?

Background

As producers of children's water festivals and other grade K12 water resources outreach in NM since 2007, we observed early on that NM elementary teachers rarely incorporated water concepts in the classroom beyond what is required by the state (e.g., water cycle), and that most elementary teachers considered "water" strictly as a science topic. While teachers personally acknowledged the importance of conserving water and keeping source water clean, we continued to find that upper elementary students had little or no understanding of major water resources topics unless the teacher specifically integrates a wide range of water topics into the curriculum. For this reason, as well as our successful festival work with upper elementary students, this age level was selected as the focus for the RiverXchange program.

We created RiverXchange to provide a free program that is fun, interesting, and easy to integrate into the normal curriculum. Our hope was to motivate participants to explore water resources topics in depth. The program is carried out over eight months so that students spend more time developing a sense of pride and personal connection to their own river ecosystem, as well as a personal connection to a distant river ecosystem and the students who live near it.

RiverXchange began in 2007 as a pilot project of Experiential EE, LLC (under a services agreement with the New Mexico Water Conservation Alliance) and the National Great Rivers Research and Education Center, featuring partnerships between two fourth grade classes in Albuquerque, NM, and two fifth grade classes in Godfrey, IL. A curriculum was developed, a field trip to the river was coordinated, and partner classes "met" three times during the year via video tele-conferencing to present what they had learned. The upper elementary level was chosen because of our successful festival work with this age group.

After the pilot project, we transitioned to a web-based technology called a wiki. This enabled us to overcome limitations such as the high cost, availability, and time zone logistical issues associated with video teleconferencing – and easily involve more classes. The curriculum was updated to incorporate the writing component and we introduced classroom guest speakers to reduce teacher workload and bring up-to-date technical information into the classroom.

In 2012, ownership of RiverXchange transferred to Amy White of Orilla Consulting, LLC, who managed the program through July 2015. In August 2015, RiverXchange became part of the Ciudad Soil & Water Conservation District. Since 2007, we have served over 18,000 students!

This year, the program featured the following components:

- Optional standards-based curriculum including hands on science and social studies lessons, as well as writing assignments
- Coordination of class partnerships
- KidBlog online posting and communication
- Teacher training on curriculum implementation and use of KidBlog
- Ongoing technical and motivational support
- Online class postings
- End of year teacher survey
- Pre and post student surveys (NM only)
- Payment for teacher workshop substitute teachers (NM only)

- Coordination of at least four guest speakers into the classroom (NM only)
- Coordination of a field trip to the local river or important watershed feature (NM only)
- Field trip bus transportation payment (NM only)
- Field trip leadership and activity planning (NM only)

Program Management and Financial Support

The program timeframe was July 1, 2018 through June 14, 2019. All components including fundraising, design, planning, implementation, and analysis were carried out by employees and contractors of Ciudad Soil & Water Conservation District, including:

Melissa McLamb
Jessica Garduño
Erin Blaz
Jenny Lloyd-Strovas

Sponsors
- Southern Sandoval County Arroyo and Flood Control Authority (SSCAFCA)
- Middle Rio Grande Stormwater Quality Team (MRGSQT)

Sponsors provided a total of $51,881.62 in cash.
MRGSQT - $31.768.40 | SSCAFCA - $20,113.22

Program expenses included:
- Substitute teachers for NM teacher workshops
- Teacher workshop space rental and meals
- Field trip bus transportation for NM classes
- Field trip portable toilet rentals for NM classes
- Technology services
- Office and educational supplies
- Coordination services (planning, implementing and assessing all program components)

New Mexico In-Kind Partners
- Albuquerque Water Utility Authority
- Bernalillo County - Public Works Division
- CDM Smith, Inc.
- City of Albuquerque – Open Space Division
- City of Rio Rancho – Environmental Programs Office
- City of Rio Rancho — Parks, Recreation and Community Services Department
- Daniel B. Stephens and Associates
- New Mexico Acequia Association
- Sandia Labs
- Sandoval County Cooperative Extension
- Southern Sandoval County Arroyo and Flood Control Authority

- UNM Maxwell Museum of Anthropology

In-Kind contributions totaled $90,345. For NM classes, in-kind contributions included classroom guest speakers, field trip docents, planting materials, workshop space and computer lab use, and teachers' and students' time attending the presentations and field trips. For partner classes, in-kind contributions were not calculated this year. Sponsors and in-kind partners were recognized on our website and in presentations.

Participant Selection

All 36 participating NM classes were fifth grade classes, distributed as follows:

Bernalillo County	**Sandoval County**
Bandelier Elementary (4)	Colinas del Norte Elementary (5)*
Cochiti Elementary (3) *	Martin Luther King, Jr. Elementary (7)*
Duranes Elementary (1) *	Sandia Vista Elementary (1)
Georgia O'Keeffe Elementary (2)	Santo Domingo Elementary (1)
John Baker Elementary (1)	
Monte Vista Elementary (3)	
Seven Bar Elementary (5)	
Zia Elementary (4) *	
22 classes, 558 students	**14 classes, 396 students**
* Title 1 school	**TOTAL - 36 classes, 954 students**

Curriculum

A component of RiverXchange is the hands-on optional curriculum, which is offered to all participating teachers. It was developed to help students reach for deeper meaning through hands-on learning and reinforce what they have learned through the process of writing to their pen pals. Over the years, we have developed a curated list of activities from the curriculum, along with reflection prompts specific to each presentation. Organizers strive to incorporate emerging water resources issues into the curriculum, increase networking opportunities for teachers, reduce teacher workload, and align the curriculum with public school curriculum priorities.

Each class learns about its own local water resources issues through hands-on activities, classroom guest speakers, and a field trip. Students write about what they are learning via a private educational website that can be viewed by their partner classes. The computer technology and writing components provide a unique opportunity to reinforce what was learned, increase student motivation to learn, and collect valuable metrics about student performance.

Through RiverXchange, students take pride in sharing their knowledge of the local ecosystem and learning from their peers about another river ecosystem. Comparing the two geographical areas gives students a broader understanding of the importance of a river ecosystem to human and other life. Students gain the unique opportunity to share personal experiences and ask questions about a distant place. Teachers feel this kind of personal connection is a big deal for kids – many of whom have never traveled beyond their city limits.

All activities are correlated to NM state standards and benchmarks for Social Studies. All activities (because they require that students communicate information on the KidBlog) address Common Core Language Arts standards for writing. Some activities also address Common Core Mathematics and Science standards. For a summary of the RiverXchange Curriculum, see Appendix 1. For a summary of the extension activities, see Appendix 2.

Guest Speakers

We coordinated at least three guest presentations to visit each NM classroom. In all cases, guest speakers were water resources professionals from local agencies. Topics included:

- watershed/nonpoint source pollution
- drinking water
- wastewater
- water and agriculture (Our staff had to provide the majority of these presentations as we were unable to find an in-kind partner to do so, after we received notice that our previous provider, Bernalillo County Extension, would be unable to in the foreseeable future. We expended more coordination hours than usual due to this. We anticipate having an in-kind partner to offer this come next school year.)

Field Trips

The program requires that all classes attend at least one field trip to their local river or important watershed feature, which should incorporate a service learning component if possible. We coordinated all NM field trips. Throughout the winter and spring, students planted 518 native trees and 128 shrubs and helped restore critical riparian habitat along the Rio Grande in Albuquerque. In-kind funding from Rio Rancho Public Schools (RRPS) and Waste Management allowed us to offer an additional field trip to our RRPS classes which included a visit to the Sandoval County Landfill and Willow Creek Bosque.

<u>Field Trip Locations</u>

Alamo Farm

Candelaria Farms Open Space Preserve

Sandoval County Landfill / Willow Creek Bosque

EVALUATION

Blog Evaluation

Engagement

Of our total number of classes, Kidblog was used by 77% of RiverXchange teachers this year. Blog posts ranged from 1 to 41 per class over the year. We helped teachers who reached out with any need for technical support. As we did not hear of any issues from most of the teachers who did not blog, we can not be sure why they did not participate in this area. It is likely however, since many of these teachers have blogged in the past, that unpredictable circumstances made it challenging to integrate KidBlog into the classroom. One class did not blog because they did not have sufficient internet access (Santo Domingo ES). In general, we are satisfied that the majority of teachers utilize KidBlog in the specific method we train them on for RiverXchange. In addition, classes continued to use reflection groups for posting and this seemed to work smoothly for teachers.

We ran a contest this year for creative and excellent blogging. We used a rubric to score posts for each class to determine the winner. The results from this rubric demonstrated that about half of classes posts met a satisfactory level of blogging. 32% of classes demonstrated above satisfactory posting and 13% of classes were exceptional. Four winners were chosen, two 1st place and two 2nd place winners, who won gift certificates to Acorn Naturalists and a River of Change model from the Bosque Education Guide (1st place only). In observing the quality of postings from the majority of classes, we determined the use of the KidBlog platform is an effective means to meet our education and outreach objectives.

Student Voices

The blog is not only a platform for student voices to be heard, it also provides a rare opportunity to informally assess student learning from RiverXchange. Even with a range of quantity and quality of postings, across the board, students voices resounded messages of water conservation and protection. While they might not always have a perfect grasp on the technicalities of water distribution and use in our community, we can see they are building knowledge about their watershed and water as a local resource.

This year we continued to encourage group collaboration by setting up reflection groups at the start of the year with the hope that blog posts are a product of that collaboration. We also have tried to encourage teachers to get creative with posts - to do videos, pictures, or even voice recordings. We still see a majority of written-only posts, though some teachers integrated powerpoint projects, drawings and videos to posts. This is encouraging as the blog has the potential to truly catalyze project-based, hands-on, experiential learning by being a multimedia platform.

Blog Images

No Trash

By Gallegos Watery cycles on Oct 31, 2018

Keep our Environment Clean

Hello fellow water users. We have an issue with our trash. The plastic bag is one of the worst threats to our environment. It can destroy our watershed and we can lose all of the water and die. Trash can pollute the sea and can kill the animals. For example a plastic bag can look like a jellyfish and it can trick the turtle into eating it, and then the turtle will suffocate.

If we don't litter than our lakes and seas will not be so DIRTY! Some other ways to save our drinking water is to pick up dog poop, don't take long showers, turn off the water when you're done with it, fix leaky faucets, don't use pesticides, and only use a little fertilizer.

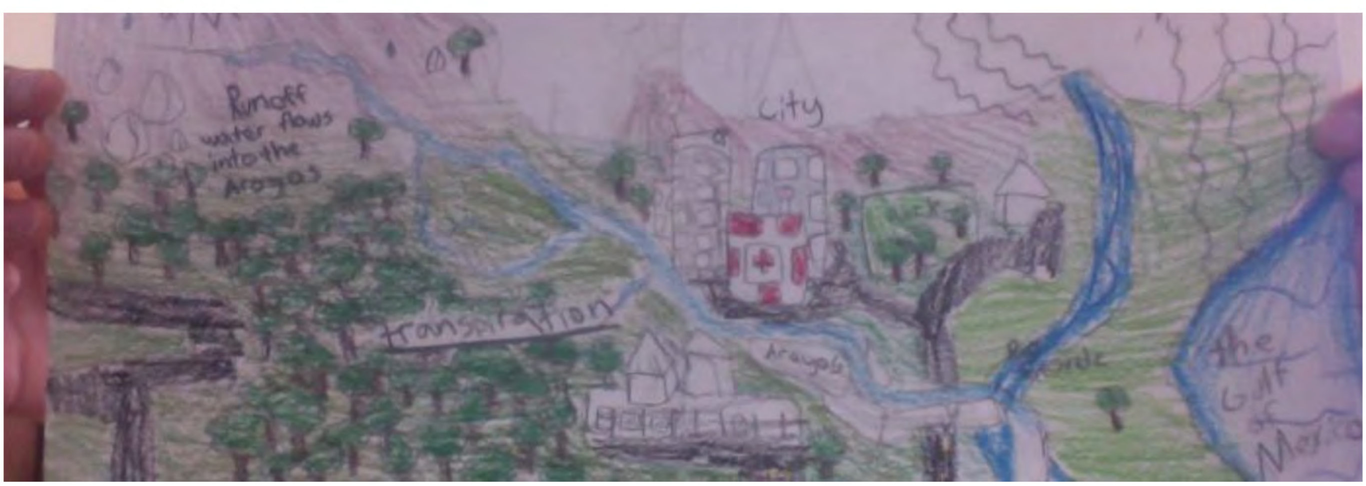
Fifty years ago people in Albuquerque believed that there was a lake under us. But no, we have a small portion of it and must use it carefully. If we don't take care of it we will not have enough of it to drink, water plants, and bathe.

Some facts are:

- The earth is made up of 70% salt water (not usable).
- There are people all over the world who litter in our water.
- The Pacific garbage patch is twice the size of Texas.
- Everyday the Rio Grande goes straight through New Mexico to the Gulf of Mexico.

Thanks for helping us save the environment!

“Learning about the Water Cycle” (image and quote below by Whitlock McGonagal)



“We made diagrams of our local water cycle, the Sandias to the Gulf Of Mexico as our main body of water.”

Kidblog Quotes

"On the 13th of December we went to the Rio Grande bosque. When we went on our field trip we felt like this field trip was about friendship. We had fun with people we did not usually hang out with. We made some stronger friendships. It felt really good. We planted three trees and named them Skittles, RIP Mickey Mouse and Paw. We had to use shovels, an auger, and trees. The trees were cottonwoods. We did this so we can help our bosque. We also saved a live mouse. We were happy because our teacher got to help and she was in our group. Unfortunately, we also found a dead mouse and our chaperone got to take a picture. A lot of the tree starters varied from deep to like not even deep at all! Cottonwood trees are special because they can grow from a branch cut from another tree. They can live up to about 80 years old! Beavers like to eat young cottonwoods so the Open Space people use a metal fence around the trunk. This field trip was the best! It meant a lot to give back. We would love to come back!" (Gonzalez Contagious Intelligence)

"I will never forget that if you have a leaky faucet and do not know about it or just don't want to pay money to fix it, in a year over 86,000 gallons of water will be wasted." (Gomez Water Rush)

"A permeable surface means that water can soak into the top, such as grass or dirt. A impermeable surface means that water cannot soak into the top, such as a road or sidewalk. The problem with impermeable surfaces is that there is a lot more runoff from rain or water flowing down the streets." (Gomez River)

"When we learned about storm water we were surprised that just one storm can wash away all of our pollution into our watershed." (Rodriquez Africa)

"Wastewater comes from toilets, sinks, baths, showers, and drains. In Rio Rancho, this wastewater goes to a wastewater recycling plant where it is cleaned and put back into the aquifer. In order to be cleaned, people help the reclaimed water go through the plant." (Turrietta Galilei)

"When we went on the field trip we learned that the Rio Grande used to overflow. When it stoped, other plants took over like salt weed and tumble weeds. So when we planted the trees it helped. Our favorite part was planting them and feeling the accomplishment. Our whole group planted 10 TREES! We also learned that when a cottonwood tree branch falls in the mud it will sprout roots." (Yu Wonderwoman)

"The dust bowl impacted the people because it destroyed peoples farm and crops it was a time of depression and drought." (Shafer Storm)

Kidblog Partners

Due to staff transitioning at the start of the school year and other outside factors, we closed out the year with only two partner teachers who were actually set up on KidBlog and posting. One partner teacher was returning from the previous year and was able to post frequently without support. Two new partners were successfully trained over the phone in February, one of which did end up posting in late April. Detailed instructions for KidBlog were sent to all partner teachers who registered, however since none of them followed through it seems that over- the-phone training is the most effective way to ensure initial partner success on the blog. We also plan to record a video training for partner teachers for next year to better assist them with integrated the blog in their classrooms.

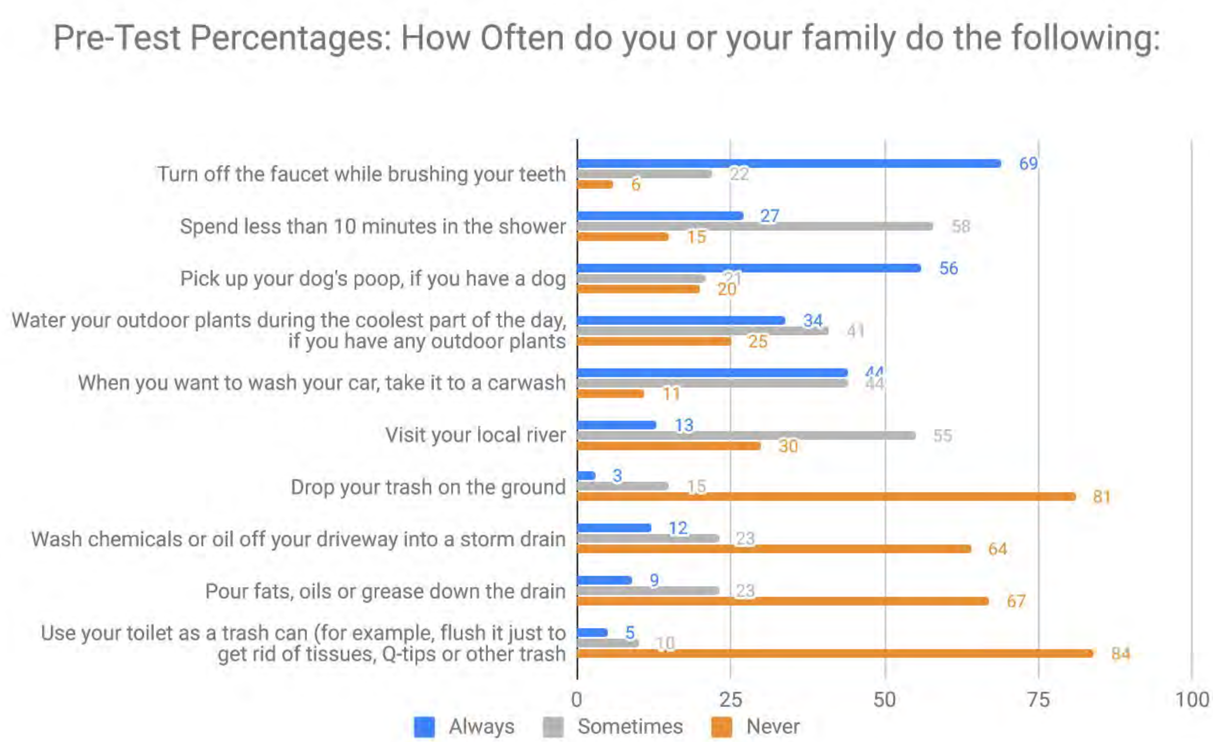
Student Surveys

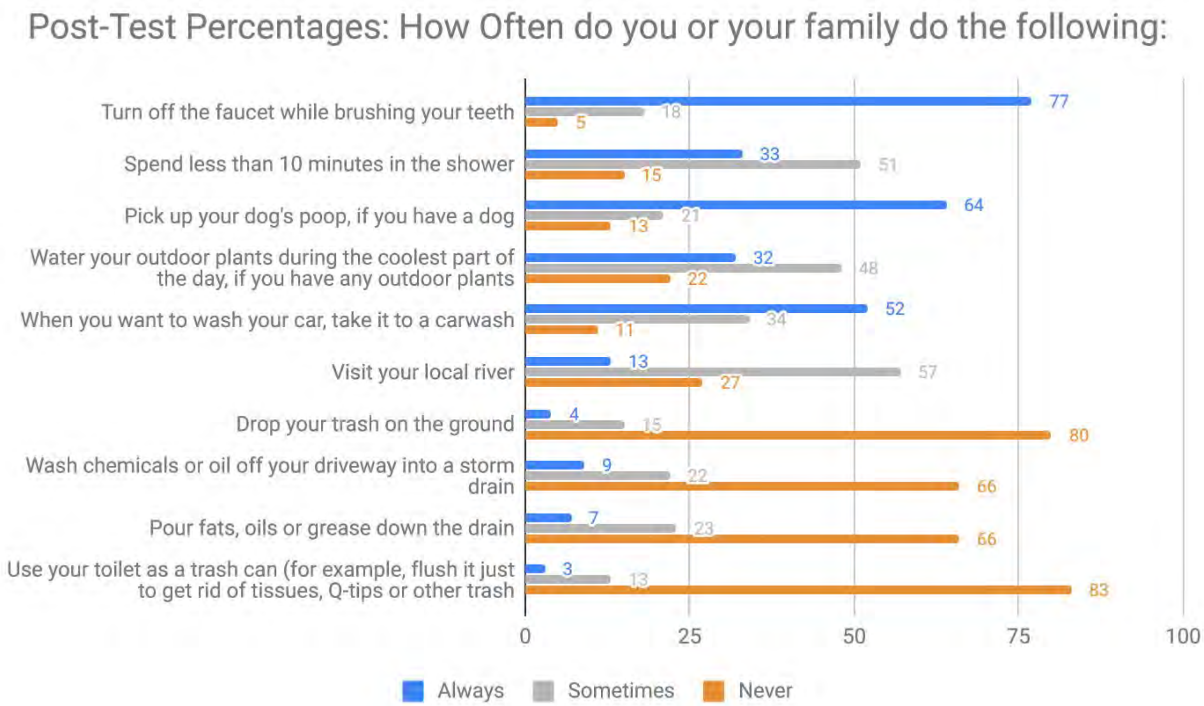
A key component of RiverXchange is it's measurable goals relating to student performance. We collected quantitative data on student performance by way of a pre and post survey and qualitative data by reading what students submitted on KidBlog. We also surveyed students about their actions before and after participating in RiverXchange.

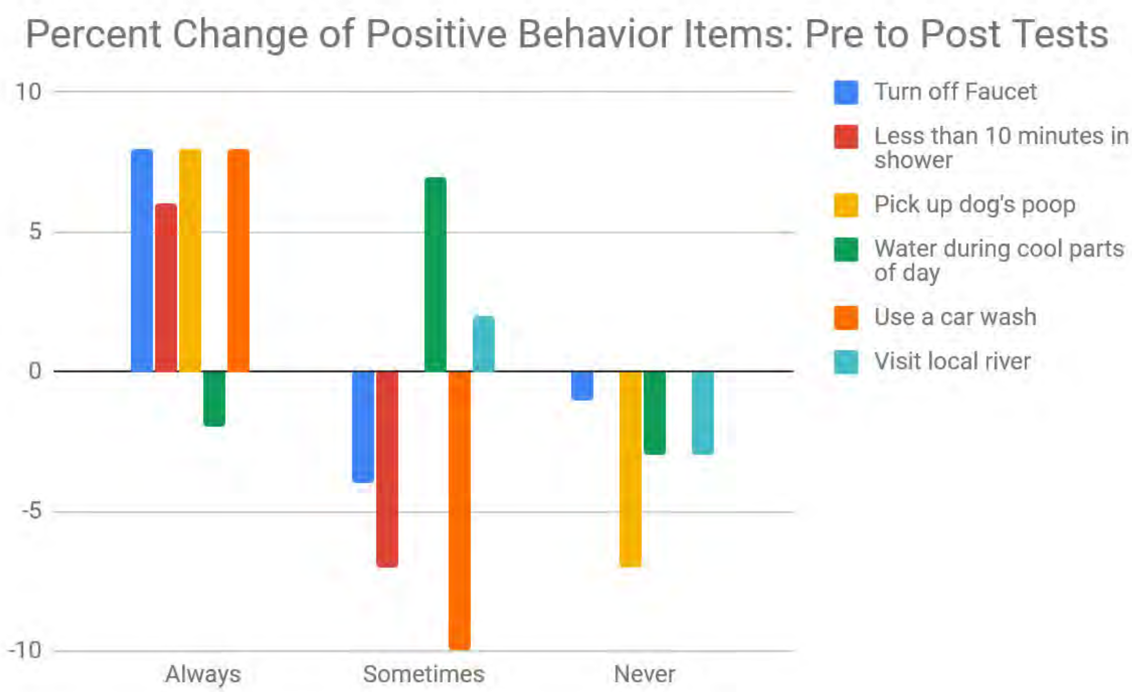
Pre/Post Behavior Survey

In order to quantify the learning outcomes achieved through RiverXchange, we ask our teachers to have their students fill out a survey prior to, and upon completion of the program. Below, you will find a series of graphs used to illustrate the change in responses between the pre and post surveys. This year, 721 students completed the pre-survey, while 718 completed the post-survey. In order to account for this small discrepancy in participation, the number of each given answer has been calculated as a percent of the total number of responses received for each given survey. We continue to refine the survey and our programming year after year based on teacher feedback and metrics gathered from these surveys. We are also evaluating our metrics over the past six years to see how and if the results have been changing year to year. We have included a graph showing the changes for the behavior survey, at the end of Item 1. We expect to have more questions assessed by August 2019.

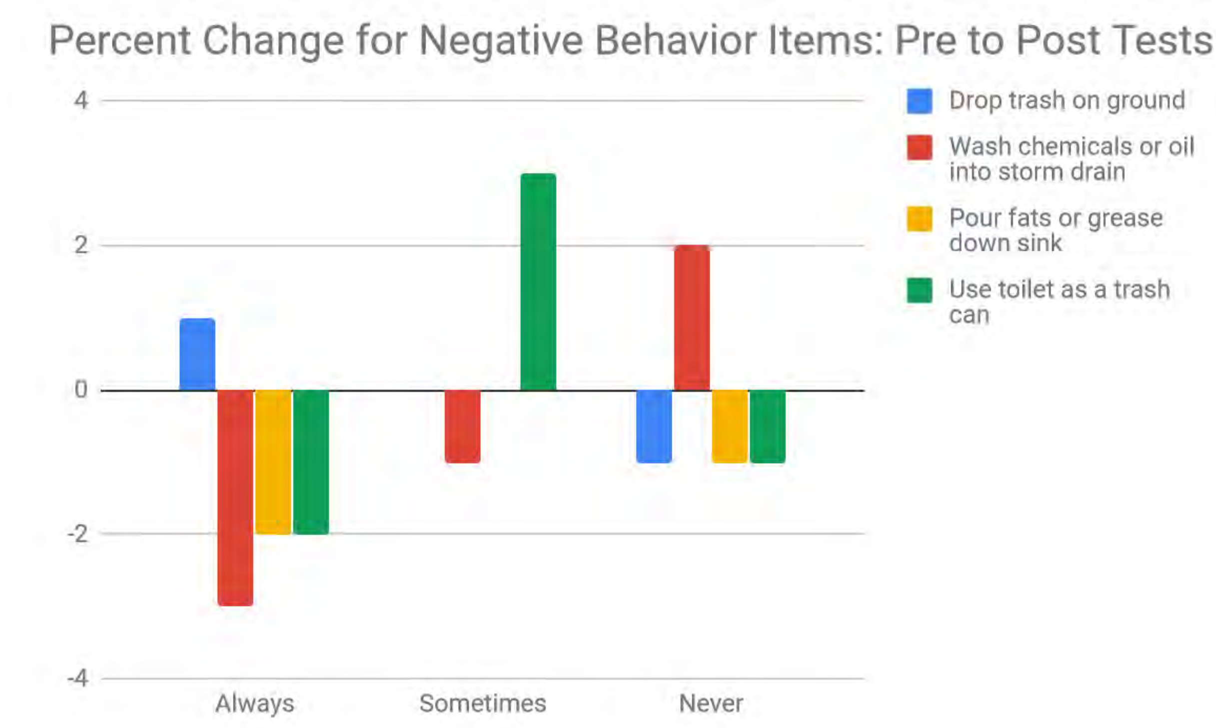
Item 1





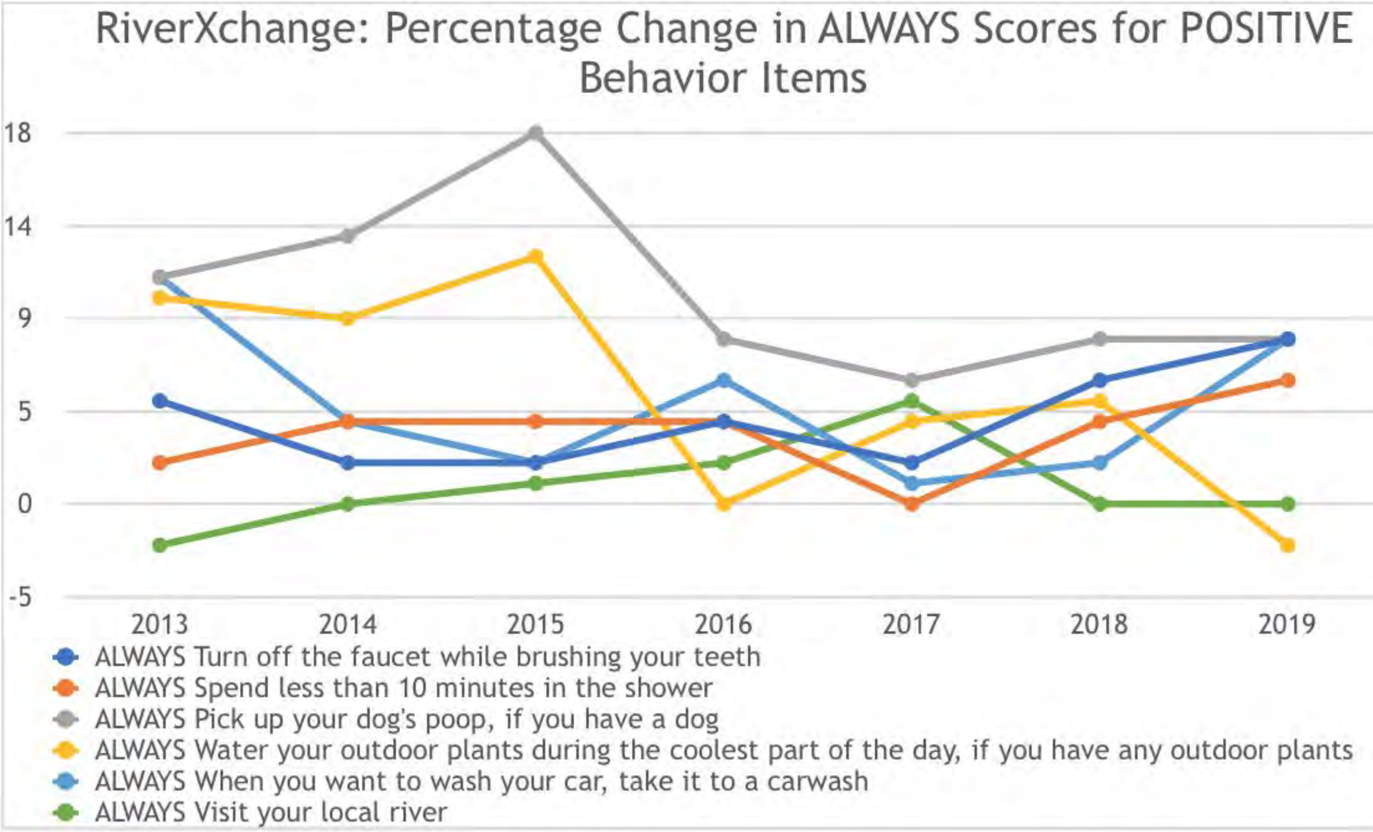


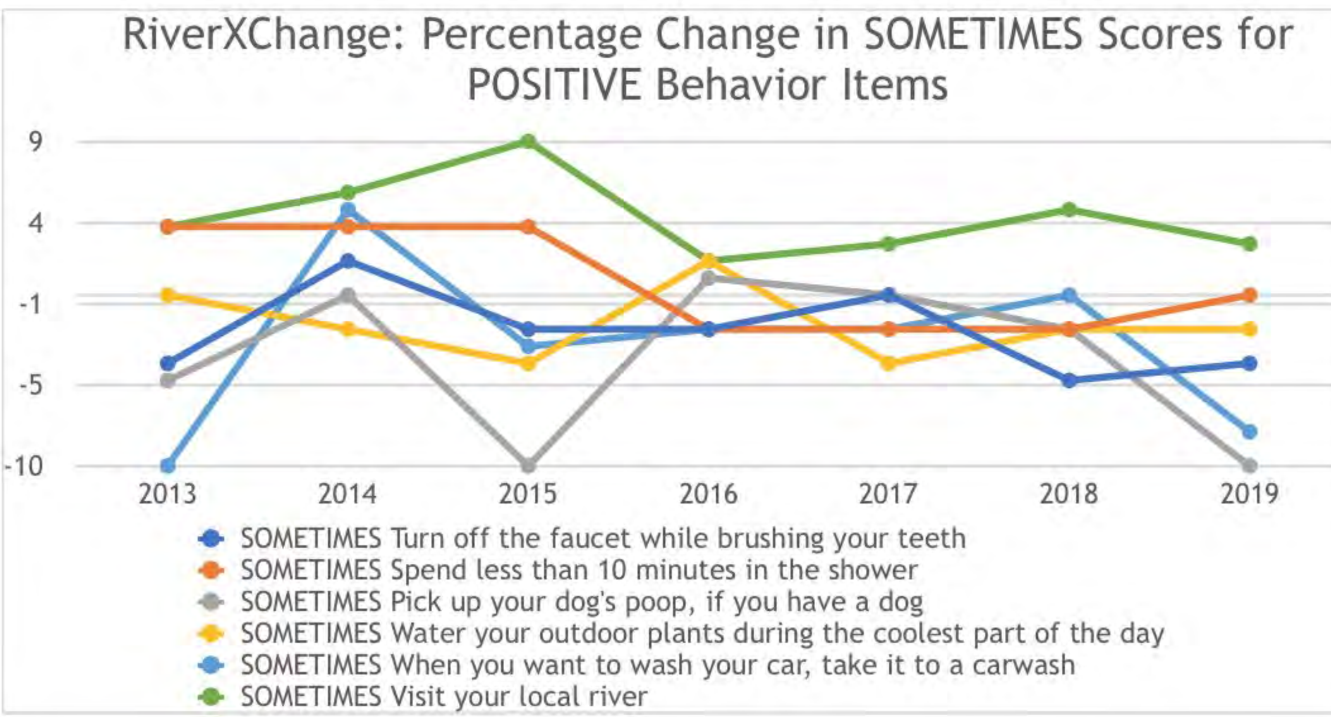
This graph illustrates an increase in positive behaviors after having received the RiverXchange presentations for the following behaviors: turning off the faucet when they brush their teeth, picking up their dog's poop, using a carwash service and spending less than 10 minutes in the shower. For many items we see an increase in positive behavior while also seeing a decrease in negative behaviors. For example, the question "How often do you pick up your dog's poop?", there is an increase in the response "Always or Very Often" while there is a decrease in the response "Never or Not Very Often." While these metrics are positive, we aim to have more significant positive findings in behavior metrics in future years.



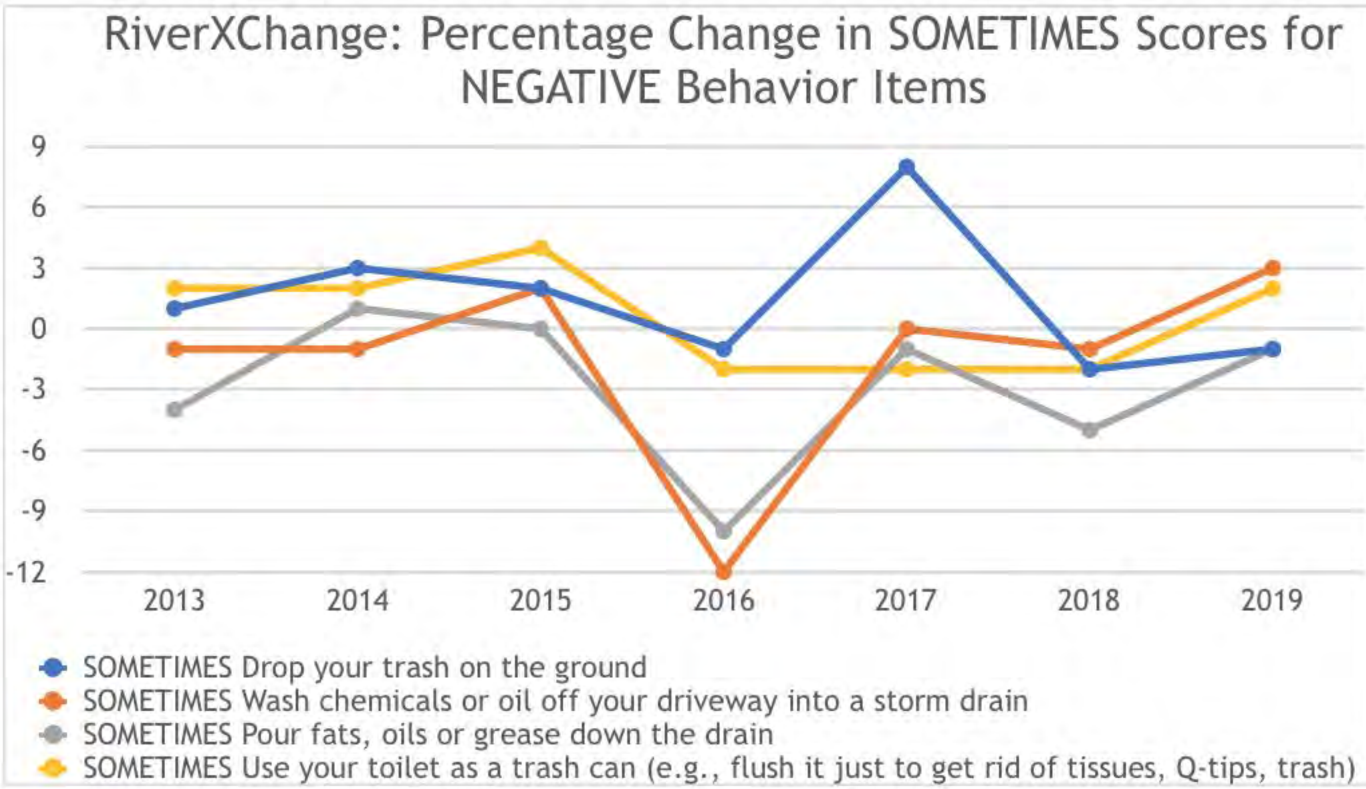
This graph illustrates a decrease in negative behaviors after having received the RiverXchange presentations for all of the above listed behaviors except “Drop trash on the ground.” It is likely that our students are unsure how to answer for the behaviors listed that may not feel applicable to them, for example, “How often do you wash chemicals or oil off your driveway into a gutter or storm drain?” For behaviors that are more specific to adults, it is more important to us that we capture students’ understanding of the actions that are harmful to the watershed. As we revise our survey for next year, we will aim to make this behavior assessment more age appropriate for 5th grade students.

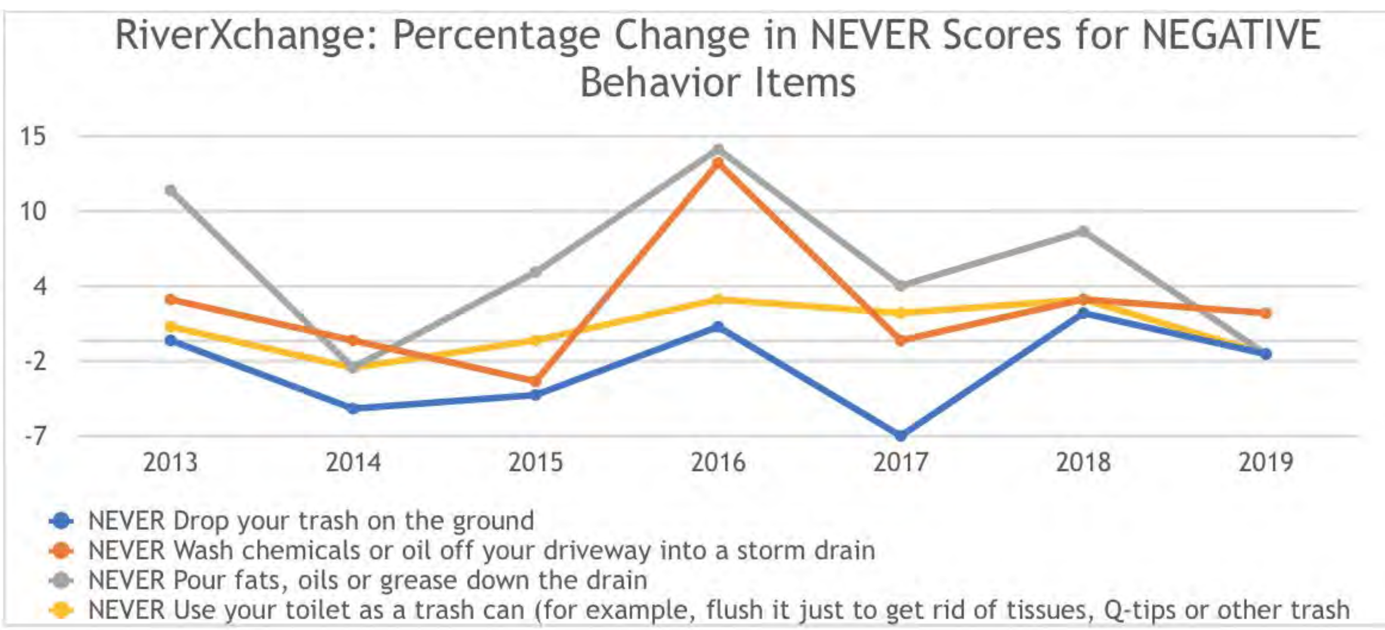
The following graphs show the percentage change between pre and post surveys on the behavior survey items since 2013. The graphs distinguish data for negative and positive behaviors. These graphs will be critical in our ongoing evaluation of the program.





We see an overall trend of positive change in many of the listed behaviors since 2013. The most notable and consistent change showing in students learning the importance of picking up their dog's poop. Inconsistencies can be due to a variety of reasons, including changes in presenters and personnel operating the program, and students may gauge their behavior differently at the end of the year, with what they've learned throughout the program. Seeing how we compare year to year in our metrics, allows us to identify where we need to improve the learning outcomes for students. In 2015, we had an additional presentation for our participating classes which emphasized all positive behaviors. These graphs also emphasize for us the importance of training our presenters at the start of the program and emphasizing our teaching objectives with them throughout the school year.

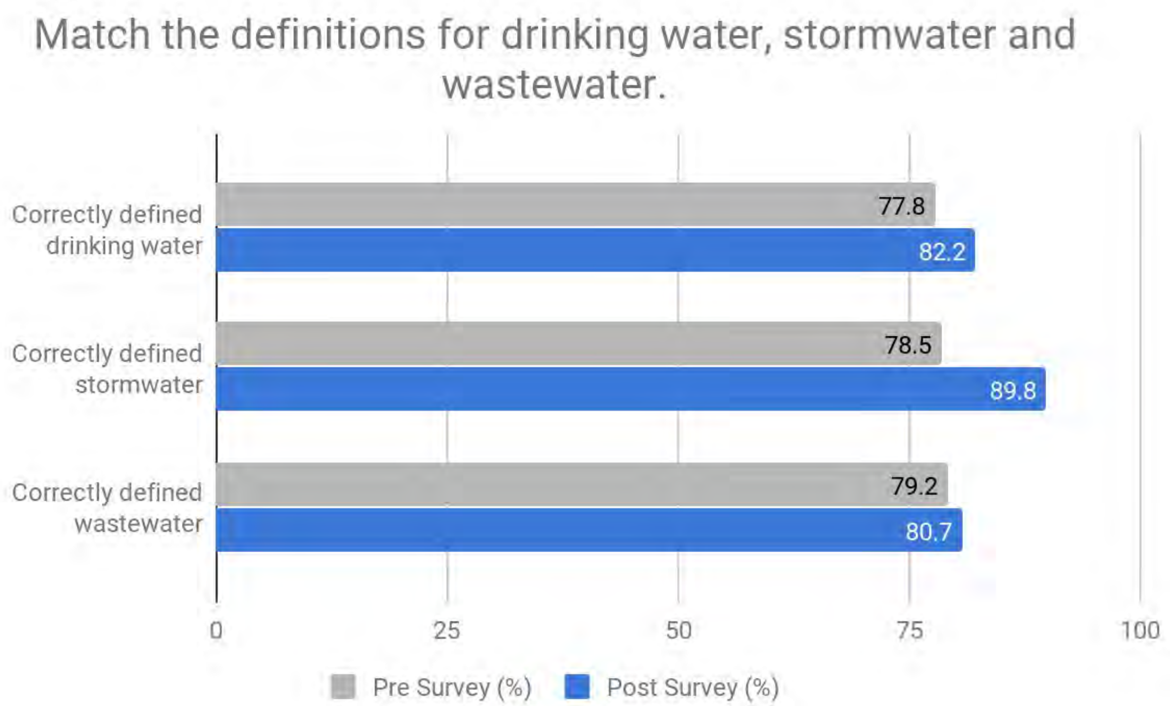




The change in negative behaviors is not consistent over the years, though we do see the majority of items showing a positive change year to year.

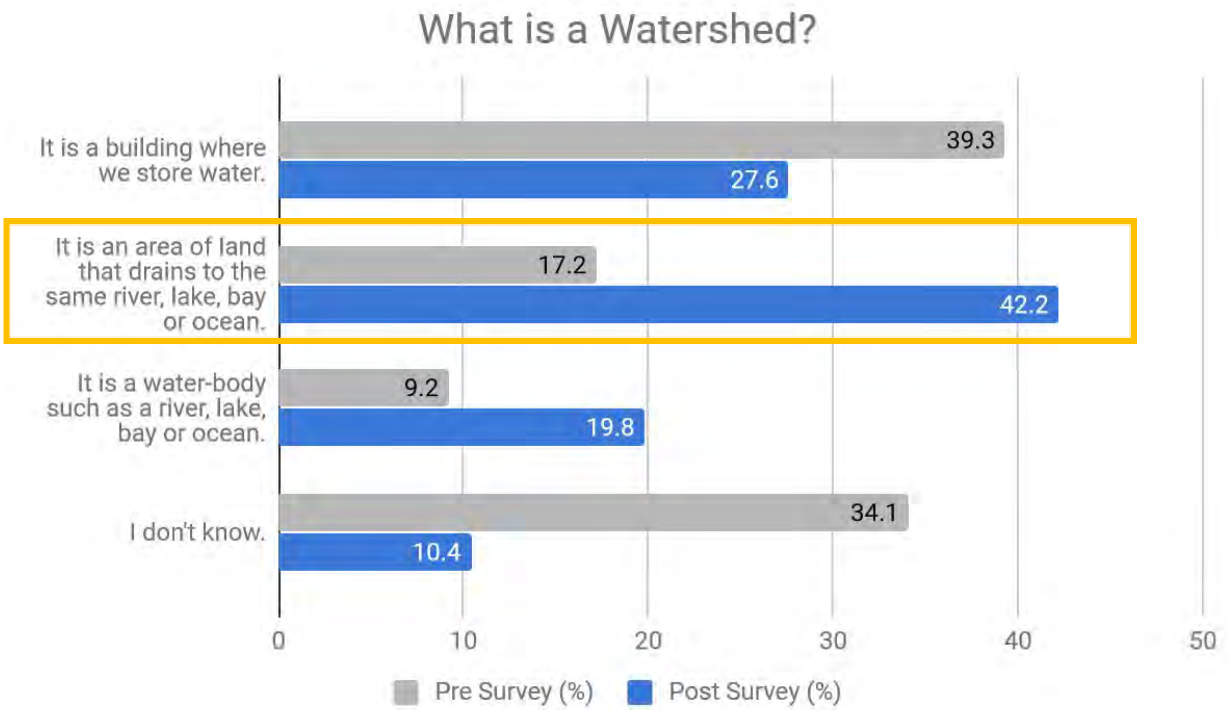
Correct answers, where applicable have been noted with a yellow outline. Stars have been used to indicate where we are seeing large differences with positive outcomes.

Item 2



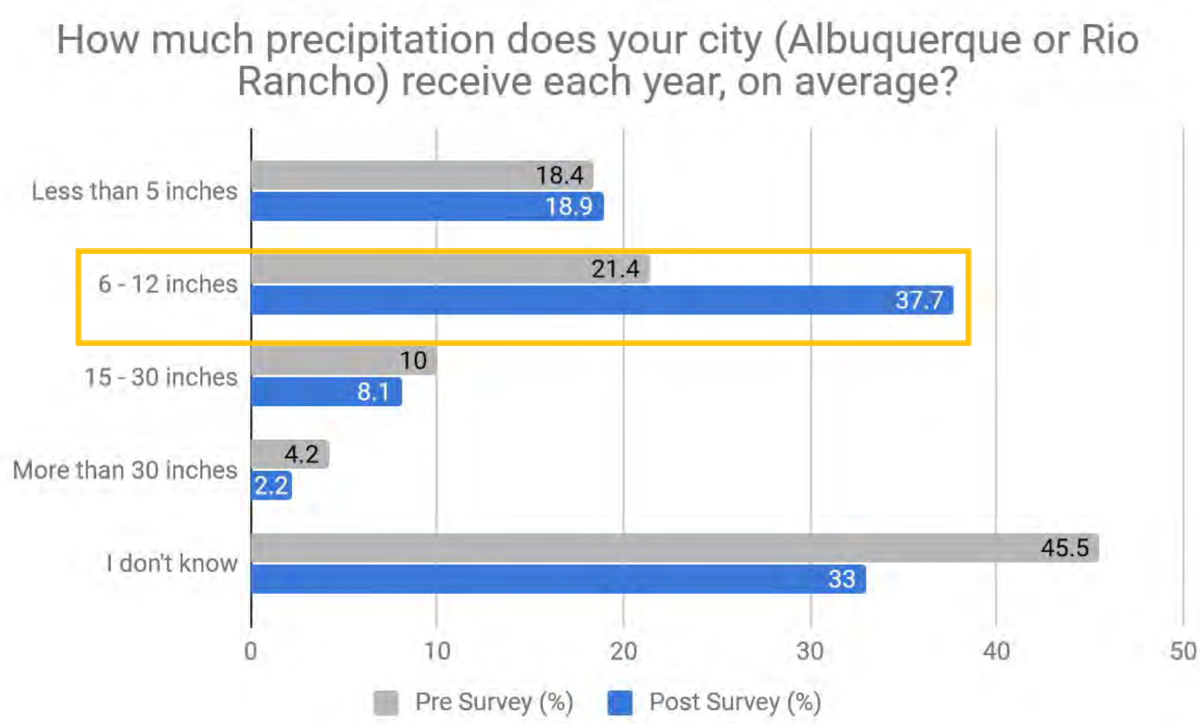
This graph does not demonstrate a significant change from pre to post. One possibility is that students are making educated guesses on the pre-survey and then are confident in their answer on the post-survey.

Item 3



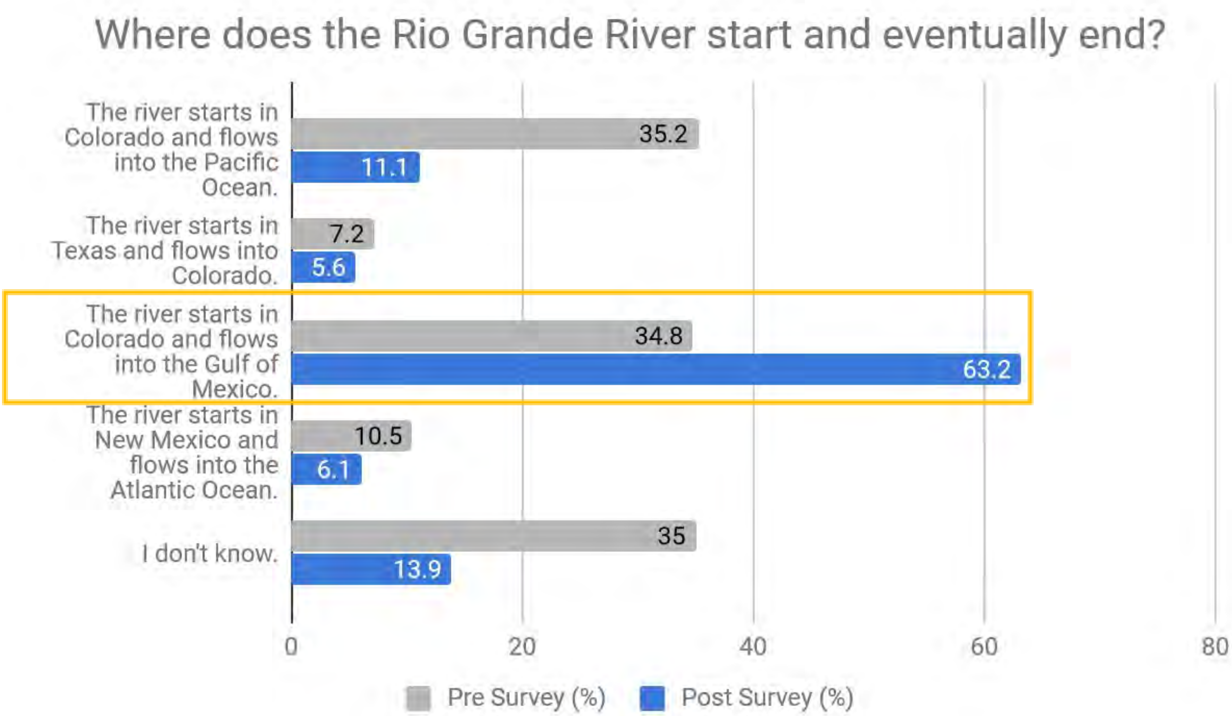
This graph demonstrates a 25% increase in correctly defining a watershed from the pre to post survey. Next year we intend to remove the option to answer "I don't know" in all survey questions as we have determined that we could better assess student knowledge without it. Students may choose "I don't know" in cases where they aren't confident of the answer though could guess the correct answer with a challenge to consider the question more thoroughly.

Item 4



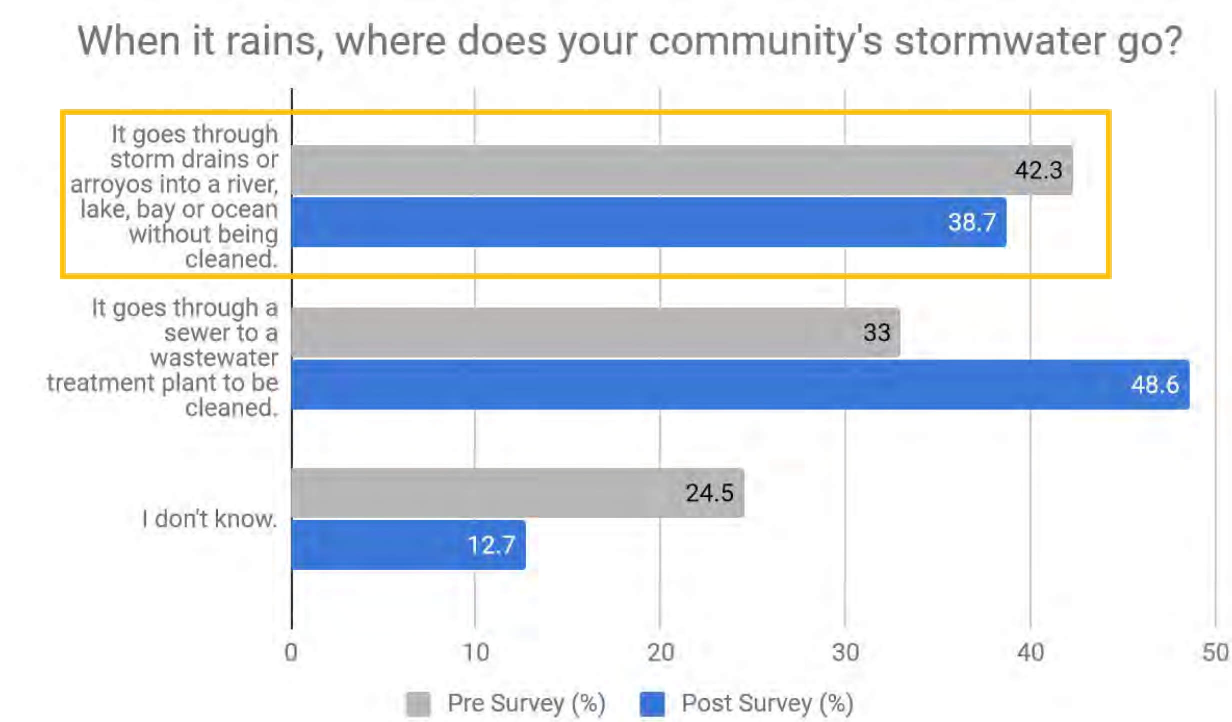
While we see a 16% increase in the correct answer here, we would like to see this metric improve next year. We adjusted the increments of the choices this year as well and added “less than 5 inches”. It’s likely that students who chose “less than 5 inches” thought the lesser precipitation reflected their home desert environment. We will plan to emphasize annual precipitation in the program next year. Also, we see again students opting for the “I don’t know” choice rather than perhaps choosing their best guess.

Item 5



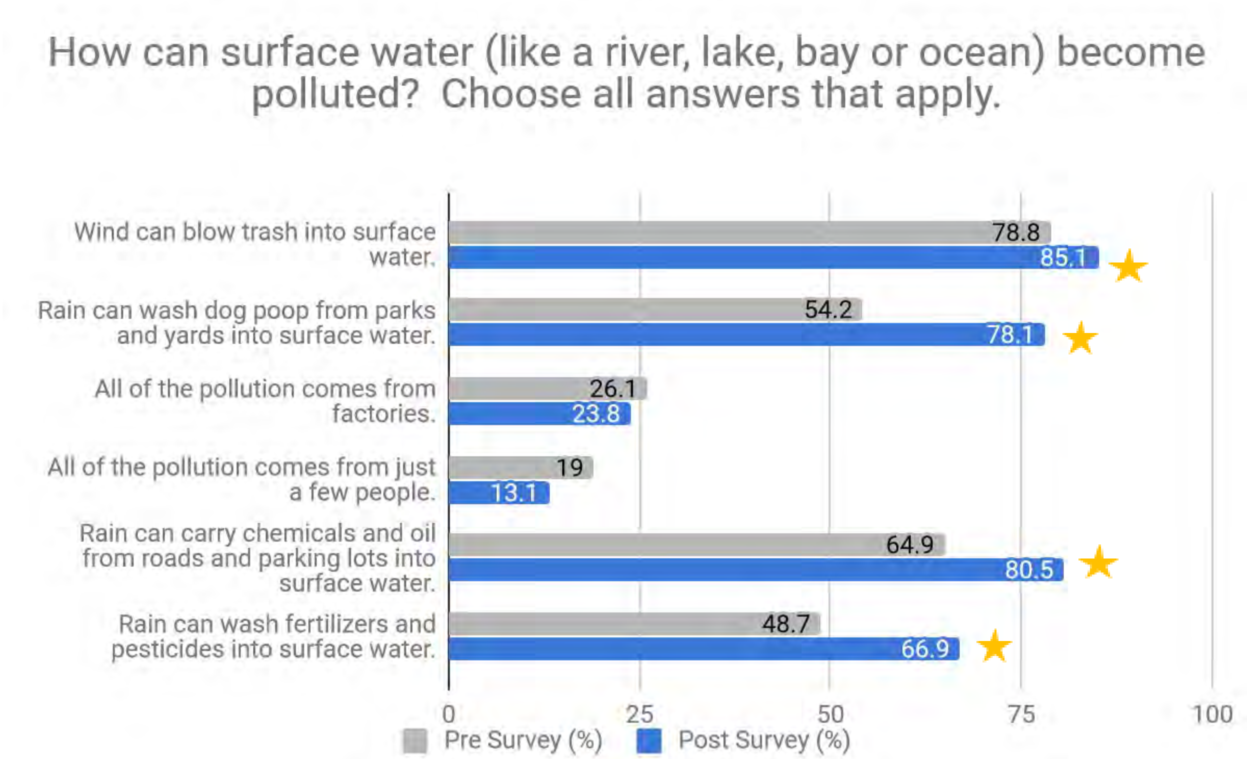
Nearly 30% more students could answer this correctly at the end of the program.

Item 6



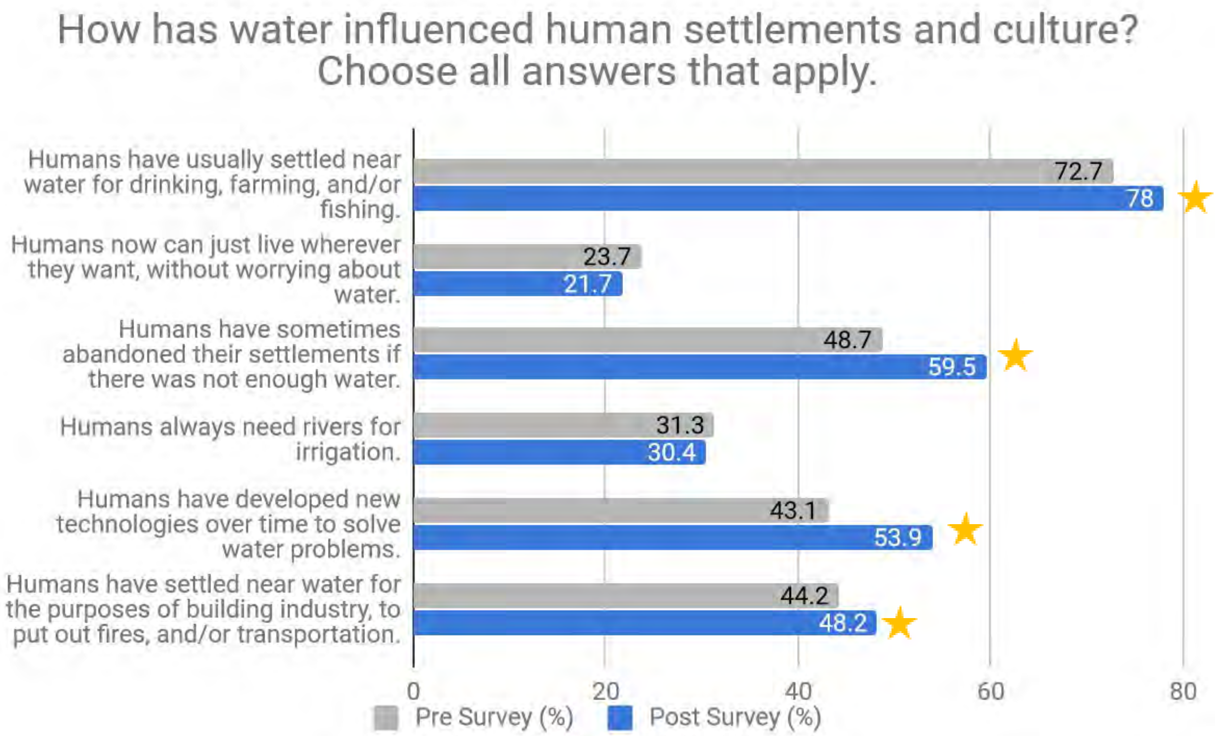
This graph demonstrates a small decrease in correctly defining the stormwater pathway. We are not exactly sure where the misunderstanding is stemming from, but it may be rooted in misinformation about a sewer drain versus a stormwater drain. Next year we will ensure that teachers and presenters are clear about the difference between these drains and educate students on the distinctions. These results also support the need for a presenter workshop where we communicate with presenters the overall goal of RiverXchange in order to reinforce the collective goals and desired outcomes of our funders and in-kind sponsors.

Item 7



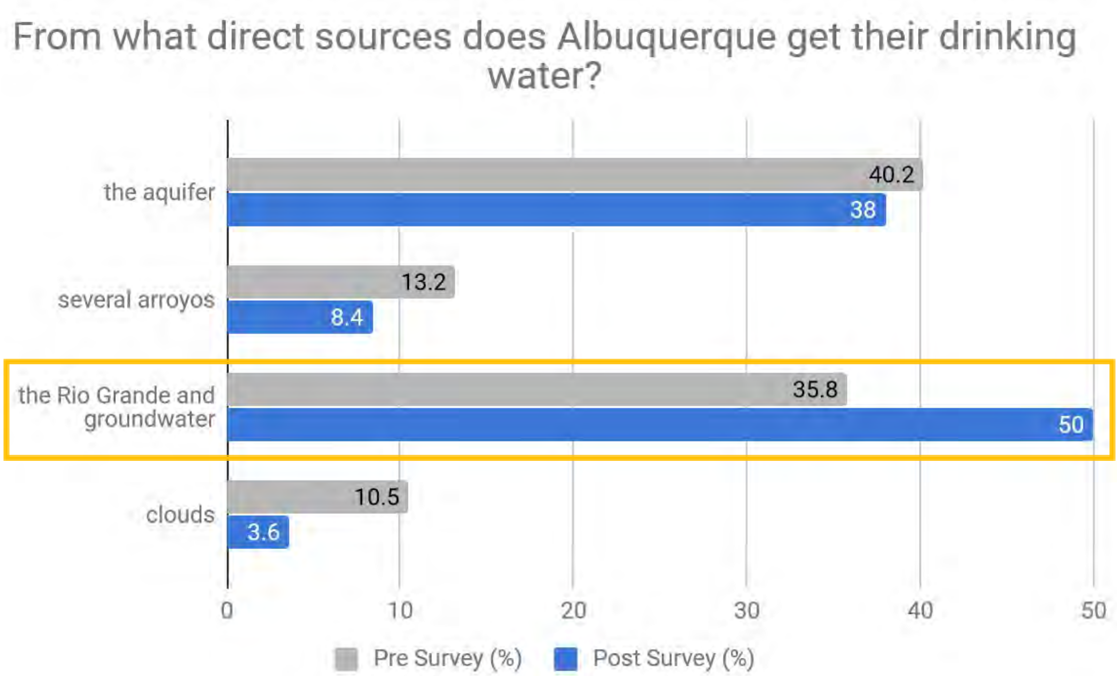
We see a significant increase (15-23%) in the understanding that stormwater can carry chemicals, fertilizers and dog poop into the river.

Item 8

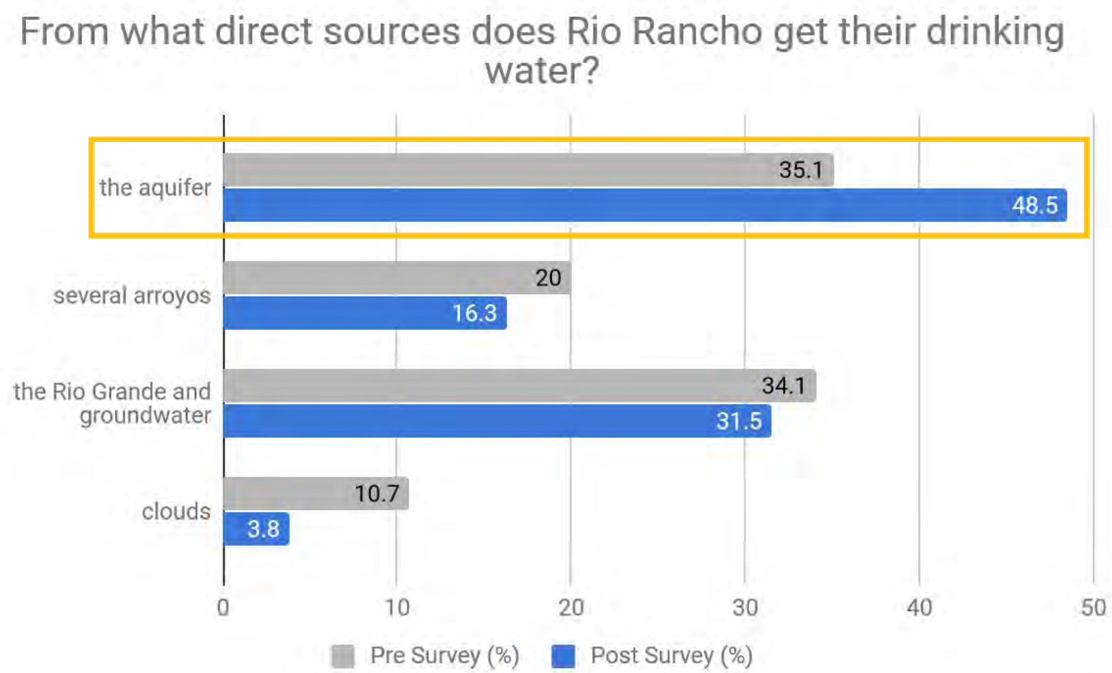


While students show a basic understanding of how water has influenced human settlements and culture at the time of the pre-survey, the post-survey shows an increase in overall understanding after students have been through the RiverXchange program.

Item 9

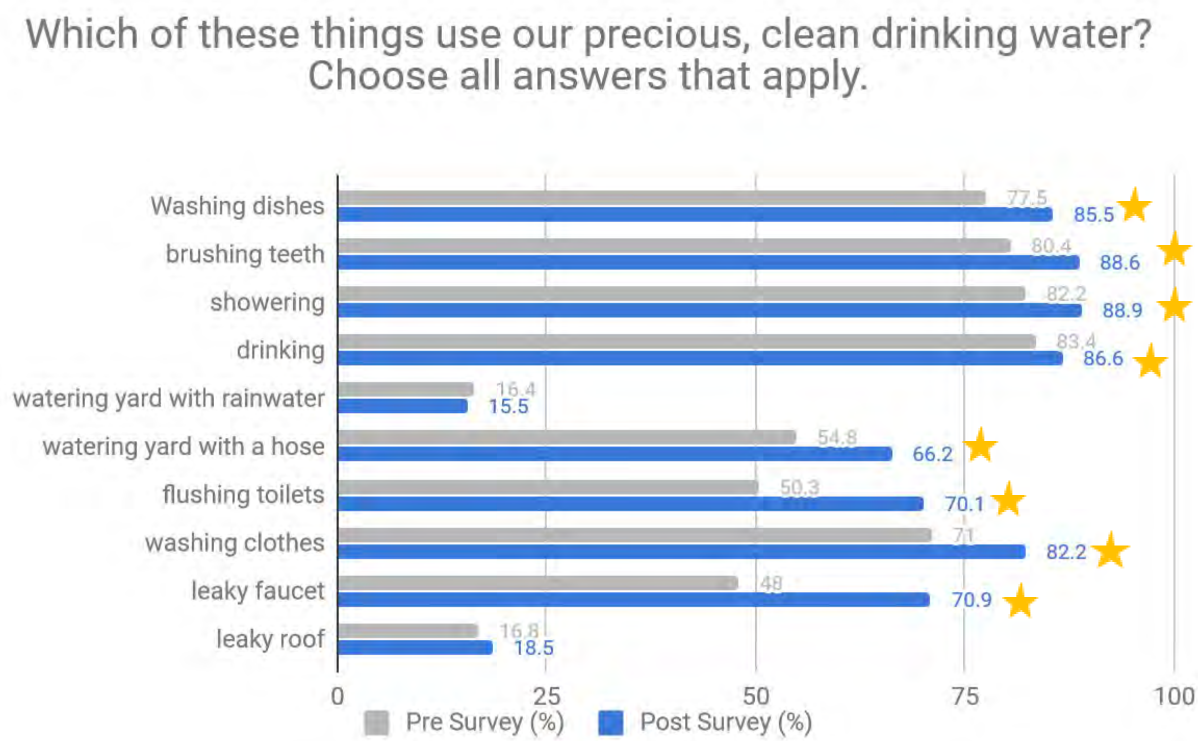


Item 10

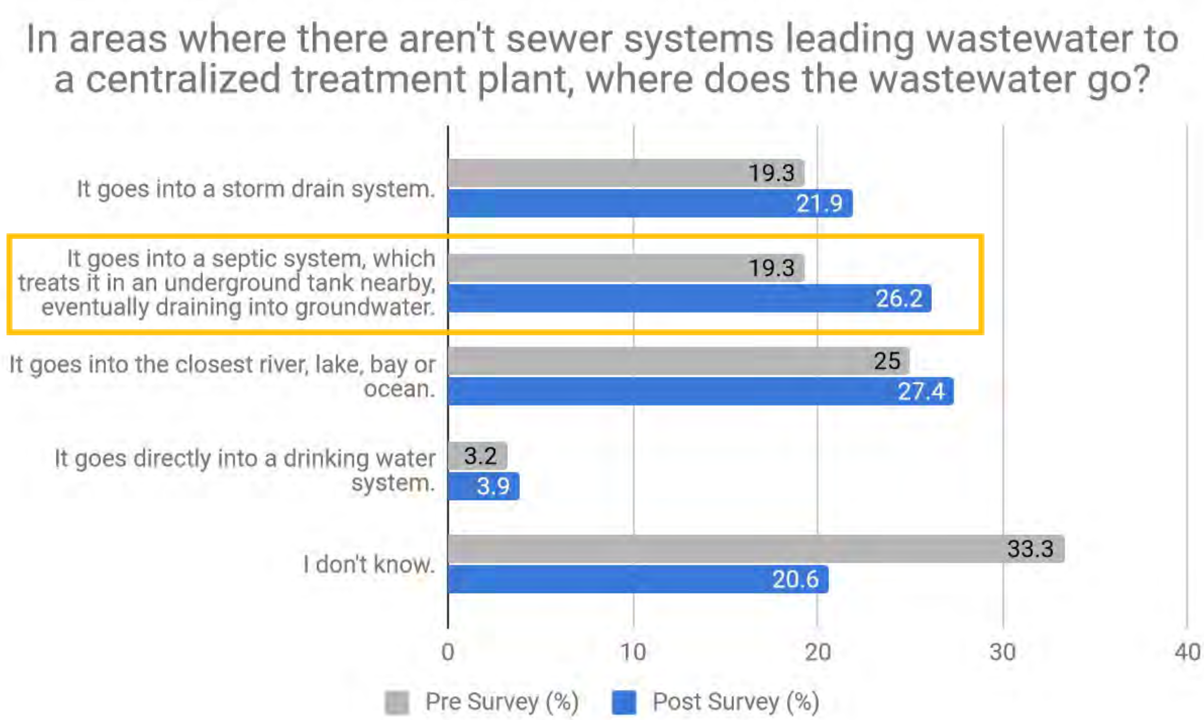


In previous years, all students, whether from APS or RRPS, could select the "river" or "groundwater/aquifer (wells)" as the correct answer to this question. To be more accurate this year, we offered students a similar question for both cities (Albuquerque and Rio Rancho). We also included an option reflecting that Albuquerque receives its drinking water from a combination of the river (surface water) and the aquifer. We also think it's important for students to understand where each city gets their drinking water. And we do see a significant increase in the correct answer for both questions. Next year, we will use the same terminology to signify the aquifer, instead of using "groundwater" and "aquifer."

Item 11

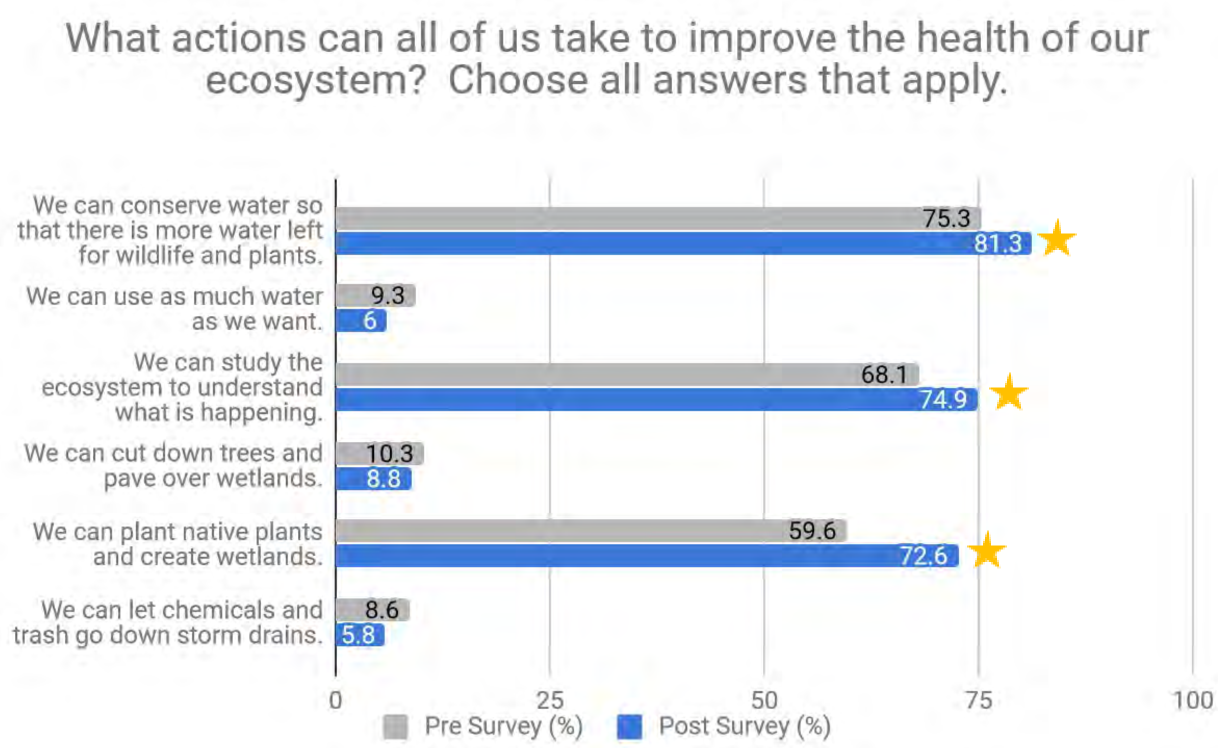


Item 12



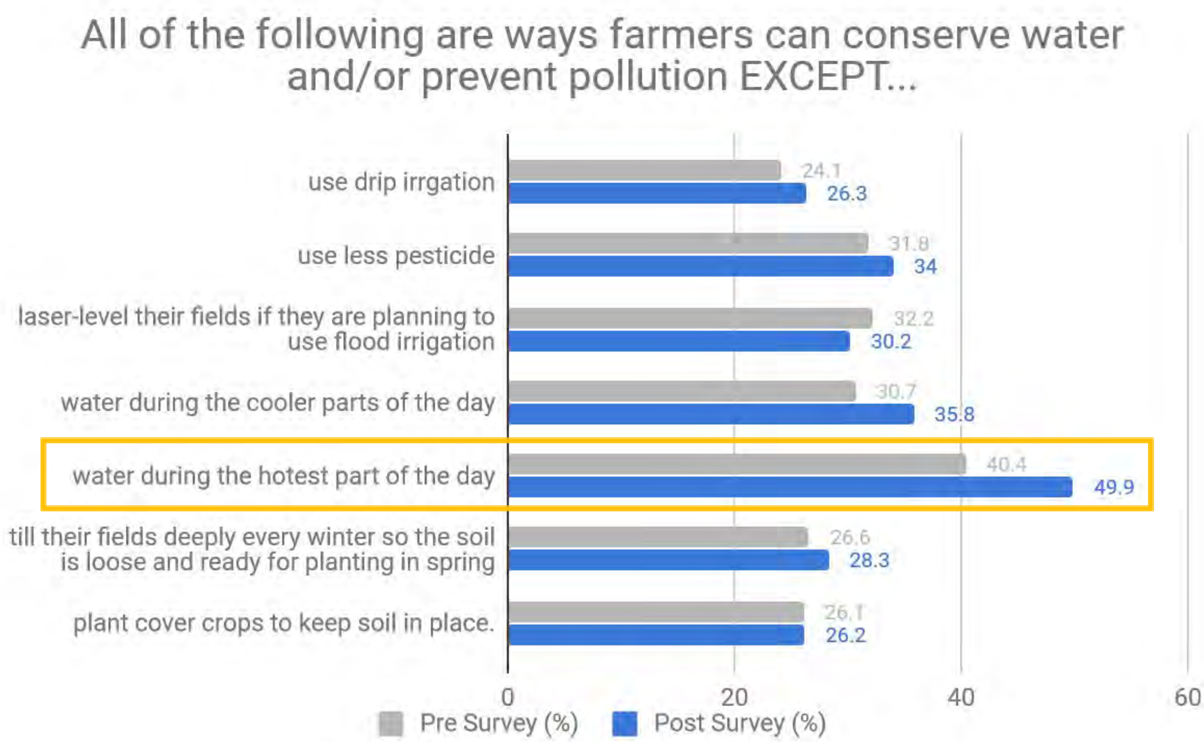
It appears that this question is either confusing to read or the students aren't understanding the information from the program. It is likely that our APS students do not get exposed to septic systems as is covered in the wastewater presentation for our RRPS students. While there is an increase in the correct answer in the post survey, the results also show a misunderstanding of wastewater through a similar percentage of students choosing several incorrect answers. We intend to address this more in the curriculum next year.

Item 13



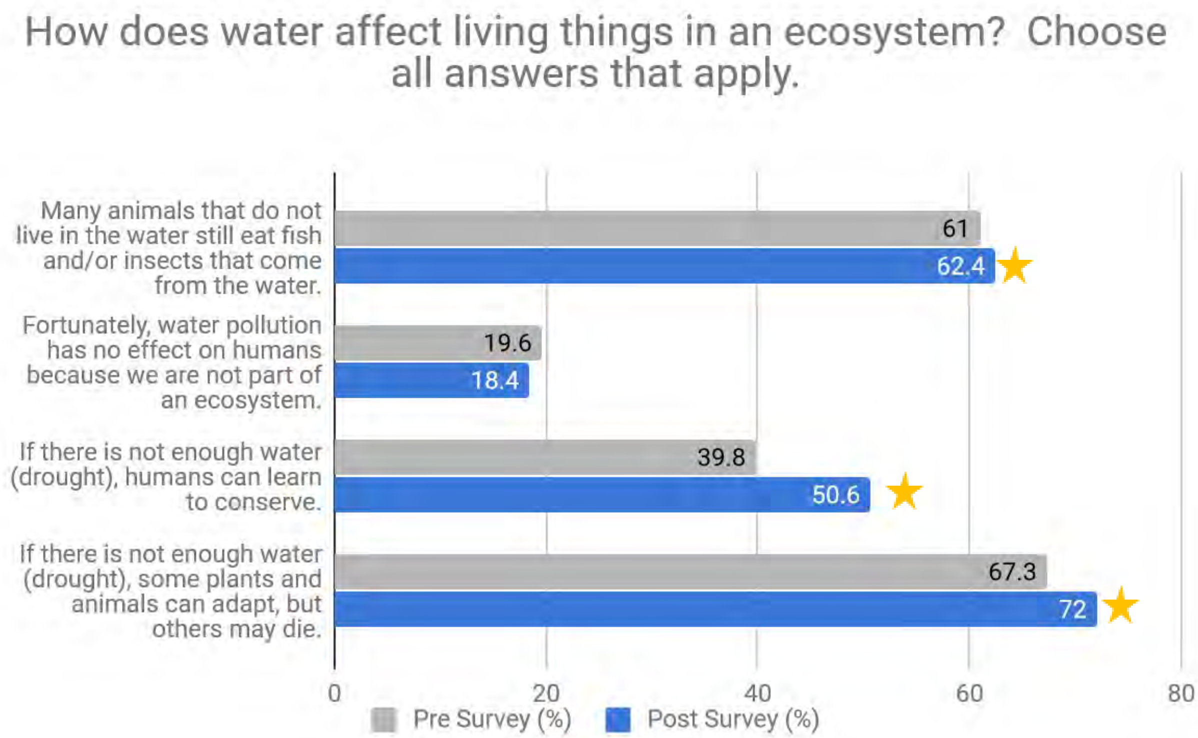
We see a 13% increase in the understanding that planting native plants can improve the health of our ecosystem. This may show learning of the significance of permeability in a landscape and how it can contribute to water conservation and support the health of the local environment.

Item 14



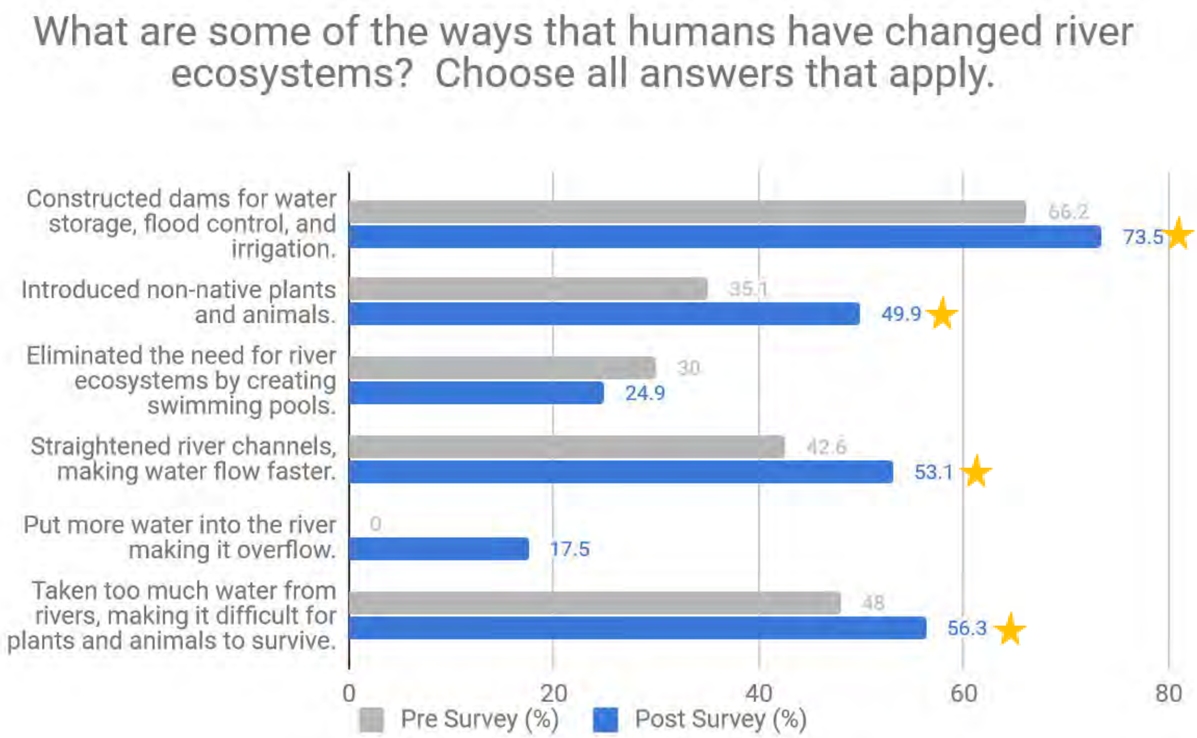
Our new presentation this year focused on acequia culture and history and water conservation did not address all of these items. With similar prompts, “All of the following EXCEPT…” we are noticing students may be choosing ALL the actions that apply rather than the one action that DOES NOT apply. Next year we will switch the question to picking all of the actions that apply to see if that yields better results.

Item 15



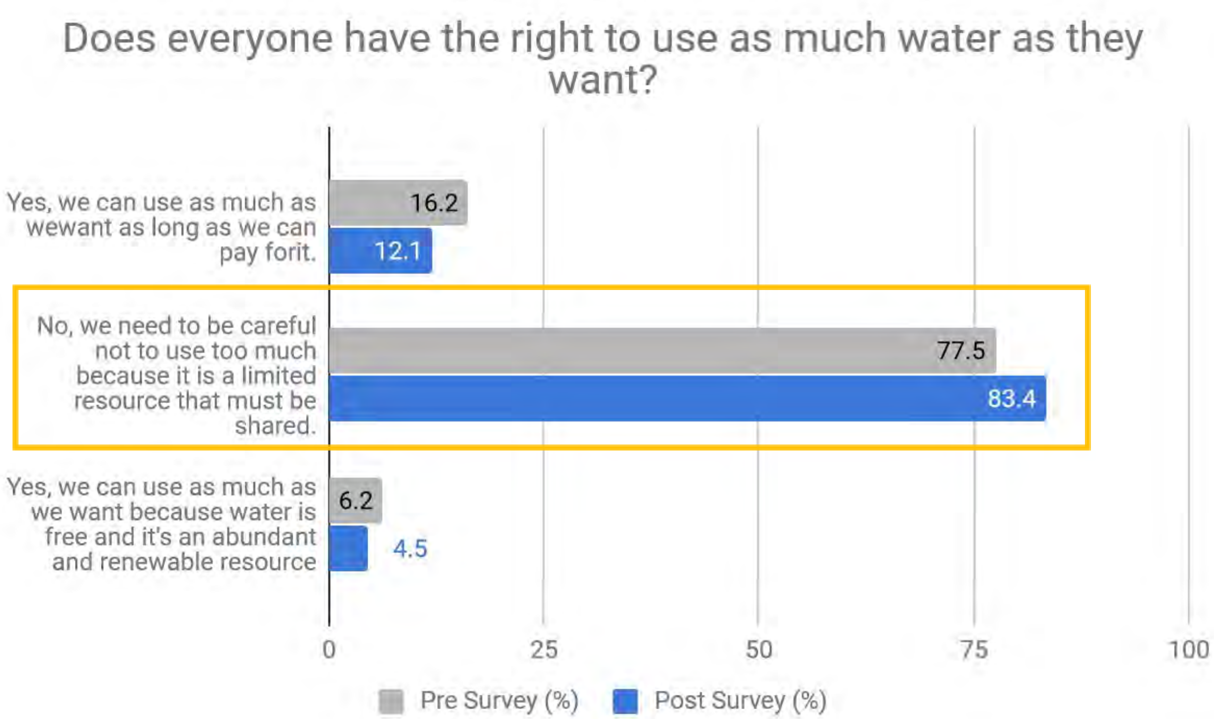
It appears that the answers to this prompt are intuitive for the majority of students from the beginning of the year. Though we do notice a greater increase in the understanding that humans can change their behavior and learn to conserve water.

Item 16



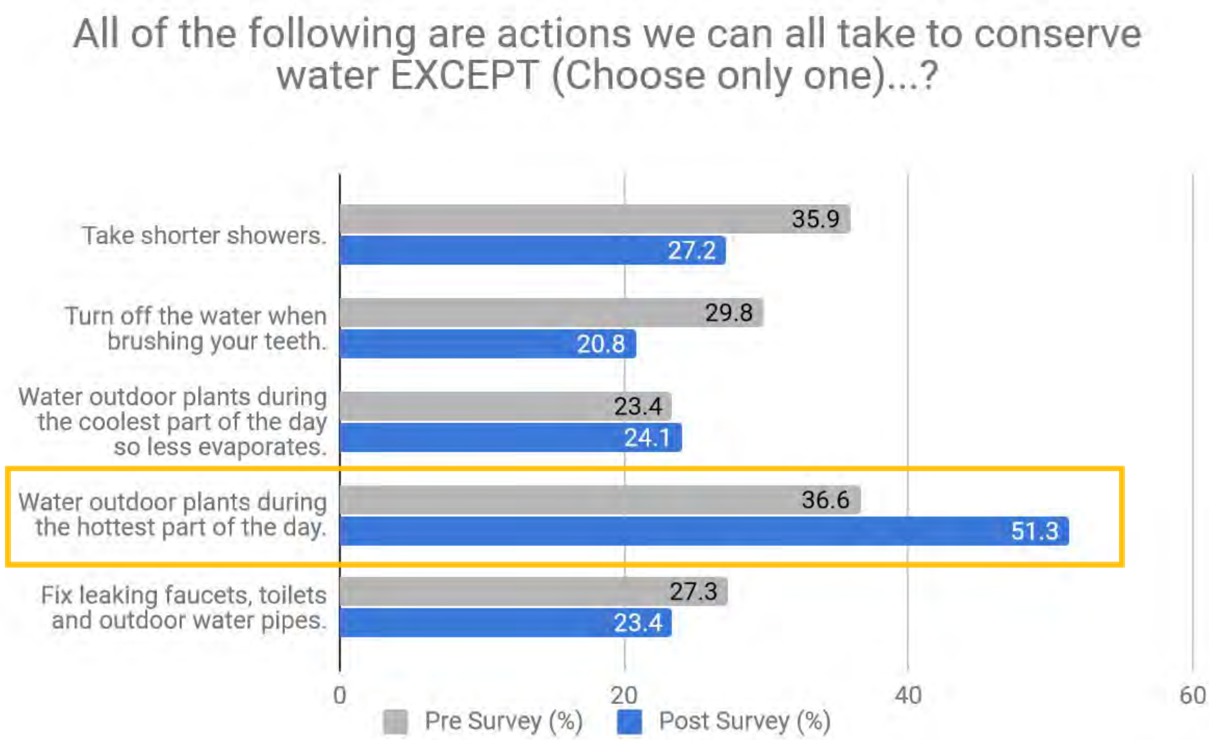
Through learning local water issues, including the history of the Middle Rio Grande, and planting native trees in the Bosque, students gained a significant understanding of the main ways humans have changed river ecosystems.

Item 17



While this answer is obvious to the majority of students, it shows a strong interest in and care for water conservation from future stewards of our watershed.

Item 18



The results in this graph are likely due to students misreading the question and picking ALL the actions we can take to conserve water instead of only choosing one action that DOES NOT conserve water. Next year we will switch the question to picking all of the actions that conserve water to see if that yields better results.

Appendix 1 includes the extension activities from the RiverXchange curriculum, Appendix 2 includes photos.

Appendix 1

Extension Questions and Activities

Understanding Our Watershed:

River Geography

- **Suggested Reading:**
  - **Books:**
    - *Follow the Water from Brook to Ocean* by Arthur Dorros
    - *Paddle-to-the-Sea* by Holling C. Holling
    - *One Well: The Story of Water on Earth (CitizenKid)* Strauss, Rochelle
  - **Articles:**
    - *Albuquerque Journal:* "As Bad as it Gets: Drought Returns to New Mexico."
    - *Albuquerque Journal:* "Drought Affecting 99% of New Mexico."

- **Watch:**
  - Watch Save Water - Save Our Rio!, a 17 minute video created by local summer camp students, sponsored by Albuquerque Water Utility Authority. Follow up with *When is the Drought Out?* http://www.abcwua.org/education/pdfs/Drought_GraphingOption.pdf

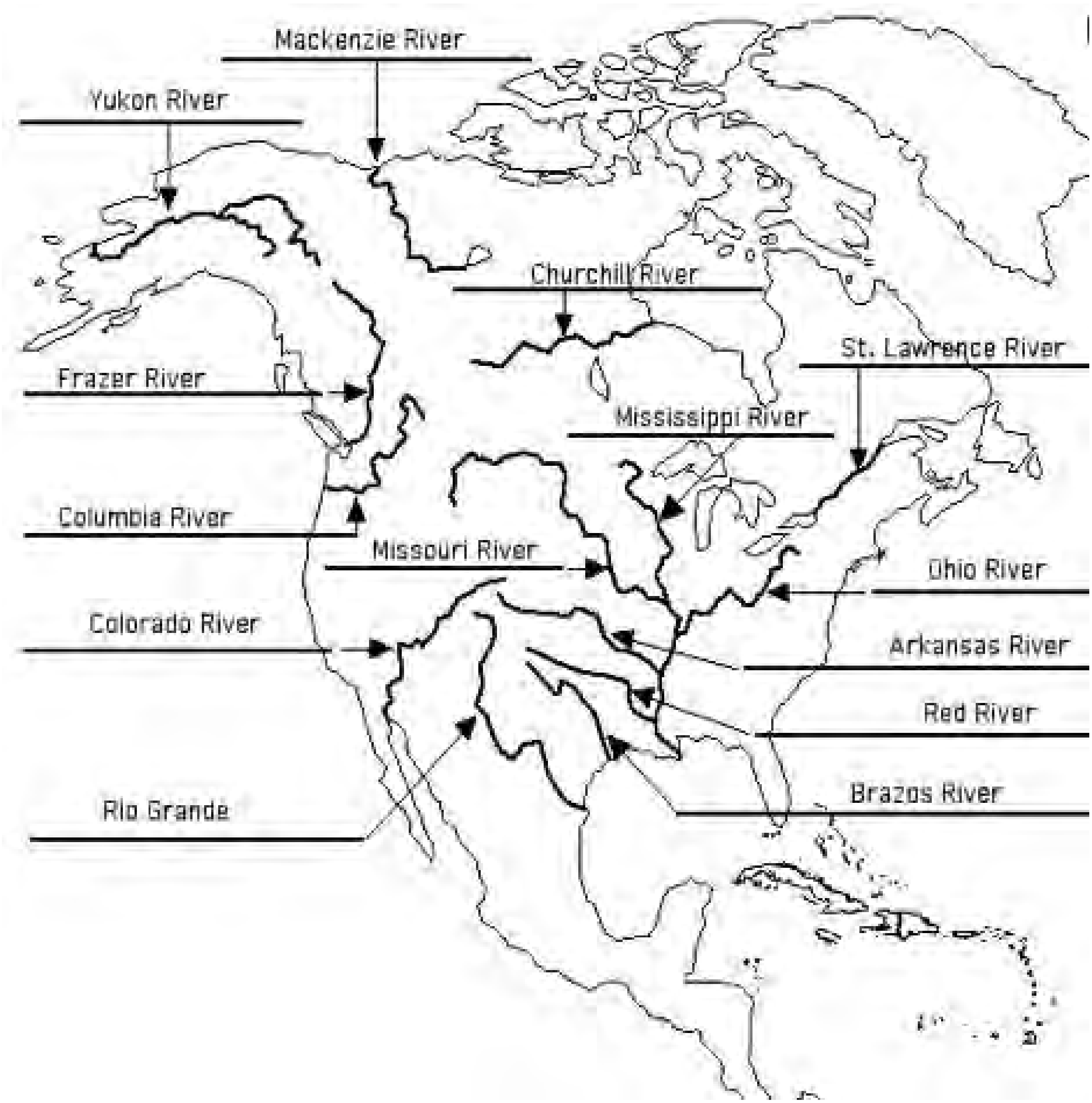
- **Write a letter to your partners or create a project, explaining:**
  - what a watershed is
  - the name of your river - this is also the name of your watershed!
  - the journey of your river from its headwaters to the ocean

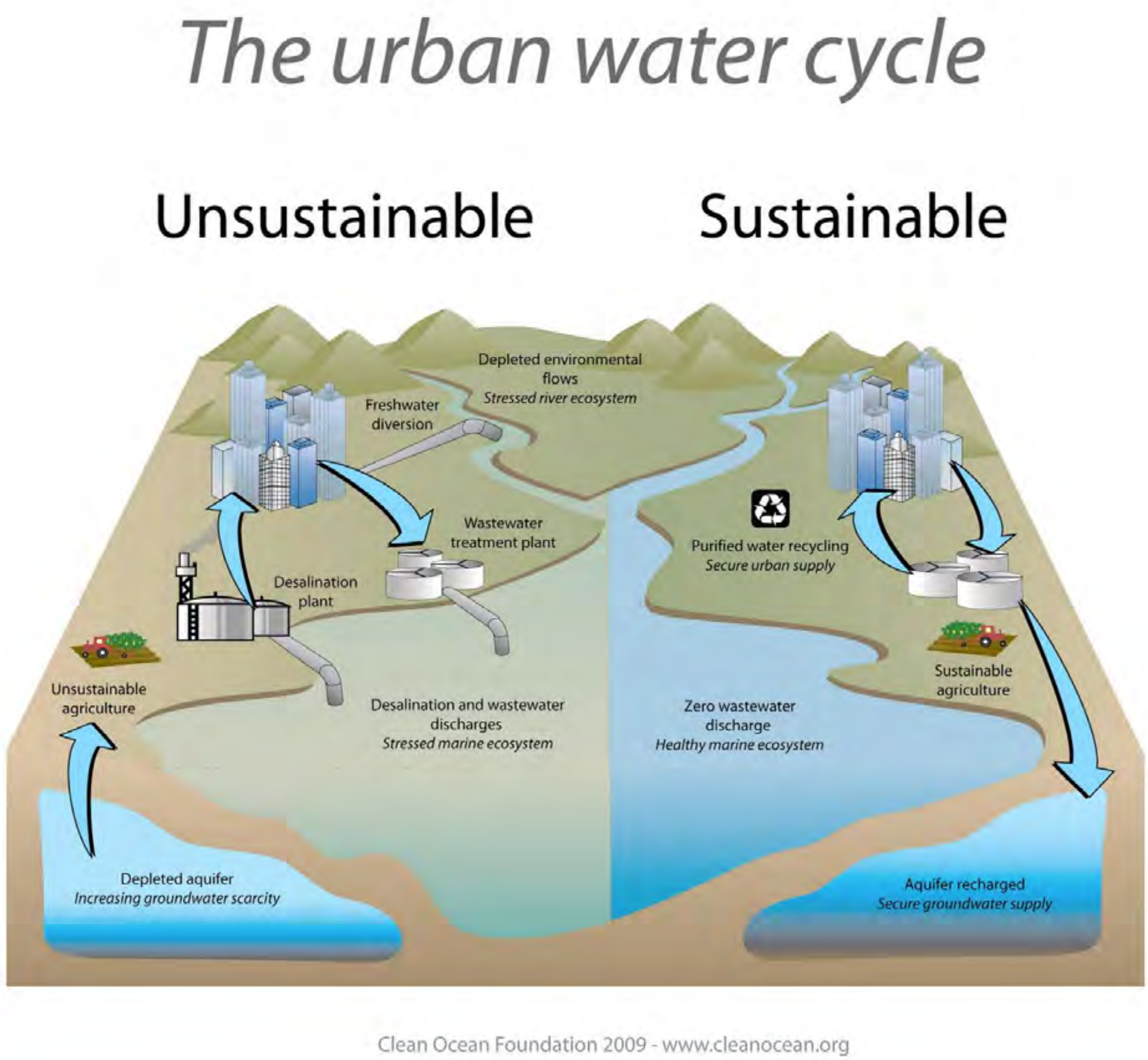
- ➢ what the river is like in your area - big/small, clear/muddy, fast/slow?
- ➢ how much precipitation your area receives each year, and what season gets the most precipitation

❖ **Want to explore further?** Refer to Project 1 in the RiverXchange Curriculum "Understanding a Watershed".

- ➢ You can access the curriculum on your Kidblog homepage or by following this link: https://riverxchange.com/teachers2/curriculumpage/

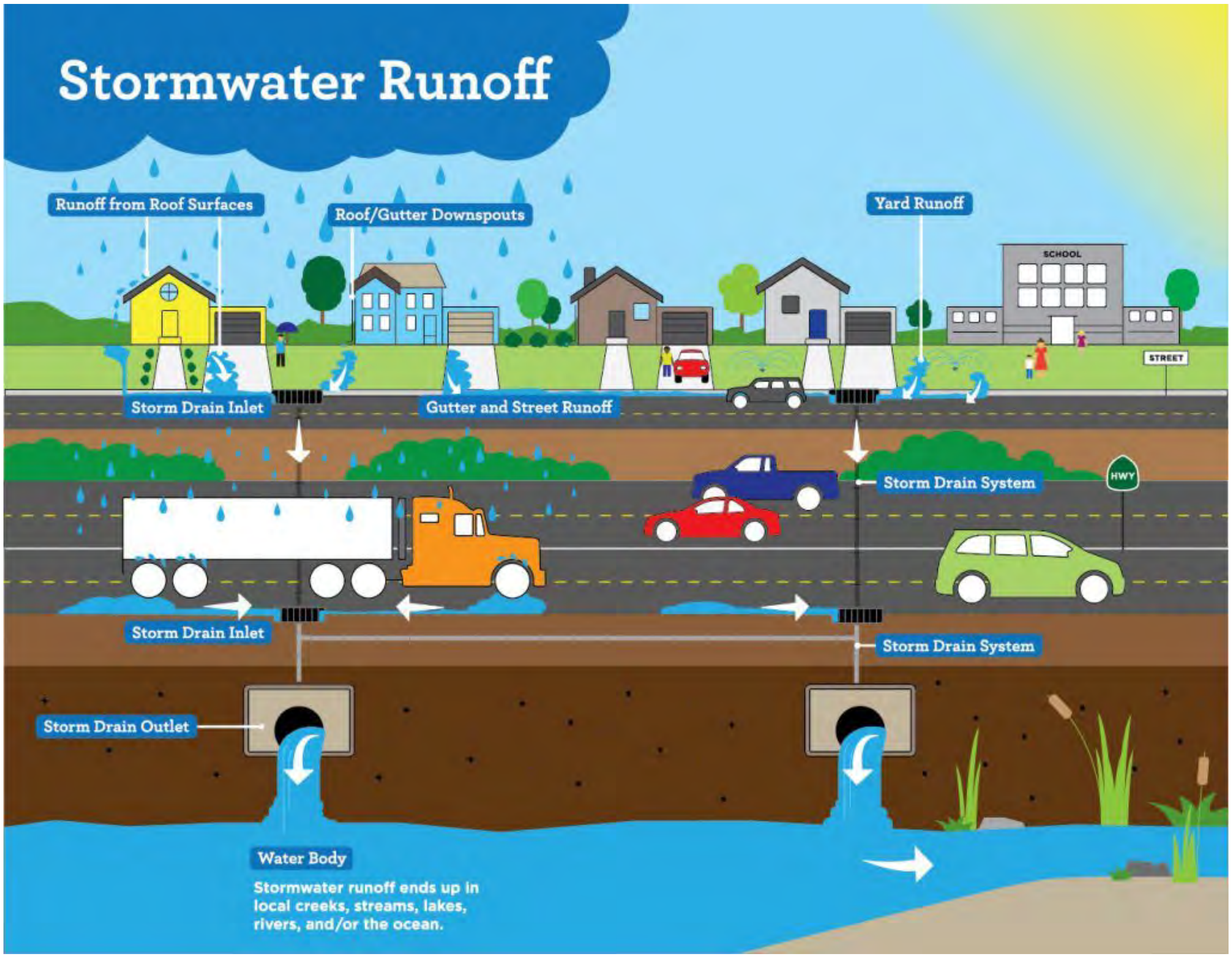
North American River Map




The urban water cycle
Unsustainable
Sustainable
Depleted environmental flows
Stressed river ecosystem
Freshwater diversion
Wastewater treatment plant
Desalination plant
Unsustainable agriculture
Desalination and wastewater discharges
Stressed marine ecosystem
Depleted aquifer
Increasing groundwater scarcity
Purified water recycling
Secure urban supply
Sustainable agriculture
Zero wastewater discharge
Healthy marine ecosystem
Aquifer recharged
Secure groundwater supply
Clean Ocean Foundation 2009 - www.cleanocean.org

Understanding a Watershed:

Watershed Model / Infiltration and Runoff



Graphic credit: City of Columbia, MO

Enhance your student's blog posting and extend their learning beyond the Stormwater presentation with the following activities:

- **Suggested Reading:**
  - **Articles:**
    - *CNN* article. 2013. "Garbage Man of the River" http://www.cnn.com/2013/04/18/us/cnnheroes-pregracke-rivers-garbage
    - *Science News for Kids* article. 2012. "Suffocating Waters" https://www.sciencenewsforstudents.org/article/suffocating-waters
- **Watch:**
  - *The Human Solution to Water Pollution* video (to right of screen): http://sscafca.org/teacher-resources/
  - *The Majestic Plastic Bag* video (mockumentary): https://vimeo.com/14221747
    - For a 60 minute class activity, include this lesson to explore the Great Pacific Garbage Patch and what students can do to respond.

- Explore The Ocean Cleanup project and how an 18 year old started with a simple idea which is now making a difference in the effort to clean up the world's oceans.

- **Explore your watershed**
  - Follow the link below to zoom in and explore your watershed and the watershed that family and friends live in, perhaps even your RiverXchange partners who live outside of New Mexico! Interactive Topographic Watershed Map of Earth
- **Lesson plan**
  - *Don't Trash Our Rio Activity Guide* - A math based extension where students learn how much trash is pulled from Albuquerque's storm drain system yearly, and calculate how many trash bags or classrooms it would fill. (Follow links for additional handouts)

- **Reflection Questions**
  - Discuss how the gutters in our streets lead to **storm drains**, which often lead directly to the nearest body of water. Discuss the difference between **stormwater** and **wastewater** (from household drains and toilets).
  - What is stormwater and where does your community's stormwater go?
  - What did you learn about stormwater that was surprising to you?
  - How do things that happen in your yard or your neighbor's yard impact the watershed?
  - What have you noticed about stormwater in your own neighborhood?
  - What are some things you can do to clean up stormwater?
  - How can surface water become polluted?
  - What's happens when rain falls on a pervious surface compared to an impervious surface? Give examples of impervious surfaces.
  - How are groundwater and surface water connected?
  - What are ways you can minimize stormwater pollution?

- **Want to explore further?** Refer to Project 2 in the RiverXchange Curriculum "The Watershed".
  - You can access the curriculum on your Kidblog homepage or by following the link below: https://riverxchange.files.wordpress.com/2018/09/riverxchange-curriculum-20181.pdf

Water in Our Society:

Drinking Water

Enhance your student's blog posting and extend their learning beyond the Drinking Water presentation with the following activities:

- **Suggested Reading:**
  - **Book:** *A Long Walk to Water*, by Linda Sue Park (2010: Clarion Books)
  - **Articles:**
    - **Albuquerque drinking water info**
      - from ABQ Water Utility Authority http://www.abcwua.org/education/pdfs/WaterUse_Text.pdf
      - About the San Juan Chama Project, ABQ Journal 2008: https://riverxchange.files.wordpress.com/2015/08/san-juan-chama-project.pdf
    - **Santa Fe drinking water info**
      - Buckman Diversion, ABQ Journal 2010: https://riverxchange.files.wordpress.com/2015/08/buckman-diversion.pdf

    - **Santa Fe drinking water info**
      - Buckman Diversion, ABQ Journal 2010: https://riverxchange.files.wordpress.com/2015/08/buckman-diversion.pdf

- **Lesson Plan: The Water Project**
  https://thewaterproject.org/resources/WaterLogs_5to8.pdf
  - Five simple activities and lessons to assist students in exploring how water scarcity may impact their lives and how they can contribute by conserving water.
  - Suggested activity: Students log their personal use and observation of other forms of water use over two days, then discuss their findings and explore what would happen if water scarcity were an issue. Another lesson also includes a TRUE/FALSE game to learn about water and how it impacts the human body and communities.

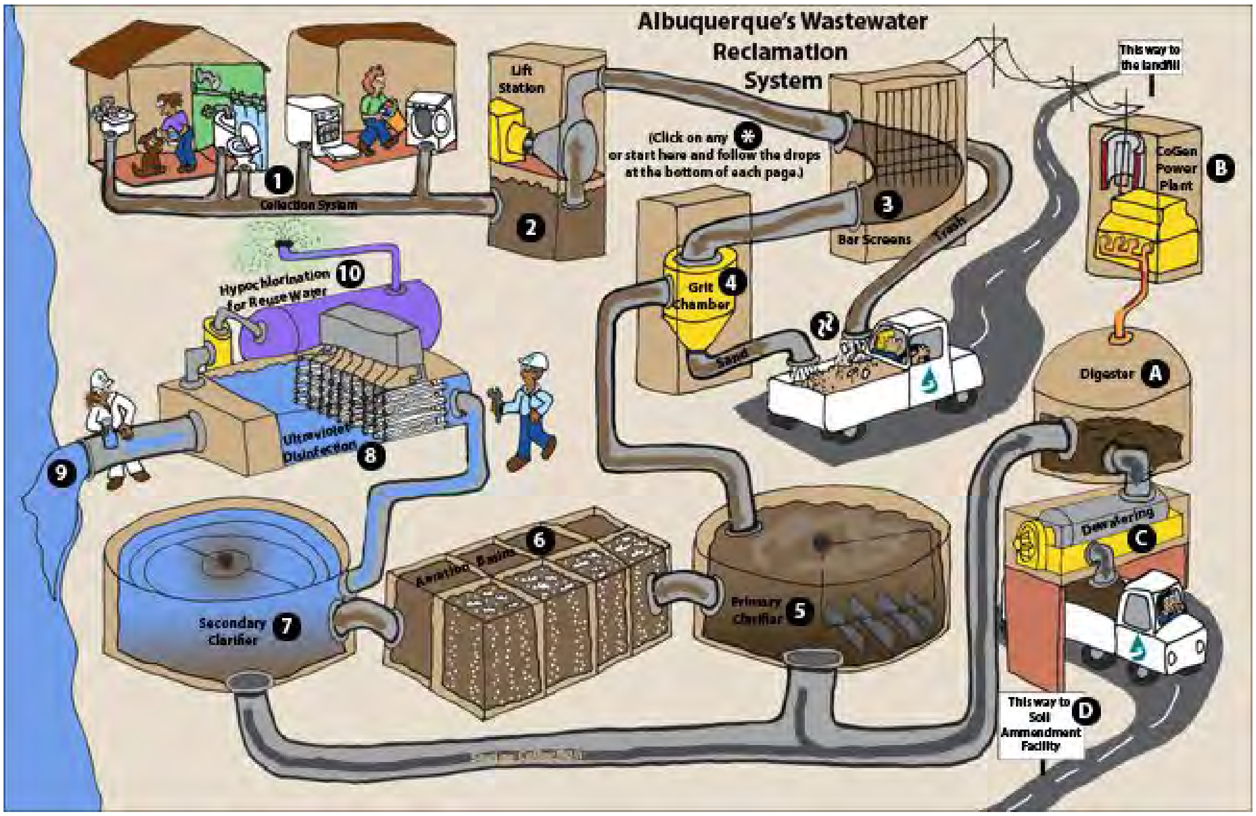
- **Lesson Plan: Cleaning Water**
  http://seplessons.ucsf.edu/node/1754
  - Create a filter in class to clean contaminated water and investigate your findings with the lesson linked below. This activity can be done over the course of a few days in class, or you can demonstrate how a filter works with your class in a shorter lesson.

- **Reflection Questions**
  - Where does your drinking water come from and what communities rely on it?
  - Drinking water is used for much more than bathing, flushing toilets and drinking. What are other ways you and your community use drinking water?
  - Did you learn anything surprising about how we use drinking water, if so what?
  - What percentage of the Earth is covered in water? Out of that amount, how much is accessible fresh water? How much is available as drinking water and why is it important to conserve it?
  - One third of the world's population does not have access to clean drinking water. How would your life be different if you had to walk miles to bring back water to your family?

- **Want to explore further?** Refer to Project 6 in the RiverXchange Curriculum "Drinking Water".
  - You can access the curriculum on your Kidblog homepage or by following this link: https://riverxchange.files.wordpress.com/2018/09/riverxchange-curriculum-20181.pdf

Water in Our Society:

Wastewater / Groundwater



Enhance your student's blog posting and extend their learning beyond the Wastewater presentation with the following activities:

- **Suggested Reading:**
  - *KOAT* news. 2015. "Aging Pipes Mean Higher Water Bills"
    http://www.koat.com/news/aging-pipes-could-mean-water-bill-hike/34284754
  - Combined sewer overflows article, by Anne Jefferson, a geology professor from Kent State.
    http://all-geo.org/highlyallochthonous/2013/03/combined-sewer-overflows-solving-a-19th-century-problem-in-the-21st-century/
- **Activities:**
  - Follow this link to the ABQ Water Utility Authority's website to navigate virtually through Albuquerque's wastewater system:
    http://www.abcwua.org/Education/SWRP_home.html
    - Want to add a project-based learning component to this exercise? Use these questions and activities to go along with your tour:
      http://www.abcwua.org/education/educators_WSDcur2_quest.html

➢ Show students the *Septic System* poster (the poster can be shown on a smartboard and explain the difference between a **sewer system** and a **septic system** – they both treat wastewater essentially the same way, but a septic tank is right by the house and uses a drainfield in rural areas.

➢ Create a Public Service Announcement with your class inspired about what you've learned. Take a video and post it on the blog to share with your partner class!

❖ **Watch:**

➢ Watch one of these videos in class to review the process of wastewater and what students can do to take care of wastewater: https://www.youtube.com/watch?v=Ldz29NqwK78 (An animation narrated by a young student)

➢ https://www.youtube.com/watch?v=tuYB8nMFxQA (A video of the water treatment process created by New Jersey American Water)

➢ Learn about recharging the aquifer in the City of Rio Rancho https://rrnm.gov/4024/Rio-Rancho-Pure

- **Reflection & Discussion:**
  - What is wastewater and how does it impact your community?
  - What is the difference between wastewater, stormwater and drinking water?
  - How can you use what you've learned to make a difference at home and at school?
  - What is the process of treating wastewater in your community? (For RRPS students, generally you are on a septic system). What is the difference between a sewer and septic system?
  - What surprised you about the process of treating wastewater from the presentation?
  - Why is it important to do what we can to keep certain things out of our wastewater, whether it goes to septic system or a wastewater treatment plant?

❖ **Want to explore further?** Refer to Project 8 in the RiverXchange Curriculum "Wastewater".

➢ You can access the curriculum on your Kidblog homepage or by following this link: https://riverxchange.files.wordpress.com/2018/09/riverxchange-curriculum-20181.pdf

Water in Our Society:

Commercial Uses of Our Waterways: Agriculture

Photo credit: Erich Schlegel

Enhance your student's blog posting and extend their learning beyond the Agriculture presentation with the following activities:

- **Suggested Reading:**
  - **Book:** *Out of the Dust* by Karen Hesse (1997: Scholastic Press)
    Written from the poetic perspective of 14 year old Billie Jo as she narrates her family's struggle in Oklahoma during the years of the Depression and the Dust Bowl.
  - **Articles:**
    - *ABQ Journal* article, 2013. "Deal Allows Farmers to Sell Irrigation Water"
      http://www.abqjournal.com/221194/news/deal-allows-farmers-to-sell-irrigation-water.htm
    - *National Geographic* article, 2014. "Parched: A New Dust Bowl Forms in the Heartland"
      http://news.nationalgeographic.com/news/2014/05/140516-dust-bowl-drought-oklahoma-panhandle-food/

- **Explore more about the Dust Bowl:** Check out the link below for an informative, interactive website developed by PBS. http://www.pbs.org/kenburns/dustbowl/educators/overview/

- **Lesson Plan: Soil is Not Trivial**
  - Using facts about the Dust Bowl, students write questions and play a trivia activity focused around the establishment of a national soil conservation program and the importance of soil. Students then explore and/or develop a plan to address a local soil conservation issue.
  - http://www.ncagr.gov/SWC/educational/documents/FLP_soil_is_not_trivial.pdf

- **Write a short story**
  - Write a short story from the perspective of someone who is living during, and affected by the Dust Bowl. Explore the PBS website link, or the suggested reading.

- **Lesson plan: Growing Plants**
  - Students will use the story of *The Empty Pot* to explore literature and science, practicing story mapping and learning about the needs of plants and the importance of soil and water. Like the characters in the story, students will plant and observe the growth of seeds. https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=484&author_state=0&grade=3&search_term_lp=growing%20plants

- **Reflection Questions**
  - What was the Dust Bowl and how did it impact people?
  - What do you think are the major agricultural lessons for us from the Dust Bowl?
  - How may we be able to prevent a dust bowl from occurring again?
  - What is important for farmers to consider when planning how to irrigate their farm and why?
  - How does agriculture relate to water and to our daily lives?
  - What did you discover in your planting activity about the different types of irrigation?

- **Want to explore further?** Refer to Project 5 in the RiverXchange Curriculum "Commercial Uses of Our Waterways".
  - You can access the curriculum on your Kidblog homepage or by following this link: https://riverxchange.files.wordpress.com/2018/09/riverxchange-curriculum-20181.pdf

Water in Our Society:
Commercial Uses of Our Waterways: Acequias

Enhance your student's blog posting and extend their learning beyond the Agriculture presentation with the following activities:

- **Suggested Reading:**
  - **Articles:**
    - *ABQ Journal* article, 2013. "Deal Allows Farmers to Sell Irrigation Water" http://www.abqjournal.com/221194/news/deal-allows-farmers-to-sell-irrigation-water.htm
    - *National Geographic* article, 2014. "Parched: A New Dust Bowl Forms in the Heartland" http://news.nationalgeographic.com/news/2014/05/140516-dust-bowl-drought-oklahoma-panhandle-food/

- **Watch:**
  - *Nuestras Acequias* (20 minutes) and/or *South Valley Acequias* (4 minutes). Discuss the **acequia** system which was put in place by the Pueblo people and early Spanish settlers, how is it organized amongst the community and maintained? What is its cultural and ecological significance?

- Explore the acequia tradition further with *El Agua Es Vida* lessons.

- **Lesson Plan: Prior Appropriation**
  - Using the *Prior Appropriation* activity guide, act out the two different methods of assigning water rights to all the water users. Discuss the difference between the Riparian Rights and Prior Appropriation doctrines. Research the history of water rights in your community and compare the differences in water rights issues with your partners' area. Prior Appropriation is used in the western states, which receive far less precipitation.

- **Discuss**
  - How people have developed technological solutions to solve water problems. For example, many ancient settlements in the West were abandoned because of lack of water, but irrigation technology has made it easier to survive. Dams have made it easier to control the flow of rivers, reservoirs store water, and fish ladders are built so that dams don't prevent their migration. High-efficiency toilets and other appliances help conserve water.

- **Reflection Questions**
  - What did you learn about acequias that you didn't know before this presentation?
  - How are acequias important to life and culture in New Mexico?
  - What would happen to the land if people didn't maintain acequias?
  - What is important for farmers to consider when planning how to irrigate their farm and why?
  - How does agriculture relate to water and to our daily lives?

- **Want to explore further?** Refer to Project 5 in the RiverXchange Curriculum "Commercial Uses of Our Waterways".
  - You can access the curriculum on your Kidblog homepage or by following this link: https://riverxchange.files.wordpress.com/2018/09/riverxchange-curriculum-20181.pdf

River Ecosystems:

Pole Planting Field Trip

Enhance your student's blog posting and extend their learning beyond the Field Trip with the following activities:

- **Suggested Reading:**
  - **For teacher:** Read or review the 1st part of Chapter 4 of the Bosque Education Guide: A River of Change and discuss with your class the history of the Rio Grande River, the changes made to it's flow and channel, and the impact on the Bosque ecosystem.
- **Make a food web**
  - Make a food web for our local ecosystem, identifying producers, consumers and decomposers, native species and invasive species, as well as local endangered species. Discuss how wildlife are "water users" too. Like humans, wildlife needs clean water to live, so as a community we must consider their needs when making choices about water. Use Bosque plant and animal cards to do *The Web* activity, discussing how all living things depend on each other.
- **Learn about the STRAW Project**
  - An ongoing watershed restoration project first inspired by 4th graders in 1992, based in Marin Co. California! Add it to your school's library and show the documentary in class.

http://www.pointblue.org/our-science-and-services/conservation-science/conservation-training/straw-program or read about the project in this article and discuss how youth can make an impact: http://www.marinij.com/article/NO/20150325/NEWS/150329872

- **Reflection & Discussion:**
  - What did you learn about the history of the Rio Grande River and the floodplain we planted in? How does this history impact the future of cottonwoods in the area?
  - Identify some common invasive species. Where did they come from and how are they impacting the Bosque?
  - What is the process of planting cottonwoods and willows and why do we do it in the wintertime?
  - After this field trip, how may you see and understand the Bosque differently?
  - What did you most enjoy while being down in the Bosque?
  - How can you apply what you learned or enjoyed on your field trip in your everyday life?

❖ **Want to explore further?** Refer to Project 9 in the RiverXchange Curriculum "Field Trip".
  ➢ You can access the curriculum on your Kidblog homepage or by following the link below: https://riverxchange.files.wordpress.com/2018/09/riverxchange-curriculum-20181.pdf

Appendix 2
Photos

Field trips

Students from Colinas del Norte at the Sandoval County Landfill. (Left) Receiving a presentation on the green waste composting operation with Robert Sanchez. (Below) At the top of the landfill, getting a tour of how the landfill works and question and answer with Chris Perea.

Below is a selection of images from our planting field trips at Alamo Farm and Candelaria Open Space Preserve.

Exhibit 4
BEMP 2018-2019

Bosque Ecosystem Monitoring Program (BEMP)
Report to the Storm Team of the
2018-2019 Stormwater Science Education Program

The main objective of the *Stormwater Science* outreach education program is to teach students how the health of the Rio Grande is directly related to the health of the surrounding watershed and what their responsibility and opportunities are to help keep the "Rio Grand." BEMP educators have developed a Stormwater Science program that includes a 90-minute classroom activity, a four-to-five-hour study trip to the Rio Grande, and optional curriculum extensions incorporating hands-on data analysis, graphing, and system modeling. **During the 2018-2019 school-year 2,017 students participated in Stormwater Science** activities in their classrooms, in the field, both, or in outreach events. The classroom program was delivered to **599 students** in **33 classrooms** at **13 different schools** in **Rio Rancho, Albuquerque, and Belen.** In addition to the Stormwater Science outreach, BEMP actively involves students in water quality monitoring through the *E. coli* monitoring contract with the Mid Rio Grande Stormwater Quality Team. **29 students from La Academia de Esperanza (LADE)** and **5 University of New Mexico (UNM) undergraduates** were directly involved in water quality monitoring of the Rio Grande in support of this contract. Students are taught the proper protocols for collecting field parameters and *E. coli* data, but, consistent with our quality assurance plan, are only allowed to collect field parameter data. Students then graph and analyze the data and are supported in presenting their findings at BEMP-supported conferences, professional conferences, and to policy makers. In 2018, the student-collected data (field parameters) and *E. coli* data were presented by a UNM undergraduate in August at the EPA Region 6 conference. BEMP also spent much of 2018-19 updating and enhancing its Stormwater Science education and outreach components.

The BEMP Stormwater Science program targets middle and high school students using two main formats: an indoor classroom lesson and an outdoor field experience or *Stormwater Study Trip*. This year, a new high school classroom lesson was designed and implemented to teach more complex and nuanced stormwater science concepts, including analyzing data to see how different water quality parameters are affected by storm events. High school curriculum extensions were also created for groups who either request multiple classroom visits or have enough class time for a longer, more intensive lesson.

1. Classroom curriculum*: Preparation and delivery of Stormwater Science activities in the classroom for middle and high school students* **(599 students)**

The principal objective for the middle school classroom curriculum is to demonstrate how some of our daily, individual actions impact the health of the Rio Grande. To reach that goal, students construct a model of the Rio Grande Watershed (pages 5 and 18). The watershed model has five different communities along the river: a cattle ranch, upstream and downstream eco-friendly towns, an urban city, and agricultural fields. Students add different 'runoff cards' to the river downstream of the communities where the runoff constituents originate. Some of the runoff is naturally occurring (e.g. turbidity) while some is human-caused (e.g. pesticides or oil). The model runs through two different scenarios: (1) *before-the-storm* and (2) *after-the-storm*. While working through different variations of the model, students record the number of runoff cards introduced into the river before and after a storm event (handout table; page 6). This helps them to conceptualize/quantify and further discuss the impacts of these changes to overall river health. Exploring these two scenarios demonstrates the harmful effects that stormwater contamination can have on aquatic organisms and downstream communities.

The high school classroom lesson builds upon these core concepts. After discussing the aforementioned watershed model, students learn about some key water quality parameters: temperature, conductivity, dissolved oxygen, turbidity, and dissolved organic matter. Students divide into groups assigned one parameter each. They must then predict how their parameter might be affected by a storm event along with providing justification for their prediction. Students are given graphed data of their parameter before and after actual storm events and must analyze the graphs to determine if the data supports their previous supposition. When classes have more time available, this activity is supplemented by two different curriculum extensions. The first curriculum extension uses the same key water quality parameters introduced in the regular classroom activity but the students analyze provided data and create their own graphs. We provide (1) a blank graphing sheet with the axis labeled and with the river flow data (used as a reference to talk about the time gap between the increase in cfs and parameter peaking; see page 13) and (2) a table with measurements for each parameter (see page 14). This activity helps students learn how to analyze and graph data and then interpret the results, using skills aligned with Next Generation Science Standards (NGSS). The second curriculum extension is a soil porosity and permeability experiment that deepens students' understanding of how different surfaces (natural vs. anthropogenic, permeable vs. impermeable) impact the overall water budget and water quality (page 15 and 16).

The Stormwater Science classroom program encourages students to be reflective about their daily behaviors and to think about ways they can help keep their watershed clean. Students are asked to brainstorm about how they can help improve watershed health before educators lead a discussion on watershed stewardship that aligns with MRGSQT educational messaging. In order to reach students that identify Spanish as their first language and better serve New Mexico's diverse communities, the handouts for these activities are now available to students in both English and Spanish (pages 7 and 8).

In 2018-19, the Stormwater Science curriculum was used in BEMP's pilot after-school program, BASS (BEMP After School Science). BASS engaged K-12 students from five Title 1 schools through STEAM-based, hands-on learning, as well as self-directed, place-based exploration and data collection. As part of the curriculum, BEMP included two Stormwater Science sessions: a live macroinvertebrate lab (page 19), and leaf pack macroinvertebrate collection. BEMP used these opportunities to introduce stormwater science concepts to a new cohort of middle school students from communities underserved and underrepresented in the sciences.

Please note that classroom curriculum numbers no longer include tabling and other outreach events.

2. Stormwater Study Trip: *Delivery and coordination of place-based Stormwater Science experiences* **(113 students)**

The centerpiece of BEMP's stormwater outreach is the Stormwater Study Trip. This activity builds upon classroom activities and facilitates hands-on student experiences including performing water quality testing at the Rio Grande. The Stormwater Study Trip is a four to five-hour trip to the river during which students investigate how stormwater moves through the city and sweeps pollutants and debris into the river. Students also collect and interpret water quality data. The middle school version of the program begins with an explanation of the arroyo system in Albuquerque (map on page 9) followed by an arroyo pollution survey where students examine and categorize the amount of visible pollutants (e.g. plastics, paper, dog poop, animal scat, etc.) in Albuquerque's San Antonio arroyo which drains into the bosque. In the arroyo, students test water quality using a LaMotte water quality monitoring kit (pages 10, 11, and 18). When the students hike to the Rio Grande, they do additional water quality testing and collect leaf packs from two locations. Students then share their results with each other, compare Rio Grande and arroyo water quality data, and discuss what their results could mean in terms of the river's health. This section of the curriculum allows students to have a more hands-on learning experience involving different type of data collection and scientific tools. The high school Stormwater Study Trip uses the same format with an emphasis on the water quality indices (percent EPT and biotic index) through analyzing collected macroinvertebrates. The goal for high school students is to connect and understand the two collected data sets and develop a deeper sense of how the system functions on a broader scale.

During the 2018-2019 scholar year, BEMP added leaf packs placed along the Rio Grande and in a backwater pond as a method to collect macroinvertebrate data. Students collect four leaf packs, one week after they are placed in these two locations. Leaf packs are brought back to the classroom where hand-held lenses and dissecting scopes are used to identify macroinvertebrates. A handout is then used to calculate EPT (pages 9 and 12). This new methodology provides valuable biological information about water quality that can be compared to student-performed chemical water quality tests. Macroinvertebrate collection is also used as a tool to introduce concepts like using percent EPT as a water quality index. Student-generated datasets are compared, sparking a discussion about the short and long-term effects of a storm event.

As an alternative to the field-based Stormwater Study Trip, BEMP offers a curriculum extension that brings hands-on macroinvertebrate and water chemistry exercises to the classroom (page 17). A thorough revamp of the water chemistry lab offered in previous years, this extension uses BEMP's macroinvertebrate tank to bring live aquatic organisms to the classroom. After magnifying lenses and dissecting scopes are used in conjunction with field guides to identify macroinvertebrates, students explore how these organisms can be used as bioindicators of water quality. Students then chemically determine the water quality of a local sample and hypothesize whether or not the organisms they observed came from the sampled system.

3. Elementary school outreach: *Continued delivery and coordination of Stormwater Science experiences for elementary school students* **(277 students)**

Although the BEMP Stormwater Science program primarily targets middle and high school students, BEMP also reaches hundreds of elementary school students through outreach events. BEMP participated in the 2018 Children's Water Festival at the Santa Ana Star Center (277 students and 23 teachers) where BEMP educators used macroinvertebrates to teach fourth grade students about their watershed, how humans impact the health of this system, how aquatic organisms are affected by pollution, and what everyone can do to improve the health of the Middle Rio Grande.

4. Monthly Monitoring: *Continued development and delivery of Stormwater Science outreach during Monthly Monitoring*

BEMP's Monthly Monitoring data collection is often able to include a discussion with students about the bosque's health and how it is intrinsically tied to Rio Grande hydrology and water quality. The impacts of storm events can be related to different type of pollutants students find and identify in the bosque and BEMP educators then engage students in a conversation about what they can do to help minimize these impacts. For example, students from Cien Aguas International School collect litter during and/or after data collection nearly every time they are at a BEMP site. Monthly Monitoring is often a space where educational concepts are introduced based upon what students encounter in the bosque or what they are currently studying in class. Because of this, Stormwater Science is only taught intermittently during Monthly Monitoring and has not yet been granularly tracked.

5. Summer programming: *Preparation and delivery of Stormwater Science presentations during summer programming* **(20 students)**

During June and July each year, BEMP partners with Horizons Albuquerque, a tuition-free academic enrichment program that intends to fill the summer learning gap that students from low-income families often encounter. This year, 20 middle school students learned about different methods scientists use to collect environmental data through hands-on, place-based experiences. Students collected water samples, analyzed water chemistry, and discovered how their results provide insight into the overall health of their local ecosystems.

6. Stormwater Science curriculum development: *Continued development of Stormwater Science curriculum*

Much of the 2018-19 school year was spent thoroughly updating the Stormwater Science curriculum, making it more hands-on, engaging, and appropriate for a wider range of students. While some Stormwater Science activities are already closely aligned with Next Generation

Science Standard principles, part of the 2019-20 school year will be spent applying specific standards to this program and making changes to the curriculum as needed. While this year's overall outreach numbers are lower than last year's, it is important to note that festivals and outreach events are no longer considered classroom outreach, but are reflected in the outreach total. The intensive Stormwater Science curriculum work completed this year is now ready to be rolled out to a broader audience in 2019-20 and beyond.

7. BEMP educational outreach events: *Funding covers partial costs for classrooms to participate in Otter Day and BEMP Student Congress* **(492 students)**

Hundreds of students took part in Stormwater Science-related activities at two BEMP events this year: two days of BEMP Student Congress (220 students and 31 adults), where BEMP students shared their research and experiences in the bosque, including watershed health observations; and BEMP's two Otter Days festivals(262 students and 45 adults), where first graders, hosted by high school students, are taught how they are individually responsible for keeping the Rio Grande and its watershed free of pollutants for the benefit of both wildlife and humans.

8. Additional BEMP educational outreach and events: *Funding covers partial costs for classrooms to participate in Luquillo-Sevilleta Virtual Symposium and Crawford Symposium* **(535 students)**

BEMP organizes and delivers two annual educational events where stormwater science concepts are presented in various forms: The Luquillo-Sevilleta Virtual Symposium (LSVS) and the BEMP Crawford Symposium. BEMP's Luquillo-Sevilleta Virtual Symposium (16 students and 13 adults) brings together students involved with the Luquillo Long Term Ecological Research Site in Puerto Rico and students from Albuquerque to share their watershed research with each other via Skype in Spanish. The BEMP Crawford Symposium (54 students and 250 adults) is an annual conference honoring BEMP's co-founder Dr. Clifford Crawford which celebrates community science along the Middle Rio Grande and showcases environmental research by both students and professionals (page 19).

As part of our outreach, BEMP also participates in events where we bring a variety of materials and activities directly related to BEMP's curriculum and data collection. Students and community members learn about different important aspects of the bosque ecosystem, including how it is impacted by storm events. These events now allow participants to observe and identify live freshwater macroinvertebrates, and learn how these organisms can be used as Rio Grande bioindicators. This year we participated in two major tabling events: Sandia High School Earth Day Festival (400 students and 30 adults) and Albuquerque Sign and Language Academy (ASLA) Fishing Day at Sandia Lakes (65 students and 45 adults).

APPENDICES

APPENDIX A: CLASSROOM HANDOUTS

English Classroom Handout – Middle School

BEMP
Bosque Ecosystem Monitoring Program
www.bemp.org 2018

Hydrologist: ______________________ Date: ______________

Stormwater Science

What 2 sources can New Mexicans get their drinking water from?

1. ______________

2. ______________

Where does water go after we use it?

____

A *watershed* is an area of land where all of the water that falls on it, or that is under it, drains to the lowest point.

Draw a line from the word to its definition

Turbidity	A stream or arroyo that brings water to the main channel of the river
Nonpoint source pollution	Types of nutrients found in fertilizers that can lead to excess algae growth
E.coli	A single location where pollution is being leaked into the environment
Point source pollution	A type of *bacteria* found in warm blooded animal's intestines that can make people sick
Nitrates and phosphates	Tiny 'water bugs' whose species are an indication of water quality
Tributary	*Any* type of pollution that comes from *many different* sources
Macro-invertebrates	A measure of water clarity based on the amount of suspended solids

Page 1

Is the river healthier before or after an storm event?

Before: Amount + High / Medium / Low

After: Amount + ↑ / ↓ / = ✓ ✗

	Up-stream Ecofriendly Town		Cattle Ranch		Agricultural Field		Urban city		Down-stream Ecofriendly Town	
	Before	After	Before	After	Before	After	Before	After	Before	After
Oxygen										
Nutrients (Nitrates and phosphates)										
Turbidity										
Macroinvertebrates (healthy – unhealthy)										
Fish biodiversity (green – red – blue – yellow)										
Pesticides, Herbicides and Fungicides										
Trash										
Oil and gasoline										
Chemicals and medicine										
Escherichia coli										

Water quality AFTER an storm event:

Which community has the most polluted water AFTER an storm event? ______________

How can YOU help to keep the watershed clean?

1. ______________
2. ______________
3. ______________
4. ______________

Page 2

English Classroom Handout – High School

BEMP

Name: ______________________________ Date: ______________

Stormwater Science

What is a **watershed**?

1. River composition during a storm event: A hypothetical watershed example

(Natural and anthropogenic inputs)

Which community has the most polluted water AFTER a storm event? ____________ *Why?* ____________

2. Data Analysis: A real example of a storm event in a city

Parameters analyzed:

- Temperature:
- Conductivity:
- Dissolved Oxygen (DO):
- Turbidity:
- Dissolved Organic Matter (DOM):

Example

Parameter: Conductivity

Prediction: *Water conductivity will drop right after an storm event due to the new input of rain water with no salts.*

Justification:

Your data

Parameter:

Group prediction:

Justification:

- Was your prediction supported based on your data analysis? Explain why or why not.

Page 1

Data Analysis: General discussion

1. In which order did the parameters react to the storm event?
2. In which season did this storm event occur?
3. Do you think these storm event peaks would be higher or lower in a different season? Why?
4. Would you expect the same parameter behavior in a non-urban area? Why?
5. Does the overall water quality after a storm event increase or decrease?

Take-home vocabulary

Match the following words with their descriptions: **Conductivity**, **Turbidity**, **Nonpoint source pollution**, ***Escherichia coli***, **Point source pollution**, **Dissolved Organic Matter**, **Temperature**, **Dissolved Oxygen** and **Tributary**.

- Drinking contaminated water with ____________ may cause diarrhea.
- ____________ is directly related to the concentrations of ions in the water which an oil spill can decrease.
- Acid water from acid rain is an example of ____________.
- Rio Grande water often appears murky because of high ____________.
- High water ____________ can increase the solubility and thus the toxicity of certain compounds.
- ____________ is the mixture of living and dead materials at various stages of decomposition.
- Chemical drainage into a stream from a nearby factory is an example of ________
- A lack of ____________ in the river water can cause fish die-off's.
- The Chama river is a ____________ of the Rio Grande.

3. How can YOU help improve the health of the river after an storm event?

1. ____
2. ____
3. ____
4. ____

Page 2

Spanish Classroom Handout – Middle School

Hidrólogo/a: ______________________________ Fecha: ______________

Ciencia detras una tormenta

Cuales son las dos fuentes de agua de donde los Nuevo Mexicanos sacan el agua para beber?

1. ____________________

2. ____________________

A donde va el agua despues de usarla?

____

Una *cuenca hidrografica* es el territorio drenado por un unico rio, delimitado por montanas

Conecta las palabras con su definicion

Turbidez	• Corriente de agua que desemboca en un río mayor o directamente al mar.
Contaminacion difusa	• Tipologia de nutrientes que se encuentran en los fertilizantes y que pueden causar crecimiento algal excesivo.
E.coli	• Contaminacion de un solo origen.
Contaminacion focal	• Tipologia de bacteria que se encuentra en el aparato digestivo de animales de sangre caliente. Cuando se ingiere, puede causar/traer enfermedad.
Nitratos y fosfatos	• Pequenos insectos aquaticos que pueden ser usados como indicadores de la calidad del agua.
Tributario o afluente	• Contaminacion de origen diverso.
Macro-invertebrados	• Medida del grado de transparencia del agua que depende de la cantidad de particulas en suspension.

Page 1

Antes: Cantidad + Alta / Media / Baja

Después: Cantidad + ↑ / ↓ / = ✓ ✗

En que momento el agua del rio es más saludable, antes o después de una tormenta?

	Comunidad Ecológica rio arriba		Hacienda de ganado		Campo agrícola		Ciudad		Comunidad Ecológica rio abajo	
	Antes	Después	Antes	Después	Antes	Después	Antes	Después	Antes	Después
Oxígeno										
Nutrientes (Nitratos y fosfatos)										
Turbidez										
Macro invertebrados (saludables – no saludables)										
Biodiversidad peces (verde – rojo – azul – amarillo)										
Pesticidas, Herbicidas y Fungicidas										
Basura										
Aceite y gasolina										
Productos químicos y medicina										
Escherichia coli										

Calidad del agua después de una tormenta:

Cual de las comunidades sufre los mayores niveles de contaminación después de una tormenta? ____________

Cómo TU puedes ayudar a mantener la cuenca limpia?

1. ____
2. ____
3. ____
4. ____

Page 2

Spanish Classroom Handout – High School

Nombre: ______________________________ Fecha: ______________

Ciencia detrás una tormenta

Qué es una **cuenca hidrográfica**?

1. Composición del rio durante una tormenta: Un ejemplo hipotético de una cuenca hidrográfica

(Elementos naturales y antropogénicos)

Cual de las comunidades sufre los mayores niveles de contaminación después de una tormenta? ____________ Por qué? ______________

2. Análisis de datos: Un ejemplo real de una tormenta en la ciudad

Parámetros analizados:

- Temperatura:
- Conductividad:
- Oxigeno Disuelto (OD):
- Turbidez:
- Materia Orgánica Disuelta (MOD):

Ejemplo:

Parámetro: Conductividad

Predicción: *La conductividad del agua disminuirá justo después de la tormenta debido a la incorporación de agua de lluvia (sin sales).*

Justificación:

Tus datos

Parámetro:

Predicción en grupo:

Justificación:

- Aceptas tu predicción según el análisis de datos? Explica por qué o por qué no.

Page 1

Análisis de datos: Discusión general

1. En qué orden respondieron los parámetros analizados durante la tormenta?
2. En qué estación del año ocurrió la tormenta?
3. Crees que el patrón de la grafica (puntos máximos y mínimos) seria el mismo en otra estación del año? Por qué?
4. Crees que los parámetros se comportarán de la misma manera en una área no urbanizada? Por qué?
5. Crees que la calidad del agua en general mejora o empeora después de una tormenta?

Vocabulario para llevarte a casa

Empareja las siguientes palabras con sus definiciones: **Conductividad**, **Turbidez**, **Contaminación focal**, ***Escherichia coli***, **Contaminación difusa**, **Materia Orgánica Disuelta**, **Temperatura**, **Oxigeno Disuelto** y **Tributario**.

- Beber agua contaminada con ______________ puede causar diarrea.
- La ____________ esta directamente relacionada con las concentraciones de iones en el agua. Un derrame de petróleo puede provocar el incremento de este parámetro.
- El agua acida procedente de la lluvia acida es un ejemplo de ______________.
- El agua del Rio Grande es marrón porque la ______________ es elevada .
- Un incremento en la ___________ del agua del rio puede incrementar la solubilidad y por lo tanto la toxicidad de ciertos compuestos.
- ____________ es la mezcla de materiales (vivos y muertos) en diversos estados de descomposición.
- Cuando una fabrica drena productos químicos al rio se le llama _________
- La ausencia de ___________ en el agua puede causar la muerte masiva de peces en el rio.
- El rio Chama es un ____________ del Rio Grande.

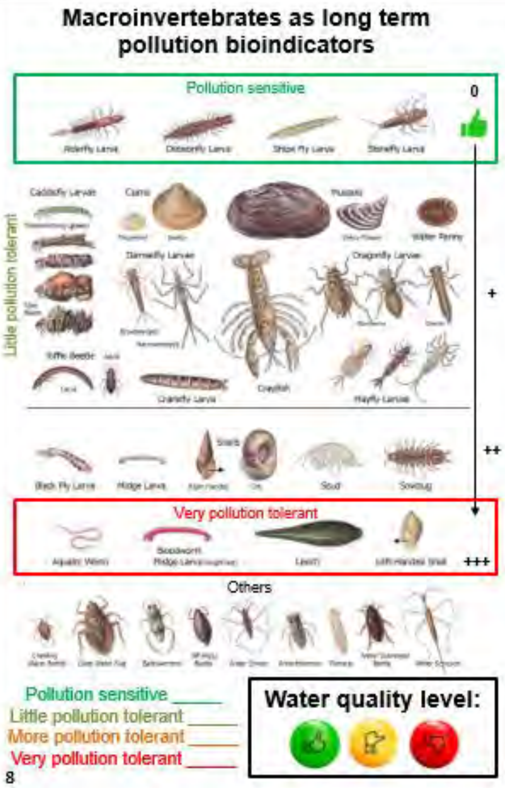
3. Cómo TU puedes ayudar a mantener la cuenca limpia?

1. ________________________________
2. ________________________________
3. ________________________________
4. ________________________________

Page 2

APPENDIX B: STUDY TRIP HANDOUTS

Field Journal for study trips – Middle School



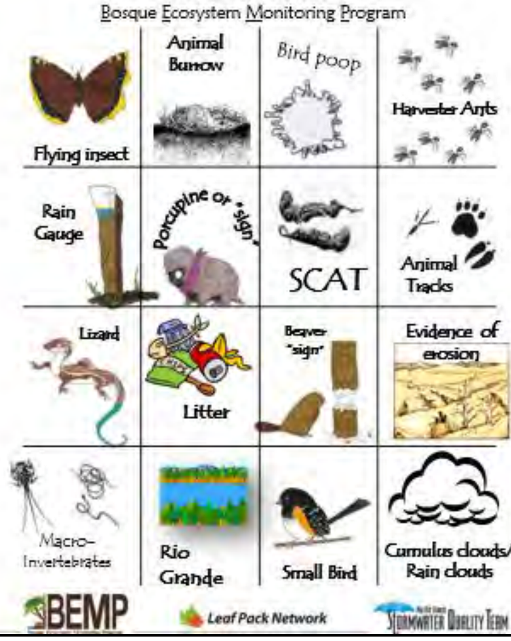
Name:______________________________________

Date:_______________________________________

Stormwater Science

Field Journal

Bosque Ecosystem Monitoring Program



Page 1&8

2. Water biology: Macroinvertebrates

2.1 Water quality indices

A) Percent EPT

It's short for the total number of Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). Many species within these three groups are sensitive to changes in water quality.

In general, the more EPT taxa, the better the water quality.

Calculate Percent EPT

Step 1

Add the total number of mayflies, stoneflies, and *other* caddisflies. Attention!: Hydropsychidae don't count towards percent EPT!

____

Step 2

Divide the number of EPT individuals by the total number of individuals in the samples.

____

Step 3

Convert to percentage.

____

Based on your EPT values draw conclusions about the quality of the water:

____

____ 7

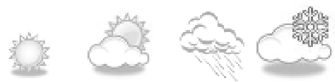
Page 2&7

Field Journal for outdoor study trips (cont.) - MS

Weather Report

1. Time: _______________ am or pm

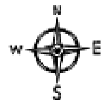
2. Today's Weather:



3. Cloud Cover: ____________ %

4. Wind: Speed: ____________ Direction:

km/h OR mph



5. Humidity: ______________ %

6. Temp: It feels like: ________°F It actually is.... __________°F

Reflection/Conclusions

1. How do you think the weather can effect the water chemistry results of the river that we got today?

2. If the overall river health is fair or poor, who do you think is responsible? Do you think is a point source pollution or a non-point source pollution scenario?

6

Litter Survey

The San Antonio Arroyo collects runoff from all over the west side of Albuquerque, anything on the streets can end up in the arroyo. Tally the litter you find throughout the day here. Also, think who might be responsible for this. Is it a point source pollution or a non-point source pollution?

Litter type	Arroyo	Bosque
Plastic		
Paper		
Glass		
Metal		
Cigarette butts		
Dog poop		
Animal scat		
Evidence of chemicals		
Other trash		

Reminder:

- Point source pollution - comes from a specific place
- Non-point source pollution - comes from many places and people

3

Page 6&3

How long will it take?

Every piece of trash has a face... where and WHO did it come from? It takes just a moment for an item to be carelessly discarded where it can be washed into a river or blown in by wind, but it can take many, many years for it to completely decompose. Test your knowledge about decomposition times below by drawing a line from the item to its decomposition time.

Banana peel	1–2 million years
Cigarette butt	600 years
Fishing line	450 years
Styrofoam cup	20–1000 years
Milk carton	200–500 years
Plastic bottle	+1 million years
Aluminum can	1.5–10 years
Glass bottle	5 years
Plastic bag	3–4 weeks

Which of these things can be reused or recycled?

____

____

____

4

1. Water Chemistry

	Arroyo	River
Temperature	°F / °C	°F / °C
Turbidity	JTU	JTU
Nitrate	ppm	ppm
Phosphate	ppm	ppm
pH		
Dissolved oxygen	ppm %	ppm %
E. coli	Present / Absent	Present / Absent

Temperature
8-12 °C- good
13-15 °C- fair
>15 °C- poor

Turbidity
Sources: erosion, fire
1-39 JTU- good
4–100 JTU- fair
>100 JTU- poor

Nitrates
Sources: plants, soil, fertilizer
1-4 ppm- good
5- 20 ppm- fair
>20 ppm- poor

Phosphates
Sources: plants, fertilizer, [illegible]
1 ppm- good
2 ppm- fair
4ppm- poor

pH
1-strong acid- poor
6-weak acid- fair
7-neutral- good
8-weak base-fair
14-strong base-poor

Dissolved Oxygen
1 ppm or 60-100% -good
4 ppm or 40-60%- fair
8 ppm or 0-40%- poor

E. coli
Sources: animal waste
E.coli will always be present in small amounts. Large amounts are harmful to humans and animals

Overall river health: (circle one)

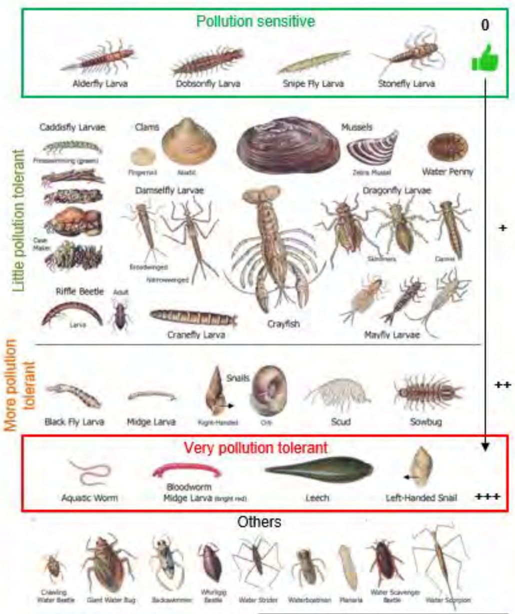
Good Fair Poor

5

Page 4&5

Field Journal for study trips – High School

Macroinvertebrates as long term pollution bioindicators



Pollution sensitive _____

Little pollution tolerant _____

More pollution tolerant _____

Very pollution tolerant _____

Water quality level:

8

Name:_______________________________

Date:_______________________________

Stormwater Science

Field Journal

Bosque Ecosystem Monitoring Program

BEMP Leaf Pack Network Stormwater Quality Team

Page 1&8

1. Water Chemistry

	Arroyo	River
Temperature	°F / °C	°F / °C
Turbidity	JTU	JTU
Nitrate	ppm	ppm
Phosphate	ppm	ppm
pH		
Dissolved oxygen	ppm %	ppm %
E. coli	Present / Absent	Present / Absent

Temperature
8-12 °C- good
13-15 °C- fair
>15 °C- poor

Turbidity
Sources: erosion, fire
1-39 JTU- good
4--100 JTU- fair
>100 JTU- poor

Nitrates
Sources: plants, soil, fertilizer
1-4 ppm- good
5- 20 ppm- fair
>20 ppm- poor

Phosphates
Sources: plants, fertilizer, plastic
1 ppm- good
2 ppm- fair
4ppm- poor

pH
1-strong acid- poor
6-weak acid- fair
7-neutral- good
8-weak base-fair
14-strong base-poor

Dissolved Oxygen
1 ppm or 60-100% -good
4 ppm or 40-60%- fair
8 ppm or 0-40%- poor

E. coli
Sources: animal waste
E.coli will always be present in small amounts. Large amounts are harmful to humans and animals

River health: (circle one)

Good Fair Poor

2

Biotic Index	Water Quality	Degree of Organic Pollution
<3.75	Excellent	Organic pollution unlikely
3.75-5.0	Good	Some organic pollution
5.1-6.5	Fair	Substantial pollution likely
6.6-10.0	Poor	Severe pollution likely

Overall Conclusions

1. Why is important to compare the water chemistry of the river to the macroinvertebrate data?
2. Does these two measurements show the same overall results?
3. Are the water chemistry results for the arroyo different form the river? Why?
4. Are the macroinvertebrate indices different between the pond and the river? Why?

7

Page 2&7

Field Journal for outdoor study trips (cont.) - HS

B) Biotic Index

Biotic Index is a comparison of the abundance of taxa and their tolerance to environmental stress. This widely used index can indicate organic and nutrient pollution. Organisms are assigned tolerance values which range from 0 to 10, depending on the organism's sensitivity to changes in water quality and habitat (tolerance values increase as water quality decreases).
In contrast to the percent EPT index, the lower the biotic index, the better the water quality.

Calculate Biotic Index

Step 1
To calculate the Total Tolerance Value (D), multiply each taxa (B) by the Pollution Tolerance Value (C) and record in column D.

Step 2
Add all Total Tolerance Value values (D): ____________________

Step 3
Add all Average # from all packs (B): ______________________
This is the *total number of individuals*.

Step 4
Divide all Total Tolerance Value (step 2) by total number of Individuals (step 3).

____

Step 5
Look up the Biotic Index Value in the table to know the degree of organic pollution:

6 ____

Weather Report

1. Time: ________________ am or pm

2. Today's Weather:

3. Cloud Cover: ______________ %

4. Wind: Speed: ______________ Direction:
km/h OR mph

5. Humidity: ________________ %

6. Temp: It feels like: ________°F It actually is.... ___________°F

Reflection/Conclusions

1. How do you think the weather can effect the water chemistry results of the river that we got today?

2. If the overall river health is fair or poor, who do you think is responsible? Do you think is a point source pollution or a non-point source pollution scenario?

3

Page 6&3

2. Water biology: Macroinvertebrates (Pond or River)

Taxa	A Total # in your pack	B Average # from all packs	C Pollution Tolerance Value	D Total Tolerance Value
EPHEMEROPTERA (Mayflies)			3.6	
PLECOPTERA (Stoneflies)			1	
TRICHOPTERA (Caddisflies)				
Hydropsychidae (Common Netspinners)			3	
Other caddisflies			2.8	
ANISOPTERA (Dragonflies)			4	
ZYGOPTERA (Damselflies)			7	
MEGALOPTERA				
Corydalidae (Hellgrammites)			8	
Sialidae (Alderflies)			4	
COLEOPTERA (Beetles)			4.6	
DIPTERA (True Flies)				
Athericidae (Watersnipe flies)			2	
Chironomidae (Midges)			6	
Simuliidae (Black flies)			6	
Tipulidae (Crane flies)			3	
Other Diptera			6	
AMPHIPODA (Scud)			6	
ISOPODA (Aquatic sowbugs)			8	
DECAPODA (Crayfish)			5	
OLIGOCHAETA (Aquatic Worms)			8	
HIRUDINEA (Leeches)			8	
TURBELLARIA (Planarians)			8	
GASTROPODA (Snails)			7	
SPHAERIIDAE (Fingernail clams)			8	

4

2.1 Water quality indices

A) Percent EPT

It's short for the total number of Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). Many species within these three groups are sensitive to changes in water quality.
In general, the more EPT taxa, the better the water quality.

Calculate Percent EPT

Step 1
Add the total number of mayflies, stoneflies, and *other* caddisflies. Attention!: Hydropsychidae don't count towards percent EPT!

____

Step 2
Divide the number of EPT individuals by the total number of individuals in the samples.

____

Step 3
Convert to percentage.

____

Based on your EPT values draw conclusions about the quality of the water:

____

____

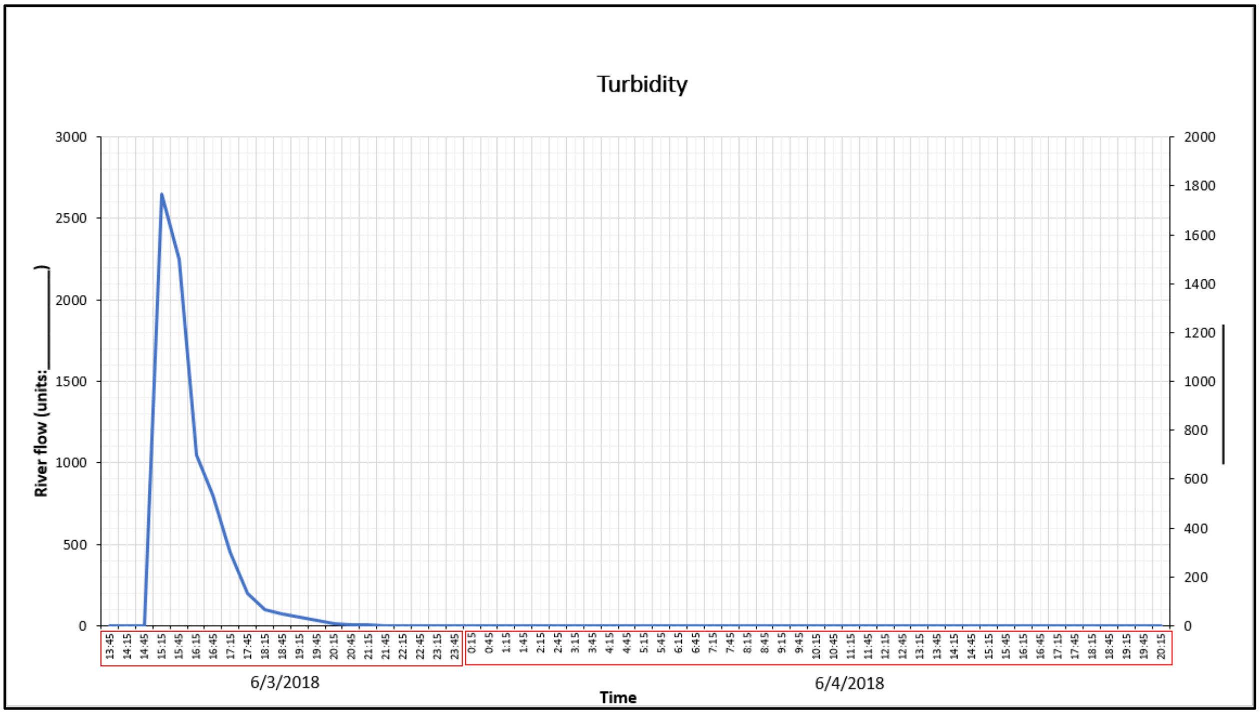
5

Page 4&5

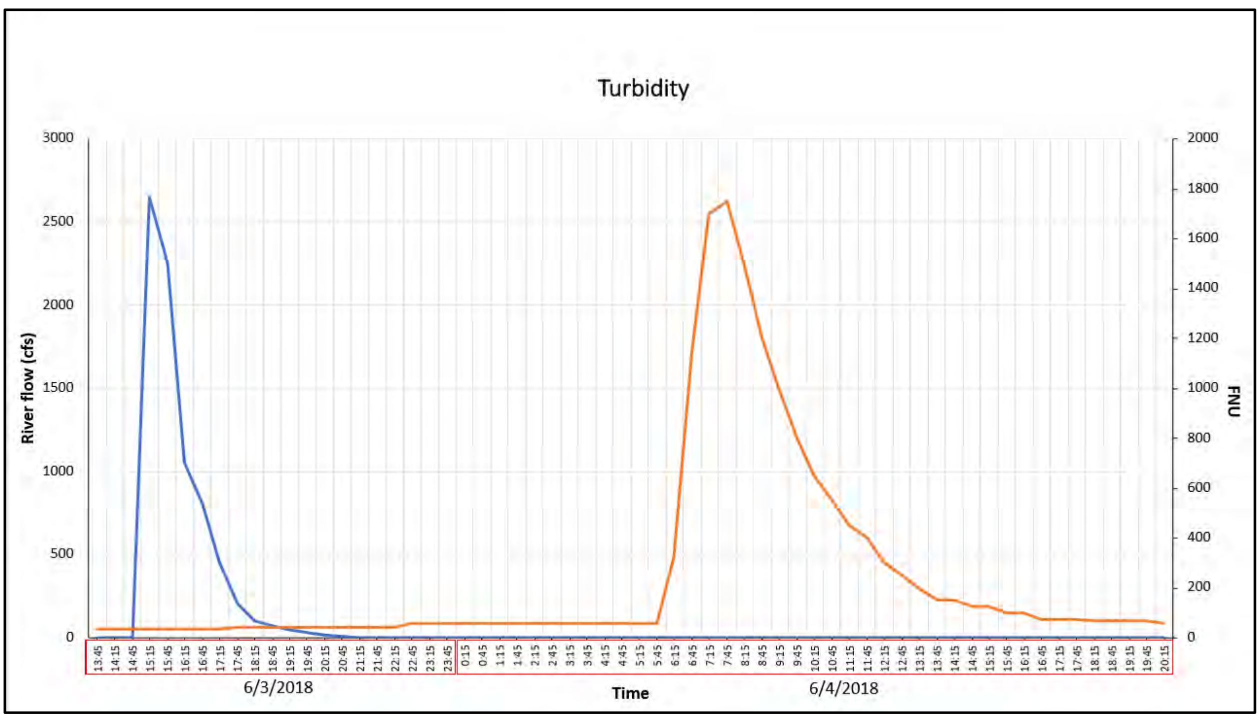
APPENDIX C: CURRICULUM EXTENSIONS

Curriculum extension 1 – HS graphing

Handout

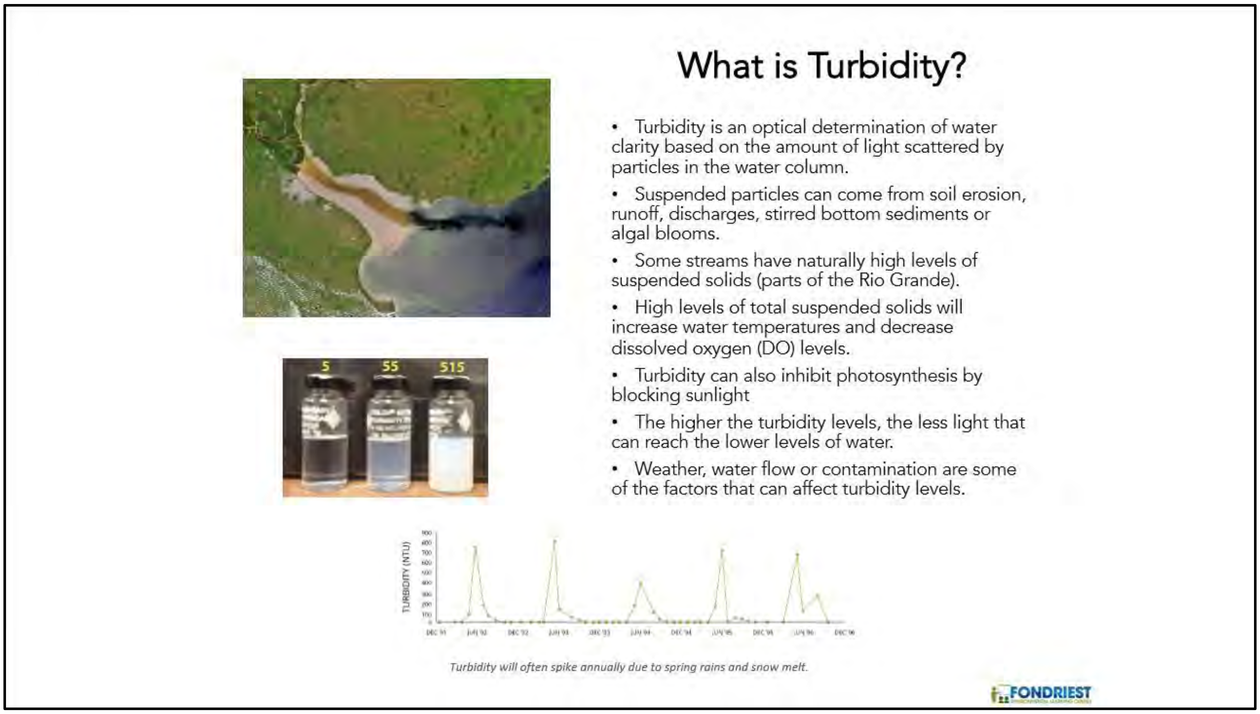


Result expected

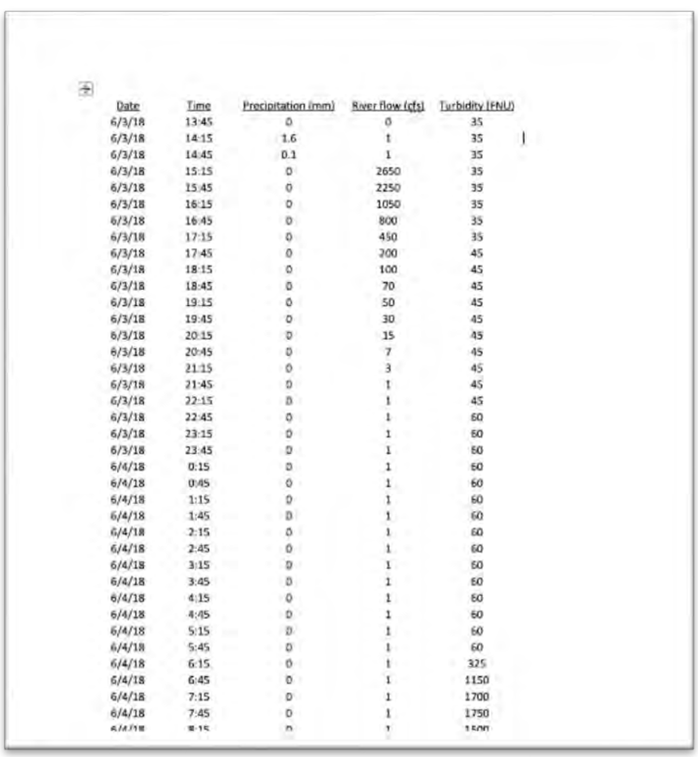


Curriculum Extension 1 – HS graphing (cont.)

Handout Information



Table



Date	Time	Precipitation (mm)	River flow (cfs)	Turbidity (FNU)
6/3/18	13:45	0	0	35
6/3/18	14:15	1.6	1	35
6/3/18	14:45	0.1	1	35
6/3/18	15:15	0	2650	35
6/3/18	15:45	0	2250	35
6/3/18	16:15	0	1050	35
6/3/18	16:45	0	800	35
6/3/18	17:15	0	450	35
6/3/18	17:45	0	200	45
6/3/18	18:15	0	100	45
6/3/18	18:45	0	70	45
6/3/18	19:15	0	50	45
6/3/18	19:45	0	30	45
6/3/18	20:15	0	15	45
6/3/18	20:45	0	7	45
6/3/18	21:15	0	3	45
6/3/18	21:45	0	1	45
6/3/18	22:15	0	1	45
6/3/18	22:45	0	1	60
6/3/18	23:15	0	1	60
6/3/18	23:45	0	1	60
6/4/18	0:15	0	1	60
6/4/18	0:45	0	1	60
6/4/18	1:15	0	1	60
6/4/18	1:45	0	1	60
6/4/18	2:15	0	1	60
6/4/18	2:45	0	1	60
6/4/18	3:15	0	1	60
6/4/18	3:45	0	1	60
6/4/18	4:15	0	1	60
6/4/18	4:45	0	1	60
6/4/18	5:15	0	1	60
6/4/18	5:45	0	1	60
6/4/18	6:15	0	1	325
6/4/18	6:45	0	1	1150
6/4/18	7:15	0	1	1700
6/4/18	7:45	0	1	1750
6/4/18	8:15	0	1	1500

Curriculum Extension 2 – HS Soil Porosity and Permeability Experiment

Name ____________________________ Date ___________

Stormwater Science: Soil Porosity and Permeability Experiment

Background: Layers of rock, sand or gravel that are good ground water reservoirs are called aquifers, from the Latin words for "water" and "to bring". This water reservoirs are key to transfer nutrients from the soil to growing plants. The properties that make a good aquifer are those that increase the storage of water (porosity) and increase the flow of water (permeability) within that layer. ***Porosity*** is the proportion of empty space in a substrate. ***Permeability*** is a measure of the ease with which liquids and gases can pass through a substrate. Some soil types let water flow in quickly (infiltrate), others may let the water completely through at a fast paste and some others may keep the water from getting in at all. None of these soil types is better than the other. Today you will complete an investigation to determine which soil substrate holds the most water.

Hypothesis:

____

____

Materials:

- Funnel
- Substrates: (1) sand, (2) soil, (3) gravel and (4) clay
- Plastic wrap
- Water
- Plastic cups - optional
- Beakers
- Graduated cylinder
- Coffee filter
- Stopwatch
- Dropper

Procedure:

1. Make observations about the substrates you will test. Write down your observations.
2. Get a funnel, and place the coffee filter inside the funnel.
3. Measure 200 mL of the first substrate you will test into the funnel.
4. Place the funnel over a beaker. One person should hold the funnel and block the tip with a finger.
5. Measure out 100 mL of water with the graduated cylinder and record the amount in the table (A).
6. Pour the water SLOWLY into the funnel, making sure not to let the water overflow the funnel. Allow the water to soak in all the way. Use the dropper to remove any excess water on top of the gravel. Be sure to put any water removed from the cup back into the graduated cylinder.
7. Record how many ml of water are now in the graduated cylinder, then discard.
8. Complete the table to determine how many ml of water you poured into the cup.
9. SLOWLY remove your finger from the tip of the funnel.
10. Time for 1 minute as the water drips from the funnel into the beaker.
11. Record the final volume of water in the beaker in the table.
12. Empty the sediment in the funnel into the appropriate container.
13. Repeat the above steps for all substrates.
14. Complete the trial again with only the coffee filter. This is your control.
15. Finally, cover the last substrate you tested (clay) with plastic wrap. Do not pull it tight, but lay it on top of the soil sample inside of the funnel. Pour the same amount of water onto the sample, and wait five minutes to see what will happen.
16. Write down all of your results and compare with your classmates.

Curriculum Extension 2 – HS Soil Porosity and Permeability Experiment (cont.)

Substrate	A. Water beginning (ml)	B. Water end (ml)	C. Water used (A-B) **Porosity**	D. Water cylinder	E. Water dripped **Permeability**
Sand					
Soil					
Gravel					
Clay					
Control					

Results:

____

____

____

____

Discussion:

1. What happens to the porosity when the particle size gets smaller?

2. Through which material did the water move the fastest? The slowest? Why?

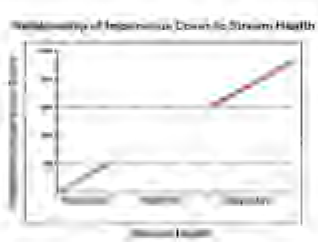
3. Why is the permeability of the substrates different?

4. What happen to the permeability of the plastic wrap?

5. What type of surface does plastic wrap mimic in real life?

6. Which substrate would cause the least flooding for a community? Why?

7. What does this graph tell you about the relationship between permeability and stream health? How does this graph relate to the activity you just completed?



Curriculum Extension 3 – MS & HS

BEMP
Bosque Ecosystem Monitoring Program

Hydrologist: ____________________ Date: ____________

Stormwater Science

What 2 sources can New Mexicans get their drinking water from?

1. ____________________

2. ____________________

Where does water go after we use it?

____

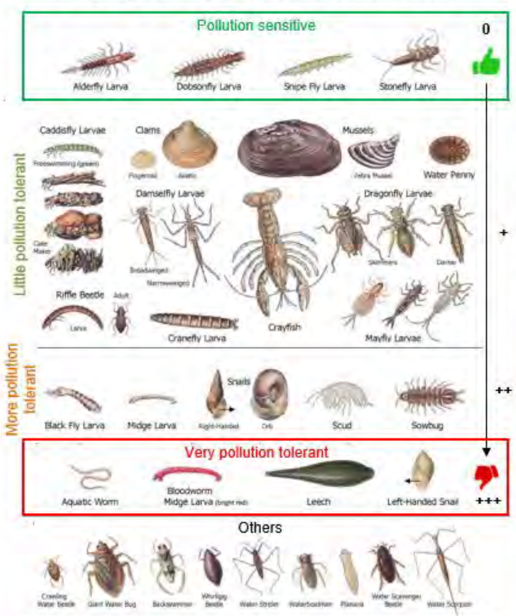
A ***watershed*** is an area of land where all of the water that falls on it, or that is under it, drains to the lowest point.

Draw a line from the word to its definition

Turbidity	A stream or arroyo that brings water to the main channel of the river
Nonpoint source pollution	Types of nutrients found in fertilizers that can lead to excess algae growth
E.coli	A single location where pollution is being leaked into the environment
Point source pollution	A type of *bacteria* found in warm blooded animal's intestines that can make people sick
Nitrates and phosphates	Tiny 'water bugs' whose species are an indication of water quality
Tributary	*Any* type of pollution that comes from *many different* sources
Macro-invertebrates	A measure of water clarity based on the amount of suspended solids

Page 1

1. *Water Biology:* Macroinvertebrates as long term pollution bioindicators



Pollution sensitive _____
Little pollution tolerant _____
More pollution tolerant _____
Very pollution tolerant _____

Water quality level:

2. *Water Chemistry:* Dissolved materials as short term pollution indicators

Water origin:	________
Turbidity	JTU
Nitrate	ppm
Phosphate	ppm
pH	
Dissolved oxygen	ppm %
E. coli	Present / Absent

Water quality level:

Turbidity
Sources: erosion, fire
1-39 JTU- good
4--100 JTU- fair
>100 JTU- poor

pH
1-strong acid- poor
6-weak acid- fair
7-neutral- good
8-weak base-fair
14-strong base-poor

Nitrates
Sources: plants, soil, fertilizer
1-4 ppm- good
5- 20 ppm- fair
0 ppm- poor

Dissolved Oxygen
1 ppm or 60-100% -good
4 ppm or 40-60%- fair
8 ppm or 0-40%- poor

Phosphates
Sources: plants, fertilizer, plastic
1 ppm- good
2 ppm- fair
4ppm- poor

E. coli
Sources: animal waste
E.coli will always be present in small amounts. Large amounts are harmful to humans and animals

How can YOU help to keep the watershed clean?

1. ____________________
2. ____________________
3. ____________________
4. ____________________

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APPENDIX D: PHOTOS

Watershed model at Jefferson Middle School

Study Trip Water Quality analysis at the arroyo system

Study Trip with el Camino Real Academy – Water Quality analysis at the river

Study Trip macroinvertebrate lab observation

Otter Day 2019

BEMP Student Congress 2019

Luquillo-Sevilleta Virtual Symposium (LSVS)

Tabling event at Sandia High School

BASS students at Harrison Middle School observing macroinvertebrates

APPENDIX E: 2018-2019 STORMWATER SCIENCE EDUCATION OUTREACH NUMBERS

Date	School/Event name	City	Students	Adults	Grade	Activity	Presentations	School Level
11/27/18	Harrison MS	Albuquerque	2	1	6, 7, 8	BASS	1	MS
3/5/19	Harrison MS	Albuquerque	5	1	6, 7	BASS	1	MS
4/12/19	Ace Leadership HS	Albuquerque	12	1	11, 12	Classroom	1	HS
1/31/19	Albuquerque Institute for Mathematics and Science	Albuquerque	50	2	7	Classroom	2	MS
1/29/19	El Camino Real Academy	Albuquerque	24	2	6	Classroom	1	MS
12/5/18	Jefferson MS	Albuquerque	116	2	6,7,8	Classroom	6	MS
12/4/18	La Academia De Esperanza	Albuquerque	50	1	9, 10, 11	Classroom	5	HS
2/13/19	School of Dreams Academy	Los Lunas	15	1	11,12	Classroom	1	HS
3/8/19	School of Dreams Academy	Los Lunas	12	1	11,12	Classroom	1	HS
11/8/18	Taft MS	Albuquerque	14	1	6,7,8	Classroom	1	MS
9/25/18	The International School	Albuquerque	40	2	4	Classroom	2	MS
2/12/19	The International School	Albuquerque	14	1	9, 10	Classroom	2	HS
3/25/19	Volcano Vista HS	Albuquerque	168	2	11, 12	Classroom	5	HS
11/28/18	Wilson MS	Albuquerque	36	1	6,7,8	Classroom	2	MS
8/22/18	2018 EPA Region 6 Conference	Albuquerque	1	70	NA	Conference	1	NA
2/15/19	BEMP Crawford symposium	Albuquerque	54	250	all	Event	1	all
4/15/19	BEMP Otter Day	Albuquerque	130	21	K, 1	Event	1	ES
4/25/19	BEMP Otter Day	Albuquerque	142	24	1	Event	1	ES
4/24/19	BEMP Student Congress	Albuquerque	140	20	6, 7, 8	Event	1	MS
4/26/19	BEMP Student Congress	Albuquerque	80	11	6, 7, 8	Event	1	MS
4/25/19	Luquillo-Sevilleta Virutal Symposium	Albuquerque/Puerto Rico	16	13	6, 11	Event	1	MS/HS
10/22/18	Rio Rancho schools/Children's Water Festival	Rio Rancho	130	4	4	Event	6	ES
10/23/18	Rio Rancho schools/Children's Water Festival	Rio Rancho	147	19	4	Event	6	ES
9/14/18	Amy Bielh HS	Albuquerque	21	2	9	Other*	1	HS
7/1/19	Horizons Albuquerque	Albuquerque	20	5	6	Other*	1	MS
2/14/19	El Camino Real Academy	Albuquerque	20	5	6	Study trip	1	MS
11/2/18	Holy Ghost Catholic Church	Albuquerque	20	2	7	Study Trip	1	MS
4/23/19	Holy Ghost Catholic Church	Albuquerque	24	3	6	Study trip	1	MS
11/13/18	Taft MS	Albuquerque	15	1	6, 7	Study trip	1	MS
2/26/19	The International School	Albuquerque	14	1	9,10	Study Trip	1	HS
3/29/19	Volcano Vista HS	Albuquerque	20	2	10	Study trip	1	HS
4/10/19	Albuquerque Sign Language Academy	Albuquerque	65	45	4, 5, 6, 7, 8	Tabling	1	ES/MS
4/17/19	Sandia HS	Albuquerque	400	30	9, 10, 11, 12	Tabling	1	HS
TOTAL			2017	547				

*Other activities included condensed study trips (~2 hours) and classroom lessons (~30 min) and Bernalillo Counties. This will include age-appropriate, substantive education about point and non-point source pollution that impacts the Rio Grande locally and at large. To closely align this work with BEMP's mission, students will also have the opportunity to work with real water quality data collected along the Rio Grande in Albuquerque to better understand the impacts of storm events on their local watershed. These students will have additional opportunities to learn about stormwater science concepts when participating in BEMP's Monthly Monitoring data collection. Elementary school students will primarily receive Stormwater Science education through community events, festivals, and BEMP Monthly Monitoring.

To best accommodate a variety of school models and incorporate feedback from participating classroom teachers, BEMP will offer two Stormwater Science curriculum components during the 2019-2020 school year: a classroom lesson and a Rio Grande Study Trip. Both experiences include the explicit message that students can and should act to protect the health of the Rio Grande and its watershed.

1. Classroom curriculum*: Preparation and delivery of Stormwater Science activities in the classroom for middle and high school students*

During the classroom lesson, middle school students build a watershed model with runoff cards representing pollutants relating to MS4 permit requirements and educational priorities as detailed in the matrix provided by the Storm Team. The high school classroom lesson builds upon these core concepts and includes new data analysis and data visualization components that align with NGSS principles.

2. Stormwater Study Trip: *Delivery and coordination of place-based Stormwater Science experiences*

The Study Trip is a place-based educational experience which, for middle school students, includes walking through an arroyo, surveying for litter, and testing water quality at the Rio Grande. At the high school level, the Study Trip uses a similar format with an emphasis on water quality indices and other related ecological concepts. In order to build a more holistic understanding of the Rio Grande watershed and provide students the opportunity to work with real data, student-collected water quality data gathered during these Study Trips will be shared internally with other participants. BEMP will continue to build this dataset, share student-collected data with other science organizations (ex. GLOBE – Global Learning and Observations to Benefit the Environment), and make this data available for student research projects.

Whether students only receive classroom activities or also participate in a Study Trip, Stormwater Science outreach will address all four areas of Science, Technology, Engineering and Math (STEM) education through exploring the ecological and chemical effects of water pollution, scientific technology used to test and record water chemistry data, and the engineering and design of storm drains and arroyos. During the 2018-19 school year, BEMP created lesson extensions that can be used as either homework assignments or as classwork. For the 2019-2020 school year, BEMP will to continue to align Stormwater Science activities with Next Generation Science Standards.

To implement this program, BEMP education staff will contact middle and high school teachers in Albuquerque public, charter and private schools with a focus on Title I schools. First priority will be given to public schools and then to charter, private, and home schools in Sandoval and Bernalillo Counties.

3. Elementary school outreach: *Continued delivery and coordination of Stormwater Science experiences for elementary school students*

While the Stormwater Science curriculum is primarily focused upon middle and high school students, BEMP educators will continue to attend to a variety of outreach events such as the Children's Water Festival and BEMP's Otter Days where younger students will learn about stormwater science concepts and actionable ways to help keep the Rio Grande healthy.

4. Monthly Monitoring: *Continued development and delivery of Stormwater Science presentations during Monthly Monitoring*

In addition to the core Stormwater Science curriculum, BEMP will, when possible, continue to educate all of its K-12 student and community partners about stormwater science concepts during Monthly Monitoring data collection. Students will also learn how to care for and conserve the Rio Grande and its watershed in ways that amplify key Storm Team messaging and takeaways.

Schools in Bernalillo and Sandoval Counties that participated in BEMP monthly monitoring during 2018-2019 school year and are anticipated to participate in 2019-2020:

Location	**Name**
Bernalillo	Bernalillo Middle School Santo Domingo Elementary School
Rio Rancho	Rio Rancho Cyber Academy
Albuquerque	Albuquerque Institute of Math and Science Bandelier Elementary School Bosque School Cien Aguas International School Harrison Middle School Highland High School Jefferson Middle School La Academia De Esperanza La Cueva High School Rio Grande Elementary School Rio Rancho Cyber Academy South Valley Academy The International School at Mesa del Sol Wilson Middle School Volcano Vista High School

5. Summer programming*: Preparation and delivery of Stormwater Science presentations during summer programming*

During summer months, BEMP partners with Horizons Albuquerque, a tuition-free academic enrichment program that intends to fill the summer learning gap that students from low-income families often encounter. BEMP plans on offering a program for high school students where they will learn to collect and analyze water quality-related datasets as part of their summer enrichment experience.

6. Stormwater Science curriculum development: *Continued development of Stormwater Science curriculum*

BEMP educators will continue to develop new hands'-on, engaging and age-appropriate curriculum activities for a wider range of students. Educators will continue to develop data-intensive stormwater science activities to better align with Next Generation Science Standards.

7. BEMP educational outreach events: *Funding covers partial costs for classrooms to participate in Otter Day and BEMP Student Congress*

Two of the main Stormwater Science-related field activities that BEMP organizes every year are BEMP Student Congress and Otter Day. The main goal of BEMP Student Congress is to gather middle school students from different areas in Albuquerque and help them share their research and experiences in the bosque, including watershed health observations. BEMP's Otter Day is an event where first graders, hosted by high school students, are taught how they are individually responsible for keeping the Rio Grande and its watershed free of pollutants for the benefit of both wildlife and humans. We plan to continue offering this type of events for the next school year.

8. Additional BEMP educational outreach and events: *Funding covers partial costs for classrooms to participate in Luquillo-Sevilleta Virtual Symposium and Crawford Symposium*

BEMP also participates in other outreach events throughout the school year where stormwater science concepts are taught to a broad audience. BEMP organizes two of these events every year - the Luquillo-Sevilleta Virtual Symposium (LSVS) and the Crawford Symposium. The LSVS is an online event where students from Albuquerque and Puerto Rico share their watershed research in Spanish via Skype. BEMP's Crawford Symposium is a community science event honoring Dr. Clifford Crawford (BEMP's co-founder) where students and professionals present their Middle Rio Grande environmental research. In both of these events, BEMP teaches students why it is their responsibility to help maintain a clean river and watershed and what steps they can take to help. In the next school year, BEMP educators will continue to participate in Stormwater Science-related research projects that will be presented to the scientific community and the public at large..

All deliverables will be non-proprietary and consist of: education materials, online posting of lesson plans and associated documents, and a report summarizing the program's accomplishments, findings, documented learner outcomes, and participant numbers.

Exhibit 5
Nature Conservancy 2018-2019

New Mexico
212 East Marcy, Suite 200
Santa Fe, New Mexico 87501

Tel (505) 988-3867 nature.org/new mexico
Fax (505) 988-4095

The Nature Conservancy in New Mexico
Urban Conservation Educational Programs
Final Report to the City of Albuquerque: June 2019

In 2019, The Nature Conservancy engaged communities throughout the Albuquerque area, including several under-resourced neighborhoods, with education/awareness programs focused on stormwater pollution that highlight nature-based solutions. Our education programs reached both adults and youth with hands-on, outdoor learning activities about stormwater impacts on the Rio Grande, how Albuquerque residents can reduce stormwater pollution, and the role of infiltration and the use of trees and other vegetation to clean our air and water. We reached approximately 625 youth and 1,225 adults directly with our water messages and additional community members through earned media from articles featured in the Albuquerque Journal and other tv and radio news outlets.

Youth Education Programs:
Throughout the year we engaged kids and young adults ranging from elementary aged children to age 24. Activities included installing rain barrels, building rain gardens, making native seed bombs, tree planting and participating in other conservation educational events. In partnership with a local elementary school we installed 750 gallons of rainwater storage at Eugene Fields Elementary to support their existing garden space and expand the gardening space to accommodate greater student participation. Additionally, we worked with a girl scout troop to install a rain garden to accompany rain barrels at a local community center. Finally, we engaged a high school class over several lectures, site visits and build day activities to install a large rain garden on campus where flooding in a central plaza was a problem turned into a resource.

For the second year in a row, we participated in the environmental day at Sandia Lakes where 138 special-needs students and their families (30 adults) built seed bombs, learned about how stormwater impacts our waterways and enjoyed catching fish. Students were primarily from Albuquerque Sign Language Academy, and special-education students from various schools throughout Albuquerque Public Schools (APS) system. Participants, both youth and adults, participated in similar hands-on activities and watershed based educational curriculum. Topics included stormwater management, water quality, watershed connections, the importance of forests and mountains as water towers, drinking water sources, impacts of drought, and ecological consequences of river management.

The Nature Conservancy
Protecting nature. Preserving life.

New Mexico
212 East Marcy, Suite 200
Santa Fe, New Mexico 87501

Tel (505) 988-3867 nature.org/new mexico
Fax (505) 988-4095

We have also engaged eight Rocky Mountain Youth Corp members, ages 17-25, in activities to learn about trees and how stormwater could serve as an asset to building a more robust tree canopy in Albuquerque. Crew members assisted with taking an inventory of and assessing the health of trees in city parks and street trees to help us understand where the gaps in tree canopy are, which trees do the best in our urban setting and identifying locations where stormwater could benefit street trees. Additionally, we participated in UNM Geography Day, guest lectured at UNM transportation engineering class, the Cibola Youth Advisory Council, the City of Albuquerque's Bosque crew, a fall Garden Party at Coronado Elementary school, and Build your Refuge Day at Valle de Oro National Wildlife Refuge. These activities help us reach new audiences and engage students of all ages in stormwater management learning events.

Adult Education Programs:
Over the course of the engagement with the City of Albuquerque, we installed more than 4,000 gallons of rainwater storage at various locations including schools, community centers, community gardens and other public spaces. We also provided talks and presentations to community groups such as the Civitan Group, Kiwanis Club, South San Pedro Neighborhood Association, International District Healthy Communities Coalition, and the Los Jardines Community Garden. Additionally, we tabled at larger event such as South Valley Pride day, Environmental Justice Day and sponsored the City Nature Challenge, including hosting an event and reaching our members with partner events.

To reach a more professional audience we also presented at the UNM Paving Conference, the Land and Water Summit, and the EPA region 6 stormwater conference. Collectively participating in these community-based and professional events allowed us to reach more than 1,225 people with the message of water conservation and stormwater management approaches that will benefit the Rio Grande and help people understand what role they play in helping to keep the river clean.

Tijeras Creek is an important tributary of the Rio Grande and with its recent TMDL limits, it is an area of active restoration. The Conservancy has continued to participate in this Watershed Collaborative, which is addressing all parts of the watershed from high in the Sandias to the river. Projects such as the Cedro Restoration Project at the Cedro Creek headwaters and the Rocky Mountain Youth Corp project, funded by the Rio Grande Water Fund, which is restoring 3-4 miles of Cedro Creek, will improve conditions to reduce erosion, improve water infiltration and potentially reduce the flow of contaminants into the City's

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jurisdiction.

Finally, we have engaged with two local experts to develop a plant list of trees and shrubs that are suitable for five elevational transects crossing the city. These selected species account for drought tolerance, water requirements, temperature limits, invasiveness, wildlife habitat and other attributes that make them good selections for our arid City.

Marketing and Communications:
During the time of the Conservancy's contract with the city, we disseminated press releases and media advisories about urban conservation outreach activities. We also produced a "benefits of trees and rainwater harvesting" postcards, an urban program annual report and a conservation handout that highlights our work with the City of Albuquerque. These collateral pieces are utilized at tabling events and distributed to residents during educational activities and identify the City of Albuquerque as a funder of this work.

During the time of our contract with the City, the program received 22 mentions reaching 16.8 million online and another 231,000 via video broadcast. The coverage is valued at $32,000.

We also featured the urban conservation activities via Facebook, our Great Places E-newsletter (reaching 3,000 individuals), and via Nature.Org/Newmexico as highlighted below.

Facebook: July 2018 – June 2019
- 35 posts
- 9,288 people reached
- 9,741 impressions
- 654 people engaged

Great Places E-Newlsetter: July 2018 – June 2019
- 5 GPN stories
- 61 clickthroughs
- Average reach: 2,600 recipients

Nature.org July 2019 – June 2019
- Two web pages
  - Page 1
    - https://www.nature.org/en-us/about-us/where-we-work/united-states/new-mexico/stories-in-new-mexico/creative-conservation-in-albuquerque/
    - Views: 948
  - Page 2
    - https://www.nature.org/en-us/about-us/where-we-work/united-states/new-mexico/stories-in-new-mexico/new-mexico-nature-in-the-city/
    - Views: 245

Exhibit 6

Rio Rancho Children's Water Festival 2018-2019

Children's Water Festival

Rio Rancho, 2018

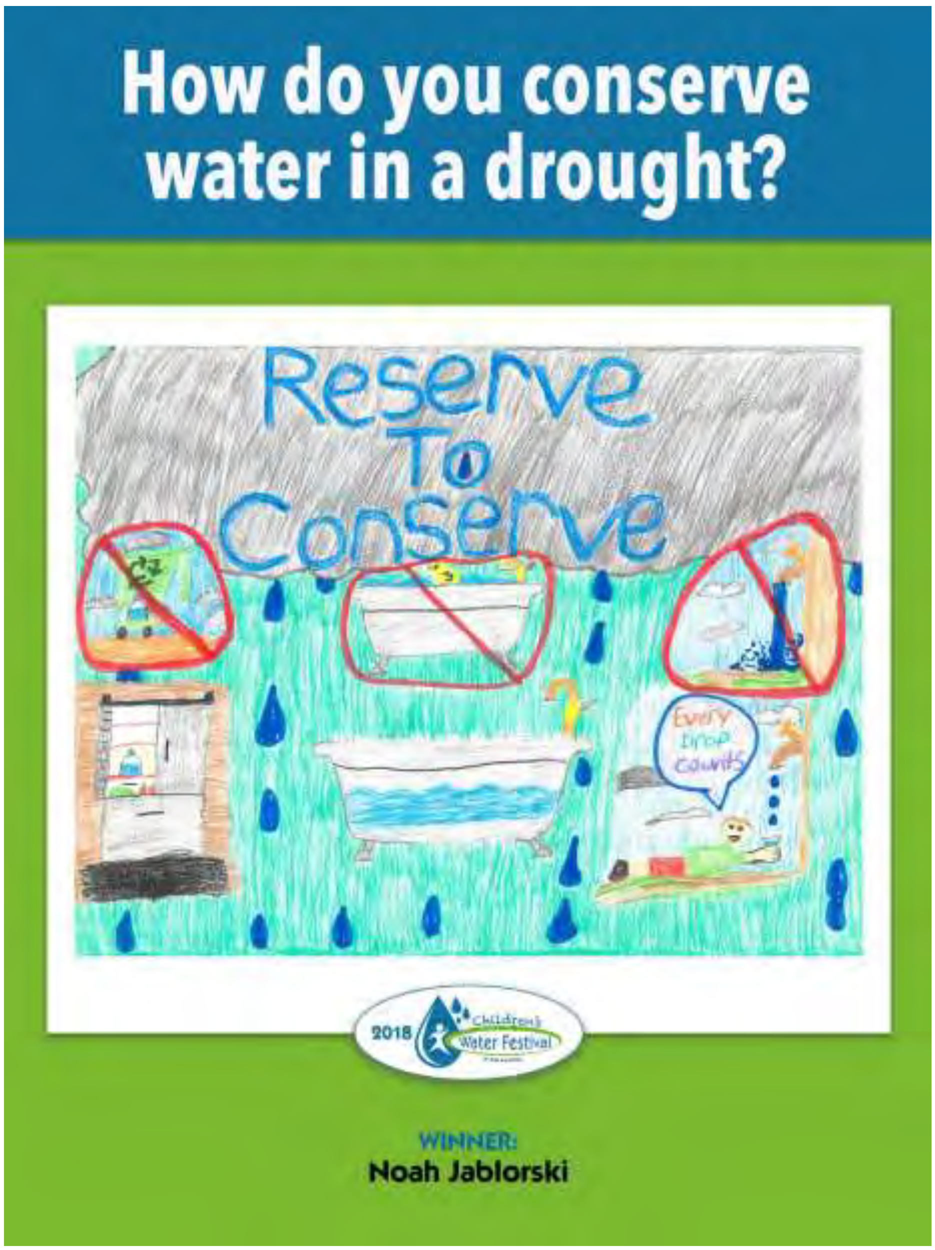

Table of Contents

Executive Summary

The 2018 Children's Water Festival (Festival) was held Monday, October 22nd and Tuesday, October 23rd at the Santa Ana Star Center in Rio Rancho. An estimated 1,500 fourth-grade students attended from 64 classrooms and one small group of home-schoolers; Bernalillo Elementary School, St. Thomas Aquinas, and all of the elementary schools in Rio Rancho Public Schools. The students attend three 30 minute presentations in a half-day format. Up to seventeen classes from three to four schools were on-site at one time. Schools attended a morning or afternoon program.

The seventeen presentations represented twenty-two professional organizations that ranged from federal, state, regional governments, and private industry. The organizations all have water interests and focused on subjects such as the water cycle, water quantity and conservation, water distribution, and water quality and pollution.

Students were evaluated on basic water knowledge before and after the Festival. On average, for all testing returned, **the students showed an increase in knowledge of 9 percentage points on the post testing**.

A teacher from Sandia Vista Elementary wrote, "I thought this was the best year out of the years I've attended with my class. All of our water activities were hands-on and informative."

The Festival costs an estimated $23,000. The City of Rio Rancho contributed $10,000 to the Festival and additional funding was raised through the New Mexico Water Conservation Alliance 501(c)(3). Festival sponsors include: Jacobs, Waste Management, NM Gas Company, Southern Sandoval County Arroyo Flood Control Authority, RMCI Inc., All Type, Alpha Southwest, and CWA Strategic Communications.

Introduction

The Children's Water Festival (Festival) has occurred in Rio Rancho since 2007. The 2010 Festival was the first event hosted by the City of Rio Rancho's Water Conservation Office. This report is for the 2018 Festival; the ninth event hosted by the Water Conservation Office. As in years past, the Festival was held at the Santa Ana Star Center. There were an estimated 1,500 students attending from 64 classrooms and one small group of home-schoolers; Bernalillo Elementary School, St. Thomas Aquinas, and all of the elementary schools in Rio Rancho Public Schools. The event was held on October 22nd and Tuesday, October 23rd.

Purpose and Intent

The principal focus of the Festival is to educate fourth-grade school children about water and its relationship to humans, animals and other natural resources in a fun and interactive atmosphere. The Festival's vision is to:

- Introduce students and teachers to new ideas, options, and solutions so they will conserve and protect water for the future,
- Lay the foundation for further learning, and
- Reach as many students and teachers as possible.

Public participation is essential to successful water conservation, and educating the public promotes better water conservation planning and implementation. Early education influences the future acceptance of water conservation concepts. This early education experience also has shown that training efforts affected behavioral changes and improved water use practices. Water conservation goals are only as effective as water users' willingness to adopt and implement appropriate water conservation measures. Through special training activities, water users are taught proper water use practices and techniques. Efficient use of water supplies decreases waste and prevents degradation of water quality leading to healthier ecosystems for fish and wildlife, including locally listed endangered species, such as, the Rio Grande Silvery Minnow (*Hybognathus amarus)* and the Southwestern Willow Flycatcher (*Empidonax traillii extimus*).

The Festival was designed specifically to introduce and explain new and unfamiliar water management tools to present and future water users and managers. Research concerning water conservation education indicates the targeted group of the Festival, fourth-grade students, is ideal for achieving long-term goals. Through sharing water conservation and water quality tools at home and with extended family, the estimated 1,600 participants (students, teachers, and chaperones) represent a potential audience of 10,000 to 15,000 people for the Festival program.

A series of activities that cover a wide range of core curriculum areas were presented at the Festival. These activities included language arts, mathematics, science, social studies, visual arts, and health/wellness; all of which are tied to water conservation, water quality, and water quantity in the arid Southwest desert.

The updated Water Resources Management Plan (Plan), adopted by the City of Rio Rancho Governing Body in 2014, details water efficiencies and water conservation measures to be taken by the City to better manage the existing water supplies. Policy E.4 of the Plan sets forth this initiative: “Continue consulting with and improving the partnership with Rio Rancho Public Schools to implement a robust water resources educational curriculum.”

Additionally, the City of Rio Rancho Strategic Plan was formally adopted by the City of Rio Rancho Governing Body on March 25, 2009 and updated August 2017. One important element of the Infrastructure Strategies section of the Strategic Plan pertains to water sustainability and conservation to support growth and development of the City.

“My class enjoyed all 3 events. They learned the most from the watershed activity, where the students stood on blue tape that represented the water that flows into the river. They still talk about it.” said one Sandia Vista Elementary teacher.

Funds

Festival Cost

The Festival costs are listed in the table below. Please note that the cost for the Santa Ana Star Center is only for the personnel time. Any monies raised from sponsors that exceed the Festival costs will be used for the 2019 Festival. The cost per student for the Festival was $14.96, and includes the Festival T-shirt and transportation.

Cost Description	Amount
Santa Ana Star Center	$2,271.96
Pipe and Drape rental	$2,801.92
Catering for volunteers & presenters	$4,401.72
Buses	$3,560.70
T-shirts with art/logos (1,629 shirts)	$7,866.10
Shadow box (for T-shirt winner)	$23.18
Banner for Display Stand	$96.00
Posters	$216.00
Copy paper (pre & post-tests)	$44.00
White paper for T-shirt artwork	$37.29
Thank you cards	$130.42
Fiscal Sponsor	$1,000.00
Thank you gifts for steering committee	$168.00
Stamps for VIP invitations/thank you cards	$62.32
Total	**$22,679.61**

Sponsorships

Through its fiscal partner, the New Mexico Water Conservation Alliance, a 501(c)3 non-profit organization, the City of Rio Rancho was able to secure several sponsors to fund the Festival. Additionally, the City sponsored $10,000 for the Festival.

A heartfelt thank you goes to these valuable partners for the Festival!

Steering Committee

The Festival was directed by a diverse steering committee. The core group contained members from:

- City of Rio Rancho’s Water Conservation Office
- City of Rio Rancho’s Keep Rio Rancho Beautiful Office
- Jacobs
- Sandoval County Master Gardeners
- Sandoval County Master Composters
- New Mexico Environment Department – Surface Water Quality Bureau
- Citizen volunteers

Design of Festival

Students attended the Festival for a half day program that included three presentations. This ensures participation by all Rio Rancho fourth graders. There is a transition period in the middle of the day where the morning classes are leaving and the afternoon classes are arriving.

Teachers and students experienced the Festival in three parts: pre-Festival activities, the Festival itself, and post-Festival activities.

Pre-Festival Activities

- Each school provides a lead fourth grade teacher who confirms their commitment to participate, provides the number and names of the teacher/classes and the number of anticipated students for each.
- Elementary schools are provided the information on how to participate in the student T-shirt artwork project; student art work is submitted to the Water Conservation Office and a winner is selected.
- The pre-Festival tests are provided to the schools and the teachers administered the test to the students. The post-Festival tests, printed on colored paper, were dropped off at the same time.
- Teachers received resource kit materials that included the T-shirts and miscellaneous items donated by our sponsors (e.g., pens, rulers.).

Rio Rancho Children's Water Festival Event

Students at the "Rio Grande Bosque Water Cycle" activity.

- The Water Festival ran from 9:40 a.m. through 1:30 p.m.
- Students attending the Festival in the morning boarded buses at 9:15 a.m. at their school. Students attending the afternoon program boarded the buses at 11:30 a.m.
- Each class was met by a guide/timekeeper who escorted them to each of their three assigned presentations.
- Teachers turned in completed pre-Festival student tests and photo releases.
- Presentations lasted 30 minutes and topics included: water quality, water conservation, water cycle, wastewater, ecosystems, and built water infrastructure.
- All students received a Festival T-shirt. Noah Jablorski, Puesta del Sol Elementary, was the winner of the T-shirt student artwork contest. His design was displayed on the front of the T-shirt and Festival sponsor logos were on the back.

Noah Jablorski – T-shirt artwork winner from Ms. Armendariz's Puesta del Sol Elementary class

Post-Festival Activities

- Post-Festival tests were completed by students.
- Tests and teacher evaluation forms were picked up by steering committee members.
- Teachers will receive a copy of this report with specific information on how their students did on the tests.

All aspects of the Festival planning and implementation were created with the *Big Water Questions* in mind. Each activity was categorized into one of three water themes, and each class attended one 30-minute activity in each of those themes. In addition, each presentation addressed at least one of the *Big Water Questions*, as well as the Festival's mission and objectives. The long-term outcome goal is that all elementary school students will be able to provide reasonable answers to these questions by the time they reach middle school.

Big Water Questions

- Why is water so important to life?
- How do all living things depend on each other?
- What is the water cycle?
- What is a watershed?
- Where does my drinking water come from?
- What makes water dirty?
- How much water does my family use?
- Who are the other water users in our society?
- How can *I* protect our water?
- Where does my wastewater go?

Schools Attending the Festival

The following table outlines which schools attended.

Elementary School	**Number of Teachers**	**Number of Students**
Bernalillo Elementary	6	133
Cielo Azul Elementary	5	113
Colinas del Norte Elementary	5	124
Enchanted Hills Elementary	6	158
Ernest Stapleton Elementary	6	144
Maggie Cordova Elementary	6	150
Martin Luther King Elementary	6	147
Puesta del Sol Elementary	6	135
Rio Rancho Elementary	4	103
Sandia Vista Elementary	6	132
St. Thomas Aquinas Elementary	2	40
Vista Grande Elementary	5	132
Home School Group	1	5
Totals	**64**	**1,516**

Festival Presentations

One teacher wrote, "Each of the activities were "hands-on". They were informative and fun!"

"Let's Settle This Outside" activity. Students learn about wastewater treatment while becoming a wastewater operator.

Each year the Festival relies on numerous professionals who volunteer their expertise and presentation time. These professionals represent federal, state and regional government entities, local engineering firms, and the school district. They choose presentations that represent their missions or specialties. There were seventeen presentations running simultaneously on both Day 1 and on Day 2. A description of all the presentations, the presenters and their contact information has been provided in Appendix A.

Volunteer Hours

The Festival could not be held without the assistance of a number of volunteers, presenters, and steering committee members. New last year, was a requirement that the volunteers use the City's on-line application process to have a background check conducted. It was hopeful that this year process would be smoother and it was not. The City's human resources staff added an additional requirement where the volunteer applicants had to fill out a form with their social security number and driver's license number. At least one volunteer was worried that her social security number may fall in the wrong hands and she would not complete the process. Several other volunteers expressed concern about this new step.

The table below lists an estimate of the in-kind volunteer hours.

Presenters	382.5 hours
Volunteers	166.5 hours
Steering Committee Meetings	37 hours
Total Hours	**586 hours**

Lessons Learned

Steering Committee Comments from the Festival

There were only a few comments from the steering committee including:

- Bus issues with Rio Rancho Elementary– there was still a problem with one school not being picked up on time even though we verified with the bus coordinator to make sure all schools were on the bus schedule. We did not get a good response from the bus coordinator when asked why the bus did not arrive; we were told both "rain delay" and "the bus was there but the classes did not get on it when they were supposed to". On the teacher evaluation forms, though, the teachers said that bus 481 was not there on time. They missed the entire first rotation.
- Chaperones from Bernalillo Elementary did not have badges showing that they were supposed to chaperone the classes.
- One female parent and boyfriend show up the first day and wanted to be let in. They were not background checked and were denied entry. The teacher said that the parent was not supposed to be there. The parent and boyfriend walked the outside of the Star Center trying each door to get in.
- A comment from the Festival Director to the Star Center security team was overheard by one of the Bernalillo Elementary teachers. When talking about the chaperone badges, the Director told security that "Bernalillo is different" and the teacher took offense.
- A male parent of a Bernalillo student wanted to be let in to visit with the class. He did not know the name of the teacher his child was with so he was denied entry.
- A comment from last year was that it needed to be more hands on – maybe let presenters know that "lecture time" should be no more than 10 minutes and use the last 15 minutes for hands-on. Still need to get better with this. Several of the presenters lectured most of the time.
- Many teachers want more activities, but that is impossible – can't get enough volunteers and presenters to do more than two days.
- From last year, we did put TURN OVER on front of test page so kids answer all of the questions and had more students do both pages.
- One class from M. Cordova (Alderson) had a lot of the students circled in between the numbers on the post-test causing the post-test scores to be significantly lower than the pre-test scores (12% decrease).
- DeCristoforo's class from ML King all received scores of 100% on the post-tests. This gave a 24% increase in the score.
- We barely managed with less volunteers due to the inconvenience of the background check.
- The Festival began at 9:40 this year and some of the classes could not make it in time. Suggestion is to go back to 9:45 for next year. Need to have the students on the bus by 1:30 next year, just like this year.
- Food for the vegetarian presenters and volunteers was very poor. Even though the caterer told us what would be served, the Star Center staff did not have anything the first day and

it was cold the next day. Next year, need to have vegetarian as one of the options especially since the meals were enchiladas one day and lasagna the other.

- There needs to be ice packs, or something quick, when a child either pinches a finger or trips. We had a student trip and bump his knee and we had to scramble to find ice and something to put the ice in.
- Question #3 from the test has “False” then “True” as the selection for the students. It was mentioned that this might be misleading for the students so it will be rewritten for next year to have “True” then “False” as the answers.
- One of the teacher comments from 2017 was that it would be nice to have each school’s t-shirts be a different color. We checked on this when we ordered the shirts for this year. Colored shirts would be an additional $1 per shirt. This would put the cost of shirts from $4.95 per shirt to $5.95 per shirt. The t-shirts are the second most expensive cost of the Festival besides the venue and food for presenters and volunteers.

Comments from Teacher Evaluation Forms

Buses

- Comment from St. Thomas Aquinas: “Our office registrar received a call stating that we had not confirmed via RRPS Trip Tracker. We never had to do this in the past. We also do not have access to this system. It was Liz Aldaz who called from RRPS transportation.”
- Comments from Rio Rancho Elementary:
    - “Our buses were late picking us up at Rio Rancho Elem so we missed the first rotation.”
    - “Bus 481 from Rio Rancho was late causing us to miss 1 activity.”
- Comment from Vista Grande: “Well, the only thing was we only got 2 buses for 5 classes and we had to do 3 to a seat.”
- No problems. The bus driver was great!
- Buses were fine. We were a bit crammed in.
- “Left fast and arrived fast” Commented a teacher from M. Cordova.


2017 Festival layout.

Santa Ana Star Center

- Wonderful place.
- Facility was clean/spacious.
- Great; was good. All set up, good temp., no noise.
- Thought layout was good and having a volunteer guide kept us right on time.
- While acoustics are poor, the lessons reach the students just fine. I love the venue for this.
- Not decorated fun or with kid-friendly posters.
- It would be nice if chairs were available for the teachers & parents volunteers.
- The “rooms” were too small for tables and my 25 students.
- Well organized & a lot of room for the students @ each station.

Activities

- Each of the activities were “hands-on”. They were informative and fun!
- Yes, the activities were fabulous! I believe making the activities shorter in time (± 15 mins.) would allow students to see more.
- Some were hands on but still not very engaging for students.
- Students enjoyed the content. A content guide to be used ahead of time (to introduce vocab/concepts would be great).
- Improved by…Small tables for 27 children to huddle around, my group did a lot of listening in all 3 stations.
- At our first station, it was impossible for 24 kids to gather around a small table & be able to see. I understand there is a specific vocabulary to be uses with the water content & activities but not all students know what they mean. Many of the presenters seemed very annoyed that my class didn’t instantly understand a term. The only rotation my class was engaged in was the Jeopardy station. More than half of my class was disengaged during the other two. They were unsure of what to do & shy they were doing the activity, & learned nothing from them. The students might be more engaged & learn something if they were able to choose what station they visited.
- Many were hands on but many of the rotations finished early (up to 15 minutes) and struggled to keep kids engaged.
- Thank you for more hands on activities this year. It is hard for 4th graders to sit and listen to lectures.
- I thought this was the best year out of the years I’ve attended with my class. All of our water activities: “Leaky Faucet”, “water cycle in Action”, and “flood Plain” were hands-on and informative.

- The presentation from the Museum of Natural History was the most memorable for my students. Although they did have to figure out a connection from ancient New Mexico to water resources.
- I like that you posted the information students should know before leaving in every booth. My students and I noticed.
- My students enjoyed all 3 events. They learned the most form the watershed activity, where the students stood on blue tape that represented the water that flows into the river. They still talk about it.
- I like how everything is separated. It helps the students focus on the presenter. I also like how the person escorting the group has sign with my name on it. It made it easy to find.
- My students really enjoyed the activities. One activity was having trash and the water & poo squish toys & the kids acted as a river. Great hands-on.

Overall

- Make it interesting and kid friendly. Presenters seemed as if they did not want to be there. Presentations were boring and dull. It was nice to take home goodies, kids love that.
- For a larger class of 26+, more models may help for all to see.
- Great! A lot of volunteers that were well prepared & very knowledgeable.
- More hands on, at least 1 group out of the 3.
- Make sure EVERYONE receives the same info about the process of the festival. We got different info than our guide got.
- Shorten time slots to allow us to see more rotations.
- Provide chairs for the adults to sit in. This has always been done before. Two out of three presentations did not have them available. (Festival staff note: the chairs were there but not placed out where the teachers could access them; need to do better on this next year.)
- I think the key is to have little bit of explanation and mostly hands-on activities. The presenters should be patient and kind to the students.
- Possibly have the first rotation set up differently since buses can't get there as early as expected.
- My students loved it. Things they learned included, ½ of New Mexico was ocean, we have ocean fossils, illegal dump sites, waste and toxins pollute river and aquifer and that there many layers to a landfill.
- It was my first time and we had a great time.
- This is such important information. We should have curriculum for at least 2 weeks prior and the time we are at the event should be longer.
- Test question #2 and #3 are poorly written.
- I just feel like it needs to be more kid friendly, like a fun rally, or water rally before we go in?

- The organization can make sure each teacher gets a mix of different topics through the stations. For example, my class went to two rotations that explained the water cycle (very similar discussions). The organization can also make sure each teacher gets their fair share of hands-on activities. (Festival staff note: we use a activity matrix and do try to make sure that teachers don't go the same activity year after year and have a mix of activities each year.)

Festival Event

The two days of the Festival ran very smooth with two exceptions:

- There was an issue with the buses for Rio Rancho Elementary and the students missed the first rotation. The Festival Director spoke to the Rio Rancho teachers to let them know that activities could be brought to them.
- The comment from the Festival Director to the Star Center security team that was overheard by one of the Bernalillo Elementary teachers. When talking about the chaperone badges, the Director told security that "Bernalillo is different" and the teacher took offense. The Festival Director apologized to one of the Bernalillo teachers who contacted her after the event and tried to explain the context of the comment.

Appendix A

Working Timeline

The following was used to ensure that steps of the Festival preparation were completed in a timely manner.

- July 15 – PO for RR Sponsorship
- July 15 – PO for Buses
- August 1 – update VIP list and mail invitations
- August 14 – RR schools starts
- August 24 – Email teachers about CWF date and artwork delivery
- August 30 – Drop off artwork paperwork, poster, photo release forms
- September 1 – email volunteers
- September 7 – email reminder to teachers including schedule
- September 7 – Start scheduling/meeting with teacher/schools
- September 11 – Pick up artwork, photo release forms
- September 17 – Meeting to select the winner
- September 17 – Artwork to Wayne at Rio Rancho T Shirts
- September 28 – meet with SASC about food, etc.
- October 15 – Pick up T Shirts
- October 15 – email layout to SASC
- October 16 – Meeting to pack bags
- October 16 – Drop off bags this week
- October 22nd and 23rd – Water Festival
- November 1 – Pick up post tests
- December 31 – Festival report completed

Appendix B

Teacher/Class Rotation Schedule

Booth	MON Oct 22 morning		9:40 – 10:10	10:15 – 10:45	10:50 – 11:20
#	**Presentation**	**Category**			
1	Incredible Journey – NMED	Water Cycle	Lambson Cielo Azul	McCann Cielo Azul	Langdon/Romero Puesta del Sol
2	No Dumping – KRRB	Recycling/Water Quality	McCann Cielo Azul	Smith Puesta del Sol	Torres Colinas del Norte
3	Vacant				
4	Let's Settle this Outside – Jacobs	Wastewater	Armendariz Puesta del Sol	Lambson Cielo Azul	Wiberg Colinas del Norte
5	Basic Surface Water Treatment – Carollo	Water Quality	Langdon/Romero Puesta del Sol	Armendariz Puesta del Sol	Herrera Puesta del Sol
6	Water Jeopardy – Bohannan Huston	General Water	Vargas Colinas del Norte	Ulibarri Puesta del Sol	Smith Puesta del Sol
7	Watersheds & Aquifers – UNM	Source Water	Romero Cielo Azul	Torres Colinas del Norte	Armendariz Puesta del Sol
8	Rolling River – Ciudad SWCD	Watersheds	Ulibarri Puesta del Sol	Wiberg Colinas del Norte	McCann Cielo Azul
9	RG Bosque Water Cycle - RGNC	Water Cycle	Torres Colinas del Norte	Romero Cielo Azul	Vargas Colinas del Norte
10	Weather or Not - NOAA	Weather	Infantino Cielo Azul	Farfan Colinas del Norte	Lambson Cielo Azul
11	Watersheds & Stormwater – SNL	Watersheds	Messenger Cielo Azul	Vargas Colinas del Norte	Romero Cielo Azul
12	Leaky Faucet – RRPS	Conservation	Smith Puesta del Sol	Parker/Straley Puesta del Sol	Randall Colinas del Norte
13	NM Past and Present – NM Cultural Services	Historical Perspective	Farfan Colinas del Norte	Randall Colinas del Norte	Messenger Cielo Azul
14	Water Cycle – Ask Academy	Water Cycle	Randall Colinas del Norte	Messenger Cielo Azul	Ulibarri Puesta del Sol
15	BEMPing it Up – BEMP	Ecosystems	Herrera Puesta del Sol	Langdon/Romero Puesta del Sol	Farfan Colinas del Norte
16	Keep the Rio Grande – Stormwater Team	Watersheds	Parker/Straley Puesta del Sol	Herrera Puesta del Sol	Infantino Cielo Azul
17	Virtual Water – OSE	General Water	Wiberg Colinas del Norte	Infantino Cielo Azul	Parker/Straley Puesta del Sol
	16 Presenters		**16 Classes**		

Booth	MON Oct 22 afternoon		11:50 – 12:20	12:25 – 12:55	1:00 – 1:30
#	**Presentation**	**Category**			
1	Incredible Journey – NMED	Water Cycle	DeCristoforo ML King	Pearson ML King	Marsh Enchanted Hills
2	No Dumping – KRRB	Recycling/Water Quality	Mandich Enchanted Hills	Lawton St.Thomas	Wallace ML King
3	Vacant				
4	Let's Settle this Outside – Jacobs	Wastewater	Wallace ML King	Zukowski Enchanted Hills	Salaz ML King
5	Basic Surface Water Treatment – Carollo	Water Quality	Filkins ML King	Salaz ML King	Wiebelhaus Enchanted Hills
6	Water Jeopardy – Bohannan Huston	General Water	Sierz Enchanted Hills	Hunt Enchanted Hills	Dannenberg Enchanted Hills
7	Watersheds & Aquifers – UNM	Source Water	Marsh Enchanted Hills	Wallace ML King	Hunt Enchanted Hills
8	Rolling River – Ciudad SWCD	Watersheds	Zukowski Enchanted Hills		Sierz Enchanted Hills
9	RG Bosque Water Cycle - RGNC	Water Cycle	Dannenberg Enchanted Hills	Sierz Enchanted Hills	Lawton St.Thomas
10	Weather or Not - NOAA	Weather	Summerbell ML King	Dannenberg Enchanted Hills	Pearson ML King
11	Watersheds & Stormwater – SNL	Watersheds	Griego St. Thomas	Wiebelhaus Enchanted Hills	
12	Leaky Faucet – RRPS	Conservation	Salaz ML King	Mandich Enchanted Hills	Filkins ML King
13	NM Past and Present – NM Cultural Services	Historical Perspective	Lawton St.Thomas	Marsh Enchanted Hills	DeCristoforo ML King
14	Water Cycle – Ask Academy	Water Cycle		Griego St. Thomas	Zukowski Enchanted Hills
15	BEMPing it Up – BEMP	Ecosystems	Hunt Enchanted Hills	Filkins ML King	Summerbell ML King
16	Keep the Rio Grande – Stormwater Team	Watersheds	Pearson ML King	DeCristoforo ML King	Mandich Enchanted Hills
17	Virtual Water – OSE	General Water	Wiebelhaus Enchanted Hills	Summerbell ML King	Griego St. Thomas
	16 Presenters		**15 Classes**		

Booth	TUE Oct 23 morning		9:40 – 10:10	10:15 – 10:45	10:50 – 11:20
#	**Presentation**	**Category**			
1	Incredible Journey – NMED	Water Cycle	Sidor M Cordova	Hurlock M Cordova	Malan Bernalillo
2	No Dumping – KRRB	Recycling/Water Quality			
3	DW Model – Santa Fe	Water Quality	Sosa Bernalillo	Gabaldon M Cordova	Martinez Bernalillo
4	Let's Settle this Outside – Jacobs	Wastewater	Galvez-Romero Bernalillo	Alderson M Cordova	Paiz Rio Rancho
5	Basic Surface Water Treatment – Carollo	Water Quality	Hurlock M Cordova	Chavez Bernalillo	Steiner M Cordova
6	Water Jeopardy – Bohannan Huston	General Water	Malan Bernalillo	Sidor M Cordova	Bailey/Mashour Rio Rancho
7	Watersheds & Aquifers – UNM	Source Water	Lujan Bernalillo	Steiner M Cordova	Chavez Bernalillo
8	Rolling River – Ciudad SWCD	Watersheds	Paiz Rio Rancho	Galvez-Romero Bernalillo	Boldt Rio Rancho
9	RG Bosque Water Cycle - RGNC	Water Cycle	Aldaz Rio Rancho	Boldt Rio Rancho	Galvez-Romero Bernalillo
10	Weather or Not - NOAA	Weather	Martinez Bernalillo	Lujan Bernalillo	Sidor M Cordova
11	Watersheds & Stormwater – SNL	Watersheds	Alderson M Cordova	Sosa Bernalillo	Hurlock M Cordova
12	Leaky Faucet – RRPS	Conservation	Chavez Bernalillo	Zirpel M Cordova	Gabaldon M Cordova
13	NM Past and Present – NM Cultural Services	Historical Perspective	Boldt Rio Rancho	Malan Bernalillo	Sosa Bernalillo
14	Water Cycle – Ask Academy	Water Cycle	Bailey/Mashour Rio Rancho	Paiz Rio Rancho	Alderson M Cordova
15	BEMPing it Up – BEMP	Ecosystems	Gabaldon M Cordova	Aldaz Rio Rancho	Zirpel M Cordova
16	Keep the Rio Grande – Stormwater Team	Watersheds	Zirpel M Cordova	Bailey/Mashour Rio Rancho	Aldaz Rio Rancho
17	Virtual Water – OSE	General Water	Steiner M Cordova	Martinez Bernalillo	Lujan Bernalillo
	16 Presenters		**16 Classes**		

Booth	TUE Oct 23 afternoon		11:50 – 12:20	12:25 – 12:55	1:00 – 1:30
#	**Presentation**	**Category**			
1	Incredible Journey – NMED	Water Cycle	Pichette Sandia Vista	Wadsworth Sandia Vista	Reichbach E Stapleton
2	No dumping – KRRB	Recycling/Water Quality	Pasternaki/Hernandez Vista Grande	Bird Vista Grande	Fox - Sandia Vista Salido - Home School
3	DW Model – Santa Fe	Water Quality	Rojas/Sanchez E Stapleton	Gonzales Vista Grande	Lautt E Stapleton
4	Let's Settle this Outside – Jacobs	Wastewater	Zungia E Stapleton	Lowe E Stapleton	Walker Vista Grande
5	Basic Surface Water Treatment – Carollo	Water Quality	Wadsworth Sandia Vista	Pichette Sandia Vista	Marcotte E Stapleton
6	Water Jeopardy – Bohannan Huston	General Water	Grant Vista Grande	Pasternaki/Hernandez Vista Grande	Valdez Sandia Vista
7	Watersheds & Aquifers – UNM	Source Water	Valdez Sandia Vista	Rojas/Sanchez E Stapleton	Glauvitz/Cook Sandia Vista
8	Rolling River – Ciudad SWCD	Watersheds	Rambaldi Sandia Vista	Walker Vista Grande	Wadsworth Sandia Vista
9	RG Bosque Water Cycle - RGNC	Water Cycle	Lowe E Stapleton	Glauvitz/Cook Sandia Vista	Rambaldi Sandia Vista
10	Weather or Not - NOAA	Weather	Lautt E Stapleton	Reichbach E Stapleton	Gonzales Vista Grande
11	Watersheds & Stormwater – SNL	Watersheds	Reichbach E Stapleton	Grant Vista Grande	Pichette Sandia Vista
12	Leaky Faucet – RRPS	Conservation	Glauvitz/Cook Sandia Vista	Valdez Sandia Vista	Rojas/Sanchez E Stapleton
13	NM Past and Present – NM Cultural Services	Historical Perspective	Walker Vista Grande	Lautt E Stapleton	Grant Vista Grande
14	Water Cycle – Ask Academy	Water Cycle	Marcotte E Stapleton	Fox - Sandia Vista Salido - Home School	Zungia E Stapleton
15	BEMPing it Up – BEMP	Ecosystems	Gonzales Vista Grande	Marcotte E Stapleton	Pasternaki/Hernandez Vista Grande
16	Keep the Rio Grande – Stormwater Team	Watersheds	Fox - Sandia Vista Salido - Home School	Zungia E Stapleton	Bird Vista Grande
17	Virtual Water – OSE	General Water	Bird Vista Grande	Rambaldi Sandia Vista	Lowe E Stapleton
	17 Presenters		**17 Classes**		

Appendix C

Festival Presentations

This appendix lists all of the Festival presentations and contacts. For each section, there is the name of the presentation, a brief description of the activity, the correlation of the presentation with the Next Generation Science Standards (NGSS), the contact information of the presenter and if available, where the teacher can locate a similar presentation if they would like to teach it in the classroom.

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Basic Surface Water Treatment
Students learn about processes used to clean water in a contemporary water treatment facility through an interactive process. This activity teaches children about the importance of water quality for drinking water.

Next Generation Science Standards, Grades 3-5:
Practice 2, Practice 3

Carollo Engineers
Rob Buss   rbuss@carollo.com

****

BEMPin' It Up
Students learn about the plants, mammals, arthropods, and water table along the Bosque and how it is all supported by water in the Rio Grande.

Next Generation Science Standards, Grades 3-5:
Practice 6, Practice 7

Bosque Ecosystem Monitoring Program, UNM Dept. Biology & Bosque School
Kelly Steinberg (505) 898-6388 x 151 kelly.steiner@bosqueschool.org

Similar activity found on web: Habitats of the World, Discovery Education
http://www.discoveryeducation.com/teachers/free-lesson-plans/habitats-of-the-world.cfm

****
Drinking Water Model
The 3D EnviroScape® Drinking Water/Wastewater model traces the path of the water we use in our communities. Real water is drawn from the aquifer and enters the water treatment plant processes -- clean water is delivered for residential and commercial uses -- wastewater is sent for treatment -- treated water returned to the river.

Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2

City of Santa Fe – Water Conservation Office
Christine Chavez cychavez@ci.santa-fe.nm.us

****

Incredible Journey
During this activity, students become water molecules and move through the water cycle. They learn about the movement and distribution of water – as well as pollution – on the earth.

Next Generation Science Standards, Grades 3-5:

Practice 6, Practice 7

NM Environment Department, Surface Water Quality Bureau
Heidi Henderson heidi.henderson@state.nm.us

A similar activity found on web: Incredible Journey, Project WET
http://files.dnr.state.mn.us/education_safety/education/project_wet/sample_activity.pdf

****

Keep the Rio Grande

Keep the Rio Grande Activity is an interactive game where the students become an arroyo supplying stormwater to the Rio Grande. The stormwater picks up a variety of items as the flow increases creating a flood or raindrops, trash, pet waste, bacteria, plastics as the students pass the items down to the river. The students learn about stormwater quality and the impact we have on water in our neighborhoods and town. After the rain has stopped, students discuss the water and debris on the ground around them and at the end of the line the river. Then they are tasked with sorting all of the items to bins labeled: trash, compost, recycle and rain.

Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2

Middle Rio Grande Stormwater Quality Team
Xavier Pettes (505) 891-5045 xpettes@rrnm.gov

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Leaky Faucet

Students create a water leak and scientifically measure the leak using graduated cylinders over three tests. The students then compute the average milliliters of water leaked over one minute to the amount of gallons of water leaked and wasted over one year.

Next Generation Science Standards, Grades 3-5:
Practice 4, Practice 5

Rio Rancho Public Schools
Lou Cusimano (505) 975-0326
lou.cusimano@rrps.net

A similar activity found on web: Leaky Faucet, Utah Education Network
http://www.uen.org/Lessonplan/preview.cgi?LPid=27247

****

Let's Settle This Outside

Students become wastewater operators and learn how the wastewater treatment plant cleans dirty water. They then create wastewater using everyday materials and clean the wastewater by sorting it into three stations: water, sludge, and trash.

Next Generation Science Standards, Grades 3-5:
Practice 1,

Jacobs

Billy Jaquez	(505) 891-5024	billy.jaquez@jacobs.com
Rita Armijo	(505) 891-5024	

A similar activity found on web: Wastewater: We Treat it Right, City of Boise
http://bee.cityofboise.org/media/216580/43385_Wastewater.pdf

****
New Mexico Past and Present
Students learn where water comes from (the water cycle), where water is today in New Mexico, and what they can do to protect and conserve water. The students then become detectives to discover where water occurred in the past in New Mexico.

Next Generation Science Standards, Grades 3-5:
Practice 3, Practice 6

New Mexico Museum of Natural History and Science
Mike Sanchez (505) 841-2583 michael.sanchez1@state.nm.us

****

No Dumping

The 3D EnviroScape® Landfill Model was utilized to teach students the importance of landfills. The students demonstrated how both landfills and illegal dumpsites affect the environment. Students participated by adding mock hazardous items that can be found in both landfills and illegal dumpsites. This allowed the students to see how hazardous items affected the environment and how landfills can protect the environment from these hazards.

Next Generation Science Standards, Grades 3-5:
Practice 2

City of Rio Rancho, Keep Rio Rancho Beautiful
Zac Keintz (505) 896-8729 zkeintz@rrnm.gov

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Rio Grande Bosque Water Cycle

In the semi-arid climate of New Mexico, our scarce precipitation limits the quantity of water available for use by plants, animals and humans. Students become water molecules traveling through a water cycle. The presentation emphases, with evidence and cause and effect, why we need to consider all water users when making water-use decisions.

Next Generation Science Standards, Grades 3-5:
Practice 6, Practice 7

Rio Grande Nature Center
Tanja George (505) 344-7240 Tanja.George@state.nm.us

A similar activity found on web: Incredible Journey, Project WET
http://files.dnr.state.mn.us/education_safety/education/project_wet/sample_activity.pdf

  

****

Rolling River

How does a river work? Students interact with a model watershed and watch the cause and effects of precipitation as it flows down-gradient from urban and rural environments. Students learn about "pervious" and “impervious” surfaces and their relationship with the water cycle, including pollutant transport and increased erosion. Students learn that their personal actions can protect their watershed.

Next Generation Science Standards, Grades 3-5:
Practice 2, Practice 7

Ciudad Soil and Water Conservation District
Steve Glass
ciudadswcd1944@gmail.com

A similar activity found on web: Protecting Our Water Resources, Midwest Research Institute (See Level 2)
http://www.stormwater.ucf.edu/toolkit/vol3/Contents/pdfs/Student%20Activities/student_activities.pdf

****

Virtual Water

The activity teaches students the importance of water and introduces /explains the terms "direct" and "indirect" water use and challenge students to think of how all water use is connected.
Students create a "water web" that illustrates their dependence on water and their interdependence among other water users. Students learn how water users depend upon the goods and services provided by other water users.

Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2

New Mexico Office of the State Engineer,
Water Conservation Bureau
Julie Valdez
julie.valdez@state.nm.us

****

Water Cycle

The students made bracelets with different colored beads that represented phases of the water cycle. Additionally, the students participated in an interactive matching game, where the students had to match the steps of the water cycle to the correct pictures, as well as guess how much clean water is readily available to us.

Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2

The ASK Academy
Barbara McCann (505) 366-3437
bmccann@theaskacademy.org

****

Water Jeopardy

Students learn basic concepts and differences about groundwater vs. surface water supply for potable drinking water. The concepts are reinforced by participation in a Jeopardy game where students compete to determine the correct water "question" for a series of given "answers" (like the TV show).

Next Generation Science Standards, Grades 3-5:
Practice 1

Bohannon Huston, Inc.
Nathan Roberts (505) 823-1000
nroberts@bhinc.com

A similar activity found on web: The Water Cycle Jeopardy, Super Teacher Tools (online Flash game for up to 5 teams)
http://www.superteachertools.com/jeopardy/usergames/Jan201205/game1327973751.php

****

Watersheds and Aquifers

Students learn about watersheds by examining and manipulating both types of models. They learn that a watershed is the land area that drains to a water body such as a river or lake. The students also learn how drinking water comes from aquifers and how pollution can influence water quality.

Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2

University of New Mexico, Civil Engineering
Blade Allen blallen3196@unm.edu

A similar activity found on web: Protecting Our Water Resources, Midwest Research Institute (See Level 2)
http://www.stormwater.ucf.edu/toolkit/vol3/Contents/pdfs/Student%20Activities/student_activities.pdf

****

Watersheds and Stormwater
Students learn about watersheds by examining and manipulating watershed models. They learn that a watershed is the land area that drains to a water body such as a river or lake. They see for themselves how watersheds can influence water quality.
Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2

Sandia National Laboratories
John Kay (505) 344-7240 jtkay@sandia.gov

A similar activity found on web: Protecting Our Water Resources, Midwest Research Institute (See Level 2)

http://www.stormwater.ucf.edu/toolkit/vol3/Contents/pdfs/Student%20Activities/student_activities.pdf

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Weather or Not
Students analyze meteorological and hydrological data to determine if a flash flood might occur, issue warnings, and monitor the flood event.

Next Generation Science Standards, Grades 3-5:
Practice 1, Practice 2, Practice 3,

National Oceanic & Atmospheric Administration, National Weather Service
Kerry Jones (505) 243-0702 kerry.jones@noaa.gov

A similar activity found on web: Create Your Own Water Cycle, The Water Project
http://thewaterproject.org/resources/lesson-plans/create-a-mini-water-cycle.php

Appendix D

Information to Teachers

The following information was included in the teacher packets with the student's pre- and post-tests.

2018 Children's Water Festival

Monday, October 22nd
Tuesday October 23rd

Santa Ana Star Center

3001 Civic Center Circle NE
Rio Rancho, NM 87144

Theme: "***How do You Conserve Water in a Drought?***"

The Children's Water Festival has been arranged so **ALL** fourth-grade students in Rio Rancho and Bernalillo Elementary can attend the event. This is a ***FREE*** event for the students and teachers using monies donated from local businesses who care about water-related education.

The water festival is organized with three activities in the morning and three activities in the afternoon. Each school will attend on one day at either the morning or afternoon session. Each class will attend three activities during their session.

Morning Session	Afternoon Session
9:40-10:10	11:50-12:20
10:15-10:45	12:25-12:55
10:50-11:20	1:00-1:30

Chaperones

It is recommend at least one adult be present for every ten students. Chaperones are responsible for their own transportation to the Star Center. They have not been included in the bus count. Please ask all chaperones and any volunteers from the school to wear their school badges. **We ask that only the approved chaperones attend from your school. Please no "extra" parents/grandparents that show up to watch; they will be turned away!** If you do have any of these "extras", have them contact me prior to the event and I can assign them to be volunteers at the event.

Transportation

Buses are provided and paid by the Children's Water Festival. There will be no place or time for students to eat lunch at the Star Center, so plan on your students' lunch period to be at your school either before or after the water festival.

RRPS TEACHERS ARE RESPONSIBLE FOR FILLING OUT THE TRIP TRACKER.

- **Morning Sessions - Schedule for 9:15 pick up and 11:25 pick up**
- **Afternoon Sessions – Schedule for 11:25 pick up and 1:30 pick up**
- **Bernalillo and St. Thomas will be scheduled by City Staff**

These are the schools that will be attending with dates and arrival times.

Elementary School	Lead Teacher	Email	Number Classes	Day	Time
Puesta del Sol	Sarah Parker	sarah.parker@rrps.net	6	10/22	9:40
Colinas Del Norte	Ashley Randall	ashley.randall@rrps.net	5	10/22	9:40
Cielo Azul	Karin McCann	karin.mccann@rrps.net	5	10/22	9:40
St. Thomas	Pat Lawton	pat.lawton@stasnm.net	2	10/22	11:50
M.L. King	Allison Salaz	allison.salaz@rrps.net	7	10/22	11:50
Enchanted Hills	Christina Mandich	christina.mandich@rrps.net	7	10/22	11:50
M. Cordova	Cheyenne Zirpel	Cheyenne.zirpel@rrps.net	6	10/23	9:40
Rio Rancho	Joy Christopherson	joy.christopherson@rrps.net	4	10/23	9:40
Bernalillo	Samantha Lujan	slujan@bps.k12.nm.us	6	10/23	9:40
Vista Grande	Bethany Grant	bethany.grant@rrps.net	5	10/23	11:50
E. Stapleton	Carey Rojas	carey.rojas@rrps.net	6	10/23	11:50
Sandia Vista	Merry Wadsworth Veronica Valdez (Mont.)	merry.wadsworth@rrps.net veronica.valdez@rrps.net	6	10/23	11:50
Total (as of 9/12/18)			65		

Water Conservation staff would love to meet with all your 4th grade teachers to go over the festival and the logistics. The meeting should take about 15 minutes or so.

Please contact Marian Wrage, Rio Rancho Environmental Programs Manager and Festival Director, if there are any questions and to schedule the meeting with your 4th grade team. Marian's telephone number is (505) 896-8737, her cell is (505) 681-7325, and her email is mwrage@rrnm.gov.

The Rio Rancho Children's Water Festival funding has been provided by:

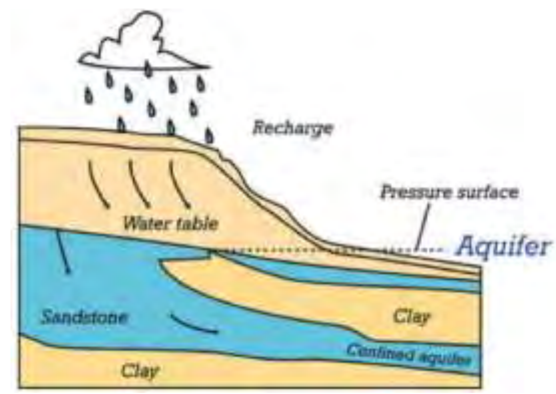
SPONSORS

Pre and Post Test

The Festival steering committee rewrote the student test in 2017; diagrams and pictures were added to help the students visualize the concepts. Note that references to "Rio Rancho" on the tests was changed to "Bernalillo" for the students attending from Bernalillo Elementary.

1. Many substances and objects can make river water dirty. Which of the following items can make the Rio Grande dirty?
   a) Trash
   b) Dog poop
   c) Leaky cars
   d) All the above

2. An **aquifer** is a layer of water-saturated porous rock. It lies below the water table. Most people who live in New Mexico get drinking water from a well drilled into an aquifer. If you live in Rio Rancho, is the water coming from your faucet from an aquifer?
   a) True
   b) False



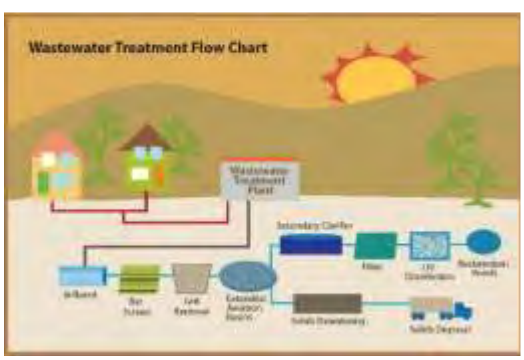
3. A **watershed** is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel. Is the following statement true or false: We all live in a watershed?
   a) False
   b) True

4. Everyone in Rio Rancho/Bernalillo uses, on average, about 65 gallons of water per person per day. If you have four people in your home, what is your family's daily average water use?
   a) 260 gallons of water per day
   b) 200 gallons of water per day
   c) 2,600 gallons of water per day

5. Water users in our state include plants, animals, and people. Why is water so important to life?
   a) People need it to survive
   b) Plants need it to survive
   c) The river needs it to support nature
   d) All the above

6. The **water cycle** happens as the earth is warmed by the sun and water circulates between the earth's oceans, atmosphere, and land. Which of the following are terms associated with the water cycle?
   a) Pumping, Treatment, Delivery
   b) Evaporation, Condensation, Precipitation
   c) River, stream, aquifer

7. How can we protect our water?
   a) Litter
   b) Tell your parents when you see a leak
   c) Pour chemicals on the ground



8. **Wastewater** (or sewer water) is the used water from toilets, showers, and clothes washers and it is too dirty to go straight into the river or into the ground. Septic tanks and wastewater treatment plants clean the water before it goes to the river or into the ground.
   a) True
   b) False

Appendix E

Statistical Outcomes from Students' Tests by School, Teacher, and Question

The following table shows the percentage of students that got the question correct on both the pre and post-test. The improvement is shown by the increase/decrease in percentage points. Not every teacher from every school provided pre and post-tests. ***There was a 9 percentage point increase from pre- to post-tests for all the participating students.***

Table 1 shows the increase/decrease by question for the entire testing group.
Table 2 shows the test increase/decrease average by school and teacher.
Table 3 shows pre- and post-test by each teacher (school) for each question.

Table 1 **Test Question**	**Increase from Pre to Post-Test**
1 Makes river dirty	19%
2 DW come from	8%
3 Watershed	29%
4 How much Water	7%
5 H2O important to life	7%
6 Water Cycle	7%
7 Protect water	3%
8 Wastewater	2%

Table 2 **School**	**Average %**	**Average % by School**
Bernalillo		
Galvez-Romero (BES)	5%	
		5%
Cielo Azul		
Romero	21%	
Infantino/Lynch	8%	
Lambson	8%	
McCann	26%	
Messenger	16%	
		16%

Colinas del Norte		
Randall	13%	
Farfan	15%	
Vargas	14%	
Torres	11%	
Wiberg	1%	
		11%
Enchanted Hills		
Zukowski	-2%	
Dannenberg	-4%	
Sierz	7%	
Mandich	15%	
Marsh	5%	
Wiebelhaus	17%	
		6%
Ernest Stapleton		
Lowe	16%	
Lautt	11%	
Reichbach	14%	
Rojas/Sanchez	13%	
Marcotte	8%	
Zuniga	5%	
		11%
Maggie Cordova		
Alderson	-12%	
Gabaldon	4%	
Hurlock	7%	
Sidor	1%	
Steiner	15%	
Zirpel	15%	
		5%
Martin Luther King		
DeChristoforo	24%	
Pearson	16%	
Salaz	3%	
		14%
Puesta del Sol		
Langdon/Romero	13%	
Ulibarri	26%	
Straley/Parker	-2%	
Smith	15%	
		13%

Rio Rancho		
Aldaz	17%	
Boldt	3%	
Bailey/Mashour	8%	
Paiz	2%	
		8%
Sandia Vista		
Pichette	9%	
Fox	13%	
Glauvitz/Cook	17%	
Rambaldi	14%	
Valdez	4%	
Wadsworth	12%	
		11%
St. Thomas Aquinas		
Lawton	3%	
Griego	10%	
		6%
Vista Grande		
Grant	15%	
Paternaki/Hernandez	6%	
Gonzales	13%	
Bird	2%	
Walker	25%	
		12%
Increase/Decrease		9%

Table 3				
Teacher (School) Question#			**AS PERCENTAGE**	
Galvez-Romero (BES)	Pre %		Post %	Improvement
1 Makes river dirty		38%	46%	8%
2 DW come from		31%	69%	38%
3 Watershed		62%	85%	23%
4 How much Water		69%	62%	-7%
5 H2O important to life		54%	54%	0%
6 Water Cycle		38%	46%	8%
7 Protect water		54%	46%	-8%
8 Wastewater		85%	62%	-23%
Average %		54%	59%	
	Average increase =			5%

Romero (CA)	Pre %	Post %	Improvement
1 Makes river dirty	42%	91%	49%
2 DW come from	68%	100%	32%
3 Watershed	11%	55%	44%
4 How much Water	58%	64%	6%
5 H2O important to life	53%	73%	20%
6 Water Cycle	32%	45%	13%
7 Protect water	74%	91%	17%
8 Wastewater	74%	64%	-10%
Average %	52%	73%	
	Average increase =		21%

Infantino/Lynch (CA)	Pre %	Post %	Improvement
1 Makes river dirty	84%	88%	4%
2 DW come from	60%	76%	16%
3 Watershed	48%	68%	20%
4 How much Water	56%	80%	24%
5 H2O important to life	80%	84%	4%
6 Water Cycle	64%	80%	16%
7 Protect water	88%	88%	0%
8 Wastewater	80%	60%	-20%
Average %	70%	78%	
	Average increase =		8%

Lambson (CA)	Pre %	Post %	Improvement
1 Makes river dirty	80%	96%	16%
2 DW come from	80%	92%	12%
3 Watershed	20%	25%	5%
4 How much Water	64%	75%	11%
5 H2O important to life	88%	88%	0%
6 Water Cycle	88%	79%	-9%
7 Protect water	100%	92%	-8%
8 Wastewater	60%	95%	35%
Average %	73%	80%	
	Average increase =		8%

McCann (CA)	Pre %	Post %	Improvement
1 Makes river dirty	35%	69%	34%
2 DW come from	47%	88%	41%
3 Watershed	41%	75%	34%
4 How much Water	53%	63%	10%
5 H2O important to life	35%	63%	28%
6 Water Cycle	35%	69%	34%
7 Protect water	59%	88%	29%
8 Wastewater	71%	69%	-2%
Average %	47%	73%	
	Average increase =		26%

Messenger (CA)	Pre %	Post %	Improvement
1 Makes river dirty	33%	61%	28%
2 DW come from	83%	83%	0%
3 Watershed	22%	72%	50%
4 How much Water	50%	67%	17%
5 H2O important to life	44%	78%	34%
6 Water Cycle	44%	61%	17%
7 Protect water	89%	89%	0%
8 Wastewater	83%	61%	-22%
Average %	56%	72%	
	Average increase =		16%

Randall (CDN)	Pre %	Post %	Improvement
1 Makes river dirty	74%	82%	8%
2 DW come from	70%	73%	3%
3 Watershed	30%	64%	34%
4 How much Water	83%	100%	17%
5 H2O important to life	74%	82%	8%
6 Water Cycle	30%	59%	29%
7 Protect water	87%	91%	4%
8 Wastewater	70%	68%	-2%
Average %	65%	77%	
	Average increase =		13%

Farfan (CDN)	Pre %	Post %	Improvement
1 Makes river dirty	38%	96%	58%
2 DW come from	75%	71%	-4%
3 Watershed	50%	50%	0%
4 How much Water	54%	63%	9%
5 H2O important to life	63%	83%	20%
6 Water Cycle	33%	50%	17%
7 Protect water	58%	88%	30%
8 Wastewater	79%	67%	-12%
Average %	56%	71%	
	Average increase =		15%

Vargas (CDN)	Pre %	Post %	Improvement
1 Makes river dirty	67%	95%	28%
2 DW come from	62%	89%	27%
3 Watershed	48%	53%	5%
4 How much Water	76%	100%	24%
5 H2O important to life	90%	100%	10%
6 Water Cycle	52%	74%	22%
7 Protect water	100%	100%	0%
8 Wastewater	86%	79%	-7%
Average %	73%	86%	
	Average increase =		14%

Torres (CDN)	Pre %	Post %	Improvement
1 Makes river dirty	27%	73%	46%
2 DW come from	82%	82%	0%
3 Watershed	64%	82%	18%
4 How much Water	64%	68%	4%
5 H2O important to life	36%	64%	28%
6 Water Cycle	32%	27%	-5%
7 Protect water	86%	86%	0%
8 Wastewater	82%	82%	0%
Average %	59%	71%	
	Average increase =		11%

Wiberg (CDN)	Pre %	Post %	Improvement
1 Makes river dirty	45%	50%	5%
2 DW come from	86%	78%	-8%
3 Watershed	59%	72%	13%
4 How much Water	59%	67%	8%
5 H2O important to life	73%	56%	-17%
6 Water Cycle	55%	56%	1%
7 Protect water	77%	78%	1%
8 Wastewater	68%	70%	2%
Average %	65%	66%	
	Average increase =		1%

Zukowski (EH)	Pre %	Post %	Improvement
1 Makes river dirty	89%	78%	-11%
2 DW come from	89%	94%	5%
3 Watershed	39%	72%	33%
4 How much Water	56%	50%	-6%
5 H2O important to life	78%	67%	-11%
6 Water Cycle	89%	67%	-22%
7 Protect water	89%	83%	-6%
8 Wastewater	72%	72%	0%
Average %	75%	73%	
	Average increase =		-2%

Dannenberg (EH)	Pre %	Post %	Improvement
1 Makes river dirty	83%	86%	3%
2 DW come from	91%	86%	-5%
3 Watershed	57%	52%	-5%
4 How much Water	65%	67%	2%
5 H2O important to life	91%	95%	4%
6 Water Cycle	74%	52%	-22%
7 Protect water	96%	95%	-1%
8 Wastewater	96%	86%	-10%
Average %	82%	77%	
	Average increase =		-4%

Sierz (EH)	Pre %	Post %	Improvement
1 Makes river dirty	85%	88%	3%
2 DW come from	81%	88%	7%
3 Watershed	31%	84%	53%
4 How much Water	92%	88%	-4%
5 H2O important to life	92%	96%	4%
6 Water Cycle	85%	96%	11%
7 Protect water	100%	92%	-8%
8 Wastewater	96%	84%	-12%
Average %	83%	90%	
	Average increase =		7%

Mandich (EH)	Pre %	Post %	Improvement
1 Makes river dirty	61%	78%	17%
2 DW come from	65%	78%	13%
3 Watershed	22%	61%	39%
4 How much Water	61%	65%	4%
5 H2O important to life	78%	87%	9%
6 Water Cycle	61%	83%	22%
7 Protect water	91%	96%	5%
8 Wastewater	74%	87%	13%
Average %	64%	79%	
	Average increase =		15%

Marsh (EH)	Pre %	Post %	Improvement
1 Makes river dirty	50%	67%	17%
2 DW come from	78%	90%	12%
3 Watershed	17%	19%	2%
4 How much Water	61%	57%	-4%
5 H2O important to life	44%	62%	18%
6 Water Cycle	56%	52%	-4%
7 Protect water	56%	67%	11%
8 Wastewater	67%	57%	-10%
Average %	54%	59%	
	Average increase =		5%

Wiebelhaus (EH)	Pre %	Post %	Improvement
1 Makes river dirty	82%	95%	13%
2 DW come from	59%	91%	32%
3 Watershed	18%	91%	73%
4 How much Water	82%	100%	18%
5 H2O important to life	82%	82%	0%
6 Water Cycle	77%	82%	5%
7 Protect water	95%	100%	5%
8 Wastewater	91%	77%	-14%
Average %	73%	90%	
	Average increase =		17%

Lowe (ES)	Pre %	Post %	Improvement
1 Makes river dirty	55%	68%	13%
2 DW come from	80%	84%	4%
3 Watershed	40%	53%	13%
4 How much Water	60%	79%	19%
5 H2O important to life	60%	79%	19%
6 Water Cycle	60%	84%	24%
7 Protect water	90%	89%	-1%
8 Wastewater	55%	89%	34%
Average %	63%	78%	
	Average increase =		16%

Lautt (ES)	Pre %	Post %	Improvement
1 Makes river dirty	59%	89%	30%
2 DW come from	82%	94%	12%
3 Watershed	47%	61%	14%
4 How much Water	76%	67%	-9%
5 H2O important to life	41%	39%	-2%
6 Water Cycle	53%	50%	-3%
7 Protect water	59%	83%	24%
8 Wastewater	47%	67%	20%
Average %	58%	69%	
	Average increase =		11%

Reichbach (ES)	Pre %	Post %	Improvement
1 Makes river dirty	65%	91%	26%
2 DW come from	78%	86%	8%
3 Watershed	30%	82%	52%
4 How much Water	74%	73%	-1%
5 H2O important to life	61%	82%	21%
6 Water Cycle	96%	95%	-1%
7 Protect water	96%	95%	-1%
8 Wastewater	78%	86%	8%
Average %	72%	86%	
	Average increase =		14%

Rojas / Sanchez (ES)	Pre %	Post %	Improvement
1 Makes river dirty	26%	80%	54%
2 DW come from	68%	85%	17%
3 Watershed	53%	70%	17%
4 How much Water	79%	60%	-19%
5 H2O important to life	58%	65%	7%
6 Water Cycle	68%	60%	-8%
7 Protect water	74%	100%	26%
8 Wastewater	68%	75%	7%
Average %	62%	74%	
	Average increase =		13%

Marcotte (ES)	Pre %	Post %	Improvement
1 Makes river dirty	48%	68%	20%
2 DW come from	65%	60%	-5%
3 Watershed	48%	52%	4%
4 How much Water	74%	64%	-10%
5 H2O important to life	61%	72%	11%
6 Water Cycle	48%	84%	36%
7 Protect water	91%	96%	5%
8 Wastewater	61%	64%	3%
Average %	62%	70%	
	Average increase =		8%

Zuniga (ES)	Pre %	Post %	Improvement
1 Makes river dirty	57%	63%	6%
2 DW come from	74%	84%	10%
3 Watershed	30%	68%	38%
4 How much Water	78%	74%	-4%
5 H2O important to life	70%	68%	-2%
6 Water Cycle	61%	74%	13%
7 Protect water	96%	89%	-7%
8 Wastewater	87%	74%	-13%
Average %	69%	74%	
	Average increase =		5%

Alderson (MC)	Pre %	Post %	Improvement
1 Makes river dirty	45%	88%	43%
2 DW come from	85%	25%	-60%
3 Watershed	30%	50%	20%
4 How much Water	50%	13%	-37%
5 H2O important to life	75%	94%	19%
6 Water Cycle	65%	44%	-21%
7 Protect water	95%	56%	-39%
8 Wastewater	65%	44%	-21%
Average %	64%	52%	
	Average increase =		-12%

Gabaldon (MC)	Pre %	Post %	Improvement
1 Makes river dirty	72%	75%	3%
2 DW come from	64%	63%	-1%
3 Watershed	36%	42%	6%
4 How much Water	80%	42%	-38%
5 H2O important to life	52%	71%	19%
6 Water Cycle	20%	17%	-3%
7 Protect water	80%	92%	12%
8 Wastewater	60%	92%	32%
Average %	58%	62%	
	Average increase =		4%

Hurlock (MC)	Pre %	Post %	Improvement
1 Makes river dirty	57%	67%	10%
2 DW come from	67%	71%	4%
3 Watershed	29%	52%	23%
4 How much Water	57%	67%	10%
5 H2O important to life	57%	67%	10%
6 Water Cycle	57%	38%	-19%
7 Protect water	67%	86%	19%
8 Wastewater	57%	57%	0%
Average %	56%	63%	
	Average increase =		7%

Sidor (MC)	Pre %	Post %	Improvement
1 Makes river dirty	52%	65%	13%
2 DW come from	65%	75%	10%
3 Watershed	48%	70%	22%
4 How much Water	74%	55%	-19%
5 H2O important to life	61%	70%	9%
6 Water Cycle	52%	45%	-7%
7 Protect water	100%	80%	-20%
8 Wastewater	74%	75%	1%
Average %	66%	67%	
	Average increase =		1%

Steiner (MC)	Pre %	Post %	Improvement
1 Makes river dirty	58%	56%	-2%
2 DW come from	74%	94%	20%
3 Watershed	42%	72%	30%
4 How much Water	53%	89%	36%
5 H2O important to life	63%	67%	4%
6 Water Cycle	53%	72%	19%
7 Protect water	100%	100%	0%
8 Wastewater	58%	72%	14%
Average %	63%	78%	
	Average increase =		15%

Zirpel (MC)	Pre %	Post %	Improvement
1 Makes river dirty	32%	48%	16%
2 DW come from	63%	71%	8%
3 Watershed	42%	71%	29%
4 How much Water	53%	81%	28%
5 H2O important to life	47%	62%	15%
6 Water Cycle	47%	62%	15%
7 Protect water	79%	81%	2%
8 Wastewater	58%	67%	9%
Average %	53%		
	Average increase =		15%

DeCristoforo (MLK)	Pre %	Post %	Improvement
1 Makes river dirty	100%	100%	0%
2 DW come from	75%	100%	25%
3 Watershed	31%	100%	69%
4 How much Water	31%	100%	69%
5 H2O important to life	94%	100%	6%
6 Water Cycle	100%	100%	0%
7 Protect water	94%	100%	6%
8 Wastewater	81%	100%	19%
Average %	76%	100%	
	Average increase =		24%

Pearson (MLK)	Pre %	Post %	Improvement
1 Makes river dirty	44%	80%	36%
2 DW come from	76%	72%	-4%
3 Watershed	12%	56%	44%
4 How much Water	72%	80%	8%
5 H2O important to life	72%	84%	12%
6 Water Cycle	76%	96%	20%
7 Protect water	96%	96%	0%
8 Wastewater	76%	84%	8%
Average %	66%	81%	
	Average increase =		16%

Salaz (MLK)	Pre %	Post %	Improvement
1 Makes river dirty	83%	88%	5%
2 DW come from	91%	92%	1%
3 Watershed	35%	28%	-7%
4 How much Water	91%	84%	-7%
5 H2O important to life	74%	92%	18%
6 Water Cycle	57%	80%	23%
7 Protect water	91%	88%	-3%
8 Wastewater	78%	72%	-6%
Average %	75%	78%	
	Average increase =		3%

Langdon/Romero (PDS)	Pre %	Post %	Improvement
1 Makes river dirty	35%	76%	41%
2 DW come from	57%	80%	23%
3 Watershed	43%	68%	25%
4 How much Water	48%	48%	0%
5 H2O important to life	74%	68%	-6%
6 Water Cycle	74%	80%	6%
7 Protect water	91%	96%	5%
8 Wastewater	70%	80%	10%
Average %	62%	75%	
	Average increase =		13%

Ulibarri (PDS)	Pre %	Post %	Improvement
1 Makes river dirty	32%	73%	41%
2 DW come from	77%	82%	5%
3 Watershed	23%	64%	41%
4 How much Water	68%	82%	14%
5 H2O important to life	32%	82%	50%
6 Water Cycle	59%	82%	23%
7 Protect water	77%	100%	23%
8 Wastewater	64%	77%	13%
Average %	54%	80%	
	Average increase =		26%

Straley/Parker (PDS)	Pre %	Post %	Improvement
1 Makes river dirty	89%	88%	-1%
2 DW come from	89%	71%	-18%
3 Watershed	16%	35%	19%
4 How much Water	74%	82%	8%
5 H2O important to life	89%	76%	-13%
6 Water Cycle	63%	59%	-4%
7 Protect water	100%	94%	-6%
8 Wastewater	95%	94%	-1%
Average %	77%	75%	
	Average increase =		-2%

Smith (PDS)	Pre %	Post %	Improvement
1 Makes river dirty	60%	84%	24%
2 DW come from	55%	84%	29%
3 Watershed	40%	53%	13%
4 How much Water	45%	42%	-3%
5 H2O important to life	70%	84%	14%
6 Water Cycle	45%	47%	2%
7 Protect water	80%	89%	9%
8 Wastewater	55%	84%	29%
Average %	56%	71%	
	Average increase =		15%

Aldaz (RR)	Pre %	Post %	Improvement
1 Makes river dirty	40%	88%	48%
2 DW come from	64%	80%	16%
3 Watershed	32%	80%	48%
4 How much Water	56%	52%	-4%
5 H2O important to life	60%	80%	20%
6 Water Cycle	52%	32%	-20%
7 Protect water	92%	100%	8%
8 Wastewater	40%	60%	20%
Average %	55%	72%	
	Average increase =		17%

Boldt (RR)	Pre %	Post %	Improvement
1 Makes river dirty	65%	78%	13%
2 DW come from	55%	67%	12%
3 Watershed	20%	61%	41%
4 How much Water	45%	33%	-12%
5 H2O important to life	75%	72%	-3%
6 Water Cycle	45%	50%	5%
7 Protect water	85%	78%	-7%
8 Wastewater	90%	61%	-29%
Average %	60%	63%	
	Average increase =		3%

Bailey/Mashour (RR)	Pre %	Post %	Improvement
1 Makes river dirty	56%	59%	3%
2 DW come from	84%	82%	-2%
3 Watershed	24%	68%	44%
4 How much Water	38%	59%	21%
5 H2O important to life	68%	59%	-9%
6 Water Cycle	40%	59%	19%
7 Protect water	76%	86%	10%
8 Wastewater	84%	64%	-20%
Average %	59%	67%	
	Average increase =		8%

Paiz (RR)	Pre %	Post %	Improvement
1 Makes river dirty	53%	61%	8%
2 DW come from	74%	83%	9%
3 Watershed	16%	26%	10%
4 How much Water	63%	57%	-6%
5 H2O important to life	79%	78%	-1%
6 Water Cycle	68%	57%	-11%
7 Protect water	84%	91%	7%
8 Wastewater	89%	91%	2%
Average %	66%	68%	
	Average increase =		2%

Pichette (SV)	Pre %	Post %	Improvement
1 Makes river dirty	61%	81%	20%
2 DW come from	52%	71%	19%
3 Watershed	57%	57%	0%
4 How much Water	91%	81%	-10%
5 H2O important to life	43%	71%	28%
6 Water Cycle	61%	57%	-4%
7 Protect water	83%	95%	12%
8 Wastewater	78%	81%	3%
Average %	66%	74%	
	Average increase =		9%

Fox (SV)	Pre %	Post %	Improvement
1 Makes river dirty	75%	100%	25%
2 DW come from	90%	84%	-6%
3 Watershed	50%	95%	45%
4 How much Water	65%	95%	30%
5 H2O important to life	95%	95%	0%
6 Water Cycle	95%	95%	0%
7 Protect water	95%	100%	5%
8 Wastewater	85%	89%	4%
Average %	81%	94%	
	Average increase =		13%

Glauvitz/Cook (SV)	Pre %	Post %	Improvement
1 Makes river dirty	68%	89%	21%
2 DW come from	95%	95%	0%
3 Watershed	37%	89%	52%
4 How much Water	47%	95%	48%
5 H2O important to life	84%	89%	5%
6 Water Cycle	68%	79%	11%
7 Protect water	95%	95%	0%
8 Wastewater	84%	84%	0%
Average %	72%	89%	
	Average increase =		17%

Rambaldi (SV)	Pre %	Post %	Improvement
1 Makes river dirty	61%	75%	14%
2 DW come from	78%	75%	-3%
3 Watershed	39%	60%	21%
4 How much Water	48%	55%	7%
5 H2O important to life	70%	75%	5%
6 Water Cycle	39%	60%	21%
7 Protect water	61%	80%	19%
8 Wastewater	70%	100%	30%
Average %	58%	73%	
	Average increase =		14%

Valdez (SV)	Pre %	Post %	Improvement
1 Makes river dirty	90%	100%	10%
2 DW come from	76%	90%	14%
3 Watershed	57%	67%	10%
4 How much Water	81%	76%	-5%
5 H2O important to life	100%	95%	-5%
6 Water Cycle	90%	90%	0%
7 Protect water	100%	100%	0%
8 Wastewater	62%	67%	5%
Average %	82%		
	Average increase =		4%

Wadsworth (SV)	Pre %	Post %	Improvement
1 Makes river dirty	61%	87%	26%
2 DW come from	52%	78%	26%
3 Watershed	43%	65%	22%
4 How much Water	70%	83%	13%
5 H2O important to life	96%	91%	-5%
6 Water Cycle	70%	87%	17%
7 Protect water	87%	96%	9%
8 Wastewater	83%	74%	-9%
Average %	70%	83%	
	Average increase =		12%

Lawton (ST)	Pre %	Post %	Improvement
1 Makes river dirty	75%	100%	25%
2 DW come from	85%	95%	10%
3 Watershed	25%	40%	15%
4 How much Water	65%	70%	5%
5 H2O important to life	90%	85%	-5%
6 Water Cycle	80%	85%	5%
7 Protect water	100%	85%	-15%
8 Wastewater	90%	70%	-20%
Average %	76%	79%	
	Average increase =		3%

Griego (ST)	Pre %	Post %	Improvement
1 Makes river dirty	58%	89%	31%
2 DW come from	63%	78%	15%
3 Watershed	32%	83%	51%
4 How much Water	84%	94%	10%
5 H2O important to life	79%	72%	-7%
6 Water Cycle	95%	100%	5%
7 Protect water	100%	94%	-6%
8 Wastewater	74%	56%	-18%
Average %	73%	83%	
	Average increase =		10%

Grant (VG)	Pre %	Post %	Improvement
1 Makes river dirty	35%	56%	21%
2 DW come from	77%	56%	-21%
3 Watershed	19%	64%	45%
4 How much Water	58%	72%	14%
5 H2O important to life	58%	52%	-6%
6 Water Cycle	19%	56%	37%
7 Protect water	69%	80%	11%
8 Wastewater	46%	68%	22%
Average %	48%	63%	
	Average increase =		15%

Paternaki/Hernandez (VG)	Pre %	Post %	Improvement
1 Makes river dirty	52%	87%	35%
2 DW come from	62%	70%	8%
3 Watershed	33%	61%	28%
4 How much Water	43%	61%	18%
5 H2O important to life	71%	70%	-1%
6 Water Cycle	71%	39%	-32%
7 Protect water	95%	83%	-12%
8 Wastewater	71%	78%	7%
Average %	62%	69%	
	Average increase =		6%

Gonzales (VG)	Pre %	Post %	Improvement
1 Makes river dirty	68%	89%	21%
2 DW come from	73%	78%	5%
3 Watershed	27%	89%	62%
4 How much Water	86%	96%	10%
5 H2O important to life	91%	81%	-10%
6 Water Cycle	55%	56%	1%
7 Protect water	91%	81%	-10%
8 Wastewater	64%	89%	25%
Average %	69%	82%	
	Average increase =		13%

Bird (VG)	Pre %	Post %	Improvement
1 Makes river dirty	60%	44%	-16%
2 DW come from	64%	78%	14%
3 Watershed	24%	56%	32%
4 How much Water	72%	78%	6%
5 H2O important to life	72%	50%	-22%
6 Water Cycle	44%	50%	6%
7 Protect water	80%	72%	-8%
8 Wastewater	60%	67%	7%
Average %	60%	62%	
	Average increase =		2%

Walker (VG)	Pre %	Post %	Improvement
1 Makes river dirty	59%	59%	0%
2 DW come from	74%	81%	7%
3 Watershed	11%	85%	74%
4 How much Water	63%	85%	22%
5 H2O important to life	56%	70%	14%
6 Water Cycle	41%	81%	40%
7 Protect water	78%	96%	18%
8 Wastewater	63%	85%	22%
Average %	56%	80%	
	Average increase =		25%

Teacher Evaluation Form

2018 Children's Water Festival

Please discuss any problems or issues you had with the buses in general or your bus in specific.

My class enjoyed all 3 events. They learned the most from the watershed activity, where the students stood on blue tape that represented the water that flows into the river. They still talk about it.

Please let us know your comments on the venue (Santa Ana Star Center). We know that there is poor acoustics, but were there any other issues or problems with the Star Center?

I like that you posted the information students should know before leaving in every booth. My students and I noticed

Were the water activities your students attended informative and "hands-on"? Did they learn anything from the activity? If there was an activity that could have been presented better, which one was it and how do you think it could be improved?

I like how everything is separated. It helps the students focus of the presenter. I also like how the person escorting the group had a sign with my name on it. It made it easy to find

How could we improve the overall organization of the event?

All activities were hands-on that we attended. I had 20 students in my group and all were able to see and participate

Name/School (optional) SVE Montessori

Middle Rio Grande Stormwater Quality Team
Annual Member
Cooperative Funding Agreement

This Cooperative Funding Agreement is made and entered into this 21st day of July, 2014, by and among the County of Bernalillo, the City of Albuquerque ("COA"), the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA"), the New Mexico Department of Transportation ("NMDOT"), and the Southern Sandoval County Arroyo Flood Control Authority ("SSCAFCA"), all political subdivisions of the State of New Mexico (hereinafter collectively referred to as the "Storm Water Team"), and City of Rio Rancho (hereinafter referred to as "Annual Member").

WHEREAS, the Intergovernmental Agreement Regarding the Operation, Function, and Funding of the Storm Water Team, as amended by the First Amendment thereto dated January 22, 2014 ("Intergovernmental Agreement"), provides that potentially eligible MS4s may be added to the Team at any time on an annual basis as additional voting members, provided all requirements for membership have been fulfilled, including providing payment for the expected contribution; and

WHEREAS, the Storm Water Team wishes to add the Annual Member as an additional voting member to the Team on an annual basis; and

WHEREAS, the Annual Member wishes to be added to the Team as an additional voting member on an annual basis; and

WHEREAS, the Annual Member agrees to fulfill all requirements for membership, including providing payment for its expected annual contribution; and

NOW, THEREFORE, in consideration of the covenants and promises set forth herein, the Annual Member agrees as follows:

1. The Annual Member will be invoiced by the Storm Water Team for its annual contribution for Fiscal Year 2015 as tabulated below. The Annual Member agrees to pay the annual contribution to the Storm Water Team's fiscal agent within forty-five (45) days of the date of invoice. Failure to provide payment prior to the deadline will result in the Annual Member's membership being suspended as provided for in the Intergovernmental Agreement.

2. Upon payment of the annual contribution and fulfillment of any other requirements of membership, the Storm Water Team will update Attachment A, Contribution Schedule, and Attachment B, Annual Roster, to include the Annual Member.

3. The Annual Member agrees that by executing this Agreement it is subject to the requirements of the Intergovernmental Agreement as it may be amended from time to time, which is hereby incorporated by reference as if fully set forth herein. The Annual Member agrees to abide by the terms and conditions of the Intergovernmental Agreement as it may be amended from time to time.

4. This Agreement, including Annual Member's membership on the Team, shall be effective for the 2015 fiscal year. This Agreement may be extended beyond the initial fiscal year for additional one (1) year periods running concurrently with the fiscal year. Any extension must be completed in writing at the initiative of and authorization of AMAFCA, as the fiscal agent of the Storm Water Team, with concurrence of the Annual Member. All extensions are subject to the terms set forth herein, provided however, that the annual contribution for any subsequent years shall be established by the Storm Water Team in the Contribution Schedule, which shall be incorporated fully as if set forth herein.

5. The Annual Member's contact, designated voting member, and billing information is as follows:

Annual Member Entity:	City of Rio Rancho
Designated Voting Member:	Eugene Pettes 3200 Civic Center Circle NE Rio Rancho, NM 87144 505-891-5045 xpettes@rio-rancho.nm.us
Billing Instructions:	check
Expected Contribution:	$10,000.00

The Annual Member agrees to immediately notify the Storm Water Team and its fiscal agent in the event of any changes to the information listed herein.

Middle Rio Grande Stormwater Quality Team
Annual Member
Cooperative Funding Agreement

Date: 11/4/14

City of Rio Rancho

[Name, Title]
Keith Riesberg
City Manager

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144-4501
(505) 981-5005 • FAX (505) 891-0986

June 20, 2016

US EPA, Region 6
Compliance Assurance and Enforcement Division
Water Enforcement Branch (6EN-WC)
1445 Ross Avenue
Dallas, Texas 75202-2733

RE: Albuquerque Metropolitan Area Municipal Separate Storm Sewer System (MS4) Wet Weather Monitoring Site Certification, Permit No. NMR04A000

Per Table 10, Wet Weather Monitoring Program Implementation Schedules, enclosed as Attachment 2 in the letter from EPA Region 6 dated February 10, 2016, the City of Rio Rancho submits certification that the wet weather monitoring sites in the Middle Rio Grande are operational and ready for sampling. As a member of the Middle Rio Grande Stormwater MS4 Compliance Monitoring Cooperative, the City of Rio Rancho meets the criteria for a permittee with a cooperative program and qualifies for the cooperative deadline of June 21, 2016. Copies of the Intergovernmental Agreement and Cooperative Monitoring Plan are attached. Please contact Xavier Pettes by phone at 505-891-5045 or by email at xpettes@rrnm.gov if you have any questions regarding the agreement or plan.

CERTIFICATION STATEMENT

I, the undersigned, certify under penalty of law that this document, the Intergovernmental Agreement that creates the Middle Rio Grande Stormwater MS4 Compliance Monitoring Cooperative, was 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 am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

David Serrano, P.E.
Engineering Division Manager

6/20/2016
Date

Middle Rio Grande Stormwater MS4 Compliance Monitoring Cooperative

INTERGOVERNMENTAL AGREEMENT

AN INTERGOVERNMENTAL AGREEMENT, CREATING THE MIDDLE RIO GRANDE MS4 COMPLIANCE MONITORING COOPERATIVE, IN SUPPORT OF COMPLIANCE EFFORTS FOR A STORMWATER DISCHARGE PERMITTING SYSTEM FOR THE MIDDLE RIO GRANDE VALLEY IN ACCORDANCE WITH THE FEDERAL CLEAN WATER ACT.

RECITALS

WHEREAS, the United States Environmental Protection Agency (EPA), Region 6 regulates the discharge of stormwater from municipal separate storm sewer systems (MS4s) in central New Mexico through the issuance of an MS4 permit for the Middle Rio Grande valley urbanized area, under the authority of the National Pollutant Discharge Elimination System (NPDES) regulations (40CFR122); and

WHEREAS, the Middle Rio Grande valley urbanized area is comprised of many diverse local, state, federal and tribal entities, each with separate and distinct authority and responsibilities; and

WHEREAS, the Middle Rio Grande valley urbanized area entities that are eligible for authorization under NPDES General Permit No. NMR04A000 (hereinafter "MS4 Permit"), and therefore eligible to enter into this Intergovernmental Agreement (hereinafter "Agreement") in furtherance of the requirements of the MS4 Permit, are the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), University of New Mexico, New Mexico Department of Transportation District 3, Bernalillo County, Sandoval County, Village of Corrales, City of Rio Rancho, Village of Los Ranchos de Albuquerque, Kirtland Air Force Base, Town of Bernalillo, State Fairgrounds/Expo New Mexico, Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA), Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA), Sandia National Laboratories/Department of Energy, Pueblo of Sandia, Pueblo of Isleta, and Pueblo of Santa Ana (collectively "Co-permittees"); and

WHEREAS, the proposed MS4 Permit requires each Co-permittee to obtain and report stormwater compliance monitoring results in their MS4 Annual Report; and

WHEREAS, the proposed MS4 Permit encourages cooperative efforts among the Co-permittees, including compliance monitoring activities, to reduce the amount of pollutants discharged with stormwater into the Rio Grande; and

WHEREAS, cooperation among the Co-permittees in the MS4 Permit through the Middle Rio Grande Compliance Monitoring Cooperative ("CMC"), with regard to monitoring requirements, offers the opportunity to reduce each individual Co-permittee's monitoring costs by cooperatively developing, funding, and executing a common monitoring plan without reducing the effectiveness of the monitoring plan.

NOW, THEREFORE, BE IT AGREED THAT:

1. **PURPOSE.** The CMC will serve as the focal point for the development, execution, and, as needed, the amendment of the Monitoring Plan required as part of the MS4 Permit. The intent of the CMC is to attain and demonstrate permit compliance for member Co-permittees with respect to the provisions of the MS4 Permit. The Monitoring Plan will be developed cooperatively among the member Co-permittees of the CMC.

2. **ELIGIBILITY.** All Co-permittees specifically identified in the MS4 Permit are eligible to be members of the CMC.

3. **MEMBERSHIP.** The CMC will include as members all Co-permittees that have signed this Intergovernmental Agreement ("Members"). Members are expected to provide funding for the ongoing operations of the CMC and to contribute financially or materially to the benefit of the CMC, either from their own assets or through the securing of contributions from others. The Members shall elect a Chairman of the CMC. The Chairman shall be elected by a majority vote of the members.

4. **VOTING.** The CMC will be made up of one voting Member from each Co-permittee in good standing, which is defined as having paid their expected contribution, as defined in the Contribution Schedule included as Attachment 1. Attachment 1 shall be updated annually by the Fiscal Agent (See Paragraph 7) to reflect Members in good standing. Each Member will designate a staff person to represent the Member's interest on the CMC and to vote on that Member's behalf. Designation of a representative may be completed at any time and under any circumstances. Other/outside agencies may participate on the CMC by attending meetings and giving input; however, only the Members in good standing may vote on CMC decisions. Decisions of the CMC will be decided by majority vote of the Members in good standing. The CMC may take action during a meeting, by telephone, or by e-mail.

5. **TERM.** The term of this Agreement shall run from the date the MS4 Permit is issued by the EPA until the date the MS4 Permit is terminated or expires, whichever occurs first. This Agreement may be terminated in its entirety at any time upon the mutual agreement of all of the then-existing Members to this Agreement.

6. **FISCAL MATTERS.** In the first Calendar Year of this Agreement, the CMC will meet to develop a budget based on the costs for implementing the Monitoring Plan for MS4 Permit compliance. To ensure sufficient funding is available to carry out the Monitoring Plan, the budget shall equal 110% of the estimated costs associated with the Monitoring Plan, including estimated contingencies. In subsequent years, the budget will be based on the actual expenditures from the prior year's monitoring activities plus any reasonable increases identified by the CMC. Each Member shall commit funding to the CMC based on the Contribution Schedule established for that year, which Contribution Schedule shall be in a total amount of not less than the budgeted costs. In-kind contributions shall be permitted in lieu of all or a portion of a Members cash contribution,

provided however, that participation in the CMC shall not be considered in-kind contributions. The value of in-kind contributions will be determined by the membership of the CMC by equating the value of the service to the cost that would be paid by the membership of the CMC to have the in-kind service performed by a third party (non-CMC member) contractor. The Contribution Schedule is located in Attachment 1 to this Agreement. This Contribution Schedule may be modified by the CMC annually without requiring modification to this agreement, provided however, that it shall be adopted by unanimous vote of the Members. Any funds remaining at the end of the Agreement Year will be carried into the next Calendar Year of this agreement. In such event, the CMC may either elect to retain the excess funds from the prior Calendar Year as a contingency fund, or may lower the annual contribution schedules for that year for all Members in equal proportion, based on the total amount carried forward. In the event a Member does not have the resources to provide full payment for any funds required by the Contribution Schedule, the remaining Members may agree, by unanimous vote, amend the Contribution Schedule if it is in the best interest of the CMC. Each Member's obligations under this Agreement are contingent upon sufficient appropriations being made therefor by such Member's governing body sufficient to fulfill such Member's said obligations. If such appropriations are insufficient to such Member's obligations hereunder, such Member's shall promptly notify the other Members, and this Agreement shall terminate forthwith with respect to such Member.

7. **FISCAL AGENT.** The Members shall select one (1) Co-permittee to act as Fiscal Agent for the CMC for the purposes of this Agreement. The Fiscal Agent shall act as the custodian of the CMC's funds, securities, and property. All funds will be held in a separate bank account for the purposes of this Agreement. All CMC funds shall be deposited promptly by the Fiscal Agent to the credit of the CMC. The CMC shall adhere to the Fiscal Agent's accounting and procurement procedures, provided such procedures comply with law. The Fiscal Agent shall make available to any interested Member, all records, receipts, and other documentation with respect to all matters concerning this agreement and shall have this account included in its annual audit. The Fiscal Agent shall maintain funds in accordance with all applicable state and Federal statutes. The Fiscal Agent shall be authorized on the CMC's behalf to sign checks, drafts, or other instruments for payment of money, acceptances, notes, or other evidences of indebtedness, to enter into contracts, or to execute and deliver other documents and instruments. This authority to enter into any contract or negotiated agreement shall be subject to approval by the CMC and subject to any limitations as set forth in this Agreement. Subject to the provisions of this Agreement, no loans shall be contracted on behalf of the CMC and no evidence of indebtedness shall be issued in its name unless authorized by a unanimous vote of the CMC Members. In consideration of the in-kind contributions anticipated from the Fiscal Agent, the total financial contribution requirements of the Fiscal Agent's Member agency, under any applicable agreement, shall be credited by the sum of one thousand dollars ($1,000.00) for the term of the permit in which that Member serves as the Fiscal Agent.

8. **PAYMENTS.** The Fiscal Agent will invoice each Member for their respective participation, minus the values of any CMC approved in-kind contributions at the start of each member entity's Fiscal Year. Each Member will pay such invoices to the Fiscal Agent within one hundred twenty (120) days of the date of the invoice. Failure to pay invoices within 120 days of

the date of the invoice shall deem the Member not in good standing status until payment is made in full. Invoices will be sent to CMC Member entities listed in Attachment 1.

9. **PARTICIPATION.** It is intended that the CMC's operation and function described in this Agreement are ongoing, subject to continued support and authorized funding by each of the Members. Each Member has the option to not participate in this Agreement in the future by sending written notice to all the other participating Members twelve (12) months prior to the Member's proposed withdrawal. This time requirement is made so that all Member Co-permittees will have the opportunity to update their Storm Water Management Plans (SWMP) to reflect the change in status of the cooperative sampling effort and obtain EPA's concurrence on the amended SWMP. In such an event, the terminating Member shall not be entitled to return of any contribution(s) made under this Agreement, and this Agreement shall remain in full force and effect by and among the remaining Members.

10. **OUTSIDE CONTRIBUTIONS.** The CMC may accept contributions from outside funding sources, to be used to support the CMC's mission. Such contributions shall not establish any voting privileges on the CMC, which privileges are reserved exclusively to eligible Members. Outside contributions shall be supplementary to the Contribution Schedule, and no Member's contribution shall be reduced based on receipt of any outside contributions except upon adoption of an amended Contribution Schedule by the Members.

11. **CONTRACTING.** Each Member agrees that a variety of contractors (e.g. sample collection, laboratory, sample results interpretation, geotechnical, etc.) may need to be hired in accordance with the State Procurement Code, in advance of any contractor taking any actions on behalf of the CMC. No contractor shall be an employee of either the Fiscal Agent or any Member of this Agreement. Responsibilities of the contractor shall be included in any resulting contract and the contractor shall only be authorized to provide approved services determined to help Member Co-permittees comply with the provisions of the MS4 permit. For procurement purposes, the CMC will form a Selection Advisory Committee ("SAC"), composed of representatives from Members in good standing. Each Member in good standing will have one representative on the SAC for the RFP process. The SAC will rank proposals and recommend the top three respondents to the Fiscal Agent for selection through the Fiscal Agent's existing procurement selection process. Upon approval, the Fiscal Agent will negotiate an agreement with the selected contractor. The CMC will provide input on scope and fees; however, final negotiations and approval will be the Fiscal Agent's responsibility. If contractor services are obtained using the procurement process set forth in this paragraph, then, with concurrence of the other members of the CMC, funds collected as part of the CMC group may be used to pay that contractor directly for services associated with execution of the monitoring plan. Contractors will be agents of the Member issuing the contract. Other Members of the CMC shall not be bound by the terms of the contract but shall be deemed third party beneficiary hereunder.

12. **ALTERNATIVE CONTRACTING.** As an alternative contracting process, and in order to leverage existing and future contracts between Contractors and Members in good standing of the CMC, contracts may be used, with concurrence from all Members of the CMC,

that have been issued by Members to perform elements of the monitoring program. If a contractor is used that has been procured by a Member in good standing of the CMC instead of the Fiscal Agent, then, with concurrence of the other Members of the CMC, an entity that is not the Fiscal Agent for the CMC may contract to have the services performed and upon successful completion of the services, submit an invoice, with no mark-up, to the Fiscal Agent for reimbursement. Reimbursement shall only be authorized for reasonable and necessary costs. All contractor's utilized for the purposes identified in this Agreement shall be procured in accordance with the State Procurement Code. Contractors will be agents of the Member issuing the contract. Other Members of the CMC shall not be bound by the terms of the contract.

13. **EVALUATION.** The Members agree that the Stormwater Monitoring contract is an ongoing program. The effectiveness of the Stormwater Monitoring contract, with regard to permit compliance, will be evaluated by the CMC prior to annual renewal(s) or request for proposals.

14. **LIMITATION ON SAMPLING ACTIVITIES.** The contractor's scope of services will be limited to the CMC-developed and EPA approved sampling plan and associated reporting. If, in the event of an exceedence during routine monitoring events, additional investigation is required by the EPA to identify the source of a potential contaminant, the CMC may expand monitoring activities to the degree necessary to locate the likely entry point of the potential contaminants. Once the likely entry point is identified, further investigation into the source of the potential contaminant will become the responsibility of the specific Co-permittee(s) having jurisdiction at the location where the likely entry occurred. The CMC shall have no responsibility, fiscal or otherwise, to investigate potential sources of contamination outside of the river or its affiliated Middle Rio Grande Conservancy District-owned water conveyances.

15. **PARTICIPATION AFFECTED.** If any situation arises which adversely affects any Member's participation in this Agreement, said Member will immediately, and in writing, notify the other Members. Any circumstance that materially affects this Agreement will be promptly and equitably resolved by all Members and if necessary, an amendment to this Agreement shall be executed.

16. **COMPLIANCE WITH GOVERNING LAWS.** The obligations of each Member under this Agreement shall be performed in compliance with all applicable laws, statues, and ordinances. Nothing herein is intended to constitute any agreement for the Members to perform any activity in violation of the Constitution or Laws of the State of New Mexico or the Ordinances of any Co-permittee that is a Member of this Agreement.

17. **SEVERABILITY.** If any clause or provision of this Agreement is illegal, invalid or unenforceable, under present or future laws effective during the term of this Agreement, then and in that event, it is the intention of the Members hereto that the remainder of this Agreement shall not be affected thereby.

18. **NO RIGHTS CREATED.** It is specifically agreed among the Members that this Agreement does not, and is not intended to, create in the public, or any member thereof, any rights whatsoever, such as but not limited to, the rights of a third Party beneficiary, and does not authorize anyone not a Member of this Agreement to maintain a suit for wrongful death or any other claim whatsoever.

19. **LIABILITY.** As among the Members, each shall be solely responsible for any and all liability from personal injury, including death, or damage to property, arising from any negligent or intentional act or failure to act of the respective Member, its officials, agents, contractors or employees pursuant to this Agreement. Liabilities of each Member shall be subject to the immunities and limitation of the New Mexico Tort Claims Act, §§41-4-1, et seq., NMSA, 1978, and any amendments thereto. By entering into this Agreement, all public agencies and its "public employees" as defined in the New Mexico Tort Claims Act, do not waive sovereign immunity, do not waive any defense and/or do not waive any limitation of liability pursuant to law. No provision in this Agreement modifies and/or waives any provision of the New Mexico Tort Claims Act.

20. **AMENDMENT.** This Agreement may only be altered or amended upon written approval by a majority of the CMC Members.

21. **DATE OF EFFECTIVENESS.** Regardless of the date when this Agreement is signed by each Permittee, this agreement shall not become effective for each Permittee until that Permittee has received official notification from the Environmental Protection Agency that they have received coverage under NPDES General Permit No. NMR04A000.

City of Rio Rancho

Keith Riesberg
City Manager

5/27/16
Date

Approved as to Form:

Jennifer Vega-Brown
City Attorney

Date: 5/26/16

Date for of beginning of Fiscal Year: July 1

ATTACHMENT 1

CONTRIBUTION SCHEDULE

ATTACHMENT 1

Sampling Cooperative Cost Allocation Determination (CAD) Tool

28-Apr-16

Number	Participant		$ 132,000.00	ENTITY PAYMENT	FISCAL AGENT CREDIT ($1k)
1	City of Albuquerque	1.38	$ 45,574.50	$45,600.00	
2	AMAFCA	0.43	$ 14,319.39	$14,400.00	$ (1,000.00)
3	UNM	0.41	$ 13,553.53	$13,600.00	
4	NMDOT	0.12	$ 3,865.56	$3,900.00	
5	Bernalillo County	0.59	$ 19,549.95	$19,600.00	
6	Sandoval County	0.46	$ 15,094.20	$15,100.00	
7	Village of Corrales	0.04	$ 1,393.20	$1,400.00	
8	City of Rio Rancho	0.42	$ 13,997.46	$14,000.00	
9	Los Ranchos de Albuquerque	0.02	$ 705.79	$1,000.00	
10	Town of Bernalillo	0.03	$ 903.81	$1,000.00	
11	ESCAFCA	0.01	$ 338.88	$500.00	
12	SSCAFCA	0.08	$ 2,703.72	$2,900.00	
	Ratio Check (Sum = Weighting Factor)	4.00		$132,000.00	

Middle Rio Grande Stormwater MS4 Technical Advisory Group

MEMORANDUM OF AGREEMENT

A COOPERATIVE AGREEMENT, CREATING THE MIDDLE RIO GRANDE MS4 TECHNICAL ADVISORY GROUP, IN SUPPORT OF COMPLIANCE EFFORTS FOR A STORMWATER DISCHARGE PERMITTING SYSTEM FOR THE MIDDLE RIO GRANDE VALLEY IN ACCORDANCE WITH THE FEDERAL CLEAN WATER ACT.

WHEREAS, the United States Environmental Protection Agency (EPA), Region 6 regulates the discharge of stormwater from municipal separate storm sewer systems (MS4s) in New Mexico through the issuance of an MS4 permit for the Middle Rio Grande valley urbanized area under the authority of the National Pollutant Discharge Elimination System (NPDES) regulations (40CFR122); and

WHEREAS, the Middle Rio Grande area is comprised of many diverse local, state, federal and tribal entities, each with separate and distinct authority and responsibilities; and

WHEREAS, the Middle Rio Grande area entities potentially eligible for authorization under the proposed NPDES General Permit No. NMR04A000 (hereinafter "MS4 Permit") and therefore are eligible to enter into this Agreement (hereinafter "Agreement") in furtherance of the requirements of the MS4 Permit are the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), University of New Mexico, New Mexico Department of Transportation District 3, Bernalillo County, Sandoval County, Village of Corrales, City of Rio Rancho, Los Ranchos de Albuquerque, Kirtland Air Force Base, Town of Bernalillo, State Fairgrounds/Expo New Mexico, the Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA), the Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA), Sandia National Laboratories/Department of Energy, Pueblo of Sandia, Pueblo of Isleta, and Pueblo of Santa Ana (collectively "Stormwater Management Entities"); and

WHEREAS, the proposed MS4 Permit encourages cooperative efforts among separate local, state, federal and Tribal governments to reduce the amount of pollutants discharged with stormwater from the Middle Rio Grande urbanized area MS4s; and

WHEREAS, continued cooperation among the Stormwater Management Entities in the MS4 Permit offers an enhanced opportunity each entity to remain aware of the requirements in the MS4 Permit and facilitating compliance with conditions of the permit;

NOW, THEREFORE, BE IT AGREED THAT:

1. The signatories to this Agreement (hereinafter collectively referred to as "Parties" and individually referred to as "Party") support and encourage a cooperative commitment to assist one another with technical issues regarding compliance with the MS4 Permit and agree to form the Middle Rio Grande MS4 Technical Advisory Group (MS4TAG).

2. The purpose of the MS4TAG will be to exchange technical information regarding compliance with the MS4 Permit, exchange ideas among Parties regarding compliance efforts, and exchange information regarding illicit discharges detected within each Party's jurisdiction. The MS4TAG shall have no binding financial authority and shall be strictly advisory in nature.

3. Nothing in this Agreement shall be construed as obligating a Party to this agreement to expend funds for any purpose, and no Party shall be required to contribute any funds in order to participate in this Agreement. In the event the Parties determine that any expenditure of funds becomes necessary in order to comply with the requirements of the MS4 Permit, a separate agreement shall be entered into between the affected Parties regarding any and all such expenditures at that time.

4. The term of this Agreement shall run from the date the MS4 Permit is issued by the EPA until the date the MS4 Permit is terminated or expires, whichever occurs first. This Agreement may be terminated in its entirety at any time upon the mutual agreement of all of the then-existing Parties to this Agreement. In the event any Party wishes to withdraw from this Agreement without terminating the other Parties' interests in this Agreement, withdrawal shall become effective upon ninety (90) days prior written notice to the other Parties. Withdrawal shall fully and completely terminate that Party's interest in and obligations under this Agreement. Following any Party's withdrawal, this Agreement shall continue in full force and effect as to all remaining Parties to the extent possible.

5. This Agreement does not address the "Public Education and Outreach: or "Cooperative Sampling" sections of the MS4 Permit. Any MS4TAG efforts regarding either of these sections of the MS4 Permit under this Agreement shall be strictly in furtherance of the spirit of cooperation intended among the Parties. Each Party acknowledges its obligations under the "Public Education and Outreach" and "Cooperative Sampling" sections of the MS4 Permit are separate and apart from its activities under this Agreement, and a separate agreement will be required for any collaboration among the Parties with respect to those permit requirements.

6. The Parties will appoint two (2) Co-Coordinators from among the Parties, one of which must be from a Party located within the Bernalillo County geographical area and one of which must be from a Party located within the Sandoval County geographical area. Appointment of a Co-Coordinator shall be by majority vote of the voting Parties, with only those Parties located in the county of Bernalillo voting on the Co-Coordinator from that area, and only those Parties located in the county of Sandoval voting on the Co-Coordinator from that area. Co-Coordinators must be appointed annually in each subsequent permit year, or earlier if the position becomes vacant for any reason. For the New Mexico Department of Transportation District 3, which operates stormwater management facilities in both counties, for the purposes of this section, they shall select one county affiliation in year one of the agreement and alternate affiliations is subsequent years of this Agreement. The Co-Coordinators will be expected to coordinate the Parties' efforts under this Agreement, including facilitating meetings of the MS4TAG at least monthly for the first year of the MS4 Permit. In years two through five of the permit, the frequency of meetings may be reduced to quarterly with additional meetings called as necessary to discuss issues regarding MS4 Permit compliance.

7. Each Party shall be entitled to one (1) vote on any action items.

8. This Agreement creates no obligations on behalf of any Party to any other Party to this Agreement, including for any requirements imposed or determinations made by EPA. The Parties acknowledge and agree that each shall at all times remain individually liable for full compliance with the requirements of the MS4 Permit, including EPA's determination regarding the implementation schedule.

9. This Agreement may be modified in writing at any time upon the mutual agreement of the Parties.

10. Parties can be added at any time during the life of this Agreement. A potential future Party's submittal of a signature page to the Co-Coordinators and approval by the Co-Coordinators shall add the Party to the Agreement.

NOTE: Each approving entity would have a separate signature page

City of Rio Rancho

Approved as to Form:

____
City Attorney

Date: 10/1/13

Recommended By:

____
Dolores Wood, Director

Date: 11. 4. 13

Approved By:

____
Keith Riesberg, City Manager

Date: 11/1/13

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144-4501
(505) 981-5005 • FAX (505) 981-5203

December 19, 2015

SENT VIA EMAIL

Ms. Nelly Smith
Municipal Stormwater Coordinator
EPA Region 6
Permits and Technical Assistance Section
1445 Ross Ave., Suite 1200
Dallas, TX 75202

Re: NPDES General Permit No. NMR04A000 - Proposed Monitoring Plan

Dear Ms. Smith,

Please consider the attached document as City of Rio Rancho's formal submittal of our proposed monitoring plan for NPDES General Permit No. NMR04A000. This submittal is being made in response to Part III.A.1.b., Cooperative Monitoring. The proposed cooperative monitoring agreement includes the following entities:

1. City of Albuquerque
2. City of Rio Rancho
3. Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)
4. Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA)
5. Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA)
6. New Mexico Department of Transportation (NMDOT)
7. University of New Mexico (UNM)
8. Village of Corrales
9. Village of Los Ranchos de Albuquerque
10. Town of Bernalillo
11. Bernalillo County
12. Sandoval County

The above listed entities are currently negotiating the Cooperative Agreement for cost sharing. Upon completion of the Cooperative Agreement, the final membership of the agreement will be reported to the EPA and New Mexico Environment Department.

Should you require any further information, please feel free to contact Xavier Pettes at xpettes@rrnm.gov or at 505-891-5045.

Sincerely,

David Serrano, PE
Engineering Division Manager

Enclosure: Cooperative Monitoring Plan
Sampling Location Map

Cc: Sarah Holcomb, New Mexico Environment Department

City of Rio Rancho
Cooperative Monitoring Plan – MS4 Watershed-based permit
December 17, 2015

Sampling must be conducted at a minimum of seven (7) events per sampling location during the permit term with at least three (3) events in the wet season and two (2) events in the dry season. Seasonal monitoring periods are the Wet Season: July 1 – October 31 and Dry Season: November 1 – June 30. Monitoring methodology for both seasons will consist of collecting a minimum of four grab samples spaced at a minimum interval of 15 minutes each. Individual grab samples for each sampling location, will be preserved and combined into a single composite sample at the laboratory.

Qualifying Storm Event

Due to the nature of rainfall in the middle Rio Grande Valley, the MS4s are proposing that a qualifying event be defined as a 0.25-inch or greater storm anywhere in the watershed that creates a discharge to the Rio Grande. Additionally, no antecedent dry period will be required in order to ensure that a sufficient number of qualifying events are available for sampling.

In order to determine whether or not a qualifying storm event has occurred, the MS4s may use a variety of different data sources for representative locations within the watershed to identify the qualifying storm event. Sources for determining a qualifying storm event may include, CoCoRahs, wundermap.com data, calibrated National Weather Service radar, and/or USGS weather data based on rainfall measurements taken within the watershed.

Wet Weather Monitoring (Wet Season: July 1 – October 31/Dry Season: November 1 – June 30)

Wet weather monitoring gathers information on the response from the receiving waters to wet weather discharges. The following parameters must be sampled: TSS, TDS, COD, BOD5, DO, TPH/oil, E.coli, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, ammonia plus organic nitrogen, phosphorus, PCBs and gross alpha. DO, pH, conductivity, and temperature must be analyzed in the field within 15 minutes of sample collection.

Sampling Locations

Rio Grande (NORTH)- In stream sampling within the Rio Grande will be performed upstream of the Angostura Diversion Dam at the north end of the water shed (upstream or background)..

Rio Grande (SOUTH) – In stream sampling within the Rio Grande will be performed at the Isleta Bridge at the south end of the watershed and downstream of all inputs from the Urban Area to the river to provide the downstream water conditions.

These locations have been identified and are proposed to meet the permit requirements as identified in Part III.A. These up and down stream sample locations capture all inputs to the river within the Urbanized Area. See Attachment 1 for a map of sampling locations.

Sample Collection

The greatest difficulty the MS4s will have in sample collection are the logistics for collecting the sample(s) and getting them to the laboratory within the required holding time limitations for each sample type, particularly E.coli. In order to expedite this process, the MS4s are proposing the following actions:

1. On days where rainfall in excess of the qualifying storm event are predicted to take place within a timeframe where an in-stream sample can be collected and delivered to the laboratory in time to meet holding time requirements, the upstream sample (Angostura Diversion Dam) will be collected by noon (12:00 PM) on the day of the predicted event.
2. After collection of the upstream samples, the e-coli sample will be submitted to the laboratory for analysis and the remaining samples will be preserved as required and held until the determination can be made regarding whether or not there is a Qualifying Storm Event.
3. When a Qualifying Storm Event is anticipated within the watershed, a river staging timing methodology will be used to identify the proper time for the sample to be taken from the downstream location(s) per Table 1. For example, if it typically takes one hour for water from the North Diversion Channel to reach the Isleta Bridge sampling location, then the sample will be taken one hour after the discharge from the NDC has occurred.
4. Upon collection of the downstream sample(s) from the Isleta Bridge location, the e-coli sample(s) will be taken to a laboratory for analysis and the balance of the samples will be preserved, as required, and held until the determination can be made regarding whether or not there is a Qualifying Storm Event.
5. In the event that a Qualifying Storm Event is NOT recorded, all non-e-coli samples will be dumped and not analyzed. In the event a Qualifying Storm Event is recorded, samples (upstream and downstream) will be submitted to a laboratory for analysis.

During sample collection, the sampler shall maintain a log book recording the site conditions at the time of sampling, actions taken to collect the samples, and any other pertinent information that may be relevant to the sample event. All collected samples shall have a chain-of-custody form associated with each sample container. This chain-of-custody form shall be maintained by the sampler until the sample is delivered to the laboratory for analysis. Greater detail will be contained in the Quality Assurance Program Plan (QAPP) that will be developed for this plan.

Example CoCoRaHS Rain Gages and Assumed Travel Times for Sampling Stormwater Events in Watershed						
Zonal Segments of River (north to south travel times)		Western Side of Watershed (west to east travel times)		Rio Grande	Eastern Side of Watershed (east to west travel times)	
		3 hours -->	1.5 hours -->		<-- 20 min.	<-- 40 min.
7.4 hours	Rio Grande at Angostura to Rio Grande at Alameda	NM-SN-59	NM-SN-70		N/A	N/A
4.4 hours	Rio Grande at Alameda to Rio Grande at Central	NM-BR-113	NM-BR-144		NM-BR-71	NM-BR-162
5.2 hours	Rio Grande at Central to Rio Grande at Isleta 147 Bridge	NM-BR-159	NM-BR-104		NM-BR-150	NM-BR-41

TABLE 1 – HYDROGRAPH TIMING FOR RAIN EVENTS TO SOUTHERN SAMPLING POINT

Rainfall information associated with the above Station Numbers can be obtained from the Community Collaborative Rain, Hail and Snow Network website (www.cocorahs.org). The Station Numbers provided in the table are for representative purposes only. The actual CoCoRaHS rainfall data utilized to confirm a Qualifying Event will be from the appropriate zone in the watershed but may not be from the exact Station Number listed in the table.

Response to Monitoring Results

In the event of an exceedance, the MS4 Sampling cooperative will examine all meteorological and stream gauge data available and correlate rainfall event/timing with sampling timing to determine the most likely source location and discharge point to the river. Once the most likely source location has been determined, MS4s will cooperatively develop a pollutant-specific response plan whose elements may include a review of land use for potential sources of the specific pollutant exceeded or enhanced public outreach and education to specific user or industry groups.

In the event of rainfall in the same distribution as the storm event associated with the exceedance, additional sampling may be conducted to monitor for potential sources, if appropriate. Only the constituent(s) identified in the exceedance will be analyzed.

Sample Collector Training Requirements

Any person collecting samples for compliance purposes shall be trained in the proper technique for collecting stormwater samples. Experience in the collection of stormwater samples may be considered in lieu of receiving formal training in sampling requirements. Greater detail will be contained in the QAPP that will be developed for this plan.

Sample Analysis

After a sample collection event has been performed, the validity of the qualifying storm event must be determined before the samples can be counted as an official sample event. However, since the holding time for the E.coli is so short, the MS4s are proposing analyzing the E.coli samples prior to determining the validity of the storm event as a qualifying storm event. The balance of the samples will be held until the determination of the storm event as qualifying can be made. In the event that the storm event is deemed qualifying, the remaining samples will be run for the required parameters. If an event is deemed by an analysis of rainfall data to be non-qualifying, the results from the E.coli samples will be kept but not reported as part of the official sampling event for permit compliance and the preserved samples will be appropriately discarded without analysis.

Field obtained results (D.O., pH, and temperature) will be handled in a similar fashion as E.coli sampling results. In the event the storm is deemed qualifying during the review of rainfall data, the results from these field obtained measurements will be reported with the balance of the sample results. If the storm event is deemed non-qualifying, these results will be kept but not reported for permit compliance.

QAPP

All sampling collection and analysis shall conform to the QAPP to be developed for the sampling program in accordance with Part III.A.5.b and III.Q. of the permit and the methods specified at 40 CRF §136.

Monitoring Records

A QAPP will be developed, conforming to Part III.P requirements.

Permittees Cooperating in Monitoring Program

City of Albuquerque
Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)
University of New Mexico (UNM)
New Mexico Department of Transportation (NMDOT)
Bernalillo County
Sandoval County
Village of Corrales
City of Rio Rancho
Los Ranchos de Albuquerque
Town of Bernalillo
Eastern Sandoval County Arroyo Flood Control Authority
Southern Sandoval County Arroyo Flood Control Authority

1 inch = 2.367424 miles

0 1 2 Miles

N

WSB MS4 Sampling Locations

Southern Sandoval County Arroyo Flood Control Authority

Date: November 13, 2015

Attachment 1

Path: Q:\Environmental_Services\MS4\Sampling\Sampling map 11-13-15 - whole area.mxd

RioRancho
City of Vision

City of Rio Rancho

3200 Civic Center Circle NE
Rio Rancho, New Mexico 87144-4501
(505) 981-5002 • FAX (505) 981-7274

August 15, 2017

Mr. Jerry Lovato, Executive Engineer
Albuquerque Metropolitan Arroyo Flood Control Authority
2600 Prospect Ave NE
Albuquerque, NM 87107

RE: Memorandum of Understanding for Delegation of Authority for Data Entry into NetDMR System

Dear Mr. Lovato,

As you are aware, twelve permittees covered under the Middle Rio Grande Watershed Based Municipal Separate Storm Sewer System (MS4) General Permit (NPDES No. NMR04A000) have entered into a cooperative agreement for the performance of permit-mandated water quality monitoring. Currently, results from the samples taken during monitoring events are shared among the twelve members of the Compliance Monitoring Cooperative (CMC) and must be entered by each entity into the Network Discharge Monitoring Report (NetDMR) database individually, creating twelve identical (barring typos or other data entry error) records. This is clearly inefficient, at best.

Following discussions between the CMC and the Environmental Protection Agency (EPA), EPA has approved a methodology whereby one member of the CMC will enter data in NetDMR on behalf of any other CMC-member entity. Each CMC-member entity that wishes to participate will delegate authority to the data entry CMC-member entity or their designed contractor, for this purpose. We appreciate Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) volunteering to be the data entry CMC entity on behalf of the CMC.

Therefore, the City of Rio Rancho, Permit Tracking No. NMR04A007, hereby delegates authority for data entry and approval of sampling results into NetDMR to AMAFCA for the purposes of compliance with MS4 General Permit requirements. Please provide us notification, via email, of the completion of data entry for our records.

In the event that AMAFCA becomes unable to perform this function on behalf of the City of Rio Rancho, please notify me a minimum of 60 days prior to the deadline, or by December 1st, for data entry in order to perform this function internally.

Please contact Xavier Pettes via email at xpettes@rrnm.gov or phone at (505)891-5045 if you have questions or concerns regarding this memorandum. Thank you again for your willingness to perform this function on behalf of the membership of the CMC.

Requested
Keith Riesberg
City Manager, City of Rio Rancho

Acknowledged and Accepted
Jerry Lovato, P.E.
Executive Director, AMAFCA

Section 7	Public Review and Comment

Section 8	Signature on Certification of Annual Reports 8.1 Letter of Delegation