



Santa Cruz Site 1 Dam Rehabilitation

Scoping Report



April 2015

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SECTION 1

INTRODUCTION

1.0 Introduction

The United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS), in cooperation with the Santa Fe-Pojoaque Soil and Water Conservation District (SWCD) as the project sponsor, is proposing to rehabilitate the Santa Cruz Site 1 Dam located near Chimayo, New Mexico.

This project is partially funded through the NRCS Small Watershed Rehabilitation Amendments which authorize funding and technical assistance to rehabilitate aging flood control dams built under the Watershed Protection and Flood Prevention Act [Public Law 83-566 Stat. 666 as amended (16 U.S.C. Section 1001 et. Seq.) 1954; Rehabilitation under Public Law 83-566 as amended by Section 313 of Public Law 106-472]. NRCS, as the lead federal agency, has initiated NEPA analysis in the form of a Supplemental Watershed Plan and Environmental Assessment (Plan-EA) to analyze impacts to the natural and human environment from this project. The Plan-EA will comply with the Council on Environmental Quality's regulations at 40 CFR Parts 1500-1508 which require an evaluation of potential environmental impacts associated with federal projects and actions. The Plan-EA will be comprised of the following elements:

- Alternatives analysis of potential options to rehabilitate the outdated structure to meet current New Mexico Dam Safety Bureau and NRCS engineering performance criteria, which may include the following:
 - No Action: The dam would still be required to meet state dam safety requirements. The County would receive a legal mandate to update the structure to meet current safety standards or to be removed. No Federal funds would be used.
 - Dam Decommissioning: Completely remove a portion or all of the dam and restore the site to its natural condition.
 - Rehabilitate Dam: Repair the dam infrastructure to meet current NRCS and New Mexico Dam Safety Bureau regulations and current engineering standards. Extend the life of the structure for a minimum of 50-years and maximum of 100-years.
 - Other Alternatives: Other alternatives identified by the public and project team during scoping will be analyzed during the NEPA process to rehabilitate the debris basin.
- Detailed analysis of resources that may be affected for each of the alternatives that may satisfy the purpose and need for the project;
- Identification of potential mitigation measures to reduce or eliminate potential impacts; and
- A plan of public participation and government agency coordination throughout development of the Plan-EA.

The participation of the public is a vital component of the project so that those who are interested in or potentially affected by the proposed alternatives have an opportunity to share their concerns and provide input regarding the Plan-EA during the initial stages of the process. This Scoping Report outlines the efforts undertaken to involve the local communities through a public information meeting and comment period, and the comments received from agencies and the general public during that period.

1.1 Project Purpose and Need

In accordance with the rehabilitation provisions of NRCS's Small Watersheds Program, Santa Cruz Site 1 Dam is eligible for rehabilitation funding due to its high hazard class and outdated infrastructure. The purpose and need of this project is for Santa Cruz Site 1 Dam to meet current NRCS and New Mexico Dam Safety regulations and current engineering standards for a high hazard class structure. It is also to extend the life of the dam for a minimum of 50 and a maximum of 100 years. The current authorized purpose is flood prevention (flood damage reduction).

1.2 Scoping Goals and Objectives

The main goal of public participation is to involve a diverse group of public and government agency participants to solicit input and provide timely information throughout the NEPA review process regarding their concerns for the project and the proposed alternatives. The main tasks to accomplish this are to 1) establish ongoing communication with stakeholders, agencies and the general public, 2) educate the public about the environmental review process and each party's role, 3) evaluate the effectiveness of public participation activities on a continual basis and utilize the most effective techniques throughout the NEPA process, and 4) document all public and government agency input.

SECTION 2

SCOPING PROCESS SUMMARY

2.0 Process Overview

Questions, comments, and concerns were requested from the public and government agencies during the preliminary scoping period via written submittal of comments. The following summarizes the scoping process and efforts made to engage the public and government agencies.

2.1 Scoping Terms

The following terms can be generally used during the scoping process to identify specific actions, when necessary:

- Comment: a distinct statement or question about a topic or issue relating to the project.
- Comment Category: a topic to which a comment is addressed.
- Comment Document: a written version of comment(s) submitted by a commenter. One comment document may contain multiple comments.
- Commenter: an individual, organization or agency providing one or more comments.

2.2 Scoping Period and Meeting Schedule

The following dates outline the milestones for the scoping process:

- March 5, 2015: Scoping Period opened
 - Scoping Notice mailings sent to agencies and public
 - Flyer posted at La Arboleda Community Center
 - Public Notice published in Rio Grande Sun newspaper
- March 12, 2015: Public Notice published in Rio Grande Sun newspaper
- March 18, 2015: Public Open House
- April 5, 2015: Scoping Period closed

2.3 Scoping Period and Meeting Notices

A scoping notice was sent to interested parties and regulatory agencies. The notice gave a description of the project, location and overview, and requested public participation. The scoping notice also identified the location of the public open house, contact information to submit written comments, and the scoping period open and closure date. This information was also posted in the form of a flyer on the door of La Arboleda Community Center. Copies of the scoping notices are attached in Appendix A.

Public meeting announcements were published March 5 and 12, 2015 in the Rio Grande Sun newspaper announcing the project and public open house. Copies of the newspaper public meeting announcements are attached in Appendix A.

2.4 Scoping Meetings

The primary purpose of the public scoping open house was to gather input and feedback to formulate the project purpose and need statement, develop potential alternatives for

consideration, and discuss environmental issues to be addressed in the Plan-EA. To gather as broad an audience as possible, a combined government agency and general public scoping open house was held March 18, 2015 from 6:00 to 8:00 PM at La Arboleda Community Center in Chimayo, New Mexico. The scoping meeting materials can be found in Appendix B.

Participants were invited to submit comments in writing either at the meeting or subsequently by mail, fax or e-mail during the scoping comment period. Attendance at the meeting was counted using a sign-in sheet that is located in Appendix C. Comment cards were handed out at the meeting which also provided a blank space to submit written comments.

An internal stakeholder meeting was also held on March 18, 2015 from 3:00 to 5:00 PM at La Arboleda Community Center. The meeting served to bring together representatives from the SWCD, New Mexico Dam Safety Bureau, New Mexico Environment Department, the BLM, and the NRCS to discuss the project.

2.5 Mailing Lists

The public mailing list was prepared by SWCD, NRCS, and McMillen Jacobs Associates to inform the general public about the scoping process for the project. A total of 296 mailings were sent to the public.

An agency mailing list was developed by NRCS and McMillen Jacobs Associates to inform local, state and federal agencies and organizations about the scoping process. A total of 72 mailings were sent to agencies and organizations.

SECTION 3 COMMENTS

3.0 Public Information Meeting and Open House

The public information meeting and open house was conducted on March 18, 2015. There were 27 public attendees and 11 project team members at this meeting.

Table 3-1 below identifies project personnel that were in attendance at the public information meeting.

Table 3-1. Meeting Attendees – Project Team

Name	Organization	Title
William Volf	NRCS	Cultural Resource Specialist
Chris Hamilton	NRCS	State Biologist
James Hewitt	NRCS	COTR/Design Engineer
Brian Schwebke	NRCS	State Conservation Engineer
Jose Varela Lopez	SWCD	Vice Chairman
Alfredo Roybal	SWCD	Chairman
Mike Rodriguez	BLM	Realty Specialist
David Heber	New Mexico Dam Safety Bureau	Dam Safety Engineer
Aimee Hill	McMillen Jacobs Associates	Project Manager
George Robison	McMillen Jacobs Associates	Project Engineer

3.1 Comments Received

Comments were submitted in person at the meeting and via mail, e-mail, telephone, facsimile, or comment card. There was one written comment and 11 oral comments (in person at the meeting) received for the Santa Cruz Site 1 Dam Rehabilitation project. Comments received are listed in Table 3-2 below.

Table 3-2. Comments Received During the 30-Day Scoping Period

Commenter	Comment Category	Comment
Agency	Surface Water Quality	BMPs and construction info required to be submitted to the state as soon as feasible
Agency	Acequia	Connection with outlet a problem
Agency	Data Request	Dam Safety requests copies of H&H and inundation studies
Agency	O&M Plan, EAP	Dam Safety requests these plans be completed/updated and submitted
Agency	Cultural Resources	NRCS/BLM issue – field survey to be conducted this spring; need map revised to include buffer
Agency	BLM Grazing Allotments	BLM must be kept apprised of project plans; project could fall under “maintenance” if the basin work is within existing footprint.
Agency	Access	Road and access issues. If excavation is required, may need to dump immediately south of the basin in the flat area
Agency	Source material	Sand and gravel source – SWCD may have ideas
Individual	Private properties	Downstream properties flooded regularly immediately downstream of outlet and further downstream along arroyo
Individual	Acequia location	Ditch located immediately adjacent to downstream toe of embankment

Commenter	Comment Category	Comment
Individual	Soils in basin	Soils in basin good quality? Make available to public if soils are usable
Individual	Acequia downstream	Acequia de los Espinosas, section was cemented, was supposed to have bettered the flow instead the sand backs up... every year we have to take it out when we do the ditch cleaning. Also concern: ... no culverts under road crossings. (comment attached in Appendix D)

SECTION 4 RESOURCE CONCERNS

4.0 Resource Concerns

A list of resource concerns was compiled for the project based on required scoping concerns outlined in the National Watershed Program Manual Section 501.24 B, and from any additional concerns identified by the public, sponsoring local organization, or agencies during the scoping meeting or scoping period. Table 4-1 below lists a comprehensive list of the resource concerns compiled for the project. An analysis of resource concerns specific to this project will be completed during the development of the Draft Plan-EA and non-relevant resource concerns will be eliminated.

Table 4-1. Resource Concerns

Item/Concern	Item/Concern
Soils	Human Environment
Geology - Erosion and Sedimentation	Socioeconomics
Prime and Unique Farmland	Historic Properties/Cultural Resources
Water	Hazardous Materials
Surface Water Quality	Environmental Justice and Civil Rights
Ground Water Quantity	Public Health and Safety
Clean Water Act - Waters of the U.S.	Recreation
Regional Water Mgt. Plans and Coastal Zone Management Areas	Land Use
Floodplain Management	Visual Resources
Wetlands	Scenic Beauty
Wild and Scenic Rivers	Parklands
Sole Source Aquifers	Transportation Infrastructure
Air	Noise
Air Quality	Ecologically Critical Areas
Clean Air Act	National Parks, Monuments and Historical Sites
Plants	Scientific Resources
Special Status Species (Federal and State listed)	Animals
Forest Resources	Essential Fish Habitat
Invasive Species	Wildlife Habitat
Natural Areas	Special Status Species (Federal and State listed)
Riparian Areas	Invasive Species
	Migratory Birds/Bald and Golden Eagles

APPENDIX A
SCOPING NOTICES



March 5, 2015

Dear Interested Parties:

The United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS), with the Santa Fe-Pojoaque Soil and Water Conservation District (SWCD) as the project sponsor, is conducting planning activities through the Small Watershed Program (PL83-566), associated with the rehabilitation of the Santa Cruz Site 1 Dam in Chimayo, New Mexico.

You are invited to attend an informational open house, facilitated by McMillen Jacobs, on behalf of the USDA-NRCS, where the range of conceptual alternatives addressing rehabilitation and resource issues pertaining to the Site 1 Dam will be discussed.



Public Comment Period

Open: Thursday, March 5, 2015
Close: Sunday, April 5, 2015

Public Information Meeting

Date: Wednesday, March 18
Time: 6:00 p.m.
Place: La Arbolera Community Center
State Road 76 Bldg 694
Chimayo, New Mexico

This project is being partially funded by the USDA-NRCS Small Watershed Rehabilitation Amendments (PL 106-472) which authorizes funding and technical assistance to rehabilitate aging flood control dams built under the Small Watershed Program (PL 83-566). USDA-NRCS, as the lead federal agency, is initiating NEPA analysis in the form of a Supplemental Watershed Plan and Environmental Assessment (Plan-EA) to analyze impacts to the natural and human environment from this project. The Plan-EA will comply with the Council on Environmental Quality's regulations at 40 CFR Parts 1500-1508 which require an evaluation of potential environmental impacts associated with federal projects and actions.



The goal of the project is to bring the dam to current USDA-NRCS and New Mexico State Dam Safety regulations and current engineering standards. The project would continue to provide the

current benefits for the authorized purposes of watershed protection and flood prevention. Rehabilitating the existing dam structure would reduce the risk of loss-of-life and flooding associated with a dam failure.

The participation of the public is a vital component of the project providing those who are interested in or potentially affected by the proposed project an opportunity to share their comments, ideas, and concerns regarding actions during the initial scoping stage of the NEPA process. You may submit your input at the public open house in person or via phone, letter, email, or fax anytime during the scoping public comment period. To be considered and become part of the public record for the project, **comments must be received by close-of-business on APRIL 5, 2015.**

Please mail your written comments to:

- Santa Cruz Site 1 Dam Rehabilitation Project
c/o McMillen Jacobs Associates – Aimee Hill
1401 Shoreline Drive
Boise, ID 83702

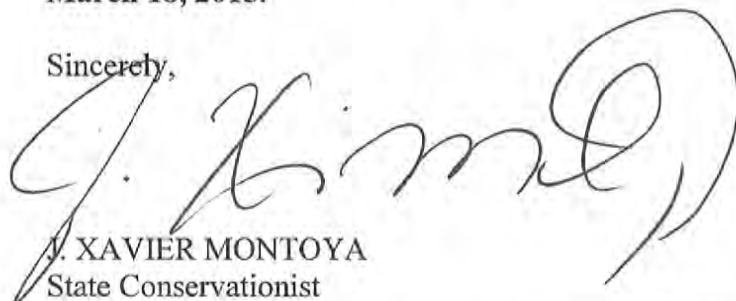
You may also submit comments by email, phone or fax to:

- Email: santacruz@mcmjac.com
- Phone: (208) 985-1516
- Fax: (208) 342-4216

After receiving comments by close-of-business on April 5, 2015, the USDA-NRCS and the SWCD will begin reviewing the comments and developing conceptual alternatives for analysis in the Plan-EA. Preliminary resource concerns identified during this initial project scoping process will also be addressed in the Plan-EA.

The project team values your feedback and encourages you to attend the public meeting on **March 18, 2015.**

Sincerely,



J. XAVIER MONTOYA
State Conservationist

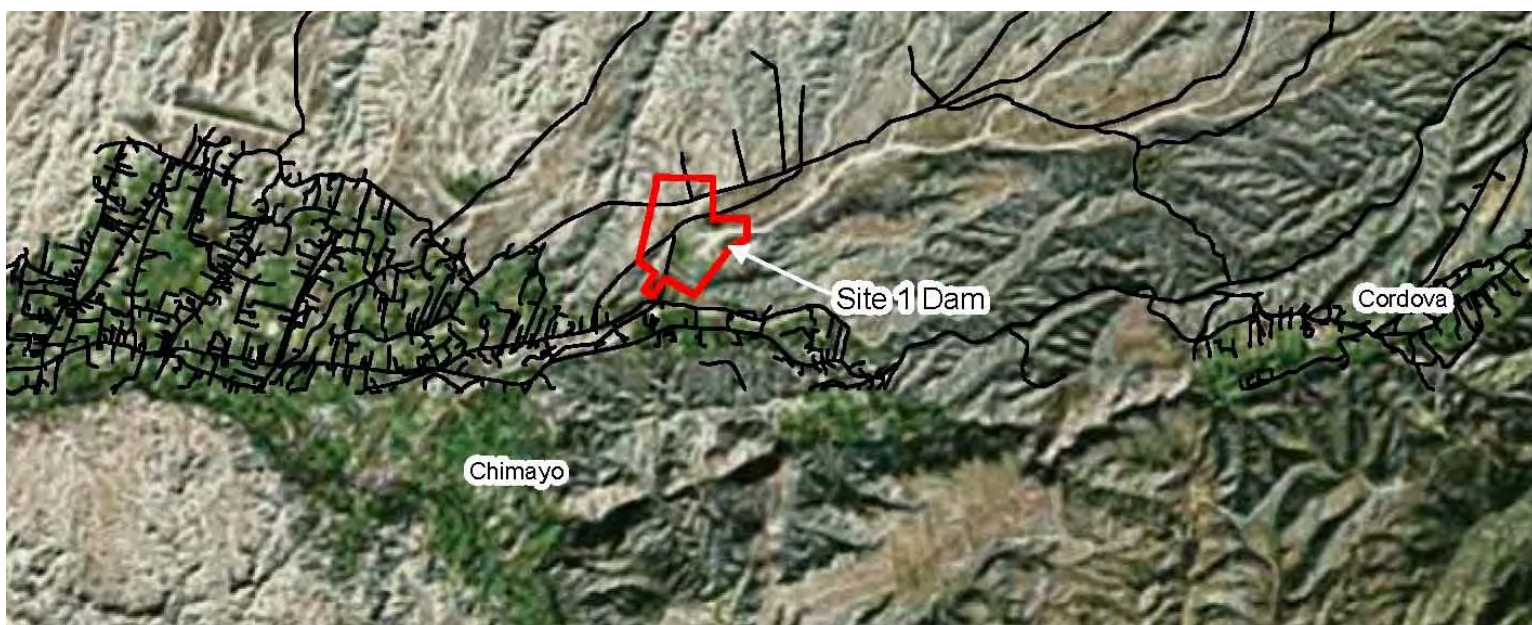
cc:

Alfredo Roybal, Chairman, Santa Fe – Pojoaque SWCD, Santa Fe, NM
Jose Varela Lopez, Vice Chair, Santa Fe – Pojoaque SWCD, Santa Fe, NM

PUBLIC INFORMATION MEETING

You are invited to attend a public informational open house meeting where a wide range of conceptual alternatives addressing rehabilitation to the Santa Cruz Site 1 Dam will be presented and discussed. Interested parties may voice their comments, ideas, and concerns to the project sponsors during this meeting.

When: WEDNESDAY, MARCH 18 6:00 PM
Where: LA ARBOLERA COMMUNITY CENTER
STATE RD 76, BUILDING 694
CHIMAYO, NEW MEXICO



The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with the Santa Fe-Pojoaque Soil and Water Conservation District, is conducting planning activities through the Small Watershed Program (PL83-566) for the rehabilitation of the Santa Cruz Site 1 Dam in Chimayo, New Mexico. The proposed project will require a Supplemental Watershed Plan Environmental Assessment (Plan-EA) to analyze impacts to the natural and human environment from this project.

More information is available by contacting McMillen Jacobs Associates (Aimee Hill) with the project team.



Email: santacruz@mcmjac.com
Phone: (208) 342-4214



Not All Officials Agree on Increasing Trash Wages

Continued from B1

sum by the number of employees. The annual average was then divided by 52, for the number of weeks in a year, then by 40 for the number of hours in a work week.

County Commissioner Barney Trujillo said he believes Authority employees should be compensated in a manner that reflects the on-the-job dangers they face.

"Where I am coming from, they are the lowest paid employees in the County, I think some of them are making \$7.50 per hour and for one of the world's most dangerous jobs, come on," Trujillo said. "These people are risking life and limb with that equipment. We definitely owe it to them to raise their salary to at least \$10."

Trujillo expressed concern regarding the pay because according to state law, trash collection is ultimately the responsibility of the County Commission, which serves as the Authority's fiscal agent.

The Authority is governed by its own Board of Directors, who must approve pay raises.

Most Authority office workers earn more than those who work at the transfer station or pick up trash.

The revelation prompted County Commissioner Alex Naranjo to question whether it was wise to pay office workers more than those who have the dirty job of collecting and sorting trash.

Authority General Manager Gino Romero said while the jobs many of his employees perform are quite dangerous, those jobs don't command a decent wage throughout the industry.

"It is extremely dangerous," Romero said. "It is the fourth most dangerous job in the United States behind fishermen and loggers. Police and firemen don't reach the top 10."

He said the pay disparity exists because most of the higher-paying office jobs require employees to have special training.

"Those positions are not skilled positions," Romero said. "Essentially, they are not asked to do reports or paperwork, they just simply are asked to get on the back of a truck and pick up trash."

Romero said he is at a loss as to where money would come from for a salary increase, considering the Authority's Board approved an unbalanced budget.

"Where do we get more revenue when we didn't even pass a budget?" Romero said. "I got the County saying they need more money, I would love to give my employees more money but we aren't making budget now."



(SUN filefoto)

An unidentified North Central Solid Waste Authority employee rides on the back of an Authority garbage truck collecting trash. Rio Arriba County Commissioners criticized the Authority for not paying workers enough. Some Authority workers earn just above the federal minimum wage of \$7.25.

Romero said employees received a raise in Fiscal Year 2013 prior to County commissioners slashing the subsidies it allocated to Authority officials to help reduce operating costs. They should have gotten another 6 percent raise this year, but the Authority is attempting to navigate more than \$500,000 in revenue they no longer get from the County. Prior to the start of Fiscal Year 2014, the County Commission reduced those subsidies from nearly \$800,000 to about \$250,000.

Romero said if everyone did their part, it wouldn't be so difficult to compensate his staff.

"(It) doesn't bother Commissioner Naranjo that he owes \$900 on his account and he isn't sweating it," Romero said. "We got employees who deserved to get a raise this year and they didn't because the Authority is carrying debt."

Naranjo said the outstanding balance is for a water bill with the city of Española and not for a trash account.

Sub par wages have always been an issue for the Authority, Romero said.

He said it's been so much of a problem that he has lost some excellent employees to neighboring counties that pay more.

"They take their qualification and their CDL (commercial driver's license) and they go elsewhere," Romero said. "We just had a talk with Santa Fe County, and they are starting their drivers at \$13 to \$14, and we are starting ours between \$11 and \$12, de-

pending on experience."

The high turnover rate isn't isolated to field workers.

He said one of his front desk workers quit to take a similar job in the area for a much higher hourly wage.

"I had a young lady that worked for me at \$11 per hour and went to work for the city of Española doing the same job for \$14," Romero said.

Romero said he and his team have worked to reduce the Authority's labor costs, which leads to reduced operating expenses. Since 2012, Authority officials realized more than \$700,000 in salary and wages reductions by expanding the Authority's staff.

"We increased the staff and cut the overtime and brought our insurance down," Romero said. "Those are things within our scope."

He said the bottom line is, the Authority isn't generating revenue and is barely making budget.

But Naranjo adamantly maintains the role of government isn't to earn money.

"In my opinion, government entities shouldn't be in the business to make money," Naranjo said. "They are in the business of providing services whether that service is trash collection or to trim trees."

However, any talk of wage increases will probably take a backseat to the Commission's and Authority's mission to find a way to fund services in rural parts of the County, where door-to-door trash service may be discontinued.



(SUNfoto by Wheeler Cowperthwaite)

Laborers contracted by Enchantment Painting and Fencing lay bricks Jan. 16 at the La Arboleda center, an active construction site. Enchantment's foreman, David Jason Vigil, is a known associate of school board president Lucas Fresquez and his brother, political playmaker Elias Fresquez.

Project RFP Closed 11 Days After Proposal Published ...

Continued from B1

missing key documents, including contractor's licenses and a performance bond.

New Mexico Construction Industry Division Spokesman S.U. Mahesh said the work requires any number of state licenses.

"The curb and gutter requires minimum GA-3, or GA-1/GA-98," Mahesh said as he explained what licenses would be needed to do the type of work that has been done at the Center.

He said the GA-98 is a general contractor's license, which means those in possession of one could perform all the work outlined. The licensing grade determines what codes the contractor should follow to adhere to commercial and residential safety standards.

Neither Vigil nor Jennifer Lopez, the company's registered owners, possess any of the required licenses, Mahesh said.

The company also billed the County \$65 per hour to operate heavy equipment and \$15 per hour for laborers, compared to County employees who earn a starting salary of \$12 per hour with heavy equipment operation inclusive in their job descriptions.

It isn't clear if the La Arboleda Project is a part of the Rio Arriba

Beautification Project contract the County commission awarded Enchantment personnel February 2014.

Both the former County Contract Administrator Kimberly Cordova and her then assistant Paula Valdez have said, on more than one occasion, the Arboleda project is not part of the Beautification file and is managed out of the finance department.

However some of the invoices associated with the La Arboleda Project have the Beautification Project contract stapled to them.

The Beautification contract was the fruit of a Request for Proposal issued Feb. 6, seeking qualified candidates to perform land beautification work throughout the County. It was closed Feb. 17, 11 days after the Proposal was published.

Two other contractors besides Enchantment requested proposal packets but never submitted them, Morrow Reardon Wilkinson Miller Ltd. Landscape Architects, of Albuquerque; and Russell Sand & Gravel, of Española.

Former Rio Arriba County contract and grant coordinator Kim Cordova said she recommended commissioners award the Rio Arriba Beautification Project to Enchantment Painting and Fencing because no other contractors submitted proposals.

Cordova no longer heads the County's Grants and Contract division.

But it is unclear if the Enchantment Request for Proposal confusion had anything to do with her reassignment. County officials did not respond to requests for comment before press time.

Rio Arriba County Fair Association
ROYALTY CONTESTANTS

The Rio Arriba County Fair Association Royalty Committee is seeking young women interested in competing for 2015-2016 Rio Arriba County Fair and Rodeo Royalty titles. This year, one group of young women will represent both the Rodeo and County Fair. The available positions and their age requirements are as followed: Queen (ages 17-25), Princess (ages 13-16), and Junior Princess (ages 9-12). The competition is scheduled for **Saturday March 21, 2015**, Pre-Competition meeting to be held on **March 7, 2015**. Contact Amy Tainter at **505-929-1705**

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The Duff PG-13	2:10 4:50 7:25 9:40* PM	4:50 PM 7:25 PM	4:50 7:25 9:40 PM
American Sniper PG-13	1:45 4:30 7:15 10:00* PM	4:30 PM 7:15 PM	4:30 7:15 10:00 PM
Hot Tub Time Machine R	2:05 5:00 7:40 9:50* PM	5:00 PM 7:40 PM	5:00 7:40 9:50 PM
Lazarus Effect PG-13	2:25 4:55 7:35 9:55* PM	4:55 PM 7:35 PM	4:55 7:35 9:55 PM
SpongeBob Movie 2D PG	2:00 4:45 7:00 9:30* PM	4:45 PM 7:00 PM	4:45 7:00 9:30 PM
Mcfarland, USA PG	1:50 4:35 7:20 10:05* PM	4:35 PM 7:20 PM	4:35 7:20 10:05 PM
50 Shades of Gray R	1:45 4:25 7:10 9:45* PM	4:25 PM 7:10 PM	4:25 7:10 9:45 PM
Focus R	2:15 4:40 7:05 9:45* PM	4:40 PM 7:05 PM	4:40 7:05 9:45 PM
Chappie PG	1:55 4:30 7:15 9:55* PM	4:30 PM 7:15 PM	4:30 7:15 9:55 PM

*No late show on Sunday

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USDA PUBLIC NOTICE

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), in cooperation with the **Santa Fe-Pojoaque Soil and Water Conservation District** as the project sponsor, proposes to partially fund the rehabilitation of the **Santa Cruz Site 1 Dam** through the Small Watershed Program (PL83-566).

The proposed project is located in Chimayo, NM. The National Environmental Policy Act (NEPA) and the Council on Environmental Quality's regulations at 40 CFR Parts 1500-1508 require an evaluation of potential environmental impacts associated with federal projects and actions with input from the public.

You are invited to attend an informational open house where the range of resource issues and conceptual alternatives addressing rehabilitation of the Santa Cruz Site 1 Dam will be presented and discussed.

Public Information Open House
Date: Wednesday, March 18, 2015
Time: 6:00 - 8:00 PM
Place: La Arboleda Community Center, State Rd 76, Building 694, Chimayo, NM

Comments may be submitted during the public scoping period starting March 5 and ending April 5, 2015 to:

Mail: Santa Cruz Site 1 Dam Rehabilitation Project, 1401 Shoreline Drive, Boise, Idaho 83702
Email: santacruz@mcmiac.com
Phone: (208) 342-4214

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GAMES ON TAP

Wednesday, 3/11

- Española boys basketball vs Artesia, Class 5A state quarterfinals at the Pit, 6:30 p.m.
- Pojoaque boys basketball vs Taos, Class 4A state quarterfinals at Santa Ana Star Center, 4:45 p.m.
- Escalante boys basketball vs Dora/Elida, Class 2A state quarterfinals at Bernalillo High School, 8:15 p.m.

Thursday, 3/12

- Class 5A girls state semifinals at the Pit, 1:15 p.m.
- Class 5A boys state semifinals at the Pit, 6:30 p.m.
- Class 2A boys state semifinals at Bernalillo High School, 8:15 p.m.
- Española baseball at Bloomfield Invitational, TBA

Friday, 3/13

- Class 5A girls state championship game at the Pit, 7:30 p.m.
- Class 4A boys state semifinals at the Pit 9:45 a.m.
- Española baseball at Bloomfield Invitational, TBA

Saturday, 3/14

- Class 5A boys state championship at the Pit, 2 pm
- Class 4A boys state championship at the Pit, 12 p.m.
- Class 2A boys state championship at the Pit, 6 pm
- Española, Pojoaque track and field at Bernalillo, 9 a.m.
- McCurdy track and field at Jemez meet, 9 a.m.
- Española baseball at Bloomfield Invitational, TBA

Monday, 3/16

- Pojoaque baseball hosts Hope Christian, 4 p.m.
- Española softball at Albuquerque Academy, 3 and 5 p.m.

Tuesday, 3/17

- Pojoaque softball hosts Los Alamos, 3 and 5 p.m.
- Pojoaque baseball hosts Capital 5 p.m.

For more information:

Coronado High School	575-638-5549
Dulce High School	575-759-3282
Escalante High School	575-588-7201
Española Valley High School	753-7357
McCurdy High School	692-6090
Mesa Vista High School	583-2275
Northern New Mexico College	747-2288
Pojoaque High School	455-2234

Lady Sundevils Face Lovington

Continued from C1

man-to-man. The other third didn't know what they were playing. Still, we were only down one (point)."

After Española missed two more free throws to start the third quarter, the Lady Knights extended their lead, 20-17. The Lady Sundevils began pressing full court, allowing the inbounds pass and then double-teaming the player with the ball. That led to turnovers by Del Norte.

It finally looked like the Lady Sundevils had found their stroke from the free-throw line after Joselynn Rascon buried her first free throw, to tie the game, 20-20. She apparently put the Lady Sundevils ahead by sinking her second, but the officials waved off the basket after Española committed a free-throw lane violation. The score remained tied.

It would take a bomb by Velasquez to finally put the Lady Sundevils in control. Spotting up 23 feet from the basket, she buried a three-pointer that put Española ahead, 23-20. The Lady Sundevils never trailed again.

"I was a little hesitant," Velasquez said. Once I shoot, it brought up the team. I'm just glad to contribute to my team."

The Lady Knights trailed 23-22 at the end of the third quarter and turned the ball over six times in the third quarter. Del Norte continued to give the ball back to the Lady Sundevils in the fourth quarter.

The Lady Knights turned the ball over on their first two possessions of the fourth quarter, allowing Española to take a 27-22 lead.

Del Norte missed a free throw, then blew a point-blank putback on the rebound that could have cut into the Lady Sundevils' lead. Velasquez canned a jumper to give Española a 29-22 lead.

Del Norte came back to cut the lead to 29-25, after a basket by Tessa Schwalm — their only basket of the fourth quarter. A three-point play by Lovato gave the Lady Sundevils a 32-25 lead. Española continued to struggle from the free-throw line and at one point, was just nine of 21 from the charity stripe.

"What?" Roybal said upon hearing the dismal statistic. "I've got to do more talking to them before the game. I think they may have been nervous because they were testing this week."

The Lady Sundevils finally found their stroke from the free-throw line, finishing the game, going six for six, with the last two by Kaitlyn Romero accounting for the final score. Española held Del Norte to just 10 points in the second half, while forcing 11 turnovers.

Lovato finished with 16 points and was the only player on either team to score double figures. Despite playing one of their poorest games of the season, Española was advancing to the quarter-



(SUNphotos by George Morse)

Española Valley High School's Kaitlyn Romero (above) looks for room to drive against Del Norte's Tessa Schwalm, in Española's 40-28 win over the Lady Knights, March 6 in Española. The Lady Sundevils advanced to the quarter-finals of the Class 5A girls basketball tournament. Española faced fifth-seeded Lovington Tuesday at the Pit (results not available).



(SUNphoto by George Morse)

Española Valley's Joselynn Rascon tries to maneuver against Del Norte's Tessa Schwalm in the first half of Española's opening round game of the Class 5A state basketball tournament, March 6 at Española. The Lady Sundevils took the lead in the third quarter after trailing by a point at halftime and went on to a 40-28 victory.

nals of the state tournament.

"They're so young I don't know what they're going to come up with," Roybal said. "They're so good, they can still finish it off."

Española will face Lovington in the quarter-finals Tuesday at The Pit.

Roybal has a history with the Lady Wildcats. As coach of the Santa Fe Indian School Lady Braves in 2012, she watched helplessly, as Lovington's Mystica Perez sank two free throws with .1 second left in the game, to give the Lady Wildcats a 49-48 win in the Class 3A state

championship game.

The loss prevented the Lady Braves from winning their third consecutive Class 3A state championship. Lovington moved up a class just this season and is now in the same class as Española.

"I thought I wouldn't see (Lovington) any more, Roybal said. "I haven't had a chance to look at them this year."

Lovington rolled over Grants, 70-43, in their opening-round

game, March 6 at Lovington. The Lady Wildcats were ranked fifth and the Lady Sundevils fourth at the start of the tournament.

Roybal will return to face a familiar foe in a familiar setting, when the two teams face off in The Pit.

"It's right there," Roybal said. "All we've got to do is focus on what we have to do to continue our success. I love The Pit."

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USDA PUBLIC NOTICE

The United States Department of Agriculture Natural Resources Conservation Service (NRCS), in cooperation with the **Santa Fe-Pojoaque Soil and Water Conservation District** as the project sponsor, proposes to partially fund the rehabilitation of the **Santa Cruz Site 1 Dam** through the Small Watershed Program (PL83-566).

The proposed project is located in Chimayo, NM. The National Environmental Policy Act (NEPA) and the Council on Environmental Quality's regulations at 40 CFR Parts 1500-1508 require an evaluation of potential environmental impacts associated with federal projects and actions with input from the public.

You are invited to attend an informational open house where the range of resource issues and conceptual alternatives addressing rehabilitation of the Santa Cruz Site 1 Dam will be presented and discussed.

Public Information Open House
Date: Wednesday, March 18, 2015
Time: 6:00 - 8:00 PM
Place: La Arbolera Community Center
State Rd 76, Building 694
Chimayo, NM

Comments may be submitted during the public scoping period starting March 5 and ending April 5, 2015 to:

Mail: Santa Cruz Site 1 Dam Rehabilitation Project
1401 Shoreline Drive Boise, Idaho 83702
Email: santacruz@mcmiac.com
Phone: (208) 342-4214

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LOTTERY STARTS MARCH 1, 2015

Beginning March 1, 2015, McCurdy Charter School will accept New Student Enrollment Lottery Applications for Grades K-12 for the 2015-16 school year.

Beginning March 1, 2015, apply online at www.mck12nm.org or apply in person at McCurdy Charter School. Deadline for submitting a lottery application is Monday, March 30, 2015 at 3:00 p.m.

Currently enrolled students must submit an Intent to Return Form by Friday, March 6, 2015.

The lottery drawing will be held at McCurdy Charter School on Tuesday, April 17, 2015 at 11:00 a.m. at Bachman Hall. All are welcome.

If your child is currently on the waiting list for the 2014-15 school year, YOU MUST REAPPLY in March. Waiting lists do not carry over from year to year.

MCS IS NOW HIRING CUSTODIAN HS VARSITY VOLLEYBALL COACH HS VARSITY FOOTBALL COACH APPLY TODAY!
Applications available online at www.mcsk12nm.org

PO/MCSP015-0335

APPENDIX B
MEETING MATERIALS



NRCS Albuquerque NM
6200 Jefferson Street NE
Albuquerque, NM 87109-3734

Santa Cruz Site 1 Dam Rehabilitation Fact Sheet

Santa Cruz Site 1 Dam is located in Chimayo, New Mexico and is currently being evaluated for dam rehabilitation work. The United States Department of Agriculture Natural Resources Conservation Service (NRCS), with the Santa Fe-Pojoaque Soil and Water Conservation District (SWCD) as the project sponsor, is conducting planning activities through the Watershed Protection and Flood Prevention Act of 1954 (PL83-566) and the Agricultural Act of 2014 (PL113-79).

All rehabilitation projects funded through the program must meet NRCS and New Mexico Dam Safety regulations and current engineering standards. The project would extend the life of the dam to 50 – 100 years, and continue to provide current benefits for the authorized purpose of flood prevention.

Specific Dam Characteristics

- Earth fill dam, built 1961
- 56 feet tall with normal pool storage of 732 acre feet
- Dam crest elevation = 6355.5 feet
- Dam crest length = 1032 feet (main dam)
- Dam crest width = 18 feet
- Principal Spillway concrete riser with an estimated capacity of 156 cfs
- Emergency Spillway 6349.4 feet crest elevation with 600 feet wide opening, allowing a capacity of 10,000 cfs when reservoir is full.



Potential Dam Safety Issues

Santa Cruz #1 Dam was designed in 1961 and then enlarged in 1982. As such there have been decades of sediment deposition in the upstream reservoir which effects the available flood storage of the dam. In order to provide adequate flood storage, the sediment needs to be removed or the dam raised.



In a 2012 study, the spillway was found to be somewhat undersized for very large rare storms and may become unstable during a prolonged rare high flow event. Modifications to the spillway may be necessary to improve capacity and stability. Other aspects of the dams performance will also be evaluated such as the embankment stability, condition of the riser and pipe through the dam.



NRCS Albuquerque NM
6200 Jefferson Street NE
Albuquerque, NM 87109-3734



Agency/Public Participation

You may submit your comments via letter or email anytime during the comment period. To be considered and become part of the public record for the project, **comments must be received by close-of-business on April 5, 2015.**

Please mail your written comments to:
Santa Cruz Site 1 Dam Rehabilitation Project
c/o Aimee Hill
McMillen Jacobs Associates
1401 Shoreline Dr, Boise, Idaho 83702

Submit comments by email, phone or fax to:
Email: santacruz@mcmjac.com
Phone: 208-985-1516

Ficha informativa para la rehabilitación de la represa Santa Cruz

Site 1 Dam

La represa Santa Cruz Site 1 Dam está ubicada en Chimayo, Nueva México, y en la actualidad se evalúa su rehabilitación. El Departamento de Agricultura de los Estados Unidos (Servicio de conservación de los recursos naturales – NRCS, por sus siglas en inglés), junto con el Distrito de Conservación de Tierra y Agua de Santa Fe-Pojoaque (SWCD, por sus siglas en inglés) lleva a cabo actividades de planificación mediante la Ley de 1954 para la Protección de Cuencas Hidrográficas y Prevención de Inundaciones (*Watershed Protection and Flood Prevention Act*) (PL83-566) y la Ley Agrícola de 2014 (PL113-79).

Todos los proyectos de rehabilitación financiados por el programa deben adecuarse a las normas de Nueva México y del NRCS para la seguridad de las represas, y a las normas de ingeniería vigentes.

Características específicas de la represa

- Represa de tierra, construida en 1961
- 56 pies de altura, con almacenaje normal de piscina de 732 acres-pies
- Elevación de la cresta de la represa = 6.355,5 pies
- Longitud de la cresta de la represa = 1.032 pies (represa principal)
- Ancho de la cresta de la represa = 18 pies
- Elevador de concreto del vertedero principal con capacidad estimada de 156 pies cúbicos por segundo
- Vertedero de emergencia de 6349,4 pies; elevación de la cresta con una amplia abertura de 600 pies, permitiendo una capacidad de 10.000 pies cúbicos por segundo cuando el embalse se encuentra lleno.



Potenciales cuestiones sobre la seguridad de la represa

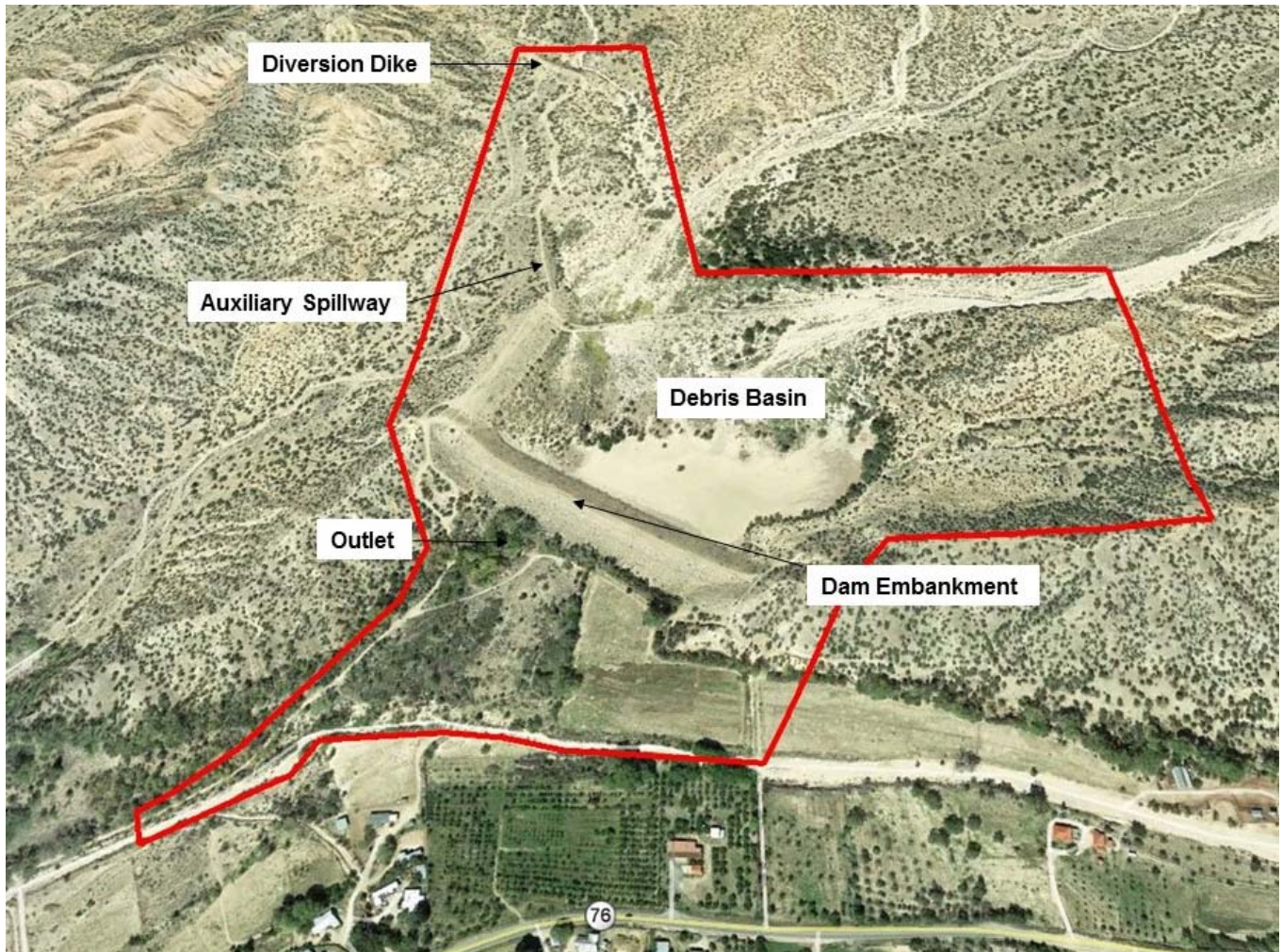
La represa Santa Cruz #1 Dam fue diseñada en 1961 y luego ampliada en 1982. De tal forma, hubo décadas durante las que se produjo el depósito de sedimentos en el embalse ascendente, lo que afecta a la represa en cuanto a su capacidad de almacenamiento de crecidas.



En un estudio llevado a cabo en 2012, se descubrió que el tamaño del vertedero era algo pequeño para las inusuales tormentas de gran tamaño, y que ante eventuales caudales altos, este podría tornarse inestable



NRCS Albuquerque NM
6200 Jefferson Street NE
Albuquerque, NM 87109-3734



Organismo/Participación Pública

Usted puede enviar sus comentarios por carta o e-mail en cualquier momento durante el período habilitado para comentarios. **La recepción de los comentarios debe haberse efectuado antes del cierre de las actividades, el 5 de abril de 2015.**

Favor de enviar sus comentarios por escrito a:

Santa Cruz Site 1 Dam Rehabilitation Project
c/o Aimee Hill
McMillen Jacobs Associates
1401 Shoreline Dr, Boise, Idaho 83702

Envíe sus comentarios por e-mail, teléfono o fax:

E-mail: santacruz@mcmjac.com
Teléfono: 208-985-1516

NRCS Santa Cruz Site 1 Dam Rehabilitation Supplemental Watershed Plan and Environmental Assessment

Informational Open House
March 18, 2015



Project Team

USDA Natural Resources Conservation Service
(NRCS)
Lead Federal Funding Agency

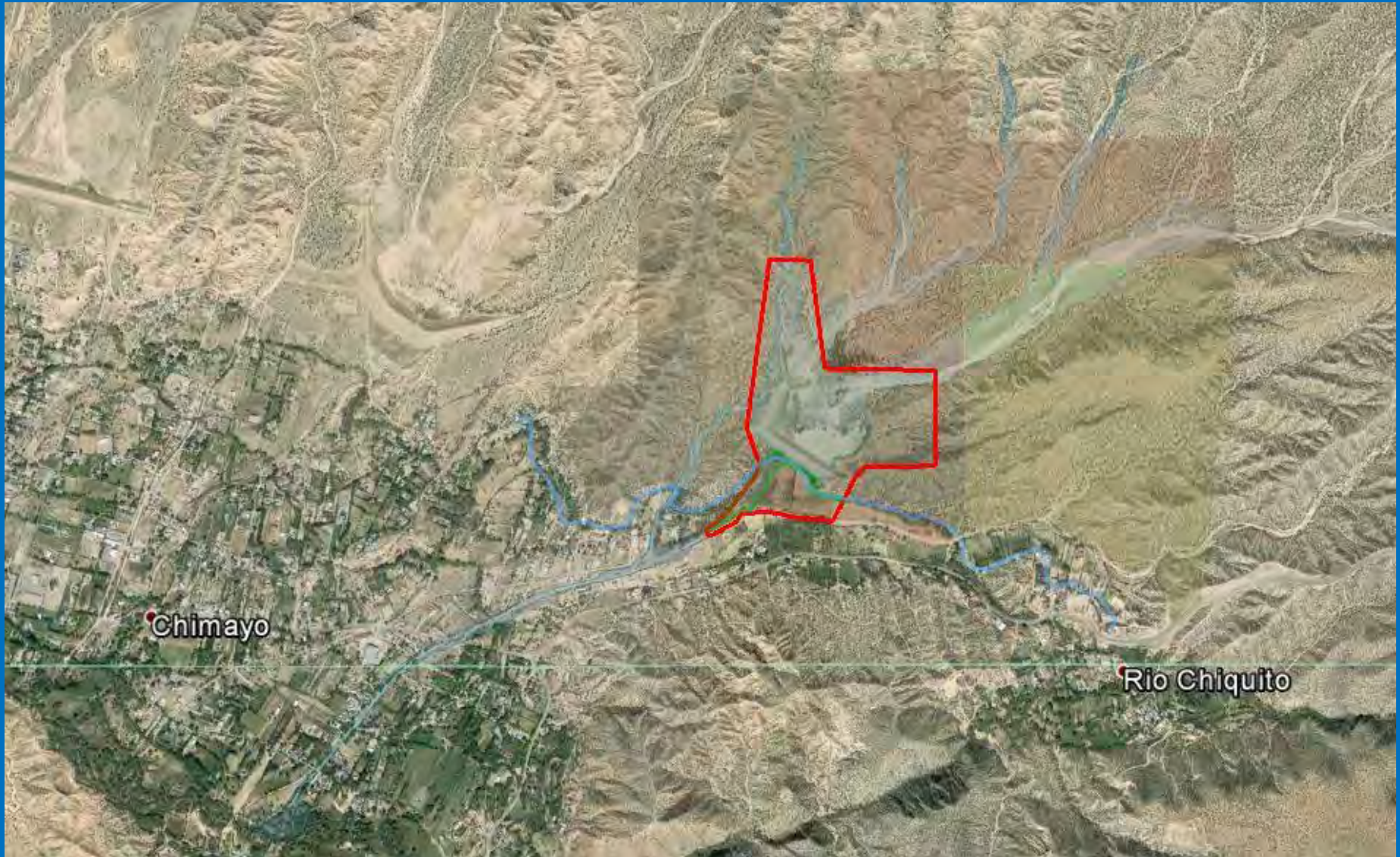
Santa Fe – Pojoaque
Soil and Water Conservation District
Project Sponsor

McMillen Jacobs Associates
NEPA Plan – EA Development and Concept Design

Why are we here?

- The Santa Fe and Pojoaque SWCD realized a need to rehabilitate the dam due to development downstream.
- The arroyo flows through residential and business properties and into the Santa Cruz.
- The SWCD received funding for the project and the NRCS has the contracting mechanism for planning.
- To start the planning process, we need your input.

Project Area Map



Santa Cruz Site 1 Dam History

- Completed in 1961
- Canada Ancha Watershed
- Classified as a High Hazard Dam
- Designed for flood control
- 50-year life
- On lands administered by BLM
- Operation and Maintenance responsibility of the Santa Fe – Pojoaque SWCD

Project Funding

- The NRCS is the funding agency for the dam rehabilitation project (65%).
- The SWCD provides the remaining 35% cost-share for the dam rehabilitation project.



Purpose and Need

The project must:

- Meet New Mexico Dam Safety and NRCS regulations and engineering standards
- Extend the life of the dam 50-100 years
- Maintain current authorized purpose of flood prevention

Project Components



Dam Embankment

Project Components



Debris Basin

Project Components



Principal Spillway Riser



Principal Spillway Outlet Pipe

Project Components



Auxiliary or Emergency Spillway



Existing Conditions



Debris Basin – Sediment Accumulation



Diversion Dike – Woody Vegetation

Existing Conditions

- Private Properties and Development Downstream



Existing Conditions

- Existing Water Rights on the Acequia
- Irrigation ditch - at toe of embankment

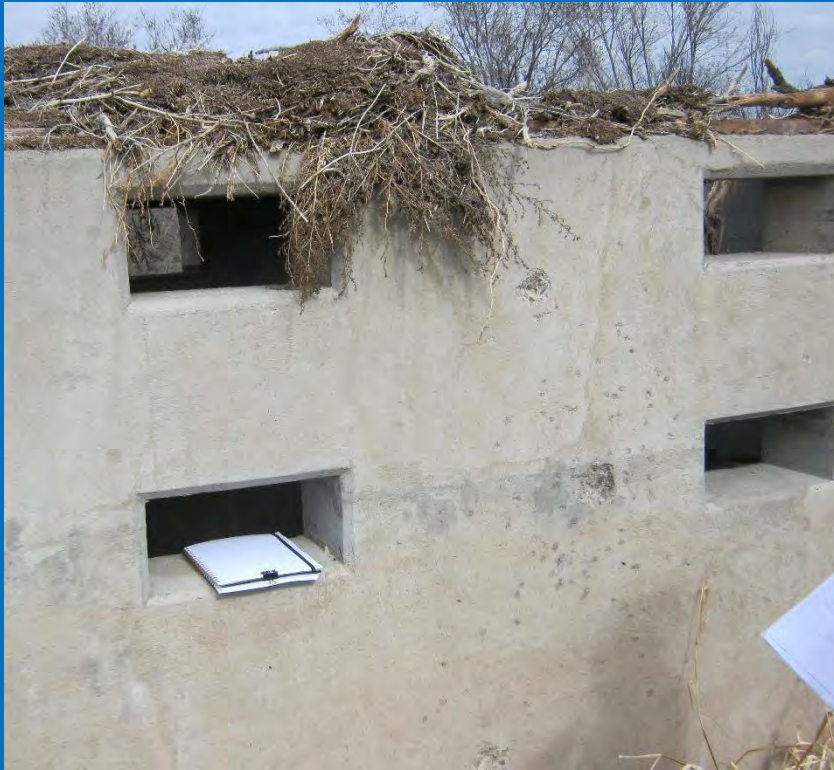


Existing Conditions

- Roads -
Construction
Access
- BLM Grazing
Allotments



Existing Conditions



Principal Spillway Riser – Repairs



Principal Spillway Outlet Pipe, Toe Drain and Undercutting at Outlet Pond

Typical Rehabilitation Project Conceptual Project Alternatives and Options

- No Action
- Dam Decommissioning
- Dam Rehabilitation, involving options such as:
- Dam Raise
- Sediment Excavation (from the basin)
- Principal Spillway Riser Replacement
- Outlet Pipe Repair and Downstream Outlet Channel Armoring
- Auxiliary Spillway Improvements - Armoring
- Other Alternatives and Options

Planning Process

Start: Sept 2014

Public Scoping

Period:

March 5 – April 5,
2015

Summer 2015

Late Summer/Fall
2015

Completion: Winter
2015/2016

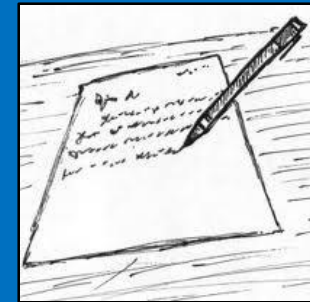
- Public and Agency Scoping
 - Gather project area concerns
 - Suggest alternatives to be considered based on issues
- Alternatives Analysis
- Conceptual Design
- Draft Supplemental Watershed Plan - EA
 - Public review of alternatives and environmental impacts
- Final Supplemental Watershed Plan - EA
 - Proposed alternative published to public
- Finding of No Significant Impact (FONSI)
 - Project approval by NRCS

National Environmental Policy Act

National Environmental Policy Act (NEPA) of 1969 is a Public Law (Public Law 91-190) and a Federal Regulation (40 CFR Parts 1500-1508) requiring compliance where there are Federal monies involved.

Comments

- Formal comments may be submitted by:
 - Email
 - Written Letter
 - Comment Card
 - Oral
- Scoping Report: Summarizes issues, alternatives and concerns from the public



Project Contact Information

- Please contact Aimee Hill with McMillen Jacobs with questions and comments:



Phone: 208-342-4214 (main office) or 208-985-1516
(direct line)



Fax: 208-342-4216



Email: santacruz@mcmjac.com



Address: 1401 Shoreline Drive
Boise, ID 83702

APPENDIX C
SIGN-IN SHEET AND COMMENTS



Santa Cruz Site 1 Dam Rehabilitation
Watershed Plan and Environmental Assessment
Informational Open House Sign-In Sheet
March 18, 2015



Name/Organization	Phone	Address	Email
Delbert Trujillo / SWCB	505 827-2867	Santa Fe, NM	delbert.trujillo@state.nm.us
William Volf NRCS	505 761-4423	Albuquerque	william.volf@nm.usda.gov
CHRIS HAMILTON NRCS	505-761-4432	ALBUQUERQUE	christopher.hamilton@nm.usda.gov
JOSE VARELA SF-POJ SWCD	505-660-5828	PO BOX 15921, SANTA FE, NM 87592	josevarela@adl.com
Alfredo Roybal SF-Poj. SWCD	505-470-5630	19-A Rancho Las Lagunas Santa Fe, NM 87506	a.roybal@g.com
MIKE RODRIGUEZ BLM	575-751-4708	726 CRUZ ALTA RD. TROS, NM 87571	MICHAELP@BLM.GOV
James Hewitt NRCS	505-761-4461	6200 Jefferson NE Suite 305 Albany, NM 87109	james.hewitt@nm.usda.gov
Brian Schwelke	505-761-4490	6200 Jefferson NE Suite 305 Albuquerque	brian.schwelke@nm.usda.gov
DAVID HEBER	505-827-6443	P.O. Box 25102 SANTA FE, NM 87504	David.heber@state.nm.us
Aimee Hill	208-342-4214	1401 Shoreline Dr Boise, ID 83702	hill@mcmjac.com
George Robinson	208-342-4214	1401 Shoreline Dr. Boise, ID 83702	robinson@mcmjac.com

Surface WA
bureau



Santa Cruz Site 1 Dam Rehabilitation
Watershed Plan and Environmental Assessment
Informational Open House Sign-In Sheet
March 18, 2015



Name/Organization	Phone	Address	Email
Mercydo Ortega			
Carlos A. Diaz			
Ted J. Trujillo			
MIKE Rodriguez			
PETER MALINGREN			
Melissa Trujillo			
Cynthia Trujillo			
Richard J. ORTEGA			
Tom & Helen Ortega			
Robert Salazar			
Karen Martin			
Darla Vigil			



Santa Cruz Site 1 Dam Rehabilitation
Watershed Plan and Environmental Assessment
Informational Open House Sign-In Sheet
March 18, 2015



Name/Organization	Phone	Address	Email
Leo Ortega			
Arturo Ortega			
Albert MTZ			
Manuel Mtz			
LINDA & HAROLD ORTEGA			
Yvette Trujillo			
Rosalb Trujillo			
Marisela Trujillo			
Alfonso Vargas			
Rose Vigil			
Wilfred Romero			
Lebbie Ortega			
JERRY ROMERO			
ANTHONY W TRUJILLO			
BELE WRIGHT			
Lenny Martinez			

ref

NRCS Santa Cruz Site 1 Dam Rehabilitation
Supplemental Watershed Plan and Environmental Assessment

Public Information Open House Comment Card

March 18, 2015

Name: Lenny Martinez
Address: [REDACTED] Chimayo
Email: _____
Phone: _____

Comments:

Concern: Acequia de los Espinosas, section around the Dollar store, ~~the~~ section was cemented, was suppose to have bettered the flow instead the sand backs up from 3' to 3 1/2' and every year we have to take it out when we do the ditch cleaning also concern: Arroyos that are paved should have placed culverts under road crossings water is dangerous running across when vehicles pass across people have wrecked due to water

Please use reverse side of this page if necessary.

You can also provide comments by emailing santacruz@mcmjac.com, faxing 208-342-4216, or calling 208-985-1516.



Memorandum

To:	Ayana Brown NRCS-New Mexico	Project:	NRCS Santa Cruz Site 1 Dam Rehabilitation
From:	Greg Allington	cc:	File
Date:	April 20, 2018	Job No.:	14-109
Subject:	Waters of the U.S. and Wetland Delineation		
Attachments:	A – Maps B – Photographs C – Wetland Data Sheet D – Waters of the U.S. and Wetland Methodology		

1.0 Introduction

The U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS) is working with Santa Fe and Pojoaque Soil and Water Conservation District to rehabilitate the existing Santa Cruz Site 1 dam (Attachment A-Map 1). Rehabilitation of the structure would continue to provide flood protection to downstream communities and extend those benefits for 50 to 100 years.

The structure was built in 1962 to reduce flood damages to downstream communities, cropland, roads and irrigation infrastructure. The structure is not currently meeting current NRCS and state engineering standards. Rehabilitation measures are being proposed to bring the structure up to current standards, to decrease the risk of dam failure, and to provide continued flood protection for the downstream community.

McMillen Jacobs Associates has been retained by the NRCS to complete a waters of the U.S. and wetland delineation at the dam. The delineation presented in this memorandum presents the identification of potentially jurisdictional waters of the U.S. and wetlands. The United States Army Corps of Engineers (USACE) will provide the final jurisdictional determination for waters of the U.S. and wetlands located within the Survey Area. The extent of the Survey Area for the waters of the U.S. and wetland delineation is depicted in Attachment A – Map 1. This area encompasses the anticipated construction limits that would be utilized during the rehabilitation of the structure.

1.1 Project Location and Site Description

The Santa Cruz Site 1 dam is located within the Upper Rio Grande Watershed, at the northeast edge of the town of Chimayo, New Mexico (Attachment A-Map 1). The basin sits along the Arroyo de la Cañada Ancha (intermittent channel) in Section 31 of Township 21 N, Range 10 E, at 36.010071°N latitude, - 105.917548°W longitude. The area is identified as an Interior Desert Land Resource Region (LRR D) due to its long dry summer season and annual evapotranspiration exceeding precipitation (USACE 2008a). The dam is located at an elevation of approximately 6,354 feet (NAVD 88).

The climate is generally characterized as microthermal on the Koppen-Geiger System of Climate Classification, and described as humid continental with mild summers and wet all year. The average high temperatures peak in July with an average high of approximately 89.7° Fahrenheit. The average low is approximately 14.9° Fahrenheit and occurs in January. Average precipitation is approximately 9.88 inches annually with 11.7 inches of annual snow fall (Western Regional Climate Center [WRCC] 2012).

Santa Cruz Site 1 dam consists of an earthen dam and dry basin that attenuates runoff and provides flood control during seasonal runoff and extreme precipitation events. Water is drained through the principal spillway outlet through the dam and does not remain in the basin for more than 10 days following a precipitation event.

1.2 Regulations

The following regulations apply to work located within wetlands and waters of the U.S. and wetlands in Utah:

- Federal
 - *USACE*: Under Section 10 and 404 of the Clean Water Act, a USACE permit is required for discharge of dredged or fill materials in wetlands and waters of the U.S. and wetlands.
- State
 - *New Mexico Environment Department*: Under Section 401 of the Clean Water Act, an approval will be required so that the project does not violate state water quality standards. Certification can be obtained as part of the USACE Section 10 and 404 Permit review process.

1.3 Conditions at the Time of Delineation

This memorandum is based on conditions that existed at the time the delineation was performed. If changes are made to the Survey Area after the date of the delineation, a wetland biologist should be consulted to review the investigation and recommendations so that written amendments or affirmation can be provided as appropriate.

2.0 Methodology

This section summarizes the methods used in determining the presence of wetlands as well as determination of wetland boundaries and the ordinary high water mark (OHWM) of waters of the U.S. within the Survey Area. The Survey Area was investigated by McMillen Jacobs Associates personnel for wetlands and waters of the U.S. on September 14, 2016 and December 13, 2017 by Greg Allington (wetland biologist).

2.1 Waters of the U.S. Methodology

Streams, lakes and reservoirs were delineated according to their OHWM in accordance with the guidance set forth by the USACE in their delineation manual titled *A Field Guide to the Identification of the Ordinary*

High Water Mark in the Arid West Region of the Western United States (USACE 2008b). A complete description of the methodology is described in detail in Attachment D.

2.2 Wetland Delineation Methodology

The wetland delineation survey followed the guidance set forth in the following documents:

- 1987 USACE Wetland Delineation Manual (Environmental Laboratory 1987),
- 2008 USACE Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (USACE 2008a),
- 2010 Field Indicators of Hydric Soils in the United States (NRCS 2010), and
- 2007 Clean Water Act Jurisdiction – Rapanos vs. United States and Carabell vs. United States (Rapanos 2007).

The wetland delineation manual and supplement listed above follow the three-parameter approach for making wetland determinations, such that positive indicators of wetlands must be present for each of the following parameters: 1) vegetation, 2) soils, and 3) hydrology. A complete description of the methodology is described in detail in Attachment D.

2.3 Document Review

A review of available documents pertaining to the project was conducted. This review assisted with directing the focus of the waters of the U.S. and wetland delineation to potential critical aquatic features. The following documents were reviewed:

- Historical and current aerial photos,
- NRCS soil survey data (NRCS 2017),
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps (USFWS 2018),
- United States Geological Survey (USGS) 1:24,000-scale 7.5-minute topographic map (USGS 1994 and 2011), and
- Other available general background information provided by NRCS.

2.4 Field Investigation

The objective of the waters of the U.S. and wetland delineation survey was to determine the extent of waters and wetlands within the Survey Area based on the presence of hydrophytic vegetation, hydric soils and wetland hydrology indicators for wetlands and the presence of an OHWM along the drainages in the area. Field investigations were conducted on September 14, 2016 and December 13, 2017. The weather was sunny during the field investigations in September, with temperatures ranging from 70°F to 80°F. Temperatures during the field investigations in December were approximately 50°F with partly cloudy conditions.

2.5 Waters of the U.S. and Wetland Characterization

The delineation conducted for this project was characterized according to the Cowardin (Cowardin *et al.* 1979) classification system. The Cowardin classification system categorizes wetlands and deepwater habitats according to five separate systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine. These systems are then stratified into subsystems based on the plant community type. These systems are further stratified into classes and subclasses based on substrate material. Each class and subclass is then annotated with specific modifiers for water regimes, water chemistry, soil, and other special characteristics. The USFWS uses this classification system on their National Wetland Inventory (NWI) maps and it is used in this memorandum to describe the general structure of the waters and wetlands.

2.6 Field Methods

The Survey Area was investigated for indicators of wetland parameters. If one of the three wetland parameters (hydrophytic vegetation, hydric soils or wetland hydrology indicators) was observed, then a more detailed examination of the area was performed. Upon discovery of all three wetland parameters adjacent to an upland area, the boundary line of the wetland would have been identified and followed until the delineation was complete.

The site was investigated for indicators of OHWM characteristics. If flowing water or a dry streambed was observed, additional investigations were performed upstream and downstream to locate the source of the water and/or the confluence with another stream. Specific physical characteristics of the streams were examined in order to facilitate locating the OHWM.

Wetland and channel points along with sample plots were delineation using a MobileMapper 120 from Spectra Precision with GLONASS (± 5 foot accuracy). A map of the waters of the U.S. and wetland delineation was prepared depicting the locations of the recorded points.

The survey also included photographic record of sample plots and pertinent site features (Attachment B).

3.0 Results

The results of the waters of the U.S. and wetland delineation survey, including characterization and classification of identified onsite features, are included below.

3.1 Document Review

3.1.1 Historical and Current Aerial Photographs

Aerial photographs dating back to 1996 indicate that conditions at the dam have not changed in 20 years and hydrology patterns have not been altered within the Survey Area. Flowing water or ponding was not observed in any of the aerial photographs.

3.1.2 NRCS Soil Survey Data

Soil information presented in this section has been summarized from NRCS Web Soil Survey data (NRCS 2017). The Survey Area lies near the base of the Sangre de Cristo foothills along an intermittent channel. The soils within the Survey Area (Attachment A-Map 2) consist primarily of gravelly sandy loams and sandy loams. Table 1 below provides a summary of the soil survey data gathered for the Survey Area.

Table 1. NRCS Web Soil Survey Data

Soil Unit	Landform	Slope (%)	Hydric Soil Rating
Fruitland sandy loam (39)	Stream terraces, alluvial fans	3-5	0
Yarts sandy loam (149)	Stream terraces	1-4	1
Florita-Rock outcrop complex (241)	Hills	15-45	0

* Rating indicates the percentage of the map unit that meets the criteria for hydric soils.

3.1.3 USFWS NWI Maps

NWI data shows the presence of an emergent wetland, and riverine channels within the Survey Area (USFWS 2018). Table 2 lists these wetland types and their classifications which are also depicted in Attachment A-Map 3.

Table 2. NWI Wetland Types with Cowardin Classifications

Classification Abbreviation	System	Subsystem	Class	Water Regime	Modifier
PEM1Ch	Palustrine	-	Emergent	Seasonally Flooded	Diked/ Impounded
R4SBJ	Riverine	Intermittent	Streambed	Intermittently Flooded	-
R4SBAx	Riverine	Intermittent	Streambed	Temporarily Flooded	Excavated
R5UBH	Riverine	Unknown Perennial	Unconsolidated Bottom	Permanently Flooded	-

3.1.4 USGS Maps

The USGS map identified the general topography and important site features within and in the vicinity of the Survey Area. The 1994 and 2011 maps (USGS 1994 and 2011) shows the Arroyo de la Cañada Ancha as a wide wash coming into the basin and going past the dam embankment and continuing downstream. An unnamed intermittent drainage and an unnamed drainage with a wash are shown as tributaries to the Arroyo de la Cañada Ancha upstream of the dam embankment within the Survey Area. The Cañada de Ojito drainage (intermittent drainage) adjoins the downstream toe of the auxiliary spillway of the dam. Downstream of the dam embankment a ditch is present.

3.2 Field Investigation

The Survey Area was examined for signs of waters of the U.S. and wetlands indicators. **Two wetlands were identified within the Survey Area (Wetlands A and B).** Hydrophytic vegetation was present within the wetlands and two sample plots (SP-2 and SP-3) verified that hydric soil and wetland hydrology indicators were present. The sample plot locations can be seen in Attachment A-Map 4. A photo of the sample plots is included in Attachment B. Wetland determination data forms are included in Attachment C.

The site was also investigated for indicators of OHWM characteristics. If flowing water or a dry streambed was observed, additional investigations were performed upstream and downstream to locate the source of the water and/or confluence with another stream. Specific physical characteristics of the streams were examined in order to facilitate locating the OHWM. **Four potential jurisdictional waters of the U.S. were identified within the Survey Area (Arroyo de la Cañada Ancha, Cañada de Ojito, Acequia de la Cañada Ancha, and the redirected Cañada de Ojito).**

Delineation maps have been included in Attachment A-Maps 4 and 5, and a photographic record of the delineated features and sample plots has been included in Attachment B.

3.3 Waters of the U.S. Characterization and Classification

An OHWM delineation was completed within the Survey Area to identify the limits of jurisdictional waterways. The OHWM often corresponds to the water surface elevation of the 2-year flood return period and woody vegetation does not typically grow below this mark. There were four waters of the U.S. delineated within the Survey Area. The following sections describe the delineated waters of the U.S. within the Survey Area and list their associated classification. Maps of waters of the U.S. have been included in Attachment A and photographs are provided in Attachment B.

3.3.1 Arroyo de la Cañada Ancha

Arroyo de la Cañada Ancha and the basin it drains into, were dry at the time of the delineation. Arroyo de la Cañada Ancha is an intermittent drainage that flows into the basin upstream of the dam embankment. The drainage is dry most of the year and only conveys flows during precipitation events. Flows entering the basin from the drainage during precipitation events continue through the principal spillway and discharge into an open pool at the downstream dam embankment toe (Attachment A-Map 4). The pool drains through a channel that is approximately 1-4 feet wide, into the Acequia de la Cañada Ancha approximately 68 feet downstream. No OHWM characteristics were observed in the Survey Area along the Arroyo de la Cañada Ancha drainage upstream of the dam embankment. Downstream of the dam embankment the centerline of the channel draining from the principal spillway outlet to the Acequia de la Cañada Ancha was delineated. The channel centerline was delineated instead of the OHWM due to the very narrow channel width of 1 to 4 feet along the 68-foot delineated length. Refer to Attachment A-Map 5 for the delineated features of the channel downstream of the dam embankment and Attachment B for photographs.

A typical OHWM was observed on the banks which included the following:

- Scour
- Destruction of terrestrial vegetation
- Presence of litter or debris (drift lines)
- Wracking
- Vegetation matted down, bent, or absent

3.3.2 Cañada de Ojito

The Cañada de Ojito drainage adjoining the auxiliary spillway toe, was dry at the time of the delineation. The drainage is intermittent, is dry most of the year, and only conveys flows during precipitation events. The drainage meets up with the Arroyo de la Cañada Ancha downstream of the Survey Area. OHWM characteristics were observed in the Survey Area along the drainage (Attachment A-Map 4). The surveyed OHWM width ranged from approximately 10 to 40 feet along the delineated 750-foot length of the drainage. Refer to Attachment A-Map 4 for the delineated OHWM of the Cañada de Ojito drainage within the Survey Area and Attachment B for photographs.

A typical OHWM was observed on the banks which included the following:

- Scour
- Shelving or topographic breaks
- Destruction of terrestrial vegetation
- Vegetation matted down, bent, or absent
- Sediment sorting

3.3.3 Acequia de la Cañada Ancha

The Acequia de la Cañada Ancha (acequia) is a ditch that runs through the Survey Area downstream of the dam embankment. The acequia is intermittent, but flows are more regular than in the surrounding drainages since it is controlled. The acequia was dry at the time of the delineation in September 2017, but was flowing during the December 2017 site visit. OHWM characteristics were observed in the Survey Area along the acequia. The channel centerline was delineated instead of the OHWM due to the very narrow channel width of 2 to 5 feet along the 2,089-foot delineated length. Approximately 1,336 feet of this length was delineated by surveying the channel centerline (eastern portion), and approximately 753-feet of this length was delineated through aerial photography (western portion). Refer to Attachment A-Map 4 for the delineated OHWM of the acequia within the Survey Area and Attachment B for photographs.

A typical OHWM was observed on the banks which included the following:

- Scour
- Shelving or topographic breaks
- Destruction of terrestrial vegetation
- Bed and banks

3.3.4 The Redirected Cañada de Ojito

The Cañada de Ojito drainage was redirected upstream of the dam during construction the 1962 dam. A diversion dike was constructed across the Cañada de Ojito drainage to redirect water from the upstream contributing drainage area into the basin. Since 1962 a new channel from the redirected drainage has formed which flows into the basin.

The redirected Cañada de Ojito drainage is intermittent and was dry at the time of the delineation. The drainage is dry most of the year and only conveys flows during precipitation events. OHWM characteristics were observed in the Survey Area along this drainage. As the drainage enters the basin, it begins to spread out and the OHWM becomes discernable. The surveyed OHWM width ranged from approximately 7 to 65 feet along the delineated 760-foot length of the drainage. Refer to Attachment A-Map 4 for the delineated OHWM of the redirected Cañada de Ojito drainage within the Survey Area and Attachment B for photographs.

A typical OHWM was observed on the banks which included the following:

- Scour
- Shelving or topographic breaks
- Destruction of terrestrial vegetation
- Vegetation matted down, bent, or absent
- Sediment sorting

3.4 Wetland Characterization and Classification

The wetland delineation identified two wetlands within the Survey Area. The wetlands identified were connected to other water bodies and were not isolated from jurisdictional waters of the U.S. Six soil pits (SP-1 through SP-6) were dug to evaluate soils during the delineation (Attachment A-Map 4). Vegetation was observed during the delineation and dominant vegetation noted. The following sections describe the wetlands delineated and associated classification. Maps of the delineated wetlands have been included in Attachment A, photographs of the sample plots and wetlands are included in Attachment B, and wetland determination data forms are included in Attachment C.

The basin was identified in the NWI map as a wetland and was evaluated to determine if wetland soils, vegetation, and hydrology were present. Two soil pits (SP-5 and SP-6) were dug in the basin to evaluate soils, which were not found to be hydric. Vegetation was observed and recorded in the wetland determination data form and was found to not meet the indicator requirements to be hydrophytic vegetation (Attachment C). The basin is depression and it sees an influx of sediment and water during flash flood events. Water is quickly drained out of the basin through the principal spillway leaving the majority of the sediment to deposit in the depression. The sediment influx into the basin during these events does not allow long enough time for wetland soils to develop. Additionally the water is drained quickly from the basin and does not allow enough saturation to maintain the necessary hydrology and grow hydrophytic vegetation.

3.4.1 Wetland A

Wetland A is located at the downstream toe of the dam where the principal spillway conduit outlets and is approximately 0.05 acres in size (Attachment A-Map 5). Wetland A is a scrub-shrub wetland and classified as palustrine, scrub-shrub, deciduous, seasonally flooded, excavated (PSS6Cx) according to the Cowardin classification system. The wetland delineation generally followed a topographic break and changes in wetland vegetation to upland species. The hydrogeomorphic (HGM) classification is depressional.

Dominant vegetation within the wetland included willow (*Salix*, FACW) and reed canary grass (*Phalaris arundinacea*, FACW). The vegetation shifted to upland species consisting primarily of juniper and mixed upland grasses. Soils within the wetland did not exhibit low chroma, but were considered problematic since they were derived from red parent material and are seasonally ponded. Soil texture consisted of silt and clay in the wetland and silt and sand in the upland. Hydrology was present in Wetland B during the delineation in the form of surface water, water marks, sediment and drift deposits, and soil cracks. There were no signs of hydrology in the upland.

3.4.2 Wetland B

Wetland B is located along a drainage that extends from the acequia downstream to the Arroyo de la Cañada Ancha and is approximately 0.84 acres in size (Attachment A-Map 5). Wetland B is a scrub-shrub wetland and classified as palustrine, scrub-shrub, deciduous, temporarily flooded (PSS6A) according to the Cowardin classification system. The wetland delineation generally followed a topographic break and changes in wetland vegetation to upland species. The hydrogeomorphic (HGM) classification is depressional.

Dominant vegetation within the wetland included willow (*Salix*, FACW) along with non-dominant FAC species. The vegetation shifted to upland species consisting primarily of mixed upland grasses and cottonwood. Soils within the wetland did not exhibit low chroma, but were considered problematic since they were derived from red parent material, have a hydrogen sulfide smell, and are located at the toe of a slope in a low-lying area. Soil texture consisted of silt and sand in the wetland and silt and clay in the upland. Hydrology was present in Wetland B during the delineation in the form of a high water table.

3.5 Waters of the U.S. and Wetlands Classification

Santa Cruz Site 1 Dam is located within the Santa Cruz River Watershed in the Upper Rio Grande Hydrologic Unit (13020101). There are no permanent surface waters in or near the Survey Area. The upstream drainages and basin are typically dry except during precipitation events or for seasonal runoff. The acequia downstream of the dam is intermittent, but flows are more regular than in the surrounding drainages since it is controlled. Currently all water during precipitation events within the basin drainage area is collected in the basin and either infiltrates into the soil or flows through the principal spillway and outlet channels. Water in the basin does not remain for more than 10 days following a precipitation event.

3.5.1 Waters of the U.S.

Four potential waters of the U.S. (Arroyo de la Cañada Ancha, Cañada de Ojito, Acequia de la Cañada Ancha, and the redirected Cañada de Ojito) were identified within the Survey Area and were classified according to the Cowardin classification system, as presented in Table 3 below. Map 4 in Attachment A shows the delineated waters of the U.S. within the Survey Area.

Table 3. Waters of the U.S. Classification and Length within Survey Area

Water of the U.S.	Cowardin Classification			Length in Survey Area (ft)
	System	Subsystem	Class	
Arroyo de la Cañada Ancha	Riverine (R)	Intermittent (4)	Streambed (SB)	68
Cañada de Ojito	R	4	SB	750
Acequia de la Cañada Ancha	R	4	SB	2,089
Redirected Cañada de Ojito	R	4	SB	760

3.5.2 Wetlands

Wetlands were classified according to the Cowardin system and their HGM classification, as presented in Table 4 below. Map 4 in Attachment A shows the delineated wetlands within the Survey Area.

Table 4. Wetland Classification and Size within Survey Area

Wetland	Cowardin Classification			HGM	Size (Acres)
	System	Class	Water Regime		
A	Palustrine (P)	Scrub/Shrub (SS)	Seasonally Flooded (C)	Depressional	0.05
B	P	SS	A	Depressional	0.84

4.0 Conclusions and Recommendations

This waters of the U.S. and wetland delineation was performed for the Santa Cruz Site 1 Dam project in Rio Arriba County, New Mexico. The delineation was performed to help NRCS identify potential design and construction constraints related to critical aquatic features that occur within the Survey Area. Four channels were delineated within the Survey Area and are determined to be potential jurisdictional waters of the U.S. (Arroyo de la Cañada Ancha, Cañada de Ojito, Acequia de la Cañada Ancha, and the redirected Cañada de Ojito). Two wetlands were delineated within the Survey Area and determined to be jurisdictional waters of the U.S. (Wetland A and B). The boundaries of the aquatic features identified are depicted in Attachment A-Maps 4 and 5.

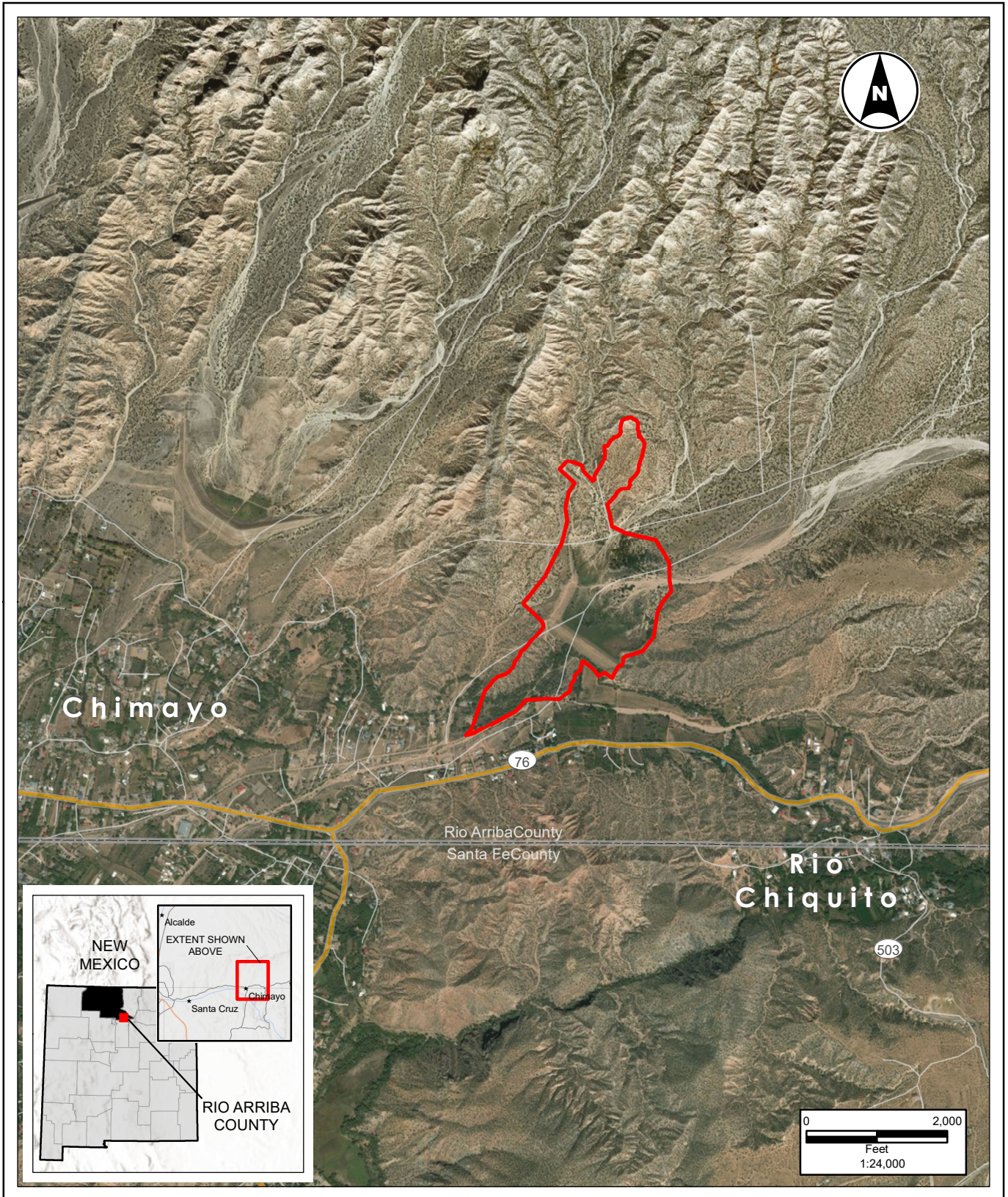
This waters of the U.S. and wetland delineation was performed on September 14, 2016 and December 13, 2017 by McMillen Jacobs Associates. According to USACE regulations pertaining to waters of the U.S. delineations, this memo is valid for five years from the date the delineation was performed.

5.0 References

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Attachment A

Maps



NAD 1983 UTM Zone 13N
Notes: Esri, USGS
Image: DigitalGlobe Sept. 2016

Legend

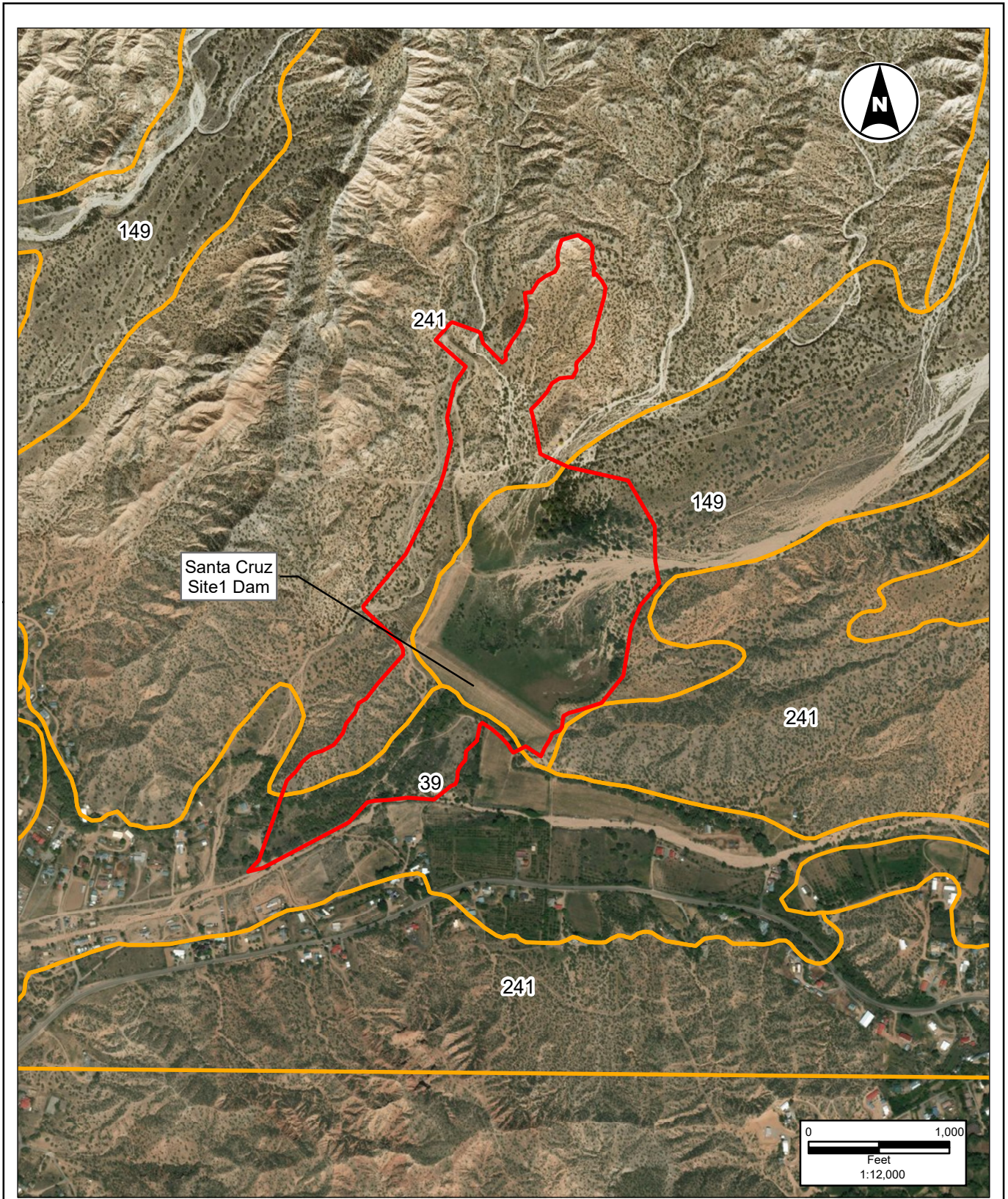
 Survey Area



Map 1

Vicinity Map

**Santa Cruz Site 1 Dam Rehabilitation
Waters of the US &
Wetlands Delineation**



NAD 1983 UTM Zone 13N
 Notes: Esri, USGS
 SSURGO New Mexico, Parts of Rio
 Arriba & Sandoval Counties 2016
 Image: DigitalGlobe Sept. 2016

Legend

- Survey Area
- Soil Units: 39 - Fruitland Sandy Loam
- 149 - Yarts Sandy Loam
- 241 - Florita-Rock Outcrop

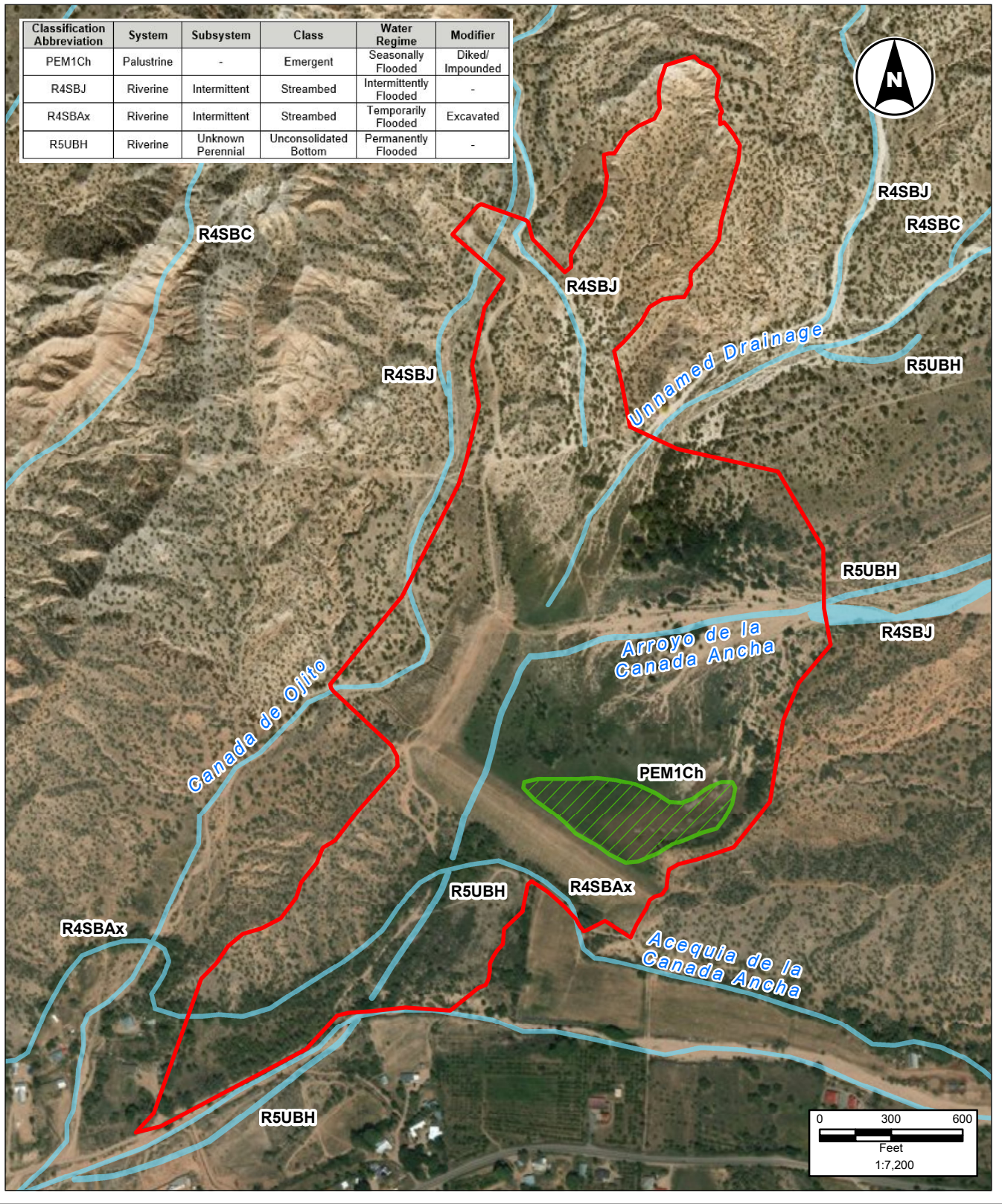


Map 2

Soils Map

**Santa Cruz Site 1 Dam Rehabilitation
 Waters of the US &
 Wetlands Delineation**

Classification Abbreviation	System	Subsystem	Class	Water Regime	Modifier
PEM1Ch	Palustrine	-	Emergent	Seasonally Flooded	Diked/ Impounded
R4SBJ	Riverine	Intermittent	Streambed	Intermittently Flooded	-
R4SBAx	Riverine	Intermittent	Streambed	Temporarily Flooded	Excavated
R5UBH	Riverine	Unknown Perennial	Unconsolidated Bottom	Permanently Flooded	-



NAD 1983 UTM Zone 11N
 Notes: Esri, USGS, USFWS
 National Wetland Inventory 2009
 Image: DigitalGlobe Sept. 2016

Legend

Survey Area

NWI Wetland Types

Freshwater Emergent Wetland

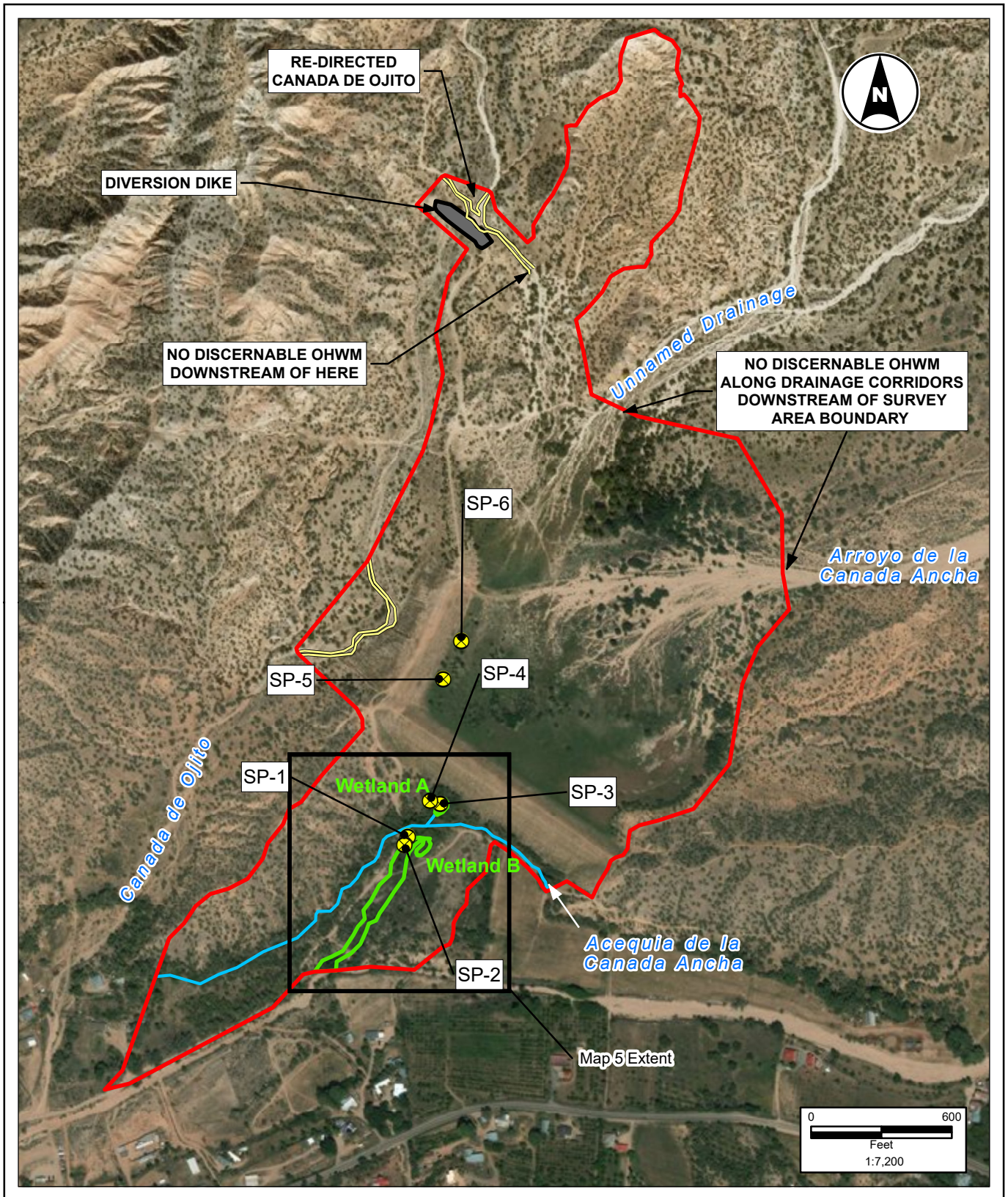
Riverine



Map 3

NWI Wetlands/Waters Map

**Santa Cruz Site 1 Dam Rehabilitation
 Waters of the US &
 Wetlands Delineation**



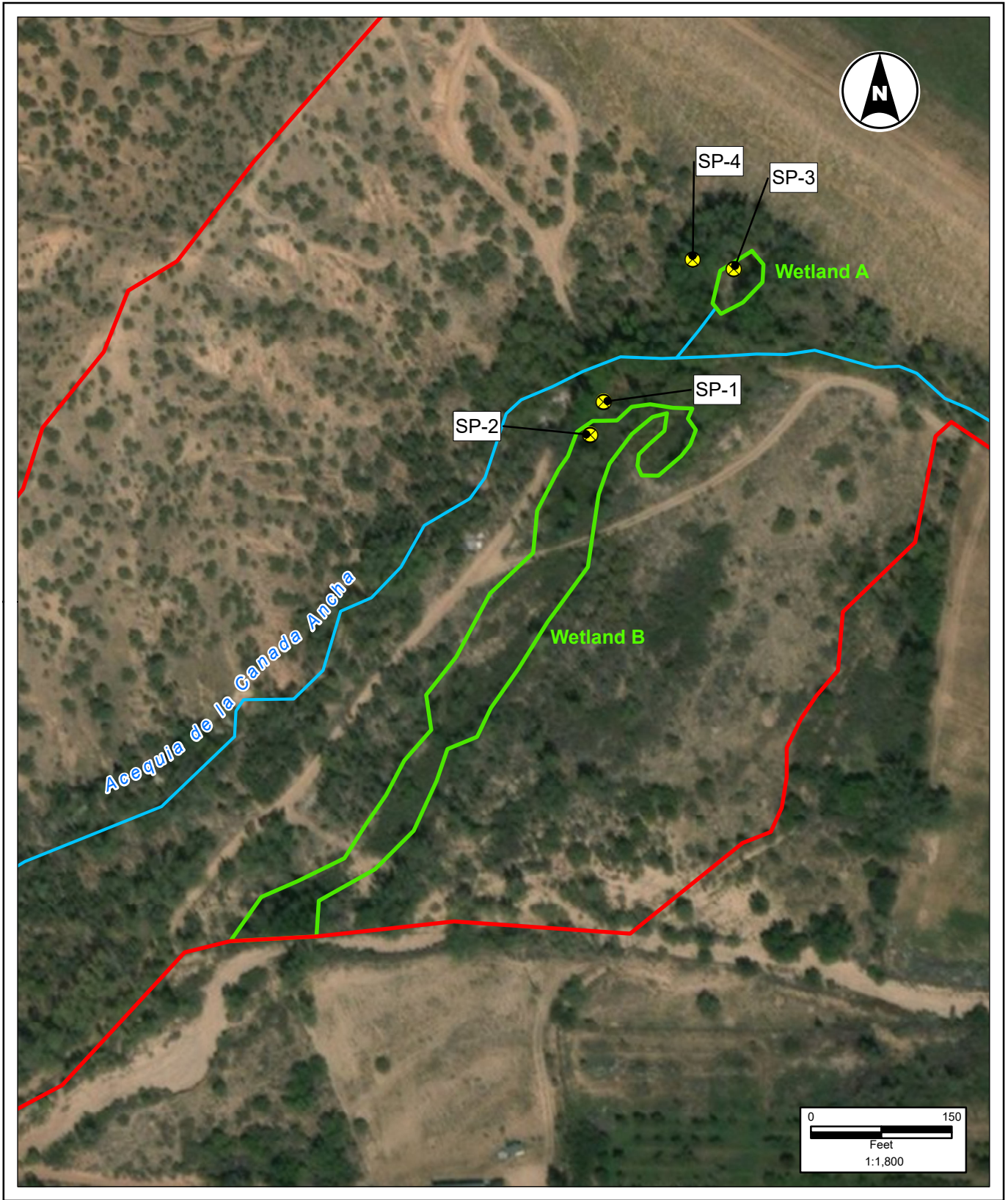
NAD 1983 UTM Zone 12N
 Notes: Esri, USGS,
 McMillen Jacobs Assoc.
 Field Survey December 2017
 Image: DigitalGlobe Sept. 2016

Legend

- Soil Pit
- Survey Area
- Delineated Wetland
- Delineated Channel Centerline
- Delineated OHWM



Map 4
Delineation Map
Santa Cruz Site 1 Dam Rehabilitation
Waters of the US &
Wetlands Delineation



NAD 1983 UTM Zone 12N
 Notes: Esri, USGS,
 McMillen Jacobs Assoc.
 Field Survey December 2017
 Image: DigitalGlobe Sept. 2016

Legend

- Soil Pit
- Survey Area
- Delineated Wetland

Delineated Channel Centerline



Map 5
Delineation Map
Santa Cruz Site 1 Dam Rehabilitation
Waters of the US &
Wetlands Delineation

Attachment B

Photographs



Photograph 1 (12/13/17) – General view of debris basin and upstream extents looking east.



Photograph 2 (9/14/16) – General view of dam embankment looking northwest.



Photograph 3 (9/14/16) – General view of Auxiliary Spillway looking northeast.



Photograph 4 (12/13/17) – Looking at the principal spillway riser and outlet conduit of the dam.

Arroyo de la Cañada Ancha



Photograph 5 (9/14/16) – Looking upstream along the Arroyo de la Cañada Ancha coming into the basin.



Photograph 6 (9/14/16) – Looking downstream along the Arroyo de la Cañada Ancha coming into the basin.



Photograph 7 (9/14/16) – Looking downstream at principal spillway outlet channel for the Arroyo de la Cañada Ancha from plunge pool down to the Acequia de la Cañada Ancha.



Photograph 8 (9/14/16) – Standing in the Acequia de la Cañada Ancha looking at the outlet channel flowing into the acequia.

Cañada de Ojito



Photograph 9 (9/14/16) – Looking upstream along the Cañada de Ojito with the auxiliary spillway in the background.



Photograph 10 (9/14/16) – General view of the Cañada de Ojito looking upstream.



Photograph 11 (9/14/16) – Looking upstream along the Cañada de Ojito adjoining the toe of the auxiliary spillway

Redirected Cañada de Ojito



Photograph 12 (9/14/16) – General view of the redirected Cañada de Ojito looking downstream.



Photograph 13 (9/14/16) – Looking upstream along the redirected Cañada de Ojito adjoining the toe of the diversion dike.

Acequia de la Cañada Ancha



Photograph 14 (9/14/16) – General view along Acequia de la Cañada Ancha.



Photograph 15 (9/14/16) – General view along Acequia de la Cañada Ancha.

Basin Soil Pits



Photograph 16 (12/13/17) – Soil Pit 5 (SP-5) in depression within the basin.



Photograph 17 (12/13/17) – Soil excavated from from SP-5.



Photograph 18 (12/13/17) – General view of vegetation adjoining SP-5.



Photograph 19 (12/13/17) – Soil Pit 6 (SP-6) outside of depression within basin.



Photograph 20 (12/13/17) – General view of vegetation adjoining SP-6.

Wetland A



Photograph 21 (9/14/16) – General view of plunge pool and Wetland A at the principal spillway outlet.



Photograph 22 (12/13/17) – General view of SP-3 in Wetland A.



Photograph 23 (12/13/17) – View looking into SP-3.



Photograph 24 (12/13/17) – View of vegetation adjoining SP-3.



Photograph 25 (12/13/17) – View of Soil Pit-4 (SP-4) in upland adjoining Wetland A.



Photograph 26 (12/13/17) – View looking into SP-4.

Wetland B



Photograph 27 (9/14/16) – General view of Wetland B.



Photograph 28 (9/14/16) – View of ponded water inside Wetland B.



Photograph 29 (12/13/17) – Soil Pit 2 (SP-2) in Wetland B.



Photograph 30 (12/13/17) – View of vegetation adjoining SP-2.



Photograph 31 (12/13/17) – Soil Pit 1 (SP-1) in upland adjoining Wetland B.



Photograph 32 (12/13/17) – View of vegetation adjoining SP-1.

Attachment C
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Cruz Site 1 City/County: Rio Arriba Sampling Date: 12/13/2017
 Applicant/Owner: NRCS and Santa Fe and Pojoaque Soil and Water Conservation District State: NM Sampling Point: SP-1
 Investigator(s): Greg Allington, Bobbi Preite Section, Township, Range: Sec. 31, T21N, R10E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): <5%
 Subregion (LRR): D - Interior Deserts Lat: 36.009346 Long: -105.919280 Datum: WGS84
 Soil Map Unit Name: Fruitland sandy loam, 3 to 5 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Upland adjoining Wetland B	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15 FT.</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Populus deltoides - Cottonwood</u>	50	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
50 = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 FT</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Salix - Willow</u>	10	No	FACW	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: right;">Total % Cover of:</td> <td style="width: 50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>1</u></td> <td>x 2 = <u>2</u></td> </tr> <tr> <td>FAC species <u>2</u></td> <td>x 3 = <u>6</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>1</u></td> <td>x 5 = <u>5</u></td> </tr> <tr> <td>Column Totals: <u>4</u> (A)</td> <td><u>13</u> (B)</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>1</u>	x 2 = <u>2</u>	FAC species <u>2</u>	x 3 = <u>6</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>1</u>	x 5 = <u>5</u>	Column Totals: <u>4</u> (A)	<u>13</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>1</u>	x 2 = <u>2</u>																	
FAC species <u>2</u>	x 3 = <u>6</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>1</u>	x 5 = <u>5</u>																	
Column Totals: <u>4</u> (A)	<u>13</u> (B)																	
2. <u>Populus deltoides - Cottonwood sapling</u>	5	No	FAC															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
15 = Total Cover																		
Herb Stratum (Plot size: <u>15 FT</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Mixed upland grasses</u>	60	yes	UPL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
60 = Total Cover																		
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>														
2. _____	_____	_____	_____															
0 = Total Cover																		
% Bare Ground in Herb Stratum <u>40</u>		% Cover of Biotic Crust _____																

Remarks:

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 4/3	100					Silty Clay	
6-16	7.5YR 5/4	100					Silt	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Cruz Site 1 City/County: Rio Arriba Sampling Date: 12/13/2017
 Applicant/Owner: NRCS and Santa Fe and Pojoaque Soil and Water Conservation District State: NM Sampling Point: SP-2
 Investigator(s): Greg Allington, Bobbi Preite Section, Township, Range: Sec. 31, T21N, R10E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): <5%
 Subregion (LRR): D - Interior Deserts Lat: 36.009250 Long: -105.919330 Datum: WGS84
 Soil Map Unit Name: Fruitland sandy loam, 3 to 5 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Wetland B	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15 FT.</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Elaeagnus commutata - Russian olive</u>	<u>5</u>	No	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>5</u> = Total Cover				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: right;">Total % Cover of:</td> <td style="width: 50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>2</u></td> <td>x 2 = <u>4</u></td> </tr> <tr> <td>FAC species <u>2</u></td> <td>x 3 = <u>6</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>4</u> (A)</td> <td><u>10</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.5</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>2</u>	x 2 = <u>4</u>	FAC species <u>2</u>	x 3 = <u>6</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>4</u> (A)	<u>10</u> (B)	Prevalence Index = B/A = <u>2.5</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>2</u>	x 2 = <u>4</u>																			
FAC species <u>2</u>	x 3 = <u>6</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>4</u> (A)	<u>10</u> (B)																			
Prevalence Index = B/A = <u>2.5</u>																				
<u>85</u> = Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15 FT</u>)																				
1. <u>Salix - Willow</u>	<u>80</u>	Yes	FACW																	
2. <u>Populus deltoides - Cottonwood sapling</u>	<u>5</u>	No	FAC																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>85</u> = Total Cover																				
Herb Stratum (Plot size: <u>15 FT</u>)																				
1. <u>Phalaris arundinacea - Reed Canary Grass</u>	<u>10</u>	No	FACW																	
2. <u>Unknown forbes</u>	<u>10</u>	No	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
<u>20</u> = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
<u>0</u> = Total Cover																				
% Bare Ground in Herb Stratum <u>80</u>		% Cover of Biotic Crust _____																		
Remarks:																				

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 5/3	100					Silt	Dry
4-16	7.5YR 5/2	100					Sand	Saturated - Silt and gravel in profile

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Soils are from red parent material, have hydrogen sulfide smell, and are located at the toe of a slope in a low-lying area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 12
 Saturation Present? Yes No Depth (inches): 9
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Cruz Site 1 City/County: Rio Arriba Sampling Date: 12/13/2017
 Applicant/Owner: NRCS and Santa Fe and Pojoaque Soil and Water Conservation District State: NM Sampling Point: SP-3
 Investigator(s): Greg Allington, Bobbi Preite Section, Township, Range: Sec. 31, T21N, R10E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): <5%
 Subregion (LRR): D - Interior Deserts Lat: 36.00973 Long: -105.918817 Datum: WGS84
 Soil Map Unit Name: Fruitland sandy loam, 3 to 5 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Wetland A - Plunge pool depression at the dam principal spillway outlet	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>2</u></td> <td>x 2 = <u>4</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>2</u> (A)</td> <td><u>4</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>2</u>	x 2 = <u>4</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>2</u> (A)	<u>4</u> (B)	Prevalence Index = B/A = <u>2</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>2</u>	x 2 = <u>4</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>2</u> (A)	<u>4</u> (B)																			
Prevalence Index = B/A = <u>2</u>																				
Sapling/Shrub Stratum (Plot size: <u>15 FT</u>)																				
1. <u>Salix - Willow</u>	<u>35</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover																				
Herb Stratum (Plot size: <u>15 FT</u>)																				
1. <u>Phalaris arundinacea - Reed Canary Grass</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
_____ = Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____ = Total Cover																				
% Bare Ground in Herb Stratum <u>65</u> % Cover of Biotic Crust _____																				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				

Remarks:

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 6/3	100					Silt	
6-16	7.5YR 3/2	100					Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Soils are from red parent material, are in a concave landscape, and are seasonally ponded

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Cruz Site 1 City/County: Rio Arriba Sampling Date: 12/13/2017
 Applicant/Owner: NRCS and Santa Fe and Pojoaque Soil and Water Conservation District State: NM Sampling Point: SP-4
 Investigator(s): Greg Allington, Bobbi Preite Section, Township, Range: Sec. 31, T21N, R10E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): <5%
 Subregion (LRR): D - Interior Deserts Lat: 36.009760 Long: -105.918972 Datum: WGS84
 Soil Map Unit Name: Fruitland sandy loam, 3 to 5 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <u>Upland adjoining Wetland A</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15 FT.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Juniperous communis - Juniper</u>	<u>30</u>	Yes	UPL	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. <u>Populus deltoides - Cottonwood</u>	<u>15</u>	No	FAC	
3. _____				
4. _____				
	<u>45</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>2</u> x 5 = <u>10</u> Column Totals: <u>3</u> (A) <u>132</u> (B) Prevalence Index = B/A = <u>4.3</u>
2. _____				
3. _____				
4. _____				
5. _____				
Herb Stratum (Plot size: <u>15</u>)				
1. <u>Mixed Upland Grass</u>	<u>30</u>	Yes	UPL	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>30</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>70</u> % Cover of Biotic Crust _____				

Remarks:

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 3/2	100					Sandy Silt	
4-9	7.5YR 4/4	100					Silty Sand	Cobbles present in profile.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Tree roots & cobbles
 Depth (inches): ⁹

Hydric Soil Present? Yes No

Remarks:

No indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Cruz Site 1 City/County: Rio Arriba Sampling Date: 12/13/2017
 Applicant/Owner: NRCS and Santa Fe and Pojoaque Soil and Water Conservation District State: NM Sampling Point: SP-5
 Investigator(s): Greg Allington, Bobbi Preite Section, Township, Range: Sec. 31, T21N, R10E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): <5%
 Subregion (LRR): D - Interior Deserts Lat: 36.011187 Long: -105.918803 Datum: WGS84
 Soil Map Unit Name: Yarts sandy loam, 1 to 4 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Depression area within basin of the dam	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15 FT.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>15 FT</u>)				
1. <u>Elymus elymoides - squirreltail bottlebrush</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Xanthium strumarium - rough cocklebur</u>	<u>55</u>	<u>yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>15</u> % Cover of Biotic Crust _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 1 x 3 = 3
 FACU species 1 x 4 = 4
 UPL species 0 x 5 = 0
 Column Totals: 2 (A) 7 (B)
 Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/3	100					Silty Clay	
5-8	7.5YR 5/4	100					Silt	
8-16	7.5YR 4/3	100					Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No Depth (inches): _____

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Santa Cruz Site 1 City/County: Rio Arriba Sampling Date: 12/13/2017
 Applicant/Owner: NRCS and Santa Fe and Pojoaque Soil and Water Conservation District State: NM Sampling Point: SP-6
 Investigator(s): Greg Allington, Bobbi Preite Section, Township, Range: Sec. 31, T21N, R10E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): none Slope (%): <5%
 Subregion (LRR): D - Interior Deserts Lat: 36.011187 Long: -105.918803 Datum: WGS84
 Soil Map Unit Name: Yarts sandy loam, 1 to 4 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>Upland area within basin of dam</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15 FT.</u>)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: right;">Total % Cover of:</td> <td style="width: 50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>2</u></td> <td>x 5 = <u>10</u></td> </tr> <tr> <td>Column Totals: <u>2</u> (A)</td> <td><u>10</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>5</u>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>2</u>	x 5 = <u>10</u>	Column Totals: <u>2</u> (A)	<u>10</u> (B)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>0</u>	x 2 = <u>0</u>																	
FAC species <u>0</u>	x 3 = <u>0</u>																	
FACU species <u>0</u>	x 4 = <u>0</u>																	
UPL species <u>2</u>	x 5 = <u>10</u>																	
Column Totals: <u>2</u> (A)	<u>10</u> (B)																	
_____ = Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15 FT</u>)																		
1. <u>Artemisia - sagebrush</u>	<u>45</u>	<u>yes</u>	<u>UPL</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
_____ = Total Cover																		
Herb Stratum (Plot size: <u>15 FT</u>)																		
1. <u>Mixed upland grasses</u>	<u>55</u>	<u>Yes</u>	<u>UPL</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
_____ = Total Cover																		
Woody Vine Stratum (Plot size: _____)																		
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
_____ = Total Cover																		
% Bare Ground in Herb Stratum <u>20</u>		% Cover of Biotic Crust _____																
Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																		
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																		
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																		
Remarks:																		

SOIL

Sampling Point: SP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	7.5YR 6/3	100					Silt	
10-16	7.5YR 4/3	100					Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR C)**
- 2 cm Muck (A10) **(LRR B)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) **(Riverine)**
- Sediment Deposits (B2) **(Riverine)**
- Drift Deposits (B3) **(Riverine)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment D

Waters of the U.S. and Wetland Methodology

Waters of the U.S. Delineation Methodology

The OHWM is defined by the USACE (2008b) as:

“Federal jurisdiction over a non-wetland WoUS extends to the OHWM, defined in 33 CFR Part 328.3 as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris. In the Arid West region of the United States, waters are variable and include ephemeral/intermittent and perennial channel forms.”

Physical characteristics that are present on the shoreline of a watercourse may vary depending on the type of water body and conditions of the area. There are no required physical indicators that must be present to make an OHWM determination. However, the following physical characteristics were considered when making the determination:

- Natural line impressed on the bank;
- Shelving or topographic breaks,
- Changes in the character of soil,
- Destruction of terrestrial vegetation,
- Presence of litter or debris (drift lines),
- Wracking,
- Vegetation matted down, bent, or absent,
- Sediment sorting,
- Leaf litter disturbed or washed away,
- Scour,
- Deposition,
- Multiple observed flow events,
- Bed and banks,
- Water staining, and
- Change in plant community.

Other methods for determining the OHWM that do not include physical observation:

- Lake and stream gage data,
- Elevation data,
- Spillway height,
- Flood predictions,
- Historic records of water flow, and
- Statistical evidence.

Combinations of physical characteristics and other methods should be used when available for determining the OHWM. Because many types of water bodies occur with varying conditions including topography, channel morphology and flow dynamics, other physical characteristics indicative of the OHWM may also be used that are not identified in the USACE guidance.

Wetland Delineation Methodology

The 1987 USACE Wetland Delineation Manual and 2008 USACE Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (USACE 2008a) follow the three-parameter approach for making wetland determinations, such that positive indicators of wetlands must be present for each of the following parameters: 1) vegetation, 2) soils, and 3) hydrology. Each of these three parameters is described in detail below. Note that the references in the text below are included in Section 5.0 of the wetland and waters of the U.S. delineation report.

Vegetation

The 2008 USACE manual defines hydrophytic vegetation as the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present. Hydrophytic plant species have the ability to grow, compete and sustain in areas where anaerobic (oxygen deprived) conditions exist from the presence of surface or groundwater. In 1988, the USACE and USFWS (Reed 1988) developed plant indicator categories that describe the probability of vegetation to occur in wetlands. This list was updated in 1993 (Reed *et al.* 1993) and in 2012 (Lichvar 2012), and each plant observed within the Survey Area was categorized according to the Arid West Region indicator status. Table D-1 below defines the indicator status categories.

Table D-1. Plant Indicator Status Categories

Indicator Category	Indicator Symbol	Description
Obligate Wetland Plants	OBL	Plants that occur in wetlands, under natural conditions, greater than 99 percent of the time.
Facultative Wetland Plants	FACW	Plants that occur in wetlands, under natural conditions, between 67 to 99 percent of the time.
Facultative Plants	FAC	Plants that occur in wetlands, under natural conditions, between 34 to 66 percent of the time.
Facultative Upland Plants	FACU	Plants that occur in wetlands, under natural conditions, between 1 to 33 percent of the time.
Obligate Upland Plants	UPL	Plants that occur in wetlands, under natural conditions, less than 1 percent of the time.
No Indicator	NI	Indicator status has not been identified for the species.
No Occurrence	NO	No known occurrence of the plant in the region.

The prevalence of wetland vegetation is characterized by the dominant species comprising the plant community or communities. A dominant species is considered any plant species that is represented by 20 percent or greater total aerial coverage for each vegetative stratum (tree, shrub, herbaceous or aquatic bed). If more than 50 percent of the dominant plant species in a wetland are categorized as OBL, FACW, or FAC, then the plant community for the wetland can be classified as hydrophytic. Other indicators of hydrophytic vegetation include visual observations of plant species growing in areas of prolonged inundation and/or soil saturation, morphological adaptations, physiological adaptations and reproductive adaptations.

Wetland vegetation communities within the Survey Area were classified according to the Cowardin classification system (Cowardin *et al.* 1979). Vegetation nomenclature described in this report follows the format outlined in the book titled *Intermountain Flora* (Cronquist *et al.* 1972).

Soils

Hydric soils are soils that formed under conditions of saturation, flooding or ponding for a long enough period of time during the growing season that anaerobic conditions develop in the upper portion of the soil profile (USACE 2008a). These anaerobic conditions exhibit certain characteristics that can be identified in the field and that are associated with a wetland complex. Prolonged anaerobic soil conditions eventually lead to a chemically reduced state where soil components (iron, manganese, sulfur and carbon compounds) develop soil colors and other physical characteristics that are indicative of hydric soils. These chemically-reduced soil components persist when the soil is either wet or dry. Specific hydric soil characteristics include:

- Reduced iron resulting in a soil color that is known as gley (bluish-gray or greenish-gray);
- Loss of iron resulting in a soil color that is known as redox depletion (gray or reddish-gray);
- Loss of iron resulting in concentrated soil patches known as redoximorphic concentrations (orange or red);
- Sulfidic odor; and/or
- High organic matter content (peat or muck) in the upper 32 inches of the soil profile.

Soil colors were determined using the Munsell® Soil-Color Charts (Munsell Color 2009) and their corresponding *hue* (spectral colors, e.g. 10YR), *value* (degree of lightness, e.g. 2/) and *chroma* (strength or purity of color, /1) were recorded. Soil profiles must either have a dominant chroma of 2 or less, or the layer with a dominant chroma of more than 2 must be less than 6 inches thick to meet any hydric soil indicators. Hydric soil indicators commonly found in wetlands are identified in the technical document *Field Indicators of Hydric Soils in the United States* (NRCS 2010). These indicators help identify soils that were formed under saturated, flooded or ponded conditions long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile.

Documented soil pits were dug throughout the wetland area as well as in the surrounding upland area to a depth of approximately 18 inches, or until refusal. The soil was analyzed visually and physically to determine its soil type. Hydric soil conditions must be met within 12 inches of the ground surface in order for a soil to be considered hydric.

Hydrology

Hydrologic patterns in a wetland can be influenced by precipitation, stratigraphy, topography, soil permeability, plant cover and human disturbance. Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Wetland hydrology is sometimes difficult to determine during the summer months when precipitation has stopped, groundwater tables have dropped, stream flows have receded and springs or seeps have dried. Hydrologic indicators can be used during the wet spring months as well as the dry summer and fall months to identify primary and/or secondary indicators within the soil profile. Primary indicators include the following (USACE 2008a):

- Surface water or inundation,
- High water table or saturated soil within 12 inches of the ground surface for 14 or more consecutive days at a minimum frequency of 5 years out of 10,
- Water marks,
- Sediment and drift deposits,
- Algal mat or crust,
- Iron deposits,
- Surface soil cracks,
- Salt crust,
- Inundation visible on aerial photography,
- Sparsely vegetated concave surface,
- Aquatic invertebrates,
- Water-stained leaves,
- Hydrogen sulfide odor,
- Oxidized rhizospheres along living roots,
- Presence of reduced iron, and
- Stunted or stressed plants.

Secondary indicators include (USACE 2008a):

- Drainage patterns,
- Dry-season water table,
- Saturation visible on aerial photography,
- Geomorphic position,
- Shallow aquitard,
- FAC-neutral test,
- Raised ant mounds, and
- Frost-heave hummocks.

The growing season for a region is dependent upon climate, precipitation and topography. The beginning and ending dates of the growing season are examined for an area to determine if wetland hydrology was present for the required time period. Wetland hydrology must be present for at least 14 consecutive days within 12 inches of the ground surface during the growing season in order for an area to be considered a wetland. Two indicators that the growing season has begun include 1) a soil temperature that is at least 41 degrees Fahrenheit (°F), measured at least 12 inches below the ground surface, and/or 2) aboveground growth and development of vascular plants (USACE 2008a).

The growing season has begun on a site when two or more types of non-evergreen vascular plants exhibit one or more of the following indicators of biological activity:

- Emergence of herbaceous plants,
- New growth on vegetative crowns,
- Coleoptiles/cotyledon emergence from seed,
- Bud burst on woody plants,
- Emergence or elongation of woody plant leaves, and/or
- Emergence or opening of flowers.

The growing season has ended when woody deciduous species lose their leaves and/or the last herbaceous plants cease flowering and their leaves become dry or brown. Additional information may be collected from the WETS tables available from the USDA NRCS National Water and Climate Center. These tables summarize the air temperature from National Weather Service meteorological stations throughout the United States for a specific area. The growing season dates in the WETS tables are an estimate of when air temperatures average above 28°F.