

GROUP A. PROJECT MANAGEMENT

A1. Title and Approval Sheet

Quality Assurance Project Plan
Rio Nutrias Watershed-based Plan Implementation Phase II

Submitted by:

New Mexico Environment Department
Surface Water Quality Bureau

APPROVAL SIGNATURES

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_____ Abraham Franklin Program Manager, SWQB Watershed Protection Section	_____ Date
_____ Kyla Chandler Environmental Protection Specialist, WDAS, EPA Region 6	_____ Date
_____ Nelly Smith Branch Chief, State and Tribal Programs Section, WDAS, EPA Region 6	_____ 3/8/2022 Date

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Acronyms

CEE	Channel Erosion Equation
DQO	Data Quality Objectives
EPA	United States Environmental Protection Agency
NMED	New Mexico Environment Department
PSIAC	Pacific Southwest Inter-Agency Committee
QA	Quality Assurance
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
SOP	Standard Operating Procedures
SWQB	Surface Water Quality Bureau
TMDL	Total Maximum Daily Load
USACE	United States Army Corp of Engineers

A3. Distribution List

Table 1. below contains the distribution list, project roles and responsibilities for this project. The QA Officer will ensure that copies of this QAPP and any subsequent revisions are distributed to members of the distribution list who have signature authority to approve this QAPP. The SWQB Project Officer will ensure that copies of the approved QAPP and any subsequent revisions are distributed to the Project Manager. The Project Manager is responsible for all sub-contractors distributing the approved QAPP and any subsequent revisions to all other project personnel listed in Table 1. All members of the distribution list who do not have signature authority to approve this QAPP will review the QAPP and sign the acknowledgment statement prior to initiating any work for this project. The signed acknowledgement statements will be collected by the SWQB Project Officer and will be given to the QA Officer for filing with the original approved QAPP.

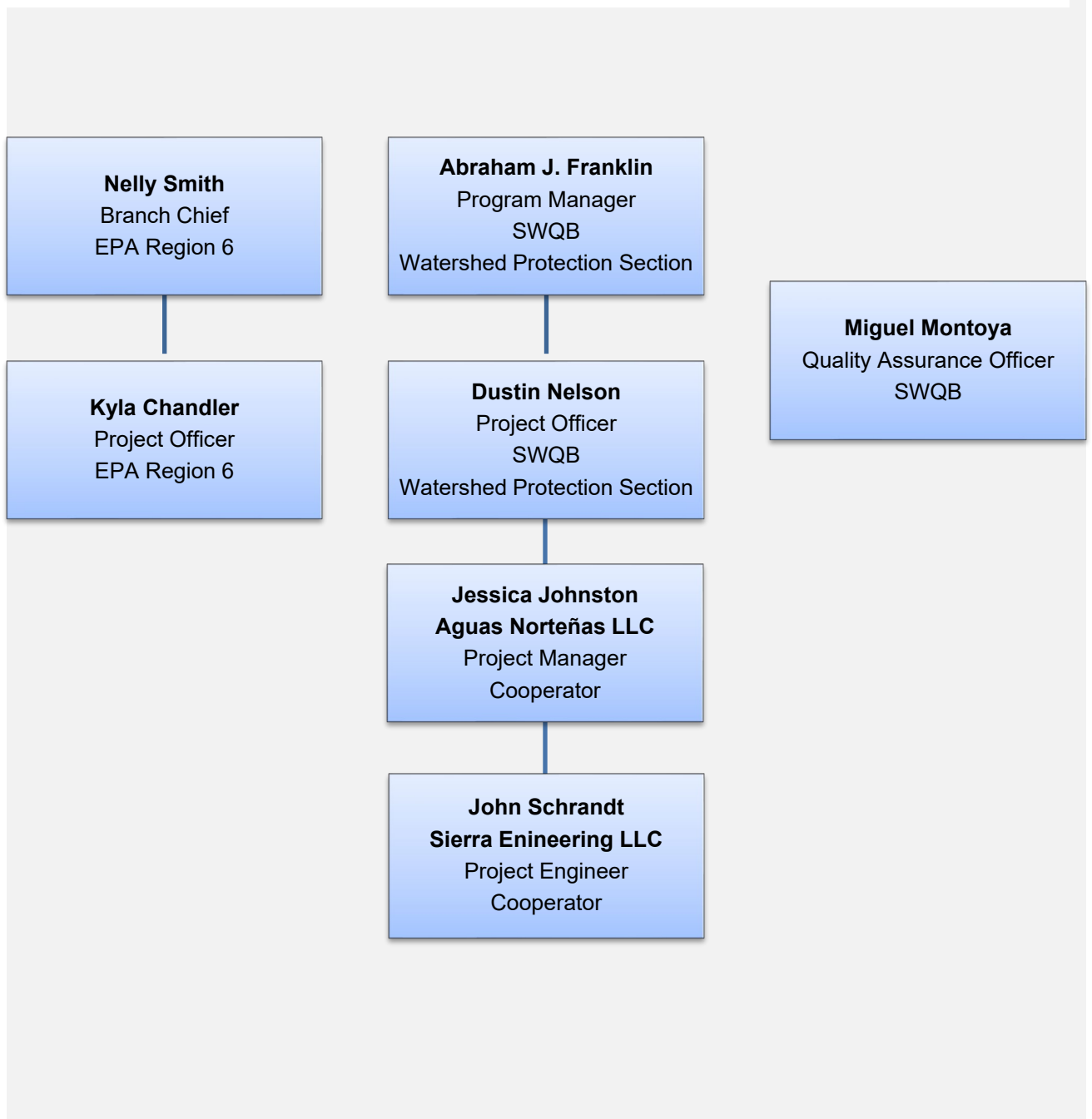
Table 1 Distribution list, Project Roles, and Responsibilities

Name	Organization	Title/Role	Responsibility	Contact Information
Abraham J. Franklin	SWQB	Program Manager	Reviewing and approving QAPP, managing project personnel and resources	505-946-8952 abraham.franklin@state.nm.us
Miguel Montoya	SWQB	QA Officer	Reviewing and approving QAPP	505.819.9882 miguel.montoya@state.nm.us
Dustin Nelson	SWQB	Project Officer	Distribution of QAPP, project reporting, coordinating with contractors, oversight of data collection, and EPA reporting	505-469-6186 dustin.nelson@state.nm.us
Jessica Johnston	Aguas Nortiñas	Project Manager	Preparing and revising QAPP, project oversight, data management, and submittal of quarterly reports	575-770-8585 aguasnortenas@gmail.com
John Schrandt	Sierra Engineering	Project Engineer	Final Design, CWA Section 404 permitting. As-builts,	505-670-5385 jrschrandt@gmail.com
Kyla Chandler	EPA	Environmental Protection Specialist WQPD, Region 6	Reviewing and approving QAPP	214-665-2166 chandler.kyla@epa.gov
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A4. Project Organization

The SWQB Quality Management Plan (NMED/SWQB 2021a) documents the independence of the Quality Assurance Officer (QAO) from this project. The QAO is responsible for maintaining the official approved QAPP. Figure 1 presents the organizational structure for the “Rio Nutrias Watershed-based Plan Implementation Phase II” referred to in this document as the “Project.”

Figure 1. Organization Chart



A5. Problem Definition /Background

The purpose of this Quality Assurance Project Plan (QAPP) is to document the effectiveness of best management practices executed under the Rio Nutrias Watershed-based Plan Implementation Phase 1 and Phase II. The Rio Nutrias Watershed-based Plan Implementation Phase II is being managed by the Aguas Norteñas LLC with oversight from the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB).

Background

The Rio Nutrias is located within the greater Rio Chama watershed (USGS Hydrologic Code 13020102), Rio Arriba County, New Mexico (figure 2). The Rio Nutrias is part of the Cebolla/Nutrias watershed planning area which is represented by the Cebolla/Nutrias Watershed Group. The size of the Rio Nutrias watershed is 106 square miles and the miles of impaired stream reach is 34.63 miles. Land use/cover is 66% forest and 34% rangeland. Watershed land ownership is 74% private, 12% US Forest Service, 10% Bureau of Land Management, 2% State of New Mexico and 2% State of New Mexico Game and Fish. Several small streams flow west into the Rio Nutrias, which empties through a deep canyon into the Rio Chama.

The Rio Nutrias (Perennial prt Rio Chama to headwaters) is listed on the NMED 2020-2022 Clean Water Act Integrated 303(d)/305(b) list of assessed surface waters. The 303(d) list identified the Rio Nutrias as impaired by turbidity and *E. coli*. The turbidity impairment was originally listed on the NMED 2002-2004 Clean Water Act Integrated 303(d)/305(b) list of assessed surface waters. Supported designated uses include domestic water supply, fish culture, irrigation and wildlife habitat; unsupported uses are high quality coldwater aquatic life and primary contact. This project will focus on the turbidity impairment; however, the management measures being implemented for Phase II may also be effective at preventing *E. coli* pollution because they are focused on preventing soil erosion and transport and rebuilding riparian communities capable of attenuating microorganisms.

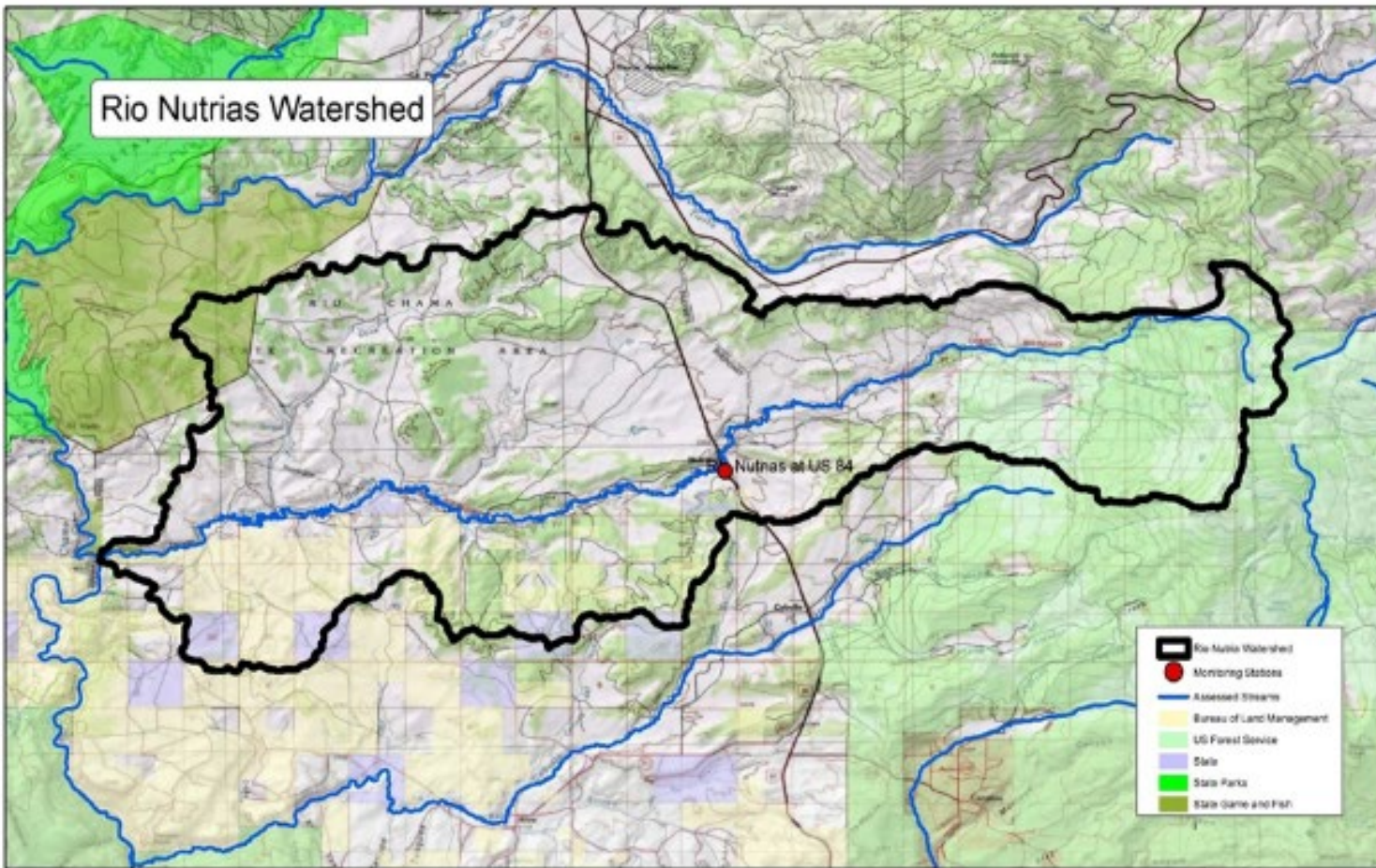


Figure 2 Project Area

According to the Total Maximum Daily Load (TMDL) document for the Lower Rio Chama Watershed, there are not any point source contributions within the Rio Nutrias watershed, the turbidity water quality impairment is one hundred percent attributed to non-point source pollution. The probable sources of impairment identified for turbidity on the Rio Nutrias include agriculture, rangeland, removal of riparian vegetation, streambank modification/ destabilization, and road maintenance (improperly placed culverts).

The TMDL document has estimated the necessary sediment load reductions for the waterbody to meet the designated uses, calculations are as follows: a target load allocation of 8,167 lb./day, a measured load of 17,788 lb./day, and a resulting overall load reduction goal of 9,621 lb./day.

During the watershed-based planning process the Rio Nutrias stakeholders determined that the major contributing probable causes and sources for the turbidity water quality impairment include drought, brush encroachment, arroyos/gullies, streambank destabilization, road crossings, rangeland grazing including wildlife, natural sources and forest conditions. Through creating the watershed-based plan, the stakeholders identified and ranked best management practices to address the probable causes and sources.

In the Rio Nutrias Watershed-based Plan Implementation Phase 1, selected best management practices were implemented including brush control, reseeding with native grasses and legumes, forest thinning, rebuilding water/sediment basins, streambank engineering and riparian enclosure fencing.

In the Rio Nutrias Watershed-based Plan Implementation Phase 2, selected best management practices will be implemented including replacing 2 undersized and improperly placed culverts on the Rio Nutrias and other to be determined small demonstration best management practice projects.

Objective

The objective for this project is to improve the water quality in the Rio Nutrias by implementing previously identified and ranked best management practices to reduce the turbidity impairment. The best management practices are selected to control soil erosion and soil loss, using erosion and soil loss as a proxy for turbidity.

A6. Project/Task Description

Description

This project will be addressing two road crossing structures that are causing streambank erosion on the Rio Nutrias. The proposed river crossing improvement measures include installing two larger culverts and streambank stabilization of the river at the inlet and outlet of each culvert.

The project design will include determining the necessary culvert size to accompany high flows, ensuring the culvert is long enough to extend beyond the fill. The new culvert will be aligned with the existing grade and depth of the streambed and the surrounding fill material will be compacted and protected with armoring.

By replacing these undersized and improperly placed culverts on the Rio Nutrias the project will be stabilizing the river channel to reduce channel erosion including the streambank erosion and channel scour. This change to the channel may also have a pronounced effect on channel stability upstream and downstream of each river crossing.

Project monitoring will include photo point monitoring and channel cross section measurements for the management measures installed in Phase II and the continuance of annual photo point monitoring on management measures installed in Phase I. The photo point monitoring will be used to measure long term efficacy, which allows for adaptive management, if necessary. Monitoring will be elaborated in more detail in Data Generation and Acquisition section B1.

Schedule

Table 2. Project Task, products, responsible party, timeline.

Task	Product	Responsible Party	Approximate State Date	Approximate Completion Date
Administrative	Procurement for contracts.	Aguas Norteñas	07/01/2021	12/31/2022
Quality Assurance Project Plan	Approved QAPP.	Aguas Norteñas, NMED	07/01/2021	12/31/2021
Continue restoration monitoring for phase 1 projects, implement photo point monitoring and channel cross section measurements for phase 2 projects	Annual photo point monitoring on new and existing projects. Channel cross section measurements. Load reduction modeling.	Aguas Norteñas, Sierra Engineering	01/01/2022	09/30/2023
River crossing #1 and #2 engineering design	Final engineering design and cost estimates for river construction project #1 and #2.	Aguas Norteñas, Sierra Engineering	11/01/2021	03/31/2022
River crossing #1 and #2 permits and compliance	401/404 permits, USACE annual monitoring reports.	Aguas Norteñas, Sierra Engineering	11/01/2021	09/30/2023
River crossing #1 and #2 construction	Photos of completed work, project as builds.	Aguas Norteñas, Sierra Engineering	01/01/2022	12/31/2022
Small BMP demonstration projects	Photos of completed project and reports on the efficacy of the projects.	Aguas Norteñas	01/01/2022	09/30/2023
Reporting to SWQB Project Officer	Project quarterly fiscal and project performance reports and final report.	Aguas Norteñas	07/01/2021	09/30/2023
Reporting to EPA	Quarterly and Final Report to EPA.	NMED	07/01/2021	09/30/2023

Project Administration

The project manager will take all steps necessary to ensure compliance with the Federal and State procurement processes. This will include soliciting quotes for projects, maintain bidders lists and administering subcontracts. The procurement methods will comply with the requirements of EPA's Program for Utilization of Minority and Women's Business Enterprises.

Quality Assurance Project Plan

The existing project Quality Assurance Project Plan will be revised and submitted to the EPA for approval.

Project Monitoring

Project monitoring will include photo point monitoring and channel cross section measurements. Annual photo point monitoring will continue to be conducted on all previously installed management measures. Projects completed under a USACE permit will require a project specific annual monitoring report. The Channel Erosion Equation will be used for load reduction estimates. The project will also utilize the Pacific Southwest Inter-agency Committee (PSIAC) evaluation method to confirm PSIAC estimates detailed in the Watershed-based Plan before the termination of the contractual period with NMED SWQB.

River Crossing #1 and #2 Engineering Design

The engineer will complete the preliminary engineering design for replacing the culvert at the intersection of Rio Nutrias and Rio Arriba County Road 317, and at the river crossing of the Rio Nutrias and an unnamed road. The design will include construction quantities and cost estimates.

River Crossing #1 and #2 Permits and Compliance

The engineer will complete the necessary paperwork including monitoring plan for submission to the USACE and the NMED for the 401 and 404 permits necessary for project construction. The engineer will complete the USACE first year annual monitoring report on both projects.

River Crossing #1 and #2 Construction

A contractor will complete the construction of replacing the culverts at the intersection of Rio Nutrias and Rio Arriba County Road 317, and the Rio Nutrias and an unnamed road. The engineer will provide construction oversight to ensure projects are completed as designed. The engineer and Aguas Norteñas LLC will be responsible for all work conducted by the contractor. The engineer will supply the NMED SWQB with an as-built design of each culvert after installation.

Reporting to the SWQB

The project manager will submit a quarterly performance report outlining status of completion benchmarks and deliverables. The project manager will also submit a quarterly request for grant disbursement and records of all project accounting. The project manager will deliver a final project report outlining successes and failures of the project, status of each project benchmark, all management measures completed, a photo monitoring log, photo monitoring pictures, photo monitoring report, copies of all monitoring reports, summary of project fiscal accounting including all efforts counted as in-kind match and an outline of all educational and outreach activities.

Monitoring Location Selection Criteria



Figure 3 Location of Phase II projects.

The river crossing projects will both occur along the Rio Nutrias in the Upper Rio Nutrias. River crossing #1 is the intersection of the Rio Nutrias and Rio Arriba County Road 317. The river crossing #2 project is the intersection of the Rio Nutrias and an unnamed road.

Monitoring stations for new projects completed in Phase II will be determined prior to the execution of each project. At a minimum photo monitoring will be completed at two locations above and two locations below each culvert replacement project. Monitoring stations have been previously established for project implemented in Phase 1. Monitoring will be developed to satisfy both CWA Sections 319 and 404 requirements.

Table 3. Waterbody Attributes for the Project

Monitoring Station ID	WQS Citation	Assessment Unit ID	12-Digit HUC or Latitude and Longitude
Rio Nutrias (Perennial prt Rio Chama to headwaters)	20.6.4.119 NMAC	NM-2166.A_060	130201020701, 130201020702, 130201020703, 130201020704

A7. Quality Objectives and Criteria for Measurements

Question/Decision

The baseline data collection and monitoring components of the project are intended to answer the following questions:

1) Are the management measures being implemented successful at an individual level? Are the management measures being implemented having a cumulative effect on erosion control as a proxy for turbidity?

Stated as a decision: 1) The information gathered as part of the Rio Nutrias Watershed Implementation project will provide information that will determine the degree to which the proposed implementation measures achieved their desired effects.

Data Quality Objective (DQO)

The quality of the data will be adequate to provide a high level of confidence in determining the efficacy of restoration projects to improve water quality.

Data Quality Indicators

The measurement quality objectives will be sufficient to achieve the DQO and will be in conformance with those listed in the SWQB’s QAPP. The Data Quality Indicators listed in the SWQB’s QAPP and applicable to the data collected for this project are precision, bias, accuracy, representativeness, comparability, completeness, and sensitivity.

Table 4. Data Quality Indicators

DQI	Determination Methodologies
Precision	Precision will be ensured by following the procedures identified in this QAPP.
Bias	The basis for determining accuracy will be staff's expertise of the survey method for collecting data and ensuring the accuracy of the equipment being used is within the required range of a particular survey.
Accuracy	Photo point and channel cross measurement locations are marked with a rebar or a T post, in addition to a GPS location. A landscape feature is also noted for future reference. A map is created to document the locations.
Representative	Photo point and channel cross section measurement locations are selected to capture results of the specific restoration project, opportunistic photos may be taken to document unanticipated conditions outside of photo point location.
Comparability	Photos and measurements are taken during at the same time of the year annually to provide similar conditions in the landscape.
Completeness	Surveys and methodologies will be completed in their entirety as identified in this QAPP.
Sensitivity	The sensitivity of metrics used will be analyzed during analysis and recalibration of data and instruments.

A8. Special Training/Certification

This project will be primarily implemented by Aguas Norteñas LLC, there is no special training required for this project. Data collection and monitoring for this project will be implemented by Aguas Norteñas LLC. with technical assistance and oversight from the SWQB Project Officer. Volunteers will be trained by Aguas Norteñas LLC. and always supervised by Aguas Norteñas LLC. while in the field. The Project Manager will be responsible for all individual conducting work for the project who have not reviewed this QAPP and sign the acknowledgment statement prior to initiating work for the Project.

A9. Documents and Records

The SWQB Project Officer will make copies of this approved QAPP and any subsequent revisions available to the Project Manager. The Project Manager will distribute the approved QAPP and any subsequent revision to all individuals on the distribution list who do not have signature authority for approving the QAPP. When changes affect the scope, implementation, or assessment of the outcome, this QAPP will be revised by the Project Manager to keep project information current. The SWQB Project Officer, with the assistance of the QAO, will determine the effects of any changes to the scope, implementation, or assessment of the outcome on the technical and quality objectives of the project. This Project Plan will also be reviewed annually by the SWQB Project Officer to determine the need for revision.

Project documents include this QAPP, field notebooks, calibration records, validation and verification records, recorded field data, records of analytical data in hard copy or in electronic form, and QC records. Also included are project interim and final reports. Data captured on a global positioning system (GPS), camera, smart phone, tablet, or laptop will be downloaded to a computer or an external hard drive at the end of each day. Copies will be made of all data and stored separately from the original data.

All digital project data will be kept in a project file on Aguas Norteñas LLC. computer and on a separate external backup hard drive at the Aguas Norteñas LLC. office. Hard copy project documents will be kept in a project folder in a file at the Aguas Norteñas LLC. office. All hard copy documents will be digitized and stored on a Aguas Norteñas LLC. computer and backup hard drive (see Table 5). Copies of the data will be distributed by Aguas Norteñas LLC. to NMED SWQB Project Officer after each filed season, typically at the end of November. Data includes photos, photo monitoring report, Channel Erosion Equation modeling information (including worksheets), and interim and final reports.

The SWQB WPS will retain project documents in accordance with applicable sections of New Mexico’s Disposition of Public Records and Non-Records Regulation, codified at 1.13.30 Administrative Code (NMAC) and Retention and Disposition of Public Records regulations, codified at 1.21.2 NMAC.

Table 5. Data Records for the Project

Document	Type of Form	Storage Location	Field Sheet Used
QAPP	Electronic (.doc) & Hard Copy	Aguas Norteñas LLC. file cabinet and computer.	EPA Requirements for Quality Assurance Project Plan. EPA QA/R-5. Located at: https://www.epa.gov/sites/production/files/2016-06/documents/r5-final_0.pdf
Monitoring Reports	Electronic (.doc) & Hard Copy	Aguas Norteñas LLC. file cabinet and computer.	Project Specific Photo Point Monitoring Worksheet
Photos and Photo Worksheet	Electronic (.jpg)	Aguas Norteñas LLC. file cabinet and computer.	Project Specific Photo Point Monitoring Worksheet (photo-log)
Channel Erosion Equation Modeling	Electronic & Hard Copy	Aguas Norteñas LLC. file cabinet and computer.	Channel Erosion Equation Worksheet
PSIAC evaluation	Electronic & Hard Copy	Aguas Norteñas LLC. file cabinet and computer.	evaluation worksheet and/or field notebook

Interim and Final Reports	Electronic (.doc) & Hard Copy	Aguas Norteñas LLC. file cabinet and computer.	NA
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GROUP B: DATA GENERATION AND ACQUISITION

B1. Sampling Plan

Approximately eight monitoring stations will be established for the Phase II projects. The stations will be located at approximately 20 ft and 40 ft upstream and downstream of each river crossing improvement project. These sites will be marked with rebar or T post and the Global Positioning System (GPS) coordinates documented. Factors used for PSIAC evaluation will be realized through visual observations during project implementation.

Channel cross section measurements will occur at each monitoring station. These measurements will be taken pre and post construction to determine physical changes to the stream channel as a result of the construction activities.

Photo monitoring will occur at each monitoring station. Photo point monitoring will be conducted with the Solocator application. All photographs will be taken at eye level, the azimuth will be recorded and each photograph will include a landscape reference point that cannot be modified for future orientation.

A map will be created for each project site pinpointing exact monitoring station locations for future reference. Monitoring will be postponed in the event that the site becomes inaccessible due to high water or other unsafe conditions.

Photo point monitoring was implemented for all restoration projects completed in Phase I to assess the parameters of each project pre-and post-restoration. Annual monitoring will occur to document the effectiveness of restoration projects over time. Monitoring stations for these projects were previously established.

Table 6. Project Monitoring Specifics

Responsible Party	Monitoring	Location	Frequency
Aguas Norteñas LLC	Photo Point Monitoring	Phase 2 restoration sites	Pre- and Post-construction
Aguas Norteñas LLC	Photo Point Monitoring	Phase 1 restoration sites	Summer 2022 and 2023
Sierra Engineering LLC	Channel Cross Section Measurements	Phase 2 restoration sites	Pre- and Post-construction

B2. Sampling Methods

Permanent photo points will be installed at strategic locations to illustrate visual changes from the proposed work, according to general guidelines described in the *Photo Point Monitoring Handbook* (Hall, 2002). The “Project Specific Photo Point Monitoring Worksheet” in Appendix 1. will be used to document all photo monitoring and a map will be developed to document monitoring stations. The photo point

monitoring worksheet will include additional narrative about each restoration site, will describe any unusual events and will note any observed changes.

Channel cross section measurements will occur at each monitoring station. Cross section data will be collected according to the methods in *Stream Channel Reference Sites: An Illustrated Guide to Field Technique* (Harrelson et al., 1994). The data from the cross section measurements will be used to conduct load reduction modeling using the Channel Erosion Equation under the guidelines described in *Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual* (MDEQ, 1999). All data for the load reduction modeling will be recorded in the "Field Measurements for Channel Erosion Worksheet" located in Appendix 2.

The PSIAC evaluation will be completed as detailed in *Factors Affecting Sediment Yield and Measures for the Reduction of Erosion and Sediment Yield, PSIAC*.

All monitoring data will be logged on standardized forms and will be stored in an electronic file and in a file cabinet. Monitoring data will be published in the annual report and provided as completed.

B3. Sample Handling Custody

There are no plans to collect samples for laboratory analysis, there are no sample handling requirements.

B4. Analytical Methods

There are no plans to collect samples that would require analysis by analytical methods.

B5. Quality Control

Quality Control (QC) activities are technical activities, including data verification and validation, that measure the attributes and performance of a process, item, or service against a defined standard performed on a routine basis to quantify the inherent variability of any environmental data measurement activity. The purpose of implementing QC activities is to reduce variability and uncertainty in the decision-making process. Additionally, the results obtained from the QC analysis, or data quality assessment, may identify areas where the variability can be reduced or eliminated in future data collection efforts, thereby improving the overall quality of the project.

Quality Control mechanisms are implemented as described under the Section for Quality Objectives and Criteria for Measurements, as well as the sample planning and methodologies identified by this QAPP. Additional Quality Control includes the professional expertise of the personnel working under this Project. For this Project, the QC activities are those needed to assess and demonstrate the reliability and defensibility of the data.

B6. Instrument/Equipment Testing, Inspection and Maintenance

All field equipment will be inspected prior to data collection. The person(s) conducting the work is responsible for ensuring that equipment is inspected, and that proper maintenance has been completed prior to data collection. All instruments and equipment will be tested, inspected and maintained in accordance with the manufacturer's specifications as included in their associated instrument/equipment manual. Field equipment suspected to be faulty will not be used for data collection, until required maintenance is performed, or equipment is replaced (Table 7).

Table 7. Field equipment

Type of Equipment	Make/Model	Details
Laser level and rod	Nikon AC-2S	For cross section elevation measurements.
Photo (with GPS) camera	Samsung Note 20 Ultra	Standard lens, Solocator application.

B7. Instrument/Equipment Calibration and Frequency

The calibration of the laser level will be verified according to the manufacturer’s specifications. Documentation of calibration and verification will be maintained by the Project Engineer.

B8. Inspection/Acceptance for Supplies and Consumables.

There are no supplies or consumables that could affect the quality of data related to this project.

B9. Non-Direct Measurements

Sources for non-direct measurements include data (e.g., photos, probable sources, BMP designs, modeling inputs and outputs, and evaluation factors) collected for the Rio Nutrias Watershed-based Planning Implementation Project Phase I and the Rio Nutrias Watershed-based Plan, both projects were completed under sub-grant agreements with the NMED SWQB utilizing EPA funds. The data and information from these sources are considered useable and acceptable for the intended use of this project. If other sources of environmental data are needed as inputs for the PSIAC evaluation, the source will be referenced and data usability will be determined on a case by case basis by the SWQB Project Officer.

Further quality assurance and quality control may be warranted if existing data (non-direct measurements) will be used for other purposes not mentioned in this QAPP.

B10. Data Management.

Aguas Norteñas LLC. will be responsible for data management. All data will be converted to electronic format, stored and backed up by Aguas Norteñas LLC. Computer hard drives are backed up daily or will be backed up on external hard drives, respectively. Hard copies of field sheets will be maintained in a project binder organized by assessment and date and stored in a key protected filing cabinet in the office of Aguas Norteñas LLC. Data will be sent to the SWQB Project Officer by the end of each field season by Aguas Norteñas LLC., typically by the end of November.

Upon receiving data, the SWQB Project Officer will store data on the SWQB network drive in a project-specific folder. The SWQB network drive is backed up daily and maintained by the NMED Office of Information Technology. Electronic data files will be stored on the SWQB network drive in accordance with 1.13.30 NMAC, *Records and Non-Records Regulation* and 1.21.2 NMAC, *Retention and Disposition of Public Records*.

GROUP C: ASSESSMENT AND OVERSIGHT

C1. Assessment and Response Actions

The Project Officer will provide project oversight by periodically assisting with and/or reviewing data collection efforts. A review of the baseline data collection and monitoring efforts by the SWQB Project Officer will take place at the end of each monitoring season. The SWQB Project Officer will assess project progress to ensure the QAPP is being implemented, including periodic audits by the QAO, as needed. Any problems encountered during the course of this project will be immediately reported to the SWQB Project Officer who will consult with appropriate individuals to determine appropriate action. Should the corrective action impact the project or data quality, the SWQB Project Officer will alert the QAO. If it is discovered that monitoring methodologies must deviate from the approved QAPP, a revised QAPP must be approved before work can be continued. All problems and adjustments to the project plan will be documented in the project file and included in the final report.

C2. Reports to Management

Quarterly reports will be submitted by Aguas Norteñas LLC. to the SWQB Project Officer and will include progress of project and any available data. Printouts, status reports or special reports for SWQB or EPA will be prepared upon request. The final report will be submitted to the SWQB Project Officer by 09/30/2023. The SWQB Project Officer will be responsible for submitting the final project deliverables to EPA through their Grants Reporting Tracking System.

GROUP D: DATA VALIDATION AND USABILITY

D1. Data Review, Verification and Validation

Data will be reviewed by the Project Manager for erroneous data, incomplete data and transcription errors prior to demobilization from the field site. Data will be considered usable if the requirements of this QAPP were followed and the data is within acceptable range limits as defined under this QAPP. Data that appears incomplete or questionable for the parameter will be flagged for review. Flagged data will be discussed with the SWQB Project Officer to determine the potential cause and usability. If a reasonable justification for use of the data cannot be attained, those data will be not used in analysis and implementation of activities listed under this QAPP unless the data can be recollected and assessed for usability.

D2. Validation and Verification Methods

Aguas Norteñas LLC. will ensure that valid and representative data are acquired. Verification of photo monitoring and field measurements will be performed by Aguas Norteñas LLC. after every field season by reviewing the completed worksheets for data collection (Appendix I and Appendix II).

In the event questionable data are found, the SWQB Project Officer will notified and will consult appropriate personnel to determine the validity of the data. Results of the verification and validation process will be included in the final reports.

D3. Reconciliation with User Requirements

The user requirement is a restatement of the data quality objective: The quality of the data will be adequate to provide a high level of confidence in determining whether the Rio Nutrias Watershed-based Plan Implementation Phase II is meeting the project goals, as stated in the approved scope of work.

If the project's results do not meet this requirement, then additional monitoring may be necessary to fill in data, which may include an extension of the monitoring period to measure effects that were not apparent during the project period.

References:

- Aguas Norteñas LLC., 2015. Rio Nutrias Watershed-based Plan. <https://www.env.nm.gov/surface-water-quality/wbp/>
- Aguas Norteñas LLC, 2020. Rio Nutrias Watershed-based Plan Implementation Project Phase 1, Final Report. https://www.env.nm.gov/surface-water-quality/nmed_319_and_rsp_project_list/
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Acknowledgement Statement



New Mexico Environment Department Surface Water Quality Bureau

Rio Nutrias Watershed-based Plan Implementation Phase II

Quality Assurance Project Plan Acknowledgement Statement

This is to acknowledge that I have received a copy (in hard copy or electronic format) of the “Rio Nutrias Watershed-based Plan Implementation Phase II” Quality Assurance Project Plan.

As indicated by my signature below, I understand and acknowledge that it is my responsibility to read, understand, become familiar with and comply with the information provided in the document to the best of my ability.

Signature or Electronic Signature (e-certified accepted)

Name (Please Print)

Date

Return to SWQB QAO Miguel Montoya

Appendix 1. Photo Point Monitoring Worksheet.

Rio Nutrias Watershed Implementation Project
Project Specific Photo Point Monitoring Worksheet

Date

Location/Sub watershed

Landowner

Restoration project

Description of points -GPS coordinates, description of point marker, orientation of picture, landscape feature.

Other information- unusual events, general conditions, observed changes in erosion or vegetation, treatments.

Attachments- Map with outline of project restoration area, location of photo points, and picture from each point.

Appendix 2. Field Measurements for Channel Erosion Worksheet

Rio Nutrias Watershed Implementation Project
 Field Measurements for Channel Erosion Worksheet

Date

Location

Restoration project

General observations or unusual conditions.

Photo Point 1. Location of point - 20 ft above culvert

	Length of study area (ft.)	Height (ft.)	LRR (ft./yr.)	Soil weight (ton/ft.3)	TOTAL (ton/yr.)
Right Bank					
Left Bank					

Photo Point 2. Location of point - 40 ft above culvert

	Length of study area (ft.)	Height (ft.)	LRR (ft./yr.)	Soil weight (ton/ft.3)	TOTAL (ton/yr.)
Right Bank					
Left Bank					

Photo Point 3. Location of point - 20 ft below culvert

	Length of study area (ft.)	Height (ft.)	LRR (ft./yr.)	Soil weight (ton/ft.3)	TOTAL (ton/yr.)
Right Bank					
Left Bank					

Photo Point 4. Location of point - 40 ft below culvert

	Length of study area (ft.)	Height (ft.)	LRR (ft./yr.)	Soil weight (ton/ft.3)	TOTAL (ton/yr.)
Right Bank					
Left Bank					