United States Department of Agriculture

Camp May Water Pipeline Project

Final Environmental Assessment

Forest Service Santa Fe National Forest Española Ranger District November 2021

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Contents

List of Appendices

List of Tables

List of Figures

Acronyms and Abbreviations

AMSL	Above Mean Sea Level
BA	Biological Assessment
BE	Biological Evaluation
BISON	Biota Information System of New Mexico
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
DOE	Department of Energy
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ID Team	Forest Service Interdisciplinary Team
LACTSD	Los Alamos County Traffic & Streets Division
LAFD	Los Alamos Fire Department
LANL	Los Alamos National Laboratory
MIS	Management Indicator Species
NAGPRA	Native American Grave Protection and Repatriation Act
NEPA	National Environmental Policy Act of 1969
NFS	National Forest System
NHPA	National Historic Preservation Act
NNSA	National Nuclear Security Administration
NRHP	National Register of Historic Places
PAC	Protected Activity Center
Pajarito	Pajarito Mountain Ski Area
PDC	Project Design Criteria
ROW	Right-of-Way
SFNF	Santa Fe National Forest
SHPO	State Historic Preservation Office
SOPA	Schedule of Proposed Actions
TEP	Threatened, Endangered, and Proposed
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USDOE	United States Department of Energy
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey

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Chapter 1. Purpose and Need

1.1 Background

The Proposed Action occurs within the Santa Fe National Forest (SFNF) and Department of Energy (DOE) National Nuclear Security Administration (NNSA) lands, as well as Pajarito Mountain Ski Area (Pajarito), located on privately-owned lands within Los Alamos County, New Mexico. Pajarito also consists of privately-owned lands in Sandoval County; however, infrastructure described in the Proposed Action would not be installed in Sandoval County. The project area is located approximately 60 miles northeast of Albuquerque, New Mexico. Through the Proposed Action, Los Alamos County would install an underground water pipeline, fiber optic conduit, and electrical conduit along Camp May Road to provide an additional water source for snowmaking at Pajarito, fire suppression, and potable water uses, as well as improved electric and fiber optic utilities along Camp May Road and at Pajarito.

A full description of the project can be found in **Section 2.2.1 Proposed Action**. Contingent upon the National Environmental Policy Act of 1969 (NEPA) process, implementation of any approved project could potentially begin as early as summer 2020.

1.2 Purpose and Need for the Proposed Action

Los Alamos County and the Forest Service have identified the following needs to construct, operate, and maintain the proposed Camp May Water Pipeline:

- **There is a need for a connection between Los Alamos County's water supply system and the storage tank at Pajarito for fire suppression capabilities at Pajarito and surrounding National Forest System (NFS) and non-NFS lands**
- **There is a need for supplemental snowmaking water supply to provide for reliable and consistent snow coverage at Pajarito, especially during the early and late parts of the season and years of below-average snowfall**
- **There is a need for improved domestic water supply at existing Pajarito facilities as well as new domestic water supply to Camp May park, a Los Alamos County park located on Camp May Road**
- **There is a need for improved electric and fiber optic utilities to Camp May park and existing Pajarito facilities**

The existing conditions driving these needs are further described below.

1. **There is a need for a connection between Los Alamos County's water supply system and the water storage tank at Pajarito for reliable fire suppression capabilities at Pajarito and surrounding NFS and non-NFS lands.**

Water available for fire suppression at Pajarito is stored in the Camp May Water Tank #1, an existing 250,000-gallon steel tank that is owned and operated by Los Alamos County. The Camp May Water Tank #1 is located at the base of the ski area, and water for this tank is obtained from a non-potable

groundwater infiltration gallery (a subsurface groundwater collection system) at the base of the ski area. The storage tank is contractually obligated to remain at 75 percent capacity. Above 75 percent capacity, the overflow is pumped through ski area infrastructure to a 10-million-gallon snowmaking reservoir located above the existing ski trails and maintained by the ski area. As a condition of an agreement between Pajarito and Los Alamos County, diversions to the snowmaking reservoir must be concluded by May 15th of each year. Some snowmelt from the surrounding terrain also enters the snowmaking reservoir; however, the amount of snowmelt that reaches the reservoir is a small percentage of the reservoir's capacity.

The Camp May Water Tank #1 is connected to fire hydrants located along Camp May Road and within the Pajarito parking area through County pipelines. The hydrants are in place to serve both existing infrastructure at the base of the ski area, as well as provide a source of water for filling tanker trucks, if necessary. Neither the Camp May Water Tank #1 nor the fire hydrants are currently connected to the larger County water supply system, which includes the existing 1.5-million-gallon water storage tank (Pajarito Water Tank #4) on DOE/NNSA lands at West Road. Los Alamos County can currently backfill the Camp May Water Tank #1 with water from the snowmaking reservoir for fire protection services if water from the storage tank is depleted and water in the snowmaking reservoir is present. The snowmaking reservoir is also used for fire suppression by wildfire helicopters to fill their water buckets to combat wildfires in the surrounding area.

This existing fire suppression system, including both Camp May Water Tank #1 and the snowmaking reservoir, is limited by the collection capacity of the infiltration gallery, snowmelt, and rainfall. If a fire occurs in May, it can deplete both the Camp May Water Tank #1 and the snowmaking reservoir, resulting in insufficient water to fight another fire that may occur later in the summer. In years with very low snowmelt and rainfall, the Camp May Water Tank #1 does not reach capacity at any point in the year and there is insufficient water for fire suppression in the tank. Under these circumstances, there is also no water diverted for snowmaking.

2. There is a need for supplemental snowmaking water supply to provide for reliable and consistent snow coverage at Pajarito, especially during the early and late parts of the season and years of below average snowfall.

As previously discussed, Pajarito's current source of snowmaking water is a groundwater infiltration gallery and Camp May Water Tank #1, owned by Los Alamos County. The primary use of this water is for fire suppression, which takes precedence over use of the reservoir for snowmaking and can result in minimal water available for snowmaking.

Snowmaking at Pajarito typically begins in mid-November and continues until the snowmaking water in the pond is depleted. Currently, the water available for snowmaking at Pajarito is insufficient and in some cases nonexistent during below-average snowfall years and in early and late parts of the season. The snowmaking reservoir has been sufficiently full to produce 40 acres of snowmaking during only one year between the years of 2014 and 2019; there was no water available at all in the snowmaking reservoir in 2018. As a result of limited snowmaking capabilities, Pajarito is often unable to open on time or only open a limited number of trails, and the ski area experiences inconsistent snow conditions on critical circulation routes, high snow wear areas, and areas with high wind and/or solar exposure. As a result, Pajarito has identified a need for additional snowmaking water.

3. **There is a need for improved domestic water supply at existing Pajarito facilities as well as new domestic water supply to Camp May park, a Los Alamos County park located on Camp May Road.**

The current domestic water supply at Pajarito depends on a shallow well, drilled in 1985, which delivers one gallon per minute of water to a 70,000-gallon storage tank. The well, supply line, and domestic water supply storage tank are owned by Pajarito; no residential or commercial users other than Pajarito are connected to this system. The well provides water for the ski area's drinking water, toilets, restaurant, and support facilities, such as the ski patrol room and retail shop. During dry years, the well is unable to deliver potable water at a rate that meets Pajarito's current needs; therefore, there is a need for improved domestic water supply.

Camp May is a County-owned and -operated park located on Camp May Road. Existing facilities include a pavilion, picnic tables, and pit toilets (Los Alamos County 2019a). Public and private events take place at Camp May park; however, potable water is not available on-site and must be hauled in by the park's users. The lack of potable water fails to meet guest expectations of Camp May park.

4. **There is a need for improved electric and fiber optic utilities to Camp May park and existing Pajarito facilities.**

The current overhead electric line that supplies electricity to Pajarito is operating at capacity and cannot support the requirements of updated infrastructure that is anticipated to be installed through Pajarito's routine maintenance and replacement of chairlifts once they are beyond their operational life. In addition, the existing line is approaching the end of its designed lifespan and is expected to experience increased power outages and other operational defects over time.

Furthermore, installation of new water pipeline would require communication between booster stations to effectively move the water upgradient and through the system. Because of topography along Camp May Road, the use of wireless communication methods is not possible; therefore, there is a need for fiber optic communication as part of the proposed waterline project.

1.3 Interagency Coordination

In accordance with regulatory direction, and in furtherance of cooperative management among federal agencies charged with oversight of environmental resources, federal, state, local, and tribal entities with a likely interest in or jurisdiction over aspects of the Proposed Action were sent scoping notices or consulted prior to and throughout the NEPA process. Refer to **Chapter 4. Consultation and Coordination** of this EA for a complete list of the agencies, organizations, and tribal governments that were consulted.

Because a portion of the proposed waterline, one water tank, and one booster would be constructed on DOE/NNSA-owned lands, the DOE/NNSA has jurisdiction and administrative control over those lands involved in the Proposed Action. The Proposed Action would require a new Right-of-Way (ROW) agreement from the DOE/NNSA for the waterline and modification of an existing ROW agreement to include the new tank, booster station, and associated utilities. Both the Forest Service and DOE/NNSA have participated in the pre-decisional Draft EA preparation process, but the DOE/NNSA is not requesting Cooperating Agency status. Because the analysis included in this document discusses both

NFS and DOE/NNSA lands, DOE/NNSA intends to adopt the Forest Service's EA and draft an agency decision document.

1.4 Public Involvement and Identification of Issues

The project analyzed in this document constitutes a federal action that has the potential to affect the quality of the physical, biological, and human environment on public lands administered by the federal government. Therefore, these projects must be analyzed pursuant to NEPA. Under NEPA, federal agencies must carefully consider environmental concerns in their decision-making processes and provide relevant information to the public for review and comment.

The SFNF has prepared this EA in compliance with NEPA and other relevant federal and state laws and regulations. This EA contains analyses consistent with NEPA, Council on Environmental Quality (CEQ) regulations, and Forest Service policy. It discloses potential direct, indirect, and cumulative environmental effects on the human and biological environment anticipated to result from implementation of the Proposed Action. Specific resource issues analyzed were identified through internal Forest Service scoping and external public scoping.

The Proposed Action was listed in the Schedule of Proposed Actions (SOPA) on February 16, 2018, and a description of the project was made available to the public on the SFNF project website https://www.fs.usda.gov/project/?project=53328. The Forest Service distributed a scoping letter on February 16, 2018, via email to 338 individuals and organizations, initiating a 30-day public scoping period.

A public project scoping meeting was held on March 1, 2018. Notice of the meeting was published in the Los Alamos Monitor on the 18th, 21st, and 25th, of February 2018; and in the Los Alamos Daily Post from February 18 to March 1, 2018. A total of 41 people attended the public meeting at the University of New Mexico Los Alamos campus.

Scoping comments were accepted at the public scoping meeting, as well as through the SFNF website, mail, fax, telephone, and email. In total, 23 comment letters were received.

From these letters, substantive comments were extracted and categorized by resource area. The Forest Service identified specific areas of concern and classified them as either "issues" or "non-issues." The Forest Service considered the information gathered through public scoping along with the input of the Forest Service Interdisciplinary Team (ID Team) in identifying specific resources that require in-depth analysis in **Chapter 3. Affected Environment and Environmental Consequences** of this EA.

Resources and issues that are analyzed in detail in this EA are included in **Table 1. Issues Analyzed in Detail**. Resources and issues not carried forward are included in **Table A-1. Resources and Issues Not Carried Forward** in Appendix A.

Table 1. Issues Analyzed in Detail

Resource Area	Issue
Recreation	The Proposed Action may disrupt recreation use of Camp May Road, Camp May park, and Camp May Trail during construction. The Proposed Action may improve skiing conditions by providing reliable and consistent snow coverage on the mountain.
Public Safety	Providing additional water supplies to the infrastructure on Pajarito Mountain, including the fire hydrants along Camp May Road and the snowmaking reservoir near the summit of the mountain, could enhance fire-suppression capabilities for the area.
Traffic and Parking	Construction activities could disrupt traffic and parking patterns at and along Camp May Road, Camp May park, and Camp May Trail trailhead.
Cultural Resources	Ground disturbing activities associated with implementation of the Proposed Action have the potential to disturb archaeological resources.
Wildlife and Fish	Construction activities have the potential to impact Jemez Mountains salamander individuals and federally designated critical habitat; Mexican spotted owl; and northern goshawk.
Watershed and Soils	Implementation of the proposed projects has the potential to increase water yield, peak flows, and erosion within the watersheds containing proposed snowmaking. The proposed projects may decrease the availability of drinking water within Los Alamos County.

In addition, the project area does not contain the following resources. As a result, these resources are not carried forward for additional analysis.

- Inventoried Roadless Areas
- Wild and Scenic Rivers
- Wilderness Areas or Wilderness Study Areas
- Areas of Critical Environmental Concern (relevant discussions of critical habitat, as designated by the Endangered Species Act (ESA) are included in **Section 3.6 Wildlife**)

1.5 Decision to be Made

Based on Forest Service and external public scoping, and evaluation of the context and intensity factors contained in 40 CFR § 1508.27, the Forest Service determined that an EA would be necessary to review, analyze, and document the potential impacts to the human and biological environment anticipated to result from the issuance of a Special Use Authorization for implementation and operation of the proposed projects. This EA is a disclosure rather than a decision document and details the site-specific environmental analysis for the Proposed Action.

Based on the analysis documented within this EA, the Responsible Official (SFNF Forest Supervisor) will decide whether to allow implementation of the Proposed Action. The decision document will include a determination of the significance of the effects and assess the decision's consistency with the 1987 SFNF Land and Resource Management Plan (Forest Plan) (USDA Forest Service 1987). Should a Finding of No

Significant Impact determination be reached, a decision by the Responsible Official would be documented in a Decision Notice. The Responsible Official is the Forest Supervisor of the SFNF, who will issue a Decision Notice for the Forest Service and DOE intends to prepare a separate decision document.

In addition to determining whether to approve the implementation of the Proposed Action analyzed in this document, the Responsible Official may also specify conditions of approval to be implemented with the Selected Alternative. The Responsible Official may also require additional Project Design Criteria (PDC) and/or best management practices (BMP) not discussed within this document, along with monitoring of PDC.

1.6 Other Necessary Permits or Consultation

Decisions by jurisdictions to issue or not issue approvals related to this proposal may be aided by the analyses presented in this EA (per 40 CFR § 1502.25(b)). While the Forest Service assumes no responsibility for enforcing laws, regulations, or ordinances under the jurisdiction of other governmental agencies, Forest Service regulations require permittees to abide by applicable laws and conditions imposed by other jurisdictions. In addition to requisite Forest Service approvals, the following permits or approvals may be required to implement the Proposed Action:

- U.S. Fish and Wildlife Service, Endangered Species Act Informal Section 7 Consultation
- Army Corps of Engineers, Clean Water Act, Section 404 Permit
- State Historic Preservation Office, National Historic Preservation Act, Section 106 Consultation
- U.S. Environmental Protection Agency (EPA) Federal Construction General Permit for stormwater discharges
- New Mexico Smoke Management Plan

Chapter 2. Description of Alternatives

2.1 Introduction

This chapter describes the alternatives considered within this environmental analysis. As required by the CEQ, the alternatives considered are presented in comparative form (40 CFR Part 1502). PDC intended to lessen or avoid potential impacts resulting from implementation of the Proposed Action are outlined in **Table 3. Project Design Criteria**.

2.2 Alternatives Considered in Detail

The range of alternatives that the Forest Service ID Team considered for this analysis was bound by the Purpose and Need underlying the Proposed Action, as well as by the issues that arose from internal and external scoping (refer to the "Purpose and Need for the Proposed Action" section in **Chapter 1. Purpose and Need**). NEPA requires that an environmental analysis examine a range of alternatives, which "would resolve conflicts about the proposal." Furthermore, Forest Service Handbook 1909.15 directs the ID Team to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources" (USDA Forest Service 2012).

In accordance with Forest Service Handbook 1909.15, Chapter 40, Section 41.22, and 36 CFR § 220.7(b)(2)(i) this EA will not include an analysis of the No Action Alternative.

The Forest Service Handbook states:

A stand-alone no-action alternative is not required. However, the effect of taking no action should correlate closely with the purpose and need. In other words, the effects of not taking action should provide a compelling reason for taking action and, therefore, should be consistent with the purpose and need for action (USDA Forest Service 2010).

As discussed in **Chapter 1. Purpose and Need**, the Purpose and Need is based on the following components: the lack of connection between Los Alamos County's water supply system and the Camp May Water Tank #1; the need for enhanced fire suppression along Camp May Road and the broader landscape of the region; the need for additional snowmaking water supply at Pajarito; and the need for domestic water supply, electric, and fiber optic utilities at Pajarito and Camp May park. The Proposed Action meets all of the identified Needs for the project; furthermore, without implementation of the Proposed Action, Pajarito would not be able to address these shortcomings. The No Action Alternative is not discussed further in this EA. Furthermore, no additional alternatives were identified as being capable of addressing all components of the Purpose and Need, while reducing impacts related to identified issues.

2.2.1 Proposed Action

Pending issuance of a Forest Service Special Use Authorization and DOE/NNSA ROW agreement, Los Alamos County anticipates that construction could begin as early as fall 2021.

Los Alamos County would install an underground water pipeline, fiber optic conduit, and electrical conduit along Camp May Road to Pajarito under a Special Use Authorization and ROW agreement. This

includes the construction, operations, and maintenance of all necessary improvements, associated with the proposed new water tank, water pipeline, four booster pump stations, and fiber optic and electrical conduit. The project components are discussed in additional detail below.

Water Pipeline

Los Alamos County would bury approximately 4.3 miles (22,795 feet) of 12-inch-diameter water pipeline to convey potable water at a rate of up to 1,000 gallons per minute (refer to the Proposed Action Figure). Originating on DOE/NNSA lands and proximate to the existing Pajarito Water Tank #4, the pipeline would be installed along the currently disturbed north side of West Road to the intersection with Camp May Road. From the intersection of West Road and Camp May Road, the pipeline would continue along Camp May Road to the connection with the existing 8-inch diameter, Pajarito-owned, non-potable water pipeline that discharges to the existing Camp May Water Tank #1 located on private land.

Distances of pipeline by land manager would be as follows:

- Approximately 0.8 mile (4,149 linear feet) of pipeline on DOE/NNSA lands
- Approximately 3.5 miles (18,464 linear feet) of pipeline on NFS lands
- Approximately 0.03 mile (1,182 linear feet) of pipeline on private land owned by Pajarito

Both the existing water pipeline and Camp May Water Tank #1 would be converted to potable water storage and conveyance. The new potable water supply would become the primary water source for the existing snowmaking reservoir, with the current non-potable collection gallery supply as a supplemental source. No modifications to the snowmaking reservoir are proposed. Backflow preventers, valves, and meters would be installed to maintain the flow of water toward Camp May Water Tank #1. Additional information regarding construction methods, including construction laydown areas, is provided in the *Construction Methodology* section.

Electric and Fiber Optic Conduit

In addition to the buried water pipeline, Los Alamos County proposes to install 4-inch-diameter fiber optic conduit and 6-inch-diameter electric conduit within the same open trench at required vertical and horizontal separations from the water pipeline. Fiber optic line would be necessary to coordinate the pumping activity between the proposed booster pump stations as existing topographic constraints prevent the use of wireless communication methods. Public use of the fiber optic line is not proposed at this time. Electrical conduit would be installed but would not be immediately activated. Rather, a portion of the overhead electrical line on DOE/NNSA lands near Pajarito Water Tank #4 would be relocated north and aboveground to avoid a new proposed water tank (refer to Camp May Water Tank #2 discussion in the following section) and the entire overhead electrical line would be decommissioned and deconstructed at a later time. In addition to the proposed electrical conduit itself, support equipment such as booster transformers would be necessary to maintain the flow of electricity and communications. The number and placement of this equipment would be determined during engineering design, but would be located within the proposed disturbance corridor described above.

Anticipated disturbance associated with the proposed water pipeline and utility conduit is described in **Table 2. Summary of Disturbance on NFS, DOE/NNSA, and Private Lands**.

Camp May Water Tank #2

Under the existing water supply contract with the DOE/NNSA , Los Alamos County is required to maintain a certain water volume in Pajarito Water Tank #4. To minimize the potential for the water volume in Pajarito Water Tank #4 to drop below this agreed-upon volume while the proposed water pipeline is operational, Los Alamos County would construct a new 250,000-gallon steel water tank located approximately 30 feet northwest of the existing Pajarito Water Tank #4 on DOE/NNSA lands. Camp May Water Tank #2 would be approximately 42 feet in diameter and approximately 25.5 feet tall, surrounded by an approximately 10-foot-wide gravel surface. Two sections of gravel access road, each approximately 50 feet long and between 15 and 20 feet wide, would be located on the east and south sides of the water tank to allow construction and vehicle maintenance access. The existing Pajarito Water Tank #4 site would be able to accommodate the proposed Camp May Water Tank #2 within the boundaries of the easement originally granted by the DOE/NNSA to Los Alamos County. Grading and tree removal would be necessary to construct Camp May Water Tank #2. Camp May Water Tank #2 disturbance amounts are described in **Table 2. Summary of Disturbance on NFS, DOE/NNSA, and Private Lands**.

Booster Pump Stations

To move water uphill to the existing Camp May Water Tank #1, four booster pump stations would be installed along the pipeline alignment. Each booster pump station would deliver 250 gallons per minute to transfer approximately 250,000 gallons daily from Camp May Water Tank #2 to Camp May Water Tank #1. Starting in the fall, the proposed booster pump stations would operate for 16 hours a day on average for two to three months to fill the 10-million-gallon snowmaking reservoir and resupply evaporation losses. During winter and depending on precipitation, pumps would operate to make up for use and evaporation losses occurring during snowmaking operations.

Each booster pump station would be constructed within fully enclosed prefabricated buildings, each with a footprint up to approximately 275 square feet. These buildings would protect the equipment from the elements and would also help mitigate any potential noise impacts. The pumps would be barely audible (less than 30 decibels outside the pump station) to users of the Camp May Road. The siding of the buildings would be constructed of metal, and the roof would be topped with insulated roof panels and a roof fan. A 4-foot by 4-foot rock splash pad would be constructed adjacent to the buildings for pressure relief. To power the booster pump stations, pad-mounted transformers would be installed and connected to the existing overhead electric utility line, and eventually to the proposed underground electrical conduit once the overhead line is decommissioned. Each building and transformer would be blocked off from public access; at this time, it is believed they would be enclosed by an approximately six-foot-tall chain link fenced topped with three-strand barbed wire.

Booster Pump Station #1

Booster Pump Station #1 would be installed approximately 30 feet west of the existing Pajarito Water Tank #4 on DOE/NNSA lands and within the boundaries of the right-of-way originally granted by the DOE/NNSA to Los Alamos County. Access to Booster Pump Station #1 would be provided by a gravel access road described in the previous Camp May Water Tank #2 section.

Booster Pump Station #2

Booster Pump Station #2 would be installed on previously undisturbed NFS lands approximately 40 feet west of Camp May Road. A gravel access road approximately 40 feet long and 12 feet wide would be constructed to provide access from Camp May Road to Booster Pump Station #2. No tree clearing,

minimal vegetation clearing, and minimal grading would be required for the construction of Booster Pump Station #2 and its access road.

Booster Pump Station #3

Booster Pump Station #3 would be installed on previously undisturbed NFS lands approximately 30 feet east of Camp May Road. A gravel access road approximately 30 feet long and 12 feet wide would be constructed to provide access from Camp May Road to Booster Pump Station #3. No grading and only minimal vegetation clearing would be required for the construction of Booster Pump Station #3 and its access road.

Booster Pump Station #4

Booster Pump Station #4 would be installed within an existing gravel parking area on NFS lands approximately 25 feet east of Camp May Road. The booster pump station would be located approximately 330 feet northeast of Pajarito's Townsight chairlift bottom terminal. No vegetation clearing and only minimal grading would be required for the construction of Booster Pump Station #4 and its access road.

Disturbance associated with the construction of the booster pump stations is described in **Table 2. Summary of Disturbance on NFS, DOE/NNSA, and Private Lands**.

Water Rights

According to Los Alamos County, total water rights available to Los Alamos County's water production system, as determined by the New Mexico Office of the State Engineer, amount to 5,541 acre-feet per year including the 1,662 acre-feet owned by the DOE/NNSA but leased to Los Alamos County (Los Alamos County 2019b). The source of this water comes from twelve groundwater wells that tap the main aquifer under the Pajarito Plateau, part of the Santa Fe formation. Additionally, Los Alamos County has a contract with the U.S. Bureau of Reclamation for 1,200 acre-feet of water per year from the San Juan/Chama transmountain diversion project. The San Juan/Chama surface water has never been used in Los Alamos County. On average, Los Alamos County used 4,511 acre-feet per year between 1970 and 2016. Los Alamos County's Long-Range Water Supply Plan estimates that with conservation, the maximum demand by the year 2060 would be 4,530 acre-feet (Stephens & Associates 2018). Therefore, the Proposed Action would increase water use in Los Alamos County to 4,663 acre-feet. Refer to **Section 3.5 Watershed and Soils** for a detailed discussion of water rights for Los Alamos County.

Construction Methodology

Construction activities would last six to nine months. Camp May Road would be kept open to traffic during construction and appropriate safety and traffic control measures would be provided to protect road users as well as construction personnel and equipment. Some trenching on rock is anticipated, and it would be performed by conventional means, such as using graders and back-hoes. The trench's depth would vary between 3 and 8 feet, depending on subsurface conditions. Some rock excavation and blasting may occur. The disturbance width, including the 2.5-foot trench, spoils piles, and laydown areas, would be approximately 30 feet. The majority of the water pipeline trench would be located beneath the existing road surface or within the existing road right-of-way; however, some portions would be located outside of the existing road right-of-way, particularly where connecting with booster pump stations (described previously in the Booster Pump Stations section).

Adequate safety measures and BMPs would be used in trenching operations. Vegetation clearing would be limited to the proposed Camp May Water Tank #2 and booster pump station sites. The pipeline would be installed in cleared areas along existing roads.

DOE/NNSA would require a ROW agreement with Los Alamos County prior to construction on DOE/NNSA lands. These areas would be cleared of vegetation and restored following construction activities. The first construction easement would be located at the existing Pajarito Water Tank #4 location and would surround the existing water tank and proposed Camp May Water Tank #2 and Booster Pump Station #1. This construction easement would be approximately 2.2 acres. The second construction easement would be used for pipeline construction and equipment staging and would be located at the northeast corner of West Road and Camp May Road. This construction easement would be approximately 2.1 acres.

Low visual impact design would be used for all pump stations and water tanks, including green or brown coloring to blend in with the surrounding landscape. BMPs would be used to minimize erosion and sediment transport, such as mulch socks and filter fences. Any disturbed soils around structures and pipeline trench backfill would be recontoured and seeded with approved native seed mixes.

Summary of Disturbance

The Proposed Action would result in disturbance on NFS, DOE/NNSA, and private lands. **Table 2. Summary of Disturbance on NFS, DOE/NNSA, and Private Lands** describes the acreage of disturbance associated with each project component and how that disturbance is divided by land ownership/management.

Table 2. Summary of Disturbance on NFS, DOE/NNSA, and Private Lands

Project Component	NFS Lands		DOE/NNSA Lands		Private Lands		Total	
	Quantity	Disturbance	Quantity	Disturbance	Quantity	Disturbance	Quantity	Disturbance
Water Pipeline and Utility Corridor[a]	3.5 miles/ 18,464 feet	12.7 acres	0.8 mile/ 4,149 feet	2.9 acres	0.03 mile/ 182 feet	0.2 acre	4.3 miles/ 22,795 feet	15.7 acres
Camp May Water Tank #2[b]	0	0 acre	1	0.1 acre	0	0 acre	1	0.1 acre
Booster Pump Stations[c]	3	0.15 acre	1	0.05 acre	0	0 acre	4	0.2 acre
Construction Easements[d]	0	0 acre	2	4.3 acres	0	0 acre	2	4.3 acres
Total	**--**	**12.9 acres**	**--**	**7.4 acres**	**--**	**0.2 acre**	**--**	**20.3 acres[e]**

Notes:
[a] Utility corridor assumes a disturbance width of approximately 30 feet, and where the corridor is centered on a specific land ownership all disturbance on either side of the centerline would occur on that land ownership.
[b] Camp May Water Tank #2 disturbance includes tank footprint, surrounding gravel pad, and two gravel access roads.
[c] Booster pump stations assume a disturbance footprint of 0.05 acre to include the gravel access road, booster pump station building, rock splash pad, pad mounted transformers, and chain link fence.
[d] Construction easements would be temporary disturbance and reclaimed following construction activities on DOE/NNSA land.
[e] Numbers may not total due to rounding

2.2.2 Project Design Criteria

In order to minimize potential resource impacts from construction and implementation of the proposed project, the PDC detailed in **Table 3. Project Design Criteria** have been incorporated into the Proposed Action. PDC were devised by Forest Service specialists in the pre-analysis and analysis phases to reduce potential environmental impacts associated with project elements and ensure compliance with laws and regulations. The potential effects of implementing the Proposed Action (disclosed in **Chapter 3. Affected Environment and Environmental Consequences**) assume these PDC are applied. PDC come from federal, state, and local laws, regulations, and policies; forest management plans; scientific recommendations; or from experience in implementing similar projects. The majority of the PDC provided in **Table 3. Project Design Criteria** are considered common practices that have been historically used in similar environments to prevent or decrease potential resource impacts.

Table 3. Project Design Criteria

Resource	Project Design Criteria
General	All proposed activities and facilities shall meet Forest Plan and all applicable agency management direction (e.g., Forest Service Handbook and Manual) for all affected resource areas.
	Prior to starting construction activities on NFS lands, Los Alamos County shall develop a Construction Implementation Plan for Forest Service review and authorization. All proposed construction methodologies and practices will be reviewed for compliance with the decision and resource management direction. This plan shall include the following information: 1. Construction Management, including a spill management plan for construction equipment 2. Project timelines, project contacts, disturbance boundaries, grading and site plans, staging and parking areas, construction access, and any required survey information. 3. Erosion Control and Drainage Management • Erosion control and drainage management activities 4. Post-Construction Revegetation and Restoration • Methodology, locations, vegetative mixes, and soil amendments 5. Noxious Weed Management • Weed control methodologies including equipment cleaning, pretreatment, and post-construction monitoring and treatment 6. Best Management Practices
	Prior to starting construction activities on DOE/NNSA lands, Los Alamos County will submit required plans and associated documents to the Los Alamos Field Office (DOE/NNSA) for review and authorization. Los Alamos County will be required to obtain an excavation permit prior to execution.
	Los Alamos County shall obtain all required county and state permits prior to the start of construction.

Table 3. Project Design Criteria (*cont.*)

Resource	Project Design Criteria
Wildlife	Prior to any tree-cutting activities to occur between April 1 and August 30, project areas shall be surveyed for migratory birds by a qualified biologist, in consultation with the Forest Service and DOE/NNSA resource specialists.
	To minimize disturbance for Jemez Mountains salamander: 1. Excavation areas would be as small as possible, kept within previously disturbed areas, and not extend into the adjacent forest with the exception of two booster pump stations, which will be developed in previously undisturbed areas. 2. Any tree removal would be a minimum width necessary and snags or trees should be felled only when essential for the installation, maintenance, and repair of the pipeline, or for safety or personnel. 3. When possible, excavation within Jemez Mountains salamander habitat will occur during the monsoon season (loosely defined as the rainy season occurring from mid-July through mid-September). During construction, a bio-monitor would be present to search for Jemez Mountains salamander ahead of trenching and grading equipment. 4. If ground disturbing activities cannot be done during the monsoon season, a bio-monitor that has been trained and can successfully carry out wildlife rehabilitation should be on site. If an injured salamander is located, it should be examined and the appropriate level of response should be employed by the bio-monitor, including relocation if in good health or nursing if injured. 5. If Jemez Mountains salamanders are observed within the excavation area, the bio-monitor shall capture and relocate the salamanders to a nearby suitable area. Suitable locations would be identified by U.S. Fish and Wildlife Service (USFWS) and Forest Service prior to implementation of the Proposed Action. Disease management practices would be implemented (e.g., single use bags, single use gloves, disinfection of equipment between sites, etc.). Data on the salamander, disease samples, and photographs may be collected. Dead or moribund salamanders, or broken tails, would be collected, preserved, and deposited at the Museum of Southwestern Biology at University of New Mexico, Albuquerque, New Mexico. 6. Burial of the pipeline would be done in a manner such that barriers to movement are avoided (e.g., avoid trench-like features where salamanders could get trapped). Backfill the trench and leave the earth mounded over the trench to prevent barriers and subsidence. 7. Water bars shall be installed as needed to divert water from the pipeline right-of-way and prevent erosion and maintain road integrity. In Jemez Mountains salamander habitat, minimize lead-outs. 8. In Jemez Mountains salamander habitat, wheel roll the backfill (i.e., roll over the soil with a backhoe several times) during burial of the pipeline to minimize compacting the soil. 9. In an effort to minimize spreading amphibian disease or pathogens, all heavy equipment, transport trucks and vehicles be cleaned of mud and debris prior to mobilization onto Forest Service system lands to prevent the introduction of amphibian pathogens. 10. All maintenance activities will be reported annually to USFWS and Forest Service. Following the repairs, the USFWS and Forest Service will be provided an update that includes total acres of salamander habitat affected and any salamanders observed and their final disposition. The USFWS and Forest Service will also be provided with any other relevant information such as follow up salamander surveys or monitoring.

Table 3. Project Design Criteria (*cont.*)

Resource	Project Design Criteria
Wildlife (*cont.*)	Following project activities, Los Alamos County's qualified biologist shall update the Forest Service biologist of the total acres of salamander habitat affected, any salamanders observed, and the final disposition of the project area.
	To minimize disturbance to the Mexican spotted owl: 1. Much of the project area has been impacted by wildfire and suitable habitat for Mexican spotted owl is minimal. One season of USFWS protocol surveys will be conducted (i.e., four surveys spaced five days apart within a least a 0.5 mile of the project corridor) between March and April to verify whether a breeding pair of owls is present; should no breeding pair be detected, construction could occur in July of that year. If owls are detected, implementation would not be allowed until after September 1. 2. If possible, schedule work in the fall and outside of the breeding season (March 1 through August 31). 3. Tree and shrub removal that occurs on DOE/NNSA lands will occur outside of the breeding season. 4. If the breeding season cannot be avoided, avoid activities within 0.25 mile of nest cores during the breeding season or within 0.25 mile of protected activity center (PAC) if nest core is unknown. This may also be applied to designated critical habitat or recovery habitat that have not been surveyed. 5. Activities may occur at any time including during the breeding season and within the protected activity center, and within 165 feet of the protected activity center boundary, if noise disturbance does not exceed 69 dBA consistently or for an extended period of time as defined in the 2012 Mexican Spotted Owl Recovery Plan, First Revision. 6. Should Mexican spotted owl breeding be detected, Los Alamos County shall work with SFNF personnel to establish a protected activity center of nest cores.
Vegetation and Noxious Weeds	The Forest Service shall be contacted if Forest Service Region 3 sensitive plants are discovered within the project area during implementation.
	Inspect and document all limited term ground-disturbing operations in noxious weed infested areas for at least three growing seasons following completion of the project. For on-going projects, continue to monitor until reasonable certainty is obtained that no weeds have occurred. Provide for follow-up treatments based on inspection results.
	All equipment and vehicles to be used will be cleaned (devoid of all soil and plant material, including seeds, roots, and vegetative components) prior to entrance onto the forest and job sites. Cleaning shall consist of the removal of all dirt, grease, debris, and materials that may harbor non-native invasive plant materials (including seeds, roots, and vegetative components).
Soils	Stockpile topsoil so that it may be used for revegetation projects.
	Where appropriate, revegetate disturbed terrain (including staging areas) immediately after completion of construction using Forest Service-approved, native seeds. Install temporary BMPs for sediment and erosion control until planted vegetation provides erosion control. Monitor and manage these areas for weeds.
	BMPs for erosion and sediment control should be installed before ground-disturbing activities begin and during the project around excavated trench materials. If natural or biodegradable materials are not used and left on site, all non-natural and non-biodegradable materials should be removed at the end of construction.

Table 3. Project Design Criteria (*cont.*)

Resource	Project Design Criteria
Soils (cont.)	Areas compacted by construction activities may require mechanical subsoiling or scarification to the compacted depth to reduce bulk density and restore porosity.
	Properly compact fills.
Cultural	The archeological site LA 199267 shall be avoided and the southern side of West Road should not be used for equipment staging or vehicle parking to avoid impacts to this site.
	If undocumented historic and/or prehistoric properties are located during ground disturbing activities or planning activities associated with approved construction activities, all construction in the immediate vicinity shall cease in accordance with 36 CFR § 800.11 and the SFNF Forest Archaeologist will be notified. The Forest Archaeologist will determine whether the deposits encountered enact Native American Grave Protection and Repatriation Act (NAGPRA). Construction will cease until the Forest Archaeologist inspects the site and approval of continuation is given.

2.2.3 Alternatives Considered but Eliminated from Detailed Analysis

The range of alternatives considered by the Responsible Official include the Proposed Action, as well as other alternatives eliminated from detailed analysis. The Forest Service Handbook 1909.15 states, "Alternatives not considered in detail may include, but are not limited to, those that fail to meet the Purpose and Need, are technologically infeasible or illegal, or would result in unreasonable environmental harm" (USDA Forest Service 2012).

As the Proposed Action is limited to the installation of a single piece of infrastructure, no additional alternatives were identified. Options for wells are not considered appropriate due to Pajarito's problematic history with such efforts, as well as anticipated costs and geological constraints. Further, alternative alignments were not determined to be viable during the design of the Proposed Action because the proposed alignment connects to existing infrastructure (the Pajarito Water Tank #4 and Pajarito snowmaking pipelines), reduces tree clearing by using primarily clear areas for placement of booster pump stations, and minimizes disturbance by following the Camp May Road corridor. Any alternate route would require crossing undisturbed NFS lands; therefore, following the roadway is preferred for both construction and long-term maintenance needs.

2.3 Summary of Direct and Indirect Environmental Consequences

Table 4. Summary of Direct and Indirect Environmental Consequences

Resource Area and Issue	Indicator	Summary
Recreation The Proposed Action may disrupt recreation use of Camp May Road, Camp May, and the *Camp May Trail* during construction. The Proposed Action may improve skiing conditions by providing reliable and consistent snow coverage on the mountain.	*Qualitative discussion of the recreation uses of Camp May Road and Camp May, including use of the nearby trail informally referred to as the "Camp May Trail."*	Camp May Road offers access to a variety of mountain biking and hiking trails, including the *Camp May Trail*, while Camp May offers picnicking and camping opportunities. Construction of the Proposed Action could cause a backup of traffic along Camp May Road due to the potential closure of one lane along a segment of Camp May Road, resulting in delays for users accessing trails and activities in the project area. Users could also experience fugitive dust and increased noise and visual disturbance from construction. Overall, the majority of impacts to summer recreation would be temporary in nature and would only occur during the construction phase of the project. In addition, by providing enhanced fire suppression around the project area, the longevity of recreation along Camp May Road would be improved.
	Quantification of snowmaking coverage at Pajarito under current and proposed conditions.	Pajarito currently has the ability to make snow on approximately 40 acres of terrain. However, the snowmaking system is limited by snowmaking water availability and Pajarito has only been able to produce the full 40 acres of snowmaking once between the years of 2014 and 2019. In 2018 there was no water available in the snowmaking reservoir and snowmaking was not performed. The Proposed Action does not include any additional snowmaking coverage or the installation of additional snowmaking infrastructure; instead, the Proposed Action would allow Pajarito to use its existing snowmaking equipment to its full capacity. That is, Pajarito would be able to consistently provide snowmaking on all 40 acres of its terrain under the Proposed Action but would not add coverage to its terrain that receives snowmaking.
	Qualitative discussion of the existing recreation experience of guests at Pajarito in terms of the skiing experience and snow quality.	In years with extremely low snowfall and minimal water in the snowmaking reservoir, Pajarito is unable to make any snow. This can result in Pajarito being unable to open on time, open only during certain parts of the year, or close early in the season, hindering the guest experience. The Proposed Action would provide water for consistent snowmaking and would allow Pajarito to develop a predictable snow base to supplement natural snow conditions and enhance the recreation experience. Guests visiting Pajarito would encounter better snow conditions and better coverage as well as improved, firmer snow to learn on. Circulation routes and high traffic areas would have a higher quantity of snow on them. The additional snowmaking coverage would also improve the safety of those skiing Pajarito by increasing available trails, reducing congestion on each trail, and improving coverage on trails.
Lands and Access The Proposed Action may result in future residential/commercial development at Pajarito and adjacent area	*Discussion of various land management agencies and zoning of the project area, and whether these zones allow for residential/ commercial development.*	Under the Proposed Action, there would be minimal anticipated impacts to land use. All uses—including skiing, mountain biking, and hiking—would remain the same. The Proposed Action, through the provision of sufficient water to the Pajarito base area, could indirectly increase the appeal and/or potential for residential or commercial development around Pajarito. While there is no development proposed in the Pajarito area under the Proposed Action, and assessing the likelihood of future development is beyond the scope of this analysis, the zoning requirements for any land in the project area provide a thorough process for vetting any future development. On private land, in either Los Alamos or Sandoval County, residential or commercial expansion is restricted under the existing zoning ordinances and would require a public hearing at the minimum in all situations where any development were to be proposed. In addition, any proposed development on federal land (either NFS or DOE land) would require the disclosure of relevant environmental impacts through the NEPA process as well as other formal review processes. At this time, there is no proposed development on adjacent federal land that meets the definition of reasonably foreseeable.

Table 4. Summary of Direct and Indirect Environmental Consequences (*cont.*)

Resource Area and Issue	Indicator	Summary
Public Safety Providing additional water supplies to the infrastructure on Pajarito Mountain, including the fire hydrants along Camp May Road and the snowmaking reservoir near the summit of the mountain, could enhance fire suppression capabilities for the area.	*Qualitative discussion of fire prevalence, the frequency that the existing fire suppression is utilized, and the insufficiency of the existing fire suppression system.*	New Mexico experiences a high variety of wildfire prevalence, with a high of over 967,000 acres burned in 2011 and a low of 2,700 acres burned in 2004. Smaller fires within range of the Los Alamos fire hydrant network receive water from these hydrants, while larger fires outside of this network receive water from a variety of sources used by state and federal agencies, including the Pajarito snowmaking reservoir. This reservoir is used to fight wildfires by firefighting helicopters that fill up their buckets at the reservoir. Given the existing limited supply of water to the reservoir, the Proposed Action would provide a continuous and reliable source of water along Camp May Road and to Pajarito, including to the snowmaking reservoir for fire suppression. The Los Alamos Fire Department would have access to the fire hydrants installed along the water pipeline along Camp May Road and any state and federal firefighting operations would have access to the Pajarito snowmaking reservoir (e.g., firefighting helicopters would able to fill their buckets at the reservoir). This is anticipated to reduce fire severity through increased water available for fighting fires.
Traffic and Parking Construction activities could disrupt traffic and parking patterns at and along Camp May Road, Camp May, and Camp May Trail trailhead.	*Disclosure of construction schedule and qualitative description of anticipated road, parking lot, and trailhead closures or traffic pattern modifications.*	Pajarito and Camp May park are accessed via Camp May Road, a two-lane road without a center stripe that travels approximately 4 miles from its beginning at West Road to Pajarito. The Proposed Action is anticipated to result in delays in traffic along Camp May Road and parts of West Road during the summer construction season as one lane would be closed along the section of road that would be worked on. In addition, there is anticipated to be a reduction in parking availability in both the short- and long-terms due to construction of the booster stations. However, these impacts would be negligible overall due to the limited nature of delays (i.e. generally less than 10 minutes and only during construction hours of 8:00 a.m. and 5:00 p.m.), the low traffic volume on Camp May Road during the summer, and the overall availability of parking at Pajarito and Camp May park.
Cultural Resource Ground disturbing activities associated with implementation of the Proposed Action have the potential to disturb archaeological resources.	*Documentation of presence or absence of identified cultural resources and documentation of impacts to any potentially eligible National Register of Historic Places (NRHP) sites.*	Archaeologists conducted a Class III pedestrian survey within the 121-acre area of potential effect (APE). Survey documented four archaeological sites and two IOs. Three sites are recommended as not eligible for listing on the NRHP. The fourth site (LA 199267) is a moderate-density prehistoric lithic artifact scatter located at the eastern end of the project corridor and is recommended as eligible for listing the NRHP under Criterion D. All proposed infrastructure and ground disturbance will occur on the northern side of West Road and away from LA 199267. In addition, a PDC is included stating that the site location is to be avoided during project implementation, and that the southern side of West Road should not be used for equipment staging or vehicle parking. Therefore, the proposed undertaking would have no effect on this historic property. The State Historic Preservation Office (SHPO) concurred with these findings on October 29, 2021.

Table 4. Summary of Direct and Indirect Environmental Consequences (*cont.*)

Resource Area and Issue	Indicator	Summary
Wildlife Construction activities have the potential to impact Jemez Mountains salamander individuals and federally designated critical habitat; Mexican spotted owl; and northern goshawk.	*Quantification of impacts to Jemez Mountains salamander designated critical habitat (acres).*	The Proposed Action would disturb 12.1 acres of land within critical habitat for the species as a result of construction and installation of the pipeline. With implementation of PDC detailed in **Table 3. Project Design Criteria** of the EA, including minimizing tree removal and excavation areas, impacts to critical habitat will be lessened. Overall, the Proposed Action may affect, but is not likely to adversely affect designated critical habitat for the species and is not likely to destroy or adversely modify critical habitat. Direct impacts to the species itself could include disturbance to and removal of individual organic-cover objects during trenching and grading, changes in the distribution of soil moisture from construction, areas of soil compaction associated with tank installation, and more. Additionally, there may be direct impacts such as occasional injury or death resulting from crushing during excavation or grading. If work occurs outside of the monsoon season, salamanders that are residing underground, and therefore not visually detectable by the bio-monitor, could also be injured or killed. Indirect effects also include disruption of normal behavior patterns, such as breeding, feeding, and sheltering, during instances of the relocation of an individual salamander by the bio-monitor. However, it is likely that there is a relatively low to moderate presence of the Jemez Mountains salamander in the project area due to low habitat quality and impacts would not be likely to contribute significantly to the species decline or jeopardize the continued existence of the Jemez Mountains salamander. The Proposed Action therefore may affect, and is likely to adversely affect, the Jemez Mountains salamander. Formal consultation with the USFWS for Jemez Mountain salamander was initiated on March 19, 2020 with a formal Biological Opinion response on July 29, 2020. Based on the fact that the Proposed Action would disturb approximately 12.1 acres of land within salamander critical habitat and that this is approximately 0.01% of the entire designated critical habitat, the USFWS found that the Proposed Action is not likely to jeopardize the continued existence of the Jemez Mountains salamander nor adversely modify or destroy its critical habitat.
	Presence/absence of Mexican spotted owl and disclosure of impacts	Designated critical habitat occurs approximately 4 miles south of the project area, but not within the project area itself; therefore, there would be no effect on critical habitat for the Mexican spotted owl. Approximately 0.35 mile of the proposed pipeline would be located within a protected activity center (PAC); however, most of the PAC was greatly impacted by the Las Conchas fire of 2011 and marginal habitat for the Mexican spotted owl occurs in the area. Surveys for Mexican spotted owl were conducted in 2020 on March 31,May 4, June 10, and June 25, with no detections. The project would result in noise impacts from trenching, rock excavation, grading, blasting, and tree removal and could impact nesting owls in the area. Other impacts to the owl would likely be in the form of project area avoidance and a decrease in prey availability due to prey species avoiding the area. However, PDC included in **Table 3. Project Design Criteria** of the EA would limit loud construction activities (greater than 69 decibels) and would provide for protocol surveys to assess presence of Mexican spotted owls in the project area. Therefore, the Proposed Action may affect but is not likely to adversely affect the MSO. Consultation with the USFWS was initiated on March 19, 2020, with a formal Biological Opinion response on July 29, 2020. The USFWS submitted a Biological Opinion in response on July 29, 2020 concurring with the determination for the Mexican spotted owl.
	Presence/absence of northern goshawk and disclosure of impacts	Although this species could nest adjacent to the project area in forested slopes/canyons, no goshawk management areas have been identified by SFNF near the project area. Additionally, no previous season nests were observed during surveys, and, for much of the distance of the pipeline alignment, trees directly adjacent are burned and would not be suitable for nesting. The project would result in minimal tree removal overall, but does pass through more remote locations and could result temporarily in noise and increased human activity

Resource Area and Issue	Indicator	Summary
		during construction; therefore, the Proposed Action may impact individuals, but is not likely to cause a trend to federal listing or a loss of viability.

Resource Area and Issue	Indicator	Summary
Vegetation Construction activities have the potential to impact state and Forest Service Region 3 sensitive plant species and introduce noxious/invasive weeds.	*Identification and quantification (acres) of suitable and occupied sensitive plant species habitat.*	No federally-listed threatened, endangered, and proposed (TEP) plant species were found within the project area, due to lack of habitat or lack of presence of the species if suitable habitat existed, and therefore there would be no impacts to federal TEP species. Four Region 3 sensitive species were identified as having potential suitable habitat on the SFNF, but were not observed within or adjacent to the project area during field surveys. Therefore, there would also be no impacts to Region 3 sensitive species. The SFNF has not identified any plant species as Management Indicator Species (MIS); therefore, no additional analysis is required for plant MIS.
	Identification of noxious weeds present in the area of proposed ground disturbance and description of potential for increasing noxious weed spread.	During the construction phase of the Proposed Action, there is the potential to spread noxious weeds within the SFNF. However, noxious weeds measures to prevent the proliferation of these species are included in **Table 3. Project Design Criteria** of the EA and it is not anticipated that the Proposed Action would result in the spread of these species.
Watershed and Soils Implementation of the proposed projects has the potential to increase water yield, peak flows, and erosion within the watersheds containing proposed snowmaking. The proposed projects may decrease the availability of drinking water within the County.	*Identification of anticipated temporary and permanent changes in water yield (acre-feet) and peak flows (cubic feet per second), and subsequent watershed effects.*	The study watersheds' water yields and 6-day average peak flow rates would increase by approximately 0 to 0.5 percent relative to existing conditions as a result of the small acreage of permanent grading associated with the pipeline installation and from the ability of Pajarito to consistently utilize its snowmaking infrastructure. As a result, impacts to water yields and 6-day average peak flow rates are expected to be minimal.
	Discussion of water rights available for the proposed project and the effects of water use on other water users in the County, including under drought conditions.	It is estimated that the maximum annual demand of the Proposed Action would be 133 acre-feet/year. The water demand associated with the Proposed Action would therefore increase Los Alamos County's future peak water demand from 4,530 acre-feet annually to 4,663 acre-feet. Los Alamos County currently owns 3,878.9 acre-feet and leases 1,662.4 acre-feet from the DOE for a total of 5,541.3 acre-feet. Therefore, there would be adequate water for all users in Los Alamos County, even under drought conditions.

Table 4. Summary of Direct and Indirect Environmental Consequences (*cont.*)

Resource Area and Issue	Indicator	Summary
Watershed and Soils (*cont.*)	*Presence/absence of streams and waterbodies overlapping proposed project activities and qualitative discussion of water quality of the affected watersheds, streams, and other waterbodies under current and proposed conditions.*	Streams in the project area include Twomile Canyon; a secondary intermittent stream tributary to Twomile Canyon; Los Alamos Canyon; and Salamander Gulch, a tributary stream to Los Alamos Canyon. These streams total approximately 28 linear miles within the project area watersheds. Los Alamos Reservoir is the only standing waterbody in the project area. No impaired waters exist in the project area. The streams in the project area for which data is available are all fully supporting for the assessed uses. The Proposed Action could result in an increase in sediment-loading from construction and/or increased surface runoff at Pajarito. However, these impacts would be minimal and further mitigated with PDC outlined in **Table 3. Project Design Criteria** of the EA and no negative impacts to the water quality of the study watersheds or their receiving waters are anticipated to result from the Proposed Action.
	Brief discussion of NRCS-mapped soils in the area and their erosion potential.	The project would be constructed on soils with a moderate to severe erosion potential; however, these soils are generally located on flat ground adjacent to existing roads. Within the previously disturbed areas adjacent to the existing roads, approximately 20 acres of temporary disturbance would be required to install the water pipeline and utility conduits. PDC outlined in **Table 3. Project Design Criteria** of the EA, including the revegetation of disturbed terrain using Forest Service-approved native seeds and the use of erosion and sediment control measures around excavated trench materials, would be implemented during construction to control sediment and prevent it from leaving the excavation sites.

Chapter 3. Affected Environment and Environmental Consequences

CEQ regulations direct agencies to succinctly describe the environment that may be affected by the alternatives under consideration (40 CFR § 1502.15). This chapter describes the existing environment for resources across the human and biological environments that have the potential to be affected by implementing the Proposed Action. Each Affected Environment description is followed by an Environmental Consequences discussion that provides an analysis of the potential effects of implementing the Proposed Action. *Direct effects* are caused by the action and occur at the same time and place. *Indirect effects* are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (i.e., likely to occur within the duration of the project). *Cumulative effects* are the result of the incremental direct and indirect effects of any action when added to other past, present, and reasonably foreseeable future actions, and can result from individually minor but collectively significant actions taking place over a period of time.

This chapter is based on the issues identified in **Section 1.4 Public Involvement and Identification of Issues**. Based on an understanding of the proposal, familiarity of the project area, and analysis of the issues raised in scoping, the following resources are considered in detail in this analysis: recreation, public safety, traffic and parking, cultural resources, wildlife and fish, as well as watershed and soils.

3.1 Recreation

The scope of this analysis extends to winter recreational opportunities on private lands within Pajarito's approximately 751.4-acre operating area on private lands as well as the summer and winter recreational opportunities offered on NFS lands adjacent Camp May Road and Camp May park. The area along Camp May Road and Camp May park has been used for multi-season recreation—including backcountry and cross-country skiing, hiking, and picnicking and group outings—for decades. The Proposed Action has the potential to improve the recreation experience for guests of Pajarito in the long term by enhancing the quality of winter recreation opportunities currently offered at the ski area. Conversely, the proposed project has the potential to temporarily impact the summer recreation experience of users of Camp May Road during the construction phase.

3.1.1 Affected Environment

Forest Service and County Lands (Camp May Park and Camp May Road)

Summer Recreation

There are a variety of summer recreation opportunities offered along Camp May Road on NFS lands. Camp May park is a Los Alamos County park and campground located at the end of Camp May Road, near Pajarito. The park contains a variety of campsites with picnic tables and fire pits as well as a pavilion and pit toilets (Los Alamos County 2019a). The campground and park are typically open and can be rented April through October. The location is a popular destination for both local visitors and tourists for picnicking in the park as well as overnight camping during the spring, summer, and fall. Public and private events, like weddings, also take place at Camp May park.

Currently, Camp May park lacks running water. The closest public source of water is 20 minutes away in Los Alamos. All water must be hauled in by the park's users. This can be inconvenient for day-use and overnight guests to Camp May park.

Camp May Road itself provides access to a variety of multi-use trails for hiking and mountain biking, including the *Camp May Road Trail*, the *Pajarito Nail Connector*, *Gabriella*, *Aspenola Loop*, and the *Canada Bonita Meadow* trail. Together, these trails provide a variety of walking, running, and mountain biking opportunities on NFS and DOE/NNSA lands adjacent to the project area. They are frequently used by mountain bikers and hikers as well as local visitors who use them for trail running and walking their dogs. These trails also provide access to the network of mountain biking and hiking trails located on Pajarito's private lands. Mountain bicyclists often shuttle a vehicle up to Pajarito to ride their trails and then ride down the *Pajarito Canyon Trail* back to West Jemez Road. Other users can park adjacent the intersection of West Jemez Road and Diamond Drive, directly east of the fire station, and walk, run, or bike along the *Gabriella* trail to the rest of the NFS trail network adjacent Pajarito. Altogether, Camp May Road provides direct and indirect access to a variety of multi-use trails during the summer. The majority of trail use occurs during the spring, summer, and fall (April to October); however, use of these trails can be interrupted by wildfires that occur in the area. Refer to **Section 3.2 Public Safety** for a discussion of wildfire occurrence in the project area.

Hunting, subject to state laws and regulations, is also an allowable use of NFS lands and is popular on the SFNF. The Forest Service has the ability to limit hunting within National Forests and Grasslands; however, most of the NFS lands adjacent the project area are open for hunting. The major game bird and waterfowl species include dove, quail, grouse, and Merriam's turkey. Hunting is not permitted on private lands at Pajarito and hunters must adhere to legal setbacks for discharging firearms in proximity to public roadways.

Private Lands (Pajarito Mountain Ski Area)

Snowmaking

Pajarito currently has the ability to make snow on approximately 40 acres of terrain. Approximately 15 acres of coverage is provided by fixed snowmaking guns while the remaining 25 acres is provided by portable equipment. Snowmaking typically begins in mid-November and continues until the snowmaking water available to Pajarito is depleted. Trails that receive snowmaking include *Lone Spruce*, *Bruce's Boulevard*, *Beginner's West*, and the trail connection to the Aspen Chairlift (Pajarito 2019). The snowmaking system provides coverage for top-to-bottom beginner and intermediate trails as well as key circulation routes and areas for chairlift access.

While Pajarito may have the infrastructure to make snow in these locations and has in the past, the ski area is typically limited by snowmaking water availability. Snowmaking water is stored in the infiltration gallery-based Camp May Water Tank #1 and the snowmaking reservoir. Once the Camp May Water Tank #1 is 75 percent full, Pajarito can pump the overflow to their snowmaking reservoir. However, the existing snowmaking water system is limited by the collection capacity of the infiltration gallery, snowmelt, and rainfall. Because the primary function of this water collection system is to provide water for fire suppression, there is typically little-to-no water left over for snowmaking in years that wildfire occurs. In addition, low snow and low rainfall years can result in minimal water in the snowmaking reservoir, even if a wildfire has not occurred that year. Under these circumstances, Pajarito is extremely limited in their ability to make snow. Pajarito has only been able to produce the full 40 acres of

snowmaking once between the years of 2014 and 2019. In 2018, there was no water available in the snowmaking reservoir and snowmaking was not performed.

Due to insufficient water availability for snowmaking, there are often delays in terrain openings, early trail closures, and other challenges associated with inadequate snow coverage particularly in the early and late parts of the season. Guests experience inconsistent snow conditions across the mountain, particularly on critical circulation routes, high snow wear areas, and areas with high wind and/or solar exposure. This can result in thin snow patches interlaced with dirt, soft and very wet snow, and rock hazards. Therefore, skiers must navigate the poor snow conditions, which affects skier speeds and patterns and poses challenges for skier circulation. Crowded trails and poor snow conditions can result in skiers colliding or falling on rock, roots, or gravel. As a result of the existing conditions, the recreation experience is hindered for those who use the area, particularly beginners who may have a more difficult time learning to ski on inconsistent snow conditions.

In years with extremely low snowfall and minimal water in the snowmaking reservoir, Pajarito is unable to make any snow. This can result in Pajarito being unable to open on time, open only during certain parts of the year, or close early in the season, hindering the guest experience. Additionally, because recreationists are unable to ski at Pajarito, and are also be unable to ski on the surrounding NFS lands because of the low-snow conditions, they often choose other outdoor recreation activities in the Los Alamos area. This can increase the human impact on other resources of the SFNF, particularly during the freeze-thaw cycle with minimal snow where the soil is more susceptible to foot or bike imprints.

Potable Water

Pajarito currently has one shallow well that delivers 1–1.5 gallons per minute of water to a 70,000-gallon storage tank. The well provides drinking water for the ski area as well as water for the toilets, restaurant, and support facilities like the ski patrol and retail shop areas. During dry years, the well is unable to provide sufficient potable water to the ski area. In addition, because of the tank's location, water pressure is often inadequate. This results in slow running faucets and toilets as well as inadequate water in the restaurant. Filling up cookware to prepare food can take an excessive amount of time due to the low flow and guests using the water fountain to get a drink or fill up their water bottles are also affected. Pajarito typically must monitor the holding tank during extended operational days to prevent running out of water. This detracts from the guest experience for those at Pajarito by increasing wait times for basic amenities, such as restrooms, food, and water.

3.1.2 Environmental Consequences

The Proposed Action would improve skiing conditions, and ultimately the winter recreation experience, by providing reliable and consistent snow coverage on the mountain. As further described in the following paragraphs, changes to the summer recreational experience on NFS lands adjacent the project area would be temporary and negligible overall. Projects included in the Proposed Action may also disrupt recreation use of Camp May Road, Camp May park, and Camp May Trail during construction but would improve the recreational experience of those at Camp May park by providing potable water. There are no anticipated impacts to the recreational experience of users of nearby NFS lands during the winter season.

Forest Service and County Lands (Camp May Park and Camp May Road)

Summer Recreation

Summer recreation along Camp May Road and at Camp May park could be impacted from construction, including the development of pumphouses and installation of water, electrical, and fiberoptic lines. Construction would most likely result in the closure of one lane along a segment of Camp May Road. This could create a backup of traffic along Camp May Road. Individuals who use Camp May Road to access Camp May park or any of the multi-use trails along the road may experience delays in reaching their trailhead or be forced to park farther away due to the construction. Refer to **Section 3.3 Traffic and Parking** for additional detail on traffic impacts.

In addition, users of the trails could also be impacted by potential fugitive dust from construction activities and increased noise from construction and construction traffic. In particular, sections of the *Camp May Road Trail* and the *Gabriella* trail that are in closest proximity to Camp May Road may be subject to increased noise and visual impacts from construction activities as well as potential short-term closure. Due to the distance of Camp May park from the end of the proposed pipeline, users are not anticipated to experience any notable impacts. While construction noise may be heard from Camp May park, this noise would only occur during daytime hours and during construction at the end of the pipeline and would not occur over the full duration of project construction. Overall, the majority of impacts to summer recreation would be temporary in nature and would only occur during the construction phase of the project, which is anticipated to occur during one (or at most two) summer(s). Following construction, experiences on summer trails and traffic are anticipated to return to existing conditions.

One primary beneficial and long-term impact of the Proposed Action is that by providing enhanced fire suppression around the project area, the longevity of recreation along Camp May Road would be improved. By improving Los Alamos County's and other entities' abilities to provide fire suppression in the area, users would be less likely to encounter disruption to recreation the area resulting from wildfires. The Proposed Action would also provide potable water to Camp May park through the proposed pipeline. This potable water would allow users of Camp May park to access drinking water and water for rinsing dishes. Users of Camp May park would no longer have to haul in water themselves. This second beneficial, long-term impact would greatly improve the recreational experience at Camp May park, both for daytime and special event users, as well as overnight campers.

Private Lands (Pajarito Mountain Ski Area)

Snowmaking

The Proposed Action would provide additional water for Pajarito to use for their snowmaking system. The Proposed Action does not include any additional snowmaking coverage or the installation of additional snowmaking infrastructure; instead, the Proposed Action would allow Pajarito to use its existing snowmaking equipment to its full capacity. As discussed previously, during dry years or years where the Pajarito snowmaking reservoir is needed to fight wildfires, Pajarito often does not have enough water produce snow on their full 40 acres of terrain identified for snowmaking. Occasionally, the snowmaking reservoir does not have adequate water to make snow at any point in the year. The Proposed Action would allow Pajarito the opportunity to make snow throughout the season on their entire 40 acres of terrain identified for snowmaking. This improvement in Pajarito's ability to make snow, particularly on early season terrain, beginner terrain, circulation routes, and high traffic areas, would improve the recreation experience for those at Pajarito.

Providing water for consistent snowmaking would allow Pajarito to develop a predictable snow base to supplement natural snow conditions and enhance the recreation experience. Guests visiting Pajarito in the early and late seasons, or in years with below-average snowfall, would encounter better snow conditions and better coverage. Lower-ability level skiers would find easier, firmer snow to learn on and they would not have to navigate areas of poor snow or areas that are void of snow altogether. Circulation routes and high traffic areas would have a higher quantity of snow on them and Pajarito would be able to provide consistent conditions on these trails, ensuring they would remain skiable throughout the season. The additional snowmaking coverage would also improve the safety of those skiing Pajarito by increasing available trails, reducing congestion on each trail, and improving coverage on trails. Overall, skiers at Pajarito would encounter better snow conditions and extended access to the terrain relative to existing conditions in years with low snow. All these expected impacts would benefit the recreation experience of those at Pajarito.

Potable Water

The Proposed Action would also provide consistent, potable water to Pajarito, which would enhance the guest experience by guaranteeing sufficient water for both public and ski resort operations. The added potable water would ensure adequate water supply for restaurant use, operational use for toilets and faucets, and public consumption. Guests would be able to drink water from water fountains and fill water bottles in a normal amount of time and the kitchen wouldn't require excessive time to fill cookware with water. In addition, Pajarito would not need to monitor their holding tank to avoid fully running out of water.

3.1.3 Cumulative Effects

Recreation Opportunities on NFS Lands Adjacent the Project Area

The extent of cumulative impacts analysis for NFS lands includes the area directly adjacent to Camp May park and Camp May Road. There are no impacts to recreation other than minor and short-term inconveniences to users. The surrounding area of public lands is large enough that trail users wouldn't experience measurable impacts. Because there are negligible project impacts to recreation on NFS lands, there would not be cumulative impacts.

Recreation Opportunities beyond NFS Lands

The extent of the cumulative impacts analysis on lands beyond the SFNF boundary includes the Pajarito ski area boundary as well as various Los Alamos County and municipal lands. Past projects have shaped the recreational opportunities at Pajarito, primarily bolstering the winter recreation opportunities at the ski area. In combination with the past projects that have been implemented at Pajarito, the proposed projects would supplement existing winter recreation opportunities by increasing snow quantity and quality through the improvement of snowmaking capabilities at Pajarito. It is anticipated that when combined with the recreation opportunities provided by past projects, the Proposed Action would have a combined beneficial impact on the recreation resource at Pajarito.

Visitors of the area and users of the recreation resource are increasing due to population growth, the natural resources present, and array of dispersed activities that exist in the area. Ongoing projects and visitor management show that this trend is occurring independent of recreation being provided at Pajarito and Camp May Road. While ongoing projects and visitor management work to mitigate the impacts that fall disproportionately on high-use destinations and to balance resource impacts with recreational

opportunities, it is anticipated that additional visitors to the area could create future challenges for management and mitigation of impacts to high-use destinations. In some cases, the improved recreation opportunities within Pajarito may alleviate pressure on high-use destinations by providing alternative opportunities for recreation in a location that is easier to manage due to its developed nature and existing infrastructure. However, when considered cumulatively with the growing visitation to the greater Los Alamos area, it is anticipated that pressure on high-use destinations would increase.

Given the scale of the proposed projects, any increase in visitation associated with the Proposed Action is expected to be negligible. Additionally, due to existing trends in recreation, it is likely that the Forest Service and local governments and organizations would continue to allocate resources to expand recreational offerings and address the management of existing recreation opportunities in the foreseeable future, regardless of whether or not the Proposed Action goes forward.

3.2 Public Safety

The scope of this analysis extends to private lands within Pajarito's approximately 751.4-acre boundary, NFS and DOE/NNSA lands adjacent the project area, and the broader lands across the State of New Mexico. The focus of the analysis is on the prevalence and potential reduction in wildfire occurrence and severity. Like much of the western United States, New Mexico receives the majority of its precipitation in the winter and can experience long periods without precipitation during the spring, summer, and fall seasons. This can result in increased chance of wildfire. Currently, Pajarito's snowmaking reservoir and the Pajarito Water Tank #4 on West Road provide water for fire suppression for the Los Alamos area and statewide. Through additional fire hydrants and more consistent water flow to Pajarito's snowmaking reservoir, the Proposed Action has the potential to increase the fire suppression potential for the project area and the broader state of New Mexico.

3.2.1 Affected Environment

Fire Prevalence and Climate

Nationwide, the average number of annual wildfires has decreased slightly over the last 30 years; however, the number of acres burned annually has generally increased (Congressional Research Service 2019). Every year since 2000, an average of 72,400 wildfires burned an average of 7.0 million acres, which is more than double the average annual acreage burned in the 1990s (3.3 million acres). More wildfires occur in the East, but the wildfires in the West, including New Mexico, are larger and burn more acreage. In 2018, nearly 22,000 wildfires burned more than 7.0 million acres in the West (Congressional Research Service 2019).

Wildfires occur in New Mexico in part due to its climate. New Mexico has a mild, arid or semiarid, continental climate characterized by light precipitation totals, abundant sunshine, low relative humidity, and a relatively large annual and diurnal temperature range (National Climatic Data Center 2019). Average annual precipitation ranges from less than 10 inches over much of the southern desert and the Rio Grande and San Juan valleys to more than 20 inches in the higher mountains. Average annual snowfall ranges from about three inches at southern desert and southeastern plains sites to well over 100 inches at northern mountain stations. It may exceed 300 inches in the highest mountains of the north adjacent to Taos (National Climatic Data Center 2019). Overall, precipitation increases and temperature decreases as elevation increases. With Los Alamos being located at just over 7,000 feet above mean sea level (AMSL), it experiences warm to hot summers and cool, moderately dry winters. Winter

precipitation is generally variable from year to year, with some years experiencing frequent precipitation and others experiencing very limited precipitation. Overall, New Mexico has many sunny days a year, with 75 to 80 percent of the possible sunshine and minimal sunless days (National Climatic Data Center 2019).

These conditions result in a high variety of wildfire prevalence, with a high of over 967,000 acres burned in 2011 and a low 2,700 acres burned in 2004 (New Mexico State Forestry 2019). Accordingly, in 2011, New Mexico ranked second in the U.S. in a comparison of acres burned; in 2013, it ranked fifth (Insurance Information Institute 2019). The remaining years, it has not been ranked in the top 10, reflecting a high variability in the size of wildfires that occur.

Los Alamos has experienced a variety of wildfires over the past two decades. The Las Conchas fire of 2011, for example, burned more than 150,000 acres, required mandatory evacuation orders for Los Alamos, and closed the Los Alamos National Laboratory (LANL) (National Park Service 2015). The Cerro Grande fire in 2000 was one of the closest wildfires to Los Alamos; it burned over 48,000 acres, including hundreds of homes, and more than 18,000 residents had to be evacuated (US General Accounting Office 2000).

This wildfire prevalence and severity is greatly influenced by both the weather and climate of New Mexico; however, it is also influenced by the availability of fire suppression and water sources across the state.

Fire Suppression

Fire suppression is undertaken by the federal government on federal (NFS and Bureau of Land Management) lands, the New Mexico State Forestry department on state lands, and typically by municipalities on municipal and private lands, although jurisdiction typically changes based on the severity of the fire. Fires (both residential and wildfires) within and adjacent to Los Alamos are typically fought by the Los Alamos Fire Department (LAFD), although depending on the size, state and/or federal firefighting resources may be involved. Firefighting water sources across the state include a variety of reservoirs and hydrants systems, with the hydrants typically located in more developed areas. In the remote areas of the state, firefighting is reliant on on-the-ground efforts by firefighters and hotshot crews as well as water and fire retardants dropped by firefighting helicopters and air tankers. These helicopters fill up large buckets to drop water on fires using the reservoirs around the state.

As previously discussed, Pajarito and Los Alamos have been impacted in recent history by the Las Conchas and Cerro Grande fires. Fire suppression is provided to Los Alamos by fire hydrants and water pipelines that traverse the town. Because the town draws its water from groundwater wells, there is adequate water for fire suppression within the town. Beyond the limit of where fire hydrants are available (including Pajarito, Camp May Road, and the land surrounding Los Alamos), fire suppression is limited to water that is dropped by helicopter and/or sprayed by fire trucks if they can reach the area. The existing snowmaking reservoir at Pajarito and Los Alamos Reservoir are both used to fight wildfires by firefighting helicopters that fill up their buckets at the reservoir. While the Los Alamos Reservoir generally has an adequate water supply, as **Section 1.2 Purpose and Need for the Proposed Action** discusses, there is limited supply to this reservoir and, in dry years, the snowmaking reservoir never becomes full. In addition, in years when the snowmaking reservoir is used to fight a wildfire in the spring, there is very limited water available across the rest of the summer and fall. This limits the ability of firefighting helicopters to use the reservoir as a source of water, creating a scenario in which the severity

of a wildfire in the nearby area could escalate rapidly. In addition, there is limited fire suppression along Camp May Road because it lacks permanent water infrastructure and fire hydrants. As a result, there is limited firefighting capacity along this road despite its proximity to Los Alamos.

3.2.2 Environmental Consequences

Climate and Fire Prevalence

The Proposed Action would have no effect on the climate of Los Alamos and would, therefore, not influence the impact climate has on wildfire prevalence and severity. In general, powerlines are a potential ignition source and can both impact fire prevalence and be impacted by fire occurrence. Allowing for the overhead powerline to eventually be installed below ground would both remove the line as a potential ignition source as well as improve the resilience of the electrical network should a fire occur in the area. The Proposed Action would also not directly impact fire prevalence because it would not impact typical ignition sources of wildfires (lightning, powerlines, equipment, smoking, etc.). However, as discussed in the following section, the Proposed Action could reduce wildfire severity by increasing the availability of water to firefighting operations.

Fire Suppression

The Proposed Action would provide a continuous and reliable source of water along Camp May Road and to Pajarito. This would include a pipeline and fire hydrants along Camp May Road and a more reliable source of water for the existing snowmaking reservoir at Pajarito for fire suppression. The LAFD would have access to these fire hydrants for firefighting purposes along Camp May Road and Pajarito and any state and federal firefighting operations would have access to the Pajarito snowmaking reservoir (e.g., any firefighting helicopters would able to fill their buckets at the reservoir). The water supply to the snowmaking reservoir would ensure that there would be adequate water in the reservoir for both snowmaking and fire suppression at all times. In the Los Alamos area, the Proposed Action is anticipated to reduce fire severity through increased water available for fighting fires along Camp May Road and at Pajarito. In addition, the Proposed Action would incrementally add to the water resources available for firefighting at the state-wide scale.

3.2.3 Cumulative Effects

Past and present projects at Pajarito and statewide have generally reduced fire prevalence and severity in New Mexico with updated land management strategies reducing fire risk, improved technology aiding fire suppression efforts, and better monitoring improving response time to wildfires. It is also anticipated that future projects, including changes in land management and improvements in fire-fighting technology, will continue to reduce fire risk across the state of New Mexico. However, this trend is in contrast with the projected increase in wildfire threats that is anticipated to occur by 2050 (States at Risk 2015). While New Mexico has been determined to be relatively prepared for wildfires, wildfire threats and the number of people at an elevated risk of being impacted by a wildfire are projected to increase by 2050. These trends are expected to occur independently of the Proposed Action.

Cumulatively, the Proposed Action is anticipated to incrementally improve the ability of fire-fighting outfits across the state to combat wildfires. However, this increase would be incremental given the statewide scale of current firefighting efforts and climatic trends.

3.3 Traffic and Parking

The scope of this analysis is limited to Camp May Road and West Road, where the Proposed Action would occur. This section describes the existing state of traffic, parking, and access along these roads. Winter traffic, which is primarily driven by Pajarito, would not be impacted by construction, as it would likely only take place during one or two non-winter seasons. In addition, while the Proposed Action is anticipated to improve snow conditions throughout the season at Pajarito (particularly in the early and late seasons) and could increase visitation during these times, these are typically less busy times of the year and the project is not anticipated to measurably impact winter traffic along Camp May Road. Therefore, this analysis is limited to summer traffic along Camp May Road and year-round parking at Pajarito and Camp May Road.

3.3.1 Affected Environment

Pajarito and Camp May park are accessed via Camp May Road, a two-lane road without a center stripe that travels approximately 4 miles from its beginning at West Road to Pajarito. Camp May Road is the only access road to Pajarito and ends at Camp May park. Camp May Road is accessed by traveling along West Road westbound from downtown Los Alamos or from traveling along West Road eastbound from West Road's intersection with SH 501/West Jemez Road. Pajarito and Camp May park are approximately 15 minutes from downtown Los Alamos.

During the summer, overall visitation to the area is lower than winter visitation. Winter visitation ranges between 30,000 and 45,000 visitors, and summer visitation is typically between 4 and 6 percent of winter visitation. During the summer, Camp May Road is used for guests wishing to use Pajarito's mountain biking trails and other mountain biking or hiking on NFS lands, or accessing Camp May park.

Pajarito offers parking primarily in three areas. The Upper Lot, which provides the greatest number of parking spots for Pajarito, is paved and is located directly north of Camp May Road and the main base lodge. The second parking area, the Spruce Lot, is located adjacent to the *Lower Traverse* ski trail and the Spruce chairlift. The Lower Lot is located farther east along Camp May Road and provides access to the Townsight chairlift. Pajarito's three parking lots are currently adequate for existing visitation and there have not yet been any instances where parking cannot accommodate every winter visitor, providing an excess of parking during the summer due to decreased visitation during this time of year.

3.3.2 Environmental Consequences

Under the Proposed Action, traffic delays along Camp May Road and parts of West Road during the summer construction season and a reduction in parking availability, both short- and long-term, due to construction of the booster stations are anticipated. However, these impacts would be negligible overall due to the low traffic volume on Camp May Road during the summer and the overall availability of parking at Pajarito.

The Proposed Action would require construction to install the pipeline alongside approximately half a mile of West Road (from the existing Pajarito Water Tank #4 to the intersection of Camp May Road and West Road) and approximately 3.8 miles of Camp May Road. During this construction period, one lane would be closed alongside the section of road that is being worked on. However, consistent with general construction practices, only segments of road would be reduced to one lane at any one time and at no point in time would the entire road be closed. Construction is anticipated to start at the existing Pajarito

Water Tank #4 on West Road and progress along West Road and up Camp May Road to Pajarito. Users of West Road and Camp May Road could experience delays due to the construction; however, these delays are anticipated to be limited to less than 10 minutes due to the low vehicle traffic that occurs on these roads and the short length of the lane closure. Lane closure would primarily occur during construction hours (typically 8:00 a.m. to 5:00 p.m.). Construction would likely only take place during one or two non-winter seasons and would not impact winter traffic. Overall, the construction of this pipeline is not anticipated to differ greatly from other road construction that occurs over the course of a year on the roads within Los Alamos. Citizens will be able to view the Los Alamos Road Construction webpage (available here: https://www.losalamosnm.us/government/projects/road_construction) for updates on road construction. In general, because the majority of traffic along the road occurs on winter weekends, impacts to traffic and travel along Camp May Road are anticipated to be minimal.

Construction of the pipeline, as well as the booster pump stations, also has the potential to reduce available parking for recreational trails along the road. There are a variety of informal parking areas along Camp May Road for access to trails like the *Aspenola Loop* trail, *Pajarito Nail Connector*, *Camp May Road* trail, and the *Gabriella* trail. In addition, there are a variety of unnamed, multi-use trails that begin at various points along Camp May Road. Construction of the pipeline could reduce the ability of users to park and access these trails. Two parking lots would be specifically impacted: one lot directly to the north of the existing Townsight chairlift and Pajarito's Lower Lot directly east of Camp May Road. Construction of Booster Pump Station #4 would occur in Pajarito's Lower Lot and would result in a temporary reduction in available parking over the summer. Development of this booster pump station would also result in a long-term reduction in parking availability during both the summer and winter as a result of the permanent infrastructure placement. However, some parking would remain available at this location and any potential displaced cars are anticipated to be accommodated by the remaining two lots. Overall, impacts to parking would be short-term and negligible given the excess of parking along Camp May Road and at Pajarito.

3.3.3 Cumulative Effects

The Proposed Action, when combined with past and present development within Los Alamos and at Pajarito, could alter the traffic and parking patterns that exist currently in Los Alamos. However, because the impacts of the Proposed Action are anticipated to be negligible, no cumulative impacts to traffic and parking resources are anticipated.

3.4 Cultural Resources

This cultural resource assessment is mandated by the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires that federal agencies take into account the effects of a federal undertaking on any cultural resource that is included or eligible for inclusion in the National Register of Historic Places (NRHP). Cultural resources are evaluated for significance under four criteria: association with events important in local, regional, or national history (criterion A); association with lives of important historic persons (criterion B); displaying the characteristics of a specific type, period, or method of construction; the work of a master; possessing high artistic value; or being part of an entity whose components lack individual distinction (criterion C); or having yielded, or being likely to yield, information important in prehistory or history (criterion D). For those resources found to be significant under one or more criteria, assessment then occurs for seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Significant resources that maintain a preponderance of the aspects of integrity are

recommended eligible to the NRHP and are considered to be historic properties. Archaeologists analyze effects to historic properties within the proposed undertaking's area of potential effect (APE), and then submit a finding of effect from the SFNF to SHPO for concurrence.

Okun Consulting Solutions prepared the Heritage Resource Survey (Class III) for the Camp May Road Water Pipeline Project (Cultural Report), which is summarized in this document and is available in its entirety on the project webpage (Okun Consulting 2021). This Cultural Report replaces a previous cultural resource reporting document that was developed in 2018, as that document did not include a sufficient APE to analyze all potential effects to cultural resources as a result of the proposed undertaking. The purpose of the current investigation was to identify and evaluate all heritage resources within the APE, including historic districts, archaeological sites, isolated occurrences (IOs), and historic buildings and structures over 50 years in age. All discovered resources were evaluated for their eligibility to the NRHP, and all resources defined as historic properties under the criteria in 36 CFR Part 800 were evaluated for potential effects from the undertaking.

3.4.1 Affected Environment

Discussions with SFNF heritage resource personnel helped define the APE for this undertaking. This APE encompasses all proposed infrastructure, areas of potential ground disturbance, and potential ancillary activities such as equipment staging and access, and it encompasses a much larger area than previously inventoried. Along Camp May Road, the APE averages 250 feet in width, with wider areas included around proposed booster stations and the Camp May Water Tank #2 to ensure that these construction zones include adequate buffer areas. Based on these considerations, the APE encompasses 121.1 total acres.

Archaeologists completed a Class III pedestrian survey of the entire APE. Results included identifying four archaeological sites and two isolated finds within the APE. One historic campground (AR 03-10-06-1946/LA 189784) and two historic masonry culverts (AR 03-10-06-1981/LA 191476 and AR 03-10-06-1982/LA 191477) are recommended not eligible to the NRHP. One prehistoric lithic scatter (LA 199267) is recommended eligible to the NRHP under criterion D. Both isolated finds are recommended not eligible to the NRHP. The SHPO concurred with these eligibility recommendations on October 29, 2021.

3.4.2 Environmental Consequences

As noted in the previous section, one historic property (LA 199267) is located within the APE for the undertaking. All proposed ground disturbance will occur on the northern side of West Road, away from the site. It is recommended that the site location be avoided during project implementation and that the southern side of West Road not be used for equipment staging or vehicle parking. A PDC is included in **Table 3. Project Design Criteria** that requires avoidance of this site and prohibits parking and staging in this area. A finding of no historic properties affected is recommended for the undertaking in accordance with 36 CFR 800.4(d)(1). The SHPO concurred with this recommendation on October 29, 2021.

3.4.3 Cumulative Effects

The Proposed Action, when combined with other past, present, and reasonably foreseeable future actions at Pajarito and Los Alamos, could alter the cultural resources within the project area. However, since no historic properties would be adversely affected because of the Proposed Action, no adverse cumulative effects to cultural resources are possible.

3.5 Watershed and Soils

Additional details of the watershed analysis, including applicable laws, regulations, and policy are described in the 2020 Hydrology Report (Hydrology Specialist Report) (REI 2020). The Forest Plan provides direction for forest-wide and Management Area-specific land management as well as standards and guidelines relevant to the Proposed Action, which are available in the Hydrology Specialist Report. BMPs to avoid or minimize potential negative effects to the study watersheds are also discussed.

3.5.1 Affected Environment

Project Area Watersheds

The Proposed Action would be constructed on lands tributary to two main watersheds: the Los Alamos Canyon watershed and the Canada de Buey-Rio Grande Watershed. Within these two watersheds are two sub-watersheds that contain the Proposed Action: the Twomile Canyon sub-watershed and the Los Alamos Canyon sub-watershed. The Los Alamos Canyon sub-watershed is further divided into two additional sub-watersheds: the Los Alamos Canyon primary sub-watershed and the Pajarito sub-watershed. Therefore, the Proposed Action specifically occurs in three sub-watersheds: the Twomile Canyon watershed, the Los Alamos Canyon primary sub-watershed, and the Pajarito sub-watershed (which is tributary to the Los Alamos Canyon sub-watershed). Refer to Figures A-1 and A-2 in the Hydrology Specialist Report for a depiction of these watersheds.

The Twomile Canyon project watershed is 1,098 acres in surface area and extends from just above 9,800 feet in elevation down to 7,300 feet. Approximately 1.4 miles of the proposed project alignment would be constructed on lands draining towards Twomile Canyon, an intermittent stream. The Twomile Canyon stream channel is approximately 2.5 miles in length; a secondary intermittent stream tributary to Twomile Canyon flows for about 1.2 miles. Vegetation in the Twomile Canyon sub-watershed consists of ponderosa pine and spruce-fir forests, which were impacted by recent fires, along with shrubs, grasses, and forbs.

The adjacent Los Alamos Canyon sub-watershed is 4,528 acres in surface area and spans from the summit of Pajarito at 10,440 feet to 7,200 feet in elevation. Portions of the project alignment are tributary to Los Alamos Canyon, which at its higher elevations is a perennial stream in a deeply incised gorge. An on-channel dam impounds water along this reach of the Los Alamos Canyon, creating the Los Alamos Reservoir. Thus, flows in the intermittent stream below the Los Alamos Reservoir are regulated. Vegetation in this sub-watershed is a mixed conifer forest, with ponderosa pine, white fir, and pinyon juniper trees; aspen trees, deciduous shrubs and grasses were also observed in the project area.

The sub-watershed that specifically drains Pajarito extends for 1,318 acres at the headwaters of the Los Alamos Canyon watershed, within the 4,528 acres of the previously-described Los Alamos Canyon sub-watershed. Forests in this sub-watershed include aspen trees and mixed conifers such as Douglas fir, spruce, and ponderosa pine. The Pajarito sub-watershed drains east to north-facing slopes between the summit of Pajarito at 10,440 feet and 8,900 feet of elevation at the bottom of the Townsight chairlift. No perennial streams were observed within this sub-watershed in October 2019. An intermittent stream locally known as Salamander Gulch flows on a relatively gentle slope across Camp May park and the Resort's base area, then crosses under Camp May Road in a culvert. Below the road, Salamander Gulch joins with other small drainages originating in the ski slopes to form the Los Alamos Canyon stream.

Watershed Condition

The project area was surveyed by Resource Engineering, Inc. in October of 2019. The streams in the project area were surveyed for existing conditions alongside drainage ditches and culverts, vegetation, soils, and ground conditions. **Table 5. Existing Streams** displays a summary description of the various streams that drain the study watershed.

Table 5. Existing Streams

Watershed	Length of Stream Channels (miles)			
	Perennial	Intermittent	Ephemeral	Total
Twomile Canyon	0.00	2.67	2.71	5.38
Los Alamos Canyon	1.69	5.82	11.21	18.72
Ski Area	0.00	2.48	1.07	3.55

Table 6. Study Watersheds – Existing Versus Baseline Conditions displays a comparison of the forested areas between the baseline and existing conditions.

Table 6. Study Watersheds – Existing Versus Baseline Conditions

Watershed	Drainage Area (acres)	Forested Areas		
		Baseline (acres)	Existing	
			(acres)	(% of Baseline)
Twomile Canyon	1,098	1,098	1,017	93%
Los Alamos Canyon	4,528	4,309	3,982	92%
Ski Area Sub-Watershed*	1,318	1,268	979	77%

Water Quantity

Yield of the study watersheds was estimated following the methodologies presented in the WRENSS Procedural Handbook, as updated by Troendle, Nankervis, and Porth (EPA 1980; Troendle et al. 2003). Baseline (or pre-development) conditions in the study watersheds were estimated assuming a fully forested condition for the study watersheds. Existing conditions were estimated based on the vegetation removal associated with construction of roads, infrastructure, and industrial/urban developments that have occurred at the lower elevations of the study watersheds, as well as the ski area development, including ski trail construction and application of snowmaking, that has occurred in the Pajarito sub-watershed. As stated in **Section 1.2 Purpose and Need for the Proposed Action**, the existing source of water supply for snowmaking is insufficient to non-existent in dry years or in years when the snowmaking reservoir is used for fire suppression. For purposes of this analysis, it was assumed that, on a typical average season, the snowmaking reservoir is at 50 percent of its capacity. **Table 7. Water Yield and Average Peak Flow for**

Study Watersheds describes the water yield in acre-feet and average peak flow in cubic feet per second (cfs) for the study watersheds for both baseline and existing conditions.

Table 7. Water Yield and Average Peak Flow for Study Watersheds

Watershed	Baseline Conditions		Existing Conditions		Percent Change from Baseline	
	Yield (acre-feet)	6-Day Average Peak Flow (cfs)	Yield (acre-feet)	6-Day Average Peak Flow (cfs)	Yield (%)	6-Day Average Peak Flow (%)
Twomile Canyon	379	4.1	439	4.4	15.8	7.3
Los Alamos Canyon	3,232	31.4	3,463	33.9	7.1	8.0
Ski Area Sub-Watershed	1,157	10.8	1,303	12.4	12.6	14.8

All three sub-watersheds have seen increases in watershed yield and average peak flow, relative to baseline conditions, with these increases around or below 15 percent.

Water Quality

In compliance with requirements of the United States Clean Water Act, Section 305(b) and the New Mexico Water Quality Act, the New Mexico Environment Department issued its most recent Integrated Water Quality Monitoring and Assessment Report in 2018 (NMED 2018). In accordance with guidance provided by the EPA, the New Mexico Environment Department assigns Fully Supporting, Not Supporting, or Not Assessed attainment to each individual designated use including coldwater/aquatic life, irrigation, livestock water, primary contact, and wildlife habitat.

No identified impaired waters exist in the study watersheds. The Los Alamos Canyon stream and the Los Alamos Reservoir are included in the assessment; the stream segment upstream from the Los Alamos Reservoir has been assigned Category 2, with coldwater/aquatic life; irrigation; livestock watering; and wildlife habitat uses fully supported. The primary contact use has not been assessed. The Los Alamos Reservoir and the stream downstream reach to Los Alamos have been assigned Category 3/3A, which means that there is insufficient data available to make a support determination. Therefore, the streams in the project area for which data is available are all fully supporting for the assessed uses. Refer to the Hydrology Specialist Report for a summary of the streams assessed.

Soils

There are seven soil map units within the proposed Camp May Road pipeline corridor; these are described in the Natural Resource Conservation Service's Web Soil Survey report developed for Sandoval County, Los Alamos County, and the Santa Fe National Forest Area. Soils within the project area are generally rocky, gravelly, or sandy, with some clay loam interspersed throughout. Although some of the soil types within the project area are characteristically found on steeper slopes, grades within the proposed disturbance corridor are generally flat, as the proposed pipeline corridor follows an existing road prism. The acreages of each map unit, as well as the erosion hazard rating corresponding to these soil map units, which occur within the pipeline corridor are listed in the Hydrology Specialist Report. All soils have

moderate to severe erosion hazards and are subject to erosion if vegetation is removed. Approximately 78 percent of the soil within the affected area have a moderate rating with the remaining 22 percent rated as severe.

Water Rights

Los Alamos County owns surface and groundwater rights in the Rio Grande Basin that were originally held by the DOE. In 2001, the DOE transferred 70 percent of the water rights to Los Alamos County and retained the remaining 30 percent. The combined permitted water rights total 5,541.3 acre-feet, with Los Alamos County owning 3,878.9 acre-feet and the DOE owning 1,662.4 acre-feet; Los Alamos County leases the remaining DOE-owned water rights. The source of the water for the majority of these water rights is from groundwater wells drilled into the main aquifer under the Pajarito Plateau, part of the Santa Fe formation. The total water rights of 5,541.3 acre-feet consist of 5,379 acre-feet of groundwater water rights and 162.3 acre-feet of surface water rights. The water rights are permitted for municipal, industrial, and related purposes. In addition, Los Alamos County has entered into a contract with the United States Bureau of Reclamation for 1,200 acre-feet of San Juan-Chama Project surface water; however, there is currently no infrastructure in place to utilize the 1,200 acre-feet of water contracted from the San Juan-Chama Project.

Los Alamos County Department of Public Utilities supplies water to Los Alamos, White Rock, LANL, and Bandelier National Monument. Currently, groundwater supplies all of the potable system; surface water is used for the non-potable system and, along with treated effluent, supplies water to irrigate park areas. Over the period from 1970 through 2016, Los Alamos County diverted 4,511 acre-feet/year on average, ranging from a maximum diversion of 5,328 acre-feet in 1976 to a minimum diversion of 3,391 acre-feet in 2016. Water conservation efforts have resulted in decreased diversions in recent years.

Future water demands were evaluated as part of Los Alamos County's Long-Range Water Supply Plan. Considering projections of population growth, the total demand by the year 2060 was estimated to reach 5,062 acre-feet/year (Stephens and Associates 2018). The Long-Range Water Supply Plan also included a water conservation plan; conservation measures would be implemented over-time, resulting in maximum savings by the year 2060. The Long-Range Water Supply Plan estimates that under this scenario, the maximum demand would be 4,530 acre-feet annually by the year 2030. After 2030 conservation measures would continue to decrease water use resulting in an estimated water demand of 3,973 acre-feet/year by 2060.

3.5.2 Environmental Consequences

Installation of the proposed water pipeline and utility conduits would require disturbance of 20.3 acres of terrain, the vast majority of which would be within currently disturbed areas. Refer to **Section 2.2.1 Proposed Action** for a summary of this disturbance. Overall, no streams or water bodies overlap the proposed pipeline alignment. Additionally, the proposed project would result in reliable and consistent supply of water for snowmaking at Pajarito. Therefore, the full 30.7 acre-feet of reservoir storage would be applied annually as human-made snow on the ski trails with snowmaking infrastructure.

Watershed Condition

Water Quantity

Hydrologic computations completed with the WRENSS model show that, with implementation of the Proposed Action, the study watersheds' water yields and 6-day average peak flow rates would increase by approximately 0 to 0.5 percent relative to existing conditions. These potential changes in water yields and peak flow rates would result from a small acreage of permanent grading associated with the pipeline installation and from the ability of Pajarito to consistently utilize its snowmaking infrastructure. Refer to **Table 8. Water Yield and Peak Flow under Proposed Conditions** below for a summary of changes to water yield and peak flow as a result of the Proposed Action.

Table 8. Water Yield and Peak Flow under Proposed Conditions

Watershed	Water Yield (acre-feet)			6-Day Average Peak Flow (cfs)		
	Existing	Proposed	% Change	Existing	Proposed	% Change
Twomile Canyon	439	439	**0.0%**	4.1	4.4	**0.0%**
Los Alamos Canyon	3,463	3,470	**0.2%**	31.4	33.9	**0.2%**
Pajarito sub-watershed	1,303	1,310	**0.5%**	10.8	12.5	**0.5%**

Water Quality

The primary potential effects to water quality associated with the proposed project would be a potential short-term increase in sediment loading into receiving streams during construction and stabilization of disturbed areas and a potential increase in sediment loading into receiving streams due to increased amounts of surface runoff at Pajarito.

Higher sediment loading into the project area streams could result from an increased surface runoff in the study watersheds; however, as discussed above, the increase in water yield and peak flow in the project area would be minimal. In addition, the PDC outlined in **Table 3. Project Design Criteria** would minimize impacts associated with the Proposed Action. In conclusion, no negative impacts to the water quality of the study watersheds or its receiving waters would result from implementation of the Proposed Action.

Soils

The project would be constructed on soils with a moderate to severe erosion potential; however, these soils are generally located on flat ground adjacent to existing roads. Within the previously disturbed areas adjacent to the existing roads, approximately 20 acres of temporary disturbance would be required to install the water pipeline and utility conduits. PDC outlined in **Table 3. Project Design Criteria**, including the revegetation of disturbed terrain using Forest Service-approved native seeds and the use of erosion and sediment control measures around excavated trench materials, would be implemented during construction to control sediment and prevent it from leaving the excavation sites.

Water Rights

It is estimated that the maximum annual demand of the Proposed Action would be 133 acre-feet/year. This accounts for evaporation losses and conservatively assumes filling the system (Camp May Water Tank #2; 12-inch pipeline; Camp May Water Tank #1; snowmaking pond) once at the beginning of the year, refilling the snowmaking pond and the Camp May Water Tank #1 two times through the summer (assumes a forest fire would deplete the pond and tank twice), and refilling the pond a fourth time at the end of the snowmaking season. Thus, the water demand associated with the Proposed Action would increase Los Alamos County's future water demand to 4,663 acre-feet/year.[1] Los Alamos County-owned water rights are currently sufficient to provide a legal supply of 5,541.3 acre-feet including the 1,662.4 acre-feet leased from the DOE. Therefore, there would be a sufficient legal source to supply the estimated maximum future demand.

3.5.3 Cumulative Effects

The past actions of the development of Pajarito and Los Alamos County, as well as the associated road and urban infrastructure, have increased erosion rates and sedimentation in comparison to undisturbed areas in the project area. However, the small changes to water yield and peak flows expected to occur as a result of the Proposed Action, alongside the lack of impacts to water quality, would be negligible at the cumulative effects scale. Overall, the proposed project would not have a measurable effect on the condition of the watersheds in the project area.

In addition, because impacts to soil resources would be minimized with implementation of PDC for erosion and sediment control, there would be no cumulative impacts to soils as a result of the Proposed Action.

3.6 Wildlife

The following wildlife analysis is a summary of the Biological Evaluation (BE) and Biological Assessment (BA) prepared specifically for this project (Marron and Associates 2018; RME 2020). The BA and BE are contained in the project file. The BA includes detailed information regarding federally-listed threatened, endangered, and proposed (TEP) terrestrial and aquatic wildlife species and their critical habitat, which is habitat that has physical or biological features that are essential to the conservation of the species or that may need special management or protection and that may occur within the project area or could potentially be affected by the Proposed Action. The ESA requires the evaluation of potential impacts to both the species and their critical habitat. Forest Service Region 3 sensitive species and SFNF Management Indicator Species (MIS) whose population viability has been identified as a concern by the SFNF are analyzed in the BE. The following discussion summarizes information specific to the following TEP species: Mexican spotted owl and Jemez Mountains salamander and Region 3 sensitive species: northern goshawk. SFNF MIS are only discussed in the BE contained in the project file.

[1] The Long-Range Water Supply Plan estimates that maximum water demand would be 4,530 acre-feet by the year 2030 (refer to Water Rights to discussion in **Section 3.5.1 Affected Environment** for additional detail). The total water rights of 4,663 acre-feet is a result of the 133 acre-feet per year associated with the Proposed Action being added to the 4,530 acre-feet estimated for the year 2030, which is the maximum demand for the foreseeable future (maximum demands are expected to decrease following the year 2030 due to increased conservation).

Additional species, including migratory birds, mammals, and invertebrates, were considered in the BA/BE but are not discussed in the following paragraphs, as they were determined not to have habitat in the project area or experience any impacts associated with the Proposed Action. Bird and mammal species were eliminated due to lack of habitat in the project area and because the proposed activities associated with the project would not alter or take overwintering areas. Fish species were eliminated because the project would not impact perennial waterways.

3.6.1 Affected Environment

Birds

Mexican Spotted Owl

The Mexican spotted owl is listed as threatened under the ESA and critical habitat for this species was designated in 2004. Critical habitat for this species comprises approximately 8.6 million acres of Federal lands in Arizona, Colorado, New Mexico, and Utah. Critical habitat occurs approximately 4 miles south of the project (Unit SRM-NM-4), but does not occur within the project area. A protected activity center in Los Alamos Canyon is located close to the project area and, in one instance, minorly overlaps the project area; however, the Las Conchas Fire of 2011 greatly impacted this PAC and occupancy of the PAC is not suspected. The breeding and nesting period for the species extends from March through August.

Northern Goshawk

The northern goshawk is a Region 3 sensitive species that is indigenous to the high forest mountains of New Mexico (Ligon 1961). They are most common in northern New Mexico, where they prey on blue grouse and Abert's squirrel. The principal forest types occupied by the goshawk in the Southwest are ponderosa pine, mixed-conifer, and spruce-fir, where it prefers openings with water nearby. This species is regularly observed on Pajarito Mountain during spring, summer, and some winter months and there may be nests in the vicinity (EBird 2018).

Amphibians

Jemez Mountains Salamander

The Jemez Mountains salamander is an endangered species under the ESA. The species lives in the Jemez Mountains in northern New Mexico, in Los Alamos, Rio Arriba, and Sandoval Counties. The majority of salamander habitat is located on Federally-managed lands, including the Forest Service, the National Park Service, and DOE/NNSA, with some habitat located on tribal land and private lands (NMEST 2000). The species has been documented within LANL lands adjacent the project area, as well as in the vicinity of the project area (BISON-M 2020). The Proposed Action partially occurs within critical habitat designated for the species (USFWS 2013a).

The species spends most of its life underground, but can be found at the surface when conditions are warm and wet, typically from July through September during the monsoon season; however, occasional salamander observations have been made in May, June, and October (USFWS 2013). When on the surface, the species usually is found under decaying logs, rocks, bark or moss mats, or inside decaying logs or stumps. The salamander is strictly terrestrial and does not use standing surface water for any life stage. The species forages at night, on a diet consisting of a variety of invertebrates including ants, beetle and moth larvae, spiders, and small snails (NatureServe 2020).

3.6.2 Environmental Consequences

Birds

Mexican Spotted Owl

Designated critical habitat occurs approximately 4 miles south of the project area; therefore, there would be **no effect** on critical habitat for the Mexican spotted owl.

Approximately 0.35 mile of the proposed pipeline would be located within a PAC for the Mexican spotted owl. As previously mentioned, most of the PAC is comprised of Los Alamos Canyon, which was greatly impacted by the Las Conchas fire of 2011. The fire consumed much of the downed woody component, snags, and foliar cover, converting the canyon to highly degraded habitat. Therefore, only marginal habitat for the Mexican spotted owl occurs within the area. In addition, as the Proposed Action takes place directly adjacent to Camp May Road, the project area is lacking the multi-storied, old-growth, and downed woody component required by the species. Overall, no impacts to habitat are anticipated, as the minimal tree removal would be insignificant and discountable, especially when compared to the availability of expansive and more suitable habitat adjacent to the project area. The Proposed Action could reduce fire severity in the project area, which could positively impact habitat for the Mexican spotted owl in the area, but beneficial impacts would likely be minimal, given the existing burnt and degraded nature of the project area.

Project activities would be limited to daytime hours and the area would be undisturbed for night foraging. The project would entail noise impacts associated with trenching, rock excavation, grading, blasting, and tree removal. If construction occurred during the breeding season, there could be noise impacts if any owls were nesting near the area. PDC have been included in **Table 3. Project Design Criteria** to limit construction activities that would exceed 69 decibels and are within 165 feet of the project area to outside of the breeding season (March 1–August 31). This decibel limit has been identified in the 2012 Recovery Plan as the threshold at which the species begins to leave nests and/or roosts (USFWS 2012). Noise would be intermittent, which would constitute a smaller impact compared to continuous, elevated noise. In addition, one season of protocol surveys would be conducted between March and April to verify whether or not a breeding pair of owls is present; should no breeding pair be detected, construction could occur in July of that year. If owls are detected, implementation would not be allowed until after September 1. Four surveys for the Mexican spotted owl were conducted—March 31, May 4, June 10, and June 25—with no detections.

Any impacts to the owl would likely be in the form of project area avoidance and a decrease in prey availability, due to prey species avoiding the area. Ultimately, this impact is minimal, given the availability of expansive suitable habitat that occurs adjacent to the project area. Therefore, the proposed action **may affect, but is not likely to adversely affect** the Mexican spotted owl. Consultation with the USFWS was initiated on March 19, 2020; the USFWS submitted a Biological Opinion in response on July 29, 2020, concurring with the determination for the Mexican spotted owl.

Northern Goshawk

Although this species could nest adjacent to the project area in forested slopes/canyons, no goshawk management areas have been identified by SFNF near the project area. Additionally, no previous season nests were observed during surveys and, for much of the distance of the pipeline alignment, trees directly adjacent are burned and would not be suitable for nesting. The project would result in minimal tree

removal overall, but does pass through more remote locations and could result temporarily in noise and increased human activity during construction; therefore, the Proposed Action may **impact individuals, but is not likely to cause a trend to federal listing or a loss of viability**.

Amphibians

Jemez Mountains Salamander

The majority of the project area occurs within designated critical habitat for the Jemez Mountains salamander. Specifically, it is located within Unit 2, Southeastern Jemez Mountains Unit (USFWS 2013a). In total, the Proposed Action would disturb 12.1 acres of land within critical habitat for the species. Critical habitat for the species totals 90,716 acres and the impact of up to 12.1 acres of critical habitat disturbed by the Proposed Action represents 0.01 percent of the species' critical habitat. Under the Proposed Action, critical habitat could be impacted via soil compaction, trenching, and some tree felling; however, the habitat in the project area is not high quality and the acreage is small when compared to the total amount of critical habitat for the species. Therefore, it is unlikely that the Proposed Action would contribute to measurable degradation or loss of habitat. The additional snowmaking water could provide additional soil moisture in the project area, potentially benefiting Jemez Mountain salamander habitat, but would be minimal given the small increase in runoff relative to existing conditions. In addition, most trenching operations would occur within previously disturbed areas (i.e., adjacent to Camp May Road), where soils are already compacted, and species occupancy is not likely. With implementation of PDC detailed in **Table 3. Project Design Criteria**, including minimizing tree removal and excavation areas, impacts to critical habitat will be lessened. Overall, the Proposed Action **may affect, but is not likely to adversely affect** designated critical habitat for the species and is not likely to destroy or adversely modify critical habitat.

Implementation of the Proposed Action could also result in direct and indirect effects to the species itself. PDC included in **Table 3. Project Design Criteria** have been designed to minimize direct and indirect effects and include having all ground-disturbing activities be conducted during the monsoon season to the extent possible (when the salamanders are more likely to be aboveground and therefore detectable) and having a bio-monitor present to capture and relocate any Jemez Mountains salamanders found during excavation. Refer to **Table 3. Project Design Criteria** for additional detail on conservation measures adopted to reduce impacts to the Jemez Mountains salamander.

Direct impacts could include disturbance to and removal of individual organic cover objects during trenching and grading, changes in the distribution of soil moisture from construction, areas of soil compaction associated with tank installation, and more. Additionally, there may be direct impacts such as occasional injury or death resulting from crushing during excavation or grading. If work occurs outside of the monsoon season, salamanders that are residing underground and cannot be visually detected by the bio-monitor could also be injured or killed. Indirect effects also include disruption of normal behavior patterns, such as breeding, feeding, and sheltering, during instances of the relocation of an individual salamander by the bio-monitor.

Harassment, injury, or mortality of an ESA listed species is defined as a "take;" when take occurs as a result of activities that are otherwise legal, the USFWS has the ability to issue an "incidental take permit." The multi-month nature of this project necessitates that incidental take be quantified based upon habitat disturbance. Incidental take of habitat will not exceed 21 acres throughout the life of the project, such that any monthly take would not exceed 50 percent of the total project take (so a single month of take would

not exceed 11 acres). In addition, the take would not include more than 12.1 acres of salamander critical habitat. Given that the current number of salamanders per acre in the project area is unknown, it is difficult to estimate direct individual take based on figures of habitat take. Further quantification of the type of impact or take based on specific project components is described in the BA prepared for this project (RME 2020). As discussed in the following paragraphs, the USFWS has determined that the level of anticipated take is not likely to result in jeopardy to the species.

Further, it is likely that there is relatively low to moderate presence of the Jemez Mountains salamander in the project area, due to the low habitat quality discussed in the previous paragraphs. Therefore, impacts of take to individual Jemez Mountains salamanders would also be limited and would not be likely to contribute significantly to the species decline or jeopardize the continued existence of the Jemez Mountains salamander.

The Proposed Action, therefore, **may affect, and is likely to adversely affect** the Jemez Mountains salamander. Formal consultation with the USFWS for Jemez Mountain salamander was initiated on March 19, 2020, with a formal Biological Opinion response on July 29, 2020. Based on the fact that the Proposed Action would disturb approximately 12.1 acres of land within salamander critical habitat and that this is approximately 0.01% of the entire designated critical habitat, the USFWS found that the Proposed Action is not likely to jeopardize the continued existence of the Jemez Mountains salamander nor adversely modify or destroy its critical habitat.[2]

3.6.3 Cumulative Effects

The following past, present, and reasonably foreseeable actions on federal and non-federal lands in the general project area have been identified as relevant from a cumulative effects context: 1) general, small-scale forest health improvement projects (i.e., thinning, developing slash piles, etc.) around the project area; 2) wildfire occurrence; and 3) population growth and increased recreational use of the SFNF and Pajarito. Past, current, and future forest health projects have improved and will continue to improve habitat for a variety of species. Wildfire has negatively impacted habitat for some species, like the Mexico spotted owl, but improved conditions for other species.

In the past and present, residential and commercial expansion and development, along with increased human recreation, has fragmented habitat and/or decreased the effectiveness of available habitat for all species discussed in this analysis. Small ski area improvement projects on private lands near the Pajarito base area could result in some degradation of wildlife habitat; however, these areas are already subject to high levels of human presence and are considered marginal habitat for many wildlife species, including Jemez Mountains salamander and the Mexican spotted owl. Overall, these projects would primarily result in temporary displacement of wildlife from construction areas, as they are subject to high levels of year-round use by Pajarito guests and maintenance personnel. Although minor direct and indirect impacts would occur to some of the TEP and Region 3 sensitive species, none of these impacts would be significant or lead to a downward trend in viability across the planning area. However, the Proposed Action would contribute to an incremental loss of habitat for some of the evaluated species and would result in adverse impacts to the Jemez Mountains salamander. In the context of the salamander, increased

[2] To jeopardize the continued existence of means to "engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR § 402.02)

human presence along the roadway due to population growth and increasing recreational use is occurring Forest-wide and on private lands near the project area, and has potential to alter or increase the impact human activities have on habitat conditions that support wildlife populations, including Jemez Mountains salamander, such as reducing the size and effectiveness of suitable habitat. However, development of mitigation and/or design features, would minimize long-term cumulative impacts.

Chapter 4. Consultation and Coordination

4.1 Preparers

Table 9. Forest Service Interdisciplinary Team, **Table 10. Department of Energy Staff**, and **Table 11**. **Consultant Team** detail those who participated in initial scoping, were members of the ID Team, DOE/NNSA staff, Consultant Team, and/or provided direction and assistance during the preparation of this EA.

Table 9. Forest Service Interdisciplinary Team

Team Member	Project Responsibility
Debbie Cress	Forest Supervisor, Deciding Officer
Sandy Imler-Jacquez	Española Ranger District, District Ranger
Bjorn Fredrickson	Public Services Staff Officer, Team Leader
Lynn Bjorklund	Recreation Specialist
Liz Cutright-Smith	Assistant Forest Archaeologist, Cultural Resources
Daryl Ratajczak	Biologist, Wildlife
Heidi Klingel	Hydrologist, Watershed

Table 10. Department of Energy/National Nuclear Security Administration Staff

Team Member	Project Responsibility
Theodore Wyka	DOE/NNSA Manager, Deciding Officer
Cassandra Begay	Program Manager, Utilities and Sustainability
Kristen Dors	NEPA Compliance Officer and Biological Resources
Charles Pergler	NEPA Support Contractor for DOE/NNSA
Stephanie Loyd	Real Estate Contracting Officer

Table 11. Consultant Team

Team Member	Organization	Project Responsibility
Ash Smith	SE Group	Project Manager
Scott Prior	SE Group	Assistant Project Manager
Tyler Ford	SE Group	Environmental Analyst

4.2 Agencies Contacted

The following government agencies were contacted during the scoping process:

- Center for Disease Control
- Los Alamos National Laboratory
- U.S. Bureau of Land Management
- National Park Service
- U.S. Department of Agriculture
- U.S. Bureau of Labor Statistics
- U.S. Bureau of Reclamation

4.3 Agencies and Organizations Who Commented During Scoping

The following agencies and organizations commented during the scoping process:

- Los Alamos Ski Board
- Pajarito Mountain Ski Area
- Sierra Club

4.4 Tribal Consultation

Tribal involvement and consultation in the NEPA process is dictated by a variety of laws and regulations, including Section 106 of the National Historic Preservation Act (NHPA), Sections 1501.2 and 1501.7 of the CEQ Regulations, Executive Order (EO) 13175 – Consultation and Coordination with Indian Tribal Governments, and Forest Service Handbook (FSH) 1509.13 Chapter 10. In accordance with these regulations, a notification of the proposed project was mailed to the Pueblos of Cochiti, Nambe, Ohkay Owingeh, Santa Clara, San Ildefonso, and Tesuque on February 12, 2018. There are no records to indicate that a response to this notification was received. A letter inviting comments on the draft EA was sent to the Pueblos of San Ildefonso, Santa Clara, and Tesuque on May 18, 2020. A formal invitation to consult on the proposal was mailed to the Pueblos of Cochiti, Nambe, Ohkay Owingeh, Santa Clara, San Ildefonso, and Tesuque on July 7, 2021. A response was received via email from the Pueblo de San Ildefonso on July 13, 2021 indicating that there were no concerns about the proposal. The Pueblo of Tesuque responded via email on July 20, 2021 indicating that they would like to be a consulting party to the proposal. A follow-up field visit to the location of the proposal was conducted with representatives of the Pueblo of Tesuque on September 3, 2021. The monitoring stipulations requested during this meeting are incorporated herein.

Chapter 5. References

Table 12. In-text Citation and Full Reference

In-text Citation	Full Reference
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Table 12. In-text Citation and Full Reference (*cont.*)

In-text Citation	Full Reference
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Table 12. In-text Citation and Full Reference (*cont.*)

In-text Citation	Full Reference
Sandoval County 2019a	Sandoval County Government. 2019a. Email correspondence with Gary Lee Pals II. November 25.
Sandoval County 2019b	Sandoval County. 2019b. Comprehensive Zoning Ordinance. Updated April 2019.
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States at Risk 2015	States at Risk. America's Preparedness Report Card: New Mexico. 2015. https://reportcard.statesatrisk.org/report-card/new-mexico/wildfires_grade. Last accessed December 30, 2019.
Stephens & Associates 2018	Stephens and Associates, Inc. 2018. Long-Range Water Supply Plan, Los Alamos County. Available at https://www.losalamosnm.us/common/pages/DisplayFile.aspx?itemId=14437322.
Troendle et al. 2003	Troendle, C. A., J. M. Nankervis, and L. S. Porth. 2003. The impact of Forest Service Activities on the stream flow regime in the Platte River. Final report submitted to the U. S. Forest Service by MATCOM Corporation. Fort Collins, CO. 50 p. plus Appendices.
USDOE 2017	U.S. Department of Energy. 2017. Programmatic Agreement among the U.S. Department of Energy, National Nuclear Security Administration, Los Alamos Field Office, the New Mexico State Historic Preservation Office and the Advisory Council on Historic Preservation Concerning Management of the Historic Properties at Los Alamos National Laboratory, Los Alamos, New Mexico. https://permalink.lanl.gov/object/tr?what=info:lanl-repo/lareport/LA-UR-17-22581. Implemented on August 2, 2017.
USFWS 2013	USDI Fish and Wildlife Service. 2013. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Jemez Mountains Salamander Throughout Its Range. Final Rule. Federal Register 78:55600-55627.
USFWS 2012	USDI Fish and Wildlife Service. 2012. Final Recovery Plan for the Mexican Spotted Owl (Strix occidentalis lucida), First Revision. Albuquerque, New Mexico, USA. 413 pp.
USFWS 1995	USDI Fish and Wildlife Service. 1995. Department of Interior. Recovery plan for the Mexican spotted owl: Vol. I, Albuquerque, New Mexico.
US General Accounting Office 2000	U.S. General Accounting Office. 2000. Fire Management: Lessons Learned from the Cerro Grande (Los Alamos) Fire. https://www.gao.gov/new.items/rc00257t.pdf. Last accessed December 30, 2019.
USDA Forest Service 1987	USDA Forest Service. 1987. Santa Fe National Forest Plan. USDA Forest Service Southwestern Region. As Amended through Amendment 13 – June 2010. Available at https://www.fs.usda.gov/detail/santafe/landmanagement/planning/?cid=FSBDEV7_021064
Ward and Block 1995	Ward. J.P. Jr. and W. M. Block. 1995. Mexican spotted owl prey ecology. Pages 1–48 in U.S. Fish and Wildlife Service recovery plan for the Mexican spotted owl. Volume II. Albuquerque, New Mexico, USA.

Appendix A.
Resources and Issues Not Carried Forward

The following resource areas have been identified as not being impacted or only minimally impacted by the Proposed Action. Any relevant impacts to these resources, as well as the rationale for dismissal, are discussed in **Table A-1. Resources and Issues Not Carried Forward**.

Table A-1. Resources and Issues Not Carried Forward

Resource Area	Rationale
Air Quality and Climate Change	The Proposed Action would result in a temporary increase in emissions from construction activities and a long-term increase in emissions from increased electricity use from the pumping and snowmaking systems. However, this increase would be negligible and would not meaningfully impact the level of emissions from the broader Los Alamos area. The Proposed Action and associated use of heavy machinery could also temporarily degrade air quality during construction but would have minimal long-term impacts on air quality. Additional detail on impacts to air quality and climate change are detailed in the Air Quality and Climate Change memos that have been prepared for this project.
Visual Resources	The Proposed Action would result in negligible impacts to the visual environment along Camp May Road. The proposed disturbance area for the pipeline would be primarily located within the existing roadway and previously disturbed areas. There would be minimal tree removal associated with the Proposed Action. Following construction, the view along Camp May Road would be similar to pre-project conditions because of the existing road corridor. One additional water tank and four additional booster pump stations would be visible, but would not be vastly different from existing conditions along the road, which includes one water tank and a variety of electrical poles. In addition, the pumphouses and tanks would be painted a Forest Service-approved color to blend into the surrounding landscape.
Noise	The Proposed Action would introduce noise during the construction phase (e.g., noise from construction equipment) on NFS and DOE/NNSA lands along Camp May Road. However, this noise would be limited to one construction season. Long-term noise levels may be increased along Camp May Road as a result of the booster pump stations; however, the pump stations would be enclosed in buildings and would be barely audible (less than 30 decibels outside the pump house). Noise levels at Pajarito are not anticipated to increase because the noise levels would not be greater than what is produced in a wet (full snowmaking coverage) year. Overall, impacts to noise levels on public and private lands along the project area would be negligible.
Lands and Access	The Proposed Action would not impact land use or access patterns in the project area, nor would it directly result in residential/commercial development at Pajarito and adjacent area. During the public scoping period, commenters expressed concern over the project increasing the likelihood of commercial development at Pajarito. While there is no development currently proposed at Pajarito, detail was added to the *Lands and Access Memo* to describe the separate processes and public involvement governing any potential development in the area.

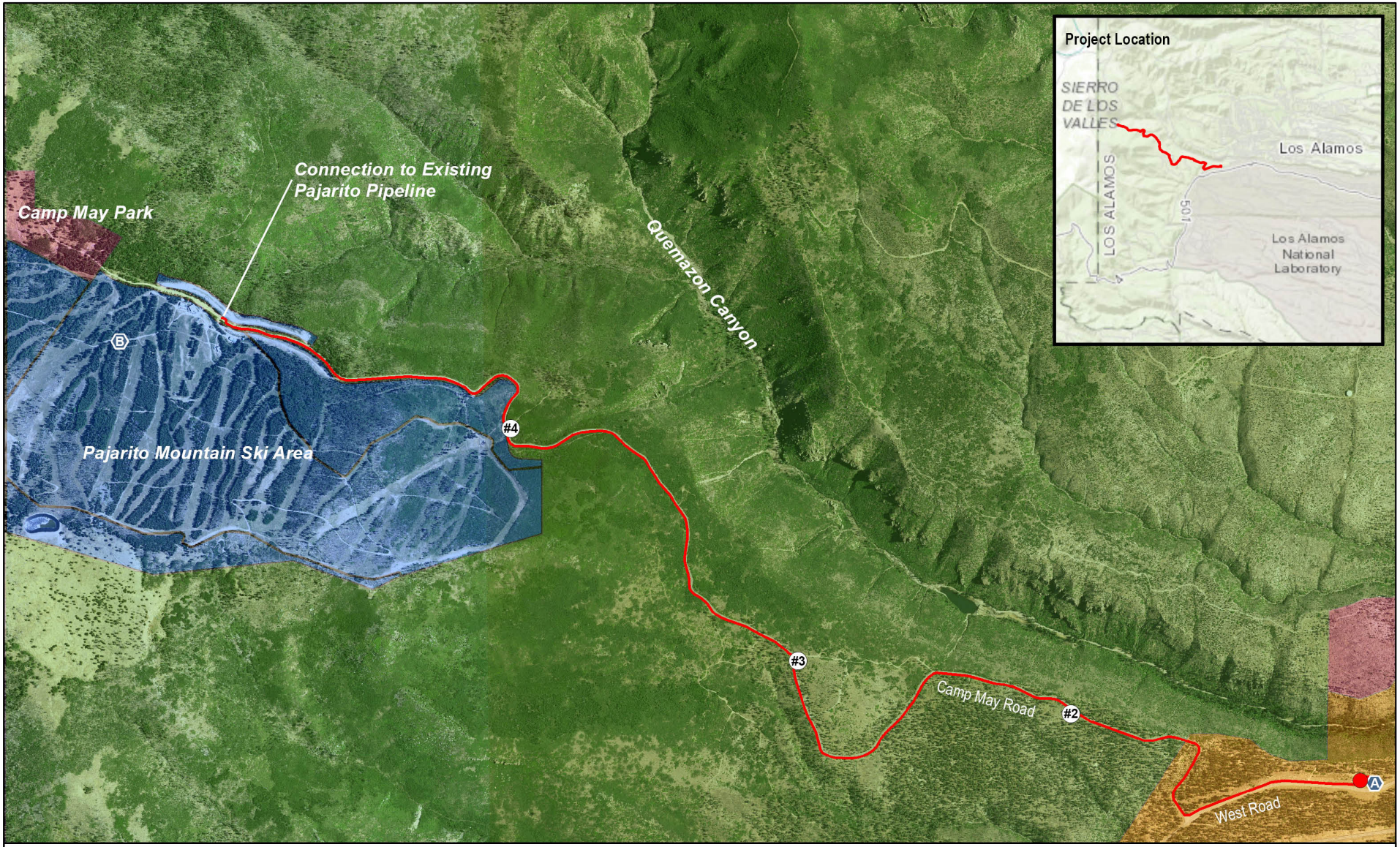
Table A-1. Resources and Issues Not Carried Forward (*cont.*)

Resource Area	Rationale
Wetlands, Floodplains, and Riparian Areas	No wetlands, floodplains, or riparian areas have been identified on Federal lands within the project area. A small wetland seep was identified along Camp May Road. This seep is expected to be temporarily impacted from the utility line installation; however, this disturbance would be short-term and, following construction, the area would be revegetated. Prior to construction, the project proponent will acquire all relevant Army Corps of Engineers and State of New Mexico permits.
Botany	Federally-listed TEP plant species have been dismissed from detailed analysis in this EA due to field surveys that either confirmed a lack of habitat within the project area or a lack of presence of the species if suitable habitat existed. Four Region 3 sensitive species were identified to have potential suitable habitat on the SFNF—yellow lady's slipper (*Cypripedium parviflorum* var. *pubescens*), robust larkspur (*Delphinium robustum*), wood lily (*Lilium philadelphicum*), and Springer's blazing star (*Mentzelia springerii*)—but were not observed within or adjacent to the project area during surveys (Marron and Associates 2018). The Proposed Action would not impact Region 3 sensitive plant species; therefore, Region 3 sensitive plant species are not addressed further in this EA. The SFNF has not identified any plant species as Management Indicator Species (MIS); therefore, no additional analysis is required for plant MIS. Noxious weeds and measures to prevent the proliferation of these species are discussed in **Table 3. Project Design Criteria**, as construction activities can lead to the spread and prevalence of noxious weeds within the project area.
Social and Economic Resources	The Proposed Action is not anticipated to create any additional full-time equivalent positions, nor is it anticipated to create any impacts to social resources within the Los Alamos community (county services, school systems, etc.). The project would have short-term economic impacts due to construction-related activities. However, because the construction period would only occur over one summer, economic impacts would be negligible. The Proposed Action is anticipated to improve snow conditions throughout the season at Pajarito, particularly in the early and late seasons, and could draw additional visitation during these times. However, these are historically less busy times of the year and these improvements would not increase the number of peak days that Pajarito experiences. Because the Proposed Action would not increase demand on hotels or ticket sales at peak times, changes to ticket sales, prices, or hotel visitation are not expected. Establishments in the surrounding area may see more consistent business associated with the improved conditions during the early and late portions of the season. The Proposed Action would not directly result in any commercial or residential development and would, therefore, not impact social and economic resources in this context. Refer to the Lands and Access Memo for additional detail on potential development at Pajarito. As discussed in **Section 3.5 Watershed and Soils** and the Hydrology Technical Report, Pajarito will be leasing water rights from Los Alamos County. Because these water rights can be allocated to Pajarito for use without impact to existing water users and future growth, there is no expected change in the price of water for residents. Refer to **Section 3.5.2 Environmental Consequences** for a discussion of anticipated changes to water use.

Table A-1. Resources and Issues Not Carried Forward (*cont.*)

Resource Area	Rationale
Environmental Justice	In 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations to ensure such populations are not subject to disproportionately high levels of environmental risk (59 Federal Register 7629, 1994). Executive Order 12898 provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Executive Order 12898 makes it clear that its provisions apply fully to programs involving Native Americans Since then, Executive Order 14008, signed by President Biden, has articulated a commitment to the issue of environmental justice. This includes the creation of two new White House councils to address environmental justice implementation as well as the future creation of a Climate and Economic Justice Screening Tool by the CEQ.[3] The level of environmental risk to humans is too low to measure since no low income or minority populations were identified as potentially being disproportionately impacted. The Proposed Action would not disproportionately affect low income or minority populations because those portions of populations would still have access to all public lands and dispersed recreation opportunities. Therefore, no environmental justice impacts from the Proposed Action were identified. The Proposed Action is in compliance with Executive Order 12898, as updated by Executive Order 14008.
Geology	Geologic impacts would be limited to small areas of blasting that may be necessary for implementation of the proposed utility trench. No other impacts to geologic resources are anticipated.
Livestock and Grazing	There are no livestock or grazing permits overlapping the project area. Because of this, as well as the short period of construction, impacts to livestock and grazing are expected to be minor or non-existent.
Hazardous Materials	No hazardous materials would be used or stored on site. In addition, the Construction Management Plan detailed in **Table 3. Project Design Criteria** would include a spill prevention for construction equipment.

[3] Executive Order 14008 of January 27, 2021. https://www.energy.gov/sites/default/files/2021/02/f83/eo-14008-tackling-climate-crisis-home-abroad.pdf



Camp May Water Pipeline Project Environmental Assessment

Proposed Action

Existing

- A Pajarito Water Tank #4
- B Camp May Water Tank #1

Proposed

- Pipeline Alignment*
- Camp May Water Tank #2 and Booster Pump Station #1
- Booster Pump Stations #2-4

*Proposed Pipeline is approximately 22,795 feet (4.3 miles) long

Land

- Private
- County
- Department of Energy
- Forest Service

0 1,000 2,000 Feet

SE GROUP